STRUCTURAL DESIGN CRITERIA

1. GOVERNING CODE: WISCONSIN COMMERCIAL BUILDING CODE SPS 361-366 2015 INTERNATIONAL BUILDING CODE
2. RISK CATEGORY: II
3. FLOOR LIVE LOAD (1603.1.1)

   MECHANICAL MEZZANINE CATWALK AND STAIRS: 40 PSF UNIFORM
4. ROOF LIVE LOAD (1603.1.2) N/A
5. ROOF SNOW LOAD (1603.1.3)

   GROUND SNOW LOAD: P_G = 30 PSF
   FLAT-ROOF SNOW LOAD: P_F = 23 PSF
   SNOW EXPOSURE FACTOR: C_E = 1.1
   SNOW LOAD IMPORTANCE FACTOR: I_S = 1
   THERMAL FACTOR: C_T = 1
6. WIND DESIGN DATA (1603.1.4)

   ULTIMATE WIND SPEED (3-SECOND GUST): V_{ULT} = 115 MPH
   NOMINAL WIND SPEED (3-SECOND GUST) V_{ASD} = 90 MPH
   WIND EXPOSURE: C
   INTERNAL PRESSURE COEFFICIENT: GCPI = +/- 0.15
7. EARTHQUAKE DESIGN DATA (1603.1.5)

   IMPORTANCE FACTOR: I_E = 1

   MAPPED, MCE, 5% DAMPED, SPECTRAL ACCELERATIONS:
   AT SHORT PERIODS: S_S = 0.08 G
   AT A PERIOD OF 1 SECOND: S_1 = 0.05 G

   SITE CLASS: D

   DESIGN EARTHQUAKE SPECTRAL ACCELERATIONS
   AT SHORT PERIODS: S_{DS} = 0.09 G
   AT A PERIOD OF 1 SECOND: S_{D1} = .073 G

   SEISMIC DESIGN CATEGORY: SDC = B
8. GEOTECHNICAL DESIGN DATA (1603.1.6) N/A
9. FLOOD DESIGN DATA (1603.1.7)

   BUILDING IS NOT LOCATED IN FLOOD HAZARD AREA; THEREFORE FLOOD DESIGN DATA IS NOT REQUIRED
10. SPECIAL LOADS (1603.1.8)

    LOADING FOR FUTURE PHOTOVOLTAIC PANELS 4PSF

GENERAL NOTES

G-1. FIELD VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS PRIOR TO START OF CONSTRUCTION - RESOLVE ANY DISCREPANCY WITH ARCHITECT/ENGINEER.

DO NOT SCALE DRAWINGS!!!!

G-2. NOT USED

G-3. VERIFY ALL SIZES, WEIGHTS AND LOCATIONS OF MECHANICAL AND ELECTRICAL EQUIPMENT, ROOF PENETRATIONS, DUCTS, ETC. WITH MECHANICAL AND ELECTRICAL CONTRACTORS AND FIELD CONDITIONS.

G-4. DETAILS MARKED "TYPICAL" MAY OR MAY NOT BE CUT ON PLANS, BUT SHALL APPLY UNLESS NOTED OTHERWISE.

G-5. STRUCTURAL SYSTEM IS DESIGNED TO WORK AS A COMPLETED SYSTEM, ANY SHORING OR BRACING NECESSARY DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

G-6. NOT USED

G-7. NO PIPES OR SLEEVES FOR MECHANICAL TRADES SHALL PASS THROUGH STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

G-8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SITE SAFETY AND ALL ACCIDENTS WHICH RESULT IN DEATH, PERSONAL INJURY, OR DAMAGE TO PROPERTY ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF THE WORK.

G-9. NOT USED

G-10. SECTIONS, DETAILS, AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR CONDITIONS ELSEWHERE, UNLESS OTHERWISE SHOWN.

STEEL BAR JOISTS

MATERIAL PROPERTIES (U.N.O)
COMPLY WITH SJI'S "SPECIFICATIONS" FOR WEB AND STEEL-ANGLE CHORD MEMBERS.

J-1. BAR JOISTS SHALL BE DESIGNED TO RESIST FORCES INDICATED ON DRAWINGS AND SPECIFICATIONS.

1 J-2. CONCENTRATED LOADS OF 100LB OR LESS MAY BE PLACED ON JOIST. DESIGN NEW BAR JOIST FOR 300LB CONCENTRATED LOAD LOCATED ANYWHERE ON THE TOP OR BOTTOM CHORD. FOR LOADS ON EXISTING BAR JOIST OVER 100LB, LOCATE LOAD AT PANEL POINTS OR AS ALLOWED BY DETAIL "CONCENTRATED LOADS ON STEEL JOIST".

J-3. ALL FIELD MODIFICATIONS OR REPAIRS TO THE JOIST, OR JOIST GIRDERS, SHALL BE APPROVED BY THE JOIST MANUFACTURER IN WRITING. THIS LETTER SHALL BE FORWARDED TO THE ENGINEER FOR REVIEW.

J-4. CUTTING & DRILLING OF CHORD OR WEB MEMBERS IN BAR JOISTS, OR JOIST GIRDERS, IS NOT PERMITTED.

J-5. ALL BRIDGING SHALL BE EQUALLY SPACED, UNLESS NOTED OTHERWISE, BY JOIST MANUFACTURER.

J-6. CONTRACTOR(S) SHALL PROVIDE MEANS FOR ADEQUATE DISTRIBUTION OF CONSTRUCTION LOADS SO THAT CARRYING CAPACITY OF ANY BAR JOIST, JOIST GIRDER, OR OTHER STRUCTURAL MEMBER IS NOT EXCEEDED.

J-7. JOIST SHALL BE CONSIDERED AS UNSTABLE DURING ERECTION. UNDER NO CIRCUMSTANCES ARE CONSTRUCTION LOADS OF ANY DESCRIPTION TO BE PLACED ON UNBRIDGED JOISTS. THE APPLICATION OF CONSTRUCTION LOADS ON UNBRIDGED JOISTS IS IN DIRECT VIOLATION OF O.S.H.A. REGULATIONS.

J-8. WHERE X-BRIDGING INTERFERES WITH MECHANICAL PIPING OR DUCTWORK, UTILIZE HORIZONTAL BRIDGING AS DIRECTED BY JOIST MANUFACTURER.

J-9. ALL BRIDGING SHALL BE PER SJI AND AS REQUIRED FOR DESIGN LOADS.

1 J-10. NOT USED.

J-11. NEW OR ADDED JOIST WITH SJI DESIGNATIONS HAVE BEEN SIZED FOR ALL LOADS, INCLUDING SNOW DRIFT AND MECHANICAL EQUIPMENT.

J-12. NEW JOIST SHALL HAVE MINIMUM SHEAR CAPACITY THROUGHOUT ENTIRE LENGTH EQUAL TO HALF OF ENTIRE LOAD ON JOIST.

J-13. RETROFIT JOIST SHALL HAVE JOIST SEAT DEPTH MAX 2" AND 1/2" SHIM PACK SO AS TO BE ABLE TO BE INSERTED IN EXISTING 2 1/2" JOIST SEAT SPACE AND SHIMMED SNUG.

STRUCTURAL STEEL NOTES

MATERIAL PROPERTIES (U.N.O.)

W-SHAPES	-	Fy = 50 KSI (A992 OR A572 Gr 50)
C-SHAPES & ANGLES	-	Fy = 36 KSI (A36)
PLATES & BARS	-	Fy = 36 KSI (A36)
RECTANGULAR HSS	-	Fy = 46 KSI (A500 Gr B)
ROUND HSS	-	Fy = 42 KSI (A500 Gr B)
PIPE	-	Fy = 35 KSI (A53 Gr B)
ROUNDS	-	Fy = 36 KSI (A36)

S-1. STEEL BEAMS WITH RESIDUAL CAMBER RESULTING FROM MILL FABRICATION OR ROLLING SHALL BE SHOP FABRICATED AND ERECTED SUCH THAT THIS RESIDUAL CAMBER COUNTERACTS GRAVITY LOAD DEFLECTION.

S-2. U.N.O., ALL BOLTED CONNECTIONS SHALL UTILIZE 3/4 INCH DIAMETER A325 BOLTS TIGHTENED TO THE SNUG-TIGHT CONDITION. THE SNUG-TIGHT CONDITION IS DEFINED BY THE RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS:".

S-3. NOT USED

S-4. NOT USED

S-5. NOT USED

S-6. NOT USED

S-7. ALL WELDING OF NEW STEEL IS TO BE WITH E70XX ELECTRODES, U.N.O. WELDING SHALL BE IN ACCORDANCE WITH THE LATEST AWS SPECIFICATIONS BY CERTIFIED WELDERS.

S-8. WHEN FIELD WELDING TO EXISTING STEEL, ADJUST WELDING PROCEDURES AS REQUIRED TO BE COMPATIBLE WITH THE NEW AND EXISTING STEEL.

S-9. STEEL CONNECTIONS NOT DETAILED ON THE PLANS ARE TO BE THE FABRICATOR'S STANDARD AND ARE TO BE SELECTED AND DESIGNED IN ACCORDANCE WITH AISC ASD SPECIFICATIONS,

S-10. UNLESS NOTED OTHERWISE, THE MINIMUM CONNECTION PLATE/ANGLE THICKNESS SHALL BE 5/16", THE MINIMUM WELD 1/4", AND THE MINIMUM DESIGN LOAD ON ANY CONNECTION 10 KIPS STRENGTH LEVEL.

S-11. NOT USED

S-12. THE CONTRACTOR SHALL FURNISH AND INSTALL MISCELLANEOUS STEEL (CURBS, HANGERS, BRACING, ETC.) AS INDICATED AND AS NECESSARY PER ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.

S-13. ALL EXTERIOR STEEL IS HOT DIPPED GALVANIZED ACCORDING TO ASTM A123.

S-14. ALL WELDS MAY BE REQUIRED TO BE FIELD WELDS TO ALLOW FIT UP TO EXISTING STRUCTURE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE CONSTRUCTABILITY, PROVIDE AS MUCH SHOP WELDING AS POSSIBLE AND PROVIDE FIELD WELDING OF ANY AND ALL WELDING THAT IS NEEDED IN THE FIELD TO COMPLETE PROJECT.

OBSERVATION AND INSPECTION

1 TI-1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL STRUCTURAL WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY STRUCTURAL INSPECTION PROVIDED BY OTHERS DOES NOT RELIEVE THE CONTRACTOR OF THIS RESPONSIBILITY. ANY STRUCTURAL DEVIATIONS FROM THE CONTRACT DOCUMENTS THAT ARE FOUND AT A LATER DATE SHALL BE CORRECTED BY THE CONTRACTOR WITHOUT COST OR ANY DELAY TO THE PROJECT SCHEDULE.

TI-2. THE CONTRACTOR SHALL PROVIDE AN ALLOWANCE PER THE FRONT END DOCUMENTS FOR THE OWNER TO RETAIN AN INDEPENDENT INSPECTION AGENCY TO PROVIDE CONSTRUCTION OBSERVATIONS AND INSPECTIONS.

TI-3. THE CONTRACTOR SHALL PROVIDE THE INSPECTION AGENCY ACCESS TO ALL PLACES WHERE THE WORK IS BEING PERFORMED. A MINIMUM OF 24 HOURS NOTIFICATION SHALL BE GIVEN TO THE INSPECTION AGENCY PRIOR TO THE COMMENCEMENT OF WORK REQUIRING OBSERVATION OR INSPECTION.

1 TI-4. THE INSPECTION AGENCY IS NOT AUTHORIZED TO DIRECT OR APPROVE ANY CHANGES FROM THE CONTRACT DOCUMENTS. IF THE CONTRACTOR WISHES TO QUESTION THE TESTING AGENCY'S INTERPRETATION OF THE CONTRACT DOCUMENTS, HE MAY DO SO DIRECTLY WITH THE STRUCTURAL ENGINEER.

TI-5. THE TESTING AGENCY IS NOT AUTHORIZED TO STOP OR DELAY THE WORK. IF THE CONTRACTOR ELECTS TO CONTINUE WITH A CERTAIN PORTION OF WORK AFTER BEING NOTIFIED BY THE TESTING AGENCY THAT SUCH WORK IS NOT IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR DOES SO AT THEIR OWN RISK AND MAY BE REQUIRED TO CORRECT THE WORK AT A LATER DATE.

TI-6. THE INSPECTING AGENCY IS NOT INSPECTING FOR O.S.H.A. COMPLIANCE OR REQUIRED TO INSPECT TEMPORARY CONSTRUCTION, SUCH AS TEMPORARY BRACING. TEMPORARY CONSTRUCTION IS THE CONTRACTOR'S SOLE RESPONSIBILITY.

TI-7. THE CONTRACTOR SHALL NOTIFY THE INSPECTION AGENCY OF ANY WELDS THAT WERE DONE IN THE FIELD THAT WERE NOT DETAILED AS FIELD WELDS ON THE DESIGN DRAWINGS.

TI-8. INSPECTION AGENCY SHALL:
- A. OBSERVE SHORING AND REMOVAL OF BALLAST BEFORE REINFORCING
- B. OBSERVE ABSENCE OF SNOW DURING REINFORCING
- C. VISUALLY OBSERVE ALL FIELD WELDS
- D. CLOSELY INSPECT ANY NONCONFORMING WELDS
- E. IMMEDIATELY NOTIFY THE CONTRACTOR OF NON-CONFORMING WORK.
- F. ISSUE BI-WEEKLY PROGRESS REPORTS
- G. OBSERVE INSTALLATION, REINSTALLATION OF JOIST BRIDGING AND BRACING.
- H. SERVE NEW JOIST TOP CHORD CONNECTION TO ROOF DECK
- I. OBSERVE NO WELD HSS4X4 TO HSS4X4 ON DETAILS 11/S-543 AND 21/S-543 UNTIL AFTER MAU-6 PLACED.

TI-9. WELD INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.

TI-10. STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF WISCONSIN.

TI-12. PROGRESS REPORTS SHALL INCLUDE DOCUMENTATION OF ALL OBSERVATION AND INSPECTIONS AND NONCONFORMANCES. PROGRESS REPORTS SHALL BE SEALED AND SIGNED BY A PROFESIONAL ENGINEER.

TI-13. CONTRACTOR SHALL CORRECT ALL NONCONFORMANCES AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL NOT APPLY COST OF CORRECTIONS TO ALLOWANCE.

TI-14. CONTRACTOR SHALL PROVIDE REINSPECTION OF ALL NONCONFORMANCES AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL NOT APPLY COST OF REINSPECTION TO ALLOWANCE.

1 TI-15. THE CONTRACTOR SHALL NOT APPLY THE COST OF THE CONTRACTOR'S QA/QC PROGRAM NOR INSPECTIONS TO THE ALLOWANCE.

TI-16. OBSERVATION OF FIELD WELDS SHALL INCLUDE PLACEMENT, TYPE, SIZE, FUSION, POROSITY, CRACKING, UNDERCUT, SPATTER AND SMOOTHNESS FOLLOWING AWS D1.1.

CONCRETE & REINFORCING STEEL NOTES

CR-1. NOT USED

CR-2. ALL BAR LAPS SHALL CONFORM TO ACI 318 CLASS "B" SPLICE CRITERIA. USE TOP BAR LAP LENGTHS FOR TOP BARS IN SLABS AND BEAMS OVER 14" DEEP. MINIMUM BAR LAPS AS FOLLOWS U.N.O.:

#3 = 1'-4" #4 = 1'-4" #5 = 1'-10" #6 = 2'-7" #7 = 4'-2"
#8 = 5'-2" #9 = 6'-4" #10 = 7'-8" #11 = 9'-0"

FOR EPOXY COATED BARS, PROVIDE 1.5 TIMES THE INDICATED LAP LENGTH. FOR TOP BARS PROVIDE 1.3 TIMES THE INDICATED LAP LENGTH.

CR-3. LAP LENGTH SHALL BE SPECIFICALLY NOTED ON SHOP DRAWINGS WHERE MORE THAN ONE BAR MAKES UP A CONTINUOUS STRING.

CR-4. HORIZONTAL BARS SHALL BE DETAILED TO SHOW THE DISTANCE FROM AT LEAST ONE END OF THE BAR TO THE NEAREST BUILDING GRID LINE OR WALL.

CR-5. REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH ACI 315.

CR-6. ALL REINFORCEMENT BARS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST CRSI MANUAL OF STANDARD PRACTICE AND SHALL BE CLEAN AND FREE OF GREASE AND SCALING RUST.

CR-7. CONTINUOUS TOP AND BOTTOM BARS, WHEN SHOWN IN TRANSVERSE SECTION ONLY, SHALL BE LAPPED AS FOLLOWS:

TOP BARS NEAR MID-SPANS; BOTTOM BARS DIRECTLY OVER SUPPORTS, U.N.O.

CR-8. WATER STOPS SHALL BE PROVIDED IN HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS WHERE FINISHED FLOOR IS BELOW EXTERIOR GRADE UNLESS OMISSION IS APPROVED BY THE ENGINEER.

CR-9. HOOK HORIZONTAL WALL AND BEAM REINFORCING BARS AT DISCONTINUOUS ENDS, TYPICAL U.N.O. EXTEND REINFORCEMENT TO FAR FACE OF PIERS/PEDESTALS AND/OR COLUMNS U.N.O.

CR-10. PROVIDE HOT/COLD WEATHER PROCEDURES AND PROTECTION IN ACCORDANCE WITH ACI RECOMMENDATIONS AND PROJECT SPECIFICATIONS.

CR-11. CONCRETE REINFORCEMENT PROTECTION/CLEAR COVER, U.N.O.:

FOOTINGS:	
BOTTOM & SIDES	3"
TOP	2"
WALLS:	
EXTERIOR EXPOSURE	2"
INTERIOR EXPOSURE	1"
BEAMS/COLUMNS:	
OVER TIES OR STIRRUPS	1 1/2"
ELEVATED SLABS:	1"

CR-12. PROVIDE ADDITIONAL #4 BARS AT 4'-0" LONG 1" BELOW TOP OF SLAB AT 45° TO ALL REENTRANT CORNERS,OPENINGS IN CONCRETE SLABS AND AS INDICATED ON DRAWINGS.

CR-13. ALL CONCRETE FOUNDATION WALLS SHALL HAVE A MINIMUM OF (2) #5 BARS CONTINUOUS TOP AND BOTTOM, UNLESS NOTED OR DETAILED OTHERWISE.

CR-14. NOT USED

CR-15. ALL CONCRETE DESIGN AND CONSTRUCTION SHALL CONFORM WITH THE LOCAL BUILDING CODE REQUIREMENTS AND THOSE OF THE FOLLOWING STANDARDS (LATEST EDITION):

"ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONC."
"ACI 315, DETAILS AND DETAILING OF CONCRETE REINFORCEMENT"
"ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BLDGS."
"ACI 307, RECOMMENDED PRACTICE FOR CONCRETE FORM WORK"

CR-16. SEE SECTION 033000 OF SPECIFICATIONS FOR INFORMATION REGARDING CONCRETE MIX DESIGN, TESTING, MATERIALS, AND ADMIXTURES.

CR-17. ALUMINUM CONDUIT IS NOT PERMITTED TO BE EMBEDDED IN CONCRETE.

CR-18. REFER TO FLATWORK DRAWINGS AND/OR SPECIFICATIONS FOR SLAB-ON-GRADE FINISH TYPES AND DEPRESSIONS REQUIRED FOR MATS, TILE, AND OTHER FINISH MATERIALS.

CR-19. NOT USED.

CR-20. NOT USED

CR-21. NOT USED

CR-22. NOT USED.

CR-23. PITCH CONCRETE TO FLOOR DRAINS. COORDINATE WITH PLUMBING AND ARCHITECTURAL DRAWINGS.

CR-24. U.N.O., PROVIDE CONTROL OR CONSTRUCTION JOINTS IN SLABS-ON-GRADE AT 15 FOOT MAXIMUM CENTERS EACH DIRECTION. CONTRACTOR SHALL SUBMIT PLANS OF JOINT LOCATIONS TO THE ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO CASTING SLABS-ON GRADE. COORDINATE WITH ARCHITECTURAL DRAWINGS AND FLOOR FINISHES SUCH AS TILE AND TERRAZZO.

CR-25. ALL DOWELS INTO EXISTING CONCRETE OR SOLID MASONRY TO BE EPOXY ANCHORED WITH SIMPSON SET-3G. DRILL ALL HOLES WITH BOSCH DUST EXTRACTION VACUUM SYSTEM AND USE BLOW, BRUSH, BLOW HOLE CLEANING.

SHOP DRAWINGS

SD-1. SHOP DRAWINGS SHALL BE SUBMITTED FOR STRUCTURAL ITEMS AS REQUIRED BY THE SPECIFICATIONS. CONSTRUCTION DOCUMENTS SHALL NOT BE REPRODUCED FOR USE AS SHOP DRAWINGS.

SD-2. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS AND PRODUCT DATA FOR CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS PRIOR TO SUBMITTAL. REVIEWED SUBMITTALS SHALL BE STAMPED BY THE CONTRACTOR. ANY SHOP DRAWING OR PRODUCT DATA NOT REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR WILL BE REJECTED. GENERAL CONTRACTOR SHALL CLOUD OR FLAG ALL ITEMS NOT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SHALL VERIFY ALL DIMENSIONS.

SD-3. ANY CHANGES, SUBSTITUTIONS OR DEVIATIONS FROM THE ORIGINAL CONTRACT DRAWINGS SHALL BE CLOUDED BY THE MANUFACTURER OR FABRICATOR. ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS WHICH ARE CLOUDED OR FLAGGED BY SUBMITTING PARTIES SHALL NOT BE CONSIDERED APPROVED AFTER THE ENGINEER'S REVIEW, UNLESS SPECIFICALLY NOTED ACCORDINGLY BY THE ENGINEER.

SD-4. THE APPROVED SHOP DRAWINGS DO NOT REPLACE THE ORIGINAL CONTRACT DRAWINGS. ITEMS OMITTED OR SHOWN INCORRECTLY ARE NOT TO BE CONSIDERED CHANGES TO THE ORIGINAL CONTRACT DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ITEMS OMITTED OR SHOWN INCORRECTLY ARE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

SD-5. SHOP DRAWING REVIEW IS INTENDED ONLY FOR GENERAL CONFORMANCE TO THE DESIGN CONCEPT AND CONSTRUCTION DOCUMENTS.

SD-6. SHOP DRAWINGS WILL BE RETURNED FOR RESUBMITTAL IF MAJOR ERRORS ARE FOUND DURING REVIEW.

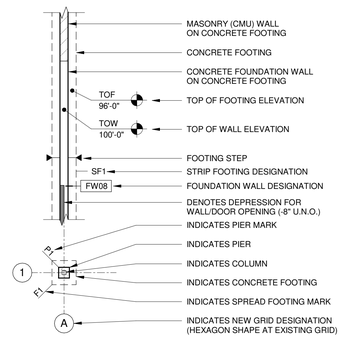
SD-7. ALLOW A MINIMUM OF (10) WORKING DAYS FOR REVIEW OF SHOP DRAWINGS BY THE STRUCTURAL ENGINEER.

ABBREVIATIONS

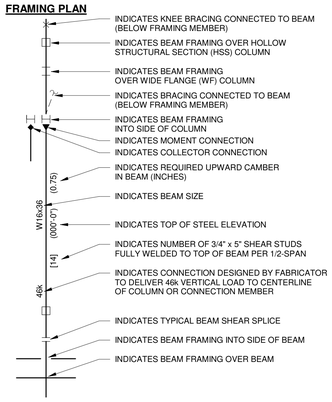
B.O.	= BOTTOM OF _____
BP#	= BASE PLATE TYPE
BRG	= BEARING
C TO C	= CENTER TO CENTER
CCJ	= CONSTRUCTION CONTROL JOINT
CJ	= CONTROL JOINT
CLSM	= CONTROLLED LOW STRENGTH MATERIAL ("FLOWABLE FILL")
CONT	= CONTINUOUS
DBLT	= DOUBLE-TEE
DIA	= DIAMETER
DTB	= DOUBLE-TEE BEARING
EF	= EACH FACE
EL	= ELEVATION
EW	= EACH WAY
F#	= SPREAD FOOTING TYPE
FDTN	= FOUNDATION
FV	= FIELD VERIFY
GALV	= GALVANIZED
HPC	= HIGH PERFORMANCE COATING
JB	= JOIST BEARING
LLH	= LONG LEG HORIZONTAL
LLV	= LONG LEG VERTICAL
NIC	= NOT IN CONTRACT
NS FS	= NEAR SIDE, FAR SIDE
NTS	= NOT TO SCALE
OC	= ON CENTER
P#	= PIER TYPE
PCB	= PRECAST BEARING (ELEVATION)
PRCST	= PRECAST
RTU	= ROOF TOP UNIT
Rxn	= REACTION
SF#	= STRIP FOOTING TYPE
SIM	= SIMILAR
SST	= STAINLESS STEEL
STL	= STEEL
T.O.	= TOP OF _____
TBD	= TO BE DETERMINED
TOC	= TOP OF COLUMN
TOF	= TOP OF FOOTING
TOL	= TOP OF LEDGE
TOP	= TOP OF PIER
TOS	= TOP OF STEEL
TOW	= TOP OF WALL
TPC	= TOP OF PRECAST
TSL	= TOP OF SLAB
TYP	= TYPICAL
UNO	= UNLESS NOTED OTHERWISE
WWF	= WELDED WIRE FABRIC/REINFORCEMENT

STRUCTURAL SYMBOLOGY

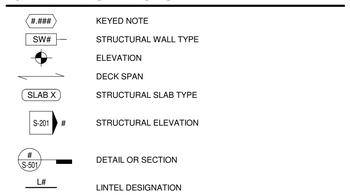
FOUNDATION PLAN



FRAMING PLAN



GENERAL SYMBOLS



Mead & Hunt
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2440 Deming Way
Middleton, WI 53562
phone: 608-273-6380
meadhunt.com

metro transit

CITY OF MADISON WISCONSIN

CITY OF MADISON METRO TRANSIT PHASE 2 - HVAC REPLACEMENT

1101 EAST WASHINGTON AVE.
MADISON, WI 53703

ISSUED
11/07/19 BID SET
1 12/06/19 ADD-1

CONTRACT NO.: 8462
M&H NO.: 4502500-170148.07
DATE: November 7, 2019
DESIGNED BY: DXC
DRAWN BY: MJE
CHECKED BY: -
DO NOT SCALE DRAWINGS

SHEET CONTENTS
STRUCTURAL NOTES

SHEET NO.:
S-001

ROOF FRAMING PLAN GENERAL NOTES:

1. ELEVATION 100'-0" = FINISHED FLOOR +/- ON THE WEST END OF THE FACILITY. THE FLOOR SLOPES UP MOVING TO THE EAST. THE FINISHED FLOOR IS 102'-4" +/- AT THE EAST END OF THE FACILITY.
2. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
3. REFER TO SHEET S-001 FOR STRUCTURAL LEGENDS, ABBREVIATIONS, AND SYMBOLOGY.
4. REFER TO SHEET S-541 FOR TYPICAL DETAILS NOT REFERENCED ON THIS SHEET.
5. MINIMUM JOIST BEARING LENGTH REQUIREMENTS ARE AS FOLLOWS UNLESS NOTED OR DETAILED OTHERWISE;
   A. AT MASONRY WALLS
      - "K" SERIES - MIN. 4"
      - "KCS" SERIES - MIN. 4"
      - "LH" SERIES - MIN. 6"
      - "DLH" SERIES - MIN. 6"
   B. AT CONCRETE WALLS
      - "K" SERIES - MIN. 4"
      - "KCS" SERIES - MIN. 4"
      - "LH" SERIES - MIN. 6"
      - "DLH" SERIES - MIN. 6"
   C. AT STEEL BEAMS
      - "K" SERIES - MIN. 2 1/2"
      - "KCS" SERIES - MIN. 2 1/2"
      - "LH" SERIES - MIN. 4"
      - "DLH" SERIES - MIN. 4"
6. ALL NEW JOISTS SHALL BE DESIGNED AND SUPPLIED WITH AT LEAST ONE MOMENT SPLICE. CONTRACTOR SHALL PROVIDE ADDITIONAL MOMENT SPLICES TO INSTALL SISTER-JOIST AMONG EXISTING UTILITIES OR OTHER OBSTRUCTIONS. MOMENT SPLICES SHALL BE DESIGNED AND STAMPED BY PROFESSIONAL ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND REINSTALL ANYTHING IN THE WAY OF THE INSTALLATION OF NEW NEW JOISTS. MOMENT CONNECTIONS MUST BE SHOP FABRICATED.
7. ALL JOIST GIRDER REINFORCING WELDS ARE FIELD WELDS.
8. ALL CIRCULAR REINFORCING SHALL BE SOLID ROUNDS. REBAR IS NOT ALLOWED TO BE USED TO REINFORCE STRUCTURAL STEEL.
9. BRACE NEW JOISTS AT FIFTH POINTS PER DETAIL 8/S-543. NEW JOISTS SHALL BE DESIGNED FOR TOP CHORD BRACING AT THESE POINTS ONLY.
10. REMOVE JOIST BRIDGING AND BRACING WHERE NEW JOISTS ARE PLANNED. AFTER INSTALLATION OF NEW JOISTS RESTORE BRIDGING AND BRACING TO ORIGINAL CONDITIONS. PROVIDE BRIDGING TO LOWER CHORD OF NEW JOISTS AT LINES MATCHING EXISTING.
11. REINFORCING JOIST GIRDERS AND INSTALLING SISTER JOIST MUST BE DONE WITH NO LOAD ON ROOF. REMOVE BALLAST, SNOW, ICE AND WATER BEFORE REINFORCING JOIST GIRDERS AND INSTALLING SISTER JOIST.
14. BEFORE REINFORCING JOIST GIRDERS, SHORE JOIST GIRDERS AT NODES CLOSEST TO FIFTH POINTS.
15. CUT BRIDGING AND BRACING TO INSTALL NEW JOIST. REINSTALL BRIDGING AND BRACING TO ORIGINAL CONDITIONS OR SJI MINIMUM REQUIREMENTS WHICHEVER IS GREATER.
16. ROOF TOP UNITS MUST BE LOCATED WITHIN 1/4" OF LOCATION SHOWN.
17. IF NEW DUCT INTERFERES WITH EXISTING JOIST BRIDGING OR BRACING INSTALL NEW X-BRACING ON BOTH SIDES OF DUCT PER 12/S-541.
18. PILE BALAST ON GROUND, AT LOCATION ON SITE, TO BE DETERMINED OWNER.
19. NEW JOISTS DO NOT NEED TO BE DESIGNED FOR UPLIFT FORCE.
20. BALLAST REMOVED MAY NOT BE PLACED ON OTHER AREAS OF ROOF.
21. FABRICATE JOIST WITH ZERO CAMBER. PROVIDE SHIMS IN SPLICE CONNECTION(S) TO ADJUST NEW JOIST TO EXISTING DECK SURFACE.
22. PLACEMENT OF BALLAST SHALL NOT EXCEED 12PSF.
23. VERIFY STEEL LAYOUT AND FIT UP WITH MAU AND ERV UNITS.
24. FOR ROOF TOP UNITS OVER 1200LB INSTALL CURBS ON EXISTING DECK DETAIL PER DETAIL 9/S-543.
25. FIELD MEASURE EXISTING OPENINGS. SIZE FRAMED ROOF OPENINGS TO SUPPORT ROOF DECK AT EDGE OF EXISTING OPENING. WHERE RTU HAS TWO HOLES CLOSE TOGETHER SIZE FRAMED ROOF OPENING TO SUPPORT DECK AROUND BOTH OPENINGS.
26. THE ZONE LABELS OF #1 THROUGH #5 DEPICT AREAS OF WORK ACTIVITIES THAT RELATE TO THIS SPECIFIC PROJECT. THEY DO NOT RELATE TO AND NUMBERING OF EXISTING FIRE ZONES, HVAC ZONING OR ZONING OF ELECTRICAL OR TECHNOLOGY SYSTEMS.
27. DESIGN AND SUPPLY NEW JOIST WITH SEAT DEPTH OF 2". FIELD VERIFY THAT EXISTING JOIST SEATS ARE 2 1/2" DEEP. PROVIDE AND INSTALL SHIMS UNDER NEW JOIST SEATS TO PUSH JOIST UP TIGHT TO UNDERSIDE OF EXISTING ROOF DECK.

KEYED NOTES

3.516 REMOVE BALLAST FROM THIS AREA BEFORE ADDING JOIST OR REINFORCING JOIST GIRDER FOR MAU-4.

3.517 REMOVE BALLAST FROM THIS AREA BEFORE ADDING JOIST OR REINFORCING JOIST GIRDER FOR MAU-5.

3.520 REMOVE BALLAST FROM THIS AREA BEFORE ADDING JOIST OR REINFORCING JOIST GIRDER FOR ERV-3.

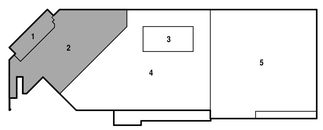
3.527 PROVIDE AND INSTALL FRAMED ROOF OPENING PER 8/S-541.

3.528 PROVIDE AND INSTALL 20 GAUGE ROOF DECK OVER OPENING. MATCH EXISTING DECK PROFILE. FASTEN WITH #12 SREWS AT 12" ALL AROUND.

TRUE NORTH PLAN NORTH

1 ROOF FRAMING PLAN - ZONES 1 & 2

1/16" = 1'-0"



KEY PLAN

Mead & Hunt
Mead & Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
phone: 608-273-6380
meadhunt.com

metro transit

CITY OF MADISON WISCONSIN

CITY OF MADISON METRO TRANSIT PHASE 2 - HVAC REPLACEMENT

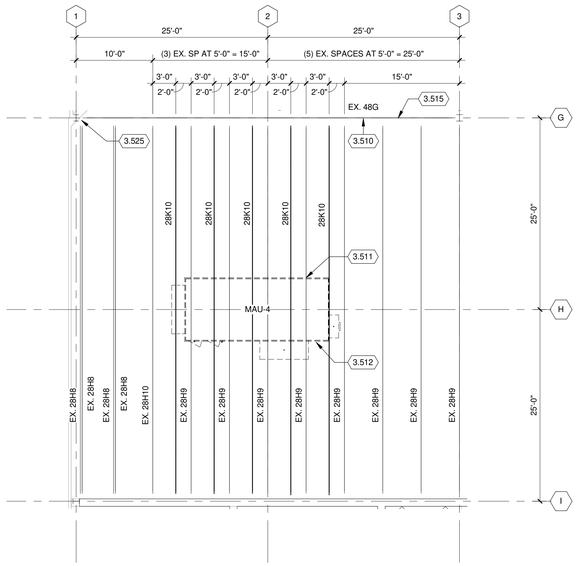
1101 EAST WASHINGTON AVE.
MADISON, WI 53703

ISSUED
11/07/19 BID SET
1 12/06/19 ADD-1

CONTRACT NO.: 8462
M&H NO.: 4503500-170148.07
DATE: November 7, 2019
DESIGNED BY: DXC
DRAWN BY: MJE
CHECKED BY: -
DO NOT SCALE DRAWINGS

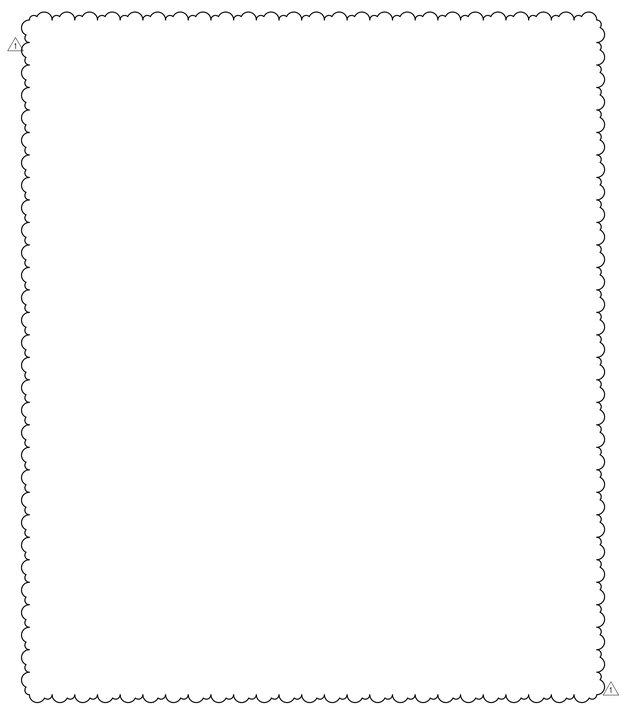
SHEET CONTENTS
ROOF FRAMING PLAN - ZONES 1 & 2

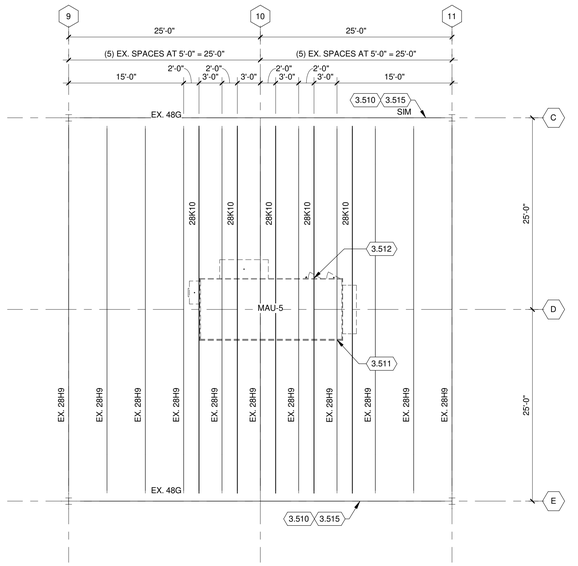
SHEET NO.:
S-151A



TRUE NORTH / PLAN NORTH 3 ENLARGED ROOF FRAMING PLAN

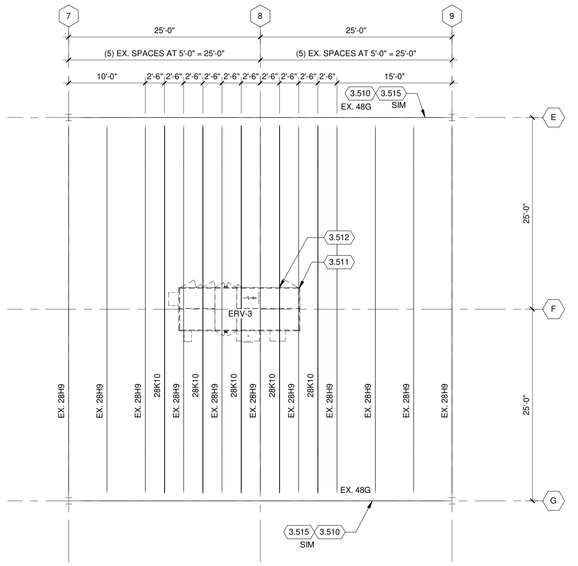
1/8" = 1'-0"





TRUE NORTH / PLAN NORTH 1 ENLARGED ROOF FRAMING PLAN

1/8" = 1'-0"



TRUE NORTH / PLAN NORTH 2 ENLARGED ROOF FRAMING PLAN

1/8" = 1'-0"

ROOF FRAMING PLAN GENERAL NOTES:

1. ELEVATION 100'-0" = FINISHED FLOOR +/- ON THE WEST END OF THE FACILITY. THE FLOOR SLOPES UP MOVING TO THE EAST. THE FINISHED FLOOR IS 102'-4" +/- AT THE EAST END OF THE FACILITY.
2. FIELD VERIFY ALL DIMENSIONS, BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT/ENGINEER FOR FINAL DECISION.
3. REFER TO SHEET S-001 FOR STRUCTURAL LEGENDS, ABBREVIATIONS, AND SYMBOLOGY.
4. REFER TO SHEET S-541 FOR TYPICAL DETAILS NOT REFERENCED ON THIS SHEET.
5. MINIMUM JOIST BEARING LENGTH REQUIREMENTS ARE AS FOLLOWS UNLESS NOTED OR DETAILED OTHERWISE;
   A. AT MASONRY WALLS
      - "K" SERIES - MIN. 4"
      - "KCS" SERIES - MIN. 4"
      - "LH" SERIES - MIN. 6"
      - "DLH" SERIES - MIN. 6"
   B. AT CONCRETE WALLS
      - "K" SERIES - MIN. 4"
      - "KCS" SERIES - MIN. 4"
      - "LH" SERIES - MIN. 6"
      - "DLH" SERIES - MIN. 6"
   C. AT STEEL BEAMS
      - "K" SERIES - MIN. 2 1/2"
      - "KCS" SERIES - MIN. 2 1/2"
      - "LH" SERIES - MIN. 4"
      - "DLH" SERIES - MIN. 4"
6. ALL NEW JOISTS SHALL BE DESIGNED AND SUPPLIED WITH AT LEAST ONE MOMENT SPLICE. CONTRACTOR SHALL PROVIDE ADDITIONAL MOMENT SPLICES TO INSTALL SISTER-JOIST AMONG EXISTING UTILITIES OR OTHER OBSTRUCTIONS. MOMENT SPLICES SHALL BE DESIGNED AND STAMPED BY PROFESSIONAL ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND REINSTALL ANYTHING IN THE WAY OF THE INSTALLATION OF NEW NEW JOISTS. MOMENT CONNECTIONS MUST BE SHOP FABRICATED.
7. ALL JOIST GIRDER REINFORCING WELDS ARE FIELD WELDS.
8. ALL CIRCULAR REINFORCING SHALL BE SOLID ROUNDS. REBAR IS NOT ALLOWED TO BE USED TO REINFORCE STRUCTURAL STEEL.
9. BRACE NEW JOISTS AT FIFTH POINTS PER DETAIL 8/S-543. NEW JOISTS SHALL BE DESIGNED FOR TOP CHORD BRACING AT THESE POINTS ONLY.
10. REMOVE JOIST BRIDGING AND BRACING WHERE NEW JOISTS ARE PLANNED. AFTER INSTALLATION OF NEW JOISTS RESTORE BRIDGING AND BRACING TO ORIGINAL CONDITIONS. PROVIDE BRIDGING TO LOWER CHORD OF NEW JOISTS AT LINES MATCHING EXISTING.
11. REINFORCING JOIST GIRDERS AND INSTALLING SISTER JOIST MUST BE DONE WITH NO LOAD ON ROOF. REMOVE BALLAST, SNOW, ICE AND WATER BEFORE REINFORCING JOIST GIRDERS AND INSTALLING SISTER JOIST.
14. BEFORE REINFORCING JOIST GIRDERS, SHORE JOIST GIRDERS AT NODES CLOSEST TO FIFTH POINTS.
15. CUT BRIDGING AND BRACING TO INSTALL NEW JOIST. REINSTALL BRIDGING AND BRACING TO ORIGINAL CONDITIONS OR SJI MINIMUM REQUIREMENTS WHICHEVER IS GREATER.
16. ROOF TOP UNITS MUST BE LOCATED WITHIN 1/4" OF LOCATION SHOWN.
17. IF NEW DUCT INTERFERES WITH EXISTING JOIST BRIDGING OR BRACING INSTALL NEW X-BRACING ON BOTH SIDES OF DUCT PER 12/S-541.
18. PILE BALAST ON GROUND, AT LOCATION ON SITE, TO BE DETERMINED OWNER.
19. NEW JOISTS DO NOT NEED TO BE DESIGNED FOR UPLIFT FORCE.
20. BALLAST REMOVED MAY NOT BE PLACED ON OTHER AREAS OF ROOF.
21. FABRICATE JOIST WITH ZERO CAMBER. PROVIDE SHIMS IN SPLICE CONNECTION(S) TO ADJUST NEW JOIST TO EXISTING DECK SURFACE.
22. PLACEMENT OF BALLAST SHALL NOT EXCEED 12PSF.
23. VERIFY STEEL LAYOUT AND FIT UP WITH MAU AND ERV UNITS.
24. FOR ROOF TOP UNITS OVER 1200LB INSTALL CURBS ON EXISTING DECK DETAIL PER DETAIL 9/S-543.
25. FIELD MEASURE EXISTING OPENINGS. SIZE FRAMED ROOF OPENINGS TO SUPPORT ROOF DECK AT EDGE OF EXISTING OPENING. WHERE RTU HAS TWO HOLES CLOSE TOGETHER SIZE FRAMED ROOF OPENING TO SUPPORT DECK AROUND BOTH OPENINGS.
26. THE ZONE LABELS OF #1 THROUGH #5 DEPICT AREAS OF WORK ACTIVITIES THAT RELATE TO THIS SPECIFIC PROJECT. THEY DO NOT RELATE TO AND NUMBERING OF EXISTING FIRE ZONES, HVAC ZONING OR ZONING OF ELECTRICAL OR TECHNOLOGY SYSTEMS.
1. 27. DESIGN AND SUPPLY NEW JOIST WITH SEAT DEPTH OF 2". FIELD VERIFY THAT EXISTING JOIST SEATS ARE 2 1/2" DEEP. PROVIDE AND INSTALL SHIMS UNDER NEW JOIST SEATS TO PUSH JOIST UP TIGHT TO UNDERSIDE OF EXISTING ROOF DECK.

KEYED NOTES

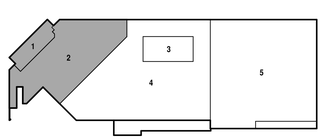
3.510 REINFORCE EXISTING GIRDER PER DETAIL 4/S-542.

3.511 INSTALL STRUT IN EXISTING JOIST AT SUPPORT POINT FOR ROOF TOP UNIT PER DETAIL 11/S-541. TYPICAL AT EVERY EXISTING JOIST UNDER ROOF TOP UNIT.

3.512 JOIST MANUFACTURER TO PROVIDE JOIST NODE IN NEW JOIST AT SUPPORT POINT FOR RTU. SUPPORT POINT OF RTU OCCURS AT EACH SIDE OF RTU. TYPICAL AT EVERY JOIST UNDER ROOF TOP UNIT. LOAD FROM ROOF TOP UNIT = 813LB.

3.515 ADD STRUTS TO EXISTING JOIST GIRDER PER DETAIL 6/S-542 INSTALL STITCH PLATES IN NEW STRUTS PER DETAIL12/S-543.

3.525 CHIP CMU AWAY FROM JOIST GIRDER TO EXTENT NEEDED FOR ACCESS TO REINFORCE JOIST GIRDER. AFTER REINFORCEMENT PATCH CMU, SOLID GROUTED.



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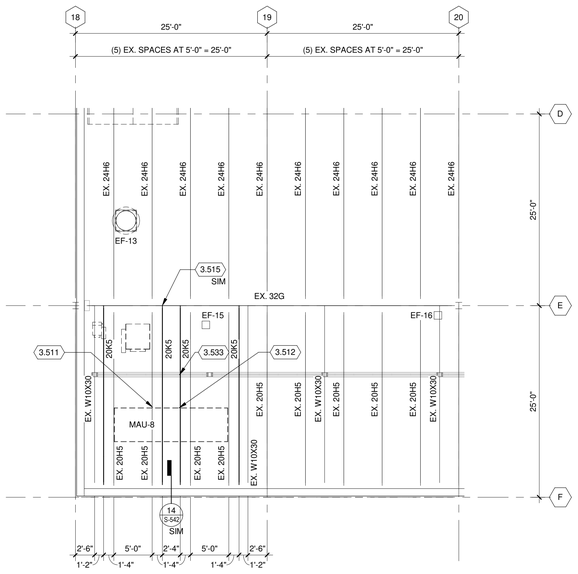
DO NOT SCALE DRAWINGS

SHEET CONTENTS
ENLARGED ROOF FRAMING PLANS

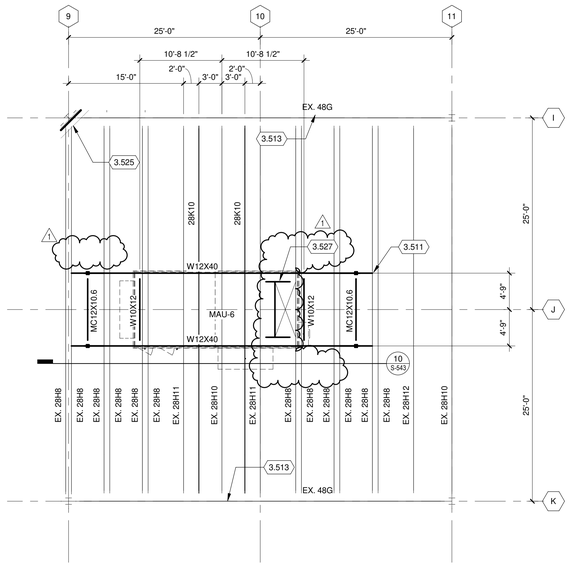
SHEET NO.:
S-451



TRUE NORTH PLAN NORTH 5

ENLARGED ROOF FRAMING PLAN

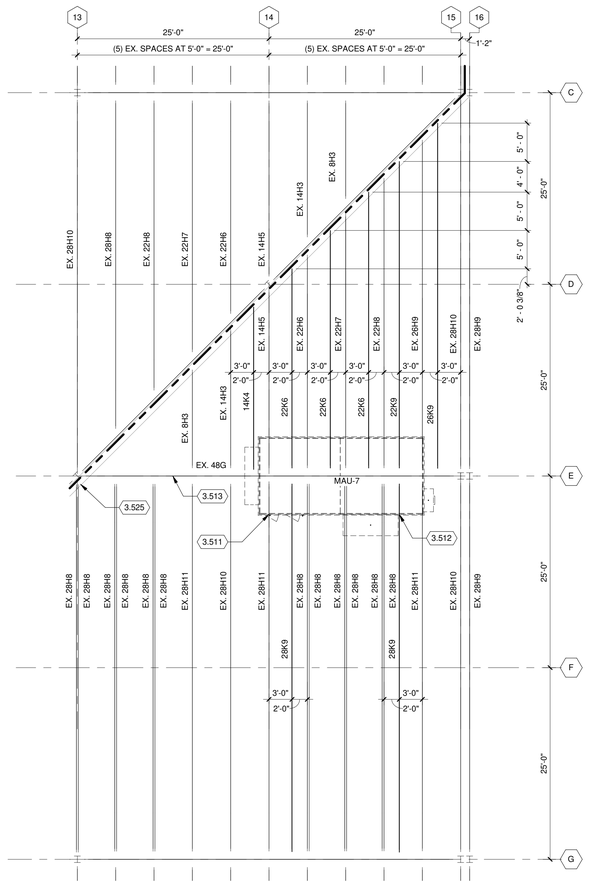
1/8" = 1'-0"



TRUE NORTH PLAN NORTH 3

ENLARGED ROOF FRAMING PLAN

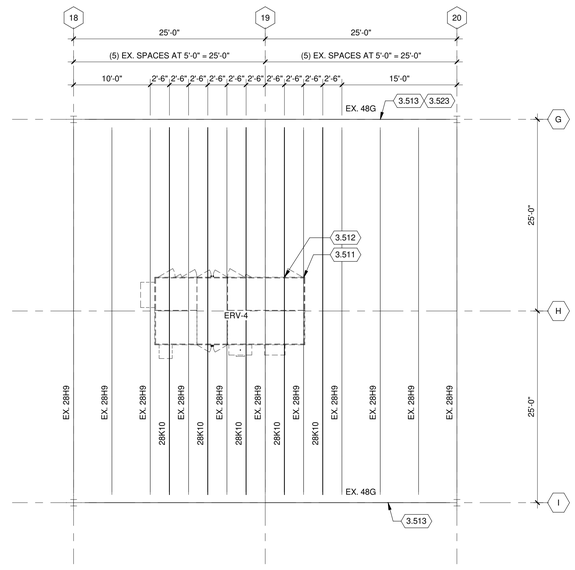
1/8" = 1'-0"



TRUE NORTH PLAN NORTH 1

ENLARGED ROOF FRAMING PLAN

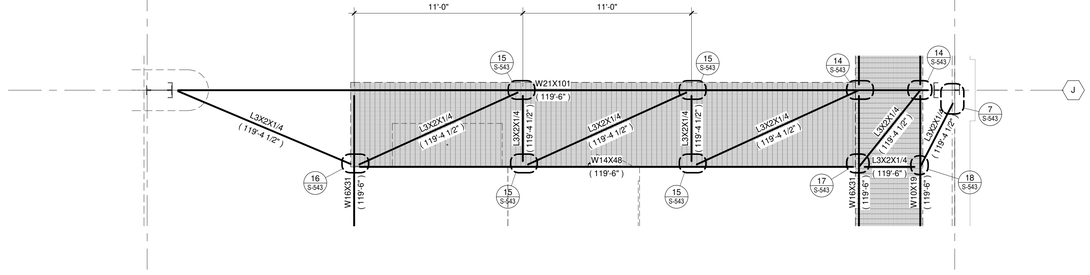
1/8" = 1'-0"



TRUE NORTH PLAN NORTH 2

ENLARGED ROOF FRAMING PLAN

1/8" = 1'-0"



TRUE NORTH PLAN NORTH 4

ENLARGED HVAC MEZZANINE FRAMING PLAN

1/4" = 1'-0"

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   B. AT CONCRETE WALLS
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      - "LH" SERIES - MIN. 6"
      - "DLH" SERIES - MIN. 6"
   C. AT STEEL BEAMS
      - "K" SERIES - MIN. 2 1/2"
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20. BALLAST REMOVED MAY NOT BE PLACED ON OTHER AREAS OF ROOF.
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22. PLACEMENT OF BALLAST SHALL NOT EXCEED 12PSF.
23. VERIFY STEEL LAYOUT AND FIT UP WITH MAU AND ERV UNITS.
24. FOR ROOF TOP UNITS OVER 1200LB INSTALL CURBS ON EXISTING DECK DETAIL PER DETAIL 9/S-543.
25. FIELD MEASURE EXISTING OPENINGS. SIZE FRAMED ROOF OPENINGS TO SUPPORT ROOF DECK AT EDGE OF EXISTING OPENING. WHERE RTU HAS TWO HOLES CLOSE TOGETHER SIZE FRAMED ROOF OPENING TO SUPPORT DECK AROUND BOTH OPENINGS.
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27. DESIGN AND SUPPLY NEW JOIST WITH SEAT DEPTH OF 2". FIELD VERIFY THAT EXISTING JOIST SEATS ARE 2 1/2" DEEP. PROVIDE AND INSTALL SHIMS UNDER NEW JOIST SEATS TO PUSH JOIST UP TIGHT TO UNDERSIDE OF EXISTING ROOF DECK.

KEYED NOTES

3.511 INSTALL STRUT IN EXISTING JOIST AT SUPPORT POINT FOR ROOF TOP UNIT PER DETAIL 11/S-541. TYPICAL AT EVERY EXISTING JOIST UNDER ROOF TOP UNIT.

3.512 JOIST MANUFACTURER TO PROVIDE JOIST NODE IN NEW JOIST AT SUPPORT POINT FOR RTU. SUPPORT POINT OF RTU OCCURS AT EACH SIDE OF RTU. TYPICAL AT EVERY JOIST UNDER ROOF TOP UNIT. LOAD FROM ROOF TOP UNIT = 813LB.

3.513 REINFORCE EXISTING JOIST GIRDER PER DETAIL 5/S-542.

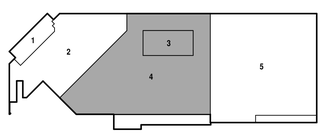
3.515 ADD STRUTS TO EXISTING JOIST GIRDER PER DETAIL 6/S-542 INSTALL STITCH PLATES IN NEW STRUTS PER DETAIL12/S-543.

3.523 REINFORCE EXISTING JOIST GIRDER PER DETAIL 7/S-542.

3.525 CHIP CMU AWAY FROM JOIST GIRDER TO EXTENT NEEDED FOR ACCESS TO REINFORCE JOIST GIRDER. AFTER REINFORCEMENT PATCH CMU, SOLID GROUTED.

3.527 PROVIDE AND INSTALL FRAMED ROOF OPENING PER 8/S-541.

3.533 REMOVE AND REINSTALL EXISTING FALL PROTECTION RUNWAY OR WORK NEW JOIST IN AND AROUND FALL PROTECTION RUNWAY.



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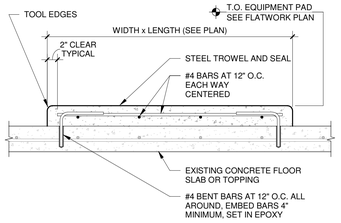
SHEET CONTENTS
ENLARGED ROOF FRAMING PLANS

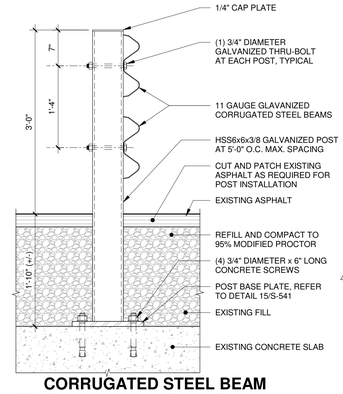
SHEET NO.:
S-452



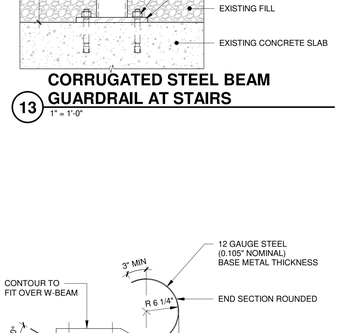
16 EQUIPMENT PADS
1" = 1'-0"

17 NOT USED

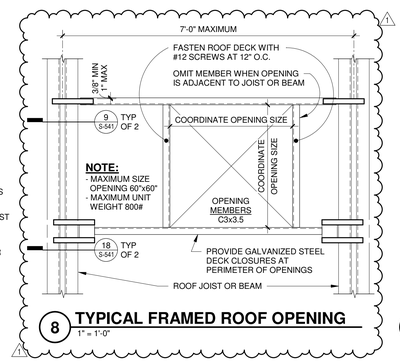
18 CHANNEL TO JOIST CONNECTION
3" = 1'-0"



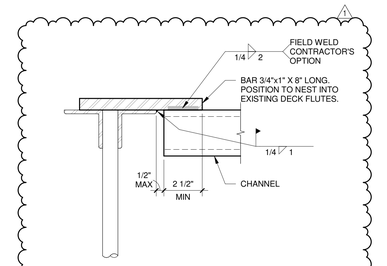
13 CORRUGATED STEEL BEAM GUARDRAIL AT STAIRS
1" = 1'-0"



14 END RAIL DETAIL
1" = 1'-0"

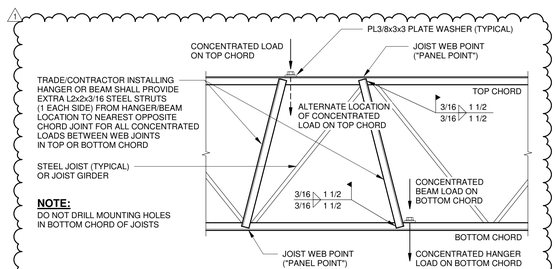


8 TYPICAL FRAMED ROOF OPENING
1" = 1'-0"



9 CHANNEL TO JOIST CONNECTION
3" = 1'-0"

10 TYPICAL WF STIFFENER PLATE
1 1/2" = 1'-0"



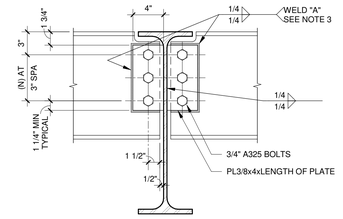
11 CONCENTRATED LOADS ON STEEL JOISTS
3/4" = 1'-0"

6 NOT USED
1 1/2" = 1'-0"

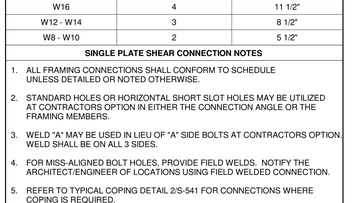
15 CORRUGATED STEEL BEAM RAILING BASE PLATE
1 1/2" = 1'-0"

12 DIAGONAL JOIST BRIDGING AT WALL
3/4" = 1'-0"

3 HORIZONTAL JOIST BRIDGING AT WALL
3/4" = 1'-0"



4 JOIST BEARING AT JOIST GIRDER
1" = 1'-0"



5 JOIST BEARING AT JOIST GIRDER
1" = 1'-0"

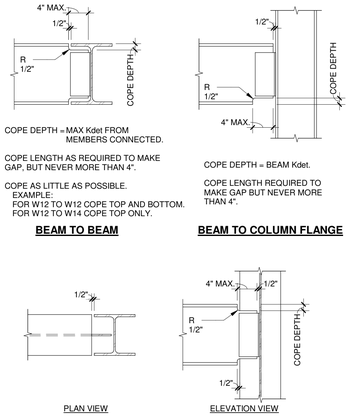
SINGLE PLATE SHEAR CONNECTION

NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS (N)	LENGTH OF PLATE
W36	10	29 1/2"
W33	9	26 1/2"
W30	8	23 1/2"
W24 - W27	7	20 1/2"
W21	6	17 1/2"
W18	5	14 1/2"
W16	4	11 1/2"
W12 - W14	3	8 1/2"
W8 - W10	2	5 1/2"

SINGLE PLATE SHEAR CONNECTION NOTES

1. ALL FRAMING CONNECTIONS SHALL CONFORM TO SCHEDULE UNLESS DETAILED OR NOTED OTHERWISE.
2. STANDARD HOLES OR HORIZONTAL SHORT SLOT HOLES MAY BE UTILIZED AT CONTRACTORS OPTION IN EITHER THE CONNECTION ANGLE OR THE FRAMING MEMBERS.
3. WELD "A" MAY BE USED IN LIEU OF "A" SIDE BOLTS AT CONTRACTORS OPTION. WELD SHALL BE ON ALL 3 SIDES.
4. FOR MISS-ALIGNED BOLT HOLES, PROVIDE FIELD WELDS. NOTIFY THE ARCHITECT/ENGINEER OF LOCATIONS USING FIELD WELDED CONNECTION.
5. REFER TO TYPICAL COPING DETAIL 2/S-541 FOR CONNECTIONS WHERE COPING IS REQUIRED.
6. THIS DETAIL IS NOT INTENDED FOR EVERY WF SECTION. CHECK RIDING THE FILLET AND COPE DEPTH PRIOR TO FABRICATION.

1 TYPICAL SINGLE PLATE SHEAR FRAMING CONNECTION
1 1/2" = 1'-0"



2 TYPICAL COPING DETAIL
1" = 1'-0"

7 NOT USED
1 1/2" = 1'-0"

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1 12/06/19 ADD-1

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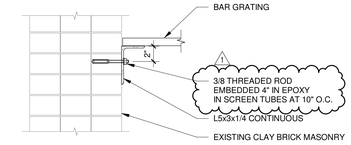
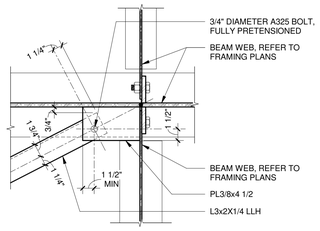
DATE: November 7, 2019
DESIGNED BY: DXC
DRAWN BY: MJE
CHECKED BY: -
DO NOT SCALE DRAWINGS

SHEET CONTENTS
FRAMING DETAILS

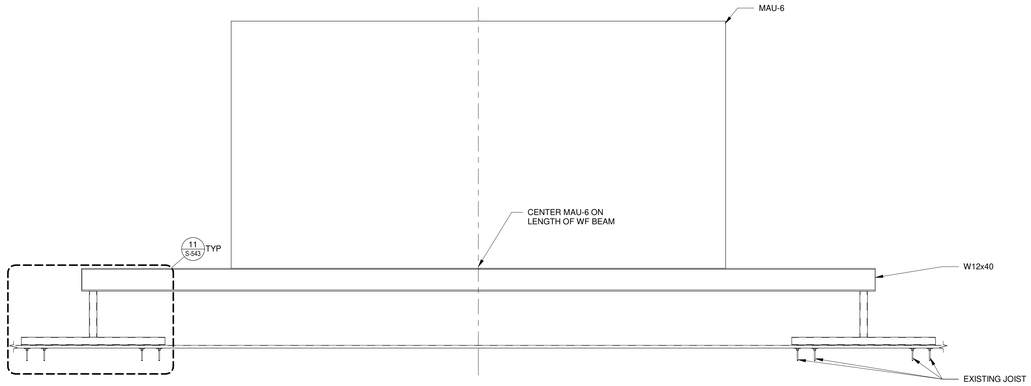
SHEET NO.:
S-541



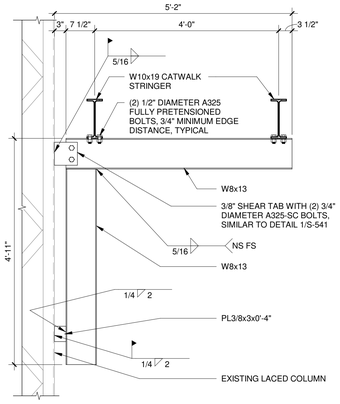
19 CLAY BRICK TO BAR GRATING CONNECTION
1 1/2" = 1'-0"



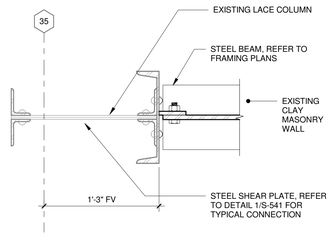
14 FRAMING CONNECTION
1 1/2" = 1'-0"



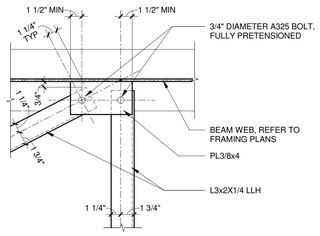
10 PLATFORM FRAMING FOR MAU-6
3/8" = 1'-0"



1 CATWALK SUPPORT FRAMING
3/4" = 1'-0"



20 FRAMING CONNECTION
1 1/2" = 1'-0"



15 FRAMING CONNECTION
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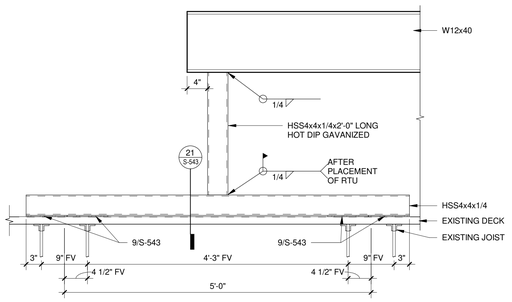
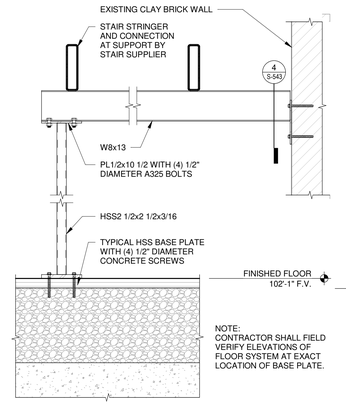
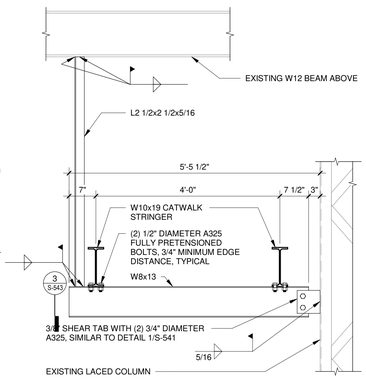


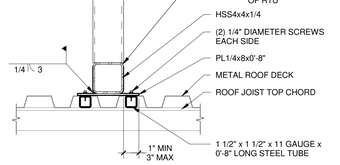
11 PLATFORM FRAMING CONNECTIONS
1" = 1'-0"



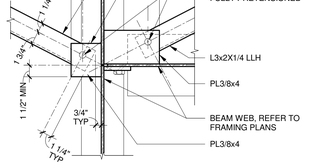
5 STRINGER SUPPORT FRAMING
3/4" = 1'-0"



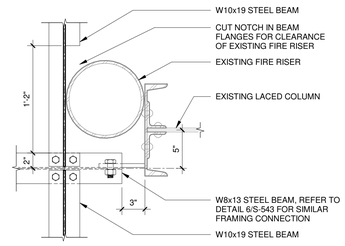
2 CATWALK SUPPORT FRAMING
3/4" = 1'-0"



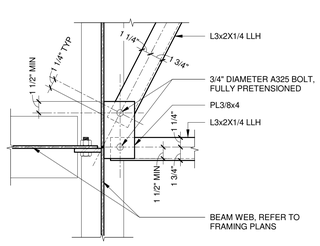
21 PLATFORM FRAMING CONNECTIONS
1 1/2" = 1'-0"



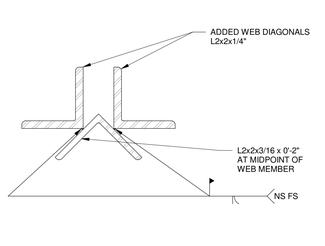
16 FRAMING CONNECTION
1 1/2" = 1'-0"



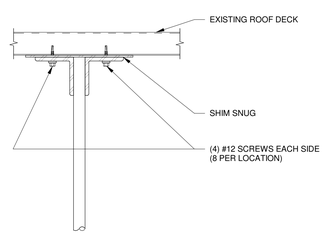
22 FRAMING CONNECTION
1 1/2" = 1'-0"



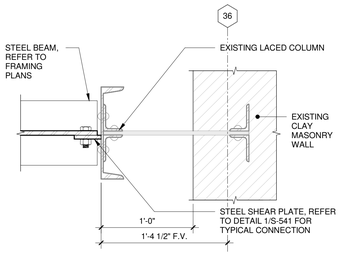
17 FRAMING CONNECTION
1 1/2" = 1'-0"



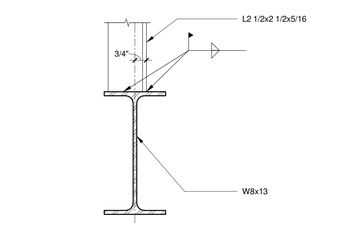
12 JOIST GIRDER WEB DIAGONALS
6" = 1'-0"



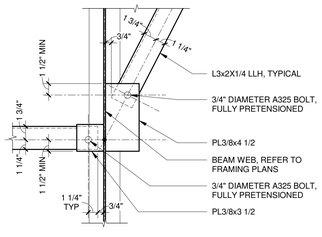
8 JOIST TO DECK CONNECTION
3" = 1'-0"



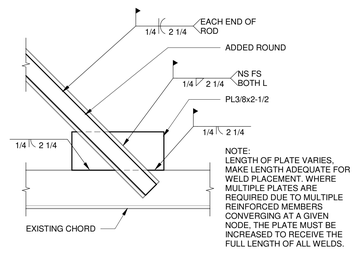
6 FRAMING CONNECTION
1 1/2" = 1'-0"



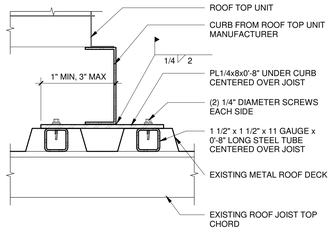
3 FRAMING CONNECTION
3" = 1'-0"



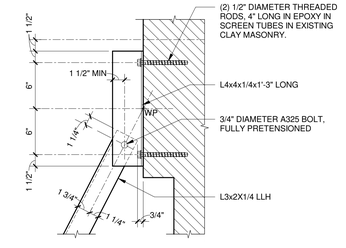
18 FRAMING CONNECTION
1 1/2" = 1'-0"



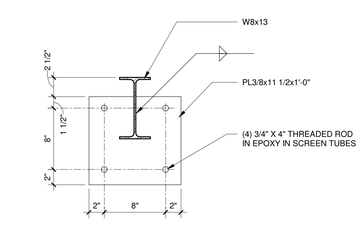
13 FRAMING CONNECTION
3" = 1'-0"



9 TYPICAL CURB ON EXISTING DECK
3" = 1'-0"



7 FRAMING CONNECTION
1 1/2" = 1'-0"



4 SUPPORT BEAM END PLATE
1 1/2" = 1'-0"

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CHECKED BY: -
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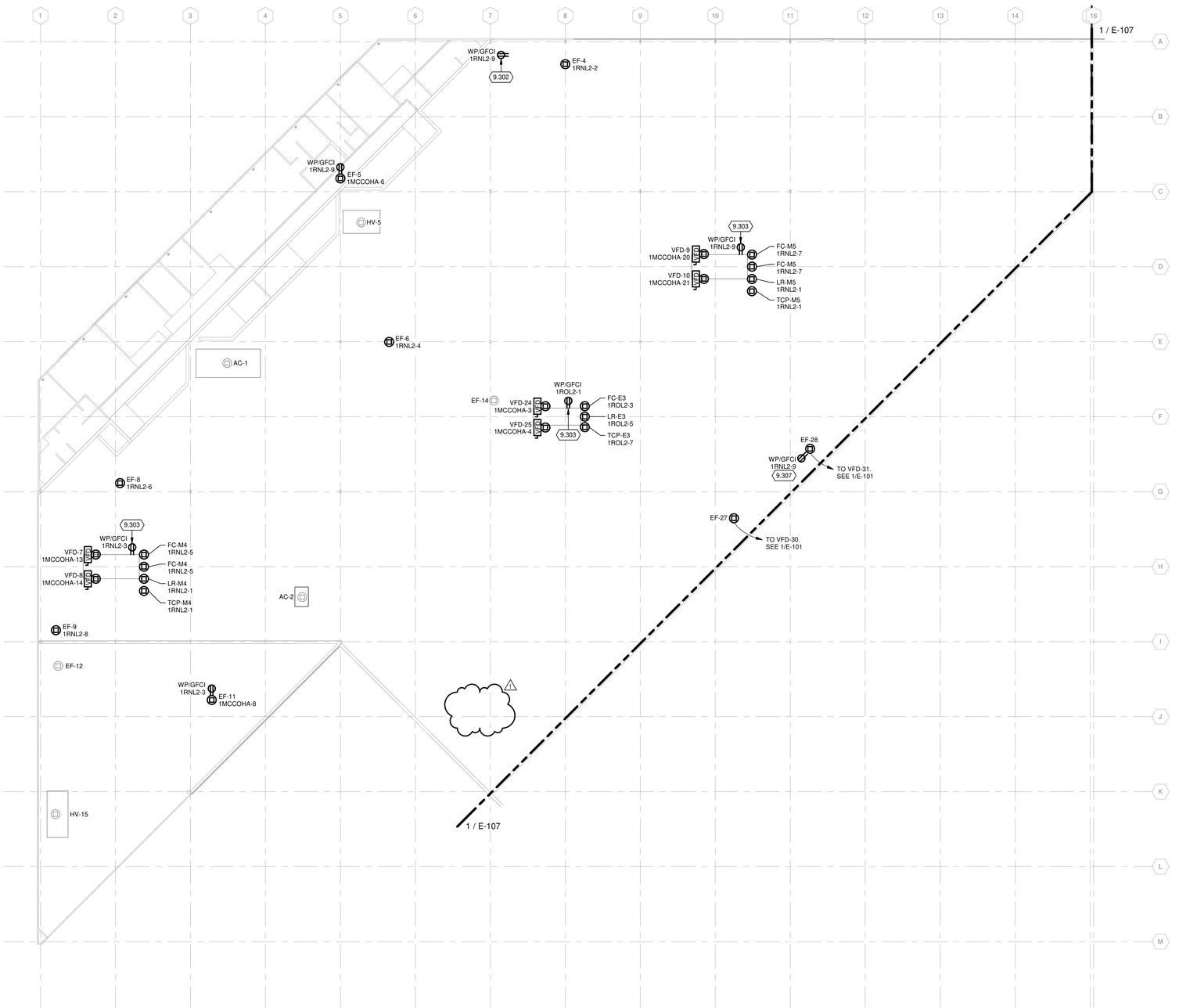
SHEET CONTENTS
FRAMING DETAILS

SHEET NO.:
S-543



TRUE NORTH PLAN NORTH

1 ROOF POWER PLAN - ZONES 1 & 2

1/16" = 1'-0"

POWER GENERAL NOTES:

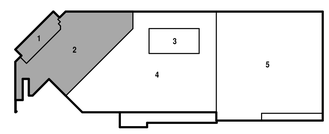
1. REFER TO MECHANICAL DRAWINGS AND COORDINATE WITH MC EXACT LOCATION OF DUCT SMOKE DETECTOR LOCATIONS.
2. ALL MAU'S AND ERV'S SHALL SHUT DOWN ONLY UPON ACTUATION OF THE DUCT SMOKE DETECTOR ASSOCIATED WITH THAT PARTICULAR UNIT, EXCEPT MAU-4 AND MAU-5 SHALL SHUT DOWN ON ANY ALARM AND REMAIN SHUT DOWN UNTIL A VALID SYSTEM RESET OCCURS.

KEYED NOTES

9.302 MOUNT RECEPTACLE HORIZONTALLY ON EXHAUST FAN ROOF CURB JUST BELOW FAN CAP TO CURB TERMINATION.

9.303 MOUNT RECEPTACLE ON UNIT HOUSING.

9.307 PROVIDE RECEPTACLE MOUNTED 30" ABOVE ROOF.



KEY PLAN

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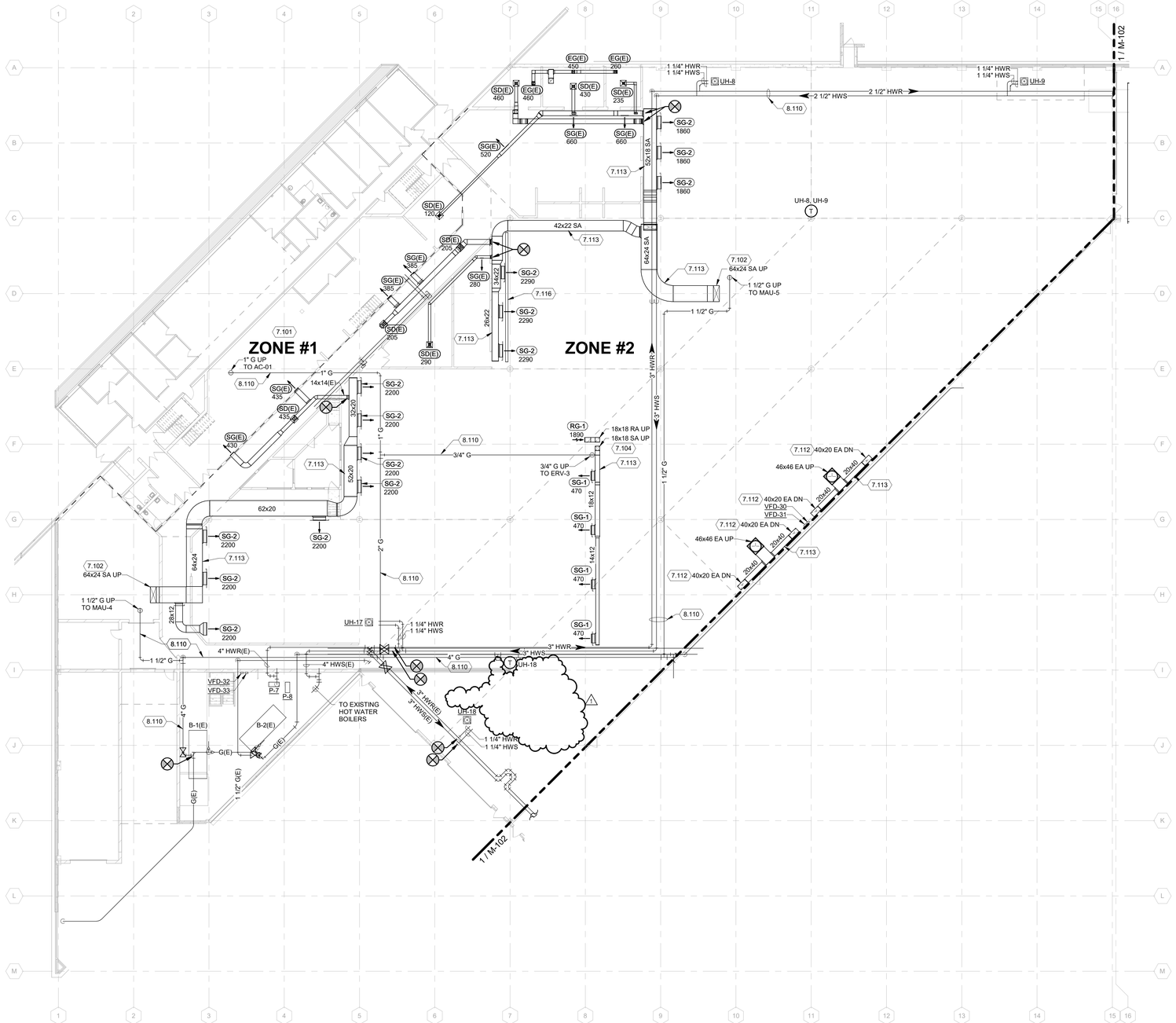
SHEET CONTENTS
ROOF POWER PLAN - ZONES 1 & 2

SHEET NO.:
E-106



TRUE NORTH PLAN NORTH

1 FIRST FLOOR MECHANICAL PLAN - ZONES 1 & 2

1/16" = 1'-0"

GENERAL HVAC NOTES:

1. PROVIDE MANUAL BALANCE DAMPER AT EACH DIFFUSER, GRILLE, AND BRANCH TAKE-OFF IN ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK EXCEPT KITCHEN GREASE EXHAUST DUCT. LOCATE BALANCE DAMPER AS CLOSE TO BRANCH TAKE-OFF AS POSSIBLE.
2. DUCT SIZE TO DIFFUSERS, REGISTERS, AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS NOTED OR DETAILED OTHERWISE.
3. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH EXISTING CEILING PLAN.

GENERAL PIPING NOTES:

1. PIPING RUNOUTS TO ALL EQUIPMENT TO BE 3/4" UNLESS NOTED OTHERWISE.
2. WELD-O-LETS AND THREAD-O-LETS MAY BE USED FOR BRANCH TAKE-OFFS UP TO ONE-HALF THE DIAMETER OF THE MAIN.
3. INSTALL DIELECTRIC FITTINGS WHERE PIPING OF DIFFERENT MATERIALS IS JOINED.
4. INSTALL PIPING FREE OF SAGS AND BENDS.
5. LOCATE ALL VALVES FOR EASY ACCESS. INSTALL VALVES WITH STEM UP OR HORIZONTAL.
6. INSTALL DRAIN VALVES AT ALL LOW POINTS IN PIPING SYSTEM AND ELSEWHERE AS REQUIRED FOR SYSTEM DRAINAGE. INSTALL MANUAL AIR VENTS AT ALL HIGH POINTS IN PIPING, AT HEAT-TRANSFER COILS, AND ELSEWHERE AS REQUIRED FOR SYSTEM AIR VENTING.

KEYED NOTES

7.101 REFER TO 230800 FOR RETRO COMMISSIONING FOR ZONE 1 EXISTING HVAC EQUIPMENT.

7.102 CONTRACTOR TO COORDINATE MAU SUPPLY DUCTWORK WITH EXISTING STRUCTURAL JOISTS. SEE STRUCTURAL DRAWINGS.

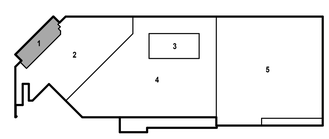
7.104 CONTRACTOR TO COORDINATE ERV SUPPLY AND RETURN DUCTWORK WITH EXISTING STRUCTURAL JOISTS. SEE STRUCTURAL DRAWINGS.

7.112 CONTRACTOR TO INSTALL NEW DUCTWORK SAME AS PREVIOUS DOWN TO 18" ABOVE FLOOR. DUCTWORK TO BE OPENENDED.

7.113 CONTRACTOR TO INSTALL DUCTWORK AS CLOSE TO BOTTOM OF STRUCTURE AS POSSIBLE BUT NO LOWER THEN 13'-0" AFF TO BOTTOM OF DUCTWORK.

7.116 CONTRACTOR TO SUPPLY, INSTALL AND RECONNECT NEW EXHAUST FUME EXTRACTION DUCTWORK RUN AT THIS LOCATION AND AT THE SAME ELEVATION, SIZE AND CONFIGURATION AS PREVIOUSLY DEMOED.

8.110 CONTRACTOR TO INSTALL PIPING AS HIGH AS POSSIBLE BUT NO LOWER THEN 13'-0" AFF.



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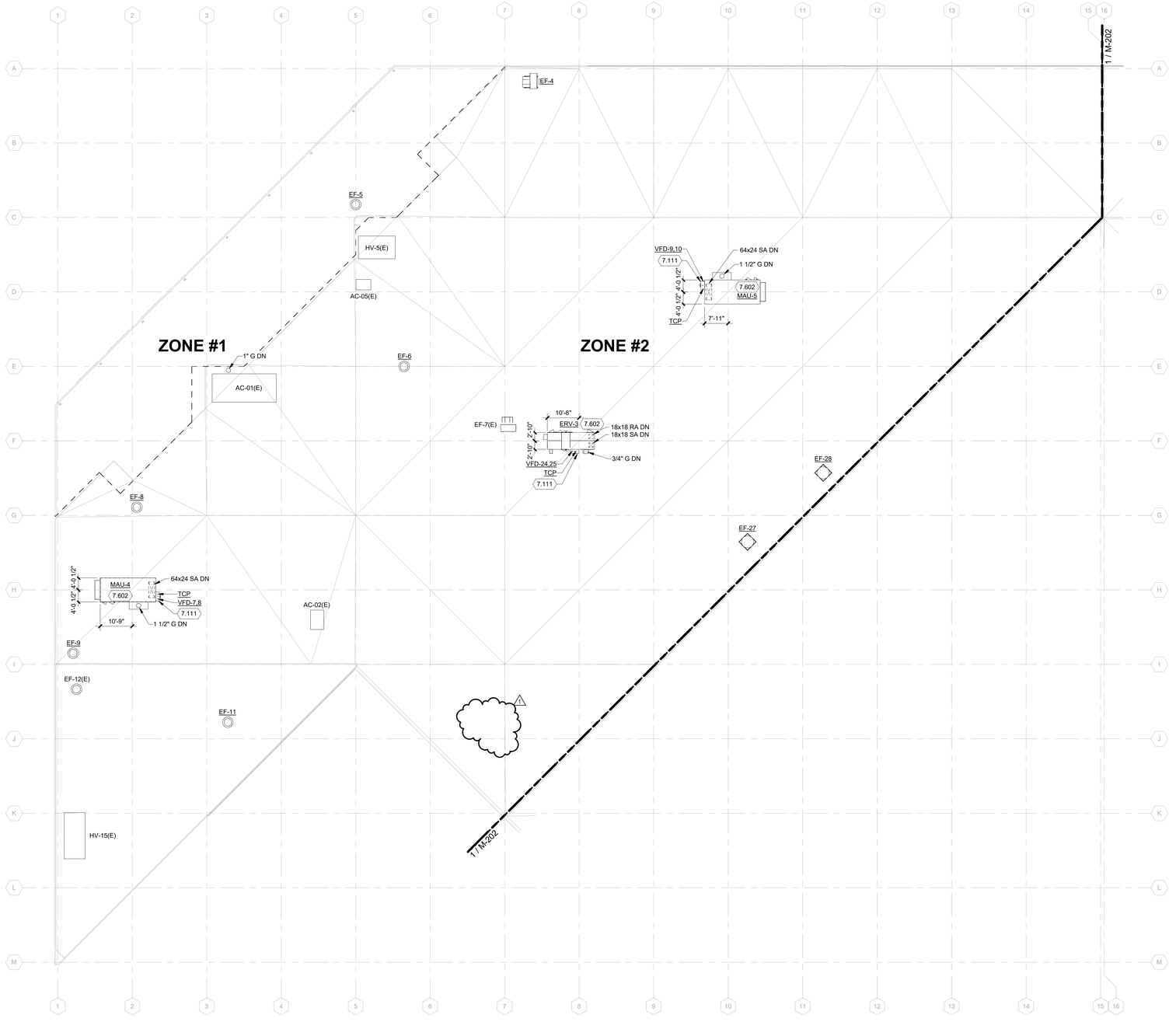
SHEET CONTENTS
FIRST FLOOR MECHANICAL PLAN - ZONES 1 & 2

SHEET NO.:
M-101



TRUE NORTH PLAN NORTH

1 ROOF MECHANICAL PLAN - ZONES 1 & 2

1/16" = 1'-0"

GENERAL HVAC NOTES:

1. PROVIDE MANUAL BALANCE DAMPER AT EACH DIFFUSER, GRILLE, AND BRANCH TAKE-OFF IN ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK EXCEPT KITCHEN GREASE EXHAUST DUCT. LOCATE BALANCE DAMPER AS CLOSE TO BRANCH TAKE-OFF AS POSSIBLE.
2. DUCT SIZE TO DIFFUSERS, REGISTERS, AND GRILLES SHALL BE SAME AS NECK SIZE UNLESS NOTED OR DETAILED OTHERWISE.
3. COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH EXISTING CEILING PLAN.

GENERAL PIPING NOTES:

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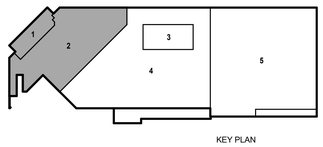
4. INSTALL PIPING FREE OF SAGS AND BENDS.
5. LOCATE ALL VALVES FOR EASY ACCESS. INSTALL VALVES WITH STEM UP OR HORIZONTAL.
6. INSTALL DRAIN VALVES AT ALL LOW POINTS IN PIPING SYSTEM AND ELSEWHERE AS REQUIRED FOR SYSTEM DRAINAGE. INSTALL MANUAL AIR VENTS AT ALL HIGH POINTS IN PIPING, AT HEAT-TRANSFER COILS, AND ELSEWHERE AS REQUIRED FOR SYSTEM AIR VENTING.

KEYED NOTES

7.111 CONTRACTOR TO INSTALL VARIABLE FREQUENCY DRIVES AND TEMPERATURE CONTROL PANELS INSIDE OF MANUFACTURER'S ELECTRICAL ENCLOSURE CABINET PROVIDED BY MAU AND ERV EQUIPMENT IN SPECIFICATION 23 74 23.16.

7.602 CONTRACTOR TO LOCATE MECHANICAL EQUIPMENT, SHOWN ON ROOF, ACCORDING TO DIMENSIONS SHOWN.



KEY PLAN

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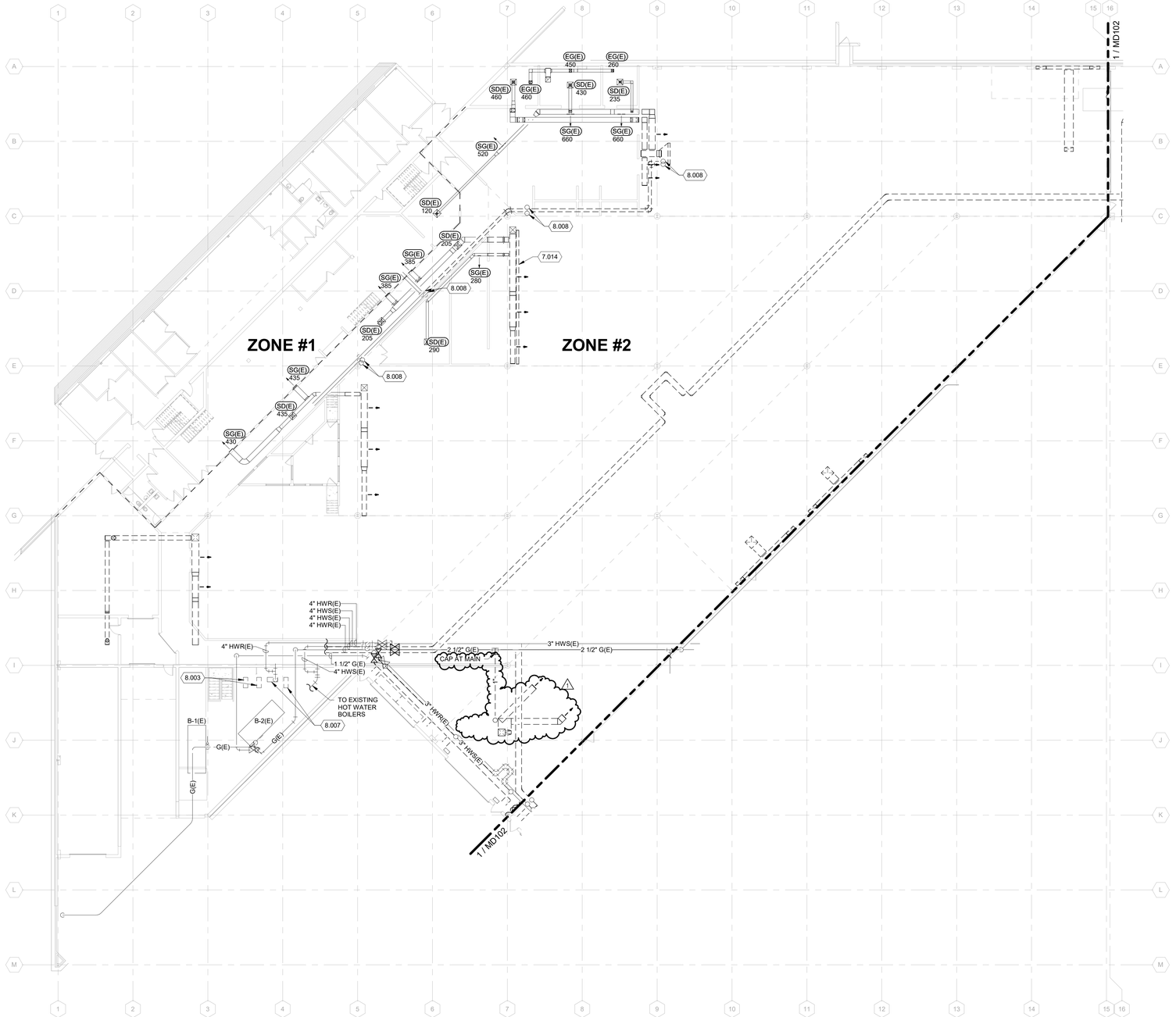
SHEET CONTENTS
ROOF MECHANICAL PLAN - ZONES 1 & 2

SHEET NO.:

M-201



TRUE NORTH PLAN NORTH

1 FIRST FLOOR MECHANICAL DEMOLITION PLAN - ZONES 1 & 2

1/16" = 1'-0"

GENERAL HVAC DEMOLITION NOTES:

1. COMPLETELY DEMOLISH ALL EXISTING DUCTWORK AS SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED ACCESSORIES, INSULATION, HANGER SUPPORTS, ETC. FOR REMAINING DUCT SYSTEM. PLUG OR CAP ALL OPENINGS CREATED BY DUCT DEMOLITION. TEST DUCTWORK AS SPECIFIED, AND INSULATE OR PAINT SAME AS NEW WORK. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
2. COMPLETELY DEMOLISH ALL EXISTING EQUIPMENT AS SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED ACCESSORIES, INSULATION, HANGERS, SUPPORTS, BASES, CONTROLS, ETC. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
3. DELIVER INDICATED EQUIPMENT TO OWNER'S DESIGNATED STORAGE SPACE ON SITE. PLUG OR CAP ALL EQUIPMENT OPENINGS TO PREVENT DIRT AND MOISTURE FROM ENTERING EQUIPMENT.
4. REINSTALL INDICATED EQUIPMENT, SAME AS NEW WORK, IN NEW LOCATION WHERE INDICATED. COMPLETELY CLEAN AND RESTORE EQUIPMENT TO GOOD OPERATING CONDITION.
5. INSTALL TEMPORARY COVERS OVER EXISTING EXTERIOR ENVELOPE OPENINGS CREATED BY REMOVED EQUIPMENT/DUCT. COVER SHALL BE WATERTIGHT, AND MEET OSHA AND OWNER REQUIREMENTS. COMPLETELY REMOVE TEMPORARY COVER WHEN OPENINGS ARE PATCHED TO FINAL CONDITION. REPAIR ANY DAMAGE TO EXISTING BUILDING COMPONENTS CAUSED BY TEMPORARY COVER.
6. WHERE BRANCH DUCTWORK IS SHOWN TO BE DEMOLISHED BACK TO THE MAIN DUCT AND THE EXISTING MAIN DUCT OPENING IS NOT TO BE RE-USED, CAP AND SEAL THE MAIN DUCT BRANCH OPENING AIRTIGHT.

GENERAL PIPING DEMOLITION NOTES:

1. COMPLETELY DEMOLISH ALL INDICATED EXISTING PIPING SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED PIPING, VALVES, INSULATION, HANGERS, SUPPORTS, ETC. FOR REMAINING PIPING SYSTEMS. PLUG OR CAP ALL OPENINGS CREATED BY PIPING DEMOLITION. TEST PIPING SYSTEMS AS SPECIFIED, AND INSULATE OR PAINT SAME AS NEW WORK. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
2. COMPLETELY DEMOLISH ALL EXISTING EQUIPMENT SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED PIPING, VALVES, INSULATION, HANGERS, SUPPORTS, BASES, CONTROLS, ETC. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
3. DELIVER INDICATED EQUIPMENT TO OWNER'S DESIGNATED STORAGE SPACE ON SITE. PLUG OR CAP ALL EQUIPMENT OPENINGS TO PREVENT DIRT AND MOISTURE FROM ENTERING EQUIPMENT.
4. WHERE PIPES ARE REMOVED AND NOT RE-CONNECTED, REMOVE PIPE BACK TO NEXT BRANCH THAT IS TO REMAIN. INSTALL CAPS OR PLUGS ON OPENINGS. PRIME, PAINT, AND INSULATE DISTURBED PIPE SAME AS SPECIFIED FOR NEW WORK.
5. REINSTALL INDICATED EQUIPMENT, SAME AS NEW WORK, IN NEW LOCATION WHERE INDICATED. COMPLETELY CLEAN AND RESTORE EQUIPMENT TO GOOD OPERATING CONDITION.
6. ABANDON IN PLACE UNDERGROUND PIPES SHOWN ON DRAWINGS AS PHANTOM.
7. WHERE PIPES ARE ROUTED INSIDE CMU WALLS, PIPE MAY BE ABANDONED PIPE IN PLACE. REMOVE PIPE TO 1" INSIDE WALL AT BOTH ENDS.
8. WHERE PIPES PASS THROUGH FLOOR SLABS, SAW-CUT SLAB AND REMOVE CONCRETE TO MINIMUM EXTENT NECESSARY TO GAIN ACCESS BELOW SLAB. REMOVE PIPE DOWN TO HORIZONTAL PIPING BELOW FLOOR. SEAL AND CAP ABANDONED PIPE ENDS.
9. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL TRADES. PATCH EXISTING ROOFS, WALLS, AND FLOORS DISTURBED BY DEMOLITION. RESTORE TO MATCH CONDITION OF ORIGINAL SURROUNDING SURFACES.

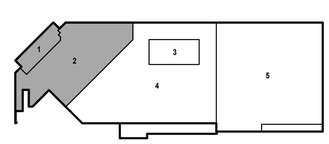
KEYED NOTES

7.014 CONTRACTOR SHALL RELOCATE EXISTING EXHAUST FUME EXTRACTION DUCTWORK RUNNING NORTH/SOUTH AS INDICATED ON SHEET M-101.

8.003 CONTRACTOR TO DEMO EXISTING HOT WATER PUMP AND ASSOCIATED VALVES AND ACCESSORIES AND REMOVE ELEVATED PORTION OF HOUSEKEEPING PAD WITHOUT DAMAGING PRECAST PLANK BELOW. PATCH REMAINING PAD LOCATION WITH CONCRETE TOPPING OR CONCRETE PATCHING MIX.

8.007 CONTRACTOR TO DEMO EXISTING HOT WATER PUMP ONLY AND PREPARE PAD FOR NEW PUMP INSTALLATION IN SAME PLACE.

8.008 CONTRACTOR TO DEMO EXISTING HYDRONIC PIPING AS INDICATED AND CAP AT MAIN OR AS SHOWN.



KEY PLAN

Mead & Hunt
Mead & Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
phone: 608-273-6380
meadhunt.com

metro transit

CITY OF MADISON WISCONSIN

CITY OF MADISON METRO TRANSIT PHASE 2 - HVAC REPLACEMENT

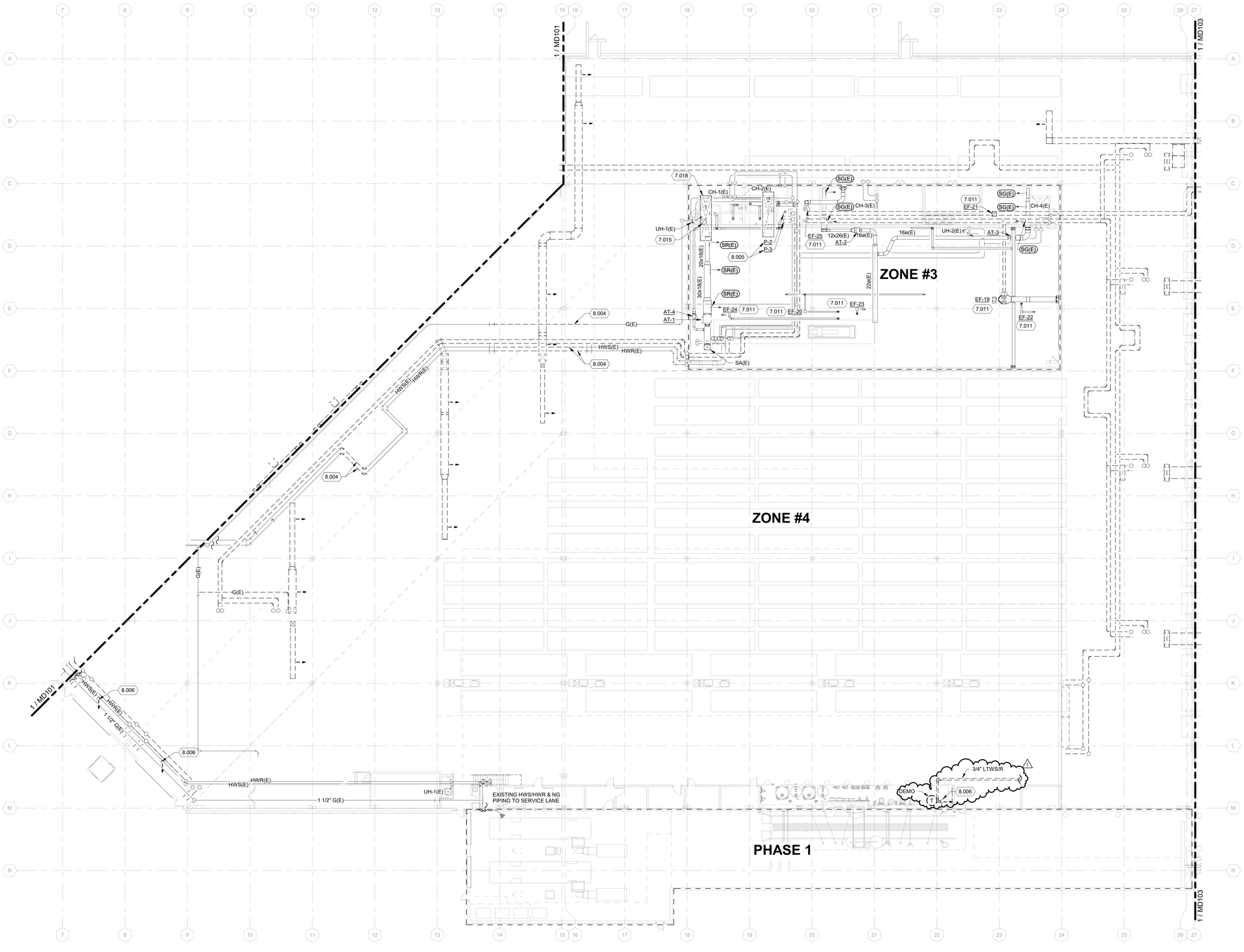
1101 EAST WASHINGTON AVE.
MADISON, WI 53703

ISSUED
11/07/19 BID SET
1 12/06/19 ADD-1

CONTRACT NO.: 8462
M&H NO.: 4503500-170148.07
DATE: November 7, 2019
DESIGNED BY: DJG
DRAWN BY: RRW
CHECKED BY: KML
DO NOT SCALE DRAWINGS

SHEET CONTENTS
FIRST FLOOR MECHANICAL DEMOLITION PLAN - ZONES 1 & 2

SHEET NO.:
MD101



TRUE NORTH PLAN NORTH

1 FIRST FLOOR MECHANICAL DEMOLITION PLAN - ZONES 3 & 4

1/16" = 1'-0"

GENERAL HVAC DEMOLITION NOTES:

1. COMPLETELY DEMOLISH ALL EXISTING DUCTWORK AS SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED ACCESSORIES, INSULATION, HANGER SUPPORTS, ETC. FOR REMAINING DUCT SYSTEM. PLUG OR CAP ALL OPENINGS CREATED BY DUCT DEMOLITION. TEST DUCTWORK AS SPECIFIED, AND INSULATE OR PAINT SAME AS NEW WORK. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
2. COMPLETELY DEMOLISH ALL EXISTING EQUIPMENT AS SHOWN WITH BOLD DASHED LINES, INCLUDING ALL ABANDONED AND UNUSED ACCESSORIES, INSULATION, HANGERS, SUPPORTS, BASES, CONTROLS, ETC. PATCH EXISTING WALLS, ROOFS, CEILINGS, AND FLOORS DISTURBED BY DEMOLITION TO ORIGINAL CONDITION.
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4. REINSTALL INDICATED EQUIPMENT, SAME AS NEW WORK, IN NEW LOCATION WHERE INDICATED. COMPLETELY CLEAN AND RESTORE EQUIPMENT TO GOOD OPERATING CONDITION.
5. INSTALL TEMPORARY COVERS OVER EXISTING EXTERIOR ENVELOPE OPENINGS CREATED BY REMOVED EQUIPMENT/DUCT. COVER SHALL BE WATERTIGHT, AND MEET OSHA AND OWNER REQUIREMENTS. COMPLETELY REMOVE TEMPORARY COVER WHEN OPENINGS ARE PATCHED TO FINAL CONDITION. REPAIR ANY DAMAGE TO EXISTING BUILDING COMPONENTS CAUSED BY TEMPORARY COVER.
6. WHERE BRANCH DUCTWORK IS SHOWN TO BE DEMOLISHED BACK TO THE MAIN DUCT AND THE EXISTING MAIN DUCT OPENING IS NOT TO BE RE-USED, CAP AND SEAL THE MAIN DUCT BRANCH OPENING AIRTIGHT.

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KEYED NOTES

7.011 REMOVE EXISTING EXHAUST FAN AND REPLACE WITH NEW AS SCHEDULED.

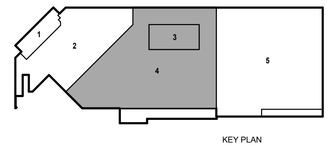
7.015 CONTRACTOR SHALL DEMO EXISTING DUCTWORK UP THROUGH ROOF BACK TO POINT OF NEW CONNECTION INDICATED ON SHEET M-102.

7.018 CONTRACTOR SHALL REMOVE EXISTING BLANK-OFF PANEL FROM IH-5 DUCTWORK.

8.004 CONTRACTOR TO TEMPORARY REMOVE THIS PORTION OF EXISTING PIPING AS INDICATED TO ALLOW FOR INSTALLATION OF NEW STRUCTURAL STEEL OR DUCTWORK.

8.005 CONTRACTOR TO DEMO EXISTING HOT WATER PUMP AND ASSOCIATED VALVES AND ACCESSORIES LOCATED ON MEZZANINE LEVEL.

8.006 CONTRACTOR TO DEMO EXISTING HOT WATER PIPING, VALVES AND ACCESSORIES ASSOCIATED WITH UNIT HEATER. CONTRACTOR SHALL SALVAGE EXISTING UNIT HEATER AND DELIVER TO OWNER. CONTRACTOR SHALL DEMO ALL ASSOCIATED WIRING BACK TO SOURCE.



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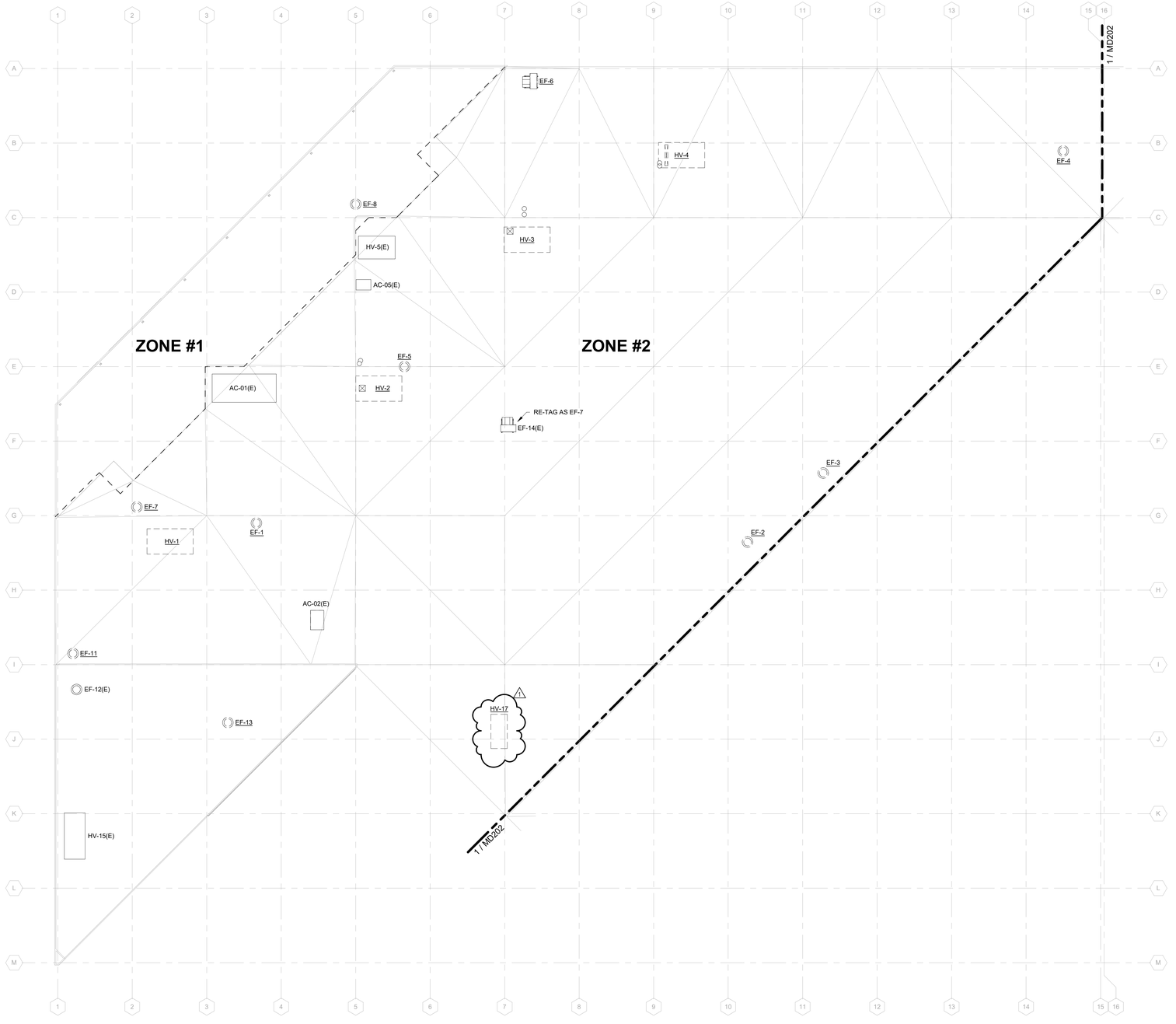
SHEET CONTENTS
FIRST FLOOR MECHANICAL DEMOLITION PLAN - ZONES 3 & 4

SHEET NO.:
MD102



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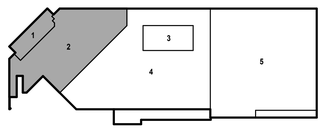
TRUE NORTH PLAN NORTH

1 ROOF MECHANICAL DEMOLITION PLAN - ZONES 1 & 2

1/16" = 1'-0"



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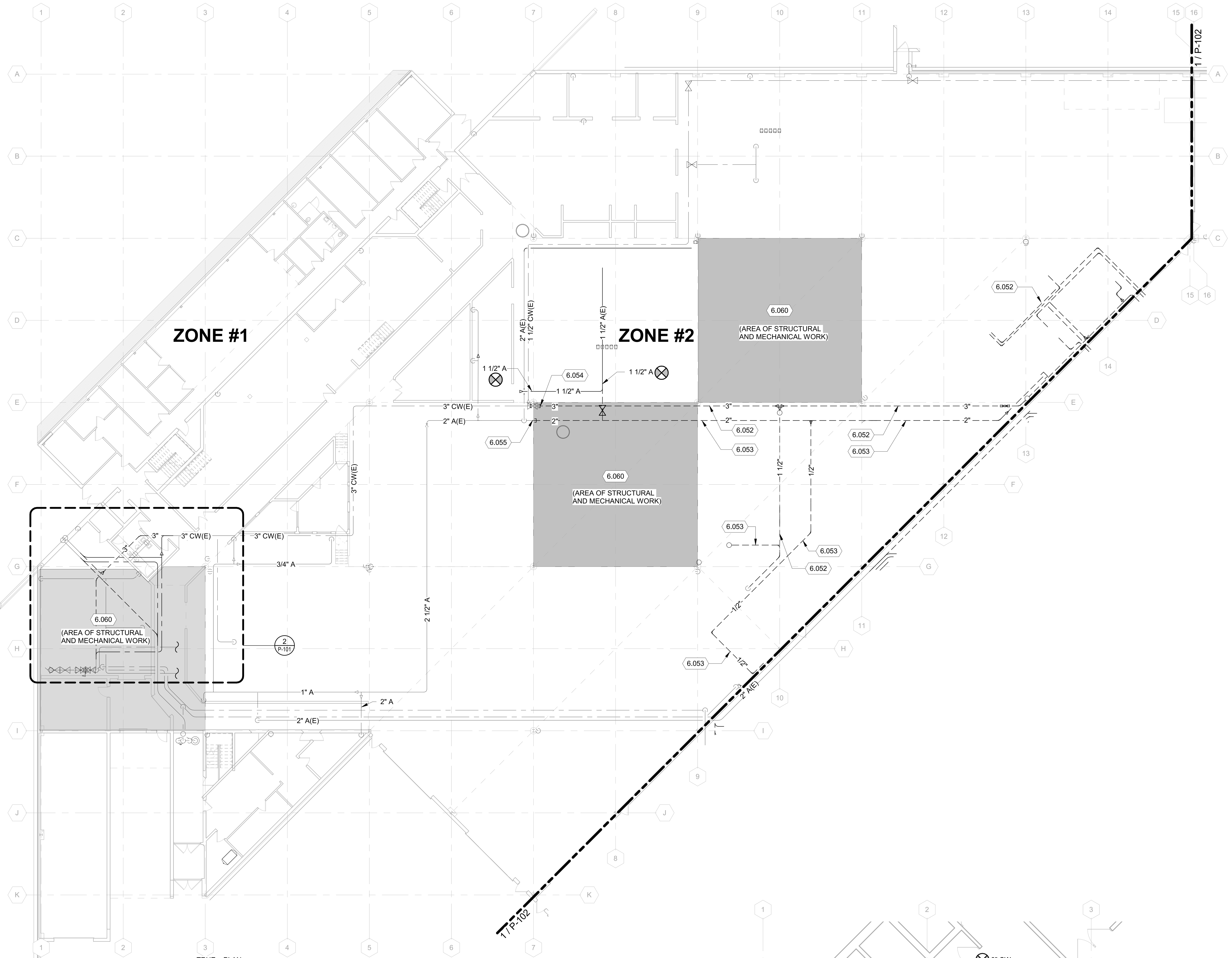
SHEET CONTENTS
ROOF MECHANICAL DEMOLITION PLAN - ZONES 1 & 2

SHEET NO.:
MD201

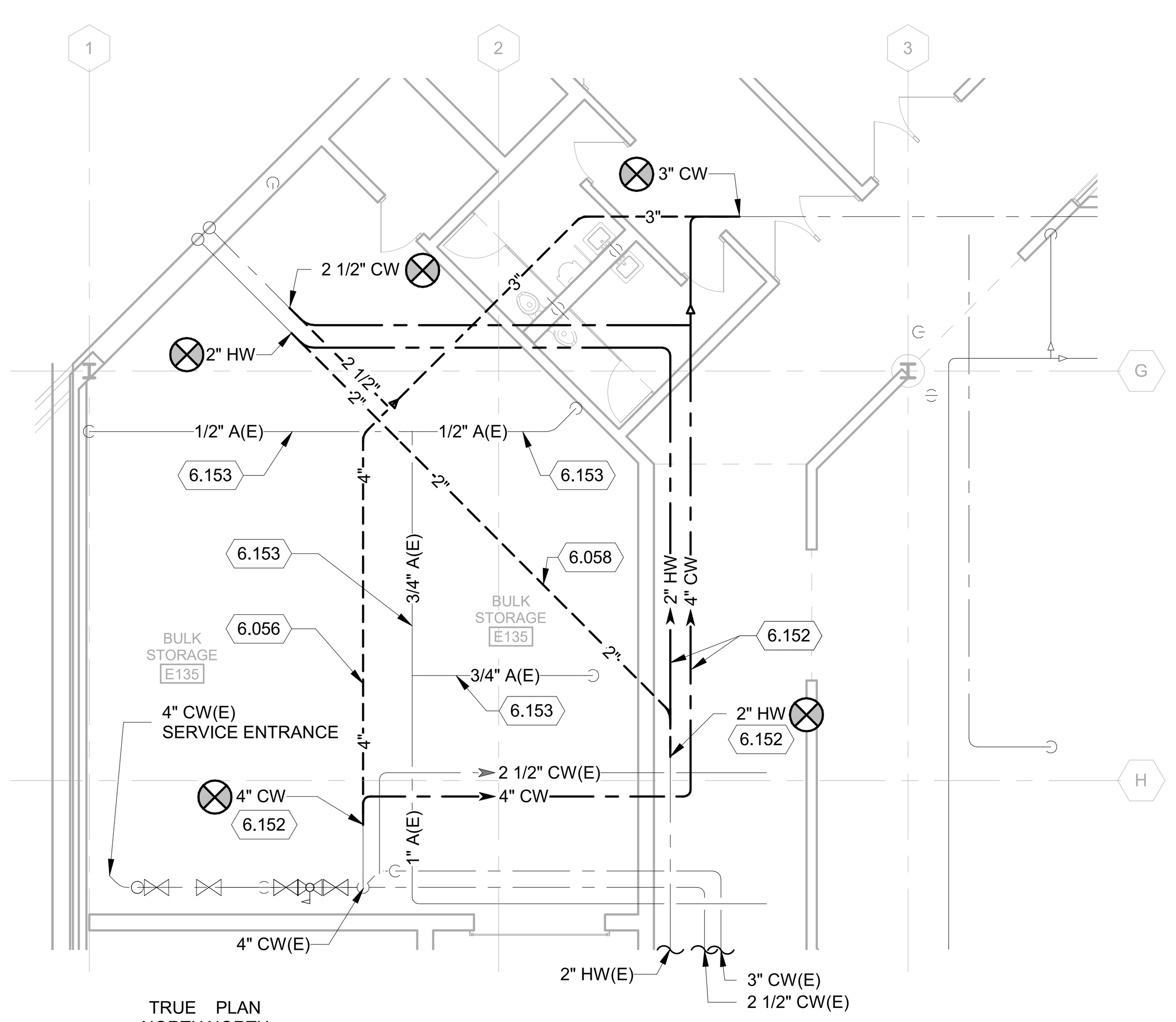
A	AMPS
ABI	ALTERNATE BID ITEM
AFF	ABOVE FINISHED FLOOR
AGD	ABOVE GROUND
AHJ	AUTHORITY HAVING JURISDICTION
ALUM	ALUMINUM
APPROX	APROXIMATELY
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASL	ABOVE SEA LEVEL
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASSE	AMERICAN SOCIETY OF SANITARY ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESSTING AND MATERIALS
BLDG	BUILDING
BPD	BACKFLOW PREVENTION DEVICE
BR	BRAZE
BRS	BRASS
BRZ	BRONZE
BS	BLACK (MILD) STEEL
BTU	BRITISH THERMAL UNIT
BW	BUTT WELD
BZ	BRONZE
CI	CAST IRON
CISPI	CAST IRON SOIL PIPE INSTITUTE
CL	CENTERLINE
COMP	COMPRESSOR
CRA	CONCRETE REACTION ANCHOR
CS	CARBON STEEL
CU	COPPER OR CUBIC
DBA	DECIBELS, BAND A
DCVA	DOUBLE CHECK VALVE ASSEMBLY BPD
DEG	DEGREE
DEMO	DEMOLISH OR DEMOLITION
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DISCH	DISCHARGE
DN	DOWN
DWG	DRAWING
DWV	DRAIN, WASTE AND VENT
E	EXISTING
EEW	EMERGENCY EYE/FACE WASH
EFF	EFFICIENCY
EL	ELEVATION
ELEC	ELECTRIC
EQPT	EQUIPMENT
ESEW	EMERGENCY SHOWER/EYE WASH
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
F	FAHRENHEIT
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FLOW	FLOW OR FLOWRATE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FPM	FEET PER MINUTE
FS	FLOOR SINK
FT	FEET
GAL	GALLON OR GAUGE
GBS	GASKETED BELL AND SPIGOT
GPM	GALLONS PER MINUTE
GR	GROOVED
GS	GALVANIZED STEEL
H	HEIGHT
HC	HOSE CONNECTION
HP	HORSE POWER
HZ	HERTZ
IAW	IN ACCORDANCE WITH
IBNLT	INCLUDED BUT NOT LIMITED TO
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
IPC	INTERNATIONAL PLUMBING CODE
L	LENGTH OR LAVATORY
LB	POUNDS
LCO	LINE CLEAN OUT
LIN	LINEAR
LPG	LIQUIFIED PETROLEUM GAS
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MIN	MINIMUM
MMBH	MILLION BTU PER HOUR
MOCP	MINIMUM OVER CURRENT PROTECTION
MTL	MATERIAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NG	NATURAL GAS
NH	NO-HUB
NHC	NO-HUB COUPLING
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
P	PRESSURE
PD	PRESSURE DROP/DIFFERENTIAL
PE	POLYETHYLENE
PH	PHASE
PL	PLACES
PP	POLYPROPYLENE
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSID	PSI DIFFERENTIAL
PSIG	PSI GAGE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RCP	REINFORCED CONCRETE PIPE
REF	REFERENCE
RPM	REVOLUTIONS PER MINUTE
SAN-FM	SANITARY FORCE MAIN
SCH	SCHEDULE
SCO	STACK CLEANOUT
SD	SOLDER
SDR	STANDARD DIMENSION RATIO
SH	SHOWER
SHT	SHEET
SMLS	SEAMLESS
SP	STATIC PRESSURE
SPEC	SPECIFICATIONS
SQ	SQUARE
SRV	SAFETY RELIEF VALVE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
SV	SOLVENT WELD
SW	SOCKET WELD
TDH	TOTAL DEVELOPED HEAD
TDS	TOTAL DISSOLVED SOLIDS
TEMP	TEMPERATURE
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TYP	TYPICAL
UGD	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
V	VOLTS OR VENT
VLV	VALVE
VTR	VENT THROUGH ROOF
W	WATTS OR WIDTH
WC	WATER CLOSET
WCO	WALL CLEANOUT
YCO	YARD CLEANOUT

PIPING SYMBOLS

- PIPE TURNED TOWARD
- PIPE TURNED AWAY
- PIPE TURNED AWAY
- PIPE TURNED TOWARD
- FLEXIBLE CONNECTOR
- UNION
- FLANGES
- REDUCER (CONCENTRIC)
- REDUCER (ECCENTRIC)
- PIPE CAP
- PIPE PLUG
- FLUID FLOW DIRECTION
- PG — PIPE GUIDE
- PA — PIPE ANCHOR
- PITCH — PIPE PITCH DIRECTION
- NEW CONNECTION TO EXISTING
- EXISTING TO REMAIN
- EXISTING TO BE REMOVED
- NEW TO BE INSTALLED
- PRESSURE GAUGE
- TEMPERATURE GAUGE
- WATER HAMMER ARRESTOR
- AV — AIR VENT (AUTO)
- MV — AIR VENT (MANUAL)
- AUTOMATIC CONTROL VALVE (2-WAY)
- AUTOMATIC CONTROL VALVE (3-WAY)
- BALL VALVE
- BALANCING VALVE
- BUTTERFLY VALVE
- BACKFLOW PREVENTION VALVE
- CHECK VALVE
- FILTER
- FLOW MEASUREMENT STATION
- GATE VALVE
- GAUGE CONNECTION
- GLOBE ANGLE VALVE
- GLOBE VALVE
- ISOLATION/SHUT-OFF/ MANUAL VALVE
- PLUG VALVE
- PRESSURE REDUCING VALVE
- PRESSURE REGULATING VALVE
- RELIEF VALVE
- SOLENOID VALVE ONE-WAY (ELECTRIC)
- STRAINER
- THROTTLING VALVE
- VACUUM BREAKER
- FS — FLOW SENSOR
- LS — LEVEL SENSOR
- PS — PRESSURE SENSOR
- TS — TEMPERATURE SENSOR



TRUE NORTH PLAN NORTH 1 FIRST FLOOR PLUMBING PLAN - ZONES 1 & 2
1/16" = 1'-0"



TRUE NORTH PLAN NORTH 2 ENLARGED PLUMBING PLAN
1/8" = 1'-0"

PLUMBING GENERAL NOTES

1. ABBREVIATIONS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL ABBREVIATIONS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.
2. THESE DRAWINGS ARE DESIGN DRAWINGS AND ARE DIAGRAMMATIC, THEY MAY NOT SHOW ALL PHYSICAL ARRANGEMENTS, OFFSETS, BENDS, OR ELBOWS WHICH MAY BE REQUIRED FOR PROPER INSTALLATION OF VARIOUS MATERIALS, EQUIPMENT, AND PIPING SYSTEMS IN ALLOTTED SPACES. EXAMINE THESE AND OTHER AVAILABLE DRAWINGS TO DETERMINE SPACE LIMITATIONS AND INTERFERENCES. MAKE ANY MINOR CHANGES IN LOCATIONS OF EQUIPMENT, AND PIPING FROM THAT SHOWN ON DRAWINGS AND FOR ALL PHYSICAL DETAILS REQUIRED FOR INSTALLATION. COST FOR ADAPTING WORK TO JOB SITE CONDITIONS SHALL NOT BE CONSIDERED AS BASIS OF AN EXTRA COST TO CONTRACT.
3. ELEVATION OF PIPING INDICATED ON THESE DRAWINGS ARE TO BE USED AS GUIDELINES TO ASSIST WITH INSTALLATIONS. MINOR CHANGES TO THESE ELEVATIONS MAY BE NECESSARY TO ELIMINATE UNFORESEEN INTERFERENCES. ANY CHANGE IN ELEVATION SHALL BE APPROVED PRIOR TO CHANGE.
4. ANY AND ALL INFORMATION SHOWN ON THESE DRAWINGS WITH RESPECT TO EXISTING STRUCTURES, UTILITIES, AND MECHANICAL SYSTEMS, IS AS EXACT AS COULD BE SECURED. THE INFORMATION IS NOT WARRANTED NOR GUARANTEED ACCURATE, FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH WORK.
5. DO NOT SCALE DRAWINGS. USE GIVEN DIMENSIONS. CONTRCTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT THE PROJECT SITE PRIOR TO THE START OF CONSTRUCTION. WHERE SPECIFIC DEMENSIONS, DETAILS OR DESIGN INTENT CANNOT BE DETERMIND, CONSULT COR BEFORE PROCEEDING WITH THE WORK.
6. SEQUENCE OF WORK AND/OR PLACE OF COMMENCEMENT OF WORK SHALL BE APPROVED PRIOR TO WORK BEING STARTED. SCHEDULED SHUTDOWNS SHALL BE CLOSELY COORDINATED WITH OWNER & EXISTING OPERATIONS.
7. ACCURATE AND LEGIBLE RECORD (AS-BUILT) DRAWINGS SHALL BE MAINTAINED AT THE JOB SITE, AND BE SUBMITTED PRIOR TO FINAL PAYMENT.
8. VERIFY ALL EQUIPMENT LOCATIONS AND PIPE ROUTING WITH OWNER PRIOR TO INSTALLATION.
9. ALL SPRINKLER IN ACOUSTICAL CELINGS SHALL BE LOCATED IN THE CENTER OF CEILING TILE.
10. PROVIDE CONCEALED SPRINKLER HEADS IN ALL FINISHED AREAS.
11. COORDINATE WITH ARCHITECTURAL PLANS FOR CEILINGS TYPES AND HEIGHTS.
12. VISIT THE BUILDING SITE & BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS AFFECTING WORK.
13. NOMINAL FINISHED FLOOR ELEVATION = 100.0 FT. UNLESS OTHERWISE NOTED.
14. GENERAL NOTES APPLY UNLESS NOTED OTHERWISE
15. CONTRACTOR SHALL FOLLOW SYSTEM IMPAIRMENT REQUIREMENTS PER NFPA.
16. QUALIFIED CONTRACTORS SHALL INSTALL BOTH FIRE SUPPRESSION AND FIRE DETECTION AS AN ALL INCLUSIVE SYSTEM.
17. THE ZONE LABELS OF #1 THRU #5 DEPICT AREAS OF WORK ACTIVITIES THAT RELATE TO THIS SPECIFIC PROJECT. THEY DO NOT RELATE TO ANY NUMBERING OF EXISTING FIRE ZONES, HVAC ZONING OR ZONING OF ELECTRICAL OR TECHNOLOGY SYSTEMS.

PLUMBING DEMOLITION NOTES

1. PIPING AND EQUIPMENT TO BE DEMOLISHED IS SHOWN DRAWN ON PLANS WITH BOLD AND DASHED LINES.
2. WHERE PIPES ARE REMOVED, ALSO REMOVE ALL VALVES, INSULATION, HANGERS, SUPPORTS, AND OTHER ASSOCIATED COMPONENTS.
3. WHERE FIXTURES AND EQUIPMENT ARE REMOVED, ALSO REMOVE ALL ASSOCIATED ROUGH-IN PIPING.
4. WHERE PIPES ARE REMOVED AND NOT RE-CONNECTED, REMOVE PIPE BACK TO NEXT BRANCH THAT IS TO REMAIN. INSTALL CAPS OR PLUGS ON OPENINGS. INSULATE AND PAINT DISTURBED PIPE SAME AS SPECIFIED FOR NEW WORK.
5. ABANDON IN PLACE UNDERGROUND PIPES SHOWN ON PLANS AS PHANTOM.
6. WHERE PIPES ARE ROUTED INSIDE CMU WALLS, PIPE MAY BE ABANDONED PIPE IN PLACE. REMOVE PIPE TO 1" INSIDE WALL ON BOTH ENDS OF PIPE. DETERMINE WHERE PIPE EMERGES FROM CMU WALL AND PIPE BACK TO NEXT BRANCH THAT IS TO REMAIN.
7. WHERE PIPES PASS THROUGH FLOOR SLABS, SAW-CUT SLAB AND REMOVE CONCRETE TO MINIMUM EXTENT NECESSARY TO GAIN ACCESS TO BELOW SLAB. REMOVE PIPE DOWN TO HORIZONTAL PIPING BELOW FLOOR.
8. PATCH EXISTING ROOFS, WALLS, AND FLOORS DISTURBED BY DEMOLITION. RESTORE TO MATCH CONDITION OF ORIGINAL SURROUNDING SURFACES PER SATISFACTION OF OWNER.

KEYED NOTES

6.052 DEMOLISH ALL COLD WATER PIPE FOR PREVIOUS BUS WASH.

6.053 DEMOLISH COMPRESSED AIR LINE FOR PREVIOUS BUS WASH.

6.054 CAP COLD WATER AT THIS LOCATION.

6.055 CAP COMPRESSED AIR AT THIS LOCATION.

6.056 DEMOLISH EXISTING COLD WATER PIPE AS NEEDED TO CONSTRUCT NEW STRUCTURAL SUPPORTS FOR NEW MECHANICAL SYSTEM.

6.058 DEMOLISH HOT WATER PIPING IN AREA OF CONSTRUCTION.

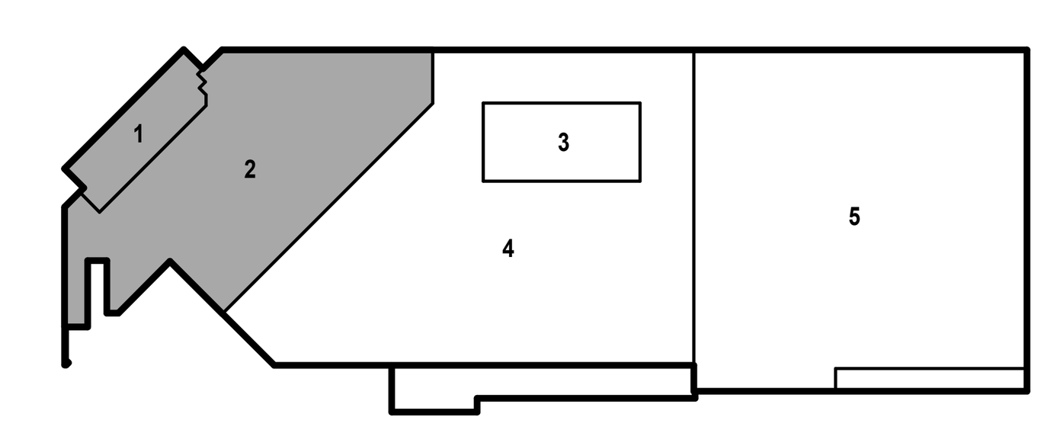
6.060 PC TO REMOVE ALL PIPING REQUIRED TO LET IN NEW STRUCTURE & EQUIPMENT. REINSTALL ONCE NEW WORK IN COMPLETE.

6.152 ROUTE WATER PIPE AROUND AREA OF CONSTRUCTION TO MAINTAIN ALL WATER SERVICES IN THE BUILDING DURING CONSTRUCTION.

6.153 DEMOLISH ALL COMPRESSED AIR PIPING WITHIN STORAGE E135. INSTALL NEW COMPRESSED AIR PIPING IN SAME LOCATION AS EXISTING UPON COMPLETION OF THE STRUCTURAL AND MECHANICAL WORK.

PLUMBING PIPING:

- A - COMPRESSOR AIR
- CW - DOMESTIC COLD WATER
- HW - DOMESTIC HOT WATER
- DEMOLISHED PIPE
- SAN-FM - SANITARY FORCE MAIN
- FOR - FUEL OIL RETURN
- FOS - FUEL OIL SUPPLY



KEY PLAN

Mead & Hunt

Mead & Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
phone: 608-273-6380
meadhunt.com

metro transit

CITY OF MADISON WISCONSIN

CITY OF MADISON
METRO TRANSIT PHASE 2 - HVAC REPLACEMENT

1101 EAST WASHINGTON AVE.
MADISON, WI 53703

ISSUED
11/07/19 BID SET
1 12/06/19 ADD-1

CONTRACT NO.: 8462
M&H NO.: 4503500-170148.07
DATE: November 7, 2019
DESIGNED BY: JET
DRAWN BY: JET
CHECKED BY: DJG
DO NOT SCALE DRAWINGS

SHEET CONTENTS:
FIRST FLOOR PLUMBING PLAN

SHEET NO.:
P-101

SECTION 22 16 10
FACILITY FUEL-OIL PIPING

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 DEFINITIONS

A. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

B. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

1.3 PERFORMANCE REQUIREMENTS

A. Maximum Operating-Pressure Ratings: 3-psig fuel-oil supply pressure at oil-fired appliances.

B. Delegated Design: Design anchors for fuel-oil piping, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, and dimensions of individual components and profiles. Also include, where applicable, rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For facility fuel-oil piping layout. Include plans, piping layout and elevations, sections, and details for fabrication of pipe anchors, hangers, supports for multiple pipes, alignment guides, expansion loops, and attachments of the same to building structure. Detail location of anchors, alignment guides, and expansion loops.

C. Delegated-Design Submittal: For fuel-oil piping and equipment indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail fabrication and assembly of anchors.
2. Detail fabrication and assembly of pipe anchors, hangers, supports for multiple pipes, and attachments of the same to building structure.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fuel-oil piping and accessories to include in emergency, operation, and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with ASME B31.9, "Building Services Piping," for fuel-oil piping materials, installation, testing, and inspecting.

C. Comply with requirements of the EPA and of state and local authorities having jurisdiction. Include recording of fuel-oil storage tanks and monitoring of tanks and piping.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

1.9 PROJECT CONDITIONS

A. Interruption of Existing Fuel-Oil Service: Do not interrupt fuel-oil service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary fuel-oil supply according to requirements indicated:

1. Notify Owner’s Project Representative no fewer than seven days in advance of proposed interruption of fuel-oil service.
2. Do not proceed with interruption of fuel-oil service without Owner's Project Representative written permission.

1.10 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

PART 2 - PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

A. See Part 3 piping schedule articles for where pipes, tubes, fittings, and joining materials are applied in various services.

B. Steel Pipe: ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.

1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.

2. Wrought-Steel Welding Fittings: ASTM A 234/A 234M, for butt and socket welding.
3. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.

2.2 JOINING MATERIALS

A. Joint Compound and Tape: Suitable for fuel oil.

2.3 FUEL OIL

A. Diesel Fuel Oil: ASTM D 975, Grade No. 2-D, general-purpose, high volatility.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for fuel-oil piping system to verify actual locations of piping connections before equipment installation.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Close equipment shutoff valves before turning off fuel oil to premises or piping section.

B. Comply with NFPA 30 and NFPA 31 requirements for prevention of accidental ignition.

3.3 INDOOR PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Arrange for pipe spaces, chases, slots, sleeves, and openings in building structure during progress of construction, to allow for mechanical installations.

C. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping free of sags and bends.

G. Install fittings for changes in direction and branch connections.

H. Verify final equipment locations for roughing-in.

I. Comply with requirements for equipment specifications in plumbing and HVAC Sections for roughing-in requirements.

J. Conceal pipe installations in walls, pipe spaces, or utility spaces; above ceilings unless indicated to be exposed to view.

K. Prohibited Locations:

1. Do not install fuel-oil piping in or through circulating air ducts or ventilating ducts.
2. Do not install fuel-oil piping in solid walls or partitions.

L. Use eccentric reducer fittings to make reductions in pipe sizes. Install fittings with level side down.

M. Connect branch piping from top or side of horizontal piping.

N. Install unions in pipes NPS 2 and smaller at final connection to each piece of equipment and elsewhere as indicated.

O. Do not use fuel-oil piping as grounding electrode.

P. Install escutcheons for piping penetrations of walls, ceilings, and floors.

Q. Provide additional intermediate supports as required so deflection of piping does not exceed 1/240 of span.

R. Support spacings listed above are minimum requirements. Contractor shall provide additional supports as required by codes or authority having jurisdiction at no additional cost to contract.

3.4 PIPING JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

3.5 HANGER AND SUPPORT INSTALLATION

A. Pipe hanger and support and equipment support materials and installation requirements are specified in Section 230529 "Hangers and Supports for HVAC Piping and Equipment."

B. Install hangers for horizontal steel piping with the following maximum spacing and minimum rod sizes:

1. NPS 1-1/4 and Smaller: Maximum span, 84 inches; minimum rod size, 3/8 inch.
2. NPS 1-1/2: Maximum span, 108 inches; minimum rod size, 3/8 inch.
3. NPS 2: Maximum span, 10 feet; minimum rod size, 3/8 inch.

C. Support vertical steel pipe at spacing not greater than 15 feet.

D. Provide additional intermediate supports as required so deflection of piping does not exceed 1/240 of span.

E. Support spacings listed above are minimum requirements. Contractor shall provide additional supports as required by codes or authority having jurisdiction at no additional cost to contract.

3.6 FIELD PAINTING OF ABOVEGROUND PIPING

A. Comply with requirements in Division 09 for painting interior and exterior fuel-oil piping.

B. Paint exposed, interior metal piping, valves, and piping specialties, except components with factory-applied paint or protective coating.

1. Latex Over Alkyd Primer System: MPI INT 5.1Q.

    a. Prime Coat: Quick-drying alkyd metal primer.
    b. Topcoat: Interior latex flat.
    c. Color: Gray.

C. Damage and Touchup: Repair marred and damaged factory-applied finishes with materials and by procedures to match original factory finish.

3.7 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:

1. Piping: Minimum hydrostatic or pneumatic test-pressures measured at highest point in system:

    a. Fuel-Oil Distribution Piping: Minimum 5 psig > for minimum 30 minutes.

b. Suction Piping: Minimum 20-in. Hg for minimum 30 minutes.
c. Isolate existing storage tanks if test pressure in piping will cause pressure in existing generator storage tank to exceed 10 psig.

2. Inspect and test fuel-oil piping according to NFPA 31, "Tests of Piping" Paragraph; and according to requirements of authorities having jurisdiction.
3. Test leak-detection and monitoring system for accuracy by manually operating sensors and checking against alarm panel indication.
4. Start existing fuel-oil transfer pumps to verify for proper operation of pump and check for leaks.
5. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
6. Bleed air from fuel-oil piping using manual air vents.

C. Fuel-oil piping and equipment will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.8 INDOOR PIPING SCHEDULE

A. Aboveground fuel-oil piping shall be the following:

1. NPS 2 and Smaller: Steel pipe, steel or malleable-iron threaded fittings, and threaded joints.

END OF SECTION 22 16 10

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For indirect-fired makeup-air units to include in emergency, operation, and maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: One (1) set for each unit.

1.6 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

C. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

D. All materials shall meet NFPA 90A flame spread and smoke generation requirements.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of indirect-fired heating and ventilating units that fail in materials or workmanship within specified warranty period.

B. Warranty Period for Indirect Gas-Fired Heat Exchangers: Manufacturer's standard, but not less than five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: The design is based on the following:

1. Venmar CES EnergyPack – Nortek Air Solution.

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include for the following:

1. Addison
2. Airflow Equipment Inc.
3. AnnexAir
4. Innovent Air Handling Equipment.
5. Haakon Industries
6. Ingenia, Custom Air Handling Solutions
7. MarCraft.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: One set for each unit.

1.6 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

C. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

D. All materials shall meet NFPA 90A flame spread and smoke generation requirements.

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A. Special Warranty: Manufacturer agrees to repair or replace components of indirect-fired heating and ventilating units that fail in materials or workmanship within specified warranty period.

B. Warranty Period for Indirect Gas-Fired Heat Exchangers: Manufacturer's standard, but not less than five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: The design is based on the following:

1. Venmar CES EnergyPack – Nortek Air Solution.

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include for the following:

1. Airflow Equipment Inc.
2. AnnexAir
3. Innovent Air Handling Equipment.
4. Haakon Industries.
5. Ingenia, Custom Air Handling Solutions
6. MarCraft
7. Ventrol – Nortek Air Solution.
8. Xetex, Inc.

2.2 SYSTEM DESCRIPTION

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: One set for each unit.

1.6 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

C. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

D. All materials shall meet NFPA 90A flame spread and smoke generation requirements.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of indirect-fired heating and ventilating units that fail in materials or workmanship within specified warranty period.

B. Warranty Period for Indirect Gas-Fired Heat Exchangers: Manufacturer's standard, but not less than five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: The design is based on the following:

1. Venmar CES EnergyPack – Nortek Air Solution.

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include for the following:

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2. AnnexAir
3. Innovent Air Handling Equipment.
4. Ingenia, Custom Air Handling Solutions
5. Haakon Industries.
6. MarCraft
7. Ventrol – Nortek Air Solution.
8. Xetex, Inc.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: One set for each unit.

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A. Comply with NFPA 70.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

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B. Warranty Period for Indirect Gas-Fired Heat Exchangers: Manufacturer's standard, but not less than five years from date of Substantial Completion.

PART 2 - PRODUCTS

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A. Basis-of-Design Product: The design is based on the following:

1. Venmar CES EnergyPack – Nortek Air Solution.

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include for the following:

1. Airflow Equipment Inc.
2. AnnexAir
3. Innovent Air Handling Equipment.
4. Haakon Industries.
5. Ingenia, Custom Air Handling Solutions
6. MarCraft
7. Ventrol – Nortek Air Solution.
8. Xetex, Inc.

Madison Metro Transit Phase 2 – HVAC Replacement
Contract # 8462
Pre Bid Building Tour #1
Tuesday, November 20, 2019, 10:00 am

ATTENDEES PLEASE SIGN-IN

NAME	COMPANY	EMAIL	PHONE
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Andy Wojnicz	SDB	ANDREWC SULLIVANDESIGNSBUILD.com	608.661.6811
Robert Kapsner	Mead + Hunt	robert.kapsner@meadhunt.com	608 273 6380
Dan Green	Mead & Hunt	DAN.GREEN@MEADHUNT.COM	608-273-6380

Madison Metro Transit Phase 2 – HVAC Replacement
Contract # 8462
Pre Bid Building Tour #2
Tuesday, December 3, 2019, 02:00 pm

ATTENDEES PLEASE SIGN-IN

NAME	COMPANY	EMAIL	PHONE
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Nick Darian	Belonger Corp	Jeanmarie.thiel@Belonger.net	262-334-9111
Marquis Harvey	CWI	[illegible]	608 347-6108
Mike McCracken	CWI	cwimike.mm@gmail.com	608-347-6119

Madison Metro Transit Phase 2 – HVAC Replacement
Contract # 8462
Pre Bid Building Tour #2
Tuesday, December 3, 2019, 02:00 pm

ATTENDEES PLEASE SIGN-IN

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Brad Hant	Automatic Fire	Brad@Automaticfiresystems.com	
Nick Krueger	Ahern	NKrueger@JFAhern.com	
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