REF DOC 1
GRAY BOX SUBMITTAL DATA

Pinney Neighborhood Library

Madison Public Library – City of Madison

Bid Documents
November 30, 2018

Madison Contract No. 7662

MADISON PUBLIC LIBRARY Foundation
MADISON PUBLIC LIBRARY

REF DOC 1 – GRAY BOX SUBMITTAL DATA
TABLE OF CONTENTS

DIVISION 03
03 50 00 – Precast Shop Drawings (1-31 of 31)

DIVISION 05
05 10 00 – Steel Shop Drawings (1-91 of 91)
05 10 00 – Steel Anchor Bolt & Steel Plate Shop Drawings (1-39 of 39)
05 20 00 – Cold Formed Steel Shop Drawings (1-7 of 7)
05 20 00 – Cold Formed Steel Structural Calculations (1-41 of 41)

DIVISION 07
07 25 00 – Fluid Applied Air Barrier (1-27 of 27)
07 84 00 – Fireproof Caulk (1-4 of 4)

DIVISION 08
08 40 00 – Aluminum Storefront Doors (1-8 of 8)
08 40 00 – Aluminum Storefront Frames (1-13 of 13)
08 40 00 – Aluminum Storefront Glass (1-2 of 2)
08 40 00 – Aluminum Door Hardware Schedule (1-24 of 24)
08 40 00 – Aluminum Storefront Shop Drawings (1-13 of 13)
08 40 00 – Aluminum Storefront Electric Strikes (1 of 1)
08 71 00 – Door and Hardware Schedules (1-67 of 67)

DIVISION 10
10 20 00 – Sign Art E-mail Correspondence (1-3 of 3)
10 20 00 – Exterior Signage Shop Drawings (1-7 of 7)

DIVISION 21
21 00 00 – Fire Suppression Shop Drawings (1-13 of 13)

DIVISION 22
22 40 00 – Domestic Water, West Wing Shop Drawings (1-5 of 5)
22 40 00 – Sanitary, West Wing Shop Drawings (1-7 of 7)

DIVISION 23
23 00 00 – HVAC Shop Drawings (1-15 of 15)

DIVISION 26
26 00 00 – Wall Lighting (1-2 of 2)
26 00 00 – Outdoor Windfall Fixture (1 of 1)
26 00 00 – Exterior Building Lighting Elevations (1-4 of 4)
26 00 00 – Exterior Building Lighting Plan View (1 of 1)

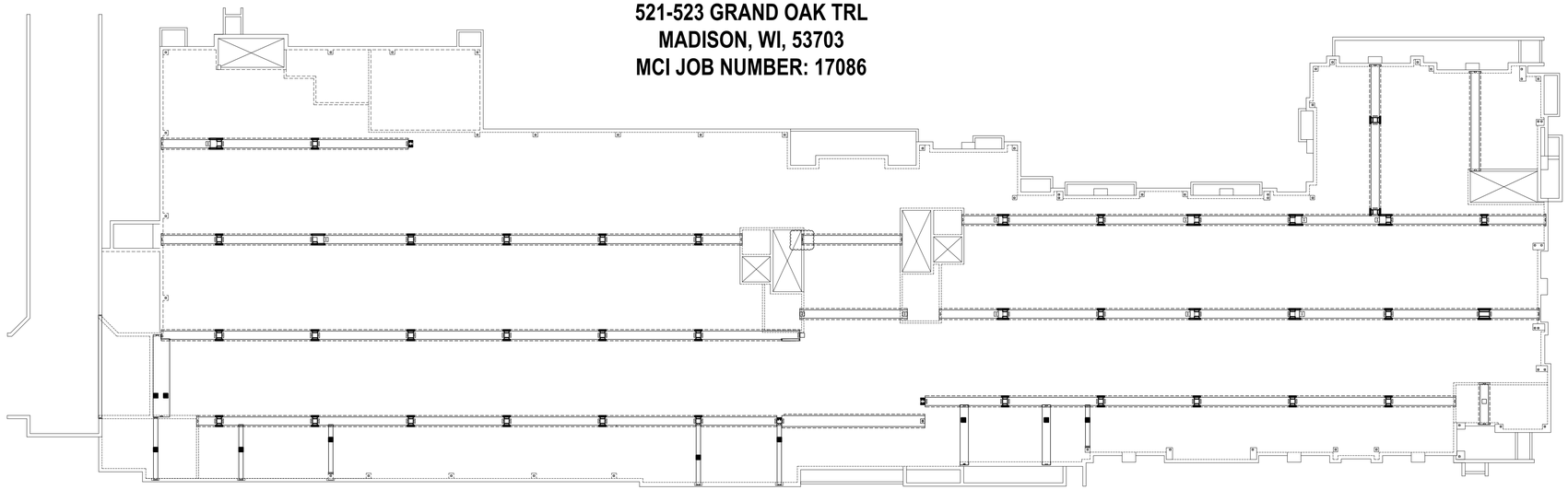
DIVISION 28
28 20 00 – Fire Alarm, Area of Refuge System (1-4 of 4)
28 20 00 – Fire Alarm, Capacity Email Correspondence (1-2 of 2)
28 20 00 – Fire Alarm, Shop Drawings (1-3 of 3)
28 20 00 – Fire Alarm, Data Sheets (1-8 of 8)
28 30 00 – Intercom Card Reader (1-22 of 22)

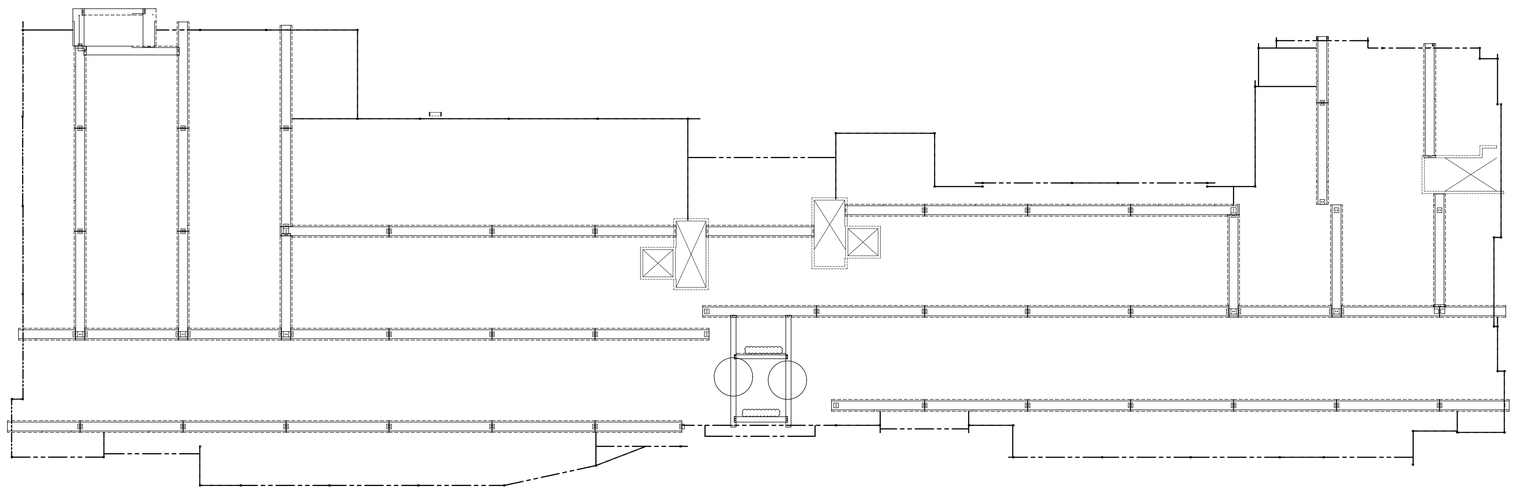
END OF SECTION

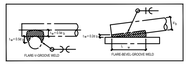
ROYSTER CROSSINGS
521-523 GRAND OAK TRL
MADISON, WI, 53703
MCI JOB NUMBER: 17086

SHEET INDEX:

PC 01	COVER SHEET, DESIGN LOAD CHARTS, NOTES
PC 02.1	1st FLOOR FOUNDATION PLAN - WEST
PC 02.2	1st FLOOR FOUNDATION PLAN - EAST
PC 02.3	2nd FLOOR FOUNDATION PLAN - WEST
PC 02.4	2nd FLOOR FOUNDATION PLAN - EAST
PC 03.1	1st FLOOR PRECAST COLUMN LAYOUT - WEST
PC 03.2	1st FLOOR PRECAST COLUMN LAYOUT - EAST
PC 03.3	2nd FLOOR PRECAST COLUMN LAYOUT - WEST
PC 03.4	2nd FLOOR PRECAST COLUMN LAYOUT - EAST
PC 04.1	1st FLOOR PRECAST BEAM LAYOUT - WEST
PC 04.2	1st FLOOR PRECAST BEAM LAYOUT - EAST
PC 04.3	2nd FLOOR PRECAST BEAM LAYOUT - WEST
PC 04.4	2nd FLOOR PRECAST BEAM LAYOUT - EAST
PC 05.1	1st FLOOR HOLLOW CORE LAYOUT - WEST
PC 05.2	1st FLOOR HOLLOW CORE LAYOUT - EAST
PC 05.3	2nd FLOOR HOLLOW CORE LAYOUT - WEST
PC 05.4	2nd FLOOR HOLLOW CORE LAYOUT - EAST
PC 06 +	PRECAST SECTIONS







NOTE TO GENERAL CONTRACTOR:

CRANE AND TRUCKS NEED ACCESS TO INSIDE OF BUILDING FOR INSTALLATION OF PRECAST BEAMS !!

NOTE TO GENERAL CONTRACTOR:

PLEASE VERIFY ALL ELEVATIONS AND DIMENSIONS!
THE FOLLOWING TOLERANCES MUST BE MAINTAINED DURING CONSTRUCTION. FAILURE TO DO SO MAY INCUR ADDITIONAL PRECAST COST TO THE GENERAL CONTRACTOR.

1. VERTICAL ELEVATION TOLERANCES +3/4"
2. HORIZONTAL DIMENSION TOLERANCES +1/2"

GENERAL NOTES FOR PRECAST BEAM COMPONENTS

DESIGN STRESSES

REINFORCING BARS.....Fy = 60 KSI
STRUCTURAL STEEL
PLATES.....Fy = 36 KSI
STRUCTURAL SHAPES.....Fy = 36 KSI
WELDING ELECTRODE.....E70XX
CONCRETE
PRECAST CONCRETE.....f'c = 6,000 PSI
PRECAST CONCRETE AT STRIPPING.....2,000 PSI

FIRE RATING REQUIREMENTS

FIRE RATING FOR PRECAST COMPONENTS.....1-3 HRS

FIELD SERVICE NOTES	BY MCI	BY GC	REMARKS
PATCH & CLEAN	X		
GROUTING	X		
CAULKING		X	IF REQUIRED
HOLE CUTTING		X	SEE HOLE CUTTING CRITERIA NOTE
BOTTOM SIDE OF PLANK WILL BE EXPOSED			

All technical and business information relating to proprietary ideas, existing and/or contemplated products and services, including; data, designs, documents, and drawings, produced by Mid-States Concrete Industries, are the property of Mid-States Concrete Industries, and contain confidential information submitted in confidence, supplied with the understanding they will not be disclosed to third parties. The aforementioned items may not be, used, copied in whole or in part, reproduced, referenced, forwarded, nor disclosed to others without written consent of Mid-States Concrete Industries for this project or any other.

The precast structural system depicted on these drawings has been designed for the exact loads noted. The precast structural system has not been designed for wheel loads from cranes, vehicles, trucks, emergency vehicles (including fire trucks) or stockpiling of materials in excess of stated live loads.
The precast structural system has not been designed for superimposed erection loads or lateral loads unless specifically noted on these drawings.

Field Preparation:
Contractor and owner are responsible for street barricades, permits, signal men, etc. (If needed).
Seller shall follow its standard OSHA approved fall protection plan.
Access to interior of building for beam, column and hollow core installation to be provided by contractor unless arrangements are made in advance with MCI field superintendent.
Above price is based on crane and truck access to place hollow core directly to the bearing surface from the truck. Any additional arrangements will be addressed as a job extra.

Openings/Hole Cutting Criteria:
Openings shown are for the hollow core engineering.
Cutting by MCI in the field as follows:

1) MCI does not cast in openings during production.
2) Rectangular openings less than 14" in any direction, round openings or coring of any size shall be the responsibility of others.
3) Openings not accounted for during final engineering and before being released for production may result in additional engineering charges.
4) All field cut openings are to be marked out on the hollow core deck by the G.C.
5) MCI is not responsible for field cutting of any openings.

Hollow core Installation Note:
All hollow core must be installed prior to any roof assembly to allow for crane access.
No steel framing above deck until after hollow core installation.

Shop Drawing Review:
These shop drawings shall determine compliance with conditions of the contract for this material.
All material will be scheduled directly to production from these drawings; therefore they should be checked accurately before approval is given.
Any changes after final approval may result in extra charges.

Warning-Disclaimer!:
Water can become trapped in the hollow cores due to exposure to rain or core drilling operations.
If this water freezes, extensive damage may result.
MCI will not assume responsibility for the structural adequacy of the hollow core slabs if such damage occurs.

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

✘ REVIEWED WITH NO COMMENTS
( ) REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA
DATE: 9/10/2018

Request For Information:

1) Holes:
a) Provide size and location of any additional openings not shown thru hollow core

2) Miscellaneous:
a) Verify all precast cantilevers including plank and precast beam at the exterior of the building. All cantilevers had to be scaled as slab extents were not called out on contract drawings
b) Section 14/S4.1 shows a hook bar which must be grouted in the field to achieve the final condition shown. MCI will either provide solid cores in the plant, or this detail will need to be done in the field by others. MCI WILL NOT break out cores in the field to grout these in. If solid cores are to be provided, a plan with dimensions must be supplied to MCI in order to coordinate the cores onto the shop drawings

DESIGN LOAD CHART
(PER S0.0 DATED 02.08.16)

LIVE LOADS:

RESIDENTIAL UNITS	100 PSF
BALCONIES	70 PSF
STAIRWAYS, LOBBIES, COMMON AREAS	100 PSF
LIBRARY	150 PSF
2nd FLOOR CORRIDORS	80 PSF
COMMERCIAL / RETAIL	100 PSF
STORAGE	125 PSF
EXTERIOR ROOF SEE PRECAST PLANK SCHEDULE ON STRUCTURAL DRAWINGS	55 / 75 / 250 PSF

DEAD LOADS:

3" TOPPING (WHERE APPLICABLE)	MAX 37.5 PSF
MISCELLANEOUS AS SHOWN IN PRECAST PLANK SCHEDULE ON STRUCTURAL DRAWINGS	10 PSF

LATERAL LOADS:
CONSIDERED BY OTHERS

TOPPING
0" or 3" MAXIMUM NON-STRUCTURAL TOPPING

FIRE RATING
2 HOUR @ 1st FLOOR
3 HOUR @ 2nd FLOOR (RESTRAINED)

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
F 815.389.2139
msprecast.com

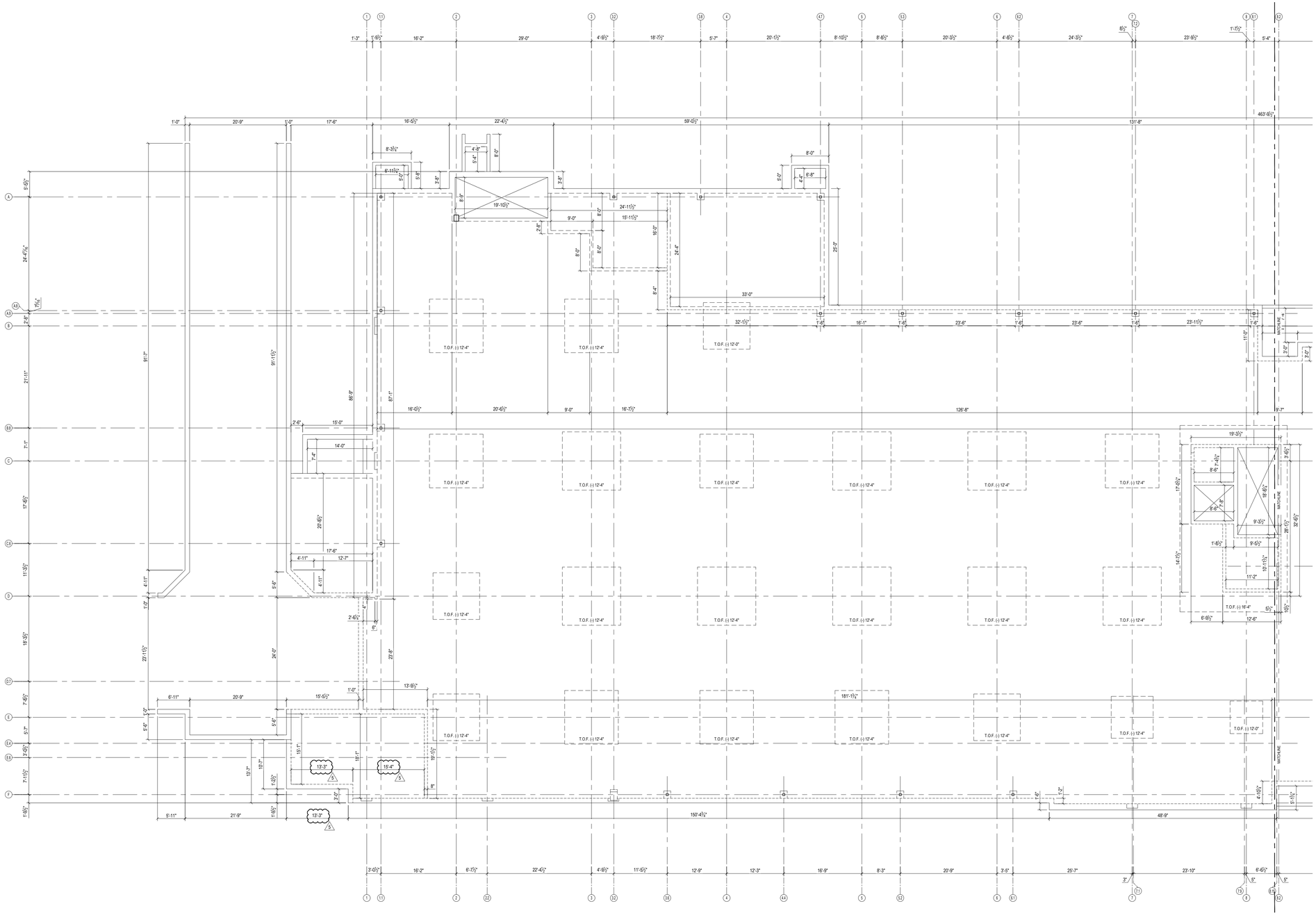
REVISION	DATE	BY	DESCRIPTION
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

TITLE PAGE

PROJECT ENGINEER	BEG	PROJECT LEAD	MJK
PROJECT DESIGNER	BDM	SCALE	N.T.S.
JOB NUMBER	17086	SHEET	PC 001

NORTH



INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
608.756.1072
F 815.389.2339
mspreccast.com

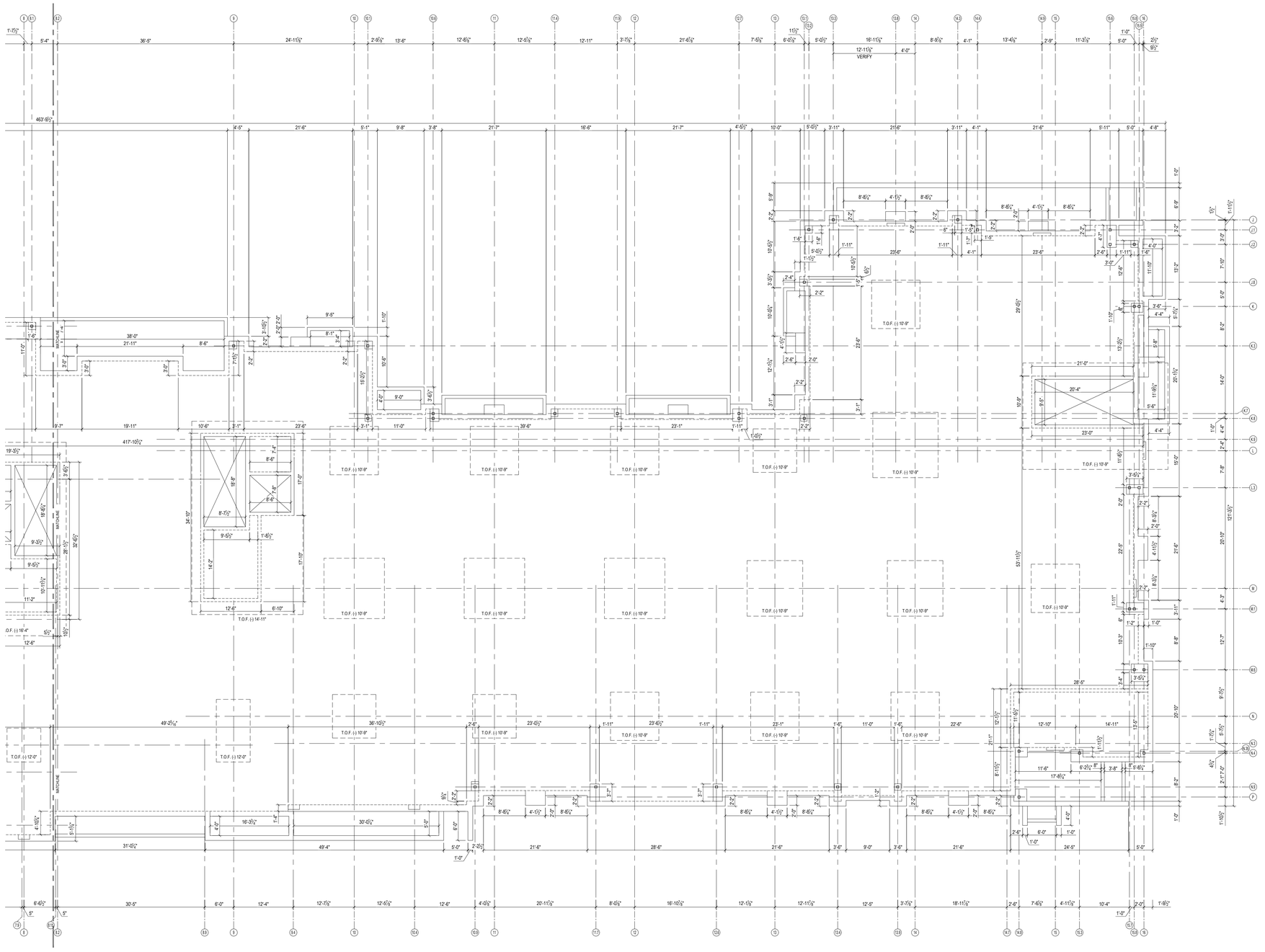
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

1ST FLOOR FOUNDATION PLAN - WEST

JOB NUMBER: 17086
SHEET: PC 02.1



INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1572
800.236.1572
F 815.389.2339
mspreacast.com

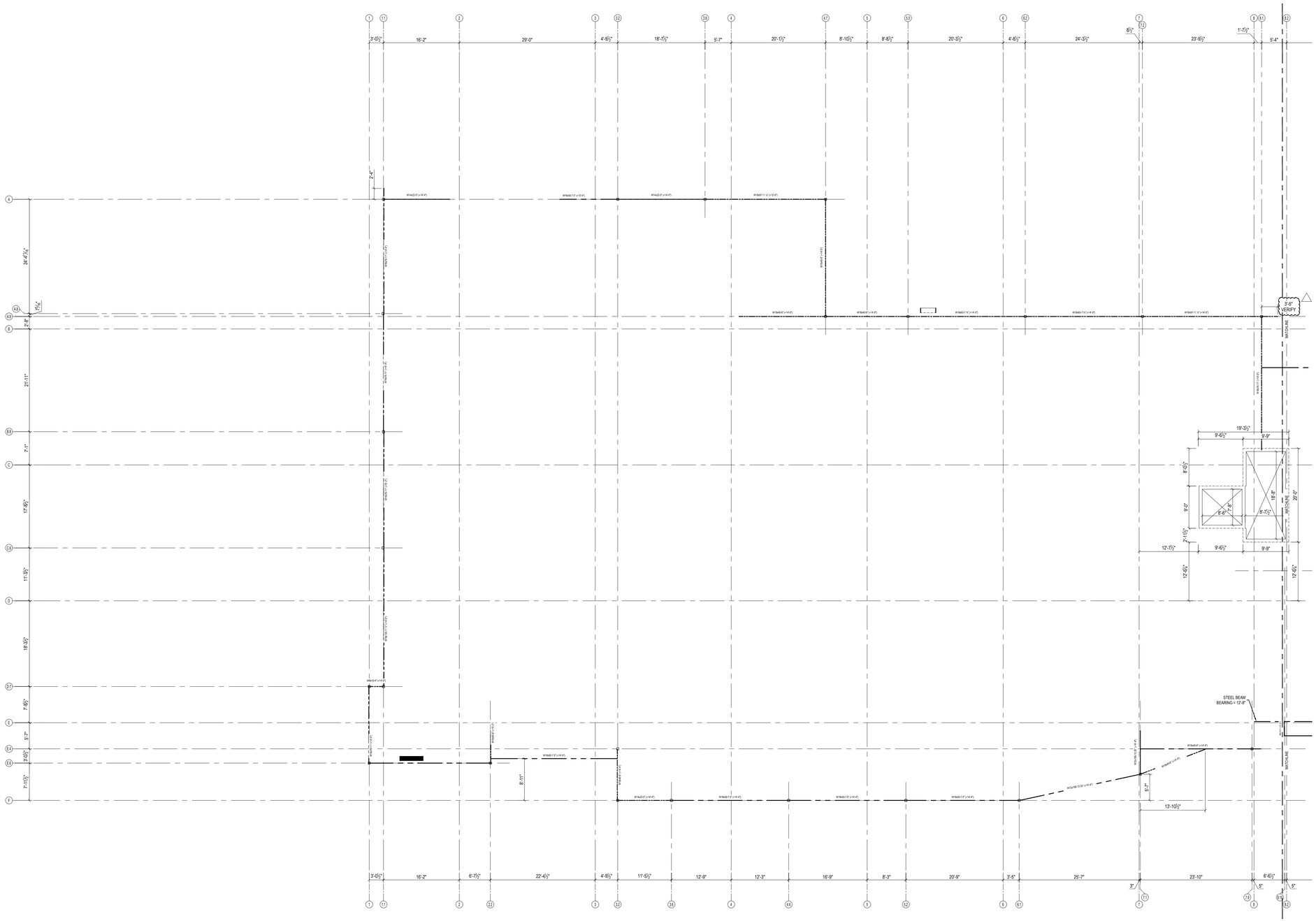
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

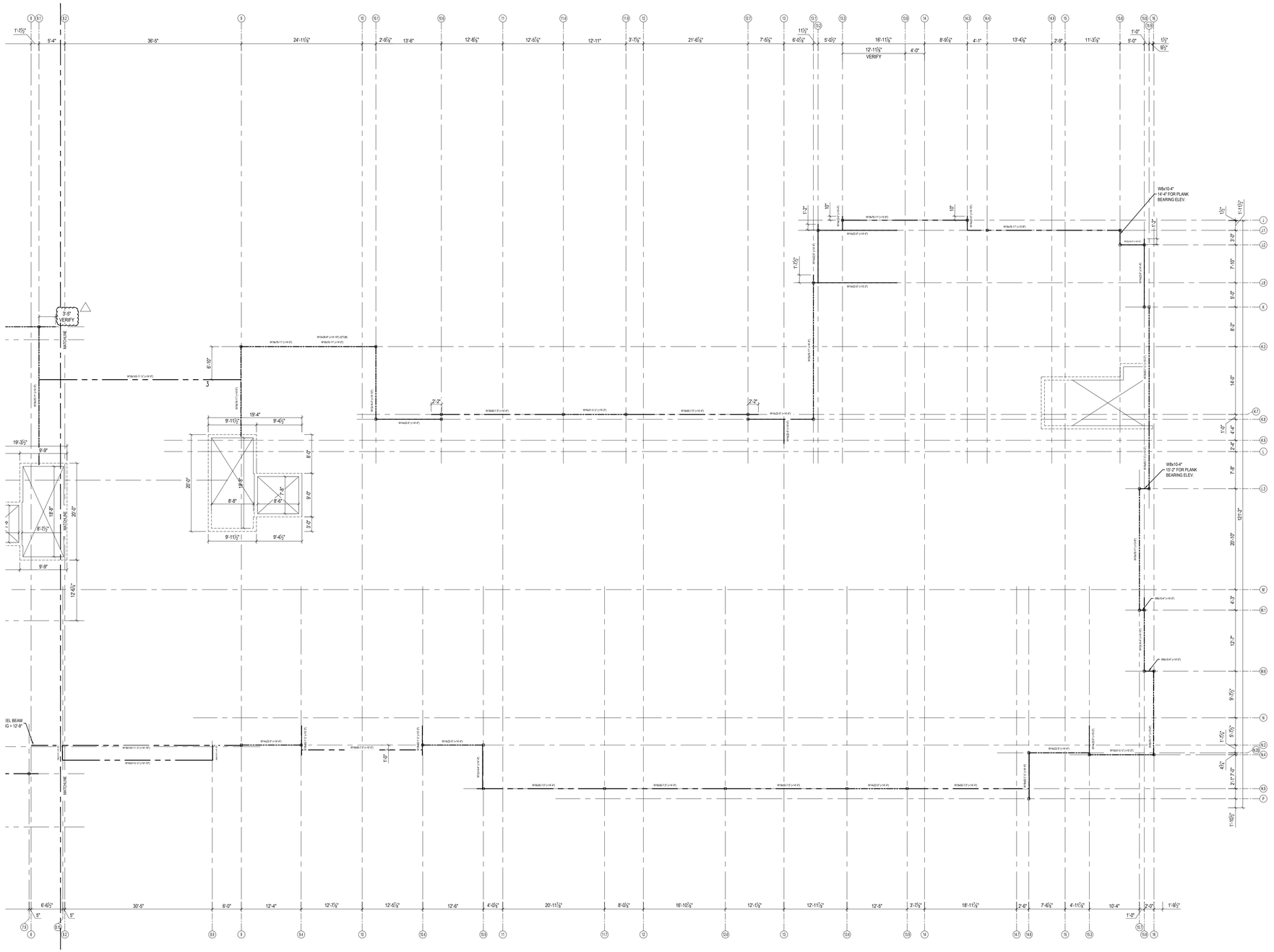
PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

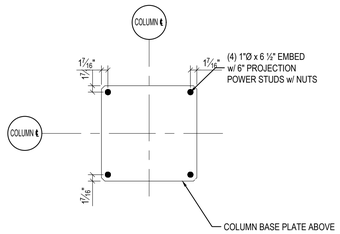
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

1ST FLOOR FOUNDATION PLAN - EAST

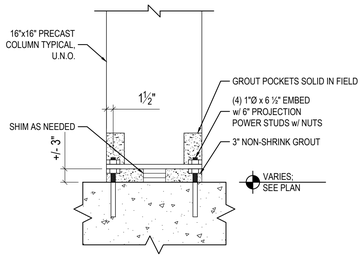
JOB NUMBER 17086
SHEET PC 02.2


3'-0½"
16'-2"
29'-4"
4'-9½"
18'-7½"
5'-7"
20'-1½"
8'-10½"
5'-8½"
20'-3½"
4'-8½"
24'-3½"
6½"
23'-9½"
1'-7½"
5'-4"
2'-4"
W18x50 (T.O.S.=14'-4")
W18x50 (T.O.S.=13'-10")
W18x50 (T.O.S.=13'-4")

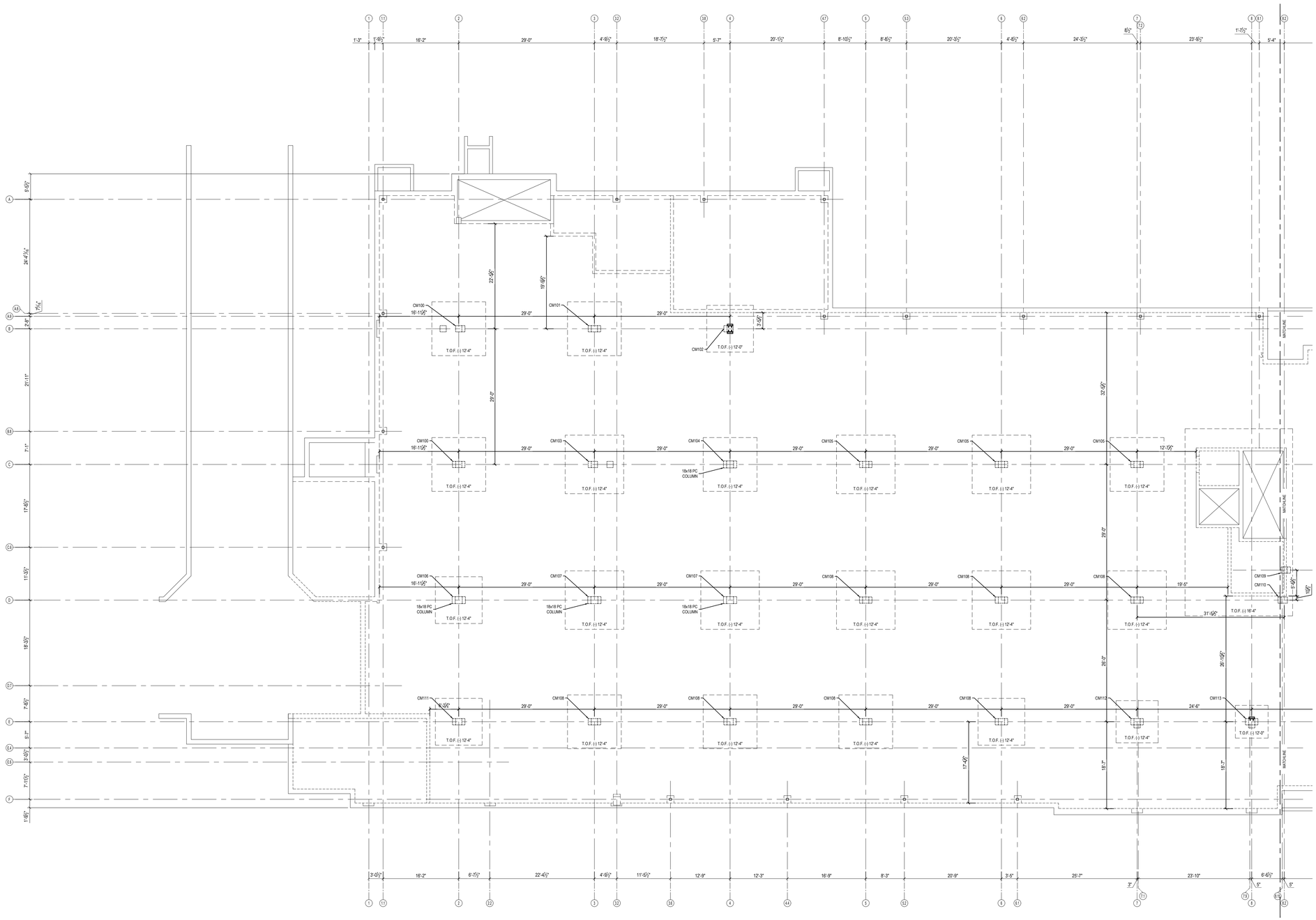

W18x50 (1'-0 1/4" KF)
W18x35 (1'-0 1/4" KF)
W18x40 (1'-0 1/4" KF)
W18x55 (1'-0 1/4" KF)
W18x76 (1'-0 1/4" KF)
W18x86 (1'-0 1/4" KF)
W18x97 (1'-0 1/4" KF)
W18x106 (1'-0 1/4" KF)
W18x119 (1'-0 1/4" KF)
W18x130 (1'-0 1/4" KF)
W18x143 (1'-0 1/4" KF)
W18x158 (1'-0 1/4" KF)
W18x192 (1'-0 1/4" KF)
W18x211 (1'-0 1/4" KF)
W18x234 (1'-0 1/4" KF)
W18x258 (1'-0 1/4" KF)
W18x283 (1'-0 1/4" KF)
W18x311 (1'-0 1/4" KF)
W18x40 (1'-0" KF)
W18x50 (1'-0" KF)
W18x55 (1'-0" KF)
W18x76 (1'-0" KF)
W18x86 (1'-0" KF)
W18x97 (1'-0" KF)
W18x106 (1'-0" KF)
W18x119 (1'-0" KF)
W18x130 (1'-0" KF)
W18x143 (1'-0" KF)
W18x158 (1'-0" KF)
W18x192 (1'-0" KF)
W18x211 (1'-0" KF)
W18x234 (1'-0" KF)
W18x258 (1'-0" KF)
W18x283 (1'-0" KF)
W18x311 (1'-0" KF)
W18x35 (1'-0



TOP VIEW @ ANCHOR LOCATIONS



COLUMN TO FOOTING CONNECTION DETAIL



INSTALLATION OF ALL PRECAST IS TO COMPLY
WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES
CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2339
msprecast.com

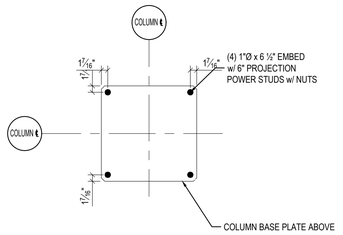
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER	BEG	PROJECT LEAD	MJK
PROJECT DESIGNER	BDM	SCALE	3/32"=1'-0"

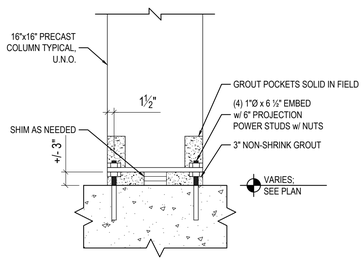
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

1ST FLOOR PRECAST COLUMN LAYOUT - WEST

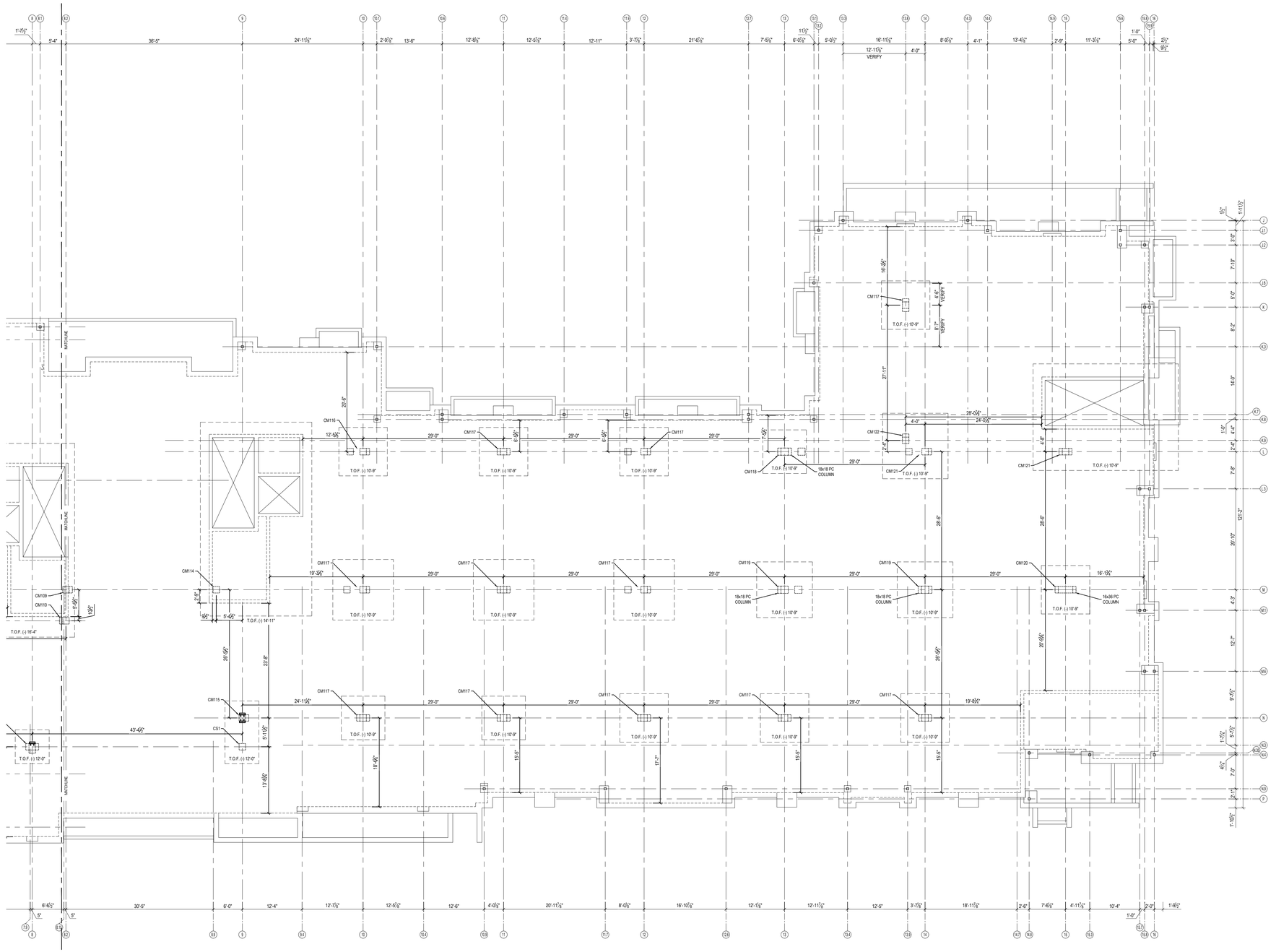
JOB NUMBER 17086 | SHEET PC 03.1



TOP VIEW @ ANCHOR LOCATIONS



COLUMN TO FOOTING CONNECTION DETAIL



INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2339
msprecast.com

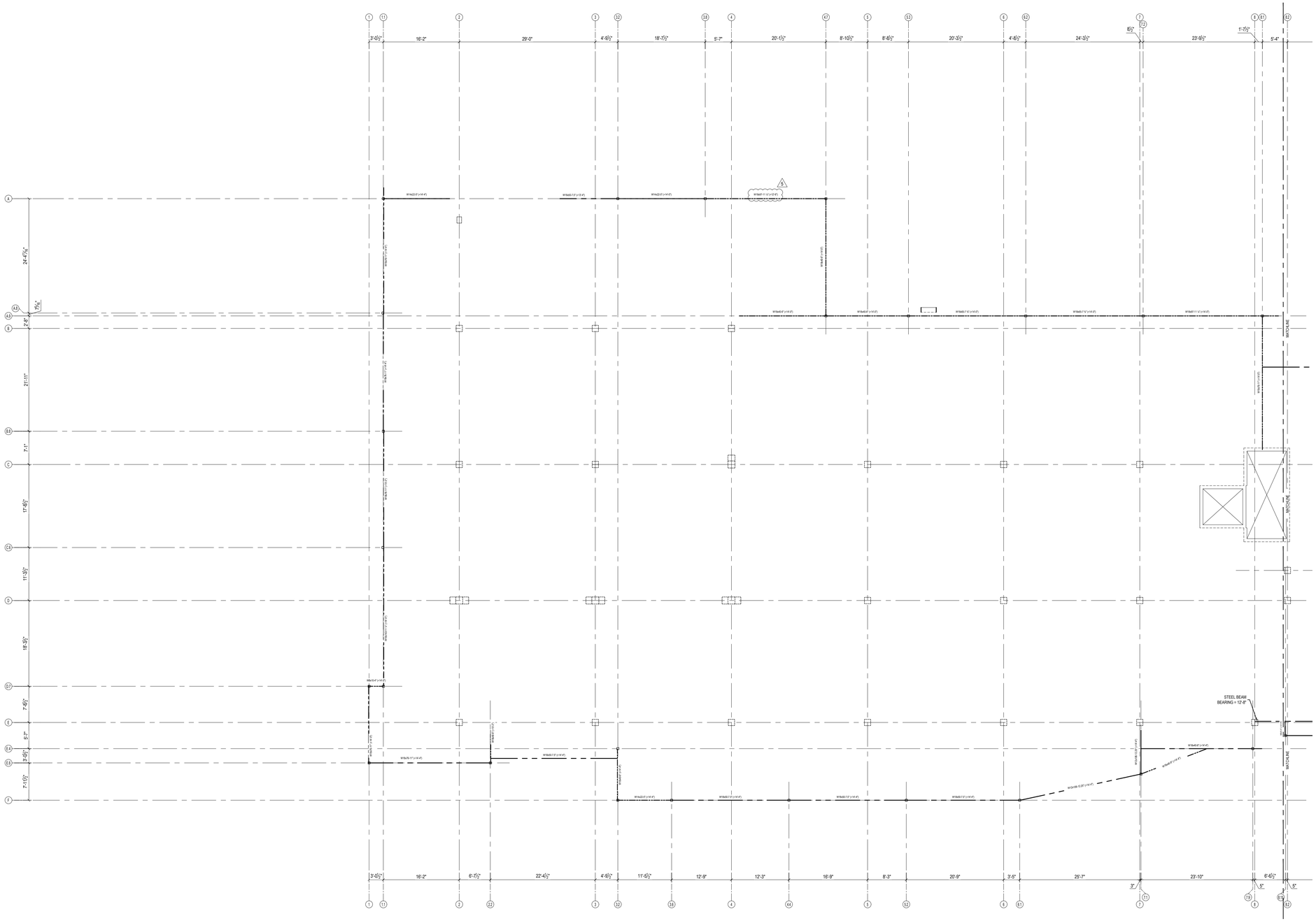
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

1ST FLOOR PRECAST COLUMN LAYOUT - EAST

JOB NUMBER: 17086
SHEET: PC 03.2



INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES

500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080

P 608.364.1072
800.236.1072
F 815.389.2339
mspreast.com

REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

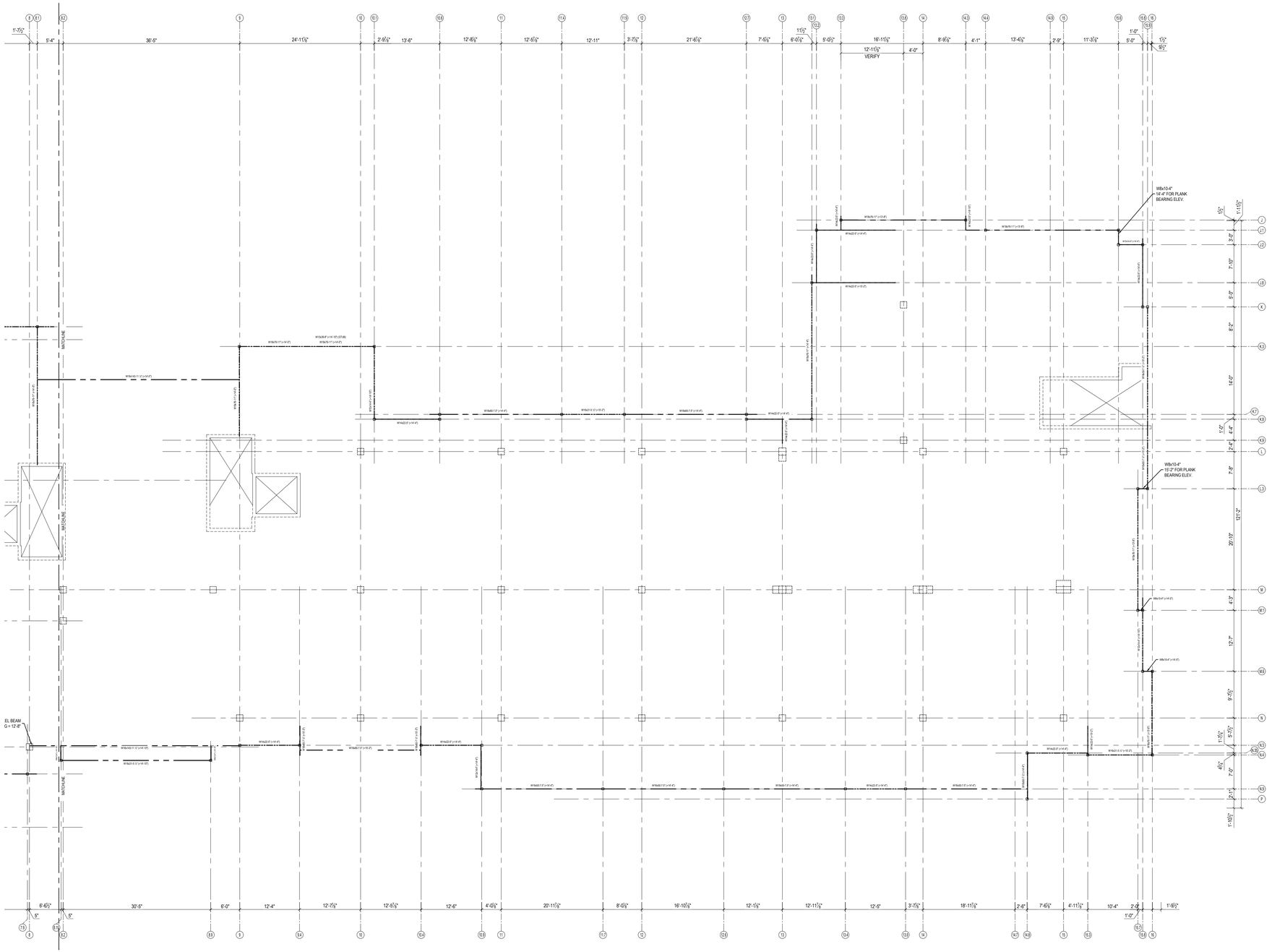
PROJECT ENGINEER	BEG	PROJECT LEAD	MJK
PROJECT DESIGNER	BDM	SCALE	3/32"=1'-0"

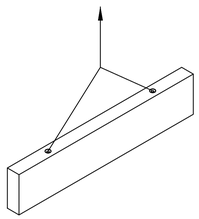
ROYSTER CROSSINGS
LOT 2

521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

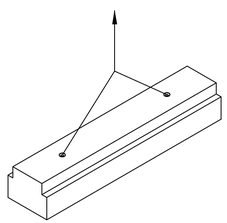
2ND FLOOR PRECAST COLUMN LAYOUT - WEST

JOB NUMBER 17086 | SHEET PC 03.3

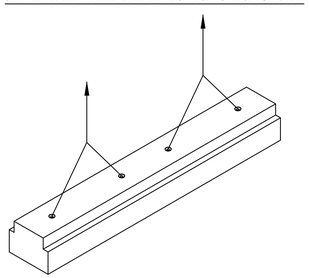

MATCH LINE
MATCH LINE
MATCH LINE
EL BEAM
EL = 12'-8"
W18x76 (11'-0 1/4" x 14'-0")
W18x35 (11'-0 1/4" x 14'-0")
W18x35 (11'-0 1/4" x 14'-0")
W18x35



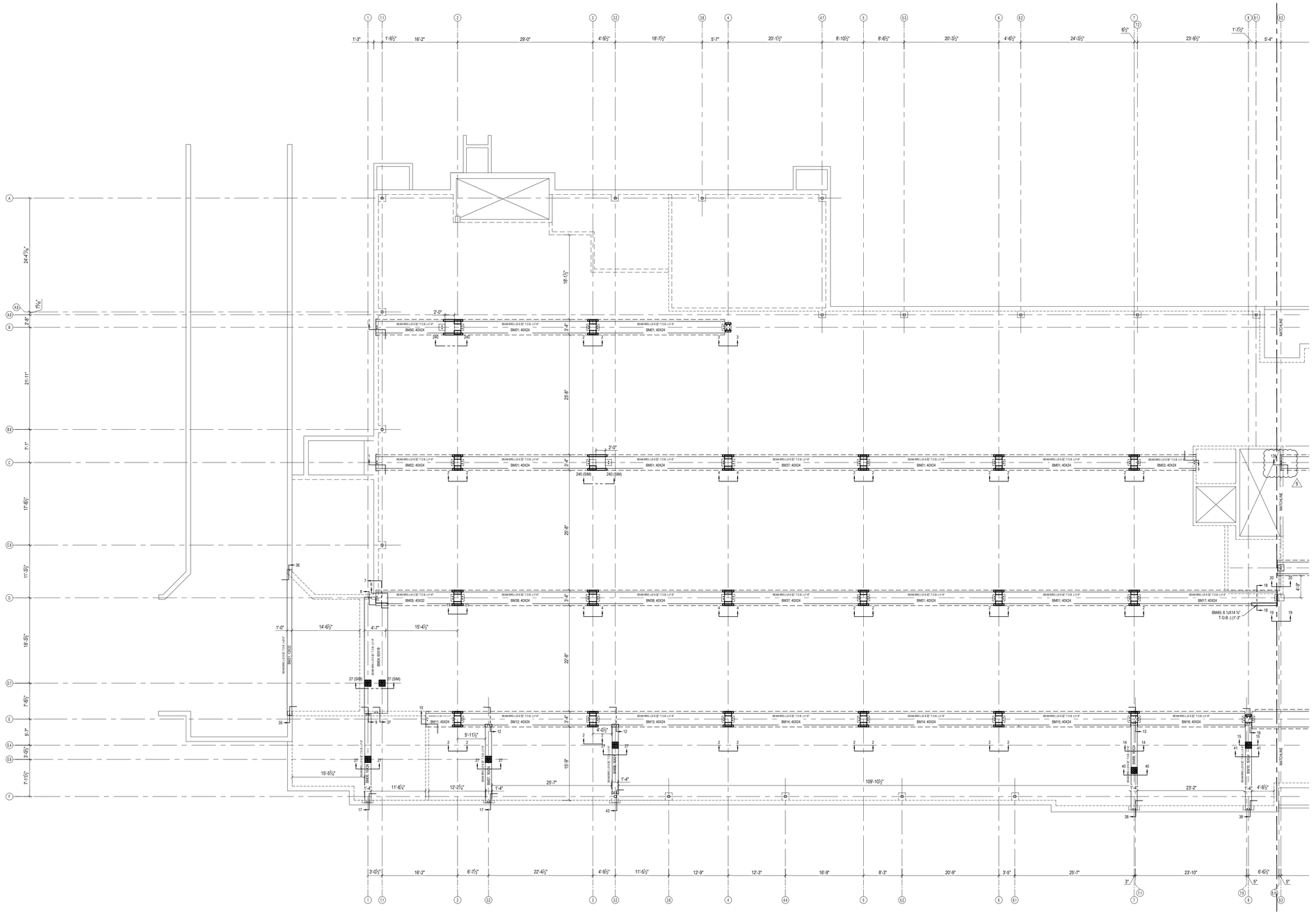
TWO POINT
RECTANGULAR BEAM LIFTING DIAGRAM

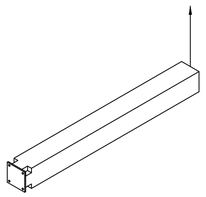


TWO POINT
INVERTED TEE BEAM LIFTING DIAGRAM

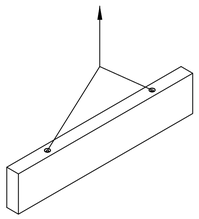


FOUR POINT
INVERTED TEE BEAM LIFTING DIAGRAM

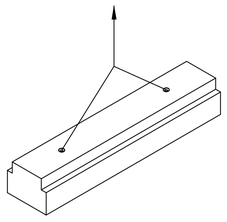

1'-3"
1'-6½"
16'-2"
29'-0"
4'-6½"
18'-7½"
5'-7"
20'-1½"
8'-10½"
8'-6½"
20'-3½"
4'-6½"
24'-3½"
8½"
23'-6½"
1'-3½"
5'-4"
24'-4½"
2'-8"
2'-11"
7'-1"
17'-6½"
11'-3½"
18'-3½"
7'-6½"
4"
3'-6½"
7'-11½"
18'-1½"
25'-8"
25'-8"
22'-8"
15'-1½"
2'-0"
BM50: 40X24
BM01: 40X24
BM01: 40X24
BM02: 40X24
BM01: 40X24
BM51: 40X24
BM37: 40X24
BM01: 40X24
BM01: 40X24
BM03: 40X24
240 (SIM)
240 (SIM)
BM09: 40X32
BM38: 40X24
BM38: 40X24
BM37: 40X24
BM01: 40X24
BM01: 40X24
BM17: 40X24
BM45: 6.1X14.5"
T.O.B. (-)1'-3"
BM11: 40X24
BM12: 40X24
BM13: 40X24
BM14: 40X24
BM15: 40X24
BM16: 40X24
BM07: 72X32
BM08: 72X24
BM10: 72X24
BM10: 72X24
BM10



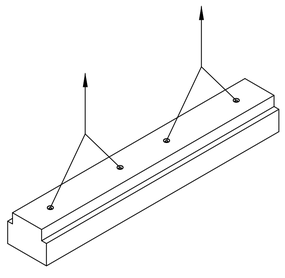
SINGLE POINT
COLUMN LIFTING DIAGRAM



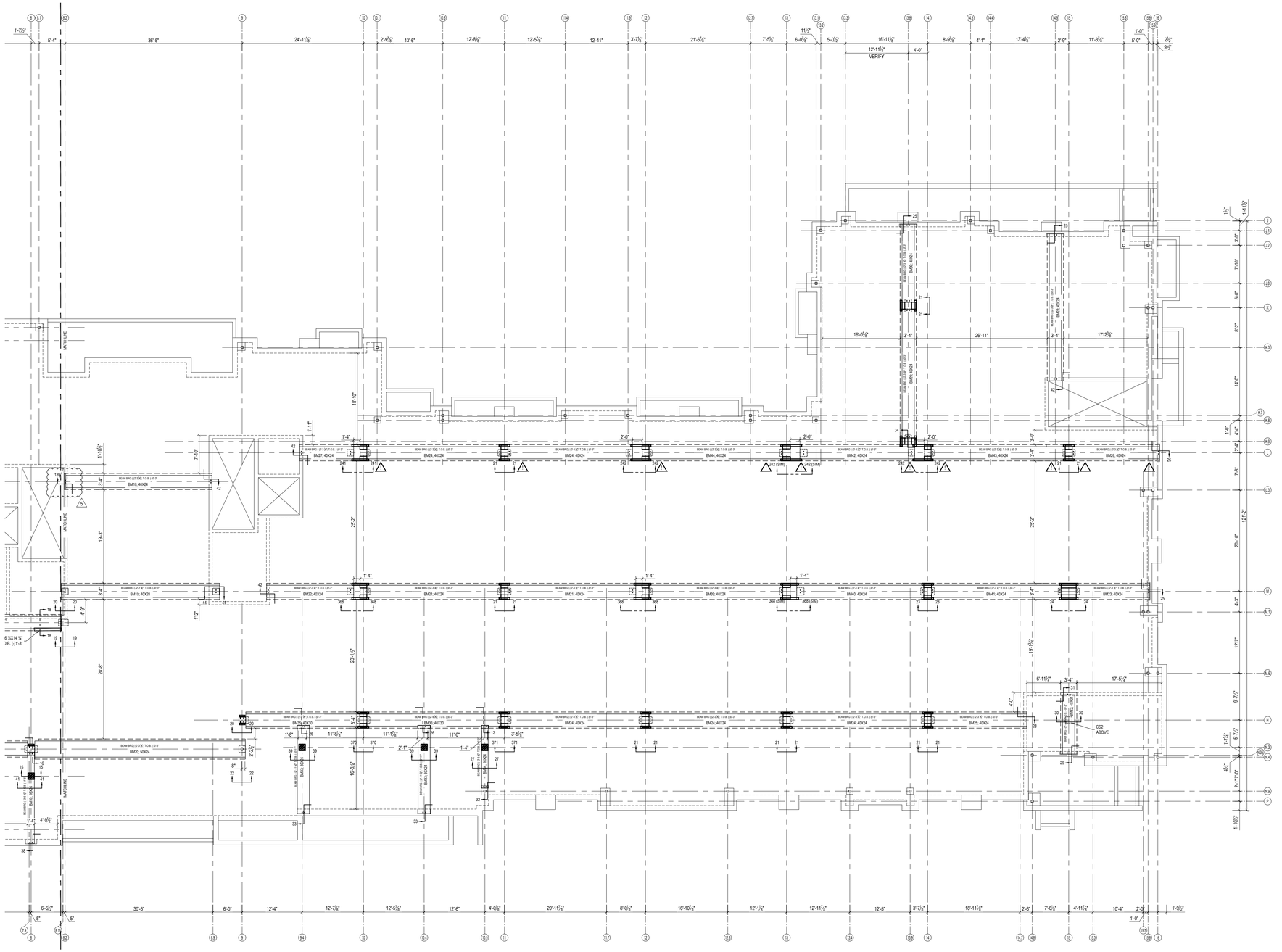
TWO POINT
RECTANGULAR BEAM LIFTING DIAGRAM

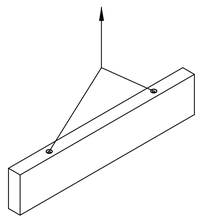


TWO POINT
INVERTED TEE BEAM LIFTING DIAGRAM

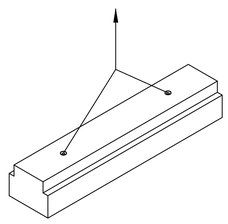


FOUR POINT
INVERTED TEE BEAM LIFTING DIAGRAM

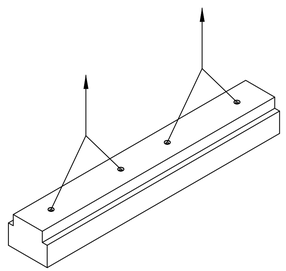

BM27: 40X24
BM24: 40X24
BM24: 40X24
BM24



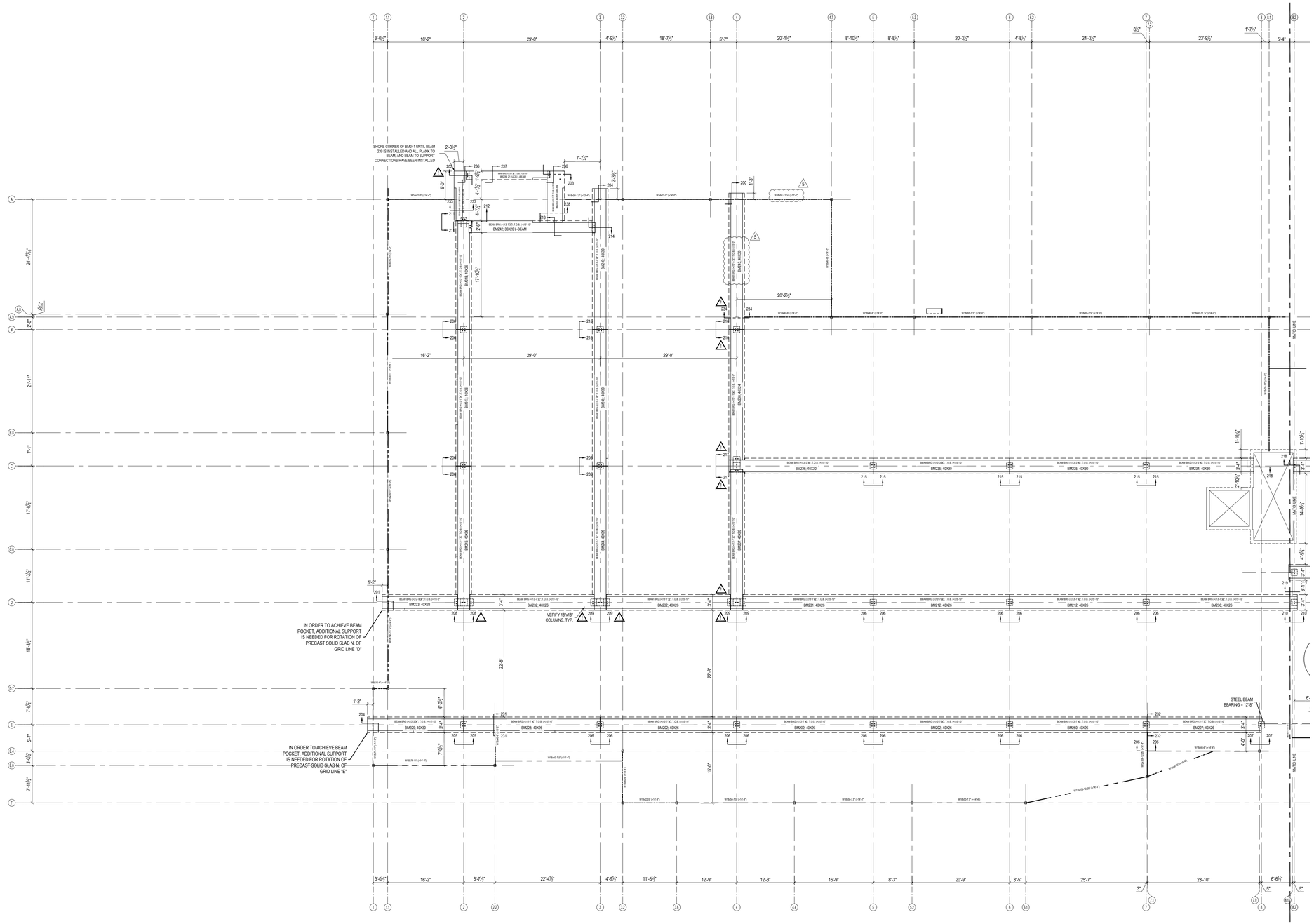
TWO POINT
RECTANGULAR BEAM LIFTING DIAGRAM



TWO POINT
INVERTED TEE BEAM LIFTING DIAGRAM



FOUR POINT
INVERTED TEE BEAM LIFTING DIAGRAM



INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2339
msprecast.com

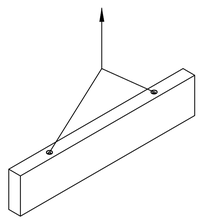
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA
REVISION	DATE	BY	DESCRIPTION

PROJECT ENGINEER	BEG	PROJECT LEAD	MJK
PROJECT DESIGNER	BDM	SCALE	3/32"=1'-0"

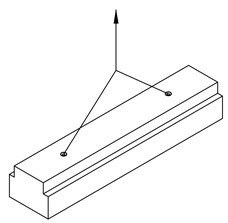
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

2ND FLOOR PRECAST BEAM LAYOUT - WEST

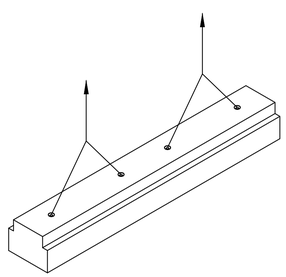
JOB NUMBER 17086 | SHEET NO. PC 04.3



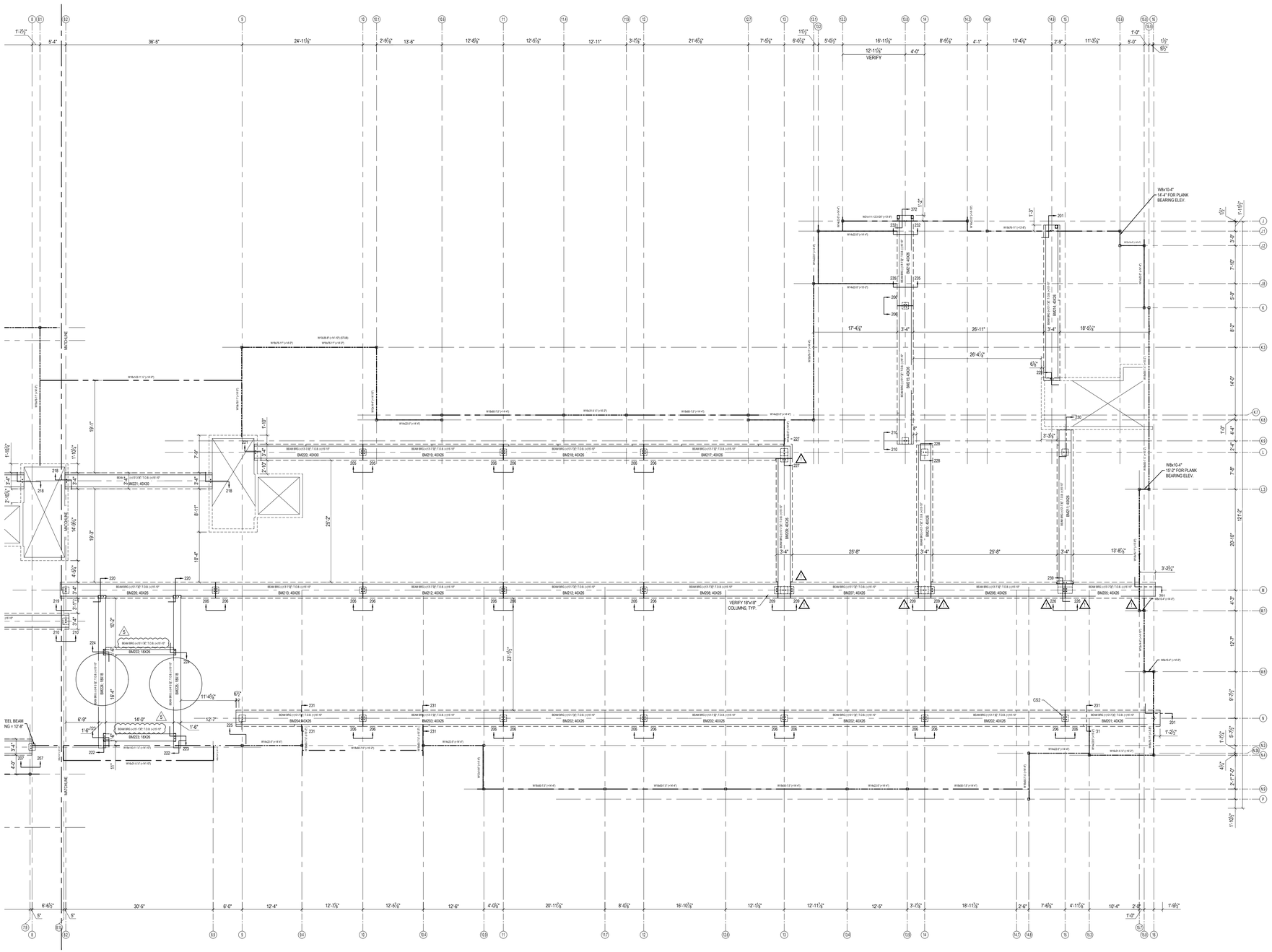
TWO POINT
RECTANGULAR BEAM LIFTING DIAGRAM



TWO POINT
INVERTED TEE BEAM LIFTING DIAGRAM



FOUR POINT
INVERTED TEE BEAM LIFTING DIAGRAM



INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1022
800.236.1572
F 815.389.2339
mspprecast.com

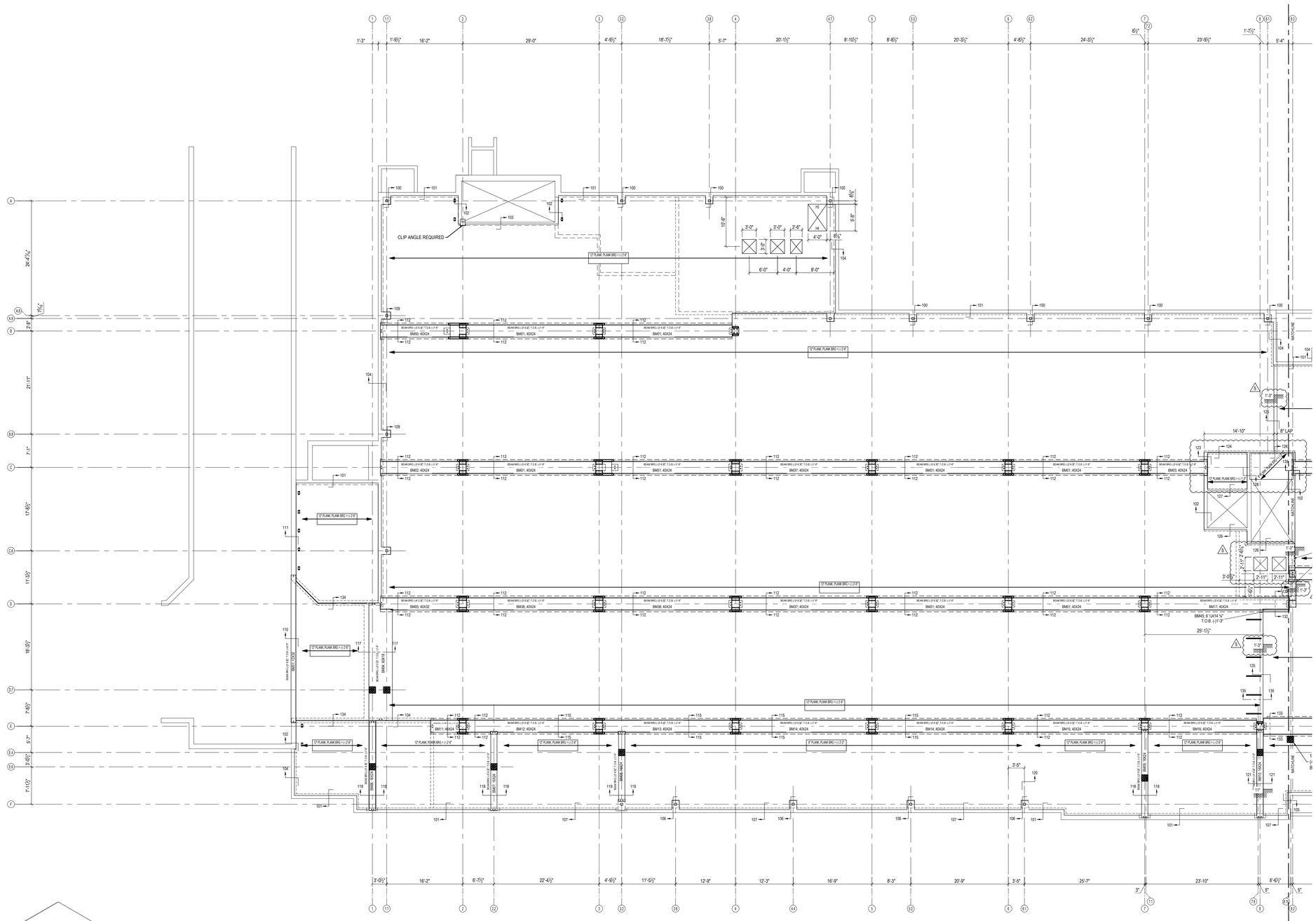
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

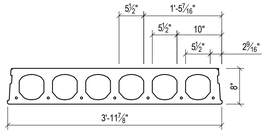
PROJECT ENGINEER	BEG
PROJECT DESIGNER	BDM
PROJECT LEAD	MJK
SCALE	3/32"=1'-0"

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

2ND FLOOR PRECAST BEAM LAYOUT - EAST

JOB NUMBER 17086 | SHEET PC 04.4

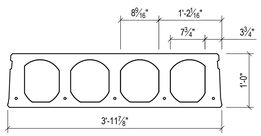




ALL CORED OPENINGS MUST BE LOCATED
IN THE VOIDS OF THE PRECAST PLANK, TYP.

TYPICAL

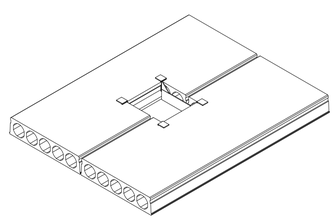
8" PLANK CROSS SECTION



ALL CORED OPENINGS MUST BE LOCATED
IN THE VOIDS OF THE PRECAST PLANK, TYP.

TYPICAL

12" PLANK CROSS SECTION



HANGER

TYPICAL HANGERED OPENING

INSTALLATION OF ALL PRECAST IS TO COMPLY
WITH ALL PCI INSTALLATION GUIDELINES

PCI Certified Plant

MID-STATES
CONCRETE INDUSTRIES

500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2339
msprecast.com

REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

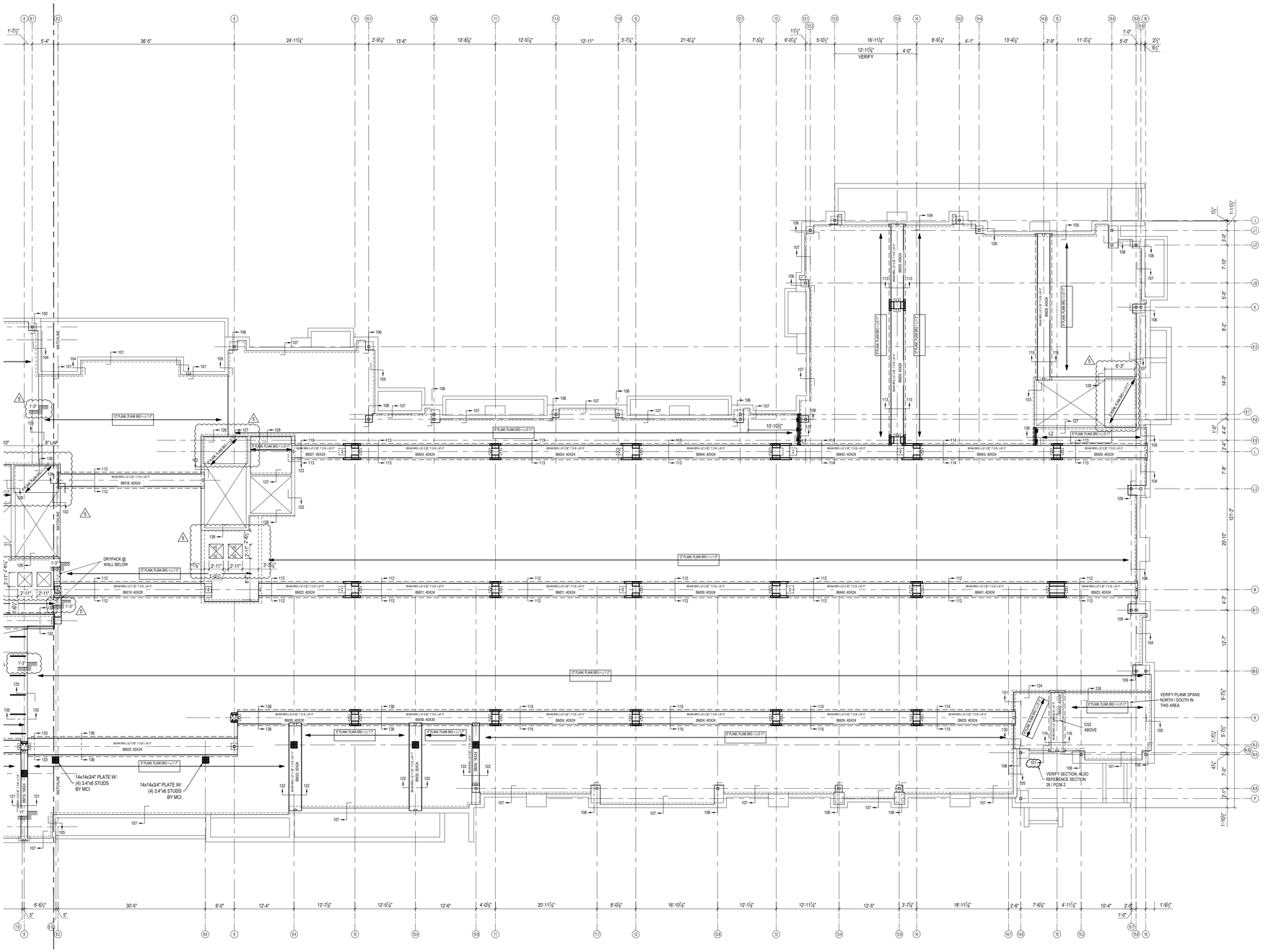
ROYSTER CROSSINGS
LOT 2

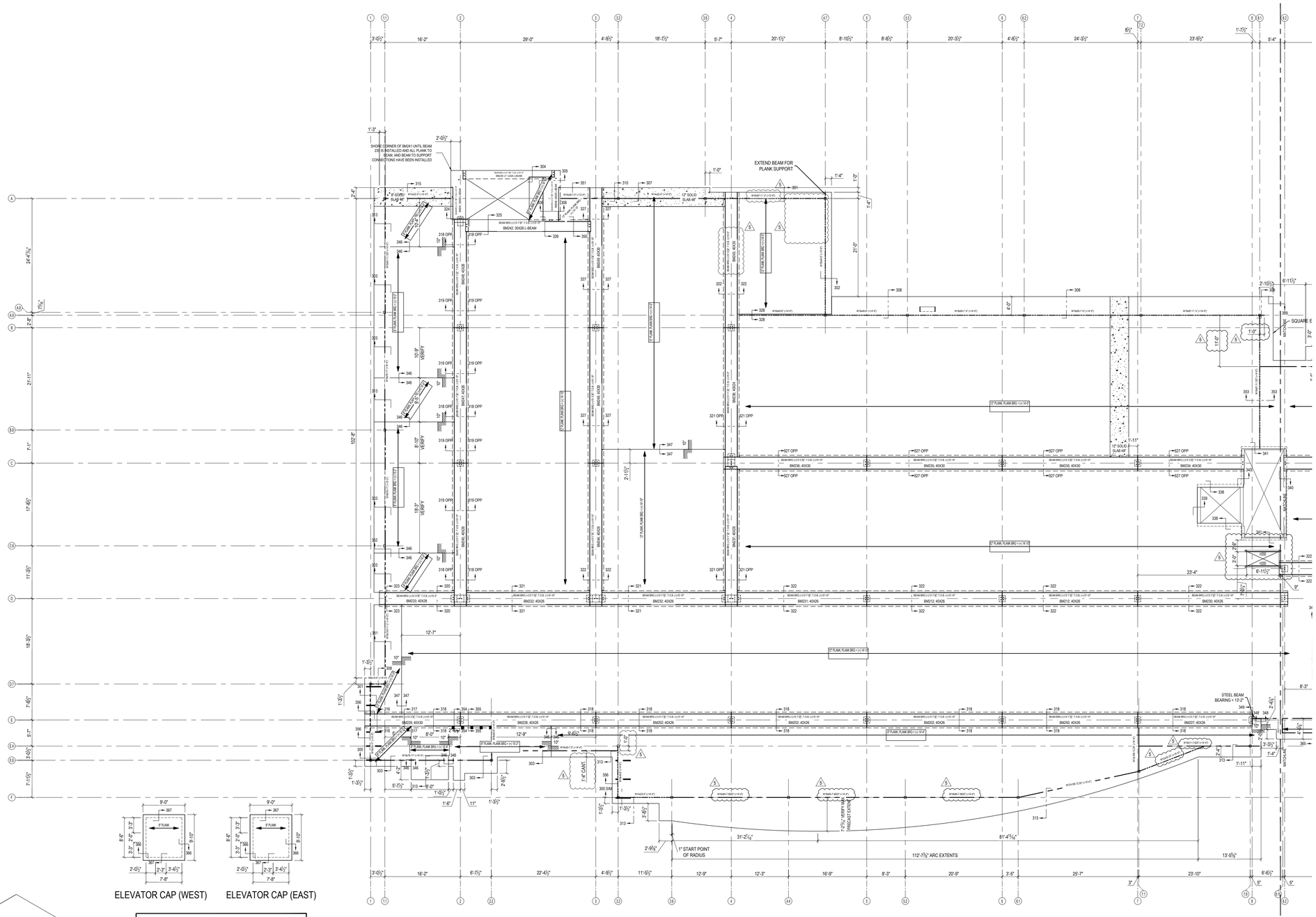
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

1ST FLOOR HOLLOW CORE LAYOUT - WEST

PROJECT ENGINEER	BEG	PROJECT LEAD	MJK
PROJECT DESIGNER	BDM	SCALE	3/32"=1'-0"

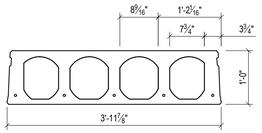
JOB NUMBER 17086 | SHEET PC 05.1


12" PLANK, PLANK BRG=+/-11'-2"
8" PLANK, PLANK BRG=+/-11'-2"
BEAM BRG=(2'-3.5")T.O.B.=28'-3"
BM27; 40X24
BM24; 40X24
BM44; 40X24
BM42; 40X24
BM43; 40X24
BM26; 40X24
BM18; 40X24
BM19; 40X24
BM22; 40X24
BM21; 40X24
BM39; 40X24
BM40; 40X24
BM41; 40X24
BM23; 40X24
BM25; 60X24
BM20; 60X24
BM28; 60X24
BEAM BRG=(2'-3.5")T.O.B.=28'-0"
BEAM BRG=(2'-3.5")T.O.B.=28'-2"
BEAM BRG=(2'-3.5")T.O.B.=28'-4"
BEAM BRG=(2'-3.5")T.O.B.=28'-5"
BEAM BRG=(2'-3.5")T.O.B.=28'-6"
BEAM BRG=(2'-3.5")T.O.B.=28'-7"
BEAM BRG=(2'-3.5")T.O.B.=28'-8"
BEAM BRG=(2'-3.5")T.O.B.=28'-9"
BEAM BRG=(2'-3.5")T.O.B.=28'-10"
BEAM BRG=(2'-3.5")T.O.B.=28'-11"
BEAM BRG=(2'-3.5")T.O.B.=29'-0"
BEAM BRG=(2'-3.5")T.O.B.=29'-1"
BEAM BRG=(2'-3.5")T.O.B.=29'-2"
BEAM BRG=(2'-3.5")T.O.B.=29'-3"
BEAM BRG=(2'-3.5")T.O.B.=29'-4"
BEAM BRG=(2'-3.5")T.O.B.=29'-5"
BEAM BRG=(2'-3.5")T.O.B.=29'-6"
BEAM BRG=(2'-3.5")T.O.B.=29'-7"
BEAM BRG=(2'-3.5")T.O.B.=29'-8"
BEAM BRG=(2'-3.5")T.O.B.=29'-9"
BEAM BRG=(2'-3.5")T.O.B.=29'-10"
BEAM BRG=(2'-3.5")T.O.B.=29'-11"
BEAM BRG=(2'-3.5")T.O.B.=30'-0"
BEAM BRG=(2'-3.5")T.O.B.=30'-1"
BEAM BRG=(2'-3.5")T.O.B.=30'-2"
BEAM BRG=(2'-3.5")T.O.B.=30'-3"
BEAM BRG=(2'-3.5")T.O.B.=30'-4"
BEAM BRG=(2'-3.5")T.O.B.=30'-5"
BEAM BRG=(2'-3.5")T.O.B.=30'-6"
BEAM BRG=(2'-3.5")T.O.B.=30'-7"
BEAM BRG=(2'-3.5")T.O.B.=30'-8"
BEAM BRG=(2'-3.5")T.O.B.=30'-9"
BEAM BRG=(2'-3.5")T.O.B.=30'-10"
BEAM BRG=(2'-3.5")T.O.B.=30'-11"
BEAM BRG=(2'-3.5")T.O.B.=31'-0"
BEAM BRG=(2'-3.5")T.O.B.=31'-1"
BEAM BRG=(2'-3.5")T.O.B.=31'-2"
BEAM BRG=(2'-3.5")T.O.B.=31'-3"
BEAM


SHORE CORNER OF BM241 UNTIL BEAM (3) IS INSTALLED AND ALL PLANK TO BEAM, AND BEAM TO SUPPORT CONNECTIONS HAVE BEEN INSTALLED
EXTEND BEAM FOR PLANK SUPPORT
BM242: 30X26 L-BEAM
12" SOLID SLAB 48"
8" SOLID SLAB 48"
8" PLANK PLANK BRG (+) 10'-0"
12" PLANK PLANK BRG (+) 10'-0"
12" PLANK PLANK BRG (+) 14'-0"
8" PLANK PLANK BRG (+) 10'-0"
8" PLANK PLANK BRG (+) 14'-0"
8" PLANK PLANK BRG (+) 18'-0"
8" PLANK PLANK BRG (+) 10'-0"
8" PLANK PLANK BRG (+) 14'-0"
8" PLANK PLANK BRG (+) 18'-0"
12" PLANK PLANK BRG (+) 10'-0"
12" PLANK PLANK BRG (+) 14'-0"
12

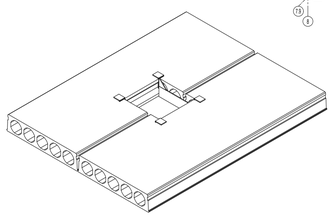
ALL CORED OPENINGS MUST BE LOCATED
IN THE VOIDS OF THE PRECAST PLANK, TYP.

TYPICAL
8" PLANK CROSS SECTION



ALL CORED OPENINGS MUST BE LOCATED
IN THE VOIDS OF THE PRECAST PLANK, TYP.

TYPICAL
12" PLANK CROSS SECTION



HANGER
TYPICAL HANGERED OPENING

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1572
800.236.1572
F 815.389.2339
msprecast.com

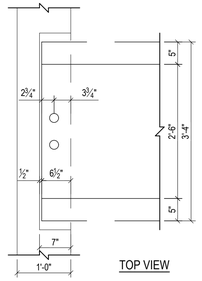
REVISION	DATE	BY	DESCRIPTION
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

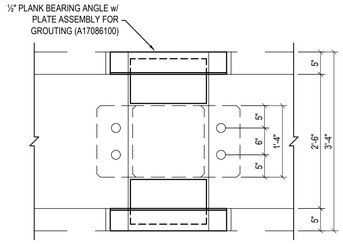
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

2ND FLOOR HOLLOW CORE LAYOUT - EAST

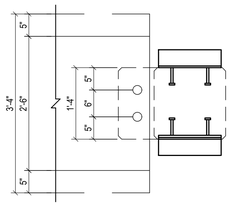
JOB NUMBER 17086
SHEET PC 05.4



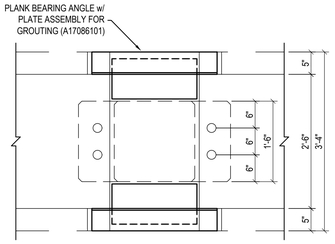
TOP VIEW



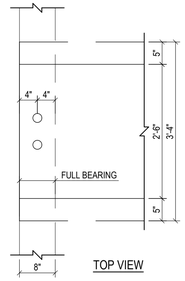
TOP VIEW



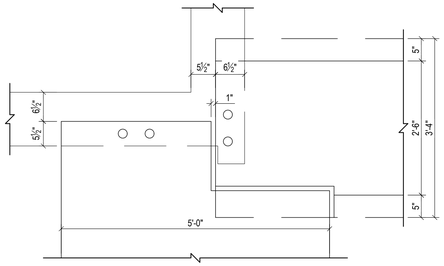
TOP VIEW



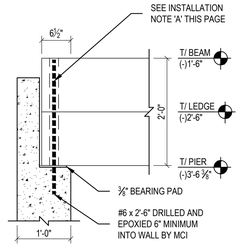
TOP VIEW



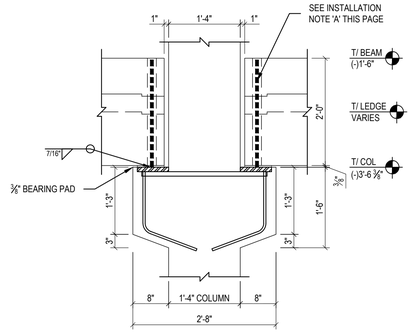
TOP VIEW



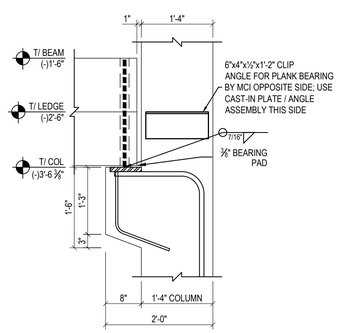
TOP VIEW



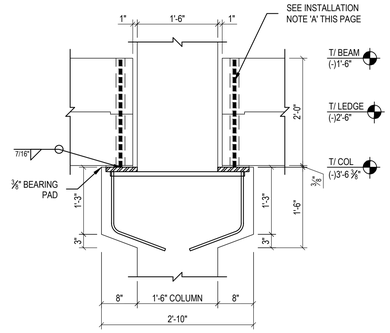
1 SECTION
SCALE: ½"=1'-0"



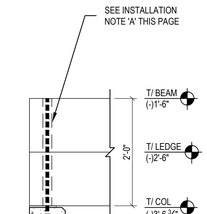
2 SECTION
SCALE: ½"=1'-0"



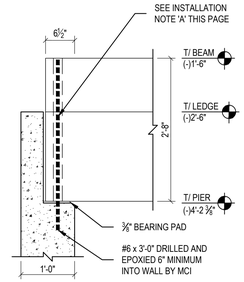
3 SECTION
SCALE: ½"=1'-0"



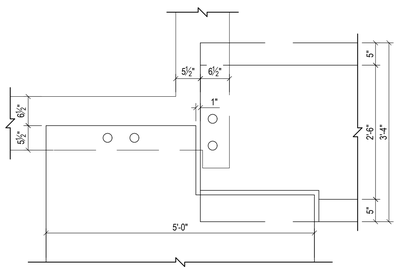
4 SECTION
SCALE: ½"=1'-0"



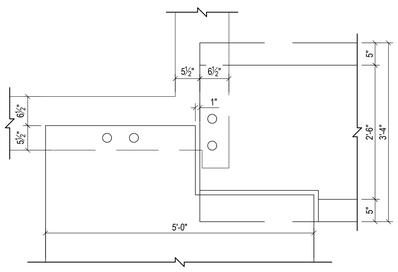
5 SECTION
SCALE: ½"=1'-0"



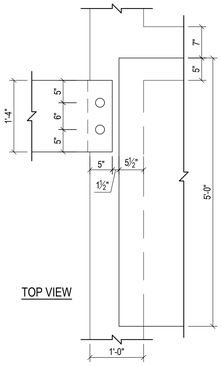
6 SECTION
SCALE: ½"=1'-0"



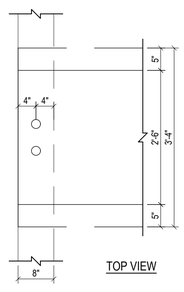
TOP VIEW



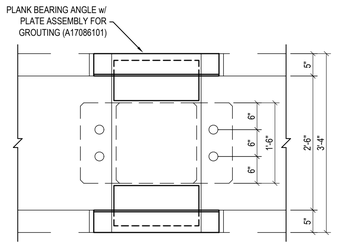
TOP VIEW



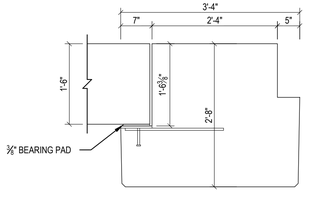
TOP VIEW



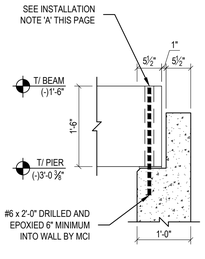
TOP VIEW



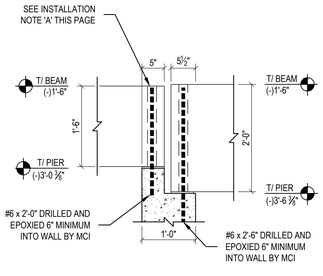
TOP VIEW



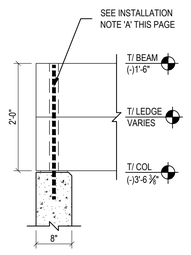
7 SECTION
SCALE: ½"=1'-0"



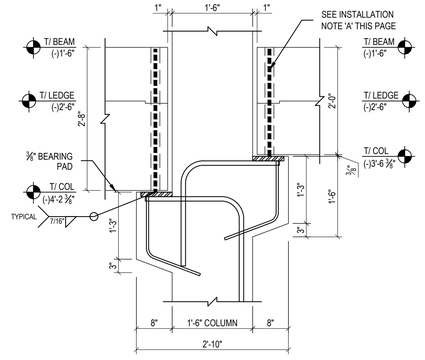
8 SECTION
SCALE: ½"=1'-0"



9 SECTION
SCALE: ½"=1'-0"



10 SECTION
SCALE: ½"=1'-0"



11 SECTION
SCALE: ½"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":
GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1972
800.236.1972
F 815.389.2339
msprecast.com

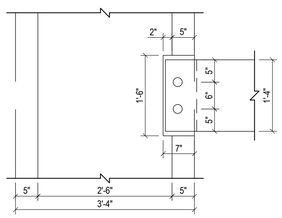
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

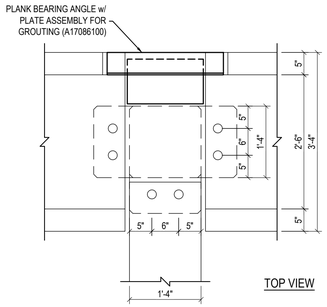
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

PRECAST PLANK SECTIONS

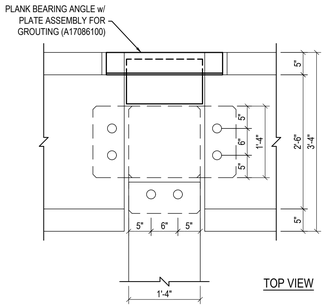
JOB NUMBER: 17086
SHEET: PC 06.1



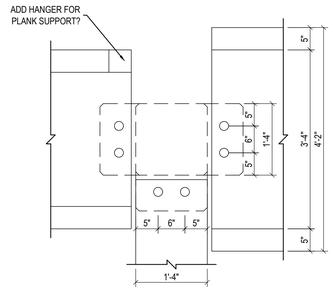
TOP VIEW



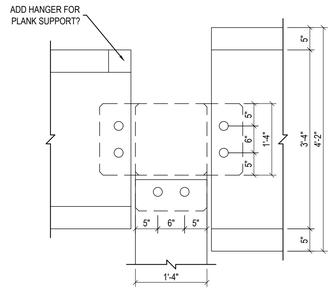
TOP VIEW



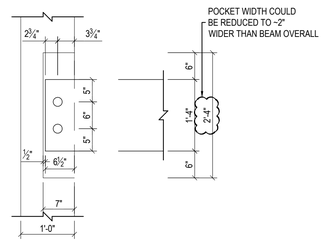
TOP VIEW



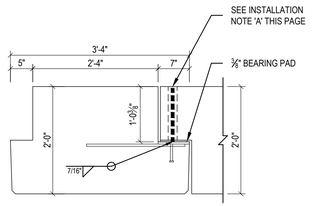
TOP VIEW



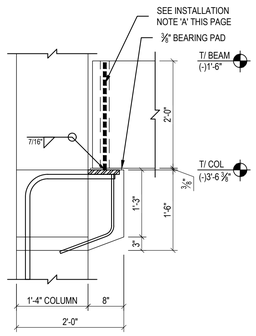
TOP VIEW



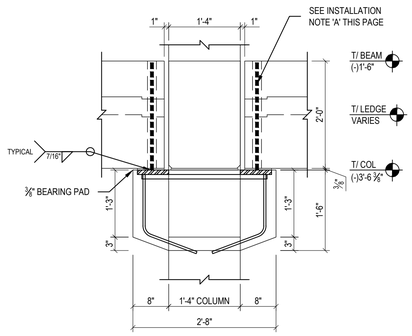
TOP VIEW



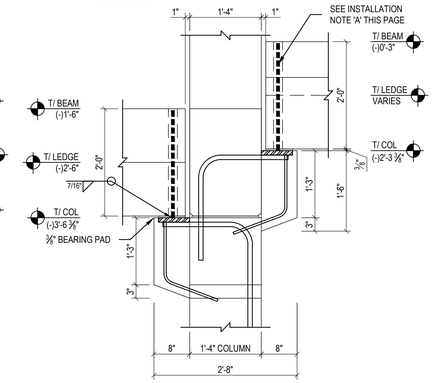
12 SECTION
SCALE: ¾"=1'-0"



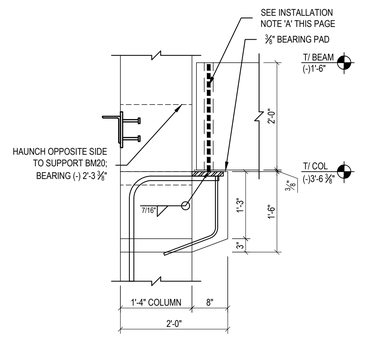
13 SECTION
SCALE: ¾"=1'-0"



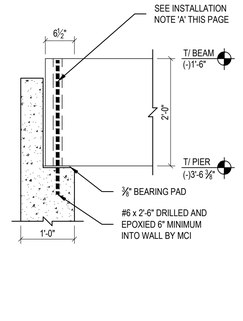
14 SECTION
SCALE: ¾"=1'-0"



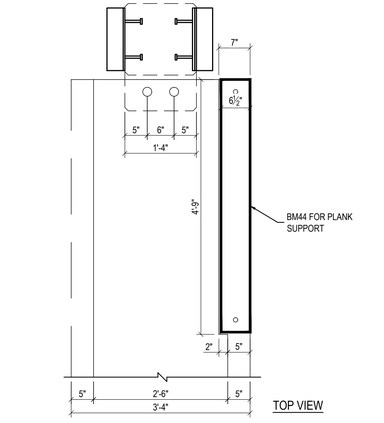
15 SECTION
SCALE: ¾"=1'-0"



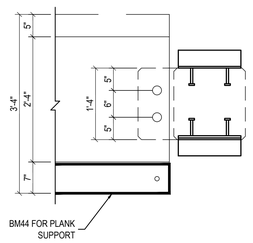
16 SECTION
SCALE: ¾"=1'-0"



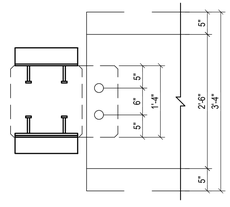
17 SECTION
SCALE: ¾"=1'-0"



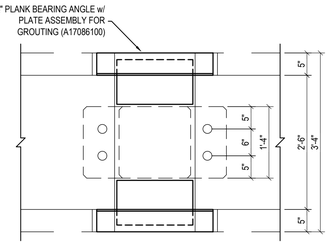
TOP VIEW



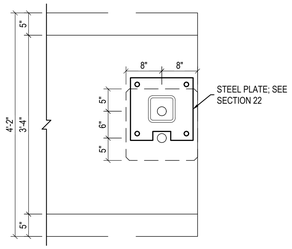
TOP VIEW



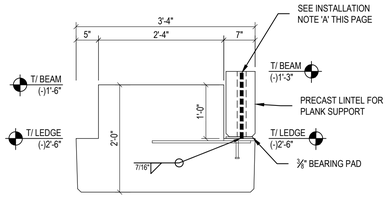
TOP VIEW



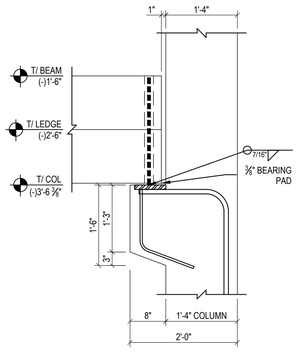
TOP VIEW



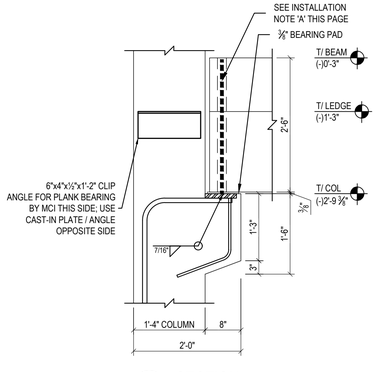
TOP VIEW



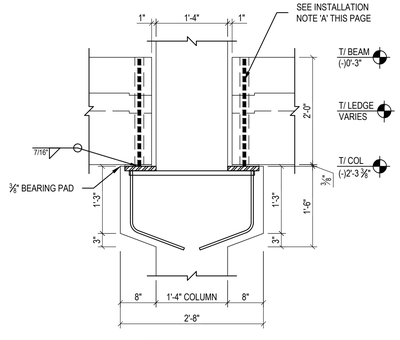
18 SECTION
SCALE: ¾"=1'-0"



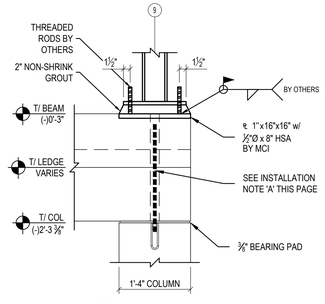
19 SECTION
SCALE: ¾"=1'-0"



20 SECTION
SCALE: ¾"=1'-0"



21 SECTION
SCALE: ¾"=1'-0"



22 SECTION
SCALE: ¾"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY
WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":

GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2339
msprecast.com

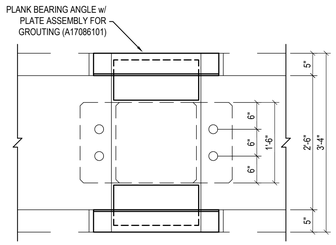
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

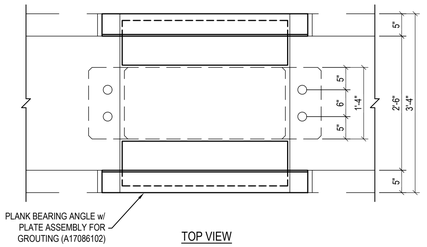
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

PRECAST BEAM & COLUMN SECTIONS

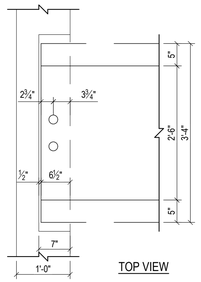
JOB NUMBER: 17086
SHEET: PC 06.2



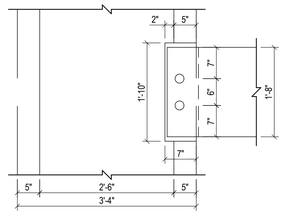
TOP VIEW



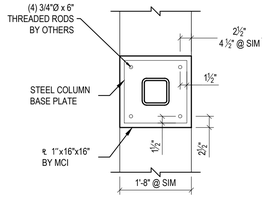
TOP VIEW



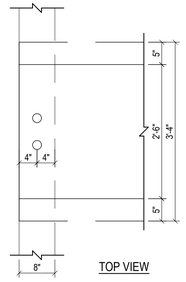
TOP VIEW



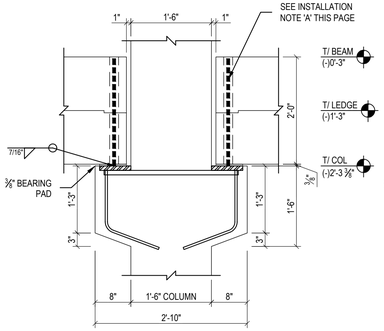
TOP VIEW



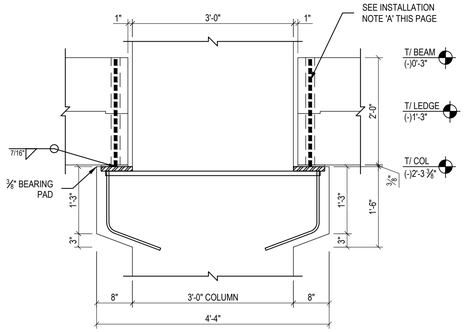
TOP VIEW



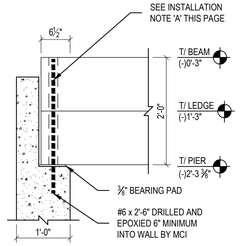
TOP VIEW



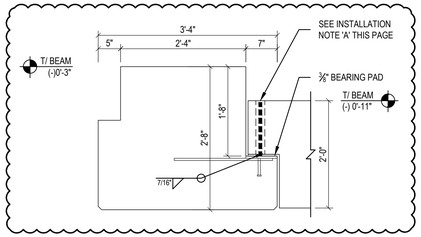
23 SECTION
SCALE: ½"=1'-0"



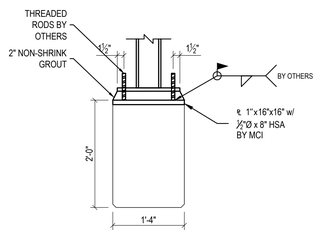
24 SECTION
SCALE: ½"=1'-0"



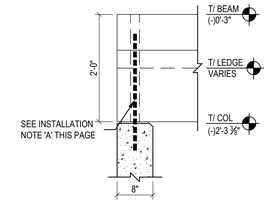
25 SECTION
SCALE: ½"=1'-0"



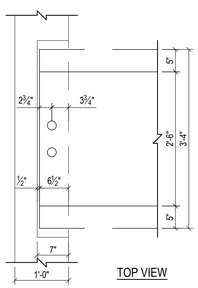
26 SECTION
SCALE: ½"=1'-0"



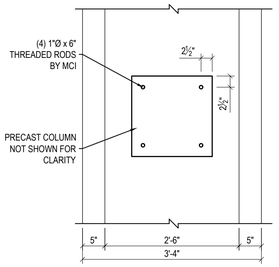
27 SECTION
SCALE: ½"=1'-0"



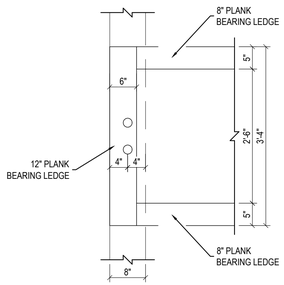
28 SECTION
SCALE: ½"=1'-0"



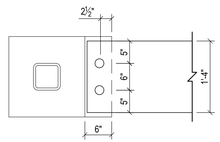
TOP VIEW



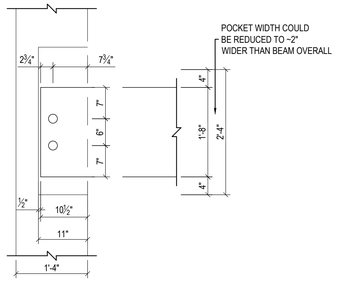
TOP VIEW



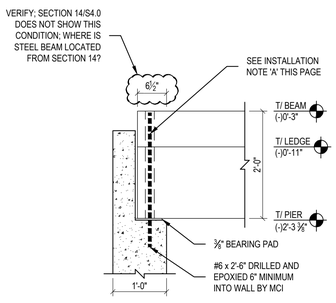
TOP VIEW



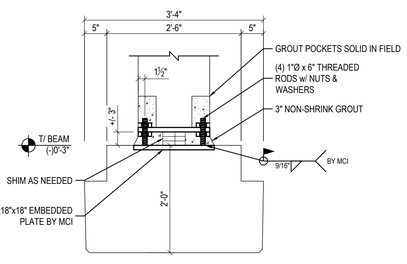
TOP VIEW



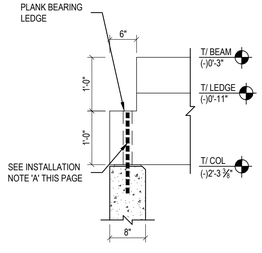
TOP VIEW



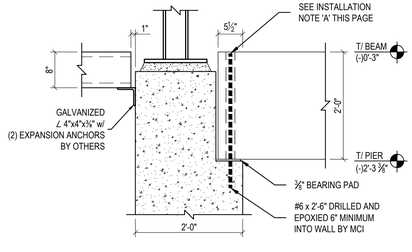
29 SECTION
SCALE: ½"=1'-0"



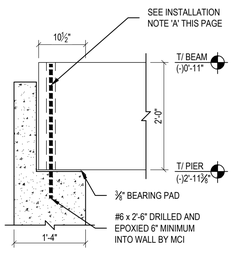
30 SECTION
SCALE: ½"=1'-0"



31 SECTION
SCALE: ½"=1'-0"



32 SECTION
SCALE: ½"=1'-0"



33 SECTION
SCALE: ½"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":

GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
F 815.389.2339
msprecast.com

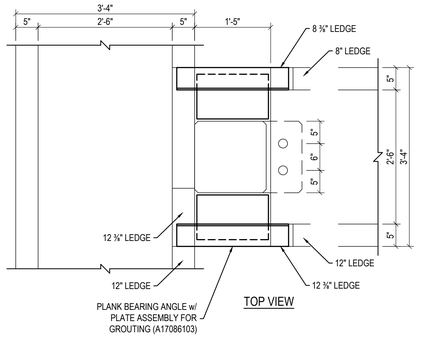
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

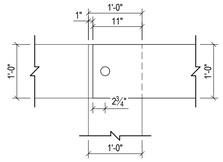
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

PRECAST BEAM & COLUMN SECTIONS

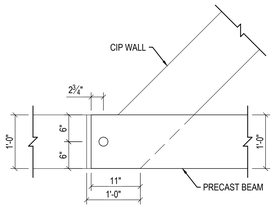
JOB NUMBER: 17086
SHEET: PC 06.3



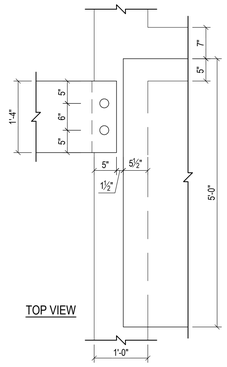
TOP VIEW



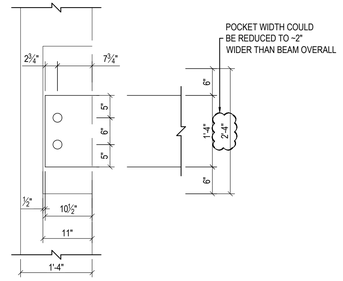
TOP VIEW



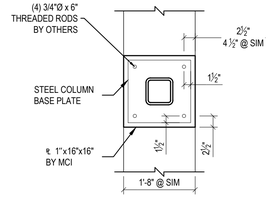
TOP VIEW



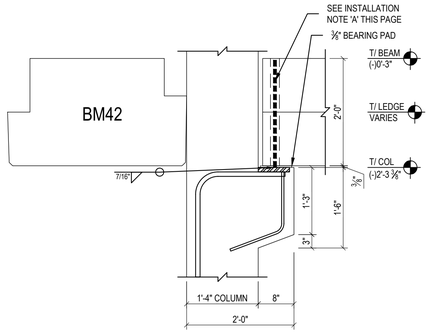
TOP VIEW



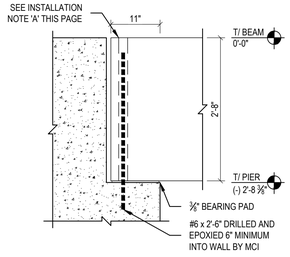
TOP VIEW



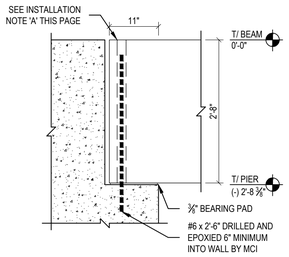
TOP VIEW



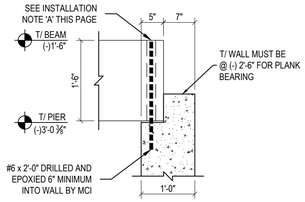
34 SECTION
SCALE: ½"=1'-0"



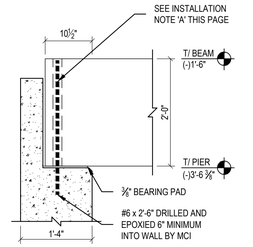
35 SECTION
SCALE: ½"=1'-0"



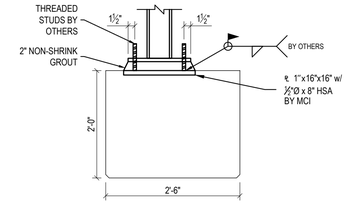
36 SECTION
SCALE: ½"=1'-0"



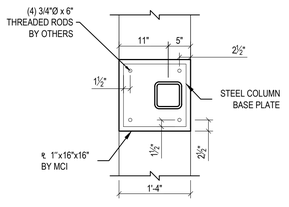
37 SECTION
SCALE: ½"=1'-0"



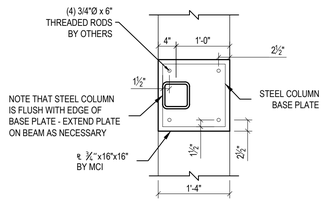
38 SECTION
SCALE: ½"=1'-0"



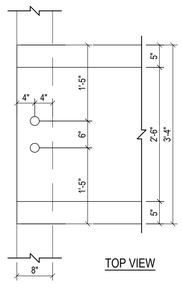
39 SECTION
SCALE: ½"=1'-0"



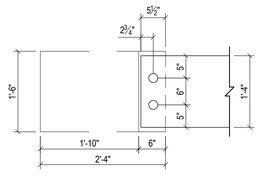
TOP VIEW



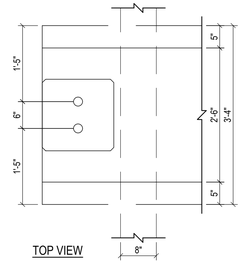
TOP VIEW



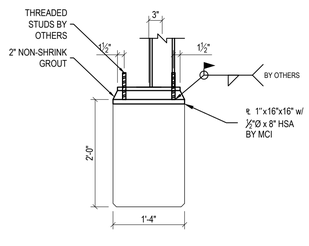
TOP VIEW



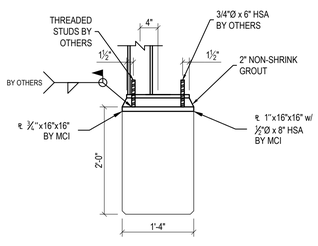
TOP VIEW



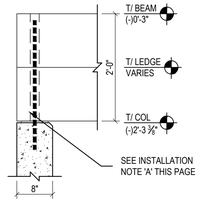
TOP VIEW



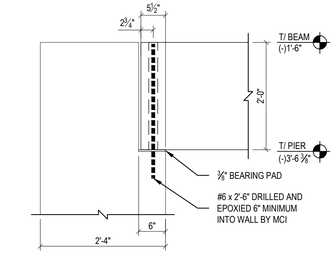
40 SECTION
SCALE: ½"=1'-0"



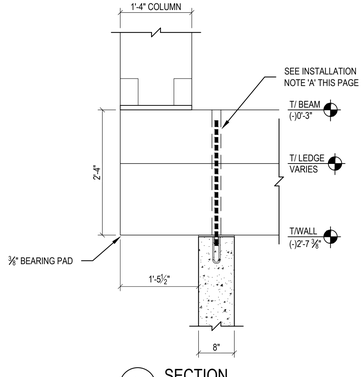
41 SECTION
SCALE: ½"=1'-0"



42 SECTION
SCALE: ½"=1'-0"



43 SECTION
SCALE: ½"=1'-0"



44 SECTION
SCALE: ½"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":

GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1972
F 815.389.2309
msprecast.com

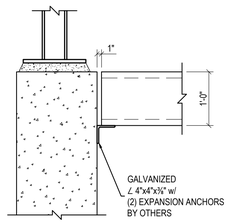
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

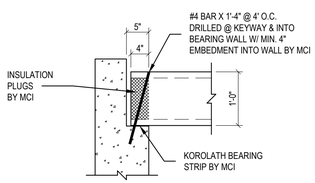
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

PRECAST HOLLOW CORE SECTIONS

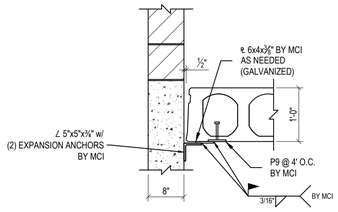
JOB NUMBER: 17086
SHEET: PC 06.4



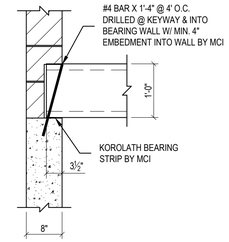
100 SECTION
SCALE: ½"=1'-0"



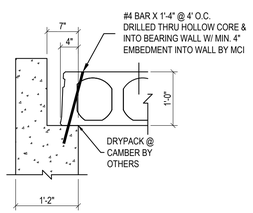
101 SECTION
SCALE: ½"=1'-0"



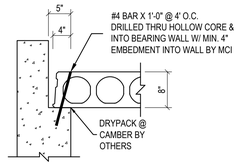
102 SECTION
SCALE: ½"=1'-0"



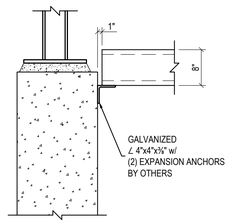
103 SECTION
SCALE: ½"=1'-0"



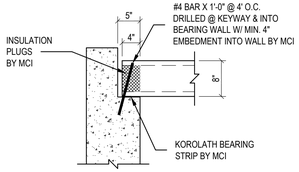
104 SECTION
SCALE: ½"=1'-0"



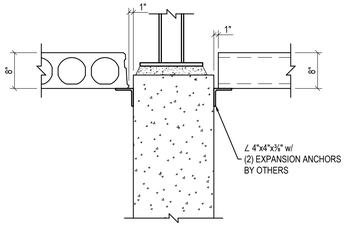
105 SECTION
SCALE: ½"=1'-0"



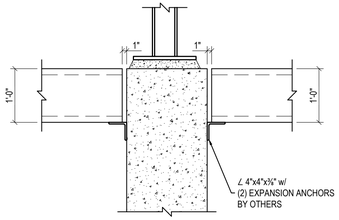
106 SECTION
SCALE: ½"=1'-0"



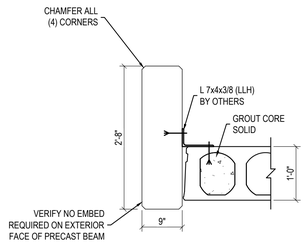
107 SECTION
SCALE: ½"=1'-0"



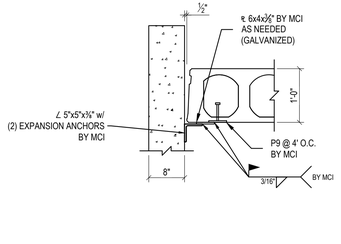
108 SECTION
SCALE: ½"=1'-0"



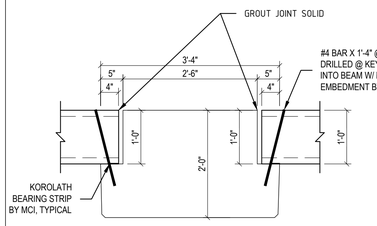
109 SECTION
SCALE: ½"=1'-0"



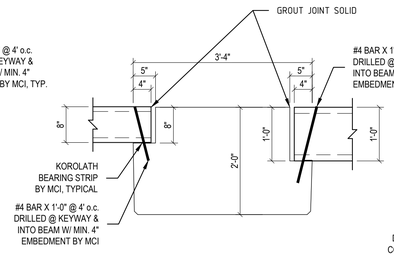
110 SECTION
SCALE: ½"=1'-0"



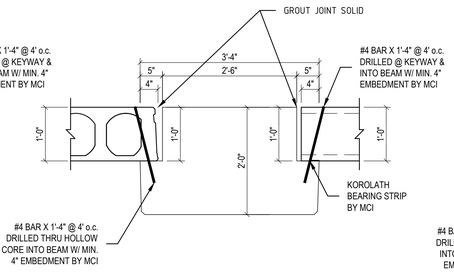
111 SECTION
SCALE: ½"=1'-0"



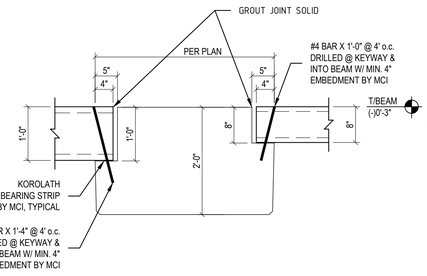
112 SECTION
SCALE: ½"=1'-0"



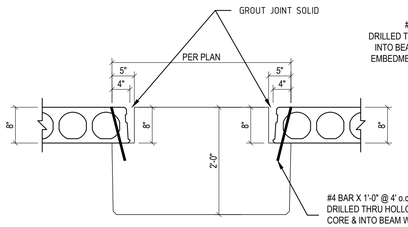
113 SECTION
SCALE: ½"=1'-0"



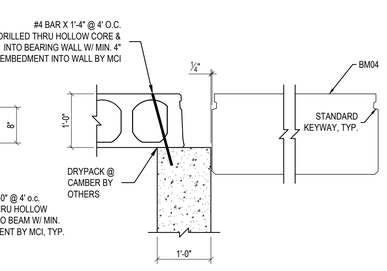
114 SECTION
SCALE: ½"=1'-0"



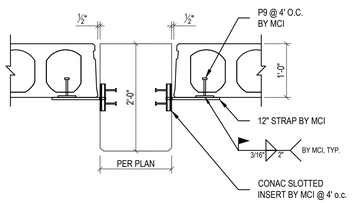
115 SECTION
SCALE: ½"=1'-0"



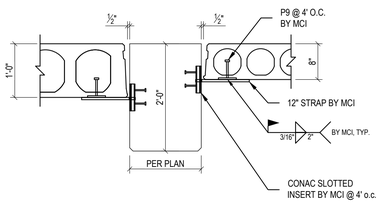
116 SECTION
SCALE: ½"=1'-0"



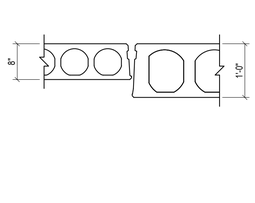
117 SECTION
SCALE: ½"=1'-0"



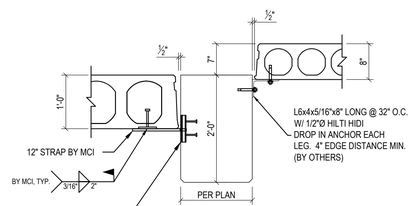
118 SECTION
SCALE: ½"=1'-0"



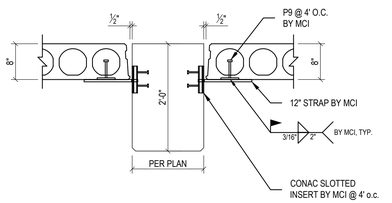
119 SECTION
SCALE: ½"=1'-0"



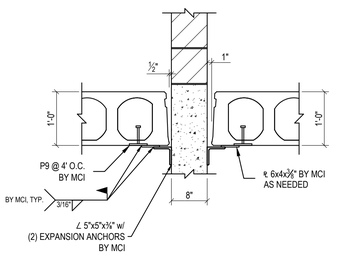
120 SECTION
SCALE: ½"=1'-0"



121 SECTION
SCALE: ½"=1'-0"



122 SECTION
SCALE: ½"=1'-0"



123 SECTION
SCALE: ½"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2339
mspreast.com

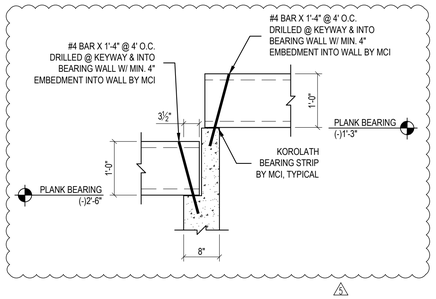
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

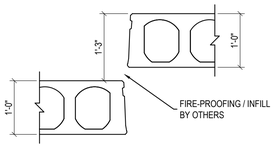
PRECAST HOLLOW CORE SECTIONS

PROJECT ENGINEER	BEG	PROJECT LEAD	MJK
PROJECT DESIGNER	BDM	SCALE	3/32"=1'-0"

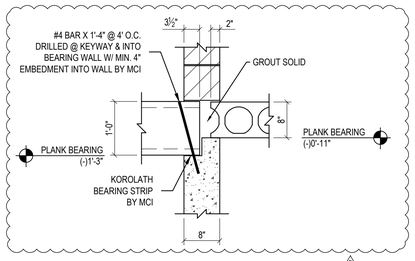
JOB NUMBER 17086 SHEET PC 06.5



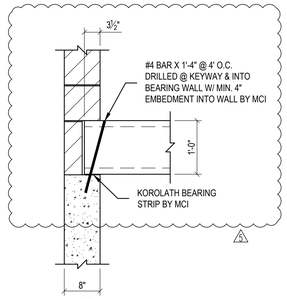
124 SECTION
SCALE: ½"=1'-0"



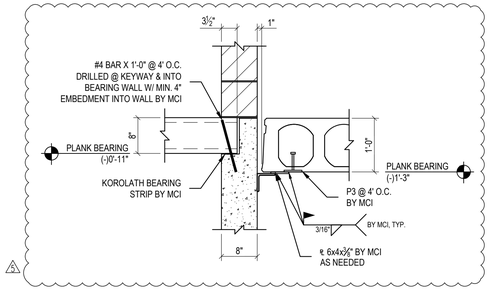
125 SECTION
SCALE: ½"=1'-0"



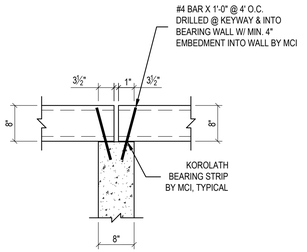
126 SECTION
SCALE: ½"=1'-0"



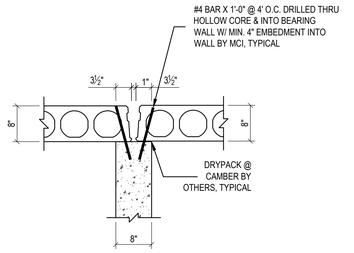
127 SECTION
SCALE: ½"=1'-0"



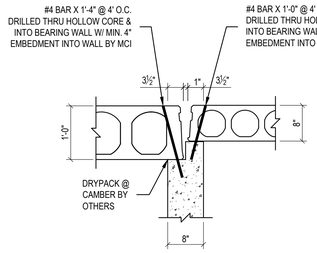
128 SECTION
SCALE: ½"=1'-0"



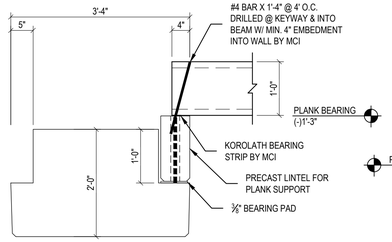
129 SECTION
SCALE: ½"=1'-0"



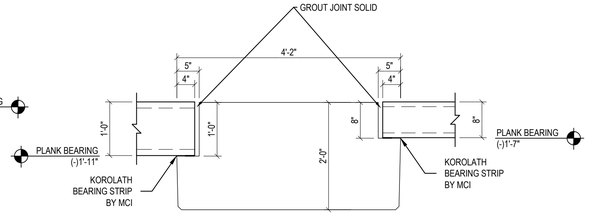
130 SECTION
SCALE: ½"=1'-0"



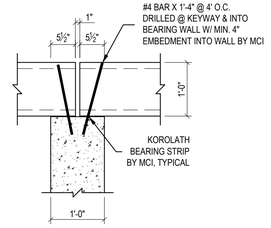
131 SECTION
SCALE: ½"=1'-0"



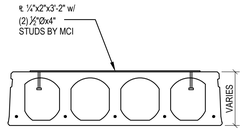
132 SECTION
SCALE: ½"=1'-0"



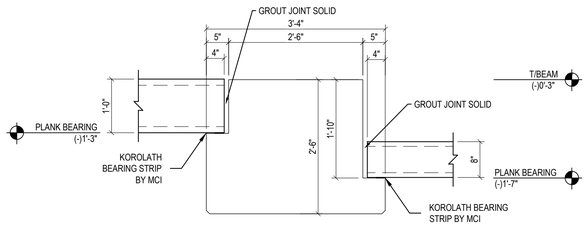
133 SECTION
SCALE: ½"=1'-0"



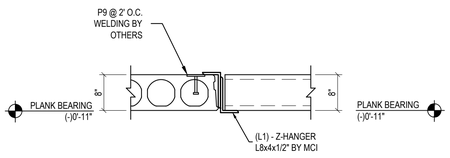
134 SECTION
SCALE: ½"=1'-0"



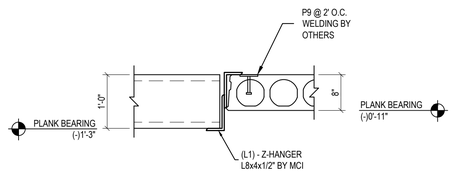
135 SECTION
SCALE: ½"=1'-0"



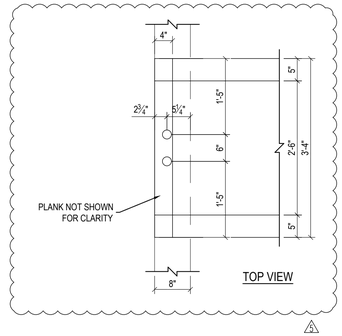
136 SECTION
SCALE: ½"=1'-0"

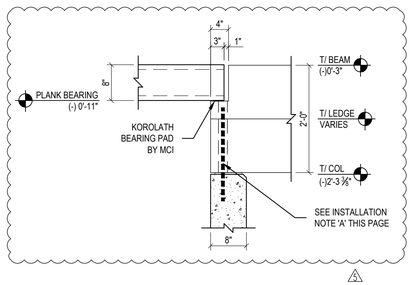


137 SECTION
SCALE: ½"=1'-0"



138 SECTION
SCALE: ½"=1'-0"





139 SECTION
SCALE: ½"=1'-0"

INSTALLATION NOTE "A":
GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2339
msprecast.com

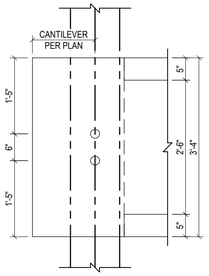
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

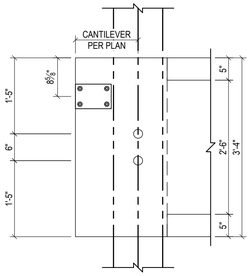
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

2ND FLOOR BEAM & COLUMN SECTIONS

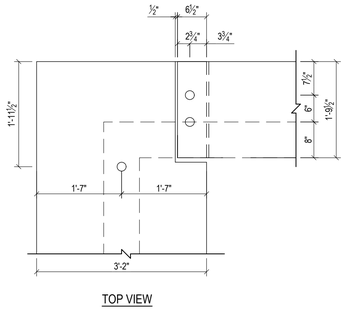
JOB NUMBER: 17086
SHEET: PC 06.6



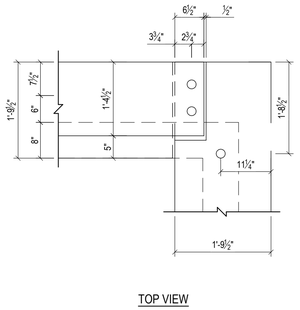
TOP VIEW



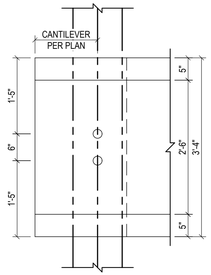
TOP VIEW



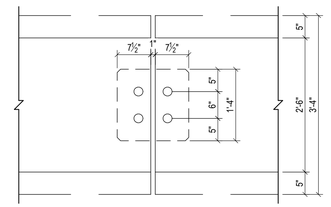
TOP VIEW



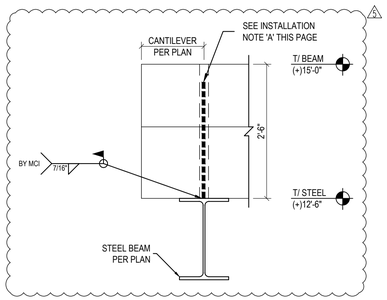
TOP VIEW



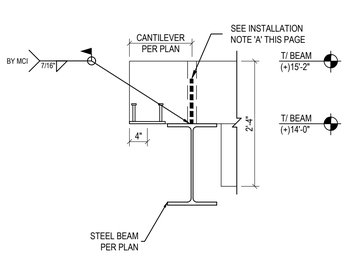
TOP VIEW



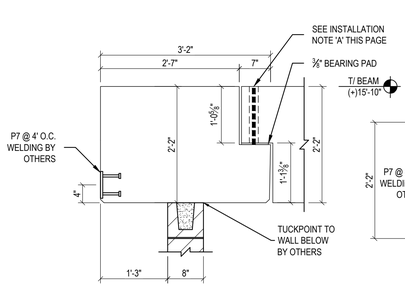
TOP VIEW



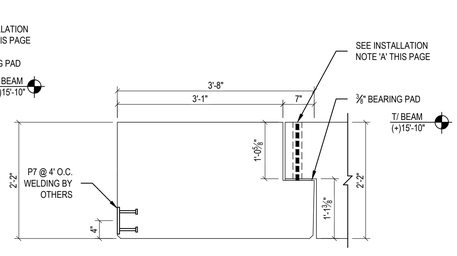
200 SECTION
SCALE: ¾"=1'-0"



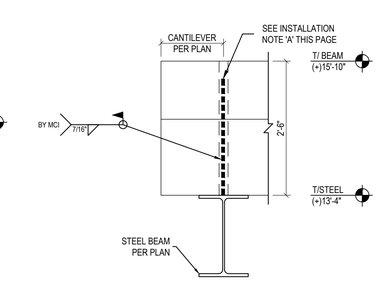
201 SECTION
SCALE: ¾"=1'-0"



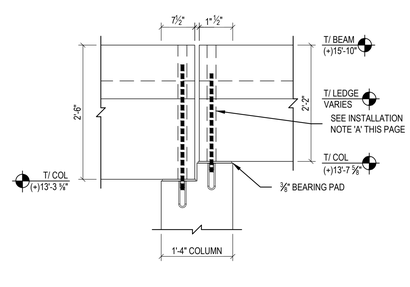
202 SECTION
SCALE: ¾"=1'-0"



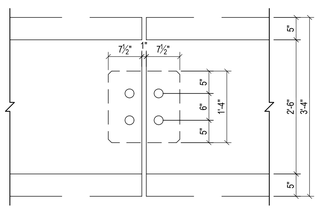
203 SECTION
SCALE: ¾"=1'-0"



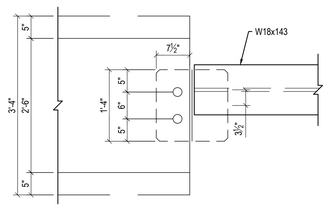
204 SECTION
SCALE: ¾"=1'-0"



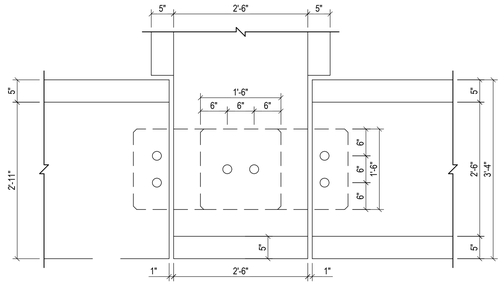
205 SECTION
SCALE: ¾"=1'-0"



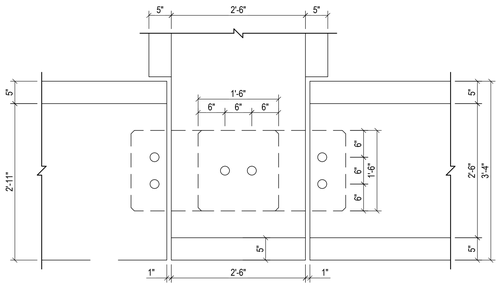
TOP VIEW



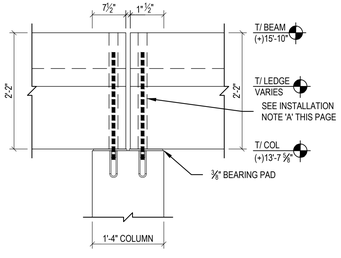
TOP VIEW



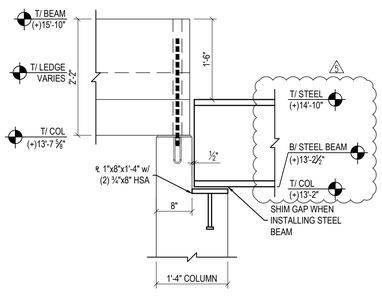
TOP VIEW



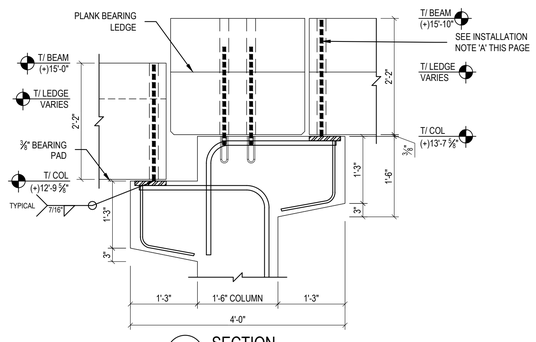
TOP VIEW



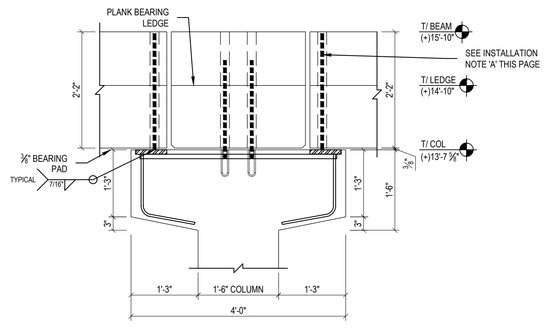
206 SECTION
SCALE: ¾"=1'-0"



207 SECTION
SCALE: ¾"=1'-0"



208 SECTION
SCALE: ¾"=1'-0"



209 SECTION
SCALE: ¾"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":

GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1672
F 815.389.2339
msprecast.com

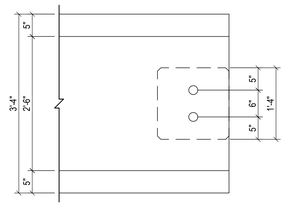
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA
REVISION	DATE	BY	DESCRIPTION

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

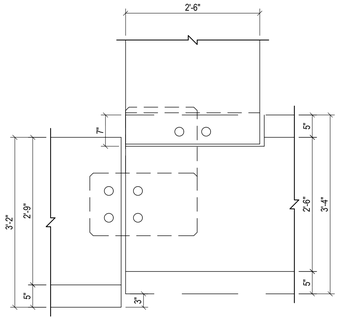
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

2ND FLOOR BEAM & COLUMN SECTIONS

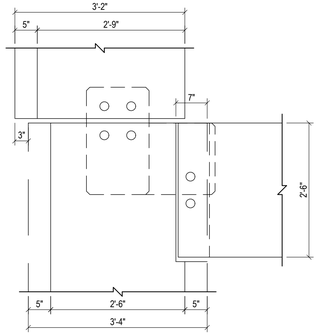
JOB NUMBER 17086 SHEET PC 06.7



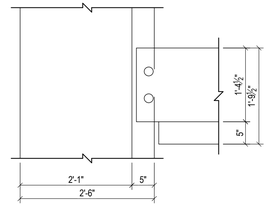
TOP VIEW



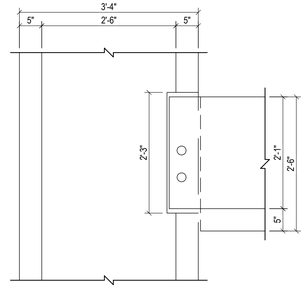
TOP VIEW



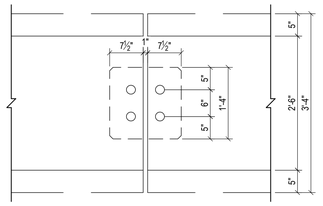
TOP VIEW



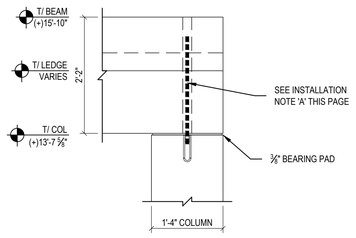
TOP VIEW



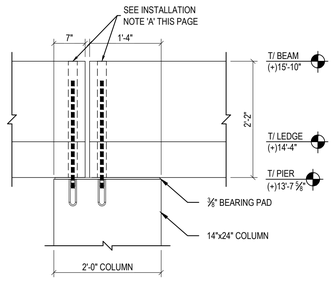
TOP VIEW



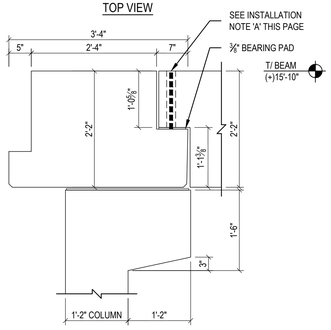
TOP VIEW



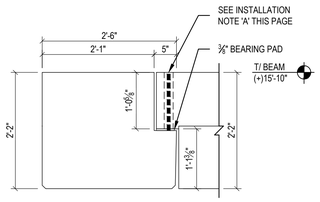
210 SECTION
SCALE: ½"=1'-0"



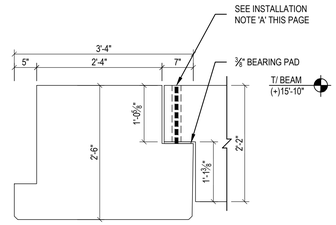
211 SECTION
SCALE: ½"=1'-0"



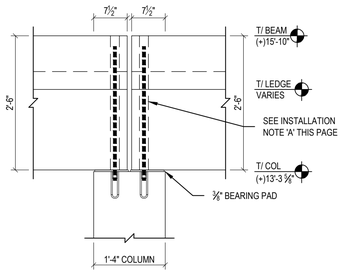
212 SECTION
SCALE: ½"=1'-0"



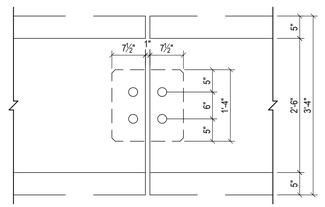
213 SECTION
SCALE: ½"=1'-0"



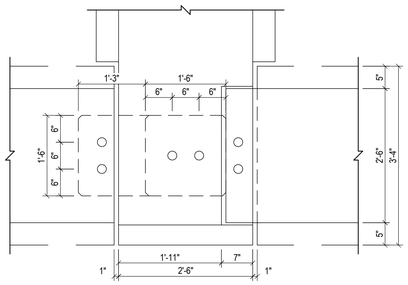
214 SECTION
SCALE: ½"=1'-0"



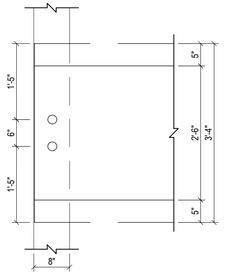
215 SECTION
SCALE: ½"=1'-0"



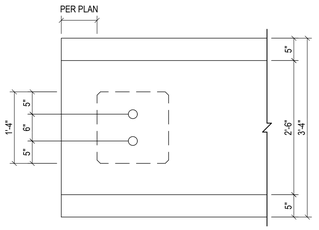
TOP VIEW



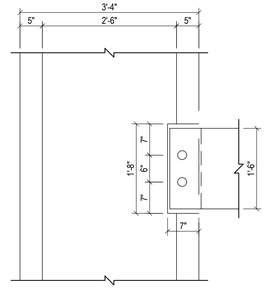
TOP VIEW



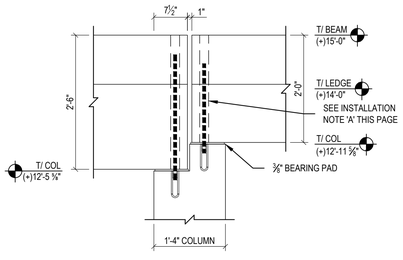
TOP VIEW



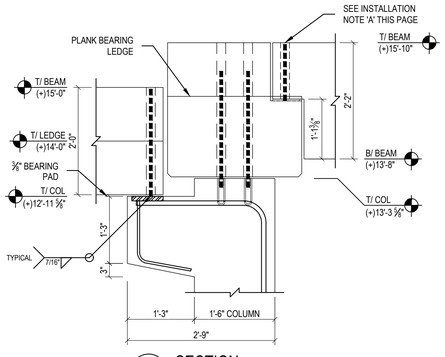
TOP VIEW



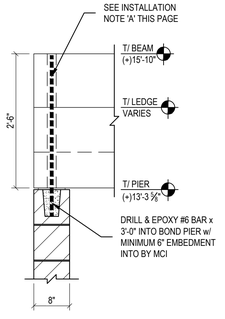
TOP VIEW



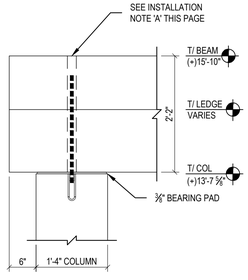
216 SECTION
SCALE: ½"=1'-0"



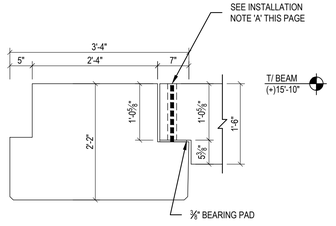
217 SECTION
SCALE: ½"=1'-0"



218 SECTION
SCALE: ½"=1'-0"



219 SECTION
SCALE: ½"=1'-0"



220 SECTION
SCALE: ½"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":

GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
F 815.389.2539
msprecast.com

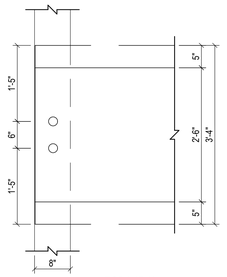
REVISION	DATE	BY	DESCRIPTION
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

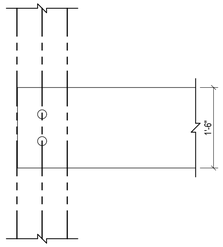
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

2ND FLOOR BEAM & COLUMN SECTIONS

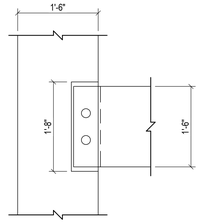
JOB NUMBER: 17086
SHEET: PC 06.8



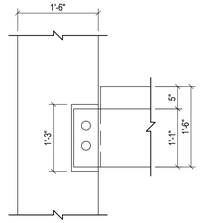
TOP VIEW



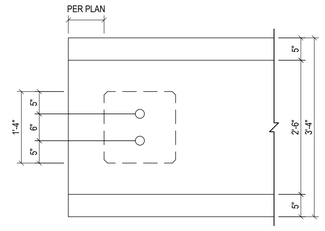
TOP VIEW



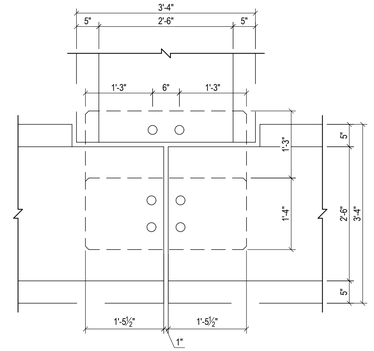
TOP VIEW



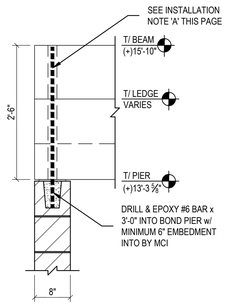
TOP VIEW



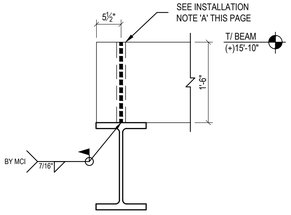
TOP VIEW



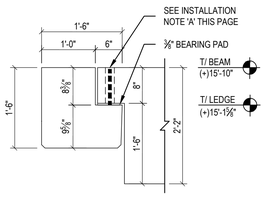
TOP VIEW



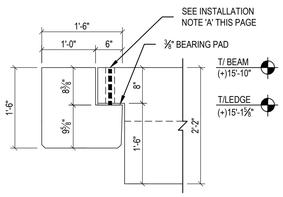
221 SECTION
SCALE: ½"=1'-0"



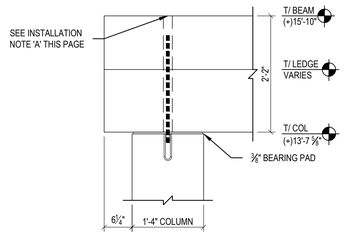
222 SECTION
SCALE: ½"=1'-0"



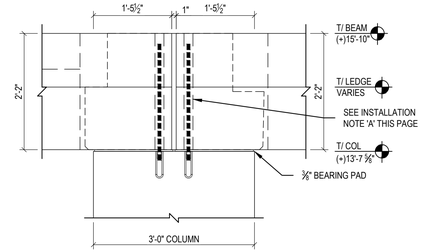
223 SECTION
SCALE: ½"=1'-0"



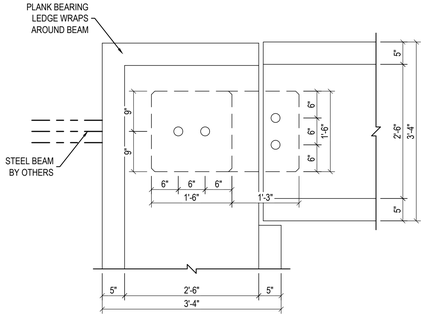
224 SECTION
SCALE: ½"=1'-0"



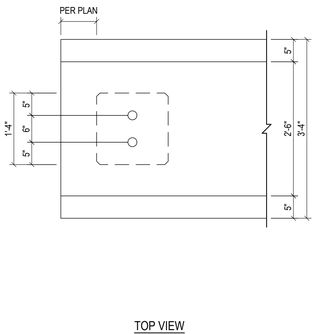
225 SECTION
SCALE: ½"=1'-0"



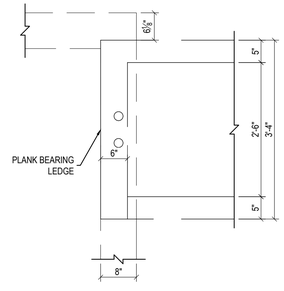
226 SECTION
SCALE: ½"=1'-0"



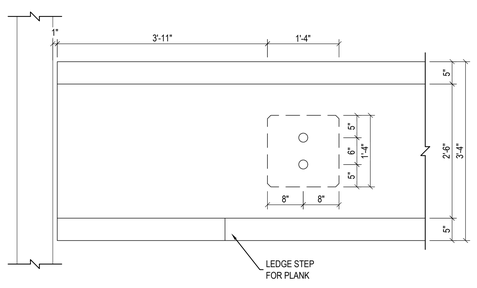
TOP VIEW



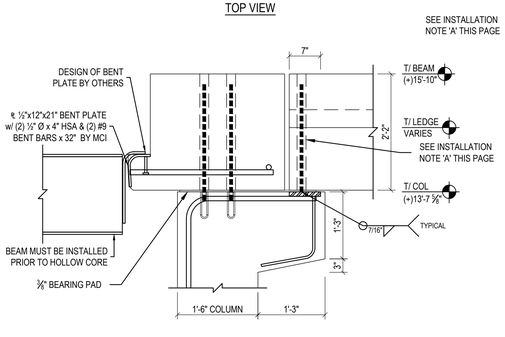
TOP VIEW



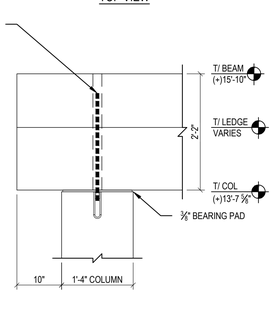
TOP VIEW



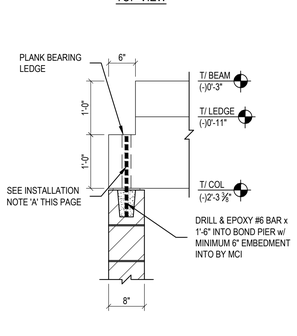
TOP VIEW



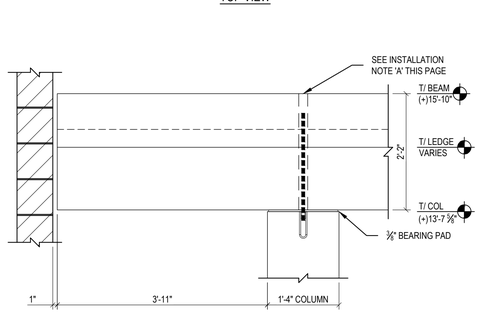
227 SECTION
SCALE: ½"=1'-0"



228 SECTION
SCALE: ½"=1'-0"



229 SECTION
SCALE: ½"=1'-0"



230 SECTION
SCALE: ½"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":
GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

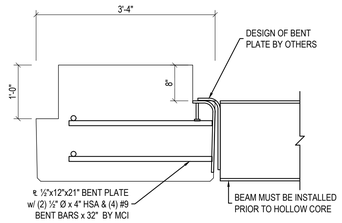
MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1572
800.236.1572
F 815.389.2339
msprecast.com

REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

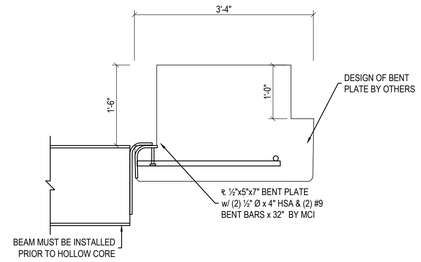
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

PRECAST HOLLOW CORE SECTIONS

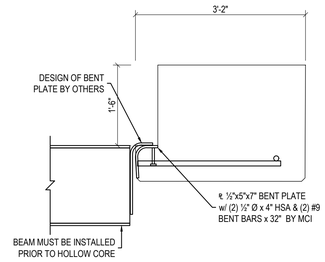
PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"
JOB NUMBER: 17086
SHEET: PC 06.9



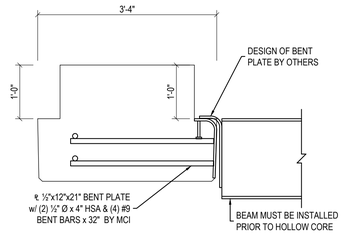
231 SECTION
SCALE: ½"=1'-0"



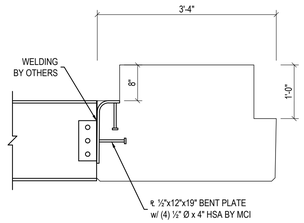
232 SECTION
SCALE: ½"=1'-0"



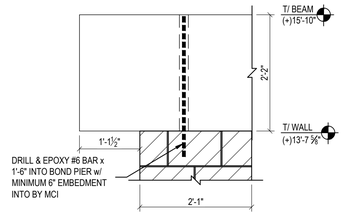
233 SECTION
SCALE: ½"=1'-0"



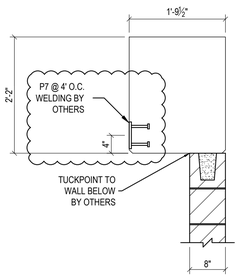
234 SECTION
SCALE: ½"=1'-0"



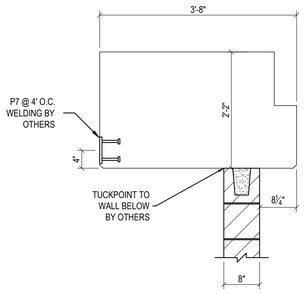
235 SECTION
SCALE: ½"=1'-0"



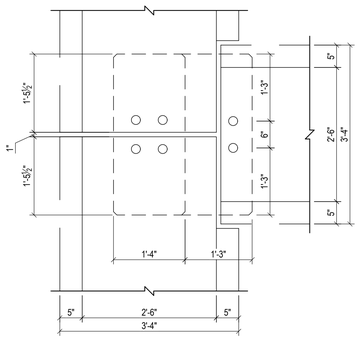
236 SECTION
SCALE: ½"=1'-0"



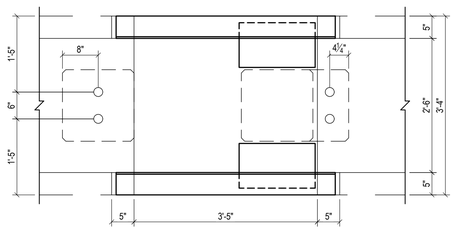
237 SECTION
SCALE: ½"=1'-0"



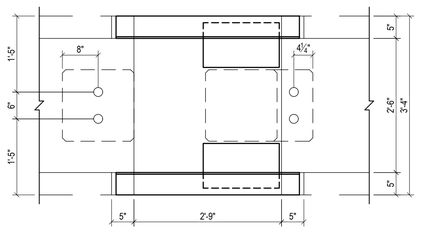
238 SECTION
SCALE: ½"=1'-0"

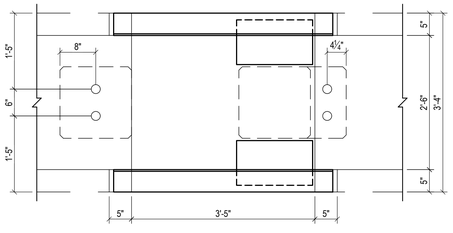


TOP VIEW



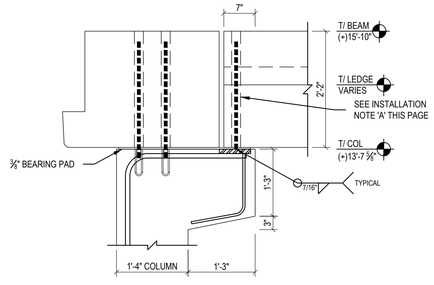
(OPP. HAND @ "SIM")





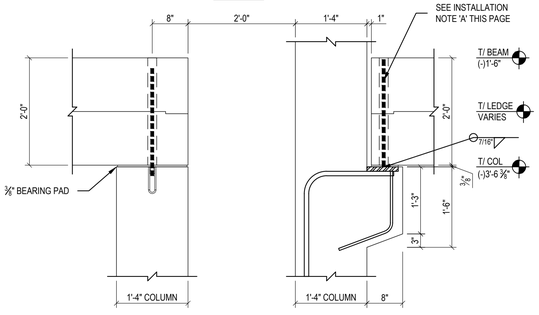
(OPP. HAND @ "SIM")

TOP VIEW



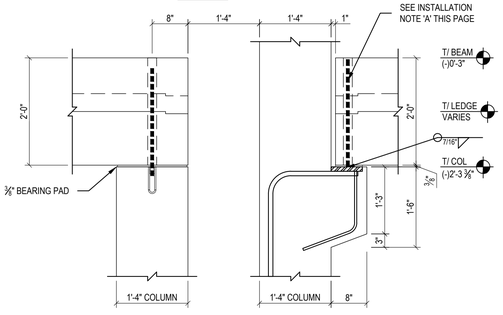
239 SECTION
SCALE: ½"=1'-0"

TOP VIEW



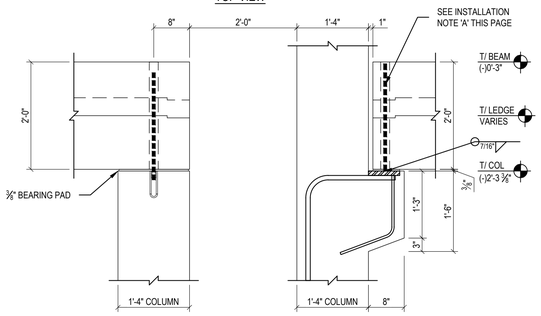
240 SECTION
SCALE: ½"=1'-0"

TOP VIEW

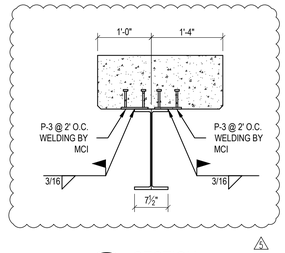


241 SECTION
SCALE: ½"=1'-0"

TOP VIEW



242 SECTION
SCALE: ½"=1'-0"



243 SECTION
SCALE: ½"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":
GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1972
800.256.1972
F 815.389.2339
msprecast.com

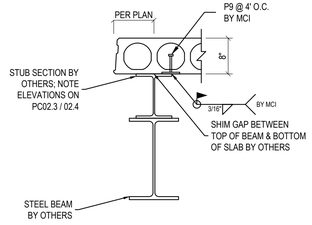
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

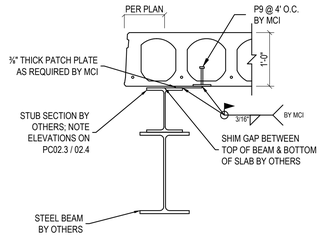
ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

PRECAST HOLLOW CORE SECTIONS

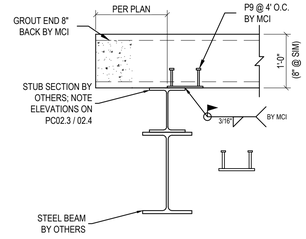
JOB NUMBER: 17086
SHEET: PC 06.10



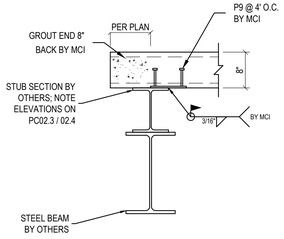
300 SECTION
SCALE: 3/4"=1'-0"



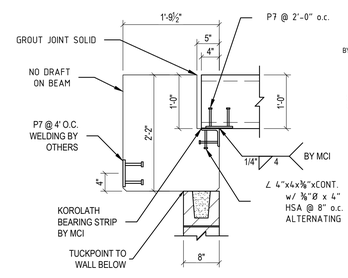
301 SECTION
SCALE: 3/4"=1'-0"



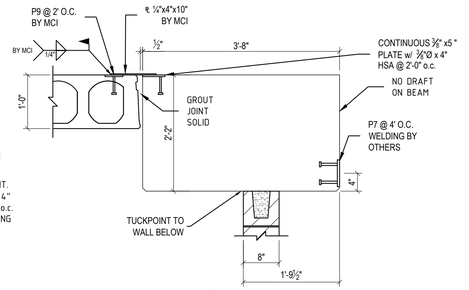
302 SECTION
SCALE: 3/4"=1'-0"



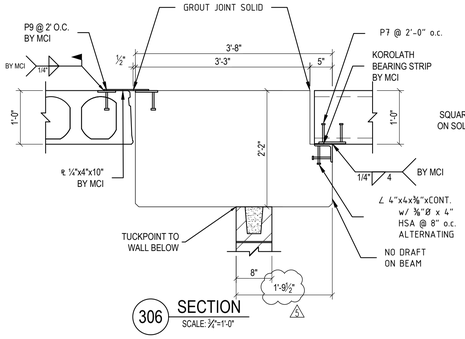
303 SECTION
SCALE: 3/4"=1'-0"



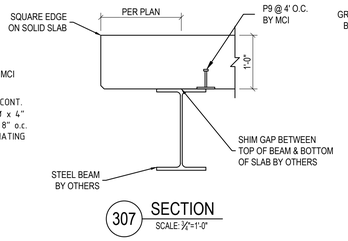
304 SECTION
SCALE: 3/4"=1'-0"



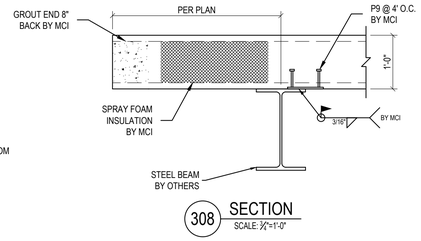
305 SECTION
SCALE: 3/4"=1'-0"



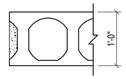
306 SECTION
SCALE: 3/4"=1'-0"



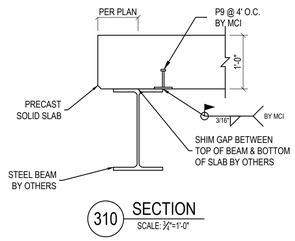
307 SECTION
SCALE: 3/4"=1'-0"



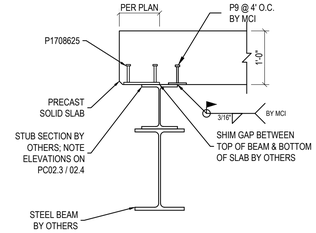
308 SECTION
SCALE: 3/4"=1'-0"



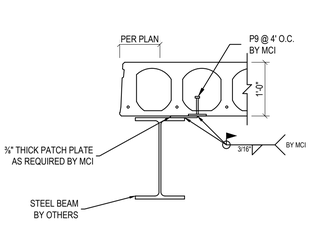
309 SECTION
SCALE: 3/4"=1'-0"



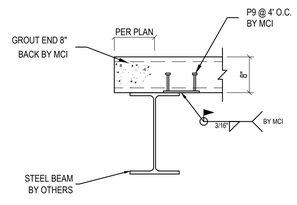
310 SECTION
SCALE: 3/4"=1'-0"



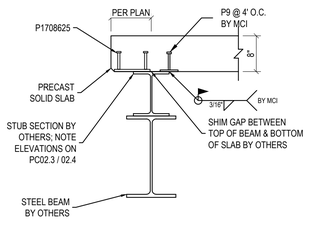
311 SECTION
SCALE: 3/4"=1'-0"



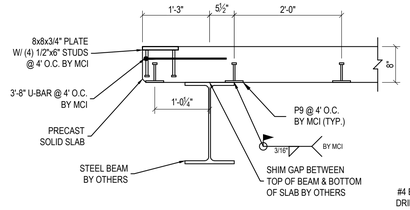
312 SECTION
SCALE: 3/4"=1'-0"



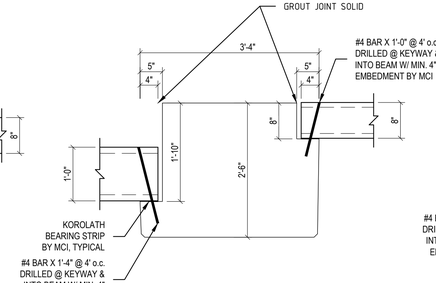
313 SECTION
SCALE: 3/4"=1'-0"



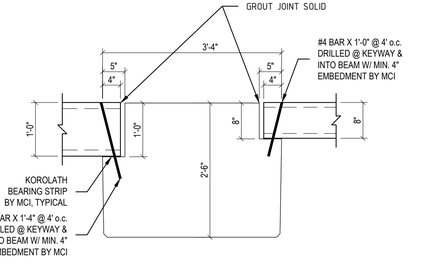
314 SECTION
SCALE: 3/4"=1'-0"



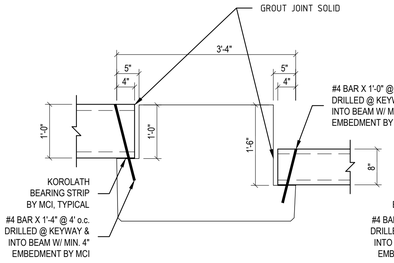
315 SECTION
SCALE: 3/4"=1'-0"



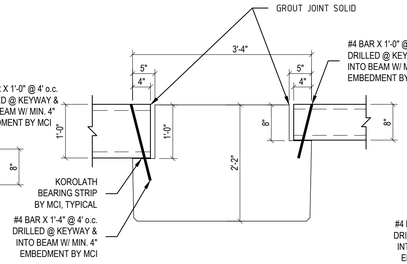
316 SECTION
SCALE: 3/4"=1'-0"



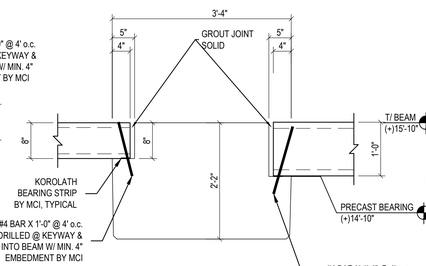
317 SECTION
SCALE: 3/4"=1'-0"



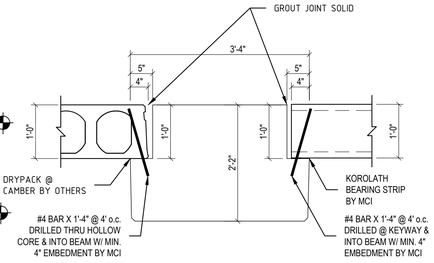
318 SECTION
SCALE: 3/4"=1'-0"



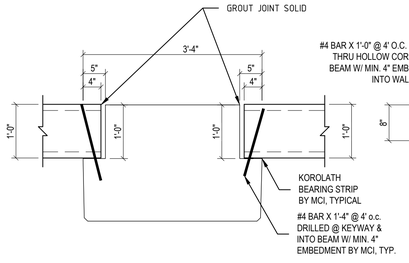
319 SECTION
SCALE: 3/4"=1'-0"



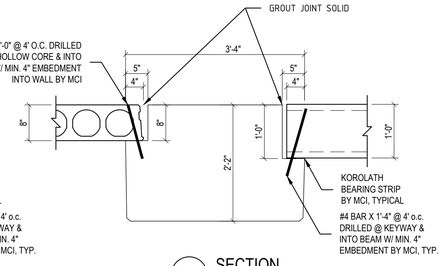
320 SECTION
SCALE: 3/4"=1'-0"



321 SECTION
SCALE: 3/4"=1'-0"



322 SECTION
SCALE: 3/4"=1'-0"



323 SECTION
SCALE: 3/4"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
F 608.364.1077
F 815.389.2339
msprecast.com

REVISION	DATE	BY	DESCRIPTION
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

PRECAST HOLLOW CORE SECTIONS

JOB NUMBER 17086
SHEET PC 06.11

324 SECTION
SCALE: ½"=1'-0"

325 SECTION
SCALE: ½"=1'-0"

326 SECTION
SCALE: ½"=1'-0"

327 SECTION
SCALE: ½"=1'-0"

328 SECTION
SCALE: ½"=1'-0"

329 SECTION
SCALE: ½"=1'-0"

330 SECTION
SCALE: ½"=1'-0"

331 SECTION
SCALE: ½"=1'-0"

332 SECTION
SCALE: ½"=1'-0"

333 SECTION
SCALE: ½"=1'-0"

334 SECTION
SCALE: ½"=1'-0"

335 SECTION
SCALE: ½"=1'-0"

336 SECTION
SCALE: ½"=1'-0"

337 SECTION
SCALE: ½"=1'-0"

338 SECTION
SCALE: ½"=1'-0"

339 SECTION
SCALE: ½"=1'-0"

340 SECTION
SCALE: ½"=1'-0"

341 SECTION
SCALE: ½"=1'-0"

342 SECTION
SCALE: ½"=1'-0"

343 SECTION
SCALE: ½"=1'-0"

344 SECTION
SCALE: ½"=1'-0"

345 SECTION
SCALE: ½"=1'-0"

346 SECTION
SCALE: ½"=1'-0"

347 SECTION
SCALE: ½"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":
GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2309
msprecast.com

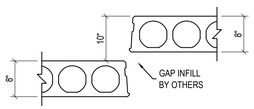
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHO	TO PRODUCTION
4	04.25.18	BHO	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHO	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

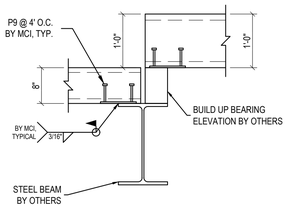
PRECAST HOLLOW CORE SECTIONS

PROJECT ENGINEER	BEG	PROJECT LEAD	MJK
PROJECT DESIGNER	BDM	SCALE	3/32"=1'-0"

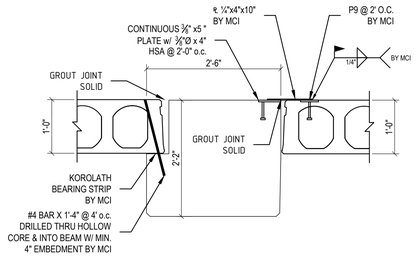
JOB NUMBER 17086
SHEET PC 06.12



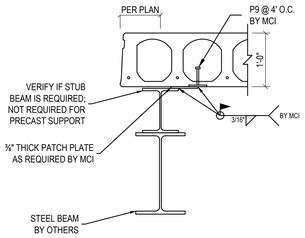
348 SECTION
SCALE: 3/4"=1'-0"



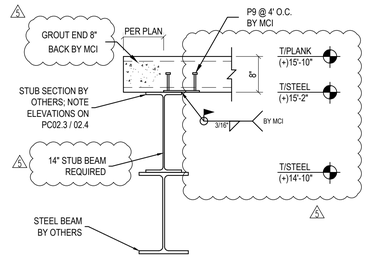
349 SECTION
SCALE: 3/4"=1'-0"



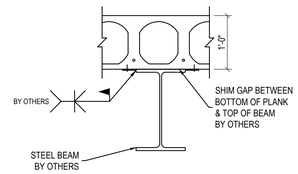
350 SECTION
SCALE: 3/4"=1'-0"



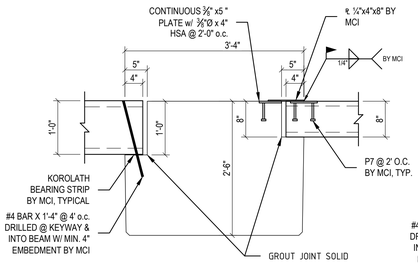
351 SECTION
SCALE: 3/4"=1'-0"



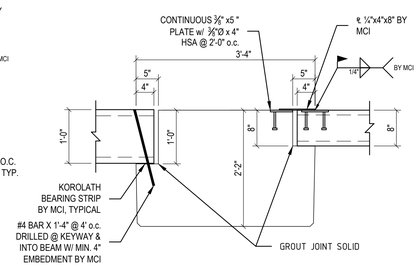
352 SECTION
SCALE: 3/4"=1'-0"



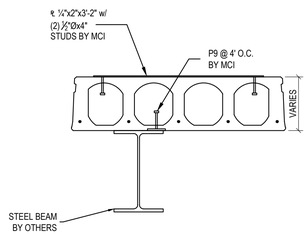
353 SECTION
SCALE: 3/4"=1'-0"



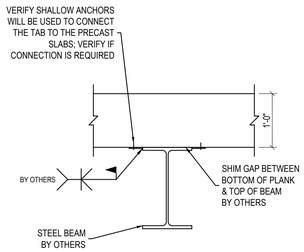
354 SECTION
SCALE: 3/4"=1'-0"



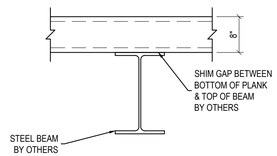
355 SECTION
SCALE: 3/4"=1'-0"



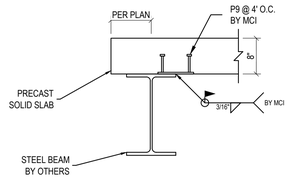
356 SECTION
SCALE: 3/4"=1'-0"



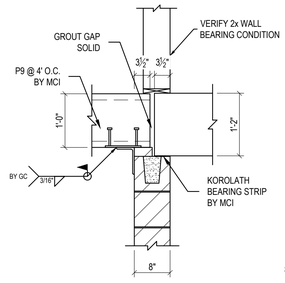
357 SECTION
SCALE: 3/4"=1'-0"



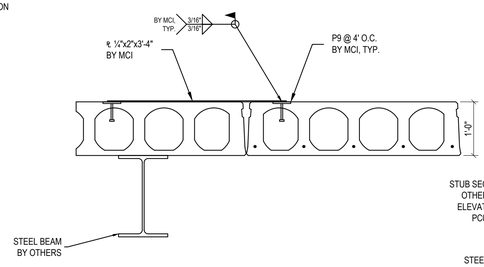
358 SECTION
SCALE: 3/4"=1'-0"



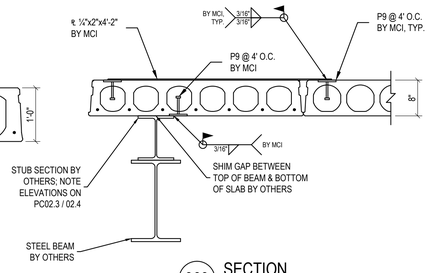
359 SECTION
SCALE: 3/4"=1'-0"



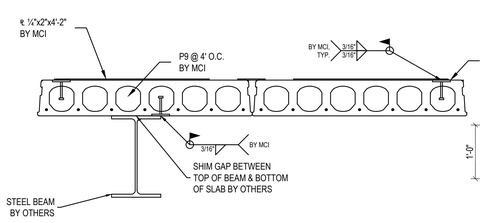
361 SECTION
SCALE: 3/4"=1'-0"



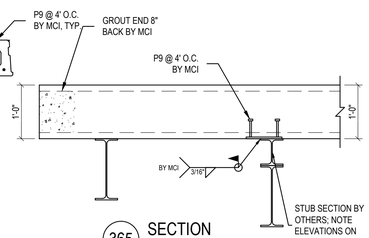
362 SECTION
SCALE: 3/4"=1'-0"



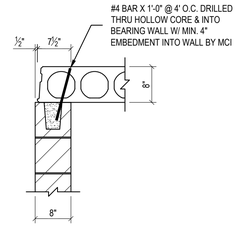
363 SECTION
SCALE: 3/4"=1'-0"



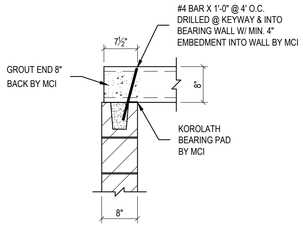
364 SECTION
SCALE: 3/4"=1'-0"



365 SECTION
SCALE: 3/4"=1'-0"



366 SECTION
SCALE: 3/4"=1'-0"



367 SECTION
SCALE: 3/4"=1'-0"

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

INSTALLATION NOTE "A":
GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1072
800.236.1072
F 815.389.2339
msprecast.com

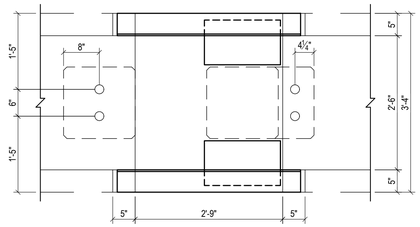
REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	BHD	TO PRODUCTION
4	04.25.18	BHD	RESUBMITTAL FOR APPROVAL
3	02.19.18	BHD	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

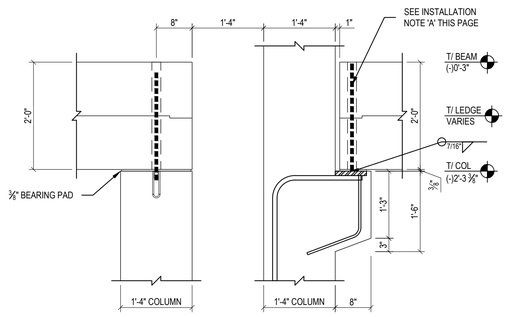
PRECAST HOLLOW CORE SECTIONS

JOB NUMBER 17086
SHEET PC 06.13

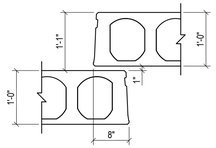


(OPP. HAND @ "SIM")

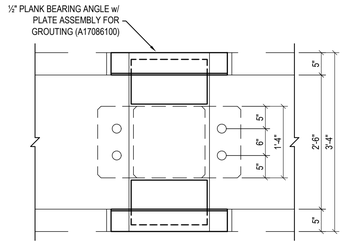
TOP VIEW



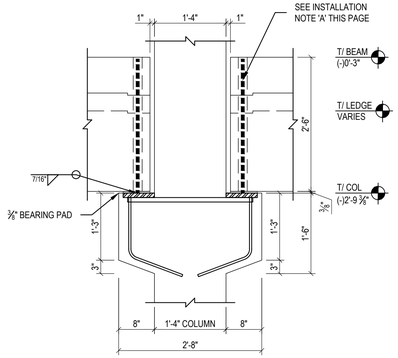
368 SECTION
SCALE: ¾"=1'-0"



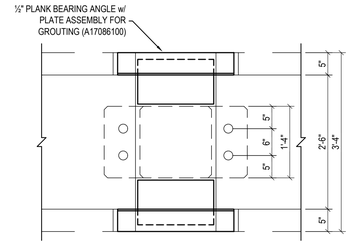
369 SECTION
SCALE: ¾"=1'-0"



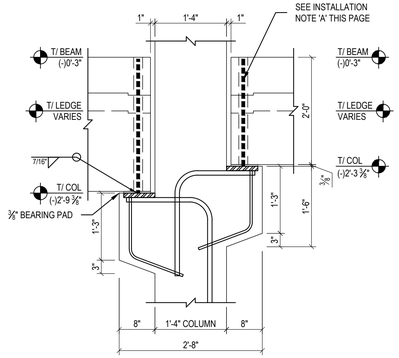
TOP VIEW



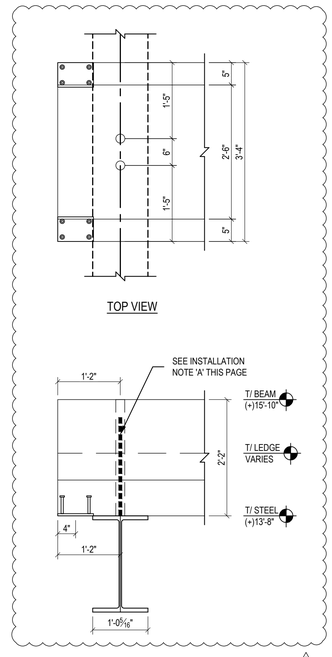
370 SECTION
SCALE: ¾"=1'-0"



TOP VIEW



371 SECTION
SCALE: ¾"=1'-0"



372 SECTION
SCALE: ¾"=1'-0"

INSTALLATION NOTE "A":

GROUT TUBE TO BE MATED WITH 3/4"Ø ROD. TUBE TO BE FILLED WITH 6" MIN. SAND. REMAINING TO BE GROUTED WITH CEMENT.

INSTALLATION OF ALL PRECAST IS TO COMPLY WITH ALL PCI INSTALLATION GUIDELINES

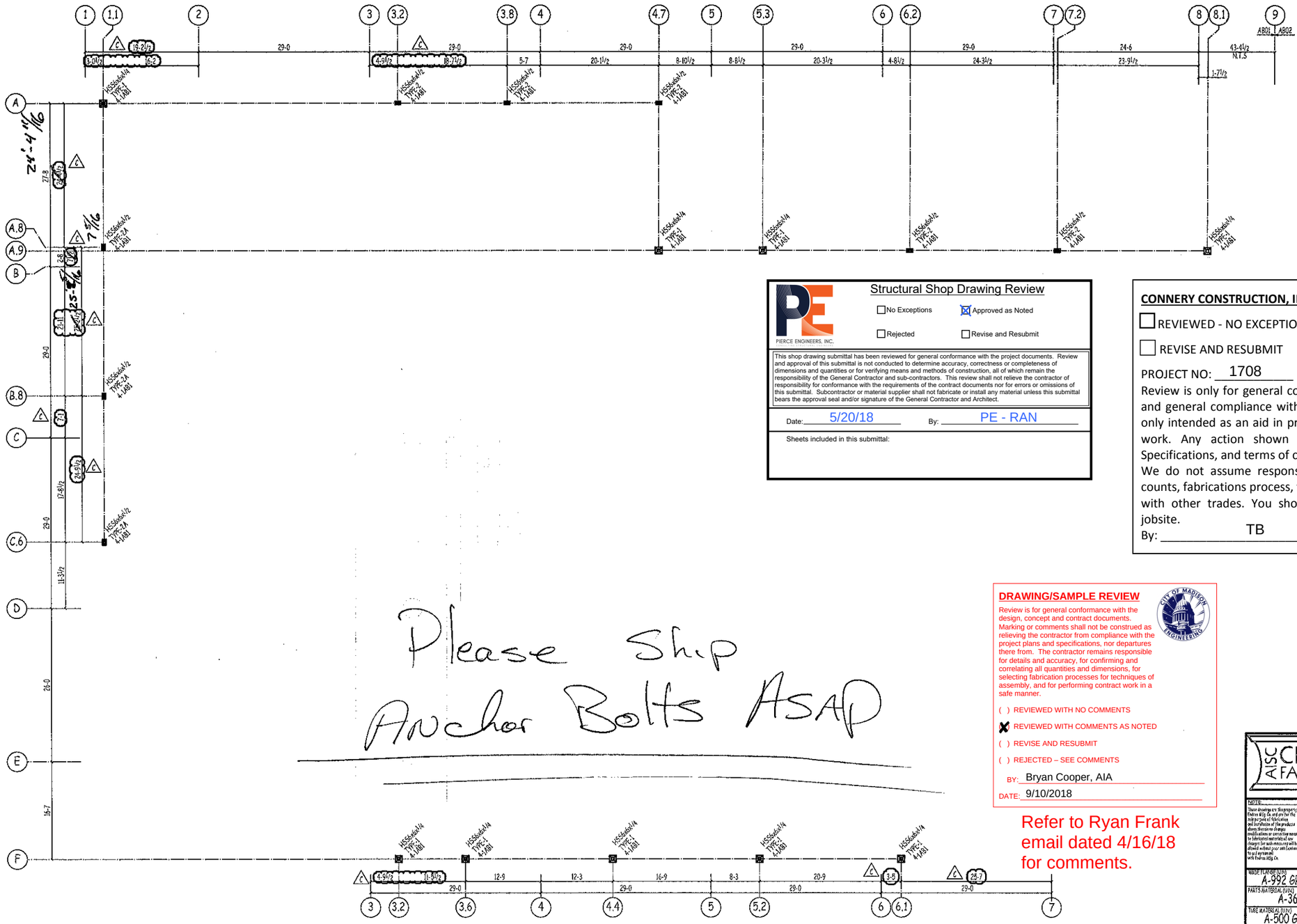
MID-STATES CONCRETE INDUSTRIES
500 SOUTH PARK AVENUE
SOUTH BELOIT, IL 61080
P 608.364.1572
800.236.1572
F 815.389.2339
msprecast.com

REVISION	DATE	BY	DESCRIPTION
-	-	-	-
5	05.09.18	SHO	TO PRODUCTION
4	04.25.18	SHO	RESUBMITTAL FOR APPROVAL
3	02.19.18	SHO	RESUBMITTAL FOR APPROVAL
2	09.18.17	BDM	FULL DRAWING SET OFA
1	09.01.17	BDM	1st FLOOR OFA

ROYSTER CROSSINGS
LOT 2
521-523 GRAND OAK TRL
MADISON, WISCONSIN 53703

PRECAST HOLLOW CORE SECTIONS

PROJECT ENGINEER: BEG
PROJECT DESIGNER: BDM
PROJECT LEAD: MJK
SCALE: 3/32"=1'-0"
JOB NUMBER: 17086
SHEET: PC 06.14



Please Ship
Anchor Bolts ASAP

ANCHOR BOLT PLAN -WEST
B.O BASE PLATE ELEVATION: (-)1'-4" (U.N.)
N.T.S - NOT TO SCALE

Structural Shop Drawing Review

PIERCE ENGINEERS, INC.

☐ No Exceptions ☒ Approved as Noted
☐ Rejected ☐ Revise and Resubmit

This shop drawing submittal has been reviewed for general conformance with the project documents. Review and approval of this submittal is not conducted to determine accuracy, correctness or completeness of dimensions and quantities or for verifying means and methods of construction, all of which remain the responsibility of the General Contractor and sub-contractors. This review shall not relieve the contractor of responsibility for conformance with the requirements of the contract documents nor for errors or omissions of this submittal. Subcontractor or material supplier shall not fabricate or install any material unless this submittal bears the approval seal and/or signature of the General Contractor and Architect.

Date: 5/20/18 By: PE - RAN

Sheets included in this submittal:

CONNERY CONSTRUCTION, INC. **GENERAL CONTRACTORS**

☐ REVIEWED - NO EXCEPTION TAKEN ☐ REJECTED
☐ REVISE AND RESUBMIT ☒ MAKE CORRECTION NOTED

PROJECT NO: 1708 SUBMITTAL NO: 05 12 00-1 Rev 1

Review is only for general conformance with the design concept of the project and general compliance with the information in the Contract Documents. It is only intended as an aid in preventing errors and improving coordination of the work. Any action shown is subject to the requirements of the Plans, Specifications, and terms of contract.

We do not assume responsibility for design of items, checking dimensions, counts, fabrications process, techniques of construction, or coordination of work with other trades. You should confirm and correlate all dimensions at the jobsite.

By: TB Date: 04-04-2018

DRAWING/SAMPLE REVIEW

CITY OF MADISON ENGINEERING

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS
(X) REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA
DATE: 9/10/2018

Refer to Ryan Frank email dated 4/16/18 for comments.

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

	FIELD	SHOP	APPROVAL	E	06-28	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown. Reuse or changes, modifications or corrective measures to fabricated materials or any changes for such measures will be allowed without your and Endres Mfg. Co.'s agreement with Endres Mfg. Co.

DIRECTION NOTE: UNLESS OTHERWISE NOTED - ALL DIMENSIONS SHOWN ARE TO BE MEASURED HORIZONTALLY OR VERTICALLY AND NOT ALONG THE TURNED ELEMENT/AT OR SLOPED.

SHOP NOTE: PAINT PIECE MARK ON LEFTEND AS DETAILED. ALL OF PAINTABLE SURFACES SHALL BE SHOP PAINTED TO A MINIMUM OF AT LEAST 1½ MILS

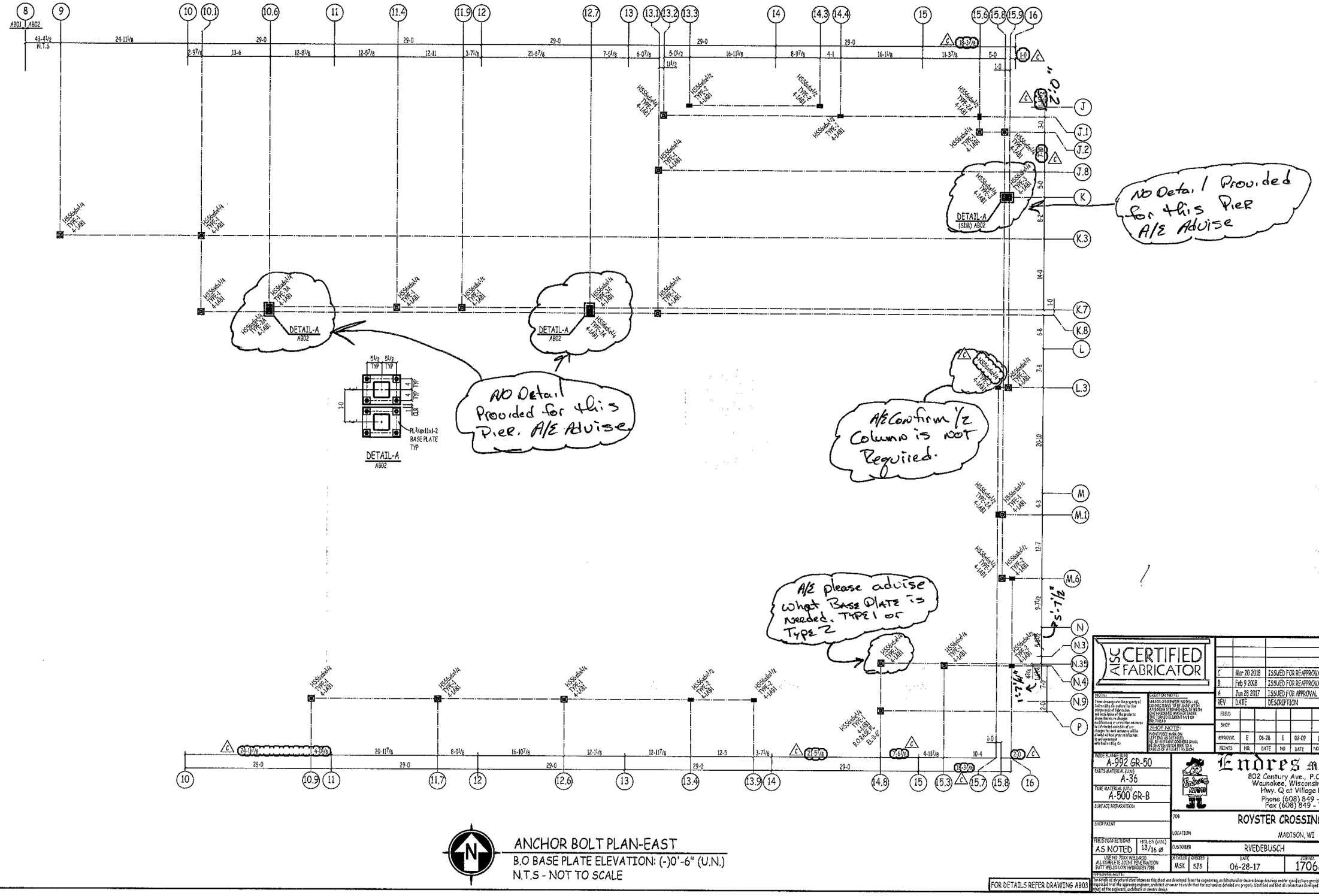
WIDE FLANGE (U.N.) A-992 GR-50
PLATE MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
WELD NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK CHECKED: SJS DATE: 06-28-17 JOB NO.: 17068
DRWG NO.: AB01

APPROVAL NOTE: No details of structural steel shown on this sheet are developed from the engineering, architectural or erectors design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineering engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings can physically be met by the engineer, architect or owners design

FOR DETAILS REFER DRAWING AB03



AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jan 28 2017	ISSUED FOR APPROVAL	SAT

	FIELD	SHOP	APPROVAL	PRINTS
NO.			E	
DATE			06-28	
NO			E	
DATE			02-09	
NO.			E	
DATE			03-20	
NO.				
DATE				

NOTES: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and includes none of the products shown. Errors in changes modifications or correction necessary to fabricated materials of any changes for both versions will be allowed without prior notification to and agreement with Endres Mfg. Co.

CHECK OR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A MINIMUM STRENGTH EQUAL TO ONE HALF THE MEMBER'S MATERIAL UNDER THE LOADING ELEMENT TYPE OR TOTAL LOAD.

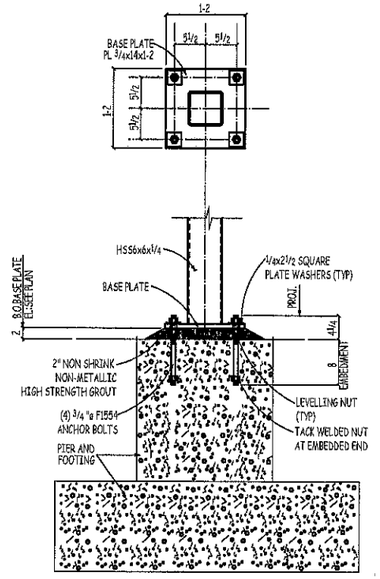
SHOP NOTE: PAINT TYPES MARK ON SHIPPING ASSEMBLIES. ALL BOLTHEAD COVERED SHALL BE PAINTED WITH TWO A GRADES OF LEAST ½ INCH

WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	A.S NOTED
HOLES (U.N.)	13/16 ø
USE NO. 7000 WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

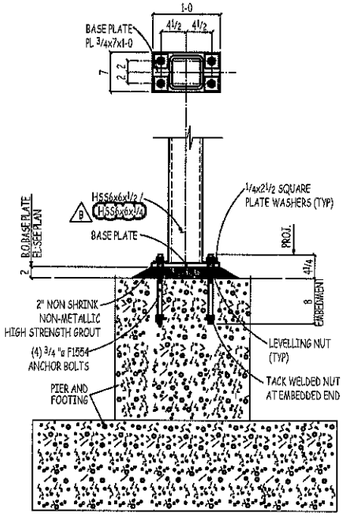
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RVEDEBUSCH
DETAILER	MSK
CHECKED	SJS
DATE	06-28-17
JOB NO.	17068
DRWG. NO.	AB02

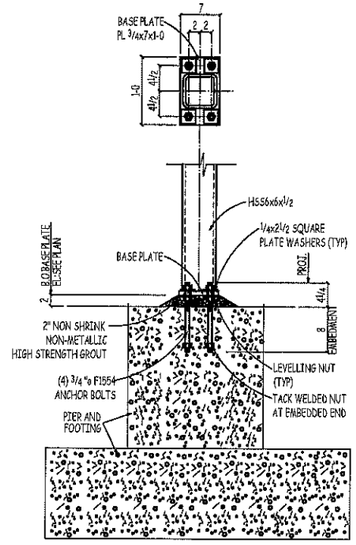
APPROVED NOTES: The details of structural steel shown on this sheet are developed from the engineering, architectural or erectors design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



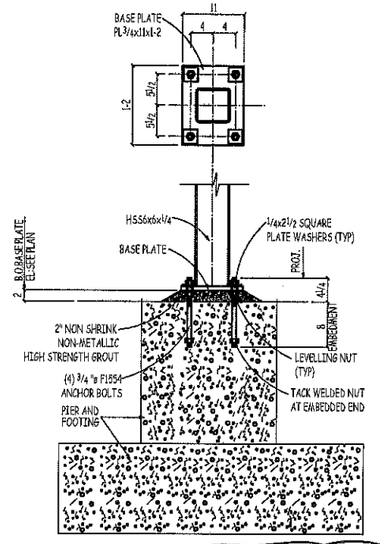
TYPE-1 ✓



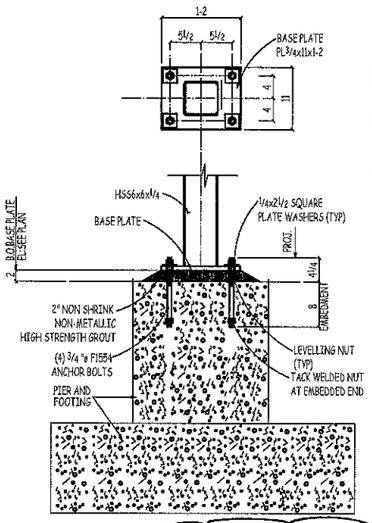
TYPE-2 ✓



TYPE-2A ✓



TYPE-3 A/E Confirm



TYPE-3A A/E Confirm

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

FIELD
SHOP

APPROVAL	E	06-28	E	03-20				
PRINTS	NO.	DATE	NO	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown therein or of copies modifications or extracts or measurements by fabricated materials of any changes for such manner will be allowed without prior notification to and approval with Endres Mfg. Co.

ERECTION NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS USE BASIC WITH ASSEMBLY STUD W/NUTS & WITH OR WITHOUT WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
FACE TO FACE DARK ON LIFE END AS DETAILED ALL BE ON EXPOSE CORNERS SHALL BE CHAMFERED WITH FILES TO A RADIUS OF AT LEAST 1/16 INCH

WIDE FLANGE (UW)	A-992 GR-50
PARTS MATERIAL (UW)	A-36
TUBE MATERIAL (HSS)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (UW)	13/16 ø
USE FCC 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION (CJP) WELDS LOW HYDROGEN 70XX	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

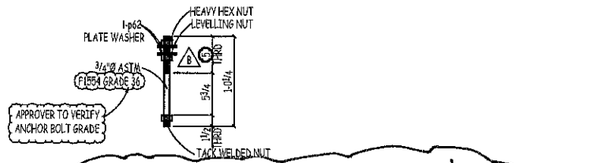
JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RYEDEBUSCH
DETAILER	MSK
CHECKED	SJS
DATE	06-28-17
JOB NO	17068
DRWG. NO.	AB03

DESIGNED TO MEET
The details of structural steelwork on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided by Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 486

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	1AB1	208	ANCHOR ROD		2	
	1AB1	208	RB 3/4	1 0 1/4	2	F1554 GR 36
	pl2	416	FL 1/4x2 1/2	0 2 1/2	0	A36
	hn1	624	3/4 HVT			HHNT A563



208 ANCHOR RODS 1AB1 ✓

ok

NEED ASAP

AISC CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown herein no changes and/or revisions or corrections necessary to fabricated materials of our shop drawings for such revisions will be allowed without prior verification in and agreement with Endres Mfg. Co.

ERECTION NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HDG SERIES BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT FIRST BLAST ON LEFTOVERS AS DETAILED
ALL WELDING TO BE MIG, FLUX CORE OR SHIELDED ARC WITH A SIZING OF AT LEAST 1/4"

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

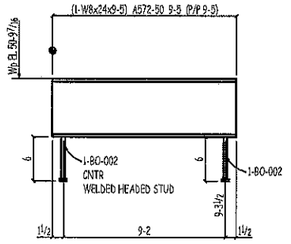
	FIELD	SHOP	APPROVAL	PRINTS
E			E	NO.
				DATE
			06-28	NO.
				DATE
			02-09	NO.
				DATE
				NO.
				DATE

WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: NONE
SHOP PAINT: NONE
FIELD CONNECTORS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO. XXXX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN TUB

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

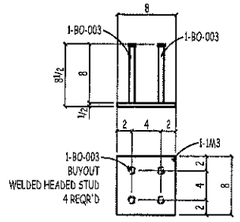
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILED BY: MSK
CHECKED BY: SJS
DATE: 06-28-17
JOB NO.: 17068
DRWG. NO.: ONE

DISCLOSURE STATEMENT:
All details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineering engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



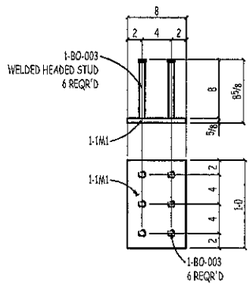
2 HOIST BEAMS 1B1 ok

W 7⁵⁄₁₆x1¼
F 6½x⅜
K ⅞x⅝



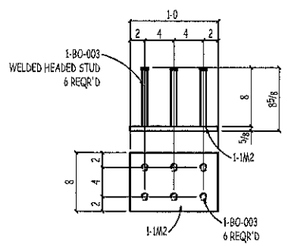
2 EMBEDS 1M3 ✓

NO PAINT



4 EMBEDS 1M1 ✓

NO PAINT



ONE EMBED 1M2 ✓

NO PAINT

Total weight : 596

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	1B1	2	HOIST BEAM		227	
	1B1	2	W8x24	9' 5	226	A992
	BO-002	4	WS ½	0' 6	0	BUYOUT A108
1	1M1	4	EMBED		23	
	1M-1	4	PL ⅝x8	1' 0	17	A36
	BO-003	24	WS ¾	0' 8	1	BUYOUT A105
1	1M2	ONE	EMBED		23	
	1M2	1	PL ⅝x8	1' 0	17	A36
	BO-003	6	WS ¾	0' 8	1	BUYOUT A108
1	1M3	2	EMBED		13	
	1M3	2	FL ½x8	0' 8	9	A36
	BO-003	8	WS ¾	0' 8	1	BUYOUT A105

APPROVER TO VERIFY HOIST BEAM GRADE SINCE DESIGN DRAWING SHOWS A572 GR.50

A/E verify

APPROVER TO VERIFY SURFACE PREPARATION

AISC CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown thereon no changes modifications or corrective entrance to fabricated materials of any changes for such necessary will be allowed without your authorization to said agreement of Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS IN STEEL TO STEEL CONNECTIONS UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINTERS MARK ON ALL PIECES AS LISTED ON SHOP DRAWINGS. ALL PIECES SHALL BE SHIPPED NOTED HERE IN A GROUP OF AT LEAST 10 PIECES.

REV	DATE	DESCRIPTION	DETAILER
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT
FIELD			
SHOP			
APPROVAL	E 06-28		
PRINTS	NO. DATE	NO. DATE NO. DATE NO. DATE NO. DATE	

WIDE FLANGE (U/N)
A-992 GR-50

PARTS MATERIAL (U/N)
A-36

TUBE MATERIAL (U/N)
A-500 GR-B

SURFACE PREPARATION
SSPC SP 2&3

SHOP PAINT
SHERWIN WILLIAMS
STEEL SPEC

FIELD CONNECTIONS
AS NOTED

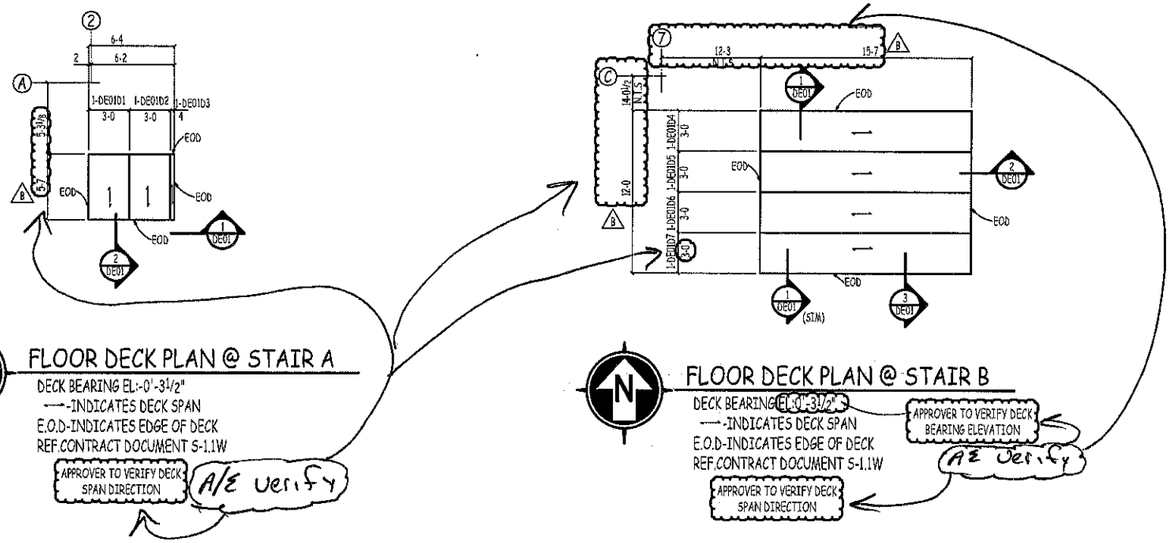
HOLES (U/N)
13/16 ø

USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70ksi

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER | CHECKED: MSK | SJS
DATE: 06-28-17
JOB NO: 17068
DRWG. NO: 1

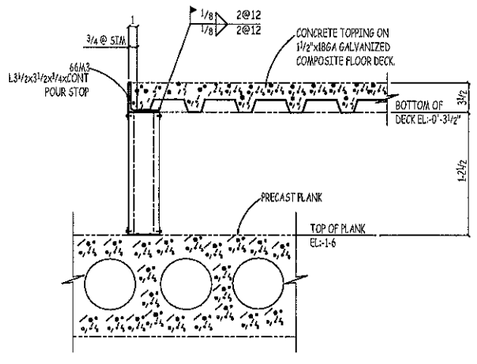
APPROVER NOTES:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design



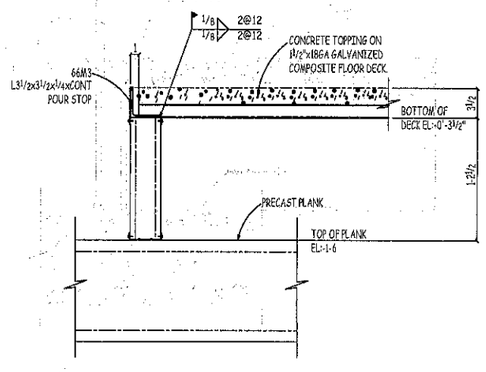
17068_ROYSTER CROSSING LOT 2_DECK SHEDULE							
MK.	QTY	LENGTH	TYPE	GAGE	DEPTH	WIDTH	FINISH
DE01D1	2	5-7	B	18	1½	3-0	GALV.
DE01D2	1	5-7	B	18	1½	3-0	GALV.
DE01D3	1	5-7	B	18	1½	3-0	GALV.
DE01D4	3	15-7	B	18	1½	3-0	GALV.
DE01D5	1	15-7	B	18	1½	3-0	GALV.
DE01D6	1	15-7	B	18	1½	3-0	GALV.
DE01D7	1	15-7	B	18	1½	3-0	GALV.

APPROVER TO VERIFY DECK TYPE,LENGTH & WIDTH

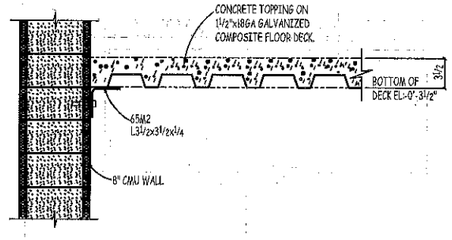
A/E please verify



1 DE01 SECTION
CUT FROM DE01
REF.CONTRACT DOCUMENT 2/S-1.1W



2 DE01 SECTION
CUT FROM DE01
REF.CONTRACT DOCUMENT 2/S-1.1W



3 DE01 SECTION
CUT FROM DE01
REF.CONTRACT DOCUMENT 2/S-1.1W

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD
SHOP

APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are to be for sole purpose of fabrication and erection of the product shown hereon. Any reproduction, modification or alteration, or use for fabricated materials of any design for such purposes will be allowed without prior authorization in and agreement with Endres Mfg. Co.

DIRECTOR NOTES:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A MINIMUM OF 3 BOLTS IN BOTH LEGS. A WASHER IS REQUIRED UNDER THE TURNED ELEMENT BUT OR NUT HEAD.

SHOP NOTE:
PAINT ITEMS MARK ON DETAILING AS NOTED. ALL RE-ENTRANT CORNERS SHALL BE SEALED WITH A FILLET OF A MINIMUM OF AT LEAST ⅛ INCH

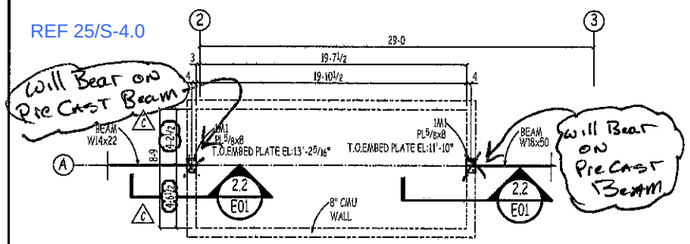
RIDE PLANE (S/N)	A-992 GR-50
PARTS MATERIAL (S/N)	A-36
TUBE MATERIAL (S/N)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (F/N)	13/16 ø
WELDING	ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RVEDEBUSCH
DETAILER	MSK
CHECKED	SJS
DATE	06-26-17
JOB NO.	17068
DRWG. NO.	DE01

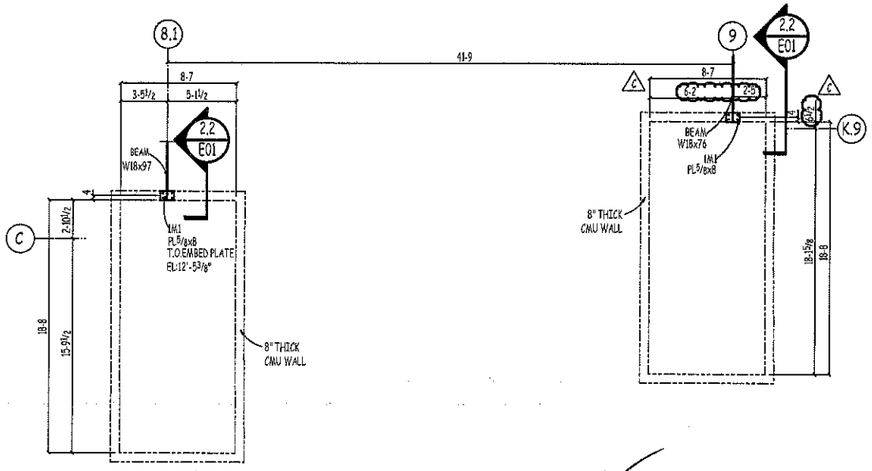
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

REF 25/S-4.0



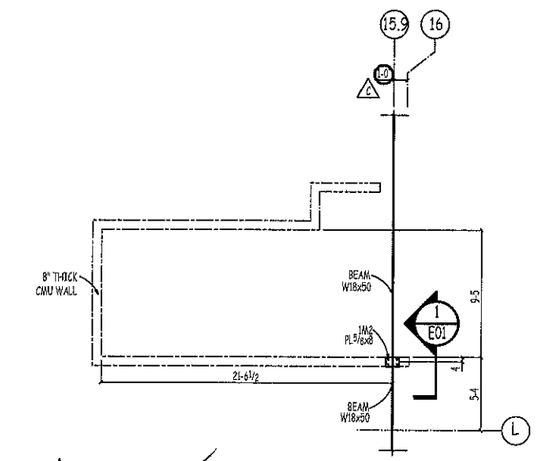
PARTIAL EMBED PLATE PLAN @ STAIR -A

REF CONTRACT DOCUMENT S1.2W
ALL DIMENSIONS ARE TO THE CENTER OF THE EMBED PLATE



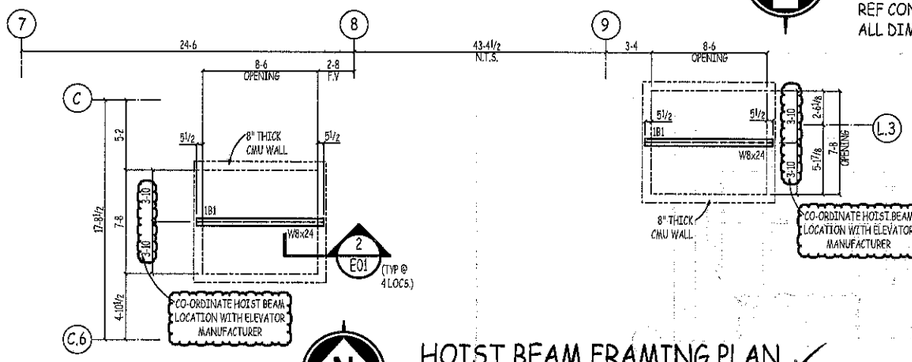
PARTIAL EMBED PLATE PLAN @ STAIR - B & C

T.O.EMBED PLATE ELEVATION : 12'-5 13/16" (U.N.)
REF CONTRACT DOCUMENT S1.2E
ALL DIMENSIONS ARE TO THE CENTER OF THE EMBED PLATE



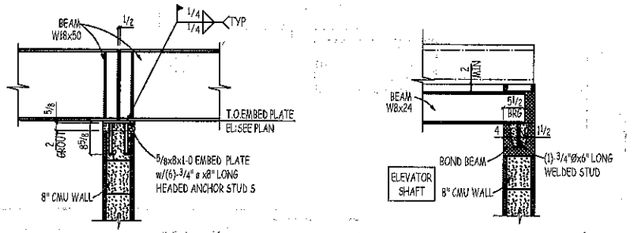
PARTIAL EMBED PLATE PLAN @ STAIR -D

T.O.EMBED PLATE ELEVATION : 13-8" (U.N.)
REF CONTRACT DOCUMENT S1.2E
ALL DIMENSIONS ARE TO THE CENTER OF THE EMBED PLATE

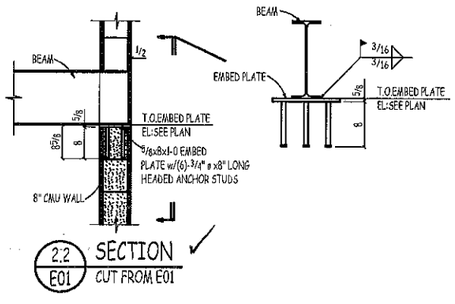


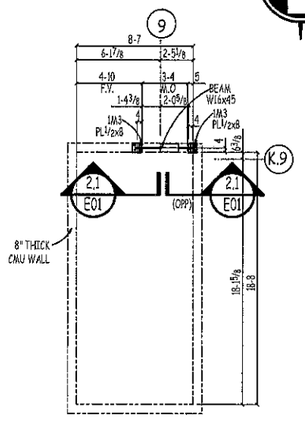
HOIST BEAM FRAMING PLAN

T.O.HOIST BEAM ELEVATION : 50-9 7/16
REF CONTRACT DOCUMENT A3.7
N.T.S.-NOT TO SCALE
F.V - INDICATES FIELD VERIFY DIMENSION



PROVIDE 5/16" STIFFENERS AT SUPPORT





PARTIAL EMBED PLATE PLAN @ STAIR -C

T.O.EMBED PLATE ELEVATION : 7'-0" (U.N.) F.V.
REF CONTRACT DOCUMENT S1.2E
ALL DIMENSIONS ARE TO THE CENTER OF THE EMBED PLATE
M.O. - INDICATES MASONRY OPENING
F.V. - INDICATES FIELD VERIFY DIMENSION

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

FIELD
SHOP
APPROVAL: E 06-28 | E 02-09 | E 03-20
PRINTS: NO. DATE | NO. DATE | NO. DATE | NO. DATE

WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION:
SHOP PAINT:
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO 7000X WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

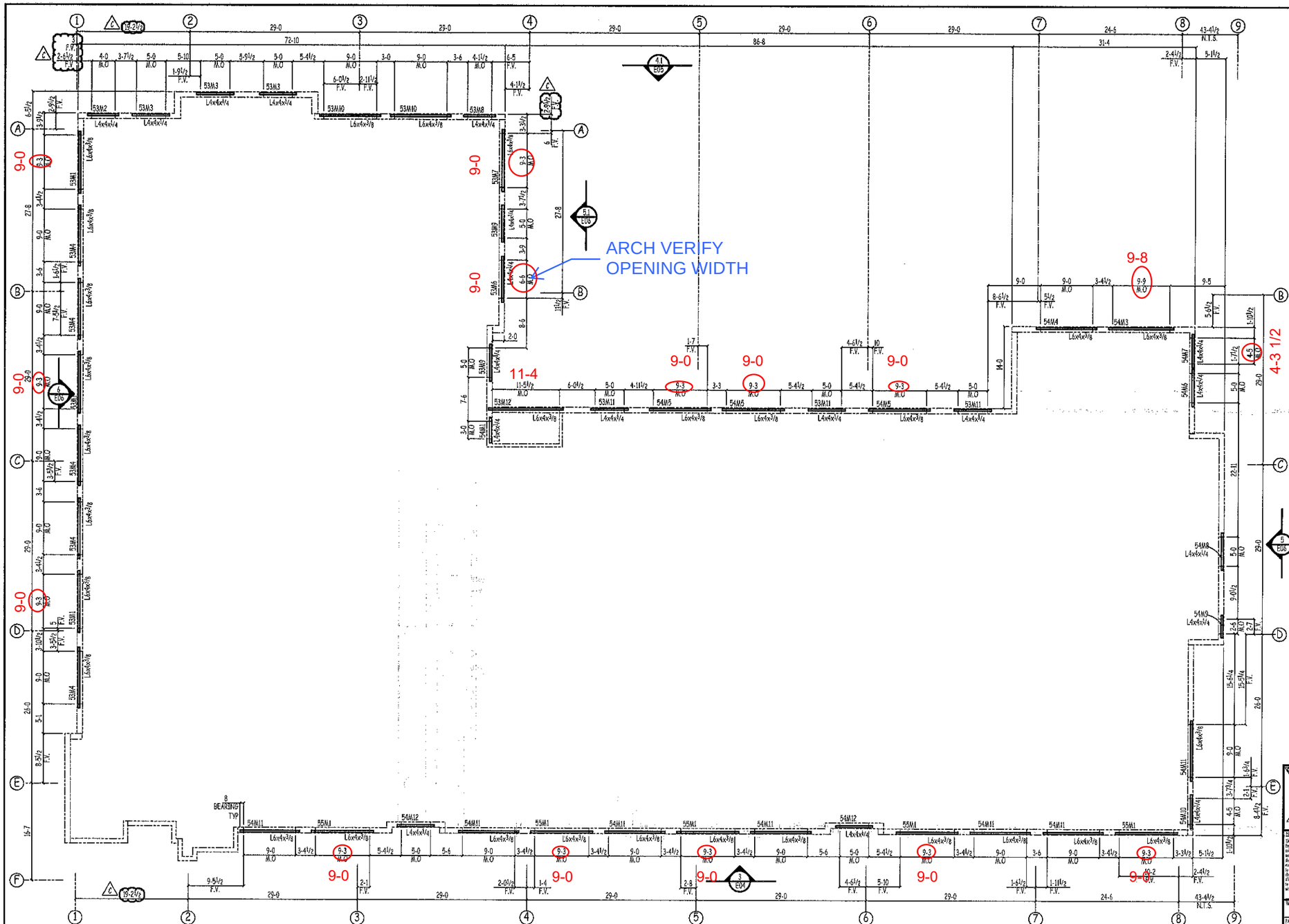
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RYEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-28-17 | JOB NO.: 17068
DRWG. NO.: E01

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections or details are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon and shall not be loaned, copied or otherwise disposed of without the written permission of Endres Mfg. Co.

DIRECTION NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS SHOWN MADE WITH 7/8" DIA. A325N BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

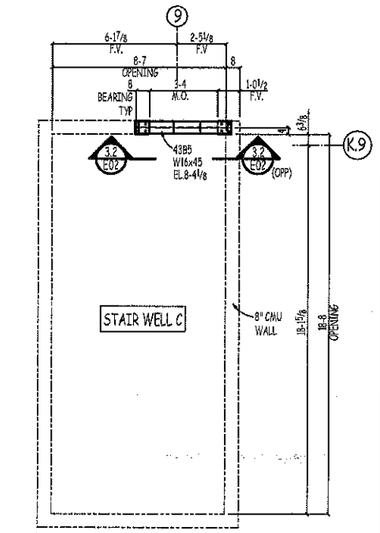
SHOP NOTE:
MINIMUM PLATE SIZE 1/4" FOR HOLES DRILLED OR PUNCHED THROUGH ONE PLATE. MINIMUM PLATE THICKNESS FOR HOLES DRILLED OR PUNCHED THROUGH TWO PLATES TO BE CLAMPED AT LEAST 1/2 INCH



WEST WING BRICK SHELF ANGLE PLAN @EL:35-4 7/8

Not Verified

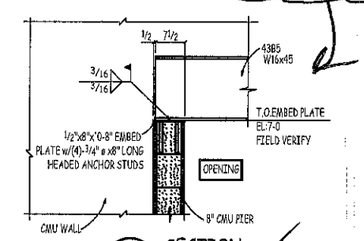
BOTTOM OF BRICK SHELF ANGLE ELEVATION: 35-4 7/8 (U.N.O)
M.O=INDICATES MASONRY OPENING
N.T.S=NOT TO SCALE
F.V=FIELD VERIFY DIMENSIONS
REF.DOCUMENT:A1.2 W



LINTEL FRAMING PLAN

T.O.LINTEL ELEVATION : 8'-4 1/8" (F.V)
REF CONTRACT DOCUMENT S1.2e
N.T.S = NOT TO SCALE
F.V = FIELD VERIFY
REF.DOCUMENT: S1.2E

NEED ASAP



3.2 / E02 SECTION
CUT FROM E02

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown. Reproduction in copies or alterations or corrections to the fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A 3/16 HIGH STRENGTH BOLTS WITH THE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

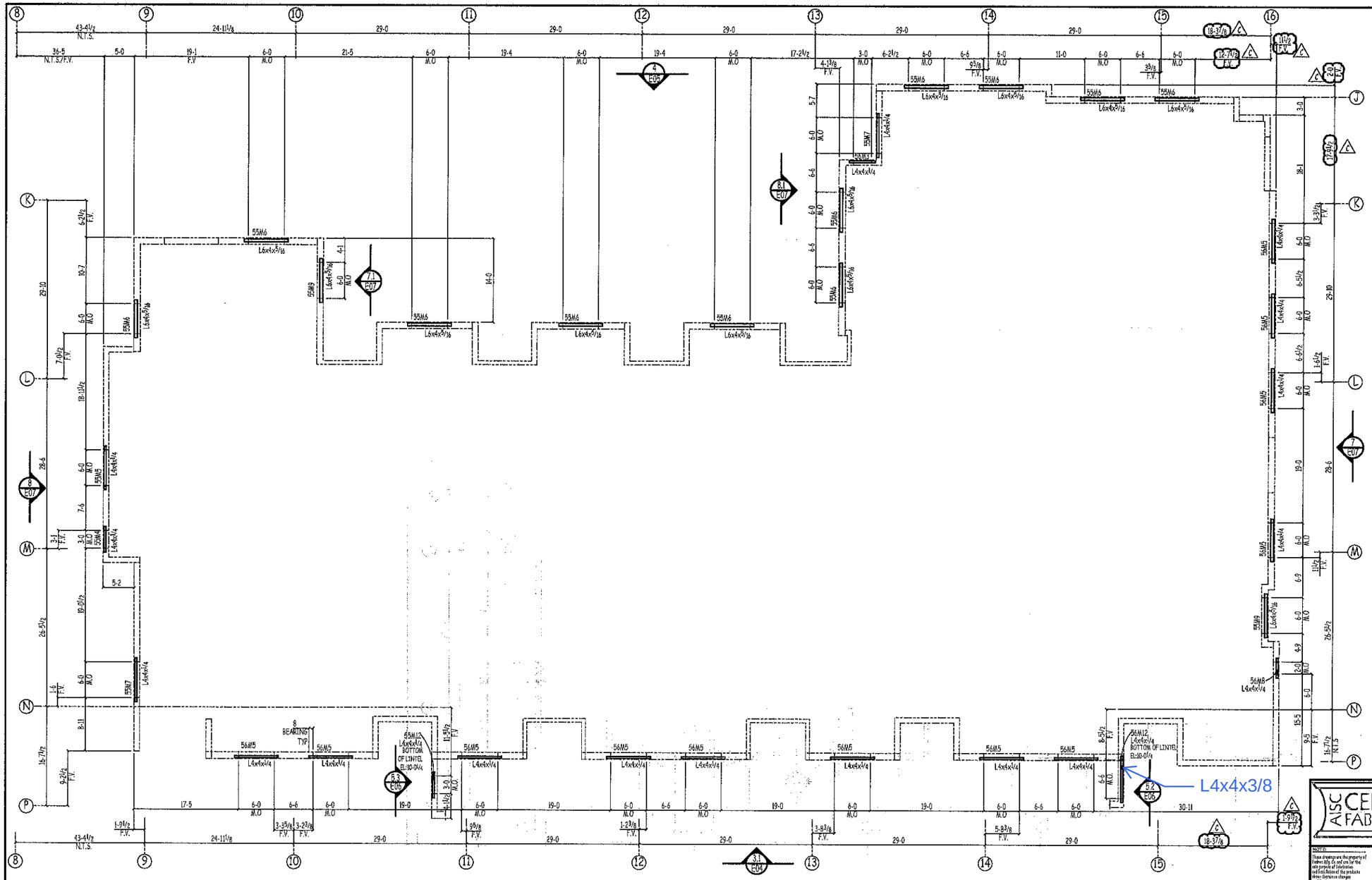
SHOP NOTE: PAINT FIRST BASIC ON LEFT END AS DETAILED. ALL OF EXTRAVAL CORNERS SHALL BE SEALED WITH FIRE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 7000X WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068
DRWG. NO.: E02

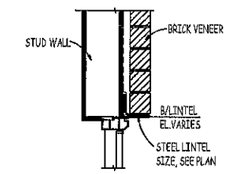
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



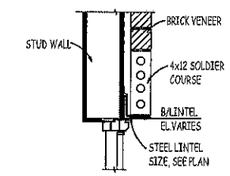
BRICK LINTEL SCHEDULE

SIZE @ BRICK 5" FROM STUD	SIZE @ BRICK 7" FROM STUD	WALL TYPE	SPAN
L4x4x1/4	L6x4x5/16 LLH	4" BRICK	0 < L ≤ 6-0
L4x4x3/8	L6x4x3/8 LLH	4" BRICK	6-0 < L ≤ 8-0
L6x4x3/8 LLV	L6x6x3/8	4" BRICK	8-0 < L ≤ 10-0

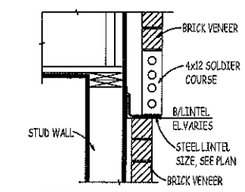
ARCHITECT TO VERIFY HORIZONTAL LEG LENGTH



WINDOW HEAD @ MASONRY VENEER
REF. CONTRACT DOC. 13/A4.8



STOREFRONT HEAD @ MASONRY
REF. CONTRACT DOC. 8/A4.8



BRICK TRANSITION DETAIL
REF. CONTRACT DOC. 24/A4.9

TYP LINTEL DETAIL

EAST WING BRICK SHELF ANGLE PLAN @EL:35-47/8

Not Verifield

BOTTOM OF BRICK SHELF ANGLE ELEVATION: 35-47/8 (U.N.O)
M.O=INDICATES MASONRY OPENING
N.T.S=NOT TO SCALE
F.V=INDICATES FIELD VERIFY DIMENSIONS
REF.DOCUMENT:A1.2 E

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and fabrication of the products shown therein. Any changes, modifications or alterations measures by fabricated materials of any changes for such materials will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A325 HEAVY STRUCTURAL SHEETS WITH THE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

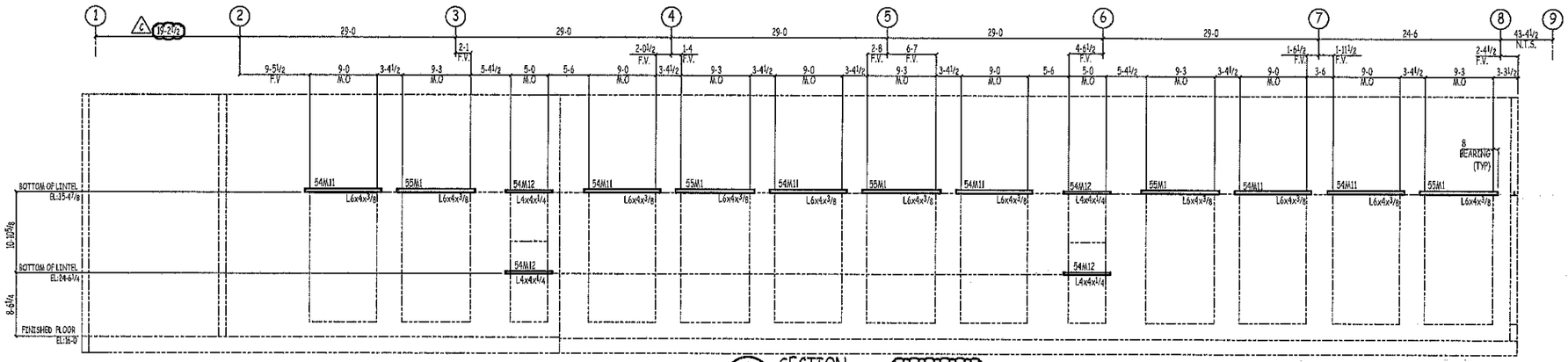
SHOP NOTE: PAINT PRIOR BASIC ON LEFT AND AS SPECIFIED. ALL BE ONTARIO COMPRESSIBLE SHALL BE SPACED HORIZONTALLY TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N) A-992 GR-50
PARTS MATERIAL (U.N) A-36
TUBE MATERIAL (U.N) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N) 13/16 ø
USE NO. 7000 WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068
DRWG. NO.: E03

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

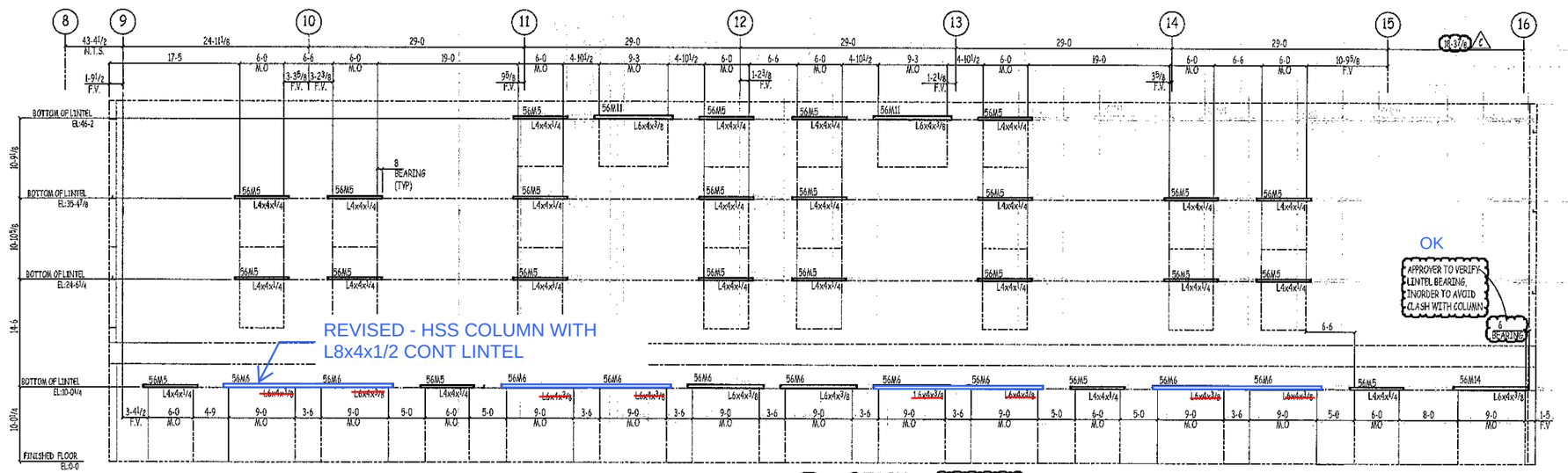


3 / E04 SECTION
CUT FROM E02

FIELD VERIFY BOTTOM OF LINTEL ELEVATION

REFERENCE CONTRACT DOCUMENT: 2/A2.1W
M.O=INDICATES MASONRY OPENING
F.V=FIELD VERIFY DIMENSIONS
N.T.S= INDICATES NOT TO SCALE
ANGLE LONG LEG VERTICAL U.N.O

WEST WING BRICK SHELF ANGLE SOUTH ELEVATION



3.1 / E04 SECTION
CUT FROM E03

FIELD VERIFY BOTTOM OF LINTEL ELEVATION

REF. CONTRACT DOCUMENT: 1/A2.1E
M.O=INDICATES MASONRY OPENING
F.V=FIELD VERIFY DIMENSIONS
N.T.S= INDICATES NOT TO SCALE
ANGLE LONG LEG VERTICAL U.N.O

EAST WING BRICK SHELF ANGLE SOUTH ELEVATION

NOT verified

CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon. Changes or deviations or re-use without written consent is prohibited and will be cause for such measures will be allowed with all prior art. Similar to and agreement with Endres Mfg. Co.

DIRECTOR NOTES: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH AISC MANUAL STEEL CONSTRUCTION 13TH EDITION. ALL BOLTS TO BE 3/4" DIA. HIGH STRENGTH BOLTS TO BE TIGHTENED TO SNUG TIGHT.

SHOP NOTE: PAINT TO BE MADE ON LIFTING AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHOP PAINTED TO A RADIUS OF AT LEAST ½ INCH

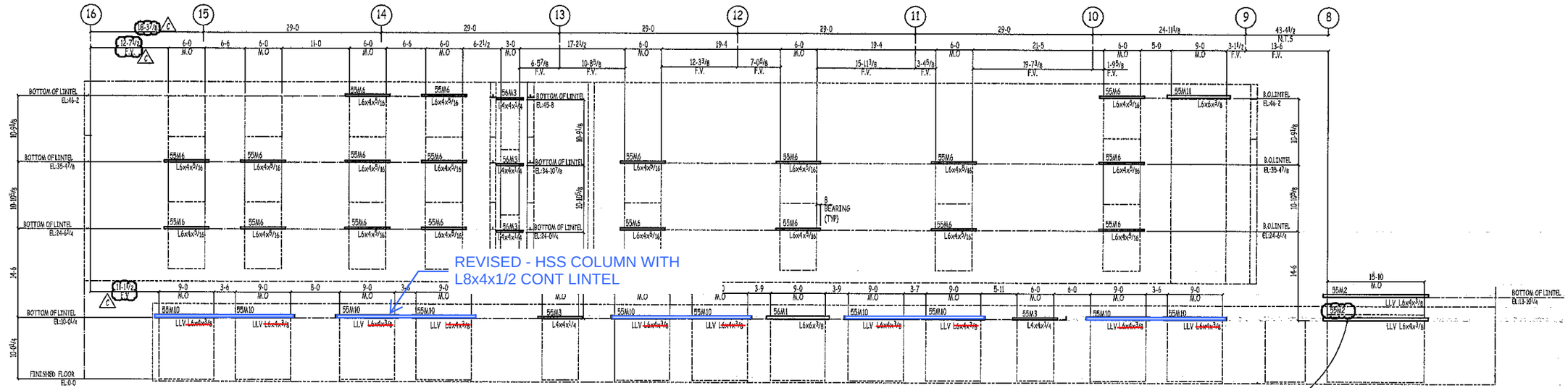
FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

WIDE FLANGE (MIN) A-992 GR-50
PLATE MATERIAL (MIN) A-36
TUBE MATERIAL (MIN) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (MIN) 13/16 ø
USE NO. 7018X YIELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK
CHECKED: SJS
DATE: 06-26-17
JOB NO: 17068
DRWG. NO: E04

APPROVER NOTE: The fabrication of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design



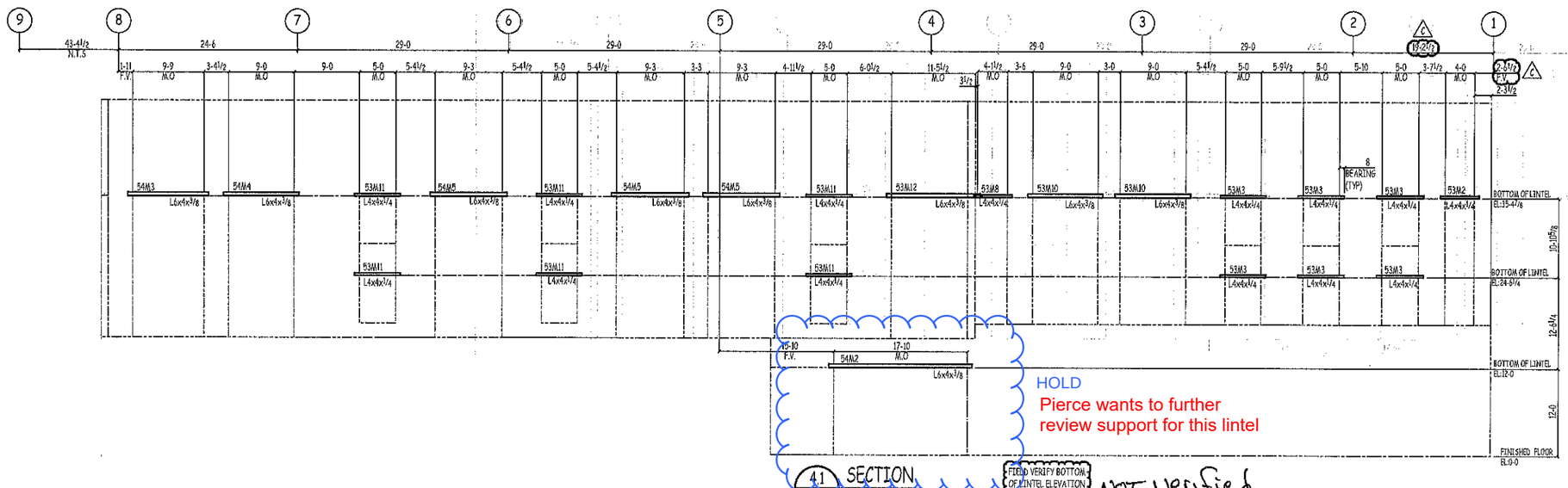
4 / E05 SECTION

CUT FROM E03
REF. CONTRACT DOC: 2/A2.1E
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
N.T.S= INDICATES NOT TO SCALE
ANGLE SHORT LEG VERTICAL U.N.O
LLV= INDICATES ANGLE LONG LEG VERTICAL

EAST WING-BRICK SHELF ANGLE NORTH ELEVATION

NO BRICK BETWEEN WINDOWS, LINTEL NOT REQUIRED, ARCH VERIFY

Correct - lower lintel not required - KBA



4.1 / E05 SECTION

CUT FROM E02
REF. CONTRACT DOC: 1/A2.1W
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
N.T.S= INDICATES NOT TO SCALE
ANGLE LONG LEG VERTICAL U.N.O

WEST WING-BRICK SHELF ANGLE NORTH ELEVATION

FIELD VERIFY BOTTOM OF LINTEL ELEVATION

NOT Verified

ASC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

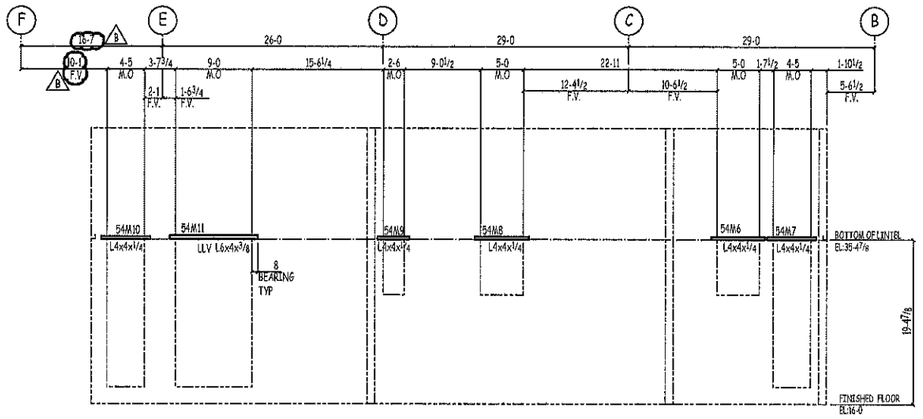
FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

WIDE FLANGE (U/N) A-992 GR-50
PARTS MATERIAL (U/N) A-36
TUBE MATERIAL (U/N) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.O.) 13/16 ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILER M.SK | CHECKED SJS | DATE 06-26-17 | JOB NO. 17068
DRWG. NO. E05

MANUFACTURER NOTE:
The details of structural steel connections on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

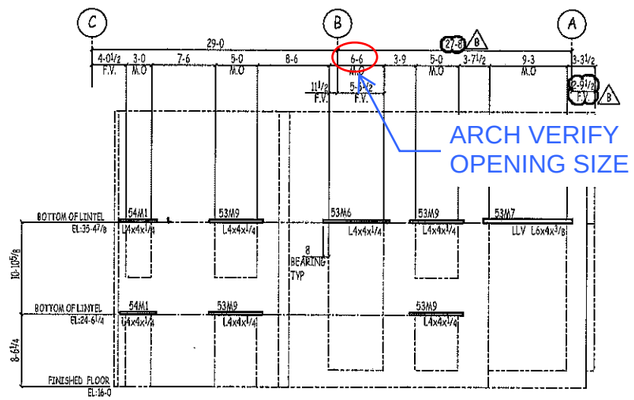


5 / E06 SECTION — FIELD VERIFY BOTTOM OF LINTEL ELEVATION

CUT FROM E02
REF. CONTRACT DOC: 3/A2.2W
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
LLV= INDICATES ANGLE LONG LEG VERTICAL

WEST WING-EAST BRICK SHELF ANGLE ELEVATION

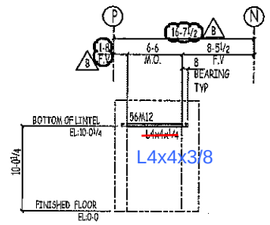
see E02



5.1 / E06 SECTION — FIELD VERIFY BOTTOM OF LINTEL ELEVATION

CUT FROM E02
REF. CONTRACT DOC: 2/A2.2W
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
LLV= INDICATES ANGLE LONG LEG VERTICAL

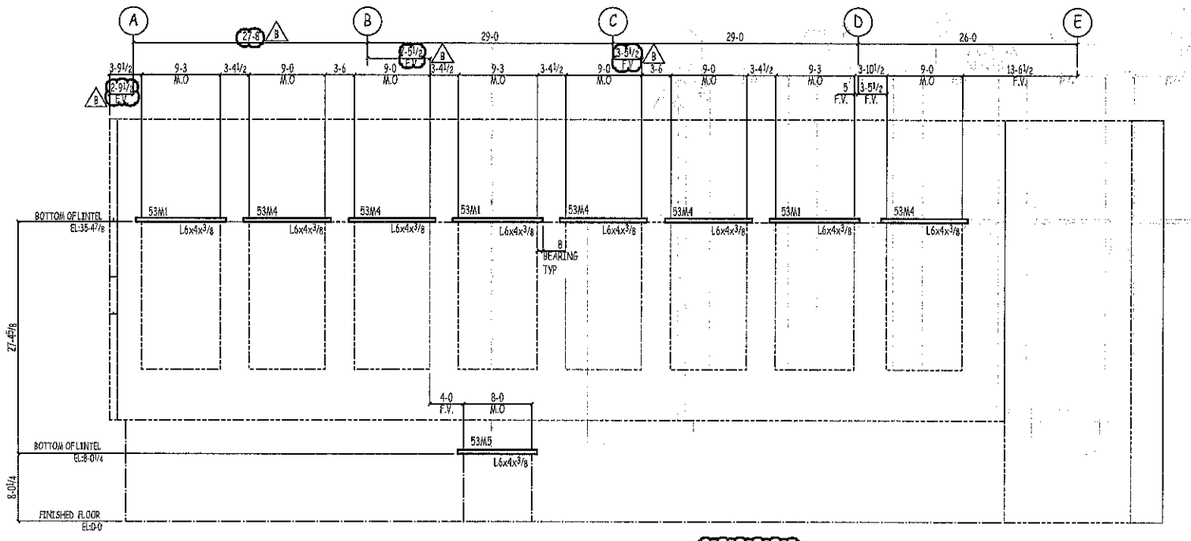
WEST WING-HIDDEN BRICK SHELF ANGLE ELEVATION



5.2 / E06 SECTION — FIELD VERIFY BOTTOM OF LINTEL ELEVATION

CUT FROM E03
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY

EAST WING-HIDDEN BRICK SHELF ANGLE ELEVATION

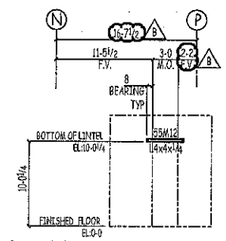


6 / E06 SECTION — FIELD VERIFY BOTTOM OF LINTEL ELEVATION

CUT FROM E02
REF. CONTRACT DOC: 1/A2.2W
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
ALL ANGLE LONG LEG VERTICAL U.N.O

WEST WING-WEST BRICK SHELF ANGLE ELEVATION

NOT verified



5.3 / E06 SECTION — FIELD VERIFY BOTTOM OF LINTEL ELEVATION

CUT FROM E03
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY

EAST WING-HIDDEN BRICK SHELF ANGLE ELEVATION

AISC CERTIFIED FABRICATOR

NOTE(S): These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown. Alterations, changes, modifications or corrections necessary to fabricate materials of our design for such erection will be allowed without prior authorization to and agreement with Endres Mfg. Co.

DIRECTION NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE: FABRICATOR SHALL DEPTH END TO DETAILED MILL MARKS ON PLATES / COVERS SHALL BE SUBMITTED FOR APPROVAL DRAWINGS OF AT LEAST 1/4 SCALE

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

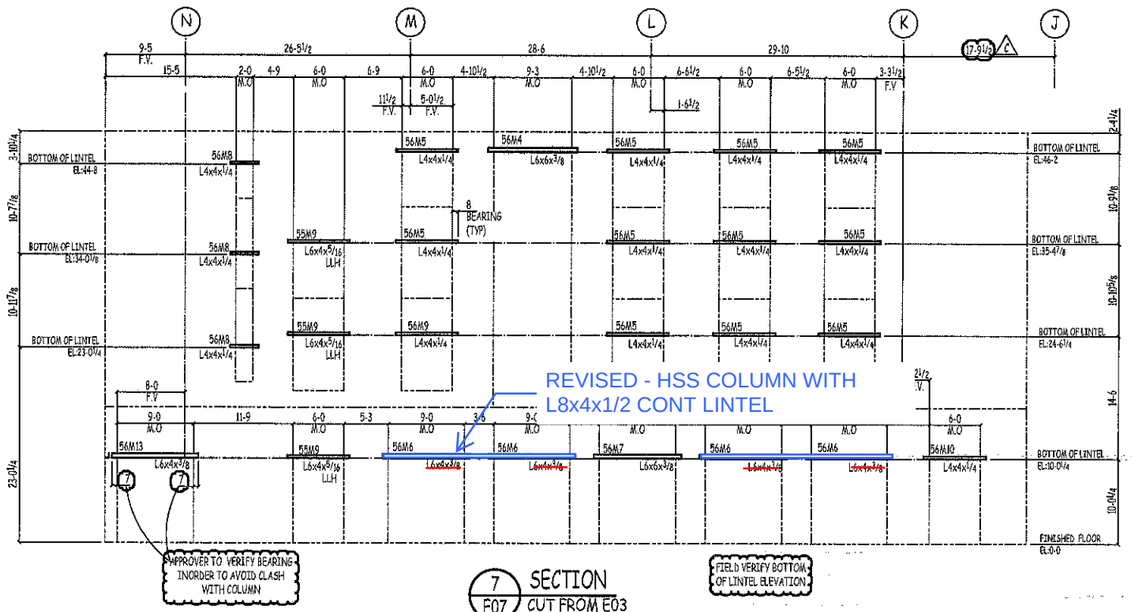
	PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			

WIDE FLANGE (U.N.): A-992 GR-50
PLATE MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION:
SHOP PAINT:
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO. 7018X WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILED: M.SK | CHECKED: SJS | DATE: 06-26-17 | JOB NO: 17068
DRWG. NO: E06

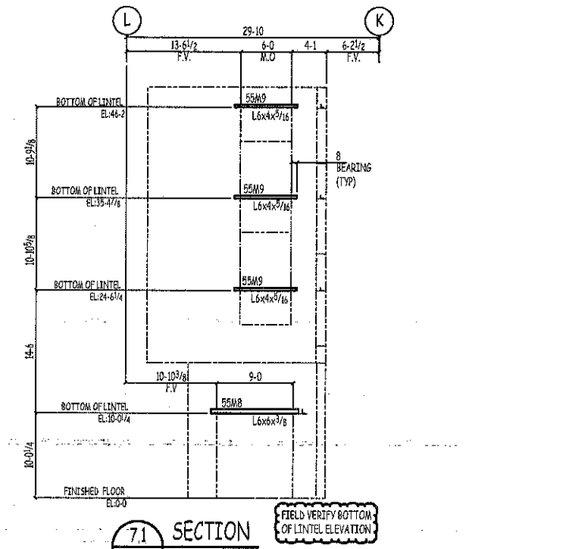
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or source design drawings and/or specification provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



REVISED - HSS COLUMN WITH L8x4x1/2 CONT LINTEL

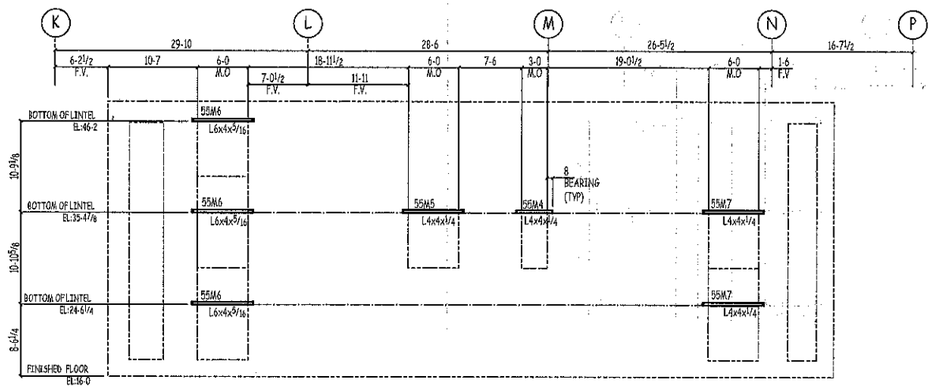
7 / E07 SECTION
CUT FROM E03
REF. CONTRACT DOC: 1/A2.2E
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
LLH= INDICATES ANGLE LONG LEG HORIZONTAL
ANGLE LONG LEG VERTICAL U.N.O

EAST WING-EAST BRICK SHELF ANGLE ELEVATION



7.1 / E07 SECTION
CUT FROM E03
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
ANGLE LONG LEG HORIZONTAL U.N.O

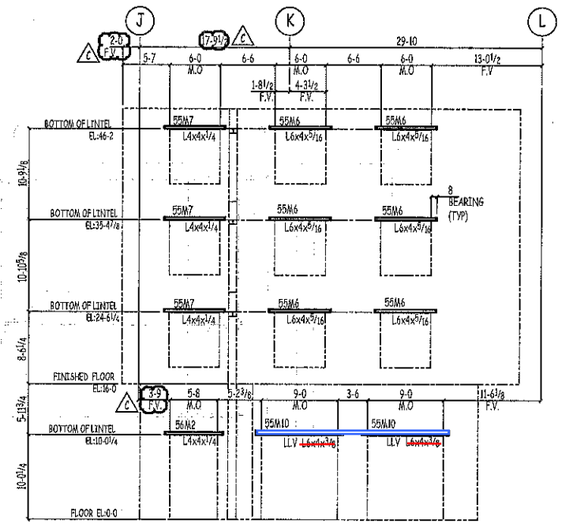
EAST WING-HIDDEN 2 BRICK SHELF ANGLE ELEVATION



8 / E07 SECTION
CUT FROM E03
REF. CONTRACT DOC: 3/A2.2E
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
ANGLE LONG LEG HORIZONTAL U.N.O

EAST WING-WEST BRICK SHELF ANGLE ELEVATION

Not Verified



8.1 / E07 SECTION
CUT FROM E03
REF. CONTRACT DOC: 2/A2.2E
M.O=INDICATES MASONRY OPENING
F.V.=INDICATES FIELD VERIFY
LLV= INDICATES ANGLE LONG LEG VERTICAL
ANGLE LONG LEG HORIZONTAL U.N.O

EAST WING-HIDDEN BRICK SHELF ANGLE ELEVATION

AISC CERTIFIED FABRICATOR

NOTE! These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and distribution of the products shown thereon. No changes or modifications or corrective measures to fabricated materials or any changes for such necessary will be allowed without prior written collection and agreement with Endres Mfg. Co.

DIRECTION NOTE: UNLESS OTHERWISE NOTED - ALL BOLTED CONNECTIONS SHALL BE WITH 3/4" DIA. ASTM A325 BOLTS WITH CAT. HARDENED WASHERS UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: MARK FENCE SIDE ON LEFT END IS SQUARED. MARK PRIMARY CORNER & PANEL SET SHARED NOTCHES TO A 3/4 DEPTH OF AT LEAST TO SHOP

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	PRINTED	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			

NOTCH FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO 7000 WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RYEDEBUSCH
DETAILER MSK | CHECKED SJS | DATE 06-26-17 | JOB NO. 17068
DRWG. NO. E07

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

balcony is 5' wide x
10'-6" long (rough)

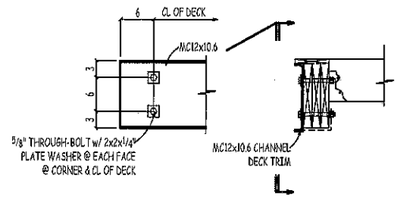
APPROVER TO VERIFY BALCONY DIMENSION, SINCE IT IS NOT AVAILABLE IN DESIGN DRAWING

ARCH VERIFY

Recommend making MC channel 1" shorter than M.O. - GC verify

APPROVER TO VERIFY 0" CLEARANCE FROM THE BRICK VENEER.

Recommend field measuring after balcony construction



TYP BALCONY CHANNEL DETAIL
REF CONTRACT DOCUMENT 4/A4.5

ARCH VERIFY LOCATIONS

Provide at all east wing balconies that do not have masonry veneer in front of the rim joist (all third & fourth floor balconies)

EAST WING BALCONY CHANNEL FRAMING PLAN

TOP OF CHANNEL ELEVATION 26'-9 3/8"
NTS- NOT TO SCALE
INDICATES FIELD VERIFY CHANNEL LOCATIONS
F.V.=INDICATES FILELD VERIFY DIMENSIONS

FIELD VERIFY ALL WALL DIMENSIONS FROM GRID

Not Verified

ASC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
DEV	DATE	DESCRIPTION	DETAILER

	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg Co. and are for the sole purpose of fabrication and installation of the products shown hereon no changes modifications or corrective measures to fabricated materials or no changes for instruments are to be allowed without prior notification to and agreement with Endres Mfg Co.

ERECTION NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER TURNED ELEMENT NUT OR THE HEAD.

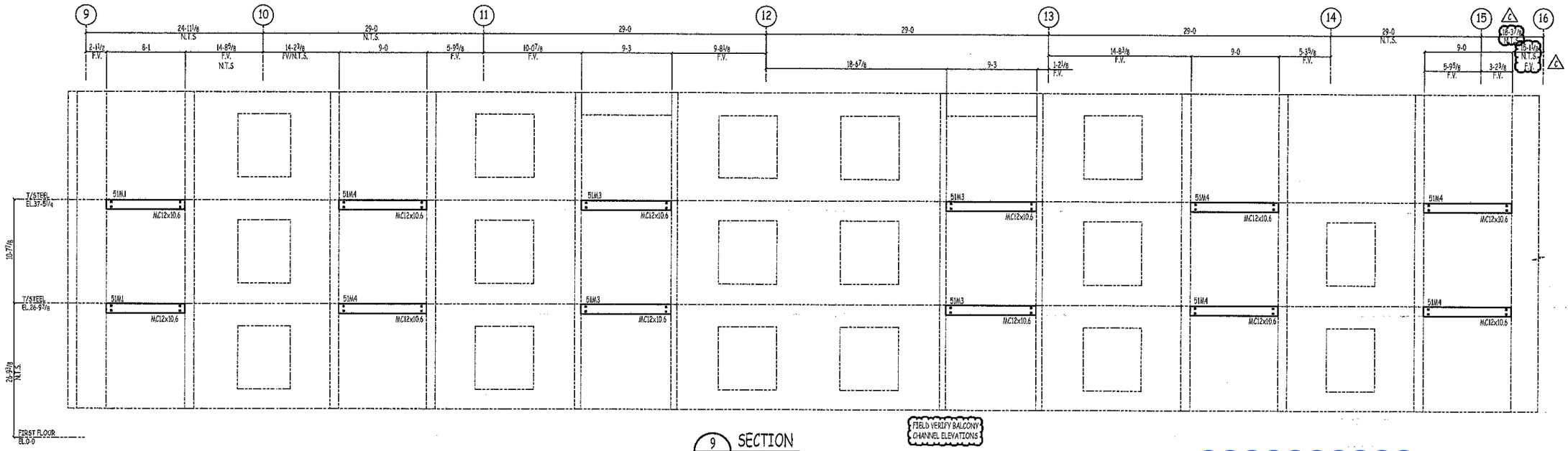
SHOP NOTE: PAINT PRIOR BASIC OIL OR ENAMEL AS SPECIFIED. ALL BE CUSTOMARY CORRUGATIONS SHALL BE SHAPED WITH A FREE TO A RADIUS OF AT LEAST 10 DIAM.

WIDE FLANGE (U.N.) A-992 GR-50
PLATE MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 7XXX WELD RODS
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

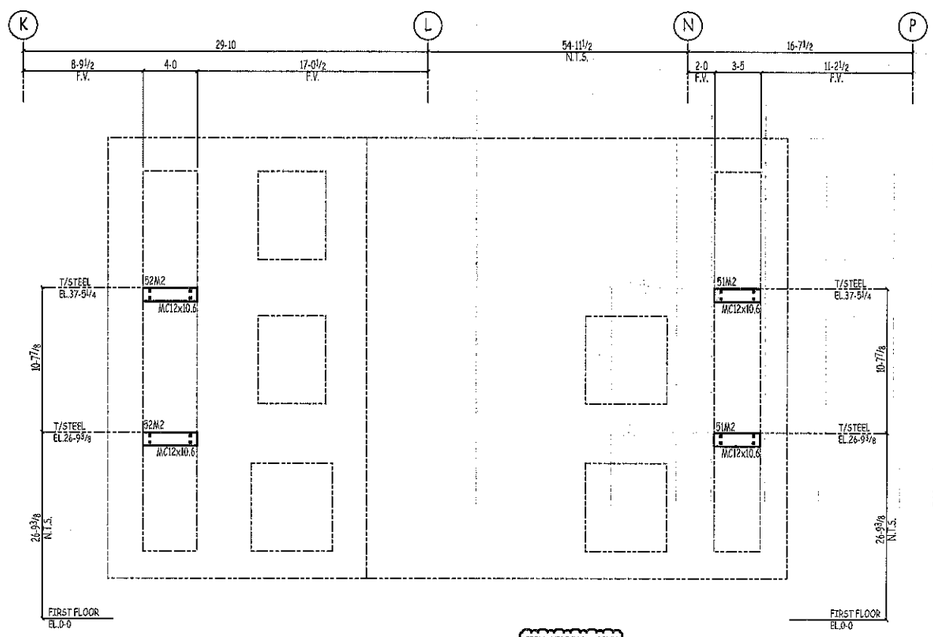
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RYEDEBUSCH
DRWG. NO.: E08
DETAILER: MSK
CHECKED: SJS
DATE: 06-26-17
JOB NO.: 17068

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



9 / E09 SECTION
CUT FROM E08
REF. CONTRACT DOCUMENT: 1/A2.1E
F.V.=INDICATES FIELD VERIFY
N.T.S=INDICATES NOT TO SCALE
ALL CHANNEL TOE DIRECTION TO NEAR SIDE
EAST WING SOUTH ELEVATION

ARCH VERIFY LOCATIONS



10 / E09 SECTION
CUT FROM E08
REF. CONTRACT DOCUMRNT: 3/A2.2E
F.V.=INDICATES FIELD VERIFY
N.T.S=INDICATES NOT TO SCALE
ALL CHANNEL TOE DIRECTION TO NEAR SIDE
EAST WING WEST ELEVATION

Not verified

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein as changes and/or failures or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and approval with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A325 SHOWN THREE DIGITS WITH ONE SHOULDER WASHER UNDER THE TURN'S ELEMENT NUT OR NO. 1 HEAD

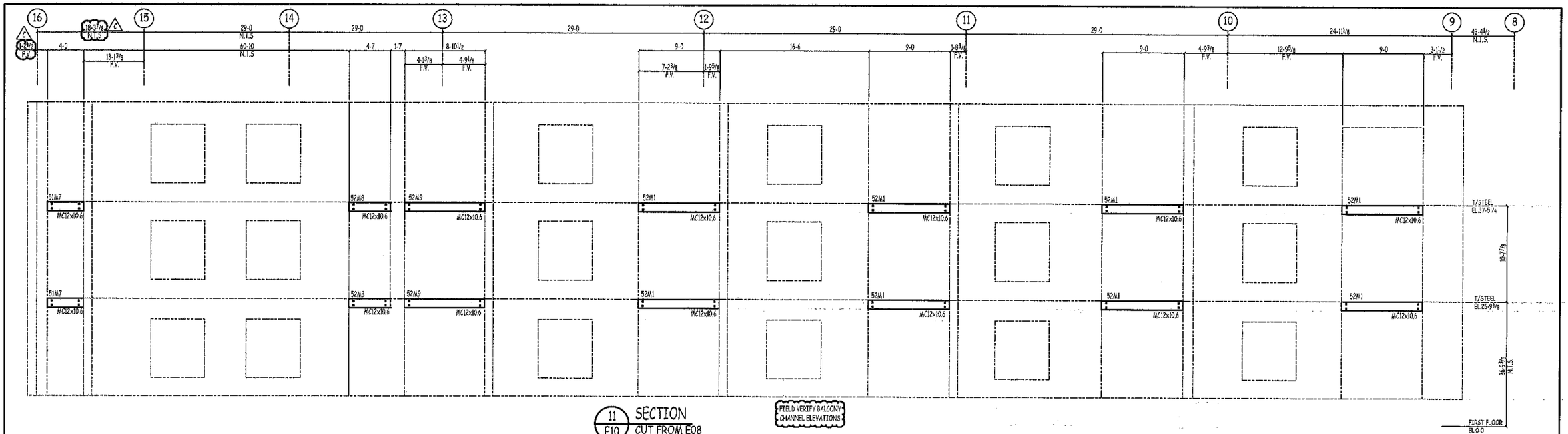
SHOP NOTE: PAINT FACE BASE ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHOWED WHICH TAKE TO A RADIUS OF AT LEAST 10 INCH.

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70DX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK
CHECKED: SJS
DATE: 06-26-17
JOB NO.: 17068
DRWG. NO.: E09

APPROVED NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



11 / E10 SECTION

CUT FROM E08

REF. CONTRACT DOCUMENT:2/A2.1E

F.V.=INDICATES FIELD VERIFY

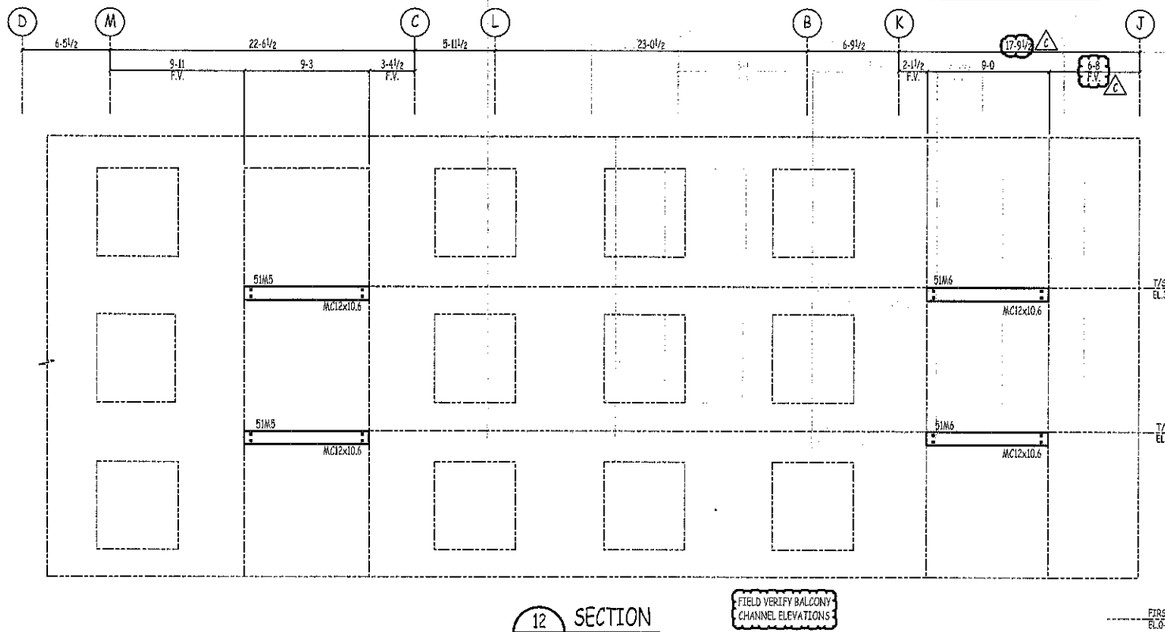
N.T.S=INDICATES NOT TO SCALE

ALL CHANNEL TOE DIRECTION TO NEAR SIDE

EAST WING NORTH ELEVATION

FIELD VERIFY BALCONY CHANNEL ELEVATIONS

ARCH VERIFY LOCATIONS



12 / E10 SECTION

CUT FROM E08

REF. CONTACT DOCUMENT: 1/A2.2E

F.V.=INDICATES FIELD VERIFY

N.T.S=INDICATES NOT TO SCALE

ALL CHANNEL TOE DIRECTION TO NEAR SIDE

EAST WING EAST ELEVATION

FIELD VERIFY BALCONY CHANNEL ELEVATIONS

NOT Verified

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabricating and erecting the projects shown thereon and may not be used, reused or copied in any manner or disclosed to others for any purpose without prior written authorization of and approval by Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLTHEAD

SHOP NOTE: PAINT SPACE MARK ON LEFT END AS DETAILED. ALL ELEVATION CORNERS SHALL BE GROUND SMOOTH FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U/N) A-992 GR-50

PARTS MATERIAL (U/N) A-36

TUBE MATERIAL (U/N) A-500 GR-B

SURFACE PREPARATION

SHOP PAINT

FIELD CONNECTIONS AS NOTED

HOLES (U/N) 13/16 ø

USE NO. 7XXX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

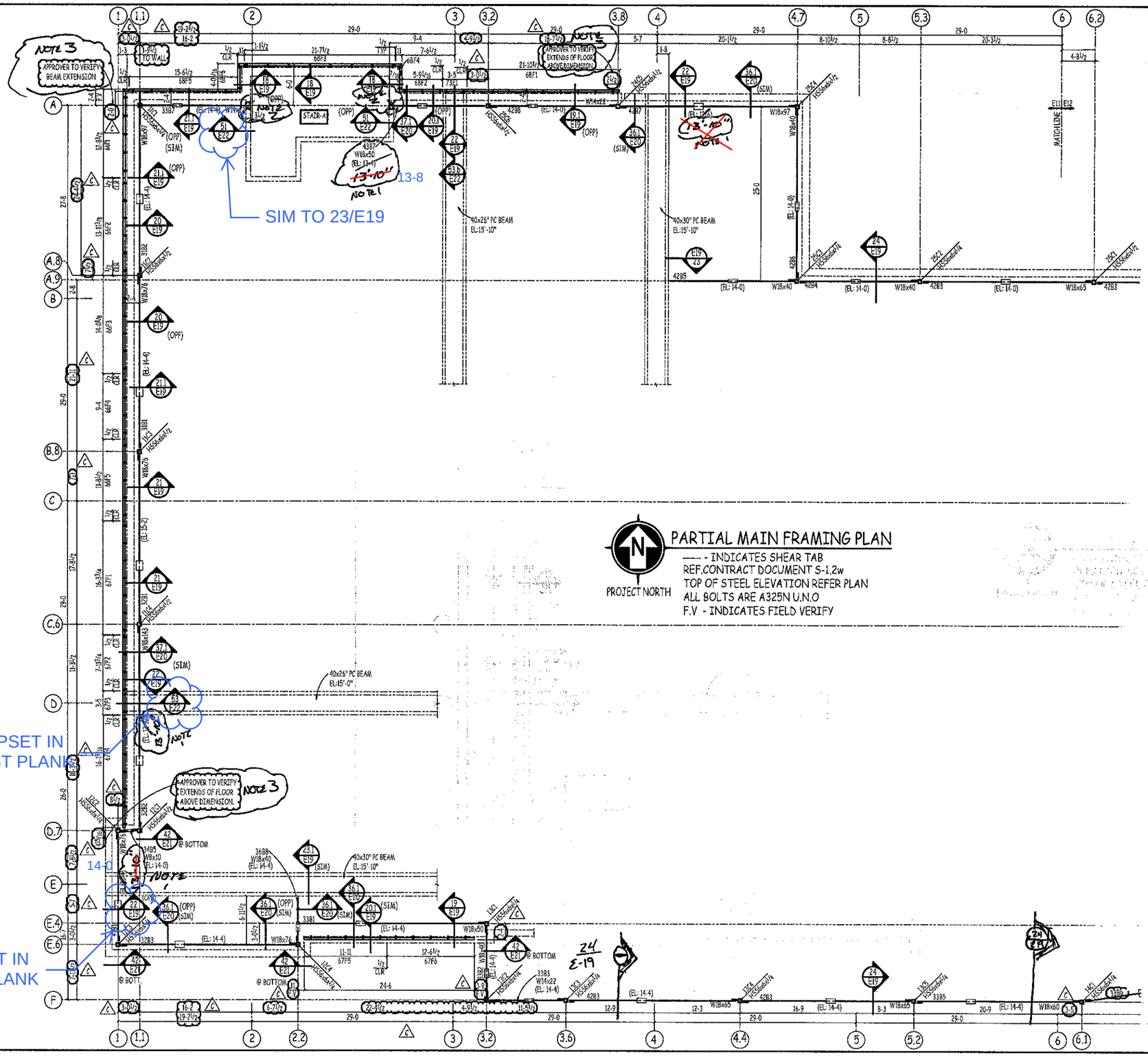
JOB: ROYSTER CROSSINGS LOT 2

LOCATION: MADISON, WI

CUSTOMER: RVEDEBUSCH

DETAILER: M.SK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068 | DRWG. NO.: E10

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections & details are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



PARTIAL MAIN FRAMING PLAN

PROJECT NORTH

—— - INDICATES SHEAR TAB
REF.CONTRACT DOCUMENT S-1.2w
TOP OF STEEL ELEVATION REFER PLAN
ALL BOLTS ARE A325N U.N.O
F.V - INDICATES FIELD VERIFY

NOTES

1. T.O.S CHANGED! This was done so the bottom of STEEL Beams ~~won't drop~~ won't encroach on exterior Windows. A/E Confirm
2. Beams 33B7 and 43B7 will bear on Precast Beam ledge. Refer to Precast Plan. A/E Confirm.
3. A/E Please verify

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein as the Endres Mfg. Co. modifications or corrections measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT FIELD MARK ON LEFT END AS DETAILED. ALL IRRIGATION CORNERS SHALL BE SHAPED WITH FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 7000 WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068 | DRWG. NO.: E11

FOR CONNECTION DETAILS REFER: E14 - E21

APPROVED NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

See previous markp

See previous markp

NOTE 4
APPROVER TO VERIFY BEAM EXTENSION

ARCH VERIFY

NOTE 4
APPROVER TO VERIFY LOCATING DIMENSION, SINCE IT IS NOT AVAILABLE IN DESIGN DRAWING.

NOTE 4
APPROVER TO VERIFY LOCATING DIMENSION OF BEAM, SINCE IT IS NOT AVAILABLE IN THE DESIGN DRAWING.

ARCH VERIFY

See previous markp

CANOPY DETAILS REVISED WITH HSS COLUMNS AND CONTINUOUS BRICK LINTEL

NOTE 1

1. Provide STEEL for suspended brick lintel support at Canopy's. Provide STEEL Columns W/SADDLE. A/E Please Provide Elevation of SADDLE B-2 5in. Ref A-4.6, A-4.5

2. Missing Canopy steel for South Entry. Ref 2/A-4.6

3. A/E Confirm that there is NOT a beam needed to Connect Columns 22C2 & 23C2

4. A/E Provide Answers, detail, dimensions & Clouded AREAS

5. RAISE STEEL Beam to 14'-10" to Avoid having the bottom of STEEL Beam conflict w/ Window's

6. STEEL column 14C6 will Be higher than dropped PLANK! A/E Advise!

ADD W8X10 BETWEEN BEAMS

ADD W8X10 BETWEEN BEAMS

PLANK STEP REVISED AT THIS LOCATION

PARTIAL MAIN FRAMING PLAN

PROJECT NORTH

— - INDICATES SHEAR TAB
REF.CONTRACT DOCUMENT S-1.2E
TOP OF STEEL ELEVATION REFER PLAN
ALL BOLTS ARE A325N U.N.O
F.V - INDICATES FIELD VERIFY

ARCH VERIFY

ARCH VERIFY

ARCH VERIFY

ARCH VERIFY

ARCH VERIFY

ARCH VERIFY

BEAM ON GRID 7 DOES NOT CANTILEVER OVER, SKEWED BEAMS FRAME TO COLUMN

FOR CONNECTION DETAILS REFER : E14 - E21

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

SHOP NOTE:
RIGHT HAND MARK ON PLAN IS AS INSTALLED. ALL SHOP MARKS ON PLANS SHALL BE APPROPRIATELY CHANGED TO AGREE WITH LAYOUT TO SUCH

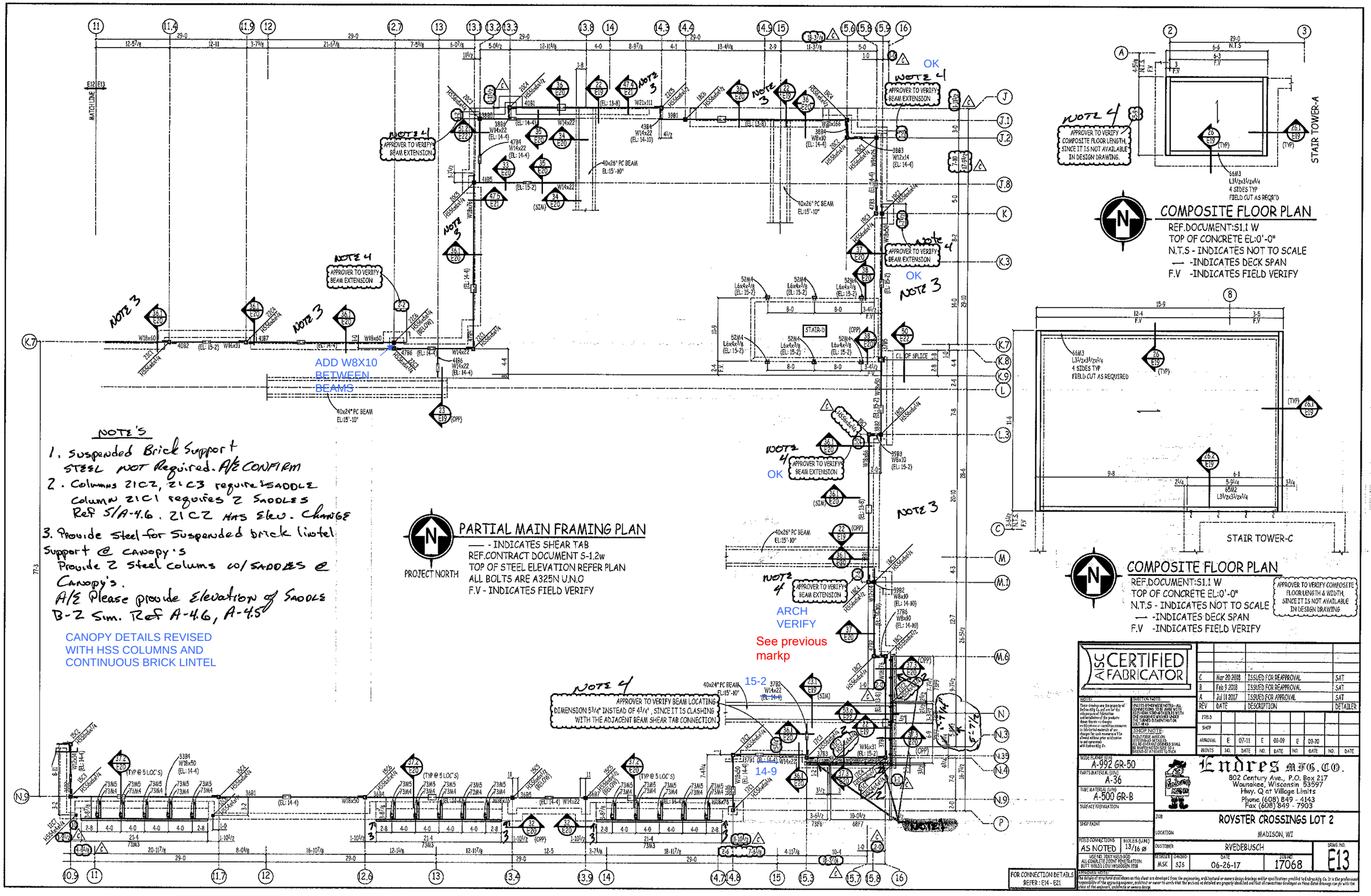
WIDE FLANGE (WF) A-992 GR-50
PLATE MATERIAL (MP) A-36
TUBE MATERIAL (TP) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (H.N.) 13/16 ø

USE NO. 7000 WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70K

APPROVER'S NOTE:
The details of structural practices on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the profession responsibility of the approving engineer, architect or owner to verify that the enclosed details are properly identified and that all corrections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068
DRWG. NO.: E12



NOTE'S

1. Suspended Brick Support STEEL NOT Required. A/E CONFIRM
2. Columns 21C2, 21C3 require 1 SADDLE Column 21C1 requires 2 SADDLES Ref 5/A-4.6. 21C2 HAS Elev. Change
3. Provide Steel for Suspended brick lintel Support @ canopy's Provide 2 Steel colums w/ SADDLES @ Canopy's. A/E Please provide Elevation of SADDLE B-2 Sim. Ref A-4.6, A-4.5

CANOPY DETAILS REVISED WITH HSS COLUMNS AND CONTINUOUS BRICK LINTEL

PARTIAL MAIN FRAMING PLAN

PROJECT NORTH

— - INDICATES SHEAR TAB
REF.CONTRACT DOCUMENT S-1.2w
TOP OF STEEL ELEVATION REFER PLAN
ALL BOLTS ARE A325N U.N.O
F.V - INDICATES FIELD VERIFY

COMPOSITE FLOOR PLAN

REF.DOCUMENT:S1.1 W
TOP OF CONCRETE EL:0'-0"
N.T.S - INDICATES NOT TO SCALE
— -INDICATES DECK SPAN
F.V -INDICATES FIELD VERIFY

STAIR TOWER-A

NOTE 4 APPROVER TO VERIFY COMPOSITE FLOOR LENGTH, SINCE IT IS NOT AVAILABLE IN DESIGN DRAWING.

66M3 L3 1/2x3 1/2x1/4 4 SIDES TYP FIELD CUT AS REQR'D

COMPOSITE FLOOR PLAN

REF.DOCUMENT:S1.1 W
TOP OF CONCRETE EL:0'-0"
N.T.S - INDICATES NOT TO SCALE
— -INDICATES DECK SPAN
F.V -INDICATES FIELD VERIFY

STAIR TOWER-C

66M3 L3 1/2x3 1/2x1/4 4 SIDES TYP FIELD CUT AS REQUIRED

APPROVER TO VERIFY COMPOSITE FLOOR LENGTH & WIDTH, SINCE IT IS NOT AVAILABLE IN DESIGN DRAWING

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg Co. and are for the sole purpose of fabrication and installation of the products shown therein to changes or deletions or certifications measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg Co.

SHEET CONTRACT NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: PAINT PRIOR WAS ON LEFT END AS DETAILED. ALL BEAM PLATE CORNERS SHALL BE SHAPED NO SMALLER TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068 | DRWG. NO.: E13

FOR CONNECTION DETAILS REFER: E14 - E21

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings can be with the intent of the engineers, architects or owners design.

HOLD

THIRD FLOOR FRAMING PLAN

BOTTOM OF BASE PLATE ELEVATION: 15-10 (U.N.O)

APPROVER TO VERIFY COLUMN LOCATIONS

THIRD FLOOR FRAMING PLAN @ T/STEEL EL.27-7 ✓

---- INDICATES SHEAR TAB
T.O. STEEL EL:27'-7" U.N.O
REF.CONTRACT DOCUMENT S-1.3E

TYP BEAM TO BEAM CONN.

APPROVER TO VERIFY CONNECTION ARRANGEMENT

TYP BEAM TO COLUMN CONN.

APPROVER TO VERIFY CONNECTION ARRANGEMENT

REVISE TO L7x4x3/8 (LLH)

5 1/2"

13 / E14 SECTION
CUT FROM E14
REF CONTRACT DOCUMENT 11/S4.1

13.1 / E14 SECTION
CUT FROM E14
REF.DOCUMENT:4/S3.1

EAST WING FOUNDATION PLAN ✓
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)2'-6" U.N.O
N.T.S = INDICATES NOT TO SCALE

WEST WING FOUNDATION PLAN
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)2'-6" U.N.O

A/E Please verify dimensions (not shown)

TYP BASE PLATE DETAIL
A/E verify

WEST WING -WEST FOUNDATION PLAN ✓
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)1'-3" U.N.O

EAST WING-WEST FOUNDATION PLAN ✓
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)2'-6" U.N.O

WEST WING FOUNDATION PLAN
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)2'-6" U.N.O

FOR CONNECTION DETAILS REFER - E1 - E21

ASC CERTIFIED FABRICATOR

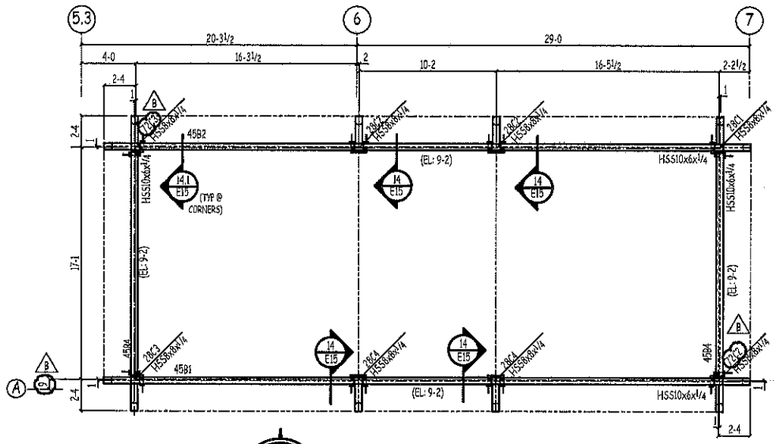
REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD / SHOP / APPROVAL: E 07-11, E 02-09, E 03-20 / PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

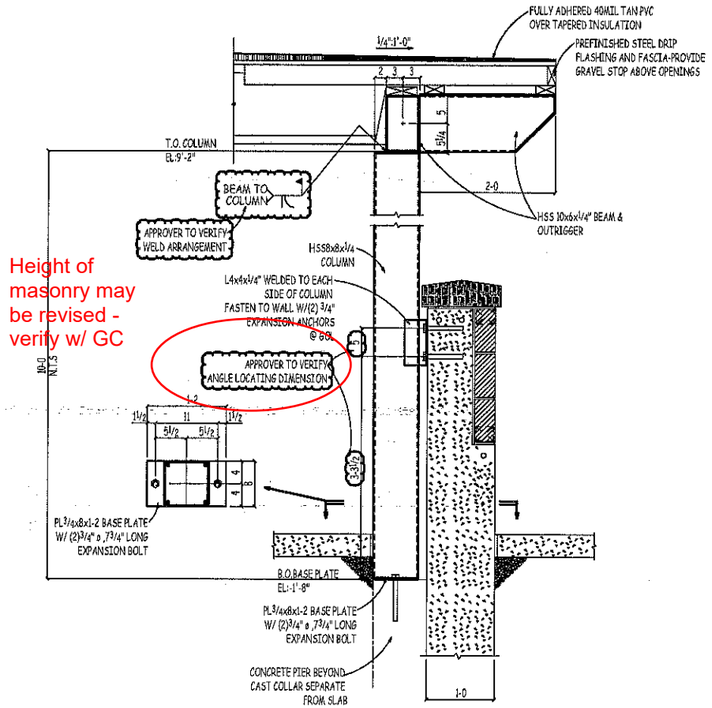
WIDE FLANGE (U.N.) A-992 GR-50
PARTS (MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILER MSK | CHECKED SJS | DATE 06-26-17 | JOB NO. 17068 | DRWG. NO. E14



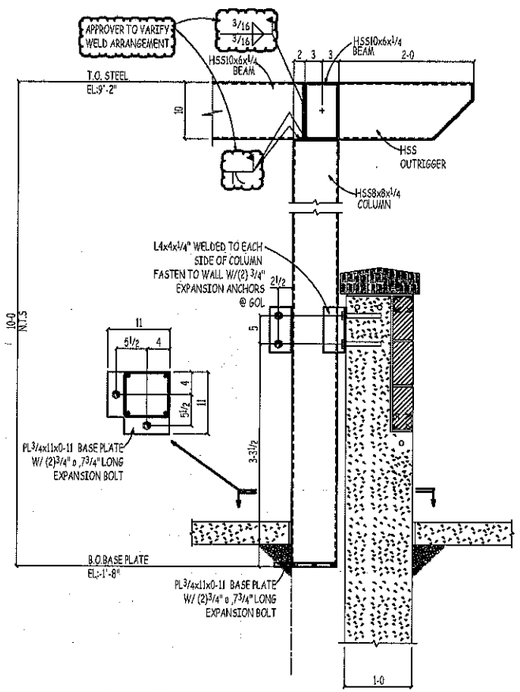
BIKE PARKING CANOPY FRAMING PLAN
REF.CONTRACT DOCUMENT:6/A-4.6



Height of masonry may be revised - verify w/ GC

BIKE PARKING ENCLOSURE DETAIL

14 / E15 SECTION
CUT FROM E15
REF.CONTRACT DOCUMENT 16-A4.5



14.1 / E15 SECTION
CUT FROM E15
REF.CONTRACT DOCUMENT 16-A4.5

NOTES

A/E Please Verify ENTIRE PAGE. (NOT enough information shown)

ARCH TO REVIEW

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon as shapes, modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

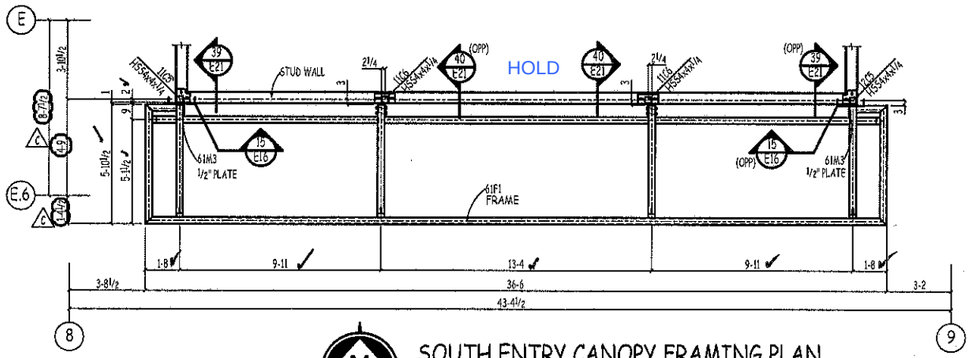
SHOP NOTE: PAINT PIECE BARK ON LEFT END AS DETAILED. ALL BE OVERALL CORNERS SHALL BE SMOOTH AND FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 2018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

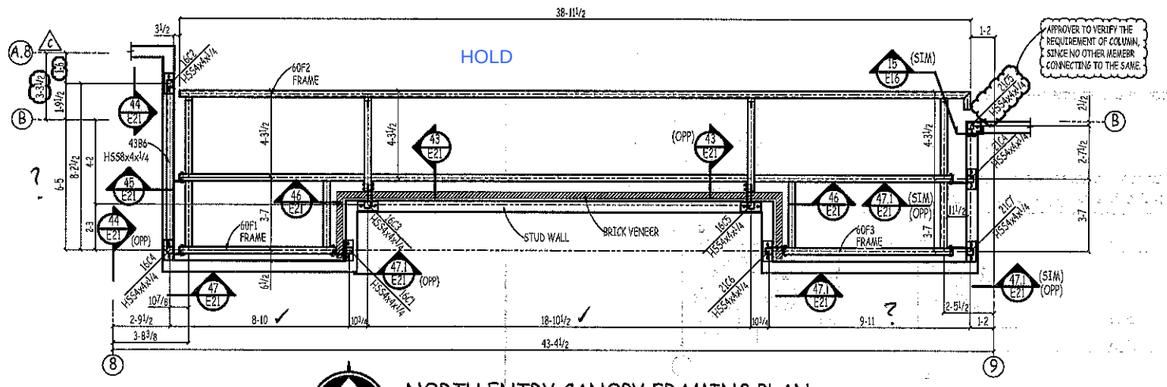
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068
DRWG. NO.: E15

APPROVED NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the sheet of the engineers, architects or owners design.



SOUTH ENTRY CANOPY FRAMING PLAN

REF.CONTRACT DOCUMENT 2/A-4.6
T.O.STEEL EL:10'-8"
OTHERS NOT SHOWN FOR CLARITY

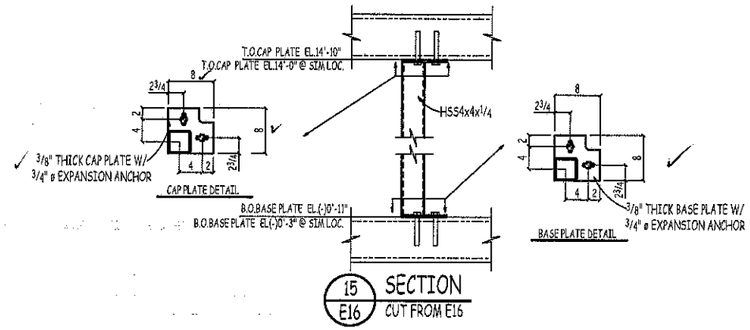


NORTH ENTRY CANOPY FRAMING PLAN

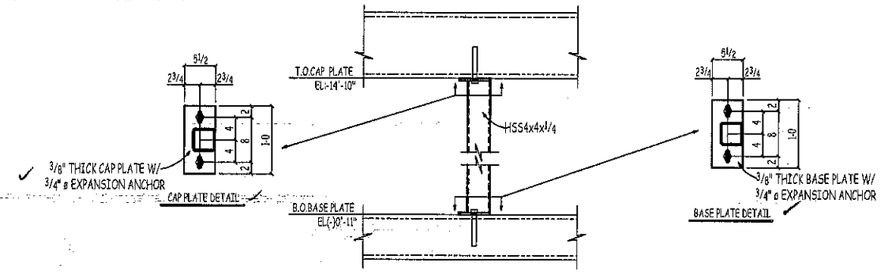
REF.CONTRACT DOCUMENT 3/A-4.6
T.O.STEEL EL:10'-8"
OTHERS NOT SHOWN FOR CLARITY

NOTES

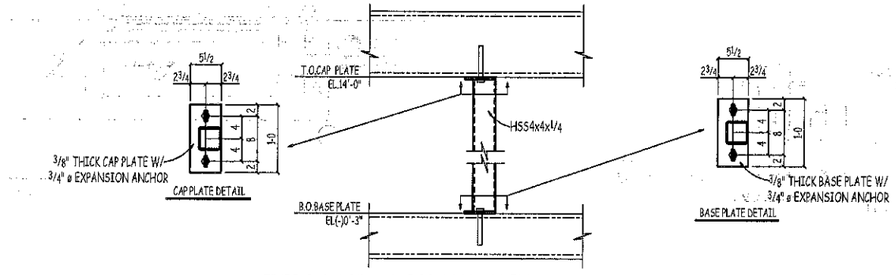
A/E Review ENTIRE Page.
There ARE to MANY missing
Dimensions for G.C. to
do an accurate Review



15/E16 SECTION
CUT FROM E16



TYPICAL DETAIL FOR SOUTH ENTRY CANOPY COLUMNS



TYPICAL DETAIL FOR NORTH ENTRY CANOPY COLUMNS ✓

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown thereon. Re-design, publication or any other use of same, changes for such necessary will be allowed without prior notification and agreement will Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH MINIMUM NUMBER OF BOLTS AS PER AISC SPECIFICATIONS UNDER THE HEADING "CONNECTIONS" PAGE 16.1-143

SHOP NOTE: PAINT PRIOR MARK ON LEFT END AS SHOWN. ALL REINFORCING CORNERS SHALL BE GRAVITY NOZZLE TO A CHORD OF AT LEAST 1/2 INCH

MEMBER MATERIAL (UNO)	A-992 GR-50
PLATE MATERIAL (UNO)	A-36
TUBE MATERIAL (UNO)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (UNO)	13/16 ø

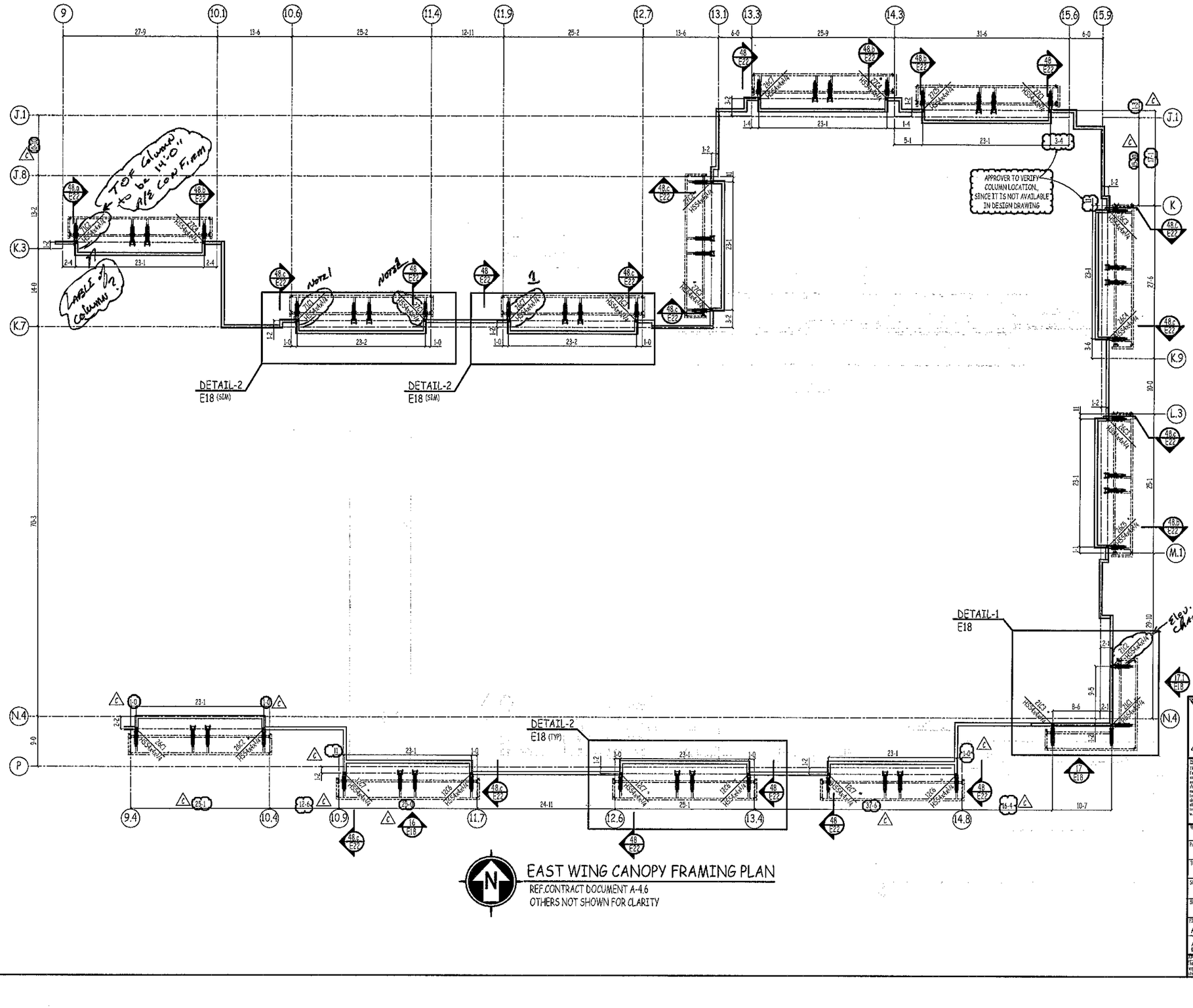
USE 3/8 DIA. TUCK WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

FOR CONNECTION DETAILS REFER: E14 - E21

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB NO.	702
LOCATION	ROYSTER CROSSINGS LOT 2
	MADISON, WI
CUSTOMER	RVEDEBUSCH
DETAILER	MSK
CHECKED	SJS
DATE	06-26-17
JOB NO.	17068
DRWG. NO.	E16

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



EAST WING CANOPY FRAMING PLAN

REF.CONTRACT DOCUMENT A-4.6

OTHERS NOT SHOWN FOR CLARITY

NOTES

1. A/E Verify TOP OF STEEL Column 14'-4", NOT 15'-2"

FRAMING HAS BEEN REVISED TO ADD HSS COLUMNS WITH CONTINUOUS BRICK LINTEL IN LIEU OF TIMBER COLUMNS

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown thereon or shop or field delivery or construction assistance to contractors and/or our clients for such purposes only. Any other use or reproduction without the written consent of Endres Mfg. Co. is prohibited.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A MINIMUM 3/4" DIAMETER BOLTS WITH CASE HARDENED WASHER UNDER THE TURNED ELEMENT MAY OR MAY NOT BE USED.

SHOP NOTE: PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED TO HAVE 1/2 A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.)	A-992 GR-50
PLATE MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø

USE NO 7000 WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2

LOCATION: MADISON, WI

CUSTOMER: RVEDEBUSCH

DETAILER	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-26-17	17068	E17

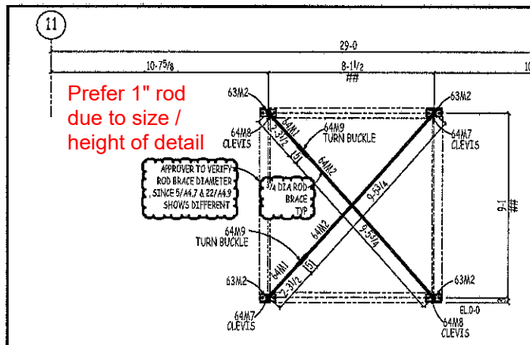
APPROVER NOTE: An example of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

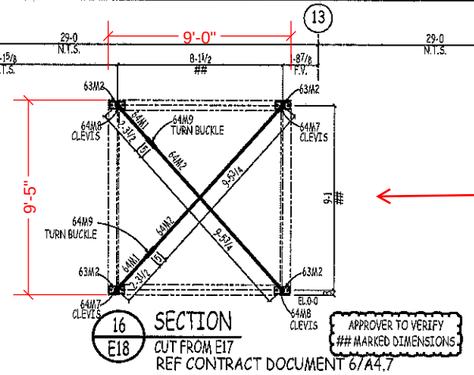
Prefer 1" rod due to size / height of detail

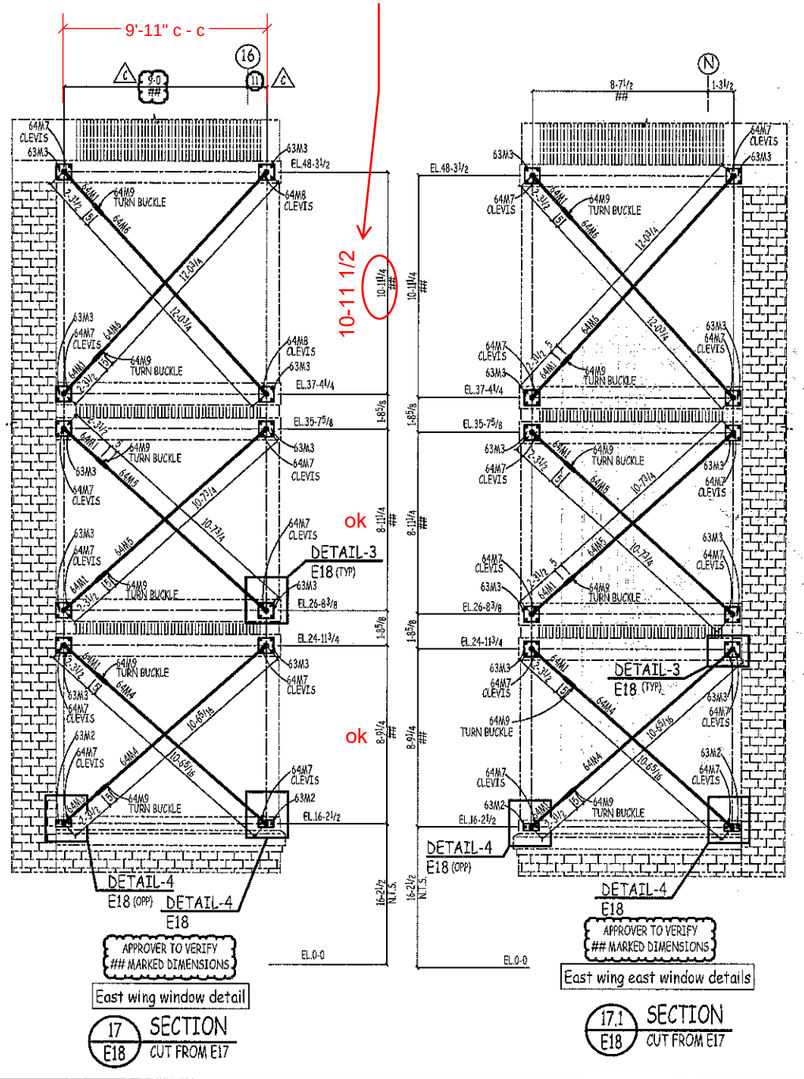
Based on largest FF window option in window shop resubmittal

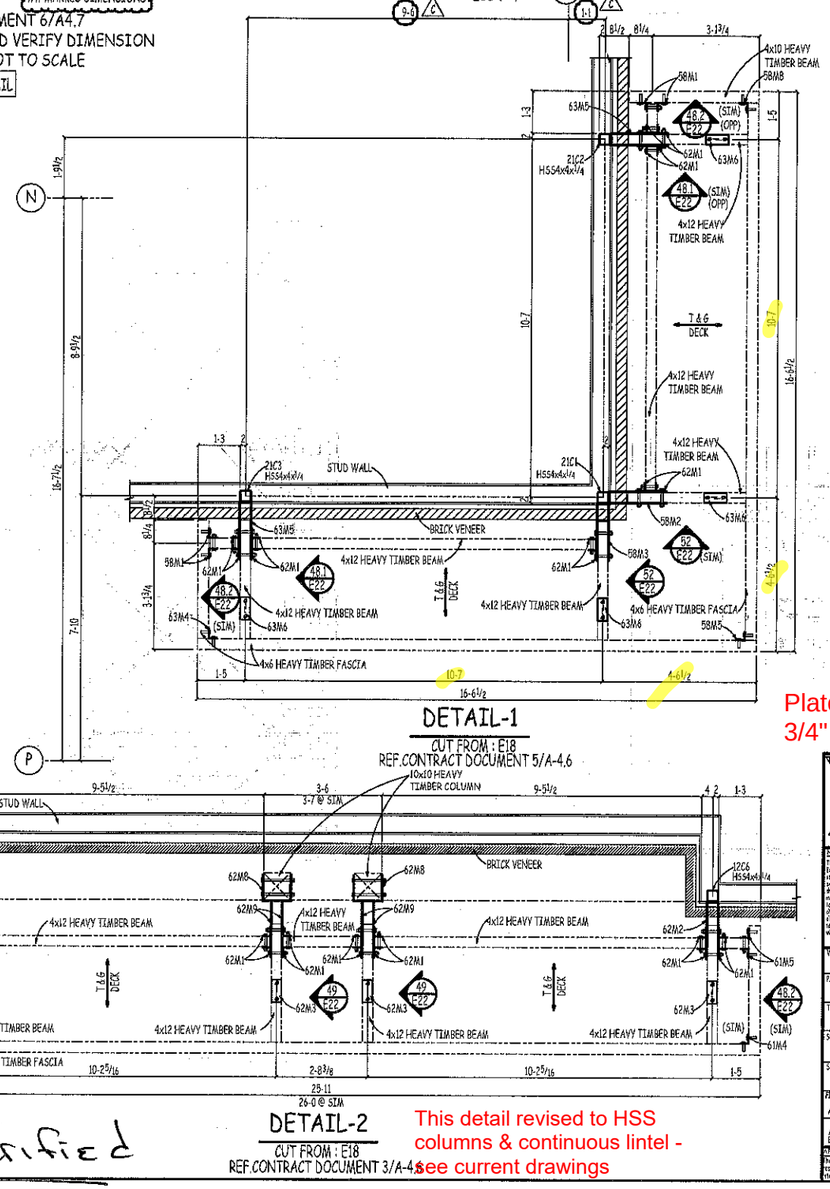
ARCH TO REVIEW

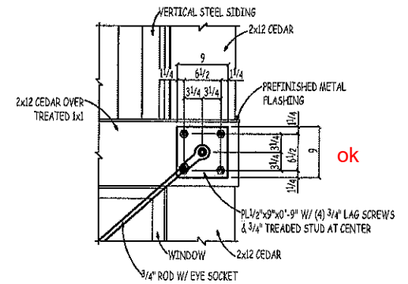
Same dims.



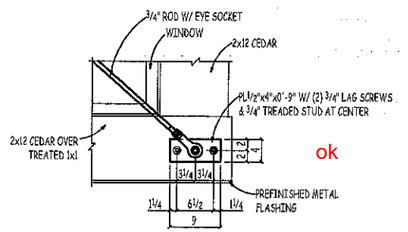






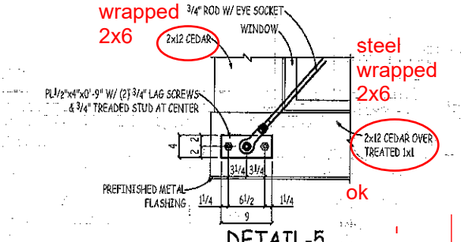


ok



ok

steel wrapped 2x6



steel wrapped 2x6

ok

Plate location on 2x6 3/4" from edges typ.

Page NOT Verified

This detail revised to HSS columns & continuous lintel - see current drawings

ASC CERTIFIED FABRICATOR

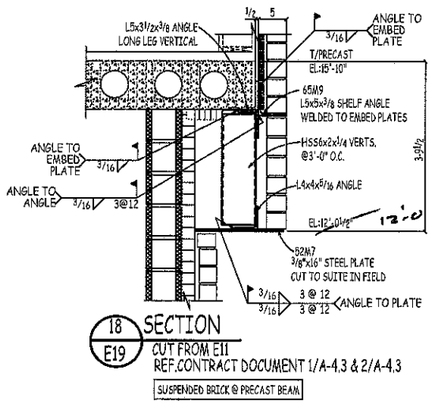
REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

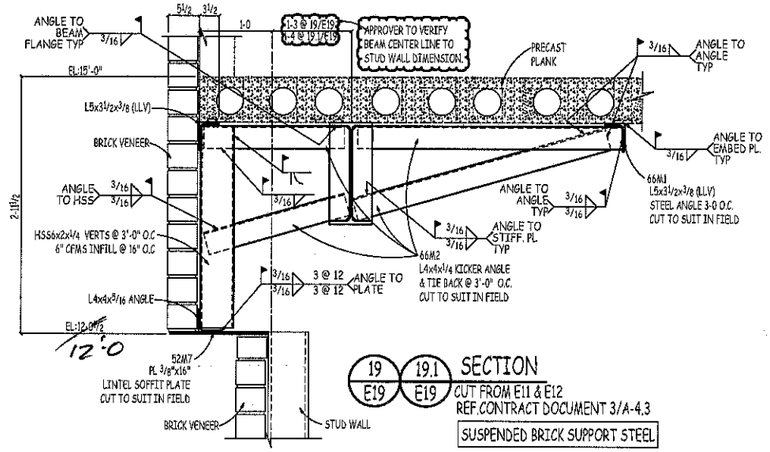
WIDE FLANGE (UNI) A-992 GR-50
PARTS MATERIAL (UNI) A-36
TUBE MATERIAL (UNI) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (UNI) 13/16 Ø

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

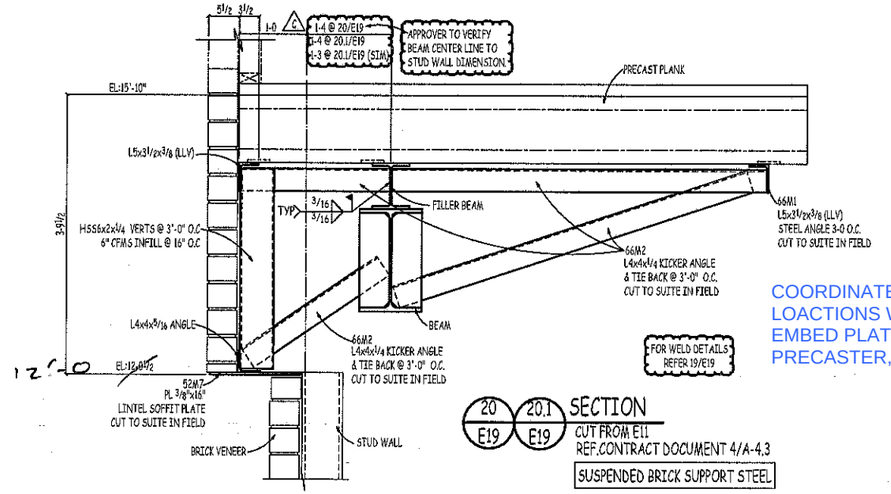
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILED MSK | CHECKED SJS | DATE 06-26-17 | JOB NO. 17068
DRWG. NO. E18



18 / E19 SECTION
CUT FROM E11
REF.CONTRACT DOCUMENT 1/A-4.3 & 2/A-4.3
SUSPENDED BRICK @ PRECAST BEAM

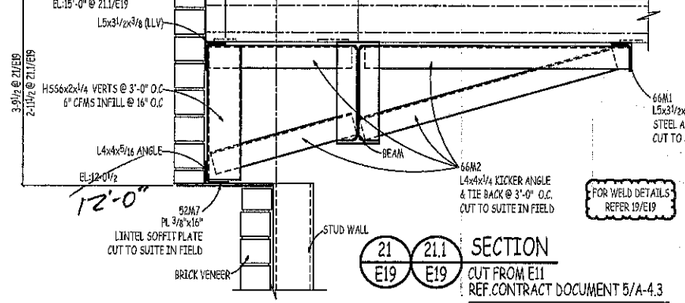


19 / E19 — 19.1 / E19 SECTION
CUT FROM E11 & E12
REF.CONTRACT DOCUMENT 3/A-4.3
SUSPENDED BRICK SUPPORT STEEL

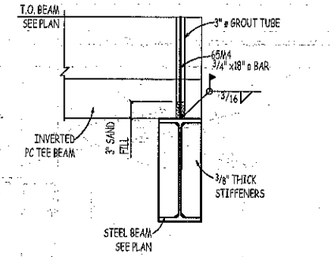


COORDINATE STEEL LOACTIONS WITH EMBED PLATES BY PRECASTER, TYP

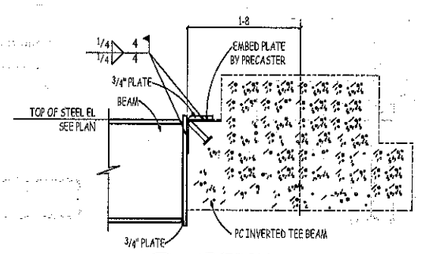
20 / E19 — 20.1 / E19 SECTION
CUT FROM E11
REF.CONTRACT DOCUMENT 4/A-4.3
SUSPENDED BRICK SUPPORT STEEL



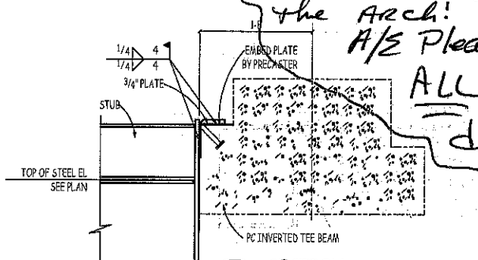
21 / E19 — 21.1 / E19 SECTION
CUT FROM E11
REF.CONTRACT DOCUMENT 5/A-4.3
SUSPENDED BRICK SUPPORT STEEL



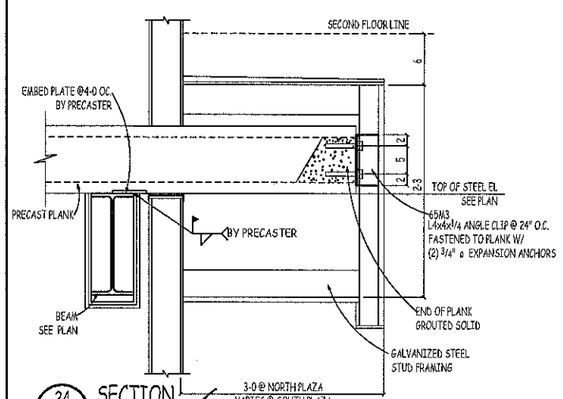
22 / E19 SECTION
CUT FROM E11 & E13
REF.CONTRACT DOCUMENT 16/S4.0



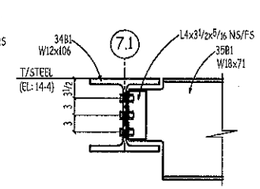
23 / E19 SECTION
CUT FROM E11, E12 & E13
REF.CONTRACT DOCUMENT 25/S-4.0



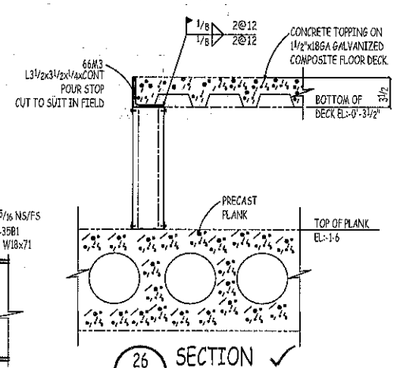
23.1 / E19 SECTION
CUT FROM E11 & E13
REF.CONTRACT DOCUMENT 25/S-4.0



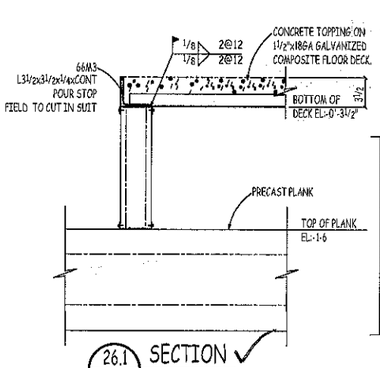
24 / E19 SECTION
CUT FROM E11
REF.CONTRACT DOCUMENT 23/A4.4



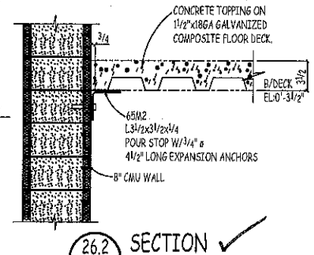
25 / E19 SECTION
CUT FROM E12



26 / E19 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT S-1.1W



26.1 / E19 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT S-1.1W



26.2 / E19 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT S-1.1W

comments
Suspended Brick S.S is difficult to verify. The STRUCTURAL Eng has it drawn different than the Arch! A/E Please Verify ALL S.B.S.S drawings.

ASC CERTIFIED FABRICATOR

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown thereon as changed or modified or revised or amended by Endres. Materials of any changes for such revisions will be shown without prior authorization to and approval with Endres Mfg. Co.

DIRECTOR NOTES: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A MINIMUM 3 SIXTEENTHS FILLET WELD WITH LOW HYDROGEN 9 WAYNE ELECTRODE THE TURNED-DOWN NUT OR BOLT HEAD

SHOP NOTES: PAINTED ITEMS MARK ON LEFT END AS DETAILED. ALL BE PRIMARY COMPLETE PAINT. BE SHIPPED NOT PRIOR TO A MINIMUM OF AT LEAST 72 DAYS

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

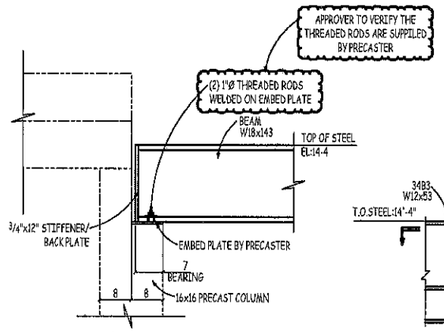
FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (U/N) A-992 GR-50
PARTS MATERIAL (U/N) A-36
TUBE MATERIAL (U/N) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U/N) 13/16 ø
USE NO 7000 WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

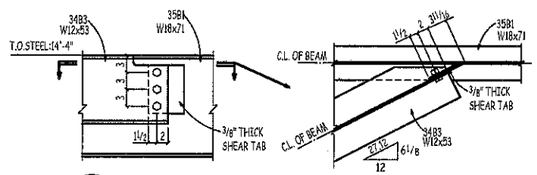
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRAWN MSK | CHECKED SJS | DATE 06-26-17 | JOB NO. 17068
DRWG NO. E19

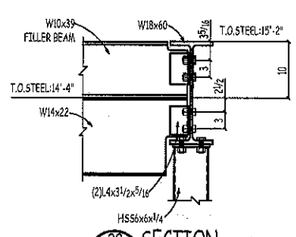
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the registered engineer, architect or owner to verify that the sections as detailed are properly classified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design



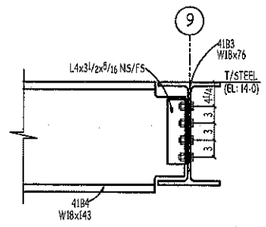
27 / E20 SECTION ✓
CUT FROM E12
REF.CONTRACT DOCUMENT 1/S4.1



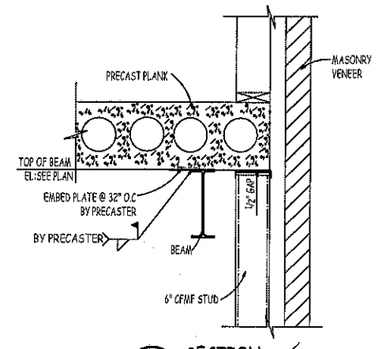
28 / E20 SECTION ✓
CUT FROM E12



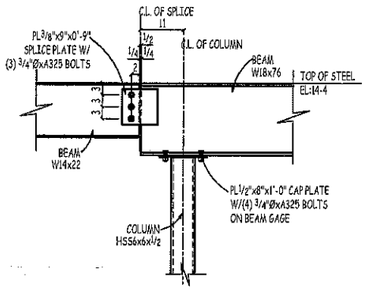
29 / E20 SECTION ✓
CUT FROM E12



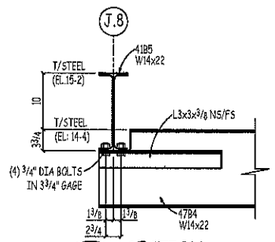
30 / E20 SECTION ✓
CUT FROM E12



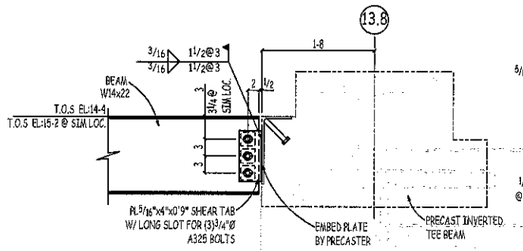
31 / E20 SECTION ✓
CUT FROM E12 & E13
REF.CONTRACT DOCUMENT 19/S-4.0



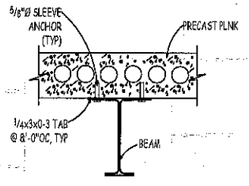
32 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 4/S-4.1



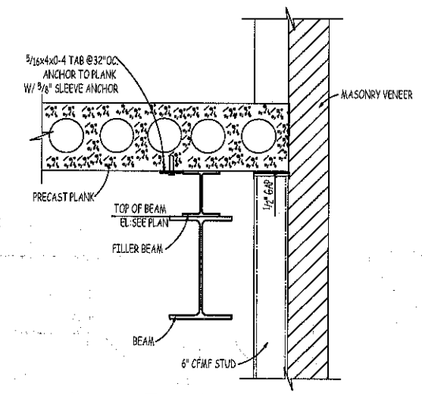
33 / E20 SECTION
CUT FROM E13



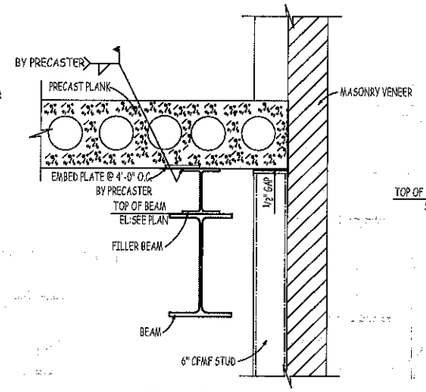
34 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 16/S4.1



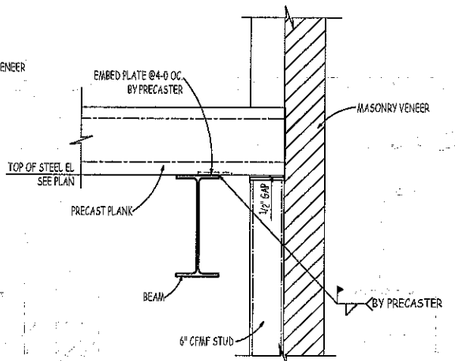
35 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 18/S-4.1



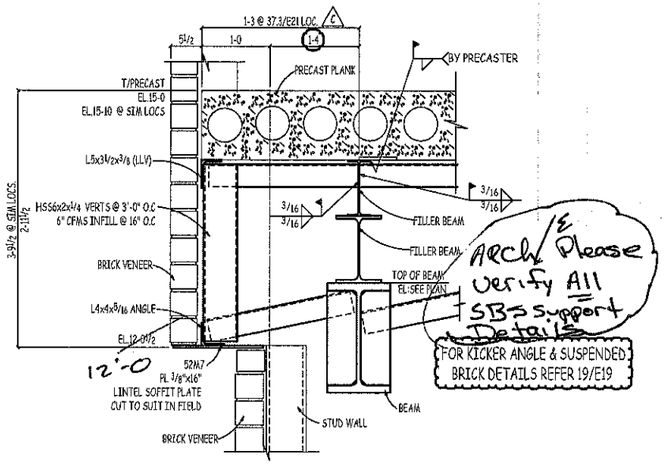
36 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 17/S-4.0



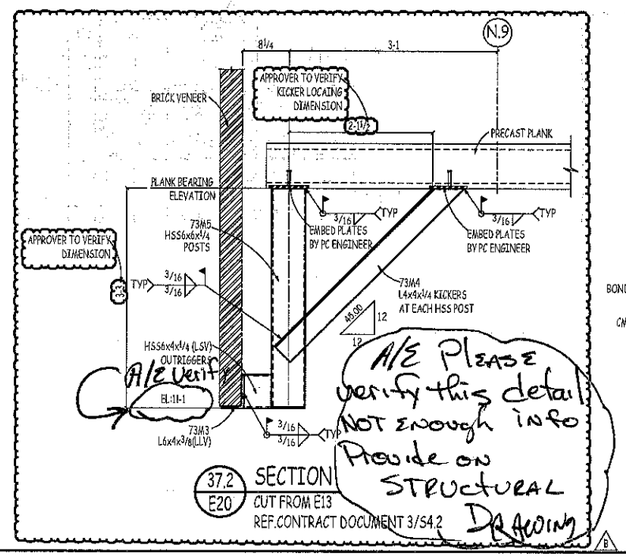
36.1 / E20 SECTION
CUT FROM E11,E12 & E13
REF.CONTRACT DOCUMENT 18/S-4.0



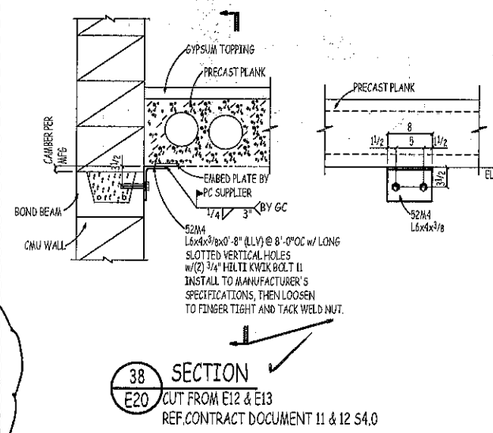
37 / E20 SECTION
CUT FROM E11,E12 & E13
REF.CONTRACT DOCUMENT 20/S-4.0



37.1 / E20 37.3 / E20 SECTION
CUT FROM E11



37.2 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 3/S4.2



38 / E20 SECTION
CUT FROM E12 & E13
REF.CONTRACT DOCUMENT 11 & 12 S4.0

DETAIL SHOW IS ACCEPTABLE, COORDINATE DIMENSIONS WITH PRECASTER

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

NOTES: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown herein and no changes, modifications or alternative measures by fabricated materials of any changes for such measures will be allowed without prior written consent of Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A MINIMUM STRENGTH EQUAL TO 1/2 THE HORIZONTAL REACTION UNDER ASD LOADING AS LISTED.

SHOP NOTE: PAINT FIRST MARK ON ERECTION PIECES AS LISTED. ALL STRUCTURAL STEEL SHALL BE PRIMED UNLESS FOR A DISTANCE OF AT LEAST 50 INCH

	FIELD	SHOP						
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

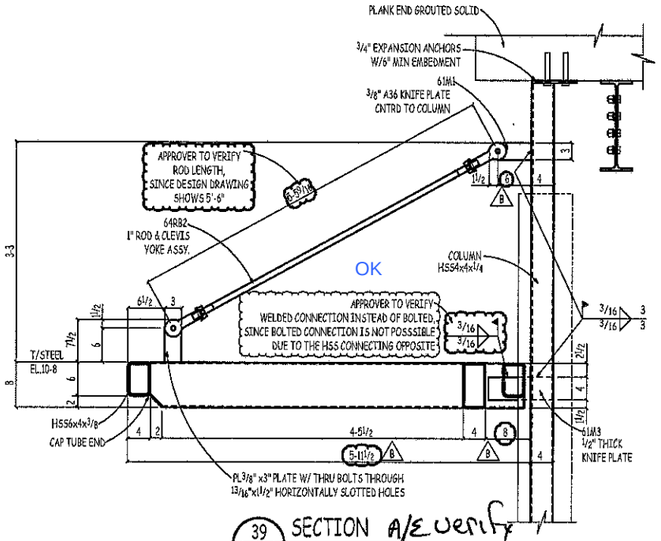
WIDE FLG.MAT'L (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 Ø
WELDS: CJP PEN. JOINT WELDS PER AWS D1.1 ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70 18

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

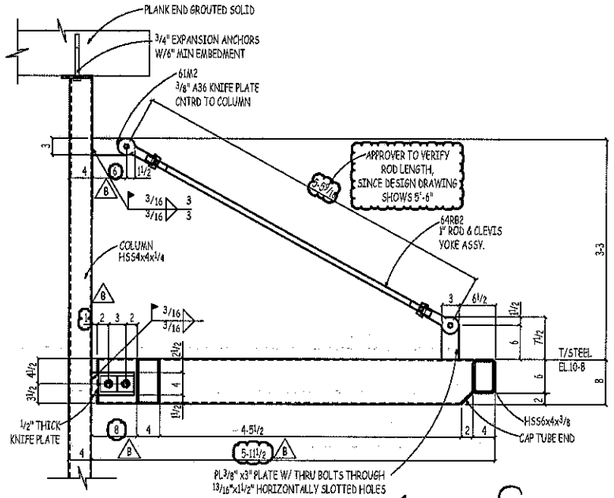
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: E20
DETAILED: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068

ANDREW NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

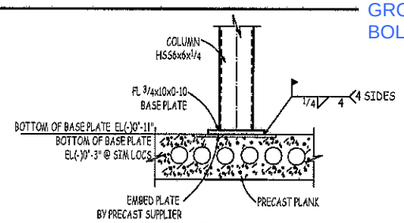
DETAIL REVISED FOR GROUT BED AND ANCHOR BOLTS.



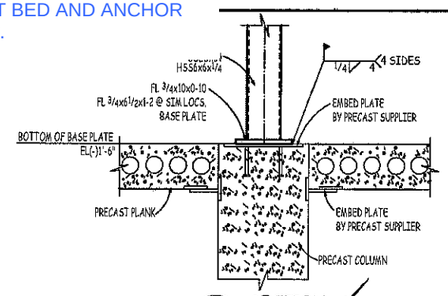
39 / E21 SECTION A/E verify
CUT FROM E16
REF.CONTRACT DOCUMENT 14/A-4.5



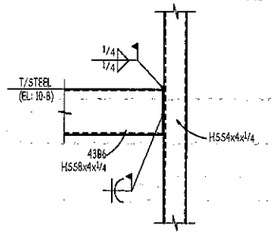
40 / E21 SECTION A/E verify
CUT FROM E16
REF.CONTRACT DOCUMENT 14/A-4.5



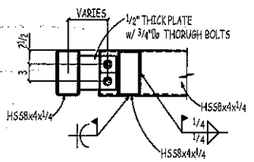
41 / E21 SECTION
CUT FROM E12
REF.CONTRACT DOCUMENT 23/S-4.0



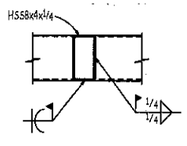
42 / E21 SECTION
CUT FROM E11,E12
REF.CONTRACT DOCUMENT 22/S-4.0



44 / E21 SECTION
CUT FROM E16
APPROVER TO VERIFY THE CONNECTION ARRANGEMENT

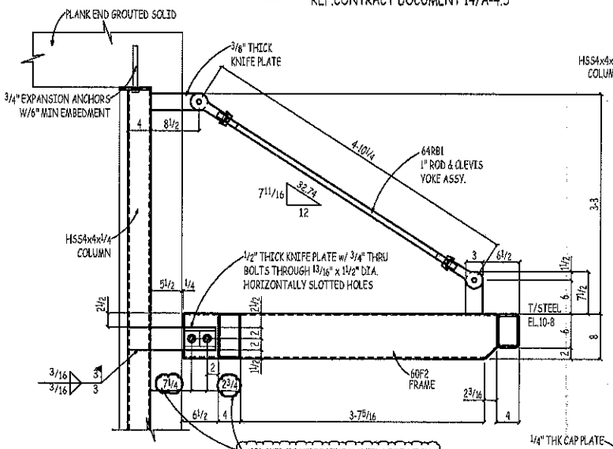


45 / E21 SECTION
CUT FROM E16
APPROVER TO VERIFY CONNECTION ARRANGEMENT



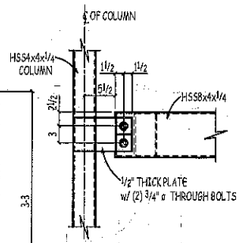
46 / E21 SECTION
CUT FROM E16
APPROVER TO VERIFY CONNECTION ARRANGEMENT

A/E verify

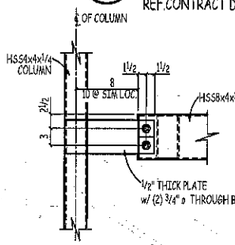


A/E verify

43 / E21 SECTION
CUT FROM E16
REF.CONTRACT DOCUMENT 13/A4.5

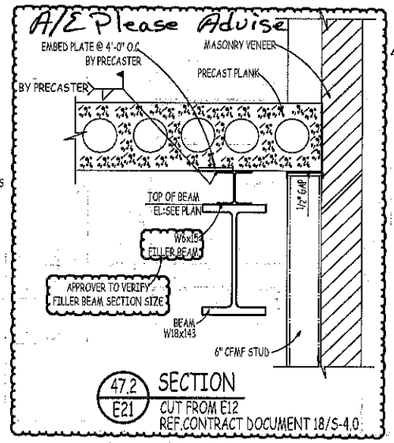


47 / E21 SECTION
CUT FROM E16
APPROVER TO VERIFY CONNECTION ARRANGEMENT



47.1 / E21 SECTION
CUT FROM E16
APPROVER TO VERIFY CONNECTION ARRANGEMENT

A/E Please verify

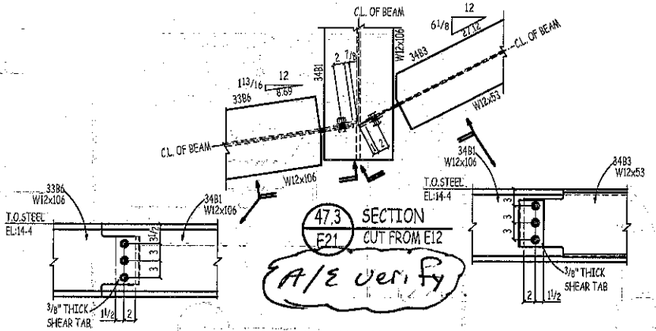


47.2 / E21 SECTION
CUT FROM E12
REF.CONTRACT DOCUMENT 18/S-4.0

47.4 / E21 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 18/S-4.0

47.5 / E21 SECTION
CUT FROM E13
APPROVER TO VERIFY CONNECTION ARRANGEMENT

A/E Please verify



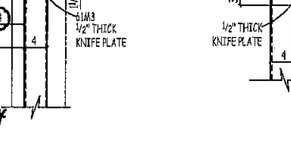
47.3 / E21 SECTION
CUT FROM E12
A/E verify

BEAM DOES NOT CANTILEVER OVER COLUMN

TYP BEAM TO COLUMN CONNECTION

TYP BEAM CONNECTION @ FILLER BEAM

TYP CAP PLATE CONNECTION DETAIL



TYP BEAM TO COLUMN CONNECTION

MINIMUM BEAM SIZE	NUMBER OF BOLTS
W8,W10	2
W12,W14	3
W16	4
W18	5

B	Feb 9 2018	ISSUED FOR REAPPROVAL							SAT
A	Jul 11 2017	ISSUED FOR APPROVAL							SAT
REV	DATE	DESCRIPTION							DETAILER
FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

AISC CERTIFIED FABRICATOR

NOTES: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the projects shown thereon and changes, modifications or corrective measures to fabricated materials of our design for such measures will be allowed without prior notification to and approval by Endres Mfg. Co.

SHOP NOTES: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325-N BOLTS SNUG BOLTS TO BE TIGHTENED TO MINIMUM BOLT TENSION SHOWN IN RCSC SPECIFICATION FOR HIGH-STRENGTH BOLTS. THE TURN-OF-NUT METHOD MAY BE USED. ALL THREADS SHALL BE EXCLUDED FROM SHEAR PLANES. BASIS OF ARTICLE 10.3.1(c)

SHOP NOTES: PAINT EXCEPT BARK ON, LEFT ENDS AS DETAILED. ALL WELDING TO BE DONE BY AWS CERTIFIED WELDERS. BASIS OF ARTICLE 10.3.1(b)

WIDE FLANGES (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø

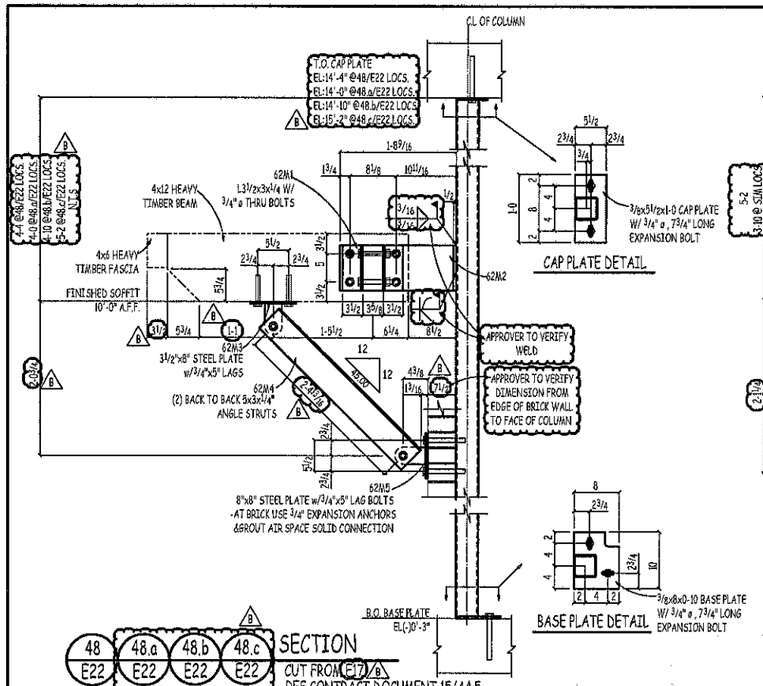
USE NO. 7000 WELD RODS
ALL CONNECTIONS ARE TO BE FABRICATED BUTT WELDED LOW HYDROGEN 2018

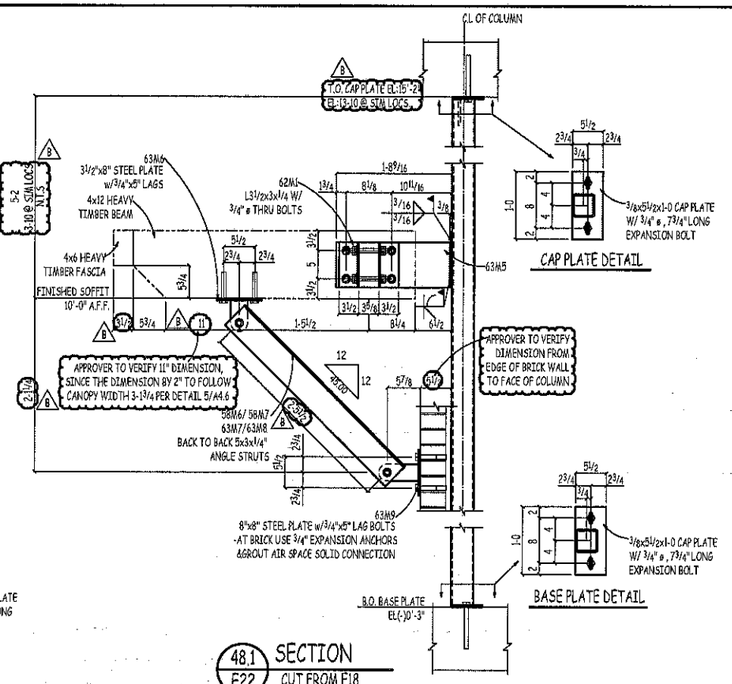
APPROVER NOTES: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the preferred responsibility of the engineering engineer, architect or owner to review that mechanics detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineering, architectural or owners design.

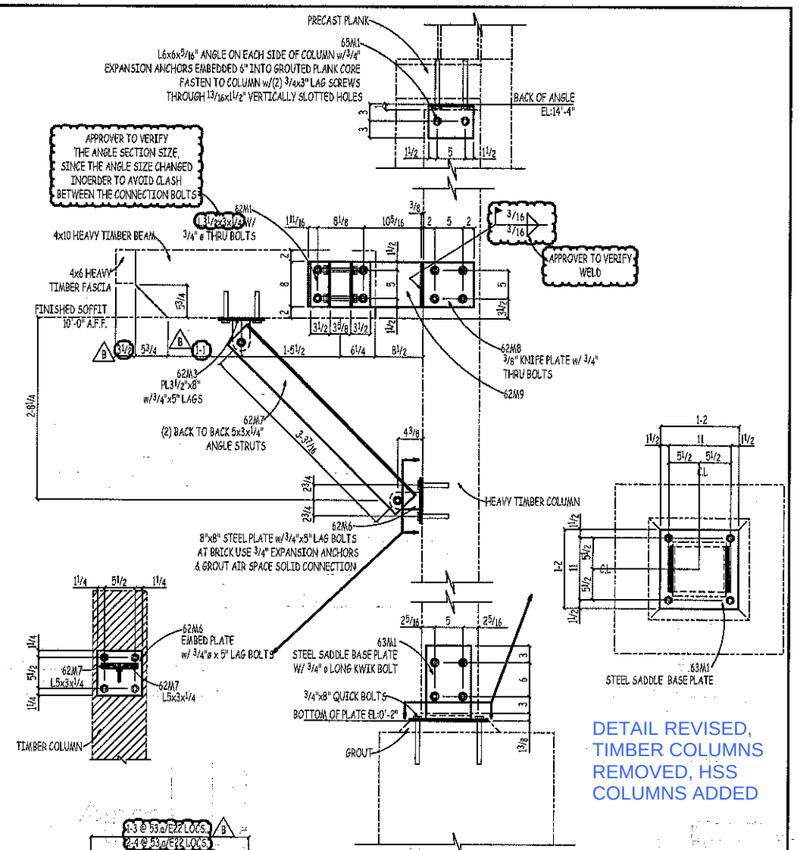
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

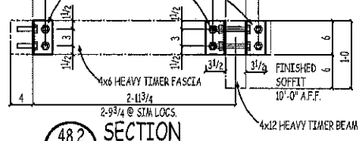
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH

DETAILER	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-26-17	17068	E21

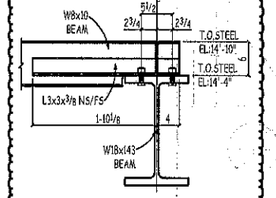




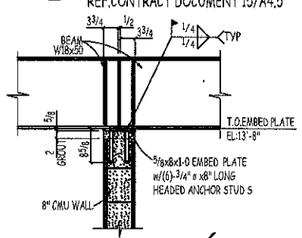




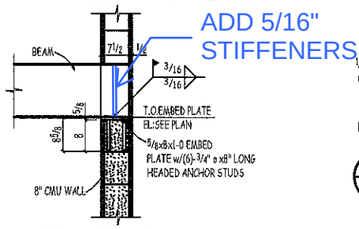
48.2 E22 SECTION
CUT FROM E18
REF.CONTRACT DOCUMENT 15/A4.5



51.1 E22 SECTION
CUT FROM E12
APPROVER TO VERIFY CONNECTION ARRANGEMENT

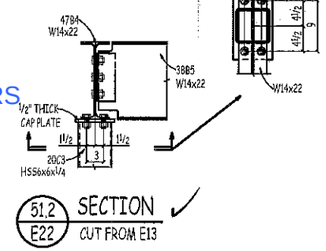


50 E22 SECTION ✓
CUT FROM E13
REF.CONTRACT DOCUMENT-19/S4.1

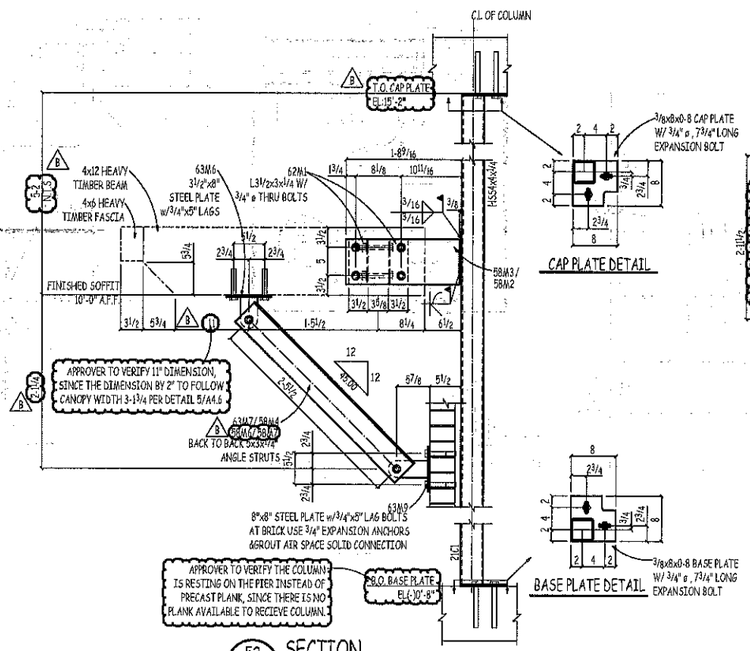


ADD 5/16" STIFFENERS

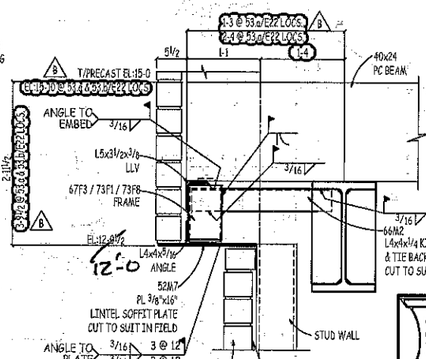
51 E22 SECTION ✓
CUT FROM E13



51.2 E22 SECTION ✓
CUT FROM E13



52 E22 SECTION
CUT FROM E18
REF.CONTRACT DOCUMENT 15/A4.5 (SIM.)



53 E22 | 53.a E22 | 53.b E22 SECTION
CUT FROM E11 & E13
APPROVER TO VERIFY THE FRAME ARRANGEMENT

A/E Please verify this Page

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR RE-APPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown thereon. No changes, modifications or corrective measures is intended materials of any character for shall measured will be allowed without prior notification to and agreement with Endres Mfg. Co.

SHOP NOTE: FABRICATOR WORKING DRAWINGS FOR THIS PROJECT SHALL BE SUBMITTED PRIOR TO A DRAWING BY ATTACHED TO SHOP.

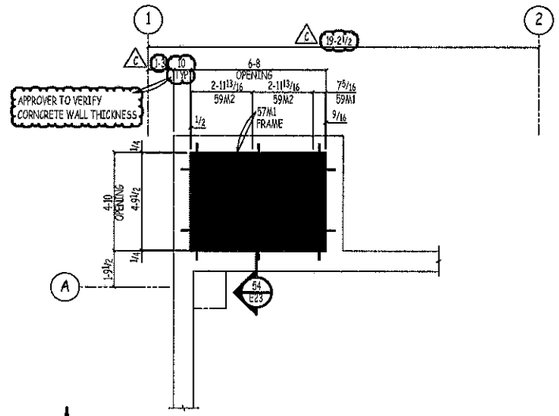
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
APPROVAL	E	07-11	E	02-09				
SHOP								
FIELD								

WIDE FLANGE (U/U) A-992 GR-50
PARTS MATERIAL (U/U) A-36
TUBE MATERIAL (U/U) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U/U) 13/16 ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

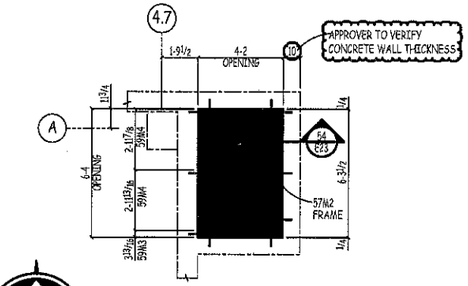
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRAWN MSK | CHECKED SIS | DATE 06-26-17 | JOB NO. 17068 | DRWG. NO. E22

APPROVED NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



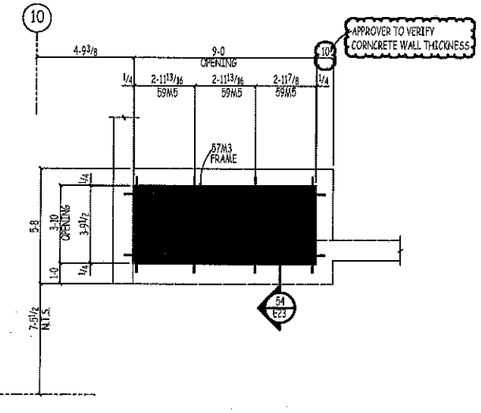
PARTIAL AREA WELL GRATING PLAN

T/GRATING EL.(-)2-2 1/2
B/ANGLE EL.(-)2-3 1/2
APPROVER TO VERIFY T/GRATING ELEVATION



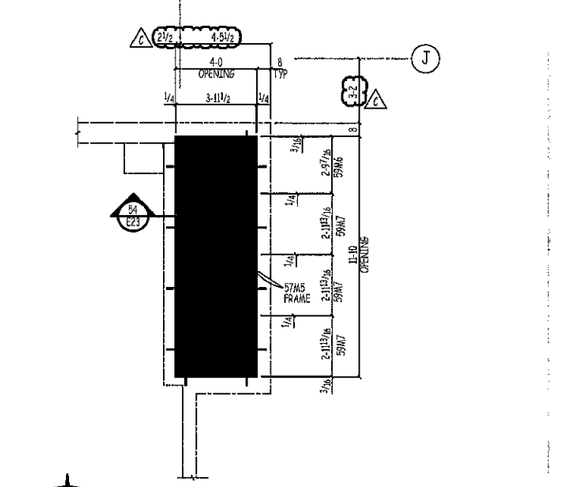
PARTIAL AREA WELL GRATING PLAN

T/GRATING EL.(-)2-2 1/2
B/ANGLE EL.(-)2-3 1/2
APPROVER TO VERIFY T/GRATING ELEVATION



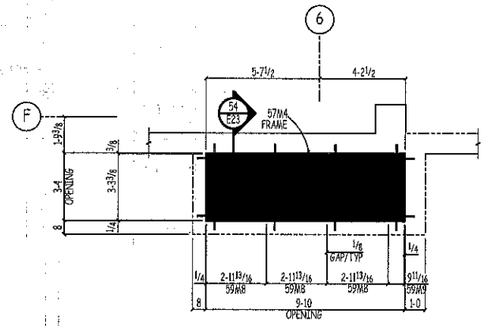
PARTIAL AREA WELL GRATING PLAN

T/GRATING EL.(-)0-9 3/8
B/ANGLE EL.(-)0-11
APPROVER TO VERIFY T/GRATING ELEVATION



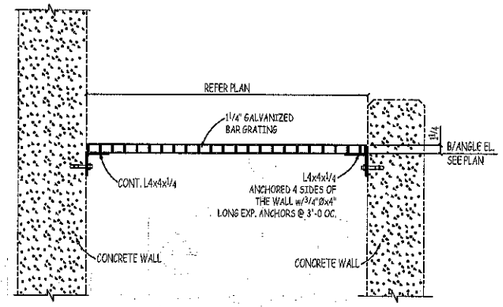
PARTIAL AREA WELL GRATING PLAN

T/GRATING EL.(-)3-3 1/4
B/ANGLE EL.(-)3-4 1/2
APPROVER TO VERIFY T/GRATING ELEVATION



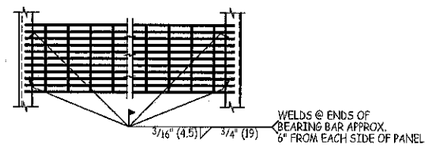
PARTIAL AREA WELL GRATING PLAN

T/GRATING EL.(-)2-2 1/2
B/ANGLE EL.(-)2-3 1/2
APPROVER TO VERIFY T/GRATING ELEVATION



54 / E23 SECTION

CUT FROM E23
REF.CONTRACT DOCUMENT-11/53.0



TYPICAL GRATING WELD DETAIL

NOT verified will Field Measure

Hold

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

COPYRIGHT: These drawings are the property of Endres Mfg. Co. and are for its sole purpose on fabrications and installations of its products and it is not to be used in any manner by others without its written consent or permission. No reproduction or distribution of any kind may be made without the prior written consent of Endres Mfg. Co.

DIRECTIONAL NOTES: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A325 STRUCTURAL BOLTS WITH THE THREADS INCLUDED UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: PAINT TO BE MADE ON TEST PLATE AS SPECIFIED. ALL RE-PAINTING COULDERS SHALL BE SHIPPED WITH A MINIMUM OF ATLEAST 90 MILS

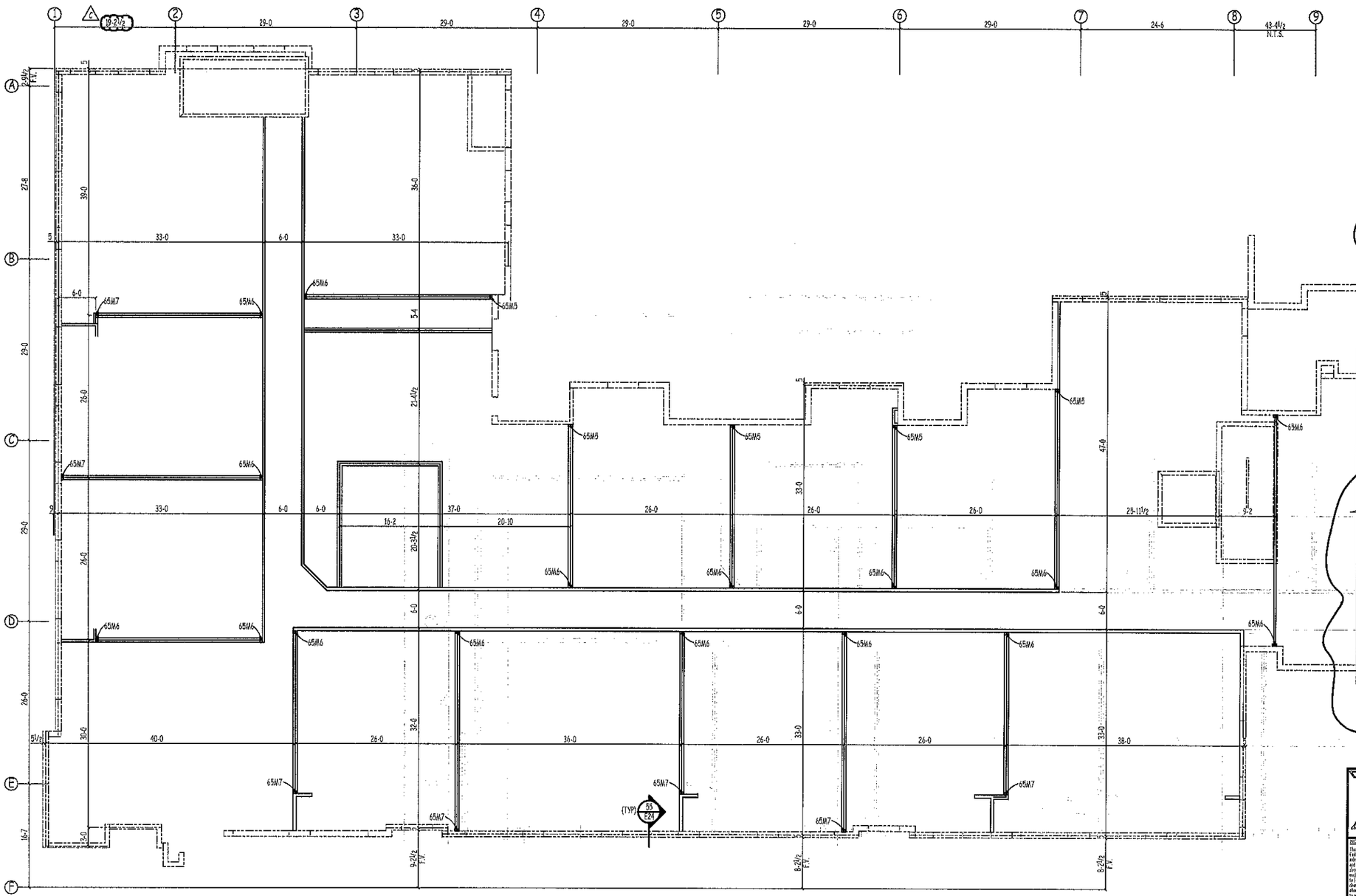
WIDE FLANGE (WF)	A-992 GR-50
PLATE MATERIAL (PM)	A-36
TUBE MATERIAL (TM)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (DIA.)	13/16 Ø

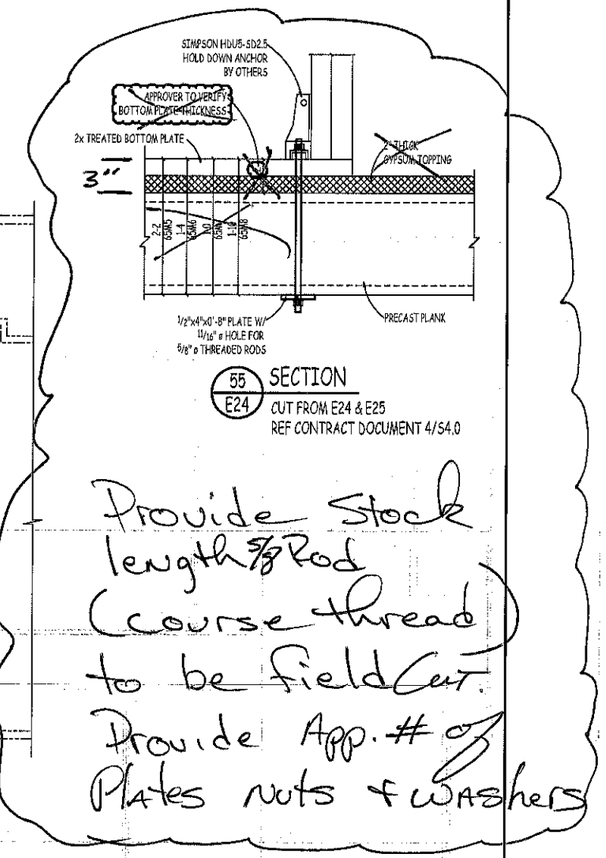
USE NO 7018X WELD WITH JEL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068
DRWG. NO.: E23

APPROVED NOTE: The details of structural steelfabrication on this sheet are developed from the engineering, architectural or concrete design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections or details are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design





Provide Stock length 5/8 Rod (course thread) to be field Cut. Provide App. # of Plates nuts + washers

SECOND FLOOR WEST HOLD DOWN ANCHOR PLAN

ALL DIMENSIONS TO BE FIELD VERIFY
REF.DOCUMENT:A1.2 W

COORDINATE ANCHOR LOCATIONS WITH VENDOR

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products. Endres Mfg. Co. drawings modifications or corrective measures to fabricated materials of our changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A 3/8 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE: PAINT PIECE MARK ON SHIPPING AS DETAILED. ALL BE PRIMARY COVERED SHALL BE SHIPPED NOTICE FREE TO A RADIUS OF AT LEAST 1/2 INCH

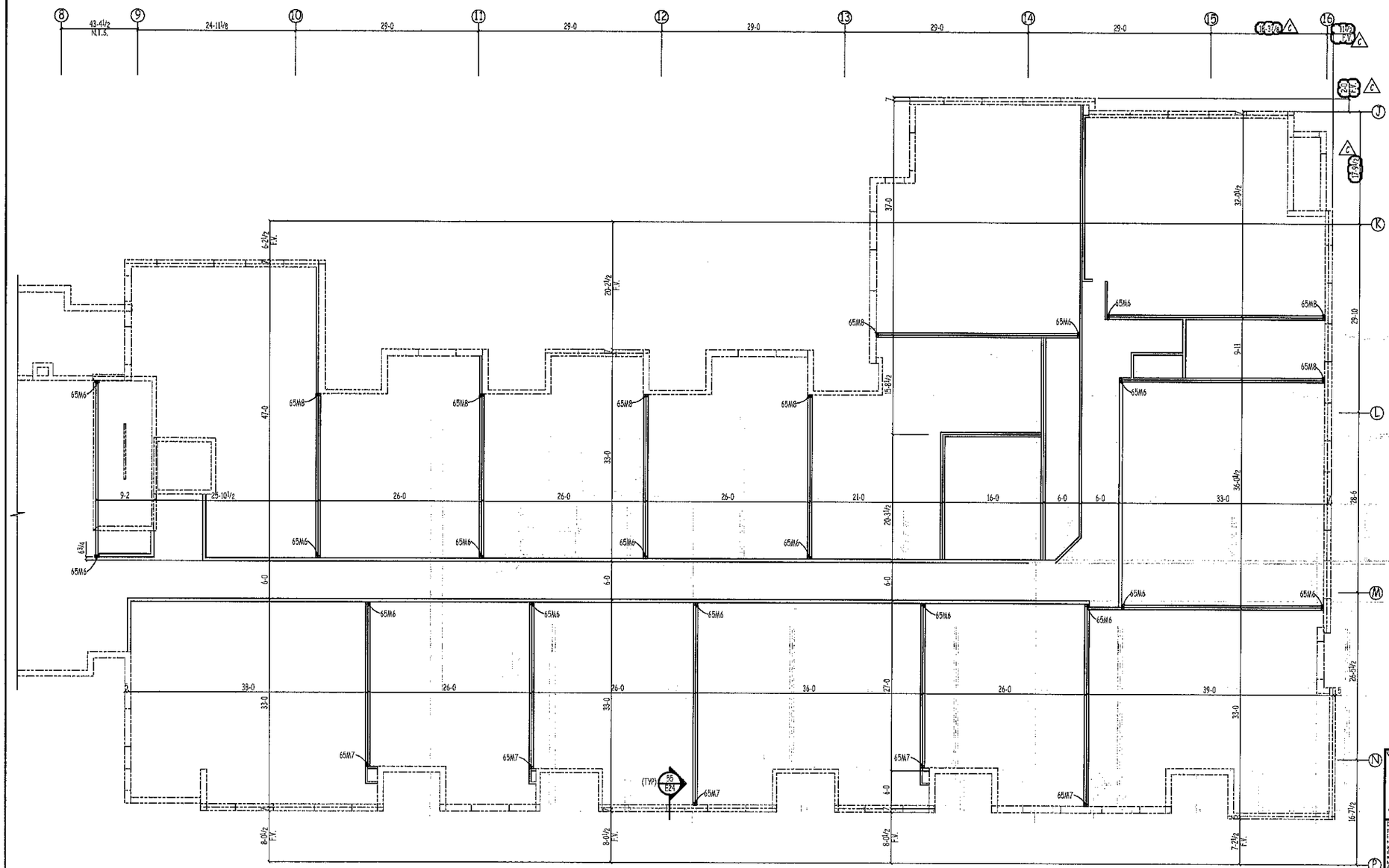
FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068 | DRWG. NO.: E24

APPROVAL NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineering engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



SECOND FLOOR EAST HOLD DOWN ANCHOR PLAN

ALL DIMENSIONS TO BE FIELD VERIFY
REF.DOCUMENT:A1.2E

COORDINATE ANCHOR LOCATIONS WITH VENDOR

See NOTES ON E-24

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown herein. No changes, modifications or correction measures by fabricator and/or erector or others for such purposes is to be allowed without prior authorization by and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT MARK ON SEPTEMBER AS INDICATED. ALL OF EXPOSED SURFACES SHALL BE SURFACE CLEANED FREE TO A GRADE OF AT LEAST SP3 SHOP

WIDE FLANGE (UN)	A-992 GR-50
PLATE MATERIAL (UN)	A-36
TUBE MATERIAL (UN)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (UN)	13/16 ø

USE NO. XXXX WELD FOR
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

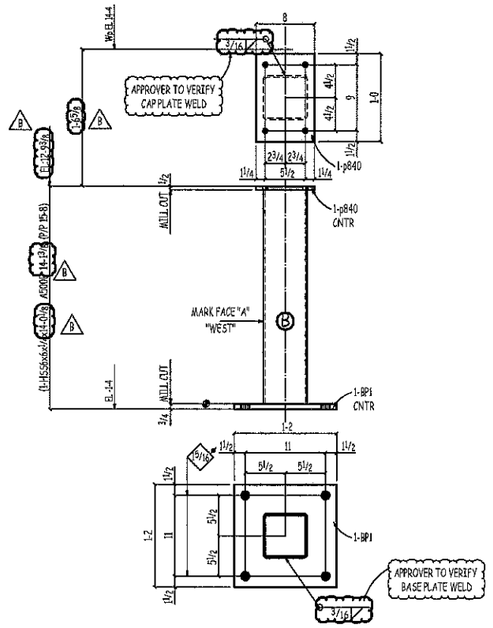
ERECTION NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RYEDEBUSCH

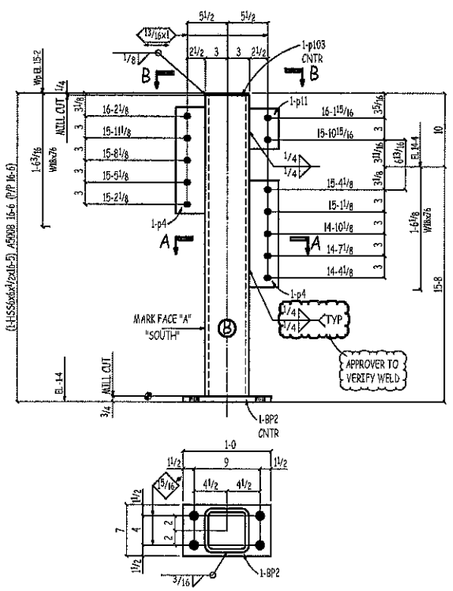
DR'TAILER	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-26-17	17068	E25

Total weight : 2782

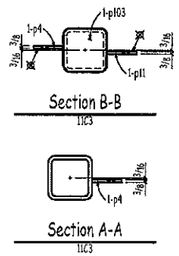


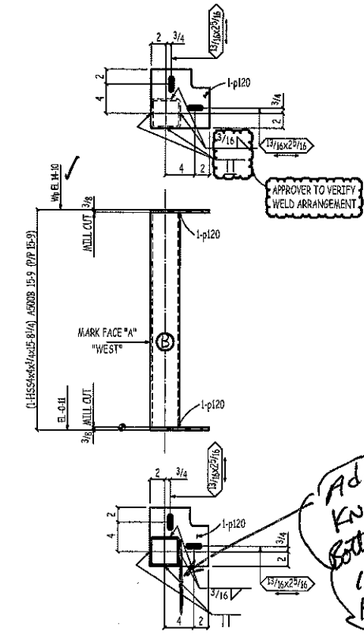
ONE COLUMN 11C1 ✓

AT GRID: A & 1.1



ONE COLUMN 11C3 ✓





ONE COLUMN 11C5

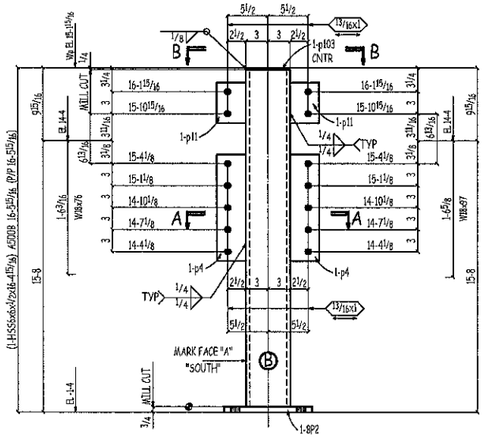
FIELD BOLTS:
- 4-3/4x7 3/4 EXPANSION ANCHOR (total=4)

Add Knife plate Bottom of plate 10'-1 1/2" ± FF or 0'-0"

BILL OF MATERIAL

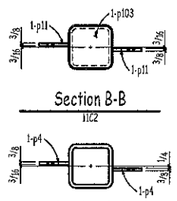
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	11C1	ONE	COLUMN		320	
	11C1	1	HSS6x6x1/4	14 0 1/8	267	M2E A500B
	BP1	1	PL3/4x14	1 2	41	A36
	p840	1	FL1/2x8	1 0	13	A36
1	11C2	ONE	COLUMN		613	
	11C2	1	HSS6x6x1/2	16 4 15/16	578	M2E A500B
	BP2	1	FL3/4x12	0 7	17	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p11	2	FL3/8x4	0 5 1/2	2	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36
1	11C3	ONE	COLUMN		611	
	11C3	1	HSS6x6x1/2	16 5	579	M2E A500B
	BP2	1	FL3/4x12	0 7	17	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p11	1	FL3/8x4	0 5 1/2	2	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36
1	11C4	ONE	COLUMN		616	
	11C4	1	HSS6x6x1/2	16 5	579	M2E A500B
	BP2	1	FL3/4x12	0 7	17	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p11	3	FL3/8x4	0 5 1/2	2	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36
1	11C5	ONE	COLUMN		203	
	11C5	1	HSS4x4x1/4	15 6 1/4	192	M2E A500B
	p120	2	FL3/8x8	0 5	6	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	11C6	2	COLUMN		209	
	11C6	2	HSS4x4x1/4	15 8 1/4	192	M2E A500B
	p198	2	FL1/2x4	0 7 1/2	4	A35
	p91	4	PL3/8x3 1/2	1 0	7	A36
			FIELD BOLTS			
		8	3/4 Dia EXP ANCHOR	0 7 3/4		

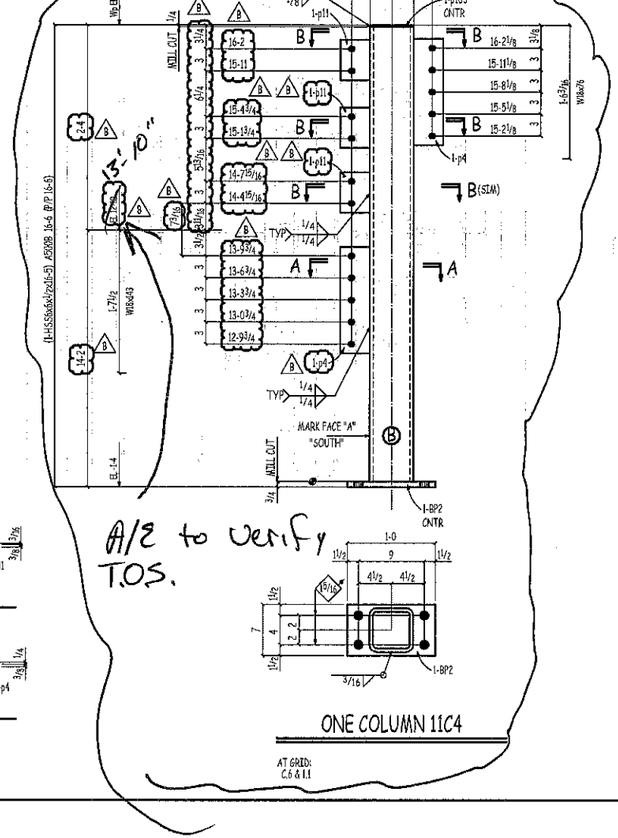
ARCH VERIFY T.O.S. ELEVATIONS, TYP



ONE COLUMN 11C2 ✓

AT GRID: A.8 & L1

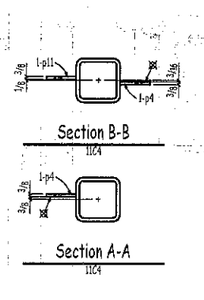


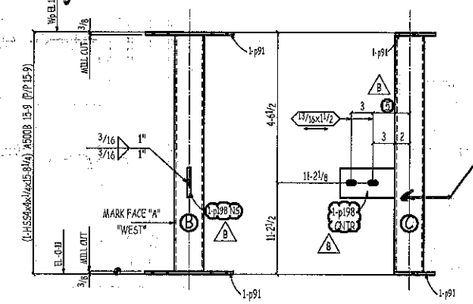


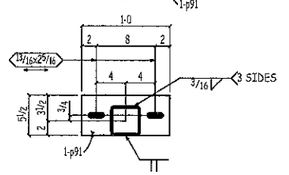
A/E to verify T.O.S.

ONE COLUMN 11C4

AT GRID: C.6 & L1







2 COLUMNS 11C6

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR (total=8)

Bottom of knife plate 10'-1 1/2 ± FF or 0'-0"

APPROVER TO VERIFY SURFACE PREPARATION

B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

AISC CERTIFIED FABRICATOR

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE: FAYING FACES SHALL BE FREE OF SCALE, DIRT, PAINT, OIL, ETC. BOLTED PARTS SHALL BE CLEANED PER SSPC-SP3 WIRE BRUSH.

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown herein or changes or alterations or corrective measures to fabricated materials or any changes for cost reasons will be allowed without prior notification to and approval with Endres Mfg. Co.

WIDE FLANGE (U.N.)	A-992 GR-50
PLATE MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	HOLES (U.N.)
AS NOTED	13/16 ø
ESP NO. 7000X WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70 ksi	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RVEDEBUSCH
DETAILED / CHECKED	MSK / SJS
DATE	06-12-2017
JOB NO.	17068
DRWG. NO.	11

DISCLAIMER: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the contracting engineer, architect or owner to verify that the said sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineer, architects or owner's design.

Total weight : 2968

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	12C1	ONE COLUMN			578	
	12C1	1	HSS8x8x1/2	15 5	543	M2E A500B
	p17	1	FL3/8x10	0 10	21	A36
	p4	1	FL3/8x4	1 2 1/2	6	A36
	p2	1	FL3/8x4	0 8 1/2	3	A36
	p11	1	FL3/8x4	0 8 1/2	2	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36
1	12C2	ONE COLUMN			327	
	12C2	1	HSS6x6x1/4	15 5	293	M2E A500B
	p17	1	FL3/8x10	0 10	21	A36
	p4	1	FL3/8x4	1 2 1/2	6	A36
	p14	1	FL3/8x4	0 8	3	A36
	p11	1	FL3/8x4	0 5 1/2	2	A36
	p82	1	FL1/4x6	0 6	3	A36
1	12C3	ONE COLUMN			359	
	12C3	1	HSS8x8x1/4	18 7	316	M2E A500B
	p17	1	FL3/8x10	0 10	21	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p28	1	FL3/8x4	0 9	4	A36
	p14	1	FL3/8x4	0 8	3	A36
	p11	1	FL3/8x4	0 5 1/2	2	A36
	p82	1	FL1/4x6	0 6	3	A36
1	12C4	ONE COLUMN			366	
	12C4	1	HSS6x6x1/4	16 7	316	M2E A500B
	p17	1	FL3/8x10	0 10	21	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p11	2	FL3/8x4	0 5 1/2	2	A36
	p82	1	FL1/4x6	0 6	3	A36
1	12C5	ONE COLUMN			203	
	12C5	1	HSS4x4x1/4	15 8 1/4	192	M2E A500B
	p120	2	FL3/8x8	0 8	6	A36
			FIELD BOLTS			
			4 3/4 Dia EXP ANCHOR	0 7 3/4		
1	12C6	3	COLUMN		191	
	12C6	3	HSS4x4x1/4	14 8 1/4	177	M2E A500B
	p508	3	FL3/8x8	0 10	7	A36
	p91	3	PL3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		12	3/4 Dia EXP ANCHOR	0 7 3/4		
1	12C7	3	COLUMN		191	
	12C7	3	HSS4x4x1/4	14 8 1/4	177	M2E A500B
	p508	3	FL3/8x8	0 10	7	A36
	p91	3	PL3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		12	3/4 Dia EXP ANCHOR	0 7 3/4		

ONE COLUMN 12C1

Section A-A 12C1

Section B-B 12C1

A/E to Verify Bearing Elev. for Precast Beam

ONE COLUMN 12C4 ✓

AT GRID: E.6 & 2.2

Section B-B 12C4

Section A-B 12C4

Req. SADDLE B-2 5 in

3 COLUMNS 12C6

AT GRID: P & 11.7

FIELD BOLTS: 4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

ONE COLUMN 12C2

AT GRID: D.7 & 1

A/E to verify Bearing Elev. for Precast Beam

Section B-B 12C2

Section A-A 12C2

Section C-C 12C3

Section B-B 12C3

Section A-A 12C3

ONE COLUMN 12C3

AT GRID: E.6 & 1

A/E to verify Elev. for Precast Beam

ONE COLUMN 12C5

FIELD BOLTS: 4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

Add Knife Plate Bottom @ PL 12 10'-1 1/2" F.F. or 0'-0"

3 COLUMNS 12C7

FIELD BOLTS: 4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

Requires SADDLE B-2 5 in

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	PRINTS	NO.	DATE	NO	DATE	NO.	DATE	NO.	DATE
FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09					

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and use thereon of the products shown thereon or of repairs thereto. Unauthorized use, reproduction or retention of any of the information contained on the drawings without prior written consent of Endres Mfg. Co. will be enforced.

DIRECTION NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325-SC BOLTS TORQUED TO 95% OF THE SPECIFIED MINIMUM BOLT TENSION FOR HARDENED WASHER USED UNDER THE TURNED ELEMENT BUT OR NOT THREAD

SHOP NOTE: MINIMUM FREE EDGE CUT, LEFT END AS DESIGNED, ALL REINFORCING STIFFENERS SHALL BE BROUGHT TO WITHIN 1/2" RADIUS OF AT LEAST ½ THICK

WIDE FLANGE (WF) A-992 GR-50
PARTS MATERIAL (P/M) A-36
TUBE MATERIAL (T/M) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO 7000X WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN TYP.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

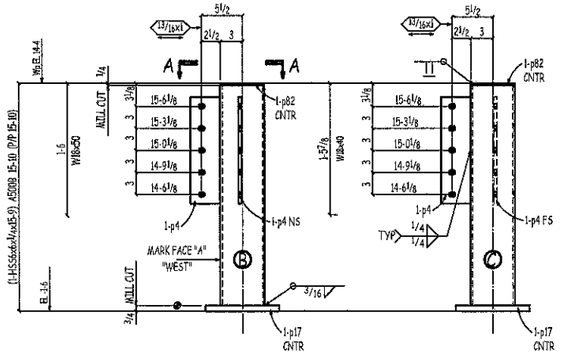
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRWG NO. 12
DETAILER MSK CHECKED SJS DATE 06-12-2017 JOB NO. 17068

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or erection design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 1734

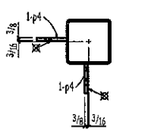
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH		WEIGHT	REMARKS
1	13C1	ONE	COLUMN			335	
	13C1	1	HSS6x6x1/4	15	9	300	M2E A500B
	p17	1	FL 3/4x10	0	10	21	A36
	p4	2	FL 3/8x4	1	2 1/2	6	A36
	p82	1	FL 1/4x6	0	6	3	A36
1	13C2	ONE	COLUMN			349	
	13C2	1	HSS6x6x1/4	15	7	296	M2E A500B
	BP1	1	PL 3/4x14	1	2	41	A36
	p4	1	FL 3/8x4	1	2 1/2	6	A36
	p2	1	FL 3/8x4	0	8 1/2	3	A36
	p82	1	FL 1/4x6	0	6	3	A36
1	13C3	ONE	COLUMN			349	
	13C3	1	HSS6x6x1/4	15	7	296	M2E A500B
	BP1	1	PL 3/4x14	1	2	41	A36
	p4	1	FL 3/8x4	1	2 1/2	6	A36
	p2	1	FL 3/8x4	0	8 1/2	3	A36
	p82	1	FL 1/4x6	0	6	3	A36
1	13C4	ONE	COLUMN			351	
	13C4	1	HSS6x6x1/4	15	7	296	M2E A500B
	BP1	1	PL 3/4x14	1	2	41	A36
	p4	2	FL 3/8x4	1	2 1/2	6	A36
	p82	1	FL 1/4x6	0	6	3	A36
1	13C5	ONE	COLUMN			351	
	13C5	1	HSS6x6x1/4	15	7	296	M2E A500B
	BP1	1	PL 3/4x14	1	2	41	A36
	p4	2	FL 3/8x4	1	2 1/2	6	A36
	p82	1	FL 1/4x6	0	6	3	A36

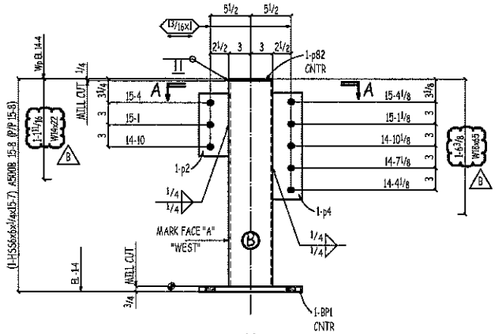


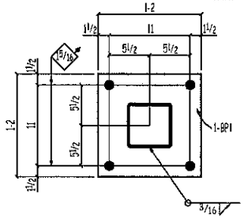
ONE COLUMN 13C1

AT GRID: E.4 & 3.2



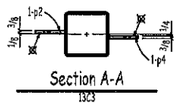
Section A-A
13C1



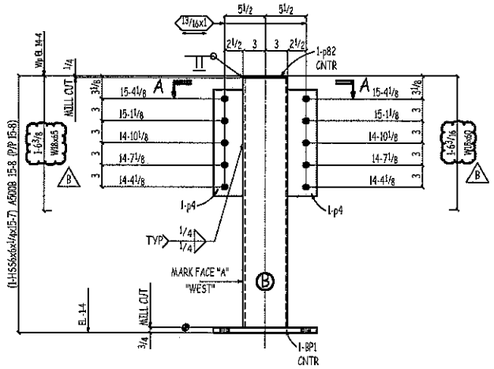


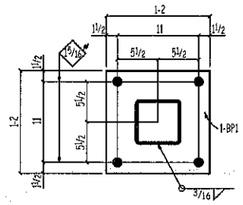
ONE COLUMN 13C3

AT GRID: F & 3.6



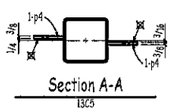
Section A-A
13C3



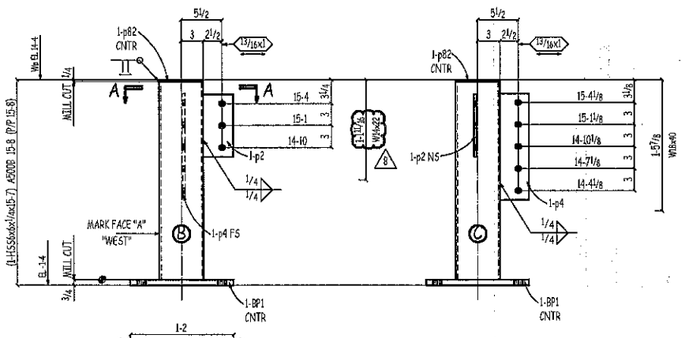


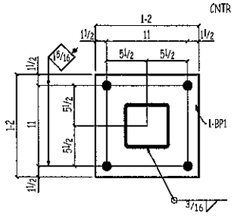
ONE COLUMN 13C5

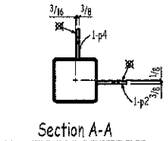
AT GRID: F & 5.2 — ALREADY APPROVED AS 13C4 (B)



Section A-A
13C5



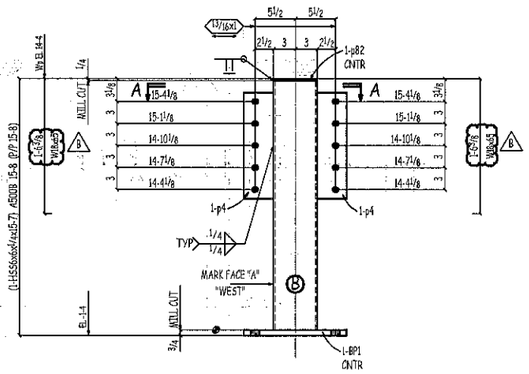


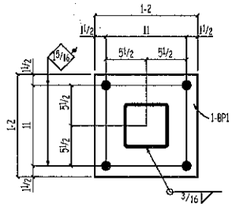


Section A-A
13C2

ONE COLUMN 13C2

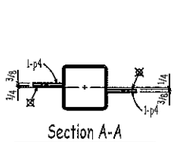
AT GRID: F & 3.2





ONE COLUMN 13C4

AT GRID: F & 4.4 — ONE QUANTITY SPLITTED TO 13C5 (B)



Section A-A
13C4

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

FIELD
SHOP
APPROVAL: E 07-11 | E 02-09
PRINTS: NO. DATE | NO. DATE | NO. DATE | NO. DATE | NO. DATE

NOTES: These drawings are the property of Endres Mfg Co. and are for the sole purpose of fabrication and erection of the products shown on it unless modifications or corrective measures by fabricating materials or our changes for such measures will be allowed without prior notification and agreement with Endres Mfg Co.

DIRECTION NOTED: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A FILLET WELD AS SHOWN BELOW WITH THE THROAT DIMENSION UNDER THE WELD SYMBOL EQUAL TO THE THICKNESS OF THE THINNER PART OF THE BOLT TYPICAL

SHOP NOTE: PAINTING STEEL MARK ON WEB AND SLAB FACE ALL BEVELS MUST COMPLETELY COVERED WELD AND PAINTED FREE TO A DEPTH OF AT LEAST TO 3INCH

WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC.
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

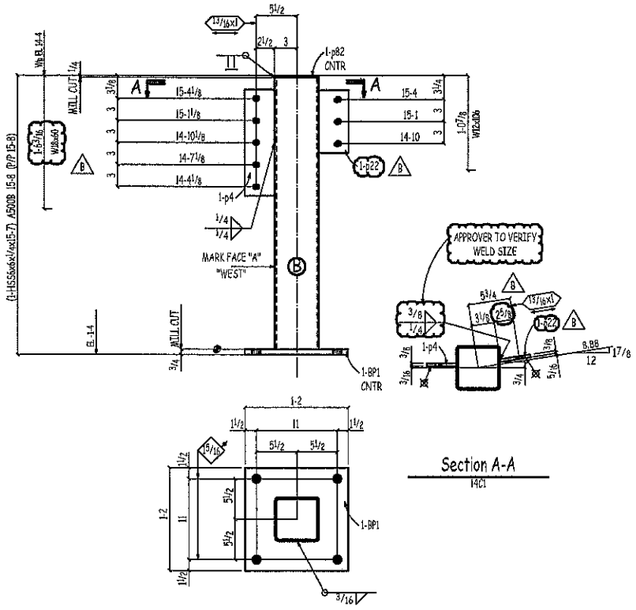
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | DESIGN: SJS | DATE: 06-12-2017 | JOB NO: 17068
DRWG. NO: 13

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that this section is detailed and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 1928

BILL OF MATERIAL

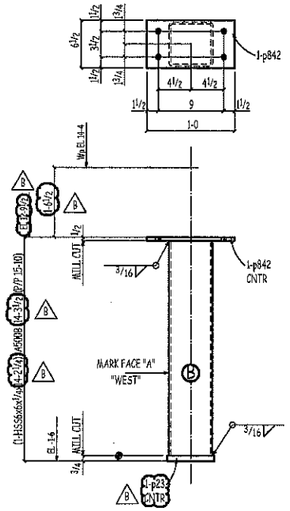
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	14C1		ONE COLUMN		349	
	14C1	1	HSS6x6x1/4	15 7	296	M2E A500B
	BP1	1	FL 3/8x14	1 2	41	A36
B	p22	1	FL 3/8x4 3/16	0 8 1/2	4	A36
	p4	1	FL 3/8x4	1 2 1/2	6	A36
	p82	1	FL 1/4x5	0 6	3	A36
1	14C2		ONE COLUMN		312	
	14C2	1	HSS6x6x1/4	14 7 7/8	279	M2E A500B
	p17	1	FL 3/4x10	0 10	21	A36
	p840	1	FL 1/2x8	1 0	13	A36
1	14C3		ONE COLUMN		309	
B	14C3	1	HSS6x6x1/4	14 2 1/4	270	M2E A500B
B	p23	1	FL 3/4x6 1/2	1 7	18	A36
	p842	1	FL 1/2x8 1/2	1 0	11	A36
1	14C4		ONE COLUMN		328	
	14C4	1	HSS6x6x1/4	15 8	298	M2E A500B
	p17	1	FL 3/4x10	0 10	21	A36
	p9	1	FL 3/8x4	0 11 1/2	5	A36
	p11	1	FL 3/8x4	0 5 1/2	2	A36
	p82	1	FL 1/4x6	0 6	3	A36
1	14C5		ONE COLUMN		329	
	14C5	1	HSS6x6x1/4	15 8	298	M2E A500B
	p17	1	FL 3/4x10	0 10	21	A36
	p9	1	FL 3/8x4	0 11 1/2	5	A36
	p11	1	FL 3/8x4	0 5 1/2	2	A36
	p82	1	FL 1/4x6	0 6	3	A36
B	1 14C6		ONE COLUMN		309	
	14C6	1	HSS6x6x1/4	14 6	276	M2E A500B
	p17	1	FL 3/4x10	0 10	21	A36
	p4	1	FL 3/8x4	1 2 1/2	6	A36
	p2	1	FL 3/8x4	0 8 1/2	3	A36
	p82	1	FL 1/4x6	0 6	3	A36



ONE COLUMN 14C1

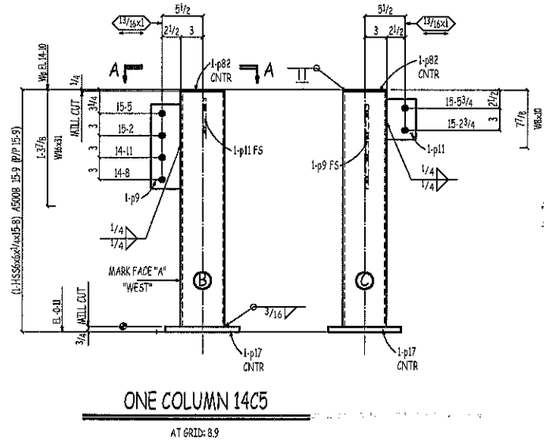
AT GRID: F & 6.1

Section A-A
14C1



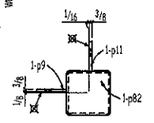
ONE COLUMN 14C3

AT GRID: E.4 & 7.9

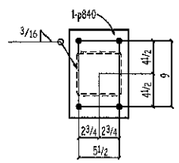


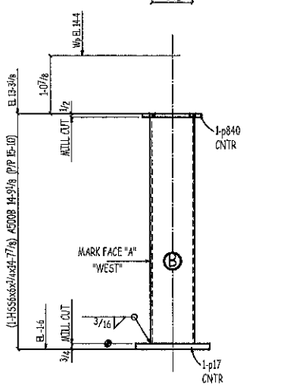
ONE COLUMN 14C5

AT GRID: 8.9



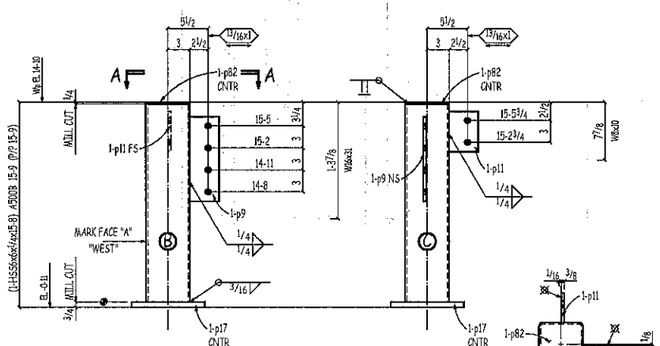
Section A-A
14C5





ONE COLUMN 14C2

AT GRID: 7.1



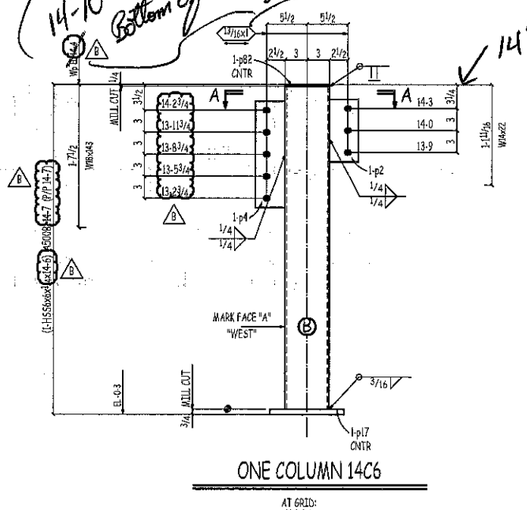
ONE COLUMN 14C4

AT GRID: 8.15

Section A-A
14C4

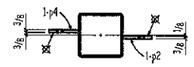
14'-10" change because Bottom of STEEC Conflicted w/ EXT Windows

14'-4"



ONE COLUMN 14C6

AT GRID: N.3 & 9



Section A-A
14C6

ASC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	APPROVAL	E	07-11	E	02-09				
FIELD	PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
SHOP									

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown. It is not to be used for any other purpose or reproduced without our permission and is to be returned upon request.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 BOLTS, STANDARD FILLER, TO MEET AISC SPECIFICATIONS. ALL BOLTS SHALL BE TURNED-BEARING NUT OR LOCKNUT.

SHOP NOTE: PAINT ENDS AS SHOWN ON DETAILS. DO NOT PAINT WITHIN 2" OF WELD LOCATIONS. GRINDING OF WELDS TO A RADIUS OF AT LEAST 1/2 INCH.

WIDE FLANGE (U.N.)	A-992 GR-50
PLATE MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
SCALES (U.N.)	13/16 Ø

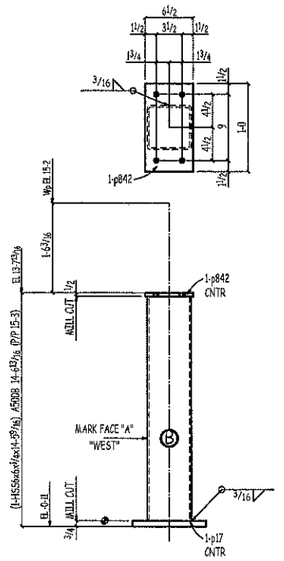
USE NO 7000 WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILED: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO: 17068
DRWG. NO: 14

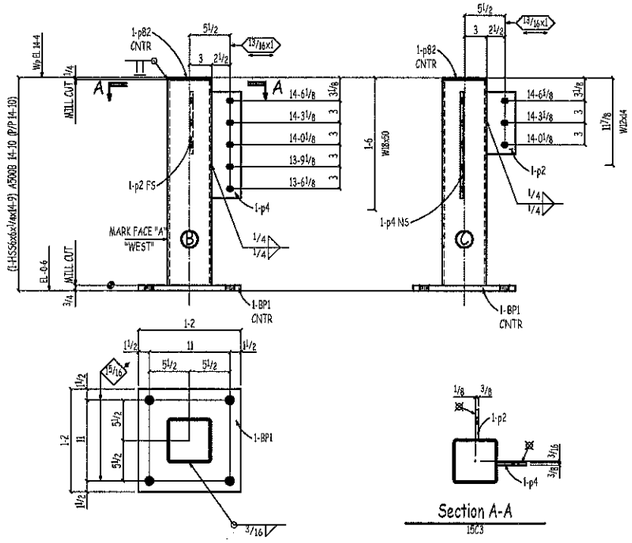
APPLICATION NOTICE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections are detailed are properly identified and that all corrections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 2915



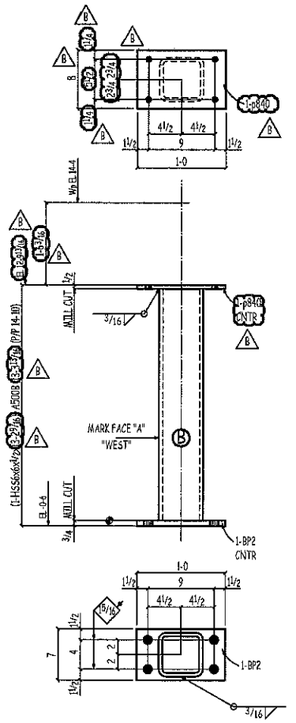
2 COLUMNS 15C1

AT GRID:
N.3 & 9.4
N.3 & 10.4



ONE COLUMN 15C3

AT GRID:
N.9 & 10.9



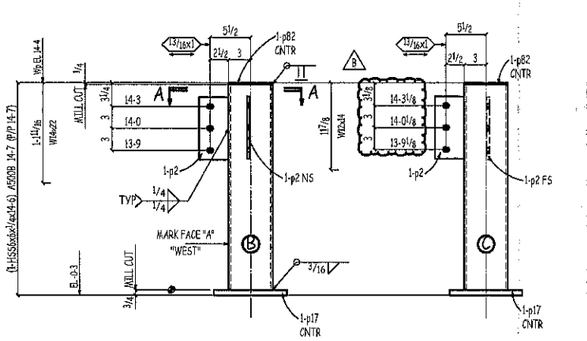
2 COLUMNS 15C5

AT GRID:
N.9 & 13.4
N.9 & 13.9

FIELD BOLTS:
4-3/4x2 1/4 A325N +1HD WASH [total=4]

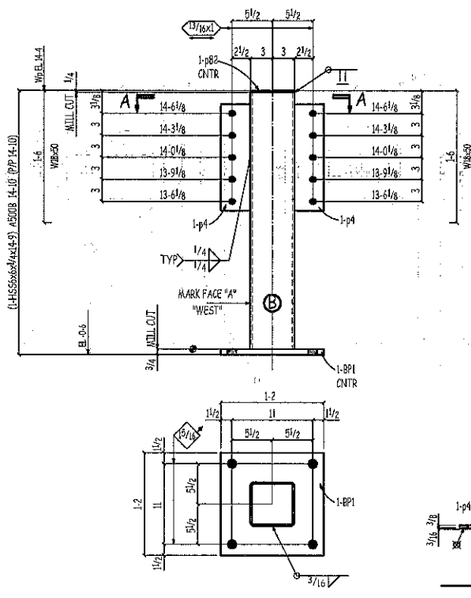
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	15C1	2	COLUMN		307	
	15C1	2	HSS6x6x1/4	14 3 15/16	275	M2E A500B
	p17	2	PL 3/8x10	0 10	21	A36
	p842	2	PL 1/2x8 1/2	1 0	11	A36
1	15C2	ONE	COLUMN		306	
	15C2	1	HSS6x6x1/4	14 6	276	M2E A500B
	p17	1	PL 3/8x10	0 10	21	A36
	p2	2	PL 3/8x4	0 6 1/2	3	A36
	p82	1	PL 1/4x6	0 6	3	A36
1	15C3	ONE	COLUMN		333	
	15C3	1	HSS6x6x1/4	14 9	281	M2E A500B
	BP1	1	PL 3/8x14	1 2	41	A36
	p4	1	PL 3/8x4	1 2 1/2	6	A36
	p2	1	PL 3/8x4	0 8 1/2	3	A36
	p82	1	PL 1/4x6	0 6	3	A36
1	15C4	ONE	COLUMN		335	
	15C4	1	HSS6x6x1/4	14 9	281	M2E A500B
	BP1	1	PL 3/8x14	1 2	41	A36
	p4	2	PL 3/8x4	1 2 1/2	6	A36
	p82	1	PL 1/4x6	0 6	3	A36
1	15C5	2	COLUMN		496	
B	15C5	2	HSS6x6x1/2	13 2 15/16	466	M2E A500B
	BP2	2	PL 3/8x12	0 7	17	A36
B	p840	2	PL 1/2x8	1 0	13	A36
			FIELD BOLTS			
			4 3/4 Dia A325N	0 2 1/4		+1HD WASH
1	15C6	ONE	COLUMN		335	
	15C6	1	HSS6x6x1/4	14 9	281	M2E A500B
	BP1	1	PL 3/8x14	1 2	41	A36
	p4	2	PL 3/8x4	1 2 1/2	6	A36
	p82	1	PL 1/4x6	0 6	3	A36



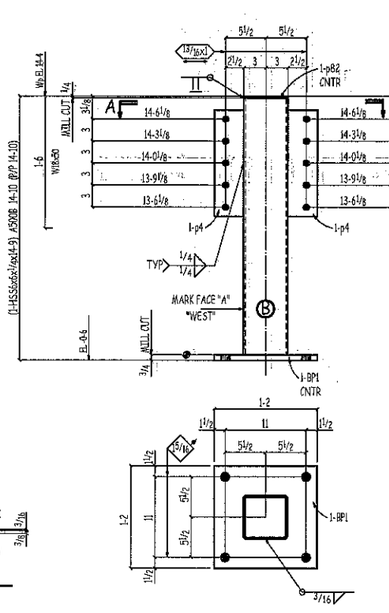
ONE COLUMN 15C2

AT GRID:
N.3 & 10.9



ONE COLUMN 15C4

AT GRID:
N.9 & 11.7



ONE COLUMN 15C6

AT GRID:
N.9 & 12.6

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR RE-APPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

AISC CERTIFIED FABRICATOR

NOTE: Ideas, designs and arrangements shown on these drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication. Unauthorized use of the product shown thereon is prohibited and shall not be interpreted to include any right to reproduce, copy, exhibit or otherwise disclose the contents hereof or to manufacture, use or sell anything that may be described in or covered by these drawings, without the prior written consent of Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE AISC W.S.D. - ALL WELDING SHALL CONFORM TO AWS D1.1 LATEST EDITION - ALL BOLTED CONNECTIONS SHALL BE SNUG TIGHTENED PER THE TURN-OF-NUT METHOD OR DIRECT TENSION INDICATOR (DTI) BOLT HEAD.

SHOP NOTE: CAMBER MADE ON TOP FLANGE AS DETAILED - ALL BEVEL PREPARATIONS TO BE 45° - ALL SHARP EDGES TO BE BROKEN OFF AT LEAST 1/16" - ALL WELDING SHALL BE SHOP WELDING UNLESS OTHERWISE NOTED - ALL SHOP WELDING SHALL BE DONE BY WELDERS QUALIFIED IN ACCORDANCE WITH AWS D1.1 - ALL SHOP WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS - ALL SHOP WELDING SHALL BE PERFORMED IN A FIXED WELDING SHOP - ALL SHOP WELDING SHALL BE PERFORMED IN A FIXED WELDING SHOP - ALL SHOP WELDING SHALL BE PERFORMED IN A FIXED WELDING SHOP

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

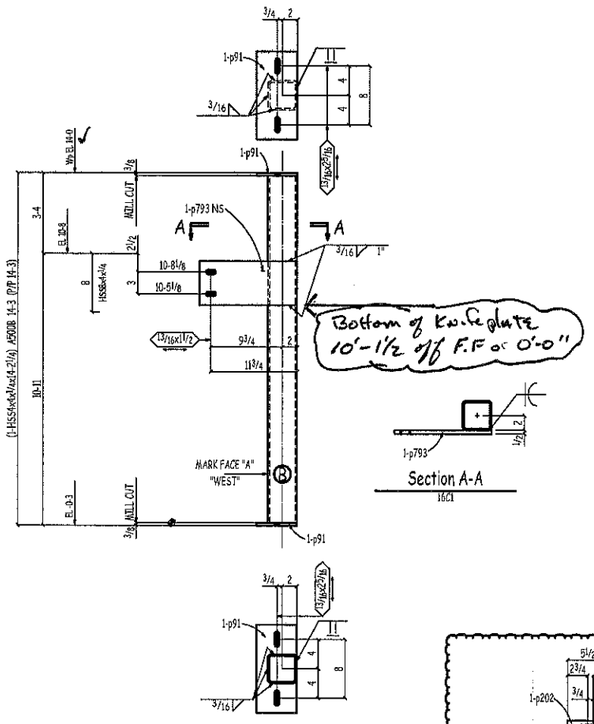
WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 Ø
USE AD 7000 WELD BOD: ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRAWS. NO.: 15
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO.: 17068

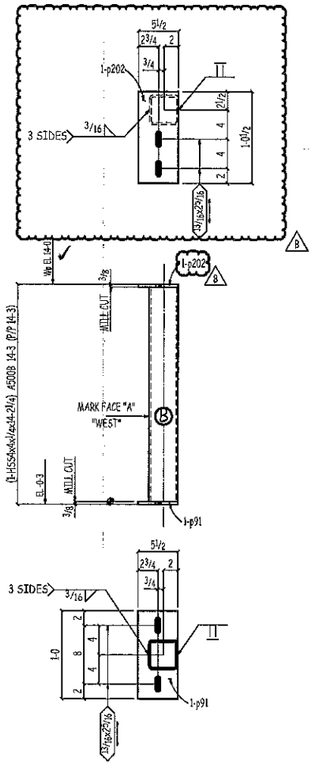
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer and/or architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineering, architectural or owners design.

Total weight : 976



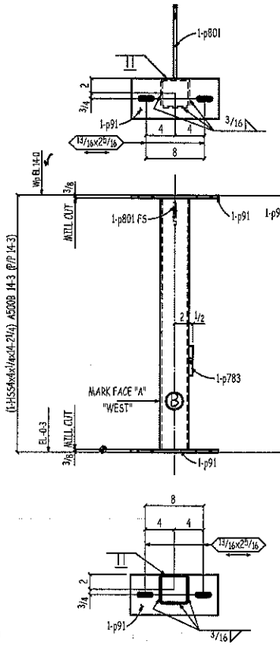
ONE COLUMN 16C1

FIELD BOLTS:
4-3/4x73/4 EXPANSION ANCHOR (total=4)



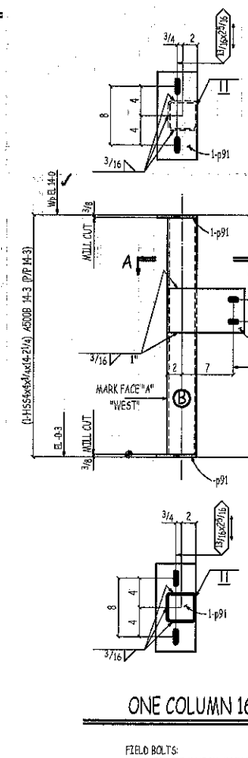
ONE COLUMN 16C2 ✓

FIELD BOLTS:
4-3/4x73/4 EXPANSION ANCHOR (total=4)



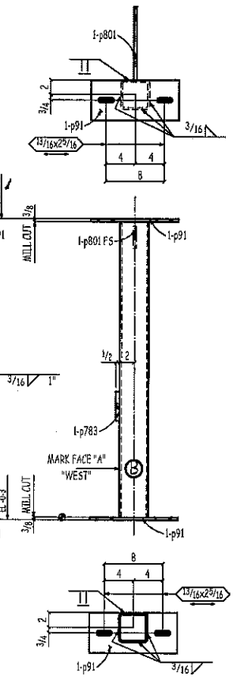
ONE COLUMN 16C3 ✓

FIELD BOLTS:
4-3/4x73/4 EXPANSION ANCHOR (total=4)



ONE COLUMN 16C4 ✓

FIELD BOLTS:
4-3/4x73/4 EXPANSION ANCHOR (total=4)



ONE COLUMN 16C5 ✓

FIELD BOLTS:
4-3/4x73/4 EXPANSION ANCHOR (total=4)

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	16C1		ONE COLUMN		197	
	16C1	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p783	1	FL 1/2x6	1 1 1/4	11	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	16C2		ONE COLUMN		187	
	16C2	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p202	1	PL 3/8x5 1/2	1 0 1/2	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	16C3		ONE COLUMN		198	
	16C3	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p783	1	FL 1/2x4	1 3 1/2	8	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
	p801	1	FL 3/8x3	0 10	3	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	16C4		ONE COLUMN		198	
	16C4	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p789	1	FL 1/2x6	0 10 1/2	9	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	16C5		ONE COLUMN		198	
	16C5	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p783	1	FL 1/2x4	1 3 1/2	8	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
	p801	1	FL 3/8x3	0 10	3	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD

SHOP

APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for its exclusive use in the purpose of fabrication as a manufacturer of the products of any structure as shown and conditions or corrective measures to fabricated materials of any changes for such measures will be allowed without prior written notice to and agreement with Endres Mfg. Co.

ERRATA OR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS ATTACHED. ALL WELDING PROCEDURES SHALL BE AS SPECIFIED IN AWS D1.1 AND SHALL BE QUALIFIED AT LEAST TO STATIC

WIDE FLANGE (WF)	A-992 GR-50
PARTS MATERIAL (PM)	A-36
TUBE MATERIAL (TM)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC.
FIELD CONNECTIONS	AS NOTED
HOLES (DIA)	13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH

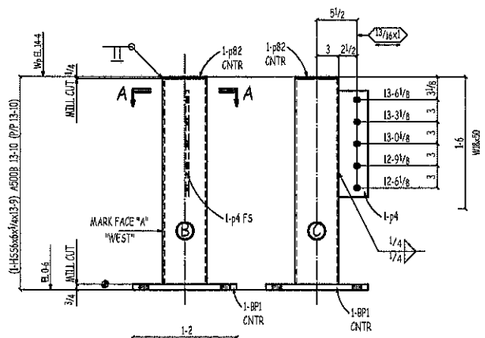
DETAILER	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-12-2017	17068	16

APPROVER NOTE:
The details of structural steelwork on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineer, architect or owner to verify that the instructions detailed are properly identified and that all corrections developed on these detail drawings comply with the intent of the engineer's, architect's or owners design.

Total weight : 1575

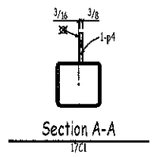
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	17C1		ONE COLUMN		310	
	17C1	1	HSS6x6x1/4	13 9	262	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p4	1	FL 3/8x4	1 2 1/2	6	A36
	p82	1	FL 1/4x6	0 6	3	A36
1	17C2		ONE COLUMN		333	
	17C2	1	HSS6x6x1/4	14 9	281	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p4	1	FL 3/8x4	1 2 1/2	6	A36
	p2	1	FL 3/8x4	0 8 1/2	3	A36
	p82	1	FL 1/4x6	0 6	3	A36
1	17C3		ONE COLUMN		349	
	17C3	1	HSS6x6x1/4	16 7	298	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p9	1	FL 3/8x4	0 11 1/2	5	A36
	p699	1	PL 3/8x3 1/4	0 8 1/2	3	A36
	p79	1	PL 3/8x3 1/4	0 5 1/2	2	A36
B	p82	1	FL 1/4x6	0 6	3	A36
1	17C4		ONE COLUMN		583	
	17C4	1	HSS6x6x1/2	15 7	549	M2E A500B
	BP2	1	PL 3/4x12	0 7	17	A36
	p4	1	FL 3/8x4	1 2 1/2	6	A36
	p9	1	FL 3/8x4	0 11 1/2	5	A36
3	p11	2	FL 3/8x4	0 5 1/2	2	A36
	p103	1	PL 1/4x5 3/4	0 5 3/4	2	A36

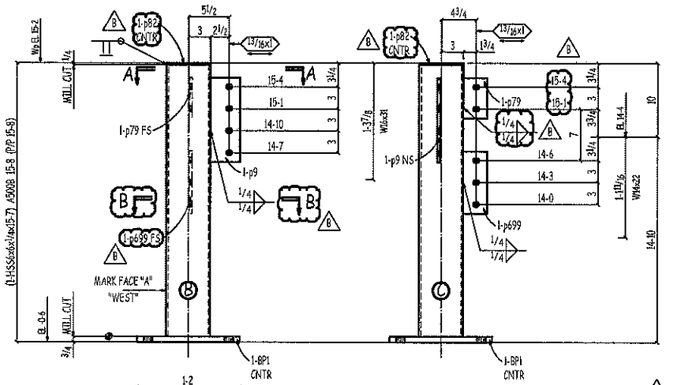


ONE COLUMN 17C1

AT GRID:
P & 14.8

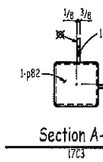


Section A-A
17C1

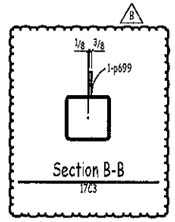


ONE COLUMN 17C3

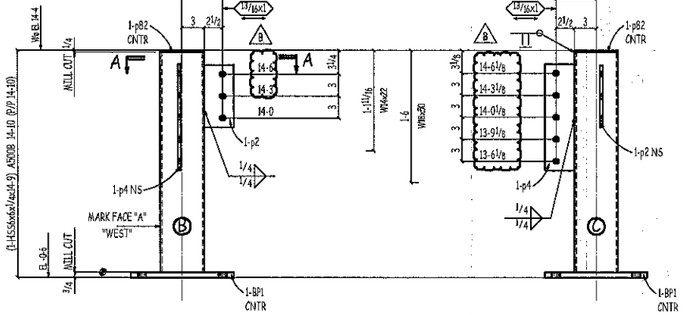
AT GRID:
N.4 & 15.3



Section A-A
17C3

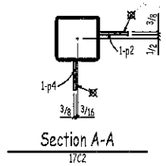


Section B-B
17C3

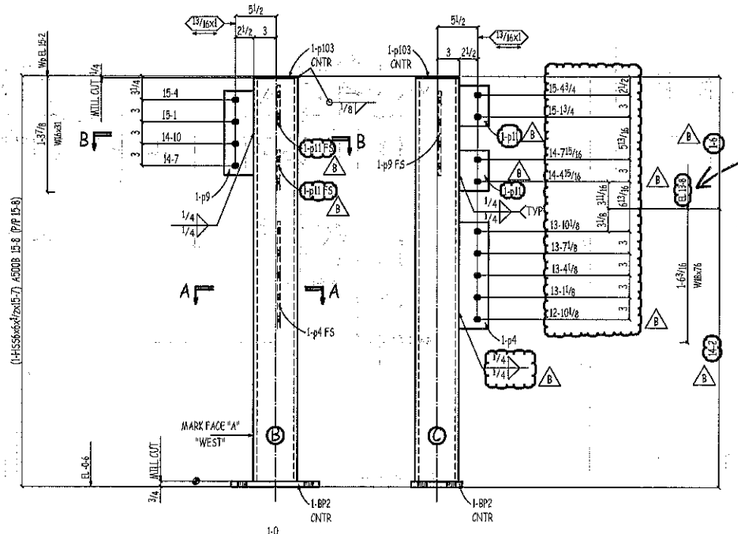


ONE COLUMN 17C2

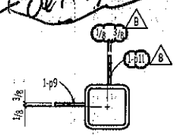
AT GRID:
N.35 & 14.8



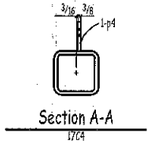
Section A-A
17C2



A/E Please Verify Elevation



Section B-B
17C4



Section A-A
17C4

ONE COLUMN 17C4

AT GRID:
N.4 & 16

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD
SHOP
APPROVAL E 07-11 E 02-09
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

NOTES:
Please direct any questions or comments concerning these drawings to your Endres Mfg Co. project manager.

DIRECTION NOTES:
GRADES SHOWN ARE MASTER - ALL LOADING TO BE ALONG WITH STEEL FRAME DRAWINGS. BOLT ON THE HARDENED WASHER UNDER THE TURN IS ELEMENT NOT OR BOLTHEAD

SHOP NOTE:
PAINT AREAS AS NOTED ON PLANS AND DETAILS. ALL BE TOUCHED UP AS NEEDED TO A MINIMUM OF ATLEAST 75 MICH

WIDE FLANGE (UN) A-992 GR-50
PARTS MATERIAL (UN) A-36
HSS MATERIAL (UN) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS SERIES SPEC
FIELD CONNECTIONS AS NOTED
BOLTS (UN) 13/16 ø
WELD NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 2018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

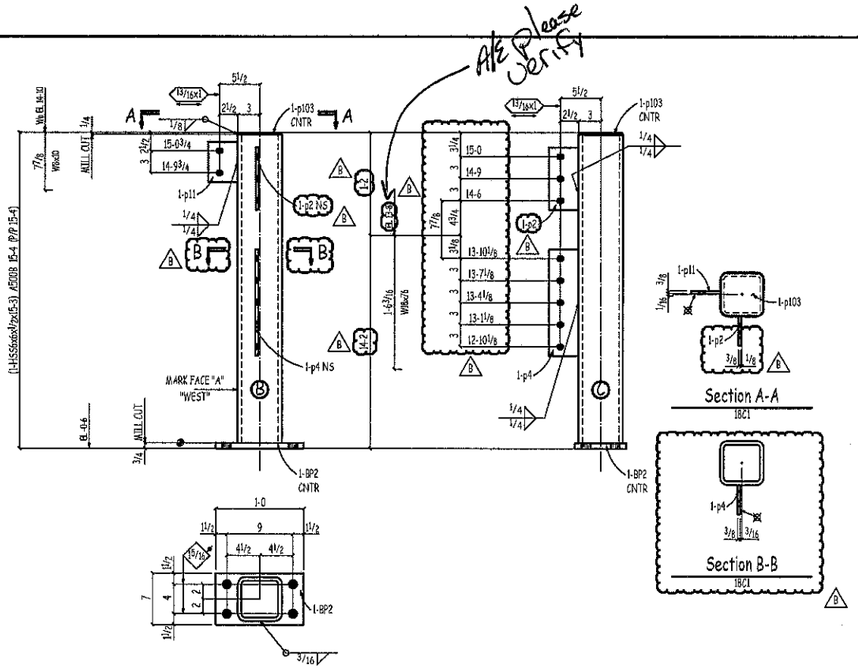
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRAWN MSK CHECKED SJS DATE 06-12-2017 JOB NO. 17068
DRWG NO. 17

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural, or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the various as-detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 2575

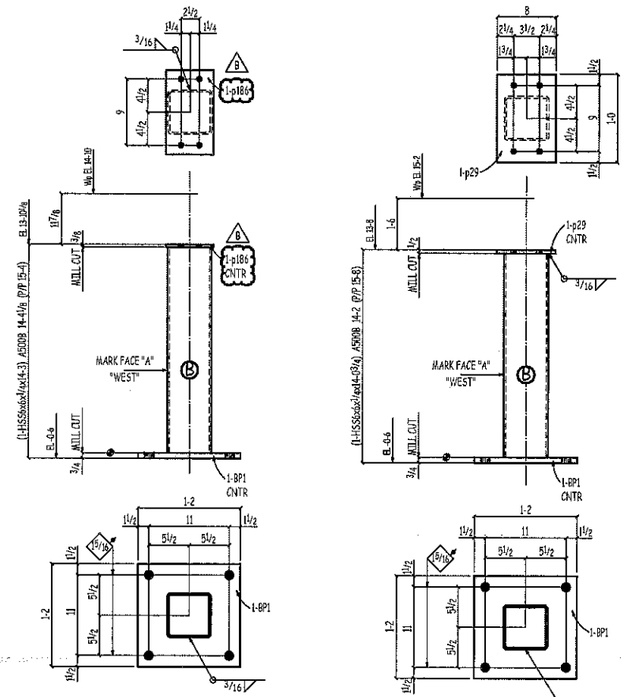
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	18C1		ONE COLUMN		988	
	18C1	1	HSS6x6x1/2	15 3	537	M2E A500B
	BP2	1	PL 3/4x12	0 7	17	A36
	p4	1	PL 3/8x4	1 2 1/2	6	A36
B	p2	1	PL 3/8x4	0 6 1/2	3	A36
	p11	1	PL 3/8x4	0 5 1/2	2	A36
	p103	1	PL 1/4x5 3/4	0 5 3/4	2	A36
1	18C2		ONE COLUMN		338	
	18C2	1	HSS6x6x1/4	15 3	290	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p2	1	PL 3/8x4	0 6 1/2	3	A36
	p11	1	PL 3/8x4	0 5 1/2	2	A36
	p82	1	PL 1/4x6	0 6	3	A36
1	18C3		ONE COLUMN		319	
	18C3	1	HSS6x6x1/4	14 3	274	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
B	p186	1	PL 3/8x6 1/2	0 11 1/2	6	A36
1	18C4		ONE COLUMN		568	
	18C4	1	HSS6x6x1/2	15 3	537	M2E A500B
	BP2	1	PL 3/4x12	0 7	17	A36
	p4	1	PL 3/8x4	1 2 1/2	6	A36
B	p2	1	PL 3/8x4	0 6 1/2	3	A36
	p11	1	PL 3/8x4	0 5 1/2	2	A36
	p103	1	PL 1/4x5 3/4	0 5 3/4	2	A36
1	18C5		ONE COLUMN		321	
	18C5	1	HSS6x6x1/4	14 0 3/4	267	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p29	1	PL 1/2x8	1 0	13	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH
1	18C6		ONE COLUMN		480	
A	18C6	1	HSS6x6x1/2	12 2 1/4	429	M2E A500B
	BP2	1	PL 3/4x12	0 7	17	A36
	p840	1	PL 1/2x8	1 0	13	A36



ONE COLUMN 18C1

AT GRID:
M.6 & 15.8



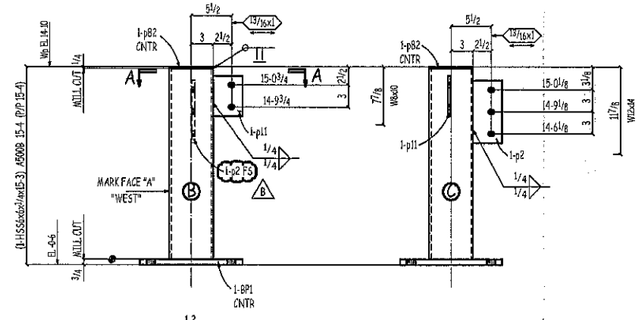
ONE COLUMN 18C3

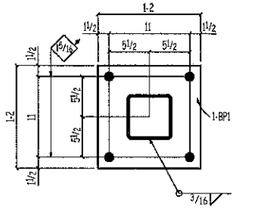
AT GRID:
M.1 & 15.8

ONE COLUMN 18C5

AT GRID:
L.3 & 15.9

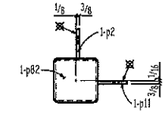
FIELD BOLTS:
4-3/4x2 1/4 A325N +1HD WASH [total:4]

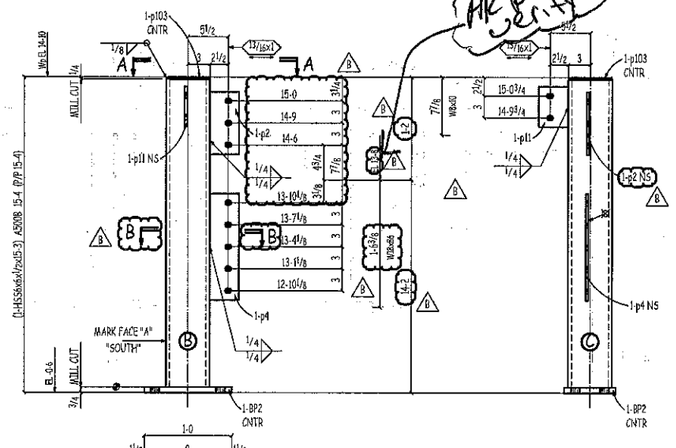




ONE COLUMN 18C2

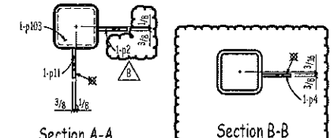
AT GRID:
M.6 & 15.8

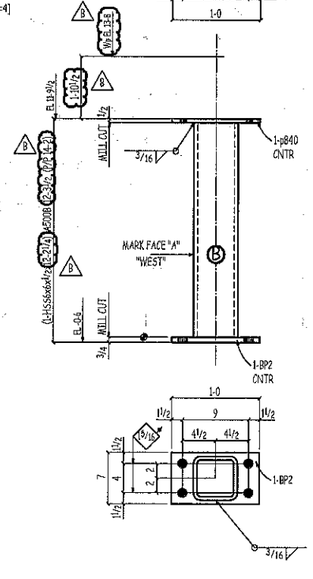




ONE COLUMN 18C4

AT GRID:
M.1 & 15.7





ONE COLUMN 18C6

AT GRID:
J.1 & 14.4

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD
SHOP
APPROVAL E 07-11 E 02-09
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown thereon or changes, modifications or corrective measures in fabricated materials or any changes for such necessary will be allowed without prior notification to and agreement with Endres Mfg Co.

DIRECTION NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS AS RE MARK WITH ASD/LRFD STEEL SHEETS ALWITH ONE MANNER AS ENGINEER UNDER THIS CONTRACT OR SEALED

SHOP NOTE: PAINT FIELD WELDS ON EXPOSED SURFACES ONLY. ALL RE-ENTRANT CORNERS SHALL BE GRAVED WITHIN RADIUS OF AT LEAST 1/2 INCH

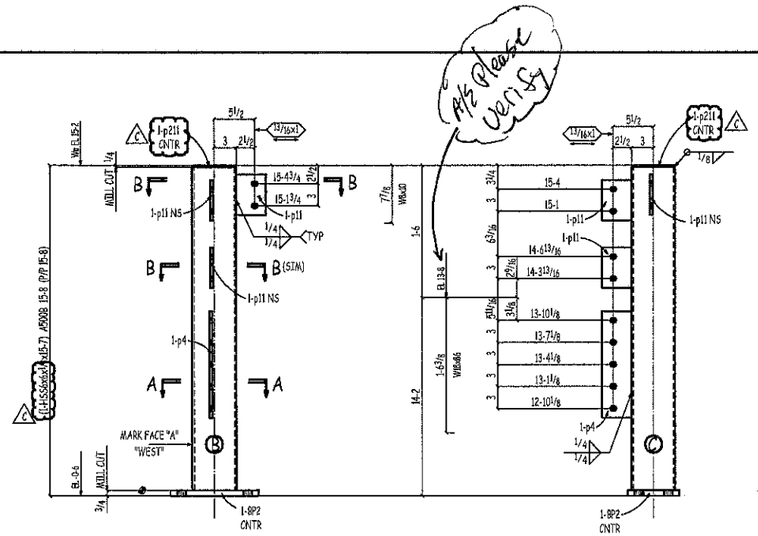
WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO 7000 WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILER STARTED MSK SJS
DATE 06-12-2017
JOB NO 17068
DRWG. NO. 18

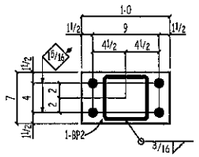
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that this section as detailed are properly identified and that all connections developed on these detail drawings meet with the intent of the engineers, architects or owners design.

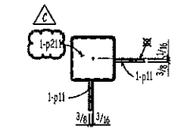
Total weight : 1509



ONE COLUMN 19C1

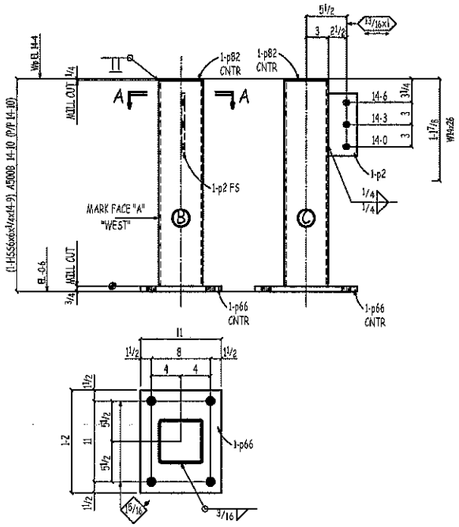
AT GRID:
L.3 & 15.7





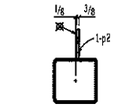
Section B-B
19C1

Section A-A
19C1



ONE COLUMN 19C3

AT GRID:
K & 15.8



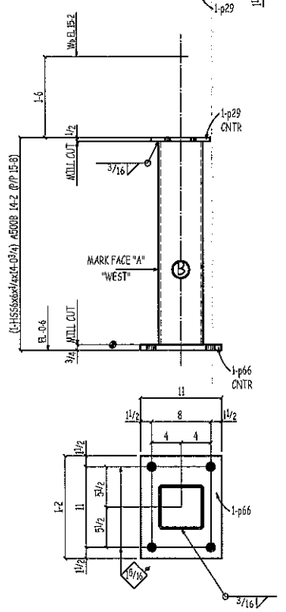
Section A-A
19C3

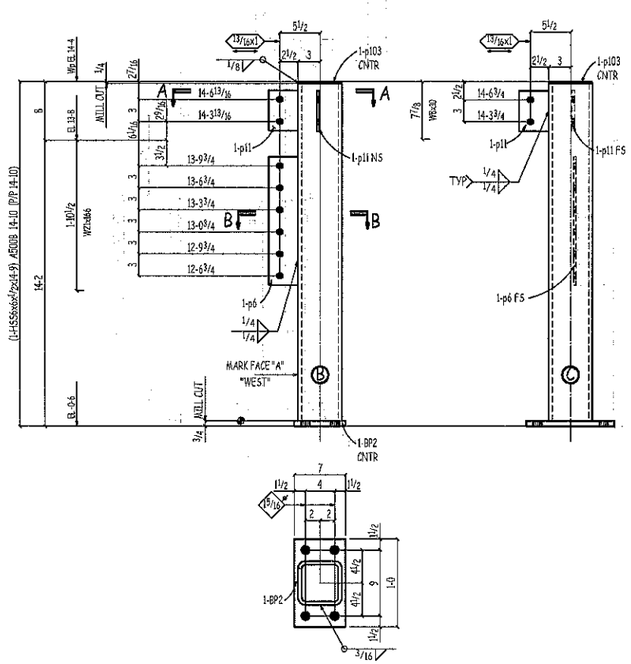
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	19C1	ONE COLUMN			328	
	19C1	1	HSS6x6x1/4	15 7	286	M1E A500B
	BP2	1	FL 3/4x12	0 7	17	A36
	p4	1	FL 3/8x4	1 2 1/2	6	A36
	p11	3	FL 3/8x4	0 5 1/2	2	A36
C	p211	1	PL 1/4x5 3/4	0 5 3/4	2	A36
1	19C2	ONE COLUMN			312	
	19C2	1	HSS6x6x1/4	14 0 3/4	267	M2E A500B
	p66	1	FL 3/4x11	1 2	32	A36
	p29	1	FL 1/2x8	1 0	13	A36
1	19C3	ONE COLUMN			318	
	19C3	1	HSS6x6x1/4	14 9	281	M2E A500B
	p66	1	FL 3/4x11	1 2	32	A36
	p2	1	FL 3/8x4	0 8 1/2	3	A36
	p82	1	FL 1/4x6	0 6	3	A36
1	19C4	ONE COLUMN			550	
	19C4	1	HSS6x6x1/2	14 9	520	M2E A500B
	BP2	1	FL 3/4x12	0 7	17	A36
	p5	1	FL 3/8x4	1 5 1/2	7	A36
	p11	2	FL 3/8x4	0 5 1/2	2	A36
	p103	1	PL 1/4x5 3/4	0 5 3/4	2	A36

ONE COLUMN 19C2

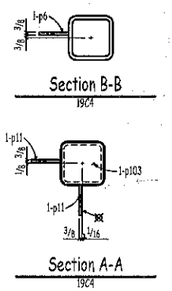
AT GRID:
K & 15.9





ONE COLUMN 19C4

AT GRID:
J.1 & 15.6



Section B-B
19C4

Section A-A
19C4

AISC CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the exclusive purpose of fabrication and erection of the projects of our drawings or sketches. Modifications or corrective assistance by fabricated materials or alterations for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

SELECTION NOTES:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A325N BOLTS EQUIVALENT. FOR HIGH STRENGTH BOLTING ELEMENT SEE QA SELECTIONS.

SHOP NOTE:
PAINT OVER RUST-OLEUM 9100 (NO. 9 DETAILED). ALL BE ENTIRELY COATED & SHALL BE SHARP-BLAST TO A PROFILE OF AT LEAST 50 DEG.

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (U.N.): A-992 GR-50
PLATE MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO. 7002 WELD ROD
CJP=COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO: 17068
DRWG NO. 19

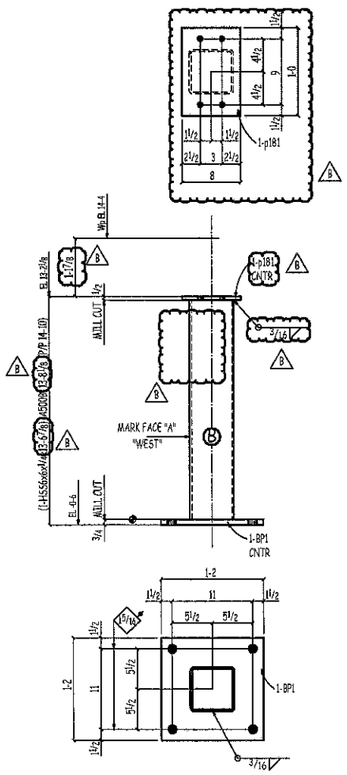
APPROVED NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sheet as detailed are properly identified and that all corrections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 1808

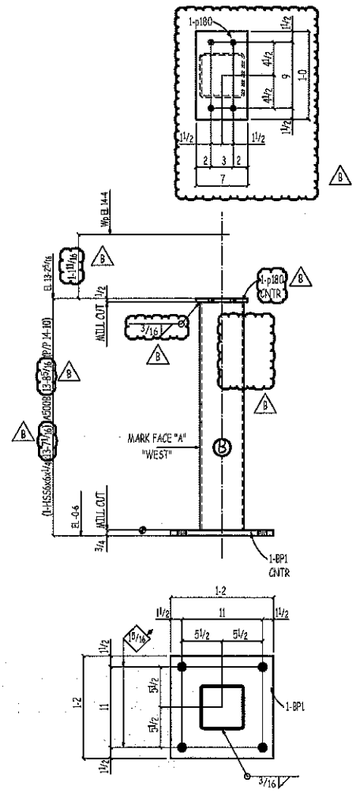
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	20C1		ONE COLUMN		312	
	20C1	1	HSS6x6x1/4	13 8 7/8	258	M2E A500B
	BP1	1	PL 3/8x14	1 2	41	A36
B	p181	1	FL 1/2x8	1 0	12	A36
1	20C2		ONE COLUMN		329	
	20C2	1	HSS6x6x1/4	14 9	281	M2E A500B
	BP1	1	PL 3/8x14	1 2	41	A36
	p2	1	FL 3/8x4	0 8 1/2	3	A36
	p11	1	FL 3/8x4	0 5 1/2	2	A36
	p82	1	FL 1/4x6	0 6	3	A36
1	20C3		ONE COLUMN		311	
B	20C3	1	HSS6x6x1/4	13 7 1/16	258	M2E A500B
	BP1	1	PL 3/8x14	1 2	41	A36
B	p180	1	FL 1/2x7	1 0	12	A36
1	20C4		ONE COLUMN		551	
	20C4	1	HSS6x6x1/2	14 9	520	M2E A500B
	BP2	1	PL 3/4x12	0 1 7	17	A36
B	p8	1	FL 3/8x4	1 5 1/2	7	A36
	p2	1	FL 3/8x4	0 8 1/2	3	A36
B	p131	1	FL 3/8x4	0 5 1/2	2	A36
	p103	1	PL 1/4x5 3/4	0 5 3/4	2	A36
1	20C5		ONE COLUMN		305	
B	20C5	1	HSS6x6x1/4	13 2 3/16	251	M2E A500B
	BP1	1	PL 3/8x14	1 2	41	A36
B	p840	1	FL 1/2x4	1 0	13	A36

ONE COLUMN 20C1

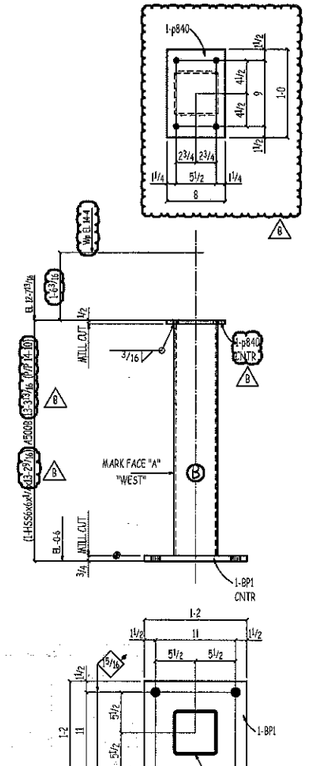


ONE COLUMN 20C3



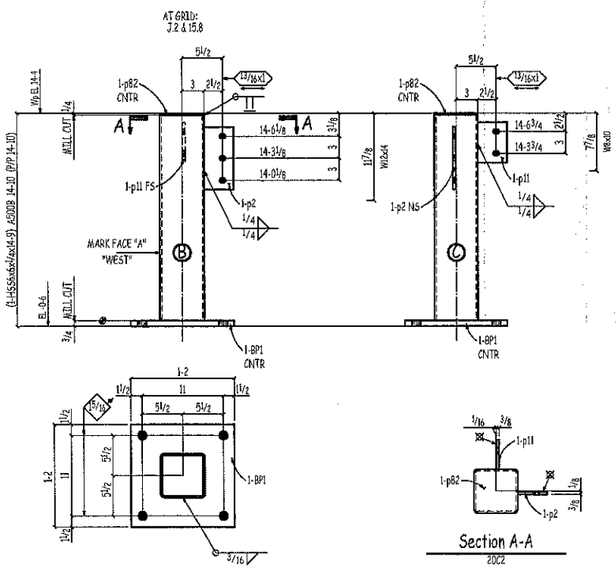
ONE COLUMN 20C5

AT GRID:
J.8 & 13.1



ONE COLUMN 20C2

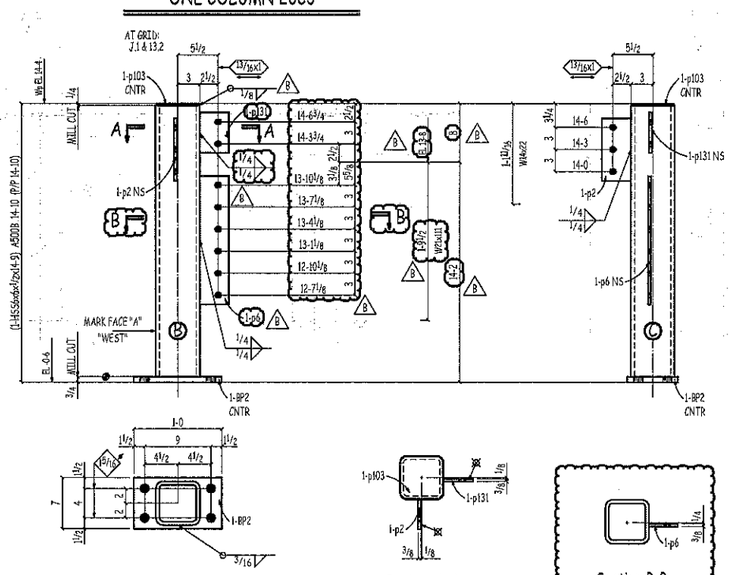
AT GRID:
J.2 & 15.6



Section A-A
20C2

ONE COLUMN 20C4

AT GRID:
J.1 & 13.3



Section A-A
20C4

Section B-B
20C4

ONE COLUMN 20C2

AT GRID:
J.2 & 15.6

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD
SHOP
APPROVAL E 07-11 E 02-09
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE NO. DATE

NOTICE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon. No changes, modifications or corrections necessary to fabricated materials or any changes for such necessary will be allowed without prior notification to and agreement with Endres Mfg. Co.

DETECTION NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A325N-3 BOLTS IN HOLES WITH THE NOMINAL DIAMETER UNDER THE HEAD

SHOP NOTE:
GRAPH PAPER MUST BE LEFT END AS SPECIFIED
ALL BE PERFORMED CORRECTLY DETAILED/CONSTRUCTED TO A GRADE OF AT LEAST 50 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PLATE MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC.
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 7018 WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS ULTRASONICALLY TESTED

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

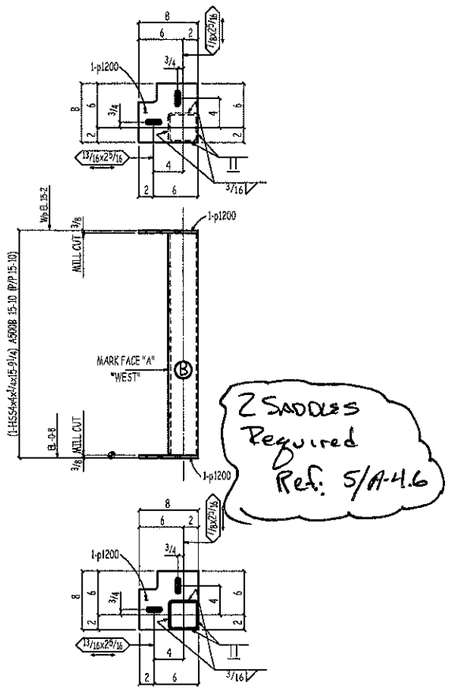
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RYEDEBUSCH
DETAILER MSK CHECKED SJS
DATE 06-12-2017
JOB NO. 17068
DRWG NO. 20

APPROVER NOTE:
The ability of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the appropriate engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

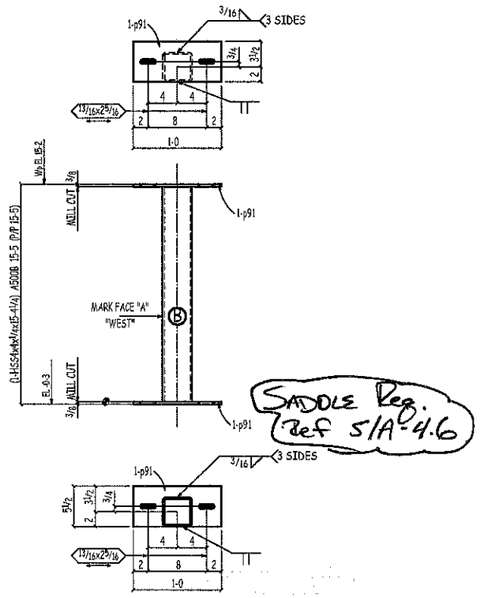
Total weight : 1369

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	21C1	ONE COLUMN			204	
	21C1	1	HSS4x4x1/4	15 9 1/4	193	A500B
	p1200	2	PL 3/8x8	0 8	6	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANC	0 7 3/4		
1	21C3	ONE COLUMN			201	
	21C3	1	HSS4x4x1/4	15 4 1/4	187	M2E A500B
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANC	0 7 3/4		
1	21C4	ONE COLUMN			199	
	21C4	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p775	1	FL 1/2x6	1 3	12	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	21C5	ONE COLUMN			189	
	21C5	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p120	2	PL 3/8x6	0 8	6	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	21C6	ONE COLUMN			197	
	21C6	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p776	1	FL 1/2x6	1 1	11	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	21C7	ONE COLUMN			199	
	21C7	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p775	1	FL 1/2x6	1 3	12	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	21C2	ONE COLUMN			184	
	21C2	1	HSS4x4x1/4	14 0 1/4	176	A500B
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANC	0 7 3/4		

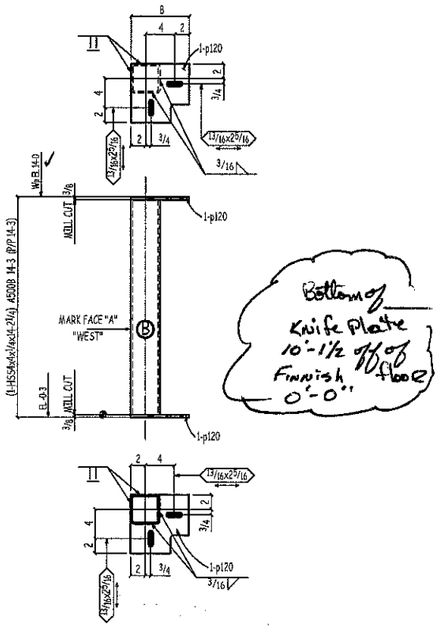


ONE COLUMN 21C1



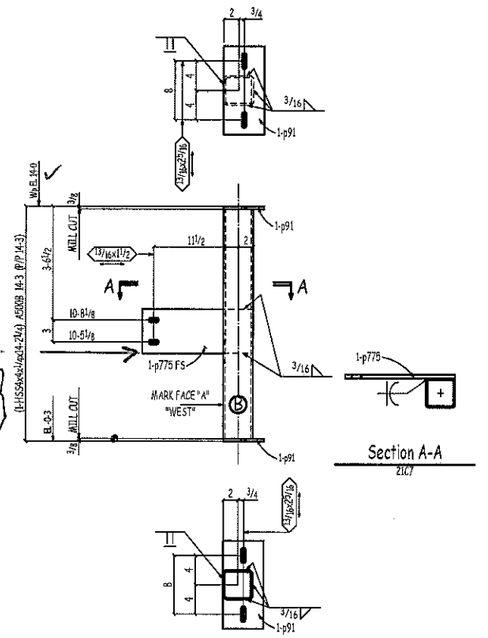
ONE COLUMN 21C3

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



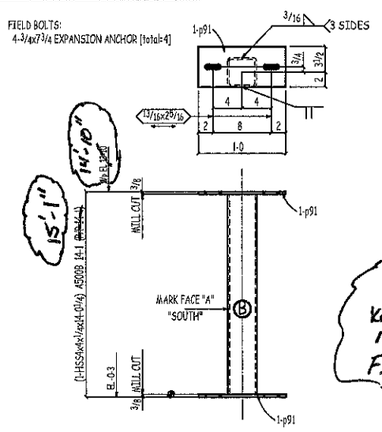
ONE COLUMN 21C5 ✓

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



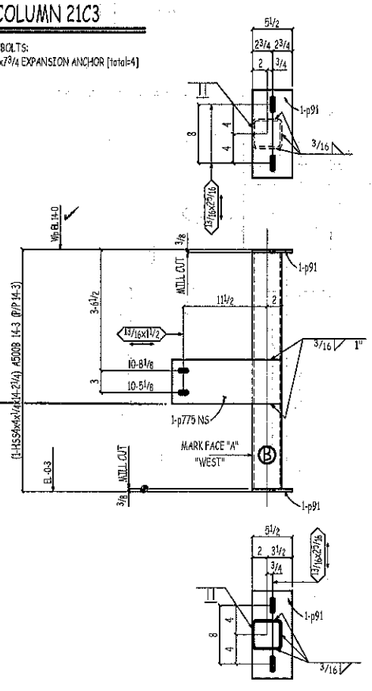
ONE COLUMN 21C7 ✓

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



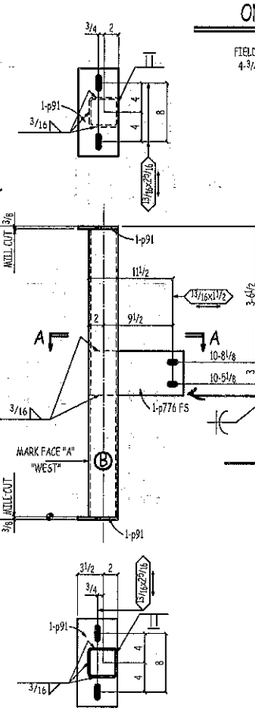
ONE COLUMN 21C2

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



ONE COLUMN 21C4 ✓

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



ONE COLUMN 21C6 ✓

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
FIELD			
SHOP			
APPROVAL	E	07-11	
PRINTS	NO.	DATE NO. DATE NO. DATE NO. DATE	

NOTES:
Shop drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon. Changes, modifications or corrective measures to fabricated materials or erection changes for such measures will be allowed without prior authorization by and approved by Endres Mfg. Co.

FABRICATION NOTES:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER TURNED ELEMENT/NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIPE WHERE ON LIFTING LUG OR COLLAR. PAINT ALL OTHER MEMBERS SHALL BE SHOP PRIMED WITH ONE COAT OF PAINT AT LEAST TO 1 MIL THICKNESS.

WIDE FLANGE (UN)	A-992 GR-50
PARTS MATERIAL (UN)	A-36
TUBE MATERIAL (UN)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC.
FIELD CONNECTIONS	AS NOTED
HOLES (UN)	13/16 ø
WELDING NOTE: USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS COMP WORDEN 2018	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RYEDEBUSCH
DETAILER (CHECKED)	MSK SJS
DATE	06-12-2017
JOB NO.	17068
DWG. NO.	21

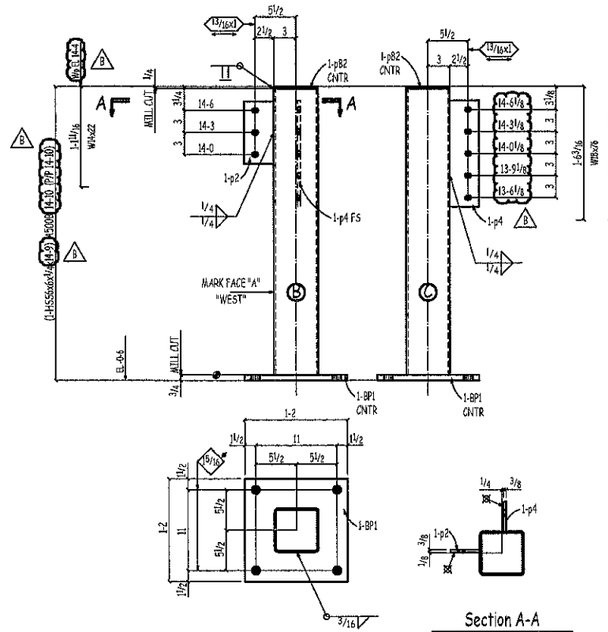
APPROVER NOTE:
All details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the engineering engineer, architect or owner to verify that the contract as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 2206

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	22C1	ONE COLUMN			333	
B	22C1	1	HSS6x6x1/4	14 8	281	M2E A500B
	BP1	1	PL3/4x14	1 2	41	A36
	p4	1	FL3/8x4	1 2 1/2	6	A36
	p2	1	FL3/8x4	0 8 1/2	3	A36
	p82	1	FL1/4x6	0 6	3	A36
1	22C2	ONE COLUMN			336	
B	22C2	1	HSS6x6x1/4	15 7	296	M2E A500B
	p66	1	PL3/4x11	1 2	32	A36
	p2	1	FL3/8x4	0 8 1/2	3	A36
B	p14	1	FL3/8x4	0 6	2	A36
	p82	1	FL1/4x6	0 6	3	A36
1	22C3	ONE COLUMN			318	
	22C3	1	HSS6x6x1/4	14 9	284	M2E A500B
	p66	1	PL3/4x11	1 2	32	A36
	p2	1	FL3/8x4	0 8 1/2	3	A36
	p82	1	FL1/4x6	0 6	3	A36
1	22C4	ONE COLUMN			352	
	22C4	1	HSS6x6x1/4	15 7	296	M2E A500B
	BP1	1	PL3/4x14	1 2	41	A36
	p4	1	FL3/8x4	1 2 1/2	6	A36
	p9	1	FL3/8x4	0 11 1/2	5	A36
B	p11	1	FL3/8x4	0 8 1/2	2	A36
	p82	1	FL1/4x6	0 6	3	A36
1	22C5	ONE COLUMN			578	
	22C5	1	HSS6x6x1/2	15 3	537	M2E A500B
	BP2	1	PL3/4x12	0 7	17	A36
B	p6	1	FL3/8x4	1 5 1/2	7	A36
B	p2	2	FL3/8x4	0 8 1/2	3	A36
	p103	1	FL1/4x8 3/4	0 5 1/4	2	A36
1	22C6	ONE COLUMN			296	
	22C6	1	HSS6x6x1/4	13 2 9/16	251	M2E A500B
	p66	1	PL3/4x11	1 2	32	A36
	p29	1	FL1/2x8	1 0	13	A36

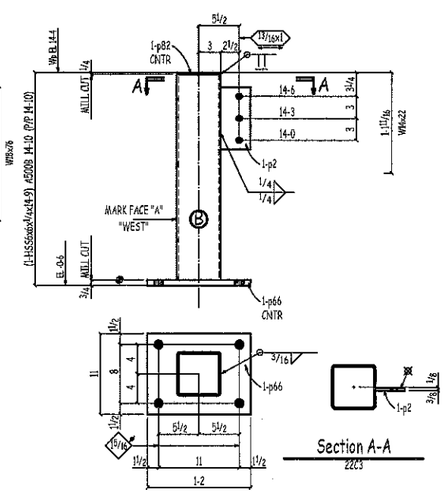
ONE COLUMN 22C1



Section A-A
22C1

ONE COLUMN 22C3

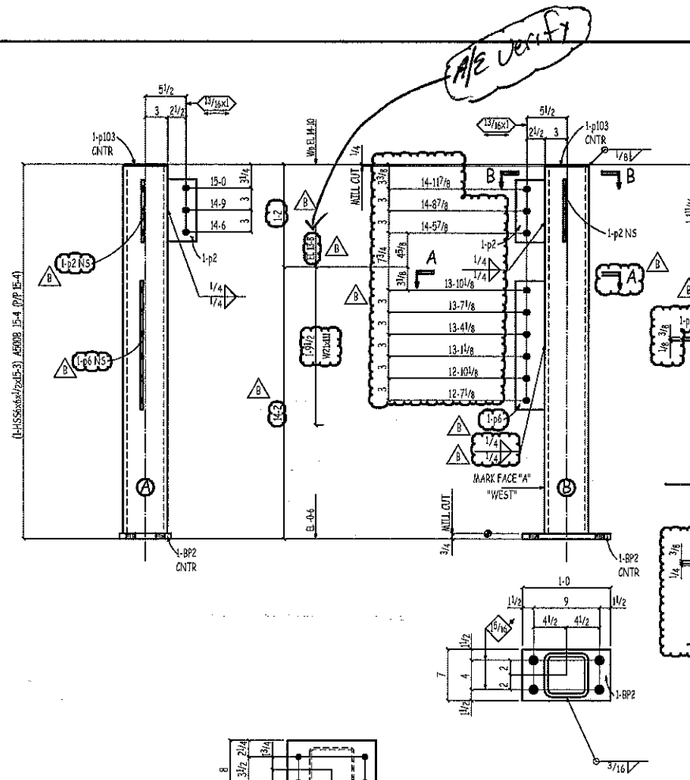
AT GRID:
K.8 & 12.7



Section A-A
22C3

ONE COLUMN 22C5

AT GRID:
J & 14.3

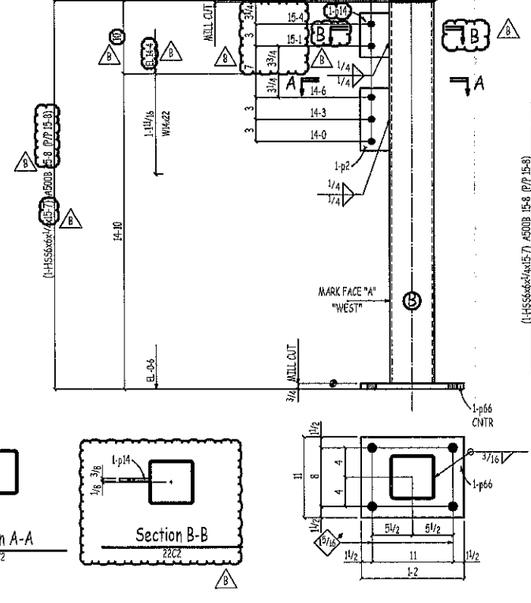


Section B-B
22C5

Section A-A
22C5

ONE COLUMN 22C2

AT GRID:
K.8 & 10.6

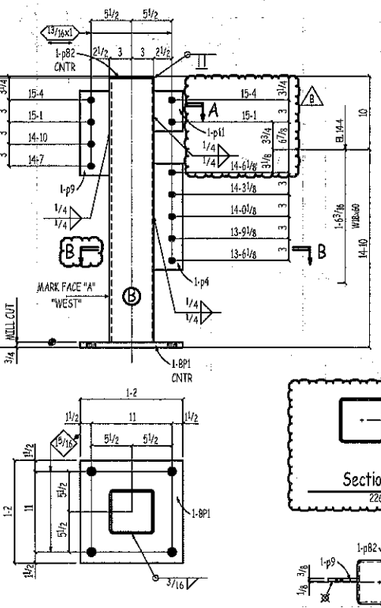


Section A-A
22C2

Section B-B
22C2

ONE COLUMN 22C4

AT GRID:
K.7 & 11.9

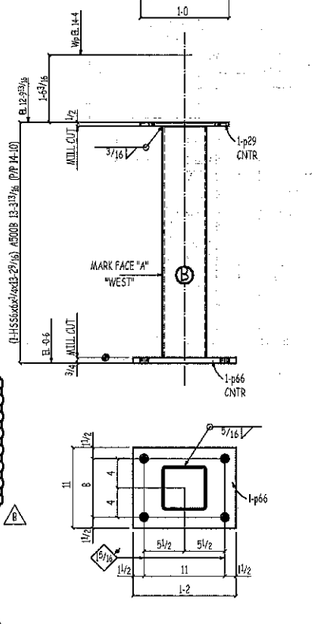


Section B-B
22C4

Section A-A
22C4

ONE COLUMN 22C6

AT GRID:
K.7 & 12.7



AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD
SHOP
APPROVAL E 07-11 E 02-09
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

SHOP NOTE:
PAINT TOUCH-UP WORK ON AREAS WHERE WELDERS SHALL BE PERFORMED SHALL BE TO A MINIMUM OF 3 MILS

WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø

USE NO 7000X WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | STR
DATE: 06-12-2017
JOB NO: 17068
DRWG. NO: 22

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

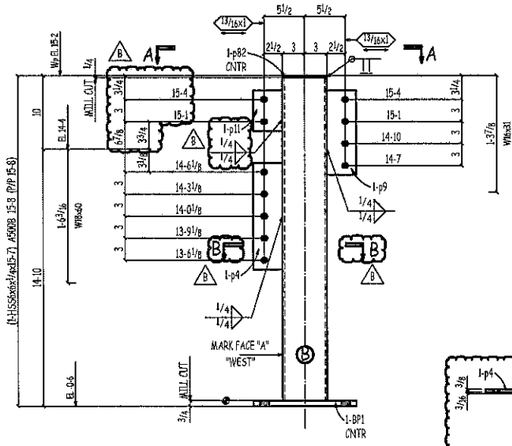
NOTICE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and detailing of the products shown. Revisions or changes and fictitious or corrective revisions to fabricated materials or any changes for such measures with the details without prior written consent is an infringement with Endres Mfg. Co.

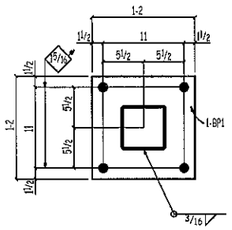
DIRECTION ARCH'S:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH 13/16" HIGH STRENGTH BOLTS WITH THE THREADED PORTION EXCLUDED FROM THE SHEARED ELEMENT(S) OR AISC 16TH ED.

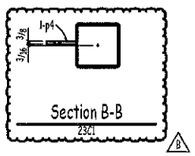
Total weight : 2010

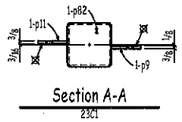
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	23C1	ONE COLUMN			352	
	23C1	1	HSS6x6x1/4	15 7	296	M2E A500B
	BP1	1	PL 3/4x14	1 2	44	A36
	p4	1	FL 3/8x4	1 2 1/2	8	A36
	p9	1	FL 3/8x4	0 11 1/2	5	A36
B	p11	1	FL 3/8x4	0 3 1/2	2	A36
	p82	1	FL 1/4x6	0 6	3	A36
1	23C2	ONE COLUMN			295	
	23C2	1	HSS6x6x1/4	13 2 9/16	261	M2E A500B
	p66	1	PL 3/8x11	1 2	32	A36
	p39	1	PL 1/2x7	1 0	12	A36
1	23C3	ONE COLUMN			342	
	23C3	1	HSS6x6x1/4	16 3	290	M2E A500B
	BP1	1	PL 3/4x14	1 2	44	A36
	p2	2	FL 3/8x4	0 8 1/2	3	A36
B	p176	1	FL 3/8x4	0 4 1/2	2	A36
	p82	1	FL 1/4x6	0 6	3	A36
1	23C4	ONE COLUMN			568	
	23C4	1	HSS6x6x1/2	15 3	537	M1E A500B
	BP2	1	FL 3/4x12	0 7	17	A36
	p4	2	FL 3/8x4	1 2 1/2	6	A36
	p103	1	FL 1/4x5 3/4	0 5 3/4	2	A36
1	23C5	ONE COLUMN			319	
B	23C5	1	HSS6x6x1/4	13 7/8	266	M2E A500B
	BP1	1	PL 3/4x14	1 2	44	A36
B	p30	1	FL 3/4x6	0 11 1/2	19	A36
1	23C6	ONE COLUMN			138	
	23C6	1	PIPE 4 SCH 40	11 8 3/8	126	M2E A500B
	p678	1	FL 3/8x6	0 9 1/2	8	A36
	p676	1	PL 3/8x4 1/16	0 5 1/2	2	A36
	p674	1	PL 1/4x4 1/2	0 4 1/2	1	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 5 1/2		



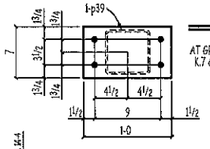


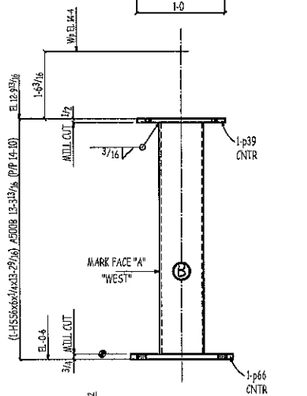


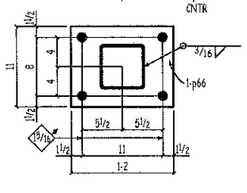


ONE COLUMN 23C1

AT GRID:
K.7 & 11.4

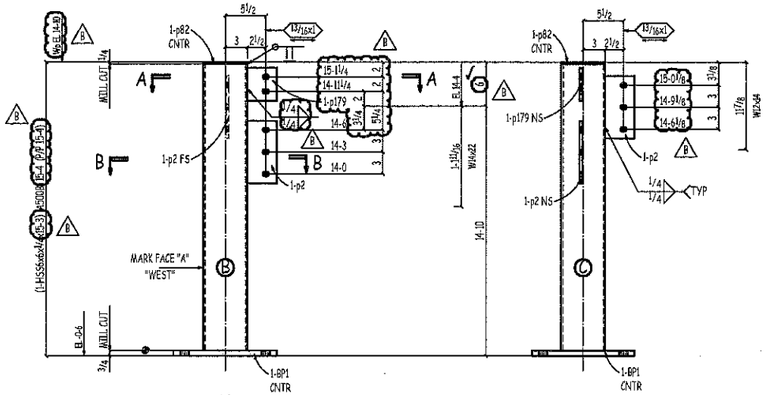


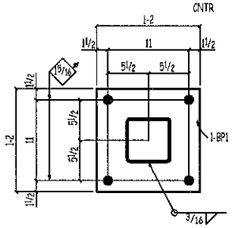




ONE COLUMN 23C2

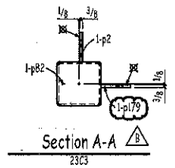
AT GRID:
K.7 & 10.6

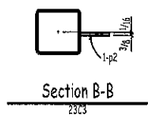


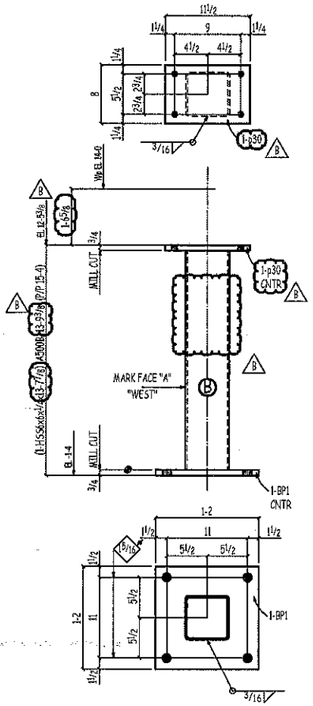


ONE COLUMN 23C3

AT GRID:
K.8 & 10.1

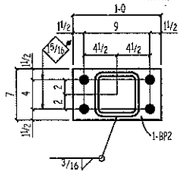






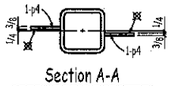
ONE COLUMN 23C5

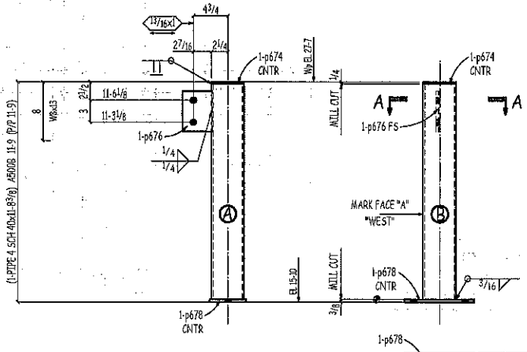
AT GRID:
A.9 & 8.1

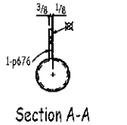


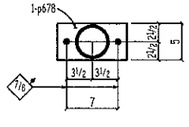
ONE COLUMN 23C4

AT GRID:
A.9 & 7.2









ONE COLUMN 23C6 ✓

FIELD BOLTS:
2-3/4x5 1/2 EXPANSION ANCHOR [total=2]

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD
SHOP

APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products of said Co. or its assigns. Modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior satisfaction to said Co. except with Endres Mfg. Co.

DIRECTION NOTE:
UNLESS OTHERWISE NOTED - ALL DIMENSIONS TO BE AMONG VISIBLE EDGES FROM SCRIBED FACE (1 WIDE) OR CENTERLINES OF HOLES UNDER 3/4" THICK IS BEGINNING OUT OF BOLT HEAD.

SHOP NOTE:
PAINT FACE MARK ON LEFT END AS DETAILED. ALL BEVELS/CUTOFFS SHALL BE RAMPED WITH 1:10 TO A MAXIMUM OF A TAPER 1/8 INCH.

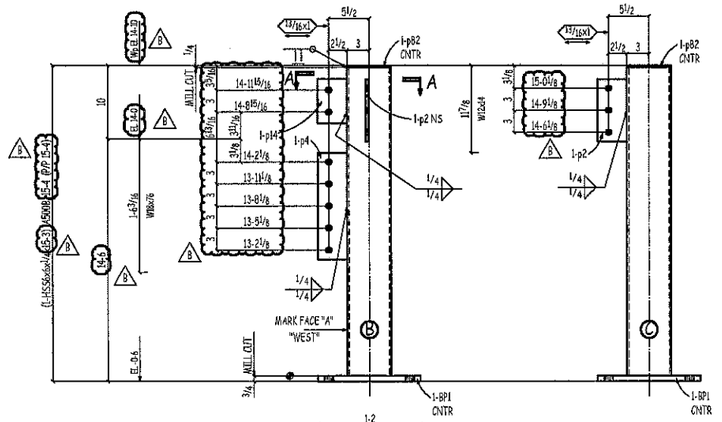
WIDE FLANGE (U.N.)	A-992 GR-50
PLATES MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

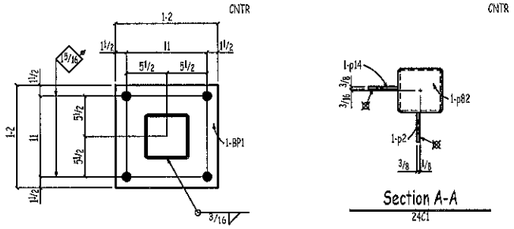
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RVEDEBUSCH
DRAWN	MSK
CHECKED	SJS
DATE	06-12-2017
JOB NO.	17068
DRWG. NO.	23

COPYRIGHT NOTICE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 1513

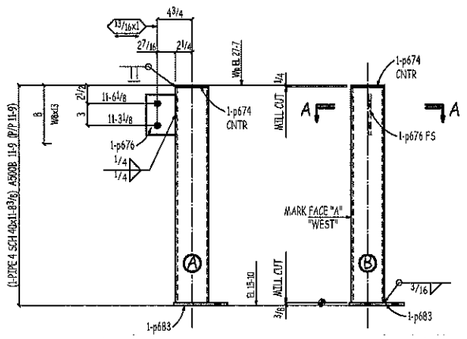


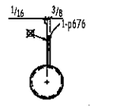


ONE COLUMN 24C1

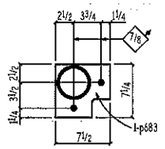
AT GRID:
K.3 & 10.1

Section A-A
24C1



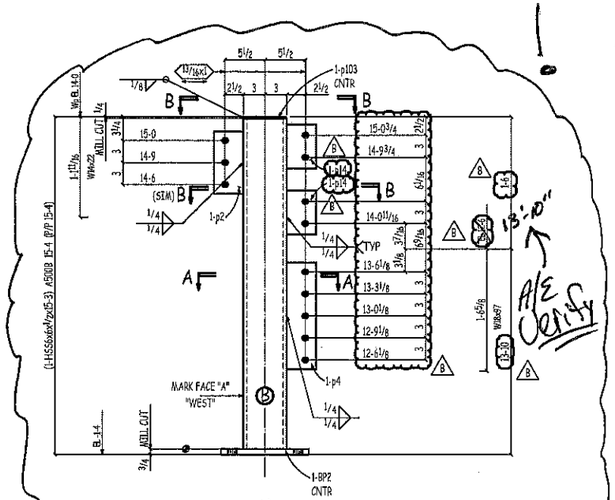


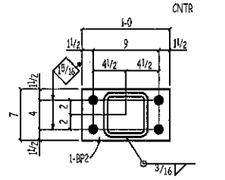
Section A-A
24C3



ONE COLUMN 24C3

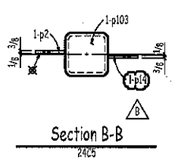
FIELD BOLTS:
2-3/4x5 1/2 EXPANSION ANCHOR (total=2)



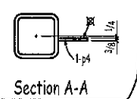


ONE COLUMN 24C5

AT GRID:
A & 3.8



Section B-B
24C5

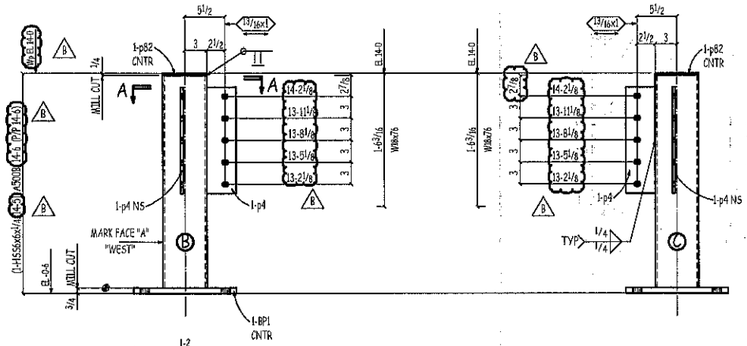


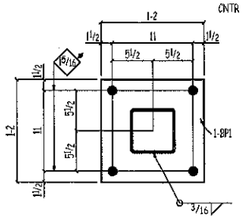
Section A-A
24C5

P.S. STEEL Beam that carries precast Beam needs to be raised to prevent conflict w/ Exterior Windows

BILL OF MATERIAL

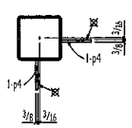
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	24C1	ONE COLUMN			348	
	24C1	1	HSS6x6x1/4	15 3	290	M2E A500B
	BP1	1	PL 3/4x14	11 2	41	A36
	p4	1	PL 3/8x4	1 2 1/2	6	A36
	p2	1	PL 3/8x4	0 8 1/2	3	A36
	p14	2	PL 3/8x4	0 6	2	A36
	p82	1	PL 1/4x6	0 6	3	A36
1	24C2	ONE COLUMN			329	
	24C2	1	HSS6x6x1/4	14 5	274	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p4	2	PL 3/8x4	1 2 1/2	6	A36
	p82	1	PL 1/4x6	0 6	3	A36
1	24C3	ONE COLUMN			135	
	24C3	1	PIPE 4 SCH 40	11 8 3/8	126	M2E A500B
	p683	1	PL 3/8x2 7/16	0 7 1/2	5	A36
	p678	1	PL 3/8x4 1/16	0 5 1/2	2	A36
	p674	1	PL 1/4x4 1/2	0 4 1/2	1	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 5 1/2		
1	24C4	ONE COLUMN			135	
	24C4	1	PIPE 4 SCH 40	11 8 3/8	126	M2E A500B
	p678	1	PL 3/8x5	0 9 1/2	5	A36
	p678	1	PL 3/8x4 1/16	0 5 1/2	2	A36
	p674	1	PL 1/4x4 1/2	0 4 1/2	1	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 5 1/2		
1	24C5	ONE COLUMN			570	
	24C5	1	HSS6x6x1/2	15 3	537	M2E A500B
	BP2	1	PL 3/4x12	0 7	17	A36
	p4	1	PL 3/8x4	1 2 1/2	6	A36
	p2	1	PL 3/8x4	0 8 1/2	3	A36
	p14	2	PL 3/8x4	0 6	2	A36
	p103	1	PL 1/4x5 3/4	0 5 3/4	2	A36



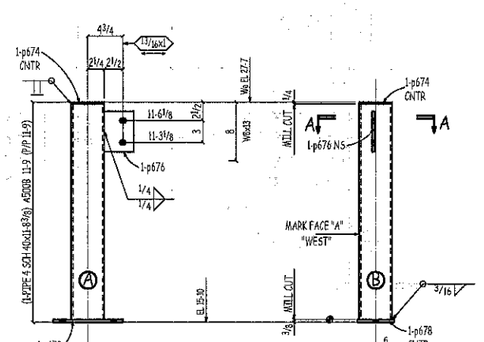


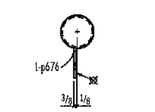
ONE COLUMN 24C2

AT GRID:
K.3 & 9

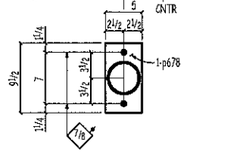


Section A-A
24C2





Section A-A
24C4



ONE COLUMN 24C4

FIELD BOLTS:
2-3/4x5 1/2 EXPANSION ANCHOR (total=2)

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO	DATE	NO.	DATE	NO.	DATE	

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the project shown thereon. Any duplication or use of these drawings for fabricated materials of any kind for use in any manner by others without your notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325-SC SLIP CRITICAL BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT THAT CO BOLT HEAD

SHOP NOTE: PAINT ZERIC MARK ONLY. CLEVIS AS DETAILED. ALL BE ENTIRELY COVERED. SHALL BE SHIPPED WITH TYPE 30 A. READING OF AT LEAST 1½ INCH

WIDE FLANGE (U.N.)	A-992 GR-50
PLATE MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
BOLT NO. 7/8DIA A325-N BOLTS ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

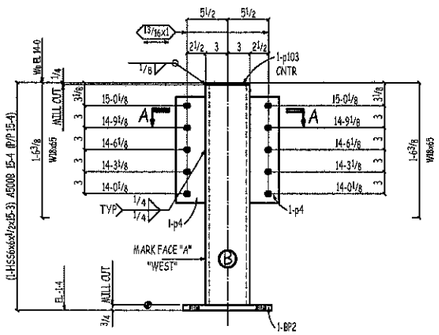
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS
DATE: 06-12-2017
JOB NO: 17068
DRWG. NO: 24

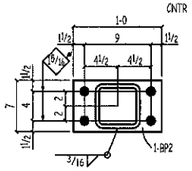
APPROVED NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineering owner, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineering, architectural or owners design.

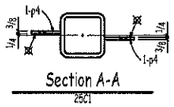
Total weight : 2639

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	25C1	ONE COLUMN			568	
	25C1	1	HSS6x6x1/2	15 3	537	M2E A500B
	BP2	1	PL3/4x12	0 7	17	A36
	p4	2	PL3/8x4	1 2 1/2	6	A36
	p103	1	PL1/4x6 3/4	0 5 3/4	2	A36
1	25C2	ONE COLUMN			349	
	25C2	1	HSS6x6x1/4	15 3	290	M2E A500B
	BP1	1	PL3/4x14	1 2	41	A36
	p4	2	PL3/8x4	1 2 1/2	6	A36
	p82	1	PL1/4x6	0 6	3	A36
1	25C3	ONE COLUMN			351	
	25C3	1	HSS6x6x1/4	15 3	280	M2E A500B
	BP1	1	PL3/4x14	1 2	41	A36
	p4	3	PL3/8x4	1 2 1/2	6	A36
	p82	1	PL1/4x6	0 6	3	A36
1	25C4	ONE COLUMN			573	
	25C4	1	HSS6x6x1/2	15 3	537	M2E A500B
	BP2	1	PL3/4x12	0 7	17	A36
	p4	2	PL3/8x4	1 2 1/2	6	A36
A	p14	2	PL3/8x4	0 6	2	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36
1	25C5	ONE COLUMN			135	
	25C5	1	PIPE 4 SCH 40	11 8 3/8	126	M2E A500B
	p678	1	PL3/8x5	0 8 1/2	5	A36
	p676	1	PL3/8x4 1/16	0 5 1/2	2	A36
	p674	1	PL1/4x4 1/2	0 4 1/2	1	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 5 1/2		
1	25C6	ONE COLUMN			568	
	25C6	1	HSS6x6x1/2	15 3	537	M1E A500B
	BP2	1	PL3/4x12	0 7	17	A36
	p4	1	PL3/8x4	1 2 1/2	6	A36
	p2	1	PL3/8x4	0 5 1/2	3	A36
A	p14	1	PL3/8x4	0 6	2	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36

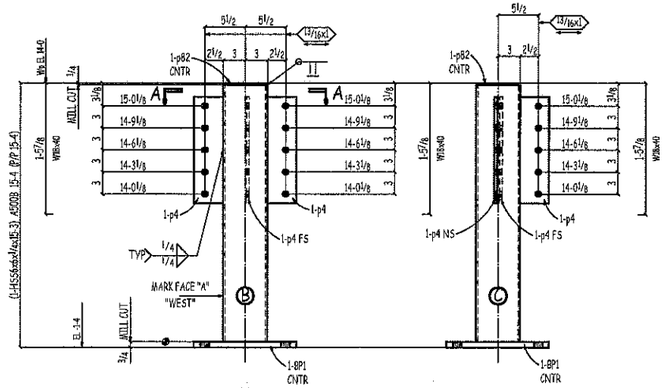


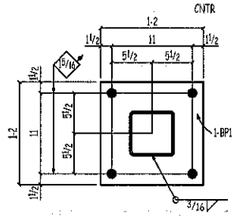


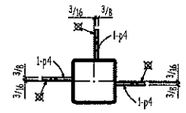


ONE COLUMN 25C1

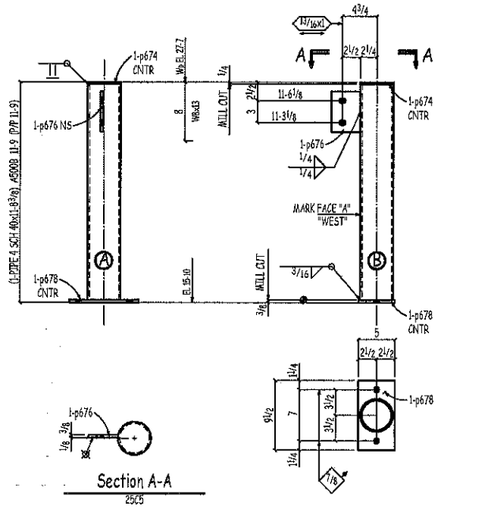
AT GRID:
A.9 & 6.2





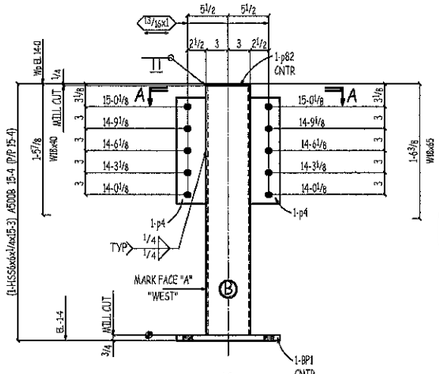


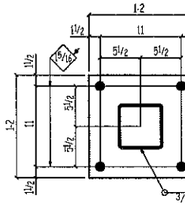
ONE COLUMN 25C3



ONE COLUMN 25C5

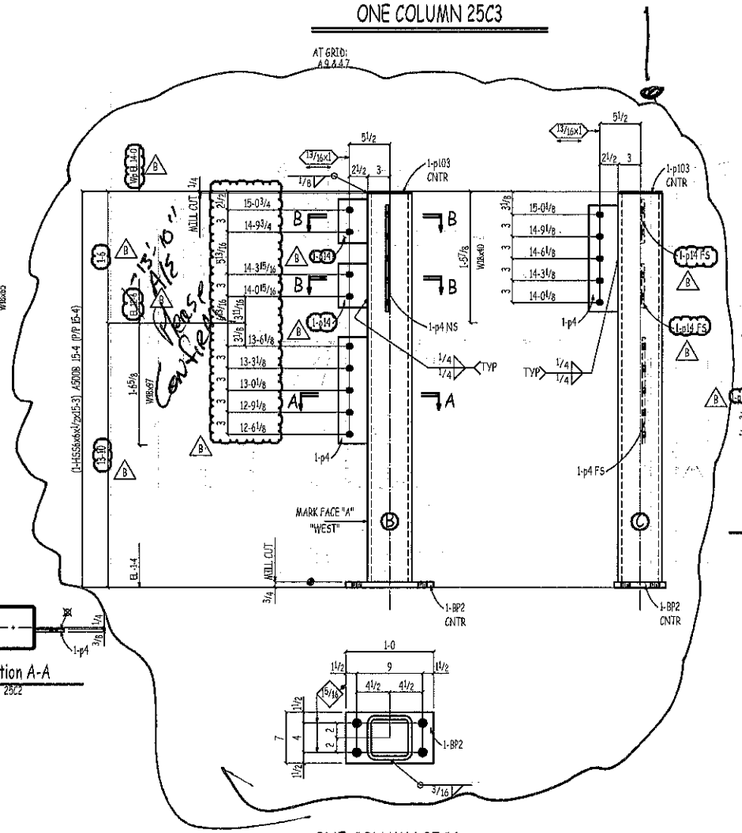
FIELD BOLTS:
2-3/4x5 1/2 EXPANSION ANCHOR (total=2)





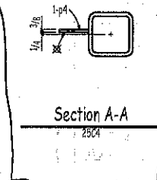
ONE COLUMN 25C2

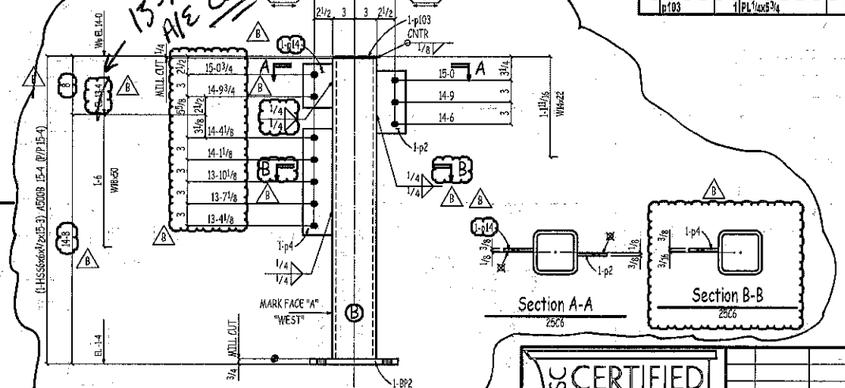
AT GRID:
A.9 & 5.3

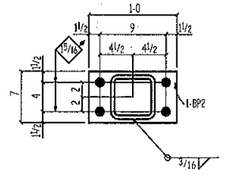


ONE COLUMN 25C4

AT GRID:
A.4.7







ONE COLUMN 25C6

AT GRID:
A.4.3.2

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER
		FIELD	
		SHOP	

APPROVAL	E	07-11	E	02-09				
JOINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTES:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection. Reuse of the products shown thereon or changes and additions or corrective measures to fabricated materials or our changes for field reasoning will be allowed without prior authorization in writing from Endres Mfg. Co.

DIRECTION NOTES:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HDG x 5/8DIA HI BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR HEX HEAD

SHOP NOTE:
PAINT NOTES MARKED: "FIELD PAINT" OR "FIELD TOUCH UP" ARE TO BE PAINTED BY OTHERS AFTER ERECTION

WIDE FLANGE (U.N.): A-992 GR-50
PLATE MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 Ø

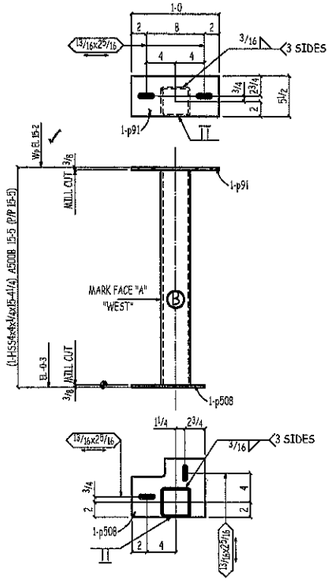
USE NO. 7000 WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 2018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS
DATE: 06-12-2017
JOB NO: 17068
DRWG. NO.: 25

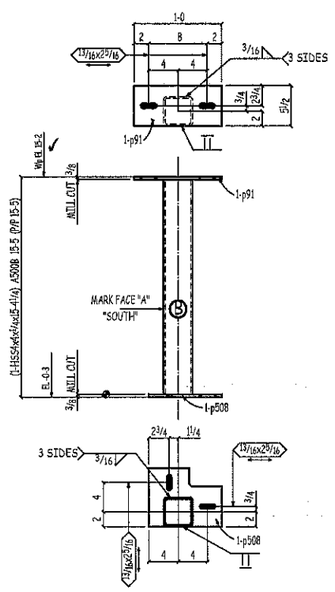
ERRONEOUS NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 1584



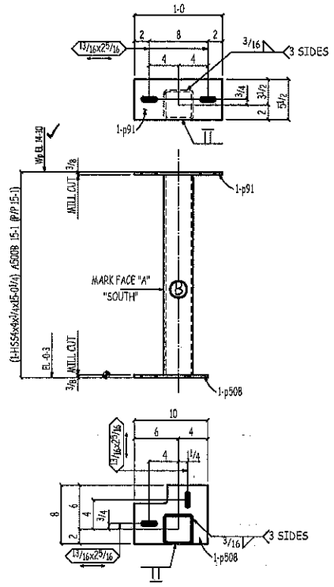
ONE COLUMN 26C1

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



2 COLUMNS 26C3

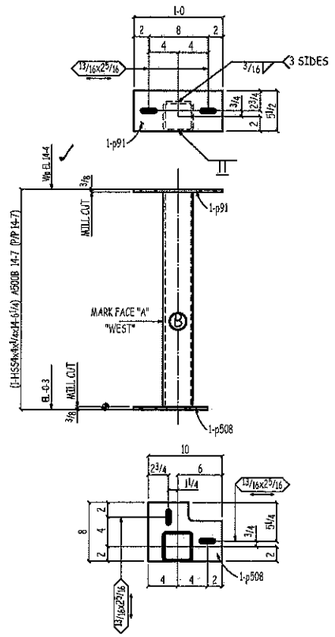
FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=8]



ONE COLUMN 26C5

AT GRID:
M.1 & 16

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



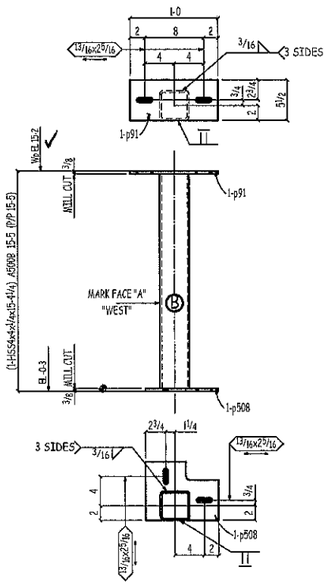
2 COLUMNS 26C7

AT GRID:
11.9 & STAIR D DETAIL 5 NW
J & 13.4

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=8]

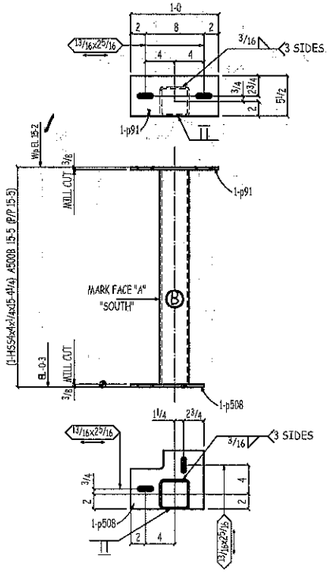
ONE QUANTITY SPLITTED TO 7IC2
ONE QUANTITY SPLITTED TO 7IC1

B



ONE COLUMN 26C2

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



ONE COLUMN 26C4

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

ONE COLUMN 26C6

ONE QUANTITY SPLITTED TO 27C4

B

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	26C1	ONE COLUMN			201	
	26C1	1	HSS4x4x1/4	15 4 1/4	187	M2E A500B
	p508	1	PL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	26C2	ONE COLUMN			201	
	26C2	1	HSS4x4x1/4	15 4 1/4	187	M2E A500B
	p508	1	PL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	26C3	2	COLUMN		201	
	26C3	2	HSS4x4x1/4	15 4 1/4	187	M2E A500B
	p508	2	PL 3/8x8	0 10	7	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		8	3/4 Dia EXP ANCHOR	0 7 3/4		
1	26C4	ONE COLUMN			201	
	26C4	1	HSS4x4x1/4	15 4 1/4	187	M2E A500B
	p508	1	PL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	26C5	ONE COLUMN			197	
	26C5	1	HSS4x4x1/4	13 8 1/4	183	M2E A500B
	p508	1	PL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANC	0 7 3/4		
1	26C7	2	COLUMN		191	
	26C7	2	HSS4x4x1/4	14 6 1/4	177	M2E A500B
	p508	2	PL 3/8x8	0 10	7	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		8	3/4 Dia EXP ANCHOR	0 7 3/4		

ASC CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown thereon as a unique set of plans and cannot be used by fabricated materials of our design for such purposes will be allowed without prior satisfaction to and agreement with Endres Mfg. Co.

DIRECTION AND FIN:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS TIGHTENED TO SNUG TIGHT AS SPECIFIED UNDER THE TURN-OF-NUT METHOD IN RCSC SPEC.

SHOP NOTE:
PAINT FIRST, MARK ON PAINT END AS DIRECTED. ALL BEVELS AND CORNERS SHALL BE GROUND SMOOTH FREE OF A RADIUS OF AT LEAST 1/16 INCH

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

WIDE FLANGE (UN): A-992 GR-50
PLATE MATERIAL (UN): A-36
TUBE MATERIAL (UN): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (UN): 13/16 ø
USE NO 7XXX WELD ALSO ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN TUB

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

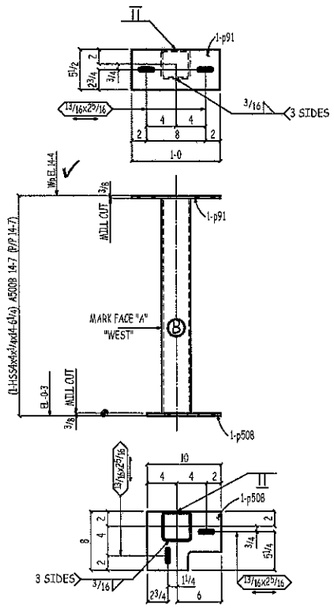
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO. 26
DETAILER: MSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO: 17068

APPROVED NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the signatory engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architect or owners design

Total weight : 1375

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	27C1	2	COLUMN		191	
	27C1	2	HSS4x4x1/4	14 6 1/4	177	M2E A500B
	p508	2	PL 3/8x8	0 10	7	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		8	3/4 Dia EXP ANCHOR	0 7 3/4		
1	27C2	ONE	COLUMN		201	
	27C2	1	HSS4x4x1/4	15 4 1/4	167	M2E A500B
	p508	1	PL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	27C3	ONE	COLUMN		201	
	27C3	1	HSS4x4x1/4	15 4 1/4	167	M2E A500B
	p508	1	PL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	27C4	2	COLUMN		197	
	27C4	2	HSS4x4x1/4	15 6 1/4	163	M2E A500B
	p508	2	PL 3/8x8	0 10	7	A36
	p91	2	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		8	3/4 Dia EXP ANCHOR	0 7 3/4		
1	27C5	ONE	COLUMN		197	
	27C5	1	HSS4x4x1/4	15 6 1/4	163	M2E A500B
	p508	1	PL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANC	0 7 3/4		

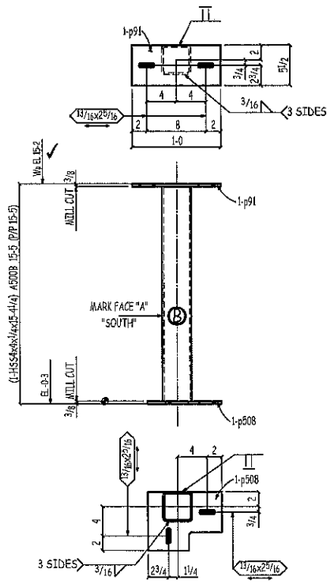


2 COLUMNS 27C1

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=8]

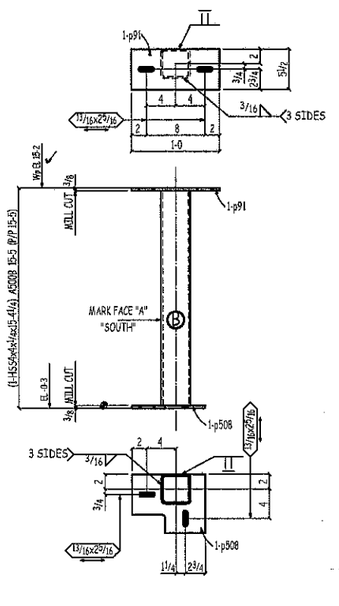
ONE QUANTITY COMBINED FROM 27C6
ONE QUANTITY SPLITTED TO 71C3

B



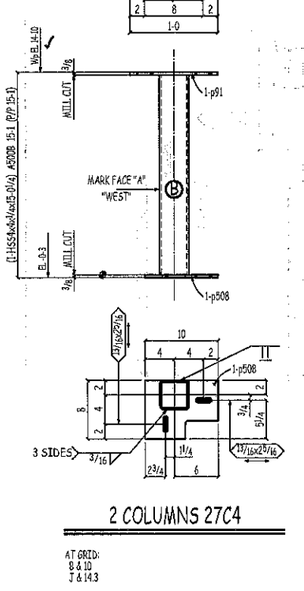
ONE COLUMN 27C2

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



ONE COLUMN 27C3

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]



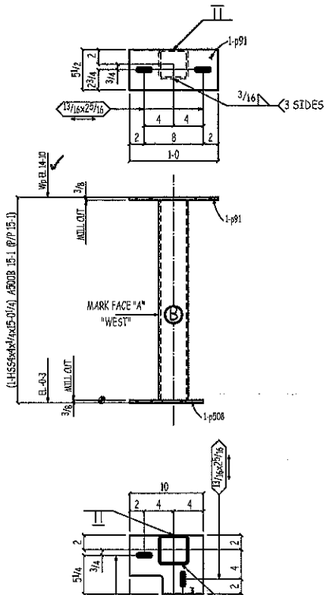
2 COLUMNS 27C4

AT GRID:
B & 10
J & 14.3

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=8]

ONE QUANTITY COMBINED FROM 26C6

B



ONE COLUMN 27C5

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

2 COLUMNS 27C6

ONE QUANTITY SPLITTED TO 27C1

B

CSC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD
SHOP
APPROVAL E 07-11 E 02-09
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

COPYRIGHT:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the project to which they refer. Reuse of these drawings on additions or on any other structure or for fabricating materials of any changes for such reasons will be allowed without prior satisfaction to and agreement with Endres Mfg. Co.

DIRECT FOR NOTES:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH HARDENED WASHERS UNDER THE TURNED ELEMENT NOT TO BE TIGHTENED

SHOP NOTE:
PAINT STOCK MARK ON INTERIOR OF MEMBER AT NO INTERNAL CORNERS SHALL BE PAINTED WITHIN 2" OF OPENING OR AT LEAST TO INCH

WIDE FLANGE (U/N): A-992 GR-50
PARTS MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U/N): 13/16 ø

USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX

DESIGNED FOR:

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

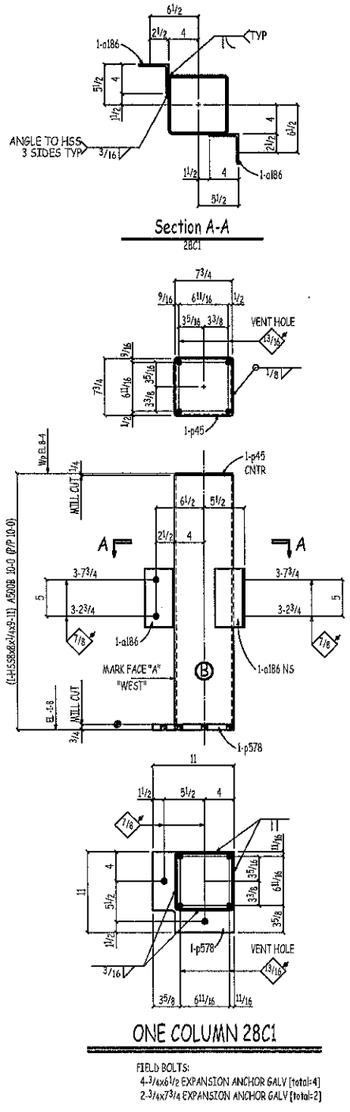
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK CHECKED: SJS
DATE: 06-12-2017
JOB NO: 17068
DRWG. NO: 27

DISCLAIMER:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 175t

BILL OF MATERIAL

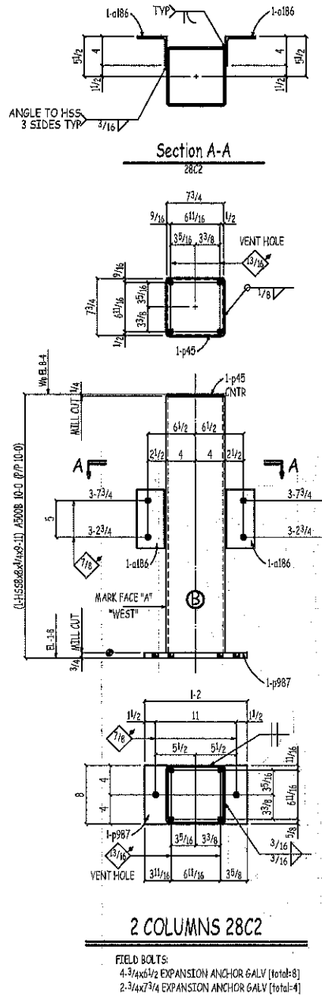
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	28C1	ONE	COLUMN		292	Galv
	28C1	1	HSS6x8x1/4	9 11	256	M2E A500B
	a186	2	L4x4x1/4	0 8	4	A36
	p578	1	PL3/4x11	0 11	23	A36
	p45	1	PL1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV
1	28C2	2	COLUMN		292	Galv
	28C2	2	HSS8x8x1/4	9 11	256	M2E A500B
	a186	4	L4x4x1/4	0 8	4	A36
	p987	2	PL3/4x8	1 2	23	A36
	p45	2	PL1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		8	3/4 Dia EXP ANCHOR	0 6 1/2		GALV
1	28C3	ONE	COLUMN		292	Galv
	28C3	1	HSS8x8x1/4	9 11	256	M2E A500B
	a186	2	L4x4x1/4	0 8	4	A36
	p578	1	PL3/4x11	0 11	23	A36
	p45	1	PL1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV
1	28C4	2	COLUMN		292	Galv
	28C4	2	HSS8x8x1/4	9 11	256	M2E A500B
	a186	4	L4x4x1/4	0 8	4	A36
	p987	2	PL3/4x8	1 2	23	A36
	p45	2	PL1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		8	3/4 Dia EXP ANCHOR	0 6 1/2		GALV



Section A-A
28C1

ONE COLUMN 28C1

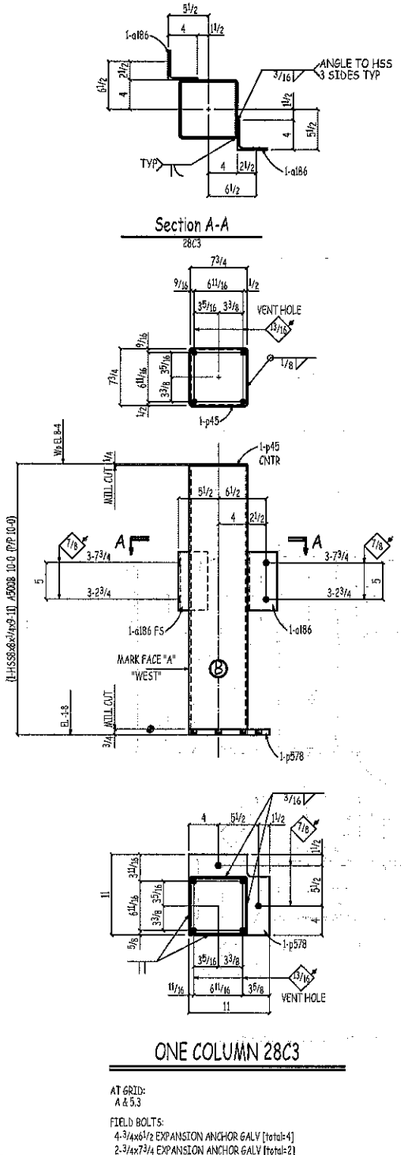
FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]



Section A-A
28C2

2 COLUMNS 28C2

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=8]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=4]

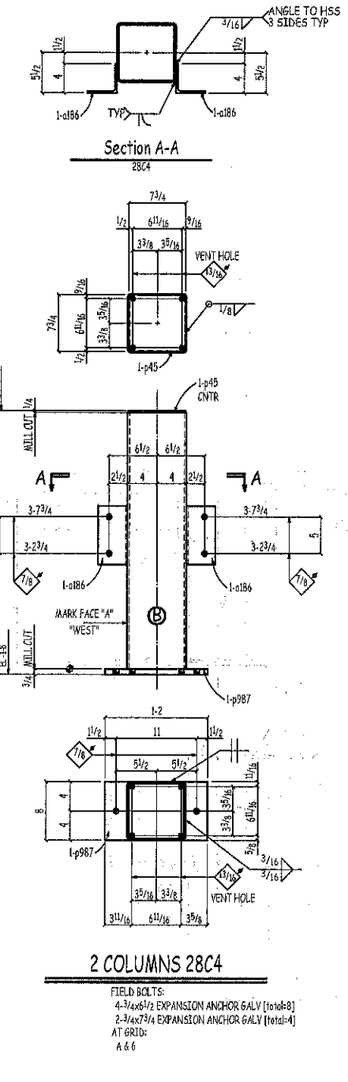


Section A-A
28C3

ONE COLUMN 28C3

AT GRID:
A & 5.3

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]



Section A-A
28C4

2 COLUMNS 28C4

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=8]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=4]
AT GRID:
A & 6

A/E Please Verify this Page

PLUG HOLES AFTER GALVANIZING

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER
FIELD			
SHOP			
APPROVAL	E 07-11		

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown thereon. Changes and additions or corrective measures to fabricated materials or any changes for sub-assembly will be allowed without prior notification to and approval of the Endres Mfg. Co.

ERECTION NOTE: ALL BOLTS TO BE SNUG TIGHT AS PER AISC SPECIFICATIONS. ALL BOLTED CONNECTIONS SHALL HAVE HARDENED WASHERS UNDER THE TURNED ELEMENT (NUT OR BOLT HEAD).

SHOP NOTE: PAINTERS MASK ON LEFT END AS DETAILED. ALL BEVELED WELDS SHALL BE SHIELDED METHOD. BEVEL ANGLES OF AT LEAST 45 DEGREE

WIDE FLANGE (UN)	A-992 GR-50
PLATE MATERIAL (UN)	A-36
TUBE MATERIAL (UN)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	GALVANIZED PER ASTM123
FIELD CONNECTIONS	AS NOTED
HOLES (UN.)	13/16 ø
USE NO. 7000 WELD 3/16 ALL COMPLETE JOINT PENETRATION BUTT WELDS NOW SHOWN THUS	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

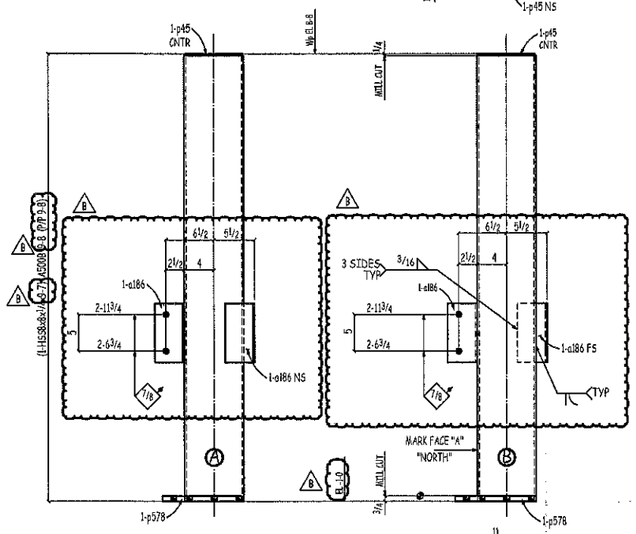
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: 28
DETAILER: MSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068

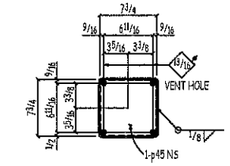
APPROVER NOTE: The data & of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specification provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

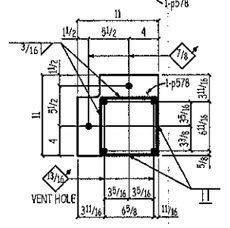
Total weight : 890

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	29C1	ONE COLUMN			283	GALV
B	29C1	1	HSS8x8x1/4	9 7	247	M2E A500B
B	a186	2	L4x4x1/4	0 8	4	A36
	p578	1	PL 1/4x11	0 11	23	A36
	p45	1	PL 1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV
1	29C2	ONE COLUMN			283	GALV
B	29C2	1	HSS8x8x1/4	9 7	247	M2E A500B
B	a186	2	L4x4x1/4	0 8	4	A36
	p578	1	PL 1/4x11	0 11	23	A36
	p45	1	PL 1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV
1	29C3	ONE COLUMN			283	GALV
B	29C3	1	HSS8x8x1/4	9 7	247	M2E A500B
B	a186	2	L4x4x1/4	0 8	4	A36
	p578	1	PL 1/4x11	0 11	23	A36
	p45	1	PL 1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV

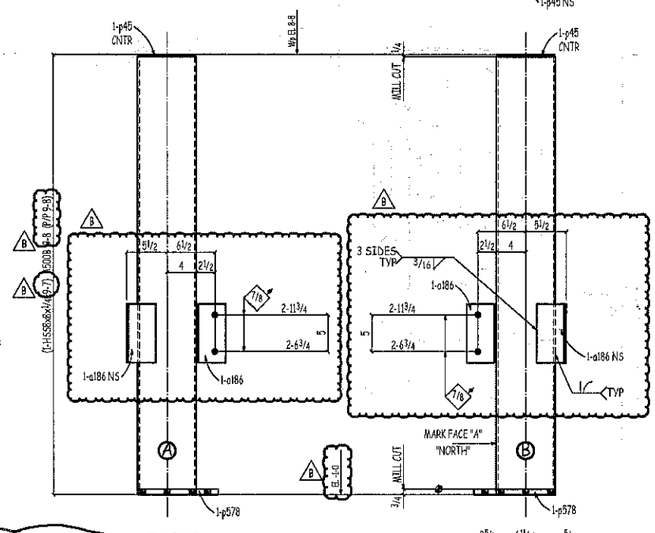


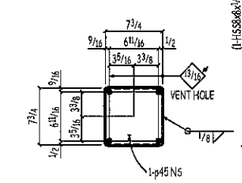


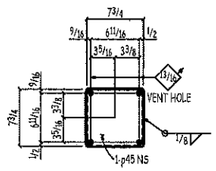


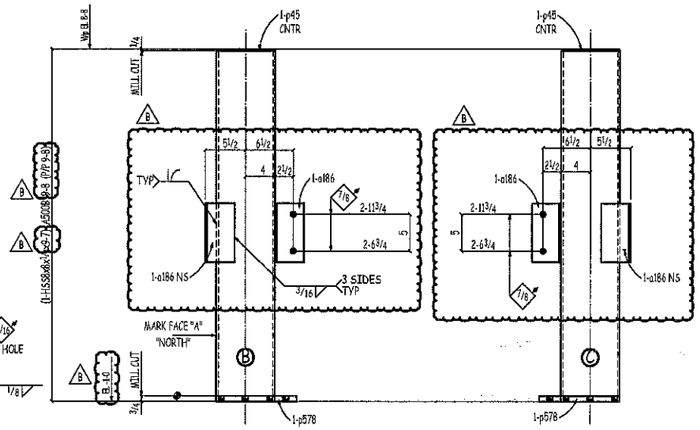
ONE COLUMN 29C1

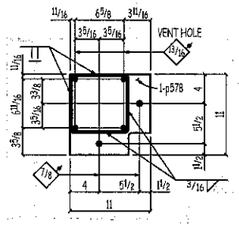
FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]











ONE COLUMN 29C3

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]

ONE COLUMN 29C4

29C4 MOVED TO 72C1

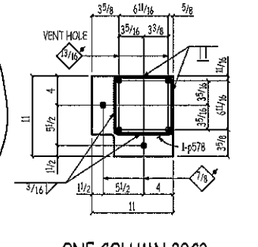
ONE COLUMN 29C5

29C5 MOVED TO 72C2

ONE COLUMN 29C6

29C6 MOVED TO 72C3





ONE COLUMN 29C2

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]

PLUG HOLES AFTER GALVANIZING

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

SHOP NOTE:
PAINT ITEMS MARK ON
LEFT ENDS AS DETAILED.
ALL REMAINING FINISHING SHALL
BE PERFORMED AFTER FIELD
STATUS OF ATTACHED TO EACH

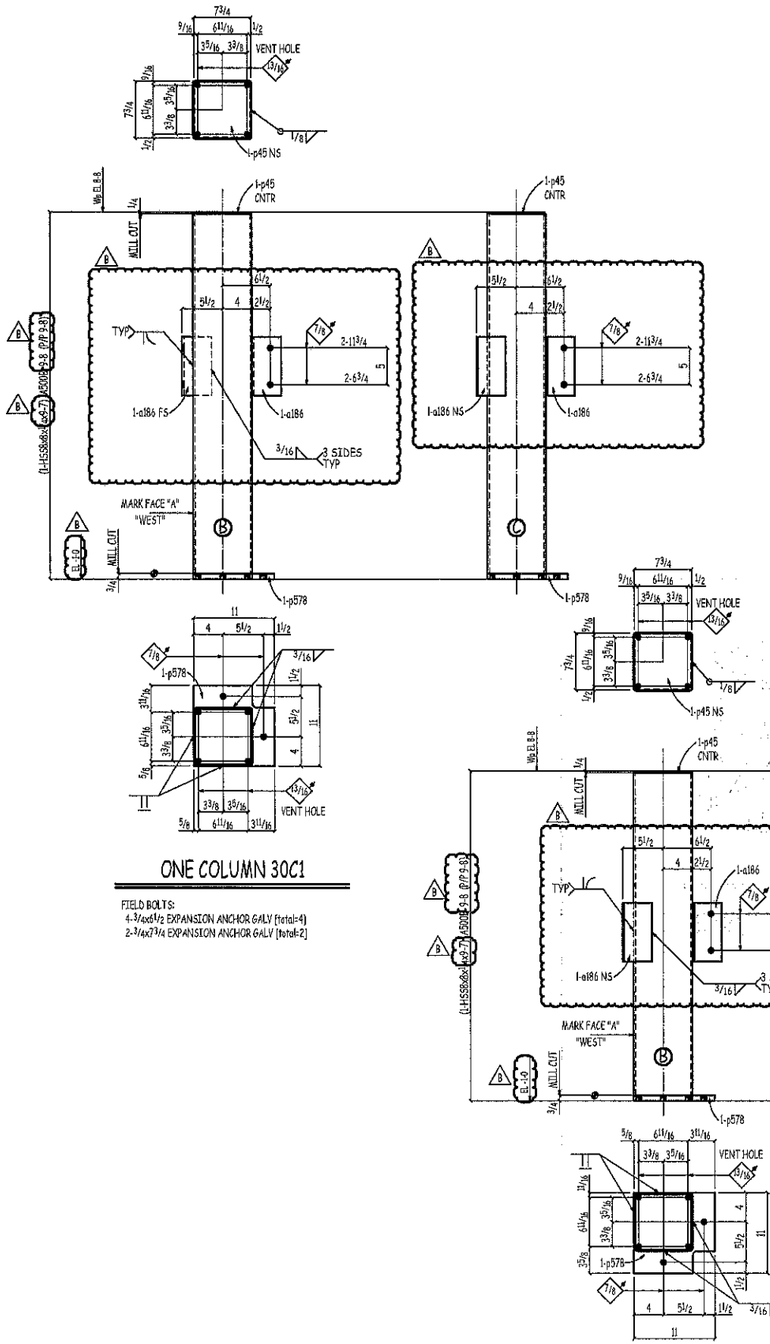
WIDE FLANGE (UNO): A-992 GR-50
PARTS MATERIAL (UNO): A-36
TUBE MATERIAL (UNO): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: GALVANIZED PER ASTM123
FIELD CONNECTIONS: AS NOTED
HOLES (UNO): 13/16 ø
USE NO. 70XX WELD RODS
ALL COMPLETE JOINT PENETRATION BUTT WELDS TO BE LOW HYDROGEN 70XX

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RIEDEBUSCH
DRWG. NO.: 29
DETAILER: MSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 1133



ONE COLUMN 30C1

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]

ONE COLUMN 30C2

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]

ONE COLUMN 30C3

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]
ONE QUANTITY SPLITTED TO 30C4

ONE COLUMN 30C4

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total=4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total=2]
ALREADY APROVED AS 30C3

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	30C1		ONECOLUMN		283	GALV
	30C1	1	HSS8x8x1/4	0 7	247	M2E A500B
	a186	2	L4x4x1/4	0 8	4	A36
	p578	1	PL 3/4x11	0 11	23	A36
	p45	1	PL 1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV
1	30C2		ONECOLUMN		283	GALV
	30C2	1	HSS8x8x1/4	0 7	247	M2E A500B
	a186	2	L4x4x1/4	0 8	4	A36
	p578	1	PL 3/4x11	0 11	23	A36
	p45	1	PL 1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV
1	30C3		ONECOLUMN		283	GALV
	30C3	1	HSS8x8x1/4	0 7	247	M2E A500B
	a186	2	L4x4x1/4	0 8	4	A36
	p987	1	PL 3/8x8	1 2	23	A36
	p45	1	PL 1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV
1	30C4		ONECOLUMN		283	GALV
	30C4	1	HSS8x8x1/4	0 7	247	M2E A500B
	a186	2	L4x4x1/4	0 8	4	A36
	p987	1	PL 3/8x8	1 2	23	A36
	p45	1	PL 1/4x7 3/4	0 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0 6 1/2		GALV

A/E Please verify this page

PLUG HOLES AFTER GALVANIZING

ASC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	FIELD	SHOP	APPROVAL	PRINTS
E			07-11	02-09
NO.				
DATE				

WIDE FLANGE (U/N): A-992 GR-50
PARTS MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: GALVANIZED PER ASTM123
FIELD CONNECTIONS: AS NOTED
HOLES (U/N.): 13/16 ø

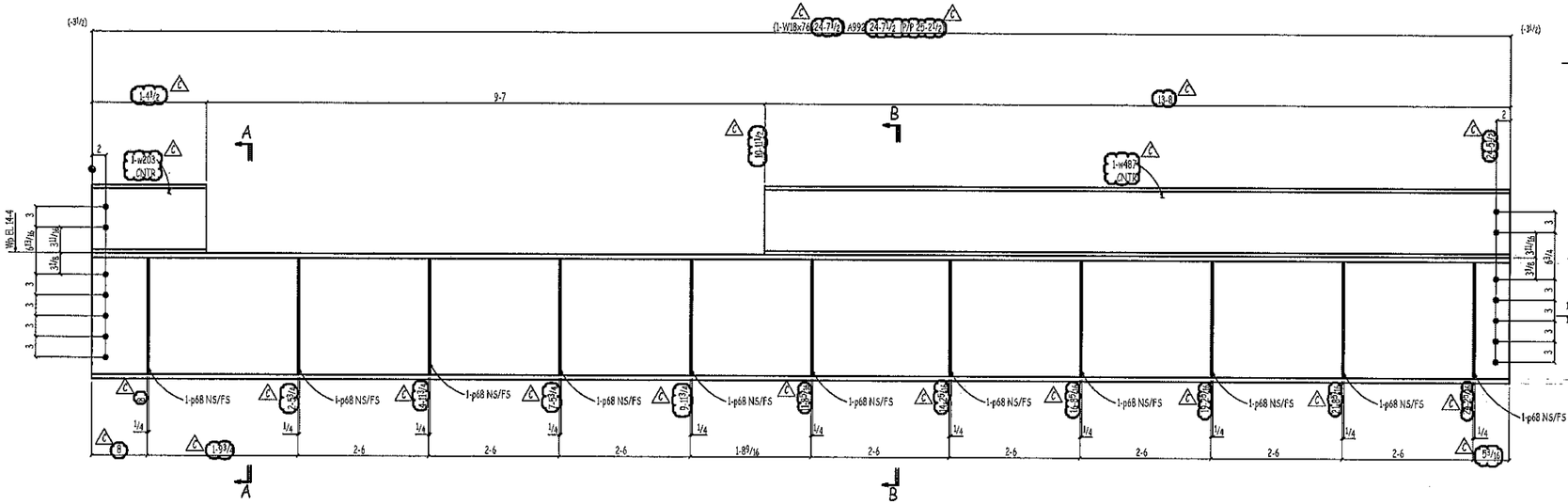
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: 30
DETAILER: NSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068

Total weight : 5792

BILL OF MATERIAL

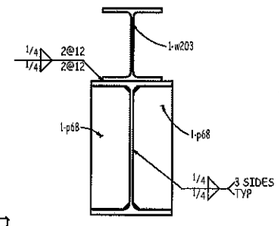
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	31B1	ONE BEAM			2595	
	31B1	1	W18x76	26 2 1/2	1821	A992
	w487	1	W10x39	13 8	533	A992
	w203	1	W10x39	1 4 1/2	54	A992
	p68	22	PL 9/16x5 5/16	1 4 3/4	6	A36
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
		2	3/4 Dia A325N	0 2		+2HD WASH
		2	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	31B2	ONE BEAM			3197	
	31B2	1	W18x97	26 1	2538	A992
	w488	1	W10x39	13 7	530	A992
	p68	22	PL 9/16x5 5/16	1 4 3/4	6	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/2		+1HD WASH
		5	3/4 Dia A325N	0 2		+1HD WASH
		2	3/4 Dia A325N	0 1 3/4		+1HD WASH



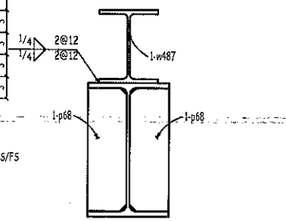
ONE BEAM 31B1

W 18 3/16x7/16
F 11x11/16
K 1 9/16x1 1/8

FIELD BOLTS:
10-3/4x2 A325N •1HD WASH [total-10]
2-3/4x1 3/4 A325N •1HD WASH [total-2]
2-3/4x2 A325N •2HD WASH [total-2]



Section A-A
31B1

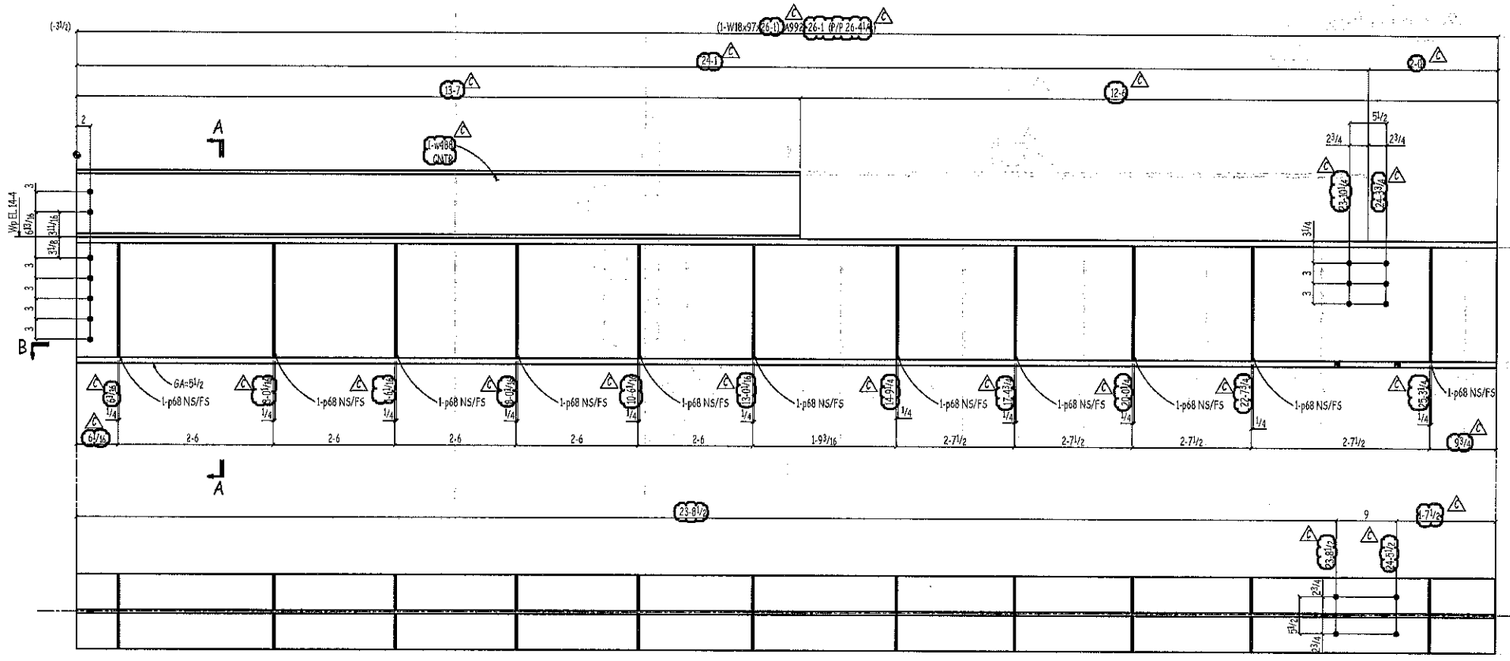


Section B-B
31B1

ONE BEAM 31B3

W 18 3/16x7/16
F 11x11/16
K 1 9/16x1 1/8

31B3 MOVED TO 47B1

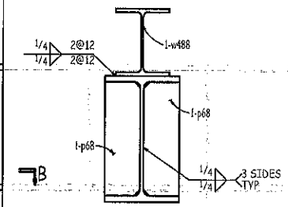


Section B-B
31B2

ONE BEAM 31B2

W 18 3/16x7/16
F 11x11/16
K 1 7/16x1 1/8

FIELD BOLTS:
5-3/4x2 A325N •1HD WASH [total-5]
4-3/4x2 1/2 A325N •1HD WASH [total-4]
2-3/4x1 3/4 A325N •1HD WASH [total-2]



Section A-A
31B2

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS								

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and distribution of the products of our division as shapes and finishes or corrective measures by fabricated materials of our choice for such necessary will be allowed without prior production to said agreement with Endres Mfg. Co.

DIRECTION NOTED: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: PAINT PIECE MARK ON LEFT END AS DETAILED ALL RE-ENTRANT CORNERS SHALL BE SHOP WELDED FREE TO A RADIUS OF AT LEAST ½ INCH

WIDE FLANGE (U.N.): A-992 GR-50
PLATE MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø

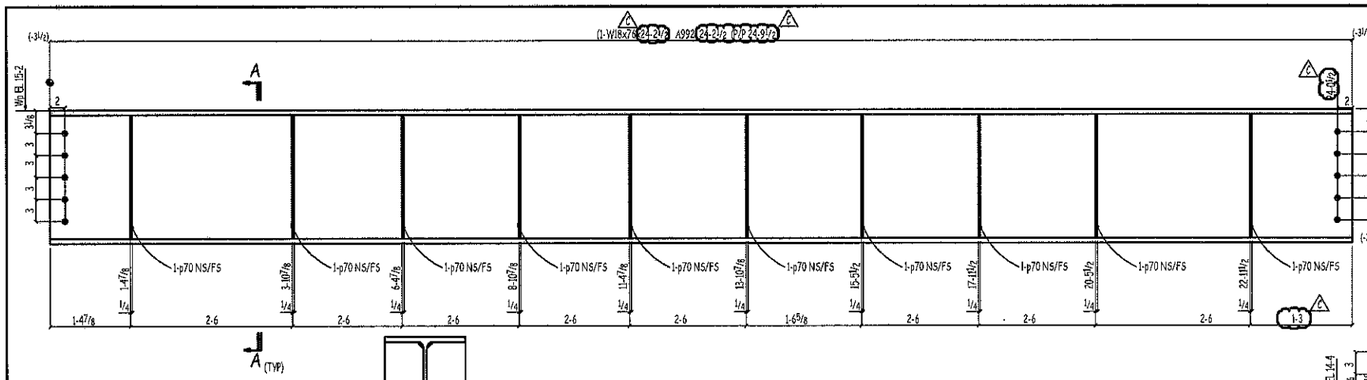
ONE NO. 100% WELD AND ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70SI

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK
CHECKED: STS
DATE: 06-12-2017
JOB NO.: 17068
DRWG NO.: 31

COPYRIGHT NOTICE
No details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the appropriate engineer, architect or owner to certify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 10101

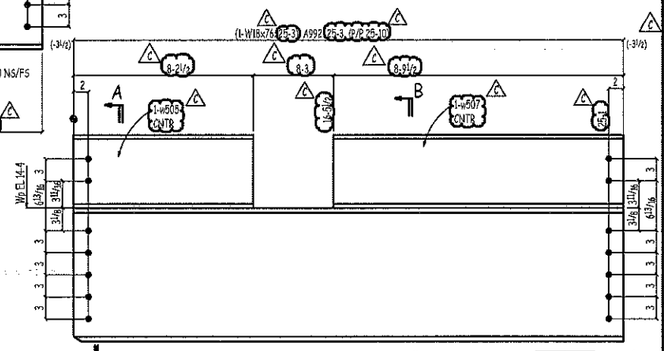


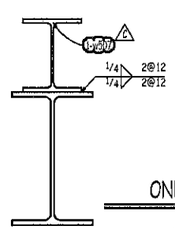
Section A-A
32B1

ONE BEAM 32B1

W 18³/₁₆x7⁵/₁₆
F 11x1¹⁵/₁₆
K 19⁷/₁₆x1¹/₈

FIELD BOLTS:
(0-3/4x2 A325N +1HD WASH [total=10]



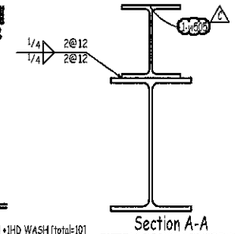


Section B-B
32B3

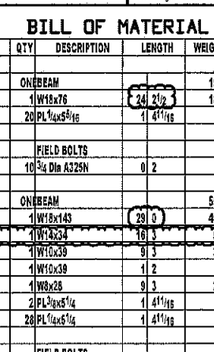
ONE BEAM 32B3

W 18³/₁₆x7⁵/₁₆
F 11x1¹⁵/₁₆
K 19⁷/₁₆x1¹/₈

FIELD BOLTS:
10-3/4x2 A325N +1HD WASH [total=10]
4-3/4x1³/₄ A325N +1HD WASH [total=4]



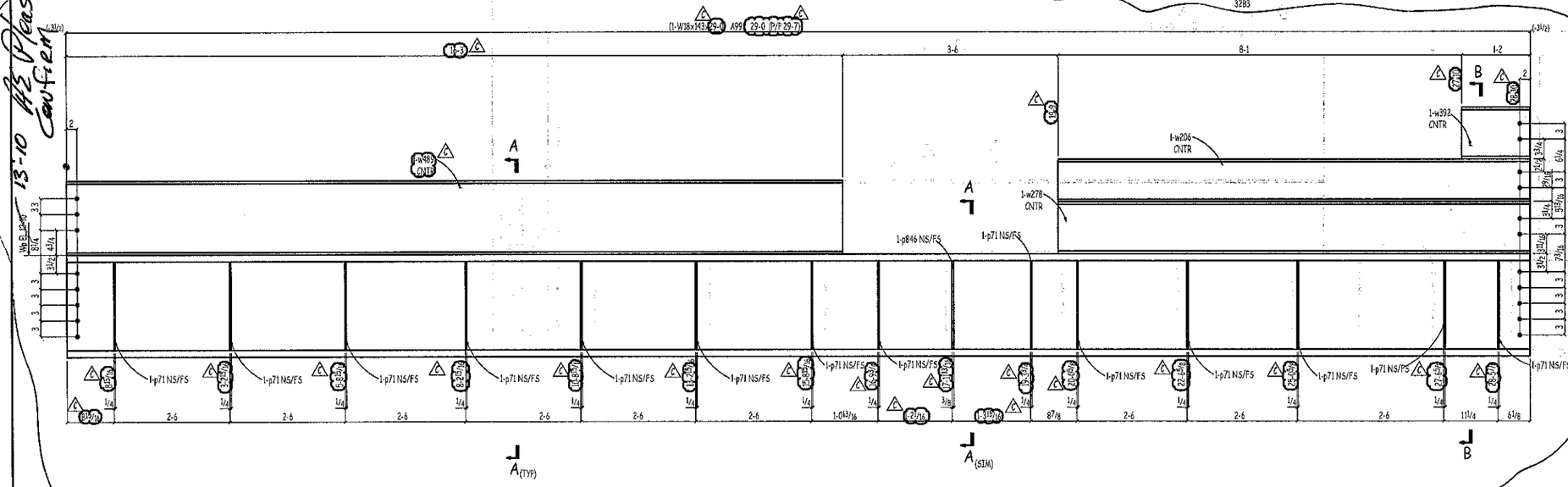
Section A-A
32B3



Section A-A
32B2

Section B-B
32B2

13'-10 HS Please Confirm



ONE BEAM 32B2

W 19¹/₂x3/4
F 11⁹/₁₆x15/16
K 23⁷/₁₆x1¹/₄

FIELD BOLTS:
10-3/4x2¹/₄ A325N +1HD WASH [total=10]
6-3/4x2 A325N +2HD WASH [total=6]
3-3/4x1³/₄ A325N +1HD WASH [total=3]

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	32B1	ONE	BEAM		1964	
	32B1	1	W18x76	24 2½	1639	A992
	p70	20	PL 1/4x5 4/16	1 4 11/16	6	A36
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
1	32B2	ONE	BEAM		5556	
	32B2	1	W18x143	29 0	4147	A992
	w481	1	W14x34	10 1	352	A992
	w278	1	W10x39	9 3	364	A992
	w392	1	W10x39	1 2	43	A992
	w206	1	W8x28	9 3	259	A992
	p846	2	PL 3/4x5 1/4	1 4 11/16	9	A36
	p71	20	PL 1/4x5 1/4	1 4 11/16	6	A36
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2 1/4		+1HD WASH
		8	3/4 Dia A325N	0 2		+2HD WASH
		3	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	32B3	ONE	BEAM		2581	
	32B3	1	W18x76	25 3	1918	A992
	w507	1	W10x39	8 9½	343	A992
	w505	1	W10x39	8 2½	328	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	FIELD	SHOP	ARRIVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTES:
These drawings are the property of Endres Mfg. Co. and are for the exclusive purpose of fabrication and erection of the projects shown. Alterations or changes made without our written consent relieve us of responsibility for any consequences. © Endres Mfg. Co.

DRAFTER NOTES:
UNLESS OTHERWISE NOTED: ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE WASHER UNDER THE TURNED ELEMENT BUT NOT BOTH. TYP.

SHOP NOTE:
PAINT EDGE MARK ON BOTH ENDS AS DETAILED. ALL TUBE CLOSURE PLATES SHALL BE 3/16 MINIMUM THICK WITH A BEVEL OF AT LEAST 45 DEGREES.

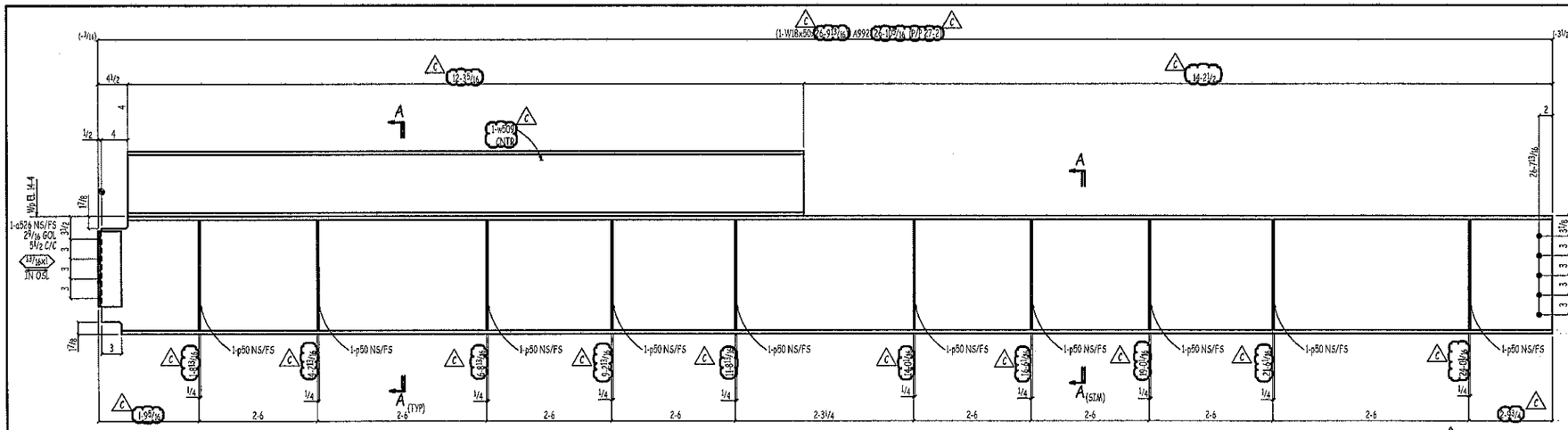
MATERIAL SPECIFICATION
A-992 GR-50
PARTS MATERIAL (U.N.O.)
A-36
TUBE MATERIAL (U.N.O.)
A-500 GR-B
SURFACE PREPARATION
SSPC SP 2 & 3
SHOP PAINT
SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS
AS NOTED
HOLES (U.N.O.)
13/16 Ø
USE NO. 7018X WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN ROD

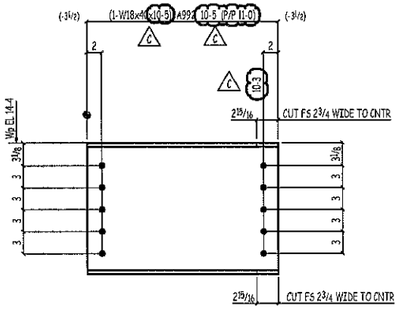
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRAWN: MSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068
DRAWING NO.: 32

STRUCTURAL NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections & details are properly identified and that all connections developed on these detail drawings comply with the intent of the engineer, architect or owners design.

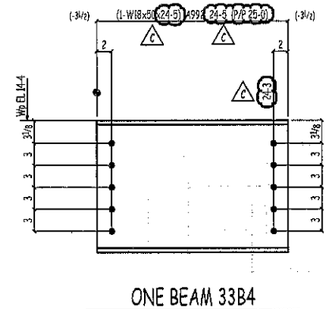
Total weight : 8255





ONE BEAM 33B2

W	17 7/8x5/16	FIELD BOLTS:
F	6x1/2	10-3/4x1 3/4 A325N•1HD WASH [total=10]
K	13 7/16x13/16	

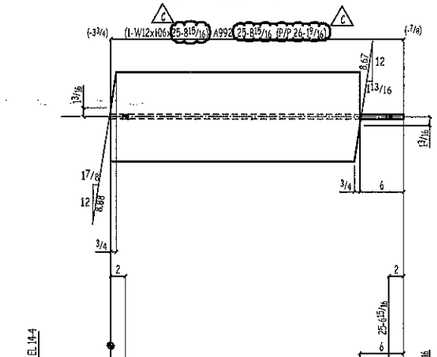


ONE BEAM 33B4

W	18x3/8	FIELD BOLTS:
F	7 1/2x3/16	10-3/4x1 3/4 A325N•1HD WASH [total=10]
K	13 1/4x7/8	TWO QUANTITY OF 33B4 BEAM COMBINED WITH 4283

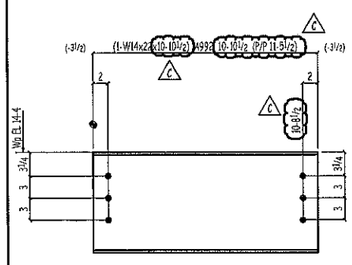
ONE BEAM 33B1

W	18x3/8	FIELD BOLTS:
F	7 1/2x9/16	13-3/4x1 3/4 A325N•1HD WASH [total=13]
K	13/4x7/8	



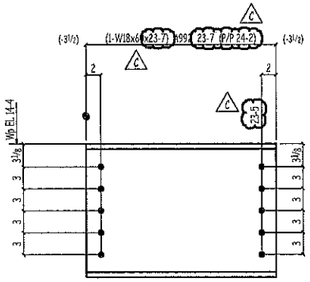
ONE BEAM 33B6

W	12 7/8x5/8	FIELD BOLTS:
F	12 1/2x1	3-3/4x2 1/4 A325N•1HD WASH [total=3]
K	17/8x1 3/16	3-3/4x2 A325N•1HD WASH [total=3]



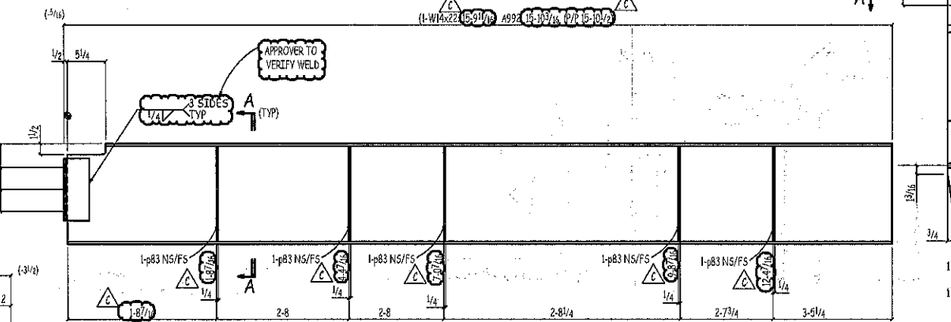
ONE BEAM 33B3

W	13 1/16x1/4	FIELD BOLTS:
F	5x5/16	6-3/4x1 3/4 A325N•1HD WASH [total=6]
K	1 1/16x13/16	



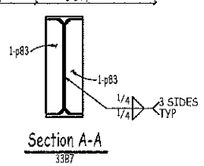
ONE BEAM 33B5

W	18 3/16x7/16	FIELD BOLTS:
F	7 9/16x11/16	10-3/4x2 A325N•1HD WASH [total=10]
K	13/8x7/8	



ONE BEAM 33B7

W	13 1/16x1/4	FIELD BOLTS:
F	5x5/16	6-3/4x2 A325N•1HD WASH [total=6]
K	1 1/16x13/16	



BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	33B1		ONE BEAM		1908	
	33B1	1	W18x50	26 8 13/16	1331	A992
C	w309	1	W10x39	12 3 5/16	479	A992
	a526	2	L4x3 1/2x5/16	0 11 1/2	7	A36
	p50	20	PL 1/4x3 5/16	1 4 3/4	4	A36
		1				
			FIELD BOLTS			
		13	3/4 Dia A325N	0 1 3/4		+1HD WASH
C	1	33B2	ONE BEAM		416	
	33B2	1	W18x40	10 6	416	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 1 3/4		+1HD WASH
C	1	33B3	ONE BEAM		239	
	33B3	1	W14x22	10 10 1/2	239	A992
			FIELD BOLTS			
		8	3/4 Dia A325N	0 1 3/4		+1HD WASH
	1	33B4	ONE BEAM		1220	
C	33B4	1	W18x50	24 6	1220	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 1 3/4		+1HD WASH
	1	33B5	ONE BEAM		1414	
C	33B5	1	W18x60	23 7	1414	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
	1	33B6	ONE BEAM		2682	
C	33B6	1	W12x106	25 8 15/16	2682	A992
			FIELD BOLTS			
		3	3/4 Dia A325N	0 2 1/4		+1HD WASH
		3	3/4 Dia A325N	0 2		+1HD WASH
	1	33B7	ONE BEAM		376	
C	33B7	1	W14x22	15 9 11/16	345	A992
	a525	2	L4x3 1/2x5/16	0 8 1/2	5	A36
	p83	10	PL 1/4x2 3/16	0 1 7/8	2	A36
			FIELD BOLTS			
		6	3/4 Dia A325N	0 2		+1HD WASH

REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

	FIELD	SHOP	APPROVAL	PRINTS
E			07-11	NO.
E			02-09	DATE
E			03-20	NO.
			DATE	NO.
				DATE

NOTE: Steel drawings are the property of Endres Mfg. Co. and are for the purposes of fabrication and erection of the products shown. Reuse or changes, modifications or corrective measures to these drawings or the materials or use thereof for such purposes without written permission and consent of Endres Mfg. Co.

DIRECTION NOTE: UNLESS OTHERWISE NOTED:- ALL BOLTED SIDE TO BE MARKED WITH ASSEMBLY STRING TO BOLT WITH THE SQUARED WASHER UNDER THE TURNED ELEMENT AT OPPOSITE END.

SHOP NOTE: PAINT FREE AREA ON FITTINGS AS DETAILED. ALL BE CENTERLINE CORNERS SHALL BE SQUARED NOT FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.)	A-992 GR-50
PLATE MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø

USE NO. 7000 WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

APPROVER NOTE: The erection of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly sized and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2

LOCATION: MADISON, WI

CUSTOMER: RVEDEBUSCH

DETAILER | CHECKED: MSK | SJS

DATE: 06-12-2017

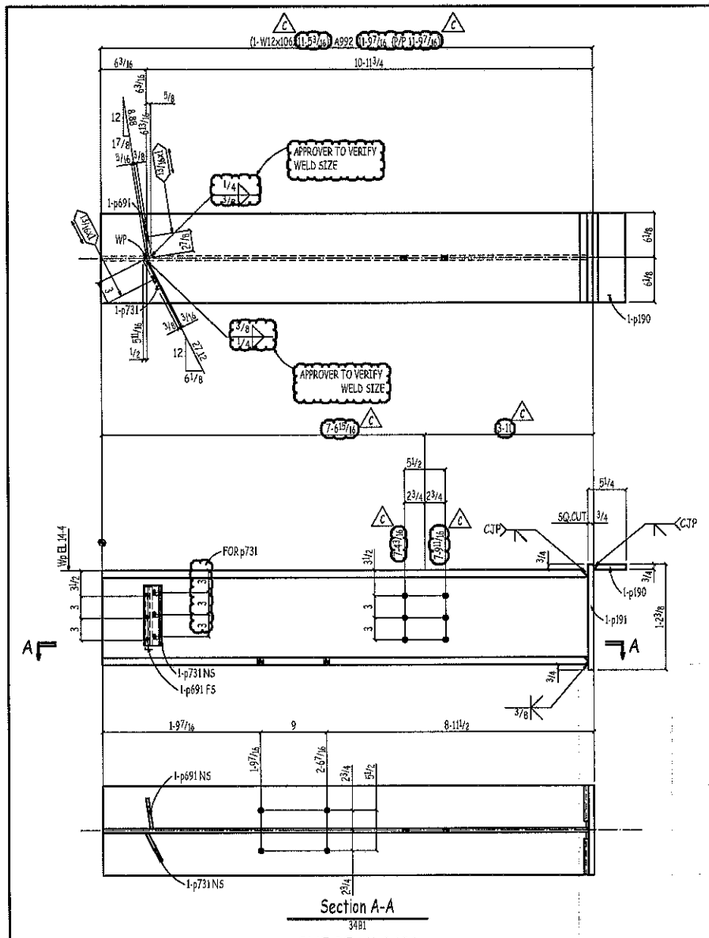
JOB NO.: 17068

DRWG NO.: 33

Total weight : 2772

BILL OF MATERIAL

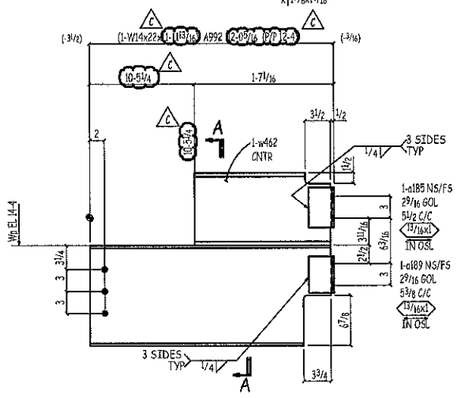
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	34B1		ONEBEAM		1263	
C	34B1	1	W12x105	11 5-7/16	1208	A992
	p191	1	PL3/4x12-3/16	1 2-3/8	37	A36
	p190	1	PL3/4x4-1/2	1 8-3/16	11	A36
	p691	1	PL3/8x4-3/16	0 8-1/2	4	A36
	p731	1	PL3/8x4-7/16	0 8-1/4	4	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2-1/2		+1HD WASH
1	34B2		ONEBEAM		329	
C	34B2	1	W14x22	11 11-13/16	260	A992
	w462	1	W10x39	1 6-9/16	56	A992
	a185	2	L4x3-1/2x5/16	0 5-1/2	3	GAS CUT A36
	a189	2	L4x3-1/2x5/16	0 5	3	GAS CUT A36
			FIELD BOLTS			
		11	3/4 Dia A325N	0 1-3/4		+1HD WASH
1	34B3		ONEBEAM		753	
C	34B3	1	W12x53	15 11-1/16	753	A992
			FIELD BOLTS			
		6	3/4 Dia A325N	0 1-3/4		+1HD WASH
1	34B5		ONEBEAM		24	
C	34B5	1	W8x10	2 5-1/2	24	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 1-3/4		+1HD WASH
1	34B6		ONEBEAM		403	
C	34B6	1	W18x60	6 6-3/4	362	A992
	p598	1	PL3/4x6	1 7-1/2	33	A36
	p614	1	PL3/4x6	0 4-1/2	7	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2-1/4		+1HD WASH



Section A-A
34B1

ONE BEAM 34B1

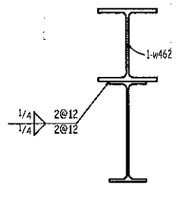
W | 127/8x3/8 | FIELD BOLTS:
F | 123/16x1 | 4-3/4x2 1/2 A325N +1HD WASH [total=4]
K | 17/8x13/16 |



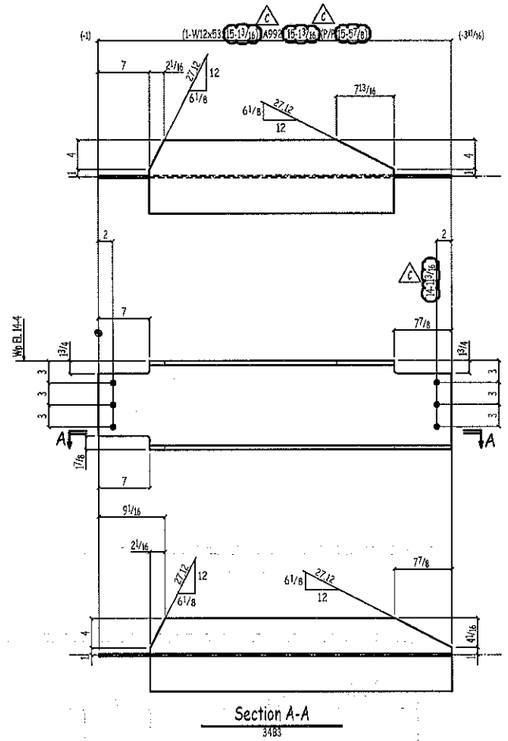
Section A-A
34B2

ONE BEAM 34B2

W | 1311/16x3/4 | FIELD BOLTS:
F | 15x3/16 | 11-3/4x1 3/4 A325N +1HD WASH [total=11]
K | 17/16x15/16 |



Section A-A
34B2



Section A-A
34B3

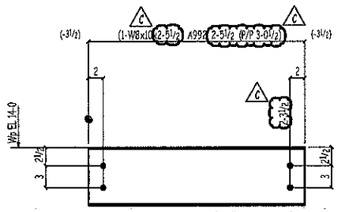
ONE BEAM 34B3

W | 121/8x3/8 | FIELD BOLTS:
F | 10x9/16 | 6-3/4x1 3/4 A325N +1HD WASH [total=6]
K | 13/8x1 |

ONE BEAM 34B4

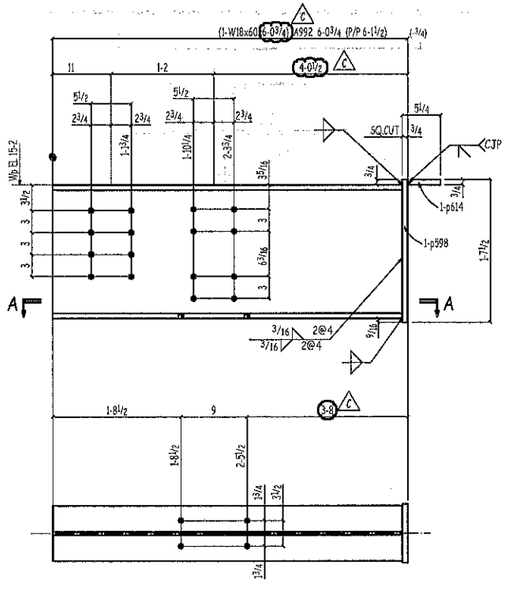
W | 191/2x3/4 |
F | 113/16x19/16 |
K | 29/16x1 1/4 |

34B4 MOVED TO 4B1



ONE BEAM 34B5

W | 77/8x3/16 | FIELD BOLTS:
F | 315/16x3/16 | 4-3/4x1 3/4 A325N +1HD WASH [total=4]
K | 11/16x3/16 |



Section A-A
34B6

ONE BEAM 34B6

W | 183/16x7/16 | FIELD BOLTS:
F | 79/16x11/16 | 4-3/4x2 1/4 A325N +1HD WASH [total=4]
K | 13/8x7/8 |

ASC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

		NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD									
SHOP									
APPROVAL	E		07-11	E	02-09	E	03-20		
PRINTS	NO.		DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown. Reuse or change of dimensions or any other measures to fabricated materials of any changes for such measures will be allowed without prior authorization and approval with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE AISC WITH ESTABLISHED STANDARDS AND TO MEET ONE HUNDRED MEMBER UNDER THE TURNER REQUIREMENTS OF 50 TONS MIN.

SHOP NOTE: PAINT PIECE MARKING DETAILED AS DETAILED. ALL SELF-TAPPING SCREWS SHALL BE DRIVEN SO AS TO EXTEND TO A DEPTH OF AT LEAST 1Q DIAM.

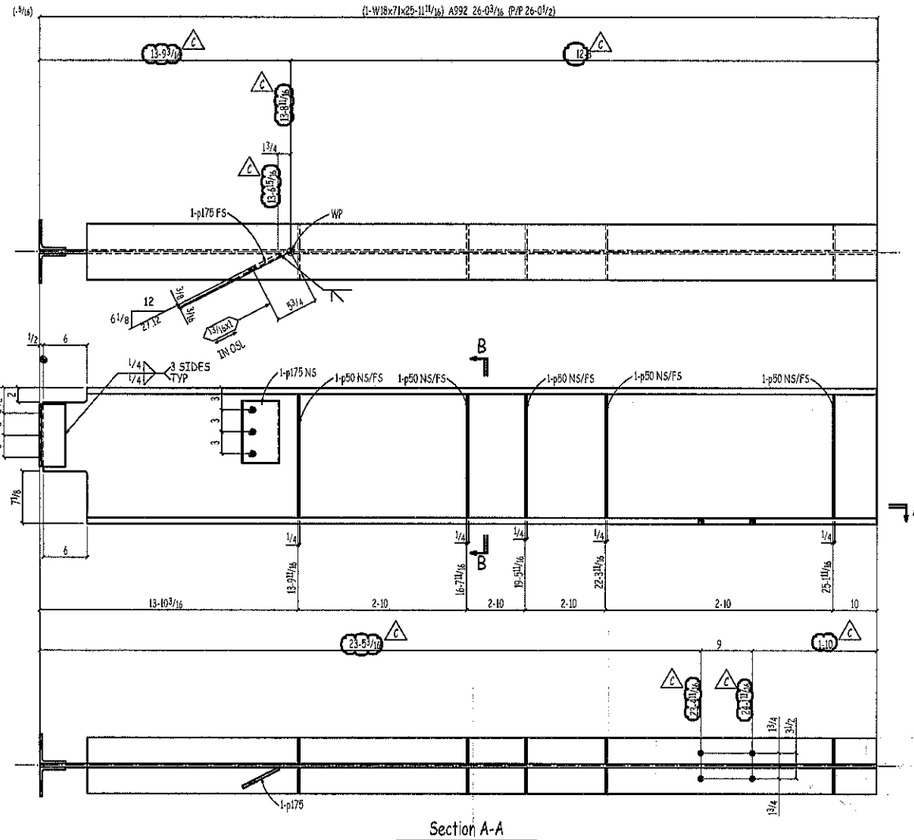
WIDE FLANGE (U/N)	A-992 GR-50
PARTS MATERIAL (U/N)	A-36
PIPE MATERIAL (U/N)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U/N)	13/16 ø
WELDING NOTE: USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RVEDEBUSCH
SCALE	NSK
CHECKED	SJS
DATE	06-12-2017
JOB NO.	17068
DRWG. NO.	34

NOTICE TO USER: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

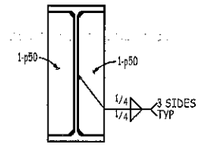
Total weight : 4831



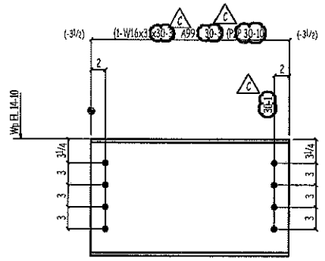
Section A-A
35B1

ONE BEAM 35B1

W | 18 1/2 x 1/2	FIELD BOLTS:
F | 7 5/8 x 13/16	6-3/4x2 A325N +IHD WASH [total=6]
K | 11/32 x 15/16	4-3/4x2 1/2 A325N +IHD WASH [total=4]



Section B-B
35B1

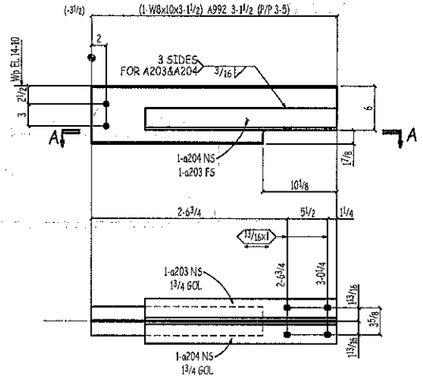


ONE BEAM 35B4

W | 15 7/8 x 1/4	FIELD BOLTS:
F | 5 1/2 x 7/16	8-3/4x1 3/4 A325N +IHD WASH [total=8]
K | 11/8 x 15/16	

ONE BEAM 35B2

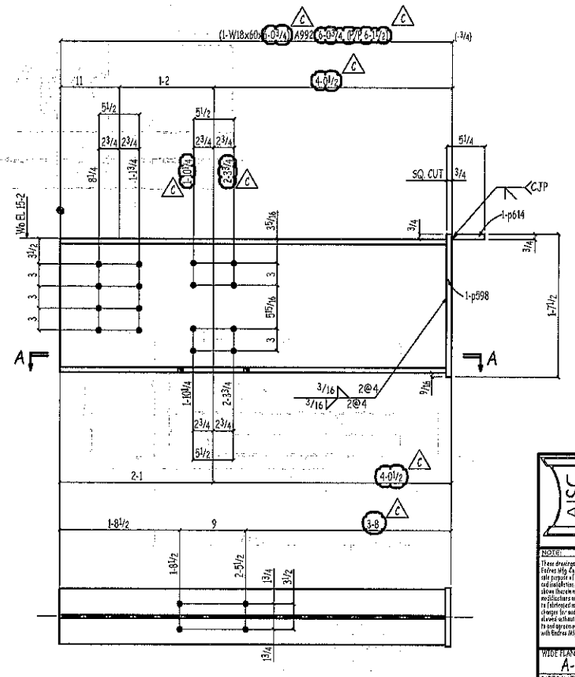
W | 18 3/16 x 7/16	FIELD BOLTS:
F | 7 9/16 x 1 1/16	8-3/4x1 3/4 A325N +IHD WASH [total=8]
K | 13/16 x 7/8	8-3/4x2 A325N +IHD WASH [total=8]



Section A-A
35B3

2 BEAMS 35B3

W | 7 7/8 x 3/16	FIELD BOLTS:
F | 3 15/16 x 7/16	4-3/4x2 3/4 A325N +IHD WASH [total=8]
K | 11/16 x 9/16	2-3/4x2 3/4 A325N +IHD WASH [total=4]



Section A-A
35B5

ONE BEAM 35B5

W | 18 3/16 x 7/16	FIELD BOLTS:
F | 7 9/16 x 1 1/16	4-3/4x2 1/4 A325N +IHD WASH [total=4]
K | 13/16 x 7/8	

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	35B1	ONE BEAM			1873	
	35B1	1	W18x71	25 11 11/16	1816	A992
	a525	2	L4x3 1/2 x 5/16	0 8 1/2	5	A36
	p175	1	PL 3/16 x 5 3/16	0 8 1/2	5	A36
	p50	10	PL 1/4 x 3 9/16	1 4 1/4	4	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/2		+1HD WASH
		6	3/4 Dia A325N	0 2		+1HD WASH
1	35B2	ONE BEAM			1501	
C	35B2	1	W18x60	24 11 7/16	1472	A992
	a526	4	L4x3 1/2 x 5/16	0 11 1/2	7	A36
			FIELD BOLTS			
		8	3/4 Dia A325N	0 2		+1HD WASH
		8	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	35B3	2	BEAM		56	
	35B3	2	W8x10	3 1 1/2	28	A992
	a203	2	L3x3x 3/8	2 2 1/8	16	A36
	a204	2	L3x3x 3/8	2 2 1/8	16	A36
			FIELD BOLTS			
		8	3/4 Dia A325N	0 2 3/4		+1HD WASH
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	35B4	ONE BEAM			937	
C	35B4	1	W16x31	30 3	937	A992
			FIELD BOLTS			
		8	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	35B5	ONE BEAM			402	
C	35B5	1	W16x60	6 03 3/4	382	A992
	p598	1	PL 3/4 x 8	1 7 1/2	33	A36
	p614	1	PL 3/4 x 8	0 4 1/2	7	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	FIELD	SHOP	APPROVAL	PRINTS
NO.			E	E
DATE			07-11	03-20
NO.			E	
DATE			02-09	
NO.				
DATE				
NO.				
DATE				

NOTICE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown thereon. Changes or additions or over-all use thereof by others or reproduction of same by any means or method without prior written permission of Endres Mfg. Co. is prohibited.

DIRECTION MOVED: UNLESS OTHERWISE NOTED - ALL CONNECTIONS SHALL BE MADE WITH A325 BOLTS IN STD HOLES WITH NUTS TURNED ELEMENTARY BY HAND. THE TURNED ELEMENT MAY BE NUT OR BOLT HEAD.

SHOP NOTE: PAINT PIECE MARK ON LEFT END AS SHOWN. ALL RE-ENTRANT CORNERS SHALL BE RAISED NO LESS THAN 1/2 RADIUS OR AT LEAST TO D/2+3

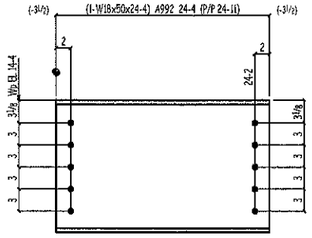
WIDE FLANGE (U/N)	A-992 GR-50
PARTS MATERIAL (U/N)	A-36
TUBE MATERIAL (U/N)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	A.S NOTED
HOLES (U/N)	13/16 ø
USE NO. 7018X WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RVEDEBUSCH
DETAILER	MSK
CHECKED	SJS
DATE	06-12-2017
JOB NO.	17068
DRWG. NO.	35

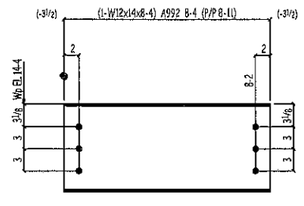
A MORE DETAILED NOTE: The accuracy of structural steel fabrication on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the appropriate engineer, architect or owner to verify that the sections as detailed are properly classified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 6837



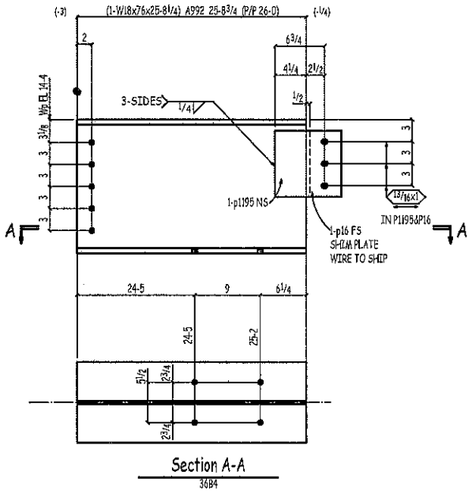
ONE BEAM 36B1

W	18x3/8	FIELD BOLTS:
F	7½x9/16	10-¾x1¾ A325N +1HD WASH [total=10]
K	1¼x7/8	



ONE BEAM 36B2

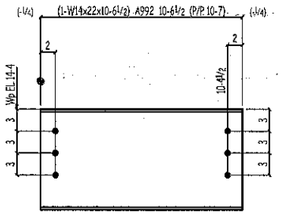
W	11⅞x3/16	FIELD BOLTS:
F	4x¼	6-¾x1¾ A325N +1HD WASH [total=6]
K	⅜x5/8	



Section A-A
36B4

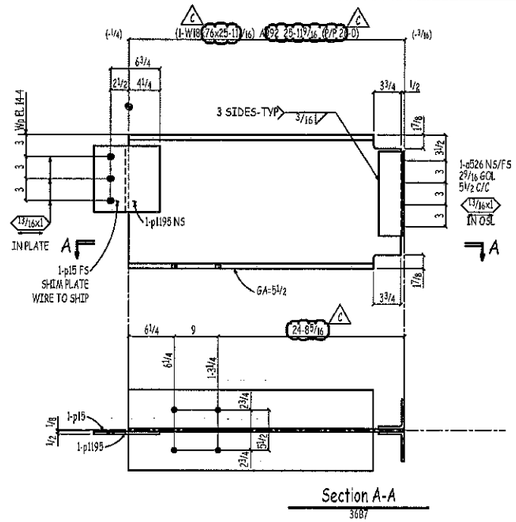
ONE BEAM 36B4

W	18 3/16x7/16	FIELD BOLTS:
F	11x11/16	5-¾x2 A325N +1HD WASH [total=5]
K	19/16x11/8	3-¾x1¾ A325N +1HD WASH [total=3]



ONE BEAM 36B5

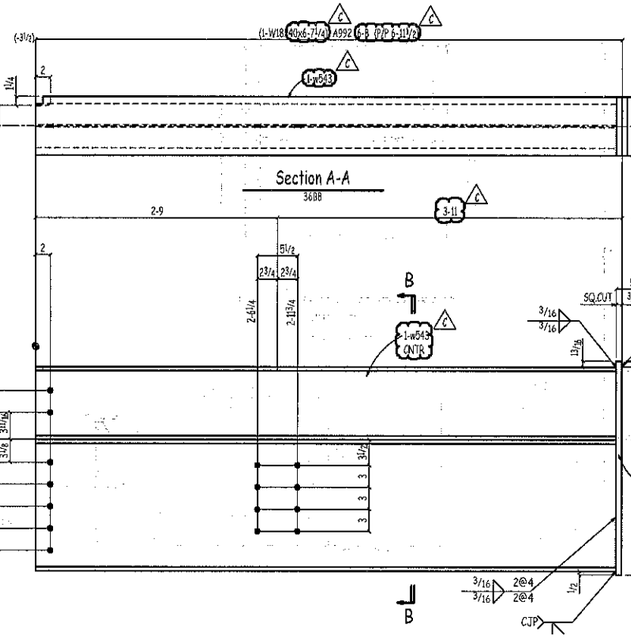
W	13 11/16x1/4	
F	5x5/16	
K	11/16x13/16	



Section A-A
36B7

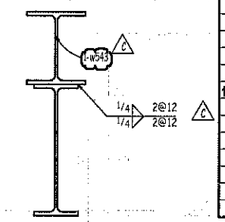
ONE BEAM 36B7

W	18 3/16x7/16	FIELD BOLTS:
F	11x11/16	11-¾x1¾ A325N +1HD WASH [total=11]
K	19/16x11/8	4-¾x2¼ A325N +1HD WASH [total=4]

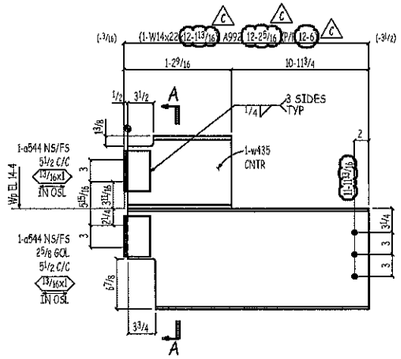


ONE BEAM 36B8

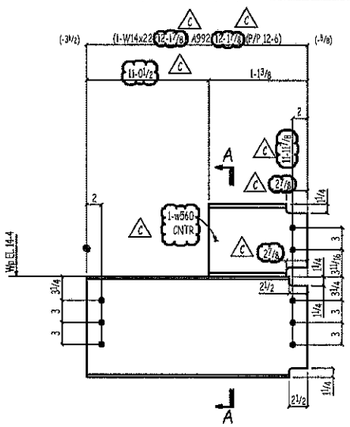
W	17⅞x5/16	FIELD BOLTS:
F	6x½	7-¾x1¾ A325N +1HD WASH [total=7]
K	13/16x13/16	



Section B-B
36B8


(-3/16)
C
(1-W14x22
12-11 3/16
A992
12-2 5/16
PP
12-6
C
C
(-3½)
1-29/16
10-11 3/4
1/2
3½
A
3 SIDES
TYP
1/4
13/8
1-a544 NS/FS
5½ C/C
13/16x1
IN OSL
1-w435
CNTR
2
Wb EL 14-4
3
3
3
3
3
3
3
3
3
3
3
3
3

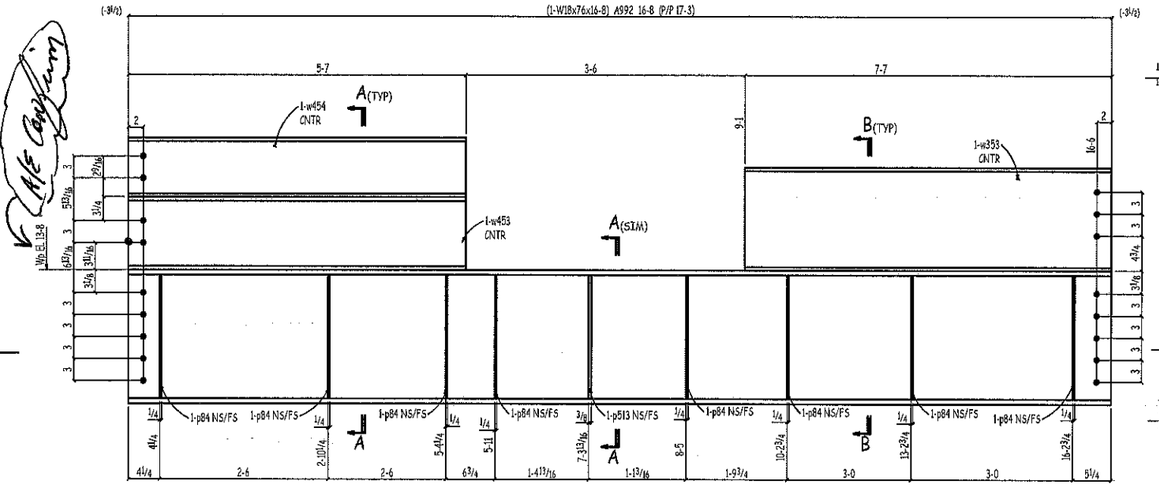
Total weight : 4354

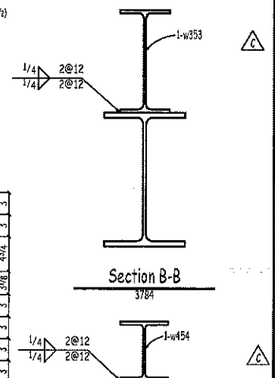


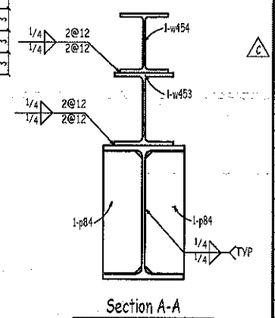
ONE BEAM 37B1

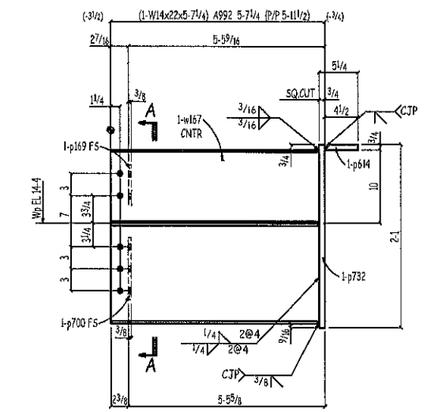
W 13¹¹/₁₆x¼ | F 5x⅜/₁₆ | K 1¹/₁₆x13/₁₆

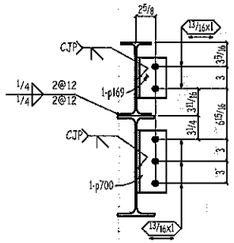
FIELD BOLTS:
6-¾x1¾ A325N +1HD WASH [total=6]
2-¾x2 A325N +2HD WASH [total=2]











ONE BEAM 37B2

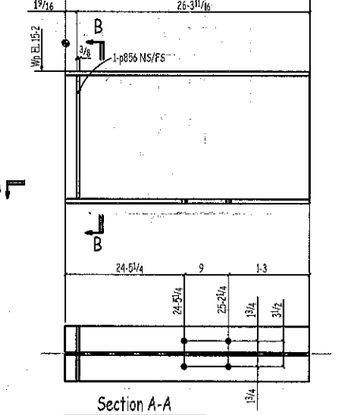
W 13¹¹/₁₆x¼ | F 5x⅜/₁₆ | K 1¹/₁₆x13/₁₆

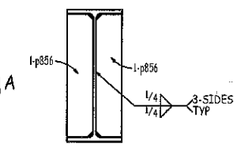
FIELD BOLTS:
5-¾x1¾ A325N +1HD WASH [total=5]

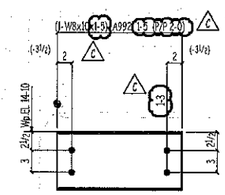
ONE BEAM 37B4

W 18³/₁₆x7/₁₆ | F 11x11/₁₆ | K 1⁹/₁₆x1⅛

FIELD BOLTS:
10-¾x2 A325N +1HD WASH [total=10]
7-¾x1⅜ A325N +1HD WASH [total=7]



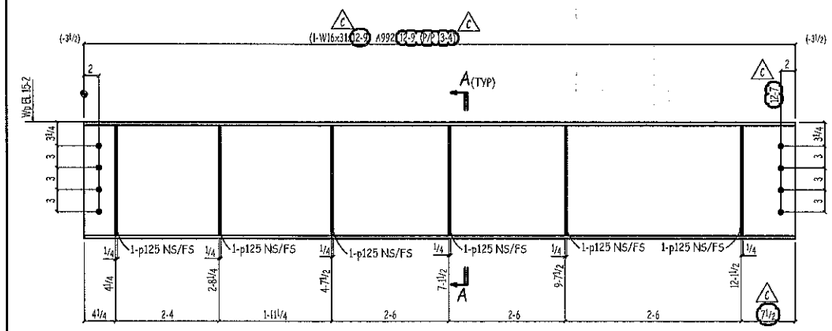




ONE BEAM 37B6

W 7⁷/₁₆x⅜/₁₆ | F 3¹⁵/₁₆x⅜/₁₆ | K 1¹¹/₁₆x⅜/₁₆

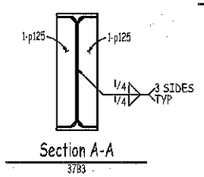
FIELD BOLTS:
4-¾x1¾ A325N +1HD WASH [total=4]



ONE BEAM 37B3

W 15⁷/₈x¼ | F 5¼x⅞/₁₆ | K 1¹/₁₆x13/₁₆

FIELD BOLTS:
8-¾x1¾ A325N +1HD WASH [total=8]



ONE BEAM 37B5

W 18x⅜ | F 7¹/₂x⅜/₁₆ | K 1¹/₁₆x⅞

FIELD BOLTS:
4-¾x2¼ A325N +1HD WASH [total=4]

ONE BEAM 37B7

W 13⅞x¼ | F 5x⅞/₁₆ | K 1¹/₁₆x13/₁₆

3787 MOVED TO 4783

ONE BEAM 37B8

W 11⅞x⅜/₁₆ | F 4x¼ | K ¾x⅞

3788 MOVED TO 4782

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	37B1		ONE BEAM		300	
	37B1	1	W14x22	12 1⅞	284	A992
	w560	1	W10x39	1 1¹/₈	36	A992
			FIELD BOLTS			
		2	¾ Dia A325N	0 2		+2HD WASH
		6	¾ Dia A325N	0 1¾		+1HD WASH
1	37B2		ONE BEAM		262	
	37B2	1	W14x22	5 7¼	123	A992
	w167	1	W10x15	5 7¼	84	A992
	p732	1	PL ¾x8	2 1	42	A36
	p614	1	PL ¾x5	0 4½	7	A36
	p700	1	PL ¾x4	0 8½	3	A36
	p169	1	PL ⅜x4	0 5½	2	A36
			FIELD BOLTS			
		5	¾ Dia A325N	0 1¾		+1HD WASH
1	37B3		ONE BEAM		428	
	37B3	1	W18x31	12 9	385	A992
	p125	12	PL ½x2⅜	1 2⅛	3	A36
			FIELD BOLTS			
		8	¾ Dia A325N	0 1¾		+1HD WASH
1	37B4		ONE BEAM		2916	
	37B4	1	W18x76	16 8	1266	A992
	w353	1	W14x34	7 7	255	A992
	w453	1	W10x39	5 7	218	A992
	w454	1	W8x28	5 7	196	A992
	p513	2	PL ½x5⅛	1 4¹¹/₁₆	9	A36
	p84	16	PL ½x5⅛	1 4¹¹/₁₆	6	A36
			FIELD BOLTS			
		10	¾ Dia A325N	0 2		+1HD WASH
		7	¾ Dia A325N	0 1¾		+1HD WASH
1	37B5		ONE BEAM		1334	
	37B5	1	W18x50	26 5¼	1322	A992
	p856	2	PL ⅜x3⅛	1 4¾	6	A36
			FIELD BOLTS			
		4	¾ Dia A325N	0 2¼		+1HD WASH
1	37B6		ONE BEAM		14	
	37B6	1	W8x10 (1 5)		14	A992
			FIELD BOLTS			
		4	¾ Dia A325N	0 1¾		+1HD WASH

ASC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown. Prior to changes, modifications or extensive measures to fabricated materials of any changes for such necessary will be divided without your knowledge to and approved with Endres Mfg. Co.

DIRECTION NOTE: UNLESS OTHERWISE NOTED - ALL BOLTED CONNECTIONS ARE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE: PAINT TOUCH MARK ON LEFT END AS DETAILED ALL BE PRIMARY CORRECTIONS SHALL BE SHIPPED NOTED PRIOR TO A SHIPPED OF AT LEAST 10 DAYS

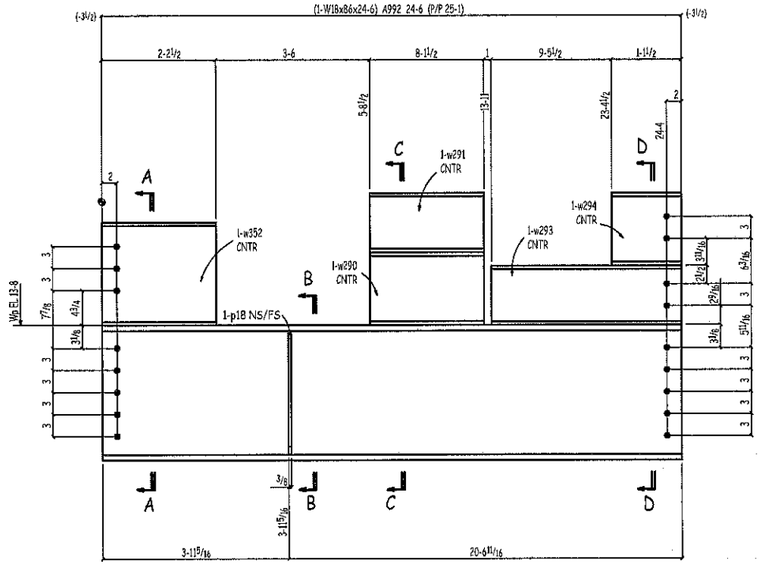
WIDE FLANGE (U.N.)	A-992 GR-50
PLATE MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RYEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO.: 17068
DRWG. NO.: 37

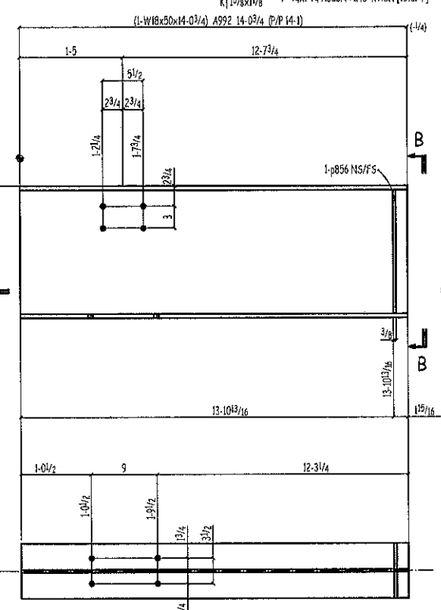
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the materials as detailed are properly identified and that all connections developed on these detail drawings can join with the adjacent members, architects or owners design

Total weight : 4311



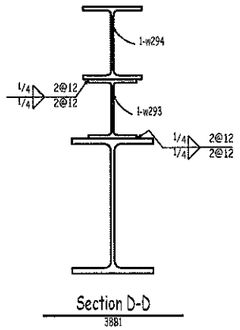
ONE BEAM 38B1

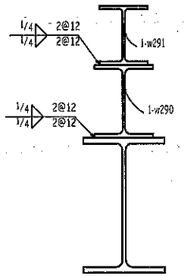
W 16³/₈x¹/₂ FIELD BOLTS:
F 11½x³/₄ 10-³/₄x2 A325N +1HD WASH [total=10]
K 15/8x1¹/₈ 7-³/₄x1³/₄ A325N +1HD WASH [total=7]

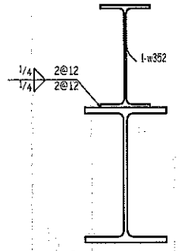


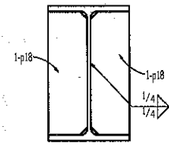
ONE BEAM 38B2

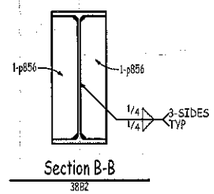
W 18x³/₈ FIELD BOLTS:
F 7½x⁵/₁₆ 2-³/₄x2 A325N +1HD WASH [total=2]
K 1¹/₁₆x⁷/₈ 2-³/₄x1³/₄ A325N +1HD WASH [total=2]

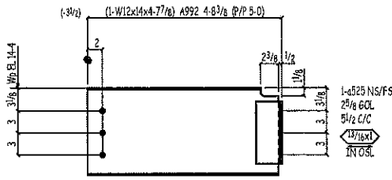






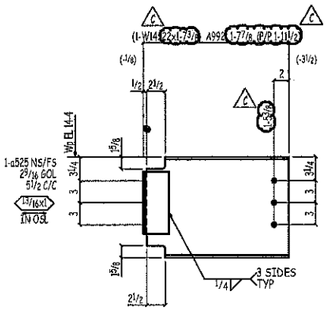






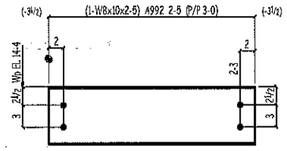
ONE BEAM 38B3

W 11⁷/₈x³/₁₆ FIELD BOLTS:
F 4x¹/₄ 9-³/₄x1³/₄ A325N +1HD WASH [total=9]
K 3/4x⁹/₁₆



ONE BEAM 38B6

W 13¹¹/₁₆x¹/₄ FIELD BOLTS:
F 5x⁵/₁₆ 9-³/₄x1³/₄ A325N +1HD WASH [total=9]
K 1¹/₁₆x13/16



ONE BEAM 38B4

W 7⁷/₈x³/₁₆ FIELD BOLTS:
F 3¹⁵/₁₆x³/₁₆ 4-³/₄x1³/₄ A325N +1HD WASH [total=4]
K 1¹/₁₆x⁷/₁₆

ONE BEAM 38B7

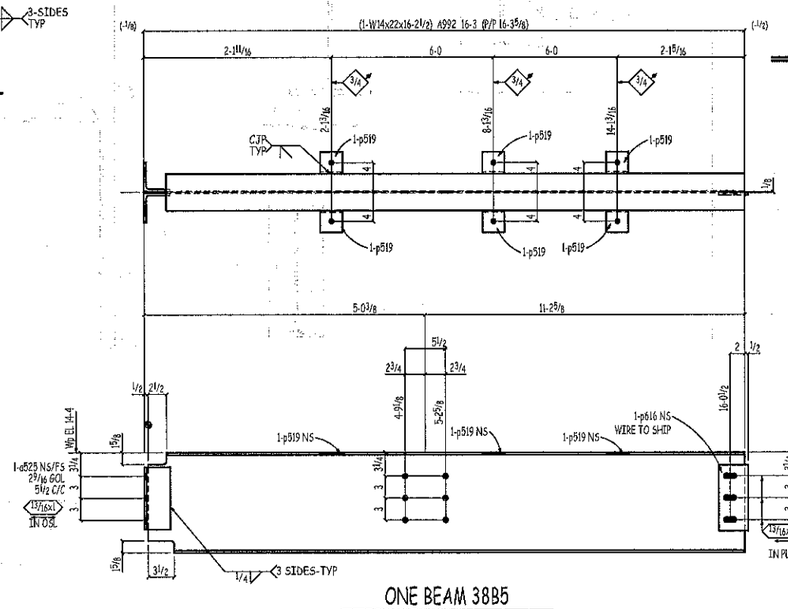
W 13¹¹/₁₆x¹/₄
F 5x⁵/₁₆
K 1¹/₁₆x13/16

3887 MOVED TO 4784

ONE BEAM 38B8

W 16³/₁₆x⁷/₁₆
F 11x¹/₁₆
K 19/16x1¹/₈

3888 MOVED TO 4785



ONE BEAM 38B5

W 13¹¹/₁₆x¹/₄ FIELD BOLTS:
F 5x⁵/₁₆ 6-⁵/₈x3 SLEEVE AN [total=6]
K 1¹/₁₆x1³/₁₆ 6-³/₄x1³/₄ A325N +1HD WASH [total=6]
3-³/₄x2¼ A325N +2HD,1PL WASH [total=3]

ONE BEAM 38B9

W 13¹¹/₁₆x³/₄
F 5x⁵/₁₆
K 1¹/₁₆x13/16

3889 MOVED TO 4786

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	38B1	ONE	BEAM		3056	
	38B1	1	W18x86	24 6	2106	A992
	w352	1	W14x34	2 2½	75	A992
	w390	1	W10x39	8 1½	317	A992
	w294	1	W10x39	1 1½	44	A992
	w293	1	W8x28	10 7	296	A992
	w291	1	W8x28	8 1½	228	A992
	p18	2	PL 3/8x5⁹/₁₆	1 4¾	9	A36
			FIELD BOLTS			
		10	¾ Dia A325N	0 2		+1HD WASH
		7	¾ Dia A325N	0 1¾		+1HD WASH
1	38B2	ONE	BEAM		715	
	38B2	1	W18x59	14 0¾	703	A992
	p856	2	PL 3/8x5⁹/₁₆	1 4¾	8	A36
1	38B3	ONE	BEAM		75	
	38B3	1	W12x14	4 7⅞	64	A992
	a525	2	L4x3½x5/16	0 8½	5	A36
			FIELD BOLTS			
		9	¾ Dia A325N	0 1¾		+1HD WASH
1	38B4	ONE	BEAM		24	
	38B4	1	W8x10	2 5	24	A692
			FIELD BOLTS			
		4	¾ Dia A325N	0 1¾		+1HD WASH
1	38B5	ONE	BEAM		389	
	38B5	1	W14x22	16 2½	353	A992
	a525	2	L4x3½x5/16	0 8½	5	A36
	p516	1	PL 3/16x4	0 9	3	A36
	p519	6	FL 1/4x3	0 3	1	A36
			FIELD BOLTS			
		3	¾ Dia A325N	0 2¼		+2HD,1PL WASH
		6	¾ Dia A325N	0 1¾		+1HD WASH
		6	⅝ Dia SLEEVE AN	0 3		
C 1	38B6	ONE	BEAM		43	
	38B6	1	W14x22	1 2½	32	A992
	a525	2	L4x3½x5/16	0 8½	5	A36
	REVISION	1				
	MARK					
			FIELD BOLTS			
		9	¾ Dia A325N	0 1¾		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	E	07-11	E	02-09	E	03-20		
FIELD								
SHOP								
APPROVAL								
PRINTS	NO.	DATE	NO	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication of fabricated items of the products of our firm in no manner conditions or particular measures to fabricated materials of our choice for such a manner within allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTES: UNLESS OTHERWISE NOTED - ALL WORK & ACTIONS TO BE MADE WITH ASTM A500 GR B STEEL TUBE TO WITH ONE HARDENED WASHER UNDER NUT TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: PAINT PRIOR BASE OFF APPROVED SHOP PRIMER ALL BE PAINTED EXCEPT AS REQUIRED BY SPECIFICATIONS PAINTED OF AT LEAST 1 MIL THICK

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø

USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

CONSTRUCTION NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineering engineer, architect or owner to verify that the sections or details are properly identified and that all connections developed on these dated drawings comply with the intent of the engineer, architect or owners design

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

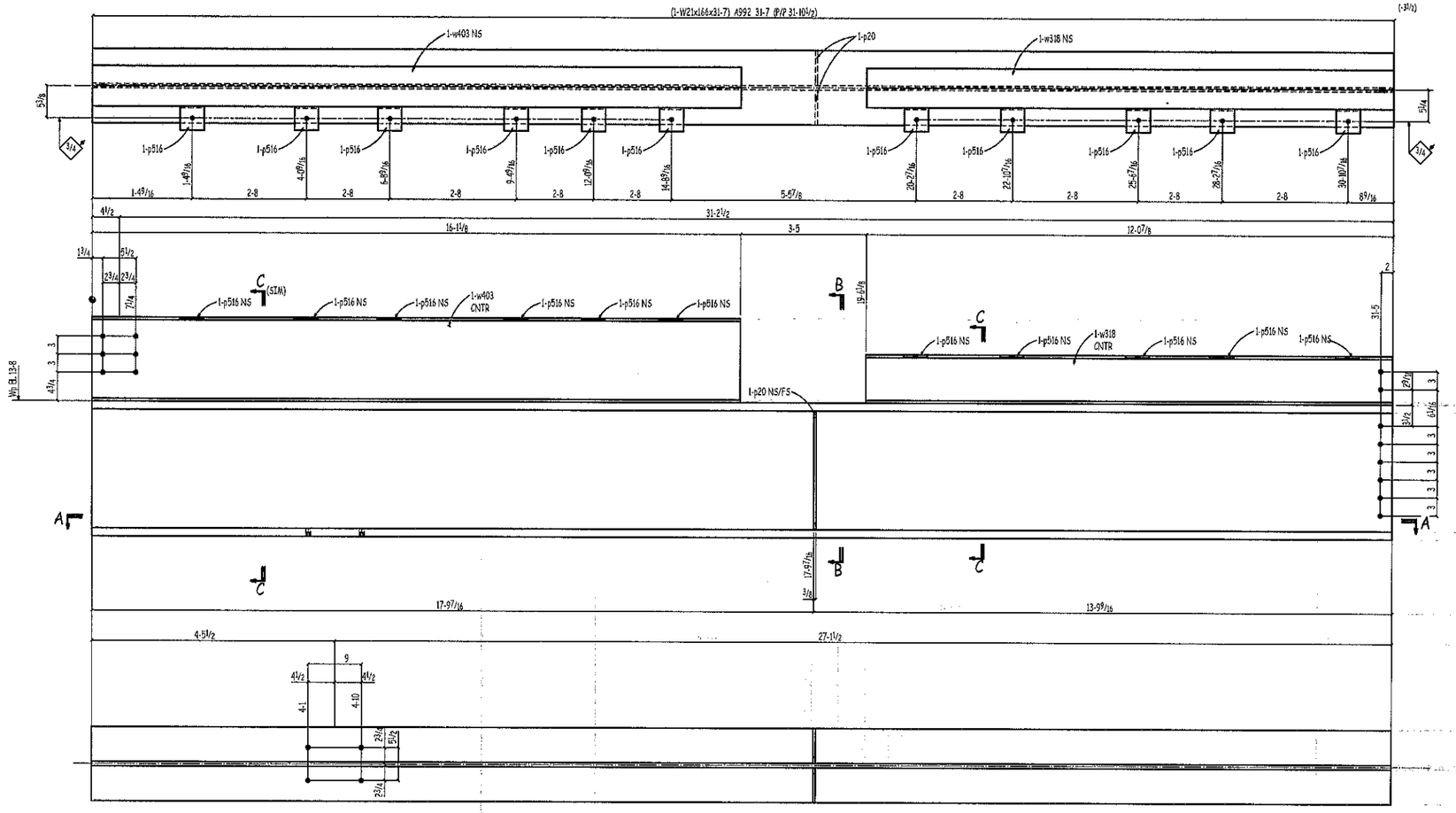
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH

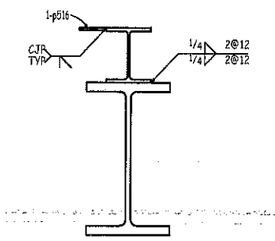
DETAILER	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-12-2017	17068	38

Total weight : 6200

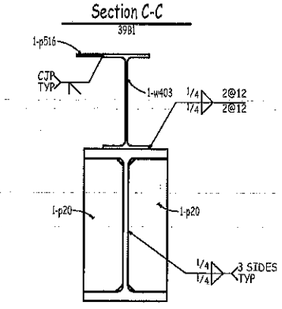
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	39B1	ONE	BEAM		6169	
	39B1	1	W21x166	31 7	5249	A992
	w403	1	W14x34	16 1 1/8	547	A992
	w318	1	W8x28	12 0 7/8	336	A992
	p20	2	PL 3/8x5 13/16	1 7 5/8	12	A36
	p516	11	PL 5/16x4	0 4	1	A36
			FIELD BOLTS			
			4 3/4 Dia A325N	0 3 1/4		+1HD WASH
			8 3/4 Dia A325N	0 2 1/4		+1HD WASH
			2 3/4 Dia A325N	0 1 3/4		+1HD WASH
			11 5/8 Dia SLEEVE ANCHOR	0 3		
1	39B2	ONE	BEAM		13	
	39B2	1	W8x10	0 7 7/8	6	A992
	a528	2	L4x3 1/2x5/16	0 5 1/2	3	A36
			FIELD BOLTS			
			8 3/4 Dia A325N	0 1 3/4		+1HD WASH
1	39B3	ONE	BEAM		22	
	39B3	1	W8x10	1 7 13/16	15	A992
	a528	2	L4x3 1/2x5/16	0 5 1/2	3	A36
			FIELD BOLTS			
			8 3/4 Dia A325N	0 1 3/4		+1HD WASH





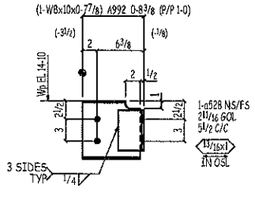
Section C-C
39B1



Section B-B
39B1

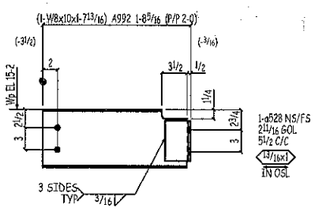
ONE BEAM 39B1

W 22 1/2x3/4	FIELD BOLTS:
F 12 3/8x1 3/8	11-5/8x3 SLEEVE AN [total=11]
K 21/4x1 1/4	6-3/4x2 1/4 A325N +1HD WASH [total=6]
	4-3/4x3 1/4 A325N +1HD WASH [total=4]
	2-3/4x1 3/4 A325N +1HD WASH [total=2]



ONE BEAM 39B2

W 7 7/8x3/16	FIELD BOLTS:
F 3 15/16x3/16	6-3/4x1 3/4 A325N +1HD WASH [total=6]
K 11/16x3/16	



ONE BEAM 39B3

W 7 7/8x3/16	FIELD BOLTS:
F 3 15/16x3/16	6-3/4x1 3/4 A325N +1HD WASH [total=6]
K 11/16x3/16	

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	NO	DATE	NO	DATE	NO	DATE	NO	DATE
FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO	DATE	NO	DATE	NO	DATE	NO	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown therein no drawings or duplicates or facsimilar measures to fabricated materials of any drawings for such purposes will be allowed without prior satisfaction in and agreement with Endres Mfg. Co.

DETAILER NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: PAINTED PIECES TO BE DRY, CLEAN AND FREE OF OIL, GREASE, DIRT OR LOOSE SCALE. ALL RE-ENTRANT CORNERS SHALL BE THOROUGHLY PAINTED TO A DEPTH OF AT LEAST TWO INCH

WIDE FLANGE (U/N): A-992 GR-50
PLATE MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTORS: AS NOTED
HOLES (U/N): 13/16 ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

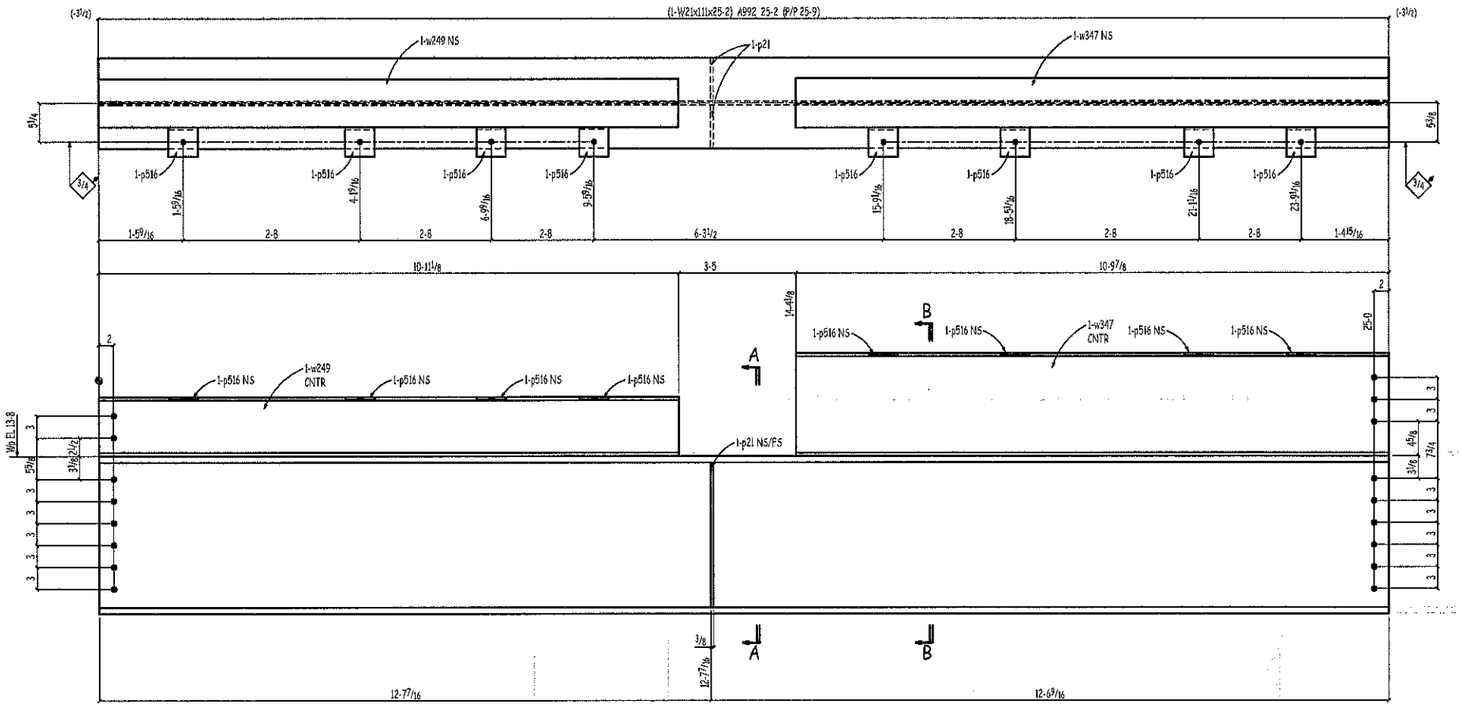
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILED BY: MSK
CHECKED BY: STS
DATE: 06-12-2017
JOB NO: 17068
DRWG. NO: 39

DISCLAIMER NOTICE: The details of structural sheet shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that this sheet is detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 6694

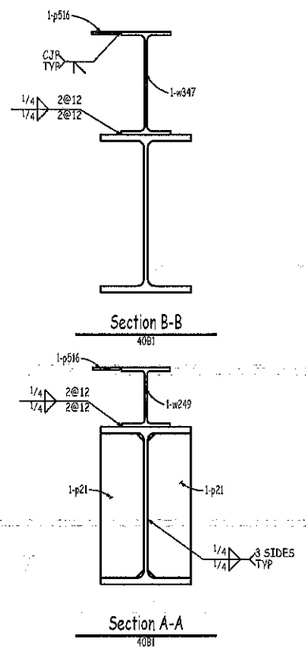
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	40B1	ONE BEAM			3504	
	40B1	1	W21x111	25 2	2793	A992
	w347	1	W14x34	10 9 7/8	368	A992
	w249	1	W8x28	10 11 1/8	306	A992
	p21	2	PL 3/8x57/8	1 7 5/8	12	A36
	p516	8	PL 5/16x4	0 4	11	A36
			FIELD BOLTS			
		12	3/4 Dia A325N	0 2		+1HD WASH
		5	3/4 Dia A325N	0 1 3/4		+1HD WASH
		8	5/8 Dia SLEEVE AN	0 3		
1	40B2	ONE BEAM			382	
	40B2	1	W16x31	12 4	382	A992
			FIELD BOLTS			
		8	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	40B3	ONE BEAM			2464	
	40B3	1	W18x60	26 11 1/2	1617	A992
	w378	1	W10x49	16 0 5/8	787	A992
	w371	1	W10x49	0 9 7/8	40	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH
		5	3/4 Dia A325N	0 2		+1HD WASH
		2	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	40B4	ONE BEAM			367	
	40B4	1	W14x22	12 11	264	A992
	w436	1	W10x39	1 9 1/2	70	A992
	w398	1	W6x15	0 10 1/2	13	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 1 3/4		+1HD WASH



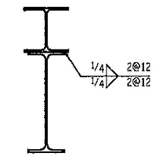
ONE BEAM 40B1

W	21 1/2x9/16	FIELD BOLTS:
F	12 5/16x7/8	12-7/8x2 A325N +1HD WASH [total=12]
K	13/4x1 1/8	8-5/8x3 SLEEVE AN [total=8]
		5-3/4x1 3/4 A325N +1HD WASH [total=5]

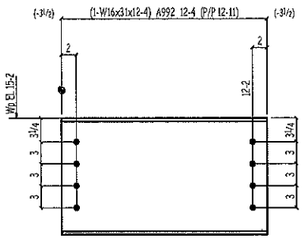


Section B-B
40B1

Section A-A
40B1

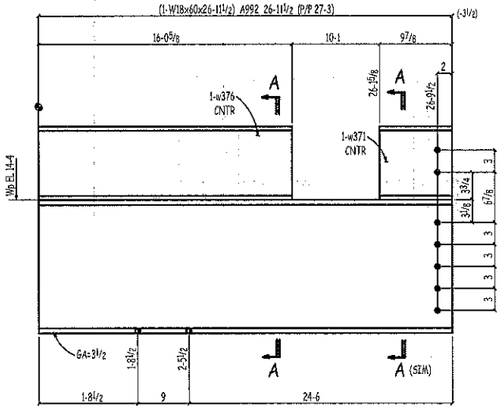


Section A-A
40B4



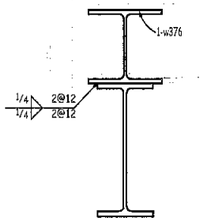
ONE BEAM 40B2

W	18 7/8x1/4	FIELD BOLTS:
F	5 1/2x7/16	8-3/4x1 3/4 A325N +1HD WASH [total=8]
K	11/16x13/16	

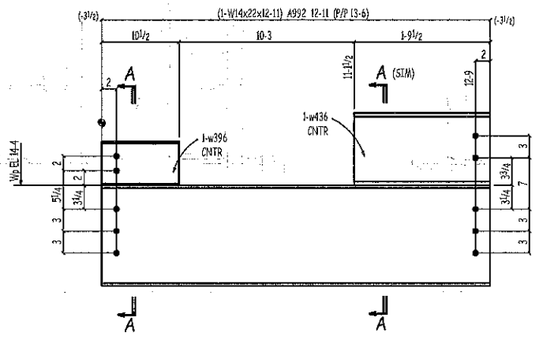


ONE BEAM 40B3

W	18 3/16x7/16	FIELD BOLTS:
F	79/16x11/16	5-3/4x2 A325N +1HD WASH [total=5]
K	13/8x7/8	4-3/4x2 1/4 A325N +1HD WASH [total=4]
		2-3/4x1 3/4 A325N +1HD WASH [total=2]



Section A-A
40B3



ONE BEAM 40B4

W	13 11/16x1/4	FIELD BOLTS:
F	5x5/16	10-3/4x1 3/4 A325N +1HD WASH [total=10]
K	11/16x13/16	

REV	DATE	DESCRIPTION	
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

NOTICE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown thereon. No design modifications or corrections necessary to fabricated materials of any changes for such necessary will be allowed without prior written approval and Endres Mfg. Co.

DIRECT CONTROL NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT (NUT OR BOLT HEAD)

SHOP NOTE: FABRICATOR MARK ON LEFT END AS DETAILED. ALL REMOVABLE COVERS SHALL BE SHIPPED LOOSE. FIELD WELDING SHALL BE DONE WITH FIRE WATCH

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

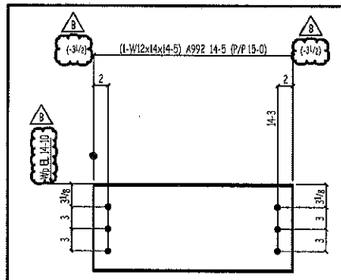
WIDE FLANGE (U/N) A-992 GR-50
PARTS MATERIAL (U/N) A-36
TUBE MATERIAL (U/N) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U/N) 13/16 ø
USE NO 7000 WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN (H8)

APPROVED NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly interfaced and that all connections developed on these detail drawings comply with the intent of the engineers', architects or owners design

ENDRES MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRAWN: MSK CHECKED: SJS DATE: 06-12-2017 JOB NO: 17068
DRWG. NO. 40

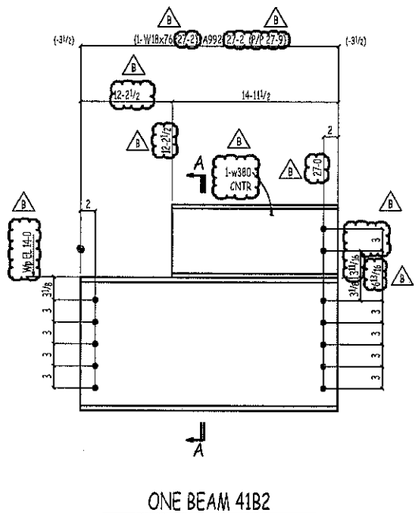
Total weight : 13126



ONE BEAM 41B1

W 11⁷/₈x3¹/₁₆ F 4x1¹/₄ K 3¹/₄x⁵/₈

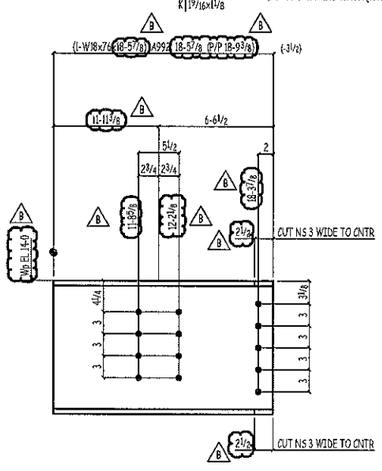
FIELD BOLTS: 6-³/₄x1³/₄ A325N +1HD WASH [total=6]



ONE BEAM 41B2

W 18³/₁₆x⁷/₁₆ F 11x¹¹/₁₆ K 19/₁₆x1¹/₈

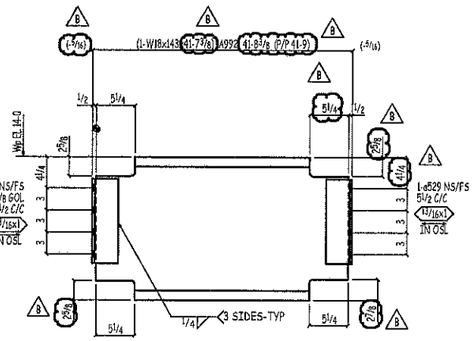
FIELD BOLTS: 10-³/₄x2 A325N +1HD WASH [total=10]; 2-³/₄x1³/₄ A325N +1HD WASH [total=2]



ONE BEAM 41B3

W 18³/₁₆x⁷/₁₆ F 11x¹¹/₁₆ K 19/₁₆x1¹/₈

FIELD BOLTS: 5-³/₄x2 A325N +1HD WASH [total=5]

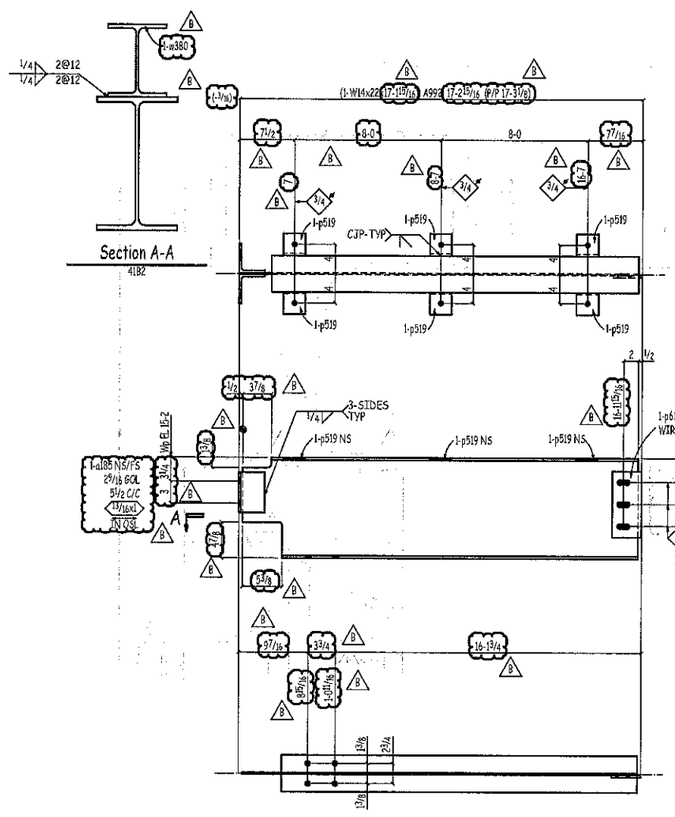


ONE BEAM 41B4

SHOP NOTE: CAMBER 1¹/₄ UP

W 19¹/₂x3¹/₄ F 11⁵/₁₆x1⁵/₁₆ K 2³/₁₆x1¹/₄

FIELD BOLTS: 16-³/₄x2 A325N +1HD WASH [total=16]



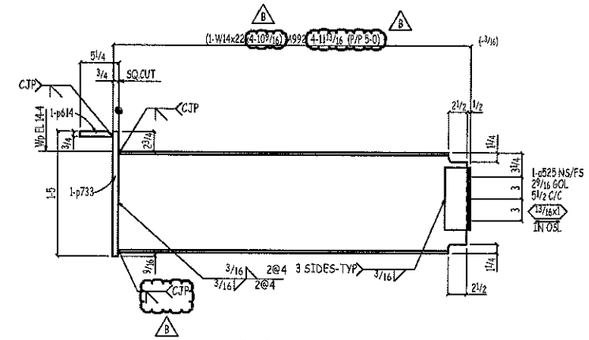
Section A-A
41B2

ONE BEAM 41B5

W 13¹¹/₁₆x1/₄ F 6x⁵/₁₆ K 11/₁₆x1³/₁₆

FIELD BOLTS: 6-⁵/₈x3 SLEEVE AN [total=6]; 4-³/₄x1³/₄ A325N +1HD WASH [total=4]; 3-³/₄x2¹/₄ A325N +2HD,1PL WASH [total=3]

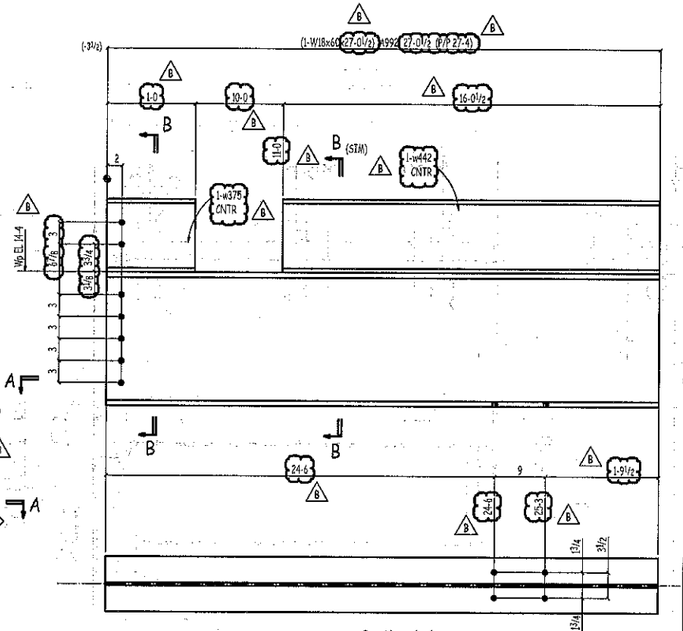
Section A-A
41B5



ONE BEAM 41B6

W 12¹¹/₁₆x1/₄ F 5x⁵/₁₆ K 1¹/₁₆x13/₁₆

FIELD BOLTS: 6-³/₄x3¹/₄ A325N +1HD WASH [total=6]

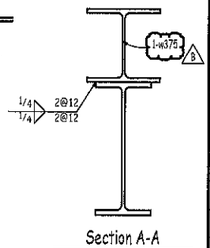


Section A-A
41B7

ONE BEAM 41B7

W 18³/₁₆x⁷/₁₆ F 7⁹/₁₆x11/₁₆ K 13/₈x7/₈

FIELD BOLTS: 5-⁷/₈x2 A325N +1HD WASH [total=5]; 4-⁷/₈x2¹/₄ A325N +1HD WASH [total=4]; 2-⁷/₈x1³/₄ A325N +1HD WASH [total=2]



Section A-A
41B7

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	41B1		ONE BEAM		202	
	41B1	1	W12x14	14 5	202	A992
			FIELD BOLTS			
		6	³/₄ Dia A325N	0 1³/₄		+1HD WASH
1	41B2		ONE BEAM		2647	
	41B2	1	W18x76	27 2	2064	A992
	w380	1	W10x39	14 11¹/₂	383	A992
			FIELD BOLTS			
		10	³/₄ Dia A325N	0 2		+1HD WASH
		2	³/₄ Dia A325N	0 1³/₄		+1HD WASH
1	41B3		ONE BEAM		1402	
	41B3	1	W18x76	18 5⁷/₈	1402	A992
			FIELD BOLTS			
		5	³/₄ Dia A325N	0 2		+1HD WASH
1	41B4		ONE BEAM		5853	
	41B4	1	W18x143	41 7⁵/₈	5855	C=1¹/₄ A992
	a529	4	L4x3¹/₂x⁵/₁₆	0 11¹/₂	7	A36
			FIELD BOLTS			
		16	³/₄ Dia A325N	0 2		+1HD WASH
1	41B5		ONE BEAM		383	
	41B5	1	W14x22	17 11⁵/₁₆	376	A992
	a185	2	L4x3¹/₂x⁵/₁₆	0 5¹/₂	3	A36
	p616	1	PL3/16x4	0 9	3	A36
	p519	6	FL¹/₄x3	0 3	1	A36
			FIELD BOLTS			
		3	³/₄ Dia A325N	0 2¹/₄		+2HD,1PL WASH
		4	³/₄ Dia A325N	0 1³/₄		+1HD WASH
		6	⁵/₈ Dia SLEEVE AN	0 3		
1	41B6		ONE BEAM		151	
	41B6	1	W14x22	3 10⁹/₁₆	104	51E A992
	a525	2	L4x3¹/₂x⁵/₁₆	0 8¹/₂	5	A36
	p733	1	FL3/8x6	1 5	29	A36
	p614	1	FL3/8x6	0 4¹/₂	7	A36
			FIELD BOLTS			
		6	³/₄ Dia A325N	0 1³/₄		+1HD WASH
1	41B7		ONE BEAM		2457	
	41B7	1	W18x60	27 0¹/₂	1823	A992
	w442	1	W10x49	15 0¹/₂	756	A992
	w375	1	W10x49	11 0	49	A992
			FIELD BOLTS			
		4	³/₄ Dia A325N	0 2¹/₄		+1HD WASH
		5	³/₄ Dia A325N	0 2		+1HD WASH
		2	³/₄ Dia A325N	0 1³/₄		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD / SHOP

APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication as detailed thereon. The practice of non-limited or changes modifications or correction necessary for fabricated materials of any kind except for such measures will be allowed without prior consideration to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS IN BEVEL WASHERS WHERE SLOPES EXCEED 1:20 TURNED ELEMENT NUT OR EQUIVALENT

SHOP NOTE: ALL FIELD WELDS ON DETAILED & DETAILED ARE OF ELEMENT CORNERS SHALL BE SHOWN NOTATIONS TO A RADIUS OF AT LEAST ½ INCH

WIDE FLANGE (U/N): A-992 GR-50
PARTS MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U/N): 13/16 ø

USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX

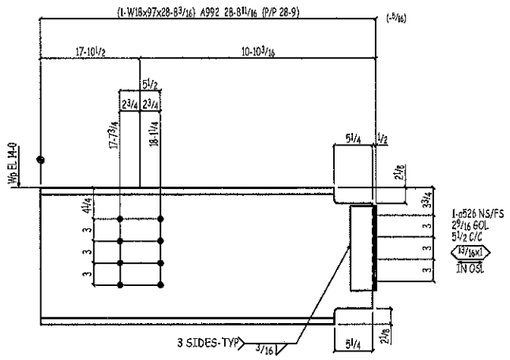
CONSTRUCTION NOTES: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineering, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RYEDEBUSCH

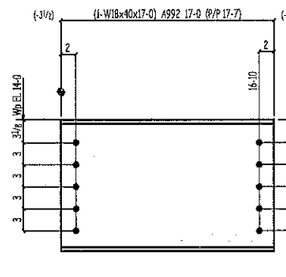
DETAILED	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-12-2017	17068	41

Total weight : 18623



ONE BEAM 42B1

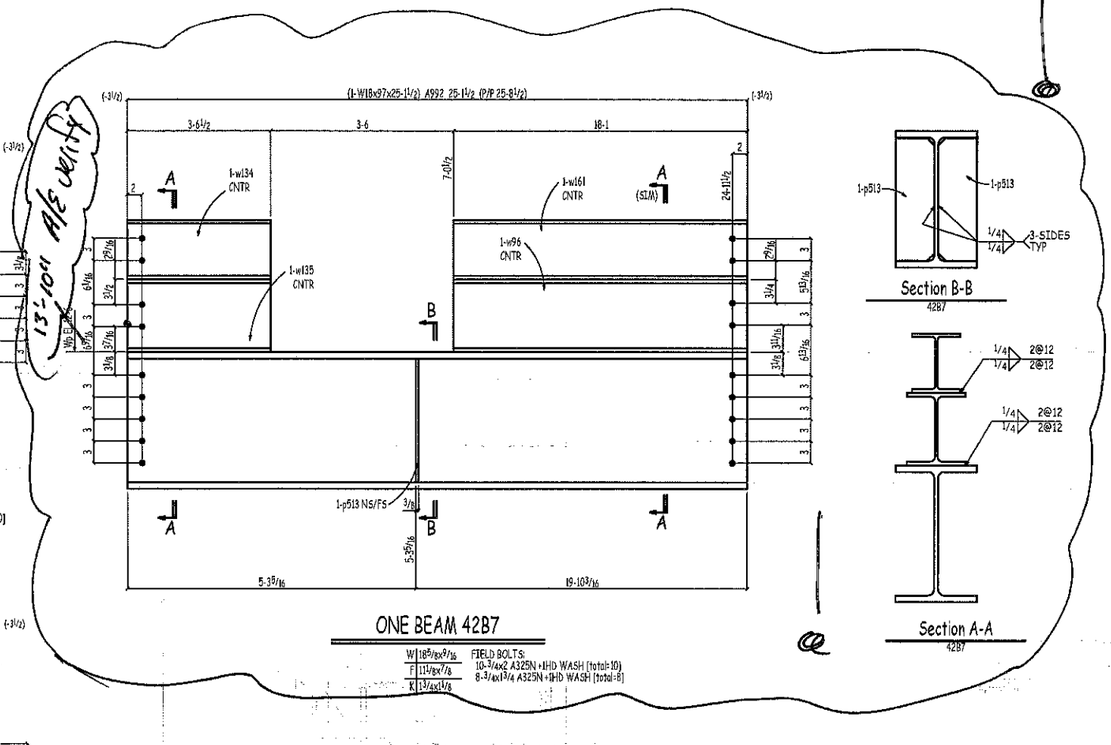
W	18 9/8x 9/16	FIELD BOLTS:
F	11 1/8x 7/8	8-3/4x2 A325N +1HD WASH [total=8]
K	13/4x1 1/8	



ONE BEAM 42B4

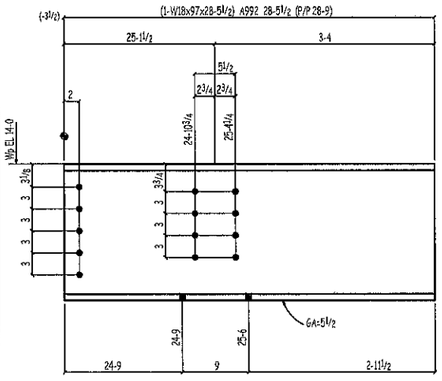
W	17 7/8x 5/16	
F	6x1/2	
K	13/16x13/16	

FIELD BOLTS:
10-3/4x3/4 A325N +1HD WASH [total=10]



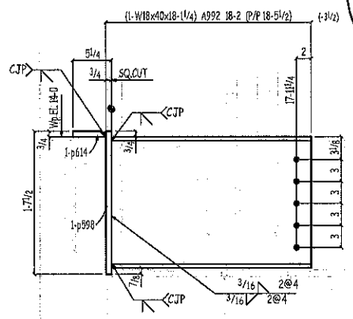
ONE BEAM 42B7

W	18 5/8x 9/16	FIELD BOLTS:
F	11 1/8x 7/8	10-3/4x2 A325N +1HD WASH [total=10]
K	13/4x1 1/8	8-3/4x1 3/4 A325N +1HD WASH [total=8]



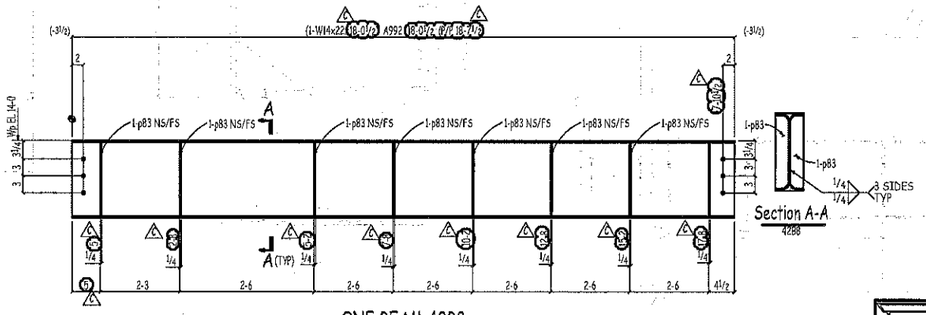
ONE BEAM 42B2

W	18 9/8x 9/16	FIELD BOLTS:
F	11 1/8x 7/8	5-3/4x2 A325N +1HD WASH [total=5]
K	13/4x1 1/8	4-3/4x2 3/4 A325N +1HD WASH [total=4]



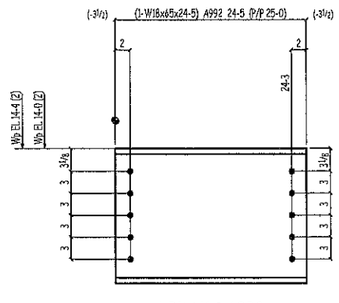
ONE BEAM 42B5

W	17 7/8x 5/16	FIELD BOLTS:
F	6x1/2	5-3/4x1 3/4 A325N +1HD WASH [total=5]
K	13/16x13/16	



ONE BEAM 42B8

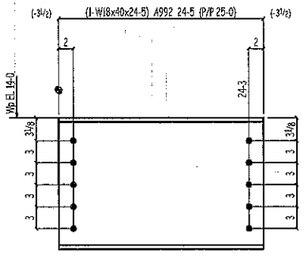
W	13 11/16x 1/4	FIELD BOLTS:
F	5x5/16	6-3/4x1 3/4 A325N +1HD WASH [total=6]
K	17/16x13/16	



4 BEAMS 42B3

W	18 3/8x 7/16	FIELD BOLTS:
F	79/16x 3/4	10-3/4x2 A325N +1HD WASH [total=40]
K	17/16x15/16	

TWO QUANTITY COMBINED FROM 3384



ONE BEAM 42B6

W	17 7/8x 5/16	FIELD BOLTS:
F	6x1/2	10-3/4x1 3/4 A325N +1HD WASH [total=10]
K	13/16x13/16	

ONE BEAM 42B9

4289 MOVED TO 4387

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	42B1	ONE	BEAM		2756	
	42B1	1	W18x97	28 8 3/16	2756	A992
	a526	2	L4x3 1/2x5/16	0 11 1/2	7	A36
			FIELD BOLTS			
		8	3/4 Dia A325N	0 2		+1HD WASH
1	42B2	ONE	BEAM		2759	
	42B2	1	W18x97	28 5 1/2	2759	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 3/4		+1HD WASH
		5	3/4 Dia A325N	0 2		+1HD WASH
1	42B3	4	BEAM		1586	
	42B3	4	W18x65	24 5	1586	A992
			FIELD BOLTS			
		40	3/4 Dia A325N	0 2		+1HD WASH
1	42B4	ONE	BEAM		680	
	42B4	1	W18x40	17 0	680	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	42B5	ONE	BEAM		764	
	42B5	1	W18x40	18 1 1/4	723	S1E A992
	p598	1	FL 3/4x8	1 7 1/2	33	A36
	p614	1	FL 3/4x8	0 4 1/2	7	A36
			FIELD BOLTS			
		5	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	42B6	ONE	BEAM		976	
	42B6	1	W18x40	24 5	976	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	42B7	ONE	BEAM		3904	
	42B7	1	W18x97	25 11/2	2436	A992
	w96	1	W10x39	18 1	705	A992
	w135	1	W10x39	3 6 1/2	138	A992
	w161	1	W8x28	18 1	506	A992
	w134	1	W8x28	3 8 1/2	99	A992
	p513	2	PL 3/8x5 5/16	1 4 11/16	9	A36
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
		8	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	42B8	ONE	BEAM		431	
C	42B8	1	W14x22	18 0 1/2	397	A992
	p83	16	PL 1/4x2 3/8	1 0 7/8	2	A36
			FIELD BOLTS			
		6	3/4 Dia A325N	0 1 3/4		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products as shown. No changes, modifications or corrective measures (fabricated materials) of any changes for such processing will be allowed without prior authorization in full agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: PAINT FREE: MARK ON SEE SPECIFICATIONS FOR PAINT SYSTEM & REMOVAL OF SHIPPING DEBRIS FREE TO A RADIUS OF AT LEAST 1/2 INCH

FIELD								
SHOP								
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

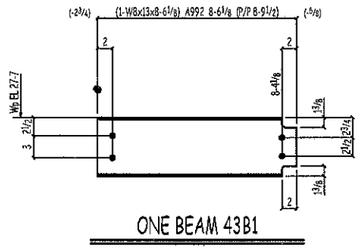
WIDE FLANGE (U/N): A-992 GR-50
PLATE MATERIAL (U/N): A-36
PLATE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
MOLES (U/N): 13/16 Ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunckee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO: 17068
DRWG. NO: 42

CONNECTION NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineer, architect or owners design.

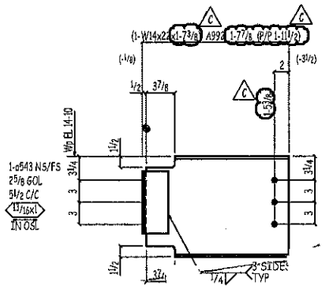
Total weight : 1980



ONE BEAM 43B1

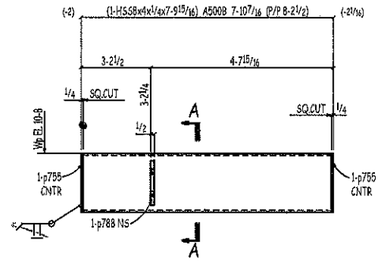
W 8x1/4 | F 4x1/4 | K 3/4x3/8 — FIELD BOLTS: 4-7/4x1 3/4 A325N +1HD WASH [total=4]

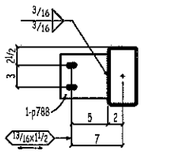
A/E Verify Please



ONE BEAM 43B4

W 13 11/16x1/4 | F 5x5/16 | K 11/16x13/16 — FIELD BOLTS: 9-3/4x1 3/4 A325N +1HD WASH [total=9]

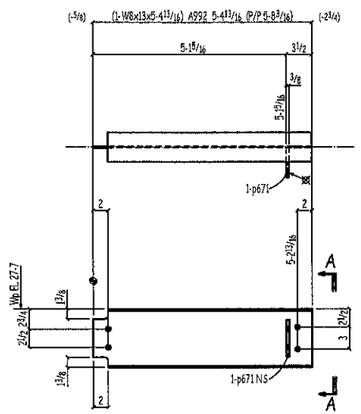




Section A-A
43B6

ONE BEAM 43B6

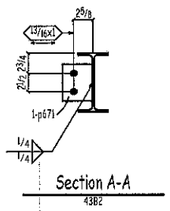
A/E verify please



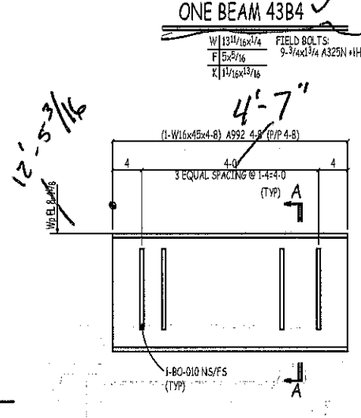
ONE BEAM 43B2

W 8x1/4 | F 4x1/4 | K 3/4x3/8 — FIELD BOLTS: 4-3/4x1 3/4 A325N +1HD WASH [total=4]

A/E Verify Please

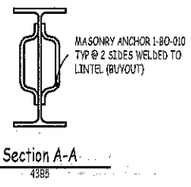


Section A-A
43B2

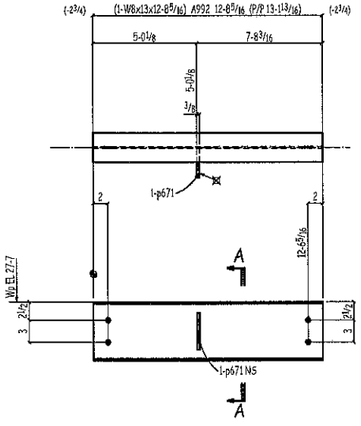


ONE BEAM 43B5

W 16 7/8x3/8 | F 7 1/16x9/16 | K 11/4x7/8



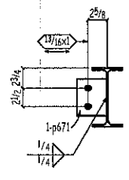
Section A-A
43B5



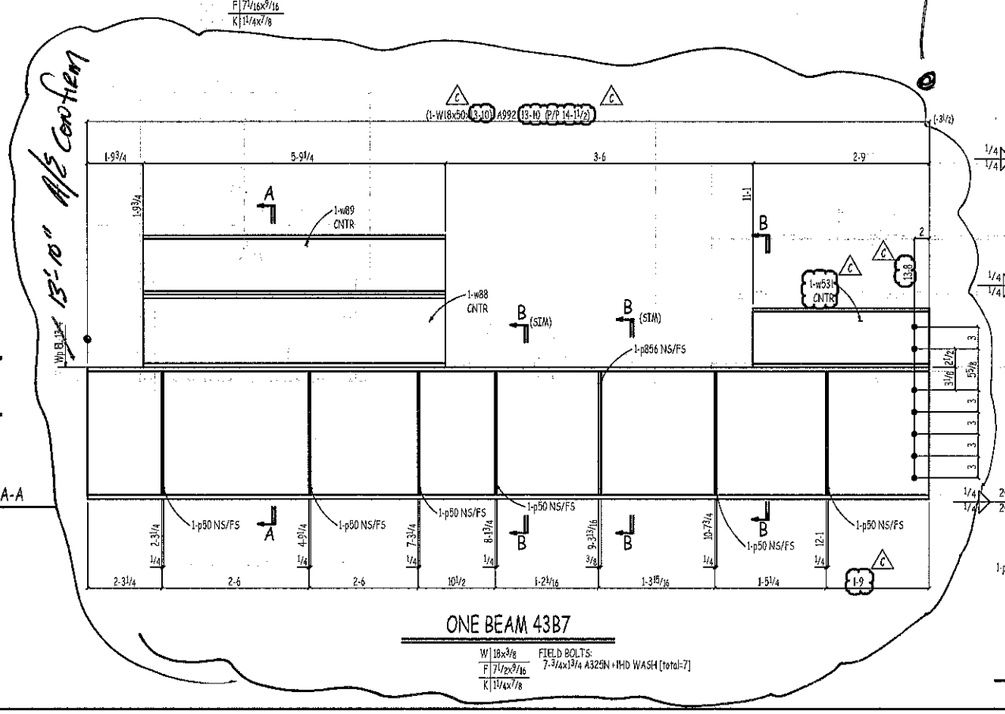
ONE BEAM 43B3

W 8x1/4 | F 4x1/4 | K 3/4x3/8 — FIELD BOLTS: 4-3/4x1 3/4 A325N +1HD WASH [total=4]

A/E Verify Please

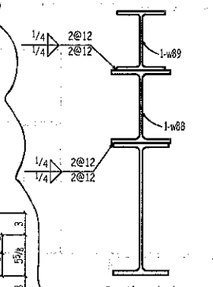


Section A-A
43B3

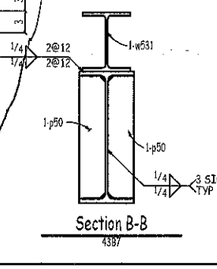


ONE BEAM 43B7

W 18x3/8 | F 7 1/16x9/16 | K 11/4x7/8 — FIELD BOLTS: 7-3/4x1 3/4 A325N +1HD WASH [total=7]



Section A-A
43B7



Section B-B
43B7

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	43B1	ONE	BEAM		109	
	43B1	1	W8x13	8 6 1/8	109	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	43B2	ONE	BEAM		70	
	43B2	1	W8x13	5 4 13/16	69	A992
	p671	1	FL 3/8x4	0 5	2	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	43B3	ONE	BEAM		167	
	43B3	1	W8x13	12 8 5/16	165	A992
	p571	1	FL 3/8x4	0 5	2	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	43B4	ONE	BEAM		41	
C	43B4	1	W14x22	1 7 3/8	31	A992
	s543	2	L4x3 1/2x5/16	0 8 1/2	5	A36
		1				
			FIELD BOLTS			
		9	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	43B5	ONE	BEAM		216	
	43B5	1	W16x45	4 8	210	A992
	B0-010	8	MASONRY ANCHORS	1 1 5/16	1	BUYOUT A36
1	43B6	ONE	BEAM		155	
	43B6	1	HSS8x6x1/4	7 9 15/16	149	S2E A500B
	p788	1	FL 1/2x6	0 6 1/2	5	A36
	p755	2	FL 1/4x4	0 8	2	A36
1	43B7	ONE	BEAM		1218	
C	43B7	1	W18x50	13 10	691	A992
	w88	1	W10x39	5 9 1/4	225	A992
	w89	1	W8x28	5 9 1/4	162	A992
	w531	1	W6x28	2 9	77	A992
C	p856	2	PL 3/8x3 9/16	1 4 3/4	6	A36
	p50	12	PL 1/4x3 9/16	1 4 3/4	4	A36
			FIELD BOLTS			
		7	3/4 Dia A325N	0 1 3/4		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09	E	03-20			

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon. Any unauthorized modifications or corrective measures to this detailed material or use of design for such purposes will be at risk of and not your authorization to and agreement with Endres Mfg. Co.

DETECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH 3/4DIA HIGH STRENGTH BOLTS WITH STANDARD WASHER UNDER THE TURNED ELEMENT (NUT OR BOLT HEAD)

SHOP NOTE: FABRICATING MARKING LEFT END AS DETAILED ALL OF DETAILED CUTOUTS & SMALL OR ANGLES WITH PIPE, ST, & PLUGGED OFF AT LEAST 1/2 INCH

WIDE FLANGE (WF) A-992 GR-50
PARTS MATERIAL (MN) A-36
TUBE MATERIAL (MN) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED — HOLES (MN.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN TYPE

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

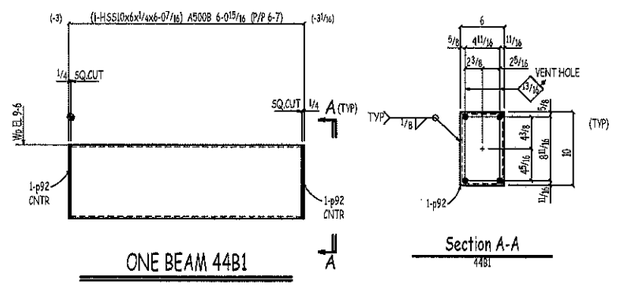
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRAWING NO. 43
DETAILED: MSK — CHECKED: SJS — DATE: 06-12-2017 — JOB NO. 17068

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 2494

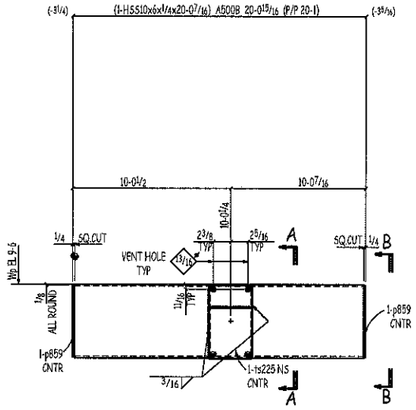
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	44B1	ONE BEAM			164	Galv
	44B1	1	HSS10x6x1/4	6 0 7/16	156	S2E A500B
	p92	2	PL 1/4x6	0 10	4	A36
1	44B2	ONE BEAM			590	
	44B2	1	HSS10x6x1/4	10 0 1/2	480	S2E A500B
	ts217	2	HSS10x6x1/4	1 11 3/4	45	S2E A500B
	p88	4	PL 1/4x5 3/4	0 9 3/4	4	A36
	p87	4	PL 1/4x2 7/8	0 5 3/4	1	A36
1	44B3	ONE BEAM			599	
	44B3	1	HSS10x6x1/4	19 0 1/2	480	S2E A500B
	ts225	2	HSS10x6x1/4	1 11 3/4	45	S2E A500B
	p88	4	PL 1/4x5 3/4	0 9 3/4	4	A36
	p87	4	PL 1/4x2 7/8	0 5 3/4	1	A36
1	44B4	ONE BEAM			579	
	44B4	1	HSS10x6x1/4	20 0 7/16	517	S2E A500B
	ts225	1	HSS10x6x1/4	1 11 3/4	45	S2E A500B
	p88	1	PL 1/4x5 3/4	0 9 3/4	4	A36
	p859	2	PL 1/4x5 3/4	0 9 3/4	4	A36
	p87	1	PL 1/4x2 7/8	0 5 3/4	1	A36
1	44B5	ONE BEAM			575	
	44B5	1	HSS10x6x1/4	20 0 7/16	517	S2E A500B
	ts217	1	HSS10x6x1/4	1 11 3/4	45	S2E A500B
	p88	1	PL 1/4x5 3/4	0 9 3/4	4	A36
	p859	2	PL 1/4x5 3/4	0 9 3/4	4	A36
	p87	1	PL 1/4x2 7/8	0 5 3/4	1	A36

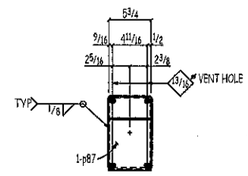


ONE BEAM 44B1

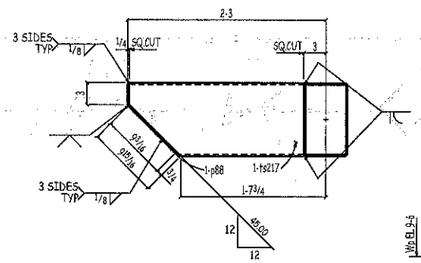
Section A-A
44B1



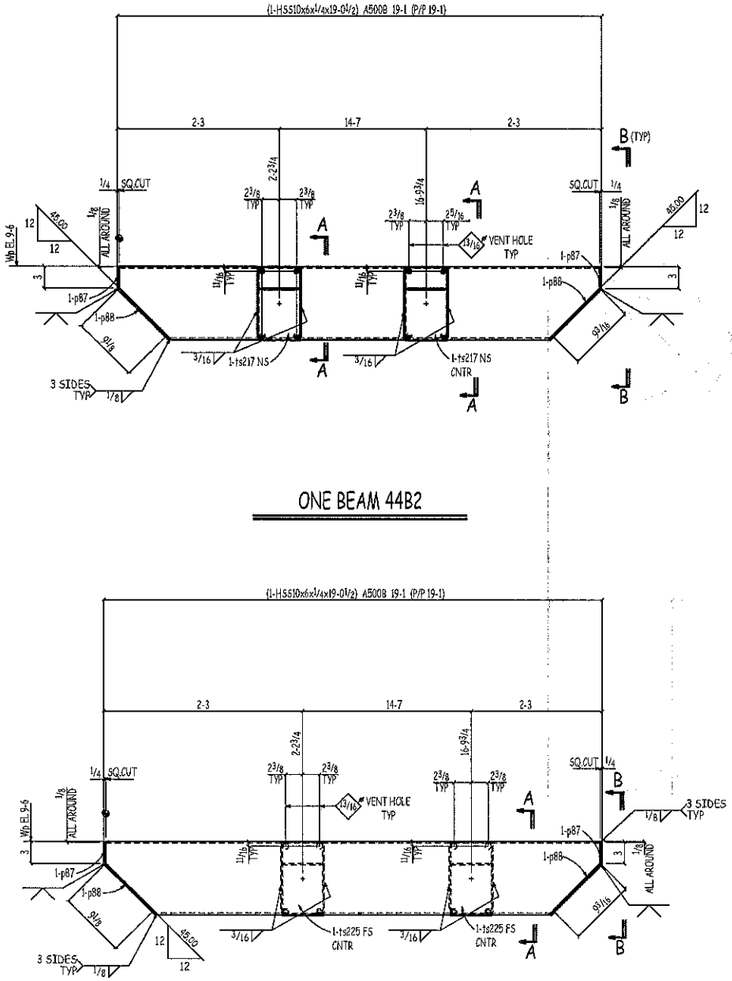
ONE BEAM 44B2



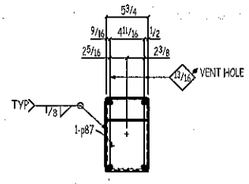
Section B-B
44B2



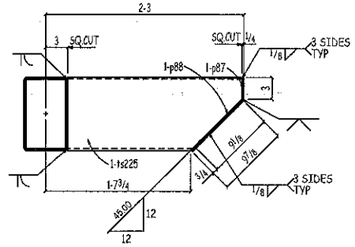
Section A-A
44B2



ONE BEAM 44B3

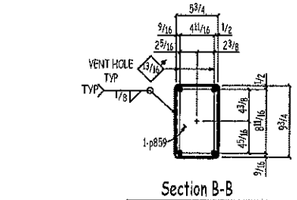


Section B-B
44B3

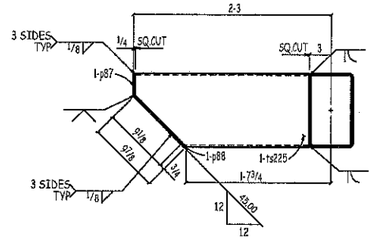


Section A-A
44B3

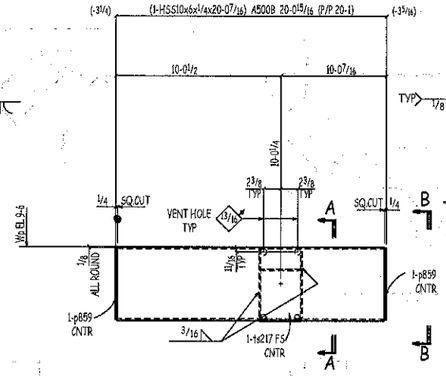
ONE BEAM 44B4



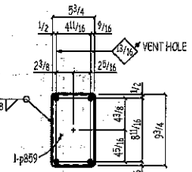
Section B-B
44B4



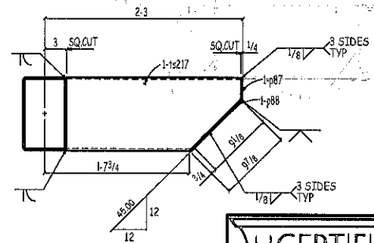
Section A-A
44B4



ONE BEAM 44B5



Section B-B
44B5



Section A-A
44B5

A/E Please verify page

PLUG HOLES AFTER GALVANIZING

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD
SHOP
APPROVAL E 07-11
PRINTS NO. DATE NO DATE NO DATE NO DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown. Errors or changes, modifications or corrections necessary to fabricate materials at low charges for work necessary will be allowed without prior authorization by said agreement with Endres Mfg. Co.

DETAILER NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325-X HIGH STRENGTH BOLTS IN STD HOLES WITH WASHER UNDER TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE: PAINT MUST MARK ON ALL BOLTED SURFACES. ALL RE-PRIMING, TOUCHES, SHALL BE SHARP, SMOOTH AND TO A THICKNESS OF AT LEAST 1½ MILS

WIDE FLANGE (U.N.) A-992 GR-50
PLATE MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALVANIZED PER ASTM123
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO 7000X WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS NOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

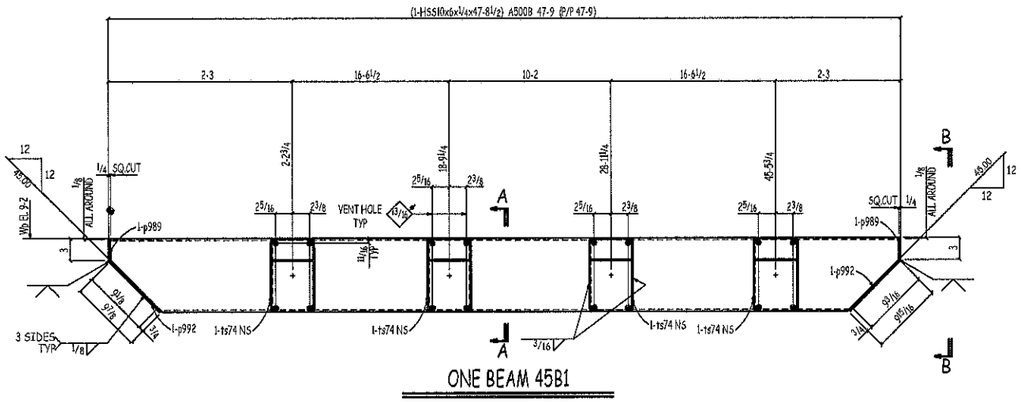
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRAWN MSK CHECKED SJS
DATE 06-12-2017
JOB NO 17068
DRWG. NO. 44

APPROVER NOTE: All details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the enclosed detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

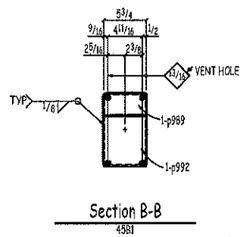
Total weight : 4243

BILL OF MATERIAL

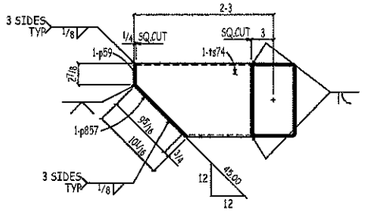
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	45B1	ONE	BEAM		1430	Galv
	45B1	1	HSS10x6x1/4	47 6 1/2	1220	S2E A500B
	ts74	4	HSS10x6x1/4	1 11 3/4	45	S2E A500B
	p857	4	PL 1/4x5 3/4	0 9 13/16	4	A36
	p992	2	PL 1/4x5 3/4	0 9 11/16	4	A36
	p989	2	PL 1/4x2 7/8	0 5 3/4	1	A36
	p59	4	PL 1/4x2 3/4	0 5 3/4	1	A36
1	45B2	ONE	BEAM		1430	Galv
	45B2	1	HSS10x6x1/4	47 6 1/2	1220	S2E A500B
	ts29	4	HSS10x6x1/4	1 11 3/4	45	S2E A500B
	p857	4	PL 1/4x5 3/4	0 9 3/4	4	A36
	p992	2	PL 1/4x5 3/4	0 9 11/16	4	A36
	p989	2	PL 1/4x2 7/8	0 5 3/4	1	A36
	p59	4	PL 1/4x2 3/4	0 5 3/4	1	A36
1	45B3	ONE	BEAM		505	Galv
	45B3	1	HSS10x6x1/4	16 9	395	A500B
	ts74	2	HSS10x6x1/4	1 11 3/4	45	A500B
	p857	2	PL 1/4x5 3/4	0 9 13/16	4	A36
	p992	2	PL 1/4x5 3/4	0 9 11/16	4	A36
	p1001	1	PL 1/4x2 7/8	0 5 3/4	1	A36
	p989	1	PL 1/4x2 7/8	0 5 3/4	1	A36
	p59	2	PL 1/4x2 3/4	0 5 3/4	1	A36
1	45B4	2	BEAM		439	Galv
	45B4	2	HSS10x6x1/4	16 6 7/16	431	S2E A500B
	p92	4	PL 1/4x8	0 10	4	A36



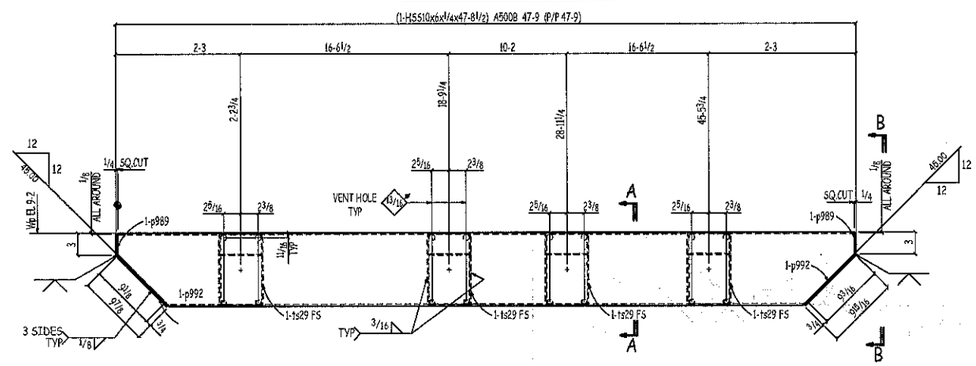
ONE BEAM 45B1



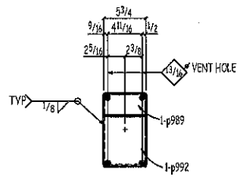
Section B-B
45B1



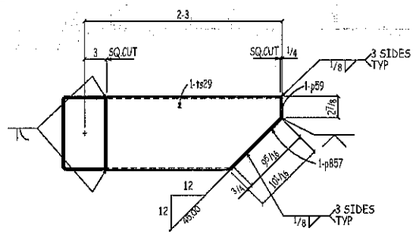
Section A-A
45B1



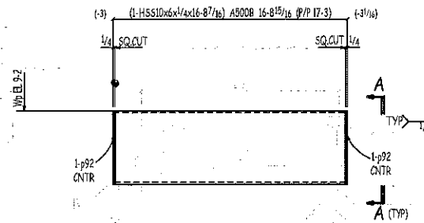
ONE BEAM 45B2



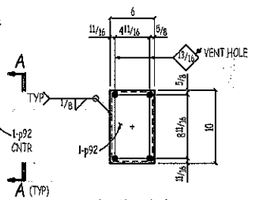
Section B-B
45B2



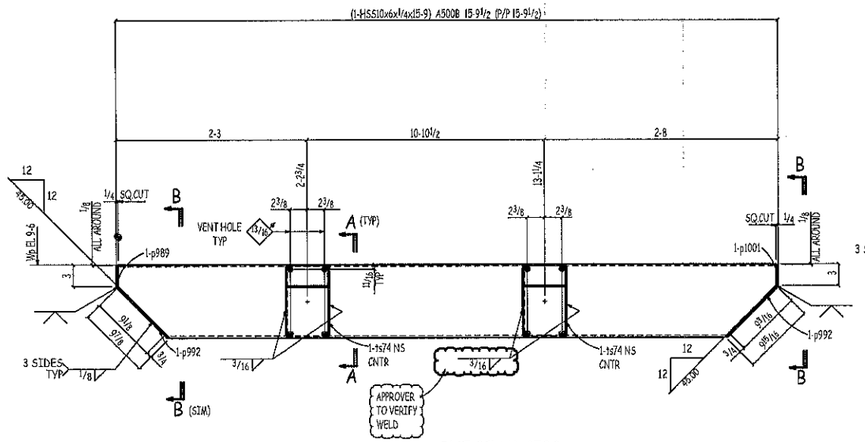
Section A-A
45B2



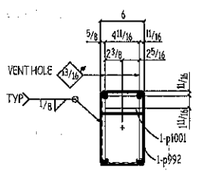
2 BEAMS 45B4



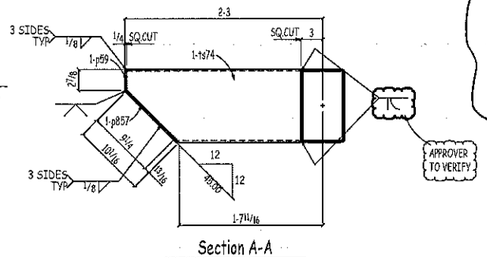
Section A-A
45B4



ONE BEAM 45B3



Section B-B
45B3



Section A-A
45B3

A/E Please verify Page

PLUG HOLES AFTER GALVANIZING

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects they illustrate as shown. Modifications or corrections necessary to substantiate erection of as-built changes for such purposes will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTES: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH CLIP ANGLES STANDARD PER AISC MANUAL OF STEEL CONSTRUCTION. THIS PARTICULAR ELEMENT NOT OF SIGNIFICANCE.

SHOP NOTE: ERECTION MARK ON SHIPPING PIECE AS INDICATED. ALL MEMBERS WITHOUT COVERS SHALL BE SHIPPED WITHOUT FREE TO A DEPTH OF AT LEAST ½ INCH

	PIELD	SHOP	APPROVAL	PRINTS
			E	NO.
			07-11	DATE
				NO.
				DATE
				NO.
				DATE
				NO.
				DATE

WIDE FLANGE (WF) A-992 GR-50
PLATE MATERIAL (PL) A-36
TUBE MATERIAL (HSS) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALVANIZED PER ASTM123
FIELD CONNECTIONS AS NOTED
HOLES (DIA.) 13/16 Ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

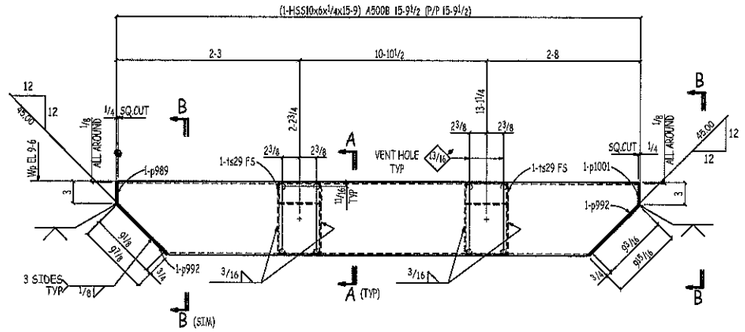
709 ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILER MSK CHECKED STS
DATE 06-12-2017
JOB NO. 17068
DRWG NO. 45

APPROVER NOTE: The details of structural steelwork on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

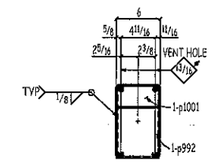
Total weight : 505

BILL OF MATERIAL

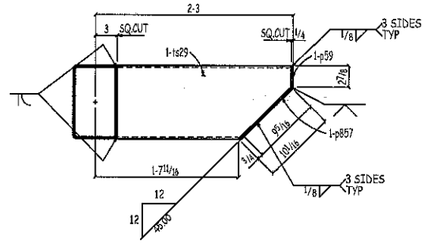
SEQ	MARK	QTY	DESCRIPTION	LENGTH		WEIGHT	REMARKS
1	46B1	ONE	BEAM			505	Galv
	46B1	1	HSS10x6x1/4	15	9	395	S2E A500B
	ts29	2	HSS10x6x1/4	1	11 3/4	45	S2E A500B
	p857	2	PL 1/4x5 3/4	0	9 13/16	4	A36
	p992	2	PL 1/4x5 3/4	0	9 11/16	4	A36
	p1001	1	PL 1/4x2 7/8	0	5 3/4	1	A36
	p959	1	PL 1/4x2 7/8	0	5 3/4	1	A36
	p59	2	PL 1/4x2 3/4	0	5 3/4	1	A36



ONE BEAM 46B1



Section B-B
46B1



Section A-A
46B1

A/E
Please
Verify Page

PLUG HOLES AFTER GALVANIZING

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD								
SHOP								
APPROVAL	E	07-11						

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein on changes made without or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOT TO FACE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.)
A-992 GR-50

PARTS MATERIAL (U.N.)
A-36

TUBE MATERIAL (U.N.)
A-500 GR-B

SURFACE PREPARATION
SSPC SP 2 & 3

SHOP PAINT
GALVANIZED PER ASTM123

FIELD CONNECTIONS
AS NOTED

HOLES (U.N.)
13/16 ø

USE NO. 7000 WELD ROD
ALL COMPLETE JOINT PENETRATION
BUTT WELDS LOW HYDROGEN 7018

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the client of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

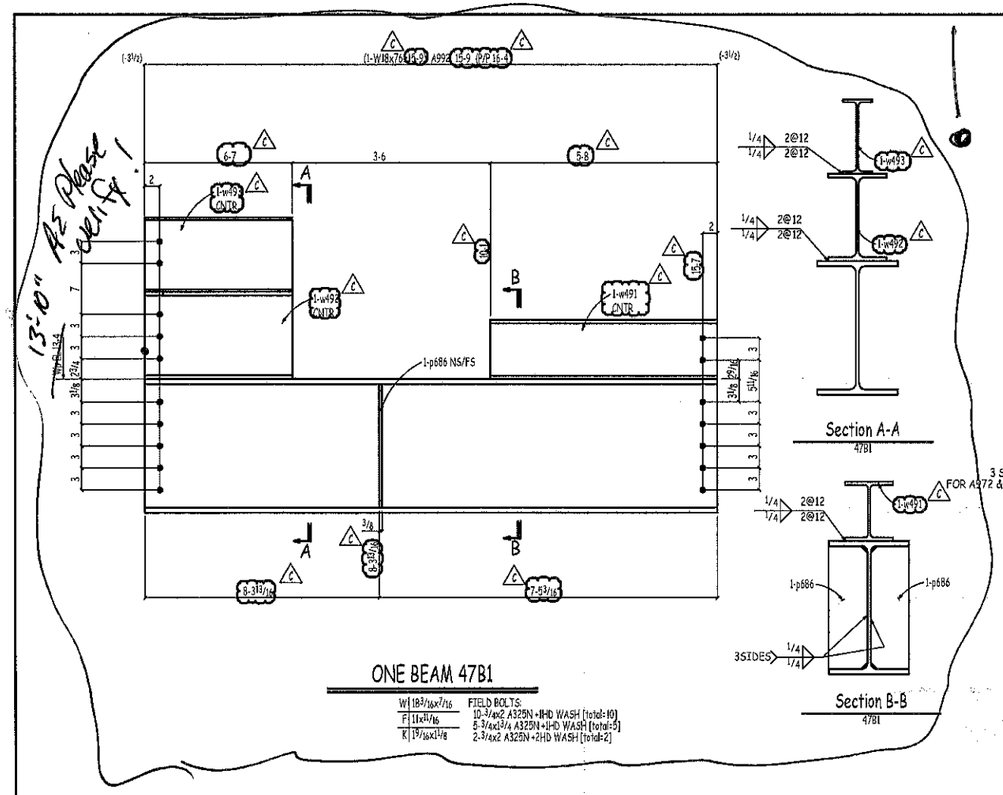
JOB: ROYSTER CROSSINGS LOT 2

LOCATION: MADISON, WI

CUSTOMER: RVEDEBUSCH

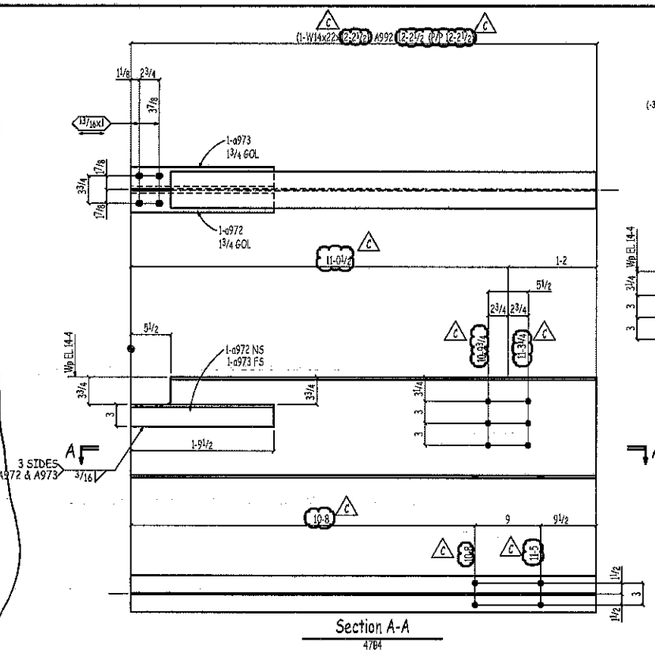
DETAILER	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-12-2017	17068	46

Total weight : 6235



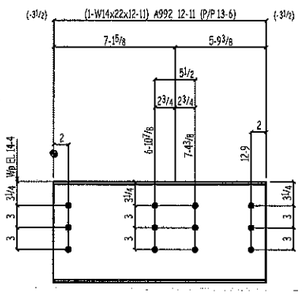
ONE BEAM 47B1

W 18 3/16 x 7/16	FIELD BOLTS:	10-3/4x2 A325N +1HD WASH [total=10]
F 11x1 1/16		5-3/4x1 3/4 A325N +1HD WASH [total=5]
K 19/16x1 1/8		2-3/4x2 A325N +2HD WASH [total=2]



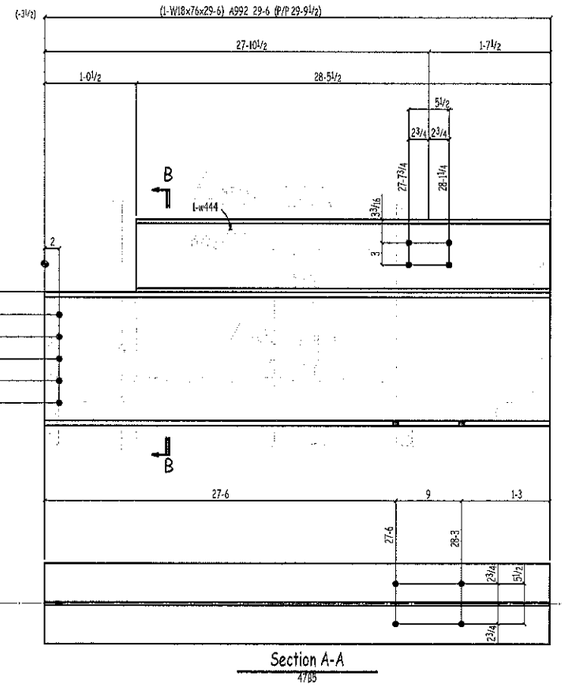
ONE BEAM 47B4

W 13 11/16 x 1/4	FIELD BOLTS:	4-3/4x1 3/4 A325N +1HD WASH [total=4]
F 15x9/16		4-3/4x2 A329N +1HD WASH [total=4]
K 11/16x13/16		



W 13 11/16 x 1/4	FIELD BOLTS:	6-3/4x1 3/4 A325N +1HD WASH [total=6]
F 15x9/16		
K 11/16x13/16		

ALREADY APPROVED AS 3885

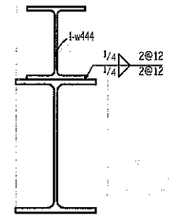


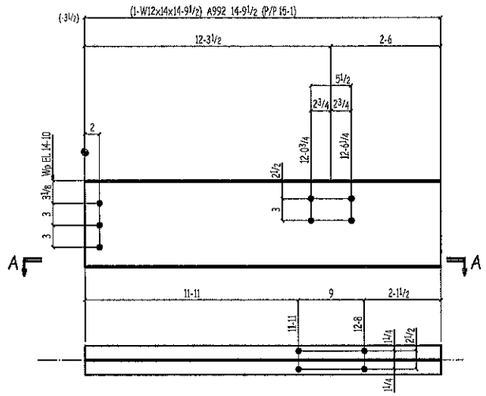
ONE BEAM 47B5

FIELD BOLTS:
5-3/4x2 A325N +1HD WASH [total=5]
4-3/4x2 1/4 A325N +1HD WASH [total=4]

W 18 3/16 x 7/16	
F 11x1 1/16	
K 19/16x1 1/8	

ALREADY APPROVED AS 3888

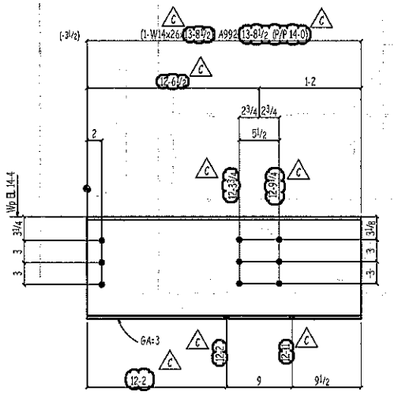




ONE BEAM 47B2

W 17/8x3/16	FIELD BOLTS:	7-3/4x1 3/4 A325N +1HD WASH [total=7]
F 4x1/4		
K 3/4x3/8		

ALREADY APPROVED AS 3788



ONE BEAM 47B3

W 13 7/8x1/4	FIELD BOLTS:	4-3/4x2 A325N +1HD WASH [total=4]
F 15x7/16		3-3/4x1 3/4 A325N +1HD WASH [total=3]
K 11/8x13/16		

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	47B1		ONE BEAM		1748	
	47B1	1	W18x76	16 3	1196	A992
	w492	1	W12x40	6 7	263	A992
	w493	1	W10x17	6 7	112	A992
	w491	1	W6x25	5 8	169	A992
	p686	2	PL 3/8 x 3 5/16	1 4 11/16	9	A36
			FIELD BOLTS			
		2	3/4 Dia A325N	0 2		+2HD WASH
		10	3/4 Dia A325N	0 2		+1HD WASH
		5	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	47B2		ONE BEAM		207	
	47B2	1	W12x14	14 9 1/2	207	A992
			FIELD BOLTS			
		7	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	47B3		ONE BEAM		356	
	47B3	1	W14x26	13 8 1/2	356	A992
			FIELD BOLTS			
		6	3/4 Dia A325N	0 2		+1HD WASH
		3	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	47B4		ONE BEAM		289	
	47B4	1	W14x22	12 2 1/2	264	A992
	a972	1	L3x3x3/8	1 9 1/2	13	A36
	a973	1	L3x3x3/8	1 9 1/2	13	A36
	SECTION CUT	1				
	1					
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2		+1HD WASH
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	47B5		ONE BEAM		3351	
	47B5	1	W18x76	29 6	2241	A992
	w444	1	W10x39	28 5 1/2	1110	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH
		5	3/4 Dia A325N	0 2		+1HD WASH
1	47B6		ONE BEAM		284	
	47B6	1	W14x22	12 11	284	A992
			FIELD BOLTS			
		6	3/4 Dia A325N	0 1 3/4		+1HD WASH

AISC CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication of parts/items of the projects shown. Express changes, modifications or recycling measures by fabricated materials of any changes for such measures will be allowed without prior authorization by and agreement of Endres Mfg. Co.

SHOP NOTE:
PAINTING SHALL BE LEFT 2HRS AS DELIVERED. ALL BE SEVERELY CORRODED SHALL BE SHIPPED WITH PRIME TO A MINIMUM OF ATLEAST 2 MILS

REV	DATE	DESCRIPTION	DETAILER
B	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
A	Feb 9 2018	ISSUED FOR APPROVAL	SAT

FIELD											
SHOP											
APPROVAL	E	02-09	E	03-20							
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (U/N): A-992 GR-50
PARTS MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS. STEEL SPEC
FIELD CONNECTIONS: AS NOTED | HOLES (U/N): 13/16 ø
USE NO. 7000 WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

APPROVED NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineering engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
- Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH

DETAILER	CHECKED	DATE	JOB NO	DWG. NO.
MSK	SJS	06-12-2017	17068	47

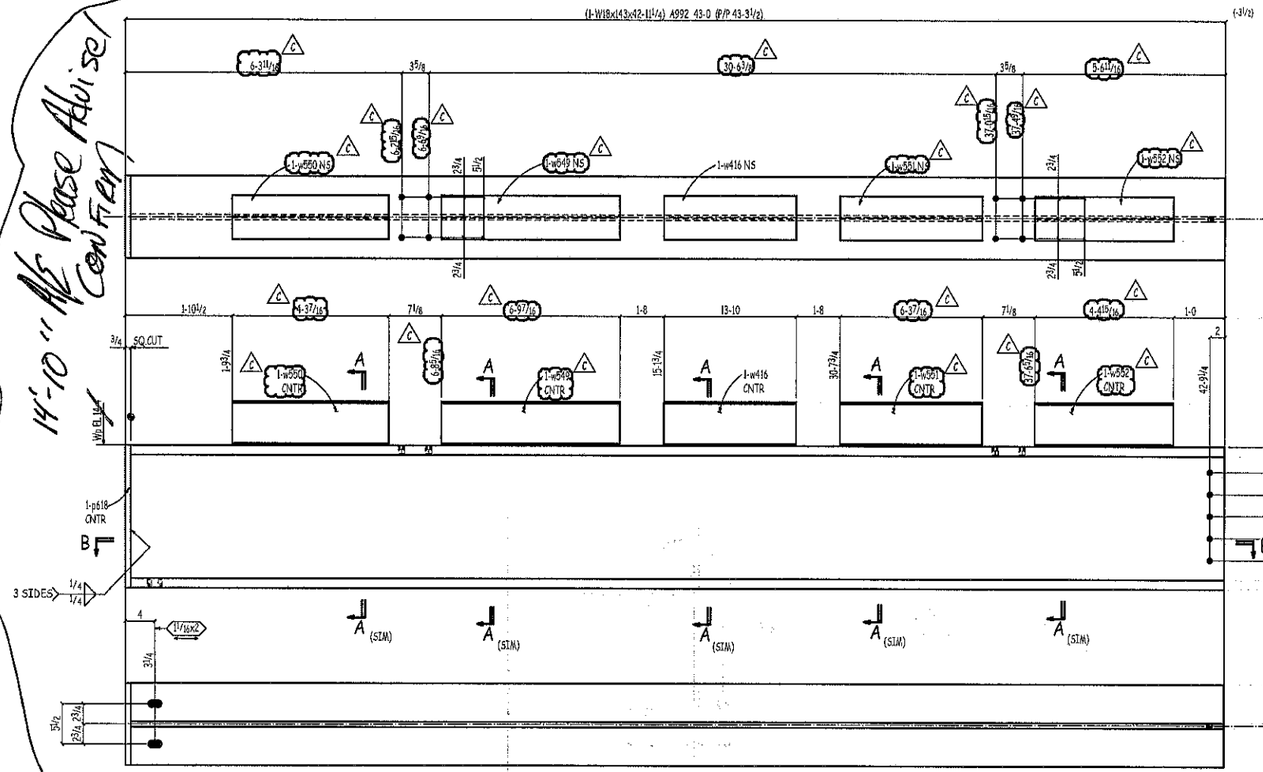
Total weight : 6717

BILL OF MATERIAL

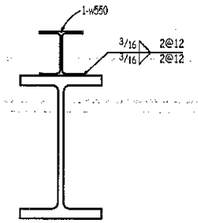
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	48B1	ONE	BEAM		6717	
	48B1	1	W18x143	42 11¼	6137	S1E C=1¼ A992
	w416	1	W8x18	13 10	208	A992
C	w549	1	W6x15	6 9⅞	102	A992
C	w551	1	W6x15	6 3⅞	94	A992
C	w552	1	W6x15	4 4¹⁵⁄₁₆	66	A992
C	w550	1	W6x15	4 3⅞	64	A992
	p818	1	PL¾x11¹³⁄₁₆	1 7½	46	A36
			FIELD BOLTS			
		2	¾ NUT			HHNT A563
		2	¾ WASHER			PL A36
		5	¾ Dia A325N	0 2¼		+1HD WASH

14'-10" ALL Plate Adjust Confirm

(1-W18x143x42-11¼) A992 43-0 (F/P 43-3½)



Section B-B
48B1



Section A-A
48B1

ONE BEAM 48B1

SHOP NOTE:
CAMBER 1¼ UP

W	19½x¾
F	13⅛x15⅝
K	23⅞x13⁄16x1¼

FIELD BOLTS:
5-¾x2¾ A325N +1HD WASH [total=5]

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
A	Feb 9 2018	ISSUED FOR APPROVAL	SAT

FIELD
SHOP
APPROVAL E 02-09 E 03-20
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the projects shown thereon. Changes modifications or correction measures on fabricated materials of any character for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTION NOTES:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM HIGH STRENGTH BOLTS WITH ASTM HARDENED WASHERS UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHARPCUTOFF FREE TO A RADIUS OF AT LEAST ½ INCH

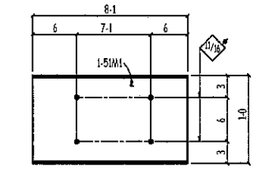
WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
USE MIG .70XX WELD ROD ALL CONNECTIONS JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX	

APPROVED TESTS:
The details of structural steel shown on this sheet are developed from the engineering architectural or owners design drawings and/or specifications provided by Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

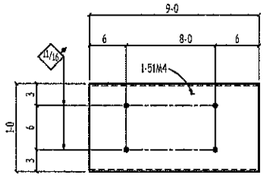
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RYEDEBUSCH
DETAILER: MSK CHECKED: STS
DATE: 06-12-2017
JOB NO: 17068
DRWG. NO: 48

Total weight : 1679



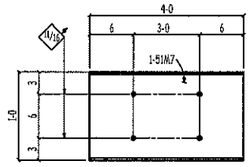
2 MISCS 51M1

FIELD BOLTS:
2-5/8x6 A307 +1PL_1HD WASH [total=4]
2-5/8x6 A325N +1PL_1HD WASH [total=4]



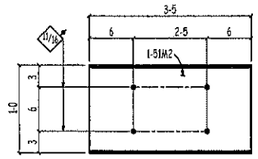
6 MISCS 51M4

FIELD BOLTS:
4-5/8x6 A325N +1PL_1HD WASH [total=24]



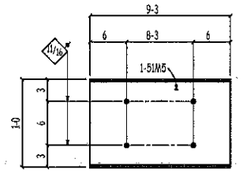
2 MISCS 51M7

FIELD BOLTS:
4-5/8x6 A307 +1PL_1HD WASH [total=8]



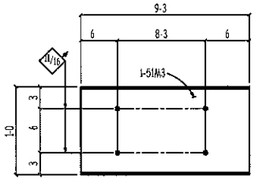
2 MISCS 51M2

FIELD BOLTS:
4-5/8x6 A325N +1PL_1HD WASH [total=8]



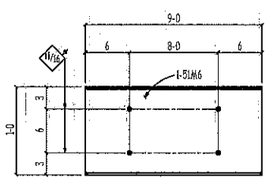
2 MISCS 51M5

FIELD BOLTS:
4-5/8x6 A325N +1PL_1HD WASH [total=8]



4 MISCS 51M3

FIELD BOLTS:
4-5/8x6 A325N +1PL_1HD WASH [total=16]



2 MISCS 51M6

FIELD BOLTS:
4-5/8x6 A325N +1PL_1HD WASH [total=8]

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	S1M1	2	MISC		86	Galv
	S1M1	2	MC12x10.6	8 1	86	A36
			FIELD BOLTS			
		4	5/8 Dia A325N	0 6		+1PL,1HD WASH
						Galv
		4	5/8 Dia A307	0 8		+1PL,1HD WASH
						Galv
1	S1M2	2	MISC		36	Galv
	S1M2	2	MC12x10.6	3 6	36	A36
			FIELD BOLTS			
		8	5/8 Dia A325N	0 6		+1PL,1HD WASH
						Galv
1	S1M3	4	MISC		96	Galv
	S1M3	4	MC12x10.6	9 3	96	A36
			FIELD BOLTS			
		16	5/8 Dia A325N	0 8		+1PL,1HD WASH
						Galv
1	S1M4	6	MISC		95	Galv
	S1M4	6	MC12x10.6	9 0	95	A36
			FIELD BOLTS			
		24	5/8 Dia A325N	0 6		+1PL,1HD WASH
						Galv
1	S1M5	2	MISC		98	Galv
	S1M5	2	MC12x10.6	9 3	98	A36
			FIELD BOLTS			
		8	5/8 Dia A325N	0 6		+1PL,1HD WASH
						Galv
1	S1M6	2	MISC		95	Galv
	S1M6	2	MC12x10.6	9 0	95	A36
			FIELD BOLTS			
		8	5/8 Dia A325N	0 6		+1PL,1HD WASH
						Galv
1	S1M7	2	MISC		42	Galv
	S1M7	2	MC12x10.6	4 0	42	A36
			FIELD BOLTS			
		8	5/8 Dia A307	0 6		+1PL,1HD WASH
						Galv

AISC CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown. No reuse, changes, duplications or corrective measures by fabricated materials or new drawings for such purposes will be allowed without prior written consent and approval with Endres Mfg. Co.

DIRECTION NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325-HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER NUT OR BOLT HEAD ELEMENT (NOT OR BOLT HEAD

SHOP NOTE:
PAINT PRICE MARK ON SHOP DRAWINGS. ALL BEVELS AND CORNERS SHALL BE GROUND NOTCH FREE TO A RADIUS OF 1/16 EAST TO INCH

REV	DATE	DESCRIPTION	
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER
FIELD			
SHOP			
APPROVAL	E 07-11		
PRINTS	NO. DATE	NO. DATE NO. DATE NO. DATE	

MATERIAL SPEC (UNI)
A-992 GR-50

PLATES MATERIAL (UNI)
A-36

TUBE MATERIAL (UNI)
A-500 GR-B

SURFACE PREPARATION
SSPC SP 2 & 3

SHOP PAINT
GALV PER ASTM123

FIELD CONNECTIONS
AS NOTED

HOLES (U.N.)
13/16 ø

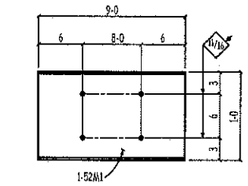
USE NO. 7024 WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO. 51
DETAILER: MSK | CHECKED: SJS
DATE: 06-12-2017
JOB NO. 17068

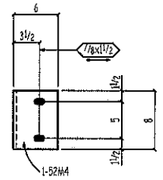
PROFESSIONAL ENGINEER:
The details of structural steel shown on this sheet are developed from the engineering, architectural or curtain design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approved engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 8333



8 MISCS 52M1

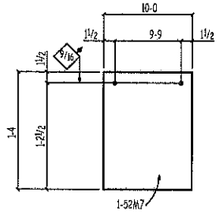
FIELD BOLTS:
4-5/8x6 A325N+1PL,1HD WASH [total=32]



17 ANGLES 52M4

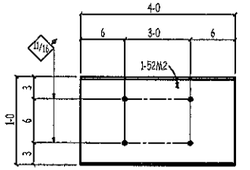
FIELD BOLTS:
2-3/4x4½ KWIK BOLT GALV [total=22]

APPROVER TO VERIFY FINISH



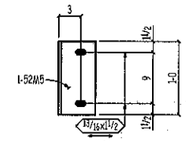
30 PLATES 52M7

B 7 QUANTITY NEWLY ADDED B



2 MISCS 52M2

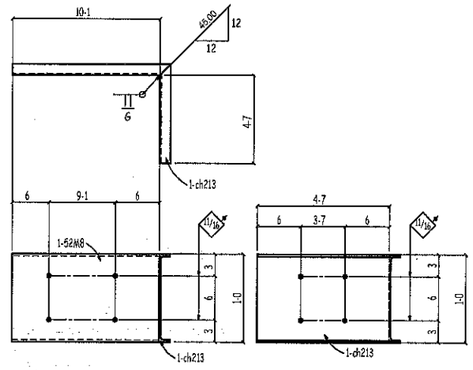
FIELD BOLTS:
4-5/8x6 A325N+1PL,1HD WASH [total=8]



33 MISCS 52M5

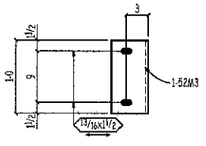
FIELD BOLTS:
2-3/4x4½ EXP ANCHOR GALV [total=66]

APPROVER TO VERIFY FINISH



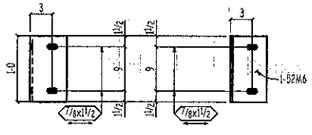
2 MISCS 52M8

FIELD BOLTS:
4-5/8x4½ A307+1PL,1HD WASH [total=8]
4-5/8x6 A307+1PL,1HD WASH [total=8]



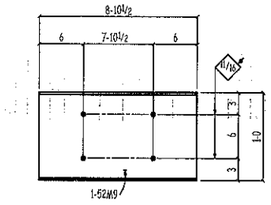
20 ANGLES 52M3

FIELD BOLTS:
2-3/4x4½ EXP ANCHOR GALV [total=28]



8 MISCS 52M6

FIELD BOLTS:
2-3/4x7 EXP ANCHOR [total=16]
2-3/4x5 EXP ANCHOR [total=16]



2 MISCS 52M9

FIELD BOLTS:
4-5/8x6 A325N+1PL,1HD WASH [total=8]

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	52M1	8	MISC		99	Galv
	52M1	8	MC12x10.8	9' 0	99	A36
			FIELD BOLTS			
		32	5/8 Dia A325N	0' 6		+1PL,1HD WASH
						Galv
1	52M2	2	MISC		42	Galv
	52M2	2	MC12x10.8	4' 0	42	A36
			FIELD BOLTS			
		8	5/8 Dia A325N	0' 6		+1PL,1HD WASH
						Galv
1	52M3	20	ANGLE		12	Galv
	52M3	20	L5x5x3/8	1' 0	12	A36
			FIELD BOLTS			
		40	3/4 Dia EXP ANCHOR	0' 4½		GALV
1	52M4	17	ANGLE		8	Galv
	52M4	17	L6x4x3/8	0' 8	8	A36
			FIELD BOLTS			
		17	3/4 Dia KWIK BOLT	0' 4½		Galv
		17	3/4 Dia KWIK BOLT	0' 4½		Galv
1	52M5	33	MISC		12	Galv
	52M5	33	L5x5x3/8	1' 0	12	A36
			FIELD BOLTS			
		66	3/4 Dia EXP ANCHOR	0' 4½		GALV
1	52M6	8	MISC		10	Galv
	52M6	8	L5x5x5/16	1' 0	10	A36
			FIELD BOLTS			
		16	3/4 Dia EXP ANC	0' 7		GALV
		16	3/4 Dia EXP ANC	0' 5		GALV
1	52M7	30	PLATE		204	Galv
B	52M7	30	PL3/8x16	10' 0	204	A36
1	52M8	2	MISC		156	Galv
	52M8	2	MC12x10.8	16' 2½	107	A36
	ch213	2	MC12x10.8	4' 8½	49	A36
			FIELD BOLTS			
		8	5/8 Dia A307	0' 6		+1PL,1HD WASH
						Galv
		8	5/8 Dia A307	0' 4½		+1PL,1HD WASH
						Galv
1	52M9	2	MISC		94	Galv
	52M9	2	MC12x10.8	8' 10½	94	A36
			FIELD BOLTS			
		8	5/8 Dia A325N	0' 6		+1PL,1HD WASH
						Galv

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown thereon & changes modifications or repetitive reissues to fabricated materials at our charges for such reissues will be allowed without prior satisfaction to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 BOLTS TENSIONED BOLTS WITH THE IMPACT WRENCH UNDER PLY TIGHTENED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: FAYING FACES SHALL BE PREPARED AS PER SPECIFICATIONS. SET BEVELED PLATES SHALL BE WORKED TIGHT FREE TO A RADIUS OF AT LEAST 1½ INCH

SHOP									
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (UN) A-992 GR-50
PLATE MATERIAL (UN) A-36
TUBE MATERIAL (UN) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALV PER ASTM123
FIELD CONNECTIONS AS NOTED
HOLES (UN) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

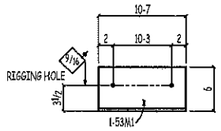
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO. 52
DETAILER: MSK | CHECKED: STS
DATE: 06-12-2017
JOB NO. 17068

APPROVED FOR FIT: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineer, architect or owners design

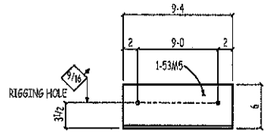
Total weight : 2474

BILL OF MATERIAL

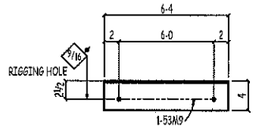
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	53M1	3	ANGLE		130	Galv
	53M1	3	L6x4x3/8	10 7	130	A36
1	53M2	ONE	ANGLE		35	Galv
	53M2	1	L4x4x1/4	5 4	35	A36
1	53M3	6	ANGLE		42	Galv
	53M3	6	L4x4x1/4	6 4	42	A36
1	53M4	5	ANGLE		127	Galv
	53M4	5	L6x4x3/8	10 4	127	A36
1	53M5	ONE	ANGLE		115	Galv
	53M5	1	L6x4x3/8	9 4	115	A36
1	53M6	ONE	ANGLE		52	Galv
	53M6	1	L4x4x1/4	7 10	52	A36
1	53M7	ONE	ANGLE		130	Galv
	53M7	1	L6x4x3/8	10 7	130	A36
1	53M8	ONE	ANGLE		36	Galv
	53M8	1	L4x4x1/4	5 5 1/2	36	A36
1	53M9	4	ANGLE		42	Galv
	53M9	4	L4x4x1/4	6 4	42	A36
1	53M10	2	ANGLE		127	Galv
	53M10	2	L6x4x3/8	10 4	127	A36
1	53M11	6	ANGLE		42	Galv
	53M11	6	L4x4x1/4	6 4	42	A36
1	53M12	ONE	ANGLE		157	Galv
	53M12	1	L6x4x3/8	12 5 1/2	157	A36



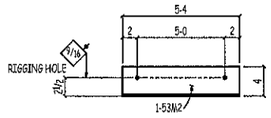
3 ANGLES 53M1



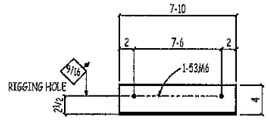
ONE ANGLE 53M5



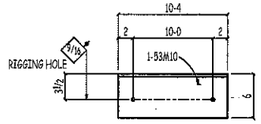
4 ANGLES 53M9



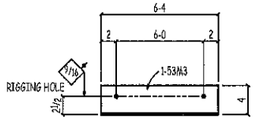
ONE ANGLE 53M2



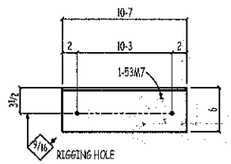
ONE ANGLE 53M6



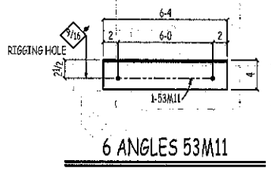
2 ANGLES 53M10



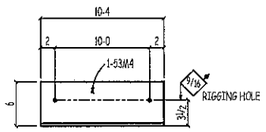
6 ANGLES 53M3



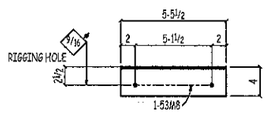
ONE ANGLE 53M7



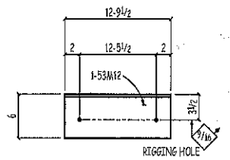
6 ANGLES 53M11



5 ANGLES 53M4



ONE ANGLE 53M8



ONE ANGLE 53M12

AISC CERTIFIED FABRICATOR

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown. Erroneous changes, modifications or corrections necessary to fabricated materials of any changes for such inaccuracy will be allowed after prior authorization and agreement with Endres Mfg. Co.

DIRECTION NOTES: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: PAINT WHERE MARK ON SHOP DRAWINGS. SEE SPECIFICATIONS. BE SURE PAINT IS STRIPED BACK A MINIMUM OF ATLEAST TWO INCHES

REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
FIELD			
SHOP			
APPROVAL	E	07-11	
PRINTS	NO. DATE	NO. DATE NO. DATE NO. DATE	

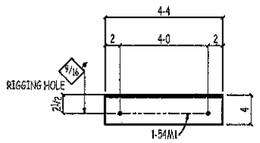
WIDE FLANGE (U/N): A-992 GR-50
PLATE MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: GALV PER ASTM123
FIELD CONNECTIONS: AS NOTED
HOLES (U/N): 13/16 ø
USE NO. 7000X WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
I-Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

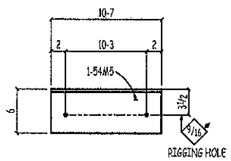
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS
DATE: 06-12-2017
JOB NO: 17068
DRWG. NO: 53

APPROVED NOTICE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineer, architect or owners design.

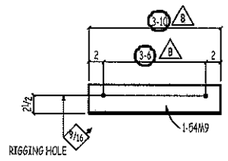
Total weight : 2189



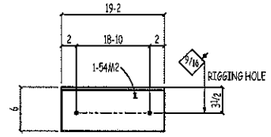
2 ANGLES 54M1



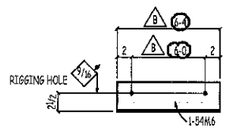
3 ANGLES 54M5



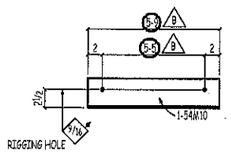
ONE ANGLE 54M9



ONE ANGLE 54M2



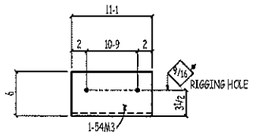
ONE ANGLE 54M6



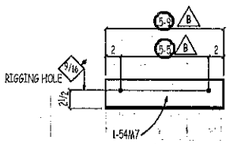
ONE ANGLE 54M10

BILL OF MATERIAL

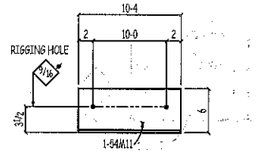
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	54M1	2	ANGLE		29	Galv
	54M1	2	L4x4x1/4	4 4	29	A36
1	54M2	ONE	ANGLE		23	Galv
	54M2	1	L6x4x3/8	19 2	23	A36
1	54M3	ONE	ANGLE		13	Galv
	54M3	1	L6x4x3/8	11 1	13	A36
1	54M4	ONE	ANGLE		12	Galv
	54M4	1	L6x4x3/8	10 4	12	A36
1	54M5	3	ANGLE		13	Galv
	54M5	3	L6x4x3/8	10 7	13	A36
1	54M6	ONE	ANGLE		4	Galv
B	54M6	1	L4x4x1/4	6 4	4	A36
1	54M7	ONE	ANGLE		3	Galv
B	54M7	1	L4x4x1/4	5 9	3	A36
1	54M8	ONE	ANGLE		4	Galv
B	54M8	1	L4x4x1/4	6 4	4	A36
1	54M9	ONE	ANGLE		2	Galv
9	54M9	1	L4x4x1/4	1 10	2	A36
1	54M10	ONE	ANGLE		3	Galv
9	54M10	1	L4x4x1/4	5 9	3	A36
1	54M11	7	ANGLE		12	Galv
	54M11	7	L6x4x3/8	10 4	12	A36
1	54M12	4	ANGLE		4	Galv
	54M12	4	L4x4x1/4	6 4	4	A36



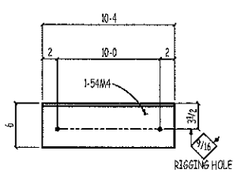
ONE ANGLE 54M3



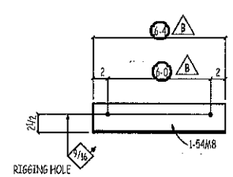
ONE ANGLE 54M7



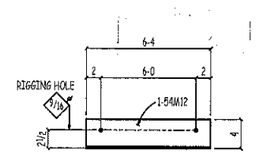
7 ANGLES 54M11



ONE ANGLE 54M4



ONE ANGLE 54M8



4 ANGLES 54M12

USA CERTIFIED FABRICATOR

NOTE: These drawings are the property of Endres mfg. Co. and are for the sole purpose of fabrication or installation of the products shown thereon. Changes, modifications or corrective measures by unauthorized materials or use, charges for outstanding will be allowed without prior notification to and agreement with Endres mfg. Co.

DIRECTION NOTES: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 BOLTS AS SHOWN ON DETAILS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT THAT DOES NOT HEAD.

SHOP NOTES: PAINT STEEL MARK ON LEFT END AS DETAILED. FOR ELEVATED CONNECTIONS, SHIMS SHALL BE SUPPLIED NOT LESS THAN 4 SIDES OF AT LEAST ¼" THICK

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

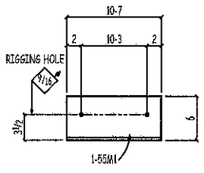
WIDE FLANGE (UN) A-992 GR-50
PLATE MATERIAL (UN) A-36
TUBE MATERIAL (UN) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALV PER ASTM123
FIELD CONNECTIONS AS NOTED
HOLES (UN) 13/16 ø
USE NO 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS ALSO WELDED IN PLACE

Endres mfg. co.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

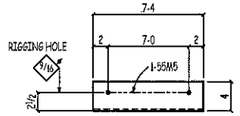
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRWG. NO. 54
DETAILER MSK | CHECKED SJS | DATE 06-12-2017 | JOB NO. 17068

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the connection detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

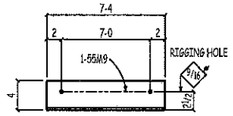
Total weight : 5919



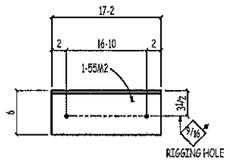
5 ANGLES 55M1



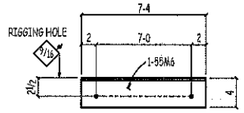
ONE ANGLE 55M5



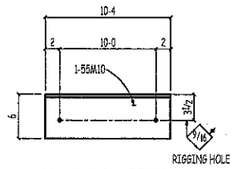
6 ANGLES 55M9



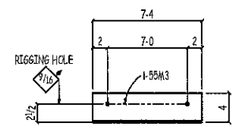
2 ANGLES 55M2



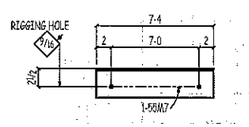
28 ANGLES 55M6



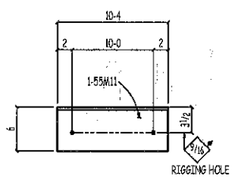
12 ANGLES 55M10



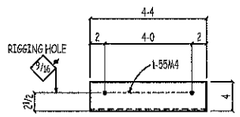
2 ANGLES 55M3



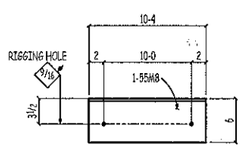
5 ANGLES 55M7



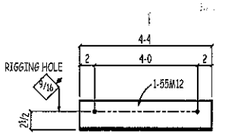
ONE ANGLE 55M11



ONE ANGLE 55M4



ONE ANGLE 55M8



ONE ANGLE 55M12

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	55M1	5	ANGLE		130	Galv
	55M1	5	L6x6x3/8	10 7	130	A36
1	55M2	2	ANGLE		211	Galv
	55M2	2	L6x6x3/8	17 2	211	A36
1	55M3	2	ANGLE		48	Galv
	55M3	2	L4x4x1/4	7 4	48	A36
1	55M4	ONE	ANGLE		29	Galv
	55M4	1	L4x4x1/4	4 4	29	A36
1	55M5	ONE	ANGLE		48	Galv
	55M5	1	L4x4x1/4	7 4	48	A36
1	55M6	28	ANGLE		76	Galv
	55M6	28	L6x6x5/16	7 4	76	A36
1	55M7	5	ANGLE		48	Galv
	55M7	5	L4x4x1/4	7 4	48	A36
1	55M8	ONE	ANGLE		154	Galv
	55M8	1	L6x6x3/8	10 4	154	A36
1	55M9	6	ANGLE		76	Galv
	55M9	6	L6x6x5/16	7 4	76	A36
1	55M10	12	ANGLE		127	Galv
	55M10	12	L6x6x3/8	10 4	127	A36
1	55M11	ONE	ANGLE		154	Galv
	55M11	1	L6x6x3/8	10 4	154	A36
1	55M12	ONE	ANGLE		29	Galv
	55M12	1	L4x4x1/4	4 4	29	A36

AISC CERTIFIED FABRICATOR

DISCLAIMER: Above drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the products shown. Reuse in any manner and limited or restrictive revisions to fabricated materials of any character for multi-occupancy will be allowed without prior written consent with Endres Mfg. Co.

SELECTION NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 BOLTS SNUG TIGHT WITH THE MINIMUM BOLT ASSEMBLY UNDER THE TURN-OF-NUT METHOD.

SHOP NOTE: PAINT FIRST APPLICATION ONLY FOR SURFACES TO BE FIELD WELDED. ALL SURFACES WITHIN 2" OF WELDS SHALL BE PAINTED AFTER FIELD WELDING.

REV	DATE	DESCRIPTION	
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD									
SHOP									
APPROVAL	E	07-11							
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE MATERIAL: A-992 GR-50

PARTS MATERIAL (MIN): A-36

TUBE MATERIAL (MIN): A-500 GR-B

SURFACE PREPARATION: SSPC SP 2 & 3

SHOP PAINT: GALV PER ASTM123

FIELD CONNECTIONS: AS NOTED

HOLES (DIA.): 13/16 ø

USE NO. 7018X WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS & CWP WHERADGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2

LOCATION: MADISON, WI

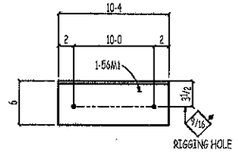
CUSTOMER: RVEDEBUSCH

DRAWN: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO.: 17068

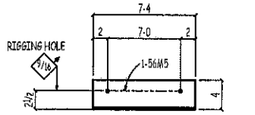
DRWG NO.: 55

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

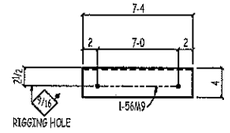
Total weight : 4796



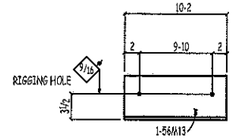
ONE ANGLE 56M1



35 ANGLES 56M5



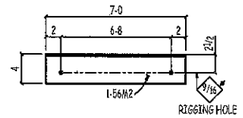
ONE ANGLE 56M9



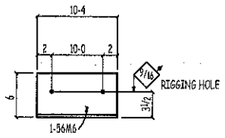
ONE ANGLE 56M13

ONE QUANTITY SPLITTED FROM 56M6

B



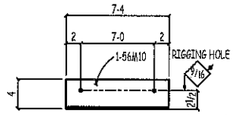
ONE ANGLE 56M2



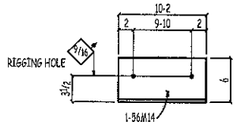
14 ANGLES 56M6

1 QUANTITY SPLITTED TO 56M13
1 QUANTITY SPLITTED TO 56M14
2 QUANTITY COMBINED FROM 56M7

B



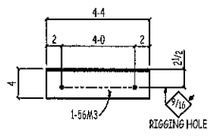
ONE ANGLE 56M10



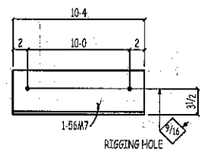
ONE ANGLE 56M14

ONE QUANTITY SPLITTED FROM 56M6

B

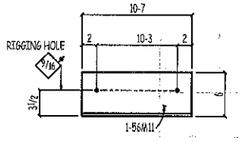


3 ANGLES 56M3

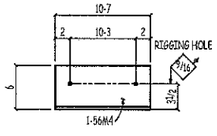


ONE ANGLE 56M7

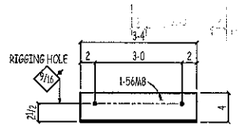
B
2 QUANTITY SPLITTED TO 56M6
B



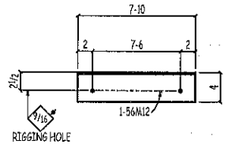
2 ANGLES 56M11



ONE ANGLE 56M4



3 ANGLES 56M8



ONE ANGLE 56M12

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	56M1	ONE	ANGLE		15	4 Galv
	56M1	1	L6x6x3/8	10 4	15	4 A36
1	56M2	ONE	ANGLE		4	6 Galv
	56M2	1	L4x4x1/4	7 0	4	6 A36
1	56M3	3	ANGLE		2	5 Galv
	56M3	3	L4x4x1/4	4 4	2	5 A36
1	56M4	ONE	ANGLE		15	8 Galv
	56M4	1	L6x6x5/8	10 7	15	8 A36
1	56M5	35	ANGLE		4	8 Galv
	56M5	35	L4x4x1/4	7 4	4	8 A36
1	56M6	14	ANGLE		12	7 Galv
	56M6	14	L6x6x3/8	10 4	12	7 A36
1	56M7	ONE	ANGLE		15	4 Galv
	56M7	1	L6x6x3/8	10 4	15	4 A36
1	56M8	3	ANGLE		2	2 Galv
	56M8	3	L4x4x1/4	3 4	2	2 A36
1	56M9	ONE	ANGLE		4	6 Galv
	56M9	1	L4x4x1/4	7 4	4	6 A36
1	56M10	ONE	ANGLE		4	6 Galv
	56M10	1	L4x4x1/4	7 4	4	6 A36
1	56M11	2	ANGLE		13	0 Galv
	56M11	2	L6x4x3/8	10 7	13	0 A36
1	56M12	ONE	ANGLE		5	2 Galv
	56M12	1	L4x4x1/4	7 10	5	2 A36
1	56M13	ONE	ANGLE		12	5 Galv
	56M13	1	L6x4x3/8	10 2	12	5 A36
1	56M14	ONE	ANGLE		12	5 Galv
	56M14	1	L6x4x3/8	10 2	12	5 A36

AISC CERTIFIED FABRICATOR

NOTES:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon. Changes in dimensions or connection measures by fabricators or erection measures by fabricators or erection measures or changes for such reasons will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTION TO VIEW:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE A325 BOLTS, 22.5 KSI USE 3 7/8"DIA TIN BOLTS WITH THE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT TOUCH MARK ON ALL PIECES BEFORE SHIPMENT. ALL BE ON SMOOTH CORRECTIONS SHALL BE SHARED NOTCHPIECE TO A MATING SPLICE PLATE TO ONE

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

FIELD
SHOP

APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

WIDE FLANGE (U/N): A-992 GR-50
PARTS MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: GALV PER ASTM123
FIELD CONNECTIONS: AS NOTED
HOLES (U/N): 13/16 ø
WELD NO. 7XXX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunkee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

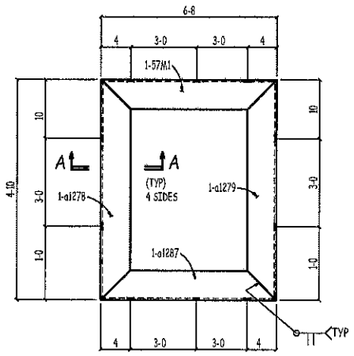
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER INITIALS: MSK SJS
DATE: 06-12-2017
JOB NO.: 17068
DRWG. NO.: 56

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 823

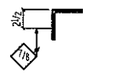
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	57M1	ONE	FRAME		148	Galv
	57M1	1	L4x4x1/4	6 8	44	A36
	a1287	1	L4x4x1/4	6 8	43	A36
	a1278	1	L4x4x1/4	4 10	31	A36
	a1279	1	L4x4x1/4	4 10	31	A36
			FIELD BOLTS			
		10	3/4 Dia EXP ANCHOR	0 5 1/2		Galv
1	57M2	ONE	FRAME		139	Galv
	57M2	1	L4x4x1/4	6 4	42	A36
	a1223	1	L4x4x1/4	6 4	40	A36
	a1222	2	L4x4x1/4	4 2	26	A36
			FIELD BOLTS			
		10	3/4 Dia EXP ANC	0 5 1/2		
1	57M3	ONE	FRAME		165	Galv
	57M3	1	L4x4x1/4	9 0	59	A36
	a1225	1	L4x4x1/4	9 0	55	A36
	a1224	2	L4x4x1/4	3 10	24	A36
			FIELD BOLTS			
		12	3/4 Dia EXP ANCHOR	0 5 1/2		Galv
1	57M4	ONE	FRAME		170	Galv
	57M4	1	L4x4x1/4	9 10	65	A36
	a1229	1	L4x4x1/4	9 10	64	A36
	a20	2	L4x4x1/4	3 4	21	A36
			FIELD BOLTS			
		12	3/4 Dia EXP ANCHOR	0 5 1/2		Galv
1	57M5	ONE	FRAME		205	Galv
	57M5	1	L4x4x1/4	11 10	78	A36
	a12	1	L4x4x1/4	11 10	77	A36
	a1226	2	L4x4x1/4	4 0	25	A36
			FIELD BOLTS			
		11	3/4 Dia EXP ANCHOR	0 5 1/2		Galv

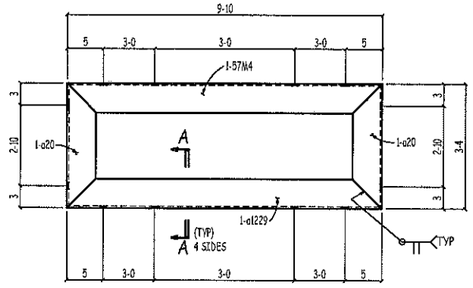


ONE FRAME 57M1

FIELD BOLTS:
10-3/4x5 1/2 EXP ANCHOR [total=10]

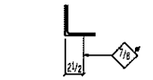


Section A-A
57M1

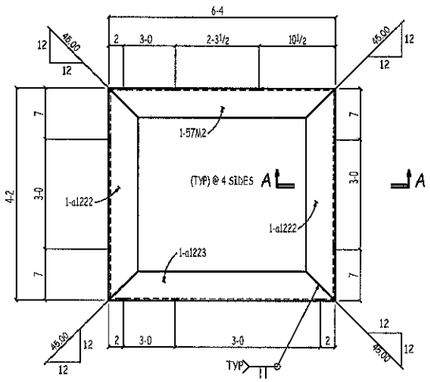


ONE FRAME 57M4

FIELD BOLTS:
12-3/4x5 1/2 EXP ANCHOR [total=12]

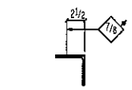


Section A-A
57M4

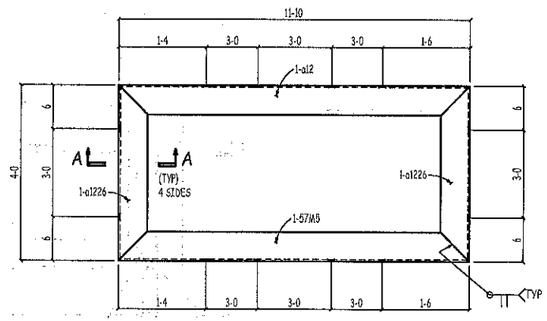


ONE FRAME 57M2

FIELD BOLTS:
10-3/4x5 1/2 EXP ANC [total=10]

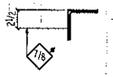


Section A-A
57M2

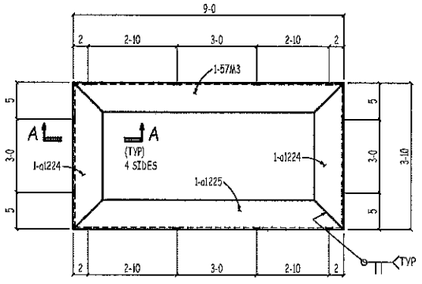


ONE FRAME 57M5

FIELD BOLTS:
11-3/4x5 1/2 EXP ANCHOR [total=11]

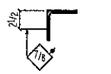


Section A-A
57M5



ONE FRAME 57M3

FIELD BOLTS:
12-3/4x5 1/2 EXP ANCHOR [total=12]



Section A-A
57M3

Will Field verify
Hold

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD
SHOP
APPROVAL E 07-11
PRINTS NO. DATE NO DATE NO DATE NO DATE NO DATE

WIDE FLANGE (UNI) A-992 GR-50
PLATE MATERIAL (UNI) A-36
TUBE MATERIAL (UNI) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALV PER ASTM123
FIELD CONNECTIONS AS NOTED
HOLES (UNI) 13/16 ø

USE NO. 7000 WELD ROD
ALL COMPLETE JOINT PENETRATION
BUTT WELDS LOW HYDROGEN TUB

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRAWING NO. 57
DETAILER CHECKED MSK SJS
DATE 06-12-2017
JOB NO. 17068

APPROVER NOTE:
The delivery of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specification provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

DISCLAIMER:
These drawings are the property of Endres Mfg Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials or use changes for such measures will be allowed without prior notification to and agreement with Endres Mfg Co.

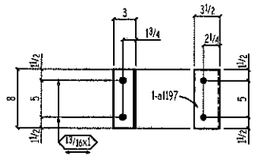
SHOP NOTE:
ANTIFREEZE MUST BE ADDED TO ALL WATER USED IN HYDRAULIC SYSTEMS. SAE 30 HYDRAULIC OIL CONTAINS RUST AND OXIDATION INHIBITORS TO A MINIMUM OF 1 YEAR.

SELECTION NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A 325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT THAT CAN BE TIGHTENED.

Total weight : 186

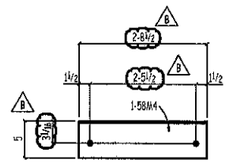
BILL OF MATERIAL

	SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
	1	58M1	4	ANGLE		4	Galv
		a1197	4	L3 1/2x3x1/4	0 8	4	A36
				FIELD BOLTS			
			4	3/4 Dia A307	0 5 1/2		+2HD WASH GALV
			4	3/4 Dia LAG BOLT	0 5		GALV
			4	3/4 Dia LAG BOLT	0 3		GALV
	1	58M2	ONE	MISC		37	Galv
		58M2	1	FL 3/8x8	1 8 1/16	17	A36
		p930	1	FL 3/8x8	1 8 1/16	17	A36
		p570	1	FL 3/8x8	0 4 3/8	4	A36
	1	58M3	ONE	MISC		37	Galv
		58M3	1	FL 3/8x8	1 8 1/16	17	A36
		p930	1	FL 3/8x8	1 8 1/16	17	A36
		p570	1	FL 3/8x8	0 4 3/8	4	A36
B	1	58M4	ONE	MISC		18	Galv
B		58M4	1	L5x3x1/4	2 8 1/16	18	A36
	1	58M5	ONE	ANGLE		4	Galv
		58M5	1	L3 1/2x3x1/4	0 8	4	A36
				FIELD BOLTS			
			4	3/4 Dia LAG BOLT	0 3		GALV
B	1	58M6	2	MISC		18	Galv
B		58M6	2	L5x3x1/4	2 8 1/2	18	A36
				FIELD BOLTS			
			4	3/4 Dia A325N	0 2		+1HD WASH GALV
B	1	58M7	2	MISC		18	Galv
B		58M7	2	L5x3x1/4	2 8 1/2	18	A36
	1	58M8	ONE	ANGLE		4	Galv
		58M8	1	L3 1/2x3x1/4	0 8	4	A36
				FIELD BOLTS			
			4	3/4 Dia LAG BOLT	0 3		GALV

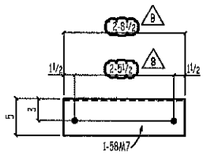


4 ANGLES 58M1

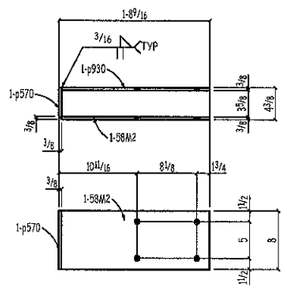
FIELD BOLTS:
2-3/4x3 LAG BOLT GALV [total=4]



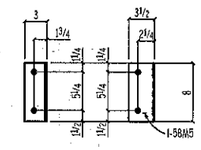
ONE MISC 58M4



2 MISCS 58M7

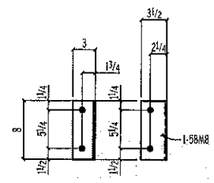


ONE MISC 58M2



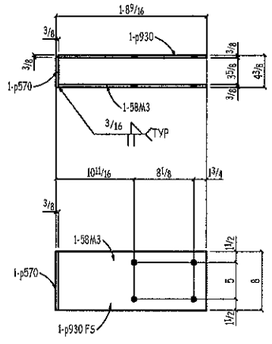
ONE ANGLE 58M5

FIELD BOLTS:
4-3/4x3 LAG BOLT GALV [total=4]

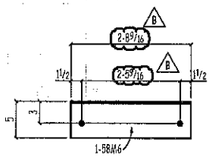


ONE ANGLE 58M8

FIELD BOLTS:
4-3/4x3 LAG BOLT GALV [total=4]



ONE MISC 58M3



2 MISCS 58M6

FIELD BOLTS:
2-3/4x2 A325N •1Hb WASH GALV [total=4]

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD

SHOP

APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and erection of the projects shown thereon and may not be used for any other purpose without prior written consent of Endres Mfg. Co.

DIRECTION NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH CAP SCREWS HAVING THEIR SQ WITH CAP SCREWS HAVING THEIR SQ WITH THE FLANGED ELEMENT NUT OR BOLT HEAD

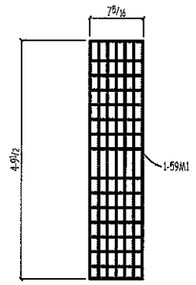
SHOP NOTE:
FABRICATOR MARK ON LEFT END AS DETAILED. ALL BEVEL ENDS AS DETAILED SHALL BE SHARPED WITH FREE TO A KNIFE OF AT LEAST ½ INCH

WIDE FLANGE (U.N.) A-992 GR-50
PLATE MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALV PER ASTM123
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS ARE HYDROGEN 2018

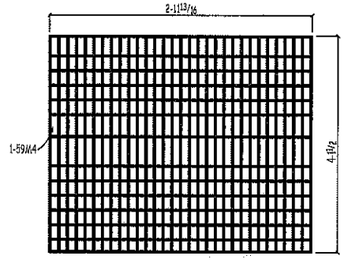
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRAWN: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO: 17068
DRWG. NO. 58

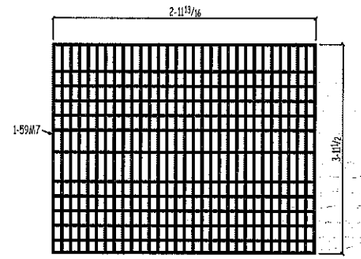
APPROVAL NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineering program, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



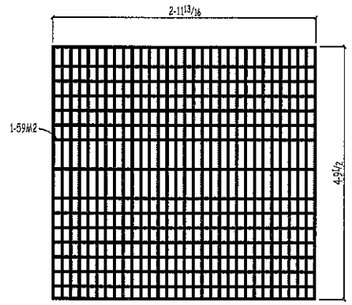
ONE GRATING 59M1



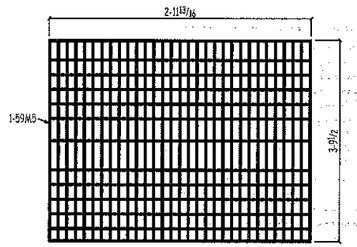
2 GRATINGS 59M4



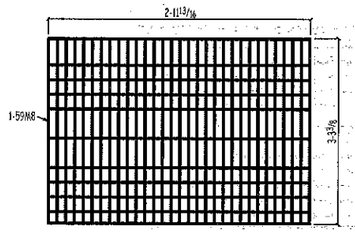
3 GRATINGS 59M7



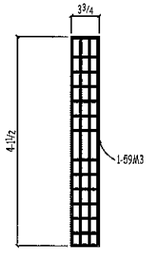
2 GRATINGS 59M2



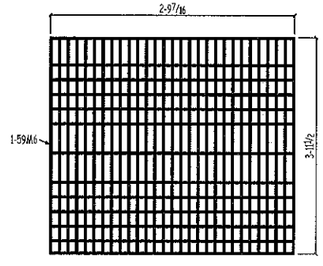
3 GRATINGS 59M5



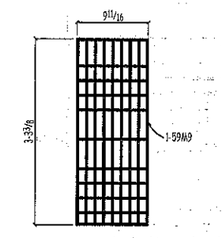
3 GRATINGS 59M8



ONE GRATING 59M3



ONE GRATING 59M6



ONE GRATING 59M9

Total weight : 1608

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	59M1	ONE	GRATING		30	Galv
	59M1	1	W-19-4(1¼x⅜sq)x75⁵/₁₆	4 9⅛	30	A-1011
1	59M2	2	GRATING		124	Galv
	59M2	2	W-19-4(1¼x⅜sq)x351³/₁₆	4 9⅛	124	A-1011
1	59M3	ONE	GRATING		15	Galv
	59M3	1	W-19-4(1¼x⅜sq)x3¾	4 1⅛	15	A-1011
1	59M4	2	GRATING		116	Galv
	59M4	2	W-19-4(1¼x⅜sq)x351³/₁₆	4 1⅛	116	A-1011
1	59M5	3	GRATING		107	Galv
	59M5	3	W-19-4(1¼x⅜sq)x351³/₁₆	3 9⅛	107	A-1011
1	59M6	ONE	GRATING		103	Galv
	59M6	1	W-19-4(1¼x⅜sq)x337⁹/₁₆	3 11⅛	103	A-1011
1	59M7	3	GRATING		111	Galv
	59M7	3	W-19-4(1¼x⅜sq)x351³/₁₆	3 11⅛	111	A-1011
1	59M8	3	GRATING		92	Galv
	59M8	3	W-19-4(1¼x⅜sq)x351³/₁₆	3 3	92	A-1011
1	59M9	ONE	GRATING		27	Galv
	59M9	1	W-19-4(1¼x⅜sq)x911⁵/₁₆	3 3	27	A-1011

APPROVER TO AVRIFY GRATING DESCRIPTION

Will Field verify Hole

AISC CERTIFIED FABRICATOR

NOTE:
This shop drawing is the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the projects shown thereon. No changes, modifications or corrections necessary to fabricated materials of any changes for such necessary will be allowed without prior authorization in writing from Endres Mfg. Co.

SHEET CAN PASTE!
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT (NUT OR BOLT HEAD)

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS SET ALIGN ALL BI-DIRECTIONAL CORNERS SHALL BE SHAPED TO A MINIMUM RADIUS OF AT LEAST ½ INCH

REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
FIELD			
SHOP			
APPROVAL	E 07-11		

PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

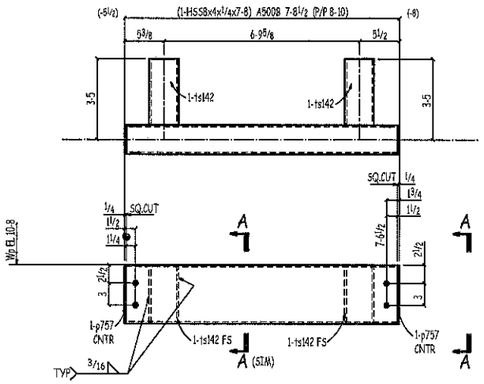
WIDE FLANGE (UN): A-992 GR-50
PARTS (MATERIAL (UN)): A-36
TUBE (MATERIAL (UN)): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: GALV PER ASTM123
FIELD CONNECTIONS: AS NOTED
HOLES (UN): 13/16 ø
ESP NO. 2002 WELD ACC. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018
CONSTRUCTION TYPE:

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRAWN: MSK | CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068
DRWG. NO.: 59

The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the governing engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the architect, artifacts or owners design.

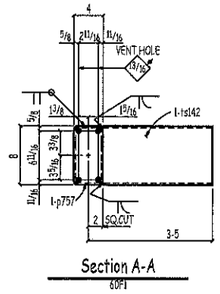
Total weight : 2493



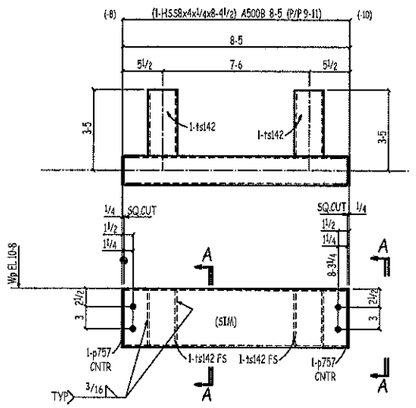
ONE FRAME 60F1

FIELD BOLTS:
4-¾ø x6 A325N +IPL,2HD WASH GALV [total=4]

TACK WELD NUT INSIDE TUBE FOR GALVANIZING TYP EA END EA TUBE



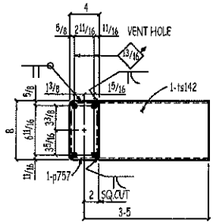
Section A-A
60F1



ONE FRAME 60F3

FIELD BOLTS:
4-¾ø x6 A325N +IPL,2HD WASH GALV [total=4]

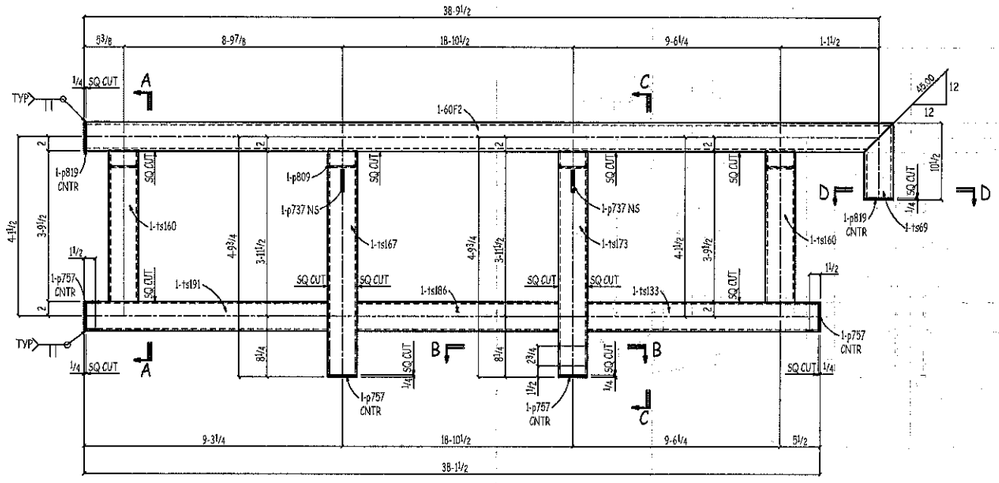
TACK WELD NUT INSIDE TUBE FOR GALVANIZING TYP EA END EA TUBE

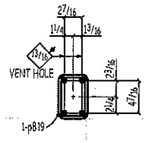


Section A-A
60F3

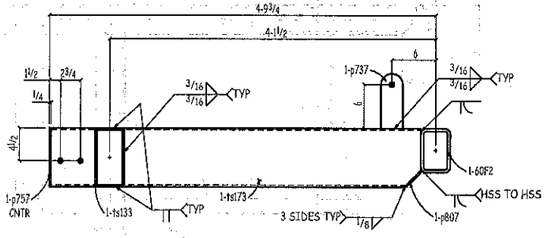
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	60F1	ONE	FRAME		274	Galv
	60F1	1	HSS8x4x¼	7 8	148	S2E A500B
	ts142	2	HSS8x4x¼	3 3	62	S2E A500B
	p757	2	FL¼x4	0 8	2	A36
			FIELD BOLTS			
		4	¾ Dia A325N	0 6		+1PL,2HD WASH, Galv
1	60F2	ONE	FRAME		1933	Galv
	60F2	1	HSS8x4x⅜	38 11¼	871	S1E A500B
	ts186	1	HSS8x4x¼	18 6½	353	S2E A500B
	ts133	1	HSS8x4x¼	9 9½	186	S2E A500B
	ts191	1	HSS8x4x¼	9 1	173	S2E A500B
	ts167	1	HSS8x4x¼	4 7½	87	S2E A500B
	ts173	1	HSS8x4x¼	4 7½	87	S2E A500B
	ts160	2	HSS8x4x¼	3 9½	71	S2E A500B
	ts69	1	HSS8x4x⅜	0 10¼	15	S1E A500B
	p737	2	PL⅜x3	0 7½	2	A36
	p757	4	FL¼x4	0 8	2	A36
	p819	2	FL¼x4	0 6	1	A36
	p807	3	PL⅜16x3	0 4	1	A36
	p809	1	PL⅜16x2 15/16	0 4	1	A36
			FIELD BOLTS			
		2	¾ Dia A325N	0 6		+1PL,1HD WASH GALV
		6	¾ Dia A325N	0 6		+1PL,2HD WASH GALV
1	60F3	ONE	FRAME		267	Galv
	60F3	1	HSS8x4x¼	8 4½	159	S2E A500B
	ts142	2	HSS8x4x¼	3 3	62	S1E A500B
	p757	2	FL¼x4	0 8	2	A36
			FIELD BOLTS			
		4	¾ Dia A325N	0 6		+1PL,2HD WASH, Galv

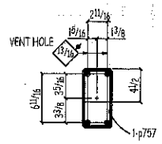




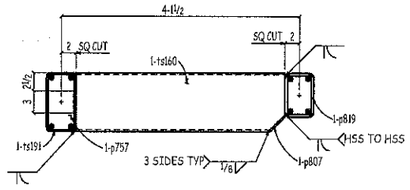
Section D-D
60F2



Section C-C
60F2



Section B-B
60F2



Section A-A
60F2

ONE FRAME 60F2

FIELD BOLTS:
6-¾ø x6 A325N +IPL,2HD WASH GALV [total=6]
2-¾ø x6 A325N +IPL,1HD WASH GALV [total=2]

APPROVER TO VERIFY ALL WELD ARRANGEMENT

SHOP WELD AFTER GALVANIZING

TACK WELD NUT INSIDE TUBE FOR GALVANIZING TYP EA END EA TUBE

A/E Please verify page

PLUG HOLES AFTER GALVANIZING

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD
SHOP
APPROVAL E 07-11
PERMITS NO. DATE NO DATE NO DATE NO. DATE

NOTE: These drawings are the property of Endres Mfg Co. and are for the sole purpose of fabrication and installation of the products shown thereon and shall not be used for any other purpose. Any additions or corrective measures to fabricated materials or use thereof for such purposes will be allowed without prior written notice to and agreement with Endres Mfg Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE: PAINT PER SPEC (SSPC-SP 2 OR SP 3) AS REQUIRED. SURFACE PREPARATION SHALL BE OF A GRADE EQUAL OR BETTER THAN THREE TO A DEGREE OF AT LEAST ¾ INCH

WIDE FLANGE (WF)	A-992 GR-50
PLATE MATERIAL (PL)	A-36
TUBE MATERIAL (HSS)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	GALV PER ASTM123
FIELD CONNECTIONS	A.S.NOTED
HOLES (DIA)	13/16 ø

USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

209 LOCATION: ROYSTER CROSSINGS LOT 2, MADISON, WI

CUSTOMER: RVEDEBUSCH

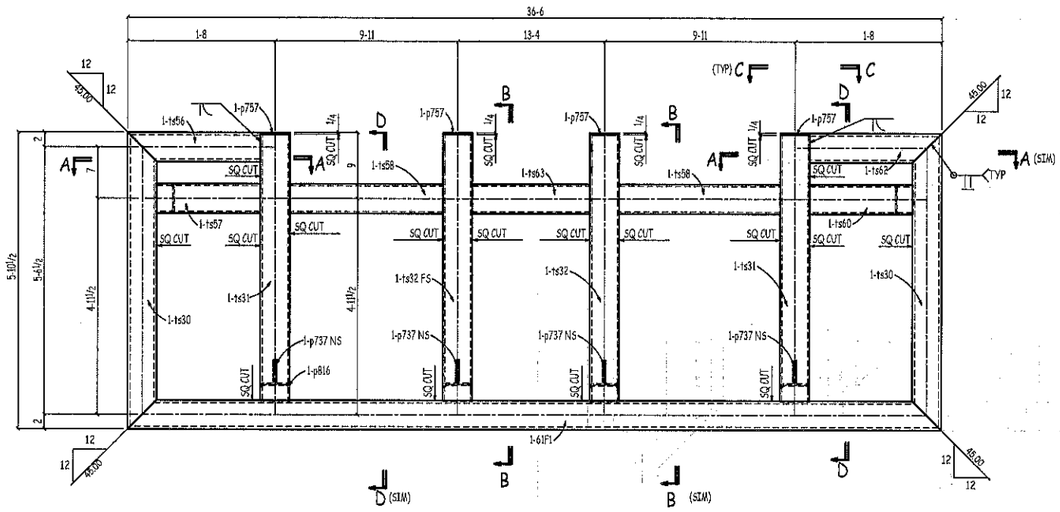
DRAWN BY: MSK CHECKED BY: SJS DATE: 06-12-2017 JOB NO.: 17068 DRWG. NO.: 60

EXPOSURE NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owner's design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineer, architect or owner's design.

Total weight : 2426

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	61F1	ONE	FRAME		2217	Galv
	61P1	1	HSS6x4x3/8	36 6	517	A500B
	ts63	1	HSS8x4x1/4	13 0	247	S2E A500B
	ts58	2	HSS8x4x1/4	9 7	182	S2E A500B
	ts31	2	HSS8x4x1/4	5 8 1/4	104	S2E A500B
	ts32	2	HSS8x4x1/4	5 8 1/4	104	S2E A500B
	ts57	1	HSS8x4x1/4	1 2	21	S2E A500B
	ts60	1	HSS8x4x1/4	1 2	21	S2E A500B
	ts30	2	HSS6x4x3/8	5 10 1/2	124	A500B
	ts56	1	HSS6x4x3/8	1 6	30	S1E A500B
	ts62	1	HSS6x4x3/8	1 6	30	S1E A500B
	p737	4	FL 3/8x3	0 7 1/2	2	A36
	p757	4	FL 1/4x4	0 6	2	A36
	p526	2	FL 1/4x4	0 3 5/16	1	A36
	p814	3	FL 1/4x4	0 3 1/16	1	A36
	p816	1	FL 1/4x4	0 3 1/16	1	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 6		+1PL,1HD WASH
						GALV
B	61M1	2	MISC		2	Galv
	61M1	2	FL 3/8x3	0 7 1/2	2	A36
B	61M2	2	MISC		4	Galv
	61M2	2	FL 3/8x3	0 11 1/2	4	A36
B	61M3	2	MISC		7	Galv
	61M3	2	FL 1/2x4	0 11 1/2	7	A36
1	61M4	24	MISC		3	Galv
	61M4	24	L3 1/2x3x1/4	0 6	3	A36
			FIELD BOLTS			
		96	3/4 Dia LAG BOLT	0 3		GALV
1	61M5	48	MISC		3	Galv
	61M5	48	L3 1/2x3x1/4	0 6	3	A36
			FIELD BOLTS			
		2	3/4 Dia A325N	0 5 1/2		+1HD WASH GALV
		46	3/4 Dia A307	0 5 1/2		+1HD WASH GALV
		96	3/4 Dia LAG BOLT	0 3		GALV



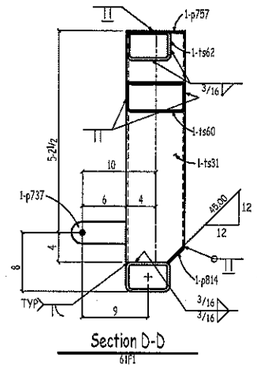
ONE FRAME 61F1

FIELD BOLTS:
4-3/4x6 A325N +1PL,1HD WASH GALV [total=4]

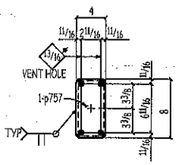
APPROVER TO VERIFY ALL WELD ARRANGEMENT

SHOP WELD AFTER GALVANIZING

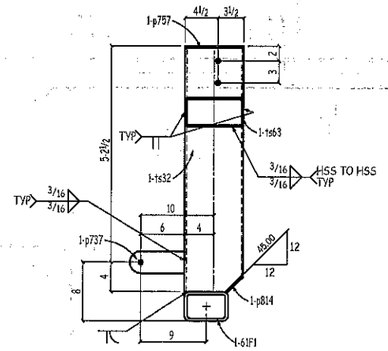
TACK WELD NUT INSIDE TUBE FOR GALVANIZING TYP EA END EA TUBE



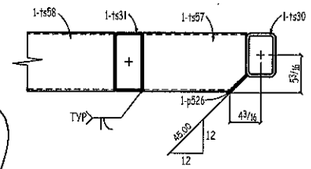
Section D-D
61F1



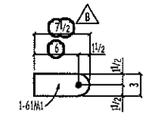
Section C-C
61F1



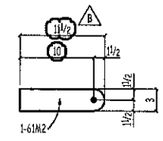
Section B-B
61F1



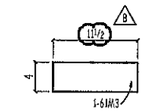
Section A-A
61F1



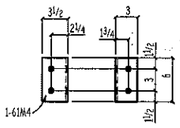
2 MISCS 61M1



2 MISCS 61M2

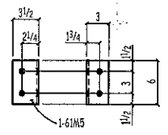


2 MISCS 61M3



24 MISCS 61M4

FIELD BOLTS:
4-3/4x3 LAG BOLT GALV [total=94]



48 MISCS 61M5

FIELD BOLTS:
2-3/4x5 1/2 A307 +1HD WASH GALV [total=48]
2-3/4x3 LAG BOLT GALV [total=96]

PLUG HOLES AFTER GALVANIZING

A/E Please verify

Page

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD

SHOP

APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication of parts/items of the projects shown thereon no changes modifications or corrections assigned by fabricated materials of use changes for such measure will be allowed unless or prior notification to and signatures) with Endres Mfg Co.

DIRECTOR NOTES:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS ZONE AWAY WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT STOP 4MM ON FIELD END AS DETAILED ALL RE-ENTRANT CORNERS SHALL BE SHARP/NOTCH FREE TO A RADIUS OF AT LEAST 10 MM

WEB MATERIAL (U/N): A-992 GR-50
PARTS MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: GALV PER ASTM123
FIELD CONNECTIONS: AS NOTED
HOLES (U/N): 13/16 ø

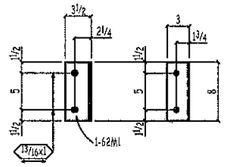
USE NO. 70S-X WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 2018

TOLERANCE NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections or details are properly identified and that all connection s detailed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

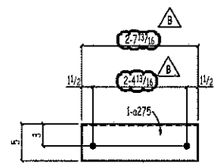
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILED: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO: 17068
DRWG. NO.: 61

Total weight : 5570



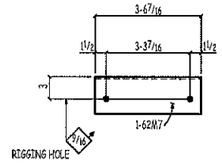
204 ANGLES 62M1

FIELD BOLTS:
2-3/4x5 1/2 A307 +1HD WASH GALV [total=204]
2-3/4x6 1/2 A307 +2HD WASH GALV [total=202]



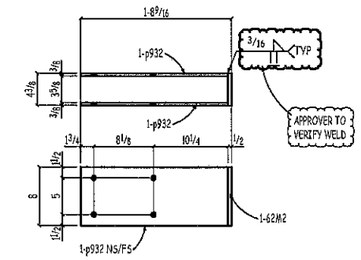
48 MISCS 62M4

FIELD BOLTS:
2-3/4x2 A325N +1HD WASH GALV [total=48]

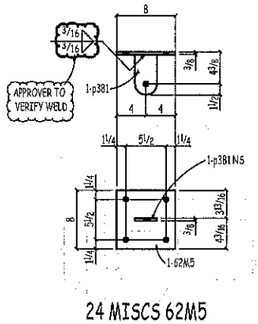


48 ANGLES 62M7

FIELD BOLTS:
2-3/4x2 A325N +1HD WASH GALV [total=48]

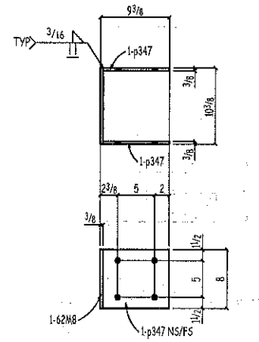


24 MISCS 62M2



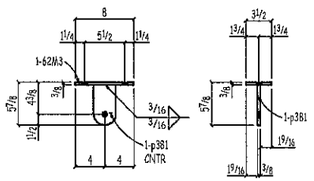
24 MISCS 62M5

FIELD BOLTS:
4-3/4x1" EXP ANC [total=56]



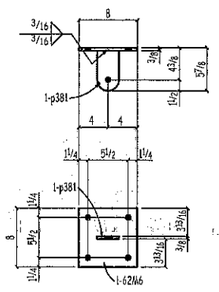
24 MISCS 62M8

FIELD BOLTS:
4-3/4x1 1/2 A307 +1HD WASH GALV [total=96]



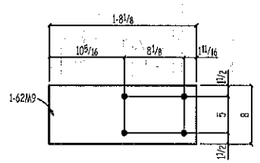
48 MISCS 62M3

FIELD BOLTS:
2-3/4x5 LAG BOLT [total=96]



24 MISCS 62M6

FIELD BOLTS:
4-3/4x5 LAG BOLT [total=96]



48 PLATES 62M9

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	62M1	204	MISC		3	Galv
	62M1	204	L3 1/2x3x1/4	0 8	3	A36
			FIELD BOLTS			
		196	3/4 Dia A307	0 6 1/2		+2HD WASH GALV
		4	3/4 Dia A325N	0 6 1/2		+2HD WASH GALV
		6	3/4 Dia A307	0 6		+2HD WASH GALV
		4	3/4 Dia A325N	0 5 1/2		+1HD WASH GALV
		200	3/4 Dia A307	0 5 1/2		+1HD WASH GALV
1	62M2	24	MISC		39	Galv
	62M2	24	FL 1/2x8	0 4 3/8	5	A36
	p932	48	FL 3/8x8	1 8 1/16	17	A36
1	62M3	48	MISC		4	Galv
	62M3	48	FL 3/8x3 1/2	0 8	3	A36
	p381	48	FL 3/8x3	0 5 1/2	2	A36
			FIELD BOLTS			
		96	3/4 Dia LAG BOLT	0 5		GALV
1	62M4	48	MISC		17	Galv
B	p275	48	L5x3x1/4	2 7 13/16	17	A36
			FIELD BOLTS			
		48	3/4 Dia A325N	0 2		+1HD WASH GALV
		1	3/4 Dia A325N	0 1 3/4		+1HD WASH GALV
1	62M5	24	MISC		8	Galv
	62M5	24	FL 3/8x8	0 8	7	A36
	p381	24	FL 3/8x3	0 5 1/2	2	A36
			FIELD BOLTS			
		84	3/4 Dia EXP ANC	0 7		GALV
		8	3/4 Dia EXP ANC	0 5		GALV
1	62M6	24	MISC		8	Galv
	62M6	24	FL 3/8x8	0 8	7	A36
	p381	24	FL 3/8x3	0 5 1/2	2	A36
			FIELD BOLTS			
		88	3/4 Dia LAG BOLT	0 5		GALV
		8	3/4 Dia LAG BOLT	0 3		GALV
1	62M7	48	ANGLE		23	Galv
	62M7	48	L5x3x1/4	3 6 7/16	23	A36
			FIELD BOLTS			
		48	3/4 Dia A325N	0 2		+1HD WASH GALV
1	62M8	24	MISC		24	Galv
	62M8	24	FL 3/8x8	0 10 3/8	9	A36
	p347	48	FL 3/8x8	0 9	7	A36
			FIELD BOLTS			
		96	3/4 Dia A307	0 11 1/2		+1HD WASH GALV
1	62M9	48	PLATE		17	Galv
	62M9	48	FL 3/8x8	1 8 1/8	17	A36

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
	DATE	DESCRIPTION	DETAILER

FIELD
SHOP
APPROVAL E 07-11 E 02-09

PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

NOTICE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon. Any modifications or repetitive reuses by fabricated materials of any character for such reasons will be at said writers' great risk/liability to and agreement with Endres Mfg. Co.

CONSTRUCTION NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A325 BOLTS TIGHTENED TO SNUG TIGHT, WITH ONE HARDENED WASHER UNDER NUT TURNED ELEMENT (NUT OR BOLT HEAD).

SHOP NOTE: PAINT TEST: WIRE ON LIFTING AS DETAILED. ALL BEVELS AND COPES SHALL BE SMOOTH AND FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: GALV PER ASTM123
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70X8

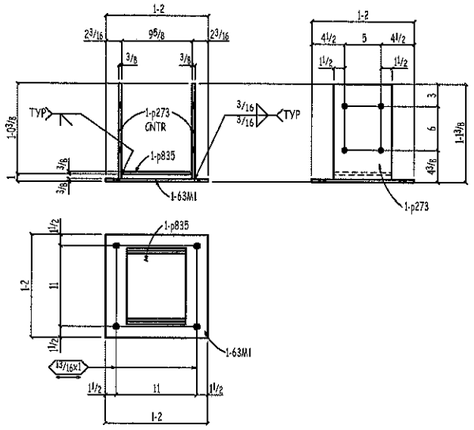
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO. 62
DETAILER: MSK | CHECKED: SJS
DATE: 06-12-2017
JOB NO. 17068

APPROVER NOTE: The contract structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

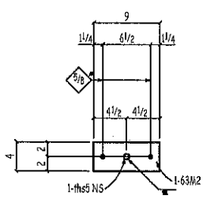
A/E Please verify
Page

Total weight : 1707



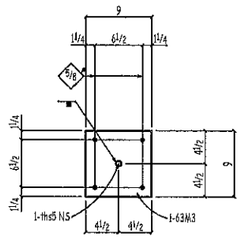
24 MISCS 63M1

FIELD BOLTS:
4-3/4x8 KWIK BOLT GALV [total=96]
4-3/4x1 1/2 A307 +1HD WASH GALV [total=96]



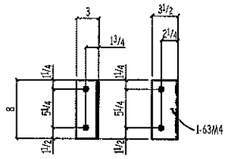
16 MISCS 63M2

FIELD BOLTS:
2-3/4x3 LAG BOLT GALV [total=32]



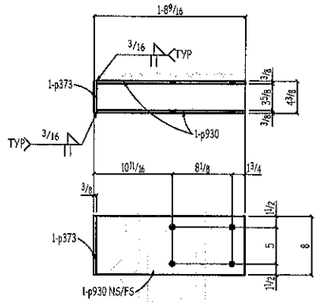
20 MISCS 63M3

FIELD BOLTS:
4-3/4x3 LAG BOLT GALV [total=80]

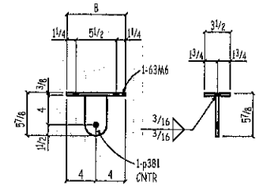


ONE ANGLE 63M4

FIELD BOLTS:
4-3/4x3 LAG BOLT GALV [total=4]

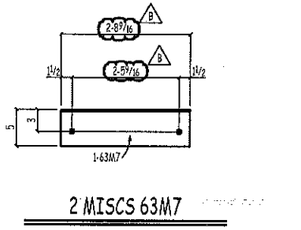


2 MISCS 63M5



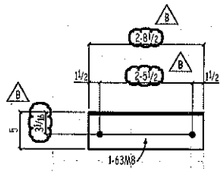
4 MISCS 63M6

FIELD BOLTS:
2-3/4x5 LAG BOLT GALV [total=8]

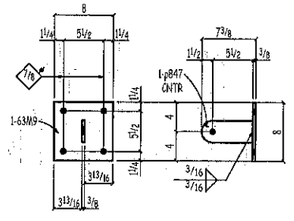


2 MISCS 63M7

FIELD BOLTS:
2-3/4x2 A325N +1HD WASH GALV [total=4]



ONE MISC 63M8



4 MISCS 63M9

FIELD BOLTS:
4-3/4x5 EXP ANCHOR GALV [total=16]

A/E Please Verify Page

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	63M1	24	MISC		50	Galv
	63M1	24	PL 3/8x14	1 2	21	A36
	p273	48	FL 3/8x8	1 1	11	A36
	p835	24	FL 3/8x8	0 9 3/8	8	A36
			FIELD BOLTS			
		96	3/4 Dia A307	0 11 1/2		+1HD WASH GALV
		96	3/4 Dia KWIK BOLT	0 8		GALV
1	63M2	16	MISC		5	Galv
	63M2	16	FL 1/2x4	0 9	5	A36
	ths5	16	THD STUD 3/4	0 3	0	A108
			FIELD BOLTS			
		16	3/4 NUT			HHNT A563
		16	3/4 WASHER			HD F436
		32	3/4 Dia LAG BOLT	0 3		GALV
1	63M3	20	MISC		12	Galv
	63M3	20	PL 1/2x9	0 9	11	A36
	ths5	20	THD STUD 3/4	0 3	0	A108
			FIELD BOLTS			
		20	3/4 NUT			HHNT A563
		20	3/4 WASHER			HD F436
		80	3/4 Dia LAG BOLT	0 3		GALV
1	63M4	ONE	ANGLE		4	Galv
	63M4	1	L3 1/2x3x1/4	0 8	4	A36
			FIELD BOLTS			
		4	3/4 Dia LAG BOLT	0 3		GALV
1	63M5	2	MISC		35	Galv
	p930	4	FL 3/8x8	1 8 9/16	17	A36
	p373	2	FL 3/8x8	0 4 3/8	4	A36
1	63M6	4	MISC		4	Galv
	63M6	4	FL 3/8x3 1/2	0 8	3	A36
	p381	4	FL 3/8x3	0 5 1/2	2	A36
			FIELD BOLTS			
		8	3/4 Dia LAG BOLT	0 5		GALV
B	1 63M7	2	MISC		18	Galv
	63M7	2	L5x3x1/4	2 8 1/2	18	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2		+1HD WASH GALV
B	1 63M8	ONE	MISC		18	Galv
	63M8	1	L5x3x1/4	2 8 1/2	18	A36
1	63M9	4	MISC		9	Galv
	63M9	4	FL 3/8x8	0 5	7	A36
	p847	4	FL 3/8x3	0 7	2	A36
			FIELD BOLTS			
		16	3/4 Dia EXP ANCHOR	0 5		GALV

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD
SHOP
APPROVAL E 07-11 E 02-09
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown. Omissions or changes and additions or corrections necessary to fabricated materials of the drawings for such omissions will be allowed without prior notification to and approval with Endres Mfg. Co.

DIRECTION NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 X3/4" DIA HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TIGHTED ELEMENT NOT OR NOT MARKED

SHOP NOTE: PAINT PLUG SHALL BE CLEAN AND FREE OF LOOSE MILL SCALE, DIRT, GREASE, OIL, PAINT OR OTHER FOREIGN MATERIAL THAT WOULD AFFECT THE BONDING OF A COATING OF AT LEAST 1.5 MILS

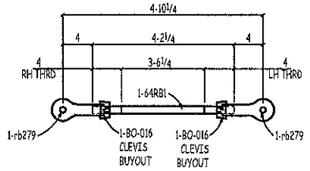
WIDE FLANGE (TYP.) A-992 GR-50
PLATE MATERIAL (TYP.) A-36
TUBE MATERIAL (TYP.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALV PER ASTM123
FIELD CONNECTIONS AS NOTED | HOLES (TYP.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

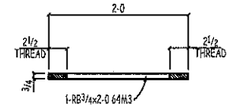
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRAWN BY | CHECKED MSK | SJS
DATE 06-12-2017
JOB NO. 17068
DRWG NO. 63

DISCLAIMER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections or details are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 406



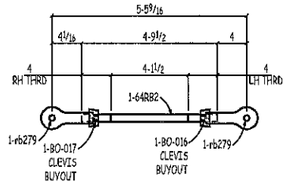
2 ROD BRACES 64RB1



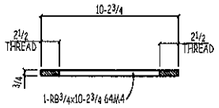
ONE MISC 64M3



28 MISCS 64M7



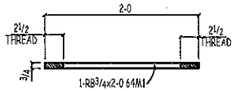
4 ROD BRACES 64RB2



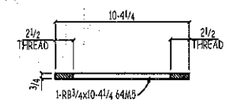
4 MISCS 64M4



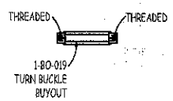
8 MISCS 64M8



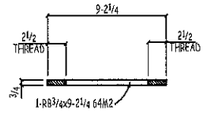
17 MISCS 64M1



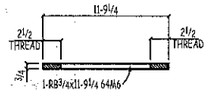
4 MISCS 64M5



18 MISCS 64M9



6 MISCS 64M2



4 MISCS 64M6

A/E Please verify page

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	64RB1	2	ROD BRACE		12	Galv
	64RB1	2	RB1	4 2¼	11	A36
	BO-018	4	CV3			BUYOUT
	rb279	4	CLEVIS PIN ¾	0 2⅝	0	A36
1	64RB2	4	ROD BRACE		13	Galv
	64RB2	4	RB1	4 9½	13	A36
	BO-017	4	CV3			BUYOUT
	BO-016	4	CV3			BUYOUT
	rb279	8	CLEVIS PIN ¾	0 2⅝	0	A36
1	64M1	17	MISC		3	Galv
	64M1	17	RB¾	2 0	3	A36
1	64M2	6	MISC		14	Galv
	64M2	6	RB¾	9 2¼	14	A36
1	64M3	ONE	MISC		3	Galv
	64M3	1	RB¾	2 0	3	A36
1	64M4	4	MISC		15	Galv
	64M4	4	RB¾	10 2¾	15	A36
1	64M5	4	MISC		15	Galv
	64M5	4	RB¾	10 4¼	15	A36
1	64M6	4	MISC		18	Galv
	64M6	4	RB¾	11 9¼	18	A36
1	64M7	28	MISC			Galv
	BO-015	28	CV2½			BUYOUT
1	64M8	8	MISC			Galv
	BO-018	8	CV2½			BUYOUT
1	64M9	18	MISC			Galv
	BO-019	18	TB¾x6			BUYOUT

AISC CERTIFIED FABRICATOR

These drawings are the property of Endres Mfg Co and are for the sole purpose of fabrication and erection of the products shown thereon as a topic. No alterations or correction measures in fabricated materials or any changes for such movement will be allowed without prior certification by and agreement with Endres Mfg Co.

DIRECTION NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 BOLTS IN A STANDARD HOLE TO MATCH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL WELDING SYMBOLS SHALL BE AS SHOWN AND WELDS TO A FINISHED SIZE OF AT LEAST ⅛ INCH

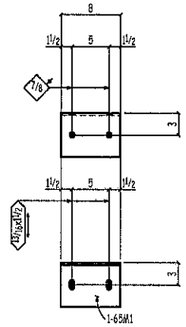
REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
FIELD			
SHOP			
APPROVAL	E 07-11		
PRINTS	NO. DATE	NO. DATE NO. DATE NO. DATE	

WIDE FLANGE (UN) A-992 GR-50
PARTS MATERIAL (UN) A-36
TUBE MATERIAL (UN) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALV PER ASTM123
FIELD CONNECTIONS AS NOTED | HOLES (UN) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX
CONTRACT NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the technical as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

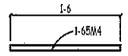
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RYDEBUSCH
DETAILER CHECKED MSK | SJS
DATE 06-12-2017
JOB NO. 17068
DRWG NO. 64

Total weight : 4359

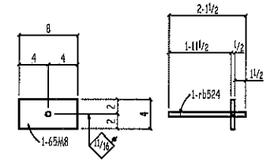


48 ANGLES 65M1

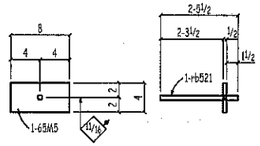
FIELD BOLTS:
2-3/4x3 LAG BOLT [total=96]
2-3/4x8 EXP ANCHOR [total=96]



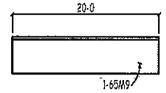
8 MISCS 65M4



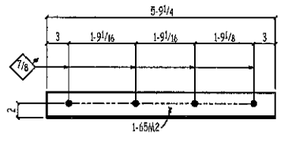
9 MISCS 65M8



5 MISCS 65M5

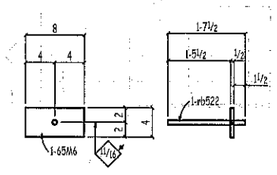


12 ANGLES 65M9

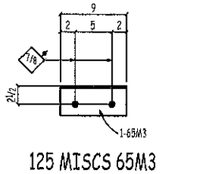


ONE ANGLE 65M2

FIELD BOLTS:
4-3/4x4½ EXP ANCHOR [total=4]

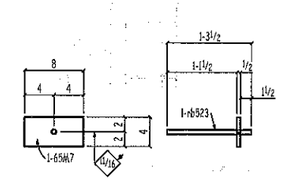


32 MISCS 65M6



125 MISCS 65M3

FIELD BOLTS:
2-3/4x5 EXP ANCHOR [total=250]



10 MISCS 65M7

A/E Please verify page

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	65M1	48	ANGLE		8	
	65M1	48	L6x6x5/16	0 8	8	A36
			FIELD BOLTS			
		96	3/4 Dia EXP ANCHOR	0 8		
		96	3/4 Dia LAG BOLT	0 3		
1	65M2	ONE	ANGLE		33	
	65M2	1	L3½x3½x1/4	5 9¼	33	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 4½		
1	65M3	125	MISC		5	
	65M3	125	L4x4x1/4	0 9	5	A36
			FIELD BOLTS			
		250	3/4 Dia EXP ANCHOR	0 5		
1	65M4	8	MISC		2	
	65M4	8	RB3/4	1 6	2	A36
1	65M5	5	MISC		7	
	65M5	5	FL1/2x4	0 8	4	A36
	rb521	5	RB5/8	2 5½	3	A36
			FIELD BOLTS			
		10	5/8 NUT			HHNT A563
		10	5/8 WASHER			HD F436
1	65M6	32	MISC		6	
	65M6	32	FL1/2x4	0 8	4	A36
	rb522	32	RB5/8	1 7½	2	A36
			FIELD BOLTS			
		64	5/8 NUT			HHNT A563
		64	5/8 WASHER			HD F436
1	65M7	10	MISC		8	
	65M7	10	FL1/2x4	0 8	4	A36
	rb523	10	RB5/8	1 3½	1	A36
			FIELD BOLTS			
		20	5/8 NUT			HHNT A563
		20	5/8 WASHER			HD F436
1	65M8	9	MISC		7	
	65M8	9	FL1/2x4	0 8	4	A36
	rb524	9	RB5/8	2 1½	2	A36
			FIELD BOLTS			
		18	5/8 NUT			HHNT A563
		18	5/8 WASHER			HD F436
1	65M9	12	ANGLE		246	
	65M9	12	L5x5x5/8	20 0	246	A36

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
FIELD			
SHOP			
APPROVAL	E	07-11	
PRINTS	NO. DATE	NO. DATE NO. DATE NO. DATE NO. DATE	

ISSUE:
These drawings are the property of Endres Mfg Co and are for the sole purpose of fabrication and erection of the projects shown thereon or charge modifications or corrective measures to fabricated materials of user changes for such measures will be allowed without prior verification by and agreement with Endres Mfg Co.

DIRECTION NOTES:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM A563 HEAVY HEX NUTS WITH ONE HARDENED WASHER UNDER THE TURN REQUIREMENT NUT OR BOLT HEAD

SHOP NOTES:
1) ALL MISC MARK ON LEFT END AS SHOWN
2) ALL MISC MATERIAL SHALL BE PAINTED AS NOTED ON SHEET NO 2

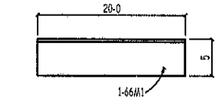
WIDE FLANGE (U/N): A-992 GR-50
PARTS MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U/N): 13/16 ø
WELD NO. XXXX WELD ROD: ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70XX

APPROVAL NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg Co. It is the professional responsibility of the engineering engineer, architect or owner to verify that the methods detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

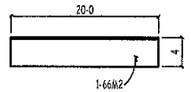
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO: 65
DETAILED: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO: 17068

Total weight : 11776

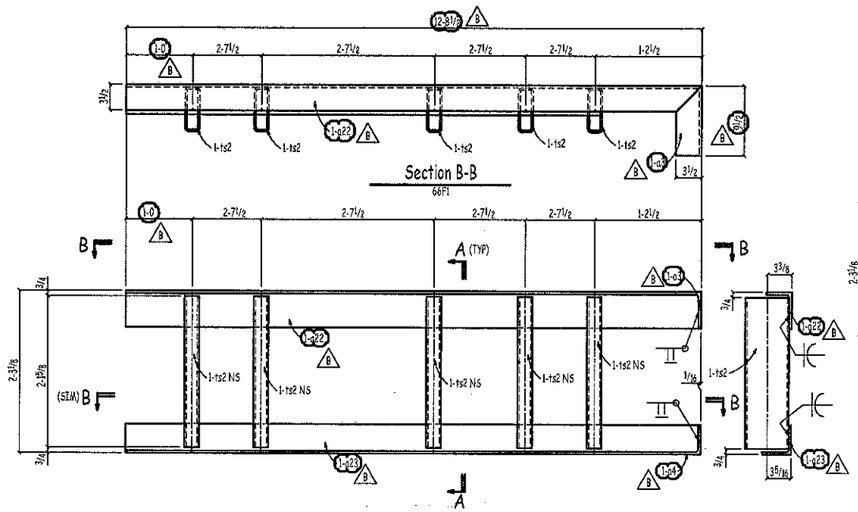


13 ANGLES 66M1

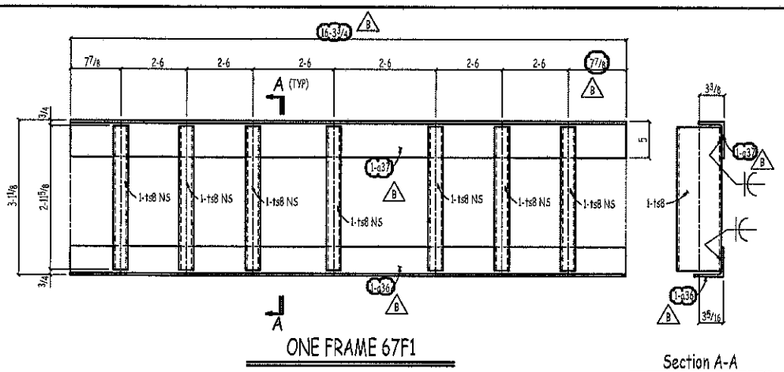


50 ANGLES 66M2

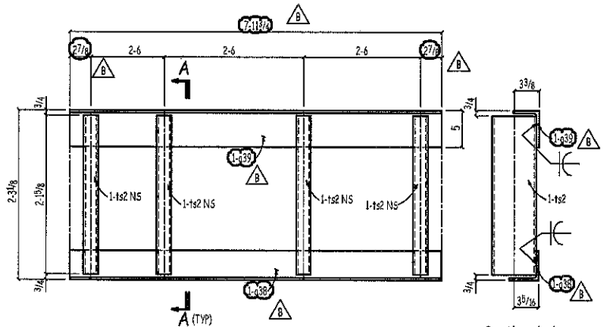
4 ANGLES 66M3



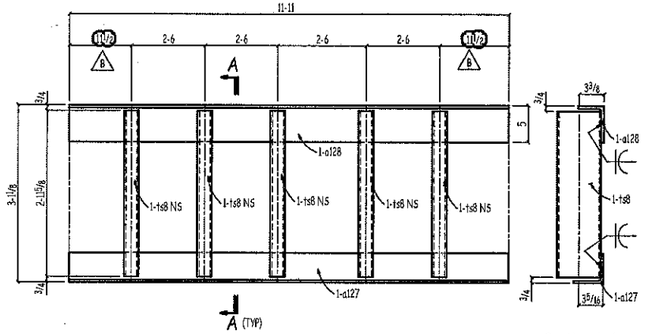
Total weight : 2482



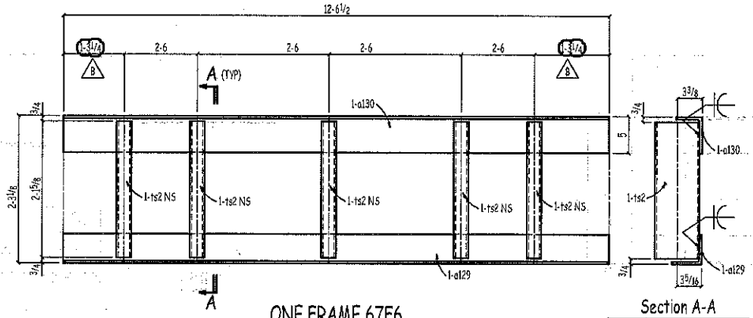
ONE FRAME 67F1



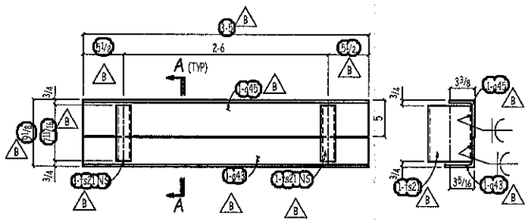
ONE FRAME 67F2



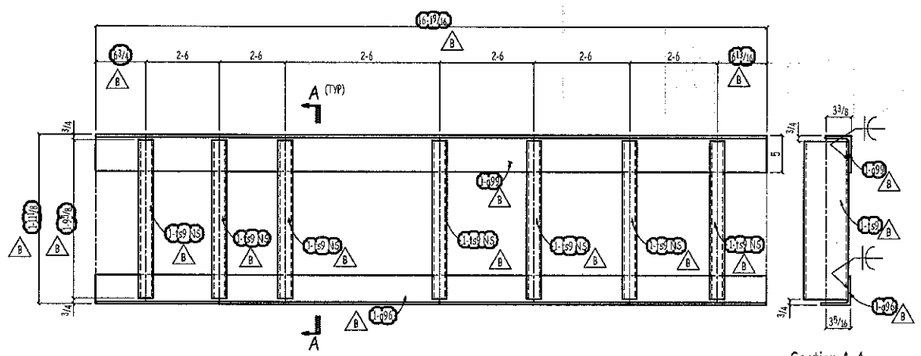
ONE FRAME 67F5



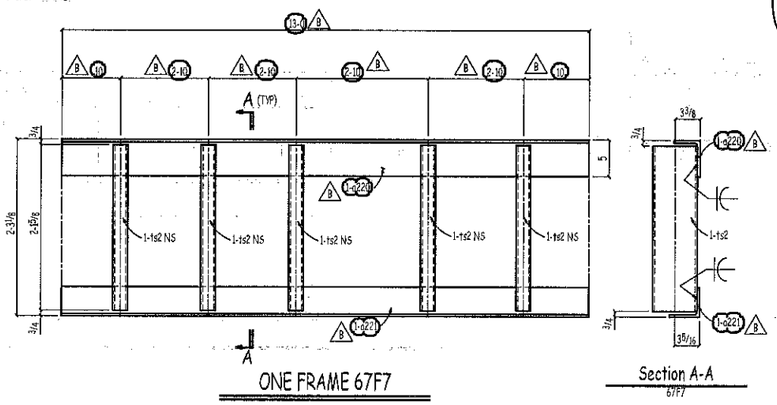
ONE FRAME 67F6



ONE FRAME 67F3



ONE FRAME 67F4



ONE FRAME 67F7

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	67F1	ONE FRAME			557	
	ts8	7	HSS6x2x1/4	2 11 5/8	38	A500B
B	a36	1	L4x4x5/16	16 3 15/16	134	A36
	a37	1	L5x3 1/2x3/8	16 3 13/16	170	A36
1	67F2	ONE FRAME			253	
	ts2	4	HSS6x2x1/4	2 1 5/8	28	A500B
B	a38	1	L4x4x5/16	7 11 3/4	65	A36
	a39	1	L5x3 1/2x3/8	7 11 3/4	83	A36
1	67F3	ONE FRAME			79	
	ts21	2	HSS6x2x1/4	0 7 5/8	8	A500B
B	a43	1	L4x4x5/16	3 5	28	A36
	a45	1	L5x3 1/2x3/8	3 5	36	A36
1	67F4	ONE FRAME			454	
	ts9	7	HSS6x2x1/4	1 9 5/8	22	A500B
B	a96	1	L4x4x5/16	16 13 15/16	132	A36
	a98	1	L5x3 1/2x3/8	16 13 15/16	168	A36
1	67F5	ONE FRAME			403	
	ts8	5	HSS6x2x1/4	2 11 5/8	38	A500B
	a127	1	L4x4x5/16	11 11	88	A36
	a128	1	L5x3 1/2x3/8	11 11	124	A36
1	67F6	ONE FRAME			364	
	ts2	5	HSS6x2x1/4	2 1 5/8	28	A500B
	a129	1	L4x4x5/16	12 6 1/2	103	A36
	a130	1	L5x3 1/2x3/8	12 6 1/2	138	A36
1	67F7	ONE FRAME			372	
	ts2	5	HSS6x2x1/4	2 1 5/8	28	A500B
B	a221	1	L4x4x5/16	13 0	107	A36
	a220	1	L5x3 1/2x3/8	13 0	139	A36

A/E Please verify Page

AISC CERTIFIED FABRICATOR

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon and may not be duplicated or used for any purpose whatsoever without written permission. Drawings are not to be scaled for erection purposes. Neither the sale of these drawings nor any fabrication or erection services rendered by Endres Mfg. Co. shall be construed as granting a license, expressed or implied, under any patent now or hereafter owned by Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER NUT. REFER TO ELEMENT MARK OR DETAILS.

SHOP NOTE: PAINT PER SPECIFICATIONS. ALL EXPOSED BOLTS SHALL BE HAMMER-NICKED ONCE TO A DEPTH OF 1/16 BELOW THE THREADS.

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

FIELD									
SHOP									
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO	DATE	NO	DATE	NO	DATE	

WIDE FLANGE (UN): A-992 GR-50
PLATE MATERIAL (UN): A-36
TUBE MATERIAL (UN): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC.
FIELD CONNECTIONS: AS NOTED — HOLES (UN): 13/16 ø
WELD NO. XXXX WELD PER: ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

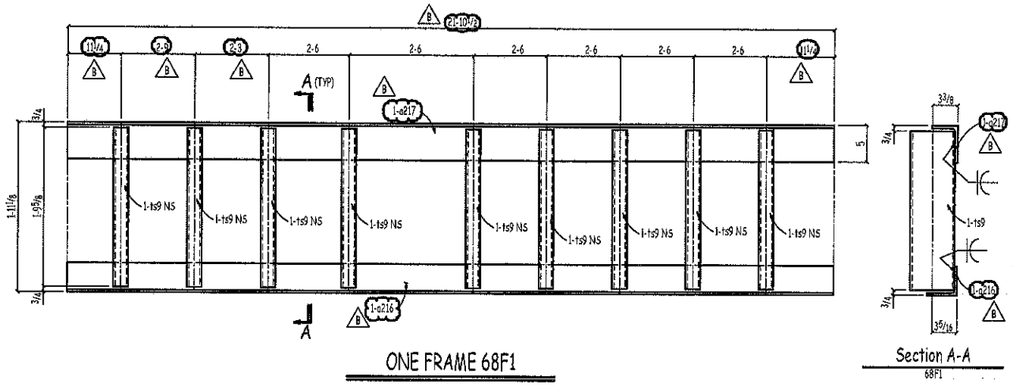
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

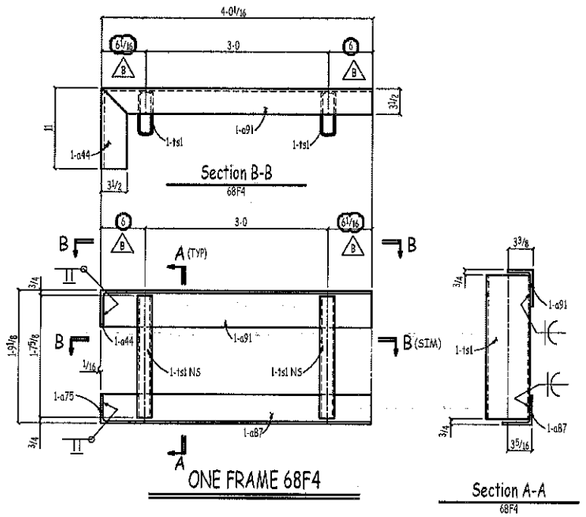
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: 67
DETAILED: MSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068

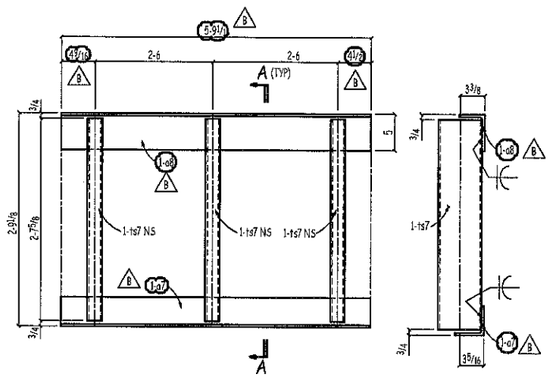
APPROVED 2017 IBC

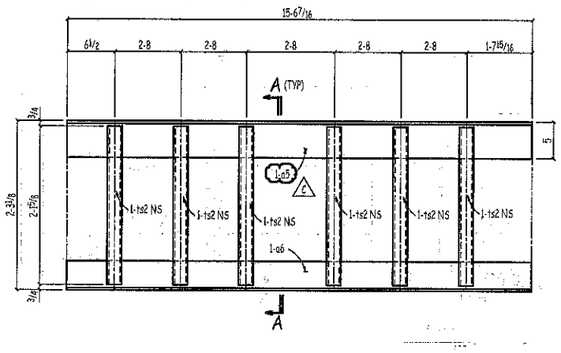
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the signoring engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

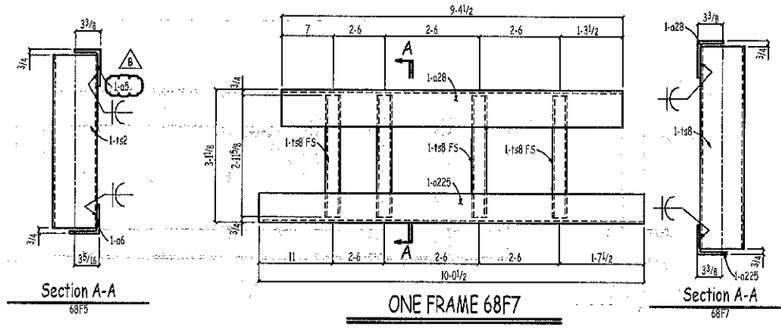
Total weight : 2398

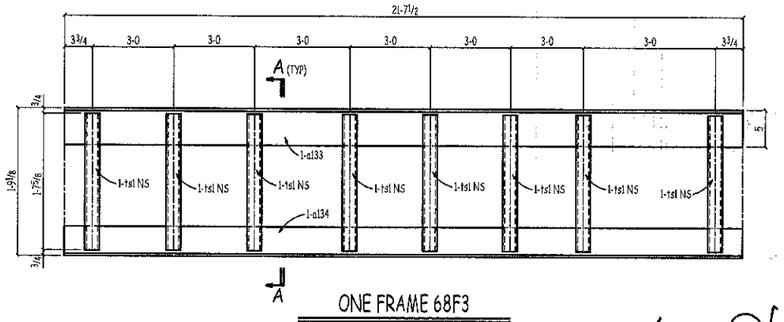


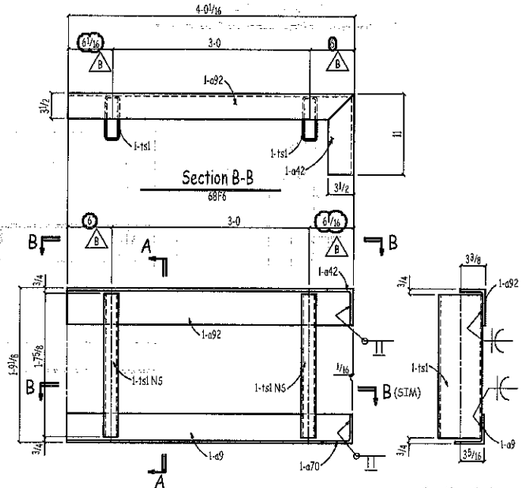












A/E Please verify PAGE

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	68F1	ONE	FRAME		605	
	ts9	9	HSS6x2x1/4	1 9 3/8	22	A500B
A	a216	1	L4x4x5/16	21 10 1/2	179	A36
A	a217	1	L5x3 1/2x3/8	21 10 1/2	228	A36
1	68F2	ONE	FRAME		204	
	ts7	3	HSS6x2x1/4	2 7 5/8	32	A500B
B	a7	1	L4x4x5/16	5 9 7/16	47	A36
B	a6	1	L5x3 1/2x3/8	5 9 7/16	60	A36
1	68F3	ONE	FRAME		582	
	ts1	8	HSS6x2x1/4	1 7 5/8	20	A500B
	a124	1	L4x4x5/16	21 7 1/2	177	A36
	a133	1	L5x3 1/2x3/8	21 7 1/2	225	A36
1	68F4	ONE	FRAME		128	
	ts1	2	HSS6x2x1/4	1 7 5/8	20	A500B
	a87	1	L4x4x5/16	4 0	32	A36
	a75	1	L4x4x5/16	0 10 13/16	7	A36
	a91	1	L5x3 1/2x3/8	4 0 1/16	41	A36
	a44	1	L5x3 1/2x3/8	0 11	9	A36
1	68F5	ONE	MISC		445	
	ts2	6	HSS6x2x1/4	2 1 5/8	26	A500B
	a6	1	L4x4x5/16	15 8 1/2	127	A36
C	a5	1	L5x3 1/2x3/8	15 8 1/2	162	A36
1	68F6	ONE	FRAME		128	
	ts1	2	HSS6x2x1/4	1 7 5/8	20	A500B
	a9	1	L4x4x5/16	4 0	32	A36
	a70	1	L4x4x5/16	0 10 13/16	7	A36
	a92	1	L5x3 1/2x3/8	4 0 1/16	41	A36
	a42	1	L5x3 1/2x3/8	0 11	9	A36
1	68F7	ONE	FRAME		329	
	ts8	4	HSS6x2x1/4	2 11 5/8	36	A500B
	a225	1	L4x4x5/16	10 0 1/2	62	A36
	a28	1	L5x3 1/2x3/8	9 4 1/2	98	A36

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

FIELD | SHOP

APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE!
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon (unless modifications or corrections necessary for fabrication of our drawings for such accuracy will be allowed without prior notification to and agreement with Endres Mfg. Co.

CHECK FOR NOTE
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325-N HIGH STRENGTH BOLTS IN HOLES 13/16" DIA. WITH ONE HARDENED WASHER UNDER NUT. SNUG TIGHTENED PLY OR EQUIVALENT PLY OR EQUIVALENT

SHOP NOTE
PAINT TOUCH WORK ON WELDS AS NOTED BY SSPC SP 2 & 3 SMALL TO LARGE HAND TOOL CLEANING TO REMOVE LOOSE MILL SCALE, RUST AND PAINT TO A MINIMUM OF ATLEAST 1½ INCH RADIUS OF ATLEAST ½ INCH

WIDE FLANGE (UN)	A-992 GR-50
PARTS MATERIAL (UN)	A-36
TUBE MATERIAL (UN)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (UN)	13/16 ø

USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70X

APPROVED AS NOTED
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the engineering engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineer's, architect's or owner's design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO. 68
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO. 17068

Total weight : 1351

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH		WEIGHT	REMARKS
1	DE01D1	ONE	DECK			95	Galv
	DE01D1	1	CK1 1/2x36	5	7	95	A1008
			TYPE B,GAGE 18				
1	DE01D2	ONE	DECK			95	Galv
	DE01D2	1	CK1 1/2x36	5	7	95	A1008
			TYPE B,GAGE 18				
1	DE01D3	ONE	MISC			95	Galv
	DE01D3	1	CK1 1/2x36	5	7	95	A1008
			TYPE B,GAGE 18				
1	DE01D4	ONE	DECK			266	Galv
	DE01D4	1	CK1 1/2x36	15	7	266	A1008
			TYPE B,GAGE 18				
1	DE01D5	ONE	DECK			266	Galv
	DE01D5	1	CK1 1/2x36	15	7	266	A1008
			TYPE B,GAGE 18				
1	DE01D6	ONE	DECK			266	Galv
	DE01D6	1	CK1 1/2x36	15	7	266	A1008
			TYPE B,GAGE 18				
1	DE01D7	ONE	DECK			266	Galv
	DE01D7	1	CK1 1/2x36	15	7	266	A1008
			TYPE B,GAGE 18				

REFER DE01 SHEET FOR LAYOUT AND CUT DIMENSIONS

AISC CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown. Alterations or changes or fabrication or correction measures to fabricated materials of our changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

SHEET OR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH ASTM H&H STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOT TO FIVE 10 A RADIUS OF AT LEAST 1/2 INCH

REV	DATE	DESCRIPTION	DETAILER
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD								
SHOP								
APPROVAL	E	07-11						

WIDE FLANGE (UN) A-992 GR-50
PARTS MATERIAL (UN) A-36
TUBE MATERIAL (UN) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALV PER ASTM123
FIELD CONNECTIONS AS NOTED
HOLES (UN) 13/16 ø
USE NO. 7000 WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 70kB

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

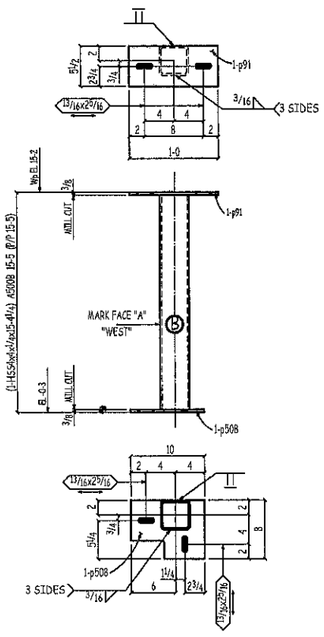
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK
CHECKED: SJS
DATE: 05-18-2017
JOB NO.: 17068
DRWG. NO.: 69

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 589

BILL OF MATERIAL

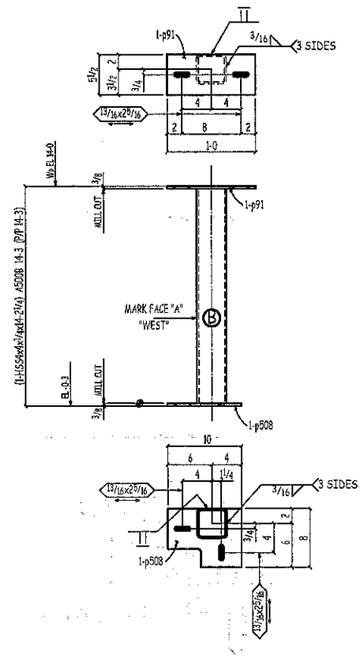
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	71C1	ONE	COLUMN		201	
	71C1	1	HSS4x4x1/4	15 4 1/4	187	M2E A500B
	p508	1	FL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	71C2	ONE	COLUMN		187	
	71C2	1	HSS4x4x1/4	14 2 1/4	173	M2E A500B
	p508	1	FL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	71C3	ONE	COLUMN		201	
	71C3	1	HSS4x4x1/4	15 4 1/4	187	M2E A500B
	p508	1	FL 3/8x8	0 10	7	A36
	p91	1	PL 3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		



ONE COLUMN 71C1

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR (total-4)

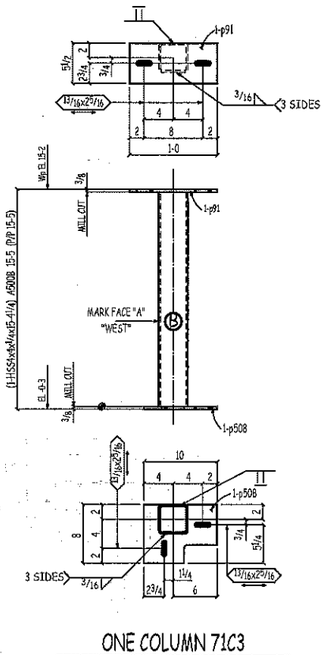
ALREADY APROVED AS 26C7



ONE COLUMN 71C2

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR (total-4)

ALREADY APROVED AS 26C7



ONE COLUMN 71C3

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR (total-4)

ALREADY APROVED AS 27C1

A/E Please Verify Page

AISC CERTIFIED FABRICATOR

NOTE:
Above drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown. Re-use in whole or in part, re-publications or similar measures to fabricated materials of any changes for such measures will be allowed without prior authorization to and agreement with Endres Mfg. Co.

INSPECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A MINIMUM OF TWO BOLTS WITH THE NUMBER TO BE EQUIVALENT TO THE NUMBER SHOWN IN THE FURNISHED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT FREE (MARK ON LEFT END IS EXPOSED) ALL BE STANDARD CORNERS SHALL BE CHAMFERED A MIN. TO A RADIUS OF AT LEAST 1/16 inch

REV	DATE	DESCRIPTION	
A	Feb 9 2018	ISSUED FOR APPROVAL	SAT
			DETAILER

		NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD									
SHOP									
APPROVAL	E	02-09							
PRINTS									

WIDE FLANGE (U.N.)
A-992 GR-50

PARTS MATERIAL (U.N.)
A-36

TUBE MATERIAL (U.N.)
A-500 GR-B

SURFACE PREPARATION
SSPC SP 2 & 3

SHOP PAINT
SHERWIN WILLIAMS
STEEL SPEC

FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø

USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 2018

APPROVED NOTE:
"All details of structural steel shown on this sheet are developed from the engineering, architectural or camera design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the methods as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owner's design."

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

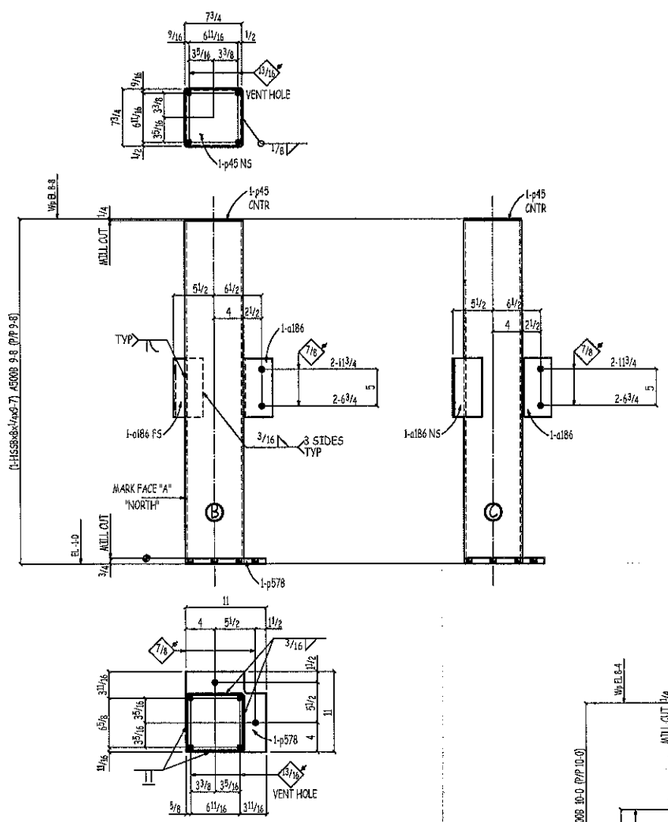
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RYEDEBUSCH

DETAILER	CHECKED	DATE	JOB NO.	DWG. NO.
MSK	SJS	05-18-2017	17068	71

Total weight : 867

BILL OF MATERIAL

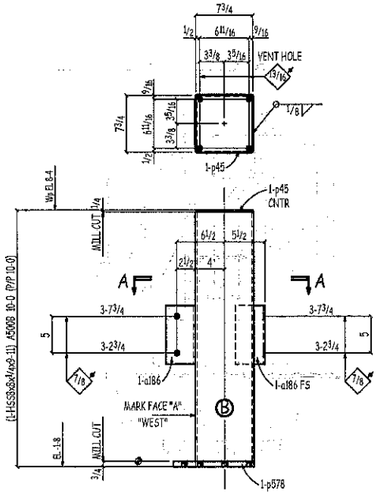
SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	72C1	ONE	COLUMN		283	GALV
	72C1	1	HSS8x8x1/4	9' 7	247	M2E A500B
	a186	2	L4x4x1/4	0' 8	4	A36
	p578	1	PL 3/4x11	0' 11	23	A36
	p45	1	PL 1/4x7 3/4	0' 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0' 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0' 6 1/2		GALV
1	72C2	ONE	COLUMN		292	Galv
	72C2	1	HSS8x8x1/4	9' 11	256	M2E A500B
	a186	2	L4x4x1/4	0' 8	4	A36
	p578	1	PL 3/4x11	0' 11	23	A36
	p45	1	PL 1/4x7 3/4	0' 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0' 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0' 6 1/2		GALV
1	72C3	ONE	COLUMN		292	Galv
	72C3	1	HSS8x8x1/4	9' 11	256	M2E A500B
	a186	2	L4x4x1/4	0' 8	4	A36
	p578	1	PL 3/4x11	0' 11	23	A36
	p45	1	PL 1/4x7 3/4	0' 7 3/4	4	A36
			FIELD BOLTS			
		2	3/4 Dia EXP ANCHOR	0' 7 3/4		GALV
		4	3/4 Dia EXP ANCHOR	0' 6 1/2		GALV



ONE COLUMN 72C1

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total-4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total-2]

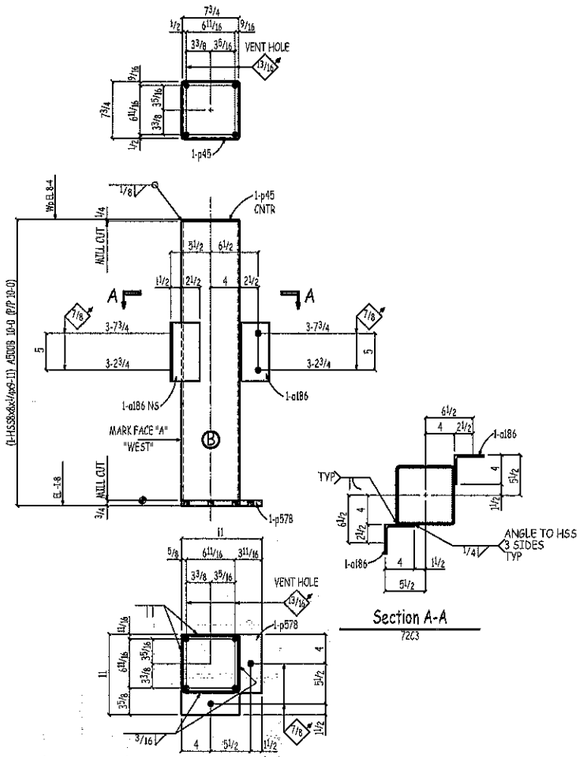
ALREADY APPROVED AS 29C4



ONE COLUMN 72C2

AT GRID:
A-7
FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total-4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total-2]

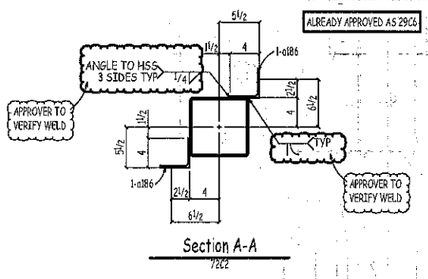
ALREADY APPROVED AS 29C5



ONE COLUMN 72C3

FIELD BOLTS:
4-3/4x6 1/2 EXPANSION ANCHOR GALV [total-4]
2-3/4x7 3/4 EXPANSION ANCHOR GALV [total-2]

ALREADY APPROVED AS 29C6



A/E Please Verify PAGE

PLUG HOLES AFTER GALVANIZING

AISC CERTIFIED FABRICATOR

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon. Any changes modifications or corrective measures to fabricated materials of our shop or for such purposes will be allowed without prior solicitation to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A MINIMUM STANDARD OF 2 SIXTEENTH FILLET WELDS ALL AROUND OR BOLTED WITH 3/4" TIGHTENED BEARING BOLTS OR SOLID HEAD.

SHOP NOTE: PAINT FIELD BURN ON LEFT END AS DETAILED. ALL ST. PAINTABLE CORNERS SHALL BE GROUND WITH PEEL TO A RADIUS OF AT LEAST 1/16 INCH

REV	DATE	DESCRIPTION	
A	Feb 9 2018	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD
SHOP
APPROVAL E 02-09
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE

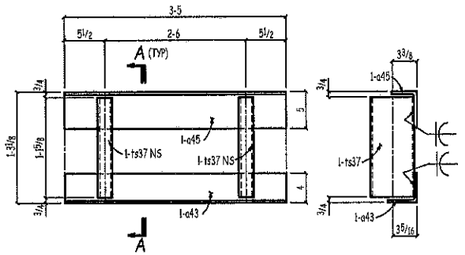
WIDE FLANGES (WF): A-992 GR-50
PLATE MATERIAL (PL): A-36
TUBE MATERIAL (HSS): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: GALVANIZED PER ASTM123
FIELD CONNECTIONS: AS NOTED
HOLES (DIA.): 13/16 ø
USE NO. 70XX WELD ROD. ALL CONCRETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068
DRWG. NO.: 72

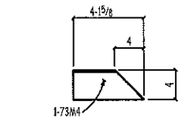
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architect, risk owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 3186



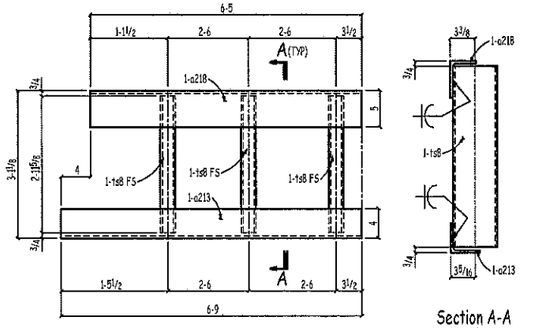
ONE FRAME 73F1

NEWLY ADDED



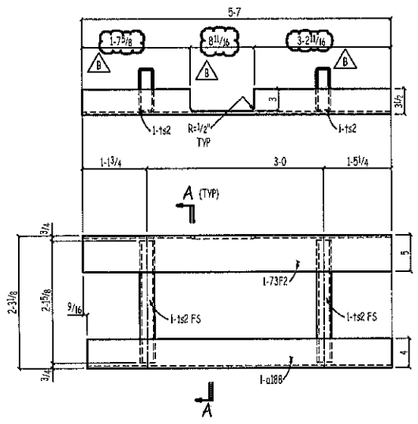
15 ANGLES 73M4

NEWLY ADDED



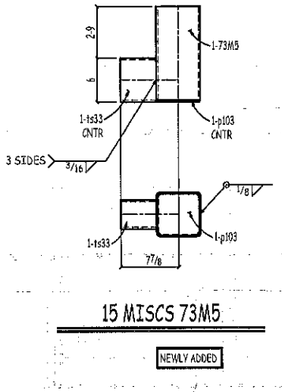
ONE FRAME 73F7

NEWLY ADDED



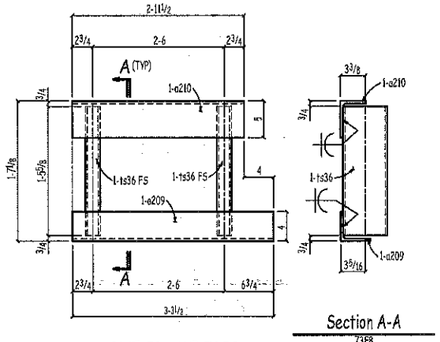
ONE FRAME 73F2

NEWLY ADDED



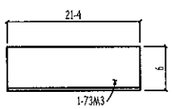
15 MISCS 73M5

NEWLY ADDED



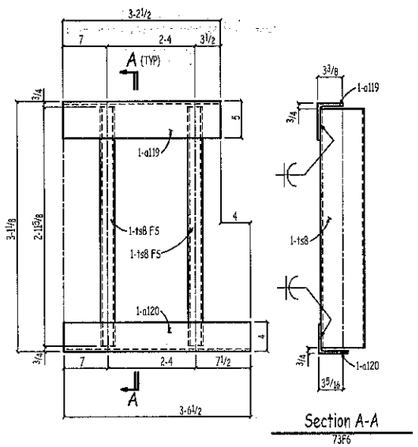
ONE FRAME 73F8

NEWLY ADDED



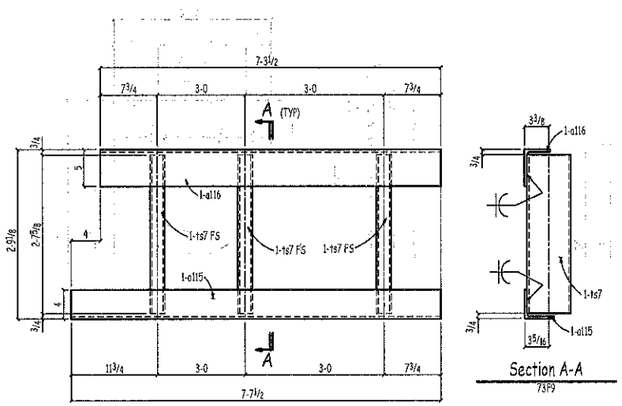
3 ANGLES 73M3

NEWLY ADDED



ONE FRAME 73F6

NEWLY ADDED



ONE FRAME 73F9

NEWLY ADDED

A/E Please verify Page

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	73F1		ONE FRAME		91	
	ts37	2	HSS6x2x1/4	1 1/8	14	A500B
	a43	1	L4x4x5/16	3 5	28	A36
	a45	1	L5x3 1/2x3/8	3 5	36	A36
1	73F2		ONE MISC		153	
	73F2	1	L5x3 1/2x3/8	5 7	55	A36
	ts2	2	HSS6x2x1/4	2 1/8	26	A500B
	a188	1	L4x4x5/16	5 6 7/16	46	A36
1	73M3	3	ANGLE		262	
	73M3	3	L6x4x3/8	21 4	262	A36
1	73M4	15	ANGLE		27	
	73M4	15	L4x4x1/4	4 1/8	27	A36
1	73M5	15	MISC		70	
	73M5	15	HSS6x6x1/4	3 2 3/4	61	A500B
	ts33	15	HSS6x4x1/4	0 4 7/8	8	A500B
	p103	15	PL1/4x5 3/4	0 5 3/4	2	A36
1	73F6		ONE FRAME		135	
	ts8	2	HSS6x2x1/4	2 11 5/8	36	A500B
	a120	1	L4x4x5/16	3 6 1/2	29	A36
	a119	1	L5x3 1/2x3/8	3 2 1/2	33	A36
1	73F7		ONE FRAME		231	
	ts8	3	HSS6x2x1/4	2 11 5/8	36	A500B
	a213	1	L4x4x5/16	6 9	55	A36
	a218	1	L5x3 1/2x3/8	6 5	67	A36
1	73F8		ONE FRAME		94	
	ts36	2	HSS6x2x1/4	1 5 7/8	18	A500B
	a209	1	L4x4x5/16	3 3 1/2	27	A36
	a210	1	L5x3 1/2x3/8	2 11 1/2	31	A36
1	73F9		ONE FRAME		235	
	ts7	3	HSS6x2x1/4	2 7 5/8	32	A500B
	a115	1	L4x4x5/16	7 7 1/2	63	A36
	a116	1	L5x3 1/2x3/8	7 3 1/2	76	A36

AISC CERTIFIED FABRICATOR

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the projects shown hereon. No changes and/or deletions or corrective measures by fabricator/erector or use of any changes for such purposes will be allowed without prior authorization to and agreement with Endres Mfg. Co.

SPECIAL NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE SHOP WELDED AND FIELD BOLTED. SHOW ALL WELDS AS WELL AS WELDING SYMBOLS UNDER THE HEADING OF WELDING ON BOTH ENDS.

SHOP NOTE: PAINT TOUCH MARK ON LEFT END AS FACING. ALL BEVELS TO BE FREE OF SCALE, SLAG, OIL, GREASE, PAINT, ETC. BEVELING TO BE AT LEAST 1/16 INCH.

REV	DATE	DESCRIPTION	
B	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
A	Feb 9 2018	ISSUED FOR APPROVAL	SAT
			DETAILER
FIELD			
SHOP			

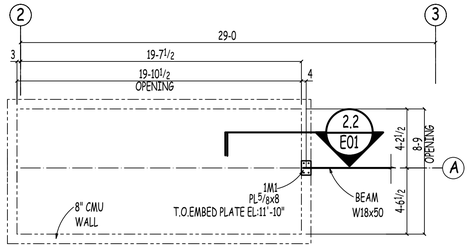
APPROVAL	E	02-09	E	03-20				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

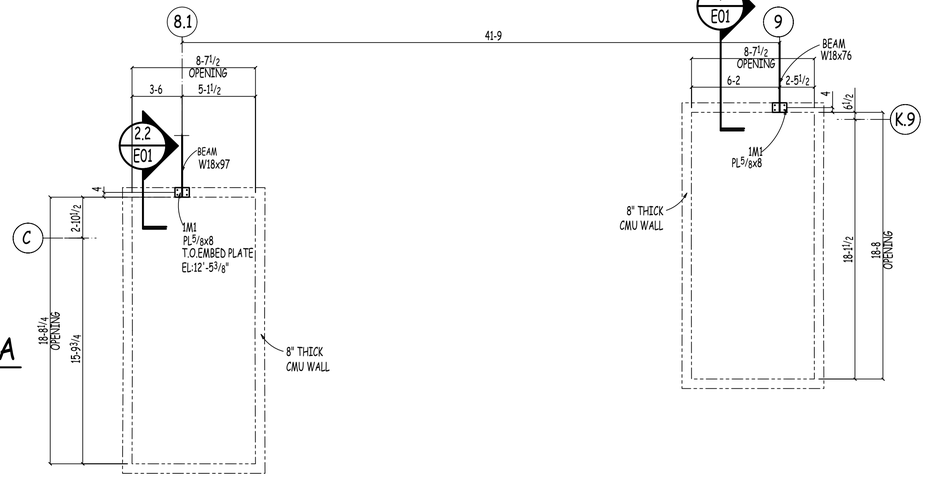
WIDE FLANGE (UN) A-992 GR-50
PARTS MATERIAL (UN) A-36
TUBE MATERIAL (UN) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (UN) 13/16 ø
USE ND. 7018X WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

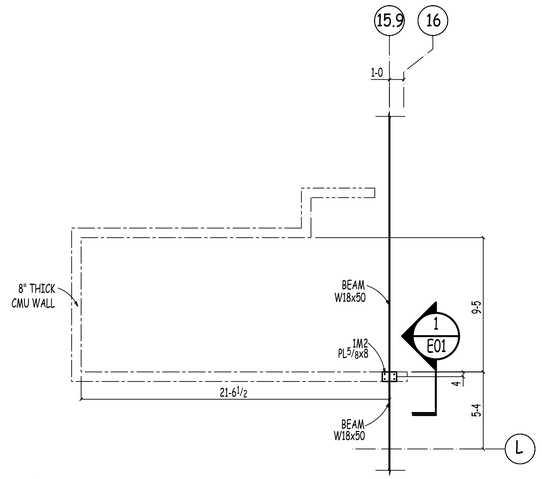
APPROVED NOTE: As details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. it is the professional responsibility of the engineering engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
JOB NO. 17068
DRAWN MSK | CHECKED SJS | DATE 06-12-2017
DRAWING NO. 73



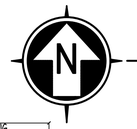






PARTIAL EMBED PLATE PLAN @ STAIR -A

REF CONTRACT DOCUMENT S1.2W
ALL DIMENSIONS ARE TO THE CENTER OF THE EMBED PLATE

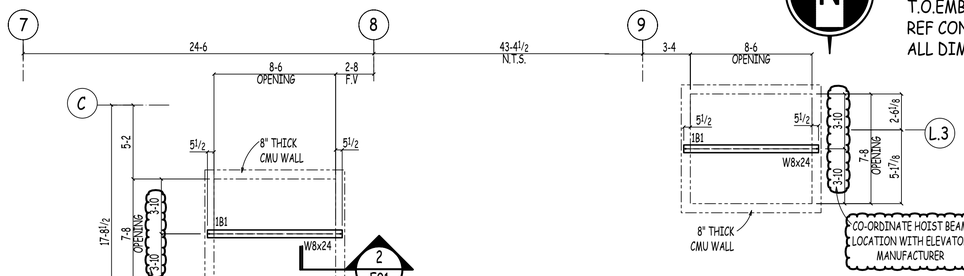


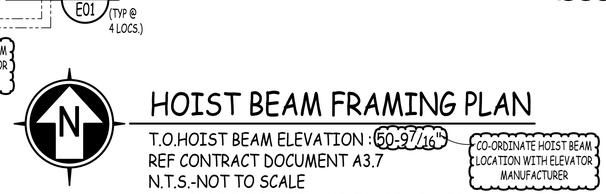
PARTIAL EMBED PLATE PLAN @ STAIR - B & C

T.O.EMBED PLATE ELEVATION : 12'-5 13/16" (U.N.)
REF CONTRACT DOCUMENT S1.2E
ALL DIMENSIONS ARE TO THE CENTER OF THE EMBED PLATE

PARTIAL EMBED PLATE PLAN @ STAIR -D

T.O.EMBED PLATE ELEVATION : 13-8" (U.N.)
REF CONTRACT DOCUMENT S1.2E
ALL DIMENSIONS ARE TO THE CENTER OF THE EMBED PLATE

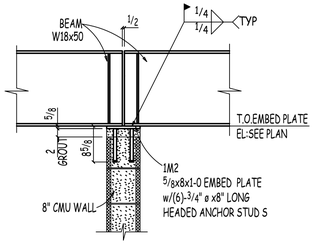




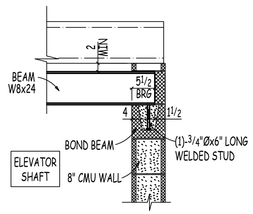
HOIST BEAM FRAMING PLAN

T.O.HOIST BEAM ELEVATION : 50-9 7/16"
REF CONTRACT DOCUMENT A3.7
N.T.S.-NOT TO SCALE
F.V - INDICATES FIELD VERIFY DIMENSION

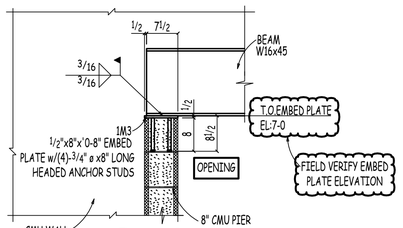
CO-ORDINATE HOIST BEAM LOCATION WITH ELEVATOR MANUFACTURER



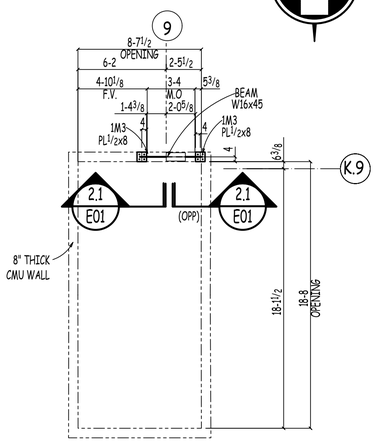
1 / E01 SECTION
CUT FROM E01
REF.CONTRACT DOCUMENT-19/S4.1

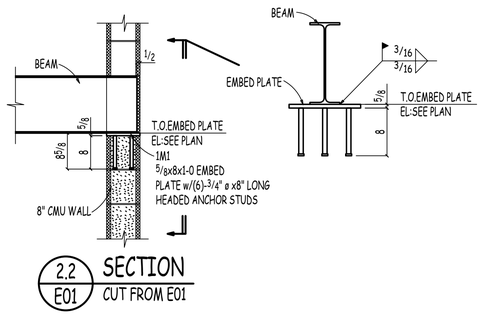


2 / E01 SECTION
CUT FROM E01
REF.CONTRACT DOCUMENT-12/A4.4



2.1 / E01 SECTION
CUT FROM E01





2.2 / E01 SECTION
CUT FROM E01



PARTIAL EMBED PLATE PLAN @ STAIR -C

T.O.EMBED PLATE ELEVATION : 7'-0" (U.N.) F.V.
REF CONTRACT DOCUMENT S1.2E
ALL DIMENSIONS ARE TO THE CENTER OF THE EMBED PLATE
M.O. - INDICATES MASONRY OPENING
F.V. - INDICATES FIELD VERIFY DIMENSION

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS
(X) REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA
DATE: 9/10/2018

Refer to Ryan Frank email dated 4/16/18 for comments.

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	06-28	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO. DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

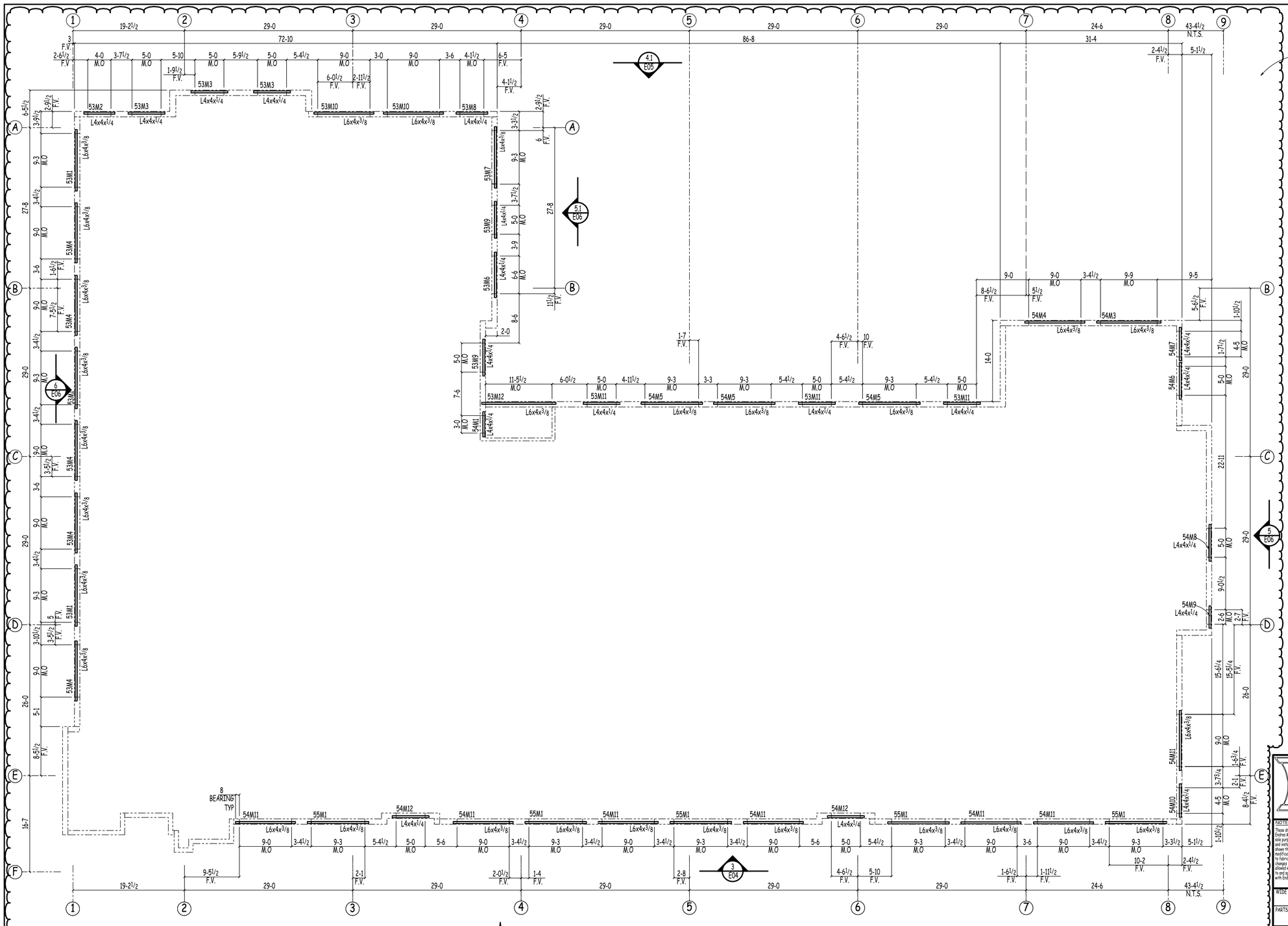
SHOP NOTE:
PAINT PIECE MARK ON BOTH END AND SIDE. ALL RE-ENTRANT CORNERS SHALL BE SHARP-NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

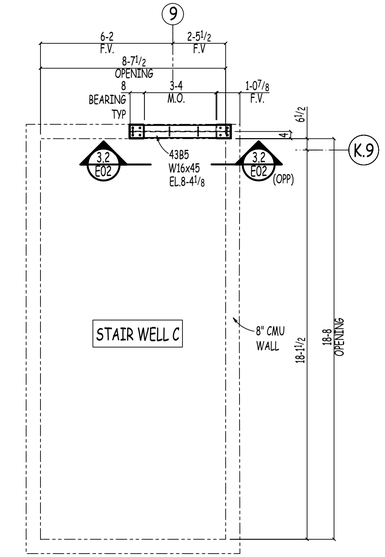
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-28-17 | JOB NO.: 17068
DRWG NO.: E01

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



WEST WING BRICK SHELF ANGLE PLAN @EL:35-4 7/8

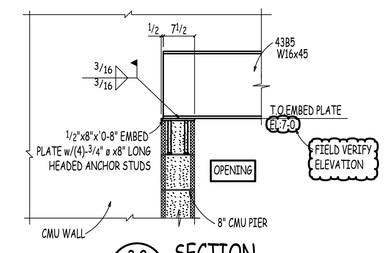
BOTTOM OF BRICK SHELF ANGLE ELEVATION: 35-4 7/8 (U.N.O)
M.O=INDICATES MASONRY OPENING
N.T.S=NOT TO SCALE
F.V=FIELD VERIFY DIMENSIONS
REF.DOCUMENT:A1.2 W



LINTEL FRAMING PLAN

T.O.LINTEL ELEVATION : 8'-4 1/8"
REF CONTRACT DOCUMENT S1.2e
N.T.S = NOT TO SCALE
F.V = FIELD VERIFY
REF.DOCUMENT: S1.2E

FIELD VERIFY LINTEL ELEVATION



SECTION 3.2 / E02

CUT FROM E02

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

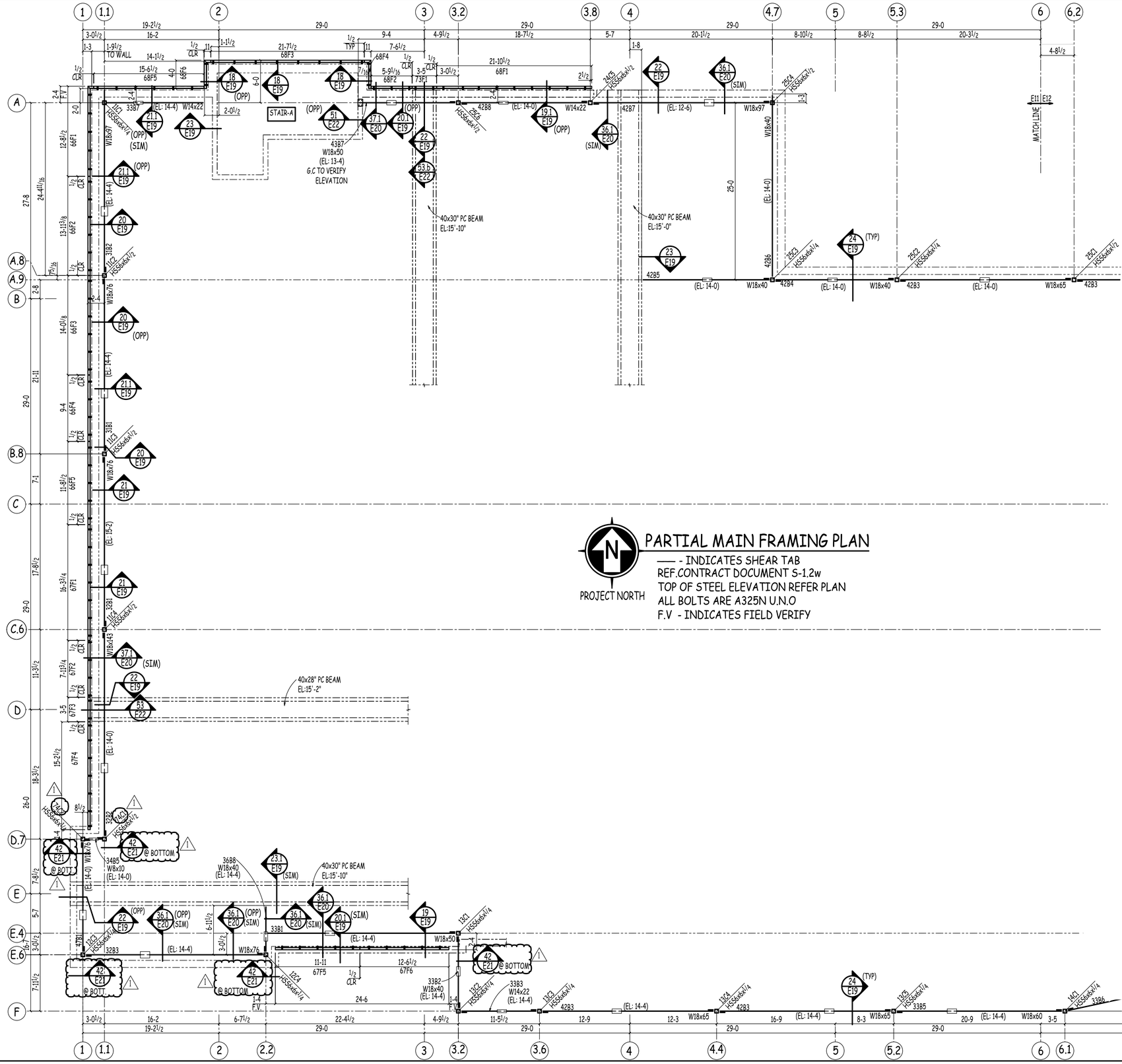
FIELD	E	05-21						
SHOP	3	05-21						
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068
DRWG. NO.: E02

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.


PROJECT NORTH
PARTIAL MAIN FRAMING PLAN
—— - INDICATES SHEAR TAB
REF.CONTRACT DOCUMENT S-1.2w
TOP OF STEEL ELEVATION REFER PLAN
ALL BOLTS ARE A325N U.N.O
F.V - INDICATES FIELD VERIFY
STAIR-A
40x30" PC BEAM EL:15'-10"
40x30" PC BEAM EL:15'-0"
40x28" PC BEAM EL:15'-2"
43B7 W18x50 (EL: 13-4) G.C TO VERIFY ELEVATION
MATCH LINE
(TYP)
(OPP)
(SIM)
(EL: 14-4)
(EL: 14-0)
(EL: 12-6)
(EL: 15-2)
W18x97
W18x40
W18x50
W18x76
W18x65
W18x60
W14x22
W8x10
HSS6x6x1/4
HSS6x6x1/2
HSS6x6x3/4
HSS6x6x5/16
1-1 1/2 CLR
1/2 CLR
1/2 TYP
1/2 F.V
ALL SUSPENSION SUPPORT FRAME ARE ON HOLD
FOR CONNECTION DETAILS REFER : E14 - E21
CERTIFIED FABRICATOR
NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.
ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.
SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1½ INCH
1 May 29 2018 REVISED TO UPDATE BASE PLATE SAT
0 May 21 2018 ISSUED FOR FABRICATION SAT
C Mar 20 2018 ISSUED FOR REAPPROVAL SAT
B Feb 9 2018 ISSUED FOR REAPPROVAL SAT
A Jul 11 2017 ISSUED FOR APPROVAL SAT
REV DATE DESCRIPTION DETAILER
FIELD E 05-21 E 05-29
SHOP 3 05-21 3 05-29
APPROVAL E 07-11 E 02-09 E 03-20
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE NO. DATE
WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018
Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILER MSK
CHECKED SJS
DATE 06-26-17
JOB NO. 17068
DRWG NO. E11
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

PARTIAL MAIN FRAMING PLAN

PROJECT NORTH

— - INDICATES SHEAR TAB
REF.CONTRACT DOCUMENT S-1.2E
TOP OF STEEL ELEVATION REFER PLAN
ALL BOLTS ARE A325N U.N.O
F.V - INDICATES FIELD VERIFY

ALL FRAMES ARE HOLD

FOR CONNECTION DETAILS REFER : E14 - E21

REV	DATE	DESCRIPTION	DETAILER
1	May 29 2018	REVISED TO UPDATE BASE PLATE	SAT
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21	E	05-29				
SHOP	3	05-21	3	05-29				
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

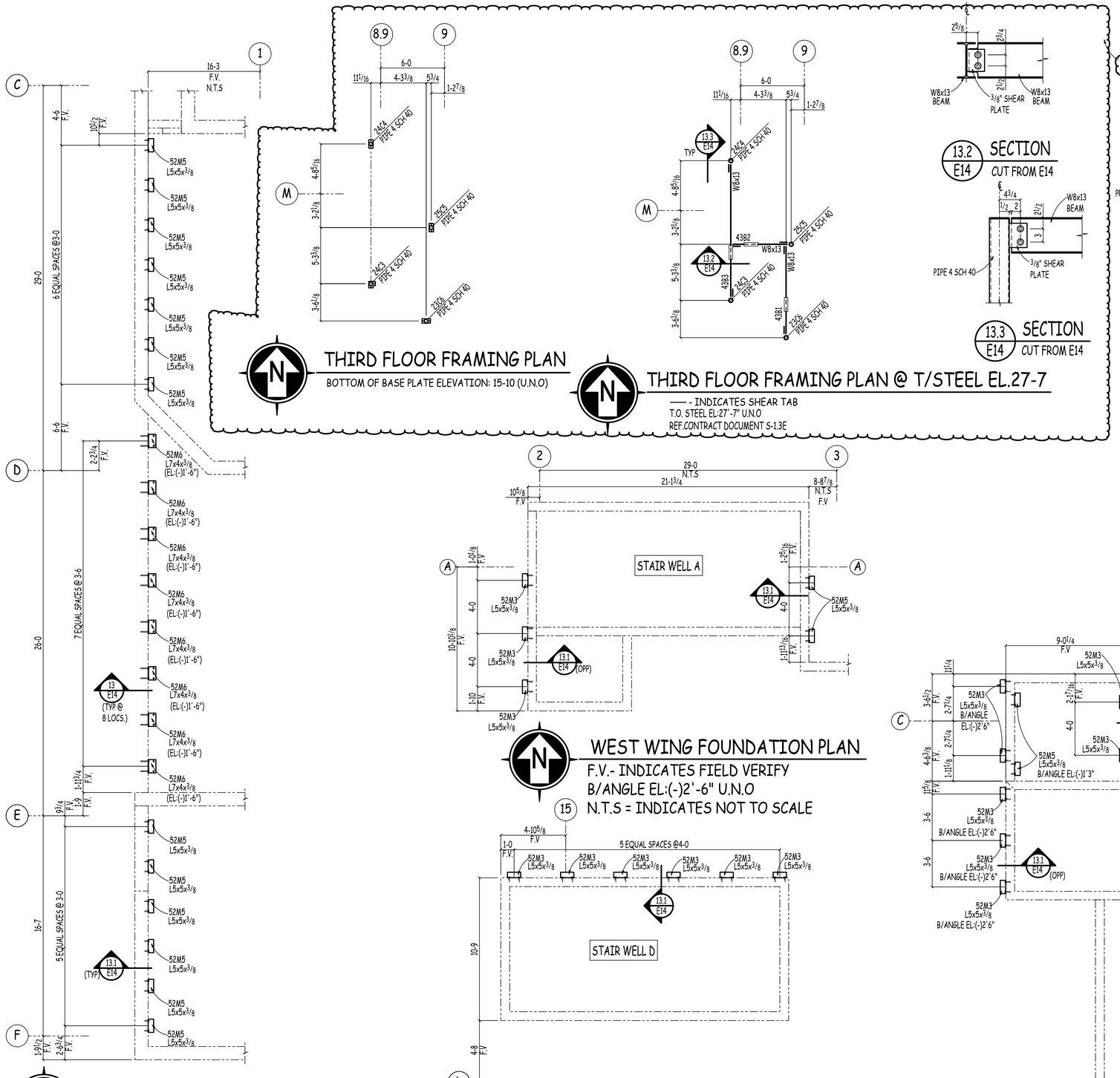
SHOP NOTE: PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHARP-NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

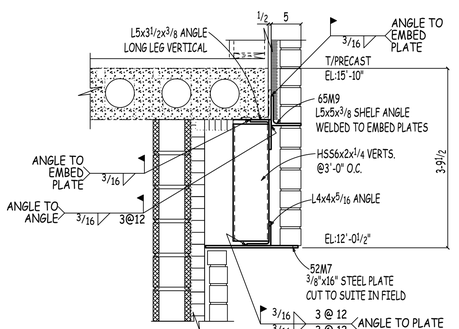
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO: 17068
DRWG NO. E12

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design


8.9
9
6-0
11 1/16
4-3 3/8
5 3/4
1-2 7/8
24X4 PIPE 4 SCH 40
25X5 PIPE 4 SCH 40
24X3 PIPE 4 SCH 40
23X6 PIPE 4 SCH 40
4-8 5/16
3-2 1/8
5-3 3/8
3-6 1/8
M
TYP
13.3 E14
W8x13
43B2
43B3
43B1
13.2 E14
HOLD
2 5/8
2 3/4
2 1/2
3/8" SHEAR PLATE
W8x13 BEAM
13.2 E14 SECTION
CUT FROM E14
4 3/4
1/2
2
3
PIPE 4 SCH 40
13 E14 SECTION
CUT FROM E14
REF CONTRACT DOCUMENT 11/S4.1
1-0
52M6 L7x4x3/8x1'-0" @ 4'-0" OC, (LLH) ANCHOR EACH LEG w/ 2-3/4"Øx5" EMBED EXPANSION ANCHORS
PRECAST BEAM 12"x32"
BOTTOM OF ANGLE EL-(-)1-6
PRECAST PLANK
13.1 E14 SECTION
CUT FROM E14
REF.DOCUMENT:4/S3.1
8" CMU WALL
CONCRETE WALL
EMBEDED PLATE BY 4'-0" O.C. BY PRECASTER
(BY PRECASTER
52M3 /52M5 GALVANIZED L5x5x3/8x1'-0" W/ (2) 13/16x1 1/2 VERTICAL SLOTS IN VERTICAL LEGS @ 4'-0" OC, ANCHOR w/ 2-3/4"Øx4 1/2" EMBEDMENT EXPANSION ANCHORS
1 1/2
9
B/ ANGLE EL-SEE PLAN
52M3 /52M5 L5x5x3/8
THIRD FLOOR FRAMING PLAN
BOTTOM OF BASE PLATE ELEVATION: 15-10 (U.N.O)
THIRD FLOOR FRAMING PLAN @ T/STEEL EL.27-7
—— - INDICATES SHEAR TAB
T.O. STEEL EL:27'-7" U.N.O
REF.CONTRACT DOCUMENT S-1.3E
PIPE 4 SCH 40
3/8" BASE PLATE
3/4"Øx5 1/4" LONG EXP. ANCHORS
PRECAST PLANK
TYP BASE PLATE DETAIL
16-3 F.V. N.T.S
10 1/2 F.V.
4-6 F.V.
6-6 F.V.
2-2 3/4 F.V.
29-0
6 EQUAL SPACES @3-0
26-0
7 EQUAL SPACES @ 3-6
16-7
5 EQUAL SPACES @ 3-0
9 3/4 F.V.
1-9 F.V.
1-11 3/4 F.V.
2-6 1/4 F.V.
1-9 1/2 F.V.
52M5 L5x5x3/8
52M6 L7x4x3/8 (EL-(-)1'-6")
13 E14 (TYP @ 8 LOCS.)
13.1 E14 (TYP)
WEST WING FOUNDATION PLAN
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)2'-6" U.N.O
N.T.S = INDICATES NOT TO SCALE
2
3
29-0 N.T.S
21-13 3/4
8-8 7/8 N.T.S F.V
10 5/8 F.V
STAIR WELL A
1-0 1/8 F.V
1-2 5/16 F.V
4-0
52M3 L5x5x3/8
52M5 L5x5x3/8
13.1 E14 (OPP)
10-10 3/8 F.V
1-10 F.V
1-11 5/16 F.V
WEST WING FOUNDATION PLAN
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)2'-6" U.N.O
N.T.S = INDICATES NOT TO SCALE
15
4-10 5/8 F.V
1-0 F.V.
5 EQUAL SPACES @4-0
STAIR WELL D
10-9
4-8 F.V
L
EAST WING -WEST FOUNDATION PLAN
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)0'-11" U.N.O
8
9-0 1/4 F.V
2-8 1/2 F.V
7-5 F.V
11 1/4
3-6 1/2 F.V
2-7 1/4
4-6 3/8 F.V
1-11 1/8 F.V
1 5/8 F.V
3-6
52M3 L5x5x3/8 B/ANGLE EL-(-)2'6"
52M5 L5x5x3/8 B/ANGLE EL-(-)1'3"
2-7 7/16 F.V.
4-0
STAIR WELL B
6-11 1/4 F.V.
6 EQUAL SPACES @4-0
C
EAST WING-WEST FOUNDATION PLAN
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)1'-3" U.N.O
9
6-10 F.V
3-4 F.V
9-2
10-2
8 F.V.
3-6 3/8 F.V.
3-4
2-4 5/16 F.V.
13.1 E14 (OPP)
STAIR WELL C
6-9 5/16 F.V.
3 EQUAL SPACES @4-0
3-4
WEST WING FOUNDATION PLAN
F.V.- INDICATES FIELD VERIFY
B/ANGLE EL:(-)1'-3" U.N.O
FOR CONNECTION DETAILS REFER : E14 - E21
ISO CERTIFIED FABRICATOR
NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no change modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.
ERECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.
SHOP NOTE: PAINT PIECE MARK ON SHOP DETAILS & DETAILING ALL RE-ENTRANT CORNERS SHALL BE SHOP NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH
REV | DATE | DESCRIPTION | DETAILER
0 | May 21 2018 | ISSUED FOR FABRICATION | SAT
C | Mar 20 2018 | ISSUED FOR REAPPROVAL | SAT
B | Feb 9 2018 | ISSUED FOR REAPPROVAL | SAT
A | Jul 11 2017 | ISSUED FOR APPROVAL | SAT
FIELD E 05-21
SHOP 3 05-21
APPROVAL E 07-11 E 02-09 E 03-20
PRINTS NO. DATE NO. DATE NO. DATE NO. DATE
WIDE FLANGE (U.N) A-992 GR-50
PARTS MATERIAL (U.N) A-36
TUBE MATERIAL (U.N) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903
JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILER MSK CHECKED SJS
DATE 06-26-17
JOB NO. 17068
DRWG NO. E14
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

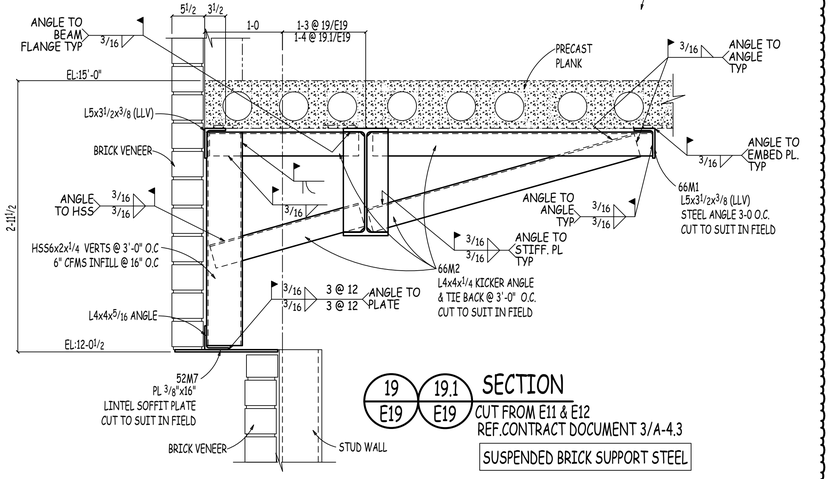
HOLD



18 / E19 SECTION
CUT FROM E11
REF.CONTRACT DOCUMENT 1/A-4.3 & 2/A-4.3

SUSPENDED BRICK @ PRECAST BEAM

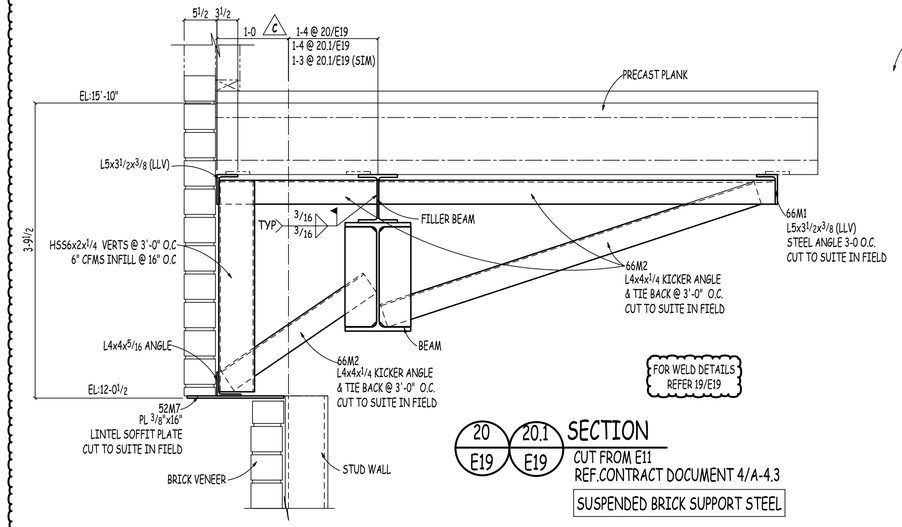
HOLD



19 / E19 — 19.1 / E19 SECTION
CUT FROM E11 & E12
REF.CONTRACT DOCUMENT 3/A-4.3

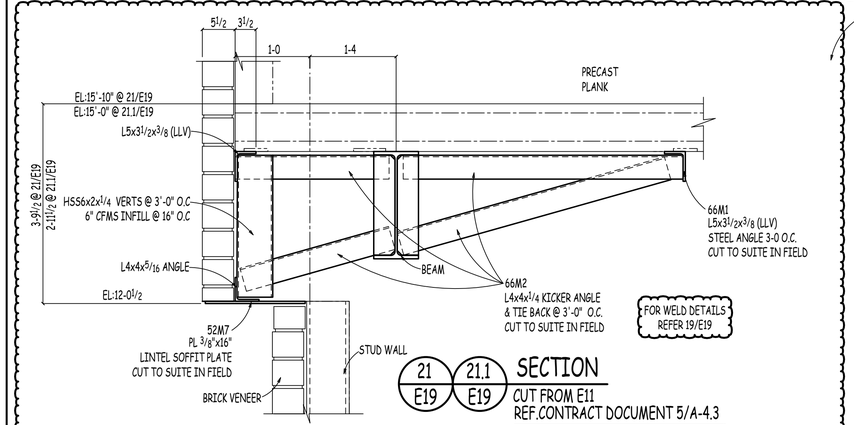
SUSPENDED BRICK SUPPORT STEEL

HOLD



20 / E19 — 20.1 / E19 SECTION
CUT FROM E11
REF.CONTRACT DOCUMENT 4/A-4.3

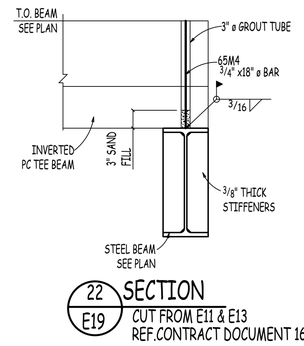
SUSPENDED BRICK SUPPORT STEEL



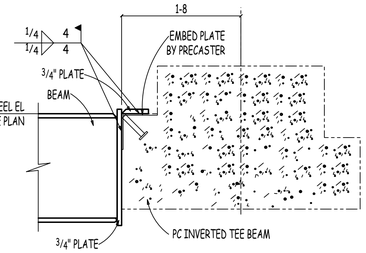
21 / E19 — 21.1 / E19 SECTION
CUT FROM E11
REF.CONTRACT DOCUMENT 5/A-4.3

SUSPENDED BRICK SUPPORT STEEL

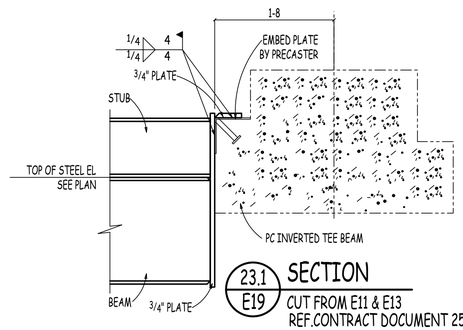
HOLD



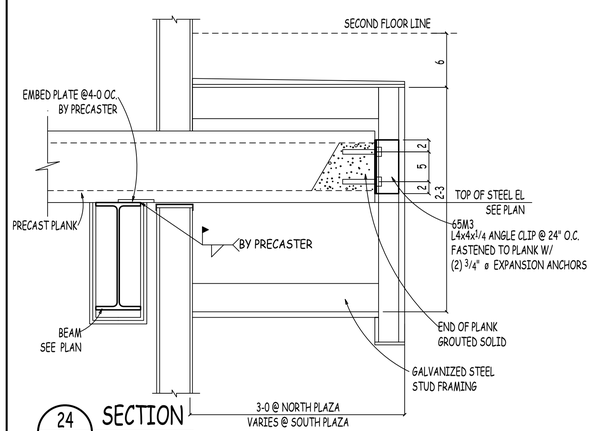
22 / E19 SECTION
CUT FROM E11 & E13
REF.CONTRACT DOCUMENT 16/S4.0



23 / E19 SECTION
CUT FROM E11,E12 & E13
REF.CONTRACT DOCUMENT 25/S-4.0

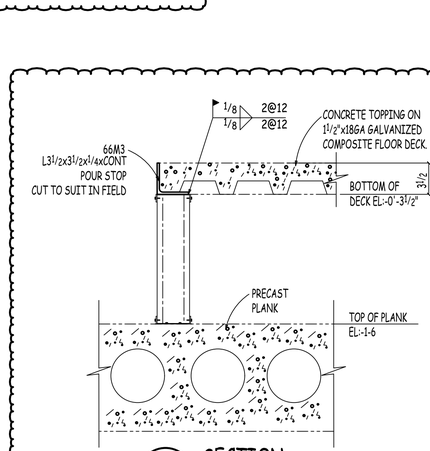


23.1 / E19 SECTION
CUT FROM E11 & E13
REF.CONTRACT DOCUMENT 25/S-4.0

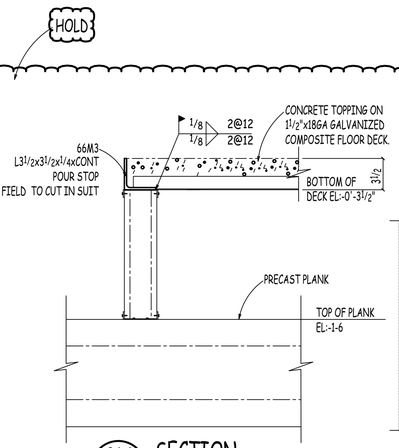


24 / E19 SECTION
CUT FROM E11
REF.CONTRACT DOCUMENT 23/A4.4

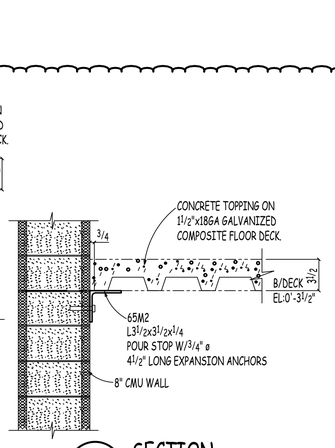
HOLD



26 / E19 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT S-1.1W



26.1 / E19 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT S-1.1W



26.2 / E19 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT S-1.1W

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED, ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

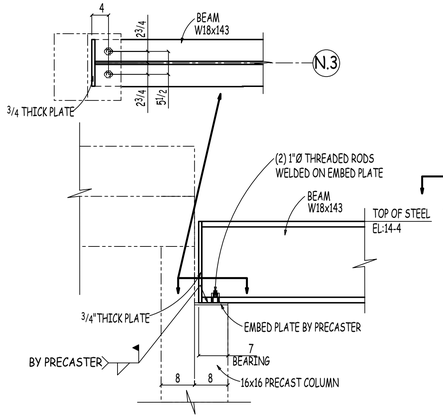
SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHARP NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

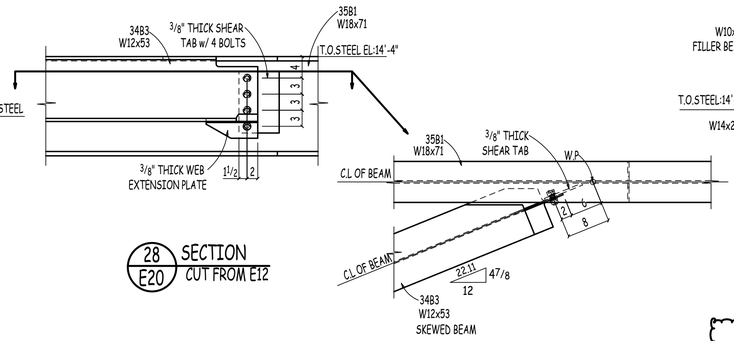
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK
CHECKED: SJS
DATE: 06-26-17
JOB NO.: 17068
DRWG NO.: E19

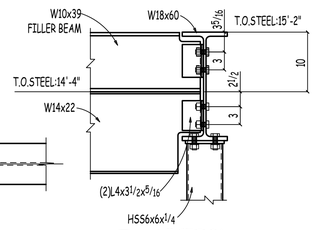
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design



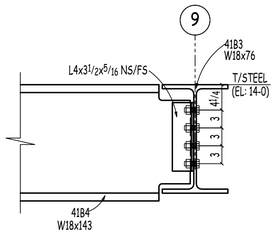
27 / E20 SECTION
CUT FROM E12
REF.CONTRACT DOCUMENT 1/S4.1



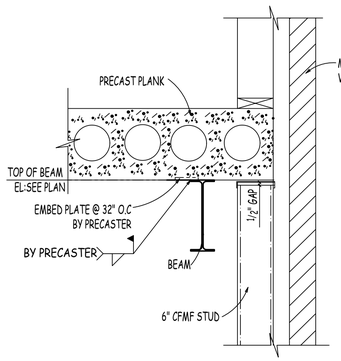
28 / E20 SECTION
CUT FROM E12



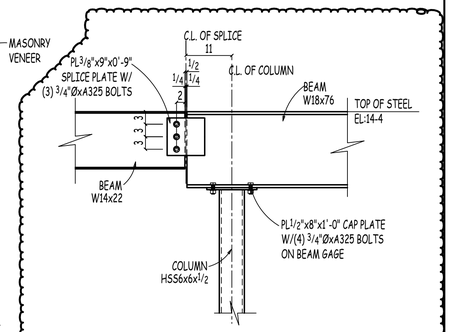
29 / E20 SECTION
CUT FROM E12



30 / E20 SECTION
CUT FROM E12

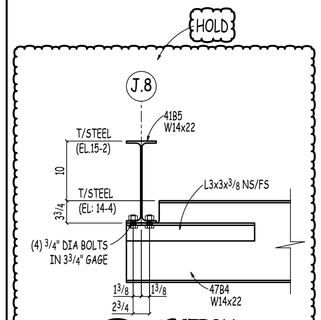


31 / E20 SECTION
CUT FROM E12 & E13
REF.CONTRACT DOCUMENT 19/S-4.0



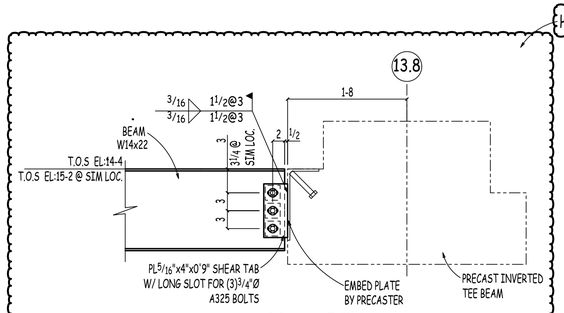
32 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 4/S-4.1

HOLD

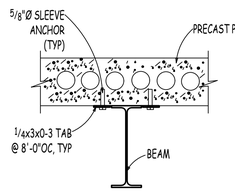


33 / E20 SECTION
CUT FROM E13

HOLD

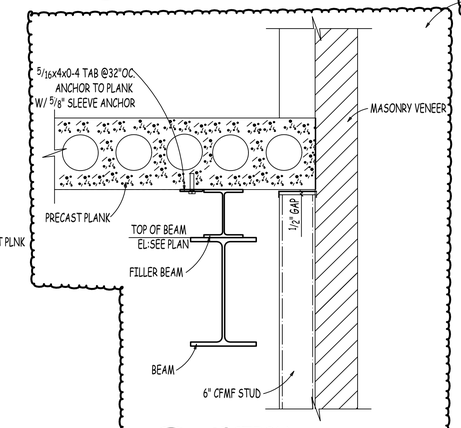


34 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 16/S4.1

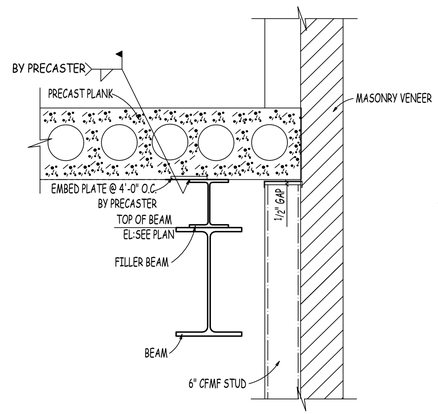


35 / E20 SECTION
CUT FROM E12,E13
REF.CONTRACT DOCUMENT 18/S-4.1

HOLD

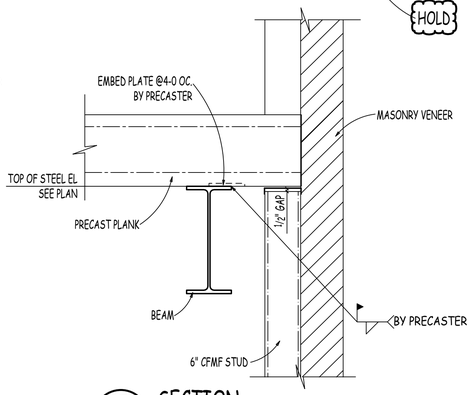


36 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 17/S-4.0



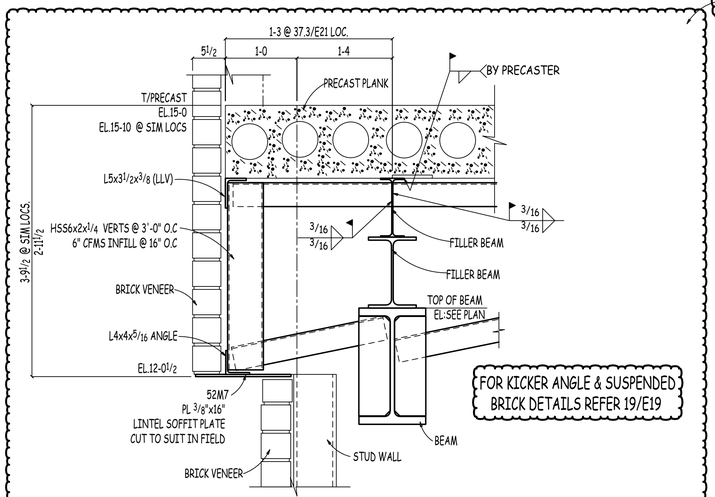
36.1 / E20 SECTION
CUT FROM E11,E12 & E13
REF.CONTRACT DOCUMENT 18/S-4.0

HOLD



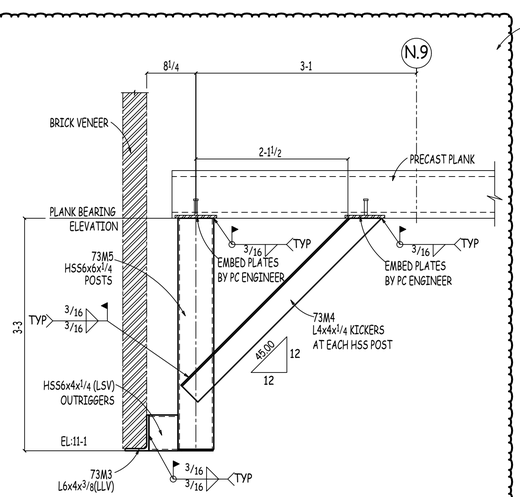
37 / E20 SECTION
CUT FROM E12 & E13
REF.CONTRACT DOCUMENT 20/S-4.0

HOLD

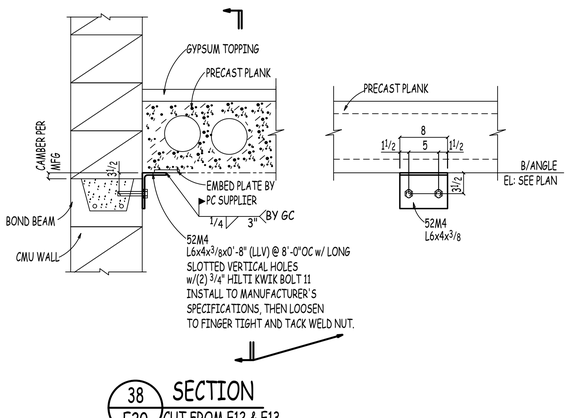


37.1 / E20 — 37.3 / E20 SECTION
CUT FROM E11

HOLD



37.2 / E20 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 3/S4.2



38 / E20 SECTION
CUT FROM E12 & E13
REF.CONTRACT DOCUMENT 11 & 12 S4.0

ISO CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED , ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHARP-NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

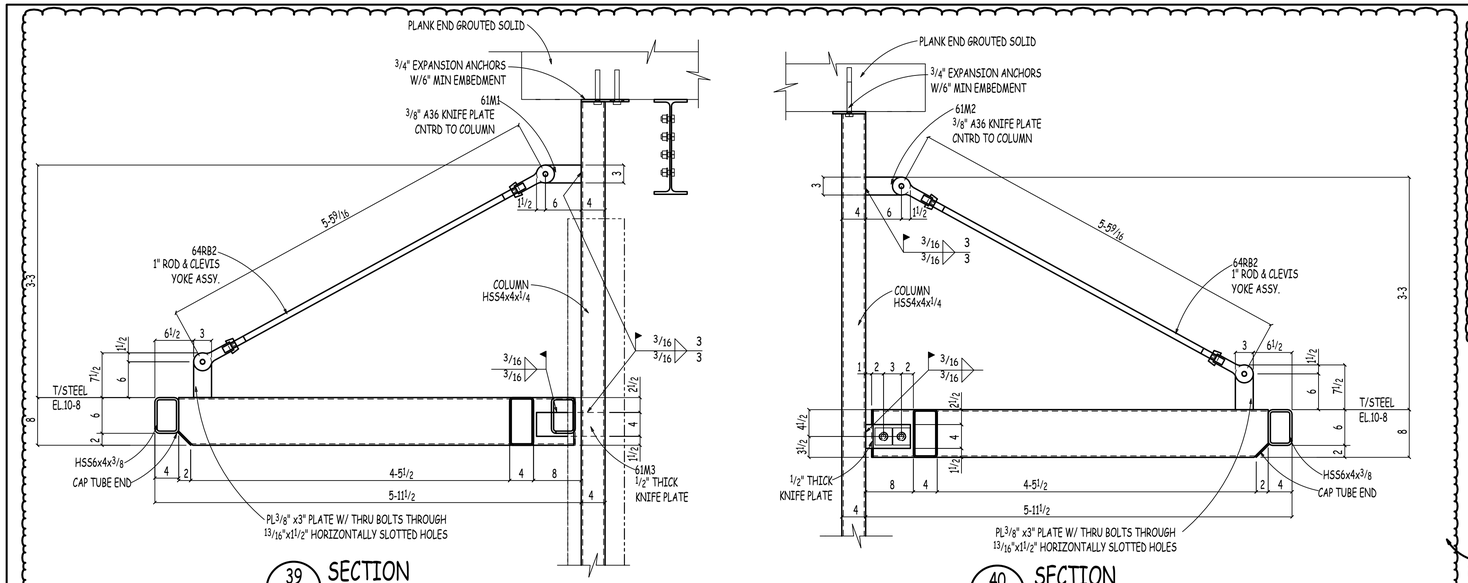
FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO.

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILER MSK | CHECKED SJS | DATE 06-26-17 | JOB NO. 17068
DRWG NO. E20

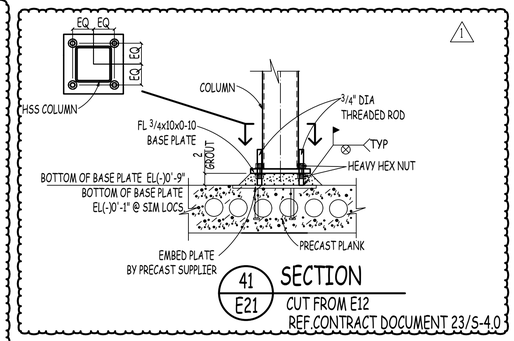
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design



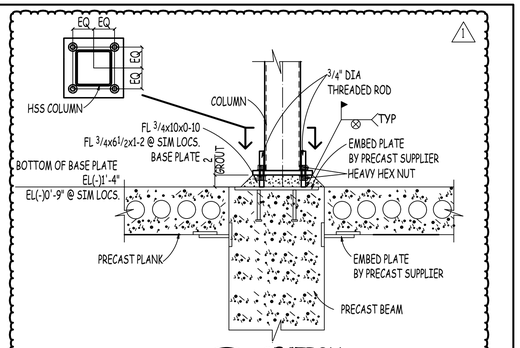
39 / E21 SECTION
CUT FROM E16
REF.CONTRACT DOCUMENT 14/A-4.5

40 / E21 SECTION
CUT FROM E16
REF.CONTRACT DOCUMENT 14/A-4.5

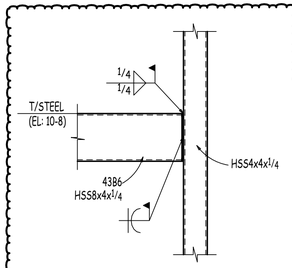
HOLD



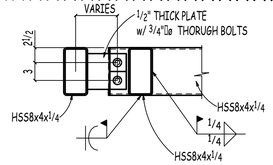
41 / E21 SECTION
CUT FROM E12
REF.CONTRACT DOCUMENT 23/S-4.0



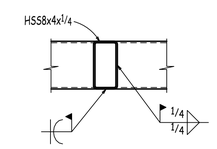
42 / E21 SECTION
CUT FROM E11,E12
REF.CONTRACT DOCUMENT 22/S-4.0



44 / E21 SECTION
CUT FROM E16

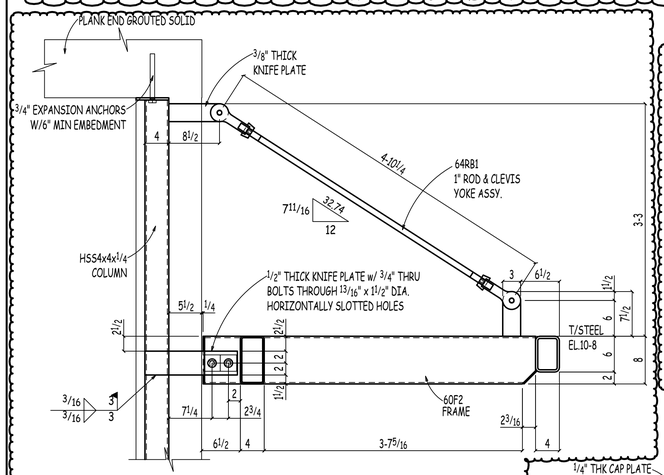


45 / E21 SECTION
CUT FROM E16



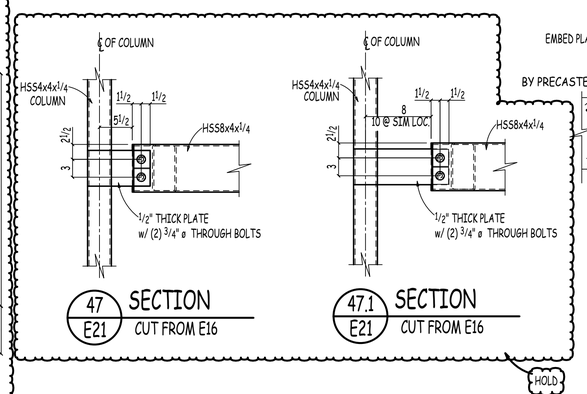
46 / E21 SECTION
CUT FROM E16

HOLD



43 / E21 SECTION
CUT FROM E16
REF.CONTRACT DOCUMENT 13/A4.5

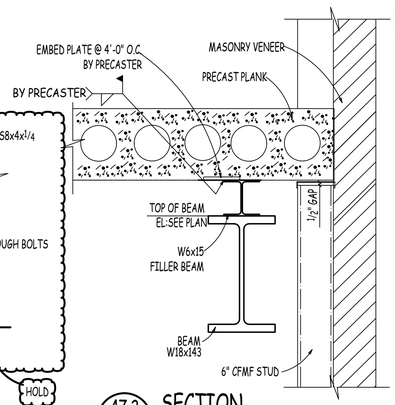
HOLD



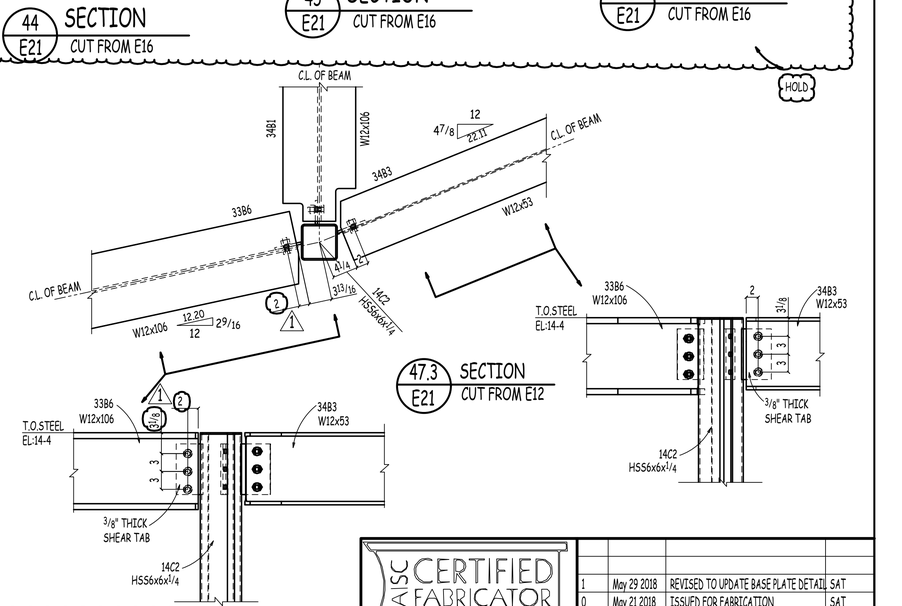
47 / E21 SECTION
CUT FROM E16

47.1 / E21 SECTION
CUT FROM E16

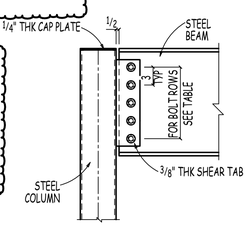
HOLD



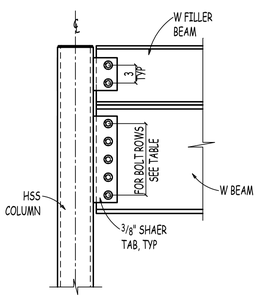
47.2 / E21 SECTION
CUT FROM E12
REF.CONTRACT DOCUMENT 18/S-4.0



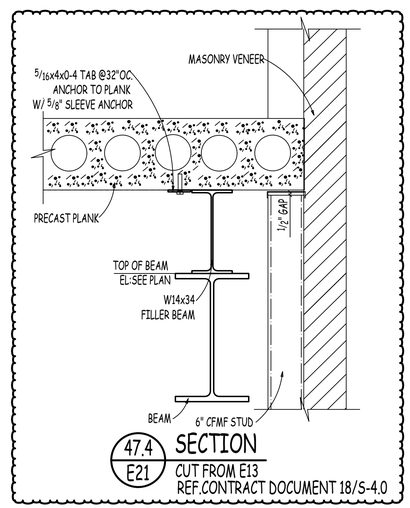
47.3 / E21 SECTION
CUT FROM E12



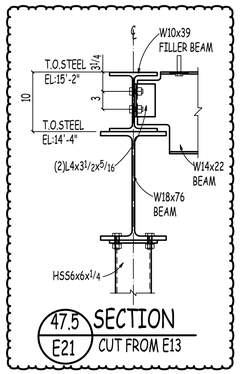
TYP BEAM TO COLUMN CONNECTION



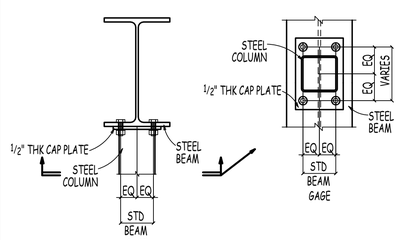
TYP BEAM CONNECTION @ FILLER BEAM



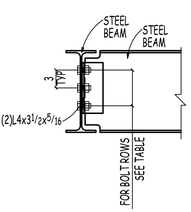
47.4 / E21 SECTION
CUT FROM E13
REF.CONTRACT DOCUMENT 18/S-4.0



47.5 / E21 SECTION
CUT FROM E13



TYP CAP PLATE CONNECTION DETAIL



TYP BEAM TO COLUMN CONNECTION

MINIMUM BEAM SIZE	NUMBER OF BOLTS
W8,W10	2
W12,W14	3
W16	4
W18	5

REV	DATE	DESCRIPTION	
1	May 29 2018	REVISED TO UPDATE BASE PLATE DETAIL	SAT
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

	FIELD	E	05-21	E	05-29				
	SHOP	3	05-21	3	05-29				
	APPROVAL	E	07-11	E	02-09				
	PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED ALL CONNECTIONS TO BE MADE WITH AXIS HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER NUT OR TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS NOTATED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED WITH FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø

USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

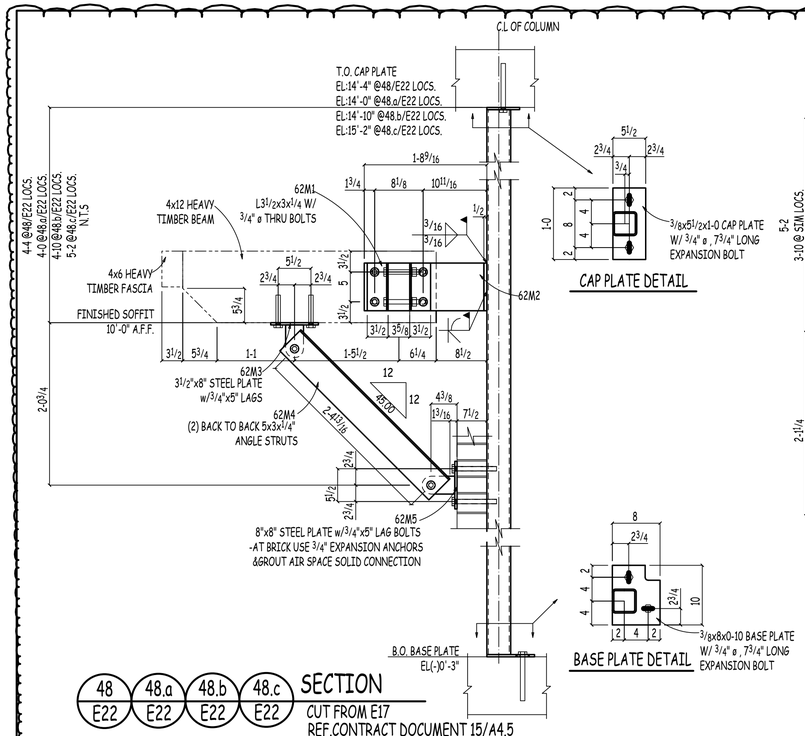
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

CERTIFIED FABRICATOR

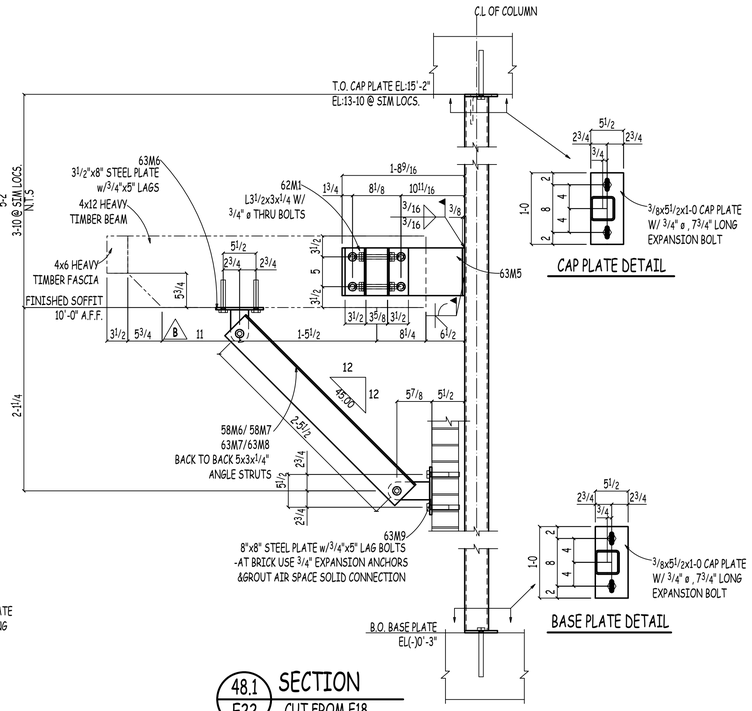
Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: E21

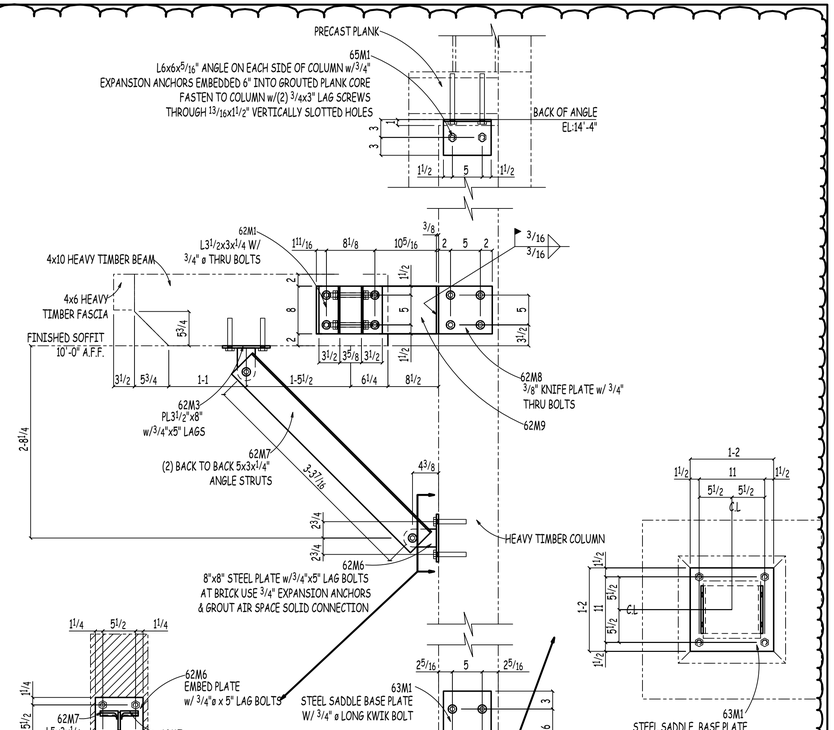
DETAILER	CHECKED	DATE	JOB NO.
MSK	SJS	06-26-17	17068



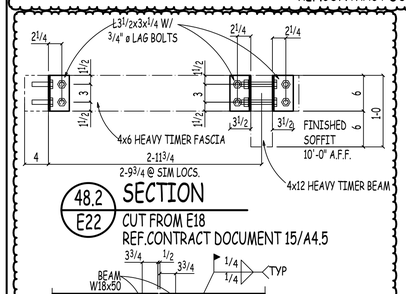
48 / E22 | 48.a / E22 | 48.b / E22 | 48.c / E22 **SECTION**
CUT FROM E17
REF.CONTRACT DOCUMENT 15/A4.5



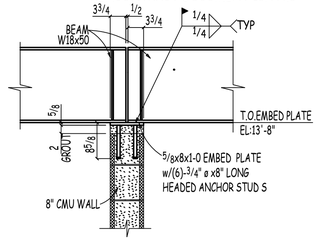
48.1 / E22 **SECTION**
CUT FROM E18
REF.CONTRACT DOCUMENT 15/A4.5



49 / E22 **SECTION**
CUT FROM E18
REF.CONTRACT DOCUMENT 15/A4.5

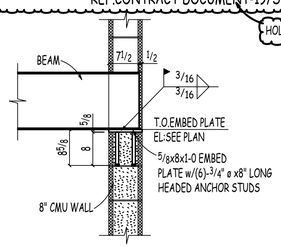


48.2 / E22 **SECTION**
CUT FROM E18
REF.CONTRACT DOCUMENT 15/A4.5

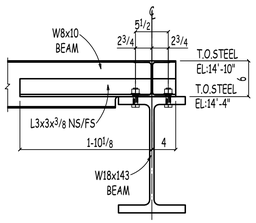


50 / E22 **SECTION**
CUT FROM E13
REF.CONTRACT DOCUMENT-19/S4.1

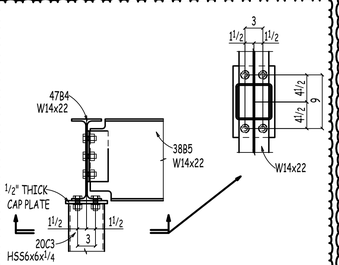
HOLD



51 / E22 **SECTION**
CUT FROM E12,E13



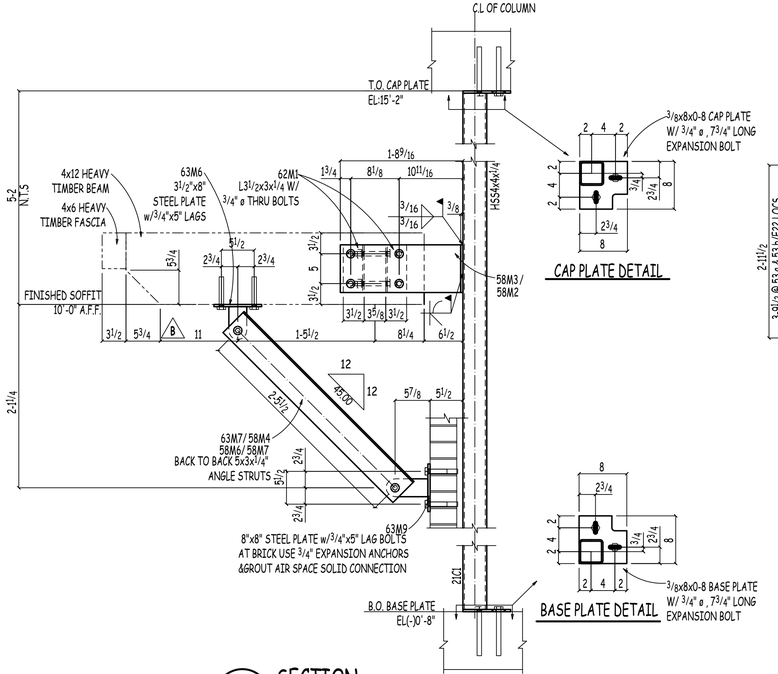
51.1 / E22 **SECTION**
CUT FROM E12



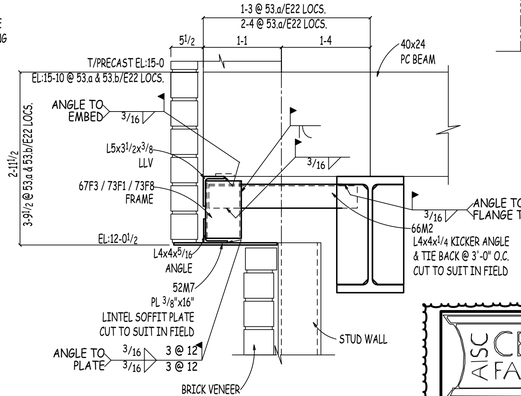
51.2 / E22 **SECTION**
CUT FROM E13

HOLD

HOLD



52 / E22 **SECTION**
CUT FROM E18
REF.CONTRACT DOCUMENT 15/A4.5 (SIM)



53 / E22 | 53.a / E22 | 53.b / E22 **SECTION**
CUT FROM E11 & E13

CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH AXIS HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER NUT, TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS NOT ASSEMBLED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED WITH FREE TO A RADIUS OF AT LEAST 1/2 INCH.

WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2
LOCATION	MADISON, WI
CUSTOMER	RVEDEBUSCH

DETAILER	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-26-17	17068	E22

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

PARTIAL WEST WING FOUNDATION PLAN

PROJECT NORTH

52M11
L4x4x3/8 ANGLE
w/ 3/4" Ø x4" LONG
EXPANSION ANCHOR
(TYP)

12" PLANK : PLANK BEARING EL=(-)2'-6"

8" PLANK : PLANK BEARING EL=(-)2'-2"

PRECAST BEAM 40x24

PRECAST BEAM 60x18

PRECAST BEAM 16x24

59 E28

58 E28 (TYP)

E26 E27 MATCHLINE

WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	
SHOP PAINT	
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 Ø

USE NO. 70XX WELD ROD.
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

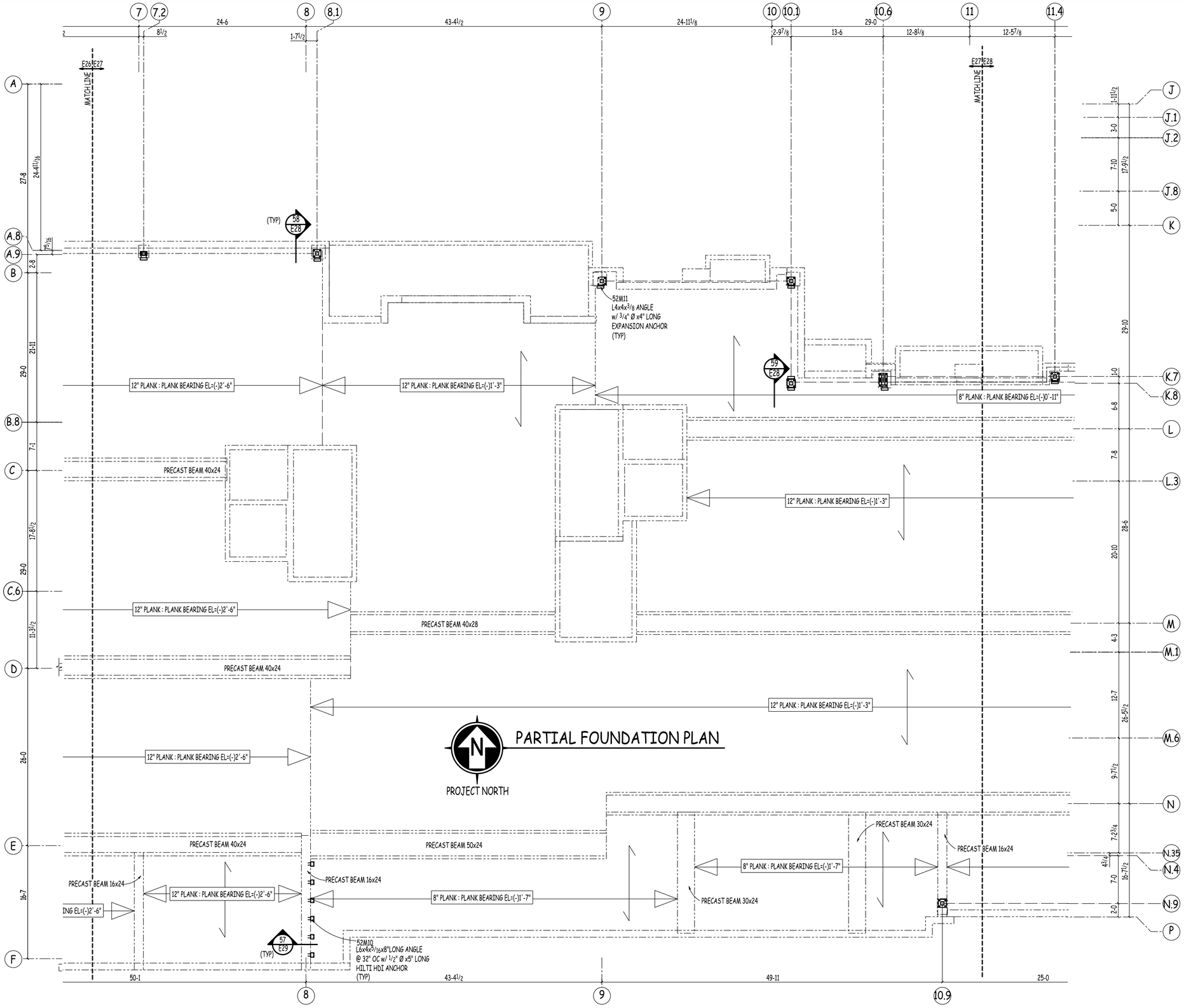
REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
FIELD	E	05-21	
SHOP	3	05-21	
APPROVAL			
PRINTS	NO. DATE	NO. DATE NO. DATE NO. DATE NO. DATE	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH

DETAILER	CHECKED	DATE	JOB NO.	DRWG. NO.
MSK	SJS	06-26-17	17068	E26

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design



AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT

FIELD	E	05-21						
SHOP	3	05-21						
APPROVAL								
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION
SHOP PAINT
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068
DRWG. NO.: E27

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

PARTIAL EAST WING FOUNDATION PLAN

PROJECT NORTH

MATCHLINE E27/E28

8" PLANK : PLANK BEARING EL=(-)0'-11"

12" PLANK : PLANK BEARING EL=(-)1'-3"

PRECAST BEAM 40x24

PRECAST BEAM 40x30

PRECAST BEAM 16x24

52M11 L4x4x3/8 ANGLE w/ 3/4" Ø x4" LONG EXPANSION ANCHOR (TYP)

59/E28

68/E28 (TYP)

58/E28 SECTION
CUT FROM E26,E27,E28

PRECAST PLANK

PRECAST PLANK EMBEDED PLATE BY 4'-0" O.C. BY PRECAST ER

BY PRECASTER

52M11 GALVANIZED L4x4x3/8x1'-0" W/ (2) 13/16x1 1/2 VERTICAL SLOTS IN VERTICAL LEGS . ANCHOR w/ 2-3/4"Øx5" EMBEDMENT EXPANSION ANCHORS

B/ ANGLE EL/ PLANK BEARING EL SEE PLAN

HOLD

59/E28 SECTION
CUT FROM E26,27,28

TYP

AISC CERTIFIED FABRICATOR

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE: UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE: PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL									
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (U.N.) A-992 GR-50

PARTS MATERIAL (U.N.) A-36

TUBE MATERIAL (U.N.) A-500 GR-B

SURFACE PREPARATION

SHOP PAINT

FIELD CONNECTIONS AS NOTED

HOLES (U.N.) 13/16 Ø

USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

ENDRES MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2

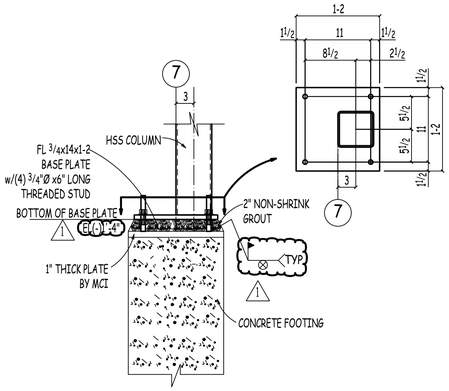
LOCATION: MADISON, WI

CUSTOMER: RVEDEBUSCH

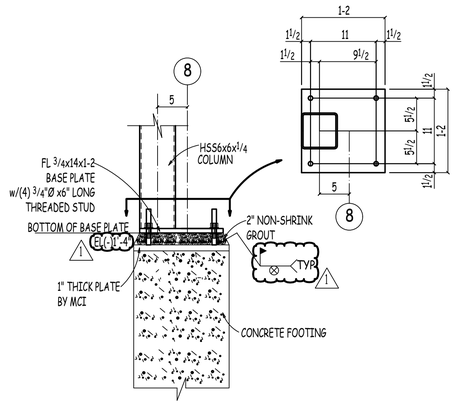
DETAILER: MSK | CHECKED: SJS | DATE: 06-26-17 | JOB NO.: 17068

DRWG. NO.: E28

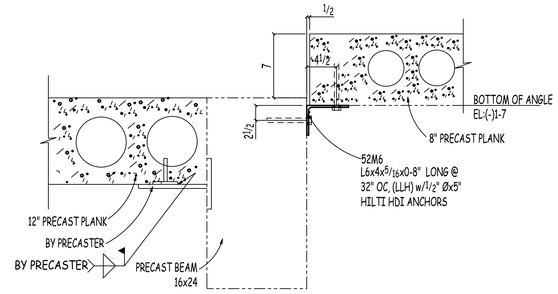
APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design



25 / E29 SECTION
CUT FROM E12



56 / E29 SECTION
CUT FROM E12



57 / E29 SECTION
CUT FROM E27

USA CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

REV	DATE	DESCRIPTION	
1	May 29 2018	REVISED TO UPDATE WELD	SAT
0	May 21 2018	ISSUED FOR FABRICATION	SAT
REV	DATE	DESCRIPTION	DETAILER

FIELD	E	05-21	E	05-29					
SHOP	3	05-21	3	05-29					
APPROVAL									
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (UN)
A-992 GR-50

PARTS MATERIAL (UN)
A-36

TUBE MATERIAL (UN)
A-500 GR-B

SURFACE PREPARATION

SHOP PAINT

FIELD CONNECTIONS
AS NOTED

HOLES (U.N.)
13/16 Ø

USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB
ROYSTER CROSSINGS LOT 2

LOCATION
MADISON, WI

CUSTOMER
RVEDEBUSCH

DRWG NO.
E29

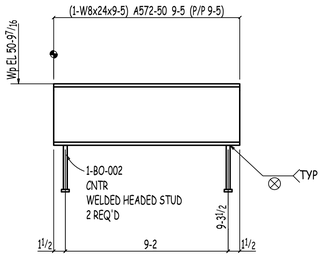
DETAILER	CHECKED	DATE	JOB NO.
MSK	SJS	06-26-17	17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 573

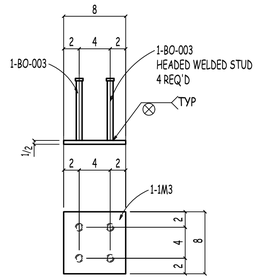
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	1B1	2	HOIST BEAM		227	
	1B1	2	W8x24	9 5	226	A992
	BO-002	4	WS1 1/2	0 6	0	BUYOUT A108
1	1M1	3	EMBED		23	
	1M1	3	PL 5/8 gx8	1 0	17	A36
	BO-003	18	WS3/4	0 8	1	BUYOUT A108
1	1M2	ONE	EMBED		23	
	1M2	1	PL 5/8 gx8	1 0	17	A36
	BO-003	6	WS3/4	0 8	1	BUYOUT A108
1	1M3	2	EMBED		13	
	1M3	2	FL 1/2 x8	0 8	9	A36
	BO-003	8	WS3/4	0 8	1	BUYOUT A108



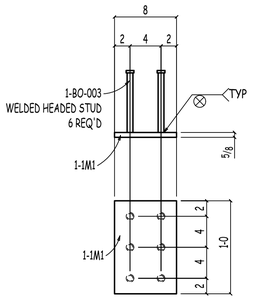
2 HOIST BEAMS 1B1

W	7 15/16 x 1/4
F	6 1/2 x 3/8
K	7/8 x 5/8



2 EMBEDS 1M3

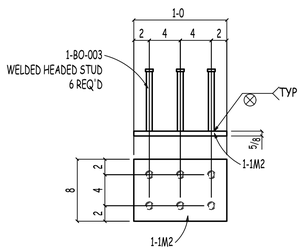
NO PAINT



3 EMBEDS 1M1

ONE QUANTITY DELETED

NO PAINT



ONE EMBED 1M2

NO PAINT

CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	06-28							
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL BOLTED CONNECTIONS ARE MADE WITH A325-N HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS NOTED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED WITH FREE TO A RADIUS OF AT LEAST 1/2 INCH

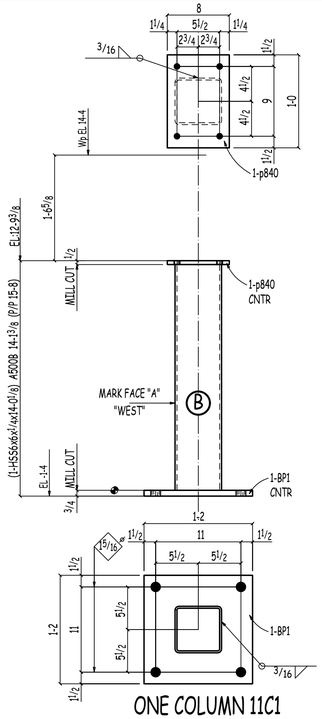
WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2&3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: 1
DETAILER: MSK | CHECKED: SJS | DATE: 06-28-17 | JOB NO.: 17068

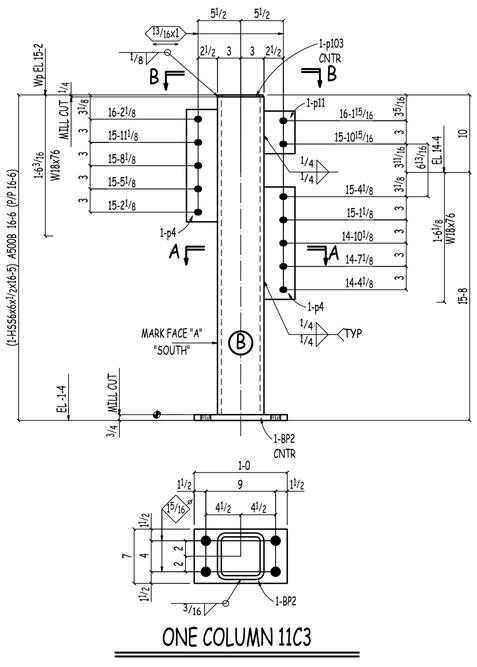
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 2782



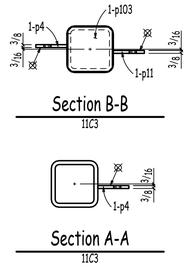
ONE COLUMN 11C1

AT GRID:
A & 1.1



ONE COLUMN 11C3

AT GRID:
B.8 & 1.1

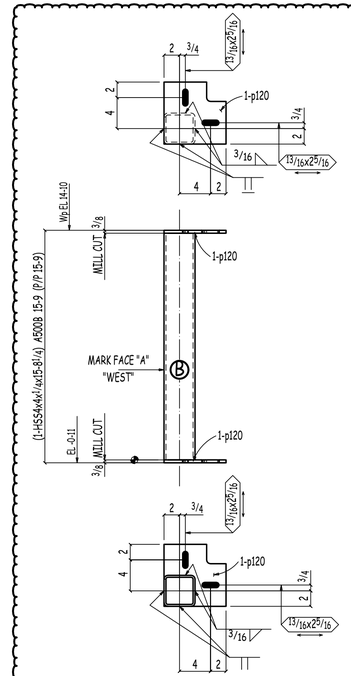


Section B-B

11C3

Section A-A

11C3



ONE COLUMN 11C5

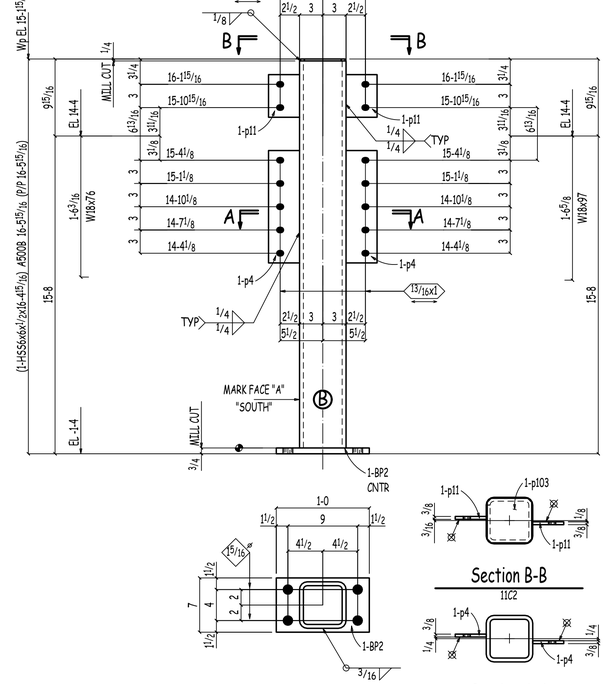
FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

HOLD

HOLD

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	11C1		ONECOLUMN		320	
	11C1	1	HSS6x6x1/4	14 01/8	267	M2E A500B
	BP1	1	PL3/4x14	1 2	41	A36
	p840	1	FL1/2x8	1 0	13	A36
1	11C2		ONECOLUMN		615	
	11C2	1	HSS6x6x1/2	16 415/16	578	M2E A500B
	BP2	1	FL3/4x7	1 0	18	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p11	2	FL3/8x4	0 5 1/2	2	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36
1	11C3		ONECOLUMN		613	
	11C3	1	HSS6x6x1/2	16 5	579	M2E A500B
	BP2	1	FL3/4x7	1 0	18	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p11	1	FL3/8x4	0 5 1/2	2	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36
1	11C4		ONECOLUMN		614	
	11C4	1	HSS6x6x1/2	16 5	579	M2E A500B
	BP2	1	FL3/4x7	1 0	18	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p2	1	FL3/8x4	0 8 1/2	3	A36
	p103	1	PL1/4x5 3/4	0 5 3/4	2	A36
			FIELD BOLTS			
		3	3/4 Dia A325N	0 2		+1HD WASH
1	11C5		ONECOLUMN		203	
	11C5	1	HSS4x4x1/4	15 8 1/4	192	M2E A500B
	p120	2	FL3/8x8	0 8	6	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
1	11C6	2	COLUMN		209	
	11C6	2	HSS4x4x1/4	15 8 1/4	192	M2E A500B
	p198	2	FL1/2x4	0 7 1/2	4	A36
	p91	4	PL3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		8	3/4 Dia EXP ANCHOR	0 7 3/4		



Section B-B

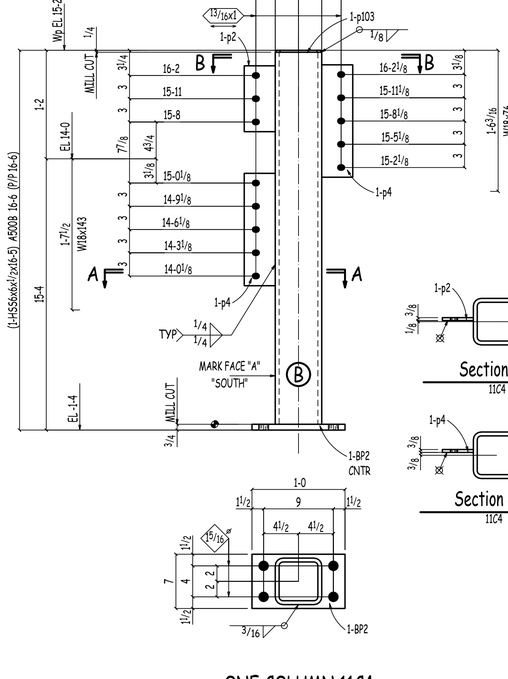
11C2

Section A-A

11C2

ONE COLUMN 11C2

AT GRID:
A.8 & 1.1



Section B-B

11C4

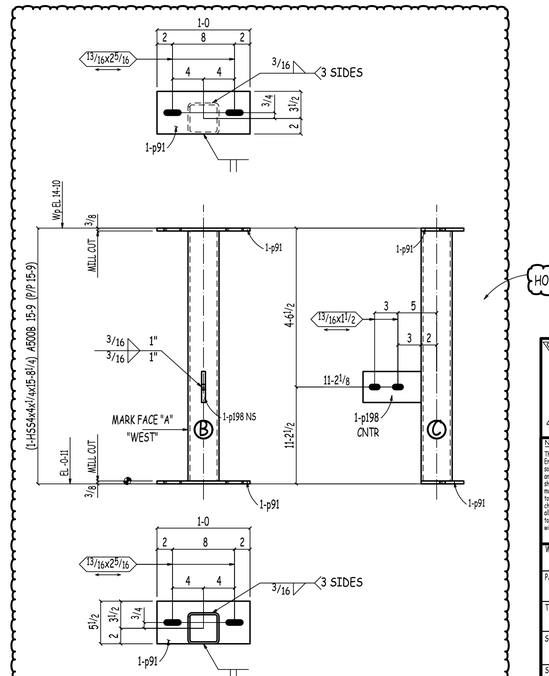
Section A-A

11C4

ONE COLUMN 11C4

AT GRID:
C.6 & 1.1

FIELD BOLTS:
3-3/4x2 A325N +1HD WASH [total=3]



2 COLUMNS 11C6

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=8]

HOLD

ASC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH AXIS HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT INSIDE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHARP NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: 11

DETAILER	CHECKED	DATE	JOB NO.
MSK	SJS	06-12-2017	17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

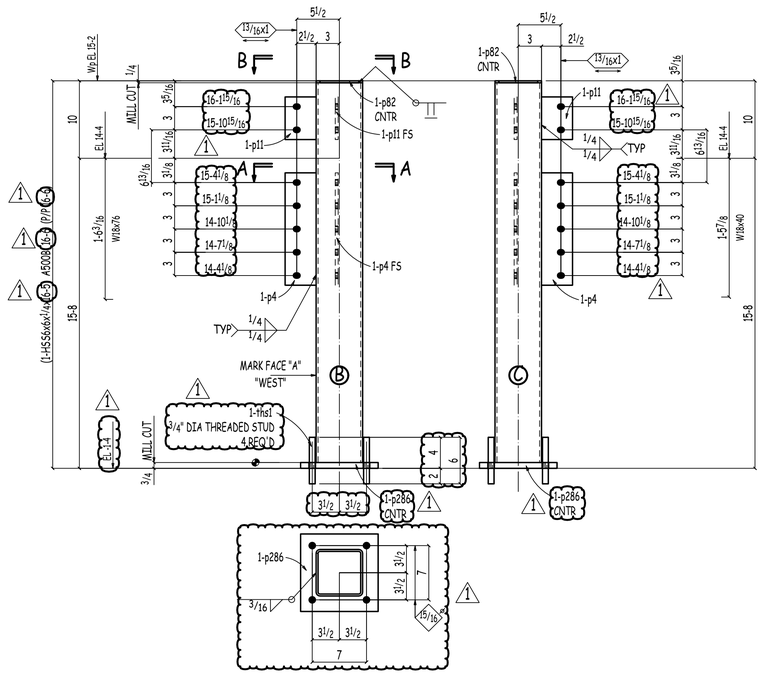
Total weight : 2059

ONE COLUMN 12C1

MOVED TO 74C1

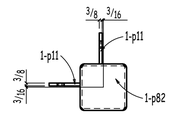
ONE COLUMN 12C2

MOVED TO 74C2

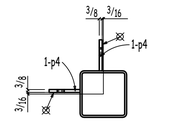


ONE COLUMN 12C4

AT GRID:
N.9 & E.6 & 2.2

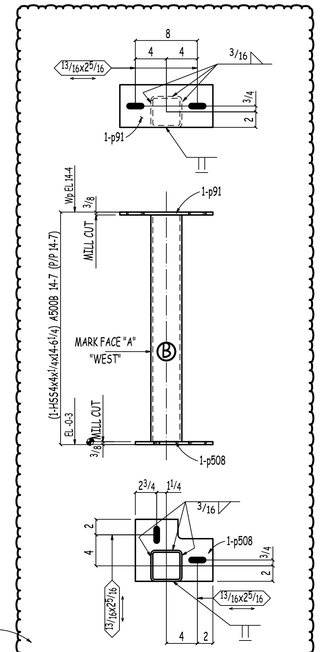


Section B-B
12C4



Section A-A
12C4

HOLD



3 COLUMNS 12C6

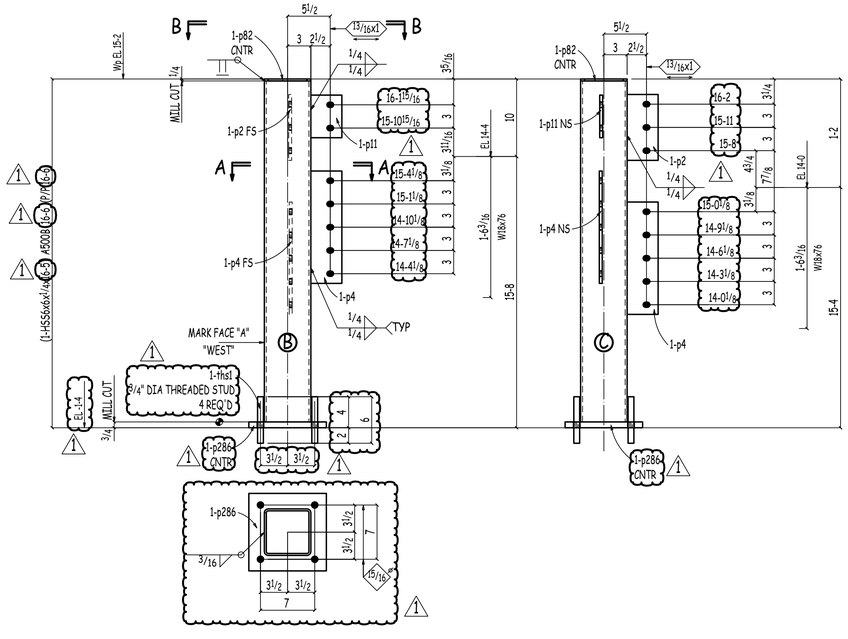
AT GRID:
P & 11.7

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

HOLD

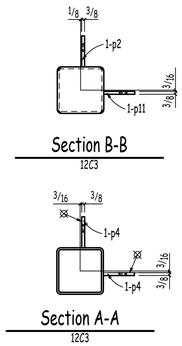
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	12C3		ONECOLUMN		356	
	12C3	1	HSS6x6x1/4	16 5 1	312	M2E A500B
1	p286	1	FL3/4x10	0 10	21	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p2	1	FL3/8x4	0 8 1/2	3	A36
	p11	1	FL3/8x4	0 5 1/2	2	A36
	p82	1	FL1/4x6	0 6	3	A36
1	ths1	2	THD STUD 3/4	0 8	1	A108
			FIELD BOLTS			
1		8	3/4 NUT			HHNT A563
		8	3/4 WASHER			HD F436
1	12C4		ONECOLUMN		355	
	12C4	1	HSS6x6x1/4	16 5 1	312	M2E A500B
1	p286	1	FL3/4x10	0 10	21	A36
	p4	2	FL3/8x4	1 2 1/2	6	A36
	p11	2	FL3/8x4	0 5 1/2	2	A36
	p82	1	FL1/4x6	0 6	3	A36
1	ths1	4	THD STUD 3/4	0 8	1	A108
	1		FIELD BOLTS			
		8	3/4 NUT			HHNT A563
		8	3/4 WASHER			HD F436
	12C5		ONECOLUMN		203	
	12C5	1	HSS4x4x1/4	15 8 1/4	192	M2E A500B
	p120	2	FL3/8x8	0 8	6	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 7 3/4		
	12C6	3	COLUMN		191	
	12C6	3	HSS4x4x1/4	14 6 1/4	177	M2E A500B
	p508	3	FL3/8x8	0 10	7	A36
	p91	3	PL3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		12	3/4 Dia EXP ANCHOR	0 7 3/4		
	12C7	3	COLUMN		191	
	12C7	3	HSS4x4x1/4	14 6 1/4	177	M2E A500B
	p508	3	FL3/8x8	0 10	7	A36
	p91	3	PL3/8x5 1/2	1 0	7	A36
			FIELD BOLTS			
		12	3/4 Dia EXP ANCHOR	0 7 3/4		



ONE COLUMN 12C3

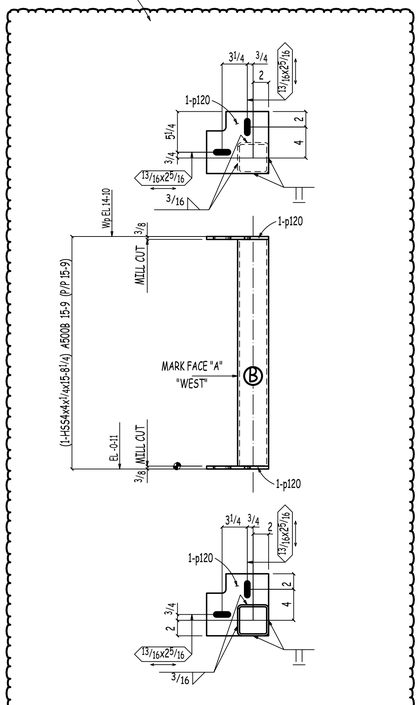
AT GRID:
N.9 & E.6 & 1



Section B-B
12C3

Section A-A
12C3

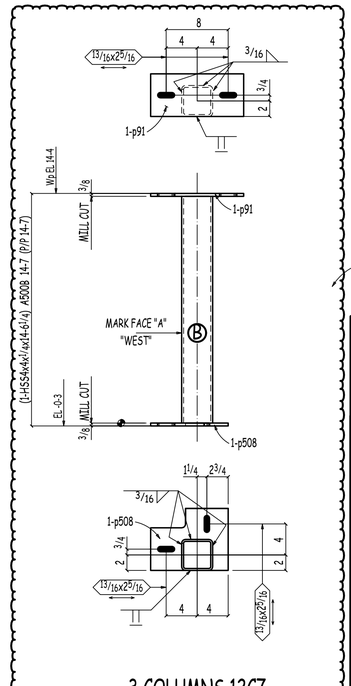
HOLD



ONE COLUMN 12C5

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

HOLD



3 COLUMNS 12C7

FIELD BOLTS:
4-3/4x7 3/4 EXPANSION ANCHOR [total=4]

HOLD

REV	DATE	DESCRIPTION	DETAILER
1	May 29 2018	REVISED TO UPDATE BASE PLATE	SAT
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21	E	05-29					
SHOP	3	05-21	3	05-29					
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED , ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHARP-NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

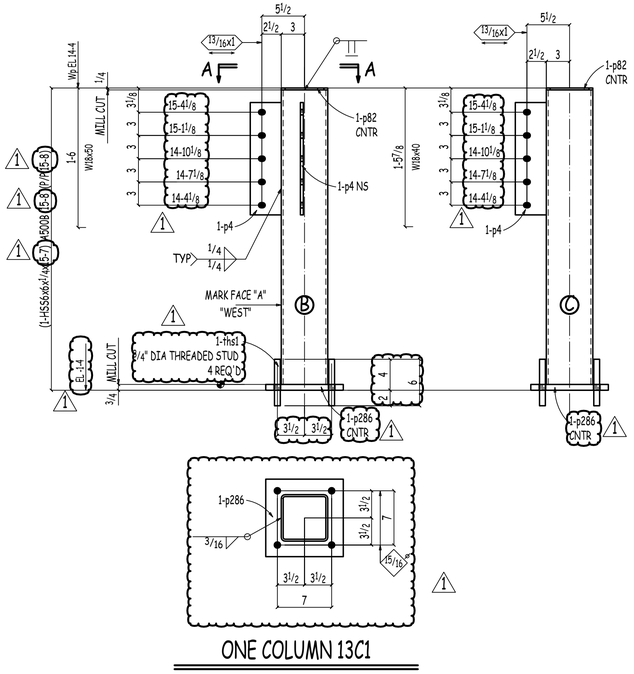
WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO. 12
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO. 17068

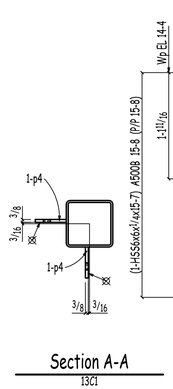
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 1734

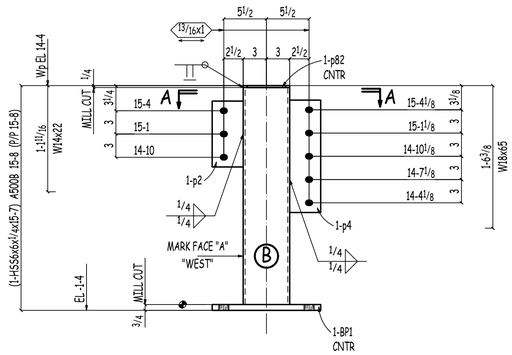


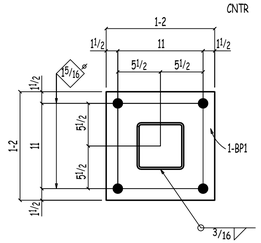
ONE COLUMN 13C1

AT GRID:
E.4 & 3.2



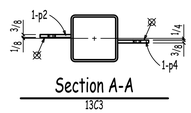
Section A-A
13C1



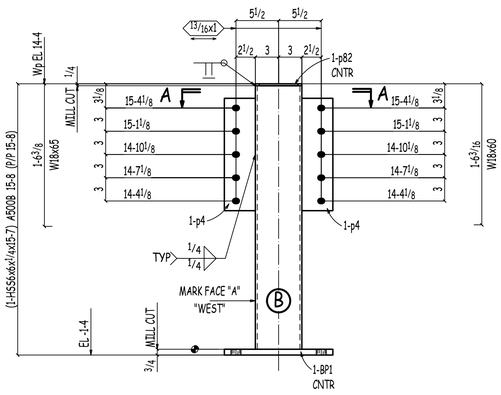


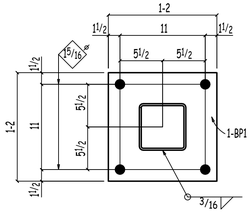
ONE COLUMN 13C3

AT GRID:
F & 3.6



Section A-A
13C3

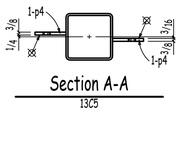




ONE COLUMN 13C5

AT GRID:
F & 5.2

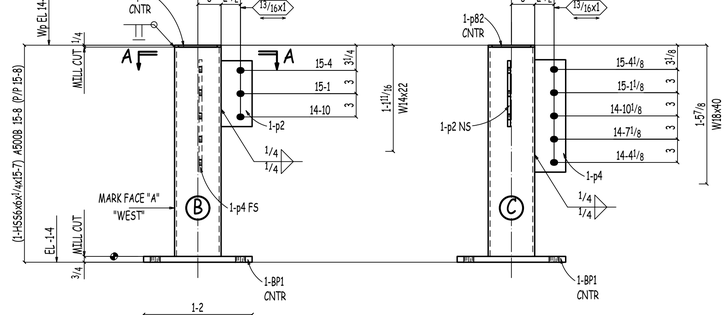
ALREADY APPROVED AS 13C4

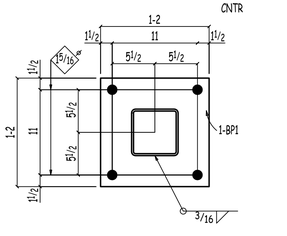


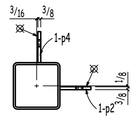
Section A-A
13C5

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	13C1		ONE COLUMN		334	
	13C1	1	HSS6x6x1/4	15 7 1	296	M2E A500B
1	p286	1	PL 3/8 x 10	0 10	21	A36
	p4	2	FL 3/8 x 4	1 2 1/2	6	A36
	p82	1	FL 1/4 x 6	0 6	3	A36
1	hs1	4	THD STUD 3/4	0 6	1	A108
	1		FIELD BOLTS			
		8	3/4 NUT			HHNT A563
		8	3/4 WASHER			HD F436
1	13C2		ONE COLUMN		349	
	13C2	1	HSS6x6x1/4	15 7	296	M2E A500B
	BP1	1	PL 3/8 x 14	1 2	41	A36
	p4	1	FL 3/8 x 4	1 2 1/2	6	A36
	p2	1	FL 3/8 x 4	0 8 1/2	3	A36
	p82	1	FL 1/4 x 6	0 6	3	A36
1	13C3		ONE COLUMN		349	
	13C3	1	HSS6x6x1/4	15 7	296	M2E A500B
	BP1	1	PL 3/8 x 14	1 2	41	A36
	p4	1	FL 3/8 x 4	1 2 1/2	6	A36
	p2	1	FL 3/8 x 4	0 8 1/2	3	A36
	p82	1	FL 1/4 x 6	0 6	3	A36
1	13C4		ONE COLUMN		351	
	13C4	1	HSS6x6x1/4	15 7	296	M2E A500B
	BP1	1	PL 3/8 x 14	1 2	41	A36
	p4	2	FL 3/8 x 4	1 2 1/2	6	A36
	p82	1	FL 1/4 x 6	0 6	3	A36
1	13C5		ONE COLUMN		351	
	13C5	1	HSS6x6x1/4	15 7	296	M2E A500B
	BP1	1	PL 3/8 x 14	1 2	41	A36
	p4	2	FL 3/8 x 4	1 2 1/2	6	A36
	p82	1	FL 1/4 x 6	0 6	3	A36



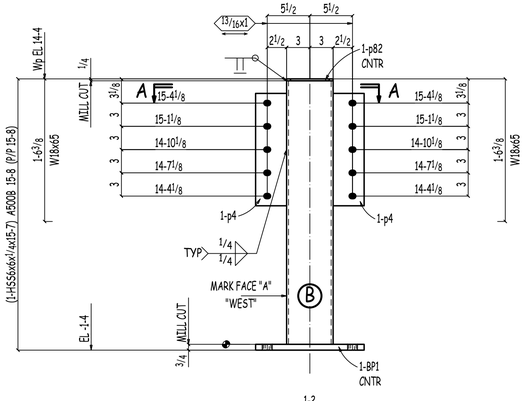


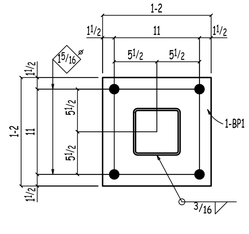


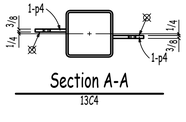
Section A-A
13C2

ONE COLUMN 13C2

AT GRID:
F & 3.2







Section A-A
13C4

ONE COLUMN 13C4

AT GRID:
F & 4.4

ONE QUANTITY SPLITTED TO 13C5

REV	DATE	DESCRIPTION	DETAILER
1	May 29 2018	REVISED TO UPDATE BASE PLATE	SAT
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21	E	05-29					
SHOP	3	05-21	3	05-29					
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes, modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED : ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

WIDE FLANGE (U/N)
A-992 GR-50

PARTS MATERIAL (U/N)
A-36

TUBE MATERIAL (U/N)
A-500 GR-B

SURFACE PREPARATION
SSPC SP 2 & 3

SHOP PAINT
SHERWIN WILLIAMS STEEL SPEC

FIELD CONNECTIONS
AS NOTED

HOLES (U.N.)
13/16 ø

USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB
ROYSTER CROSSINGS LOT 2

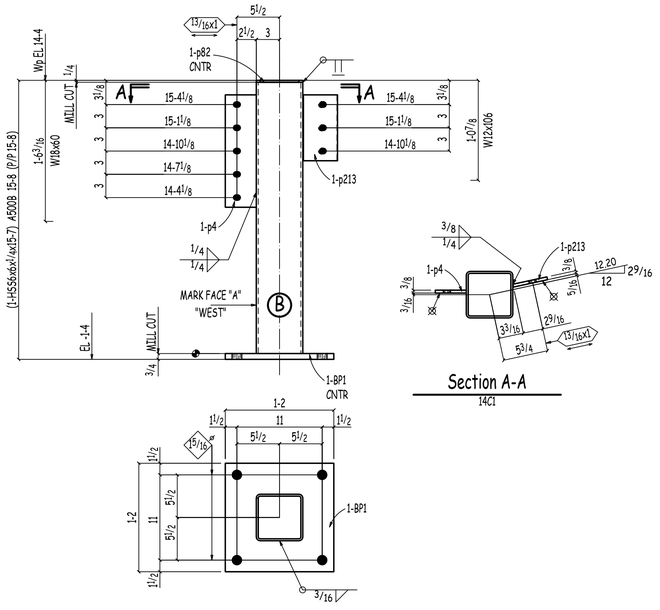
LOCATION
MADISON, WI

CUSTOMER
RVEDEBUSCH

DRWG NO.
13

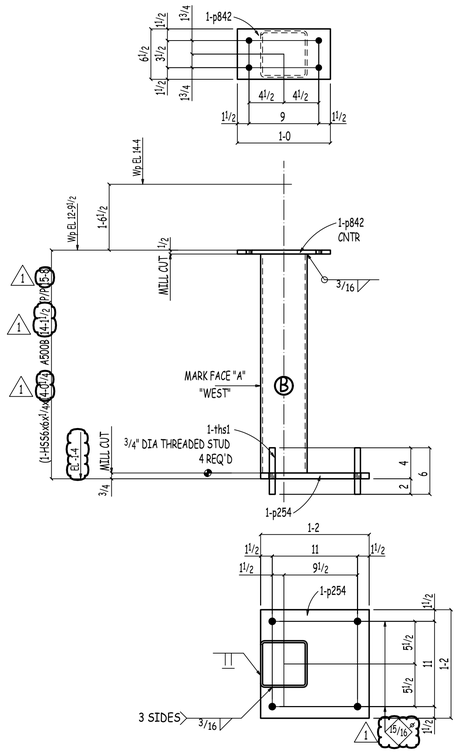
DETAILER	CHECKED	DATE	JOB NO.
MSK	SJS	06-12-2017	17068

Total weight : 1681



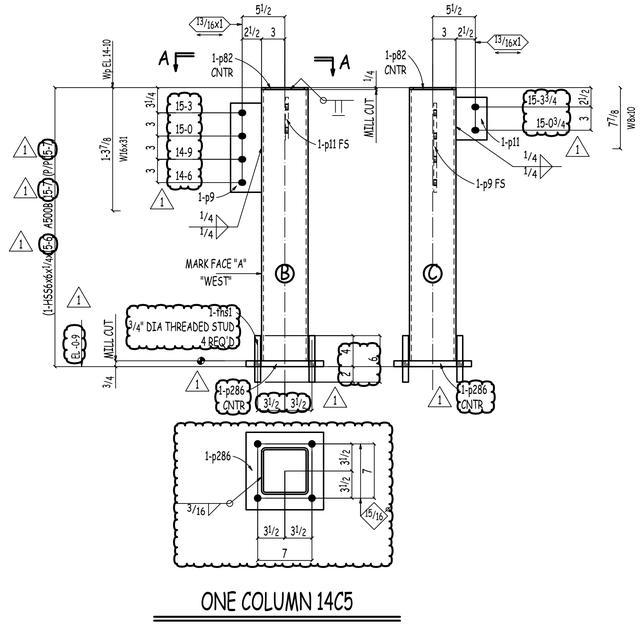
ONE COLUMN 14C1

AT GRID:
F & 6.1

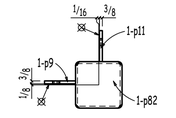


ONE COLUMN 14C3

AT GRID:
E.4 & 7.9

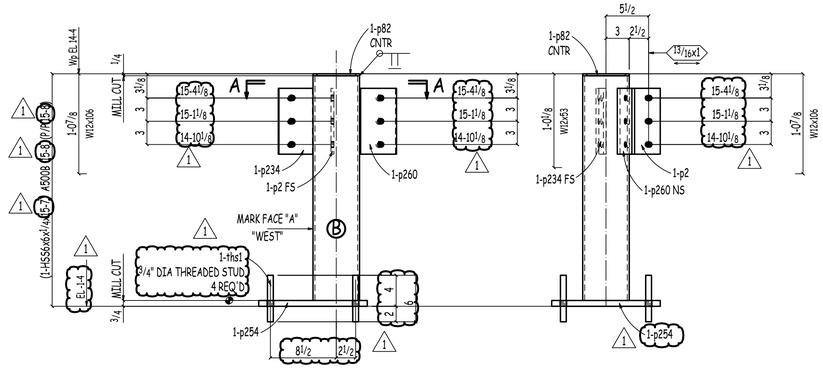


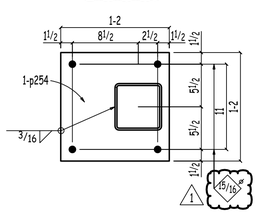
ONE COLUMN 14C5



ONE COLUMN 14C6

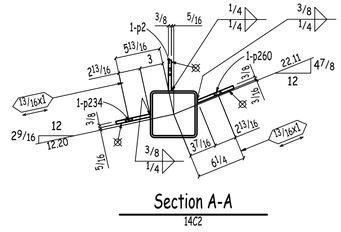
MOVED TO 74C3

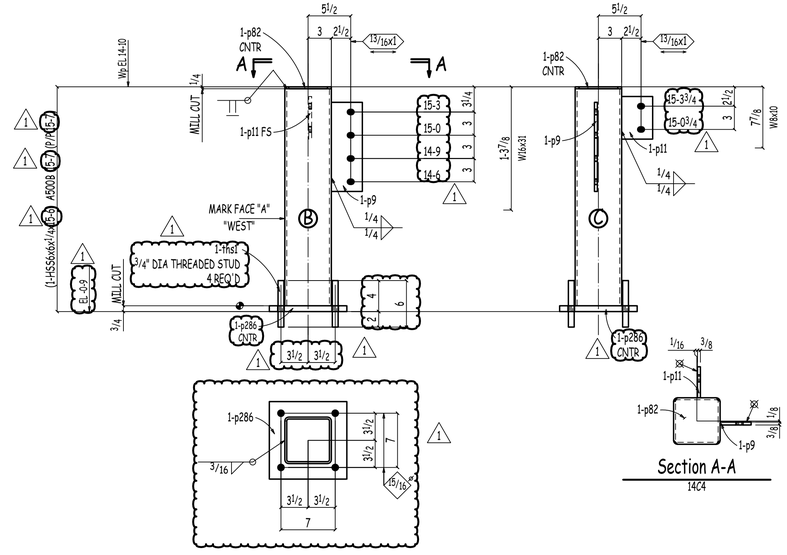




ONE COLUMN 14C2

AT GRID:
P & 7.1





ONE COLUMN 14C4

AT GRID:
8.15

BILL OF MATERIAL

	SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
	1	14C1		ONECOLUMN		349	
		14C1	1	HSS6x6x1/4	15 7	296	M2E A500B
		BP1	1	PL3/4x14	1 2	41	A36
		p213	1	PL3/8x41/2	0 81/2	4	A36
		p4	1	FL3/8x4	1 21/2	6	A36
		p82	1	FL1/4x6	0 6	3	A36
	1	14C2		ONECOLUMN		355	
		14C2	1	HSS6x6x1/4 (1)	15 7	296	A500B
		p254	1	PL3/4x14	1 2	41	A36
		p260	1	FL3/8x5	0 81/2	4	A36
1		p234	1	PL3/8x41/2	0 81/2	4	A36
		p2	1	FL3/8x4	0 81/2	3	A36
		p82	1	FL1/4x6	0 6	3	A36
1		ths1	4	THD STUD 3/4	0 6	1	A108
				FIELD BOLTS			
			8	3/4 NUT			HHNT A563
			8	3/4 WASHER			HD F436
	1	14C3		ONECOLUMN		322	
		14C3	1	HSS6x6x1/4	14 01/4 (1)	267	M2E A500B
		p254	1	PL3/4x14	1 2	41	A36
		p842	1	PL1/2x61/2	1 0	11	A36
		ths1	4	THD STUD 3/4	0 6	1	A108
				FIELD BOLTS			
			8	3/4 NUT			HHNT A563
			8	3/4 WASHER			HD F436
	1	14C4		ONECOLUMN		328	
		14C4	1	HSS6x6x1/4	15 6 (1)	295	M2E A500B
1		p286	1	FL3/4x10	0 10	21	A36
		p9	1	FL3/8x4	0 111/2	5	A36
		p11	1	FL3/8x4	0 51/2	2	A36
		p82	1	FL1/4x6	0 6	3	A36
1		ths1	4	THD STUD 3/4	0 6	1	A108
				(1) FIELD BOLTS			
			8	3/4 NUT			HHNT A563
			8	3/4 WASHER			HD F436
	1	14C5		ONECOLUMN		328	
		14C5	1	HSS6x6x1/4	15 6 (1)	295	M2E A500B
1		p286	1	FL3/4x10	0 10	21	A36
		p9	1	FL3/8x4	0 111/2	5	A36
		p11	1	FL3/8x4	0 51/2	2	A36
		p82	1	FL1/4x6	0 6	3	A36
1		ths1	4	THD STUD 3/4	0 6	1	A108
				(1) FIELD BOLTS			
			8	3/4 NUT			HHNT A563
			8	3/4 WASHER			HD F436

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
1	May 21 2018	REVISED TO UPDATE BASE PLATE	SAT
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT WELD MARK ON MEMBERS AS NEEDED. AT LEGS/BRACE MEMBERS, SHALL BE SHARP NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

FIELD	E	05-21	E	05-29					
SHOP	3	05-21	3	05-29					
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

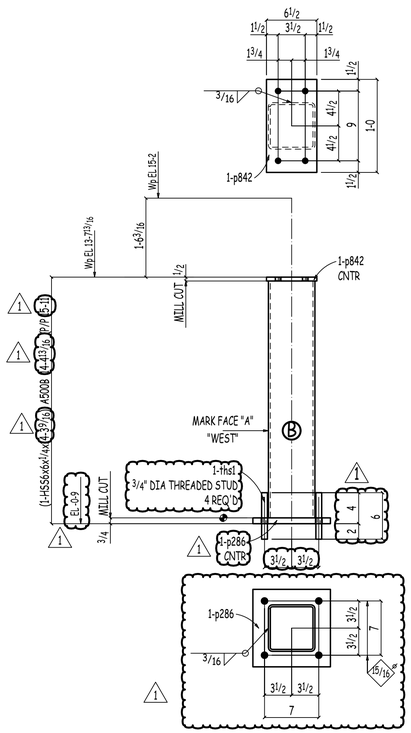
WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

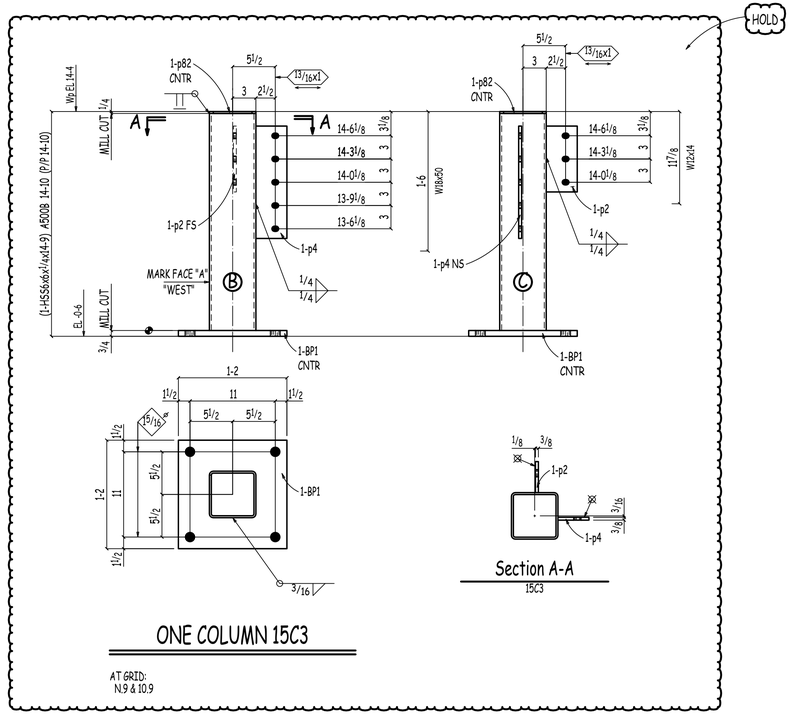
Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

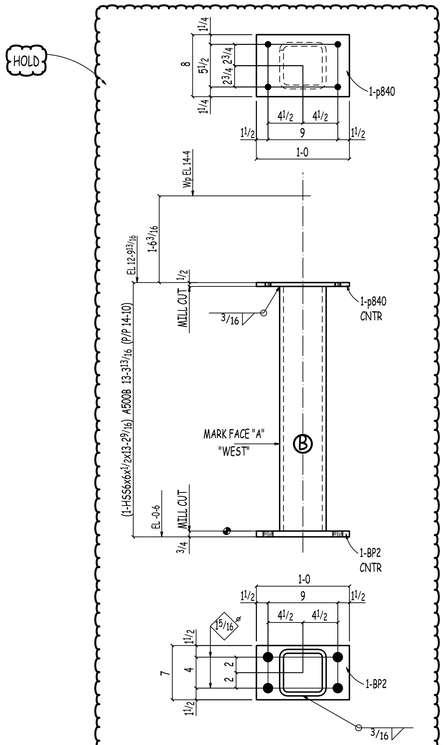
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO.: 17068
DRWG NO.: 14

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 2913

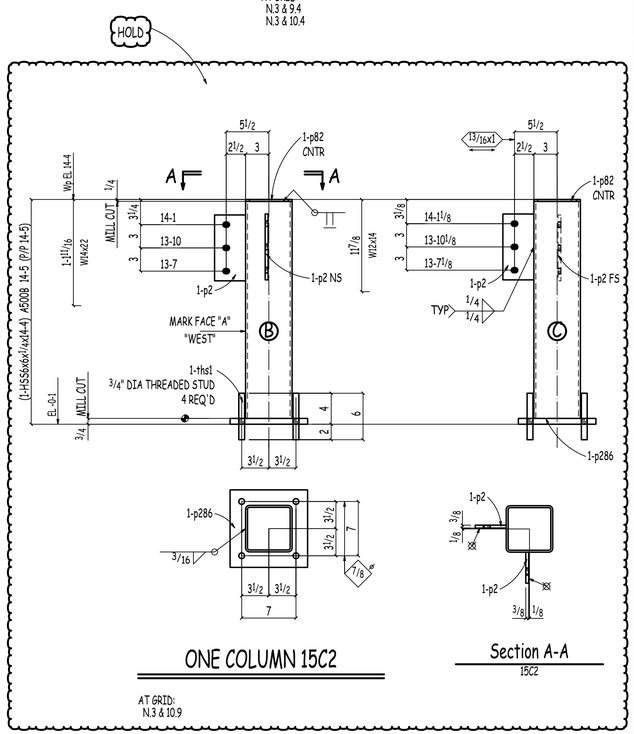


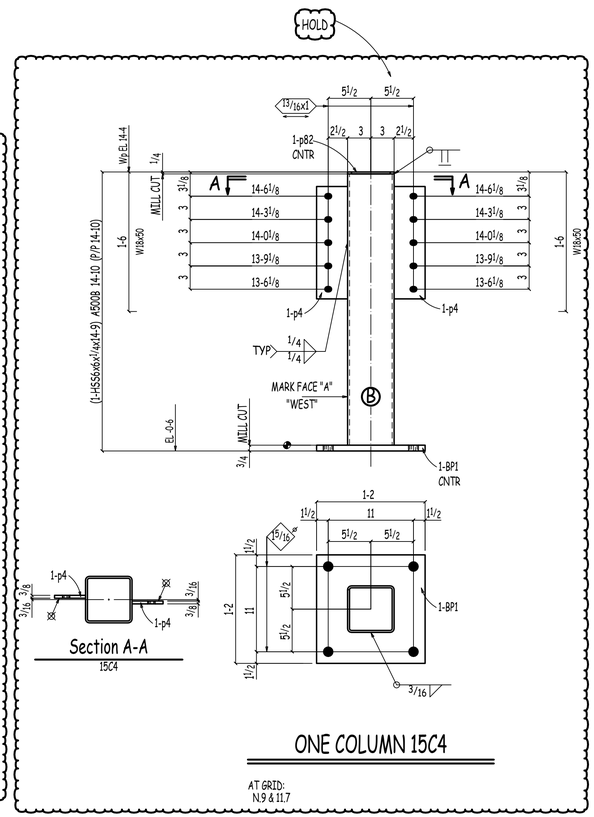


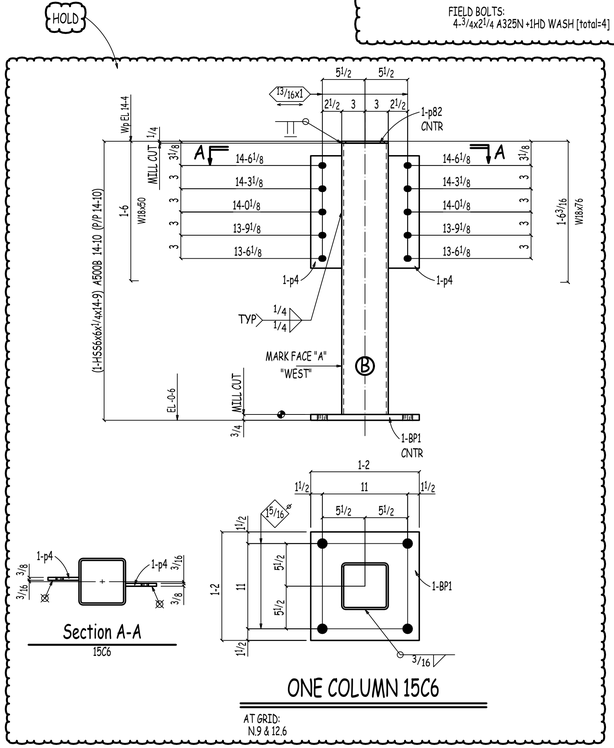


BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	15C1	2	COLUMN		306	
	15C1	2	HSS6x6x1/4	14 3 9/16	272	M2E A500B
1	p286	2	FL 3/4x10	0 10	21	A36
	p842	2	PL 1/2x6 1/2	1 0	11	A36
1	ths1	8	THD STUD 3/4	0 6	1	A108
			FIELD BOLTS			
	1	16	3/4 NUT			HHNT A563
		16	3/4 WASHER			HD F436
HOLD	1	15C2	ONECOLUMN		306	
	15C2	1	HSS6x6x1/4	14 4	273	A500B
	p286	1	FL 3/4x10	0 10	21	A36
	p2	2	FL 3/8x4	0 8 1/2	3	A36
	p82	1	FL 1/4x6	0 6	3	A36
	ths1	4	THD STUD 3/4	0 6	1	A108
			FIELD BOLTS			
		4	3/4 NUT			HHNT A563
		4	3/4 WASHER			HD F436
HOLD	1	15C3	ONECOLUMN		333	
	15C3	1	HSS6x6x1/4	14 9	281	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p4	1	FL 3/8x4	1 2 1/2	6	A36
	p2	1	FL 3/8x4	0 8 1/2	3	A36
	p82	1	FL 1/4x6	0 6	3	A36
HOLD	1	15C4	ONECOLUMN		335	
	15C4	1	HSS6x6x1/4	14 9	281	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p4	2	FL 3/8x4	1 2 1/2	6	A36
	p82	1	FL 1/4x6	0 6	3	A36
HOLD	1	15C5	2 COLUMN		496	
	15C5	2	HSS6x6x1/2	13 2 9/16	466	M2E A500B
	BP2	2	PL 3/4x12	0 7	17	A36
	p840	2	PL 1/2x8	1 0	13	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH
HOLD	1	15C6	ONECOLUMN		335	
	15C6	1	HSS6x6x1/4	14 9	281	M2E A500B
	BP1	1	PL 3/4x14	1 2	41	A36
	p4	2	FL 3/8x4	1 2 1/2	6	A36
	p82	1	FL 1/4x6	0 6	3	A36







REV	DATE	DESCRIPTION		DETAILER
1	May 29 2018	REVISED TO UPDATE BASE PLATE		SAT
0	May 21 2018	ISSUED FOR FABRICATION		SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL		SAT
A	Jul 11 2017	ISSUED FOR APPROVAL		SAT

	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
FIELD	E	05-21	E	05-29				
SHOP	3	05-21	3	05-29				
APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED : ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

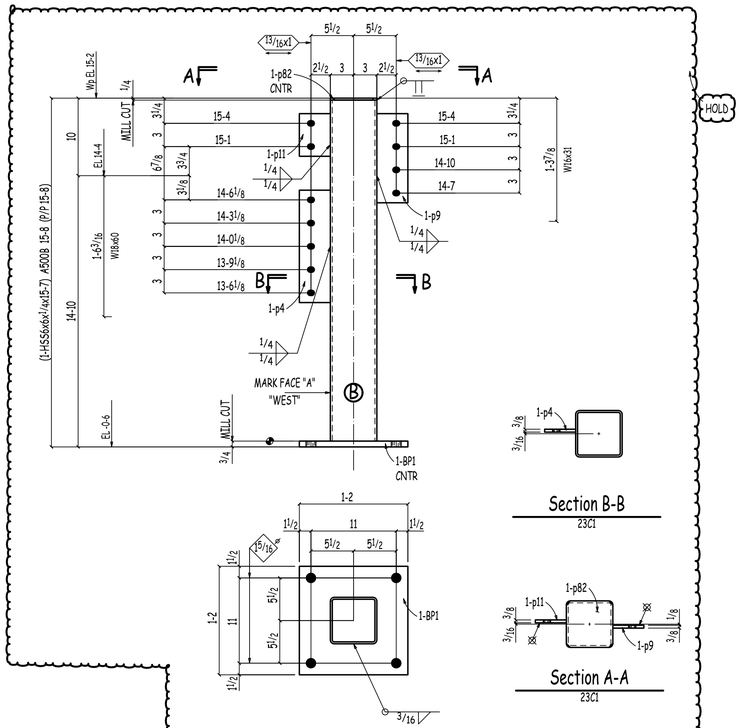
WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO.: 17068
DRWG NO.: 15

Total weight : 2012

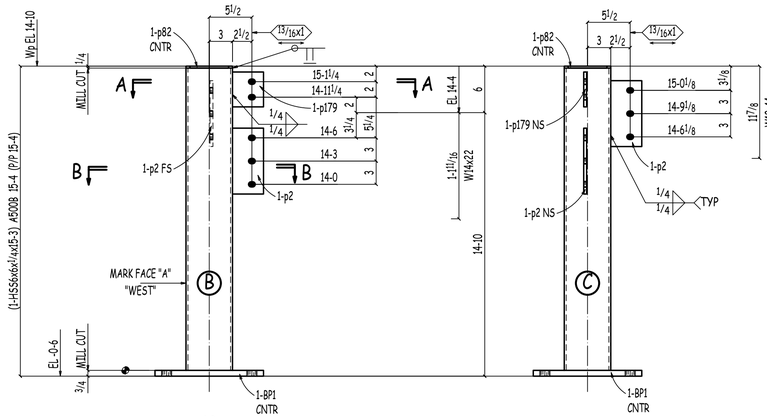


ONE COLUMN 23C1

AT GRID:
K.7 & 11.4

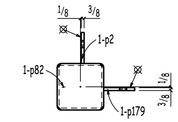
Section B-B
23C1

Section A-A
23C1

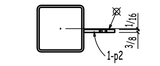


ONE COLUMN 23C3

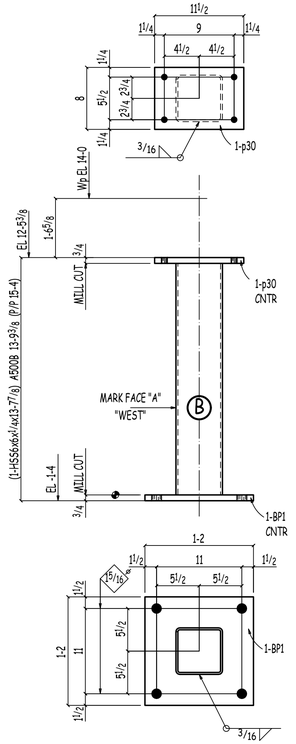
AT GRID:
K.8 & 10.1



Section A-A
23C3



Section B-B
23C3



ONE COLUMN 23C5

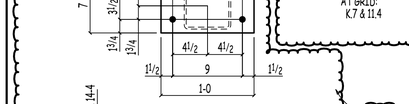
AT GRID:
A.9 & 8.1

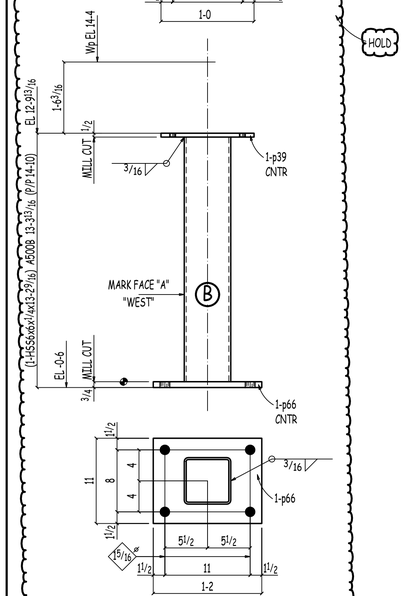
HOLD

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH		WEIGHT	REMARKS
1	23C1		ONECOLUMN			352	
	23C1	1	HSS6x6x1/4	15	7	296	M2E A500B
	BP1	1	PL3/4x14	1	2	41	A36
	p4	1	FL3/8x4	1	2 1/2	6	A36
	p9	1	FL3/8x4	0	11 1/2	5	A36
	p11	1	FL3/8x4	0	5 1/2	2	A36
	p82	1	FL1/4x6	0	6	3	A36
1	23C2		ONECOLUMN			295	
	23C2	1	HSS6x6x1/4	13	2 9/16	251	M2E A500B
	p66	1	PL3/4x11	1	2	32	A36
	p39	1	PL1/2x7	1	0	12	A36
1	23C3		ONECOLUMN			342	
	23C3	1	HSS6x6x1/4	15	3	290	M2E A500B
	BP1	1	PL3/4x14	1	2	41	A36
	p2	2	FL3/8x4	0	8 1/2	3	A36
	p179	1	FL3/8x4	0	4 1/2	2	A36
	p82	1	FL1/4x6	0	6	3	A36
1	23C4		ONECOLUMN			569	
	23C4	1	HSS6x6x1/2	15	3	537	M1E A500B
	BP2	1	FL3/4x7	1	0	18	A36
	p4	2	FL3/8x4	1	2 1/2	6	A36
	p103	1	PL1/4x5 3/4	0	5 3/4	2	A36
1	23C5		ONECOLUMN			319	
	23C5	1	HSS6x6x1/4	13	7 7/8	260	M2E A500B
	BP1	1	PL3/4x14	1	2	41	A36
	p30	1	FL3/4x8	0	11 1/2	19	A36
1	23C6		ONECOLUMN			135	
	23C6	1	PIPE 4 SCH 40	11	8 3/8	126	M2E A500B
	p678	1	FL3/8x5	0	9 1/2	5	A36
	p676	1	FL3/8x4 1/16	0	5 1/2	2	A36
	p674	1	PL1/4x4 1/2	0	4 1/2	1	A36
			FIELD BOLTS				
		2	3/4 Dia EXP ANCHOR	0	5 1/2		

HOLD

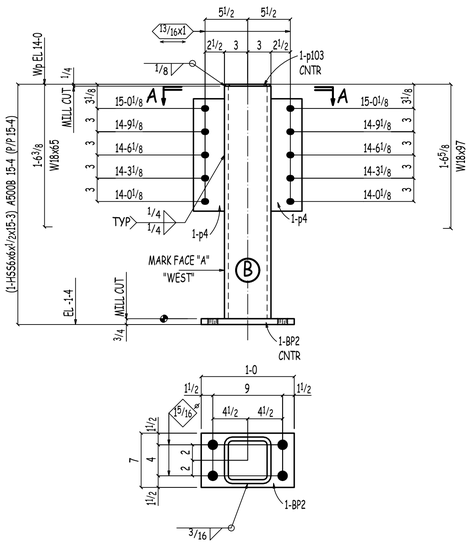




ONE COLUMN 23C2

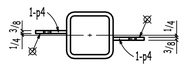
AT GRID:
K.7 & 10.6

HOLD

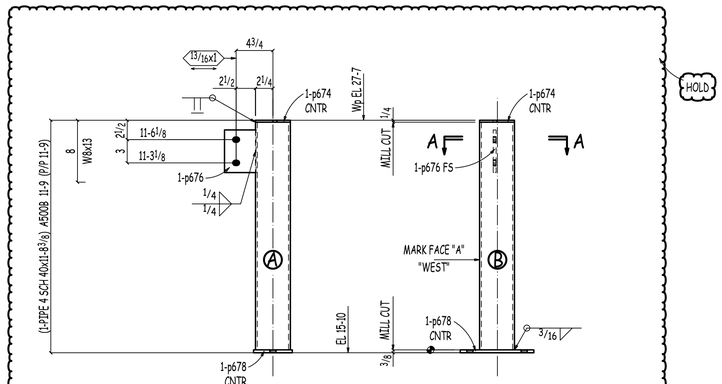


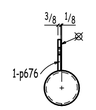
ONE COLUMN 23C4

AT GRID:
A.9 & 7.2



Section A-A
23C4





Section A-A
23C6

ONE COLUMN 23C6

FIELD BOLTS:
2-3/4x5 1/2 EXPANSION ANCHOR [total=2]

HOLD

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT FERRIE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

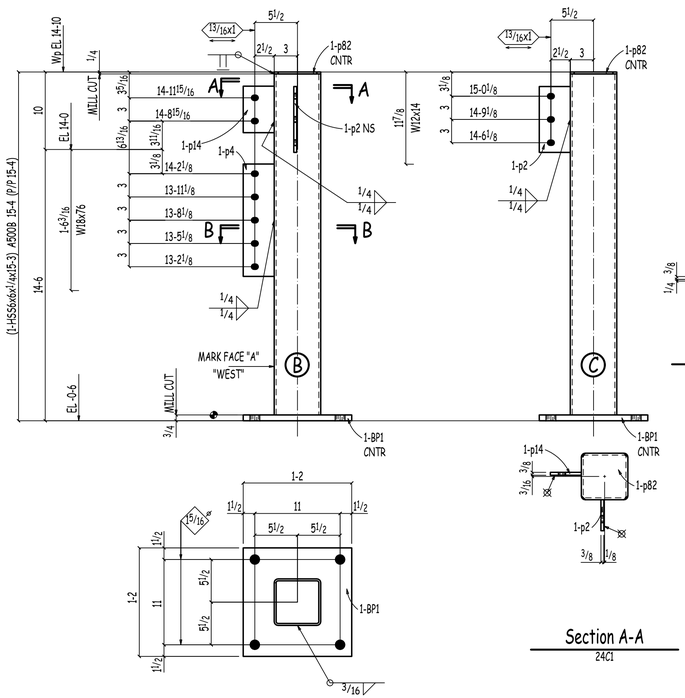
WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC.
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

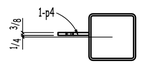
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO. 23
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO. 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 1514



Section B-B
24C1

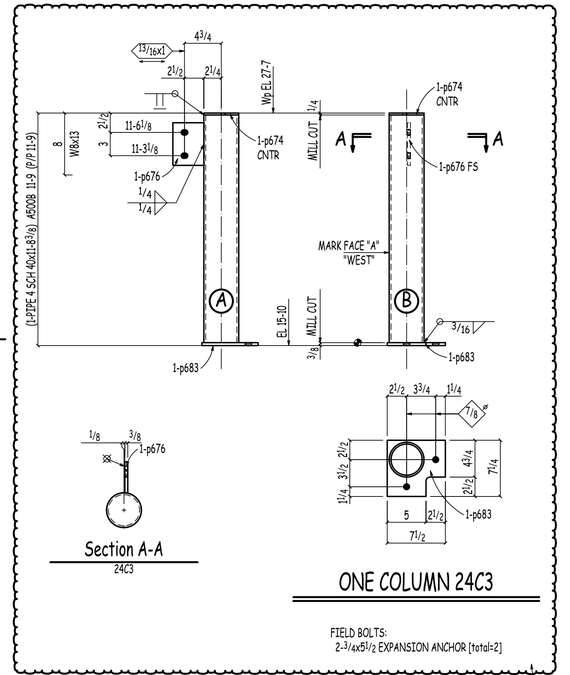


Section A-A
24C1



ONE COLUMN 24C1

AT GRID:
K.3 & 10.1

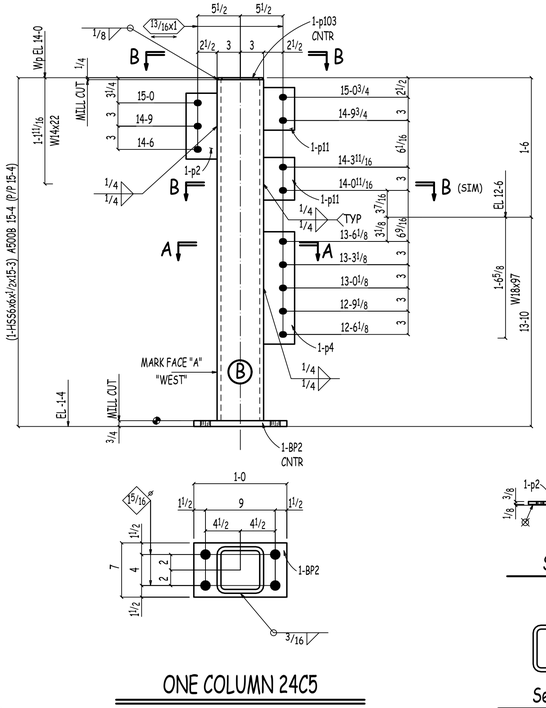


Section A-A
24C3

ONE COLUMN 24C3

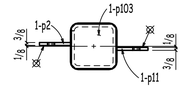
FIELD BOLTS:
2-3/4x5 1/2 EXPANSION ANCHOR [total=2]

HOLD

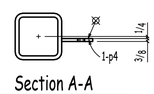


ONE COLUMN 24C5

AT GRID:
A & 3.8



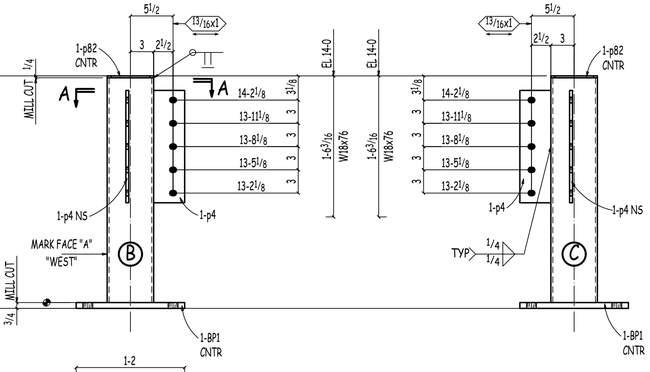
Section B-B
24C5

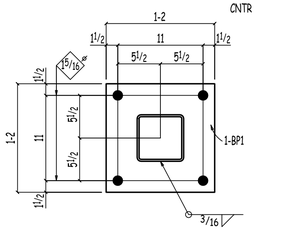


Section A-A
24C5

BILL OF MATERIAL

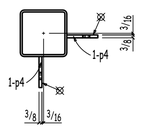
SEQ	MARK	QTY	DESCRIPTION	LENGTH		WEIGHT	REMARKS
1	24C1		ONECOLUMN			345	
	24C1	1	HSS6x6x1/4	15	3	290	M2E A500B
	BP1	1	PL3/4x14	1	2	41	A36
	p4	1	FL3/8x4	1	2 1/2	6	A36
	p2	1	FL3/8x4	0	8 1/2	3	A36
	p14	1	FL3/8x4	0	6	2	A36
	p82	1	FL1/4x6	0	6	3	A36
1	24C2		ONECOLUMN			329	
	24C2	1	HSS6x6x1/4	14	5	274	M2E A500B
	BP1	1	PL3/4x14	1	2	41	A36
	p4	2	FL3/8x4	1	2 1/2	6	A36
	p82	1	FL1/4x6	0	6	3	A36
1	24C3		ONECOLUMN			135	
	24C3	1	PIPE 4 SCH 40	11	8 3/8	126	M2E A500B
	p683	1	PL3/8x7 1/4	0	7 1/2	5	A36
	p676	1	PL3/8x4 1/16	0	5 1/2	2	A36
	p674	1	PL1/4x4 1/2	0	4 1/2	1	A36
			FIELD BOLTS				
		2	3/4 Dia EXP ANCHOR	0	5 1/2		
1	24C4		ONECOLUMN			135	
	24C4	1	PIPE 4 SCH 40	11	8 3/8	126	M2E A500B
	p678	1	PL3/8x5	0	9 1/2	5	A36
	p676	1	PL3/8x4 1/16	0	5 1/2	2	A36
	p674	1	PL1/4x4 1/2	0	4 1/2	1	A36
			FIELD BOLTS				
		2	3/4 Dia EXP ANCHOR	0	5 1/2		
1	24C5		ONECOLUMN			571	
	24C5	1	HSS6x6x1/2	15	3	537	M2E A500B
	BP2	1	FL3/4x7	1	0	18	A36
	p4	1	FL3/8x4	1	2 1/2	6	A36
	p2	1	FL3/8x4	0	8 1/2	3	A36
	p11	2	FL3/8x4	0	5 1/2	2	A36
	p103	1	PL1/4x5 3/4	0	5 3/4	2	A36



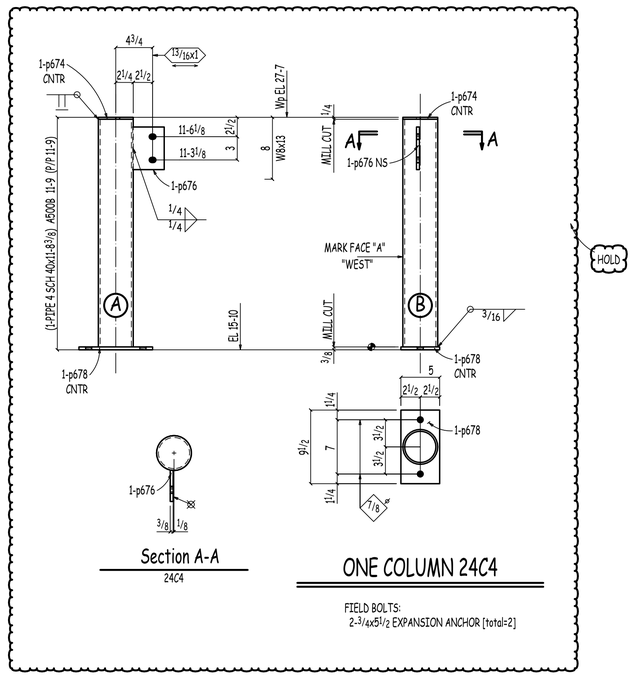


ONE COLUMN 24C2

AT GRID:
K.3 & 9



Section A-A
24C2



Section A-A
24C4

ONE COLUMN 24C4

FIELD BOLTS:
2-3/4x5 1/2 EXPANSION ANCHOR [total=2]

HOLD

ASC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED : ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

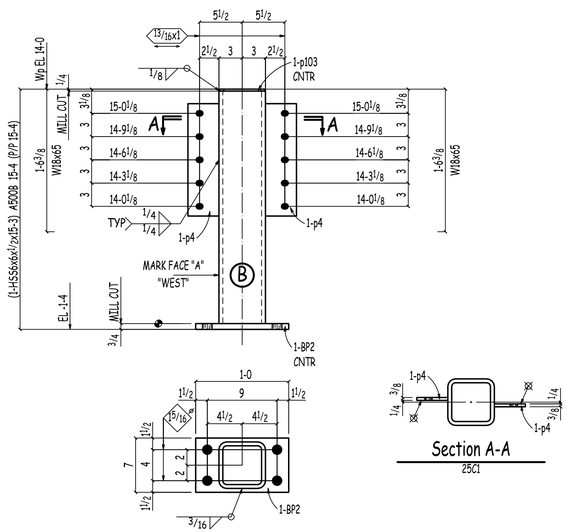
WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO.: 24
DETAILER: MSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

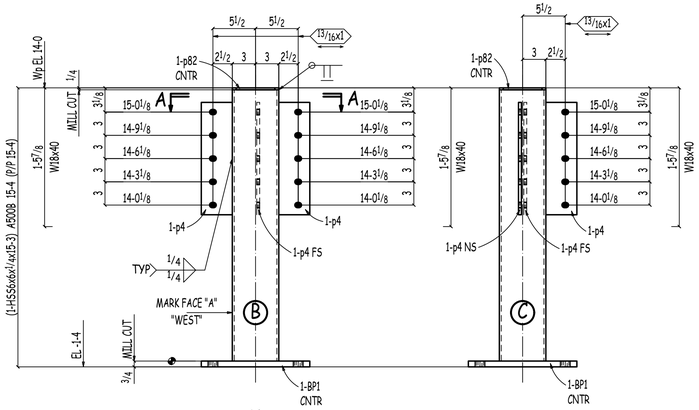
Total weight : 2489

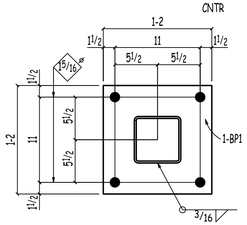


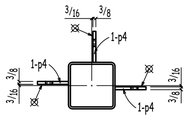
Section A-A
25C1

ONE COLUMN 25C1

AT GRID:
A.9 & 6.2

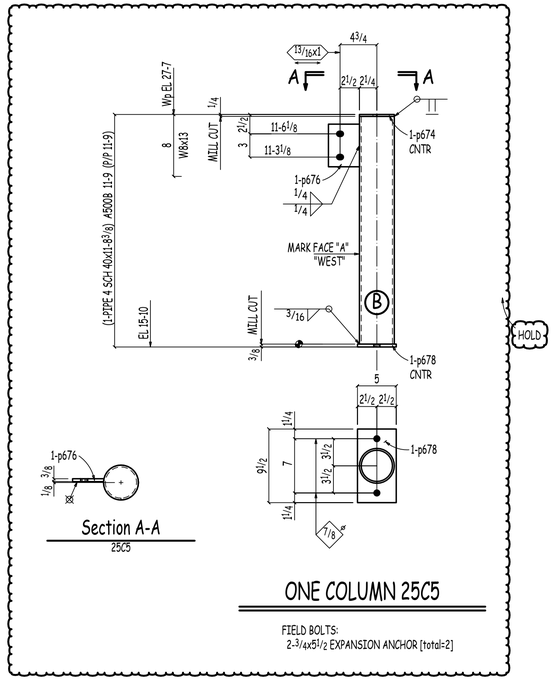






Section A-A
25C3

ONE COLUMN 25C3



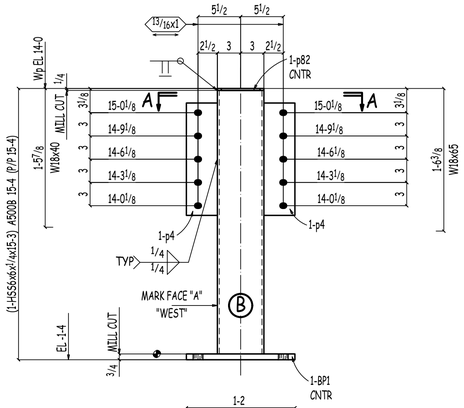
Section A-A
25C5

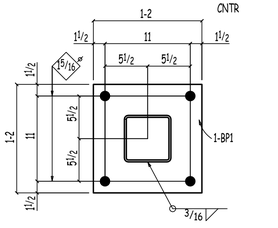
ONE COLUMN 25C5

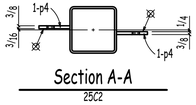
FIELD BOLTS:
2-3/4x5½ EXPANSION ANCHOR [total=2]

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH		WEIGHT	REMARKS
1	25C1		ONECOLUMN			569	
	25C1	1	HSS6x6x1/2	15	3	537	M2E A500B
	BP2	1	FL3/8x7	1	0	18	A36
	p4	2	FL3/8x4	1	2½	6	A36
	p103	1	PL1/4x53/4	0	5¾	2	A36
1	25C2		ONECOLUMN			345	
	25C2	1	HSS6x6x1/4	15	3	290	M2E A500B
	BP1	1	PL3/4x14	1	2	41	A36
	p4	2	FL3/8x4	1	2½	6	A36
	p82	1	FL1/4x6	0	6	3	A36
1	25C3		ONECOLUMN			351	
	25C3	1	HSS6x6x1/4	15	3	290	M2E A500B
	BP1	1	PL3/4x14	1	2	41	A36
	p4	3	FL3/8x4	1	2½	6	A36
	p82	1	FL1/4x6	0	6	3	A36
1	25C4		ONECOLUMN			521	
	25C4	1	HSS6x6x1/2	13	87/8	484	M2E A500B
	BP2	1	FL3/8x7	1	0	18	A36
	p29	1	FL1/2x8	1	0	13	A36
	p4	1	FL3/8x4	1	2½	6	A36
1	25C5		ONECOLUMN			135	
	25C5	1	PIPE 4 SCH 40	11	83/8	126	M2E A500B
	p678	1	FL3/8x5	0	9½	5	A36
	p676	1	PL3/8x41/16	0	5½	2	A36
	p674	1	PL1/4x4½	0	4½	1	A36
			FIELD BOLTS				
		2	3/4 Dia EXP ANCHOR	0	5½		
1	25C6		ONECOLUMN			569	
	25C6	1	HSS6x6x1/2	15	3	537	M2E A500B
	BP2	1	FL3/8x7	1	0	18	A36
	p4	1	FL3/8x4	1	2½	6	A36
	p2	1	FL3/8x4	0	8½	3	A36
	p11	1	FL3/8x4	0	5½	2	A36
	p103	1	PL1/4x53/4	0	5¾	2	A36



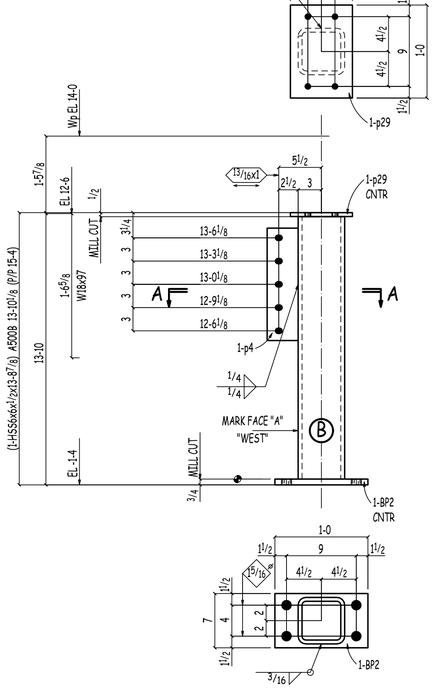


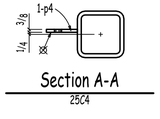


Section A-A
25C2

ONE COLUMN 25C2

AT GRID:
A.9 & 5.3

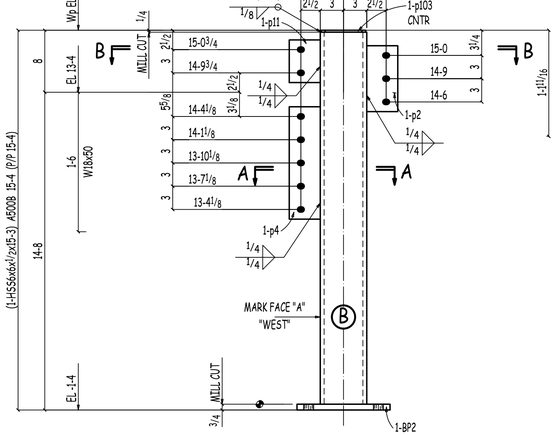


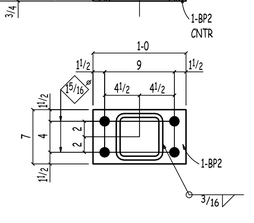


Section A-A
25C4

ONE COLUMN 25C4

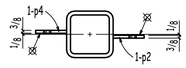
AT GRID:
A & 4.7



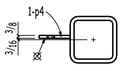


ONE COLUMN 25C6

AT GRID:
A & 3.2



Section B-B
25C6



Section A-A
25C6

REV	DATE	DESCRIPTION	
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED : ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

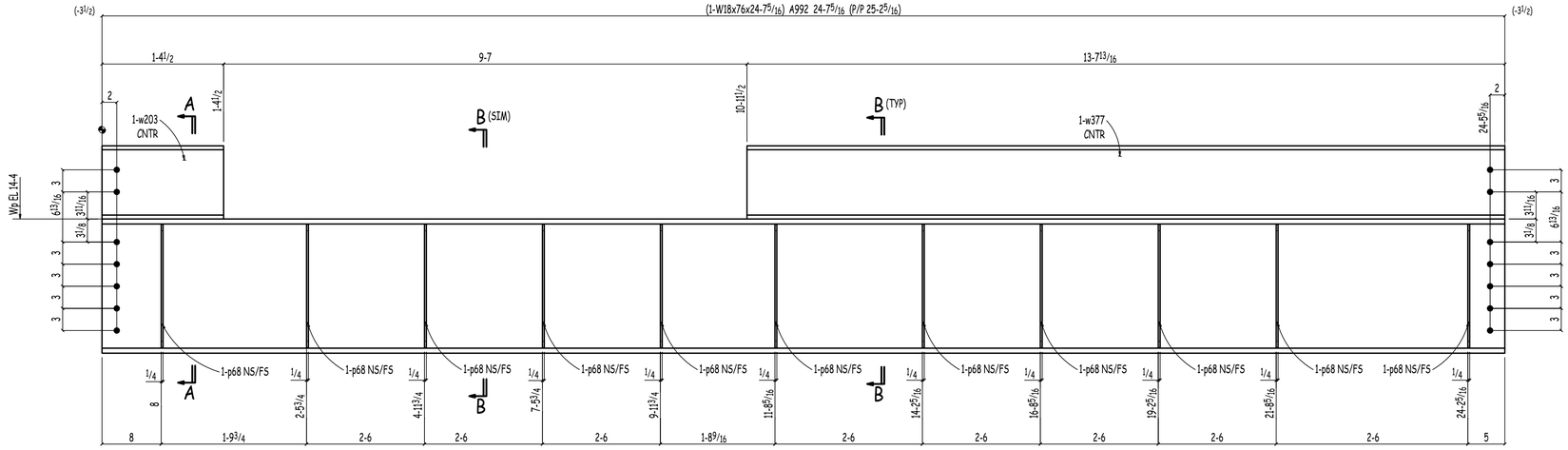
WIDE FLANGE (U.N) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC.
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DETAILER MSK | CHECKED SJS | DATE 06-12-2017 | JOB NO. 17068
DRWG NO. 25

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

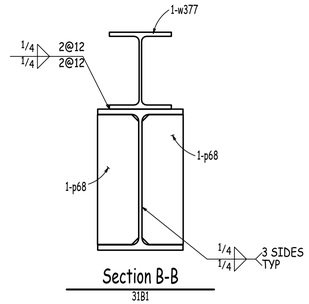
Total weight : 5794



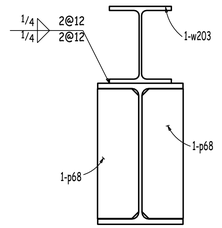
ONE BEAM 31B1

W | 18 3/16x7/16
F | 11x11/16
K | 19/16x1 1/8

FIELD BOLTS:
10-3/4x2 A325N +1HD WASH [total=10]
2-3/4x13/4 A325N +1HD WASH [total=2]
2-3/4x2 A325N +2HD WASH [total=2]



Section B-B
31B1



Section A-A
31B1

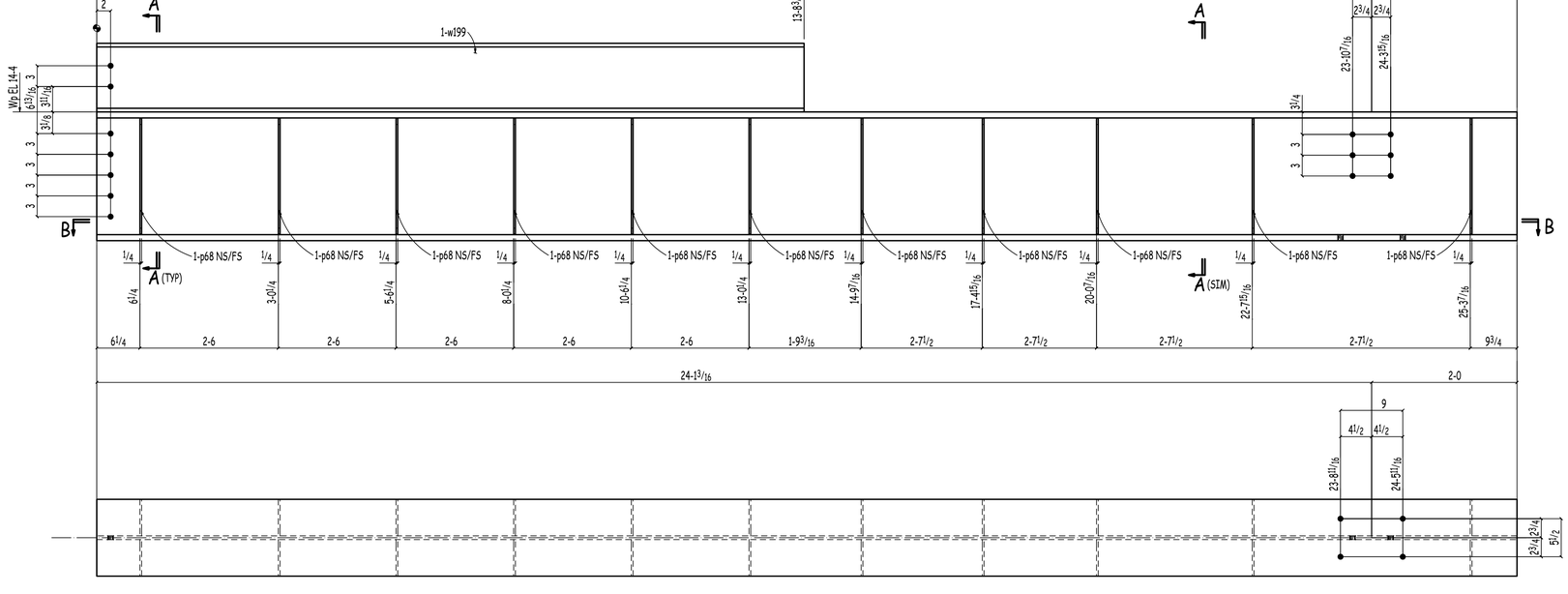
BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	31B1	ONE	BEAM		2593	
	31B1	1	W18x76	24 7 5/16	1870	A992
	w377	1	W10x39	13 7 13/16	532	A992
	w203	1	W10x39	1 4 1/2	54	A992
	p68	22	PL 1/4x5 5/16	1 4 3/4	6	A36
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
		2	3/4 Dia A325N	0 2		+2HD WASH
		2	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	31B2	ONE	BEAM		3201	
	31B2	1	W18x97	26 13/16	2530	A992
	w199	1	W10x39	13 8 3/16	534	A992
	p68	22	PL 1/4x5 5/16	1 4 3/4	6	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/2		+1HD WASH
		5	3/4 Dia A325N	0 2		+1HD WASH
		2	3/4 Dia A325N	0 1 3/4		+1HD WASH

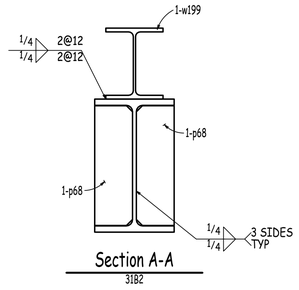
ONE BEAM 31B3

W | 18 3/16x7/16
F | 11x11/16
K | 19/16x1 1/8

31B3 MOVED TO 47B1



Section B-B
31B2



Section A-A
31B2

ONE BEAM 31B2

W | 18 5/8x9/16
F | 11 1/8x7/8
K | 13/4x1 1/8

FIELD BOLTS:
5-3/4x2 A325N +1HD WASH [total=5]
4-3/4x2 1/2 A325N +1HD WASH [total=4]
2-3/4x1 3/4 A325N +1HD WASH [total=2]

USI CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
REV	DATE	DESCRIPTION	DETAILER

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

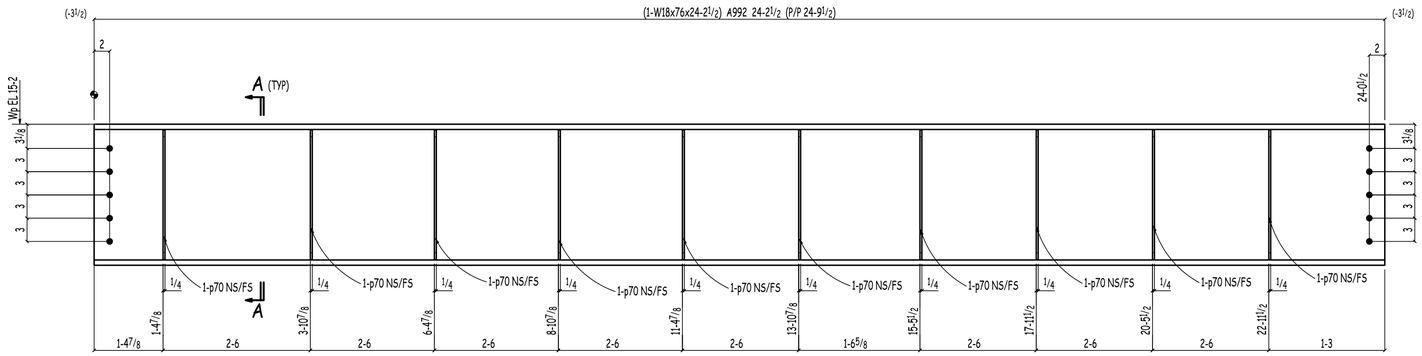
JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRAWING NO. 31
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO. 17068

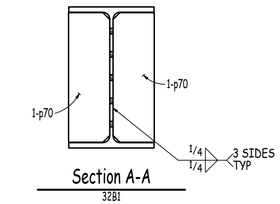
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 9026

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	32B1		ONEBEAM		1964	
	32B1	1	W18x76	24 2 1/2	1839	A992
	p70	20	PL 1/4x5 5/16	1 4 11/16	6	A36
			FIELD BOLTS			
		7	3/4 Dia A325N	0 2		+1HD WASH
1	32B2		ONEBEAM		4481	
	32B2	1	W18x143	29 0	4146	A992
	w612	1	W14x34	1 2	40	A992
	w707	1	W4x13	8 0	104	A992
	p846	2	PL 3/8x5 1/4	1 4 11/16	9	A36
	p71	28	PL 1/4x5 1/4	1 4 11/16	6	A36
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2 1/4		+1HD WASH
		3	3/4 Dia A325N	0 2		+2HD WASH
1	32B3		ONEBEAM		2581	
	32B3	1	W18x76	25 3	1918	A992
	w507	1	W10x39	8 9 1/2	343	A992
	w505	1	W10x39	8 2 1/2	320	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH



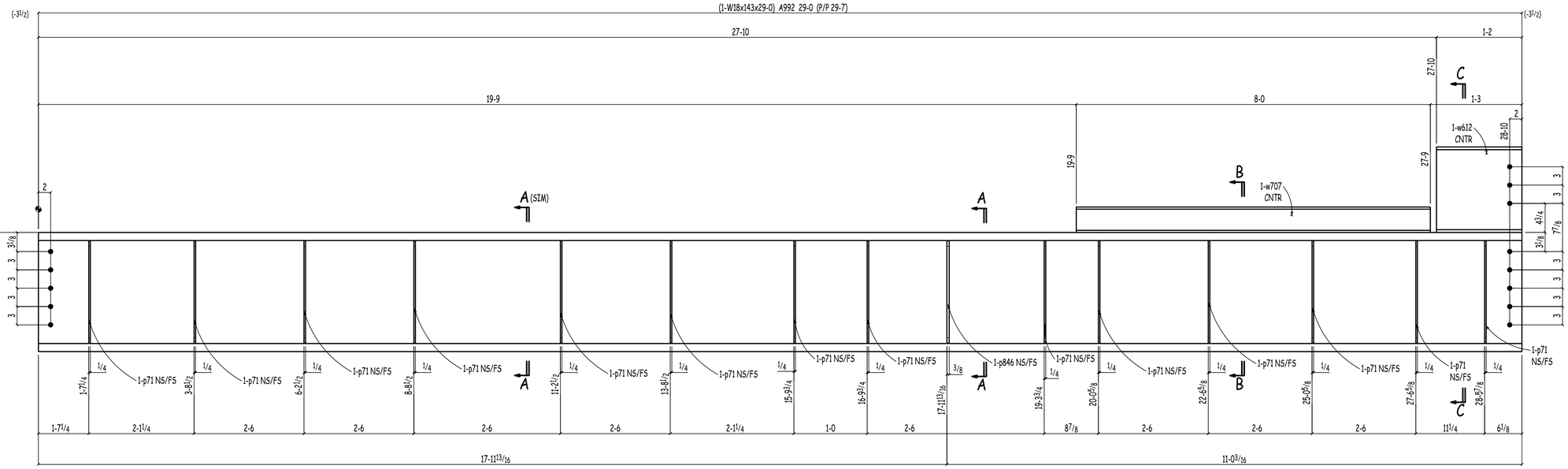


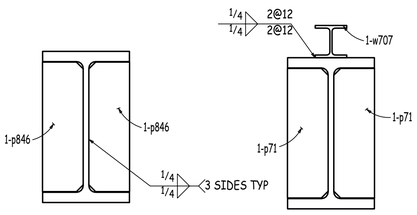
Section A-A
32B1

ONE BEAM 32B1

W 18 3/16x7/16
F 11x11/16
K 19/16x1 1/8

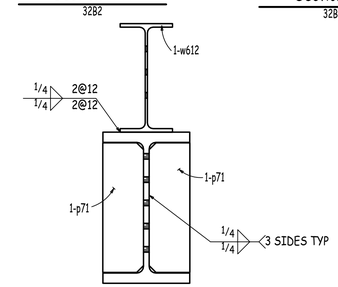
FIELD BOLTS:
7-3/4x2 A325N +1HD WASH [total=7]





Section A-A
32B2

Section B-B
32B2

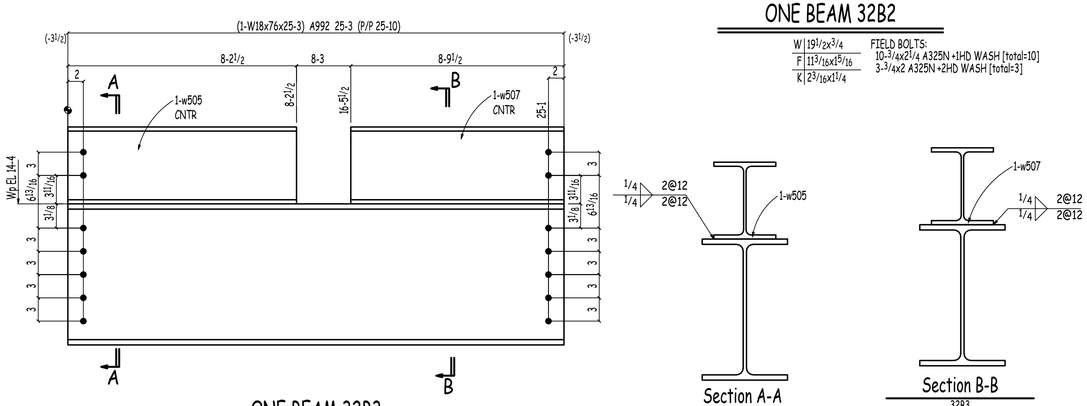


Section C-C
32B2

ONE BEAM 32B2

W 19 1/2x3/4
F 11 3/16x15/16
K 23/16x1 1/4

FIELD BOLTS:
10-3/4x2 1/4 A325N +1HD WASH [total=10]
3-3/4x2 A325N +2HD WASH [total=3]



Section A-A
32B3

Section B-B
32B3

ONE BEAM 32B3

W 18 3/16x7/16
F 11x11/16
K 19/16x1 1/8

FIELD BOLTS:
10-3/4x2 A325N +1HD WASH [total=10]
4-3/4x3/4 A325N +1HD WASH [total=4]

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL BOLTED CONNECTIONS ARE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS ERECTED
ALL RE-ENTRANT CORNERS SHALL BE SHAPED WITH FREE TO A RADIUS OF AT LEAST 1/2 INCH

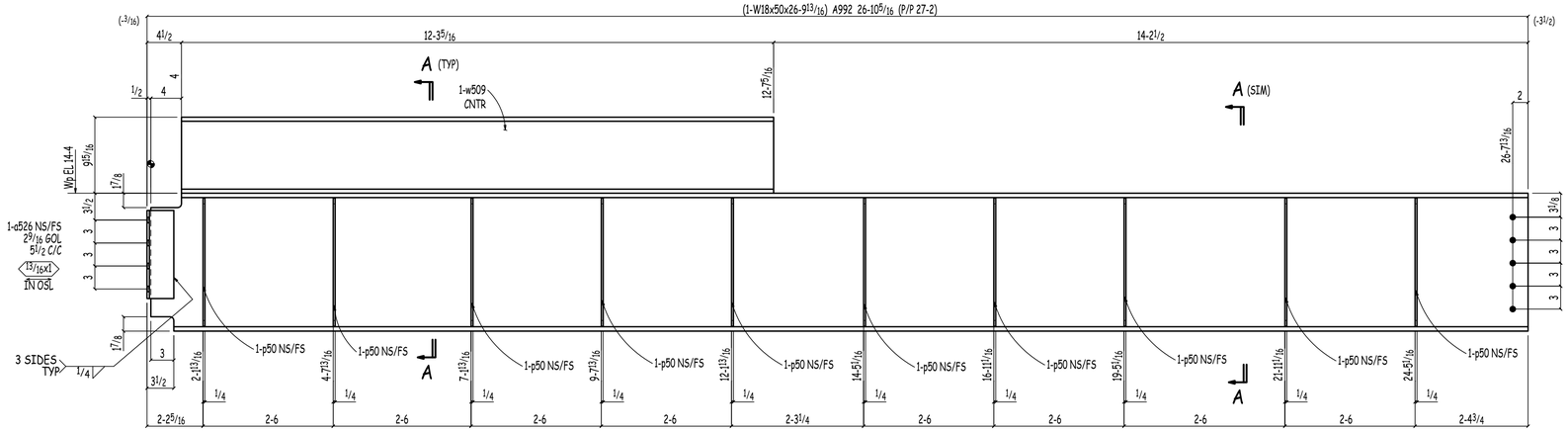
WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO. 32
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO. 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

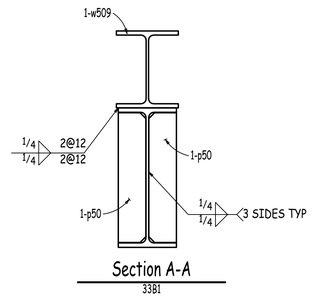
Total weight : 8285



ONE BEAM 33B1

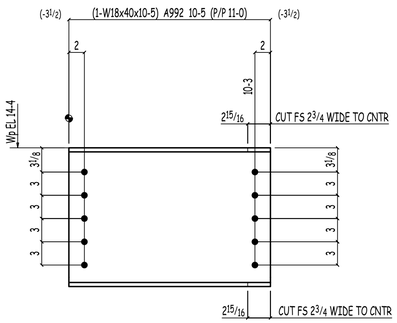
W | 18x3/8
F | 7 1/2x9/16
K | 1 1/4x7/8

FIELD BOLTS:
13-3/4x1 3/4 A325N +1HD WASH [total=13]



Section A-A
33B1

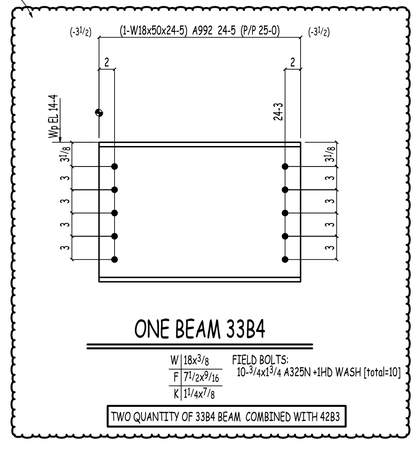
HOLD



ONE BEAM 33B2

W | 17 7/8x5/16
F | 6x1/2
K | 13/16x13/16

FIELD BOLTS:
10-3/4x1 3/4 A325N +1HD WASH [total=10]

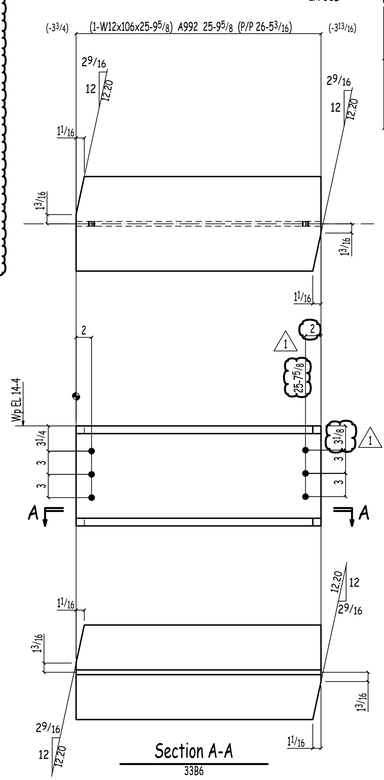


ONE BEAM 33B4

W | 18x3/8
F | 7 1/2x9/16
K | 1 1/4x7/8

FIELD BOLTS:
10-3/4x1 3/4 A325N +1HD WASH [total=10]

TWO QUANTITY OF 33B4 BEAM COMBINED WITH 42B3

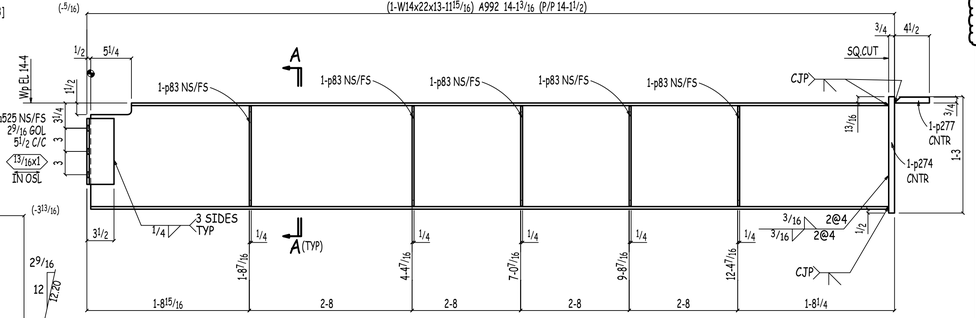


Section A-A
33B6

ONE BEAM 33B6

W | 12 7/8x5/8
F | 12 3/16x1
K | 1 7/8x1 3/16

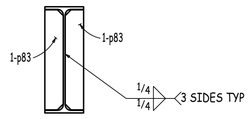
FIELD BOLTS:
6-3/4x2 1/4 A325N +1HD WASH [total=6]



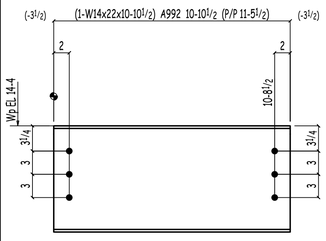
ONE BEAM 33B7

W | 13 11/16x1/4
F | 5x5/16
K | 1 1/16x13/16

FIELD BOLTS:
6-3/4x2 A325N +1HD WASH [total=6]



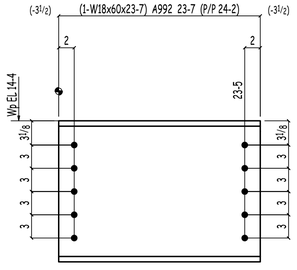
Section A-A
33B7



ONE BEAM 33B3

W | 13 11/16x1/4
F | 5x5/16
K | 1 1/16x13/16

FIELD BOLTS:
6-3/4x1 3/4 A325N +1HD WASH [total=6]



ONE BEAM 33B5

W | 18 3/16x7/16
F | 7 9/16x1 1/16
K | 1 3/8x7/8

FIELD BOLTS:
10-3/4x2 A325N +1HD WASH [total=10]

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	33B1		ONEBEAM		1908	
	33B1	1	W18x50	26 9 13/16	1331	A992
	w509	1	W10x39	12 3 5/16	479	A992
	a526	2	L4x3 1/2x5/16	0 11 1/2	7	A36
	p50	20	PL 1/4x3 9/16	1 4 3/4	4	A36
			FIELD BOLTS			
		13	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	33B2		ONEBEAM		416	
	33B2	1	W18x40	10 5	416	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	33B3		ONEBEAM		239	
	33B3	1	W14x22	10 10 1/2	239	A992
			FIELD BOLTS			
		6	3/4 Dia A325N	0 1 3/4		+1HD WASH
HOLD						
1	33B4		ONEBEAM		1220	
	33B4	1	W18x50	24 5	1220	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	33B5		ONEBEAM		1414	
	33B5	1	W18x60	23 7	1414	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
1	33B6		ONEBEAM		2731	
	33B6	1	W12x106	25 9 5/8	2731	A992
			FIELD BOLTS			
		6	3/4 Dia A325N	0 2 1/4		+1HD WASH
1	33B7		ONEBEAM		357	
	33B7	1	W14x22	13 11 15/16	304	S1E A992
	a525	2	L4x3 1/2x5/16	0 8 1/2	5	A36
	p274	1	FL 3/4x5	1 3	16	A36
	p277	1	FL 3/4x5	0 4 1/2	4	A36
	p83	10	PL 1/4x2 3/8	1 0 7/8	2	A36
			FIELD BOLTS			
		6	3/4 Dia A325N	0 2		+1HD WASH

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

REV	DATE	DESCRIPTION	DETAILER
1	May 29 2018	REVISED TO UPDATE HOLE LOCATION	SAT
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21	E	05-29					
SHOP	3	05-21	3	05-29					
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 Ø

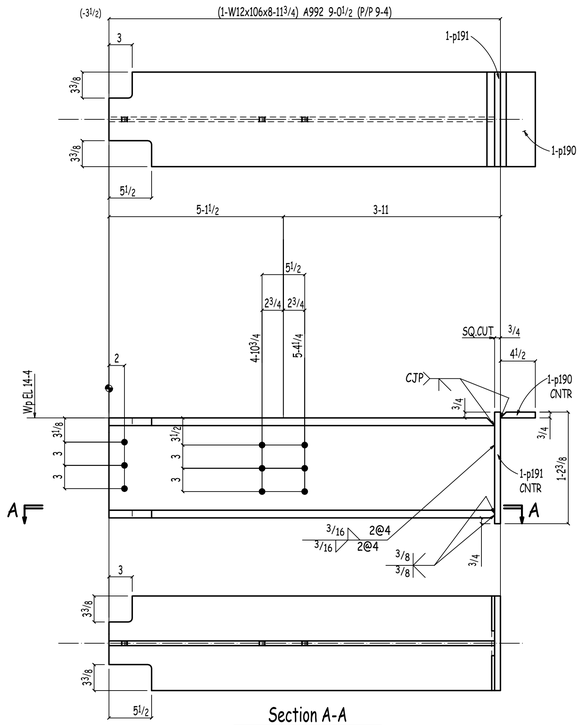
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DETAILER: MSK | CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068
DRWG NO.: 33

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 2434

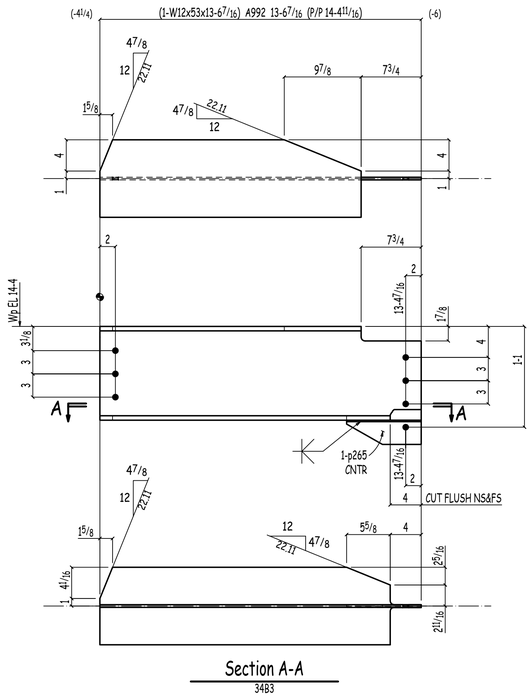


Section A-A
34B1

ONE BEAM 34B1

W	12 7/8 x 5/8
F	12 3/16 x 1
K	17/8 x 13/16

FIELD BOLTS:
3-3/4 x 2 1/4 A325N +1HD WASH [total=3]

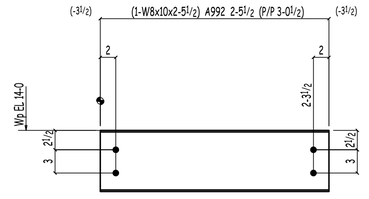


Section A-A
34B3

ONE BEAM 34B3

W	12 1/8 x 3/8
F	10 x 9/16
K	13/8 x 1

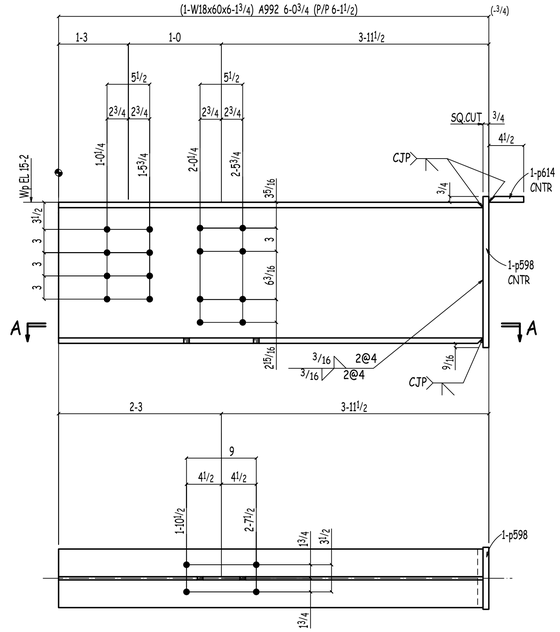
FIELD BOLTS:
6-3/4 x 4 1/3 A325N +1HD WASH [total=6]
1-3/4 x 2 A325N +2HD WASH [total=1]



ONE BEAM 34B5

W	7 7/8 x 3/16
F	3 15/16 x 3/16
K	11/16 x 3/16

FIELD BOLTS:
4-3/4 x 1 3/4 A325N +1HD WASH [total=4]

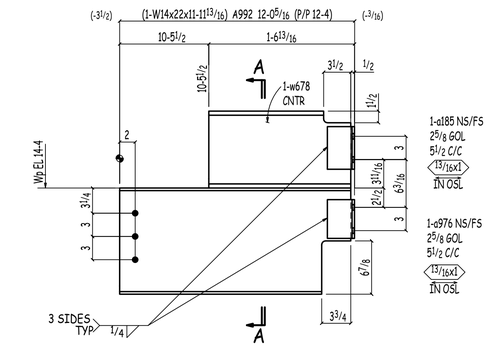


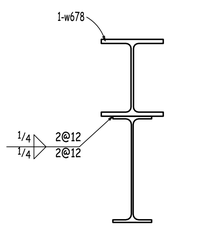
Section A-A
34B6

ONE BEAM 34B6

W	18 3/16 x 7/16
F	7 9/16 x 11/16
K	13/8 x 7/8

FIELD BOLTS:
4-3/4 x 2 1/4 A325N +1HD WASH [total=4]





Section A-A
34B2

ONE BEAM 34B2

W	13 11/16 x 1/4
F	5 x 5/16
K	11/16 x 13/16

FIELD BOLTS:
11-3/4 x 1 3/4 A325N +1HD WASH [total=11]

ONE BEAM 34B4

W	19 1/2 x 3/4
F	11 3/16 x 15/16
K	2 3/16 x 1 1/4

34B4 MOVED TO 48B1

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	34B1		ONE BEAM		981	
	34B1	1	W12x106	8 11 3/4	933	A992
	p191	1	PL 3/4 x 12 3/16	1 2 3/8	37	A36
	p190	1	PL 3/4 x 4 1/2	1 0 3/16	11	A36
			FIELD BOLTS			
		3	3/4 Dia A325N	0 2 1/4		+1HD WASH
1	34B2		ONE BEAM		328	
	34B2	1	W14x22	11 11 13/16	260	A992
	w678	1	W10x39	1 6 5/16	55	A992
	a185	2	L4x3 1/2 x 5/16	0 5 1/2	3	GAS CUT A36
	a976	2	L4x3 1/2 x 5/16	0 5	3	GAS CUT A36
			FIELD BOLTS			
		11	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	34B3		ONE BEAM		693	
	34B3	1	W12x53	13 6 7/16	691	A992
	p265	1	PL 3/8 x 31 1/8	0 9 5/8	2	A36
			FIELD BOLTS			
		1	3/4 Dia A325N	0 2		+2HD WASH
		6	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	34B5		ONE BEAM		24	
	34B5	1	W8x10	2 5 1/2	24	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	34B6		ONE BEAM		407	
	34B6	1	W18x60	6 1 3/4	366	A992
	p598	1	FL 3/4 x 8	1 7 1/2	33	A36
	p614	1	FL 3/4 x 4 1/2	0 8	8	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT FERDE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

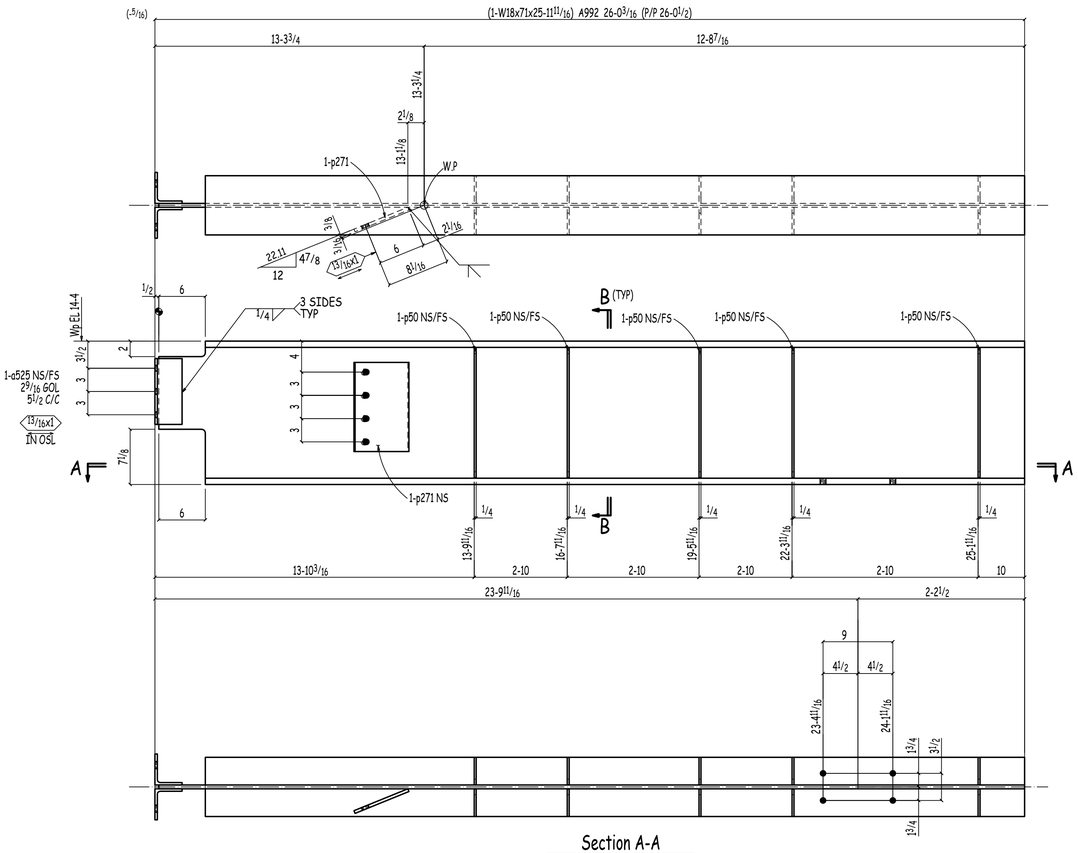
WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 Ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO.: 34
DETAILER: MSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

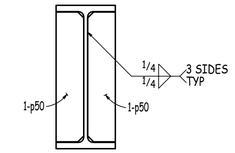
Total weight : 4842



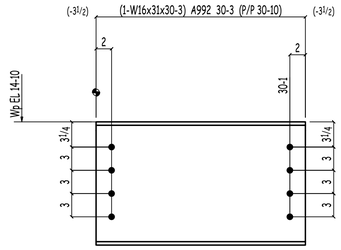
Section A-A
35B1

ONE BEAM 35B1

W	18 1/2x1/2	FIELD BOLTS:
F	7 9/8x13/16	6-3/4x2 A325N +1HD WASH [total=6]
K	11 1/2x15/16	4-3/4x2 1/2 A325N +1HD WASH [total=4]

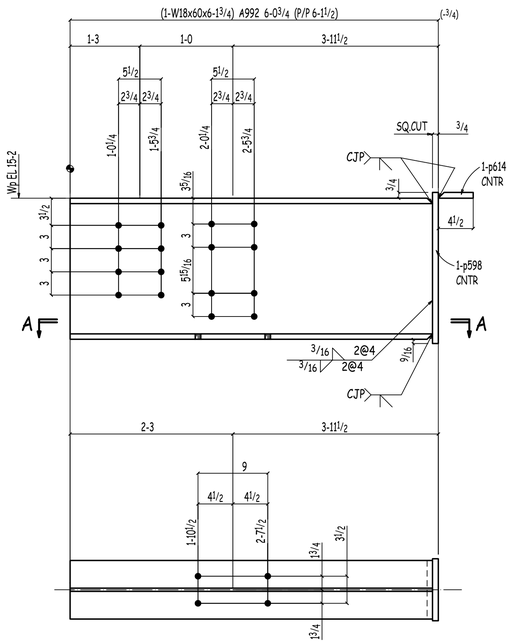


Section B-B
35B1



ONE BEAM 35B4

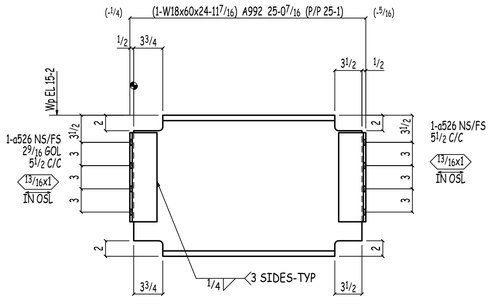
W	15 7/8x1/4	FIELD BOLTS:
F	5 1/2x7/16	8-3/4x1 3/4 A325N +1HD WASH [total=8]
K	1 1/8x13/16	



Section A-A
35B5

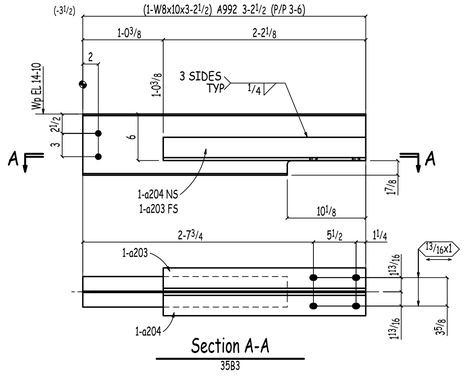
ONE BEAM 35B5

W	18 3/16x7/16	FIELD BOLTS:
F	7 9/16x11/16	4-3/4x2 1/4 A325N +1HD WASH [total=4]
K	13/8x7/8	



ONE BEAM 35B2

W	18 3/16x7/16	FIELD BOLTS:
F	7 9/16x11/16	8-3/4x1 3/4 A325N +1HD WASH [total=8]
K	13/8x7/8	8-3/4x2 A325N +1HD WASH [total=8]



Section A-A
35B3

2 BEAMS 35B3

W	7 7/8x3/16	FIELD BOLTS:
F	3 15/16x3/16	4-3/4x2 3/4 A325N +1HD WASH [total=8]
K	11/16x9/16	2-3/4x1 3/4 A325N +1HD WASH [total=4]

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	35B1		ONE BEAM		1877	
	35B1	1	W18x71	25 11 11/16	1816	A992
	a525	2	L4x3 1/2 x5/16	0 8 1/2	5	A36
	p271	1	PL 3/8 x7 1/2	0 11 1/2	9	A36
	p50	10	PL 1/4 x3 9/16	1 4 3/4	4	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/2		+1HD WASH
		6	3/4 Dia A325N	0 2		+1HD WASH
1	35B2		ONE BEAM		1501	
	35B2	1	W18x60	24 11 7/16	1472	A992
	a526	4	L4x3 1/2 x5/16	0 11 1/2	7	A36
			FIELD BOLTS			
		8	3/4 Dia A325N	0 2		+1HD WASH
		8	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	35B3	2	BEAM		60	
	35B3	2	W8x10	3 2 1/2	29	A992
	a203	2	L3x3x3/8	2 2 1/8	16	A36
	a204	2	L3x3x3/8	2 2 1/8	16	A36
			FIELD BOLTS			
		8	3/4 Dia A325N	0 2 3/4		+1HD WASH
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	35B4		ONE BEAM		937	
	35B4	1	W16x31	30 3	937	A992
			FIELD BOLTS			
		8	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	35B5		ONE BEAM		407	
	35B5	1	W18x60	6 1 3/4	366	A992
	p598	1	FL 3/4 x8	1 7 1/2	33	A36
	p614	1	FL 3/4 x4 1/2	0 8	8	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED , ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON WEB AND FLANGES. ALL RE-ENTRANT CORNERS SHALL BE SHARP NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

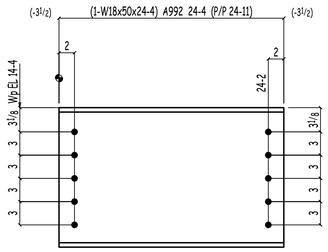
WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
	USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO. 35
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO. 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

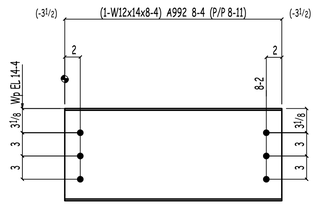
Total weight : 6837



ONE BEAM 36B1

W	18x3/8
F	7½x9/16
K	1¼x7/8

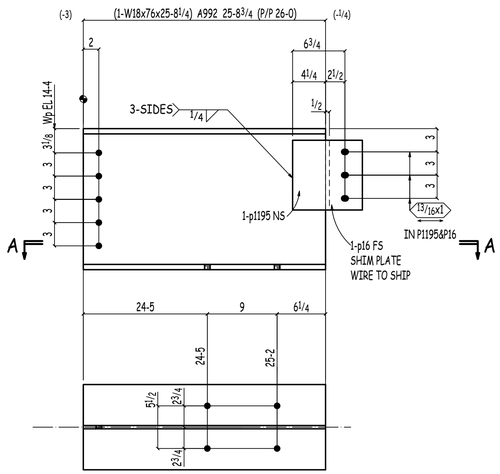
FIELD BOLTS:
10-¾x1¾ A325N +1HD WASH [total=10]



ONE BEAM 36B2

W	117/8x3/16
F	4x1/4
K	3/4x5/8

FIELD BOLTS:
6-¾x1¾ A325N +1HD WASH [total=6]



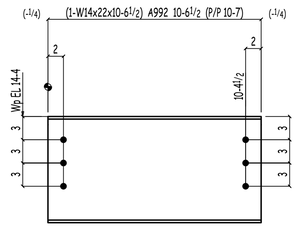
HOLD

Section A-A
36B4

ONE BEAM 36B4

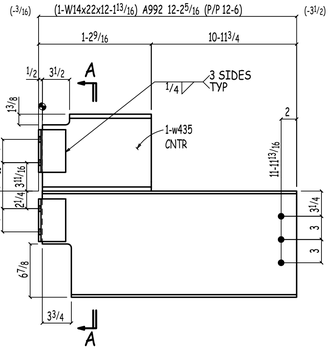
W	183/16x7/16
F	11x11/16
K	19/16x1 1/8

FIELD BOLTS:
5-¾x2 A325N +1HD WASH [total=5]
3-¾x1¾ A325N +1HD WASH [total=3]



ONE BEAM 36B5

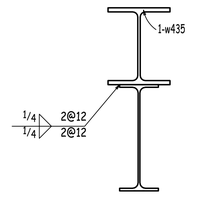
W	1311/16x1/4
F	5x5/16
K	1 1/16x13/16



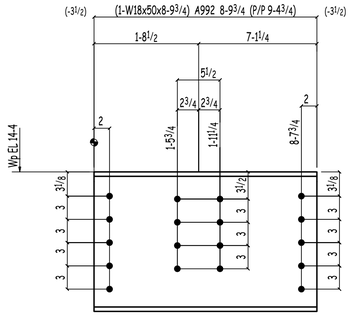
ONE BEAM 36B3

W	1311/16x1/4
F	5x5/16
K	1 1/16x13/16

FIELD BOLTS:
11-¾x1¾ A325N +1HD WASH [total=11]



Section A-A
36B3

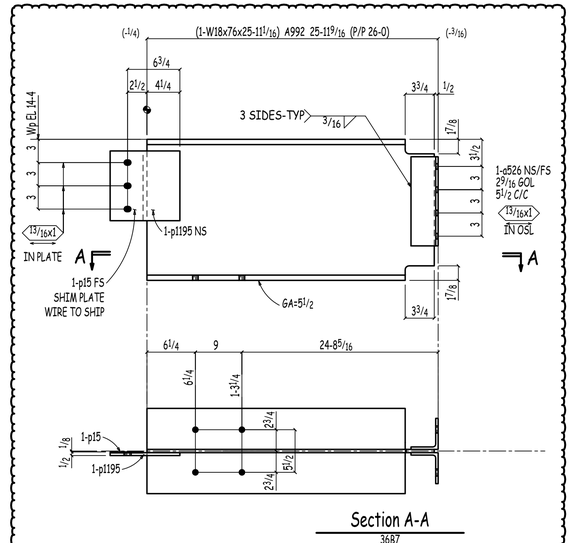


ONE BEAM 36B6

W	18x3/8
F	7½x9/16
K	1¼x7/8

FIELD BOLTS:
10-¾x1¾ A325N +1HD WASH [total=10]

HOLD



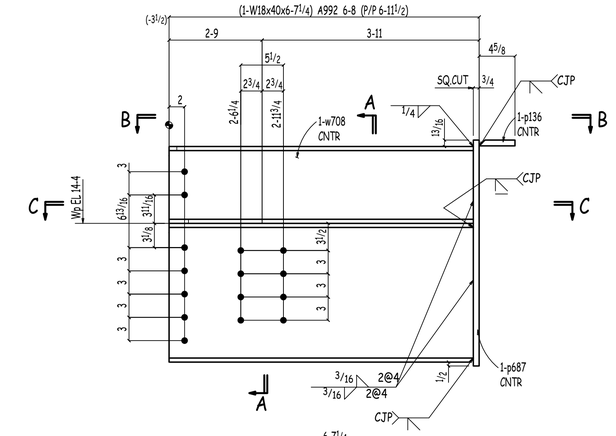
Section A-A
36B7

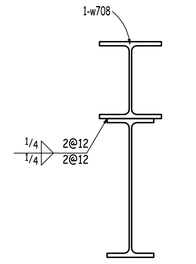
ONE BEAM 36B7

W	183/16x7/16
F	11x11/16
K	19/16x1 1/8

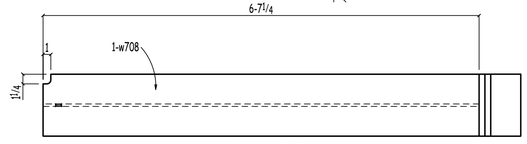
FIELD BOLTS:
11-¾x1¾ A325N +1HD WASH [total=11]
4-¾x2¼ A325N +1HD WASH [total=4]

HOLD

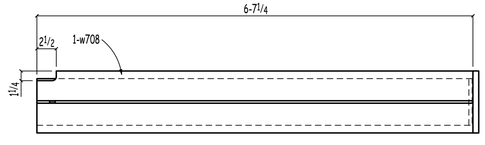




Section A-A
36B8



Section B-B
36B8



Section C-C
36B8

ONE BEAM 36B8

W	177/8x5/16
F	6x1/2
K	13/16x13/16

FIELD BOLTS:
7-¾x1¾ A325N +1HD WASH [total=7]

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH		WEIGHT	REMARKS
1	36B1		ONEBEAM			1216	
	36B1	1	W18x50	24	4	1216	A992
			FIELD BOLTS				
		10	¾ Dia A325N	0	1¾		+1HD WASH
1	36B2		ONEBEAM			116	
	36B2	1	W12x14	8	4	116	A992
			FIELD BOLTS				
		6	¾ Dia A325N	0	1¾		+1HD WASH
1	36B3		ONEBEAM			318	
	36B3	1	W14x22	12	1 13/16	264	A992
	w435	1	W10x39	1	2 1/16	41	A992
	a544	4	L4x3 1/2x5/16	0	5½	3	A36
			FIELD BOLTS				
		11	¾ Dia A325N	0	1¾		+1HD WASH
1	36B4		ONEBEAM			1961	
	36B4	1	W16x76	25	8¼	1952	A992
	p1195	1	PL3/8x9	0	9	8	A36
	p16	1	PL1/8x4 1/4	0	9	1	A36
			FIELD BOLTS				
		5	¾ Dia A325N	0	2		+1HD WASH
		3	¾ Dia A325N	0	1¾		+1HD WASH
1	36B5		ONEBEAM			232	
	36B5	1	W14x22	10	6½	232	A992
1	36B6		ONEBEAM			440	
	36B6	1	W18x50	8	9¾	440	A992
			FIELD BOLTS				
		10	¾ Dia A325N	0	1¾		+1HD WASH
1	36B7		ONEBEAM			1976	
	36B7	1	W16x76	25	11 1/16	1952	A992
	a526	2	L4x3 1/2x5/16	0	11½	7	A36
	p1195	1	PL3/8x9	0	9	8	A36
	p15	1	PL1/8x4 1/4	0	9	1	A36
			FIELD BOLTS				
		4	¾ Dia A325N	0	2 1/4		+1HD WASH
		11	¾ Dia A325N	0	1¾		+1HD WASH
1	36B8		ONEBEAM			577	
	36B8	1	W18x40	6	7 1/4	263	A992
	w708	1	W10x39	6	7 1/4	257	A992
	p687	1	FL3/4x8	2	5 1/8	50	A36
	p136	1	FL3/4x4 5/8	0	8	8	A36
			FIELD BOLTS				
		7	¾ Dia A325N	0	1¾		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH AXIS HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 Ø

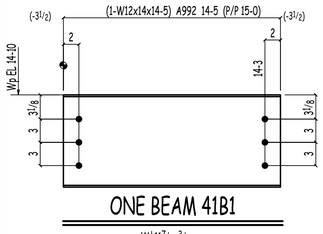
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: 36
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO.: 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

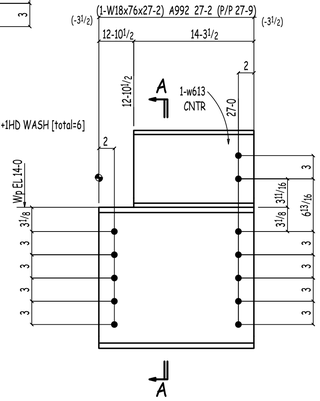
Total weight : 13103



ONE BEAM 41B1

W | 11 7/8 x 3/16
F | 4 x 1/4
K | 3/4 x 5/8

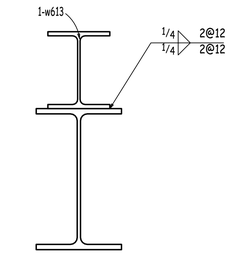
FIELD BOLTS:
6-3/4x1 3/4 A325N +1HD WASH [total=6]



ONE BEAM 41B2

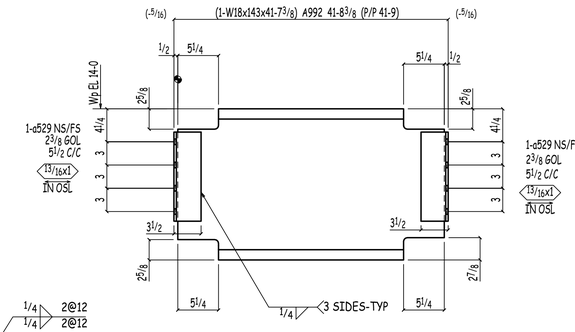
W | 18 3/16 x 7/16
F | 11 x 11/16
K | 19/16 x 1 1/8

FIELD BOLTS:
10-3/4x2 A325N +1HD WASH [total=10]
2-3/4x1 3/4 A325N +1HD WASH [total=2]



Section A-A

41B2

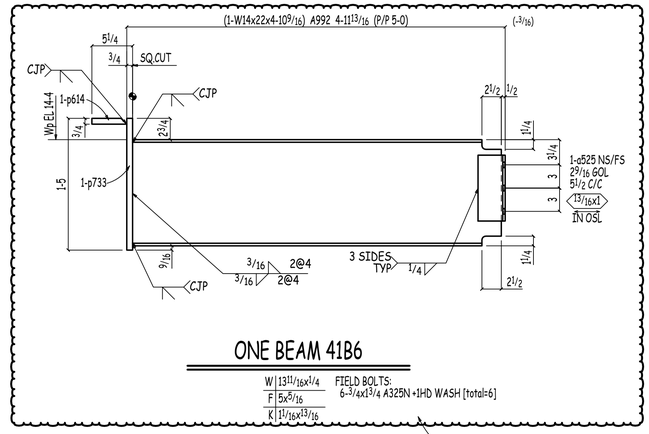


ONE BEAM 41B4

SHOP NOTE:
CAMBER 1 1/4 UP

W | 19 1/2 x 3/4
F | 11 3/16 x 15/16
K | 2 3/16 x 1 1/4

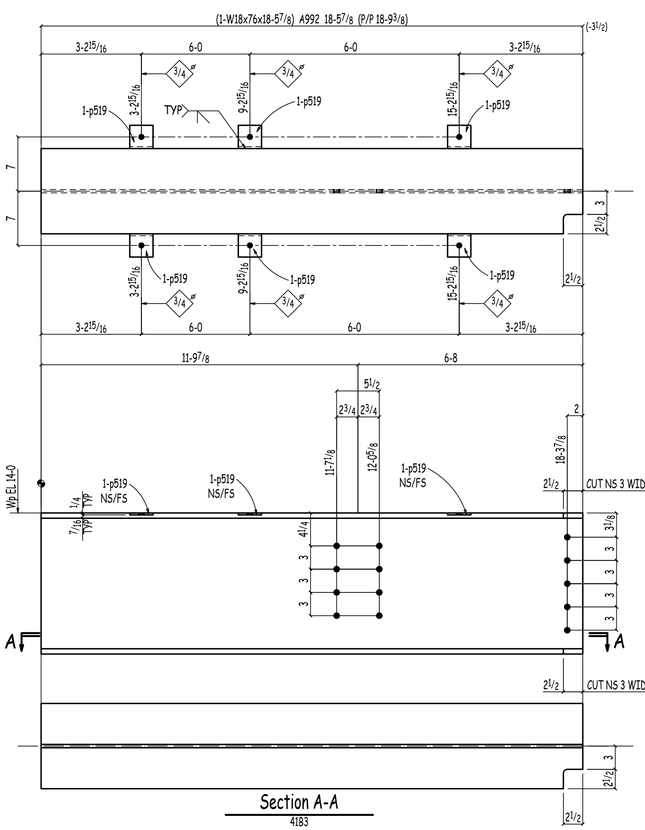
FIELD BOLTS:
16-3/4x2 A325N +1HD WASH [total=16]



ONE BEAM 41B6

W | 13 11/16 x 1/4
F | 5 x 5/16
K | 11/16 x 13/16

FIELD BOLTS:
6-3/4x1 3/4 A325N +1HD WASH [total=6]



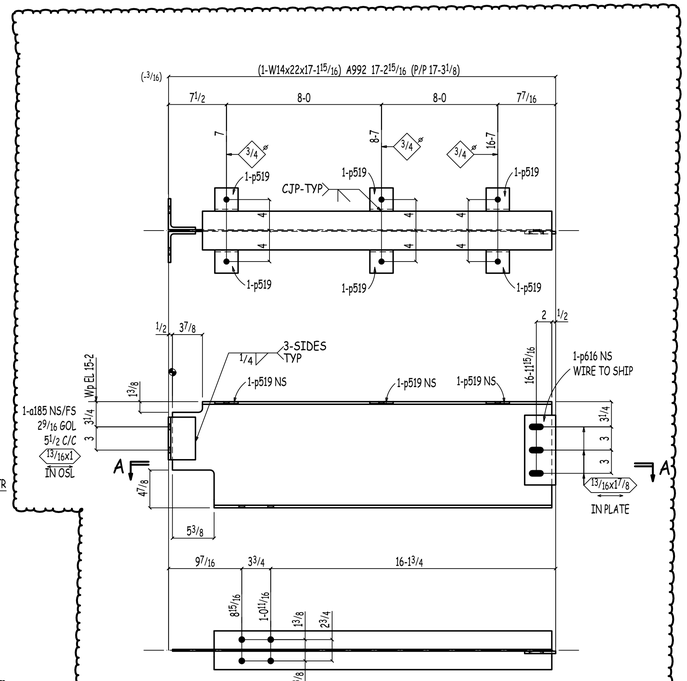
Section A-A

41B3

ONE BEAM 41B3

W | 18 3/16 x 7/16
F | 11 x 11/16
K | 19/16 x 1 1/8

FIELD BOLTS:
6-5/8x3 SLEEVE ANCHOR [total=6]
5-3/4x2 A325N +1HD WASH [total=5]



Section A-A

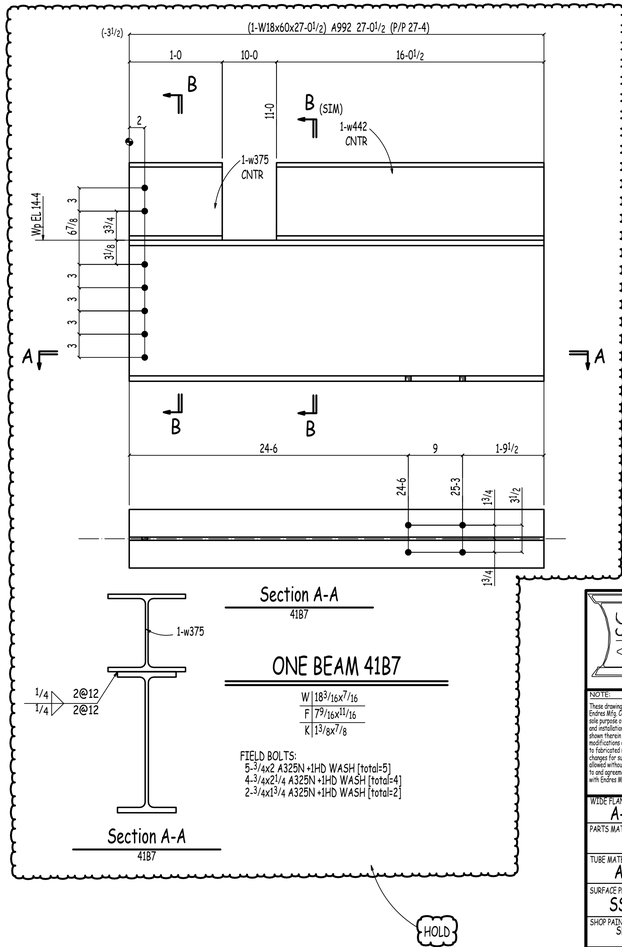
41B5

ONE BEAM 41B5

W | 13 11/16 x 1/4
F | 5 x 5/16
K | 1 1/16 x 13/16

FIELD BOLTS:
6-5/8x3 SLEEVE AN [total=6]
4-3/4x1 3/4 A325N +1HD WASH [total=4]
3-3/4x2 1/4 A325N +2HD,1PL WASH [total=3]

HOLD



Section A-A

41B7

ONE BEAM 41B7

W | 18 3/16 x 7/16
F | 7 9/16 x 11/16
K | 13/8 x 7/8

FIELD BOLTS:
6-3/4x2 A325N +1HD WASH [total=5]
4-3/4x2 1/4 A325N +1HD WASH [total=4]
2-3/4x1 3/4 A325N +1HD WASH [total=2]

HOLD

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	41B1		ONEBEAM		202	
	41B1	1	W12x14	14 5	202	A992
			FIELD BOLTS			
		6	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	41B2		ONEBEAM		2621	
	41B2	1	W18x76	27 2	2064	A992
	w613	1	W10x39	14 3 1/2	557	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
		2	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	41B3		ONEBEAM		1405	
	41B3	1	W18x76	18 5 7/8	1402	A992
	p519	6	FL 1/4 x3	0 3	1	A36
			FIELD BOLTS			
		5	3/4 Dia A325N	0 2		+1HD WASH
		6	5/8 Dia SLEEVE ANCHOR	0 3		
1	41B4		ONEBEAM		5883	
	41B4	1	W18x143	41 7 3/8	5855	C=1 1/4 A992
	a529	4	L4x3 1/2 x5/16	0 11 1/2	7	A36
			FIELD BOLTS			
		16	3/4 Dia A325N	0 2		+1HD WASH
HOLD 1	A 41B5		ONEBEAM		383	
	41B5	1	W14x22	17 11 5/16	370	A992
	a185	2	L4x3 1/2 x5/16	0 5 1/2	3	A36
	p616	1	PL 5/16 x4	0 9	3	A36
	p519	6	FL 1/4 x3	0 3	1	A36
			FIELD BOLTS			
		3	3/4 Dia A325N	0 2 1/4		+2HD,1PL WASH
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
		6	5/8 Dia SLEEVE AN	0 3		
HOLD 1	A 41B6		ONEBEAM		151	
	41B6	1	W14x22	4 10 9/16	104	S1E A992
	a525	2	L4x3 1/2 x5/16	0 8 1/2	5	A36
	p733	1	FL 3/4 x8	1 5	29	A36
	p614	1	FL 3/4 x8	0 4 1/2	7	A36
			FIELD BOLTS			
		6	3/4 Dia A325N	0 1 3/4		+1HD WASH
HOLD 1	A 41B7		ONEBEAM		2457	
	41B7	1	W18x60	27 0 1/2	1623	A992
	w442	1	W10x49	16 0 1/2	786	A992
	w375	1	W10x49	1 0	49	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH
		5	3/4 Dia A325N	0 2		+1HD WASH
		2	3/4 Dia A325N	0 1 3/4		+1HD WASH

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD	E	05-21						
SHOP	3	05-21						
APPROVAL	E	07-11	E	02-09				
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED, ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON BEAM AND ALL STIFFENERS. ALL RE-ENTRANT CORNERS SHALL BE SHARPED AND FREE TO A RADIUS OF AT LEAST 1/2 INCH

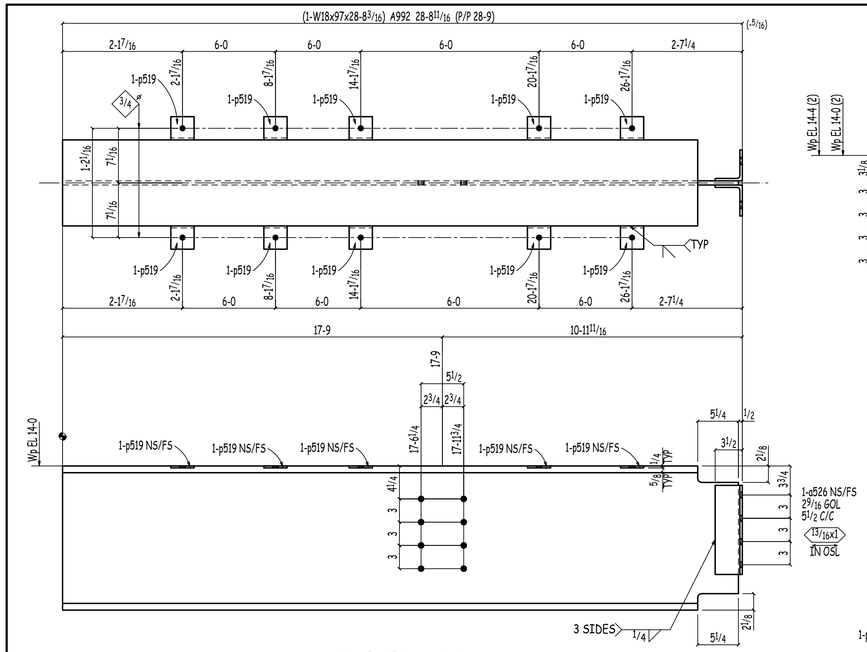
WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB	ROYSTER CROSSINGS LOT 2			
LOCATION	MADISON, WI			
CUSTOMER	RVEDEBUSCH			DRWG NO. 41
DETAILER	CHECKED	DATE	JOB NO.	
MSK	SJS	06-12-2017	17068	

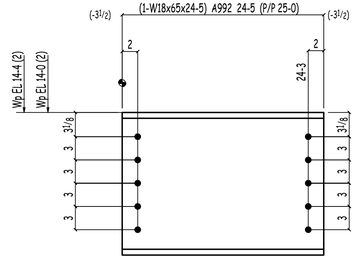
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 18472



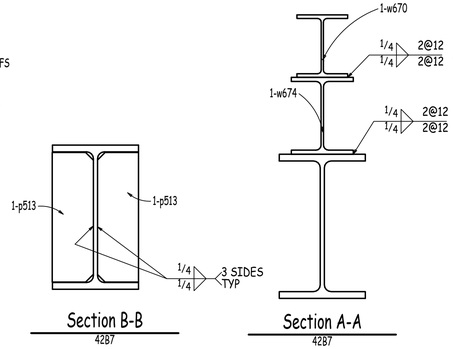
ONE BEAM 42B1

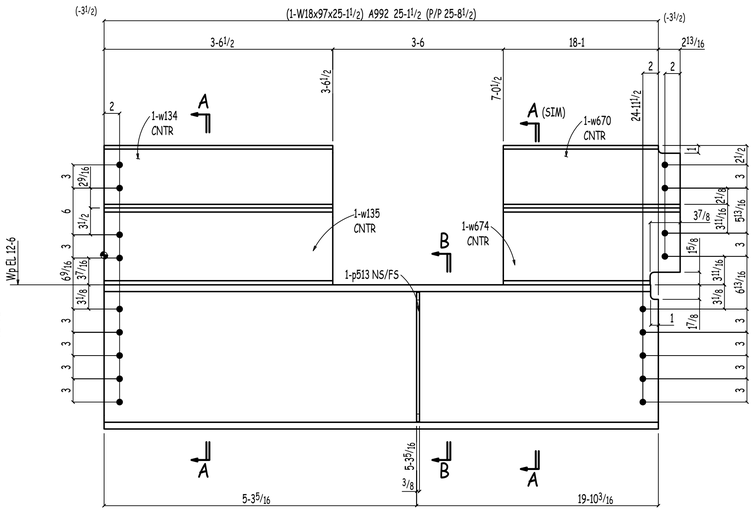
W	18 5/8x9 9/16	FIELD BOLTS:
F	11 1/8x7 7/8	8-3/4x2 A325N +1HD WASH [total=8]
K	13/4x11 1/8	10-5/8x3 SLEEVE ANCHOR [total=10]



4 BEAMS 42B3

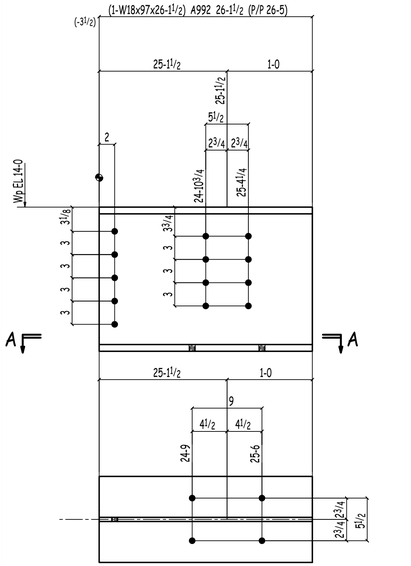
W	18 3/8x7 7/16	FIELD BOLTS:
F	7 7/16x3/4	10-3/4x2 A325N +1HD WASH [total=40]
K	17 1/16x15/16	TWO QUANTITY COMBINED FROM 3384





ONE BEAM 42B7

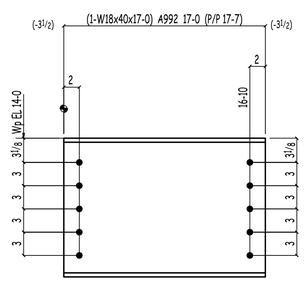
W	18 5/8x9 9/16	FIELD BOLTS:
F	11 1/8x7 7/8	10-3/4x2 A325N +1HD WASH [total=10]
K	13/4x11 1/8	8-3/4x1 3/4 A325N +1HD WASH [total=8]



Section A-A
42B2

ONE BEAM 42B2

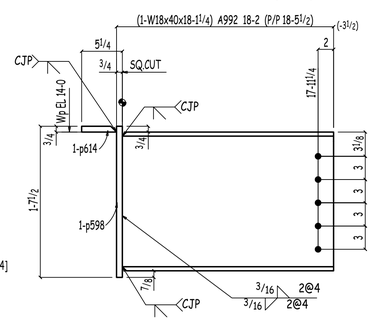
W	18 5/8x9 9/16	FIELD BOLTS:
F	11 1/8x7 7/8	5-3/4x2 A325N +1HD WASH [total=5]
K	13/4x11 1/8	4-3/4x2 3/4 A325N +1HD WASH [total=4]



ONE BEAM 42B4

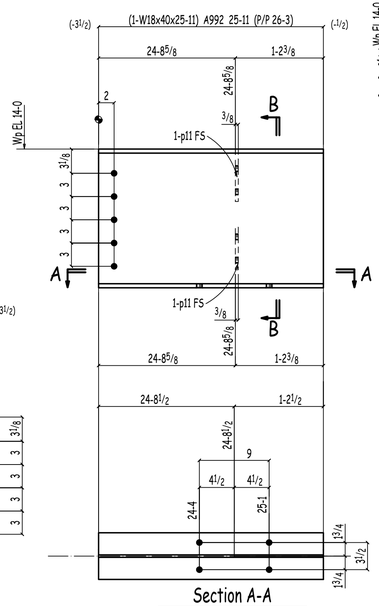
W	17 7/8x5 9/16
F	6x1/2
K	13/16x13/16

FIELD BOLTS:
10-3/4x1 3/4 A325N +1HD WASH [total=10]



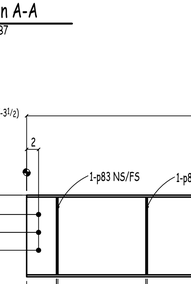
ONE BEAM 42B5

W	17 7/8x5 9/16	FIELD BOLTS:
F	6x1/2	5-3/4x1 3/4 A325N +1HD WASH [total=5]
K	13/16x13/16	



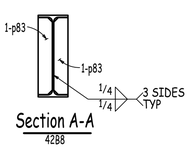
ONE BEAM 42B6

W	17 7/8x5 9/16	FIELD BOLTS:
F	6x1/2	5-3/4x1 3/4 A325N +1HD WASH [total=5]
K	13/16x13/16	4-3/4x2 1/4 A325N +1HD WASH [total=4]



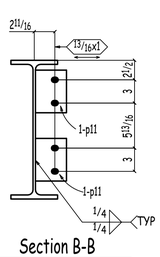
ONE BEAM 42B8

W	13 11/16x1 1/4	FIELD BOLTS:
F	5x5/16	6-3/4x1 3/4 A325N +1HD WASH [total=6]
K	1 1/16x13/16	



ONE BEAM 42B9

42B9 MOVED TO 43B7



BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	42B8		ONEBEAM		431	
	42B8	1	W14x22	18 0 1/2	397	A992
	p83	16	PL 1/4x2 3/8	1 0 7/8	2	A36
			FIELD BOLTS			
		6	3/4 Dia A325N	0 1 3/4		+1HD WASH

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	42B1		ONEBEAM		2770	
	42B1	1	W18x97	28 8 3/16	2750	A992
	a526	2	L4x3 1/2x5/16	0 11 1/2	7	A36
	p519	10	FL 1/4x3	0 3	1	A36
			FIELD BOLTS			
		8	3/4 Dia A325N	0 2		+1HD WASH
		10	5/8 Dia SLEEVE ANCHOR	0 3		
1	42B2		ONEBEAM		2533	
	42B2	1	W18x97	26 11 1/2	2533	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 3/4		+1HD WASH
		5	3/4 Dia A325N	0 2		+1HD WASH
1	42B3	4	BEAM		1586	
	42B3	4	W18x65	24 5	1586	A992
			FIELD BOLTS			
		40	3/4 Dia A325N	0 2		+1HD WASH
1	42B4		ONEBEAM		680	
	42B4	1	W18x40	17 0	680	A992
			FIELD BOLTS			
		10	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	42B5		ONEBEAM		764	
	42B5	1	W18x40	18 11 1/4	723	S1E A992
	p598	1	FL 3/4x8	1 7 1/2	33	A36
	p614	1	FL 3/4x4 1/2	0 8	8	A36
			FIELD BOLTS			
		5	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	42B6		ONEBEAM		1041	
	42B6	1	W18x40	25 11	1036	A992
	p11	2	FL 3/8x4	0 5 1/2	2	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH
		5	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	42B7		ONEBEAM		3908	
	42B7	1	W18x97	25 11 1/2	2433	A992
	w674	1	W10x39	18 3 13/16	709	A992
	w135	1	W10x39	3 6 1/2	138	A992
	w670	1	W8x28	18 3 13/16	510	A992
	w134	1	W8x28	3 6 1/2	99	A992
	p513	2	PL 3/8x5 5/16	1 4 11/16	9	A36
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
		8	3/4 Dia A325N	0 1 3/4		+1HD WASH

CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09	E	03-20			
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials or any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS SHOWN.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED WITH FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.)	A-992 GR-50
PARTS MATERIAL (U.N.)	A-36
TUBE MATERIAL (U.N.)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø

USE NO. 70XX WELD ROD.
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

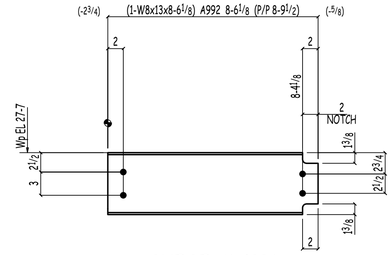
Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO.: 42

DETAILER	CHECKED	DATE	JOB NO.
MSK	SJS	06-12-2017	17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

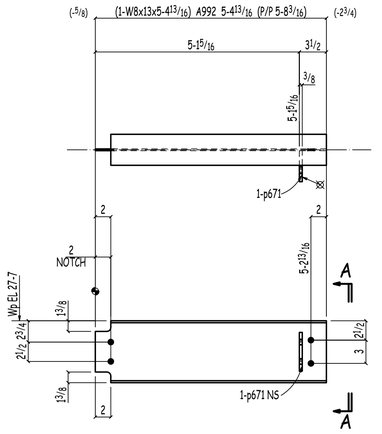
Total weight : 1997



ONE BEAM 43B1

W	8x1/4
F	4x1/4
K	3/4x5/8

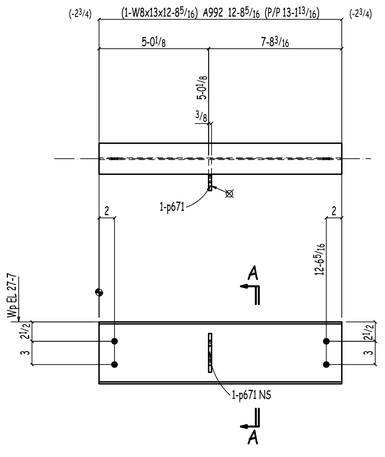
FIELD BOLTS:
4-3/4x13/4 A325N +1HD WASH [total=4]



ONE BEAM 43B2

W	8x1/4
F	4x1/4
K	3/4x5/8

FIELD BOLTS:
4-3/4x13/4 A325N +1HD WASH [total=4]

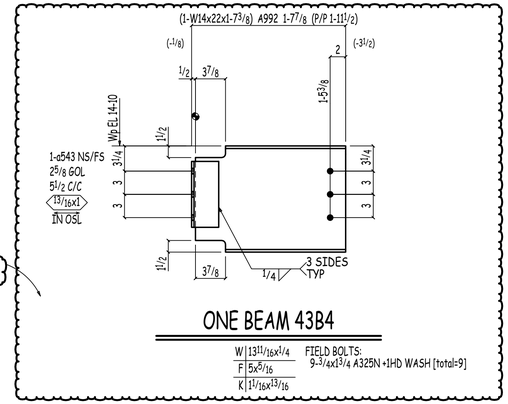


ONE BEAM 43B3

W	8x1/4
F	4x1/4
K	3/4x5/8

FIELD BOLTS:
4-3/4x13/4 A325N +1HD WASH [total=4]

HOLD

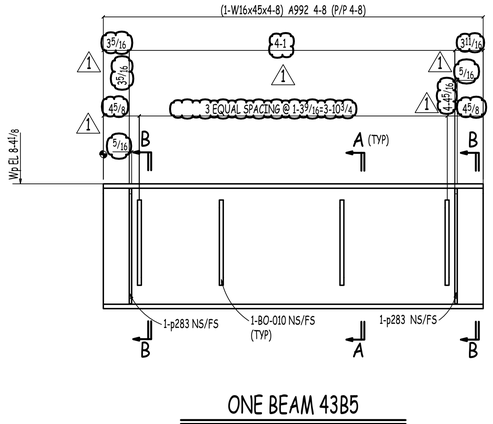


ONE BEAM 43B4

W	13 11/16x1/4
F	5x5/16
K	1 1/16x13/16

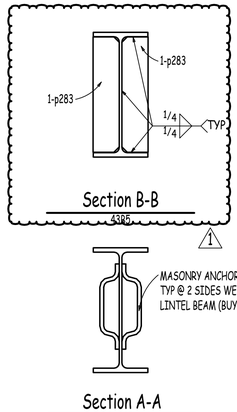
FIELD BOLTS:
9-3/4x13/4 A325N +1HD WASH [total=9]

HOLD

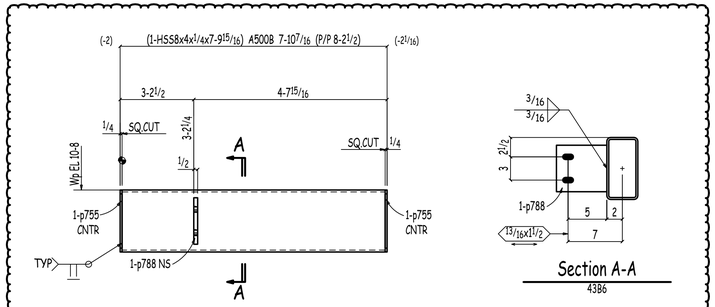


ONE BEAM 43B5

W	16 1/8x3/8
F	7 1/16x9/16
K	1 1/4x7/8



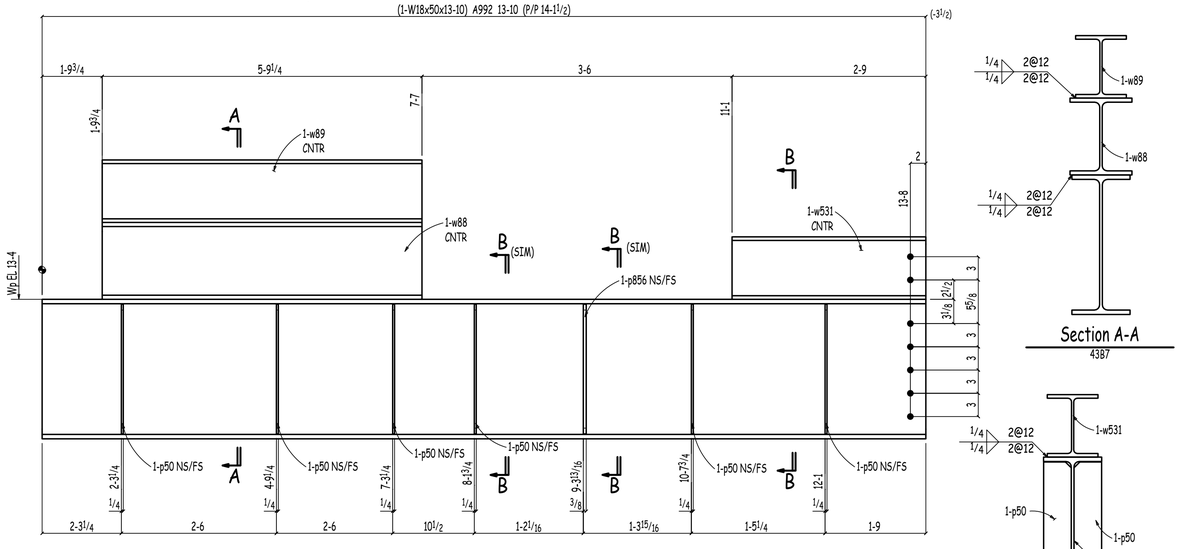
HOLD



ONE BEAM 43B6

HOLD

HOLD



ONE BEAM 43B7

W	18x3/8
F	7 1/2x9/16
K	1 1/4x7/8

FIELD BOLTS:
7-3/4x13/4 A325N +1HD WASH [total=7]

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	43B1		ONEBEAM		109	
	43B1	1	W8x13	8 6 1/8	109	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	43B2		ONEBEAM		70	
	43B2	1	W8x13	5 4 13/16	69	A992
	p671	1	FL 3/8x4	0 5	2	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	43B3		ONEBEAM		167	
	43B3	1	W8x13	12 8 5/16	165	A992
	p671	1	FL 3/8x4	0 5	2	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	43B4		ONEBEAM		41	
	43B4	1	W14x22	1 7 3/8	31	A992
	a543	2	L4x3 1/2x5/16	0 8 1/2	5	A36
		1				
			FIELD BOLTS			
		9	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	43B5		ONEBEAM		233	
	43B5	1	W16x45	4 8	210	A992
	BO-010	8	MASONRY ANCHORS	1 13/16	1	BUYOUT A36
1	p283	4	PL 5/16x3 3/8	1 2 1/8	4	A36
1	43B6		ONEBEAM		159	
	43B6	1	HSS8x4x1/4	7 9 15/16	149	S2E A500B
	p788	1	FL 1/2x6	0 6 1/2	5	A36
	p755	2	FL 1/4x4	0 5	2	A36
1	43B7		ONEBEAM		1218	
	43B7	1	W18x50	13 10	691	A992
	w88	1	W10x39	5 9 1/4	225	A992
	w89	1	W8x28	5 9 1/4	162	A992
	w531	1	W8x28	2 9	77	A992
	p856	2	PL 3/8x39/16	1 4 3/4	6	A36
	p50	12	PL 1/4x39/16	1 4 3/4	4	A36
			FIELD BOLTS			
		7	3/4 Dia A325N	0 1 3/4		+1HD WASH

REV	DATE	DESCRIPTION	DETAILER
1	May 29 2018	REVISED TO ADD STIFFENER PLATE	SAT
0	May 21 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

	E	05-21	E	05-29				
SHOP	3	05-21	3	05-29				
APPROVAL	E	07-11	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

AISC CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes, modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

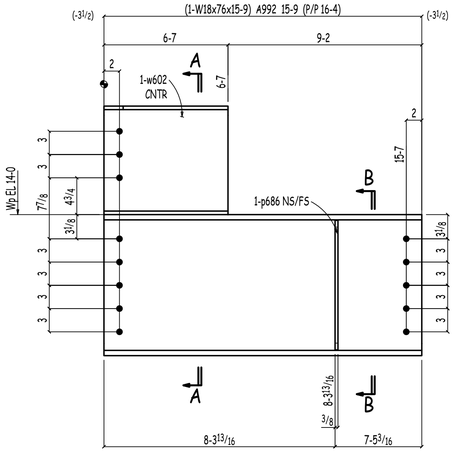
WIDE FLANGE (UN)	A-992 GR-50
PARTS MATERIAL (UN)	A-36
TUBE MATERIAL (UN)	A-500 GR-B
SURFACE PREPARATION	SSPC SP 2 & 3
SHOP PAINT	SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS	AS NOTED
HOLES (U.N.)	13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018	

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO. 43
DETAILER: MSK | CHECKED: SJS | DATE: 06-12-2017 | JOB NO. 17068

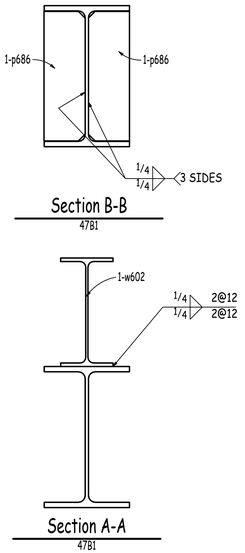
APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

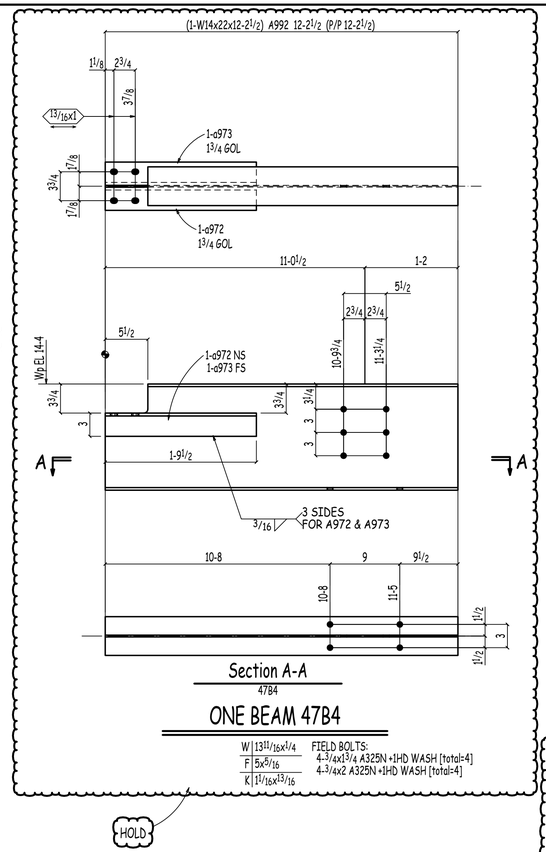
Total weight : 5925



ONE BEAM 47B1

W	$18^{3}/_{16}x^{7}/_{16}$	FIELD BOLTS:
F	$11x^{11}/_{16}$	10-3/4x2 A325N +1HD WASH [total=10]
K	$19/_{16}x1/8$	

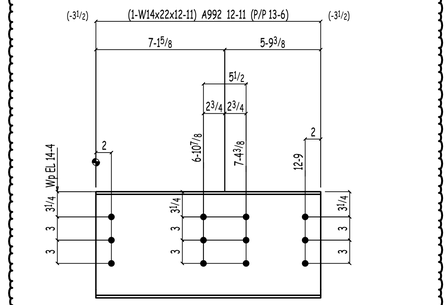




ONE BEAM 47B4

W	$13^{11}/_{16}x^{1}/_{4}$	FIELD BOLTS:
F	$5x^{5}/_{16}$	4-3/4x1 3/4 A325N +1HD WASH [total=4]
K	$11/_{16}x13/_{16}$	4-3/4x2 A325N +1HD WASH [total=4]

HOLD



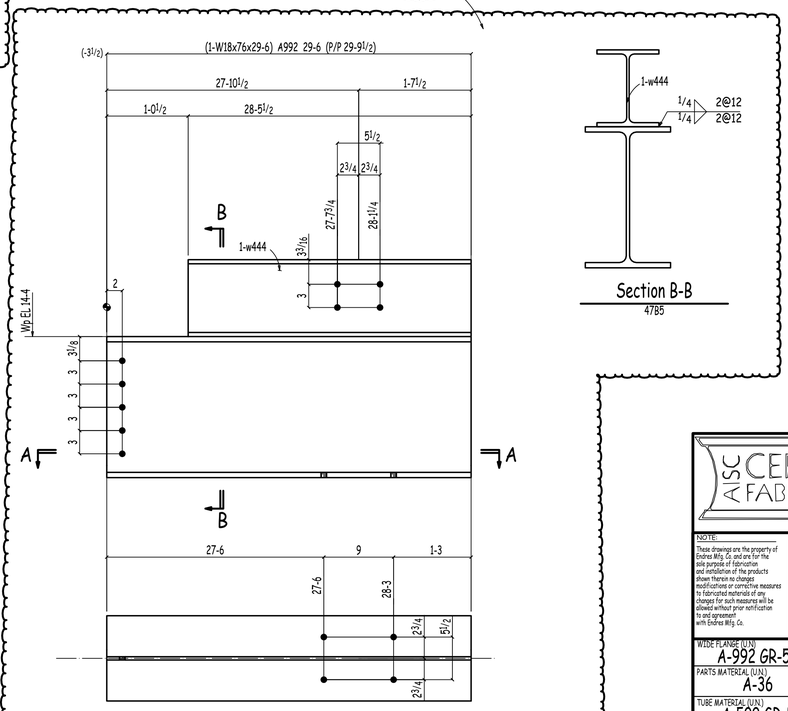
ONE BEAM 47B6

W	$13^{11}/_{16}x^{1}/_{4}$	FIELD BOLTS:
F	$5x^{5}/_{16}$	6-3/4x1 3/4 A325N +1HD WASH [total=6]
K	$11/_{16}x13/_{16}$	

ALREADY APPROVED AS 3889

HOLD

HOLD



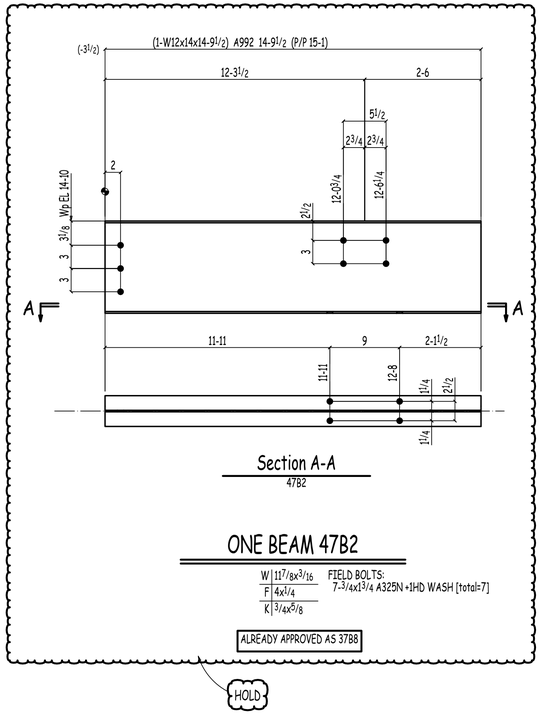
ONE BEAM 47B5

FIELD BOLTS:
5-3/4x2 A325N +1HD WASH [total=5]
4-3/4x2 1/4 A325N +1HD WASH [total=4]

W	$18^{3}/_{16}x^{7}/_{16}$	
F	$11x^{11}/_{16}$	
K	$19/_{16}x1/8$	

ALREADY APPROVED AS 3888

HOLD

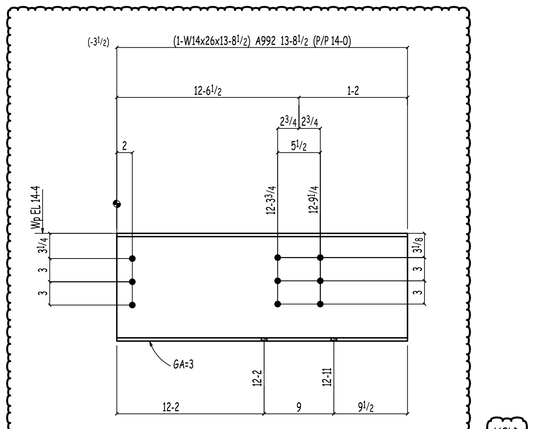


ONE BEAM 47B2

W	$11^{7}/_{8}x^{3}/_{16}$	FIELD BOLTS:
F	$4x^{1}/_{4}$	7-3/4x1 3/4 A325N +1HD WASH [total=7]
K	$3/4x^{5}/_{8}$	

ALREADY APPROVED AS 3788

HOLD



ONE BEAM 47B3

W	$13^{7}/_{8}x^{1}/_{4}$	FIELD BOLTS:
F	$5x^{7}/_{16}$	4-3/4x2 A325N +1HD WASH [total=4]
K	$1/8x13/_{16}$	3-3/4x1 3/4 A325N +1HD WASH [total=3]

HOLD

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	47B1		ONEBEAM		1439	
	47B1	1	W18x76	15 9	1196	A992
	w602	1	W14x34	6 7	224	A992
	p686	2	PL 3/8 x 5 5/16	1 4 11/16	9	A36
			FIELD BOLTS			
		10	3/4 Dia A325N	0 2		+1HD WASH
1	47B2		ONEBEAM		207	
	47B2	1	W12x14	14 9 1/2	207	A992
			FIELD BOLTS			
		7	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	47B3		ONEBEAM		356	
	47B3	1	W14x26	13 8 1/2	356	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2		+1HD WASH
		3	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	47B4		ONEBEAM		289	
	47B4	1	W14x22	12 2 1/2	264	A992
	a972	1	L3x3x3/8	1 9 1/2	13	A36
	a973	1	L3x3x3/8	1 9 1/2	13	A36
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2		+1HD WASH
		4	3/4 Dia A325N	0 1 3/4		+1HD WASH
1	47B5		ONEBEAM		3351	
	47B5	1	W18x76	29 6	2241	A992
	w444	1	W10x39	28 5 1/2	1110	A992
			FIELD BOLTS			
		4	3/4 Dia A325N	0 2 1/4		+1HD WASH
		5	3/4 Dia A325N	0 2		+1HD WASH
1	47B6		ONEBEAM		284	
	47B6	1	W14x22	12 11	284	A992
			FIELD BOLTS			
		6	3/4 Dia A325N	0 1 3/4		+1HD WASH

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
A	Feb 9 2018	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	02-09	E	03-20					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

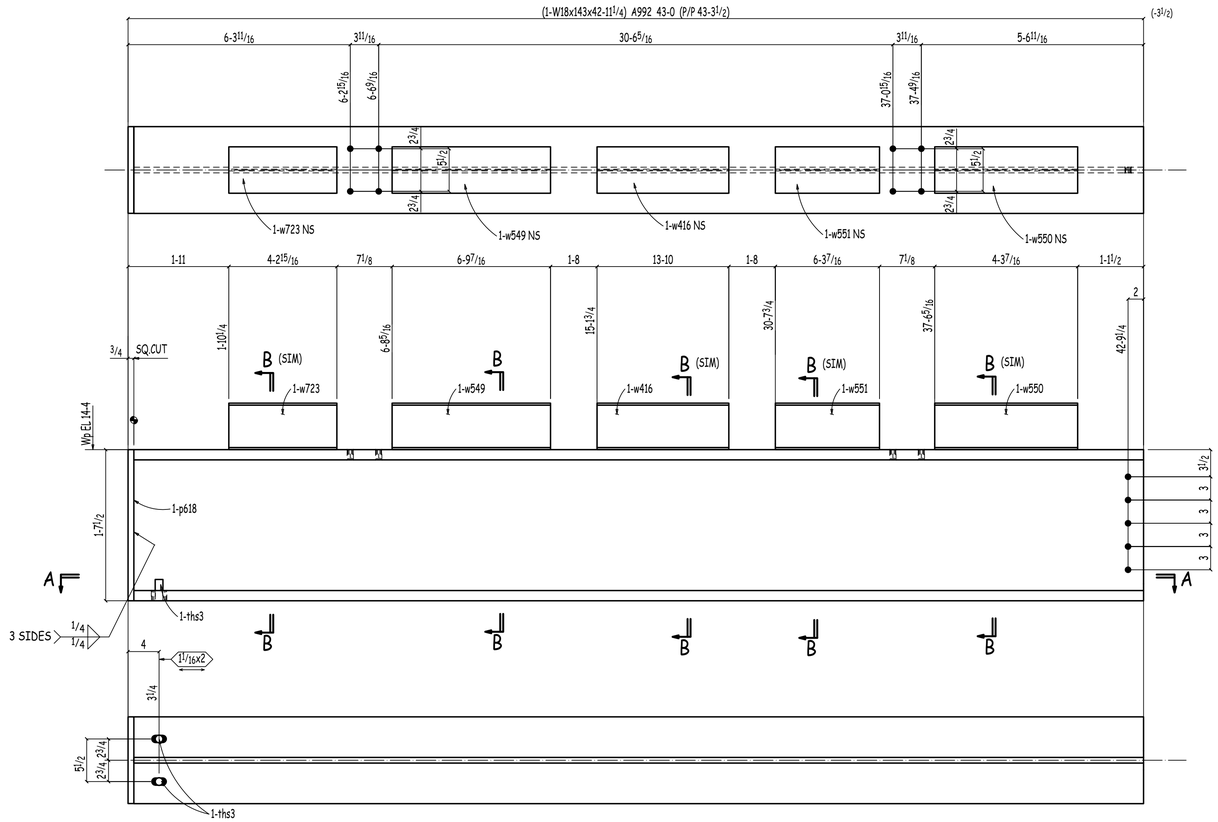
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRWG NO. 47
DETAILER MSK | CHECKED SJS | DATE 06-12-2017 | JOB NO. 17068

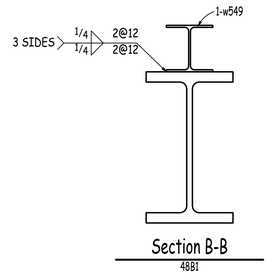
Total weight : 6716

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	48B1		ONEBEAM		6716	
	48B1	1	W18x143	42 11 1/4	6137	C=11 1/4 ,S1E A992
	w416	1	W6x15	13 10	208	A992
	w549	1	W6x15	6 9 7/16	102	A992
	w551	1	W6x15	6 3 7/16	94	A992
	w550	1	W6x15	4 3 7/16	64	A992
	w723	1	W6x15	4 2 15/16	64	A992
	p618	1	PL 3/4x11 3/16	1 7 1/2	46	A36
	ths3	2	THD STUD 1	0 2 3/4	1	A108
			FIELD BOLTS			
		2	1 NUT			HHNT A563
		5	3/4 Dia A325N	0 2 1/4		+1HD WASH



Section A-A
48B1



Section B-B
48B1

ONE BEAM 48B1

SHOP NOTE:
CAMBER 1 1/4 UP

W 19 1/2x3/4
F 13 7/16x15/16
K 2 3/16x1 1/4

FIELD BOLTS:
5-3/4x2 1/4 A325N +1HD WASH [total=5]

CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
A	Feb 9 2018	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	02-09	E	03-20					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT FIDUCIAL MARK ON LEFT END AS DETAILED
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 Ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

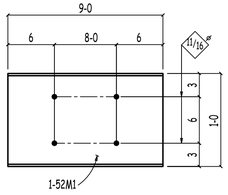
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRWG NO. 48
DETAILER MSK | CHECKED SJS | DATE 06-12-2017 | JOB NO. 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

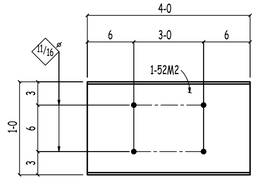
Total weight : 9026

HOLD



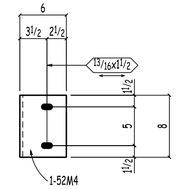
8 MISCS 52M1

FIELD BOLTS:
4-5/8x6 A325N +1PL,1HD WASH [total=32]



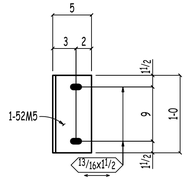
2 MISCS 52M2

FIELD BOLTS:
4-5/8x6 A325N +1PL,1HD WASH [total=8]



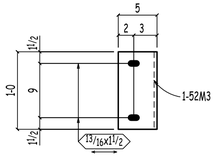
17 ANGLES 52M4

FIELD BOLTS:
2-3/4x4 1/2 KWIK BOLT GALV [total=34]



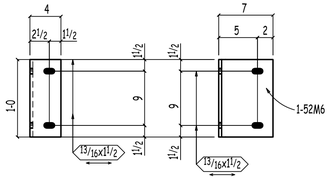
33 MISCS 52M5

FIELD BOLTS:
2-3/4x4 1/2 EXP ANCHOR GALV [total=66]



22 MISCS 52M3

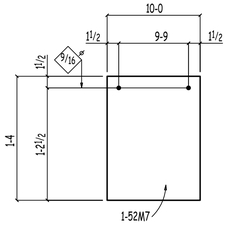
FIELD BOLTS:
2-3/4x4 1/2 EXP ANCHOR GALV [total=40]



8 MISCS 52M6

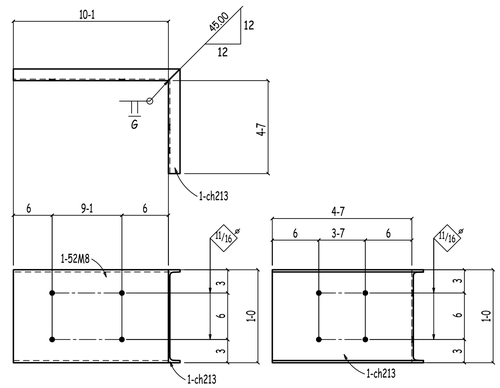
FIELD BOLTS:
4-3/4x7 EXP ANC GALV [total=32]

HOLD



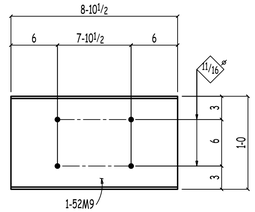
30 PLATES 52M7

7 QUANTITY NEWLY ADDED



2 MISCS 52M8

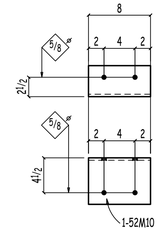
FIELD BOLTS:
4-5/8x4 1/2 A307 +1PL,1HD WASH [total=8]
4-5/8x6 A307 +1PL,1HD WASH [total=8]



2 MISCS 52M9

FIELD BOLTS:
4-5/8x6 A325N +1PL,1HD WASH [total=8]

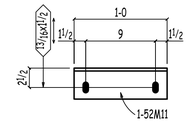
HOLD



8 MISCS 52M10

FIELD BOLTS:
4-1/2x5 HILTI HDI GALV [total=32]

NEWLY ADDED



60 MISCS 52M11

FIELD BOLTS:
2-3/4x4 1/2 EXP ANCHOR GALV [total=210]

NEWLY ADDED

HOLD

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	52M1	8	MISC		95	Galv
	52M1	8	MC12x10.6	9 0	95	A36
			FIELD BOLTS			
		32	5/8 Dia A325N	0 6		+1PL,1HD WASH Galv
1	52M2	2	MISC		42	Galv
	52M2	2	MC12x10.6	4 0	42	A36
			FIELD BOLTS			
		8	5/8 Dia A325N	0 6		+1PL,1HD WASH Galv
1	52M3	22	MISC		12	Galv
	52M3	22	L5x5x3/8	1 0	12	A36
			FIELD BOLTS			
		44	3/4 Dia EXP ANC	0 4 1/2		GALV
1	52M4	17	ANGLE		8	Galv
	52M4	17	L6x4x3/8	0 8	8	A36
			FIELD BOLTS			
		34	3/4 Dia KWIK BOLT	0 4 1/2		Galv
1	52M5	33	MISC		12	Galv
	52M5	33	L5x5x3/8	1 0	12	A36
			FIELD BOLTS			
		66	3/4 Dia EXP ANCHOR	0 4 1/2		GALV
1	52M6	8	MISC		13	Galv
	52M6	8	L7x4x3/8	1 0	13	A36
			FIELD BOLTS			
		32	3/4 Dia EXP ANC	0 7		GALV
1	52M7	30	PLATE		204	Galv
	52M7	30	PL 3/8x16	10 0	204	A36
1	52M8	2	MISC		156	Galv
	52M8	2	MC12x10.6	10 2 1/2	107	A36
	ch213	2	MC12x10.6	4 8 1/2	49	A36
			FIELD BOLTS			
		8	5/8 Dia A307	0 6		+1PL,1HD WASH Galv
		8	5/8 Dia A307	0 4 1/2		+1PL,1HD WASH Galv
1	52M9	2	MISC		94	Galv
	52M9	2	MC12x10.6	8 10 1/2	94	A36
			FIELD BOLTS			
		8	5/8 Dia A325N	0 6		+1PL,1HD WASH Galv
1	52M10	8	MISC		7	Galv
	52M10	8	L6x4x5/16	0 8	7	A36
			FIELD BOLTS			
		32	1/2 Dia HILTI HDI	0 5		GALV
1	52M11	60	MISC		10	Galv
	52M11	60	L4x4x3/8	1 0	10	A36
			FIELD BOLTS			
		120	3/4 Dia EXP ANC	0 4 1/2		GALV

AISC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	
0	May 21 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT
			DETAILER

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS RETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT GALV PER ASTM123
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

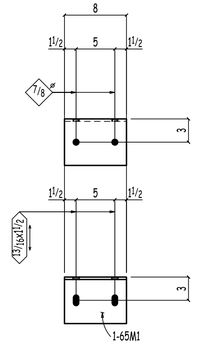
Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRWG NO. 52
DETAILER MSK | CHECKED SJS | DATE 06-12-2017 | JOB NO. 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

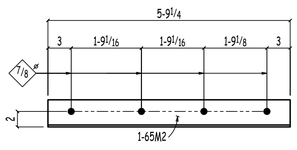
Total weight : 4359

HOLD



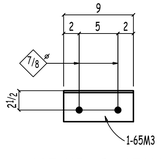
48 ANGLES 65M1

FIELD BOLTS:
2-3/4x3 LAG BOLT [total=96]
2-3/4x8 EXP ANCHOR [total=96]



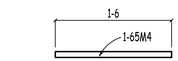
ONE ANGLE 65M2

FIELD BOLTS:
4-3/4x4 1/2 EXP ANCHOR [total=4]



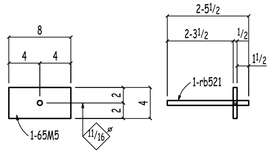
125 MISCS 65M3

FIELD BOLTS:
2-3/4x5 EXP ANCHOR [total=250]

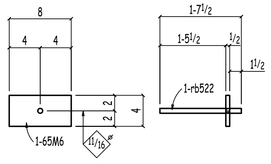


8 MISCS 65M4

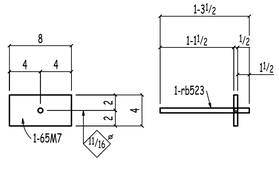
HOLD



5 MISCS 65M5

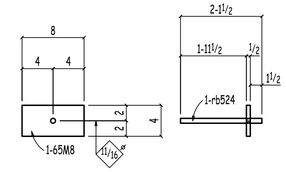


32 MISCS 65M6

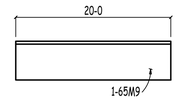


10 MISCS 65M7

HOLD



9 MISCS 65M8



12 ANGLES 65M9

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	65M1	48	ANGLE		8	
	65M1	48	L6x6x5/16	0 8	8	A36
			FIELD BOLTS			
		96	3/4 Dia EXP ANCHOR	0 8		
		96	3/4 Dia LAG BOLT	0 3		
1	65M2	ONE	ANGLE		33	
	65M2	1	L3 1/2x3 1/2x1 1/4	5 9 1/4	33	A36
			FIELD BOLTS			
		4	3/4 Dia EXP ANCHOR	0 4 1/2		
1	65M3	125	MISC		5	
	65M3	125	L4x4x1/4	0 9	5	A36
			FIELD BOLTS			
		250	3/4 Dia EXP ANCHOR	0 5		
1	65M4	8	MISC		2	
	65M4	8	RB3/4	1 6	2	A36
1	65M5	5	MISC		7	
	65M5	5	FL 1/2x4	0 8	4	A36
	rb521	5	RB5/8	2 5 1/2	3	A36
			FIELD BOLTS			
		10	5/8 NUT			HHNT A563
		10	5/8 WASHER			HD F436
1	65M6	32	MISC		6	
	65M6	32	FL 1/2x4	0 8	4	A36
	rb522	32	RB5/8	1 7 1/2	2	A36
			FIELD BOLTS			
		64	5/8 NUT			HHNT A563
		64	5/8 WASHER			HD F436
1	65M7	10	MISC		6	
	65M7	10	FL 1/2x4	0 8	4	A36
	rb523	10	RB5/8	1 3 1/2	1	A36
			FIELD BOLTS			
		20	5/8 NUT			HHNT A563
		20	5/8 WASHER			HD F436
1	65M8	9	MISC		7	
	65M8	9	FL 1/2x4	0 8	4	A36
	rb524	9	RB5/8	2 1 1/2	2	A36
			FIELD BOLTS			
		18	5/8 NUT			HHNT A563
		18	5/8 WASHER			HD F436
1	65M9	12	ANGLE		246	
	65M9	12	L5x5x3/8	20 0	246	A36

USC CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
0	May 21 2018	ISSUED FOR FABRICATION	SAT
A	Jul 11 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	05-21							
SHOP	3	05-21							
APPROVAL	E	07-11							
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

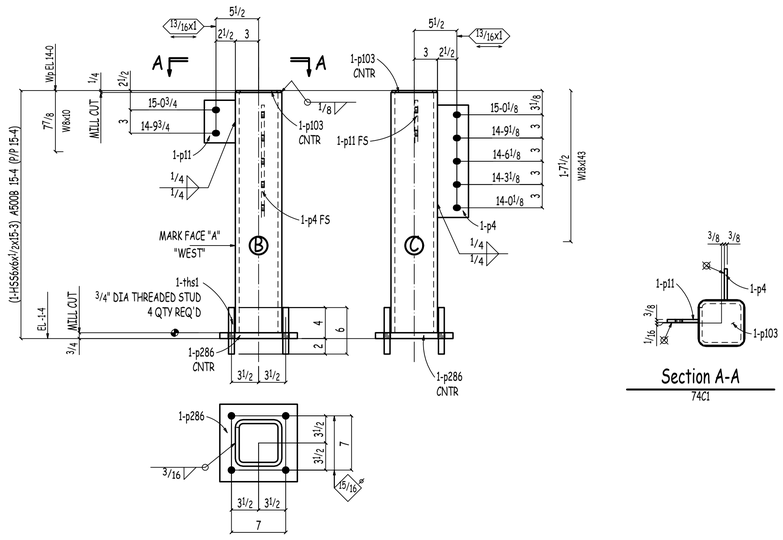
WIDE FLANGE (U.N.) A-992 GR-50
PARTS MATERIAL (U.N.) A-36
TUBE MATERIAL (U.N.) A-500 GR-B
SURFACE PREPARATION SSPC SP 2 & 3
SHOP PAINT SHERWIN WILLIAMS STEEL SPEC.
FIELD CONNECTIONS AS NOTED
HOLES (U.N.) 13/16 ø
USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB ROYSTER CROSSINGS LOT 2
LOCATION MADISON, WI
CUSTOMER RVEDEBUSCH
DRWG NO. 65
DETAILER MSK | CHECKED SJS | DATE 06-12-2017 | JOB NO. 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.

Total weight : 1204

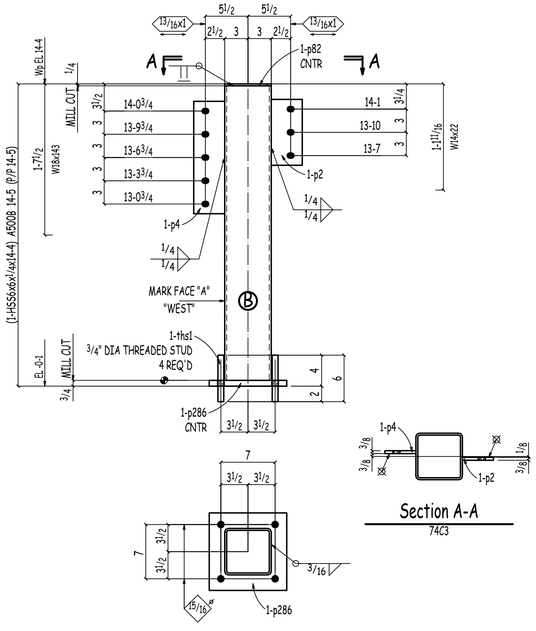


ONE COLUMN 74C1

AT GRID: D.7 & 1.1

ALREADY APPROVED AS 12C1

Section A-A
74C1

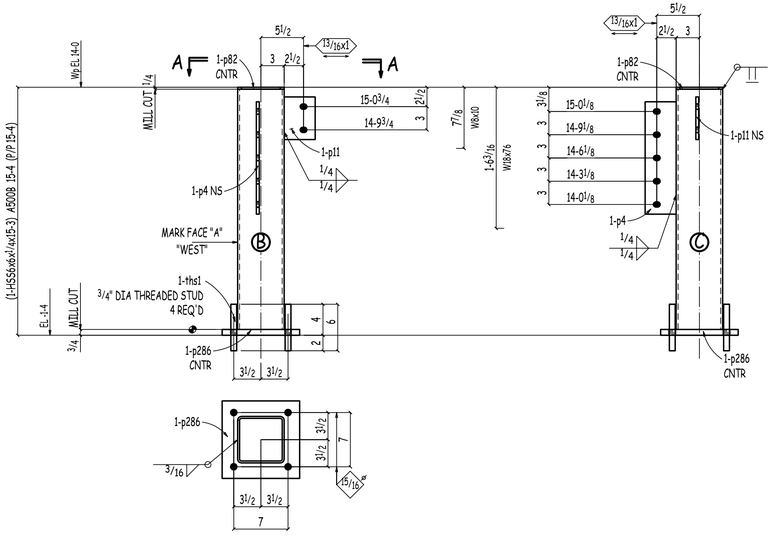


ONE COLUMN 74C3

AT GRID: N.3 & 9

ALREADY APPROVED AS 14C6

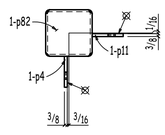
Section A-A
74C3



ONE COLUMN 74C2

AT GRID: D.7 & 1

ALREADY APPROVED AS 12C2



Section A-A
74C2

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH		WEIGHT	REMARKS
1	74C1		ONE COLUMN			571	
	74C1	1	HSS6x6x1/2	15	3	537	M2E A500B
	p286	1	FL3/4x10	0	10	21	A36
	p4	1	FL3/8x4	1	2 1/2	6	A36
	p11	1	FL3/8x4	0	5 1/2	2	A36
	p103	1	PL1/4x5 3/4	0	5 3/4	2	A36
	ths1	4	THD STUD 3/4	0	6	1	A108
			FIELD BOLTS				
		8	3/4 NUT				HHNT A563
		8	3/4 WASHER				HD F436
1	74C2		ONE COLUMN			324	
	74C2	1	HSS6x6x1/4	15	3	290	M2E A500B
	p286	1	FL3/4x10	0	10	21	A36
	p4	1	FL3/8x4	1	2 1/2	6	A36
	p11	1	FL3/8x4	0	5 1/2	2	A36
	p82	1	FL1/4x6	0	6	3	A36
	ths1	4	THD STUD 3/4	0	6	1	A108
			FIELD BOLTS				
		8	3/4 NUT				HHNT A563
		8	3/4 WASHER				HD F436
1	74C3		ONE COLUMN			308	
	74C3	1	HSS6x6x1/4	14	4	273	M2E A500B
	p286	1	FL3/4x10	0	10	21	A36
	p4	1	FL3/8x4	1	2 1/2	6	A36
	p2	1	FL3/8x4	0	8 1/2	3	A36
	p82	1	FL1/4x6	0	6	3	A36
	ths1	4	THD STUD 3/4	0	6	1	A108
			FIELD BOLTS				
		8	3/4 NUT				HHNT A563
		8	3/4 WASHER				HD F436

NSBA CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON ERECTION PLAN DETAIL. ALL RE-ENTRANT CORNERS SHALL BE SHOWN NOTCH FREE TO A RADIUS OF AT LEAST 1/2 INCH

REV	DATE	DESCRIPTION	DETAILER
0	May 29 2018	ISSUED FOR FABRICATION	SAT

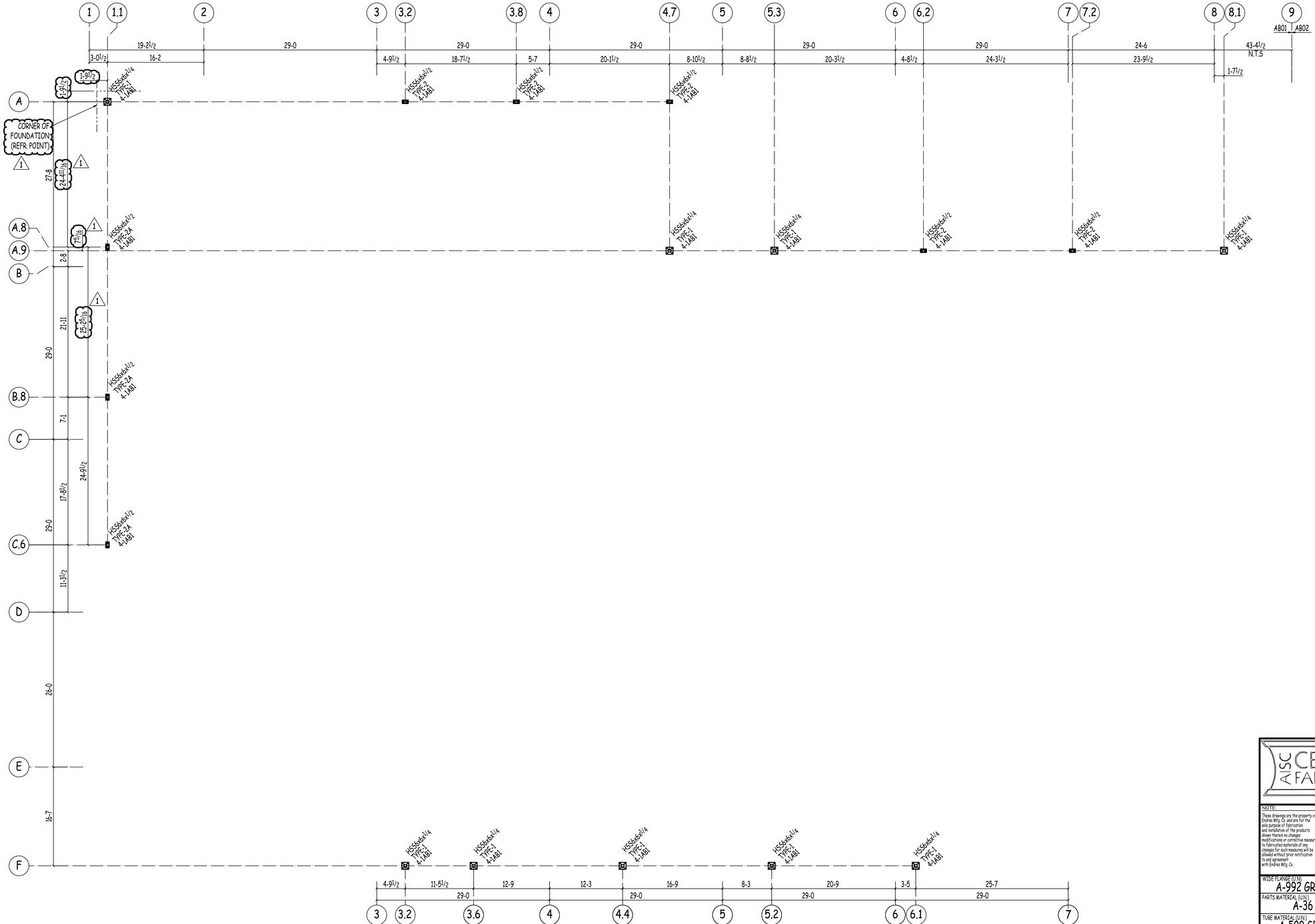
FIELD	E	05-29							
SHOP	3	05-29							
APPROVAL									
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (U/N): A-992 GR-50
PARTS MATERIAL (U/N): A-36
TUBE MATERIAL (U/N): A-500 GR-B
SURFACE PREPARATION: SSPC SP 2 & 3
SHOP PAINT: SHERWIN WILLIAMS STEEL SPEC
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG NO.: 74
DETAILER: MSK
CHECKED: SJS
DATE: 06-12-2017
JOB NO.: 17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



ANCHOR BOLT PLAN -WEST

B.O BASE PLATE ELEVATION: (-)1'-4" (U.N.)
N.T.S - NOT TO SCALE

FOR DETAILS REFER DRAWING AB03

CERTIFIED FABRICATOR

REV	DATE	DESCRIPTION	DETAILER
1	Apr 13 2018	REVISED TO UPDATE GRID DIMENSION	SAT
0	Apr 11 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	04-11	E	04-13				
SHOP	3	04-11	3	04-13				
APPROVAL	E	06-28	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown therein no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

ERECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS NET ASSEMBLED. ALL RE-ENTRANT CORNERS SHALL BE SHAPED WITH FREE TO A RADIUS OF AT LEAST 1/2 INCH

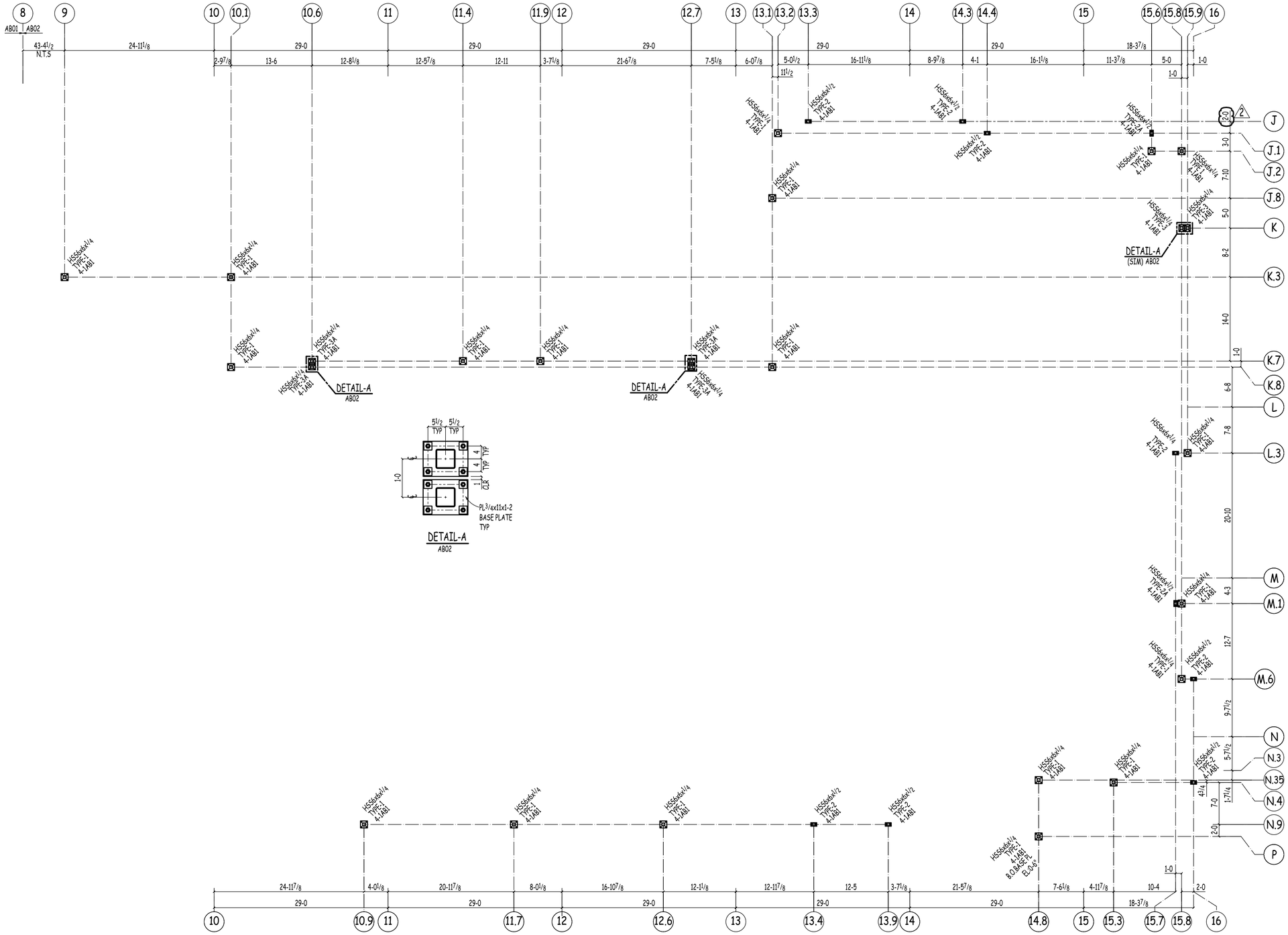
WIDE FLANGE (U.N.): A-992 GR-50
PARTS MATERIAL (U.N.): A-36
TUBE MATERIAL (U.N.): A-500 GR-B
SURFACE PREPARATION:
SHOP PAINT:
FIELD CONNECTIONS: AS NOTED
HOLES (U.N.): 13/16 Ø
USE NO. 70XX WELD ROD. ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG.CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2
LOCATION: MADISON, WI
CUSTOMER: RVEDEBUSCH
DRWG. NO.: AB01

DETAILER	CHECKED	DATE	JOB NO.
MSK	SJS	06-28-17	17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



ANCHOR BOLT PLAN-EAST

B.O BASE PLATE ELEVATION: (-)0'-6" (U.N.)

N.T.S - NOT TO SCALE

FOR DETAILS REFER DRAWING AB03

REV	DATE	DESCRIPTION	
2	May 29 2018	REVISED TO UPDATE GRID DIMENSION	SAT
1	Apr 13 2018	REVISED TO UPDATE GRID DIMENSION	SAT
0	Apr 11 2018	ISSUED FOR FABRICATION	SAT
C	Mar 20 2018	ISSUED FOR REAPPROVAL	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

AISC CERTIFIED FABRICATOR

NOTE: These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE: UNLESS OTHERWISE NOTED, ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE: PAINT PIECE MARK ON LEFT END AS DETAILED. ALL RE-ENTRANT CORNERS SHALL BE SHARP-NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

FIELD	E	04-11	E	04-13	E	05-29		
SHOP	3	04-11	3	04-13	3	05-29		
APPROVAL	E	06-28	E	02-09	E	03-20		
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE

WIDE FLANGE (U.N.) A-992 GR-50

PARTS MATERIAL (U.N.) A-36

TUBE MATERIAL (U.N.) A-500 GR-B

SURFACE PREPARATION

SHOP PAINT

FIELD CONNECTIONS: AS NOTED

HOLES (U.N.) 13/16 Ø

USE NO. 70XX WELD ROD ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB: ROYSTER CROSSINGS LOT 2

LOCATION: MADISON, WI

CUSTOMER: RVEDEBUSCH

DETAILER	CHECKED	DATE	JOB NO.
MSK	SJS	06-28-17	17068

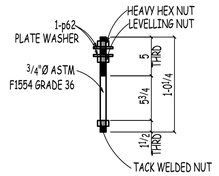
DRWG NO. AB02

APPROVER NOTE: The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design

Total weight : 486

BILL OF MATERIAL

SEQ	MARK	QTY	DESCRIPTION	LENGTH	WEIGHT	REMARKS
1	1AB1	208	ANCHOR ROD		2	
	1AB1	208	RB 3/4	1 0 1/4	2	F1554 GR 36
	p62	416	FL 1/4 X 2 1/2	0 2 1/2	0	A36
	blt1	624	3/4 NUT			HHNT A563



208 ANCHOR RODS 1AB1

CERTIFIED FABRICATOR

NOTE:
These drawings are the property of Endres Mfg. Co. and are for the sole purpose of fabrication and installation of the products shown thereon.no changes modifications or corrective measures to fabricated materials of any changes for such measures will be allowed without prior notification to and agreement with Endres Mfg. Co.

DIRECTOR NOTE:
UNLESS OTHERWISE NOTED - ALL CONNECTIONS TO BE MADE WITH A325 HIGH STRENGTH BOLTS WITH ONE HARDENED WASHER UNDER THE TURNED ELEMENT NUT OR BOLT HEAD.

SHOP NOTE:
PAINT PIECE MARK ON LEFT END AS DETAILED.
ALL RE-ENTRANT CORNERS SHALL BE SHAPED NOTCH FREE TO A RADIUS OF AT LEAST ½ INCH

REV	DATE	DESCRIPTION	DETAILER
0	Apr 11 2018	ISSUED FOR FABRICATION	SAT
B	Feb 9 2018	ISSUED FOR REAPPROVAL	SAT
A	Jun 28 2017	ISSUED FOR APPROVAL	SAT

FIELD	E	04-11							
SHOP	3	04-11							
APPROVAL	E	06-28	E	02-09					
PRINTS	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	

WIDE FLANGE (UN)
A-992 GR-50

PARTS MATERIAL (UN)
A-36

TUBE MATERIAL (UN)
A-500 GR-B

SURFACE PREPARATION
NONE

SHOP PAINT
NONE

FIELD CONNECTIONS
AS NOTED

HOLES (U.N.)
13/16 Ø

USE NO. 70XX WELD ROD
ALL COMPLETE JOINT PENETRATION BUTT WELDS LOW HYDROGEN 7018

Endres MFG. CO.
802 Century Ave., P.O. Box 217
Waunakee, Wisconsin 53597
Hwy. Q at Village Limits
Phone (608) 849 - 4143
Fax (608) 849 - 7903

JOB
ROYSTER CROSSINGS LOT 2

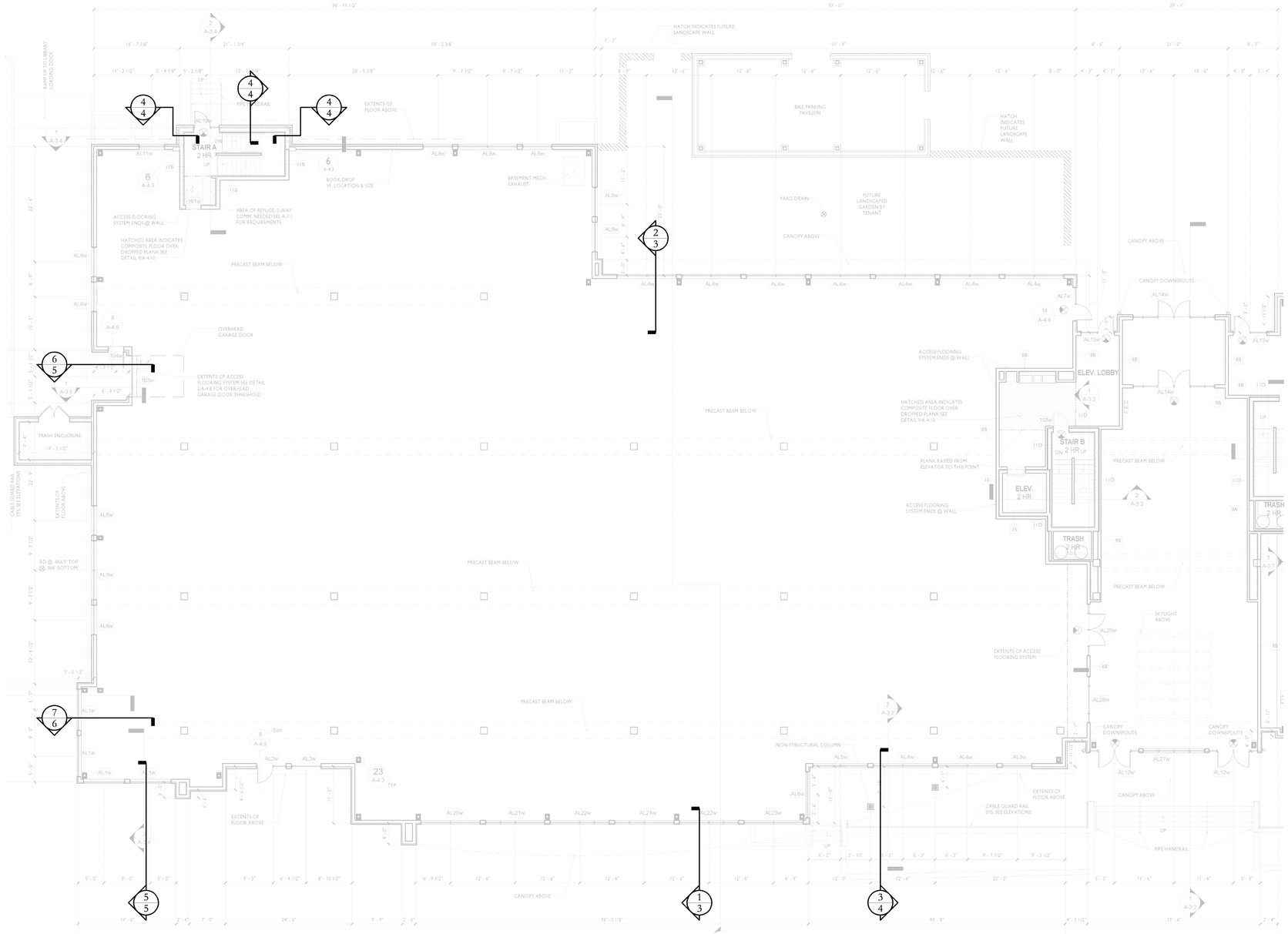
LOCATION
MADISON, WI

CUSTOMER
RVEDEBUSCH

DRWG NO.
ONE

DETAILER	CHECKED	DATE	JOB NO.
MSK	SJS	06-28-17	17068

APPROVER NOTE:
The details of structural steel shown on this sheet are developed from the engineering, architectural or owners design drawings and/or specifications provided to Endres Mfg. Co. It is the professional responsibility of the approving engineer, architect or owner to verify that the sections as detailed are properly identified and that all connections developed on these detail drawings comply with the intent of the engineers, architects or owners design.



PLAN NORTH

Ref. 1 / A-1.1W

1 Key Plan - 1st Floor West
Scale: 3/32" = 1'-0"

Architect/Approver Note: Please confirm and/or provide ballooned information!!

Thickness-Steel Components

Minimum Thickness (Mils)	Design Thickness (In.)	Reference Only Gage No.
30	0.0312	20-Drywall
33	0.0346	20-Structural
43	0.0451	18
54	0.0566	16
68	0.0713	14
97	0.1017	12
118	0.1242	10

Fabricator/Erector:

1. Typical stud to track attachment use ⅛" fillet weld, 1" long, (2) places. Alt: #10 Tek screw, (2) places, 1 screw each side.
2. Attach 1½"x16 gage CRC stud bridging per manufacturer's recommendations. ClarkDietrich Spazzer 05400 Bridging is acceptable. Install per manufacturer's recommendations.
3. If punched headers are used, punch-outs must not occur within 1½ times the depth of the header from the ends of the header.
4. Studs & track @ headers & sills must be continuous.

General Notes:

1. Return one set of approved shop drawings to LSF Engineering LLC. If approval comments require action to be taken by LSF Engineering LLC, please notify LSF Engineering LLC in writing before starting construction.
2. Notify LSF Engineering LLC if any field deviations from these drawings are made during construction.
3. If contract documents require periodic on-site inspections, provide reasonable notification to allow LSF Engineering LLC to schedule job-site visits.
   Field Supervisor should be made available during inspections.
   Written verification of construction cannot be provided without periodic on-site inspectons.
4. Design criteria & notes submitted with these drawings are integral to the design and erection.

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS
(X) REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA
DATE: 9/10/2018

Refer to Ryan Frank email dated 4/16/18 related to steel beam frame down

REVISIONS:
June 5, 2018
June 29, 2018

18 – 119

LSF Engineering LLC
LIGHT STEEL FRAMING DESIGN
418 N. 3rd Street, Suite 420, Milwaukee, WI 53203
Ph: 262-352-3229 adam.hedtke@lsfengineering.com

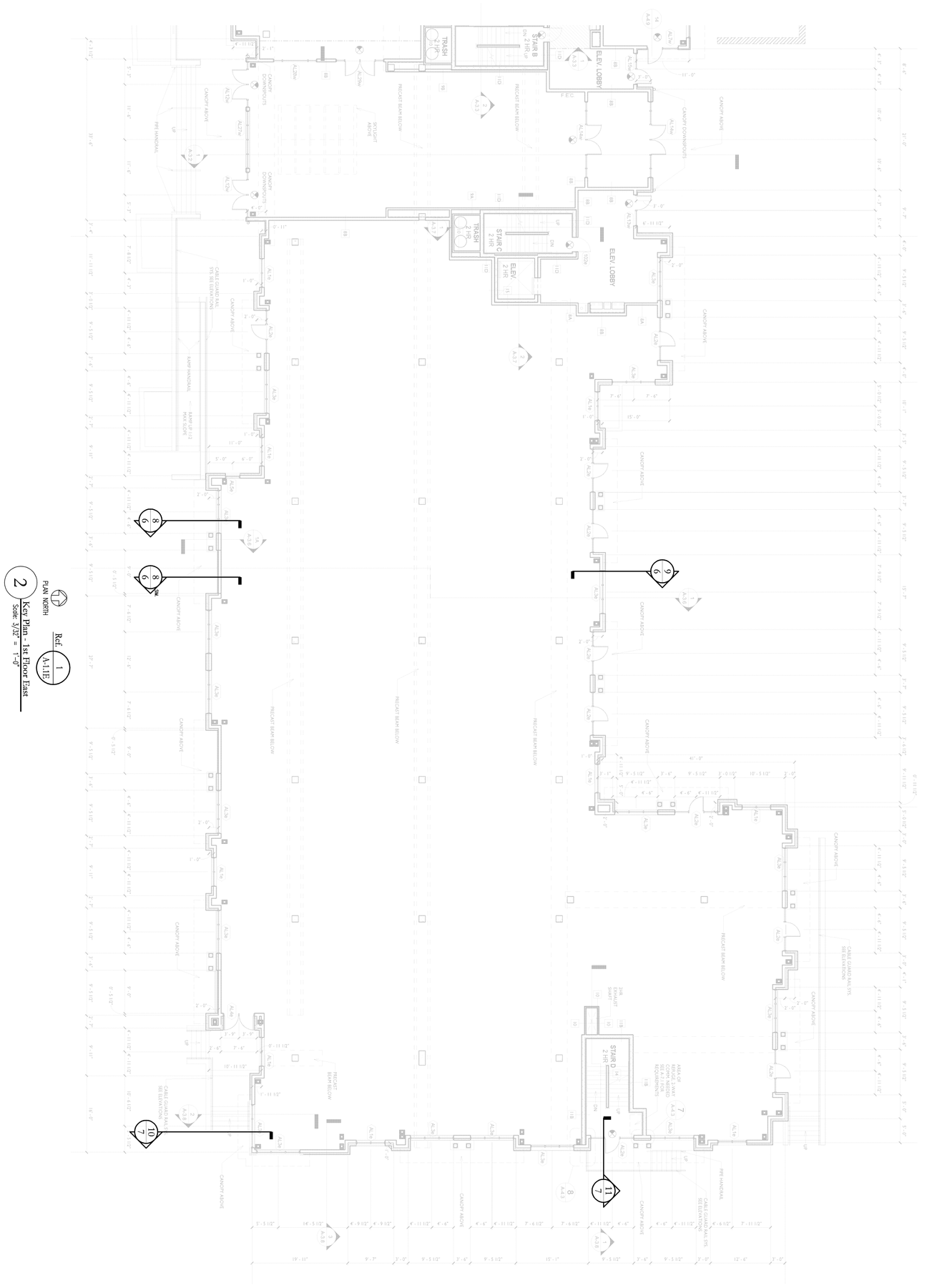
CONTRACTOR:
Applewood Drywall Service
N30W22377 Green Road, Suite A
Waukesha, WI 53186

PROJECT
Royster Crossings
521-523 Grand Oak Trail
Madison, WI

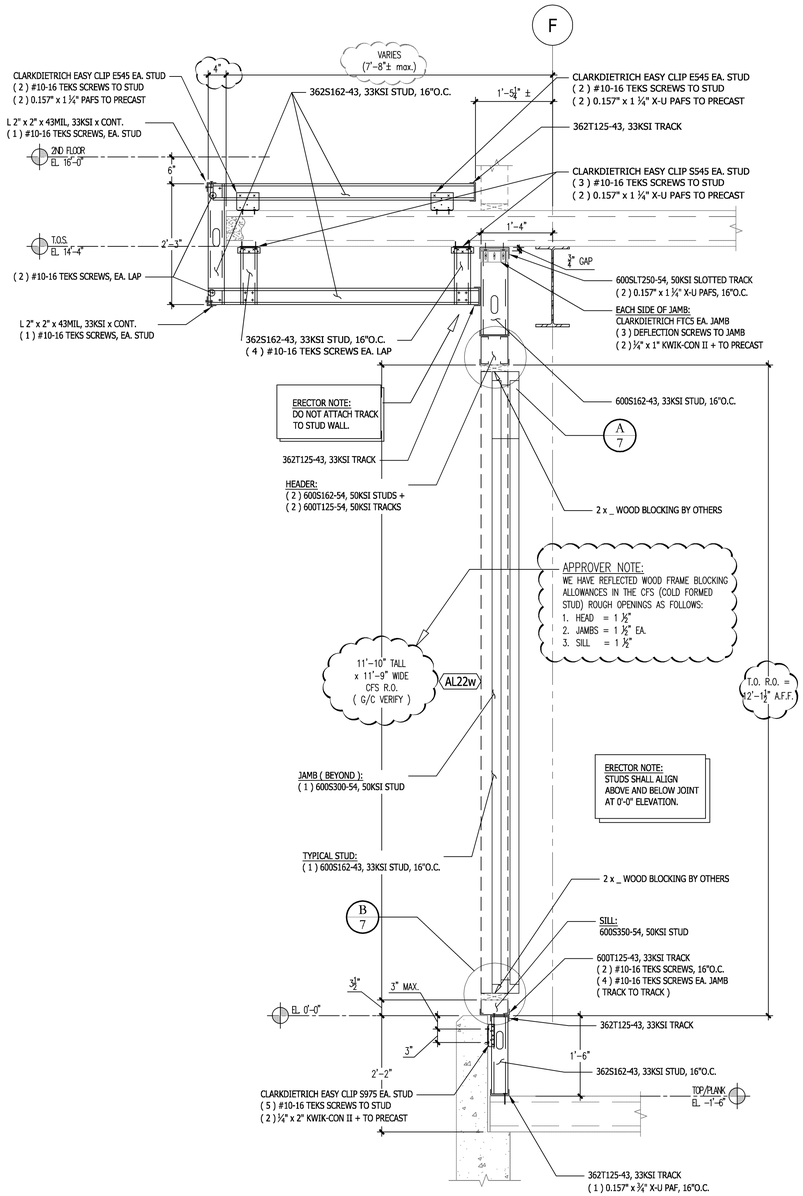
TITLE
GENERAL NOTES & KEY PLAN

DATE ISSUED 3/20/2018
DATE DRAWN
DRAWN BY DLD

SHEET 1 of 7
PROJECT NO. 18502

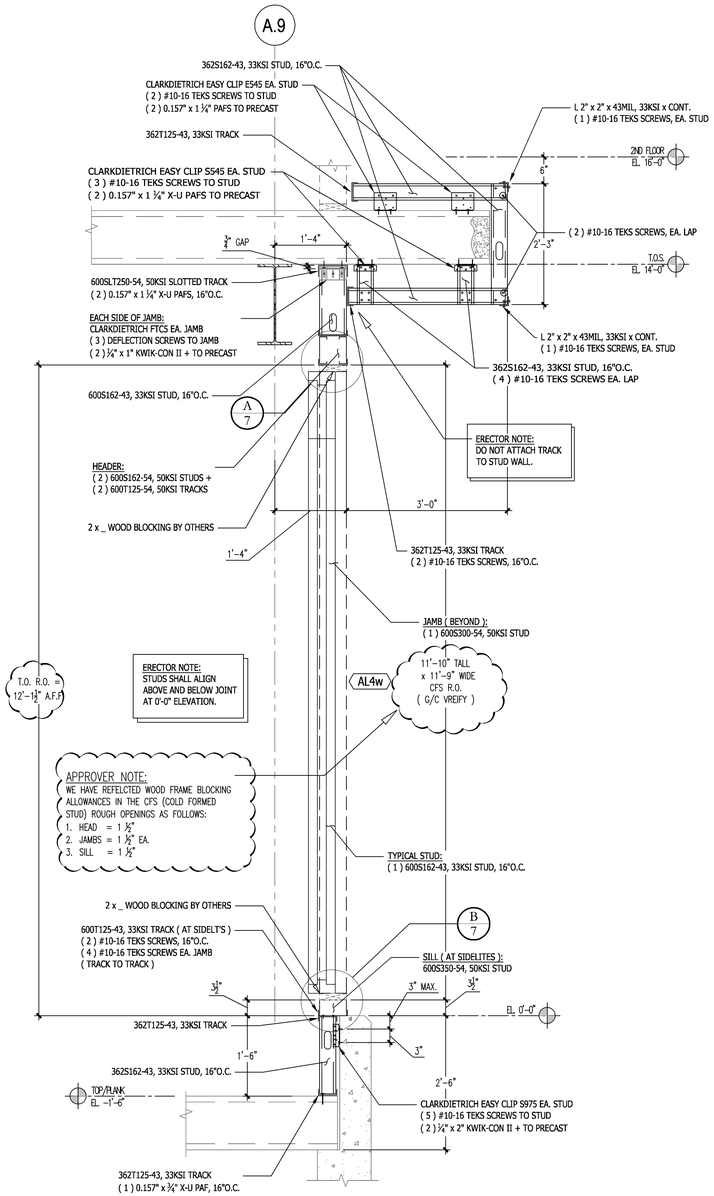


SHEET 2 of 7 PROJECT NO. 18502	DATE ISSUED 3/20/2018 DATE DRAWN DRAWN BY DLD	PROJECT Royster Crossings 521-523 Grand Oak Trail Madison, WI TITLE KEY PLANS	CONTRACTOR: Applewood Drywall Service N30W22377 Green Road, Suite A Waukesha, WI 53186	**LSF Engineering LLC** LIGHT STEEL FRAMING DESIGN 418 N. 3rd Street, Suite 420, Milwaukee, WI 53203 Ph: 262-352-3229 adam.hedtcke@lsfengineering.com	9-11-19	REVISIONS: June 5, 2018 June 29, 2018



1 SECTION 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 1/A-3.1; 23/A-4.4; 22-24/A-4.8
REFER TO STRUCTURAL DRAWINGS: 1/S-1.0w; 1/S-1.1w; 1/S-1.2w; 14/S-3.1



2 SECTION 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 1/A-3.1; 23/A-4.4; 22-24/A-4.8
REFER TO STRUCTURAL DRAWINGS: 1/S-1.0w; 1/S-1.1w; 1/S-1.2w; 14/S-3.1

REVISIONS:
June 5, 2018
June 29, 2018

18 – 119

LSF Engineering LLC
LIGHT STEEL FRAMING DESIGN
418 N. 3rd Street, Suite 420, Milwaukee, WI 53203
Ph: 262-352-3229 adam.hedicke@lsfengineering.com

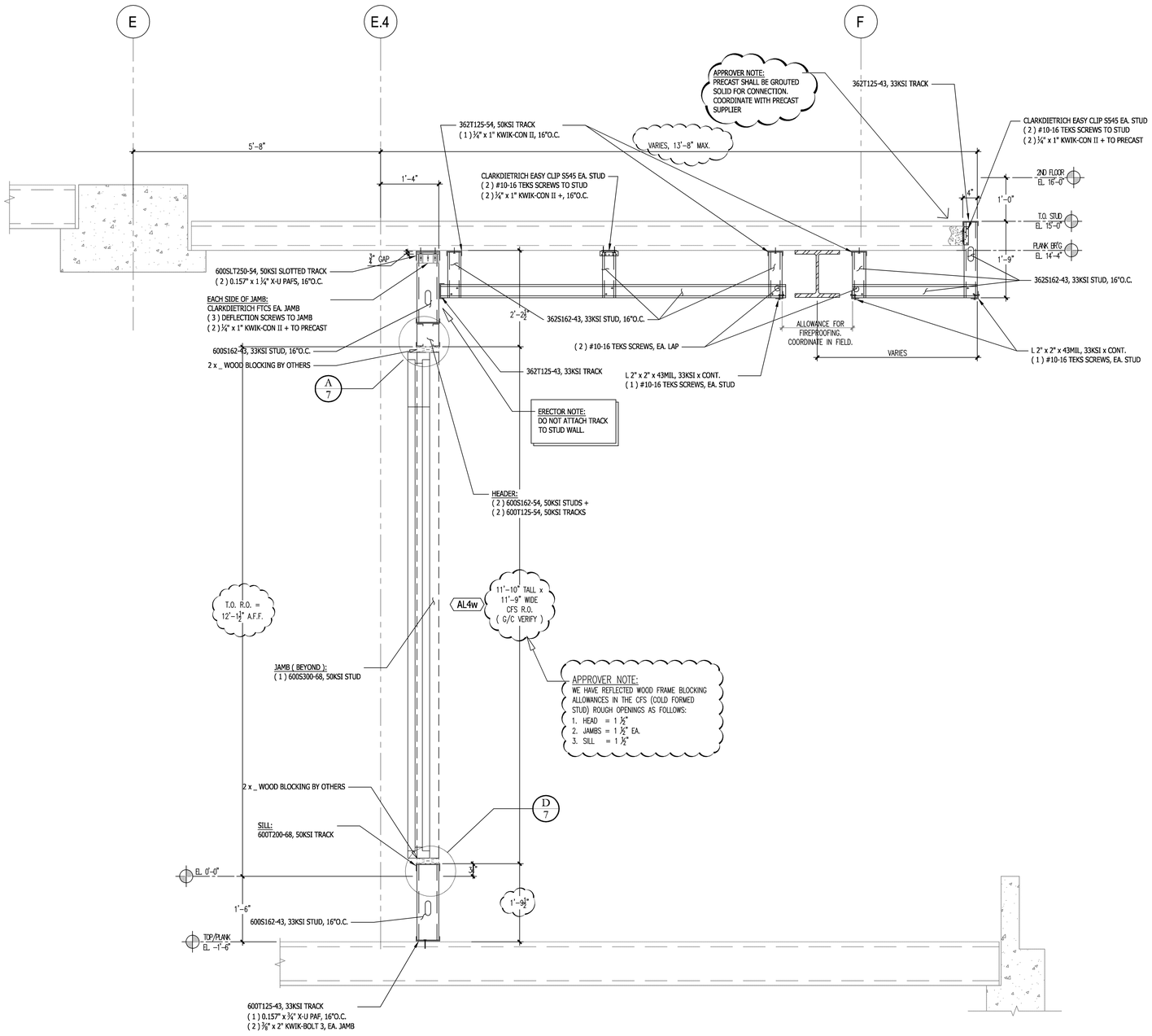
CONTRACTOR:
Applewood Drywall Service
N30W22377 Green Road, Suite A
Waukesha, WI 53186

PROJECT
Royster Crossings
521-523 Grand Oak Trail
Madison, WI

TITLE
SECTIONS AND DETAILS

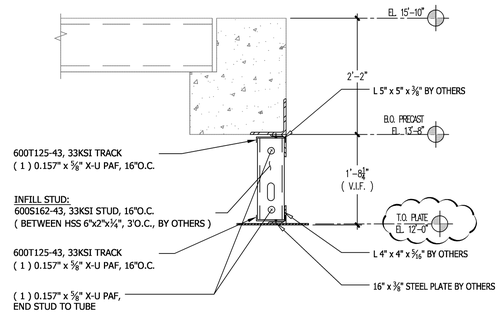
DATE ISSUED 3/20/2018
DATE DRAWN
DRAWN BY DLD

SHEET 3 of 7
PROJECT NO. 18502



3 SECTION 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 2/A-3.2; 1/A-4.8
REFER TO STRUCTURAL DRAWINGS: 1/S-1.0w; 1/S-1.1w; 1/S-1.2w; 14/S-3.1



4 SECTION 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 1 & 2/A-3.4; 1 & 2/A-4.3
REFER TO STRUCTURAL DRAWINGS: N/A

REVISIONS:
June 5, 2018
June 29, 2018

18-119

LSF Engineering LLC
LIGHT STEEL FRAMING DESIGN
418 N. 3rd Street, Suite 420, Milwaukee, WI 53203
Ph: 262-352-3229 adam.hedicke@lsfengineering.com

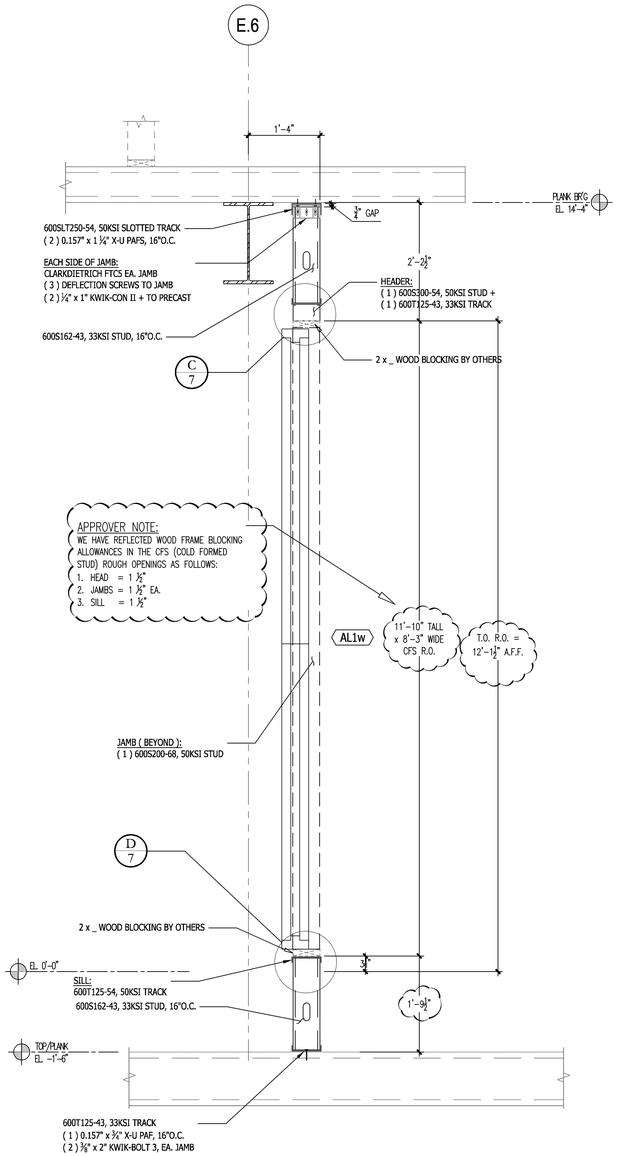
CONTRACTOR:
Applewood Drywall Service
N30W22377 Green Road, Suite A
Waukesha, WI 53186

PROJECT
Royster Crossings
521-523 Grand Oak Trail
Madison, WI

TITLE
SECTIONS AND DETAILS

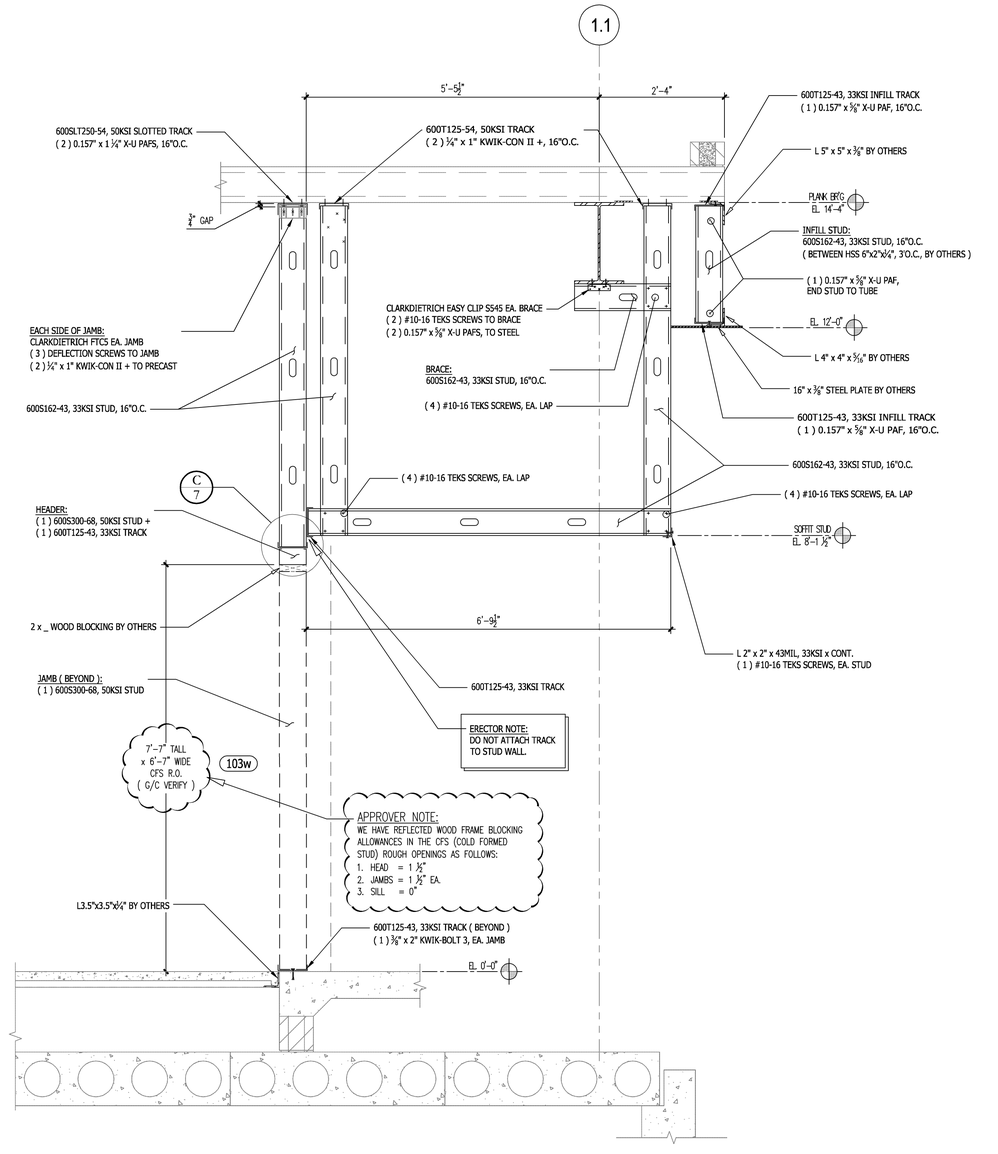
DATE ISSUED 3/20/2018
DATE DRAWN
DRAWN BY DLD

SHEET 4 of 7
PROJECT NO. 18502



5 SECTION 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 3/A-3.4;
REFER TO STRUCTURAL DRAWINGS: 14/S4.1



6 SECTION 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 1/A-3.5; 5/A-4.3; 2/A-4.8;
REFER TO STRUCTURAL DRAWINGS: 21/S-4.1; 2/S-1.1w

REVISIONS:
June 5, 2018
June 29, 2018

18 – 119

LSF Engineering LLC
LIGHT STEEL FRAMING DESIGN
418 N. 3rd Street, Suite 420, Milwaukee, WI 53203
Ph: 262-352-3229 adam.hedlicke@lsfengineering.com

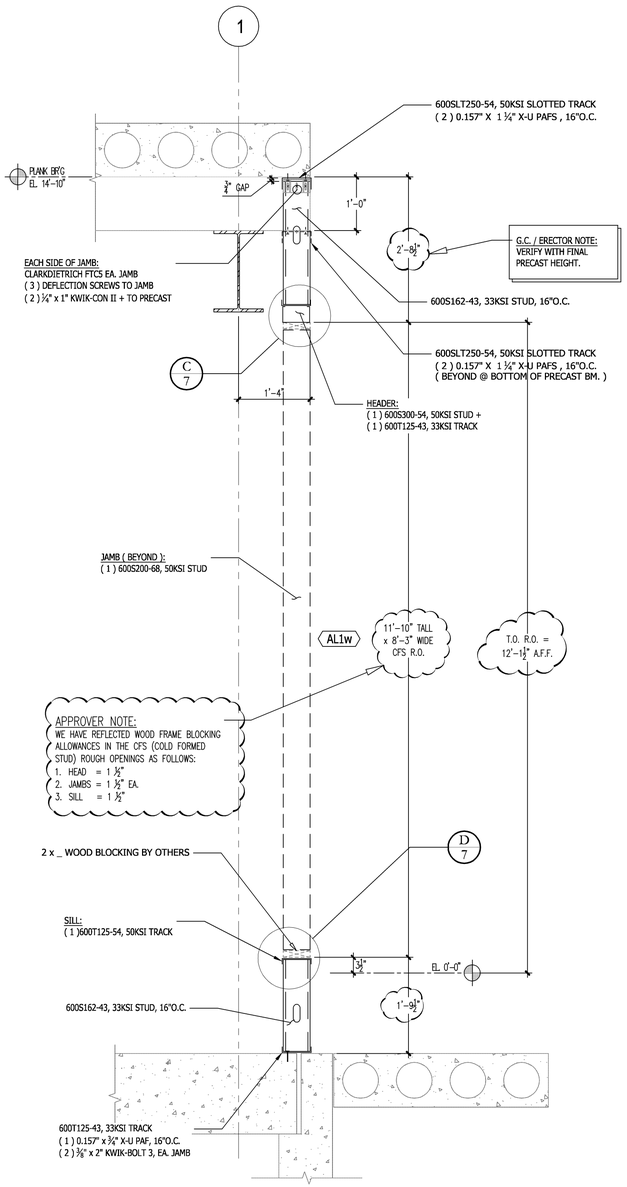
CONTRACTOR:
Applewood Drywall Service
N30W22377 Green Road, Suite A
Waukesha, WI 53186

PROJECT
Royster Crossings
521-523 Grand Oak Trail
Madison, WI

TITLE
SECTIONS AND DETAILS

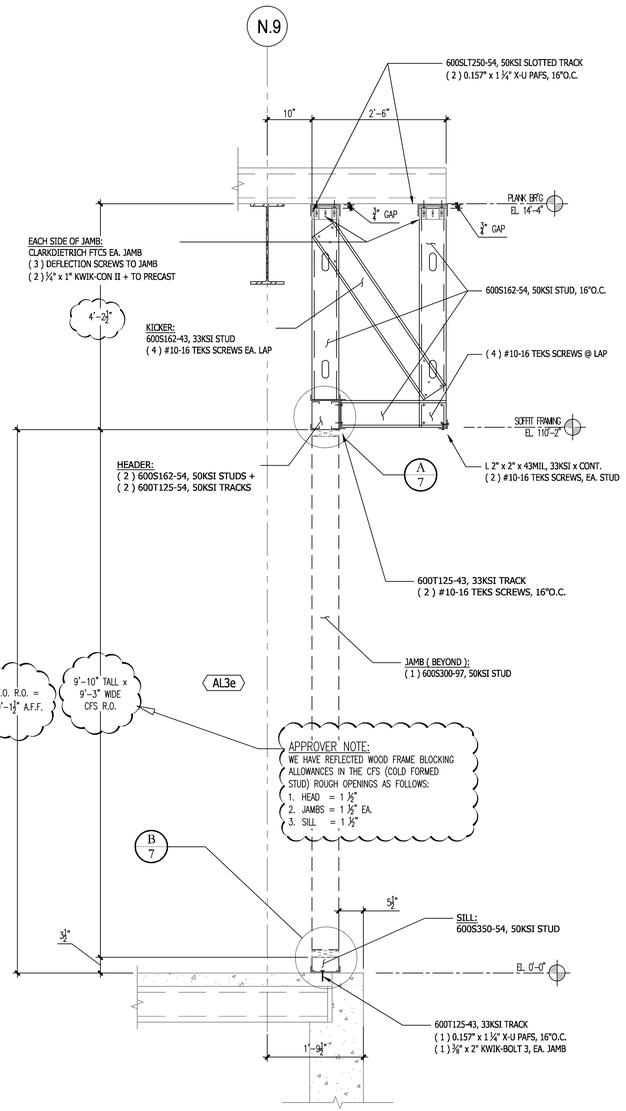
DATE ISSUED 3/20/2018
DATE DRAWN
DRAWN BY DLD

SHEET 5 of 7
PROJECT NO. 18502



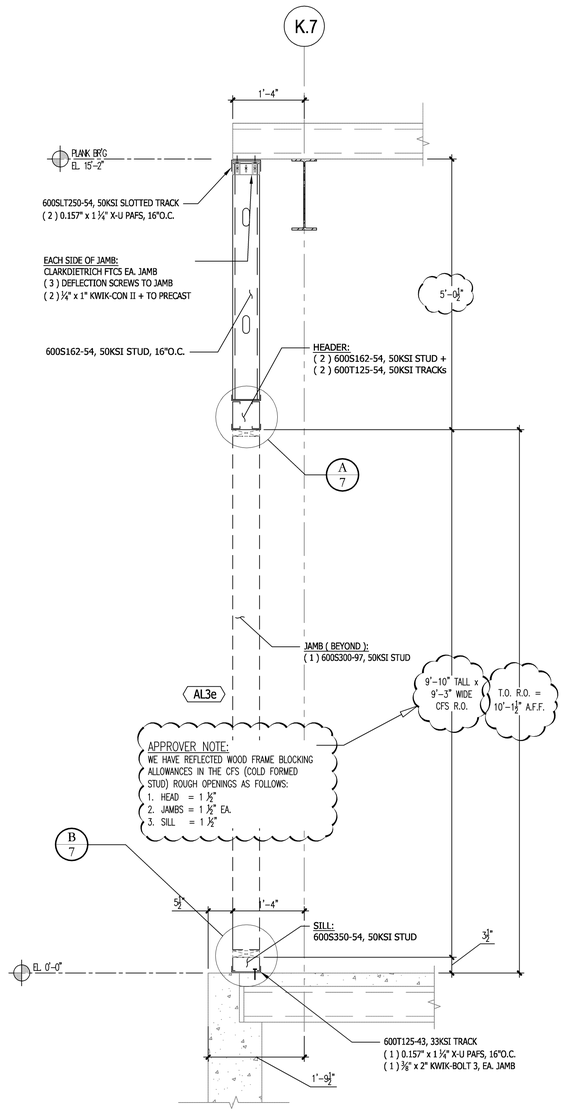
7 **SECTION** 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 2/A-3.5; 1, 23, 24/A-4.8;
REFER TO STRUCTURAL DRAWINGS: 16, 22/S4.0



8 **SECTION** 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 1/A-3.6; 6/A4.7; 19, 21, 26-29/A4.8
REFER TO STRUCTURAL DRAWINGS: 18/S3.1; 6/S3.2; 16, 22/S4.0



9 **SECTION** 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 1/A3.6; 18, 20, 21/A4.8; 16 & 29/A4-9
REFER TO STRUCTURAL DRAWINGS: 10/S3.1; 5/S3.2; 16, 22/S4.0

REVISIONS:
June 5, 2018
June 29, 2018

18 – 119

LSF Engineering LLC
LIGHT STEEL FRAMING DESIGN
418 N. 3rd Street, Suite 420, Milwaukee, WI 53203
Ph: 262-352-3229 adam.hedlicke@lsfengineering.com

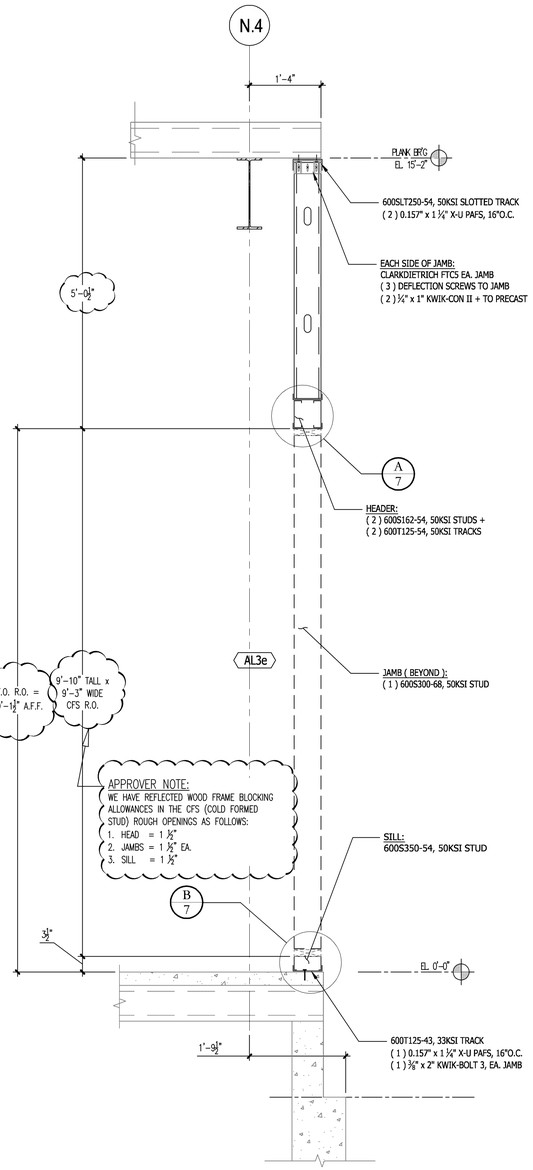
CONTRACTOR:
Applewood Drywall Service
N30W22377 Green Road, Suite A
Waukesha, WI 53186

PROJECT
Royster Crossings
521-523 Grand Oak Trail
Madison, WI

TITLE
SECTIONS AND DETAILS

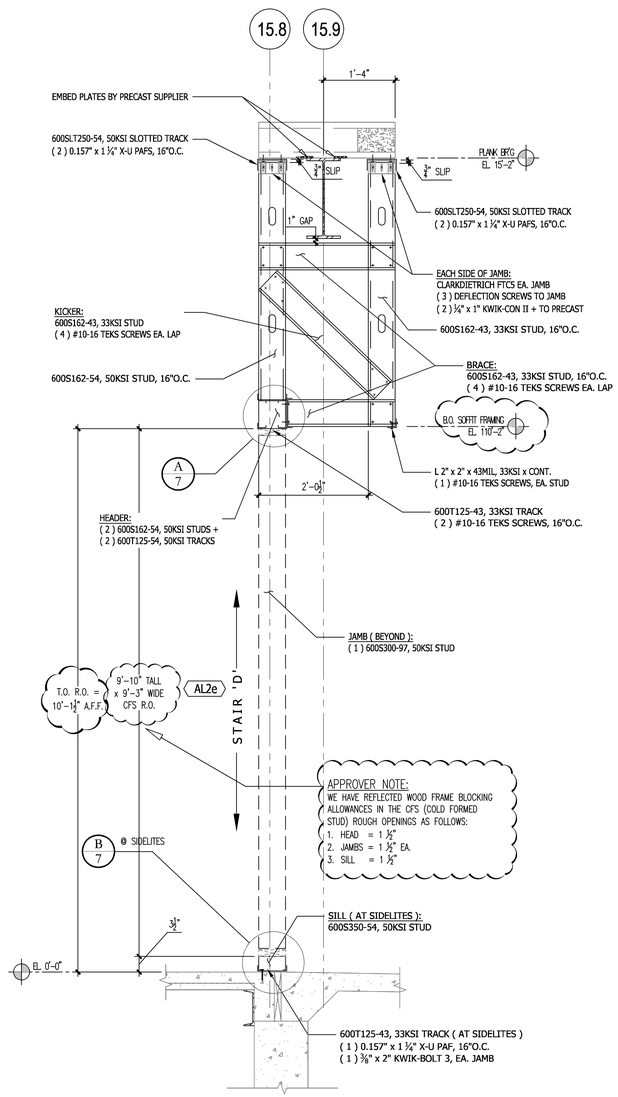
DATE ISSUED 3/20/2018
DATE DRAWN
DRAWN BY DLD

SHEET 6 of 7
PROJECT NO. 18502



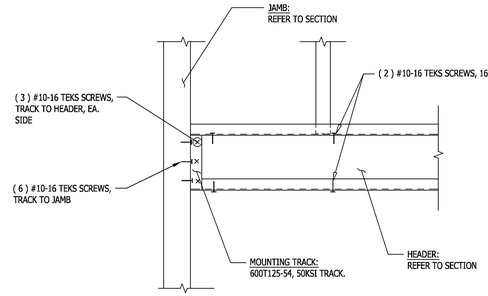
10 SECTION 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 2/A3.8; 15, 20, 21/A4.8;
REFER TO STRUCTURAL DRAWINGS: 18/S3.1 SIM.; 3/S3.2;

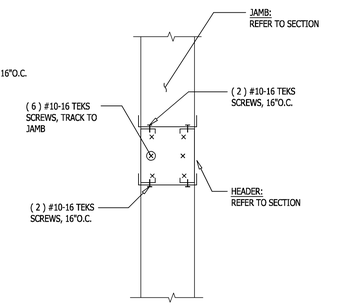


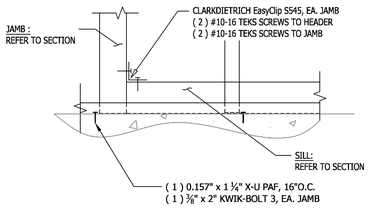
11 SECTION 3/4" = 1'-0"

REFER TO ARCHITECTURAL DRAWINGS: 1/A3.8; 1 & 29/A4-9
REFER TO STRUCTURAL DRAWINGS: 5/S-3.0; 7/S-4.2

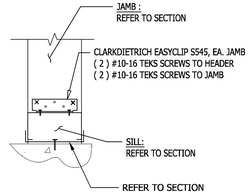


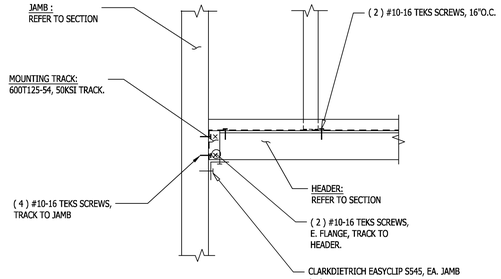
A HEADER DETAIL 1 1/2" = 1'-0"

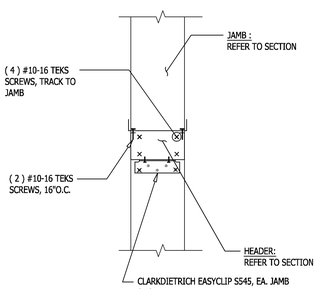




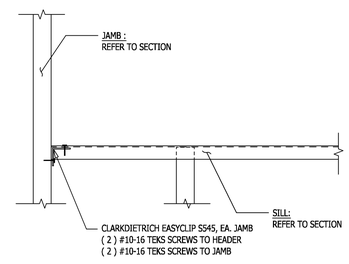
B SILL DETAIL 1 1/2" = 1'-0"

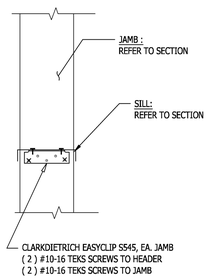






C HEADER DETAIL 1 1/2" = 1'-0"





D SILL DETAIL 1 1/2" = 1'-0"

REVISIONS:
June 5, 2018
June 29, 2018

18-119

LSF Engineering LLC
LIGHT STEEL FRAMING DESIGN
418 N. 3rd Street, Suite 420, Milwaukee, WI 53203
Ph: 262-352-3229 adam.hedlicke@lsfengineering.com

CONTRACTOR:
Applewood Drywall Service
N30W22377 Green Road, Suite A
Waukesha, WI 53186

PROJECT
Royster Crossings
521-523 Grand Oak Trail
Madison, WI

TITLE
SECTIONS AND DETAILS

DATE ISSUED 3/20/2018
DATE DRAWN
DRAWN BY DLD

SHEET 7 of 7
PROJECT NO. 1850.2

LSF ENGINEERING LLC

LIGHT STEEL FRAMING DESIGN

LIGHT STEEL FRAMING CALCULATIONS

18502
ROYSTER CROSSINGS
MADISON, WI

JULY 2, 2018

CONTENTS	PAGES
DESIGN CRITERIA	1 – 4
FRAMING CALCULATIONS	5 – 23
TECHNICAL DATA	APPENDIX A

General Notes

General Notes

1. The contractor shall provide complete sets of the most current contract documents, including all supplements and addendums. The contractor shall assume full responsibility for any changes resulting from outdated or incomplete contract documents.

2. The architect and/or engineer of record shall review and approve shop drawings prior to erection of framing.

3. Contents of this submittal show the intended application of cold-formed steel framing components. Framing erector shall refer to the project documents for additional assembly requirements. Framing erector shall notify the project engineer immediately in the event of discrepancy or ambiguity.

4. Verification of the primary structure for loads imposed by the cold-formed steel framing components shall be the responsibility of the engineer of record.

5. Dimensions shown are "±" and are for design purposes only. Actual conditions shall be determined from contract documents and field verified prior to erection.

6. All galvanized steel 97, 68, and 54mil shall be formed from steel that corresponds to the minimum requirements of astm a653 grade d, with a minimum yield of 50,000 psi.

7. All galvanized steel 43 and 33mil shall be formed from steel that corresponds to the requirements of astm a653, grade a, with a minimum yield of 33,000 psi.

8. No substitutions shall be made unless approved in writing.

General Framing Notes

1. Framing members shall be as indicated on these shop drawings.

2. Cutting of framing members shall be accomplished with a saw or shear; torch cutting of framing members shall not be permitted. Framing members shall be cut squarely for installation to perpendicular members or as required for an angular installation against abutting members.

3. Framing members shall not be spiced, notched, or coped without prior engineering review and specific detailing. Loaded framing members shall not be cut without the direct supervision of the project engineer.

4. Framing members shall be held in place until properly fastened. Temporary bracing shall be provided and remain in place until the work is permanently stabilized.

5. Bridging, bracing, blocking, strapping, and web stiffeners shall be as indicated in these shop drawings. Bridging, bracing, blocking, strapping, and web stiffeners shall be installed prior to loading.

General Connection Notes

1. Connections shall be as indicated on these shop drawings. Connectors (fasteners, slide clips, etc.) Shall be installed per manufacturer's specifications.

2. When multiple fasteners are noted, fasteners shall be installed with respect to the minimum spacings and edge distances listed below, unless noted otherwise.

3. Welds shall conform to the requirements of aws d1.3, latest version.

4. Welds shall have a minimumimum throat thickness (t) that matches of exceeds the base steel thickness of the thinnest connected part.

5. Welds shall be touched up using zinc rich paint to prevent corrosion.

Building Design Criteria [ASCE 7-05]

Design Criteria
2009 International Building Code, 2011 Wisconsin Commercial Building Code SPS 362
Minimum Design Loads for Buildings and Other Structures, ASCE Standard 7-05

Building Properties	
Building Category	II
Exposure Category	C
Transverse Dimension, B	128.00 ft
Longitudinal Dimensions, L	419.50 ft
Mean Roof Height, h	50.00 ft
Parapet Height	4.00 ft
Roof Slope, X:12	0:12
Roof Type	Monoslope

Wind Properties	
Velocity, V	90 mph
Enclosure Type	Enclosed

Seismic Properties	
Site Class	D
Mapped Response, S_S	0.106 g
Mapped Response, S_1	0.044 g
Site Coefficient, Fa	1.6
Site Coefficient, Fv	2.4
MCE Response, S_{MS}	0.170
MCE Response, S_{M1}	0.106
Design Response, S_{DS}	0.113
Design Response, S_{D1}	0.070

Snow Properties	
Ground Snow Load, pg	30 psf
Exposure Type	Partially
Thermal Factor, Ct	1.00

Dead Load Properties	
Wall Dead Load	12 psf

Live Load Properties	
Wall Live Load	5 psf

Wall Deflection Limits	
Wall, Metal Panel	L / 240
Wall, EIFS / Plaster / Others	L / 360
Wall, Brick / Stone	L / 600
Primary Structure Movement	0.5 in

Floor/Roof Deflection Limits	

Load Combo	Load Combo [ASCE 7-05]
1	D
2	D + L
3	D + (L_r or S)
4	D + 0.75L + 0.75(Lr or S)
5	D + (W or 0.7E)
6	D + 0.75(W or 0.7E) + 0.75L + 0.75(Lr or S)
7	0.6D + (W or 0.7E)

Wind Design Criteria - C&C Walls [ASCE 7-05]

Velocity Pressure Coefficient, Kz	1.09
Topographic Factor, Kzt	1.00
Directionality Factor, Kd	0.85
Velocity, V	90 mph
Wind Importance Factor, I	1.00

Width of Corner Zone, a	13 ft

Velocity Pressure, qz	19.3 psf

External Pressure Coefficients, GCp	Effective Wind Area, A		
	20 sqft	50 sqft	100 sqft
+Zone 4	0.85	0.79	0.74
+Zone 5	0.85	0.79	0.74
-Zone 4	-0.94	-0.88	-0.83
-Zone 5	-1.16	-1.04	-0.94

Design Wind Pressure, p	Effective Wind Area, A		
	20 sqft	50 sqft	100 sqft
+Zone 4	19.9 psf	18.7 psf	17.8 psf
+Zone 5	19.9 psf	18.7 psf	17.8 psf
-Zone 4	-21.6 psf	-20.4 psf	-19.5 psf
-Zone 5	-25.9 psf	-23.5 psf	-21.6 psf

Parapet Design Wind Pressure, p	Effective Wind Area, A		
	20 sqft	50 sqft	100 sqft
+Zone 4	47.1 psf	40.5 psf	35.5 psf
+Zone 5	47.1 psf	40.5 psf	35.5 psf
-Zone 4	-34.6 psf	-32.2 psf	-30.3 psf
-Zone 5	-38.9 psf	-35.2 psf	-32.5 psf

	20 sqft	50 sqft	100 sqft
Design Interaction	0.83	0.87	0.90
Brick Veneer, L/600	L/719	L/690	L/666
Metal Panel, L/240	L/288	L/276	L/266
Other Finishes, L/360	L/431	L/414	L/400

Design checks at Zone 4 that meet the above criteria are also acceptable at Zone 5.

Seismic Design Criteria - Non-Structural [ASCE 7-05]

Design Short Period Spectral Response, S_{DS}	0.113
Design 1s Period Spectral Response, S_{D1}	0.070
Seismic Design Category	B
Seismic Importance Factor, I	1.00

Wall & Connection Element ap	1.00
Wall & Connection Element Rp	2.50
Connection ap	1.25
Connection Rp	1.00

Seismic Design Force	Component Weight		
	12 psf	18 psf	48 psf
Wall & Connection Elements	0.7 psf	1.0 psf	2.6 psf
Connections	2.0 psf	3.1 psf	8.1 psf

Wind Load Input Worksheet

Design Wind Pressure, p	Effective Wind Area, A		
	20 sqft	50 sqft	100 sqft
+Zone 4	19.9 psf	18.7 psf	17.8 psf
+Zone 5	19.9 psf	18.7 psf	17.8 psf
-Zone 4	-21.6 psf	-20.4 psf	-19.5 psf
-Zone 5	-25.9 psf	-23.5 psf	-21.6 psf

Parapet Design Wind Pressure, p	Effective Wind Area, A		
	20 sqft	50 sqft	100 sqft
+Zone 4			
+Zone 5			
-Zone 4			
-Zone 5			

Soffit Dead Load	12 psf
Stud Spacing	16 in

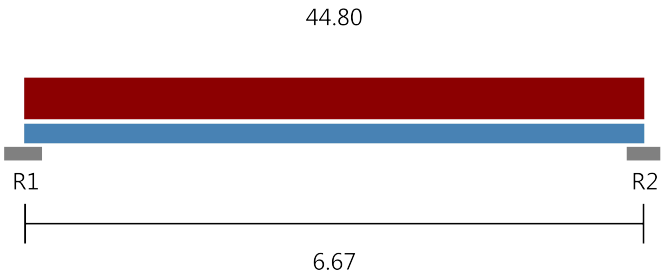
Wall Uniform Wind Load, w	Effective Wind Area, A		
	20 sqft	50 sqft	100 sqft
+Zone 4	26.5 plf	24.9 plf	23.7 plf
+Zone 5	26.5 plf	24.9 plf	23.7 plf
-Zone 4	-28.8 plf	-27.2 plf	-26.0 plf
-Zone 5	-34.6 plf	-31.3 plf	-28.8 plf

Parapet Uniform Wind Load, w	Effective Wind Area, A		
	20 sqft	50 sqft	100 sqft
+Zone 4	0.0 plf	0.0 plf	0.0 plf
+Zone 5	0.0 plf	0.0 plf	0.0 plf
-Zone 4	0.0 plf	0.0 plf	0.0 plf
-Zone 5	0.0 plf	0.0 plf	0.0 plf

Soffit Uniform Dead + Wind Load, w	Effective Wind Area, A		
	20 sqft	50 sqft	100 sqft
+Zone 4	36.1 plf	34.5 plf	33.3 plf
+Zone 5	36.1 plf	34.5 plf	33.3 plf
-Zone 4	-44.8 plf	-43.2 plf	-42.0 plf
-Zone 5	-50.6 plf	-47.3 plf	-44.8 plf

Project Name: 18502 CALCS
Model: S1 SOFFIT (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Reactions

Support	Reactions (lb)
R1	149.41
R2	149.41

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): 8.6% Stressed @R1

Bending and Shear (Stiffened): N/A

Web Stiffeners Required?: No

Section : 362S162-43 (33 ksi) Single C Stud
Maxo = 612.0 Ft-Lb **Va =** 1739.1 lb **I =** 0.71 in^4

Loads have not been modified for strength checks
Loads have not been modified for deflection calculations

Flexural and Deflection Check

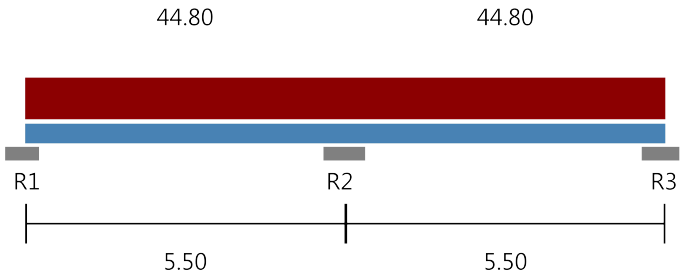
Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Deflection Ratio
Span	249.1	0.407	249.1	72.0	514.4	0.484	0.095	L/840

Distortional Buckling Check

Span	K-phi lb-in/in	Lm Brac in	Ma-d Ft-Lb	Mmax/ Ma-d
Span	0.00	80.0	634.9	0.392

Project Name: 18502 CALCS
Model: S3 SOFFIT (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Reactions

Support	Reactions (lb)
R1	92.40
R2	308.00
R3	92.40

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): 29.1% Stressed @R2

Bending and Shear (Stiffened): N/A

Web Stiffeners Required?: No

Section : 362S162-43 (33 ksi) Single C Stud
Maxo = 612.0 Ft-Lb **Va =** 1739.1 lb **I =** 0.71 in^4

Loads have not been modified for strength checks
Loads have not been modified for deflection calculations

Flexural and Deflection Check

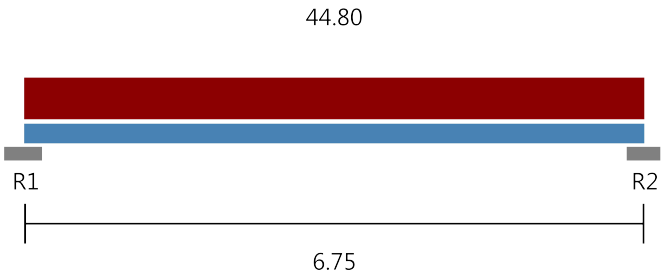
Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Deflection Ratio
Left Span	169.4	0.277	95.3	None	570.7	0.167	0.018	L/3602
Right Span	169.4	0.277	95.3	None	570.7	0.167	0.018	L/3602

Distortional Buckling Check

Span	K-phi lb-in/in	Lm Brac in	Ma-d Ft-Lb	Mmax/ Ma-d
Left Span	0.00	66.0	634.9	0.267
Right Span	0.00	66.0	634.9	0.267

Project Name: 18502 CALCS
Model: S6 SOFFIT (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Reactions

Support	Reactions (lb)
R1	151.20
R2	151.20

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): 8.7% Stressed @R2

Bending and Shear (Stiffened): N/A

Web Stiffeners Required?: No

Section : 362S162-43 (33 ksi) Single C Stud
Maxo = 612.0 Ft-Lb **Va =** 1739.1 lb **I =** 0.71 in^4

Loads have not been modified for strength checks
Loads have not been modified for deflection calculations

Flexural and Deflection Check

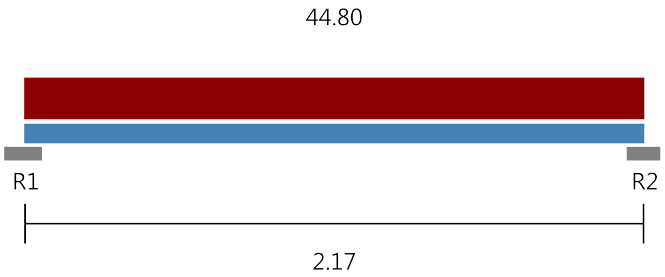
Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Ratio
Span	255.1	0.417	255.1	None	478.9	0.533	0.100	L/811

Distortional Buckling Check

Span	K-phi lb-in/in	Lm Brac in	Ma-d Ft-Lb	Mmax/ Ma-d
Span	0.00	81.0	634.9	0.402

Project Name: 18502 CALCS
Model: S8 SOFFIT (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Reactions

Support	Reactions (lb)
R1	48.61
R2	48.61

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): 2.8% Stressed @R2

Bending and Shear (Stiffened): N/A

Web Stiffeners Required?: No

Section : 362S162-43 (33 ksi) Single C Stud
Maxo = 612.0 Ft-Lb **Va =** 1739.1 lb **I =** 0.71 in^4

Loads have not been modified for strength checks
Loads have not been modified for deflection calculations

Flexural and Deflection Check

Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Ratio
Span	26.4	0.043	26.4	None	612.0	0.043	0.001	L/24394

Distortional Buckling Check

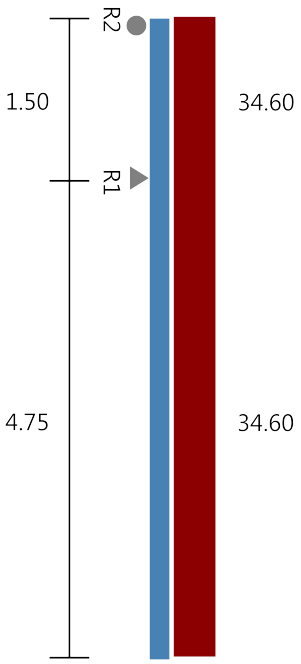
Span	K-phi lb-in/in	Lm Brac in	Ma-d Ft-Lb	Mmax/ Ma-d
Span	0.00	26.0	634.9	0.042

Project Name: 18502 CALCS
Model: S6 STUD (Z5)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1

Section : 600S162-43 (33 ksi) Single C Stud
Maxo = 1390.0 Ft-Lb **Va =** 1415.7 lb **I =** 2.32 in^4

Loads have not been modified for strength checks
Loads have not been modified for deflection calculations



Bridging Connectors - Design Method = AISI S100

Span/CantiLever	Simpson Strong-Tie Bridging Connector	Stress Ratio
Bottom CantiLever	N/A	-
Span	N/A	-

Shear and Web Crippling Checks

Bending and Shear (Unstiffened): 34.6% Stressed @R1
Bending and Shear (Stiffened): N/A
Web Stiffeners Required?: No

Simpson Strong-Tie Connectors

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	450.52	0	By Others & Anchorage Designed by Engineer	NA	NA
R2	-234.27	0	By Others & Anchorage Designed by Engineer	NA	NA

* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Flexural and Deflection Check

Span	Mmax Ft-Lb	Mmax/ Maxo	Mpos Ft-Lb	Bracing (in)	Ma(Brc) Ft-Lb	Mpos/ Ma(Brc)	Deflection (in)	Deflection Ratio
Bottom CantiLever	390.3	0.281	249.2	None	1260.0	0.198	0.079	L/1451
Span	390.3	0.281	305.6	None	1271.1	0.240	0.001	L/13147

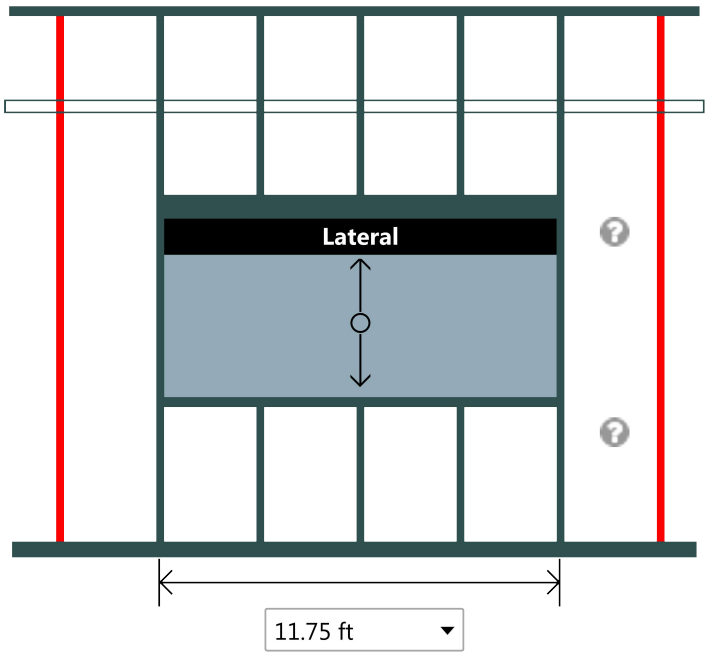
Distortional Buckling Check

Span	K-phi lb-in/in	Lm Brac in	Ma-d Ft-Lb	Mmax/ Ma-d

Bottom CantiLever	0.00	57.0	1205.1	0.324
Span	0.00	18.0	1205.1	0.324

Project Name: 18502 CALCS
Model: S1 OPENING (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Lateral Pressure to: Head/Sill Only

Design Loads

Wall Lateral Pressure : **19.5 psf**

RO Lateral Pressure : **Head/Sill Only**

Lateral Element Forces multiplied by 1 for strength checks

Lateral Forces multiplied by 0.7 for deflection determination

Gravity Load at Header: **12 psf**

+ Additional load from each cripple of 149 lbs at 16 in o.c.

Brace Settings

Component(s)	Members(s)	Flexural Bracing (in)	Axial KyLy (in)	Axial KtLt (in)	Distortional K-Phi(lb-in/in)	Distortional LM(in)	Interconnection Spacing(in)
Wall Studs	600S162-43(33), Single@16 in o/c	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Jamb Studs	600S300-54(50), Single	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Vertical Header	600S162-54(50), Boxed	Full	N/A	N/A	0	None	N/A
Lateral Header	600T125-54(50), Boxed	Full	N/A	N/A	0	None	N/A
Sill	600S350-54(50), Single	Full	N/A	N/A	0	None	N/A

Summary Analysis Results

Component(s)	Members(s)	Axial Load (lb)	Max. Moment (Ft-Lb)	Max. Shear(lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Wall Studs	600S162-43(33), Single@16 in o/c	149.0	667.4	186.3	186.3	186.3
Jamb Studs	600S300-54(50), Single	809.5	1683.0	895.1	895.1	789.7
Vertical Header	600S162-54(50), Boxed	N/A	2378.0	809.5	N/A	809.5
Lateral Header	600T125-54(50), Boxed	N/A	2355.7	801.9	N/A	801.9
Sill	600S350-54(50), Single	N/A	2046.1	696.5	N/A	696.5

Summary Design Results

Component(s)	Members(s)	Deflection		Bending +Axial Interaction	Shear Interaction	Web Stiffners	Design OK
		Span	Parapet				
Wall Studs	600S162-43(33), Single@16 in o/c	L/680	L/0	0.71	0.13	No	Yes

Jamb Studs	600S300-54(50), Single	L/526	L/0	0.83	0.72	R1, R2, P2	Yes
Vertical Header	600S162-54(50), Boxed	L/403	NA	0.47	0.14	No	Yes
Lateral Header	600T125-54(50), Boxed	L/455	NA	0.80	0.15	No	Yes
Sill	600S350-54(50), Single	L/552	NA	0.67	0.25	R1, R2	Yes

Simpson Strong-Tie Connectors @ Studs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	186.29	378.28	By Others & Anchorage Designed by Engineer	NA	NA
R2	186.29	0.00	By Others & Anchorage Designed by Engineer	NA	NA

* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Simpson Strong-Tie Connectors @ Jambs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	895.08	1021.44	By Others & Anchorage Designed by Engineer	NA	NA
R2	789.69	0.00	By Others & Anchorage Designed by Engineer	NA	NA

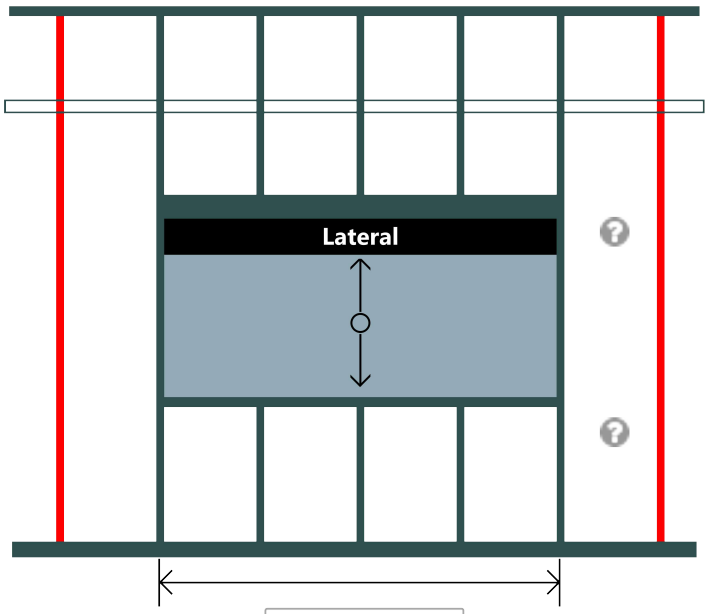
* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Notes:

1) Values in parentheses are stress ratios.
2) Bridging connectors are not designed for back-back,box, or built-up sections.
3) Reference www.strongtie.com for latest load data, important information, and general notes
4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
5) If the bracing length is larger than the span length, bridging connectors are not designed.

Project Name: 18502 CALCS
Model: S5 OPENING (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Lateral Pressure to: Head/Sill Only

Design Loads

Wall Lateral Pressure : **19.5 psf**

RO Lateral Pressure : **Head/Sill Only**

Lateral Element Forces multiplied by 1 for strength checks

Lateral Forces multiplied by 0.7 for deflection determination

Gravity Load at Header: **12 psf**

Brace Settings

Component(s)	Members(s)	Flexural Bracing (in)	Axial KyLy (in)	Axial KtLt (in)	Distortional K-Phi(lb-in/in)	Distortional LM(in)	Interconnection Spacing(in)
Wall Studs	600S162-43(33), Single@16 in o/c	Mid-Pt	None	None	0	None	N/A
Jamb Studs	600S200-68(50), Single	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Vertical Header	600S300-54(50), Y-Y Axis	Full	N/A	N/A	0	None	N/A
Lateral Header	600S300-54(50), Single	Full	N/A	N/A	0	None	N/A
Sill	600T125-54(50), Single	Full	N/A	N/A	0	None	N/A

Summary Analysis Results

Component(s)	Members(s)	Axial Load (lb)	Max. Moment (Ft-Lb)	Max. Shear(lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Wall Studs	600S162-43(33), Single@16 in o/c	0.0	797.0	203.6	203.6	203.6
Jamb Studs	600S200-68(50), Single	115.3	1540.3	661.2	661.2	637.9
Vertical Header	600S300-54(50), Y-Y Axis	N/A	237.9	115.3	N/A	115.3
Lateral Header	600S300-54(50), Single	N/A	1153.9	559.4	N/A	559.4
Sill	600T125-54(50), Single	N/A	1105.7	536.1	N/A	536.1

Summary Design Results

Component(s)	Members(s)	Deflection		Bending +Axial Interaction	Shear Interaction	Web Stiffners	Design OK
		Span	Parapet				
Wall Studs	600S162-43(33), Single@16 in o/c	L/521	L/0	0.93	0.14	No	Yes

Jamb Studs	600S200-68(50), Single	L/430	L/0	0.78	0.45	No	Yes
Vertical Header	600S300-54(50), Y-Y Axis	L/640	NA	0.26	0.02	No	Yes
Lateral Header	600S300-54(50), Single	L/1185	NA	0.47	0.20	No	Yes
Sill	600T125-54(50), Single	L/690	NA	0.75	0.20	R1, R2	Yes

Simpson Strong-Tie Connectors @ Studs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	203.58	250.56	By Others & Anchorage Designed by Engineer	NA	NA
R2	203.58	0.00	By Others & Anchorage Designed by Engineer	NA	NA

* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Simpson Strong-Tie Connectors @ Jambs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	661.23	347.26	By Others & Anchorage Designed by Engineer	NA	NA
R2	637.91	0.00	By Others & Anchorage Designed by Engineer	NA	NA

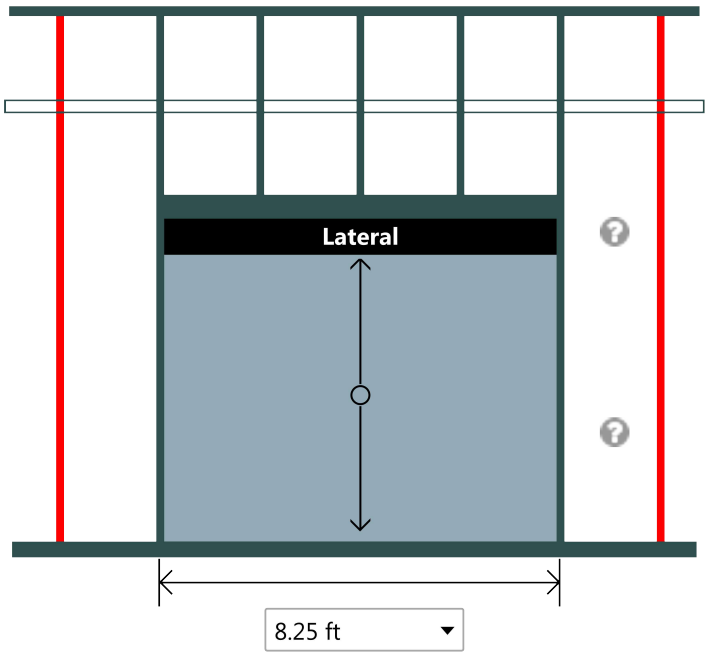
* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Notes:

1) Values in parentheses are stress ratios.
2) Bridging connectors are not designed for back-back,box, or built-up sections.
3) Reference www.strongtie.com for latest load data, important information, and general notes
4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
5) If the bracing length is larger than the span length, bridging connectors are not designed.

Project Name: 18502 CALCS
Model: S6 OPENING (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Lateral Pressure to: Head/Sill Only

Design Loads

Wall Lateral Pressure : **19.5 psf**

RO Lateral Pressure : **Head/Sill Only**

Lateral Element Forces multiplied by 1 for strength checks

Lateral Forces multiplied by 0.7 for deflection determination

Gravity Load at Header: **12 psf**

Brace Settings

Component(s)	Members(s)	Flexural Bracing (in)	Axial KyLy (in)	Axial KtLt (in)	Distortional K-Phi(lb-in/in)	Distortional LM(in)	Interconnection Spacing(in)
Wall Studs	600S162-43(33), Single@16 in o/c	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Jamb Studs	600S300-68(50), Single	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Vertical Header	600S300-68(50), Y-Y Axis	Full	N/A	N/A	0	None	N/A
Lateral Header	600S300-68(50), Single	Full	N/A	N/A	0	None	N/A

Summary Analysis Results

Component(s)	Members(s)	Axial Load (lb)	Max. Moment (Ft-Lb)	Max. Shear(lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Wall Studs	600S162-43(33), Single@16 in o/c	0.0	668.3	186.4	186.4	186.4
Jamb Studs	600S300-68(50), Single	206.4	1981.3	502.2	669.9	502.2
Vertical Header	600S300-68(50), Y-Y Axis	N/A	425.7	206.4	N/A	206.4
Lateral Header	600S300-68(50), Single	N/A	1189.5	576.7	N/A	576.7

Summary Design Results

Component(s)	Members(s)	Deflection		Bending +Axial Interaction	Shear Interaction	Web Stiffners	Design OK
		Span	Parapet				
Wall Studs	600S162-43(33), Single@16 in o/c	L/679	L/0	0.71	0.13	No	Yes
Jamb Studs	600S300-68(50), Single	L/628	L/0	0.61	0.57	No	Yes
Vertical Header	600S300-68(50), Y-Y	L/477	NA	0.37	0.03	No	Yes

Lateral Header	Axis 600S300-68(50), Single	L/1495	NA	0.35	0.11	No	Yes

Simpson Strong-Tie Connectors @ Studs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	186.42	229.44	By Others & Anchorage Designed by Engineer	NA	NA
R2	186.42	0.00	By Others & Anchorage Designed by Engineer	NA	NA

* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Simpson Strong-Tie Connectors @ Jambs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	669.95	402.50	By Others & Anchorage Designed by Engineer	NA	NA
R2	502.23	0.00	By Others & Anchorage Designed by Engineer	NA	NA

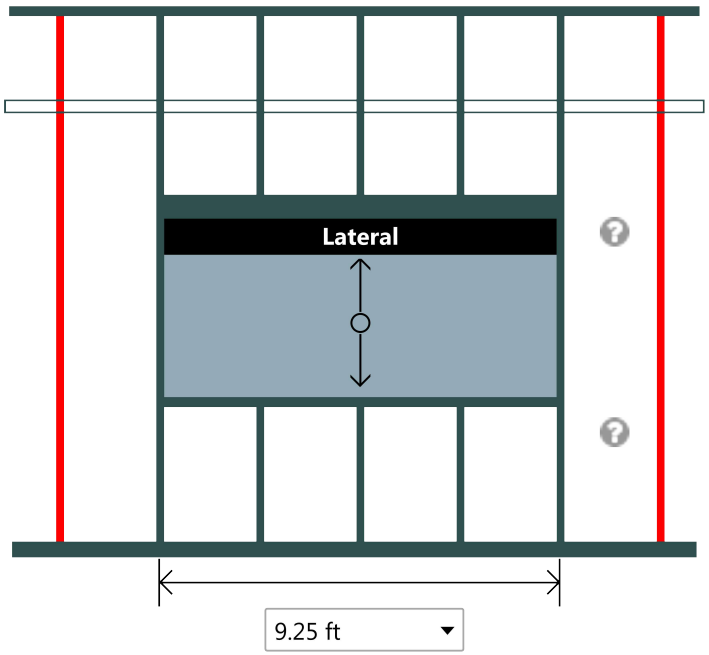
* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Notes:

1) Values in parentheses are stress ratios.
2) Bridging connectors are not designed for back-back,box, or built-up sections.
3) Reference www.strongtie.com for latest load data, important information, and general notes
4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
5) If the bracing length is larger than the span length, bridging connectors are not designed.

Project Name: 18502 CALCS
Model: S8 OPENING (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Lateral Pressure to: Head/Sill Only

Design Loads

Wall Lateral Pressure : **19.5 psf**

RO Lateral Pressure : **Head/Sill Only**

Lateral Element Forces multiplied by 1 for strength checks

Lateral Forces multiplied by 0.7 for deflection determination

Gravity Load at Header: **12 psf**

+ Additional load from each cripple of 48 lbs at 16 in o.c.

Brace Settings

Component(s)	Members(s)	Flexural Bracing (in)	Axial KyLy (in)	Axial KtLt (in)	Distortional K-Phi(lb-in/in)	Distortional LM(in)	Interconnection Spacing(in)
Wall Studs	600S162-54(50), Single@16 in o/c	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Jamb Studs	600S300-97(50), Single	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Vertical Header	600S162-54(50), Boxed	Full	N/A	N/A	0	None	N/A
Lateral Header	600T125-54(50), Boxed	Full	N/A	N/A	0	None	N/A
Sill	600S350-54(50), Single	Full	N/A	N/A	0	None	N/A

Summary Analysis Results

Component(s)	Members(s)	Axial Load (lb)	Max. Moment (Ft-Lb)	Max. Shear(lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Wall Studs	600S162-54(50), Single@16 in o/c	48.0	739.1	196.0	196.0	196.0
Jamb Studs	600S300-97(50), Single	444.0	2600.3	766.8	766.8	552.6
Vertical Header	600S162-54(50), Boxed	N/A	1026.8	444.0	N/A	444.0
Lateral Header	600T125-54(50), Boxed	N/A	1546.5	668.7	N/A	668.7
Sill	600S350-54(50), Single	N/A	1051.1	454.6	N/A	454.5

Summary Design Results

Component(s)	Members(s)	Deflection		Bending +Axial Interaction	Shear Interaction	Web Stiffners	Design OK
		Span	Parapet				
Wall Studs	600S162-54(50), Single@16 in o/c	L/721	L/0	0.61	0.07	No	Yes

Jamb Studs	600S300-97(50), Single	L/627	L/0	0.53	0.48	No	Yes
Vertical Header	600S162-54(50), Boxed	L/1185	NA	0.20	0.08	No	Yes
Lateral Header	600T125-54(50), Boxed	L/880	NA	0.52	0.12	No	Yes
Sill	600S350-54(50), Single	L/1364	NA	0.35	0.16	No	Yes

Simpson Strong-Tie Connectors @ Studs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	196.04	289.28	By Others & Anchorage Designed by Engineer	NA	NA
R2	196.04	0.00	By Others & Anchorage Designed by Engineer	NA	NA

* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Simpson Strong-Tie Connectors @ Jambs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	766.76	645.28	By Others & Anchorage Designed by Engineer	NA	NA
R2	552.57	0.00	By Others & Anchorage Designed by Engineer	NA	NA

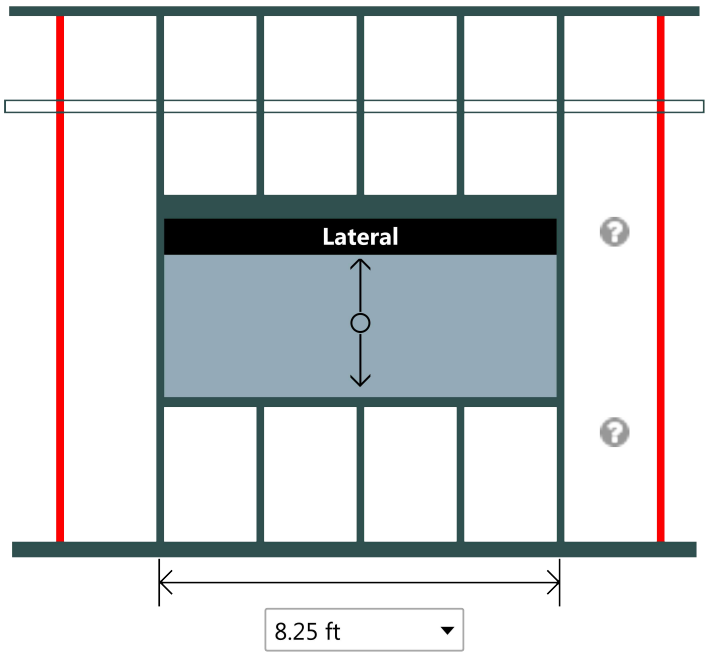
* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Notes:

1) Values in parentheses are stress ratios.
2) Bridging connectors are not designed for back-back,box, or built-up sections.
3) Reference www.strongtie.com for latest load data, important information, and general notes
4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
5) If the bracing length is larger than the span length, bridging connectors are not designed.

Project Name: 18502 CALCS
Model: S7 OPENING (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Lateral Pressure to: Head/Sill Only

Design Loads

Wall Lateral Pressure : **19.5 psf**

RO Lateral Pressure : **Head/Sill Only**

Lateral Element Forces multiplied by 1 for strength checks

Lateral Forces multiplied by 0.7 for deflection determination

Gravity Load at Header: **12 psf**

Brace Settings

Component(s)	Members(s)	Flexural Bracing (in)	Axial KyLy (in)	Axial KtLt (in)	Distortional K-Phi(lb-in/in)	Distortional LM(in)	Interconnection Spacing(in)
Wall Studs	600S162-43(33), Single@16 in o/c	Mid-Pt	None	None	0	None	N/A
Jamb Studs	600S200-68(50), Single	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Vertical Header	600S300-54(50), Y-Y Axis	Full	N/A	N/A	0	None	N/A
Lateral Header	600S300-54(50), Single	Full	N/A	N/A	0	None	N/A
Sill	600T125-54(50), Single	Full	N/A	N/A	0	None	N/A

Summary Analysis Results

Component(s)	Members(s)	Axial Load (lb)	Max. Moment (Ft-Lb)	Max. Shear(lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Wall Studs	600S162-43(33), Single@16 in o/c	0.0	832.0	208.0	208.0	208.0
Jamb Studs	600S200-68(50), Single	132.2	1702.9	677.1	677.1	640.1
Vertical Header	600S300-54(50), Y-Y Axis	N/A	272.6	132.2	N/A	132.2
Lateral Header	600S300-54(50), Single	N/A	1182.1	573.1	N/A	573.1
Sill	600T125-54(50), Single	N/A	1105.7	536.1	N/A	536.1

Summary Design Results

Component(s)	Members(s)	Deflection		Bending +Axial Interaction	Shear Interaction	Web Stiffners	Design OK
		Span	Parapet				
Wall Studs	600S162-43(33), Single@16 in o/c	L/489	L/0	1.00	0.15	No	Yes

Jamb Studs	600S200-68(50), Single	L/388	L/0	0.88	0.50	No	Yes
Vertical Header	600S300-54(50), Y-Y Axis	L/559	NA	0.30	0.02	No	Yes
Lateral Header	600S300-54(50), Single	L/1157	NA	0.48	0.20	No	Yes
Sill	600T125-54(50), Single	L/690	NA	0.75	0.20	R1, R2	Yes

Simpson Strong-Tie Connectors @ Studs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	208.00	256.00	By Others & Anchorage Designed by Engineer	NA	NA
R2	208.00	0.00	By Others & Anchorage Designed by Engineer	NA	NA

* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Simpson Strong-Tie Connectors @ Jambs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	677.12	366.81	By Others & Anchorage Designed by Engineer	NA	NA
R2	640.12	0.00	By Others & Anchorage Designed by Engineer	NA	NA

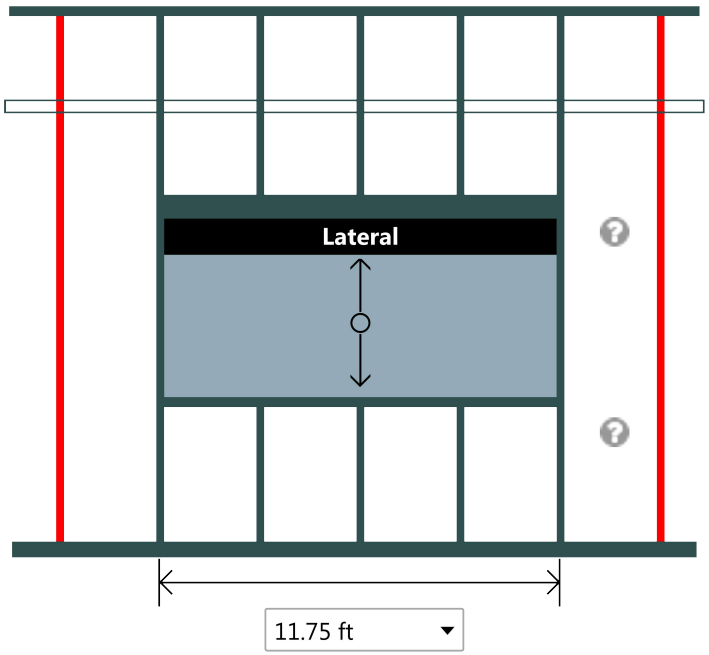
* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Notes:

1) Values in parentheses are stress ratios.
2) Bridging connectors are not designed for back-back,box, or built-up sections.
3) Reference www.strongtie.com for latest load data, important information, and general notes
4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
5) If the bracing length is larger than the span length, bridging connectors are not designed.

Project Name: 18502 CALCS
Model: S3 OPENING (Z4)
Code: 2007 NASPEC [AISI S100-2007]

Date: 07/02/2018
Simpson Strong-Tie® CFS Designer™ 2.5.0.1



Lateral Pressure to: Head/Sill Only

Design Loads

Wall Lateral Pressure : **19.5 psf**

RO Lateral Pressure : **Head/Sill Only**

Lateral Element Forces multiplied by 1 for strength checks

Lateral Forces multiplied by 0.7 for deflection determination

Gravity Load at Header: **12 psf**

+ Additional load from each cripple of 149 lbs at 16 in o.c.

Brace Settings

Component(s)	Members(s)	Flexural Bracing (in)	Axial KyLy (in)	Axial KtLt (in)	Distortional K-Phi(lb-in/in)	Distortional LM(in)	Interconnection Spacing(in)
Wall Studs	600S162-43(33), Single@16 in o/c	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Jamb Studs	600S300-68(50), Single	Mid-Pt	Mid-Pt	Mid-Pt	0	None	N/A
Vertical Header	600S162-54(50), Boxed	Full	N/A	N/A	0	None	N/A
Lateral Header	600T125-54(50), Boxed	Full	N/A	N/A	0	None	N/A
Sill	600T200-68(50), Single	Full	N/A	N/A	0	None	N/A

Summary Analysis Results

Component(s)	Members(s)	Axial Load (lb)	Max. Moment (Ft-Lb)	Max. Shear(lb)	Bottom Reaction (lb)	Top or End Reaction (lb)
Wall Studs	600S162-43(33), Single@16 in o/c	149.0	806.2	204.8	204.8	204.8
Jamb Studs	600S300-68(50), Single	809.5	1976.1	904.3	904.3	880.3
Vertical Header	600S162-54(50), Boxed	N/A	2378.0	809.5	N/A	809.5
Lateral Header	600T125-54(50), Boxed	N/A	2355.7	801.9	N/A	801.9
Sill	600T200-68(50), Single	N/A	2285.0	777.9	N/A	777.9

Summary Design Results

Component(s)	Members(s)	Deflection		Bending +Axial Interaction	Shear Interaction	Web Stiffners	Design OK
		Span	Parapet				
Wall Studs	600S162-43(33), Single@16 in o/c	L/512	L/0	0.95	0.14	No	Yes

Jamb Studs	600S300-68(50), Single	L/419	L/0	0.75	0.60	No	Yes
Vertical Header	600S162-54(50), Boxed	L/403	NA	0.47	0.14	No	Yes
Lateral Header	600T125-54(50), Boxed	L/455	NA	0.80	0.15	No	Yes
Sill	600T200-68(50), Single	L/370	NA	0.94	0.15	R1, R2	Yes

Simpson Strong-Tie Connectors @ Studs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	204.75	401.00	By Others & Anchorage Designed by Engineer	NA	NA
R2	204.75	0.00	By Others & Anchorage Designed by Engineer	NA	NA

* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Simpson Strong-Tie Connectors @ Jambs

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R1	904.31	1044.16	By Others & Anchorage Designed by Engineer	NA	NA
R2	880.25	0.00	By Others & Anchorage Designed by Engineer	NA	NA

* Reference catalog for connector and anchor requirement notes as well as screw placements requirement

Notes:

1) Values in parentheses are stress ratios.
2) Bridging connectors are not designed for back-back,box, or built-up sections.
3) Reference www.strongtie.com for latest load data, important information, and general notes
4) CFS Designer will not select bridging connectors unless all flexural and axial bracing settings are the same.
5) If the bracing length is larger than the span length, bridging connectors are not designed.

TECHNICAL DATA
APPENDIX A

Structural (S) Stud Section Properties

					Gross Properties					Effective Properties						Torsional Properties						
Member	Design Thickness (in)	F_y (ksi)	Area (in^2)	Weight (lb/ft)	I_x (in^4)	S_x (in^3)	R_x (in)	I_y (in^4)	R_y (in)	I_x (in^4)	S_x (in^3)	M_a (in-k)	M_{ad} (in-k)	Va_g (lb)	Va_{net} (lb)	J x 1000 (in^4)	C_w (in^6)	X_o (in)	m (in)	R_o (in)	β	L_u (in)
250S137-33	0.0346	33	0.197	0.67	0.203	0.163	1.015	0.052	0.515	0.203	0.158	3.11	3.09	975	399	0.079	0.076	-1.141	0.677	1.612	0.499	35.6
250S137-43	0.0451	33	0.255	0.87	0.261	0.208	1.011	0.067	0.511	0.261	0.205	4.53	4.60	1265	394	0.173	0.096	-1.129	0.670	1.599	0.501	33.6
250S137-54	0.0566	33	0.316	1.07	0.318	0.255	1.004	0.080	0.504	0.318	0.255	5.76	5.76	1553	373	0.337	0.115	-1.115	0.663	1.583	0.504	33.4
250S137-54	0.0566	50	0.316	1.07	0.318	0.255	1.004	0.080	0.504	0.318	0.244	8.22	8.34	2353	565	0.337	0.115	-1.115	0.663	1.583	0.504	27.1
250S137-68	0.0713	33	0.390	1.33	0.386	0.309	0.995	0.096	0.495	0.386	0.309	7.20	7.20	1891	342	0.661	0.138	-1.096	0.653	1.561	0.507	33.1
250S137-68	0.0713	50	0.390	1.33	0.386	0.309	0.995	0.096	0.495	0.386	0.308	10.66	10.68	2866	519	0.661	0.138	-1.096	0.653	1.561	0.507	26.8
250S162-33	0.0346	33	0.223	0.76	0.235	0.188	1.027	0.087	0.624	0.235	0.180	3.55	3.56	975	399	0.089	0.146	-1.470	0.859	1.898	0.401	44.1
250S162-43	0.0451	33	0.289	0.98	0.302	0.242	1.022	0.111	0.620	0.302	0.240	5.22	5.25	1265	394	0.196	0.184	-1.457	0.852	1.885	0.402	42.1
250S162-54	0.0566	33	0.358	1.22	0.370	0.296	1.016	0.135	0.613	0.370	0.296	6.57	6.57	1553	373	0.383	0.223	-1.443	0.845	1.868	0.404	41.8
250S162-54	0.0566	50	0.358	1.22	0.370	0.296	1.016	0.135	0.613	0.370	0.284	9.42	9.46	2353	565	0.383	0.223	-1.443	0.845	1.868	0.404	33.9
250S162-68	0.0713	33	0.443	1.51	0.450	0.360	1.008	0.162	0.605	0.450	0.360	8.21	8.21	1891	342	0.752	0.268	-1.424	0.835	1.847	0.405	41.7
250S162-68	0.0713	50	0.443	1.51	0.450	0.360	1.008	0.162	0.605	0.450	0.357	12.11	12.21	2866	519	0.752	0.268	-1.424	0.835	1.847	0.405	33.7
350S162-33	0.0346	33	0.258	0.88	0.508	0.291	1.404	0.098	0.617	0.508	0.257	5.09	5.22	1024	487	0.103	0.277	-1.324	0.796	2.026	0.573	42.7
350S162-43	0.0451	33	0.334	1.14	0.655	0.374	1.400	0.125	0.612	0.654	0.357	7.05	7.31	1739	631	0.227	0.350	-1.312	0.789	2.014	0.575	42.6
350S162-54	0.0566	33	0.415	1.41	0.805	0.460	1.393	0.152	0.606	0.804	0.447	8.83	9.08	2253	633	0.443	0.426	-1.298	0.782	1.998	0.578	42.7
350S162-54	0.0566	50	0.415	1.41	0.805	0.460	1.393	0.152	0.606	0.804	0.426	12.74	13.05	3372	947	0.443	0.426	-1.298	0.782	1.998	0.578	34.5
350S162-68	0.0713	33	0.515	1.75	0.985	0.563	1.383	0.184	0.597	0.985	0.551	12.57	12.83	2774	592	0.872	0.514	-1.280	0.772	1.977	0.581	39.7
350S162-68	0.0713	50	0.515	1.75	0.985	0.563	1.383	0.184	0.597	0.985	0.549	16.44	16.85	4203	897	0.872	0.514	-1.280	0.772	1.977	0.581	34.5
350S162-97	0.1017	33	0.711	2.42	1.321	0.755	1.363	0.238	0.579	1.321	0.739	17.72	14.92	3765	511	2.452	0.672	-1.242	0.752	1.932	0.587	43.6
350S162-97	0.1017	50	0.711	2.42	1.321	0.755	1.363	0.238	0.579	1.321	0.739	26.20	22.60	5705	775	2.452	0.672	-1.242	0.752	1.932	0.587	34.7
350S200-43	0.0451	33	0.379	1.29	0.771	0.441	1.426	0.224	0.768	0.771	0.410	8.09	8.36	1739	631	0.257	0.687	-1.748	1.032	2.383	0.462	53.7
350S200-54	0.0566	33	0.471	1.60	0.950	0.543	1.420	0.274	0.762	0.950	0.530	10.48	10.73	2253	633	0.503	0.838	-1.733	1.024	2.367	0.464	53.8
350S200-54	0.0566	50	0.471	1.60	0.950	0.543	1.420	0.274	0.762	0.950	0.470	14.07	14.87	3372	947	0.503	0.838	-1.733	1.024	2.367	0.464	43.5
350S200-68	0.0713	33	0.586	1.99	1.167	0.667	1.411	0.333	0.754	1.167	0.655	14.59	13.18	2774	592	0.993	1.018	-1.715	1.014	2.345	0.465	54.1
350S200-68	0.0713	50	0.586	1.99	1.167	0.667	1.411	0.333	0.754	1.167	0.638	19.11	19.68	4203	897	0.993	1.018	-1.715	1.014	2.345	0.465	43.5
350S200-97	0.1017	33	0.813	2.77	1.577	0.901	1.393	0.440	0.736	1.577	0.885	20.58	17.81	3765	511	2.803	1.347	-1.676	0.994	2.300	0.469	55.0
350S200-97	0.1017	50	0.813	2.77	1.577	0.901	1.393	0.440	0.736	1.577	0.885	30.53	26.98	5705	775	2.803	1.347	-1.676	0.994	2.300	0.469	43.9
362S137-33	0.0346	33	0.236	0.80	0.479	0.264	1.424	0.059	0.501	0.479	0.232	4.59	4.73	1024	521	0.094	0.165	-1.003	0.615	1.813	0.694	34.7
362S137-43	0.0451	33	0.306	1.04	0.616	0.340	1.419	0.075	0.497	0.616	0.320	6.33	6.66	1739	676	0.207	0.208	-0.991	0.608	1.801	0.697	34.6
362S137-54	0.0566	33	0.379	1.29	0.756	0.417	1.412	0.091	0.490	0.756	0.402	7.95	8.24	2341	705	0.405	0.251	-0.978	0.601	1.786	0.700	34.6
362S137-54	0.0566	50	0.379	1.29	0.756	0.417	1.412	0.091	0.490	0.756	0.382	11.42	11.91	3372	1016	0.405	0.251	-0.978	0.601	1.786	0.700	27.9
362S137-68	0.0713	33	0.470	1.60	0.923	0.509	1.401	0.109	0.481	0.923	0.498	9.84	10.06	2884	662	0.797	0.302	-0.959	0.592	1.765	0.704	34.6
362S137-68	0.0713	50	0.470	1.60	0.923	0.509	1.401	0.109	0.481	0.923	0.493	14.77	15.24	4370	1004	0.797	0.302	-0.959	0.592	1.765	0.704	27.8
362S162-33	0.0346	33	0.262	0.89	0.551	0.304	1.450	0.099	0.616	0.551	0.268	5.29	5.43	1024	521	0.105	0.297	-1.308	0.789	2.048	0.592	42.6
362S162-43	0.0451	33	0.340	1.16	0.710	0.392	1.445	0.127	0.611	0.710	0.372	7.34	7.62	1739	676	0.230	0.376	-1.297	0.782	2.036	0.594	42.5
362S162-54	0.0566	33	0.422	1.44	0.873	0.482	1.438	0.154	0.605	0.873	0.467	9.22	9.52	2341	705	0.451	0.457	-1.283	0.774	2.020	0.597	42.5
362S162-54	0.0566	50	0.422	1.44	0.873	0.482	1.438	0.154	0.605	0.873	0.444	13.28	13.60	3372	1016	0.451	0.457	-1.283	0.774	2.020	0.597	34.4
362S162-68	0.0713	33	0.524	1.78	1.069	0.590	1.429	0.186	0.596	1.069	0.579	11.43	11.65	2884	662	0.887	0.552	-1.264	0.765	1.999	0.600	42.7
362S162-68	0.0713	50	0.524	1.78	1.069	0.590	1.429	0.186	0.596	1.069	0.574	17.19	17.66	4370	1004	0.887	0.552	-1.264	0.765	1.999	0.600	34.4
362S162-97	0.1017	33	0.724	2.46	1.436	0.792	1.408	0.241	0.577	1.436	0.776	18.63	15.65	3922	577	2.496	0.723	-1.226	0.745	1.954	0.606	43.3
362S162-97	0.1017	50	0.724	2.46	1.436	0.792	1.408	0.241	0.577	1.436	0.776	27.54	23.71	5943	875	2.496	0.723	-1.226	0.745	1.954	0.606	34.5
362S200-33	0.0346	33	0.297	1.01	0.648	0.358	1.478	0.177	0.772	0.642	0.294	5.81	6.19	1024	521	0.118	0.577	-1.741	1.030	2.411	0.478	53.6
362S200-43	0.0451	33	0.385	1.31	0.836	0.461	1.474	0.227	0.767	0.836	0.427	8.43	8.70	1739	676	0.261	0.734	-1.729	1.024	2.398	0.480	53.5
362S200-54	0.0566	33	0.479	1.63	1.030	0.568	1.467	0.277	0.761	1.030	0.553	10.93	11.23	2341	705	0.511	0.896	-1.715	1.016	2.382	0.482	53.6
362S200-54	0.0566	50	0.479	1.63	1.030	0.568	1.467	0.277	0.761	1.030	0.490	14.66	15.48	3372	1016	0.511	0.896	-1.715	1.016	2.382	0.482	43.3
362S200-68	0.0713	33	0.595	2.02	1.266	0.698	1.458	0.337	0.753	1.266	0.687	15.29	15.54	2884	662	1.008	1.089	-1.696	1.006	2.360	0.484	50.6
362S200-68	0.0713	50	0.595	2.02	1.266	0.698	1.458	0.337	0.753	1.266	0.666	19.95	20.52	4370	1004	1.008	1.089	-1.696	1.006	2.360	0.484	43.3
362S200-97	0.1017	33	0.826	2.81	1.712	0.945	1.440	0.446	0.735	1.712	0.929	21.60	18.66	3922	577	2.847	1.441	-1.658	0.986	2.316	0.487	54.7
362S200-97	0.1017	50	0.826	2.81	1.712	0.945	1.440	0.446	0.735	1.712	0.929	32.04	28.28	5943	875	2.847	1.441	-1.658	0.986	2.316	0.487	43.6
362S250-332	0.0346	33	0.331	1.13	0.760	0.419	1.514	0.299	0.951				6.59	1024	521	0.132	0.965	-2.211	1.284	2.844	0.395	64.2
362S250-43	0.0451	33	0.430	1.46	0.980	0.541	1.510	0.385	0.946	0.980	0.449	8.88	9.36	1739	676	0.292	1.230	-2.199	1.277	2.830	0.396	64.1
362S250-54	0.0566	33	0.535	1.82	1.210	0.668	1.504	0.473	0.940	1.210	0.582	11.51	12.46	2341	705	0.571	1.506	-2.184	1.269	2.813	0.397	64.3
362S250-54	0.0566	50	0.535	1.82	1.210	0.668	1.504	0.473	0.940	1.198	0.514	15.40	16.55	3372	1016	0.571	1.506	-2.184	1.269	2.813	0.397	52.0
362S250-68	0.0713	33	0.666	2.27	1.491	0.823	1.496	0.578	0.931	1.491	0.782	17.03	16.25	2884	662	1.129	1.837	-2.165	1.259	2.791	0.398	64.6
362S250-68	0.0713	50	0.666	2.27	1.491	0.823	1.496	0.578	0.931	1.491	0.689	20.64	22.18	4370	1004	1.129	1.837	-2.165	1.259	2.791	0.398	52.0
362S250-97	0.1017	33	0.927	3.16	2.028	1.119	1.479	0.773	0.913	2.028	1.103	24.91	22.11	3922	577	3.197	2.452	-2.126	1.239	2.746	0.401	65.7
362S250-97	0.1017	50	0.927	3.16	2.028	1.119	1.479	0.773	0.913	2.028	1.056	35.51	33.49	5943	875	3.197	2.452	-2.126	1.239	2.746	0.401	52.5
362S300-332	0.0346	33	0.366	1.24	0.871	0.481	1.543	0.463	1.125				6.89	1024	521	0.146	1.478	-2.686	1.537	3.296	0.336	74.3
362S300-432	0.0451	33	0.475	1.62	1.125	0.621	1.539	0.596	1.120				9.85	1739	676	0.322	1.888	-2.674	1.530	3.282	0.336	74.3
362S300-54	0.0566	33	0.592	2.01	1.391	0.767	1.533	0.734	1.114	1.379	0.607	11.99	13.22	2341	705	0.632	2.316	-2.659	1.522	3.265	0.337	74.5
362S300-54	0.0566	50	0.592	2.01	1.391	0.767	1.533	0.734	1.114	1.295	0.529	15.83	17.35	3372	1016	0.632	2.316	-2.659	1.522	3.265	0.337	60.2
362S300-68	0.0713	33	0.738	2.51	1.716	0.947	1.525	0.900	1.105	1.715	0.811	16.02	17.65	2884	662	1.250	2.833	-2.640	1.512	3.243	0.337	74.9
362S300-68	0.0713	50	0.738	2.51	1.716	0.947	1.525	0.900	1.105	1.681	0.716	21.45	23.43	4370	1004	1.250	2.833	-2.640	1.512	3.243	0.337	60.4
362S300-97	0.1017	33	1.029	3.50	2.343	1.293	1.509	1.213	1.086	2.343	1.226	27.15	25.55	3922	577	3.548	3.803	-2.600	1.491	3.196	0.338	76.2
362S300-97	0.1017	50	1.029	3.50	2.343	1.293	1.509	1.213	1.086	2.318	1.150	34.44	36.43	5943	875	3.548	3.803	-2.600	1.491	3.196	0.338	60.9

[1] Web-height-to-thickness ratio exceeds 200. Web Stiffeners are required at all support points and concentric loads. Suitability of web holes must be evaluated independently.

[2] When web height-to thickness ratio exceeds 260, or flange width-to-thickness ratio exceeds 60, effective properties are not calculated (limitations in AISI section B1).

See Section Properties Table Notes on page 5.

Structural (S) Stud Section Properties

Member	Design Thickness (in)	F_y (ksi)	Area (in^2)	Weight (lb/ft)	Gross Properties I_x (in^4)	S_x (in^3)	R_x (in)	I_y (in^4)	R_y (in)	Effective Properties I_x (in^4)	S_x (in^3)	M_a (in-k)	M_{ad} (in-k)	Va_g (lb)	Va_{net} (lb)	Torsional Properties J x 1000 (in^4)	C_w (in^6)	X_o (in)	m (in)	R_o (in)	β	L_u (in)
600S162-33	0.0346	33	0.344	1.17	1.793	0.598	2.282	0.116	0.581	1.793	0.577	11.41	9.47	638	638	0.137	0.861	-1.072	0.677	2.588	0.828	41.1
600S162-43	0.0451	33	0.447	1.52	2.316	0.772	2.277	0.148	0.576	2.316	0.767	16.68	14.47	1416	1240	0.303	1.095	-1.062	0.670	2.577	0.830	40.9
600S162-54	0.0566	33	0.556	1.89	2.861	0.954	2.268	0.180	0.570	2.860	0.953	21.17	19.76	2739	1890	0.594	1.337	-1.049	0.663	2.563	0.833	40.7
600S162-54	0.0566	50	0.556	1.89	2.861	0.954	2.268	0.180	0.570	2.860	0.916	30.33	25.91	2823	1947	0.594	1.337	-1.049	0.663	2.563	0.833	33.0
600S162-68	0.0713	33	0.693	2.36	3.526	1.175	2.256	0.218	0.561	3.525	1.175	26.79	26.79	4347	2339	1.174	1.626	-1.032	0.655	2.543	0.835	40.6
600S162-68	0.0713	50	0.693	2.36	3.526	1.175	2.256	0.218	0.561	3.525	1.164	39.47	35.71	5350	2879	1.174	1.626	-1.032	0.655	2.543	0.835	32.8
600S162-97	0.1017	33	0.966	3.28	4.799	1.600	2.229	0.283	0.542	4.798	1.599	38.38	38.39	6911	2512	3.329	2.153	-0.997	0.636	2.501	0.841	40.3
600S162-97	0.1017	50	0.966	3.28	4.799	1.600	2.229	0.283	0.542	4.798	1.599	56.73	56.75	10472	3806	3.329	2.153	-0.997	0.636	2.501	0.841	32.5
600S162-118	0.1242	33	1.158	3.94	5.655	1.885	2.209	0.322	0.527	5.654	1.885	46.83	46.84	8267	2391	5.956	2.487	-0.971	0.623	2.470	0.846	40.2
600S162-118	0.1242	50	1.158	3.94	5.655	1.885	2.209	0.322	0.527	5.654	1.885	68.95	68.97	12526	3622	5.956	2.487	-0.971	0.623	2.470	0.846	32.3
600S200-33	0.0346	33	0.379	1.29	2.076	0.692	2.340	0.209	0.743	2.058	0.621	12.28	10.77	638	638	0.151	1.593	-1.457	0.901	2.855	0.740	51.6
600S200-43	0.0451	33	0.492	1.67	2.683	0.894	2.335	0.268	0.739	2.683	0.873	17.24	15.39	1416	1240	0.334	2.033	-1.446	0.894	2.844	0.742	51.4
600S200-54	0.0566	33	0.613	2.09	3.320	1.107	2.327	0.329	0.732	3.319	1.106	24.07	22.08	2739	1890	0.655	2.493	-1.432	0.887	2.829	0.744	51.3
600S200-54	0.0566	50	0.613	2.09	3.320	1.107	2.327	0.329	0.732	3.319	1.015	30.40	27.39	2823	1947	0.655	2.493	-1.432	0.887	2.829	0.744	41.6
600S200-68	0.0713	33	0.764	2.60	4.102	1.367	2.316	0.400	0.723	4.101	1.367	30.42	29.98	4347	2339	1.295	3.047	-1.415	0.878	2.809	0.746	51.2
600S200-68	0.0713	50	0.764	2.60	4.102	1.367	2.316	0.400	0.723	4.101	1.317	43.71	39.71	5350	2879	1.295	3.047	-1.415	0.878	2.809	0.746	41.4
600S200-97	0.1017	33	1.067	3.63	5.614	1.871	2.293	0.530	0.705	5.613	1.871	43.50	43.51	6911	2512	3.679	4.080	-1.378	0.859	2.767	0.752	51.1
600S200-97	0.1017	50	1.067	3.63	5.614	1.871	2.293	0.530	0.705	5.613	1.871	64.54	63.70	10472	3806	3.679	4.080	-1.378	0.859	2.767	0.752	41.2
600S200-118	0.1242	33	1.283	4.36	6.643	2.214	2.276	0.612	0.691	6.643	2.214	53.07	53.07	8267	2391	6.595	4.753	-1.351	0.845	2.736	0.756	51.1
600S200-118	0.1242	50	1.283	4.36	6.643	2.214	2.276	0.612	0.691	6.643	2.214	78.46	78.47	12526	3622	6.595	4.753	-1.351	0.845	2.736	0.756	41.1
600S250-43	0.0451	33	0.537	1.83	3.083	1.028	2.396	0.458	0.923	3.083	0.918	18.14	16.21	1416	1240	0.364	3.411	-1.874	1.136	3.179	0.652	62.4
600S250-54	0.0566	33	0.670	2.28	3.820	1.273	2.389	0.562	0.917	3.819	1.159	22.90	21.90	2739	1890	0.715	4.194	-1.860	1.129	3.163	0.654	62.3
600S250-54	0.0566	50	0.670	2.28	3.820	1.273	2.389	0.562	0.917	3.766	1.069	32.00	28.72	2823	1947	0.715	4.194	-1.860	1.129	3.163	0.654	50.5
600S250-68	0.0713	33	0.836	2.84	4.728	1.576	2.379	0.688	0.908	4.727	1.508	32.83	31.52	4347	2339	1.416	5.145	-1.842	1.119	3.142	0.657	62.2
600S250-68	0.0713	50	0.836	2.84	4.728	1.576	2.379	0.688	0.908	4.724	1.386	41.50	39.08	5350	2879	1.416	5.145	-1.842	1.119	3.142	0.657	50.4
600S250-97	0.1017	33	1.169	3.98	6.498	2.166	2.358	0.923	0.889	6.497	2.161	48.81	48.93	6911	2512	4.030	6.947	-1.803	1.100	3.099	0.661	62.2
600S250-97	0.1017	50	1.169	3.98	6.498	2.166	2.358	0.923	0.889	6.497	2.063	69.39	66.84	10472	3806	4.030	6.947	-1.803	1.100	3.099	0.661	50.2
600S250-118	0.1242	33	1.407	4.79	7.715	2.572	2.342	1.076	0.875	7.715	2.572	59.60	59.60	8267	2391	7.234	8.142	-1.775	1.085	3.066	0.665	57.3
600S250-118	0.1242	50	1.407	4.79	7.715	2.572	2.342	1.076	0.875	7.715	2.498	85.94	86.87	12526	3622	7.234	8.142	-1.775	1.085	3.066	0.665	46.7
600S300-54	0.0566	33	0.726	2.47	4.320	1.440	2.439	0.875	1.098	4.269	1.211	23.93	22.81	2739	1890	0.775	6.452	-2.299	1.372	3.527	0.575	72.8
600S300-54	0.0566	50	0.726	2.47	4.320	1.440	2.439	0.875	1.098	4.015	1.106	33.13	29.63	2823	1947	0.775	6.452	-2.299	1.372	3.527	0.575	59.1
600S300-68	0.0713	33	0.907	3.09	5.355	1.785	2.430	1.075	1.089	5.344	1.581	31.24	30.89	4347	2339	1.537	7.937	-2.280	1.363	3.506	0.577	72.8
600S300-68	0.0713	50	0.907	3.09	5.355	1.785	2.430	1.075	1.089	5.222	1.446	43.30	40.54	5350	2879	1.537	7.937	-2.280	1.363	3.506	0.577	58.9
600S300-97	0.1017	33	1.271	4.32	7.383	2.461	2.410	1.454	1.070	7.382	2.353	52.08	52.42	6911	2512	4.381	10.776	-2.241	1.343	3.461	0.581	68.8
600S300-97	0.1017	50	1.271	4.32	7.383	2.461	2.410	1.454	1.070	7.281	2.248	67.29	64.70	10472	3806	4.381	10.776	-2.241	1.343	3.461	0.581	58.8
600S300-118	0.1242	33	1.531	5.21	8.787	2.929	2.396	1.705	1.055	8.787	2.841	64.31	66.30	8267	2391	7.872	12.683	-2.212	1.328	3.427	0.583	68.1
600S300-118	0.1242	50	1.531	5.21	8.787	2.929	2.396	1.705	1.055	8.713	2.797	94.26	90.41	12526	3622	7.872	12.683	-2.212	1.328	3.427	0.583	55.4
600S350-54	0.0566	33	0.825	2.81	5.023	1.674	2.467	1.491	1.344	4.912	1.453	28.70	27.98	2739	1890	0.881	12.942	-3.037	1.787	4.137	0.461	91.8
600S350-54	0.0566	50	0.825	2.81	5.023	1.674	2.467	1.491	1.344	4.722	1.335	39.98	36.57	2823	1947	0.881	12.942	-3.037	1.787	4.137	0.461	74.4
600S350-68	0.0713	33	1.032	3.51	6.238	2.079	2.459	1.841	1.336	6.237	1.949	38.51	37.64	4347	2339	1.748	15.968	-3.018	1.777	4.116	0.462	91.8
600S350-68	0.0713	50	1.032	3.51	6.238	2.079	2.459	1.841	1.336	6.167	1.771	53.02	49.71	5350	2879	1.748	15.968	-3.018	1.777	4.116	0.462	74.4
600S350-97	0.1017	33	1.449	4.93	8.633	2.878	2.441	2.518	1.318	8.632	2.823	61.56	62.50	6911	2512	4.994	21.811	-2.979	1.757	4.071	0.464	87.5
600S350-97	0.1017	50	1.449	4.93	8.633	2.878	2.441	2.518	1.318	8.632	2.594	77.65	78.38	10472	3806	4.994	21.811	-2.979	1.757	4.071	0.464	74.4
600S350-118	0.1242	33	1.748	5.95	10.306	3.435	2.428	2.979	1.305	10.306	3.435	76.41	76.41	8267	2391	8.990	25.791	-2.951	1.742	4.038	0.466	86.9
600S350-118	0.1242	50	1.748	5.95	10.306	3.435	2.428	2.979	1.305	10.306	3.268	108.45	107.70	12526	3622	8.990	25.791	-2.951	1.742	4.038	0.466	70.6
800S137-33[1]	0.0346	33	0.388	1.32	3.199	0.800	2.873	0.073	0.435	2.998	0.622	12.30	10.72	474	474	0.155	0.957	-0.696	0.460	2.988	0.946	32.5
800S137-43	0.0451	33	0.503	1.71	4.135	1.034	2.866	0.093	0.430	4.001	0.896	17.70	15.78	1051	1051	0.341	1.214	-0.687	0.454	2.979	0.947	32.2
800S137-54	0.0566	33	0.627	2.13	5.111	1.278	2.855	0.112	0.423	5.077	1.179	23.29	21.75	2091	2091	0.670	1.478	-0.676	0.448	2.964	0.948	32.0
800S137-54	0.0566	50	0.627	2.13	5.111	1.278	2.855	0.112	0.423	4.974	1.083	32.43	28.49	2091	2091	0.670	1.478	-0.676	0.448	2.964	0.948	25.9
800S137-68	0.0713	33	0.782	2.66	6.305	1.576	2.839	0.134	0.414	6.303	1.541	30.45	29.77	4221	3367	1.325	1.789	-0.661	0.440	2.944	0.950	31.6
800S137-68	0.0713	50	0.782	2.66	6.305	1.576	2.839	0.134	0.414	6.286	1.468	43.97	39.60	4221	3367	1.325	1.789	-0.661	0.440	2.944	0.950	25.6
800S137-97	0.1017	33	1.093	3.72	8.601	2.150	2.806	0.170	0.394	8.598	2.150	53.09	53.11	8843	4824	3.767	2.349	-0.630	0.423	2.902	0.953	27.6
800S137-97	0.1017	50	1.093	3.72	8.601	2.150	2.806	0.170	0.394	8.598	2.150	64.36	63.95	10885	5938	3.767	2.349	-0.630	0.423	2.902	0.953	25.1
800S162-33[1]	0.0346	33	0.413	1.41	3.583	0.896	2.944	0.125	0.550	3.385	0.710	14.03	12.61	474	474	0.165	1.630	-0.936	0.607	3.138	0.911	40.1
800S162-43	0.0451	33	0.537	1.83	4.635	1.159	2.938	0.160	0.546	4.500	1.019	20.14	18.34	1051	1051	0.364	2.076	-0.926	0.601	3.128	0.912	39.8
800S162-54	0.0566	33	0.670	2.28	5.737	1.434	2.927	0.194	0.539	5.702	1.334	26.36	24.99	2091	2091	0.715	2.539	-0.914	0.594	3.114	0.914	39.6
800S162-54	0.0566	50	0.670	2.28	5.737	1.434	2.927	0.194	0.539	5.600	1.229	36.79	32.83	2091	2091	0.715	2.539	-0.914	0.594	3.114	0.914	32.1
800S162-68	0.0713	33	0.836	2.84	7.092	1.773	2.913	0.235	0.530	7.090	1.737	34.33	33.86	4221	3367	1.416	3.093	-0.899	0.586	3.094	0.916	39.3
800S162-68	0.0713	50	0.836	2.84	7.092	1.773	2.913	0.235	0.530	7.070	1.664	49.81	45.13	4221	3367	1.416	3.093	-0.899	0.586	3.094	0.916	31.9
800S162-97	0.1017	33	1.169	3.98	9.717	2.429	2.883	0.305	0.511	9.714	2.429	58.28	58.29	8843	4824	4.030	4.114	-0.866	0.568	3.053	0.920	35.1
800S162-97	0.1017	50	1.169	3.98	9.717	2.429	2.883	0.305	0.511	9.714	2.429	72.71	71.98	10885	5938	4.030	4.114	-0.866	0.568	3.053	0.920	31.4
800S162-118	0.1242	33	1.407	4.79	11.509	2.877	2.860	0.347	0.496	11.506	2.876	71.48	71.50	11341	4971	7.234	4.766	-0.842	0.556	3.023	0.922	34.2
800S162-118	0.1242	50	1.407	4.79	11.509	2.877	2.860	0.347	0.496	11.506	2.876	105.24	105.27	16235	7115	7.234	4.766	-0.842	0.556	3.023	0.922	28.0

[1] Web-height-to-thickness ratio exceeds 200. Web Stiffeners are required at all support points and concentric loads. Suitability of web holes must be evaluated independently.

[2] When web height-to thickness ratio exceeds 260, or flange width-to-thickness ratio exceeds 60, effective properties are not calculated (limitations in AISI section B1).

See Section Properties Table Notes on page 5.

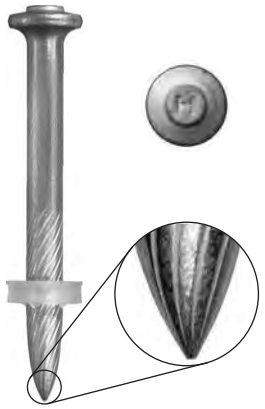
3.2.3 X-U Universal Knurled Shank Fasteners

3.2.3.1 Product Description

3.2.3.2 Material Specifications

3.2.3.3 Technical Data

3.2.3.4 Ordering Information



3.2.3.1 Product Description

The Hilti X-U universal knurled shank fastener is designed as a high performance solution to simplify powder-actuated fastener selection. The X-U is one fastener type that performs equally well on both high and standard strength concrete and steel.

To help ensure reliable fastenings, the X-U fastener has matched tolerance to all Hilti powder-actuated tools using 8 mm fastener guides and drive pistons through an 8 mm nail head diameter and an 8 mm plastic guidance washer set near the nail tip. The X-U program also includes fasteners with pre-mounted steel washers of 15 mm or 36 mm.

Product Features

- A 0.157" shank diameter for high performance in both tension and shear applications
- Unique knurling design offering higher pullout strength and anchorage in concrete and steel
- Full range of fasteners in single or collated configurations to maximize productivity
- No requirement for unique drive pistons or special equipment
- Recognized for horizontal wood deck diaphragms subjected to wind or seismic forces (Reference ICC-ES ESR-2269)

Listings/Approvals

ICC-ES (International Code Council)
ESR-2269

COLA (City of Los Angeles)
RR 25675

3.2.3.2 Material Specifications

Fastener Designation	Fastener Material	Fastener Plating	Fastener Hardness
X-U	Carbon Steel	5 µm Zinc[1]	58 HRC

1 ASTM B633, SC 1, Type III. Refer to Section 2.3.3.1 for more information.

3.2.3.3 Technical Data

Allowable Loads in Normal Weight Concrete[1]

Fastener	Shank Diameter in. (mm)	Minimum Embedment in. (mm)	Concrete Compressive Strength							
			2000 psi		4000 psi		6000 psi			
			Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)		
X-U	0.157 (4.0)	3/4 (19)	100 (0.44)	125 (0.57)	100 (0.44)	125 (0.57)	105 (0.47)	205 (0.91)		
		1 (25)	165 (0.73)	190 (0.85)	170 (0.76)	225 (1.00)	110 (0.49)	280 (1.25)		
		1-1/4 (32)	240 (1.07)	310 (1.38)	280 (1.25)	310 (1.38)	180 (0.80)	425 (1.89)		
		1-1/2 (38)	275 (1.22)	420 (1.87)	325 (1.45)	420 (1.87)	–	–		

1 The tabulated allowable load values are for the low-velocity fasteners only, using a safety factor that is greater than or equal to 5.0, calculated in accordance with ICC-ES AC70. Wood or steel members connected to the substrate must be investigated in accordance with accepted design criteria.

Allowable Loads in Normal Weight Concrete Using DX-Kwik[1,2]

Fastener	Shank Diameter in. (mm)	Minimum Embedment in. (mm)	Concrete Compressive Strength			
			4000 psi		6000 psi	
			Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)
X-U 47 P8 w/DX-KWIK	0.157 (4.0)	1-1/2 (38)	395 (1.76)	405 (1.80)	360 (1.60)	570 (2.54)

1 X-U Fastener is installed using the DX-KWIK drilled pilot hole installation procedure shown in Section 3.2.1.1.10.

2 The tabulated allowable load values are for the low-velocity fasteners only, using a safety factor that is greater than or equal to 5.0, calculated in accordance with ICC-ES AC70. Wood or steel members connected to the substrate must be investigated in accordance with accepted design criteria.

X-U Universal Knurled Shank Fasteners 3.2.3

Allowable Loads in Minimum f'$_c$ = 3000 psi Structural Lightweight Concrete[1,4]

Fastener	Shank Dia. in. (mm)	Minimum Embed. in. (mm)	Fastener Location							
			Installed into Concrete		Installed Through Metal Deck into Concrete					
					3 Inch Deep Composite Floor Deck[2]			1-1/2 Inch Deep Composite Floor Deck[3]		
			Tension lb (kN)	Shear lb (kN)	Tension lb (kN)		Shear lb (kN)	Tension lb (kN)		Shear lb (kN)
					Upper Flute	Lower Flute		Upper Flute	Lower Flute	
X-U	0.157 (4.0)	3/4 (19)	125 (0.56)	115 (0.51)	130 (0.58)	95 (0.42)	245 (1.09)	95 (0.42)	95 (0.42)	370 (1.65)
		1 (25)	205 (0.91)	260 (1.16)	215 (0.96)	155 (0.69)	330 (1.47)	125 (0.56)	125 (0.56)	415 (1.85)
		1-1/4 (32)	315 (1.40)	435 (1.93)	295 (1.31)	200 (0.89)	375 (1.67)	–	–	–
		1-1/2 (38)	425 (1.89)	475 (2.11)	400 (1.78)	260 (1.16)	430 (1.91)	–	–	–

1 The tabulated allowable load values are for the low-velocity fasteners only, using a safety factor that is greater than or equal to 5.0, calculated in accordance with ICC-ES AC70. Wood or steel members connected to the substrate must be investigated in accordance with accepted design criteria.

2 The steel deck profile for the 3" deep composite floor deck has a minimum thickness of 20 gauge (0.0358") and a minimum F_y of 33 ksi. Lower and upper flute width must be a minimum of 4-1/2". Figure 1 in Section 3.2.1.1.6 shows the nominal flute dimensions, fastener locations and load orientations for the deck profile. Structural lightweight concrete fill above top of steel deck must be minimum 3-1/4".

3 The steel deck profile for the 1-1/2" deep composite floor deck has a minimum thickness of 20 gauge (0.0358") and a minimum F_y of 33 ksi. Lower flute and upper flute widths must be a minimum of 1-3/4" and 3-1/2", respectively. This deck may also be inverted as shown in Figure 3 in Section 3.2.1.1.6. Figures 2 and 3 in Section 3.2.1.1.6 show the nominal flute dimensions, fastener locations and load orientations for the deck profile. Structural lightweight concrete fill above top of steel deck must be minimum 2-1/2".

4 Multiple fasteners are recommended for any attachment.

Allowable Loads in Concrete Masonry Units[1,2,3,4,5,10]

Fastener	Shank Dia. in. (mm)	Minimum Embed. in. (mm)	Hollow CMU				Grout-Filled CMU					
			Face Shell[6]		Mortar Joint[6]		Face Shell[6]		Mortar Joint[6]		Top of Grouted Cell[8]	
			Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear[7] lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear[7] lb (kN)	Tension lb (kN)	Shear[9] lb (kN)
X-U	0.157 (4.0)	1 (25)	70 (0.31)	85 (0.38)	25 (0.11)	70 (0.31)	225 (1.00)	220 (0.98)	150 (0.67)	190 (0.85)	165 (0.73)	240 (1.07)

1 The tabulated allowable load values are for the low-velocity fastener into concrete masonry units only, using a safety factor equal to or greater than 5.0, calculated in accordance with ICC-ES AC70. Wood or steel members connected to the substrate must be investigated in accordance with accepted design criteria.

2 The tabulated allowable load values are for low-velocity fasteners installed in normal weight or lightweight concrete masonry units conforming to ASTM C90.

3 The tabulated allowable load values are for low-velocity fasteners installed in concrete masonry units with mortar conforming to ASTM C270, Type S.

4 The tabulated allowable load values are for low-velocity fasteners installed in concrete masonry units with grout conforming to ASTM C476.

5 The tabulated allowable load values are for one low-velocity fastener installed in an individual masonry unit cell and at least 4" from the edge of the wall.

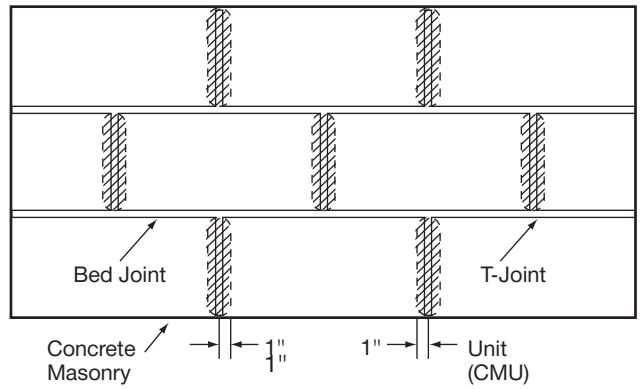
6 Fastener can be located anywhere on the face shell or mortar joints as shown in the figure to the right.

7 Shear load direction can be horizontal or vertical (Bed Joint or T-Joint) along the CMU wall plane.

8 Fastener located in center of grouted cell installed vertically.

9 Shear load can be in any direction in top of grouted cell application.

10 Multiple fasteners are recommended for any attachment.



Acceptable Locations (NON-SHADED AREAS) for X-U Universal Knurled Shank Fasteners in CMU Walls

Allowable Loads in Minimum ASTM A36 (F_y ≥ 36 ksi; F_u ≥ 58 ksi) Steel[1,2,4]

Fastener	Shank Dia. in. (mm)	Steel Thickness in.									
		3/16		1/4		3/8		1/2		≥3/4[3]	
		Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)
X-U	0.157 (4.0)	535 (2.38)	720 (3.20)	775 (3.45)	720 (3.20)	935 (4.16)	720 (3.20)	900 (4.00)	720 (3.20)	350 (1.56)	375 (1.67)

1 The tabulated allowable load values are for the low-velocity fasteners only, using a safety factor that is greater than or equal to 5.0, calculated in accordance with ICC-ES AC70. Wood or steel members connected to the substrate must be investigated in accordance with accepted design criteria.

2 Low-velocity fasteners shall be driven to where the point of the fastener penetrates the steel base material, except as noted.

3 Tabulated allowable load values provided for ≥ 3/4" steel are based upon minimum point penetration of 1/2". If 1/2" point penetration is not achieved, but a point penetration of at least 3/8" is obtained, the tabulated tension value should be reduced by 20 percent and the tabulated shear load should be reduced by 8 percent.

4 Multiple fasteners are recommended for any attachment.

3.2.3 X-U Universal Knurled Shank Fasteners

Allowable Tensile Pullover and Shear Bearing Load Capacities for Steel Framing with X-U Powder-Actuated Fasteners[1,2,3,4]

Fastener Description	Fastener	Head Dia. in. (mm)	Sheet Steel Thickness													
			14 ga.		16 ga.		18 ga.		20 ga.		22 ga.		24 ga.		25/26 ga	
			Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)
0.157" shank with or w/o plastic washers or MX collation	X-U	**0.322** (8.2)	**825** (3.67)	**1,085** (4.83)	**685** (3.05)	**720** (3.20)	**490** (2.18)	**525** (2.34)	**360** (1.60)	**445** (1.98)	**300** (1.33)	**330** (1.47)	**205** (0.91)	**255** (1.13)	**120** (0.53)	**145** (0.64)

1 Allowable load values are based on a safety factor of 3.0 in accordance with the AISI S100.

2 Allowable pullover capacities of sheet steel should be compared to allowable fastener tensile load capacities in concrete, steel, or masonry to determine controlling resistance load.

3 Allowable shear load bearing capacities of sheet steel should be compared to allowable fastener shear capacities in concrete, steel or masonry to determine controlling resistance load.

4 Data is based on the following minimum sheet steel properties, F_y = 33 ksi, F_u = 45 ksi (ASTM A653 material).

3.2.3.4 Ordering Information

Fastener Description	Shank Length in. (mm)	Shank Ø in. (mm)	Washer Ø	Packaging Qty
X-U 16	**5/8** (16)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 19	**3/4** (19)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 22	**7/8** (22)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 27	**1** (27)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 32	**1-1/4** (32)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 37	**1-1/2** (37)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 42	**1-5/8** (42)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 47	**1-7/8** (47)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 52	**2** (52)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 57	**2-1/4** (57)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 62	**2-1/2** (62)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box
X-U 72	**2-7/8** (72)	**0.157** (4.0)	Plastic 8 mm or collated	100 pcs / box

Fastener Description	Shank Length in. (mm)	Shank Ø in. (mm)	Washer Ø	Packaging Qty
X-U 22 P8 S15	**7/8** (22)	**0.157** (4.0)	Plastic 8 mm & Steel 15 mm	100 pcs / box
X-U 27 P8 S15	**1** (27)	**0.157** (4.0)	Plastic 8 mm & Steel 15 mm	100 pcs / box
X-U 32 P8 S15	**1-1/4** (32)	**0.157** (4.0)	Plastic 8 mm & Steel 15 mm	100 pcs / box
X-U 32 P8 S36	**1-1/4** (32)	**0.157** (4.0)	Plastic 8 mm & Steel 36 mm	100 pcs / box
X-U 72 P8 S36	**2-7/8** (72)	**0.157** (4.0)	Plastic 8 mm & Steel 36 mm	100 pcs / box

Fastener Description	Shank Length in. (mm)	Shank Ø in. (mm)	Washer Ø	Packaging Qty
X-U 16 P8 TH	**5/8** (16)	**0.157** (4.0)	8 mm plastic & metal “tophat"	100 pcs / box
X-U 19 P8 TH	**3/4** (19)	**0.157** (4.0)	8 mm plastic & metal “tophat"	100 pcs / box
X-U 27 P8 TH	**1** (27)	**0.157** (4.0)	8 mm plastic & metal “tophat"	100 pcs / box





KWIK Bolt 3 Expansion Anchor 3.3.8

3.3.8.1 Product description

The KWIK Bolt 3 (KB3) is a torque controlled expansion anchor, which provides consistent performance for a wide range of mechanical anchor applications. This anchor series is available in carbon steel with zinc electroplated coating, carbon steel with hot-dip galvanized coating, 304 stainless steel and 316 stainless steel versions.The threaded stud version of the anchor is available in a variety of diameters ranging from 1/4- to 1-in. depending on the steel and coating type. Applicable base materials include normal-weight concrete, structural lightweight concrete, lightweight concrete over metal deck, and grout-filled concrete masonry.

Product features

- Length identification code facilitates quality control and inspection after installation.
- Through fixture installation and variable thread lengths improve productivity and accommodate various base plate thicknesses.
- Raised impact section (Dog Point) prevents thread damage during installation.
- Anchor size is same as drill bit size for easy installation. For temporary applications anchors may be driven into drilled holes after usage.
- Mechanical expansion allows immediate load application.

Guide specifications

Torque-controlled expansion anchor shall be Hilti KWIK Bolt 3. KWIK Bolt 3 anchors meet the description of Federal Specification A-A 1923A, Type 4. The anchor bears a length identification mark embossed on the impact section (dog point) of the anchor identifying the anchor as a Hilti KWIK Bolt 3.

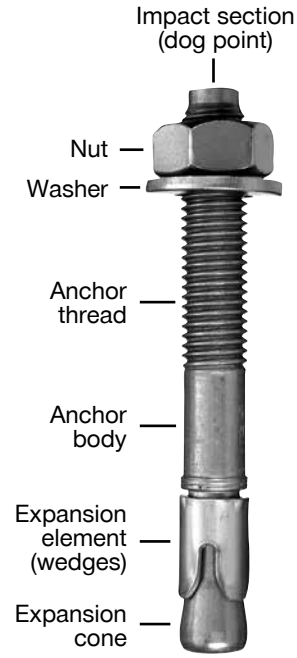
Carbon steel Kwik Bolt 3 anchors have a carbon steel anchor body, carbon steel nut and carbon steel washer. Anchor body, nut and washer have zinc plating conforming to ASTM B633 with a minimum thickness of 5 µm.

AISI Type 304 stainless steel Kwik Bolt 3 anchors have an anchor body, nut and washer That conform to AISI Type 304. The expansion wedges conform to either AISI Type 304 stainless steel or either AISI Type 316 stainless steel.

AISI Type 316 stainless steel Kwik Bolt 3 anchors have an anchor body, nut and washer That conform to AISI Type 316. The expansion wedges conform to AISI Type 316 stainless steel.

Hot-dip galvanized Kwik Bolt 3 anchors have a carbon steel anchor body, carbon steel nut and carbon steel washer. Anchor body, nut and washer have zinc plating conforming to ASTM A153 with an average thickness of 53 µm. The expansion wedges conform to either AISI Type 304 stainless steel or either AISI Type 316 stainless steel.

3.3.8.1 Product description
3.3.8.2 Material specifications
3.3.8.3 Technical data
3.3.8.4 Installation instructions
3.3.8.5 Ordering information



Listings/Approvals

ICC-ES (International Code Council)
ESR-2302

ICC-ES (International Code Council)
ESR-1385 Grout-filled concrete masonry

City of Los Angeles
Research Report No. 25577
Research Report No. 25577M
for masonry

FM (Factory Mutual)
Pipe Hanger Components for
Automatic Sprinkler for 3/8 through 3/4

UL LLC
UL 203 Pipe Hanger Equipment for Fire
Protection Services for 3/8 through 3/4

Qualified under an NQA-1 Nuclear
Quality Program

*Please refer to the reports to verify that the type and diameter specified is included

Independent code evaluation

IBC® / IRC® 2012
IBC® / IRC® 2009
IBC® / IRC® 2006
IBC® / IRC® 2003

3.3.8 KWIK Bolt 3 Expansion Anchor

Table 3 - Hilti KWIK Bolt 3 carbon steel design strength with concrete / pullout failure in uncracked concrete[1,2,3,4]

Nominal anchor diameter	Effective embed. in. (mm)	Nominal embed. in. (mm)	Tension - ϕN_n				Shear - ϕV_n			
			f'_c = 2500 psi lb (kN)	f'_c = 3000 psi lb (kN)	f'_c = 4000 psi lb (kN)	f'_c = 6000 psi lb (kN)	f'_c = 2500 psi lb (kN)	f'_c = 3000 psi lb (kN)	f'_c = 4000 psi lb (kN)	f'_c = 6000 psi lb (kN)
1/4	1-1/2	1-3/4	1,025	1,080	1,180	1,330	1,545	1,690	1,950	2,390
	(38)	(44)	(4.6)	(4.8)	(5.2)	(5.9)	(6.9)	(7.5)	(8.7)	(10.6)
3/8	2	2-3/8	2,205	2,415	2,790	3,420	2,375	2,605	3,005	3,680
	(51)	(60)	(9.8)	(10.7)	(12.4)	(15.2)	(10.6)	(11.6)	(13.4)	(16.4)
1/2	2	2-1/4	2,205	2,415	2,790	3,420	2,375	2,605	3,005	3,680
	(51)	(57)	(9.8)	(10.7)	(12.4)	(15.2)	(10.6)	(11.6)	(13.4)	(16.4)
	3-1/4	3-1/2	4,420	4,840	5,590	6,845	9,845	10,785	12,450	15,250
	(83)	(89)	(19.7)	(21.5)	(24.9)	(30.4)	(43.8)	(48.0)	(55.4)	(67.8)
5/8	3-1/8	3-1/2	4,310	4,720	5,450	6,675	9,280	10,165	11,740	14,380
	(79)	(89)	(19.2)	(21.0)	(24.2)	(29.7)	(41.3)	(45.2)	(52.2)	(64.0)
	4	4-3/8	6,240	6,835	7,895	9,665	13,440	14,725	17,000	20,820
	(102)	(111)	(27.8)	(30.4)	(35.1)	(43.0)	(59.8)	(65.5)	(75.6)	(92.6)
3/4	3-3/4	4-1/4	5,665	6,205	7,165	8,775	12,200	13,365	15,430	18,900
	(95)	(108)	(25.2)	(27.6)	(31.9)	(39.0)	(54.3)	(59.5)	(68.6)	(84.1)
	5	5-1/2	6,880	7,535	8,705	10,660	18,785	20,575	23,760	29,100
	(127)	(140)	(30.6)	(33.5)	(38.7)	(47.4)	(83.6)	(91.5)	(105.7)	(129.4)

1 See section 3.1.7.3 to convert design strength value to ASD value.

2 Linear interpolation between embedment depths and concrete compressive strengths is not permitted.

3 Apply spacing, edge distance, and concrete thickness factors in tables 6 to 10 as necessary. Compare to steel values in table 4. The lesser of the values is to be used for the design.

4 Tabular values are for normal weight concrete only. For lightweight concrete multiply design strength by λ_a as follows: for sand-lightweight, λ_a = 0.68; for all-lightweight, λ_a = 0.60

Table 4 - Steel design strength for Hilti KWIK Bolt 3 carbon steel anchors[1,2]

Nominal anchor diameter	Nominal embedment in. (mm)	Tensile[3] ϕN_{sa} lb (kN)	Shear[4] ϕV_{sa} lb (kN)
1/4	1-3/4 (44)	1,590 (7.1)	1,065 (4.7)
3/8	2-3/8 (60)	4,770 (21.2)	2,905 (12.9)
1/2	2-1/4 (57)	8,745 (38.9)	4,315 (19.2)
	3-1/2 (89)		4,390 (19.5)
5/8	3-1/2 (89)	13,515 (60.1)	7,950 (35.4)
	4-3/8 (111)		
3/4	4-1/4 (108)	19,080 (84.9)	10,180 (45.3)
	5-1/2 (140)		10,785 (48.0)

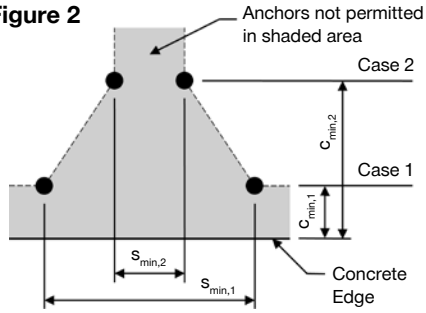
1 See section 3.1.7.3 to convert design strength value to ASD value.

2 KWIK Bolt 3 carbon steel anchors are to be considered ductile steel elements.

3 Tensile $\phi N_{sa} = \phi A_{se,N} f_{uta}$ as noted in ACI 318 Appendix D.

4 Shear values determined by static shear tests with $\phi V_{sa} < \phi 0.60 A_{se,V} f_{uta}$ as noted in ACI 318 Appendix D.

Figure 2



For a specific edge distance, the permitted spacing is calculated as follows:

$$s \geq s_{min,2} + \frac{(s_{min,1} - s_{min,2})}{(c_{min,1} - c_{min,2})} (c - c_{min,2})$$

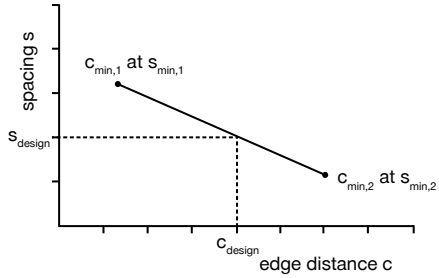


Table 5 - Carbon steel KWIK Bolt 3 installation parameters[1]

Setting information	Symbol	Units	Nominal anchor diameter d_o												
			1/4	3/8		1/2				5/8			3/4		
Effective minimum embedment	h_{ef}	in.	1-1/2	2		2		3-1/4		3-1/8	4		3-3/4		5
		(mm)	(38)	(51)		(51)		(83)		(79)	(102)		(95)		(127)
Minimum member thickness	h_{min}	in.	4	4	5	4	5	6	8	5	6	8	6	8	8
		(mm)	(102)	(102)	(127)	(102)	(127)	(152)	(203)	(127)	(152)	(203)	(152)	(203)	(203)
Case 1	$c_{min,1}$	in.	1-3/8	2	1-1/2	2-1/8	2	1-5/8	1-5/8	2-1/4	1-3/4	1-3/4	2-3/4	2-5/8	2-1/2
		(mm)	(35)	(51)	(38)	(54)	(51)	(41)	(41)	(57)	(44)	(44)	(70)	(67)	(64)
	for $s_{min,1}$ ≥	in.	1-3/4	2-7/8	3-1/2	4-7/8	4-3/4	4-1/4	4	5-1/4	4-3/4	4	6-7/8	6-1/2	6-3/8
		(mm)	(44)	(73)	(89)	(124)	(121)	(108)	(102)	(133)	(121)	(102)	(175)	(165)	(162)
Case 2	$c_{min,2}$	in.	1-5/8	2-3/8	2/3/8	2-5/8	2-3/8	2-1/4	2	3-1/8	2-3/8	2-1/4	3-3/4	3-3/8	3-3/8
		(mm)	(41)	(60)	(60)	(67)	(60)	(57)	(51)	(79)	(60)	(57)	(95)	(86)	(86)
	for $s_{min,2}$ ≥	in.	1-1/4	1-3/4	1-3/4	2-1/2	2-1/4	2	1-7/8	2-3/8	2-1/8	2-1/8	3-3/4	3-3/8	3-1/4
		(mm)	(32)	(44)	(44)	(64)	(57)	(51)	(48)	(60)	(54)	(54)	(95)	(86)	(83)

1 Linear interpolation is permitted to establish an edge distance and spacing combination between Case 1 and Case 2. Linear interpolation for a specific edge .distance c, where $c_{min,1} < c < c_{min,2}$ will determine the permissible spacings.

Table 6 - Load adjustment factors for 1/4-in. diameter KWIK Bolt 3 carbon steel anchor in uncracked concrete[1,2]

1/4-in. KB3 carbon steel uncracked concrete			Spacing factor in tension f_{AN}	Edge distance factor in tension f_{RN}	Spacing factor in shear[3] f_{AV}	Edge distance in shear		Concrete thickness factor in shear[4] f_{HV}
						⊥ toward edge f_{RV}	II To edge f_{RV}	
Embedment h_{nom}			1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4
	in.	(mm)	(44)	(44)	(44)	(44)	(44)	(44)
Spacing (s) / Edge Distance (c_a) / Concrete Thickness (h) - in. (mm)	1-1/4	(32)	0.64	n/a	0.56	n/a	n/a	n/a
	1-3/8	(35)	0.65	0.58	0.57	0.26	0.51	n/a
	1-1/2	(38)	0.67	0.61	0.57	0.29	0.58	n/a
	2	(51)	0.72	0.75	0.60	0.45	0.75	n/a
	3	(76)	0.83	1.00	0.65	0.83	1.00	n/a
	3-1/2	(89)	0.89		0.67	1.00		n/a
	4	(102)	0.94		0.70			0.88
	4-1/2	(114)	1.00		0.72			0.94
	5	(127)			0.74			0.99
	5-1/2	(140)			0.77			1.00
	6	(152)			0.79			
	7	(178)			0.84			
	8	(203)			0.89			
	9	(229)			0.94			
	10	(254)			0.99			
	11	(279)			1.00			

1 Linear interpolation not permitted.

2 When combining multiple load adjustment factors (e.g. for a 4 anchor pattern in a corner with thin concrete member) the design can become very conservative. To optimize the design, use Hilti PROFIS Anchor Design software or perform anchor calculation using design equations from ACI 318 Appendix D.

3 Spacing factor reduction in shear, f_{AV}, assumes an influence of a nearby edge. If no edge exists, then $f_{AV} = f_{AN}$.

4 Concrete thickness reduction factor in shear, f_{HV}, assumes an influence of a nearby edge. If no edge exists, then $f_{HV} = 1.0$.

If a reduction factor value is in a shaded cell, this indicates that this specific edge distance may not be permitted with a certain spacing (or vice versa). Check with table 5 and figure 2 of this section to calculate permissable edge distance, spacing and concrete thickness combinations. Use of Hilti KWIK Bolt 3 anchors with edge distance and spacing dimensions smaller than what is noted in this table is permitted.

3.3.8 KWIK Bolt 3 Expansion Anchor

Table 7 - Load adjustment factors for 3/8-in. diameter KWIK Bolt 3 carbon steel anchor in uncracked concrete[1,2]

3/8-in. KB3 carbon steel uncracked concrete			Spacing factor in tension f_{AN}	Edge distance factor in tension f_{RN}	Spacing factor in shear[3] f_{AV}	Edge distance in shear		Concrete thickness factor in shear[4] f_{HV}
						⊥ Toward edge f_{RV}	II To edge f_{RV}	
Embedment h_{nom}			2-3/8	2-3/8	2-3/8	2-3/8	2-3/8	2-3/8
Spacing (s) / edge distance (c_a) / concrete thickness (h) - in. (mm)	in.	(mm)	(60)	(60)	(60)	(60)	(60)	(60)
	1-3/4	(44)	0.65	n/a	0.57	n/a	n/a	n/a
	2	(51)	0.67	0.50	0.58	0.35	0.50	n/a
	2-1/2	(64)	0.71	0.58	0.60	0.49	0.58	n/a
	3	(76)	0.75	0.67	0.62	0.64	0.67	n/a
	3-1/4	(83)	0.77	0.72	0.63	0.72	0.72	n/a
	3-1/2	(89)	0.79	0.78	0.64	0.81	0.81	n/a
	4	(102)	0.83	0.89	0.67	0.99	0.99	0.81
	4-1/2	(114)	0.88	1.00	0.69	1.00	1.00	0.86
	5	(127)	0.92		0.71			0.91
	6	(152)	1.00		0.75			1.00
	7	(178)			0.79			
	8	(203)			0.83			
	9	(229)			0.87			
	10	(254)			0.91			
	11	(279)			0.95			
	12	(305)			1.00			

Table 8 - Load adjustment factors for 1/2-in. diameter KWIK Bolt 3 carbon steel anchor in uncracked concrete[1,2]

1/2-in. KB3 carbon steel uncracked concrete			Spacing factor in tension f_{AN}		Edge distance factor in tension f_{RN}		Spacing factor in shear[3] f_{AV}		Edge distance in shear				Concrete thickness factor in shear[4] f_{HV}	
									⊥ Toward edge f_{RV}		II To edge f_{RV}			
Embedment h_{nom}			2-1/4	3-1/2	2-1/4	3-1/2	2-1/4	3-1/2	2-1/4	3-1/2	2-1/4	3-1/2	2-1/4	3-1/2
Spacing (s) / edge distance (c_a) / concrete thickness (h) - in. (mm)	in.	(mm)	(57)	(89)	(57)	(89)	(57)	(89)	(57)	(89)	(57)	(89)	(57)	(89)
	1-5/8	(41)	n/a	n/a	n/a	0.39	n/a	n/a	n/a	0.07	n/a	0.15	n/a	n/a
	2	(51)	n/a	0.60	n/a	0.42	n/a	0.54	n/a	0.10	n/a	0.20	n/a	n/a
	2-1/8	(54)	n/a	0.61	0.48	0.43	n/a	0.54	0.42	0.11	0.48	0.22	n/a	n/a
	2-1/2	(64)	0.71	0.63	0.54	0.47	0.61	0.55	0.53	0.14	0.54	0.28	n/a	n/a
	3	(76)	0.75	0.65	0.62	0.52	0.63	0.55	0.70	0.19	0.70	0.37	n/a	n/a
	3-1/2	(89)	0.79	0.68	0.72	0.57	0.65	0.56	0.88	0.23	0.88	0.47	n/a	n/a
	4	(102)	0.83	0.71	0.82	0.62	0.68	0.57	1.00	0.29	1.00	0.57	0.84	n/a
	4-1/2	(114)	0.88	0.73	0.92	0.68	0.70	0.58		0.34		0.68	0.89	n/a
	5	(127)	0.92	0.76	1.00	0.74	0.72	0.59		0.40		0.74	0.94	n/a
	6	(152)	1.00	0.81		0.89	0.76	0.61		0.53		0.89	1.00	0.66
	7	(178)		0.86		1.00	0.81	0.63		0.66		1.00		0.71
	8	(203)		0.91			0.85	0.64		0.81				0.76
	9	(229)		0.96			0.89	0.66		0.97				0.81
	10	(254)		1.00			0.94	0.68		1.00				0.85
	11	(279)					0.98	0.70						0.89
	12	(305)					1.00	0.72						0.93
	14	(356)						0.75						1.00
	16	(406)						0.79						
	18	(457)						0.83						
	20	(508)						0.86						
	> 24	(610)						0.93						

1 Linear interpolation not permitted.

2 When combining multiple load adjustment factors (e.g. for a 4 anchor pattern in a corner with thin concrete member) the design can become very conservative. To optimize the design, use Hilti PROFIS Anchor Design software or perform anchor calculation using design equations from ACI 318 Appendix D.

3 Spacing factor reduction in shear, f_{AV}, assumes an influence of a nearby edge. If no edge exists, then $f_{AV} = f_{AN}$.

4 Concrete thickness reduction factor in shear, f_{HV}, assumes an influence of a nearby edge. If no edge exists, then $f_{HV} = 1.0$.

If a reduction factor value is in a shaded cell, this indicates that this specific edge distance may not be permitted with a certain spacing (or vice versa). Check with table 5 and figure 2 of this section to calculate permissable edge distance, spacing and concrete thickness combinations. Use of Hilti KWIK Bolt 3 anchors with edge distance and spacing dimensions smaller than what is noted in this table is permitted.

Table 9 - Load adjustment factors for 5/8-in. diameter KWIK Bolt 3 carbon steel anchor in uncracked concrete[1,2]

5/8-in. KB3 carbon steel uncracked concrete			Spacing factor in tension f_{AN}		Edge distance factor in tension f_{RN}		Spacing factor in shear[3] f_{AV}		Edge distance in shear ⊥ toward edge f_{RV}		Edge distance in shear II to edge f_{RV}		Conc. thickness factor in shear[4] f_{HV}	
Embedment h_{nom}			3-1/2	4-3/8	3-1/2	4-3/8	3-1/2	4-3/8	3-1/2	4-3/8	3-1/2	4-3/8	3-1/2	4-3/8
	in.	(mm)	(89)	(111)	(89)	(111)	(89)	(111)	(89)	(111)	(89)	(111)	(89)	(111)
Spacing (s) / edge distance (c_a) / concrete thickness (h) - in. (mm)	1-3/4	(44)	n/a	n/a	n/a	0.32	n/a	n/a	n/a	0.07	n/a	0.14	n/a	n/a
	2	(51)	n/a	n/a	n/a	0.34	n/a	n/a	n/a	0.08	n/a	0.17	n/a	n/a
	2-1/8	(54)	n/a	0.59	n/a	0.34	n/a	0.53	n/a	0.09	n/a	0.18	n/a	n/a
	2-1/4	(57)	n/a	0.59	0.39	0.35	n/a	0.54	0.14	0.10	0.27	0.20	n/a	n/a
	2-3/8	(60)	0.63	0.60	0.40	0.36	0.55	0.54	0.15	0.11	0.30	0.21	n/a	n/a
	2-1/2	(64)	0.63	0.60	0.41	0.37	0.55	0.54	0.16	0.12	0.32	0.23	n/a	n/a
	3	(76)	0.66	0.63	0.46	0.40	0.56	0.55	0.21	0.15	0.42	0.30	n/a	n/a
	4	(102)	0.71	0.67	0.55	0.47	0.58	0.56	0.32	0.23	0.55	0.47	n/a	n/a
	5	(127)	0.77	0.71	0.67	0.55	0.60	0.58	0.45	0.33	0.67	0.55	0.63	n/a
	6	(152)	0.82	0.75	0.80	0.63	0.62	0.59	0.59	0.43	0.80	0.63	0.69	0.62
	7	(178)	0.87	0.79	0.93	0.74	0.64	0.61	0.75	0.54	0.93	0.74	0.74	0.67
	8	(203)	0.93	0.83	1.00	0.84	0.66	0.63	0.91	0.66	1.00	0.84	0.79	0.71
	9	(229)	0.98	0.88		0.95	0.68	0.64	1.00	0.79		0.95	0.84	0.75
	10	(254)	1.00	0.92		1.00	0.70	0.66		0.92		1.00	0.89	0.80
	11	(279)		0.96			0.72	0.67		1.00			0.93	0.83
	12	(305)		1.00			0.74	0.69					0.97	0.87
	14	(356)					0.77	0.72					1.00	0.94
	16	(406)					0.81	0.75						1.00
	18	(457)					0.85	0.78						
	20	(508)					0.89	0.82						
	24	(610)					0.97	0.88						
	> 30	(762)					1.00	0.97						

3.3.8

Table 10 - Load adjustment factors for 3/4-in. diameter KWIK Bolt 3 carbon steel anchor in uncracked concrete[1,2]

3/4-in. KB3 carbon steel uncracked concrete			Spacing factor in tension f_{AN}		Edge distance factor in tension f_{RN}		Spacing factor in shear[3] f_{AV}		Edge distance in shear ⊥ toward edge f_{RV}		Edge distance in shear II to edge f_{RV}		Conc. thickness factor in shear[4] f_{HV}	
Embedment h_{nom}			4-1/4	5-1/2	4-1/4	5-1/2	4-1/4	5-1/2	4-1/4	5-1/2	4-1/4	5-1/2	4-1/4	5-1/2
	in.	(mm)	(108)	(140)	(108)	(140)	(108)	(140)	(108)	(140)	(108)	(140)	(108)	(140)
Spacing (s) / edge distance (c_a) / concrete thickness (h) - in. (mm)	2-1/2	(64)	n/a	n/a	n/a	0.42	n/a	n/a	n/a	0.09	n/a	0.18	n/a	n/a
	2-3/4	(70)	n/a	n/a	0.36	0.44	n/a	n/a	0.15	0.11	0.31	0.21	n/a	n/a
	3	(76)	n/a	n/a	0.38	0.45	n/a	n/a	0.17	0.12	0.35	0.24	n/a	n/a
	3-1/4	(83)	n/a	0.61	0.40	0.47	n/a	0.54	0.20	0.14	0.39	0.27	n/a	n/a
	3-1/2	(89)	n/a	0.62	0.41	0.49	n/a	0.55	0.22	0.15	0.41	0.30	n/a	n/a
	3-3/4	(95)	0.67	0.63	0.43	0.50	0.57	0.55	0.24	0.17	0.43	0.34	n/a	n/a
	4	(102)	0.68	0.63	0.45	0.52	0.57	0.55	0.27	0.18	0.45	0.37	n/a	n/a
	4-1/2	(114)	0.70	0.65	0.49	0.56	0.58	0.56	0.32	0.22	0.49	0.44	n/a	n/a
	5	(127)	0.72	0.67	0.53	0.59	0.59	0.57	0.38	0.26	0.53	0.52	n/a	n/a
	6	(152)	0.77	0.70	0.62	0.67	0.60	0.58	0.49	0.34	0.62	0.67	0.65	n/a
	7	(178)	0.81	0.73	0.72	0.75	0.62	0.59	0.62	0.43	0.72	0.75	0.70	n/a
	8	(203)	0.86	0.77	0.82	0.84	0.64	0.61	0.76	0.52	0.82	0.84	0.75	0.66
	9	(229)	0.90	0.80	0.92	0.95	0.66	0.62	0.91	0.62	0.92	0.95	0.79	0.70
	10	(254)	0.94	0.83	1.00	1.00	0.67	0.64	1.00	0.73	1.00	1.00	0.83	0.74
	11	(279)	0.99	0.87			0.69	0.65		0.84			0.87	0.77
	12	(305)	1.00	0.90			0.71	0.66		0.96			0.91	0.81
	14	(356)		0.97			0.74	0.69		1.00			0.99	0.87
	16	(406)		1.00			0.78	0.72					1.00	0.93
	18	(457)					0.81	0.74						0.99
	20	(508)					0.85	0.77						1.00
	24	(610)					0.92	0.82						
	30	(762)					1.00	0.91						
	> 36	(914)						0.99						

1 Linear interpolation not permitted.

2 When combining multiple load adjustment factors (e.g. for a 4 anchor pattern in a corner with thin concrete member) the design can become very conservative. To optimize the design, use Hilti PROFIS Anchor Design software or perform anchor calculation using design equations from ACI 318 Appendix D.

3 Spacing factor reduction in shear, f_{AV}, assumes an influence of a nearby edge. If no edge exists, then $f_{AV} = f_{AN}$.

4 Concrete thickness reduction factor in shear, f_{HV}, assumes an influence of a nearby edge. If no edge exists, then $f_{HV} = 1.0$.

If a reduction factor value is in a shaded cell, this indicates that this specific edge distance may not be permitted with a certain spacing (or vice versa). Check with table 5 and figure 2 of this section to calculate permissable edge distance, spacing and concrete thickness combinations. Use of Hilti KWIK Bolt 3 anchors with edge distance and spacing dimensions smaller than what is noted in this table is permitted.

3.3.15 KWIK-CON II+ Concrete and Masonry Screw

3.3.15.1 Product description

3.3.15.2 Material specifications

3.3.15.3 Technical data

3.3.15.4 Installation instructions

3.3.15.5 Ordering information





Listings/Approvals

Metro-Dade County
NOA 12-0625.05

3.3.15.1 Product description

The Hilti KWIK-CON II+ fastening system for concrete and masonry consists of the KWIK-CON II+ fastener, the KWIK-CON II+ drive tool, and a Hilti matched tolerance carbide-tipped drill bit.

Improved silver KWIK Cote finish

- Exceeds 1000 hours of protection from red rust in ASTM B117
- Salt spray testing
- More durable than zinc plating
- Zinc electroplating and passivation with chromate require toxic chemicals. The KWIK Cote zinc rich organic finish is easy on the environment

Zinc electroplating and passivation with chromate require toxic chemicals. The KWIK Cote zinc rich organic finish is easy on the environment

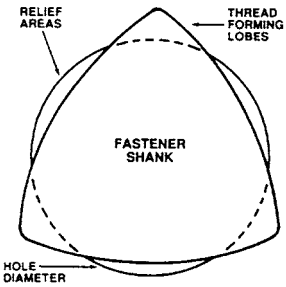
Product features

- Applicable specific carbide tipped bits optimize performance in concrete or masonry
- Torx Hex washer head for fast secure driving
- Torx or Phillips flat head for countersunk

Guide specifications

Concrete screw anchors
Concrete or masonry screw anchors shall be manufactured from cold rolled steel case hardened to a minimum Rockwell Hardness C 45 or stainless steel conforming to AISI Type 410. The concrete or masonry screw anchors shall have a trilobular, cold formed thread design and 8 threads per inch. Screw anchors shall have one of the following head designs: Tapered flat head with T-25 TORX recess,Tapered flat head with T-27 TORX recess or 5/16-inch hex washer with internal T-25 TORX recess. Carbon steel achors are finished with corrosion resistant silver KWIK Cote coating. Anchors shall be Hilti KWIK-CON II+ anchors as supplied by Hilti.

Installation
Concrete or masonry screw anchors shall be installed in holes drilled with matched tolerance Hilti carbide-tipped drill bits supplied with each box of KWIK-CON II+ anchors. Installation shall be in accordance with manufacturer's installation instructions.



3.3.15 KWIK-CON II+ Concrete and Masonry Screw

3.3.15.3 Technical data

Table 1 - Tension and shear allowable loads in concrete [1, 2]

Nominal anchor diameter	Nominal embedment in. (mm)	f'_c = 2,000 psi		f'_c = 4,000 psi		f'_c = 6,000 psi	
		Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)
3/16	1 (25)	100 (0.44)	260 (1.16)	125 (0.56)	260 (1.16)	185 (0.82)	280 (1.25)
3/16	1-3/4 (44)	275 (1.22)	260 (1.16)	295 (1.31)	265 (1.18)	325 (1.45)	300 (1.33)
1/4	1 (25)	190 (0.85)	325 (1.45)	240 (1.07)	390 (1.73)	275 (1.22)	540 (2.40)
1/4	1-3/4 (44)	425 (1.89)	560 (2.49)	625 (2.78)	600 (2.82)	650 (2.89)	600 (2.67)

1 Screws installed in holes drilled with Hilti TKC carbide bits.
2 Allowable loads are based on a safety factor of 4.

Table 2 - Tension and shear ultimate loads in concrete[1]

Nominal anchor diameter	Nominal embedment in. (mm)	f'_c = 2,000 psi		f'_c = 4,000 psi		f'_c = 6,000 psi	
		Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)	Tension lb (kN)	Shear lb (kN)
3/16	1 (25)	400 (1.78)	1,050 (4.67)	500 (2.22)	1,050 (4.67)	750 (3.34)	1,150 (5.12)
3/16	1-3/4 (44)	1,100 (4.89)	1,050 (4.67)	1,180 (5.25)	1,070 (4.76)	1,300 (5.78)	1,200 (5.34)
1/4	1 (25)	760 (3.38)	1,300 (5.78)	970 (4.31)	1,575 (7.01)	1,100 (4.89)	2,175 (9.68)
1/4	1-3/4 (44)	1,700 (7.56)	2,250 (10.0)	2,500 (11.1)	2,400 (11.3)	2,600 (11.6)	2,400 (10.7)

1 Screws installed in holes drilled with TKC bits.

Table 3 - Tension and shear allowable loads in hollow block[1,2,3]

Nominal anchor diameter	Nominal embedment in. (mm)	Tension lb (kN)	Shear lb (kN)
3/16	1 (25)	150 (0.67)	225 (1.00)
3/16	1-3/4 (44)	290 (1.29)	300 (1.33)
1/4	1 (25)	165 (0.73)	275 (1.22)
1/4	1-3/4 (44)	310 (1.38)	400 (1.78)

1 All values for anchors installed in hollow concrete masonry with a minimum prism strength of 1,500 psi. Concrete block may be lightweight, medium-weight or normal-weight conforming to ASTM C90.
2 Screws installed in holes drilled with TKB bits.
3 Allowable loads calculated using a factor of safety of 4.

Table 4 - Tension and shear allowable loads in red brick[1, 2]

Nominal anchor diameter	Nominal embedment in. (mm)	Tension lb (kN)	Shear lb (kN)
3/16	1 (25)	125 (0.56)	235 (1.05)
3/16	1-3/4 (44)	350 (1.56)	300 (1.33)
1/4	1 (25)	205 (0.91)	415 (1.85)
1/4	1-3/4 (44)	350 (1.56)	500 (2.22)

1 This test was performed on individual specimens of ASTM C62 common red brick. Due to the wide variations encountered in the compressive strength of brick, these values should be considered guide values.
2 Allowable loads are based on a safety factor of 4.

The anchors are installed a minimum of 12 diameters on center with a minimum edge distance of six diameters for 100 percent anchor efficiency. Spacing and edge distance may be reduced to six diameter spacing and three diameter edge distance providing values are reduced 50 percent. Linear interpolation may be used for intermediate spacing and edge margins.

Combined shear and tension loading

$$\left(\frac{N_d}{N_d}\right) + \left(\frac{V_d}{V_d}\right) \leq 1.0$$

3.3.15.4 Installation instructions

Installation Instructions For Use (IFU) are included with each product package. They can also be viewed or downloaded online at www.us.hilti.com (US) and www.hilti.ca (Canada). Because of the possibility of changes, always verify that downloaded IFU are current when used. Proper installation is critical to achieve full performance. Training is available on request. Contact Hilti Technical Services for applications and conditions not addressed in the IFU.

Fast Top™ Clip (FTC3/FTC5) — Head-of-wall

Head-of-wall deflection conditions for exterior curtain wall and interior, nonload-bearing walls.

ClarkDietrich Fast Top™ Clips are used in head-of-wall deflection conditions for in-fill curtain wall assemblies and/or interior nonload-bearing partitions to provide for vertical movement. These clips are used in place of, or in combination with, deflection track. They also make a positive attachment and eliminate the need to install bridging continuously throughout the upper-most punchouts. The Fast Top clip connectors can be attached to the underside of structural members, concrete decks or floor assemblies. Studs must be cut less than full height to enable vertical movement up to 2-1/2" (1-1/4" up and down). Fast Top clips install quickly with welds, screws or powder-actuated fasteners. FastClip™ deflection screws are used to attach the clip to the cold-formed framing and to ensure frictionless deflection. These clips are also embossed with fastening patterns to ensure accurate placement of fasteners.

ALTERNATIVE PRODUCTS

MaxTrak® Slotted Deflection Track

PRODUCT DIMENSIONS

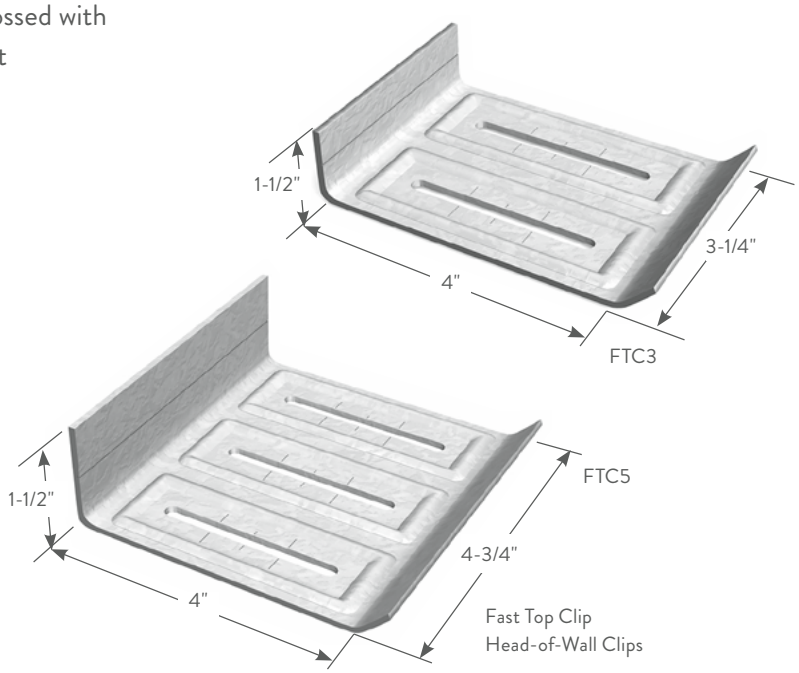
FTC3: 1-1/2" x 4" x 3-1/4"
FTC5: 1-1/2" x 4" x 4-3/4"

MATERIAL SPECIFICATIONS

Gauge: 14 gauge (68mil)
Design Thickness: 0.0713 inches
Coating: G90
Yield Strength: 50ksi
ASTM: A653/A653M

INSTALLATION

Connections to the building can be made with screws, powder-actuated fasteners, drill-in concrete anchors or welding. Mechanical fasteners shall be equally spaced along the scored line of the 1-1/2" flange. When using the tabulated allowable loads in the tables on the opposite page, connections to the building structure must be made according to the notes. FastClip deflection screws are used to attach the clip to the cold-formed steel framing. Screws shall be driven through the slotted holes and positioned to allow for the appropriate building deflection. Two FastClip deflection screws are required with the FTC3, and three FastClip deflection screws are required with the FTC5.



Fast Top Clip Head-of-Wall Clips

Fast Top™ CLIPS

Product code	Thickness			Size (in)	Packaging Pcs./Carton
	Gauge	Mils	Design thickness (in)		
FTC3	14	68	0.0713	1-1/2 x 4 x 3-1/4	25
FTC5	14	68	0.0713	1-1/2 x 4 x 4-3/4	30
FTC8	14	68	0.0713	1-1/2 x 4 x 7-3/4	25

FTC3 includes 55 FastClip deflection screws per carton.
FTC5 includes 110 FastClip deflection screws per carton.
FTC8 includes 160 FastClip deflection screws per carton.

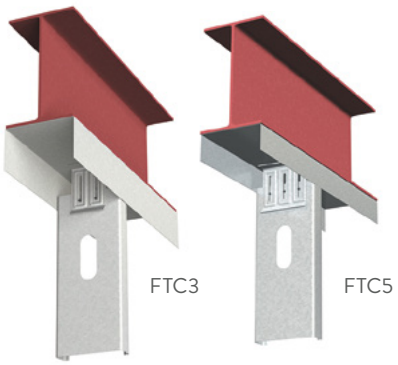


FastClip Deflection Screw

U.S. Patent No. 6,688,069

FTC3 ALLOWABLE LOADS (LBS)

Stud thickness and yield strength	Slip allowance (in)	Welded direct to structural steel	Mechanically Anchored				
			Number of anchors	PAF in steel (FS=5)	PAF in steel (FS=10)	Buildex #12-24 screws in steel	Hilti 1/4" x 1-3/4" Kwik-Cons in concrete
20ga (33mil) 33ksi	0.75	259	2	259	252	259	241
		259	3	259	259	259	—
	1.25	259	2	259	219	259	206
		259	3	259	241	259	—
18ga (43mil) 33ksi	0.75	471	2	471	252	471	241
		471	3	471	286	471	—
	1.25	471	2	437	219	471	206
		471	3	471	241	471	—
16ga (54mil) 33ksi	0.75	551	2	504	252	551	241
		551	3	551	286	551	—
	1.25	551	2	437	219	551	206
		551	3	477	241	551	—



FTC5 ALLOWABLE LOADS (LBS)

Stud thickness and yield strength	Slip allowance (in)	Welded direct to structural steel	Mechanically Anchored				
			Number of anchors	PAF in steel (FS=5)	PAF in steel (FS=10)	Buildex #12-24 screws in steel	Hilti 1/4" x 1-3/4" Kwik-Cons in concrete
20ga (33mil) 33ksi	0.75	386	2	386	317	386	386
		386	3	386	386	386	386
		386	4	386	386	386	—
	1.25	386	2	386	286	386	386
		386	3	386	338	386	386
		386	4	386	371	386	—
18ga (43mil) 33ksi	0.75	505	2	505	317	505	469
		505	3	505	389	505	466
		505	4	505	440	505	—
	1.25	505	2	505	286	505	411
		505	3	505	338	505	399
		505	4	505	371	505	—
16ga (54mil) 33ksi	0.75	638	2	634	317	638	469
		638	3	638	389	638	466
		638	4	638	440	638	—
	1.25	638	2	571	286	638	411
		638	3	638	338	638	399
		638	4	638	371	638	—
16ga (54mil) 50ksi	0.75	1061	2	634	317	852	469
		1061	3	779	389	1061	466
		1061	4	879	440	1061	—
	1.25	1061	2	571	286	789	411
		1061	3	676	338	922	399
		1061	4	738	371	922	—

Notes:

1 For the FTC3, tabulated values for welds are based on 3-1/4" of weld along each edge of the 1-1/2" clip leg.

2 For the FTC3, tabulated values for the PAFs and Buildex screws are based on the following: the outermost anchors are placed 1/2" (min.) away from the clip edge and/or bearing edge, anchors are spaced at 2-1/4" (min.) when using two anchors, and 1-1/8" (min.) when using three anchors.

3 For the FTC3, tabulated values for Hilti Kwik-Cons are based on the following: anchors are spaced at 2-1/4" o.c. (min.); anchors are placed 3/4" (min.) away from edge of building structure, and 1/2" (min.) away from edge of the Fast Top Clip. The tabulated values are based on 3000psi normal weight concrete.

4 For the FTC5, tabulated values for welds are based on 4-1/2" of weld along each edge of the 1-1/2" clip leg.

5 For the FTC5, tabulated values for the PAFs and Buildex screws are based on the following: the outermost anchors are placed 1/2" (min.) away from the clip edge and/or bearing edge; anchors are spaced at 3-3/4" (min.) when using two anchors, 1-7/8" (min.) when using three anchors, and 1-1/4" when using four anchors.

6 For the FTC5, tabulated values for Hilti Kwik-Cons are based on the following: anchors are spaced at 3-3/4" (min.) when using two anchors, and 1-7/8" when using three anchors; anchors are placed 3/4" (min.) away from edge of building structure and 1/2" (min.) away from edge of the Fast Top Clip. The tabulated values are based on 3000psi normal weight concrete.

7 Capacities listed for PAFs are based on minimum PAF requirements listed in General Note #6 on page 9.

8 #12-24 screws shall have ultimate shear and tension capacities equal to or greater than those listed on page 6.

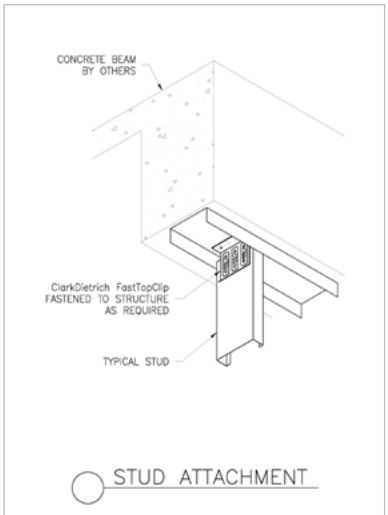
9 It is the responsibility of the design professional to detail the project drawings for proper clip attachment.

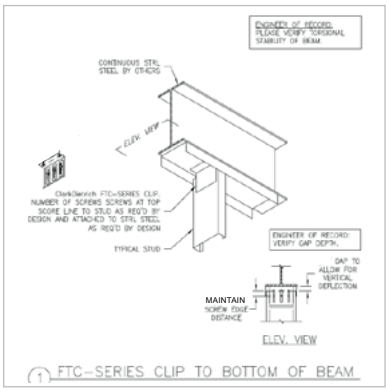
10 Contact ClarkDietrich at 888-437-3244 for technical assistance.

11 Hilti is a registered trademark of Hilti Aktiengeseilschaft Corporation.

12 Buildex is a registered trademark of Illinois Tool Works, Inc.

Typical Construction Details





Visit our CAD Library at clarkdietrich.com to view or download construction details in .dwg, .dxf, and .pdf formats.

The technical content of this literature is effective 07/13/15 and supersedes all previous information.

Pub. No. CD-ClipExpress 07/15

EasyClip™ S-Series™ Support Clip

For rigid connection applications not requiring a long leg.

ClarkDietrich EasyClip™ S-Series™ support clips are commonly used for rigid connections in window and door framing, joist, bypass or other miscellaneous connections to secure one framing member to another, or to secure framing members to the structural frame. This high-performance, multi-use utility clip is ideal for corner reinforcements, stair openings, and numerous support applications. Available in a variety of lengths and gauges, EasyClip S-Series clips are prepunched for faster and more accurate fastener placement.

ALTERNATIVE PRODUCTS

EasyClip™ U-Series™ Clip Angle
EasyClip X-Series™ Clip Angle
EasyClip D-Series™ Anchor Clip
EasyClip B-Series™ Clip Angle
SwiftClip™ LS-Series™ Support Clip

PRODUCT DIMENSIONS

1-1/2" x 1-1/2" x 3"
1-1/2" x 1-1/2" x 5"
1-1/2" x 1-1/2" x 7"
1-1/2" x 1-1/2" x 9"
1-1/2" x 1-1/2" x 11"

MATERIAL SPECIFICATIONS

Gauge: 16 gauge (54mil)
Design Thickness: 0.0566 inches

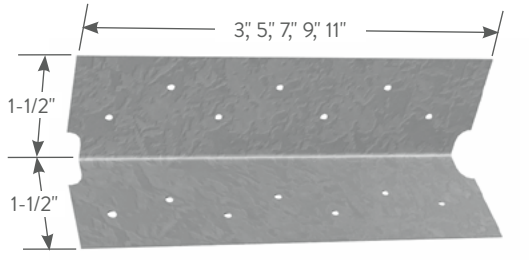
Gauge: 14 gauge (68mil)
Design Thickness: 0.0713 inches

Gauge: 12 gauge (97mil)
Design Thickness: 0.1017 inches

Coating: G90
Yield Strength: 50ksi
ASTM: A653/A653M

INSTALLATION

EasyClip S-Series support clips are attached to the cold-formed steel (CFS) framing members using #10 minimum self-drilling screws driven through the clip holes into the steel framing. When not filling all holes, install fasteners symmetrically starting at the top and bottom edges and move toward the center of the clip. Clip can also be welded to the CFS framing. Connections to the building frame can be made with powder-actuated fasteners, drill-in concrete anchors or welding. When using the tabular values for a welded clip, provide a full weld to the structure, top to bottom, along the outside of the clip. A 3/4" minimum weld on the outside edge of the 1-1/2" leg is also required to control warping or to hold the clip in place before final welding.



EasyClip S-Series Support Clip

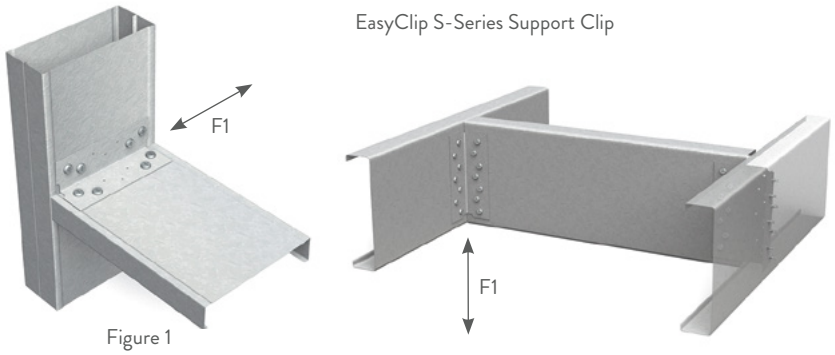
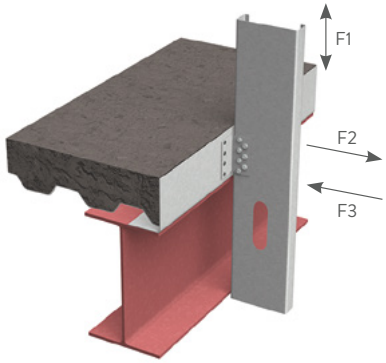


Figure 1



EasyClip™ S-Series™ SUPPORT CLIPS

Product code	Thickness			Size (in)	Packaging Pcs./ Bucket
	Gauge	Mils	Design thickness (in)		
S543	16	54	0.0566	1-1/2 x 1-1/2 x 3	400
S545	16	54	0.0566	1-1/2 x 1-1/2 x 5	200
S547	16	54	0.0566	1-1/2 x 1-1/2 x 7	100
S549	16	54	0.0566	1-1/2 x 1-1/2 x 9	100
S541	16	54	0.0566	1-1/2 x 1-1/2 x 11	100
S683	14	68	0.0713	1-1/2 x 1-1/2 x 3	200
S685	14	68	0.0713	1-1/2 x 1-1/2 x 5	200
S687	14	68	0.0713	1-1/2 x 1-1/2 x 7	100
S689	14	68	0.0713	1-1/2 x 1-1/2 x 9	100
S681	14	68	0.0713	1-1/2 x 1-1/2 x 11	100
S973	12	97	0.1017	1-1/2 x 1-1/2 x 3	200
S975	12	97	0.1017	1-1/2 x 1-1/2 x 5	150
S977	12	97	0.1017	1-1/2 x 1-1/2 x 7	100
S979	12	97	0.1017	1-1/2 x 1-1/2 x 9	80
S971	12	97	0.1017	1-1/2 x 1-1/2 x 11	70

EasyClip™ S-Series™ SUPPORT CLIPS ALLOWABLE CLIP CAPACITIES (LBS)

Using #10-16 self-drilling screws

Clip	No. of screws to steel framing (1)	Stud Thickness and Yield Strength								
		20ga (33mil) 33ksi			18ga (43mil) 33ksi			16ga (54mil) 50ksi		
		F1	F2	F3	F1	F2	F3	F1	F2	F3
S543	3	295 (295)	210 (531)	531	437 (437)	210 (788)	788	777 (555)	210 (1195)	1400
S545	2	317 (317)	354 (354)	354	470 (470)	371 (525)	525	835 (835)	371 (933)	933
	5	651 (651)	371 (885)	885	965 (965)	371 (1313)	1313	1716 (1460)	371 (2105)	2333
S547	4	653 (653)	531 (708)	708	969 (969)	531 (1050)	1050	1722 (1722)	531 (1867)	1867
	7	1029 (1029)	531 (1239)	1239	1526 (1526)	531 (1838)	1838	2712 (2456)	531 (3015)	3267
S549	4	679 (679)	692 (708)	708	1007 (1007)	692 (1050)	1050	1790 (1790)	692 (1867)	1867
	9	1408 (1408)	692 (1593)	1593	2090 (2090)	692 (2363)	2363	3714 (3452)	692 (3925)	4200
S541	6	1015 (1015)	852 (1062)	1062	1505 (1505)	852 (1576)	1576	2675 (2675)	852 (2800)	2800
	11	1785 (1785)	852 (1947)	1947	2648 (2648)	852 (2889)	2889	4706 (4432)	852 (4835)	5133
S683	3	295 (295)	333 (531)	531	437 (437)	333 (788)	788	777 (699)	333 (1400)	1400
S685	2	317 (317)	354 (354)	354	470 (470)	525 (525)	525	835 (835)	587 (933)	933
	5	651 (651)	587 (885)	885	965 (965)	587 (1313)	1313	1716 (1716)	587 (2333)	2333
S687	4	653 (653)	708 (708)	708	969 (969)	841 (1050)	1050	1722 (1722)	841 (1867)	1867
	7	1029 (1029)	841 (1239)	1239	1526 (1526)	841 (1838)	1838	2712 (2712)	841 (3267)	3267
S689	4	679 (679)	708 (708)	708	1007 (1007)	1050 (1050)	1050	1790 (1790)	1095 (1867)	1867
	9	1408 (1408)	1095 (1593)	1593	2090 (2090)	1095 (2363)	2363	3714 (3714)	1095 (4200)	4200
S681	6	1015 (1015)	1062 (1062)	1062	1505 (1505)	1349 (1576)	1576	2675 (2675)	1349 (2800)	2800
	11	1785 (1785)	1349 (1947)	1947	2648 (2648)	1349 (2889)	2889	4706 (4706)	1349 (5133)	5133
S973	3	295 (295)	531 (531)	531	437 (437)	679 (788)	788	777 (777)	679 (1400)	1400
S975	2	317 (317)	354 (354)	354	470 (470)	525 (525)	525	835 (835)	933 (933)	933
	5	651 (651)	885 (885)	885	965 (965)	1196 (1313)	1313	1716 (1716)	1196 (2333)	2333
S977	4	653 (653)	708 (708)	708	969 (969)	1050 (1050)	1050	1722 (1722)	1713 (1867)	1867
	7	1029 (1029)	1239 (1239)	1239	1526 (1526)	1713 (1838)	1838	2712 (2712)	1713 (3267)	3267
S979	4	679 (679)	708 (708)	708	1007 (1007)	1050 (1050)	1050	1790 (1790)	1867 (1867)	1867
	9	1408 (1408)	1593 (1593)	1593	2090 (2090)	2229 (2363)	2363	3714 (3714)	2229 (4200)	4200
S971	6	1015 (1015)	1062 (1062)	1062	1505 (1505)	1576 (1576)	1576	2675 (2675)	2746 (2800)	2800
	11	1785 (1785)	1947 (1947)	1947	2648 (2648)	2746 (2889)	2889	4706 (4706)	2746 (5133)	5133

Notes:

Screw Capacity Notes:

1 The tabulated value indicates the number of screws in a single clip leg attached to the cold-formed steel (CFS) framing.

2 Screws shall be attached in a symmetric manner, starting at the outside holes and moving to the center. Reference Figure 1 on opposite page.

3 The allowable values for F1 are based only on the shear capacity of the clip leg attached to the CFS framing. The capacity of the attachment to other materials and structures must be checked separately.

4 The allowable values for F2 assume mechanical fasteners are attached to the structure, and are along the vertical centerline of the clip leg. Mechanical fasteners to other materials and structures must be checked separately.

5 The screw diameter must be 0.19" (min.) for #10 screws.

6 The ultimate screw shear strength must be a minimum of 1400 lbs for #10 screws.

7 When clips have combinations of F1, F2, and F3, use a linear interaction for combinations of F1 and F3, and a squared interaction for combinations of F1 and F2.

8 Screws must be long enough so that at least three exposed threads are visible after installation.

9 Allowable loads have not been increased 33% for wind or seismic.

10 For connections made to 14 gauge (68mil) and 12 gauge (97mil), use the tabulated values for 16 gauge (54mil), 50ksi.

11 It is the responsibility of the design professional to detail the drawings for proper clip attachment.

12 Contact ClarkDietrich at 888-437-3244 for technical assistance.

Weld Capacity Notes:

1 F1 and F2 values in parentheses are maximum shear and tension capacities when the clips are welded to the base structure (min 3/16" – 36ksi steel).

2 Listed weld capacities are computed assuming an E70XX welding rod or wire.

3 The clips are to be welded to the structure along the back corner and along the complete length of the clip. When secondary welds are used to hold the clip in place, they are not used in capacity calculations.

Connery
Construction, Inc.

3234 CTH N Cottage Grove, WI 53527
p.608.839.3740 f.608.839.3741

Letter of Transmittal

To: Greg Held
Knothe & Bruce Architects
7601 University Avenue
Suite 201
Middleton, WI 53562
Ph: 608.836.3690 Fax: 608.836.6934

Transmittal #: 52
Date: 8/15/2018
Job: 17-08 Royster Crossing 86 Unit

Subject: Submittal

WE ARE SENDING YOU

- ☐ Attached
- ☐ Via the following items:
  - ☐ Shop drawings
  - ☐ Prints
  - ☐ Plans
  - ☐ Samples
  - ☐ Copy of letter
  - ☐ Change order
  - ☐ Specifications
  - ☑ Submittal

Document Type	Copies	Date	No.	Description
Submittal	1	8/15/18	07 25 00-1 Rev 0	Fluid Applied Air Barrier

THESE ARE TRANSMITTED as checked below:

- ☑ For approval
- ☐ For your use
- ☐ As requested
- ☐ For review and comment
- ☐ FOR BIDS DUE
- ☐ Approved as submitted
- ☐ Approved as noted
- ☐ Returned for corrections
- ☐ Other
- ☐ PRINTS RETURNED AFTER LOAN TO US
- ☐ Resubmit ___ copies for approval
- ☐ Submit ___ copies for distribution
- ☐ Return ___ corrected prints

Remarks:

Copy To:

From: John Medenwald (Connery Construction)

Signature: _____

If enclosures are not as noted, kindly notify us at once.

Submittal Transmittal

Zander Solutions, LLC. | 421 S. Nine Mound Road, Verona WI. 53593

PROJECT:	ROYSTER CORNERS 521-523 GRAND OAK TRAIL MADISON, WI	DATE SENT:	8/14/2018
SUBJECT:	WEATHER BARRIERS	SUBMITTAL ID:	07 25 00-001
		TRANSMITTAL ID:	18069AVB
TYPE:	DATA SHEET SUBMITTAL	VIA:	EMAIL
SPEC SECTIONS:	07 25 00		

NAME	COMPANY	EMAIL	PHONE
JERIN ZANDER	ZANDER SOLUTIONS	jerin@zandersolutions.com	608-209-8735

NAME	COMPANY	EMAIL	PHONE
JOHN M	CONNERY CONSTRUCTION	johnm@conneryconstruction.com	608-203-2751

	DESCRIPTION
1	BarritechVP Data Sheet
2	CCW 702 Primer Data Sheet
3	CCW 705 Data Sheet
4	Barribond Data Sheet
5	Barritech VP Material Certification
6	CCW 705 Material Certification
7	CCW Air Barrier ASTM E2357 Testing
8	BarritechVP E2178CMU E331 E330--Test Report
9	Royster Corners Air Barrier Takeoff
10	Applicator Certified Letter
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	

Review By: JM

Connery Construction Inc.

Date: 08-15-2018

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

CITY OF MADISON ENGINEERING

✘ REVIEWED WITH NO COMMENTS

( ) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Amy Scanlon

DATE: 9/20/2018

Fire Resist Barritech™ VP

Fluid-Applied, Fire-Resistant Vapor-Permeable Air Barrier

CARLISLE COATINGS & WATERPROOFING INCORPORATED

DESCRIPTION

Fire Resist Barritech VP is a fluid-applied membrane made from inherently fire-resistant materials. Fire Resist Barritech VP is applied to exterior wall assemblies where it functions as an air barrier and a water resistive barrier. Fire Resist Barritech VP is vapor-permeable - moisture vapor can diffuse directly through the membrane. Fire Resist Barritech VP can be applied over concrete block, concrete, exterior gypsum sheathing, plywood, OSB and many other common building materials. The product is fully adhered to the substrate, flexible and rubber-like. Fire Resist Barritech VP is a single component, air-drying product applied by spray or roller at nominal 0.040-inch (40 mils) dry film thickness. The high film thickness and flexible, elastic properties enable Fire Resist Barritech VP to bridge cracks and seal around penetrations, which creates a truly continuous, monolithic air and water barrier.





FIRE RESIST™

FEATURES AND BENEFITS

- Fire resistant composition permits use in many wall assemblies requiring NFPA 285
- Dries to a distinctive blue color for easy identification (lighter blue color when wet)
- 180-day UV resistance allows flexibility in schedule
- Vapor-permeable feature permits use in wall assemblies where a vapor barrier is not needed
- Non-flammable & fume-free composition contributes to safety during installation
- Easy, water clean-up of tools & equipment reduces harmful chemicals on the jobsite
- Spray-through standard, one-part equipment provides a simple and quick installation
- Monolithic coverage and self-sealing properties around fasteners enable an air and watertight installation
- Non-asphalt composition permits contact with many window and joint sealants
- Fire Resist Barritech VP is a warranted air/vapor barrier system from Carlisle Coatings & Waterproofing



900 Hensley Lane • Wylie TX 75098
800-527-7092 • www.carlisle-ccw.com

CARLISLE COATINGS & WATERPROOFING

TECHNICAL DATA

PROPERTY	METHOD	RESULTS
Color	--	Un-Cured: Light Blue Cured: Medium Blue
Application Temperature	--	Minimum 40°F
Volume % Solids	--	66%
Drying time of 60 mil wet film at 73°F/50% RH*	--	3 hr until tack-free 48 hr until fully dry
Coverage (Theoretical)**	Percent solids calculation	25 SQ FT per GAL (60 wet mils, 40 dry mils)
Volatile Organic Content (VOC)	--	<52 g/L
Water Resistance of in-place membrane	Rilem Tube – 60 wet mils on CMU AND AATCC 127, modified 60 wet mils on CMU and DensGlass 22 inch (55 cm) column of water	No water leakage through membrane
Air leakage resistance of in-place membrane	ASTM E1186 Bubble Gun – 60 wet mils on CMU with imbedded ties	No visible bubbling
Nail Sealability	ASTM D1970	Pass
Water Vapor Permeance	ASTM E96 B (Water Method) ASTM E 96 A (Desiccant Method)	14 Perms 0.7 Perm
Pull-Off Adhesion	ASTM D4541, modified 4" wood puck	> 30 PSI on CMU and OSB (maximum reading on gauge) > 12 PSI on DensGlass (de-lamination of facer from gypsum core)
Elongation at Break	ASTM D412	500%
Air Barrier Assembly Test	ASTM E2357. Gypsum sheathing over steel studs, wall assembly with joints and penetrations. Gaps and joints caulked with latex caulk. Barritech VP spray-applied at 60 mils wet. Liquifiber-W reinforcement at details. CCW-201 @ window-wall interface.	Air Leakage: Maximum 0.012 L/s*m² @ 75 Pa [0.0024 CFM / ft² @ 1.57 PSF] infiltration & exfiltation, after deformation, pressure cycling and gust loading. Deformation: No Damage. 600 Pa [12.56 PSF], sustained load for for 60 min Pressure Cycling: No damage. 2000 cycles at +/- 800 Pa [16.75 PSF] Gust Load: No damage, 1400 Pa [110 mph wind], windward and leeward load, 10 sec each direction.
Low-Temp Flexibility	ASTM D1970, 180° bend over 1" mandrel	No cracking at -20°F
Aging/ Long-Term Flexibity	CGSB 71-GP-24M Aging 70°C [140°F] for 500 h then 180° bend	No cracking
Wall Assembly Burn Test	NFPA 285	Pass - Various wall assemblies with up to 3 inches of polyiso or XPS insulation. Consult CCW NFPA 285 White Paper for assembly details.
Surface Burning	ASTM E84. Product applied @ 60 mils wet, full coverage, to cement board substrate.	Flame Spread Index 15, Smoke Generation Index 135
Measurement of Heat Release Rate by Cone Calorimeter	ASTM E 1354	Time to Ignition: 16 seconds Flame Duration: 142 seconds Average Effective Heat of Combustion: 12.3 MJ/kg [5,300 BTU/lb] Total Heat Released per Area: 14.7 MJ/m² [1,296 BTU/ft²]
Low-Temp Crack Bridging	ASTM C1305	No cracking after 10 cycles at -15° F
Air Permeance	ASTM E2178 - Mod Single, 60 mil wet coating spray-applied to CMU	</= 0.001 L/s*m² @ 75 Pa [0.0002 CFM/ft² @ 1.57 PSF]
Water Resistance of In-Place Membrane	ASTM E331, Single, 60 mil wet coating spray-applied to CMU	No visible leakage to interior after 15 minutes water spray rack @ 6.24 PSF
Mold Resistance	ASTM D5590	No Growth
Peel Adhesion	ASTM D903	13 lb/in on CMU and DensGlass Gold (facer failure)

* Drying time varies with ambient temperature, ambient humidity, substrate temperature, substrate dampness, coating thickness, sun and wind. Cool, moist, shady conditions and high coating thickness present the worst case scenario, causing the product to take many days to dry. In conditions such as these, it is advisable to tarp, heat and ventilate the area or wait for better weather.

** Actual coverage varies by substrate and is typically less than theortetical coverage due to substrate roughness and porosity, wind, scrap and installer skill. Measurable dy mil thickness may also be lower than theoretical, due to substrate roughness, porosity and measurement technique. On all substrates, coating shall be visibly continuous, with no pinholes. Dry thickness, measurable with a pin gauge, comb gauge or micrometer shall be a minimum of 30 mils.

PROJECT CONDITIONS

Building Codes and Project specifications require continuity of the air barrier installation. It is the installer's responsibility to understand the extent and sequencing of air barrier installation on the Project. Do not proceed with installation until substrate and Project conditions conform to requirements specified in this document. Identify any membranes, coatings, sealants, tapes and joint compounds by others which will come into contact with Barritech VP and CCW accessories, and verify compatibility through CCW.

All surfaces accepting Barritech VP and CCW accessories shall be clean, dry, frost free and of sound condition. Verify that wall assemblies are dried in, such that water intrusion will not occur from above, behind or around the membrane installation. Gaps and cracks exceeding ¼ inch across shall be filled with materials and technique approved by CCW. As Barritech VP and CCW Accessories cannot span any gap in excess of ¼ inch (exception - 1 inch gap for P/S Elastoform), electrical/mechanical penetrations, structural steel penetrations, columns/beams, expansion/seismic joints, shelf angles, tie-ins to fenestration and transitions to other building assemblies may require extra work and materials to provide suitable surfaces for continuous installation of the air barrier. Please consult CCW's Barritech VP details for guidance.

SUBSTRATE INSPECTION

Concrete:
Shall be cured in place 7 days minimum. It shall be smooth, with sharp protrusions such as cold joints ground flush. Honeycomb and holes/cracks exceeding ¼ inch across shall be filled with grout or mortar.

Concrete Masonry Unit (CMU):
Mortar joints shall be struck flush and shall be free of voids exceeding ¼ inch across. Mortar droppings shall be removed from brick ties and all other surfaces accepting Barritech VP and CCW Assessories. Mortar joints shall be allowed to cure 3 days minimum before installation of Barritech VP.

Gypsum Sheathing:
Sheathing boards shall be flush at joints, with gap between boards according to building code and sheathing manufacturer's requirements. Sheathing boards shall also be securely fastened to the structure with proper fastener type, technique and spacing according to building code and sheathing manufacturer's requirements. Sheathing boards shall be repaired or replaced if inspection reveals moisture damage, mechanical damage or if sheathing boards have exceeded the exposure duration or exposure conditions as required by the sheathing manufacturer.

OSB, Plywood, Lumber, Pressure-Treated Wood:
Wood sheathing inspection carries the same protocol given for gypsum sheathing. Also, moisture content, measured with a wood moisture meter in the core of the substrate, shall be below 20%. Do not cover any wooden materials with Barritech VP or CCW accessories if moisture content is 20% or above. Do not encapsulate wood (such as nailers) with membrane, as this will cause premature rot. In most cases fire- and pressure-treated wood must be kiln dried to accommodate the less than 20% moisture content requirement.

Surface Preparation:
Apply CCW contact adhesive to ALL surfaces accepting 705 FR. CCW-702, CCW-702LV, CCW-702 WB, CCW-715, CAV-GRIP and Travel-Tack are all acceptable for this application. Apply SURE-SEAL primers to all surfaces accepting P/S Eastoform. SURE-SEAL EP-95, HP-250 and Low-VOC EPDM Primer are all acceptable for this application. Follow the application instructions on the respective contact adhesive/ primer product data sheet.

INSTALLATION

In sheathing over stud construction, sheathing joints shall be detailed with any of the following three methods: 1) Prep surface with CCW contact Adhesive and install 4 inch 705 FR centered over joint 2) 4 inch DCH reinforcing fabric centered over joint and imbedded in Barritech VP 3) fill joint with approved sealant and tool as shown in CCW details. Window openings, inside-outside corners, base of wall, roofline, control joints and other transitions shall be flashed with 705FR or Liquifiber-W imbedded in Fire Resist Barritech VP or DCH Reinforcing Fabric imbedded in Fire Resist Barritech VP. P/S Elastoform may be used to detail expansion joints and window wall transitions. Please consult CCW details for guidance.

Apply Fire Resist Barritech VP over surfaces at minimum 0.060-inch (60 mils) wet in a single or multiple coats through approved spray equipment. Recommended spray tip sizes are GHD 635 for high coverage and GHD 429 for detail coat. Theoretical application rate is 25 square feet per gallon in one coat. Fire Resist Barritech VP may also be applied with a paint roller. For roller application, apply a minimum of two 0.030-inch (30 mils) wet thickness coats. Theoretical application rate is 50 square feet per gallon for each coat. For roller application, allow Fire Resist Barritech VP to dry firm between coats.

705FR details can be applied to the substrate or over cured Fire Resist Barritech VP. All surfaces shall be prepped with CCW Contact Adhesive before installation of 705FR. Follow application instructions on the CCW Contact Adhesive product data sheet. Installer shall apply CCW Contact Adhesive in a sufficient footprint to extend a minimum of 1 inch beyond the edges of 705FR. Neighboring pieces of 705FR shall lap 3 inches minimum. If 705FR is installed over Fire Resist Barritech VP, seal terminating edges of 705FR with CCW-201, Sure-Seal Lap sealant or approved sealant by others. If 705FR is installed to the substrate, lap Fire Resist Barritech VP at least 2 inches over edges of 705FR.

For installation of LiquiFiber-W in Fire Resist Barritech VP details, fill all gaps with approved sealant. Apply a bead of Fire Resist Barritech VP at 30 wet mils thickness. Lay LiquiFiber-W into Fire Resist Barritech VP and press in place with chip brush or drywall knife. Set the LiquiFiber-W tight into corners (no bridging), and then smooth over surface. Overlap neighboring pieces of LiquiFiber-W at least 2 inches and apply 30 wet mils of Fire Resist Barritech VP into the laps. Immediately encapsulate the LiquiFiber-W with a second coat of Fire Resist Barritech VP. Cover all LiquiFiber-W with Fire Resist Barritech VP the same day of installation. Liquifiber-W can be used on inverted surfaces, and it will conform to complex multi-plane details without precise cutting and fitting.

Installation of DCH Reinforcing Fabric is performed like Liquifiber-W, with the following differences: fill all gaps exceeding ¼ inch with approved sealant. DCH Reinforcing Fabric is not suitable for use over complex, multi-plane details or on inverted surfaces.

Fire Resist Barritech VP may be left exposed up to 6 months (180 days). If the membrane is damaged during exposure, repair damaged membrane by removing loosely adhered material, cleaning the surface and coating the damaged area with a minimum 0.060 inch (60 mils) wet thickness coating of Fire Resist Barritech VP.

CLEAN UP

Promptly clean uncured Barritech VP from hands, tools, surfaces and spray equipment with tap water. Cured product must be removed mechanically or by soaking in solvent, such as xylene.

LIMITATIONS

- Do not allow product in packaging or in spray equipment to freeze.
- Maintain product temperature above 45°F during spray.
- Do not apply at ambient temperature below 40°F or if temperature is expected to fall below 32°F in the next 16 hours.
- Do not apply product in rain. Do not install if rain is expected during drying time of product.
- Do not use in areas where temperatures exceeding 180°F are anticipated.
- Product is designed to be used as a positive side water barrier and will not function as negative side water barrier.

PACKAGING

Barritech VP
Fluid-applied, fire-resistant air/vapor barrier packaged in 50-gallon drums and 5-gallon pails

705FR
40-mil Self-Adhering Sheet Fire Resistant Flashing/ Membrane provided in 50-ft rolls of 48-inch, 24-inch, 12-inch, 9-inch, 6-inch and 4-inch widths.

CCW SURE-SEAL Pressure-Sensitive Elastoform Flashing (P/S Elastoform)
90-mil malleable, self-adhering EPDM flashing. Provided in 50-ft rolls of 12-inch, 9-inch and 6-inch widths.

SURE-SEAL EPDM Primers
EP-95 Splicing Cement: Solvent-Based, packaged in 1-gallon cans

H-P 250 Primer: solvent-based, packaged in 2.5 GAL pails.

Low VOC EPDM Primer: OTC Compliant, solvent-based. Packaged in 1-GAL cans.

LiquiFiber-W
Glass matt consisting of randomly oriented strands in soluble binder. Packaged in 300-ft rolls of 6-inch and 12-inch widths.

DCH Reinforcing Fabric
Woven polyester fabric available in 324-ft. rolls of 4-inch, 6-inch, and 12-inch widths.

CCW Contact Adhesives: (select any)

CAV-GRIP
Aerosol spray contact adhesive packaged in pressurized cylinders containing 30 lb. fill weight of adhesive. Reusable spray gun and 6-ft, 12-ft or 18-ft hose are sold separately and are attached to cylinder for dispense.

CCW-702
Solvent-based contact adhesive packaged in 1-gallon cans and 5-gallon pails

CCW-702 LV
OTC-compliant, solvent-based contact adhesive packaged in 5-gallon pails

CCW-702 WB
Water-based contact adhesive packaged in 5-gallon pails

CCW-715
Solvent-based contact adhesive for green concrete, packaged in 5-gallon pails

TRAVEL-TACK™
Aerosol contact adhesive packaged in 12-oz. cans

Approved Sealants:

LM 800 XL
(under Fire Resist Barritech VP)
Trowel-grade synthetic rubber sealant packaged in 29 fl-oz cartridges, 12 per case and in 5-gallon pails

CCW-201
(over or under Fire Resist Barritech VP)
2-Part, Non-Sag Polyurethane Sealant packaged in 1.5-gallon kits

SURE-SEAL Lap Sealant
(over or under Fire Resist Barritech VP)
1-part, solvent-based synthetic rubber. Packaged in 10.3 fl-oz cartridges, 25 per case.

Sealants by Others:
(over or under Fire Resist Barritech VP)
Polyurethane, polyether or MS polymer sealant meeting ASTM C920 Type S or M, Grade NS, Class 25, 35, 50 or 50/100, Use NT Outdoor Grade Acrylic Latex Caulk meeting ASTM C834 Type OP Grade minus 18°C

Sealants by Others:
(over Fire Resist Barritech VP only)
Silicone sealants meeting ASTM C920 Type S, Grade NS, Class 25, 35, 50 or 50/100, Use NT

STORAGE

Store Fire Resist Barritech VP and accessory products in a location protected from temperature extremes, precipitation and direct sunlight. Protect Fire Resist Barritech VP from freezing temperatures during delivery, storage and handling. Shelf life of Fire Resist Barritech VP in original, unopened packaging, stored under these conditions, is one year from the date of manufacture.

LIMITED WARRANTY

Carlisle Coatings & Waterproofing Incorporated (Carlisle) warrants this product to be free of defects in workmanship and materials only at the time of shipment from our factory. If any Carlisle materials prove to contain manufacturing defects that substantially affect their performance, Carlisle will, at its option, replace the materials or refund its purchase price.

The limited warranty is the only warranty extended by Carlisle with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. Carlisle specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever. The dollar value of Carlisle's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the Carlisle material in question.

900 Hensley Lane • Wylie TX 75098
800-527-7092 • www.carlisle-ccw.com

CARLISLE COATINGS & WATERPROOFING

Carlisle and Sure-Seal are trademarks of Carlisle. © 2013 Carlisle. 606075 Fire Resist Barritech VP Data Sheet 05.23.13

SCIENCE. SERVICE. SOLUTIONS.

CARLISLE COATINGS & WATERPROOFING

AIR & VAPOR BARRIER
CCW-705

Description

CCW-705 Air & Vapor Barrier is a 40-mil-thick (0.040" inch) composite membrane consisting of a rubberized-asphalt adhesive laminated to a tough, dimensionally stable, smooth-surfaced poly film. CCW-705 is provided in rolls of various widths lined with disposable silicone-coated plastic release film. The release film is removed to expose the adhesive as the membrane is pressed in place. CCW-705 provides a complete barrier to moisture and air when adhered to an above-grade substrate. Cut sizes are also useful for other above-grade wall flashing applications. CCW-705 is cold applied and will adhere firmly when pressed against the substrate.



Typical Use

CCW-705 is designed for use in above-grade wall assemblies to function as an air, vapor and water barrier. CCW-705 can be applied over many common building materials including gypsum sheathing, concrete masonry unit (CMU), concrete, wood, structural steel, metal flashings, aluminum extrusions and rigid PVC (i.e. pipe/conduit, window frames). All substrates shall be prepared with a CCW contact adhesive to provide consistent adhesion of CCW-705 in jobsite conditions.

Features/Benefits

- Printed facer provides easy product identification
- Factory-controlled composition provides uniform coverage and instant rain resistance after installation
- Self-adhering membrane provides easy, reliable installation; spray equipment or mil-thickness measurements required
- Membrane seals around fasteners and bridges cracks, providing an air- and water-tight assembly
- CCW-705 is a warranted air & vapor barrier system from Carlisle Coatings & Waterproofing

Project Conditions

Building codes and project specifications require continuity of the air barrier installation. It is the installer's responsibility to understand the extent and sequencing of air barrier installation on the project. Do not proceed with installation until substrate and project conditions conform to requirements specified in this document. All surfaces accepting CCW-705 shall be clean, dry, frost free and of sound condition. Verify that wall assemblies are dried in so that water intrusion will not occur from above, behind or around the membrane installation. Gaps and cracks exceeding ¼" across shall be filled with materials and technique approved by CCW. As CCW-705 cannot span any gap in excess of ¼" , electrical/mechanical penetrations, structural steel penetrations, columns/beams, expansion/seismic joints, shelf angles, tie-ins to fenestration and transitions to other building assemblies, these may require extra work and materials to provide suitable surfaces for continuous installation of CCW-705. Please consult the CCW-705 details for guidance.

Carlisle Coatings & Waterproofing
900 Hensley Lane | Wylie, TX 75098 | 800.527.7092 | **www.carlisleccw.com**

FIRE RESIST

AIR & VAPOR BARRIER
CCW-705

Substrate Inspection

Concrete

Concrete shall be cured in place 7 days minimum. It shall be smooth, with sharp protrusions such as cold joints ground flush. Honeycomb and holes/cracks exceeding ¼" across shall be filled with grout or mortar.

Concrete Masonry Unit (CMU)

Mortar joints shall be struck flush and shall be free of voids exceeding ¼ inch across. Mortar droppings shall be removed from brick ties and all other surfaces accepting CCW-705 and CCW accessories. Allow mortar joints to dry a minimum of 3 days prior to installation of CCW-705 and CCW accessories.

Gypsum Sheathing

Sheathing boards shall be flush at joints, with gap between boards according to building code and sheathing manufacturer's requirements. Sheathing boards shall also be securely fastened to the structure with proper fastener type, technique and spacing according to building code and sheathing manufacturer's requirements. Sheathing boards shall be repaired or replaced if inspection reveals moisture damage, mechanical damage or if sheathing boards have exceeded the exposure duration or exposure conditions as required by the sheathing manufacturer.

When installing CCW sheet membranes and sheet flashings over gyp-sheathing with glass-mat facers, coverage rates for contact adhesives and primers will depend on the porosity and texture of the sheathing and will vary substantially by gypsum-sheathing brand and manufacturer. To achieve consistent contact adhesive and/or primer coverage with adequate tack, it may be necessary to decrease the coverage rate (i.e. Increase the amount applied) of the contact adhesive and/or primer and/or the application of multiple coats. CCW Contact adhesives and primers shall be allowed to dry completely (lower temperatures will extend drying time) before additional coats are applied or membranes installed. Caution should be taken as contact adhesives and/or primers applied to gyp-sheathings with glass-mat facers will take longer to dry than other substrates. Multiple adhesion tests should be performed randomly to verify proper application of primer and ensure a successful application.

OSB, Plywood, Lumber & Pressure-Treated Wood

Wood sheathing inspection carries the same protocol given for gypsum sheathing. Also, moisture content, measured with a wood moisture meter in the core of the substrate, shall be below 20%. Do not cover any wooden materials with CCW-705 or CCW accessories if moisture content is 20% or above. Do not encapsulate wood (such as nailers) with membrane, as this will cause premature rot. In most cases fire- and pressure-treated wood must be kiln dried to accommodate the less than 20% moisture content requirement.

Surface Preparation

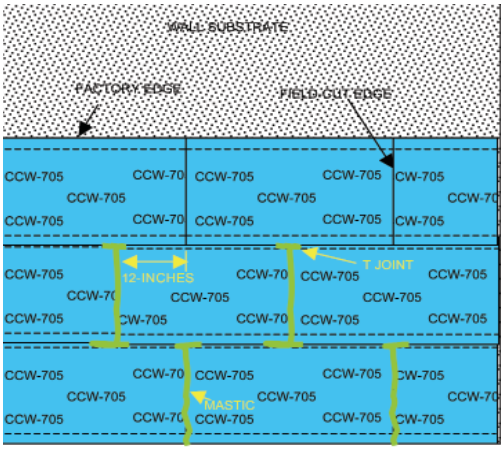
Apply CCW contact adhesive to ALL surfaces accepting CCW-705. CCW-702, CCW-702 LV, CCW-702 WB, CCW- 715, CAV-GRIP™ and TRAVEL-TACK™ are all acceptable for this application. Follow the application instructions on the respective contact adhesive technical data sheet.

Installation

Standard installation of the product can be performed at when ambient and substrate temperatures are 40°F and above. Installation below 40°F, as low at 25°F, can be performed if the product is stored in a heated area until use and the laps are treated with CCW contact adhesive. Installations below 40°F are best addressed with CCW-705 XLT - low temperature adhesive formula. Consult the CCW-705 XLT product data sheet for further instruction.

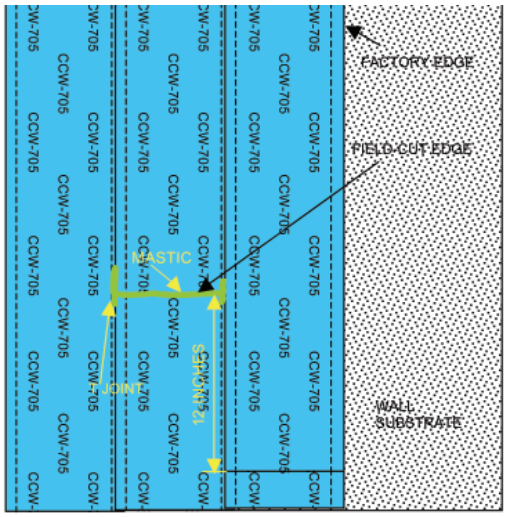
Install CCW-705 in horizontal rows or in vertical runs. Wipe dust or debris from film side of product with a clean, dry rag to assist in forming tight laps. Avoid forming wrinkles and air pockets. Press membrane firmly to substrate with a hand roller, especially at laps, corners and terminations. Overlap adjoining pieces of CCW-705 a minimum of 2 inches. Use narrower cut sizes for detailing. Sequence the installation to provide shingled laps. Membrane shall bear minimum 3 inches onto each side of transitions such

Figure 1: Installation in Horizontal Rows



- Start at bottom, work up
- Cut sheets to manageable size
- Offset vertical seams 12 inches minimum
- Lap neighboring pieces at least 2 inches
- Install Barribond or LM 800 XL over CCW-705
- Do not install CCW-705 over Barribond or LM 800 XL Mastic unless mastic has been allowed to cure 1 hour minimum

Figure 2: Installation in Vertical Runs



- Start at top, adhere top of sheet and unroll down wall
- Offset horizontal seams 12 inches minimum
- Lap neighboring pieces at least 2 inches
- Install LM 800 XL Mastic or CCW-201 OVER CCW-705
- Do not install CCW-705 over LM 800 XL Mastic unless mastic has been allowed to cure 1 hour minimum

as joints, angle changes and substrate changes. Membrane shall bear 6 inches minimum onto adjacent membrane systems such as foundation waterproofing or roofing. Apply a 1" width X 40 mil thickness ribbon or Barribond or LM 800 XL over to field-cut edges, T-joints, reverse laps and terminations. After CCW-705 installation, Pressure-Sensitive Elastoform may be used to detail expansion joints and window/wall transitions. Consult CCW-705 details for more information.

Inspection, Repair & Schedule

Protect membrane from damage by other trades. Do not cover work until it has been inspected according to project requirements. Cover CCW-705 with cladding system as soon as schedule permits. In cold climates, once CCW-705 is installed, avoid heating the building until the exterior insulation is installed. CCW-705 can be left exposed to UV for a maximum of 60 days. Repair damage to membrane by removing loosely adhered material and re-covering with CCW-705 patch, extending beyond the damage by at least 3 inches. Where CCW-705 patch or re-cover is installed, clean debris from surfaces of the old CCW-705 and prepare with CCW contact adhesive. TRAVEL-TACK, a CCW contact adhesive provided in convenient aerosol cans, can be used for this and similar touch-up applications. Seal terminations of repair patch with LM-800XL or Barribond. If multiple sheets are used in CCW-705 repair/re-cover, offset seams of new installation 12 inches minimum versus underlying CCW-705.

Limitations

- If NFPA is required, consult CCW's NFPA 285 extension report. CCW-705 passes NFPA 285 in some wall assembles.
- Do not install in areas expected to reach 150°F or higher.
- CCW-705 is a vapor barrier. The design professional shall determine appropriate use in project wall assemblies.
- Due to surface heat gain, do not install over foam insulation.
- Maximum permitted exposure time of CCW-705 on an un-insulated, vertical wall is 60 days.
- Exposure to high heat greatly reduces permitted exposure time. If wall stud cavity insulation is in place, or the membrane is in proximity to highly reflective roof/window surfaces, cover CCW-705 as soon as possible.
- Not intended for traffic resistance or as a wearing surface.
- Do not install on roofs.
- Do not install over PVC membrane, silicone, un-cured sealants or other incompatible materials. Consult CCW-705 details for more information.
- Keep edge of membrane ½" minimum back from finished exterior.

Packaging

CCW-705

36" x 75' roll: (225 ft²/roll) 1 roll/box
24" X 100' roll: (200 ft²/ roll) 1 roll/box
18" X 100' roll: (150 ft²/ roll) 1 roll/box
12" X 100' roll: (100 ft²/ roll) 2 roll/box
9" X 100' roll: (75 ft²/ roll), 2 roll/box
6" X 100' roll: (50 ft²/ roll) 4 roll/box
4" X 100' roll: (33.3 ft²/ roll) 6 roll/box

CCW Contact Adhesives

CCW-702 (solvent based, 5-gal pail)
CCW-702LV (solvent based, VOC compliant, 5-gal pail)
CCW-702WB (water-based, 5-gal pail)
CCW-715 (solvent based for green concrete, 5-gal pail)
CAV-GRIP #40 Aerosol Cylinder
CAV-GRIP gun
CAV-GRIP 18' hose
CAV-GRIP 12' hose
CAV-GRIP 6' hose
TRAVEL-TACK (12-oz aerosol cans, 12/carton)

CCW Sealants

CCW-201 (2-part Polyurethane, 1.5-gal kit)
LM-800 XL Mastic (29-oz tubes, 12/carton, 5-gal pail)
Barribond (1-part polyether sealant, 20 fl-oz sausage, 16/ carton)

SCIENCE. SERVICE. SOLUTIONS.

CARLISLE COATINGS & WATERPROOFING

AIR & VAPOR BARRIER

CCW-705

Other Approved Sealants
Certain silicone and polyurethane sealants have adequate adhesion to the CCW-705 and are suitable for use over the membrane. A few polyurethane sealants are also chemically compatible with the rubberized-asphalt adhesive. Consult the CCW-705 details for the most current list of approved sealants provided by others.

Warnings and Hazards

CCW-702, CCW-702 LV and LM 800 XL contain flammable and combustible solvents. Avoid exposure to open flame. Avoid breathing vapors. Use only in areas with adequate ventilation. Refer to MSDS for important warnings and product information.

CAV-GRIP, Travel-Tack: USE IN WELL-VENTILATED AREA. Do not puncture or incinerate container. Do not expose to heat or store at temperatures over 120°F. In case of eye contact, flush thoroughly with running water for at least 15 minutes and get medical attention. REFER TO PRODUCT DATA SHEET FOR PERFORMANCE CAPABILITIES.

Storage

CCW-705 rolls should be stored on-end, under cover, and in areas where the temperature is between 40° and 80°F (4.4° and 26.7°C). Do not double-stack pallets. Shelf life in original, un-opened packaging is 1 year.

Typical Properties

Property	Method	Results
Thickness	—	40 mils
Elongation	ASTM D412	300%
Water Vapor Permeance	ASTM E96 A (desiccant method) ASTM E96 B (water method)	0.08 perm 0.10 perm
Pliability	ASTM D146	Passes @ -25°F 0.063” mandrel
Peel Strength	ASTM D903	7.5 lb/in width
Tear Initiation and Propagation (Film)	ASTM D4073	20 lbf
Puncture Resistance	ASTM E154	48 lbf
Tensile Strength	ASTM D882	26 lbf/in
Water Resistance to Hydrostatic Pressure Head	AATCC 127, mod. 22" [55 cm] column of water for 5 hours	No leaking through membrane or 2" bonded lap
Lap Adhesion	ASTM D1876	5 lbf/in (average)
Water Absorption	ASTM D570	0.12% by wt

Property	Method	Results
Air Infiltration	ASTM E283	Pass
Water Penetration	ASTM E331	Pass
Wind Loading	ASTM E330	Pass
Air Permeance	ASTM E2178	0.000 L/s*m2 @ 75 Pa
Maximum Exposure to UV	—	60 days
Service Temperature	—	-25°F to 149°F
Nail Sealability	ASTM D1970	No water leakage
Pull-off Adhesion	ASTM D4541, modified 4" wood puck	18 PSI - glass-faced gypsum sheathing 19 PSI - CMU
Air Barrier Assembly Test	ASTM E2357. Gypsum sheathing over studs, wall assembly with joints and penetrations. CCW-705 applied over surfaces prepped with CCW-702 Contact Adhesive. P/S Elastoform @ window-wall interface.	Air Leakage: Maximum 0.0024 L/s*m² @ 75 Pa [0.0005 CFM / ft² @ 1.57 PSF] infiltration & exfiltration, after deformation, pressure cycling and gust loading. Deformation: No Damage. 600 Pa [12.54 PSF] sustained load for 60 min Pressure Cycling: No damage. 2000 cycles at +/- 800 Pa [16.72 PSF] Gust Load: No damage, 1200 Pa [94 mph wind], windward and leeward load, 10 sec each direction.

Standards

CCW-705 Air & Vapor Barrier conforms to the following specifications:

- USN; NAVFAC TS-07111
- Federal construction Guide Spec; FCGS-07111

Limited Warranty

Carlisle Coatings & Waterproofing Incorporated (Carlisle) warrants this product to be free of defects in workmanship and materials only at the time of shipment from our factory. If any Carlisle materials prove to contain manufacturing defects that substantially affect their performance, Carlisle will, at its option, replace the materials or refund its purchase price. This limited warranty is the only warranty extended by Carlisle with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. Carlisle specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever. The dollar value of Carlisle’s liability and buyer’s remedy under this limited warranty shall not exceed the purchase price of the Carlisle material in question.

Carlisle Coatings & Waterproofing
900 Hensley Lane | Wylie, TX 75098 | 800.527.7092 | **www.carlisleccw.com**

08.31.17 © 2017 Carlisle.
CCW-705 Technical Data Sheet

Carlisle is a trademark of Carlisle.

SCIENCE. SERVICE. SOLUTIONS.

CARLISLE COATINGS & WATERPROOFING

WATERPROOFING

CCW-702

Description

CCW-702 is a quick-drying, solvent-based, high-tack adhesive specifically designed to promote maximum adhesion of CCW Membrane Waterproofing products.

Installation

Apply by medium (⅜" for best results) nap roller or brush in an even film at 300 to 350 square feet per gallon. Caution must be taken not to apply excess contact adhesive which could cause longer drying times. Allow adhesive to dry for 20 minutes minimum at 75°F. Porous substrates require additional material, reducing the coverage rates for proper adhesion. Adhesive has a satisfactory cure when surface is tacky, but will not transfer when touched. Apply only in areas to be waterproofed the same day. Reapply if area becomes dirty or wet. When used in adverse climactic conditions (i.e. humid, cool, etc.) or on a porous substrate, additional time will be required.

All fluid-applied product application rates are based on theoretical coverage relative to the percentage of solids in the material. These are minimum application rates to achieve the required dry film thickness for the system and do not account for substrate condition or porosity. A thicker application of the product may be necessary to achieve the required dry film thickness for system relative to the substrate.

Apply to any surface the same day of application of membrane.

Surface Preparation for Gypsum-Sheathing with Glass-Mat Facers:

When installing CCW sheet membranes and sheet flashings over gyp-sheathing with glass-mat facers, coverage rates for contact adhesives and primers will depend on the porosity and texture of the sheathing and will vary substantially by gypsum-sheathing brand and manufacturer. To achieve consistent contact adhesive and/or primer coverage with adequate tack, it may be necessary to decrease the coverage rate (i.e. Increase the amount applied) of the contact adhesive and/or primer and/or the application of multiple coats. CCW Contact adhesives and primers shall be allowed to dry completely (lower temperatures will extend drying time) before additional coats are applied or membranes installed. Caution should be taken as contact adhesives and/or primers applied to gyp-sheathings with glass-mat facers will take longer to dry than other substrates. Multiple adhesion tests should be performed randomly to verify proper application of primer and ensure a successful application.

Warnings and Hazards

Flammable liquid and vapors. Use only with adequate ventilation and avoid breathing vapors. Refer to MSDS for other important warnings and product safety information.

Storage

Store CCW-702 between 35° and 110°F (2° to 43°C).

Packaging

5-gallon pails, 45 pails per pallet, P/N 305363

Typical Properties

Property	Results
Weight per Gallon	7.5 lbs
Solids Content	46% by wt
VOC Content	450 g/l
Color	Blue
Flash Point	-4°F (-20°C)
Adhesion to Concrete	11.0 lb/lin in
Minimum Application Temp	25°F (3.9°C)
Viscosity	200 cps
Storage Temp	35°F to 110°F

Limited Warranty

Carlisle Coatings & Waterproofing Incorporated (Carlisle) warrants this product to be free of defects in workmanship and materials only at the time of shipment from our factory. If any Carlisle materials prove to contain manufacturing defects that substantially affect their performance, Carlisle will, at its option, replace the materials or refund its purchase price. This limited warranty is the only warranty extended by Carlisle with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. Carlisle specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever. The dollar value of Carlisle's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the Carlisle material in question.

Carlisle Coatings & Waterproofing
900 Hensley Lane | Wylie, TX 75098 | 800.527.7092 | **www.carlisleccw.com**

03.30.15 © 2015 Carlisle.
REPRINT CODE: 602796 - CCW-702 Technical Data Sheet

Carlisle is a trademark of Carlisle.

SCIENCE. SERVICE. SOLUTIONS.

CARLISLE COATINGS & WATERPROOFING

LIQUID FLASHING & DETAIL SEALANT

BarriBond

Description

BarriBond is a high-solids, silane-terminated polyether (STPE) based compound designed for detailing rough openings, penetrations, sheathing joints, countersunk screws, transitions, angle changes, and other critical details encountered in CCW Fluid-Applied Air Barrier Systems. BarriBond can also be used as a termination mastic over CCW Self-Adhered Sheet Flashing Membranes. BarriBond is a single-component, moisture-cured adhesive/sealant which is applied from a sausage caulking gun, then smoothed in place with a trowel or squeegee. BarriBond is offered in a signature blue color for easy identification in warranted CCW Air Barrier Systems. The product is formulated for clean, easy application over horizontal, vertical, and inverted surfaces.

Features and Benefits

- Simple system warranted by one manufacturer: Complete installation only requires CCW liquid membrane and BarriBond (2 products)
- Convenient 20 fl-oz. (0.6 L) Sausage pack: long shelf life, easy extrusion, minimal waste
- Highly Thixotropic Behavior: neat installation, no slumping or dripping, easy to trowel smooth
- High Solids: 1-coat application, fills cracks and gaps up to 1" (25.4 mm) wide, virtually no shrinkage after cure
- Flexible & Elastic: Forms a tough, durable, and seamless coating at critical details
- Rapid Cure: Resists rain within minutes of application. Resistant to standing water after cure
- Compatible with many common construction materials and CCW Air Barriers
- Low VOC, Low Odor
- No Shrinkage or Staining
- Resistant to Organic Growth

Application

Substrate Preparation

Surfaces shall be clean of oil, dust, dry, and sound with no excess mortar droppings. Concrete Masonry Joints shall be free of voids and shall be tooled or struck flush. Gaps from ¼" to 1" wide shall be fitted with backer rod. Joints receiving backer rod shall provide a sealant depth of at least a ¼" but not more than ½". Acceptable substrates include Concrete Masonry Units, mortar/grout, concrete, exterior grade gypsum board, plywood, OSB, wood, aluminum, galvanized metal, and anodized aluminum. Any damaged gypsum sheathing should be replaced. Voids or irregularities in concrete or masonry substrates should be patched using a cementitious patching compound as needed.



1 Detail



2 Apply



3 Trowel



4 Check

Carlisle Coatings & Waterproofing
900 Hensley Lane | Wylie, TX 75098 | 800.527.7092 | **www.carlisleccw.com**

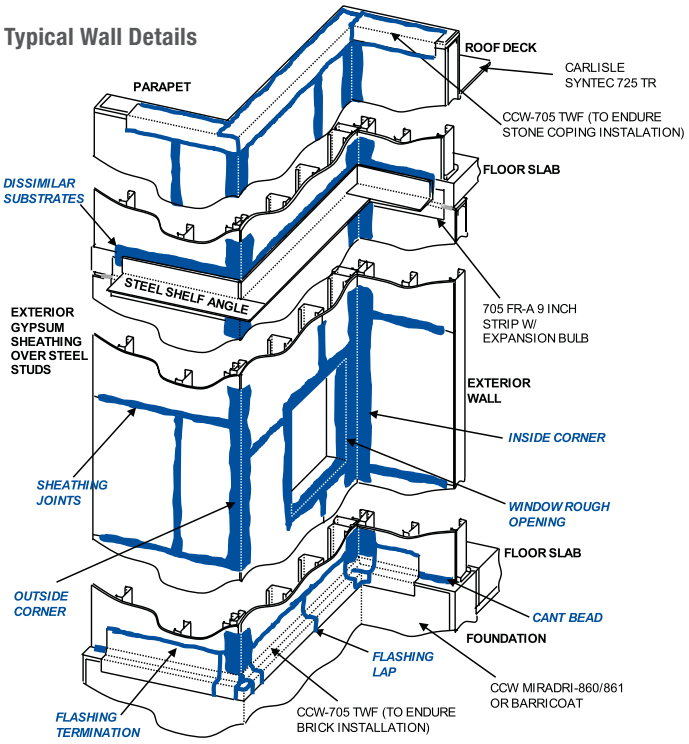
LIQUID FLASHING & DETAIL SEALANT

BarriBond

Use of BarriBond in CCW Air Barrier Systems

Acceptable CCW Membrane Products	Acceptable Applications
Sheet Products	
Fire-Resist 705 FR-A	Surface prep (installed before wall membrane): Gap Fill, Fillet Beads
Fire-Resist 705 FR-A LT	
Fire-Resist 705 VP	
CCW-705	Membrane Detailing: Rough Openings, Pipe/Duct Penetrations, T-Joints, Reverse Laps, Field-Cut Edges, Corner Pinholes, Screw/Hardware Penetrations, Membrane Terminations
CCW-705 LT	
CCW-705 HT	
CCW-705 TWF	
CCW-705 TWF LT	
Liquid Products	
Fire-Resist Barritech VP	Install before or after membrane: Gap Fill, Fillet Beads, Sheathing Board Joints, Screw Patches, Inside & Outside Corners, Rough Openings, Pipe/Duct Penetrations, Screw/Hardware Penetrations, Transition to Neighboring WRB, Roof or Waterproofing System
Fire-Resist Barritech VP LT	
Fire-Resist Barritech NP™	
Barriseal®-S	
Barriseal-R	

Typical Wall Details



BarriBond can be applied over or under all CCW Membrane products listed in the table above.

For best results, BarriBond should be stored above 50°F or warmer during wintertime applications. The sausage should be loaded into a suitable caulking gun. Cut nozzle orifice to user-preferred size and shape with a sharp utility knife or similar tool.

Compatibility

BarriBond is compatible with many common building materials including plywood, OSB, fire-treated wood, pressure-treated wood, concrete, CMU, glass-mat faced gypsum sheathing, aluminum, copper and PVC extrusion/pipe. BarriBond is also compatible with rigid foam insulation products including XPS, EPS, and R2+ Polyiso (foam core and facers).

BarriBond will not adhere to cured silicone. However, various silicone sealants commonly specified for sealing the window frame to the rough opening are compatible with cured BarriBond. These can be used to seal the window frame directly to cured BarriBond. Please consult CCW for a list of acceptable silicone window sealants.

Liquid Flashing Application (Rough Openings, Pipe/Duct Penetrations, Inside/Outside Corners)

Apply BarriBond in serpentine beads over the substrate. Spread BarriBond using a squeegee or a trowel to provide full, uniform coverage over the substrate. Apply to openings, pipe/duct penetrations and inside/outside corners as shown in the respective CCW air barrier system standard details. Apply BarriBond at a uniform wet mil thickness of 40 mils (0.040 inch), continuously monitoring thickness with a CCW Wet Mil Thickness Gauge to assure adequate coverage. BarriBond can be applied in a single coat. To facilitate installation, joints and gaps between dissimilar substrates may be treated with BarriBond and allowed to cure firm before proceeding with trowel coverage of the liquid flashing area. Also, the raw edge of gypsum sheathing can be treated with CCW-702, 702 LV, or 702 WB to consolidate this substrate and facilitate coverage with BarriBond. In liquid flashing applications, BarriBond shall tie into the main CCW Air Barrier Membrane with a minimum 2 inch lap. CCW BarriBond can be applied over all CCW Air Barrier Membranes, or the CCW membranes can be applied over BarriBond, depending on construction progression.

Detailing Sealant Applications (Sheathing Joints, Dissimilar Substrates, Non-Moving Cracks, Termination Mastic):

BarriBond can be used to fill joints, seams, and cracks on common exterior building substrates. Joints ranging from ¼" to 1" width may be treated with BarriBond. All joints ¼" width or greater shall be filled with backer rod prior to the application of BarriBond. Apply a generous bead of BarriBond over joints, seams, or cracks. Tool BarriBond using a putty knife, trowel or simlar tool. BarriBond shall fill the joint or crack and shall be capped with a "ribbon" of sealant, minimum of 40 mils (0.040 inch) thickness, and shall extend a minimum of 1 inch beyond each side of the joint. When using BarriBond to detail CCW 705, 705FR-A, or 705 TWF systems, a 1 inch wide by 40-mils thick ribbon of BarriBond shall be centered over CCW sheet membrane/flashing terminations, reverse laps, field cut edges and T-joints. BarriBond can also be applied as a cant bead in inside corner conditions.

Elastomeric Joint Sealant Application (Expansion/Control Joints, Window-Rough Opening Joint):

BarriBond can be used as an elastomeric joint sealant in conditions such as expansion or control joints in CMU or concrete walls and to seal the window/door frame to the rough opening. In these applications, the joint and substrates shall be clean, sound, dry and free of silicone or other bond-breaking contaminants. Joint shall be minimum ¼" width and maximum 1" width. Sealant depth shall be minimum ¼" and maximum ½". The joint shall be stuffed with closed cell polyethylene backer rod, or the bottom of the joint shall be taped with polyethylene bond breaker tape. Apply BarriBond into the joint and tool to a concave profile to assure complete fill of the joint and full contact with the substrate on each side of the joint.

Insulation Adhesive Application:

BarriBond can be used as an adhesive to bond rigid foam board insulation, including XPS, Insulfoam EPS, and R2+ Polyiso. Apply BarriBond in ⅜" thick by 3" diameter dabs to the back of rigid insulation, spacing adhesive dabs no more than 16" on center and no more than 3" from board ends and edges. After application of BarriBond dabs, immediately press the insulation board against the wall surface before adhesive "skins". If BarriBond "skins" before insulation can be placed, remove and apply fresh material. Secure the lowest row of insulation with fasteners, or begin from a ledge or footing to prevent slump or movement during cure of BarriBond.

Limitations

Use BarriBond as directed in CCW's membrane air systems, or in water resistive barrier (WRB) systems by others as approved by CCW. BarriBond is not suitable for Permanent UV exposure, cover product with exterior finish. BarriBond can be exposed to UV for a maximum of 6 months or 180 days. BarriBond is not intended as a wear-resistant or traffic-resistant surface. BarriBond is not recommended for spanning joints in excess of 1 inch wide or for filling joints/gaps of more than ½" depth. Do not apply BarriBond over visibly damp or wet substrates or over wood substrates having moisture content measuring 20% or higher. CCW BarriBond should not be installed in below grade conditions.

Packaging

BarriBond is packaged in 20 fl-oz sausages. Shelf life in original, unopened packaging is 12 months, provided the product is stored between 40°F and 80°F, 50% maximum relative humidity. Store BarriBond sausages in a cool, dry place protected from precipitation and direct sunlight.

Specifications

ASTM C 920 Type S, Grade NS, Class 25, Use NT

Federal Spec TT-S-00230C Type II, Class A

SCIENCE. SERVICE. SOLUTIONS.

CARLISLE COATINGS & WATERPROOFING

LIQUID FLASHING & DETAIL SEALANT

BarriBond

Typical Properties

Property	Method	Results
Color		Blue
Membrane Thickness: CCW AVB & Applications: 40 mils		40 mils wet/ 38 mils dry
Liquid Flashing Theoretical Coverage Rate		6.27 SQ FT/ 20 fl-oz sausage
% Solids		96%
VOC	Directive 2004/ 42/ EG	26 g/L
Application Temperature		20°F to 110°F*
Service Temperature		Minus 40°F to 200°F
Cure Time		40 mil membrane: 24 h @ 75°F/50% RH
Tack Free Time	ASTM C 679	20 minutes
Open Time		Approx. 5 minutes @ 75°F/50% RH
Tensile Strength	ASTM D 412	400 psi
Tensile Elongation	ASTM D 412	500%
Movement Capability	ASTM C 719	± 25%
Hardness – Shore A	ASTM C 661	50 ± 5
Maximum UV Exposure		6 months

Limited Warranty

Carlisle Coatings & Waterproofing Incorporated (Carlisle) warrants this product to be free of defects in workmanship and materials only at the time of shipment from our factory. If any Carlisle materials prove to contain manufacturing defects that substantially affect their performance, Carlisle will, at its option, replace the materials or refund its purchase price. This limited warranty is the only warranty extended by Carlisle with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. Carlisle specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever. The dollar value of Carlisle's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the Carlisle material in question.

Carlisle Coatings & Waterproofing
900 Hensley Lane | Wylie, TX 75098 | 800.527.7092 | **www.carlisleccw.com**

02.23.16 © 2016 Carlisle.
REPRINT CODE: 606381 - BarriBond Technical Data Sheet

Carlisle, Barritech NP and Barriseal are trademarks of Carlisle.

CCW Fire Resist BARRITECH VP
MATERIAL CERTIFICATION

This is to certify that Carlisle Coatings & Waterproofing CCW Fire Resist Barritech VP is a roller or spray applied synthetic rubber which cures to form a flexible, monolithic vapor-permeable air barrier membrane for use with concrete, masonry, insulation, steel, exterior sheathing, gypsum or wood wall construction and other substrates. CCW Fire Resist Barritech VP is Made in the USA.

Carlisle Coatings & Waterproofing manufactures CCW Fire Resist Barritech VP to comply with the following ASTM typical property values and meets the specification requirements:

Fire Resist Barritech VP - Property	Test Method	Typical Value
Color	--	Light Blue
Application Temperature	--	Min 40°F
Volume % Solids	--	66%
Drying Time of 60 mil wet film at 73°F/50% RH	--	3 hr until tack-free 48 hr until fully dry
Coverage (Theoretical)	Percent solids calculation	25 SQ FT per GAL (60 wet mils)
Volatile Organic Content (VOC)	--	<52 g/L
Water Absorption – Cured Membrane	24-h immersion at room temp	No blanching or softening
Water Resistance of in-place membrane	Rilem Tube – 60 wet mils on CMU AND AATCC 127, Modified 60 wet mils on CMU and DensGlass	No Water leakage through membrane
Air leakage resistance in-place membrane	ASTM E1166 Bubble Gun - 60 wet mils on CMU with imbedded ties	No visible bubbling
Nail Sealability	ASTM D 1970	Pass
Water Vapor Permeance	ASTM E 96A ASTM E 96 B	0.7 perm 14 perms
Pull-Off Adhesion	ASTM D4541, modified 4" wood puck	>30 PSI on CMU and OSB >12 PSI on Gyp Sheathing (Facer Delamination from Gyp Core)
Surface Burning	ASTM E 84. Product applied 60 mils wet, full coverage over gypsum sheathing	Flame Spread Index 15, Smoke Generation Index 2135
Elongation at Break	ASTM D 412	500%

Fire Resist Barritech NP - Property	Test Method	Typical Value
Air Barrier Assembly Test	ASTM E 2357	0.012 L/s*m^2 @ 75 Pa
Air Permance	ASTM E 2178	0.001 L/s*m^2 @ 75 Pa
Low-Temp Flexibility	ASTM D 1970	No Cracking @ -20^{0}F
Aging/Long-Term Flexibility	CGSB 71-GP-24M	No Cracking
Water Resistance of In-Place Membrane	ASTM E 331	No visible leakage to interior
Low-Temp Crack Bridging	ASTM C 1305	No Cracking
Wall Assembly Burn Test	NFPA 285	Pass – Various wall assemblies with up to 3" of Polyiso or XPS Insulation. Consult CCW NFPA 285 White Paper for Assembly Details.

Rev. January 24, 2014

CCW-705
MATERIAL CERTIFICATION

This is to certify that Carlisle Coatings & Waterproofing CCW-705 is a fully-adhered, self-adhering, air and moisture vapor membrane for use with concrete, masonry, gypsum, or wood wall construction. CCW-705 is a 40 mil membrane, 36 mils of pliable and highly-adhesive rubberized asphalt compound, completely and integrally bonded to a 4 mil, high density, cross laminated polyethylene film. The material is supplied in rolls, inter-wound with silicone coated release paper. CCW 705 is made in the USA.

Carlisle Coatings & Waterproofing certifies that it manufactures the CCW-705 to comply with the following published ASTM Standards and conforms to the specification requirements:

CCW-705 - Property	Test Method	Typical Value
Thickness	-	40 mils
Elongation	ASTM D 412	300%
Water Vapor Permeance	ASTM E 96 (A) ASTM E 96 (B)	0.08 perm 0.10 perm
Pliability	ASTM D 146	Passes @ -25F 0.063" mandrel
Peel Strength	ASTM D 903	7.5
Puncture Resistance	ASTM E 154	48 lbf
Tensile Strength	ASTM D 882	26 lbf/in
Lap Adhesion	ASTM D 1876	5 lbf/in
Water Absorption	ASTM D 570	0.12 % by wt
Air Infiltration	ASTM E 283	Pass
Water Penetration	ASTM E 331	Pass
Wind Loading	ASTM E 330	Pass
Air Permeance	ASTM E 2178	0.000 L/s^*m^2 @ 75 Pa
Nail Sealability	ASTM D 1970	No water leakage
Pull-off Adhesion	ASTM D 4541	18 PSI – Glass-faced gyp sheathing 19 PSI - CMU
Air Barrier Assembly Test	ASTM E 2357	0.0024 L/s^*m^2 @ 75 Pa

Rev. December 17, 2014

SCIENCE. SERVICE. SOLUTIONS.

CARLISLE COATINGS & WATERPROOFING

AIR & VAPOR BARRIER

Air Barrier Products Pass Tough ASTM E2357 Standards

What

Fire Resist Barritech VP, Fire Resist Barritech NP™, Barriseal® and CCW-705 air barrier products manufactured by Carlisle Coatings & Waterproofing (CCW) have passed independent lab tests certifying their reliability when used as part of full air barrier assemblies. The test followed tough industry standards set by ASTM E2357 *Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.*



CCW Barritech VP Mockup (Specimen #1)

During testing, the CCW Air Barrier Products successfully withstood:

- 71 miles-per-hour sustained wind loads;
- 80 miles-per-hour cyclic wind loads;
- 100 miles-per-hour gust wind loads; and
- 115 miles-per-hour wind pressure loads.

Both ABAA (Air Barrier Association of America) and the ASHRAE 90.1 Standard require that an air barrier assembly provide an air leakage rate not to exceed 0.2 L/s x m² @ 75 Pa when tested. Each of the CCW Air Vapor Products tested exceeded the standards measured.

CCW Property	Results*
Fire Resist Barritech VP	Exceed Standard
Fire Resist Barritech NP	Exceed Standard
Barriseal	Exceed Standard
CCW-705	Exceed Standard

*Measured in L/s x m²

Why

The ASTM E2357 test provides a consistent method for building professionals to evaluate a full air barrier assembly. Prior to this standard, only the air barrier material could be tested.

This standard calls for testing each of the elements that make up the air barrier assembly—materials, components and accessories. It gives evaluators a more accurate picture of how a fully sealed air barrier assembly withstands simulated wind load conditions that are likely to cause leaks in real-world situations.

"Air barrier assembly testing in accordance with ASTM E2357 has become a critical requirement in the air barrier industry. ABAA now requires the manufacturers to prove performance of air barriers using the ASTM E2357 test protocol. In addition, more and more project specifications require ASTM E2357 testing as part of the contract requirements. The ASTM E2357 test tells the design professional that the materials, components and accessories are actually going to work together and stay sealed during the operation of the building."

—Mr. Laverne Dalgleish, Executive Director, Air Barrier Association of American (ABAA)

Carlisle Coatings & Waterproofing
900 Hensley Lane | Wylie, TX 75098 | 800.527.7092 | **www.carlisleccw.com**

SCIENCE. SERVICE. SOLUTIONS.

CARLISLE COATINGS & WATERPROOFING

AIR & VAPOR BARRIER

How

To mimic real-world commercial structures, evaluators constructed two exterior wall mock-ups and installed full air barrier assemblies. Specimen 1 was a simple wall assembly with sheathing joints. Specimen 2 was constructed with sheathing joints; roof and foundation tie-ins; brick ties, window openings; and penetrations by electrical outlets, pipes and ductwork.

Each of the tie-ins and penetrations were fully sealed and flashed to the air barrier assembly to ensure they could withstand the simulated conditions required by the ASTM E2357 test.

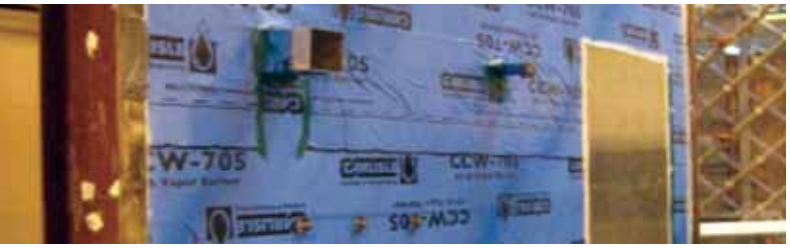
During testing, each wall mock-ups was exposed to positive and negative sustained wind loads of 600 Pa (71 mph); cyclic loads of 800 Pa (80 mph); gust loads of 1200 Pa (100 mph); and wind pressure loads of 1440 Pa (115 mph). Evaluators measured the structures for air infiltration and ex-filtration before, during and after the pressure cycling.

Products Used

Barritech VP Test	Barritech NP Test	Barritech Test	CCW-705 Test
Liquifiber™ Reinforcement Membrane	Liquifiber Reinforcement Membrane	CCW 201 2-part polyurethane	CCW 201 2-part polyurethane
Acrylic Sealant	Acrylic Sealant	CCW-702 Adhesive	CCW-702 Adhesive
		Barritape™ Joint Reinforcement Tape	CCW-705 Self-Adhered Strips
		CCW-705 Self-Adhered Strips	LM-800 XL Liquid Mastic

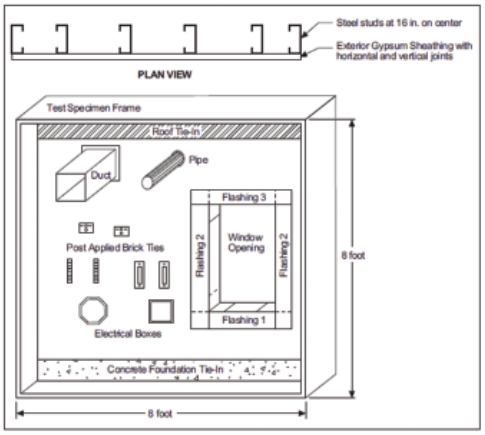
The Bottom Line

Independent laboratory tests prove Fire Resist Barritech VP, Fire Resist Barritech NP, Barriseal and CCW-705 air barrier products manufactured by Carlisle Coatings and Waterproofing (CCW) exceed industry standards for air barrier assemblies.



CCW-705 Self-Adhering Membrane Mockup (Specimen #2)

ASTM E2357 Test Assembly



Fluid-Applied, Vapor-Permeable Air Barrier

Barritech VP is a fluid-applied membrane applied to exterior wall assemblies where it functions as an air barrier and a water resistive barrier.

Fluid-Applied Air & Vapor Barriers

Fire Resist Barritech NP is a fluid-applied membrane applied to exterior wall assemblies where it functions as an air, vapor, and water resistive barrier.

Barriseal-S is a water-based asphalt emulsion modified with a blend of synthetic polymers and special additives. Barriseal-S is dispensed in tandem with Barricure, a non-corrosive, chloride-free deliquescent salt solution.

Barriseal-R is a water-based asphalt emulsion modified with a blend of synthetic polymers and special additives. Barriseal-R is applied by roller or brush, and air-dries to a rubber-like consistency.

Self-Adhering Air & Vapor Barrier

CCW-705 Air & Vapor Barrier is a 40-mil-thick composite membrane consisting of a rubberized asphalt adhesive laminated to a tough, cross-laminated HDPE film.

Carlisle Coatings & Waterproofing
900 Hensley Lane | Wylie, TX 75098 | 800.527.7092 | **www.carlisleccw.com**

02.09.17 © 2017 Carlisle.
REPRINT CODE: 605976 - ASTM Sell Sheet

Carlisle, Barritech NP, Barriseal, Liquifiber, and Barritape are trademarks of Carlisle.

Intertek ETL SEMKO

January 16, 2008

Mr. Brian Carey
Carlisle Coatings & Waterproofing
704 Linclon Road
Grosse Point, MI 48230

RE: Intertek Letter Report #3138127-02

Mr. Carey:

This letter is to inform you of the results of the R&D water penetration and structural performance testing conducted on your CMU wall unit with Barritech VP coating.

This testing was conducted on January 14, 2008 at the Intertek Middleton, WI facility.

After the completion of the ASTM E2178 on 5 CMU walls, Sample #5 (40" by 40") was subjected to a water penetration test and a structural performance test.

The water penetration test was conducted in accordance with ASTM E331 at a test pressure of 6.24 PSF. No water penetration was observed through the face of the concrete block, or into the cavities of the concrete block.

The structural performance test was conducted following the guidelines of ASTM E330. Deviations from the test method included deflections not being measured. The sample was loaded starting at 0 PSF and the load was slowly increased up to -340 PSF. The -340 PSF load was the maximum load able to be obtained with the equipment used. At the completion of the structural performance testing, there was no observed separation of the coating material from the concrete block assembly.

Please feel free to call if you have any questions. Thank you for choosing Intertek.

Reported by:

Russ Burt
Associate Engineer

Reviewed by:

Jim Turgeson
Project Manager

Intertek Testing Services NA, Inc.
8431 Murphy Drive, Middleton, WI 53562
Telephone: 608-836-4400 Fax: 608-831-8279 Web: www.intertek-etlsemko.com

Intertek ETL SEMKO

ITS TEST REPORT #3138127-01

REPORT

OF

AIR PERMEANCE

TESTS OF

BARRITECH™ VP
FLUID APPLIED COATING MATERIAL

FOR

CARLISLE COATINGS & WATERPROOFING, INCORPORATED
900 HENSLEY LANE
WYLIE, TX 75098
PHONE: 1-800-527-7092

BY

INTERTEK TESTING SERVICES NA INC.
8431 MURPHY DRIVE
MIDDLETON, WISCONSIN 53562

TEST DATE: NOVEMBER 21, 2007 – JANUARY 14, 2008
REPORT DATE: JANUARY 16, 2008

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. ITS assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. The report by itself does not imply that the material, product or service is or ever has been under an Intertek certification program.

INTRODUCTION

This report gives the results of the evaluation of the provided samples (Job #3138127). The test results described in this report are limited to the submitted items. From November 21, 2007 through January 14, 2008 Intertek conducted R&D tests on 5 samples at the Middleton, Wisconsin facility. The tests conducted are listed in the procedure section. Pressure measurements were taken with an inclined manometer (WHI #173) with an accuracy of +/- 0.01" w.c, air mass flow meter (WHI #985) with an accuracy of +/- 1.5% of FS (+/-0.01 L/sec), and air mass flow meter (WHI #872) with an accuracy of +/- 1.5% of FS (+/-0.004 L/sec). Coating thickness measurements were taken by the manufacturer and reported to Intertek with a wet film thickness gauge.

SPECIMEN DESCRIPTION

The manufacturer described the sample material evaluated as Barritech™ VP. Containers of the material indicated batch #1-122607. Each coating was applied to a nominal 40" by 40" medium density CMU wall with airless spray through Graco GMAX 7900 piston pump, 50 ft. of 3/8" hose, Graco Silver pistol grip dispense gun with 5031 reversible tip. Applied a single coat t walls using pass-and-a-half spray technique. The following is the average wet film thickness measurements taken on each sample during application. 60 mils was the manufacturers target thickness.

Average Wet Film Thickness (mils)	
Sample #1	60
Sample #2	55
Sample #3	60
Sample #4	65
Sample #5	80

PROCEDURE

The samples were tested as outlined in ASTM E 2178-03 draft revision test method for Air Permeance of Building Materials section 7.4 Fluid Applied Coating Materials. Wet film thickness measurements were taken on each sample within the field during coating application. Because of the high leakage rate of CMU block, a flow meter with more capacity and less resolution was used for the bare wall air leakage rates. Basis weight was not provided on material containers. The block wall assemblies and coatings were cured at approximately 70 degrees F for a minimum of 7 days prior to test. The manufacturer followed their own procedures and applied the coating to the wall assemblies.

AIR PREMEANCE DATA

#1	Bare Wall	Date: 11-21-07			
"WC	Masked	UnMasked	T-Leakage	L/min./m2	L/s/m2
0.1	BDL	19.9	19.9	22.52	0.38
0.2	0.1	38.2	38.1	43.12	0.72
0.3	0.2	EEC	>40	>45	>0.75
0.4	0.3	EEC	>40	>45	>0.75
0.6	0.4	EEC	>40	>45	>0.75
1.2	0.6	EEC	>40	>45	>0.75
0.4	0.3	EEC	>40	>45	>0.75
0.3	0.2	EEC	>40	>45	>0.75
0.2	0.1	37.8	37.7	42.67	0.71

#1	Barritech™ VP				Date: 1-10-08	
"WC	Masked	UnMasked	T-Leakage		L/min./m2	L/s/m2
0.1	0.003	0.004	0.001	0.028	0.032	0.001
0.2	0.005	0.006	0.001	0.028	0.032	0.001
0.3	0.008	0.008	0.000	0.000	0.000	0.000
0.4	0.010	0.010	0.000	0.000	0.000	0.000
0.6	0.012	0.013	0.001	0.028	0.032	0.001
1.2	0.024	0.024	0.000	0.000	0.000	0.000
0.4	0.010	0.009	0.00	-0.03	-0.032	-0.001
0.3	0.008	0.007	0.00	-0.03	-0.032	-0.001
0.2	0.005	0.006	0.00	0.03	0.032	0.001

#2	Bare Wall	Date: 11-21-07			
"WC	Masked	UnMasked	T-Leakage	L/min./m2	L/s/m2
0.1	BDL	13.2	13.2	14.94	0.25
0.2	BDL	26.7	26.7	30.22	0.50
0.3	0.1	EEC	>40	>45	>0.75
0.4	0.1	EEC	>40	>45	>0.75
0.6	0.2	EEC	>40	>45	>0.75
1.2	0.4	EEC	>40	>45	>0.75
0.4	0.1	EEC	>40	>45	>0.75
0.3	BDL	EEC	>40	>45	>0.75
0.2	BDL	26.2	26.2	29.65	0.49

#2	Barritech™ VP				Date:1-11-08	
"WC	Masked	UnMasked	T-Leakage		L/min./m2	L/s/m2
0.1	0.004	0.004	0.000	0.000	0.000	0.000
0.2	0.005	0.005	0.000	0.000	0.000	0.000
0.3	0.005	0.006	0.001	0.028	0.032	0.001
0.4	0.007	0.007	0.000	0.000	0.000	0.000
0.6	0.009	0.010	0.001	0.028	0.032	0.001
1.2	0.019	0.019	0.000	0.000	0.000	0.000
0.4	0.006	0.006	0.00	0.00	0.000	0.000
0.3	0.005	0.005	0.00	0.00	0.000	0.000
0.2	0.004	0.004	0.00	0.00	0.000	0.000

#3	Bare Wall	Date: 11-21-07			
"WC	Masked	UnMasked	T-Leakage	L/min./m2	L/s/m2
0.1	0.1	14.0	13.9	15.73	0.26
0.2	0.2	28.1	27.9	31.58	0.53
0.3	0.3	EEC	>40	>45	>0.75
0.4	0.4	EEC	>40	>45	>0.75
0.6	0.5	EEC	>40	>45	>0.75
1.2	0.8	EEC	>40	>45	>0.75
0.4	0.3	EEC	>40	>45	>0.75
0.3	0.2	EEC	>40	>45	>0.75
0.2	0.1	28.0	27.9	31.58	0.53

#3	Barritech™ VP				Date:1-11-08	
"WC	Masked	UnMasked	T-Leakage		L/min./m2	L/s/m2
0.1	0.009	0.010	0.001	0.028	0.032	0.001
0.2	0.014	0.015	0.001	0.028	0.032	0.001
0.3	0.017	0.019	0.002	0.057	0.064	0.001
0.4	0.022	0.024	0.002	0.057	0.064	0.001
0.6	0.028	0.031	0.003	0.085	0.096	0.002
1.2	0.048	0.053	0.005	0.142	0.160	0.003
0.4	0.022	0.024	0.00	0.06	0.064	0.001
0.3	0.016	0.019	0.00	0.08	0.096	0.002
0.2	0.013	0.014	0.00	0.03	0.032	0.001

#4	Bare Wall	Date: 11-21-07			
"WC	Masked	UnMasked	T-Leakage	L/min./m2	L/s/m2
0.1	BDL	13.4	13.4	15.17	0.25
0.2	0.1	27.0	26.9	30.44	0.51
0.3	0.2	40.4	40.2	45.50	0.76
0.4	0.2	EEC	>40	>45	>0.75
0.6	0.3	EEC	>40	>45	>0.75
1.2	0.6	EEC	>40	>45	>0.75
0.4	0.2	EEC	>40	>45	>0.75
0.3	0.1	39.9	39.8	45.04	0.75
0.2	BDL	26.5	26.5	29.99	0.50

#4	Barritech™ VP				Date:1-11-08	
"WC	Masked	UnMasked	T-Leakage		L/min./m2	L/s/m2
0.1	0.004	0.005	0.001	0.028	0.032	0.001
0.2	0.005	0.006	0.001	0.028	0.032	0.001
0.3	0.006	0.007	0.001	0.028	0.032	0.001
0.4	0.007	0.008	0.001	0.028	0.032	0.001
0.6	0.009	0.011	0.002	0.057	0.064	0.001
1.2	0.015	0.018	0.003	0.085	0.096	0.002
0.4	0.005	0.007	0.00	0.06	0.064	0.001
0.3	0.004	0.006	0.00	0.06	0.064	0.001
0.2	0.003	0.005	0.00	0.06	0.064	0.001

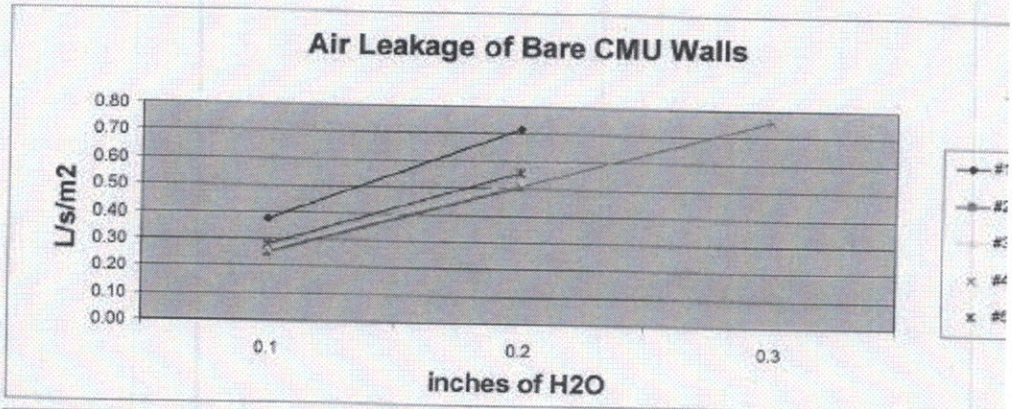
#5	Bare Wall	Date: 11-21-07			
"WC	Masked	UnMasked	T-Leakage	L/min./m2	L/s/m2
0.1	BDL	14.9	14.9	16.86	0.28
0.2	BDL	29.5	29.5	33.39	0.56
0.3	BDL	EEC	>40	>45	>0.75
0.4	0.1	EEC	>40	>45	>0.75
0.6	0.2	EEC	>40	>45	>0.75
1.2	0.4	EEC	>40	>45	>0.75
0.4	0.1	EEC	>40	>45	>0.75
0.3	BDL	EEC	>40	>45	>0.75
0.2	BDL	29.4	29.4	33.27	0.55

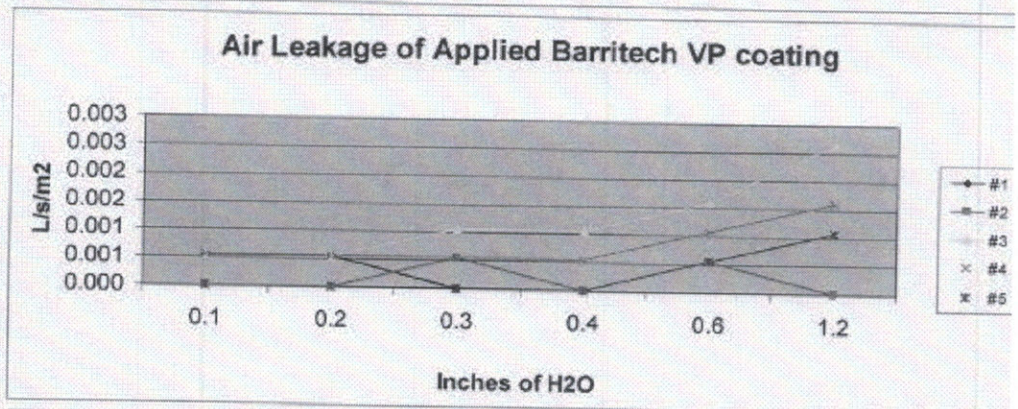
#5	Barritech™ VP				Date:1-14-08	
"WC	Masked	UnMasked	T-Leakage		L/min./m2	L/s/m2
0.1	0.006	0.006	0.000	0.000	0.000	0.000
0.2	0.009	0.009	0.000	0.000	0.000	0.000
0.3	0.011	0.011	0.000	0.000	0.000	0.000
0.4	0.014	0.014	0.000	0.000	0.000	0.000
0.6	0.018	0.019	0.001	0.028	0.032	0.001
1.2	0.030	0.032	0.002	0.057	0.064	0.001
0.4	0.012	0.013	0.00	0.03	0.032	0.001
0.3	0.010	0.010	0.00	0.00	0.000	0.000
0.2	0.008	0.007	0.00	-0.03	-0.032	-0.001

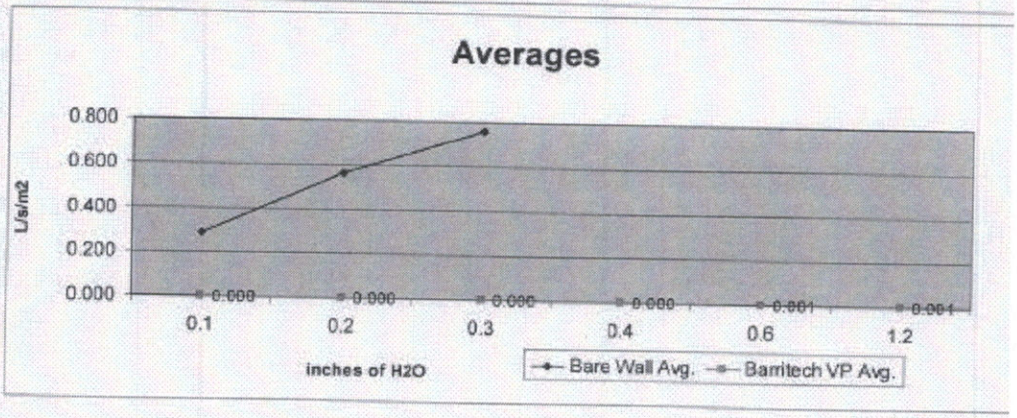
BDL - Air flow is below the detectable limits of the equipment used.
EEC - Air flow exceeds equipment capacity

ITS TEST REPORT #3138127-01
MODEL: BARRITECH™ VP
CLIENT: CARLISLE COATINGS & WATERPROOFING
TEST DATE: 11/21/07-1/14/08

AIR PERMEAN







Bare Block Leakage Rate Averages

"WC	L/min./m2	L/s/m2
0.1	17.04	0.284
0.2	33.75	0.562
0.3	45.50	0.758
0.4	>45	>0.75

Barritech™ VP Leakage Rate Averages

"WC	L/min./m2	L/s/m2
0.1	0.02	0.000
0.2	0.02	0.000
0.3	0.03	0.000
0.4	0.02	0.000

CONCLUSION

The Carlisle Coatings & Waterproofing Barritech™ VP when applied and tested at a nominal 65 mil wet film thickness had the following air leakage rates (L/(s·m^2).

Test Pressure	#1 (60 mils)	#2 (55 mils)	#3 (60 mils)	#4 (65 mils)	#5 (80 mils)	Average
25 Pa (0.1"WC)	0.001	0.000 Note[1]	0.001	0.001	0.000 Note[1]	0.000 Note[1]
50 Pa (0.2"WC)	0.001	0.000 Note[1]	0.001	0.001	0.000 Note[1]	0.000 Note[1]
75 Pa (0.3"WC)	**0.000 Note[1]**	**0.001**	**0.001**	**0.001**	**0.000 Note[1]**	**0.001 Note[1]**
100 Pa (0.4"WC)	0.000 Note[1]	0.000 Note[1]	0.001	0.001	0.000 Note[1]	0.000 Note[1]
150 Pa (0.6"WC)	0.001	0.001 [1]	0.002	0.001	0.001	0.001
300 Pa (1.2"WC)	0.000 Note[1]	0.000 Note[1]	0.003	0.002	0.001	0.001

Note[1] – Air leakage was below the detectable limits of the equipment used, less than 0.001 L/(s·m^2).

Test Conducted by:

Jim Turgeson
Project Manager

Report Reviewed by:

Russ Burt
Associate Engineer

March 1, 2017

Mr. Shane Voight
Zander Solutions, LLC
421 S Nine Mound Road
Verona, WI 53593

Dear Mr. Voight

This letter is to advise you that Zander Solutions, LLC based upon its experience, knowledge of product and expertise in application has met the criteria established and is certified as an Authorized Applicator for Carlisle Coatings & Waterproofing Air Barrier Systems manufactured by Carlisle Coatings and Waterproofing Incorporated.

Sincerely,

Jim Corbett
Regional Manager
Carlisle Coatings & Waterproofing

CC: Carlisle Coatings & Waterproofing Technical Services

Table Of Contents

Firestop Silicone Sealant (CFS-S SIL GG)

. Product Data Sheet for CFS-S SIL GG Firestop Silicone Sealant..... 1

. Material Safety Data Sheet (MSDS) for CFS-S SIL GG Firestop Silicone Sealant..... 2

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

CITY OF MADISON ENGINEERING

[X] REVIEWED WITH NO COMMENTS

( ) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 10/16/2018

Firestop Gun Grade Silicone Sealant CFS-S SIL GG

Product description

- A silicone based firestop sealant that provides maximum movement in fire-rated joints, and seals through-penetration applications

Product features

- Halogen and solvent free
- Asbestos free
- Simple to use and apply
- Good adhesion without use of a primer
- Smoke, fume, water and UV resistant
- Excellent movement capability, meets 500 cycle requirements (ASTM E 1966 and UL 2079)
- Meets Class I W-rating requirements
- Meets LEED™ requirements for indoor environmental quality credit 4.1 Low Emitting Materials, Sealants and Adhesives and 4.2 Paints and Coatings

Areas of application

- Sealing construction/expansion joints
- Top-of-wall joints
- Metal pipes
- Cable bundles
- HVAC penetrations

For use with

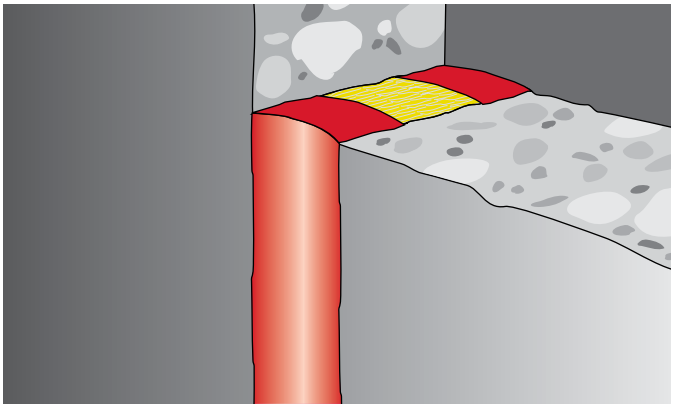
- Various base materials such as masonry, concrete, metal, etc.
- Wall and floor assemblies rated up to 4 hours

Examples

- Where a gypsum wall assembly meets the underside of a metal or concrete deck
- Sealing expansion joints to impede the passage of fire, smoke and toxic fumes
- Sealing around penetrations through fire-rated assemblies

Installation instructions

- Refer to what is included in the package, the MSDS, and the applicable listing.



Technical Data*	CFS-S SIL GG
Chemical basis	Neutral elastic silicone
Density	Approx. 1.4 g/cm³
Color	Available in red, white, and gray
Application temperature	40°F to 104°F (5°C to 40°C)
Skin-forming time	Approx. 15 min.
Curing time	Approx. 2 mm / 3 days
Volume shrinkage	Approx. 0 – 5%
Movement capability (UL 2079)	Approx. 33%
Temperature resistance	–40°F to 300°F (–40°C to 149°C)
Surface burning characteristics (ASTM E84-12)	Flame spread: 0 Smoke development: 25
Sound transmission classification (ASTM E 90-09)	59 (Relates to specific construction)
Tested in accordance with	UL 2079 ASTM E 814 ASTM E 1966 ASTM C 920 UL 1479 ASTM E 84 ASTM G21

*At 73°F (23°C) and 50% relative humidity

CLASSIFIED C UL US
FILL, VOID OR CAVITY MATERIAL FOR USE IN THROUGH-PENETRATION FIRESTOP SYSTEMS AND JOINT SYSTEMS SEE UL FIRE RESISTANCE DIRECTORY 5BP5

FM APPROVED

FBC SYSTEM COMPATIBLE
Visit fbcsystemcompatible.com.
FBC™ is a trademark of the Lubrizol Corporation.

W rated SYSTEMS AVAILABLE

Hilti. Outperform. Outlast.

MATERIAL SAFETY DATA SHEET

Product name:	**CFS-S SIL GG Firestop Silicone Sealant**
Description:	Flexible silicone sealant for firestopping through penetrations and construction joints where movement is expected.
Supplier:	Hilti, Inc. P.O. Box 21148, Tulsa, OK 74121
Emergency # (Chem-Trec.):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 703 527 3887 (Other countries)

INGREDIENTS AND EXPOSURE LIMITS

Ingredients:	CAS Number:	TLV:	PEL:	STEL:
Amorphous silica	7631-86-9	3 mg/m^3(R)	NE	NE
Calcium carbonate	000471-34-1	NE	5mg/m^3(R)	NE
Quartz silica	14808-60-7	0.025mg/m^3(R)	$\frac{10 \text{ mg/ } m^3(R)}{\% SiO_2 + 2}$	
Titanium dioxide	13463-67-7	10 mg/m^3	3 mg/m^3	NE

Abbreviations: **PEL** = OSHA Permissible Exposure Limit. **TLV** = ACGIH Threshold Limit Value. **STEL** = Short Term Exposure Limit. **NE** = None Established. **NA** = Not Applicable. **R** = Respirable Particle

PHYSICAL DATA

Appearance:	Red or white paste.	**Odor:**	Negligible.
Vapor Density: (air = 1)	Not applicable.	**Vapor Pressure @ 68° F:**	Not determined
Boiling Point:	Not applicable.	**VOC Content:**	48 g/l
Evaporation Rate:	Not applicable.	**Solubility in Water:**	Insoluable
Specific Gravity:	1.38	**pH:**	Not determined.

FIRE AND EXPLOSION HAZARD DATA

Flash Point:	412° F	**Flammable Limits:**	Not applicable.
Extinguishing Media:	Water, CO_2, Dry Chemical, Foam.		
Special Fire Fighting Procedures:	A NIOSH-approved self-contained breathing apparatus (SCBA) should be worn when fighting fires involving chemicals.		
Unusual Fire and Explosion Hazards:	None known. Product serves as a fire stopping material.		

REACTIVITY DATA

Stability:	Stable.	**Hazardous Polymerization:**	Will not occur.
Incompatibility:	Strong oxidizing agents, acids, alkaline hydroxides, and water.		
Decomposition Products:	Thermal decomposition can yield CO and CO_2.		
Conditions to Avoid:	None known.		

HEALTH HAZARD DATA

Known Hazards:	**Acute**: Irritation is possible. **Chronic:** None known or anticipated.
Signs and Symptoms of Exposure:	**Eyes –** Strong irritant with danger of eye injury. **Skin –** No irritant effects. **Inhalation** - No effects expected. **Ingestion** - Not a likely route of exposure.
Routes of Exposure:	Dermal, eyes..
Carcinogenicity:	Product contains quartz silica which is classified as a carcinogen by IARC, NTP, and OSHA. However, since the product is a wet paste, exposure is unlikely.
Medical Conditions Aggravated by Exposure:	Eye, skin, and respiratory conditions.

EMERGENCY AND FIRST AID PROCEDURES	
Eyes:	Immediately flush with plenty of water. Contact a physician.
Skin:	Wash with soap and water. Contact a physician if symptoms occur.
Inhalation:	If ill effects occur, move victim to fresh air. Contact a physician.
Ingestion:	Do not induce vomiting. If conscious, give plenty of water to drink. Contact a physician immediately.
Other:	Referral to a physician is recommended if there is any question about the seriousness of the injury/exposure.

CONTROL MEASURES AND PERSONAL PROTECTIVE EQUIPMENT	
Ventilation:	General (natural or mechanically induced fresh air movements).
Eye Protection:	Safety glasses with side shields.
Skin Protection:	Nitrile gloves are recommended.
Respiratory Protection:	None required under normal conditions of use.

PRECAUTIONS FOR SAFE HANDLING AND USE	
Handling and Storing Precautions:	Store in a cool dry area away from direct sunlight. Avoid temperature extremes; recommended storage temperature is between 40° and 77° F. For industrial use only. Keep out of reach of children. Use with adequate ventilation. Practice good hygiene; i.e. wash after using and before eating or smoking.
Spill Procedures:	Allow to cure and place in a container for proper disposal in accordance with all applicable local, state, or federal requirements. Not regulated as a hazardous waste according to federal EPA definitions.

REGULATORY INFORMATION	
Hazard Communication:	This MSDS has been prepared in accordance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
HMIS Codes:	Health 2, Flammability 1, Reactivity 0, PPE B
DOT Shipping Name:	Not regulated
IATA / ICAO Shipping Name:	Not regulated
TSCA Inventory Status:	Chemical components listed on TSCA inventory.
SARA Title III, Section 313:	This product does not contain any ingredients which are subject to reporting under Section 313 of SARA Title III (40 CFR Part 372).
EPA Waste Code(s):	Not regulated by EPA as a hazardous waste
Waste Disposal Methods:	Consult with regulatory agencies or your corporate personnel for disposal methods that comply with local, state, and federal safety, health and environmental regulations.

CONTACTS			
Customer Service:	1 800 879 8000	**Technical Service:**	1 800 879 8000
Health / Safety:	1 800 879 6000 Jerry Metcalf (x1003704)		
Emergency # (Chem-Trec):	1 800 424 9300 (USA, PR, Virgin Islands, Canada); 001 703 527 3887 (other countries)		

The information and recommendations contained herein are based upon data believed to be correct; however, no guarantee or warranty of any kind expressed or implied is made with respect to the information provided.

190, 350 and 500 Standard Entrances

Single Source Packages Generate Versatile First Impressions

DRAWING/SAMPLE REVIEW
Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.
✘ REVIEWED WITH NO COMMENTS
( ) REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS
BY: Bryan Cooper, AIA
DATE: 9/28/2018



Garland Special Events Center, Garland, TX
Architect: HKS, Inc., Dallas, TX
Glazing Contractor: B & B Glass, Inc., Dallas, TX

Tough yet attractive, the clean lines of Kawneer's Standard Entrances are designed as a single-source package of door, door frame and hardware that is easily adaptable to custom requirements. Designed to complement new or remodel construction, modern or traditional architecture, they are engineered, constructed and tested to make good first impressions while withstanding the rigors of constant use by occupants and visitors.

Performance

To resist both lever arm and torsion forces that constantly act on any door, all three entrances feature welded corner construction with Sigma deep penetration and fillet welds plus mechanical fastenings at each corner – a total of 16 welds per door. Each door corner comes with a Limited Lifetime Warranty, good for the life of the door under normal use operation. It is transferable from building owner to owner and is in addition to the standard two-year warranty covering material and workmanship of each Kawneer Door.

KAWNEER
AN ARCONIC COMPANY



1. Thermoplastic elastomer weatherstrip in blade-stop of frame jambs, header or transom bar.
2. Integral polymeric fin is attached to adjustable astragal creating an air barrier between pairs of doors.
3. Optional surface-applied bottom weatherstrip with flexible blade gasket. Extruded raised lip on threshold to provide a continuous contact surface for bottom weatherstrip.
4. Standard 1/4" beveled glass stops sheet water and dirt off without leaving residue.
5. Available in all finishes offered by Kawneer.

The 190 Narrow Stile Entrance

- Is engineered for moderate traffic in applications such as stores, offices and apartment buildings
- Vertical stile measures 2-1/8"; top rail 2-1/4" and bottom rail 3-7/8"
- Results in a slim look that meets virtually all construction requirements

The 350 Medium Stile Entrance

- Provides extra strength for applications such as schools, institutions and other high traffic applications
- Vertical stiles and top rails measure 3-1/2"
- Bottom rail measures 6-1/2" for extra durability

The 500 Wide Stile Entrance

- Creates a monumental visual statement for applications such as banks, libraries and public buildings
- Vertical stiles and top rail are 5"; bottom rail measures 6-1/2"
- Results in superior strength for buildings experiencing heavy traffic conditions

Economy

Kawneer's Sealair™ bulb neoprene weatherstripping forms a positive seal around the door frame and provides a substantial reduction in air infiltration, resulting in improved comfort and economies in heating and cooling costs. The system is wear and temperature-resistant and replaces conventional weathering. Bottom weatherstrip at the interior contains a flexible blade gasket to meet and contact the threshold, enhancing the air and water infiltration performance characteristics.

For the Finishing Touch

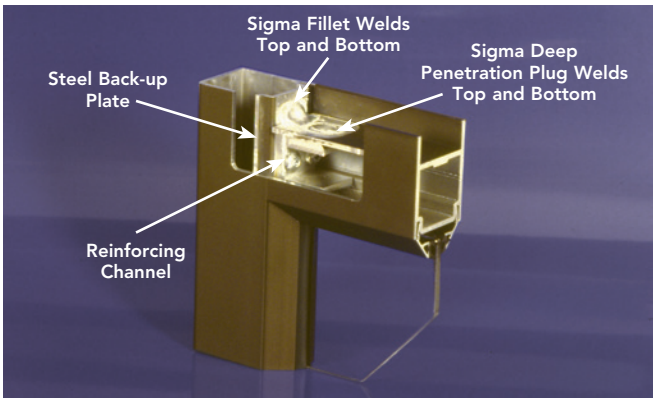
Architectural Class I anodized aluminum finishes are available in clear and Permanodic™ color choices.

Painted finishes, including fluoropolymer, that meet AAMA 2605 are offered in many standard choices and an unlimited number of specially designed colors.

Solvent-free powder coatings add the green element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.

General

- Heights vary to 10'; widths range from approximately 3' to 4'
- Door frame face widths range to a maximum of 4", while depths range to 6"
- Door operation is single or double-acting with maximum security locks or Touch Bar Panics standard
- Architect's Classic one inch round, bent bar push/pull hardware is available in various finishes and sizes
- Infills range from under 1/4" to more than 1"



Kawneer Company, Inc.
Technology Park / Atlanta
555 Guthridge Court
Norcross, GA 30092

kawneer.com
770 . 449 . 5555

KAWNEER
AN ARCONIC COMPANY

© Kawneer Company, Inc. 2012–2017 LITHO IN U.S.A. Form No. 17-2225
Sealair™ and Permanodic™ are trademarks of Kawneer Company, Inc.

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

This suggested guide specification has been developed using the current edition of the Construction Specifications Institute (CSI) "Manual of Practice", including the recommendations for the CSI 3 Part Section Format and the CSI Page Format. Additionally, the development concept and organizational arrangement of the American Institute of Architects (AIA) MASTERSPEC Program has been recognized in the preparation of this guide specification. Neither CSI nor AIA endorse specific manufacturers and products. The preparation of the guide specification assumes the use of standard contract documents and forms, including the "Conditions of the Contract", published by the AIA.

PART 1 - GENERAL

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 Summary

A. This Section includes Kawneer Aluminum Entrances, glass and glazing, and door hardware and components.
   1. Types of Kawneer Aluminum Entrances include:

      a. 350 Swing Door; Medium stile, 3-1/2" (89 mm) vertical face dimension, 1-3/4" (44.5 mm) depth, high traffic applications.

B. Related Sections:

   1. 084313 "Aluminum-Framed Storefronts"
   2. 088000 "Glazing"

1.3 Definitions

A. Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufactures Association (AAMA) – AAMA Glossary (AAMA AG).

1.4 Performance Requirements

AIR AND WATER PERFORMANCE RESULTS ARE BASED UPON ASTM AND AAMA STANDARDS FOR STOREFRONT ENTRANCE SYSTEMS.

A. General Performance: Aluminum-framed entrance system shall withstand the effects of the following performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B. Aluminum Framed Entrance Performance Requirements:

   1. Wind loads: Provide entrance system; include anchorage, capable of withstanding wind load design pressures of (__25__) lbs./sq. ft. inward and (_25___) lbs./sq. ft. outward.

entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.
necessary for product improvement.
© Kawneer Company, Inc., 2012

2. Air Infiltration: For single acting offset pivot or butt hung entrances in the closed and locked position, the test specimen shall be tested in accordance with ASTM E 283 at a pressure differential of 1.57 psf (75 PA) for single and pairs of doors. A single 3'0" x 7'0" (915 mm x 2134 mm) entrance door and frame shall not exceed 1.0 cfm/ft². A pair of 6'0" x 7'0" (1830 mm x 2134 mm) entrance doors and frame shall not exceed 1.0 cfm/ft².
3. Structural Performance: Corner strength shall be tested per the Kawneer dual moment load test procedure and certified by an independent testing laboratory to ensure weld compliance and corner integrity [Testing procedure and certified test results available upon request].

1.5 Submittals

A. Product Data: Include construction details, material descriptions, and fabrication methods, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum-framed entrance door indicated.

B. Shop Drawings: Include plans, elevations, sections, details, hardware, and attachments to other work, operational clearances and installation details.

C. Samples for Initial Selection: For units with factory-applied color finishes including samples of hardware and accessories involving color selection.

D. Samples for Verification: For aluminum-framed entrance door and components required.

E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each type of aluminum-framed entrance doors.

F. Fabrication Sample: Corner sample consisting of a door stile and rail, of full-size components and showing details of the following:
1. Joinery, including welds.
2. Glazing.

G. Other Action Submittals:
1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 Quality Assurance

A. Installer Qualifications: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum-framed entrance doors and storefronts that meet or exceed performance requirements indicated and of documenting this performance by inclusion of test reports, and calculations.

C. Source Limitations: Obtain aluminum-framed entrance door through one source from a single manufacturer.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum-framed entrance doors and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements". Do not modify size and dimensional requirements.
1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Build mockup for type(s) of swing entrance door(s) indicated, in location(s) shown on Drawings.

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination".

1.7 Project Conditions

A. Field Measurements: Verify actual dimensions of aluminum-framed entrance door openings by field measurements before fabrication and indicate field measurements on Shop Drawings.

1.8 Warranty

A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.
1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2012

PART 2 - PRODUCTS

2.1 Manufacturers

A. Basis-of-Design Product:
1. Kawneer Company Inc.
2. The door stile and rail face dimensions of the [____350____] entrance door will be as follows

Door	Vertical Stile	Top Rail	Bottom Rail	Optional Bottom Rail
350	3-1/2" (89 mm)	3-1/2" (89 mm)	6-1/2" (166 mm)	10" (254 mm)

3. Major portions of the door members to be 0.125" (3.2) nominal in thickness and glazing molding to be 0.05" (1.3) thick.
4. Glazing gaskets shall be either EPDM elastomeric extrusions or a thermoplastic elastomer.
5. Provide adjustable glass jacks to help center the glass in the door opening.

B. Substitutions: Refer to Substitutions Section for procedures and submission requirements
1. Pre-Contract (Bidding Period) Substitutions: Submit written requests ten (10) days prior to bid date.
2. Post-Contract (Construction Period) Substitutions: Submit written request in order to avoid aluminum-framed entrance door installation and construction delays.
3. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.
4. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for aluminum-framed entrance door system performance criteria, and (2) has been engaged in the design, manufacturer and fabrication of aluminum-framed entrance doors for a period of not less than ten (10) years. (Company Name)
5. Test Reports: Submit test reports verifying compliance with each test requirement required by the project.
6. Samples: Provide samples of typical product sections and finish samples in manufacturer's standard sizes.

C. Substitution Acceptance: Acceptance will be in written form, either as an addendum or modification, and documented by a formal change order signed by the Owner and Contractor.

2.2 Materials

A. Aluminum Extrusions: Alloy and temper recommended by aluminum-framed entrance door manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.090" (2.3 mm) wall thickness at any location for the main frame and door leaf members.

B. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum-framed entrance door members, trim hardware, anchors, and other components.

C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.
1. Weather Seals: Provide weather stripping with integral barrier fin or fins of semi-rigid, polypropylene sheet or polypropylene-coated material. Comply with AAMA 701/702.

2.3 Storefront Framing System

A. Storefront Entrance Framing:
1. Trifab™ VG 451/451T & Trifab™ 451UT.

B. Non-Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.

D. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

E. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.
necessary for product improvement.
© Kawneer Company, Inc., 2012

F. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

2.4 Glazing

A. Glazing: As specified in Division 08 Section "Glazing".

B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.

C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

2.5 Hardware

A. Per Door Hardware Schedule submittal

2.6 Fabrication

A. Fabricate aluminum-framed entrance doors in sizes indicated. Include a complete system for assembling components and anchoring doors.

B. Fabricate aluminum-framed glass doors that are reglazable without dismantling perimeter framing.
1. Door corner construction shall consist of mechanical clip fastening, SIGMA deep penetration plug welds and 1-1/8" (29 mm) long fillet welds inside and outside of all four corners. Glazing stops shall be hook-in type with EPDM glazing gaskets reinforced with non-stretchable cord.
2. Accurately fit and secure joints and corners. Make joints hairline in appearance.
3. Prepare components with internal reinforcement for door hardware.
4. Arrange fasteners and attachments to conceal from view.

C. Weather-stripping: Provide weather-stripping locked into extruded grooves in door panels or frames as indicated on manufacturer's drawings and details.

2.7 Aluminum Finishes

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:
1. Kawneer Permanodic™ AA-M10C21A44 / AA-M45C22A44, AAMA 611, Architectural Class I Color Anodic Coating (Color - Black).
2. Kawneer Permanodic™ AA-M10C21A41 / AA-M45C22A41, AAMA 611, Architectural Class I Clear Anodic Coating (Color #17 Clear)

PART 3 - EXECUTION

3.1 Examination

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated installation.
1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (76.2 mm) of opening.
3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum-framed entrance doors, hardware, accessories, and other components.

B. Install aluminum-framed entrance doors level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.

C. Set sill threshold in bed of sealant, as indicated, for weather tight construction.

D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 Field Quality Control

A. Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2012

3.4 Adjusting, Cleaning, and Protection

A. Clean aluminum surfaces immediately after installing aluminum-framed entrance doors. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

DISCLAIMER STATEMENT

This guide specification is intended to be used by a qualified construction specifier. The guide specification is not intended to be verbatim as project specification without appropriate modifications for the specific use intended. The guide specification must be used and coordinated with the procedures of each design firm, and the particular requirements of a specific construction project.

END OF SECTION 084113

entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

necessary for product improvement.

© Kawneer Company, Inc., 2012

190/350/500 Standard Entrances

THERMAL PERFORMANCE MATRIX (NFRC SIZE)

350 (SINGLE DOOR)

Thermal Transmittance [1] (BTU/hr • ft [2] • °F)

Glass U-Factor [3]	Overall U-Factor [4]
0.48	0.83
0.46	0.82
0.44	0.81
0.42	0.81
0.40	0.80
0.38	0.79
0.36	0.78
0.34	0.77
0.32	0.76
0.30	0.75
0.28	0.74
0.26	0.73
0.24	0.72
0.22	0.71
0.20	0.70
0.18	0.69
0.16	0.68
0.14	0.68
0.12	0.67
0.10	0.66

NOTE: For glass values that are not listed, linear interpolation is permitted.

1. U-Factors are determined in accordance with NFRC 100.
2. SHGC and VT values are determined in accordance with NFRC 200.
3. Glass properties are based on center of glass values and are obtained from your glass supplier.
4. Overall U-Factor, SHGC, and VT Matricies are based on the standard NFRC specimen size of 960 mm wide by 2,090 mm high (37-3/4" by 82-3/8").

SHGC Matrix [2]

Glass SHGC [3]	Overall SHGC [4]
0.75	0.43
0.70	0.41
0.65	0.38
0.60	0.36
0.55	0.33
0.50	0.30
0.45	0.28
0.40	0.25
0.35	0.23
0.30	0.20
0.25	0.17
0.20	0.15
0.15	0.12
0.10	0.10
0.05	0.07

Visible Transmittance [2]

Glass VT [3]	Overall VT [4]
0.75	0.39
0.70	0.36
0.65	0.34
0.60	0.31
0.55	0.29
0.50	0.26
0.45	0.23
0.40	0.21
0.35	0.18
0.30	0.16
0.25	0.13
0.20	0.10
0.15	0.08
0.10	0.05
0.05	0.03

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2015

Trifab™ VG (VersaGlaze™)

Trifab™ VG 450, 451 & 451T (Thermal) Framing Systems & Trifab™ 451UT (Ultra Thermal) Framing System

Design + Performance Versatility with Unmatched Fabrication Flexibility



Preston Pointe, Louisville, KY
Architect: Potter & Associates Architects PLLC, Louisville, KY
Glazing Contractor: Kentucky Mirror & Plate Glass Company, Louisville, KY

Trifab™ VersaGlaze™ is built on the proven and successful Trifab™ platform – with all the versatility its name implies. There are enough framing system choices, fabrication methods, design options and performance levels to please the most discerning building owner, architect and installer. The Trifab™ VersaGlaze™ family's newest addition, Trifab™ 451UT (Ultra Thermal) framing system, is designed for the most demanding thermal performance and employs a "dual" Isolock™ Thermal Break.

Aesthetics

Trifab™ VersaGlaze™ framing systems offer designers a choice of front-, center-, back- or multi-plane glass applications. Structural silicone glazing (SSG) and Weatherseal glazing options further expand the designers' choices, allowing for a greater range of design possibilities for specific project requirements and architectural styles. All systems have a 4-1/2" frame depth – Trifab™ VersaGlaze™ 450 has 1-3/4" sightlines, while Trifab™ VersaGlaze™ 451/451T and Trifab™ 451UT have 2" sightlines.

KAWNEER
AN ARCONIC COMPANY

With seamless incorporation of Kawneer entrances or windows, including GLASSvent™ visually frameless ventilators, Trifab™ VersaGlaze™ can be used on almost any project. These framing systems can also be packaged with Kawneer curtain walls and overhead glazing, thereby providing a full range of proven, and tested, quality products for the owner, architect and installer from a single source supplier.

Economy

Trifab™ VersaGlaze™ 450/451/451T framing systems offer four fabrication choices to suit your project (Trifab™ 451UT available as screw spline fabrication only):

- **Screw Spline** – for economical continuous runs utilizing two piece vertical members that provide the option to pre-assemble units with controlled shop labor costs and smaller field crews for handling and installation.
- **Shear Block** – for punched openings or continuous runs using tubular moldings with shear block clips that provide tight joints for transporting large pre-assembled multi-lite units.
- **Stick** – for fast, easy field fabrication. Field measurements and material cuts can be done when metal is on the job.
- **Type B** – Same fabrication benefits as shear block except head and sill run through.

All systems can be flush glazed from either the inside or outside. The Weatherseal option provides an alternative to SSG vertical mullions for Trifab™ VersaGlaze™ 450/451/451T. This ABS/ASA rigid polymer extrusion allows complete inside glazing and creates a flush glass appearance on the building exterior without the added labor of scaffolding or swing stages. Additionally, High-Performance (HP) Flashing options are engineered to eliminate perimeter sill fasteners and associated blind seals.



Brighton Landing, Cambridge, MA
Architects: ADD Inc., Cambridge, MA
Glazing Contractors: Ipswich Bay Glass Company,Inc., Rowley, MA

For the Finishing Touch

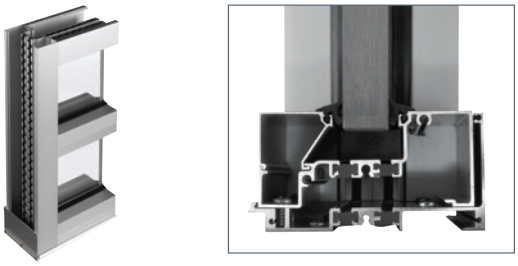
Architectural Class I anodized aluminum finishes are available in clear and Permanodic™ color choices.

Painted finishes, including fluoropolymer, that meet AAMA 2605 are offered in many standard choices and an unlimited number of specially designed colors.

Solvent-free powder coatings add the green element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.

Performance

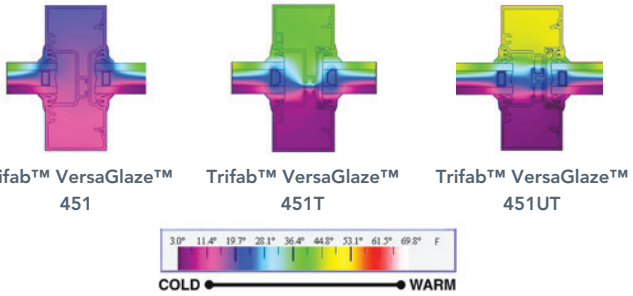
Kawneer's Isolock™ Thermal Break process creates a composite section, prevents dry shrinkage and is available on Trifab™ VersaGlaze™ 451T. For even greater thermal performance, a "dual" Isolock™ Thermal Break is used on Trifab™ 451UT.



Trifab™ 451UT uses a "dual" Isolock™ Thermal Break (right) and features a new HP (High Performance) sill design, which incorporates a screw-applied end dam (left), ensuring positive engagement and tight joints between the sill flashing and end dam.

U-factor, CRF values and STC ratings for Trifab™ VersaGlaze™ vary depending upon the glass plane application. Project specific U-factors can be determined for each individual project. (See the Kawneer Architectural Manual or Kawneer.com for additional information).

Thermal simulations showing temperature variations from exterior/cold side to interior/warm side.

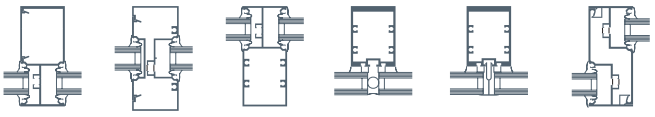


Trifab™ VersaGlaze™ 451 | **Trifab™ VersaGlaze™ 451T** | **Trifab™ VersaGlaze™ 451UT**

PERFORMANCE TEST STANDARDS

Air Infiltration	ASTM E 283
Water	AAMA 501, ASTM E 331
Structural	ASTM E 330
Thermal	AAMA 1503
Thermal Break	AAMA 505, AAMA TIR-A8
Acoustical	AAMA 1801, ASTM E 1425

Trifab™ VersaGlaze™ 450/451/451T glazing options
(note: Trifab™ 451UT available as center set glass plane only).



Front | **Center** | **Back** | **SSG** | **Weatherseal** | **Multi-Plane**

Kawneer Company, Inc.
Technology Park / Atlanta
555 Guthridge Court
Norcross, GA 30092

kawneer.com
770 . 449 . 5555

KAWNEER
AN ARCONIC COMPANY

© Kawneer Company, Inc. 2007–2017 LITHO IN U.S.A. Form No. 17-2289.a
Trifab™, VersaGlaze™, Insulclad™ and Permanodic™ are trademarks of Kawneer Company, Inc.

This product is not approved.

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

This suggested guide specification has been developed using the current edition of the Construction Specifications Institute (CSI) "Manual of Practice", including the recommendations for the CSI 3 Part Section Format and the CSI Page Format. Additionally, the development concept and organizational arrangement of the American Institute of Architects (AIA) MASTERSPEC Program has been recognized in the preparation of this guide specification. Neither CSI nor AIA endorse specific manufacturers and products. The preparation of the guide specification assumes the use of standard contract documents and forms, including the "Conditions of the Contract", published by the AIA.

PART 1 - GENERAL

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 Summary

A. Section Includes: Kawneer Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.
   1. Types of Kawneer Aluminum Storefront Systems include:

      a. Trifab™ VG 451T Framing System – 2" x 4-1/2" (50.8 mm x 114.3 mm) nominal dimension; Thermal; Front, Center Plane, Screw Spline.

B. Related Sections:

   1. 084113 "Aluminum-Framed Entrances and Storefronts"
   2. 088000 "Glazing"

1.3 Definitions

A. Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG).

1.4 Performance Requirements

A. Storefront System Performance Requirements:

AIR AND WATER PERFORMANCE RESULTS ARE BASED UPON ASTM AND AAMA STANDARDS FOR STOREFRONT FRAMING SYSTEMS.

   1. Wind loads: Provide storefront system; include anchorage, capable of withstanding wind load design pressures of (___25_) lbs./sq. ft. inward and (__25__) lbs./sq. ft. outward.
   2. Air Leakage: The test specimen shall be tested in accordance with ASTM E 283. Air Leakage rate shall not exceed 0.06 cfm/ft2 (0.3 l/s · m2) at a static air pressure differential of 6.2 psf (300 Pa) with interior seal, or, rate shall not exceed 0.06 cfm/ft2 (0.3 l/s · m2) at a static air pressure differential of 1.6 psf (75 Pa) without interior seal. CSA A440 Fixed Rating.
   3. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 8 psf (383 Pa) as defined in AAMA 501.
   4. Uniform Load: A static air design load of 35 psf (1680 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
   5. Seismic: When tested to AAMA 501.4, system must meet design displacement of 0.010 x the story height and ultimate displacement of 1.5 x the design displacement.
   6. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures:
      a. Temperature Change (Range): 0 deg F (-18 deg C); 180 deg F (82 deg C).
      b. Test Interior Ambient-Air Temperature: [75 deg F (24 deg C)] .
      c. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5 for a minimum 3 cycles.

THERMAL TRANSMITTANCE AND CONDENSATION RESISTANCE PERFORMANCE RESULTS ARE BASED UPON 1" CLEAR INSULATING GLASS (1/4" CLEAR WITH LOW E COATING ON #2 SURFACE, 1/2" Air SpaceL & 1/4" CLEAR).

   7. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than:
      a. Glass to Exterior – 0.47 (low-e) or 0.61 (clear)
      b. Glass to Center – 0.44 (low-e) or 0.61 (clear)
      c. Glass to Interior – 0.41 (low-e) or 0.56 (clear)

entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

necessary for product improvement.
© Kawneer Company, Inc., 2010

8. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than:
   a. Glass to Exterior – 70_{frame} and 69_{glass} (low-e) or 69_{frame} and 58_{glass} (clear).
   b. Glass to Center – 62_{frame} and 68_{glass} (low-e) or 63_{frame} and 56_{glass} (clear).
   c. Glass to Interior – 56_{frame} and 67_{glass} (low-e) or 54_{frame} and 58_{glass} (clear).
   d. .

1.5 Submittals

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum-framed storefront system indicated.

B. Shop Drawings: Include plans, elevations, sections, details, hardware, and attachments to other work, operational clearances and installation details.

C. Samples for Initial Selection: For units with factory-applied color finishes including samples of hardware and accessories involving color selection.

D. Samples for Verification: For aluminum-framed storefront system and components required.

E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each type of aluminum-framed storefront.

F. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
   1. Joinery.
   2. Anchorage.
   3. Expansion provisions.
   4. Glazing.
   5. Flashing and drainage.

G. Other Action Submittals:
   1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 Quality Assurance

A. Installer Qualifications: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications: A manufacturer capable of providing aluminum-framed storefront system that meet or exceed performance requirements indicated and of documenting this performance by inclusion of test reports, and calculations.

C. Source Limitations: Obtain aluminum-framed storefront system through one source from a single manufacturer.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum-framed storefront system and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements". Do not modify size and dimensional requirements.
   1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Build mockup for type(s) of storefront elevation(s) indicated, in location(s) shown on Drawings.

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination".

G. Structural-Sealant Glazing: Comply with ASTM C 1401, "Guide for Structural Sealant Glazing" for design and installation of structural-sealant-glazed systems.

H. Structural-Sealant Joints: Design reviewed and approved by structural-sealant manufacturer.

1.7 Project Conditions

A. Field Measurements: Verify actual dimensions of aluminum-framed storefront openings by field measurements before fabrication and indicate field measurements on Shop Drawings.

1.8 Warranty

A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.
   1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2010

PART 2 - PRODUCTS

2.1 Manufacturers

A. Basis-of-Design Product:
   1. Kawneer Company Inc.
   2. Trifab™ VG 451 (Non-Thermal) or Trifab™ 451T (Thermal) Framing System
   3. System Dimensions: 2" x 4-1/2" (50.8 mm x 114.3 mm)
   4. Glass: Center Plain

B. Aluminum Extrusions: Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" (1.8 mm) wall thickness at any location for the main frame and complying with ASTM B 221; 6063-T6 alloy and temper.

C. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum framing members, trim hardware, anchors, and other components.

D. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

E. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

F. Sealant: For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

G. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.2 Storefront Framing System

A. Thermal Barrier (Trifab™ VG 451T):
   1. Kawneer IsoLock™ Thermal Break with a 1/4" (6.4 mm) separation consisting of a two-part chemically curing, high-density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections.
      a. Thermal Break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.

B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposes shall be stainless steel.

D. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action

E. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

F. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

2.3 Glazing Systems

A. Glazing: As specified in Division 08 Section "Glazing".

B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.

C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

E. Glazing Sealants: For structural-sealant-glazed systems, as recommended by manufacturer for joint type, and as follows:
   1. Structural Sealant: ASTM C 1184, single-component neutral-curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by a structural-sealant manufacturer for use in aluminum-framed systems indicated.
      a. Color: Black
   2. Weatherseal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.
      a. Color: Matching structural sealant.

entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

© Kawneer Company, Inc., 2010

necessary for product improvement.

2.4 Entrance Door Systems

A. Entrance Doors: As specified in Division 084113 Section "Aluminum-Framed Entrances and Storefronts".

B. Entrance Door Hardware: As specified in Division 084113 Section "Door Hardware".

2.5 Fabrication

A. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
1. Profiles that are sharp, straight, and free of defects or deformations.
2. Accurately fit joints; make joints flush, hairline and weatherproof.
3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
4. Physical and thermal isolation of glazing from framing members.
5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
6. Provisions for field replacement of glazing.
7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

B. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

C. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.

D. Storefront Framing: Fabricate components for assembly using manufacturer's standard installation instructions.

E. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.6 Aluminum Finishes

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2010

B. Factory Finishing:
   1. Kawneer Permanodic™ AA-M10C21A44 / AA-M45C22A44, AAMA 611, Architectural Class I Color Anodic Coating (Color – Black).

PART 3 - EXECUTION

3.1 Examination

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight framed aluminum storefront system installation.
   1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
   2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (76 mm) of opening.
   3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
   4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum-framed storefront system, accessories, and other components.

B. Install aluminum-framed storefront system level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.

C. Set sill members in bed of sealant or with gaskets, as indicated, for weather tight construction.

D. Install aluminum-framed storefront system and components to drain condensation, water penetrating joints, and moisture migrating within aluminum-framed storefront to the exterior.

E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 Field Quality Control

A. Field Tests: Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
   1. Testing: Testing shall be performed by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements. Testing Standard per AAMA 503, including reference to ASTM E 783 for Air Infiltration Test and ASTM E 1105 Water Infiltration Test.
      a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft², whichever is greater.
      b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.2 psf (300 Pa).

B. Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

3.4 Adjusting, Cleaning, and Protection

A. Clean aluminum surfaces immediately after installing aluminum-framed storefronts. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.
necessary for product improvement.
© Kawneer Company, Inc., 2010

DISCLAIMER STATEMENT

This guide specification is intended to be used by a qualified construction specifier. The guide specification is not intended to be verbatim as project specification without appropriate modifications for the specific use intended. The guide specification must be used and coordinated with the procedures of each design firm, and the particular requirements of a specific construction project.

END OF SECTION 084113

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2010

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

This suggested guide specification has been developed using the current edition of the Construction Specifications Institute (CSI) "Manual of Practice", including the recommendations for the CSI 3 Part Section Format and the CSI Page Format. Additionally, the development concept and organizational arrangement of the American Institute of Architects (AIA) MASTERSPEC Program has been recognized in the preparation of this guide specification. Neither CSI nor AIA endorse specific manufacturers and products. The preparation of the guide specification assumes the use of standard contract documents and forms, including the "Conditions of the Contract", published by the AIA.

451UT product is specified and approved.
451 and 451T product is not approved.
9/28/18

DRAWING/SAMPLE REVIEW
Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly and for performing construction work in a safe manner.
( ) REVIEWED WITH NO COMMENTS
(X) REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED - SEE COMMENTS
BY: Bryan Cooper, AIA
DATE: 9/28/2018

PART 1 - GENERAL

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 Summary

A. Section Includes: Kawneer Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.
   1. Types of Kawneer Aluminum Storefront Systems include:
      a. Trifab™ 451UT Framing – 2" x 4-1/2" (50.8 mm x 114.3 mm) nominal dimension; Thermal; Center Plane, Screw Spline Fabrication.

B. Related Sections
   1. 084113 "Aluminum-Framed Entrances and Storefronts"
   2. 088000 "Glazing"

1.3 Definitions

A. Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG).

1.4 Performance Requirements

A. Storefront System Performance Requirements:

AIR AND WATER PERFORMANCE RESULTS ARE BASED UPON ASTM AND AAMA STANDARDS FOR STOREFRONT FRAMING SYSTEMS.

1. Wind loads: Provide storefront system; include anchorage, capable of withstanding wind load design pressures of (__25__) lbs./sq. ft. inward and (___25_) lbs./sq. ft. outward.
2. Air Leakage: The test specimen shall be tested in accordance with ASTM E 283. Air Leakage rate shall not exceed 0.06 cfm/ft2 (0.3 l/s · m2) at a static air pressure differential of 6.2 psf (300 Pa) with interior seal, or, rate shall not exceed 0.06 cfm/ft2 (0.3 l/s · m2) at a static air pressure differential of 1.6 psf (75 Pa) without interior seal. CSA A440 Fixed Rating.
3. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 10 psf (479 Pa) as defined in AAMA 501.
4. Uniform Load: A static air design load of 30 psf (1436 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
5. Seismic: When tested to AAMA 501.4, system must meet design displacement of 0.010 x the story height and ultimate displacement of 1.5 x the design displacement.
6. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures:
   a. Temperature Change (Range): 0 deg F (-18 deg C); 180 deg F (82 deg C).
   b. Test Interior Ambient-Air Temperature: [75 deg F (24 deg C)] .
   c. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5 for a minimum 3 cycles.

THERMAL TRANSMITTANCE AND CONDENSATION RESISTANCE PERFORMANCE RESULTS ARE BASED UPON 1" CLEAR INSULATING GLASS (1/4" CLEAR WITH LOW E COATING ON #2 SURFACE, 1/2" AS With 90% ARGON GAS FILL, 1/4" CLEAR).

7. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than:
   a. 0.32 (low-e)
8. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than:
   a. 68_{frame} and 68_{glass} (low-e).
9. Condensation Resistance (I): When tested to CSA A-440, the condensation index shall not be less than:
   a. 60_{frame} and 62_{glass} (low-e).

entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.
necessary for product improvement.
© Kawneer Company, Inc., 2010

b.

1.5 Submittals

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, hardware, finishes, and installation instructions for each type of aluminum-framed storefront system indicated.

B. Shop Drawings: Include plans, elevations, sections, details, hardware, and attachments to other work, operational clearances and installation details.

C. Samples for Initial Selection: For units with factory-applied color finishes including samples of hardware and accessories involving color selection.

D. Samples for Verification: For aluminum-framed storefront system and components required.

E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each type of aluminum-framed storefront.

F. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
1. Joinery.
2. Anchorage.
3. Expansion provisions.
4. Glazing.

G. Other Action Submittals:
1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.6 Quality Assurance

A. Installer Qualifications: An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.

B. Manufacturer Qualifications: A manufacturer capable of providing aluminum framed storefront system that meet or exceed performance requirements indicated and of documenting this performance by inclusion of test reports, and calculations.

C. Source Limitations: Obtain aluminum-framed storefront system through one source from a single manufacturer.

D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum-framed storefront system and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements". Do not modify size and dimensional requirements.
1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Build mockup for type(s) of storefront elevation(s) indicated, in location(s) shown on Drawings.

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination".

1.7 Project Conditions

A. Field Measurements: Verify actual dimensions of aluminum-framed storefront openings by field measurements before fabrication and indicate field measurements on Shop Drawings..

PART 2 - PRODUCTS

2.1 Manufacturers

A. Basis-of-Design Product:
1. Kawneer Company Inc.
2. Trifab™ 451UT Framing (Thermal)
3. System Dimensions: 2" x 4-1/2" (50.8 mm x 114.3 mm)
4. Glass: Center Plane

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2010

entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

2.2 Materials

A. Aluminum Extrusions: Alloy and temper recommended by aluminum storefront manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.070" wall thickness at any location for the main frame and complying with ASTM B 221: 6063-T6 alloy and temper.

B. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim hardware, anchors, and other components.

C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

E. Sealant: For sealants required within fabricated storefront system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

F. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 Storefront Framing System

A. Thermal Barrier (Trifab™ 451UT):
   1. Kawneer DUAL IsoLock™ Thermal Break with two (2) 1/4" (6.4 mm) separations consisting of a two-part chemically curing, high-density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections.
      a. Thermal Break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.
         1)

B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposes shall be stainless steel.

D. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

E. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

F. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle storefront material and components to avoid damage. Protect storefront material against damage from elements, construction activities, and other hazards before, during and after storefront installation.

2.4 Glazing Systems

A. Glazing: As specified in Division 08 Section "Glazing".

B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, extruded EPDM rubber.

C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.

E. Glazing Sealants: As recommended by manufacturer for joint type, and as follows:
   1. Weatherseal Sealant: ASTM C 920 for Type S, Grade NS, Class 25, Uses NT, G, A, and O; single-component neutral-curing formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and aluminum-framed-system manufacturers for this use.

2.5 Entrance Door Systems

A. Entrance Door Hardware: As specified in Division 084113 Section "Door Hardware".

2.6 Fabrication

A. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
   1. Profiles that are sharp, straight, and free of defects or deformations.
   2. Accurately fit joints; make joints flush, hairline and weatherproof.
   3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
   4. Physical and thermal isolation of glazing from framing members.
   5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.

necessary for product improvement.
© Kawneer Company, Inc., 2010

6. Provisions for field replacement of glazing.
7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

B. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

C. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.

D. Storefront Framing: Fabricate components for assembly using manufacturer's standard installation instructions.

E. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.7 Aluminum Finishes

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:

1. Kawneer Permanodic™ AA-M10C21A31, AAMA 611, Architectural Class II Clear Anodic Coating (Color #17 Clear)

PART 3 - EXECUTION

3.1 Examination

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight aluminum-framed storefront installation.
1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (76 mm) of opening.
3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing aluminum-framed storefront system, accessories, and other components.

B. Install aluminum-framed storefront system level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.

C. Set sill members in bed of sealant or with gaskets, as indicated, for weather tight construction.

D. Install aluminum-framed storefront system and components to drain condensation, water penetrating joints, and moisture migrating within aluminum-framed storefront system to the exterior.

E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 Field Quality Control

A. Field Tests: Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
1. Testing: Testing shall be performed by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements. Testing Standard per AAMA 503, including reference to ASTM E 783 for Air Infiltration Test and ASTM E 1105 Water Infiltration Test.
   a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft^2, whichever is greater.
   b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.2 psf (300 Pa).

B. Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

3.4 Adjusting, Cleaning, and Protection

A. Clean aluminum surfaces immediately after installing aluminum framed storefronts. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2010

B. Clean glass immediately after installation. Comply with glass manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

DISCLAIMER STATEMENT

This guide specification is intended to be used by a qualified construction specifier. The guide specification is not intended to be verbatim as project specification without appropriate modifications for the specific use intended. The guide specification must be used and coordinated with the procedures of each design firm, and the particular requirements of a specific construction project.

END OF SECTION 084113

necessary for product improvement.
© Kawneer Company, Inc., 2010
entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Customer: Hellenbrand Glass
Project: Royster Crossing/Pinney Library GL1-GL2

ARCHITECTURAL GUIDE SPECIFICATION
SECTION 08 81 00 GLASS GLAZING

Note to Specifiers:

The specifications below are suggested as desirable inclusions in glass and glazing specifications (section 08 81 00), but are not intended to be complete. An appropriate and qualified Architect or Engineer must verify suitability of a particular product for use in a particular application as well as review final specifications. Oldcastle BuildingEnvelope® assumes no responsibility or liability for the information included or not included in these specifications.

PRODUCTS

Approved Glass Fabricator
Oldcastle BuildingEnvelope®

Glass Description
FLOAT GLASS

1. USA - Annealed float glass shall comply with ASTM C1036, Type I, Class 1 (clear), Class 2 (tinted), Quality-Q3. Canada - Annealed float glass shall comply with CAN/CGSB-12.3-M, Quality-Glazing.

2. USA- Heat-strengthened float glass shall comply with ASTM C1048, Type I, Class 1 (clear), Class 2 (tinted), Quality Q3, Kind HS. Canada - Heat-strengthened float glass shall comply with CAN/CGSB-12.9-M, Type 2-Heat-Strengthened Glass, Class A-Float Glass.

3. USA - Tempered float glass shall comply with ASTM C1048, Type I, Class 1 (clear), Class 2 (tinted), Quality Q3, Kind FT. Canada - Tempered float glass shall comply with CAN/CGSB-12.1-M, Type 2-Tempered Glass, Class B-Float Glass.

4. USA - Laminated glass to comply with ASTM C1172. Canada - Laminated glass to comply with CAN/CGSB-12.1-M, Type 1-Laminated Glass, Class B-Float Glass.

5. Glass shall be annealed, heat-strengthened or tempered as required by codes, or as required to meet thermal stress and wind loads.

Sealed Insulating Glass (IG)
Vision Glass (Vertical)

GENERAL

1. IG units consist of glass lites separated by a dehydrated airspace that is hermetically dual sealed with a primary seal of polyisobutylene (PIB) and a secondary seal of silicone or an organic sealant depending on the application.

2. USA - Insulating glass units are certified through the Insulating Glass Certification Council (IGCC) to ASTM E2190. Canada - Insulating Glass units are certified through the Insulating Glass Manufacturers Alliance (IGMA) to either the IGMAC certification program to CAN/CGSB-12.8, or through the IGMA program to ASTM E2190.

IG VISION UNIT PERFORMANCE CHARACTERISTICS

1. Exterior Lite
1/4" Pilkington Energy Advantage™ Low-E #2

2. Interior Lite
1/4" Clear

3. 1/2" Cavity
1/2 inch (Air Fill)

4. Performance Characteristics

Thermal		Optical	
Winter U-factor/U-value:	0.33	Visible Light Transmittance:	73%
Summer U-factor/U-value:	0.33	Visible Light Reflectance (outside):	16%
Solar Heat Gain Coefficient:	0.62	Visible Light Reflectance (inside):	17%
Shading Coefficient:	0.71	Total Solar Transmittance:	52%
Relative Heat Gain (Btu/hr-ft^2):	147	Total Solar Reflectance (outside):	14%
Light to Solar Gain:	1.18	Ultraviolet Transmittance:	38%

Contact Oldcastle BuildingEnvelope® at 866-Oldcastle (653-2278) for samples or additional information concerning performance, strength, deflection, thermal stress or application guidelines. GlasSelect® calculates center of glass performance data using the Lawrence Berkeley National Laboratory (LBNL) Window 7.4 program (version 7.4.8.0) with Environmental Conditions set at NFRC 100-2010. Gas Library ID#1 (Air) is used for Insulating Glass units with air. Gas Library ID#9 (10% Air/90% Argon) is used for Insulating Glass units with argon. Monolithic glass data is from the following sources: 1. LBNL International Glazing Database (IGDB) version 53.0; 2. Vendor supplied spectral data files. Laminated glass data is from the following sources: 1. LBNL International Glazing Database (IGDB) version 53.0; 2. LBNL Optics 6 (version 6.0 Maintenance Pack 1); 3. Vendor supplied spectral data files; 4. Vendor supplied data. 5. Based on vendor testing, clear acid-etched glass performance data is estimated using regular clear glass of equivalent thickness. Thermal values are in Imperial units.

Customer: Hellenbrand Glass
Project: Royster Crossing/Pinney Library GL3-GL4

ARCHITECTURAL GUIDE SPECIFICATION
SECTION 08 81 00 GLASS GLAZING

Note to Specifiers:

The specifications below are suggested as desirable inclusions in glass and glazing specifications (section 08 81 00), but are not intended to be complete. An appropriate and qualified Architect or Engineer must verify suitability of a particular product for use in a particular application as well as review final specifications. Oldcastle BuildingEnvelope® assumes no responsibility or liability for the information included or not included in these specifications.

PRODUCTS

Approved Glass Fabricator
Oldcastle BuildingEnvelope®

Glass Description
FLOAT GLASS

1. USA - Annealed float glass shall comply with ASTM C1036, Type I, Class 1 (clear), Class 2 (tinted), Quality-Q3. Canada - Annealed float glass shall comply with CAN/CGSB-12.3-M, Quality-Glazing.

2. USA- Heat-strengthened float glass shall comply with ASTM C1048, Type I, Class 1 (clear), Class 2 (tinted), Quality Q3, Kind HS. Canada - Heat-strengthened float glass shall comply with CAN/CGSB-12.9-M, Type 2-Heat-Strengthened Glass, Class A-Float Glass.

3. USA - Tempered float glass shall comply with ASTM C1048, Type I, Class 1 (clear), Class 2 (tinted), Quality Q3, Kind FT. Canada - Tempered float glass shall comply with CAN/CGSB-12.1-M, Type 2-Tempered Glass, Class B-Float Glass.

4. USA - Laminated glass to comply with ASTM C1172. Canada - Laminated glass to comply with CAN/CGSB-12.1-M, Type 1-Laminated Glass, Class B-Float Glass.

5. Glass shall be annealed, heat-strengthened or tempered as required by codes, or as required to meet thermal stress and wind loads.

Sealed Insulating Glass (IG)
Vision Glass (Vertical)

GENERAL

1. IG units consist of glass lites separated by a dehydrated airspace that is hermetically dual sealed with a primary seal of polyisobutylene (PIB) and a secondary seal of silicone or an organic sealant depending on the application.

2. USA - Insulating glass units are certified through the Insulating Glass Certification Council (IGCC) to ASTM E2190. Canada - Insulating Glass units are certified through the Insulating Glass Manufacturers Alliance (IGMA) to either the IGMAC certification program to CAN/CGSB-12.8, or through the IGMA program to ASTM E2190.

IG VISION UNIT PERFORMANCE CHARACTERISTICS

1. Exterior Lite
1/4" PPG Solarban® 60 on Clear Low-E #2

2. Interior Lite
1/4" Clear

3. 1/2" Cavity
1/2 inch (90% Argon Fill)

4. Performance Characteristics

Thermal		Optical	
Winter U-factor/U-value:	0.24	Visible Light Transmittance:	70%
Summer U-factor/U-value:	0.22	Visible Light Reflectance (outside):	11%
Solar Heat Gain Coefficient:	0.39	Visible Light Reflectance (inside):	12%
Shading Coefficient:	0.44	Total Solar Transmittance:	34%
Relative Heat Gain (Btu/hr-ft²):	92	Total Solar Reflectance (outside):	28%
Light to Solar Gain:	1.79	Ultraviolet Transmittance:	18%

DRAWING/SAMPLE REVIEW
Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.
CITY OF MADISON ENGINEERING
✘ REVIEWED WITH NO COMMENTS
( ) REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS
BY: Bryan Cooper, AIA
DATE: 9/27/2018

Contact Oldcastle BuildingEnvelope® at 866-Oldcastle (653-2278) for samples or additional information concerning performance, strength, deflection, thermal stress or application guidelines. GlasSelect® calculates center of glass performance data using the Lawrence Berkeley National Laboratory (LBNL) Window 7.4 program (version 7.4.8.0) with Environmental Conditions set at NFRC 100-2010. Gas Library ID#1 (Air) is used for Insulating Glass units with air. Gas Library ID#9 (10% Air/90% Argon) is used for Insulating Glass units with argon. Monolithic glass data is from the following sources: 1. LBNL International Glazing Database (IGDB) version 53.0; 2. Vendor supplied spectral data files. Laminated glass data is from the following sources: 1. LBNL International Glazing Database (IGDB) version 53.0; 2. LBNL Optics 6 (version 6.0 Maintenance Pack 1); 3. Vendor supplied spectral data files; 4. Vendor supplied data. 5. Based on vendor testing, clear acid-etched glass performance data is estimated using regular clear glass of equivalent thickness. Thermal values are in Imperial units.

ALUMINUM DOOR HARDWARE SCHEDULE

Project: Royster Crossing/Pinney Library
521-523 Grand Oak Trail
Madison, WI

Architect: Knothe & Bruce Architect
7601 University Ave. Suite 201
Middleton, WI 53562

G.C.: Connery Construction
3234 County Hwy N
Cottage Grove, WI 53527

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS

(X) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Coopoer, AIA

DATE: 10/10/2018

September 11, 2018

- Hardware Set #1 (7 Req)
- Door # AL2E1 (3'0" x 8'0") RH (LHR)
    - 1 Roton 780-112HD continuous hinge x black
    - 1 Adams Rite MS1850 Dead Bolt Lock
    - 1 Key Cylinder by others
    - 1 Kawneer thumb turn
    - 1 Kawneer CO-9/CP Push/Pull x black
    - 1 LCN 1461 closer x black
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

- Hardware Set #1 (2 Req)
- Door # AL2E3 (3'0" x 8'0") LH (RHR)
    - 1 Roton 780-112HD continuous hinge x black finish
    - 1 Adams Rite MS1850 Dead Bolt Lock
    - 1 Key Cylinder by others
    - 1 Kawneer thumb turn
    - 1 Kawneer CO-9/CP Push/Pull x black finish
    - 1 LCN 1461 closer x black finish
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

- Hardware Set #2
- Door # AL4E (3'0" x 8'0") LH (RHR)
    - 1 Roton 780-112HD continuous hinge x black finish
    - 1 Adams Rite MS1850 Dead Bolt Lock
    - 1 Key Cylinder by others
    - 1 Kawneer thumb turn
    - 1 Kawneer CO-9/CP Push/Pull x black finish
    - 1 LCN 1461 closer x black finish
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

- Hardware Set #2
- Door # AL4E (3'0" x 8'0") RH (LHR)

    - 1 Roton 780-112HD continuous hinge x black finish
    - 1 Adams Rite MS1850 Dead Bolt Lock
    - 1 Key Cylinder by others
    - 1 Kawneer thumb turn
    - 1 Kawneer CO-9/CP Push/Pull x black finish
    - 1 LCN 1461 closer x black finish
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

- Hardware Set #3
- Door # AL15 (3'0" x 8'0") RH (LHR)

    - 1 Roton 780-112HD continuous hinge x clear anodized finish
    - 1 Falcon 1790 rim exit x US28 finish
    - 1 Trine 4800F Electric Strike
    - 1 Key Cylinder by others
    - 1 Kawneer CO-9 pull x clear anodized finish
    - 1 LCN 1461 closer x clear anodized finish
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

- Hardware Set #3
- Door # AL2E2 (3'0" x 8'0") RH (LHR)
    - 1 Roton 780-112HD continuous hinge x black finish
    - 1 Falcon 1790 rim exit
    - 1 Trine 4800F Electric Strike
    - 1 Key Cylinder by others
    - 1 Kawneer CO-9 pull x black finish
    - 1 LCN 1461 closer x black finish
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

- Hardware Set #3
- Door # AL13W (3'0" x 8'0") LH (RHR)
    - 1 Roton 780-112HD continuous hinge x black finish
    - 1 Falcon 1790 rim exit
    - 1 Trine 4800F Electric Strike
    - 1 Key Cylinder by others
    - 1 Kawneer CO-9 pull x black finish
    - 1 LCN 1461 closer x black finish
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

- Hardware Set #3 - (inswing door)
- Door # AL18W (3'0" x 7'0") RH (LHR)
    - 1 Roton 780-112HD continuous hinge x clear anodized finish
    - 1 Falcon 1790 rim exit x US28 finish
    - 1 Trine 4800F Electric Strike
    - 1 Key Cylinder by others
    - 1 Kawneer CO-9 pull x clear anodized finish
    - 1 LCN 1461 closer x aluminum finish
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

- Hardware Set #4
- Door # AL12W (3'0" x 8'0") 1- LH (RHR) 1- RH (LHR)
    - 2 Roton 780-112HD continuous hinge x clear anodized finish
    - 2 Falcon 1790 rim exit x US28 finish
    - 1 Key Cylinder by others LH (RHR)
    - 2 Kawneer CO-9 pull x clear anodized finish
    - 1 Trine 4800P electric strike LH (RHR)
    - 1 Standard Strike RH (LHR)
    - 2 Stanley auto operator closer x clear anodized finish
    - 1 BEA LPR36 Full Length 6"x39" RH (LHR) HI LO actuator
    - 1 BEA MS08 Touchless Microwave Actuator LH (RHR)
    - 2 Kawneer Threshold
    - 2 Kawneer Sweep

- Hardware Set #4
- Door # AL14W1 (3'0" x 8'0") 1- LH (RHR) 1- RH (LHR)
    - 2 Roton 780-112HD continuous hinge x clear anodized finish
    - 2 Falcon 1790 rim exit x US28 finish
    - 1 Key Cylinder by others LH (RHR)
    - 2 Kawneer CO-9 pull x clear anodized finish
    - 1 Trine 4800P electric strike LH (RHR)
    - 1 Standard Strike RH (LHR)
    - 2 Stanley auto operator closer x clear anodized finish
    - 1 BEA LPR36 Full Length 6"x39" RH (LHR) HI LO actuator
    - 1 BEA MS08 Touchless Microwave Actuator LH (RHR)
    - 2 Kawneer Threshold
    - 2 Kawneer Sweep

- Hardware Set #5
- Door # AL29W (3'0" x 8'0") 1- LH (RHR) 1- RH (LHR)
    - 2 Roton 780-112HD continuous hinge x clear anodized finish
    - 2 Kawneer CO-9/CP push/pull x clear anodized finish
    - 2 Stanley auto operator closer x clear anodized finish
    - 2 BEA MS08 touchless microwave actuator

- Hardware Set #5
- Door # AL14W2 (3'0" x 8'0") 1- LH (RHR) 1- RH (LHR)
    - 2 Roton 780-112HD continuous hinge x clear anodized finish
    - 2 Kawneer CO-9/CP push/pull x clear anodized finish
    - 2 Stanley auto operator closer x clear anodized finish
    - 2 BEA MS08 touchless microwave actuator

- Hardware Set #6 – (inswing door)
- Door # AL17W (3'0" x 8'0") 1- LH (RHR) 1- RH (LHR)
    - 2 Roton 780-112HD continuous hinge x clear anodized finish
    - 2 Falcon 1790 rim exit x US28 finish
    - 1 key cylinder LH (RHR) by others
    - 2 Kawneer CO-9 Pull x clear anodized finish
    - 1 Trine 4800F electric strike LH (RHR)
    - 1 standard strike RH (LHR)
    - 2 LCN 1461 closer x aluminum finish

- Hardware Set #7
- Door # AL10W (3'0" x 8'0") LH (RHR)
  - 1 Roton 780-112HD continuous hinge x clear anodized finish
  - 1 Adams Rite MS1850 dead bolt lock
  - 1 Sargent key cylinder by others
  - 1 Kawneer thumb turn
  - 1 Kawneer CO-9/CP push/pull x clear anodized finish
  - 1 LCN 1461 closer x aluminum finish
  - 1 Kawneer threshold
  - 1 Kawneer sweep

- Hardware Set #8 REVIEWED HARDWARE
- Door # AL2W (3'0" x 8'0") RH (LHR)
  - 1 Roton 780-112HD continuous hinge x clear anodized finish
  - 1 Falcon 1790 rim exit x US28 finish
  - ~~1 Trine 4800F electric strike~~
  - 1 Sargent key cylinder by others
  - 1 Kawneer CO-9 pull x clear anodized finish
  - 1 LCN 1461 closer x aluminum finish
  - 1 Kawneer Threshold
  - 1 Kawneer Sweep

Revise to read: Provide and install non-electric strike.1 electric strike will be provided by City of Madison during Tenant Improvement work.

- Hardware Set #10 REVIEWED HARDWARE
- Door # AL31W (3'6" x 8'0") RH (LHR)
  - 1 Roton 780-112HD continuous hinge x clear anodized finish
  - 1 Falcon 1790 rim exit x US28 finish
  - ~~1 electric strike by city of Madison~~
  - 1 Sargent key cylinder by others
  - 1 Kawneer CO-9 pull x clear anodized finish
  - 1 LCN 1461 closer x aluminum finish
  - 1 Kawneer Threshold
  - 1 Kawneer Sweep

Revise to read: Provide and install non-electric strike.1 electric strike will be provided by City of Madison during Tenant Improvement work.

- Hardware Set #10 REVIEWED HARDWARE
- Door # AL32W (3'0" x 8'0") LH (RHR)
    - 1 Roton 780-112HD continuous hinge x clear anodized finish
    - 1 Falcon 1790 rim exit x US28 finish
    - ~~1 electric strike by city of Madison~~
    - 1 Sargent key cylinder by others
    - 1 Kawneer CO-9 pull x clear anodized finish
    - 1 LCN 1461 closer x aluminum finish
    - 1 Kawneer Threshold
    - 1 Kawneer Sweep

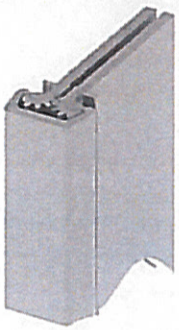
Revise to read: Provide and install non-electric strike.1 electric strike will be provided by City of Madison during Tenant Improvement work.

September 11, 2018

780-112HD

Heavy Duty Concealed Leaf Hinge

OK



Application:

- Lead lined model for hospital x-ray room doors with double row of screws to straddle lead (specify "LL")
- Frame and door leaf alignment ribs for proper hinge and door location

PRODUCT SPECIFICATIONS

CLEARANCE:
- 5/16" (8 mm) hinge side
- Plus standard lockside clearance

FASTENERS:
- #12-24 X 11/16" Flat Head Self-Drill Screws

LENGTH OPTIONS:
- Standard and Custom

DOOR REINFORCEMENT:
- None required to 200 lbs. Heavier weight use 16-gauge channel.

FRAME REINFORCEMENT:
- None required to 200 lbs. Heavier weight use 16-gauge channel.

FIRE RATING:
- Up to 3 hr. metal and 90 min. wood composite (with studs)

WARRANTY:
- All Roton products have a lifetime warranty. When ordering electric Roton, the electric portion of the hinge has a one-year warranty.

MATERIAL:
- Aluminum 6063-T6

ELECTRIC MODIFICATIONS:
- Power Transfer Preparation (EPT 2) or (EPT 10)
- Exposed Electric Contacts (E)
- Exposed Electric Switches (E1S)
- Electric Through-Wire (ETW)
- Electric Monitoring (EMN)
- Electric Through-Wire and Monitoring (ETM)
- Removable Electric Through-Wire (RETW)

PRODUCT SIZE OPTIONS

LENGTH (INCHES)	LENGTH (MM)	HOLE COUNT (DOOR)	HOLE COUNT (JAMB)
79	2007	15	15
83	2108	19	19
85	2159	19	19
95	2413	20	20
119	3023	23	23

STANLEY®

Security Solutions

Stanley Access Technologies, LLC has been the recognized leader in the automated door industry for almost 80 years. Stanley Access Technologies produces state-of-the-art automatic doors for a wide variety of commercial, institutional, industrial and transit applications, offering sliding, swinging, revolving and folding doors as well as a variety of sensors and controls. In addition to manufacturing and installing these products, Stanley offers comprehensive service and maintenance programs that can be customized to meet your ever-changing business needs.

Stanley Access Technologies...North America's Leading Automatic Door Provider



MAGIC-FORCE™ OPERATOR

The Magic-Force operator is field adjustable to work in both full energy and low energy applications making it ideal for use in supermarkets, department stores, hospitals, airports, office buildings, public buildings, schools and universities.

Magic-Force™ Door Operators:

- Require only simple tune-in adjustments for fast, trouble-free installation.
- Resist wind and stack pressure conditions to maintain smooth, controlled operation.
- Adjustable Spring Force.
- Non-Handed.
- In or Out Swing.
- Concealed, Visible or Bottom Load.
- Full or Low Energy.

Additional Features:

- Available with Swing-Guard™, Sentrex™ or other safety sensor systems.
- Activating methods include mats, push plates, radio controls & motion sensors.
- UL®-Certified for use as a fire door operator.
- Provide safe pedestrian movement at all times with activation and safety sensors.
- Adjustable spring provides variable force.
- Act as a mechanical closer for manual operation in the event power is shut off.
- Complies with all U.S. and Canadian ADA requirements, including ANSI/BHMA A117.1 and A156.19.



Magic-Force Full-Energy in Retail Application



Magic-Force Low-Energy in Hospitality Application

MAGIC-SWING® OPERATOR

The Magic-Swing® operator provides easy access, reliable performance and safe operation in high-traffic retail, commercial and industrial applications.

Magic-Swing Door Operators:

- Available with Swing-Guard™, Sentrex™ or other safety sensor systems.
- Activating methods include mats, push plates, radio controls & motion sensors.
- Surface Mount Header models afford fast and easy retrofits.
- UL®-certified for use as a fire door operator.



Magic-Swing in Hospital Corridor Application



Magic-Swing in Hospital Exterior Application

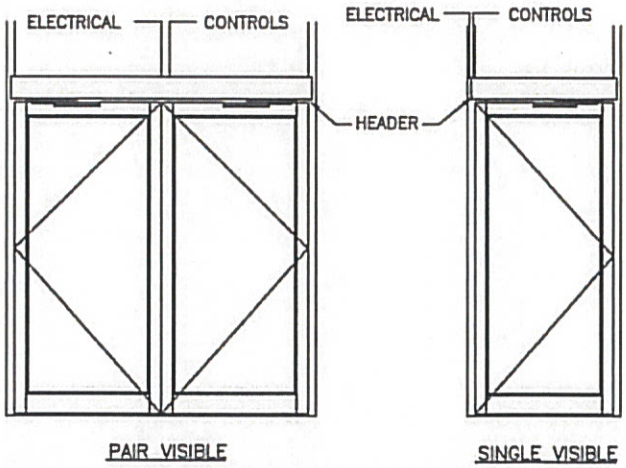
 ©All Rights Reserved

STANLEY
Security Solutions

MAGIC-FORCE™ OPERATOR	
Header Size	6.0" (152mm) high x 5.5" (140mm) deep
Swing Door Panels	Up to 48" (1220mm)
Door Panel Weight	Up to 350lbs (160kg)
Drive System	3/16HP DC motor, gear drive
Controller	Microprocessor-based with built-in "reverse-on-obstruction" and Magic-Touch actuation
Sensors	Swing-Guard, Sentrex, SU-100, mats and wireless controls are available
Breakout	Automatic reset (center hung)
Power Required	120 VAC, 5 amps min., 50/60 HZ
Code Compliance	UL, cUL, ANSI/BHMA A156.10, ANSI/BHMA A156.19, IBC, NFPA 101

MAGIC-SWING® OPERATOR	
Header Size	6.0" (152mm) high x 5.5" (140mm) deep
Swing Door Panels	Up to 54" (1371mm)
Door Panel Weight	Up to 700lbs (320kg) standard, up to 5,000lbs (2270kg) optional
Drive System	1/4HP DC motor, gear drive, ball screw actuator, rack and pinion
Controller	Microprocessor-based, safety logic, diagnostics set-up and tune
Sensors	Swing-Guard, Sentrex, SU-100, mats and wireless controls are available
Breakout	Automatic reset (center hung)
Power Required	120 VAC, 5 amps min., 50/60 HZ
Code Compliance	UL, cUL, ANSI/BHMA A156.10, IBC, NFPA 101

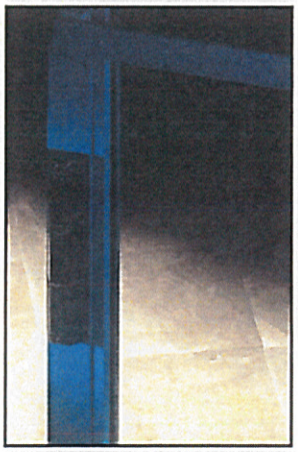
MAGIC-ACCESS™ OPERATOR	
Header Size	6.0" (152mm) high x 4.0" (102mm) deep
Swing Door Panels	Up to 42" (1067mm)
Door Panel Weight	Up to 125lbs (57kg)
Drive System	1/8 HP DC motor, gear drive, "low-energy"
Controller	Built-in "reverse-on-obstruction" and Magic-Touch actuation
Sensors	Mats, push plates and wireless controls are available
Breakout	Breakaway door stop available
Power Required	120 VAC, 5 amps min., 50/60 HZ
Code Compliance	UL, cUL, ANSI/BHMA A156.10, ANSI/BHMA A156.19, IBC, NFPA 101



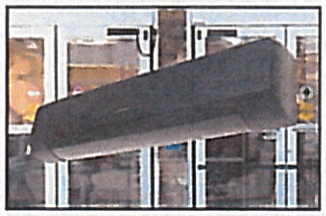
Swing Door Products from Stanley Access Technologies

For years, Stanley swing door operators have provided easy access and smooth traffic flow in high-traffic retail, commercial and industrial applications with unbeaten performance and reliability.

- Designed to fit a wide range of swing applications
- Choose from low-energy to full energy solutions
- Controller configuration via Bluetooth® Technology
- Most solutions powered by an advanced microprocessor controller for intelligent performance
- Door packages are custom manufactured to fit your job requirements


Sentrex™ Sensor System


SU-100 Sensor System


Swing-Guard™ Sensor System

STANLEY
Access Technologies

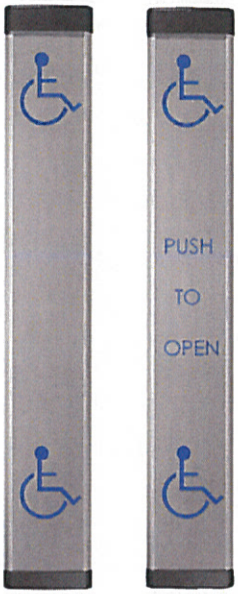
Stanley Access Technologies, LLC • 65 Scott Swamp Road • Farmington, CT 06032
1-800-7-ACCESS

AT-9706 04/12

LPR36

FULL-LENGTH, 36 INCH HIGH-LOW ACTUATOR

AADM | ADA COMPLIANT | ANSI | DHI



PRIMARY APPLICATIONS





DESCRIPTION

BEA's LPR36 is a 36 inch actuator that exceeds all local ADA building codes requiring high and low actuators, eliminating the need to install two separate devices.

This stainless steel plate utilizes four highly-sensitive membrane switches that require very little force and ensure actuation across the entire surface.

Available in wireless and hard wire versions, the LPR36 can be conveniently mounted in a variety of locations.

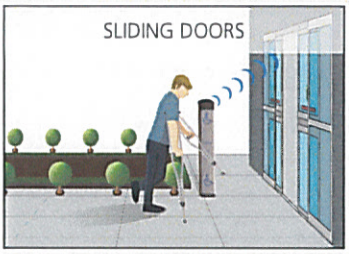
FEATURES & BENEFITS

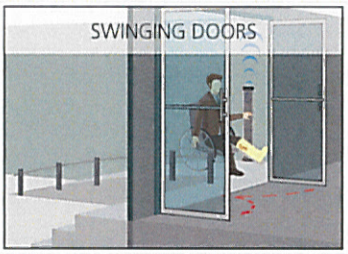
- Full-length plate for maximum accessibility
- Low profile (1 inch deep) design helps prevent accidental damage in high traffic areas
- Exceeds California Building Code 2013, Page 559, 11B-404.2.9, Exception 2c
- Easily installs on either walls or bollards for maximum mounting flexibility
- Available with convenient, built-in wireless transmitter (300, 433 or 900 MHz frequencies) for wireless activation applications
- Activation area of 36 × 6 inches (216 square inches)

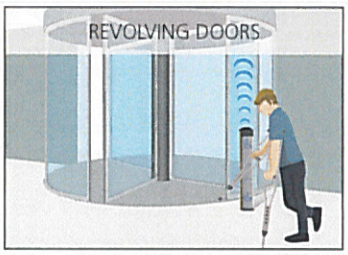
BEA, Inc.
RIDC Park West
100 Enterprise Drive
Pittsburgh, PA 15275-1213

Customer Service: 800.523.2462
Technical Support: 800.407.4545
www.BEAinc.com

APPLICATIONS



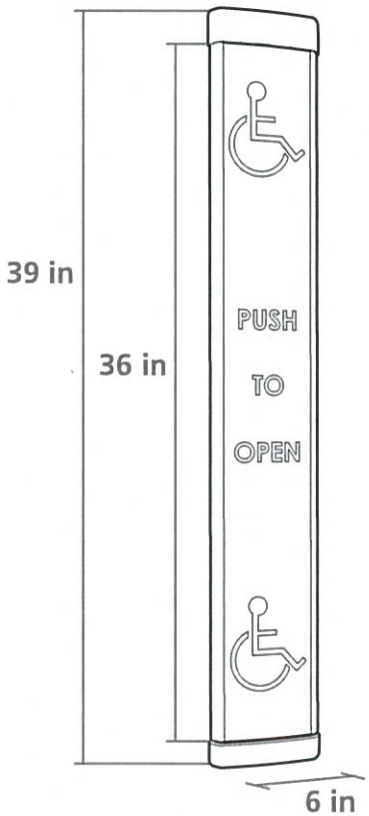




TECHNICAL SPECIFICATIONS

Contact Configuration	SPST N.O.
Switching Voltage	0.1 – 50 VDC
Switching Capacity	1 Watt
Switching Current	0.005 – 100 mA DC
Operation Temperature	–32 °F – 212 °F –35 °C – 100 °C
Compliance	California Building Code 2013, Page 559, 11B-404.2.9, Exception 2c

DIMENSIONAL DRAWINGS



RELATED PRODUCTS



10LPR36-300
300 MHZ
TEXT & LOGOS



10LPR36L-300
300 MHZ
LOGOS ONLY



10LPR36-433
433 MHZ
TEXT & LOGOS



10LPR36L-433
433 MHZ
LOGOS ONLY



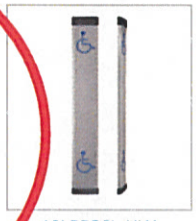
10LPR36-900
900 MHZ
TEXT & LOGOS



10LPR36L-900
900 MHZ
LOGOS ONLY



10LPR36-HW
HARDWIRED
TEXT & LOGOS



10LPR36L-HW
HARDWIRED
LOGOS ONLY



10BOLLARDSLVWOH
SILVER BOLLARD
NON-DRILLED



10BOLLARDBLKWOH
BLACK BOLLARD
NON-DRILLED



10BOLLARDBRZWOH
BRONZE BOLLARD
NON-DRILLED



10R300
300 MHZ
ANALOG RECEIVER



10RD433
433 MHZ
RECEIVER



10RD433EH
EXTENDED HOLD
TIME RECEIVER



10RD900
900 MHZ
RECEIVER

© 2017 BEA, Inc. All rights reserved.

79.0078.13 20170808

BEA, Inc.
RIDC Park West
100 Enterprise Drive
Pittsburgh, PA 15275-1213

Customer Service: 800.523.2462
Technical Support: 800.407.4545

BEA MS08 TOUCHLESS MICROWAVE SWITCH /W SINGLE & DOUBLE GANG

BEA MS08 Touchless Microwave Switch
Microwave Cell with Single & Double Gang Black Faceplate with "Wave to Open" Text & Artwork.

Contact-free switch that utilizes Doppler-effect microwave

PRODUCT INFO PAGES

Click Here for Spec Sheet

Click Here for Manual

Utilizes Microwave Motion Technology
Adjustable from 4 in - 24 in
Can be configured for Pulse or Toggle use
Microwave Cell can be mounted behind sheetrock walls
Comes with both Single Gang and Double Gang faceplates

Excellent door activation for sterile environments such as hospitals, clean rooms and pharmaceutical facilities

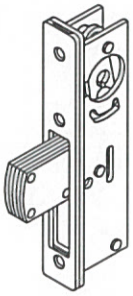
Convenient and comfortable for disabled people

Water resistant foam gasket and sleek profile minimizes dust

Multiple Colors and styles for any application


WAVE TO OPEN
WAVE TO OPEN

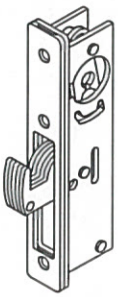
ADAMS RITE MS-1850 DEADLOCK



Description: This deadlock incorporates an aluminum faceplate and five ply laminated steel bolt with 1-3/8" (34.9) standard throw. For special conditions, a 13/16" (20.5) throw is available. All vulnerable lock parts are designed to resist sawing attempts. The lock accepts any standard 1-5/32" (29.4) mortised cylinder or thumbturn (with MS cam). Backset (center line of face plate to center line of cylinder) is 1-1/8" (28.6) on all doors.

Application: Standard lock used in the active leaf of a pair of doors or on a single door. It may be converted to two point or three point locking.

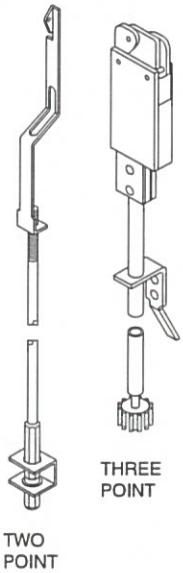
ADAMS RITE MS-1850-050



Description: All features and components, with the exception of the hook bolt, are the same as the MS 1850 deadlock. The hook bolt is of the same construction but has a hook shape to provide additional security against the door prying attempts.

Application: This hook bolt lock is an optional lock recommended for extra security on pairs of doors. When the hook bolt is thrown it engages the inactive leaf strike cutout in a manner that resists attempts to pry or pull apart the door stiles. On pairs of doors the proper strike cutout is provided when the hook bolt lock is specified.

2 AND 3 POINT LOCKS



Two Point: In addition to the deadbolt lock point of the MS 1850, additional security is obtained for pairs of doors with the use of a threshold bolt. The normal turn of the cylinder key simultaneously drops a hardened steel hexbolt into the threshold and provides the second lock point.

Three Point: The third locking point is obtained by adding a header bolt to the above described MS lock and threshold bolt. The header bolt is placed in the top stile of the inactive leaf. The throw of the MS bolt in the inactive leaf strike cutout triggers engagement of the header bolt.

KAWNEER CONTROLLER™ LOCKING SYSTEM



TOTAL CONTROL of paired entrances is now possible. The CONTROLLER provides uncompromised egress thru both door leaves with one stage unlocking, but offers the convenience of two stage locking.

LIFE SAFETY is an important consideration in the selection of entrance door hardware. If an entrance with flush bolts has not been completely unlocked, life safety considerations could be compromised in an emergency situation. This is one reason why manual flush bolts are prohibited by building codes*.

SECURITY of the entrance is enhanced by three point locking using the CONTROLLER mechanism in conjunction with the Adams Rite maximum security lock. Flush bolt locking jeopardizes security, as the door leaves can be pried apart allowing access to the flush bolt release levers. Unlike flush bolts, the CONTROLLER is manually engaged with access through the M.S. lock strike cut out. It is then secured by the 1-3/8" (34.9) throw, five ply laminated steel bolt of the M.S. lock.

TWO STAGE LOCKING provides ease of operation not commonly found with standard three point locks. The CONTROLLER allows easy alignment of the inactive door leaf, followed by normal engagement of the M.S. lock.

ONE STAGE UNLOCKING is done with the turn of a key which retracts the M.S. lock bolt. The CONTROLLER mechanism is then free and will allow both door leaves to swing open.

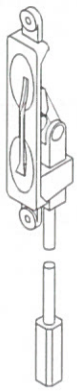
APPLICATION: On paired entrances where exit devices are not required and manual flush bolts are prohibited by building codes*.

FORCED ENTRY for stringent Dade County forced entry requirements specify CONTROLLER FE which include reinforced rods.

* The following building codes, with some qualifications, prohibit the use of manual flush bolts on exits doors needed to handle the occupant load of the building.
Uniform Building code- International Conference of Building Officials (ICBO)
Standard Building Code- Southern Building Code Congress International, Inc. (SBCCI)
Basic Building Code- Building Officials and Code Administrators, Inc. (BOCA).

KAWNEER FLUSH BOLT

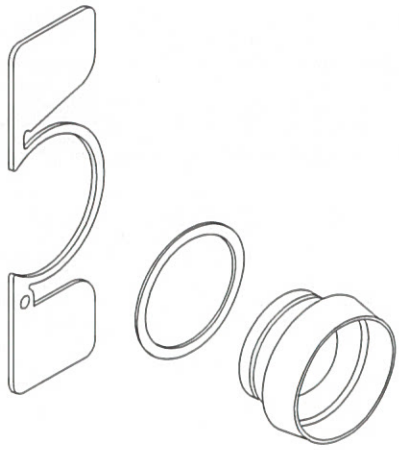
Description: A standard pair of doors includes top and bottom flush bolts in the inactive leaf. The flush bolts provide two inactive leaf "lock" points in addition to the active leaf which locks into the inactive leaf. They are flush mounted in the nose of the door stile and are finished to match.



Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

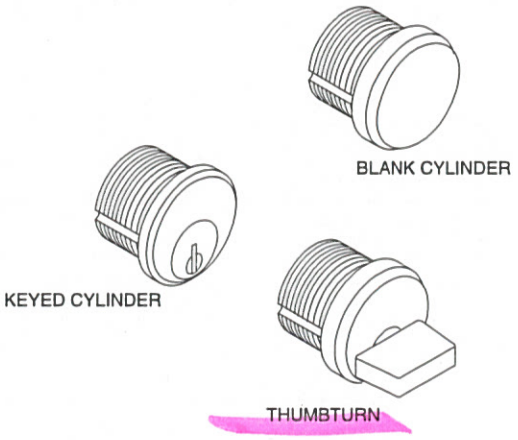
Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2015



CYLINDER GUARD

Description/Application: The cylinder guard is a collar designed to protect the vulnerable soft cylinder. Its hardened steel material and tapered shape offers poor grip for prying or twisting attempts. The guard is held in place with a hardened steel retainer plate for additional security. For use with the Adams Rite MS 1850, 1850-050, +1890, or 4510 locks and latches.



KAWNEER LOCK CYLINDERS

Description: Kawneer standard cylinders are 5 pin-mortised with a diameter of 1-5/32" (29.4). As shown in the illustration, the cylinders are key operated , thumbturn operated or blank. Keyed alike cylinders are available to meet various keying schemes. The cylinder scalps and thumbturns are finished to match the door.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

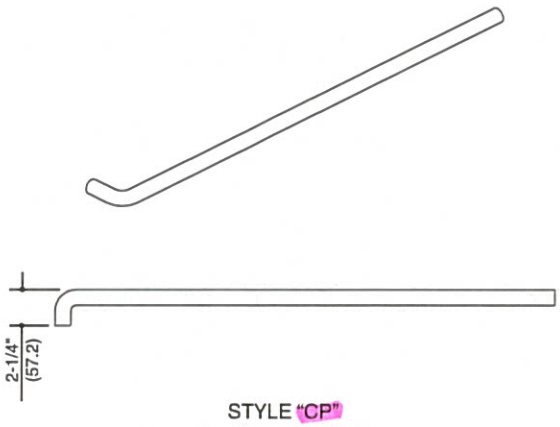
© Kawneer Company, Inc., 2015

KAWNEER STANDARD "ARCHITECTS CLASSIC" HARDWARE

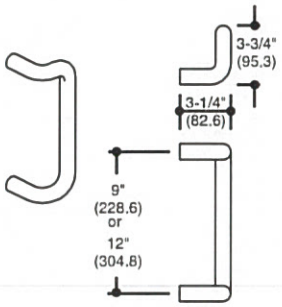
Description: Contemporary styled 1" (25.4) round bent bar is the basis for this hardware line.
A 90 degree offset pull is available in two centerline dimensions: 9" (228.6) and 12" (304.8).

Application: For use with single or double acting doors.
A CP single bend push bar and a pull handle for single acting doors.
Two CP push bars or two pull handles mounted back to back for double acting doors.
Secure attachment is obtained by through the door mounting.

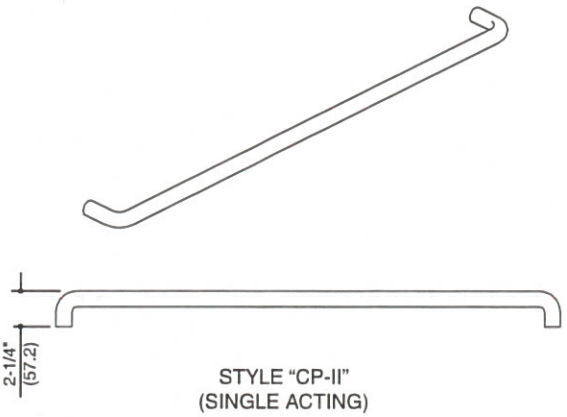
Finish: Hardware is available in:
#14 Clear anodize
#29 Black anodize
#40 Dark Bronze anodize
#44 Bronze - US10B oil rubbed
#45 Stainless Steel - US32 polished
#46 Stainless Steel - US32D dull
#47 Bright Brass (PVD) - US3



STYLE "CP"
(DOUBLE ACTING)



STYLE CO-9/CO-12
(SINGLE ACTING)



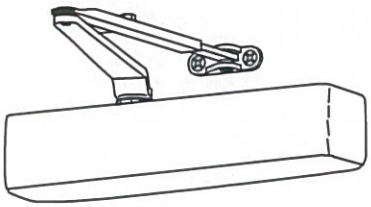
STYLE "CP-II"
(SINGLE ACTING)

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2015

LCN 1461 Series



Pictured: LCN 1461 Series

Specifications	
Door Type	Timber or Metal
Door Size	External Door 610mm – 1219mm Internal Door 610mm – 1524mm
Applications	Regular – Pull Side Mount Parallel Arm – Push Side Mount Top Jamb – Push Side Mount
Adjustment Controls	Closing Speed Latching Speed Delayed Action Backcheck
Strength	1-6 Adjustable
Options	Hold Open Arm Cush n Stop Arm Hold Open Cush n Stop Arm Adaptor Plate Parallel Arm Drop Plate Square Metal Cover
Finish	Aluminium Satin Stainless Steel (Optional cover only) Polished Stainless Steel (Optional cover only)
Warranty	10 Years

Closer Strength Selection Chart

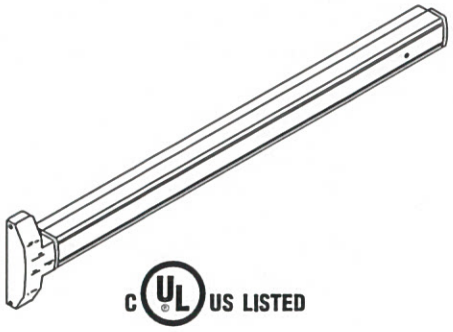
Select strength based on width of door

Strength	Exterior Door	Interior Door
1 - 2	NA	610mm - 864mm
3	610mm - 762mm	864mm - 965mm
4	762mm - 914mm	965mm - 1219mm
5	914mm - 1067mm	1219mm - 1372mm
6	1067mm- 1219mm	1372mm - 1524mm

Closer Strengths

The LCN 1461 is an adjustable 1-6 strength closer which is suitable for interior doors from a minimum width of 610mm to a maximum width of 1524mm and exterior doors from a minimum width of 610mm to a maximum width of 1219mm under normal operating conditions. LCN1461 door closers are supplied pre set at size 3.

Caution!	The LCN 1461 is designed for reduced opening force which when set to a 1 strength makes it suitable for use by people who are frail, aged or disabled. This closer can operate at between 14-20Nm from initial opening up to 90°. Where door closers are installed and adjusted to meet reduced opening force requirements, there maybe insufficient power to reliably close and latch the door, depending on prevailing operating conditions.
Note:	In areas of high wind pressure and/or air conditioning pressures or doors located in exceptionally heavy traffic or oversized/heavy doors, the LCN 4041 Series Closers or LCN Automatic Door Operators are recommended.



FALCON 1690 TOUCHBAR CONCEALED ROD EXIT DEVICE

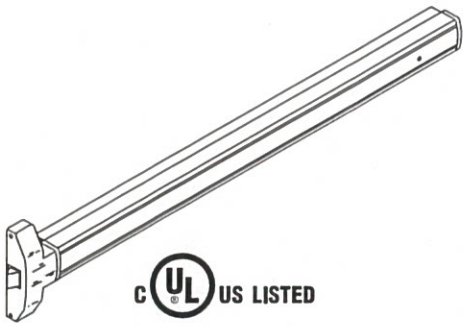
Description: This Touchbar exit device allows egress from a building without the use of a key. Depression of the Touchbar on the interior retracts the concealed bottom rod from the threshold and releases the top latch from the transom bar mounted barrel strike. This allows egress from the building. Upon closing, the top latch reengages the strike and frees the bottom rod to engage the threshold. The door is now relocked. A quick single point "dogging" feature in the housing, deactivates the device and permits unrestricted traffic flow. Vertical rods and latch mechanisms are concealed in the vertical door stile. Cover plates and end caps are cast aluminum. A rim cylinder diameter of 1-5/32" is required.

Application: This device is designed for use on single and pairs of doors. It is suited for medium and high traffic areas.

Dimensions: Center line of pushbar to bottom of door 40-5/8" (1031.9);
Height 2-1/2" (63.5); Projection 3-1/8" (79.4); Projection when dogged 2-3/8" (60.3).

Finish: Clear, dark bronze and black aluminum.
Cover plate and end caps are painted black.

Optional: EL version for access control applications.



FALCON 1790 TOUCHBAR RIM EXIT DEVICE

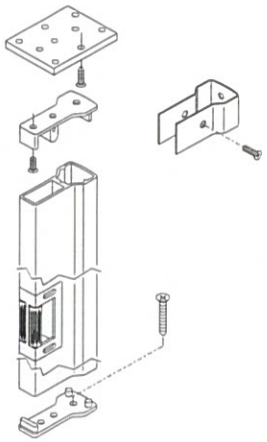
Description: This Touchbar exit device has the same basic features as the concealed vertical rod device above. Its difference is in the latch mechanism. A 3/4" throw latch bolt in the rim of the housing engages an aluminum jamb or removable mullion mounted strike. Depression of the Touchbar on the interior retracts the latch bolt and allows egress from the building.

Application: Designed for use on single or pairs of doors. Single doors require an aluminum lock jamb mounted strike. A removable mullion with integral mortised strikes is required on pairs of doors.

Dimensions: Center line of pushbar to bottom of door 41-5/16 (1049.3)
Height 2-1/2" (63.5); Projection 3-1/8" (79.4); Projection when dogged 2-3/8" (60.3).

Finish: Clear, dark bronze and black aluminum.
Cover plate and end caps are painted black.

Optional: EL version for access control applications.



RM170 REMOVABLE MULLION

Description: This removable mullion is used with Falcon 1790 Touchbar Rim Exit Device. It meets ANSI Grade 1 requirements.

Application: Designed for use with pairs of doors.

Finish: #17 Clear, #29 Black, and #40 Bronze anodized.

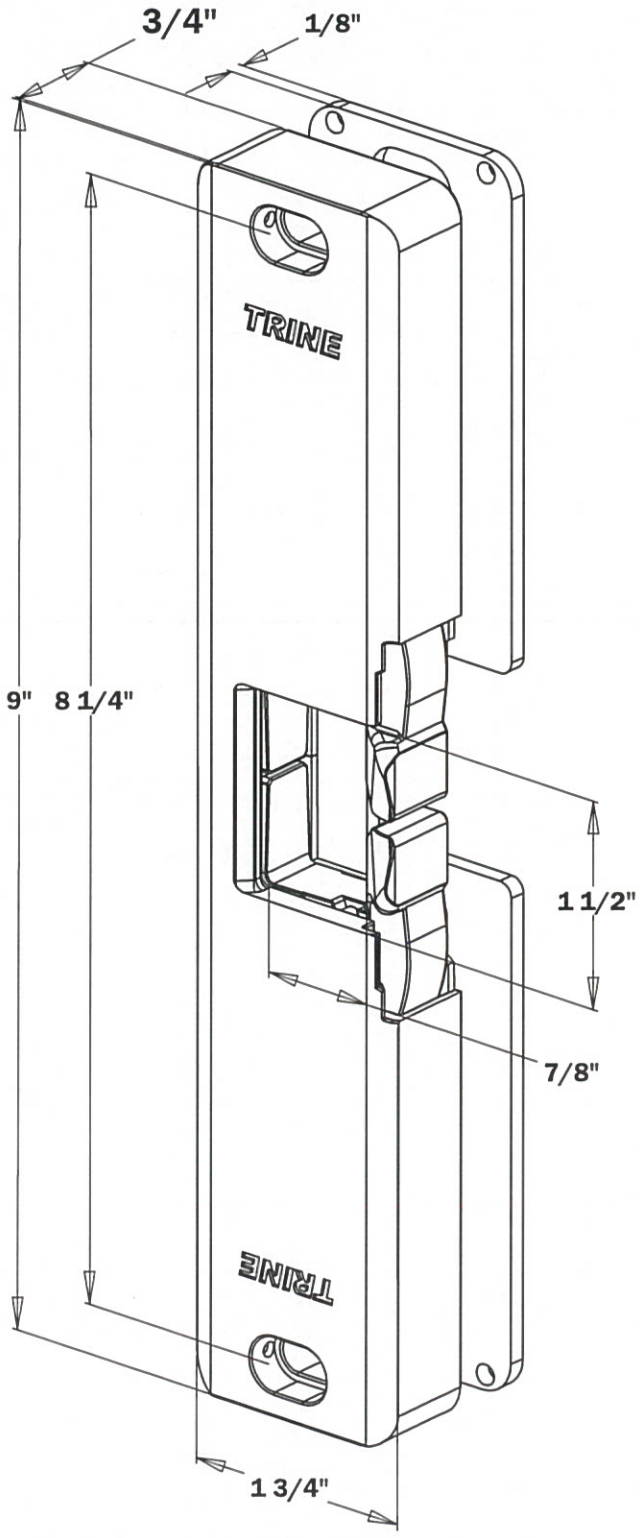
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2015

4800F ELECTRIC STRIKE

INSTALLATION INSTRUCTIONS



TRINE ACCESS TECHNOLOGY.
1440 Ferris Place | Bronx | New York | 10461

TRINE 4800F
THE FIRE RATED SOLUTION
FOR RIM PANIC EXIT DEVICES

Congratulations on the purchase of this quality TRINE security product. This product has been designed to install easily, perform reliably, and provide years of trouble free security.

BEFORE PROCEEDING with your installation, please review the following list of features. If you have any questions after reading this document please call TRINE's TECHNICAL SUPPORT **(718) 829-2332**, or visit us online @ **trineonline.com**

The 4800F is WH recognized for:

Class A, 3 Hour Single door / frame configuration
- UL10C, Fire Tests of Door Assemblies
- UBC 7-2, Uniform building Code
- CAN4 S104, Standard Method for Fire Tests of Door Assemblies NFPA 252

Issue: 1999/01/01 Standard Methods of Fire Tests of Door Assemblies

c US Intertek

NOTE: WH fire listing is void when using fail safe action.

BHMA Grade 1 Electric Strike

4800F ELECTRICAL CHARACTERISTICS:

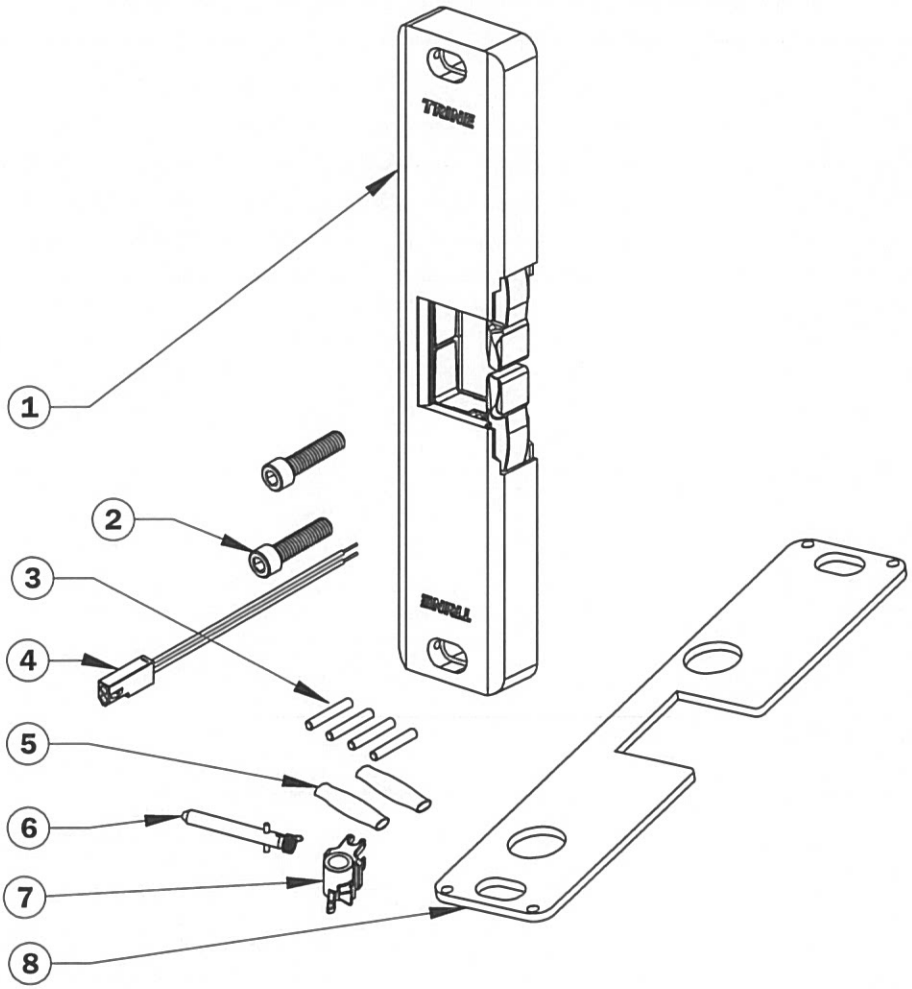
Voltage	Pull-in/Hold Amps (A)	Duty	Sound
12DC	.566 A/.217 A	Intm/Cont.	Silent
24DC	.253 A/.099 A	Intm/Cont.	Silent
12AC @ 50-60Hz	.509 A/.181 A	Intm/Cont.	Silent
16AC @ 50-60Hz	.405 A/.149 A	Intm/Cont.	Silent
24AC @ 50-60Hz	.215 A/.087 A	Intm/Cont.	Silent

Built-in Electronics: The 4800F automaticallys allows 12-24AC & DC power, plus surge and kickback protection. There are no external 'pacs' to use or install.

OPERATING TEMP RANGE: -20°C TO +40°C

DO NOT APPLY AN OVER VOLTAGE OF MORE THAN 10% OVER THE RATED OPERATING VOLTAGE OF THE STRIKE OR THE SOLENOID WILL BE DAMAGED.

WHAT IS INCLUDED IN THE 4800F BOX:



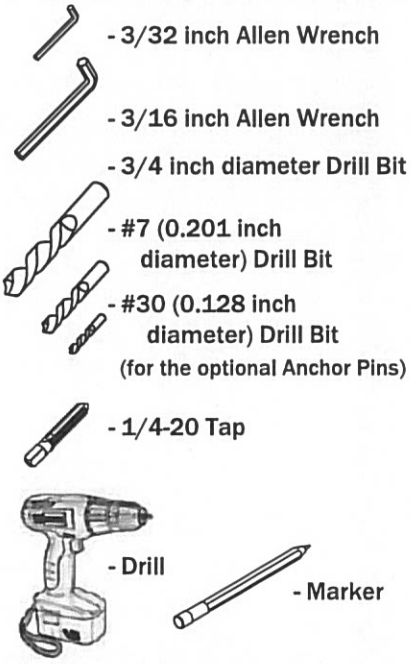
INCLUDED IN THE BOX ARE:

1 - (1) 4800 OR 4801 SURFACE MOUNTED STRIKE
2 - (2) 1/4-20 x 1" UH CAP SOCKET MOUNTING SCREWS
3 - (4) ANCHOR SYSTEM PINS
4 - (1) QUICK CONNECT SOCKET AND WIRE ASSEMBLY
5 - (2) SEALED CRIMP CONNECTORS
6 - (1) FAIL SAFE SPRING (RED COLORED) & SOLENOID PLUNGER
7 - (1) FAIL SAFE CAM **(NOTE: NOT FIRE RATED WHEN CONFIGURED FAIL-SAFE)**
8 - (1) 1/8" THICK SPACER PLATE/ FRAME MOUNTING TEMPLATE

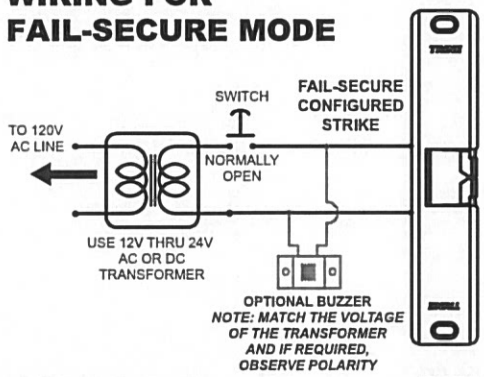
RECOMMENDED PREINSTALLATION CHECK FOR THE 4800F SURFACE MOUNT STRIKE:

1. Determine that door is properly adjusted; Door must operate properly in order for system to provide best results.
2. Door must swing properly, without interfering with jamb or sill
3. The door should be equipped with a door closer and the door closer "latch mode" must hold door in a completely closed position in order to avoid the lock latch from applying pressure against the releasing latch portion of the electric strike.
4. Electrical wire connections must be completed and ready to be terminated inside the frame.
5. Confirm that the power line in the frame is the correct voltage, amperage, and that the switch works properly.
6. Confirm proper clearance exists between the end of the lock latch and jamb.
7. The electric door strike must be aligned properly with lock latch when it is installed on the doorjamb.
8. For best installation results, the door frame must be reasonably flat and straight.

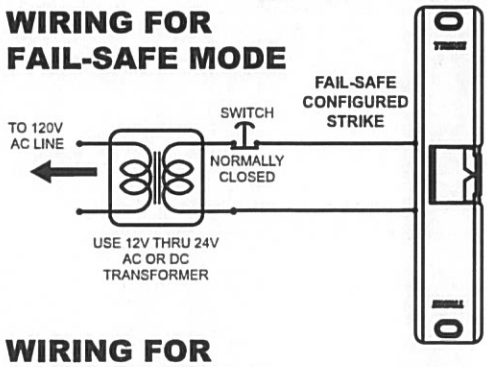
RECOMMENDED TOOLS:



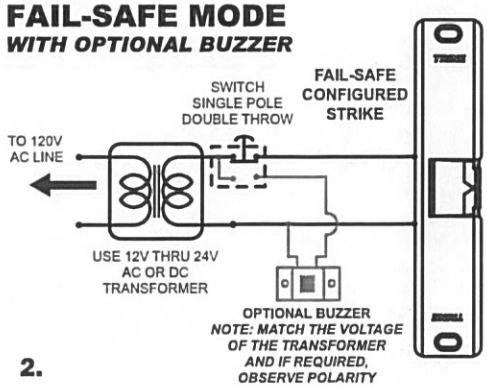
WIRING FOR FAIL-SECURE MODE

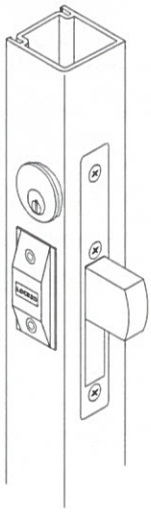


WIRING FOR FAIL-SAFE MODE



WIRING FOR FAIL-SAFE MODE *WITH OPTIONAL BUZZER*





EXIT INDICATOR

Description: The zinc alloy indicator escutcheon is 1-3/8" (34.9) x 2-5/8" (66.7) and 3/8" (9.5) projection from the door face. It is finished with silver epoxy and clear enamel. The sign has black lettering on an aluminum background.

Application: This device is optional for use with the deadbolt (MS 1850) or hook bolt (MS 1850-050) to indicate the lock position; open or locked. In some local building safety codes, this device allows the use of a deadlock in lieu of a panic exit device.



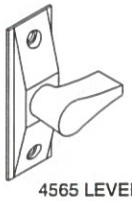
ADAMS RITE MS+1890 DEADLOCK/LATCH COMBINATION

Description: The lock features two lock points in one lock housing. The upper hookbolt portion is activated or thrown with the turn of a cylinder key. The lower latchlock portion is spring lever or paddle actuated. The hookbolt is designed to resist sawing or prying attempts. A standard cylinder diameter of 1-5/32" (29.4) and MS Cam are required for the hookbolt. The standard 4565 handle, 1-1/2" (38.1) long is used with the latch lock. Latch paddle 4590 as described below may also be used with the latch lock.

Application: Provides deadlock security after hours and selective traffic control during or just after business hours. Both lock points can be retracted for free traffic flow. Retracting the hookbolt and activating the latch lock will permit exit-only traffic. The device is applicable to single or pairs of doors.



4560 LEVER



4565 LEVER

ADAMS RITE 4510 DEAD LATCH

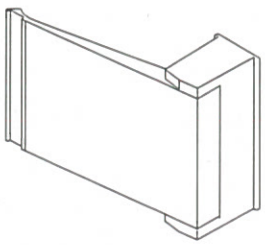
Description: Cylinder key operation from the exterior or lever handle interior operation retracts the spring loaded latch bolt. Deactivation or "dogging" is achieved with a reverse turn of the cylinder key. An auxiliary bolt deadlocks the latch bolt to prevent unwarranted "loiding" or caseknife entry. Lever handle 4560, 3-1/2" (88.9) is standard. An optional 4565, 1-1/2" (38.1) handle or 4590 latch paddle may be used. Backset is 1-1/8" for all doors.

Application: This device offers flexibility of traffic control during and after business hours. The device can be "dogged" or retracted for free traffic flow during business hours or locked on the exterior after hours. When locked, egress from the building is accomplished by depressing the lever handle. The latch lock does not provide the security of deadbolt type locks because of the shorter throw.

ADAMS RITE 4590 LATCH PADDLE DEVICE

Description: The escutcheon is 4" (101.6) high by 1-11/32" (34.1) wide. Total width of paddle and housing is 5-7/16" (137.9). Neutral projection of the paddle from the door face is 2-5/16" (58.6).

Application: Designed for use with the 4510 latch or MS+1890 lock/latch. A latched entrance can be opened by pushing or pulling the paddle in the direction of the door swing.

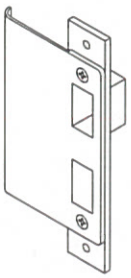


ADAMS RITE STANDARD LATCH STRIKES

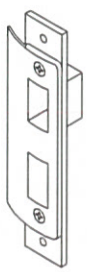
Description/Application: A flat strike is jamb mounted for single acting butt hung or offset pivot doors. The elongated lip strike is jamb mounted for center hung single acting doors. A pair of doors requires the radiused strike mounted on the inactive leaf stile. The strike plates are satin buffed stainless steel.



LONG LIP



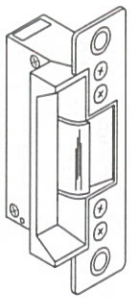
FLAT



RADIUSED

ADAMS RITE 7130 ELECTRIC STRIKE

Description/Application: The 7130 Series electric strike is designed for use with the 4510 latch lock to allow remote traffic/door control. It operates on 24V AC or 12V DC and is UL listed. For proper operation the anticipated duty, intermittent (std.) or continuous, should be specified. May be jamb mounted for single door or mounted in inactive leaf for pair of doors.



c UL us LISTED

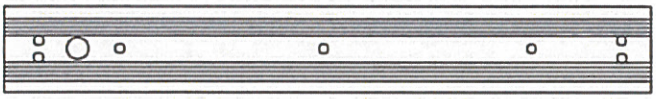
Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

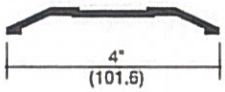
© Kawneer Company, Inc., 2015

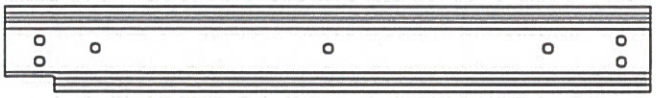
KAWNEER THRESHOLDS

Description/Application: Kawneer thresholds are factory fabricated and prepared for the appropriate hinging and locking hardware. They are extruded-mill finish aluminum and are engineered for maximum strength as an integral part of the door and frame. Threshold height from the finished floor is 1/2" (12.7mm) except as noted.

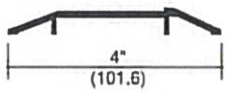


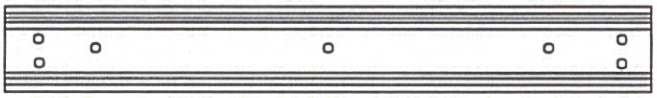
CENTER HUNG
For Concealed Overhead Closer



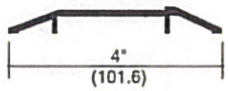


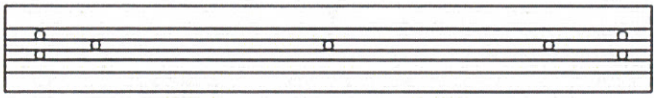
OFFSET PIVOT
For Overhead Closer



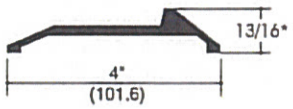


BUTT HUNG
For Overhead Closer





OPTIONAL
For Offset Pivot and Butt Hung Doors



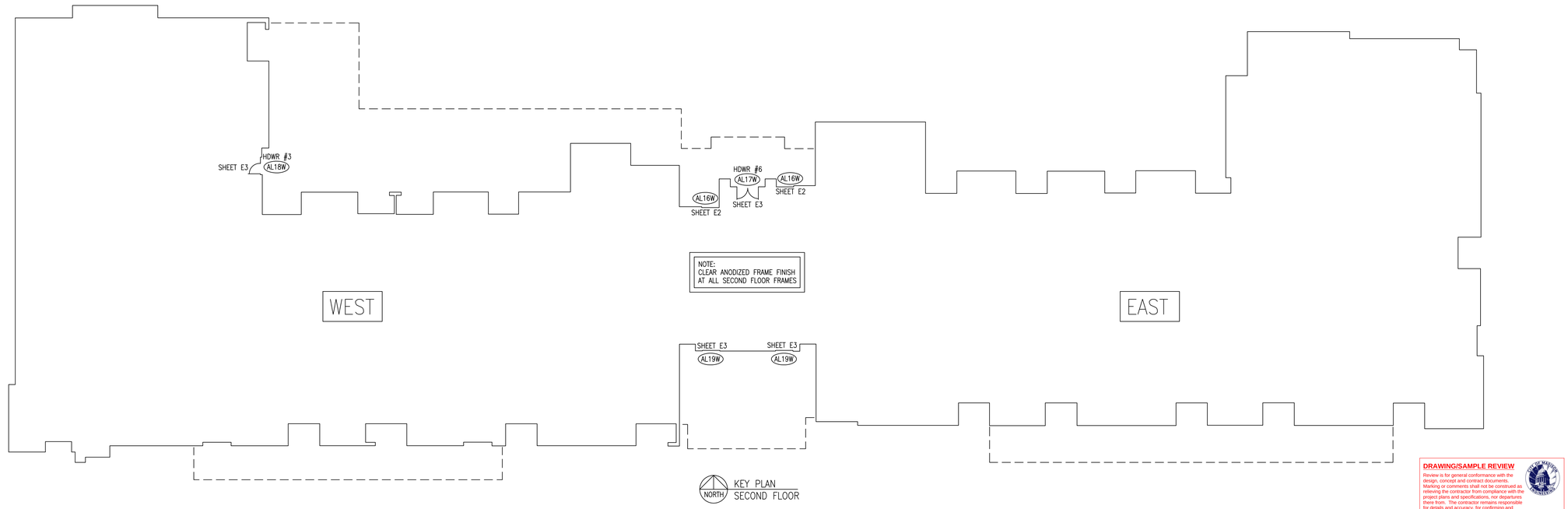
* On units that require ADA compliance the standard 1/2" high, offset pivot/butt hung threshold with bottom sweep will be supplied.

Laws and building and safety codes governing the design and use of glazed entrance, window, and curtain wall products vary widely. Kawneer does not control the selection of product configurations, operating hardware, or glazing materials, and assumes no responsibility therefor.

Kawneer reserves the right to change configuration without prior notice when deemed necessary for product improvement.

© Kawneer Company, Inc., 2015

ROYSTER CROSSING
ALUMINUM STOREFRONT



DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

✘ REVIEWED WITH NO COMMENTS

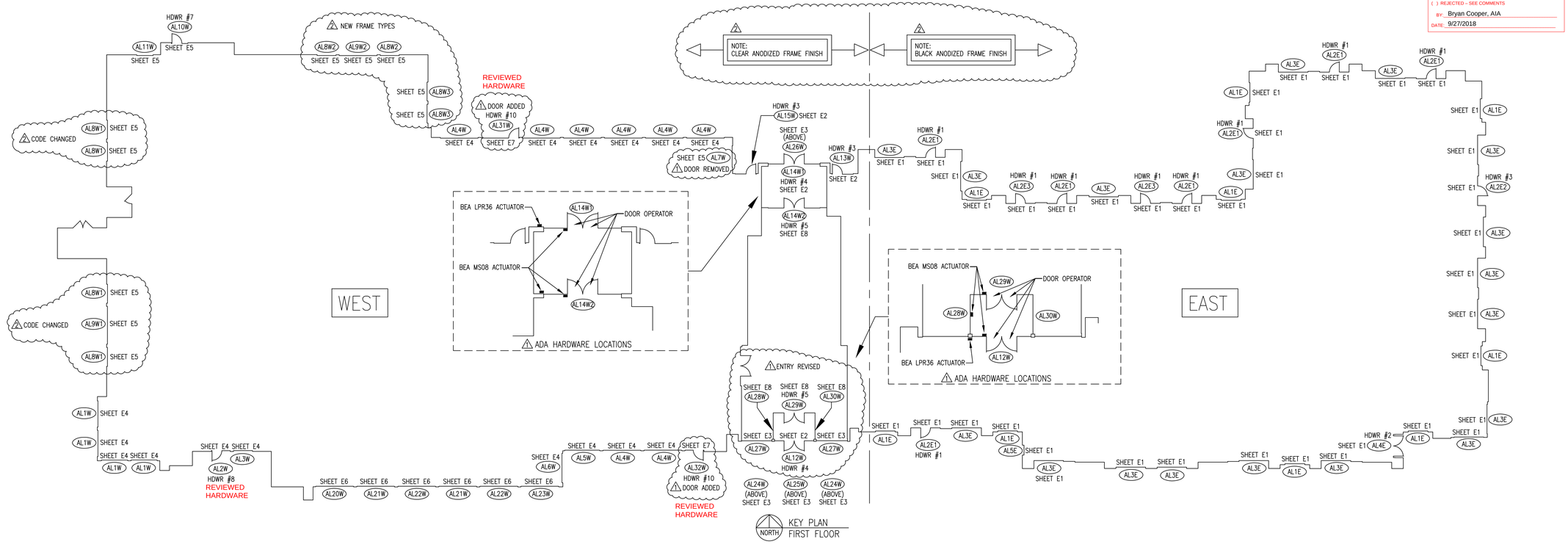
( ) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 9/27/2018



ARCHITECT/G.C./GLAZING CONTRACTOR NOTE:
PLEASE VERIFY ALL DETAILS, DIMENSIONS, ELEVATIONS, FRAME SIZES, FRAME QUANTITIES, OPENING SIZES, HARDWARE AND SPECIFICATIONS.

REVISIONS:
1 8/22/18 REVISED PER 1ST. SUBMISSION REVIEW
2 9/24/18 REVISED PER 2ND. SUBMISSION REVIEW

SPECIFICATIONS

MANUFACTURER:
KAWNEER

SERIES:
451UT STOREFRONT – 2" x 4 1/2"
451T VG STOREFRONT – 2" x 4 1/2"
451 VG STOREFRONT – 2" x 4 1/2" (AT DOORS FRAMES)
450 VG STOREFRONT – 1 3/4" x 4 1/2" (INTERIOR FRAMES)
350 MEDIUM STILE DOORS WITH:
RABBETED STILE FOR CONTINUOUS HINGE
10" BOTTOM RAIL

FINISH: REFERENCE KEY PLANS FOR LOCATIONS
BLACK ANODIZED
CLEAR ANODIZED

GLASS:
GL1 1" INSULATED UNIT CONSISTING OF:
1/4" CLEAR ANNEALED – EXTERIOR
1/2" AIR SPACE
1/4" CLR. ANN. W/ENERGY ADVANTAGE LOW E ON #3 – INT.

GL2 1" INSULATED UNIT CONSISTING OF:
1/4" CLEAR TEMPERED – EXTERIOR
1/2" AIR SPACE
1/4" CLR. TE. W/ENERGY ADVANTAGE LOW E ON #3 – INT.

GL3 1" INSULATED UNIT CONSISTING OF:
1/4" CLR. ANN. W/SOLARBAN 60 LOW E ON #2 – EXT.
1/2" AIR SPACE W/ARGON GAS
1/4" CLR. ANNEALED – INTERIOR

GL4 1" INSULATED UNIT CONSISTING OF:
1/4" CLR. TE. W/SOLARBAN 60 LOW E ON #2 – EXT.
1/2" AIR SPACE W/ARGON GAS
1/4" CLR. TEMPERED – INTERIOR

1 GL5 1/4" CLEAR TEMPERED

SP1 1" INSULATED SPANDREL UNIT CONSISTING OF:
1/4" CLEAR TEMPERED – EXTERIOR
1/2" AIR SPACE
1/4" TE. SPANDREL, COLOR: _____ – INTERIOR
ARCHITECT PLEASE PROVIDE COLOR

DOOR HARDWARE:

GROUP #1
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

GROUP #2
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

GROUP #3
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – TRINE 4800F
KEY CYLINDER
PULL – KAWNEER CO–9
CLOSER – LCN 1461

GROUP #4 1 GROUP REVISED
2–CONTINUOUS HINGE – ROTON 780–112 HD
2–RIM EXIT – FALCON 1790
KEY CYLINDER
2–PULL – KAWNEER CO–9
1–ELECTRIC STRIKE – TRINE 4800P
1–STANDARD STRIKE
2–AUTO OPERATOR CLOSER
1–HI LO ACTUATOR – BEA LPR36 FULL LENGTH, 6"X39"
1–MICROWAVE ACTUATOR – BEA MS08 TOUCHLESS
(REF. SHEET P1 FOR ACTUATOR LOCATIONS)

GROUP #5 1 GROUP REVISED
2–CONTINUOUS HINGE – ROTON 780–112 HD
2–PUSH/PULL – KAWNEER CO–9/CP
2–AUTO OPERATOR CLOSER
(NO LOCK)
2–MICROWAVE ACTUATOR – BEA MS08 TOUCHLESS
(REF. SHEET P1 FOR ACTUATOR LOCATIONS)

GROUP #6
2–CONTINUOUS HINGE – ROTON 780–112 HD
2–RIM EXIT – FALCON 1790
KEY CYLINDER
2–PULL – KAWNEER CO–9
1–ELECTRIC STRIKE – TRINE 4800F
1–STANDARD STRIKE
2–CLOSER – LCN 1461

GROUP #7
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER – SARGENT
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

GROUP #8
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – TRINE 4800F
KEY CYLINDER – SARGENT
PULL – KAWNEER CO–9
CLOSER – LCN 1461

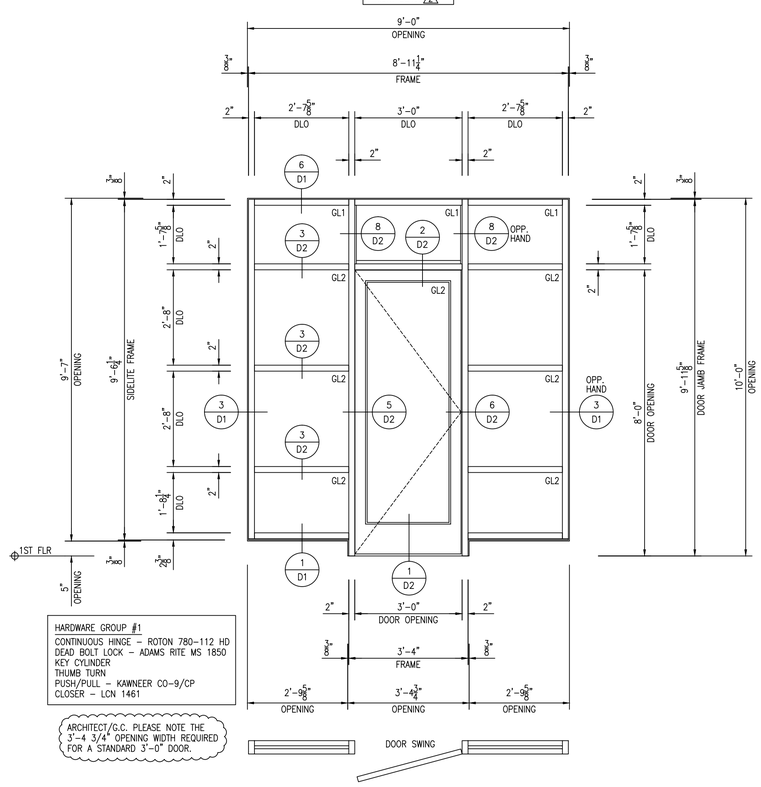
GROUP #9 1 GROUP DELETED

GROUP #10 1 GROUP ADDED
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – BY CITY OF MADISON
KEY CYLINDER – SARGENT
PULL – KAWNEER CO–9
CLOSER – LCN 1461

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: NOT TO SCALE **SHEET:** P1

file no. 1806

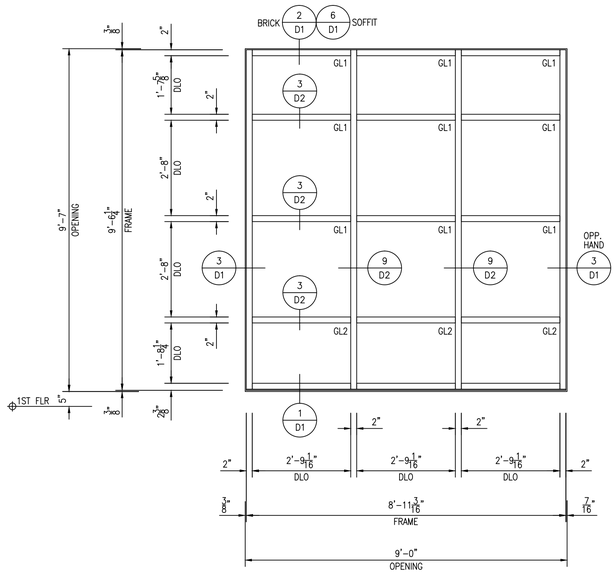
FRAME TYPE: AL2E3
FRAME QUANTITY: 2
SERIES: 451T/451
FINISH: BLACK (2)



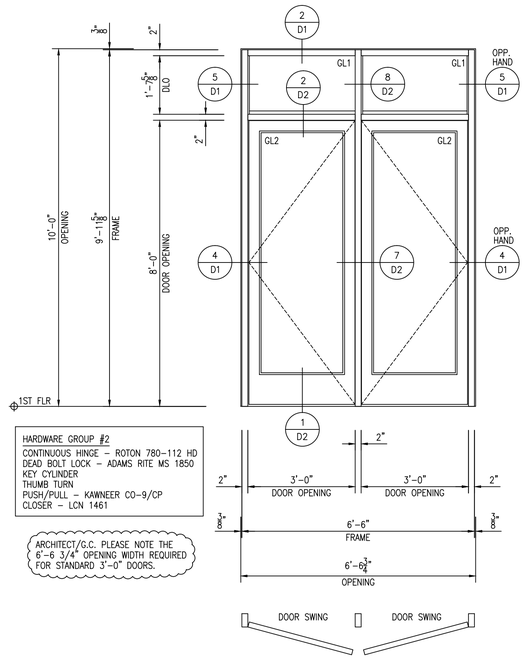
HARDWARE GROUP #1
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

ARCHITECT/G.C. PLEASE NOTE THE 3'–4 3/4" OPENING WIDTH REQUIRED FOR A STANDARD 3'–0" DOOR.

FRAME TYPE: AL3E
FRAME QUANTITY: 18
SERIES: 451T
FINISH: BLACK (2)



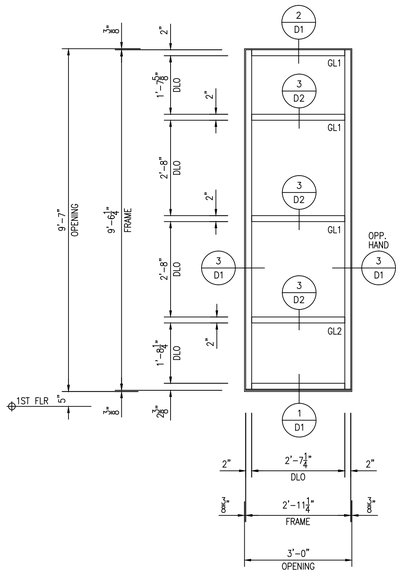
FRAME TYPE: AL4E
FRAME QUANTITY: 1
SERIES: 451T/451
FINISH: BLACK (2)



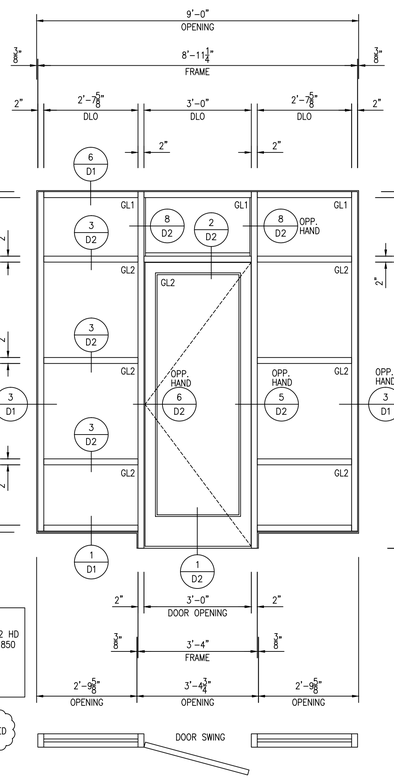
HARDWARE GROUP #2
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

ARCHITECT/G.C. PLEASE NOTE THE 6'–6 3/4" OPENING WIDTH REQUIRED FOR STANDARD 3'–0" DOORS.

FRAME TYPE: AL5E
FRAME QUANTITY: 1
SERIES: 451T
FINISH: BLACK (2)



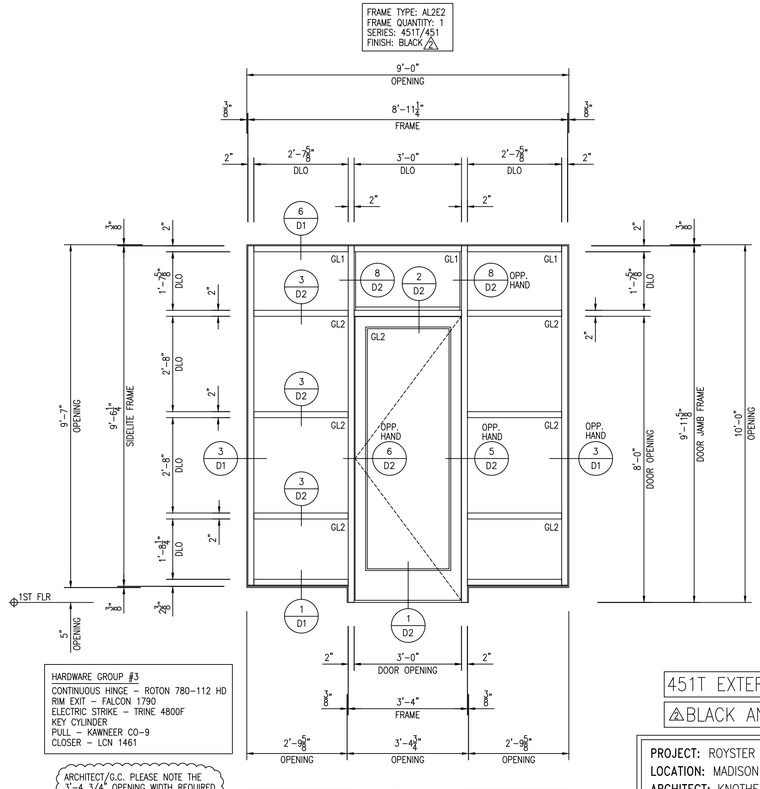
FRAME TYPE: AL2E1
FRAME QUANTITY: 7
SERIES: 451T/451
FINISH: BLACK (2)



HARDWARE GROUP #1
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

ARCHITECT/G.C. PLEASE NOTE THE 3'–4 3/4" OPENING WIDTH REQUIRED FOR A STANDARD 3'–0" DOOR.

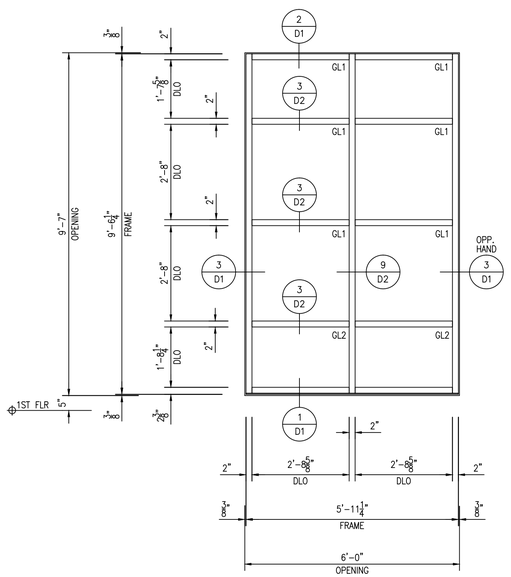
FRAME TYPE: AL2E2
FRAME QUANTITY: 1
SERIES: 451T/451
FINISH: BLACK (2)



HARDWARE GROUP #3
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – TRINE 4800F
KEY CYLINDER
PULL – KAWNEER CO–9
CLOSER – LCN 1461

ARCHITECT/G.C. PLEASE NOTE THE 3'–4 3/4" OPENING WIDTH REQUIRED FOR A STANDARD 3'–0" DOOR.

FRAME TYPE: AL1E
FRAME QUANTITY: 9
SERIES: 451T
FINISH: BLACK (2)



451T EXTERIOR STOREFRONT
(2) BLACK ANODIZED FINISH

ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

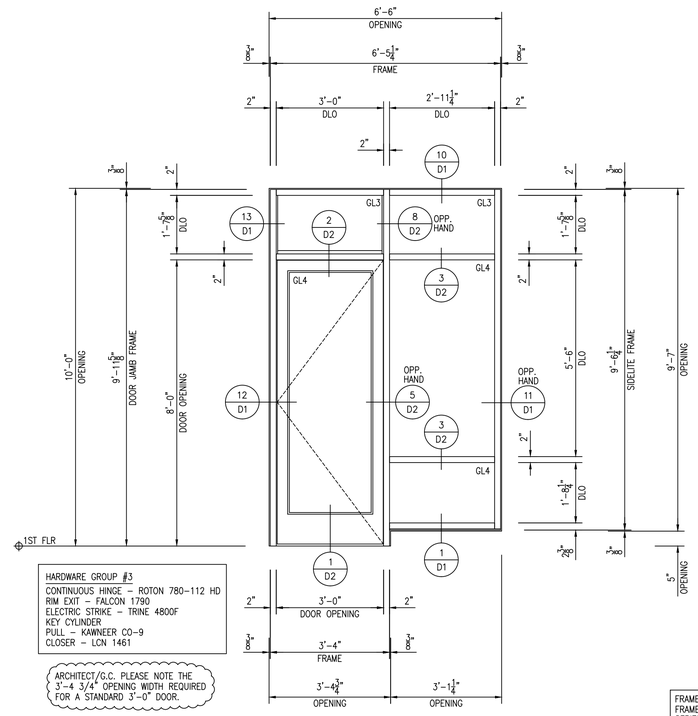
ALL FRAMES SHOWN VIEWED FROM THE EXTERIOR

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: 1/2"=1'–0"
SHEET: E1

file no. 1806

FRAME TYPE: AL15W
FRAME QUANTITY: 1
SERIES: 451T/451
FINISH: CLEAR

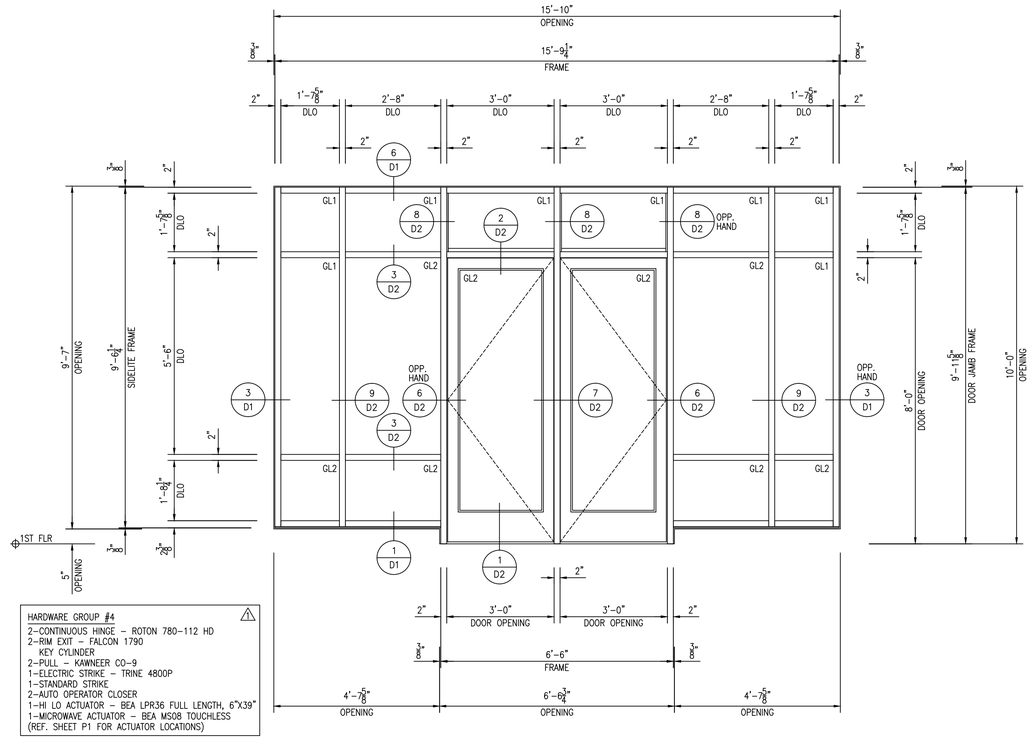
⚠ GLASS CODES CHANGED



HARDWARE GROUP #3
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – TRINE 4800F
KEY CYLINDER
PULL – KAWNEER CO–9
CLOSER – LCN 1461

ARCHITECT/G.C. PLEASE NOTE THE 3'–4 3/4" OPENING WIDTH REQUIRED FOR A STANDARD 3'–0" DOOR.

FRAME TYPE: AL14W1
FRAME QUANTITY: 1
SERIES: 451T/451
FINISH: CLEAR

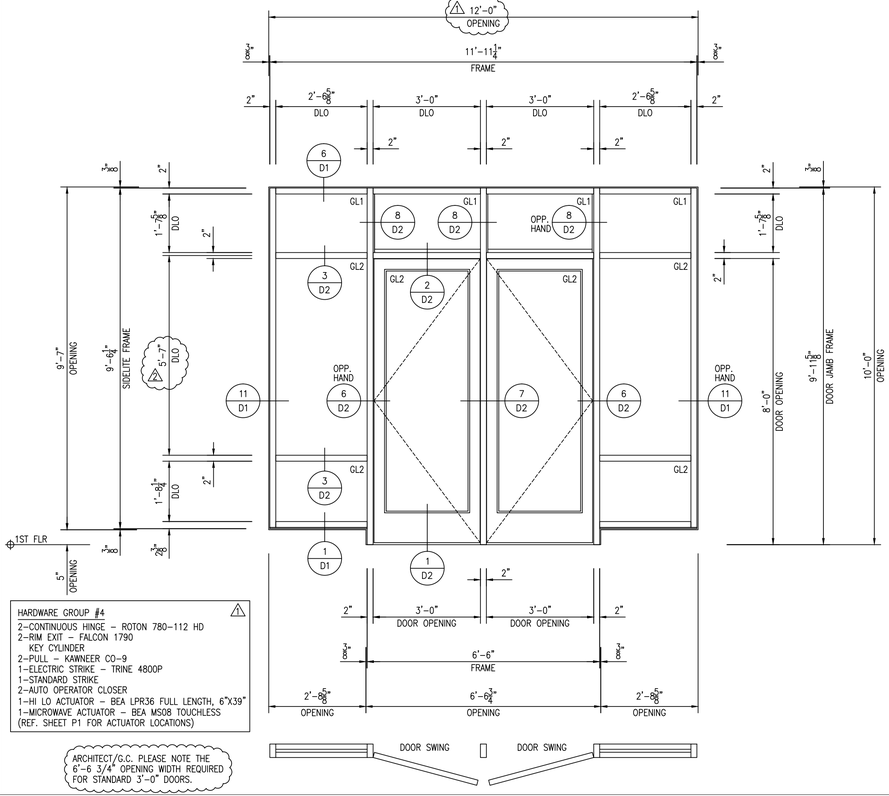


HARDWARE GROUP #4 ⚠
2–CONTINUOUS HINGE – ROTON 780–112 HD
2–RIM EXIT – FALCON 1790
KEY CYLINDER
2–PULL – KAWNEER CO–9
1–ELECTRIC STRIKE – TRINE 4800P
1–STANDARD STRIKE
2–AUTO OPERATOR CLOSER
1–HI LO ACTUATOR – BEA LPR36 FULL LENGTH, 6"X39"
1–MICROWAVE ACTUATOR – BEA MS08 TOUCHLESS
(REF. SHEET P1 FOR ACTUATOR LOCATIONS)

ARCHITECT/G.C. PLEASE NOTE THE 6'–6 3/4" OPENING WIDTH REQUIRED FOR STANDARD 3'–0" DOORS.

FRAME TYPE: AL12W
FRAME QUANTITY: 1
SERIES: 451T/451
FINISH: CLEAR

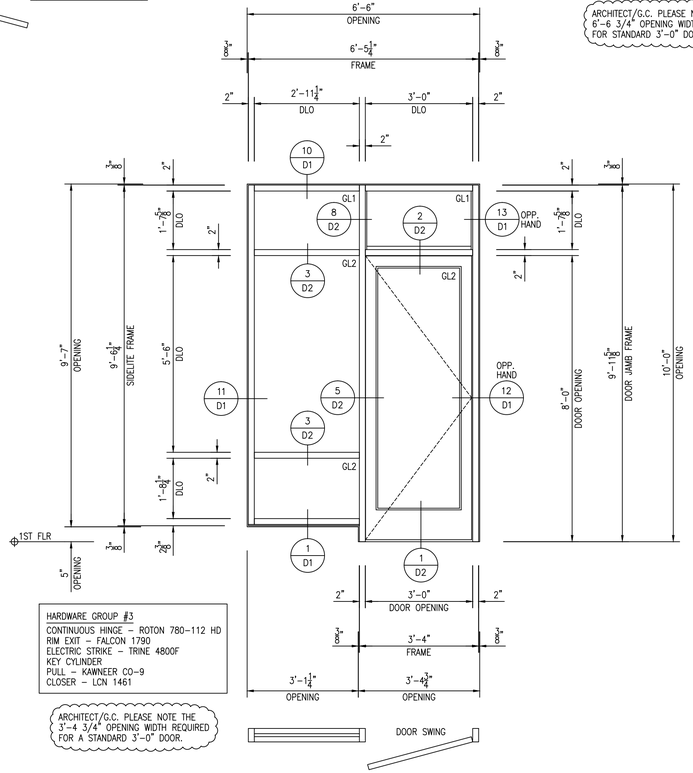
⚠ (1) FRAME REMOVED



HARDWARE GROUP #4 ⚠
2–CONTINUOUS HINGE – ROTON 780–112 HD
2–RIM EXIT – FALCON 1790
KEY CYLINDER
2–PULL – KAWNEER CO–9
1–ELECTRIC STRIKE – TRINE 4800P
1–STANDARD STRIKE
2–AUTO OPERATOR CLOSER
1–HI LO ACTUATOR – BEA LPR36 FULL LENGTH, 6"X39"
1–MICROWAVE ACTUATOR – BEA MS08 TOUCHLESS
(REF. SHEET P1 FOR ACTUATOR LOCATIONS)

ARCHITECT/G.C. PLEASE NOTE THE 6'–6 3/4" OPENING WIDTH REQUIRED FOR STANDARD 3'–0" DOORS.

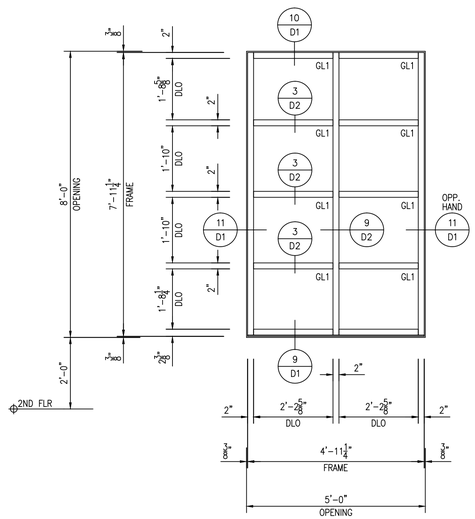
FRAME TYPE: AL13W
FRAME QUANTITY: 1
SERIES: 451T/451
FINISH: CLEAR



HARDWARE GROUP #3
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – TRINE 4800F
KEY CYLINDER
PULL – KAWNEER CO–9
CLOSER – LCN 1461

ARCHITECT/G.C. PLEASE NOTE THE 3'–4 3/4" OPENING WIDTH REQUIRED FOR A STANDARD 3'–0" DOOR.

FRAME TYPE: AL16W
FRAME QUANTITY: 2
SERIES: 451T
FINISH: CLEAR



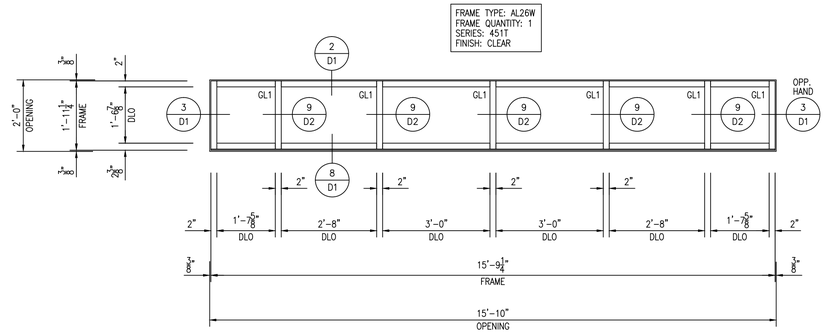
451T EXTERIOR STOREFRONT
CLEAR ANODIZED FINISH

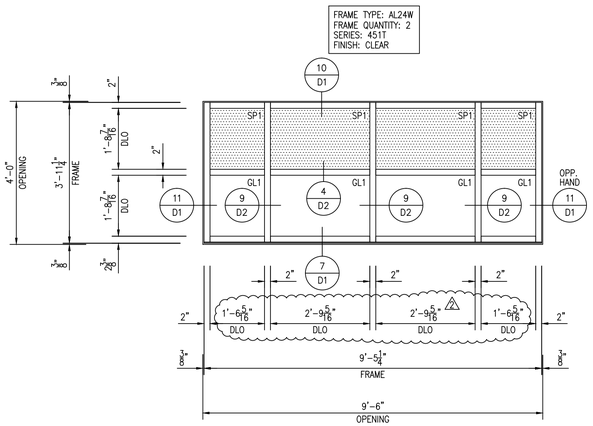
ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

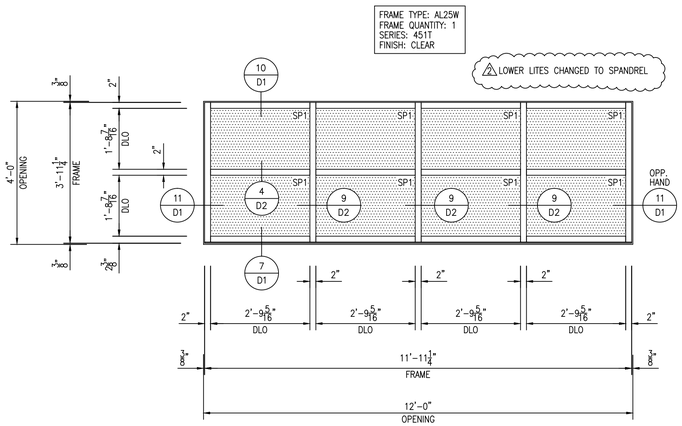
ALL FRAMES SHOWN VIEWED FROM THE EXTERIOR

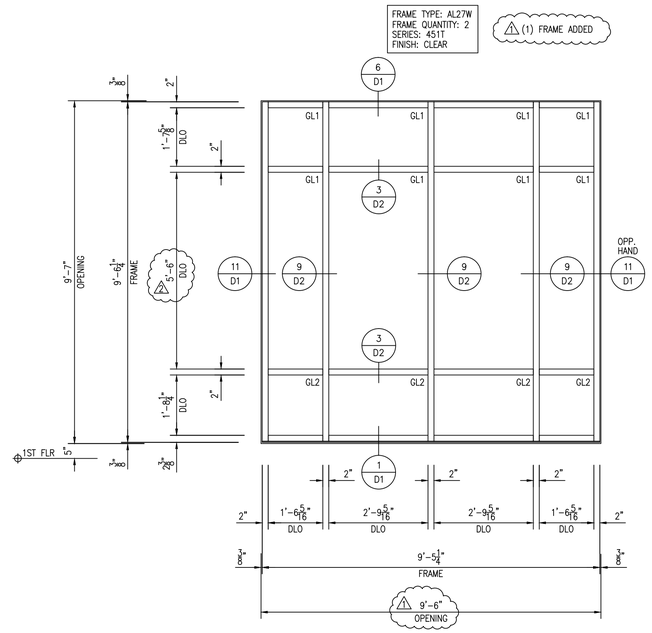
PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: 1/2"=1'–0"
SHEET: E2

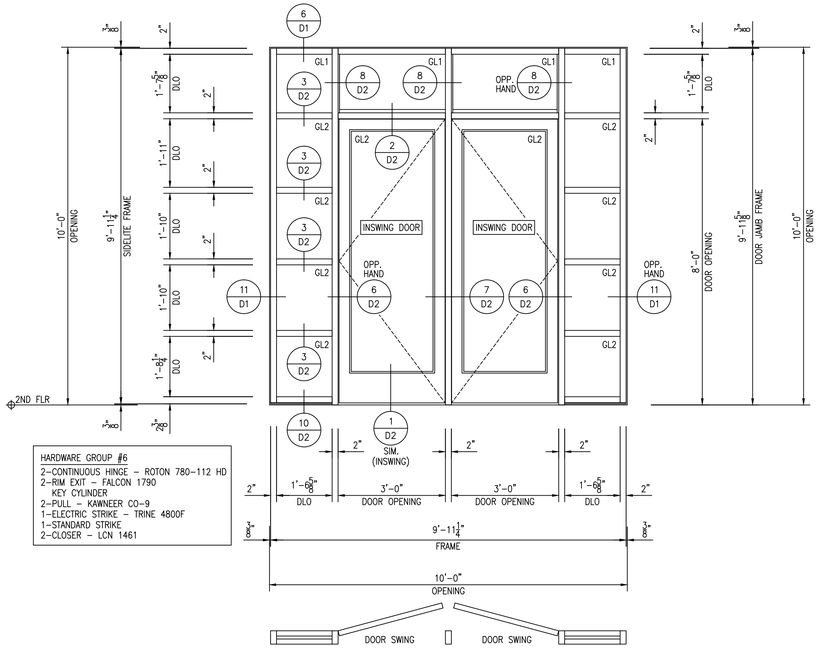
file no. 1806

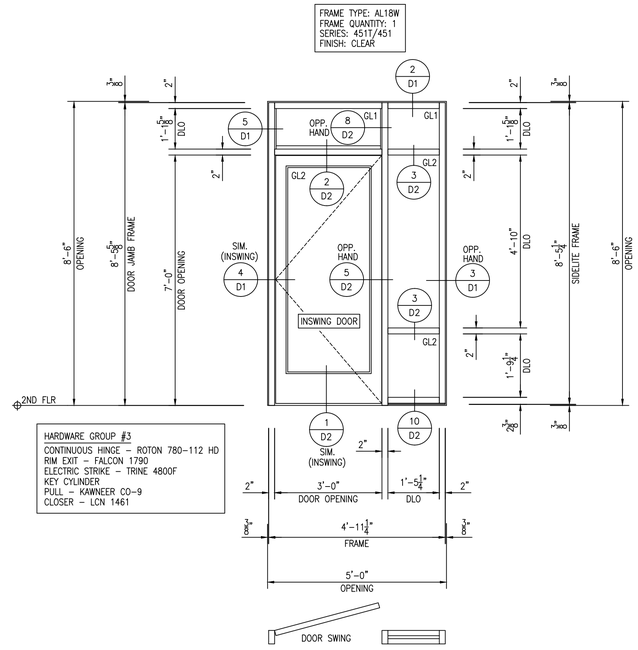


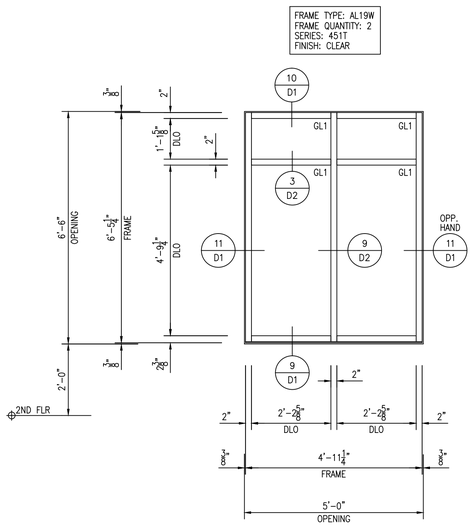












451T EXTERIOR STOREFRONT

CLEAR ANODIZED FINISH

ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

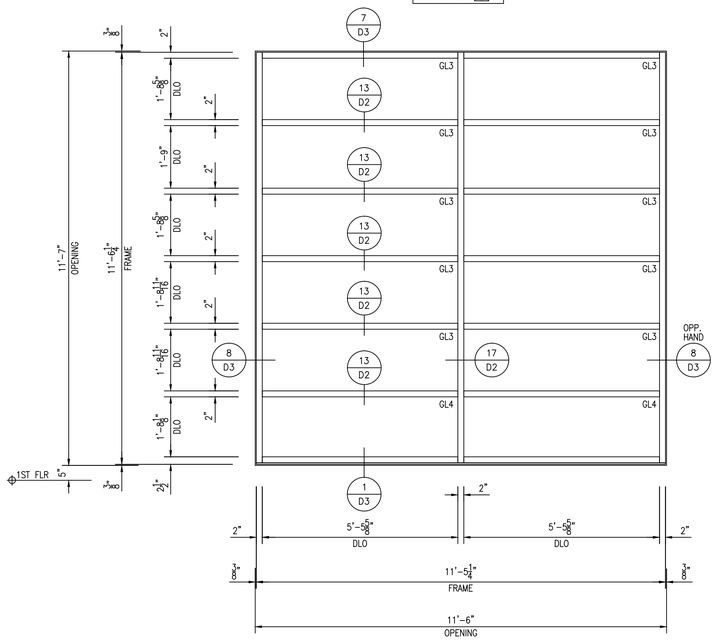
ALL FRAMES SHOWN VIEWED FROM THE EXTERIOR

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: 1/2"=1'-0"
SHEET: E3

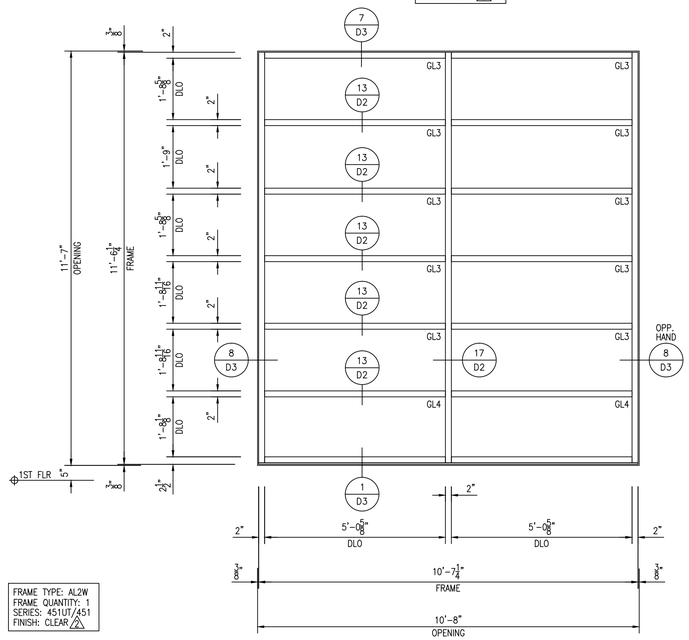
file no. 1806

FRAME TYPE: AL4W
FRAME QUANTITY: 8
SERIES: 451UT
FINISH: CLEAR ⚠2

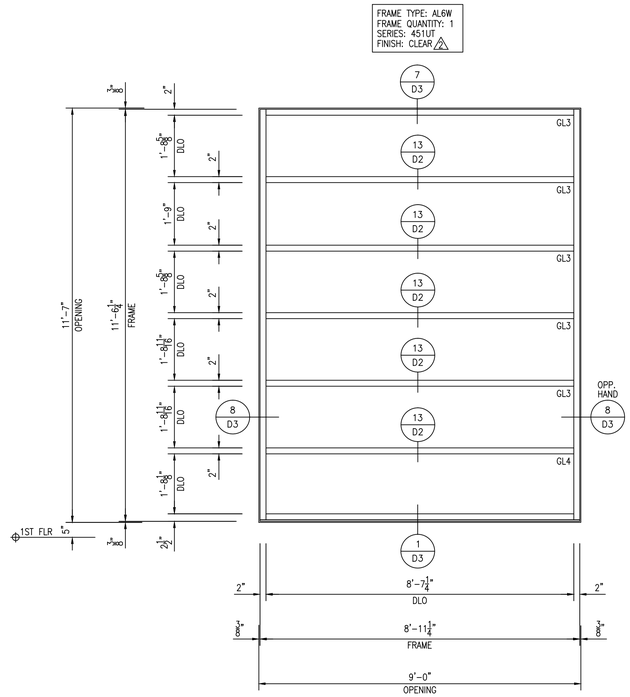
⚠1 (1) FRAME REMOVED



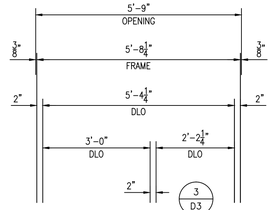
FRAME TYPE: AL5W
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR ⚠2



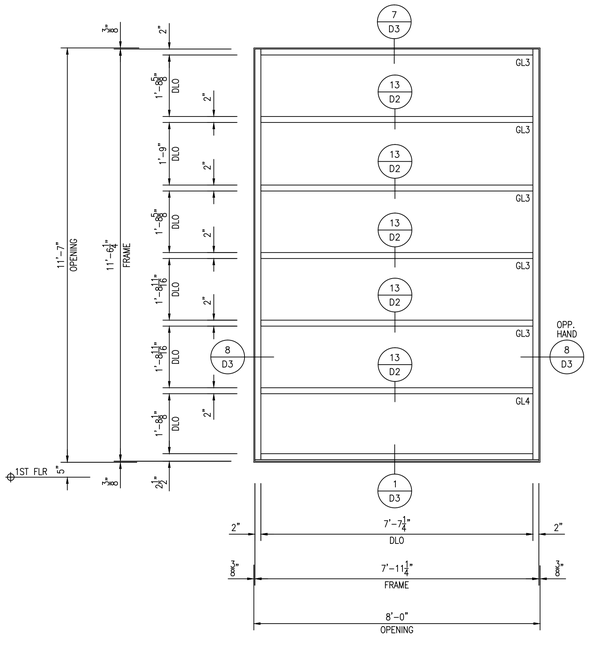
FRAME TYPE: AL6W
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR ⚠2

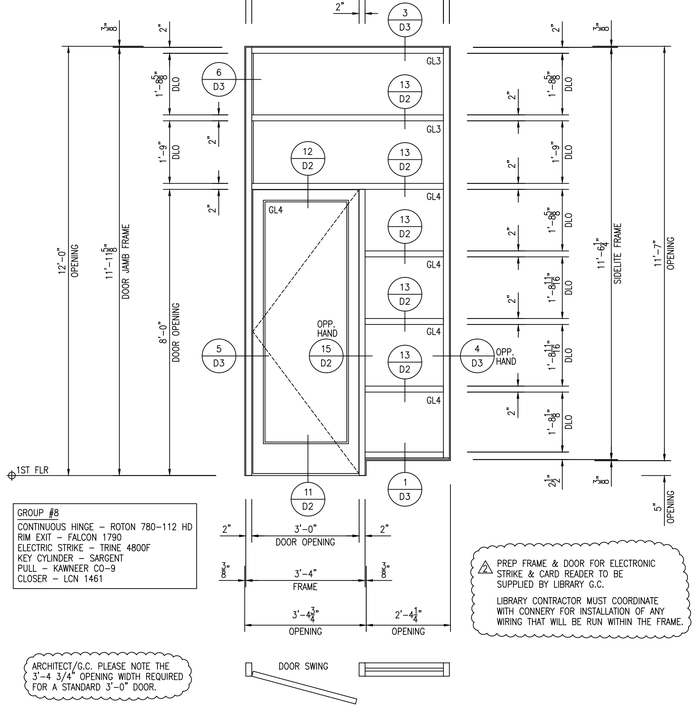


FRAME TYPE: AL2W
FRAME QUANTITY: 1
SERIES: 451UT/451
FINISH: CLEAR ⚠2



FRAME TYPE: AL1W
FRAME QUANTITY: 4
SERIES: 451UT
FINISH: CLEAR ⚠2





GROUP #8
CONTINUOUS HINGE – ROTON 780-112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – TRINE 4800F
KEY CYLINDER – SARGENT
PULL – KAWNEER CO-9
CLOSER – LCN 1461

⚠2 PREP FRAME & DOOR FOR ELECTRONIC STRIKE & CARD READER TO BE SUPPLIED BY LIBRARY G.C.

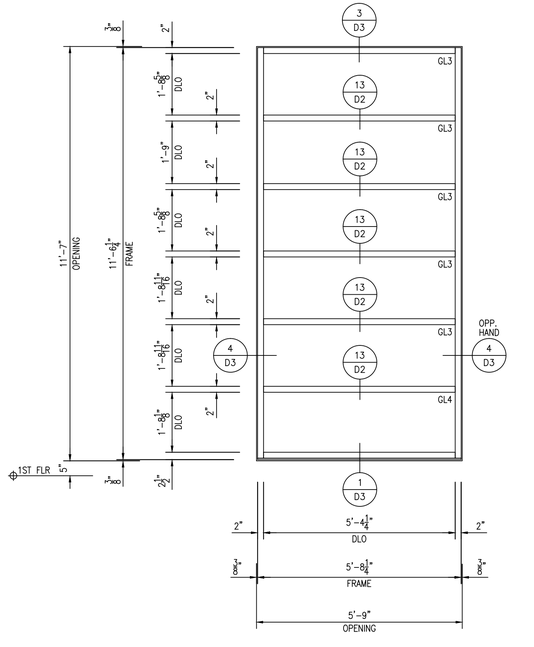
LIBRARY CONTRACTOR MUST COORDINATE WITH CONNERY FOR INSTALLATION OF ANY WIRING THAT WILL BE RUN WITHIN THE FRAME.

ARCHITECT/G.C. PLEASE NOTE THE 3'-4 3/4" OPENING WIDTH REQUIRED FOR A STANDARD 3'-0" DOOR.

DOOR SWING

FRAME TYPE: AL3W
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR ⚠2

⚠1 (1) FRAME REMOVED



ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

ALL FRAMES SHOWN VIEWED FROM THE EXTERIOR

451UT EXTERIOR STOREFRONT

BLACK ANODIZED FINISH

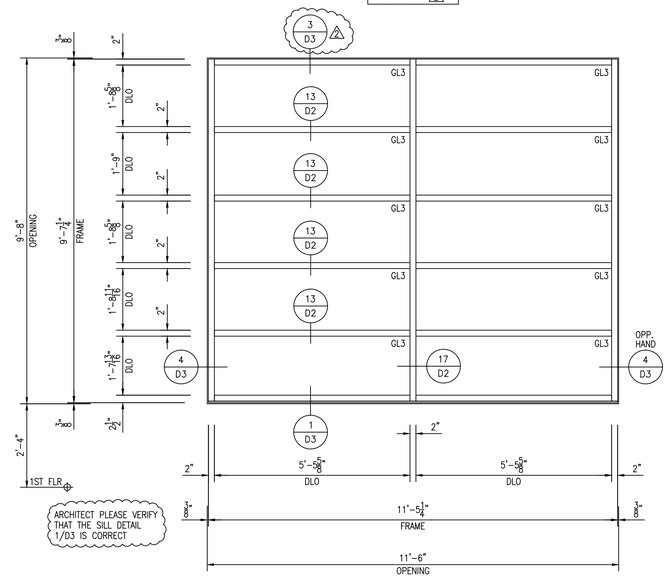
PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: 1/2"=1'-0"
SHEET: E4

file no. 1806

FRAME TYPE: AL9W1
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR ⚠

⚠ CODE CHANGED

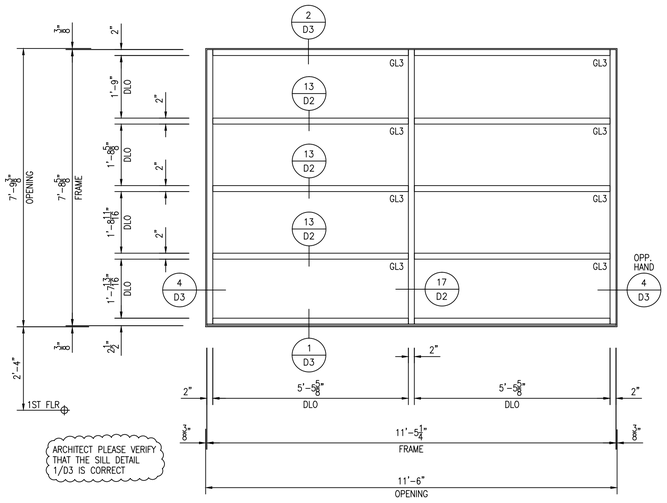
⚠ QUANTITY REDUCED



ARCHITECT PLEASE VERIFY THAT THE SILL DETAIL 1/D3 IS CORRECT

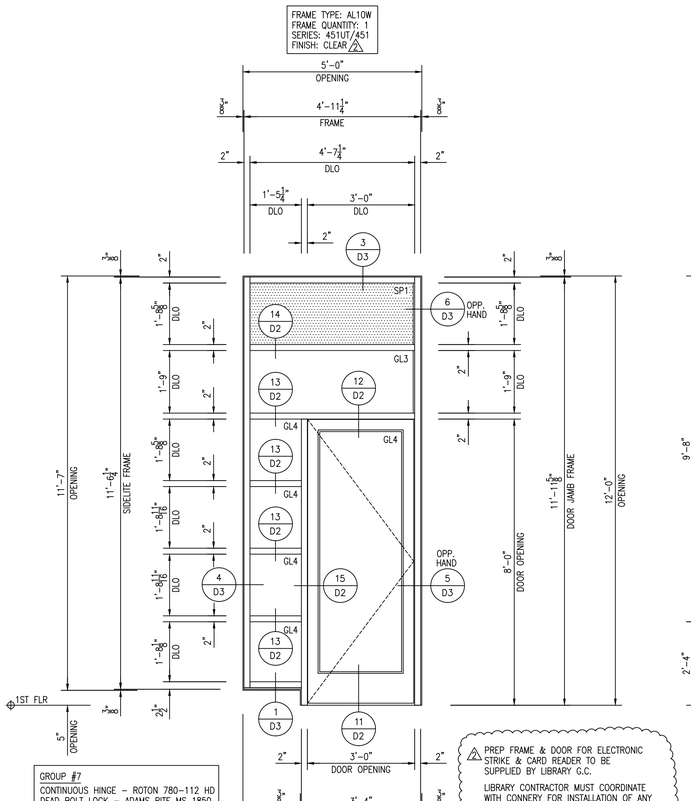
FRAME TYPE: AL9W2
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR

⚠ FRAME ADDED



ARCHITECT PLEASE VERIFY THAT THE SILL DETAIL 1/D3 IS CORRECT

FRAME TYPE: AL10W
FRAME QUANTITY: 1
SERIES: 451UT/451
FINISH: CLEAR ⚠



GROUP #7
CONTINUOUS HINGE – ROTON 780-112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER – SARGENT
THUMB TURN
PUSH/PULL – KAWNEER CO-9/CP
CLOSER – LCN 1461

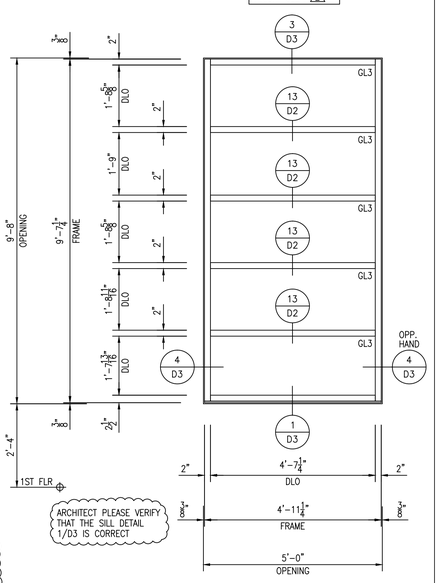
ARCHITECT/G.C. PLEASE NOTE THE 3'-4 3/4" OPENING WIDTH REQUIRED FOR A STANDARD 3'-0" DOOR.

⚠ PREP FRAME & DOOR FOR ELECTRONIC STRIKE & CARD READER TO BE SUPPLIED BY LIBRARY G.C.

LIBRARY CONTRACTOR MUST COORDINATE WITH CONNERY FOR INSTALLATION OF ANY WIRING THAT WILL BE RUN WITHIN THE FRAME.

DOOR SWING

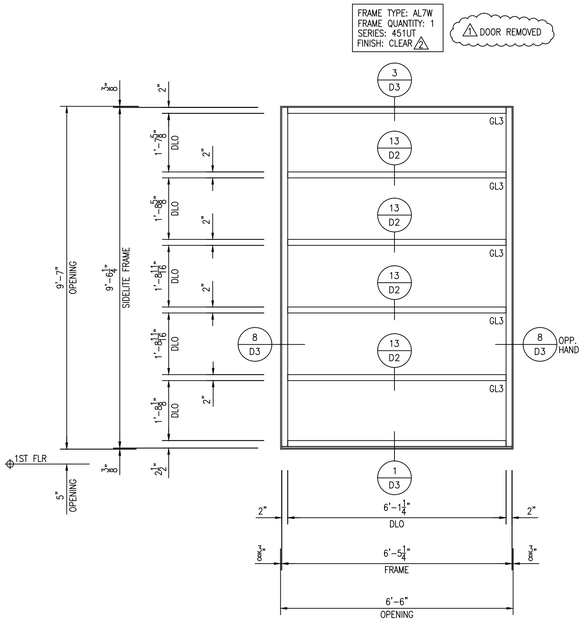
FRAME TYPE: AL11W
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR ⚠



ARCHITECT PLEASE VERIFY THAT THE SILL DETAIL 1/D3 IS CORRECT

FRAME TYPE: AL7W
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR ⚠

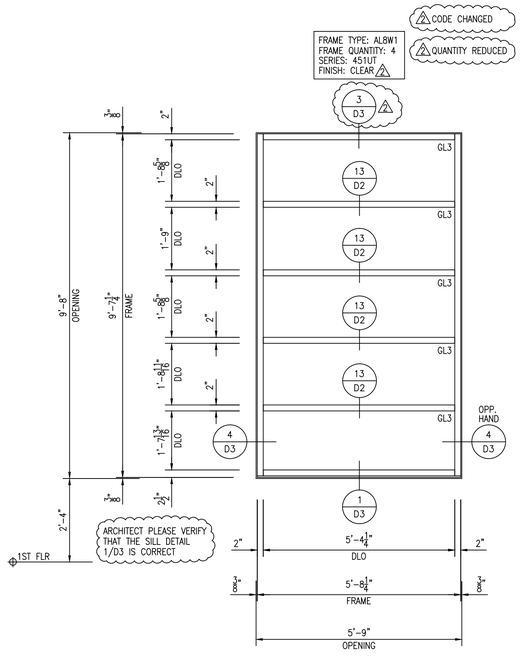
⚠ DOOR REMOVED



FRAME TYPE: AL8W1
FRAME QUANTITY: 4
SERIES: 451UT
FINISH: CLEAR ⚠

⚠ CODE CHANGED

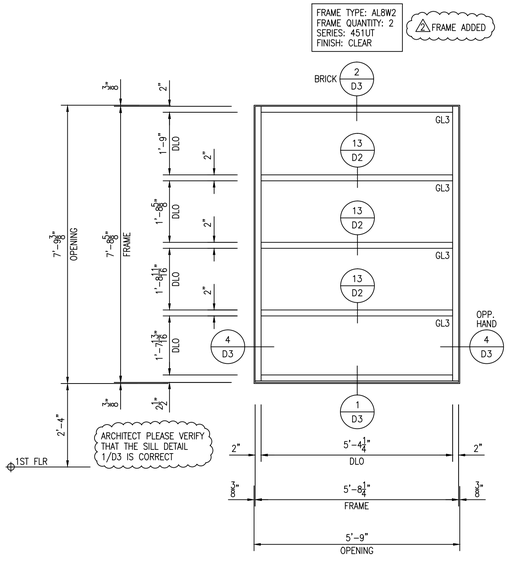
⚠ QUANTITY REDUCED



ARCHITECT PLEASE VERIFY THAT THE SILL DETAIL 1/D3 IS CORRECT

FRAME TYPE: AL8W2
FRAME QUANTITY: 2
SERIES: 451UT
FINISH: CLEAR

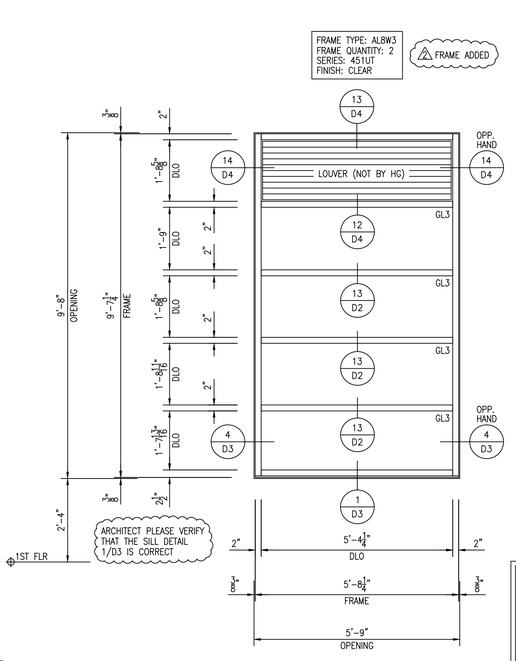
⚠ FRAME ADDED



ARCHITECT PLEASE VERIFY THAT THE SILL DETAIL 1/D3 IS CORRECT

FRAME TYPE: AL8W3
FRAME QUANTITY: 2
SERIES: 451UT
FINISH: CLEAR

⚠ FRAME ADDED



ARCHITECT PLEASE VERIFY THAT THE SILL DETAIL 1/D3 IS CORRECT

LOUVER BY LIBRARY G.C.

G.C. TO PROVIDE & INSTALL TEMPORARY WEATHERPROOF COVERING OF PLYWOOD OR RIGID INSULATION.

LOUVER & INSTALLATION ARE RESPONSIBILITY OF CITY'S CONTRACTOR.

ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

ALL FRAMES SHOWN VIEWED FROM THE EXTERIOR

451UT EXTERIOR STOREFRONT

BLACK ANODIZED FINISH

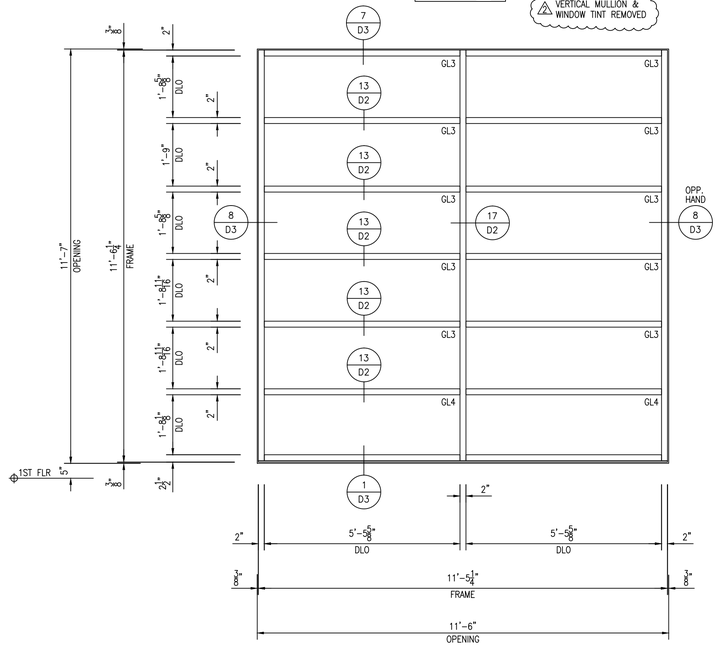
PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: 1/2"=1'-0"

SHEET: E5

file no. 1806

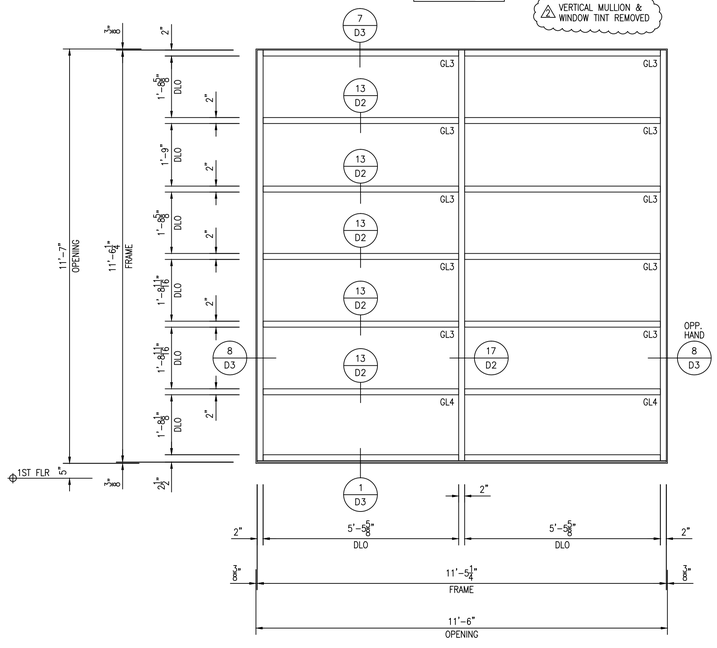
FRAME TYPE: AL22W
FRAME QUANTITY: 2
SERIES: 451UT
FINISH: CLEAR ⚠1

⚠1 VERTICAL MULLION & WINDOW TINT REMOVED



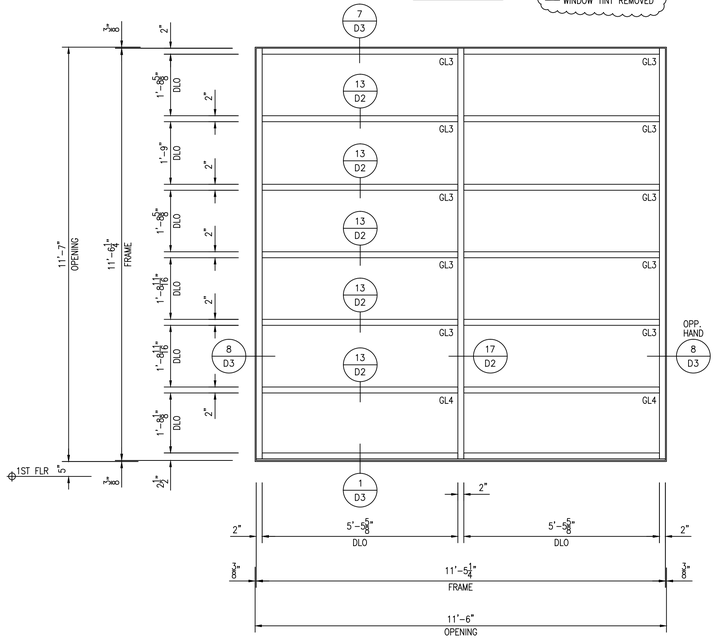
FRAME TYPE: AL23W
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR ⚠1

⚠1 VERTICAL MULLION & WINDOW TINT REMOVED



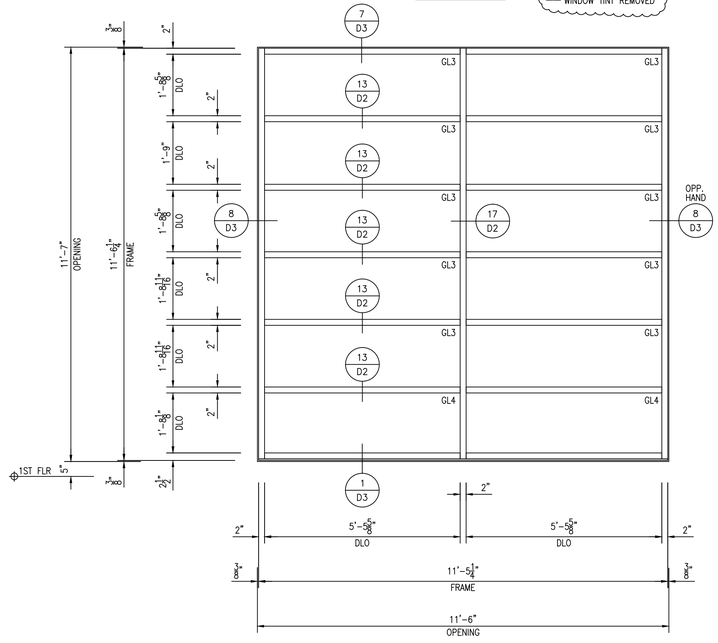
FRAME TYPE: AL20W
FRAME QUANTITY: 1
SERIES: 451UT
FINISH: CLEAR ⚠1

⚠1 VERTICAL MULLION & WINDOW TINT REMOVED



FRAME TYPE: AL21W
FRAME QUANTITY: 2
SERIES: 451UT
FINISH: CLEAR ⚠1

⚠1 VERTICAL MULLION & WINDOW TINT REMOVED



ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

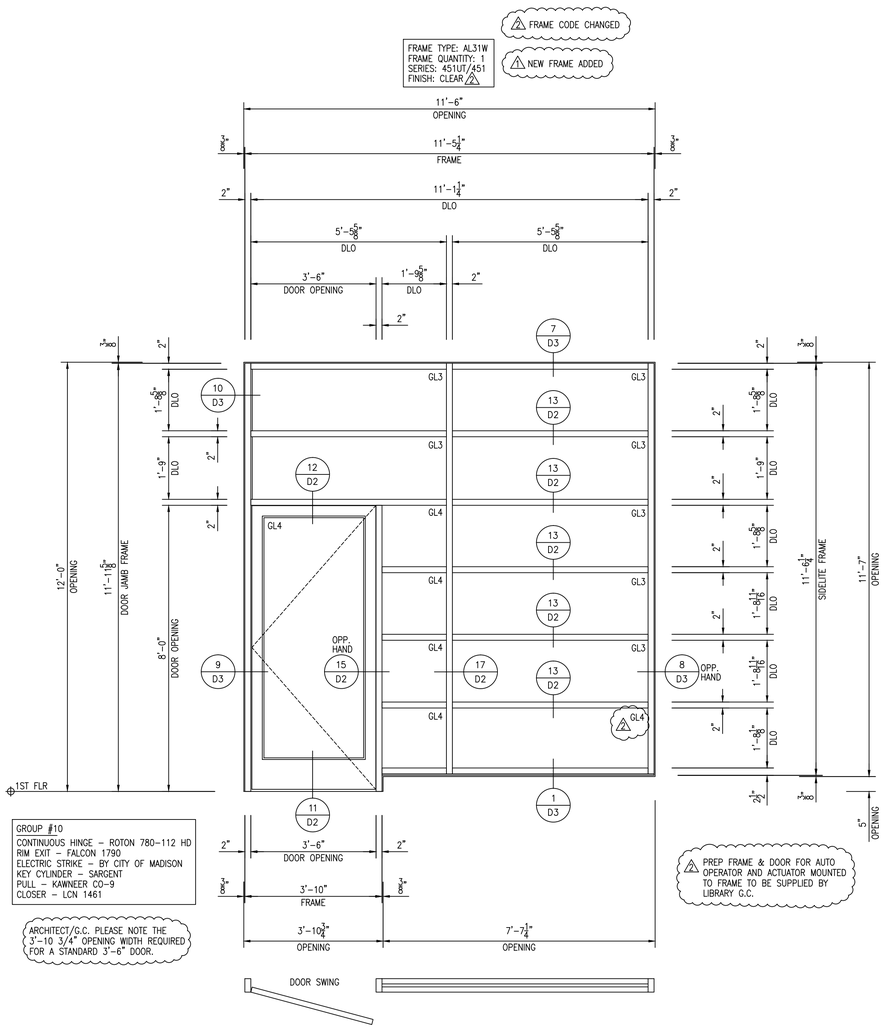
ALL FRAMES SHOWN VIEWED FROM THE EXTERIOR

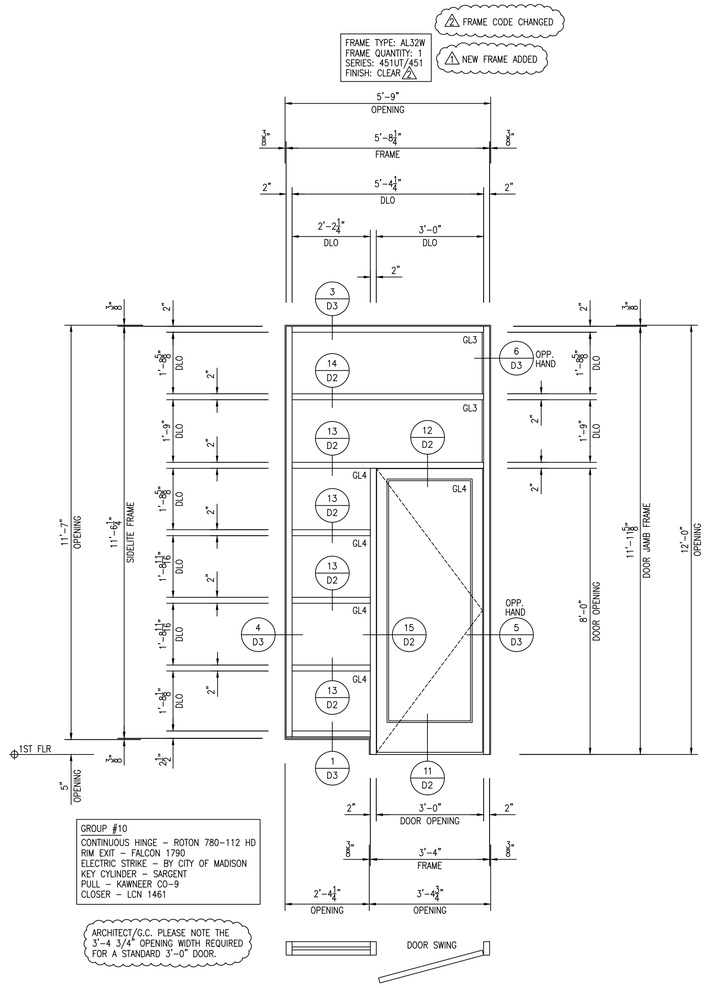
451UT EXTERIOR STOREFRONT

BLACK ANODIZED FINISH

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: 1/2"=1'-0"
SHEET: E6

file no. 1806





ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

ALL FRAMES SHOWN VIEWED FROM THE EXTERIOR

451UT EXTERIOR STOREFRONT

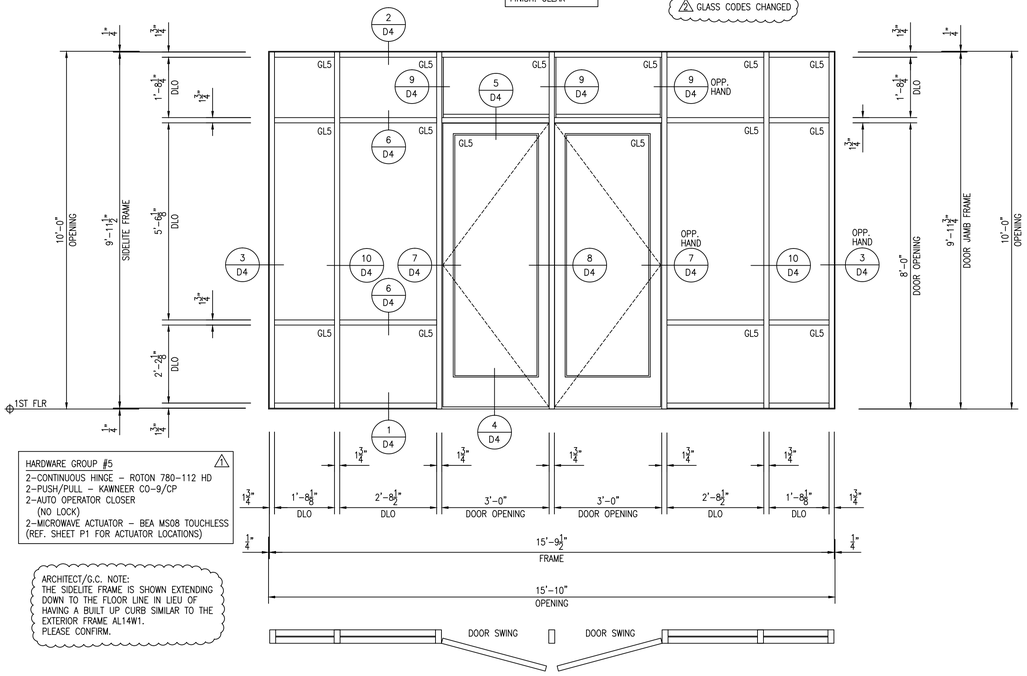
BLACK ANODIZED FINISH

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: 1/2"=1'-0"
SHEET: E7

file no. 1806

INTERIOR

FRAME TYPE: AL14W2
FRAME QUANTITY: 1
SERIES: 450
FINISH: CLEAR



HARDWARE GROUP #5 ⚠1

2–CONTINUOUS HINGE – ROTON 780–112 HD
2–PUSH/PULL – KAWNEER CO–9/CP
2–AUTO OPERATOR CLOSER
(NO LOCK)
2–MICROWAVE ACTUATOR – BEA MS08 TOUCHLESS
(REF. SHEET P1 FOR ACTUATOR LOCATIONS)

ARCHITECT/G.C. NOTE:
THE SIDELITE FRAME IS SHOWN EXTENDING DOWN TO THE FLOOR LINE IN LIEU OF HAVING A BUILT UP CURB SIMILAR TO THE EXTERIOR FRAME AL14W1. PLEASE CONFIRM.

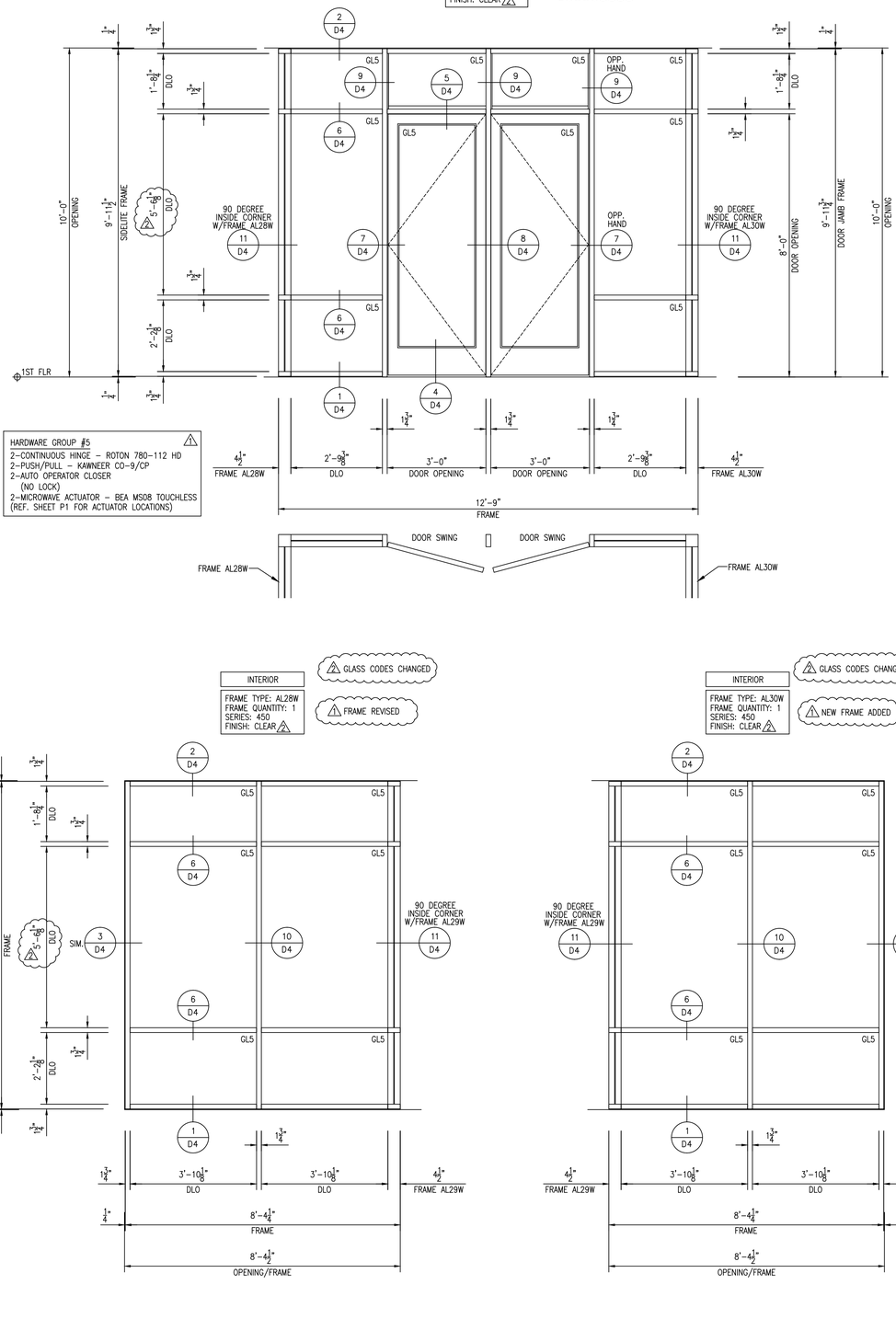
450 INTERIOR STOREFRONT
CLEAR ANODIZED FINISH

ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

INTERIOR

FRAME TYPE: AL29W
FRAME QUANTITY: 1
SERIES: 450
FINISH: CLEAR ⚠2

⚠2 GLASS CODES CHANGED
⚠1 FRAME REVISED



HARDWARE GROUP #5 ⚠1

2–CONTINUOUS HINGE – ROTON 780–112 HD
2–PUSH/PULL – KAWNEER CO–9/CP
2–AUTO OPERATOR CLOSER
(NO LOCK)
2–MICROWAVE ACTUATOR – BEA MS08 TOUCHLESS
(REF. SHEET P1 FOR ACTUATOR LOCATIONS)

INTERIOR

FRAME TYPE: AL28W
FRAME QUANTITY: 1
SERIES: 450
FINISH: CLEAR ⚠2

⚠2 GLASS CODES CHANGED
⚠1 FRAME REVISED

INTERIOR

FRAME TYPE: AL30W
FRAME QUANTITY: 1
SERIES: 450
FINISH: CLEAR ⚠2

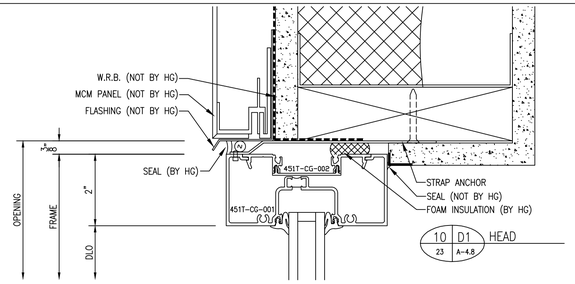
⚠2 GLASS CODES CHANGED
NEW FRAME ADDED

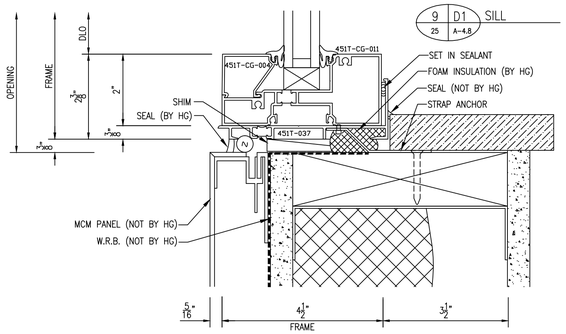
450 INTERIOR STOREFRONT
BLACK ANODIZED FINISH

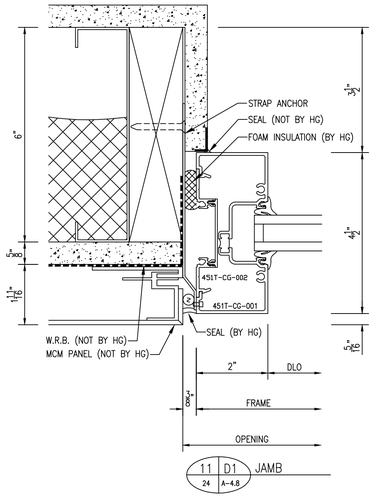
ALL OPENINGS TO BE FIELD VERIFIED BY H.G. PRIOR TO FABRICATION

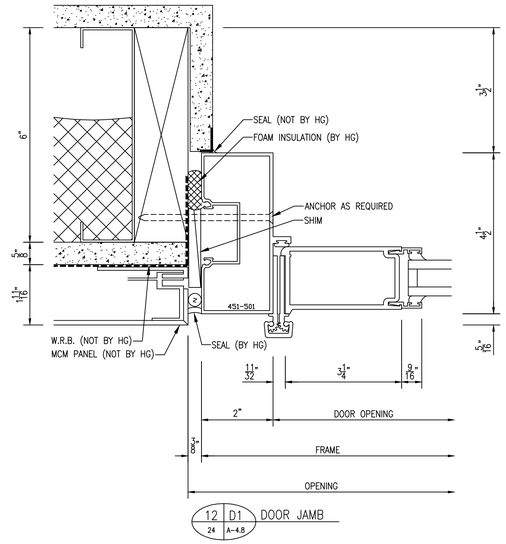
PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: 1/2"=1'–0"
SHEET: E8

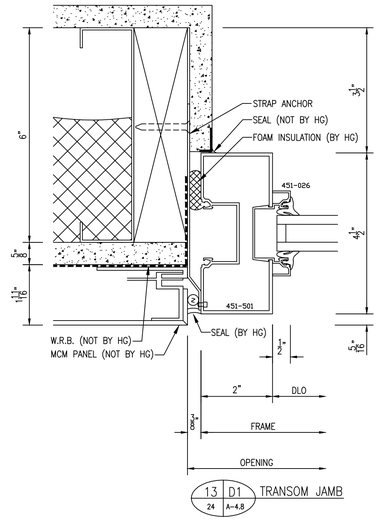
file no. 1806

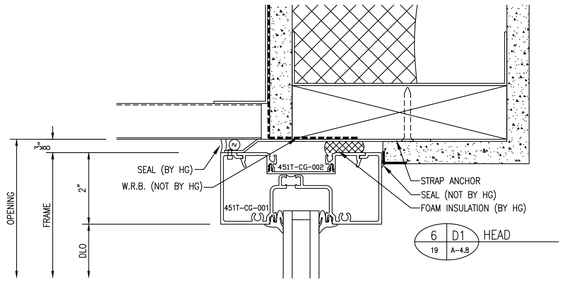


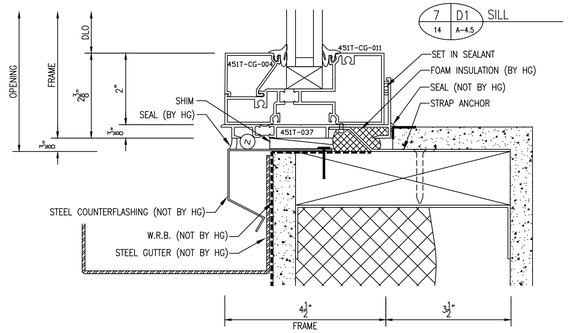


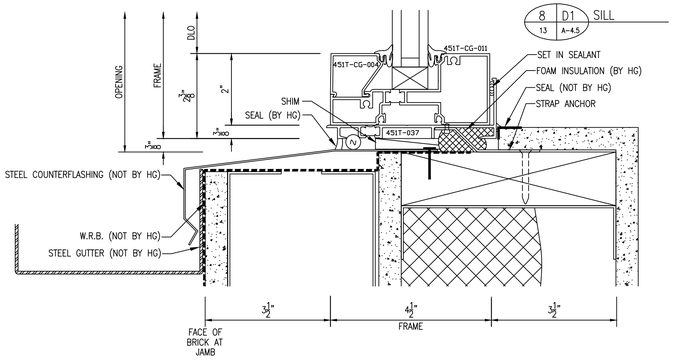


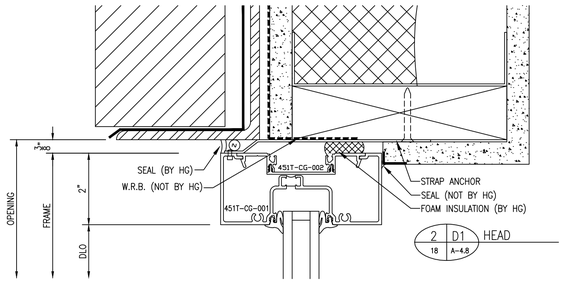


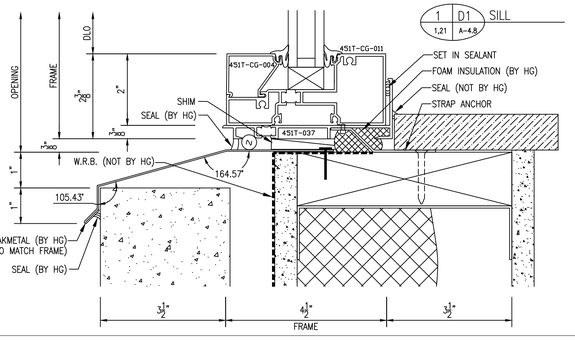


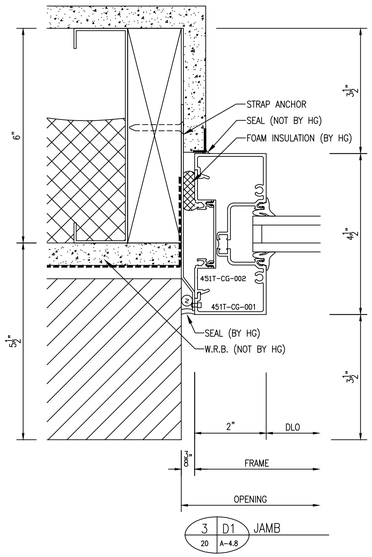


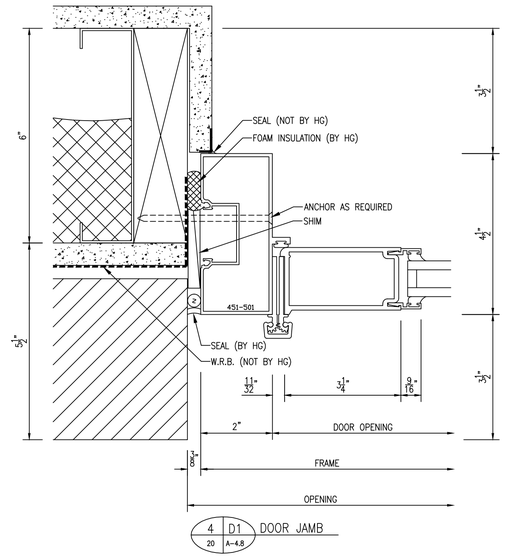


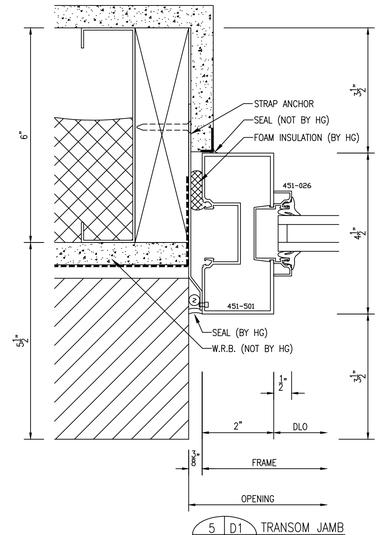










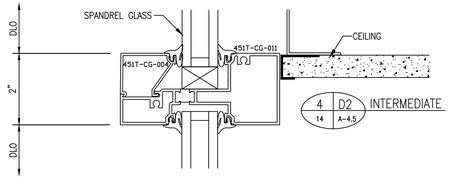


451T/451 EXTERIOR STOREFRONT

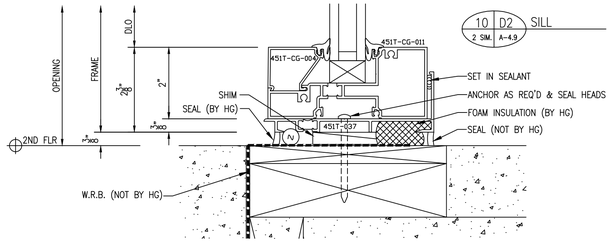
CLEAR ANODIZED FINISH

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: HALF
SHEET: D1

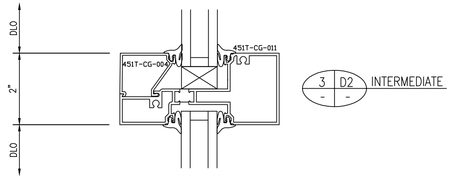
file no. 1806



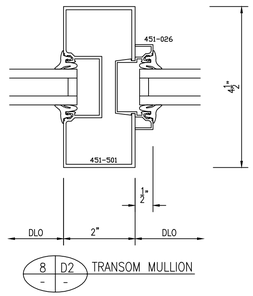
4 | D2 | 14 | A-4.5 INTERMEDIATE



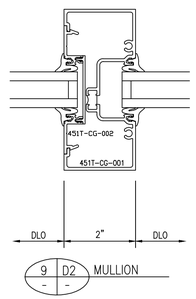
10 | D2 | 2 SIM. | A-4.9 SILL



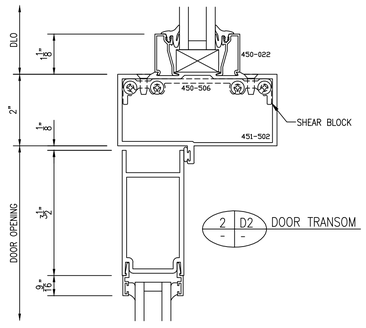
3 | D2 | – | – INTERMEDIATE



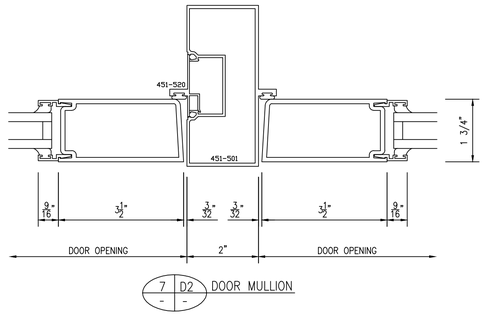
8 | D2 | – | – TRANSOM MULLION



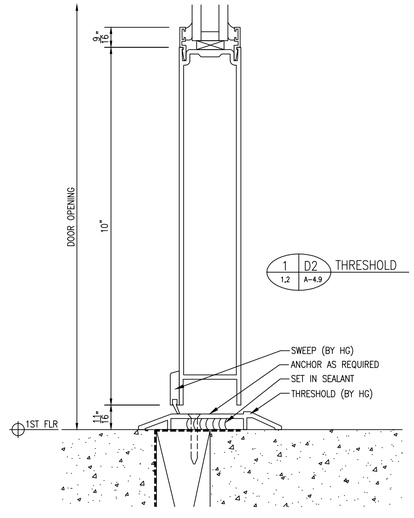
9 | D2 | – | – MULLION

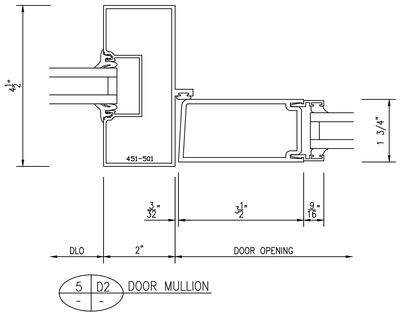


2 | D2 | – | – DOOR TRANSOM

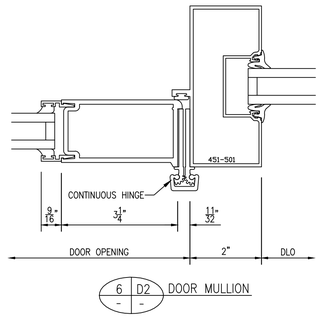


7 | D2 | – | – DOOR MULLION





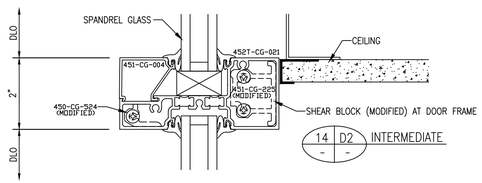
5 | D2 | – | – DOOR MULLION



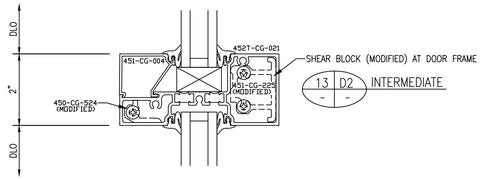
6 | D2 | – | – DOOR MULLION

451T/451 EXTERIOR STOREFRONT

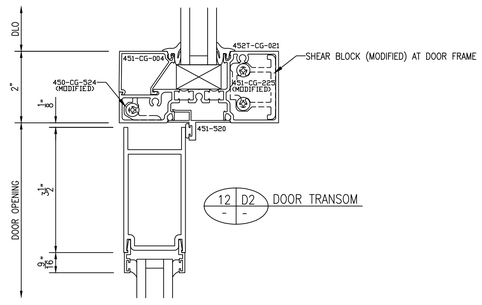
CLEAR ANODIZED FINISH



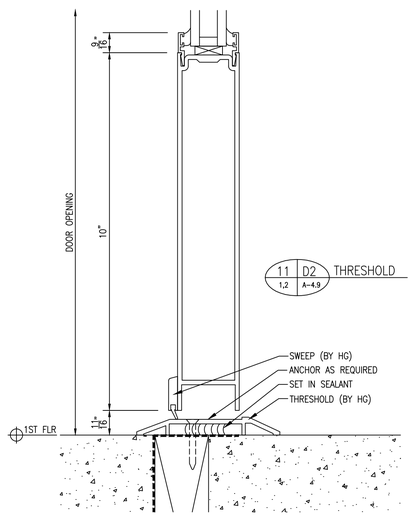
14 | D2 | – | – INTERMEDIATE

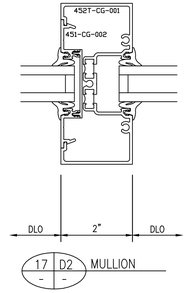


13 | D2 | – | – INTERMEDIATE

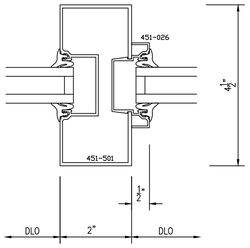


12 | D2 | – | – DOOR TRANSOM

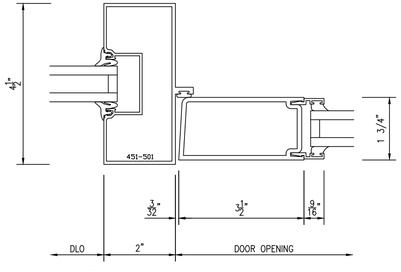




17 | D2 | – | – MULLION



16 | D2 | – | – TRANSOM MULLION



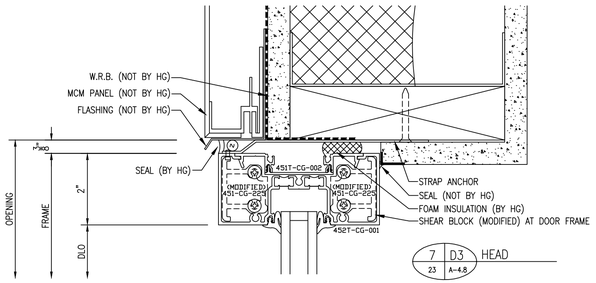
15 | D2 | – | – DOOR MULLION

451UT/451 EXTERIOR STOREFRONT

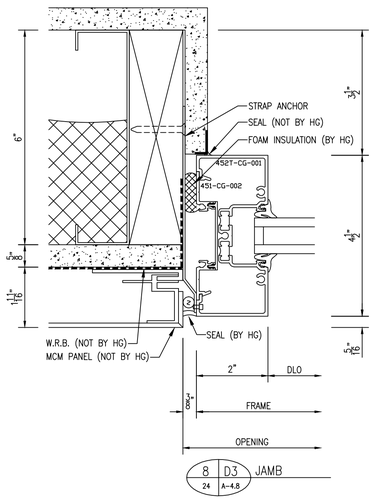
BLACK ANODIZED FINISH

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: HALF
SHEET: D2

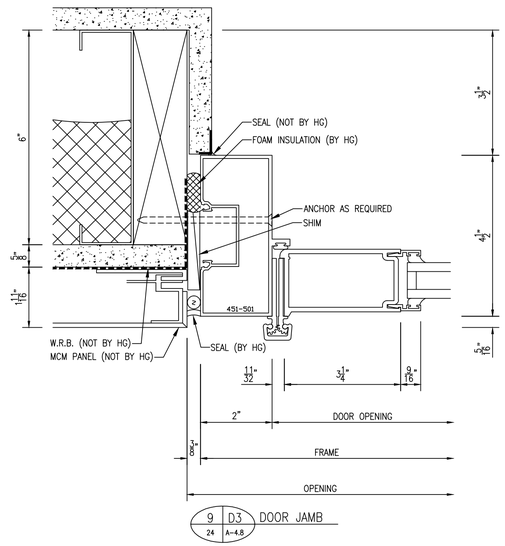
file no. 1806



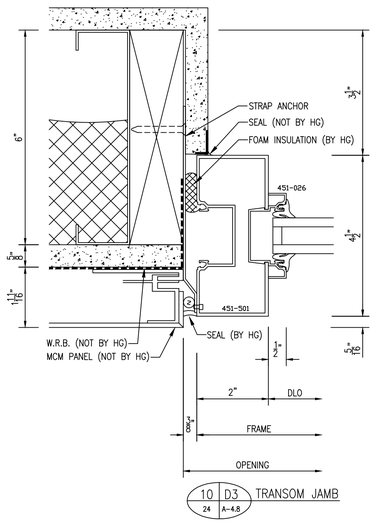
7 D3 / 23 A-4.8 HEAD



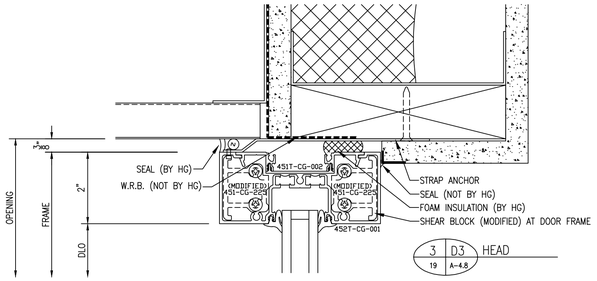
8 D3 / 24 A-4.8 JAMB



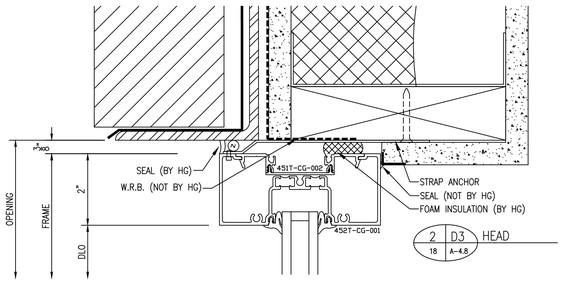
9 D3 / 24 A-4.8 DOOR JAMB



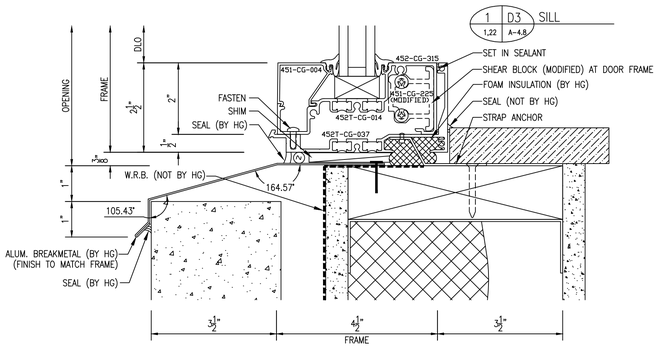
10 D3 / 24 A-4.8 TRANSOM JAMB



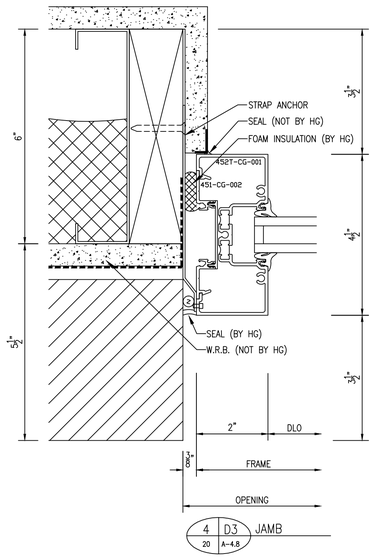
3 D3 / 19 A-4.8 HEAD



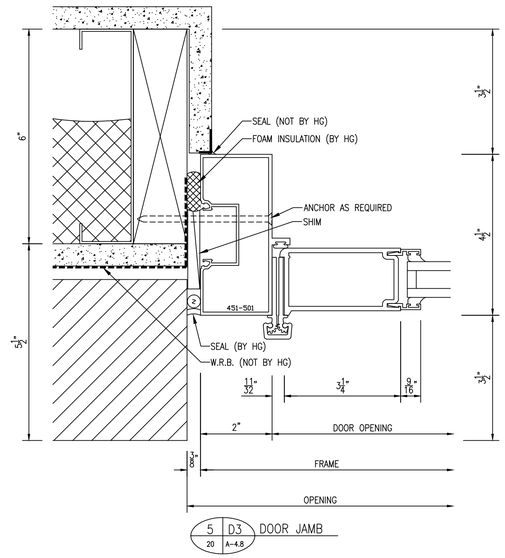
2 D3 / 18 A-4.8 HEAD



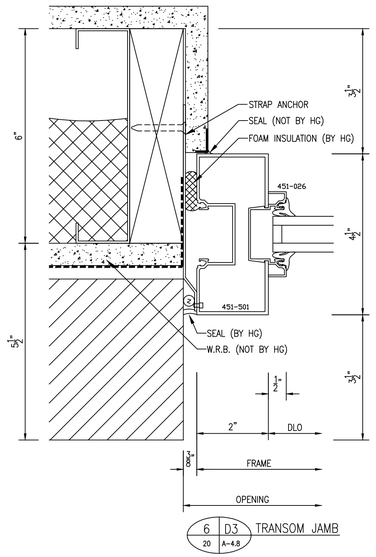
1 D3 / 1,22 A-4.8 SILL



4 D3 / 20 A-4.8 JAMB



5 D3 / 20 A-4.8 DOOR JAMB



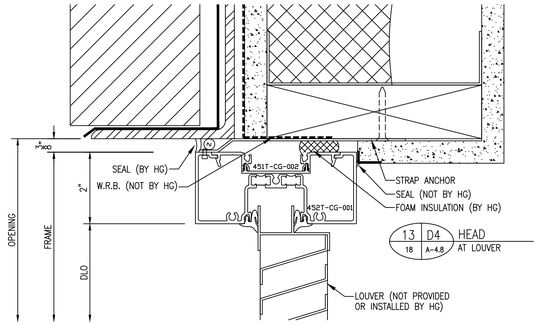
6 D3 / 20 A-4.8 TRANSOM JAMB

451UT/451 EXTERIOR STOREFRONT

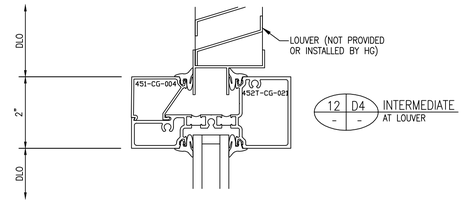
BLACK ANODIZED FINISH

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: HALF
SHEET: D3

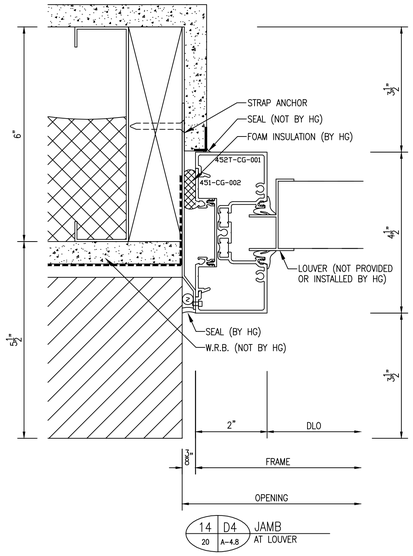
file no. 1806



13 | D4 | 18 | A-4.8 — HEAD AT LOUVER



12 | D4 | - | - — INTERMEDIATE AT LOUVER

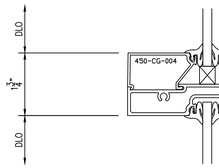


14 | D4 | 20 | A-4.8 — JAMB AT LOUVER

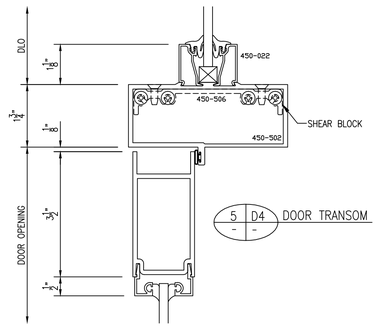
⚠ NEW DETAILS ADDED AT LOUVERS

451UT EXTERIOR STOREFRONT

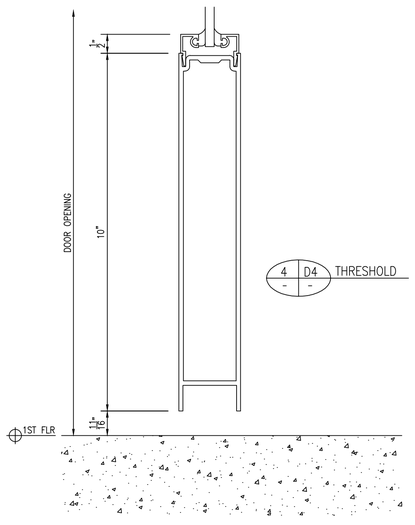
BLACK ANODIZED FINISH



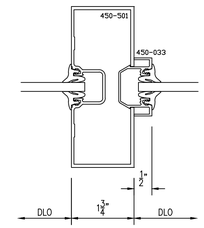
6 | D4 | - | - — INTERMEDIATE



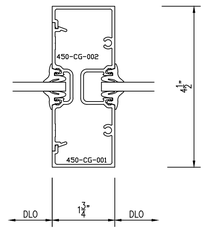
5 | D4 | - | - — DOOR TRANSOM



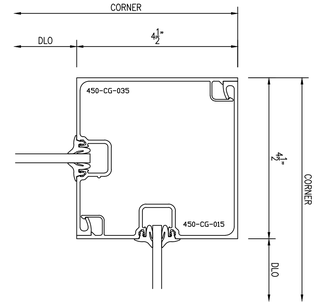
4 | D4 | - | - — THRESHOLD



9 | D4 | - | - — TRANSOM MULLION

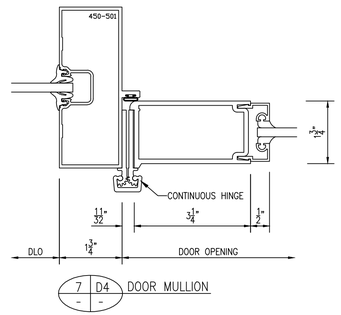


10 | D4 | - | - — MULLION

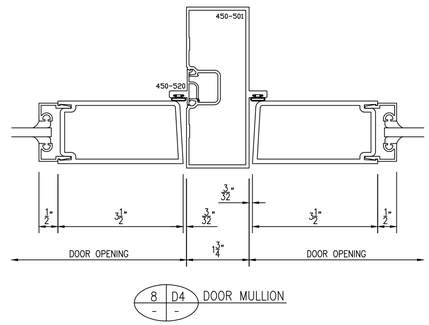


11 | D4 | - | - — INSIDE CORNER

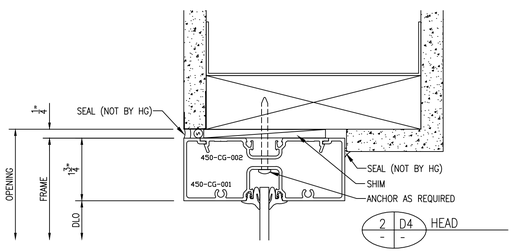
⚠ NEW DETAIL ADDED



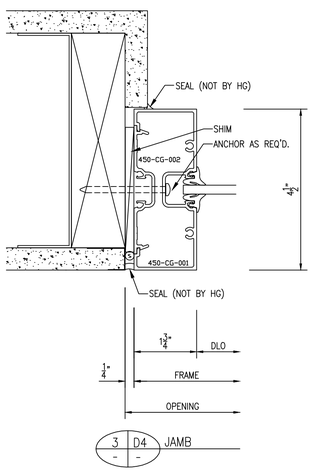
7 | D4 | - | - — DOOR MULLION



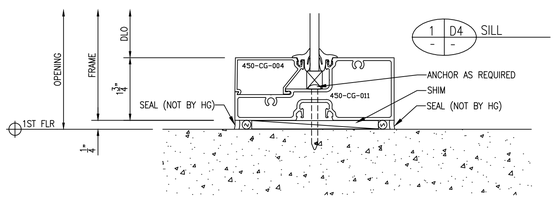
8 | D4 | - | - — DOOR MULLION



2 | D4 | - | - — HEAD



3 | D4 | - | - — JAMB



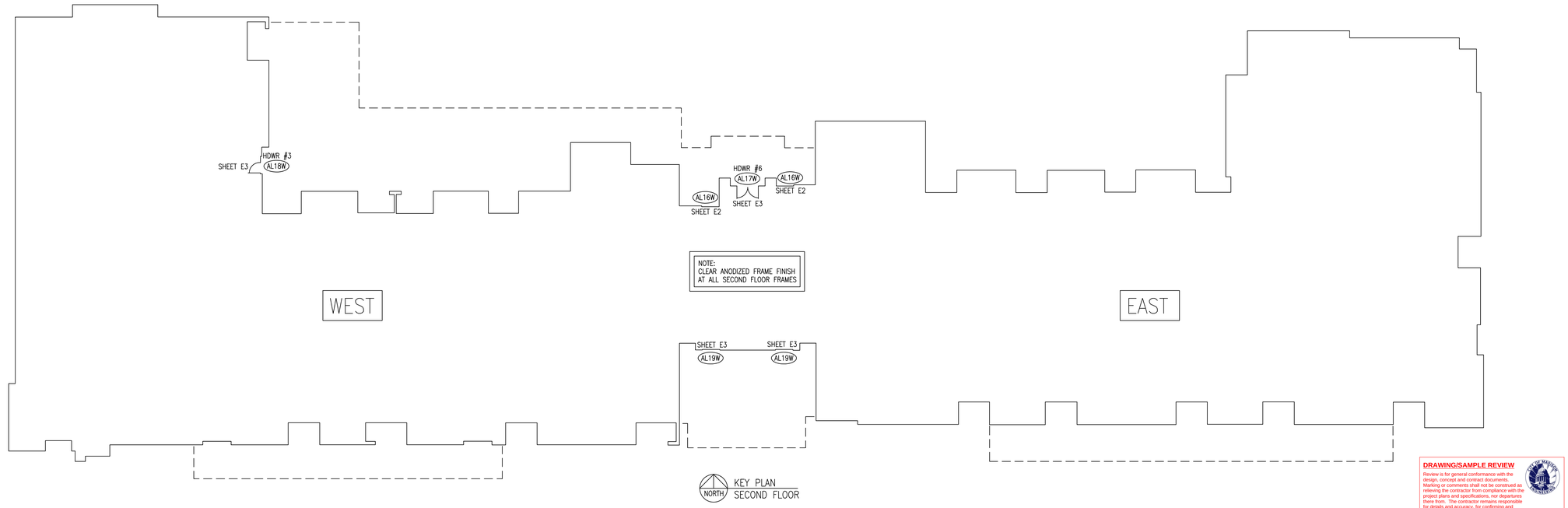
1 | D4 | - | - — SILL

450 INTERIOR STOREFRONT

CLEAR & BLACK ANODIZED FINISH

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: HALF
SHEET: D4

file no. 1806



DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

- [x] REVIEWED WITH NO COMMENTS
- [ ] REVIEWED WITH COMMENTS AS NOTED
- [ ] REVISE AND RESUBMIT
- [ ] REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 9/27/2018

ARCHITECT/G.C./GLAZING CONTRACTOR NOTE:
PLEASE VERIFY ALL DETAILS, DIMENSIONS, ELEVATIONS, FRAME SIZES, FRAME QUANTITIES, OPENING SIZES, HARDWARE AND SPECIFICATIONS.

REVISIONS:
- 1 8/22/18 REVISED PER 1ST. SUBMISSION REVIEW
- 2 9/24/18 REVISED PER 2ND. SUBMISSION REVIEW

ROYSTER CROSSING
ALUMINUM STOREFRONT

SPECIFICATIONS

MANUFACTURER:
KAWNEER

SERIES:
451UT STOREFRONT – 2" x 4 1/2"
451T VG STOREFRONT – 2" x 4 1/2"
451 VG STOREFRONT – 2" x 4 1/2" (AT DOORS FRAMES)
450 VG STOREFRONT – 1 3/4" x 4 1/2" (INTERIOR FRAMES)
350 MEDIUM STILE DOORS WITH:
RABBETED STILE FOR CONTINUOUS HINGE
10" BOTTOM RAIL

FINISH: REFERENCE KEY PLANS FOR LOCATIONS
BLACK ANODIZED
CLEAR ANODIZED

GLASS:
GL1 1" INSULATED UNIT CONSISTING OF:
1/4" CLEAR ANNEALED – EXTERIOR
1/2" AIR SPACE
1/4" CLR. ANN. W/ENERGY ADVANTAGE LOW E ON #3 – INT.

GL2 1" INSULATED UNIT CONSISTING OF:
1/4" CLEAR TEMPERED – EXTERIOR
1/2" AIR SPACE
1/4" CLR. TE. W/ENERGY ADVANTAGE LOW E ON #3 – INT.

GL3 1" INSULATED UNIT CONSISTING OF:
1/4" CLR. ANN. W/SOLARBAN 60 LOW E ON #2 – EXT.
1/2" AIR SPACE W/ARGON GAS
1/4" CLR. ANNEALED – INTERIOR

GL4 1" INSULATED UNIT CONSISTING OF:
1/4" CLR. TE. W/SOLARBAN 60 LOW E ON #2 – EXT.
1/2" AIR SPACE W/ARGON GAS
1/4" CLR. TEMPERED – INTERIOR

⚠2 GL5 1/4" CLEAR TEMPERED

SP1 1" INSULATED SPANDREL UNIT CONSISTING OF:
1/4" CLEAR TEMPERED – EXTERIOR
1/2" AIR SPACE
1/4" TE. SPANDREL, COLOR: _____ – INTERIOR
ARCHITECT PLEASE PROVIDE COLOR

DOOR HARDWARE:

GROUP #1
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

GROUP #2
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

GROUP #3
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – TRINE 4800F
KEY CYLINDER
PULL – KAWNEER CO–9
CLOSER – LCN 1461

GROUP #4 ⚠1 GROUP REVISED
2–CONTINUOUS HINGE – ROTON 780–112 HD
2–RIM EXIT – FALCON 1790
KEY CYLINDER
2–PULL – KAWNEER CO–9
1–ELECTRIC STRIKE – TRINE 4800P
1–STANDARD STRIKE
2–AUTO OPERATOR CLOSER
1–HI LO ACTUATOR – BEA LPR36 FULL LENGTH, 6"X39"
1–MICROWAVE ACTUATOR – BEA MS08 TOUCHLESS
(REF. SHEET P1 FOR ACTUATOR LOCATIONS)

GROUP #5 ⚠1 GROUP REVISED
2–CONTINUOUS HINGE – ROTON 780–112 HD
2–PUSH/PULL – KAWNEER CO–9/CP
2–AUTO OPERATOR CLOSER
(NO LOCK)
2–MICROWAVE ACTUATOR – BEA MS08 TOUCHLESS
(REF. SHEET P1 FOR ACTUATOR LOCATIONS)

GROUP #6
2–CONTINUOUS HINGE – ROTON 780–112 HD
2–RIM EXIT – FALCON 1790
KEY CYLINDER
2–PULL – KAWNEER CO–9
1–ELECTRIC STRIKE – TRINE 4800F
1–STANDARD STRIKE
2–CLOSER – LCN 1461

GROUP #7
CONTINUOUS HINGE – ROTON 780–112 HD
DEAD BOLT LOCK – ADAMS RITE MS 1850
KEY CYLINDER – SARGENT
THUMB TURN
PUSH/PULL – KAWNEER CO–9/CP
CLOSER – LCN 1461

GROUP #8
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – TRINE 4800F
KEY CYLINDER – SARGENT
PULL – KAWNEER CO–9
CLOSER – LCN 1461

GROUP #9 ⚠1 GROUP DELETED

GROUP #10 ⚠1 GROUP ADDED
CONTINUOUS HINGE – ROTON 780–112 HD
RIM EXIT – FALCON 1790
ELECTRIC STRIKE – BY CITY OF MADISON
KEY CYLINDER – SARGENT
PULL – KAWNEER CO–9
CLOSER – LCN 1461

PROJECT: ROYSTER CROSSING
LOCATION: MADISON, WI
ARCHITECT: KNOTHE BRUCE ARCHITECTS
CONTRACTOR: HELLENBRAND GLASS
DRAWN BY: WHITBURN DESIGN SERVICE
DATE: 4/12/18
SCALE: NOT TO SCALE
SHEET: P1

file no. 1806

Connery Construction, Inc.

3234 CTH N Cottage Grove, WI 53527
p.608.839.3740 f.608.839.3741

Letter of Transmittal

To: Greg Held
Knothe & Bruce Architects
7601 University Avenue
Suite 201
Middleton, WI 53562
Ph: 608.836.3690 Fax: 608.836.6934

Transmittal #: **104**
Date: 11/14/2018
Job: 17-08 Royster Crossing 86 Unit

Subject: Submittal

WE ARE SENDING YOU ☑ Attached ☑ Via the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples
☐ Copy of letter ☐ Change order ☐ Specifications ☑ Submittal

Document Type	Copies	Date	No.	Description
Submittal	1	11/14/18	08 71 00-1 Rev 1	Door Hardware & Schedule

THESE ARE TRANSMITTED as checked below:

☑ For approval ☐ Approved as submitted ☐ Resubmit ___ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ___ copies for distribution
☑ As requested ☐ Returned for corrections ☐ Return ___ corrected prints
☐ For review and comment ☐ Other
☐ FOR BIDS DUE ☐ PRINTS RETURNED AFTER LOAN TO US

Remarks:

Copy To:

From: John Medenwald (Connery Construction) **Signature:** JM

If enclosures are not as noted, kindly notify us at once.

J&K SECURITY SOLUTIONS
DOORS & HARDWARE DIVISION

1610 Beld Street
Madison, WI 53715
Phone (608) 255-5799
Fax (608) 255-6785

Letter of Transmittal

Date: 11/14/2018 **Job #:** A17-094

General Contractor: Connery Construction

ATTN: John Medenwald

Job Name: Royster Lot 2

ransmitting :	**The following :**	**For Your:**
[X] At Your Request	[X] Door Schedules	[X] Approval
[ ] Via U.S. Mail	[X] Hardware Schedules	[ ] Use
[ ] Via UPS	[X] Specifications	[ ] Information
[ ] Via Federal Express	[ ] As Built Package	[X] Review
[ ] Via Hand Delivery	[ ] Warranties	[ ]
[X] Via Email	[ ] Copies	

Please see attached submittals documents for this project. If you have any further questions please do not hesitate to reach out--thank you!

J&K SECURITY SOLUTIONS
DOORS & HARDWARE DIVISION

1610 Beld Street
Madison, WI 53715
Phone (608) 255-5799
Fax (608) 255-6785

SUBMITTALS

Job Name: Royster Lot 2

General Contractor: Connery Construction

ATTN: John Medenwald

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

CITY OF MADISON ENGINEERING

(X) REVIEWED WITH NO COMMENTS

( ) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 11/15/2018

Supplier: J&K Security Solutions
1610 Beld Street
Madison, WI 53715

PH: 608-255-5799
FAX: 608-255-6785
Cell: 608-228-0265

Prepared By: Jeffrey A. Beckmann, JR.

Date: 11/14/2018

Job #: A17-094

J&K SECURITY SOLUTIONS
DOORS & HARDWARE DIVISION

1610 Beld Street
Madison, WI 53715
Phone (608) 255-
Fax (608) 255-6785

Policy Notes

1 Only schedules that are stamped "**Final Approved"** are authorized for use by other trades and for installation.

2 Orders placed with our suppliers cannot be canceled, changed or held up, except with our consent and upon terms that will indemnify us against loss.

3 Because the **material for this job** is special in nature and in most cases is ordered specifically for this job, it **cannot be returned for credit.**

4 Once an acceptable delivery date is agreed upon, the date cannot be changed unless satisfactory to all parties concerned.

5 We cannot be responsible for delays caused by striked or acts of God or other actions beyond our control.

6 Claims for shipment shortages must be made within five (5) days after delivery is signed for, unless prior arrangement has been made for our personnel to check the material in at the job site.

7 We will replace defective material upon notice. However, we will not be liable for damages, defects or any claim for expense involved by any other trade or user of our products

8 Back charge claims for late delivery, re-work, adjustments or alteration of material will not be considered unless presented in writing and approved by corporate officers in advance.

9 Approved change orders for additions or deletions will be incorporated into this schedule by the Contractor.

10 **In the event that we are furnishing unfinished wood doors on this project, it is imperative that the enclosed "National Wood Window And Door Association Finishing And Installation Procedures" be followed in order for any implied warranty to be valid. It is the responsibility of the general contractor to forward the procedured to their appropriate subcontractors.**

Date: 11/14/2018

J&K SECURITY SOLUTIONS
DOORS & HARDWARE DIVISION
1610 Beld Street
Madison, WI 53715
Phone (608) 255-5799
Fax (608) 255-6785

Finishes

Mark "X" For All Applicable Finishes	ANSI	US	Description
	605	3	Bright Brass
	606	4	Satin Brass
	609	5	Satin Brass oxidized (antique Brass)
	611	9	Bright Bronze
	612	10	Satin Bronze
	613	10B	Oxidized & Oil Rubbed Bronze
X	619	15	Satin nickel
	620	15A	Satin Nickel Oxidized
	622	19	Flat Black Brass
	625	26	Bright Chromium
X	626	26D	Satin Chromium
X	628	28	Aluminum-Satin, Anodized Clear
	629	32	Stainless Steel - Bright
X	630	32D	Stainless Steel - Satin
	689	S1/AL	Painted Aluminum
	696	S2/Gold	Painted Brass
	691	S3/DKB	Painted Bronze

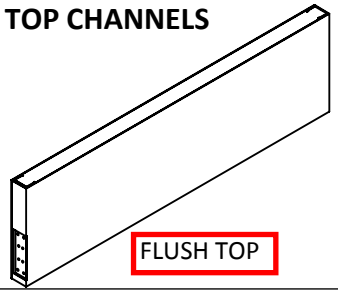
Job: ROYSTER Lot 2 | **Doc: Shop Drawing** | **Job # A17-094**

GC: CONNERY | **Shop Order** | **Date: 11/13/2018**

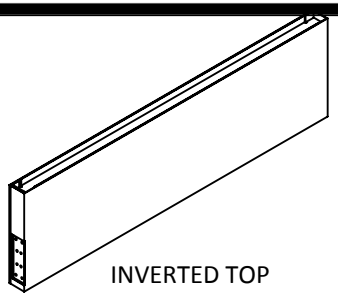
Dr. #	Fr Qty	Dr Qty	Location	FR Deliv	Dr Deliv	Nom. Fr. Opening Hand	W x H	H	Elev	Series	Frame Depth	GA	ANCH	STK	CL	RTG	Door Series	Thick	Elev	LK	GA/PLY	HDW Set	Remarks
B01W, B02W	2	2	Stair A & B			LH	3068	2	1	FZ	5-3/4"	16	EMA	ASA	PA	90	NPZ	1-3/4"	NVL	C4T	18	01C	7440 Electric Strike
B03W	1	1	Elev Lobby			RHR	3070	2	SL/E	FZ	5-3/4"	16	EMA	ASA	PA		NPZ	1-3/4"	FG	C4T	18	01	RO 62.5" x 86.5"
B04W	1	1	Ext Door			RHR	3070	2	1	FZ	5-3/4"	16	EMA	Elec Strike	PA		NPZ	1-3/4"	F	C4T	18	02	7440 Elec Strike
B07W	1	2	Trash Room			RHA	6068	2	1	FZ	5-3/4"	16	EMA	FB/ ASA	2 RA	45	NPZ	1-3/4"	F	C4T	18	03	
B08W	1	2	Mech			RH	6070	2	1	FZ	5-3/4"	16	EMA	ASA	RA	45	NPZ	1-3/4"	F	C4T	18	03B	Continuous Hinges
B09W	1	2	Trash Chute			RHRA	6068	2	1	FZ	5-3/4"	16	EMA	FB/ ASA	2 PA	90	NPZ	1-3/4"	F	C4T	18	03	
101W	1	1	Stair A			L	3068	2	1	F	7-3/4"	16	WMA	ASA	Y	90	NPZ	1-3/4"	NVL	C4T	18	01B	Sargent RP x DE x Alarm x C10 Cylinder Continuous Hinge
102W	1	1	Stair B			L	3068	2	1	F	5-3/4"	16	MP	ASA	Y	90	NPZ	1-3/4"	NVL	C4T	18	01A	F1000R 33" RP
B10W	1	1	Mech			LH	3668	2	1	FZ	5-3/4"	16	EMA	ASA	RA	45	NPZ	1-3/4"	F	C4T	18	04	
B11W	1	1	Gas Meter Rm			LH	3070	2	1	FZ	5-3/4"	16	EMA	ASA	RA		NPZ	1-3/4"	F	C4T	18	04B	
B12W	1	1	A/V			RH	3068	2	1	FZ	5-3/4"	16	MP	ASA	RA		NPZ	1-3/4"	F	C4T	18	04	
B01E, B02E	2	2	Stair C & D			RH	3068	2	1	FZ	5-3/4"	16	EMA	ASA	RA	90	NPZ	1-3/4"	NV	Rim	18	01C	7440 Electric Strike
B03E	1	1	Elev Lobby			LH	3070	2	SL-E	FZ	5-3/4"	16	EMA	ASA	RA		NPZ	1-3/4"	FG	C4T	18	01	RO 7'2" x 6'2"
B04E	1	1	Mech			RH	3668	2	1	FZ	5-3/4"	16	EMA	ASA	RA	45	NPZ	1-3/4"	FG	C4T	18	04	
B05E	1	2	Trash Chute			RHRA	6068	2	1	FZ	5-3/4"	16	EMA	FB/ ASA	2 RA	90	NPZ	1-3/4"	F	C4T	18	03	
B06E	1	1	Maint Rm			LH	3068	2	1	FZ	5-3/4"	16	MP	ASA	RA		NPZ	1-3/4"	F	C4T	18	04	
202W	1					RH	3068	2	1	F	7"	16	MP	Blank	RA	90						01A	F1000R 33" RP
201W, 301W, 401W	3	3	Stair A			RH	3068	2	1	F	7"	16	MP	ASA	RA	90						01D	ETW4 EL Hinge - C880D-EL EL Storeroom
302W, 402W	2		Stair B			RH	3068	2	1	F	7"	16	MP	ASA	RA	90						01	
410W, 410E	2		Roof			LHR	3068	2	1	F	5-3/4"	16	MP	ASA	PA							04	
212W	1		Firness			LH	3080	2	SL-B	F	7-3/4"	16	MP	Elec Strike	RA	20						07	7440 Elec Strike RO 54.5" x 98.5
102E	1					R	3068	2	1	F	5-3/4"	16	MP	ASA	Y	90						01A	F1000R 33" RP
213W	1		DE Hall			L/L	6080	2	DE	FZ	8-1/4"	16	EMA	SVR	2RA	90						10	F1000V 33" SVR
214W	1		Comm Rm			RHR	3080	2	SL-C	F	8-1/4"	16	MP	RIM	PA	20						08	9600 EL Strike - F1000R 33" RP - RO 58.5" x 98.5"
215W	1		Comm Rm			LHR	3080	2	SL-C	F	8-1/4"	16	MP	RIM	PA	20						08	9600 EL Strike - F1000R 33" RP - RO 58.5" x 98.5"
217W	1		Hall To Plaza			RHR	3068	2	1	F	5-3/4"	16	MP	RIM	PA	20						09	9600 EL Strike - F1000R 33" RP
201E, 301E, 401E	3		Stair D			LH	3068	2	1	F	9"	16	MP	ASA	RA	90						01	
202E, 302E, 402E	3		Stair C & D			LH	3068	2	1	F	5-3/4"	16	MP	ASA	RA	90						01/01A	202E has F1000R 33" RP
210E	1		Office			LH	3080	2	SL-D	F	8-1/4"	16	MP	ASA	RA	20						7A	RO 68" x 98"
103W	1	1	Loading Dock			LHR	4070	2	1	FZ	8-3/4"	16	EMA	ASA	RA		NPZ	1-3/4"	F	ASA	18	02A	Continuous Hinge changed to 4070 on 10/23

Distributor: J&K SECURITY SOLUTIONS

① TOP CHANNELS

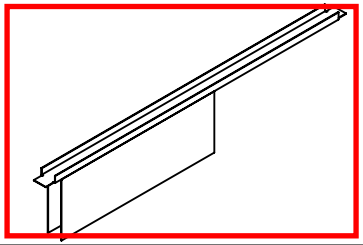


FLUSH TOP



INVERTED TOP

② CLOSER REINFORCEMENT

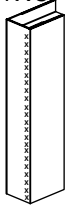


③ VERTICAL EDGE

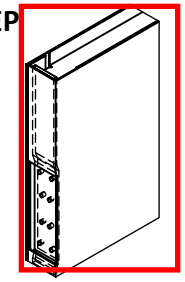
STANDARD



NVS

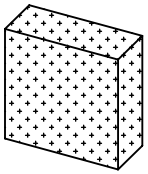


④ HINGE PREP



⑤ CORE

POLYSTRENE



⑥ LOCK EDGE

BEVELED EDGE



SQUARE EDGE



⑦ LOCK PREP

FOR LOCK PREPS
SEE DOOR PREP PAGE

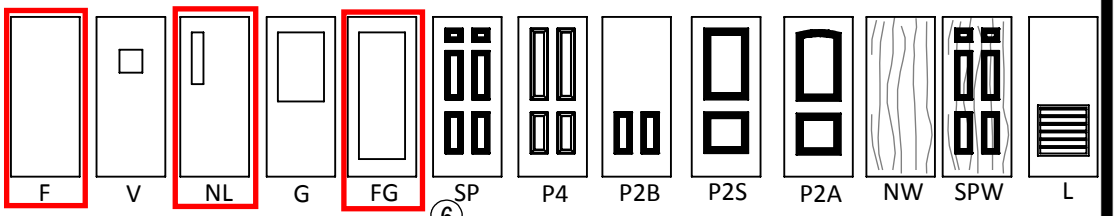
DOOR MEETS OR EXCEEDS ANSI 250.4 PERFOMANCE TEST:

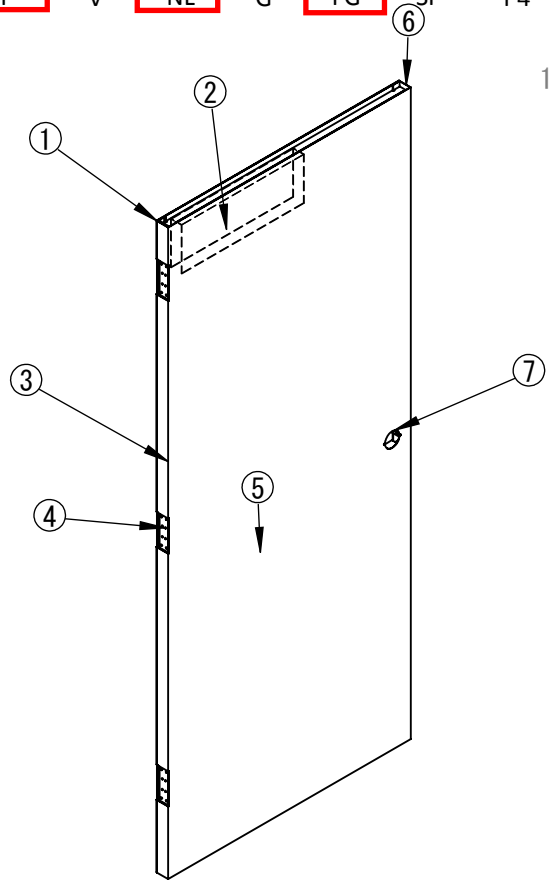
20 GAUGE STEEL (500,000 CYCLES)

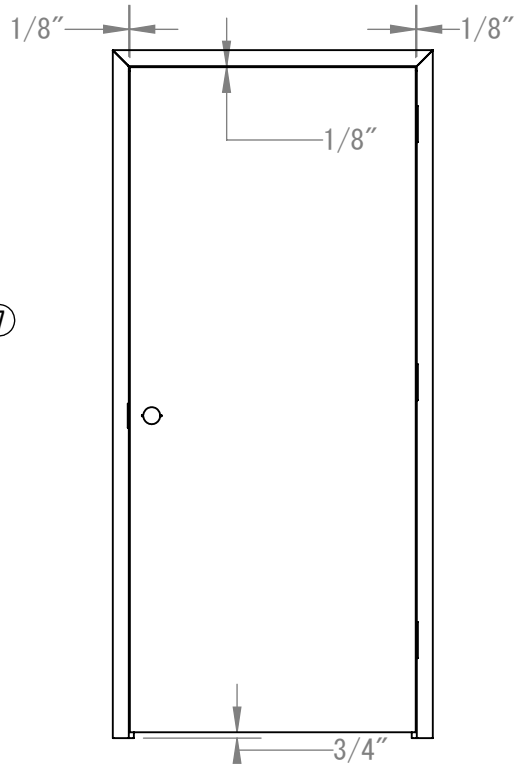
18 & 16 GAUGE STEEL (1,000,000 CYLCLES)

DOORS MEET LEED REQUIREMENTS AND BUY AMERICAN STANDARDS.

LABELING AGENCIES:
UNDERWRITES LABRATORY INC.
WARNOCK HERSEY INTL.
FACTORY MUTUAL SYSTEM







NP SERIES DOOR

AVAILABLE IN:
14, 16, 18, 20 GAUGE
CR, A60, G-90

MESKER Paint

MESKER ™

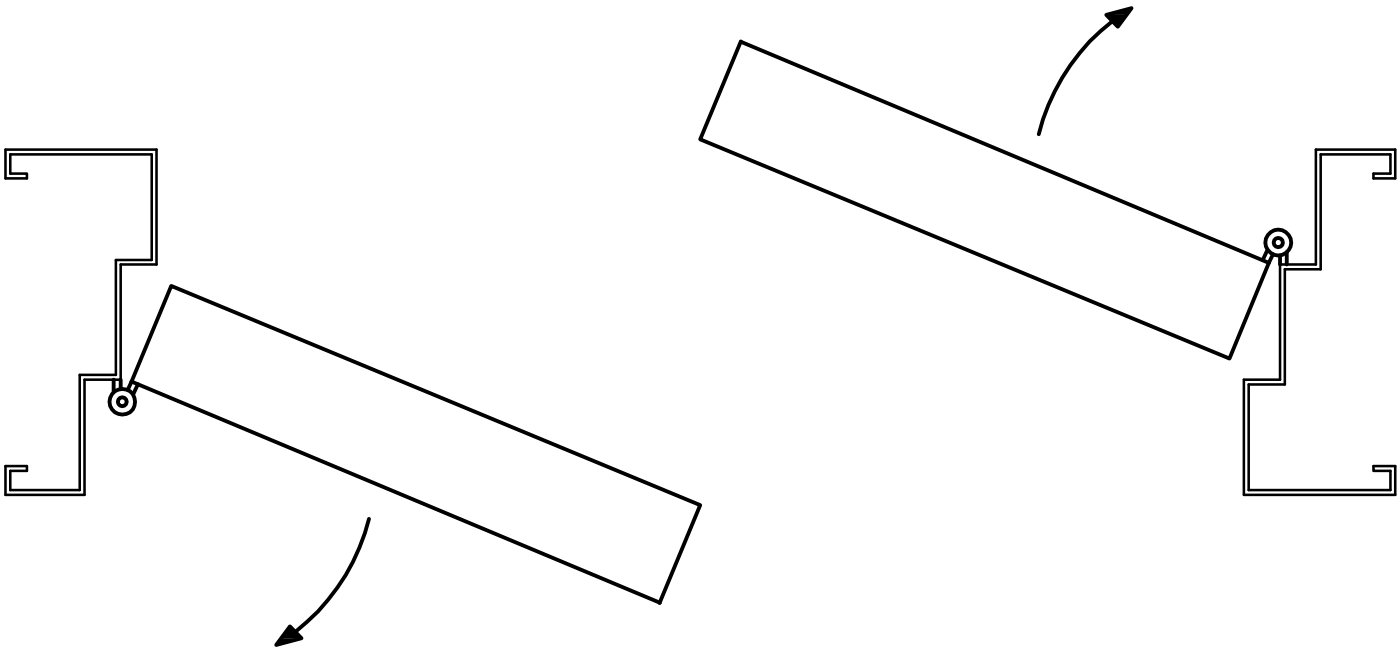
SUB-1

DRAWN BY JW DATE 9/20/17	ISSUE DATE	REVISIONS	BY
CHECKED ____ DATE ____			
SHT OF / JOB NO. JK# A17-048			

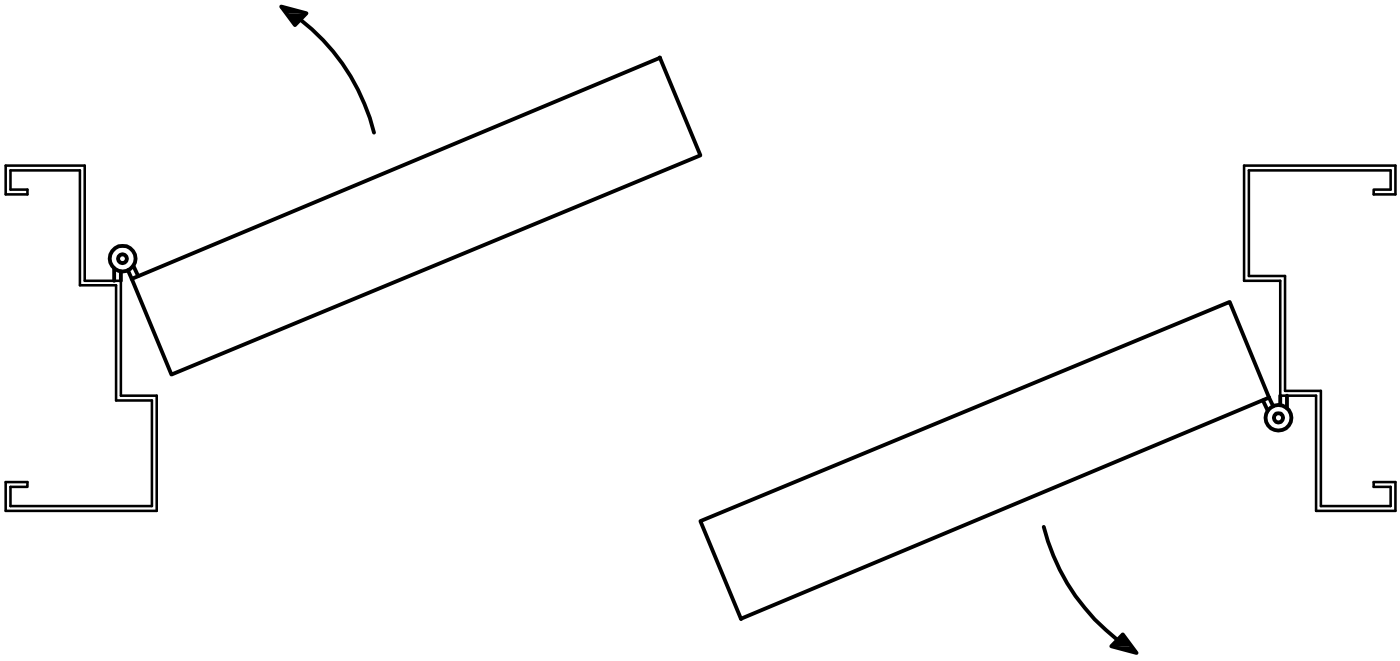
HMF EXPRESS

Double Egress Handing

LHR / RH

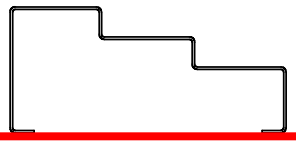


LH / RHR

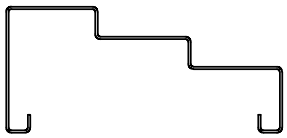


PROFILE

F SERIES

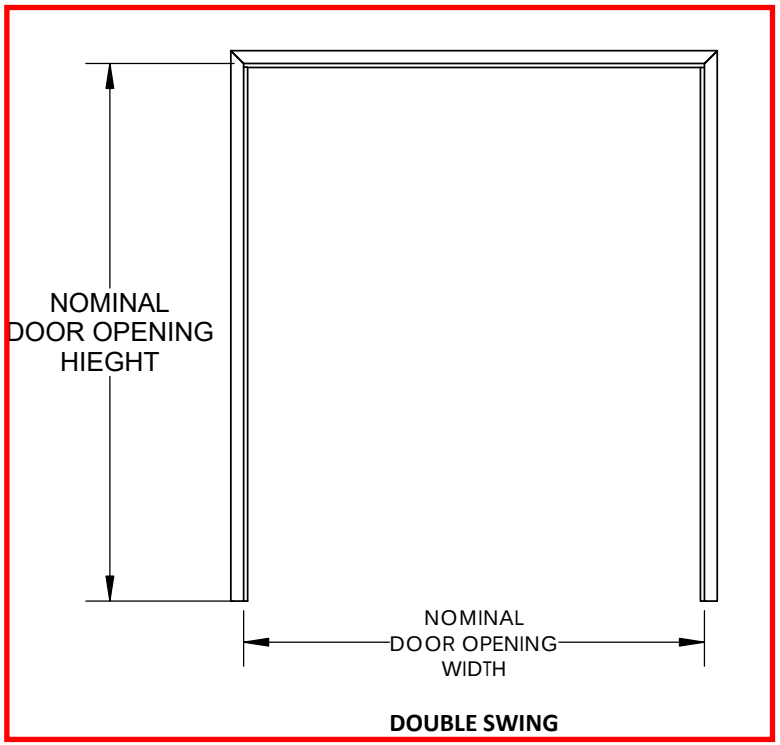


FDJ SERIES

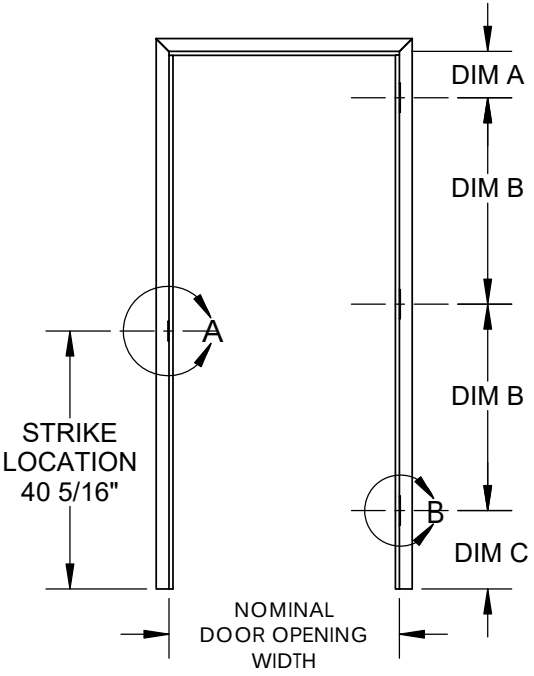


OPENING HEIGHT	6'8"			7'0"			7'2"			7'10"			8'0"		
DIMENSION	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1 3/4" DOOR SPACING	7 1/4"	2@ 30 1/4"	12 1/4	7 1/4"	2@ 32 1/4"	12 1/4	7 1/4"	2@ 33 1/4"	12 1/4	7 1/4"	3@ 25 1/4"	10 1/4"	7 1/4"	3@ 25 1/2"	12 1/4
1 3/4" DOOR SPACING				6 3/4"	2@ 32 3/4"	11 3/4"	6 3/4"	2@ 33 3/4"	11 3/4"						

HINGE SPACING

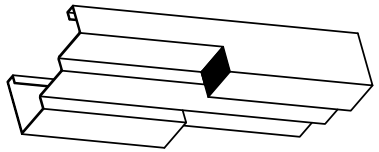


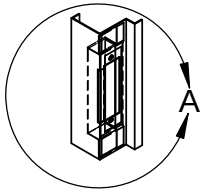
DOUBLE SWING

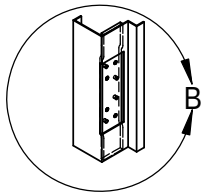


SINGLE SWING

HEADER JUNCTION ON A DOUBLE SWING OPENING







DOUBLE EGRESS FRAMES

F SERIES FRAMES ARE AVAILABLE AS SHOWN FOR THREE SIDED FRAMES OR AS STICK SECTIONS FOR TRANSOMS, SIDLIGHTS AND BORROWED LIGHT FRAMES.

FOR ANCHORS SEE ANCHOR PAGE

FOR LABELING DETAILS SEE THE LABELING SECTION.

FOR DOOR HANDING AND SWING SEE THE GENERAL SECTION

SUB-XX

MESKER™

DRAWN BY JW DATE 11/21/17	ISSUE DATE	REVISIONS	BY
CHECKED _____ DATE _____			
SHT OF	JOB NO. A17-094		

PROFILES

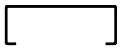
DOUBLE RABBET



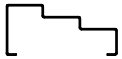
SINGLE RABBET



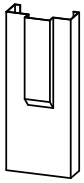
CASED OPEN



DOUBLE EGRESS

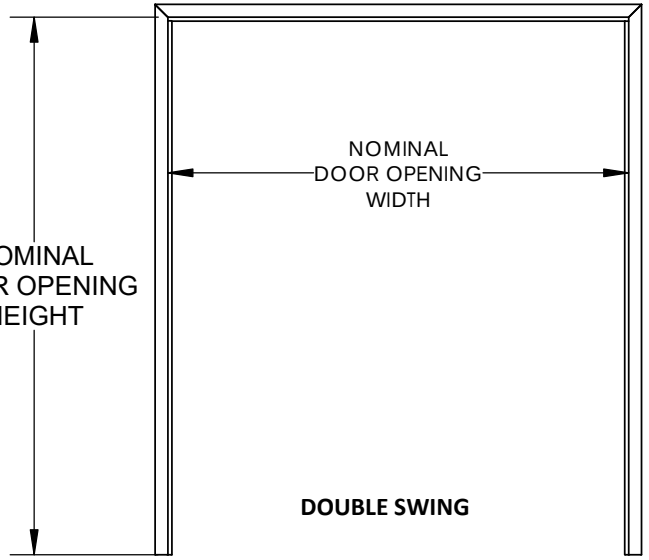


HOSPITAL STOP

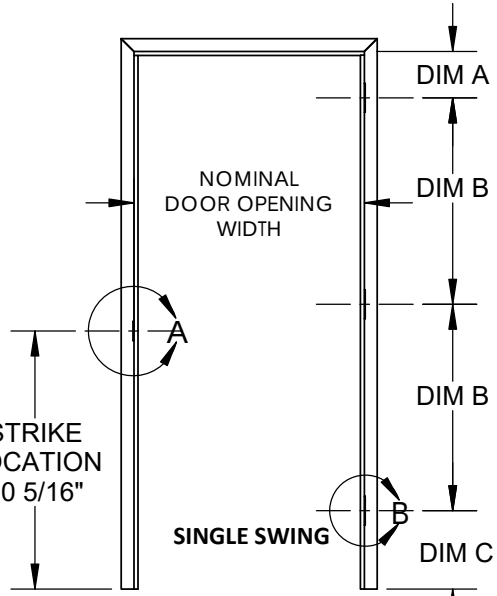


HINGE SPACING

OPENING HEIGHT	6'8"			7'0"			7'2"			7'10"			8'0"		
DIMENSION	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1 3/4" DOOR SPACING	7 1/4"	2@ 30 1/4"	12 1/4	7 1/4"	2@ 32 1/4"	12 1/4	7 1/4"	2@ 33 1/4"	12 1/4	7 1/4"	3@ 25 1/4"	10 1/4"	7 1/4"	3@ 25 1/2"	12 1/4
1 3/8" DOOR SPACING				6 3/4"	2@ 32 3/4"	11 3/4"	6 3/4"	2@ 33 3/4"	11 3/4"						

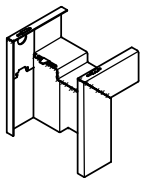


DOUBLE SWING

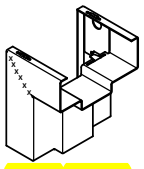


SINGLE SWING

WELD OPTIONS

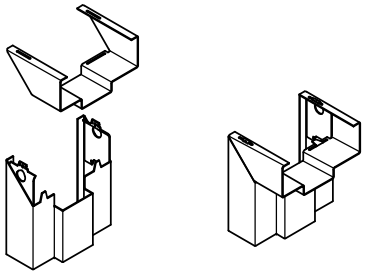


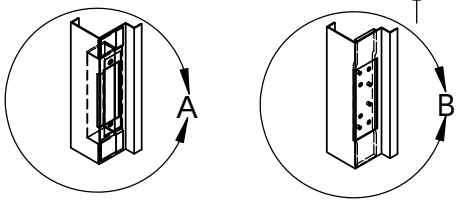
FULL WELD



FACE WELD

CORNER SECTION





F SERIES FRAMES

F SERIES FRAMES ARE AVAILABLE AS SHOWN FOR THREE SIDED FRAMES OR AS STICK SECTIONS FOR TRANSOMS, SIDELIGHTS AND BORROWED LITE FRAMES.

FOR LABELING DETAILS, ANCHORING OPTIONS, AND DOOR HANDING & SWING, PLEASE SEE THE APPLICABLE SECTION OF THE TECHNICAL DATA MANUAL.

MESKER™

SUB-9

DRAWN BY JW DATE 11/21/17	ISSUE DATE	REVISIONS	BY
CHECKED _____ DATE _____			
SHT OF	JOB NO.		

TECHNICAL DATA SHEET DS-201-1

STANDARD STEEL FRAMES

SPECIFICATIONS
MESKER STANDARD STEEL FRAMES

1. Frames shall be manufactured by Mesker Door Incorporated and designated as F-416 (16 GA) or F-414 (14 GA) for 1 3/4" doors, F-412 for Bullet Resistant Frames and F-816 (16 GA) for 1 3/8" doors.

2. Frames shall be fabricated from cold rolled or A60 galvannealed steel.

3. Frames shall be furnished knocked down. Mitered corners shall have a strong four tab interlocking system to maintain tight fineline miters.

4. Frames for 1 3/4" doors shall be prepared for a 4 1/2" x 4 1/2" standard or heavy weight template hinges and ANSI 115.1 universal strike.

5. Frames for 1 3/8" doors shall be prepared for 3 1/2" x 3 1/2" standard weight template hinges and ANSI 115.3 cylindrical strike.

6. Frames shall be adequately reinforced for all hardware.

7. Strike and hinge reinforcements shall be protected by plaster guards.

8. Frames shall be supplied with 1 sill anchor.

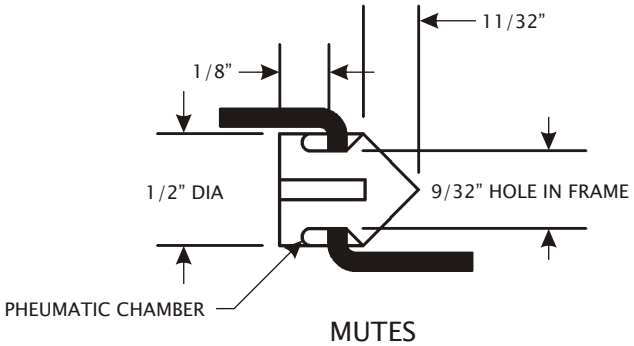
9. Frames shall be furnished with rubber mutes, three per strike jamb.

10. Frames shall receive 1 coat of baked-on rust inhibitive gray primer.

11. For installation instructions see ANSI A250.11-2001 and DS-201-5.

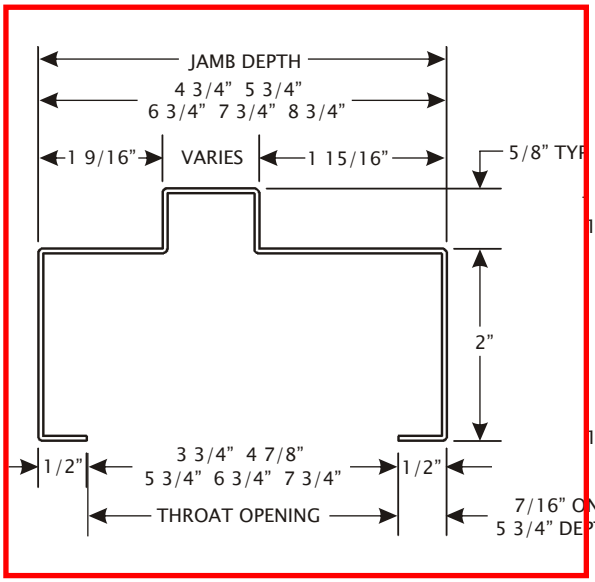
MESKER
www.meskerdoor.com
256-851-6670, 256-852-5846

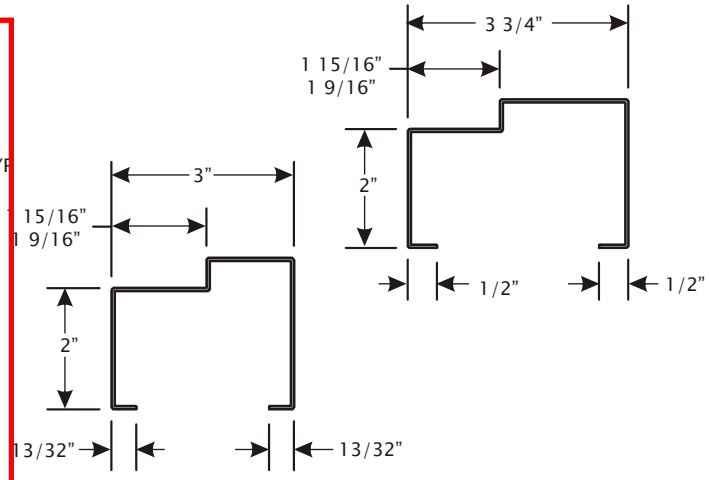
TECHNICAL DATA SHEET DS-201-2



MUTES

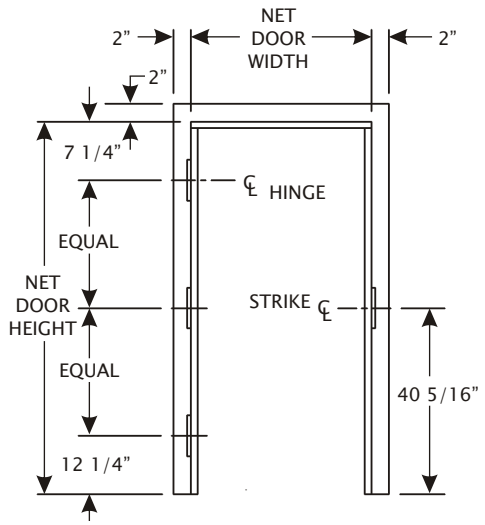
TO INSTALL IN FIELD INSERT BLUNT END OF 3/32" DIAMETER WIRE OR TOOL INTO THE HOLE IN CENTER OF THE MUTE. MOISTEN CONE PORTIONS AND INSERT INTO 9/32" HOLE IN STOP OF FRAME, PUSH SLOWLY WITH A CIRCULAR MOTION TO ELONGATE CONICAL PORTION SUFFICIENTLY TO SET MUTE IN PLACE.





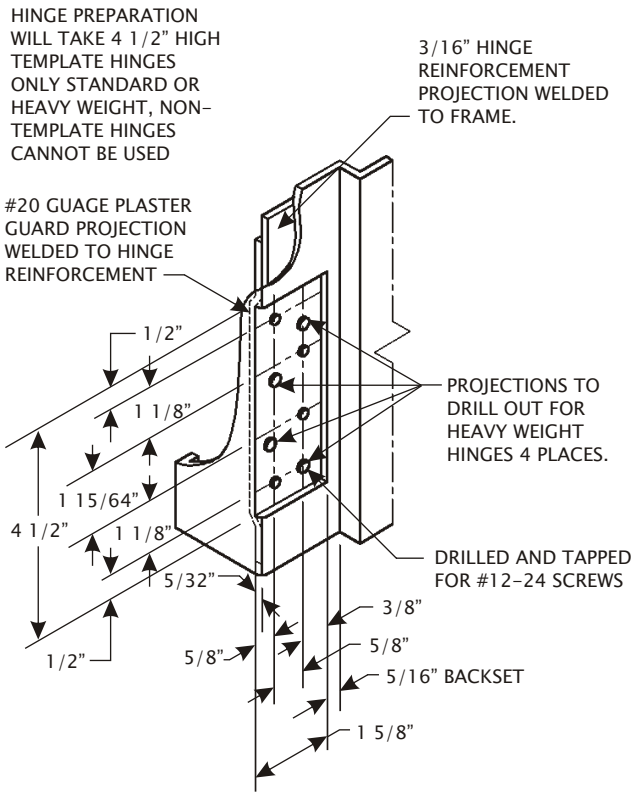
STANDARD FRAME PROFILES

FINISHED OPENING HEIGHT	FINISHED OPENING WIDTH		FRAME DIMENSIONS	
	SINGLE	DOUBLE	JAMB DEPTH	THROAT OPENING
	2'-0"	4'-0"		
	2'-4"	4'-8"	3"	2 3/16"
6'-8"	2'-6"	5'-0"	3 3/4"	2 3/4"
7'-0"	2'-8"	5'-4"	4 3/4"	3 3/4"
7'-2"	3'-0"	6'-0"	5 3/4"	4 7/8"
8'-0"	3'-6"	7'-0"	7 3/4"	6 3/4"
	3'-8"	7'-4"	8 1/4"	7 1/4"
	4'-0"	8'-0"	9"	8"

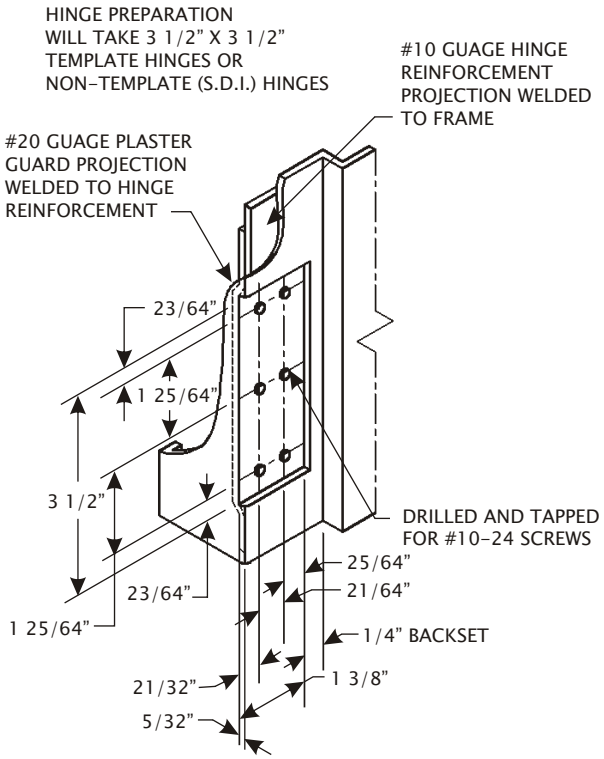


MESKER
www.meskerdoor.com
256-851-6670, 256-852-5846

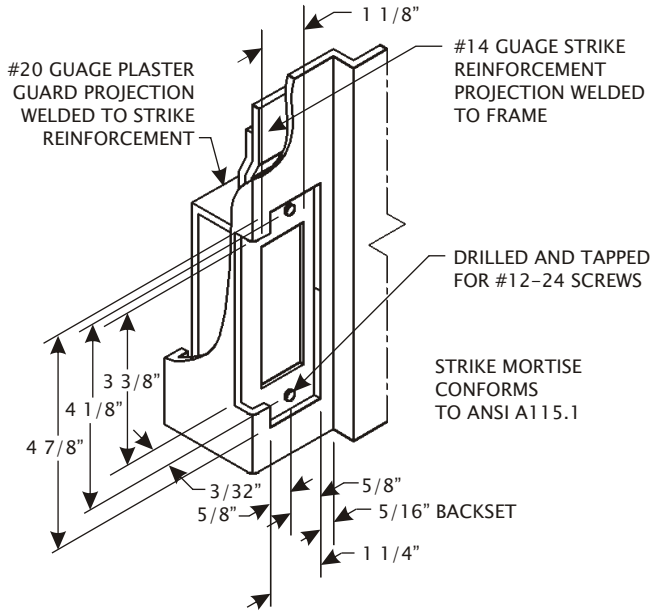
TECHNICAL DATA SHEET DS-201-3



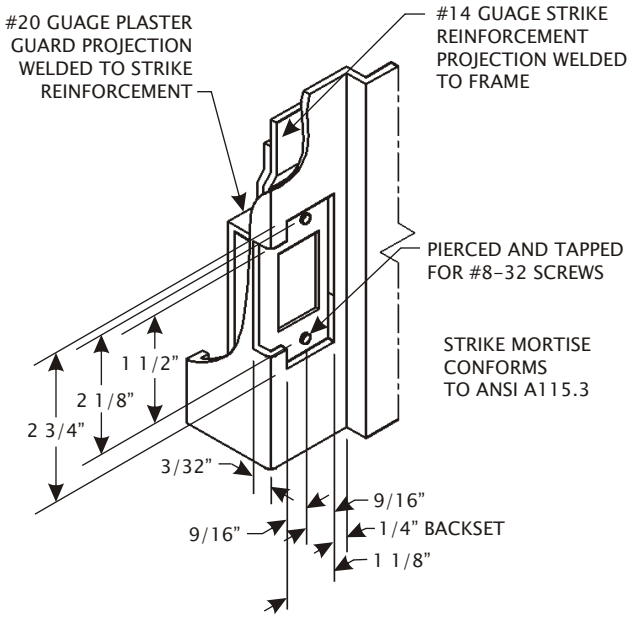
STANDARD 4 1/2" HINGE MORTISE
FOR 1 3/4" FRAMES



STANDARD 3 1/2" HINGE MORTISE
FOR 1 3/8" FRAMES



"U" STRIKE MORTISE

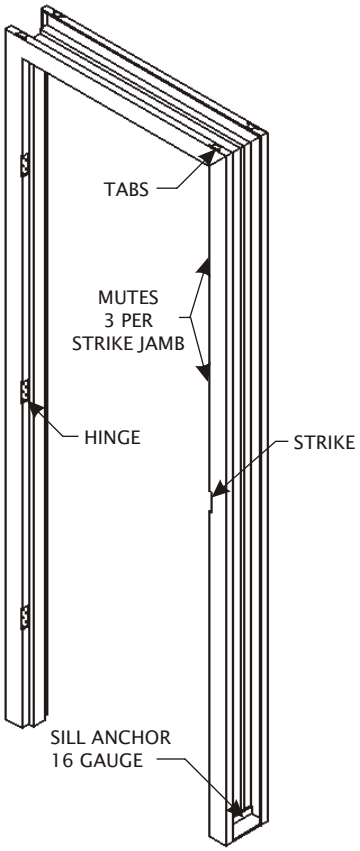


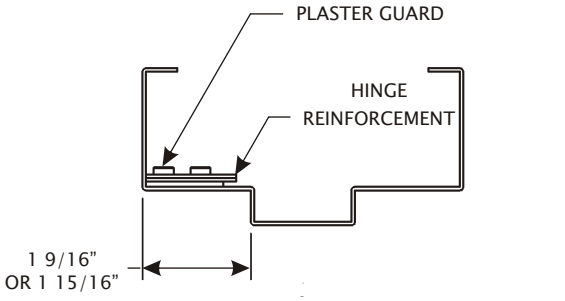
"C" STRIKE MORTISE

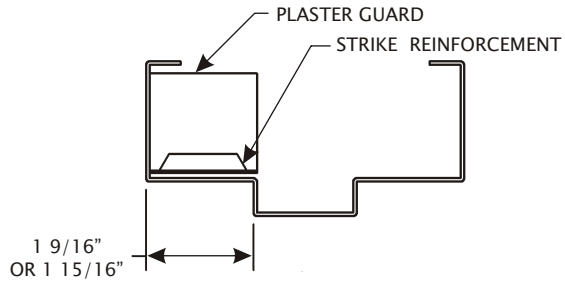
MESKER
www.meskerdoor.com
256-851-6670, 256-852-5846

January 2007

TECHNICAL DATA SHEET DS-201-4







GENERAL INFORMATION

STRIKE PREPARATIONS

Frames are prepared for 4 7/8" high universal strike (ANSI 115.1) specify "U" and 2 3/4" high cylindrical strike (ANSI 115.3) specify "C".

HINGE PREPARATIONS

Frames for 1 3/4" doors are prepared for 4 1/2" x 4 1/2" standard or heavy weight template hinges. 1 1/2" pair on doors up to 7'-2" in height and 2 pair on 7'-10" and 8'-0".

Frames for 1 3/8" doors are prepared for 3 1/2" x 3 1/2" standard weight template hinges. 1 pair on 6'-8" doors and 1 1/2" pair on 7'-0" and 7'2" doors. U/L labeled frames have 1 1/2" pair on all sizes.

ANCHORS

Anchors must be specified to correspond with wall condition. Details are shown on the following data sheets:

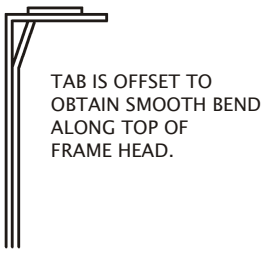
- Wire Anchor - DS 246
- Masonry Tee Anchor - DS 242
- Wood and Steel Stud Anchor - DS 243
- U/L Labeled Masonry Anchor - DS 241
- Existing Wall Anchor - DS 245

SILL ANCHORS

Each jamb is supplied with 1-16 gauge sill anchor.

MUTES

Each frame is furnished with rubber mutes. Three per strike jamb.



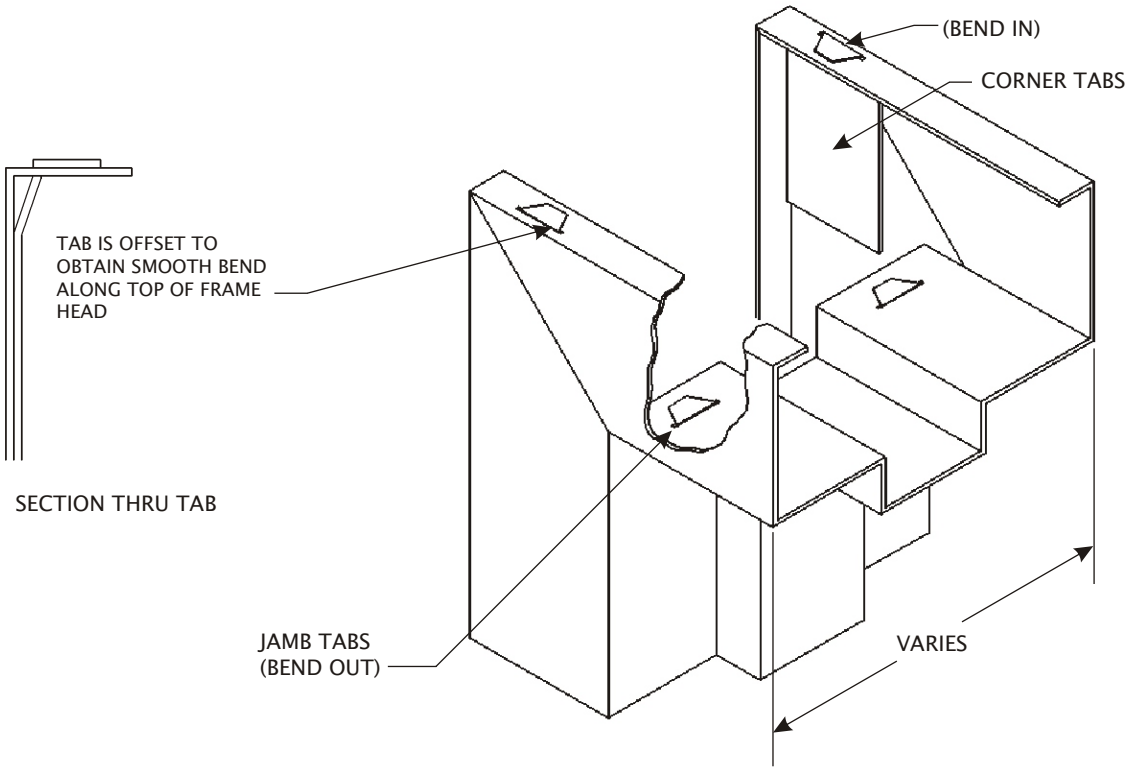
SECTION THRU TAB

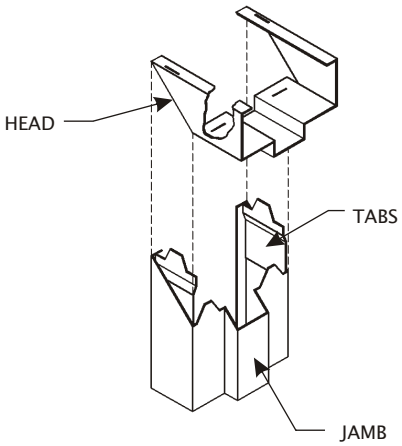
MESKER
www.meskerdoor.com
256-851-6670, 256-852-5846

TECHNICAL DATA SHEET DS-201-5

F-SERIES ASSEMBLY INSTRUCTION

1. Slide header over jamb corner tabs, insert into slots.
2. Bend tabs on jamb rabbets out per illustration. (NOTE: Bending tabs in will increase door opening dimension.)
3. Bend corner tabs in per illustration.





MESKER
www.meskerdoor.com
256-851-6670, 256-852-5846

January 2007

DOOR & FRAME HANDING CHART

Door and Frame Handing Chart

How to determine hand of door and frame.

Hand all doors by standing outside or key side - facing door.

SINGLE DOORS

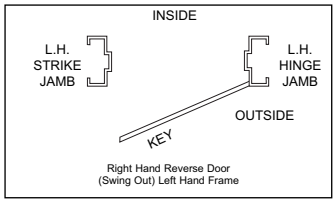
When door swings toward you and hinges are on right side of door:
Door is R.H.R.
Frame is L.H.

When door swings to inside and hinges are on right side of door:
Door is R.H.
Frame is R.H.

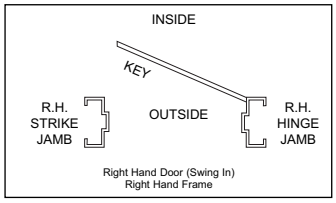
PAIRS OF DOORS

When door leaves swing toward you and hinges are on right side of active leaf:
Door is R.H.R. Active
Frame is L.H. Active

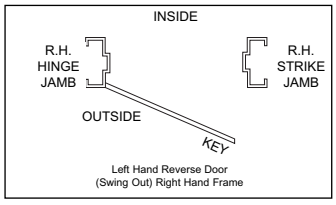
When door leaves swing to inside and hinges are on right side of active leaf:
Door is R.H. Active
Frame is R. H. Active



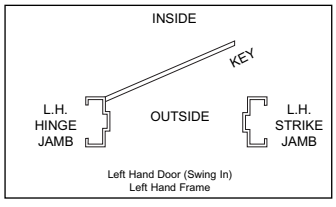
Right Hand Reverse Door
(Swing Out) Left Hand Frame



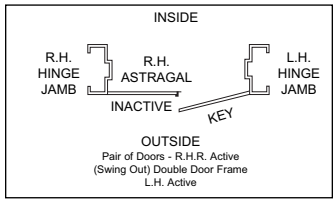
Right Hand Door (Swing In)
Right Hand Frame



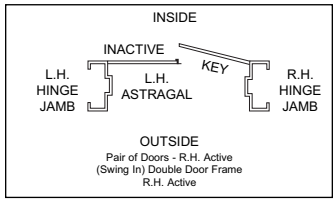
Left Hand Reverse Door
(Swing Out) Right Hand Frame



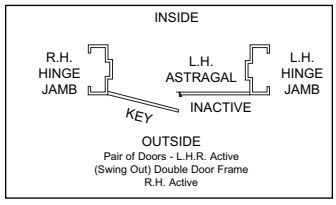
Left Hand Door (Swing In)
Left Hand Frame



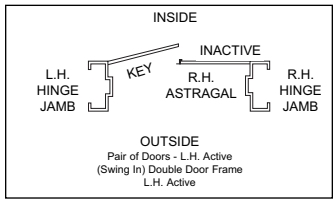
Pair of Doors - R.H.R. Active
(Swing Out) Double Door Frame
L.H. Active



Pair of Doors - R.H. Active
(Swing In) Double Door Frame
R.H. Active



Pair of Doors - L.H.R. Active
(Swing Out) Double Door Frame
R.H. Active



Pair of Doors - L.H. Active
(Swing In) Double Door Frame
L.H. Active

Revised 9/14

STEEL DOOR INSTITUTE
Standards As Tough As Steel.™

TECHNICAL DATA SHEET DS-101-1

N Series Non Handed Door
(Our Standard Door - Swingerdoor)
1 3/4”

1. Doors shall be manufactured by Mesker Door Incorporated and designated as SwingerDor 1 ¾”.

N( ) 420-20 gauge 1 ¾ SwingerDor
N( ) 418-18 gauge 1 ¾ SwingerDor
N( ) 416-16 gauge 1 ¾ SwingerDor

( ) = Core designation: “P”- Polystyrene, “H” - Honeycomb, “F” - Fiberboard, or “U” - Urethane.

2. Core material shall be Polystyrene, Honeycomb, Fiberboard or Urethane as called for on plans.

3. Doors shall be full flush constructed of two face sheets of 16, 18 or 20 gauge cold rolled steel and A60, stretcher-levelled quality of flatness or A60 galvannealed steel.

4. Doors shall have neat hemmed vertical edge seams mechanically interlocked for maximum structural integrity. Seamless doors available when required by filling or welding edge or seam. (Designated by an “S” in the above nomenclature.)

5. Doors shall have 7 gauge steel hinge reinforcements with 3 projection welds above and 3 below each hinge mortise. The top hinge reinforcement shall extend to the top of the door and have 3 additional projection welds on the extended leg.

6. Doors shall have a box type closer reinforcement factory installed to reinforce both sides of doors.

7. Doors shall have 16 gauge top and bottom channels welded to door skins on 2” centers.

8. Doors shall be mortised and adequately reinforced for all hardware. Mortised hardware reinforcements shall be drilled and tapped at the factory. Surface applied hardware shall be field drilled by others.

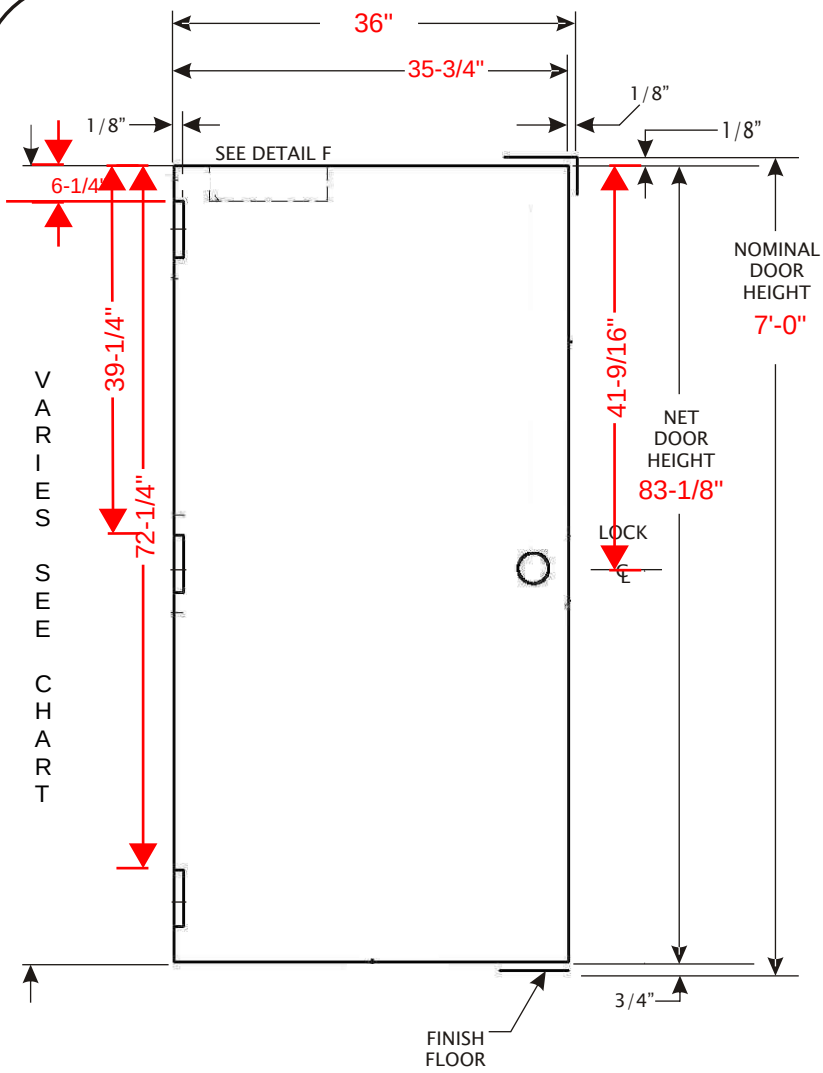
LABEL SWINGERDORS 1 3/4” - 16, 18 OR 20 GAUGE..
SWINGERDORS ARE AVAILABLE WITH UL, WHI AND FACTORY MUTUAL LABELS AS SHOWN BELOW:

CORE MATERIAL	POLYSTYRENE	HONEYCOMB	URETHANE	FIBERBOARD
GAUGE	16, 18 & 20 GAUGE	16, 18 & 20 GAUGE	16 & 18 GAUGE	16 & 18 GAUGE
LABEL	A, B & C	A, B, C, D & E	NOT RATED	A, B, C, D & E
HEAT RISE RATING	NONE	NONE	N/A	250° PYRODOR
MAXIMUM SIZES AVAILABLE	SINGLE: 4080 PAIR: 8080	SINGLE: 4080 PAIR: 8080	N/A	SINGLE: 4072 PAIR: 8072

NOTE: 20 gauge not available in doors larger than 3’6” width and 7’2” length.

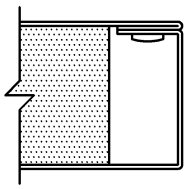
MESKER
www.meskerdoor.com
256-851-6670, 256-852-5846

TECHNICAL DATA SHEET DS-101-3



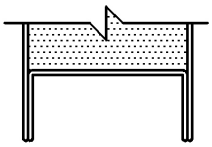
STANDARD DOOR WIDTHS	
NOMINAL DOOR WIDTHS	NET DOOR WIDTHS
2'-0"	23 3/4"
2'-4"	27 3/4"
2'-6"	29 3/4"
2'-8"	31 3/4"
3'-0"	35 3/4"
3'-4"	39 3/4"
3'-6"	41 3/4"
3'-8"	43 3/4"
3'-10"	45 3/4"
4'-0"	47 3/4"

STANDARD DOOR HEIGHTS	
NOMINAL DOOR HEIGHTS	NET DOOR HEIGHTS
6-8"	79 1/8"
7'-0"	83 1/8"
7'-2"	85 1/8"
7'-10"	93 1/8"
8'-0"	95 1/8"



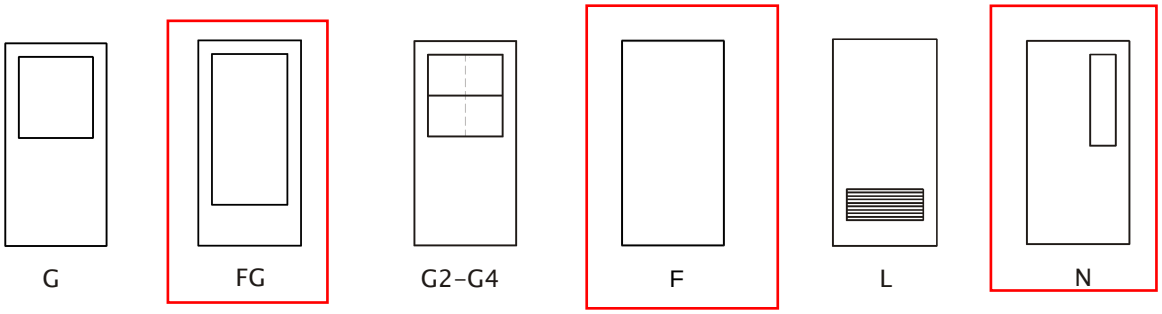
MECHANICALLY INTERLOCKED HEMMED SQUARE EDGE

SECTION A-A



16 GAUGE TOP AND BOTTOM CHANNEL

SECTION B-B



SWINGERDOOR

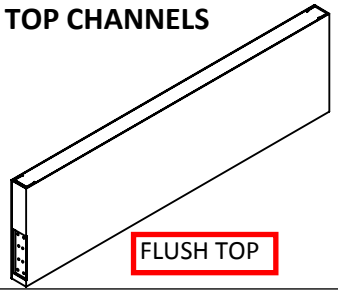
January 2007

MESKER

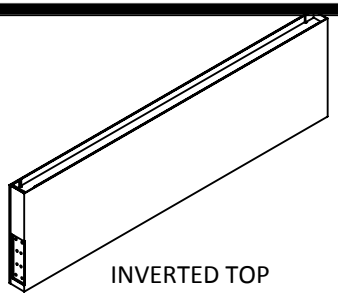
www.meskerdoor.com

256-851-6670, 256-852-5846

① TOP CHANNELS

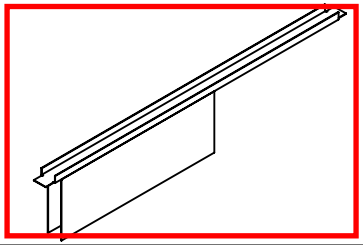


FLUSH TOP



INVERTED TOP

② CLOSER REINFORCEMENT

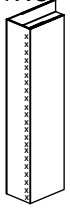


③ VERTICAL EDGE

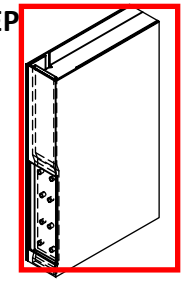
STANDARD



NVS

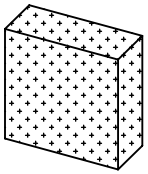


④ HINGE PREP



⑤ CORE

POLYSTRENE



⑥ LOCK EDGE

BEVELED EDGE



SQUARE EDGE



⑦ LOCK PREP

FOR LOCK PREPS
SEE DOOR PREP PAGE

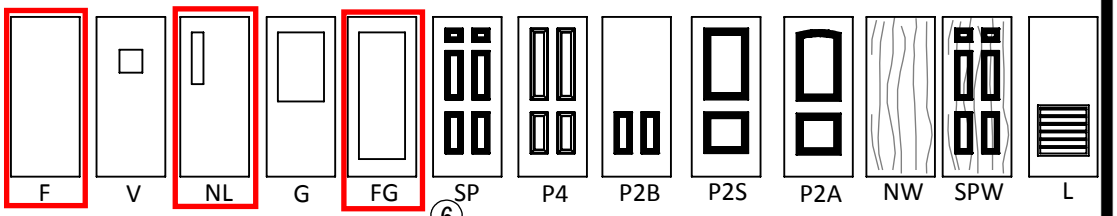
DOOR MEETS OR EXCEEDS ANSI 250.4 PERFOMANCE TEST:

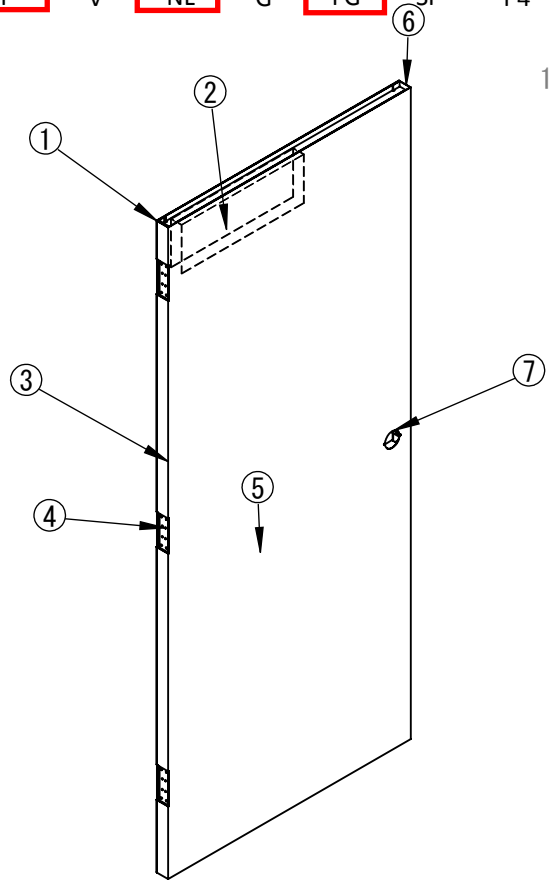
20 GAUGE STEEL (500,000 CYCLES)

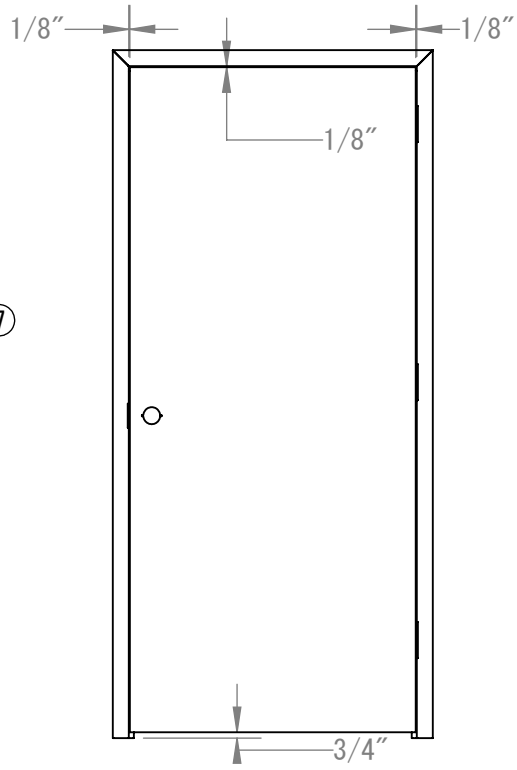
18 & 16 GAUGE STEEL (1,000,000 CYLCLES)

DOORS MEET LEED REQUIREMENTS AND BUY AMERICAN STANDARDS.

LABELING AGENCIES:
UNDERWRITES LABRATORY INC.
WARNOCK HERSEY INTL.
FACTORY MUTUAL SYSTEM







NP SERIES DOOR

AVAILABLE IN:
14, 16, 18, 20 GAUGE
CR, A60, G-90

MESKER Paint

MESKER ™

SUB-1

DRAWN BY JW DATE 9/20/17	ISSUE DATE	REVISIONS	BY
CHECKED ____ DATE ____			
SHT OF / JOB NO. JK# A17-048			

APPENDIX 4

THERMAL INSULATING VALUES FOR DOOR CORE MATERIALS

The following table provides Architects and Specifiers with basic insulating performance values for hollow metal laminated door core materials that may be used in exterior doors. It provides the user with the performance levels of the cores only, at their installed thickness, and cured for 180 days.

Real world installations bring into the equation, a multitude of variables which are beyond the control of the hollow metal door manufacturer, and cannot be reflected in assembly tests performed in the controlled environment of a laboratory.

CORE MATERIAL	MINIMUM DENSITY		MINIMUM R-VALUES		MAXIMUM U-VALUE		MAXIMUM K-VALUE (*1)	
	Imperial (lbs/ft³)	Metric (kg/m³)	Imperial (degrees F x hours x ft²/BTU)	Metric (degrees K x m²/W)	Imperial (1/R)	Metric (1/RSI)	Imperial (1/(R ÷ core thickness))	Metric (1/(RSI ÷ core thickness))
Polystyrene	1	16	R 6.0	RSI 1.06	0.167	0.943	0.276	39.7
Polyurethane	1.8	29	R 8.7	RSI 1.54	0.115	0.649	0.190	27.3
Polyisocyanurate	2	32	R 9.9	RSI 1.75	0.101	0.571	0.167	24.0

*1: K-Value is expressed per inch (or millimeter)

The need for added security or other functional priorities may over-ride the thermal performance provided with the use of these cores. In such instances, honeycomb and steel stiffened doors may be specified for exterior applications.

All cores are not available from all manufacturers or in all areas. Users are encouraged to contact member manufacturers to determine availability and applicability for their specific requirements.

ENGINEERING DATA—CORE MATERIALS

CORE MATERIALS	POLYSTYRENE	HONEYCOMB	URETHANE	FIBERBOARD
PHYSICAL PROPERTIES DENSITY	1.0 PCF	1.2 PCF	2.05 PCF	17.0 PCF
COMP. STRENGTH	23 PSI	30 PSI	27 PSI	100 PSI
COEF. OF EXP. / ^{o}F	<1 1 / 2% VOL.	N/A	N/A	2% WGT.
18 GA. FACE SHEETS	23	28	25	32
THERMAL PROPERTIES "R" FACTOR (1/U)	6.0	2.5	8.7	3.5
"U" FACTOR (1/R)	.167	.400	.115	.286
FIRE HAZARD CLASS. FUEL CONTRIBUTED	0	N/A	N/A	30
SMOKE DEVELOPED	50-85	N/A	N/A	0
SERVICE TEMPERATURE RANGE	-65° - 165°F	-65° - 200°F	-65° - 200°F	-50° - 250°F

PAIRS OF DOORS

When door leaves swing toward you and
hinges are on right side of active leaf:
Door is R.H.R. Active
Frame is L.H. Active

When door leaves swing to inside and
hinges are on right side of active leaf:

J&K SECURITY SOLUTIONS
DOORS & HARDWARE DIVISION

1610 Beld Street
Madison, WI 53715
608-255-5799

HARDWARE SCHEDULE

HW SETS **ROYSTER LOT 2 - EAST** **11/13/2018**

01 E - STAIRS 201E, 301E, 302E, 401E, 402E G - ELEV LOBBY B03E

6EA	EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
		1 EA	AL10S JUP	Passage	626	Schlage
		1 EA	DC6816AL	Closer	AL	LSDA
		1 EA	31407-15	Wall Stop	US15	Stone Harbor
		1 EA	797B 17'	Smoke Seal	BL	Reese

01A E - STAIRS 102E, 202E

2EA	EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
		1 EA	F1000R 33" x KIL Passage	Rim Panic	US32D	Design Hdwr
		1 EA	DC6816AL	Closer	AL	LSDA
		1 EA	31407-15	Wall Stop	US15	Stone Harbor
		1 EA	797B 17'	Smoke Seal	BL	Reese

01C E - STAIRS - ACCESS CONTROL B01E, B02E

2EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL80PD JUP	Storeroom	626	Schlage
	1 EA	7440	Electric Strike	628	Adams Rite
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor
	1 EA	797B 17'	Smoke Seal	BL	Reese

03 R - TRASH CHUTE/TRASH ROOM B05E INCLUDES ASTRAGAL

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	6 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL10S JUP	Passage	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	2 EA	1555	Flush Bolt	626	Don Jo
	2 EA	KP 10 X 34	Kickplate	630	Don Jo

03A N - TRASH ACCESS 207E, 208E, 307E, 308E, 407E, 408E

6EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Wood Door/Frame Provider			
	1 EA	AL10S JUP 11-096 x 10-025	Passage	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor

04 M1 - MECH BSMNT B04E, B06E ROOF HATCH 410E

3EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL80PD JUP 11-096 x 10-025	Storeroom Lock	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	797B 17'	Smoke Seal	BL	Reese

TS - ADA STORAGE **204E, 304E, 404E**

04A **M2 - MECH 2ND-4TH** **209E, 211E, 309E, 409E**

7EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Wood Door/Frame Provider			
	1 EA	AL80PD JUP 11-096 x 10-025	Storeroom Lock	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	797B 17'	Smoke Seal	BL	Reese

05 **O - STORAGE** **203E, 205E, 206E, 303E, 305E, 306E, 403E, 405E, 406E**

9EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Wood Door/Frame Provider			
	1 EA	AL10S JUP 11-096 x 10-025	Passage	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor

07A **K - OFFICE** **210E**

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL53PD JUP	Entry	626	Schlage
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor

11 **S - ALUM** **AL2E, AL4E**

2EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Balance of Hardware By Alum Frame/Door Provider			
	1 EA	GMSIM116SC26D	Rim or Mortise Cylinder	626	Schlage

UE **UNIT ENTRY (2 x ADA)**

42EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges, Gasket & Door Bottom By Wood Door/Frame Provider			
	1 EA	F10F MNH	Passage - Rated	626	Schlage
	1 EA	B60F	Deadbolt - Rated	626	Schlage
	1 EA	32185-15	Door Viewer	619	Stone Harbor
	1 EA	31502-15	HD Hinge Pin Stop	619	Stone Harbor

UI-H **HVAC CLOSETS**

42EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	1 EA	B60N	Deadbolt	626	Schlage
	1 EA	31511-15	Spring Stop	619	Stone Harbor

RDC TO VERIFY, Is a CO

S01 **TENANT STORAGE LOCKERS**

39EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	1 EA	B60N	Deadbolt	626	Schlage

UI-C1 **UNIT INTERIOR CLOSETS**

131EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	1 EA	F10 MNH	Passage	626	Schlage
	1 EA	31504-15	HD Solid Base Stop	619	Stone Harbor

UI-C2 UNIT INTERIOR CLOSETS - DOUBLE

59EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	2 EA	F170 MNH	Dummy	626	Schlage
	2 EA	31511-15	Spring Stop	619	Stone Harbor

UI-B UNIT INTERIOR BED/BATH

133EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	1 EA	F40 MNH	Privacy	626	Schlage
	1 EA	31504-15	HD Solid Base Stop	619	Stone Harbor

J&K SECURITY SOLUTIONS
DOORS & HARDWARE DIVISION

1610 Beld Street
Madison, WI 53715
608-255-5799

HARDWARE SCHEDULE

HW SETS **ROYSTER LOT 2 - WEST** **11/13/2018**

01 E - STAIRS 302W, 402W G - ELEV LOBBY B03W

3EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL10S JUP	Passage	626	Schlage
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor
	1 EA	797B 17'	Smoke Seal	BL	Reese

01A E - STAIRS 102W, 202W

2EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	F1000R 33" x KIL Passage	Rim Panic	US32D	Design Hdwr
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor
	1 EA	797B 17'	Smoke Seal	BL	Reese

01B E - LIBRARY STAIRWELL 101W

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	1 EA	FMHD 83"	Full Mort. Cont. Hinge	AL	Design Hdwr
	1 EA	Rim Panic x DE x Alarm	Rim Panic	US32D	Sargent
	1 EA	Sargent C10 Cylinder (RP Trim)	Storeroom Lrim	US32D	Sargent
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor
	1 EA	797B 17'	Smoke Seal	BL	Reese

01C E - STAIRS - ACCESS CONTROL B01W, B02W

2EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL80PD JUP	Storeroom	626	Schlage
	1 EA	7440	Electric Strike	628	Adams Rite
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor
	1 EA	797B 17'	Smoke Seal	BL	Reese

01D E - STAIRS - ACCESS CONTROL - EL LOCKSETS 201W, 301W, 401W

3EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	2 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	ETW4 4.5"x4.5"	Electrified Hinge	US26D	Design Hdwr
	1 EA	C880D-EL LG	Electrified Storeroom	626	Dorma
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor
	1 EA	797B 17'	Smoke Seal	BL	Reese

02 Q - WALK DOOR - ACCESS CONTROL B04W

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5 NRP	Hinges	US26D	Design Hdwr
	1 EA	AL80PD JUP	Storeroom	626	Schlage
	1 EA	7440	Electric Strike	628	Adams Rite
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	PLP111	Latch Guard	630	Don Jo
	1 EA	S204A 36'	Threshold	AL	Reese
	1 EA	377C 36"	Sweep	AL	Reese
	1 EA	DS63A 3070	Weatherstrip	AL	Reese

02A Q - LOADING DOCK 48" DOOR 103W

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	1 EA	FMHD 83"	Full Mort. Cont. Hinge	AL	Design Hdwr
	1 EA	Sargent C10 Cylinder (AL80JD)	Storeroom Lockset	626	Sargent
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	PLP111	Latch Guard	630	Don Jo
	1 EA	S204A 48'	Threshold	AL	Reese
	1 EA	377C 48"	Sweep	AL	Reese
	1 EA	DS63A 4070	Weatherstrip	AL	Reese

03 R - TRASH CHUTE/TRASH ROOM B07W, B09W INCLUDES ASTRAGAL

2EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	6 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL10S JUP	Passage	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	2 EA	1555	Flush Bolt	626	Don Jo
	2 EA	KP 10 X 34	Kickplate	630	Don Jo

03A N - TRASH ACCESS 207W, 208W, 307W, 308W, 407W, 408W

6EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Wood Door/Frame Provider			
	1 EA	AL10S JUP 11-096 x 10-025	Passage	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor

03B R - LIBRARY MECHANICAL B08W INCLUDES ASTRAGAL

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	2 EA	FMHD 83"	Full Mort. Cont. Hinge	AL	Design Hdwr
	1 EA	Sargent C10 Cylinder (AL80JD)	Storeroom Lockset	626	Sargent
	1 EA	DC914AL	Closer	AL	LSDA
	2 EA	1555	Flush Bolt	626	Don Jo
	2 EA	KP 10 X 34	Kickplate	630	Don Jo

04 M1 - MECH BSMNT B10W, B12W ROOF HATCH 410W

3EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL80PD JUP 11-096 x 10-025	Storeroom Lock	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	797B 17'	Smoke Seal	BL	Reese

TS - ADA STORAGE 204W, 304W, 404W

04A M2 - MECH 2ND-4TH 209W, 216W, 218W, 309W, 409W

8EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Wood Door/Frame Provider			
	1 EA	AL80PD JUP 11-096 x 10-025	Storeroom Lock	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	797B 17'	Smoke Seal	BL	Reese

04B M1 - MECH BSMNT EXT B11W

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL80PD JUP 11-096 x 10-025	Storeroom Lock	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	S204A 36"	Threshold	AL	Reese
	1 EA	377C 36"	Sweep	AL	Reese
	1 EA	DS63A 3070	Weatherstrip	AL	Reese

05 O - STORAGE 203W, 205W, 206W, 303W, 305W, 306W, 403W, 405W, 406W

9EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Wood Door/Frame Provider			
	1 EA	AL10S JUP 11-096 x 10-025	Passage	626	Schlage
	1 EA	DC914AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor

06 N/A - TOILETS 210W, 211W

2EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Wood Door/Frame Provider			
	1 EA	AL40S JUP 11-096 x 10-025	Privacy	626	Schlage

07 K - FITNESS 212W

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	AL80PD JUP	Storeroom Lock	626	Schlage
	1 EA	7440	Electric Strike	628	Adams Rite
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	31407-15	Wall Stop	US15	Stone Harbor

08 I - COMM ROOM 214W, 215W

2EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	F1000R 33" x KIL Entry	Rim Panic Device	US32D	Design Hdwr
	1 EA	9600	Electric Strike	630	HES
	1 EA	31407-15	Wall Stop	US15	Stone Harbor
	1 EA	797B 17'	Smoke Seal	BL	Reese

09 J - PLAZA EXT CORR 217W

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	3 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	1 EA	DC6816AL	Closer	AL	LSDA
	1 EA	F1000R 33" x KIL Entry	Rim Panic Device	US32D	Design Hdwr
	1 EA	9600	Electric Strike	630	HES
	1 EA	GMSIM116SC26D	Rim Cylinder	626	Schlage
	1 EA	31407-15	Wall Stop	US15	Stone Harbor

10 H - FIRE DOORS 213W

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	6 EA	BB5 4.5 x 4.5	Hinges	US26D	Design Hdwr
	2 EA	DC6816AL	Closer	AL	LSDA
	2 EA	F1000V SVR 33" x KIL Passage	SVR w/ 8' Rods	US32D	Design Hdwr
	2 EA	31407-15	Wall Stop	US15	Stone Harbor
	2 EA	2100	Magnetic HO	US28	ABH
	1 EA	797B 21'	Smoke Seal	Black	Reese

11 S - ALUM AL15W, AL17W, AL18W, AL29W AL2W, AL7W, AL10W, AL12W X 2, AL13W, AL14W X 2,

12EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Balance of Hardware By Alum Frame/Door Provider			
	1 EA	GMSIM116SC26D	Rim or Mortise Cylinder	626	Schlage

UE UNIT ENTRY (2 x ADA)

44EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges, Gasket & Door Bottom By Wood Door/Frame Provider			
	1 EA	F10F MNH	Passage - Rated	626	Schlage
	1 EA	B60F	Deadbolt - Rated	626	Schlage
	1 EA	32185-15	Door Viewer	619	Stone Harbor
	1 EA	31502-15	HD Hinge Pin Stop	619	Stone Harbor

RDC TO VERIFY, Is a CO

UI-H HVAC CLOSETS

44EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	1 EA	B60N	Deadbolt	626	Schlage
	1 EA	31511-15	Spring Stop	619	Stone Harbor

S01 TENANT STORAGE LOCKERS

41EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	1 EA	B60N	Deadbolt	626	Schlage

UI-C1 UNIT INTERIOR CLOSETS

114EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	1 EA	F10 MNH	Passage	626	Schlage
	1 EA	31504-15	HD Solid Base Stop	619	Stone Harbor

UI-C2 UNIT INTERIOR CLOSETS - DOUBLE

77EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	2 EA	F170 MNH	Dummy	626	Schlage
	2 EA	31511-15	Spring Stop	619	Stone Harbor

UI-B UNIT INTERIOR BED/BATH

124EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
		Hinges By Prehung			
	1 EA	F40 MNH	Privacy	626	Schlage
	1 EA	31504-15	HD Solid Base Stop	619	Stone Harbor

MISC OTHER ITEMS

1EA	QTY	ITEM	DESCRIPTION	FINISH	MANF
	1 EA	3262 Fire Dept Key Cabinet	Surface Mt Knox Box	BL	Knox Box
	1 EA	KeyKab120	Key Cabinet	N/A	HPC

BB5 Hinges



Standard Features

- Meets ANSI - A156.1 standards
- Dimensions and tolerances conform to ANSI - A156.7
- Lifetime Warranty - Life of Building
- BB5's have maintenance free ball bearings, no oil or grease required
- Equipped with easily seated non-rising pin
- Each box of 3 hinges contain full set of machine and wood screws
- Standard weight hinges 3.4mm thick
- Hole in bottom of knuckle enables quick pin removal for ease of installation



BB5 NRP

Non removable pin also available

Available Finishes	
US3 / 632	Bright Polished Brass
US4 / 633	Brushed Satin Brass
US10B / 640	Oil Rubbed Bronze
US26 / 651	Bright Polished Chrome
US26D / 652	Brushed Satin Chrome
US32D / 630	Brushed Stainless Steel
USP / 600	Prime Painted
Call for other finish requirements	

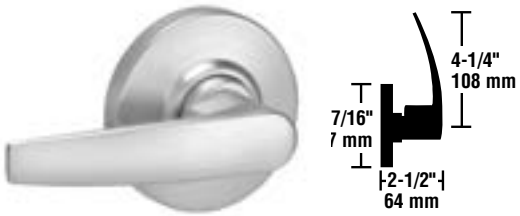
Design Hardware

211 Endeavor Drive - Rogersville, MO 65742

Phone 877-258-1262 - Fax 877-888-0150 - www.designhardware.net

AL Series lever designs

Jupiter (JUP) OK



Symbol: JUP
Material: Pressure cast zinc lever; wrought brass or bronze rose
Suites: S Series **JUPITER,** ND Series **ATHENS** and L Series **07** designs

Neptune (NEP)



Symbol: NEP
Material: Pressure cast zinc lever; wrought brass or bronze rose
Suites: S Series **NEPTUNE,** ND Series **SPARTA** and L Series **17** designs

Omega (OME)



Symbol: OME
Material: Pressure cast zinc lever; wrought brass or bronze rose
Suites: ND Series **OMEGA** and L Series **OMEGA** designs

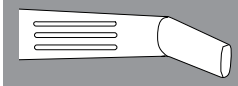
Saturn (SAT)



Symbol: SAT
Material: Pressure cast zinc lever; wrought brass or bronze rose
Suites: S Series **SATURN,** H Series **LEVON**, ND Series **RHODES** and L Series **06** designs
Options: **Tactile warning**

Tactile warning

Milled



Order as follows:
8SA for Saturn

Only available on outside lever, unless otherwise specified

All designs shown in 626 satin chrome

- = Standard cylinder.
- = FSIC - Full size interchangeable core option.
- = SFIC - Small format interchangeable core option.
- = Complies with ADA accessibility guidelines.
- = Antimicrobial coating available on 626 finish only.
- = Meets California code for 1/2" or less return to the door.
- = Extended factory lead time.

Lever finishes

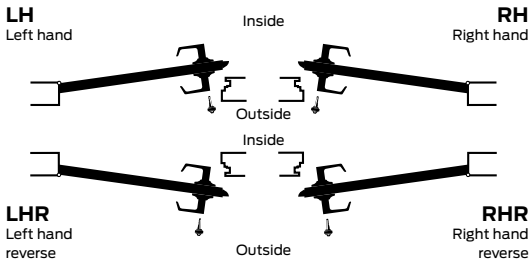
OK

	 **605** Bright brass	 **606** Satin brass	 **609** Antique brass	 **612** Satin bronze	 **613** Oil rubbed bronze	 **619** Satin nickel	 **625** Bright chromium plated	 **626** Satin chromium plated	 **626AM** Anti-microbial coating	 **643e** Aged bronze
AL Series locks										
Jupiter	•	•		•	•	•	•	•	•	•
Neptune	•	•	•	•	•	•	•	•	•	•
Omega	•	•	•	•	•	•	•	•	•	•
Saturn	•	•	•	•	•	•	•	•	•	•

e = an equivalent finish to the BHMA standard.

Door handing

All Schlage locks are reversible. Hand information is necessary to ensure proper cylinder orientation in keyed functions, and finish of latchbolt and strike for locks that are to be installed on reverse bevel doors. Follow the diagram to correctly determine the hand of the door.



ADA-compliant products

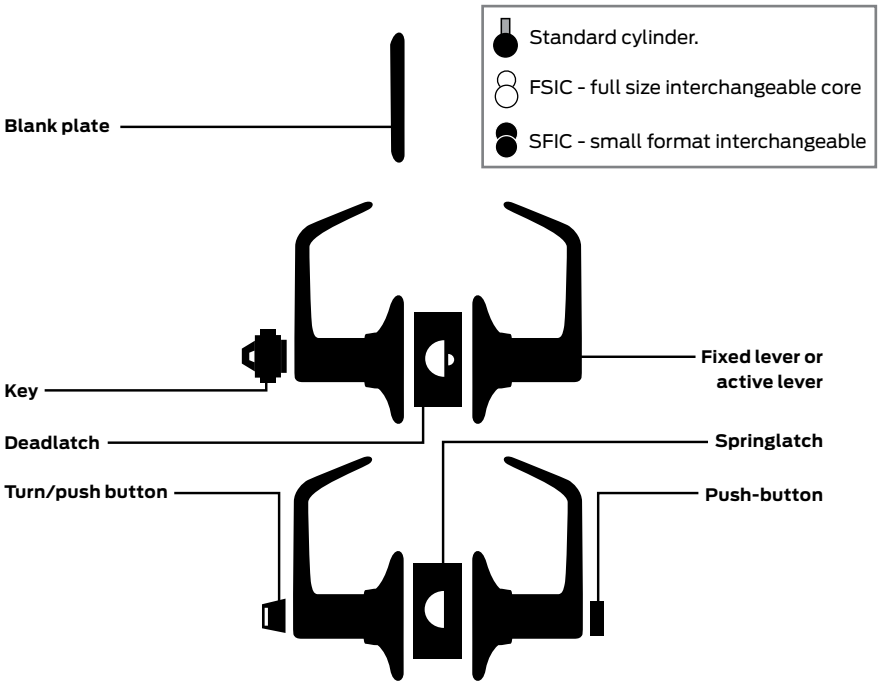
In compliance with the American National Standards Institute (ANSI A117.1) and the Americans with Disabilities Act (ADA), Schlage Lock Company offers a wide selection of locks designed for the needs of the physically challenged. This act is designed to provide protection for people with disabilities.

The intent of ADA is that owners of certain types of buildings must remove barriers and provide people with disabilities with access equal to, or similar to, that available to the general public.

Product information and specifications contained in this catalog are subject to change without notice. Please consult the factory.

Lock functions

ANSI A156.2 Series 4000 Grade 2

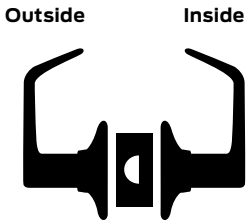


Non-keyed functions

Schlage **AL10S** ANSI **F75**

Passage latch

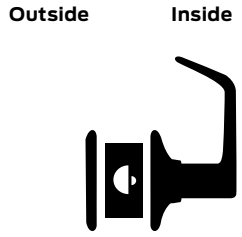
- Both levers always unlocked.
- Inside lever always free for immediate egress.



Schlage **AL25D** ANSI **–**

Exit lock

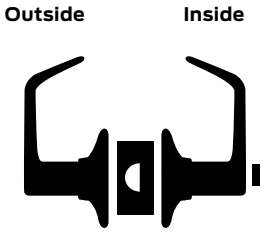
- Blank plate outside.
- Inside lever always unlocked.
- Inside lever always free for immediate egress.
- Specify door thickness.



Schlage **AL40S** ANSI **F76**

Bath/bedroom privacy lock

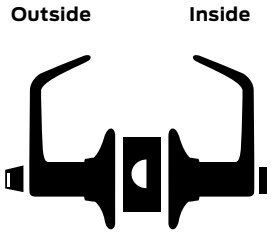
- Push-button locking.
- Can be unlocked from outside with small screwdriver.
- Turn inside lever or close door to release button.
- Inside lever always free for immediate egress.



Schlage **AL44S** ANSI **–**

Hospital privacy lock

- Push-button locking.
- Unlock from outside by turning emergency turn-button.
- Turn inside lever or close door to release button.
- Inside lever always free for immediate egress.



Lock functions

ANSI A156.2 Series 4000 Grade 2

Keyed functions

Schlage ANSI
AL170 **–**

Single dummy trim

- Single dummy trim for one side of door.
- Used for door pull or as matching inactive trim.

Outside or Inside

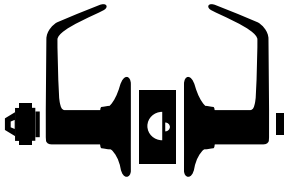


Schlage ANSI
AL50PD **F82**

Entrance/office lock

- Push-button locking.
- Push-button locks outside lever until it is unlocked with a key or by rotating the inside lever.
- Inside lever always free for immediate egress.

Outside Inside



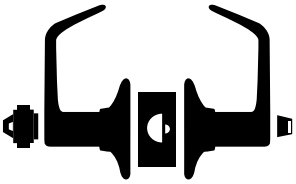


Schlage ANSI
AL53PD **F109**

Entrance lock

- Turn/push-button locking: pushing and turning button locks outside lever, requiring use of a key until the button is manually unlocked.
- Push-button locking: push-button locks the outside lever until it is unlocked by key or by turning the inside lever.
- Inside lever always free for immediate egress.

Outside Inside



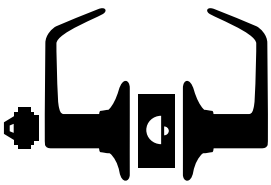


Schlage ANSI
AL70PD **F84**

Classroom lock

- Outside lever is locked and unlocked by key.
- Inside lever is always unlocked.
- Inside lever always free for immediate egress.

Outside Inside



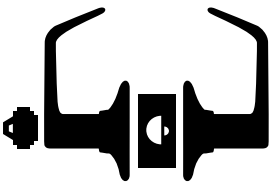


Schlage ANSI
AL80PD **F86**

Storeroom lock

- Outside lever is fixed.
- Entrance by key only.
- Inside lever is always unlocked.
- Inside lever always free for immediate egress.

Outside Inside



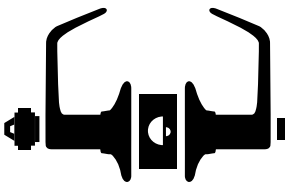


Schlage ANSI
AL85PD **F93**

Faculty restroom lock (with indicator cylinder)

- Outside lever is fixed.
- Entrance by key only.
- Push button on inside lever activates visual occupancy indicator, allowing only the emergency masterkey to operate.
- Rotate inside lever or close door to release visual occupancy indicator.
- Rotation of inside spanner button provides lockout feature by keeping indicator thrown.
- Inside lever always free for immediate egress.

Outside **Inside**





F Series Levers-1
F Series Decorative Collection Levers-11
J Series Levers-13

F Series Levers

AVAILABLE FUNCTIONS

Non-keyed Locks



Schlage F10 F40 F170
ANSI F75 F76

Keyed Locks



F51A F80
F81 F86

ANSI/BHMA 156.2-2011 Commercial Grade 2
ANSI/BHMA 156.39-2015 Residential Grade AAA

Non-keyed Locks

F10/F75 – Hall & Closet
- Both knobs/levers always unlocked

F40/F76 – Bed & Bath
- Push-button locking
- Can be opened from outside with small circular tool
- Turning inside knob/lever releases button

F170 – Non-turning
- Non-turning trim for one side of door
- Used for door pull or as matching inactive trim

Keyed Locks

F51A/F81 – Keyed Entry
- Keyed entry function unlocks when door is opened from the inside, allowing you to leave quickly, conveniently and re-enter easily
- Locked by inserting key and rotating cylinder from outside, or manually rotating interior turn-button after exit

F80/F86 – Storeroom Lock
- Outside knob/lever fixed. Entrance by key only.
- Inside knob/lever always unlocked

PRODUCT IDENTIFICATION

F	51A	F	ACC	619	CAM	RH	16-086	10-027	KA4
Lock Series	Product	UL Fire Rated (V - VisPack)	Style	Finish Code	Decorative Trim	Hand	Latch	Strike	Keying

LATCHES & STRIKES

Keyed Latches - Dead Latches

16-086 - Dual Option (Round, Drive-in) **STANDARD**
16-207 - Square Corner
16-211 - Triple Option (Round, Square, Drive-in)
16-203 - UL Listed Square Corner with Firecup
16-204 - UL Listed Round Corner with Firecup
16-126 - 5" Backset, Square Corner

Non Keyed - Spring Latches

16-080 - Dual Option (Round, Drive-in) **STANDARD**
16-200 - Square Corner
16-210 - Triple Option (Round, Square, Drive-in)
16-203 - UL Listed Square Corner with Firecup
16-204 - UL Listed Round Corner with Firecup
16-126 - 5" Backset, Square Corner

Strikes

10-027 - Round Corner Full Lip **STANDARD**
10-001 - Square Corner T Strike
10-026 - Square Corner Full Lip
10-058 - Circular - Adjustable
10-063 - Dual Strikes (Round & Square Full Lip)
10-025 - ANSI Square Corner

STANDARD FEATURES / CONFIGURATIONS

F-Series Levers/Decorative Trim*

	Description
Certification:	ANSI/BHMA A156.2-2011 Commercial Grade 2 ANSI/BHMA A156.39-2015 Residential Grade AAA Available UL Listed for 3-hour fire door
Latch:	1"x 2 1/4", 1/4" radius corner faceplate, 7/8" housing diameter, 1/2" throw, circular drive-in included, universal latch
Strike:	1 5/8" x 2 1/4" radius corner, full lip, no box
Backset:	Dual backset latches, fits either 2 3/8" or 2 3/4" backsets
Cylinder:	5-Pin, C keyway, keyed alike (KA4)
Door Range:	1 3/8" - 1 3/4"
Keys:	Two per lock, 5-pin, C section

* Locks are furnished with standard features unless otherwise specified. To order locks with non-standard features specify non-standard feature desired.

FINISH CODES & DESCRIPTIONS

505	605	608	609	613	618	619	620	621	622	625	626	716
Lifetime Bright Brass	Bright Brass (US3)	Satin Brass	Antique Brass (US5)	Oil-Rubbed Bronze (US10B)	Polished Nickel	Satin Nickel (US15)	Antique Pewter (US15A)	Distressed Nickel	Matte Black (US19)	Bright Chrome (US26)	Satin Chrome (US26D)	Aged Bronze

OK

Non-standard finishes are not available.
Full-color swatch examples available on inside Levers tab.

PACKAGING & CARTON SPECS

	INDIVIDUAL CARTON				SHIPPER					
	CARTON WEIGHT	HEIGHT	WIDTH	DEPTH	QTY. SHIPPER	CARTON WEIGHT	CU. FT.	HEIGHT	WIDTH	DEPTH
Levers										
F10	1.55	3.25 in.	6.00 in.	7.00 in.	8	12.50	0.760	7.8 in.	12.6 in.	13.5 in.
F40	1.55	3.25 in.	6.00 in.	7.00 in.	8	12.50	0.760	7.8 in.	12.6 in.	13.5 in.
F51A	1.55	3.25 in.	6.00 in.	7.00 in.	8	12.50	0.760	7.8 in.	12.6 in.	13.5 in.
F80	1.55	3.25 in.	6.00 in.	7.00 in.	8	12.50	0.760	7.8 in.	12.6 in.	13.5 in.
F170	0.80	2.86 in.	4.38 in.	5.66 in.	20	16.00	1.000	6.5 in.	15.3 in.	18.3 in.
Decorative Collections Levers										
All Levers	1.55	3.25 in.	6.00 in.	7.00 in.	8	19.00	1.090	8.13 in.	12.63 in.	18.4 in.
F170	1.20	2.86 in.	4.38 in.	5.66 in.	20	25.00	1.000	6.5 in.	15.3 in.	18.3 in.

For Vis Pack carton specs, see page Order-2

AVAILABLE STYLES



Accent
(ACC)



Avanti
(AVA)



Avila
(VLA)



Birmingham
(BIR)



Broadway
(BRW)



Champagne
(CHP)



Callington
(CLT)

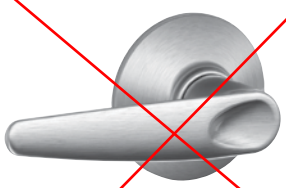


Elan
(ELA)

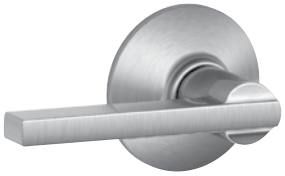


Flair
(FLA)

NO



Jazz
(JAZ)



Latitude
(LAT)



Manhattan
(MNH)



Merano
(MER)



Northbrook
(NBK)



Sacramento
(SAC)



St. Annes
(STA)

B Series Deadbolts

AVAILABLE FUNCTIONS



Schlage ANSI	B60 E2152	B62 E2142	B80 E2192	B81

ANSI/BHMA A156.36-2010 Commercial Grade 1
ANSI/BHMA A156.40-2015 Residential Grade AAA

B60 / E2152 - Single Cylinder Deadbolt Lock
- Deadbolt thrown or retracted by key from outside or by inside turn unit
- Bolt automatically deadlocks when fully thrown

B62 / E2142 - Double Cylinder Deadbolt Lock
- Deadbolt thrown or retracted by key from either side
- Bolt automatically deadlocks when fully thrown

B80 / E2192 - One-Sided Deadbolt
- Deadbolt thrown or retracted from interior side only
- No exterior plate or exposed trim
- Non-graded

B81 - One-sided Deadbolt with Exterior Plate
- Deadbolt thrown or retracted from interior side only
- Exterior plate covers exposed prep on outside
- Non-graded

***Caution.** Double cylinder locks on residences and any door in any structure which is used for egress are a life safety hazard in times of emergency and their use is not recommended. Installation should be in accordance with existing codes only.

Note: Double cylinder locks are not available as UL Listed

PRODUCT IDENTIFICATION

B	60	F	CAM	619	12-321	10-116	KA4
Lock Series	Product	UL Fire Rated (V - VisPack)	Decorative Trim	Finish Code	Latch	Strike	Keying

LATCHES & STRIKES

Latches

12-321 - Dual Option (Round, Drive-in) - **STANDARD**

12-288 - Square Corner
12-287 - Triple Option (Round, Square, Drive-in)
12-294 - UL Listed Square Corner with Firecup
12-397 - UL Listed Round Corner with Firecup

Strikes

10-116 - Round Corner Strike with Reinforcer - **STANDARD**

10-092 - Round Corner Full Lip Strike
10-094 - Square Corner Strike with Reinforcer

STANDARD FEATURES / CONFIGURATIONS

B-Series Deadbolts/Decorative Trim*

Grade 1 / AAA deadbolt standard features / configurations

Models:	B60, B62, B80, B81
Certification:	ANSI/BHMA A156.36-2010 Commercial Grade 1 ANSI/BHMA A156.40-2015 Residential Grade AAA Available UL listed for 20 minute and 3 hour fire doors
Deadbolt:	1" x 2 1/4", radius corner, 1" housing diameter, 1" throw, latch number 12-321
Strike:	1 1/8" x 2 3/4", 1/4" radius corner, strike number 10-116
Backset:	Adjustable for 2 3/8" or 2 3/4"
Cylinder:	5-pin, keyed 5-pin, C keyway, keyed alike (KA4)
Door Range:	1 3/8" - 1 3/4"
Keys:	Two keys per lock, 5-pin, keyed 5-pin, C section
Reinforcement:	Door frame strike reinforcer with 3" screws

Locks are furnished with standard features unless otherwise specified. To order locks with non-standard features, specify non-standard feature desired.

FINISH CODES & DESCRIPTIONS

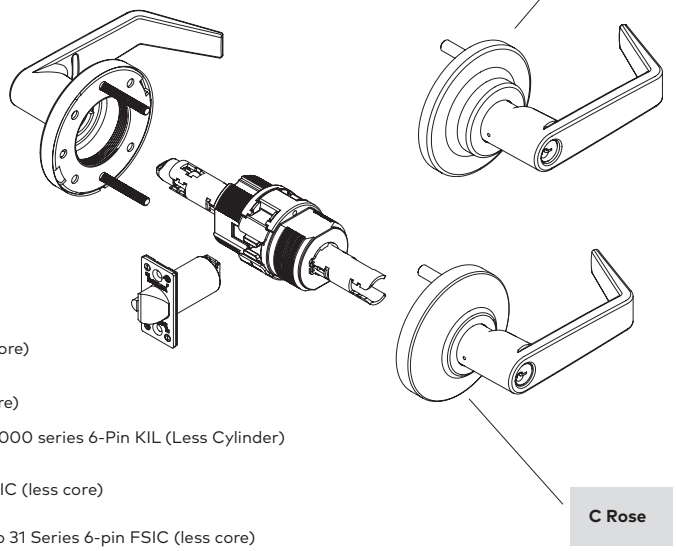
505	605	608	609	613	618	619	620	621	622	625	626	716
Lifetime Bright Brass	Bright Brass (US3)	Satin Brass	Antique Brass (US5)	Oil-Rubbed Bronze (US10B)	Polished Nickel	Satin Nickel (US15)	Antique Pewter (US15A)	Distressed Nickel	Matte Black (US19)	Bright Chrome (US26)	Satin Chrome (US26D)	Aged Bronze

Non-standard finishes are not available.
Full-color swatch examples available on inside Deadbolts tab.

PACKAGING & CARTON SPECS

	INDIVIDUAL CARTON				SHIPPER					
	CARTON WEIGHT	HEIGHT	WIDTH	DEPTH	QTY. SHIPPER	CARTON WEIGHT	CU. FT.	HEIGHT	WIDTH	DEPTH
Deadbolts										
B60	1.60	2.86 in.	4.38 in.	5.66 in.	20	33.50	1.047	6.5 in.	15.3 in.	18.3 in.
B62	1.60	2.86 in.	4.38 in.	5.66 in.	20	33.50	1.047	6.5 in.	15.3 in.	18.3 in.
B80	1.08	2.86 in.	4.38 in.	5.66 in.	12	17.00	0.630	6.5 in.	15.3 in.	18.3 in.
B81	1.08	2.86 in.	4.38 in.	5.66 in.	12	17.00	0.630	6.5 in.	15.3 in.	18.3 in.
Decorative Collections Deadbolts										
	2.10	3.06 in.	4.37 in.	8.14 in.	20	42.10	1.520	9.0 in.	15.6 in.	18.8 in.

C800 Series
Ordering Guide



Function

F93 – Faculty Restroom/Hotel[1]	85
F87 – Asylum	82
Electrically Unlocked (Fail Secure)	80EU
Electrically Locked (Fail Safe)	80EL
F86 – Storeroom	80
F110 – Classroom Intruder	77
F90 – Corridor/Dormitory	73
F80 – Communicating	72
F84 – Classroom	70
F91 – Store Door	66
F113 – Exit/ Communicating Classroom	65
F88 – Apartment	60
F92 – Service Station	55
F109 – Entry	53
F82 – Entry/Office	50
F112 – Exit/ Communicating Storeroom	48
Hospital Privacy	44
F76A – Privacy, Bedroom or Bath	40
F77A – Patio	30
F111 – Exit/ CommunicatingPassage	25
F89 – Exit	12
F75 – Passage/Closet	10
Double Dummy	02
Single Dummy	01

Cylinder Type[3,4]

A	Corbin/Russwin 6-pin FSIC (less core)
M	Medeco FSIC 32 Series (less core)
E	Corbin Russwin 2000 series 6-Pin KIL (Less Cylinder)
N	Sargent 6300 FSIC (less core)
Y	Yale 1210/Medeco 31 Series 6-pin FSIC (less core)
S	Sargent 10 Line KIL (less cylinder)
F	Schlage LFIC
R	Schlage LFIC (Less Core)
G	Temporary Schlage LFIC
D	Conventional Cylinder
L	Less Cylinder
C	SFIC (With Core)
J	SFIC (Less Core)
T	Temporary SFIC

Finish[7]

630	Satin Stainless (Knob Designs)
626	Satin Chrome
625	Bright Chrome
622 PVD	Satin Black
619 PVD	Satin Nickel
613 PVD	Dark Oxidized Satin Bronze
612 PVD	Satin Bronze
606 PVD	Satin Brass
605 PVD	Bright Brass (Lever Designs)
605	Bright Brass (Knob Designs)

C8	53		D	LR	C	626			RH	10252	134	5001	1316	XXXX

Product Family
Heavy-Duty Grade 1 Cylindrical Lockset

Request to Exit[2]

RX	Request to Exit[2]

Lever/Knob Design

LR	Lever
LC	Lever
LG	Lever
LT	Lever
LF	Lever, Handed
LV	Lever, Handed
KB	Knob

Rose Design[5]

B	3" Dia.
C	3-1/2" Dia.
D	3-1/2" Dia. stamped, **LOCK**
E	3-1/2" Dia. stepped rose
F	3-1/2" Dia. stepped rose stamped, **LOCK**[6]

Antimicrobial Coating[8]

AM	
TX	

Security Screws

Door Hand

RH	Right Hand
LH	Left Hand

Door Thickness[9]

134	1-3/4"–2-1/4"
138	1-3/8"–1-5/8"

Latch Bolt

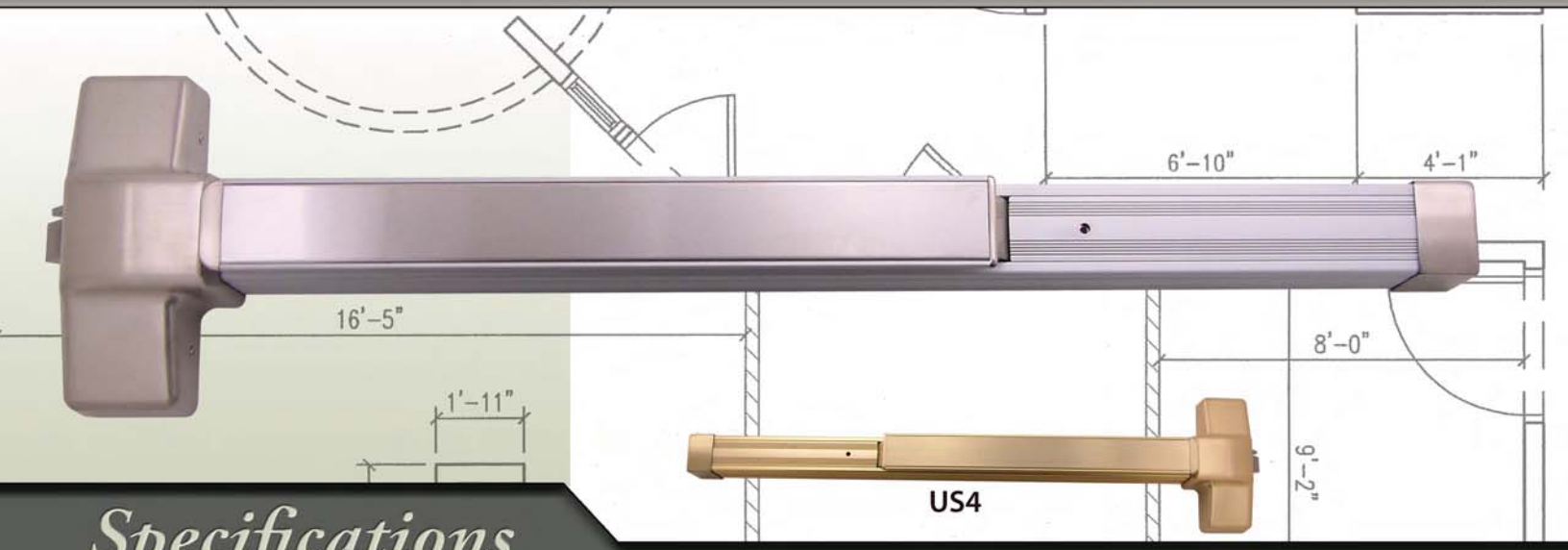
Strike Options

Lip Length

Keying Options Field

1. Faculty restroom/hotel function available in SC and SE keyway only. Not available in SFIC or prepared for competitor cylinders.
2. Request to exit option only available on lever locks. Available with C810, C850, C853, C870, C880, C880EL & C880EU functions only.
3. Consult factory for other cylinder options.
4. 605 and 625 finishes available with standard cylinder and SFIC only (T, J, C, L, and D cylinder options).
5. Rose B applicable to knob designs only. Roses C, D, E, and F applicable to lever designs only. Split design roses not available.
6. F Rose design in 626 only.
7. Split finishes, available on levers only, consult factory. Specify in-swing or out-swing.
8. Antimicrobial coating available on lever trim, 626 finish only. Consult factory for other finishes.
9. Door thickness range: Lever locks 1-3/4"–2-1/4" without spacers, 1-3/8"– 1-5/8" with spacers. Knob locks 1-3/8"–2" without spacers or special tools.

1000 Series Heavy Duty Rim Exit Device



US4

Specifications

ANSI :	Meets & Exceeds ANSI A156.3 - Grade 1 Standards
UL Listing :	UL Listed for Panic Exit Hardware
Fire Rating :	UL Listed for "A" Label 3 Hour Fire Doors
ADA :	Meets ADA requirements ANSI A117.1 with Lever Trim
Handing :	Non Handed - Completely Reversible
Construction :	Heavy Duty Extruded Anodized Aluminum Channel & Steel Chassis
Finishes :	US3, US4 , US10B, US26 & US32D on Headcover, Pushbar & End Cap
Latchbolt :	Deadlocking latchbolt with 5/8" projection
Strike :	Roller Stike with 5/8" projection & 1/8" shim
Dogging :	5/32" Hex Key Dogging Standard on Panic Exit Hardware
Cylinder Dogging :	Cylinder Dogging Kits available for new or existing exit devices
Device Lengths :	33" for 3'-0" wide doors and 42" for 3-8" to 4'-0" wide doors
Min. Door Width :	33" & 42" devices can be cut down to fit on 2-8" wide door
Center Case Dim. :	8" Height x 2 7/8" Wide x 2 13/16" Thick - 4 1/2" Minimum stile required
Mechanism Case Dim. :	2 3/16" Height x 2 3/16" Wide
Projection :	3 3/8" Undogged - Pushbar Neutral & 2 13/16" Dogged - Pushbar Depressed
Fasteners :	Wood, Machine & Self Tapping Machine Screws (F1000R includes thru bolts)
Trim & Accessories :	ASA & latch fillers included, Exterior Trims, Shim Kits & other accessories available
Alarmed Exits :	Exit Alarm Kit ALK-1000 available for new or existing devices
Electrification :	ELR - Electric latch retraction, ED - Electric dogging, REX - Request to exit, LBM - Latch bolt monitoring available, See electrified section
Warranty:	Limited Lifetime Warranty

c UL us LISTED



US32D

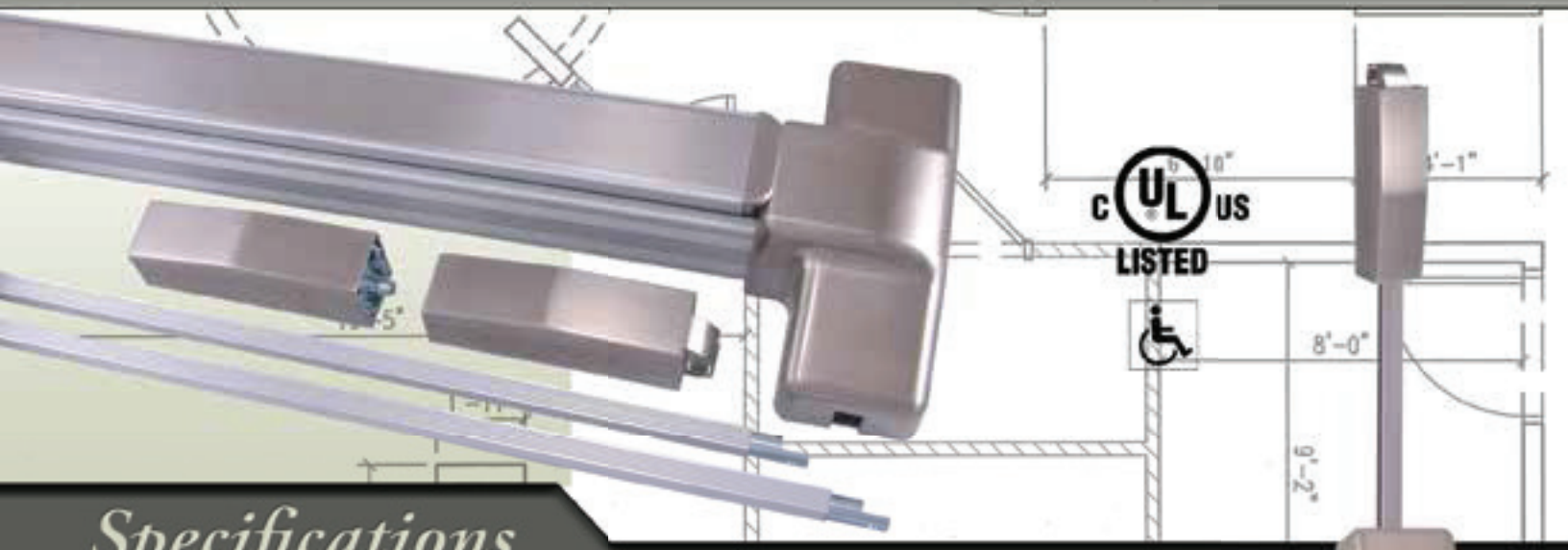


US10B

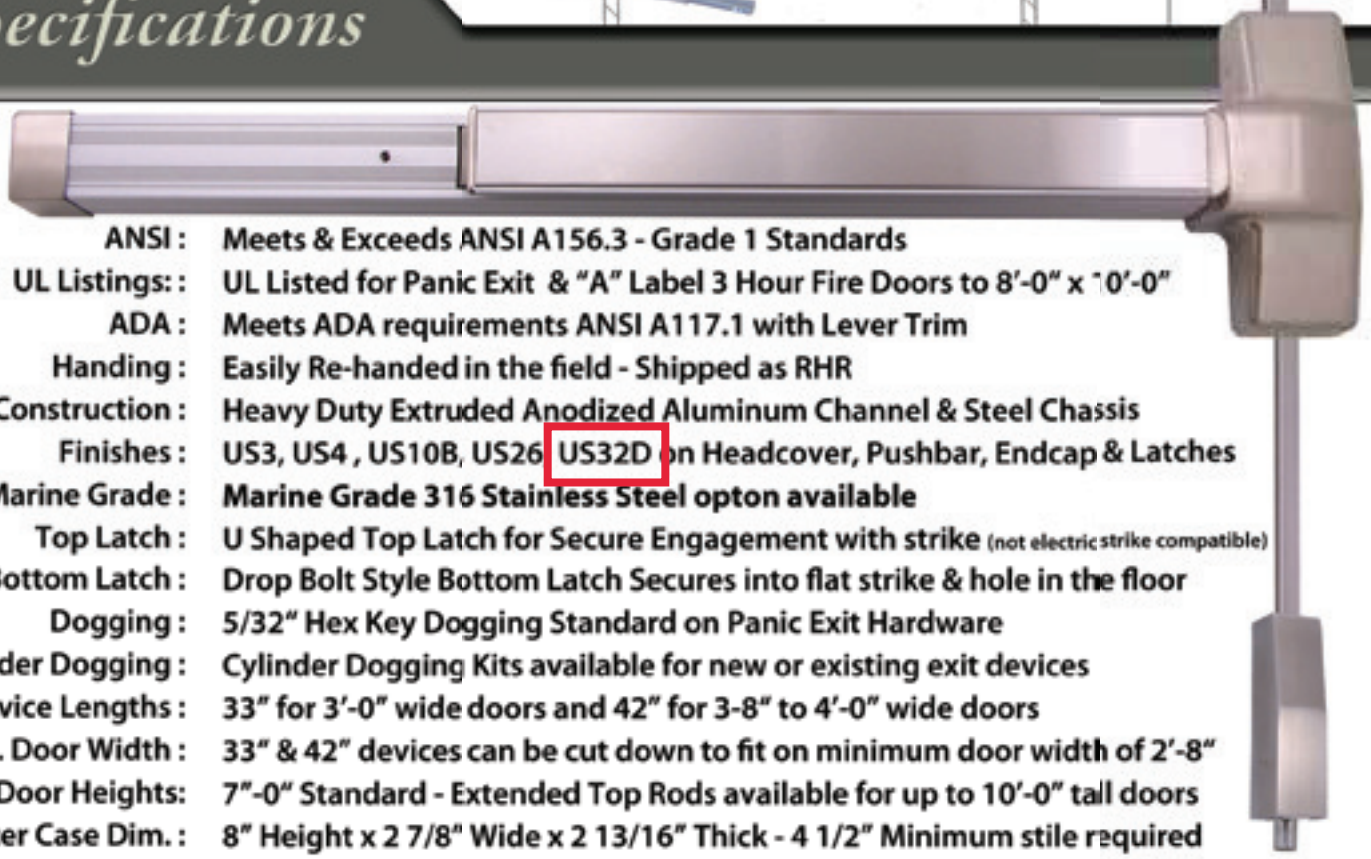
Design Hardware™

211 Endeavor Drive - PO Box 680
Rogersville, MO 65742
PH 877-258-1262 FX 877-888-0150
www.designhardware.net

1000 Series Heavy Duty SVR Exit Device



Specifications



ANSI :	Meets & Exceeds ANSI A156.3 - Grade 1 Standards
UL Listings: :	UL Listed for Panic Exit & "A" Label 3 Hour Fire Doors to 8'-0" x 10'-0"
ADA :	Meets ADA requirements ANSI A117.1 with Lever Trim
Handing :	Easily Re-handed in the field - Shipped as RHR
Construction :	Heavy Duty Extruded Anodized Aluminum Channel & Steel Chassis
Finishes :	US3, US4 , US10B, US26 US32D on Headcover, Pushbar, Endcap & Latches
Marine Grade :	**Marine Grade 316 Stainless Steel opton available**
Top Latch :	U Shaped Top Latch for Secure Engagement with strike (not electric strike compatible)
Bottom Latch :	Drop Bolt Style Bottom Latch Secures into flat strike & hole in the floor
Dogging :	5/32" Hex Key Dogging Standard on Panic Exit Hardware
Cylinder Dogging :	Cylinder Dogging Kits available for new or existing exit devices
Device Lengths :	33" for 3'-0" wide doors and 42" for 3-8" to 4'-0" wide doors
Min. Door Width :	33" & 42" devices can be cut down to fit on minimum door width of 2'-8"
Door Heights:	7"-0" Standard - Extended Top Rods available for up to 10'-0" tall doors
Center Case Dim. :	8" Height x 2 7/8" Wide x 2 13/16" Thick - 4 1/2" Minimum stile required
Mechanism Case Dim. :	2 3/16" Height x 2 3/16" Wide
Projection :	3 3/8" Undogged - Pushbar Neutral & 2 13/16" Dogged - Pushbar Depressed
Fasteners :	Wood, Machine & Self Tapping Machine Screws (F1000V includes thru bolts)
Trim & Accessories :	Latch filler included, Exterior Trims, Shim Kits other accessories available
Electrified Options :	Electric latch retraction, Electric Dogging, Request to exit, Latch bolt monitoring
Under Cut :	1/4" door under cut recommended for 1/4" threshold or no threshold openings
Warranty:	Limited Lifetime Warranty

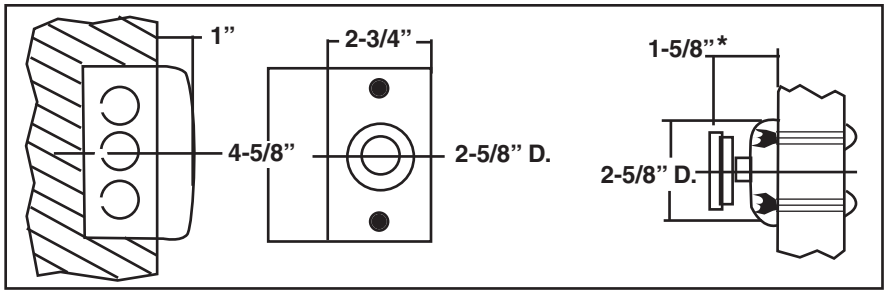
Design Hardware™

211 Endeavor Drive - PO Box 680
Rogersville, MO 65742
PH 877-258-1262 FX 877-888-0150
www.designhardware.net

2100 RECESSED WALL MOUNT



- 30-45 pound holding power
- Underwriters US and Canada Listed
  California State Fire Marshal Listed
  New York City MEA
  ANSI/BHMA 156.15
- Most models available in US28, sprayed finishes and US32D
- Easy wire installation with quick insert connector



*** 2-5/8” with 1” extension**

BHMA C00011

www.abhmfg.com
E-mail: abhinfo@abhmfg.com
Architectural Builders Hardware Mfg., Inc.
1222 Ardmore Ave., Itasca, IL 60143
630.875.9900; FAX 800.9FAXABH (932.9224)

© 2007 ABH Mfg., Inc.

Ultraline 7440 Electric Strikes

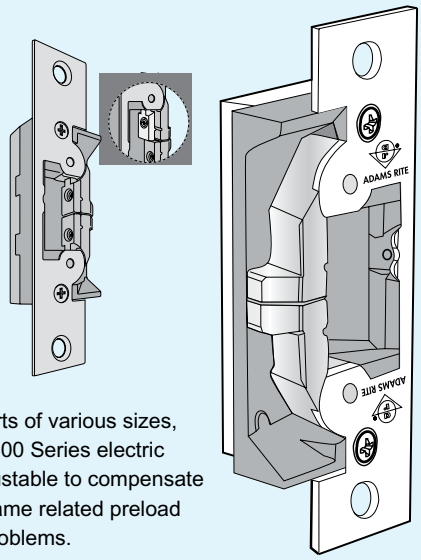
WOOD | HOLLOW METAL | UL 1034 BURGLARY LISTED | ELECTRIFIED PRODUCT | GRADE 1 E09321 | Intertek

7440 Electric Strikes with 4-7/8" faceplate are designed for Adams Rite deadlatches or cylindrical locksets with 1/2" to 5/8" latchbolt projection. For use in hollow metal or wood door jambs and steel or wood doors. Opens electrically under 35lbs. of preload.

Function

Remote electrical control of any door equipped with an Adams Rite 4500, 4700, or 4900 Series (or similar) Deadlatch or cylindrical (key-in-knob/lever) type lockset with 1/2" to 5/8" latchbolt projection. Electrical actuation unlocks strike jaw, releasing latchbolt so door can be opened without operating latch itself. Extremely compact mechanism fits into jamb sections as shallow as 1-1/16". Direct upgrade for Adams Rite 7140 Electric Strikes.

This non-handed strike features an ultra-compact design and an adjustable stainless steel split-jaw with over 1500 lbs. of holding force in fail-secure mode. The strike releases electrically with up to 35 lbs. of door “preload" (pressure exerted on doors by air conditioning systems, warping or misaligned hardware which can disable common electric strikes). Single solenoid operates on 12, 16, or 24 volt AC/DC power. Strikes are equipped with a quick connect plug-in type connector.



Using jaw inserts of various sizes, the Ultraline 7400 Series electric strikes are adjustable to compensate for door and frame related preload and security problems.

Specifications

FAIL-SAFE/FAIL-SECURE
- Field selectable at time of installation.

CASE
- Approximately 1" x 3-3/8" x 1-1/16" deep.

STRIKE LIP
- Basic 7400 electric strike has lip of proper length for 1-3/4" thick door that closes flush with jamb edge. Where door thickness or jamb shape differs from this standard relationship, lip extension kits are available.

STRIKE OPENING
- 5/8" adjustable x 1-7/16" x 1/2" deep. Bolt retainer jaw is stainless steel. Strike accepts bolt of Adams Rite 4500, 4700 (discontinued), or 4900 Series Deadlatch or cylindrical latches.

FACEPLATE
- Measures 1-1/4” x 4-7/8”. Faceplate is flat, with square corners. Available in a wide range of architectural finishes.

VOLTAGE
- Field selectable to match power source of 12, 16, or 24 VAC/VDC.

CURRENT DRAW/AMPS

VOLTS	AC INTERMITTENT	DC CONTINUOUS
12	0.163	0.440
16	0.228	0.458*
24	0.084	0.230

*Requires 16 DC adapter (P/N VA 7400-16VDC)

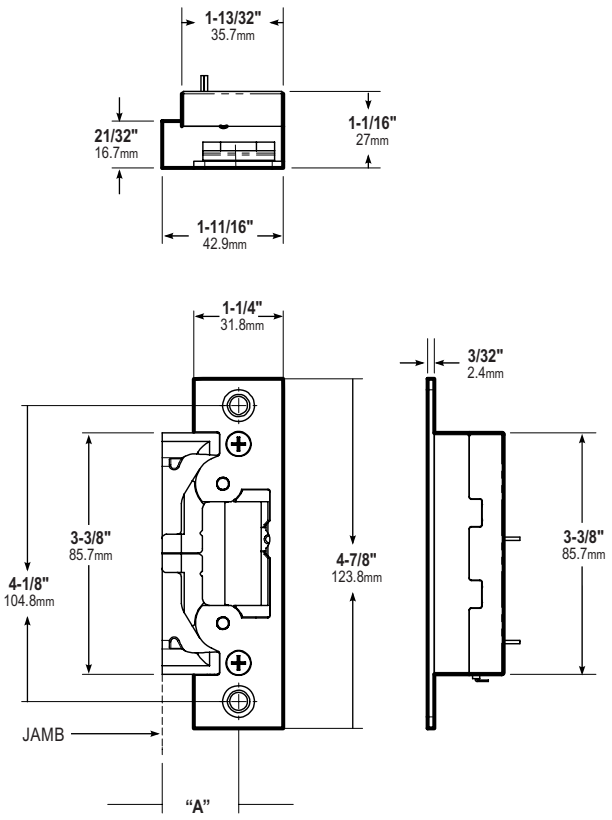
STANDARD PACKAGE
- Individually boxed with mounting screws, mounting tabs, adhesive shims to accommodate jamb or stile extrusion thickness greater or less than nominal 1/8", and adjustable jaw shim pack and two plug-in voltage adapters for 12/16/24 VAC and 12/24 VDC.

OPTIONS
- Monitoring – Two internally mounted switches (Form “C") to indicate when the latchbolt is engaged in the strike jaws and a locked/unlocked solenoid status.
- Lip Extension Kits – For various dimensions of door centerline to jamb edge.
- Modular Packaging – Consult factory or sales representative for details.
- Wood Door Cover – WDC7400 for use when mounting the 7400 Series Electric Strike on the inactive leaf of a pair of door. The cover simplifies the mortise prep.
- ELX-ElectroLynx™ Adapter – Connects Adams Rite electrified products to ElectroLynx system.
- 16 VDC Adapter – VA7400-16VDC required when using 16 VDC power.

Adams Rite
ASSA ABLOY
800.872.3267 • Fax 800.232.7329
10027 S. 51st Street, Ste 102
Phoenix, Arizona 85044
www.adamsrite.com

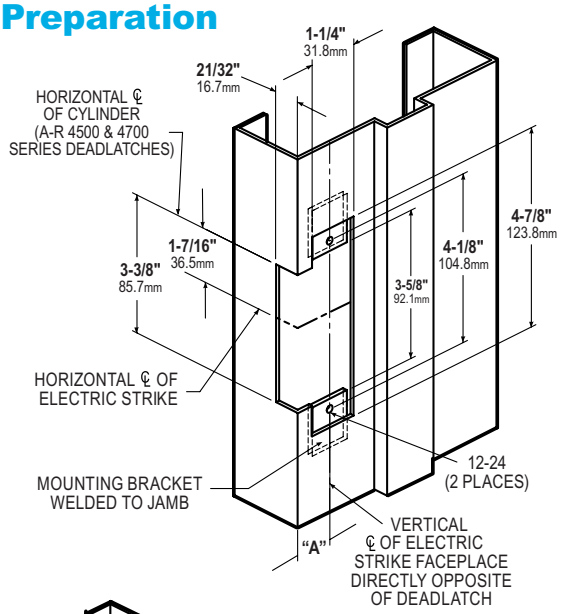
All measurements are approximate and are provided for informational purposes only. Refer to the product Installation Instructions.

Dimensions

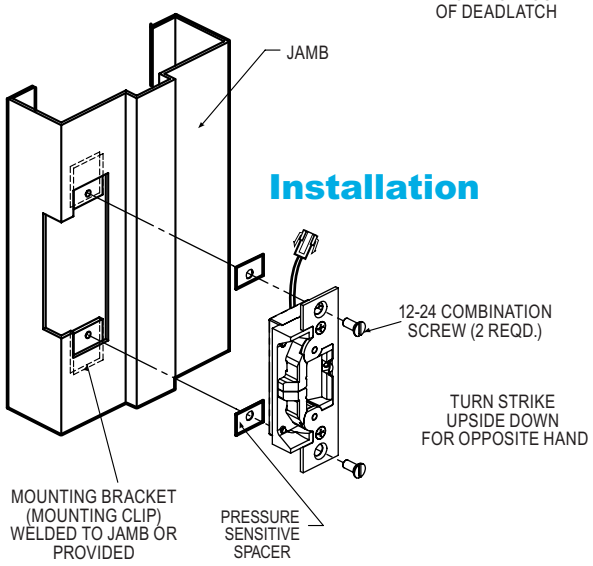


STANDARD UNIT FITS DIM. **"A"** UP TO **1-1/16"**
MOUNTING BRACKETS FURNISHED

Jamb Preparation



Installation



HOW TO ORDER 7440 ELECTRIC STRIKE

Specify quantity and the following information. Order related products separately.

PRODUCT NO.	FEATURES	FINISH	
7440	**M**	**628**	
	- None	**STANDARD FINISHES**	
	M Monitored	**313** Dark Bronze Anodized	**612** Satin Bronze
		335 Black Anodized	**628** Clear Anodized
		605 Bright Brass	**629** Bright Stainless
		606 Satin Brass	**630** Satin Stainless

Fail-secure can be field converted to fail-safe or vice-versa.

RELATED PRODUCTS

When purchasing this product, please consider the following related products, available separately:

Options

Lip extensions.
WDC7400-Wood Door Cover.
ELX-ElectroLynx™ Adapter.
VA7400-16VDC Adapter.

Power

4603 Rectifier, 4605/4606 Transformer, Piezo Horn audible indicator, PS-1.

Deadlatches

4500 and 4900 Series Deadlatches. Note that 4700 Deadlatch is discontinued and replaced by 4900 Deadlatch.

©2014, Hanchett Entry Systems, Inc., an ASSA ABLOY Group company.



Model 9600

The Stylish, Windstorm Rated, Surface Mounted Solution

hesinnovations.com

hes
ASSA ABLOY

9600 Series
Surface Mounted Electric Strike

Works with rim exit devices with a 3/4" throw latchbolt

Enhanced

Above and Beyond

Re-engineered design for greater strength and durability

Independently verified*

- *Static strength to 2,000 lbs.*
- *Dynamic strength to 120 ft-lbs.*
- *Endurance 1,000,000 cycles*

Convenient

Easy Installation

Completely surface mounted for quick installation

Base is separate from the cover making adjustments easy

Field selectable fail safe/fail secure

Sophistication

Stylish Looks

Designed with a stainless steel decorative cover

Available in 7 finishes to match any decor

Sleek lines complement ASSA ABLOY exit devices

ASSA ABLOY, the global leader in door opening solutions

RIM EXIT DEVICES

FIELD SELECTABLE (12 OR 24VDC)

FIELD SELECTABLE (FAIL SECURE / FAIL SAFE)

GRADE 1

OUTDOOR RATED

UL 1034 BURGLARY LISTED

ANSI A250.13-2003 WINDSTORM RESISTANT



9600 Series

Surface Mounted Electric Strike

Features

Standard Features

- Installs in metal or wood frames
- Separate base and decorative cover for easy adjustments
- Stainless steel construction
- Static strength to 2,000 lbs.
- Dynamic strength to 120 ft-lbs.
- Endurance 1,000,000 cycles
- Field selectable fail secure/fail safe
- Dual voltage 12 or 24VDC
- Non-handed. Horizontal adjustability
- Five year limited warranty

Optional Features

LBM » Latchbolt monitor

LBSM » Latchbolt strike monitor

Accessories

9400/9500/9600-108 » Spacer plate (black or 630 finish)

9000-MTK » Metal template kit

SMB » Surface mounting box

2001M » Plug-in bridge rectifier

2004M » ElectroLynx® adapter

2005M3 » SMART Pac® III

2006M » Plug-in buzzer

Finishes

630 » Satin stainless steel

605 » Bright brass

606 » Satin brass

612 » Satin bronze

613 » Bronze toned

613E » Dark oxidized satin bronze (NEW)

629 » Bright stainless steel

Specifications

Listings and Patents

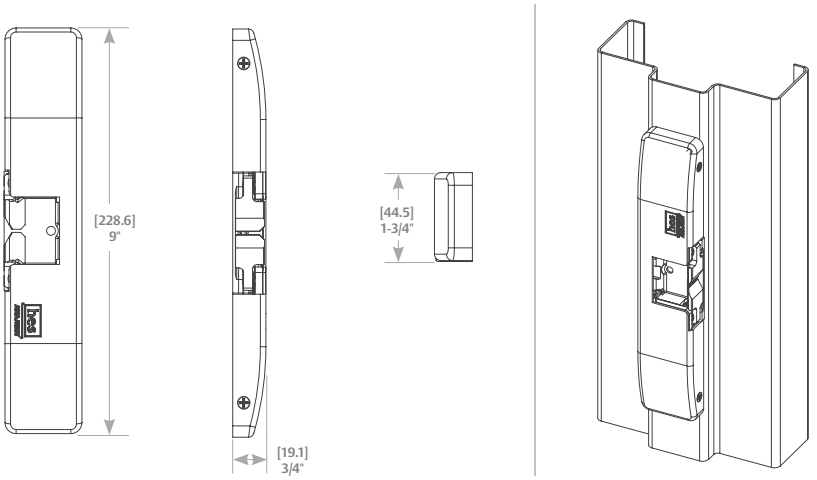
- UL listed to ANSI 250.13 severe windstorm listed
- Florida Building Code Approved (FL#14307)
- UL 1034 burglary-resistant listed and suitable for outdoor use
- UL 294 (6th edition) listed
- ANSI/BHMA A156.31 Grade 1
- RoHS compliant
- Patents: 6,390,520; 8,454,036
- Patent Pending

Frame Application

- Metal
- Wood

Electrical (continuous duty)

- .45 Amps @ 12 VDC
- .26 Amps @ 24VDC
- PoE friendly



For information call **800.626.7590** or visit us online at **www.hesinnovations.com**

HES-052-0315

©2014, Hanchett Entry Systems, Inc., an ASSA ABLOY Group company.

ASSA ABLOY, the global leader in door opening solutions

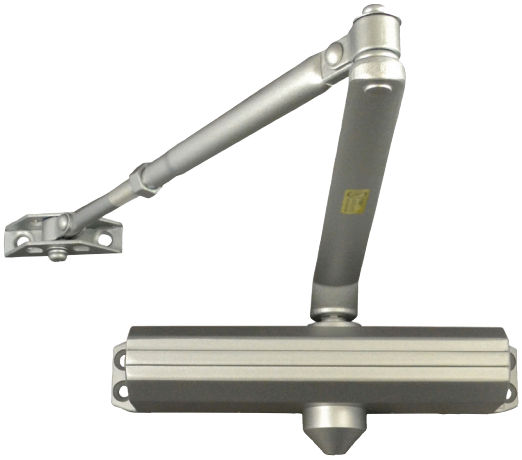
**Independently verified by a nationally recognized testing laboratory*

Door Closers

DC914 Series

Overview

The DC914BC is a commercial closer designed to retrofit the most popular closer door preparation. It includes an adjustable Back Check (BC) feature that allows you to control the opening, as well as the closing speed. Door opening force can be varied by adjusting the power from 1 to 4. This closer is recommended for use on interior and exterior doors with moderate to high traffic. Typical applications include Office Buildings, Commercial Buildings, and Retail Stores.



Standard Features

CERTIFICATIONS: BHMA/ANSI A156.4 Grade 1, UL listed (USA and Canada), UL 10C Fire-Rated, ADA compliant for barrier-free doors

SIZE/POWER: Size 1-4, Adjustable

ADJUSTMENTS: Back Check (BC), Closing Speed and Latch Speed

FINISHES: Aluminum (AL), Duro/Dark Bronze (DU)

COVER: Optional cover is available

HANDING: Non-Handed

ARMS: Standard forged steel tri-pack for regular, top jamb, and parallel arm installations

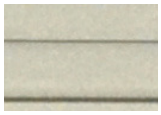
MATERIALS: Cast Aluminum body; heat treated rack & pinion; Forged steel arms; all-temperature cold weather oil

DOOR SIZE: Up to 43" door width

DOOR WEIGHT: 187 pounds

OPENING SWING: 180°

Finishes



Aluminum (AL)

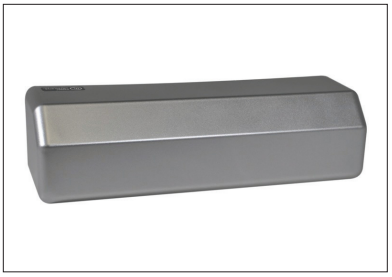


Duro (DU)

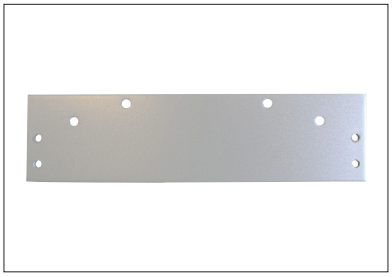
Door Closers: DC914 Series

Parts & Accessories

- ***DC914COV:*** Optional Decorative Cover, Plastic (AL finish)
- ***DP19:*** Drop Plate, for Regular Arm (AL & DU finishes)
- ***DCSEXNUTS:*** Sex Nuts, 4 Pack Nickel



DC914COV

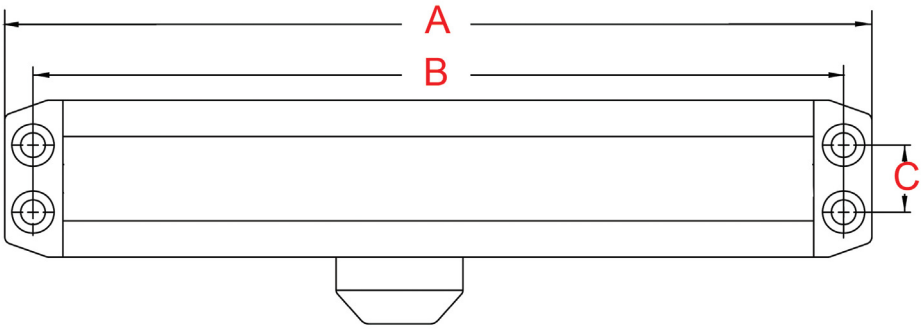


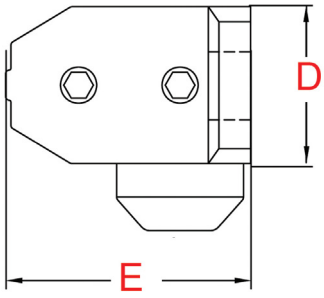
DP19



DCSEXNUTS

Product Dimensions





Length (A)
- 9.75″
- 248mm

Hole to Hole (B)
- 9.06″
- 230mm

Hole to Hole (C)
- 0.75″
- 19mm

Height (D)
- 1.77″
- 45mm

Depth (D)
- 2.75″
- 56mm

The Americans With Disabilities Act (ADA) states that doors should require opening force of no more than 5 lbs. (interior) or 8.5 lbs. (exterior). Some multi-size closers may be adjusted to meet this standard.

© 2017 IDN, Inc. All rights reserved.

Door Closers

DC6816 Series

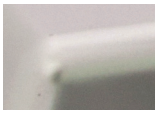
Overview

The DC6816BC is a heavy duty door closer designed for high traffic openings. The cast iron closer body and forged steel arms are designed to deliver years of service and it is well suited for the high traffic demands of institutional applications. This closer is recommended for use on interior and exterior doors. Typical applications include Schools, Office Buildings, Hospitals, Commercial Buildings, Hotels, and Restaurants.

Precision needle bearings and high quality oil deliver smooth operation at a wide range of temperatures. Adjustable Back Check (BC) enables you to set the openings, as well as the closing speed. The door opening force, which may be limited to meet accessibility codes, can be field adjusted from size 1 to 6.



Finishes



Aluminum
(AL)



Duro
(DU)

Standard Features

CERTIFICATIONS: BHMA/ANSI A156.4 Grade 1, UL listed for U.S. and Canada; UL 10C Fire-Rated, ADA compliant for barrier-free doors

SIZES: Adjustable Size 1-6

ADJUSTMENTS: Back Check (BC), Closing Speed and Latch Speed

FINISHES: Aluminum (AL), Duro/Dark Bronze (DU)

COVER: Full size cover, included

HANDING: Non-Handed

ARMS: Standard tri-pack for regular, top jamb, and parallel arm installations. Optional arms available.

MATERIALS: Cast iron body; heat treated rack & pinion; Forged Steel arms; all-temperature oil

DOOR SIZE: Up to 55" door width

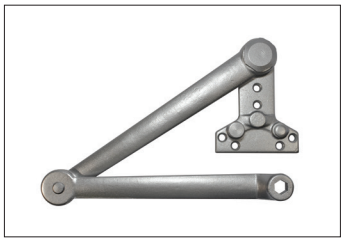
DOOR WEIGHT: 330 pounds

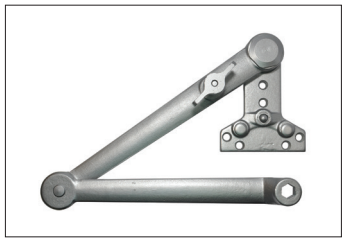
OPENING SWING: 180°

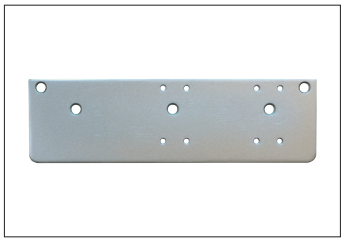
Door Closers: DC6816 Series

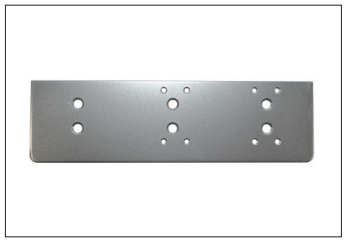
Parts & Accessories

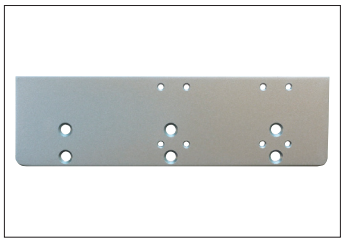
- ***DC6816CUARM:*** Cushion Stop Arm (AL & DU finish)
- ***DC6816HOARM:*** Hold Open Arm (AL & DU finish)
- ***DP18:*** Drop Plate, Standard (AL & DU finish)
- ***DP18TJ:*** Drop Plate, Top Jamb (AL & DU finish)
- ***DP18G:*** Drop Plate, Glass Door (AL & DU finish)
- ***DP18PA:*** Drop Plate, Parallel Arm (AL & DU finish)
- ***DP68COV:*** Replacement Cover (AL & DU finish)
- ***DCSEXNUTS:*** Replacement Sex Nuts, 4 Pack Nickel

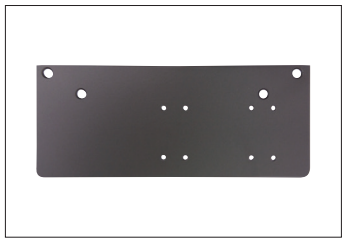

DC6816CUARM

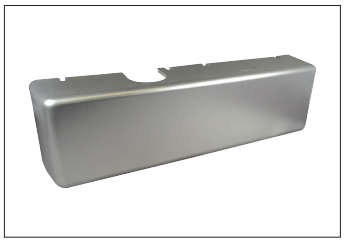

DC6816HOARM


DP18


DP18TJ

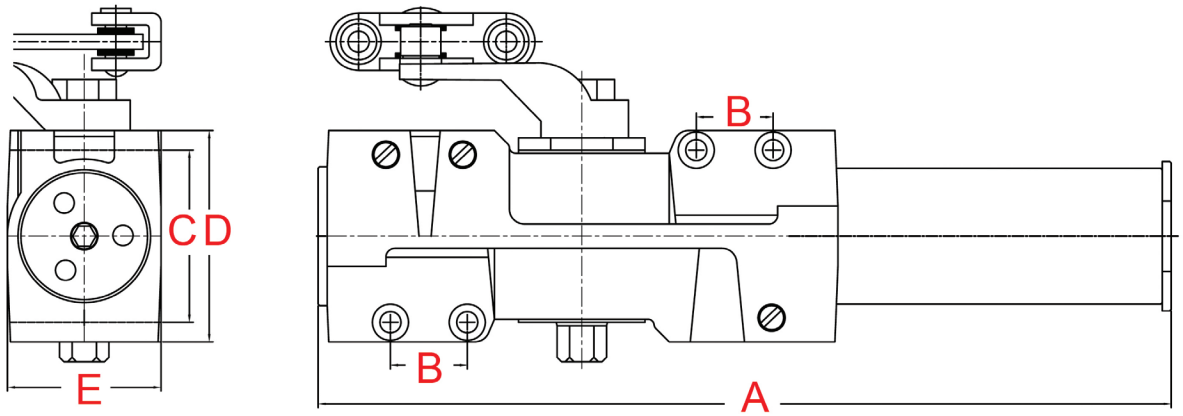

DP18G


DP18PA


DP68COV


DCSEXNUTS

Product Dimensions



Length (A)
- 11″
- 280mm

Hole to Hole (B)
- 1″
- 25.4mm

Height (C)
- 2.25″
- 57mm

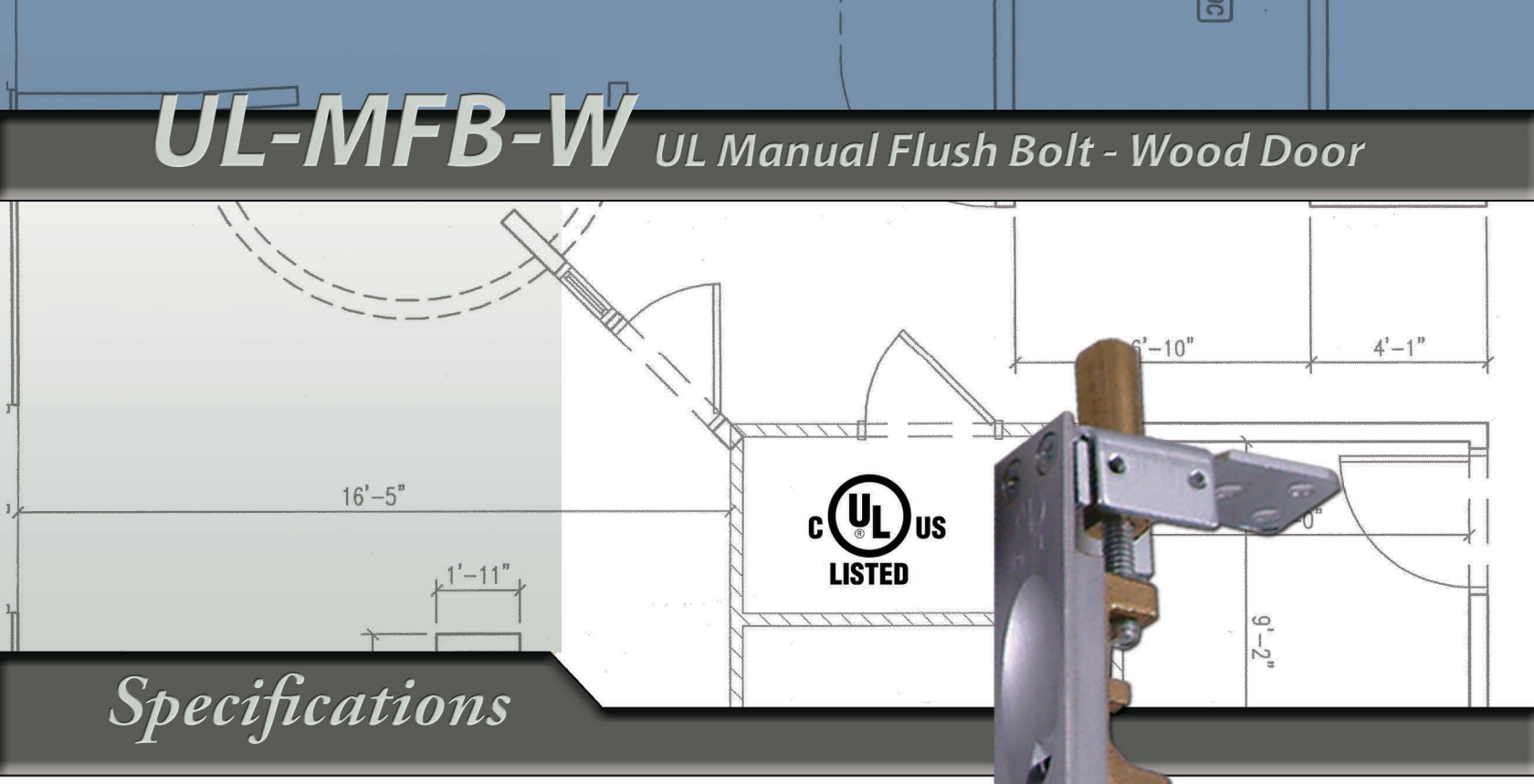
Height (D)
- 2.75″
- 70mm

Depth (E)
- 2″
- 51mm

The Americans With Disabilities Act (ADA) states that doors should require opening force of no more than 5 lbs. (interior) or 8.5 lbs. (exterior). Some multi-size closers may be adjusted to meet this standard.

© 2017 IDN, Inc. All rights reserved.

UL-MFB-W UL Manual Flush Bolt - Wood Door



Specifications



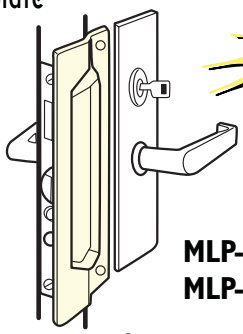
Part Number :	**UL-MFB-W UL Manual Flush Bolt - Wood Door**
ANSI :	**ANSI A156.16 : L04261**
UL Listing :	**UL Listed - 90 Minute Fire Doors**
	Up to 4'-0" x 10'-0"
Base Material :	**Cast brass**
Bolt :	**3/4" Bolt Throw**
Backset :	**3/4" Rod Backset**
Bolt Head :	**1 1/2" Adjustable Bolt Head**
Face Dimensions :	**1" x 6 3/4" Face Plate**
Strike :	**15/16" x 2 1/4" Strike**
Fasteners :	**7 ea. #8 x 3/4 Flat Head Combination Screws**
	4 ea. 8-32 x 1/2 Flat Head Machine Screws
	4 ea. #8 Counter Sunk Washer
Note :	**Use DPS-1 Dust Proof Strike to prevent the bottom strike from being blocked by dirt**

Design Hardware™

PH 877-258-1262 FX 877-888-0150
www.designhardware.net

DON-JO MFG., INC.

America's favorite for OUTSWINGING DOORS - completely covers the strike plate



Now Available in Stainless Steel

MLP-III
MLP-2II

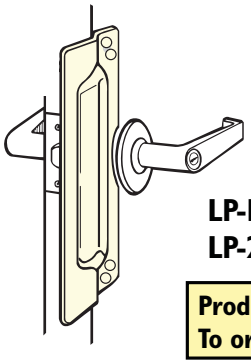
NUMBER	DIMENSIONS
MLP-111	3" x 11"
MLP-211	3" x 11"

SHELF PACK: 10 **Polybagged**

FINISHES: (MLP-111) **630** **12 (.104) Gauge Steel**
(MLP-211) **SL (Silver Coated), BP (Brass Plated), DU (Duro Coated)**

- **Furnished with carriage bolts, washers & acorn cap nuts for safety and strength**

America's favorite for OUTSWINGING DOORS - completely covers the strike plate



Now Available in Stainless Steel

LP-III
LP-2II

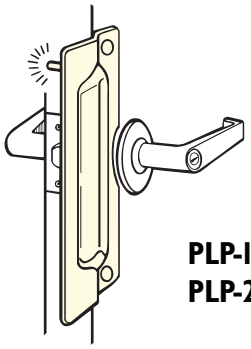
Product available polybagged
To order use 92II

NUMBER	DIMENSIONS
LP-111	3" x 11"
LP-211	3" x 11"
9211	3" x 11"

SHELF PACK: 10 **Display Package Size - 4" x 16"**
FINISHES: (LP-111) **630** (9211, LP-111) **Polybagged**
(LP-211) **BP (Brass Plated)** **12 (.104) Gauge Steel**
DU (Duro Coated)
PC (Prime Coated), SL (Silver Coated)

- **Furnished with carriage bolts, washers & acorn cap nuts for safety and strength**
- **Fits 2 3/4" and 2 3/8" backsets**

Pin Latch protectors for OUTSWINGING DOORS



Now Available in Stainless Steel

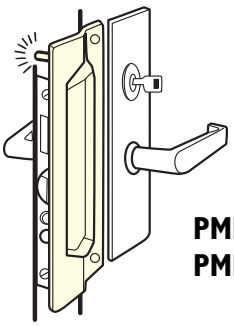
PLP-III
PLP-2II

NUMBER	DIMENSIONS
PLP-111	3" x 11"
PLP-211	3" x 11"

SHELF PACK: 10 **Polybagged**
FINISHES: (PLP-111) **630** **12 (.104) Gauge Steel**
(PLP-211) **626, BP (Brass Plated),**
DU (Duro Coated), SL (Silver Coated)

- **Solid steel pin prevents spreading of door from frame • Pin is welded on back leaving no visible point of attack from outside**
- **Fits 2 3/4" and 2 3/8" backsets**

Pin Latch protectors for OUTSWINGING DOORS



Now Available in Stainless Steel

PMLP-III
PMLP-2II

NUMBER	DIMENSIONS
PMLP-111	3" x 11"
PMLP-211	3" x 11"

SHELF PACK: 10 **Polybagged**
FINISHES: (PMLP-111) **630** **12 (.104) Gauge Steel**
(PMLP-211) **SL (Silver Coated),**
BP (Brass Plated), DU (Duro Coated)

- **Solid steel pin prevents spreading of door from frame • Pin is welded on back leaving no visible point of attack from outside**

© Don-Jo Mfg. 2003

DON-JO MFG., INC.

(http://www.don-jo.com)

A Complete Line of Architectural Hardware Accessories

Commercial Kick Plates 90



Product Specifications

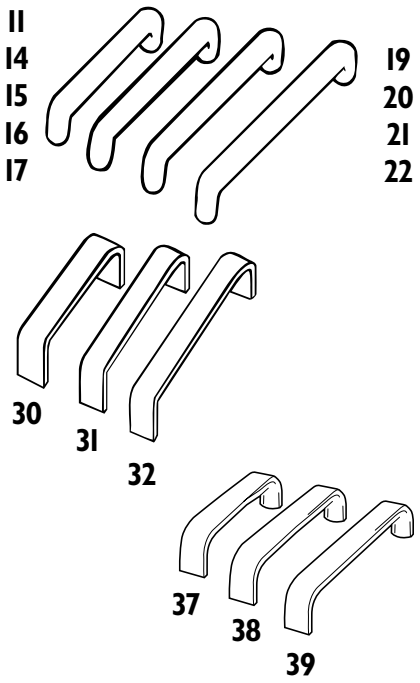
Number	90
Material	.050 Metal
Features	Furnished with grain running horizontally to door
Finishes	605, 606, 609, 612, 613, 619, 626, 628, 629, 630, 670, BT, DB, EN
Fastenerss	#6 x 5/8" SMS
Options	MAG - magnetic backing for metal doors, SM - double face tape (scotch mount), TEK - self drilling screws, CSK - countersunk holes, Torx - security torx screw,4BE - bevel 4 sides, WH - Warnock Hersey Listed for fired rated 3 hour doors
Competitor part	190S, 8400, K1050, KA050

P.O. Box 929 - Sterling, MA 01564-0929 - TEL: 978-422-3377 FAX: 978-422-3467
EMAIL: info@don-jo.com (mailto:info@don-jo.com) - http://www.don-jo.com (http://www.don-jo.com)

© 2017 Don-Jo Manufacturing, Inc.

DON-JO MFG., INC.

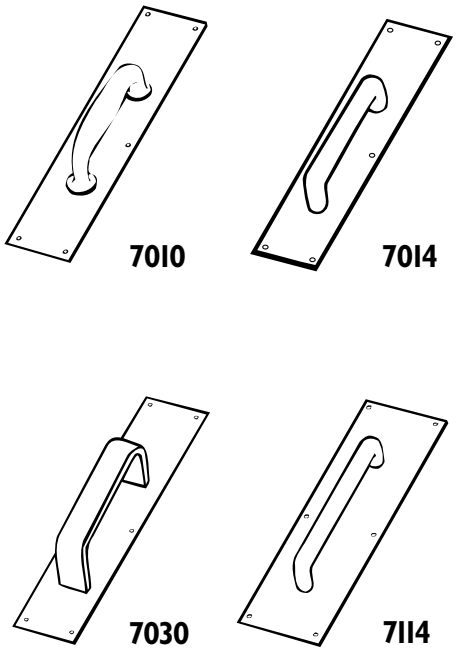
Round & Flat Door Pulls



NUMBER	CTC	DIAMETER	ANSI	DIMENSIONS
11	5 1/2"	5/8"	J401	6 1/8" x 2" x 1 3/8"
14	5 1/2"	3/4"	J401	6 1/4" x 2 1/4" x 1 1/2"
15	6"	3/4"	J401	6 3/4" x 2 1/4" x 1 1/2"
16	8"	3/4"	J401	8 3/4" x 2 1/4" x 1 1/2"
17	10"	3/4"	J401	10 3/4" x 2 1/4" x 1 1/2"
19	8"	1"	J401	9" x 3" x 2"
20	10"	1"	J401	11" x 3" x 2"
21	12"	1"	J401	13" x 3" x 2"
22	18"	1"	J401	19" x 3" x 2"
30	6"	3/8" x 1 1/4"	J401	6 3/8" x 2" x 1 5/8"
31	8"	3/8" x 1 1/4"	J401	8 3/4" x 2" x 1 5/8"
32	10"	3/8" x 1 1/4"	J401	10 3/8" x 2" x 1 5/8"
37	6"	1" Half Round	J401	6 1/2" x 2" x 1 1/2"
38	8"	1" Half Round	J401	8 1/2" x 2" x 1 1/2"
39	10"	1" Half Round	J401	10 1/2" x 2" x 1 1/2"

SHELF PACK: 1 • **Dimensions - Overall x Projection x Clearance**
FINISHES: (11, 14, 15, 16, 17, 19, 20, 21, 22) 605, 606, 612, 613, 628, 629, 630
(30, 31, 32, 37, 38, 39) 605, 613, 628, 630
- **For 2 1/2" clearance add prefix "H" – N/A on models 30 - 39**
- **Made from solid bar stock**

Pull Plates



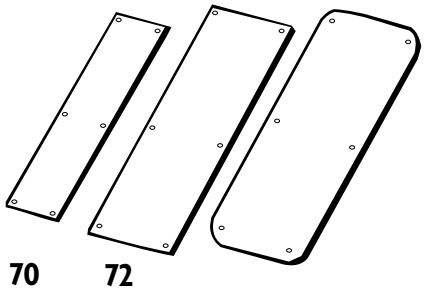
NUMBER	CTC	PULL	ANSI	DIMENSIONS
7010*	5 1/2"	6 5/8"x1 3/4"x1 15/16"	J405	3 1/2" x 15"
7011	5 1/2"	5/8"	J405	3 1/2" x 15"
7014	5 1/2"	3/4"	J405	3 1/2" x 15"
7015	6"	3/4"	J405	3 1/2" x 15"
7016	8"	3/4"	J405	3 1/2" x 15"
7030	6"	3/8" x 1 1/4"	J405	3 1/2" x 15"
7031	8"	3/8" x 1 1/4"	J405	3 1/2" x 15"
7110*	5 1/2"	6 5/8"x1 3/4"x1 15/16"	J405	4" x 16"
7111	5 1/2"	5/8"	J405	4" x 16"
7114	5 1/2"	3/4"	J405	4" x 16"
7115	6"	3/4"	J405	4" x 16"
7116	8"	3/4"	J405	4" x 16"
7130	6"	3/8" x 1 1/4"	J405	4" x 16"
7131	8"	3/8" x 1 1/4"	J405	4" x 16"
7210*	5 1/2"	6 5/8"x1 3/4"x1 15/16"	J405	6" x 16"
7310*	5 1/2"	6 5/8"x1 3/4"x1 15/16"	J405	8" x 16"

SHELF PACK: 1
FINISHES: 605, 606, 612, 613, 628, 629, 630, *not available in 606
- **For 2 1/2" clearance add prefix "H" (not available on all models)**
- **First two digits indicate plate size, second two digits indicate pull style**
- **Other sizes and combinations available. Contact factory**

© Don-Jo Mfg. 2003

DON-JO MFG., INC.

Push Plates

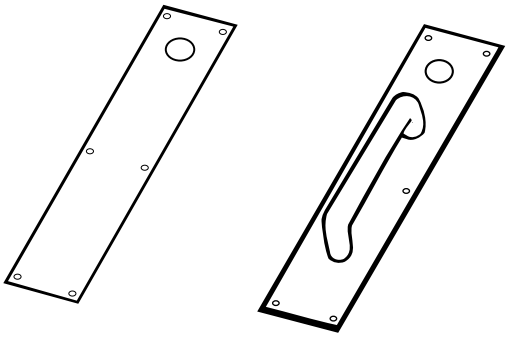


70 72
71 73 72RC

NUMBER	ANSI	DIMENSIONS
70	J301	3 1/2" x 15"
71	J301	4" x 16"
72	J301	6" x 16"
73	J301	8" x 16"

SHELF PACK: 10
FINISHES: 605, 606, 609, 612, 613, 619, 620, 626, 628, 629, 630
- **Beveled edges, adhesive mounting, rounded corners, cylinder cut-outs are available**
- **Other finishes include clear plastic and Kydex stock colors**

Push Plates & Pull Plates WITH HOLES



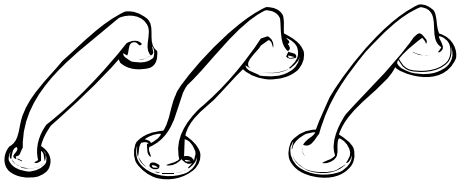
NUMBER	PULL	DIMENSIONS
*70	–	3 1/2" x 15"
*71	–	4" x 16"
*7015	15	3 1/2" x 15"
*7115	15	4" x 16"

SHELF PACK: (70, 71) **10** **Box Packaged**
(7015, 7115) **1**
FINISHES: 605, 606, 612, 613, 628, 629, 630

***HOLE SIZE: CFC 1 1/4" - CFD 1 1/2" - CFK 2 1/8" - CFL 2 1/8"**
with lever prep

How to Order: Hole Size, Number, Finish
e.g.: CFC70 - 605

Cast Door Pulls

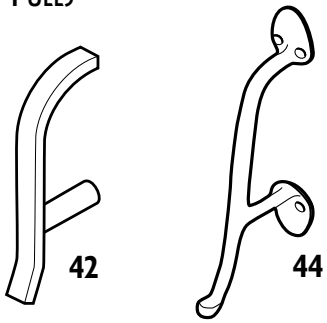


10 35 36

NUMBER	CTC	DIMENSIONS	ANSI
10	5 1/2"	6 5/8" x 1 3/4" x 1 5/16"	J401
35	5 1/2"	7 1/2" x 2" x 1 1/2"	J401
36	5 1/2"	7 1/2" x 2" x 1 1/2"	J401

SHELF PACK: 1 • **Dimensions - Overall x Projection x Clearance**
FINISHES: (10) **605, 612, 613, 628, 630**
(35, 36) **605, 613, 625, 626**

Hospital Pulls

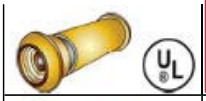
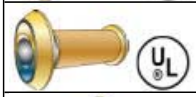
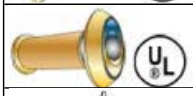
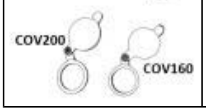


42 44

NUMBER	CTC	DIMENSIONS	ANSI
42	5"	6 1/2"	J401
44	6"	9 1/4"	J401

SHELF PACK: 1
FINISHES: (42) **605, 613, 626, 630**
(44) **605, 613, 630**

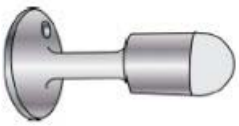
© Don-Jo Mfg. 2003

	ULDV160	US3,26,26D US10B,10A,15	Bore Glass Lens For Doors 1 3/8" To 2" Thick	25	1000
	ULDV200	US3,26,26D US10B,10A,15	**UL Listed** Door Viewer, 200° 9/16" Bore Glass Lens For Doors 1 3/8" To 2" Thick	25	500
	10ULDV201	US3,10B,26D US15	**UL Listed** Door Viewer, 200° 9/16" Bore Glass Lens For Doors 1" To 1 3/8" Thick	25	500
	COV160	US3, 10B, US15, 26D	½" Door Viewer Cover. To Be Used With DV90, DV91, ULDV160 Door Viewers	10	EA.
	COV200	US3, 10B, US15, 26D	½" Door Viewer Cover. To Be Used With DV180, ULDV200, ULDV201 Door Viewers	10	EA.

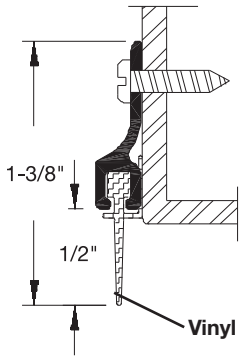
Copyright © Cal-Royal Products, Inc. All rights reserved.
Virtualtech Website Design and Promotion, Inc.



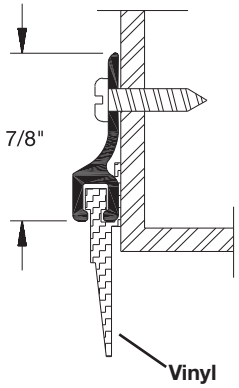
Solid Brass Door Stops

IMAGE	ITEM #	FINISH	DESCRIPTION	PCS / INNER BOX	PCS / MASTER CARTON
	WB26	US32D 3,10B,26 US10,4,5,15A	Stainless Steel Concave Wall Stop, Size: 2 1/2" Diameter, Projection: 1 3/16", Toggler & RP Solid Brass Concave Wall Stop, Size: 2 1/2" Diameter, Projection: 1 3/16", Toggler & RP	50	300
	CONWB42	US32D US3,10B,26 US10,4,5,15A	Stainless Steel Convex Wall Stop, Size: 2 1/2" Diameter, Projection: 1 3/16", Toggler & RP Solid Brass Convex Wall Stop, Size: 2 1/2" Diameter, Projection: 1 3/16", Toggler & RP	50	300
	SWB	US26D,10B,3 US26,4,15,5A	Solid Brass Wall Convex Stop, 1" Diameter 1/2" Projection, Concealed Mounting. Comparable To IVES #404	50	500
	HDWDS99	US3,26D,10B	Heavy Duty Commercial Grade Wall Door Stop For High Traffic Conditions. Solid Cast Brass Or Bronze Heavy Duty Construction. Includes Mounting Hardware For All Wall Construction Applications. Overall Projection Of Unit Is 3 5/8", Base Diameter 2 1/4" ANSI: A156.16, BHMA, L11351, FED SPEC: 1321E	10	50
	HDFDSH66	US3,26D,10B	Heavy Duty Commercial Grade Floor Door Stop For High Traffic Conditions. Solid Cast Brass Or Bronze Heavy Duty Construction. Includes Mounting Hardware For All Floor Construction Applications. Overall Projection Of Unit Is 3 5/8", Base Diameter 2 1/4" ANSI: A156.16, BHMA, L11371, FED SPEC: 1329E	10	50
	CWS-18	US3,26D US10B	Commercial Grade Wall Door Stop For High Traffic Condition. Solid Cast Brass Or Bronze Heavy Duty Construction. Includes Mounting Hardware For All Wall Construction Applications. Overall Projection Of Unit Is 3 5/8", Base Diameter 2 1/4". ANSI: 156.16, BHMA: L12021, FED SPEC: 1302E	10	50
	CFS-20	US3,26D US10B	Commercial Grade Floor Door Stop For High Traffic Condition. Solid Cast Brass Or Bronze Heavy Duty Construction. Includes Mounting Hardware For All Floor Construction Applications. Overall Height Of	10	50

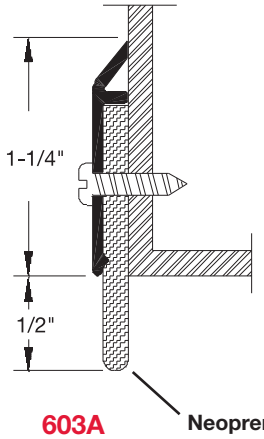
M15A
M15C
M15D
M15G



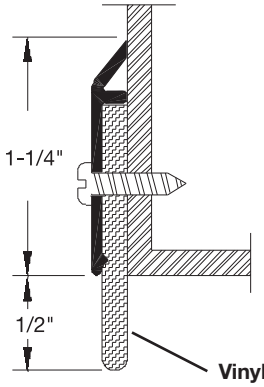
M35A
M35C
M35D
M35G



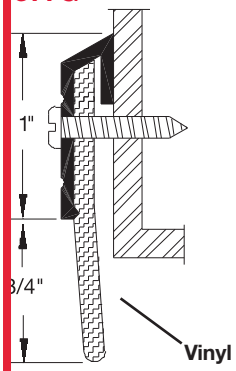
323A
323B
323C
323D
323G
323SS



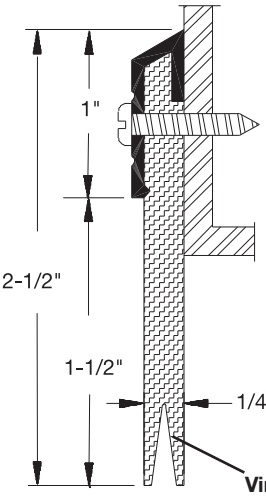
362A
362B
362C
362D
362G



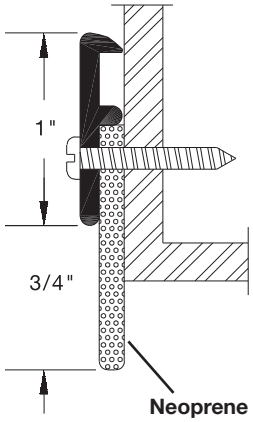
377C
377D
377G



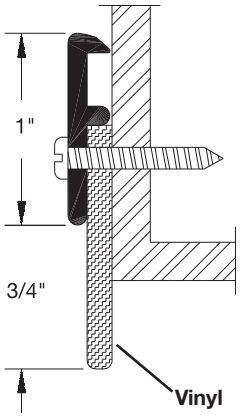
DB469C
DB469D
DB469G



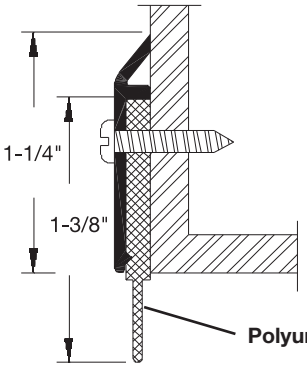
602A
602C
602D
602G



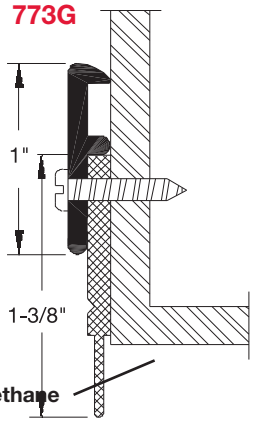
603A
603C
603D
603G



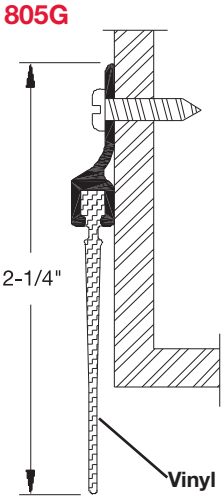
772A
772B
772C
772D
772G



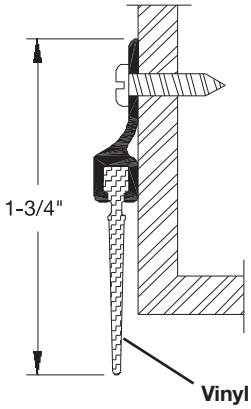
773A
773C
773D
773G



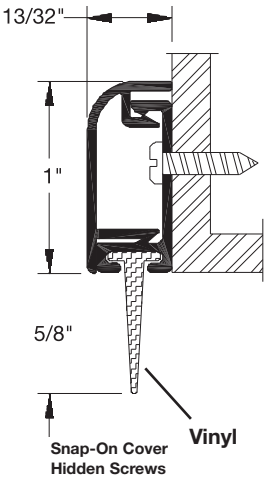
805A
805C
805D
805G



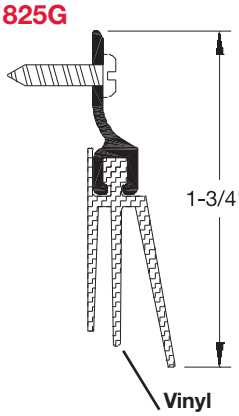
806A
806C
806D
806G



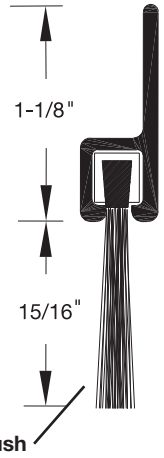
810C
810D
810G



825A
825C
825D
825G



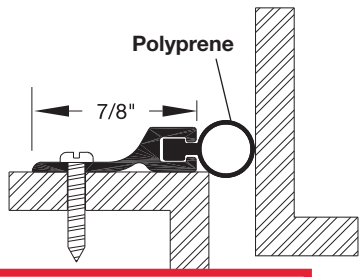
967C
967D



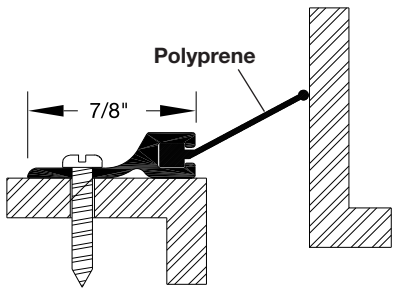
Polyprene

Polyprene®, a thermoplastic compound rubber, is a series of high-performance elastomers which combine the desirable characteristics of vulcanized rubber, such as flexibility and low compression set with the processing ease of thermoplastics.

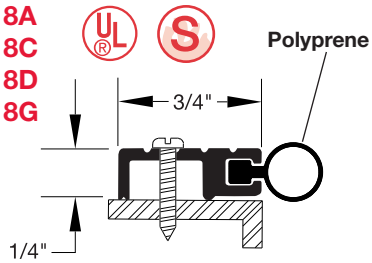
815A 815C 815D 815G



817A 817C 817D 817G

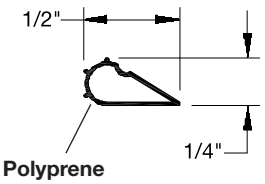


818A 818C 818D 818G

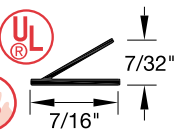


797W White
797B Black

Note: 797 and 798 available in 17', 19', 21', 25' and 500' rolls.



798B Black

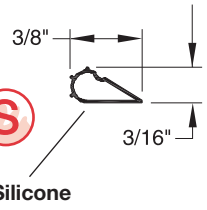


- **Withstands a wide variety of temperature extremes: remains stable and keeps its shape from -76°F to 250°F.**
- **Has soft, good low temperature flexibility.**
- **More wear resistant than silicone rubber.**
- **Low compression set – outstanding memory for consistent long-term sealing pressure.**
- **Unaffected by sunlight, ozone and ultraviolet rays.**
- **Fatigue resistance – unsurpassed flex fatigue resistance.**

Silicone

Silicone rubbers are synthetic polymers with unusual molecular structures; giant backbones of alternating silicon and oxygen atoms. This linkage is similar to that found in quartz, thus silicones have superior heat resistance compared to other elastomers.

638CH

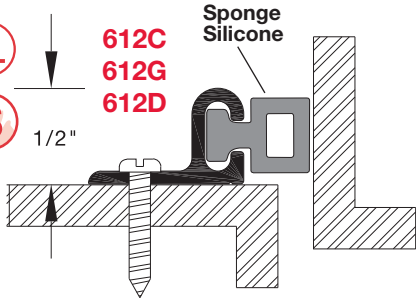


Charcoal color available in 17', 19', 21' and 25' rolls.

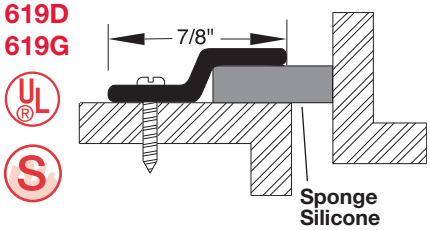
Note: All self-adhesive weatherstrips must be applied on clean, dry frames between +50°F and +100°F. Smoke seals have a pre-installation shelf life of 6 to 9 months.

- **Withstands a wide variety of temperature extremes and remains flexible from -75°F to 400°F.**
- **Retains softness indefinitely – will not deteriorate under normal exposure.**
- **Resists compression set – lower than thermal plastic elastomers.**
- **Resists fungus, mildew, moisture and steam.**
- **Unaffected by sunlight, ozone and ultraviolet rays.**
- **Nontoxic.**

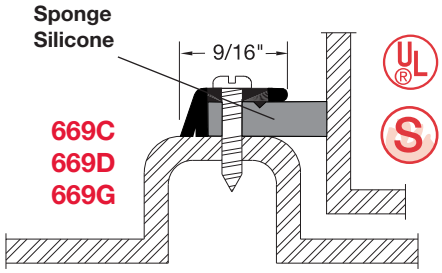
612C 612G 612D



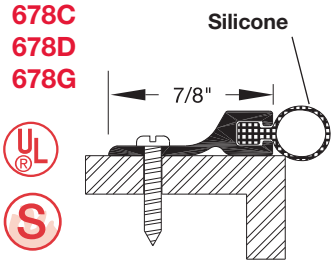
619C 619D 619G



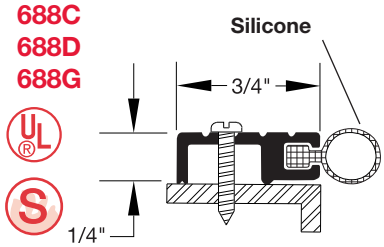
669C 669D 669G



678A 678C 678D 678G



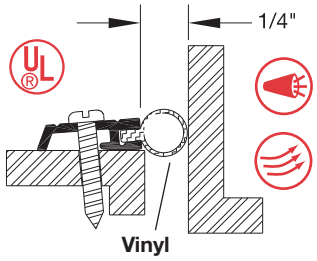
688A 688C 688D 688G



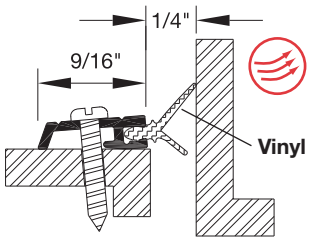
Vinyl and Pile Weatherstrips

Time tested performance. All vinyl weatherstrips are extruded from "cold weather" vinyl, which remains flexible down to -30°F.

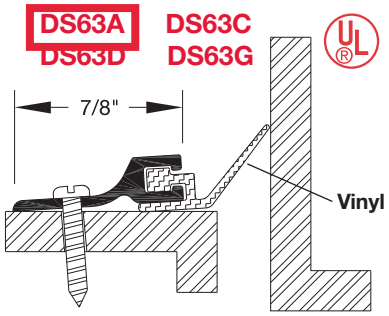
DS75A DS75C DS75D DS75G



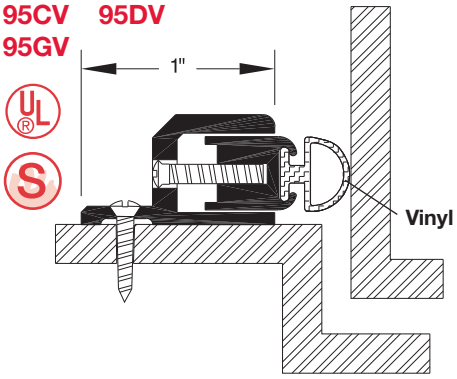
DS62A DS62C DS62D DS62G



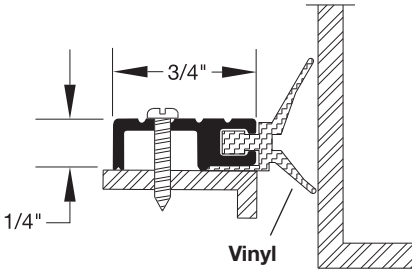
DS63A DS63C DS63D DS63G



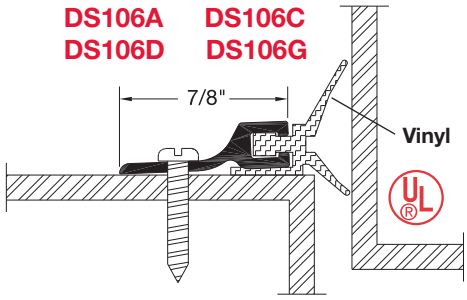
95CV 95DV 95GV



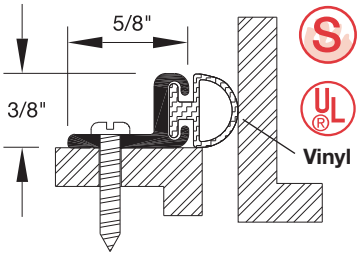
863A 863C 863D 863G



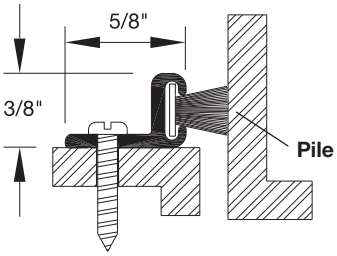
DS106A DS106C DS106D DS106G



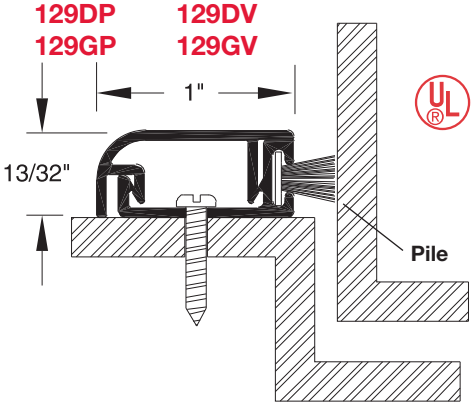
128CV 128DV 128GV



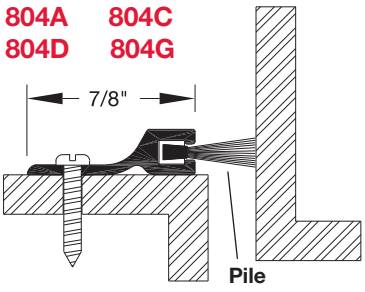
128CP 128DP 128GP



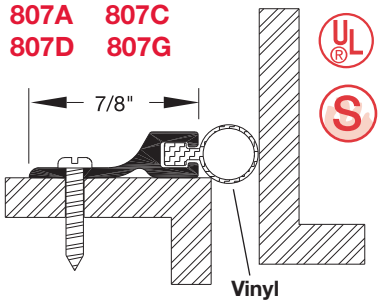
129CP 129CV 129DP 129DV 129GP 129GV



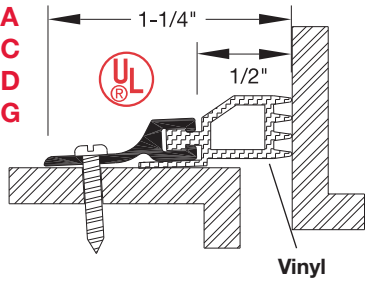
804A 804C 804D 804G



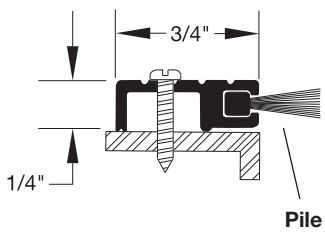
807A 807C 807D 807G



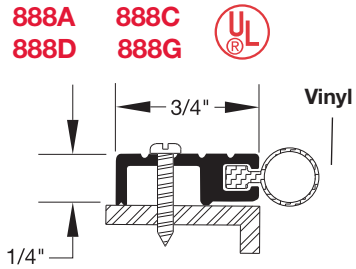
822A 822C 822D 822G



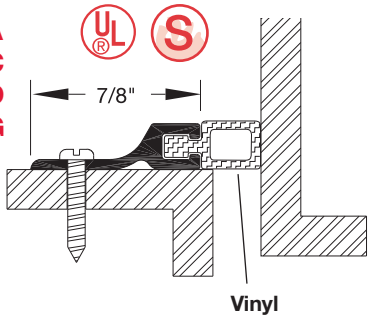
884A 884C 884D 884G



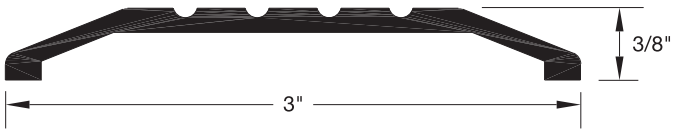
888A 888C 888D 888G



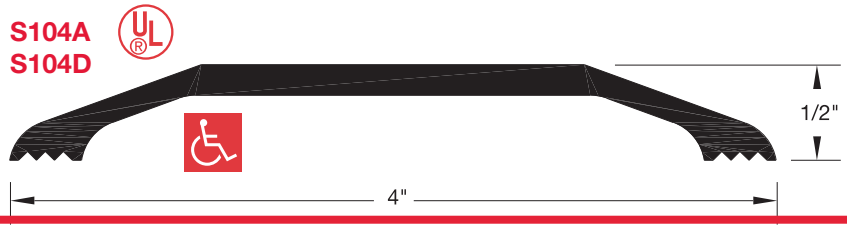
809A 809C 809D 809G



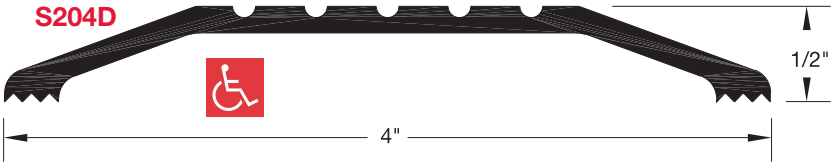
S211A
S211D



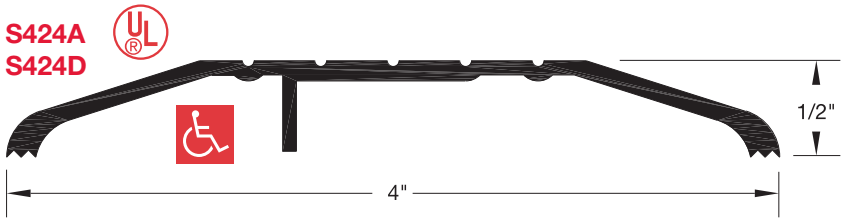
S104A
S104D



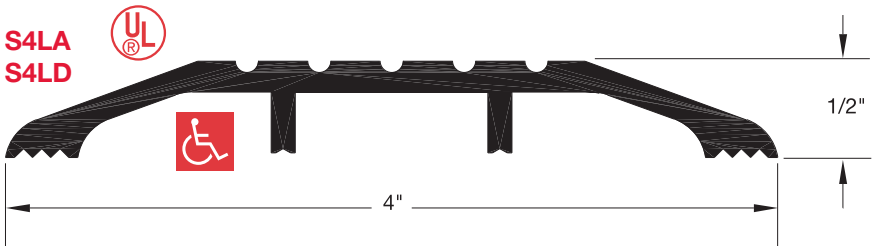
S204A
~~**S204B**~~
S204D



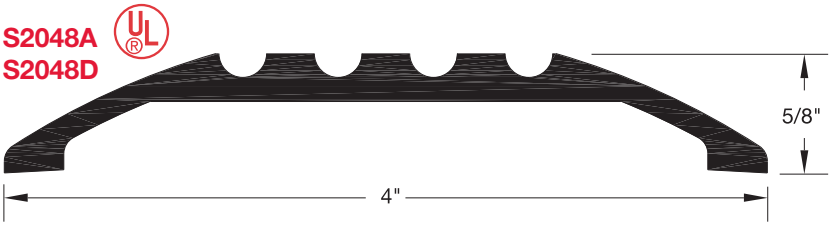
S424A
S424D



S4LA
S4LD



S2048A
S2048D



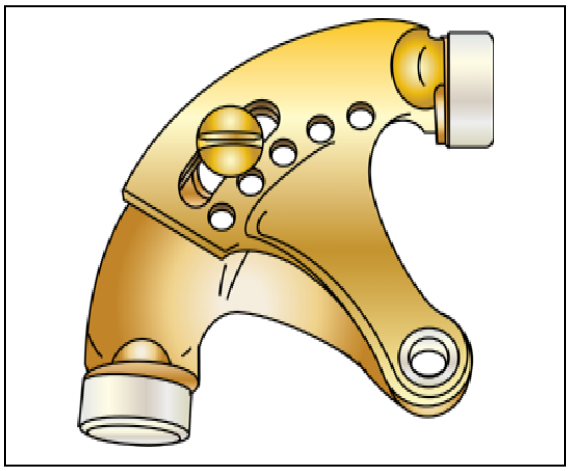
Finish Designations:

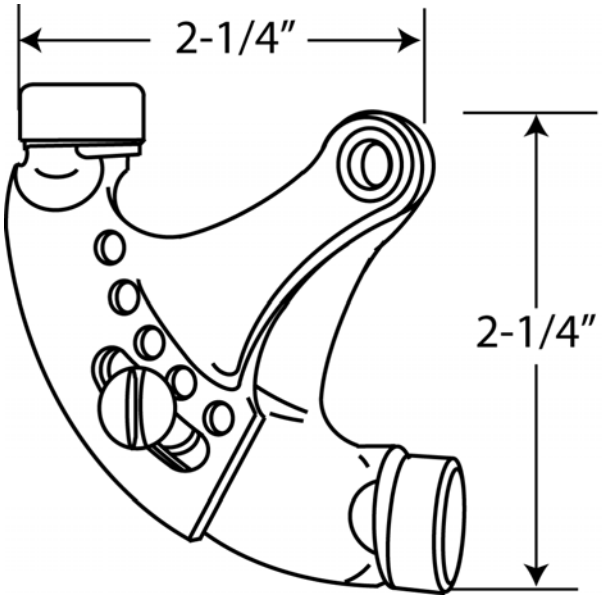
- **A** Aluminum mill finish
- **B** Architectural bronze (brass)
- **D** Dark bronze anodized aluminum

IVHP23

Jumbo Heavy Duty Hinge Pin Door Stop with Removable Bushing

- Adjustable Angle Setting
- For commercial and residential grade hinges
- 1/4″ or 5/16″ diameter hinge pins (4 -1/2″ x 4 -1/2″, 4″ x 4″ and 3 -1/2″ x 3 -1/2″ hinge sizes)
- Easy installation
  1. Plastic bushing can be removed for use in commercial grade hinges
  2. Use plastic bushing for use with residential hinges
- Individually poly-bagged
- Comparable to IVES #69, 69F
- Architectural finishes available





Cal-Royal Products, Inc.
6605 Flotilla St., City of Commerce, CA 90040 U.S.A.
Phone: (323) 888-6601 • (800) 876-9258 • Fax: (323) 888-6699 • (800) 222-3316
Email: sales@cal-royal.com • Website:www.cal-royal.com

VERSION DATE AUG-01 2009
CAL-ROYAL PRODUCTS INC

The illustration and technical description in this Specification Sheet is current as of the date in the version box above. Cal-Royal Product reserves the right to, and may frequently make changes and/or improvements in designs and dimensions.

Y CABINETS

30 KEY CABINETS



KEYED



COMBINATION

65 KEY CABINET





DIGITAL

trol access to loaned keys.

eavy duty 22-gauge welded-steel cabinet.

cludes "Out key" tags to identify who has keys.

umbered tag key holders easily identify keys.

DEL O.	KEYS	LOCK STYLE	DIMENSIONS W x D x H	PRICE EACH 1	3+
447	30	Keyed	8 x 3 x 12"	$53	$50
448	60		13 x 3 x 17"	84	79
2063	120		13 x 3 x 17"	126	119
165	240	Keyed	17 x 5 x 20"	210	199
329	330		17 x 5 x 20"	239	226
645	500		18 x 6 x 25"	359	340

LOCKS

Keyed – Reliable security.

Combination – No keys to lose.

Digital – Programmable for added security.

Additional Tags and information, see u

MODEL NO.	KEYS	LOCK STYLE	DIMENSIONS W x D x H	PRICE EAC 1	
H-5646	30	Combination	8 x 3 x 12"	$129	
H-2931	65		13 x 3 x 17"	160	
H-6264	120		13 x 3 x 17"	199	
H-2932	65	Digital	13 x 3 x 17"	289	
H-4734	95		17 x 5 x 20"	325	
H-6265	120		13 x 3 x 17"	345	
S-11934	Blank Replacement Tags – Pkg. of 20			8.90	

KNOX®
Serving First Responders Since 1975

Knox-Box® 3200 Series
HINGED DOOR MODEL

High Security Industrial/Government Key Box

Recessed Mount
with Face Flange



Surface Mount



The number one high-security KNOX-BOX® is used for most commercial applications including businesses, schools, government and public buildings, community associations and apartment complexes. The 3200 Series KNOX-BOX holds keys, access cards and other small items necessary for emergency access.

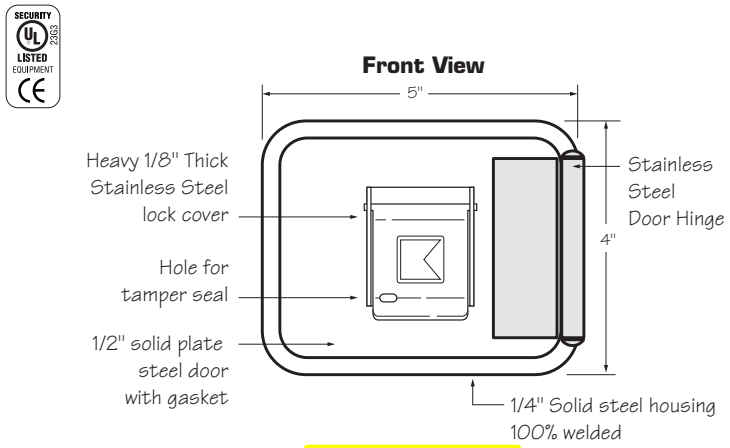
The hinged-door 3200 Series KNOX-BOX is more convenient than the lift-off door version because it allows single-handed operation and opened or closed, it's all one unit.

Features and Benefits

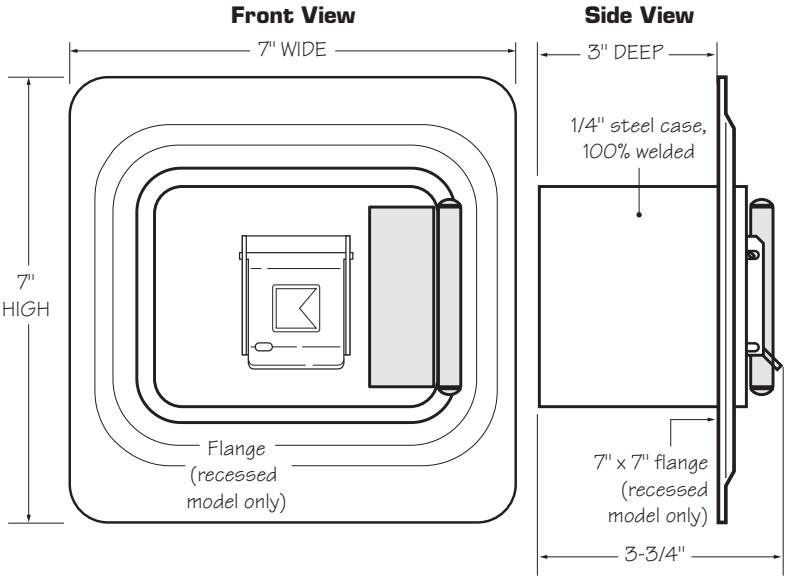
- Holds up to 10 keys and access cards in interior compartment
- Ensures high security. Box and lock are UL® Listed
- Includes a Knox-Coat® proprietary finishing process that protects Knox products up to four times better than standard powder coat
- Resists moist conditions with a weather resistant door gasket
- Hinged door allows single-handed operation
- Colors: Black, Dark Bronze or Aluminum
  Weight: Surface mount - 8 lbs.
  Recessed mount - 9 lbs.

Options

- Alarm tamper switches (UL Listed)
- Recessed Mounting Kit (RMK) for recessed models only
- Inside switch for use on electrical doors, gates and other electrical equipment



3200 Surface Mount



3200 Recessed Mount

Ordering Specifications

To insure procurement and delivery of the 3200 Series KNOX-BOX, it is suggested that the following specification paragraph be used:

KNOX-BOX surface/recessed mount with hinged door, with/without UL Listed tamper switches. 1/4" plate steel housing, 1/2" thick steel door with interior gasket seal and stainless steel door hinge. Box and lock UL Listed. Lock has 1/8" thick stainless steel dust cover with tamper seal mounting capability.

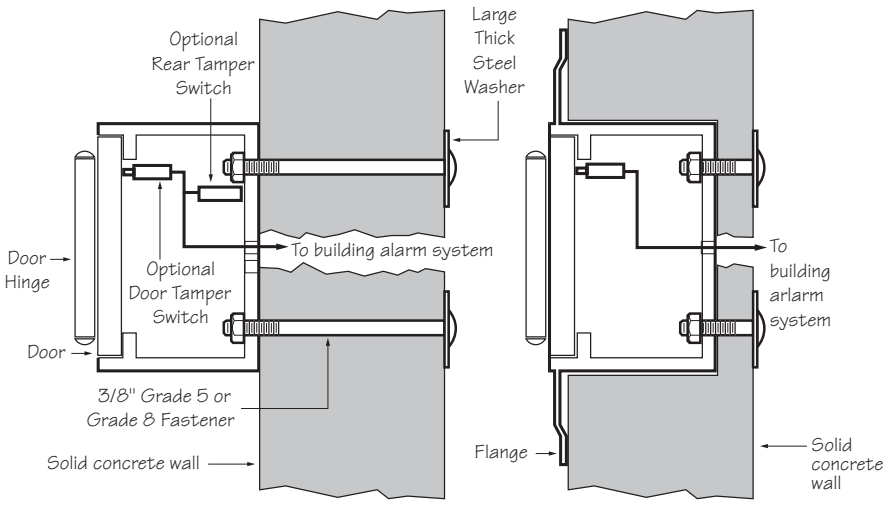
Exterior Dimensions:	Surface mount body- 4"H x 5"W x 3-3/4"D Recessed mount flange- 7"H x 7"W
Lock:	UL Listed. Double-action rotating tumblers and hardened steel pins accessed by a biased cut key.
Finish:	Knox-Coat® proprietary finishing process
Colors:	Black, Dark Bronze or Aluminum
P/N:	3200 Series KNOX-BOX (mfr's cat. ID)
Mfr's Name:	**KNOX COMPANY**

KNOX COMPANY • 1601 W. Deer Valley Road, Phoenix, AZ 85027 • (800) 552-5669 • (623) 687-2300 • Fax (623) 687-2299 • Web: www.knoxbox.com • E-mail: info@knoxbox.com

KNOX®
Serving First Responders Since 1975

Knox-Box® 3200 Series
HINGED DOOR MODEL - MOUNTING DIAGRAM

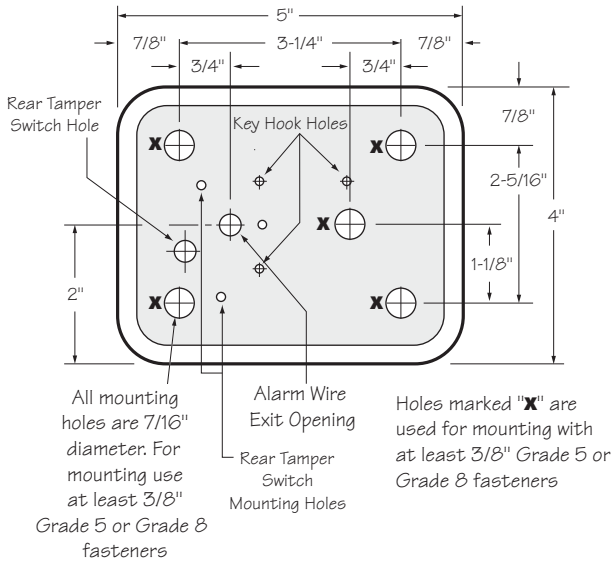
Suggested minimum mounting height
6 feet above ground



3200 Series Hinged Door Surface Mount

3200 Series Hinged Door Recess Mount

Inside View



Attention: KNOX-BOX® is a very strong device that MUST be mounted properly to ensure maximum security and resist physical attack.

Knox® Rapid Entry System
The Knox Company manufactures a complete line of high security products including Knox-Box key boxes, key vaults, cabinets, key switches, padlocks, locking FDC caps, plugs and electronic master key security systems. For more information or technical assistance, please call Customer Service at 1-800-552-5669.

Recessed Mounting Kit

The 3200 Recessed Mounting Kit (RMK) is used for recessed models only. It contains a shell housing and mounting hardware to be cast-in-place in new concrete or masonry construction. After construction is completed, the KNOX-BOX mounts inside the RMK. The RMK may only be used in new concrete or masonry construction.

Installation In Cast Concrete

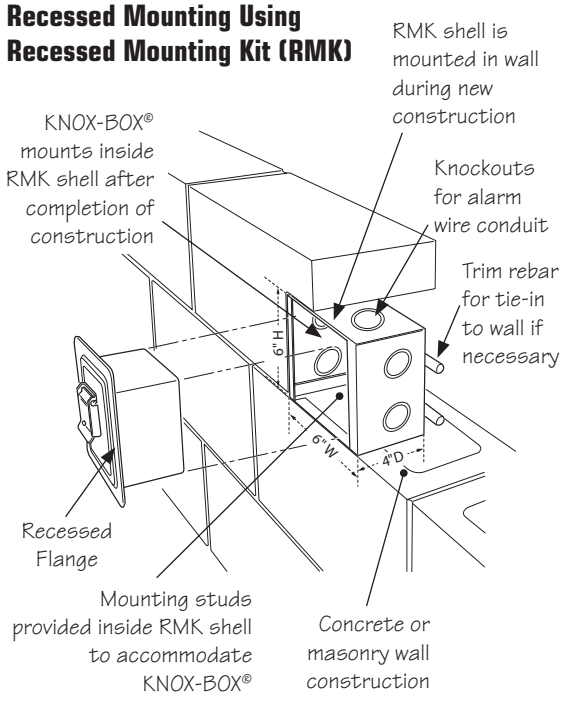
The optional Recessed Mounting Kit is for use in new concrete or masonry construction only. The kit includes a shell housing and mounting hardware to be cast-in-place. The KNOX-BOX is mounted into the shell housing after construction is completed.

Dimensions

Rough-in Dimensions: 6-1/2"H x 6-1/2"W x 5"D

IMPORTANT: Care should be taken to insure that the front of the RMK shell housing, including the cover plate and screw heads, is flush with the finish wall. The RMK must be plumbed to insure vertical alignment of the vault.

Recessed Mounting Using Recessed Mounting Kit (RMK)



KNOX COMPANY • 1601 W. Deer Valley Road, Phoenix, AZ 85027 • (800) 552-5669 • (623) 687-2300 • Fax (623) 687-2299 • Web: www.knoxbox.com • E-mail: info@knoxbox.com

© Copyright 2012. Knox Company

Scanlon, Amy

From: Dan Yoder <dan@makesignsnotwar.com>
Sent: Wednesday, September 19, 2018 8:15 AM
To: Scott Pulver; Scanlon, Amy
Cc: Cooper, Bryan
Subject: RE: Pinney signage

Good Morning All!

I will do my best to answer/confirm some of the below.

1) The font used is what we were directed to use. I'd have to dig in deeper to find the font name but I know I had to purchase it…it should be the right one!
2) The proposed wall sign on the North elevation is in fact compliant. You will notice the letter height got reduced to 2'. This still provides ample viewing distances.
3) I will recommend an alternate option to bring fourth in lieu of the proposed 30" tall ground MPL sign type and that will be a code compliant wall sign to match the North Elevation sign. That way, if the proposed ground sign fails, we can leave with an approval at least. From there we can decide if we want to try again…if not we just run with the MPL wall version.
4) My recommendation would be to keep the proposed MPL ground sign to single sided for durability sake. The downtown branch's back side of the sign is pretty well protected so that helps keep people from messing with it. This one does not afford that same safety factor. Thoughts on this?

Hope that helps and please let me know your thoughts.

Thanks
-Dan

My email address has changed to dan@makesignsnotwar.com

Dan Yoder
Owner
www.makesignsnotwar.com
www.facebook.com/signartstudio
325 W Front St.
Mount Horeb, WI 53572
P:608-437-2320

SIGN ART STUDIO

From: Scott Pulver <scottp@ruedebusch.com>
Sent: Wednesday, September 19, 2018 7:52 AM
To: Scanlon, Amy <AScanlon@cityofmadison.com>; Dan Yoder <dan@makesignsnotwar.com>
Cc: Cooper, Bryan <BCooper@cityofmadison.com>

Subject: RE: Pinney signage
Importance: High

Copying Dan in.

Dan – Please see email traffic below and respond.

Thanks,
Scott

Scott A. Pulver
Construction Project Manager
Ruedebusch Development & Construction, Inc.
4605 Dovetail Drive
Madison, WI 53704
P 608.249.2012 x 231
M 608.228.1807
www.ruedebusch.com

Go Green! Please do not print this e-mail unless necessary.

CONFIDENTIALITY NOTICE: The content of this message and any files transmitted with it is a confidential and proprietary business communication, which is solely for the use of the intended recipient(s). Any use, distribution, duplication or disclosure by any other person or entity is strictly prohibited. If you are not an intended recipient or this has been received in error, please notify the sender and immediately delete all copies of this communication.

From: Scanlon, Amy [mailto:AScanlon@cityofmadison.com]
Sent: Wednesday, September 19, 2018 7:49 AM
To: Scott Pulver <scottp@ruedebusch.com>
Cc: Cooper, Bryan <BCooper@cityofmadison.com>
Subject: FW: Pinney signage

Hi Scott,
Do you mind if I reach out to Dan Yoder to get information about the MPL signs to respond to the email below?
Amy

From: Mickells, Gregory
Sent: Tuesday, September 18, 2018 6:17 PM
To: Scanlon, Amy <AScanlon@cityofmadison.com>; Lawton, Sarah <SLawton@madisonpubliclibrary.org>; Benno, Mark <MBenno@madisonpubliclibrary.org>; Wick, Kristin <KWick@madisonpubliclibrary.org>; Elias, Tana <TElias@madisonpubliclibrary.org>; Collins, Jennifer <jcollins@mplfoundation.org>

Cc: 'Ryan Frank' <rfrank@opnarchitects.com>; Cooper, Bryan <BCooper@cityofmadison.com>; 'Scott Pulver' <scottp@ruedebusch.com>
Subject: Re: Pinney signage

Amy, I'm assuming that the dimensions for the Library signs are in our official font, and if so the signs are in the locations and dimensions that were discussed. The note says that the Northside West wing is in compliance. Is the 30" ground sign on the Southside West wing going to pass review? I know we discussed that anything smaller would not work. If the Library signs pass as illustrated we are OK with the drawings.

Thank you,

Greg

From: Scanlon, Amy
Sent: Tuesday, September 18, 2018 9:35 AM
To: Mickells, Gregory; Lawton, Sarah; Benno, Mark; Wick, Kristin; Elias, Tana; Collins, Jennifer
Cc: 'Ryan Frank'; Cooper, Bryan; 'Scott Pulver'
Subject: Pinney signage

Attached please find the proposed Pinney Library signs as discussed at the meeting on August 14, 2018. Please provide me with comments and/or concerns by the end of the day today so that Sign Art can move forward with submitting for City approvals.

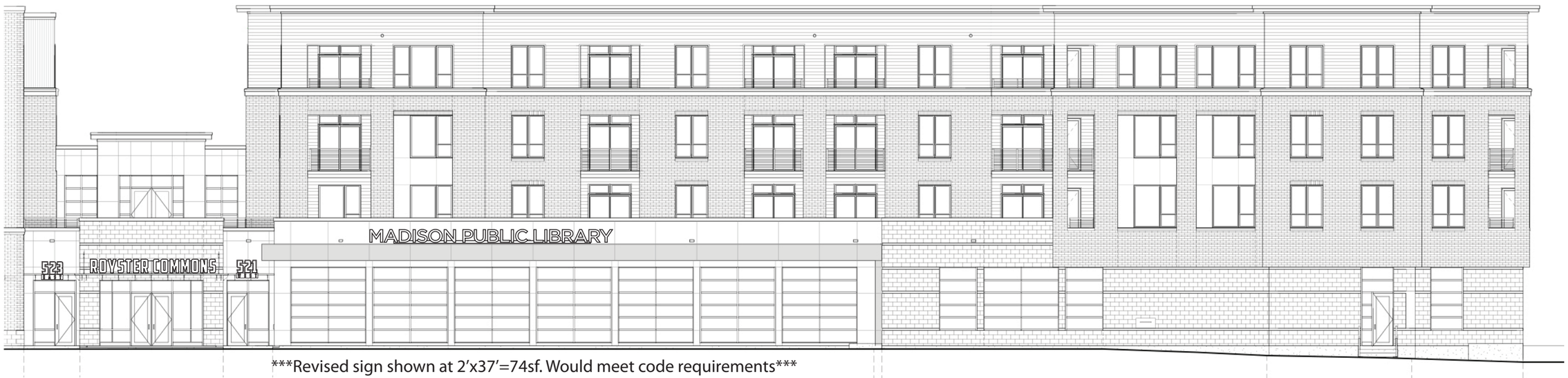
Thank you!

Amy Loewenstein Scanlon, Registered Architect
Department of Public Works
Engineering Division
City County Building, Room 115
210 Martin Luther King, Jr. Blvd.
Madison WI 53703-3342
ascanlon@cityofmadison.com
608 267 0743

DATE: 09/17/2018 PROJECT: ROYSTER CROSSING ADDRESS: GRAND OAK TRAIL



2 A-2.1W West Wing - South 1/8" = 1'-0"



Revised sign shown at 2'x37'=74sf. Would meet code requirements

1 A-2.1W West Wing - North 1/8" = 1'-0"

SIGN ART STUDIO

makesignsnotwar.com

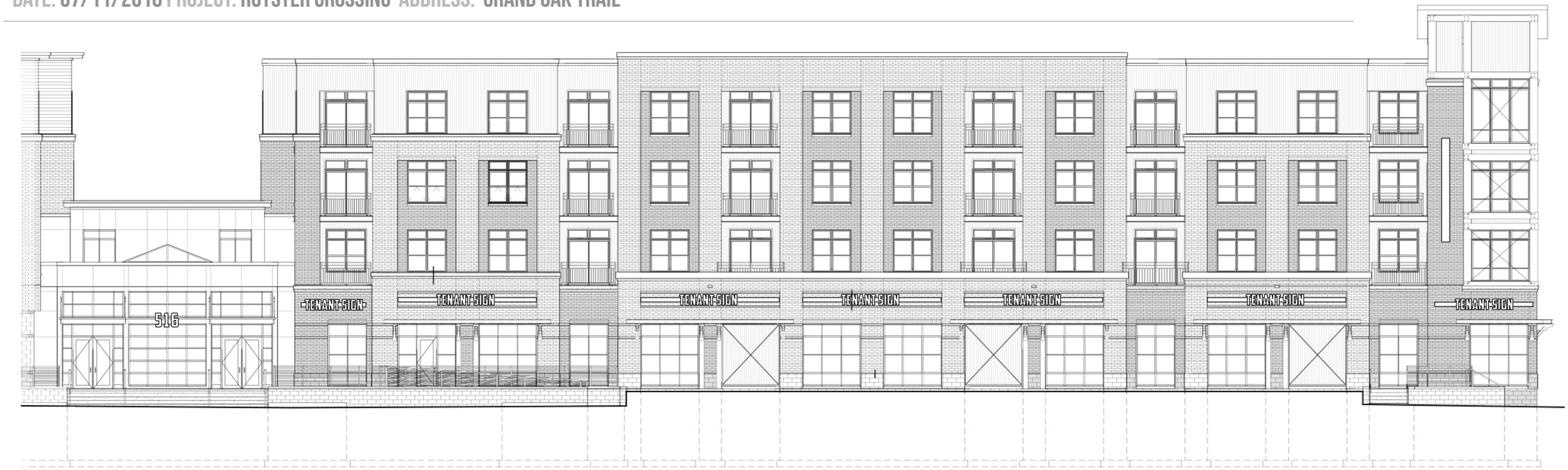
325 W Front St, Mount Horeb, WI 53572

09/20/2018
No Objections
See Dan Yoder, Sign Art
email dated 9-19-18

SHEET WS-1

SIGNAGE ELEVATIONS : WS - 1

DATE: 07/11/2018 PROJECT: ROYSTER CROSSING ADDRESS: GRAND OAK TRAIL



1 A-2.1E East Wing - South
1/8" = 1'-0"



2 A-2.1E East Wing - North
1/8" = 1'-0"

SIGN ART STUDIO

makesignsnotwar.com
325 W Front St, Mount Horeb, WI 53572

SHEET
WS-2

SIGNAGE ELEVATIONS: WS - 2



2 A-2.2E East Wing - Hidden
1/8" = 1'-0"

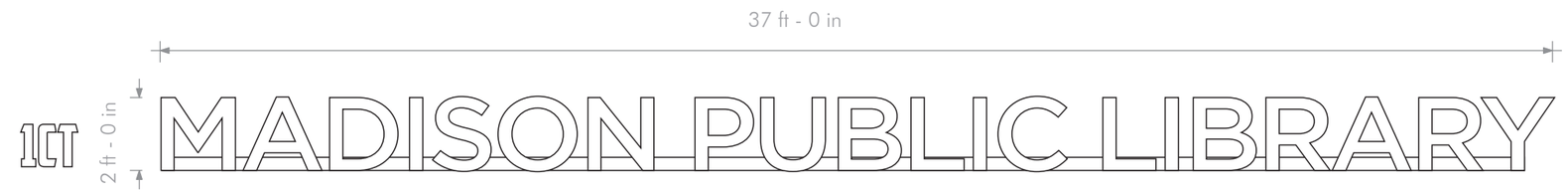


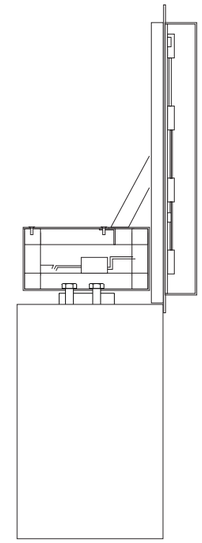
1 A-2.2E East Wing - East
1/8" = 1'-0"

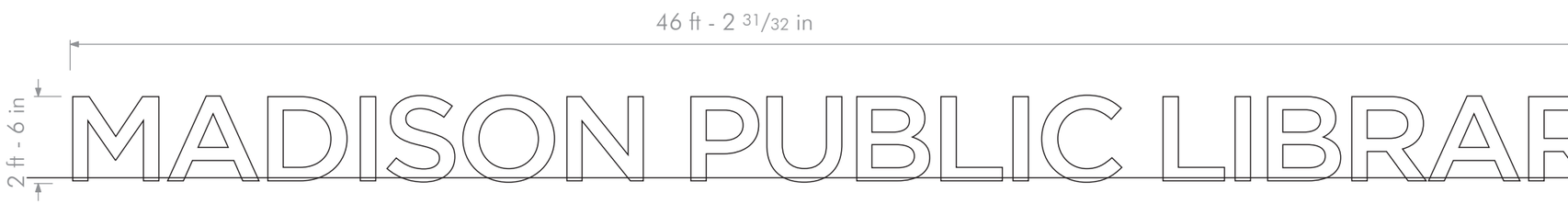
SIGN ART STUDIO
makesignsnotwar.com
325 W Front St, Mount Horeb, WI 53572

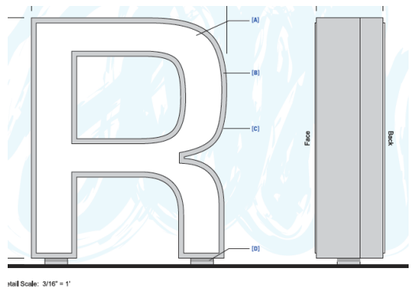
SHEET
WS-3

SIGNAGE ELEVATIONS: WS-3









Detail Scale: 3/16" = 1'

SIGN ART STUDIO
makesignsnotwar.com
325 W Front St, Mount Horeb, WI 53572

LIBRARY SIGNAGE

DATE: 07/11/2018 PROJECT: ROYSTER CROSSING ADDRESS: GRAND OAK TRAIL





SIGN ART STUDIO
makesignsnotwar.com
325 W Front St, Mount Horeb, WI 53572

SHEET
PS-1

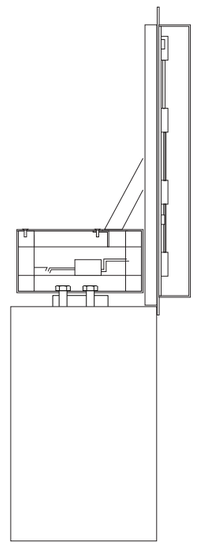
PROJECTING SIGN









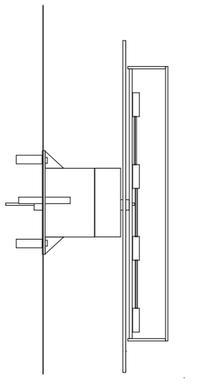


SIGN ART STUDIO
makesignsnotwar.com
325 W Front St, Mount Horeb, WI 53572

ADDRESS SIIGNAGE

SIZES VARY PER TENANT FRONTAGE





1 ft - 4 in

SIGN ART STUDIO
makesignsnotwar.com
325 W Front St, Mount Horeb, WI 53572

Royster Crossing

AUTOMATIC FIRE SPRINKLER SYSTEM
WORKING PLAN DOCUMENTS

SHEET INDEX

SHEET 1 of 13	NOTES/DETAILS SITE PLAN
SHEET 2 OF 13	PARKING LEVEL (WEST) PLAN RISER DETAIL FDC DETAIL
SHEET 3 OF 13	PARKING LEVEL (EAST) PLAN NOTES/DETAILS
SHEET 4 OF 13	FIRST FLOOR (WEST) PLAN NOTES/DETAILS
SHEET 5 OF 13	FIRST FLOOR (EAST) PLAN NOTES/DETAILS
SHEET 6 OF 13	SECOND FLOOR (WEST) PLAN NOTES/DETAILS
SHEET 7 OF 13	SECOND FLOOR (EAST) PLAN NOTES/DETAILS
SHEET 8 OF 13	THIRD FLOOR (WEST) PLAN NOTES/DETAILS
SHEET 9 OF 13	THIRD FLOOR (EAST) PLAN NOTES/DETAILS
SHEET 10 OF 13	FOURTH FLOOR (WEST) PLAN NOTES/DETAILS
SHEET 11 OF 13	FOURTH FLOOR (EAST) PLAN NOTES/DETAILS
SHEET 12 OF 13	STAIR SECTIONS (A,B,C) NOTES/DETAILS
SHEET 13 OF 13	BUILDING SECTION NOTES/DETAILS

SCOPE OF WORK

DESIGN AND INSTALL A CODE COMPLIANT WET FIRE SPRINKLER SYSTEM THROUGHOUT THE ENTIRE BUILDING PER THE WISCONSIN ENROLLED CODE, NFPA 13, 13R, 14, 2016 EDITIONS.

HANGERS

PIPE HANGERS SHALL BE INSTALLED AS REQUIRED BY NFPA FOR SUPPORTING SPRINKLER PIPING. NO OTHER PIPING AND/OR DEVICES ARE TO BE ATTACHED TO THE SPRINKLER PIPE HANGER SYSTEM UNLESS THE HANGER HAS BEEN SPECIFICALLY DESIGNED FOR THE ADDITIONAL LOADING. THIS CONTRACT DOES NOT INCLUDE ANY MATERIAL OR DEVICE TO IMPROVE THE STRUCTURAL STRENGTH OF THE BUILDING TO ENABLE IT TO CARRY THE LOAD OF THE FIRE PROTECTION SYSTEM.

PIPE MATERIALS

ALL PIPE TO BE BLACK STEEL & CPVC PLASTIC, WITH BLACK CAST IRON AND CPVC FITTINGS, WITH JOINTS PER NFPA 13. PIPE SHALL BE PER THE FOLLOWING SCHEDULE– (UNLESS NOTED OTHERWISE)

WET SYSTEM PIPING – 1" = MEGATHREAD BLACK STEEL
2"–4" = MEGAFLOW BLACK STEEL
1"–2" = CPVC PLASTIC

GENERAL NOTES:

–SYSTEM DESIGNED AND INSTALLED PER NFPA – 13, 13R, 14, (2016 EDITION) AND STATE OF WISCONSIN BUILDING CODE.
–ALL EQUIPMENT SHALL BE U.L. LISTED.
–MINIMUM PIPE SIZE SHALL BE ¾" FOR CPVC AND 1" FOR STEEL.
–ALL HANGERS SHALL BE INSTALLED PER THE MINIMUM REQUIREMENTS OF NFPA 13, CHAPTER 9.
–PROVIDE ONE SPARE SPRINKLER HEAD CABINET WITH 12 HEADS, HEAD WRENCH, AND HEAD BOX INVENTORY LIST.
–INSTALLATION SHALL NOT START UNTIL PLANS HAVE BEEN APPROVED BY THE AHJ.
–ELECTRICAL WIRING, ALARM, DETECTION, AND SUPERVISORY BY OWNER.
–UNDERGROUND PIPING TO BE INSTALLED AND TESTED PER NFPA 24 BEFORE FINAL CONNECTION OF THE FIRE PROTECTION SYSTEM. UNDERGROUND CONTRACTOR TO PROVEDE TEST PAPERS BEFORE THIS FINAL CONNECTION IS MADE.

SYSTEM NOTES:

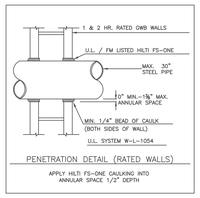
–A MINIMUM OF 18" CLEARANCE FROM THE TOP OF STORAGE TO THE SPRINKLER DEFLECTOR MUST BE MAINTAINED AT ALL TIMES.
–DASHED LINES INDICATE CPVC PIPING. SOLID LINES INDICATE STEEL PIPE.

SPRINKLER SPACING REQUIREMENTS:

–STANDARD SPRAY PENDENT/UPRIGHT IN LIGHT HAZARD = 225 SQ. FT.
–STANDARD SPRAY PENDENT/UPRIGHT IN ORDINARY HAZARD = 130 SQ. FT.
–RESIDENTIAL PENDENT SPRINKLERS = 16' X 16'
–DRY HORIZONTAL SIDEWALL = 14' X 14'
–EXTENDED COVERAGE HORIZONTAL SIDEWALL = 28' X 10'
–EXTENDED COVERAGE PENDENT IN ORDINARY HAZARD – PARKING GARAGE = 16' X 16'
–EXTENDED COVERAGE PENDENT IN LIGHT HAZARD – 16' X 16'

SPRINKLER DEFLECTOR REQUIREMENTS:

–STANDARD SPRAY PENDENTS AND UPRIGHTS = 1–12" DOWN FROM CEILING
–RESIDENTIAL CONCEALED PENDENTS = FLUSH WITH CEILING
–DRY HORIZONTAL SIDEWALL = 4–6" DOWN FROM CEILING
–EXTENDED COVERAGE PENDENT = 1–12" DOWN FROM CEILING
–EXTENDED COVERAGE HORIZONTAL SIDEWALL = 4–12" DOWN FROM CEILING

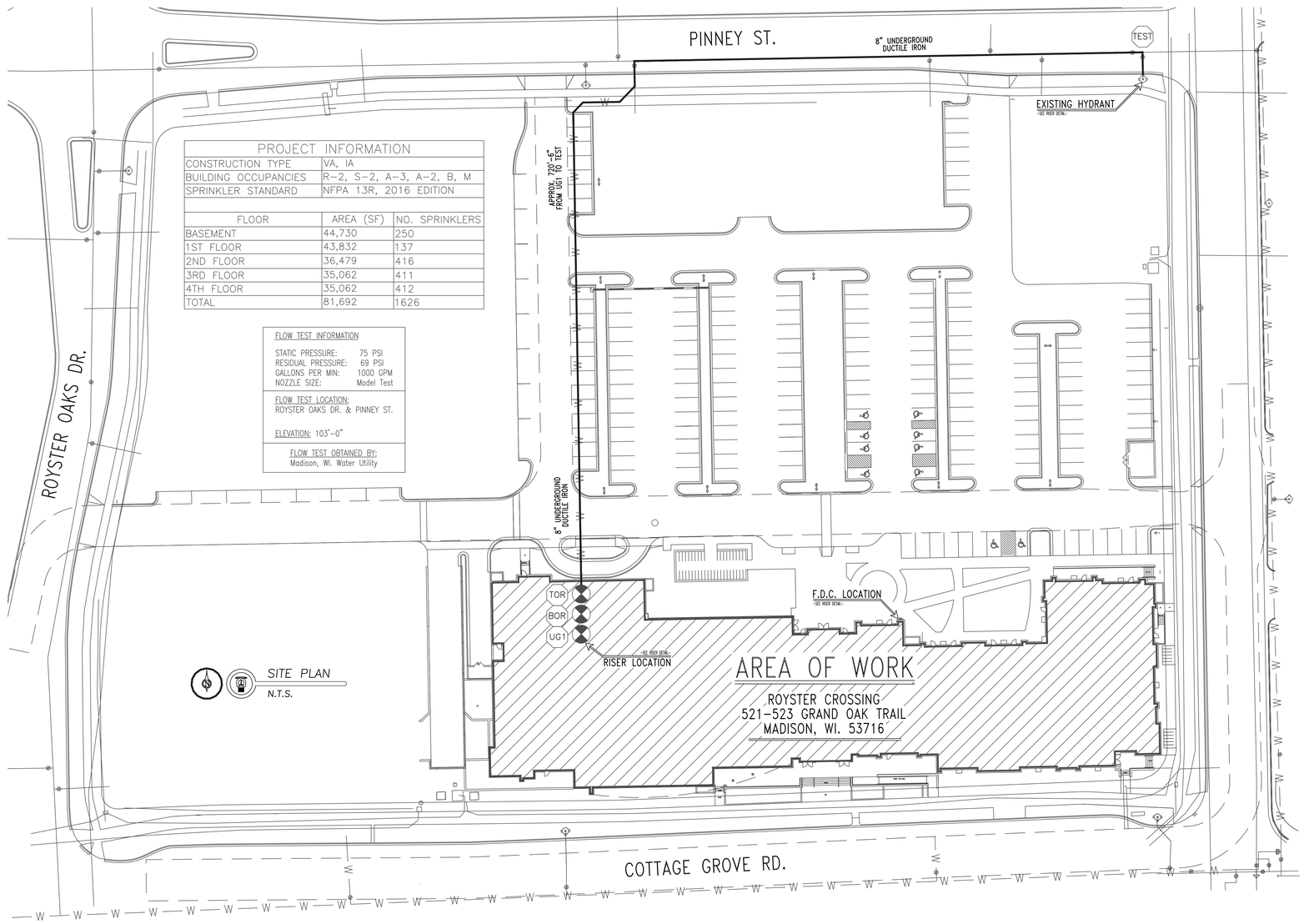


PENETRATION DETAIL (RATED WALLS)

APPLY HILTI FS–ONE CAULKING INTO ANNULAR SPACE 1/2" DEPTH

BUILDING CONSTRUCTION TYPES

- ☐ STEEL BAR JOISTS
- ☐ BEAM AND PURLIN
- ☐ CORRUGATED TIN W/ PURLINS
- ☐ CORRUGATED TIN W/ WOOD JOISTS
- ☐ CONCRETE POURED W/ BEAMS
- ☒ CONCRETE PLANK/HOLLOW CORE W/BEAMS
- ☐ EXPOSED WOOD JOISTS
- ☐ EXPOSED WOOD TRUSS
- ☐ CONCRETE TEE
- ☒ WOOD TRUSS W/ SUSPENDED CEILING



SITE PLAN
N.T.S.

PROJECT INFORMATION	
CONSTRUCTION TYPE	VA, IA
BUILDING OCCUPANCIES	R–2, S–2, A–3, A–2, B, M
SPRINKLER STANDARD	NFPA 13R, 2016 EDITION

FLOOR	AREA (SF)	NO. SPRINKLERS
BASEMENT	44,730	250
1ST FLOOR	43,832	137
2ND FLOOR	36,479	416
3RD FLOOR	35,062	411
4TH FLOOR	35,062	412
TOTAL	81,692	1626

FLOW TEST INFORMATION

STATIC PRESSURE: 75 PSI
RESIDUAL PRESSURE: 69 PSI
GALLONS PER MIN: 1000 GPM
NOZZLE SIZE: Model Test

FLOW TEST LOCATION:
ROYSTER OAKS DR. & PINNEY ST.

ELEVATION: 103'–0"

FLOW TEST OBTAINED BY:
Madison, WI. Water Utility

CURE TIMES WITH ONE STEP SOLVENT CEMENT
200 psi (MAXIMUM) TEST PRESSURE

PIPE SIZE inches	Ambient Temperature During Cure Period		
	60°F to 120°F	40°F to 59°F	0°F to 39°F
3/4"	45 min.	1.5 hr.	24 hr.
1"	45 min.	1.5 hr.	24 hr.
1¼"	1.5 hr.	16 hr.	120 hr.
1½"	1.5 hr.	16 hr.	120 hr.
2"	8 hr.	36 hr.	See Note 1
2½"	8 hr.	72 hr.	See Note 1
3"	8 hr.	72 hr.	See Note 1

Note 1 For these sizes, the solvent cement can be applied at temperatures below 32°F, however, the sprinkler system temperature must be raised to a temperature of 32°F or above and allowed to cure per the above recommendations prior to pressure testing.

BLAZEMASTER® PIPE
SDR 13.5 (ASTM F442)
HANGER SPACING

NOMINAL SIZE inches	(mm)	MAX SPACING feet	(m)
3/4"	(20.0)	5.5'	(1.7)
1"	(25.0)	6.0'	(1.8)
1¼"	(32.0)	6.5'	(2.0)
1½"	(40.0)	7.0'	(2.1)
2"	(50.0)	8.0'	(2.4)
2½"	(65.0)	9.0'	(2.7)
3"	(80.0)	10.0'	(3.0)

LIGHT HAZARD AREAS

LIGHT HAZARD OCCUPANCIES SHALL BE DEFINED AS OCCUPANCIES OR PORTIONS OF OTHER OCCUPANCIES WHERE THE QUANTITY AND/OR COMBUSTIBILITY OF CONTENTS IS LOW AND FIRES WITH RELATIVELY LOW RATES OF HEAT RELEASE ARE EXPECTED.

OFFICES, INCLUDING DATA PROCESSING
HOSPITALS
INSTITUTIONAL
EDUCATIONAL
MUSEUMS
NURSING OR CONVALESCENT HOMES

ANY CHANGES TO STORAGE OR USE OF THE BUILDING MUST BE BROUGHT TO THE ATTENTION OF THE FIRE DEPT. & SPRINKLER CONTRACTOR

ORDINARY HAZARD GROUP 1 AREAS

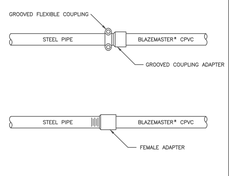
5.3.2* ORDINARY HAZARD (GROUP 1). ORDINARY HAZARD (GROUP 1) OCCUPANCIES SHALL BE DEFINED AS OCCUPANCIES OR PORTIONS OF OTHER OCCUPANCIES WHERE COMBUSTIBILITY IS LOW, QUANTITY OF COMBUSTIBLES IS MODERATE, STOCKPILES DO NOT EXCEED 8 FT. (2.4 M), AND FIRES WITH MODERATE RATES OF HEAT RELEASE ARE EXPECTED.

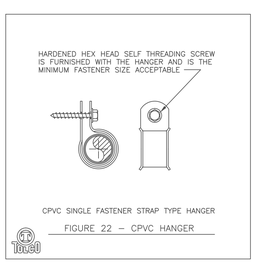
A.5.3.2 ORDINARY HAZARD OCCUPANCIES (GROUP 1) INCLUDE OCCUPANCIES HAVING USES AND CONDITIONS SIMILAR TO THE FOLLOWING:

AUTOMOBILE PARKING AND SHOWROOMS
CLASS PRODUCTS MANUFACTURING AND PROCESSING
DAIRY PRODUCTS MANUFACTURING AND PROCESSING
ELECTRONIC PLANTS
BAKERIES
BEVERAGE MANUFACTURING
CANNERIES
LAUNDRIES
RESTAURANT SERVICE AREAS

ANY CHANGES TO STORAGE OR USE OF THE BUILDING MUST BE BROUGHT TO THE ATTENTION OF THE FIRE DEPT. & SPRINKLER CONTRACTOR

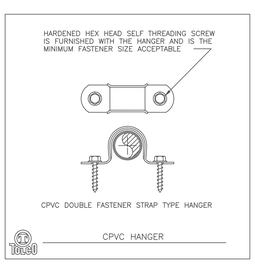
TRANSITION BETWEEN MATERIALS





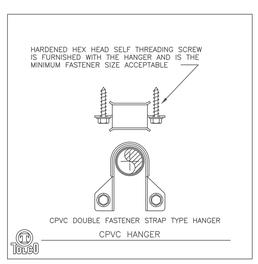
CPVC SINGLE FASTENER STRAP TYPE HANGER

FIGURE 22 – CPVC HANGER



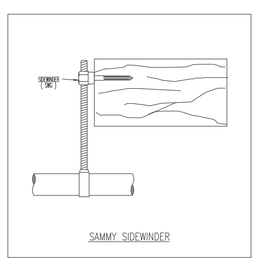
CPVC DOUBLE FASTENER STRAP TYPE HANGER

CPVC HANGER

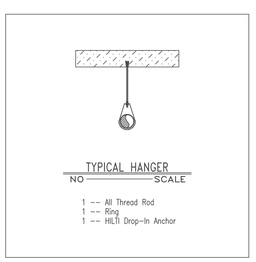


CPVC DOUBLE FASTENER STRAP TYPE HANGER

CPVC HANGER

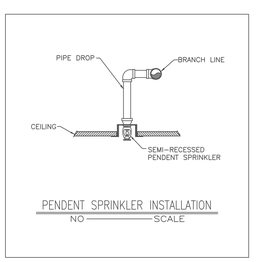


SAMMY SIDEWINDER



TYPICAL HANGER
NO SCALE

1 –– All Thread Rod
1 –– Ring
1 –– HILTI Drop–In Anchor



PENDENT SPRINKLER INSTALLATION
NO SCALE

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN
Allen P. Nyberg
S.C. 965117
SPRINKLER CONTRACTOR

REVISIONS:
SUBMITTAL TO AHJ 08/16/18
2 RESUBMITTAL TO RDC ----
---------- ----
---------- ----
---------- ----

☒ NFPA 13 - ---- EDITION
☒ NFPA 13R - 2016 EDITION
☐ NFPA 13D - ---- EDITION
☒ NFPA 14 - ---- EDITION
☐ NFPA 20 - ----EDITION
☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704

CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
☐ DSPS
☐ DHS
☐ FM GLOBAL
☒ MADISON FIRE DEPT.
☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

DATE ISSUED: 08/14/2018

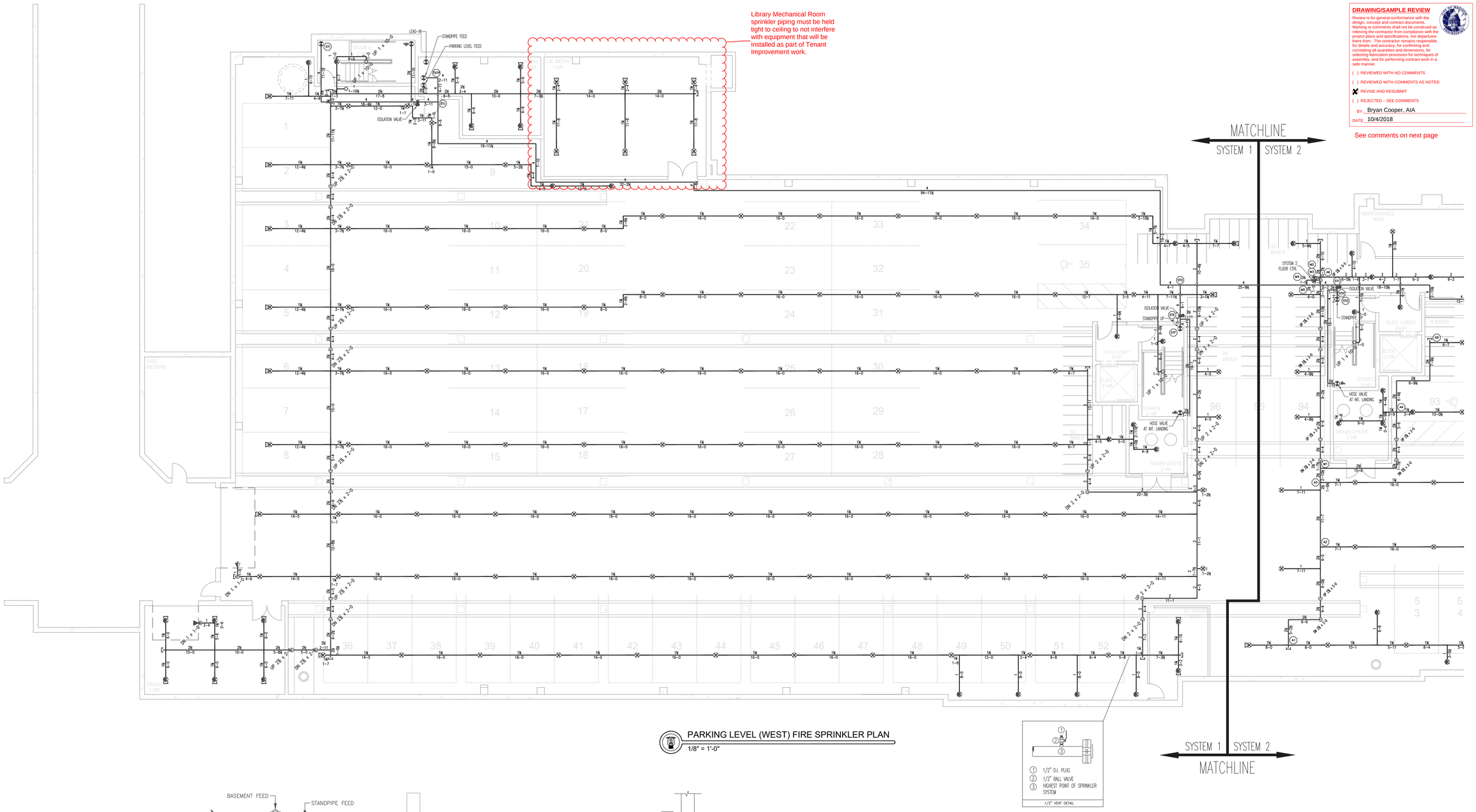
SCALE: 1/8" = 1'-0"
0 1 2 3 4 5 6 7 8

DRAWING TITLE:
GENERAL NOTES, SITE PLAN, DETAILS

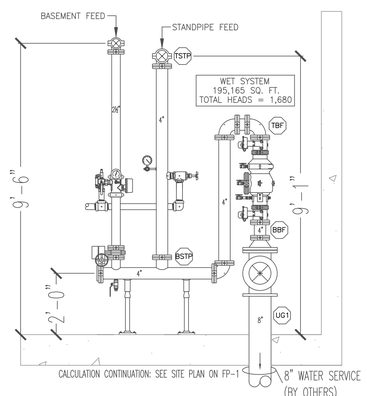
PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO.
FP-1

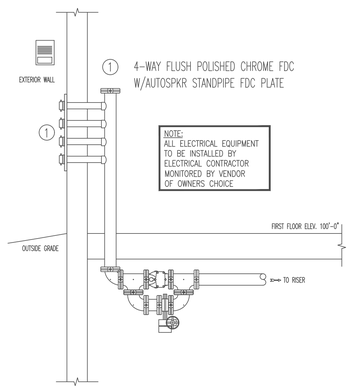
Library Mechanical Room sprinkler piping must be held tight to ceiling to not interfere with equipment that will be installed as part of Tenant Improvement work.



PARKING LEVEL (WEST) FIRE SPRINKLER PLAN
1/8" = 1'-0"



RISER DETAIL
N.T.S.



FDC DETAIL
N.T.S.

KEY PLAN



SPRINKLER HEAD SCHEDULE

SYMBOL	QTY	MAKE	SIN #	MODEL	K-FACTOR	THREAD SIZE	RESPONSE	TYPE	TEMP	FINISH	ESCUTCHEON	DEFLECTOR DISTANCE	SPACING
⊗	100	VIKING	VK534	ECOH	11.2	½"	SR	EC PD	200°	BRASS	N/A	1" - 12"	16' x 16'
⊛	29	VIKING	VK102	MICROMATIC	5.6	½"	SR	PD	200°	BRASS	N/A	1" - 12"	130 SQ. FT.
◀	1	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	200°	BRASS	N/A	4" - 6"	100 SQ. FT.
◀	1	TYCO	TY5332	SW-20	11.2	½"	SR	EC HSW	200°	BRASS	N/A	4" - 6"	16' X 20'

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS
( ) REVIEWED WITH COMMENTS AS NOTED
(X) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA
DATE: 10/4/2018

See comments on next page

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN
Allen P. Nyberg
S.C. 965117
SPRINKLER CONTRACTOR

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
--------		----
--------		----
--------		----
--------		----

- (X) NFPA 13 - ---- EDITION
- (X) NFPA 13R - 2016 EDITION
- ( ) NFPA 13D - ---- EDITION
- (X) NFPA 14 - ---- EDITION
- ( ) NFPA 20 - ----EDITION
- ( ) ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704
CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
- ( ) DSPS
- ( ) DHS
- ( ) FM GLOBAL
- (X) MADISON FIRE DEPT.
- ( ) ----

DRAWN BY: TS

CONTRACT #: 1649908

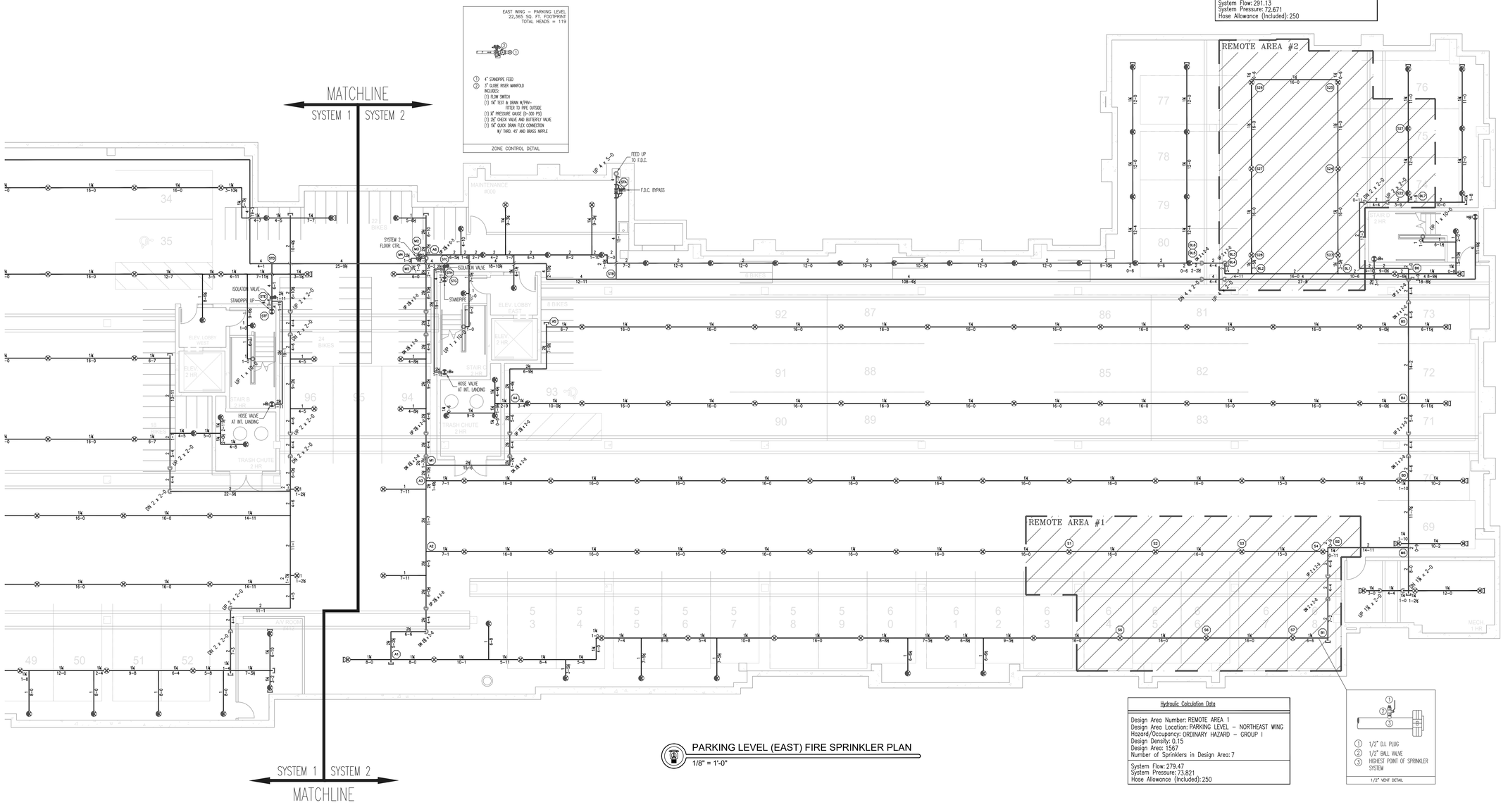
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

DRAWING TITLE:
PARKING LEVEL (WEST) SPRINKLER PLAN

PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO: **FP-2**



PARKING LEVEL (EAST) FIRE SPRINKLER PLAN

1/8" = 1'-0"

Hydraulic Calculation Data
Design Area Number: REMOTE AREA 2 Design Area Location: PARKING LEVEL – EAST WING Hazard/Occupancy: ORDINARY HAZARD – GROUP I Design Density: 0.15 Design Area: 1506.976 Number of Sprinklers in Design Area: 8
System Flow: 291.13 System Pressure: 72.671 Hose Allowance (Included): 250

Hydraulic Calculation Data
Design Area Number: REMOTE AREA 1 Design Area Location: PARKING LEVEL – NORTHEAST WING Hazard/Occupancy: ORDINARY HAZARD – GROUP I Design Density: 0.15 Design Area: 1567 Number of Sprinklers in Design Area: 7
System Flow: 279.47 System Pressure: 73.821 Hose Allowance (Included): 250

KEY PLAN



SPRINKLER HEAD SCHEDULE

SYMBOL	QTY	MAKE	SIN #	MODEL	K-FACTOR	THREAD SIZE	RESPONSE	TYPE	TEMP	FINISH	ESCUTCHEON	DEFLECTOR DISTANCE	SPACING
⊗	78	VIKING	VK534	ECOH	11.2	¾"	SR	EC PD	200°	BRASS	N/A	1" - 12"	16' x 16'
◐	42	VIKING	VK102	MICROMATIC	5.6	½"	SR	PD	200°	BRASS	N/A	1" - 12"	130 SQ. FT.

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN SPRINKLER CONTRACTOR
Allen P. Nyberg
S.C. 960117

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
---------		----
---------		----
---------		----
---------		----

- ☒ NFPA 13 - ---- EDITION
- ☒ NFPA 13R - 2016 EDITION
- ☐ NFPA 13D - ---- EDITION
- ☒ NFPA 14 - ---- EDITION
- ☐ NFPA 20 - ----EDITION
- ☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704

CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
- ☐ DSPS
- ☐ DHS
- ☐ FM GLOBAL
- ☒ MADISON FIRE DEPT.
- ☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

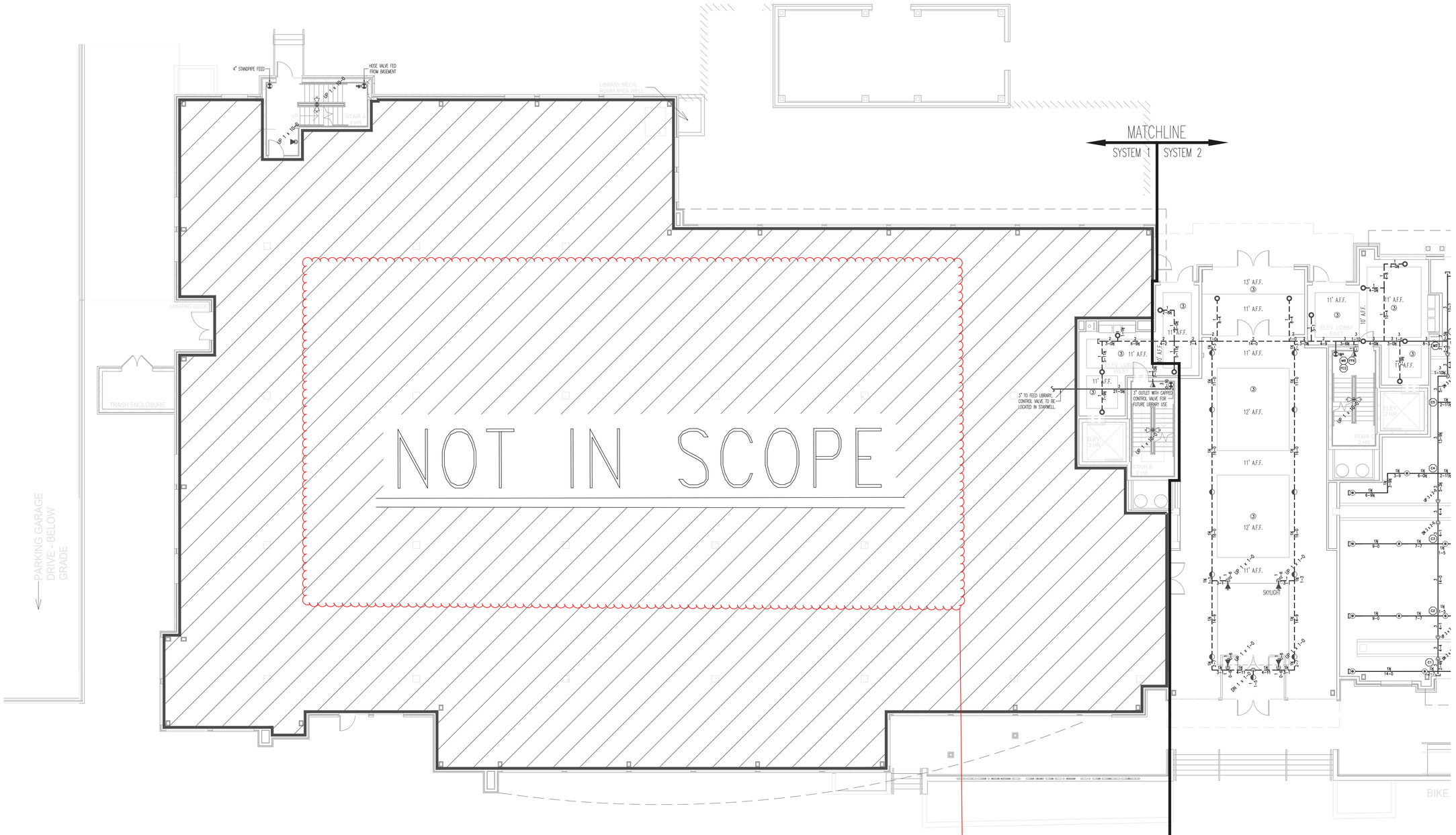
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

DRAWING TITLE: PARKING LEVEL (EAST) SPRINKLER PLAN

PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO: FP-3



FIRST FLOOR (WEST) FIRE SPRINKLER PLAN

1/8" = 1'-0"

The City believes RDC will have to install a temporary fire suppression system in the Pinney Library space in order to get occupancy for the building. More discussions are needed.

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS

( ) REVIEWED WITH COMMENTS AS NOTED

(X) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 10/4/2018

KEY PLAN

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN SPRINKLER CONTRACTOR
Allen P. Nyberg
S.C. 965117

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
---	---	---
---	---	---
---	---	---
---	---	---

- (X) NFPA 13 - ---- EDITION
- (X) NFPA 13R - 2016 EDITION
- ( ) NFPA 13D - ---- EDITION
- (X) NFPA 14 - ---- EDITION
- ( ) NFPA 20 - ----EDITION
- ( ) ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704

CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
- ( ) DSPS
- ( ) DHS
- ( ) FM GLOBAL
- (X) MADISON FIRE DEPT.
- ( ) ----

DRAWN BY: TS

CONTRACT #: 1649908

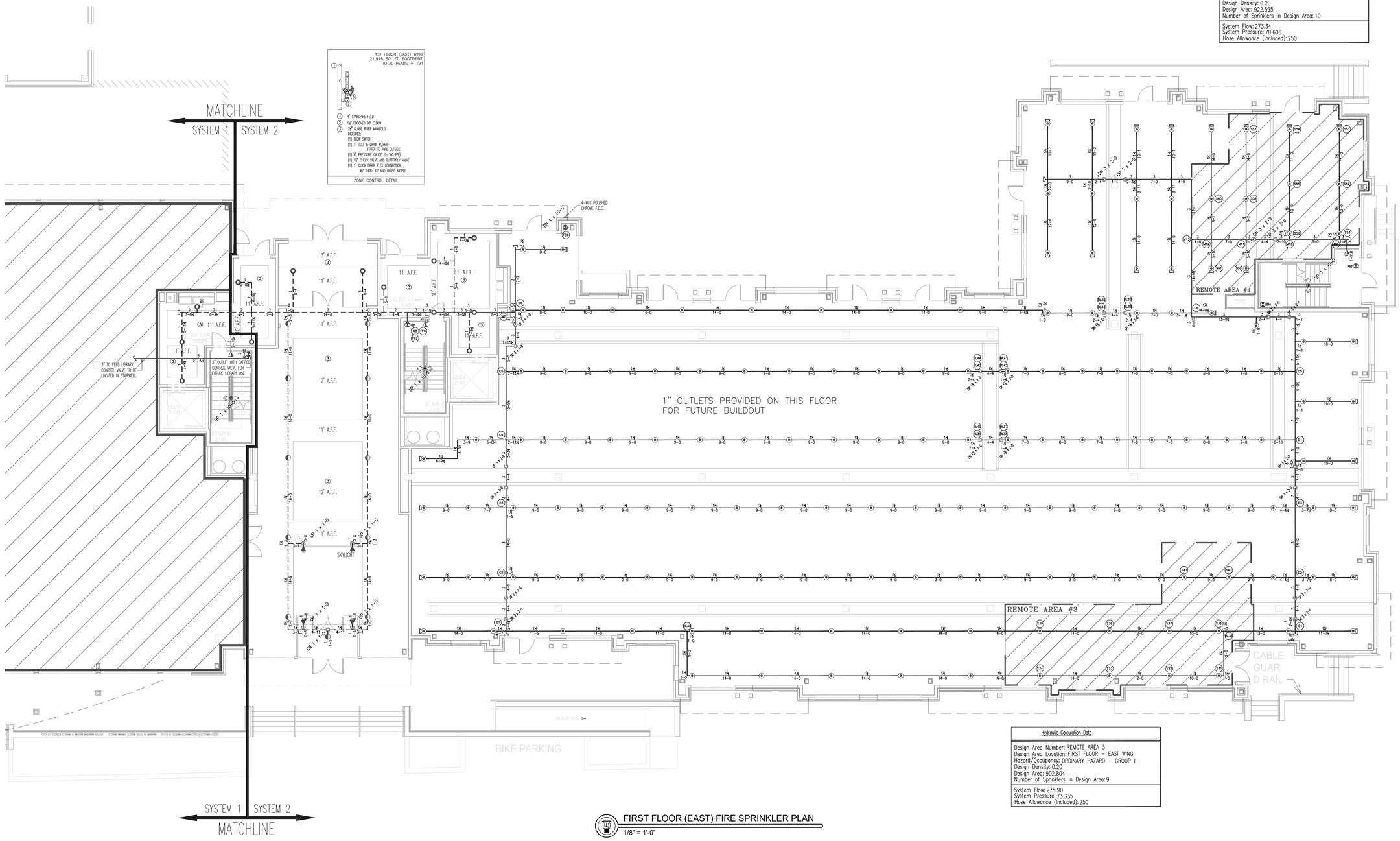
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

DRAWING TITLE: FIRST FLOOR (WEST) SPRINKLER PLAN

PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO: FP-4



FIRST FLOOR (EAST) FIRE SPRINKLER PLAN
1/8" = 1'-0"

Hydraulic Calculation Data
Design Area Number: REMOTE AREA 4 Design Area Location: FIRST FLOOR – NORTHEAST WING Hazard/Occupancy: ORDINARY HAZARD – GROUP II Design Density: 0.20 Design Area: 922.595 Number of Sprinklers in Design Area: 10
System Flow: 273.34 System Pressure: 70.606 Hose Allowance (Included): 250

Hydraulic Calculation Data
Design Area Number: REMOTE AREA 3 Design Area Location: FIRST FLOOR – EAST WING Hazard/Occupancy: ORDINARY HAZARD – GROUP II Design Density: 0.20 Design Area: 902.804 Number of Sprinklers in Design Area: 9
System Flow: 275.90 System Pressure: 73.335 Hose Allowance (Included): 250

③ NFPA 13 8.6.7.2
SPRINKLERS SHALL NOT BE REQUIRED IN CEILING POCKETS WHERE ALL OF THE FOLLOWING ARE MET:
(1) THE TOTAL VOLUME OF THE UNPROTECTED CEILING POCKET DOES NOT EXCEED 1000 CUBIC FEET.
(2) THE DEPTH OF THE UNPROTECTED CEILING POCKET DOES NOT EXCEED 36 IN.
(3) THE ENTIRE FLOOR UNDER THE UNPROTECTED CEILING POCKET IS PROTECTED BY SPRINKLERS AT THE LOWER CEILING ELEVATION.
(4) THE TOTAL SIZE OF ALL UNPROTECTED CEILING POCKETS IN THE SAME COMPARTMENT WITHIN 10ft. OF EACH OTHER DOES NOT EXCEED 1000 CUBIC FEET.
(5) THE UNPROTECTED CEILING POCKET HAS NONCOMBUSTIBLE OR LIMITED–COMBUSTIBLE FINISHES.
(6) QUICK–RESPONSE SPRINKLERS ARE UTILIZED THROUGHOUT THE COMPARTMENT.

---------- DENOTES CPVC PIPE
———— DENOTES STEEL PIPE

KEY PLAN

SPRINKLER HEAD SCHEDULE

SYMBOL	QTY	MAKE	SIN #	MODEL	K-FACTOR	THREAD SIZE	RESPONSE	TYPE	TEMP	FINISH	ESCUTCHEON	DEFLECTOR DISTANCE	SPACING
	155	VIKING	VK302	MICROFAST	5.6	½"	QR	PD	155°	BRASS	N/A	1" - 12"	130 SQ. FT.
	10	VIKING	VK832	MIRAGE	5.6	½"	QR	PD	155°	WHITE	CONCEALED	1¼" - 1½"	16' x 16'
	13	VIKING	VK462	MIRAGE	5.6	½"	QR	PD	155°	WHITE	CONCEALED	1¼" - 1½"	225 SQ. FT.
	4	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	200°	WHITE	MODEL E2	4" - 6"	225 SQ. FT.
	6	RELIABLE	RA1564	DH56	5.6	½"	QR	HSW	155°	WHITE	MODEL F2	4" - 6"	28' x 8'
	3	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	155°	WHITE	MODEL E2	4" - 6"	196 SQ. FT.

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713
Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN SPRINKLER CONTRACTOR
Allen P. Nyberg
S.C. 960117

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
--------		----
--------		----
--------		----
--------		----

☒ NFPA 13 - ---- EDITION
☒ NFPA 13R - 2016 EDITION
☐ NFPA 13D - ---- EDITION
☒ NFPA 14 - ---- EDITION
☐ NFPA 20 - ----EDITION
☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704
CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
☐ DSPS
☐ DHS
☐ FM GLOBAL
☒ MADISON FIRE DEPT.
☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

DRAWING TITLE:
FIRST FLOOR (EAST) SPRINKLER PLAN

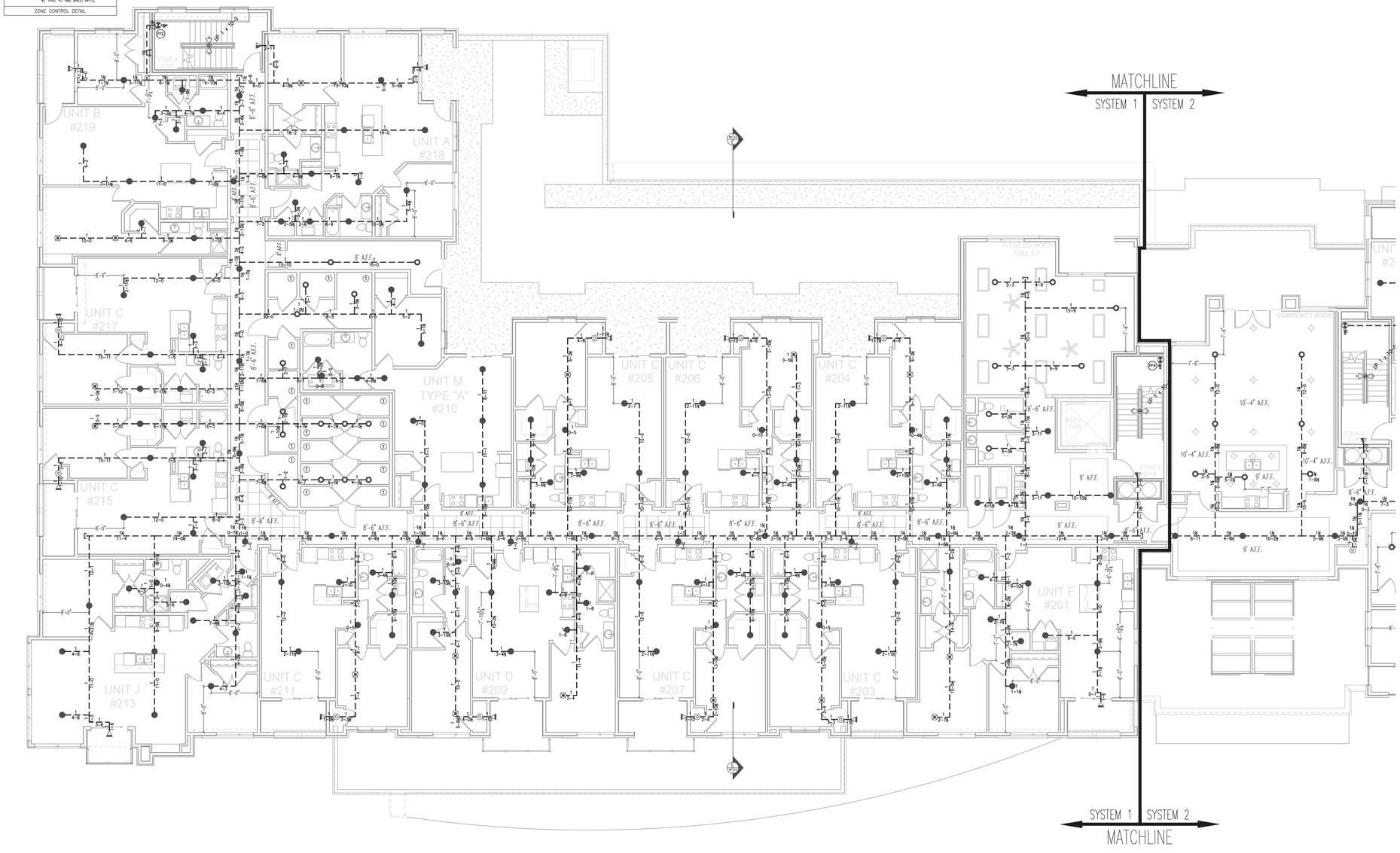
PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO: FP-5

1ST FLOOR (EAST) WING
21,916 SQ. FT. FOOTPRINT
TOTAL HEADS = 191

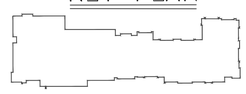
① 4" STANDPIPE FEED
② 10" GROOVED 90° ELBOW
③ 10" CLOSE RISER MANIFOLD
INCLUDES:
(1) FLOW SWITCH
(1) 1" TEST & DRAIN W/PRV-
FITTER TO PIPE OUTSIDE
(1) 10" PRESSURE GAUGE (0-300 PSI)
(1) 10" CHECK VALVE AND BUTTERFLY VALVE
(1) 1" QUICK DRAIN FLEX CONNECTION
W/ THRD. 45° AND BRASS NIPPLE

ZONE CONTROL DETAIL



SECOND FLOOR (WEST) FIRE SPRINKLER PLAN
1/8" = 1'-0"

KEY PLAN



---------- DENOTES CPVC PIPE
———— DENOTES STEEL PIPE

③ NFPA 13 8.6.7.2
SPRINKLERS SHALL NOT BE REQUIRED IN CEILING POCKETS WHERE ALL OF THE FOLLOWING ARE MET:
(1) THE TOTAL VOLUME OF THE UNPROTECTED CEILING POCKET DOES NOT EXCEED 1000 CUBIC FEET.
(2) THE DEPTH OF THE UNPROTECTED CEILING POCKET DOES NOT EXCEED 36 IN.
(3) THE ENTIRE FLOOR UNDER THE UNPROTECTED CEILING POCKET IS PROTECTED BY SPRINKLERS AT THE LOWER CEILING ELEVATION.
(4) THE TOTAL SIZE OF ALL UNPROTECTED CEILING POCKETS IN THE SAME COMPARTMENT WITHIN 10ft. OF EACH OTHER DOES NOT EXCEED 1000 CUBIC FEET.
(5) THE UNPROTECTED CEILING POCKET HAS NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE FINISHES.
(6) QUICK-RESPONSE SPRINKLERS ARE UTILIZED THROUGHOUT THE COMPARTMENT.

① WALLS OF STORAGE UNITS ON FLOORS 2 THRU 4, TO HAVE CHICKEN WIRE INSTALLED ON SHARED WALLS, DOWN AT LEAST 18" BELOW THE SPRINKLER DEFLECTOR TO ALLOW WATER TO SPRAY INTO EACH UNIT. PLEASE NOTE: ABOVE THE DOOR WILL BE NO CHICKEN WIRE.

SPRINKLER HEAD SCHEDULE

SYMBOL	QTY	MAKE	SIN #	MODEL	K-FACTOR	THREAD SIZE	RESPONSE	TYPE	TEMP	FINISH	ESCUTCHEON	DEFLECTOR DISTANCE	SPACING
◎	9	VIKING	VK302	MICROFAST	5.6	½"	QR	PD	200°	WHITE	MODEL E1	1" - 12"	225 SQ. FT.
⊗	16	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1⅝"	18' x 18'
●	142	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1⅝"	16' x 16'
○	22	VIKING	VK462	MIRAGE	5.6	½"	QR	PD	155°	WHITE	CONCEALED	1¼" - 1⅝"	225 SQ. FT.
◁	4	RELIABLE	RA1564	DH56	5.6	½"	QR	HSW	155°	WHITE	MODEL F2	4" - 6"	28' x 8'
◁	13	RELIABLE	R5734	F3QR56	5.6	½"	QR	DRY HSW	155°	WHITE	SKIRT/SLEEVE	4" - 6"	196 SQ. FT.
◁	2	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	155°	WHITE	MODEL E1	4" - 6"	196 SQ. FT.
○	1	VIKING	VK300	MICROFAST	5.6	½"	QR	UPR	200°	BRASS	N/A	1" - 12"	130 SQ. FT.

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN
Allen P. Nyberg
S.C. 965117
SPRINKLER CONTRACTOR

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
---------		----
---------		----
---------		----
---------		----

☒ NFPA 13 - ---- EDITION
☒ NFPA 13R - 2016 EDITION
☐ NFPA 13D - ---- EDITION
☒ NFPA 14 - ---- EDITION
☐ NFPA 20 - ----EDITION
☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704

CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
☐ DSPS
☐ DHS
☐ FM GLOBAL
☒ MADISON FIRE DEPT.
☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

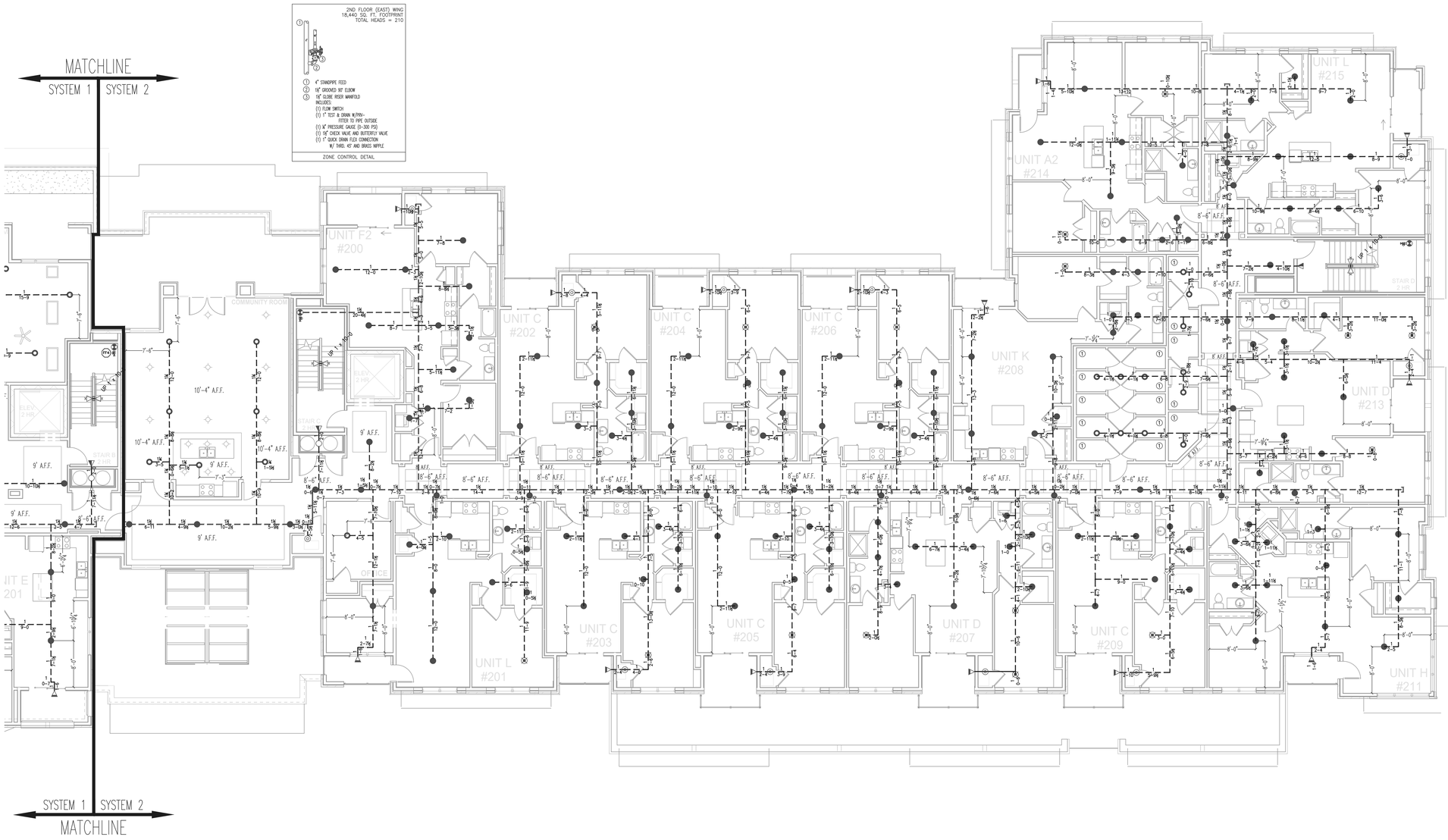
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

DRAWING TITLE:
SECOND FLOOR (WEST) SPRINKLER PLAN

PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO.
FP-6



SECOND FLOOR (EAST) FIRE SPRINKLER PLAN
1/8" = 1'-0"

KEY PLAN



---------- DENOTES CPVC PIPE
———— DENOTES STEEL PIPE

③ NFPA 13 8.6.7.2
SPRINKLERS SHALL NOT BE REQUIRED IN CEILING POCKETS WHERE ALL OF THE FOLLOWING ARE MET:
(1) THE TOTAL VOLUME OF THE UNPROTECTED CEILING POCKET DOES NOT EXCEED 1000 CUBIC FEET.
(2) THE DEPTH OF THE UNPROTECTED CEILING POCKET DOES NOT EXCEED 36 IN.
(3) THE ENTIRE FLOOR UNDER THE UNPROTECTED CEILING POCKET IS PROTECTED BY SPRINKLERS AT THE LOWER CEILING ELEVATION.
(4) THE TOTAL SIZE OF ALL UNPROTECTED CEILING POCKETS IN THE SAME COMPARTMENT WITHIN 10ft. OF EACH OTHER DOES NOT EXCEED 1000 CUBIC FEET.
(5) THE UNPROTECTED CEILING POCKET HAS NONCOMBUSTIBLE OR LIMITED–COMBUSTIBLE FINISHES.
(6) QUICK–RESPONSE SPRINKLERS ARE UTILIZED THROUGHOUT THE COMPARTMENT.

① WALLS OF STORAGE UNITS ON FLOORS 2 THRU 4, TO HAVE CHICKEN WIRE INSTALLED ON SHARED WALLS, DOWN AT LEAST 18" BELOW THE SPRINKLER DEFLECTOR TO ALLOW WATER TO SPRAY INTO EACH UNIT. PLEASE NOTE: ABOVE THE DOOR WILL BE NO CHICKEN WIRE.

SPRINKLER HEAD SCHEDULE

SYMBOL	QTY	MAKE	SIN #	MODEL	K-FACTOR	THREAD SIZE	RESPONSE	TYPE	TEMP	FINISH	ESCUTCHEON	DEFLECTOR DISTANCE	SPACING
◎	11	VIKING	VK302	MICROFAST	5.6	½"	QR	PD	200°	WHITE	MODEL E1	1" - 12"	225 SQ. FT.
⊗	16	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1½"	18' x 18'
●	143	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1½"	16' x 16'
○	20	VIKING	VK462	MIRAGE	5.6	½"	QR	PD	155°	WHITE	CONCEALED	1¼" - 1½"	225 SQ. FT.
◁	4	RELIABLE	RA1564	DH56	5.6	½"	QR	HSW	155°	WHITE	MODEL F2	4" - 6"	28' x 8'
◁	14	RELIABLE	R5734	F3QR56	5.6	½"	QR	DRY HSW	155°	WHITE	SKIRT/SLEEVE	4" - 6"	196 SQ. FT.
◁	2	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	155°	WHITE	MODEL E2	4" - 6"	196 SQ. FT.
○	1	VIKING	VK300	MICROFAST	5.6	½"	QR	UPR	200°	BRASS	N/A	1" - 12"	130 SQ. FT.

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN SPRINKLER CONTRACTOR
Allen P. Nyberg
S.C. 965117

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
--------		----
--------		----
--------		----
--------		----

- ☒ NFPA 13 - ---- EDITION
- ☒ NFPA 13R - 2016 EDITION
- ☐ NFPA 13D - ---- EDITION
- ☒ NFPA 14 - ---- EDITION
- ☐ NFPA 20 - ----EDITION
- ☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704
CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
- ☐ DSPS
- ☐ DHS
- ☐ FM GLOBAL
- ☒ MADISON FIRE DEPT.
- ☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

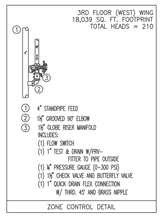
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

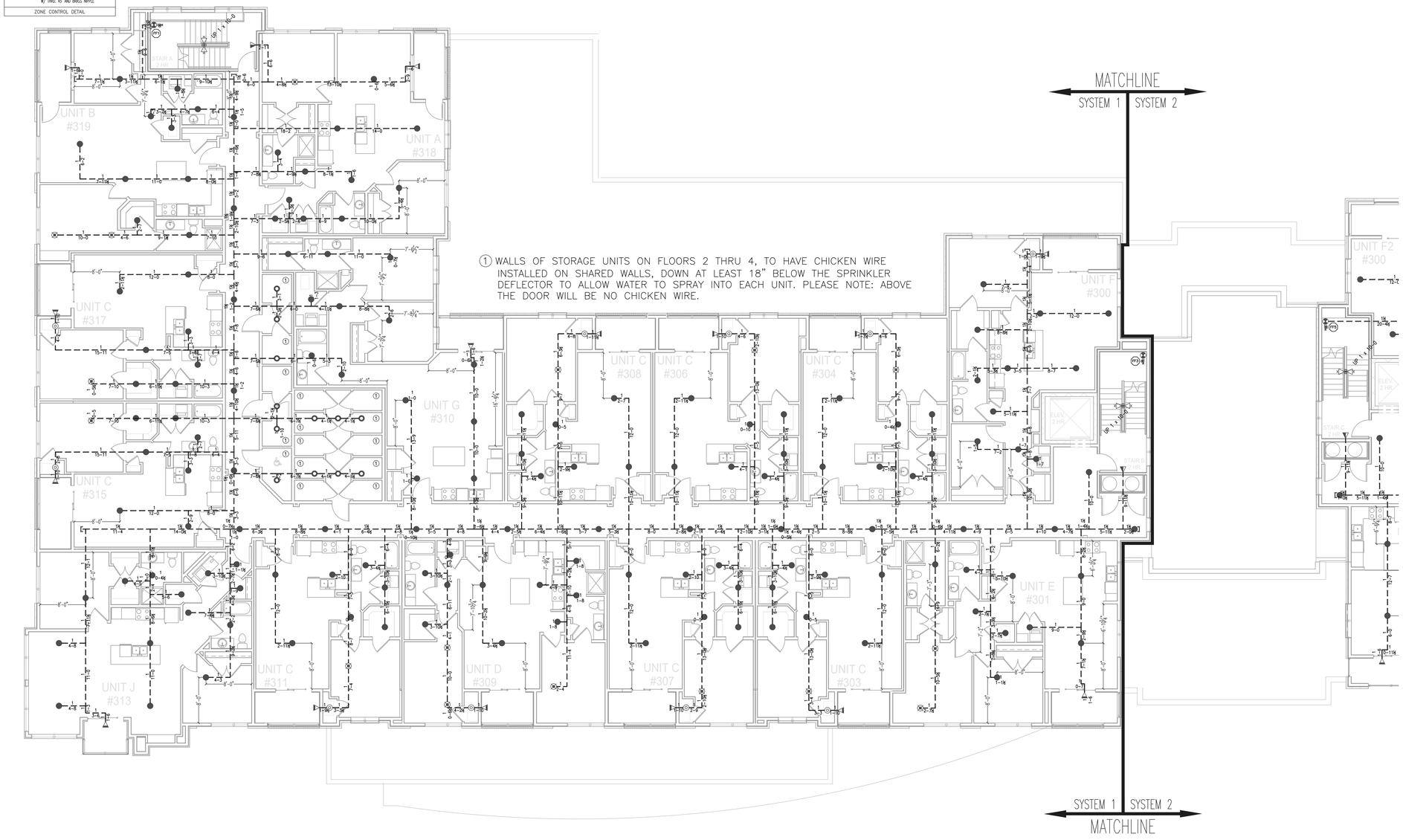
DRAWING TITLE: SECOND FLOOR (EAST) SPRINKLER PLAN

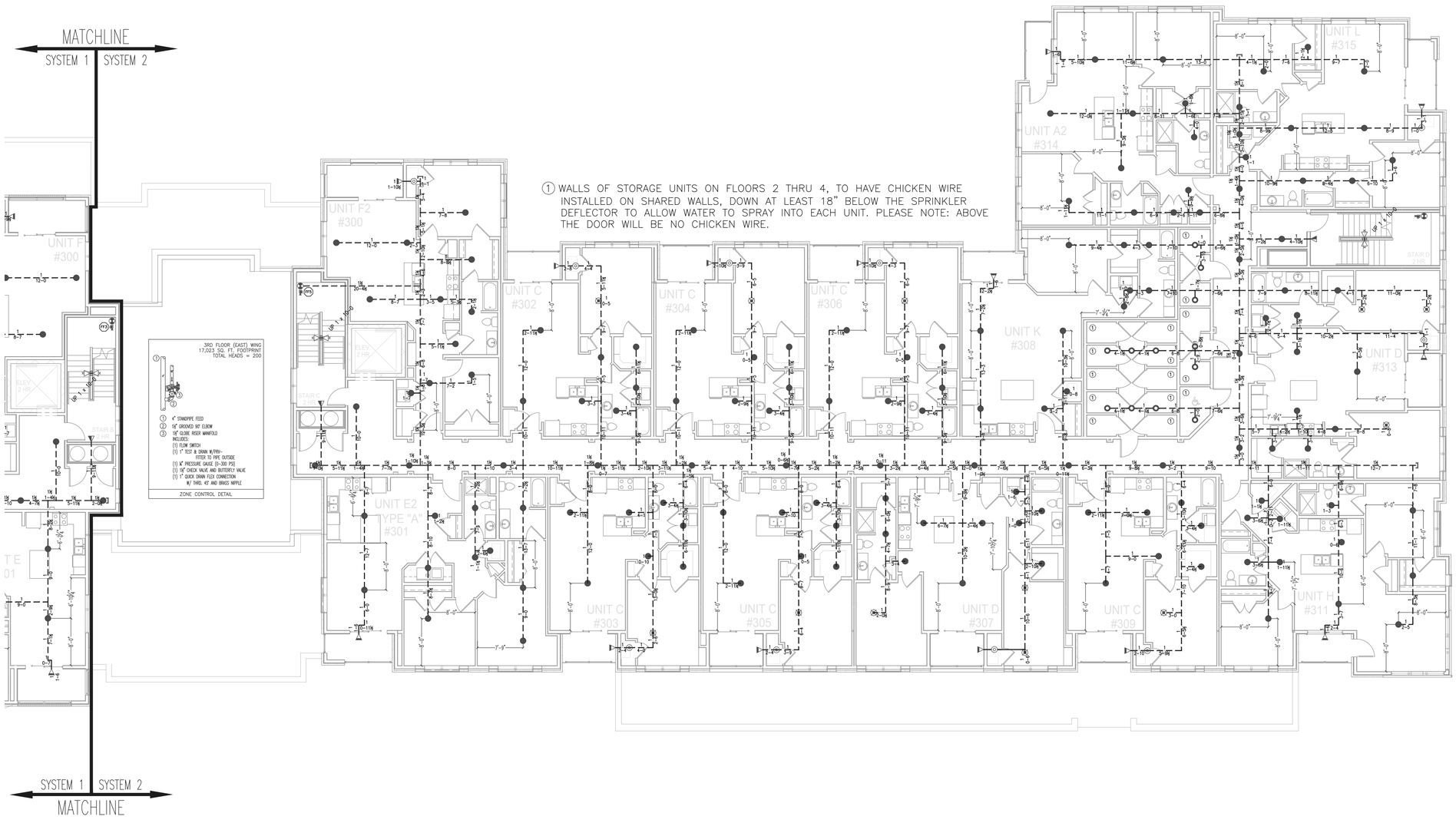
PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO. FP-7



ZONE CONTROL DETAIL





① WALLS OF STORAGE UNITS ON FLOORS 2 THRU 4, TO HAVE CHICKEN WIRE INSTALLED ON SHARED WALLS, DOWN AT LEAST 18" BELOW THE SPRINKLER DEFLECTOR TO ALLOW WATER TO SPRAY INTO EACH UNIT. PLEASE NOTE: ABOVE THE DOOR WILL BE NO CHICKEN WIRE.

THIRD FLOOR (EAST) FIRE SPRINKLER PLAN
1/8" = 1'-0"

KEY PLAN

---------- DENOTES CPVC PIPE
———— DENOTES STEEL PIPE

SPRINKLER HEAD SCHEDULE

SYMBOL	QTY	MAKE	SIN #	MODEL	K-FACTOR	THREAD SIZE	RESPONSE	TYPE	TEMP	FINISH	ESCUTCHEON	DEFLECTOR DISTANCE	SPACING
◎	10	VIKING	VK302	MICROFAST	5.6	½"	QR	PD	200°	WHITE	MODEL E1	1" - 12"	225 SQ. FT.
⊠	12	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1½"	18' x 18'
●	146	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1½"	16' x 16'
○	12	VIKING	VK462	MIRAGE	5.6	½"	QR	PD	155°	WHITE	CONCEALED	1¼" - 1½"	225 SQ. FT.
◁	4	RELIABLE	RA1564	DH56	5.6	½"	QR	HSW	155°	WHITE	MODEL F2	4" - 6"	28' x 8'
◁	14	RELIABLE	R5734	F3QR56	5.6	½"	QR	DRY HSW	155°	WHITE	SKIRT/SLEEVE	4" - 6"	196 SQ. FT.
◁	2	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	155°	WHITE	MODEL E2	4" - 6"	196 SQ. FT.

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN
Allen P. Nyberg
S.C. 960112
SPRINKLER CONTRACTOR

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
--------		----
--------		----
--------		----
--------		----

☒ NFPA 13 - ---- EDITION
☒ NFPA 13R - 2016 EDITION
☐ NFPA 13D - ---- EDITION
☒ NFPA 14 - ---- EDITION
☐ NFPA 20 - ----EDITION
☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704

CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
☐ DSPS
☐ DHS
☐ FM GLOBAL
☒ MADISON FIRE DEPT.
☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

DRAWING TITLE:
THIRD FLOOR (EAST) SPRINKLER PLAN

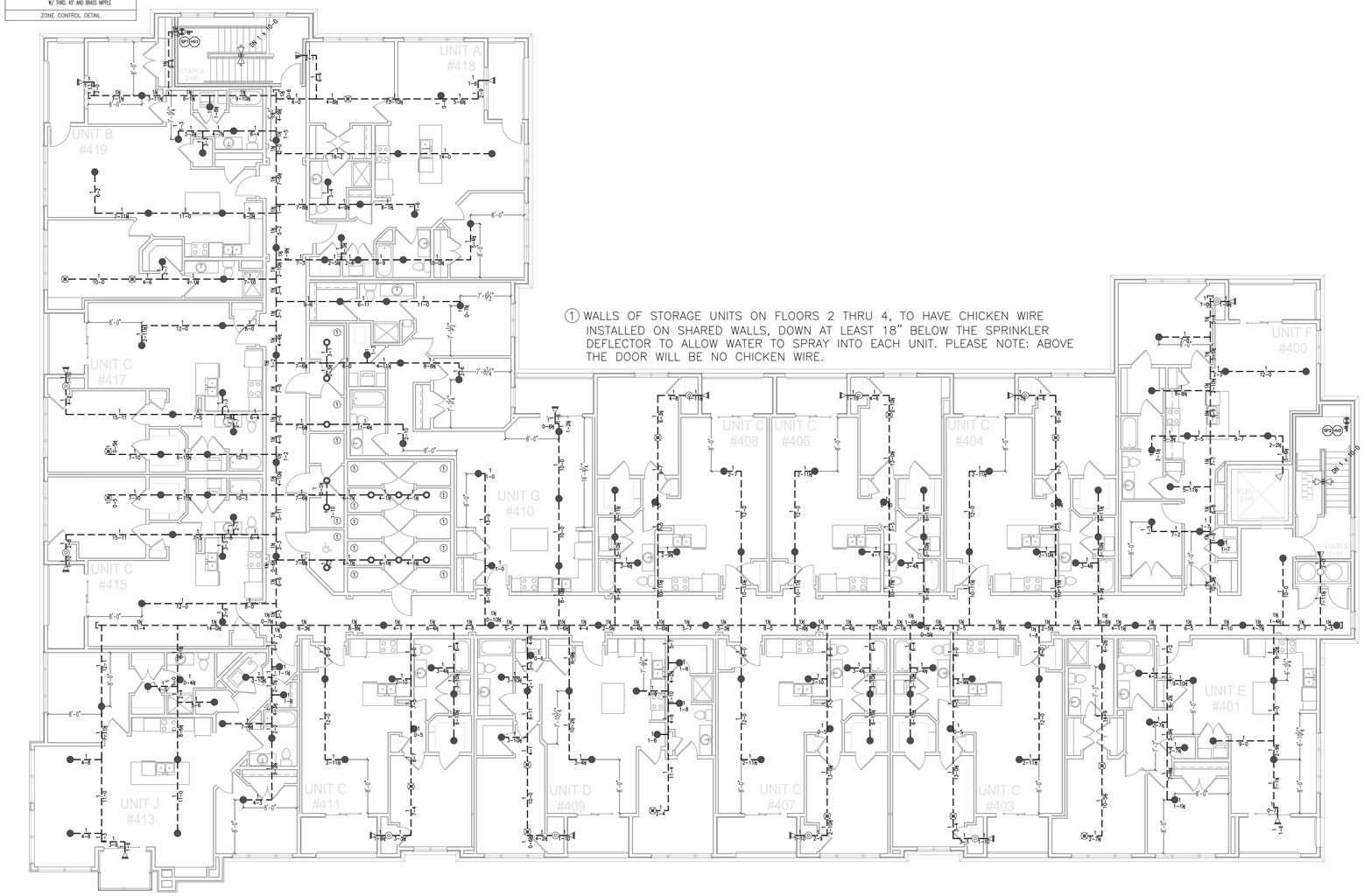
PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO.
FP-9

4TH FLOOR (WEST) WING
18,039 SQ. FT. FOOTPRINT
TOTAL HEADS = 210

① 4" STANDPIPE FEED
② 10" GROOVED 90° ELBOW
③ 10" GLOBE RISER MANIFOLD
INCLUDES:
(1) FLOW SWITCH
(1) 1" TEST & DRAIN W/PRV-
FITTED TO PIPE OUTSIDE
(1) 6" PRESSURE GAUGE (0-300 PSI)
(1) 10" CHECK VALVE AND BUTTERFLY VALVE
(1) 1" QUICK DRAIN FLEX CONNECTION
W/ THRD. 45° AND BRASS NIPPLE

ZONE CONTROL DETAIL



① WALLS OF STORAGE UNITS ON FLOORS 2 THRU 4, TO HAVE CHICKEN WIRE INSTALLED ON SHARED WALLS, DOWN AT LEAST 18" BELOW THE SPRINKLER DEFLECTOR TO ALLOW WATER TO SPRAY INTO EACH UNIT. PLEASE NOTE: ABOVE THE DOOR WILL BE NO CHICKEN WIRE.

FOURTH FLOOR (WEST) FIRE SPRINKLER PLAN
1/8" = 1'-0"

---------- DENOTES CPVC PIPE
———— DENOTES STEEL PIPE

KEY PLAN



SPRINKLER HEAD SCHEDULE

SYMBOL	QTY	MAKE	SIN #	MODEL	K-FACTOR	THREAD SIZE	RESPONSE	TYPE	TEMP	FINISH	ESCUTCHEON	DEFLECTOR DISTANCE	SPACING
◎	10	VIKING	VK302	MICROFAST	5.6	½"	QR	PD	200°	WHITE	MODEL E1	1" - 12"	225 SQ. FT.
⊠	16	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1½"	18' x 18'
●	150	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1½"	16' x 16'
⊙	12	VIKING	VK462	MIRAGE	5.6	½"	QR	PD	155°	WHITE	CONCEALED	1¼" - 1½"	225 SQ. FT.
◁	1	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	155°	BRASS	N/A	4" - 6"	225 SQ. FT.
◁	4	RELIABLE	RA1564	DH56	5.6	½"	QR	HSW	155°	WHITE	MODEL F2	4" - 6"	28' x 8'
◀	15	RELIABLE	R5734	F3QRS6	5.6	½"	QR	DRY HSW	155°	WHITE	SKIRT/SLEEVE	4" - 6"	196 SQ. FT.
◀	2	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	155°	WHITE	MODEL E2	4" - 6"	196 SQ. FT.
○	1	VIKING	VK300	MICROFAST	5.6	½"	QR	UPR	200°	BRASS	N/A	1" - 12"	130 SQ. FT.

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

WISCONSIN SPRINKLER CONTRACTOR
Allen P. Nyberg
S.C. 960117

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
--------		----
--------		----
--------		----
--------		----

☒ NFPA 13 - ---- EDITION
☒ NFPA 13R - 2016 EDITION
☐ NFPA 13D - ---- EDITION
☒ NFPA 14 - ---- EDITION
☐ NFPA 20 - ----EDITION
☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704
CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
☐ DSPS
☐ DHS
☐ FM GLOBAL
☒ MADISON FIRE DEPT.
☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

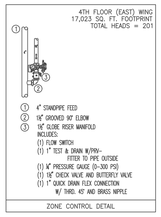
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

DRAWING TITLE:
FOURTH FLOOR (WEST) SPRINKLER PLAN

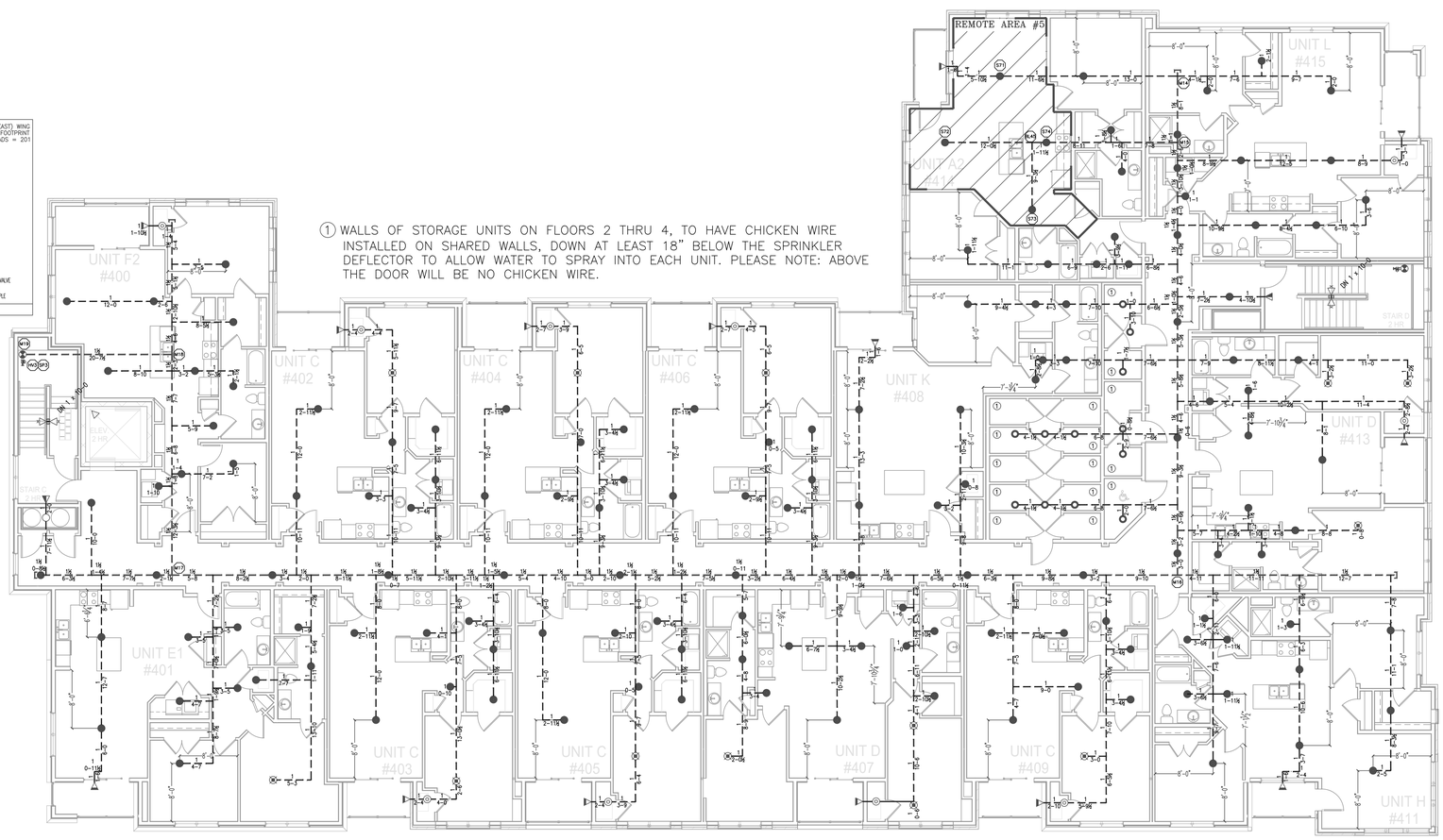
PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO.
FP-10



Hydraulic Calculation Data
Design Area Number: REMOTE AREA 5 Design Area Location: FOURTH FLOOR – EAST WING Hazard/Occupancy: LIGHT HAZARD – NFPA 13R Design Density: 0.05 Design Area: 476.559 Number of Sprinklers in Design Area: 4
System Flow: 56.29 System Pressure: 69.454 Hose Allowance (Included): 200 – [Domestic Demand]

① WALLS OF STORAGE UNITS ON FLOORS 2 THRU 4, TO HAVE CHICKEN WIRE INSTALLED ON SHARED WALLS, DOWN AT LEAST 18" BELOW THE SPRINKLER DEFLECTOR TO ALLOW WATER TO SPRAY INTO EACH UNIT. PLEASE NOTE: ABOVE THE DOOR WILL BE NO CHICKEN WIRE.



FOURTH FLOOR (EAST) FIRE SPRINKLER PLAN
1/8" = 1'-0"

KEY PLAN



---------- DENOTES CPVC PIPE
——— DENOTES STEEL PIPE

SPRINKLER HEAD SCHEDULE

SYMBOL	QTY	MAKE	SIN #	MODEL	K-FACTOR	THREAD SIZE	RESPONSE	TYPE	TEMP	FINISH	ESCUTCHEON	DEFLECTOR DISTANCE	SPACING
◎	10	VIKING	VK302	MICROFAST	5.6	½"	QR	PD	200°	WHITE	MODEL E1	1" - 12"	225 SQ. FT.
⊠	13	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1½"	18' x 18'
●	145	VIKING	VK494	FREEDOM	4.9	½"	QR	RES PD	155°	WHITE	CONCEALED	1¼" - 1½"	16' x 16'
○	12	VIKING	VK462	MIRAGE	5.6	½"	QR	PD	155°	WHITE	CONCEALED	1¼" - 1½"	225 SQ. FT.
◁	1	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	155°	BRASS	N/A	4" - 6"	225 SQ. FT.
◁	4	RELIABLE	RA1564	DH56	5.6	½"	QR	HSW	155°	WHITE	MODEL F2	4" - 6"	28' x 8'
◁	14	RELIABLE	R5734	F3QR56	5.6	½"	QR	DRY HSW	155°	WHITE	SKIRT/SLEEVE	4" - 6"	196 SQ. FT.
◀	2	VIKING	VK305	MICROFAST	5.6	½"	QR	HSW	155°	WHITE	MODEL E2	4" - 6"	196 SQ. FT.
○	1	VIKING	VK300	MICROFAST	5.6	½"	QR	UPR	200°	BRASS	N/A	1" - 12"	130 SQ. FT.

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN SPRINKLER CONTRACTOR
Allen P. Nyberg
S.C. 960117

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
--------		----
--------		----
--------		----
--------		----
--------		----

☒ NFPA 13 - ---- EDITION
☒ NFPA 13R - 2016 EDITION
☐ NFPA 13D - ---- EDITION
☒ NFPA 14 - ---- EDITION
☐ NFPA 20 - ----EDITION
☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704

CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
☐ DSPS
☐ DHS
☐ FM GLOBAL
☒ MADISON FIRE DEPT.
☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

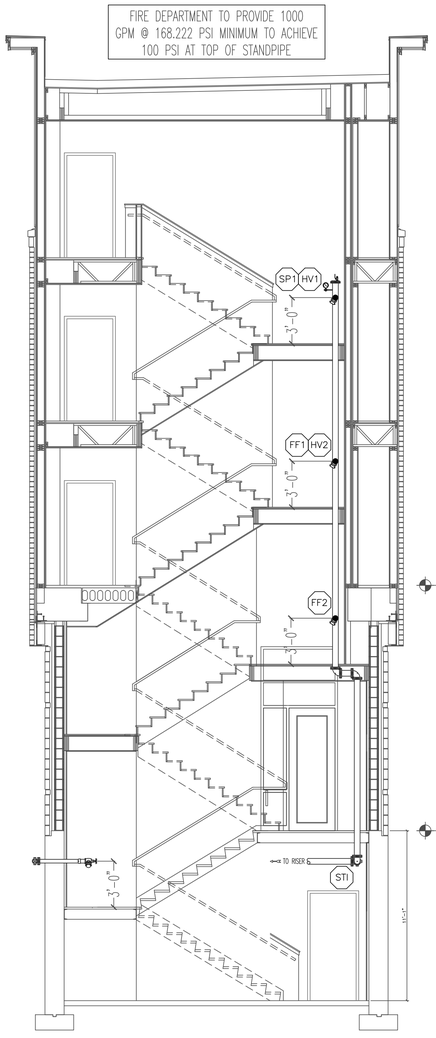
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"
0 1 2 3 4 5 6 7 8

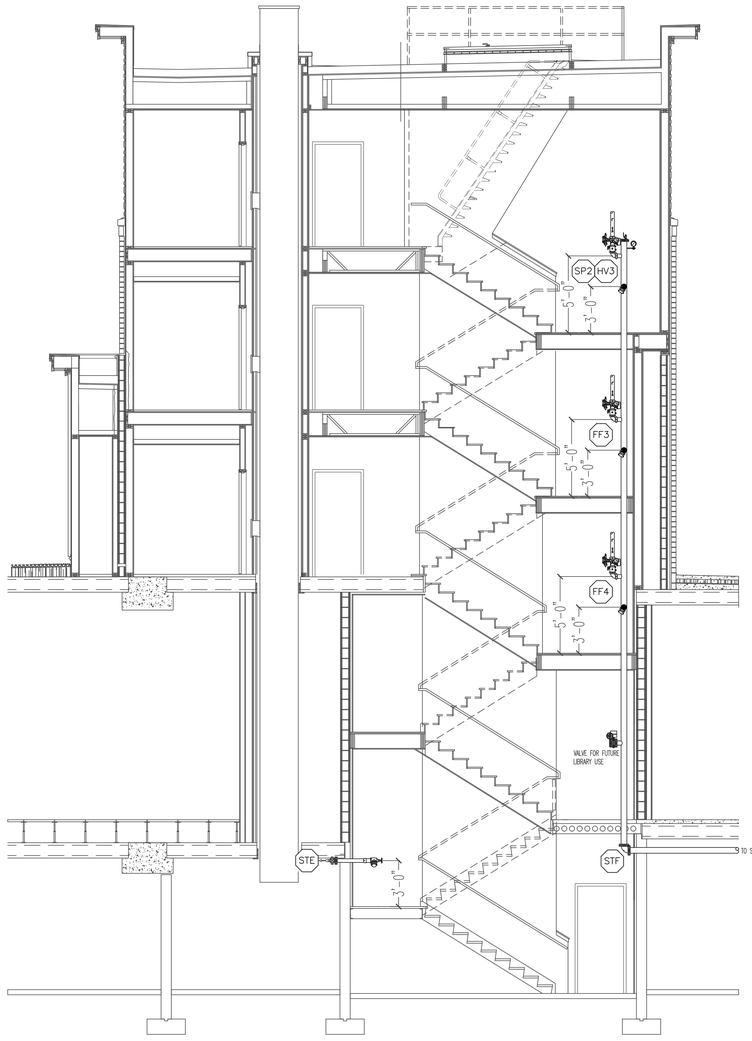
DRAWING TITLE:
FOURTH FLOOR (EAST) SPRINKLER PLAN

PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

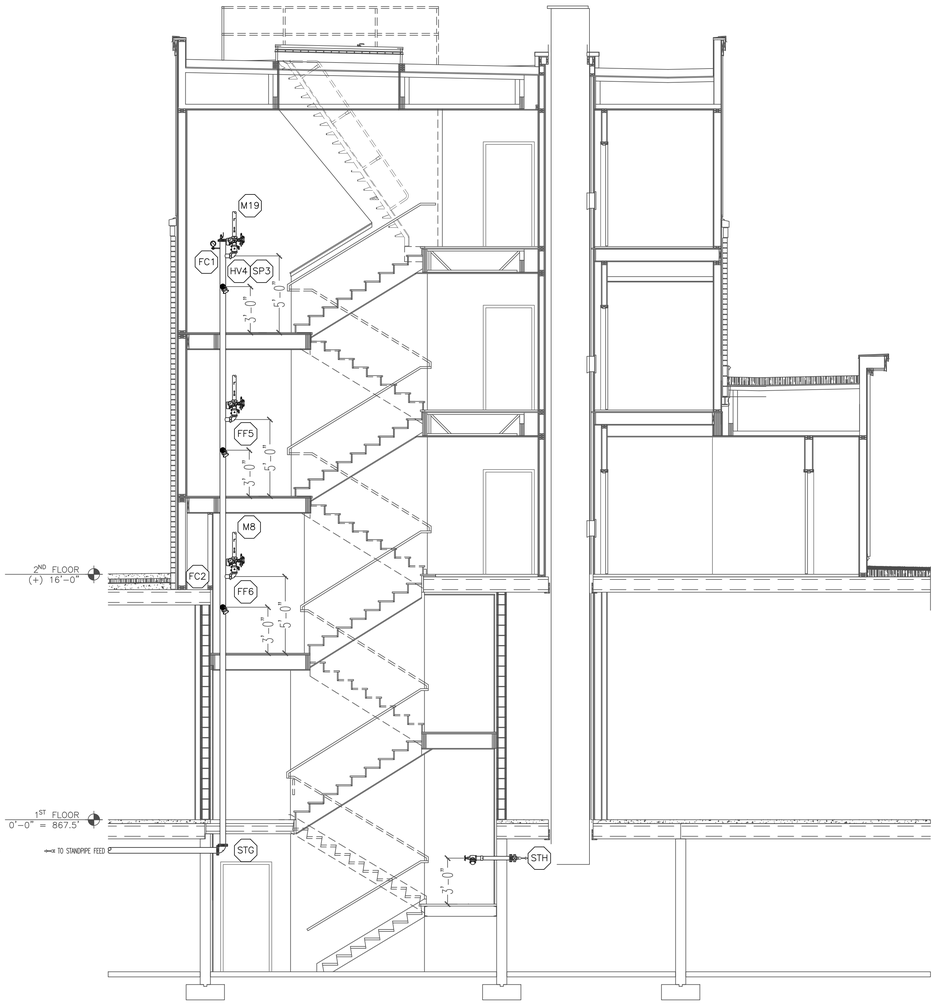
SHEET NO.
FP-11



A STAIR A - SECTION
1/4" = 1'-0"



B STAIR B - SECTION
1/4" = 1'-0"



C STAIR C - SECTION
1/4" = 1'-0"

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN
Allen P. Nyberg
S.C. 960117
SPRINKLER CONTRACTOR

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
---------		----
---------		----
---------		----
---------		----

- ☒ NFPA 13 - ---- EDITION
- ☒ NFPA 13R - 2016 EDITION
- ☐ NFPA 13D - ---- EDITION
- ☒ NFPA 14 - ---- EDITION
- ☐ NFPA 20 - ----EDITION
- ☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704

CONTACT:
SCOTT PULVER

(608) 249-2012 EXT. 231

APPROVAL BY:
- ☐ DSPS
- ☐ DHS
- ☐ FM GLOBAL
- ☒ MADISON FIRE DEPT.
- ☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

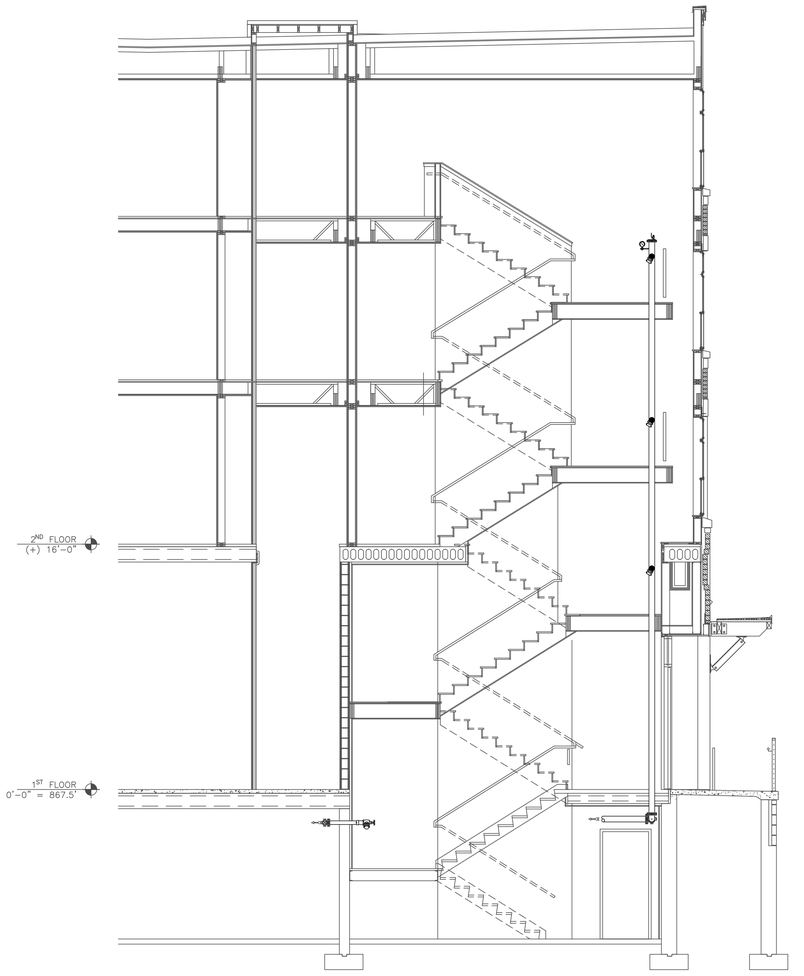
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

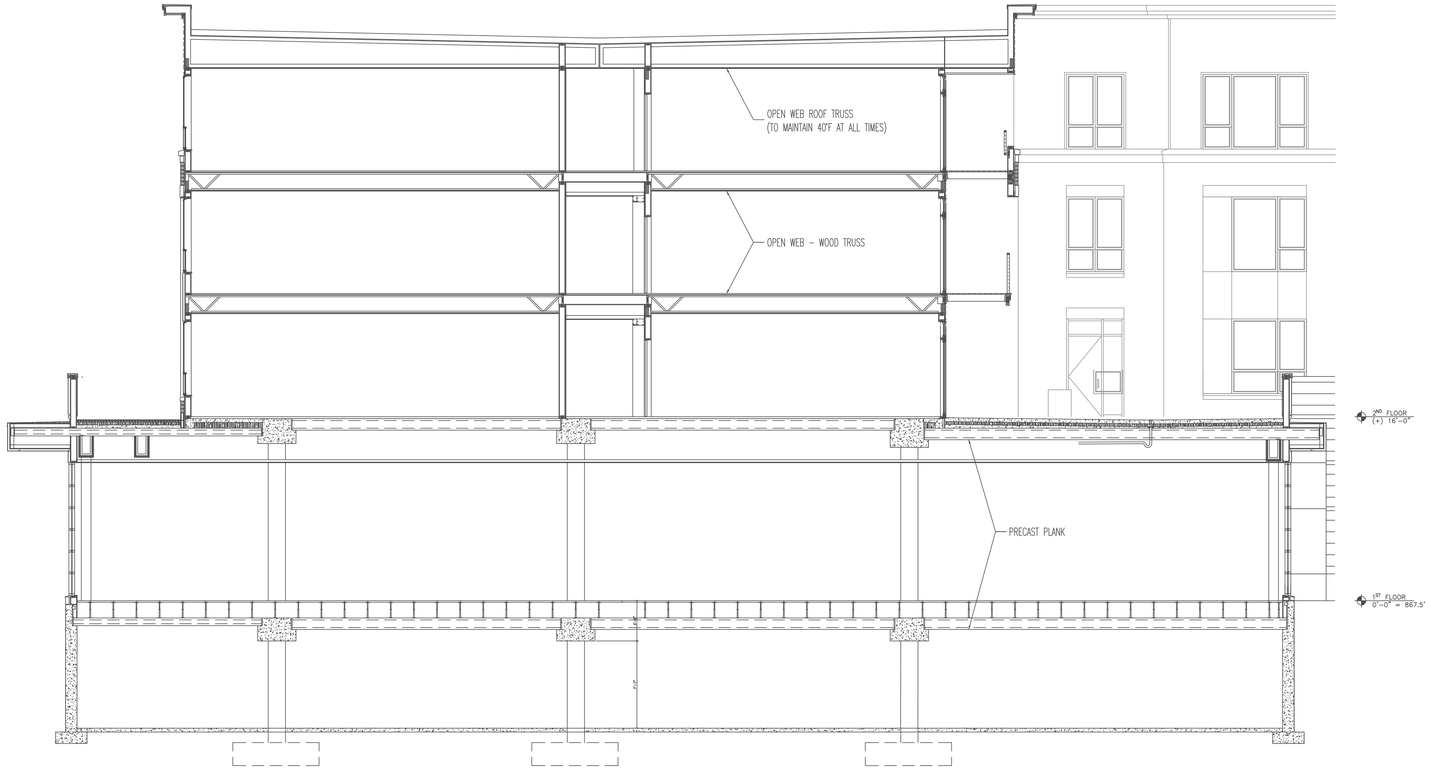
DRAWING TITLE:
STAIR SECTION

PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO:
FP-12



D STAIR D - SECTION
1/4" = 1'-0"



E BUILDING SECTION
3/16" = 1'-0"

Dave Jones Inc.
2225 Kilgust Road
Madison, WI 53713

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION

WISCONSIN
Allen P. Nyberg
S.C. 965117
SPRINKLER CONTRACTOR

REVISIONS:

SUBMITTAL TO AHJ		08/16/18
2	RESUBMITTAL TO RDC	----
---	---	---
---	---	---
---	---	---
---	---	---

- ☒ NFPA 13 - ---- EDITION
- ☒ NFPA 13R - 2016 EDITION
- ☐ NFPA 13D - ---- EDITION
- ☒ NFPA 14 - ---- EDITION
- ☐ NFPA 20 - ----EDITION
- ☐ ----

CONTRACT WITH:
RUEDEBUSCH DEVELOPMENT & CONSTRUCTION INC.
4605 DOVETAIL DRIVE
MADISON, WI. 53704
CONTACT:
SCOTT PULVER
(608) 249-2012 EXT. 231

APPROVAL BY:
- ☐ DSPS
- ☐ DHS
- ☐ FM GLOBAL
- ☒ MADISON FIRE DEPT.
- ☐ ----

DRAWN BY: TS

CONTRACT #: 1649908

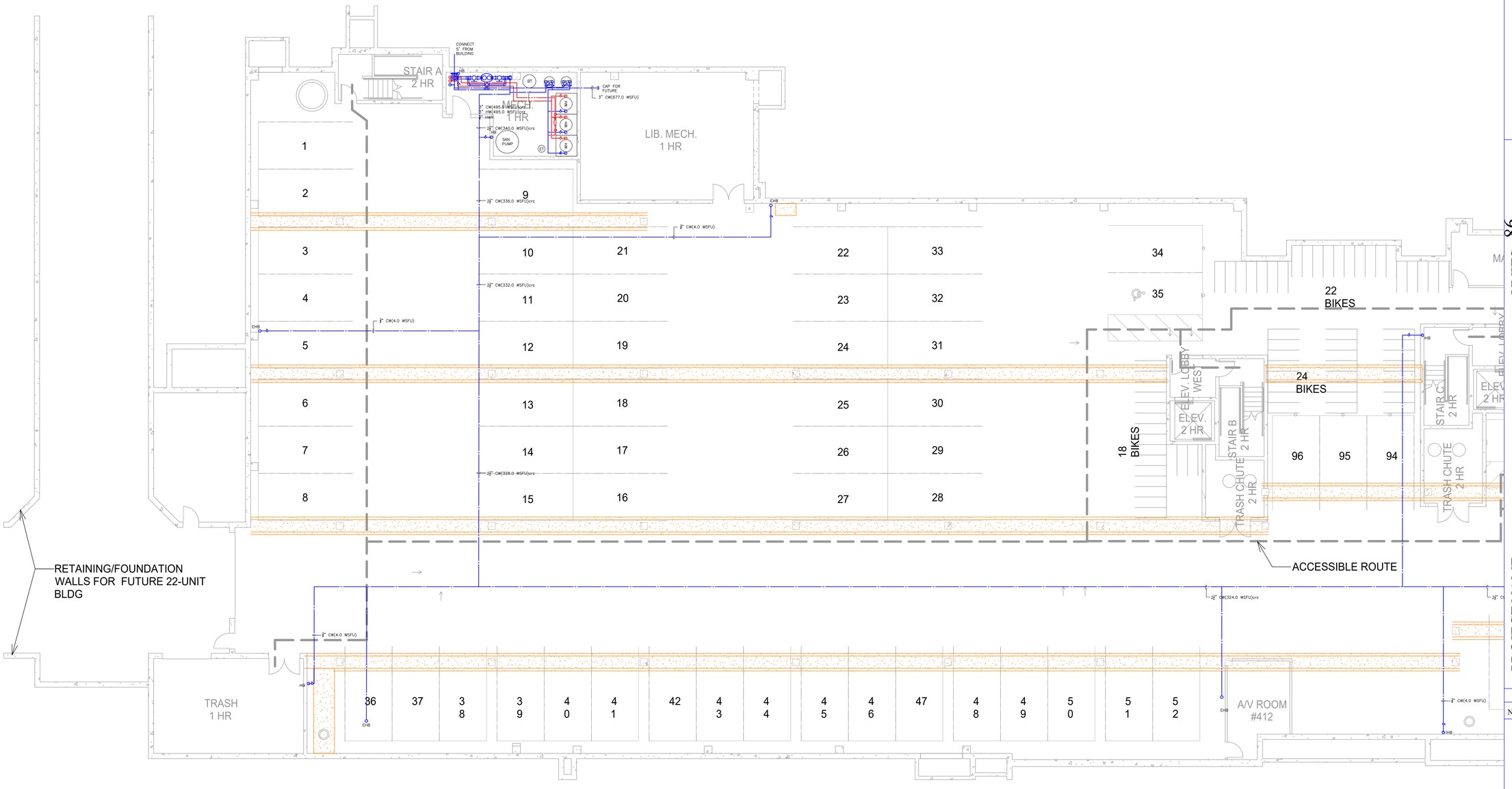
DATE ISSUED: 08/14/2018

SCALE: 1/8" = 1'-0"

DRAWING TITLE: BUILDING SECTION

PROJECT:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI. 53718

SHEET NO: FP-13



1 / P21 DOMESIC WATER PARKING GARAGE WEST WING

SCALE: 1/8" = 1'0"

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

- [x] REVIEWED WITH NO COMMENTS
- [ ] REVIEWED WITH COMMENTS AS NOTED
- [ ] REVISE AND RESUBMIT
- [ ] REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 9/10/2018

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS: 86

PROJECT NAME:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI

REVISIONS

NO	DESCRIPTION	DATE

Project Manager: Emily Sosa

Scale: 1/8"=1'0"

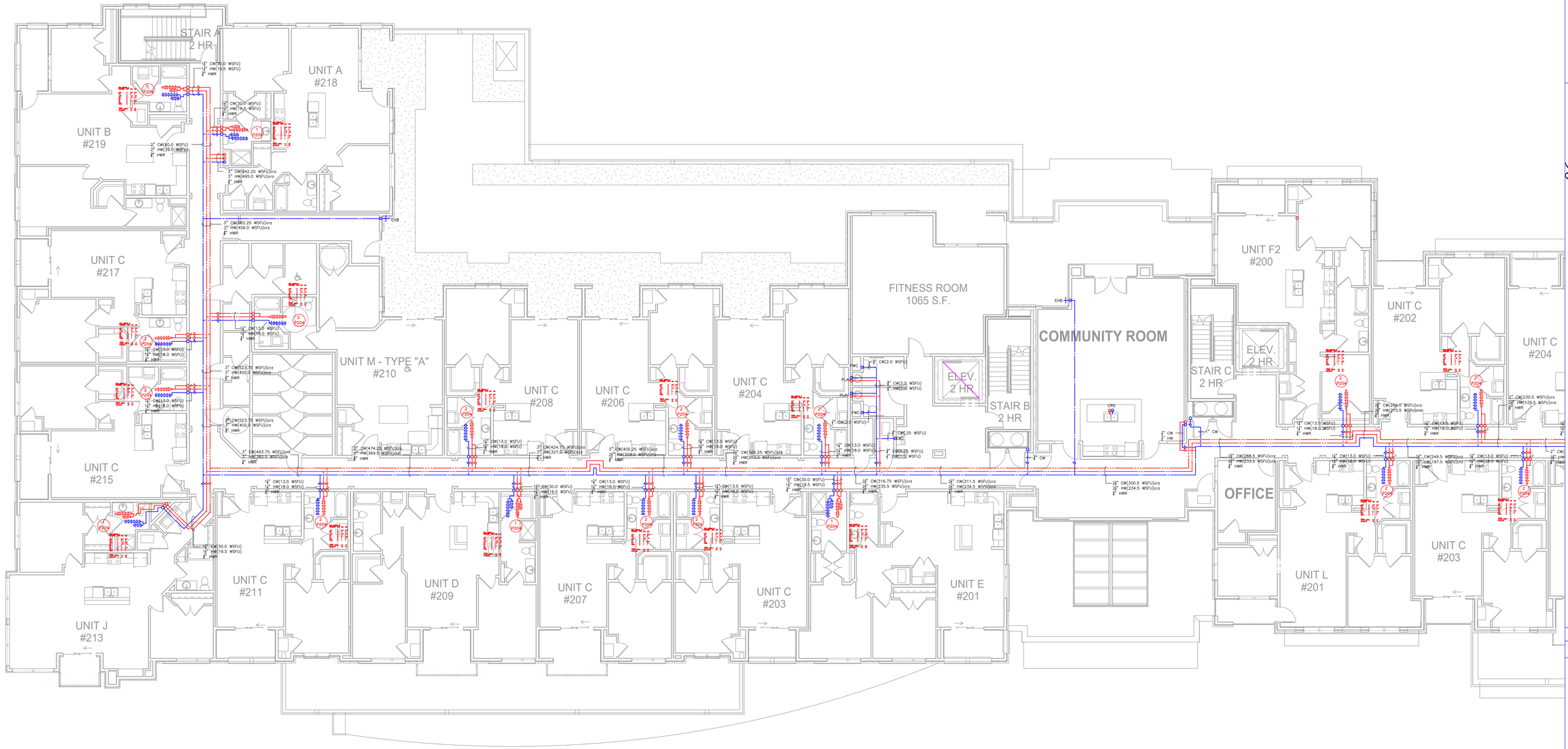
Project Number: 1711500

Date: 5-1-18

Set Type:

P21

GARAGE EXHAUST AREA WELL
PIPE HANDRAIL
FUTURE LANDSCAPE WALL BY TENANT
LIBRARY MECH. ROOM AREA WELL
EXISTING BIKE PAVILION WALL
BIKE PAVILION
FUTURE LANDSCAPE WALL BY TENANT
LANDSCAPE GARDEN BY TENANT
CABLE GUARD RAIL
LOADING DOCK
TRASH ENCLOSURE
ROOF DRAIN
PARKING GARAGE DRIVE - BELOW GRADE
CABLE GUARD RAIL
CABLE GUARD RAIL
FREE STANDING SIGN BY OTHERS
PIPE HANDRAIL
CABLE GUARD RAIL
RAMP DN
PLANTER
PLANTER
BIKE PARKING
FRESH AIR INTAKE AREA WELL
TYP.
STAIR A 2 HR
STAIR B 2 HR
STAIR C 2 HR
ELEV. 2 HR
ELEV. LOBBY EAST
ELEV. LOBBY WEST
SUPERVISOR'S OFFICE 133
STAFF OPEN OFFICE 131
BREAK ROOM 132
PROJECT WORK ROOM 130
SHIPPING/ RECEIVING 128
STORAGE 114A
TRASH ENCLOSURE
COMMUNITY ROOM 1 114
COMMUNITY ROOM 2 115
IT ROOM 129
COMFORT ROOM 127
AV CLOSET 115A
DRIVE-THRU BOOK RETURN 136
CHILDREN'S PROGRAM STORAGE 123A
LIBRARIAN OFFICES 134
CHILDREN'S PROGRAM ROOM 123
READING NICHE 122A
READING NICHE 122B
PLAYLAB 122
CHILDREN'S COLLECTION 121
SCHOOL AGED CHILDREN'S COLLECTION 120
ADA FAMILY RESTROOM 126
ADA FAMILY RESTROOM 125
FAMILY STUDY ROOM 124
PUBLIC RESTROOM CORRIDOR 116
TLT 116C
TLT 116B
ADA TLT 116A
ADA TLT 116E
ADA TLT 116D
JANITORS CLOSET 116F
HOLDS / BUSINESS CENTER 107
CIRCULATION 106
SORTING / CIRC. WORK 105
MECH CLOSET 104
LOBBY 102
STUDIO STORAGE 103A
PINNEY STUDIO 103
ADULT FICTION/NON-FICTION 108
ADULT QUIET READING 113
SOUTHWEST TERRACE EX102
NORTH GARDEN/ PATIO EX103
STUDY ROOM 112
STUDY ROOM 111
STUDY ROOM 110
STUDY ROOM 109
MECH CHASE
ADA STAFF RESTROOM 135
MECH CHASE
MECH CHASE
MECH CHASE



1 / P25 DOMESTIC WATER SECOND FLOOR WEST WING

SCALE: 1/8" = 1'0"

N

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS: 86

PROJECT NAME:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI

REVISIONS

NO	DESCRIPTION	DATE

Project Manager: Emily Sosa
Scale: 1/8"=1'0"
Project Number: 1711500
Date: 5-1-18
Set Type:

P25



1 / P27 DOMESTIC WATER THIRD FLOOR WEST WING

SCALE: 1/8" = 1'0"

N

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8400 Fax: (608)-222-8503

UNITS: 86

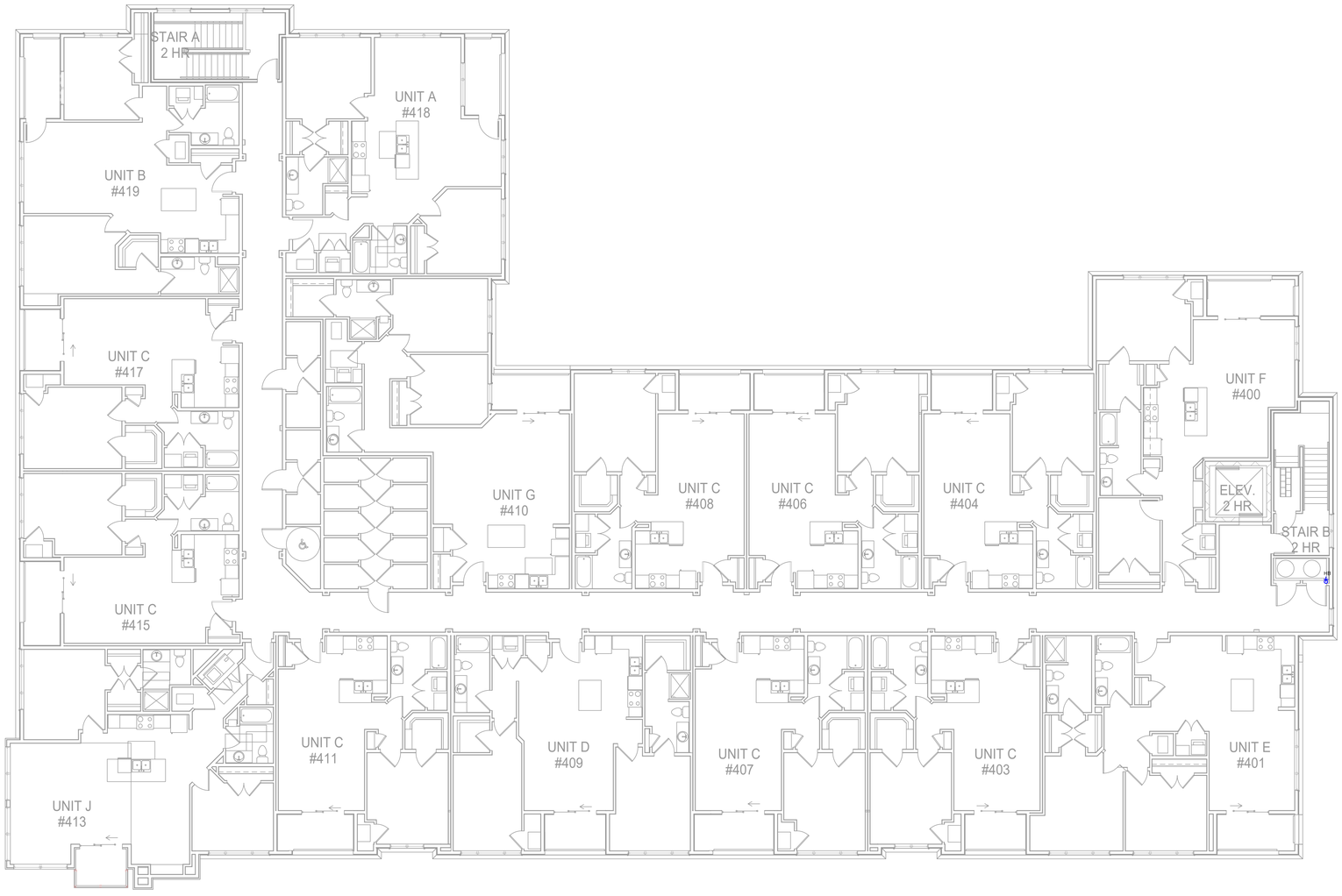
PROJECT NAME:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI

REVISIONS

NO	DESCRIPTION	DATE

Project Manager: Emily Sosa
Scale: 1/8"=1'0"
Project Number: 1711500
Date: 5-1-18
Set Type:

P27



1
P29

DOMESTIC WATER FOURTH FLOOR WEST WING

SCALE: 1/8" = 1'0"

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8400 Fax: (608)-222-8503

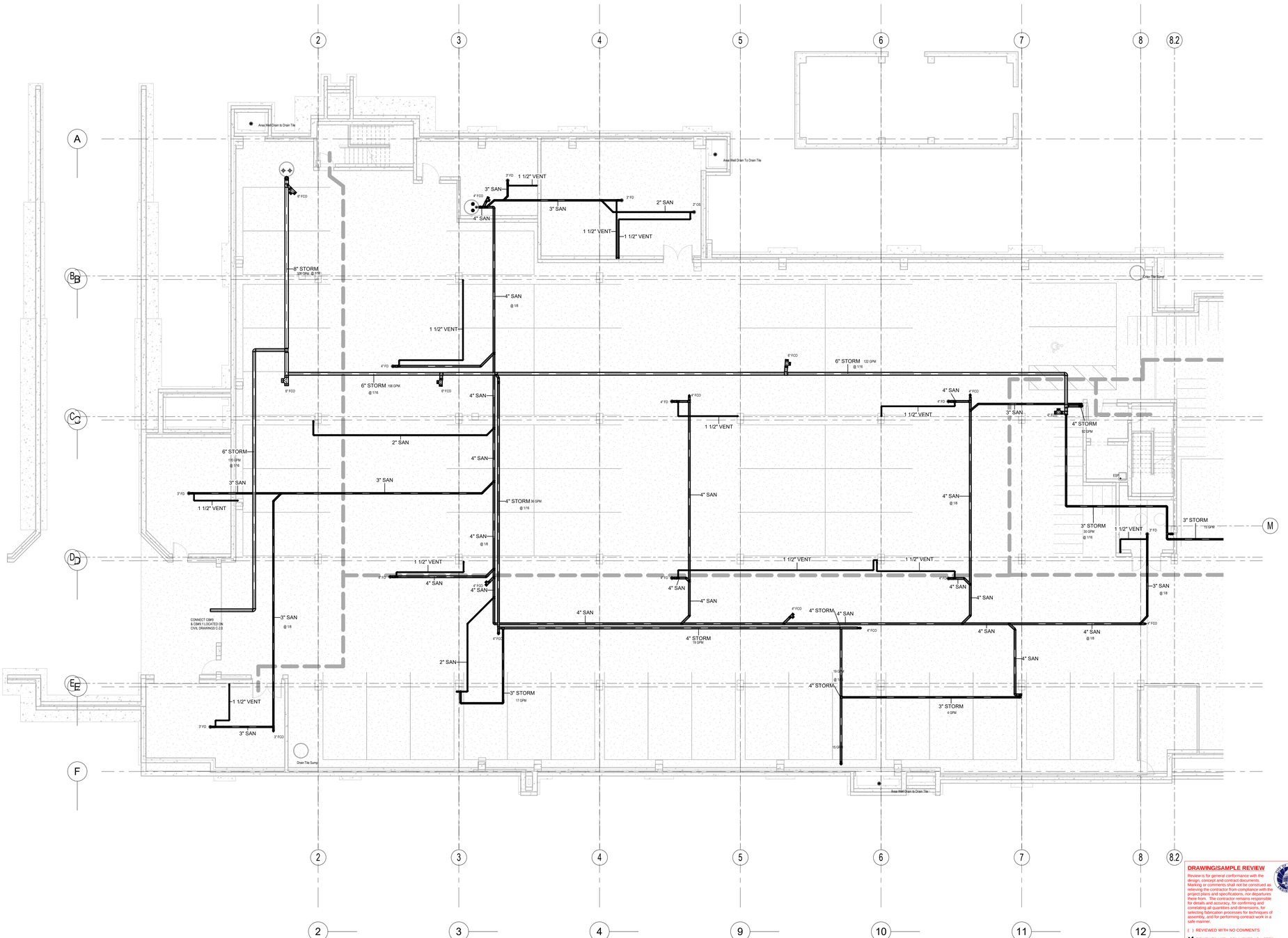
UNITS: 86

PROJECT NAME:
ROYSTER CROSSING
521 GRAND OAK TRAIL
MADISON, WI

REVISIONS		
NO	DESCRIPTION	DATE

Project Manager: Emily Sosa
Scale: 1/8"=1'0"
Project Number: 1711500
Date: 5-1-18
Set Type:

P29



1 P1 **Level 1 Underground West Wing**
SCALE: 1/8" = 1'-0"

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS
X REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA
DATE: 9/10/2018

Refer to email dated 8-20-18 from Ryan Frank related to plan revision to accommodate plumbing chase at Comfort Room (column bay C3)

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:

PROJECT NAME:
Royster Crossing
516 Cottage Grove Road Madison, WI

REVISIONS

NO	DESCRIPTION	DATE

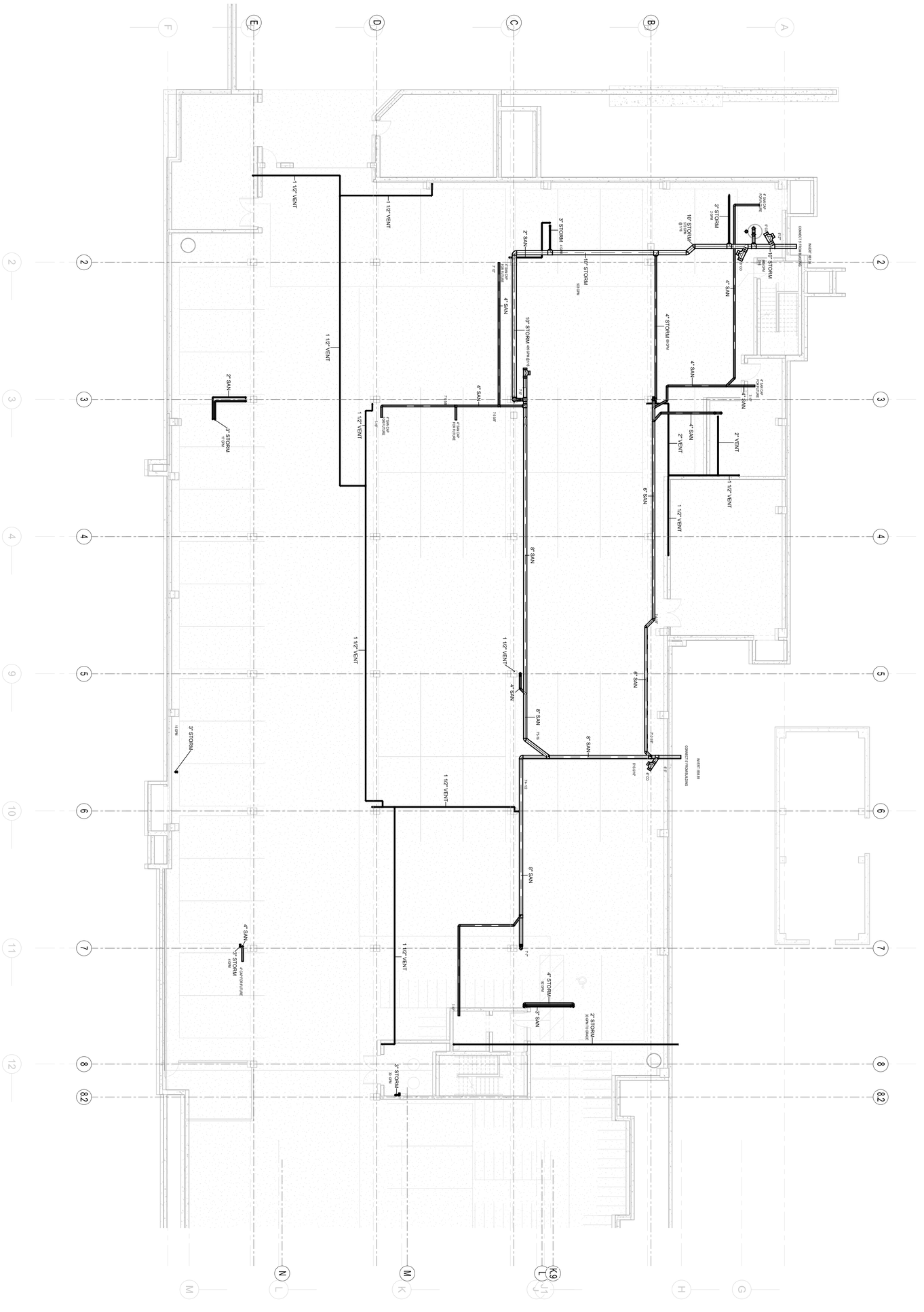
Scale: 1/8" = 1'-0"

Project Number 1711500

Date: 8-1-18

P1

C:\Users\kbindl\Desktop\Royster Revit 2\Royster 8 Revised_detached.rvt



1 P3 **West Wing Parking**
SCALE: 1/8" = 1'-0"

C:\Users\rbond\Desktop\Royster Revit 23\royster 8 Revised_detached.rvt

P3

Scale: 1/8" = 1'-0"
Project Number 1711500
Date: 8-1-18

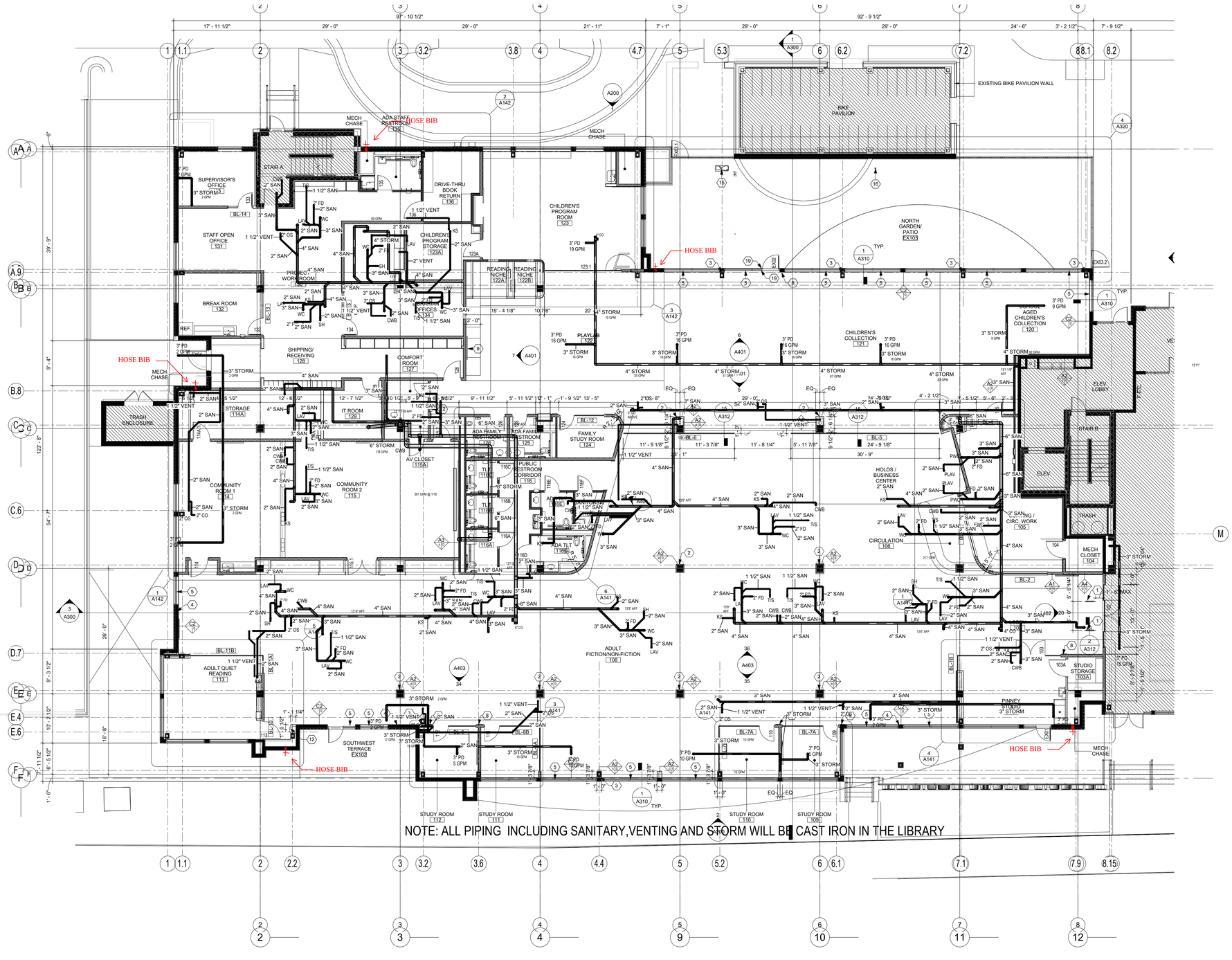
NO	DESCRIPTIO N	DATE

REVISIONS

PROJECT NAME:
Royster Crossing
516 Cottage Grove Road Madison, WI

UNITS:

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503



1 P5 **West Wing Library**
SCALE: 1/8" = 1'-0"

C:\Users\kbindl\Desktop\Royster Revit 2\Royster 8 Revised_detached.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)222-5900 Fax: (608)222-5303

UNITS:

PROJECT NAME:
Royster Crossing
516 Cottage Grove Road Madison, WI

REVISIONS

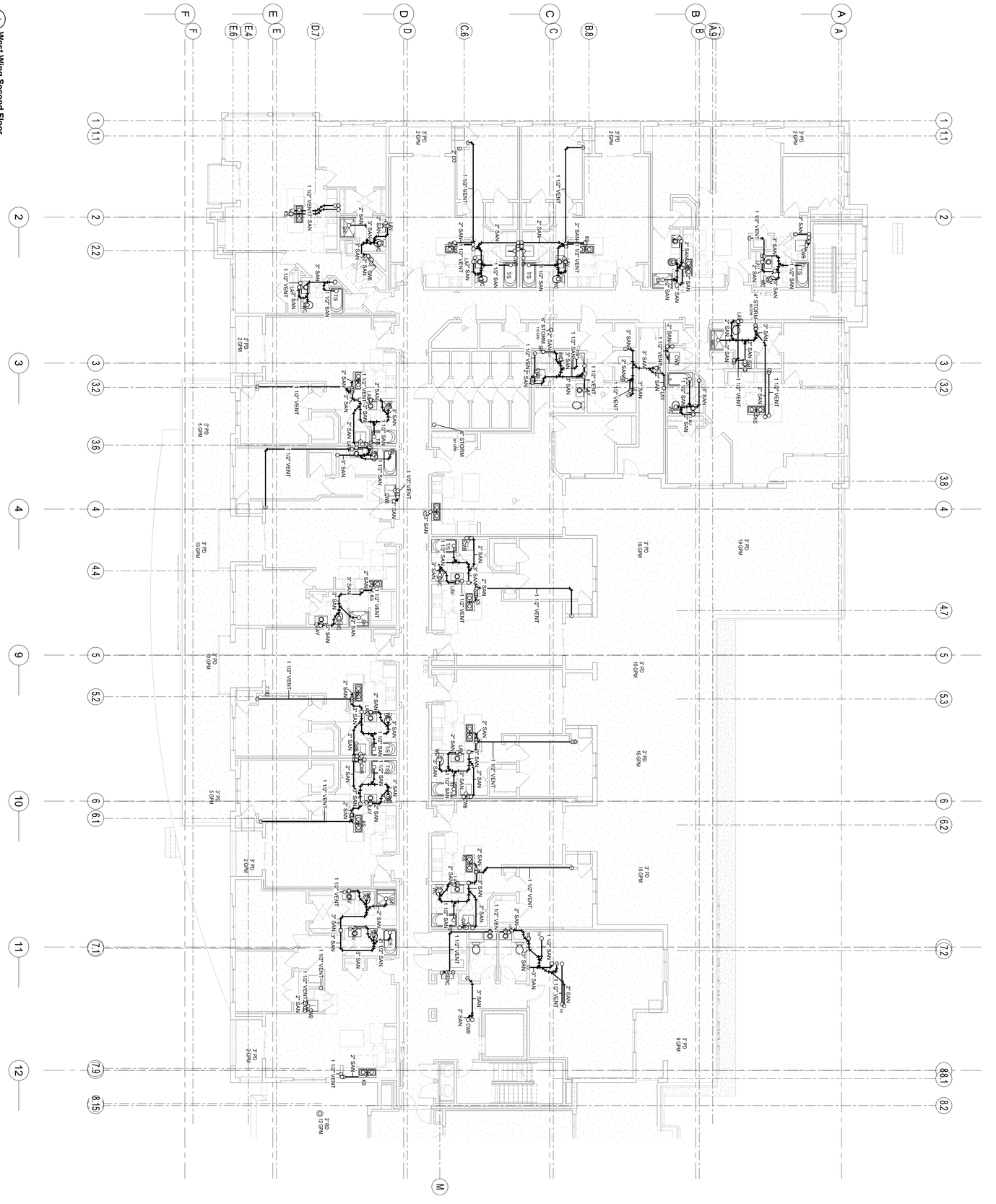
NO	DESCRIPTIO N	DATE

Scale: 1/8" = 1'-0"

Project Number 1711500

Date: 8-1-18

P5



1 / P7 **West Wing Second Floor**
SCALE: 1/8" = 1'-0"

C:\Users\rbond\Desktop\Royster Revit 2\Royster 8 Revised_detached.rvt

P7

Scale: 1/8" = 1'-0"

Project Number 1711500

Date: 8-1-18

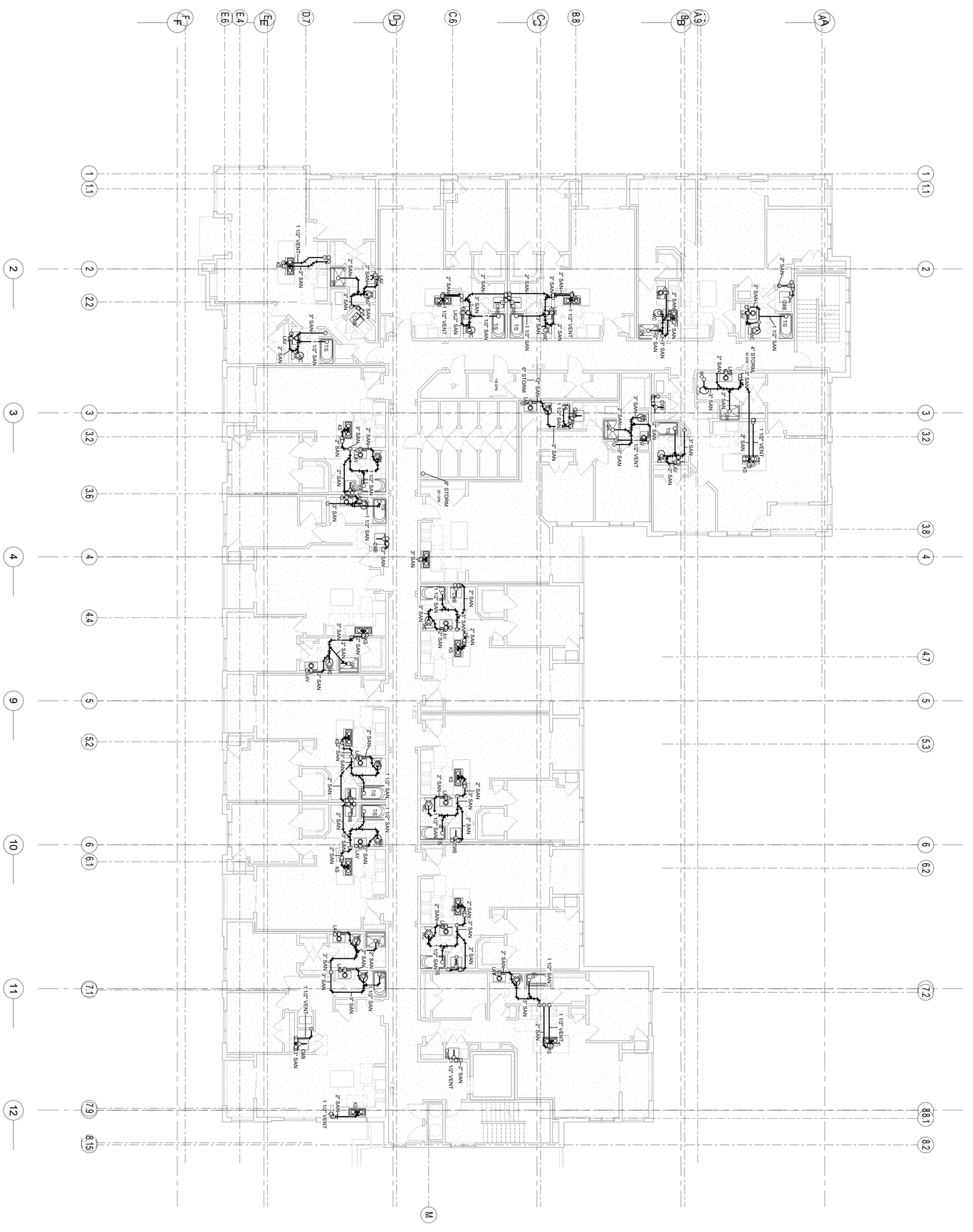
NO	DESCRIPTION	DATE

REVISIONS

PROJECT NAME:
Royster Crossing
516 Cottage Grove Road Madison, WI

UNITS:

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503



West Wing Third Floor
SCALE: 1/8" = 1'-0"

C:\Users\rbond\Desktop\Royster Revit 2\Royster 8 Revised_detached.rvt

P9

Scale: 1/8" = 1'-0"

Project Number:1711500

Date:8-1-18

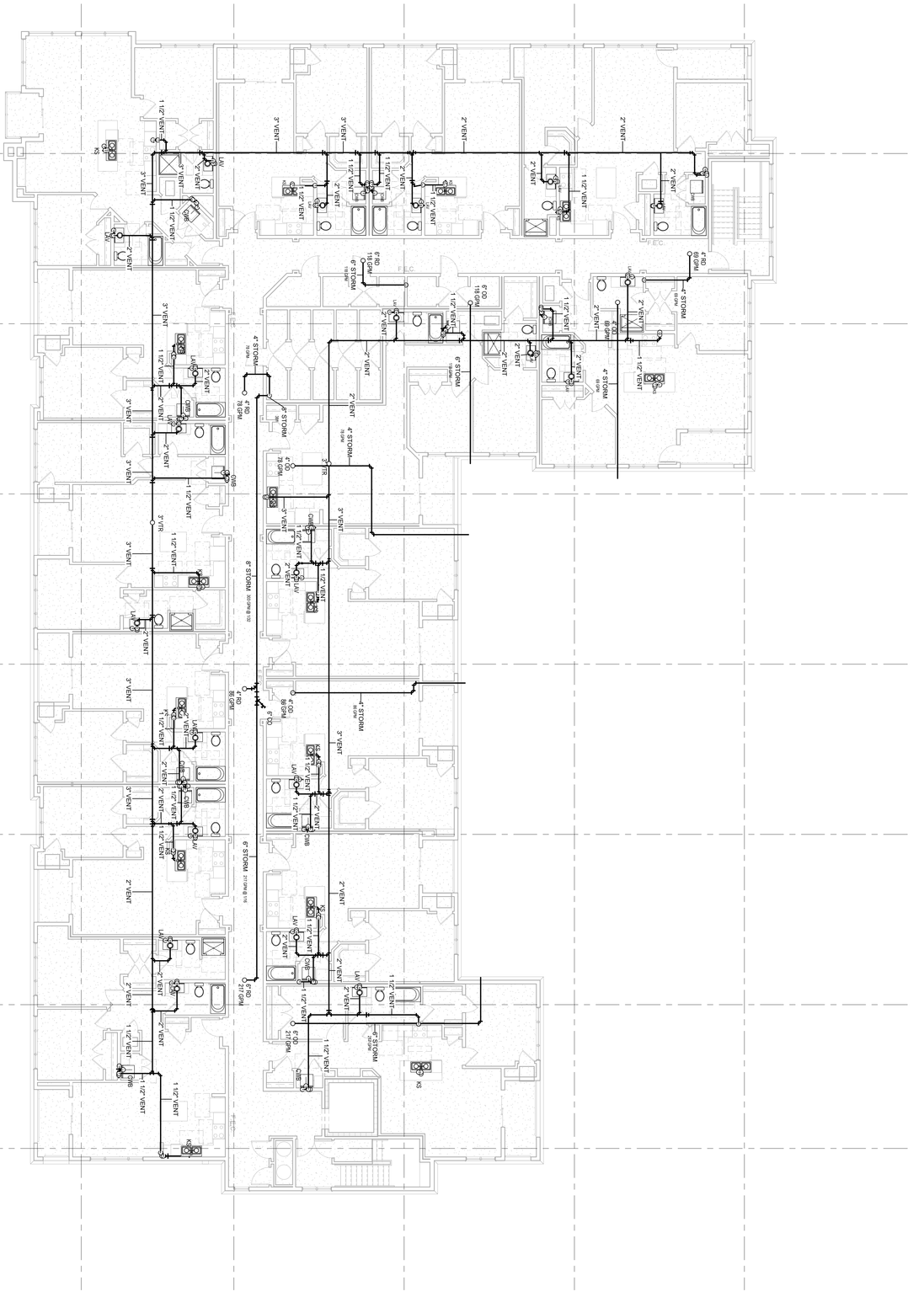
NO	DESCRIPTIO N	DATE

REVISIONS

PROJECT NAME:
Royster Crossing
516 Cottage Grove Road Madison, WI

UNITS:

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503



P111 **West Wing Fourth Floor**
SCALE: 1/8" = 1'-0"

C:\Users\rbond\Desktop\Royster Revit 2\Royster 8 Revised_detached.rvt

P11

Scale: 1/8" = 1'-0"

Project Number:1711500

Date: 8-1-18

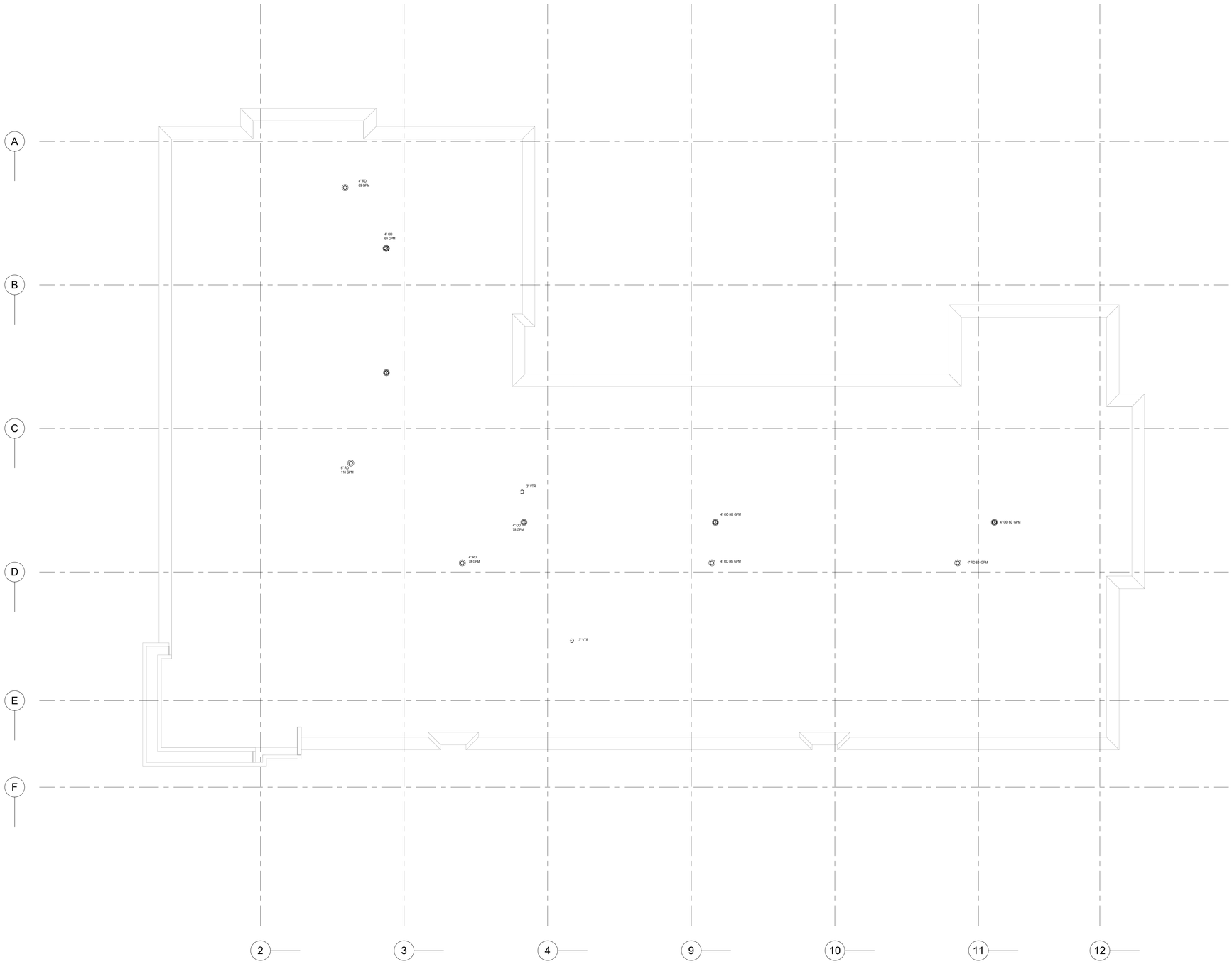
REVISIONS

NO	DESCRIPTION	DATE

PROJECT NAME:
Royster Crossing
516 Cottage Grove Road Madison, WI

UNITS:

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503



1 P13 **West Wing Roof**
SCALE: 1/8" = 1'-0"

C:\Users\kbindl\Desktop\Royster Revit 2\Royster 8 Revised_detached.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)222-5090 Fax: (608)222-5503

UNITS:

PROJECT NAME:
Royster Crossing
516 Cottage Grove Road Madison, WI

REVISIONS		
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

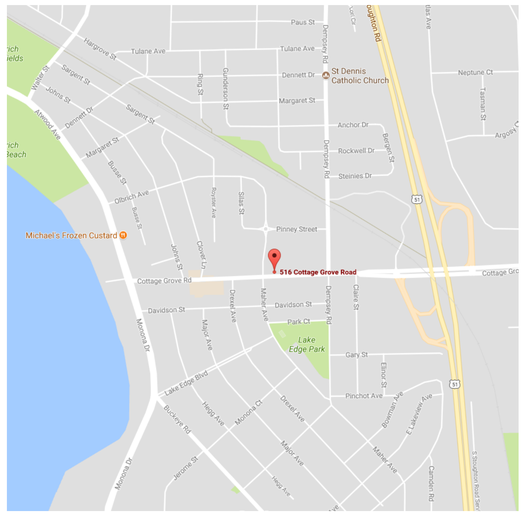
Project Number 1711500

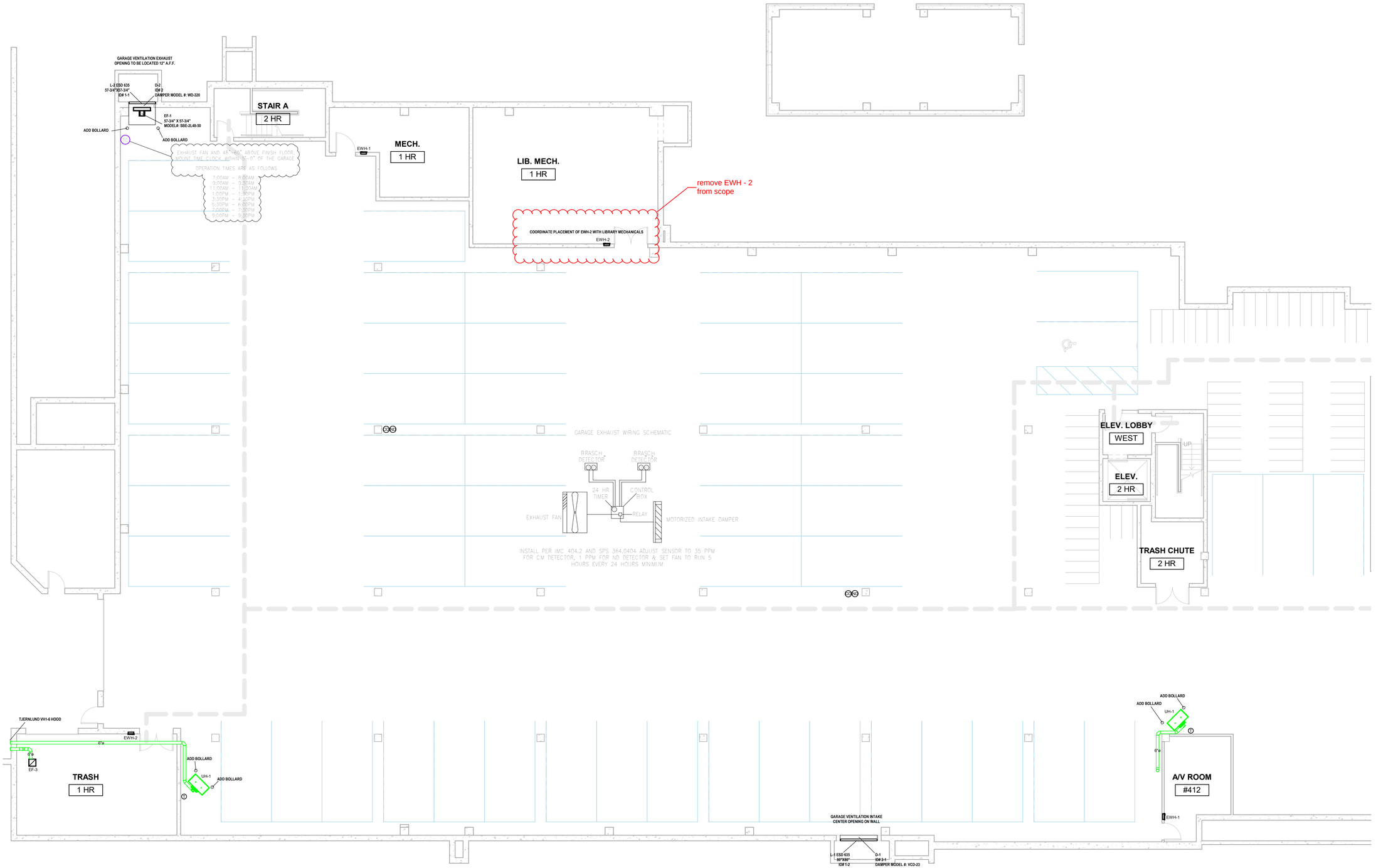
Date: 8-1-18

P13

ROYSTER CROSSING
521-523 GRAND OAK TRAIL, MADISON, WISCONSIN




Paus St
Tulane Ave
St Dennis Catholic Church
Dennett Dr
Margaret St
Anchor Dr
Rockwell Dr
Steinies Dr
Pinney Street
Michael's Frozen Custard
516 Cottage Grove Road
Cottage Grove Rd
Davidson St
Park Ct
Lake Edge Park
Gary St
Pinchot Ave
Lake Edge Blvd
Monona Dr
Jerome St
Sargent St
Johns St
Tulane Ave
Neptune Ct
Argyle Ct
Pinney St
Clark St
Dempsey Rd
Dunnary Rd
Broadway Rd
Cottage Grove Rd
Lakeview Ave
Camden Rd
Stoughton Road
Ridgewood Way
Maple Ave
Oriole Dr
Monona Ct
Buckeye Rd
Hegdal Ave
Yale Ave
Ohlrich Ave
Burke St
Meadow Ave
Hargrove St
Glendenning St
Ring St
Rowe Ave
Sims St
Bernard St
Lamont St
Elliott St
Bowman Ave
Lakeview Ave
Oriole Dr
Maple Ave
Yale Ave
Maple Ave
Monona Ct
Buckeye Rd
Hegdal Ave
Jerome St
Monona Dr
Lake Edge Blvd
Monona St
Davidson St
Park Ct
Gary St
Pinchot Ave
Cottage Grove Rd
Cottage Gro
Dempsey Rd
Clark St
Elliott St
Bowman Ave
Lakeview Ave
Camden Rd
Stoughton Road
Ridgewood Way



1 / M1 **Basement HVAC - WEST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

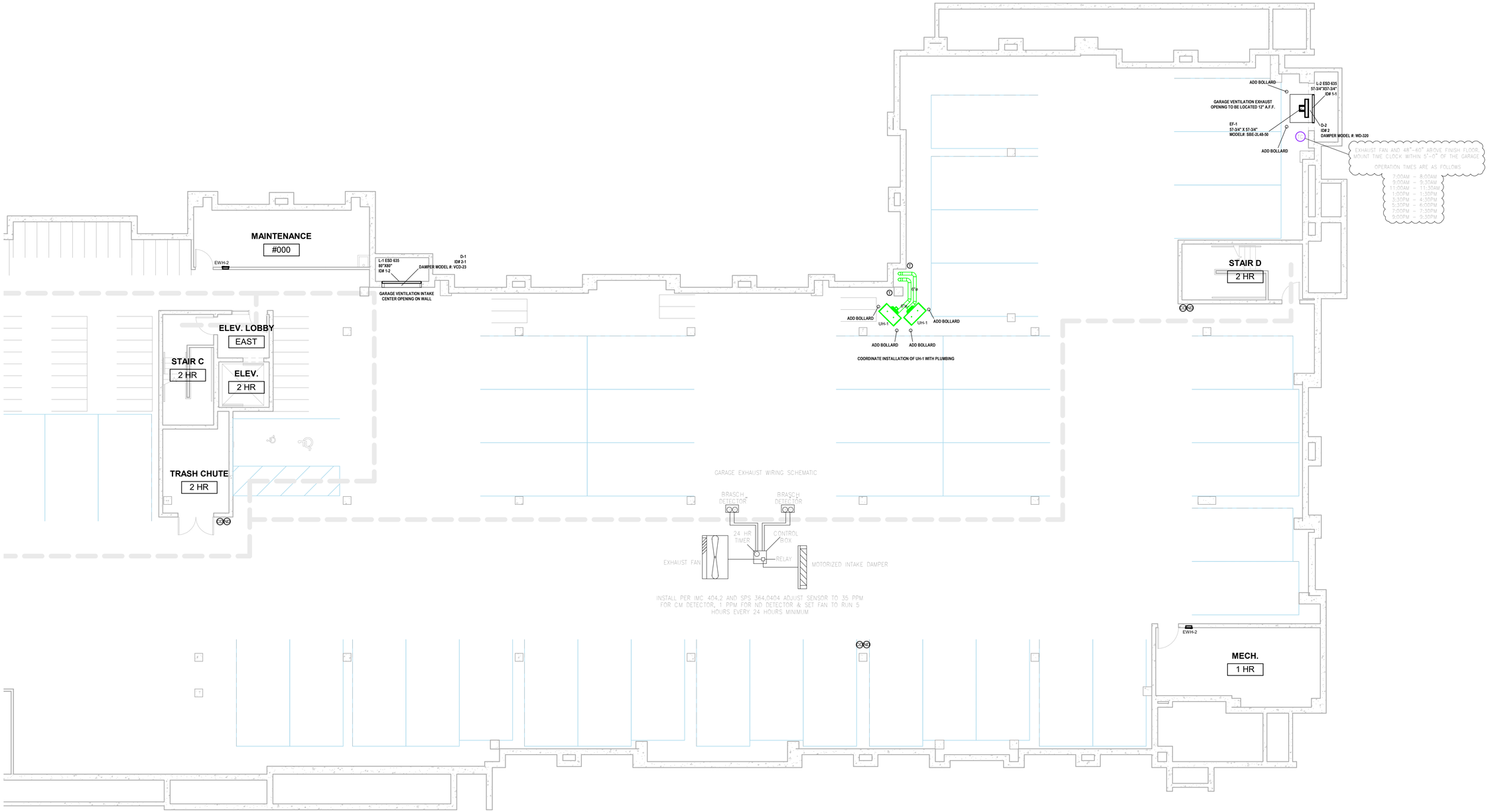
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M1



1 M2 **Basement HVAC - EAST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

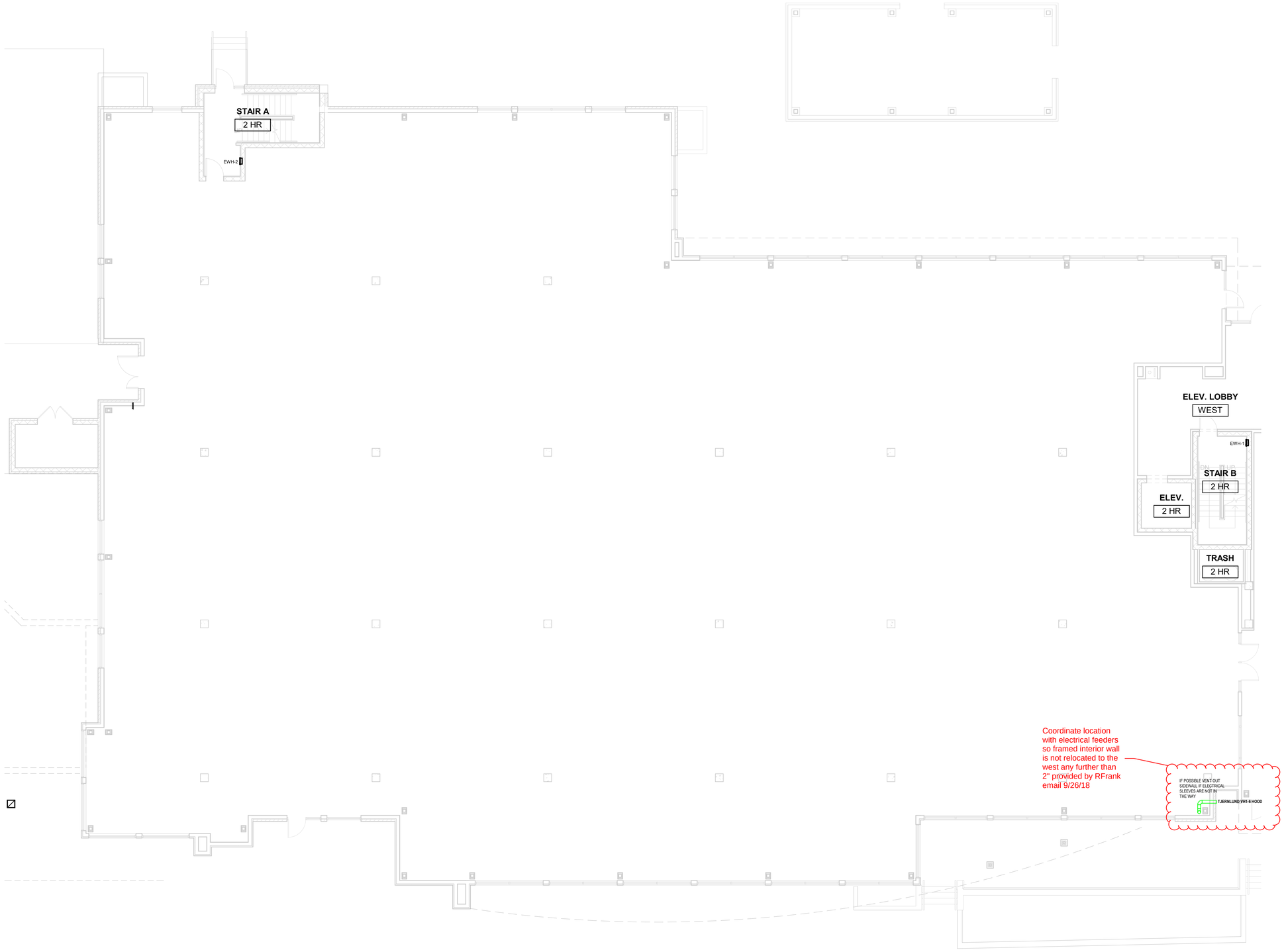
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M2



1 M3 **1st Floor HVAC - WEST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

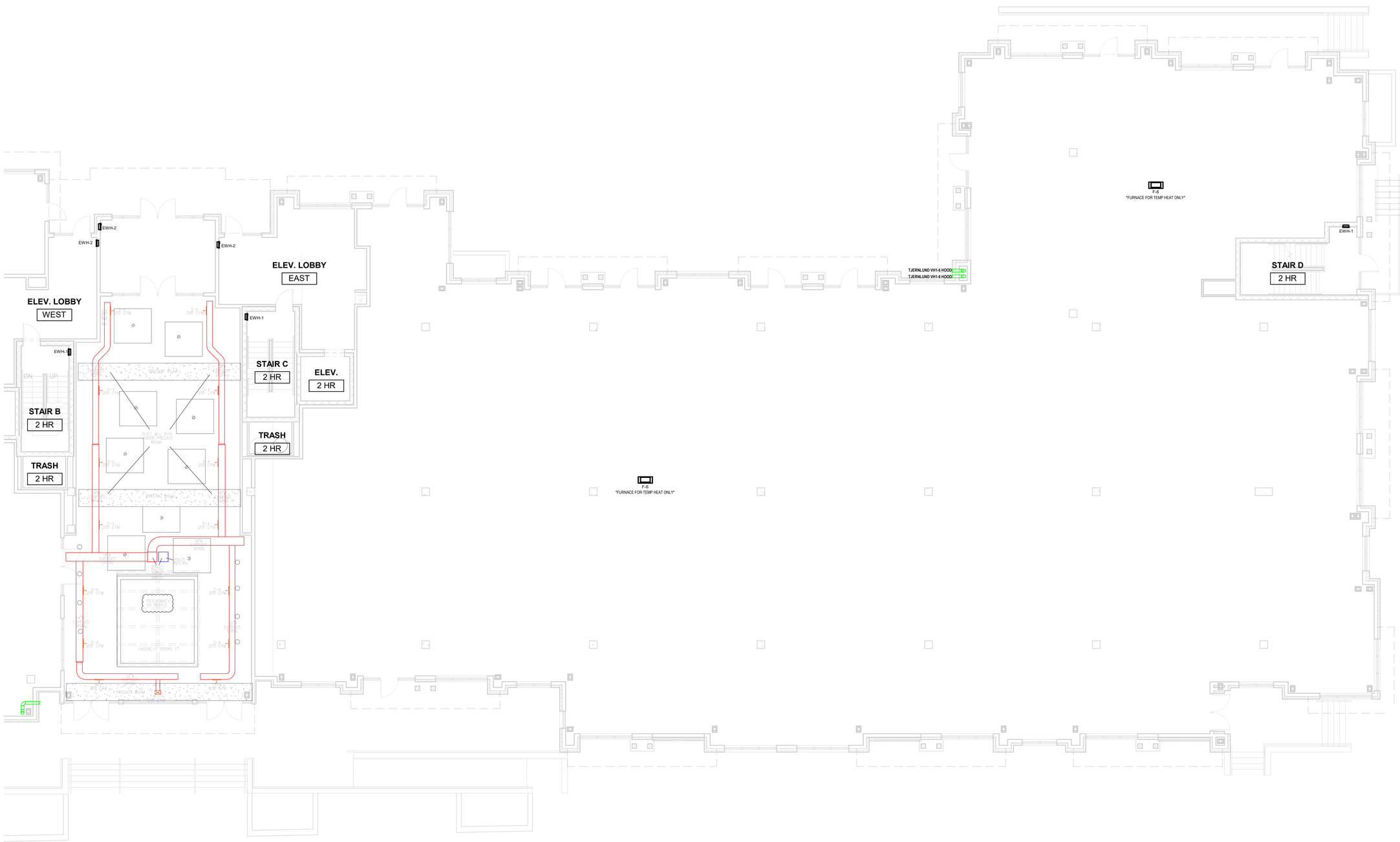
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M3



1 M4 **1st Floor HVAC - EAST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

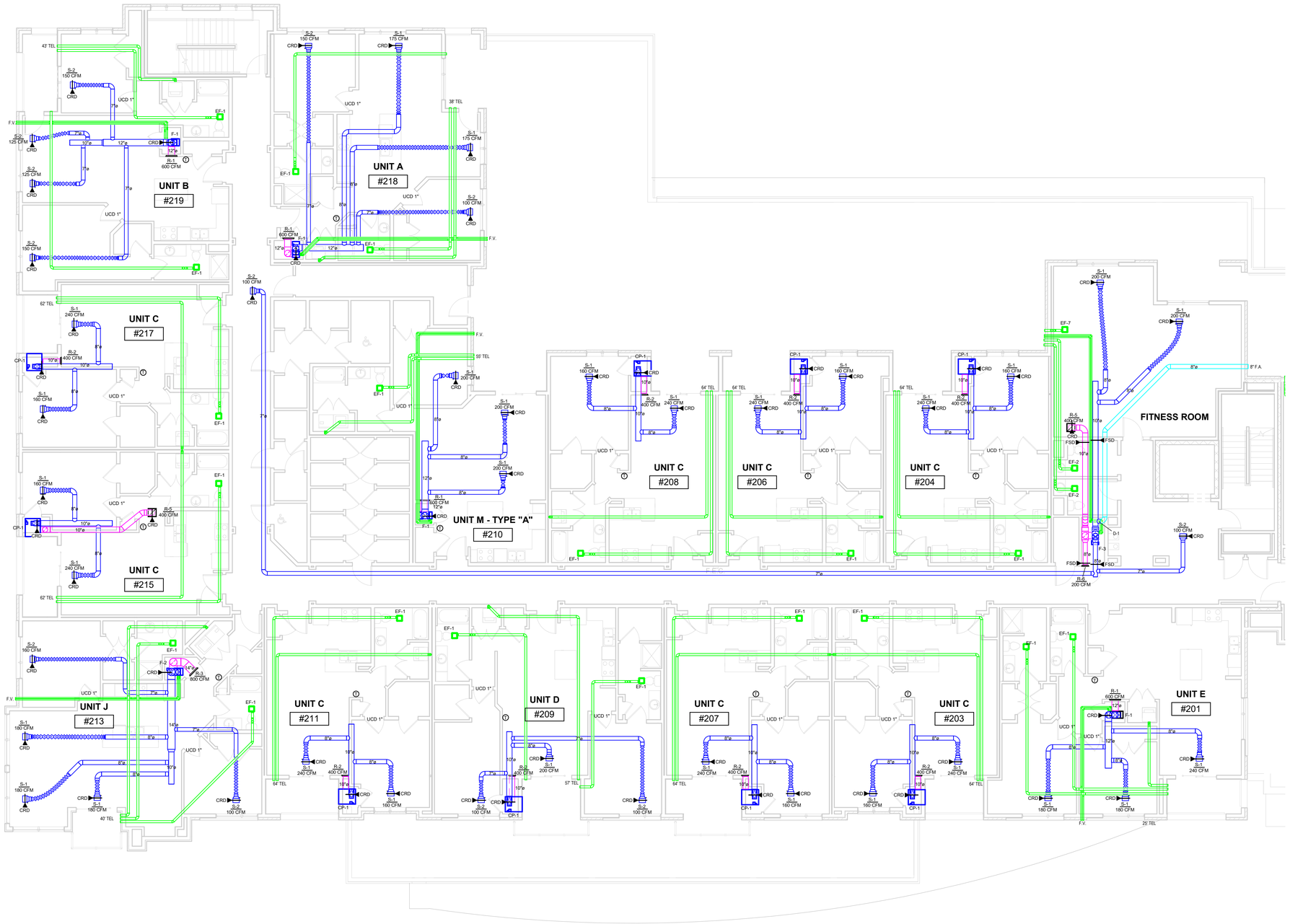
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M4



1 M5 **2nd Floor HVAC - WEST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

UNITS:86

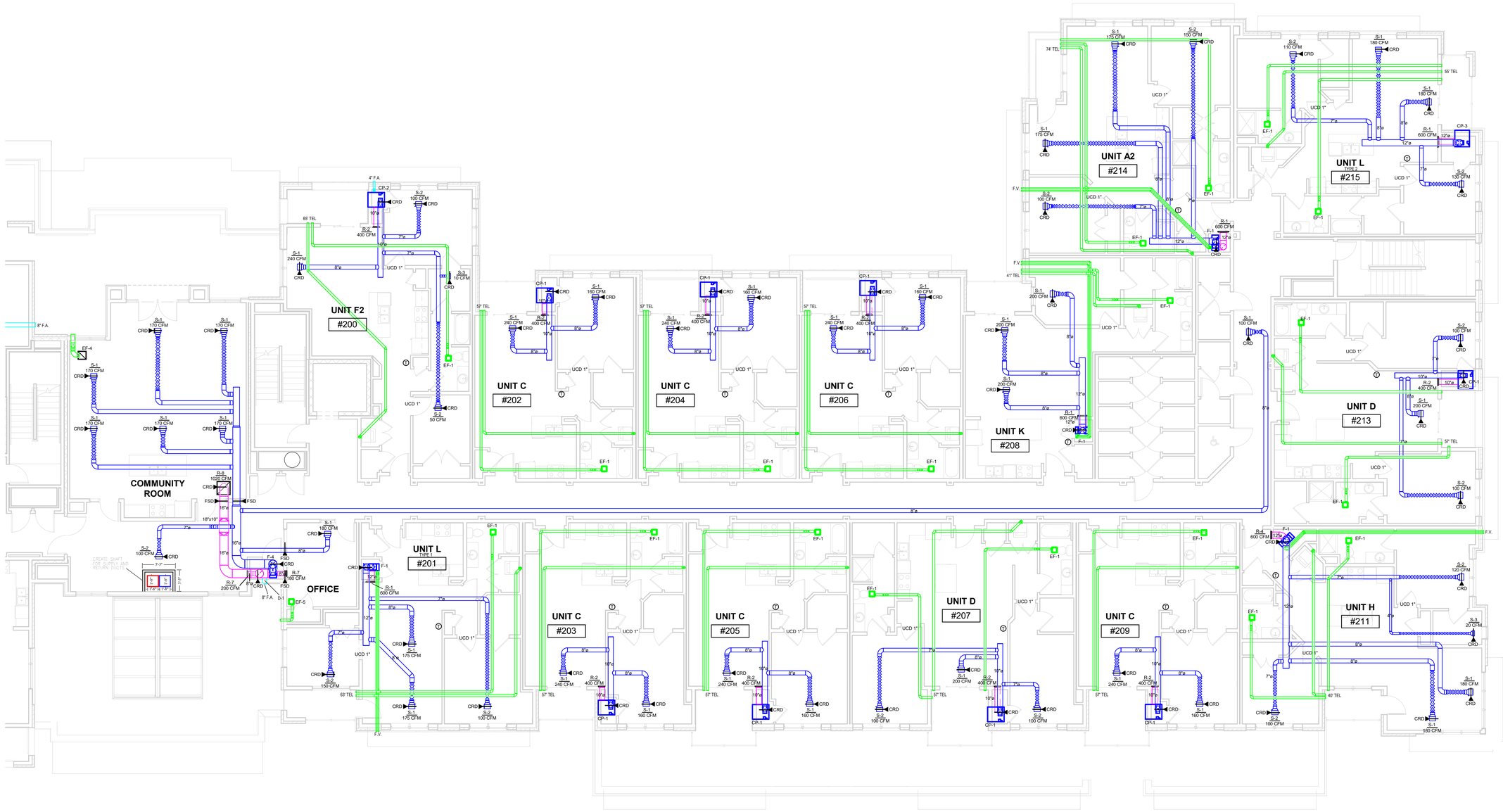
REVISIONS		
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M5



1 / M6 **2nd Floor HVAC - EAST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

UNITS:86

REVISIONS

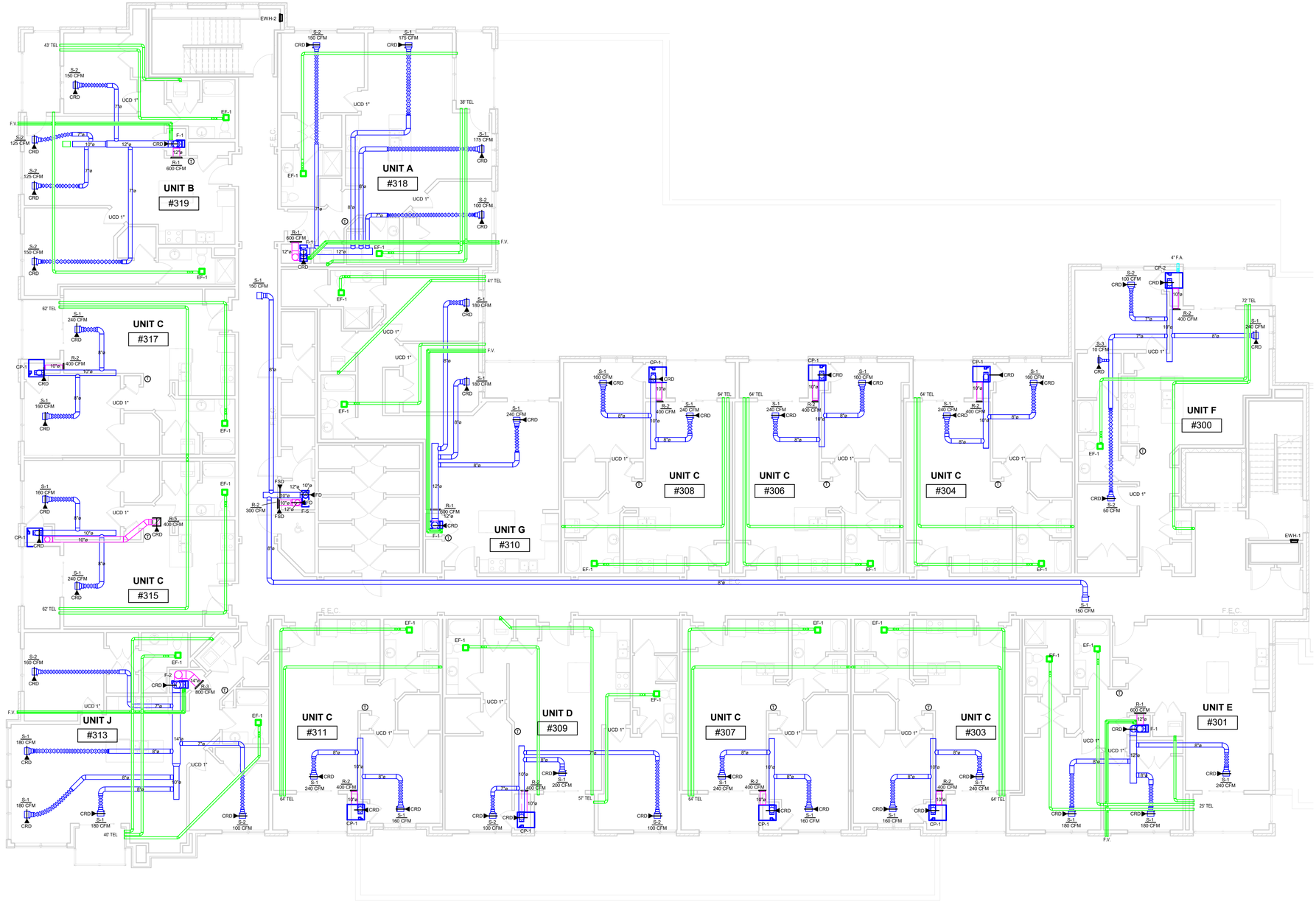
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M6



1 M7 **3rd Floor HVAC - WEST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

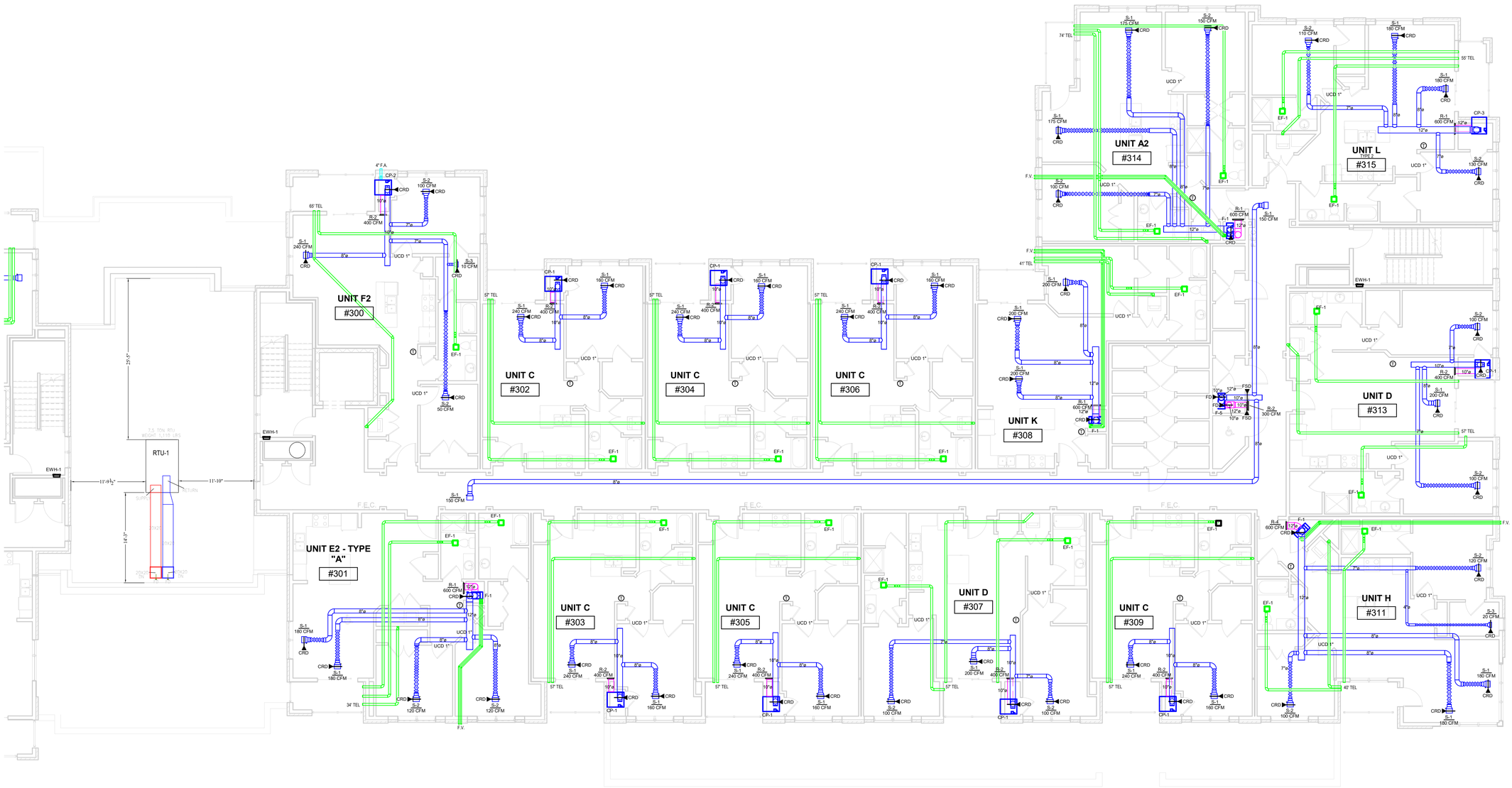
REVISIONS		
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M7



1 M8 **3rd Floor HVAC - EAST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

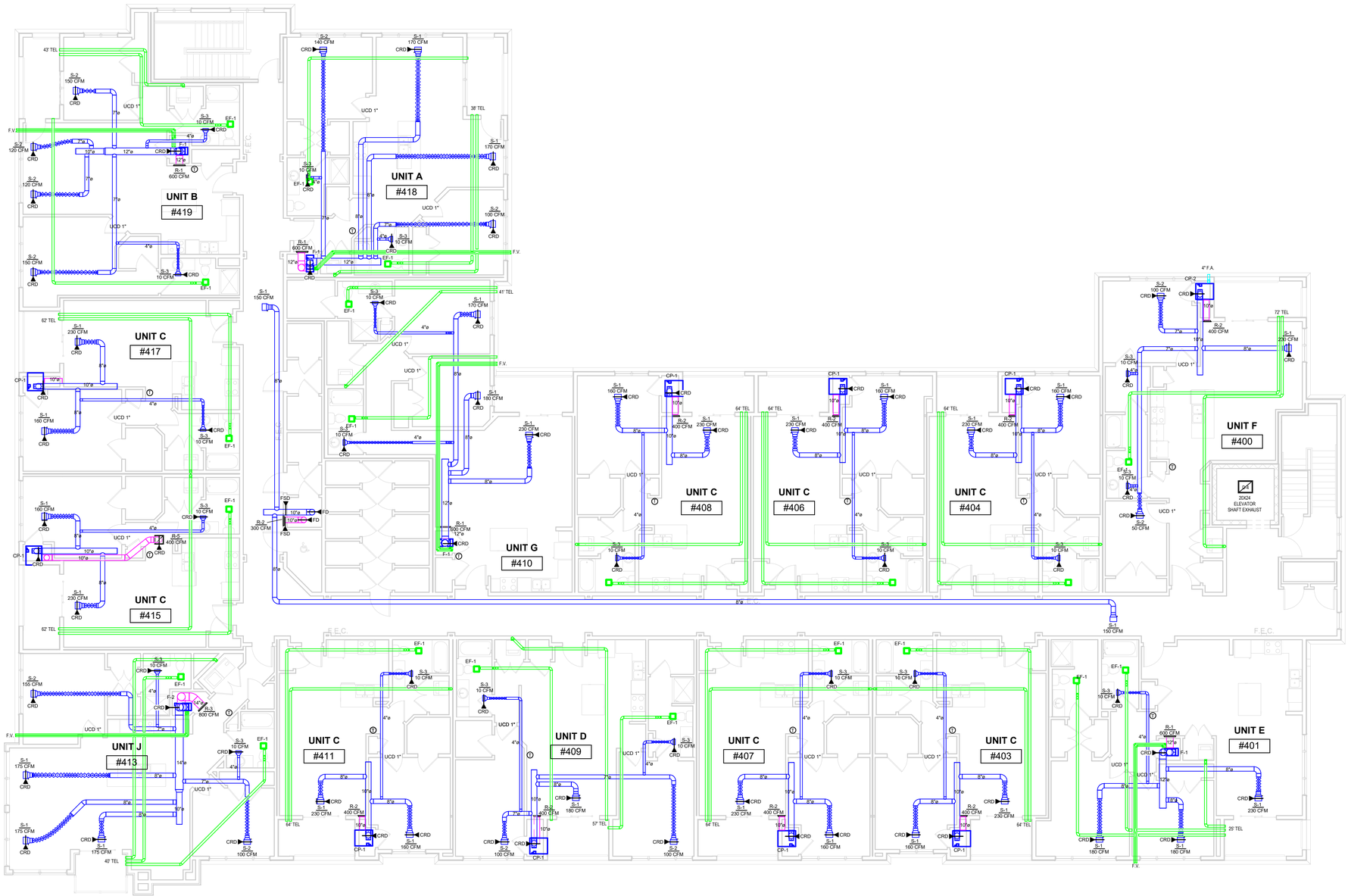
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M8



1 M9 **4th Floor HVAC - WEST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

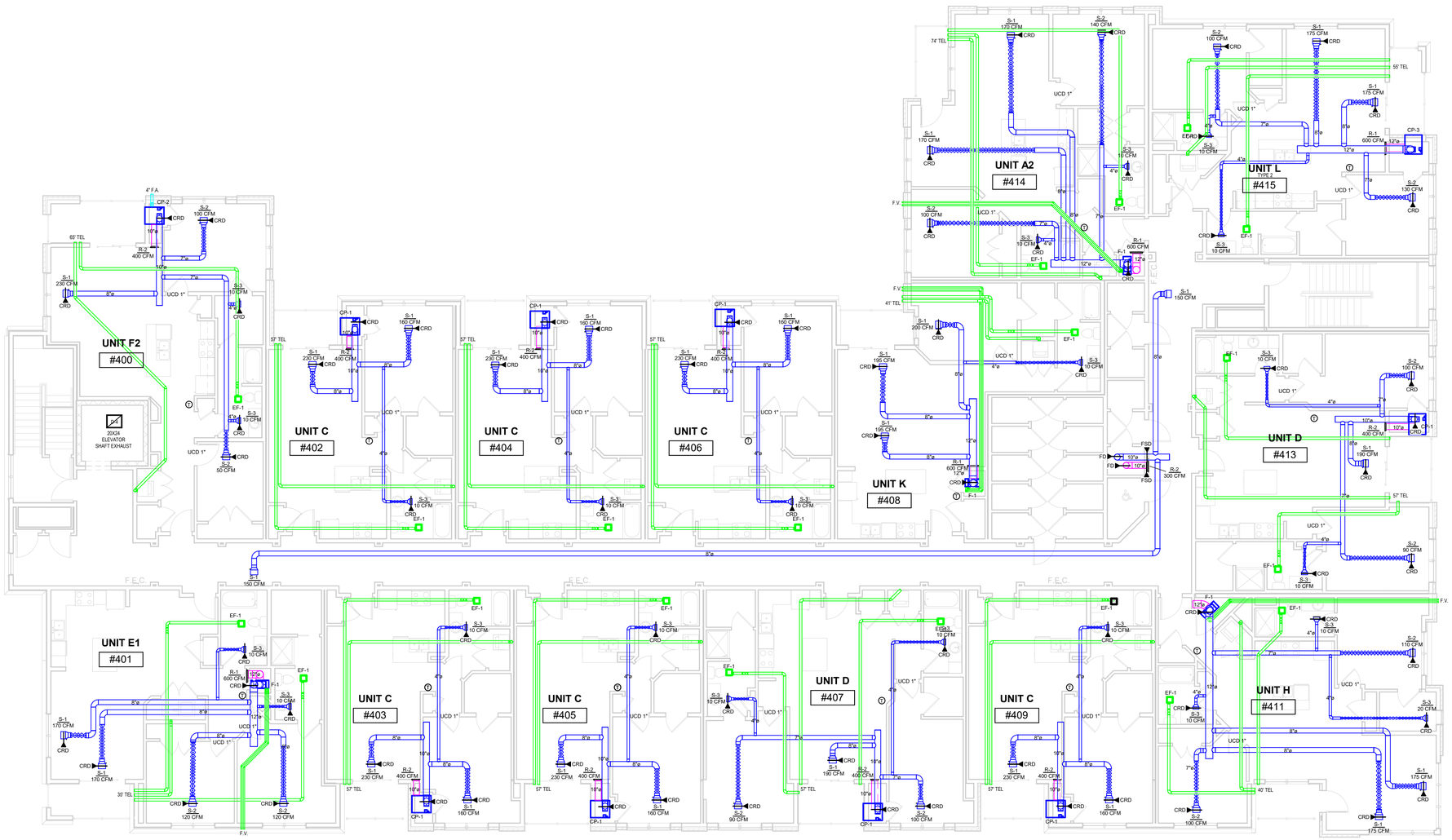
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M9



1 M10 **4th Floor HVAC - EAST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

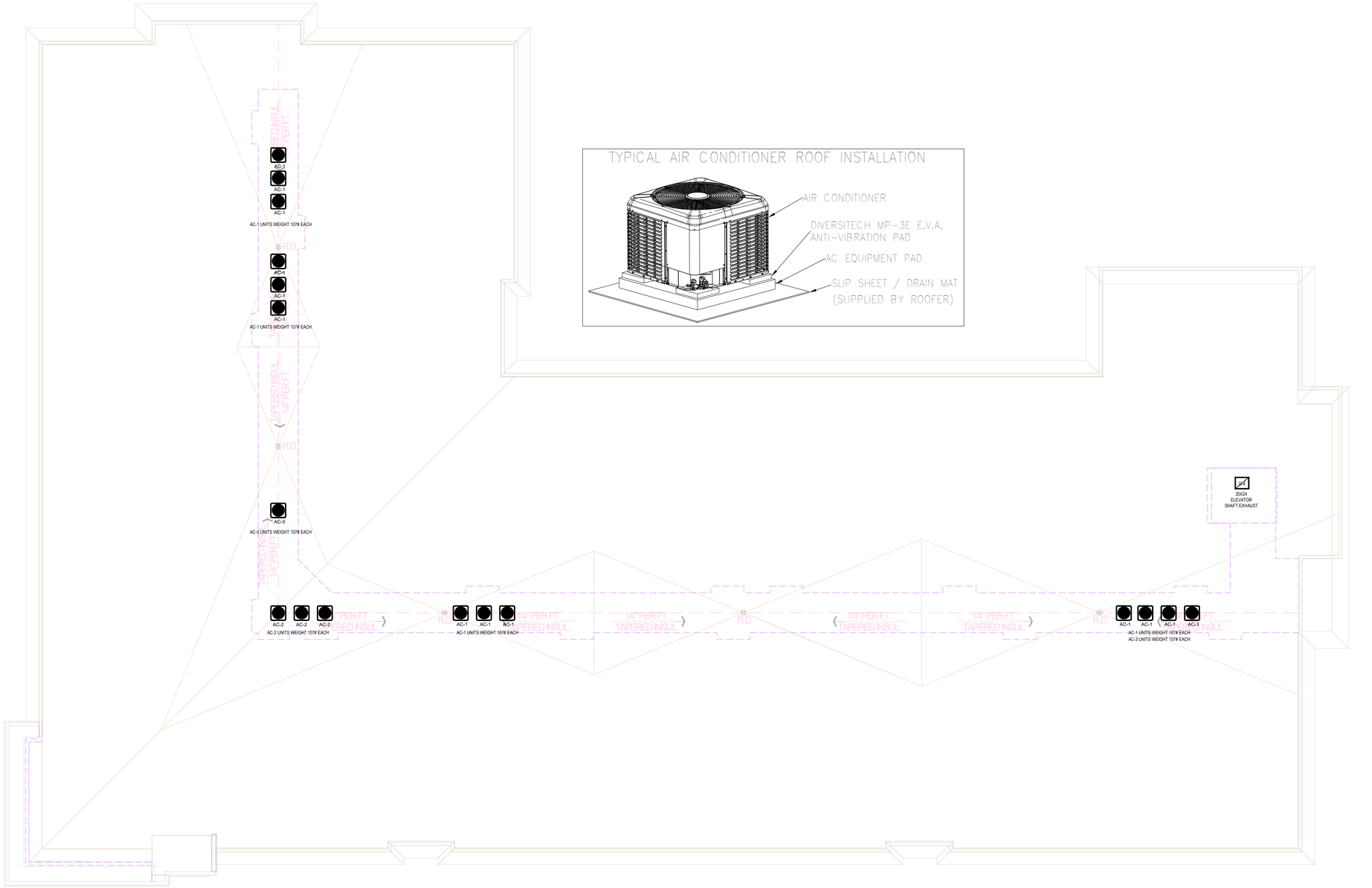
REVISIONS		
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M10



TYPICAL AIR CONDITIONER ROOF INSTALLATION

1 / M11 **Roof HVAC - WEST**
SCALE: 1/8" = 1'-0"

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

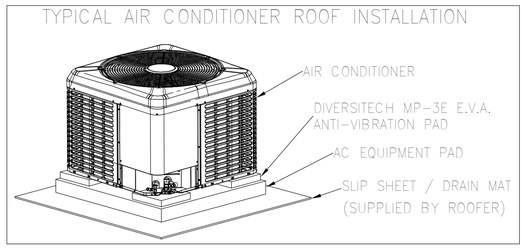
REVISIONS		
NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M11



1/M12 **Roof HVAC - EAST**
SCALE: 1/8" = 1'-0"

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

NO	DESCRIPTION	DATE

Scale: 1/8" = 1'-0"

Project Number 16299153

Date: 9-18-18

M12

T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

ROYSTER CROSSING HVAC SCHEDULES

EXHAUST FAN SCHEDULE

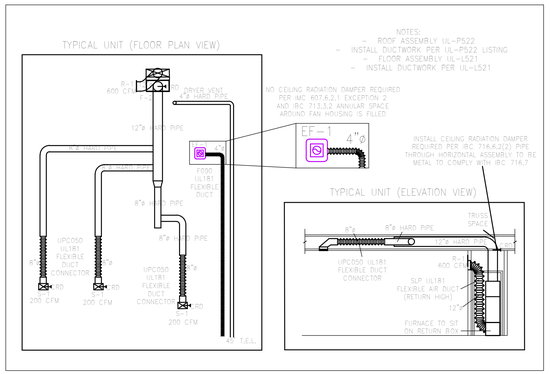
EF#	MANUF.	MODEL #	DUCT SIZE	CFM	S.P.	H.P.	VOLTS	AMPS	SERVES	CONTROL
EF-1	DELTA BREEZ	GBR80L	4"	80	0.1	---	SEE SUBMITTAL	SEE SUBMITTAL	UNIT BATHROOMS	LIGHT SWITCH
EF-2	DELTA BREEZ	GBR80	4"	80	0.1	---	SEE SUBMITTAL	SEE SUBMITTAL	PUBLIC BATHROOMS	WHEN OCCUPIED
EF-3	BROAN	L250	8"	250	0.1	---	SEE SUBMITTAL	SEE SUBMITTAL	TRASH ROOM	CONTINUOUS
EF-4	BROAN	L250	8"	250	0.1	---	SEE SUBMITTAL	SEE SUBMITTAL	COMMUNITY ROOM	WHEN OCCUPIED
EF-5	DELTA BREEZ	ITG50	4"	50	0.1	---	SEE SUBMITTAL	SEE SUBMITTAL	OFFICE	WHEN OCCUPIED
EF-6	GREENHECK	SBE-2L36-30	36" PROP	15,400	0.3	3	SEE SUBMITTAL	SEE SUBMITTAL	GARAGE	***
EF-7	DELTA BREEZ	GBR80	4"	80	0.1	---	SEE SUBMITTAL	SEE SUBMITTAL	FITNESS ROOM	WHEN OCCUPIED

***RUNS MINIMUM 5 HOURS DURING 24 HOUR PERIOD AND WHEN CALLED FROM BRASCH MODEL MONOXIDE/DIOXIDE DETECTORS

PACKAGED ROOF TOP UNIT

RTU #	MANUF.	SERVES	MODEL #	NAT. GAS IN/OUT	NOMINAL CFM	O.A.	H.P.	%EFF.	THERMOSTAT	NOTES
RTU-1	DAIKIN	ANNEX	DCG090	88/65	3,000	400	2	80%	TH8110	SEE NOTE (1)

1--RUN BLOWER CONTINUOSLY, SET ECONOMIZER AT 400 CFM AND GENERAL EXHAUST THRU PRESSURE RELIEF (400 CFM)



GENERAL HVAC NOTES

1.WHERE REQUIRED, FIRE AND SMOKE DAMPERS SHALL BE PROVIDED WITH AN APPROVED MEANS OF ACCESS, WHICH IS LARGE ENOUGH TO ALLOW INSPECTION AND MAINTENANCE. ACCESS POINTS SHALL BE PERMANENTLY LABELED ON THE EXTERIOR HAVING LETTERS NOT LESS THAN 1/2" IN HEIGHT READING:FIRE DAMPER, SMOKE DAMPER, OR FIRE/SMOKE DAMPER, PER IBC 716.4

2.IMC 501.2.1 ITEM 3 FOR ALL ENVIRONMENTAL EXHAUST 3 FEET FROM PROPERTY LINES,3 FEET FROM OPERABLE OPENINGS INTO BUILDINGS AND 10' FROM MECHANICAL AIR INTAKES

3.ALL GAS PIPING INSTALLATIONS SHALL COMPLY WITH NFPA54-2009

4.ALL PLENUM, SUPPLY, AND RETURN AIR DUCTS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND A MINIMUM OF R-8 INSULATION WHEN LOCATED OUTSIDE OF THE BUILDING ENVELOPE PER RESIDENTIAL IECC 403.1.1

5.DUCTWORK SHALL BE SEALED AT ALL JOINTS, TRANSVERSE AND LONGITUDAL SEAMS AND CONNECTIONS IN DUCTWORK USING LISTED PRODUCTS IN ACCORDANCE WITH IECC 503.2.7 AND IMC 603.9

6.EVERY HEATING, VENTILATING, AND AIR CONDITIONING SYSTEM SHALL BE BALANCED UPON INSTALLATION; THE INSTALLER OR AGENCY RESPONSIBLE FOR BALANCING OF THE VENTILATING SYSTEM SHALL DOCUMENT THIS IN WRITING. THE DOCUMENT MUST BE RETAINED AT THE JOBSITE AND MADE AVAILABLE TO THE DEPARTMENT UPON REQUEST PER SPS 364.0313

7.PROVIDE CLOTHES DRYER EXHAUST DUCTS SUCH THAT THEY MEET LISTED REQUIREMENTS WHICH INCLUDE, BUT ARE NOT LIMITED TO ,VERTICAL CLEANOUTS, REQUIRED METAL DUCTS, LIMITED DUCT LENGTHS, REQUIRED LABEL OR TAG ADDRESSING EQUIVALENT LENGTH OF THE EXHAUST DUCT LOCATED WITHIN 6FT OF THE DUCT CONNECTION, MINIMUM DUCT SIZE, SHIELD PLATE INSTALLATION, AND PROHIBITION OF SCREWS TO CONNECT DUCT SECTIONS, IN ADDITION CLOTHES DRYER EXHAUST SHALL BE INDEPENDENT OF ALL OTHER SYSTEMS AND SHALL CONVEY MOISTURE AND PRODUCTS OF COMBUSTION OUTSIDE OTHE BUILDING PER IMC 504 / IFGC 613.

8.PROVIDE BALANCING DAMPERS IN ALL DUCTS. EACH VOLUME DAMPER OR OTHER MEANS OF SUPPLY AIR ADJUSTMENT USED IN BALANCING SHALL BE PROVIDED ACCESS.

9.DIRECT VENT APPLIANCES VENT TERMINAL AND AIR INTAKE SHALL BE LOCATED 12 INCHES ABOVE FINISHED GRADE LEVEL PER IFGC 503.8

10.THE VENT TERMINAL OF DIRECT VENT APPLIANCE WITH AN INPUT OF OVER 10,000 BTU PER HOUR BUT NOT OVER 50,000 BTU PER HOUR SHALL BE LOCATED AT LEAST 9 INCHES FROM ANY AIR OPENING INTO A BUILDING AND SUCH APPLIANCE WITH AN INPUT OVER 50,000 BUT SHALL HAVE AT LEAST A 12 INCH VENT TERMINATION CLEARANCE FROM ANY AIR OPENING INTO THE BUILDING.

11.PER IBC 1101.2, ALL THERMOSTATS/CONTROLS SHALL BE LOCATED A MAXIMUM OF 48" AND A MINIMUM 15" ABOVE THE FINISHED FLOOR

12.ALL THERMOSTATS TO BE EQUIPPED WITH AUTOMATIC SETBACK OR SHUT DOWN CONTROLS PER IECC403.1.1 & 503.2.4.3

13.ALL BATH FAN, DRYER VENT, AND FRESH AIR INTAKE TO BE 4"ø UNLESS SPECIFIED OTHERWISE.

NOTES:
- ALL BEDROOM DOORS TO BE UNDERCUT BY 1" AS NOTED ON THE PLAN
- PLAN DEFINITIONS: FD = FIRE DAMPER, FSD = FIRE SMOKE DAMPER, CRD = CEILING RADIATION DAMPER, VTR = VENT THROUGH ROOF, FV = FURNACE VENT

ROYSTER CROSSING HVAC SCHEDULES

AIR COOLED CONDENSING UNIT

AC#	SERVES	CAP. TONS NOMINAL	AMBIENT AIR TEMPERATURE	SST	VOLTS	MCA/MAX	MIN. SEER	MANUF.	MODEL #
AC-1	F-1	1.5	95	45	SEE SUBMITTAL	SEE SUBMITTAL	13	HEIL	N4A318A
AC-2	F-2	2	95	45	SEE SUBMITTAL	SEE SUBMITTAL	13	HEIL	N4A324A
AC-3	F-3	1.5	95	45	SEE SUBMITTAL	SEE SUBMITTAL	13	HEIL	N4A318A
AC-4	F-4	3.5	95	45	SEE SUBMITTAL	SEE SUBMITTAL	13	HEIL	N4A342A
AC-5	F-5	2	95	45	SEE SUBMITTAL	SEE SUBMITTAL	13	HEIL	N4A324A

FURNACE (MULTI-POSITION) W/DX COIL SCHEDULE

	FURNACE										EVAP	
F #	NOMINAL CFM	O.A.	S.P. wg	H.P.	MCA @115/60/1	MAX BREAKER	NAT. GAS IN/OUT	%EFF.	MFG.	HEIL MODEL #	HEIL MODEL #	THERMOSTAT
F-1	600	-	0.7	1/4	SEE SUBMITTAL		26/25	95%	HEIL	N9MSB0261408A	END4X18L14A1	TH4110
F-2	800	-	0.7	1/4	SEE SUBMITTAL		26/25	95%	HEIL	N9MSB0261408A	END4X24L14A1	TH4110
F-3	600	225	0.7	1/4	SEE SUBMITTAL		26/25	95%	HEIL	N9MSB0261408A	END4X18L14A1	TH8110
F-4	1400	300	0.7	1/2	SEE SUBMITTAL		60/58	95%	HEIL	N9MSB0601714A	END4X42L17A1	TH8110
F-5	800	-	0.7	1/2	SEE SUBMITTAL		40/39	95%	HEIL	N9MSB0401410A	END4X24L14A1	TH8110
F-6	1600	-	0.7	3/4	SEE SUBMITTAL		80/78	95%	HEIL	N9MSB0801716A	-	***TH8110

HARD WIRE T-STAT TO "C" COMMON TERMINAL

*** TEMP HEAT ONLY

GAS FIRED UNIT HEATER (PROP, SEPERATED COMBUSTION)

UNIT	SERVES	CFM	O.AIR	MBH IN/OUT	VOLTS	HP	AMPS	EFFICIENCY	DRIVE	FAN TYPE	MFG.	MODEL #	FLUE
UH-1	GARAGE	---	---	400/320	SEE SUBMITTAL	3/4	SEE SUBMITTAL	80%	DIRECT	DIRECT	MODINE	PDP-400	6"

COMFORT PACK PACKAGED UNITS

	HEATING								COOLING	CONTROL
CP #	NOMINAL CFM	O.A.	H.P.	MCA @208-230/60/1	MAX BREAKER	NAT. GAS IN/OUT	%EFF.	MFG.	NATIONAL COMFORT PRODUCTS MODEL #	TONNAGE	THERMOSTAT
CP-1	400	--	1/4	SEE SUBMITTAL		38/30	80%	NCP	CPG41238-C	1	TH4110D
CP-2	600	--	1/4	SEE SUBMITTAL		38/30	80%	NCP	CPG41838-C	1.5	TH4110D
CP-3	400	40	1/4	SEE SUBMITTAL		38/30	80%	NCP	CPG41238-C	1	***TH4110D

HARD WIRE T-STAT TO "C" COMMON TERMINAL

*** RUN FAN CONTINUIOUS FOR VENTILATION

ELECTRIC WALL HEATER SCHEDULE

UNIT	SERVES	MBH	MOUNTING	AMPS	VOLTS	KW	%EFF	MANUF.	MODEL #	SURFACE MOUNT KIT IF NEEDED
EWH-1	STAIR B, STAIR C, STAIR D, MECH., AV ROOM	5.1	WALL RECESS	7.2	208/60/1	1.5	100	BROAN	#192	#85
EWH-2	STAIR A, TRASH, LIB. MECH., MAINTENANCE, MECH., ELEV. LOBBY EAST, ELEV. LOBBY WEST, LOBBY	10.2	WALL RECESS	14.4	208/60/1	3	100	BROAN	#198	#85

REGISTERS, GRILLES,DIFFUSERS, LOUVER, AND DAMPER SCHEDULE

ITEM #	SERVICE	TYPE	MOUNTING	MATERIAL	NOTES	MANUFACTURER	MODEL #
S-1	SUPPLY	CEILING REGISTER	CEILING	STEEL	12X8X8 W/DAMPER	HART & COOLEY	661
S-2	SUPPLY	CEILING REGISTER	CEILING	STEEL	12X8X7 W/DAMPER	HART & COOLEY	661
S-3	SUPPLY	CEILING REGISTER	CEILING	STEEL	10X4X4 W/DAMPER	HART & COOLEY	661
S-X	SUPPLY	SPIRAL PIPE REGISTER	DUCT	STEEL	18X4	METALAIRE	4004P
R-1	RETURN	WALL	WALL	STEEL	20X14	HART & COOLEY	650
R-2	RETURN	WALL	WALL	STEEL	12X20	HART & COOLEY	650
R-3	RETURN	WALL	WALL	STEEL	20X20	HART & COOLEY	650
R-4	RETURN	WALL	WALL	STEEL	14X20	HART & COOLEY	650
R-5	RETURN	CEILING RETURN	CEILING	STEEL	14X14	HART & COOLEY	650
R-6	RETURN	CEILING RETURN	CEILING	STEEL	12X10	HART & COOLEY	650
R-7	RETURN	WALL	WALL	STEEL	10X10	HART & COOLEY	650
R-8	RETURN	CEILING RETURN	CEILING	STEEL	24X24	HART & COOLEY	650
L-1	GARAGE	LOUVER - INTAKE	WALL	ALUMINUM	66"x66" W/SCREEN	GREENHECK	ESD-635
L-2	GARAGE	LOUVER - EXHAUST	WALL	ALUMINUM	45-3/4" X 45-3/4" W/SCREEN	GREENHECK	ESD-635
D-1	FRESH AIR INTAKE	FRESH AIR DAMPER	IN DUCT	STEEL	8" ROUND DAMPER	FAMCO	ACD824
D-2	GARAGE INTAKE	GARAGE VENTILATION	WALL SLEEVE	STEEL	CONTROL DAMPER	GREENHECK	VCD-23
D-3	GARAGE EXHAUST	GARAGE VENTILATION	WALL SLEEVE	STEEL	EXHAUST DAMPER	GREENHECK	WD-320
D-4	ELEVATOR SHAFT	RELIEF HOOD	ROOF	STEEL	20"X24" W/SCREEN	JENCOFAN	BGH

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

NO	DESCRIPTION	DATE

Scale:

Project Number 16299153

Date: 9-18-18

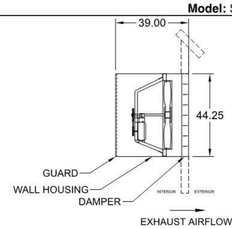
M13

GREENHECK
Building Value in Air.

Printed Date: 2/14/2018
Job: ROYSTER CROSSING
Mark: FAN
Model: SBE-2L36-30

Model: SBE-2L36-30

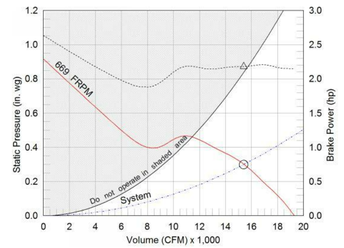
Sidewall Belt Drive Fan
Motor Access From Int. of Bldg.



Dimensional	
Quantity	2
Weight w/o Acc's (lb)	183
Weight w/ Acc's (lb)	358
Max T Motor Frame Size	184
Optional Damper (in.)	38 x 38
Wall Opening (in.)	45.75 x 45.75

Performance	
Requested Volume (CFM)	15,400
Actual Volume (CFM)	15,400
Total External SP (in. wg)	0.3
Fan RPM	669
Operating Power (hp)	2.18
Elevation (ft)	866
Airstream Temp.(F)	70
Air Density (lb/ft3)	0.073
Drive Loss (%)	4.7
Tip Speed (ft/min)	6,303
Static Eff. (%)	35

Motor	
Motor Mounted	Yes
Size (hp)	3
Voltage/Cycle/Phase	208/60/3
Enclosure	ODP
Motor RPM	1725
Windings	1
NEC FLA* (Amps)	10.6



Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
Inlet	92	87	84	84	79	75	71	69	85	74	24

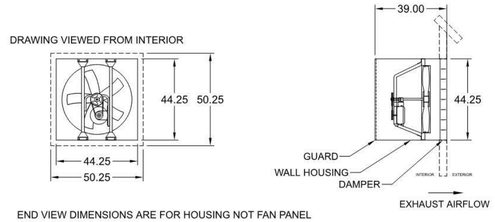
Notes:
All dimensions shown are in units of in..
*NEC FLA - based on tables 430.248 or 430.250 of National Electrical Code 2014. Actual motor FLA may vary, for sizing thermal overload, consult factory.
LwA - A weighted sound power level, based on ANSI S1.4
dBA - A weighted sound pressure level, based on 11.5 dB attenuation per Octave band at 5 ft - dBA levels are not licensed by AMCA International
Sones - calculated using AMCA 301 at 5 ft

GREENHECK
Building Value in Air.

Printed Date: 2/14/2018
Job: ROYSTER CROSSING
Mark: FAN
Model: SBE-2L36-30

Assembly Drawing

Type: Sidewall Belt Drive Fan



END VIEW DIMENSIONS ARE FOR HOUSING NOT FAN PANEL
WALL OPENING 45.75 SQ.
MOTOR IS ACCESSIBLE FROM INTERIOR OF BUILDING
THIS IS AN EXHAUST FAN DUE TO MOTOR ORIENTATION
THIS FAN HAS 5 BLADES

Notes: All dimensions shown are in units of in..

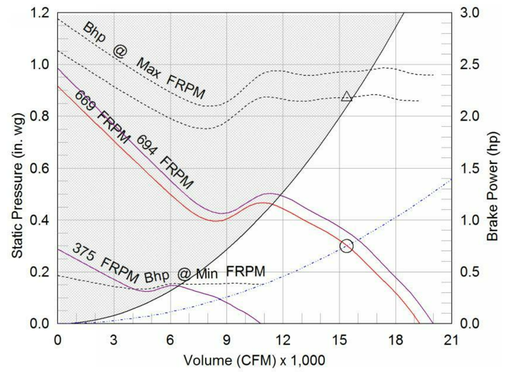
GREENHECK
Building Value in Air.

Printed Date: 2/14/2018
Job: ROYSTER CROSSING
Mark: FAN
Model: SBE-2L36-30

SBE-2L36-30 Min/Max Fan Curve

Performance

Requested Volume (CFM)	Actual Volume (CFM)	Total External SP (in. wg)	Fan RPM	Operating Power (hp)
15,400	15,400	0.3	669	2.18



GREENHECK
Building Value in Air.

Printed Date: 2/14/2018
Job: ROYSTER CROSSING
Mark: LOUVER
Model: ESD-635

ESD-635 6 in. Frame, 35 deg Blade

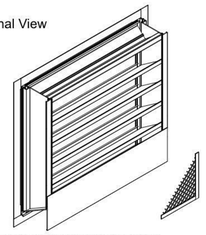
APPLICATION & DESIGN

ESD-635 is a weather louver designed to protect air intake and exhaust openings in building exterior walls. Design incorporates drain gutters in the head member and horizontal blades to channel water to the jambs where water is further channeled through vertical downspouts and out at the sloped sill. The ESD-635 is an extremely efficient louver with AMCA LICENSED PERFORMANCE DATA enabling designers to select and apply with confidence.

PRODUCT DETAILS

Frame: 6 in. x 0.081 in. Frame Thickness
Frame Type: Flanged, 1.5 in., Exterior
Blades: 0.081 in. Fixed Blade Thickness
Material: Aluminum
Sizing: Nominal
Shape: Rectangular
Construction: Mechanically Fastened

Internal View



Width and Height furnished approximately 0.250 in. under size.

OPTIONS & ACCESSORIES

Finish: Kynar 70% (2 coat), Standard TBS
Bird Screen: 0.75 in. x 0.05 in., Flat Expanded Aluminum, Internal, Match Louver Finish
Warranty: 1 Yr (Standard) Product Warranty
10 Yrs (Standard) Finish Warranty

SUMMARY

ID #	TAG	QTY.	W (in.)	H (in.)	FREE AREA (ft2)	FREE AREA (%)	SECT. WIDE	SECT. HIGH	SHIP SECT.
1-1		2	45.75	45.75	8.34	57.4	1	1	2
1-2		2	66	66	18.41	60.8	1	1	2

PERFORMANCE

ID #	TAG	APPLICATION	VOLUME (CFM)	PRESSURE DROP (in. wg)	FREE AREA VELOCITY (ft/min)	BPWP (ft/min)
1-2		Intake	15,400	0.1	837	1,250

**Calculated pressure drop does not include the effects of screens, filters or other accessories

Total Louver Qty: 4 **Total Weight (lb):** 351 **Louver Area (ft2):** 90
Total Ship Sect.: 4

**Weight shown is an estimate only based on the default base product configuration without options or accessories.
Larger openings may require field assembly of multiple louver panels to make up the overall opening size. Individual louver panels are designed to withstand windloads up to a maximum of 25 PSF (size and configuration dependent). Design, materials and installation of structural reinforcement required to adequately support large sections or multiple section assemblies within a large opening are not provided by Greenheck. Unless specifically indicated, the following are NOT included in the quote provided: structural steel, installation hardware (anchors, angle clips, continuous angles, shims, fasteners, inserts, backer rod and sealant), field measuring and/or installation, miscellaneous flashing, trim or enclosures, blank off panels, mullion covers or mullion hardware, hinged frames or removable subframes, custom bird/insect screen, 3-coat, metallic and/or exotic paint finishes, bituminous paints for unlike metals, any applicable taxes, stamped and sealed structural calculations seismic calculations or job specific engineered submittal drawings.

GREENHECK
Building Value in Air.

Printed Date: 2/14/2018
Job: ROYSTER CROSSING
Mark: DAMPER
Model: VCD-23

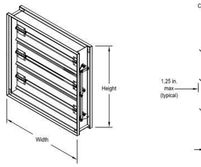
Model: VCD-23

Ratings and General Construction

Blade Action:	Opposed	Axle Bearings:	Synthetic	Frame Type:	Channel
Axle/Linkage Material:	Steel	Jackshafting:	No Preference	Material:	Galvanized
Blade Seal:	TPE	Clean Wrap:	No	Frame Thickness (ga):	16
Jamb Seal:	304 SS	Sizing:	Nominal	Transition:	None
Blade Indicator:	None	Temp. Rating (°F):	180	Actuator Sizing:	Default SqFt

Actuator

Actuator Type:	120 VAC	Actuator Operation:	Spring Return	Fail Position:	Closed
Actuator Mfr.:	Belimo	Actuator Mounting:	Internal	NEMA Enclosure:	Least Cost
Operating Mode:	Two Position	Actuator Location:	Left Side	Auxiliary Switch:	No



Application & Design

The VCD-23 is a ruggedly built low leakage control damper intended for application in low to medium pressure and velocity systems. A wide range of electric and pneumatic actuators are available.

Ratings

Pressure: Up to 5 in. wg pressure differential
Velocity: 3,000 ft/min
Leakage: Class 1A @ 1 in. wg, Class 1 @ up to 5 in. wg
Temperature: Up to 250°F

Greenheck Fan Corporation certifies that the model VCD-23 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to Air Leakage and Air Performance ratings.

Notes: All dimensions shown are in units of inches.
Width & Height furnished approximately 0.25 under size.
Installation instructions available at www.greenheck.com.

Row ID	Tag	Qty	Opening W (in.)	Opening H (in.)	Drive Arrangement	Actuator Model	Act. Qty.
2-1		2	66.000	66.000	Drive-CC-21-1FIL-0	AFBUP	1

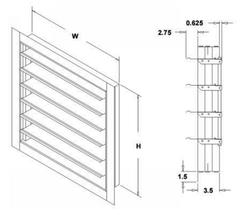
Total Qty: 2
Total Number of Actuators: 2

GREENHECK
Building Value in Air.

Printed Date: 2/14/2018
Job: ROYSTER CROSSING

Vertical Mount Exhaust Damper

Model: WD-320



Standard Construction Features:

- Model WD-320 is a vertical mount exhaust damper and is constructed of 18 ga galvanized steel with pre-punched mounting holes and a flanged frame - Damper blades are 0.025 in. roll formed aluminum with vinyl seals on the closing edge - Steel axles are 0.188 in. diameter zinc plated mounted steel in nylon bushings - Synthetic axle bearings

Damper Configuration:

ID #:	Tag:	Quantity:	W (in.):	H (in.):	Act Qty:	Actuator Model:
2	FAN	2	38	38	0	

Notes: All dimensions shown are in units of in.
Width And height furnished approximately 0.125 in. undersize

Dave Jones
PLUMBING | HEATING & COOLING | FIRE PROTECTION
2225 Kilgust Road Madison, WI 53713
Office: (608)-222-8490 Fax: (608)-222-8503

UNITS:86

PROJECT NAME:
ROYSTER CROSSING
521-523 GRAND OAK TRAIL
MADISON, WI

REVISIONS

NO	DESCRIPTION	DATE

Scale:

Project Number 16299153

Date: 9-18-18

M14

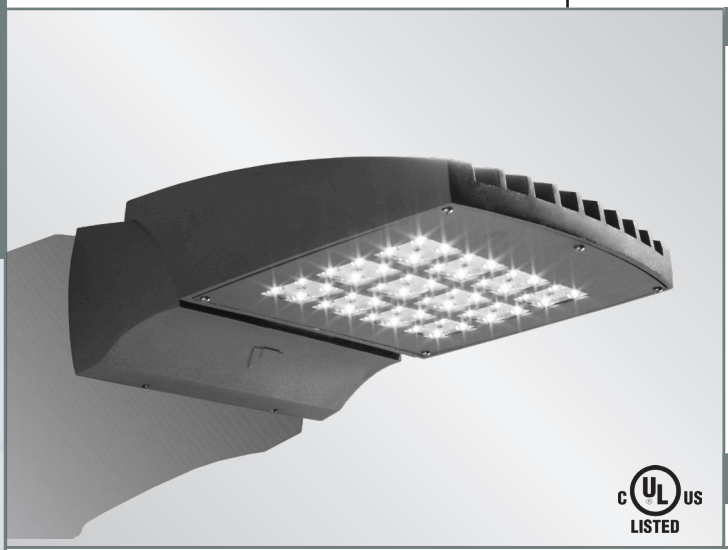
T:\Projects\5.Team\Royster Crossing\4 - Plans\HVAC\Royster Crossing - FINAL - 9-18-18.rvt

VSC LED

Project Name: ROYSTER

Catalog Number:

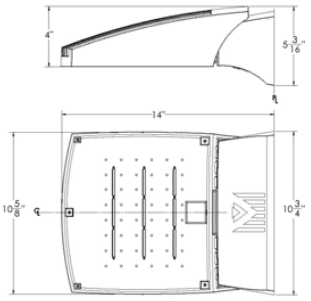
Type W1



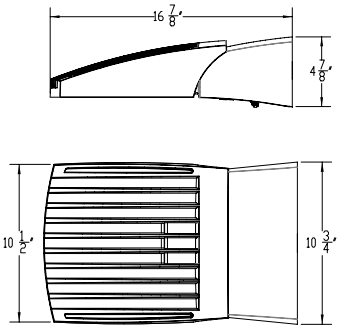
c UL us LISTED

Dimensional Drawings

Standard Version



EBP Version



Fixture	A	B	C	Max. LEDs	Lbs
VSC-1	14”	5”	10.5”	48	20

The VSC LED wall mount Series continues the unique contemporary design that is inspired by the VLX area light series. It combines LED performance and advanced LED thermal management technology and provides lighting that is energy efficient and aesthetically pleasing.

The LED’s performance and the driver’s life are maximized by enclosing them in two separate cast aluminum housings.

Easy access for mounting and maintenance.

The LED light assemblies come with 16, 32, or 48 LEDs.

Seven optical distribution pattern are available. Choose between 3000, 4000 or 5000 Kelvin temperature for the LEDs.

A durable polyester powder coat finish is guaranteed for five years; and is available in standard or custom colors.

The VSC Series is an exceptional choice for office complexes, schools, commercial buildings, and many architectural projects.

VCS-1	T4	16LC	10	4K	UNV	WM	??	
Model	Optics	Source	Milliamps	Kelvin	Voltage	Mounting	Finish	Options
VSC-1	Type I **(T1)**  Type II **(T2)**  Type III **(T3)**  Type IV **(T4)**  Type IVA **(T4A)**  Type V **(T5)**  Type V-W **(T5W)** 	# of LEDs 16 **(16LC)** 32 **(32LC)** 48 **(48LC)** *Not available in 1Amp	mA 350 **(3)** 530 **(5)** 700 **(7)** 1000* **(10)** *1000mA not available for 48LC	3000K *Warm white **(3K)** 4000K *Neutral white **(4K)** 5000K *Cool white **(5K)**	120-277 *Universal voltage **(UNV)** 480 **(5)** *Not available in 16LC	WallMount **(WM)** Conduit Box **(VCB)** *Mounting Plate with 2 1/2” Threaded Conduit Holes.	Bronze **(BZ)** Black **(BK)** White **(WH)** Graphite **(GP)** Grey **(GY)** Silver Metallic **(SL)** Custom Color **(CC)**	Button Type Photocell *Specify voltage. **(PC120) (PC208) (PC240) (PC277)** Emergency Battery Pack *Universal Voltage only *Not available in Up-Light Orientation **(EBPL)** Motion Sensor *Works with FSP-211 **(WSC-8)** 8’ Mounting Height **(WSC-20)** 9-20’ Mounting Height **(WSC-40)** 21-40’ Mounting Height This option will require(1) FSIR 100 remote for programing 0-10 Volt Dimming Driver **(DIM)** Back Plate **(BP)** Up-Light Orientation **(UP)** *Not available with motion sensor (MS) *Not available with EBPL

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

✘ REVIEWED WITH NO COMMENTS

( ) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 10/10/2018

For more detailed information on mounting, wiring or installation instructions, please consult factory. If poles are not ordered with fixtures, please specify mounting requirements. This document contains proprietary information of Visionaire Lighting LLC. Any use of this information requires the written approval of Visionaire Lighting, LLC. In keeping with our TQM policy of continuous improvement, Visionaire reserves the right to change any specifications contained herein without prior notice.

VISIONAIRE LIGHTING Performance In A Whole New Light®

VSC LED

Heatsink
· Cast aluminum heatsink with integral cooling fins for thermal management.

Mounting/Driver Compartment
·Durable two-piece cast aluminum driver compartment utilizes a quick mount/set screw mounting for ease of maintenance and sealed with a one-piece gasket.

Thermal Management
· The V-Sconce series provides excellent thermal management by mounting the LEDs to the substantial heat sink of the housing. This enables the Luminaire to withstand higher ambient temperatures and driver currents without degrading LED life.
· The L70 test determines the point in an LEDs life when it reaches 70 percent of its initial output. The V Sconce series LEDs have been determined to last 100,000+ hours in 25° C environments when driven at 350 mA.

Optical System
· The highest lumen output LEDs are utilized in the V Sconce series. Seven IES distribution Types are available. The optical system qualifies as IES full cutoff to restrict light trespass, glare and light pollution.
· CRI values are 70.

Quali-Guard Finish
· The finish is a Quali-Guard textured, chemically pretreated through a multiple-stage washer, electrostatically applied, thermoset polyester powder coat finish, with a minimum of 3-5 millimeter thickness. Finish is oven-baked at 400º F to promote maximum adherence and finish hardness. All finishes are available in standard and custom colors.
· Finish is guaranteed for five (5) years.

Electrical Assembly
· The V-Sconce LED series is supplied with a choice of 350, 530, 700 or 1000 mA high-performance LED drivers that accept 120v thru 480v, 50 Hz to 60 Hz, input. Power factor of 90%. Rated for -50°C operations.
· 10 kV surge protector supplied as standard.

Warranty
· Five (5) year Limited Warranty on entire system, including finish. For full warranty information, please visit visionairelighting.com.

Options
· Button Type Photocell
· Emergency Battery Pack
· Motion Sensor
· 0-10 Volt Dimming Driver
· Back Plate
· Up-Light Orientation

Listings
· The V-Sconce is cUL listed, suitable for wet locations.
· IP65 Rated
· Powder Coated Tough
· DLC Listed
· IDA Certification

POWDER COATED TOUGH™ · IP65 RATED · c UL us LISTED · ida DARK SKY APPROVED 2016 · DLC DLC QPL LISTED™

DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. http://www.designlights.org/
3000K must be selected for IDA certification.

3K Lumen Data · Lumen data updated 11.21.17

#LED	mA	Type 1	B	U	G	Type 2	B	U	G	Type 3	B	U	G	Type 4	B	U	G	Type 4A	B	U	G	Type 5	B	U	G	Type 5W	B	U	G	Watts
16	350	2413	1	0	1	2220	1	0	1	2238	0	0	1	2190	1	0	1	2422	1	0	1	2359	1	0	1	2231	2	0	1	18
	530	3237	2	0	2	2978	1	0	1	3002	1	0	1	2938	1	0	1	3249	1	0	1	3165	2	0	1	2993	2	0	1	26
	700	4273	2	0	2	3931	1	0	2	3963	1	0	1	3878	1	0	1	4289	1	0	1	4177	2	0	1	3950	3	0	1	37
	1000	6049	3	0	3	5565	1	0	2	5610	1	0	1	5490	1	0	2	6071	1	0	1	5913	3	0	1	5592	3	0	1	56
32	350	4859	2	0	2	4470	1	0	2	4506	1	0	1	4410	1	0	1	4876	1	0	1	4750	2	0	1	4492	3	0	1	37
	530	6519	3	0	3	5997	1	0	2	6046	1	0	2	5916	1	0	2	6543	1	0	1	6373	3	0	1	6026	3	0	1	52
	700	8604	3	0	3	7916	2	0	2	7980	1	0	2	7809	2	0	2	8636	1	0	1	8412	3	0	1	7955	3	0	2	74
	1000	12097	3	0	3	11130	2	0	3	11219	2	0	2	10980	2	0	3	12141	2	0	1	11826	3	0	2	11184	4	0	2	112
48	350	7288	3	0	3	6705	1	0	2	6759	1	0	2	6615	1	0	2	7315	1	0	1	7125	3	0	1	6738	3	0	1	55
	530	9778	3	0	3	8996	2	0	3	9069	1	0	2	8875	2	0	2	9814	1	0	1	9559	3	0	1	9040	3	0	2	78
	700	12906	3	0	3	11874	2	0	3	11970	2	0	2	11714	2	0	3	12954	2	0	2	12617	3	0	2	11932	4	0	2	105
4K Lumen Data																														
16	350	2540	1	0	1	2337	1	0	1	2355	1	0	1	2305	1	0	1	2549	1	0	1	2483	1	0	1	2348	2	0	1	18
	530	3408	2	0	2	3135	1	0	1	3160	1	0	1	3093	1	0	1	3420	1	0	1	3331	2	0	1	3150	2	0	1	26
	700	4498	2	0	2	4138	1	0	2	4171	1	0	1	4082	1	0	1	4514	1	0	1	4397	2	0	1	4158	3	0	1	37
	1000	6367	3	0	3	5858	1	0	2	5905	1	0	2	5779	1	0	2	6390	1	0	1	6224	3	0	1	5886	3	0	1	56
32	350	5114	2	0	2	4705	1	0	2	4743	1	0	1	4642	1	0	1	5133	1	0	1	5000	2	0	1	4728	3	0	1	37
	530	6862	3	0	3	6313	2	0	2	6364	1	0	2	6228	1	0	2	6887	1	0	1	6708	3	0	1	6344	3	0	1	52
	700	9057	3	0	3	8333	2	0	3	8400	1	0	2	8221	2	0	2	9090	1	0	1	8854	3	0	1	8373	3	0	2	74
	1000	12734	3	0	3	11715	2	0	3	11810	2	0	2	11558	2	0	3	12781	2	0	2	12448	3	0	2	11772	4	0	2	112
48	350	7671	3	0	3	7058	2	0	2	7115	1	0	2	6963	1	0	2	7700	1	0	1	7500	3	0	1	7092	3	0	1	55
	530	10293	3	0	3	9470	2	0	3	9546	1	0	2	9342	2	0	2	10331	1	0	1	10062	3	0	1	9516	3	0	2	78
	700	13586	3	0	3	12499	3	0	3	12600	2	0	2	12331	2	0	3	13636	2	0	2	13281	4	0	2	12560	4	0	2	105
5K Lumen Data																														
16	350	2437	1	0	1	2242	1	0	1	2260	1	0	1	2212	1	0	1	2446	1	0	1	2383	1	0	1	2253	2	0	1	18
	530	3270	2	0	2	3008	1	0	1	3033	1	0	1	2968	1	0	1	3282	1	0	1	3197	2	0	1	3023	2	0	1	26
	700	4316	2	0	2	3971	1	0	2	4003	1	0	1	3918	1	0	1	4332	1	0	1	4219	2	0	1	3990	3	0	1	37
	1000	6110	3	0	3	5621	1	0	2	5666	1	0	2	5545	1	0	2	6132	1	0	1	5973	3	0	1	5648	3	0	1	56
32	350	4908	2	0	2	4515	1	0	2	4552	1	0	1	4454	1	0	1	4926	1	0	1	4798	2	0	1	4537	3	0	1	37
	530	6585	3	0	3	6058	2	0	2	6107	1	0	2	5977	1	0	2	6609	1	0	1	6437	3	0	1	6087	3	0	1	52
	700	8691	3	0	3	7996	2	0	3	8061	1	0	2	7889	2	0	2	8723	1	0	1	8496	3	0	1	8035	3	0	2	74
	1000	12219	3	0	3	11242	2	0	3	11333	2	0	2	11091	2	0	3	12264	2	0	2	11945	3	0	2	11297	4	0	2	112
48	350	7362	3	0	3	6773	2	0	2	6827	1	0	2	6682	1	0	2	7389	1	0	1	7197	3	0	1	6806	3	0	1	55
	530	9877	3	0	3	9087	2	0	3	9160	1	0	2	8965	2	0	2	9913	1	0	1	9656	3	0	1	9131	3	0	2	78
	700	13037	4	0	4	11994	3	0	3	12091	2	0	2	11833	2	0	3	13085	2	0	2	12745	4	0	2	12052	4	0	2	105

Visit www.VisionaireLighting.com for up-to-the-minute chart information, including types not listed here.

19645 Rancho Way Rancho Dominguez, CA 90220
Tel: (310) 512-6480 Fax: (310) 512-6486
www.visionairelighting.com

LED T20

windfall outdoor



DESCRIPTION
Crisp lines and a slim profile combine in this handsome LED outdoor fixture. The indirect light bounces off the smooth, matte finish of the backplate. Mounts vertically or horizontally. Includes (1) 20 watt 1680 lumen 3000K LED module. ADA compliant. 120v or 277v.

WEIGHT
4.63lb / 2.1kg ±

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

CITY OF MADISON ENGINEERING

✘ REVIEWED WITH NO COMMENTS

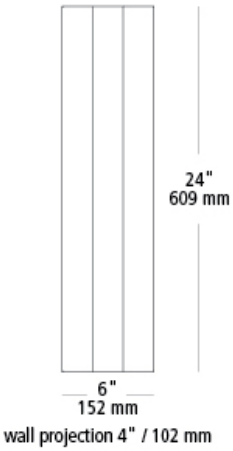
( ) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 10/10/2018





black silver

ORDERING INFORMATION

model	finish	lamp	wet location
OD785	**BL** black **SI** silver	**LED** LED module 20w 3000K 120v **LED277** LED module 20w 3000K 277v	**W** wet location

FIXTURE TYPE: _____

JOB NAME: _____

NOTES: _____

_____

_____

LBL

7400 Linder Avenue
Skokie, Illinois 60077

T 847.626.6300
F 847.626.6350

www.lbllighting.com

©2018 LBL Lighting. All Rights Reserved. The "LBL Lighting" graphic is a registered trademark of LBL Lighting. LBL Lighting reserves the right to change specifications for product improvements without notification.



2 West Wing - South
A-2.1W 1/8" = 1'-0"

ALL LIBRARY SIGNAGE LOCATIONS, QUANTITY, SIZE, & LIMITATIONS TO BE REVIEWED WITH THE DEVELOPER & CITY.

THE GENERAL CONTRACTOR WILL PROVIDE (1) CONDUIT & (1) JUNCTION BOX FOR (2) SIGN LOCATIONS ON FACE OF BUILDING - CITY TO COORDINATE LOCATIONS. ALL EXPENSES FOR ELECTRICAL CONNECTIONS & MOUNTING POINTS FOR EXTERIOR BLDG SIGNAGE TO BE BY THE CITY.

ANY ARCHITECTURAL ACCENT, AND/OR SITE LIGHTING REQUIRED BY LIBRARY TO BE AT EXPENSE OF THE CITY & MUST BE APPROVED BY THE DEVELOPER & THE CITY.

ALL LIBRARY SIGNAGE LOCATIONS, QUANTITY, SIZE, & LIMITATIONS TO BE REVIEWED WITH THE DEVELOPER & CITY.

THE GENERAL CONTRACTOR WILL PROVIDE (1) CONDUIT & (1) JUNCTION BOX FOR (1) EXTERIOR SIGN LOCATION AT WEST OUTDOOR PLAZA ALONG COTTAGE GROVE ROAD - CITY TO COORDINATE LOCATIONS. ALL EXPENSES FOR ELECTRICAL CONNECTIONS & MOUNTING POINTS FOR EXTERIOR SIGNAGE TO BE BY THE CITY.

ANY ARCHITECTURAL ACCENT, AND/OR SITE LIGHTING REQUIRED BY LIBRARY TO BE AT EXPENSE OF THE CITY & MUST BE APPROVED BY THE DEVELOPER & THE CITY.

EXTERIOR MATERIAL SCHEDULE - WEST

BUILDING MATERIAL		MATERIAL	COLOR
BRICK VENEER		MASONRY	SIOUX CITY BRICK - SEDONA IRON SPOT
MORTAR COLOR @ BRICK VENEER		MASONRY	TBD
METAL FLASHING @ BRICK VENEER		STEEL	MATCH MASONRY
HORIZONTAL METAL SIDING	1a	STEEL	FABRAL - HCT SERIES 12in (3) RIBS
			COLOR MATCH PAC-CLAD GRANITE
COMPOSITE METAL PANEL	2a	MCM	ALPOLIC - PE, SILVER METALLIC
COMPOSITE METAL PANEL	3a	MCM	ALPOLIC - PE, MFS MIDA GREY
COMPOSITE METAL PANEL	4a	ACM	ALCOA ARCHITECTURAL PRODUCTS - REYNOBOND
			DURAGLOSS 5000 - RUST PATINA
MASONRY BASE		CAST STONE	RENAISSANCE - SANDCRIFT SANDBLASTED FACE (8" PIECES)
			RENAISSANCE - SANDCRIFT SANDBLASTED FACE (4" RECESSED BANDS)
MORTAR COLOR @ CAST STONE		MASONRY	COLOR MATCH SANDCRIFT
METAL FLASHING @ CAST STONE		STEEL	MATCH CAST STONE
WINDOWS		COMPOSITE	ANDERSON 100 - BLACK
PRECAST SILLS		CAST STONE	RENAISSANCE - SANDCRIFT SAND BLASTED FACE
RAILINGS - CABLE RAILING SYS.		STAINLESS STEEL	
ALUMINUM STOREFRONTS		ALUMINUM	ANODIZED - NATURAL



1 West Wing - North
A-2.1W 1/8" = 1'-0"

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS

(X) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED - SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 10/5/2018

knothe • bruce ARCHITECTS
kba@kba.com 608.836.3690
7601 University Ave • Suite 201 • Middleton, WI 53562

KEY PLAN

ISSUED
Issued for Bid - September 23, 2015
Revised Bid Set - January 18, 2016
Issued for Plan Review - February 8, 2016
Revision to Previously Approved Plan - January 12, 2018
Revised Set - May 23, 2018

2 | Revised - November 18, 2015
1 | Implemented City's LDI Clarifications - August 7, 2017

PROJECT TITLE
ROYSTER CROSSINGS

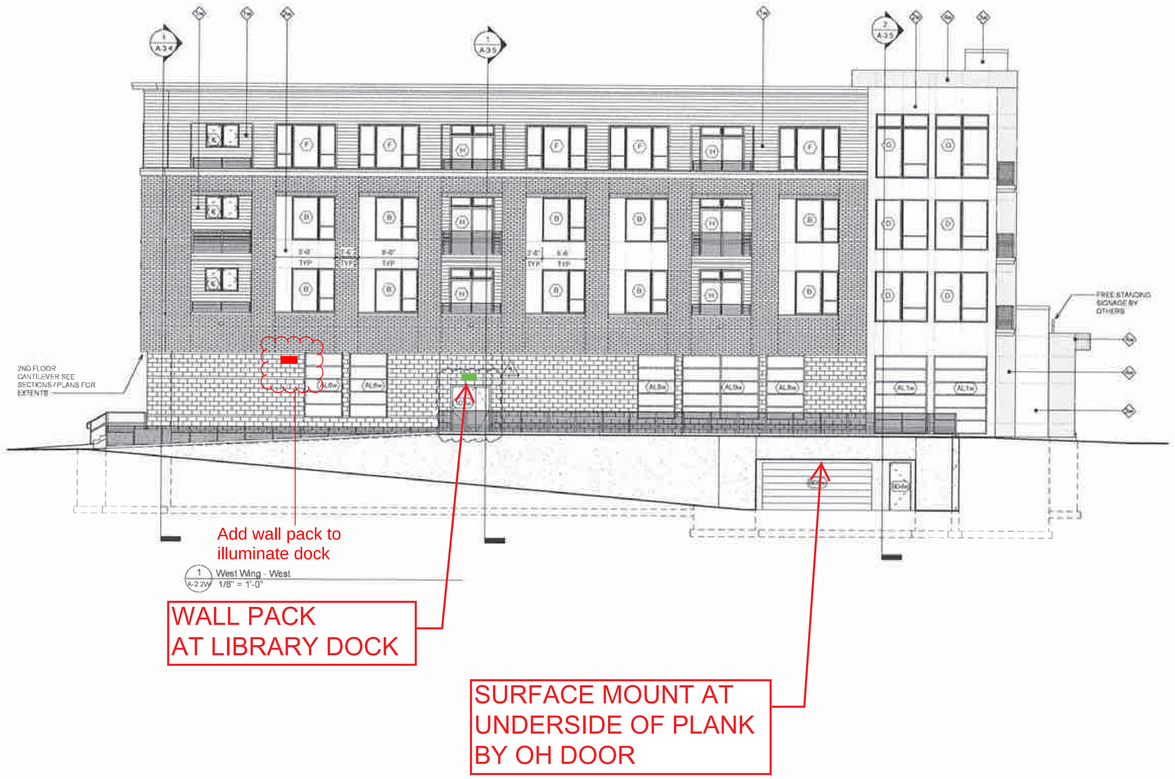
521-523 Grand Oak Trail MADISON, WI

SHEET TITLE
Exterior Elevations N/S

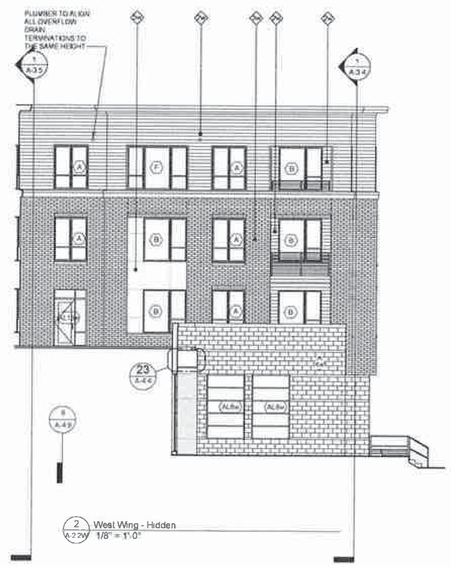
SHEET NUMBER
A-2.1W

PROJECT NUMBER 1421

© Knothe & Bruce Architects, LLC







knothe • bruce
ARCHITECTS

KEY PLAN

ISSUED
Issued for Bid September 29, 2015
Revised Bid Set January 19, 2016
Issued for Plan Review - February 8, 2016
Revision to Previously Approved Plan - January 12, 2018
Revised Set - May 23, 2018

1 Implemented City's LOI Clarifications - August 7, 2017

PROJECT TITLE
ROYSTER CROSSINGS

521-523 Grand Oak Trail MADISON, WI

SHEET TITLE
Exterior Elevations E/W

SHEET NUMBER
A-2.2W

PROJECT NUMBER 1421

© Knothe & Bruce Architects, LLC



1 A-2.1E East Wing - South
1/8" = 1'-0"

EXTERIOR MATERIAL SCHEDULE - EAST

BUILDING MATERIAL	MATERIAL	COLOR
BRICK VENEER	MASONRY	SIOUX CITY BRICK - CRANBERRY
MORTAR COLOR @ BRICK VENEER	MASONRY	TBD
METAL FLASHING @ BRICK VENEER	STEEL	MATCH MASONRY
VERTICAL METAL SIDING (5)	CORRUGATED STEEL	MORIN CORRUGATED EXPOSED FASTENER
		S16 METAL PANEL - GALVANIZED ZINC
VERTICAL METAL SIDING (5a)	CORRUGATED STEEL	MORIN CORRUGATED CONCEALED FASTENER
		S15 METAL PANEL - WEATHERED ZINC
MASONRY BASE	CAST STONE	RENAISSANCE - SANDDRIFT SANDBLASTED FACE (6" PIECES)
		RENAISSANCE - SANDDRIFT SANDBLASTED FACE (4" RECESSED BANDS)
MORTAR COLOR @ CAST STONE	MASONRY	MORTAR TECHNOLOGIES - COLOR MATCH SANDDRIFT
METAL FLASHING @ CAST STONE	STEEL	MATCH CAST STONE
WINDOWS	COMPOSITE	ANDERSON 100 - BLACK
PRECAST SILLS	CAST STONE	RENAISSANCE - SANDDRIFT SANDBLASTED FACE
RAILINGS - BALUSTERS	ALUMINUM	BLACK
ALUMINUM STOREFRONTS	ALUMINUM	ANODIZED - BLACK



2 A-2.1E East Wing - North
1/8" = 1'-0"

knothe • bruce ARCHITECTS
kba
knothebruce.com 608.836.3690
7601 Greenway Ave. • Suite 201 • Middleton, WI 53562

KEY PLAN

ISSUED
Issued for Bid - September 25, 2015
Revised Bid Set- January 19, 2016
Issued for Plan Review - February 8, 2016
Revision to Previously Approved Plan - January 12, 2016
Revised Set - May 23, 2016

1 Revised - November 18, 2015

PROJECT TITLE
ROYSTER CROSSINGS

521-523 Grand Oak Trail MADISON, WI

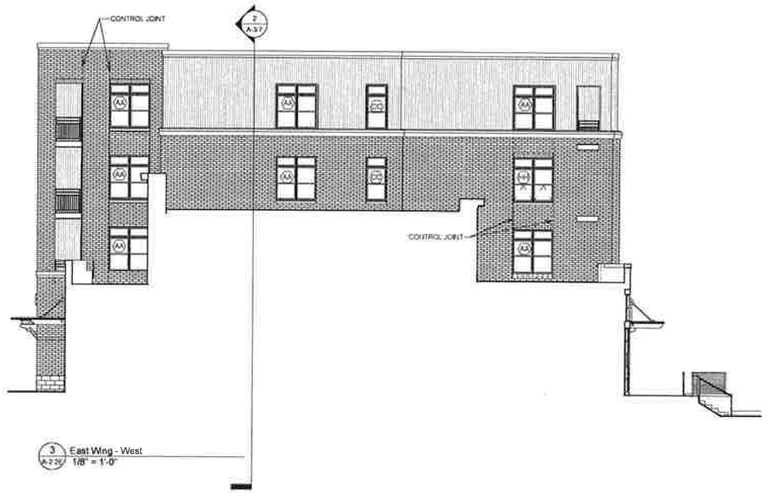
SHEET TITLE
Exterior Elevations N/S

SHEET NUMBER
A-2.1E

PROJECT NUMBER 1421

© Knothe & Bruce Architects, LLC







knothe & bruce
ARCHITECTS
kbarchitects.com 608.836.3690
7601 Ormsbee Ave. • Suite 201 • Middleton WI 53562

KEY PLAN

ISSUED
Issued for Bid - September 25, 2015
Revised Bid Set January 19, 2016
Issued for Plan Review - February 8, 2016
Revision to Previously Approved Plan - January 12, 2018
Revised Set - May 23, 2018

1 Revised - November 18, 2015

PROJECT TITLE
ROYSTER CROSSINGS

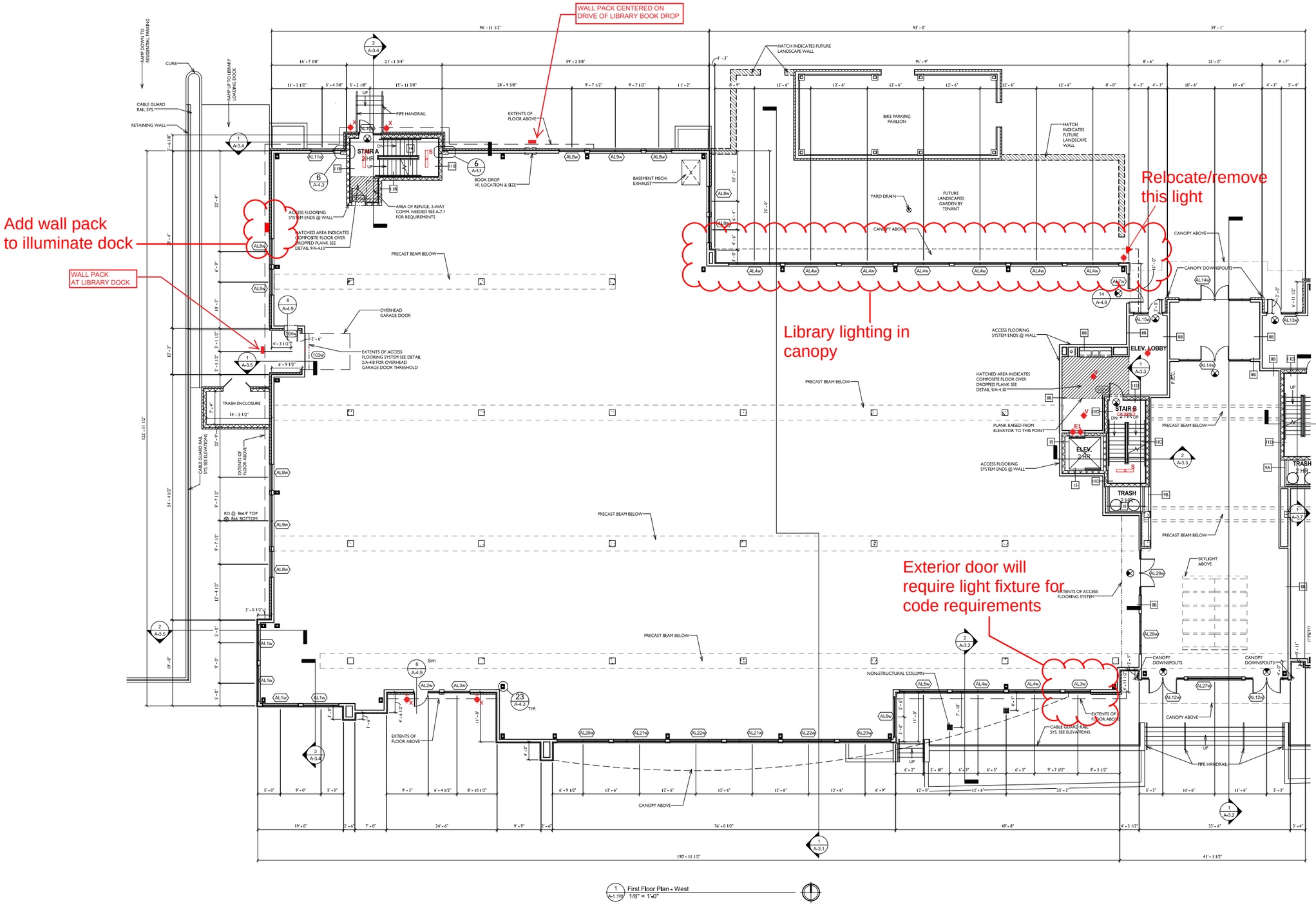
521-523 Grand Oak Trail MADISON, WI

SHEET TITLE
Exterior Elevations E/W

SHEET NUMBER
A-2.2E

PROJECT NUMBER 1421

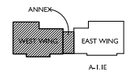
© Knothe & Bruce Architects, LLC



1 A-1.1W First Floor Plan - West
1/8" = 1'-0"

knothe bruce ARCHITECTS
knothebruce.com 608.836.3690
7601 University Ave. • Suite 201 • Middleton, WI 53562

KEY PLAN



DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS
(X) REVIEWED WITH COMMENTS AS NOTED
( ) REVISE AND RESUBMIT
( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA
DATE: 10/5/2018

ISSUED
Issued for Bid: September 25, 2015
Revised Bid Set: January 19, 2016
Issued for Plan Review - February 8, 2016

PROJECT TITLE
ROYSTER CROSSINGS

521-523 Grand Oak Trail
MADISON, WI

SHEET TITLE
First Floor Plan-West

SHEET NUMBER
A-1.1W

PROJECT NUMBER 1421

© Knothe & Bruce Architects, LLC

Area of Refuge Systems

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

✘ REVIEWED WITH NO COMMENTS

( ) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 10/23/2018

AlphaRefuge™

2100 Series

The ADA Compliant Solution for Buildings with up to 10 Remote Call Boxes























Meets all requirements of ADA, ASME and NFPA

Proudly Made in the U.S.A.

AL025 - (10/2011)

Area of Refuge Systems

REFUGE COMMAND CENTERS (Masters)



Proudly Made in the U.S.A.

AlphaRefuge™ 2100 Series

◄ **RCC2510SF / RCC2510SS**

Choose from the following Stainless Steel Masters:

RCC2505SF - 5 Remote Max Flush Command Center
O.D. : 11.875"W X 15.00"H X 3.25"D (mm: 302 W X 381 H X 83 D)
RCC2505SS - 5 Remote Max Surface Command Center & Backbox
O.D. : 12.50"W X 13.75"H X 4.50"D (mm: 318 W X 350 H X 115 D)
RCC2510SF - 10 Remote Max Flush Command Center
O.D. : 11.875"W X 15.00"H X 3.25"D (mm: 302 W X 381 H X 83 D)
RCC2510SS - 10 Remote Max Surface Command Center & Backbox
O.D. : 12.50"W X 13.75"H X 4.50"D (mm: 318 W X 350 H X 115 D)

Standard Features

- Choose from 8 different finish/mounting/capacity combinations to best fit your specific application.
- Battery back-up allows for 4 hours of full operation upon loss of power.
- Run twisted, shielded, 4 wire set from each Remote to the Master unit (plus one standard phone line to outside)*.
- Requires standard 120vac supply and analog telephone line (either POTS, PBX or central office phone line). If used on a digital system must order an ATA analog telephone adaptor from digital system provider. Make sure it is programmed with a standard wink signal per FCC & CRTC requirements.
- Easy to use push buttons.
- Passively monitor communications between phones and outside world via the LEDs.
- Solid lit LED indicates there is an emergency call in progress:
  - Slow blinking LED indicates there is a call on hold,
  - Fast blinking LED indicates that an emergency call was placed but not acknowledged by the Master.
  - You must call into phone to silence LED
- Audible alert when phone initiates call, silenced when call is joined from the Master
- Different communication methods:
  1) Master phone can call into all or individual call box(es) as needed
  2) Can join in existing conversations between call box(es) and outside world
  3) Can hang-up and original conversation will continue

*See System Wiring Instructions for complete wiring information.



◄ **RCC2510CF**



▲ **PWR2410 Remote Power Supply**
1 Per System for Remote Power
(Up to 10 Remote Call Boxes)

O.D. : 8.125"W X 9.275"H X 3.75"D
(mm: 207 W X 236 H X 96 D)

Choose from these Powder Coat, Lockable Cabinet Masters:

RCC2505CF - 5 Remote Max Flush Command Center
O.D. : 14.00"W X 16.125"H X 6.15"D (mm: 356 W X 410 H X 157 D)
RCC2505CS - 5 Remote Max Surface Command Center
O.D. : 11.875"W X 14.75"H X 6.125"D (mm: 302 W X 375 H X 156 D)
RCC2510CF - 10 Remote Max Flush Command Center
O.D. : 14.00"W X 16.125"H X 6.15"D (mm: 356 W X 410 H X 157 D)
RCC2510CS - 10 Remote Max Surface Command Center
O.D. : 11.875"W X 14.75"H X 6.125"D (mm: 302 W X 375 H X 156 D)

Area of Refuge Systems

REFUGE CALL BOXES (Remotes)

AlphaRefuge™ 2100 Series

Proudly Made in the U.S.A.



Black Plastic-Finish Surface Call Box

RCB2100BR - Remote 24VAC Power *
RCB2100BD - Direct 120VAC Power

O.D. : 6.00"W X 9.50"H X 2.875"D (mm: 153 W X 242 H X 74 D)
* Remote 24VAC Power Requires one PWR2410 Power Supply Per System



Red Powder Coat NEMA-Approved Outdoor Surface Call Box

RCB2100NR - Remote 24VAC Power *
RCB2100ND - Direct 120VAC Power

O.D. : 5.25"W X 8.25"H X 2.75"D (mm: 134 W X 210 H X 70 D)
* Remote 24VAC Power Requires one PWR2410 Power Supply Per System



Red Powder Coat Finished Call Box

RCB2100RR - Remote 24VAC Power *
RCB2100RD - Direct 120VAC Power

O.D. : 5.125"W X 8.125"H X 2.125"D (mm: 131 W X 207 H X 54 D)
* Remote 24VAC Power Requires one PWR2410 Power Supply Per System



Brushed Stainless Steel Surface Call Box

RCB2100SR - Remote 24VAC Power *
RCB2100SD - Direct 120VAC Power

O.D. : 5.125"W X 8.125"H X 2.125"D (mm: 131 W X 207 H X 54 D)
* Remote 24VAC Power Requires one PWR2410 Power Supply Per System



Brushed Stainless Steel Flush Call Box

RCB2100SFR - Remote 24VAC Power *
RCB2100SFD - Direct 120VAC Power

O.D. : 9.75"W X 12.50"H X .50"D (mm: 248 W X 318 H X 13 D)
I.D. : 6.00"W X 8.25"H X 3.00"D (mm: 153 W X 210 H X 77 D)
* Remote 24VAC Power Requires one PWR2410 Power Supply Per System

NOTE: Models also available with mushroom-head buttons. Please contact us for more information.

Area of Refuge Signage

AlphaRefuge™ 2100 Series

Proudly Made in the U.S.A.





Blue Wall Signs w/ Arrow
RSN7047R: Right Arrow
RSN7047L: Left Arrow
15.0"W X 5.0"H

Depending on the size of the building, an AHJ may require direction signage to get the occupants to the location.

Photoluminescent Wall Sign
RSN7041
8.00"W X 8.00"H X 0.25"D

RSN7042
11.25"W X 12.00"H X 0.25"D



If Exit sign illumination is required, Area of Refuge signs must be illuminated as well. Signs shall be mounted at Entrance of Area of Refuge usually under 80" to comply with character and proportion sizes.





Blue Wall Sign w/ Braille
RSN7044
6.0"W X 9.0"H

Tactile signage or raised letter & braille signage is required at the entrance of the area of refuge to designate the area as such.

Red Lighted Refuge Sign
RSN7050 - 120VAC
14.0" W x 10.5" H x 3.00" D
Includes Battery Backup



White Wall Sign w/ Braille
RSN7043
6.0"W X 9.0"H

Photoluminescent Wall Sign
RSN7046
8.00"W X 8.00"H X 0.25"D



Some AHJs will accept this sign to take the place of the RSN7041 and RSN7044 so you only need one of these at the entrance to the area of refuge.



Instructions on the use of the area during an emergency are required in the actual area of refuge (we recommend next to the call box). 1007.11 is the section of the code that requires this.

Instruction Sign w/ Braile
RSN7049
6.0"W X 8.0"H

Self-Stick Floor Decal
RSN7045
17.0" Diameter

A large floor decal is typically not required, but it makes locating an Area of Refuge much easier, especially for people with impaired vision, or in limited sight situations.



42 Central Drive - Farmingdale NY 11735-1202
Phone: 631-777-5500 Fax: 631-777-5599
TOLL-FREE: 800-666-4800
www.AlphaCommunications.com

Copyright© 2011, Alpha Communications®. All Rights Reserved. Due to continuous product improvement, all specifications, sizes, colors, materials, features, and wiring information are subject to change without notice.

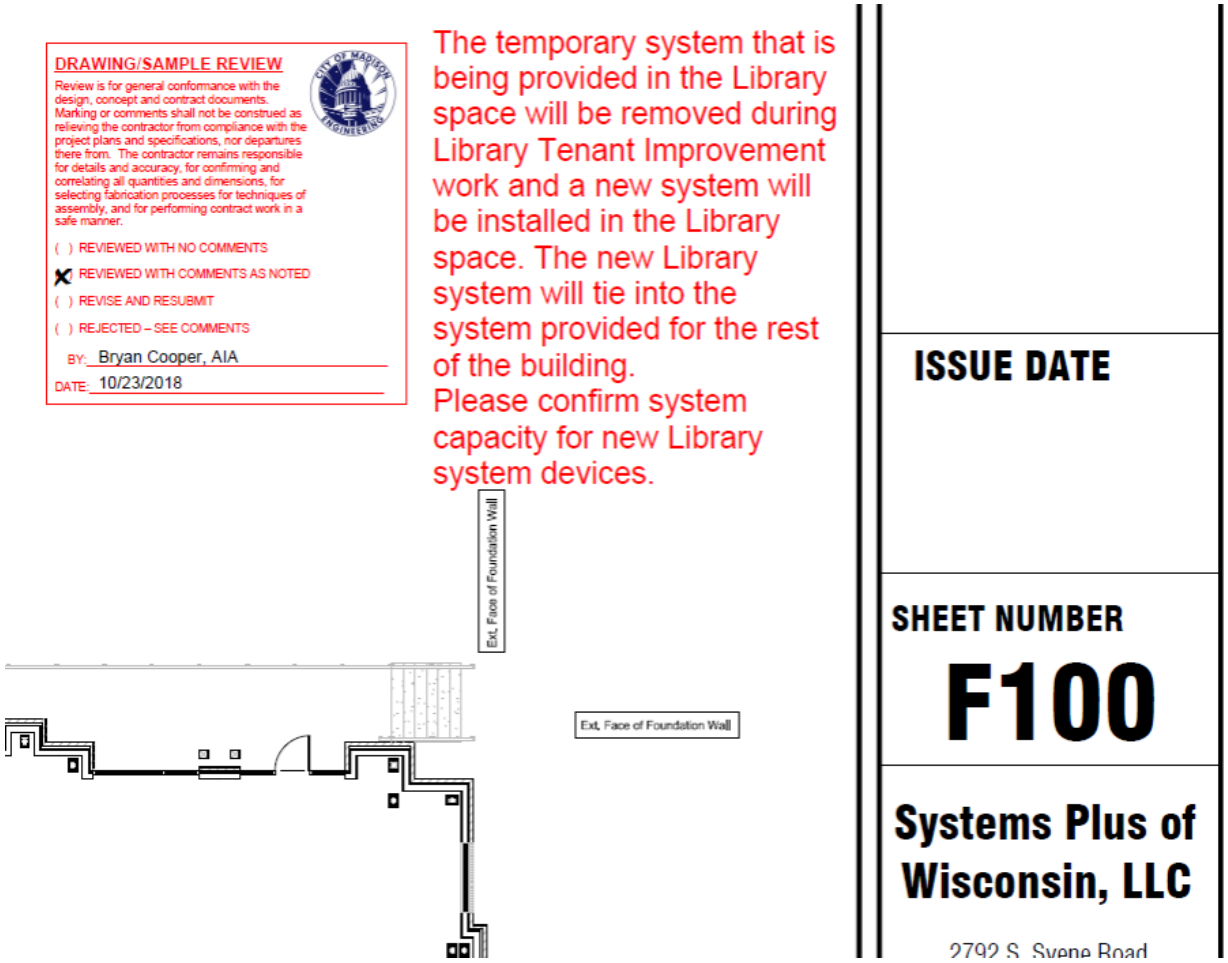
Available From:

From:	Scott Pulver
To:	Scanlon, Amy
Cc:	Ryan Frank; Cooper, Bryan
Subject:	RE: Pinney reviews
Date:	Thursday, October 25, 2018 4:42:58 PM
Attachments:	image001.png
Importance:	High

City team –

Highlighted in yellow is System Plus' response to the city's below comment –

From Craig Berkan - Systems Plus:
"I have one notification circuit rated at 2.5A maximum to run temporary construction devices and/or sync to additional power extenders as needed.
I also have SLC with the capability of adding another 937 addressable devices."



Thanks,
Scott

Scott A. Pulver
Construction Project Manager
Ruedebusch Development & Construction, Inc.
4605 Dovetail Drive

Madison, WI 53704
P 608.249.2012 x 231
M 608.228.1807
www.ruedebusch.com

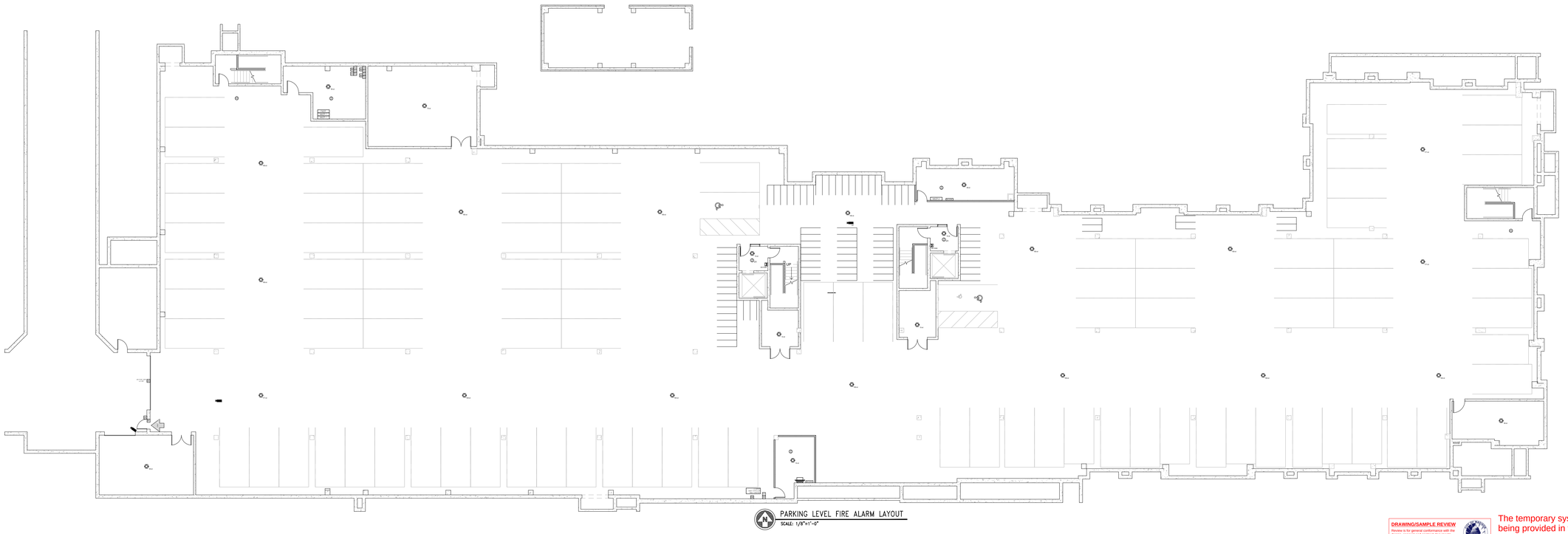
Go Green! Please do not print this e-mail unless necessary.
CONFIDENTIALITY NOTICE: The content of this message and any files transmitted with it is a confidential and proprietary business communication, which is solely for the use of the intended recipient(s). Any use, distribution, duplication or disclosure by any other person or entity is strictly prohibited. If you are not an intended recipient or this has been received in error, please notify the sender and immediately delete all copies of this communication.

From: Scanlon, Amy [mailto:AScanlon@cityofmadison.com]
Sent: Tuesday, October 23, 2018 2:50 PM
To: Scott Pulver <scottp@ruedebusch.com>
Cc: Ryan Frank <rfrank@opnarchitects.com>; Cooper, Bryan <BCooper@cityofmadison.com>
Subject: Pinney reviews

Scott,
I have uploaded the following shop drawing reviews to Sharefile:
Fireproof/waterproof caulk as approved
Area of Refuge Fire Alarm as approved
Floor Plan Fire Alarm as comments noted
Data Sheets Fire Alarm as comment noted

Amy

Amy Loewenstein Scanlon, Registered Architect
Department of Public Works
Engineering Division
City County Building, Room 115
210 Martin Luther King, Jr. Blvd.
Madison WI 53703-3342
ascanlon@cityofmadison.com
608 267 0743



PARKING LEVEL FIRE ALARM LAYOUT
SCALE: 1/8"=1'-0"

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departure there from. The contractor remains responsible for dimensions, for the design of and accuracy of connecting job quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS

(X) REVIEWED WITH COMMENTS AS NOTED

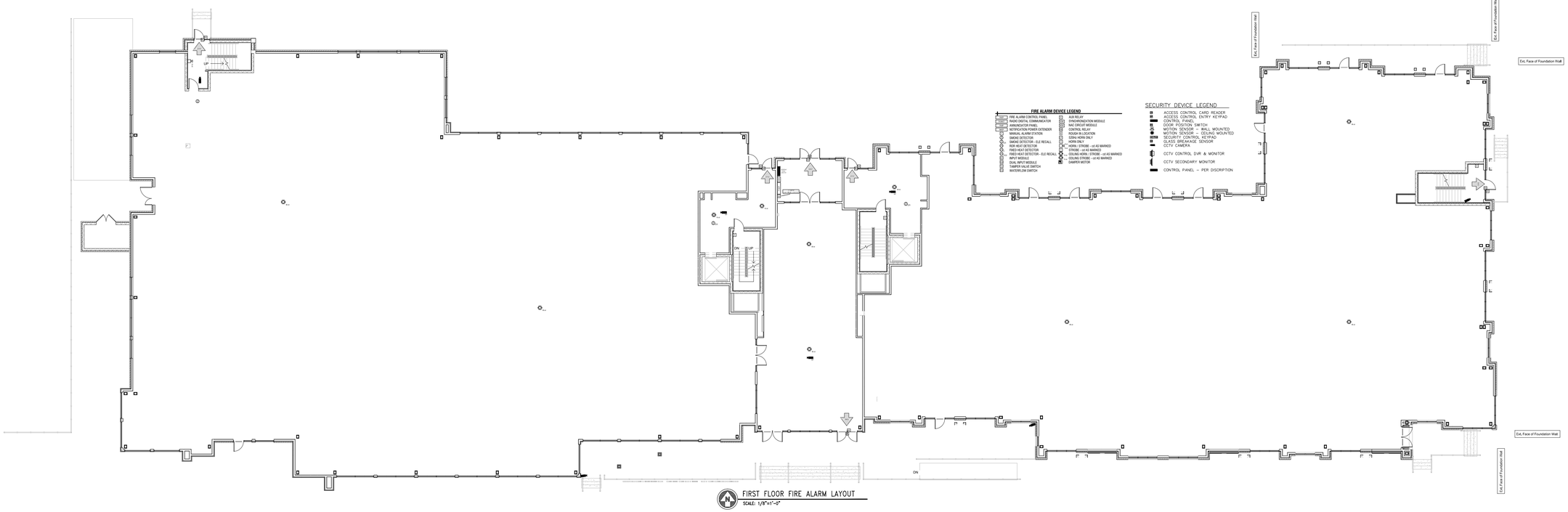
( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 10/23/2018

The temporary system that is being provided in the Library space will be removed during Library Tenant Improvement work and a new system will be installed in the Library space. The new Library system will tie into the system provided for the rest of the building.
Please confirm system capacity for new Library system devices.



FIRST FLOOR FIRE ALARM LAYOUT
SCALE: 1/8"=1'-0"

D:\MY DOCUMENTS\CADS & DRAWINGS\ROYSTER\CURRENT REVIT MODEL-FLOOR PLAN - BASEMENT.DWG, 9/26/2018 1:04:21 PM, ARCH FULL BLEED D (24.00 X 36.00 INCHES), CRAIG BERKAN

Project Name

Project Address
Madison, WI 53705

ISSUE DATE

SHEET NUMBER

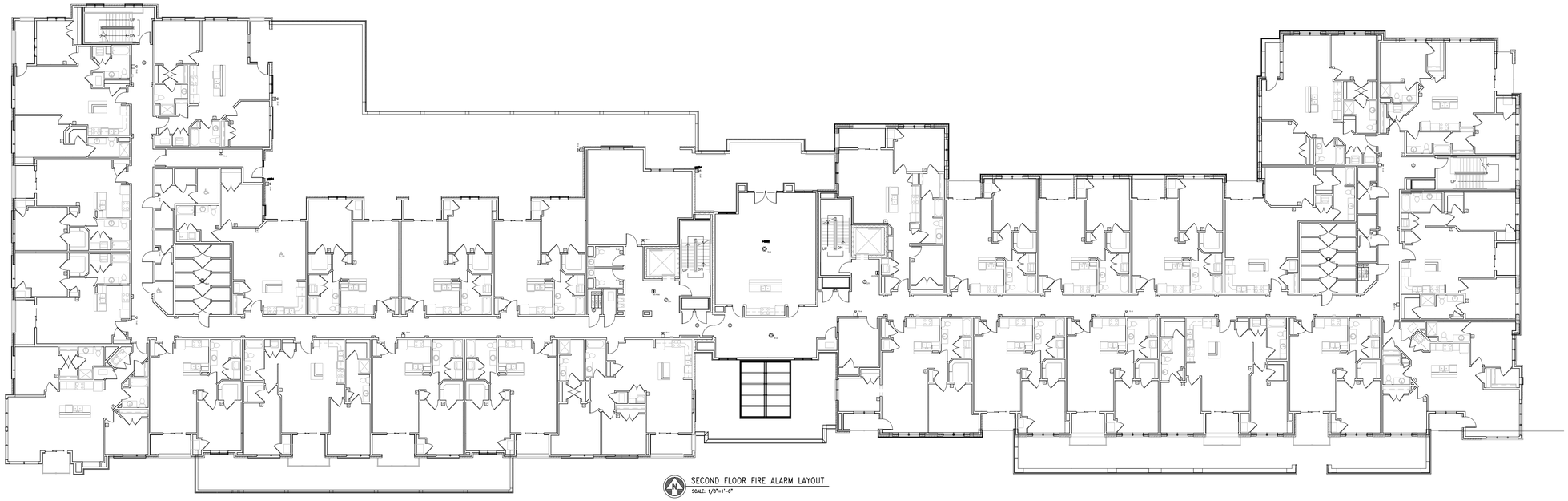
F100

Systems Plus of Wisconsin, LLC

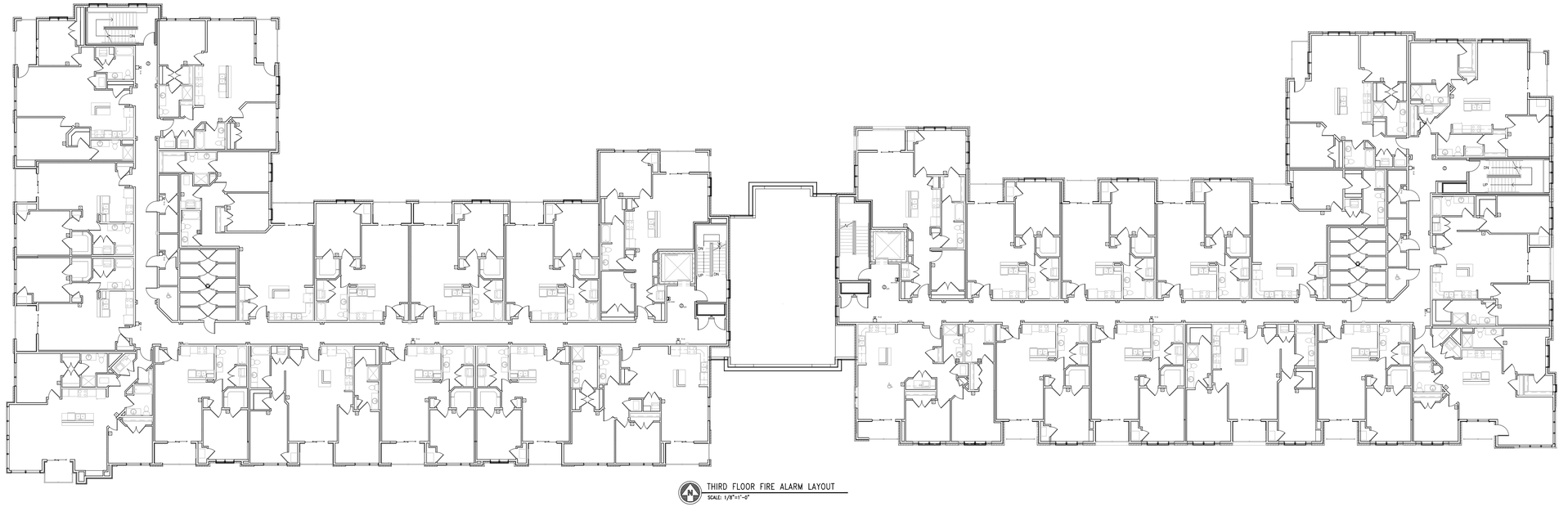
2792 S. Syene Road
Suite 2
Madison, WI 53711
www.systemspluswi.com
Building Contractor # 1106410

Craig Berkan
Integrated Systems Design
Phone: (608) 273-2300
Fax: (608) 273-2301

Any and all information enclosed within this document is subject to confidentially and any reproduction in part or total, with out written consent from Systems Plus of Wisconsin, LLC, is strictly prohibited.



SECOND FLOOR FIRE ALARM LAYOUT
SCALE: 1/8"=1'-0"



THIRD FLOOR FIRE ALARM LAYOUT
SCALE: 1/8"=1'-0"

Project Name

Project Address
Madison, WI 53705

ISSUE DATE

SHEET NUMBER

F100

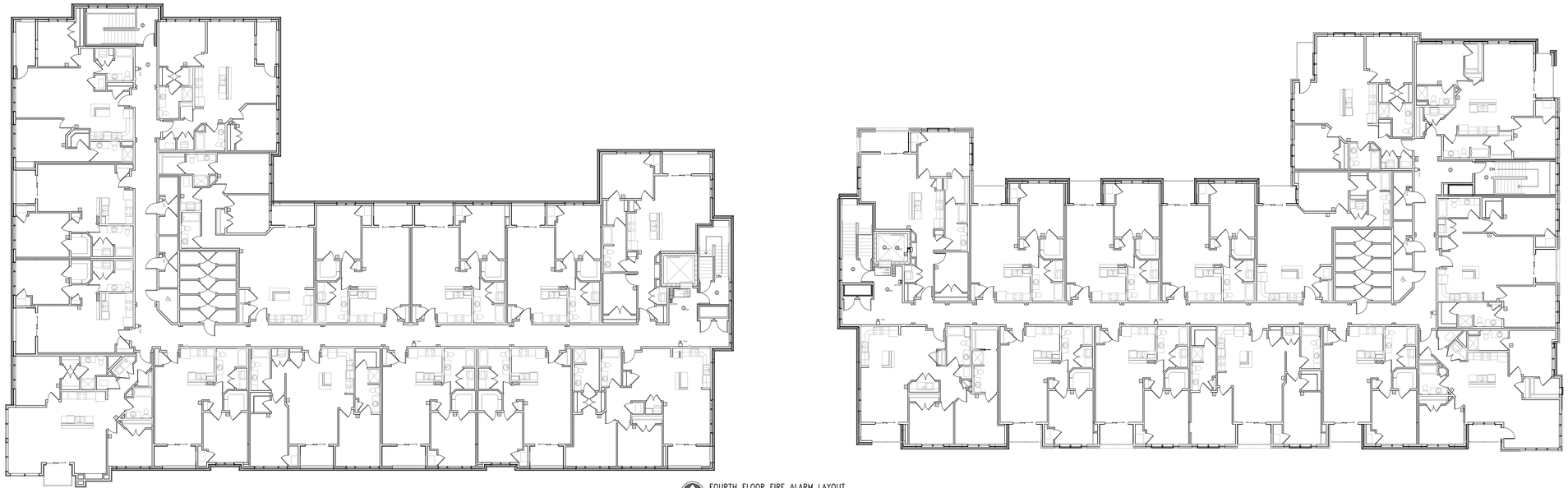
Systems Plus of Wisconsin, LLC

2792 S. Syene Road
Suite 2
Madison, WI 53711
www.systemspluswi.com
Building Contractor # 1106410

Craig Berkan
Integrated Systems Design
Phone: (608) 273-2300
Fax: (608) 273-2301

Any and all information enclosed within this document is subject to confidentiality and any reproduction in part or total, with out written consent from Systems Plus of Wisconsin, LLC, is strictly prohibited.

D: \MY DOCUMENTS\CADS & DRAWINGS\ROYSTER\CURRENT REVIT MODEL-FLOOR PLAN - BASEMENT.DWG, 9/26/2018 1:04:22 PM, ARCH FULL BLEED D (24.00 X 36.00 INCHES), CRAIG BERKAN



FOURTH FLOOR FIRE ALARM LAYOUT
SCALE: 1/8"=1'-0"

Project Name

Project Address
Madison, WI 53705

ISSUE DATE

SHEET NUMBER
F100

Systems Plus of Wisconsin, LLC

2792 S. Syene Road
Suite 2
Madison, WI 53711
www.systemspluswi.com
Building Contractor # 1106410

Craig Berkan
Integrated Systems Design
Phone: (608) 273-2300
Fax: (608) 273-2301

Any and all information enclosed within this document is subject to confidentiality and any reproduction in part or total, with out written consent from Systems Plus of Wisconsin, LLC, is strictly prohibited.

EDWARDS
United Technologies

LIFE SAFETY & INCIDENT MANAGEMENT

Intelligent Fire Alarm Systems

iO64, iO1000

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

( ) REVIEWED WITH NO COMMENTS

(X) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper

DATE: 10/23/2018

Comments related to fire alarm provided in floor plan portion of the submittal



FDNY
COA 6227

7165-1657:
0244

S3000

Overview

EDWARDS brand intelligent life safety systems offer the power of high-end intelligent processing in configurations that deliver uncomplicated solutions for small to mid-sized applications. With intelligent detection, electronic addressing, automatic device mapping, optional Ethernet® connectivity, and a full line of easily-configured option cards and modules, these flexible systems offer versatility that benefits building owners and contractors alike.

The iO64 provides one Class B intelligent device loop that supports up to 64 device addresses, and two Class B Notification Appliance Circuits (NACs). Optional Class A device wiring is available with the use of a module.

The iO1000 provides one Class A or Class B intelligent device loop that supports up to 250 device addresses. Loop controller modules may be added in combination to expand total system capacity in 250-point increments to up to 1,000 device addresses. The iO1000 panel includes four NACs that may be wired for either Class A or Class B operation.

The RZI16-2 module adds even more capacity to iO installations by adding up to 16 conventional device circuits and two additional notification appliance circuits. This makes them an ideal retrofit solution that can accommodate new intelligent detectors, as well as existing conventional devices.

iO Series supports a wide range of high-end features, including:

- Signature Series intelligent modules, detectors, and bases
- R-Series remote annunciators
- SIGA-REL Releasing Modules
- Fully integrated CO detection using Signature Series detectors with or without audible signaling

Features

- Auto-programming speeds installation time
- Supports Signature Series intelligent modules and detectors
- Combines the Signature intelligent releasing module with Signature multisensor detectors for reliable fire suppression
- Form C contacts for alarm and trouble, Form A for supervisory
- Electronic addressing with automatic device mapping
- Optional Ethernet port for diagnostics, programming and a variety of system reports
- Two programmable switches with LEDs and custom labeling
- Supports Genesis horn silence over two wires, and UL 1971-compliant strobe synchronization
- Class B or Class A wiring
- Ground fault detection by module
- Supports up to eight serial annunciators, (LCD, LED-only, and graphic interface)
- Can use existing wiring for most retrofit applications
- Upload/download remotely or locally
- Two-level maintenance alert reporting
- Pre-alarm and alarm verification by point
- Adjustable detector sensitivity
- 4 x 20 character backlit LCD display
- Optional earthquake hardening: seismic Importance Factor 1.5
- Standalone operation
- Transmission test frequency by hour

Application

EDWARDS iO Series life safety systems are powerful intelligent solutions for small to mid-sized buildings. Advanced intelligent technology delivers the benefits of flexible system installation, while clean and easy-to-operate user interfaces make panel operation and system maintenance quick and intuitive.

The smart choice

Signature Series electronic addressing eliminates the tedium of setting dipswitches, and automatic device mapping ensures that each device resides on the system at its correct location. Meanwhile, innovative programming allows the designer to customize the system to precisely suit the needs of the building owner.

Reliability you can count on

The inherent fault-tolerant characteristics of Analog/Addressable Technology boosts the reliability of EDWARDS fire alarm systems. When combined with iO Series smoke and heat detectors, these systems deliver a level of dependability not previously available for small to mid-sized applications. All EDWARDS systems are built to exacting reliability benchmarks and meet international standards for quality, in addition to agency listings for dependability.

Clear-cut remote annunciation

Remote annunciation is a strong suit of the iO Series fire alarm systems. Up to eight annunciators can be installed on a single system. Compatible annunciators include a range of LED and LCD models that provide zone or point annunciation, as well as common control capabilities. iO control panels also supports graphic annunciation with optional RA Graphic Annunciator interface modules. Each interface provides common control and 32 LEDs.

Flexibility built right in

Two fully-programmable front panel switch/LED combinations provide an added measure of flexibility. Their slide-in labels take the mystery out of custom applications, and present a clean finished appearance.

Perfect for retrofits

EDWARDS iO Series control panels are particularly well-suited to retrofit applications. All connections are made over standard wiring – no shielded cable required. This means that in most situations existing wiring can be used to upgrade a legacy control panel to iO technology without the expense or disruption of rewiring the entire building. iO control panels also support the ingenious RZI16-2 Zone Module, which adds up to 16 conventional circuits and two NACs. This combination easily accommodates new intelligent detection alongside existing conventional circuits, making it an superior solution in the retrofit market.

Signals with a difference

iO system NACs are configurable to fully support the advanced signaling technology of EDWARDS Genesis and Enhanced Integrity notification appliances. These devices offer precision synchronization of strobes to UL 1971 standards. For Genesis devices, enabling this feature allows horns to be silenced while strobes on the same two-wire circuit continue to flash until the panel is reset.

A complete line of accessories

iO Series life safety systems are supported by a complete line of analog/addressable detectors, modules and related equipment. Consult the Ordering Information section for details.

Programming and remote diagnostics

EDWARDS iO Series life safety systems are simple to set up, yet offer advanced programming features that put these small building panels into a class of their own. The auto programming feature quickly gets the panel operational using factory default settings. Basic zone and point settings can be programmed through the front panel interface, so the system is up and running in no time.

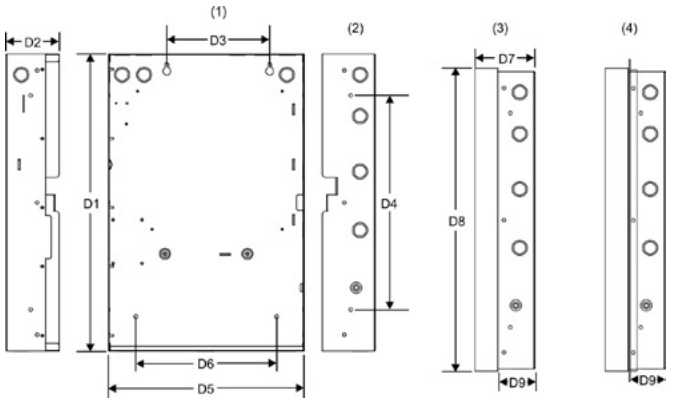
For more advanced system configuration and correlation groups programming, iO Series systems interface to a PC running compatible iO-CU software. This option offers full system configuration in the familiar Windows® operating environment. Connection is made to a laptop through the panel's optional RS-232 communications port, which can also be used to connect a system printer.

Among the many innovative features of iO Series control panels is the optional network card. This module provides a standard 10/100 Base T Ethernet® network connection that permits access to the control panel from any remote location with the correct communications protocols. The connection can be used to download to the panel from the iO-CU, or upload and view system reports using the iO-CU.

Available system reports include:

- Correlation groups
- Device maintenance
- Internal status
- System status
- Dialer
- Device details
- History
- System configuration
- Walk test
- CO runtime

Dimensions



(1) Surface Mounting Holes
(2) Semi-flush mounting Holes
(3) Backbox with Door Attached
(4) Backbox with door and trim kit attached.

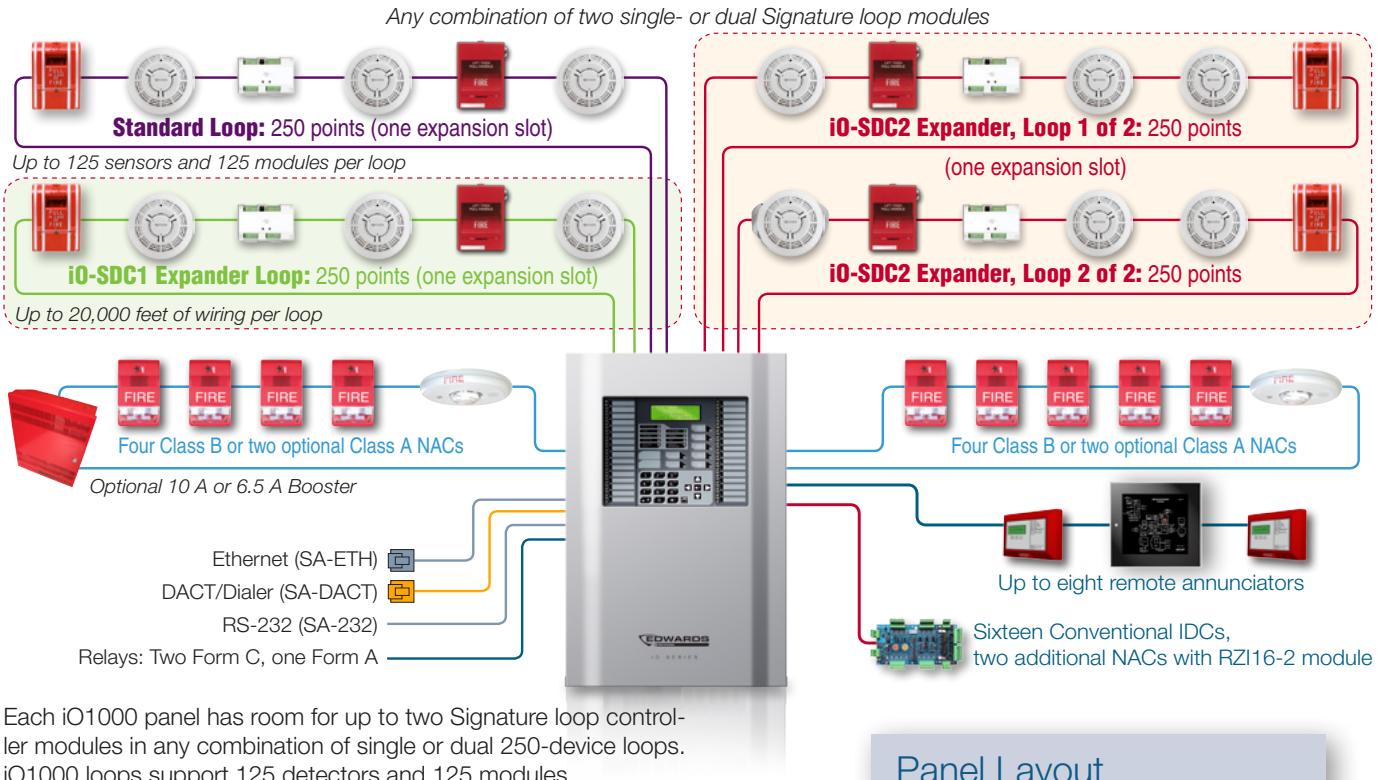
Panel dimensions, in (cm)

Model	D1*	D2	D3	D4	D5*	D6	D7	D8	D9
iO1000	28.0 (71.1)	3.85 (9.8)	9.0 (22.8)	22.0 (55.8)	15.75 (40.0)	10.25 (26.0)	4.4 (11.1)	28.2 (71.6)	2.7 (6.8)
iO64	21.5 (54.6)	3.85 (9.8)	7.5 (19.0)	15.5 (39.4)	14.25 (36.2)	10.25 (26.0)	4.5 (11.4)	21.7 (55.1)	2.7 (6.8)

** Add 1-1/2 in. (3.81 cm) to D1 and D5 dimensions for trim kit. The trim kit provides 0.75 inches (1.9 cm) of trim to the top, bottom, and sides of the backbox.*

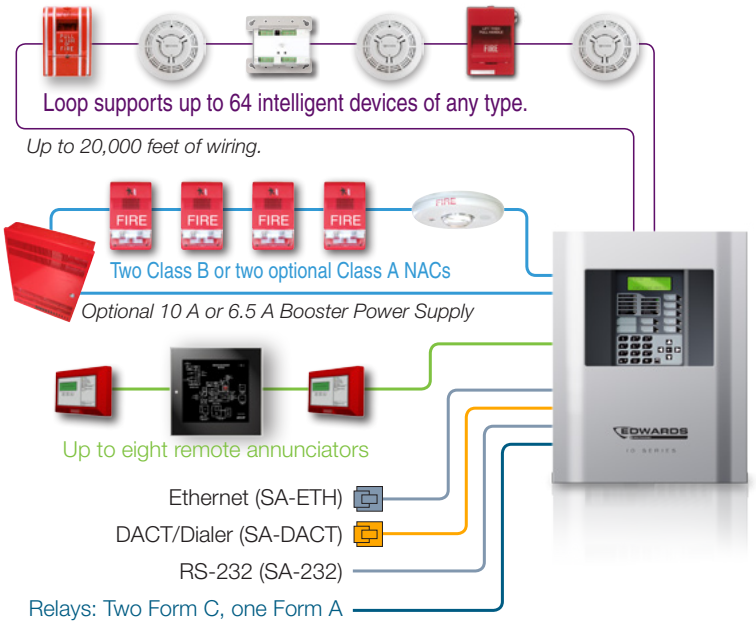
System Layout

iO1000



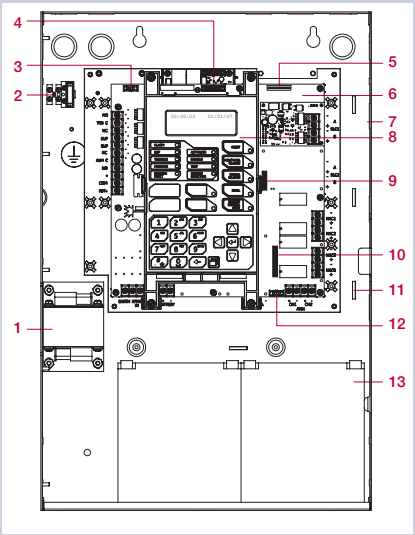
Each iO1000 panel has room for up to two Signature loop controller modules in any combination of single or dual 250-device loops. iO1000 loops support 125 detectors and 125 modules.

iO64



Each iO64 panel ships with one Signature loop controller that supports 64 devices of any type. This panel's device capacity cannot be expanded.

Panel Layout



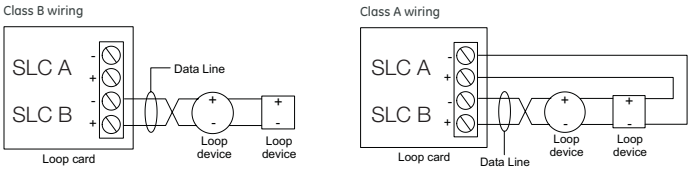
1 Transformer
2 Main AC wiring block & fuse holder
3 RS-232 card connector (J3)
4 Dialer card connection (J8)
5 Ethernet card connector (J1)
6 Main circuit board
7 Panel backbox enclosure
8 Operator interface
9 SLC card connector (J7)
10 Class A card connector (J2)
11 Tie wrap mounts
12 LED expander connector (J6)
13 Standby batteries

Wiring & Configuration

Signature device loop

The system provides one Signature device loop circuit with a total capacity of 125 detectors and 125 module addresses. The loop circuit is supervised for opens, shorts, and grounds.

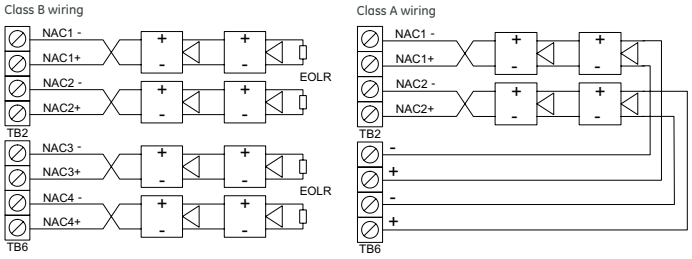
Circuit specifications	iO1000	iO64
Device loops	One Class B or A loop, supporting 125 detectors and 125 modules. Expandable to four loops.	One Class B or A loop, supporting 64 devices of any kind.
Communication line voltage	Maximum 20 V peak-to-peak	
Circuit current	0.5 A max	
Circuit impedance	66Ω total, 0.5 µF, max	
Isolators	64 maximum	
Signal Synchronization	Supported on a system-wide basis (all device loops) when using a SIGA-CC1S or SIGA-MCC1S module and Genesis or Enhanced Integrity notification appliances.	



Notification appliance circuits (TB2)

iO1000 control panels come equipped with four notification appliance circuits. iO64 control panels come with two NACs. Each circuit can be individually configured for continuous, temporal, synchronized, and coded output.

Specifications	iO1000	iO64
Circuit Type	4 Class B or 2 Class A	2 Class B or 2 Class A with SA-CLA module
Voltage	24 VFWR	
Current	6.0 A total, 2.5 A max. per circuit at 120/230 VAC 60 Hz. 5.0 A total, 2.5 A max. per circuit at 230 VAC 50 Hz.	3.75 A total, 2.5 A max. per circuit at 120/230 VAC 60 Hz. 3.0 A total, 2.5 A max. per circuit at 230 VAC 50 Hz.
Impedance	26 Ω total, 0.35 µF max	
EOLR	15 K Ω, ½ W	
Synchronization	Supported system-wide	



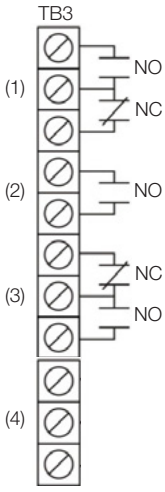
Marking indicates output signal polarity when the circuit is active. Polarity reverses when the circuit is not active. Wire notification appliances accordingly. Notification appliance polarity shown in active state.

Auxiliary & smoke power outputs (TB3)

The control panel provides two auxiliary power outputs that can be used for powering ancillary equipment such as remote annunciators and two wire smoke detectors. Aux 2 can be software selected to operate continuously. The circuit is supervised for shorts and grounds.

Circuit specifications	
Circuit voltage range	21.9 to 28.3 V
Resettable circuit (Aux power 2)	24 VDC nominal at 500 mA
Continuous circuit (Aux power 1)	24 VDC nominal at 500 mA. Use this circuit for powering two-wire smoke detectors.

Note: Any current above 0.5 amp connected to both Aux 1 and 2 will reduce the total available NAC power by that amount.



(1) Trouble
(2) Supervisory
(3) Alarm
(4) Smoke/Aux

Alarm, trouble, and supervisory relay (TB3)

The trouble relay is normally-open, held closed, and opens on any trouble event or when the panel is de-energized. The supervisory relay is normally-open, and closes on any supervisory event. The alarm relay changes over on any alarm event.

Relay specifications

	Alarm	Trouble	Supervisory
Type	Form C		Form A
Voltage	24 VDC at 1 A resistive	24 VDC at 1 A resistive	

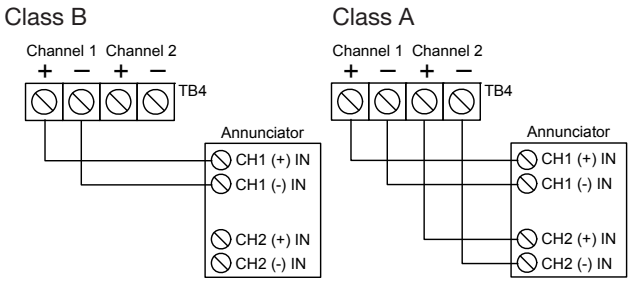
Relay circuits can only be connected to power-limited sources.

Annunciator loop (TB4)

The control panel provides a connection for up to eight serially driven and supervised remote annunciators.

Circuit specifications

Device loops	Class B (Style Y) or Class A (Style Z)
Circuit voltage	2.55 V
Circuit current	30 mA max
Circuit impedance	Up to 8 annunciators or 4000 feet



Option Cards

EDWARDS iO Series panels are supported by a complete line of modules and related equipment that enhance performance and extend system capabilities. Option cards plug directly into the control panel main circuit board or are connected to it with a ribbon cable. After installation, terminals remain accessible. The cabinet provides ample room for wire routing, keeping wiring neat at all times.

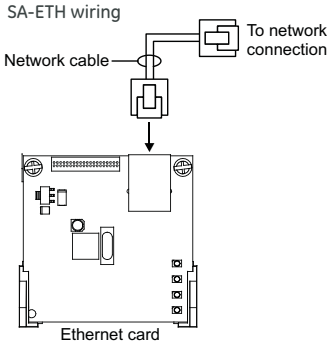
Single and Dual Loop Controller Cards

The iO-SDC1 is a single loop controller card that can be used with the iO64 as a replacement for the standard 64-point loop, or with the iO1000 as a 250-point expansion module.

The iO-SDC2 is a 500-point dual loop controller card for the iO1000 that provides two SLC circuits, each with 125 detector addresses and 125 module addresses.

Specifications	iO-SDC1	iO-SDC2
Device Addresses	iO1000: one loop, 250 device addresses iO64: 64 addresses	iO1000: two loops, 500 device addresses
Wiring	Class B or Class A	
Operating Voltage	24 VDC	
Operating Current (fully loaded loop)	Standby: 55 mA Alarm: 80 mA	Standby: 45 mA Alarm: 70 mA
Note: These ratings do not include the use of two-wire smoke modules.		
Communication Line Voltage	Max. 20.6 V peak-to-peak	
Terminal Rating	12 to 18 AWG (0.75 to 2.5 mm^2)	
Circuit Current	0.5 A max.	
Max total loop resistance	66 Ω	
Max total loop capacitance	0.5 µF	
Isolators	64 isolators maximum per loop (total both isolator bases and modules)	
Ground Fault Impedance	0 to 5 kΩ	
Operating Environment	32 to 120°F (0 to 49°C) 0 to 93% noncondensing at 90°F (32°C)	

SA-ETH Ethernet Interface Card

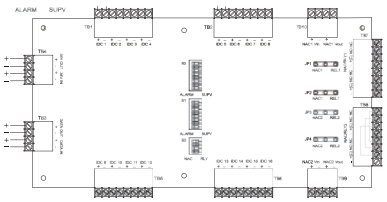


The SA-ETH card provides a standard 10/100 Base T Ethernet network connection for connecting to an intranet, a local network, or the Internet. The card can be used to download configuration programming from the iO-CU to the panel.

The Ethernet card is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

SA-ETH specifications	
Ethernet	10/100 Base T
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)

RZI16-2 Remote Zone Interface Module



The RZI16-2 Addressable Remote Zone Interface Module is an addressable device that provides connections for sixteen Class B Initiating Device Circuits and two Class B Supervised Output Circuits. The inputs and outputs can be configured individually for several device types.

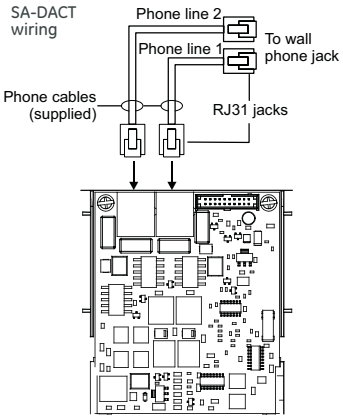
It requires 18 consecutive addresses on the Signaling Line Circuit (SLC). Addresses are assigned electronically. There are no address switches to set.

The RZI16-2 incorporates two 8-segment DIP switches that are used to select the Alarm or Supervisory default device type for each of the 16 IDC circuits. The module also includes one 4-segment DIP switch used to select the default Relay or NAC output device type. Device types other than the default are accomplished through programming.

RZI16-2 Specifications	
Voltage	
24V/Aux nominal:	24 VDC
Supervisory current:	250 mA at 24 VDC nominal
Alarm Current	1000 mA
24V/Aux minimum:	18.4 VDC
24V/Aux maximum:	26.4 VDC
NAC1, NAC2 nominal:	24 VDC
Current	
Standby current for 4.7 k EOL (U.S.)	4.8 mA/ circuit
Standby current for 3.9 k EOL (Canada)	5.7 mA/ circuit
Alarm current at nominal voltage	31.1 mA/ circuit
Relay outputs	
Quantity	2
Type Rating (pilot duty)	Programmable 24 VDC at 2.5 A
Input circuit wiring resistance	25 Ω per wire
Initiating device circuits	
Quantity	16
EOL resistor	4.7 kΩ (U.S.); 3.9 kΩ Canada
Zone voltage	22.78 V for 4.7 kΩ (U.S.) 22.08 V for 3.9 kΩ (Canada)
Alarm current	31.1 mA/ channel at nominal voltage
Alarm impedance range	< 680 Ω
Trouble impedance range	> 5.55 kΩ
Supervised output circuits	
EOL resistor	15 kΩ
Quantity	2
Short circuit detection	< 2.6 kΩ
Open circuit detection	> 61.9 kΩ
Contact ratings	24 VDC at 2.5 A (5 A for two NACs)
Compatible cabinets	MFC(A), iO1000, APS

SA-DACT Dialer

The SA-DACT provides communications between the control panel and the central station over a telephone line system. It transmits system status changes (events) to a compatible digital alarm communicator receiver over the public switched telephone network. The dialer is capable of single, dual, or split reporting of events to two different account and telephone numbers. The modem feature of the SA-DACT can also be used for uploading and downloading panel configuration, history, and current status to a PC running the iO-CU.



The dialer phone lines connect to connectors on the dialer's main circuit board. Phone line 1 connects to connector J4 and phone line 2 connects to connector J1.

The SA-DACT queues messages and transmits them based on priority (alarm, supervisory, trouble, and monitor). Activations are transmitted before restorations.

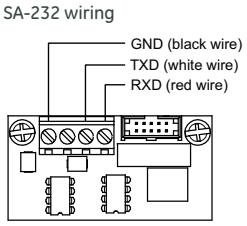
The SA-DACT is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

SA-DACT specifications	
Phone line type	One or two loop-start lines on a public, switched network
Phone line connector	RJ-31/38X (C31/38X)
Communication formats	Contact ID (SIA DC-05)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)

Compatible DACRs		
Receiver	**Models**	**Formats**
Ademco	685	Contact ID
FBII	CP220	Contact ID
Osborne-Hoffman	OH 2000	Contact ID
Bosch	D6600	Contact ID
Silent Knight	9800	Contact ID
Sur-Gard	SG-MLR1, MLR2	Contact ID

SA-232 RS-232 interface

The SA-232 card provides an RS-232 interface with iO panels. It can be used for connecting a printer to the control panel to print system events. The card also can be used for connecting a computer to download a configuration program from the iO-CU to the control panel.



The RS-232 card is installed on the plastic assembly and connects to the main circuit board via a ribbon cable.

SA-232 specifications	
Operating voltage	Standard EIA-232
Terminal rating	12 to18 AWG (0.75 to 2.5 sq mm)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)

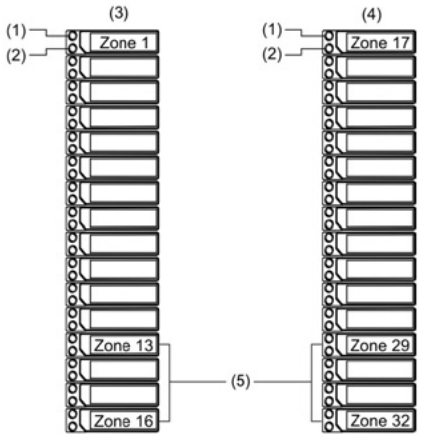
SA-CLA Class A Module (iO64 only)

The SA-CLA card provides Class A capability for NAC wiring. Its terminal block provides the wiring connection for NAC return wiring. The card is required for annunciator Class A wiring even though this wiring does not return to the SA-CLA card. The SA-CLA is compatible with iO64 control panels only. iO1000 panels are Class A Ready. The SA-CLA is installed directly to the control panel circuit board using its plastic standoffs and plug connection.

SA-CLA specifications	
Operating voltage	24 VFWR
Operating current	3.75 A FWR total at 120/230 VAC 60 Hz 3.0 A FWR total at 230 VAC 50 Hz 2.5 A max per circuit
Circuit impedance	26 ohms, 0.35uF
Terminal rating	12 to18 AWG (0.75 to 2.5 sq mm)
Operating environment	
Temperature	32 to 120°F (0 to 49°C)
Humidity	0 to 93% RH, noncondensing at 90°F (32°C)

D16L-iO LED Display Expander (iO1000 only)

The D16L-iO LED Display Expanders provide LED annunciation for up to 16 zones. It provides two LEDs for each zone. Two D16L-iO LED display expanders can be installed in each iO1000 panel.



(1) LED 1
(2) LED 2
(3) LED Expander 1
(4) LED Expander 2
(5) Alarm/non-alarm and trouble zone LEDs

Specifications

	iO64	iO1000
Device loops	1 loop Class B or Class A (Styles 4, 6, 7) supporting up to 64 device addresses (any combination of detectors and modules) Maximum T-taps: 63 (each device can be on its own branch)	1 loop, expandable to 4, Class A or B (Styles 4, 6, 7), each loop supporting up to 250 device addresses (125 detectors and 125 modules max.). Addresses 1 to 125 are for detectors and addresses 126 to 250 are for modules Maximum T-taps/loop: 124
Notification appliance circuits	2 Class B (Style Y), Class A (Style Z) optional 3.75 A FWR total at 120/230 VAC 60 Hz 3.0 A FWR total at 230 VAC 50 Hz 2.5 A FWR each max. per circuit	4 Class B (Style Y) or 2 Class A (Style Z) 6.0 A FWR total at 120/230 VAC 60 Hz 5.0 A FWR total at 230 VAC 50 Hz 2.5 A FWR each max. per circuit
Primary power	120 VAC, 60 Hz, 1.3 A max. 230 VAC, 50-60 Hz, 0.62 A max.	120 VAC, 60 Hz, 2.0 A max. 230 VAC, 50-60 Hz, 0.97 A max.
Base panel current standby	155 mA	172 mA
Base panel current alarm	204 mA	267 mA
Input zones	16 max.	32 max.
Remote annunciator	8 drops max., RS-485 Class B, Class A is optional Data line length: 4,000 ft. (1,219 m)	8 drops max., RS-485 Class A or B Data line length: 4,000 ft. (1,219 m)
Operating voltage	24 VDC panel	
Auxiliary power output circuit	Aux power 1: 500 mA, 24 VDC Aux power 2: 500 mA, 24 VDC (1 A possible if you reduce total available NAC power by 500 mA) Output: 28.3 to 21.9 VDC, special application *Note: For a list of compatible devices, see the iO64 and iO1000 Series Compatibility List (P/N 3102353-EN)*	
Loop circuit	Maximum loop resistance: 66 Ω Maximum loop capacitance: 0.5 µF Communication line voltage: Maximum 20.6 V peak-to-peak Operating current (fully loaded loop) Stand by: 55 mA/45 mA Alarm: 125 mA/115 mA (not including two-wire smoke modules) Circuit current: 0.5 A max. Style 4, 6, and 7 wiring Max. resistance between isolators: Limited only by overall wire run lengths 64 isolators maximum per loop (total both isolator bases and modules)	
Batteries	Type: Sealed lead acid Voltage: 24 VDC Charging current: 2.47 A max. Amp hour capacity: 26 Ah Standby operation: 24 hour or 60 hour Placement: Up to two 10 Ah batteries will fit in the iO64 control panel cabinet and two 18 Ah batteries will fit in the iO1000 control panel cabinet. If larger batteries are required, use an EDWARDS battery cabinet.	
SA-DACT dialer	Phone line type: One or two loop-start lines on a public, switched network Phone line connector: RJ-31/38X (C31/38X) Communication formats: Contact ID (SIA DC-05) Operating current Standby/Alarm: 41 mA Max.: 100 mA FCC registration number: GESAL01BSADACT Industry Canada Registration number: 3944A-SADACT Ringer equivalence number: 0.1B	
Ground fault impedance	0 to 5 kΩ	
Alarm contact	Form C N.O. 24 VDC at 1 A (resistive load)	
Trouble contact	Form C 24 VDC at 1 A (resistive load)	
Supervisory contact	Form A N.O. 24 VDC at 1 A (resistive load)	
Environmental	Temperature: 0 to 49°C (32 to 120°F) Relative humidity: 0 to 93% noncondensing	
Terminal rating	All terminals rated for 12 to 18 AWG (0.75 to 2.5 mm^2)	

LIFE SAFETY & INCIDENT MANAGEMENT

Contact us...

Email: edwards.fire@fs.utc.com
Web: *Edwards-fire.com*

EDWARDS is a UTC brand.
1016 Corporate Park Drive
Mebane, NC 27302

© 2016 United Technologies Corporation.
All rights reserved.

Ordering Information

Part	Description
iO1000 Fire Alarm Systems	
IO1000G	Four loop system with one 250-point loop installed. 110v, gray door.
IO1000G-2	Four loop system with one 250-point loop installed. 230v, gray door.
IO1000G-2-PG	Four loop system with one 250-point loop installed. 230v, gray door, Portuguese.
IO1000G-2-SP	Four loop system with one 250-point loop installed. 230v, gray door, Spanish.
IO1000G-CA	Four loop system, one 250-point loop installed. 110v, gray door, LED strips, Canada.
IO1000GD	Four loop system, one 250-point loop installed. 110v, gray door, with dialer.
IO1000G-F	Four loop system, one 250-point loop. 110v, gray door, LED strips, French Canada.
IO1000G-PG	Four loop system with one 250-point loop installed. 110v, gray door, Portuguese.
IO1000G-SP	Four loop system with one 250-point loop installed. 110v, gray door, Spanish.
IO1000R	Four loop system with one 250-point loop installed. 110v, red door.
IO1000R-2	Four loop system with one 250-point loop installed. 230v, red door.
IO1000RD	Four loop system, one 250-point loop installed. 110v, red door, with dialer.
SA-TRIM2	iO1000 Flush mount trim, black.
iO64 Fire Alarm Systems	
IO64G	One loop system with one 64-point loop installed. 110v, gray door.
IO64G-2	One loop system with one 64-point loop installed. 230v, gray door.
IO64G-2-PG	One loop system with one 64-point loop installed. 230v, gray door, Portuguese.
IO64G-2-SP	One loop system with one 64-point loop installed. 230v, gray door, Spanish.
IO64GD	One loop system, one 64-point loop installed. 110v, gray door, with dialer.
IO64GL	One loop system, one 64-point loop installed. 110v, gray door, English Canada.
IO64GL-F	One loop system, one 64-point loop installed. 110v, gray door, French Canada.
IO64G-PG	One loop system with one 64-point loop installed. 110v, gray door, Portuguese.
IO64G-SP	One loop system with one 64-point loop installed. 110v, gray door, Spanish.
IO64R	One loop system with one 64-point loop installed. 110v, red door.
IO64R-2	One loop system with one 64-point loop installed. 230v, red door.
IO64RD	One loop system, one 64-point loop installed. 110v, red door, with dialer.
SA-TRIM1	iO64 Flush mount trim, black
Option Cards	
iO-SDC1	Expansion module, one 250-device loop.
iO-SDC2	Expansion module, two 250-device loops, 500 devices total. For iO1000 only.
RZI16-2	Remote Zone Interface Module. 16 Class B IDCs, 2 Class B Output. Includes bracket.
SA-DACT	Dual Line Dialer/Modem, supports Contact ID, mounts in cabinet on base plate.
SA-232	RS-232 Serial Port for connection to printers & computers, mounts in cabinet.
SA-ETH	Ethernet Port, Slave, mounts in cabinet on base plate.
SA-CLA	Class A adapter module. Provides Class A capacity on NACs. Mounts in cabinet on main board. iO64 systems only.
D16L-iO-2	LED Annunciator module, 16 X 2-LED zones (4 programmable for sup). Mounts in cabinet to right of LCD display for zones 17-32. For iO1000 only.
D16L-iO-1	LED Annunciator module, 16 X 2-LED zones (4 programmable for sup). Mounts in cabinet to left of LCD display for zones 1-16. For iO1000 only.
D8RY-iO-2	***Canada only:*** LED Annunciator module, two LEDs per zone, 16 zones (4 alarm only, 8 supervisory only, 4 alarm or supervisory). Mounts in cabinet. For iO1000 only.
D8RY-iO-1	***Canada only:*** LED Annunciator module, two LEDs per zone, 16 zones (4 alarm only, 8 supervisory only, 4 alarm or supervisory). Mounts in cabinet. For iO1000 only.
Accessories	
CTM	City Tie Module. 2-gang. Connection to a local energy fire alarm box.
MFC-A	Multifunction Fire Cabinet, 8" x 14" x 3.5" - red.
SIGA-REL	Releasing Module
PT-1S	System Printer
BC-1	Battery Cabinet. 14.0" x 18.25" x 7.25". Holds two 12V24A batteries.
BC-1R	Battery Cabinet - Red. 14.0" x 18.25" x 7.25". Holds two 12V24A batteries.
BC-1EQ	Seismic hardening Kit for iO series panels. Includes battery hardening for BC-1 enclosure and components to harden panel internal components.
Programming Tools	
iO-CU	IO Series configuration and diagnostics utility.
260097	RS232 cable, 4 conductor, DB9 PC interface

Intercom/Card Reader Submittal

Royster Crossing Lot 2

516-530 Cottage Grove Road
Madison, WI 53716

May 31, 2018

Prepared for:

Ever Ready Electric

DRAWING/SAMPLE REVIEW

Review is for general conformance with the design, concept and contract documents. Marking or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The contractor remains responsible for details and accuracy, for confirming and correlating all quantities and dimensions, for selecting fabrication processes for techniques of assembly, and for performing contract work in a safe manner.

CITY OF MADISON ENGINEERING

(X) REVIEWED WITH NO COMMENTS

( ) REVIEWED WITH COMMENTS AS NOTED

( ) REVISE AND RESUBMIT

( ) REJECTED – SEE COMMENTS

BY: Bryan Cooper, AIA

DATE: 10/4/2018

Sales Representative: Justin Anderson
Operations Manager: Kevin Hess

Midwest Alarm Services

2851 Index Road
Madison, WI 53713
Phone: 608-577-2336
Fax: 608-441-5482
Phone: (Toll-Free) 1-888-767-2794

EQUIPMENT LIST
FOR APPROVAL

Project: **Royster Crossing Lot 2**
Address: **516-530 Cottage Grove Road**
Madison, WI 53716
Installing Contractor: **Ever Ready Electric**
Manufacturer: **AEGIS/Altronix**
Equipment Submitted**: Intercom/Card Reader**
Date: **May 31, 2018**

Midwest Alarm Services is pleased to submit the following equipment information for your review.

Quantity	Model Number	Description
2	PI-9600CR25N	AeGIS NPB9000P Series Flush Mount
1	PI-MS79108	Multi Tenant, No Phone Bill, Entry System 108 Tenant
3	PI-USP1	LIGHTNING PROTECTR F/ AEGIS SRS
3	PI-UBAT1	12V DC 40 UL Battery
7	PI-USCR	Universal Satellite Card Reader
20	PI-UFOB	Universal ADI Key Fob (10-Pack)
2	AX-AL400ULX	Power Supply
3	BT-12V7AH	12V 7AH Sealed Battery

Equipment meets all NFPA codes and UL standards.

Please return one set of approved submittals for our records.
When scheduling technicians for startup please call us at 515-288-4000
Please provide 10 working days lead-time for scheduling technicians.
Please verify that system wiring is free of shorts, grounds, and opens and that all devices are in place before scheduling system start-up and technical support.

Two active telephone lines must be in place and the digital communicator must be programmed to a central receiving station before requesting a fire authority inspection.

Submitted by: **Justin Anderson**

Midwest Alarm Services
2851 Index Road
Madison, WI 53713
Phone: 608-577-2336
Fax: 608-441-5482
Phone: (Toll-Free) 1-888-767-2794
Justin.Anderson@mw-as.com

AEGIS

NPB9000P SERIES

Multi-Tenant No Phone Bill System



- 12-996 tenant, 2500-3500 cards and access codes
- Programming: Local via Keypad or RS232, Remote via dial-up modem
- Programming and Data Management with AeGIS Management Software
- Distinctive ringing and call waiting
- Event recording with 1200 events buffer.
- 2 x 16 Electronic Liquid Crystal Display (LCD)
- Two relays
- Up to 32 Satellite card reader, keypad and combo
- Auto Unlock Timer, Time Zones, and Holiday Time Zones
- Optional 26-Bit Wiegand Reader
- Indoor or outdoor, surface and full-flush mount
- Brushed Stainless Steel Face

Warranty: 24 months

SPECIFICATIONS

POWER INPUT: 12VAC/40VA (supplied) or 12VDC/40VA

CURRENT CONSUMPTION:

Main Lobby Panel: 700mA idle, 900mA operating.

Main Relay Controller:50mA Idle, 680mA operating.

EMERGENCY BATTERY: 12VDC/4Ahr (not supplied)

OPERATING ENVIRONMENT: 32°F to 140°F. Humidity 0%-95% non-condensing. Heater is required if the temperature is below 32°F.

DIALING: Tone.

COMMUNICATION: 1200 Baud Modem, RS-485 and RS-232.

MOUNTING: Surface and full-flush.

DIMENSIONS:

Main Lobby Panel

Surface 13-9/16"(H) x 11-1/4"(W) x 3-3/4"(D)

Full-flush 13-7/8" (H) x 11-9/16"(W) x 3-3/4" (D)

Full-flush mounting ring

Inside 13-3/4" (H) x 12" (W) x 3-11/16" (D)

Outside 18" (H) x 15-5/8" (W)

Main Relay Controller and Expansion

21-5/8"(H) x 12-1/8"(W) x 5-1/4"(D)

ORDER PART NUMBER

MAIN LOBBY PANEL

Surface Mount

9600CR25NCP 600 tenants 2500 cards/codes

92KCR35NCP 2000 tenants 3500 cards/codes

Full-flush Mount

9600CR25NCFFP 500 tenants 1000 cards/codes

92KCR35NCFFP 2000 tenants 3500 cards/codes

MAIN RELAY CONTROLLER

MS79012 (12 tenants relay cabinet).
MS79024 (24 tenants relay cabinet).
MS79036 (36 tenants relay cabinet).
MS79048 (48 tenants relay cabinet).
MS79060 (60 tenants relay cabinet).
MS79072 (72 tenants relay cabinet).
MS79084 (84 tenantsrelay cabinet).
MS79096 (96 tenants relay cabinet).
MS79108 (108 tenants relay cabinet).
MS79120 (120 tenants relay cabinet).

EXPANSION RELAY

(MX79xxx) is needed if the system is above 120 tenants. The MX79xxx interfaces with the Main Relay Cabinet (MS79120).

To Calculate the total number of tenant is

MS79120 + MX79xxx+ MX79XXX+.....+ MX79ZZZ. **XXX**= 012, 024, 036,....., 120 and ZZZ is 012, 024 or 036

ACCESSORIES

26-Bit Wiegand Proximity Readers and cards

UWCR Wiegand Proximity Reader.
UISO credit card size (passive card)
UCLAM Clam Shell (passive card)
UFOB Key Fob (passive fob)

Satellite Systems

USCR RS-485 Satellite Card Reader
USKP RS-485 Satellite Keypad
UMCK RS-485 Master Card Reader/Keypad
UCRM 26 Bit Wiegand RS-485 Controller Module

Video Package

UVPC Color Camera Package.
UVPB Video Balun for Twisted Pair video transmission

Pedestal Mounting Post, Adapter Plate and Mounting Ring

UPM1S Standard Single Arm (42"H, 5"x5" base)
UPM4S Standard Single Arm (47"H, 5"x5" base)
UPM1L Large Single Arm (47"H, 8"x8" base)
UPM6L Large Single Arm (64"H, 8"x8" base)
UPM2 Double Vertical Arm (44"/84"H, 8"x8" base)
UPM5 Double Horizontal Arm (47"H, 8"x8" base)
UPMDB64 Single Arm Direct Buriel (64"H)
UAP09 Adapter Plate AeGIS 9000P Series
UPM12E 12" Expansion Arm use for all UPM

Miscellaneous Accessories

AMDM 56K Desktop/Laptop Modem
FFM9 Full-flush mounting ring, included w/ system
USP1 AC and Telephone Surge Protector.
AHP5 Heater Pad with Thermostat.
UBAT1 12VDC 4.5 Ahr backup battery.

Specifications subject to change without prior notice

PACHCO
Since 1978
Home of Telephone Entry Access Control Systems
San Clemente, California
1-888-678-7224
www.pach-co.com

USP1

POWER AND TELEPHONE SURGE PROTECTOR FOR AEGIS SERIES



TECHNICAL SPECIFICATION

Protect the system from power surges thru the power and telephone line

Wall-mount surge protector is fitted with a three-prong outlet that has AC block space

1045 Joules Surge Energy Rating

Dimension:3-1/16"h x 2-1/2"w x 2-1/2"d

UL Listed - Indoor

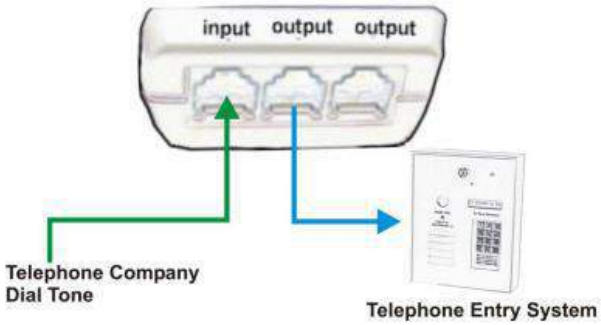
ORDERING PART NUMBER

USP1

WIRING DIAGRAM

Wiring Diagram

1. Plug the USP1 to the wall outlet
2. Protected Green LED must be On
3. Ground Amber LED must be On



PACH AND COMPANY
Home of Telephone Access Control Systems
AEGIS QUANTUM

Phone: 1-888-678-7224
949-498-2951
www.pach-co.com

U·S·C·R

UNIVERSAL SATELLITE CARD READER



- 26-Bit Satellite Reader for all Quantum models, AeGIS 9000P Series and NPB9000P Series
- Up to 8-32 USCR can be interfaced with the models above, contact us for more detail
- Single relay
- Audible tone and LED indicator for valid and invalid access
- Independent access, **ONLY** for Quantum models
- Stainless Steel faceplate
- Tamper Proof Screws
- Indoor or outdoor

24 months warranty

TECHNICAL SPECIFICATION

POWER INPUT: 12VAC 40VA or 12VDC 2 Amps (12VAC is supplied by Pach & Company).
CURRENT CONSUMPTION: 50mA Idle, 475mA operation.
EMERGENCY BATTERY: 12VDC, 4Ahr rechargeable (customer supplied).
COMMUNICATION: RS-485 (maximum distance not to exceed 4000 ft, daisy chain connection).
OPERATING ENVIRONMENT: 0°F to +140°F. Relative Humidity 0% to 95%.

RELAY OUTPUT: From C Dry Contact 120VAC 10A/ 24VDC 10 A/ 250VAC 7A with 5 seconds output duration.
MOUNTING: Surface, Indoor or outdoor
CONSTRUCTION: 16 Gauge Cold Rolled Steel with Brushed Stainless Steel Faceplate.
DIMENSION: 6-1/8"" (H) x 7-1/16" (W), 1-1/2" (D)
SHIPPING WEIGHT: 5 lbs.

ORDERING PART NUMBER

USCR

USCR OPTIONS AND ACCESSORIES

UISO ISO 26 bit wiegand card (credit Card Size)
UFOB 26 bit wiegand keyfob
UCLAM 26 bit wiegand card with punch hole for badge holder
Pedestal Mounting Post, Adapter Plate and Mounting Ring
UPM1S Standard Single Arm (42"H, 5"x5" base)
UPM4S Standard Single Arm (47"H, 5"x5" base)
UPM1L Large Single Arm (47"H, 8"x8" base)
UPM6L Large Single Arm (64"H, 8"x8" base)
UPM8L Large Single Arm (84"H, 8"x8" base)
UPM2 Double Vertical Arm (44"/84"H, 8"x8" base)
UPM5 Double Horizontal Arm (47"H, 8"x8" base)
UPMDB64 Single Arm Direct Buriel (64"H)
UPMDB72 Single Arm Direct Buriel (72"H)
UAP78 Adapter Plate AeGIS 8000P Series
UPM12E 12" Expansion Arm use for all UPM

Specifications subject to change without prior notice

PACH AND COMPANY
Home of Telephone Access Control Systems
A·E·G·I·S Q·U·A·N·T·U·M

Phone: 1-888-678-7224
949-498-2951
www.pach-co.com

M Series
Multi-Output Power Supply/Chargers



AL600ULM

Description

Altronix M series access control power supply/chargers are specifically designed for use with access control systems and accessories. These units convert a 115VAC, 60Hz input into five (5) individually protected 12VDC or 24VDC outputs (see specifications). Each output will route power to a variety of access control hardware devices including Mag Locks, Electric Strikes, Magnetic Door Holders, etc. These outputs will operate in both Fail-Safe and Fail-Secure modes. Controlled trigger input is achieved through normally open [NO] or normally closed [NC] supervised input or the polarity reversal from an FACP (Fire Alarm Control Panel). A form "C" dry output relay enables HVAC Shutdown, Elevator Recall or may be used to trigger auxiliary devices.

Key Features

- Fire Alarm Panel or Access Control System trigger inputs. [NO] or [NC] supervised trigger input and polarity reversal trigger input (4mA draw from FACP).
- Five (5) individual power-limited Class 2 outputs (auto-resettable).
- Filtered and electronically regulated outputs.
- Thermal and short circuit protection with auto reset.
- Overload protection.
- Output relay energizes when unit is triggered (form "C" contact rated 1A @ 28VDC).
- Supervision:
  - AC Fail
  - Battery Fail and Battery Presence
- Built-in charger for sealed lead acid or gel type batteries
- Instantaneous transfer to stand-by batteries
- Power and input trigger LEDs.
- DC output LED indicator.
- LEDs indicate condition of power outputs.
- UL Listed in the U.S. and Canada.
- CSFM Approved.
- Lifetime Warranty / Made in the U.S.A.
- All units are available in grey or red enclosure.

M Series Power Supply Configuration Reference Chart

Altronix Model Number	12VDC Total Output Current (A)	24VDC Total Output Current (A)	Class 2 Rated Power-Limited Outputs (auto-resettable)	115VAC 60Hz Input Current Draw (A)	Power Supply Board Input Fuse Rating	Power Supply Board Battery Fuse Rating	Accommodates Batteries
AL300ULM	2.5	2.5	5	3.5A	5A/250V	15A/32V	Two (2) 7AH
AL300ULMX							Two (2) 12AH
AL400ULM	4	3					Two (2) 7AH
AL400ULMX							Two (2) 12AH
AL600ULM	6	6				—	Two (2) 7AH
AL600ULMX							Two (2) 12AH
AL1012ULM	10	—		2.6A		15A/32V	One (1) 12AH
AL1024ULM	—	10		4.2A			Two (2) 12AH

M Series
Multi-Output Power Supply/Chargers

Specifications

Input

Voltage	115VAC 60Hz.
Fusing	Varies, see Reference Chart.

Outputs

Voltage	12VDC or 24VDC, see Reference Chart.
Current	Varies, see Reference Chart.
Protection	PTC 2.5A.
Other	Overvoltage protection. Filtered and regulated outputs.

Back-up Battery *(not included)*

Capacity	7AH / 12VDC (AL300ULM, AL400ULM, AL600ULM). 12AH / 12VDC (AL300ULMX, AL400ULMX, AL600ULMX, AL1012ULM, AL1024ULM).
Type	Sealed lead acid or gel type.
Fuse Rating	15A @ 32VDC. AL600ULM(X) does not have a battery fuse.
Failover	Upon AC loss, instantaneous.

Supervision

AC Failure	Form “C” contacts.
Battery	Form “C” contacts.

Indicators (LED)

Input	115VAC is present.
DC Output	Powered.
Battery	Discharged or not connected.
Power and Input	Individual LEDs indicate outputs are. triggered (relays energized).

Agency Listings

All Units In Series:

Signal Equipment	CSA Standard C22.2 No.205-M1983
Access Control	UL294

All Units In Series, Except AL1012ULM:

Fire Protective Signaling Systems	UL1481
California State Fire Marshall Approved	

AL300ULM, AL400ULM, AL600ULM Only:

Burglar Alarms Systems	UL603
Hospital Signaling and Nurse Call Equipment	UL1069

Physical and Environmental

Dimensions (H x W x D)

AL300ULM, AL400ULM, AL600ULM:
13.5” x 13” x 3.25” (342.9mm x 330.2mm x 82.55mm).

AL300ULMX, AL400ULMX, AL600ULMX, AL1012ULM, AL1024ULM
15.5” x 12” x 4.5” (393.7mm x 304.8mm x 114.3mm).

Product Weight / Shipping (approx.)

Model	Product Weight	Shipping Weight
AL300ULM	7.6 lbs. (3.45 kg)	8.6 lbs. (3.9 kg)
AL300ULMX	9.4 lbs. (4.26 kg)	10.4 lbs. (4.72 kg)
AL400ULM	7.6 lbs. (3.45 kg)	8.6 lbs. (3.9 kg)
AL400ULMX	9.4 lbs. (4.26 kg)	10.4 lbs. (4.72 kg)
AL600ULM	7.9 lbs. (3.58 kg)	8.9 lbs. (4.04 kg)
AL600ULMX	9.7 lbs. (4.4 kg)	11.2 lbs. (5.1 kg)
AL1012ULM	8.95 lbs. (4.06 kg)	10.25 lbs. (4.65 kg)
AL1024ULM	10.8 lbs. (4.90 kg)	11.8 lbs. (5.35 kg)

Temperature	
Operating	0ºC to 49ºC (32ºF to 120ºF).
Storage	-20ºC to 70ºC (-4ºF to 158º F).
Relative Humidity	85% +/-5%.

BTU/Hr. (approx.):

Model	12VDC	24VDC
AL300ULM(X)	15	31
AL400ULM(X)	25	37
AL600ULM(X)	37	74
AL1012ULM	61	N/A
AL1024ULM	N/A	123

Altronix Corporation | 140 58th St | Brooklyn, NY 11220 USA
phone: +1 718.567.8181 | fax: +1 718.567.9056 | email: info@altronix.com | www.altronix.com

BAT Series Batteries

Sealed Lead-Acid

NOTIFIER® by Honeywell

Power Supplies

General

BAT Series Batteries are Power Sonic brand batteries. BAT Series (or Power Sonic brand) batteries are recommended for secondary power or backup power for all NOTIFIER fire alarm control equipment.



6933cov.jpg

Features

- Provide secondary power for control panels.
- Sealed and maintenance-free.
- Overcharge protected.
- Easy handling with leakproof construction.
- Ruggedly constructed, high-impact case (ABS, polystyrene, or polypropylene, depending on models).
- Long service life.
- Compact design.

Agency Listings and Approvals

The listings and approvals below apply to BAT Series Batteries. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Recognized Components**: MH20845 *(Power-Sonic)*

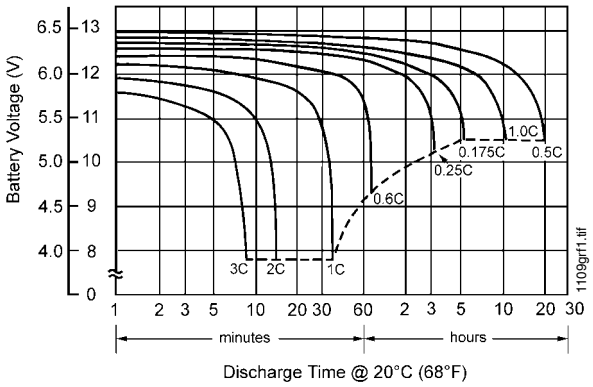
Ordering Information

BAT-1250-BP: 10-unit bulk pack of BAT-1250 (12 V 5 AH)
BAT-1270-BP: 5-unit bulk pack of BAT-1270 (12 V 7 AH)
BAT-12120-BP: 4-unit bulk pack of BAT-12120 (12V 12 AH)
BAT-12180-BP: 2-unit bulk pack of BAT-12180 (12 V 18 AH)
BAT-12260-BP: 2-unit bulk pack of BAT-12260 (12 V 26 AH)
BAT-12550: single battery (12 V 55 AH)
BAT-121000: single battery (12 V 100 AH)

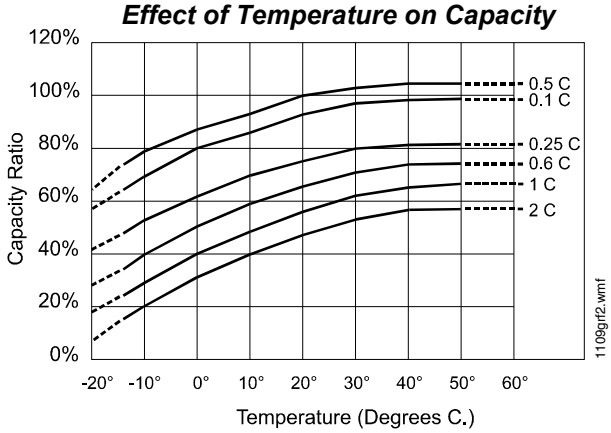
Part Number Reference & Specifications

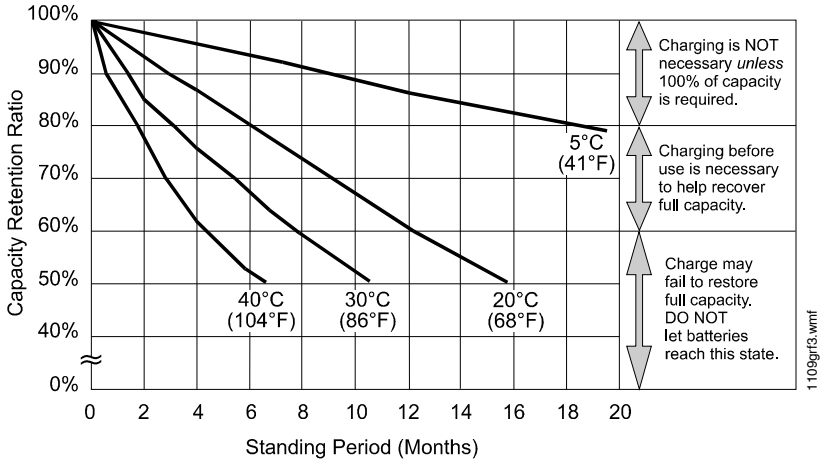
Part Number	Power Sonic Part Number	Battery Description			DIMENSIONS									
		Nominal Voltage V	Nominal Capacity @ 20 hr. rate A.H.		Width		Depth		Height		Height over terminal		Weight	
					in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg.
BAT-1250	PS-1250	12	5	sealed	3.54	90	2.76	70	4.02	102	4.21	107	4.1	1.9
BAT-1270	PS-1270	12	7	sealed	5.95	151	2.56	65	3.7	94	3.86	98	4.8	2.18
BAT-12120	PS-12120	12	12	sealed	5.95	151	3.86	98	3.7	94	3.94	100	7.92	3.59
BAT-12180	PS-12180	12	18	sealed	7.13	181	2.99	76	6.57	167	6.57	167	12.6	5.8
BAT-12260	PS-12260	12	26	sealed	6.56	167	6.97	177	4.92	125	4.92	125	17	7.71
BAT-12550	PS-12250	12	55	sealed	9.04	230	654	138	8.2	208	8.98	228	36	16.33
BAT-121000	PS-121000	12	100	sealed	12	305	6.6	168	8.2	208	8.98	228	68	30.84

Characteristic Discharge Curves

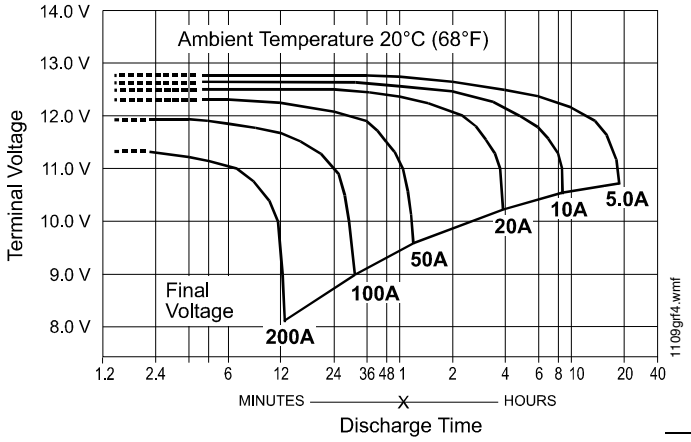


Effect of Temperature on Capacity





at left:
PS-121000
Shelf-Life
and Storage



at left:
PS-121000
Discharge
Characteristics

NOTIFIER® is a registered trademark of Honeywell International Inc.
Batteries display trademarks of the manufacturer.
©2011 by Honeywell International Inc. All rights reserved. Unauthorized use of this document is strictly prohibited.

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

Made in the U.S. A.

For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

Midwest Alarm Services
2851 Index Road
Madison, WI 53713
Phone: 608-577-2336
Fax: 608-441-5482
Phone: (Toll-Free) 1-888-767-2794

STATEMENT OF WARRANTY

LIMITATION OF WARRANTY AND REMEDIES: Subject to the limitations below, Midwest Alarm Services warrants all products and labor provided by Midwest Alarm Services to be free from defects in material and workmanship for a period of one (1) year from the date of first beneficial use of all or part of a system, provided, however, that Midwest Alarm Services liability under said warranty shall be limited to the repair or replacement, at its option, of any product, or part thereof, which Midwest Alarm Service determines to be defective. This warranty does not apply to any products which have been subjected to abuse, mishandling, or improper use or any equipment not provided by Midwest Alarm Services, and is in lieu of all other warranties, express or implied, including any implied warranty. This warranty does not include product failure as a result of accident, act of God, unusual physical, electrical or electromechanical stress, neglect, misuse, user programming errors, failure of electrical power, power surges, air conditioning or humidity control, construction dust, damaging foreign substances, transportation or any cause other than manufacturing defects.

Midwest Alarm Service shall not be liable for an indirect, incidental, economic or consequential loss or damage to the purchaser or user of this equipment arising out of the failure of the equipment to operate.

Warranty service shall be performed at no charge between the hours of 8:00AM- 5:00PM Monday through Friday (excluding Company holidays). Warranty service requested to be performed at other than during normal working hours shall be chargeable at Midwest Alarm Service standard overtime rates.

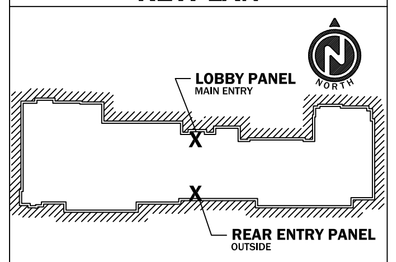
Only Midwest Alarm Services can perform authorized warranty service on this equipment. If any other service company works on this system any remaining warranty is void.

If you have any questions regarding this warranty you can reach Midwest Alarm Services at 515-288-4000.

Sincerely,

Justin Anderson
Sales Representative
Midwest Alarm Services

KEYPLAN



ROYSTER CROSSING LOT 2

DOOR ENTRY/ACCESS SYSTEM MOUNTING HEIGHTS

ADA MOUNTING REQUIREMENTS FOR DOOR CONTROL (REF: ICC/ANSI A117.1-2009).

1. UNOBSTRUCTED FORWARD REACH. WHERE A CLEAR FLOOR OR GROUND SPACE ALLOWS ONLY A FORWARD APPROACH TO AN OBJECT AND IS UNOBSTRUCTED, MOUNTING HEIGHT SHALL BE A MINIMUM OF 15 INCHES (381 MM), AND A MAXIMUM OF 48 INCHES (1.22 M), ABOVE THE FLOOR OR GROUND TO THE OPERABLE CONTROLS.

2. OBSTRUCTED HIGH FORWARD REACH. IF THE HIGH FORWARD REACH IS OVER AN OBSTRUCTION GREATER THAN 20 INCHES, BUT LESS THAN 25 INCHES, MOUNTING HEIGHT SHALL BE A MAXIMUM OF 44 INCHES (1.12 M) ABOVE THE FLOOR OR GROUND TO THE OPERABLE CONTROLS.

3. UNOBSTRUCTED SIDE REACH. WHERE A CLEAR FLOOR OR GROUND SPACE ALLOWS A PARALLEL APPROACH TO AN OBJECT AND THE SIDE REACH IS UNOBSTRUCTED, AND THE EDGE OF THE CLEAR FLOOR SPACE IS 10 INCHES (255 MM) MAXIMUM FROM THE OBJECT, MOUNTING HEIGHT SHALL BE A MINIMUM OF 15 INCHES (380 MM), AND A MAXIMUM OF 48 INCHES (1.22 M), ABOVE THE FLOOR OR GROUND TO THE OPERABLE CONTROLS.

4. OBSTRUCTED HIGH SIDE REACH. IF THE SIDE REACH IS OVER AN OBSTRUCTION GREATER THAN 10 INCHES, BUT LESS THAN 24 INCHES, MOUNTING HEIGHT SHALL BE A MAXIMUM OF 46 INCHES (1.17 M) ABOVE THE FLOOR OR GROUND TO THE OPERABLE CONTROLS.

DOOR ENTRY / ACCESS SYSTEM DEVICE LEGEND

	HEAD END EQUIPMENT	-
DERC	*DOOR ENTRY SYSTEM RELAY CABINET*	*MODEL # PI-MS79108*
DELP	*DOOR ENTRY SYSTEM LOBBY PANEL*	*MODEL # PI-9600CR25N*
ESPS	*ELECTRIC STRIKE POWER SUPPLY*	*MODEL # - AL400ULX*

	CARD ACCESS COMPONENTS	*/ID# = DESIGNATED MODULE ADDRESS*
RM	*UNIVERSAL SATELLITE CARD READER*	*MODEL # PI-USCR*
ES	*ELECTRIC STRIKE*	*FURNISHED BY OTHERS, POWERED BY MIDWEST*
	DOOR ENTRY COMPONENTS	-
RJ	*RJ11 TELEPHONE JACK*	*STANDARD ANALOG WALL RECEPTACLE FURNISHED BY OTHERS*
	RESIDENT/OWNER TELEPHONE	*ANALOG (NON CELLULAR) TELEPHONE FURNISHED BY THE RESIDENT/OWNER*
	OTHER ANNOTATIONS	-
//	*WIRE ROUTE ORIGIN INDICATION*	*USED IN RISER DIAGRAM ONLY*
»	*WIRE ROUTE CONTINUATION INDICATION*	*USED IN RISER DIAGRAM ONLY*

DOOR ENTRY / ACCESS SYSTEM WIRE LEGEND

P	*TWO COND #18AWG STRANDED*	*DIRECTORY/MODULE POWER - 500' MAX*
Q	*TWO COND #18AWG STRANDED SHIELDED*	*RS485 COMMUNCATIONS - 4000' MAX*
R	*FOUR COND #18AWG STRANDED*	*READER PWR & WIEGAND DATA - 500' MAX*
S	*TWO COND #18AWG STRANDED SHIELDED*	*DOOR STRIKE POWER - 500' MAX*
T	*STD. CATEGORY 5 CABLE (2 PAIR PER UNIT)*	*ANALOG TELEPHONE CONNECTION*

ABBREVIATIONS : COND = CONDUCTOR : UTP = UNSHIELDED TWISTED PAIR : TSP = TWISTED SHIELDED PAIR

SEQUENCE OF OPERATIONS

EACH OF THE (2) LOBBY PANELS CAN INITIATE CALLS TO EACH OF THE (80) INDIVIDUALLY HARDWIRED RESIDENT UNIT TELEPHONE JACKS; RESIDENTS CAN RECEIVE CALLS FROM THE DIRECTORY PANEL AND REMOTELY "BUZZ IN" CALLERS BY PLUGGING AN ANALOG TELEPHONE INTO THEIR UNIT'S TELEPHONE JACK - A TELEPHONE LINE FROM THE TELEPHONE COMPANY IS NOT REQUIRED

PHYSICAL CREDENTIAL READERS ARE PLACED AT THE FOUR ENTRANCES, ALLOWING RESIDENTS TO LOCALLY UNLOCK THE DOOR VIA A SWIPE OF THEIR KEY FOB

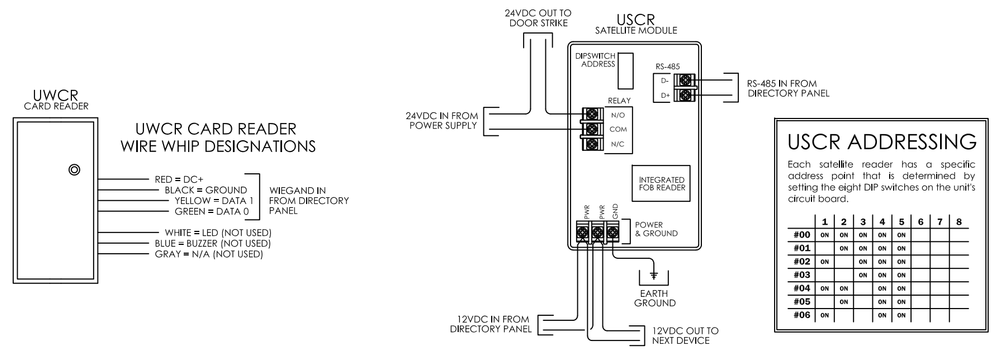
DOOR ENTRY NOTES

- *INSTALL RJ71C BLOCKS ADJACENT TO THE TELEPHONE COMPANY DEMARCATION POINT.*
- *TO ASSIST WITH INCOMING PHONE LINE TERMINATIONS, LABEL EACH RJ71C BLOCK TO INDICATE TO THE TELEPHONE COMPANY HOW THE BLOCKS ARE WIRED TO THE UNITS.*
- *MOUNT RJ71C BLOCKS WITHIN 15 FEET OF THE MAIN RELAY CABINET. THE 25-PIN CONNECTING CABLE SUPPLIED WITH THE SYSTEM IS 15' LONG.*
- *USE CATEGORY 5 TWISTED PAIR CABLE FOR RESIDENT UNIT PHONE CONNECTIONS.*
- *EACH TENANT REQUIRES 4 PINS.*
- *TNT-txx AND TNT-rxx = TENANT PHONE TIP AND RING.*
- *CO-TXX AND CO-RXX = TELEPHONE CO. TIP AND RING.*
- *INCOMING PHONE LINE MUST BE ANALOG.*

CARD ACCESS NOTES

- *SET EACH RS485 MODULE ADDRESS IN ACCORDANCE WITH THE RS485 MODULE ADDRESSING CHART*

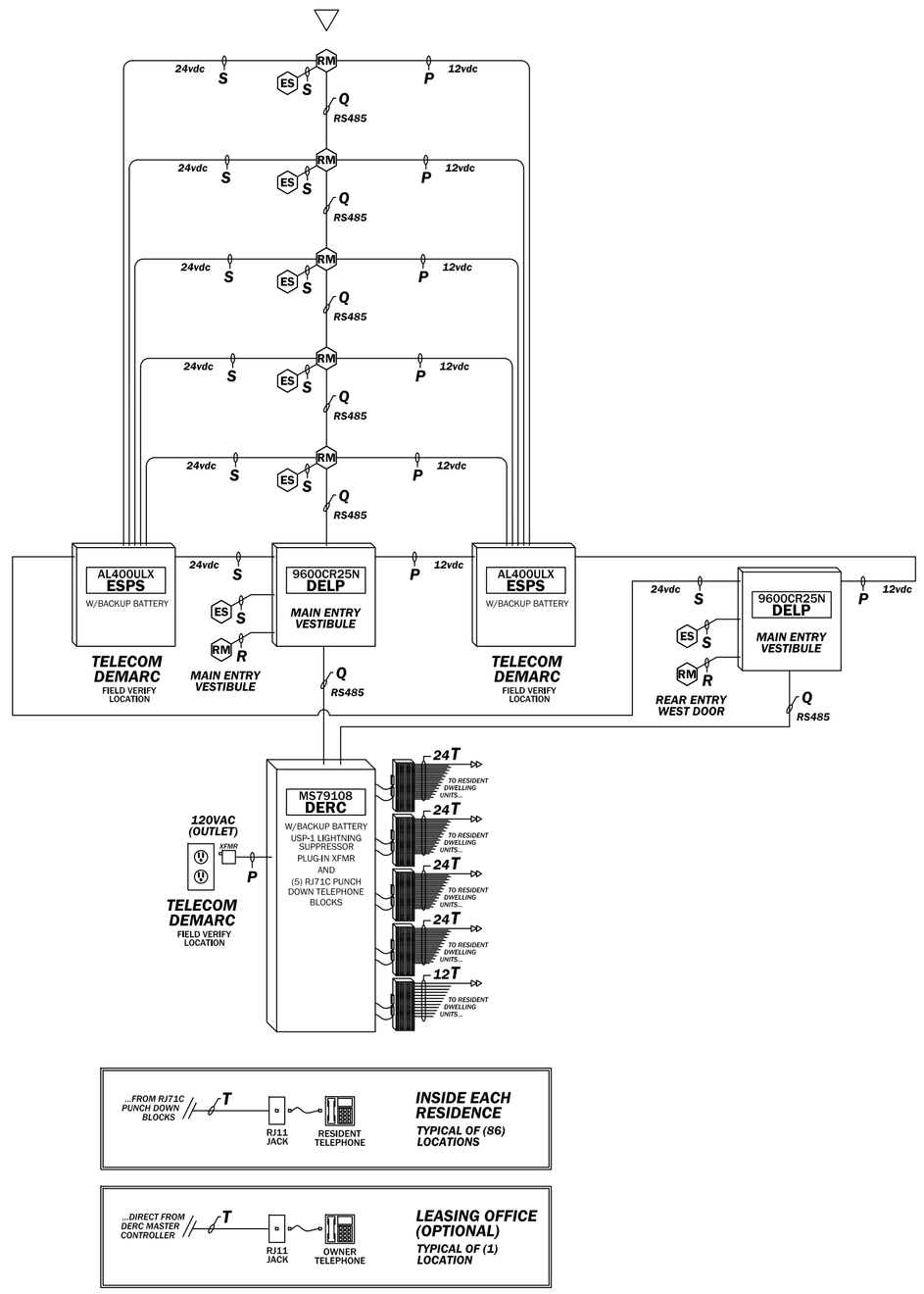
TERMINATION DETAILS



UWCR PROXIMITY READER

USCR SATELLITE READER
WITH INTEGRAL FOB READER

NOTE: WIRE TYPE 'Q' (RS485 COMMS) CAN BE T-TAPPED & ORIGINATES at the MAIN ENTRY LOBBY PANEL



RISER DIAGRAM

DOOR ENTRY SYSTEM

Midwest Alarm Services
720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

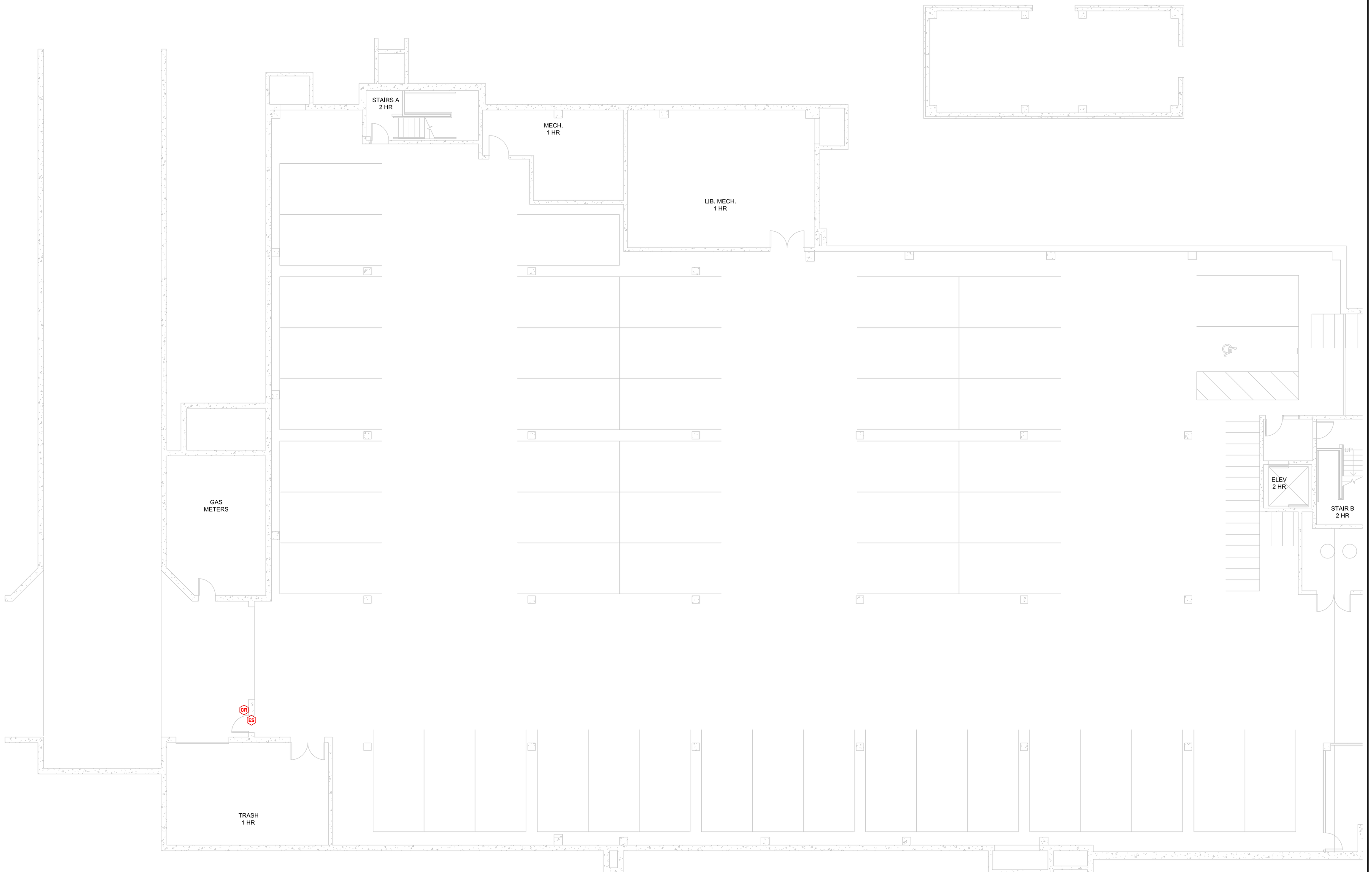
NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

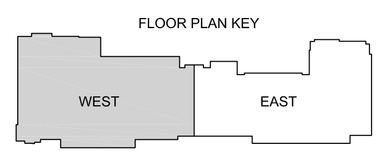
516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM LEGEND, DETAILS, & NOTES	
SHEET NUMBER: DA1.01	



FLOOR PLAN KEY



DOOR ACCESS SYSTEM - FLOOR PLAN - BASEMENT - WEST

SCALE: 1/8"=1'-0"

NORTH

Midwest Alarm Services

720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

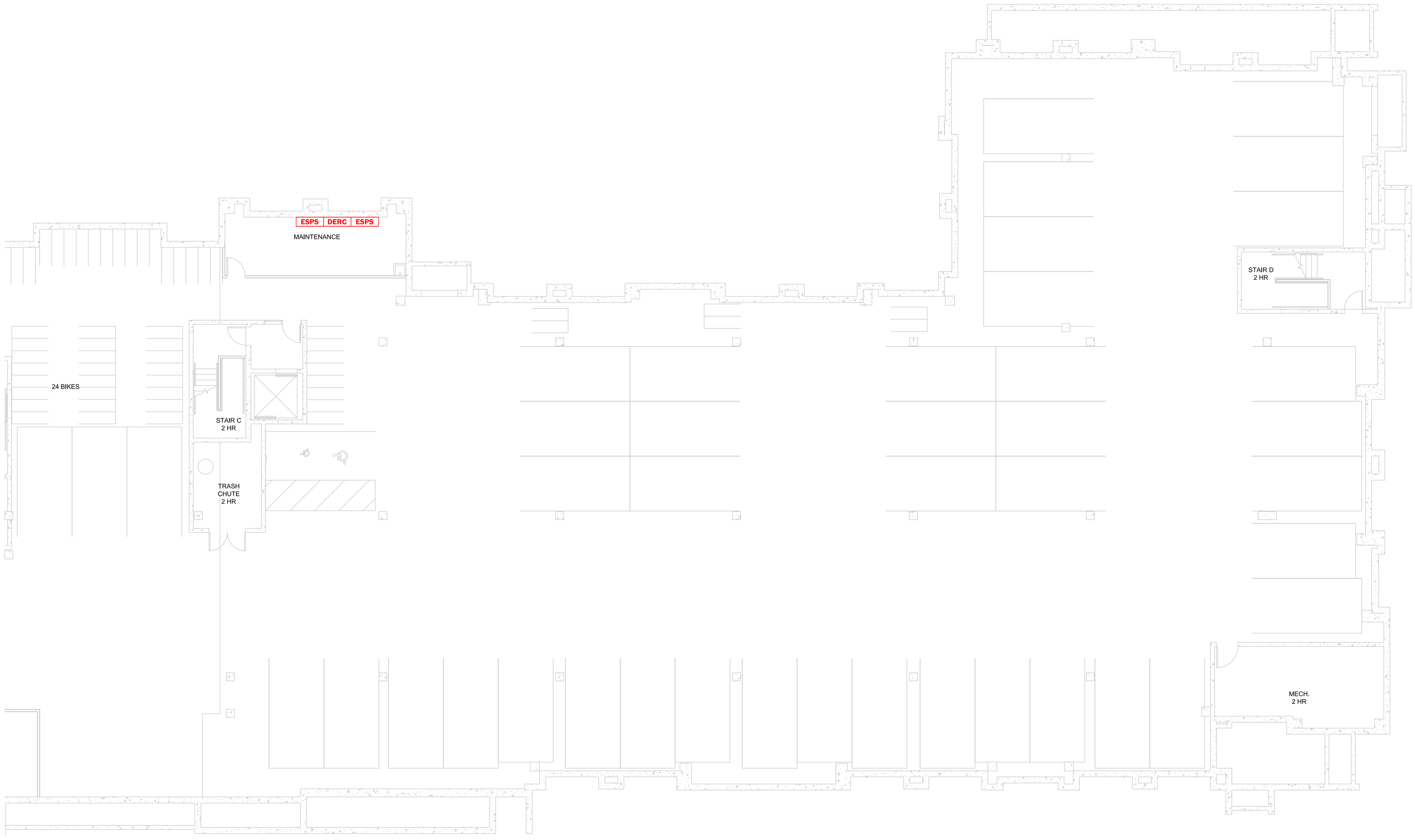
NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

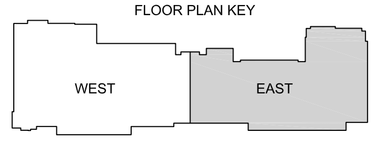
516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.BW	



FLOOR PLAN KEY



NORTH

DOOR ACCESS SYSTEM - FLOOR PLAN - BASEMENT - EAST

SCALE: 1/8"=1'-0"

3'-0" 6'-0" 9'-0" 12'-0"

Midwest Alarm Services

720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

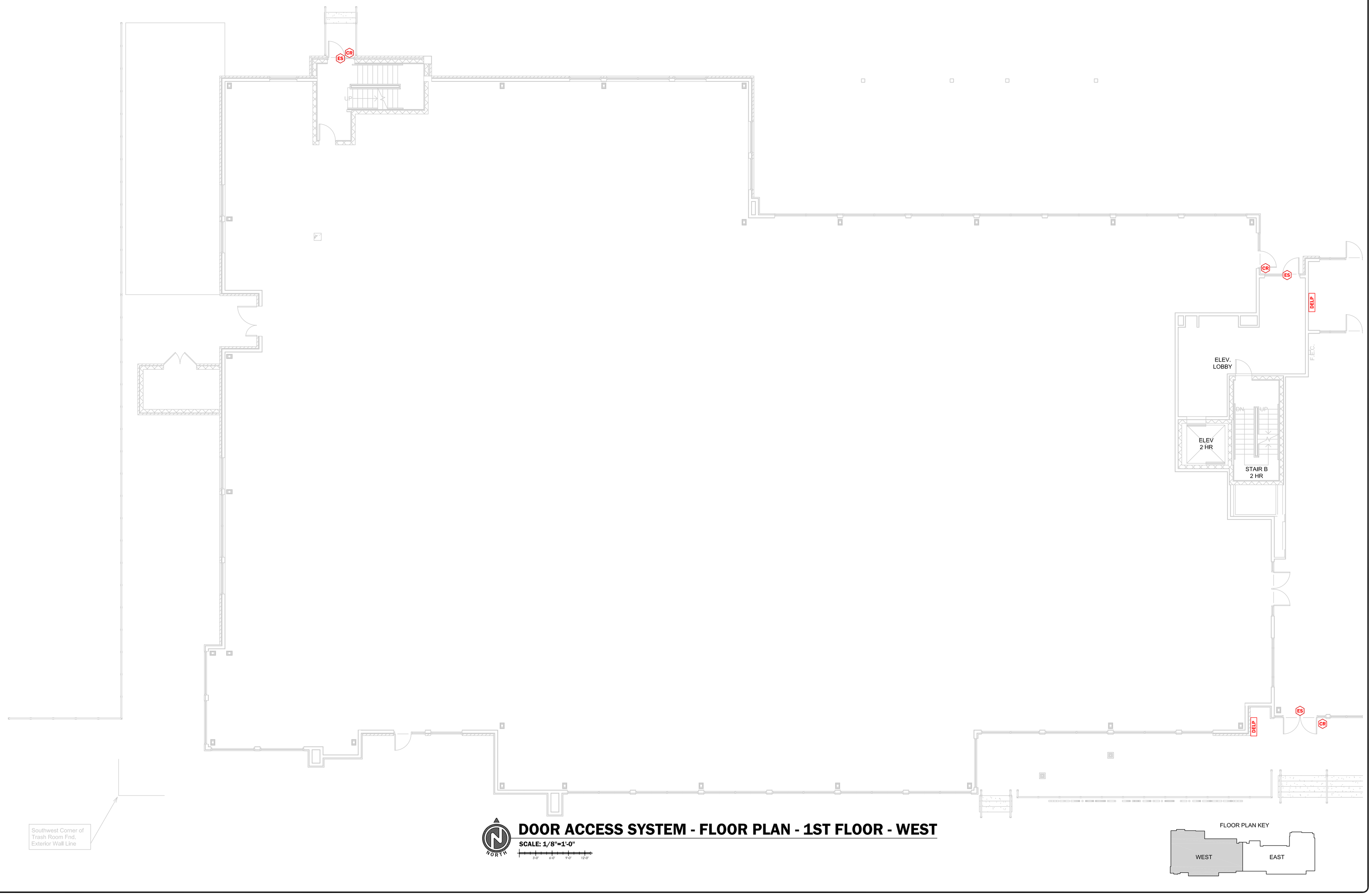
NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.BE	



DOOR ACCESS SYSTEM - FLOOR PLAN - 1ST FLOOR - WEST

SCALE: 1/8"=1'-0"

NORTH

FLOOR PLAN KEY

WEST | EAST

Midwest Alarm Services
720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.1W	



DOOR ACCESS SYSTEM - FLOOR PLAN - 1ST FLOOR - EAST

SCALE: 1/8"=1'-0"

NORTH

FLOOR PLAN KEY

WEST | EAST

Midwest Alarm Services

720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

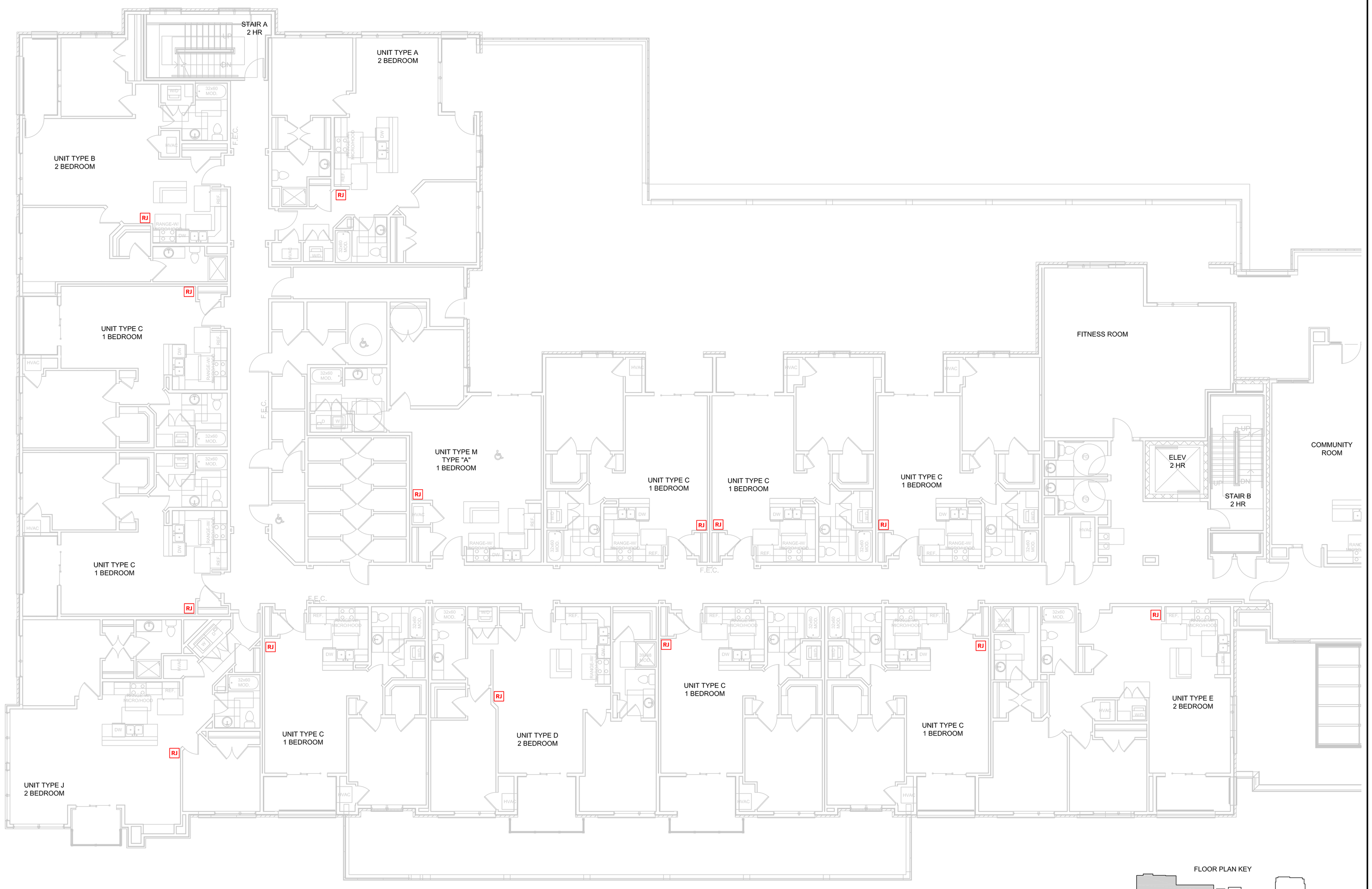
NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

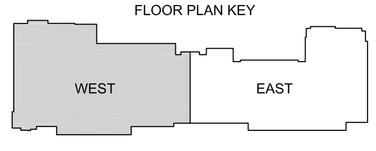
516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.1E	



FLOOR PLAN KEY



DOOR ACCESS SYSTEM - FLOOR PLAN - 2ND FLOOR - WEST

SCALE: 1/8"=1'-0"

3'-0" 6'-0" 9'-0" 12'-0"

Midwest Alarm Services

720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.2W	



DOOR ACCESS SYSTEM - FLOOR PLAN - 2ND FLOOR - EAST

SCALE: 1/8"=1'-0"

NORTH

FLOOR PLAN KEY

WEST | EAST

Midwest Alarm Services
720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

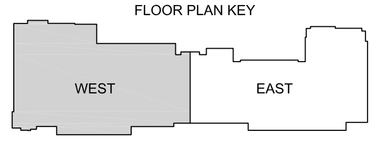
516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.2E	



FLOOR PLAN KEY



NORTH

DOOR ACCESS SYSTEM - FLOOR PLAN - 3RD FLOOR - WEST

SCALE: 1/8"=1'-0"

3'-0" 6'-0" 9'-0" 12'-0"

Midwest Alarm Services

720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.3W	



DOOR ACCESS SYSTEM - FLOOR PLAN - 3RD FLOOR - EAST

SCALE: 1/8"=1'-0"

NORTH

FLOOR PLAN KEY

WEST | EAST

Midwest Alarm Services
720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.3E	



FLOOR PLAN KEY

WEST | EAST

DOOR ACCESS SYSTEM - FLOOR PLAN - 4TH FLOOR - WEST

NORTH

SCALE: 1/8"=1'-0"

3'-0" 6'-0" 9'-0" 12'-0"

Midwest Alarm Services

720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.4W	

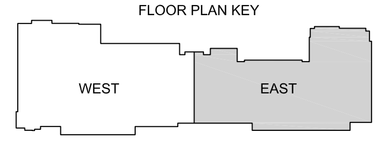


DOOR ACCESS SYSTEM - FLOOR PLAN - 4TH FLOOR - EAST

NORTH

SCALE: 1/8"=1'-0"

FLOOR PLAN KEY



Midwest Alarm Services
720 E 2nd St. Des Moines, IA 50309
(515) 288-4000 , (888) 767-2794, FAX (515) 288-3625

COPYRIGHT 2018 MIDWEST ALARM SERVICES - ALL RIGHTS RESERVED

NO.	DATE	REVISION DESCRIPTION

Royster Crossing Lot 2 - Intercom/Card Reader System

516-530 Cottage Grove Road - Madison, WI 53716

Ever Ready Electric

DRAWN BY: DD	DATE: 05-25-18
DESIGNED BY: JA	DATE:
APPROVED BY:	DATE:
PROJECT NUMBER:	
SHEET TITLE: DOOR ACCESS SYSTEM FLOOR PLANS	
SHEET NUMBER: DA1.4E	