GENERAL NOTES:

1. All scheduled numbers and amounts of material and equipment are for contractor's convenience only. Contractor shall count and measure independently for bidding and ordering purposes. All scheduled numbers, lengths and other amounts may be incorrect and owner is not liable for mismatch. 2. Notes applied to single items may apply to all like items on view.

3. UTILITY CONNECTIONS: where work indicated includes installation of utilities (Gas, Power, Water, Sewer, Phone etc.) Provide all the required work that normally is not done by the Utility. Contractor shall inquire with Utilities to learn about the Scope of the Utility's work.

SPECIAL SITE CONDITIONS:

1. Hours of operation are limited to 7 a.m. to 7 p.m. Monday through Saturday and Sunday 10 a.m. through 7 p.m. unless approved otherwise.

Contractor trailer shall be parked on the Street. Contractor shall arrange for permit and shall coordinate location with owner.
 The yard site needs to be secured at any time. Contractor may use the existing fence, or provide new fence until the actual fence and gate (part of this contract) are erected and functional.

4. Storage of equipment and material shall be coordinated with the owner. Space is limited and the building-footprint shall be used to the maxim possible degree. When storage is required outside building footprint, effort needs to be made to limit the times and to coordinate with owner. The site is an operational Public Works yard used by Engineering, Streets and Fleet to provide a variety of services. The site also provides a citizen yard waste drop off site. All existing yard operations are shall remain operational through construction.

5. Yard grading, piping, and earthwork shall be scheduled to have the least impact on yard operations. The yard shall not be left unusable for longer periods than necessary. Contractor shall coordinate with owner and shall ensure all labor and material are ready once yard work begins. 6. The existing garage and shop will be operational during construction. Contractor shall schedule any outages with owner and to minimize impact on operations. Closure of shop shall be kept to a minimum.

7. Contractor shall provide own Bathroom and Lunch Room Facilities. Contractor shall keep the facilities and building as clean as possible and limit dirt entry.

WORK PROVIDED BY OWNER (DON'T INCLUDE IN BID PRICE):

1. Balancing of HVAC (air and water flow) 2. Fire Alarm System

3. Communication Wiring for Intranet.

Landsçaping

EQUIPMENT PROVIDED BY OWNER (DON'T INCLUDE IN BID PRICE): 1. Generator and transfer switches shall be provided by owner. Don't include the cost in bid price!. Contractor is responsible for generator pad installation inc. coordination and installation of gas, electrical and control piping, wiring and conduit.

SPECIAL WARRANTIES:

1. Provide 5 year contractor warranty for membrane roof work

PROVISIONS FOR FUTURE WORK

1. A Photovoltaic (PV) System will be installed by owner at a later time. The on-roof metal structure (part of this contract) will be the support for that system. Contractor shall accommodate that future installation in layout, design and execution of that structure. Coordinate with owner. Don't include any PV installation in bid price. 2. Owner will install Communication Wiring and Fire Alarm Conduits. Install Sleeves as required for this work. Owner will provide Sleeves and Locations before Pouring of Concrete or CMU and other installation.

PERMIT REQUIREMENTS: 1. Conditional Plan Approval has been obtained by Owner.

UTILITIES: 1. TEMPORARY CONSTRUCTION SERVICES:

a) WATER: Owner will provide water from owner service in existing garage. Contractor is responsible from piping downstream of that service.

b) ELECTRICITY: Contractor will make arrangements with utility and install electrical service of necessary size. Owner will pay the utility fees for installation and consumption to utility directly (Contractor shall not include such utility fees in bid price). Contractor shall be responsible for installation downstream of utility. c) HEATING/FUEL: Contractor responsibility

2. PERMANENT SERVICES:

a) Contractor shall make arrangements with utilities for installation of services. Owner will pay utility fees for installation and connection to utility directly (Contractor shall not include such utility fees in bid price)

CONTINUITY OF SERVICE:

1. Schedule work to ensure the existing garage and shop can be used as long as possible. Coordinate with owner when services or equipment serving the existing garage and shop are disrupted or demolished.

	General Abbreviations
AFF	Above Finished Floor
EQ	Equal Distance
Est.	Estimated
JHA	Jurisdiction Having Authority
XTG	Existing

City of Madison Facilites Maintenace 1600 Emil St.



Design prepared for: Engineering Division

Engineering Operations Building Addition

Location: 1600 Emil St. Madison, WI 53713

Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015

Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Civil Design: Eric Dundee, P.E., City of Madison

Landscaping Design: Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com

Electrical Design: Dave Hanson, P.E., Kueny Architects

Plumbing Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

HVAC Design: Kay Schindel, P.E., City of

Madison; 608-266-4668; kschindel@cityofmadison.com

Structural Design: John Schmidbauer, P.E., Kueny Architects

Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Revisions by Addendum

Description Re-issued and added notes for clarification

General Project Data







EXISITING UTILITIES. DEMOLISH FLOOR UP TO REMAINING CMU WALL. STABILIZE CMU REMAINING CMU WALL AS REQUIRED.

 9
 REMOVE UTILITY METERS AND REISONALLAS REQUIRED TO TILITY

 10
 REMOVE SECTION OF EXISTING PURLIN TO INSTALL DOOR. DESIGN AND INSTALL NEW PURLIN STRUCTURE AROUND DOOR TO PROVIDE ADEQUATE SUPPORT.

 11
 KEEP CONCRETE WALL IN PLACE AND MODIFY PER ARCHTIECTURAL PLANS.

 12
 APPROXIMATE.

 13
 REMOVE COMPLETE DUCTWORK, LOUVER, FAN ETC.

 14
 KEEP LOUVER IN PLACE AND BLOCK OFF FROM INSIDE. INSULATE MAINTAINING FIRE RATING. SEAL AIRTIGHT.

 15
 DEMOLISH ALL MECHANICAL EQUIPMENT ON MEZZANINE INC. WATER HEATER

 16
 GENERAL NOTE: DEMOLISH ALL DASHED ITEMS.

 17
 XTG CMU WALL DIVIDING XTG SHOP AND XTG GARAGE TO REMAIN.

 18
 XTG SIDING AND KNEEWALL TO REMAIN UNLESS REMOVAL IS REQUIRED FOR NEW CONSTRUCTION.

 19
 OWNER WILL REMOVE ALL SHOP EQUIPMENT INCLUDING LUBE SYSTEM, COMPRESSED AIR SYSTEMS, TOOLS AND BENCHES.

 20
 REMOVE EXISTING BOLLARDS.

 21
 REMOVE XTG HOLLOWCORE PLANK AND FILL IN WITH SOLID MASONRY. ASSUME CAVITY TO BE FILLED AT LEAST 1" PAST CENTER OF WALL.

A DEMO WALL AS REQUIRED.
 DEMO WALLS INC. FOOTING AS REQUIRED FOR NEW CONSTRUCTION.
 DEMO ENTIRE LEAN-TO AND ALL ITS PARTS, FOOTING, DOORS, ETC.
 DEMO STEEL SIDING AND INSULATION FOR INSTALLATION OF NEW SIDING
 DEMO METAL SIDING AND INSULATION UP TO NEW MEZZANINE HEIGHT
 DEMO ENTIRE MEZZANINE INC. DECIVITY OF CONSTRUCTION OF THE SIDING

REMOVE UTILITY METERS AND REISNTALL AS REQUIRED BY UTILITY

DEMO DOORS AND OVERHEAD DOORS.

DEMO ENTIRE MEZZANINE INC. DECKING, SPANCRETE AND RAILING ETC.

 11
 KEEP CONCRETE WALL IN PLACE AND MUDIET FER ARCHITECTORAL FORM.

 12
 GENERAL NOTE: CONTRACTOR SHALL VERIFY XTG DIMENSIONS. VALUES GIVEN ARE APPROXIMATE.



Location: 1600 Emil St. Madison, WI 53713

Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015

Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

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HVAC Design:

Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Structural Design: John Schmidbauer, P.E. Kueny Architects

Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

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Demolition A and M



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	GR-S-GV	Guard Rail per 2012 IBC 1013.	Galvanized	3'-6"	37' Pa	aint Yellow, 4" Toeboard p	oer OSHA 1910.23		\frown								
					Rollin	g Gate Schedule						Gutter Sche	edule				
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	CIP 3 - TB CIP 3	5" Concrete on each		Skylight S	chedule]	26,748 ft ²								

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Туре	Туре		Est.	Omni Class	Omni Class
Mark	Comments	Description	Length	Number	Title
SG-SS	Snowguard	Snowguard -	857 ft	23.13.41.21	Roof Snow
	-	Standing Seam			Guards

	Gutter Schedule	
Type Mark	Description	Est. Length
GS-7x7	Aluminum Gutter, factory painted to match wall color	174'
GS-5x5	Aluminum Gutter, factory painted to match wall color	20'

			Est.				Ceiling	Exposed	
Number	Name	Est. Area	Perimeter	Room Finish Style	Floor Finish	Wall Finish	Finish	Structure	Paint Note
100	Garage West	18,430 ft ²	743'	Existing	-	-	-		no Painting Work requi
101	Storage Surveyor	309 ft ²	73'	Existing	-	-	-		no Painting Work requi
102	Electrical Room	157 ft²	51'	Existing	-	-	-		no Painting Work requi
103	Storage Landfill	292 ft ²	83'	Existing	-	-	-		no Painting Work requi
104	Garage East	18,156 ft ²	590'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Meta Panels not to be painted
105	Storage 1st Floor	544 ft²	95'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Meta Panels not to be painte
106	Facilites Shop	523 ft²	96'	Storage	Sealed Concrete	White: all areas	white	white	Factory-Finished Meta Panels not to be painted
107	Wash Shop	2,646 ft ²	234'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Meta Panels not to be painted
108	Shop Office	158 ft²	52'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Met Panels not to be painte
109	Repair Shop	3,055 ft ²	229'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Meta Panels not to be painte
201	Electrical Room	506 ft ²	103'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Meta Panels not to be painte
202	Shop Mezzanine	1,703 ft ²	208'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Meta Panels not to be painte
203	IT Closet	39 ft²	25'	Storage	Sealed Concrete	White: all areas	white	white	Factory-Finished Meta Panels not to be painte
204	Garage Mezzanine West	2,899 ft ²	536'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Meta Panels not to be painte
205	Garage Mezzanine East	2,521 ft ²	468'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Meta Panels not to be painte
206	Boiler Room 2nd Floor	566 ft²	97'	Storage in pre-finished metal building	Sealed Concrete	White: CMU and concrete only	-	white	Factory-Finished Met Panels not to be painte
207	Garage West Mezzanine	332 ft ²	73'	Existing	-	-	-		no Painting Work requi
208	Water Heater Room XTG	191 ft ²	58'	Existing	-	-	-		no Painting Work requi
209	File Storage XTG	515 ft ²	92'	Existing	-	-	-		no Painting Work requ

					Fst			
Mark	Description	Manufacturer	URL	Model	Height	Width	Post Color	Trellis Net Color
TR 01 T	Trellis for vine growth; galvanized steel w/ 4x 4 mesh	Green Screen	www.greenscreen.com	Trellis Panel	22'-0"	6'-0"	black	Black / Vine
TR 02 T	Trellis for vine growth; galvanized steel w/ 4x 4 mesh	Green Screen	www.greenscreen.com	Trellis Panel	26'-0"	6'-0"	black	Black / Vine
TR 03 T	Trellis for vine growth; galvanized steel w/ 4x 4 mesh	Green Screen	www.greenscreen.com	Trellis Panel	29'-0"	6'-0"	black	Black / Vine

				L		W	indow Scheo	lule								
		From		Frame	Frame									Fire	Safety Glass	Safety Glass
Mark	From Room	Number	Description	Width	Height	Window Type	Manufacturer	URL	Model	Total U-Value	SHGC	VT	Frame Color	Rating	Inside	Outside
E 10	Garage East	104	Gray Tint	8'-0"	2'-0"	Fiberglass Picture Window - low SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 11	Garage East	104	Gray Tint	8'-0"	2'-0"	Fiberglass Picture Window - low SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 12	Garage East	104	Gray Tint	8'-0"	2'-0"	Fiberglass Picture Window - low SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 13	Garage East	104	Gray Tint	8'-0"	2'-0"	Fiberglass Picture Window - low SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 14	Garage East	104	Gray Tint	8'-0"	2'-0"	Fiberglass Picture Window - low SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 15	Garage East	104	Gray Tint	8'-0"	2'-0"	Fiberglass Picture Window - Iow SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 20	Garage Mezzanine East	205	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - Iow SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 21	Garage Mezzanine East	205	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - Iow SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 22	Garage Mezzanine East	205	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - Iow SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 23	Garage Mezzanine East	205	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - Iow SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 24	Garage Mezzanine East	205	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - low SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 25	Garage Mezzanine East	205	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - low SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
E 26	Garage East	104	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - low SHGC	Alpen	thinkalpen.com	725L	0.14 BTU/(h·ft·°F)	0.26	0.46	Sandstone	0	No	No
l 10	Shop Office	108	Gray Tint	4'-0"	3'-8"	Steel Single Pane Clear Glass							Gray - Light	0	Yes	Yes
S 12	Garage East	104	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - high SHGC	Alpen	thinkalpen.com	725H	0.16 BTU/(h·ft·°F)	0.49	0.6	Sandstone	0	No	Yes
S 13	Garage East	104	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - high SHGC	Alpen	thinkalpen.com	725H	0.16 BTU/(h·ft·°F)	0.49	0.6	Sandstone	0	No	Yes
S 20	Garage Mezzanine West	204	Gray Tint	8'-0"	3'-0"	Fiberglass Picture Window - high SHGC	Alpen	thinkalpen.com	725H	0.16 BTU/(h·ft·°F)	0.49	0.6	Sandstone	0	No	Yes
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	Overhead Door Schedule																			
Mark	From Room	Room Number	Width	Height	Door Type	Manufacturer	URL	Model	U-Value	Fire Rating	Wet Location Rating	Frame Color	Door Color	Breakaway Height	Apparent Design Power	Poles	Voltage	Motor	OmniClass Number	OmniClass Title
OHD- 1	Garage East	104	16'-0"	14'-0"	Sectional Overhead Door - Insulated	Overhead Door	www.overheadd oor.com	Thermacore 850	0.14 BTU/(h·ft·°F)	0		white	white	4'-0"	915 VA	3	480 V	TEFC, OHD Manufacturer to size	23.17.11.17.2 5	Overhead Plastic Doors
OHD- 2	Garage East	104	16'-0"	14'-0"	Sectional Overhead Door - Insulated	Overhead Door	www.overheadd oor.com	Thermacore 850	0.14 BTU/(h·ft·°F)	0		white	white	4'-0"	915 VA	3	480 V	TEFC, OHD Manufacturer to size	23.17.11.17.2 5	Overhead Plastic Doors
OHD- 3	Repair Shop	109	14'-0"	14'-0"	Sectional Overhead Door - Insulated	Overhead Door	www.overheadd oor.com	Thermacore 850	0.14 BTU/(h·ft·°F)	0		white	white	4'-0"	915 VA	3	480 V	TEFC, OHD Manufacturer to size	23.17.11.17.2 5	Overhead Plastic Doors
OHD- 4	Repair Shop	109	14'-0"	14'-0"	Sectional Overhead Door - Insulated	Overhead Door	www.overheadd oor.com	Thermacore 850	0.14 BTU/(h·ft·°F)	0		white	white	4'-0"	915 VA	3	480 V	TEFC, OHD Manufacturer to size	23.17.11.17.2 5	Overhead Plastic Doors
OHD- 5	Wash Shop	107	14'-0"	14'-0"	Sectional Overhead Door - Insulated	Overhead Door	www.overheadd oor.com	Thermacore 850	0.14 BTU/(h·ft·°F)	0	Washbay Rated	white	white	1'-0"	915 VA	3	480 V	TEFC, OHD Manufacturer to size	23.17.11.17.2 5	Overhead Plastic Doors
OHD- 6	Wash Shop	107	14'-0"	14'-0"	Sectional Overhead Door - Insulated	Overhead Door	www.overheadd oor.com	Thermacore 850	0.14 BTU/(h·ft·°F)	0	Washbay Rated	white	white	4'-0"	915 VA	3	480 V	TEFC, OHD Manufacturer to size	23.17.11.17.2 5	Overhead Plastic Doors

									iculic	\sim					
Mark	From Room	From Number	To Room	To Number	Clear Width	Clear Height	Door Type	Panel Type	U Value	Fire Rating hours	ADA Hardware	Panel Finish	Frame Finish	Hardware Group	Remark
104A	Garage East	104			3'-0"	7'-0"	Hollow Metal Steel Door - Insulated	Narrow Lite	0.29 BTU/(h·ft·°F)	0	Yes	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 01 - Exterior Insulated	
104B	Garage East	104			3'-0"	7'-0"	Hollow Metal Steel Door - Insulated	Narrow Lite	0.29 BTU/(h·ft·°F)	0	Yes	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 01 - Exterior Insulated	
105	Storage 1st Floor	105	Garage East	104	6'-0"	7'-0"	Hollow Metal Steel Door	Double Narrow Lite		1	Yes	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 02 - Interior Double fire-rated	
106	Facilites Shop	106	Garage East	104	6'-0"	7'-0"	Hollow Metal Steel Door	Double Narrow Lite		1	Yes	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 02 - Interior Double fire-rated	
107	Garage West	100	Wash Shop	107	3'-0"	7'-0"	Hollow Metal Steel Door	Narrow Lite		1	Yes	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 04 - Interior Single fire-rated	
108	Wash Shop	107	Shop Office	108	3'-0"	7'-0"	Hollow Metal Steel Door	Narrow Lite		0	Yes	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 03 - Interior Single	
109A	Repair Shop	109			3'-0"	7'-0"	Hollow Metal Steel Door - Insulated	Narrow Lite	0.29 BTU/(h·ft·°F)	0	Yes	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 01 - Exterior Insulated	
109B	Repair Shop	109	Garage East	104	3'-0"	7'-0"	Hollow Metal Steel Door	Narrow Lite		1	Yes	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 04 - Interior Single fire-rated	
203	IT Closet	203	Shop Mezzanine	202	3'-0"	7'-0"	Hollow Metal Steel Door	Flush		0	No	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 03 - Interior Single	
206A	Garage Mezzanine West	204	Boiler Room 2nd Floor	206	3'-0"	7'-0"	Hollow Metal Steel Door	Narrow Lite		1	No	Match Siding (Sandstone)	Match Siding (Sandstone)	Set 03 - Interior Single	
206B	Garage West	100	Boiler Room 2nd Floor	206	5'-0"	7'-0"	Hollow Metal Steel Door	Double Flush		1	No	Match Siding (Sandstone)	Match Siding (Sandstone)	SET 05 - Interior Double	Hardware on Garage side only



Trellis Schedule

<u>/2</u>

Door Schedule

<u>/1</u>

Design prepared for: Engineering Division Engineering Operations Building Addition

Location: 1600 Emil St. Madison, WI 53713

Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015

Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Civil Design: Eric Dundee, P.E., City of

Madison

Landscaping Design: Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com

Electrical Design: Dave Hanson, P.E., Kueny Architects

Plumbing Design:

Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

HVAC Design:

Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Structural Design: John Schmidbauer, P.E., Kueny Architects

Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

	Revisions by Addendi	um
٧o.	Description	Addendum
1	Eliminated fire rating door 104A	1
2	Changed window width	1
3	Relocated schedule	1
4	Increased Concrete Thickness	1
5	Highlight product finish	1

Architectural Schedules



City of Madison Facilites Maintenace 1600 Emil St. Madison, WI 53713

OF MAD



1 <u>A - 1st Floor Complete</u> 1/16" = 1'-0"







Design prepared for: Engineering Division

Engineering Operations Building Addition

Location: 1600 Emil St. Madison, WI 53713

Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015

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First Floor - All





1 <u>A - Roof</u> 1" = 10'-0"

25'-0" ISF 5.0		25'-0"		173'-0" 7 25'-0" SG-S SG-S	8 25 1 1 1 1 1 1 1 1 1 1	0" 9) 25'-C	,	720'-6'
					SG-SS				
\$TOA		5TO-A		\$TO-A		5TOA		\$TOA	
		14							3
\$TOA		\$TO-}				\$TO }			
									9
ISR 5.0 Slope				2					2 A 302
· · · · · · · · · · · · · · · · · · ·	246'-8"	9 A 302 O O O O O O O O O O O O O O O O O O O	152'-8"			RD-6			
	 						x 11)		3 A 302 [2]
									ISR 5.0







Design prepared for: Engineering Division

Engineering Operations Building Addition

Location: 1600 Emil St. Madison, WI 53713

Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015

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Revisions by Addendum o. Description A I Re-issued and added notes for clarification

Roofplan





3 A - Section Shop S Wall 1/8" = 1'-0"

	Description	Addendum
1	Re-issued and added notes for	1
-	clarification	
_		
-		
_		
-		



Pre-manufactured roof curb

Inside closure strip, 1/2" x 3/32" butyl tape sealant and fastener per panel manufacturer detail.

Ductwork or Solatube extension



5 New to Existing Roof at Metal Insulated Panel 3" = 1'-0"

<u>- </u>η

A 302

manufacturer recommendations

Low eave trim Fastener per panel manufacturer recommendations. Panel clip with TEK fasteners per panel manufacturer recommendations

Aluminum receiver

Aluminum counterflashing

TPO roofing manufacturer detail.

Vertical sealant joint

Insulated metal building panel

Tapered insulation. Mechanically fasten first layer, adhere subsequent

Standing Seam support

Fold standing seam as required

Fill void with closed

cell spray foam

CMU block wall

Panel clip attached to CMU with fasteners per manufacturer recommendations.

Fastener per panel manufacturer recommendations.

Counterflashing

Termination bar, sealant and fastener per TPO roofing manufacturer detail.

Insulated metal panel

Tapered insulation. Mechanically fasten first layer, adhere subsequent

Facilites Maintenace 1600 Emil St. Madison, WI 53713
OF MADING
Design prepared for: Engineering Division
Engineering Operations Building Addition
Location: 1600 Emil St. Madison, WI 53713
Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015
Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com
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City of Madison

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Fire Protection Design: Robert Novak, Kueny Architects

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Revisions by Addendum Description
Detail clarification to include columns and ducts

Architectural **Roof Details**

4 Typical Rake Fascia 3" = 1'-0"

Black TPO roofing membrane

adhered to insulation.

Demo existing metal -

3 New to Existing Roof Transition 1/2" = 1'-0"

siding and fascia

FORCING	TIES
#6 BARS	#3 TIES @ 12" O.C.
#5 BARS	#3 TIES @ 10" O.C.
#8 BARS	#3 TIES @ 16" O.C.
- #8 BARS	#3 TIES @ 16" O.C.
#6 BARS	#3 TIES @ 12" O.C.

S 100	Foundation Plan
S 200	Mezzanine Framing Plan
S 201	Roof Framing Plan
S 202	Solar Panel and Crane Rail Structure
S 301	Building Sections
S 302	Building Sections
S 401	Wall Sections and Details
S 402	Wall Sections and Details
S 403	Wall Sections and Details
S 404	Wall Sections
S 501	Structural Details

CO	LUN	IN SCHED	ULE
M/	ARK	TYPE	BASE PLATE
(C-1	HSS3X3X1/4	9" x 1/2" x 0'-9"
(C-2	HSS4X4X1/4	10" x 3/4" x 0'-10"
(C-3	Pipe3STD	6" x 1/2" x 0'-6"
(C-4	HSS6X6X1/4	12" x 1/2" x 1'-0"

City of Madison Facilites Maintenace

1600 Emil St. Madison, WI 53713

Design prepared for: Engineering Division

Engineering Operations Building Addition - 2015

Location: 1600 Emil St. Madison, WI 53713

Contract: TBD Project: 10349 Common Council Approval:

Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Civil Design: Eric Dundee, P.E., City of Madison

Landscaping Design: Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com

Electrical Design: Dave Hanson, P.E., Kueny

Architects

Plumbing Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

HVAC Design:

Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Structural Design: John Schmidbauer, P.E., Kueny Architects

Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Revisions by Addendum Description

Foundation plan changes

Foundation Plan

S 100 Print Date: 12/21/2015 6:06:00 PM

MARK	TYPE	BASE PLATE
C-1	HSS3X3X1/4	9" x 1/2" x 0'-9"
C-2	HSS4X4X1/4	10" x 3/4" x 0'-10"
C-3	Pipe3STD	6" x 1/2" x 0'-6"
C-4	HSS6X6X1/4	12" x 1/2" x 1'-0"

City of Madison Facilites Maintenace 1600 Emil St. Madison, WI 53713 Design prepared for: Engineering Division Engineering Operations Building Addition - 2015 Location: 1600 Emil St. Madison, WI 53713 Contract: TBD Project: 10349 Common Council Approval: Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com Civil Design: Eric Dundee, P.E., City of Madison Landscaping Design: Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com Electrical Design: Dave Hanson, P.E., Kueny Architects Plumbing Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com HVAC Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com Structural Design: John Schmidbauer, P.E., Kueny Architects Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

	Revisions by Addend	um
N.L.	Description	A al al a sa als sure
110.	Description	
	Structural traming	1
2	Carvanized metal	
	Mezzanine Framing Pla	e an
	S 200	
Pr	int Date:	

12/22/2015 10:57:44 AM

#	LOAD	CHAR	R T
Tag	Live Load (k)	Dead Load (k)	Total Load (k)
1	21.2	9.2	30.4
2	18.1	7.7	25.8
3	26.1	10.8	36.9
4	6.6	3.4	10.0
5	6.0	3.1	9.1
6	18.6	8.0	26.6
7	12.0	5.0	17.0
8	5.3	3.1	8.4
9	7.3	4.0	11.3
10	1.9	1.2	3.1
11	16.7	7.2	23.9
12	18.1	7.7	25.8
13	16.2	6.5	22.7
14	7.2	2.7	9.9
15	16.9	7.9	24.8
16	25.2	10.4	35.6
17	10.0	4.4	14.4
18	8.0	3.5	11.5
19	4.8	2.1	6.9
20	14.4	6.0	20.4
21	13.4	5.8	19.2
22	12.0	5.0	17.0
23	8.0	2.6	10.6
24	3.1	1.4	4.5
25	8.5	4.6	13.1
26	10.4	4.6	15.0

G

—(F.6)

—(F)

—(E)

—(D)

—(C.4)

- C

—(B.7)

-(B.5)

-(B.1)

B

-(A.4)

(AA)

-(AB)

-(AD)

City of Madison Facilites Maintenace 1600 Emil St. Madison, WI 53713

Design prepared for: Engineering Division

Engineering Operations Building Addition - 2015

Location: 1600 Emil St. Madison, WI 53713

Contract: TBD Project: 10349 Common Council Approval:

Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Civil Design: Eric Dundee, P.E., City of Madison

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Revisions by Addendum Description Addendu ral framing 1 1 Structural framing

S 201 Print Date: 12/22/2015 11:08:43 AM

Plumbing Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

HVAC Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Structural Design: John Schmidbauer, P.E., Kueny Architects

Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Revisions by Addendum
 No.
 Description
 Addendur

 1
 Galvanized metal
 1

Solar Panel and Crane Rail Structure

S 202 Print Date: 12/22/2015 10:59:57 AM

Engineering Operations Building Addition - 2015 Location: 1600 Emil St. Madison, WI 53713 Contract: TBD Project: 10349 Common Council Approval: Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com Civil Design: Eric Dundee, P.E., City of Madison Landscaping Design: Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com Electrical Design: Dave Hanson, P.E., Kueny Architects Plumbing Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com HVAC Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com Structural Design: John Schmidbauer, P.E., Kueny Architects Fire Protection Design: Robert Novak, Kueny Architects

City of Madison Facilites Maintenace 1600 Emil St. Madison, WI 53713

Design prepared for:

Engineering Division

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

 No.
 Description
 Addendum

 1
 Structural framing
 1

 2
 Galvanized metal
 1

Building Sections

City of Madison Facilites Maintenace 1600 Emil St.

Print Date: 12/21/2015 6:10:13 PM

City of Madison Facilites Maintenace 1600 Emil St.

							Con	ntrol Pa	anel S	chedule															
Mark	Room Name	Room Number	Description	Enclosure	e Manufacture	URL	Model	Keynote	Mark	C Description	Room n Name	Room Number	Height	Width	Depth	Voltage F	Cii Panel Nur	cuit nber	Remark						
VFD EF 1	Garage Mezzanine We	204 est	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 12	2 Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V	CP-1	1 BAS Contro Panel	ol Shop Mezzanii	202 ne	4'-0"	3'-0"	1'-0"	277 V O	SH 03 -	8 Chose / one s	Actual Size to allow Spare Controller						
VFD EF 2	Garage Mezzanine We	est 204	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 12	2 Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V	CP-2	2 BAS Contro Panel	ol Garage Mezzanii	e 205 ne	3'-0"	2'-0"	1'-0"	277 V 0	SH 02 ⁻	0 Chose / one s	Actual Size to allow Spare Controller						
VFD ERV 1 EF	Shop Mezzanir	ne 202	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 12	2 Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V	CP-3	BAS Contro	East ol Garage	204	4'-0"	3'-0"	1'-0"	277 V 0	SH 02	B Chose /	Actual Size to allow						
VFD ERV 1 SF	Shop Mezzanir	ne 202	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 12	2 Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V		Panel	West	ne						ones	Spare Controller						
VFD MAU 1	Garage Mezzanine We	204 est	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 12	2 Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V	CP-2	BAS Contro Panel	ol Boiler Room 2r	206 nd	4'-0"	3'-0"	1'-0"	277 V O	SH 02	2 Chose / one \$	Actual Size to allow Spare Controller						
VFD P 01	Boiler Room 2r Floor	nd 206	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 1	Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V			FIUUI														
VFD P 02	Boiler Room 2r Floor	nd 206	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 1	Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V										Split A	AC Schedule						
VFD P 03	Boiler Room 2r Floor	nd 206	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 1	Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V	Ма	Room Room	Room Number	Descriptio	on Mar	nufacture	er	URL		Model	Cooling Capacity Efficiency	Apparer Voltage Design Po	t wer Poles Pan	el Number	Weigh	Omni Class	3 Omn
VFD P 04	Boiler Room 2r Floor	nd 206	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 1	Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V	AC	-1 Shop Mezzani	202 ne	Single Split w/ Wall U	AC Mi	itsubishi	www.	mitsubishipr	o.com MI M	IY-GE09NA / SY-GE09NA	1.02 ton SEER 23.2	208 V 2496 VA	2 L 04	4 17,19	66 lbf	23.33.39.2	Split
VFD SF 1	Garage Mezzanine Ea	205 st	Variable Frequency Drive w/Tourque Failure Recognition	NEMA 12	2 Danfos	www.Danfosdrives.com	VLT w/ Fused Disconnect Option	Select Model based on Device Requirements. Install LC Filter for lead lengths causing Peak Voltage in excess of 1000V																	
						Ceiling Fa	an Schedule																Boiler	Schedule	
	Roc	om						Fan Apparent	Circuit	OmniClas	s Omni	Class			R	oom							<u> </u>		

	Ceiling Fan Schedule														Boiler Schedule																			
	Room					Fan		Appar	ent	(Circuit	OmniClass	OmniClass		Roo	om									Gas Pressur	e Design	Max.	Relief		Apparent	Wet	Water	Omni Class	Omni
Mark Room Name	Number	Description	Manufacturer	URL	Model	Diameter V	/eight V	oltage Pow	er Poles	Panel N	Number	Number	Title	Mark Room Na	ame Numb	nber	Description	Manufacturer	URL	Model	Max. Input	Max. Output	Turndowr	n Efficiency	/ Range	Flow	Pressure	Valve Volt	tage Poles	Design Powe	er Weight	Volumen	Number	Class Title
CF 01 Garage East	104	Ceiling Fan, Gearless DC Motor with Modbus Control, IP66 rated	MacroAir	www.macro-air.com	570-18	18'-0" 1	60 lb 4	80 V 2080	VA 3	H 02 7	7,9,11 23	3.33.31.19.11.15	5 Ceiling Fans	B 1 Boiler R	oom 206	06 0	Condensing / Modulating Boiler	Lochinvar	www.lochinvar.com	n Crest	1,500,000 Btu/h	1,443,000 Btu	/h 25:1	96.2%	4-14 in-wg	115 GPM	/I 160 psi	30 psi 120	0 V 1	2000 VA	2,307 lbf	94 gal	23.33.11.13	Condensin
CF 02 Garage East	104	Ceiling Fan, Gearless DC Motor with Modbus Control, IP66 rated	MacroAir	www.macro-air.com	570-18	18'-0" 1	60 lb 4	80 V 2080	VA 3	H 02	2,4,6 23	3.33.31.19.11.15	5 Ceiling Fans	2nd Flo	oor	V	w/ Firetube SS Heat Exchanger			FBN1501														g Boilers
CF 03 Repair Shop	109	Ceiling Fan, Gearless DC Motor with Modbus Control, IP66 rated	MacroAir	www.macro-air.com	370-12	12'-0"	87 lb 2	08 V 208 V	/A 2	L 04	13,15 23	3.33.31.19.11.1	5 Ceiling Fans	B-1 Boiler R	oom 206	06 0	Condensing / Modulating Boiler	Lochinvar	www.lochinvar.com	n Crest	1,500,000 Btu/h	1,443,000 Btu	/h 25:1	96.2%	4-14 in-wg	115 GPN	/I 160 psi	30 psi 120	0 V 1	2000 VA	2,307 lbf	94 gal	23.33.11.13	Condensin
CF 04 Wash Shop	107	Ceiling Fan, Gearless DC Motor with Modbus Control, IP66 rated	MacroAir	www.macro-air.com	370-12	12'-0"	87 lb 2	08 V 208 V	/A 2	L 04	14,16 23	3.33.31.19.11.18	5 Ceiling Fans	2nd Flo	or	V	w/ Firetube SS Heat Exchanger			FBN1501														g Boilers

	Fan Schedule																					
									Fan		Mote		Ele	ectrical								
				Special		Room		Static		Design		Nominal	Brake				Circuit				OmniClass	OmniClass
Mark	Manufacturer	URL	Model	Features	Room Name	Number	Airflow	Pressure	Fan Type	Fan RPM	Motor Type	Power	Horsepower	Voltage	Poles	Panel	Number	Weight	Length	Remark	Number	Title
EF-1	Greenheck	www.greenheck.com	AX-113	275-0917	Garage	204	26,000 CFM	1.30 in-wg	160 cm Propeller	1,170	TEFC, NEMA Premium	10 hp	8.34 hp	480 V	3	H 02	14,16,18	1,385 lb	5'-1"	Horizontally	23.33.31.19	Tube Axial
					Mezzanine West						Efficiency, VFD approved									mounted	.11.19	Fans
EF-2	Greenheck	www.greenheck.com	AX-054	275-0611	Garage	204	2,000 CFM	1.30 in-wg	54 cm Propeller	1,770	TEFC, NEMA Premium	1 hp	0.72 hp	480 V	3	H 02	19,21,23	270 lb	3'-4 1/2"		23.33.31.19	Tube Axial
					Mezzanine West			_			Efficiency, VFD approved										.11.19	Fans
SF-1	Greenheck	www.greenheck.com	AX-036	0607	Garage	205	2,000 CFM	1.50 in-wg	36 cm Propeller	3500	TEFC, NEMA Premium	1 hp	0.78 hp	480 V	3	H 02	13,15,17	195 lb	3'-4 1/2"	Horizontally	23.33.31.19	Tube Axial
					Mezzanine East						Efficiency, VFD approved									mounted	.11.19	Fans

															Energy	/ Reco	very Ver	ntilator S	Schedule																			
														Supply F	Fan									Exhaust Fan						Electrical (Whole Un	t)	Dim	ensions ar	nd Weight			
Mark	Manufacture	URL	Mod	del	Room Name N	Room Reco Number Ty	ergy overy ⁄pe	Filter	Specia	al Features	Airflow Sta SF Pressu	rnal itic Fan Type ire SF SF	Design RPM SF	Motor Ty SF	vpe Nomi SF	inal power = P	Brake Horse Power SF	Full Load Amp SF	Max. VFD Frequency SF	Airflow EF	External Static Pressure Ef	Fan Type EF	Design RPM EF	Motor Type H EF	Nominal orsepower EF F	Brake Horse Power EF	Full Load Amp EF	Max. VFD Frequency EF	Apparent Design Power	Voltage F	oles Pan	Circuit el Numbe	r Weight	Height	Width Len	Omr Clas gth Num	nni Orr ss Cla ber Tit	nni ass itle
ERV-	Daikin	www.daikinapplied.	.com CAH0006	6GVGM Me	Shop ezzanine	202 Nove 42	elAire Retu 2" Sup Desig	rn: MERV 13 pply MERV 8/ gn Pressured 0.6 in-wg	8/4" 6" chann 2" insulatio Irop	nel base; R13 on, no damper	2,700 1 in- CFM	-wg 12.38" / Airfoil Class 2 / Aluminum / 9 Blades	3713	TEFC / 35 rpm / NEM Premiur Efficienc	500 3 h MA m cy	p	2.3 hp	3.8 A	68 Hz	2,700 CFM	1 in-wg	12.38" / Airfoil Class 2 / Aluminum / 9 Blades	3713	TEFC / 3500 rpm / NEMA Premium Efficiency	3 hp	2.3 hp	3.8 A	68 Hz	5.14 kVA	480 V	3 H 0	3 2,4,6	1,887 lbf	5'-0"	4'-6" 8'-8	;" 23.33 .13	3.55 He 3 Whe	at eels
										Pu	mp Schedule	9																										
Mark	Description	Room Name Num	om iber Manufactu	ırer	URL	Model	Max. Pressure	Design Flowrate	Design Pressure Gain	Efficiency	p) Horsepower	Motor / Starter T	Vpe F	ominal Fla RPM S	lange Size Volta	App age Po	oarent ower Pol	es Pane	Circuit I Number	Weight	Remark	Omni Class Number	Omni Cla Title	ass														
P 01	Inline Pump w SS Impeller	/ Boiler Room 20 2nd Floor	06 Grundfo	s www.G	Grundfos.co	m TP 80-240/ BUBE	/2 145 psi	115 GPM	60 ftH2O	47.6 %	3	TEFC, NEMA Prer Efficiency, VFD app	mium 3 proved	3450	3" 480	V 399	90 VA 3	OSH	02 13,15,17	7 148 lbf	P1 and P2	23.27.17.13	Centrifug Pumps	gal s														
P 02	Inline Pump w SS Impeller	/ Boiler Room 20 2nd Floor)6 Grundfo	s www.G	Grundfos.co	m TP 80-240/ BUBE	/2 145 psi	115 GPM	60 ftH2O	47.6 %	3	TEFC, NEMA Prer Efficiency, VFD app	mium 3 proved	3450	3" 480	V 399	90 VA 3	OSH	02 14,16,18	3 148 lbf	P1 and P2	23.27.17.13	Centrifug Pumps	gal s														
P 03	Inline Pump w SS Impeller	/ Boiler Room 20 2nd Floor)6 Grundfo	s www.G	Grundfos.co	m TP 50-240/ BUBE	/2 145 psi	86 GPM	58 ftH2O	45.8%	2	TEFC, NEMA Prer Efficiency, VFD app	mium 3 proved	3450	2" 480	V 2282	27 VA 3	OSH	02 20,22,24	1 72 lbf	P3 and P4	23.27.17.13	Centrifug Pumps	gal s														
P 04	Inline Pump w SS Impeller	/ Boiler Room 20 2nd Floor)6 Grundfo	s www.G	Grundfos.co	m TP 50-240/ BUBE	/2 145 psi	86 GPM	58 ftH2O	45.8%	2	TEFC, NEMA Prer Efficiency, VFD app	mium 3 proved	3450	2" 480	V 2282	27 VA 3	S OSH	02 19,21,23	3 72 lbf	P3 and P4	23.27.17.13	Centrifug Pumps	gal s														

																	Energy Re	ecovery V	entilator	Schedul	Э																		
																Supply Fa	n								Exhaust Fai	n					Electric	al (Whole L	Jnit)		Dimen	sions and V	Veight		
Mark	Vanufacturer	URL		Model	Room Name	Roon Numb	Energ n Recove er Type	ly ery	Filter	Speci	al Features	Airflow SF	External Static Pressure S	Fan Type F SF I	Design RPM SF	Motor Type SF	Nominal Horsepowe SF	er Brake Horse Power SF	Full Load	Max. VFI d Frequenc - SF) y Airflow E	Externa Static F Pressure	I Fan Typ EF EF	e Desigr RPM EF	n Motor Type EF	Nominal Horsepower EF	Brake r Horse Power EF	Full Load Amp EF	Max. VFD Frequency EF	Apparen Design Power	t Voltage	Poles Pa	anel Nu	ircuit umber W	/eight	leight Wid	Jth Lengt	Omni Class h Numbe	Omni Class r Title
ERV-1	Daikin	www.daikinappli	lied.com	CAH0006GV	GM Shop Mezzanin	e 202	NovelA 42"	ire Retur Sup Desig	n: MERV 13 oly MERV 8 n Pressured 0.6 in-wg	3/4" 6" chanr /2" insulatio drop	nel base; R13 on, no damper	2,700 CFM	1 in-wg	12.38" / Airfoil Class 2 / Aluminum / 9 Blades	3713	TEFC / 350 rpm / NEM/ Premium Efficiency	0 3 hp	2.3 hp	3.8 A	68 Hz	2,700 CFM	1 in-wg	12.38" / Airfoil Class 2 Aluminur / 9 Blade	/ 3713 / m es	TEFC / 3500 rpm / NEMA Premium Efficiency	3 hp	2.3 hp	3.8 A	68 Hz	5.14 kVA	480 V	3 H	103 2	2,4,6 1,8	387 lbf	5'-0" 4'-(;" 8'-8"	23.33.55 .13	5 Heat Wheel
Mark	Description	Room Name N	Room Number M	Manufacturer	URI		Model	Max. Pressure	Design Flowrate	Design Pressure Gair	Pu Efficiency	mp Scł	nedule	Motor / Starter Ty	N	ominal Flar RPM Siz	nge re Voltage	Apparent Power	Poles Par	Circui	t er Weight	Remark	Omni Class	s Omni C Title	Class														
P 01	nline Pump w/ SS Impeller	Boiler Room 2nd Floor	206	Grundfos	www.Grundfo	s.com Ti	P 80-240/2 BUBE	145 psi	115 GPM	60 ftH2O	47.6 %		3 T Ef	EFC, NEMA Pren ficiency, VFD app	nium proved	3450 3'	' 480 V	3990 VA	3 OSH	H 02 13,15,1	17 148 lbf	P1 and P2 parallel	23.27.17.13	3 Centrif	fugal ips														
P 02	nline Pump w/ SS Impeller	Boiler Room 2nd Floor	206	Grundfos	www.Grundfo	s.com Tf	P 80-240/2 BUBE	145 psi	115 GPM	60 ftH2O	47.6 %		3 T Ef	EFC, NEMA Pren ficiency, VFD app	nium proved	3450 3'	' 480 V	3990 VA	3 OSH	H 02 14,16,1	148 lbf	P1 and P2 parallel	23.27.17.13	3 Centrif Pum	fugal ips														
P 03 I	nline Pump w/ SS Impeller	Boiler Room 2nd Floor	206	Grundfos	www.Grundfo	s.com TI	P 50-240/2 BUBE	145 psi	86 GPM	58 ftH2O	45.8%		2 T Ef	EFC, NEMA Pren ficiency, VFD app	nium proved	3450 2'	' 480 V	22827 VA	3 OSF	H 02 20,22,2	24 72 lbf	P3 and P4 parallel	23.27.17.13	3 Centrif Pum	fugal ips														
P 04	nline Pump w/ SS Impeller	Boiler Room 2nd Floor	206	Grundfos	www.Grundfo	s.com Tf	^{>} 50-240/2 BUBE	145 psi	86 GPM	58 ftH2O	45.8%		2 T Ef	EFC, NEMA Pren ficiency, VFD app	nium proved	3450 2'	' 480 V	22827 VA	3 OSH	H 02 19,21,2	23 72 lbf	P3 and P4 parallel	23.27.17.13	3 Centrif Pum	fugal ips														
LI				ļ				<u> </u>					I			ł	I	I	1	I		-	•						1										

Ма	ke Up Air Unit	Sche	dule															
		Fan				Motor			Eleo	ctrical		Din	nension a	ind Weig	iht		Omni	Omni
irflow	External Static Pressure (ESP)	Fan	Fan Modulation	Design Fan RPM	Motor Type	Nominal Power	Brake Horsepower	Voltage	Poles	Panel	Circuit Number	Weight	Height	Width	Length	Remark	Class Number	Class Title
6,000 CFM	1.75 in-wg	1-30"	25%	541	TEFC, NEMA Premium Efficiency, VFD approved	25 hp	21.06 hp	480 V	3	H 02	8,10,12	3,124 lbf	5'-4"	8'-0"	13'-4'		23.33.39. 15.11	Make Up Air Units With Heat
																	7	

												Ма	ake Up Air Uni	it Sche	dule												\sim	$\overline{\langle}$	
Mork	Manufacturor		Madal	Room	Filtor	Special	Fuel	Innut	Burner	Modulation	Efficiency	Airflow	External Static	Fan	Fan	Design	Motor Type	Motor Nominal	Brake		Electric	al Cire	cuit		and Weig	ght	Pomork	Omni Class	Omni Class
MAU-1	1 Greenheck	www.greenheck.com	DGX-130-H	I38 Garage East 104	MERV 8	reatures	Natural Gas	1,991,500 Btu/h	1,832,200 Btu/h	1:18	92%	26,000 CFM	1.75 in-wg	1-30"	25%	541	TEFC, NEMA Premium	25 hp	21.06 hp	480 V	3 H	02 8,10),12 3,124	bf 5'-4"	8'-0"	13'-4"	Remark	23.33.39.	Make Ur Air Unit
																	Efficiency, VFD approved												With Heat

1 CR - Ventilation 1st Floor 1/32" = 1'-0"

2 CR - Ventilation 2nd floor 1/32" = 1'-0"

Ventilation Classifications

Garage Mezzanine East 205 2,521 ft²

Factory SPS 364 Garage SPS 364

Warehouse SPS 364

								Ventila	ation Sched	ule							
Space Number	Sapce Name	Vent System	Area	Ventilation Classification	Occupants per 1000 ft ²	Occupants (roundup)	OA per person	OA	EA	OA Total	Minimum EA	Fixtures req. Exhaust	Exhaust per Fixture	EA Total	Minimum EA	Comment	HVAC Setpoints
105	Storage 1st Floor	0	544 ft²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		55°F / NA
206	Boiler Room 2nd Floor	0	566 ft ²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		55°F / NA
202	Shop Mezzanine	0	1,594 ft ²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		55°F / NA
204	Garage Mezzanine West	0	2,899 ft ²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		55°F / NA
205	Garage Mezzanine East	0	2,521 ft²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		55°F / NA
203	IT Closet	0	39 ft²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		
103	Storage Landfill	0	292 ft ²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		
102	Electrical Room	0	157 ft²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		
201	Electrical Room	0	506 ft ²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		
101	Storage Surveyor	0	309 ft ²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		
207	Garage West Mezzanine	0	333 ft²	Warehouse SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	0 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM		
										0 CFM				0 CFM	0 CFM		
107	Wash Shop	ERV 1	2,646 ft ²	Factory SPS 364	13	35.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	263 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM	open to Repair Shop	65°F / NA
106	Facilites Shop	ERV 1	523 ft ²	Factory SPS 364	13	7.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	53 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM	transfers Air to Repair Shop	55°F / NA
109	Repair Shop	ERV 1	3,055 ft ²	Factory SPS 364	13	40.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	300 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM	open to Wash Shop	65°F / NA
108	Shop Office	ERV 1	158 ft²	Office SPS 364	7	2.0	7.5 CFM	0.00 CFM/SF	0.00 CFM/SF	15 CFM	0.00 CFM/SF	0	0 CFM	0 CFM	0 CFM	transfers Air to Repair Shop	70°F / 75°
										630 CFM				0 CFM	0 CFM		
104	Garage East	MAU 1	18,185 ft ²	Garage SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.75 CFM/SF	0 CFM	0.05 CFM/SF	0	0 CFM	13,638 CFM	909 CFM	Min EA creates negative pressure.	. 55°F / NA
100-1	Garage West-1	MAU 1	18,417 ft ²	Garage SPS 364	0	0.0	7.5 CFM	0.00 CFM/SF	0.75 CFM/SF	0 CFM	0.05 CFM/SF	0	0 CFM	13,812 CFM	921 CFM	Min EA creates negative pressure.	. 55°F / NA
										0 CFM				27,451 CFM	1,830 CFM		

ni Class Title t System Air litioning Units City of Madison Facilites Maintenace

Design prepared for: Engineering Division

Engineering Operations Building Addition

Location: 1600 Emil St. Madison, WI 53713

Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015

Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Civil Design: Eric Dundee, P.E., City of Madison

Landscaping Design:

Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com

Electrical Design: Dave Hanson, P.E., Kueny Architects

Plumbing Design:

Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

HVAC Design:

Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Structural Design:

John Schmidbauer, P.E., Kueny Architects

Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Revisions by Addendum Description Removed direct-drive requirement

HVAC Equipment and Ventilation M 001

Print Date: 12/22/2015 11:44:46 AM

				Grav	ity Ventilato	r Schedu	le		
						Throat			
Mark	Description	Manufacturer	Model	URL	Airflow	Length	Throat Width	OmniClass Number	OmniClass Title
RH-1	Relief Hood with Curb	Greenheck	FGR	www.greenheck.com	28,000 CFM	10'-0"	5'-6"	23.33.49.27.11	Gravity Ventilators
RH-2	Relief Hood with Curb	Greenheck	FGR	www.greenheck.com	2,700 CFM	3'-0"	2'-0"	23.33.49.27.11	Gravity Ventilators

Diffusers, Registers and Grilles

Type Mark	Neck Size	Manufacturer	URL	Model	Description	Keynote	Est. Count	Omni Class Number	Omni Class Title
3-Way 60x24	60"x24"	MAU Manufacturer		per MAU Manufacturer	3-way Diffuser		1	23.33.49.2 3.15	Supply Air Grilles
DD-GV-06 x26	26"x6"	Price Industries	www.priceindustries.com	SDG GV	Duct Diffuser Galvanized, 0°		3	23.33.49.2 3.15	Supply Air Grilles
DD-GV-06 x30	30"x6"	Price Industries	www.priceindustries.com	SDG AL	Duct Diffuser Galvanized, 0°		1	23.33.49.2 3.15	Supply Air Grilles
DD-GV-06 x34	34"x6"	Price Industries	www.priceindustries.com	SDG AL	Duct Diffuser Aluminum, 0°		7	23.33.49.2 3.15	Supply Air Grilles
OE	6"x6"	Contractor Shop	NA	NA	Open Duct End w/ 1/2 in. screen		1	23.33.49.2 3.15	Supply Air Grilles
RE-14x10	14"x10"	Contractor Shop	NA	NA	Rectangular Return Grille with 1/2 in. Birdscreen	Air Inlets as indicated on Plan	1	23.33.49.2 3.13	Return Air Grilles
RE-16x10	16"x10"	Contractor Shop	NA	NA	Rectangular Return Grille with 1/2 in. Birdscreen	Air Inlets as indicated on Plan	1	23.33.49.2 3.13	Return Air Grilles
RE-18x10	18"x10"	Contractor Shop	NA	NA	Rectangular Return Grille with 1/2 in. Birdscreen	Air Inlets as indicated on Plan	1	23.33.49.2 3.13	Return Air Grilles
RE-24x12	24"x12"	Contractor Shop	NA	NA	Rectangular Return Grille with 1/2 in. Birdscreen	Air Inlets as indicated on Plan	3	23.33.49.2 3.13	Return Air Grilles
RE-24x18	24"x18"	Contractor Shop	NA	NA	Rectangular Return Grille with 1/2 in. Birdscreen	Air Inlets as indicated on Plan	1	23.33.49.2 3.13	Return Air Grilles
RE-24x24	24"x24"	Contractor Shop	NA	NA	Rectangular Return Grille with 1/2 in. Birdscreen	Air Inlets as indicated on Plan	3	23.33.49.2 3.13	Return Air Grilles
RE-36x24	36"x24"	Contractor Shop		NA	Rectangular Return Grille with 1/2 in. Birdscreen	Air Inlets as indicated on Plan	1	23.33.49.2 3.13	Return Air Grilles
TG-1	16"x8"	Price Industries	www.priceindustries.com	530	Return Grill, 3/4 in spacing, 45° Deflection		2	23.33.49.2 3.13	Return Air Grilles

Mark	Description
MD-1	Thermally broken Frame, thermal Insulated damper. Leakage Class
MD-2	Thermally broken Frame, thermal Insulated damper. Leakage Class
MD-3	Thermally broken Frame, thermal Insulated damper. Leakage Class
MD-4	Thermally broken Frame, thermal Insulated damper. Leakage Class
MD-5	Thermally broken Frame, thermal Insulated damper. Leakage Class
MD-6	Thermally broken Frame, thermal Insulated damper. Leakage Class

Mark	Manufacturer	Model	
L-1	Greenheck	ESD 635	ww
L-2	Greenheck	ESD 635	ww

					C	control V	alve Sch	nedule					
Mark	Description	Comments	Manufacturer	URL	Model	Pressure Rating	Size	Cv Value (for non PICV)	Flowrate	Pressuredrop	Keynote	OmniClass Number	OmniClass Title
CV M 01	2 -Way Control Valve; Pressure Independent 2 15 gpm		Honeywell	www. Honeywell.com	VRN2E	360 psi	1"ø-1"ø	0	15 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 02	2 -Way Control Valve; Pressure Independent 2 15 gpm		Honeywell	www. Honeywell.com	VRN2E	360 psi	1"ø-1"ø	0	15 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 03	2-Way Control Valve; Pressure Independent 1-5 gpm		Honeywell	www. Honeywell.com	VRN2A	360 psi	1/2"ø-1/ 2"ø	0	1 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 04	2-Way Control Valve; Pressure Independent 1-5 gpm		Honeywell	www. Honeywell.com	VRN2A	360 psi	1/2"ø-1/ 2"ø	0	2 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 05	2-Way Control Valve; Pressure Independent 10 gpm		Honeywell	www. Honeywell.com	VRN2C	360 psi	1"ø-1"ø	0	10 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 06	2-Way Control Valve; Pressure Independent 1-5 gpm		Honeywell	www. Honeywell.com	VRN2A	360 psi	1/2"ø-1/ 2"ø	0	5 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 07	2-Way Control Valve; Pressure Independent 10 gpm		Honeywell	www. Honeywell.com	VRN2C	360 psi	1"ø-1"ø	0	10 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 08	2-Way Control Valve; Pressure Independent 11-19 gpm		Belimo	www. Belimo.us	PICCV-25	360 psi	1"ø-1"ø	0	11 GPM	5.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 09	2-Way Control Valve; Pressure Independent 1-5 gpm		Honeywell	www. Honeywell.com	VRN2A	360 psi	1/2"ø-1/ 2"ø	0	5 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 10	2-Way Control Valve; Pressure Independent 11-19 gpm		Belimo	www. Belimo.us	PICCV-25	360 psi	1"ø-1"ø	0	11 GPM	5.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV M 11	2-Way Control Valve; Pressure Independent 1-5 gpm		Honeywell	www. Honeywell.com	VRN2A	360 psi	1/2"ø-1/ 2"ø	0	1 GPM	3.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators
CV TM	3-Way Flanged Control Valve	Radiant Floor Mixing	Honeywell	www.Honeywell.com	VBF 5011/5013	240 psi	3"ø-3"ø- 3"ø	100	10 GPM	0.01 psi		23.27.31.2 9.15	Thermostaticall y Controlled Mixing Valves
CV-B1	2-Way Control Valve - Full Port	Boiler Isolation	Belimo	www.Belimo.com	B2	240 psi	4"ø-4"ø	350	115 GPM	0.11 psi		23.27.33.1 5	Motor Operated Valve Actuators
CV-B2	2-Way Control Valve - Full Port	Boiler Isolation	Belimo	www.Belimo.com	B2	240 psi	4"ø-4"ø	350	115 GPM	0.11 psi		23.27.33.1 5	Motor Operated Valve Actuators
CV-MF	2-Way Control Valve; Pressure Independent 35 gpm	Min. Boiler Flow	Honeywell	www. Honeywell.com	VRN2F	360 psi	2"ø-2"ø	0	35 GPM	4.00 psi	Select for indicated Flowrate. Use Honeywell / Belimo Valve of lowest Pressuredrop available	23.27.33.1 5	Motor Operated Valve Actuators

						Radiant M	lanifold Schedule	;							
Mark	Room Name	Room Number	Manufacturer	URL	Model	Pex Type / Size	Average Estimated Loop Length (< 5% Deviation)	Number of Loops	Tube Spacing and Layout	Water Volume	Total Flowrate	Flow per Loop	Pressure Drop	Pressure Rating	Comments
M 01	Wash Shop	107	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 3/4"	321'-0"	11	9" Spacing / 6" for 4' by perimeter / Counterflow		15 GPM	1.4 GPM	6 ftH2O	145 psi	
M 02	Repair Shop	109	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 3/4"	391'-0"	11	9" Spacing / 6" for 4' by perimeter / Counterflow		15 GPM	1.4 GPM	7 ftH2O	145 psi	
M 03	Shop Office	108	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 5/8"	178'-0"	1	12" Spacing / 9" for 4' by perimeter / Counterflow		1 GPM	1 GPM	2 ftH2O	145 psi	
M 04	Facilites Shop	106	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 5/8"	275'-0"	2	12" Spacing / 9" for 4' by perimeter / Counterflow		2 GPM	1 GPM	5 ftH2O	145 psi	
M 05	Garage East	104	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 3/4"	389'-0"	5	15" Spacing / 12" for 4' by perimeter / Counterflow		10 GPM	2 GPM	10 ftH2O	145 psi	
M 06	Garage East	104	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 3/4"	509'-0"	6	18" Spacing / 15" for 4' by perimeter / Counterflow		5 GPM	0.8 GPM	3 ftH2O	145 psi	
M 07	Garage East	104	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 3/4"	368'-0"	6	15" Spacing / 12" for 4' by perimeter / Counterflow		10 GPM	1.7 GPM	9 ftH2O	145 psi	
M 08	Garage East	104	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 3/4"	360'-0"	9	9" Spacing / 6" for 4' by perimeter / Counterflow		11 GPM	1.2 GPM	6 ftH2O	145 psi	
M 09	Garage East	104	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 3/4"	397'-0"	6	18" Spacing / 15" for 4' by perimeter / Counterflow		5 GPM	0.8 GPM	3 ftH2O	145 psi	
M 10	Garage East	104	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 3/4"	291'-0"	8	15" Spacing / 12" for 4' by perimeter / Counterflow		11 GPM	1.4 GPM	7 ftH2O	145 psi	
M 11	Storage 1st Floor	105	Uponor	www.Uponorpro.com	TruFLOW Jr. or Classic	PEX-AL-PEX 5/8"	214'-0"	2	18" Spacing / 15" for 4' by perimeter / Counterflow		1 GPM	0.5 GPM	1 ftH2O	145 psi	

		Fuel Valve	e Schedule				Miscell	eaneous Pipe Access	ories
Type Mark	Description	Size	Manufacturer	URL	Model	Est. Count			Est.
FGV-0.75	Fuel Gas Valve	3/4"ø-3/4"ø	Apollo Valves	www.apollovalves.com	GB50	1	Type Mark	Description	Count
FGV-1	Fuel Gas Valve	1"ø-1"ø	Apollo Valves	www.apollovalves.com	GB50	1	AV	Air Vent w/ Isolation Valve	12
FGV-1.5	Fuel Gas Valve	1 1/2"ø-1 1/2"ø	Apollo Valves	www.apollovalves.com	GB50	4	FM	Insertion Flowmeter	1
FGV-1.25	Fuel Gas Valve	1 1/4"ø-1 1/4"ø	Apollo Valves	www.apollovalves.com	GB50	1	PG	Pressure Gauge	4
FGV-2	Fuel Gas Valve	2"ø-2"ø	Apollo Valves	www.apollovalves.com	GB50	2	TG	Temperature Gauge	5
FGV-2.5	Fuel Gas Valve	2 1/2"ø-2 1/2"ø	Apollo Valves	www.apollovalves.com	80-100	1	TW	Temperature Well	19

Pipe Accesories Schedule

							Pressure	Est.			
Type Mark	Description	Size	Manufacturer	URL	Model	Weight	Rating	Count			
CF 3	Flanged Swing Check Valve	3"ø-3"ø	Watts	www.Watts.com	411	47 lbf	175 psi	4			
SF 3	Flanged Y Strainer 20 Mesh; epoxy-coated	3"ø-3"ø	Watts	www. Watts.com	77F-DI-FDA-125	34 lbf	200 psi	4			
SF 4	Flanged Y Strainer 20 Mesh; epoxy-coated	4"ø-4"ø	Watts	www. Watts.com	77F-DI-FDA-125	60 lbf	200 psi	2			Expansio
SS 0.75	Soldered Y Strainer, 30 mesh, Bronze	3/4"ø-3/4"ø	Watts	www.Watts.com	LFS77S	2 lbf	400 psi	3		Mark Manufacturor	LIDI
SS 1	Soldered Y Strainer, 30 mesh, Bronze	1"ø-1"ø	Watts	www.Watts.com	LFS77S	3 lbf	400 psi	2]		URL
SS 1.5	Soldered Y Strainer, 30 mesh, Bronze	1 1/2"ø-1 1/2"ø	Watts	www.Watts.com	LFS77S	4 lbf	400 psi	4		EI-1 Wessels	www.westank.com
YS 1.25	Soldered Y Strainer, 30 mesh, Bronze	1 1/4"ø-1 1/4"ø	Watts	www.Watts.com	LFS77S	3 lbf	400 psi	2			

	Air and Dirt Separator Schedule												
							Water	Pressure	OmniClass				
Mark	Description	Manufacturer	URL	Model	Size	Weight	Volume	Rating	Number	OmniClass Title			
ADS-1	Air Eliminator and Dirt Separator w/ Removable Head	Bell & Gossett	www.bellgossett.com	CRS-4F	4"ø-4"ø	233 lbf	6.6 gal	150 psi	23.27.55.29.21	Solid Separators			

	Air Flow Meter											
Mark	Description	System	Manufacturer	URL	Model	Size	Omni Class Number	Om Class				
AFM-1	Thermal Dispersion Air Flow Meter	Exhaust Garage	Ruskin	www.Ruskin.com	EAMP	48"ø-48"ø	23.27.11.15. 23	Flov Sens				
AFM-2	Thermal Dispersion Air Flow Meter	Exhaust Garage	Ruskin	www.Ruskin.com	EAMP	20"ø-20"ø	23.27.11.15. 23	Flov Sens				
AFM-3	Thermal Dispersion Air Flow Meter	Supply Garage MAU	Ruskin	www.Ruskin.com	EAMP	60"x36"-6 0"x36"	23.27.11.15. 23	Flov Sens				
AFM-4	Thermal Dispersion Air Flow Meter	Supply Garage Solar	Ruskin	www.Ruskin.com	EAMP	24"x24"-2 4"x24"	23.27.11.15. 23	Flov Sens				
AFM-5	Thermal Dispersion Air Flow Meter	Exhasut Shop	Ruskin	www.Ruskin.com	EAMP	16"x26"-1 6"x26"	23.27.11.15. 23	Flov Sens				
AFM-6	Thermal Dispersion Air Flow Meter	Supply Shop	Ruskin	www.Ruskin.com	EAMP	24"x26"-2 4"x26"	23.27.11.15. 23	Flov Sens				

Balancing Damper Schedule

Control Damper Schedule OmniClass Manufacturer URL Model Size Number OmniClass Title Tamco www.Tamco.ca 9000 60"x60"- 23.33.29.1 Automatically hermally BF-ECT 60"x60" 9.11 Control Dampers e Class 1A Tamco www.Tamco.ca 9000 20"x20"- 23.33.29.1 Automatically hermally e Class 1A BF-ECT 20"x20" 9.11 Control Dampers thermally Tamcowww.Tamco.ca900060"x60"-23.33.29.1Automatically e Class 1A BF-ECT 60"x60" 9.11 Control Dampers Tamcowww.Tamco.ca900024"x24"-23.33.29.1AutomaticallyBF-ECT24"x24"9.11Control Dampers thermally e Class 1A Tamco www.Tamco.ca 9000 16"x26"- 23.33.29.1 Automatically hermally BF-ECT 16"x26" 9.11 Control Dampers e Class 1A Tamco www.Tamco.ca 9000 30"x30"- 23.33.29.1 Automatically hermally BF-ECT 30"x30" 9.11 Control Dampers e Class 1A

Louver Schedule	

						OmniClass	OmniClass
URL	Airflow	Depth	Height	Width	Color	Number	Title
greenheck.com	26,000 CFM	6"	10'-0"	10'-0"	Sandstone	23.33.49.23	Grilles
greenheck.com	2,700 CFM	6"	3'-9"	3'-9"	Sandstone	23.33.49.23	Grilles

	Hydronic Valve Schedule													
Type Mark	Description	Size	Manufacturer	URL	Model	Weight	Pressure Rating	Cv Value	Est Cou					
VF 3	Ballvalve Flanged w/ SS Ball; epoxy-coated	3"ø-3"ø	American Valves Valves	www.Americanvalve.com	4000D Series	46 lbf	200 psi	1245	14					
VF 4	Ballvalve Flanged w/ SS Ball; epoxy-coated	4"ø-4"ø	American Valves Valves	www.Americanvalve.com	4000D Series	75 lbf	200 psi	2500	4					
VS 0.75	Ball Valve Soldered, SS Ball, Extended Lever	3/4"ø-3/4"ø	Milwaukee Valve	www.milwaukeevalve.com	UPBA450S	1 lbf	200 psi	35	11					
VS 1	Ball Valve Soldered, SS Ball, Extended Lever	1"ø-1"ø	Milwaukee Valve	www.milwaukeevalve.com	UPBA450S	2 lbf	200 psi	60	4					
VS 1.5	Ball Valve Soldered, SS Ball, Extended Lever	1 1/2"ø-1 1/2"ø	Milwaukee Valve	www.milwaukeevalve.com	UPBA450S	3 lbf	200 psi	185	12					
VS 1.25	Ball Valve Soldered, SS Ball, Extended Lever	1 1/4"ø-1 1/4"ø	Milwaukee Valve	www.milwaukeevalve.com	UPBA450S	2 lbf	200 psi	110	4					
VS 2	Ball Valve Soldered, SS Ball, Extended Lever	2"ø-2"ø	Milwaukee Valve	www.milwaukeevalve.com	UPBA450S	5 lbf	200 psi	360	6					

Chemical Feeder Schedule

		-								
Mark	Description	Mani	ıfacturer		URI	Pressure Rating	Water Volume	Weight	OmniClass Number	OmniClass Ti
PF-1	Chemical Potfeederw/ 25 micron Bag Filter, ASME certified	Grisw	old Wate	r www	.Griswoldwater	rs 600 psi	5 gal	105 lbf	23.27.55.31.11	Liquid Chemi Feeders
	Y Y Y	Ý			Y			Ý	1 Υ · · ·	
			Acces	s Doc	or Schedule	;				\sim
Туре М	lark Description	Width	Height	Est. Count	Omni Class Number	Omni Class Title	Mod	el	Manufacturer	\leq
RE 12	(12 Rectangular Hinged Access Door for Rectangular Duct	1'-0"	1'-0"	1	23.33.49.15	Duct Access Panels	FD-H-GA	C	Ductmate	
RE 16	(16 Rectangular Hinged Access Door for Rectangular Duct	4'-0"	4'-0"	3	23.33.49.15	Duct Access Panels	FD-H-GA	C	Ductmate	\leq
RE 18:	(18 Rectangular Hinged Access Door for Rectangular Duct	1'-6"	1'-6"	1	23.33.49.15	Duct Access Panels	FD-H-GA	C	Ductmate	\sim
RE 24	K24 Rectangular Hinged Access Door for Rectangular Duct	20'-0"	20'-0"	10	23.33.49.15	Duct Access Panels	FD-H-GA	C	Ductmate	\prec
RE 30	K54 Rectangular Hinged Access Door for Rectangular Duct	3'-0"	5'-0"	1	23.33.49.15	Duct Access Panels	FD-H-GA	C	Ductmate	5
RO-16	x12 Rectangular Hinged Access Door for Round Duct	5'-4"	4'-0"	4	23.33.49.15	Duct Access Panels	DR-GA	C	Ductmate	\prec
RO-24	x18 Rectangular Hinged Access	8'-0"	6'-0"	4	23.33.49.15	Duct Access Panels	DR-GA	C	Ductmate	Z

	Gas Piping S	Sizing
\cup	1" = 40'-0"	

on Tank Schedule

86 GPM

Model Volume Weight Pressure Rating NLA-400-WG 132 gal 335 lbf 125 psi

	Thermostat Schedule											
Type Mark	Description	Manufacturer	URL	Model	Est. Coun							
T-UF	Space Thermostat in unfinished Spaces	Honeywell	www. Honeywell.com	C772	10							
TA	Space Thermostat User adjustable	Honeywell	www. Honeywell.com	TR71	1							

Omni
lass Title
Flow
Sensors

Туре							OmniClass							
Mark	Size	Description	Manufacturer	URL	Model	Count	Number	OmniClass Title						
BD-RE	6"x6"-6"x6"	Rectangular Balancing Damper	Greenheck	www.Greenheck.com	MBD-10	1	23.33.29.19.13	Manual Dampers						
BD-RE	14"x10"-14"x10"	Rectangular Balancing Damper	Greenheck	www.Greenheck.com	MBD-10	1	23.33.29.19.13	Manual Dampers						
BD-RE	16"x10"-16"x10"	Rectangular Balancing Damper	Greenheck	www.Greenheck.com	MBD-10	1	23.33.29.19.13	Manual Dampers						
BD-RE	18"x10"-18"x10"	Rectangular Balancing Damper	Greenheck	www.Greenheck.com	MBD-10	1	23.33.29.19.13	Manual Dampers						
BD-RE	24"x12"-24"x12"	Rectangular Balancing Damper	Greenheck	www.Greenheck.com	MBD-10	3	23.33.29.19.13	Manual Dampers						
BD-RE	24"x18"-24"x18"	Rectangular Balancing Damper	Greenheck	www.Greenheck.com	MBD-10	1	23.33.29.19.13	Manual Dampers						
BD-RE	24"x24"-24"x24"	Rectangular Balancing Damper	Greenheck	www.Greenheck.com	MBD-10	3	23.33.29.19.13	Manual Dampers						
BD-RE	36"x24"-36"x24"	Rectangular Balancing Damper	Greenheck	www.Greenheck.com	MBD-10	1	23.33.29.19.13	Manual Dampers						

Gas Piping Sizing per IFGS 2012 (Longest Length Method)

Assumptions: - 50% Added Length for Fittings 1.5 psi available at device pressure reducer
 No diversity (all devices operating at 100% load at given time)

Longest Path

MAU 1 2,000 ft²/h

City of Madison Facilites Maintenace 1600 Emil St.

Engineering Division

Engineering Operations Building Addition

Location: 1600 Emil St. Madison, WI 53713

Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015

Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Civil Design: Eric Dundee, P.E., City of Madison

Landscaping Design: Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com

Electrical Design: Dave Hanson, P.E., Kueny Architects

Plumbing Design: Kay Schindel, P.E., City of Madison; 608-266-4668;

kschindel@cityofmadison.com HVAC Design:

Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Structural Design: John Schmidbauer, P.E., Kueny Architects

Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668;

kschindel@cityofmadison.com

Revisions by Addendum Description Relocated schedule

HVAC Devices and Gas Piping M 005 Print Date: 12/22/2015 11:44:46 AM

HVAC Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com Structural Design: John Schmidbauer, P.E. Kueny Architects Fire Protection Design: Robert Novak, Kueny Architects Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com Revisions by Addendum Description Reformateted schedule Relocated view Garage Piping

MP 210

12/22/2015 11:45:10 AM

Print Date:

City of Madison Facilites Maintenace 1600 Emil St. Madison, WI 53713 OF MAD Design prepared for: Engineering Division Engineering Operations Building Addition Location: 1600 Emil St. Madison, WI 53713 Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015 Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com Civil Design: Eric Dundee, P.E., City of Madison Landscaping Design: Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com Electrical Design: Dave Hanson, P.E., Kueny Architects Plumbing Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

	Return Hot Water Circulator Pump Schedule												
Mark	Description	Manufacturer	URL	Model	Weight	Horsepower	Max. Pressure	Max Flowrate	Connection Size	Voltage	Phases	OmniClass Number	OmniClass Title
CP-1	Inline Pump, automatic Circulation Control	Grundfos	www.Grundfos.com	UP10-16PM-A- BU/LC	8 lbf	0.04	145 psi	9 GPM	1/2"	115 V	1	23.27.17.13	Centrifugal Pumps

					וס	lumbing Eivt	ura Saha	dulo			
					FI	unibility Fixt	ule Sche	uule			
		ADA	HW	CW	Waste	Fixture	Fixture		Fst	Omni Class	
Mark	Description	Compliant	Connection	Connection	Connection	Manufacturer	Model	URL	Count	Number	Omni Class Title
EWCRI-	Electric water cooler rough-in			1/2"	1 1/2"				1	23.31.31.00	Drinking Fountains
1											
HB-1	Hose Bibb, interior			3/4"		Matco-Norca	205FLF	www.matco-norca.com	2	23.31.11.00	Faucets
HB-2	Hose Bibb, tamperproof			3/4"		Woodford	65PB-12	www.woodfordmfg.com	1	23.31.11.00	Faucets
HRI-1	Hose reel rough-in			3/4"					4	23.31.00.00	Plumbing Specific Products and Equipment
HRI-3	Hose reel rough-in			1"					2	23.31.00.00	Plumbing Specific Products and Equipment
HRI-2	Truck hose rough-in			2"					7	23.31.00.00	Plumbing Specific Products and Equipment
WM-1	Clothes washer box		1/2"	1/2"	2"	Guy Gray	MWB16	www.ipscorp.com	1	23.31.00.00	Plumbing Specific Products and Equipment

	Catch-basin Schedule							
		Waste				Est.	Omni Class	
Type Mark	Description	Connection	Depth	Length	Width	Count	Number	Omni Class Title
CB 24-36-36	Catchbasin - Rectangular: Concrete Structure and Cast Iron Grate. See Detail.	6"	6'-0"	3'-0"	2'-0"	3	23.39.29.13.19.11	Surface Water Catch Basins, Grates, and Frames

Plumbing Valve Schedule

							Est.	Omni Class	
Type Mark Typ	ype Comments	Description	Size	Manufacturer	URL	Model	Count	Number	Omni Class Title
BVS 0.5 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Solder	1/2"ø-1/2"ø	Nibco	www.Nibco.com	S-585-66-LF	4	23.27.31.15	Ball Valves
BVS 0.75 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Solder	3/4"ø-3/4"ø	Nibco	www.Nibco.com	S-585-66-LF	2	23.27.31.15	Ball Valves
BVS 1.0 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Solder	1"ø-1"ø	Nibco	www.Nibco.com	S-585-66-LF	2	23.27.31.15	Ball Valves
BVS 1.5 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Solder	1 1/2"ø-1 1/2"ø	Nibco	www.Nibco.com	S-585-66-LF	1	23.27.31.15	Ball Valves
BVS 2.0 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Solder	2"ø-2"ø	Nibco	www.Nibco.com	S-585-66-LF	5	23.27.31.15	Ball Valves
BVT 0.75 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Threaded	3/4"ø-3/4"ø	Nibco	www.Nibco.com	T-585-66-LF	1	23.27.31.15	Ball Valves
BVT 1.0 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Threaded	1"ø-1"ø	Nibco	www.Nibco.com	T-585-66-LF	2	23.27.31.15	Ball Valves
BVT 2.0 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Threaded	2"ø-2"ø	Nibco	www.Nibco.com	T-585-66-LF	9	23.27.31.15	Ball Valves
BVT .05 Plu	Plumbing Valve	Two-Piece Bronze Ball Valve – Lead-Free, Full Port, Threaded	1/2"ø-1/2"ø	Nibco	www.Nibco.com	T-585-66-LF	2	23.27.31.15	Ball Valves
CVS 0.5 Plu	Plumbing Valve	Check Valve – Lead-Free, PTFE Seat Disc, Solder	1/2"ø-1/2"ø	Nibco	www.Nibco.com	S-413-Y-LF	1	23.27.31.19.27	Swing Check Valves
CVT 2.0 Plu	Plumbing Valve	Check Valve – Lead-Free, PTFE Seat Disc, Threaded	2"ø-2"ø	Nibco	www.Nibco.com	T-413-Y-LF	1	23.27.31.19.27	Swing Check Valves
RPZ 2.0 Plu	Plumbing Valve	Reduced pressure zone assembly, Lead-free cast copper silicon alloy	2"ø-2"ø	Watts	www.watts.com	LF909	1	23.27.31.11	Backflow Preventors
YST 2.0 Plu	Plumbing Valve	Threaded,Wye pattern strainer, 40 mesh, Lead-free bronze	2"ø-2"ø	Watts	www.Watts.com	LFS77	1	23.27.55.29.17	Y Strainers

	Plumbing Drain and Cleanout Schedule							
		Waste				Est.	Omni Class	
Type Mark	Description	Connection	Manufacturer	Model	URL	Count	Number	Omni Class Title
FCO-3	Heavy Duty Adjustable Floor Cleanout		Zurn Industries	ZN1400-HD-IC3	www.zurn.com	5	23.31.00.00	Plumbing Specific Products and Equipment
FCO-6	Heavy Duty Adjustable Floor Cleanout	6"	Zurn Industries	ZN1400-HD-IC6	www.zurn.com	5	23.31.00.00	Plumbing Specific Products and Equipment
FD-3	5" strainer, Nickel-bronze grate	3"	Zurn Industries	FD2210-PV3-NT	www.zurn.com	3	23.31.27.00	Floor Drains
HD-2	PVC hub drain, SCH 40 PVC, no foam core	2"				1	23.31.27.00	Floor Drains
HD-3	PVC hub drain, SCH 40 PVC, no foam core	3"				2	23.31.27.00	Floor Drains
RD-6	Plain Bronze dome, no-hub outlet, 3" static	6"	Zurn Industries	ZRB-Z100-NH-E-R-C	www.zurn.com	4	23.31.00.00	Plumbing Specific Products and Equipment
\sim	extension, Roof sump receiver, Underdeck clamp		$\bigvee \bigvee \bigvee$	$\checkmark \checkmark \checkmark \checkmark$	\sim		\sim \sim	
TD-6	Trench Drain, ADA longitudinal grate	6"	ACO	S100K	www.acodrain.u	20	23.31.27.00	Floor Drains
					S			

WATER SERVICE CALCULATIONS - PLUMBING FIXTURE CONNECTION AND FIXTURE UNIT SCHEDULE

			Connection Size		Connection Size					Est.	Total	Total	Total	Total
TAG	PHASE	Key Name	Waste	Hot	Cold	DFU	HWFU	CWFU	SFU	Count	DFU	HWFU	CWFU	SFU
CB 24-36-36 01	NEW	CATCH BASIN	6"			9.0	0.0	0.0		3	27	0	0	
ES 01	NEW	EMERGENCY EYE WASH / DRENCH SHOWER	1-1/4"		1/2"	1.0		2.0	2.0	1	1		2	2
EWC 01	NEW	DRINKING FOUNTAIN	1-1/4"		1/2"	0.5		0.3	0.3	1	0.5		0.25	0.25
FD 01	NEW	FLOOR DRAIN	3"			3.0				1	3			
HB 01	NEW	HOSE BIBB 3/4", TAMPERPROOF			3/4"			4.0	4.0	1			4	4
HB 02	NEW	HOSE BIBB 3/4"			3/4"			4.0	4.0	2			8	8
HB (EXISTING)	NEW	HOSE BIBB			3/4"			4.0	4.0	2			8	8
HD 01	NEW	HUB DRAIN	2"			2.0				1	2			
HD 02	NEW	HUB DRAIN	3"			3.0				1	3			
HPW (EXISTING)	NEW	HOT WATER PRESSURE WASHER			3/4"			4.0	4.0	1			4	4
HRI 01	NEW	HOSE REEL ROUGH-IN 3/4"			3/4"			4.0	4.0	4			16	16
HRI 02	NEW	TRUCK FILL HOSE ROUGH-in 2" (300 GPM)			2"			85.0	85.0	1			85	85
HRI 03	NEW	HOSE REEL ROUGH-IN 1"			1"			6.0	6.0	2			12	12
US 01	NEW	SERVICE SINK	2"	1/2"	1/2"	2.0	2.0	2.0	3.0	2	4	4	4	6
WM 01	NEW	WASHING MACHINE WALL BOX	2"	1/2"	1/2"	4.0	2.0	2.0	3.0	1	4	2	2	3
	EXISTING	COFFEEMAKER				1.5		0.5	0.5	1	1.5		0.5	0.5
	EXISTING	DRINKING FOUNTAIN				0.5		0.3	0.3	6	3		1.5	1.5
	EXISTING	FLOOR DRAIN	4"			4.0				3	12			
	EXISTING	FLOOR DRAIN	2"			2.0	2.0			8	16	16		
	EXISTING	HOSE BIBB			3/4"			4.0	4.0	6			24	24
	EXISTING	ICEMAKER				0.5		0.5	0.5	1	0.5		0.5	0.5
	EXISTING	LAVATORY				1.0		0.5	0.5	8	8		4	4
	EXISTING	SHOWER				2.0	2.0	2.0	3.0	4	8	8	8	12
	EXISTING	SINK, KITCHEN				3.0	2.0	2.0	3.0	1	3	2	2	3
	EXISTING	SINK, SERVICE	3			3.0	2.0	2.0	3.0	1	3	2	2	3
	EXISTING	URINAL, SIPHON JET				2.0		4.0	4.0	3	6		12	12
	EXISTING	WASH FOUNTAIN				2.0	1.5	1.5		1	2	1.5	1.5	
	EXISTING	WATER CLOSET, GRAVITY FLUSH TANK				6.0		3.0	3.0	8	48		24	24
Grand total: 28										75	155.5	35.5	225.25	232.75

PLUMBING LEGEND

<u>PIPE F</u>	ITTINGS	PIPE ACCESSORIES	PIPE TYPES	
-3	Сар	மீட மி Ball valve	SS	Sanitary drain, waste, or sewer Material: PVC, Schedule 40
ر ر	Elbow	🖾 🏳 Check valve	—ssu—	Underfloor sanitary drain, waste, or sewer Material: PVC, Schedule 40
-0	Riser up	🦁 🦻 Wye strainer		Storm drain waste or sewer
-Э	Riser down	🛱 🏳 Water meter	—SD—	Material: PVC, Schedule 40
Ϋ́	Тее		SDU	Underfloor storm drain, waste, or sewer Material: PVC, Schedule 40
÷	lee down			
Ż	Sanitary wye		V	Sanitary vent Material: PVC, Schedule 40
ד	Sanitary tee		CW	Cold water, domestic Material:Copper, Type L, Schedule 40
			—HW—	Hot water, domestic Material:Copper, Type L, Schedule 40
	PLUME	BING ABBREVIATIONS	—HWR—	Hot water return, domestic Material:Copper, Type L, Schedule 40
	AFF Ab CW Co	bove Finished Floor old Water	-HW-HP-	Hot water, high pressure Material: Steel, Schedule 80
	CW Co	old Water		Cold water, underground demostic
	HP Hi	igh Pressure	—PEX—	Meterial: DEX a

Т	Carney Coo	

	PIPE ACCESSORIES	PIPE TYPES	
	மீட மி Ball valve	—SS	Sanitary drain, waste, or sewer Material: PVC, Schedule 40
	I Check valve	—ssu—	Underfloor sanitary drain, waste, Material: PVC, Schedule 40
wn	I I I I I I I I I I I I I I I I I I I	—SD—	Storm drain, waste, or sewer Material: PVC, Schedule 40
n		-SDU-	Underfloor storm drain, waste, or Material: PVC, Schedule 40
wye		V	Sanitary vent Material: PVC, Schedule 40
tee		—-CW—-	Cold water, domestic Material:Copper, Type L, Schedu
		HW	Hot water, domestic Material:Copper, Type L, Schedu
<u>PL</u>	UMBING ABBREVIATIONS	—HWR—	Hot water return, domestic Material:Copper, Type L, Schedu
F V	Above Finished Floor Cold Water	-HW-HP-	Hot water, high pressure Material: Steel, Schedule 80
V	Cold Water		Cold water, underground domesti

	ADOVETITISTIC
CW	Cold Water
CW	Cold Water
HP	High Pressure
HW	Hot Water
HWR	Hot Water Re
IE	Invert Elevation
MAX	Maximum
MIN	Minimum
RI	Rough-in
RPZ	Reduced Pres
SIM	Similar
SS	Sanitary Sew
SSU	Sanitary Sew
TYP	Typical
V	Vent
VTR	Vent to Roof

WATER SUPPLY CALCULATIONS							
FORMATION NEEDED FOR WATER SERVICE SIZING							
75 gpm 233 SFU	Load factor in gallons per minute Load factor in fixture units						
64 psi	Minimum pressure available from the water main						

3.	7 feet	Difference in elevation water main to building control valve
4.	2 inch	Size of water meter
5.	75 feet	Developed length from water meter to building control valve (= distance from meter to water main x1.5)
6.	0.4 psi	Pressure loss due to friction in 8 inch water service (=psi/100' x developed length)
7.	3.04 psi	Pressure loss due to elevation difference between main and meter (elevation difference x 0.434 psi/ft)
8.	3.3 psi	Pressure loss due to meter
9.	57.3 psi	Available pressure after the water meter Subtract loss due to friction (Step 6), loss due to elevation (Step 7), and loss due to meter (Step 8), from minimum available pressure

INFORMATION NEEDED FOR WATER DISTRIBUTION SIZING

	A=	B-(C + D + E) x 100 F
A	5.7 psi/100'	Pressure available for uniform loss
В	57.3 psi	Available pressure after water meter (from Step 9, above)
С	1.8 psi	Pressure loss due to difference in elevation from building control valve to controlling fixture (elevation difference x .434 psi/ft)
D	8 psi	Pressure needed at controlling fixture
Е	15 psi	Pressure loss due to water softeners, water treatment devices, instantaneous water heaters and backflow preventers. (tank water heaters are assumed to have no pressure loss)
F	565 feet	Developed length from water meter building control valve to controlling fixture in feet x 1.5

3 CR - Stormwater Roof Areas 1/32" = 1'-0"

····· •·······························				
Number	Description	Area	Stormwater	
1	New Garage Roof East-facing, draining to spouts	9,537 ft²	367 GPM	
2	New Garage Roof West-facing draining to spout	1,760 ft ²	68 GPM	
3	Existing Roof, draining to Roofdrains	11,208 ft ²	431 GPM	
4	New Garage Roof West-facing, draining to Roofdrains	11,548 ft ²	444 GPM	
		34,052 ft ²	1310 GPM	

Return ation

ressure Zone

ewer

ewer Underfloor

RPZ Back Flow Preventer

Shutoff Valve

Swing Check Valve

Material:PEX-a

Isolation Valve

Wye Strainer, 40 mesh

Blowdown Valve

2 Catch Basin Detail 1/2" = 1'-0"

Plumbing Sheet List		
Sheet		
Number	Sheet Name	
P 001 D	Plumbing Demo Plan	
P 100	Plumbing Schedules and Calculations	
P 110	Underground Plumbing	
P 120	Above Ground Plumbing	
P 130	Plumbing Sections	
P 140	Sanitary DWV Isometric	
P 150	Domestic Water Isometric	
P 200	Roof Plan and Sections	

OF MAD Design prepared for: Engineering Division

City of Madison Facilites Maintenace

1600 Emil St. Madison, WI 53713

Engineering Operations Building Addition

Location: 1600 Emil St. Madison, WI 53713

Contract: 6484 Project: 10308 Common Council Approval: 6/2/2015

Lighting Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

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Landscaping Design: Sarah Lerner, LPA., City of Madison; 608-261-4281; slerner@cityofmadison.com

Electrical Design: Dave Hanson, P.E., Kueny Architects

Plumbing Design:

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HVAC Design:

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Structural Design: John Schmidbauer, P.E., Kueny Architects

Fire Protection Design: Robert Novak, Kueny Architects

Architectural Design: Kay Schindel, P.E., City of Madison; 608-266-4668; kschindel@cityofmadison.com

Revisions by Addendum o. Description Addendu I Changed trench drain model 1

Plumbing Schedules and Calculations

P 100

12/22/2015 11:45:24 AM

Print Date: