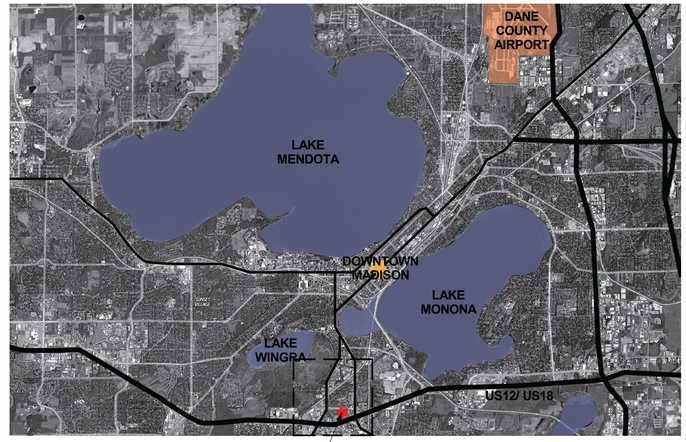
MADISON PUBLIC LIBRARY MAINTENANCE & SUPPORT CENTER REMODEL

1301 WEST BADGER ROAD

MADISON, WI 53713

DRAWING INDEX

LOCATION MAP



1301 W. BADGER ROAD

Area Location Plan
Not to scale

ARCHITECT OF RECORD:
OPN ARCHITECTS

WISCONSIN WESLEY T. REYNOLDS 11709-5 MADISON, WISCONSIN ARCHITECT

I hereby certify these plans and specifications were prepared by me or under my direct personal supervision and that I am a duly Registered Architect under the laws of the State of Wisconsin.

Signature: Wesley T Reynolds
Name: WESLEY REYNOLDS
Discipline: ARCHITECTURE
WI Registration No: 11709-5 Expiration date: 07/31/2018
Sheets covered by this seal: LISTED ABOVE AS "ARCHITECTURAL"

CIVIL ENGINEER:
SNYDER & ASSOCIATES

WISCONSIN SCOTT J. ANDERSON E-38818 WAUNAKEE WI PROFESSIONAL ENGINEER

I hereby certify that this engineering and land survey document and the related work was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer and Land Surveyor under the laws of the State of Iowa.

Signature: Scott J Anderson 9-8-16
Name: Scott Anderson
Discipline: Civil
WI Registration No: E-38818-6 Expiration date: 07-31-2018
Sheets covered by this seal: LISTED ABOVE AS "CIVIL"

STRUCTURAL ENGINEER:
KJWW ENGINEERING

WISCONSIN ABBY PERTZBORN E-38745-6 MADISON WI PROFESSIONAL ENGINEER

I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: 9/9/16 STRUCTURAL
Name: Abby A. Pertzborn
Discipline: Structural
WI Registration No: E-38745-6 Expiration date: 07-31-2018
Sheets covered by this seal: LISTED ABOVE AS "STRUCTURAL"

MECHANICAL ENGINEER:
KJWW ENGINEERING

WISCONSIN RYAN K. JESTER E-41115-6 MADISON WI PROFESSIONAL ENGINEER

I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: RYAN K. JESTER 9/6/16
Name: Ryan K. Jester
Discipline: Mechanical and Plumbing
WI Registration No: E-41115-6 Expiration date: 07-31-2018
Sheets covered by this seal: LISTED ABOVE AS "MECHANICAL"

ELECTRICAL ENGINEER:
KJWW ENGINEERING

WISCONSIN TIMOTHY R. PAAP E-42468-6 CAMBRIDGE WI PROFESSIONAL ENGINEER

I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: 9/23/16
Name: Tim Paap
Discipline: Electrical
WI Registration No: E-42468-6 Expiration date: 07-31-2018
Sheets covered by this seal: LISTED ABOVE AS "ELECTRICAL"

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CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET, SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Snyder & Associates, Inc.
5010 Voges Road
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P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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Middleton, WI 53562
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Key Plan

Sheet Issue Date

Permit Set	10/17/2016

Previous Issue Dates

CD Set	09/09/2016
60% CD Set	08/24/2016
Design Development	06/17/2016
Schematic Design	04/01/2016

Revision Dates

Drawing
COVER SHEET

OPN Project No. **15617000**

A000

CODE INFORMATION

APPLICABLE CODES:

2009 INTERNATIONAL BUILDING CODE
(W// WI AMENDMENTS - SPS 362)
2009 INTERNATIONAL EXISTING BUILDING CODE
(W// WI AMENDMENTS. - SPS 366)
2009 INTERNATIONAL MECHANICAL CODE
(W// WI AMENDMENTS - SPS 364)
2009 INTERNATIONAL FUEL GAS CODE
(W// WI AMENDMENTS - SPS 365)
2009 INTERNATIONAL ENERGY CONSERVATION CODE
(W// WI AMENDMENTS. - SPS 363)
2012 NATIONAL FIRE PROTECTION ASSOC. (NFPA) 1
(W// WI AMENDMENTS - SPS 314)
2009 NATIONAL ELECTRIC CODE
(W// WI AMENDMENTS - SPS 316)
WISCONSIN UNIFORM PLUMBING CODE (SPS 382)

USE & OCCUPANCY CLASSIFICATION (CHAPTER 3):

OCCUPANCY CLASSIFICATION: BUSINESS GROUP ***B***
STORAGE GROUP ***S1***
FACTORY INDUSTRIAL ***F1***
OCCUPANCY SEPARATIONS: N/A

BUILDING HEIGHT & AREAS (CHAPTER 5):

TABULAR BUILDING AREA (ALLOWABLE PER STORY) :
OCCUPANCY - GROUP B
CONSTRUCTION - TYPE IIB
AREA PER FLOOR - 23,000 SF (ALLOW.)
HEIGHT - 3 STORIES / 55' (ALLOW.)

OCCUPANCY - GROUP S1
CONSTRUCTION - TYPE IIB
AREA PER FLOOR - 17,500 SF (ALLOW.)
HEIGHT - 2 STORIES / 55' (ALLOW.)

ACTUAL BUILDING :
AREA (EXISTING) -
FIRST FLOOR +/- 16,500 GSF
TOTAL +/- 16,500 GSF

HEIGHT - **1 STORY / 21'-8" < 55 FT**

MEZZANINES:
MEZZANINES SHALL NOT CONTRIBUTE TO EITHER THE BUILDING AREA OR NUMBER OF STORIES. MEZZANINES SHALL NOT EXCEED ONE-THIRD OF THE FLOOR AREA OF THE ROOM OR SPACE IN WHICH THEY ARE LOCATED.
MEZZANINE SIZE **2,200 GSF**

TYPE OF CONSTRUCTION (CHAPTER 6):

CONSTRUCTION TYPE ***IIB***

STRUCTURAL FIRE RATINGS (TABLE 601) / (>10' FIRE SEP. DISTANCE)

PRIMARY STRUCTURAL FRAMING	0 HR
EXTERIOR BEARING WALLS (≥ 10' FIRE SEP. DIST)	0 HR
INTERIOR BEARING WALLS	0 HR
NONBEARING EXTERIOR WALLS (≥ 10' FIRE SEP. DIST)	0 HR
NONBEARING INTERIOR WALLS & PARTITIONS	0 HR
FLOOR CONSTRUCTION & SECONDARY MEMBERS	0 HR
ROOF CONSTRUCTION & SECONDARY MEMBERS	0 HR

FIRE PROTECTION (CHAPTER 9) :

AUTOMATIC SPRINKLER SYSTEM & MONITORING SYSTEM (903)
PROVIDED

FIRE EXTINGUISHERS (906)
MAX. TRAVEL DISTANCE = 75' **PROVIDED**

FIRE ALARM & SMOKE DETECTION SYSTEM (907)
PROVIDED

MEANS OF EGRESS (CHAPTER 10) :

1004 DESIGN OCCUPANT LOAD

BUSINESS (NON-ASSEMBLY)	= **4,540** SF	
100 GSF / OCCUPANT :		46
BUSINESS (UNCONCEN. ASSEMBLY / MEETING ROOMS)	= **544** SF	
15 NSF / OCCUPANT :		37
MECHANICAL / ACCESSORY STORAGE	= **1,098** SF	
300 GSF / OCCUPANT :		4
WAREHOUSE / STORAGE	= **10,970** SF	
500 GSF / OCCUPANT :		22
FACTORY INDUSTRIAL / SHOP	= **764** SF	
100 GSF / OCCUPANT :		8
TOTAL BUILDING OCCUPANTS (PER CODE) :		**116**

1005 MIN. REQ'D. EGRESS WIDTH
EGRESS WIDTH
BUILDING (0.2" / OCCUP) - REQ'D.: 23.2" < PROV.: 196"

1014.3 COMMON PATH OF EGRESS
MAXIMUM COMMON PATH = < 100 FT REQUIRED AS PER 1014.3

1016.1 TRAVEL DISTANCE
MAXIMUM TRAVEL DISTANCE = < 250 FT REQUIRED AS PER 1016.1

1018.1 CORRIDORS (SERVING >30 OCCUPANTS)
SPRINKLERED BLDGS - 0-HR

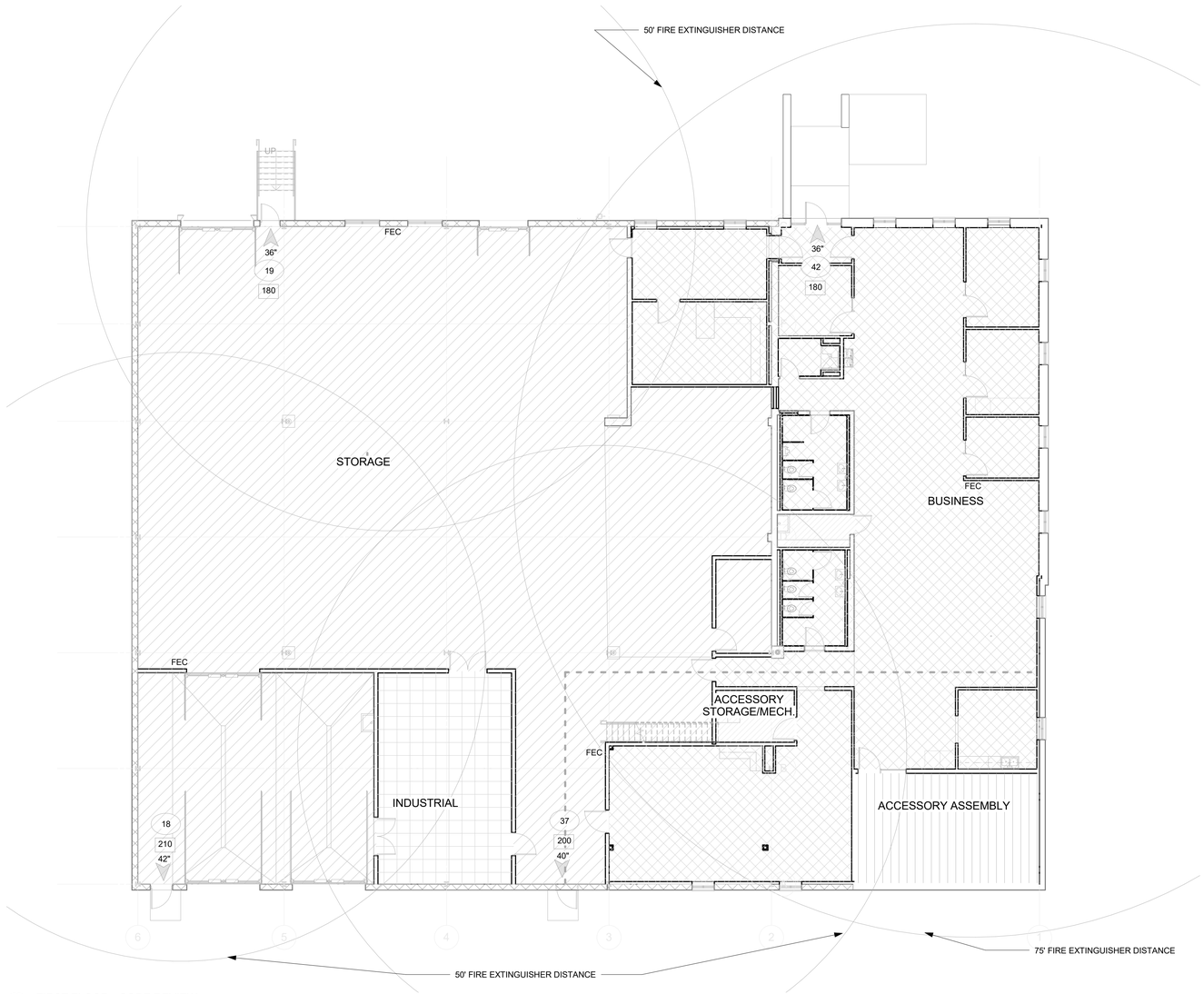
1018.4 DEAD ENDS (CORRIDORS)
MAX. LENGTH OF A DEAD END - 50'-0" (SPRINKLERED BUILDING)

1021.1 MINIMUM NUMBER OF EXITS
FIRST FLOOR - REQ'D.: 2 PROV.: 5

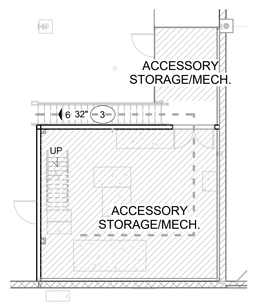
PLUMBING CALCULATIONS (CHAPTER 29) :

DESIGN OCCUPANT LOAD 116/2 = 58

	(DESIGN LOAD) PER CODE	ON PLANS
WC: 1 / 25 (1st 50 OCCUPANTS)		
1 / 50 (REMAINING OCCUPANTS)		
MEN:	3 WC REQ'D.	3 PROV.
WOMEN:	3 WC REQ'D.	3 PROV.
LAV: 1 / 40 (1st 80 OCCUPANTS)		
1 / 80 (REMAINING OCCUPANTS)		
MEN:	2 LAV REQ'D.	2 PROV.
WOMEN:	2 LAV REQ'D.	2 PROV.
DF: 1 / 100 OCCUPANTS =	2 DF REQ'D.	2 PROV.
SS:	1 SS REQ'D.	1 PROV.
SHWR:	0 REQ'D.	1 PROV.



1 FIRST FLOOR - CODE REVIEW
3/32" = 1'-0"



2 MEZZANINE CODE REVIEW
3/32" = 1'-0"

CODE REVIEW LEGEND

POINT OF EGRESS (CLEAR WIDTH PROVIDED)	34" ➤
EGRESS (OCCUPANTS SERVED)	52
EGRESS (CAPACITY)	170
STAIR EGRESS (CAPACITY)	▲ 160
1-HR FIRE-RESISTANCE RATING	
MAX. PATH OF TRAVEL	
FIRE EXTINGUISHER	FEC

OCCUPANCY LEGEND

(B) - 100 SF/PERSON	
(S1) - 500 SF/PERSON	
(F1) INDUSTRIAL - 100SF/PERSON	
ACCESSORY STORAGE / MECHANICAL - 300SF/PERSON	
ACCESSORY ASSEMBLY- 15SF/PERSON	

CODE REVIEW LEGEND

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MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Middleton, WI 53562
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ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
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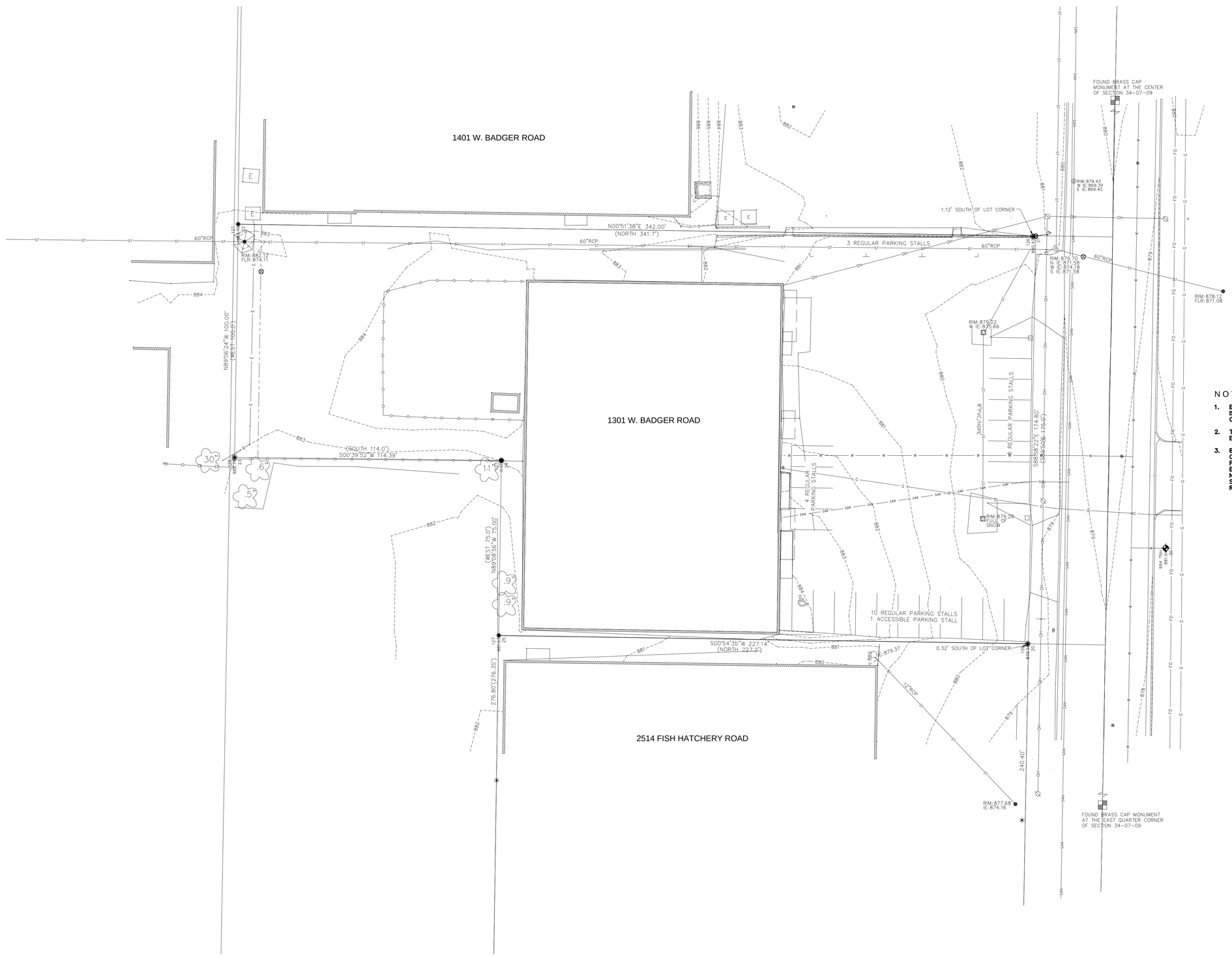
Drawing
CODE REVIEW

OPN Project No. **15617000**

AG001



NOTES

1. **EXISTING SURVEY COMPLETED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR EXAMINING ALL EXISTING SITE CONDITIONS PRIOR TO THE START OF CONSTRUCTION.**
2. **THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.**
3. **BEFORE PROCEEDING WITH ANY UTILITY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE EACH EXISTING LATERAL OR POINT OF CONNECTION AND VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES. IF ANY EXISTING UTILITIES ARE NOT AS SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR POSSIBLE REDESIGN.**

OPN ARCHITECTS

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DES MOINES
MADISON

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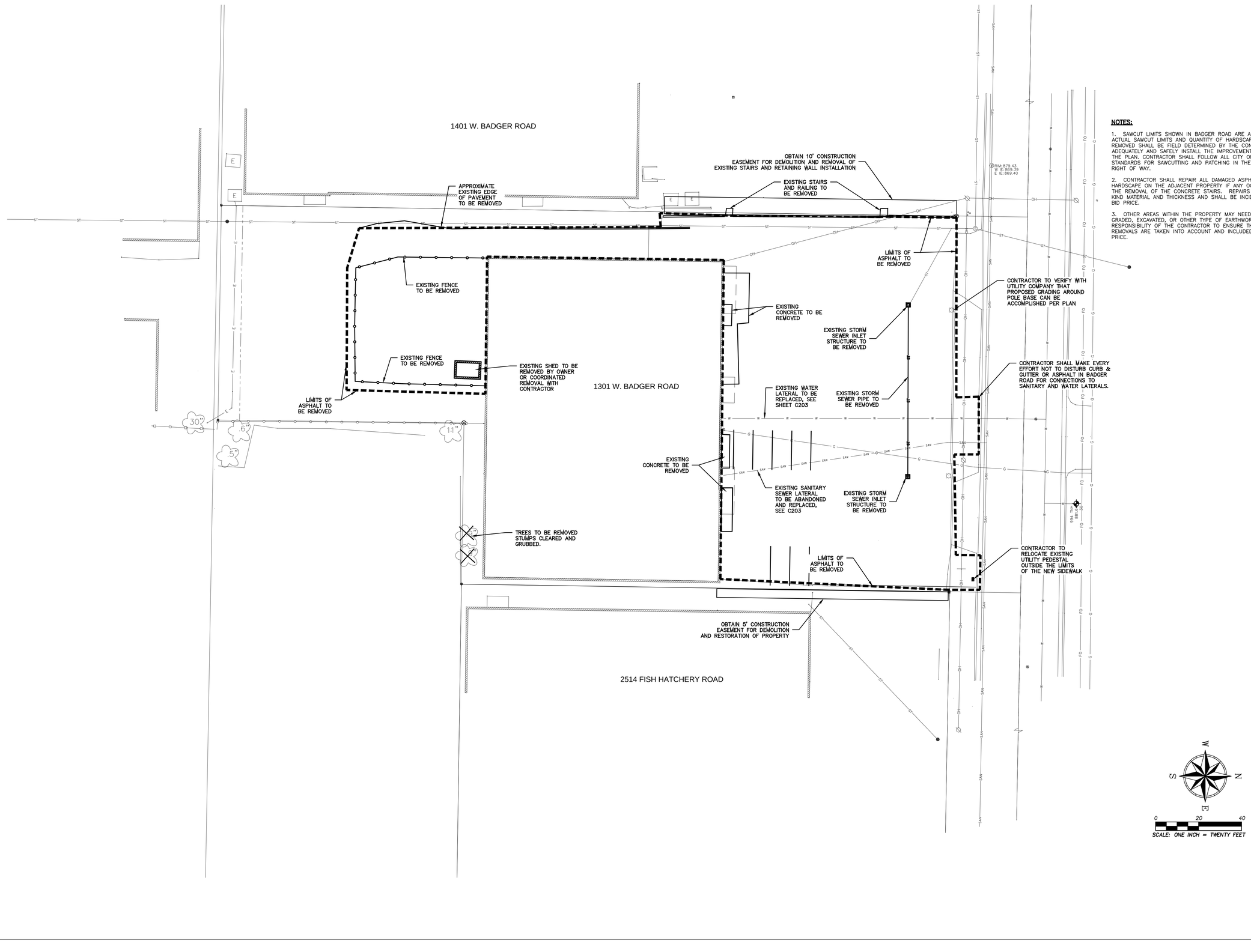
EXISTING SITE PLAN

OPN Project No. **15617000**

C000



NOTES:

1. SAWCUT LIMITS SHOWN IN BADGER ROAD ARE APPROXIMATE. ACTUAL SAWCUT LIMITS AND QUANTITY OF HARDSCAPE TO BE REMOVED SHALL BE FIELD DETERMINED BY THE CONTRACTOR TO ADEQUATELY AND SAFELY INSTALL THE IMPROVEMENTS SHOWN ON THE PLAN. CONTRACTOR SHALL FOLLOW ALL CITY OF MADISON STANDARDS FOR SAWCUTTING AND PATCHING IN THE BADGER ROAD RIGHT OF WAY.

2. CONTRACTOR SHALL REPAIR ALL DAMAGED ASPHALT AND HARDSCAPE ON THE ADJACENT PROPERTY IF ANY OCCURS DURING THE REMOVAL OF THE CONCRETE STAIRS. REPAIRS SHALL MATCH IN KIND MATERIAL AND THICKNESS AND SHALL BE INCIDENTAL TO THE BID PRICE.

3. OTHER AREAS WITHIN THE PROPERTY MAY NEED TO BE CLEARED, GRADED, EXCAVATED, OR OTHER TYPE OF EARTHWORK. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL THE REMOVALS ARE TAKEN INTO ACCOUNT AND INCLUDED IN THE BID PRICE.

N

0 20 40

SCALE: ONE INCH = TWENTY FEET

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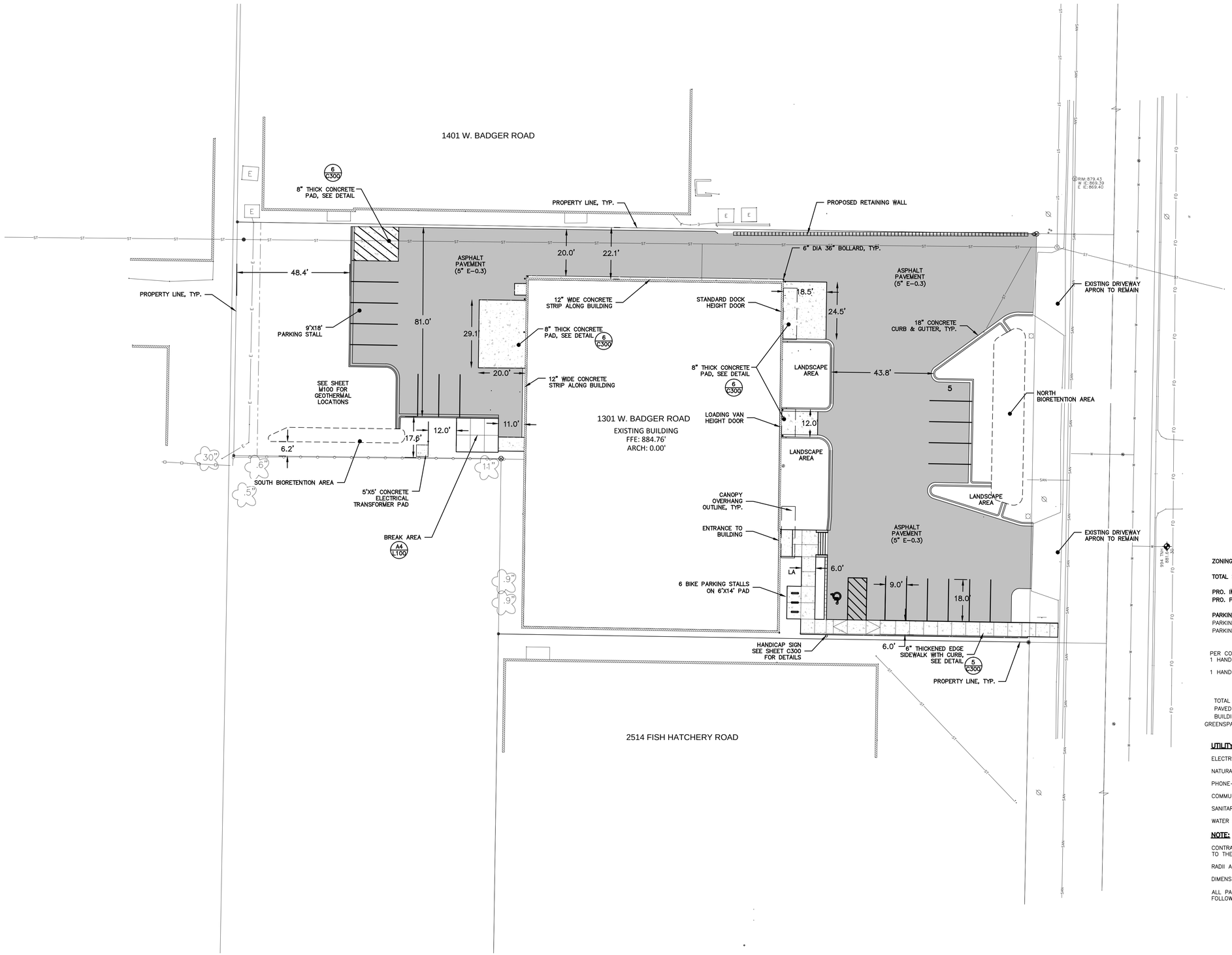
Drawing

DEMOLITION SITE PLAN

OPN Project No. **15617000**

C100



Know what's **below.**
Call before you dig.

WIS. STATUTE 182.0175 (1974)
REQUIRES MIN. OF 3 WORK DAYS
NOTICE BEFORE YOU EXCAVATE

W S N E

0 20 40
SCALE: ONE INCH = TWENTY FEET

ZONING DISTRICT: IL INDUSTRIAL LIMITED

TOTAL SITE AREA: 51,142 SF

PRO. IMPERVIOUS: 39,400 SF (77.0%) (LOT COVERAGE)
PRO. PERVIOUS: 11,742 SF (23.0%)

PARKING REQUIREMENTS
PARKING REQUIRED
PARKING PROVIDED 16 STALLS

PER CODE, FOR 1-25 TOTAL PARKING STALLS
1 HANDICAP PARKING STALL MUST BE PROVIDED

1 HANDICAP PARKING STALL IS SHOWN ON PLAN

	PROPOSED AREAS	EXISTING AREAS
TOTAL AREA:	51,142 SF (100.0%)	
PAVED AREA:	22,864 SF (44.7%)	31,973 SF (62.5%)
BUILDING AREA:	16,545 SF (32.4%)	16,545 SF (32.4%)
GREENSPACE AREA:	11,733 SF (22.9%)	2,624 SF (5.1%)

UTILITY COMPANY INFORMATION

ELECTRICITY – ALLIANT – 608-233-2014

NATURAL GAS – MG&E – 608-252-7373

PHONE– AT&T – 800-778-9140

COMMUNICATIONS– CHARTER – 877-906-9121

SANITARY SEWER – CITY OF MADISON – 608-266-4430

WATER SERVICE– CITY OF MADISON – 608-266-4651

NOTE:

CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES ON AND ADJACENT TO THE SITE PRIOR TO THE START OF THE PROJECT.

RADII ARE FROM BACK OF CURB

DIMENSIONS ARE FROM FACE OF CURB

ALL PARKING LOT STRIPING SHALL BE 4" WIDE WHITE PAINT LINES AND FOLLOW CITY OF MADISON STANDARD FOR HANDICAP STRIPING.

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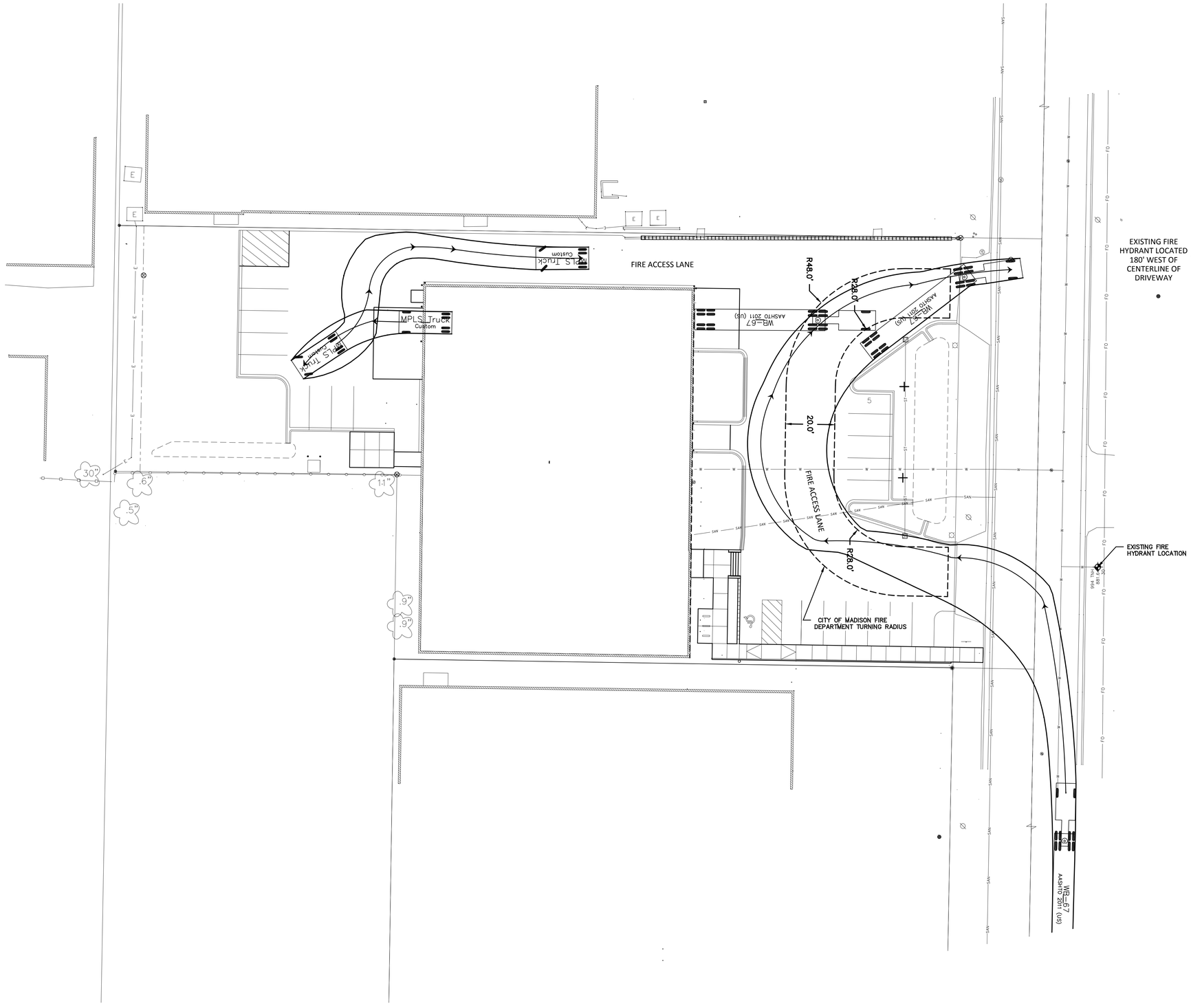
Drawing
PROPOSED SITE PLAN

OPN Project No. **15617000**

C101



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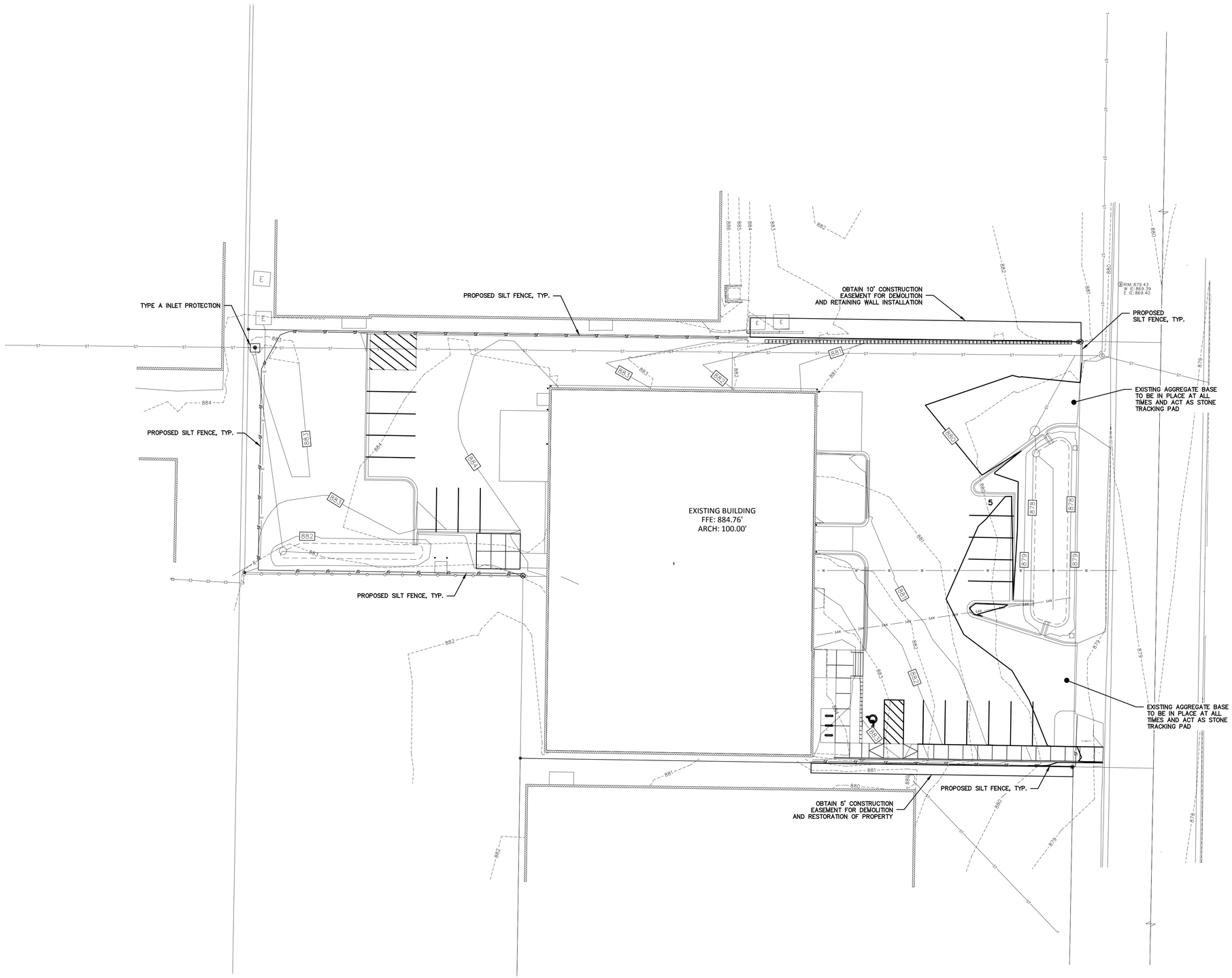
Drawing

TURNING MOVEMENTS

OPN Project No. **15617000**

C102



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REQUIRES MIN. OF 3 WORK DAYS
NOTICE BEFORE YOU EXCAVATE

W
S N
E

0 20 40
SCALE: ONE INCH = TWENTY FEET

NOTES:

1. ALL SILT FENCE MUST BE INSTALLED BY THE CONTRACTOR AND INSPECTED BY THE CITY PRIOR TO ANY SITE WORK.

2. SITE EROSION CONTROL MEASURES MUST BE IN PLACE AT ALL TIMES. SHOULD DEVICES BE REMOVED FOR WORK ACCESS, THEY SHALL BE REINSTALLED AT THE END OF EACH WORK DAY UNTIL PAVEMENTS HAVE BEEN INSTALLED AND ALL LANDSCAPE AREAS HAVE BEEN MULCHED AND SODDED. SEEDED AREAS MUST EXHIBIT MINIMUM OF 70% SOIL COVERAGE.

3. REFER TO THE EROSION CONTROL PLAN NOTES AND DETAIL SHEETS FOR MORE INFORMATION.

4. BIORETENTION BASINS SHALL BE OVER EXCAVATED AND USED FOR SEDIMENTATION BASINS DURING CONSTRUCTION. ALL SEDIMENT AND DEBRIS SHALL BE REMOVED PRIOR TO SAND, ROCK, AND ENGINEERED SOIL INSTALLATION. THE CONTRIBUTING WATERSHED TO THE BIORETENTION BASIN SHALL BE STABILIZED PRIOR TO BRINGING THE BASIN ONLINE.

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Schematic Design	04/01/2016

Revision Dates

Drawing
PROPOSED GRADING & EROSION CONTROL PLAN

OPN Project No. **15617000**

C200

BIORETENTION NOTES

1. BIORETENTION SHALL CONFORM TO WIS. DNR TECH STANDARD 1004.
2. ENGINEERED SOIL SHALL CONSIST OF 70%–85% SILICA SAND AND 15%–30% COMPOST WITH A PH OF 5.5–6.5
3. BIORETENTION BASINS SHALL BE EXCAVATED AND USED AS SEDIMENT TRAPS DURING CONSTRUCTION. UPON COMPLETION OF CONSTRUCTION AND SITE STABILIZATION, THE BASINS SHALL BE OVER–EXCAVATED 3 FEET MINIMUM AND THEN THE SAND LAYER AND ENGINEERED SOIL SHALL BE PLACED TO WITHIN THREE INCHES OF FINAL GRADE. ONCE THE ENGINEERED SOIL IS PLACED, THREE INCHES OF HARDWOOD MULCH SHALL BE ADDED ON TOP OF THE ENGINEERED SOIL.
4. SPECIFIC SPECIES OR CONTAINER SIZE SUGGESTED SUBSTITUTIONS SHALL BE PRESENTED TO CONSULTANT ALONG WITH THE REASONS FOR THE SUGGESTIONS. WITH CONSULTANT OR PROJECT ENGINEER'S APPROVAL, SUBSTITUTIONS MAY BE MADE. IF SUBSTITUTIONS ARE MADE, CONTRACT PRICES MAY NEED TO BE ADJUSTED ACCORDINGLY.
5. LIVE PLANTS CAN BE PLANTED IN THE FIELD DURING THE GROWING SEASON FROM MAY 1 THROUGH OCTOBER 1. ANY SUGGESTED PLANTING TIMES NOT IN THIS WINDOW SHALL BE APPROVED BY CONSULTANT OR ENGINEER. IF PLANTING OCCURS OUTSIDE OF THIS WINDOW ADDITIONAL MEASURES MAY NEED TO BE TAKEN (I.E. MULCH) TO ENSURE PLANT SURVIVAL. IN THESE INSTANCES, THE CONTRACT PRICE MAY NEED TO BE ADJUSTED ACCORDINGLY.
6. ALL PLANTED MATERIALS WILL BE WARRANTED BY INSTALLATION CONTRACTOR TO BE IN HEALTHY CONDITION WITH A REPLACEMENT GUARANTEE FOR A PERIOD OF ONE YEAR FROM THE DATE OF PLANTING.
7. NATIVE PLANTS SHOULD BE WATERED IN AFTER INSTALLATION TO ENSURE THEIR SURVIVAL. THIS TYPICALLY INVOLVES WATERING AT TIME OF INSTALLATION AND 2 TIMES WEEKLY FOR A ONE MONTH PERIOD OR UNTIL GROUND FREEZE UP IF NATURAL RAINFALLS ARE INSUFFICIENT. A SINGLE WATERING EVENT INVOLVES WATERING THE SOIL IN THE PLANTED AREAS TO THE POINT OF SATURATION BUT STOPPING SHORT OF SOIL DISPLACEMENT. SHOULD VERY DRY CONDITIONS DEVELOP WITHIN ONE YEAR OF PLANTING, ADDITIONAL WATERINGS MAY BE NECESSARY, CONSULTANT OR PROJECT ENGINEER WILL DETERMINE THIS AND CONTRACT PRICES MAY BE ADJUSTED TO ACCOMMODATE THIS ACTION.
8. PLANTS SHALL BE PLANTED IN THE BIORETENTION AREA AT A MINIMUM OF ONE PLANT PER EVERY TWO SQUARE FEET.
9. UPON COMPLETION OF EXCAVATING & GRADING OPERATIONS, A LOOSE, FRIABLE SEEDBED SHALL BE PREPARED FOR INSTALLATION OF NATIVE SEED.
10. CARE SHALL BE TAKEN TO MINIMIZE SOIL COMPACTION DURING CONSTRUCTION ACTIVITY. BY EXAMPLE OF A STANDARD SOIL PENETROMETER (COMPACTION TESTER), THE TOPSOIL COMPACTION READINGS SHALL BE LESS THAN 200 PSI AT THE 0–6 INCH DEPTH AND LESS THAN 250 PSI AT THE 6–18 INCH DEPTHS IN ALL AREAS TO BE SEEDED.
11. UNDULATIONS OR IRREGULARITIES IN THE SEEDBED WHICH WOULD INTERFERE WITH A CONSISTENT SEEDING OPERATION SHALL BE LEVELED PRIOR TO FINAL SEEDING.
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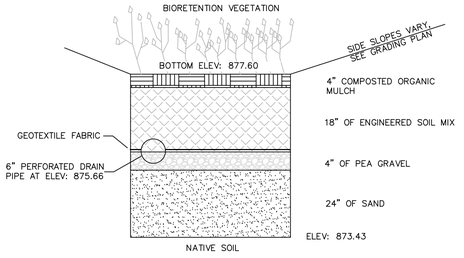
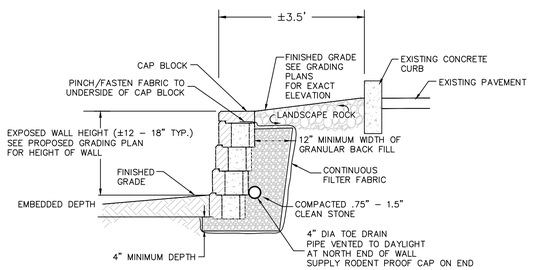


1 C201 NORTH BIORETENTION PROFILE
NOT TO SCALE



2 C201 SPLIT FACE BLOCK RETAINING WALL
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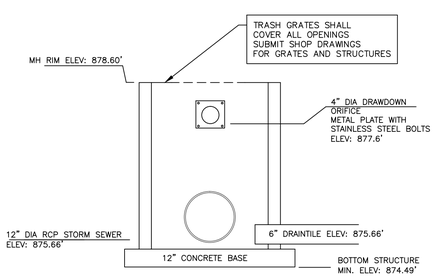
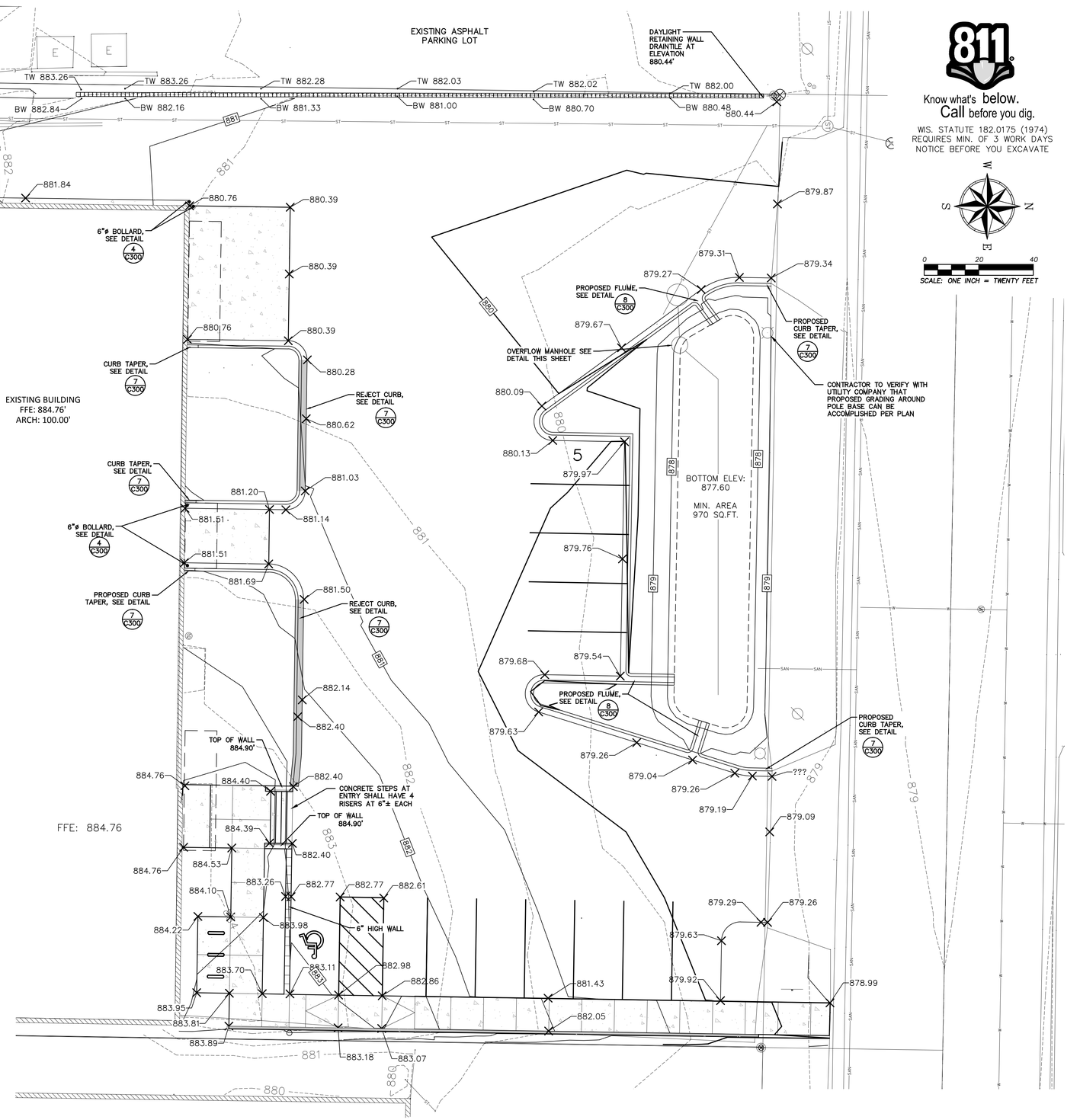


3 C201 BIORETENTION OVERFLOW MANHOLE
NOT TO SCALE



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MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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MADISON PUBLIC LIBRARY

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Consultants

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Snyder & Associates, Inc.
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Madison, WI 53718
P. 608.838.0444

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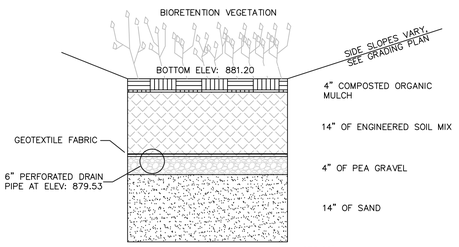

1 C202 SOUTH BIORETENTION PROFILE
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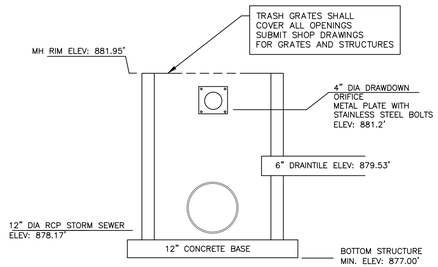

2 C202 BIORETENTION OVERFLOW MANHOLE
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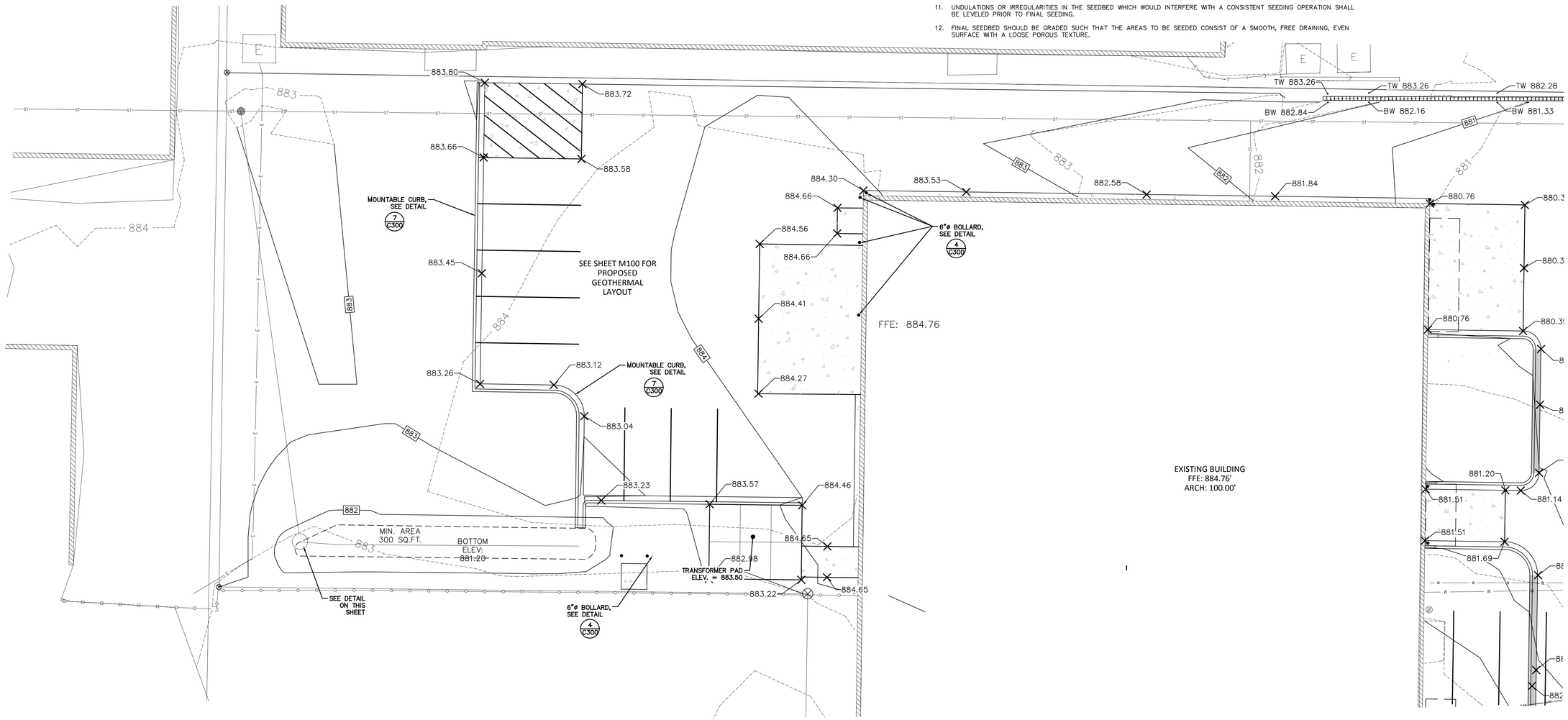

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STORM DRAINAGE:

1. UNLESS OTHERWISE INDICATED, USE REINFORCED, PRECAST, CONCRETE MAINTENANCE MANHOLES AND CATCHBASINS CONFORMING TO ASTM C478, FURNISHED WITH WATER STOP RUBBER GASKETS AND PRECAST BASES. JOINTS FOR ALL PRECAST MAINTENANCE HOLE SECTIONS SHALL HAVE CONFINED, RUBBER "O"-RING GASKETS IN ACCORDANCE WITH ASTM C923. THE INSIDE BARREL DIAMETER SHALL NOT BE LESS THAN 48 INCHES.

2. ALL JOINTS AND CONNECTIONS TO CATCHBASINS OR MANHOLES SHALL BE WATERTIGHT. USE RESILIENT RUBBER SEALS, WATERSTOP GASKETS, OR APPROVED EQUAL. CEMENT MORTAR JOINTS ARE NOT ALLOWED.

3. INSTALL CATCHBASIN CASTINGS WITH SPECIFIED TOP ELEVATION AT THE FRONT RIM.

4. PVC PIPE: USE SOLID-CORE, SDR-26, ASTM D3034 POLYVINYL CHLORIDE (PVC) PIPE FOR DESIGNATED PVC STORM SEWER SERVICES 4 TO 15-INCHES IN DIAMETER. USE SOLID-CORE, SDR-35, ASTM F679 POLYVINYL CHLORIDE (PVC) PIPE FOR DESIGNATED PVC STORM SEWER SERVICES 18 TO 27-INCHES IN DIAMETER. JOINTS FOR ALL STORM SEWER SHALL HAVE PUSH-ON JOINTS WITH ELASTOMERIC GASKETS. USE OF SOLVENT CEMENT JOINTS IS ALLOWED FOR BUILDING SERVICES. SOLVENT CEMENT JOINTS IN PVC PIPE MUST INCLUDE USE OF A PRIMER WHICH IS OF CONTRASTING COLOR TO THE PIPE AND CEMENT. PIPE WITH SOLVENT CEMENT JOINTS SHALL BE JOINED WITH PVC CEMENT CONFORMING TO ASTM D2564. LAY ALL PVC PIPE ON A CONTINUOUS GRANULAR BED. INSTALLATION MUST COMPLY WITH ASTM D2321.

5. TESTING: TEST ALL PORTIONS OF STORM SEWER THAT ARE WITHIN 10 FEET OF BUILDINGS, WITHIN 10 FEET OF BURIED WATER, LINES, WITHIN 50 FEET OF WATER WELLS, OR THAT PASS THROUGH SOIL OR WATER IDENTIFIED AS BEING CONTAMINATED. TEST ALL FLEXIBLE STORM SEWER LINES FOR DEFLECTION AFTER THE SEWER LINE HAS BEEN INSTALLED AND BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE TEST FAILS, MAKE NECESSARY REPAIRS AND RETEST.

6. INSTALL DETECTABLE UNDERGROUND MARKING TAPE DIRECTLY ABOVE ALL PVC, POLYETHYLENE, AND OTHER NONCONDUCTIVE UNDERGROUND UTILITIES AT A DEPTH OF 457 MM (18 INCHES) BELOW FINISHED GRADE, UNLESS OTHERWISE INDICATED. BRING THE TAPE TO THE SURFACE AT VARIOUS LOCATIONS IN ORDER TO PROVIDE CONNECTION POINTS FOR LOCATING UNDERGROUND UTILITIES. INSTALL BLUE RHINO TRIVIEW FLEX TEST STATIONS, OR APPROVED EQUAL, WITH BLACK CAPS AT EACH SURFACE LOCATION.

7. TRACER WIRE: LOCATING REQUIREMENTS – A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THESE CODE SECTIONS AS PER 182.0715(2R) OF THE STATUTES.

8. CLEANOUTS: INSTALL CLEANOUTS ON ALL ROOF DRAINS IN ACCORDANCE WITH S.P.S 382.35 (3)(C)(1). THE DISTANCE BETWEEN CLEANOUTS IN HORIZONTAL PIPING SHALL NOT EXCEED 100 FEET FOR PIPES 10-INCHES AND UNDER IN SIZE. CLEANOUTS SHALL BE OF THE SAME NOMINAL SIZE AS THE PIPES THEY SERVE. INSTALL A METER BOX FRAME AND SOLID LID (NEENAH R-1914-A, OR APPROVED EQUAL) OVER ALL CLEANOUTS.

WATER DISTRIBUTION SYSTEM:

1. BRING ALL SITE UTILITIES TO 5' OUTSIDE OF THE BUILDING LINE WITH THE EXCEPTION OF THE WATER SERVICE. EXTEND WATER SERVICE INTO THE BUILDING AND UP TO THE FLANGE FOR THE WATER METER.

2. WATERMAIN DEPTH: MAINTAIN 7.0 FEET OF COVER OVER THE TOP OF THE WATER LINES TO THE FINISHED GRADE. VERIFY ELEVATION OF PROPOSED AND EXISTING WATER LINES AT ALL UTILITY CROSSINGS. INSTALL THE WATER LINES AT GREATER DEPTHS IN ORDER TO CLEAR STORM SEWERS, SANITARY SEWERS, OR OTHER UTILITIES AS REQUIRED. INCLUDE COSTS TO LOWER WATER LINES IN THE BASE BID.

3. TESTING: PRESSURE TEST AND PERFORM BACTERIOLOGICAL TESTS ON ALL WATER LINES UNDER THE SUPERVISION OF THE CITY OF MADISON. NOTIFY THE CITY AT LEAST 24 WORKING HOURS PRIOR TO ANY TESTING. PRESSURIZE THE WATERLINE TO 1034-KPA (150-PSI) GAUGE PRESSURE (MEASURED AT THE POINT OF LOWEST ELEVATION) BY MEANS OF A PUMP CONNECTED TO THE PIPE IN A SATISFACTORY MANNER. MAINTAIN THE TEST PRESSURE FOR A MINIMUM OF 2 HOURS. DO NOT ADD WATER TO THE WATERMAIN IN ORDER TO MAINTAIN THE REQUIRED PRESSURE DURING THE WATER MAIN PRESSURE TESTING. THE TEST SECTION OF PIPE IS ACCEPTABLE WITH A PRESSURE DROP OF 14 KPA (2 PSI) OR LESS.

4. USE MECHANICAL JOINT RESTRAINT DEVICES FOR JOINT RESTRAINT ON ALL WATERMAIN BENDS HAVING A VERTICAL OR HORIZONTAL DEFLECTION OF 22-1/2 DEGREES OR GREATER, ALL VALVES, STUBS, EXTENSIONS, TEES, CROSSES, PLUGS, ALL HYDRANT VALVES, AND ALL HYDRANTS IN ACCORDANCE WITH CITY REQUIREMENTS. USE "SERIES 1100 MEGALUG" MANUFACTURED BY EBAA IRON INC., EASTLAND, TEXAS, OR APPROVED EQUAL, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR RESTRAINT ON DUCTILE IRON PIPE.

5. AT ALL VALVE LOCATIONS WHICH REQUIRE A 12" OR SMALLER VALVE, INSTALL GATE VALVES WHICH ARE OF THE COMPRESSION RESILIENT SEATED (CRS) TYPE. USE AMERICAN FLOW CONTROL'S SERIES 2500 DUCTILE IRON RESILIENT WEDGE GATE VALVE, OR APPROVED EQUAL. GATE VALVES SHALL CONFORM TO AWWA C509. INSTALL CAST IRON VALVE BOXES CONFORMING TO ASTM A48 AT EACH VALVE LOCATION. VALVE BOXES SHALL BE THE THREE-PIECE TYPE WITH 5-1/4" SHAFTS. USE TYLER 6860-G WITH NO. 6 BASE, OR EQUIVALENT. VALVE BOXES SHALL HAVE AT LEAST 6" OF ADJUSTMENT ABOVE AND BELOW FINISHED GRADE. DROP COVERS ON VALVE BOXES SHALL BE ROUND AND BEAR THE WORD "WATER" CAST ON THE TOP. USE TYLER 6860-G "STAYPUT" COVERS WITH EXTENDED SKIRT, OR EQUIVALENT.

6. WATERMAIN AND LATERALS 4" OR LARGE FOR THE SITE SHALL BE CLASS 52 DUCTILE IRON THAT CONFORM TO THE REQUIREMENTS OF AMERICAN NATIONAL STANDARD FOR DUCTILE IRON PIPE, CENTRIFUGALLY CAST, FOR WATER (ANSI/AWWA C151/A21.51 – LATEST REVISION). PIPE SHALL BE CEMENT LINED, PUSH-ON JOINT, AND BONDING STRAPS TO PROVIDE ELECTRICAL CONDUCTIVITY WITHOUT FIELD WELDING. ALL COMPONENTS SHALL CONFORM WITH CITY OF MADISON STANDARD SPECIFICATIONS UNDER ARTICLE 702, PART VII- WATER MAINS AND SERVICE LATERALS.

7. TRACER WIRE: LOCATING REQUIREMENTS – A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THE WISCONSIN STATUTES 182.0175(2R) AND THE WISCONSIN DEPARTMENT OF COMMERCE COMM 82.30(11)(H).

8. WHERE EXISTING GAS, ELECTRIC, CABLE, OR TELEPHONE UTILITIES CONFLICT WITH THE WORK, COORDINATE THE ABANDONMENT, RELOCATION, OFFSET, OR SUPPORT OF THE EXISTING UTILITIES WITH THE APPROPRIATE LOCAL UTILITY COMPANIES. COORDINATE NEW GAS METER AND GAS LINE INSTALLATION, ELECTRIC METER AND ELECTRIC SERVICE INSTALLATION, CABLE SERVICE, AND TELEPHONE SERVICE INSTALLATION WITH THE LOCAL UTILITY COMPANIES.

9. COORDINATE BUILDING UTILITY CONNECTION LOCATIONS AT 5 FT. OUT FROM THE PROPOSED BUILDING WITH THE WITH THE INTERIOR PLUMBING CONTRACTOR PRIOR TO CONSTRUCTION. VERIFY WATER AND SEWER SERVICE LOCATIONS AND ELEVATIONS WITH THE MECHANICAL ENGINEER PRIOR TO CONSTRUCTION.

10. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THIS PLAN ARE FROM RECORD INFORMATION. THE ENGINEER DOES NOT GUARANTEE THAT ALL EXISTING UTILITIES ARE SHOWN OR, IF SHOWN, EXIST IN THE LOCATIONS INDICATED ON THE PLAN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THE FINAL VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UTILITIES (INCLUDING WATER AND SEWER LINES AND APPURTENANCES). NOTIFY THE ENGINEER OF ANY DISCREPANCIES

SANITARY SEWER:

1. PIPE: USE SOLID-CORE, SDR-35, ASTM D3034 (OR APPROVED EQUAL) POLYVINYL CHLORIDE (PVC) PLASTIC PIPE FOR ALL DESIGNATED PVC SANITARY SEWER SERVICES. JOINTS FOR ALL SANITARY SEWER SHALL HAVE PUSH-ON JOINTS WITH ELASTOMERIC GASKETS. USE OF SOLVENT CEMENT JOINTS IS ALLOWED FOR BUILDING SERVICES. SOLVENT CEMENT JOINTS IN PVC PIPE MUST INCLUDE USE OF A PRIMER WHICH IS OF CONTRASTING COLOR TO THE PIPE AND CEMENT. PIPE WITH SOLVENT CEMENT JOINTS SHALL BE JOINED WITH PVC CEMENT CONFORMING TO ASTM D2564. LAY ALL PVC PIPE ON A CONTINUOUS GRANULAR BED. INSTALLATION MUST COMPLY WITH ASTM D2321.

2. CLEANOUTS: INSTALL CLEANOUTS ON ALL SANITARY SEWER SERVICES. THE DISTANCE BETWEEN CLEANOUTS IN HORIZONTAL PIPING SHALL NOT EXCEED 100 FEET FOR PIPES 4-INCH AND OVER IN SIZE. CLEANOUTS SHALL BE OF THE SAME NOMINAL SIZE AS THE PIPES THEY SERVE. INCLUDE FROST SLEEVES AND CONCRETE FRAME AND PIPE SUPPORT. INSTALL A METER BOX FRAME AND SOLID LID (NEENAH R-1914-A, OR APPROVED EQUAL) OVER ALL CLEANOUTS.

3. TESTING: PRESSURE TEST ALL SANITARY SEWER LINES. TEST ALL FLEXIBLE SANITARY SEWER LINES FOR DEFLECTION AFTER THE SEWER LINE HAS BEEN INSTALLED AND BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE TEST FAILS, MAKE NECESSARY REPAIRS AND RETEST.

4. THE MINIMUM DEPTH OF COVER FOR SANITARY SEWER WITHOUT INSULATION IS 5 FEET. INSULATE SANITARY SEWER SERVICES AT LOCATIONS WHERE THE DEPTH OF COVER IS LESS THAN 5 FEET. PROVIDE A MINIMUM INSULATION THICKNESS OF 2 INCHES. THE INSULATION MUST BE AT LEAST 4 FEET WIDE AND CENTERED ON THE PIPE. INSTALL THE INSULATION BOARDS 6 INCHES ABOVE THE TOPS OF THE PIPES ON MECHANICALLY COMPACTED AND LEVELED PIPE BEDDING MATERIAL. USE HIGH DENSITY, CLOSED CELL, RIGID BOARD MATERIAL EQUIVALENT TO DOW STYROFOAM HI-40 PLASTIC FOAM INSULATION.

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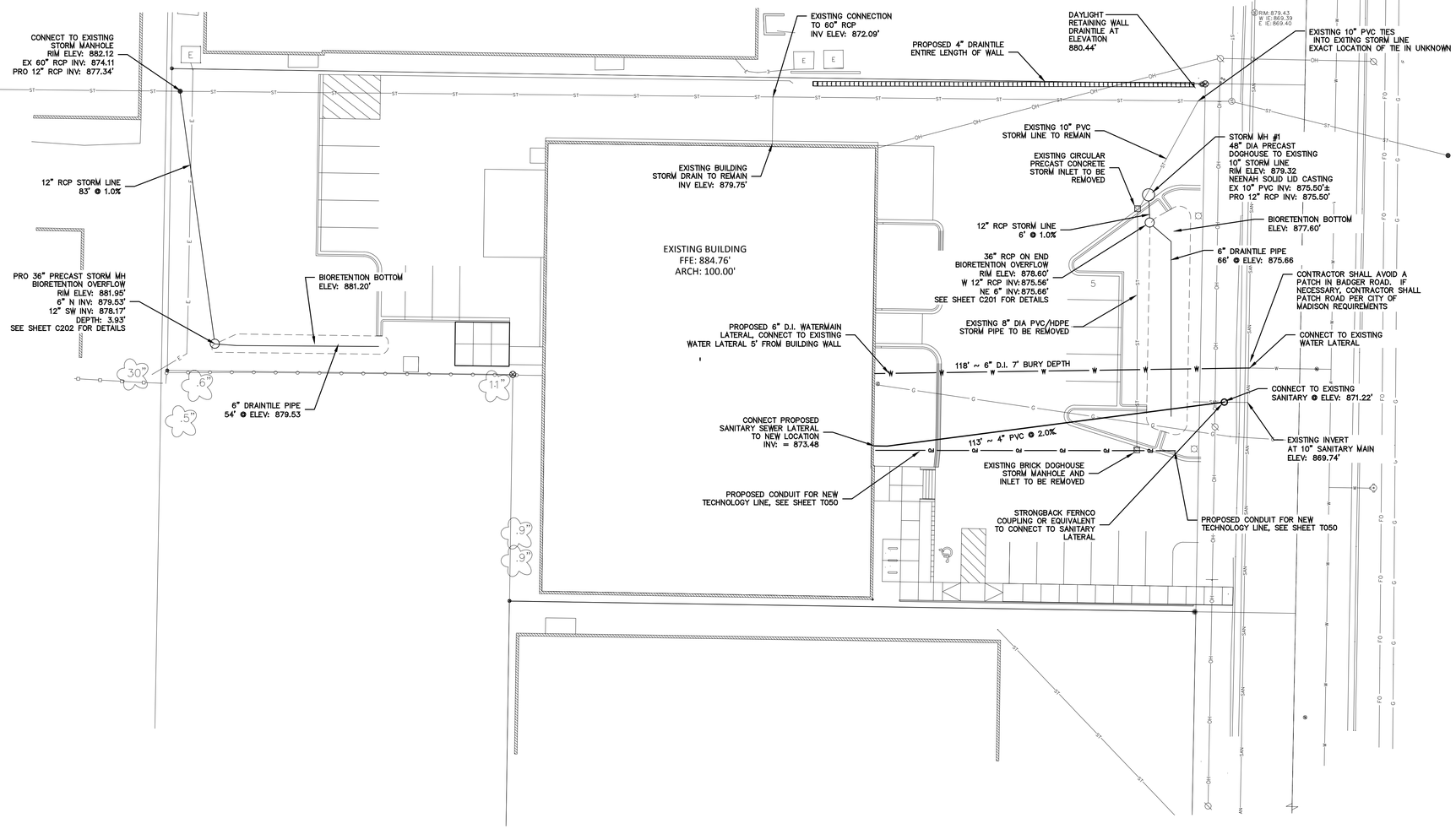

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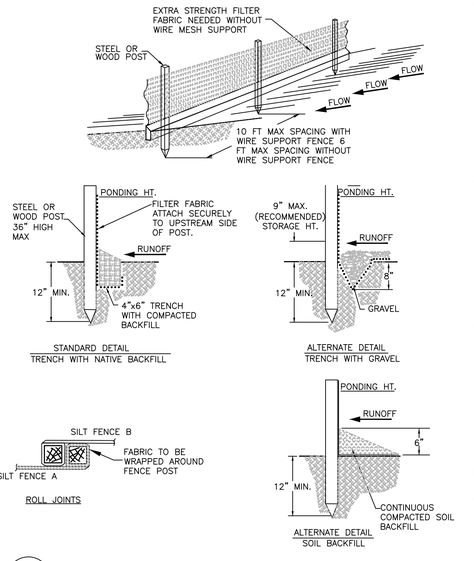
C203



1 C300 SILT FENCE INSTALLATION DETAILS

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES. STORAGE HEIGHT SHALL NEVER EXCEED 18".

THE FENCE LINE SHALL FOLLOW THE CONTOUR AS CLOSELY AS POSSIBLE.

IF POSSIBLE, THE FILTER FABRIC SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP AND BOTH ENDS SECURELY FASTENED TO THE POST.

POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET.

THE ENDS OF THE FENCE SHALL BE TURNED UPHILL.

A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 6 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.

WHEN STANDARD-STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

THE STANDARD-STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL EXTEND INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.

WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS.

THE TRENCH SHALL BE BACKFILLED AND/OR THE SOIL COMPACTED OVER THE TOE OF THE FILTER FABRIC. THE FILTER FABRIC SHALL NOT BE SECURED BY SAND BAGS.

SILT FENCES PLACED AT THE TOE OF A SLOPE SHALL BE SET AT LEAST 6 FEET FROM THE TOE IN ORDER TO INCREASE PONDING VOLUME.

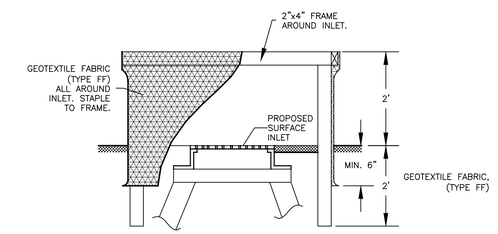
SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED, AND ANY SEDIMENT STORED BEHIND THE SILT FENCE HAS BEEN REMOVED.

INSPECTION AND MAINTENANCE

SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED WEEKLY AND AFTER EACH SIGNIFICANT STORM (1" IN 24 HR.). ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/3 HEIGHT OF THE FENCE OR 9 INCHES MAXIMUM.

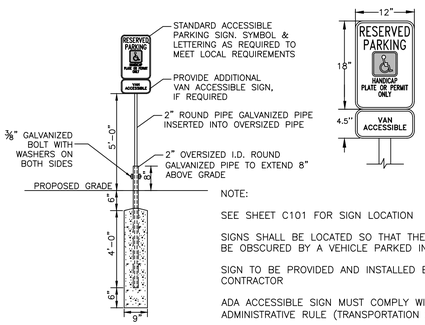
THE REMOVED SEDIMENT SHALL BE VEGETATED OR OTHERWISE STABILIZED.



TYPE A

2 C300 STORM WATER INLET PROTECTION

NOT TO SCALE



NOTE:

SEE SHEET C101 FOR SIGN LOCATION

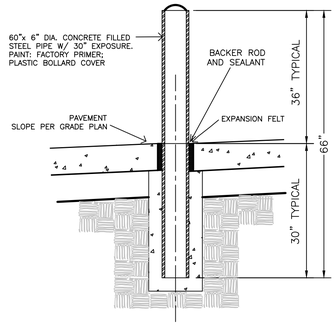
SIGNS SHALL BE LOCATED SO THAT THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE

SIGN TO BE PROVIDED AND INSTALLED BY SITE CONTRACTOR

ADA ACCESSIBLE SIGN MUST COMPLY WITH WI ADMINISTRATIVE RULE (TRANSPORTATION 200.07)

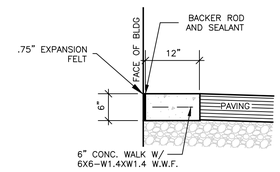
3 C300 ADA ACCESSIBLE SIGNAGE DETAIL

NOT TO SCALE

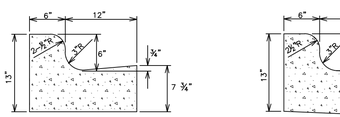


4 C300 36" HIGH ~ 6" PIPE BOLLARD

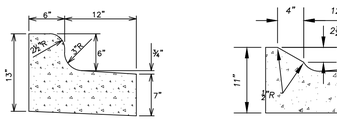
NOT TO SCALE



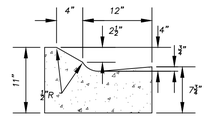
CONCRETE APRON AROUND BUILDING



CITY OF MADISON TYPE "C" STANDARD CONCRETE CURB & GUTTER



CITY OF MADISON TYPE "D" REJECT CONCRETE CURB & GUTTER



CITY OF MADISON TYPE "A" MOUNTABLE CONCRETE CURB & GUTTER (MODIFIED)

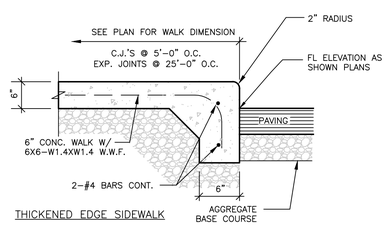
NOTES:

LATERAL CONTRACTION JOINTS SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 15' NOR LESS THAN 6' IN LENGTH. THE JOINTS SHALL BE A MINIMUM OF 3" IN DEPTH EXPANSION JOINTS SHALL BE PLACED TRANSVERSELY AT RADIUS POINTS ON CURVES OF RADIUS 200' OR LESS, AND AT ANGLE POINTS, OR AS DIRECTED BY THE ENGINEER.

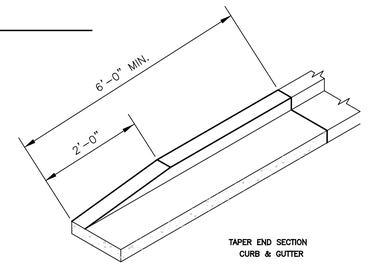
THE EXPANSION JOINT SHALL BE A ONE PIECE ASPHALTIC MATERIAL HAVING THE SAME DIMENSIONS AS CURB & GUTTER AT THAT STATION AND BE 1/2" THICK. IN ALL CASES, CONCRETE CURB & GUTTER SHALL BE PLACED ON THOROUGHLY COMPACTED CRUSHED STONE THAT IS 6" THICK.

7 C300 CONCRETE CURB AND GUTTER

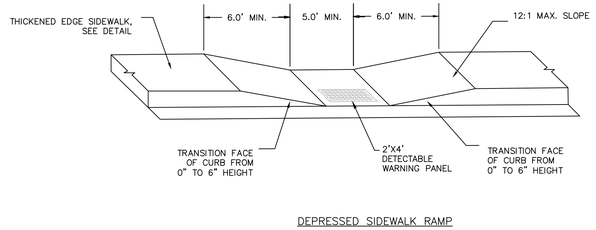
NOT TO SCALE



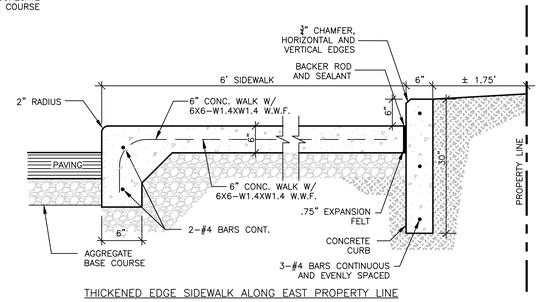
THICKENED EDGE SIDEWALK



TAPER END SECTION CURB & GUTTER

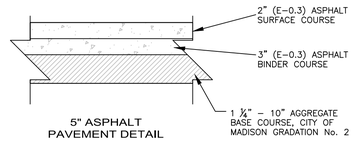


DEPRESSED SIDEWALK RAMP

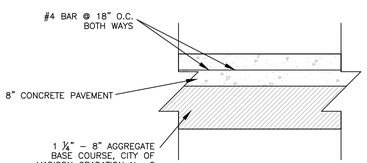


THICKENED EDGE SIDEWALK ALONG EAST PROPERTY LINE

5 C300 SIDEWALK DETAILS



5" ASPHALT PAVEMENT DETAIL

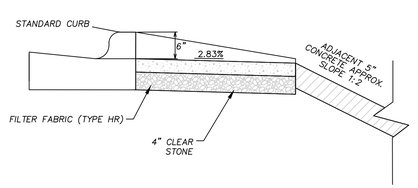


8" CONCRETE PAVEMENT DETAIL

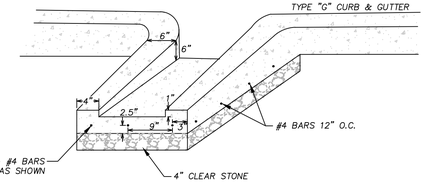
6 C300 PAVEMENT SECTIONS

NOT TO SCALE

CONCRETE FLUME OPENING DETAIL (NOT TO SCALE)



CONCRETE FLUME DETAIL (NOT TO SCALE)



8 C300 STORMWATER FLUME

NOT TO SCALE

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner

MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project

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Maintenance & Support
Center Remodel & Addition

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Madison, WI 53713

General Contractor

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Consultants

CIVIL ENGINEER
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5010 Voges Road
Madison, WI 53718
P. 608.838.0444

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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Key Plan

Sheet Issue Date

Permit Set	10/17/2016

Previous Issue Dates

100% CD Set	09/09/2016
60% CD Set	08/24/2016
Design Development	06/17/2016
Schematic Design	04/01/2016

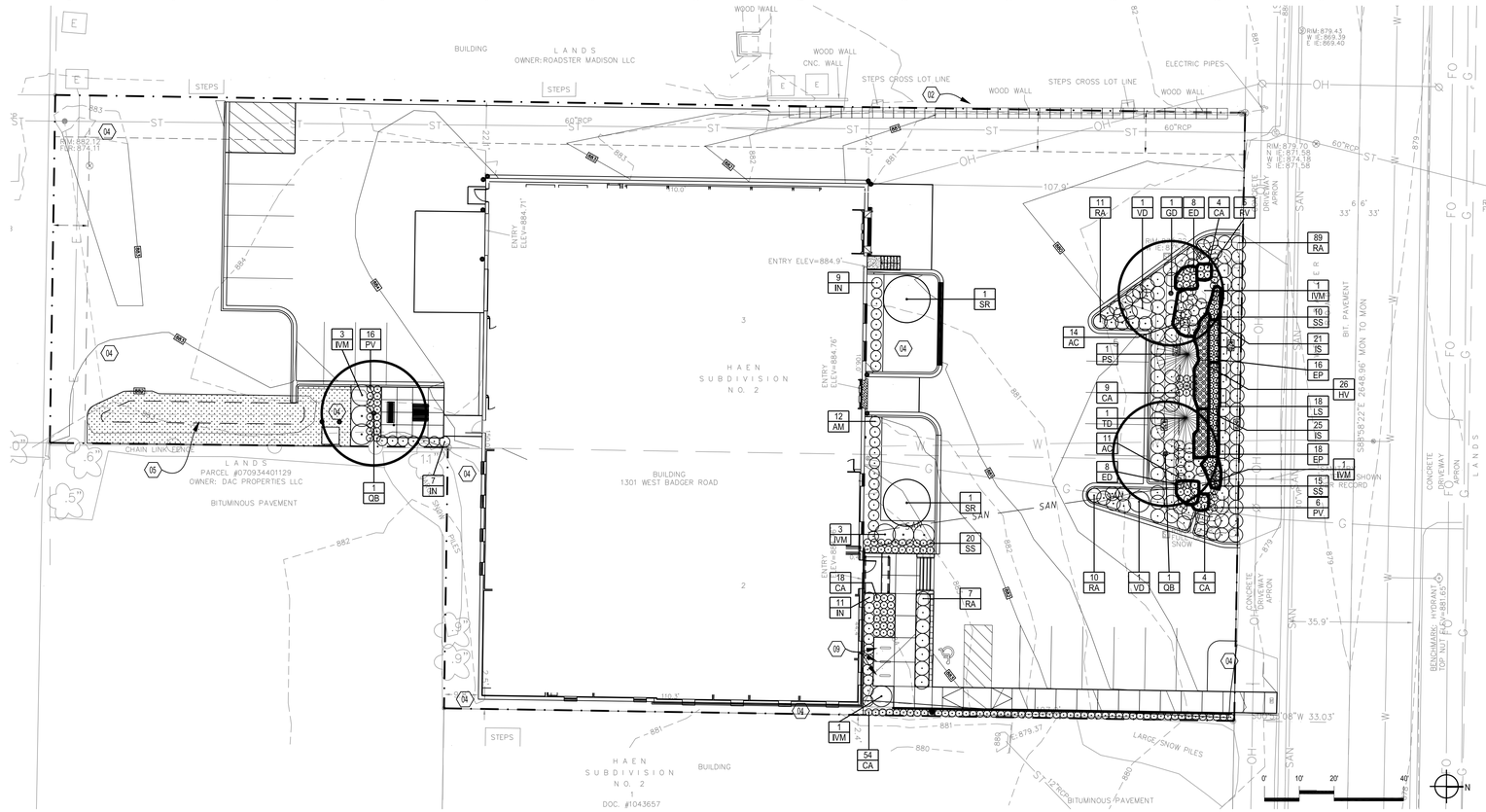
Revision Dates

Drawing

SITE PLAN DETAILS

OPN Project No. **15617000**

C300



G4 SITE PLANTING PLAN

A4 LAYOUT PLAN ENLARGEMENT: PATIO

3/16" = 1'-0"

PLANT SCHEDULE

Key	Qty	Botanical Name	Common Name	Size	Cond	Max Height and Width	Remarks	Points
		Deciduous Overstory Trees						
GD	1	Gymnocladus dioicus 'Espresso'	ESPRESSO KENTUCKY COFFEE TREE	2.5" CAL	B&B	50' x 35'	1 CENTRAL LEADER	35
QB	2	Quercus bicolor	SWAMP WHITE OAK	2.5" CAL	B&B	50-60' x 50-60'	1 CENTRAL LEADER	70
		Deciduous Understory Trees						
SR	1	Syringa reticulata 'Ivory Silk'	JAPANESE TREE LILAC	2" CAL	B&B	20'-25' x 15'-20'	Single Stem	15
		Evergreen Trees						
PS	1	Pinus strobus	WHITE PINE	4-6' HGT	B&B	50-80' x 30-50'		35
TD	1	Taxodium distichum	BALD CYPRESS	4-6' HGT	B&B	50-70' x 20-40'		35
		Shrubs						
AM	12	Aronia melonocarpa	BLACK CHOKEBERRY	#5	CONT	3-6'x3-6'		36
IN	27	Ilex verticulata 'Nana'	RED SPRITE WINTERBERRY	#5	CONT	3' x 3'		81
IVM	9	Ilex verticulata 'Southern Gentlemen'	SOUTHERN GENTLEMEN WINTERBERRY	#5	CONT	7'x7'	MALE SPECIES	27
RA	117	Rhus aromatica 'Gro-low'	GRO-LOW FRAGRANT SUMAC	#5	CONT	2-3' x 6-8'		351
VD	2	Viburnum dentatum	ARROWOOD VIBURNUM	#5	CONT	6-10' x 6-10'		6
		Perennials						
AC	25	Amorpha canescens	LEAD PLANT	#1	CONT	2-3'		50
EP	34	Echinacea purpurea 'Fatal Attraction'	FATAL ATTRACTION CONEFLOWER	#1	CONT	2' x 1'-6"		68
ED	16	Eupatorium dublum 'Little Joe'	LITTLE JOE COASTAL PLAIN JOE P. WEED	#1	CONT	3' x 3'		32
HV	26	Heuchera villosa 'Brownies'	HAIRY ALUM ROOT	#1	CONT	2' x 2'		52
IS	46	Iris siberica	SIBERIAN IRIS	#1	CONT	2'x2'		92
LS	18	Liatris spicata 'Kabold'	BLAZING STAR	#1	CONT	2' x 1'-6"		36
		Grasses						
CA	89	Calamagrostis acutiflora 'Karl Foerster'	KARL FOERSTER FEATHER REED GRASS	#1	CONT	5' x 2'		178
PV	27	Panicum virgatum 'Shenandoah'	SHENANDOAH SWITCHGRASS	#1	CONT	4' x 18"		54
SS	45	Schizachyrium scoparium 'Blue Heaven'	BLUE HEAVEN LITTLE BLUESTEM	#1	CONT	2-3' x 2'		90

GENERAL NOTES

1. FIELD VERIFY ALL EXISTING SITE CONDITIONS, UNDERGROUND UTILITIES, ABOVE GRADE UTILITIES AND UTILITY STRUCTURES, EXTENT OF PAVING AND CURBS, AND ALL EXISTING VEGETATION PRIOR TO DEMOLITION OR NEW CONSTRUCTION. CONTACT OWNER AND WISCONSIN ONE-CALL FOR UTILITY LOCATES PRIOR TO ANY WORK ON SITE. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BEFORE CONTINUING DEMOLITION OR NEW CONSTRUCTION.
2. REFERENCE CIVIL, MECHANICAL AND ELECTRICAL SHEETS FOR UTILITIES AND DETAILS.
3. PRESERVE & PROTECT EXISTING PLANT MATERIALS ON AND ADJACENT TO SITE EXCLUDING THOSE MARKED FOR REMOVAL ON DEMOLITION PLANS. NOTIFY LANSCAPE ARCHITECT IMMEDIATELY IF PLANT MATERIALS ARE DAMAGED FOR ASSESSMENT OF PLANT REPLACEMENT.
4. CONTRACTOR MUST PROVIDE EROSION/SEDIMENTATION CONTROLS AS REQUIRED TO CONTAIN SEDIMENT WITHIN CONSTRUCTION AREA. IN THE EVENT THAT SOILS LEAVE THE SITE, CLEANUP OF ALL SURROUNDING DRIVES, PARKING LOTS, AND WALKS SHALL BE PERFORMED ON A DAILY BASIS AND UPON REQUEST OF OWNER AT NO ADDITIONAL COST. REFERENCE LANDSCAPE AND CIVIL SHEETS FOR ADDITIONAL INFORMATION.
5. WARNING - CALL 72 HOURS BEFORE YOU DIG. WISCONSIN ONE-CALL: 1-800-242-8511
6. SITE LAYOUT INFORMATION TAKEN FROM CIVIL SITE PLAN PREPARED BY SNYDER & ASSOCIATES.
7. SOD ALL DISTURBED AREAS AFFECTED BY CONSTRUCTION.

LANDSCAPE NOTES

1. ONE WEEK PRIOR TO INSTALLATION, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AT OPN ARCHITECTS TO REVIEW TREES AT NURSERY.
2. ALL PLANT MATERIAL SHALL AT LEAST MEET MINIMUM REQUIREMENTS IN THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMAN.
3. ALL SITEWORK, SODDING AND LANDSCAPING SHALL BE IN ACCORDANCE WITH LOCAL JURISDICTION'S STANDARD SPECIFICATIONS UNLESS NOTED OTHERWISE.
4. NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
5. PLANT QUANTITIES ARE FOR CONTRACTORS CONVENIENCE. DRAWING SHALL PREVAIL WHERE CONFLICT OCCURS.
6. NO PLANT MATERIAL SHALL BE SUBSTITUTED IN SIZE OR SPECIES WITHOUT AUTHORIZATION OF LANDSCAPE ARCHITECT.
7. ALL PROPOSED PLANTS SHALL BE LOCATED AS SHOWN ON PLANS, AND THEIR LAYOUT SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE INSTALLATION.
8. LANDSCAPE PLAN TO BE REVIEWED BY CITY ARBORIST.
9. TOPSOIL SHALL BE SPREAD TO MINIMUM DEPTH OF 6-INCHES ON ALL DISTURBED AREAS. SEE DETAILS FOR DEPTH OF TOPSOIL IN PLANTING BEDS. TOPSOIL SHALL BE DRY, LOOSE AND FREE OF DEBRIS.
10. ALL PLANTS SHALL BE WATERED DURING THE LANDSCAPE MAINTENACE PERIOD AS SPECIFIED.
12. AN ON SITE MEETING WILL BE REQUIRED WITH THE GENERAL CONTRACTOR, GRADING CONTRACTOR, LANDSCAPE CONTRACTOR AND LANDSCAPE ARCHITECT PRIOR TO ANY LANDSCAPING WORK ON SITE.

KEYED NOTES

01	MULCH TYPE "A". SHREDDED HARDWOOD BARK MULCH AS SPECIFIED.
02	MULCH TYPE "B". WASHED RIVER ROCK AS SPECIFIED.
03	SPADE CUT PLANT BED EDGER.
04	RHIZOMATOUS TALL FESCUE SOD.
05	RAIN GARDEN/BIO INFILTRATION BED SEEDING MIX.
06	PICNIC TABLE, SEE G1/L102.
07	BENCH, SEE C15/L102.
08	SMOKER ASH URN, SEE C12/L102.
09	BIKE RACK, SEE C8/L102.
10	COLOR CONCRETE W/EXPOSED AGGREGATE

LANDSCAPE SUMMARY

DEVELOPED AREA: 23,019 POINTS
NEW LANDSCAPING POINTS REQUIRED: 385 POINTS

APPROXIMATE POINTS PROVIDED: 1,368	
3 OVERSTORY TREES X 35 =	105 POINTS
2 EVERGREEM TREES X 35 =	70 POINTS
2 UNDERSTORY TREES X 15 =	30 POINTS
167 SHRUBS X 3 POINTS =	501 POINTS
326 PERENNIALS/GRASSES X 2 PTS =	652 POINTS
FURN. 1 BENCH, 1 P. TABLE X 5PTS=	10 POINTS
TOTAL	1,368 POINTS

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DES MOINES
MADISON

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608-819-0260 PHONE
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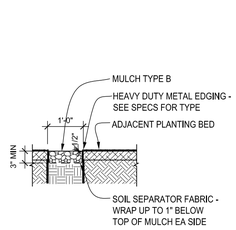
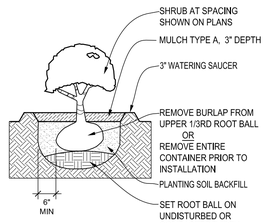
SITE PLANTING PLAN

OPN Project No. **15617000**

L100



M1 PLANTING BED EDGER
NO SCALE



M3 SHRUB PLANTING DETAIL
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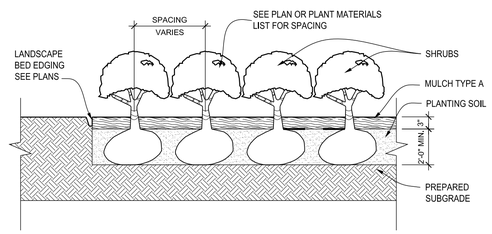

M6 SHRUB PLANTING BED DETAIL
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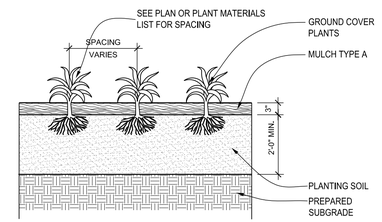

M10 GROUNCOVER PLANTING BED DETAIL
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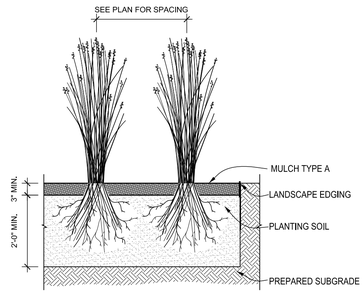

M14 PERENNIAL/GRASS PLANTG DTL
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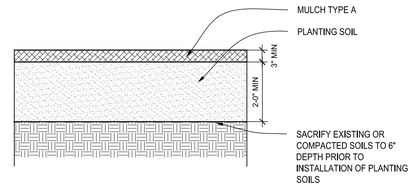

M17 PLANTING BED DETAIL
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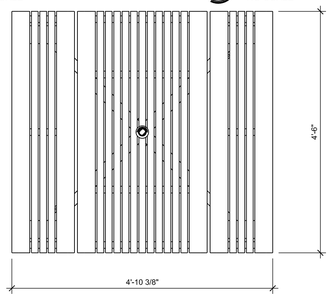
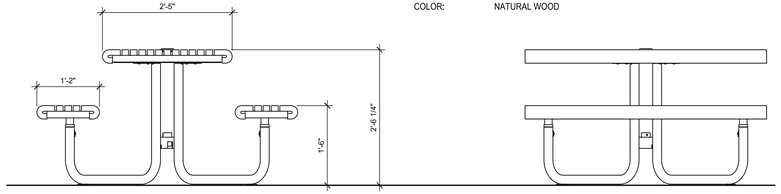


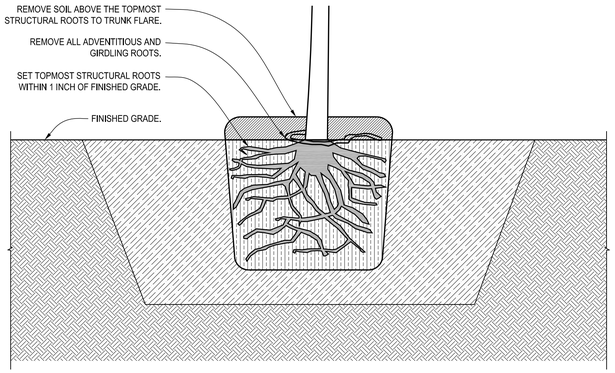
PICNIC TABLE SPECIFICATION

MANUFACTURER: LANDSCAPE FORMS
T: 1-800-521-2546
www.landscapeforms.com

STYLE: GRETCHEN PICNIC TABLE
MOUNTING STYLE: SURFACE MOUNT, UMBRELLA HOLE
MATERIAL: IPE WOOD, FSC CERTIFIED
FINISH: NONE
COLOR: NATURAL WOOD



G1 PICNIC TABLE
NO SCALE



G9 TREE ROOT PRUNING DETAIL
NO SCALE

DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.

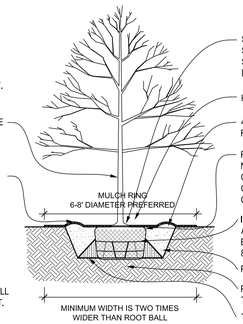
STAKE TREES ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT SEE STAKING DETAIL.

WRAP TREE TRUNKS ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT. SEE WRAPPING DETAIL.

MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHEN EVER POSSIBLE.

SET TOP OF ROOT BALL FLUSH TO GRADE OR 25-50 MN (1-2 IN.) HIGHER IN SLOWLY DRAINING SOILS.

NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING.
2. TREES NEED TO BE STABILIZED ONLY WHERE EXTREME WIND OR VANDALISM MAKES SUCH SUPPORT NECESSARY.
3. WHEN DEEMED NECESSARY, TREES SHALL BE STABILIZED WITH SPECIFIED EQUIPMENT. TREE SHALL STAND PLUMB. STABILIZATION EQUIPMENT SHALL BE REMOVED NO LATER THAN AT END OF GUARANTEE PERIOD.
4. STABILIZATION EQUIPMENT SHALL BE INSPECTED REGULARLY BY LANDSCAPE INSTALLER TO INSURE THE TREE IS NOT BEING COMPRESSED, GIRDLED, OR ABRADED. IF SUCH HAS OCCURED, CONTACT LANDSCAPE ARCHITECT FOR INSPECTION.



SET ROOTBALL SUCH THAT TRUNK FLARE IS AT, OR SLIGHTLY ABOVE GRADE. IF NECESSARY, REMOVE SOIL FROM TOP OF ROOTBALL UNTIL TRUNK FLARE IS LOCATED.

KEEP MULCH BACK FROM TRUNK

4" HIGH EARTH SAUCER BEYOND EDGE OF ROOT BALL.

ROPES AT TOP OF BALL SHALL BE CUT. BURLAP AND NON-BIODEGRADABLE MATERIAL SHALL BE COMPLETELY REMOVED. CHECK FOR CIRCLING OR GIRDLING ROOTS AND PRUNE AS NECESSARY TO CORRECT ANY PROBLEMS.

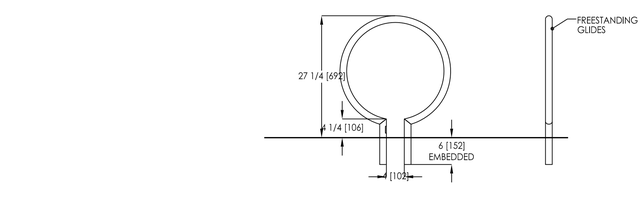
IF PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, CUT THE WIRE BASKET IN FOUR PLACES AND FOLD DOWN 8" INTO PLANTING HOLE.

PLANTING SOIL BACKFILL.

PLACE ROOT BALL ON UNEXCAVATED DRY TAMPED SOIL.

TAMP SOIL AROUND ROOT BALL BASE FIRMLY WITH FOOT PRESSURE SO THAT ROOT B AL DOES NOT SHIFT.

G15 DECIDUOUS TREE PLANTING DETAIL
NO SCALE

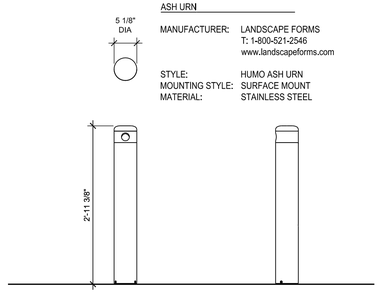


C8 BIKE RACK
NO SCALE

BIKE RACK

MANUFACTURER: LANDSCAPE FORMS
T: 1-800-521-2546
www.landscapeforms.com

STYLE: RING BIKE RACK
MOUNTING STYLE: EMBEDDED
MATERIAL: STAINLESS STEEL
FINISH: NONE
COLOR: NATURAL STAINLESS

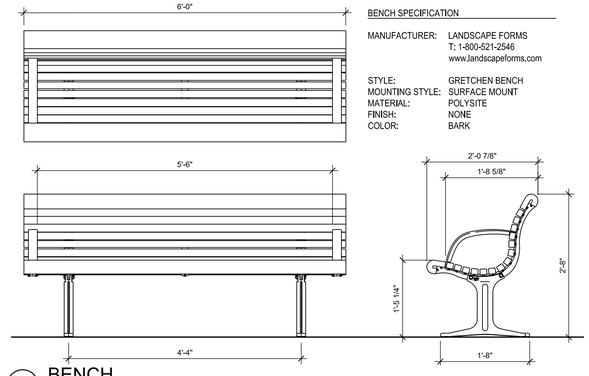


C12 ASH URN
NO SCALE

ASH URN

MANUFACTURER: LANDSCAPE FORMS
T: 1-800-521-2546
www.landscapeforms.com

STYLE: HUMO ASH URN
MOUNTING STYLE: SURFACE MOUNT
MATERIAL: STAINLESS STEEL



C15 BENCH
NO SCALE

BENCH SPECIFICATION

MANUFACTURER: LANDSCAPE FORMS
T: 1-800-521-2546
www.landscapeforms.com

STYLE: GRETCHEN BENCH
MOUNTING STYLE: SURFACE MOUNT
MATERIAL: POLYSITE
FINISH: NONE
COLOR: BARK

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DES MOINES
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MADISON, WI 53703
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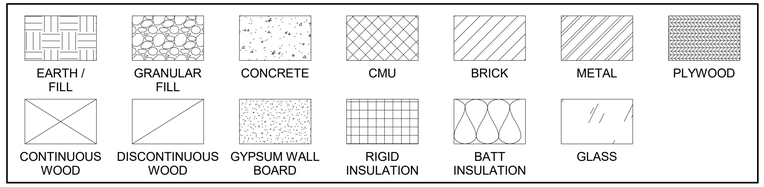
Revision Dates

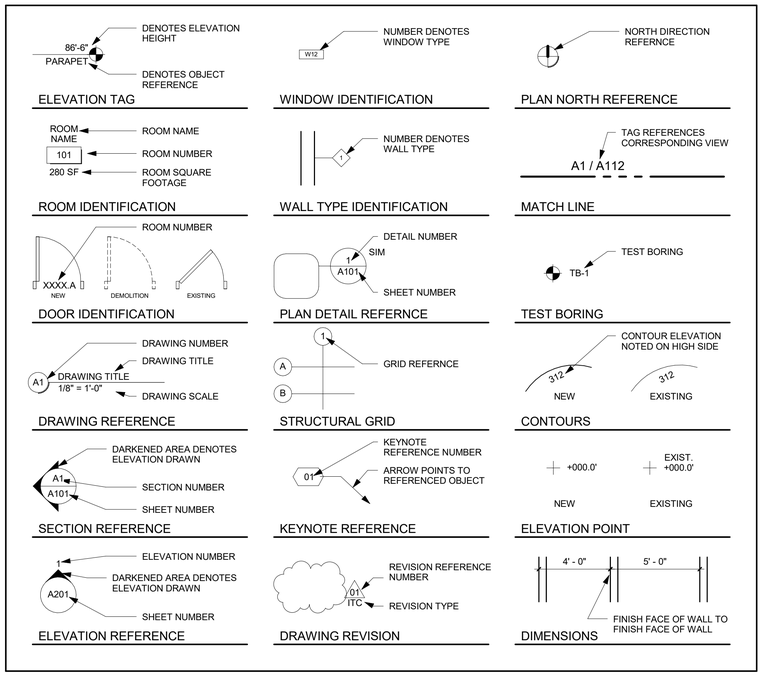
Drawing
SITE DETAILS

OPN Project No. 15617000

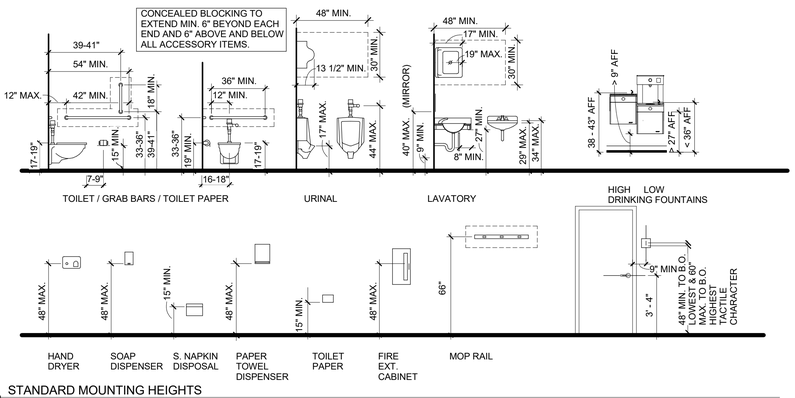
L200



STANDARD MATERIAL DEFINITIONS

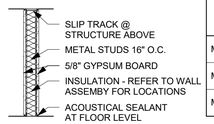


STANDARD SYMBOLS

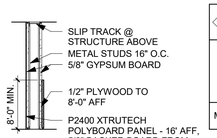


STANDARD MOUNTING HEIGHTS

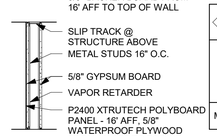
1/4" = 1'-0"



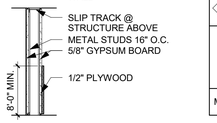
MS#	METAL STUD WALL WITH GYPSUM BOARD FINISH			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
MS1	3 5/8" METAL STUD		4 7/8"	
MS2	3 5/8" METAL STUD	MINERAL WOOL BATT INSULATION WHERE INDICATED IN PLAN	4 7/8"	
MS3	6" METAL STUD		7 1/4"	



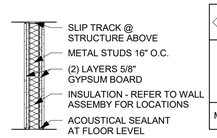
MS#	METAL STUD WALL WITH GYPSUM BOARD FINISH			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
MS4	6" METAL STUD		7 1/4"	



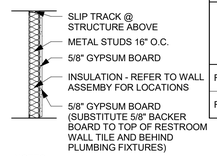
MS#	METAL STUD WALL WITH GYPSUM BOARD FINISH			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
MS5	6" METAL STUD		4 7/8"	



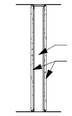
MS#	METAL STUD WALL WITH GYPSUM BOARD FINISH			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
MS6	6" METAL STUD		4 7/8"	



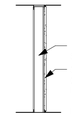
MG#	METAL STUD WALL WITH (2) LAYERS GYPSUM BOARD FINISH			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
MG1	3 5/8" METAL STUD	MINERAL WOOL BATT INSULATION	6 1/8"	



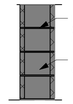
FS#	METAL FURRING WITH GYPSUM BOARD FINISH			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
FS1	1 5/8" METAL STUD		2 1/4"	
FS2	3 5/8" METAL STUD		4 1/4"	



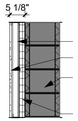
XMS #	METAL STUD WALL WITH GYPSUM BOARD FINISH			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
XMS1	3 5/8" METAL STUD		4 7/8"	



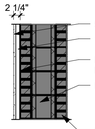
FS#	METAL STUD WALL WITH GYPSUM BOARD FINISH			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
FS5	N/A		5/8"	



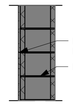
XM#	EXISTING CMU WALL			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
XM1	11 5/8" CMU	LOW DENSITY FOAM THROUGH CMU EXTERIOR WALL CAVITIES	11 5/8"	
XM2	7 5/8" CMU		7 5/8"	



XM#	EXISTING CMU WALL WITH NEW INSULATION & FURRING			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
XM4	2 1/2" METAL FURRING		5 1/8"	



XM#	EXISTING BRICK/CMU CAVITY WALL WITH FURRING			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
XM6	15 5/8" MASONRY		15 5/8"	



XM#	EXISTING CMU WALL WITH EXISTING FURRING			
MARK	STRUCTURE	INSULATION	ASSEMBLY THICKNESS	UL DESIGN
XM7	7 5/8" CMU		8 1/4"	
XM8	11 5/8" CMU		12 1/4"	
XM9	11 5/8" CMU		1'- 1 7/8"	

NOTES:
1. ALL EXISTING WALL TYPE CONSTRUCTION AND WALL THICKNESS IS ASSUMED BASED ON VISUAL INSPECTION - FIELD VERIFY CONDITIONS FOLLOWING DEMOLITION PHASE
2. SUBSITUTE 1/2" TILE BACKER BOARD FOR 5/8" GYPSUM BOARD ON WALL SURFACES THAT ARE TO BE TILED
3. SEE PLANS FOR LOCATION OF SOUND BATT INSULATION
4. SEE PLANS FOR LOCATION OF FOAM INSULATION IN CMU WALLS
5. CROSS CHECK WALL ASSEMBLIES ON FLOOR PLANS, ENLARGED PLANS, AND WALL SECTIONS
6. ALL GYPSUM BOARD ASSEMBLIES TO EXTEND 8" ABOVE ALL TALLEST ADJACENT FINISHED CEILING HEIGHT, UNLESS OTHERWISE INDICATED. ALL XM4 and XM6 WALLS TO BE FURRED OUT WITH FULL HEIGHT METAL STUDS AND GYPSUM BOARD.

WALL TYPES

#	NUMBER	ELEC	ELECTRICAL	OA	OVERALL
AFF	ABOVE FINISH FLOOR	ELEV	ELEVATION	OD	OUTSIDE DIAMETER
ALUM	ALUMINUM	EQ	EQUAL	OH	OVERHEAD
ANOD	ANODIZED	EWC	ELECTRIC WATER COOLER	ORD	OVERFLOW ROOF DRAIN
BC	BOTTOM OF CURB	EX	EXISTING	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
BM	BENCH MARK	FD	FLOOR DRAIN	OSB	ORIENTED STRAND BOARD
BOC	BACK OF CURB	FF	FACTORY FINISH	OTS	OPEIN TO STRUCTURE
BOD	BASIS OF DESIGN	FFE	FINISHED FLOOR ELEVATION	PL	PLATE
BO	BOTTOM OF	FOC	FACE OF CURB	PVC	POLY VINYL CHLORIDE
BOS	BOTTOM OF STEEL	GA	GAUGE	RAD	RADIUS
BOW	BOTTOM OF WALL	GALV	GALVANIZED	RD	ROOF DRAIN
BRG	BEARING	GC	GENERAL CONTRACTOR	REV	REVISION
BS	BOTTOM OF STAIR	GHM	GALVANIZED HOLLOW METAL	RO	ROUGH OPENING
C	CHANNEL	GWB	GYPSUM WALL BOARD	ROW	RIGHT-OF-WAY
CB	CHALKBOARD	HORZ	HORIZONTAL	SF	SQUARE FEET
CJ	CONTROL JOINT	HT	HEIGHT	SIM	SIMILAR
CL	CENTER LINE	HVAC	HEATING/VENTING/AIR CONDITIONING	ST.STL.	STAINLESS STEEL
CLG	CEILING	ID	INSIDE DIAMETER	SUSP	SUSPENDED
CLL	CONSTRUCTION LIMITS LINE	L	ANGLE	T&G	TONGUE AND GROOVE
CMU	CONCRETE MASONRY UNIT	LB/LBS	POUND / POUNDS	TB	TACKBOARD
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	MAX	MAXIMUM	TOC	TOP OF CURB
CO	CLEANOUT	MB	MARKERBOARD	TOM	TOP OF MASONRY
CONC	CONCRETE	MC	MECHANICAL CONTRACTOR	TOS	TOP OF SLAB / TOP OF STEEL
CONT	CONTINUOUS	MFR	MANUFACTURERS	TOW	TOP OF WALL
DEMO	DEMOLISH / DEMOLITION	MH	MANHOLE	TS	TOP OF STAIR
DF	DRINKING FOUNTAIN	MIL	MIL THICKNESS	UL	UNDERWRITERS LABORATORIES, INC.
DIA	DIAMETER	MIN	MINIMUM	UNO	UNLESS NOTED OTHERWISE
DN	DOWN	MO	MASONRY OPENING	VIF	VERIFY IN FIELD
DS	DOWNSPOUT	NIC	NOT IN CONTRACT	VERT	VERTICAL
EC	ELECTRICAL CONTRACTOR	NTS	NOT TO SCALE	W/	WITH
EIFS	EXTERIOR INSULATION FINISH SYSTEM	OC	ON CENTER	W/0	WITHOUT
EJ	EXPANSION JOINT	OCEW	ON CENTER EACH WAY	WWF	WELDED WIRE FABRIC

STANDARD ABBREVIATIONS

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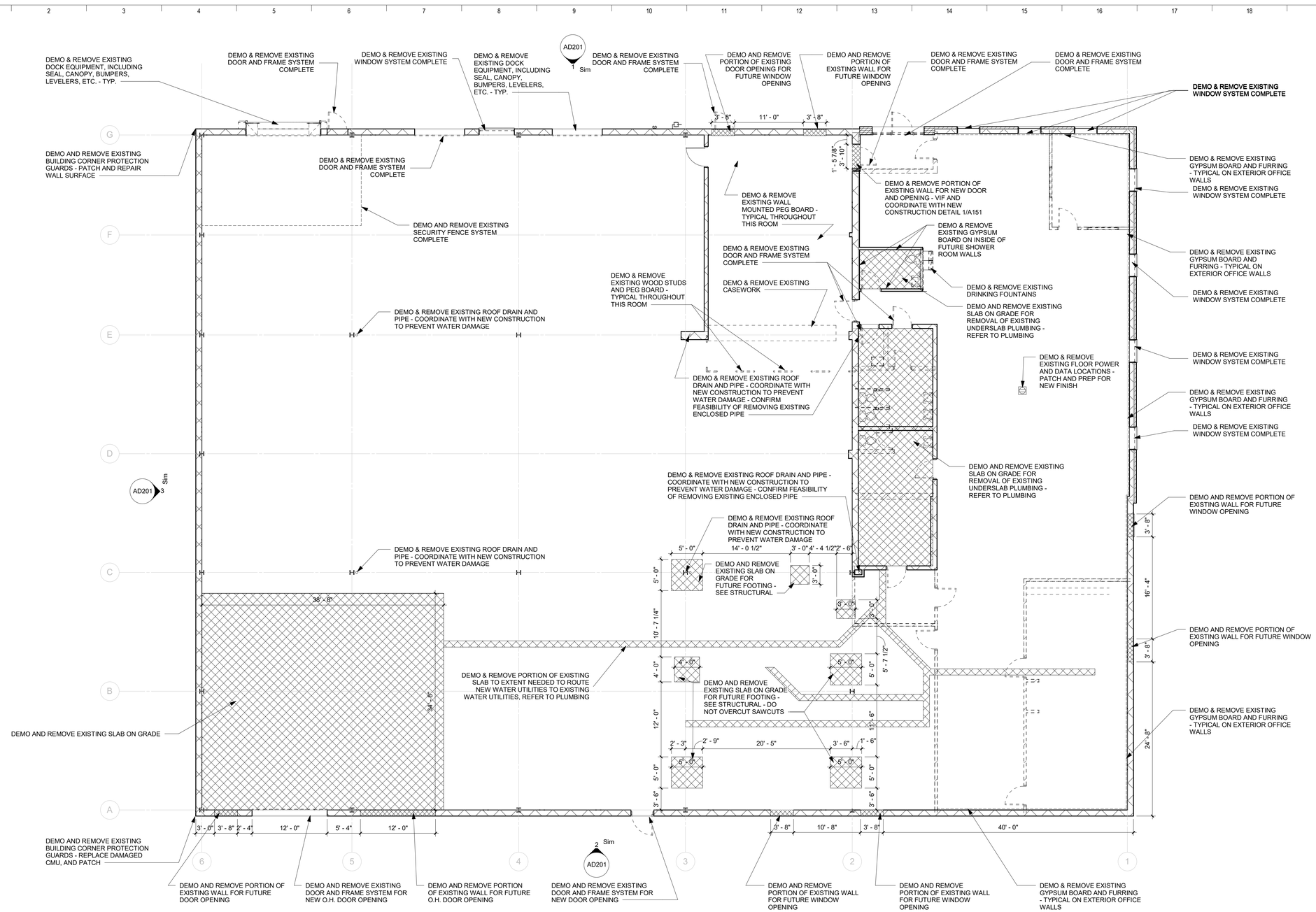
Drawing
STANDARDS AND WALL TYPES

OPN Project No. 15617000

AG002



1 FIRST FLOOR - DEMO
1/8" = 1'-0"

GENERAL NOTES

1. IDENTIFICATION AND/OR ABATEMENT OF HAZARDOUS MATERIALS IS NOT PART OF THIS SCOPE OF WORK. IF ASBESTOS OR OTHER HAZARDOUS MATERIALS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY. ANY ASBESTOS REMOVAL WILL BE ABATED BY OWNER BY SEPARATE CONTRACT. COORDINATE SCHEDULE OF WORK WITH OWNER PRIOR TO CONSTRUCTION.
2. REFER TO SPECIFICATION FOR RECYCLING, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL REQUIREMENTS.
3. REMOVE FLOOR FINISHES, ADHESIVE, SETTING BEDS, ETC.
4. REMOVE LOOSE PAINT AND MISCELLANEOUS HANGING OBJECTS FROM WALLS AND CEILINGS AT ALL AREAS WITHIN THE SCOPE OF WORK.
5. OPENING IN THE EXISTING STRUCTURE SMALLER THAN 12" IN ANY DIRECTION ARE NOT IDENTIFIED ON THESE DRAWINGS.
6. OPENINGS IN THE EXISTING STRUCTURE SHALL NOT BE MADE WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
7. CONTRACTOR SHALL NOT AT ANY TIME EXCEED ANY FLOOR LIVE LOAD CAPACITIES.
8. PATCH AND REPAIR ALL EXISTING FLOOR SLABS AND WALL SURFACES DAMAGED FROM DEMOLITION OR PRIOR USE.
9. PATCH ALL AREAS OF ELECTRICAL AND MECHANICAL DEMOLITION THAT WILL NOT BE REUSED.
10. CONTRACTOR TO FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
11. DO NOT REMOVE ANY ITEMS WHICH JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE BUILDING. IF HIDDEN ELEMENTS OR DETERIORATED ELEMENTS ARE ENCOUNTERED, NOTIFY THE ARCHITECT IMMEDIATELY.
12. PATCH ALL EXISTING SLAB OPENINGS NOT BEING REUSED TO MATCH ADJACENT SURFACES, U.N.O
13. EXISTING BUILDING IS TO REMAIN WEATHER-TIGHT DURING ALL DEMOLITION ACTIVITIES.
14. REFER TO CONSULTANT DRAWINGS FOR ADDITIONAL DEMOLITION OF OTHER DISCIPLINES.
15. PROTECT ALL ADJACENT AREAS AND ITEMS "TO REMAIN" DURING DEMOLITION/CONSTRUCTION. REPAIR/REPLACE ALL ITEMS DAMAGED DURING CONSTRUCTION.
16. EXISTING BUILDING CONDITIONS SHOWN ON THESE DRAWINGS ARE DERIVED FROM LIMITED FIELD OBSERVATION EXISTING BUILDING CONDITIONS ARE ASSUMED TO BE REPRESENTATIVE OF THE ACTUAL CONSTRUCTION OF THE BUILDING. LOCAL CONDITIONS MAY VARY.
17. THIS PLAN SHALL NOT SUPERSEDE OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION PART 1926 SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION GUIDELINES FOR CONSTRUCTION MEANS OF EGRESS.
18. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADDITIONAL MEANS OF EGRESS AS NEEDED AS A RESULT OF CONSTRUCTION SEQUENCING AND/OR REGULATORY REQUIREMENTS.
19. DIMENSIONS ARE MEASURED FACE-OF- FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING, UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.
20. DASHED ITEMS INDICATE DEMOLITION WORK TO BE COMPLETED, REFER TO SPECIFIC NOTES FOR ADDITIONAL INFORMATION.
21. USE CARE DURING CONCRETE FLOOR DEMOLITION TO PROTECT THE SLAB EDGES AS THE FLOOR SLAB WILL REMAIN EXPOSED - DO NOT OVERCUT SAWCUTS.

GENERAL NOTES

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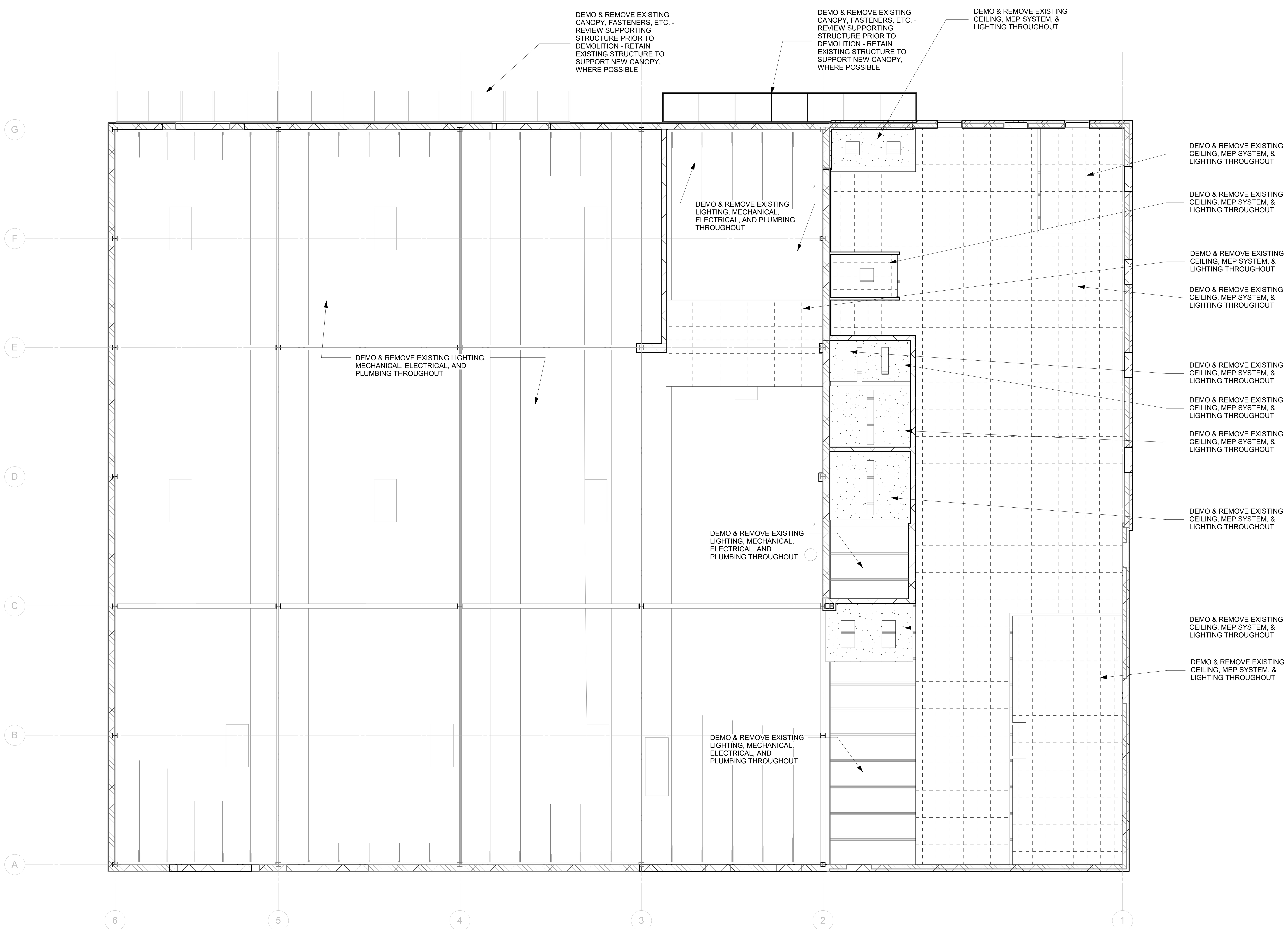
OPN Project No. 15617000

AD101



1 DEMOLITION FIRST FLOOR
1/8" = 1'-0"

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
2. PROTECT ALL ADJACENT AREAS AND ITEMS "TO REMAIN" DURING DEMOLITION/CONSTRUCTION. REPAIR/REPLACE ALL ITEMS DAMAGED DURING CONSTRUCTION.
3. DO NOT REMOVE ANY ITEMS WHICH JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE BUILDING. IF HIDDEN ELEMENTS OR DETERIORATED ELEMENTS ARE ENCOUNTEREDNOTIFY THE ARCHITECT IMMEDIATELY.
4. PATCH ALL AREAS OF ELECTRICAL AND MECHANICAL DEMOLITION THAT WILL NOT BE REUSED.
6. IDENTIFICATION AND/OR ABATEMENOF HAZARDOUS MATERIALS IS NOT PART OF THIS SCOPE OF WORK. IF ASBESTOS OR OTHER HAZARDOUSMATERIALS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY.
7. REFER TO SPECIFICATION FOR RECYCLING, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL REQUIREMENTS.
8. REMOVE LOOSE PAINT AND MISCELLANEOUS HANGING OBJECTS FROM WALLS AND CEILINGS AT ALL AREAS WITHIN THE SCOPE OF WORK.
9. PATCH AND REPAIR ALL EXISTING WALL SURFACES DAMAGED FROM DEMOLITION OR PRIOR USE.
10. CONTRACTOR TO FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
11. REFER TO CONSULTANT DRAWINGS FOR ADDITIONAL DEMOLITION OF OTHER DISCIPLINES.
12. PROTECT ALL ADJACENT AREAS AND ITEMS "TO REMAIN" DURING DEMOLITION/CONSTRUCTION. REPAIR/REPLACE ALL ITEMSDAMAGED DURING CONSTRUCTION.
13. EXISTING BUILDING CONDITIONSHOWN ON THESE DRAWINGS ARE DERIVED FROM LIMITED FIELD OBSERVATION.
14. INDICATED EXISTING BUILDING CONDITIONS ARE ASSUMED TO BE REPRESENTATIVE OF THE ACTUAL CONSTRUCTION OF THE BUILDING. LOCAL CONDITIONS MAY VARY.
15. THIS PLAN SHALL NOT SUPERSEDE OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION PART 1926 SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION GUIDELINES FOR CONSTRUCTION MEANS OF EGRESS.
16. DIMENSIONS ARE MEASURED FACE-OF-FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING, UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.

GENERAL NOTES

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET, SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY
201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library Maintenance & Support Center Remodel
1301 West Badger Road
Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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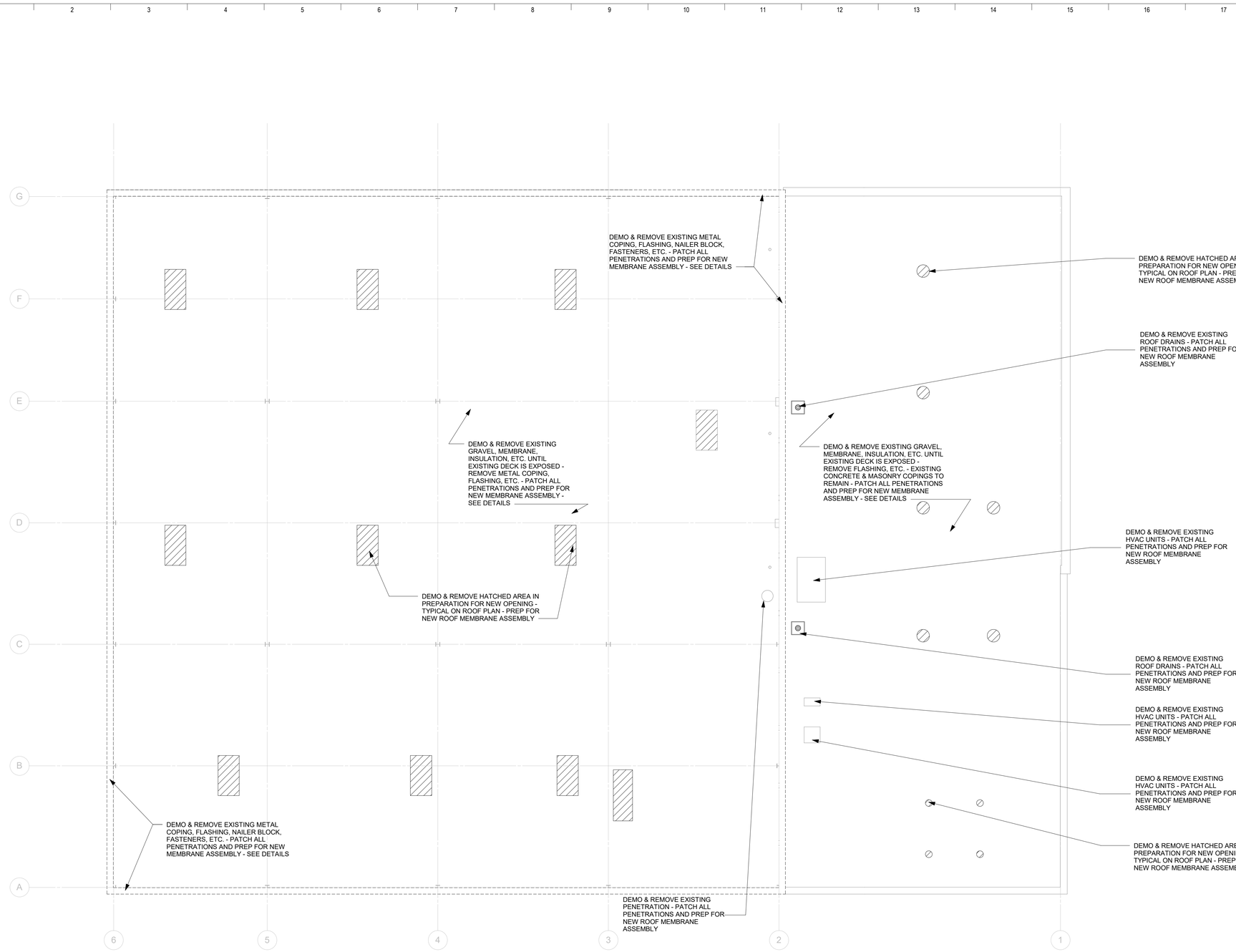
Revision Dates

Drawing
DEMOLITION REFLECTED CEILING PLAN

OPN Project No. **15617000**

AD121



1 DEMOLITION ROOF LEVEL
1/8" = 1'-0"

GENERAL NOTES

1. IDENTIFICATION AND/OR ABATEMENT OF HAZARDOUS MATERIALS IS NOT PART OF THIS SCOPE OF WORK. IF ASBESTOS OR OTHER HAZARDOUS MATERIALS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY.
2. REFER TO SPECIFICATION FOR RECYCLING, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL REQUIREMENTS.
3. REMOVE ADHESIVE, SETTING BEDS, ETC. AT ALL AREAS WITHIN THE SCOPE OF WORK.
4. OPENING IN THE EXISTING STRUCTURE SMALLER THAN 12" IN ANY DIRECTION ARE NOT IDENTIFIED ON THESE DRAWINGS.
5. OPENINGS IN THE EXISTING STRUCTURE SHALL NOT BE MADE WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.
6. CONTRACTOR SHALL NOT AT ANY TIME EXCEED ANY ROOF LIVE LOAD CAPACITIES.
7. PATCH AND REPAIR ALL EXISTING ROOF DECKS, PARAPETS, ETC. DAMAGED FROM DEMOLITION OR PRIOR USE.
8. PATCH ALL AREAS OF ELECTRICAL AND MECHANICAL DEMOLITION THAT WILL NOT BE REUSED.
9. CONTRACTOR TO FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS. INDICATED EXISTING BUILDING CONDITIONS ARE ASSUMED TO BE REPRESENTATIVE OF THE ACTUAL CONSTRUCTION OF THE BUILDING. LOCAL CONDITIONS MAY VARY. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
10. DO NOT REMOVE ANY ITEMS WHICH JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE BUILDING. IF HIDDEN ELEMENTS OR DETERIORATED ELEMENTS ARE ENCOUNTERED, NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY.
11. EXISTING BUILDING IS TO REMAIN WEATHER- TIGHT DURING ALL DEMOLITION ACTIVITIES.
12. REFER TO CONSULTANT DRAWINGS FOR ADDITIONAL DEMOLITION OF OTHER DISCIPLINES.
13. PROTECT ALL ADJACENT AREAS AND ITEMS "TO REMAIN" DURING DEMOLITION/CONSTRUCTION. REPAIR/REPLACE ALL ITEMS DAMAGED DURING CONSTRUCTION.
14. EXISTING BUILDING CONDITIONS SHOWN ON THESE DRAWINGS ARE DERIVED FROM DRAWINGS OF THE ORIGINAL BUILDING AND FROM LIMITED FIELD OBSERVATION.
15. THIS PLAN SHALL NOT SUPERSEDE OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION PART 1926 SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION GUIDELINES FOR CONSTRUCTION MEANS OF EGRESS.
17. DIMENSIONS ARE MEASURED FACE-OF-FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.

GENERAL NOTES

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library
Maintenance & Support
Center Remodel

1301 West Badger Road
Madison, WI 53713

General Contractor
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Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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KJWW Engineering Consultants
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Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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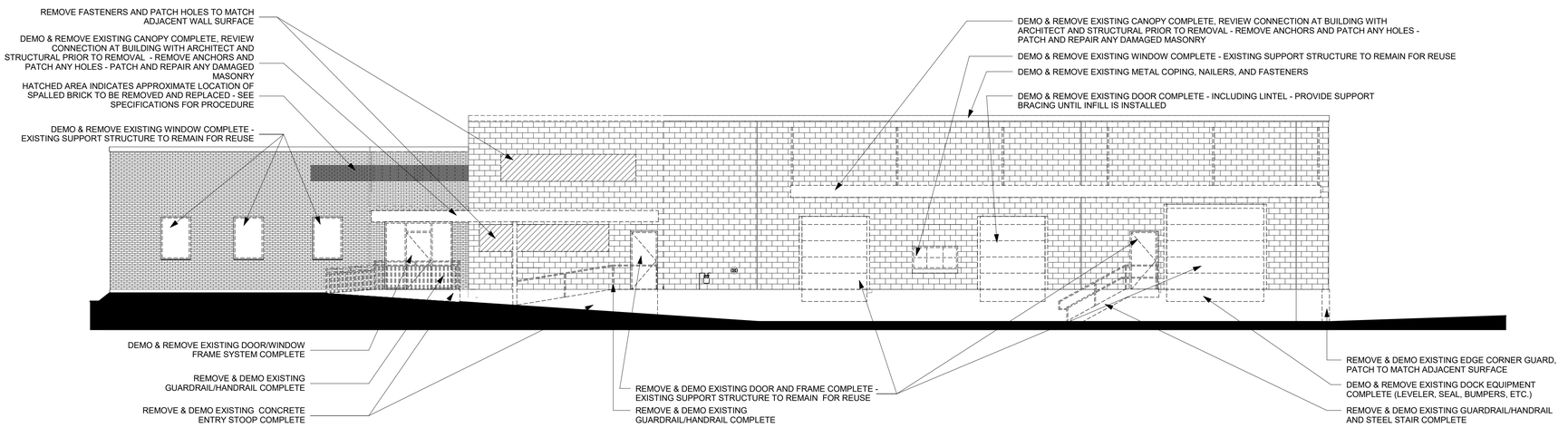
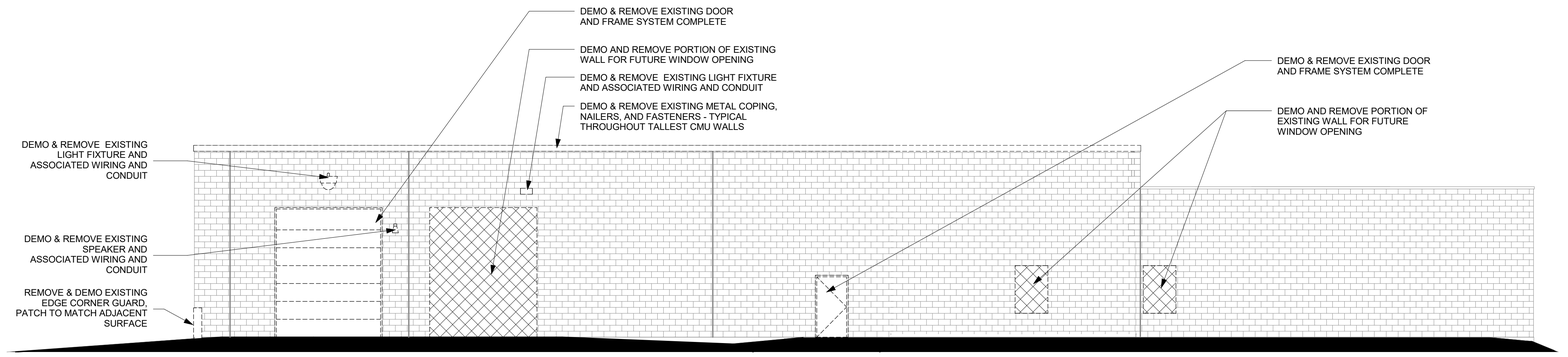
Drawing
DEMOLITION ROOF PLAN

OPN Project No. **15617000**

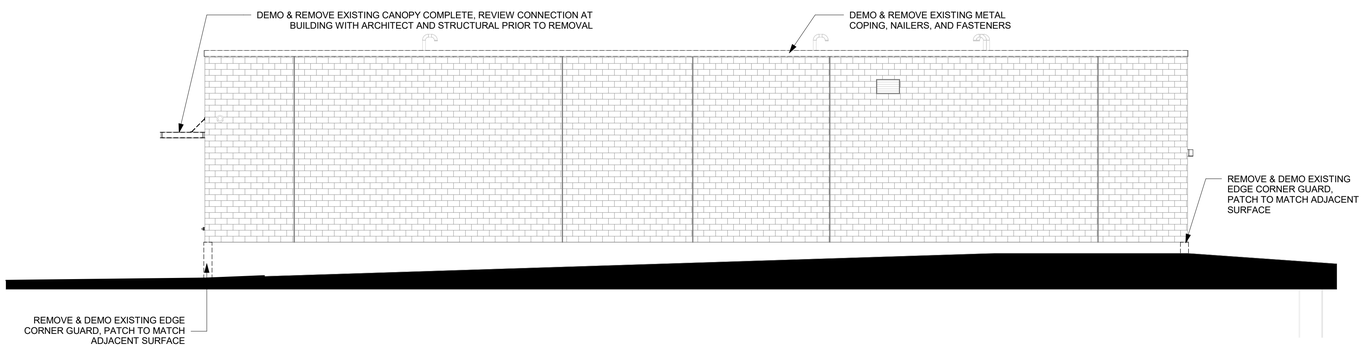
AD141



1 DEMO ELEVATION - NORTH
1/8" = 1'-0"



2 DEMO ELEVATION - SOUTH
1/8" = 1'-0"



3 DEMO ELEVATION - WEST
1/8" = 1'-0"

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET, SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library Maintenance & Support Center Remodel

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Madison, WI 53713

General Contractor
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Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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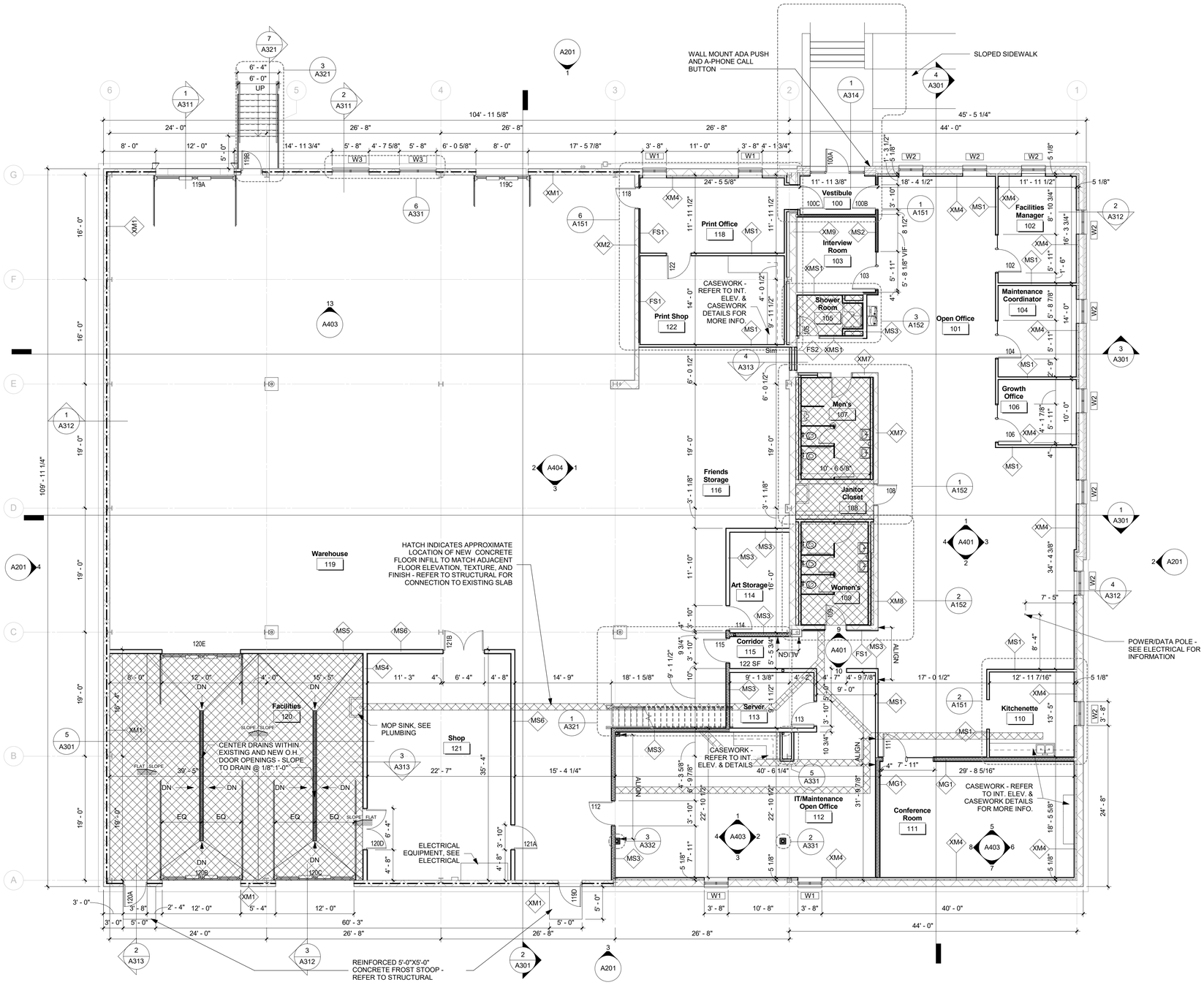
Drawing
DEMOLITION EXTERIOR ELEVATIONS

OPN Project No. 15617000

AD201



1 FIRST FLOOR - OVERALL
1/8" = 1'-0"

GENERAL NOTES

1. DIMENSIONS ARE MEASURED FACE-OF-FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.
2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
3. INDICATED EXISTING BUILDING CONDITIONS ARE ASSUMED TO BE REPRESENTATIVE OF THE ACTUAL CONSTRUCTION OF THE BUILDING. LOCAL CONDITIONS MAY VARY. IN THE EVENT OF A DISCREPANCY BETWEEN ARCHITECTURAL AND CONSULTANT DRAWINGS, NOTIFY ARCHITECT IMMEDIATELY PRIOR TO COMMENCING WORK - TYPICAL FOR ALL DRAWINGS.
4. REFER TO ENLARGED PLANS FOR ADDITIONAL WALL TYPE LOCATIONS, DIMENSIONS AND KEYNOTES.
5. PROVIDE CONCEALED, FIRE TREATED BLOCKING AT ALL ACCESSORIES AND CASEWORK LOCATIONS. EXTEND BLOCKING A MINIMUM OF 6" BEYOND EACH END AND 6" ABOVE AND BELOW ALL ACCESSORY ITEMS.
6. REFER TO WALL TYPES SHEET FOR PARTITION WALL TYPES.
7. ALL WALLS WITH SOUND ATTENUATION BLANKETS ARE TO HAVE ACOUSTICAL SEALANT AT TOP AND BOTTOM AND AT ALL WALL PENETRATIONS.
8. ALL PENETRATIONS IN FIRE RATED WALLS MUST BE SEALED WITH APPROPRIATE FIRESTOPPING SYSTEM.
9. REFER TO WALL SECTIONS AND SECTION DETAIL DRAWINGS FOR SPECIFIC ROOF DETAILS.
10. REFER TO CONSULTANT DRAWINGS FOR OTHER DISCIPLINES.
11. EXISTING BUILDING CONDITIONS SHOWN ON THESE DRAWINGS ARE DERIVED FROM DRAWINGS OF THE ORIGINAL BUILDING AND FROM LIMITED FIELD OBSERVATION.
12. DASHED CIRCLES AND RECTANGLES INDICATE LOCATIONS OF ROOF OPENINGS ABOVE.

INDICATES LOCATION OF FOAM INSULATION TO BE INSTALLED IN CAVITY OF EXISTING CMU WALL

GENERAL NOTES

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Madison, WI 53713

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Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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Revision Dates

Drawing
FIRST FLOOR PLAN

OPN Project No. **15617000**

A101

GENERAL NOTES

1. DIMENSIONS ARE MEASURED FACE-OF-FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.
2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
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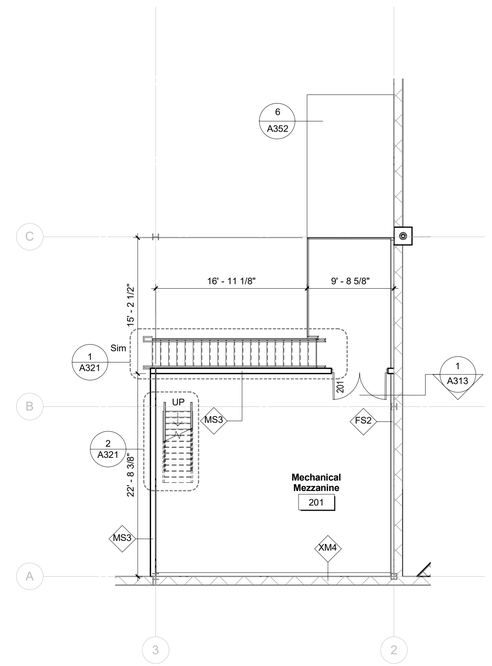
6. REFER TO WALL TYPES SHEET FOR PARTITION WALL TYPES.
7. ALL WALLS WITH SOUND ATTENUATION BLANKETS ARE TO HAVE ACOUSTICAL SEALANT AT TOP AND BOTTOM AND AT ALL WALL PENETRATIONS.
8. ALL PENETRATIONS IN FIRE RATED WALLS MUST BE SEALED WITH APPROPRIATE FIRESTOPPING SYSTEM.
9. REFER TO WALL SECTIONS AND SECTION DETAIL DRAWINGS FOR SPECIFIC ROOF DETAILS.
10. REFER TO CONSULTANT DRAWINGS FOR OTHER DISCIPLINES.
11. EXISTING BUILDING CONDITIONS SHOWN ON THESE DRAWINGS ARE DERIVED FROM DRAWINGS OF THE ORIGINAL BUILDING AND FROM LIMITED FIELD OBSERVATION.
12. DASHED CIRCLES AND RECTANGLES INDICATE LOCATIONS OF ROOF OPENINGS ABOVE.

INDICATES LOCATION OF FOAM INSULATION TO BE INSTALLED IN CAVITY OF EXISTING CMU WALL

GENERAL NOTES



1 MEZZANINE FLOOR PLAN
1/8" = 1'-0"

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library
Maintenance & Support
Center Remodel

1301 West Badger Road
Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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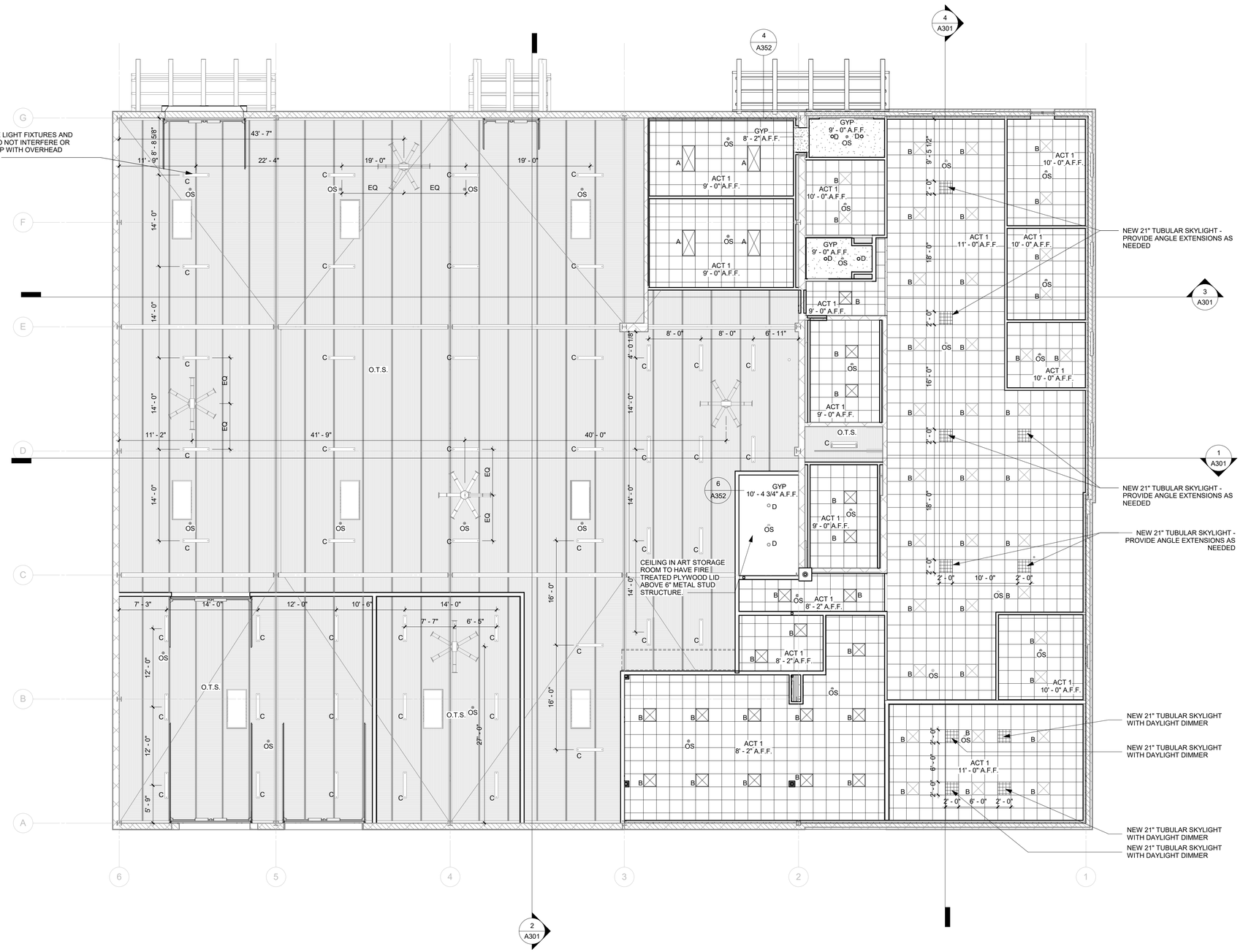
Drawing
MEZZANINE FLOOR PLAN

OPN Project No. **15617000**

A102



1 First Floor Reflected Ceiling Plan
1/8" = 1'-0"

GENERAL NOTES

1. CEILING HEIGHTS ARE LISTED ON A121. HEIGHT IS GIVEN ABOVE FINISHED FLOOR.
2. CEILING-MOUNTED FIXTURES, SPRINKLERS AND EQUIPMENT SHALL BE CENTERED IN CEILING PANELS OR GYPSUM BOARD SOFFITS AND EQUALLY SPACED UNLESS NOTED OTHERWISE.
3. CENTER CEILING GRID IN ROOMS, UNLESS NOTED OTHERWISE.
4. ALL MECHANICAL DIFFUSERS SHALL BE PAINTED BY MANUFACTURER TO MATCH ADJACENT SOFFIT/ACP UNLESS NOTED OTHERWISE.
5. CONCEALED SPRINKLER HEAD COVERS SHALL BE PAINTED BY MANUFACTURER TO MATCH ADJACENT SOFFIT/ACP UNLESS NOTED OTHERWISE.
6. COORDINATE LOCATIONS OF EXIT LIGHTS AND EMERGENCY LIGHTS SHOWN ON ARCHITECTURAL DRAWINGS. IN THE EVENT OF A DISCREPANCY, VERIFY WITH ARCHITECT PRIOR TO INSTALLATION.
7. CEILING FIXTURE DIMENSIONS ARE TAKEN FROM CENTERLINE OF FIXTURE UNLESS NOTED OTHERWISE.
8. REFER TO DRAWINGS (ELEVATIONS & REFLECTED CEILING PLANS) FOR ALL MECHANICAL AND ELECTRICAL DEVICE AND FIXTURE LOCATIONS & MOUNTING HEIGHTS. IF NOT CLEARLY SPECIFIED, CONTACT ARCHITECT FOR FURTHER CLARIFICATION.
9. PAINT ALL EXPOSED STRUCTURE, DECK, DUCTWORK, CONDUIT, ETC. IN AREAS NOTED TO BE OPEN TO STRUCTURE UNLESS NOTED OTHERWISE. PAINTING OF EXPOSED STRUCTURE TO BE DONE AFTER ALL UTILITIES ARE INSTALLED. DO NOT PAINT OVER LIGHT FIXTURES, DETECTORS, ALARMS, FANS, OR OCCUPANCY SENSORS.
10. REFER TO WALL SECTIONS AND SECTION DETAIL DRAWINGS FOR SPECIFIC ROOF DETAILS.
11. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. INDICATED EXISTING BUILDING CONDITIONS ARE ASSUMED TO BE REPRESENTATIVE OF THE ACTUAL CONSTRUCTION OF THE BUILDING. LOCAL CONDITIONS MAY VARY. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
12. REFER TO CONSULTANT DRAWINGS FOR OTHER DISCIPLINES.
13. EXISTING BUILDING CONDITIONS SHOWN ON THESE DRAWINGS ARE DERIVED FROM DRAWINGS OF THE ORIGINAL BUILDING AND FROM LIMITED FIELD OBSERVATION.

GENERAL NOTES

LEGEND

- A: 2'X4' LED FIXTURE
- B: 2'X2' LED FIXTURE
- C: INDUSTRIAL LED PENDANT FIXTURE
- D: RECESSED LED CAN FIXTURE
- OS: OCCUPANCY SENSOR

NOTE: REFER TO MEP DRAWINGS FOR ITEMS NOT INCLUDED IN LEGEND

LEGEND

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET, SUITE100
MADISON, WI 53703
608-819-0260 PHONE
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ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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Schematic Design	04/01/2016

Revision Dates

Drawing
FIRST FLOOR REFLECTED CEILING PLAN

OPN Project No. 15617000

A121

GENERAL NOTES

1. CEILING HEIGHTS ARE LISTED ON A121. HEIGHT IS GIVEN ABOVE FINISHED FLOOR.
2. CEILING-MOUNTED FIXTURES, SPRINKLERS AND EQUIPMENT SHALL BE CENTERED IN CEILING PANELS OR GYPSUM BOARD SOFFITS AND EQUALLY SPACED UNLESS NOTED OTHERWISE.
3. CENTER CEILING GRID IN ROOMS, UNLESS NOTED OTHERWISE.
4. ALL MECHANICAL DIFFUSERS SHALL BE PAINTED BY MANUFACTURER TO MATCH ADJACENT SOFFIT/ACP UNLESS NOTED OTHERWISE.
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7. CEILING FIXTURE DIMENSIONS ARE TAKEN FROM CENTERLINE OF FIXTURE UNLESS NOTED OTHERWISE.
8. REFER TO DRAWINGS (ELEVATIONS & REFLECTED CEILING PLANS) FOR ALL MECHANICAL AND ELECTRICAL DEVICE AND FIXTURE LOCATIONS & MOUNTING HEIGHTS. IF NOT CLEARLY SPECIFIED, CONTACT ARCHITECT FOR FURTHER CLARIFICATION.
9. PAINT ALL EXPOSED STRUCTURE, DECK, DUCTWORK, CONDUIT, ETC. IN AREAS NOTED TO BE OPEN TO STRUCTURE UNLESS NOTED OTHERWISE. PAINTING OF EXPOSED STRUCTURE TO BE DONE AFTER ALL UTILITIES ARE INSTALLED. DO NOT PAINT OVER LIGHT FIXTURES, DETECTORS, ALARMS, FANS, OR OCCUPANCY SENSORS.
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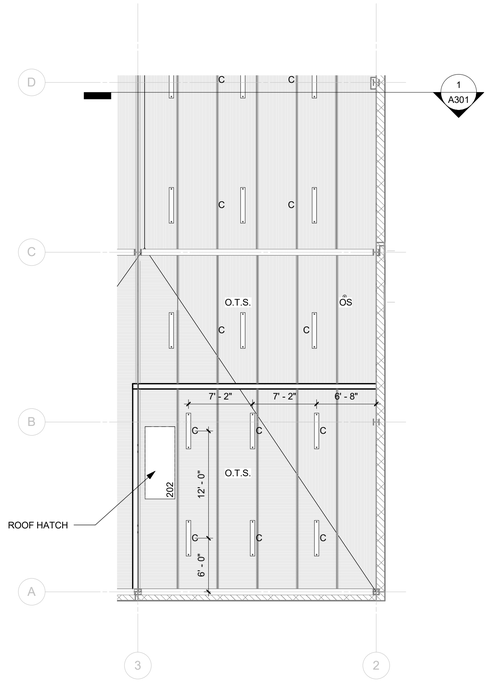

1 MEZZANINE REFLECTED CEILING PLAN
1/8" = 1'-0"

GENERAL NOTES

LEGEND

- A: 2'X4' LED FIXTURE
- B: 2'X2' LED FIXTURE
- C: INDUSTRIAL LED PENDANT FIXTURE
- D: RECESSED LED CAN FIXTURE
- OS: OCCUPANCY SENSOR

NOTE: REFER TO MEP DRAWINGS FOR ITEMS NOT INCLUDED IN LEGEND

LEGEND

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MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET, SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

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Madison, WI 53703

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Madison, WI 53713

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Consultants

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Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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P. 608.223.9600

ELECTRICAL ENGINEER
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Middleton, WI 53562
P. 608.223.9600

Key Plan

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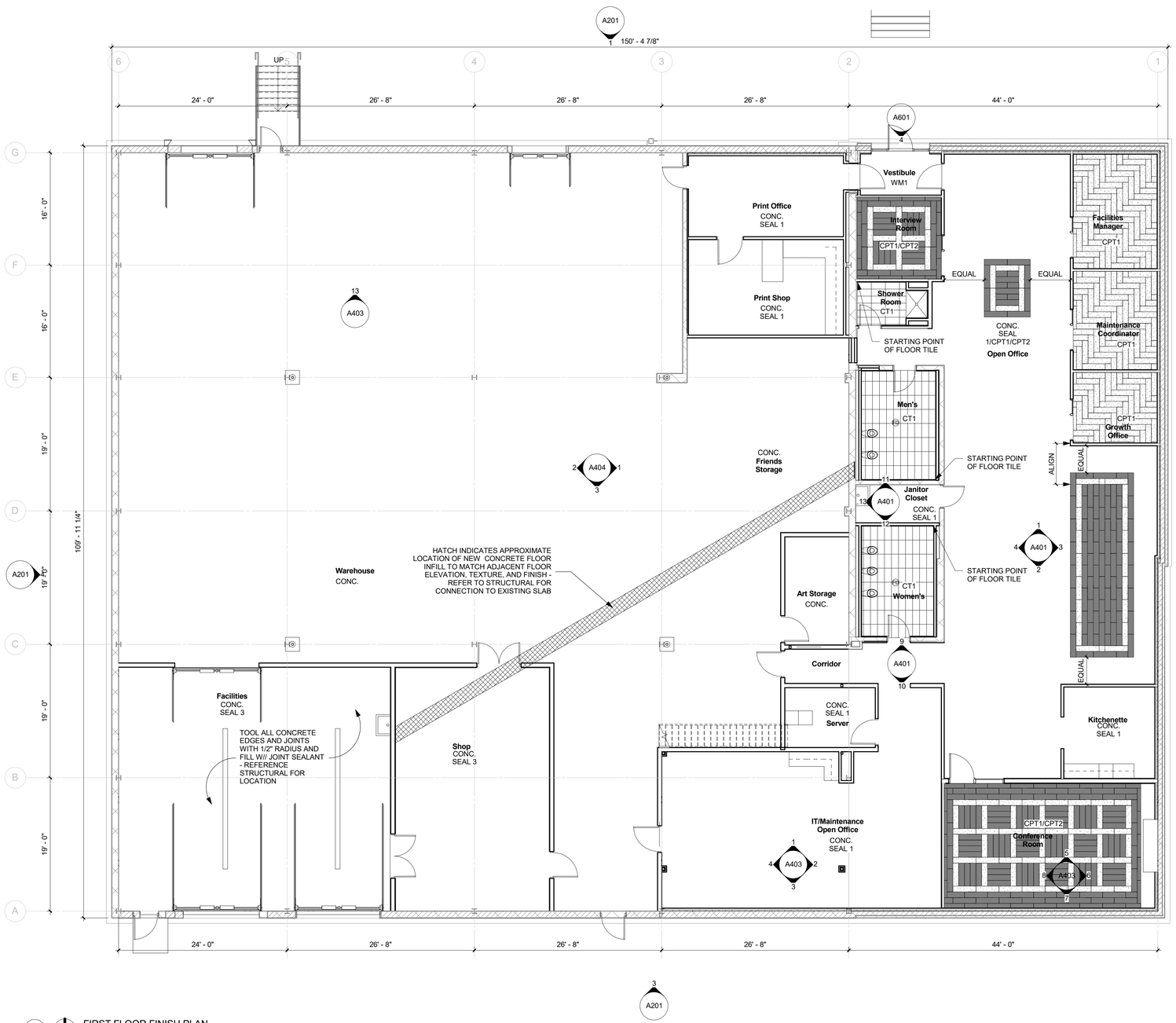
Schematic Design	04/01/2016

Revision Dates

Drawing
MEZZANINE REFLECTED CEILING PLAN

OPN Project No. **15617000**

A122



1 FIRST FLOOR FINISH PLAN
1/8" = 1'-0"

GENERAL NOTES

1. DIMENSIONS ARE MEASURED FACE-OF-FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.
2. REFER TO INTERIOR ELEVATIONS, FINISH SPECIFICATIONS AND ROOM FINISH SCHEDULE FOR ADDITIONAL WALL FINISH INFORMATION AND REMARKS.
3. ALL FLOOR MATERIAL TRANSITIONS, TERMINATION AND SEAM LOCATIONS ARE TO BE CENTERED UNDER DOOR LEAFS IN CLOSED POSITION UNLESS NOTED OTHERWISE.
4. GRILLES, METAL FIXTURE TRIM AND MISCELLANEOUS METALS TO BE PAINTED BY MANUFACTURER TO MATCH ADJACENT WALL OR CEILING SURFACES UNLESS NOTED OTHERWISE.
5. EXTEND FLOORING INTO TOE SPACES, DOOR REVEALS, CLOSETS AND SIMILAR OPENINGS UNLESS NOTED OTHERWISE.
6. PROVIDE FLOORING TRANSITION STRIPS AT FLOOR MATERIAL CHANGES. COORDINATE FLOORING TRANSITION MATERIAL, PROFILE AND COLOR WITH ARCHITECT PRIOR TO INSTALLATION - REFER TO DETAIL DRAWINGS FOR DESIGN INTENT.
7. ALL HOLLOW METAL DOORS AND FRAMES TO BE PAINTED TO MATCH ADJACENT WALL SURFACES WITH SEMI-GLOSS PAINT FINISH UNLESS NOTED OTHERWISE.
8. ALL ANODIZED ALUMINUM FRAMES NOT TO BE PAINTED UNLESS NOTED OTHERWISE.
9. ALL INTERIOR CEMENT BOARD LOCATIONS NOT TO BE PAINTED UNLESS NOTED OTHERWISE.
10. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
11. REFER TO CONSULTANT DRAWINGS FOR OTHER DISCIPLINES.
12. EXISTING BUILDING CONDITIONS SHOWN ON THESE DRAWINGS ARE DERIVED FROM DRAWINGS OF THE ORIGINAL BUILDING AND FROM LIMITED FIELD OBSERVATION. INDICATED EXISTING BUILDING CONDITIONS ARE ASSUMED TO BE REPRESENTATIVE OF THE ACTUAL CONSTRUCTION OF THE BUILDING. LOCAL CONDITIONS MAY VARY.
13. OFFICE AREA - REMOVE CARPET AND ALL RESIDUE COMPLETE TO PREP FOR POLISH AND SEAL CONCRETE FLOOR. REFER TO SPECIFICATIONS FOR EXECUTION
14. WAREHOUSE AREA - EXISTING CONCRETE FLOOR TO REMAIN AS IS

2 A201

CPT-1:
CPT-2:

GENERAL NOTES

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DES MOINES
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OPN ARCHITECTS
301 NORTH BROOM S-TREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
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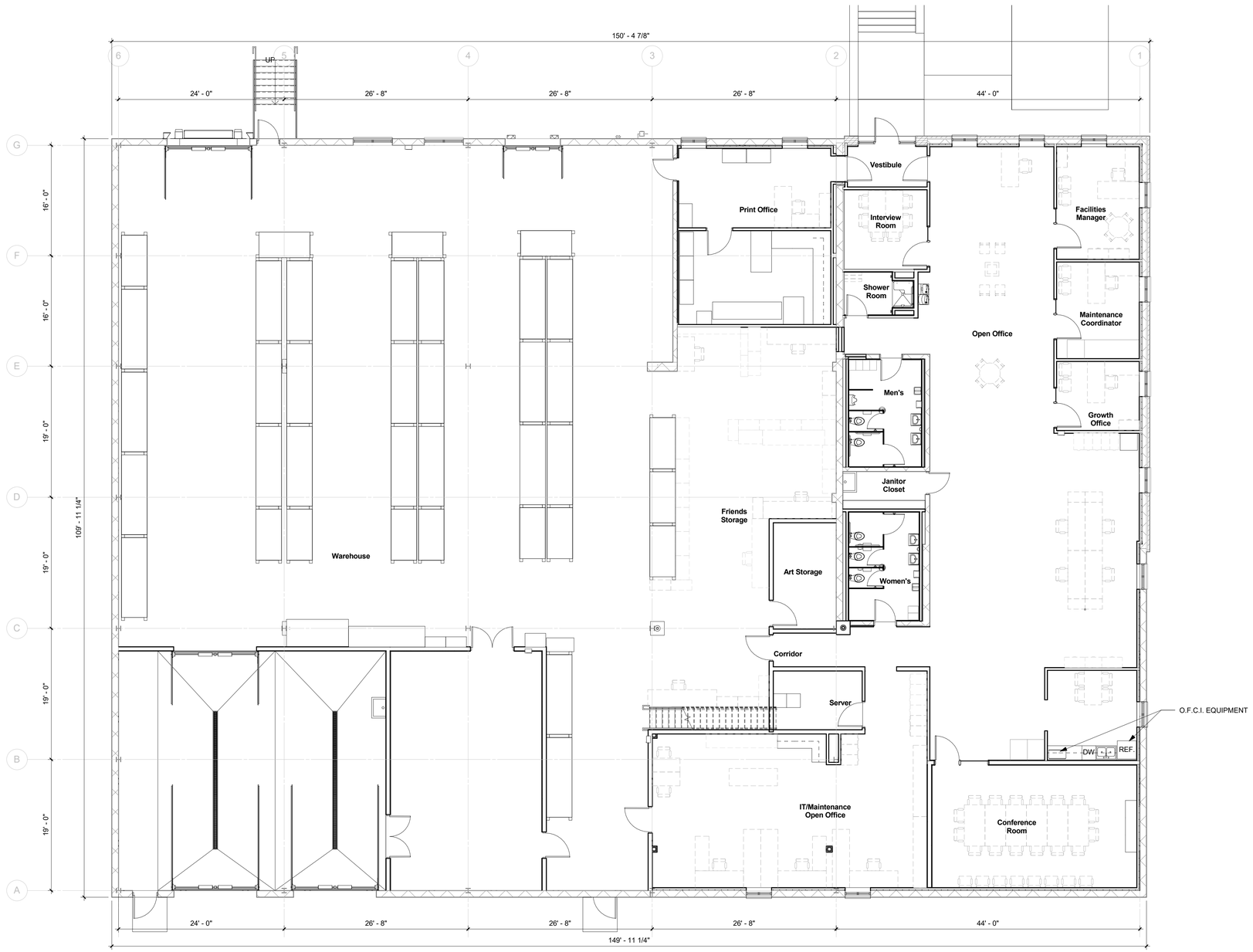
Revision Dates

Drawing
FIRST FLOOR FINISH PLAN

OPN Project No. 15617000

A131



NOTE:
ALL FURNITURE AND EQUIPMENT IS O.F.C.I. - FURNITURE IS SHOWN FOR REFERENCE ONLY

1 FURNITURE & EQUIPMENT PLAN - FOR REFERENCE ONLY
1/8" = 1'-0"

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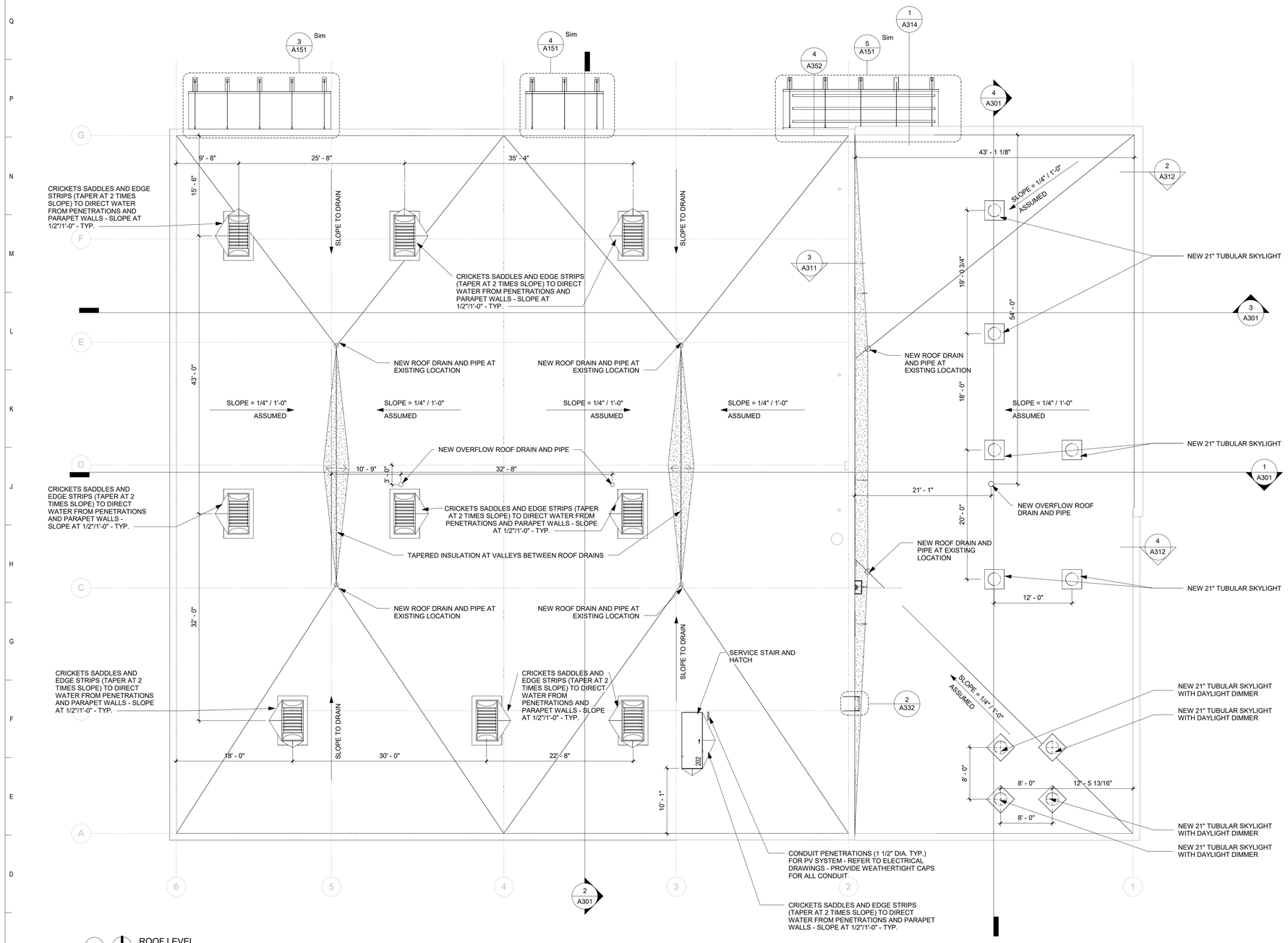
Revision Dates

Drawing
FURNITURE AND EQUIPMENT PLAN

OPN Project No. **15617000**

A132



1 ROOF LEVEL
1/8" = 1'-0"

GENERAL NOTES

1. NOT ALL ROOF PENETRATIONS ARE SHOWN. VERIFY LOCATIONS OF ALL ROOF PENETRATIONS. PROVIDE BOOTS, FLASHING AND OTHER ACCESSORIES REQUIRED TO PROVIDE A COMPLETE, WATERTIGHT WARRANTED SYSTEM REFER TO INDIVIDUAL DISCIPLINES.
2. COORDINATE SLOPED STRUCTURE AND TAPERED INSULATION WITH STRUCTURAL DRAWINGS.
3. SLOPE ALL TAPERED INSULATION AT 1/4" : 1'-0" UNLESS NOTED OTHERWISE.
4. PROTECT SECTIONS OF THE ROOF THAT HAVE ALREADY BEEN INSTALLED FROM DAMAGE. DO NOT USE THE ROOF FOR A STAGING AREA UNLESS ADEQUATE FACTORY, MUTUALLY APPROVED PROTECTION MEASURES ARE USED TO PROTECT THE ROOF.
5. COORDINATE LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS.
6. ALL OVERFLOW DRAINS TO BE 2" ABOVE MAIN ROOF DRAIN INTAKE ELEVATION.
7. REFER TO WALL SECTIONS AND SECTION DETAIL DRAWINGS FOR SPECIFIC ROOF DETAILS.
8. OPENING IN THE EXISTING STRUCTURE SMALLER THAN 12" IN ANY DIRECTION ARE NOT IDENTIFIED ON THESE DRAWINGS. SUB-CONTRACTORS SHALL BE RESPONSIBLE FOR PROVIDING OPENINGS SMALLER THAN 12" AS REQUIRED FOR INSTALLATION OF THEIR WORK.
9. CONTRACTOR SHALL NOT AT ANY TIME EXCEED ANY ROOF LIVE LOAD CAPACITIES.
10. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
11. REFER TO CONSULTANT DRAWINGS FOR OTHER DISCIPLINES.
12. EXISTING BUILDING CONDITIONS SHOWN ON THESE DRAWINGS ARE DERIVED FROM DRAWINGS OF THE ORIGINAL BUILDING AND FROM LIMITED FIELD OBSERVATION.
13. INDICATED EXISTING BUILDING CONDITIONS ARE ASSUMED TO BE REPRESENTATIVE OF THE ACTUAL CONSTRUCTION OF THE BUILDING. LOCAL CONDITIONS MAY VARY.
14. DIMENSIONS ARE MEASURED FACE-OF- FINISH TO FACE-OF-FINISH OR ROUGH MASONRY OPENING UNLESS NOTED OTHERWISE - TYPICAL FOR ALL DRAWINGS.

SLOPE = 1/4" / 1'-0" ASSUMED — EXISTING SLOPED ROOF STRUCTURE TO REMAIN, POSITIVE DRAINAGE TO ALL DRAINS = 1/4" : 1'-0" ASSUMED

GENERAL NOTES

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CEDAR RAPIDS
DES MOINES
MADISON

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ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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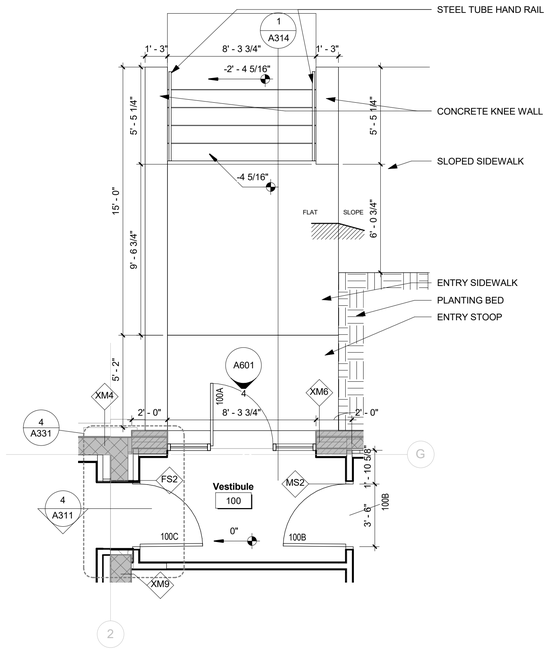
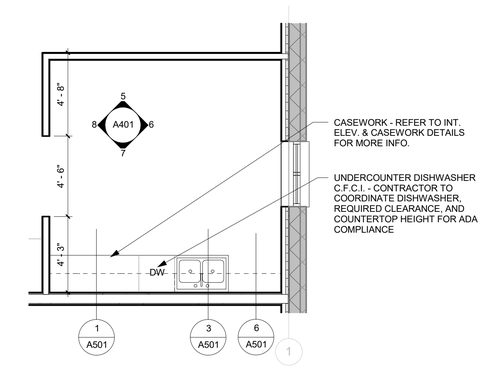
Drawing
ROOF PLAN

OPN Project No. **15617000**

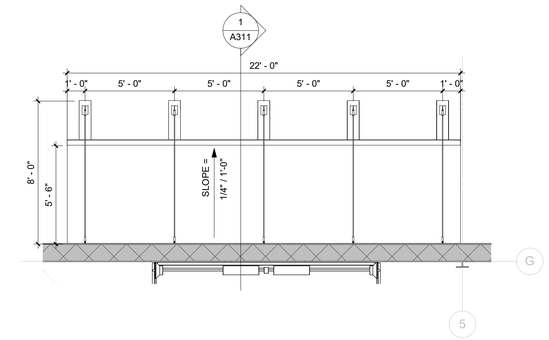
A141



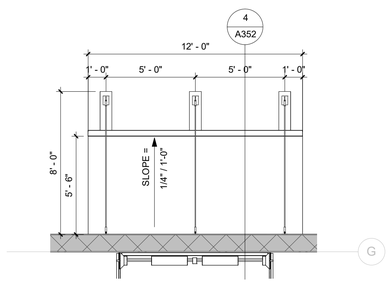
1 ENLARGED VESTIBULE PLAN
1/4" = 1'-0"



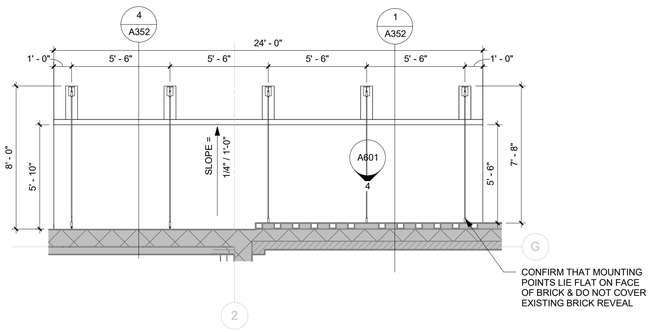
2 ENLARGED KITCHENETTE PLAN
1/4" = 1'-0"



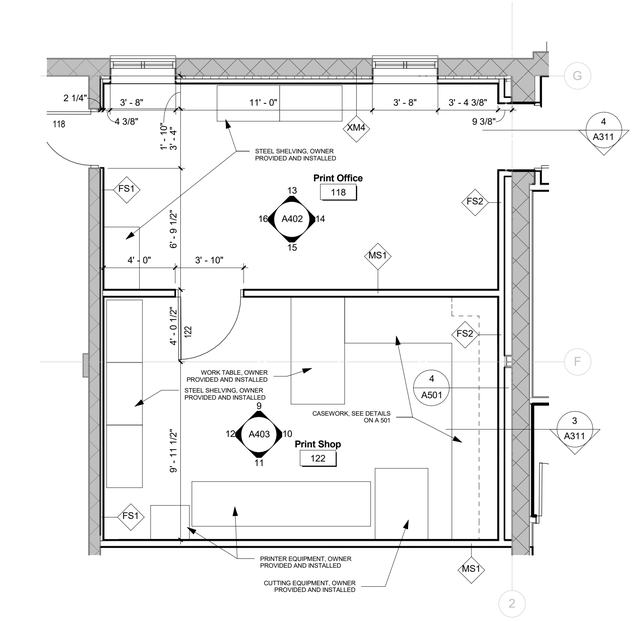
3 ENLARGED CANOPY PLAN 1
1/4" = 1'-0"



4 ENLARGED CANOPY PLAN 2
1/4" = 1'-0"



5 ENLARGED CANOPY PLAN 3
1/4" = 1'-0"



6 ENLARGED PRINT SHOP & OFFICE PLAN
1/4" = 1'-0"

GENERAL NOTES

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2. REFER TO INTERIOR ELEVATIONS, FINISH PLANS, FINISH SPECIFICATIONS AND ROOM FINISH SCHEDULE FOR ADDITIONAL WALL FINISH INFORMATION AND REMARKS.
3. PROVIDE CONCEALED, FIRE TREATED BLOCKING AT ALL ACCESSORIES AND CASEWORK LOCATIONS. EXTEND BLOCKING A MINIMUM OF 6" BEYOND EACH END AND 6" ABOVE AND BELOW ALL ACCESSORY ITEMS.
4. MOUNT REQUIRED ACCESSIBLE TOILET ACCESSORIES PER ADA GUIDELINES - SEE GENERAL ARCHITECTURAL INFORMATION SHEET FOR MORE INFORMATION.
5. REFER TO INTERIOR ELEVATIONS FOR SPECIFIC MATERIAL AND FINISH CLARIFICATION, MOUNTING HEIGHTS AND FIXTURE LOCATIONS.
6. ALL PENETRATIONS IN FIRE RATED WALLS MUST BE SEALED WITH APPROPRIATE FIRESTOPPING SYSTEM.
7. REFER TO GENERAL ARCHITECTURAL INFORMATION SHEET FOR ALL TYPICAL ADA MOUNTING HEIGHTS.
8. REFER TO CODE REVIEW DRAWINGS FOR FIRE RATED WALL LOCATIONS.
9. ALL WALLS WITH SOUND ATTENUATION BLANKETS ARE TO HAVE ACOUSTICAL SEALANT AT TOP AND BOTTOM AND AT ALL WALL PENETRATIONS.
10. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
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DES MOINES
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301 NORTH BROOM S-TREET,
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Sheet Issue Date

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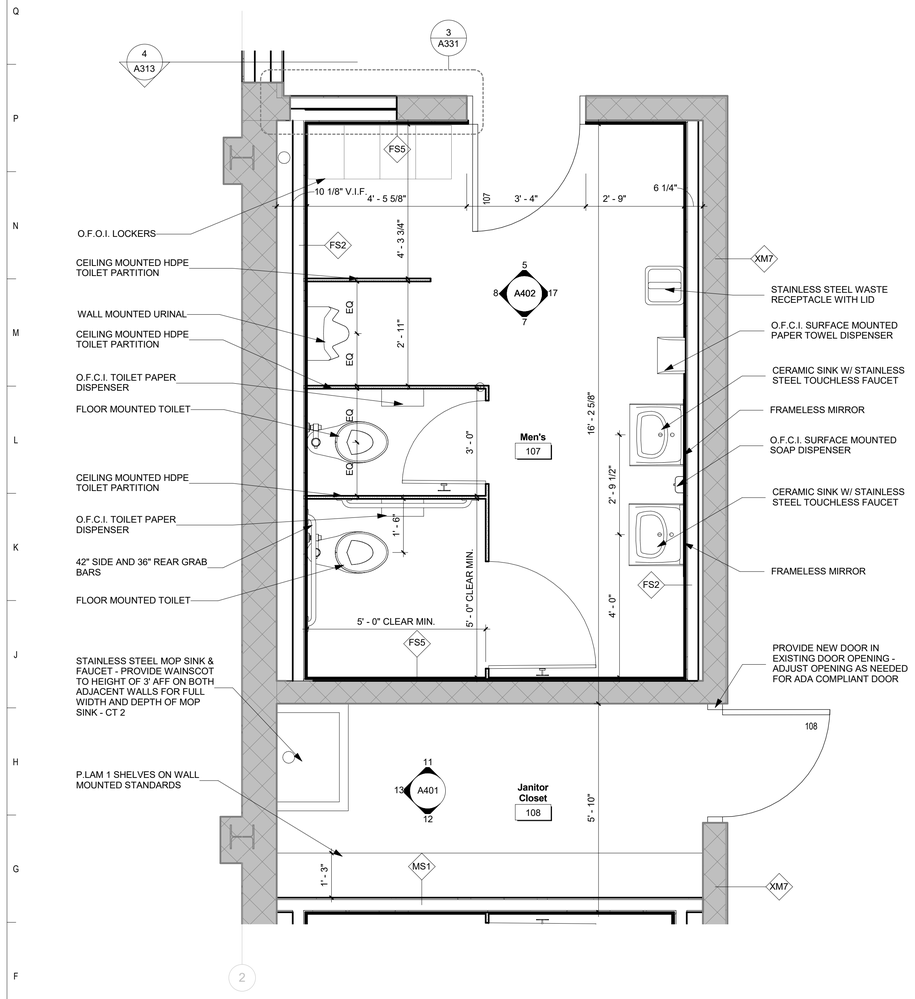
Revision Dates

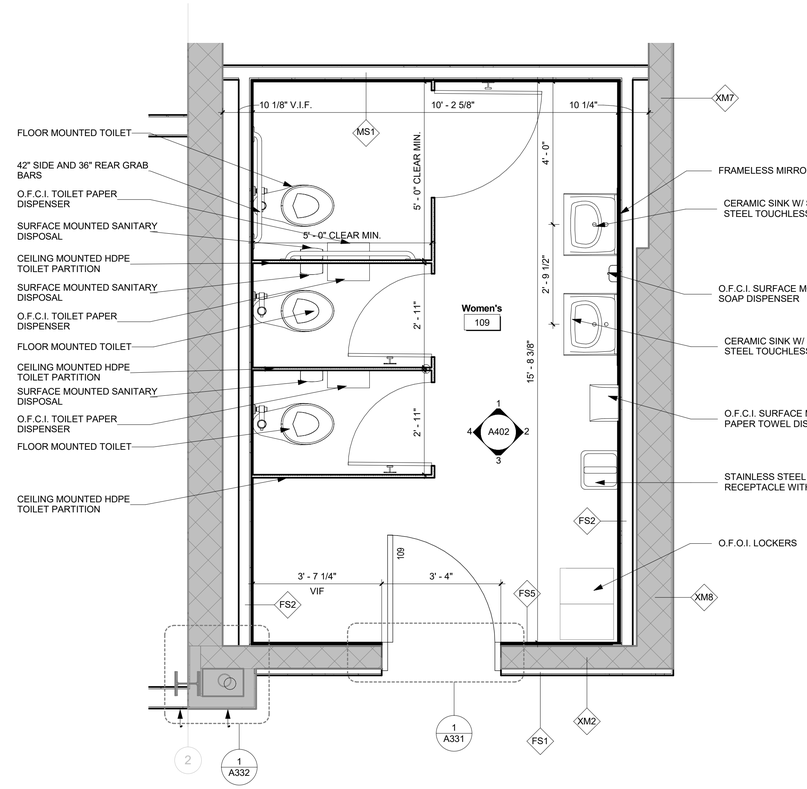
Drawing
ENLARGED FLOOR PLAN

OPN Project No. **15617000**

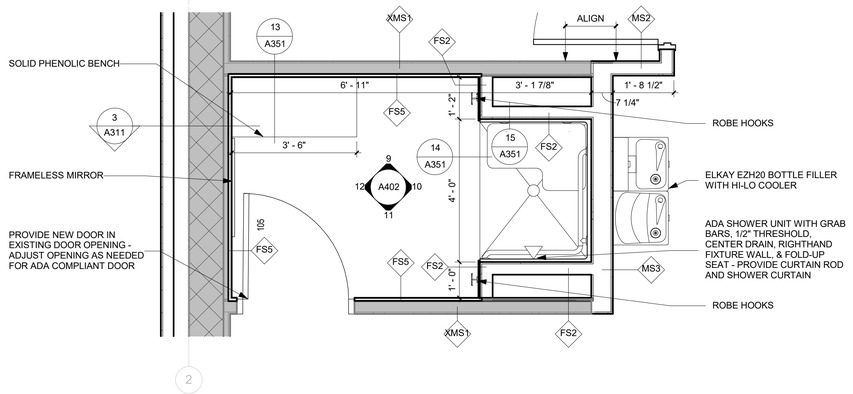
A151



1 ENLARGED MEN'S RESTROOM & JANITOR CLOSET
1/2" = 1'-0"



2 ENLARGED WOMEN'S RESTROOM
1/2" = 1'-0"



3 ENLARGED SHOWER ROOM
1/2" = 1'-0"

GENERAL NOTES

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2. REFER TO INTERIOR ELEVATIONS, FINISH PLANS, FINISH SPECIFICATIONS AND ROOM FINISH SCHEDULE FOR ADDITIONAL WALL FINISH INFORMATION AND REMARKS.
3. PROVIDE CONCEALED, FIRE TREATED BLOCKING AT ALL ACCESSORIES AND CASEWORK LOCATIONS. EXTEND BLOCKING A MINIMUM OF 6" BEYOND EACH END AND 6" ABOVE AND BELOW ALL ACCESSORY ITEMS.
4. MOUNT REQUIRED ACCESSIBLE TOILET ACCESSORIES PER ADA GUIDELINES - SEE GENERAL ARCHITECTURAL INFORMATION SHEET FOR MORE INFORMATION.
5. REFER TO INTERIOR ELEVATIONS FOR SPECIFIC MATERIAL AND FINISH CLARIFICATION, MOUNTING HEIGHTS AND FIXTURE LOCATIONS.
6. ALL PENETRATIONS IN FIRE RATED WALLS MUST BE SEALED WITH APPROPRIATE FIRESTOPPING SYSTEM.
7. REFER TO GENERAL ARCHITECTURAL INFORMATION SHEET FOR ALL TYPICAL ADA MOUNTING HEIGHTS.
8. REFER TO CODE REVIEW DRAWINGS FOR FIRE RATED WALL LOCATIONS.
9. ALL WALLS WITH SOUND ATTENUATION BLANKETS ARE TO HAVE ACOUSTICAL SEALANT AT TOP AND BOTTOM AND AT ALL WALL PENETRATIONS.
10. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. IN THE EVENT OF A DISCREPANCY BETWEEN THE DRAWINGS AND THE EXISTING CONDITIONS, NOTIFY THE ARCHITECT BEFORE PROCEEDING.
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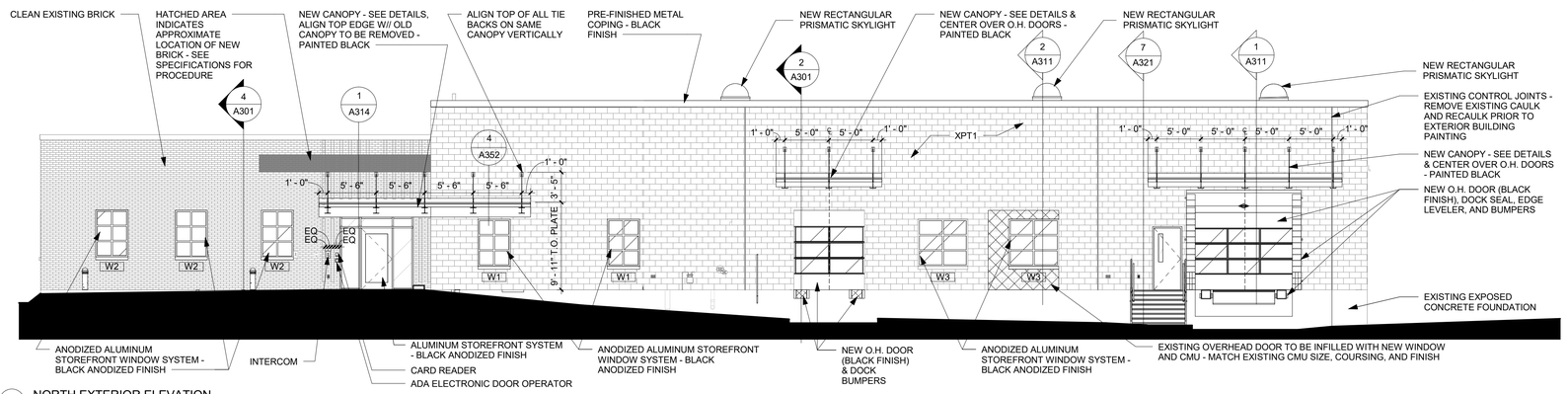
Revision Dates

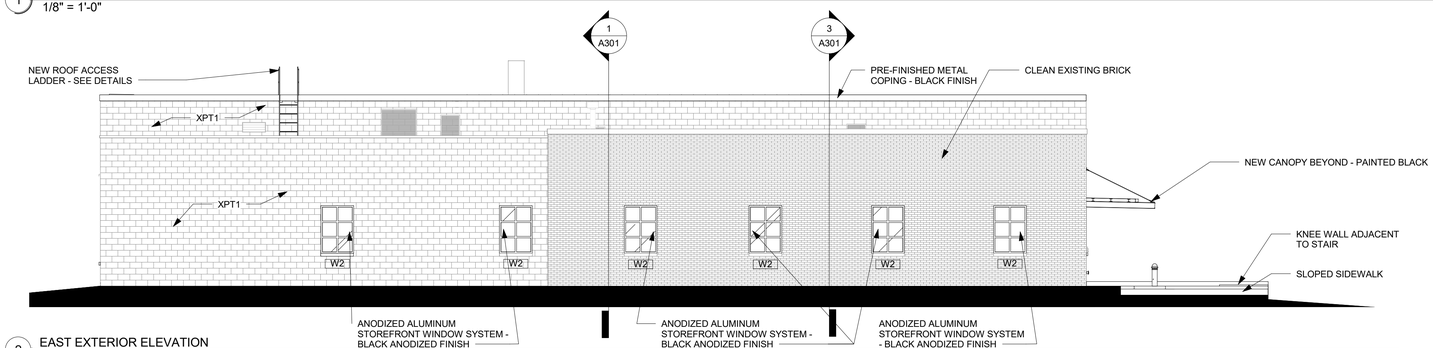
Drawing
ENLARGED RESTROOM FLOOR PLANS

OPN Project No. **15617000**

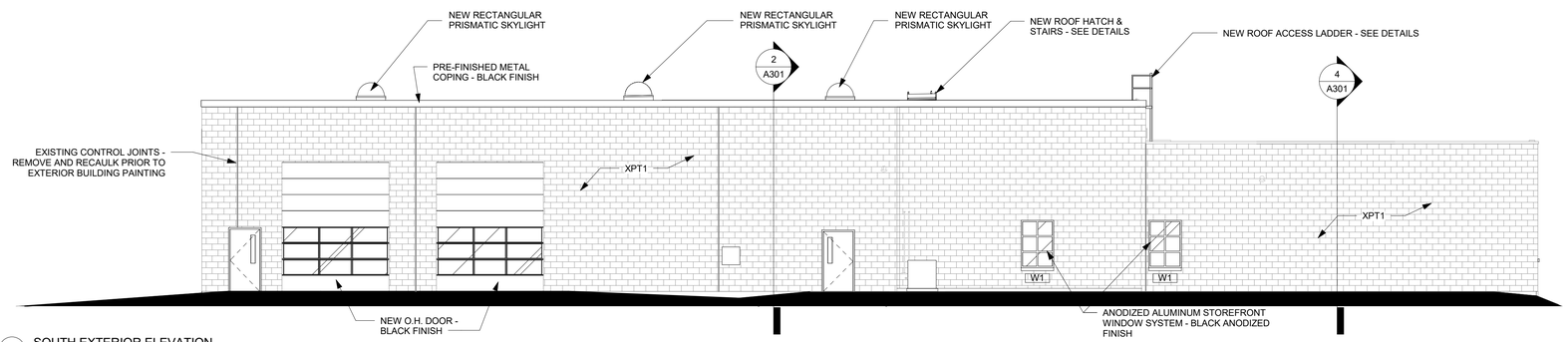
A152



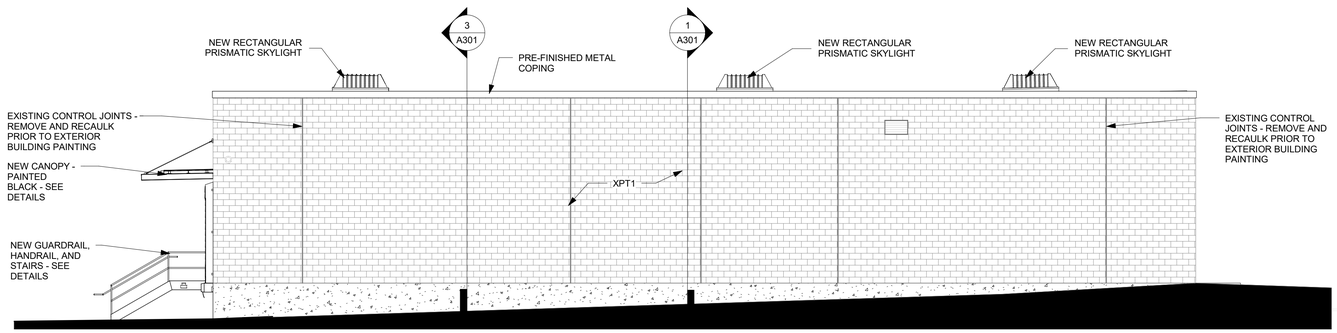
1 NORTH EXTERIOR ELEVATION
1/8" = 1'-0"



2 EAST EXTERIOR ELEVATION
1/8" = 1'-0"



3 SOUTH EXTERIOR ELEVATION
1/8" = 1'-0"



4 WEST EXTERIOR ELEVATION
1/8" = 1'-0"

GENERAL NOTES

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2. WALL FIXTURE DIMENSIONS ARE TAKEN FROM CENTERLINE OF FIXTURE UNLESS NOTED OTHERWISE.
3. SEE WINDOW SCHEDULE FOR ADDITIONAL OPENING INFORMATION.

GENERAL NOTES

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MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Project
Madison Public Library Maintenance & Support Center Remodel

1301 West Badger Road
Madison, WI 53713

General Contractor
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Consultants

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Middleton, WI 53562
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Key Plan

Sheet Issue Date

Permit Set	10/17/2016

Previous Issue Dates

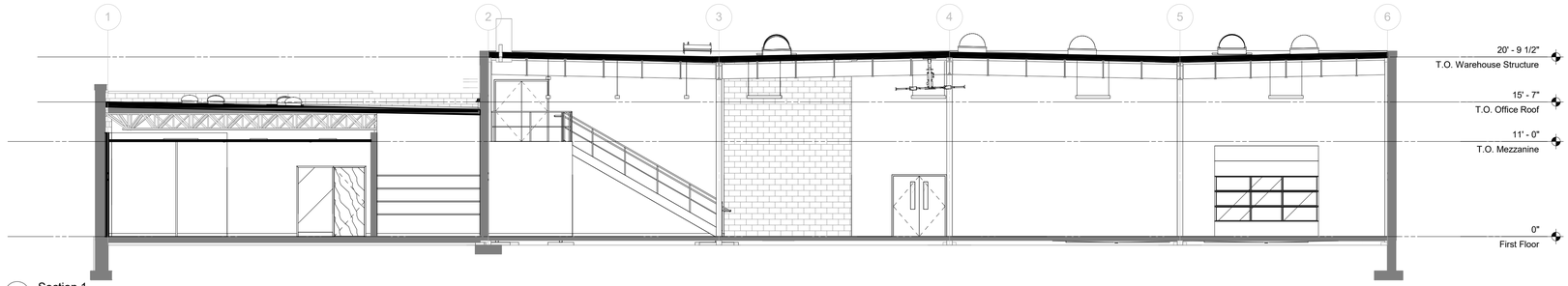
CD Set	09/09/2016
60% CD Set	08/24/2016
Design Development	06/17/2016
Schematic Design	04/01/2016

Revision Dates

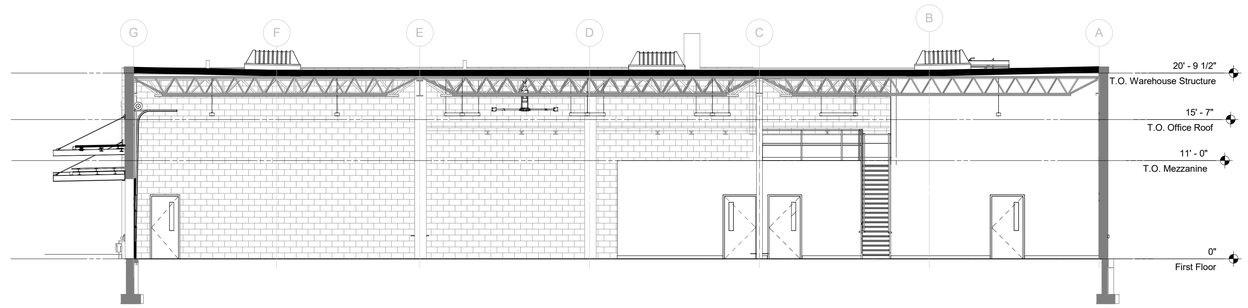
Drawing
EXTERIOR ELEVATIONS

OPN Project No. 15617000

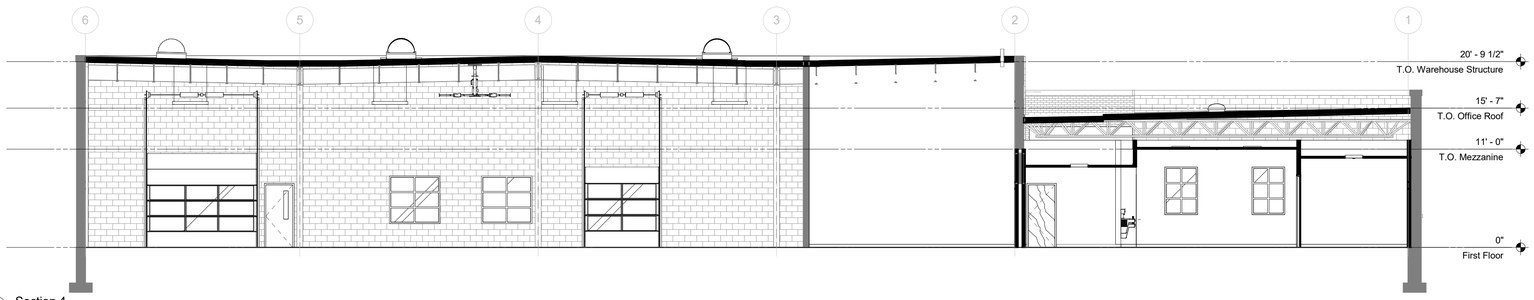
A201



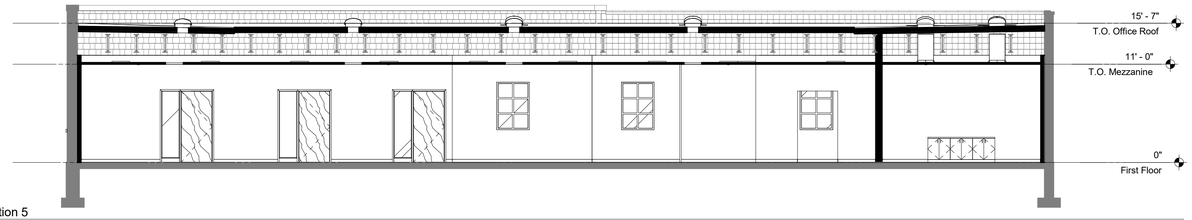
1 Section 1
1/8" = 1'-0"



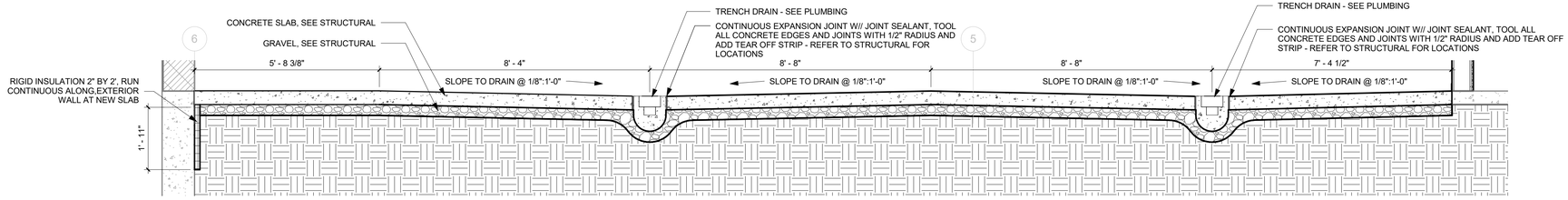
2 Section 2
1/8" = 1'-0"



3 Section 4
1/8" = 1'-0"



4 Section 5
1/8" = 1'-0"



5 SLOPE SLAB FLOOR DETAIL
1/2" = 1'-0"

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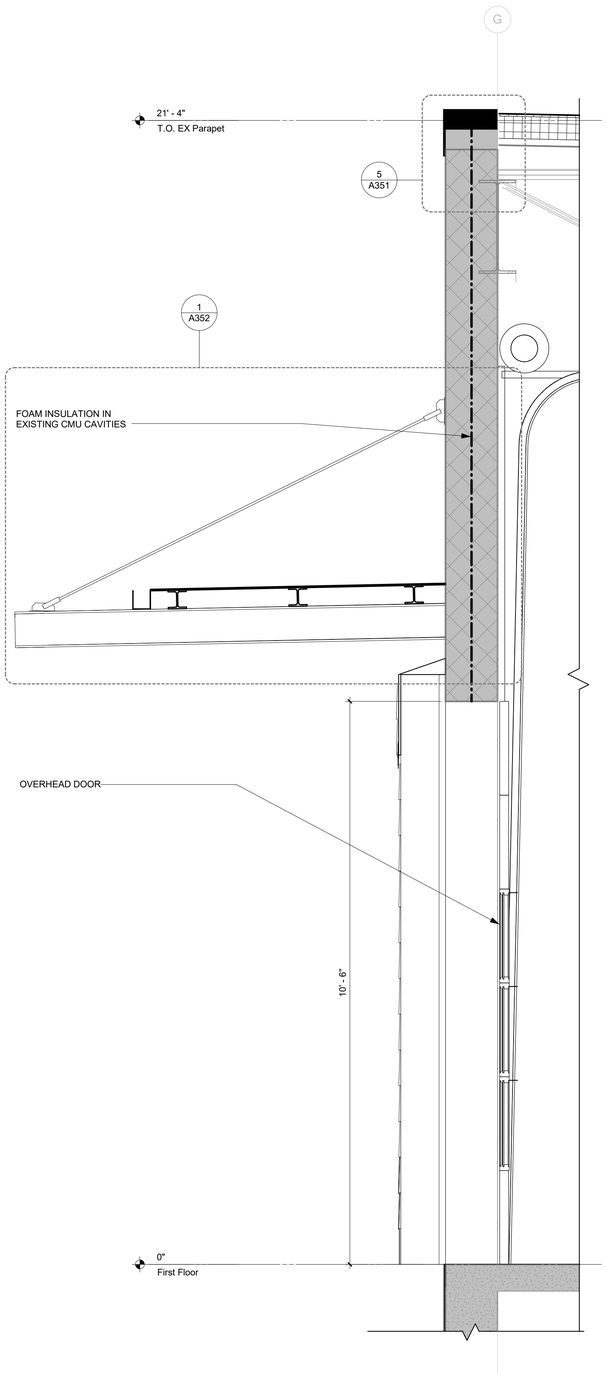
Revision Dates

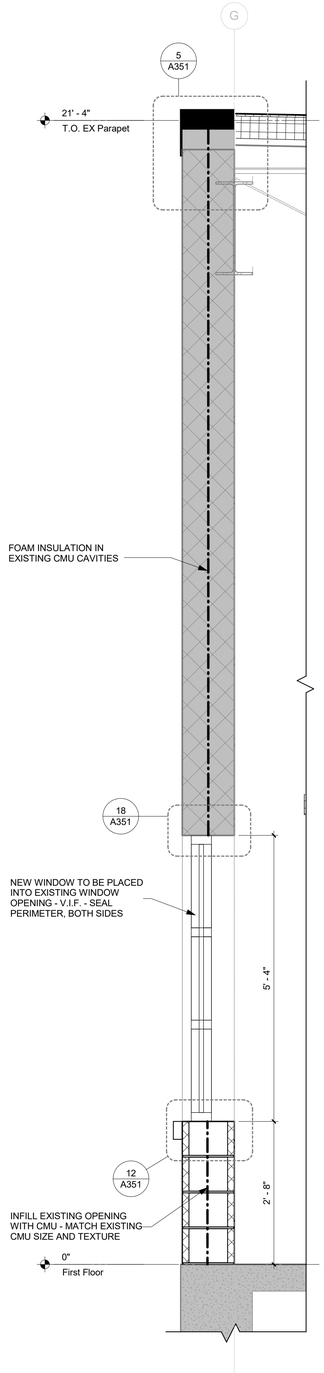
Drawing
BUILDING SECTIONS

OPN Project No. 15617000

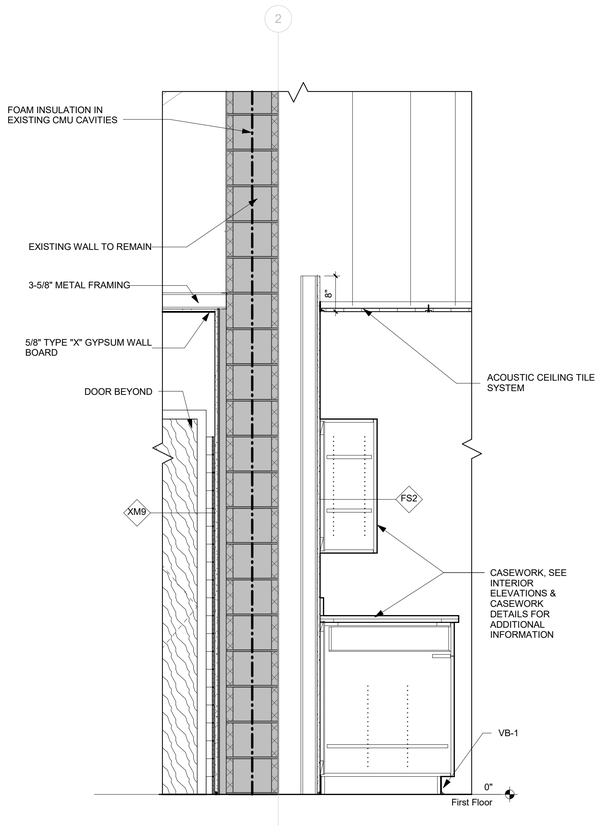
A301



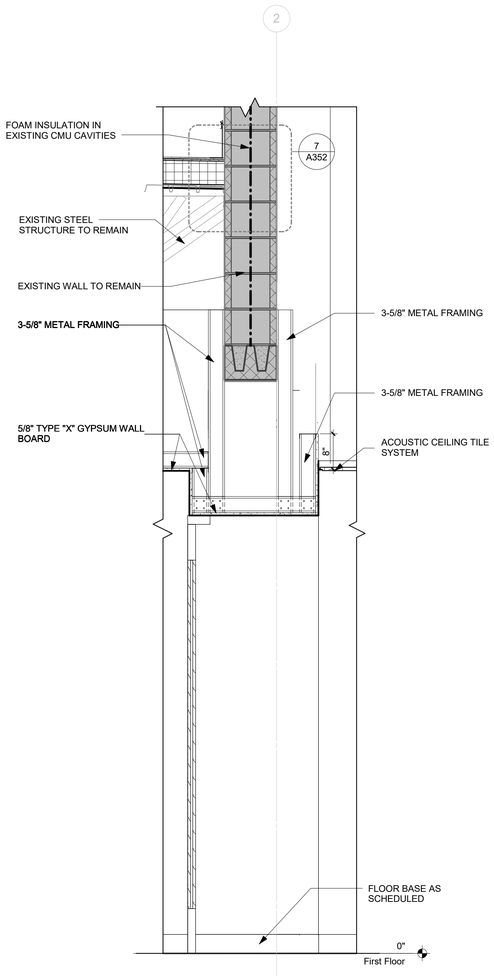
1 WALL SECTION
3/4" = 1'-0"



2 WALL SECTION
3/4" = 1'-0"



3 WALL SECTION
3/4" = 1'-0"



4 WALL SECTION
3/4" = 1'-0"

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608-819-0260 PHONE
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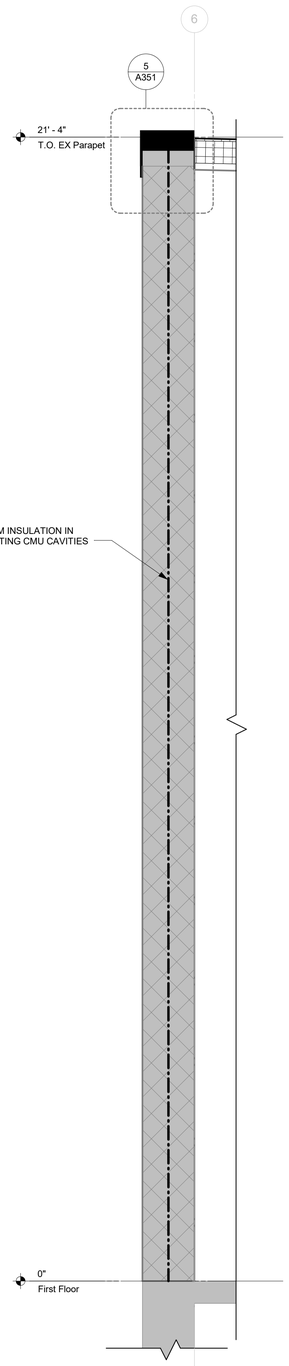
Revision Dates

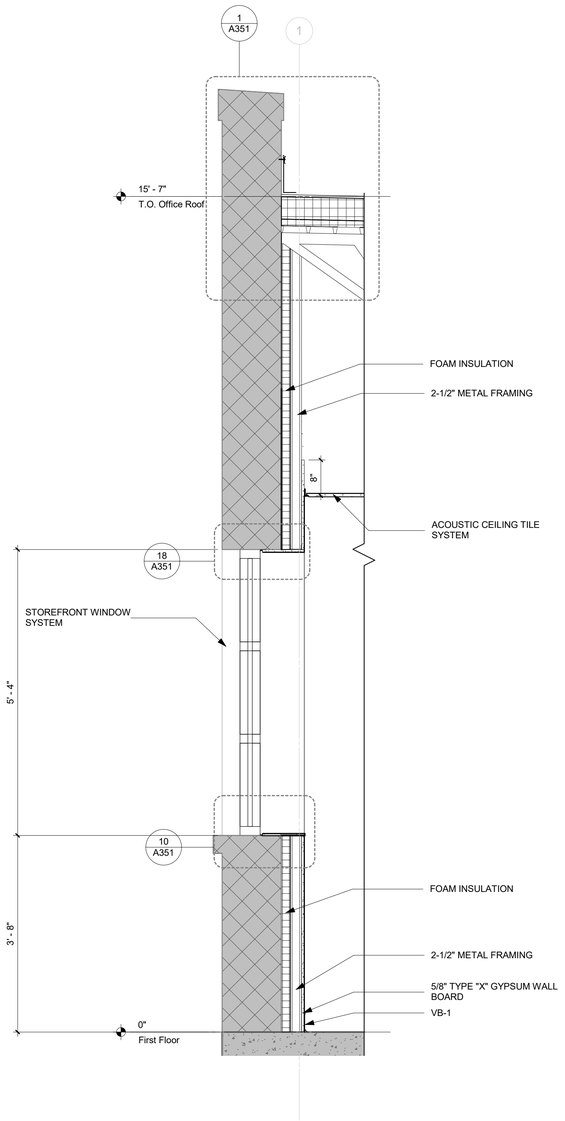
Drawing
WALL SECTIONS

OPN Project No. **15617000**

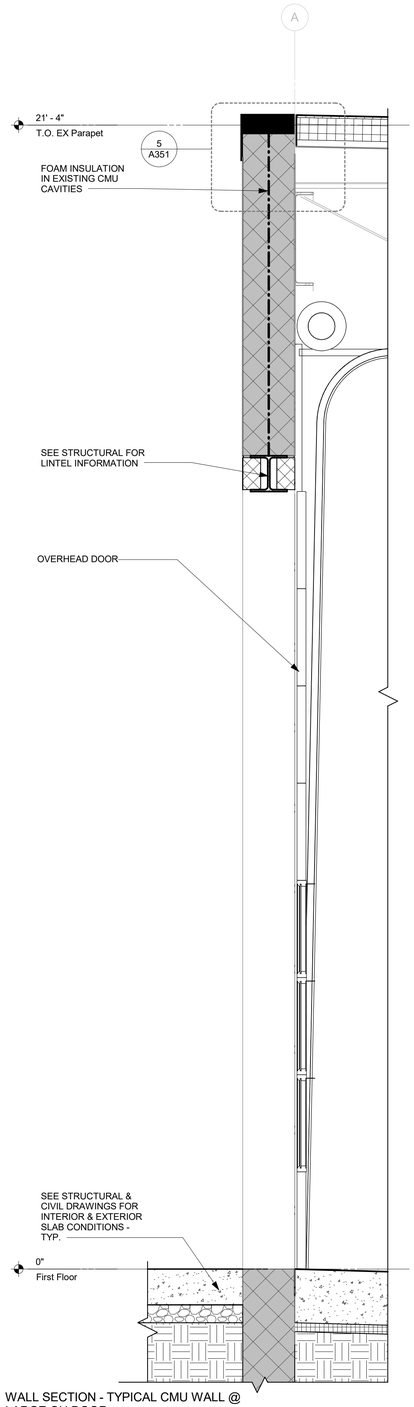
A311



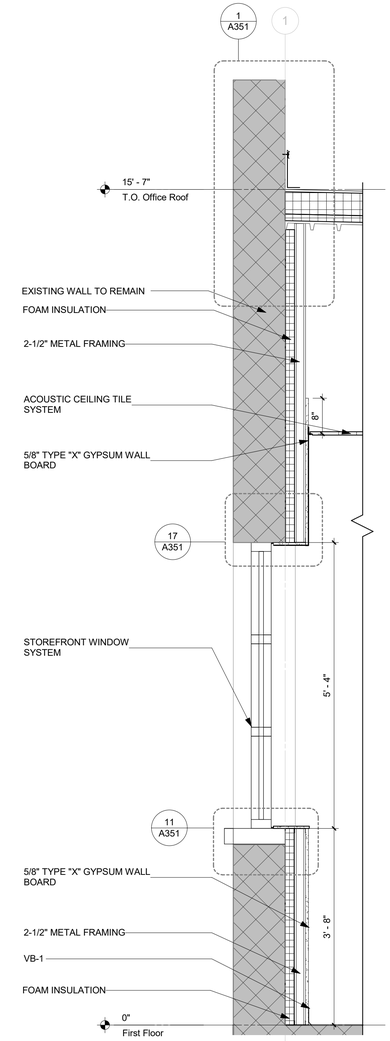
1 WALL SECTION
3/4" = 1'-0"



2 WALL SECTION - TYPICAL BRICK WALL
3/4" = 1'-0"



3 WALL SECTION - TYPICAL CMU WALL @
LARGE OH DOOR
3/4" = 1'-0"



4 WALL SECTION - CMU WALL @ WINDOW
3/4" = 1'-0"

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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1800 Deming Way
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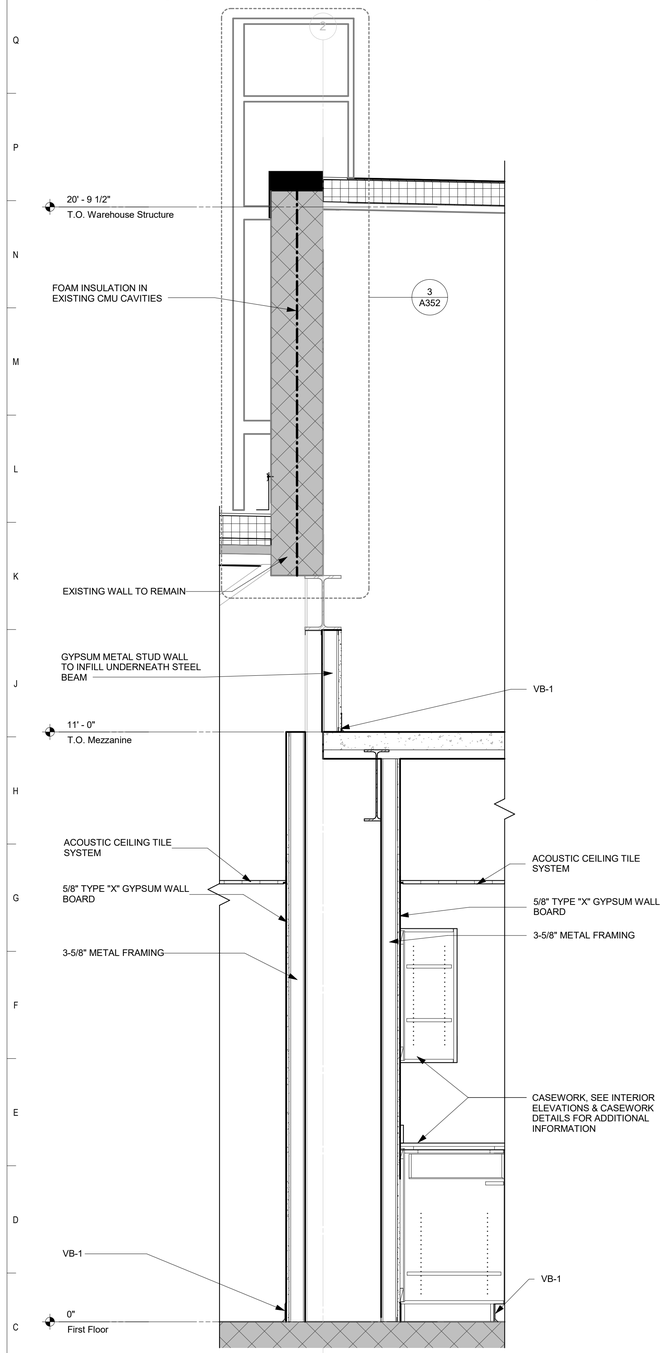
Revision Dates

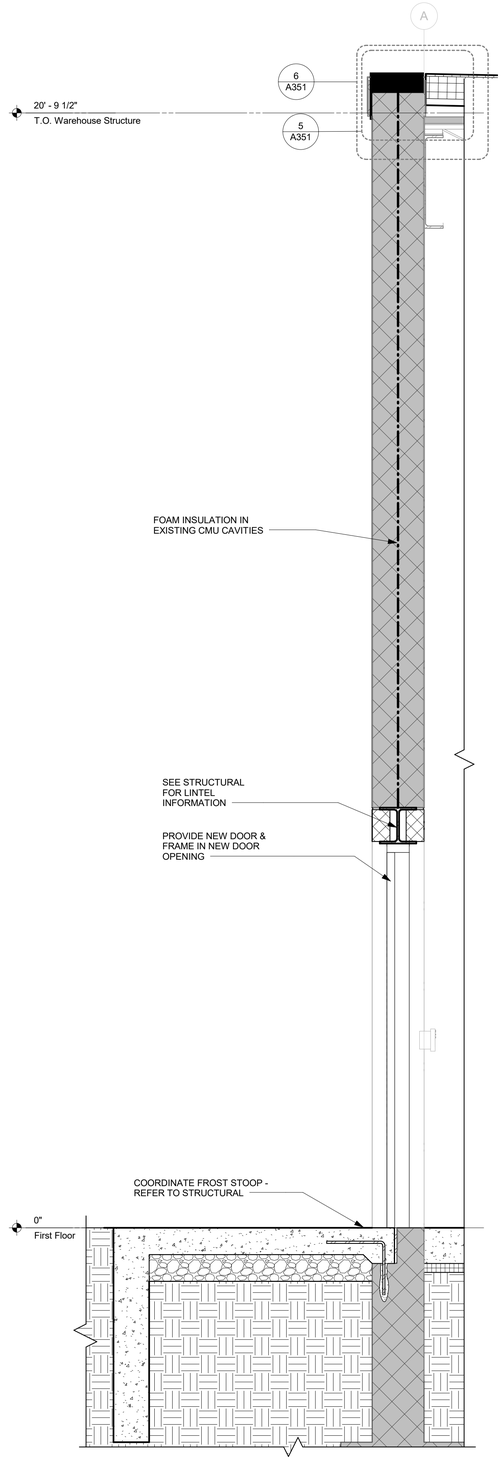
Drawing
WALL SECTIONS

OPN Project No. **15617000**

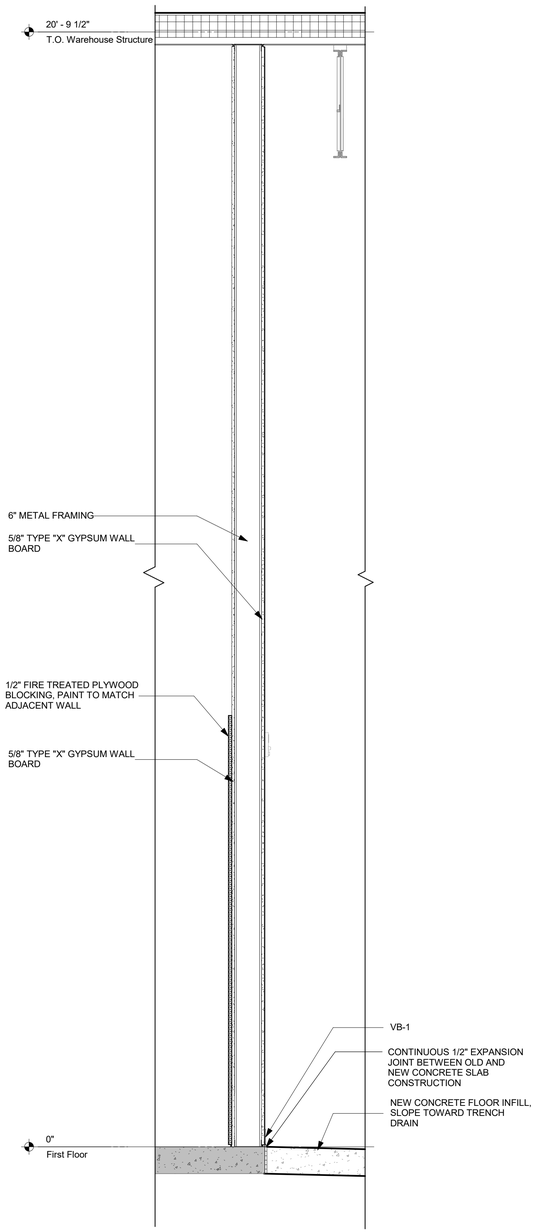
A312



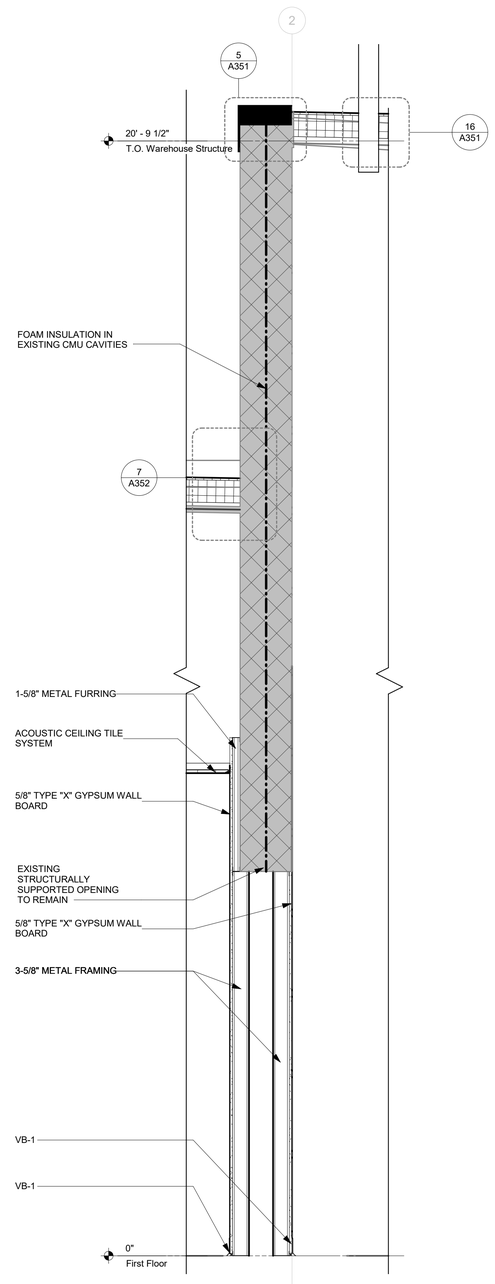
1 WALL SECTION
3/4" = 1'-0"



2 WALL SECTION
3/4" = 1'-0"



3 WALL SECTION
3/4" = 1'-0"



4 WALL SECTION
3/4" = 1'-0"

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608-819-0261 FAX
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Snyder & Associates, Inc.
5010 Voges Road
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P. 608.838.0444

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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KJWW Engineering Consultants
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Middleton, WI 53562
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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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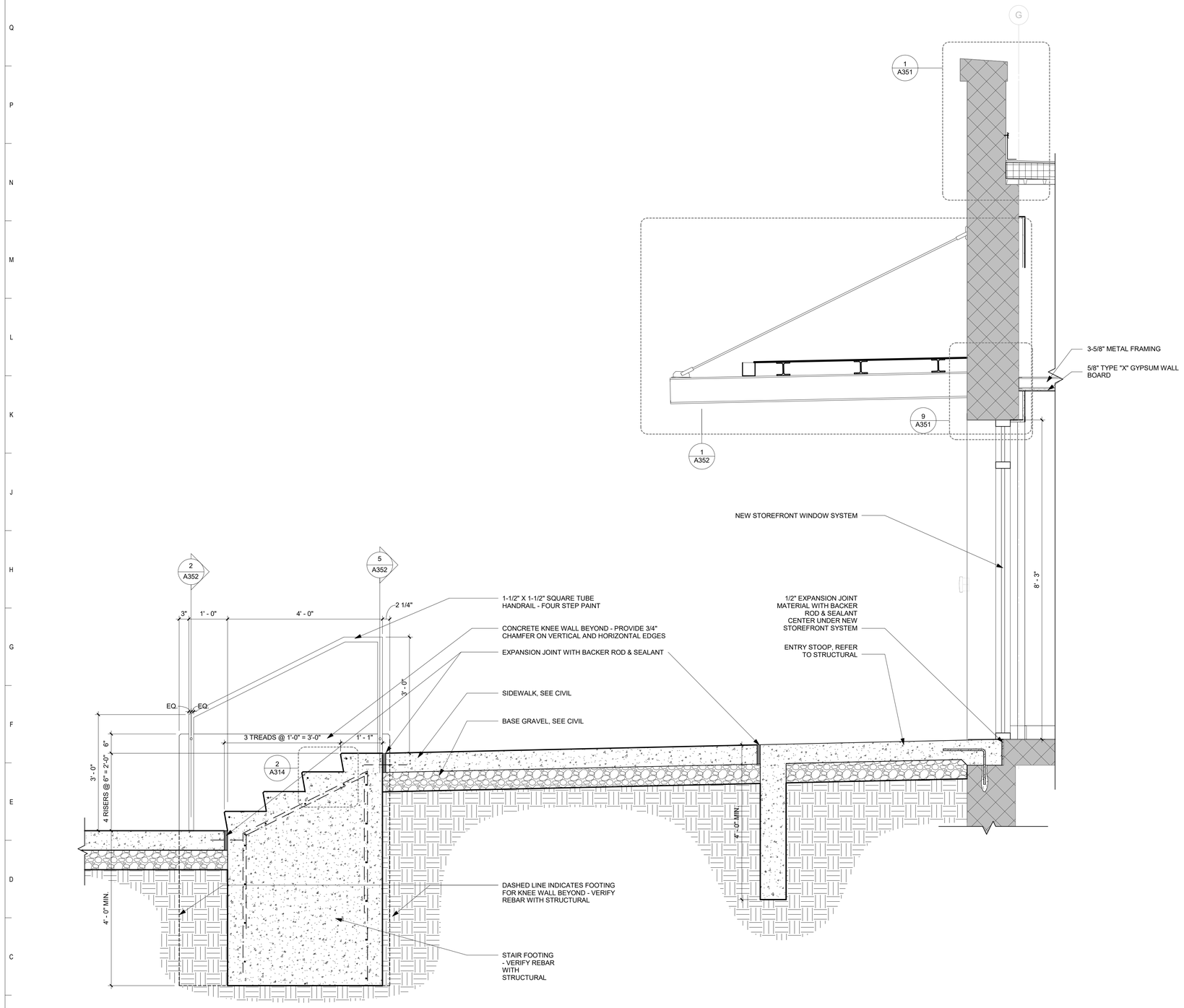
Revision Dates

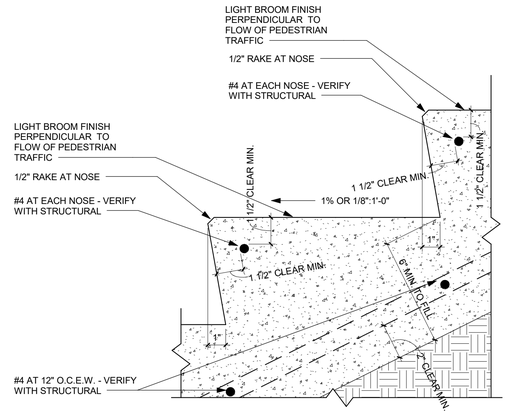
Drawing
WALL SECTIONS

OPN Project No. 15617000

A313



1 WALL SECTION - BRICK @ ENTRY CANOPY
3/4" = 1'-0"



2 Detail 0
3" = 1'-0"

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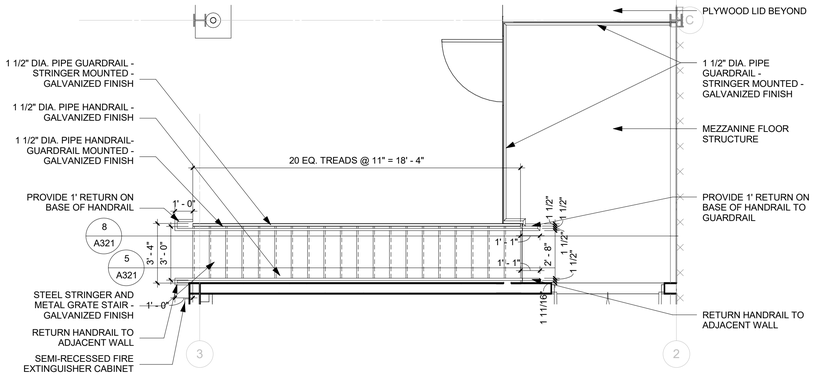
Schematic Design	04/01/2016

Revision Dates

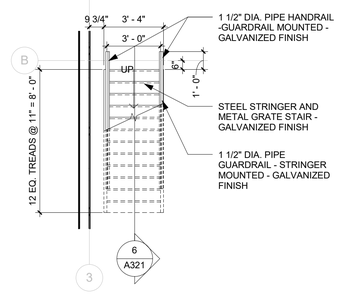
Drawing
WALL SECTIONS

OPN Project No. **15617000**

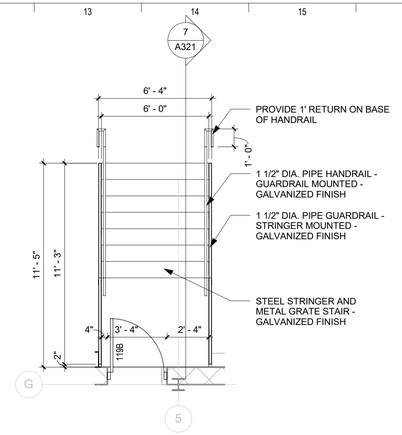
A314



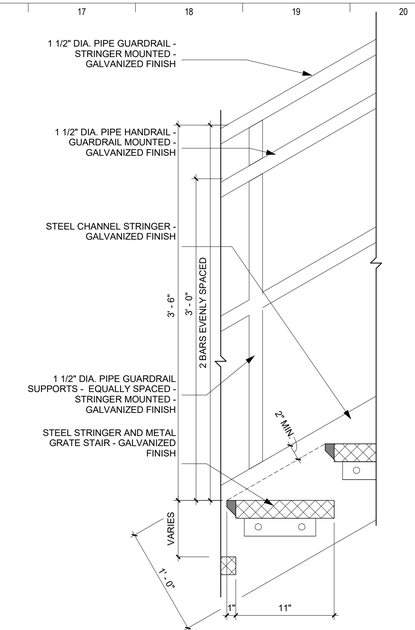
1 FIRST FLOOR - ENLARGED MEZZANINE SERVICE STAIR
1/4" = 1'-0"



2 MEZZANINE - ENLARGED ROOF ACCESS SERVICE STAIR
1/4" = 1'-0"

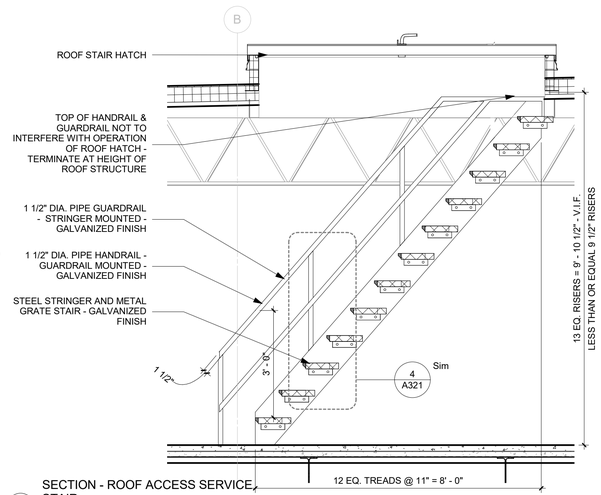


3 EXTERIOR WAREHOUSE SERVICE STAIR
1/4" = 1'-0"

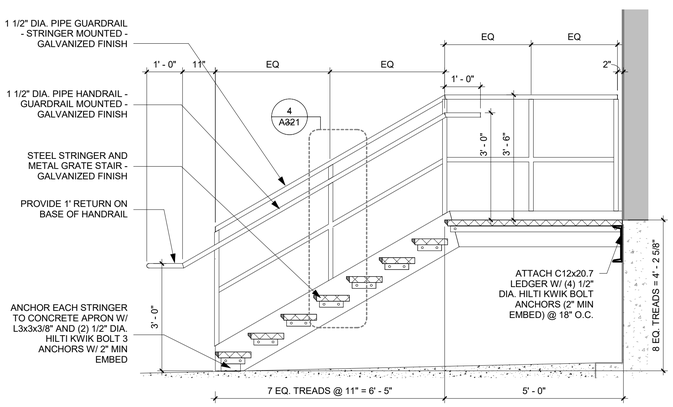


4 TYPICAL SERVICE STAIR SECTION
1 1/2" = 1'-0"

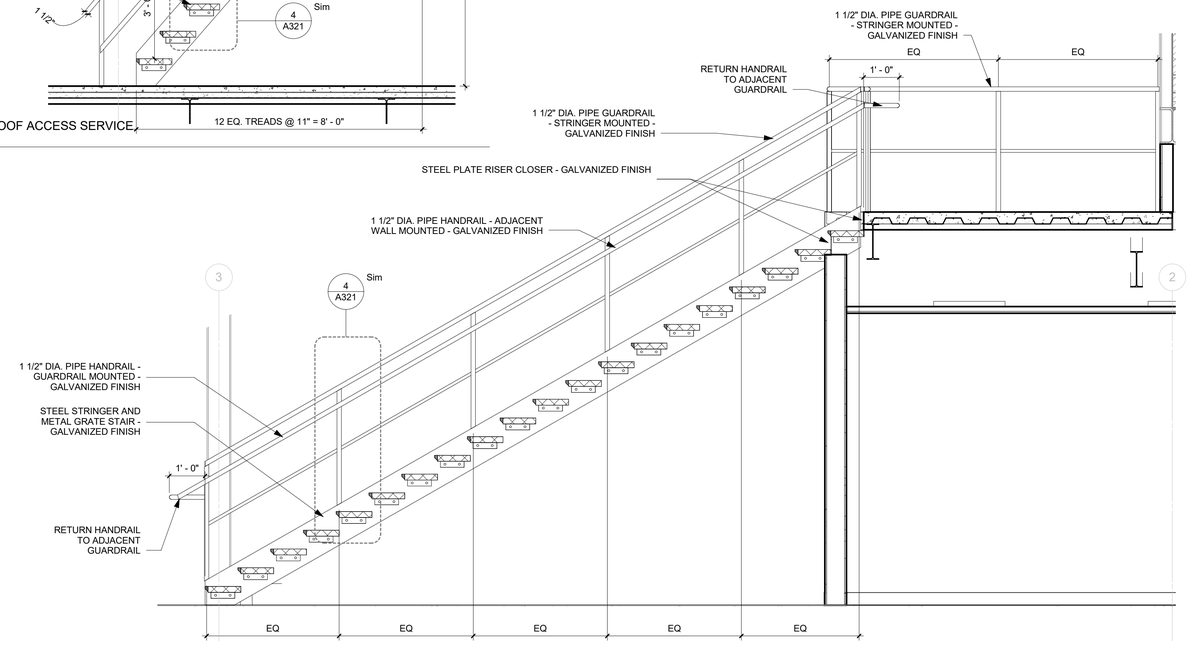
5 SECTION - MEZZANINE SERVICE STAIR
1/2" = 1'-0"



6 SECTION - ROOF ACCESS SERVICE STAIR
1/2" = 1'-0"



7 EXTERIOR SERVICE STAIR SECTION
1/2" = 1'-0"



8 Detail 1

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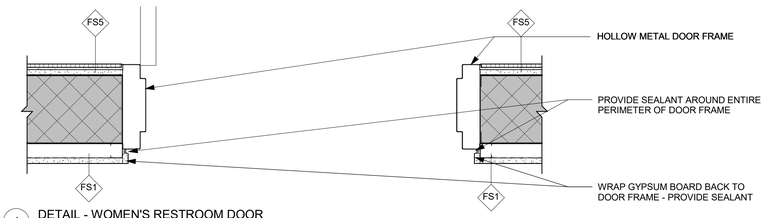
Revision Dates

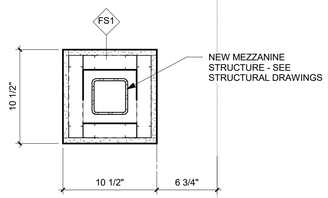
Drawing
ENLARGED STAIR PLANS, SECTIONS, & ELEVATIONS

OPN Project No. **15617000**

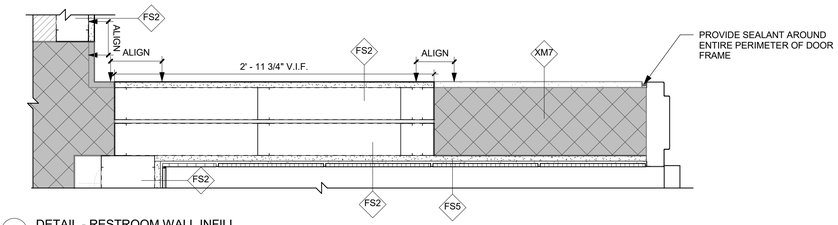
A321



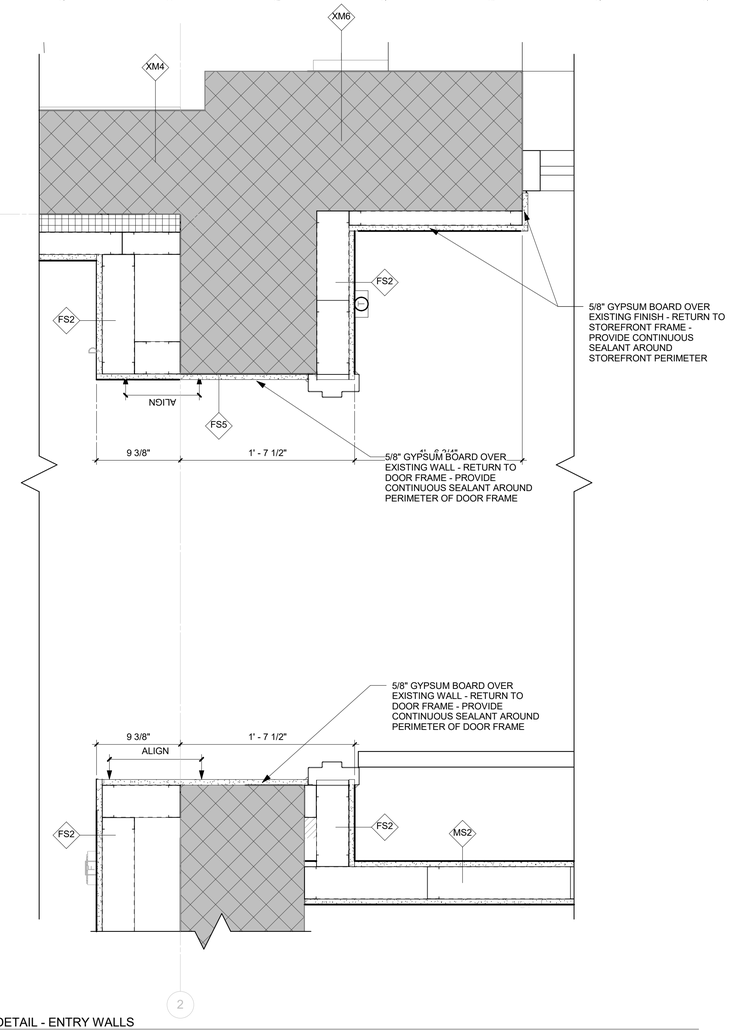
1 DETAIL - WOMEN'S RESTROOM DOOR
1 1/2" = 1'-0"



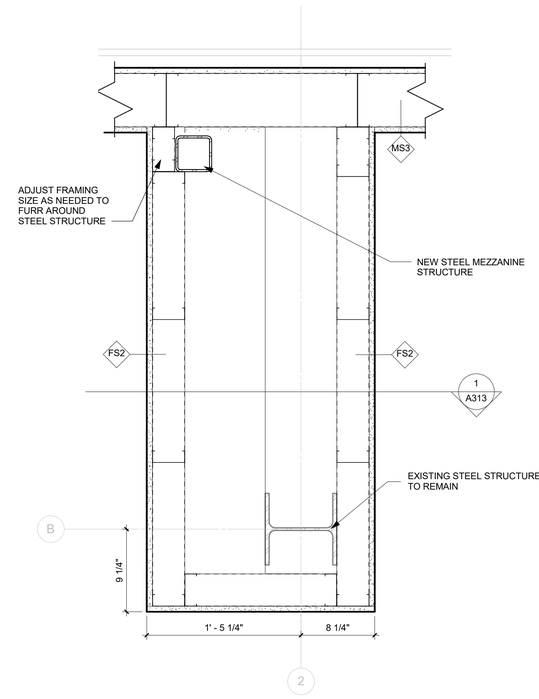
2 COLUMN FURRING
1 1/2" = 1'-0"



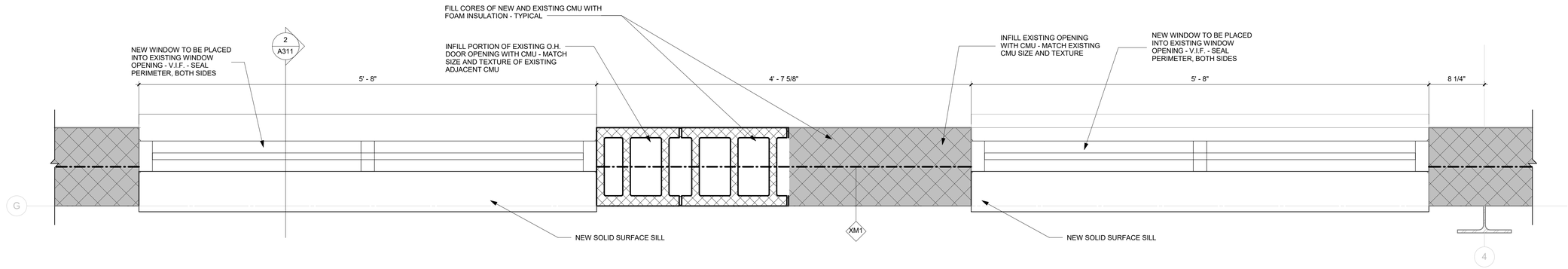
3 DETAIL - RESTROOM WALL INFILL
1 1/2" = 1'-0"



4 DETAIL - ENTRY WALLS
1 1/2" = 1'-0"



5 DETAIL - IT COLUMN FURRING
1 1/2" = 1'-0"



6 DETAIL - O.H. DOOR INFILL
1 1/2" = 1'-0"

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1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

Sheet Issue Date

Permit Set	10/17/2016

Previous Issue Dates

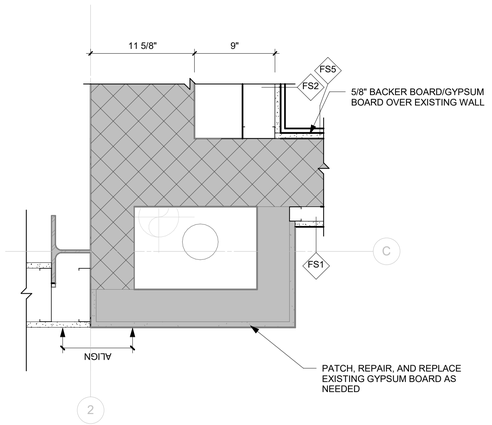
CD Set	09/09/2016
60% CD Set	08/24/2016
Design Development	06/17/2016
Schematic Design	04/01/2016

Revision Dates

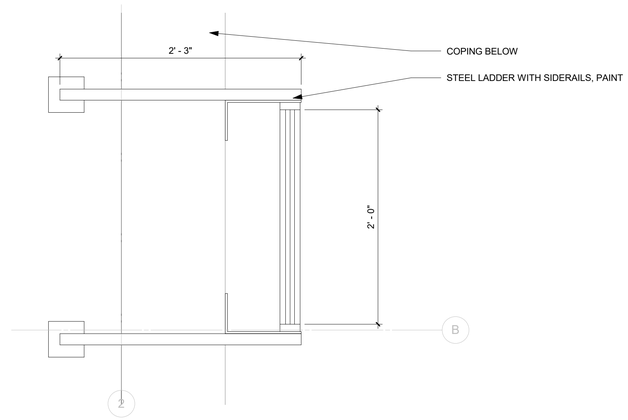
Drawing
PLAN DETAILS

OPN Project No. 15617000

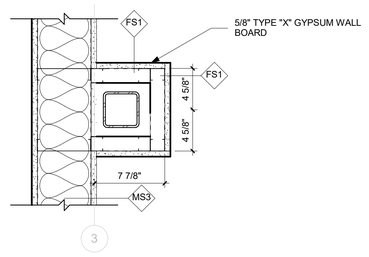
A331



1 DETAIL - CORRIDOR WALL FRAMING
1 1/2" = 1'-0"



2 LADDER PLAN
1 1/2" = 1'-0"



3 COLUMN FURRING1
1 1/2" = 1'-0"

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301 NORTH BROOM S-TREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
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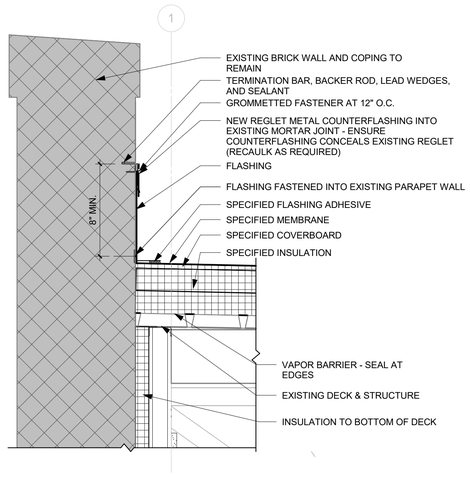
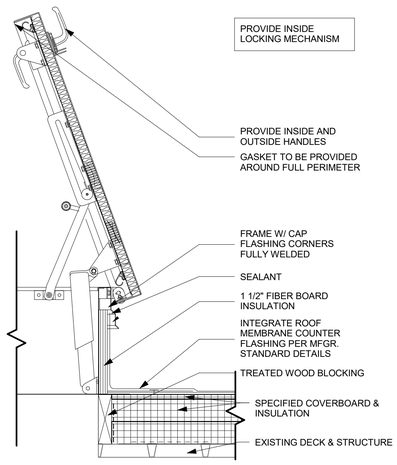
OPN Project No. **15617000**

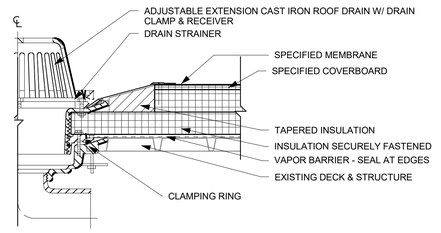
A332



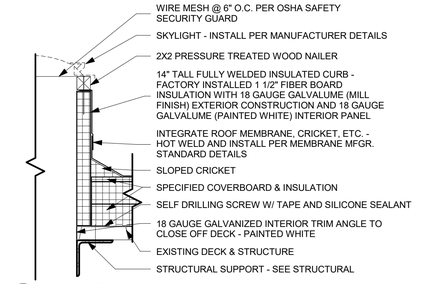
1 BRICK WALL TO ROOF CONNECTION
1 1/2" = 1'-0"



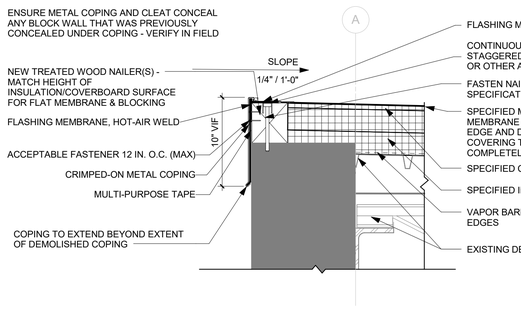
2 HATCH FLASHING
1 1/2" = 1'-0"



3 ROOF DRAIN
1 1/2" = 1'-0"

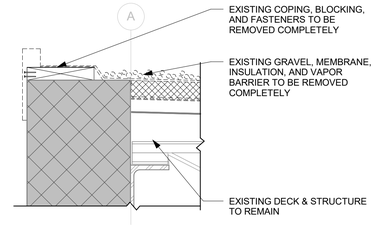


4 SKYLIGHT CURB
1 1/2" = 1'-0"

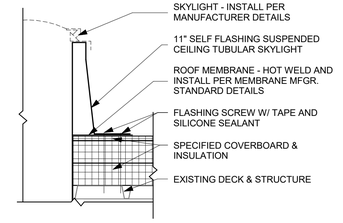


5 CMU WALL @ ROOF CONNECTION
1 1/2" = 1'-0"

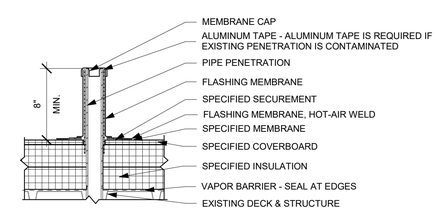
NOTE:
EXISTING ROOF COPING HIDES ROOF/WALL INTERSECTION. THE DRAWINGS ASSUME THE SIZE, CONFIGURATION, AND CONDITION OF THE MATERIALS IN THE ASSEMBLY. NEW WOOD NAILER SIZE IS DETERMINED BY THE TOTAL THICKNESS OF THE NEW ROOF ASSEMBLY. NOTIFY THE ARCHITECT IF HIDDEN OR DETERIORATED ELEMENTS ARE ENCOUNTERED.



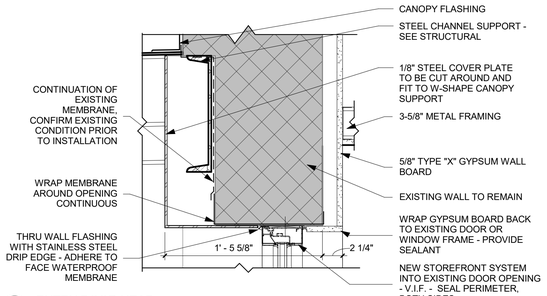
6 CMU WALL @ ROOF CONNECTION - DEMO
1 1/2" = 1'-0"



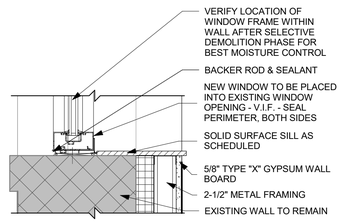
7 TUBULAR SKYLIGHT CURB
1 1/2" = 1'-0"



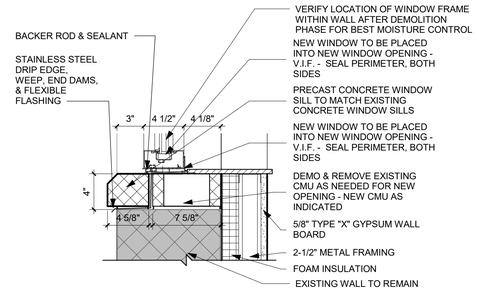
8 VENT PENETRATION
1 1/2" = 1'-0"



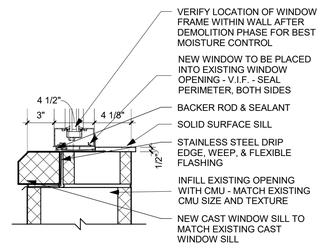
9 ENTRY DOOR HEAD
1 1/2" = 1'-0"



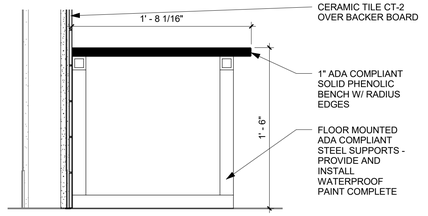
10 OFFICE WINDOW SILL
1 1/2" = 1'-0"



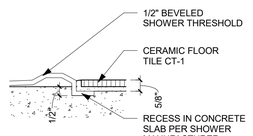
11 OFFICE WINDOW SILL IN NEW OPENING
1 1/2" = 1'-0"



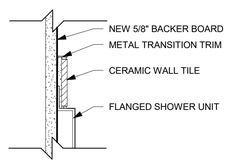
12 WINDOW SILL IN CMU INFILL
1 1/2" = 1'-0"



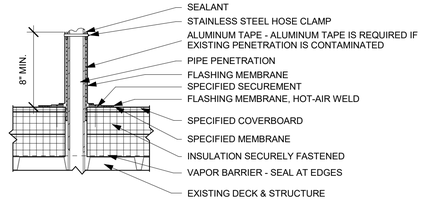
13 BENCH SECTION
1 1/2" = 1'-0"



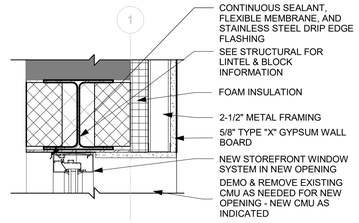
14 SHOWER THRESHOLD
3" = 1'-0"



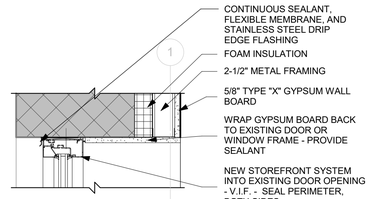
15 SHOWER FLANGE
3" = 1'-0"



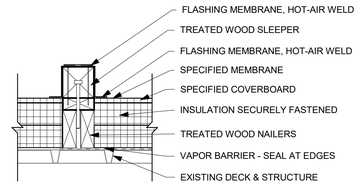
16 PIPE PENETRATION
1 1/2" = 1'-0"



17 WINDOW HEAD IN NEW OPENING
1 1/2" = 1'-0"



18 WINDOW HEAD IN EXISTING OPENING
1 1/2" = 1'-0"



19 EQUIPMENT SLEEPER
1 1/2" = 1'-0"

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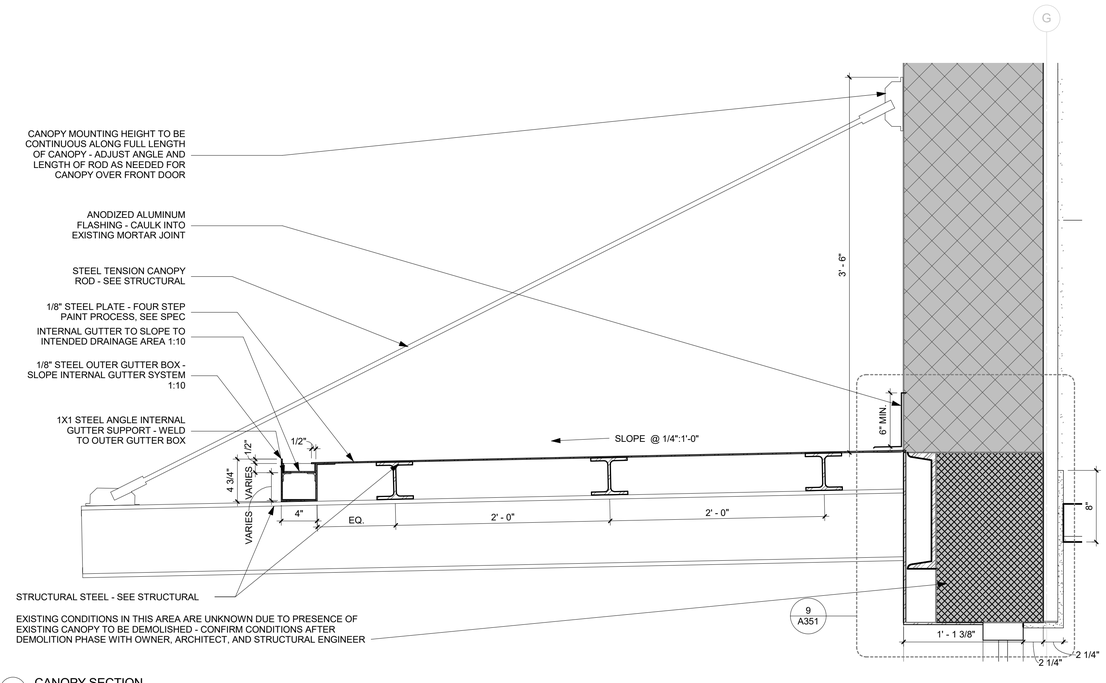
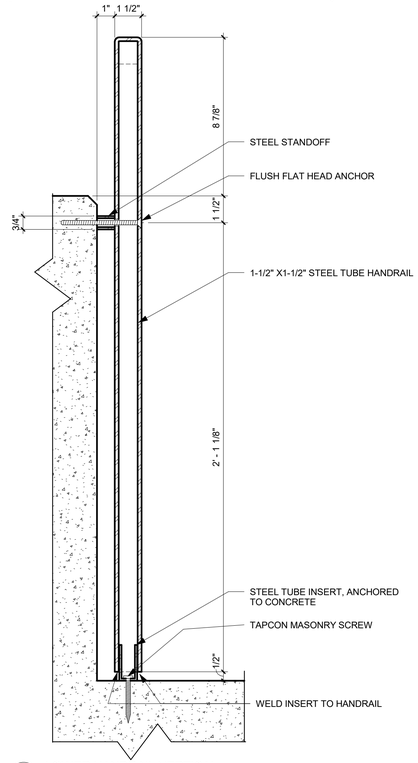
SECTION DETAILS

OPN Project No. 15617000

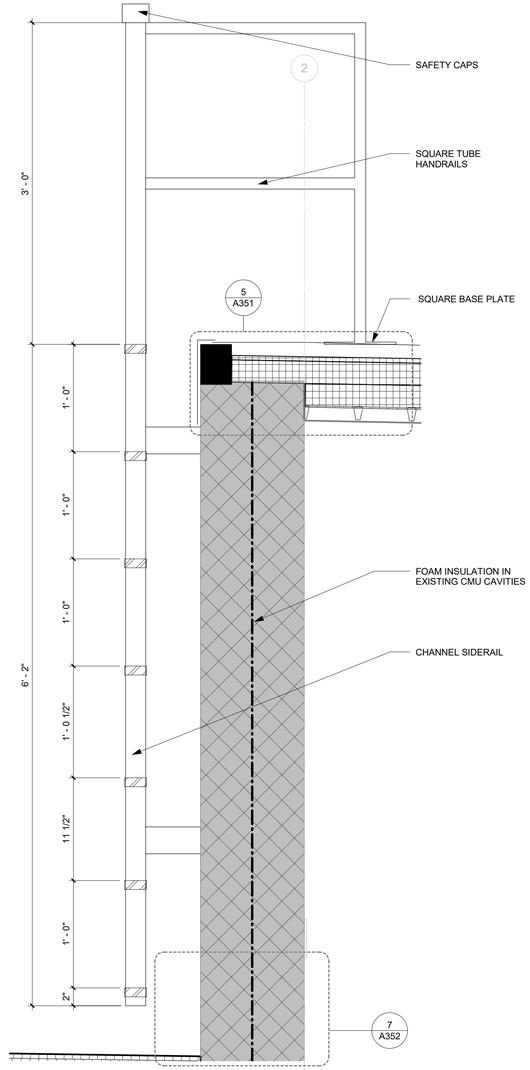
A351



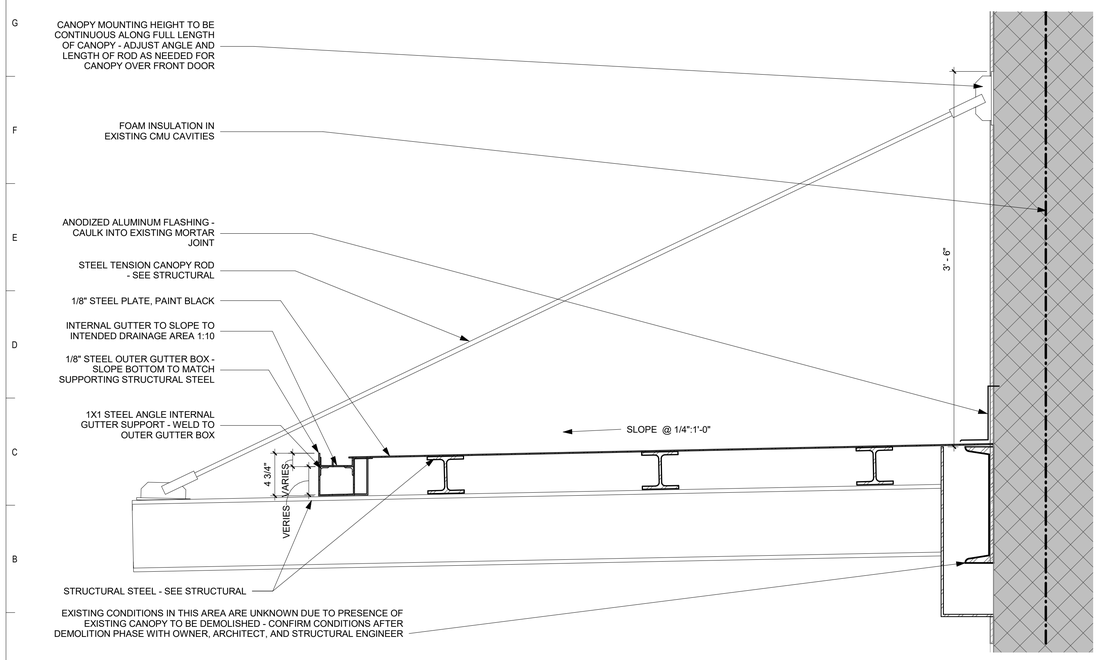
1 CANOPY SECTION
1 1/2" = 1'-0"



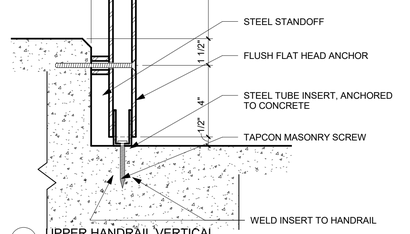
2 LOWER HANDRAIL VERTICAL
3" = 1'-0"



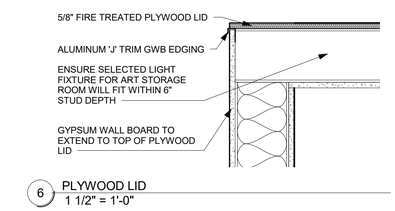
3 LADDER SECTION
1 1/2" = 1'-0"



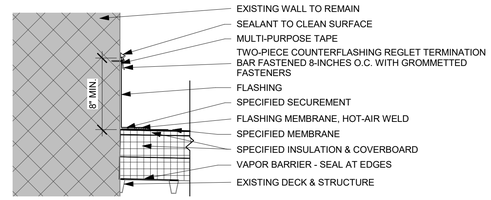
4 CANOPY SECTION
1 1/2" = 1'-0"



5 UPPER HANDRAIL VERTICAL
3" = 1'-0"



6 PLYWOOD LID
1 1/2" = 1'-0"



7 ROOF TO WALL CONNECTION
1 1/2" = 1'-0"

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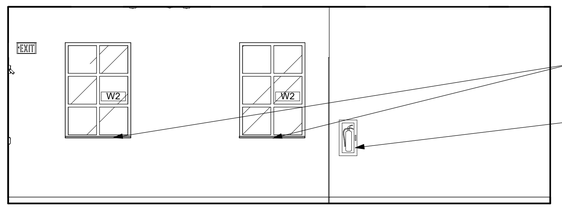
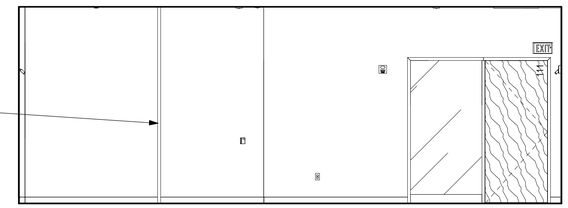
OPN Project No. **15617000**

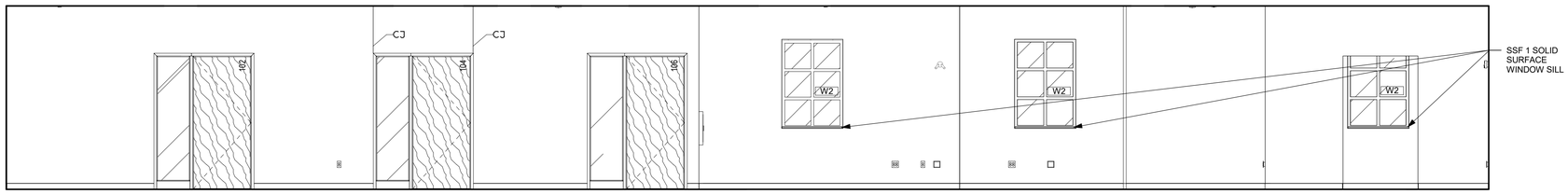
A352



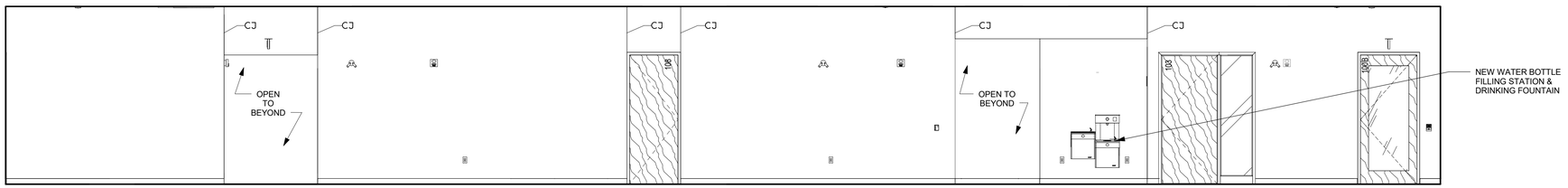
1 OPEN OFFICE ELEVATION - NORTH
1/4" = 1'-0"



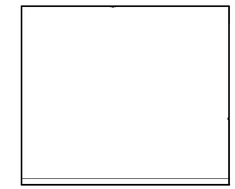
2 OPEN OFFICE ELEVATION - SOUTH
1/4" = 1'-0"



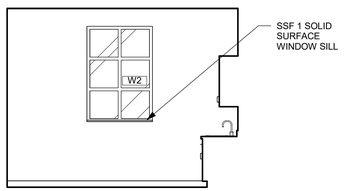
3 OPEN OFFICE ELEVATION - EAST
1/4" = 1'-0"



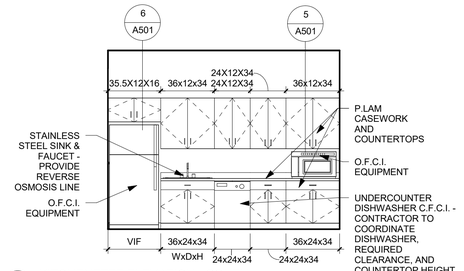
4 OPEN OFFICE ELEVATION - WEST
1/4" = 1'-0"



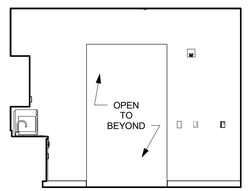
5 KITCHENETTE ELEVATION - NORTH
1/4" = 1'-0"



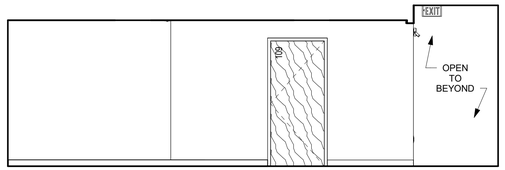
6 KITCHENETTE ELEVATION - EAST
1/4" = 1'-0"



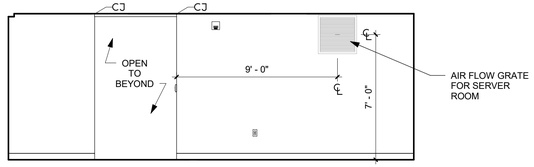
7 KITCHENETTE ELEVATION - SOUTH
1/4" = 1'-0"



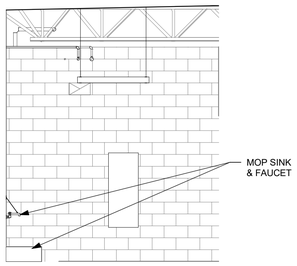
8 KITCHENETTE ELEVATION - WEST
1/4" = 1'-0"



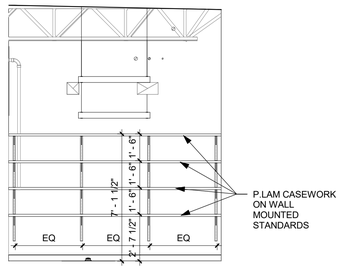
9 CORRIDOR ELEVATION - NORTH
1/4" = 1'-0"



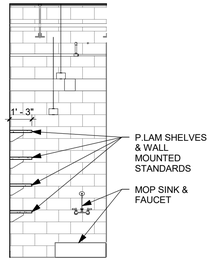
10 CORRIDOR ELEVATION - SOUTH
1/4" = 1'-0"



11 JANITOR CLOSET - NORTH
1/4" = 1'-0"



12 JANITOR CLOSET - SOUTH
1/4" = 1'-0"



13 JANITOR CLOSET - WEST
1/4" = 1'-0"

GENERAL NOTES

1. COORDINATE FINAL LOCATION OF FIRE ALARMS, THERMOSTATS AND EMERGENCY LIGHTS WITH ARCHITECT PRIOR TO INSTALLATION.
2. ALL WALL AND FLOOR GROUT LINES TO ALIGN, WHEREVER POSSIBLE - TYPICAL FOR ALL RESTROOM ELEVATION DRAWINGS.
3. WALL FIXTURE DIMENSIONS ARE TAKEN FROM CENTERLINE OF FIXTURE UNLESS NOTED OTHERWISE.
4. REFER TO FINISH PLANS, FINISH SCHEDULE FOR ADDITIONAL WALL FINISH INFORMATION AND REMARKS.
5. USE 1/8" GROUT JOINTS ON CT3

GENERAL NOTES

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1301 West Badger Road
Madison, WI 53713

General Contractor
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Consultants

CIVIL ENGINEER
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5010 Voges Road
Madison, WI 53718
P. 608.838.0444

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Middleton, WI 53562
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Key Plan

Sheet Issue Date

Permit Set	10/17/2016

Previous Issue Dates

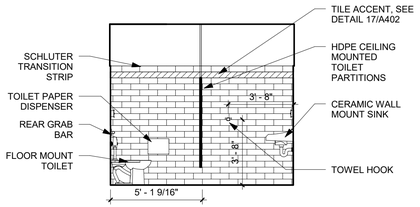
CD Set	09/09/2016
60% CD Set	08/24/2016
Design Development	06/17/2016
Schematic Design	04/01/2016

Revision Dates

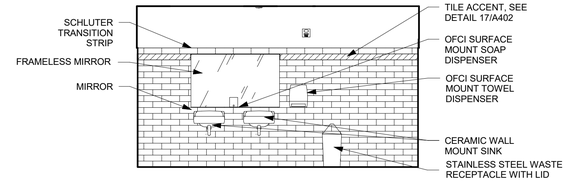
Drawing
INTERIOR ELEVATIONS

OPN Project No. 15617000

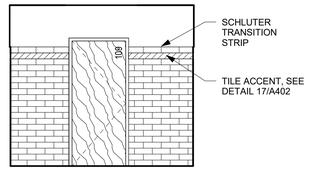
A401



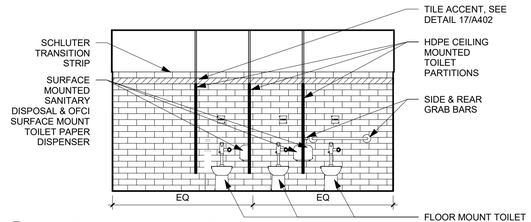
1 WOMEN'S ELEVATION - NORTH
1/4" = 1'-0"



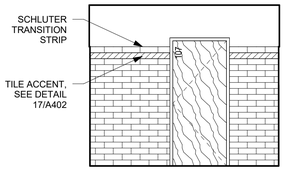
2 WOMEN'S ELEVATION - EAST
1/4" = 1'-0"



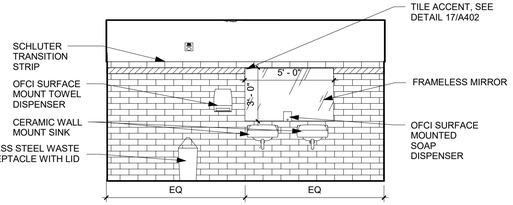
3 WOMEN'S ELEVATION - SOUTH
1/4" = 1'-0"



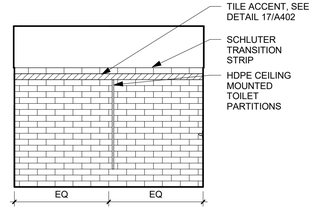
4 WOMEN'S ELEVATION - WEST
1/4" = 1'-0"



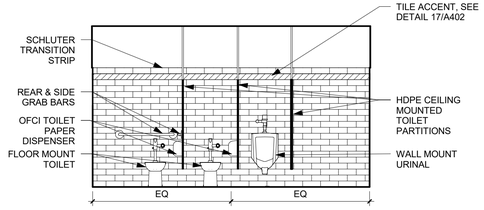
5 MEN'S ELEVATION - NORTH
1/4" = 1'-0"



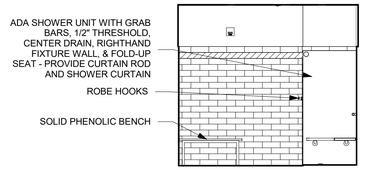
6 MEN'S ELEVATION - EAST
1/4" = 1'-0"



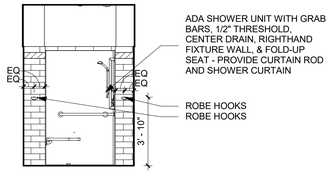
7 MEN'S ELEVATION - SOUTH
1/4" = 1'-0"



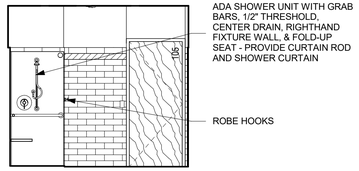
8 MEN'S ELEVATION - WEST
1/4" = 1'-0"



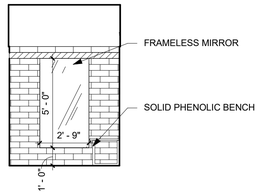
9 SHOWER ELEVATION - NORTH
1/4" = 1'-0"



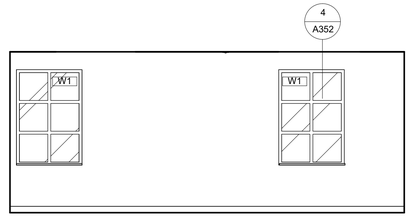
10 SHOWER ELEVATION - EAST
1/4" = 1'-0"



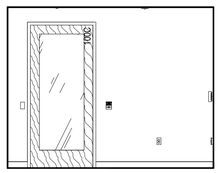
11 SHOWER ELEVATION - SOUTH
1/4" = 1'-0"



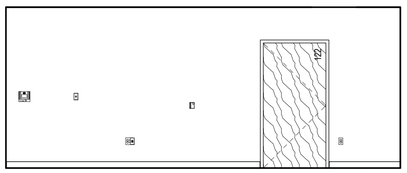
12 SHOWER ELEVATION - WEST
1/4" = 1'-0"



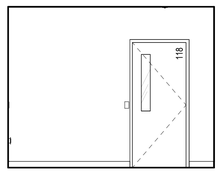
13 PRINT OFFICE ELEVATION - NORTH
1/4" = 1'-0"



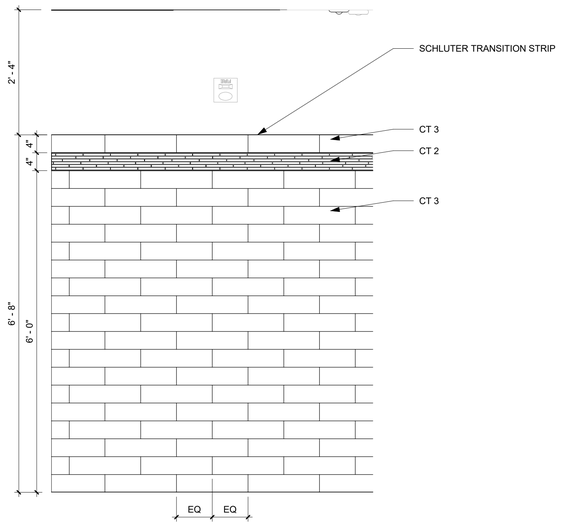
14 PRINT OFFICE ELEVATION - EAST
1/4" = 1'-0"



15 PRINT OFFICE ELEVATION - SOUTH
1/4" = 1'-0"



16 PRINT OFFICE ELEVATION - WEST
1/4" = 1'-0"



17 TYPICAL TILE PATTERN
3/4" = 1'-0"

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4. REFER TO FINISH PLANS, FINISH SCHEDULE FOR ADDITIONAL WALL FINISH INFORMATION AND REMARKS.
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608-819-0260 PHONE
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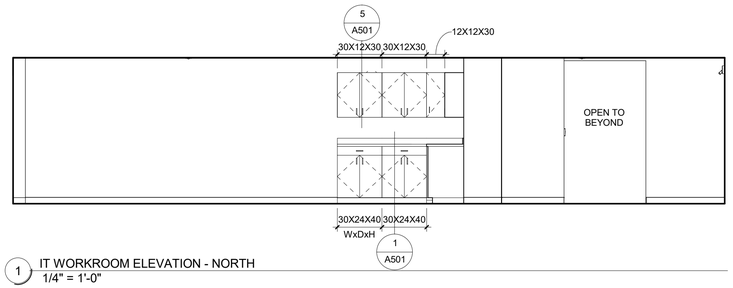
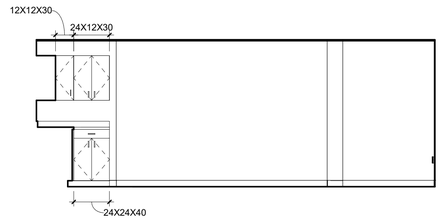
OPN Project No. 15617000

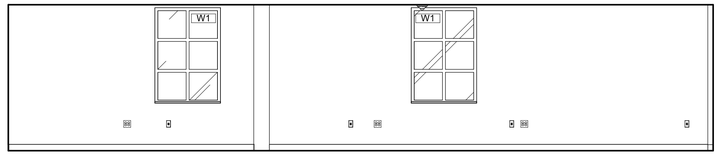
A402



1 IT WORKROOM ELEVATION - NORTH
1/4" = 1'-0"



2 IT WORKROOM ELEVATION - EAST
1/4" = 1'-0"



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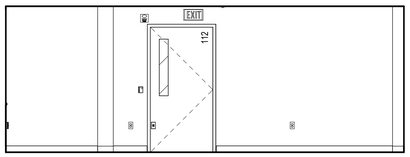
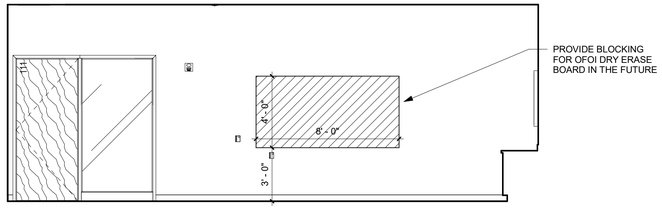
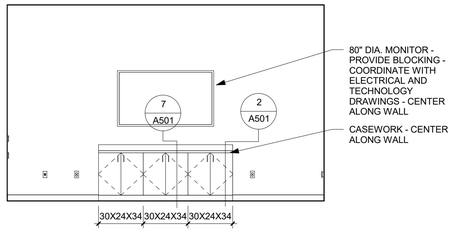
1/4" = 1'-0"



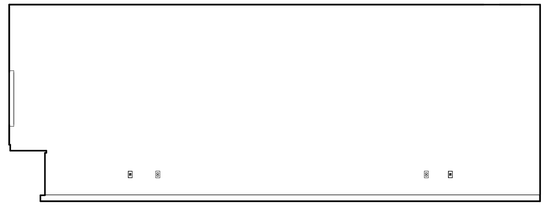
4 IT WORKROOM ELEVATION - WEST
1/4" = 1'-0"



5 CONFERENCE ELEVATION - NORTH
1/4" = 1'-0"

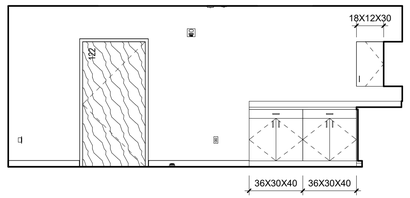


6 CONFERENCE ELEVATION - EAST
1/4" = 1'-0"

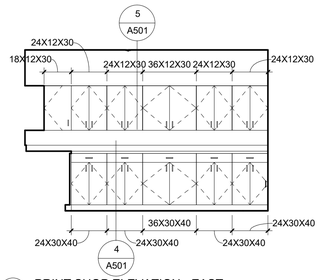


7 CONFERENCE ELEVATION - SOUTH
1/4" = 1'-0"

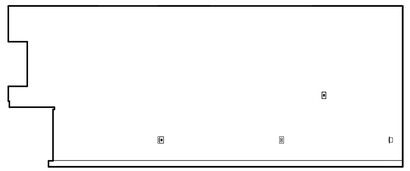
8 CONFERENCE ELEVATION - WEST
1/4" = 1'-0"



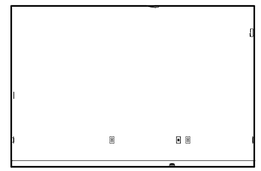
9 PRINT SHOP ELEVATION - NORTH
1/4" = 1'-0"



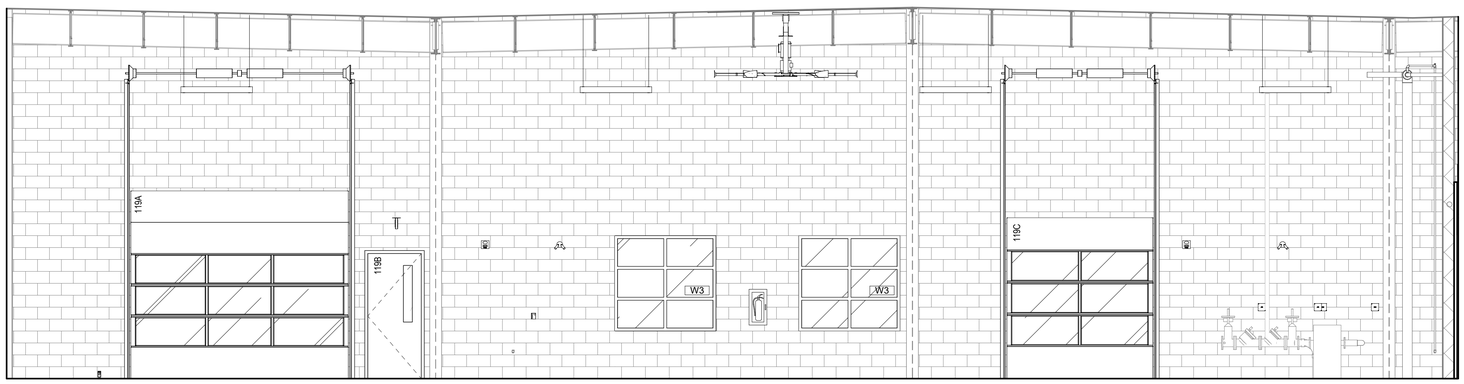
10 PRINT SHOP ELEVATION - EAST
1/4" = 1'-0"



11 PRINT SHOP ELEVATION - SOUTH
1/4" = 1'-0"



12 PRINT SHOP ELEVATION - WEST
1/4" = 1'-0"



13 WAREHOUSE ELEVATION - NORTH
1/4" = 1'-0"

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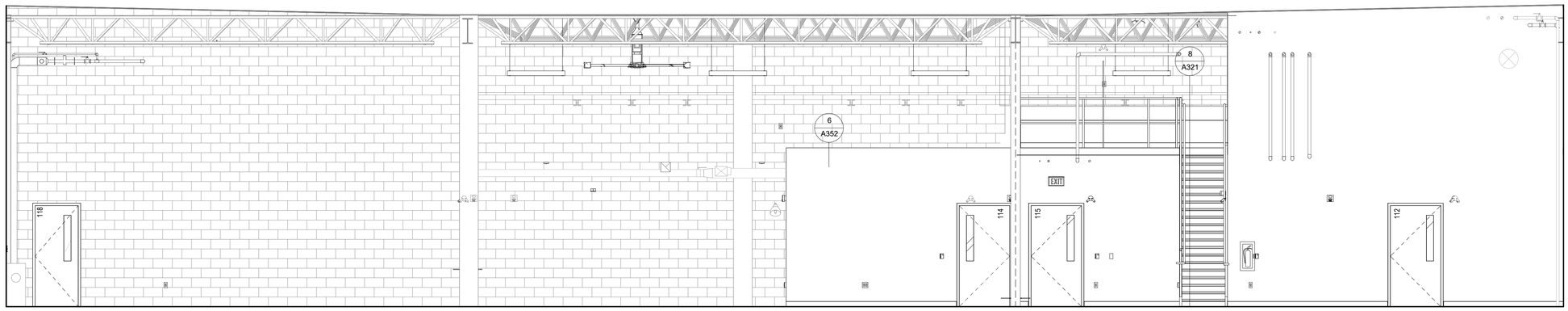
INTERIOR ELEVATIONS

OPN Project No. **15617000**

A403



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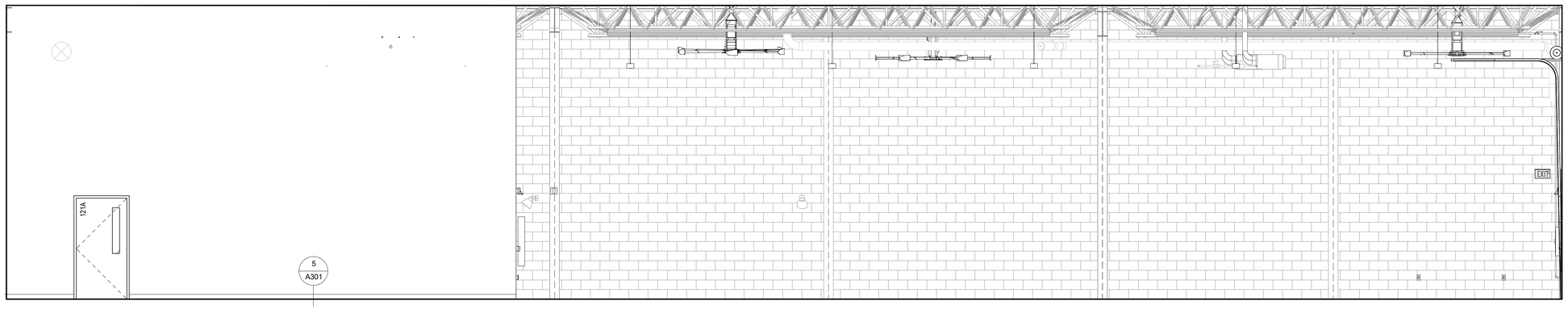
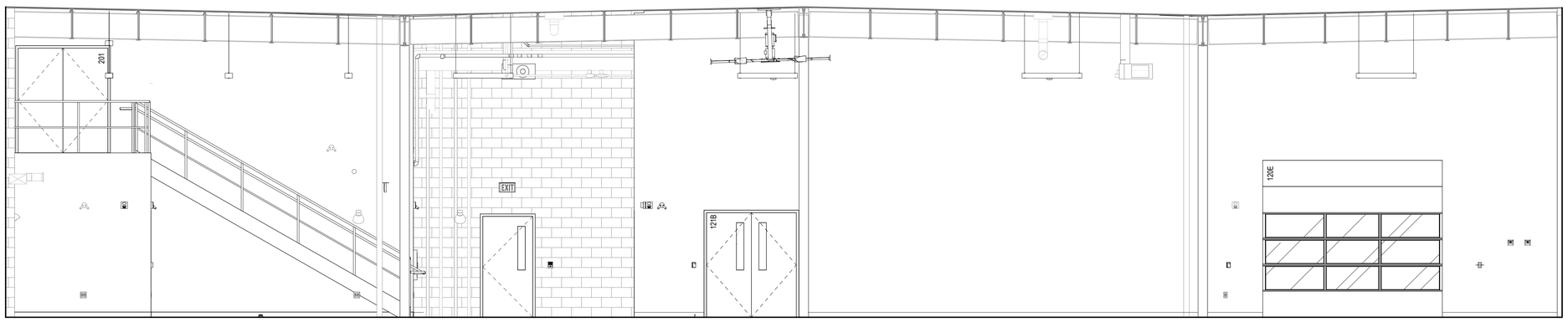


2 WAREHOUSE ELEVATION - WEST
1/4" = 1'-0"



3 WAREHOUSE ELEVATION - SOUTH
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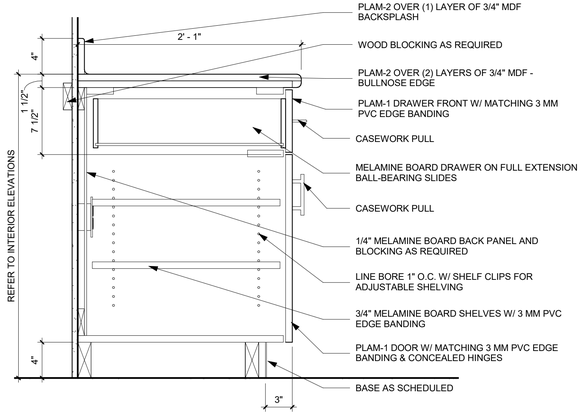
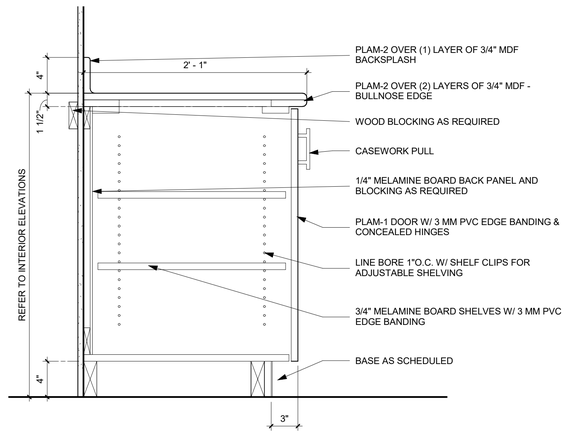
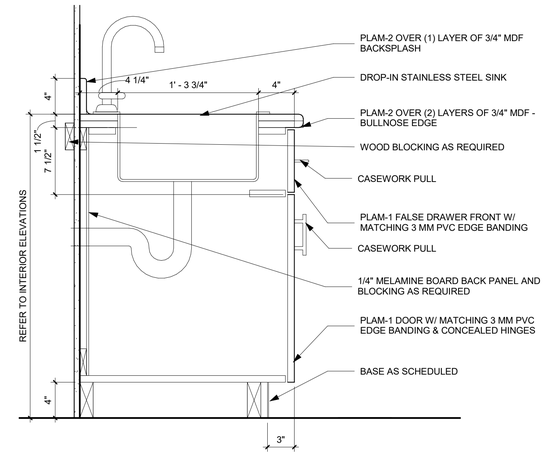


1 CASEWORK SECTION - TYP
1 1/2" = 1'-0"



2 CASEWORK SECTION - DOORS
1 1/2" = 1'-0"

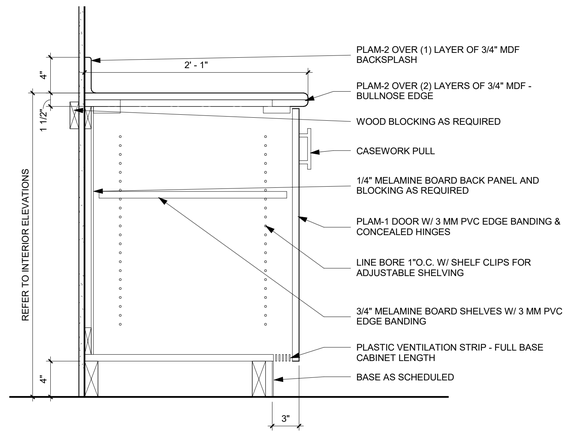


3 CASEWORK SECTION - SINK
1 1/2" = 1'-0"

4 CASEWORK SECTION
1 1/2" = 1'-0"

5 O.H. CASEWORK SECTION - TYP
1 1/2" = 1'-0"

6 O.H. CASEWORK SECTION - SHORT
1 1/2" = 1'-0"



7 CASEWORK SECTION - DOORS TECH.
1 1/2" = 1'-0"

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CASEWORK SECTIONS

OPN Project No. 15617000

A501

DOOR SCHEDULE

DOOR NUMBER	DOOR						FRAME					FIRE RATING	HARDWARE SET	REMARKS
	PANEL QUANTITY	PANEL TYPE	WIDTH	HEIGHT	PANEL MATERIAL	PANEL FINISH	TYPE	WIDTH	HEIGHT	MATERIAL	FINISH			
100A	1	FL	3' - 6"	7' - 0"	ALUM.	ANOD.	DD	8' - 3 3/4"	8' - 3"	ALUM.	ANOD.		1	
100B	1	FL	3' - 6"	8' - 0"	ALUM.	ANOD.	AA	3' - 10"	8' - 2"	ALUM.	ANOD.		2	2
100C	1	FL	3' - 6"	8' - 0"	ALUM.	ANOD.	AA	3' - 10"	8' - 2"	ALUM.	ANOD.		2	2
102	1	F	3' - 6"	8' - 0"	WD	ST1	BB	5' - 11"	8' - 1 1/2"	HM	PT		3	
103	1	F	3' - 6"	8' - 0"	WD	ST1	BB	5' - 11"	8' - 1 1/2"	HM	PT		5	
104	1	F	3' - 6"	8' - 0"	WD	ST1	BB	5' - 11"	8' - 1 1/2"	HM	PT		3	
105	1	F	2' - 11 1/2"	7' - 0"	WD	STN	AA	3' - 3 1/2"	7' - 2"	HM	PT		6	1
106	1	F	3' - 6"	8' - 0"	WD	ST1	BB	5' - 11"	8' - 1 1/2"	HM	PT		4	
107	1	F	3' - 0"	7' - 0"	WD	STN	AA	3' - 4"	7' - 2"	HM	PT		7	
108	1	F	3' - 0"	8' - 0"	WD	STN	AA	3' - 4"	8' - 2"	HM	PT		8	2, 1
109	1	F	3' - 0"	7' - 0"	WD	STN	AA	3' - 4"	7' - 2"	HM	PT		7	2, 1
111	1	F	3' - 6"	8' - 0"	WD	ST1	BB	7' - 11"	8' - 1 1/2"	HM	PT		5	
112	1	NL : NL 1	3' - 6"	7' - 0"	HM	PT	AA	3' - 10"	7' - 2"	HM	PT		9	2, 3
113	1	F	3' - 6"	7' - 0"	WD	STN	AA	3' - 10"	7' - 2"	HM	PT		14	4
114	1	NL : NL 1	3' - 6"	7' - 0"	HM	PT	AA	3' - 10"	7' - 2"	HM	PT		10	
115	1	NL : NL 1	3' - 6"	7' - 0"	HM	PT	AA	3' - 10"	7' - 2"	HM	PT		9	
118	1	NL : NL 1	3' - 0"	7' - 0"	HM	PT	AA	3' - 4"	7' - 2"	HM	PT		9	2
119A	OH DOOR		12' - 0"	10' - 6"				0"	0"				-	
119B	1	NL : NL 1	3' - 0"	7' - 0"	HM	PT	AA	3' - 4"	7' - 2"	HM	PT		15	1, 2
119C	OH DOOR		8' - 0"	9' - 0"				0"	0"				-	
119D	1	NL : NL 1	3' - 4"	6' - 9"	HM	PT	AA	3' - 8"	6' - 11"	HM	PT		15	1, 2
120A	1	NL : NL 1	3' - 4"	7' - 0"	HM	PT	AA	3' - 8"	7' - 2"	HM	PT		15	2
120B	OH DOOR		12' - 0"	14' - 6"				0"	0"				-	
120C	OH DOOR		12' - 0"	14' - 6"				0"	0"				-	
120D	2	NL	3' - 0"	7' - 0"	HM	PT	CC	6' - 4"	7' - 2"	HM	PT		17	2
120E	OH DOOR		12' - 0"	10' - 6"				0"	0"				-	
121A	1	NL : NL 1	3' - 6"	7' - 0"	HM	PT	AA	3' - 10"	7' - 2"	HM	PT		12	2
121B	2	NL	3' - 0"	7' - 0"	HM	PT	CC	6' - 4"	7' - 2"	HM	PT		17	2
122	1	F	3' - 6"	7' - 0"	WD	STN	AA	3' - 10"	7' - 2"	HM	PT		11	
201	2	F	3' - 0"	7' - 0"	HM	PT	CC	6' - 4"	7' - 2"	HM	PT		16	
202	ROOF HATCH		2' - 6"	1' - 0 19/32"				2' - 6"	8' - 0"				-	5

DOOR REMARKS

1. EXISTING DOOR OPENING TO REMAIN FOR NEW DOOR - ADJUST OPENING AS NEEDED TO MEET ADA REQUIREMENTS
2. PROVIDE DOOR CLOSER ON INTERIOR SIDE OF DOOR
3. PROVIDE DOOR HOLD-OPEN ON INTERIOR SIDE OF DOOR
4. PROVIDE 2'X2' TRANSFER GRILLE IN DOOR WITH B.O. GRILL @ 1'-0" AFF
5. ROOF HATCH

GLAZING SCHEDULE

T1 1/4" CLEAR TEMPERED GLAZING
T2 CLEAR THERMAL RESISTANT GLAZING

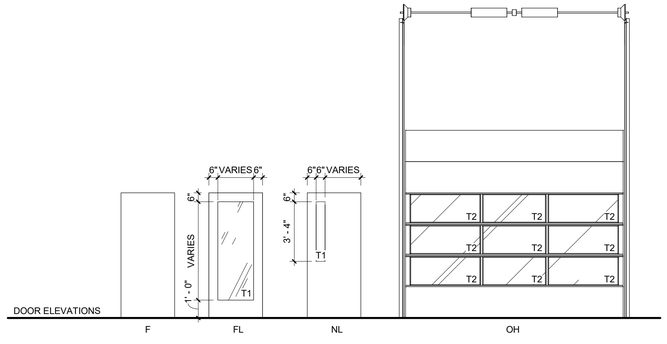
GENERAL NOTES

1. H.M. DOOR FRAMES TO BE PAINTED TO MATCH ADJACENT WALL, OR AS DESCRIBED IN FINISH SPECIFICATIONS.
2. ALUMINUM DOORS AND FRAMES TO BE BLACK ANODIZED ALUMINUM.
3. SEE SPECIFICATIONS FOR HARDWARE SET INFORMATION.
4. CONTRACTOR TO BACKCOAT ALL HOLLOW METAL FRAMES IN CMU WALLS WITH A RUST INHIBITOR PRIOR TO INSTALLATION.

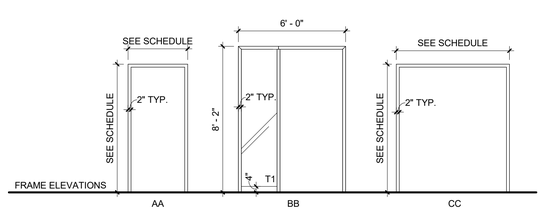
DOOR FINISH REMARKS

1. WOOD DOORS TO BE STAINED WD-1 FINISH
2. ANODIZED ALUMINUM DOORS AND FRAMES TO BE BLACK ANODIZED FINISH
3. HOLLOW METAL DOOR & FRAME PAINT TO MATCH ADJACENT WALL PAINT COLOR

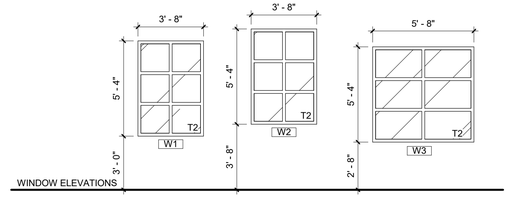
NOTES - DOORS & HARDWARE



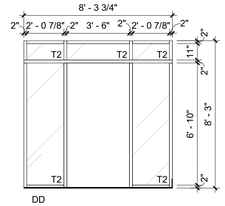
1 DOOR ELEVATIONS
1/4" = 1'-0"



2 DOOR FRAME ELEVATIONS
1/4" = 1'-0"



3 WINDOW ELEVATIONS
1/4" = 1'-0"



4 STOREFRONT ENTRANCE ELEVATIONS
1/4" = 1'-0"

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library
Maintenance & Support
Center Remodel

1301 West Badger Road
Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

Sheet Issue Date
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Revision Dates

Drawing
DOOR ELEVATIONS, DETAILS, & SCHEDULE

OPN Project No. **15617000**

A601

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR FINISH	BASE	WALL FINISH NORTH	WALL FINISH EAST	WALL FINISH SOUTH	WALL FINISH WEST	CEILING MATERIAL	CEILING FINISH	REMARKS
First Floor										
100	Vestibule	WM1	VB1	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	ACT1	
101	Open Office	CONC. SEAL 1/CPT1/CPT2	VB1	PT1	PT1	PT1	PT1	ACT2	ACT2	1
102	Facilities Manager	CPT1	VB1	PT1	PT1	PT4	PT1	ACT1	ACT1	2
103	Interview Room	CPT1/CPT2	VB1	PT1	PT1	PT3	PT1	ACT1	ACT1	2
104	Maintenance Coordinator	CPT1	VB1	PT1	PT1	PT4	PT1	ACT1	ACT1	2
105	Shower Room	CT1	CT1	CT/PT3	CT/PT3	CT/PT3	CT/PT3	ACT1	ACT1	3
106	Growth Office	CPT1	VB1	PT1	PT1	PT4	PT1	ACT1	ACT1	2
107	Men's	CT1	CT1	CT/PT3	CT/PT3	CT/PT3	CT/PT3	ACT1	ACT1	3
108	Janitor Closet	CONC. SEAL 1	VB1	PT1	PT1	PT1	PT1	ACT1	ACT1	
109	Women's	CT1	CT1	CT/PT3	CT/PT3	CT/PT3	CT/PT3	ACT1	ACT1	3
110	Kitchenette	CONC. SEAL 1	VB1	PT1	PT1	PT4	PT1	ACT1	ACT1	
111	Conference Room	CPT1/CPT2	VB1	PT1	PT1	PT1	PT3	ACT1	ACT1	2
112	IT/Maintenance Open Office	CONC. SEAL 1	VB1	PT1	PT1	PT1	PT1	ACT2	ACT2	
113	Server	CONC. SEAL 1	VB1	PT1	PT1	PT1	PT1	ACT1	ACT1	
114	Art Storage	CONC.	VB1	PT1	PT1	PT1	PT1	ACT1	ACT1	
115	Corridor	CONC. SEAL 1	VB1	PT1	PT1	PT1	PT1	ACT1	ACT1	
116	Friends Storage	CONC.	VB-1	PT2	PT2	PT2	PT2	GWB	PT2	
118	Print Office	CONC. SEAL 1	VB1	PT1	PT1	PT1	PT1	ACT1	ACT1	
119	Warehouse	CONC.	NA	--	--	--	--	EXP.	PT2	
120	Facilities	CONC. SEAL 3	NA	PT1	PT1	--	--	EXP	PT2	
121	Shop	CONC. SEAL 3	NA	PT1	PT1	PT1	--	EXP	PT2	
122	Print Shop	CONC. SEAL 1	VB1	PT1	PT1	PT1	PT1	ACT1	ACT1	
T.O. Mezzanine										
201	Mechanical Mezzanine	CONC. SEAL 2	NA	PT1	--	--	PT1	EXP.	PT2	

GENERAL REMARKS:
1. SEE ELEVATIONS FOR WALL PAINT COLOR DESIGNATIONS.
2. EXPOSED STRUCTURE/ROOF DECK TO BE PAINTED PT-2.
3. ALL GYPSUM CEILINGS TO BE PAINTED PT-1.
4. SEE FINISH PLAN FOR ALL CARPET AND TILE PATTERNS.

REMARKS:
1. FLOATING CARPET OVER SEALED CONCRETE. SEE FINISH PLAN FOR CARPET PATTERN.
2. SEE FINISH PLAN FOR CARPET PATTERN.
3. SEE TYPICAL TILE ELEVATION ON 17/A402

FINISH SPECIFICATIONS

CARPET

CPT-1: MANUFACTURER: INTERFACE
STYLE: HUMAN NATURE HN810
COLOR: NICKEL

CPT-2: MANUFACTURER: INTERFACE
STYLE: HUMAN NATURE HN820
COLOR: NICKEL

TILE

CT-1: MANUFACTURER: DALTILE
STYLE: SANTINO
COLOR: GRIGIO SN08
SIZE: 12" X 24"
FINISH: MATTE
APPLICATION: RESTROOM FLOOR TILE

CT-2: MANUFACTURER: DALTILE
STYLE: ELEVARE
COLOR: MATTE LUNAR
SIZE: 4" X 16"
FINISH: MATTE
APPLICATION: WALL TILE

CT-3 MANUFACTURER: DALTILE
STYLE: ENDEAVORS
COLOR: MYSTIC F161
APPLICATION: RESTROOM ACCENT WALL TILE

PAINT

PT-1: MANUFACTURER: SHERWIN WILLIAMS
COLOR: RHINESTONE SW7656
SHEEN: EGGSHELL
APPLICATION: FIELD COLOR

PT-2: COLOR: BRIGHT WHITE
FINISH: LATEX DRY FALL
APPLICATION: EXPOSED STRUCTURE/ROOF DECK

PT-3: MANUFACTURER: SHERWIN WILLIAMS
COLOR: SLATE TILE SW 7624
SHEEN: EGGSHELL
APPLICATION: ACCENT COLOR

PT-4: MANUFACTURER: SHERWIN WILLIAMS
COLOR: MAJOLICA GREEN SW 0013
SHEEN: EGGSHELL
APPLICATION: ACCENT COLOR

PLASTIC LAMINATE

PLAM-1:MANUFACTURER: WILSONART
COLOR: DESIGNER WHITE
FINISH: MATTE
APPLICATION: CASEWORK VERTICALS

PLAM-2:MANUFACTURER: FORMICA
COLOR: GEO CITADEL
FINISH: MATTE
APPLICATION: CASEWORK HORIZONTALS

SOLID SURFACE

SSF-1: MANUFACTURER: CORIAN
COLOR: DESIGNER WHITE
THICKNESS: 1 CM
APPLICATION: SILLS @ EXTERIOR WINDOWS

ACOUSTICAL CEILING TILE

ACT-1: MANUFACTURER: USG
STYLE: MARS HIGH-NRC PANELS 87100
SIZE: 2' X 2' X 7/8"
GRID PROFILE: FINELINE BEVEL
EDGE: FINELINE DXFF
COLOR: WHITE
NRC: 0.80
CAC: 35
LR: 0.90
APPLICATION: CLOSED ROOMS

ACT-2: MANUFACTURER: USG
STYLE: HALCYON ACOUSTICAL PANELS 98225
SIZE: 2' X 2' X 1"
GRID PROFILE: FINELINE
EDGE: FINELINE DXFF
COLOR: WHITE
NRC: 0.95
CAC: 20
LR: 0.90
APPLICATION: OPEN OFFICE SPACES

TOILET PARTITIONS

TP-1: MANUFACTURER: HINY HIDERS
STYLE: SHALE
TEXTURE: ORANGE PEEL

VINYL BASE

VB-1: MANUFACTURER: ARMSTRONG
STYLE: 4" STRAIGHT ROLL GOODS
COLOR: IRON
APPLICATION: MAIN WALL BASE @ CPT

CONCRETE SEALANTS

CONC. SEAL 1: MANUFACTURER: W.R. MEADOWS SEALTIGHT
PRODUCT: LIQUI-HARD ULTRA No. 378-A
APPLICATION: POLISHED CONCRETE FLOOR

CONC. SEAL 2: MANUFACTURER: SIKA
PRODUCT: SIKAFLOOR 216
APPLICATION: MEZZANINE CONCRETE FLOOR

CONC. SEAL 3: MANUFACTURER: W.R. MEADOWS SEALTIGHT
PRODUCT: LIQUI-HARD ULTRA No. 378-A
APPLICATION: RAW CONCRETE FLOOR

PAINT - EXTERIOR

XPT-1: MANUFACTURER: PPG
COLOR: DOVER GRAY PPG1001-5
SHEEN: FLAT
PRIMER: PPG PRIMER SEALER 6001
APPLICATION: EXTERIOR CMU WALLS

SOLID WOOD DOORS

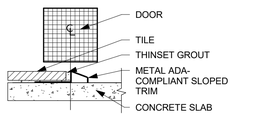
WD-1: MANUFACTURER: EGGERS INDUSTRIES
SPECIES: WHITE BIRCH
CUT: PLAIN SLICED
FINISH: 01 CLEAR

FINISH SPECIFICATIONS

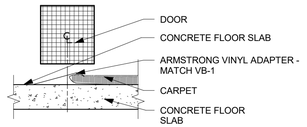
GENERAL NOTES

1. GRILLES, METAL FIXTURE TRIM AND MISCELLANEOUS METALS TO BE PAINTED BY MANUFACTURER TO MATCH ADJACENT WALL OR CEILING SURFACES UNLESS NOTED OTHERWISE.
2. PAINT ALL EXPOSED STRUCTURE & DECK, TO BE OPEN TO STRUCTURE, UNLESS NOTED OTHERWISE - PAINTING OF EXPOSED STRUCTURE TO BE DONE AFTER ALL UTILITIES (NOT INCLUDING LIGHTING, SENSORS, ETC.) ARE INSTALLED.
3. PROVIDE FLOORING TRANSITION STRIPS AT FLOOR MATERIAL CHANGES IN CENTER OF DOOR WIDTH. COORDINATE FLOORING TRANSITION MATERIAL, PROFILE AND COLOR WITH ARCHITECT PRIOR TO INSTALLATION - REFER TO DETAIL DRAWINGS FOR DESIGN INTENT.
4. REFER TO FINISH PLANS FOR SPECIFIC INSTALLATION PATTERN AND ORIENTATION OF FLOOR MATERIALS AND FINISHES.
5. REFER TO INTERIOR ELEVATIONS FOR FURTHER CLARIFICATION OF MATERIALS, LOCATIONS AND FINISHES.
7. ALL HOLLOW METAL DOORS AND FRAMES TO BE PAINTED TO MATCH ADJACENT WALL SURFACE WITH SEMI-GLOSS PAINT FINISH, UNLESS NOTED OTHERWISE.
8. ALL ANODIZED ALUMINUM FRAMES NOT TO BE PAINTED.
9. ALL INTERIOR TILE BACKER BOARD LOCATIONS NOT TO BE PAINTED UNLESS NOTED OTHERWISE.

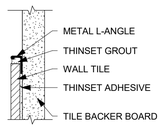
GENERAL NOTES



1 CT TO CONC.
6" = 1'-0"



2 CONC. TO CPT (CLOSED ROOMS)
6" = 1'-0"



3 METAL TRANSITION TRIM
6" = 1'-0"

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM S-TREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
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Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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Schematic Design 04/01/2016

Revision Dates

Drawing
FINISH SCHEDULE, SPECIFICATIONS, AND DETAILS

OPN Project No. **15617000**

A602

DESIGN CRITERIA

1. CODES:
   INTERNATIONAL BUILDING CODE (IBC) 2009
   AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-08)
   AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
   AMERICAN IRON AND STEEL INSTITUTE (AISI) SPECIFICATION FOR DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS
   ALLOWABLE STRENGTH DESIGN (ASD)(AISC 360-05) THIRTEENTH EDITION, 2005
   AMERICAN WELDING SOCIETY D1.1
2. DESIGN LOADS:

OCCUPANCY CATEGORY	II
BACKFILL	
EQUIVALENT FLUID PRESSURE	70 PCF
SEISMIC (IBC)	
SOIL CLASSIFICATION	C
SPECTRAL RESPONSE ACCELERATION, Ss	0.106 g
SPECTRAL RESPONSE ACCELERATION, S1	0.044 g
SHORT PERIOD DESIGN ACCELERATION, Sds	0.085 g
LONG PERIOD DESIGN ACCELERATION, Sd1	0.050 g
IMPORTANCE FACTOR	1.0
SEISMIC DESIGN CATEGORY	A
SEISMIC FORCE RESISTING SYSTEM	ORDINARY MASONRY SHEAR WALLS
ANALYSIS PROCEDURE	ASCE 7-05, SECTION 11.7
DESIGN BASE SHEAR, V = Cs x W	0.1 x W
WIND - PARAMETERS	
BASIC WIND SPEED	90 MPH
IMPORTANCE FACTOR	1.0
EXPOSURE CLASS	C
WIND - MAIN WIND FORCE RESISTING SYSTEM PRESSURES	
DESIGN PRESSURE	15 PSF
ROOF UPLIFT PRESSURE	15 PSF (GROSS) [LC: 1.0WL]
ROOF UPLIFT PRESSURE	5 PSF (NET) [LC: 0.6DL + 1.0 WL]
WIND - ELEMENTS AND COMPONENTS	
PER APPLICABLE BUILDING CODE	
LIVE LOADS	
STORAGE	125 PSF UNREDUCIBLE
MECHANICAL	125 PSF UNREDUCIBLE
STAIRS	100 PSF UNREDUCIBLE
SNOW LOADS	
GROUND SNOW LOAD	30 PSF
SNOW EXPOSURE FACTOR	1.0
THERMAL FACTOR	1.0
IMPORTANCE FACTOR	1.0
FLAT-ROOF SNOW LOAD	21 PSF
DESIGN LOAD	25 PSF
DRIFTING LOAD	ADDITIONAL 65 PSF TAPERING TO 0 PSF OVER 16'-2"

3. NET ALLOWABLE SOIL BEARING PRESSURES

SPREAD FOOTINGS	2000 PSF
CONTINUOUS FOOTINGS	2000 PSF

4. MINIMUM FROST PROTECTION DEPTH FROM ADJACENT GRADE:

EXTERIOR FOOTING ADJACENT TO HEATED AREA	-4'-0"
EXTERIOR FOOTINGS IN UNHEATED AREA	-4'-0"

5. SPECIFIED 28-DAY CONCRETE COMPRESSIVE STRENGTHS (f'c)

ELEVATED SLABS	4000 PSI
FOOTINGS	3000 PSI
SLABS ON GRADE	4000 PSI
TYPICAL - UNLESS NOTED OTHERWISE	4000 PSI

6. CONCRETE REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO THE FOLLOWING STANDARDS:

DEFORMED BARS	ASTM A615, GRADE 60	Fy = 60 KSI
WELDED WIRE REINFORCING	ASTM A185	Fy = 65 KSI

7. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS:

WIDE FLANGE SECTIONS	ASTM A992	Fy = 50 KSI
OTHER ROLLED SECTIONS	ASTM A36	Fy = 36 KSI
SQUARE AND RECTANGULAR HSS	ASTM A500, GR B	Fy = 46 KSI
PIPE SECTIONS	ASTM A53, GR B	Fy = 35 KSI
CAP AND BASE PLATES	ASTM A36	Fy = 36 KSI
CONNECTION MATERIAL	ASTM A36	Fy = 36 KSI
STIFFENER PLATES	ASTM A36	Fy = 36 KSI
ANCHOR RODS	ASTM F1554, GR 36	Fy = 36 KSI
HIGH STRENGTH BOLTS (AISC 360-05 ASD)	A325 (3/4" DIAMETER UNO)	Fv = 24 KSI
TWIST-OFF BOLT/NUT/WASHER ASSEMBLIES	ASTM F1852	
HEAVY HEX NUTS	ASTM A563	
WASHERS	ASTM F436	
HEADED WELDED STEEL STUDS	ASTM A108, TYPE B	
ELECTRODES FOR ARC WELDING	AWS 5.1, E70XX	

8. COLD-FORMED STRUCTURAL STUDS SHALL CONFORM TO THE FOLLOWING STANDARDS:
   ROLLED SECTIONS, CONNECTION MATERIAL, STIFFENER PLATES

18 GAUGE AND THINNER	ASTM A653, GR 33	Fy = 33 KSI
16 GAUGE AND THICKER	ASTM A653, GR 50	Fy = 50 KSI
CONNECTION MATERIAL (>3/16" THICK)	ASTM A36	Fy = 36 KSI
ANCHOR RODS	ASTM F1554, GR 36	Fy = 36 KSI
BOLTS	ASTM A307	Fv = 10 KSI
COATING - HOT DIPPED	ASTM A924, G60	
ELECTRO - PLATE	ASTM A591	
ALUMINUM - ZINC	ASTM A792, GR 40	
INSTALLATION	ASTM C955 AND ASTM C1007	
ELECTRODES FOR ARC WELDING	AWS 5.1, E60XX	

9. STEEL DECK AND ALL ACCESSORIES SHALL BE FORMED FROM STEEL SHEETS CONFORMING TO THE FOLLOWING STANDARDS:

GALVANIZED COMPOSITE FLOOR DECK	ASTM A653, GR 50	Fy = 50 KSI
PAINTED STEEL ROOF DECK	ASTM A1008, GR C	Fy = 33 KSI

GENERAL NOTES

1. NEITHER THE PROFESSIONAL ACTIVITIES OF THE ENGINEER, NOR THE PRESENCE OF THE ENGINEER OR HIS OR HER EMPLOYEES AND SUBCONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE CONTRACTOR AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES, AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES, OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING, OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE ENGINEER AND HIS OR HER PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PRECAUTIONS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE JOBSITE SAFETY. THE ENGINEER AND THE ENGINEER'S CONSULTANTS SHALL BE MADE ADDITIONAL INSUREDS UNDER THE CONTRACTOR'S GENERAL LIABILITY INSURANCE POLICY.
2. STRUCTURAL DRAWINGS INCLUDE DESIGN REQUIREMENTS AND DIMENSIONS FOR STRUCTURAL INTEGRITY BUT DO NOT SHOW ALL DETAIL DIMENSIONS TO FIT INTRICATE ARCHITECTURAL AND MECHANICAL DETAILS. CONTRACTOR SHALL SO CONSTRUCT THE WORK SO THAT IT WILL CONFORM TO THE CLEARANCES REQUIRED BY ARCHITECTURAL, MECHANICAL AND ELECTRICAL DESIGN.
3. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS NOTED OTHERWISE, THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION.
4. DETAILS AND NOTES ON THE STRUCTURAL DRAWINGS ARE INTENDED TO BE TYPICAL FOR SIMILAR SITUATIONS ELSEWHERE.
5. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL, AND PLUMBING WITH APPROPRIATE TRADE CONTRACTORS. OPENING SIZES AND LOCATIONS SHOWN FOR DUCTS, PIPES, INSERTS AND OTHER PENETRATIONS WHEN SHOWN ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED PRIOR TO FORMING.
6. DIMENSIONS, NOTES, AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
7. WHERE NEW CONSTRUCTION INTERFACES WITH EXISTING CONDITIONS, FIELD VERIFY EXISTING DIMENSIONS, MEMBER SIZES AND ELEVATIONS SHOWN ON THE DRAWINGS PRIOR TO STARTING CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT.
8. REFER TO ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
   A. SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, UNLESS NOTED OTHERWISE.
   B. SIZE AND LOCATIONS OF ALL INTERIOR AND EXTERIOR MASONRY WALLS.
   C. SIZE AND LOCATION OF ALL CONCRETE CURBS, FLOOR DRAINS, SLOPES, DEPRESSED AREAS, CHANGES IN LEVEL, CHAMFERS, GROOVES, INSERTS, ETC.
   D. SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS UNLESS NOTED OTHERWISE.
   E. FLOOR, WALL AND ROOF FINISHES.
   F. STAIR FRAMING AND DETAILS. ALSO REFER TO STAIR MANUFACTURER'S APPROVED SHOP DRAWINGS
   G. DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
   H. FIRE PROTECTION REQUIREMENTS.
9. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING:
   A. PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC., EXCEPT AS SHOWN.
   B. ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS.
   C. CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.
   D. SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES OR CURBS AND ANCHOR BOLTS FOR MOTOR MOUNTS.
10. BEFORE SUBMITTING A PROPOSAL FOR THIS WORK, EACH BIDDER SHALL VISIT THE PREMISES AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS, TEMPORARY CONSTRUCTION REQUIRED, QUANTITIES AND TYPES OF EQUIPMENT, ETC. THE BID SHALL INCLUDE ALL SUMS REQUIRED TO DO THE WORK WITHIN THE EXISTING CONDITIONS. DISRUPTION OF NORMAL ACTIVITIES IN THE WORK AREA SHALL BE KEPT TO A MINIMUM.
11. SHOP DRAWINGS PREPARED BY SUPPLIERS, SUBCONTRACTORS, AND OTHERS SHALL BE REVIEWED AND COORDINATED PRIOR TO SUBMITTING TO THE ARCHITECT. EACH SHOP DRAWING SUBMITTED SHALL BE STAMPED, INITIALED AND DATED INDICATING REVIEW BY THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR.
12. SHOP DRAWINGS PREPARED BY THE SUBCONTRACTORS, SUPPLIERS, AND OTHERS SHALL BE REVIEWED BY THE ARCHITECT ONLY FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. REVIEW BY THE ARCHITECT SHALL NOT BEGIN WITHOUT THE PRIOR COORDINATION AND REVIEW BY THE GENERAL CONTRACTOR. WORK SHALL NOT BEGIN WITHOUT REVIEW BY THE ARCHITECT. NOTATIONS MADE BY THE ARCHITECT ON THE SHOP DRAWINGS DO NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS.
13. OPTIONS ARE FOR THE CONTRACTOR'S CONVENIENCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES RESULTING FROM CHOOSING AN OPTION AND SHALL COORDINATE ALL DETAILS. THE COST OF ADDITIONAL DESIGN WORK NECESSITATED BY SELECTION OF AN OPTION SHALL BE BORNE BY THE CONTRACTOR.
14. THE COST OF ADDITIONAL DESIGN WORK DUE TO ERRORS OR OMISSIONS BY THE CONTRACTOR IN CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR.
15. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW OR RECORD SHALL BEAR THE STAMP AND SIGNATURE OF A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE OF WISCONSIN.
16. ELEVATIONS ARE BASED ON THE FIRST FLOOR ELEVATION OF (+0'-0") WHICH IS EQUAL TO THE TOP OF EXISTING SLAB ON GRADE ELEVATION.

FOUNDATIONS/SLAB-ON-GRADE

1. CROSS REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS TO ASSURE PROPER DIMENSIONS AND PLACEMENT OF ALL ANCHOR BOLTS, INSERTS, NOTCHES, EDGES IN GRADE BEAMS, FOUNDATION WALLS AND PIERS.
2. FOUNDATION DESIGN BASED ON GEOTECHNICAL ENGINEERING REPORT DATED MARCH 30, 2016 BY CGC, INC. REPORT IS ON FILE WITH THE ARCHITECT.
3. ALL EXCAVATIONS SHALL BE PROPERLY AND SAFELY BACKFILLED. DO NOT PLACE BACKFILL BEHIND RETAINING WALLS BEFORE CONCRETE HAS ATTAINED SPECIFIED COMPRESSIVE STRENGTH. CONTRACTOR SHALL BRACE OR PROTECT ALL WALLS BELOW GRADE FROM LATERAL LOADS UNTIL SUPPORTING FLOOR IS COMPLETELY IN PLACE AND HAS ATTAINED FULL STRENGTH. CONTRACTOR SHALL PROVIDE FOR DESIGN, PERMITS, AND INSTALLATION OF SHORING AND/OR SHEETING. BACKFILLING IS NOT PERMITTED FOR FOUNDATION WALLS UNTIL SUPPORTED SLAB ABOVE IS IN PLACE OR THE WALL IS ADEQUATELY BRACED TO RESIST LATERAL LOADS.
4. UNLESS NOTED OTHERWISE, ALL FOOTINGS SHALL BE CENTERED UNDER WALLS, PIERS OR COLUMNS.
5. PROVIDE SAW CUT CONTROL JOINTS IN ALL SLABS-ON-GRADE. LOCATE JOINTS ALONG COLUMN LINES WITH INTERMEDIATE JOINTS SPACED PER THE TABLE BELOW, UNLESS NOTED OTHERWISE. CONTROL JOINTS SHALL BE CONTINUOUS, NOT STAGGERED OR OFFSET. SLAB PANELS SHALL HAVE A MAXIMUM LENGTH TO WIDTH RATIO OF 1.5 TO 1. PROVIDE ADDITIONAL CONTROL JOINTS AT ALL RE-ENTRANT CORNERS FORMED IN SLAB ON GRADE.

SLAB ON GRADE THICKNESS	MAX JOINT SPACING
4"	12'-0"
5"	15'-0"
6"	18'-0"
8"	24'-0"
10"	30'-0"
12"	36'-0"

REINFORCING STEEL

1. FOR CAST-IN-PLACE CONCRETE THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT UNLESS NOTED OTHERWISE:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER	
NO. 6 BARS OR LARGER	2 INCHES
NO. 5 BARS OR SMALLER	1 1/2 INCHES

2. DIMENSIONS OF CONCRETE COVER FOR REINFORCEMENT INDICATED ON DRAWINGS ARE TO OUTERMOST REINFORCING BARS. FOR BEAMS OR COLUMNS WITH STIRRUPS OR TIES, CLEAR COVER INDICATED IS TO STIRRUPS OR TIES.
3. BAR SPLICES: SPLICE REINFORCING WHERE INDICATED ON THE DRAWINGS. ALL SPLICES SHALL BE CLASS 'B' AS DEFINED IN ACI 318. IF SPLICE LENGTH IS NOT GIVEN ON THE DRAWINGS, PROVIDE LAP LENGTHS (IN INCHES) AS FOLLOWS:

	3000 PSI CONCRETE		4000 PSI CONCRETE	
BAR SIZE	OTHER	TOP	OTHER	TOP
#3	22	28	19	25
#4	29	38	25	33
#5	36	47	31	41
#6	43	56	37	49
#7	63	81	54	71
#8	72	93	62	81
#9	81	105	70	91
#10	91	118	79	102
#11	101	131	87	114

LAP LENGTHS ASSUME CLEAR SPACING BETWEEN BARS OF 2 BAR DIAMETERS, AND A MINIMUM COVER OF 1 BAR DIAMETER. FOR DEVELOPMENT LENGTHS, DIVIDE BY 1.3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 1'-0" OF FRESH CONCRETE BELOW.

4. ADHESIVE FOR DOWELING SHALL BE HILTI RE 500 SD, POWERS PE 1000+, OR SIMPSON SET XP. EMBEDMENT LENGTH SHALL BE AS INDICATED ON THE DRAWINGS. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

POST INSTALLED STEEL ANCHORS

1. POST INSTALLED EXPANSION ANCHORS SERVING AS THE BASIS OF DESIGN ARE SHOWN ON THE DRAWINGS. ACCEPTABLE ALTERNATE ANCHORS MAY BE SUPPLIED PROVIDED THAT THE QUANTITY AND CONFIGURATION MATCHES THE CAPACITY OF THE DESIGN ANCHOR QUANTITY AND CONFIGURATION. ANY ACCEPTABLE ALTERNATES ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. THE FOLLOWING TABLE SUMMARIZES THE EXPANSION ANCHORS USED ON THE PROJECT:

ANCHORED INTO:	BASIS OF DESIGN	ACCEPTABLE ALTERNATES AT CONTRACTOR'S OPTION
HOLLOW CMU	HILTI HLC SLEEVE	POWERS LOK/BOLT, ITW/RED HEAD DYNABOLT SLEEVE
GROUTED CMU	HILTI KWIK BOLT 3	POWER STUD+ SD1, SIMPSON WEDGE-ALL
UNCRACKED CONCRETE	HILTI KWIK BOLT 3	POWER STUD+ SD2, ITW/RED HEAD TRUBOLT+, SIMPSON STRONG BOLT
CRACKED CONCRETE	HILTI KWIK BOLT TZ	POWER STUD+ SD2, ITW/RED HEAD TRUBOLT+, SIMPSON STRONG BOLT

2. ADHESIVE ANCHOR SYSTEMS FOR ATTACHMENT INTO CONCRETE SHALL CONSIST OF ASTM A193 GRADE B7 RODS, HEAVY DUTY NUTS AND WASHERS, AND A TWO COMPONENT STRUCTURAL ADHESIVE. ADHESIVE ANCHORING SYSTEMS SERVING AS THE BASIS OF DESIGN ARE SHOWN ON THE DRAWINGS. ACCEPTABLE ALTERNATE ANCHORS MAY BE SUPPLIED PROVIDED THAT THE QUANTITY AND CONFIGURATION MATCHES THE CAPACITY OF THE DESIGN ANCHOR QUANTITY AND CONFIGURATION. ANY ACCEPTABLE ALTERNATES ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. ANCHORING SYSTEMS INTO HOLLOW CMU SHALL INCLUDE A SCREEN TUBE. THE FOLLOWING TABLE SUMMARIZES THE ADHESIVE ANCHORS USED ON THE PROJECT:

ANCHORED INTO:	BASIS OF DESIGN	ACCEPTABLE ALTERNATES AT CONTRACTOR'S OPTION
HOLLOW CMU	HILTI HIT HY 70	POWERS AC 100+ GOLD, ITW A7 ACRYLIC
GROUTED CMU	HILTI HIT HY 70	POWERS AC 100+ GOLD, ITW A7 ACRYLIC, SIMPSON SET
CRACKED/UNCRACKED CONCRETE	HILTI HIT HY 200	POWERS PE 1000+, SIMPSON SET XP

STRUCTURAL STEEL

1. REFER TO DRAWINGS FOR DETAIL OF DECK OPENINGS. REFER TO ARCHITECTURAL MECHANICAL, ELECTRICAL DRAWINGS, ETC., FOR EXACT SIZE, LOCATION, AND COUNT OF REQUIRED OPENINGS.
2. UNLESS NOTED OTHERWISE ALL WELDS SHALL BE CONTINUOUS 1/4" FILLET WELDS.
3. HIGH STRENGTH BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS." SEE DESIGN CRITERIA FOR BOLT SIZE AND MATERIAL ASTM DESIGNATION.
4. BOLTS IN SLOTTED HOLES SHALL BE LOCATED IN THE CENTER OF THE HOLE AFTER FIELD ASSEMBLY IS COMPLETE, UNLESS DETAILED OTHERWISE.

STEEL DECK

1. DECK SIZE AND GAGE INDICATED IN THE DRAWINGS ARE BASED ON THE FOLLOWING:
   A. VULCRAFT 2008 CATALOG FOR GRAVITY DESIGN LOADS.
   B. STEEL DECK INSTITUTE (SDI) DIAPHRAGM DESIGN MANUAL 3RD EDITION FOR DIAPHRAGM LOADS.
   C. VULCRAFT 2008 CATALOG FOR UNSHORED CONSTRUCTION SPANS.
2. COMPOSITE STEEL FLOOR DECK GALVANIZING SHALL CONFORM TO ASTM A653 WITH A MINIMUM COATING OF G60.
3. UNLESS NOTED OTHERWISE, DECK SHALL BE FASTENED WITH 5/8" DIAMETER PUDDLE WELDS AT 12" OC AT ALL SUPPORTS AND EDGES. PROVIDE 16 GAGE WELDING WASHERS WHEN RECOMMENDED BY THE DECK MANUFACTURER FOR THE GAGE OF STEEL DECK SPECIFIED BELOW. SIDE LAPS SHALL BE FASTENED WITH #10 TEK SCREWS, MINIMUM ONE AT EACH MIDSPAN. OPENING EDGES SHALL RECEIVE THE SAME WELDING AS REQUIRED AT DECK ENDS. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS EXPERIENCED IN COLD-FORMED STEEL DECK WORK.
4. DO NOT EXCEED 25 LBS PER HANGER AND A MINIMUM SPACING OF 2'-0" ON CENTER WHEN ATTACHING TO STEEL ROOF DECKING (LIMITATION NOT REQUIRED WITH CONCRETE ON STEEL DECK). THIS 25 LBS LOAD AND 2'-0" SPACING INCLUDES ADJACENT MECHANICAL, ELECTRICAL, AND ARCHITECTURAL ITEMS HANGING FROM DECK. IF THE HANGER RESTRICTIONS CANNOT BE ACHIEVED, SUPPLEMENTAL FRAMING SUPPORTED OFF STEEL FRAMING WILL NEED TO BE ADDED. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING LOCATION AND WEIGHT OF ALL THE ELEMENTS BEING HUNG.

LINTELS

1. PROVIDE LINTELS OVER ALL OPENINGS AND RECESSES IN MASONRY CONSTRUCTION.
2. PENETRATIONS NOT IDENTIFIED ON THE DOCUMENTS ARE TO BE TREATED IN A MANNER SIMILAR TO THE IDENTIFIED LOCATIONS. LINTELS IN NON-BEARING MASONRY WALL OPENINGS CAN BE SIZED IN ACCORDANCE WITH THE NOTE BELOW. LINTELS THAT OCCUR IN EXISTING BEARING WALLS ARE TO BE SIZED ACCORDING TO SIMILAR CONDITIONS AND SPANS IN THE NEW CONSTRUCTION AND LINTEL SCHEDULE. BOTTOM PLATE SIZE SHALL BE A MINIMUM OF 3/8" THICK. THE WIDTH OF THE PLATE SHALL BE 3/4" LESS THAN THE FIELD VERIFIED WALL THICKNESS. THE PLATE SHALL BE THE FULL LENGTH OF THE LINTEL MEMBER. LINTELS ARE NOT REQUIRED OVER OPENINGS THAT ARE 12" WIDE OR LESS AND AT LEAST 1 COURSE BELOW THE TOP OF THE WALL.
3. ALL LINTELS SHALL HAVE A MINIMUM OF 8" END BEARING.
4. ALL LINTELS IN EXTERIOR WALL CONSTRUCTION SHALL BE HOT-DIP GALVANIZED, UNO.
5. FOR ALL OPENINGS NOT OTHERWISE DETAILED OR SCHEDULED, MINIMUM LINTELS SHALL BE FOR EACH 4 INCH OF MASONRY WIDTH:

0 TO 2'-0" SPAN	5/16" PLATE (3/4" LESS THAN WALL WIDTH)
2'-0" TO 4'-0" SPAN	L 3 1/2x3 1/2x1/4
4'-0" TO 6'-0" SPAN	L4x3 1/2x5/16 (LLV)
6'-0" TO 8'-0" SPAN	L5x3 1/2x5/16 (LLV)

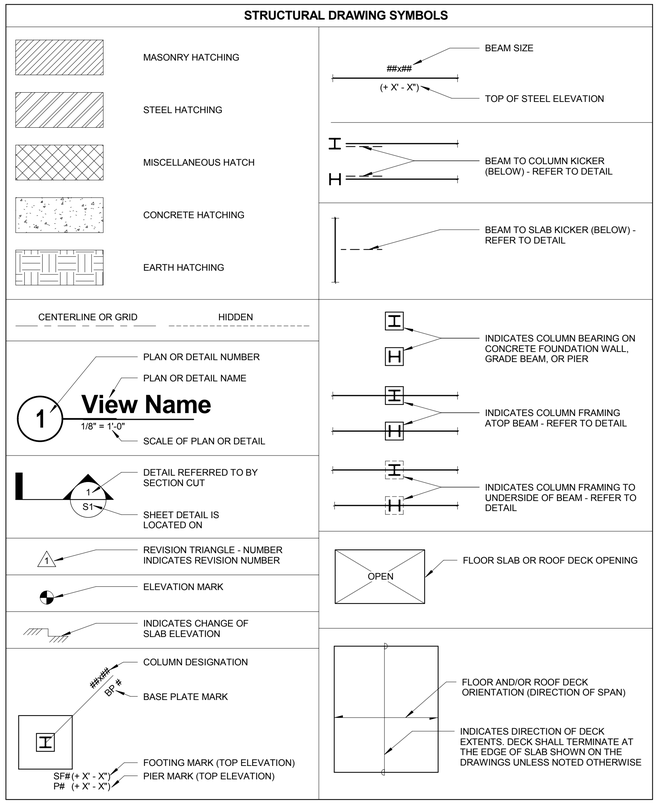
ALL ANGLES THAT ARE BACK TO BACK SHALL BE WELDED TOP AND BOTTOM 3" AT 12" MINIMUM.

6. BEARING PLATES NOT REQUIRED FOR LINTELS UNLESS NOTED OTHERWISE.

EXISTING STRUCTURAL INFORMATION

1. EXISTING STRUCTURAL INFORMATION SHOWN WAS OBTAINED FROM FIELD TAKE-OFF BY KJWW. CONTRACTOR TO VERIFY EXISTING INFORMATION DIMENSIONS AND SIZES AS REQUIRED TO COMPLETE THEIR WORK.

STRUCTURAL DRAWING SYMBOLS



STRUCTURAL ABBREVIATIONS LIST

#	NUMBER
@	AT
°	DEGREES
Ø	DIAMETER
AHU	AIR-HANDLING UNIT
APPROX	APPROXIMATE, -LY
ARCH	ARCHITECT, -URE, -URAL
B/	BOTTOM OF
bf	BEAM FLANGE WIDTH
BM	BEAM
BP	BASE PLATE
BRG	BEARING
CFSF	COLD FORM STEEL FRAMING
CJ	CONTROL JOINT
CL	CLEAR
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
D	DEPTH
DBL	DOUBLE
DEG	DEGREE
DIM	DIMENSION
DL	DEAD LOAD
DTL	DETAIL
DWG	DRAWING
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMBED	EMBEDDED
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST, (E)	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
f'c	CONCRETE COMPRESSIVE STRENGTH
FDN	FOUNDATION
FIN	FINISHED
FL	FLOOR
FT	FOOT
FTG	FOOTING
Fy	YIELD STRESS
GA	GAGE OR GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
GYP	GYPSUM
HDG	HOT-DIPPED GALVANIZED
HORIZ	HORIZONTAL
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HWS	HEADED, WELDED STUD
IN	INCH
INT	INTERIOR
JST	JOIST
JT	JOINT
K, KIP	KILOPOUND (1,000 POUNDS)
KO	KNOCK-OUT
KSF	KIPS PER SQUARE FOOT
L	LENGTH
LB	POUND
LF	LINEAR FOOT
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LONG	LONGITUDINAL
M/E	MECHANICAL/ELECTRICAL
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MIN	MINIMUM
MISC	MISCELLANEOUS
MK	MARK
N	NORTH
N	LENGTH (AS PLATES)
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OPNG	OPENING
OPP	OPPOSITE
PAF	POWER ACTUATED FASTENER
PC	PRECAST
PCF	POUNDS PER CUBIC FOOT
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R	RADIUS
RD	ROOF DRAIN
REINF	REINFORCING, -MENT, -ED
REQ'D	REQUIRED
REF	REFERENCE, REFER TO
RTU	ROOF-TOP UNIT
SC	TC WITH CLASS A FAYING SURFACE
SCHED	SCHEDULE
SIM	SIMILAR
SL	SNOW LOAD
SP	SPACE(S)
SPEC	SPECIFICATION(S)
SPEC'D	SPECIFIED
SQ	SQUARE
STD	STANDARD
STIFF	STIFFENER
T/	TOP OF
TC	PRE-TENSIONED BOLT
TEMP	TEMPERATURE
tf	BEAM FLANGE THICKNESS
TRANS	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VWA	VERIFY WITH ARCHITECTURAL DRAWINGS
WP	WORKING POINT
WT	WEIGHT
WWR	WELDED WIRE REINFORCING
YD	YARD

KJWW ENGINEERING CONSULTANTS
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1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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REFERENCE SCALE IN INCHES
0 1 2 3

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library
Maintenance & Support
Center Remodel

1301 West Badger Road
Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

Sheet Issue Date

Permit Set	10/17/2016

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CD Set	09/09/2016
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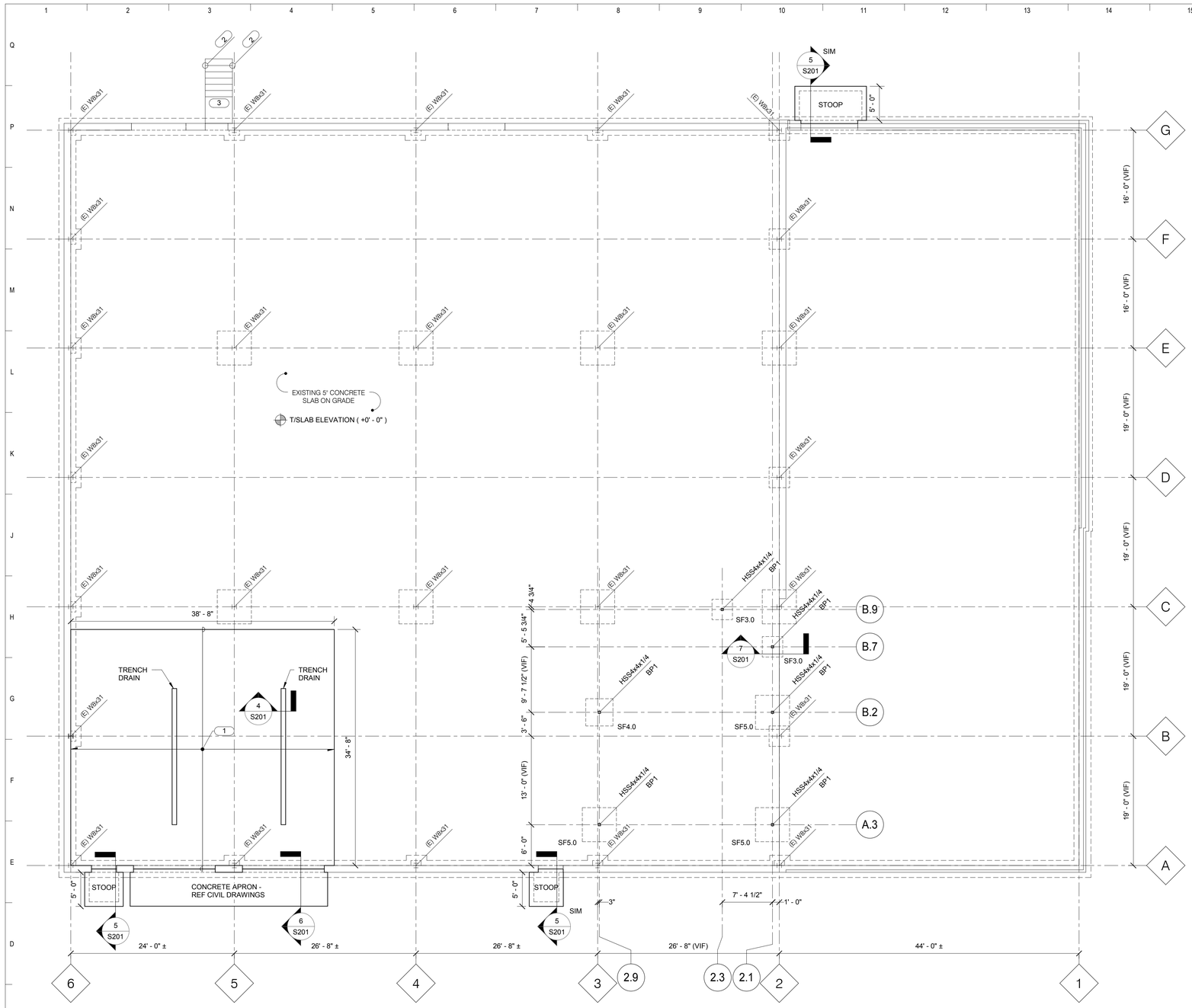
Design Development	06/17/2016
Schematic Design	04/01/2016

Revision Dates

Drawing
GENERAL NOTES

OPN Project No. **15617000**

S000



NOTES:

1. TOP OF FOOTING ELEVATION (-1' - 0"), UNO.
2. BP# INDICATES BASE PLATE. REFER TO S301 FOR ANCHOR ROD AND BASE PLATE DETAILS.
3. SF# INDICATES SPREAD FOOTING. REFER TO THIS SHEET FOR SCHEDULE.
4. REFER TO 1, 2 AND 3/S201 FOR TYPICAL SLAB ON GRADE CONSTRUCTION DETAILS.

KEYNOTES:

1. 5" CONCRETE SLAB ON GRADE WITH 6x6 - W2.1xW2.1 WWR. TOP OF SLAB ELEVATION (+0'-0"), MATCH EXISTING AND SLOPE TO DRAIN.
2. 10"Ø SONOTUBE FOUNDATION. COORDINATE LOCATION AND T/PIER ELEVATION WITH STAIR SUPPLIER. B/PIER ELEVATION TO BE MINIMUM 4'-0" BELOW GRADE.
3. EXTERIOR STAIR BY STAIR SUPPLIER. DESIGN FOR 100 PSF LIVE LOAD. ANCHOR STAIR LANDING TO EXTERIOR FACE OF EXISTING CONCRETE FOUNDATION WALL.

SPREAD FOOTING SCHEDULE

MARK	LENGTH	WIDTH	THICKNESS	REINFORCING	
				LONG DIRECTION	SHORT DIRECTION
SF3.0	3' - 0"	3' - 0"	1' - 0"	(3) #5	(3) #5
SF4.0	4' - 0"	4' - 0"	1' - 0"	(3) #5	(3) #5
SF5.0	5' - 0"	5' - 0"	1' - 0"	(4) #5	(4) #5

NORTH

1 FOUNDATION PLAN

1/8" = 1'-0"

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET,
SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

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.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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Revision Dates

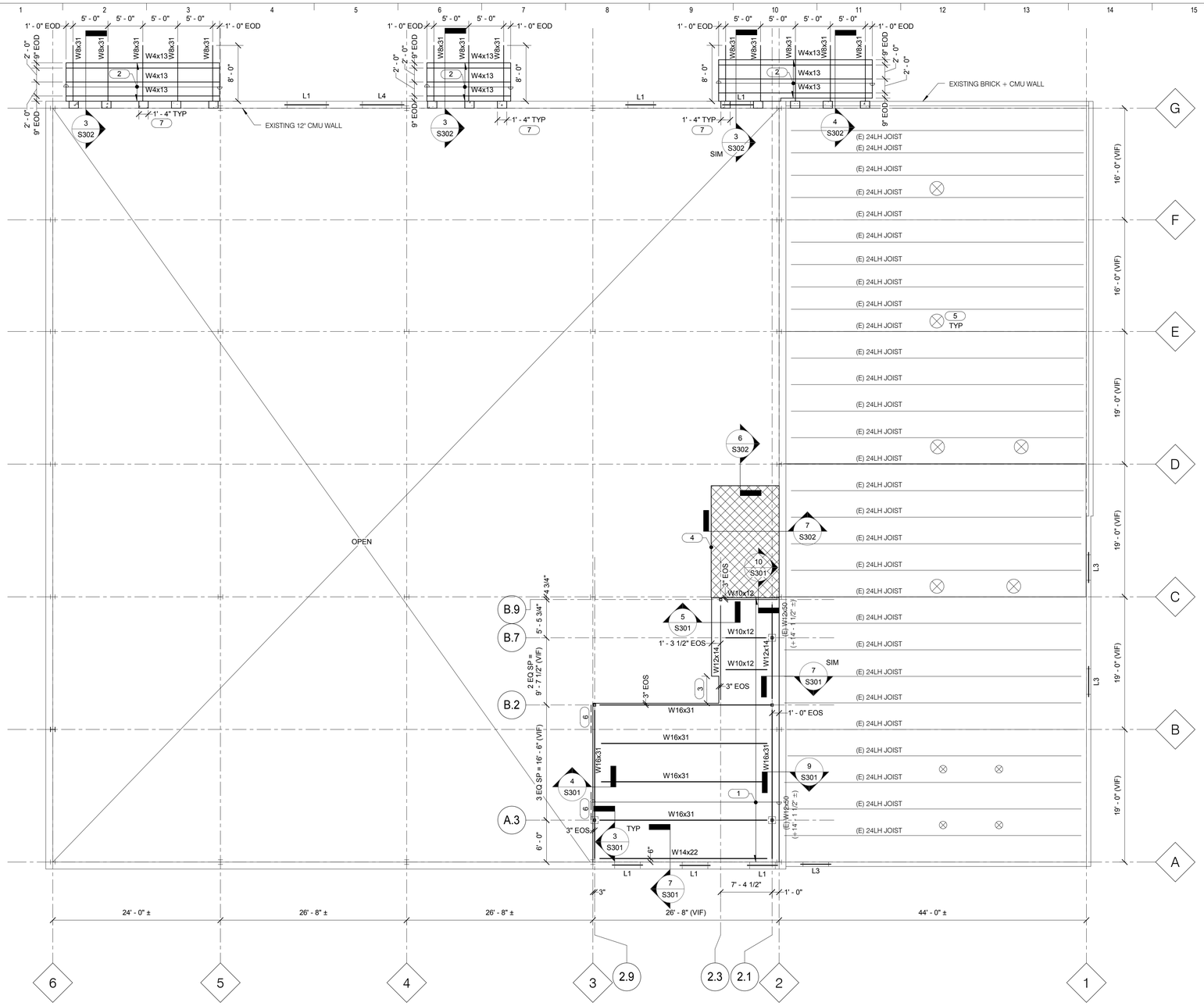
Drawing
FOUNDATION PLAN

OPN Project No. **15617000**

S101

KJ WW ENGINEERING CONSULTANTS
The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
PROJECT # 16.0141.00

REFERENCE SCALE IN INCHES
0 1 2 3



MEZZANINE AND LOW ROOF FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. TOP OF STEEL ELEVATION (+10' - 8").
2. REFER TO 8/S301 FOR TYPICAL SHEAR CONNECTION.
3. L# INDICATES LINTEL IN STRUCTURAL MASONRY WALL, REFER TO THIS SHEET FOR SCHEDULE.
4. MODIFY EXISTING ROOF JOISTS PER 1/S302 AS REQUIRED FOR HANGING LOADS. GC TO COORDINATE WITH TRADE CONTRACTORS.

KEYNOTES:

1. 2 1/2" NORMAL WEIGHT CONCRETE ON 1 1/2" (20 GA) COMPOSITE STEEL DECK, 2-SPAN MINIMUM, WITH 6x6 - W1.4xW1.4 WWR. TOTAL THICKNESS = 4". TOP OF SLAB EL +11' - 0".
2. 1/8" STEEL PLATE.
3. COORDINATE DECK EDGE WITH STAIR SUPPLIER.
4. 3/4" TONGUE AND GROOVE, 40/24, EXP 1 SHEATHING BEARING ON 8" DEEP COLD FORM JOISTS @ 16" OC. COLD FORM FRAMING TO BE DESIGNED FOR SUPERIMPOSED DEAD LOAD OF 15 PSF AND LIVE LOAD OF 50 PSF. FASTEN SHEATHING TO JOISTS WITH #10 TEK SCREWS @ 6" OC AT SUPPORTING ENDS OF EACH SHEATHING PANEL AND @ 12" OC AT FIELD.
5. NEW ROOF OPENING: PROVIDE ANGLE FRAMING AROUND ROOF OPENINGS PER 2/S302.
6. L4x4x1/4 KNEE BRACE, REFER TO 11/S301.
7. GROUT EXISTING MASONRY SOLID, FULL HEIGHT, WITH (1) #6 BAR IN EACH CELL.

LINTEL SCHEDULE

MARK	MEMBER BEARING, EACH END	MEMBER SIZE	REFERENCE DETAIL	NOTES
L1	0' - 4"	W8x24 + 3/8" PLATE, TOP AND BOTTOM	6/S301	-
L2	0' - 4"	W8x31 + 3/8" PLATE, TOP AND BOTTOM	6/S301	REINFORCE JAMB PER 5/S302
L3	0' - 4"	W8x24 + 3/8" BOTTOM PLATE	6/S301 SIM	-
L4	0' - 4"	W8x24 + 3/8" PLATE, TOP AND BOTTOM	6/S301	REINFORCE JAMB PER 5/S302 SIM

NOTES:

1. GROUT EXISTING MASONRY SOLID AT LINTEL BEARING.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET, SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library Maintenance & Support Center Remodel

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Madison, WI 53713

General Contractor
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Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
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Middleton, WI 53562
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Key Plan

Sheet Issue Date

Permit Set	09/09/2016

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CD Set	09/09/2016
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MEZZANINE FRAMING PLAN

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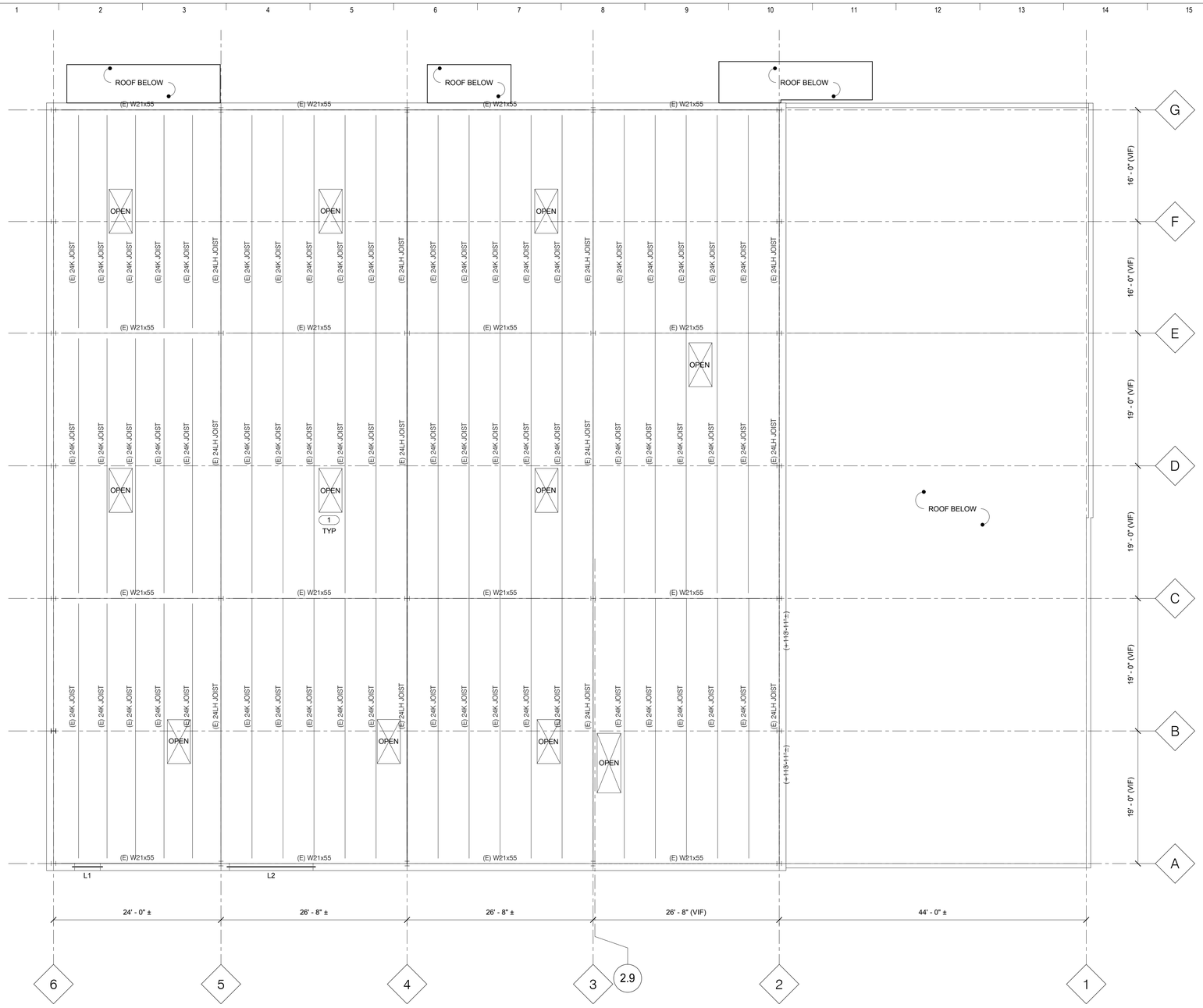

HIGH ROOF FRAMING PLAN

1/8" = 1'-0"

NORTH

NOTES:

1. MODIFY EXISTING ROOF JOISTS PER 1/S302 AS REQUIRED FOR HANGING LOADS. GC TO COORDINATE WITH TRADE CONTRACTORS.
2. L# INDICATES LINTEL IN STRUCTURAL MASONRY WALL, REFER TO S102 FOR SCHEDULE.

KEYNOTES:

(1) NEW ROOF OPENING: PROVIDE ANGLE FRAMING AROUND ROOF OPENINGS PER 2/S302.

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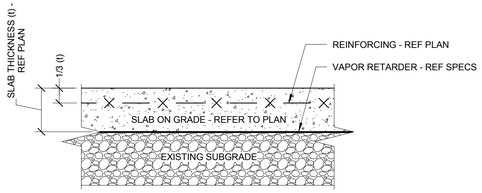
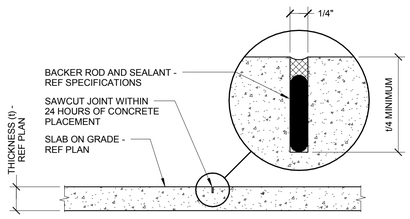


1 TYPICAL SLAB ON GRADE SECTION

1 1/2" = 1'-0"

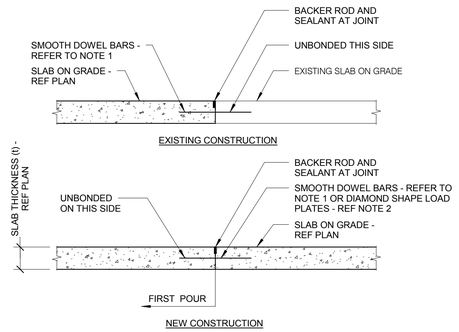
NOTES:

1. REFERENCE SPECIFICATIONS FOR MATERIAL AND COMPACTION REQUIREMENTS.



2 TYPICAL SLAB ON GRADE CONTROL JOINT

1" = 1'-0"

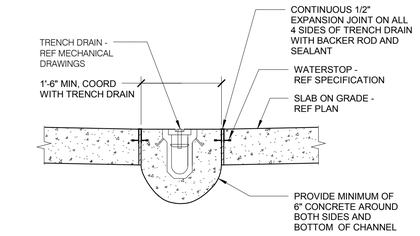


3 TYPICAL SLAB CONSTRUCTION JOINT

3/4" = 1'-0"

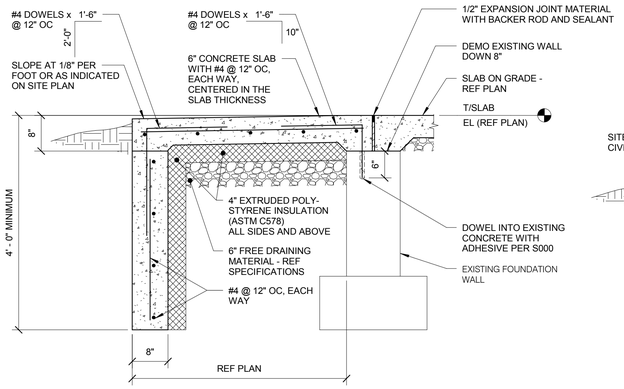
NOTES:

1. 3/4"Ø x 1'-2" SMOOTH DOWEL BARS AT 12" OC.
2. 1/4"x4 1/2"x4 1/2" DIAMOND LOAD PLATES AT 18" OC.



4 TRENCH DRAIN DETAIL

3/4" = 1'-0"

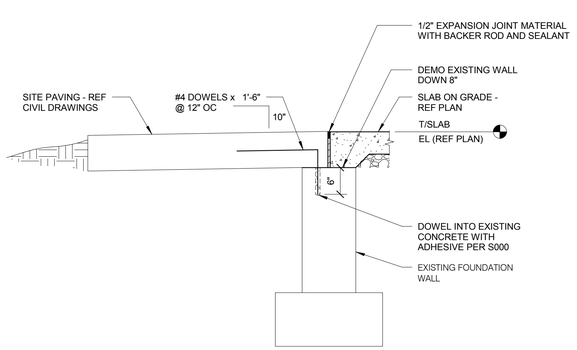


5 TYPICAL STOOP SECTION

3/4" = 1'-0"

NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT STOOP LAYOUT AND LOCATIONS.
2. AT SIM: INTERIOR SLAB ON GRADE IS EXISTING TO REMAIN. COORDINATE OVERLAP OF FOUNDAITON WALL WITH EXISTING CONDITIONS.

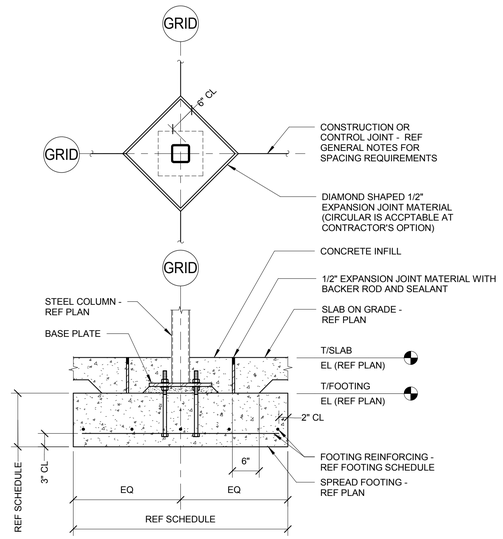


6 TYPICAL APRON SECTION

3/4" = 1'-0"

NOTES:

1. REFER TO ARCHITECTURAL AND CIVIL DRAWINGS FOR EXACT APRON LAYOUT AND LOCATIONS.



7 TYPICAL SPREAD FOOTING

3/4" = 1'-0"

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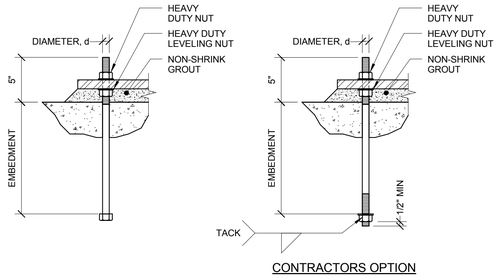
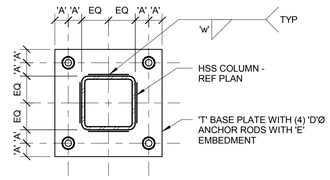


1 TYPICAL ANCHOR ROD

1 1/2" = 1'-0"

NOTES:

1. REFERENCE BASE PLATE DETAILS FOR DIAMETER AND EMBEDMENT.
2. REFERENCE GENERAL NOTES FOR MATERIAL REQUIREMENTS.
3. ANCHOR RODS SHALL BE SET PRIOR TO PLACEMENT OF CONCRETE.
4. PROTECT ANCHOR RODS FROM DAMAGE.
5. ANCHOR SHALL BE SET SO AS NOT TO VARY FROM THE DIMENSIONS SHOWN ON THE ERECTION DRAWINGS BY MORE THAN THE FOLLOWING:
   A. 1/8" CENTER TO CENTER OF ANY TWO RODS WITHIN AN ANCHOR ROD GROUP.
   B. 1/4" CENTER TO CENTER OF ADJACENT ANCHOR ROD GROUPS.
   C. ELEVATION OF THE TOP OF ANCHOR RODS ± 1/2".
   D. MAXIMUM ACCUMULATION OF 1/4" PER HUNDRED FEET ALONG THE ESTABLISHED COLUMN LINE.
   E. 1/4" FROM THE CENTER OF ANY ANCHOR ROD GROUP TO THE ESTABLISHED COLUMN LINE THROUGH THAT GROUP.
   F. REFERENCE AISC CODE OF STANDARD PRACTICE FOR ADDITIONAL INFORMATION.
6. SET ANCHOR RODS PERPENDICULAR TO BEARING SURFACE, UNLESS NOTED OTHERWISE.
7. PROVIDE 1 1/2" NON-SHRINK GROUT AT ALL BASE PLATES.



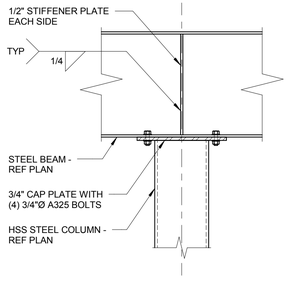
HSS BASE PLATE SCHEDULE						
MARK	'T'	'A'	'D'	'E'	'w'	COMMENTS
BP1	3/4"	1 1/2"	3/4"	9"	1/4"	-

2 HSS COLUMN BASE PLATE DETAIL

1 1/2" = 1'-0"

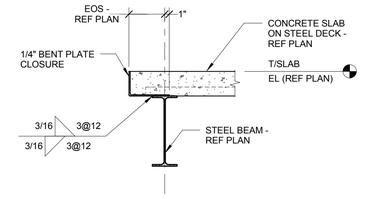
NOTES:

1. REFER TO TYPICAL ANCHOR ROD DETAIL FOR ADDITIONAL INFORMATION.
2. NO WELDS REQUIRED AT RADIUSES.



3 BEAM BEARING ON COLUMN

3/4" = 1'-0"

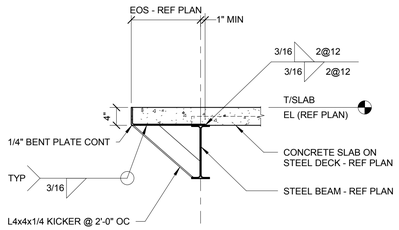


4 TYPICAL SLAB EDGE DETAIL

3/4" = 1'-0"

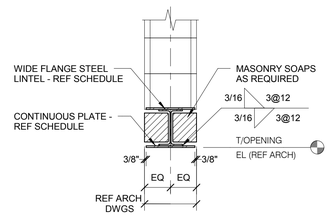
NOTES:

1. AT SIM: FIELD WELD CLOSURE PLATE TO BEAM.



5 SLAB EDGE DETAIL

3/4" = 1'-0"

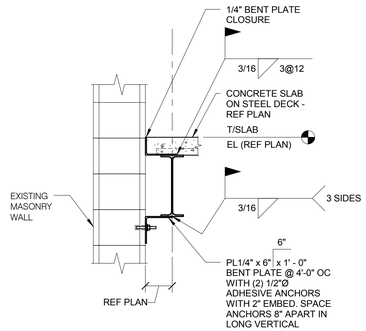


6 LINTEL DETAIL

3/4" = 1'-0"

NOTES:

1. EXISTING MASONRY WALL TO BE SHORED AS REQUIRED FOR INSTALLATION OF NEW LINTEL.
2. AT SIM: FIELD VERIFY PLATE REQUIREMENTS BASED ON EXISTING WALL CONSTRUCTION AND THICKNESS.

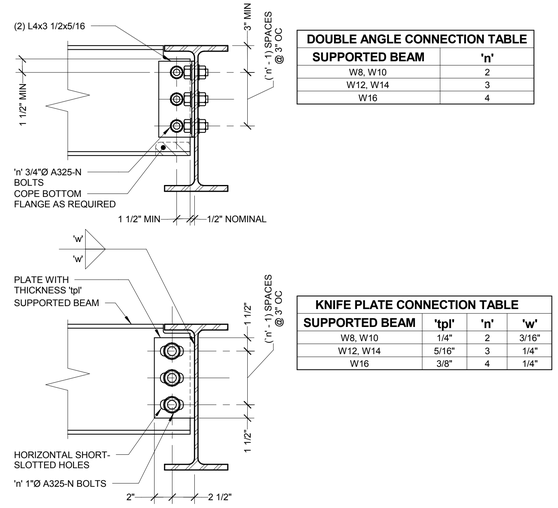


7 MEZZANINE FRAMING DETAIL

3/4" = 1'-0"

NOTES:

1. AT SIM: DECK ORIENTATION AS SHOWN ON PLAN.



DOUBLE ANGLE CONNECTION TABLE	
SUPPORTED BEAM	'n'
W8, W10	2
W12, W14	3
W16	4

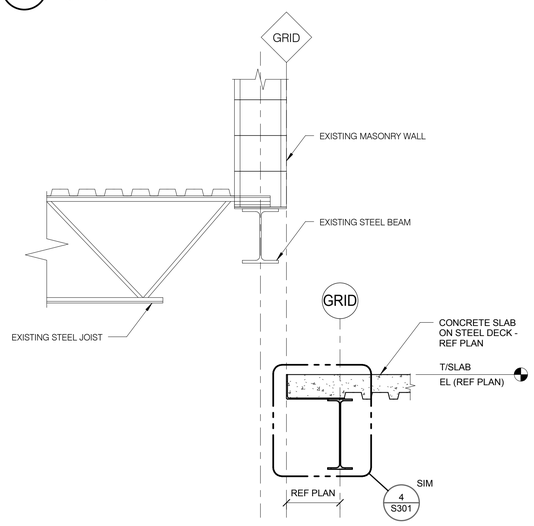
KNIFE PLATE CONNECTION TABLE			
SUPPORTED BEAM	'tpl'	'n'	'w'
W8, W10	1/4"	2	3/16"
W12, W14	5/16"	3	1/4"
W16	3/8"	4	1/4"

8 TYPICAL SHEAR CONNECTION

1 1/2" = 1'-0"

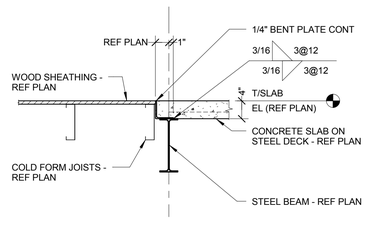
NOTES:

1. BOTH DOUBLE ANGLE AND KNIFE PLATE CONNECTION CONFIGURATIONS ARE ACCEPTABLE, UNLESS NOTED OTHERWISE. FABRICATOR AND DETAILER SHALL SELECT WHICH OPTION IS BEST SUITED FOR THEIR FABRICATION PROCESS AND THE ANTICIPATED ERECTION PROCEDURES.
2. DETAIL TO BE SIMILAR AT CONNECTIONS TO WIDE FLANGE OR HSS COLUMNS.
3. UNLESS NOTED OTHERWISE, PROVIDE SHEAR CONNECTIONS AS INDICATED BY THIS DETAIL.
4. DETAILER IS RESPONSIBLE FOR FULLY DEVELOPING GEOMETRY AND DIMENSIONAL INFORMATION REQUIRED TO FABRICATE.
5. WHERE TYPICAL SHEAR CONNECTION DETAIL IS NOT APPLICABLE, FABRICATOR SHALL SELECT AND DETAIL ALTERNATE CONNECTION CAPABLE OF DEVELOPING EQUAL STRENGTH. ALTERNATE CONNECTION SHALL BE SELECTED IN ACCORDANCE WITH AISC ASD CONNECTION TABLES.



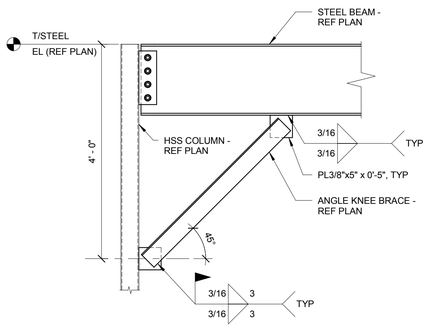
9 MEZZANINE FRAMING DETAIL

3/4" = 1'-0"



10 FLOOR TRANSITION DETAIL

3/4" = 1'-0"



11 KNEE BRACE DETAIL

3/4" = 1'-0"

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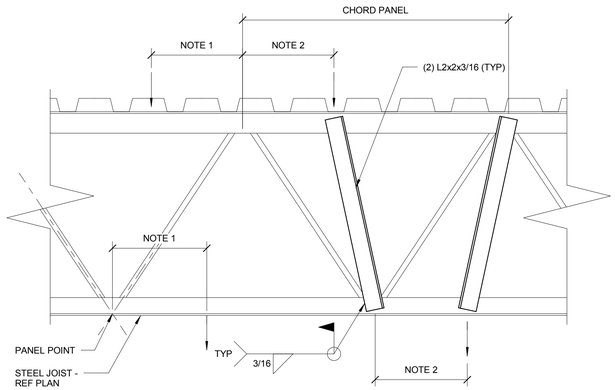
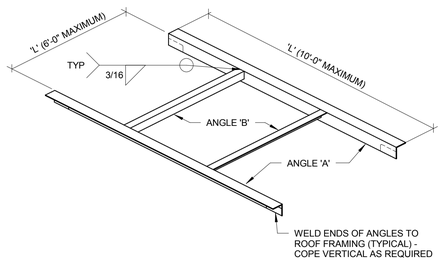


1 JOIST MODIFICATION DETAIL

1 1/2" = 1'-0"

NOTES:

1. FOR ATTACHMENTS TO JOISTS THAT ARE CONCENTRICALLY LOADED ON THE JOIST, A MAXIMUM OF 100 POUNDS MAY BE ATTACHED TO THE JOIST WITHIN A CHORD PANEL WITHOUT AN ADDITIONAL ANGLE. FOR ATTACHMENTS TO JOIST THAT ARE ECCENTRICALLY LOADED, A MAXIMUM OF 25 POUNDS MAY BE ATTACHED TO THE JOIST WITHIN A CHORD PANEL WITHOUT AN ADDITIONAL ANGLE. MULTIPLE ATTACHMENTS ARE ALLOWED IN EACH CHORD PANEL AS LONG AS THE SUM OF THE LOADS DO NOT EXCEED THE MAXIMUM LOAD INDICATED.
2. FOR LOADS BETWEEN 100 POUNDS AND 200 POUNDS, ADDITIONAL ANGLES ARE REQUIRED AND JOIST MUST BE CONCENTRICALLY LOADED.
3. FOR LOADING CONDITIONS IN NOTES 1 AND 2 ABOVE, TOTAL SUM OF LOADS SHALL NOT EXCEED 200 LBS FOR AN 8 FOOT SEGMENT OF JOIST. FOR LOADS GREATER THAN 200 POUNDS AND NOT NOTED ON THE DRAWINGS, CONTACT ENGINEER PRIOR TO INSTALLATION.
4. NO LOADS SHALL BE SUPPORTED FROM JOIST BRIDGING.



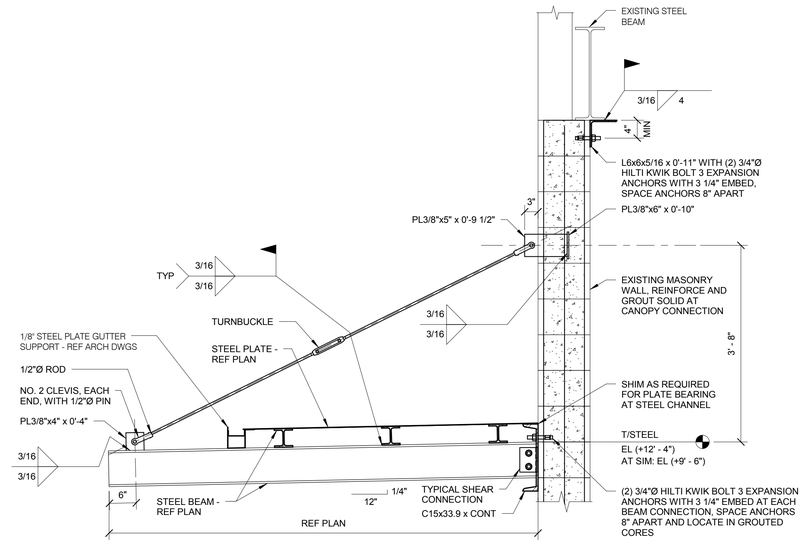
'L'	ANGLE 'A'	ANGLE 'B'
UP TO 1'-0"	NONE - SUMP PAN ONLY	NONE - SUMP PAN ONLY
1'-1" TO 4'-6"	L4x4x1/4	L4x4x1/4
4'-7" TO 6'-0"	L4x4x5/16	L4x4x1/4
6'-1" TO 8'-0"	L4x4x3/8	-
8'-1" TO 10'-0"	L6x4x3/8 (LLV)	-

2 DECK OPENING FRAMING DETAIL

3/4" = 1'-0"

NOTES:

1. USE ABOVE FRAMING AT ALL OPENINGS EXCEEDING 1'-0" UNO.
2. REFERENCE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS.
3. ROOF OPENING FRAMING NOT REQUIRED AT SIDE DISCHARGE ROOF DRAINS. COORDINATE WITH MECHANICAL CONTRACTOR.

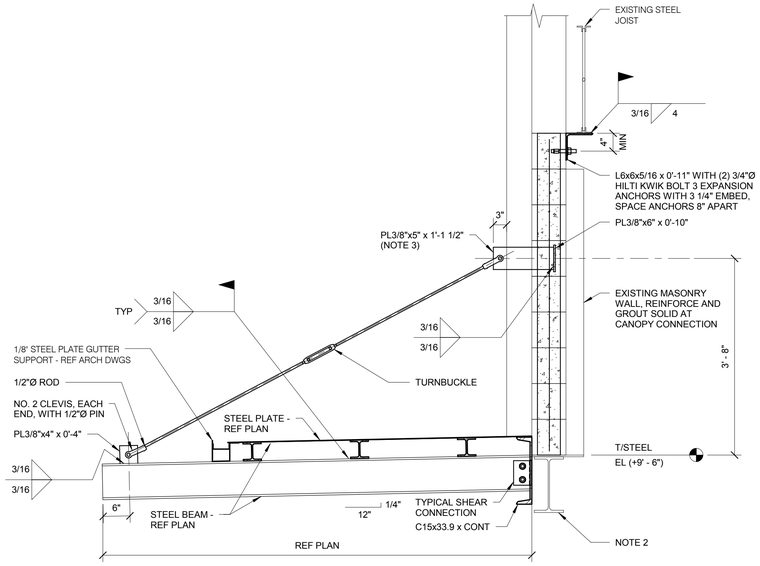


3 CANOPY FRAMING DETAIL

3/4" = 1'-0"

NOTES:

1. ALL STEEL TO BE GALVANIZED.

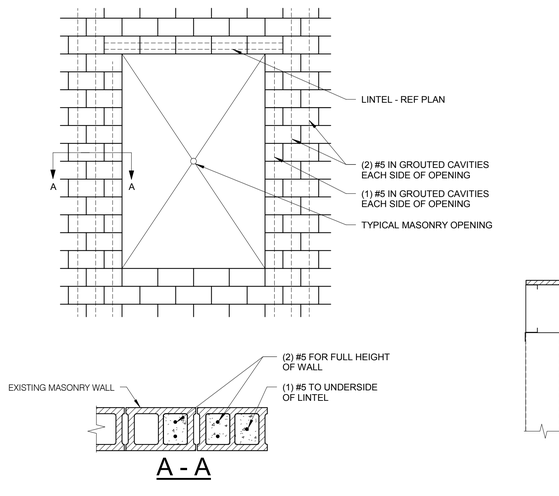


4 CANOPY FRAMING DETAIL

3/4" = 1'-0"

NOTES:

1. ALL STEEL TO BE GALVANIZED.
2. EXISTING CONDITIONS IN THIS AREA ARE UNKNOWN DUE TO PRESENCE OF EXISTING CANOPY TO BE DEMOLISHED. CONFIRM CONDTIONS AFTER DEMOLITION PHASE WITH OWNER, ARCHITECT AND STRUCTURAL ENGINEER. ANTICIPATE EXISTING STEEL LINTEL TO REMAIN OVER DOOR.
3. INTENT IS FOR PLATE TO ENGAGE NEW WALL REINFORCING. FIELD VERIFY HORIZONTAL PLATE DIMENSION WITH EXISTING FIELD CONDITIONS PRIOR TO FABRICATION.

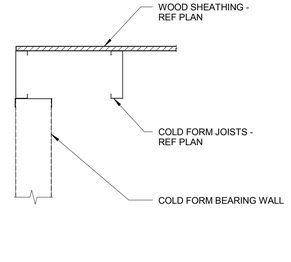


5 MASONRY WALL DETAIL

3/4" = 1'-0"

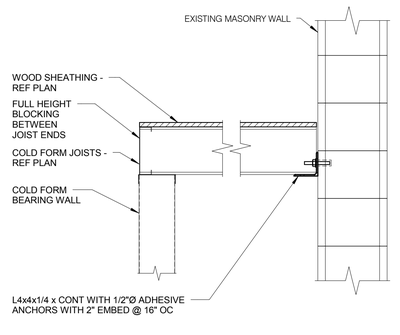
NOTES:

1. AT SIM: ONLY ONE CELL WITH (2) #5 FULL HEIGHT BARS REQUIRED AT EACH JAMB.



6 ROOM CAP DETAIL

1" = 1'-0"



7 ROOM CAP DETAIL

1" = 1'-0"

NOTES:

1. COLD FORM CONNECTIONS BY COLD FORM SUPPLIER.

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CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET, SUITE100
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
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opn@opnarchitects.com

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Madison, WI 53718
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1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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Schematic Design	04/01/2016

Revision Dates

Drawing
FRAMING DETAILS

OPN Project No. 15617000

S302

KJWW ENGINEERING CONSULTANTS
The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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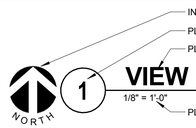
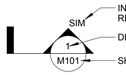
0 1 2 3

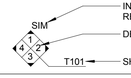
VIEW KEY

NAME — LEVEL NAME
10' - 0" — HEIGHT ABOVE PROJECT 0' - 0"

1 — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED. SPECIFIC TO THE SHEET AND/OR DETAIL







LINE TYPE KEY:

- NEW WORK BY THIS CONTRACTOR (DARK SOLID LINE)
- NEW WORK UNDERFLOOR OR UNDERGROUND BY THIS CONTRACTOR (DARK LONG DASHED LINE)
- NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
- EXISTING TO BE REMOVED BY THIS CONTRACTOR (DARK SHORT DASHED LINE)

MECHANICAL SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
	DIRECTION OF AIR FLOW
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER
	DUCT CAP
	DUCT DOWN
	DUCT UP
	SUPPLY/OUTSIDE AIR DUCT SECTION
	RETURN AIR DUCT SECTION
	EXHAUST/RELIEF AIR DUCT SECTION
SD-1 6/115	AIR TERMINAL PROPERTIES SYMBOL NECK SIZE/CFM
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
PD	PUMPED DISCHARGE
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
	NEW CONNECTION
	UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
	THROTTLING VALVE
	BALANCING VALVE (NUMBER INDICATES GPM)
	CONTROL VALVE (THREE-WAY)
	CONTROL VALVE (TWO-WAY)
	SOLENOID VALVE
	CHECK VALVE
	SAFETY/RELIEF VALVE
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	PUMP
	"WYE" - STRAINER
	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
	BASKET STRAINER
	FLEXIBLE CONNECTION
	PRESSURE/TEMPERATURE TEST PLUG
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
P	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	SUCTION DIFFUSER WITH SUPPORT FOOT
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	DRAIN VALVE WITH HOSE CONNECTION AND CAP
T	TEMPERATURE SENSOR WITH WELL
T	THERMOMETER WITH WELL (DIAL TYPE)
	THERMOMETER WITH WELL (FILLED TYPE)
FM	FLOW METER
FS	FLOW SENSOR
F	FLOW SWITCH
	ALIGNMENT GUIDE
	PIPE ANCHOR
	EXPANSION JOINT
M	METER
###	TERMINAL AIR BOX W/REHEAT COIL (REFER TO SCHEDULE)
H	HUMIDIFIER
T	THERMOSTAT/SENSOR
	THERMOSTAT/SENSOR W/HEAVY DUTY ENCLOSURE
	DIFFERENTIAL PRESSURE SENSOR
C	CARBON MONOXIDE SENSOR
C_2	CARBON DIOXIDE SENSOR
P	PRESSURE SENSOR/MONITOR
P	PRESSURE SENSOR (DUCT MOUNTED)
N2	NITROGEN DIOXIDE SENSOR
OC	OCCUPANCY SENSOR

MECHANICAL RENOVATION NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL.

1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
2. NOT ALL EXISTING DUCTWORK AND PIPING IS SHOWN. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK.
3. FIELD VERIFY THE AVAILABLE CLEARANCES FOR DUCTWORK AND PIPING BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.
4. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO HIS AREA OF WORK.
5. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CUTTING, REMOVAL AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY THE GC OF AFFECTED AREAS PRIOR TO BIDDING.
6. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILINGS, CEILING TILES, AND CEILING GRIDS ASSOCIATED WITH AREAS OF WORK BY ALL CONTRACTORS. NOTIFY THE GENERAL CONTRACTOR OF AFFECTED AREAS PRIOR TO BIDDING.
7. WHERE EXISTING MECHANICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, PIPING, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING MECHANICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.
8. DISCONNECT AND REMOVE MECHANICAL DEVICES AND EQUIPMENT SERVING EQUIPMENT THAT HAS BEEN REMOVED.

MECHANICAL ABBREVIATION KEY

NOT ALL SYMBOLS MAY APPLY

ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
C	COMMON
CD-E	CEILING DIFFUSER - EXISTING
CFSD	CONTROL/FIRE/SMOKE DAMPER
CO	CLEANOUT
CS	CONDENSER SUPPLY
CR	CONDENSER RETURN
D	DRAIN PIPE
DPG (0-2")	DIFFERENTIAL PRESSURE GAUGE (RANGE)
DPS	DIFFERENTIAL PRESSURE SWITCH
EA	EXHAUST/RELIEF AIR
ECFSD	EXISTING CONTROL FIRE SMOKE DAMPER
EFD	EXISTING FIRE DAMPER
EFSD	EXISTING FIRE SMOKE DAMPER
ESD	EXISTING SMOKE DAMPER
FD	FIRE DAMPER
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FSD	FIRE/SMOKE DAMPER
GS	GEOTHERMAL SUPPLY
GR	GEOTHERMAL RETURN
HWS	HEATING WATER SUPPLY
HWR	HEATING WATER RETURN
IU	INDOOR UNIT
MA	MIXED AIR
MV	MIXING VALVE
NC	NEW CONNECTION
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
OA	OUTSIDE AIR
PS	PRESSURE SWITCH
RA	RETURN AIR
SA	SUPPLY AIR
SD	SMOKE DAMPER
TAB	TERMINAL AIR BOX
TD	TRANSFER DUCT
TYP	TYPICAL
UC-1	DOOR UNDERCUT BY OTHERS (1" TYPICAL)
UNO	UNLESS NOTED OTHERWISE

PIPING GENERAL NOTES:

1. PIPE DRAIN LINES FROM EQUIPMENT TO NEAREST FLOOR DRAIN.
2. INSTALL ALL REFRIGERANT LIQUID AND SUCTION PIPING PER EQUIPMENT MANUFACTURER RECOMMENDATIONS. FINAL SIZING BY MANUFACTURER.

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
9. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
10. SEAL ALL FLOOR, WALL, AND ROOF PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
11. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
12. WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
13. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY BETWEEN DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
14. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
15. MAINTAIN MINIMUM 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL PANELS, MOTOR STARTERS, SWITCHES, AND DISCONNECTS.
16. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
17. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR

MECHANICAL SHEET INDEX

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

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Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
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P. 608.223.9600

Key Plan

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Schematic Design 02/22/2016

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The FUTURE. Built SMARTER.
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MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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REFERENCE SCALE IN INCHES
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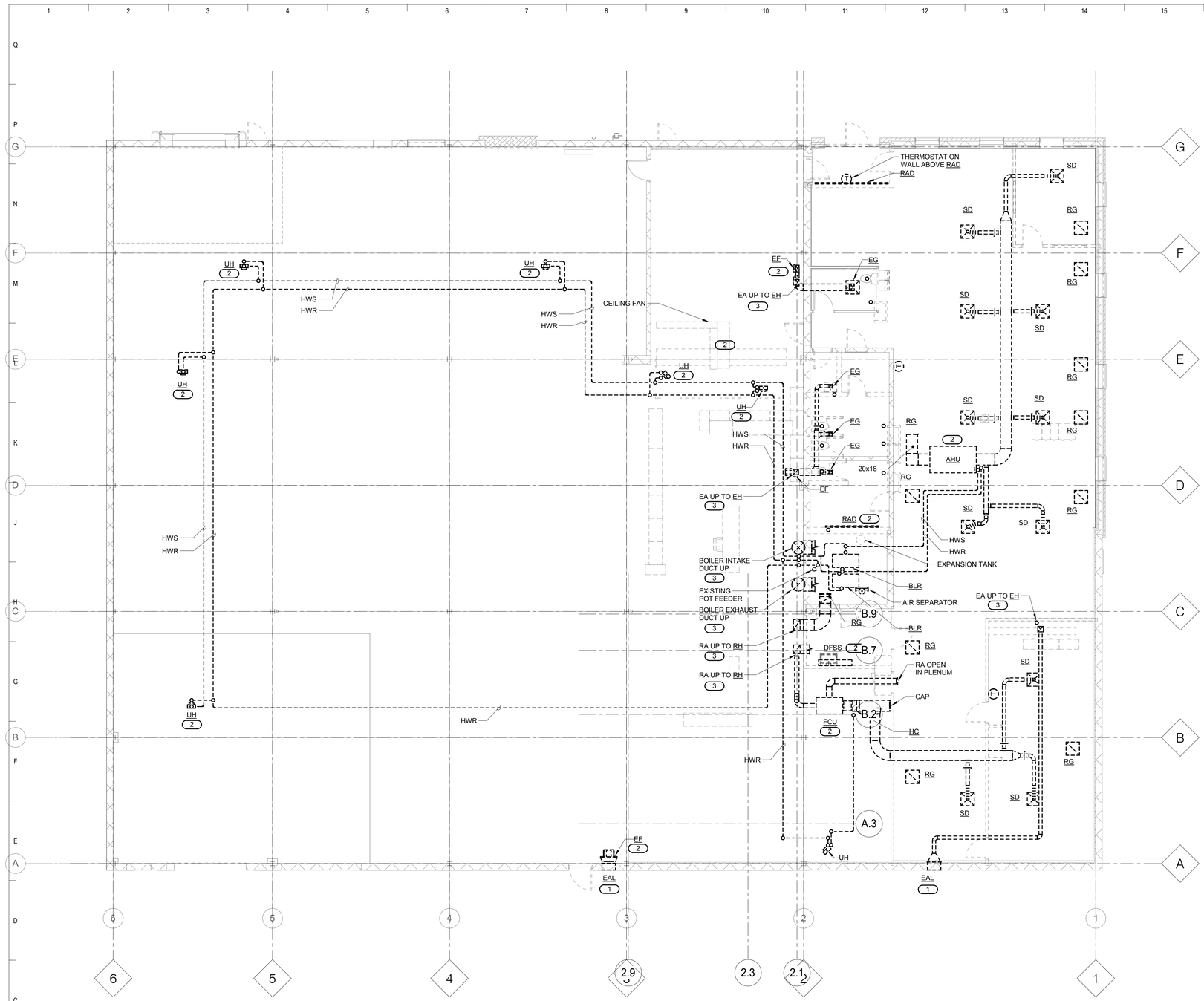
Drawing
COVER SHEET - MECHANICAL

OPN Project No. 15617000

M000



FIRST FLOOR DEMOLITION - MECHANICAL

1/8" = 1'-0"

NORTH

GENERAL NOTES:

1. REMOVE ALL EXISTING MECHANICAL EQUIPMENT, PIPING, DUCTWORK, CONTROLS AND ASSOCIATED ACCESSORIES.

KEYNOTES: (#)

1. REMOVE EXISTING EQUIPMENT AND PATCH WALL TO MATCH EXISTING.
2. REMOVE EXISTING CONTROLS AND THERMOSTATS ASSOCIATED WITH EXISTING EQUIPMENT TO BE REMOVED.
3. REMOVE EXISTING EQUIPMENT AND PATCH ROOF TO MATCH EXISTING.

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Middleton, WI 53562
P. 608.223.9600

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1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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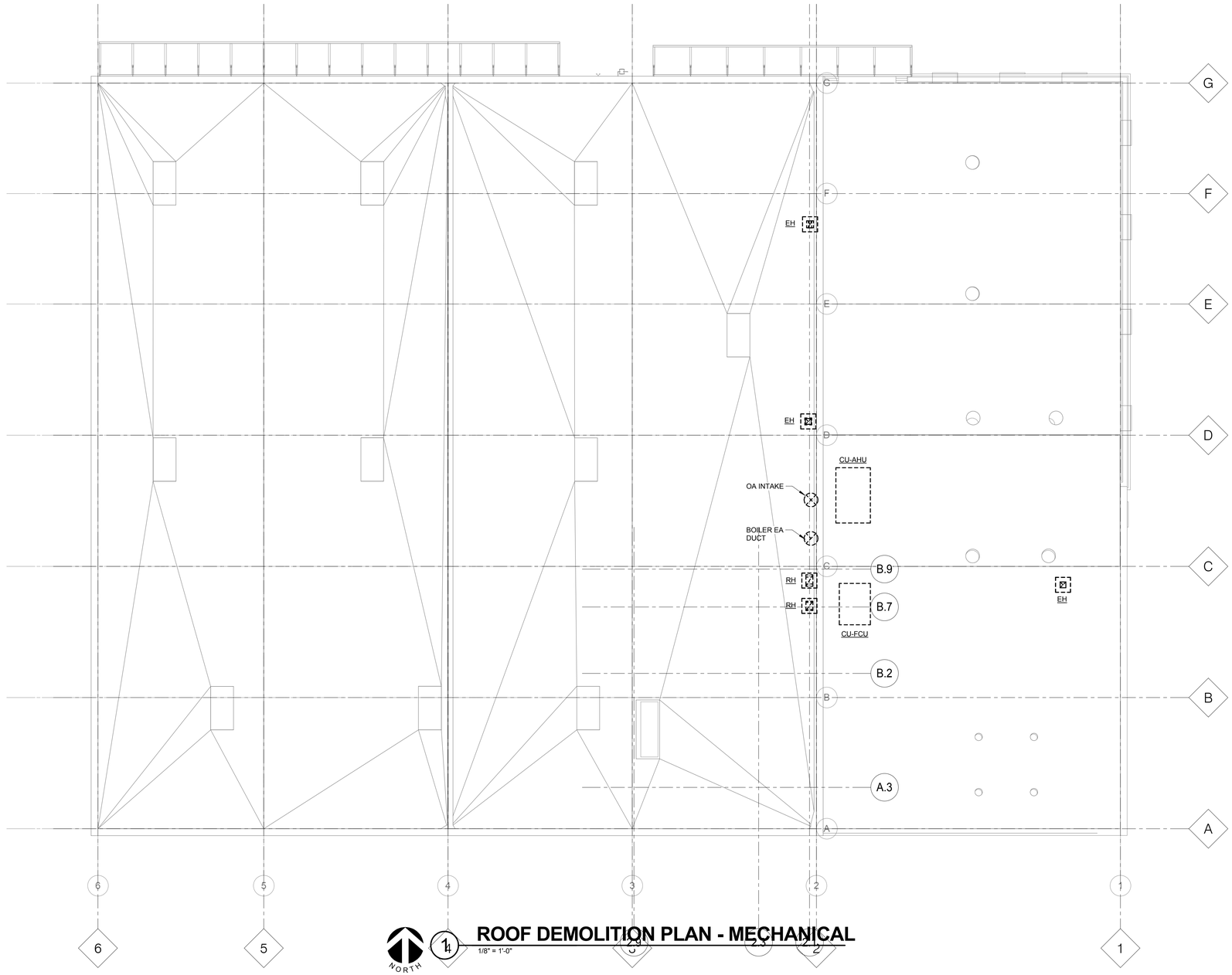
Drawing
FIRST FLOOR DEMOLITION - MECHANICAL

OPN Project No. **15617000**

MD101.1



ROOF DEMOLITION PLAN - MECHANICAL

1/8" = 1'-0"

GENERAL NOTES:

1. REMOVE ALL EXISTING MECHANICAL EQUIPMENT, PIPING, DUCTWORK, CONTROLS AND ASSOCIATED ACCESSORIES.
2. THIS CONTRACTOR TO PATCH ROOF AFTER REMOVING EXISTING EQUIPMENT TO MATCH EXISTING ROOF.

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CEDAR RAPIDS
DES MOINES
MADISON

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Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
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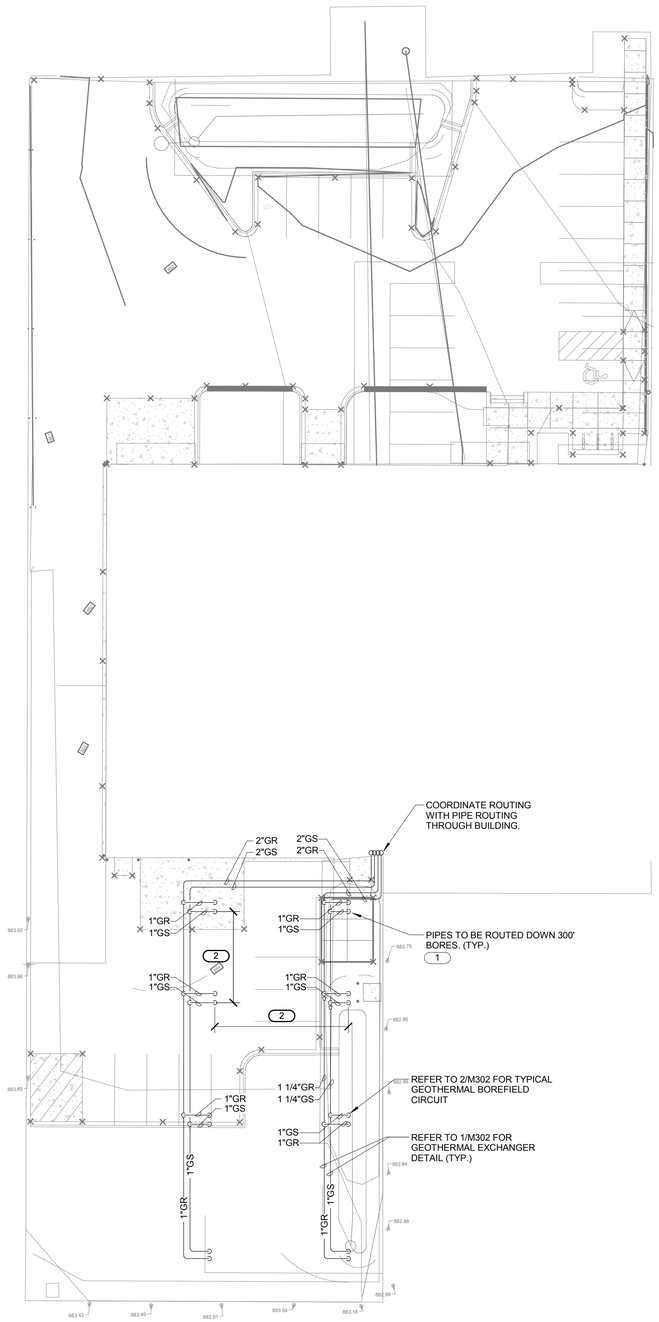
Drawing
ROOF DEMOLITION PLAN - MECHANICAL

OPN Project No. **15617000**

MD102.1



NORTH

1 SITE PLAN - MECHANICAL

1" = 20'-0"

KEYNOTES: (#)

1. CONTRACTOR TO PROVIDE BOREFIELD AS SHOWN. TEST BORE HAS NOT BEEN COMPLETED. CONTRACTOR TO TEST BOREFILED FOR CONDUCTIVITY FOLLOWING DRILLING THE BOREFIELD AS SHOWN AND PROVIDE INFORMATION TO OWNER AND ENGINEER FOR DESIGN VERIFICATION PURPOSES. PROVIDE UNIT PRICING ($/LF) FOR DRILLING ADDITIONAL BORES IF REQUIRED BASED ON CONDUCTIVITY RESULTS. REFER TO 3/M302 FOR BOREFIELD SIZING ASSUMPTIONS.
2. BORE SPACING TO BE 20'-0" (TYPICAL). REFER TO 3/M302

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608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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P. 608.838.0444

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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1800 Deming Way
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P. 608.223.9600

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P. 608.223.9600

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Previous Issue Dates

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Schematic Design	02/22/2016

Revision Dates

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REFERENCE SCALE IN INCHES
0 1 2 3

Drawing
SITE PLAN - MECHANICAL

OPN Project No. 15617000

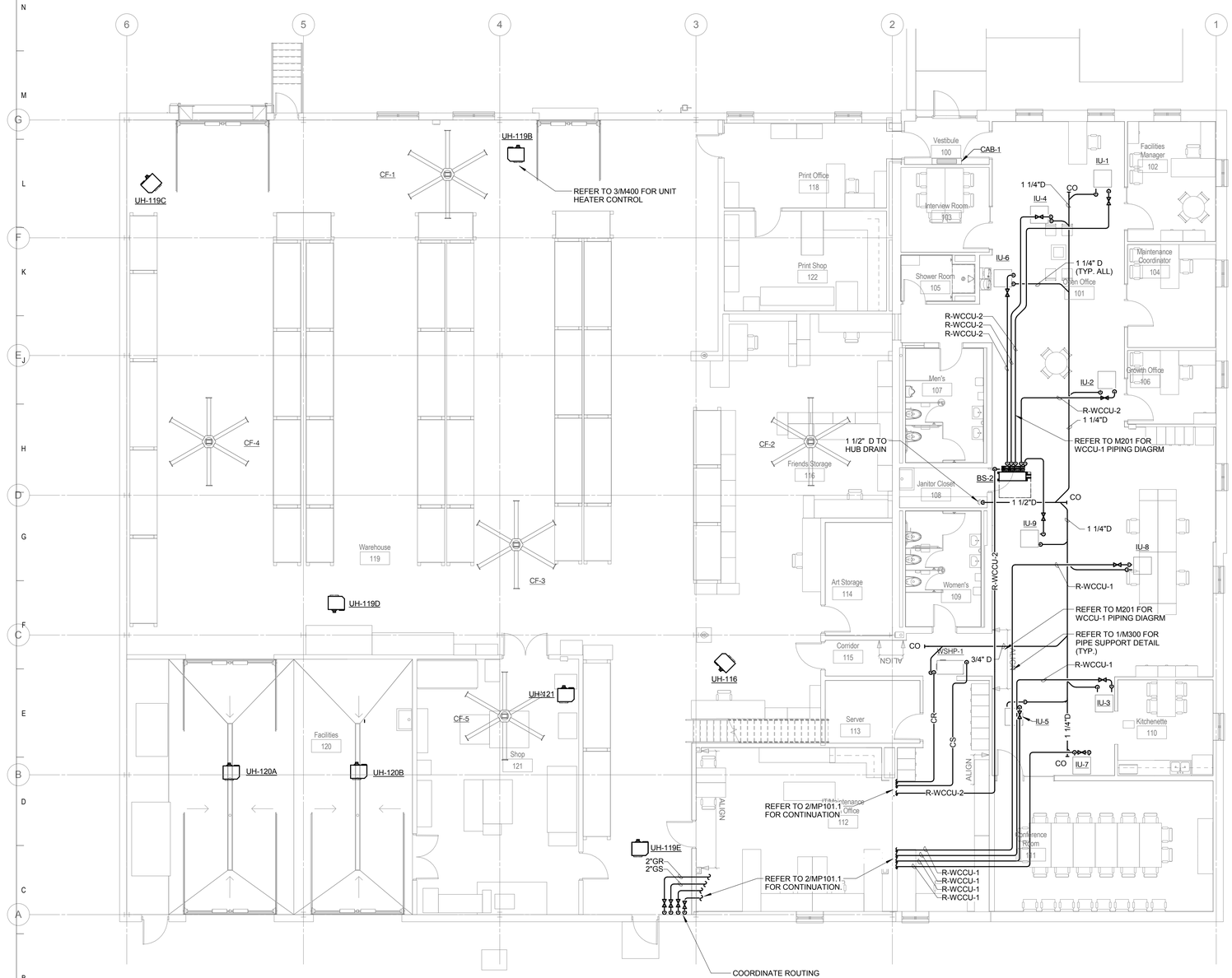
M100

GENERAL NOTES:

1. REFER TO M201 FOR VRF PIPING DIAGRAM.

KEYNOTES: (#)

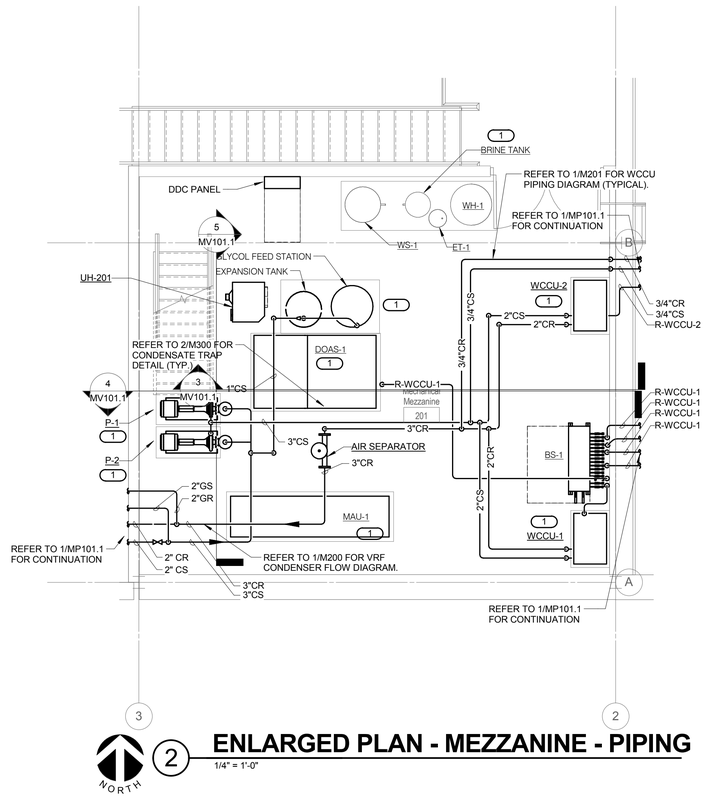
1. M.C. TO PROVIDE 4" HOUSEKEEPING PAD.



NORTH

1 FIRST FLOOR - PIPING

1/8" = 1'-0"



NORTH

2 ENLARGED PLAN - MEZZANINE - PIPING

1/4" = 1'-0"

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OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
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P. 608.223.9600

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Drawing
FIRST FLOOR - PIPING

OPN Project No. **15617000**

MP101.1

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REFERENCE SCALE IN INCHES
0 1 2 3

KEYNOTES: (#)

1. THERMOSTATS SHALL SHALL BE AVERAGED FOR MAU CONTROL.
2. THE OCCUPANCY SENSORS IN THE WAREHOUSE/FRIENDS STORAGE AREAS SHALL BE WIRED TOGETHER IN A DAISY CHAIN SO THAT AN OCCUPANCY TRIGGERED BY ANY OF THE SENSORS REPORTS BACK TO THE BAS AS THE ROOM BEING OCCUPIED.
3. ROUTE INTAKE AND EXHAUST PIPES OUT SIDE WALL PER MANUFACTURER REQUIREMENTS.

ROUTE UNIT HEATER FLUE AND EXHAUST DUCTS FROM SIDEWALL AT LEAST 3'-0" ABOVE LOWER ROOF. REFER TO MV102.1 FOR CONTINUATION.

DUCTWORK TO BE OF ALUMINUM CONSTRUCTION FROM THIS LOCATION TO OUTLET. REFER TO 2/M301 FOR BRANCH CONNECTION DETAIL.

REFER TO 2/M401 FOR WATER SOURCE HEAT PUMP CONTROL

SIZE AND ROUTE UNIT HEATER FLUE AND EXHAUST DUCTS FROM SIDEWALL AT LEAST 3'-0" ABOVE LOWER ROOF. REFER TO MV102.1 FOR CONTINUATION

REFER TO 3/M301 FOR OUTSIDE AIR AND EXHAUST AIR REGISTER DETAIL.

ROUTE UNIT HEATER FLUE AND EXHAUST DUCTS FROM SIDEWALL @ 3'-0" ABOVE LOWER ROOF. REFER TO MV102.1 FOR CONTINUATION.

REFER TO 3/MV101.1 FOR CONTINUATION

20x8 EA UP TO DOAS-1

REFER TO 1/MV101.1 FOR CONTINUATION.

FIRST FLOOR - VENTILATION

1/8" = 1'-0"

ENLARGED PLAN - MEZZANINE - VENTILATION

1/4" = 1'-0"

SECTION FOR MECHANICAL MEZZ._201 - NORTH VIEW

1/4" = 1'-0"

SECTION FOR MECHANICAL MEZZ._201 - SOUTH VIEW

1/4" = 1'-0"

SECTION FOR MECHANICAL MEZZ._201

1/4" = 1'-0"

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301 NORTH BROOM STREET
MADISON, WI 53703
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1800 Deming Way
Middleton, WI 53562
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KJWW Engineering Consultants
1800 Deming Way
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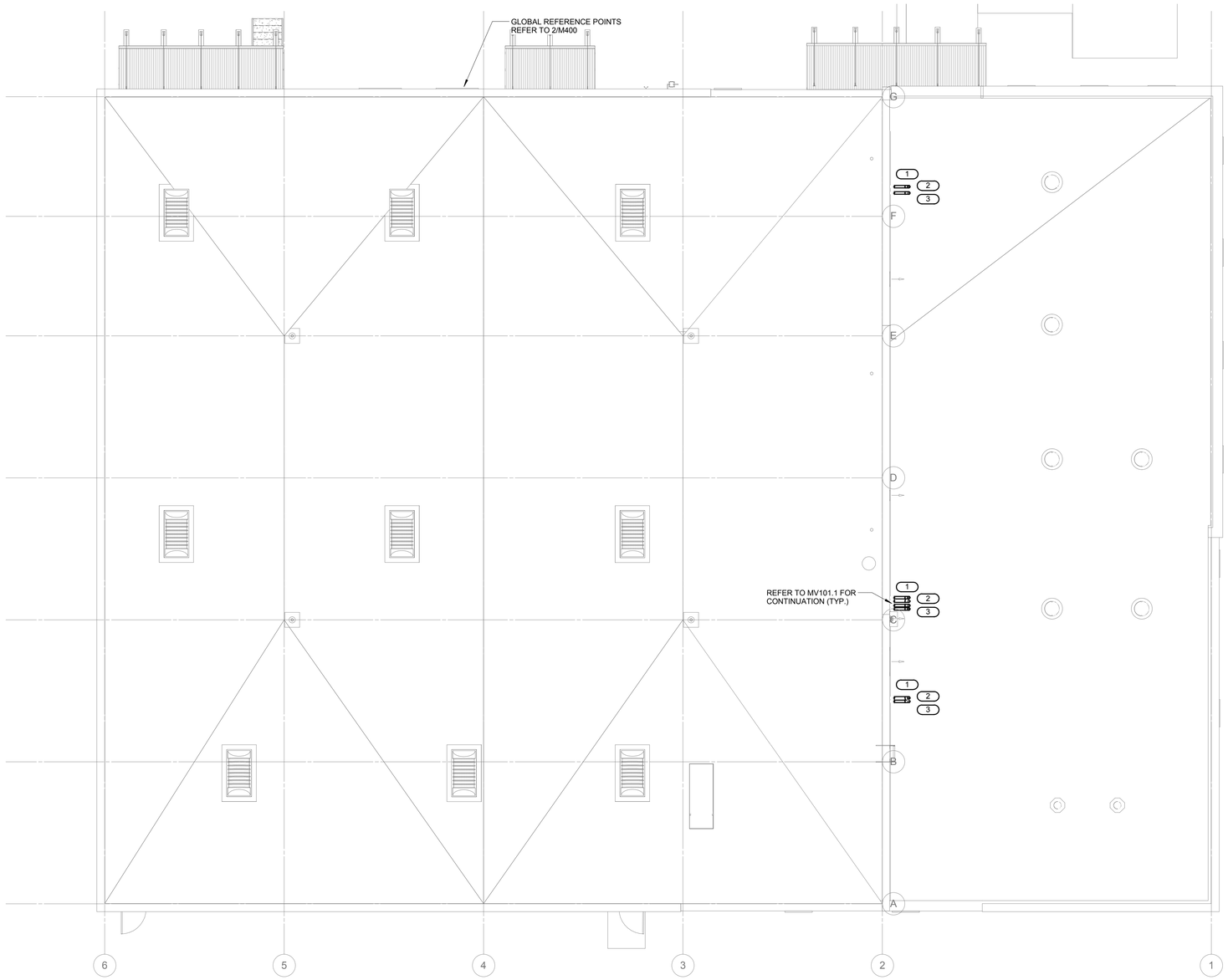
Drawing
FIRST FLOOR - MECHANICAL

OPN Project No. 15617000

MV101.1



KEYNOTES: (#)

1. COORDINATE EXACT LOCATION OF COMBUSTION AIR AND EXHAUST DUCTS WITH PV PANELS.
2. M.C. TO PROVIDE ROOF PENETRATION AS REQUIRED AND TO COORDINATE IT WITH GENERAL CONTRACTOR.

NORTH

1 **ROOF PLAN - MECHANICAL**

1/8" = 1'-0"

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CEDAR RAPIDS
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MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
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Drawing
ROOF PLAN - MECHANICAL

OPN Project No. **15617000**

MV102.1

VRF CONDENSER WATER FLOW DIAGRAM SYMBOL LIST

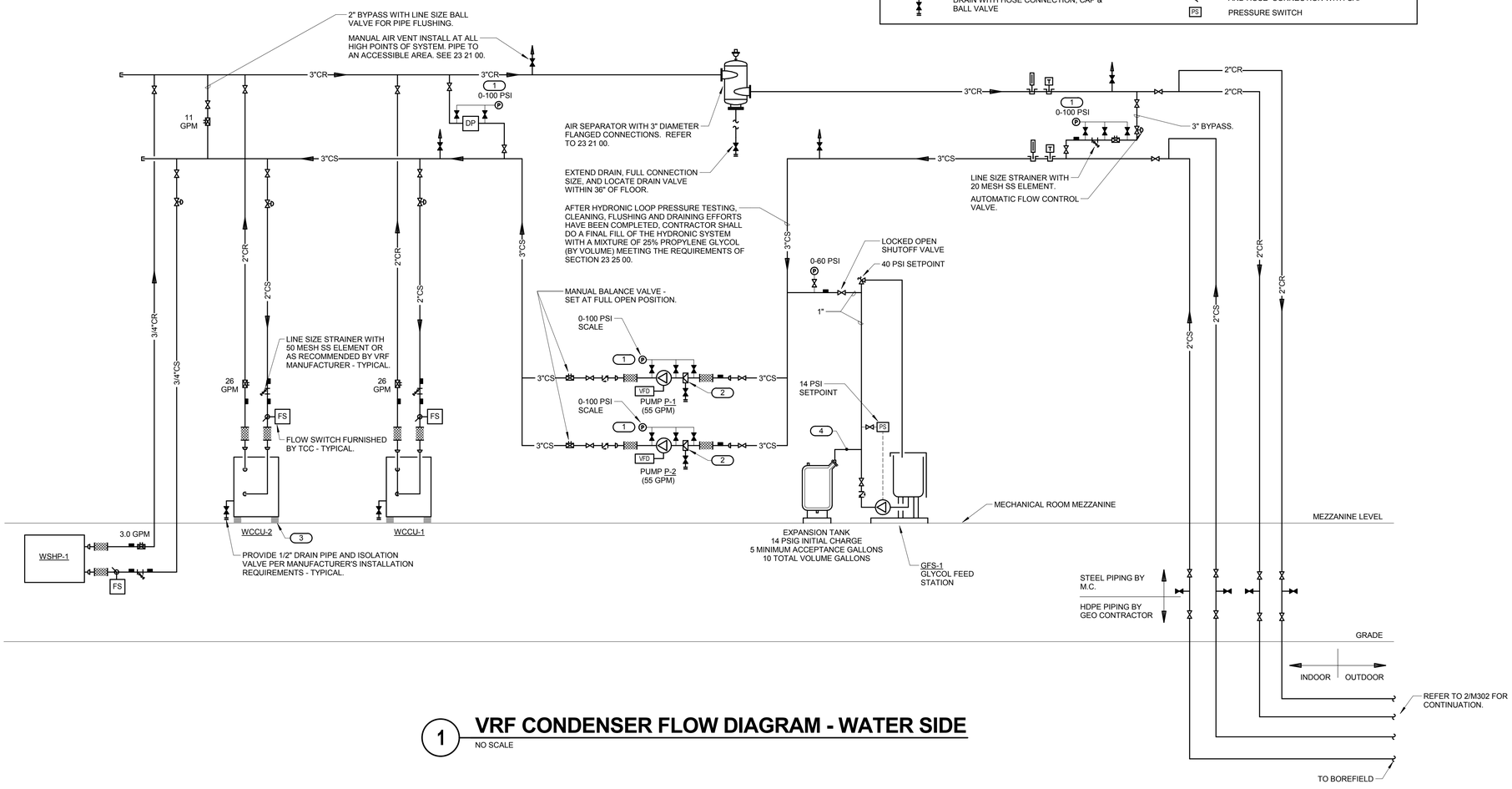
SYMBOL: **DESCRIPTION:**

NOT ALL SYMBOLS MAY APPLY.

- GR — GEOTHERMAL RETURN
- GS — GEOTHERMAL SUPPLY
- CW — COLD WATER - POTABLE
- CS — CONDENSER SUPPLY
- CR — CONDENSER RETURN
- PITCH PIPE IN DIRECTION
- DIRECTION OF FLOW IN PIPE
- FLEXIBLE CONNECTION
- PRESSURE/TEMPERATURE TEST PLUG
- REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
- (M) METER
- (P) PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
- SUCTION DIFFUSER WITH SUPPORT FOOT
- AUTOMATIC AIR VENT
- MANUAL AIR VENT W/ BALL VALVE
- DRAIN WITH HOSE CONNECTION, CAP & BALL VALVE
- T — TEMPERATURE SENSOR WITH WELL
- THERMOMETER WITH WELL (FILLED TYPE)
- UNION/FLANGE
- SHUTOFF VALVE NORMALLY OPEN
- SHUTOFF VALVE NORMALLY CLOSED
- THROTTLING VALVE
- BALANCING VALVE
- CONTROL VALVE (TWO-WAY)
- CONTROL VALVE (THREE-WAY)
- CHECK VALVE
- SAFETY/RELIEF VALVE
- PRESSURE REDUCING VALVE (LIQUID/GAS)
- "WYE" - STRAINER
- "WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
- PS — PRESSURE SWITCH

KEYNOTES

1. PRESSURE GAUGE WITH SNUBBER PER SECTION 23 09 13. INSTALL WITH MOUNTING ON WALL, STAND, OR VIBRATION-FREE PIPE ABOVE BRACKET PUMP FLEXIBLE CONNECTOR. INSTALL FLEXIBLE COPPER TUBING TO PIPING CONNECTIONS TO AVOID VIBRATION DAMAGE TO THE GAUGE. PREFERRED CONNECTION LOCATIONS ARE: (a) JUST UPSTREAM OF STRAINER, (b) GAUGE PORT ON SUCTION DIFFUSER OR BETWEEN STRAINER AND PUMP INLET (c) GAUGE TAPPING ON PUMP INLET FLANGE. (d) GAUGE TAPPING ON PUMP OUTLET FLANGE.
2. REMOVE & RETAIN TEMPORARY STRAINER FROM SUCTION DIFFUSER AT END OF CONSTRUCTION. PROVIDE SUPPORT LEG AS REQUIRED BY MANUFACTURER.
3. INSTALL VIBRATION ISOLATORS PROVIDED BY VRF CONDENSING UNIT MANUFACTURER (IF RECOMMENDED BY MANUFACTURER).
4. SIZE PER BLADDER TANK MANUFACTURER'S RECOMMENDATIONS BUT NOT SMALLER THAN CONNECTION TO TANK.
5. PROVIDE 4" THICK CONCRETE HOUSEKEEPING PADS UNDERNEATH ALL FLOOR MOUNTED MECHANICAL EQUIPMENT. CONCRETE PADS SHALL EXTEND MINIMUM 3" BEYOND ALL SIDES OF EQUIPMENT. EQUIPMENT ITEMS SHALL INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING: CHEMICAL FEEDER, BUFFER TANK, EXPANSION TANK, BASE MOUNTED PUMPS, BOILER, CONDENSING UNITS, GLYCOL FEED STATION, AIR HANDLER AND THE LIKE.



1 VRF CONDENSER FLOW DIAGRAM - WATER SIDE

NO SCALE

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CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
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5010 Voges Road
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P. 608.838.0444

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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KJWW Engineering Consultants
1800 Deming Way
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P. 608.223.9600

Key Plan

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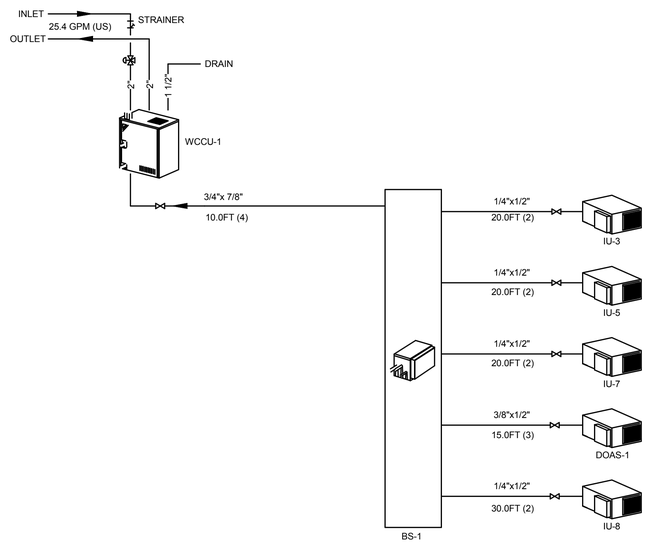
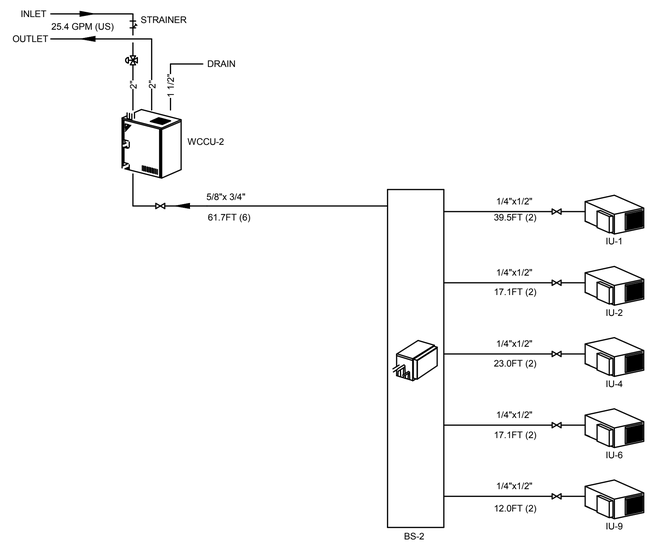
REFERENCE SCALE IN INCHES
0 1 2 3

Drawing
FLOW DIAGRAM - MECHANICAL

OPN Project No. 15617000

M200





1 WCCU-1 PIPING DIAGRAM

NO SCALE

NOTES:

1. DIAGRAMS PROVIDED FOR REFERENCE ONLY. CONFIRM FINAL PIPE SIZING, ROUTING, ACCESSORIES, QUANTITIES REQUIREMENTS WITH VRF MANUFACTURER. ZONING IS PER COMMON EXPOSURE/LOAD PROFILE. ALTERNATE CIRCUITING IS ACCEPTABLE IF EACH INDOOR UNIT IS PROVIDED WITH HEAT RECOVERY FUNCTIONALITY.

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CEDAR RAPIDS
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OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
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1800 Deming Way
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P. 608.223.9600

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1800 Deming Way
Middleton, WI 53562
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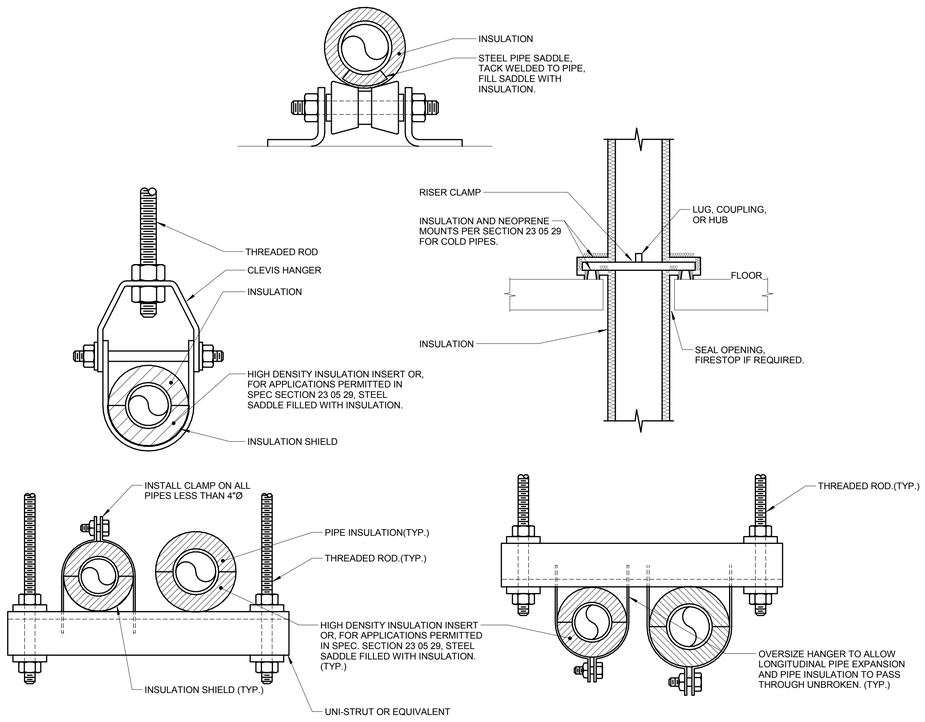
0 1 2 3

Drawing
VRF PIPING DIAGRAMS

OPN Project No. 15617000

M201

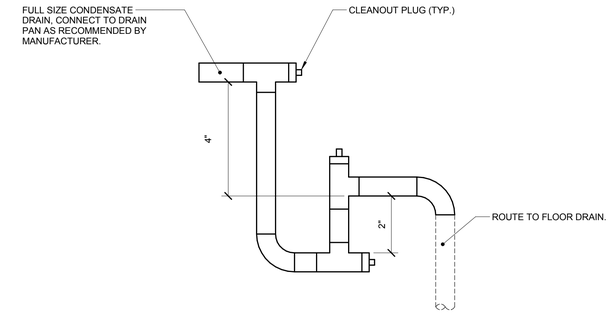


1 PIPE SUPPORT DETAIL

NO SCALE

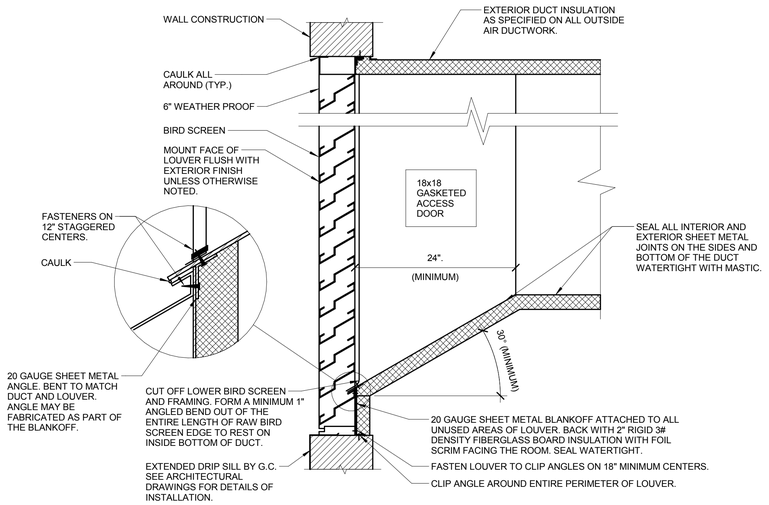
NOTES:

1. REFER TO SPECIFICATION SECTIONS 23 05 29 AND SECTION 23 07 19.



2 CONDENSATE TRAP DETAIL (DRAW-THROUGH)

NO SCALE

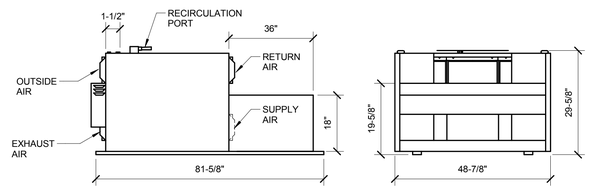


3 LOUVER INSTALLATION DETAIL

NO SCALE

NOTES:

1. SEAL ALL JOINTS ON INTERIOR AND EXTERIOR SURFACES OF THE DUCT SIDES AND BOTTOM WITHIN 6'-0" OF THE LOUVER WATER TIGHT.
2. MOUNT BOTTOM OF INTAKE LOUVERS AT LEAST 40" ABOVE GRADE OR ROOF ELEVATION TO MINIMIZE CHANCES OF SNOW DRIFTING INTO THE LOUVER.
3. CAULK SHEETMETAL SCREWS WHERE THE PENETRATE METAL.



4 DOAS UNIT

NO SCALE

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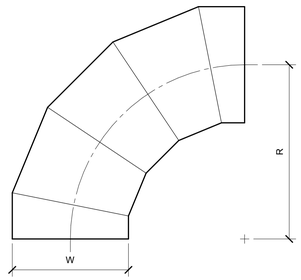
Drawing
DETAIL - MECHANICAL

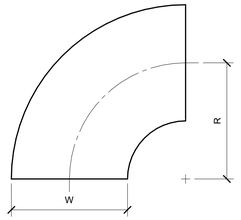
OPN Project No. 15617000

M300



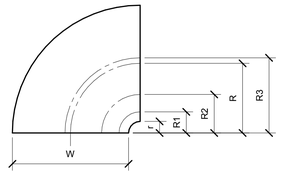
OVAL / ROUND
RADIUS ELBOW
SMOOTH OR 5 GORE (MINIMUM)

R/W = 1.5 (MINIMUM)



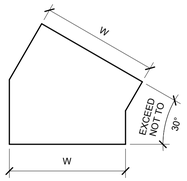
RECTANGULAR
RADIUS ELBOW
TYPE RE1

R/W = 1.0 (MINIMUM)
R/W < 1.0 SHALL BE TYPE RE3



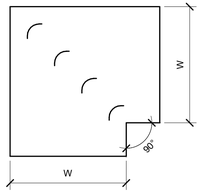
RECTANGULAR
RADIUS ELBOW WITH VANES
TYPE RE3

REFER TO SMACNA HVAC SYSTEMS DUCT DESIGN MANUAL, FOURTH EDITION, SECTION 5.14 "SPLITTER VANES" AND SMACNA HVAC DUCT CONSTRUCTION STANDARDS, THIRD EDITION, FIGURES 4-2 AND 4-9 AND CHARTS 4-1 AND 4-1M. ELBOW SHALL HAVE THREE SPLITTER VANES AND r/W = 0.10 (R/W = 0.60) UNLESS NOTED OTHERWISE.

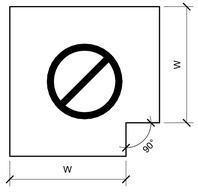


RECTANGULAR
MITERED ELBOW
TYPE RE6

USE ONLY AS PART OF OFFSETS AND TRANSITIONS PER FIGURE 4-7 TYPE 2 OR AS SHOWN ON DRAWINGS. OFFSETS ABOVE 30° SHALL BE TYPE RE1.

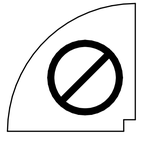


RECTANGULAR
MITERED ELBOW
WITH VANES
TYPE RE2



RECTANGULAR / OVAL / ROUND
MITERED ELBOW
WITHOUT VANES
TYPE RE4

NOT ALLOWED



RECTANGULAR
RADIUS ELBOW WITH
SQUARE THROAT

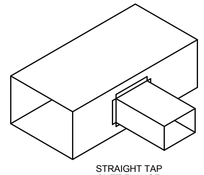
NOT ALLOWED

1 ELBOW CONSTRUCTION

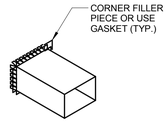
NO SCALE

NOTES:

1. BEAD, CROSSBREAK, AND REINFORCE FLAT SURFACES AS IN STRAIGHT DUCT.
2. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. DEFAULT ELBOW SHALL BE TYPE "RE1".
4. ELBOW TYPES SHALL BE INSTALLED AS SHOWN AND NOT BE SUBSTITUTED WITHOUT PERMISSION. EXCEPTION: RE1 OR RE3 MAY BE SUBSTITUTED FOR RE2.

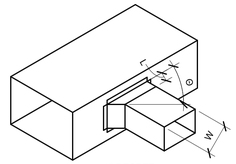


STRAIGHT TAP
BUTT FLANGE

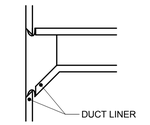


CLINCH LOCK

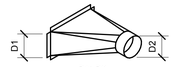
NOTE: STRAIGHT TAP WITH BUTT FLANGE FOR BRANCH AND TEE CONNECTION IN RECTANGULAR DUCTS UNDER 1" PRESSURE CLASS ONLY.



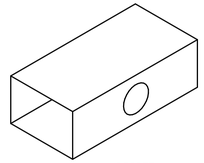
45 DEGREE
ENTRY Θ 45°
(L = 4" OR W/4; WHICHEVER IS LARGER)



LINED DUCT CONNECTION
(NO EXPOSED LINER EDGES)



D1>D2



45 DEGREE LEAD IN

FLANGED

45 DEGREE
ENTRY Θ 45°

CONICAL

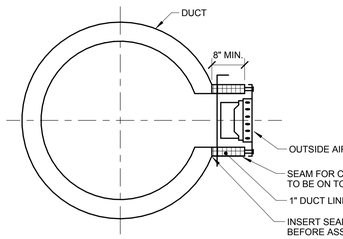
DOVETAIL JOINT

2 BRANCH CONNECTIONS

NO SCALE

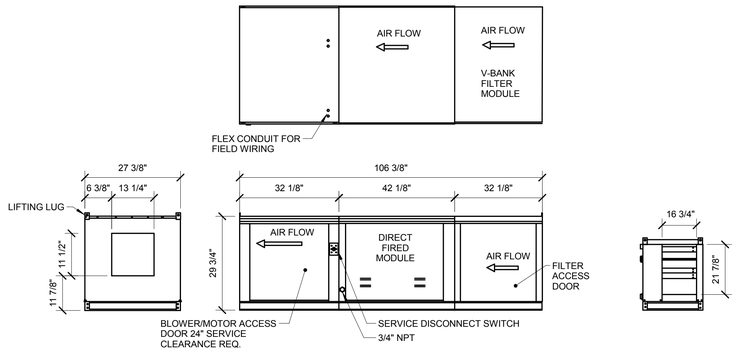
NOTES:

1. DO NOT USE CONNECTIONS WITH SCOOPS.
2. FIT ALL CONNECTIONS TO AVOID VISIBLE OPENINGS AND SECURE THEM SUITABLY FOR THE PRESSURE CLASS.
3. ADDITIONAL MECHANICAL FASTENERS ARE REQUIRED FOR 4"W.G. AND OVER.
4. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.



3 OUTSIDE AIR AND EXHAUST AIR REGISTER DETAIL

NO SCALE



4 MAU UNIT

NO SCALE

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MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library
Maintenance & Support
Center Remodel & Addition

1301 West Badger Road
Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

Sheet Issue Date

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Previous Issue Dates

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Schematic Design	02/22/2016

Revision Dates

KJWW ENGINEERING CONSULTANTS
The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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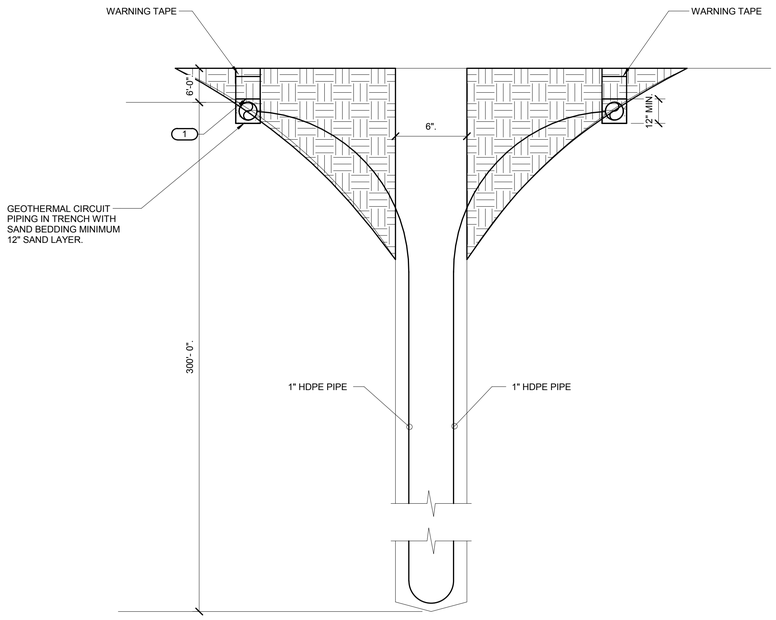
REFERENCE SCALE IN INCHES
0 1 2 3

Drawing
DETAIL - MECHANICAL

OPN Project No: 15617000

M301



1 GEOTHERMAL EXCHANGER DETAIL

NO SCALE

NOTES:

1. DESIGN WELL DEPTH IS 300 FEET.

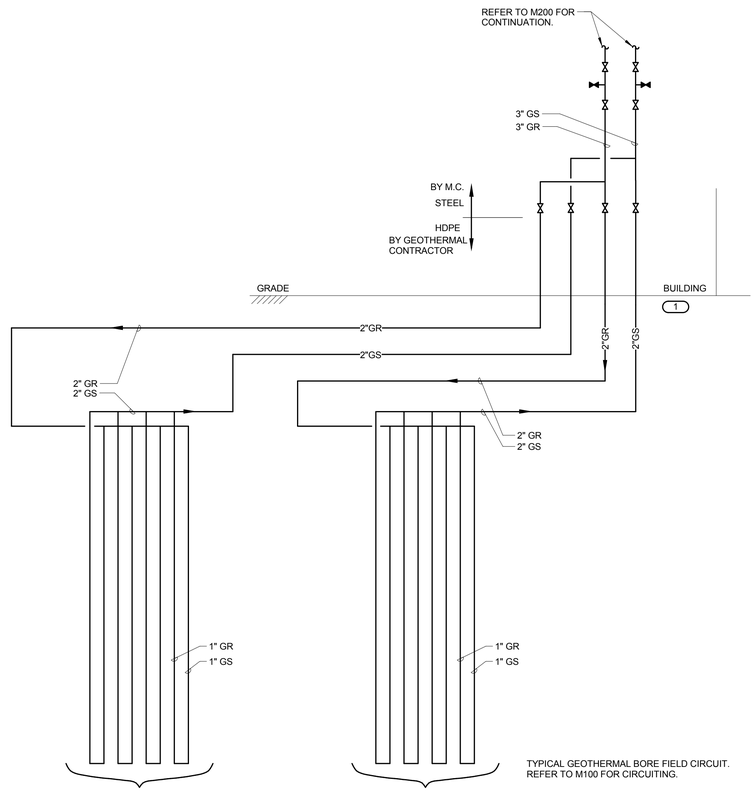
KEYNOTES: (#)

1. LOCATING WIRE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS ON THE ENTIRE PERIMETER OF CIRCUIT PIPING AT EDGES OF WELL FIELD AND HEADER PIPING FROM FIELD TO BUILDING. LOCATING WIRE TO BE TERMINATED ABOVE GRADE AT BUILDING PIPE ENTRY.

BOREFIELD SIZING ASSUMPTIONS
COOLING PEAK LOAD - 113 MBH
HEATING PEAK LOAD - 99 MBH
FULL LOAD COOLING HOURS - 600 HRS
FULL LOAD HEATING HOURS - 850 HRS
GROUND TEMPERATURE - 50°F
THERMAL CONDUCTIVITY - 1.8BTU/HR-FT-°F
THERMAL DIFFUSIVITY - 1.2 FT2/DAY

3 BOREFIELD SIZING ASSUMPTIONS

NO SCALE



2 TYPICAL GEOTHERMAL BORE FIELD CIRCUIT

NO SCALE

NOTES:

1. REFER TO SPECIFICATION SECTIONS 23 21 13 AND 23 21 33 FOR PIPING.
2. GWS/GWR PIPING SHALL BE A MINIMUM OF 6'-0" BELOW GRADE FOR FROST PREVENTION.

KEYNOTE: (#)

1. PROVIDE LINKSEAL AT FOUNDATION WALL PENETRATION FOR EACH PIPE PENETRATION.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
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OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
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Snyder & Associates, Inc.
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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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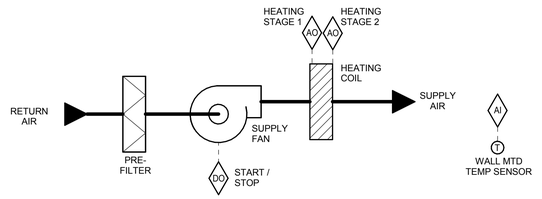
Drawing
GEOTHERMAL DETAILS - MECHANICAL

OPN Project No. 15617000

M302



SEQUENCE OF OPERATION:

THE CABINET HEATER SHALL BE FURNISHED WITH A UNIT MOUNTED FAN SPEED SELECTOR SWITCH (OFF-HIGH-MED-LOW). THE UNIT SHALL MAINTAIN A SPACE TEMPERATURE OF 60°F (ADJ.).

IF THE TEMPERATURE DROPS BELOW THE SPACE TEMPERATURE SETPOINT, THE FAN AND HEATING STAGE 1 SHALL BE ENABLED IN UNISON TO MAINTAIN SPACE TEMPERATURE SETPOINT. UPON A FURTHER DROP IN TEMPERATURE, HEATING STAGE 2 SHALL BE ENABLED.

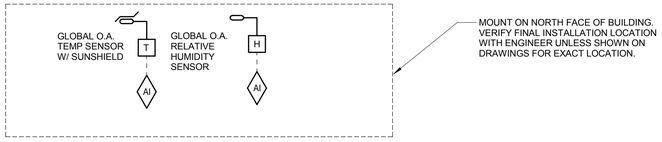
ONCE THE SPACE TAMPERATURE SETPOINT IS MET, HEATING STAGE 1 & 2 SHALL BE DISABLED. THE FAN SHALL OPERATE FOR 5 MINUTES (ADJ.) AFTER THE HEATING STAGES HAVE BEEN DISABLED.

ALARMS, INTERLOCKS & SAFETIES:

- SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF SPACE TEMPERATURE FALLS 10°F (ADJ.) BELOW SETPOINT.

1 CABINET HEATER CONTROL - ELECTRIC

NO SCALE

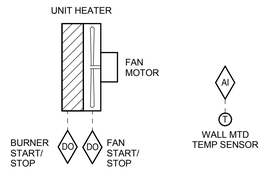


SEQUENCE OF OPERATION:
PROVIDE GLOBAL O.A. DRY-BULB TEMPERATURE, AND RELATIVE HUMIDITY TRANSMITTERS.

GLOBAL SENSORS SHALL CONTINUOUSLY UPDATE FMCS FOR USE IN CONTROLLING MECHANICAL EQUIPMENT AS REQUIRED IN SEQUENCES OF OPERATION.

2 GLOBAL REFERENCE POINTS

NO SCALE



SEQUENCE OF OPERATION:

WHEN THE OUTDOOR AIR TEMPERATURE IS ABOVE 40°F (ADJ.), TEMPERATURE SENSOR SHALL CYCLE THE BURNER AND THE UNIT FAN TOGETHER TO MAINTAIN A SPACE TEMPERATURE OF 70°F (ADJ.).

WHEN THE OUTDOOR AIR TEMPERATURE IS BELOW 40°F (ADJ.), UNIT FAN SHALL RUN CONTINUOUSLY. TEMPERATURE SENSOR SHALL CYCLE BURNER TO MAINTAIN A SPACE TEMPERATURE OF 70°F (ADJ.).

ALARMS, INTERLOCKS & SAFETIES:

SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF SPACE TEMPERATURE FALLS 10°F (ADJ.) BELOW SETPOINT.

3 UNIT HEATER CONTROL - GAS

NO SCALE

GENERAL CONTROL NOTES:

1. REFER TO EQUIPMENT SCHEDULES TO CROSS REFERENCE WHICH CONTROL DIAGRAMS APPLY TO WHICH ITEMS OF EQUIPMENT.
2. EACH D.I., D.O., A.I. AND A.O. POINT SHOWN FOR ALL CONTROL DIAGRAMS SHALL BE DISCRETE FROM ALL OTHER POINTS EXCEPT AS SPECIFICALLY NOTED.
3. ALL WIRING, CONTROL COMPONENTS, DEVICES AND PROGRAMMING SHOWN ON THESE CONTROL DRAWINGS SHALL BE PROVIDED BY THE TCC UNLESS SPECIFICALLY NOTED OTHERWISE.
4. ALL ACTUATORS SHALL BE OF THE ELECTRICAL TYPE FOR THIS PROJECT UNLESS AN ACTUATOR IS SPECIFICALLY INDICATED ON THE DRAWINGS OR SPECIFICATIONS TO BE PNEUMATIC.
5. ALL MODULATING DAMPER AND VALVE ACTUATORS SHOWN WITH POSITION FEEDBACK SHALL HAVE THE VALVE POSITION DISPLAYED ON GRAPHICAL SCREEN ADJACENT TO THE DAMPER/VALVE COMMAND SIGNAL. DISPLAYED VALVE POSITION SHALL BE FROM THE FEEDBACK DEVICE/CIRCUIT (OUTPUT SIGNAL FROM THE FMCS TO THE ACTUATOR IS NOT ACCEPTABLE)
6. MODULATING SIGNALS SHALL BE DISPAYED AS % OPEN (SIGNALS DISPLAYED AS % CLOSED ARE NOT ACCEPTABLE).
7. PRESSURE TRANSMITTERS WHOSE SIGNAL IS UTILIZED FOR MAINTAINING DUCT STATIC PRESSURE SHALL BE WIRED DIRECTLY TO THE CONTROLLER WHICH MODULATES FAN SPEED. SIGNAL SHALL BE COMPLETELY INDEPENDENT OF THE FMCS NETWORK.
8. PRESSURE TRANSMITTERS WHOSE SIGNAL IS UTILIZED FOR MAINTAINING DIFFERENTIAL PRESSSURE OF ANY PUMPED WATER SYSTEM (E.G. HEATING HOT WATER, CHILLED WATER AND THE LIKE) SHALL BE WIRED DIRECTLY TO THE CONTROLLER WHICH MODULATES PUMP SPEED. SIGNAL SHALL BE COMPLETELY INDEPENDENT OF THE FMCS NETWORK.
9. ALL CONTROL COMPONENTS SUCH AS RELAYS, SWITCHES, DDC CONTROLLERS, ETC. SHALL BE MOUNTED IN STEEL ENCLOSURES WITH STEEL MOUNTING BACKPLATES PER SPECIFICATION 23 09 00.
10. EACH CONTROL PANEL SHALL HAVE A LAMINATED COPY OF THE APPLICABLE SEQUENCE OF OPERATION AND CONTROL DIAGRAM INDICATING THE POINTS, COMPONENTS AND OPERATION OF EQUIPMENT ASSOCIATED WITH EACH PANEL. REFER TO SECTION 23 09 00 FOR ADDITIONAL REQUIREMENTS.
11. TCC SHALL EXTEND CONTROL SIGNAL FROM ADDRESSABLE RELAY DEVICE SERVING EACH AIR HANDLING UNIT. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS. TCC SHALL EXTEND AND TERMINATE WIRING AS REQUIRED FOR EQUIPMENT SHUTDOWN.
12. ELEMENT LENGTHS FOR BOTH MIXED AIR TEMP SENSORS AND LOW LIMIT TEMP SWITCHES SHALL BE MINIMUM 1 LINEAR FOOT PER SQUARE FOOT OF COIL SURFACE AREA. PROVIDE MULTIPLE SENSORS AND SWITCHES AS NEEDED TO ACHIEVE REQUIRED ELEMENT LENGTHS. LOCATE RESET SWITCHES MAX. 6'-6" ABOVE ADJACENT STANDING SURFACE (I.E. ROOF, PLATFORM OR FLOOR) SO THE RESET SWITCH CAN BE CYCLED WITHOUT THE NEED FOR A LADDER.
13. TO PREVENT GENERATOR OVERLOADING, TCC SHALL PROGRAM A STAGGERED START TIME FOR ALL MECHANICAL EQUIPMENT THAT IS CONTROLLED BY FMCS TO INCLUDE, BUT NOT LIMITED TO, AIR HANDLERS, PUMPS, EXHAUST FANS, AND CHILLERS. THE FIRST EQUIPMENT SHALL START 2 MINUTES (ADJ.) FROM THE TIME THE FMCS RECEIVES THE SIGNAL THAT THE TRANSFER SWITCH CHANGED TO EMERGENCY POWER SOURCE WITH ALL EQUIPMENT BEING ENERGIZED WITHIN A 20 MINUTE (ADJ.) TIME SPAN. COORDINATE ORDER OF EQUIPMENT STAGING WITH OWNER'S REPRESENTATIVE.
14. CONTROL DIAGRAMS ARE SCHEMATIC IN NATURE AND DO NOT SHOW ALL REQUIRED CONTROL DEVICES AND COMPONENTS. REFER TO FLOOR PLANS, FLOW DIAGRAMS AND DETAILS FOR ADDITIONAL CONTROL DEVICES, COMPONENTS AND REQUIREMENTS NOT SHOWN ON THESE CONTROL DRAWINGS.
15. TCC SHALL PROVIDE ALL CONTROL COMPONENTS AND ACCESSORIES AS REQUIRED FOR EQUIPMENT TO BE CONTROLLED AS DESCRIBED IN THE SEQUENCE OF OPERATION REGARDLESS OF WHETHER ALL CONTROL COMPONENTS OR POINTS ARE SHOWN IN THE ASSOCIATED CONTROL DIAGRAM.

CONTROL SYMBOLS LIST

SYMBOL:	DESCRIPTION:	SYMBOL:	DESCRIPTION:
	FAN	AI	ANALOG INPUT
MTR	MOTOR	DI	DIGITAL INPUT
R	CONTACTOR	AO	ANALOG OUTPUT
	PUMP	DO	DIGITAL OUTPUT
SP	STATIC SWITCH	T	LOW LIMIT TEMPERATURE SWITCH
	HEATING/ COOLING COIL		FILTER
T	AVERAGING TEMPERATURE SENSOR	T	PROBE TEMPERATURE SENSOR
	AIR BLENDER		OPPOSED BLADE DAMPER
			PARALLEL BLADE DAMPER
H	HUMIDITY SENSOR	H	HUMIDIFIER
	TERMINAL AIR BOX W/REHEAT		
	TERMINAL AIR BOX W/REHEAT		
FM	DUCT FLOW METER	DSD	DUCT SMOKE DETECTOR
	NORMALL CLOSED CONTACT		
	NORMALLY OPEN CONTACT		
FS	AIR FLOW SWITCH		MANUAL MOTOR STARTER W/THERMAL OVERLOAD

C	CARBON MONOXIDE SENSOR	CWR	CHILLED WATER RETURN
C_2	CARBON DIOXIDE SENSOR	CWS	CHILLED WATER SUPPLY
H	HUMIDISTAT SENSOR	HWR	HEATING WATER RETURN
O	OCCUPANCY SENSOR	HWS	HEATING WATER SUPPLY
P	PRESSURE SENSOR / MONITOR		CONTROL VALVE (THREE-WAY)
S	SENSOR		CONTROL VALVE (TWO-WAY)
T	THERMOSTAT		CHECK VALVE
H	HUMIDISTAT/SENSOR (DUCT MOUNTED)	T	TEMPERATURE SENSOR WITH WELL
P	PRESSURE SENSOR (DUCT MOUNTED)	F	FLOW SWITCH
T	TEMPERATURE SENSOR (DUCT MOUNTED)	EA	EXHAUST/RELIEF AIR
ACT	ACTUATOR	MA	MIXED AIR
DS	DOOR SWITCH	N.C.	NORMALLY CLOSED
DP	DIFFERENTIAL PRESSURE SWITCH	N.O.	NORMALLY OPEN
CS	CURRENT SWITCH	OA	OUTSIDE AIR
VS	VIBRATION SWITCH	RA	RETURN AIR
FM	FLOW METER	SA	SUPPLY AIR
	DP MONITOR (WALL MOUNTED)	TCC	TEMPERATURE CONTROL CONTRACTOR

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
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opn@opnarchitects.com

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Drawing
CONTROL DIAGRAMS - MECHANCIAL

OPN Project No. **15617000**

M400

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The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
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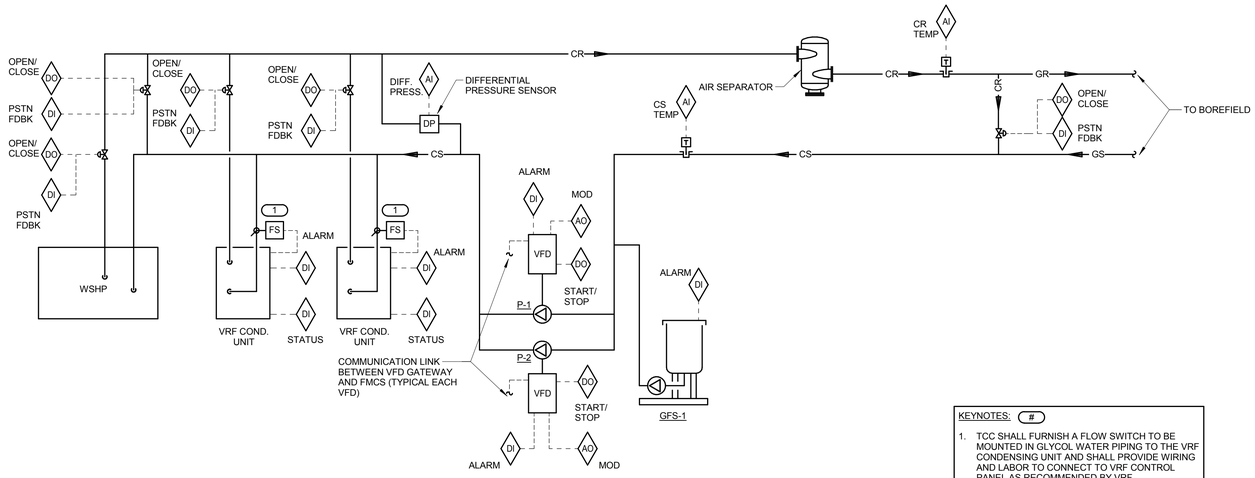


KEYNOTES: (#)

1. TCC SHALL FURNISH A FLOW SWITCH TO BE MOUNTED IN GLYCOL WATER PIPING TO THE VRF CONDENSING UNIT AND SHALL PROVIDE WIRING AND LABOR TO CONNECT TO VRF CONTROL PANEL AS RECOMMENDED BY VRF MANUFACTURER.

SEQUENCE OF OPERATION:
WATER SOURCE VARIABLE REFRIGERANT FLOW (VRF) CONDENSING UNITS REMOVE HEAT FROM A CIRCULATING WATER LOOP WHEN THEY ARE IN HEATING MODE (ADDING HEAT TO THE BUILDING) AND REJECT HEAT TO THE CIRCULATING WATER LOOP WHEN THEY ARE IN COOLING MODE (TAKING HEAT OUT OF THE BUILDING). THE FMCS SHALL SWITCH THE CIRCULATING WATER LOOP OPERATING MODE BASED ON THE FOLLOWING:

- ENTER HEATING MODE: WHEN CR TEMP DROPS BELOW 67°F (ADJ.) 3-WAY VALVE IS OPEN TO GEOTHERMAL LOOP.
- EXIT HEATING MODE: WHEN CR TEMP RISES ABOVE 70°F (ADJ.) 3-WAY VALVE IS CLOSED TO GEOTHERMAL LOOP.
- FLOATING MODE: WHEN CR TEMP IS BETWEEN 70°F (ADJ.) AND 85°F (ADJ.) 3-WAY VALVE IS CLOSED TO GEOTHERMAL LOOP.
- ENTER COOLING MODE: WHEN CR TEMP RISES ABOVE 85°F (ADJ.) 3-WAY VALVE IS OPEN TO GEOTHERMAL LOOP.
- EXIT COOLING MODE: WHEN CR TEMP DROPS BELOW 80°F (ADJ.) 3-WAY VALVE IS CLOSED TO GEOTHERMAL LOOP.

FMCS CONDENSER WATER SCREEN SHALL INDICATE AT ALL TIMES WHICH OPERATING MODE IS ACTIVE FOR THE CONDENSER WATER LOOP.

CONDENSER WATER CIRCULATING PUMPS:
CONDENSER WATER CIRCULATING PUMPS (P-1, P-2) SHALL BE STARTED AND STOPPED THROUGH A HAND-OFF-AUTO SWITCH ON THE FACE OF THEIR RESPECTIVE VFD. WHEN PLACED IN THE HAND POSITION THE PUMP SHALL RUN CONTINUOUSLY. WHEN PLACED IN THE AUTO POSITION THE FMCS SHALL CONTROL PUMP OPERATION. WHEN PLACED IN THE OFF POSITION THE PUMP MOTOR SHALL BE DE-ENERGIZED.

ONLY ONE GLYCOL WATER CIRCULATING PUMP SHALL OPERATE AT A TIME, THE OTHER CIRCULATING PUMP IS FULLY REDUNDANT. FMCS SHALL AUTOMATICALLY SWITCH THE LEAD PUMP ON A WEEKLY (ADJ.) BASIS. PROVIDE GRAPHICAL BUTTON ON THE FMCS OPERATOR WORKSTATION GRAPHICAL SCREEN TO ALLOW FMCS OPERATOR TO MANUALLY DESIGNATE THE LEAD PUMP (AND PREVENT AUTOMATIC SWITCHING) IN THE EVENT ONE OF THE PUMPS IS TAKEN OUT OF SERVICE FOR MAINTENANCE.

FMCS SHALL MODULATE THE LEAD PUMP SPEED AS REQUIRED TO MAINTAIN DIFFERENTIAL PRESSURE SETPOINT 15 PSI, (ADJ.).

WHEN THE LEAD PUMP IS AT MINIMUM SPEED FOR 15 MINUTES (ADJ.) AND THE WSHP AND VRF COND UNITS ARE DISABLED, THE PUMP SHALL BE DE-ENERGIZED.

WHEN THE LEAD PUMP IS OFF AND THE WSHP OR ONE OF THE VRF COND. UNITS IS ENABLED, THE WSHP AND VRF COND UNITS SHALL REMAIN DE-ENERGIZED FOR 5 MINUTES (ADJ.). AFTER THE LEAD PUMP IS ENABLED, FLOW IS PROVED AND THE ASSOCIATED CONTROL VALVE IS OPENED.

EQUIPMENT CONTROL VALVES:

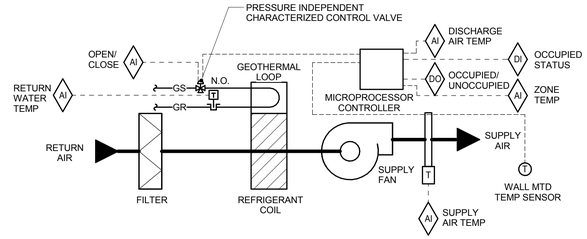
- WSHP UNIT CONTROL VALVE - OPEN VALVE TO DOAS UNIT WHEN DOAS UNIT IS ENABLED
- VRF COND UNIT CONTROL VALVE - OPEN VALVE TO VRF COND UNIT WHEN VRF COND UNIT IS ENABLED.
- BYPASS VALVE - WHEN THE WSHP AND VRF COND UNITS ARE DISABLED, THE BYPASS VALVE SHALL BE OPEN.

ALARMS, INTERLOCKS & SAFETIES:

AN ALARM SHALL BE INDICATED AT THE FMCS AS FOLLOWS:
- WHEN CS TEMP RISES ABOVE 88°F (ADJ.) FOR MORE THAN 10 MINUTES (ADJ.).
- WHEN CS TEMP DROPS BELOW 63°F (ADJ.) FOR MORE THAN 10 MINUTES (ADJ.).
- WHEN DIFFERENTIAL PRESSURE ACROSS THE AIR SEPARATOR EXCEEDS 2 PSI (ADJ.).
- IF AN ALARM IS GENERATED AT ANY VFD.
- IF AN ALARM IS GENERATED BY THE GLYCOL FEED STATION CONTROLS.
- IF AN ALARM IS GENERATED AT ANY CONDENSING UNIT.
- IF A LEAD PUMP IS COMMANDED TO RUN AND CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT. IN ADDITION THE FMCS SHALL AUTOMATICALLY START THE LAG PUMP.
- IF THE TWO-POSITION 3-WAY VALVE IS COMMANDED TO ANY POSITION AND THE VALVE FEEDBACK DOES NOT VERIFY PROPER VALVE POSITION WITHIN 90 SECONDS (ADJ.).

1 VRF GLYCOL WATER LOOP CONTROLS

NO SCALE



SEQUENCE OF OPERATION:
THE FMCS SYSTEM SHALL COMMUNICATE ENABLE/DISABLE MODE TO THE HEAT PUMP.

HEAT PUMP IS CONTROLLED BY A MICROPROCESSOR CONTROLLER PROVIDED WITH THE HEAT PUMP. THE TCC SHALL COMMUNICATE ALL AVAILABLE POINTS BACK TO THE OPERATOR WORKSTATION. PROVIDE GRAPHICS FOR HEAT PUMPS BASED ON COMMUNICATED POINTS.

PROVIDE A PRESSURE INDEPENDENT CHARACTERIZED THREE WAY CONTROL VALVE IN THE SUPPLY PIPING SERVING EACH HEAT PUMP. PROVIDE WIRING BETWEEN VALVE ACTUATOR AND HEAT PUMP CONTROLLER.

PROVIDE A TEMPERATURE SENSOR WITH EACH HEAT PUMP. TEMPERATURE SENSOR SHALL BE AN INPUT TO THE HEAT PUMP MICROPROCESSOR CONTROLLER. CONTROLLER SHALL CYCLE FAN SPEED AND HEATING/COOLING STAGES AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT.

FAN SHALL RUN CONTINUOUSLY DURING ENABLED MODE. HEATING AND COOLING SHALL CYCLE AS NEEDED TO MAINTAIN SPACE TEMPERATURE SETPOINT.

DURING DISABLED MODE, FAN AND HEATING/COOLING STAGES SHALL CYCLE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT.

THE FMCS SYSTEM SHALL COMMUNICATE THE FOLLOWING TEMPERATURE SETPOINTS TO THE HEAT PUMP CONTROLLER:
A. COOLING SETPOINT: 78°F(ADJ.)
B. HEATING SETPOINT: 60°F(ADJ.)

2 WATER SOURCE HEAT PUMP CONTROLS

NO SCALE

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
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P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
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P. 608.223.9600

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MIDDLETON, WISCONSIN 53562
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www.kjww.com
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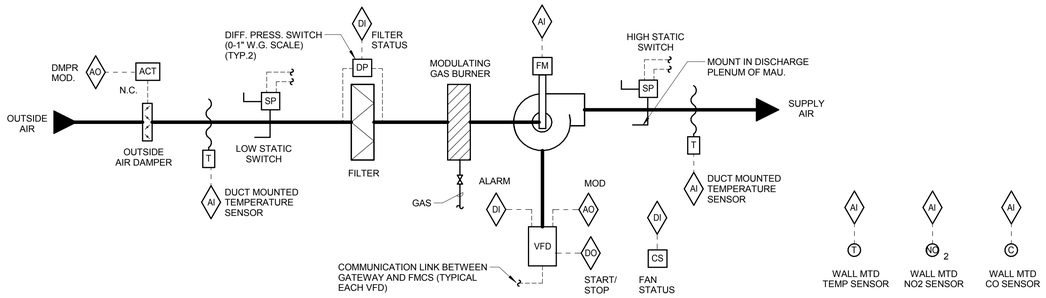
Drawing
CONTROL DIAGRAMS - MECHANICAL

OPN Project No. 15617000

M401



SEQUENCE OF OPERATION:

WHEN MAU IS INDEXED TO RUN, THE FOLLOWING SHALL OCCUR:
- WHEN THE SUPPLY FAN HAS STARTED THE INTERLOCKED EXHAUST FANS SHALL START AS SHOWN IN THE FAN INTERLOCK SCHEDULE.

MINIMUM SUPPLY AND EXHAUST FAN CONTROL:
- SUPPLY AND EXHAUST FANS SHALL OPERATE AT A MINIMUM OF 150 CFM WHEN IN OPERATION.
- THE SUPPLY AND EXHAUST FANS SHALL OPERATE AT THE DESIGN CFM FOR A MINIMUM OF 5 HOURS PER 24 HOUR PERIOD. THIS SHALL BE SET UP SO THE SYSTEM RUNS AT THE DESIGN CFM FOR A MINIMUM OF 12.5 MINUTES EVERY HOUR.
- WHEN THE OCCUPANCY SENSOR DETECTS OCCUPANCY IN THE SPACE, THE SUPPLY AND EXHAUST FANS SHALL OPERATE AT THE DESIGN CFM UNTIL THE OCCUPANCY SENSOR DETERMINES THE SPACE IS NO LONGER OCCUPIED.
- WHEN THE CARBON MONOXIDE SENSOR READING EXCEEDS 35 PPM, THE SUPPLY AND EXHAUST FANS SHALL MODULATE TO OPERATE AT THE DESIGN CFM FOR AT LEAST 30 MINUTES (ADJ.) AFTER THE CARBON MONOXIDE SENSOR READING HAS DROPPED BELOW 35 PPM.
- WHEN THE NITROGEN DIOXIDE SENSOR READING EXCEEDS 1 PPM, THE SUPPLY AND EXHAUST FANS SHALL MODULATE TO OPERATE AT THE DESIGN CFM FOR AT LEAST 30 MINUTES (ADJ.) AFTER THE NITROGEN DIOXIDE SENSOR READING HAS DROPPED BELOW 1 PPM.
- THE FAN RUN TIME REQUIRED BY OCCUPANCY, CARBON MONOXIDE OR NITROGEN DIOXIDE READINGS SHALL COUNT TOWARDS THE MINIMUM RUN TIME OF 5 HOURS PER 24 HOUR PERIOD. SYSTEM PROGRAMMING SHALL AUTOMATICALLY ADJUST THE SET MINIMUM RUN TIMES WHEN THE OCCUPANCY, CARBON MONOXIDE OR NITROGEN DIOXIDE READINGS REQUIRE FAN RUN TIME.

SUPPLY FAN AND CONTROL VALVE OPERATION:
THE FMCS WILL MODULATE THE SUPPLY FAN, AND HEATING CONTROL VALVE TO ACHIEVE THE ROOM TEMPERATURE OF 72°F (ADJ.) WITH 2°F (ADJ.) DEAD BAND BASED ON A SIGNAL FROM A WALL MOUNTED TEMPERATURE SENSOR. SEE DRAWINGS FOR TEMPERATURE SENSOR REQUIREMENTS. SPACES WITH ADJUSTABLE THERMOSTATS WILL ALLOW A +/- 3°F (ADJ.) OFFSET FROM THE SETPOINT.
- AT A FULL COOLING, THE SUPPLY FAN IS AT MAXIMUM COOLING CFM SPEED.
- AS THE ROOM AIR TEMPERATURE FALLS, THE SUPPLY FAN SHALL RAMP DOWN TO MAINTAIN ROOM TEMPERATURE SET POINT.
- ON A FURTHER FALL IN ROOM TEMPERATURE, THE SUPPLY FAN WILL REMAIN AT MINIMUM SPEED.
- ON A FURTHER REDUCTION IN ROOM TEMPERATURE, THE GAS BURNER SHALL BE ENABLED TO MAINTAIN ROOM AIR TEMPERATURE SET POINT. THE DISCHARGE AIR TEMPERATURE SHALL NOT RISE ABOVE 95°F. THE SUPPLY FAN SHALL REMAIN AT MINIMUM HEATING CFM.
- ONCE THE GAS BURNER IS MAINTAINING 95°F DISCHARGE AIR, THE SUPPLY FAN SPEED SHALL RAMP UP TO MAXIMUM HEATING SPEED TO MAINTAIN ROOM AIR TEMPERATURE SET POINT.

DISCHARGE AIR TEMPERATURE:
THE DISCHARGE SHALL BE BETWEEN 50°F (ADJ.) AND 95°F (ADJ.) TO MAINTAIN ROOM TEMPERATURE SETPOINT.

HEATING COIL OPERATION:
GAS BURNER CONTROLS SHALL BE ENABLED WHEN OUTSIDE AIR TEMPERATURE DROPS BELOW 50°F (ADJ.).

EXHAUST FAN CONTROL:
2-POSITION EXHAUST AIR DAMPER SHALL FULLY OPEN WHEN FAN IS ENERGIZED. WHEN FAN IS DE-ENERGIZED, 2-POSITION EXHAUST AIR DAMPER SHALL FULLY CLOSE.
EXHAUST FAN SHALL BE ENERGIZED WHEN MAU IS ENERGIZED. EXHAUST FAN VFD SHALL TRACK MAU VFD.

ALARMS, INTERLOCKS, AND SAFETIES:
WHEN FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION, MAU SHALL BE SHUTDOWN.

THE FOLLOWING CONDITIONS SHALL SHUTDOWN THE AHU AND SHALL INDICATE AN ALARM CONDITION AT THE FMCS WORKSTATION:
- LOW STATIC PRESSURE SWITCH INDICATES RETURN DUCT PRESSURE LESS THAN THE SPECIFIED DUCT PRESSURE CLASS.
- HIGH STATIC PRESSURE SWITCH INDICATES SUPPLY DUCT STATIC PRESSURE GREATER THAN THE SPECIFIED DUCT PRESSURE CLASS.

THE FOLLOWING CONDITIONS SHALL INDICATE AN ALARM AT THE FMCS, HOWEVER MAU SHALL CONTINUE TO OPERATE:
- AN ALARM IS INDICATED AT THE SUPPLY FAN VFD.
- DIFFERENTIAL PRESSURE SWITCH ACROSS FILTER BANK EXCEEDS 0.8 INCHES W.G. (ADJ.)
- SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT FOR MORE THAN 10 MINUTES (ADJ.).
- SEND AN ALARM TO THE FMCS OPERATOR IN THE EVENT THAT THE FAN IS COMMANDED TO RUN AND THE FAN STATUS INDICATES THE FAN IS NOT RUNNING.

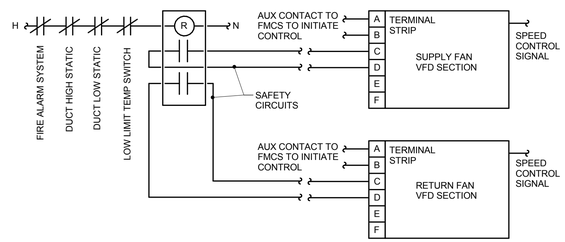
WHENEVER MAU IS SHUTDOWN THE FOLLOWING SHALL OCCUR:
- THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE.
- THE GAS BURNER SHALL BE DISABLED.
- SUPPLY FAN VFD SHALL BE DE-ENERGIZED.
- INTERLOCKED EXHAUST FAN SHALL BE DE-ENERGIZED.

GRAPHICAL DISPLAY:
DISPLAY THE GLOBAL OUTSIDE AIR TEMPERATURE ON AHU GRAPHIC PAGE.

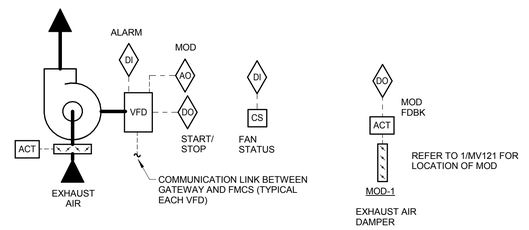
1 MAU WITH EF CONTROL
NO SCALE

FAN INTERLOCK SCHEDULE		
SYSTEM	**INTERLOCKED EXHAUST FANS**	**REMARKS**
MAU-1	**EF-1**	**NOTE 1**

NOTES:
1. INTERLOCK EXHAUST FAN OPERATION THROUGH THE FMCS WITH RESPECTIVE MAU IN ACCORDANCE WITH MAU SEQUENCE OF OPERATION.



SUPPLY FAN VFD CONTROL



SEQUENCE OF OPERATION::
2-POSITION EXHAUST AIR DAMPER SHALL FULLY OPEN WHEN FAN IS ENERGIZED. WHEN FAN IS DE-ENERGIZED, 2-POSITION EXHAUST AIR DAMPER SHALL FULLY CLOSE.

EXHAUST FAN SHALL BE ENERGIZED WHEN MAU IS ENERGIZED.
EXHAUST FAN VFD SHALL TRACK MAU VFD.

2 EXHAUST FAN CONTROL
NO SCALE

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
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MADISON, WI 53703
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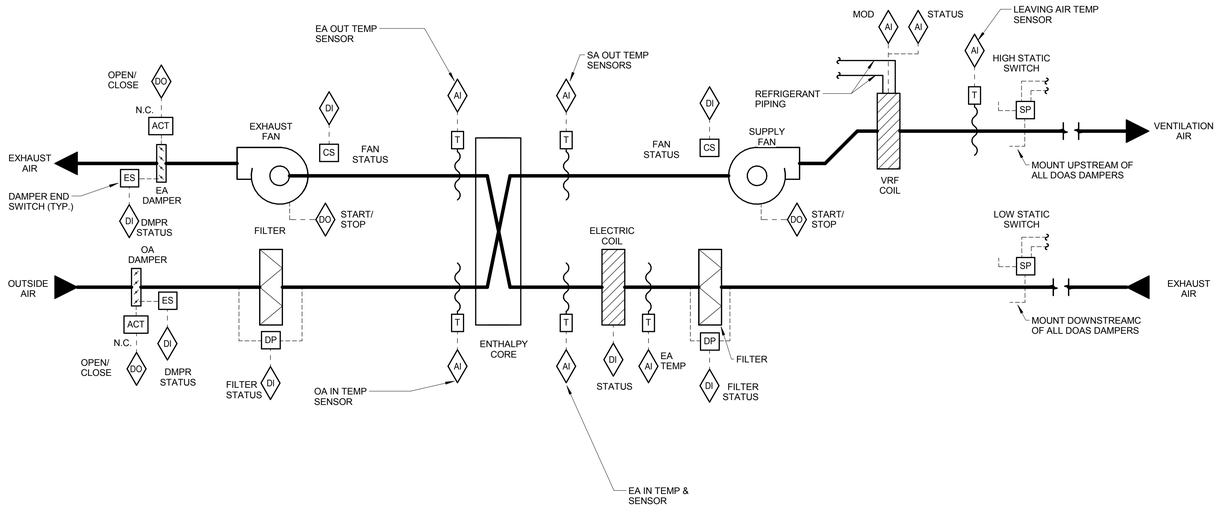

DOAS MANUFACTURER PROVIDED CONTROLS/SEQUENCE OF OPERATION:

WHEN DOAS IS INDEXED TO RUN (BY REMOTE BAS), THE FOLLOWING SHALL OCCUR:
- TWO-POSITION OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL FULLY OPEN.
- AFTER DAMPERS HAVE OPENED, SUPPLY AND EXHAUST FANS SHALL BE ENERGIZED.

DISCHARGE AIR TEMPERATURE SETPOINT

DISCHARGE AIR TEMPERATURE SETPOINT SHALL BE BASED ON THE FOLLOWING SCHEDULE:
- WHEN THE OUTSIDE AIR TEMPERATURE IS LESS THAN 50°F (ADJ.), THEN THE DISCHARGE AIR TEMPERATURE SHALL BE SET TO 70°F (ADJ.).
- WHEN THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 75°F (ADJ.) THEN THE DISCHARGE TEMPERATURE SHALL BE SET AT 55°F (ADJ.).
- WHEN THE OUTSIDE AIR TEMPERATURE IS BETWEEN 50°F (ADJ.) AND 75°F (ADJ.) THE DISCHARGE AIR TEMPERATURE SHALL BE REST LINEARLY BETWEEN 70°F (ADJ.) AND 55°F (ADJ.).

DOAS CONTROLS SHALL OPERATE IN COOLING MODE WHEN OA DRY-BULB TEMP RISES ABOVE 58°F (ADJ.). DOAS CONTROLS SHALL OPERATE IN HEATING MODE WHEN OA DRY-BULB TEMP DROPS BELOW 58°F (ADJ.).

FAN SPEED
- THE FAN SPEED SHALL VARY BETWEEN LOW, MEDIUM AND HIGH MODES. WHEN THE BUILDING IS FULLY OCCUPIED, THE FAN SPEED SHALL BE SET TO HIGH. WHEN THE FRIENDS STORAGE OR CONFERENCE ROOM ARE UNOCCUPIED VIA SIGNAL FROM THE OCCUPANCY SENSOR IN THAT SPACE, THE ASSOCIATED VOLUME DAMPER IN THE OA DUCT SERVING THAT VRF UNIT SHALL CLOSE AND THE DOAS FAN SPEED SHALL CHANGE TO MEDIUM. WHEN BOTH THE FRIENDS STORAGE AND CONFERNECE ROOMS ARE UNOCCUPIED VIA SIGNAL FROM THE OCCUPANCY SENSOR IN THAT SPACE, THE ASSOCIATED VOLUME DAMPERS IN THE OA DUCT SERVING THOSE VRF UNITS SHALL CLOSE AND THE DOAS FAN SPEED SHALL CHANGE TO LOW.

ELECTRIC COIL
- THE ELECTRIC COIL SHALL BE ENERGIZED WHENEVER THE OUTSIDE AIR TEMPERATURE IS BELOW 10 DEGREES F.

POINTS

IN ADDITION TO THE POINTS SHOWN IN THE ABOVE DIAGRAM, THE FOLLOWING POINTS SHALL ALSO BE COMMUNICATED VIA THE BACNET INTERFACE AS A MINIMUM (BUT NOT LIMITED TO):
- SUPPLY FAN STATUS, [ON/OFF]
- EXHAUST FAN STATUS, [ON/OFF]
- COOLING SETPOINT [°F], TEMP AT WHICH UNIT SWITCHES BETWEEN COOLING/HEATING MODES OF OPERATION.
- COOLING SPAN [°F], DIFFERENTIAL TEMP ABOVE AND BELOW COOLING SETPOINT.
- DEFROST SETPOINT [°F], OA TEMP THE DOAS ENTERS DEFROST MODE.
- DEFROST SPAN [°F], DIFFERENTIAL TEMP ABOVE AND BELOW DEFROST SETPOINT.
- REMOTE UNIT CONTROL [ENABLE/DISABLE], INTERFACE TO ALLOW REMOTE DOAS CONTROL BASED ON PROGRAMMABLE REMOTE BAS OCCUPANCY SCHEDULE.
- SUMMARY ALARM CONTACT [NORMAL/ALARM], ALLOWS REMOTE MONITORING OF ANY DOAS ALARM CONDITION.

TCC PROVIDED CONTROLS/FMCS SEQUENCE OF OPERATION: TCC SHALL PROVIDE CONTROLS AS INDICATED IN THE DIAGRAM ABOVE AND SHALL PROGRAM THE BAS TO OPERATE AS FOLLOWS:

THE ENERGY RECOVERY VENTILATION AIR HANDLING UNIT SHALL BE ENABLED ANY TIME THE BUILDING IS IN OCCUPIED MODE AND SHALL BE DISABLED ANY TIME THE BUILDING IS IN UNOCCUPIED MODE. OCCUPIED/UNOCCUPIED SCHEDULING SHALL BE ACCOMPLISHED VIA A PROGRAMMABLE SCHEDULE VIA THE BAS AS FOLLOWS:
- OCCUPIED MODE: MONDAY - FRIDAY 6 AM TO 9 PM. (ADJ.)
- UNOCCUPIED MODE: MONDAY - FRIDAY 9 PM TO 6 AM (ADJ.) AND ALL DAY SATURDAY AND SUNDAY (ADJ.).

ALARMS, INTERLOCKS, AND SAFETIES:
WHEN FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION, DOAS SHALL BE SHUTDOWN.

THE FOLLOWING CONDITIONS SHALL SHUTDOWN THE DOAS AND SHALL INDICATE AN ALARM CONDITION AT THE FMCS WORKSTATION:
- LOW STATIC PRESSURE SWITCH INDICATES RETURN DUCT PRESSURE LESS THAN -2.0 IN. W.G. (ADJ.).
- HIGH STATIC PRESSURE SWITCH INDICATES SUPPLY DUCT STATIC PRESSURE GREATER THAN +2.0 IN. W.G. (ADJ.).

THE FOLLOWING CONDITIONS SHALL INDICATE AN ALARM AT THE BAS, HOWEVER DOAS SHALL CONTINUE TO OPERATE:
- DOAS MANUFACTURER PROVIDED DIFFERENTIAL PRESSURE SWITCH ACROSS EXHAUST AIR PRE-FILTER BANK INDICATES AN ALARM CONDITION.
- DOAS MANUFACTURER PROVIDED DIFFERENTIAL PRESSURE SWITCH ACROSS OUTSIDE AIR PRE-FILTER BANK INDICATES AN ALARM CONDITION.
- THE SUPPLY FAN IS COMMANDED TO RUN AND CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT DRAW.
- THE EXHAUST FAN IS COMMANDED TO RUN AND CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT DRAW.
- AN ALARM IS INDICATED BY ENTHALPY WHEEL VFD.

IN THE EVENT SUPPLY FAN IS NOT RUNNING (AS INDICATED BY THE CURRENT SENSING RELAYS) EXHAUST FAN SHALL BE DE-ENERGIZED.

WHENEVER DOAS IS SHUTDOWN THE FOLLOWING SHALL OCCUR:
- SUPPLY AND EXHAUST FANS SHALL BE DE-ENERGIZED.
- OA DAMPER AND EA DAMPER SHALL FULLY CLOSE.
- VRF COIL SHALL BE DISABLED.
- ELECTRIC COIL SHALL BE DISABLED.
- ALL ALARMS SHALL BE DISABLED.

1 DOAS-1 CONTROL

NO SCALE

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CEDAR RAPIDS
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VRF INDOOR UNIT SCHEDULE

NOTES:
1.INDOOR UNITS SELECTED FOR SPACE PEAK LOADS.
2.PROVIDE 30% FILTERS FOR EACH UNIT. FILTER MAY BE INTEGRAL OR SUITABLE FOR FIELD INSTALLATION IN FABRICATED FILTER ANGLES. FILTER ANGLES PROVIDED BY M.C..
3.UNIT SHALL BE PROVIDED WITH CONDENSATE PUMP.
4.REFER TO SPECIFICATION 23 81 45 FOR DESCRIPTION OF CONTROLS.
5.INDOOR UNIT CFM SELECTED AT HIGH CFM. INDOOR UNIT SHALL HAVE CAPABILITY TO ADJUST CFM FOR FINAL AIR BALANCING UP OR DOWN THROUGH FIELD ADJUSTMENT.
6.DUCTED CONCEALED UNITS SHALL BE PROVIDED WITH SUPPLY AND RETURN DUCT FLANGES.
7. REFRIGERANT CHARGE IN LBS. IS FOR ENTIRE SYSTEM INCLUDING BOTH BRANCH SELECTORS AND ALL INDOOR UNITS.

TAG NAME	AREA SERVED	MAX. DIMENSIONS			ASSOCIATED VRF HEAT PUPM	CONFIGURATION	TONS	CFM	OA CFM	EXT. S.P. IN. W.C.	REFRIGERANT		DESIGN COOLING TOTAL BTUH	DESIGN HEATING TOTAL BTUH	COOLING CAPACITY BTUH	HEATING CAPACITY BTUH	ELECTRICAL							MANUFACTURER	MODEL	NOTES
																					DISCONNECT		CONTROLLER/ STARTER				
		LENGTH	WIDTH	HEIGHT							TYPE	MAX. CHARGE (LBS)					VOLTAGE	PHASES	FLA	MCA	MOCP	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)			
IU-1	104, 106	107"	28"	30"	VHP-1	DUCTED	1	335	60	0.6	R410A	32	6500	7020	8000	9000	208	1	0.84	1.50	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P08NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6
IU-2	102	107"	28"	30"	VHP-1	DUCTED	1	205	30	0.6	R410A	32	4250	8700	8000	9000	208	1	0.84	1.50	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P08NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6
IU-3	110	107"	28"	30"	VHP-1	DUCTED	0.5	210	30	0.6	R410A	32	4550	4100	6000	6700	208	1	0.84	1.50	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P06NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6
IU-4	103	107"	28"	30"	VHP-1	DUCTED	0.5	90	30	0.6	R410A	32	2420	660	6000	6700	208	1	0.84	1.50	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P06NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6
IU-5	112	107"	28"	30"	VHP-1	DUCTED	1.5	800	60	0.6	R410A	32	15000	16500	18000	20000	208	1	1.25	1.56	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P18NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6
IU-6	118, 117	107"	28"	30"	VHP-1	DUCTED	1.25	520	60	0.6	R410A	32	10520	15730	15000	17000	208	1	1.16	1.45	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P15NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6
IU-7	111	107"	28"	30"	VHP-1	DUCTED	1	380	90	0.6	R410A	32	9650	13350	12000	13500	208	1	0.96	1.20	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P12NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6
IU-8	101	107"	28"	30"	VHP-1	DUCTED	1	405	60	0.6	R410A	32	8590	11540	12000	13500	208	1	0.96	1.20	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P12NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6
IU-9	101	107"	28"	30"	VHP-1	DUCTED	1	405	60	0.6	R410A	32	8590	11540	12000	13500	208	1	0.96	1.20	15 A	EC	-	MFR	FV	MITSUBISHI	PEFY-P12NMAU-E3	NOTES 1, 2, 3, 4, 5 & 6

HEAT PUMP SCHEDULE - WATER SOURCE (25% PROPYLENE GLYCOL)

NOTES:
1.BELT DRIVE INDOOR MOTOR WITH ADJUSTABLE SHEAVES.
2. PROVIDE UNIT SELECTION WITH 25% PROPYLENE GLYCOL.
3. REFER TO 3/M401 FOR WSHP CONTROLS.

TAG NAME	AREA SERVED	MAX. DIMENSIONS			CONFIGURATION	NOMINAL TONNAGE	CFM	EXT. S.P. IN. W.C.	COOLING MBH BASED ON 77°F ENTERING WATER TEMPERATURE.				UNIT HEATING HEATING MBH BASED ON 32°F ENTERING WATER TEMPERATURE.			COND. GPM	W.P.D. FT. HEAD	MAX. NC (PER ARI STANDARD 210/240)	ELECTRICAL							MANUFACTURER	MODEL (NOTE 1)	NOTES
									EAT		MBH											DISCONNECT		CONTROLLER/ STARTER			
		LENGTH	WIDTH	HEIGHT					DB °F	WB °F	TOTAL	SEN.	EER	EAT DB °F	MBH TOTAL	MIN. COP				VOLTAGE	PHASES	FLA	MCA	MOCP	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)			
WSHP-1	SERVER	43.1	20.1	17	HORIZONTAL	1	550	0.50	81.3	67.4	15.7	11.2	16.6	68.0	11.1	3.6	3.0	7.1	40	208	1	8.7	10.2	16	EC	-	MFR	CLIMATEMASTER	TC015-ECM	NOTES 1,2,3

MAKE-UP AIR UNIT SCHEDULE

NOTES:
1. PROVIDE WITH MODULATING GAS BURNER WITH 12:1 TURNDOWN.
2. REFER TO 1/M402 FOR MAU CONTROLS.

TAG NAME	AREA SERVED	MAX. DIMENSIONS			CFM	RPM	EXT. S.P. IN. W.C.	MIN. EFFICIENCY AFUE	MIN. MBH OUTPUT	EAT °F	LAT °F	ELECTRICAL								MANUFACTURER	MODEL	FUEL TYPE	FUEL PRESSURE PSI	NOTES
												BHP (NOTE E)	MHP (NOTE E)	VOLT	PHASES	DISCONNECT		CONTROLER/ STARTER						
		LENGTH	WIDTH	HEIGHT												BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)					
MAU-1	119, 120	107"	28"	30"	1375	1255	1	92	163	-15	95	0.74	1	208	3	EC	-	MFR	VFD	MITSUBISHI	R1D.250-G10	NATURAL GAS	0.5	NOTES 1,2

CABINET HEATER SCHEDULE - ELECTRIC

NOTES:
1.COORDINATE COLOR SELECTION WITH ARCHITECT.
2. REFER TO 1/M400 FOR CABINET HEATER CONTROLS.

TAG NAME	AREA SERVED	CONFIGURATION	NOMINAL CFM	CONTROL TYPE	CABINET (NOTE 1)			ELECTRICAL											
					HEIGHT	WIDTH	DEPTH	FAN HP	RPM	ELEMENT KW	NUMBER OF STAGES	VOLTAGE	PHASES	DISCONNECT		CONTROLLER/ STARTER	MANUFACTURER	MODEL	NOTES
														BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)			
CAB-1	VESTIBULE 100	VERTICAL SLOPE TOP	550.0	1/M400	29"	48"	10"	0.07	800	7.9	2	208	1	MFR	NF	MFR	TRANE	FFJB06	NOTES 1,2

UNIT HEATER SCHEDULE - GAS FIRED

NOTES:
1. REFER TO 3/M400 FOR UNIT HEATER CONTROLS.

TAG NAME	AREA SERVED	CFM	HEATING (MBH)		ELECTRICAL							GAS PRESSURE (IN W.C.)	CONTROL TYPE	MANUFACTURER	MODEL	NOTES
									DISCONNECT		CONTROLLER / STARTER					
			INPUT	OUTPUT	HP	RPM	VOLTAGE	PHASES	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)					
UH-116	FRIENDS STORAGE	1097	55	51.2	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1
UH-119B	WAREHOUSE	1097	55	51.2	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1
UH-119C	WAREHOUSE	1097	55	51.2	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1
UH-119D	WAREHOUSE	1097	55	51.2	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1
UH-119E	WAREHOUSE	1097	55	51.2	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1
UH-120A	FACILITIES	1141	65	60.5	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1
UH-120B	FACILITIES	1141	65	60.5	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1
UH-121	SHOP	1097	55	51.2	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1
UH-201	MEZZANINE	1097	55	51.2	0.125	1440	115	1	MFR	NF	TCC	3.5	3/M400	MODINE	EFFINITY (PTC)	NOTE 1

CEILING FAN SCHEDULE

NOTES:
1. PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.
2.FAN BLADE COLOR SELECTION BY ARCHITECT.
3.CONTROLLER PROVIDED BY MANUFACTURER AND INSTALLED BY M.C. LOW VOLTAGE WIRING FROM FAN TO CONTROL PAD BY A.T.C.
4.VERIFY EXTENSION TUBE LENGTH AND MOUNTING BRACKET WITH MANUFACTURER PRIOR TO ORDERING.
5.SUPPLY POWERFOIL AIRFOILS AND WINGLETS.
6.SUPPLY WITH WALL MOUNTED CONTROL PAD FULLY INTEGRATED WITH THE ONBOARD CONTROL.
7.SUPPLY WITH C-FACED MOTOR AND HERMETICALLY SEALED GEARBOX.
8. INSTALL FAN 18' A.F.F.
9.PROVIDE FAN GUARD/CAGE.
10.PROVIDE CABLE BACK-UP SUPPORT.

TAG NAME	AREA SERVED	DIAMETER	FAN RPM	DRIVE TYPE	ELECTRICAL (NOTE 1)						MANUFACTURER	MODEL	NOTES
								DISCONNECT		CONTROLLER/ STARTER					
					VOLTAGE	PHASES	FLA	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)			
CF-1	WAREHOUSE	8'-0"	158	DIRECT	115	1	10 A	MFR	NF	MFR	FV	BIG ASS FANS	BASIC 6	
CF-2	WAREHOUSE	8'-0"	158	DIRECT	115	1	10 A	MFR	NF	MFR	FV	BIG ASS FANS	BASIC 6	
CF-3	WAREHOUSE	8'-0"	158	DIRECT	120	1	10 A	MFR	NF	MFR	FV	BIG ASS FANS	BASIC 6	
CF-4	WAREHOUSE	8'-0"	158	DIRECT	120	1	10 A	MFR	NF	MFR	FV	BIG ASS FANS	BASIC 6	
CF-5	WAREHOUSE	8'-0"	158	DIRECT	115	1	10 A	MFR	NF	MFR	FV	BIG ASS FANS	BASIC 6	

SCHEDULE GENERAL NOTES:

A. DISCONNECT AND CONTROLLER STARTER FURNISHED AND INSTALLED BY:
MFR = MANUFACTURER
EC = ELECTRICAL CONTRACTOR.
MC = FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR
MFR/EC = FURNISHED LOOSE BY MANUFACTURER INSTALLED BY ELECTRICAL CONTRACTOR....

B. DISCONNECT TYPE:
F = FUSED
NF = NON-FUSED

C. CONTROLLER STARTER TYPE:
FV = FULL VOLTAGE
WYE = WYE-DELTA
SS = SOLID STATE (SOFT START)
MS = MANUAL STARTER
VFD = VARIABLE FREQUENCY DRIVE
VFD/B = VARIABLE FREQUENCY DRIVE WITH BYPASS

D. FAN RPM SHALL NOT EXCEED 110% OF SCHEDULED VALUE, WITH THE SCHEDULED WHEEL TYPE. SUBSTITUTION OF BI OR BIA FANS FANS FOR FC IS ACCEPTABLE IF EFFICIENCY IS NOT LOWER.

E. NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR NAME PLATE RATING.

F. MUST BE WITHIN +/- 10% OF SCHEDULED RPM.

G. CURB TYPE:
MFR = STANDARD CURB BY MANUFACTURER
GC = BY GENERAL CONTRACTOR
SAC = SOUND ATTENUATOR CURB

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library
Maintenance & Support
Center Remodel & Addition

1301 West Badger Road
Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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KJWW ENGINEERING CONSULTANTS
The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
PROJECT # 16.0141.00

REFERENCE SCALE IN INCHES
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Drawing
SCHEDULES - MECHANICAL

OPN Project No. 15617000

M500

DOAS UNIT SCHEDULE

NOTES:
1. PROVIDE UNIT WITH MULTIPLE SPEED CONTROLLER TO COORDINATE WITH CONTROL DIAGRAM 1/M403.
2. REFER TO 1/M403 FOR DOAS UNIT CONTROL

					MAX. DIMENSIONS			OUTSIDE/SUPPLY AIR STREAM								SUPPLY FAN CHARACTERISTICS									FILTERS		EXHAUST AIR STREAM							EXHAUST FAN CHARACTERISTICS								
									SUMMER				WINTER							DISCONNECT		CONTROLLER/STARTER					SUMMER				WINTER											
AIR HANDLING UNIT TAG NAME	AREA SERVED	CORE	CORE QUANTITY	MINIMUM EFFICIENCY	LENGTH	WIDTH	HEIGHT	CFM	EAT DB °F	EAT WB °F	LAT DB °F	LAT WB °F	EAT DB °F	EAT WB °F	LAT DB °F	LAT WB °F	APD	SUPPLY	ESP IN. W.C.	TYPE	RPM	BHP	MHP	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)	TYPE	QTY	CFM	EAT DB °F	EAT WB °F	LAT DB °F	LAT WB °F	APD	CFM	ESP IN. W.C.	TYPE	RPM	BHP	MHP	DISCONNECT BY	DISCONNECT TYPE	CONTROLLER STARTED BY	CONTROLLER STARTED TYPE
DOAS-1	BUILDING	ENTHALPIC	3	63 %	46"	49"	30"	860	87	75	76.8	70.6	-15	-15	42.7	42.5	0.6	860	1.8	BACKWARD-INCLINED PLENUM (TWIN)	3050	0.8	1.06	MFR	NF	MFR	FV	MERV 8	3	845	72	67	70	63	0.6	845	1.2	BACKWARD-INCLINED PLENUM (TWIN)	3050	0.8	1.06	MFR	NF	MFR	FV

DOAS UNIT SCHEDULE (CONTINUED)

FILTERS		VRF SYSTEM								ELECTRICAL						
				SUMMER												
TYPE	QTY	NOMINAL COOLING CAPACITY (MBH)	NOMINAL HEATING CAPACITY (MBH)	DB °F	WB °F	COOLING LAT °F	HEATING LAT °F	RECOVERED SUMMER MBH	RECOVERED WINTER MBH	VOLTAGE	PHASE	MCA	MAXIMUM OVERCURRENT PROTECTION	MANUFACTURER	MODEL	REMARKS
MERV 8	3	48	54	80	67	70	70	56.2	105.5	120	1	14 A	20 A	ALDES	E1800-FI	NOTES 1,2

WATER COOLED CONDENSING UNIT SCHEDULE (25% PROPYLENE GLYCOL)

NOTES:
1. REFER TO SPECIFICATION SECTION 23 62 13.
2. PROVIDE UNIT SELECTION WITH 25% PROPLENE GLYCOL.
3. REFER TO 1/M401 FOR VRF SYSTEM CONROLS.

										ELECTRICAL								
TAG NAME	COOLING EWT	HEATING EWT	NOMINAL DESIGN TONS	MAX. REFRIGERANT CHARGE	COOLING CAPACITY BTUH	HEATING CAPACITY BTUH	MODULES	GPM	WPD	VOLTAGE	PHASES	FLA	MCA	MOCP	DISCONNECT BY (NOTE A)	CONTROLLER/ STARTER BY (NOTE A)	MANUFACTURER	MODEL	REMARKS
WCCU-1	90	32	10	R410A - 11 LBS	120,000	135,000	P96	25.4	8 FT	208	3	33.9	29.0	50	EC	MFR	MITSUBISHI	PQRY-P120TLMU-A	NOTES 1,2,3
WCCU-2	90	32	6	R410A - 11 LBS	72,000	80,000	P96	25.4	8 FT	208	3	15	13.0	20	EC	MFR	MITSUBISHI	PQRY-P72TLMU-A	NOTES 1,2,3

PUMP SCHEDULE (25% PROPYLENE GYCOL)

NOTES:
1.PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13..
2.PROVIDE UNIT SELECTION WITH 25% PROPYLENE GLYCOL.

							ELECTRICAL										
												DISCONNECT		CONTROLLER/ STARTER				
TAG NAME	AREA SERVED	GPM	PUMP FT. HEAD AT DESIGN	MINIMUM PUMP EFFICIENCY	INLET SIZE	IMPELLER SIZE	BRAKE HORSEPOWER	HP (NOTE E)	RPM	VOLTAGE	PHASES	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)	MANUFACTURER	MODEL	NOTES
P-1	BUILDING	55.0	91.00	48	2"	8.8"	2.62	5	1750	208	3	M.C.	VFD	M.C.	VFD	B & G	1510 SERIES	NOTES 1, 2
P-2	BUILDING	55.0	91.00	48	2"	8.8"	2.62	5	1750	208	3	M.C.	VFD	M.C.	VFD	B & G	1510 SERIES	NOTES 1, 2

GLYCOL FEED SYSTEM

NOTES:
1.SEE 23 21 00 FOR ADDITIONAL SYSTEM REQUIREMENTS.

							ELECTRICAL								
													CONTROLLER/ STARTER		
TAG NAME	AREA SERVED	TANK VOLUME	SYSTEM FILL PRESSURE	PUMP HEAD PSI	GPM	RPM	BHP	MHP	VOLTAGE	PHASES	DISCONNECT BY (NOTE A)	BY (NOTE A)	MANUFACTURER	MODEL (NOTE 1)	NOTES
GFS-1	VRF SYSTEM	55.0	60	30	10.0	3600	0.5	1	115	1	MFR	MFR	B & G	GMU-30	NOTE 1

FAN SCHEDULE

NOTES:
1.REFER TO 2/M402 FOR EXHAUST FAN CONTROL.

										ELECTRICAL (NOTE 1)										
														DISCONNECT		CONTROLLER/ STARTER				
TAG NAME	AREA SERVED	CFM	S.P. IN. W.C.	WHEEL DIA. INCHES	FAN RPM (NOTE F)	DRIVE TYPE	MAX. AMCA SONES	BACKDRAFT DAMPER TYPE	CURB TYPE (NOTE G)	BHP	MHP	VOLTAGE	PHASES	BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)	MANUFACTURER	MODEL	REMARKS
EF-1	GARAGE & SHOP	1365	0.50	13.1	1915	DIRECT	14.7	ELECTRIC	MFR	0.08	0.75	115	1	MFR	NF	MFR	VFD	GREENHECK	SQI	NOTE 1

MOTOR OPERATED DAMPER SCHEDULE

NOTES:
1.COORDINATE DAMPER ACTUATOR LOCATION AND MOUNTING REQUIREMENTS WITH TEMPERATURE CONTROL CONTRACTOR.

		SIZE		CFM								
TAG NAME	AREA SERVED	WIDTH	HEIGHT	MAX.	MIN.	BLADE CONFIGURATION	BLADE ORIENTATION	INSULATED	ACTUATOR TYPE (NOTE 1)	ACTUATOR STYLE	POWER FAILURE POSITION	POSITIVE POSITION FEEDBACK REQUIRED	NOTES
MOD-1	EF-1	18	12	1365	0	OPPOSED	HORIZONTAL	Yes	ELECTRIC	TWO POSITION	NORMALLY OPEN (NO)	No	NOTE 1
MOD-2	MAU-1	20	12	1375	0	OPPOSED	HORIZONTAL	Yes	ELECTRIC	TWO POSITION	NORMALLY OPEN (NO)	No	NOTE 1
MOD-3	DOAS-1	20	8	860	0	OPPOSED	HORIZONTAL	Yes	ELECTRIC	TWO POSITION	NORMALLY OPEN (NO)	No	NOTE 1

GRILLES REGISTERS & DIFFUSERS SCHEDULE

NOTES:
1.CONTRACTOR SHALL DETERMINE PROPER MARGIN STYLE TO MATCH CEILING CONSTRUCTION.
2.ALL RUN OUT DUCTWORK TO DIFFUSERS SHALL BE NECK SIZE UNLESS OTHERWISE NOTED.

TAG NAME	MATERIAL	CONFIGURATION	MARGIN (NOTE 1)	INLET SIZE (IN.) (NOTE 2)	FACE SIZE (IN.)	VOLUME DAMPER REQUIRED	FINISH	MANUFACTURER	MODEL	NOTES
EG-1	STEEL	PERFORATED FACE	LAY-IN	SEE DWG.	24x24	NO	WHITE	TITUS	PAR	
EG-2	ALUMINIUM	35 DEGREE DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	350F	
EG-3	ALUMINIUM	35 DEGREE DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	350F	
RG-1	STEEL	PERFORATED FACE	LAY-IN	SEE DWG.	24x24	NO	WHITE	TITUS	PAR	DUCTED RETURN
SD-1	STEEL	LOUVER FACE	LAY-IN	SEE DWG.	24x24	NO	WHITE	TITUS	TMS	STAMPED LOUVER DROP FACE. MINIMUM OF TWO STEPDOWN DIFFUSION CONES
SG-1	STEEL	DOUBLE DEFLECTION	1 1/4"	SEE DWG.	INLET +2	YES	WHITE	TITUS	301R	BLADES VERTICAL UNLESS NOTED OTHERWISE

HOOD & LOUVERED SCHEDULE

NOTES:
1.BAKED ENAMEL FINISH ON PRETREATED PRIME PAINT. STANDARD COLOR - SELECTION BY ARCHITECT.

TAG NAME	SERVICE	CFM	SIZE W x H (IN.)	FREE AREA VEL. FPM AREA VEL. FPM	STATIC PRESSURE DROP	FINISH	MANUFACTURER	MODEL	REMARKS
EAL-1	FACILITIES	1365	30x18	746	0.09	NOTE 1	RUSKIN	ELF375DFL	NOTE 1
EAL-2	DOAS	845	30x12	741	0.09	NOTE 1	RUSKIN	ELF375DFL	NOTE 1
OAL-1	DOAS	2235	66x24	400	0.03	NOTE 1	RUSKIN	ELF375DFL	NOTE 1

BRANCH SELECTOR BOX SCHEDULE

		ELECTRICAL								
						DISCONNET	CONTROLLER			
SYMBOL	TYPE	VOLTAGE	PHASES	MCA	MOCP	BY (NOTE A)	BY (NOTE A)	MANUFACTURER	MODEL	REMARKS
BS-1	MAIN	208	1	1.7 A	15 A	EC	MFR	MITSUBISHI	CMB-P1018NU-HA1	
BS-2	SUB	208	1	0.32 A	15 A	EC	MFR	MITSUBISHI	CMB-P104NU-GB1	

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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Drawing
SCHEDULES - MECHANICAL

OPN Project No. 15617000

M501

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	PANEL '###'	26 24 16	PANELBOARD - RECESS MOUNT
	PANEL '###'	26 24 16	PANELBOARD - SURFACE MOUNT
S	SW-1P	26 27 26	SWITCH - SINGLE POLE
S_3	SW-3W	26 27 26	SWITCH - THREE WAY
S_O	SW-OC-P-0	26 27 26	SWITCH - OCCUPANCY SENSOR WALL SWITCH
D	SW-D-LED	26 27 26	SWITCH - DIMMER
(E) [E]	ECONN	26 05 33	ELECTRICAL CONNECTION
	DS-#	26 28 16	DISCONNECT
	REC-DUP	26 27 26	DUPLEX RECEPTACLE, 125V
	REC-DUP-GFI	26 27 26	DUPLEX GFI RECEPTACLE, 125V
	REC-QUAD	26 27 26	QUAD RECEPTACLE, 125V
(LS)	SW-LS	26 27 26	DAYLIGHT LEVEL SENSOR
$(OC)_D$	SW-OC-D	26 27 26	OCCUPANCY SENSOR - DUAL TECHNOLOGY
$(OC)_{HB}$	SW-OC-P-HB	26 27 26	OCCUPANCY SENSOR - HIGH BAY
$(OC)_P$	SW-OC-P-P	26 27 26	OCCUPANCY SENSOR - PASSIVE INFRARED 360 DEGREE COVERAGE
(PC)	SW-LS-PC	26 27 26	PHOTOCELL
	LC	26 09 33	LIGHTING CONTACTOR PANEL
TC	TC	26 09 33	LIGHTING TIME CLOCK
	F#	26 51 00	LINEAR LUMINAIRES
	F#	26 51 00	LINEAR LUMINAIRES
	F#	26 51 00	TROFFER
	F#	26 51 00	DOWNLIGHT LUMINAIRE
	F#	26 51 00	INDUSTRIAL LUMINAIRE
	S#	26 51 00	POLE MOUNTED LUMINARE
	X#	26 51 00	SINGLE FACE EXIT SIGN
	X#	26 51 00	DOUBLE FACE EXIT SIGN
	EM#	26 51 00	EMERGENCY UNIT
	FAP-100	28 31 00	FIRE ALARM CONTROL PANEL
MM	FA-160	28 31 00	FIRE ALARM ADDRESSABLE MONITOR MODULE
(A)	FA-230	28 31 00	FIRE ALARM AUDIO NOTIFICATION DEVICE - CEILING MOUNTED
(A1) (A3) (A7) (AH) (AS)	FA-231	28 31 00	FIRE ALARM AUDIO/VISUAL NOTIFICATION DEVICE - CEILING MOUNTED
A1 A3 A7 AH AS	FA-211	28 31 00	FIRE ALARM AUDIO/VISUAL NOTIFICATION DEVICE - WALL MOUNTED
(FS)	FA-260	28 31 00	FIRE ALARM FLOW SWITCH TO MONITOR FIRE PROTECTION SYSTEM
(MS)	FA-261	28 31 00	FIRE ALARM MONITOR SWITCH TO MONITOR FIRE PROTECTION SYSTEM
EB	FA-263	28 31 00	FIRE ALARM ELECTRONIC BELL FOR SPRINKLER SYSTEM
V1 V3 V7 VH	FA-200	28 31 00	FIRE ALARM VISUAL NOTIFICATION DEVICE - WALL MOUNTED
IBT	IBT	26 05 26	INTERSYSTEM BONDING TERMINATION

ELECTRICAL EQUIPMENT TAGS

TAG:	DESCRIPTION:	RELATED SPECIFICATION
DP-#	DISTRIBUTION PANEL	26 24 16
F#	LUMINAIRE TYPE	26 51 00
FAP-#	FIRE ALARM - CONTROL PANEL	28 31 00
SPD-#	SURGE PROTECTION DEVICE	26 43 00
LC-#	LIGHTING CONTACTOR, REFER TO CONTACTOR SCHEDULE	26 09 33

SUGGESTED MATRIX OF RESPONSIBILITY

ITEM:	SHOWN ON:	FURNISHED BY:	INSTALLED BY:	NOTES:
TECHNOLOGY ROUGH-IN, REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR DEFINITION	T-SERIES	E.C.	E.C.	3. 4.
INFORMATION OUTLET FACEPLATES, JACKS, AND TERMINATIONS	T-SERIES	T.C.	T.C.	
CONDUIT SLEEVES (WHEN SHOWN ON DRAWINGS)	T-SERIES	E.C.	E.C.	
CONDUIT SLEEVES (NOT SHOWN BUT REQUIRED FOR PROPER INSTALLATION OF SYSTEM)	N/A	T.C.	T.C.	2. 4.
TELECOMMUNICATION SYSTEMS ROUGH-IN	T-SERIES	E.C.	E.C.	1.
TELECOMMUNICATION EQUIPMENT, CABLING, AND TERMINATIONS	T-SERIES	T.C.	T.C.	
GROUNDING LUGS ON TECHNOLOGY EQUIPMENT	T-SERIES	T.C.	E.C.	6.
BONDING SYSTEM FOR TECHNOLOGY SYSTEM, REFER TO SPECIFICATION SECTION 27 05 26 FOR DEFINITION	T-SERIES	E.C.	E.C.	7. 8.
CONNECTION OF TECHNOLOGY BONDING SYSTEM TO THE ELECTRICAL GROUND SYSTEM	T-SERIES	E.C.	E.C.	
LINE VOLTAGE POWER (+120V OR GREATER)	E-SERIES	E.C.	E.C.	
LINE VOLTAGE POWER (NOT SHOWN BUT REQUIRED FOR PROPER INSTALLATION OF SYSTEM)	N/A	T.C.	E.C.	2. 4.
LINE VOLTAGE POWER FOR DOOR HARDWARE POWER SUPPLIES	ARCH SPEC	E.C.	E.C.	
LOW VOLTAGE CABLING FOR TECHNOLOGY SYSTEMS	T-SERIES	T.C.	T.C.	
CABLE HANGERS AND SUPPORTS OR OTHER CABLE ROUTING METHODS (OTHER THAN CONDUIT AND CABLE TRAY)	T-SERIES	T.C.	T.C.	5.
TECHNOLOGY SERVICE ENTRANCE CONDUITS, HANDHOLES.	T-SERIES	E.C.	E.C.	

SUGGESTED MATRIX OF RESPONSIBILITY NOTES

1. LOCATIONS OF COMMUNICATIONS ROUGH-INS SHALL BE INDICATED BY THE INFORMATION OUTLET SYMBOLS ON THE DRAWINGS. REFER TO THE TECHNOLOGY SYMBOL LIST FOR ADDITIONAL INFORMATION.
2. BASED ON THE INHERENT DIFFERENCES IN PRODUCTS FROM VARIOUS MANUFACTURERS, ALL REQUIRED EQUIPMENT MAY NOT BE SHOWN ON THE DRAWINGS FOR ALL ACCEPTABLE MANUFACTURERS.
3. INCLUDES BACKBOXES AND CONDUIT REQUIRED FOR THE TECHNOLOGY SYSTEMS INSTALLATION. THE E.C. SHALL BASE THE BID ON THE BASIS OF DESIGN SHOWN ON THE CONTRACT DOCUMENTS.
4. ALL CHANGES TO THE SLEEVES, BACKBOXES, CONDUITS, AND POWER REQUIRED BECAUSE OF THE T.C.'S SELECTION OF AN ALTERNATE ACCEPTABLE MANUFACTURER OR FROM SYSTEM CONFIGURATIONS THAT ARE LEFT TO THE CHOICE OF THE CONTRACTOR SHALL BE INCLUDED IN THE T.C.'S BID.
5. UNLESS TRADE RULES DICTATE OTHERWISE.
6. FURNISHED AS PART OF THE EQUIPMENT WHEN POSSIBLE, OR FURNISHED TO THE E.C. FOR INSTALLATION IN THE FIELD.
7. INCLUDES ALL CONDUCTORS, GROUND BARS, AND TERMINATIONS FOR THE COMPLETE BONDING SYSTEM REQUIRED BY THE SPECIFICATIONS.
8. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF PANELS AND SWITCHBOARDS SHOWN IN THE TECHNOLOGY BONDING RISER DIAGRAM AND TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.

ELECTRICAL SHEET INDEX

ELECTRICAL GENERAL NOTES:

1. ##.### INDICATES ELECTRICAL EQUIPMENT DEFINED IN ELECTRICAL SCHEDULES OR SPECIFICATION. REFER TO DRAWINGS CONTAINING ELECTRICAL SCHEDULES. PERMANENT NAMEPLATE SHALL MATCH FINAL EQUIPMENT NOMENCLATURE, NOT ELECTRICAL EQUIPMENT TAG NAME, REFER TO SPECIFICATIONS.
2. "NL" INDICATES LUMINAIRE IS UNSWITCHED FOR NIGHT LIGHT.

LUMINAIRE KEY:

LUMINAIRE

F1 = FIXTURE TAG
1 = CIRCUIT NUMBER
a = SWITCH DESIGNATION
NL = SUBSCRIPT (IF APPLICABLE)

*IF LABEL IS ORIENTED HORIZONTALLY A SLASH WILL SEPARATE THIS INFORMATION. EX: F1 / 1 / a / NL

DEVICE KEY:

DEVICE

A = MOUNTING (IF APPLICABLE)
1 = CIRCUIT NUMBER

*IF LABEL IS ORIENTED HORIZONTALLY A SLASH WILL SEPARATE THIS INFORMATION. EX: A / 1

ELECTRICAL MOUNTING SUBSCRIPT KEY:

A MOUNT AT +6" TO CENTERLINE ABOVE COUNTER OR BACKSPLASH

ELECTRICAL INSTALLATION NOTES:

1. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATIONS DETAIL ON THIS PAGE FOR ADDITIONAL INFORMATION.
2. CIRCUIT NUMBERS ARE SHOWN FOR CIRCUIT IDENTIFICATION. CIRCUITING SHALL AGREE WITH NUMBERING ON THE PANEL PROVIDED. COMMON NEUTRALS MAY NOT BE USED FOR BRANCH CIRCUITS. BALANCE THE LOAD ON PANEL AS EVENLY AS POSSIBLE BETWEEN EACH PHASE.
3. CIRCUITS SERVING EMERGENCY AND EXIT LUMINAIRES WILL BE RUN IN A SEPARATE RACEWAY FROM ALL OTHER CIRCUITS.
4. FLUSH MOUNT ALL LIGHTING CONTROL DEVICES AT +42" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. DEVICES MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.
5. FLUSH MOUNT ALL DUPLEX RECEPTACLES AND TECHNOLOGY OUTLETS AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. RECEPTACLES AND OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.
6. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
7. CONNECTION FOR ELECTRIC WATER COOLERS (EWC) SHALL BE A JUNCTION BOX CONCEALED BEHIND WATER COOLER ACCESS PLATE OR BE A GFI RECEPTACLE LOCATED DIRECTLY BELOW AND CENTERED ON EWC. CONTRACTOR SHALL VERIFY TYPE OF EWC TO BE INSTALLED.
8. MOUNT ALL FIRE ALARM PULL STATIONS AT +42" FROM FLOOR (CENTERLINE DIMENSION) EXCEPT WHERE OTHERWISE NOTED.
9. INSTALL ALL WALL MOUNTED FIRE ALARM NOTIFICATION DEVICES AT 90" ABOVE FINISHED FLOOR OR 6" BELOW THE CEILING, WHICHEVER IS LOWER, EXCEPT WHERE OTHERWISE NOTED. HEIGHT SHALL BE MEASURED TO THE TOP OF THE DEVICE.
10. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CEILING MOUNTED DEVICES AND EQUIPMENT WITH LUMINAIRES, SPRINKLER, AND CEILING DIFFUSERS. CENTER ALL DEVICES IN CEILING TILE PATTERN. SMOKE DETECTORS AND OCCUPANCY/VACANCY SENSORS SHALL BE LOCATED NO CLOSER THAN 3 FEET TO AN AIR SUPPLY DIFFUSER OR RETURN GRILLE.
11. CONTRACTOR SHALL VERIFY ALL FURNITURE, MODULAR FURNITURE, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS, AND REVIEWED SHOP DRAWINGS. PRIOR TO MAKING THE ACTUAL ELECTRICAL INSTALLATION, THIS CONTRACTOR SHALL ADJUST RECEPTACLES, OUTLETS, OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
12. ELECTRICAL AND TECHNOLOGY EQUIPMENT SHALL BE MOUNTED TO AVOID IMPEDANCE OF, OPERATION OF, AND/OR ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF ELECTRICAL AND COMMUNICATIONSEQUIPMENT, ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR, SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
14. CONTRACTOR SHALL REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF ELECTRICAL WORK. CONTRACTOR SHALL REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.
15. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER ELECTRICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.

ELECTRICAL RENOVATION NOTES:

THESE NOTES APPLY TO ALL ELECTRICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, LIGHTING, POWER, AND SYSTEMS.

1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
2. NOT ALL EXISTING EQUIPMENT, LUMINAIRES, AND CONDUIT ARE SHOWN. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS WITH NEW WORK BEFORE STARTING WORK.
3. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CUTTING, REMOVAL AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY THE GC OF AFFECTED AREAS PRIOR TO BIDDING.
4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILINGS, CEILING TILES, AND CEILING GRIDS ASSOCIATED WITH AREAS OF WORK BY ALL CONTRACTORS. NOTIFY THE GENERAL CONTRACTOR OF AFFECTED AREAS PRIOR TO BIDDING.
5. WHERE EXISTING ELECTRICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, CONDUIT, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING ELECTRICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Consultants

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Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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Drawing
ELECTRICAL COVER SHEET

OPN Project No. **15617000**

E000

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The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
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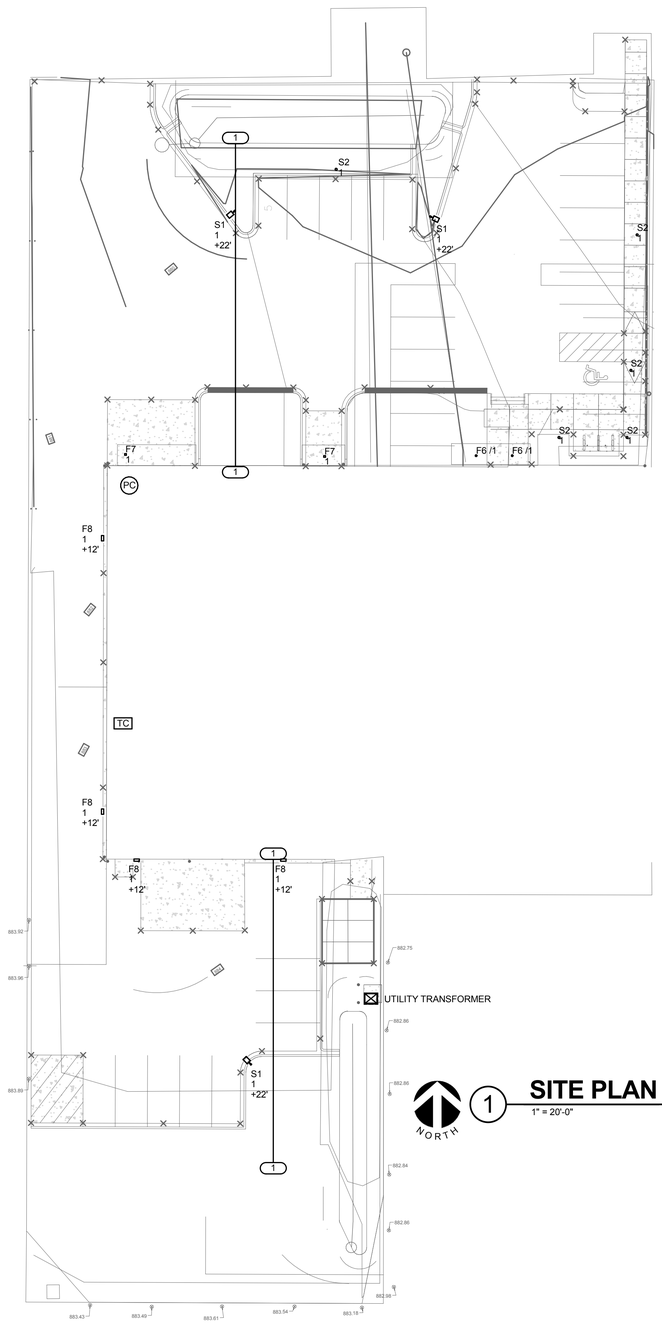


1 SITE PLAN - ELECTRICAL

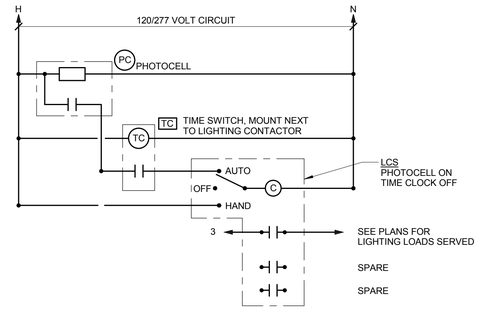
1" = 20'-0"

KEYNOTES: (#)

1. E.C. TO PROVIDE AND INSTALL CONDUITS FOR FUTURE SOLAR PANEL USE. 1 1-3/4" CONDUIT FOR POWER AND 1 1" CONDUIT FOR LOW VOLTAGE DATA MONITORING. COORDINATE FINAL INTERIOR AND EXTERIOR JUNCTION BOX LOCATIONS WITH ARCHITECTURAL PLANS AND SOLAR PANEL PROJECT DESIGNERS.

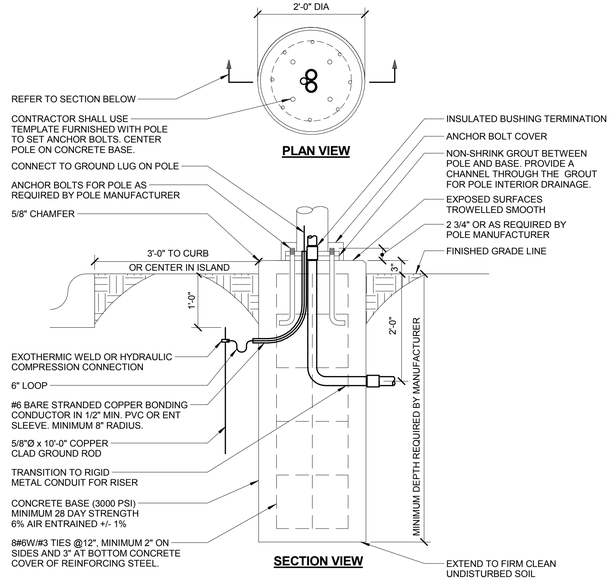
NOTES:

1. SITE LIGHTING TO BE CIRCUITED TO PANEL 'A' WITH LIKE NUMBERS THROUGH LIGHTING CONTROL PANEL LCS LOCATED NEXT TO PANEL 'A'.



2 EXTERIOR LIGHTING CONTROL DETAIL

12" = 1'-0"



3 POLE BASE DETAIL

12" = 1'-0"

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CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Madison, WI 53718
P. 608.838.0444

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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MIDDLETON, WISCONSIN 53562
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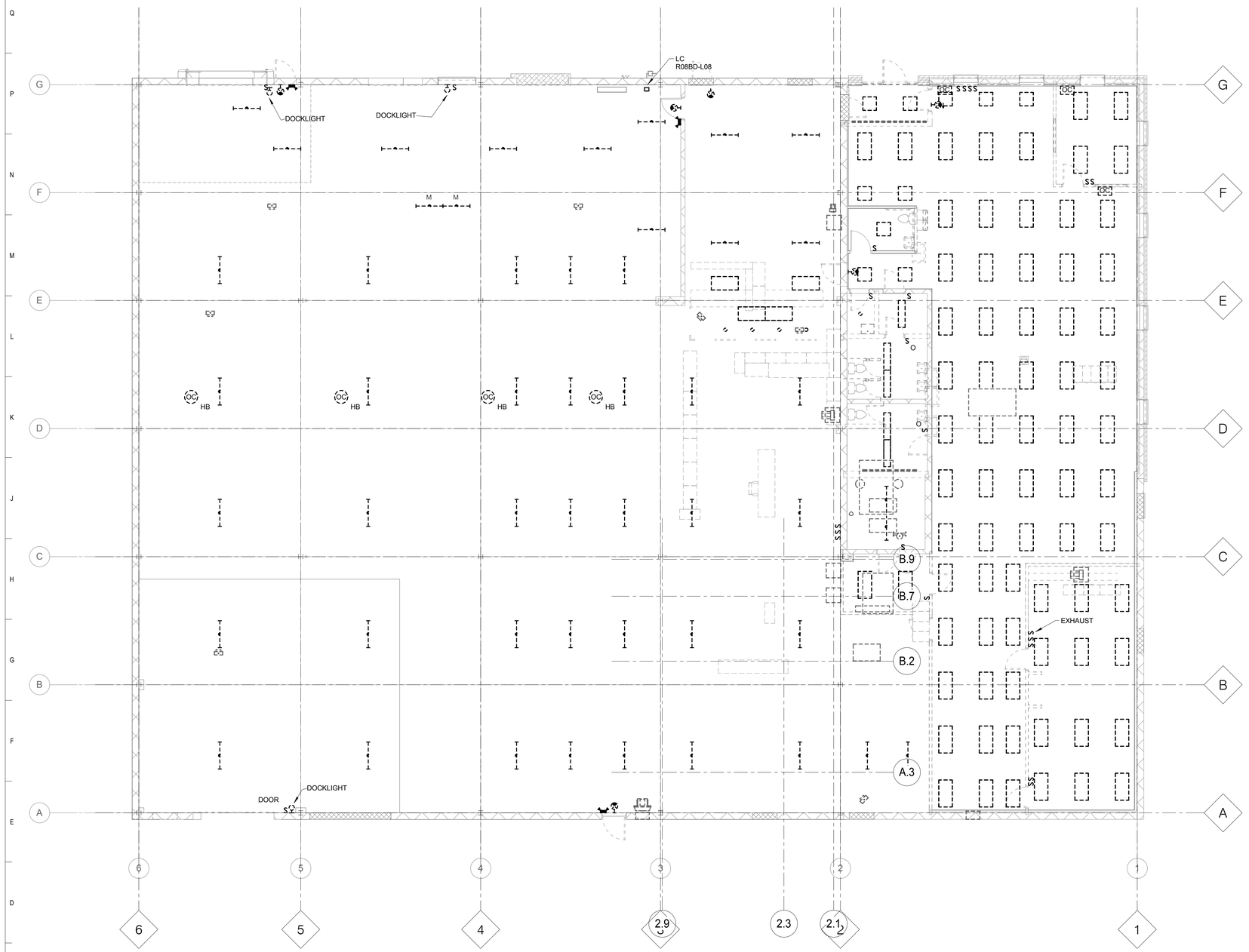
Drawing
SITE PLAN - ELECTRICAL

OPN Project No. 15617000

E050



1 FIRST FLOOR DEMOLITION - LIGHTING

1/8" = 1'-0"

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301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
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1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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1800 Deming Way
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P. 608.223.9600

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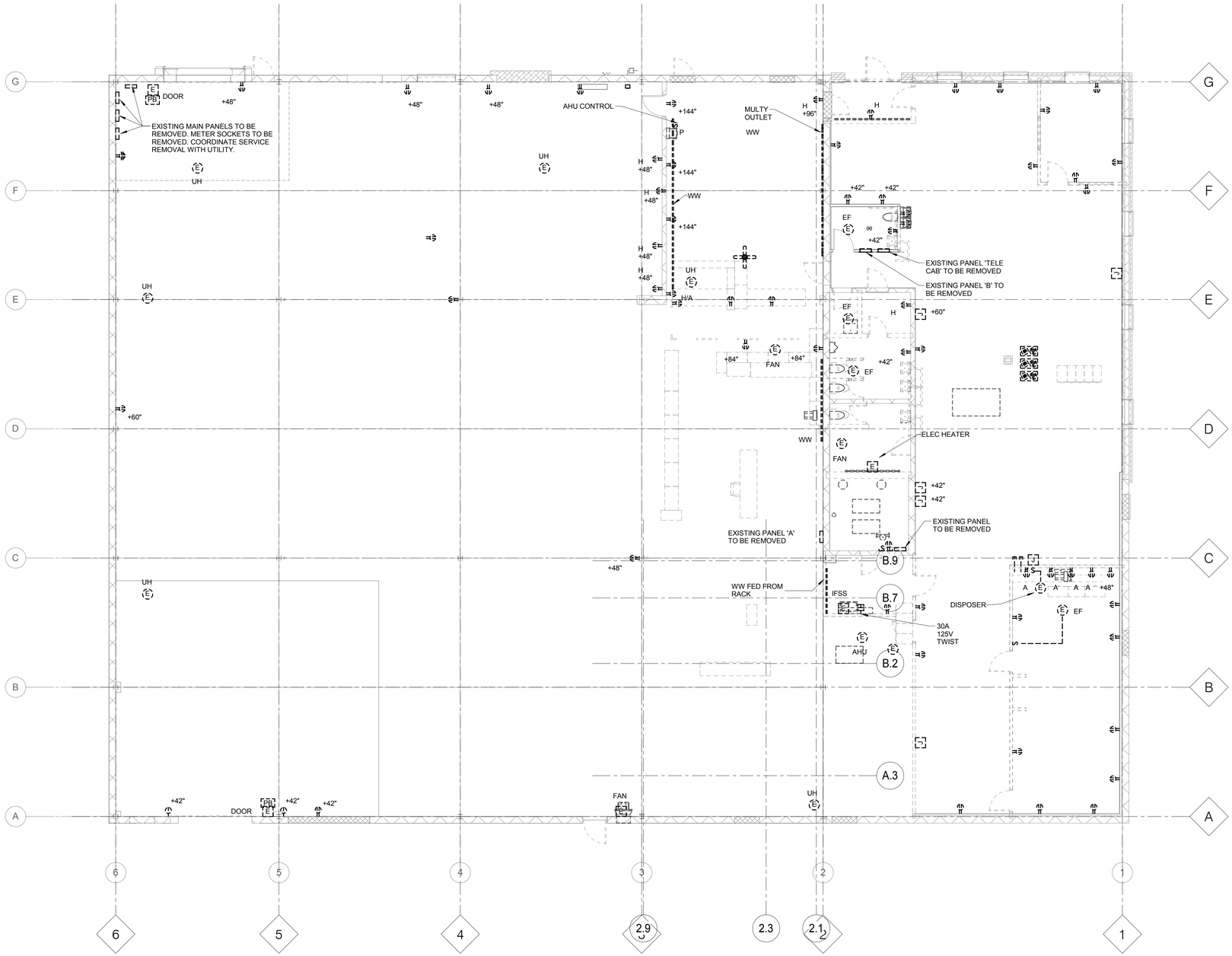
Drawing
FIRST FLOOR
DEMOLITION - LIGHTING

OPN Project No. 15617000

ELD101.1



1 FIRST FLOOR DEMOLITION - POWER

1/8" = 1'-0"

NORTH

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Drawing
FIRST FLOOR
DEMOLITION - POWER

OPN Project No. 15617000

EPD101.1

KEYNOTES: (#)

1. SWITCH TO CONTROL SOLATUBES.

1 FIRST FLOOR - LIGHTING

1/8" = 1'-0"

2 MEZZANINE - LIGHTING

1/8" = 1'-0"

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P. 608.838.0444

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KJWW Engineering Consultants
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Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
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FIRST FLOOR - LIGHTING

OPN Project No. **15617000**

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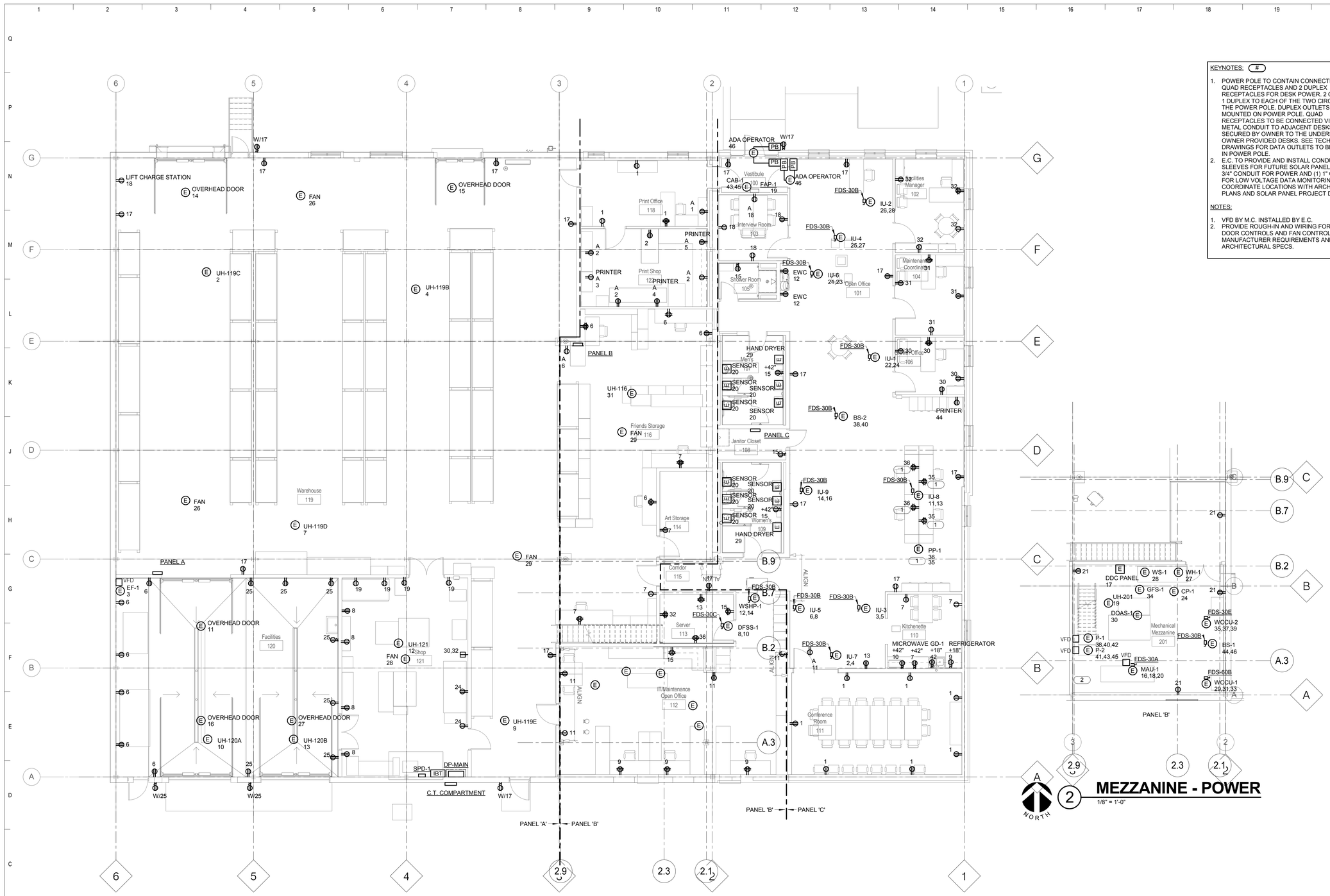

FIRST FLOOR - POWER

1/8" = 1'-0"

MEZZANINE - POWER

1/8" = 1'-0"

KEYNOTES: (#)

1. POWER POLE TO CONTAIN CONNECTIONS FOR 4 QUAD RECEPTACLES AND 2 DUPLEX RECEPTACLES FOR DESK POWER. 2 QUADS AND 1 DUPLEX TO EACH OF THE TWO CIRCUITS ON THE POWER POLE. DUPLEX OUTLETS TO BE MOUNTED ON POWER POLE. QUAD RECEPTACLES TO BE CONNECTED VIA FLEXIBLE METAL CONDUIT TO ADJACENT DESKS, TO BE SECURED BY OWNER TO THE UNDERSIDE OF OWNER PROVIDED DESKS. SEE TECHNOLOGY DRAWINGS FOR DATA OUTLETS TO BE INCLUDED IN POWER POLE.
2. E.C. TO PROVIDE AND INSTALL CONDUIT SLEEVES FOR FUTURE SOLAR PANEL USE. (4) 1-3/4" CONDUIT FOR POWER AND (1) 1" CONDUIT FOR LOW VOLTAGE DATA MONITORING. COORDINATE LOCATIONS WITH ARCHITECTURAL PLANS AND SOLAR PANEL PROJECT DESIGNERS.

NOTES:

1. VFD BY M.C. INSTALLED BY E.C.
2. PROVIDE ROUGH-IN AND WIRING FOR OVERHEAD DOOR CONTROLS AND FAN CONTROLS PER MANUFACTURER REQUIREMENTS AND ARCHITECTURAL SPECS.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
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Snyder & Associates, Inc.
5010 Voges Road
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P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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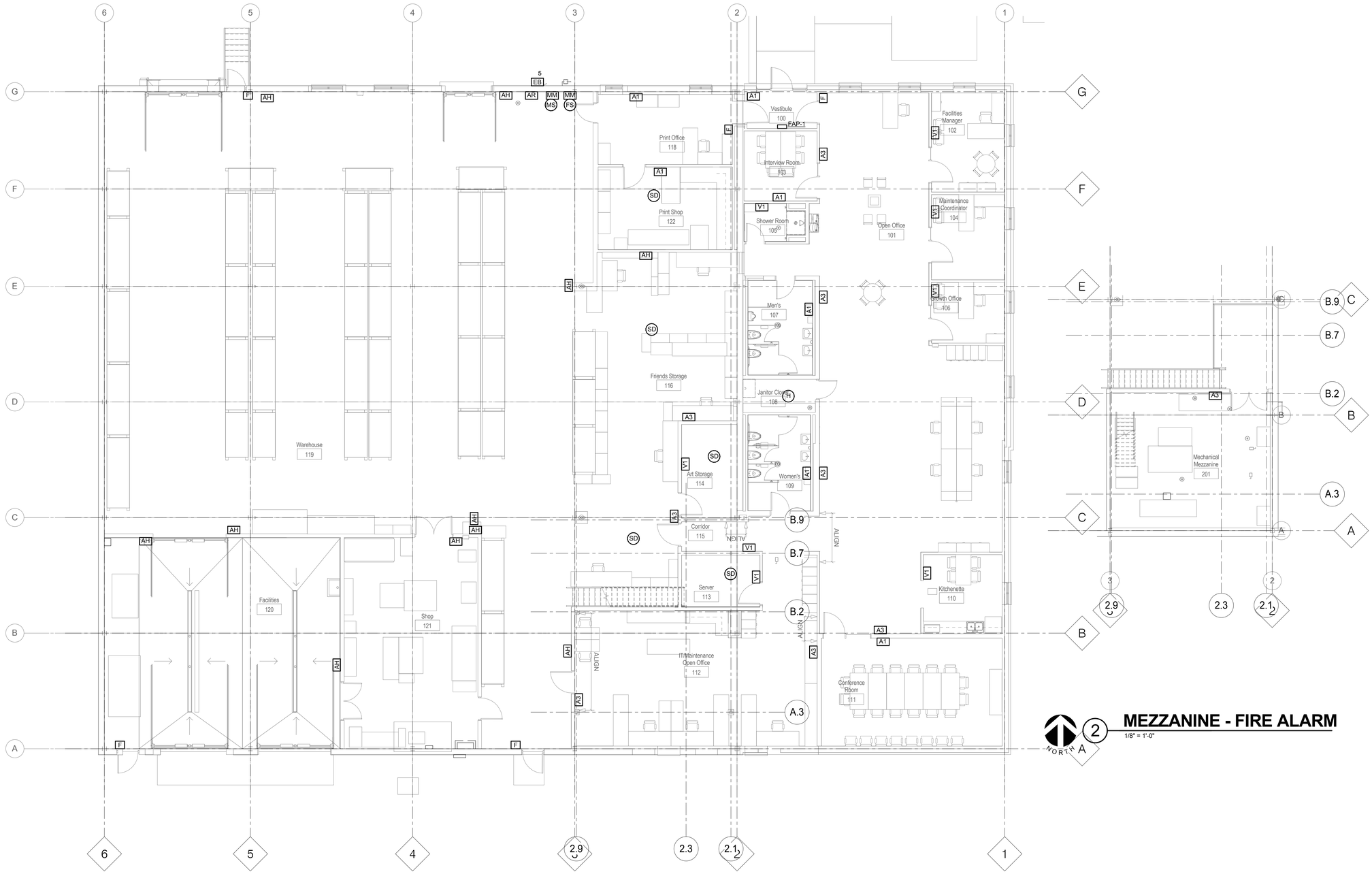
Drawing
FIRST FLOOR - POWER

OPN Project No. **15617000**

EP101.1



NORTH

1 FIRST FLOOR - FIRE ALARM

1/8" = 1'-0"

NORTH

2 MEZZANINE - FIRE ALARM

1/8" = 1'-0"

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Schematic Design	02/22/2016

Revision Dates

KJWW ENGINEERING CONSULTANTS
The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
PROJECT # 16.0141.00

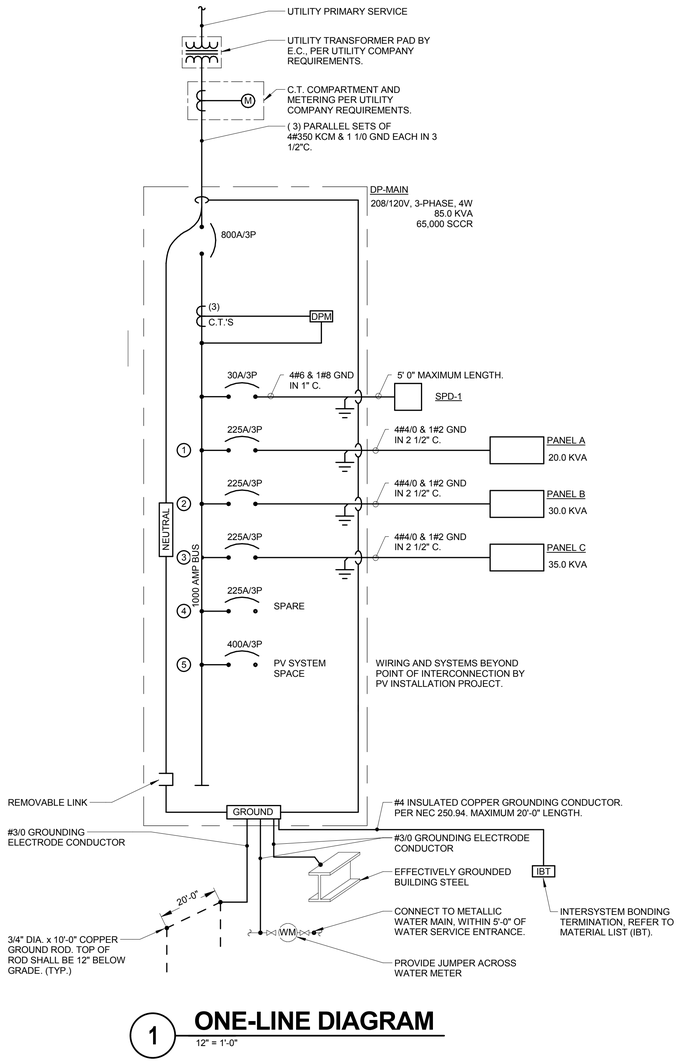
REFERENCE SCALE IN INCHES
0 1 2 3

Drawing

FIRST FLOOR - FIRE ALARM

OPN Project No. **15617000**

ES101.1



1 ONE-LINE DIAGRAM

12" = 1'-0"

ONE LINE DIAGRAM NOTES

1. AIC RATINGS LISTED FOR EQUIPMENT ARE MINIMUM REQUIREMENTS FOR BUS BRACING AND DEVICE RATING. ALL EQUIPMENT SHALL BE FULLY RATED UNLESS SPECIFICALLY NOTED AS SERIES RATED.
2. INDICATES DIRECT CONNECTION OF GROUND CONDUCTOR TO GROUND BUS. SUBSCRIPT "I" INDICATES DIRECT CONNECTION OF ISOLATED GROUND CONDUCTOR TO ISOLATED GROUND BUS.
3. INDICATES O.Z. GEDNEY OR EQUAL GROUND BUSHING BONDED TO GROUND BUS WITH CONDUCTOR SIZED TO MAXIMUM FEEDER GROUND CAPACITY.
4. INDICATES OVERLOADS SIZED PER MOTOR NAMEPLATE FULL LOAD AMPERES.
5. INDICATES STARTER NEMA SIZE.
6. AF INDICATES MOLDED/INSULATED CASE BREAKER FRAME SIZE, FOR ADJUSTABLE TRIP BREAKERS.
7. AT INDICATES MOLDED/INSULATED CASE BREAKER TRIP UNIT RATING, FOR ADJUSTABLE TRIP BREAKERS.
8. [LSIG] INDICATES FEATURES PROVIDED WITH SOLID STATE CIRCUIT BREAKER. [LONG TIME (W/DELAY), SHORT TIME (W/DELAY), INSTANTANEOUS, GROUND FAULT].
9. GF INDICATES GROUND FAULT RELAY.
10. CONDUCTOR AND CONDUIT SIZES ON THE LINE AND LOAD SIDES OF ALL NON-FUSIBLE DISCONNECT SWITCHES SHALL BE IDENTICAL UNLESS NOTED OTHERWISE.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library
Maintenance & Support
Center Remodel & Addition

1301 West Badger Road
Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

Sheet Issue Date

Permit Set	08/24/16

Previous Issue Dates

CD Set	09/09/2016
60% CD Set	08/24/2016
Design Development	06/16/2016
Schematic Design	02/22/2016

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Drawing
ONE LINE DIAGRAM

OPN Project No. 15617000

E400

LUMINAIRE SCHEDULE

	(MTG) MOUNTING:	(TYPE) LAMP TECHNOLOGY:	(L/L) LENS / LOUVER:
	RE - RECESSED	FL - FLUORESCENT	A - .125 ACRYLIC
	SP - SUSPENDED	CF - COMPACT FLUORESCENT	B - BLACK BAFFLE
	CL - CEILING SURFACE	HL - HALOGEN	C - CLEAR ALZAK
	WL - WALL	IN - INCANDESCENT	D - PARABOLIC
	UC - UNDER CABINET	LED - LIGHT EMITTING DIODE	F - FRESNEL
	CV - COVE	HS - HIGH PRESSURE SODIUM	G - TEMPERED GLASS
	PL - POLE	MH - METAL HALIDE	H - WALL WASHER
	FR - FLANGED RECESSED	SMH - SUPER METAL HALIDE	P - POLYCARBONATE
	O - OTHER (SEE DESCRIPTION)	PSMH - PULSE START METAL HALIDE	K - KSH12 .125" ACRYLIC
		CMH - CERAMIC METAL HALIDE	K19 - KSH19 .156" ACRYLIC
	DOOR:	O - OTHER (SEE DESCRIPTION	L - LOW IRIDESCENT SPECULAR ALUM.
	FA - FLAT ALUMINUM	XL - EXTENDED LIFE	N - NONE
	FS - FLAT STEEL	XLP - EXTENDED LIFE & OUTPUT	R - HIGH IMPACT OR ACRYLIC
	RA - REGRESSED ALUMINUM		O - OTHER (SEE DESCRIPTION)
	RS - REGRESSED STEEL		
		(TYPE) BALLAST:	(TYPE) BALLAST:
	FINISH:	DIM07 - LINE DIMMING BALLAST	EB - ELECTRONIC BALLAST
	PAF - PAINT AFTER FABRICATION	DIM10 - 0-10V DIMMING BALLAST	EM - EMERGENCY BATTERY / BALLAST
	CSA - FINISH SELECTION BY ARCHITECT	HL - HIGH / LOW LEVEL BALLAST	DALI - DIGITAL DIMMING BALLAST
		ML - MULTI-LEVEL SWITCHING	MV - MULTI-VOLTAGE ELECTRONIC 120V-277V
		HP - HIGH PERFORMANCE / LBF	PRS - ELECTRONIC PROGRAM RAPID START BALLAST

CATALOG NUMBER SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. THE COMPLETE DESCRIPTION AND THE SPECIFICATION SHALL BE COORDINATED WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE FIRST MANUFACTURER LISTED IS THE BASIS FOR DESIGN.

REFER TO SPECIFICATION SECTIONS LIGHTING 26 51 00 AND EMERGENCY LIGHTING 26 52 00 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

ALL LAMPS FOR THIS PROJECT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
LED LAMP COLOR RENDERING INDEX (CRI) AT OR ABOVE 85 FOR INTERIOR APPLICATIONS AND CORRELATED COLOR TEMPERATURE 4100°, UNLESS NOTED OTEHRWISE.

ITEM	DESCRIPTION	DIMENSIONS L	W	H	DIA.	MTG	LAMPS TYPE	QTY	MODEL	BALLAST VOLTS	TYPE	L/L	APPROVED MANUFACTURER
				9 1/2"	10"	RE		0		0 V	EB		
EM1	EMERGENCY UNIT, TWO ADJUSTABLE 6 VOLT HEADS, WHITE THERMOPLASTIC HOUSING, SELF DIAGNOSTICS OF INVERTER AND LAMPS	1'-6"	4"	4"		WL	IN	2	INCLUDED	120 V	EM	O	LITHONIA ELM2 SURE-LITES CC3 McPHILBEN CAX6
F1	STATIC GRID TROFFER WITH FS DOOR. WAVESTREAM LIGHT DIFFUSER.	4'-0"	2'-0"	4 1/2"		RE	LED	1	4500 LUMENS 47 WATTS	120 V	DIM10	K	COOPER 24EN-LD1-45-UNV-L840-CD1-U LITHONIA
F2	STATIC GRID TROFFER WITH FS DOOR. WAVESTREAM LIGHT DIFFUSER.	2'-0"	2'-0"	4 1/2"		RE	LED	1	3400 LUMENS 35 WATTS	120 V	DIM10	K	COOPER 22EN-LD1-34-UNV-L840-CD1-U LITHONIA
F3	4' INDUSTRIAL WITH NO UPLIGHT, BAKED ENAMEL FINISH.	4'-0"	1'-0"	4 1/4"		SP@10'	LED	1	5000 LUMENS 35 WATTS	120 V	DIM10	N	COOPER 4ILED-LD4-5-W-UNV-L840-CD1 LITHONIA
F4	4' HIGH BAY INDUSTRIAL WITH NO UPLIGHT, BAKED ENAMEL FINISH.	4'-0"	1'-0"	4 1/4"		SP@16'	LED	1	12500 LUMENS 104 WATTS	120 V	EB	N	COOPER HBLED-LD4-12-W-UNV-L840-CD1| LITHONIA
F5	WALL MOUNTED LINEAR LED IN DIE-CAST ALUMINUM HOUSING WITH MATTE WHITE FINISH.	4'-0"	3 1/2"	4 1/2"		WL@10'	LED	1	4700 LUMENS 50 WATTS	120 V	EB	K	KENALL MLHA12 48 R MW CP 1 45L40K METALUX LITHONIA
F6	OPEN RECESSED DOWNLIGHT, CLEAR SPECULAR PARABOLIC SELF TRIMMING REFLECTOR, DAMP LABEL.			9 1/2"	6"	RE	LED	1	1500 LUMENS 11 WATTS	120 V	EB	N	SPECTRUM LIGHTING SPC1203LEDGV-15L-40K -E1-8200GV-SG-SO
F7	CANOPY LUMINAIRE, TYPE V DISTRIBUTION, NATURAL ALUMINUM PAINT, LISTED WET LOCATION	4 1/2"	4 1/2"	0"		CL	LED	1	3200 LUMENS 25 WATTS	120 V	EB	N	LITHONIA DSXSC LED 20C 350 40K T5M MVOLT COOPER
F8	WALL MOUNTED ARCHITECTURAL SCONCE TYPE II DISTRIBUTION, DARK BRONZE FINISH.	1'-6"	9"	7 1/2"		WL	LED	1	4300 LUMENS 47 WATTS	120 V	EB	N	LITHONIA MRW LED 2 10A700/40K SR2 MVOLT DDBXD COOPER
S1	SITE LUMINAIRE, ALUMINIUM EXTRUDED HOUSING GASKETED, TEMPERED GLASS LENS, BACK LIGHT CONTROLLED DISTRIBUTION, COLOR SELECTION BY ARCHITECT FROM STANDARD COLORS, LISTED WET LOCATION. LAMP SUPPORT. STRAIGHT ALUMINUM POLE WITH INTERNAL VIBRATION DAMPER, ANCHOR BASE.	1'-8"	1'-3"	5 1/2"		PL@22'	LED	1	7800 LUMENS 91 WATTS	120 V	EB	K	LITHONIA DSX0 LED 40C 700 40K BLC MVOLT COOPER
S2	EXTRUDED ALUMINUM SQUARE LED LIT BOLLARD. POWDER COAT FINISH.			2'-6"	7"	PL	LED	1	700 LUMENS 15 WATTS	120 V	EB	K	BEGA 88657 W/ 79817 ANCHORAGE LITHONIA METALUX
X1	SINGLE-FACE EXIT SIGN, WHITE THERMOPLASTIC BODY, RED LETTERS, EMERGENCY NI-CAD BATTERY INSIDE OF SIGN, UNIVERSAL ARROWS/MOUNTING. SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS.	1'-1"	2"	9"		CL	LED	1	LED	120 V	EM	O	DUAL-LITE LXU LITHONIA LQMS 1 EL MCPHILBEN CXXL
X2	DOUBLE-FACE EXIT SIGN, WHITE THERMOPLASTIC BODY, RED LETTERS, EMERGENCY NI-CAD BATTERY INSIDE OF SIGN, UNIVERSAL ARROWS/MOUNTING. SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS.	1'-1"	2"	9"		CL	LED	1	LED	120 V	EM	O	DUAL-LITE LXU LITHONIA LQMS 1 EL MCPHILBEN CXXL

SEQUENCE OF OPERATION / SYSTEM INPUTS		PANEL/ANNUNCIATOR ALARM INDICATION	PANEL/ANNUNCIATOR SUPERVISORY INDICATION	PANEL/ANNUNCIATOR TROUBLE INDICATION	AUDIBLE ALARMS SEQUENCE	VISUAL ALARMS SEQUENCE	ELECTRIC SPRINKLER BELL SEQUENCE
							AR
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL LOW BATTERY			X				
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL BATTERY OR CHARGER FAILURE				X			
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL ABNORMAL SWITCH OR CONTROL POSITION.			X				
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL GROUND FAULT, OPEN CIRCUIT, SHORT CIRCUIT				X			
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL AC POWER LOSS OR IRREGULARITY				X			
NOTIFICATION APPLIANCE CIRCUIT OR SLC LOOP GROUND FAULT, OPEN CIRCUIT, SHORT CIRCUIT				X			
INITIATING DEVICE FAILURE OR COMMUNICATION ERROR				X			
FIRE ALARM PANEL MANUAL FIRE DRILL			X		X	X	
MANUAL PULL STATION	F	X			X	X	
SMOKE DETECTOR	SD	X			X	X	
HEAT DETECTOR	H	X			X	X	
SPRINKLER SYSTEM FLOW SWITCH	FS MM	X			X	X	X
SPRINKLER SYSTEM MONITOR SWITCH	MS MM		X				
SPRINKLER SYSTEM CABINET MONITOR	MS MM		X				

1 FIRE ALARM OPERATION MATRIX

12" = 1'-0"

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opn@opnarchitects.com

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Drawing
ELECTRICAL SCHEDULES

OPN Project No. 15617000

E500

PANEL NAME: A

TYPE: BOLT-ON
MOUNTING: SURFACE
FED FROM: DP-MAIN
SCCR: 20,000 SCR
LOCATION: Warehouse 119

SOLID NEUTRAL
GROUND BUS

CONNECTED 25.1 kVA
MAIN: 225 A/MLO
VOLTS: 120/208 Wye
PHASE: 3
WIRE: 4
DEMAND: 25.08 kVA

Panel Notes:

CKT NO.	LOAD DESCRIPTION	OVERCURRENT PROTECTION AMPS	P	A		B		C		OVERCURRENT PROTECTION P	AMPS	LOAD DESCRIPTION	CKT NO.
1	Exterior Lighting *8	20 A	1	0.61	0.5					1	20 A	UH-119C	2
3	EF-1	20 A	1			1.5	0.5			1	20 A	UH-119B	4
5	ELECTRONIC BELL	20 A	1					0	1.08	1	20 A	Receptacles	6
7	UH-119D	20 A	1	0.5	0.72					1	20 A	Receptacles	8
9	UH-119E	20 A	1			0.5	0.5			1	20 A	UH-120A	10
11	OVERHEAD DOOR	20 A	1					1	0.5	1	20 A	UH-121	12
13	UH-120B	20 A	1	0.5	1					1	20 A	OVERHEAD DOOR	14
15	OVERHEAD DOOR *10	20 A	1			1	1			1	20 A	OVERHEAD DOOR	16
17	Receptacles *10	20 A	1					1.44	0.18	1	20 A	LIFT CHARGE STATION	18
19	Receptacles	20 A	1	0.72	0.52					1	20 A	Lighting *10	20
21	Lighting *10	20 A	1			1.04	0.73			1	20 A	Lighting *10	22
23	Lighting	20 A	1					1.56	0.36	1	20 A	Receptacles	24
25	Receptacles	20 A	1	1.62	1.4					1	20 A	WAREHOUSE FANS *10	26
27	OVERHEAD DOOR	20 A	1			1	0.7			1	20 A	SHOP FAN	28
29	WAREHOUSE AND FRIENDS FAN	20 A	1					1.4	0.25	2	20 A	Power	30
31	UH-116	20 A	1	0.5	0.25					--	--	--	32
33	SPARE	20 A	1			0	0			1	20 A	SPARE	34
35	SPARE	20 A	1					0	0	1	20 A	SPARE	36
37	SPARE	20 A	1	0	0					1	20 A	SPARE	38
39	SPARE	20 A	1			0	0			1	20 A	SPARE	40
41													42
			Total Load:	8.84 kVA		8.47 kVA		7.77 kVA					
			Total Amps:	74.56		71.46		64.75					

[Key*:] *8 #8 WIRE *10 #10 WIRE *G GFCI BREAKER

PANEL NAME: B

TYPE: BOLT-ON
MOUNTING: RECESSED
FED FROM: DP-MAIN
SCCR: 20,000 SCR
LOCATION: Space 21

SOLID NEUTRAL
GROUND BUS

CONNECTED 48.3 kVA
MAIN: 225 A/
VOLTS: 120/208 Wye
PHASE: 3
WIRE: 4
DEMAND: 48.08 kVA

Panel Notes:

CKT NO.	LOAD DESCRIPTION	OVERCURRENT PROTECTION AMPS	P	A		B		C		OVERCURRENT PROTECTION P	AMPS	LOAD DESCRIPTION	CKT NO.
1	Receptacles	20 A	1	0.72	0.72					1	20 A	Receptacles	2
3	PRINTER	20 A	1			1	1			1	20 A	Receptacles	4
5	Receptacles	20 A	1					1	0.9	1	20 A	Receptacles	6
7	Receptacles	20 A	1	0.72	1					2	30 A	DFSS-1 *10	8
9	Receptacles *10	20 A	1			0.54	1			--	--	--	10
11	Receptacles	20 A	1					0.9	0.8	2	15 A	WSHP-1	12
13	Receptacles	20 A	1	0.54	0.8					--	--	--	14
15	Receptacles	20 A	1			0.72	0.67			3	20 A	MAU-1 *8	16
17	DDC PANEL *10	20 A	1					0.2	0.67	--	--	--	18
19	UH-201	20 A	1	0.5	0.67					--	--	--	20
21	Receptacles *10	20 A	1			0.9	0.34			1	20 A	Lighting *10	22
23	Lighting *10	20 A	1					0.21	1	1	20 A	Power Space 17	24
25	Lighting	20 A	1	0.4	0.25					1	20 A	Lighting *10	26
27	WH-1 *8	20 A	1			1	1			1	20 A	WS-1 *8	28
29	WCCU-1 *8	50 A	3					3.67	1.8	1	20 A	DOAS-1	30
31	--	--	--	3.67	0.36					1	20 A	Receptacles	32
33	--	--	--			3.67	1			1	20 A	Power Space 17	34
35	WCCU-2 *10	20 A	3					1.67	0.36	1	20 A	Receptacles	36
37	--	--	--	1.67	1.27					3	20 A	Power Space 17	38
39	--	--	--			1.67	1.27			--	--	--	40
41	Power Space 17	20 A	3					1.27	1.27	--	--	--	42
43	--	--	--	1.27	0.5					2	15 A	BS-1	44
45	--	--	--			1.27	0.5			--	--	--	46
47													48
49													50
51													52
53													54
			Total Load:	15.03 kVA		17.53 kVA		15.71 kVA					
			Total Amps:	125.28		146.96		131.74					

[Key*:] *8 #8 WIRE *10 #10 WIRE *G GFCI BREAKER

PANEL NAME: C

TYPE: BOLT-ON
MOUNTING: SURFACE
FED FROM: DP-MAIN
SCCR: 20,000 SCR
LOCATION: Janitor Closet 108

SOLID NEUTRAL
GROUND BUS

CONNECTED 35.7 kVA
MAIN: 225 A/MLO
VOLTS: 120/208 Wye
PHASE: 3
WIRE: 4
DEMAND: 33.23 kVA

Panel Notes:

CKT NO.	LOAD DESCRIPTION	OVERCURRENT PROTECTION AMPS	P	A		B		C		OVERCURRENT PROTECTION P	AMPS	LOAD DESCRIPTION	CKT NO.
1	Receptacles	20 A	1	1.26	0.5					2	15 A	IU-7	2
3	IU-3	15 A	2			0.5	0.5			--	--	--	4
5	--	--	--					0.5	0.5	2	15 A	IU-5	6
7	Receptacles	20 A	1	0.54	0.5					--	--	--	8
9	REFRIGERATOR	20 A	1			1.2	2			1	20 A	MICROWAVE	10
11	IU-8	15 A	2					0.5	1	1	20 A	EWC *G	12
13	--	--	--	0.5	0.5					2	15 A	IU-9	14
15	Receptacles	20 A	1			0.72	0.5			--	--	--	16
17	Receptacles	20 A	1					1.62	0.9	1	20 A	Receptacles	18
19	FAP-1	20 A	1	0.3	0.05					1	20 A	RESTROOM SINK/TOILET SENSORS	20
21	IU-6	15 A	2			0.5	0.5			2	15 A	IU-1	22
23	--	--	--					0.5	0.5	--	--	--	24
25	IU-4	15 A	2	0.25	0.5					2	15 A	IU-2	26
27	--	--	--			0.25	0.5			--	--	--	28
29	Power	20 A	1					1	0.9	1	20 A	Receptacles	30
31	Receptacles	20 A	1	0.9	0.9					1	20 A	Receptacles	32
33	SOLATUBE CONTROLS	20 A	1			0.21	0.65			1	20 A	Lighting	34
35	PP-1	20 A	1					1.36	1.36	1	20 A	PP-1	36
37	Lighting	20 A	1	0.4	0.5					2	15 A	BS-2	38
39							0.5			--	--	--	40
41									1.2	1	20 A	GD-1	42
43	CAB-1 *8	40 A	2	3	1					1	20 A	Receptacles	44
45	--	--	--			3	1			1	20 A	ADA OPERATORS	46
47	SPARE	20 A	1					0	0	1	20 A	SPARE	48
49	SPARE	20 A	1	0	0					1	20 A	SPARE	50
51	SPARE	20 A	1			0	0			1	20 A	SPARE	52
53	SPARE	20 A	1					0	0	1	20 A	SPARE	54
			20	11.6 kVA		12.53 kVA		11.84 kVA					
			Total Amps:	96.63		104.71		98.98					

[Key*:] *8 #8 WIRE *10 #10 WIRE *G GFCI BREAKER

DISCONNECT AND STARTER SCHEDULE

NOTE: ALL DISCONNECTS (EXCEPT MANUAL STARTERS) SHALL BE HEAVY DUTY TYPE.

DISCONNECT TYPE:	**REMARKS:**	
FU - FUSED	SA - STANDARD ACCESSORIES (INCLUDES * ITEMS)	PF - PHASE FAILURE RELAY (5 HP OR GREATER)
NF - NON-FUSED	*CT - CONTROL TRANSFORMER, FUSED 120V	TO - MELTING THERMAL OVERLOADS
CB - CIRCUIT BREAKER	*EO - ELECTRONIC OVERLOAD	TS - 2 SPEED SELECTOR SWITCH IN DOOR
	*HA - HAND-OFF-AUTO IN DOOR	GP - GREEN (OFF) PILOT LIGHT IN DOOR
STARTER TYPE:	*RP - RED PILOT LIGHT IN DOOR	FA - 4-CONVERTIBLE AUXILIARY CONTACTS
FV - FULL VOLTAGE	*TA - TWO CONVERTIBLE AUXILIARY CONTACTS	EI - ELECTRICAL INTERLOCK (2)-N.O. & (2)-N.C.
YD - WYE - DELTA	S/N - INSULATED NEUTRAL ASSEMBLY	SS - START-STOP PUSHBUTTON IN DOOR
RE - REVERSING	EL - COORDINATE FUSE SIZE WITH ELEVATOR MANUF.	HL - HANDLE PADLOCK HASP
TW - 2 SPEED, 2 WINDING		
SW - 2 SPEED, 1 WINDING		
RV - REDUCED VOLTAGE AUTOXFMR		
SS - SOLID STATE		
MS - MANUAL STARTER		
MX - MANUAL SWITCH		
FS - FUSED SWITCH		

ITEM	DISCONNECT TYPE & RATING: TYPE	RATING	CIRCUIT VOLTAGE	POLES	STARTER: NEMA SIZE	TYPE	NEMA ENCLOSURE	REMARKS	APPROVED MANUFACTURERS
FDS-30A	FU	30 A	208 V	3			1	FUSED AT 30 AMPS	SQUARE D 3110 H321N CUTLER-HAMMER TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF
FDS-30B	FU	30 A	208 V	2			1	FUSED AT 15 AMPS	SQUARE D 3110 H321N CUTLER-HAMMER TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF
FDS-30C	FU	30 A	208 V	2			1	FUSED AT 30 AMPS	SQUARE D 3110 H321N CUTLER-HAMMER TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF
FDS-30E	FU	30 A	208 V	3			1	FUSED AT 20 AMPS	SQUARE D 3110 H321N CUTLER-HAMMER TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF
FDS-60B	FU	60 A	208 V	3			1	FUSED AT 50 AMPS	SQUARE D 3110 H322N CUTLER-HAMMER TYPE DH GENERAL ELECTRIC TYPE TH SIEMENS TYPE HF

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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Schematic Design	02/22/2016

Revision Dates

Drawing
ELECTRICAL SCHEDULES

OPN Project No. **15617000**

E501

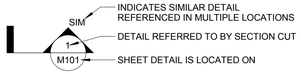
KJWW ENGINEERING CONSULTANTS
The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
PROJECT # 16.0141.00

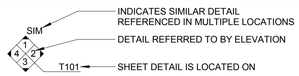
REFERENCE SCALE IN INCHES
0 1 2 3

VIEW KEY

NAME — LEVEL NAME
10' - 0" — HEIGHT ABOVE PROJECT 0' - 0"

1 — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL





LINE TYPE KEY:

- NEW WORK BY THIS CONTRACTOR (DARK SOLID LINE)
- NEW WORK UNDERFLOOR OR UNDERGROUND BY THIS CONTRACTOR (DARK LONG DASHED LINE)
- NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
- EXISTING TO BE REMOVED BY THIS CONTRACTOR (DARK SHORT DASHED LINE)

COLD WATER CALCULATION WORKSHEET

63	MINIMUM PRESSURE AT CONNECTION TO CITY MAIN OR WELL TANK (PSIG)
- 1.9	PRESSURE DROP IN 200 FEET OF 6" PIPE FROM SERVICE CONNECTION TO METER AT 69 GPM CALCULATED BUILDING DEMAND PER STATE CODE.
- 25	RESIDUAL PRESSURE NEEDED AT CRITICAL FIXTURE AT MAXIMUM ELEVATION.
- 1.2	PRESSURE DROP OF ELEVATION DIFFERENCE FROM SERVICE CONNECTION TO LIMITING FIXTURE. ELEVATION DIFFERENCE IN FEET X 0.434 = PSI.
- 0	PRESSURE DROP OF BACKFLOW PREVENTER (PSI).
- 0	PRESSURE DROP OF WATER SOFTENER (PSI).
- 5	PRESSURE DROP THROUGH 1 1/2" WATER METER.
- 0	PRESSURE DROP OF WATER HEATER (PSI).
= 29.9	PRESSURE DROP AVAILABLE FOR PIPING SYSTEM LOSSES (PSI)
X 100	MULTIPLY TO CONVERT FROM PSI/FOOT TO PSI/100 FEET.
/ 325	DIVIDE BY EQUIVALENT LENGTH OF PIPING FROM METER TO CRITICAL FIXTURE (FEET) X 1.5 (FITTING LOSS))
= 9	CALCULATED ALLOWABLE PIPING PRESSURE DROP (PSI/100 FEET).
= 5	DESIGN PIPING PRESSURE DROP (PSI/100 FEET) PER HOT WATER CALCULATION.

PIPE SIZING IS PER SPS382 TABLE 382.40-5 UP TO 2" SIZE AND SPS382 TABLE 382.40-7 FOR LARGER PIPING, BUT NOT OVER 6 PSI/100 FEET OR 8 FPS FOR ANY SIZE.

HOT WATER CALCULATION WORKSHEET

63	MINIMUM PRESSURE AT CONNECTION TO CITY MAIN OR WELL TANK (PSIG)
- 1.9	PRESSURE DROP IN 200 FEET OF 6" PIPE FROM SERVICE CONNECTION TO METER AT 69 GPM CALCULATED BUILDING DEMAND PER STATE CODE.
- 20	RESIDUAL PRESSURE NEEDED AT CRITICAL FIXTURE AT MAXIMUM ELEVATION.
- 6	PRESSURE DROP OF ELEVATION DIFFERENCE FROM SERVICE CONNECTION TO LIMITING FIXTURE. ELEVATION DIFFERENCE IN FEET X 0.434 = PSI.
- 0	PRESSURE DROP OF BACKFLOW PREVENTER (PSI).
- 10	PRESSURE DROP OF WATER SOFTENER (PSI).
- 5	PRESSURE DROP THROUGH 1 1/2" WATER METER.
- 5	PRESSURE DROP OF WATER HEATER (PSI).
= 15.1	PRESSURE DROP AVAILABLE FOR PIPING SYSTEM LOSSES (PSI)
X 100	MULTIPLY TO CONVERT FROM PSI/FOOT TO PSI/100 FEET.
/ 325	DIVIDE BY EQUIVALENT LENGTH OF PIPING FROM METER TO CRITICAL FIXTURE (FEET) X 1.5 (FITTING LOSS))
= 5	MAXIMUM ALLOWABLE PIPING PRESSURE DROP (PSI/100 FEET).

PIPE SIZING IS PER SPS382 TABLE 382.40-5 UP TO 2" SIZE AND SPS382 TABLE 382.40-7 FOR LARGER PIPING, BUT NOT OVER 6 PSI/100 FEET OR 8 FPS FOR ANY SIZE.

PLUMBING SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
CA	COMPRESSED AIR
CW	COLD WATER - POTABLE
D	DRAIN
DT	DRAIN TILE
G	NATURAL GAS
GV	GAS REGULATOR VENT
HW	HOT WATER - POTABLE
HWC	HOT WATER CIRCULATING - POTABLE
P	PROPANE GAS
PD	PUMPED DISCHARGE
SAN	SANITARY DRAINAGE
SCW	SOFT COLD WATER
ST(1,000)	STORM DRAINAGE (ROOF SQUARE FOOTAGE)
STS	STORM DRAINAGE (SECONDARY)
STW	SOFT TEMPERED WATER
TW	TEMPERED WATER
V	VENT
VAC	LAB VACUUM
W	SERVICE WATER - POTABLE
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
FD	PIPE SERVING FIXTURE ON FLOOR ABOVE (EXAMPLE: FD = FLOOR DRAIN)
	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
RD-1 6"(1000)	ROOF DRAIN PROPERTIES SYMBOL / SIZE (ROOF SQ. FT.)
	NEW CONNECTION
	DIELECTRIC CONNECTION
	UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
GPM	BALANCING VALVE (NUMBER INDICATES GPM)
	CHECK VALVE
	SOLENOID VALVE
	SAFETY/RELIEF VALVE
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
	PRESSURE REDUCING VALVE (LIQUID/GAS)
	PUMP
M	METER
	VACUUM BREAKER
P	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
T	TEMPERATURE SENSOR WITH WELL
T	THERMOMETER WITH WELL (DIAL TYPE)
	THERMOMETER WITH WELL (FILLED TYPE)
	PIPE ANCHOR

PLUMBING FIXTURE ROUGH-IN SCHEDULE

NOTES: 1) SANITARY RISER UP IN WALL TO FIXTURE SHALL BE A MINUMUM OF 2". 2) 1/2" CW AND HW APPLIES ONLY TO THE FINAL VERTICAL RISE-DROP TO EACH FIXTURE, BRANCH PIPING TO VERTICAL RISE-DROP SHALL BE A MINIMUM OF 3/4" UNLESS NOTED OTHERWISE. 3) SIZES SHOWN ARE MINIMUMS. SIZES SHOWN ON THE DRAWING THAT ARE LARGER THAN THE SIZES LISTED IN THE SCHEDULE SHALL DICTATE THE ROUGH-IN SIZE.

FIXTURE DESCRIPTION	DOMESTIC CW (NOTE 3)	DOMESTIC HW (NOTE 3)	SANITARY (NOTE 3)	VENT (NOTE 3)	REMARKS
ELECTRIC WATER COOLER	1/2"	-	1 1/2"	1 1/4"	NOTE 1 & 2
FLOOR DRAIN	-	-	2"	1 1/2"	-
FLOOR DRAIN	-	-	4"	2"	-
HOSE BIBB	3/4"	-	-	-	-
LAVATORY	1/2"	1/2"	1 1/4"	1 1/4"	NOTE 1 & 2
MOP BASIN	3/4"	3/4"	3"	1 1/2"	-
SERVICE SINK	3/4"	3/4"	3"	1 1/2"	-
SHOWER	1/2"	1/2"	2"	1 1/2"	NOTE 2
SINK	1/2"	1/2"	1 1/2"	1 1/2"	NOTES 1 & 2
TRENCH DRAIN	-	-	4"	2"	-
URINAL	3/4"	-	2"	1 1/2"	-
WATER CLOSET	1"	-	4"	2"	-

PLUMBING ABBREVIATION KEY

ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BT	BATHTUB
CB	CATCH BASIN
CI	CAST IRON
CO	CLEANOUT
CS	CLINICAL SINK
DB	DIALYSIS BOX
DF	DRINKING FOUNTAIN
DI	DUCTILE IRON
E	EXISTING
EE	EMERGENCY EYEWASH
ES	EMERGENCY SHOWER
ESE	EMERGENCY SHOWER/EYEWASH
EWC	ELECTRIC WATER COOLER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FM	FLOW METER
FS	FLOOR SINK
GD	GARBAGE DISPOSER
GI	GREASE INTERCEPTOR
HB	HOSE BIBB
I.E.	INVERT ELEVATION (FOR REFERENCE ONLY)
LAV	LAVATORY
MB	MOP BASIN
MH	MANHOLE
MV	MIXING VALVE
NC	NEW CONNECTION
NIC	NOT IN CONTRACT
NT	NEUTRALIZATION TANK
OS	OIL SEPARATOR
RD	ROOF DRAIN
SH	SHOWER
SK	SINK
SS	SERVICE SINK
TD	TRENCH DRAIN
TP	TRAP PRIMER
TYP	TYPICAL
UR	URINAL
VTR	VENT THROUGH ROOF
WC	WATER CLOSET
WCO	WALL CLEANOUT
WF	WASH FOUNTAIN
WH	WATER HEATER
WMF	WASHING MACHINE FIXTURE
WM	WATER METER
WS	WATER SOFTENER
UB	UTILITY BOX
UNO	UNLESS NOTED OTHERWISE
YCO	YARD CLEANOUT

PLUMBING SHEET INDEX

PLUMBING GENERAL NOTES:

1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
2. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN.
3. CONTRACTOR SHALL VERIFY THAT FIXTURES SUPPLIED ARE APPROVED PER ALL APPLICABLE STATE, LOCAL AND GOVERNING AUTHORITIES.
4. ALL FIXTURES SHALL CONFORM TO FEDERAL ACT S.3874
5. INVERT ELEVATIONS ARE FROM EXISTING DRAWINGS AND MAY NOT BE ACCURATE. VERIFY ALL ELEVATIONS BEFORE BEGINNING WORK.
6. VERIFY UNDERGROUND PIPE SIZES, INVERT ELEVATIONS, AND LOCATIONS PRIOR TO BEGINNING ANY WORK.
7. REFER TO THE PLUMBING ROUGH-IN SCHEDULE FOR THE SIZES OF BRANCH PIPES TO PLUMBING FIXTURES.
8. FOR CLARITY, NOT ALL VALVES HAVE BEEN SHOWN. PROVIDE SHUTOFF VALVES IN DOMESTIC WATER PIPING SERVING EACH FIXTURE. ANGLE STOPS SHALL NOT BE CONSIDERED SHUTOFF VALVES.
9. EXISTING CONDITIONS ON DEMOLITION PLANS ARE PROVIDED TO INDICATE THE GENERAL SCOPE OF ITEMS TO BE REMOVED. SEE SPECIFICATION SECTION 22 05 05 FOR ADDITIONAL DEMOLITION INFORMATION.
10. P.C. SHALL CUT AND PATCH EXISTING AS REQUIRED FOR NEW OR DEMOLITION WORK UNLESS NOTED OTHERWISE. SEE SPECIFICATION SECTION 22 05 05 FOR ADDITIONAL INFORMATION.

PLUMBING DEMOLITION NOTES:

1. THE DRAWINGS ARE INTENDED TO INDICATE THE SCOPE OF DEMOLITION WORK REQUIRED AND DO NOT INDICATE EVERY PIPE OR PIECE OF EQUIPMENT THAT MUST BE REMOVED. ACCESSIBILITY OF EQUIPMENT AND SYSTEMS IS NOT SHOWN NOR SHOULD IT BE INFERRED. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID AND VERIFY EXISTING CONDITIONS.
2. CONTRACTOR IS RESPONSIBLE FOR ALL COST ASSOCIATED WITH CEILING SYSTEM DISASSEMBLY AND REASSEMBLY TO ACCOMMODATE THIS WORK. CONTRACTOR TO SALVAGE, STORE, AND REINSTALL ALL CEILING MOUNTED DEVICES.
3. CONTRACTOR IS RESPONSIBLE FOR PATCHING ALL PENETRATIONS CREATED BY REMOVAL OF EQUIPMENT, DUCTWORK, PIPING, ETC. TO MATCH EXISTING. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. PATCH TO MATCH ORIGINAL CONSTRUCTION. VERIFY ALTERNATIVE OR SPECIAL REPAIR METHODS WITH ARCHITECT/ENGINEER BEFORE PROCEEDING WITH DEMOLITION.
4. CONTRACTOR IS RESPONSIBLE FOR ALL MODIFICATIONS TO THE EXISTING SPRINKLER PIPING, PLUMBING PIPING, HVAC PIPING, AND DUCTWORK NECESSARY TO PERMIT THE INSTALLATION OF NEW WORK.
5. PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION.
6. WHEN WORK MUST BE PERFORMED ON OPERATING EQUIPMENT, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.
7. EXTEND EXISTING INSTALLATIONS USING MATERIAL AND METHODS COMPATIBLE WITH EXISTING MECHANICAL INSTALLATIONS, OR AS SPECIFIED FOR INTENDED SERVICE.
8. EXISTING PLUMBING SYSTEM: MAINTAIN SERVICE TO ALL PLUMBING FIXTURES UNTIL NEW PIPING IS INSTALLED. OBTAIN PERMISSION FROM OWNER AT LEAST 48 HOURS BEFORE SHUTTING DOWN SYSTEM FOR ANY REASON. MAKE CHANGEOVER TO NEW PIPING WITH MINIMUM OUTAGE. DO NOT DISCONNECT ANY ROOF DRAINAGE PIPING UNTIL NEW PIPING IS IN PLACE AND OPERATIONAL.
9. ALL SYSTEM CHANGEOVERS BE COMPLETED IN OVERTIME, NOT DURING NORMAL WORKING HOURS.
10. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
11. REMOVE ABANDONED PIPING TO SOURCE OF SUPPLY AND/OR MAIN LINES AND CAP OR MAKE READY FOR RECONNECTION IF SERVICE IS EXTENDED AS PART OF NEW WORK.
12. REMOVE EXPOSED ABANDONED PIPING INCLUDING ABANDONED PIPING ABOVE ACCESSIBLE CEILING FINISHES. CUT PIPING ABOVE CEILINGS, BELOW FLOORS, AND BEHIND WALLS. CAP REMAINING LINES. REMOVE ALL ASSOCIATED CLAMPS, HANGERS, SUPPORTS, ETC., ASSOCIATED WITH PIPING REMOVAL.
13. DISCONNECT AND REMOVE MECHANICAL DEVICES AND EQUIPMENT SERVING EQUIPMENT THAT HAS BEEN REMOVED.
14. MAINTAIN ACCESS TO EXISTING MECHANICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.
15. MECHANICAL ITEMS REMOVED AND NOT RELOCATED REMAIN THE PROPERTY OF THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF MATERIAL THE OWNER DOES NOT WANT TO REUSE OR RETAIN FOR MAINTENANCE PURPOSES.

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
9. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
10. SEAL ALL FLOOR, WALL, AND ROOF PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
11. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
12. WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
13. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY BETWEEN DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
14. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
15. MAINTAIN MINIMUM 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL PANELS, MOTOR STARTERS, SWITCHES, AND DISCONNECTS.
16. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
17. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

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MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
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Key Plan

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Drawing
COVER SHEET - PLUMBING

OPN Project No. 15617000

P000

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The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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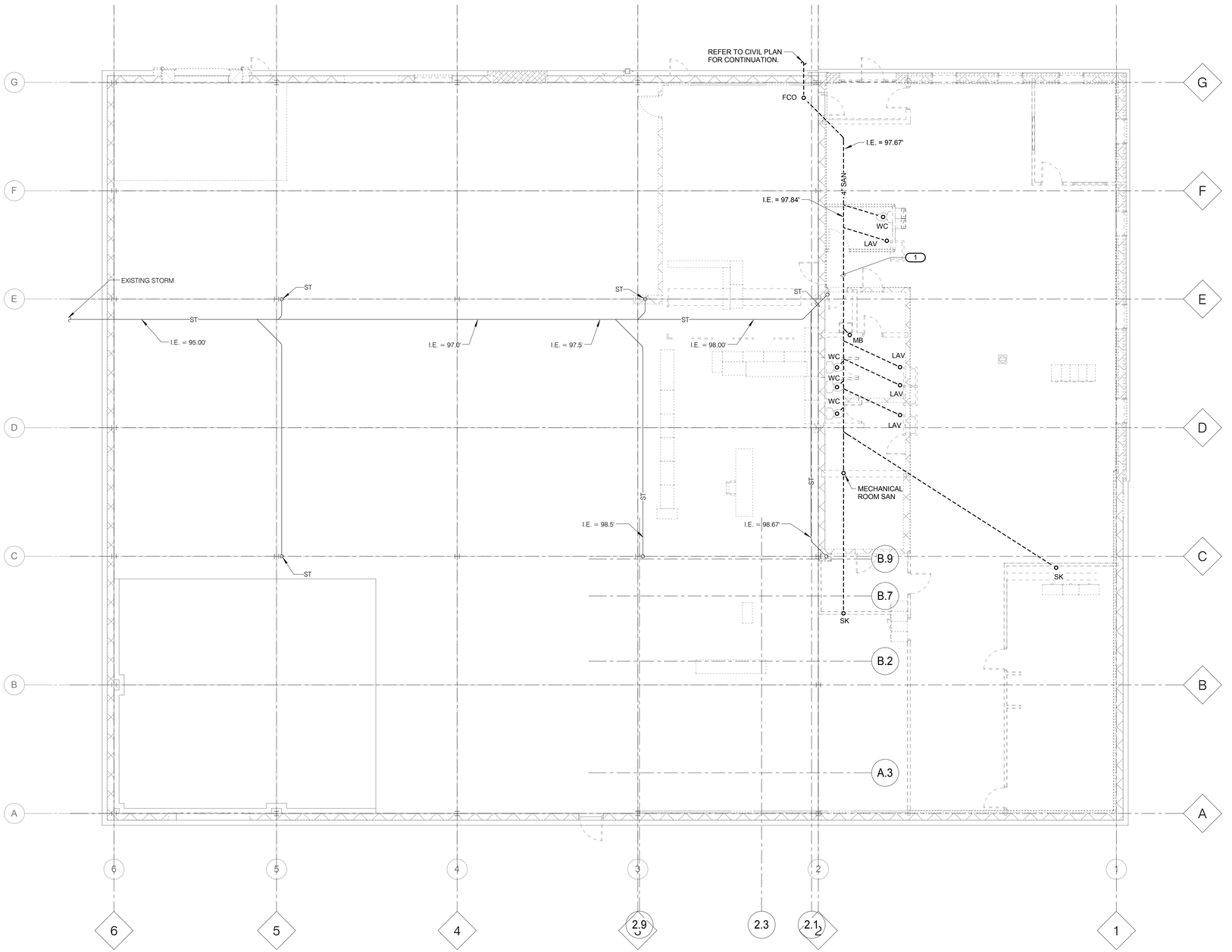
REFERENCE SCALE IN INCHES
0 1 2 3

KEYNOTES: (#)

1. CONTRACTOR TO SAWCUT FLOOR AND REMOVE ALL EXISTING SANITARY AND VENT PIPING WITHIN THE BUILDING. COORDINATE WITH EXISTING CONDITIONS.



NORTH

1 UNDERFLOOR DEMOLITION - PLUMBING

1/8" = 1'-0"

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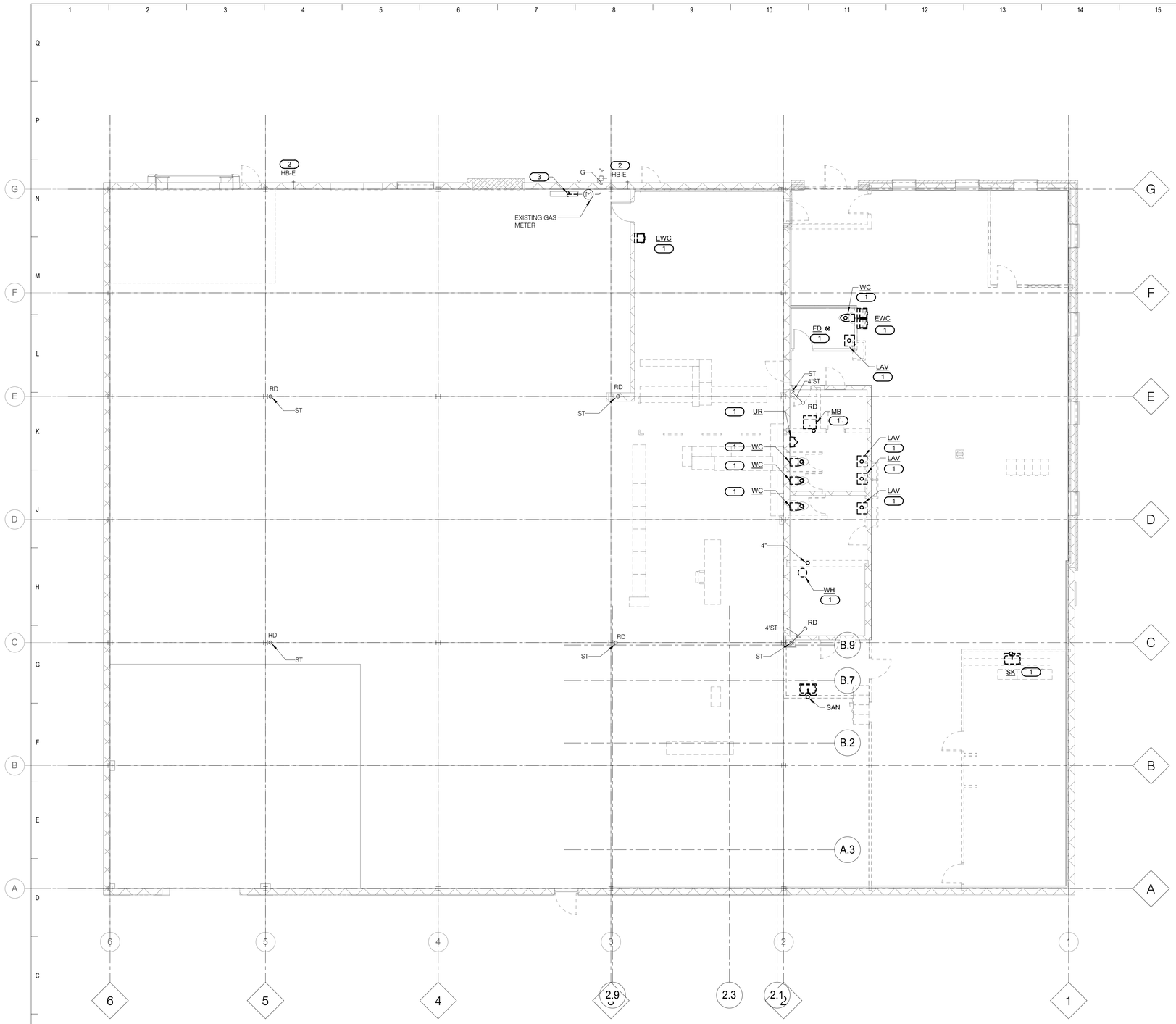
Drawing
UNDERFLOOR DEMOLITION - PLUMBING

OPN Project No. 15617000

PD100.1



KEYNOTES: (#)

1. REMOVE EXISTING PLUMBING FIXTURE AND ASSOCIATED CW,HW,HWC,VENT,SANITARY PIPING AND ACCESSORIES ON THIS FLOOR AS WELL AS UNDER FLOOR.
2. REMOVE PIPING AND PIPE CONNECTION TO EXISTING HOSE BIBB TO REMAIN. REFER TO SHEET P101.1 FOR NEW CONNECTION.
3. THIS CONTRACTOR TO FIELD VERIFY AND REMOVE ALL EXISTING GAS PIPING BACK TO GAS METER. COORDINATE WITH EXISTING CONDITIONS. PREPARE FOR NEW CONNECTION TO MATCH NEW PLANS SHOWN ON SHEET P101.1

FIRST FLOOR DEMOLITION - PLUMBING

1/8" = 1'-0"

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MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Madison, WI 53703

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Snyder & Associates, Inc.
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P. 608.838.0444

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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1800 Deming Way
Middleton, WI 53562
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KJWW Engineering Consultants
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Middleton, WI 53562
P. 608.223.9600

Key Plan

Sheet Issue Date

Permit Set	09/09/16

Previous Issue Dates

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Design Development	06/16/2016
Schematic Design	02/22/2016

Revision Dates

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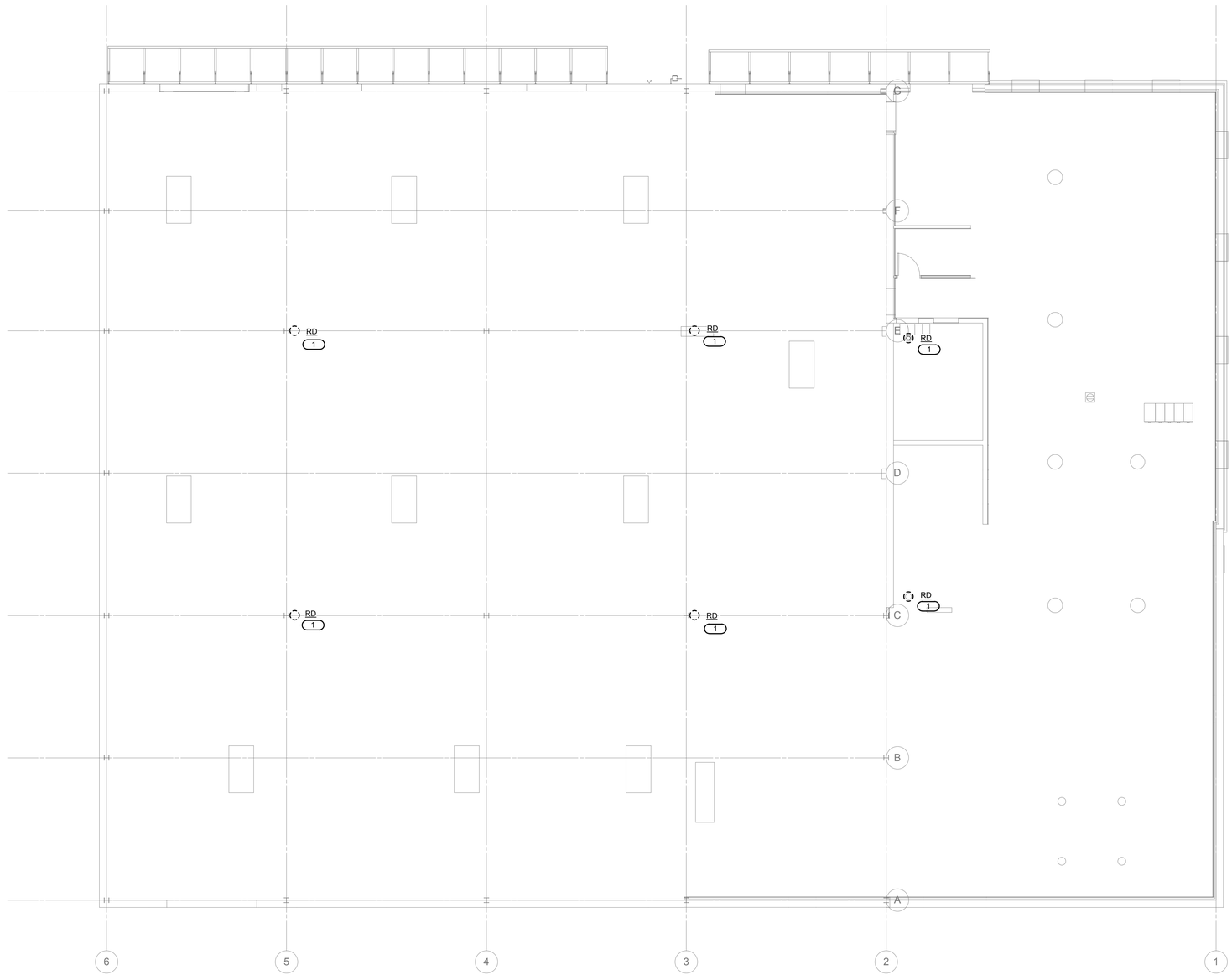
REFERENCE SCALE IN INCHES
0 1 2 3

Drawing
FIRST FLOOR
DEMOLITION - PLUMBING

OPN Project No. 15617000

PD101.1



KEYNOTES: #

1. REMOVE EXISTING ROOF DRAINS AND PREPARE EXISTING STORM RISERS FOR CONNECTION TO NEW ROOF DRAINS AS SHOWN ON SHEET P102.1.

NORTH

1 **ROOF DEMOLITION PLAN - PLUMBING**

1/8" = 1'-0"

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MADISON

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P. 608.223.9600

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REFERENCE SCALE IN INCHES
0 1 2 3

Drawing

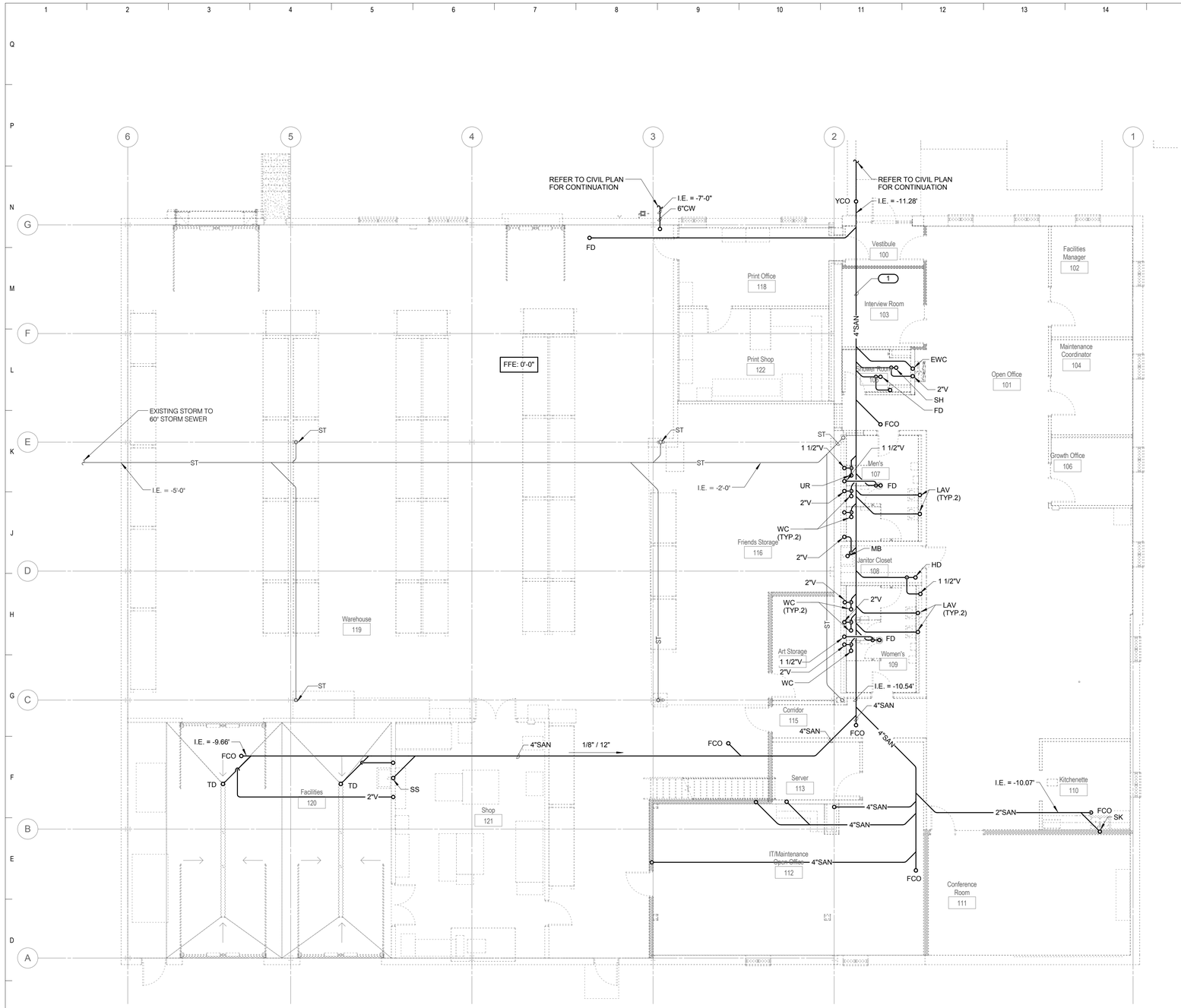
ROOF PLAN DEMOLITION - PLUMBING

OPN Project No. **15617000**

PD102.1

KEYNOTES: (#)

1. CONTRACTOR TO SAWCUT FLOOR TO INSTALL NEW SANITARY MAIN AND BRANCH PIPING TO CONNECT NEW FIXTURES THROUGHOUT THE BUILDING.



NORTH

1 UNDERFLOOR - PLUMBING

1/8" = 1'-0"

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DES MOINES
MADISON

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0 1 2 3

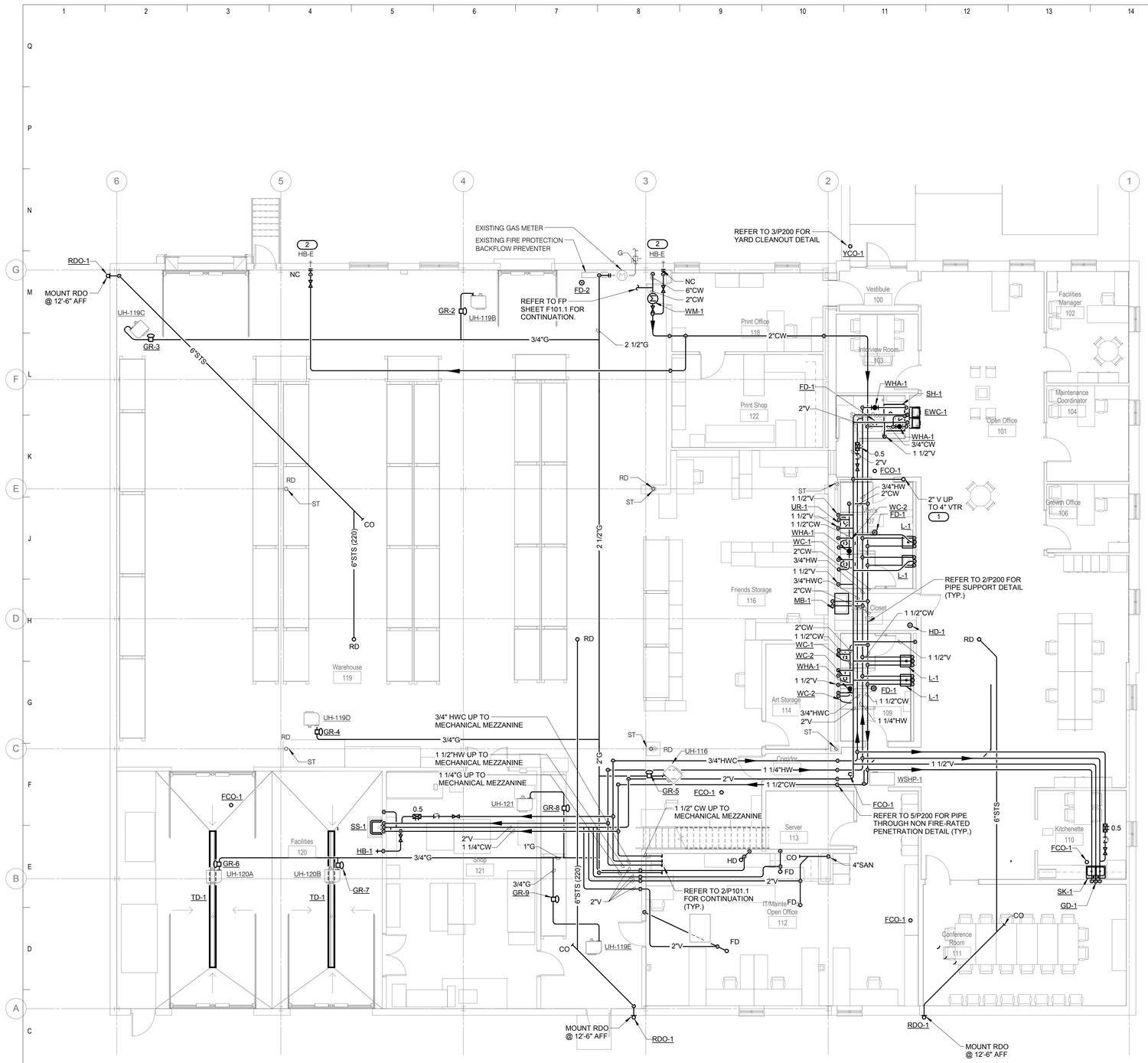
Drawing
UNDERFLOOR-PLUMBING

OPN Project No. 15617000

P100.1

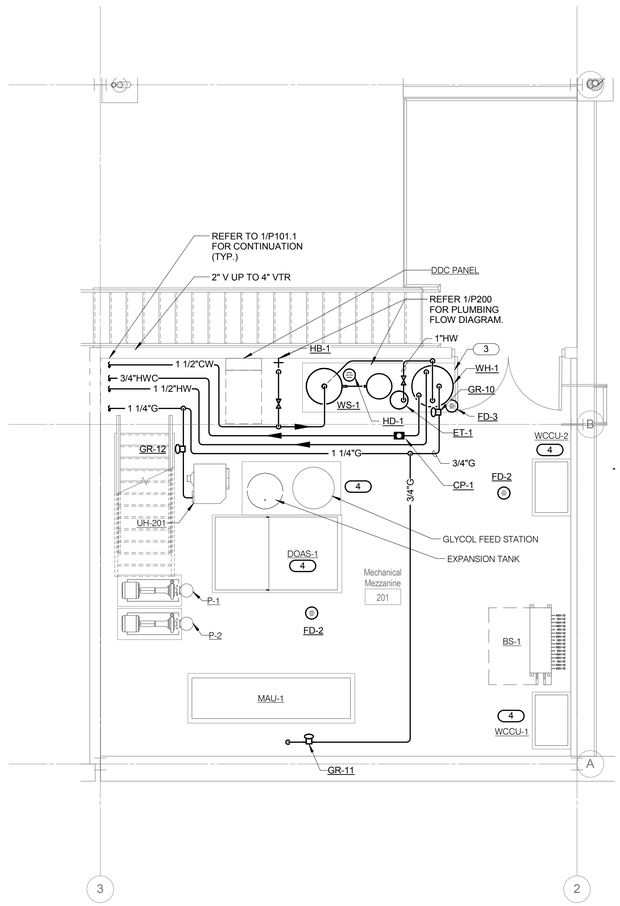
KEYNOTES: (#)

1. P.C. TO PROVIDE ROOF PENETRATION AS REQUIRED AND TO COORDINATE IT WITH GENERAL CONTRACTOR.
2. CONNECT CW PIPING TO EXISTING HOSE BIBB.
3. P.C. TO PROVIDE 4" HOUSEKEEPING PAD.
4. ROUTE DRAIN PIPING TO THE NEAREST FLOOR DRAIN.



1 FIRST FLOOR - PLUMBING

1/8" = 1'-0"



2 ENLARGED PLAN - MEZZANINE - PLUMBING

1/4" = 1'-0"

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REFERENCE SCALE IN INCHES
0 1 2 3

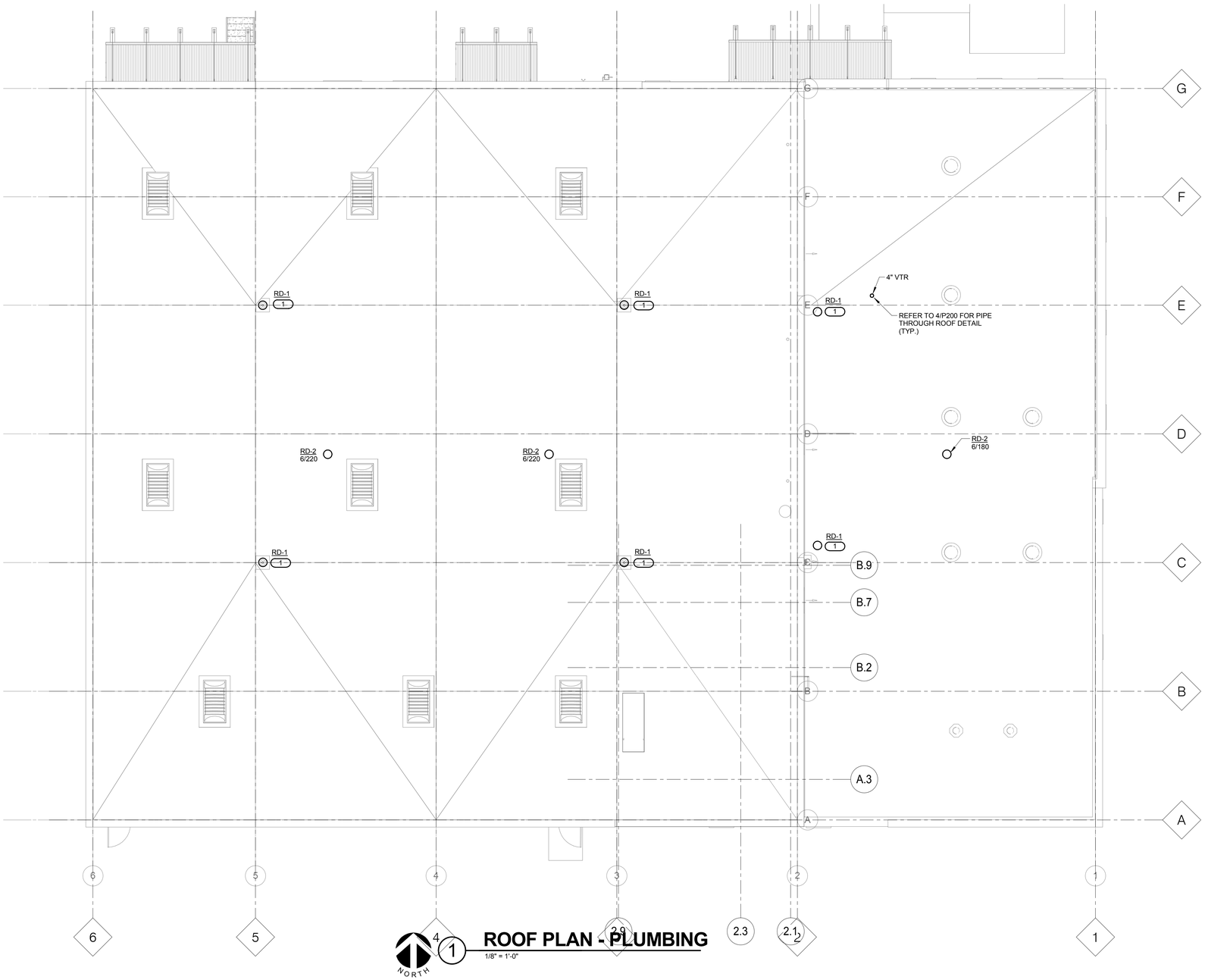
Drawing
FIRST FLOOR - PLUMBING

OPN Project No. 15617000

P101.1

KEYNOTES: (#)

1. PROVIDE NEW ROOF DRAIN CONNECTION IN EXISTING STORM PIPING TO NEW. COORDINATE WITH EXISTING RISER AND EXISTING ROOF.



ROOF PLAN - PLUMBING

1/8" = 1'-0"

NORTH

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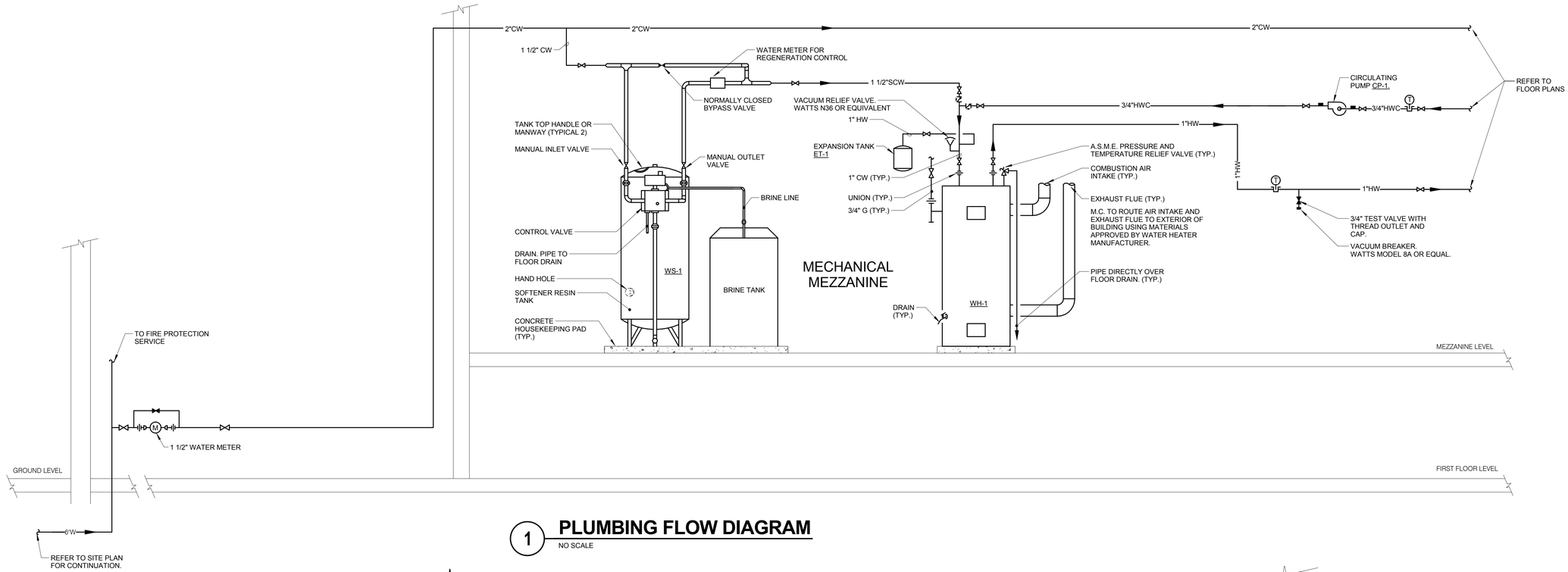
REFERENCE SCALE IN INCHES
0 1 2 3

Drawing
ROOF PLAN - PLUMBING

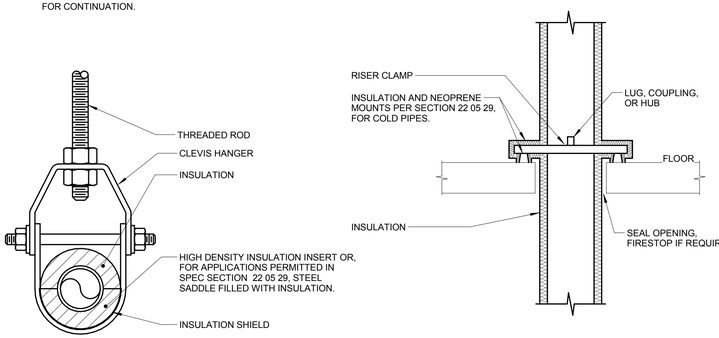
OPN Project No. 15617000

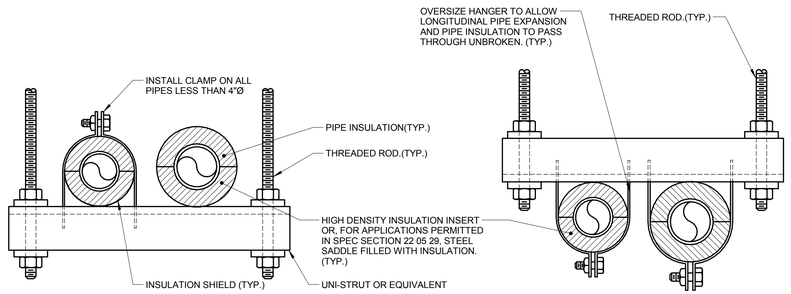
P102.1



1 PLUMBING FLOW DIAGRAM

NO SCALE



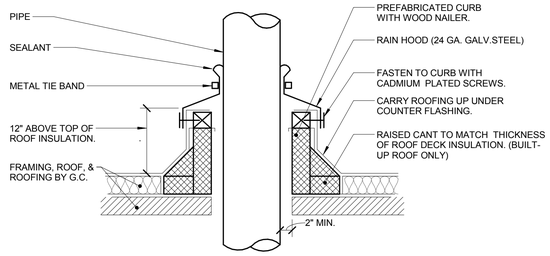


2 PIPE SUPPORT DETAIL

NO SCALE

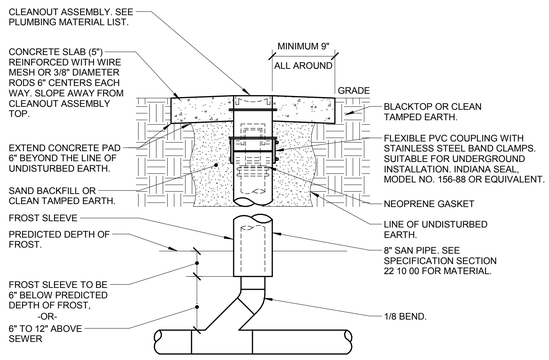
NOTES:

1. REFER TO SPECIFICATION SECTIONS 22 05 29 & 22 07 19.



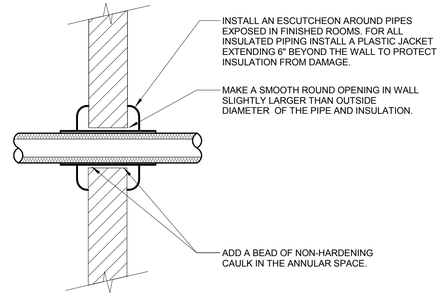
4 PIPE THRU ROOF (BUILT-UP ROOF)

NO SCALE



3 YARD CLEANOUT DETAIL

NO SCALE



5 PIPE THROUGH NON-FIRE RATED WALL

NO SCALE

NOTES:

1. THIS DETAIL APPLIES TO ALL PIPES. THE INTENTION IS TO CONTINUE THE INSULATION AND VAPOR BARRIER THROUGH ALL PENETRATIONS. PERMIT THERMAL EXPANSION WITHOUT DAMAGING INSULATION, AND TO SEAL AIRTIGHT AROUND INSULATED AND UNINSULATED PIPES FOR NOISE TRANSMISSION CONTROL.
2. FLOOR OPENINGS ARE SIMILAR SEE SPECIFICATION SECTION 22 05 29 - PLUMBING FOR DIFFERENCES BETWEEN FLOOR AND WALL PENETRATIONS.
3. SEE SPECIFICATION SECTION 22 05 29 - PLUMBING FOR ADDITIONAL INFORMATION.

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CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
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1800 Deming Way
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Middleton, WI 53562
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P. 608.223.9600

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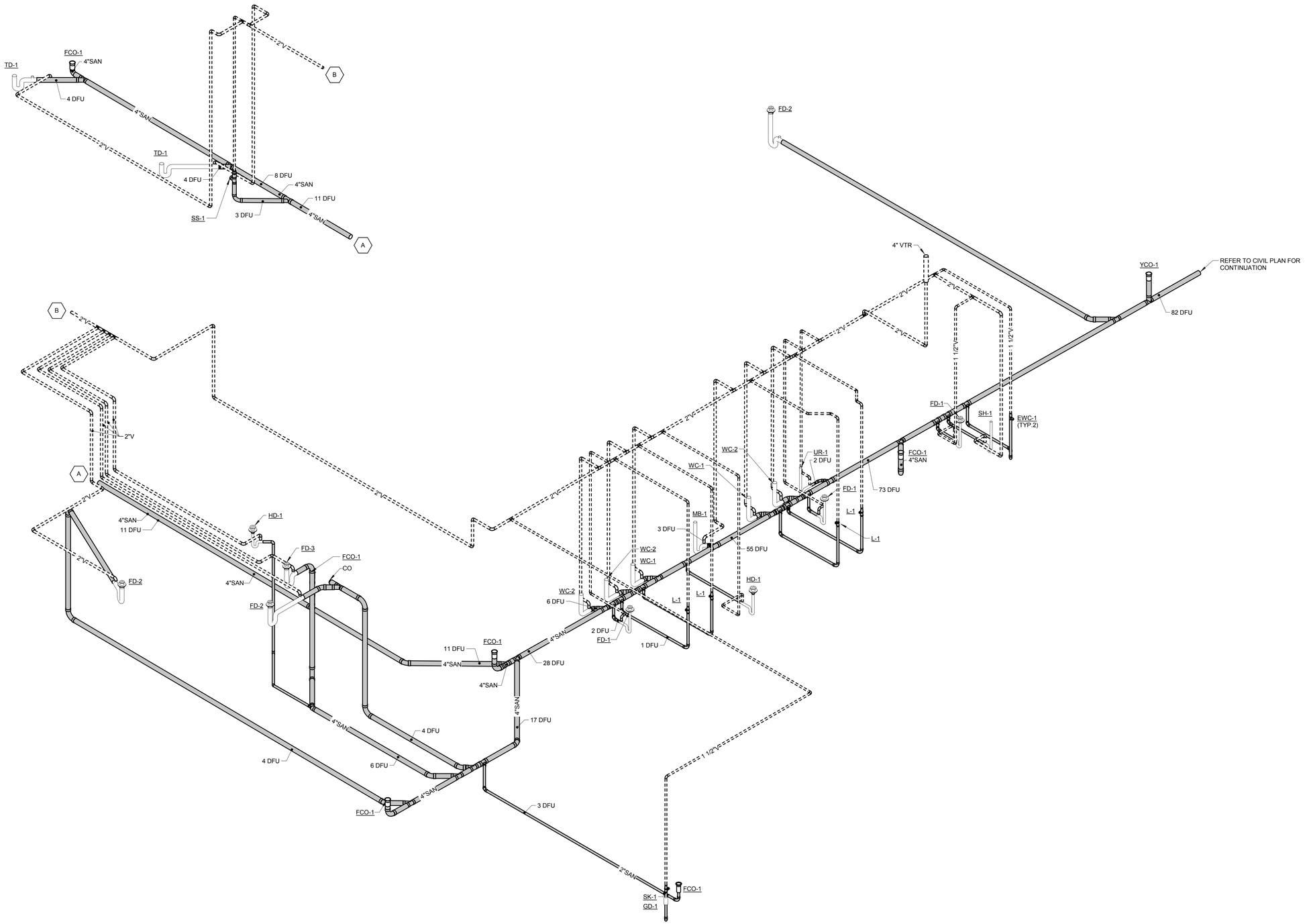
0 1 2 3

Drawing
DETAILS - PLUMBING

OPN Project No. 15617000

P200



1 SAN-VENT RISER DIAGRAM - PLUMBING

NO SCALE

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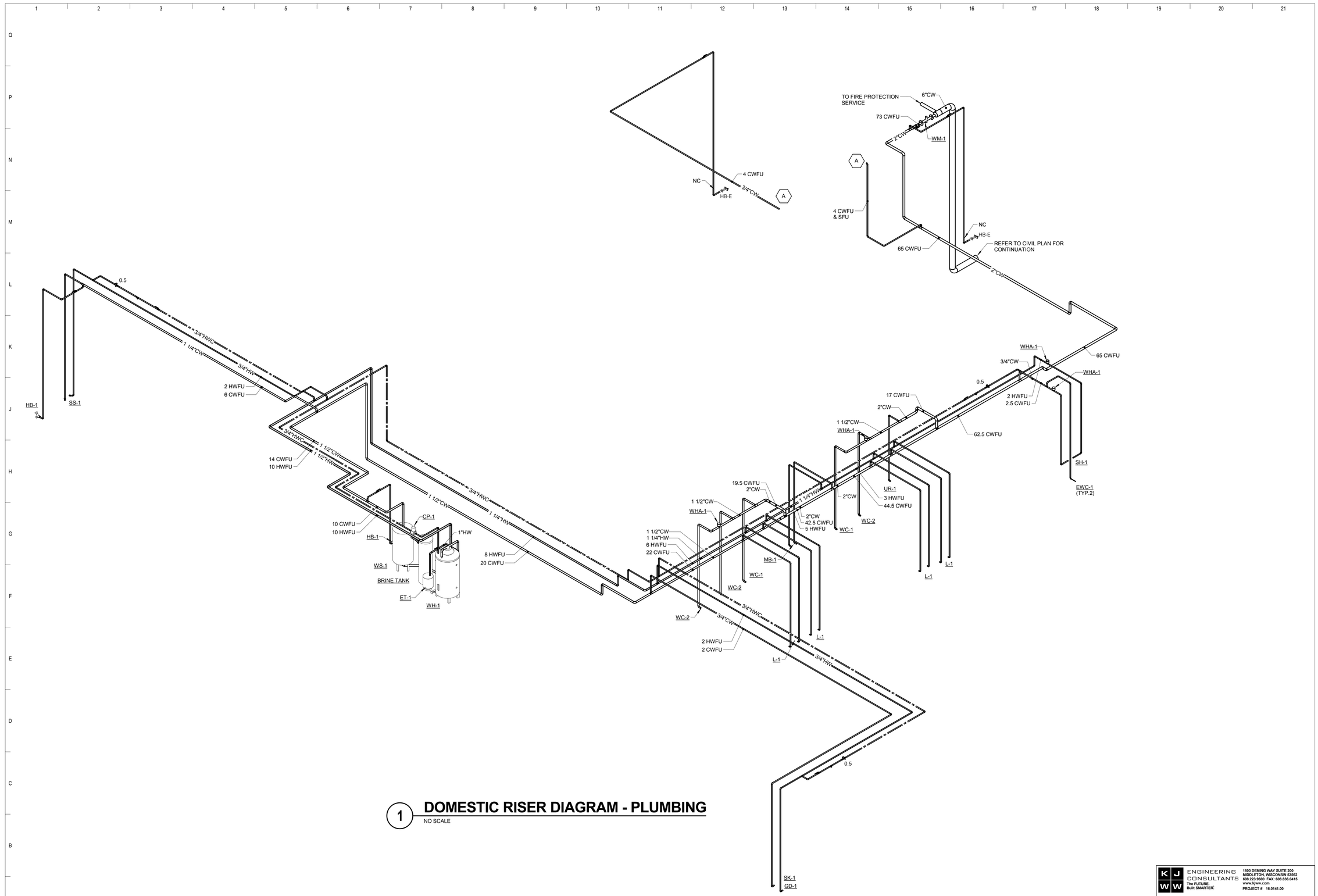
Drawing
SAN VENT RISER
DIAGRAMS - PLUMBING

OPN Project No. 15617000

P300



1 DOMESTIC RISER DIAGRAM - PLUMBING

NO SCALE

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KJWW Engineering Consultants
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Drawing
DOMESTIC RISER DIAGRAMS - PLUMBING

OPN Project No. 15617000

P301

PLUMBING FIXTURE SCHEDULE

TAG NAME	DESCRIPTION	MANF. & MODEL
CP-1	CIRCULATING PUMP - VARIABLE SPEED CONTROLLER WITH SETTINGS TO ADJUST AND MAINTAIN A CONSTANT: SPEED, FIXED PRESSURE, OR PROPORTIONAL PRESSURE. LEAD FREE BRONZE OR STAINLESS STEEL CONSTRUCTION, PERMANENTLY LUBRICATED SEALED BEARINGS, MECHANICAL SEAL, OIL LUBRICATED, ECM MOTOR WITH INTEGRATED VARIABLE SPEED CONTROL, FLANGED CONNECTIONS, RATED FOR 125 PSIG AT 225°F, UL LISTED. 8 GPM @ 10 FEET OF HEAD. MOTOR SHALL BE 0.65 AMPS. ELECTRICAL REQUIREMENTS - 115V, 1 PHASE HARD-WIRED.	PUMP - GRUNDFOS (ALPHA SERIES), B&G (ECOCIRC SERIES), ARMSTRONG (COMPASS 20-20 SS SERIES)
ET-1	EXPANSION TANK - WELDED BLACK STEEL CONSTRUCTION, GUARANTEED AIRTIGHT AND LEAKPROOF, STAINLESS STEEL SYSTEM CONNECTION, HEAVY DUTY BUTYL DIAPHRAGM AND RIGID POLYPROPYLENE LINER MECHANICALLY BONDED TO TANK TO PROVIDE A 100% NON-CORROSIVE WATER RESERVOIR, DIAPHRAGM AND LINER SHALL BE APPROVED FOR USE IN POTABLE WATER SYSTEMS, ALL WETTED COMPONENTS OF FDA APPROVED MATERIALS. PROVIDE STANDARD SCHRADER AIR VALVE FOR FIELD CHARGING. TANK SHALL COMPLY WITH FEDERAL ACT S.3874. TANK SHALL HAVE A RATED TEMPERATURE OF 200°F AND A RATED PRESSURE OF 125 PSIG. MINIMUM TANK VOLUME TO BE GALLONS, MINIMUM ACCEPTING VOLUME TO BE GALLONS. FACTORY PRE-CHARGED FOR SHIPPING. FIELD CHARGE TANK TO 70 PSIG	AMTROL (THERM-X-TROL), B&G (PT), ELBI (DT), TACO (PAX SERIES), WATTS (DETA), WESSELS (TX)
EWC-1	ELECTRIC WATER COOLER - WALL HUNG, RECESSED CHILLER, ADA COMPLIANT WITH MATCHING STAINLESS STEEL APRON INSTALLED UNDER UPPER UNIT, BI-LEVEL STAINLESS STEEL ROUND BASINS WITH STAINLESS STEEL FINISH, PERFORATED DRAINS, STREAM PROJECTORS WITH PROTECTIVE HOODS, PUSH BUTTON OPERATING CONTROLS ON FRONT, BUILT-IN FLOW REGULATORS, DRAINS AND TRAP ASSEMBLIES, HERMETIC COMPRESSOR TO OPERATE ON HFC-134a REFRIGERANT, CONCEALED ELECTRICAL CONNECTIONS, ADJUSTABLE THERMOSTAT, CONFORM TO LATEST ANSI A117.1 AND ADA STANDARDS. UNIT SHALL COMPLY WITH FEDERAL ACT S.3874. BOTTLE FILLING STATION - RECESSED MOUNTED ADJACENT TO WATER COOLER, STAINLESS STEEL CONSTRUCTION AND FINISH, 1 1/4" DRAIN, 1/2" COLD WATER INLET, SENSOR OPERATED WITH AUTOMATIC SHUTOFF, REPLACEABLE LEAD-CHLORINE-TASTE-ODOR WATER FILTER, BOTTLE COUNTER, ADJUSTABLE THERMOSTAT, CORD AND PLUG CONNECTION. UNIT SHALL PROVIDE 8.0 GPH OF WATER FROM 80°F TO 50°F AT 90°F AMBIENT. WATER SYSTEM SHALL BE OF LEAD FREE CONSTRUCTION. TANK SHALL BE TESTED TO 125 PSIG. ORIFICE SHALL BE AT 36" (MAXIMUM) ABOVE FINISHED FLOOR ON LOWER UNIT AND 40" ABOVE FINISHED FLOOR ON UPPER UNIT. BOTTOM OF APRON SHALL BE 27" ABOVE FINISHED FLOOR ON LOWER UNIT IN COMPLIANCE WITH LATEST ADA STANDARDS. ELECTRICAL REQUIREMENTS - 115V-1 PHASE, HARD-WIRED, 1/5 HP MOTOR, DISCONNECT BY E.C.	ELKAY (LZWS), HALSEY TAYLOR (HTHBWF-OVL) OR EQUIVALENT
FCO-1	FLOOR CLEANOUT - ADJUSTABLE, CAST IRON HOUSING, ANCHOR FLANGE, TAPERED THREAD PLUG, SECURED NICKEL BRONZE TOP.	ZURN (Z1400), JOSAM (55000), MIFAB (C1100), SMITH (4000), WADE (6000), WATTS (CO-200)
FD-1	FLOOR DRAIN - CAST IRON BODY, NICKEL BRONZE ADJUSTABLE TOP, 6" ROUND, 2" BOTTOM OUTLET, FLASHING COLLAR, DEEP SEAL TRAP.	FLOOR DRAIN - ZURN (Z-415), SMITH (2005), WADE (1100), JOSAM (30000), WATTS (FD-100), MIFAB (F1100)
FD-2	FLOOR DRAIN - CAST IRON BODY, NICKEL BRONZE ADJUSTABLE TOP, 8" ROUND, 4" BOTTOM OUTLET, FLASHING COLLAR, SURFACE MEMBRANE CLAMP, DEEP SEAL TRAP.	FLOOR DRAIN - ZURN (Z-415), SMITH (2005), WADE (1100), JOSAM (30000), WATTS (FD-100), MIFAB (F1100)
FD-3	FLOOR DRAIN - ACID RESISTANT, POLYPROPYLENE BODY, POLYPROPYLENE GRATE, 8" ROUND, 4" BOTTOM OUTLET, FLASHING CLAMP, SEDIMENT BUCKET, DEEP SEAL TRAP.	ORION (AWFDSTD), ZURN (Z9A-FD), WATTS (FD1-BAS), IPEX (ENFIELD SERIES F1000)
GD-1	GARBAGE DISPOSER - CONTINUOUS FEED, SINGLE DIRECTION, CORROSION PROTECTION SHIELD, SERVICE WRENCH, STAINLESS STEEL GRINDING ELEMENTS, MANUALLY RESET OVERLOAD PROTECTION, FULL 4 YEAR WARRANTY. ELECTRICAL REQUIREMENTS - 115V-1 PHASE, CORD AND PLUG, 3/4 HP MOTOR, 15 AMPS.	IN-SINK-ERATOR (EVOLUTION SERIES), SINKMASTER (950), WASTE KING (3300)
GR-2	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 51.2 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-3	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 51.2 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-4	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 51.2 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-5	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 51.2 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-6	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 60.5 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-7	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 60.5 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-8	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 51.2 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-9	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 51.2 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-10	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 7" WC OUTLET PRESSURE, 120 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-11	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 6" WC OUTLET PRESSURE, 163 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
GR-12	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 8" WC INLET PRESSURE, 3.5" WC OUTLET PRESSURE, 51.2 CFH CAPACITY AS SHOWN IN SCHEDULE, MINIMUM CONTROLLABLE FLOW OF 0 CFH.	FISHER, ITRON, SENSUS, MAXITROL
HB-1	HOSE BIBB - FOR INDOOR USE, BRASS CONSTRUCTION, STANDARD FINISH, ASSE APPROVED VACUUM BREAKER, 3/4" MALE HOSE THREAD, METAL WHEEL HANDLE. MOUNT AT 18" ABOVE FINISHED FLOOR.	PRIER (C-155NP.75), WOODFORD (24), CHICAGO FAUCET (293), ACORN (8121), T&S BRASS (B-0736), MIFAB (MHY-90)
HD-1	FLOOR DRAIN - OPEN SITE HUB DRAIN, CAST IRON BODY, SEDIMENT BUCKET, 2" BOTTOM OUTLET, DEEP SEAL TRAP.	FLOOR DRAIN - ZURN (Z-211-S-Y), SMITH (2005-HUB)

PLUMBING FIXTURE SCHEDULE

TAG NAME	DESCRIPTION	MANF. & MODEL
L-1	LAVATORY - ACCESSIBLE WALL MOUNTED, WHITE VITREOUS CHINA, 20"x18", 4" HIGH CONTOURED BACKSPLASH, SINGLE FAUCET HOLE, DRILLED FOR CONCEALED ARM CARRIER. LAVATORY TRIM - SINGLE HOLE DECK MOUNT ELECTRONIC SENSOR FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, RIGID GOOSENECK SPOUT WITH NOMINAL 6" REACH AND VANDAL RESISTANT NON-AERATED SPRAY DEVICE, AC/DC CONTROL MODULE, TEMPERATURE CONTROL MIXING VALVE WITH INTEGRAL CHECK VALVES AND 3/8" COMPRESSION CONNECTIONS. MAXIMUM FLOW TO BE 0.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1/CSA B125.1, NSF 61-SECTION 9, NSF 372 AND UL 1951. MEETS ADA ANSI/ICC A117.1 REQUIREMENTS. MIXING VALVE - POINT-OF-USE ANTI-SCALD THERMOSTATIC MIXING VALVE FOR TEMPERED WATER CONTROL, ALL BRONZE/BRASS CONSTRUCTION, ROUGH FINISH, THREADED INLETS, TAMPER RESISTANT SETPOINT. 0.5 GPM OUTPUT. UNIT TO MIX 120 DEGREE F HOT WATER SUPPLY AND 40 DEGREE F COLD WATER SUPPLY FOR 110 DEGREE F OUTLET. UNIT SHALL BE ASSE 1070 LISTED AND APPROVED. VALVE SHALL COMPLY WITH FEDERAL ACT S.3874. INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES AND SUPPLY LINES. ACCESSORIES - QUARTER-TURN 3/8" CHROME PLATED HEAVY BRASS LOOSE KEY STOPS, CHROME PLATED SOFT COPPER SUPPLY LINES, DRAIN AND [OFFSET] TAILPIECE, 1-1/4" 20 GAUGE CAST BRASS P-TRAP, SUPPORT CARRIER. MOUNT LAVATORY WITH SUPPORT CARRIER BOLTED SECURELY TO FLOOR. TOP OF RIM SHALL BE AT 34" ABOVE FLOOR IN COMPLIANCE WITH LATEST ADA STANDARD. PROVIDE 29" MINIMUM CLEARANCE FROM FLOOR TO BOTTOM OF APRON IN COMPLIANCE WITH LATEST ANSI A117.1 AND ADA STANDARDS. ARMAFLEX WITH TAPE IS NOT ACCEPTABLE IN LIEU OF INSULATION KIT.	LAVATORY - AMERICAN STANDARD (0356.421), KOHLER (K-2007), SLOAN (SS-3103), TOTO (LT307), ZURN (Z5361) LAVATORY TRIM - T&S BRASS (5EF-1D-DS) OR EQUIVALENT MIXING VALVE - WATTS (LFUSG-B), ACORN CONTROLS (ST70), APOLLO (34DLF), LAWLER (MODEL 516), LEONARD (170-BP-LF), POWERS (LFE480), SLOAN (MIX-135-A), SYMMONS (7-210), WILKINS (ZW3870XLT) INSULATION KIT - TRUEBRO (LAV-GUARD), BROCAR PRODUCTS (TRAP WRAP), MCGUIRE (PROWRAP), PLUMBEREX (PRO-EXTREME)
MB-1	MOP BASIN - PRECAST TERRAZZO, 36"x24"x12", STAINLESS STEEL INTEGRAL DRAIN WITH REMOVABLE STRAINER, 3" OUTLET, CONTINUOUS STAINLESS STEEL CAP ON ALL EDGES. TRIM - EXPOSED TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, SINGLE WING HANDLES, 1/4 TURN CERAMIC DISC CARTRIDGE, 3/4" HOSE THREAD SPOUT WITH [ASSE 1053 RATED] INTEGRAL VACUUM BREAKER, WALL BRACE, PAIL HOOK, CHECK STOPS OR INLINE CHECK VALVES TO PREVENT THERMAL CROSSOVER. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. ACCESSORIES - MOP HANGER, HOSE AND HOSE BRACKET, DEEP SEAL TRAP	MOP BASIN - FIAT (TSB), ACORN (TSH), CREATIVE INDUSTRIES (MC), WILLIAMS (SB) TRIM - DELTA (28C2383), AMERICAN STANDARD (8344.012), CHICAGO FAUCETS (897-CP), MOEN (8124), SPEAKMAN (SC-5812), SYMMONS (S-2490), ZURN (Z841M1-XL) VACUUM BREAKER - WATTS (8A), OR APPROVED EQUAL
RD-1	ROOF DRAIN - CAST IRON BODY, SECURED CAST IRON DOME, 15" ROUND, BOTTOM OUTLET, FLASHING CLAMP, GRAVEL STOP, UNDERDECK CLAMP, BEARING PAN, ADJUSTABLE EXTENSION TO MATCH INSULATION THICKNESS, OUTLET SIZE AS LISTED ON DRAWINGS.	ZURN (Z-100), SMITH (1010), WADE (3000), JOSAM (21500), WATTS (RD-300), MIFAB (R1200)
RD-2	ROOF DRAIN - CAST IRON BODY, SECURED CAST IRON DOME, 15" ROUND, SIDE OUTLET, FLASHING CLAMP, GRAVEL STOP, UNDERDECK CLAMP, BEARING PAN, EXTENSION TO MATCH INSULATION THICKNESS, 2" TALL EXTERNAL WATER DAM, OUTLET SIZE AS LISTED ON DRAWINGS.	ZURN (Z-100), SMITH (1080), WADE (3000), WATTS (RD-300), MIFAB (R1200)
RDO-1	ROOF DRAIN OUTLET - LAMBS TONGUE DOWNSPOUT NOZZLE, BRONZE BODY, INTEGRAL ANCHORING FLANGE, REMOVABLE STAINLESS STEEL SCREEN, OUTLET SIZE AS LISTED ON DRAWINGS.	ZURN (Z-199), SMITH (1770), WADE (3940), JOSAM (25010), WATTS (RD-940), MIFAB (R1940)
SH-1	SHOWER - ACCESSIBLE ONE PIECE, REINFORCED FIBERGLASS CONSTRUCTION, WHITE GELCOATED FINISH, 46"x36" (NOMINAL), RIGHT HAND AS SHOWN ON DRAWINGS, SLIP-RESISTANT FLOOR, 3" FLOOR DRAIN, 4" NICKEL BRONZE STRAINER, ASTM F-462, IN COMPLIANCE WITH LATEST ANSI A117.1 AND ADA STANDARDS. SHOWER VALVE - ACCESSIBLE, SINGLE HANDLE PRESSURE BALANCED MIXING FAUCET, BRASS OR BRONZE CONSTRUCTION, WASHERLESS DESIGN, OFF-COLD-HOT TEMPERATURE RANGE INDICATOR DIAL, POLISHED CHROME CAST METAL LEVER HANDLE, INTEGRAL CHECK STOPS, ADJUSTABLE TEMPERATURE LIMIT STOP. ASSE 1016 LISTED. ACCESSORIES - CHROME-PLATED BRASS SHOWERHEAD WITH SWIVEL BALL JOINT HAND HELD SHOWER WITH 69" CHROME-PLATED METAL HOSE AND QUICK DISCONNECT, CHROME-PLATED BRASS SWIVEL CONNECTOR, 30" CHROME-PLATED MOUNTING RAIL, CHROME-PLATED BRASS SUPPLY ELBOW FLANGE, CHROME-PLATED IN-LINE VACUUM BREAKER WITH CHROME-PLATED PIPING AND FLANGES. INSTALL ALL CONTROLS BETWEEN 38" AND 48" ABOVE FINISHED FLOOR IN COMPLIANCE WITH LATEST ADA STANDARDS. MAXIMUM FLOW TO BE 2.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1M. SET SAFETY LIMIT STOP TO 110 DEGREE F DISCHARGE. ACCESSORIES - FOLD DOWN PHENOLIC SIMULATED TEAKWOOD SEAT, 1 1/2" 18 GAUGE TYPE 304 STAINLESS STEEL HORIZONTAL GRAB BAR ON BACK WALL AND VALVE WALL, 1" DIAMETER STAINLESS STEEL CURTAIN ROD, COMMERCIAL GRADE VINYL SHOWER CURTAIN. GRAB BAR SHALL BE MOUNTED WITH STAINLESS STEEL NUTS AND BOLTS AND FASTENED FROM THE BACKSIDE OF THE UNIT WITH MINIMUM 3"x3" METAL PLATES. UNIT SHALL BE RECESSED IN SUB-FLOOR TO ALLOW FOR A MAXIMUM CURB HEIGHT OF 1/2" OR LESS ABOVE THE FINISHED FLOOR. MOUNT SHOWER CURTAIN ROD AS HIGH AS POSSIBLE.	SHOWER - AQUATIC (1483BFSD), OASIS (SHMD-4836 / TLV-RS/LS), AQUARIUS (G4836BF) OR EQUIVALENT SHOWER VALVE - MOEN COMMERCIAL (8346), SYMMONS (1-25-FSB), AMERICAN STANDARD (1662.221), DELTA (R10000-UNWS/T13H152-20), LEONARD (PAM-II), POWERS (PB413-9)
SK-1	SINK - ACCESSIBLE SELF-RIMMING DOUBLE COMPARTMENT WITH FAUCET DECK, 20 GAUGE TYPE 304 SERIES STAINLESS STEEL, COMPLETELY UNDERCOATED, 33" (SIDE-TO-SIDE) x 22" (FRONT-TO-BACK) OVERALL SIZE, EACH COMPARTMENT 13.5" x 16" x 5.125" DEEP, 3-1/2" DIAMETER DRAIN OUTLET LOCATION OFF-CENTERED REAR IN EACH BOWL, PERFORATED TYPE 304 STAINLESS STEEL GRID STRAINER. SINK TRIM - TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, GOOSENECK SWING SPOUT, 8" REACH, 4" WRISTBLADE HANDLES AT 8" CENTERS, 1/4-TURN OPERATION CERAMIC DISC CARTRIDGE. MAXIMUM FLOW TO BE 1.5 GPM IN COMPLIANCE WITH PROJECT WATER CONSERVATION REQUIREMENTS. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. PROVIDE RESTRICTIVE DEVICE AND ESCUTCHEON PLATE AS REQUIRED. ACCESSORIES - 1-1/2" 20 GAUGE CHROME-PLATED BRASS TAILPIECES AND P-TRAP, QUARTER-TURN BALL VALVE TYPE 3/8" CHROME-PLATED BRASS ANGLE SUPPLIES WITH LOOSE KEY STOPS, CHROME-PLATED SOFT COPPER SUPPLY LINES.	SINK - ELKAY (PSR3322 / LK99), JUST (DL-2233-A-GR / JDP-35), FRANKE (LBD), KINDRED (QDL), MOEN SINK TRIM - CHICAGO FAUCET (786), AMERICAN STANDARD (7230.000), MOEN (8225), SPEAKMAN (SC-3000 SERIES), ZURN (Z831-XL)
SS-1	SERVICE SINK - CAST IRON CONSTRUCTION, WHITE ACID RESISTANT ENAMEL FINISH, 24"x20", BLANK BACK, STAINLESS STEEL RIM GUARD, WALL HANGER, 3" TRAP WITH CLEANOUT PLUG AND STRAINER. SINK TRIM - TWO HANDLE EXPOSED MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, SINGLE WING HANDLES, 1/4 TURN CERAMIC DISC CARTRIDGE, 3/4" HOSE THREAD SPOUT, INTEGRAL VACUUM BREAKER, WALL BRACE, PAIL HOOK, CHECK STOPS OR INLINE CHECK VALVES TO PREVENT THERMAL CROSSOVER. FACUET SHALL COMPLY WITH FEDERAL ACT S.3874.	SINK - AMERICAN STANDARD (7695.000), CECO (868), KOHLER (K-6716-0) TRIM - DELTA (28C2), AMERICAN STANDARD (8344.012), MOEN (8124), SPEAKMAN (SC-5812), ZURN (Z841M1-XL)
TD-1	TRENCH DRAIN - MODULAR, PRE-SLOPED, HEAVY DUTY PRECAST POLYMER CONCRETE, 4" WIDE CHANNEL, 20' LONG, 0.6% SLOPE, EXTRA HEAVY DUTY LOCKING DUCTILE IRON GRATE, CLASS E RATED, INTEGRAL CATCH BASINS WITH SEDIMENT BUCKETS, 4" OUTLETS, LENGTH AS SHOWN ON DRAWINGS.	SMITH (9814), ABT (POLYDRAIN), WATTS (600 SERIES), ACO (100K)
UR-1	URINAL - ACCESSIBLE, FLOOR MOUNTED, WHITE VITREOUS CHINA, FLUSH VALVE TYPE, WASHOUT ACTION, LOW CONSUMPTION, 3/4" TOP SPUD, 2" OUTLET. FLUSH VALVE - FLUSH VALVE - EXPOSED, SENSOR OPERATION, HARD WIRED, 1.0 GALLON PER FLUSH, 11-1/2" ROUGH-IN, CHROME-PLATED, 3/4" I.P.S. SCREWDRIVER STOP-CHECK VALVE WITH VANDAL RESISTANT CAP, HIGH BACK PRESSURE VACUUM BREAKER, NON-HOLD-OPEN HANDLE, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, WALL FLANGE WITH SET SCREW, MANUAL OVER-RIDE, RANGE ADJUSTMENT SCREW, BEAM DEFLECTOR, CHROME-PLATED COVER PLATE WITH TAMPER-PROOF SCREWS, TRANSFORMER AND LOW VOLTAGE WIRING, TRANSFORMER CAPABLE OF OPERATING UP TO 10 UNITS, LOW VOLTAGE WIRING FROM TRANSFORMER TO EACH FLUSH VALVE, CHLORAMINE RESISTANT MATERIALS, 3-YEAR WARRANTY. ELECTRICAL REQUIREMENTS - 120VAC INPUT	URINAL - AMERICAN STANDARD (6400.014), KOHLER (K-4920-T), ZURN (Z5790) FLUSH VALVE - ZURN (ZEMS6003AV), SLOAN (ROYAL 186 ES-S), AMERICAN STANDARD (6062.101), DELANY (1351), HYDROTEK (H-8000C), MOEN (8312AC10)

PLUMBING FIXTURE SCHEDULE

TAG NAME	DESCRIPTION	MANF. & MODEL
WC-1	WATER CLOSET - ACCESSIBLE, FLOOR MOUNTED, FLUSH VALVE TYPE, WHITE VITREOUS CHINA, SIPHON JET, WATER SAVING, ELONGATED BOWL, 1-1/2" TOP SPUD, BOLT CAPS. FLUSH VALVE - FLUSH VALVE - EXPOSED, WALL MOUNTED SENSOR OPERATION, HARD WIRED, 1.6 GALLONS PER FLUSH, 11-1/2" ROUGH-IN, CHROME PLATED, 1" I.P.S. SCREWDRIVER STOP-CHECK VALVE WITH VANDAL RESISTANT CAP, HIGH BACK PRESSURE VACUUM BREAKER, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, WALL FLANGE WITH SET SCREW, MECHANICAL OVER-RIDE BUTTON, CHLORAMINE RESISTANT MATERIALS, CHROME PLATED COVER PLATE WITH TAMPER-PROOF SCREWS, TRANSFORMER AND LOW VOLTAGE WIRING, TRANSFORMER CAPABLE OF OPERATING UP TO 10 UNITS, LOW VOLTAGE WIRING FROM TRANSFORMER TO EACH FLUSH VALVE, ADA COMPLIANT, 3 YEAR WARRANTY. ELECTRICAL REQUIREMENTS - 120VAC INPUT SEAT - WHITE, EXTRA HEAVY, OPEN FRONT, INJECTION MOLDED SOLID PLASTIC, CHECK HINGE, STAINLESS STEEL OR PLATED STEEL POSTS AND NUTS. CONTRACTOR OPTION: COMBINATION WATER CLOSET/FLUSH VALVE PACKAGED SYSTEM BY AMERICAN STANDARD, KOHLER, SLOAN, OR ZURN TOP OF SEAT SHALL BE AT 17"-19" ABOVE FINISHED FLOOR. VERIFY EQUIPMENT REQUIREMENTS AND ROUGH-IN LOCATIONS.	WATER CLOSET - AMERICAN STANDARD (3043.001), CRANE (3H701), GERBER (25-730), KOHLER (K-4368), SLOAN (ST-2023), ZURN (Z5660) FLUSH VALVE - ZURN (ZEMS6000AV), SLOAN (ROYAL 111 ES-S), AMERICAN STANDARD (6067.161), DELANY (1302), HYDROTEK (H-8000C), MOEN (8310AC16) SEAT - BEMIS (1655C), CHURCH (9500C), BENEKE (533), KOHLER (K-4666-C), OLSONITE (95), SAME AS WATER CLOSET MANUFACTURER]
WC-2	WATER CLOSET - FLOOR MOUNTED, FLUSH VALVE TYPE, WHITE VITREOUS CHINA, SIPHON JET, WATER SAVING, ELONGATED BOWL, 1-1/2" TOP SPUD, BOLT CAPS. FLUSH VALVE - FLUSH VALVE - EXPOSED, WALL MOUNTED SENSOR OPERATION, HARD WIRED, 1.6 GALLONS PER FLUSH, 11-1/2" ROUGH-IN, CHROME PLATED, 1" I.P.S. SCREWDRIVER STOP-CHECK VALVE WITH VANDAL RESISTANT CAP, HIGH BACK PRESSURE VACUUM BREAKER, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, WALL FLANGE WITH SET SCREW, MECHANICAL OVER-RIDE BUTTON, CHLORAMINE RESISTANT MATERIALS, CHROME PLATED COVER PLATE WITH TAMPER-PROOF SCREWS, TRANSFORMER AND LOW VOLTAGE WIRING, TRANSFORMER CAPABLE OF OPERATING UP TO 10 UNITS, LOW VOLTAGE WIRING FROM TRANSFORMER TO EACH FLUSH VALVE, ADA COMPLIANT, 3 YEAR WARRANTY. ELECTRICAL REQUIREMENTS - 120VAC INPUT SEAT - WHITE, EXTRA HEAVY, OPEN FRONT, INJECTION MOLDED SOLID PLASTIC, CHECK HINGE, STAINLESS STEEL OR PLATED STEEL POSTS AND NUTS. CONTRACTOR OPTION: COMBINATION WATER CLOSET/FLUSH VALVE PACKAGED SYSTEM BY AMERICAN STANDARD, KOHLER, SLOAN, OR ZURN TOP OF SEAT SHALL BE AT 17"-19" ABOVE FINISHED FLOOR. VERIFY EQUIPMENT REQUIREMENTS AND ROUGH-IN LOCATIONS.	WATER CLOSET - AMERICAN STANDARD (3043.001), CRANE (3H701), GERBER (25-730), KOHLER (K-4368), SLOAN (ST-2023), ZURN (Z5660)] FLUSH VALVE - ZURN (ZEMS6000AV), SLOAN (ROYAL 111 ES-S), AMERICAN STANDARD (6067.161), DELANY (1302), HYDROTEK (H-8000C), MOEN (8310AC16) SEAT - BEMIS (1655C), CHURCH (9500C), BENEKE (533), KOHLER (K-4666-C), OLSONITE (95), SAME AS WATER CLOSET MANUFACTURER]
WH-1	WATER HEATER - GAS FIRED, VERTICAL, MINIMUM 94% EFFICIENT, SEALED COMBUSTION, METAL CABINET, BAKED ENAMEL FINISH, GLASS-LINED ASME STAMPED WELDED STEEL TANK, 160 PSI WORKING PRESSURE, FIBERGLASS OR FOAM INSULATION, BRASS WATER CONNECTIONS AND DRAIN VALVE, ASME APPROVED T&P RELIEF VALVE, MULTIPLE MAGNESIUM ANODE RODS, VENT PIPING KIT, HIGH TEMPERATURE GAS SHUT OFF, AUTOMATIC WATER THERMOSTAT, BUILT-IN GAS REGULATING VALVE, ADJUSTABLE TEMPERATURE RANGE, CONDENSATE DRAIN NEUTRALIZATION KIT, 3-YEAR WARRANTY, UL LISTED, COMPLIANT TO NAECA, ASHRAE 90.1 AND ASHRAE 90A. 60 GALLON CAPACITY, 120,000 BTUH INPUT NATURAL GAS, 138 GPH RECOVERY AT 100°F RISE. ELECTRICAL REQUIREMENTS - 120V CIRCUIT FOR BLOWER AND CONTROLS, HARD-WIRED SET WATER TEMPERATURE AT 120°F. SET SUPPLY GAS PRESSURE AT 7" W.C.	A.O. SMITH (CYCLONE MXi BTH), BOCK (OT SERIES), BRADFORD WHITE (EF SERIES), HTP (PHOENIX PLUS), RHEEM (GHE), STATE (SUF)
WHA-1	WATER HAMMER ARRESTER - BELLOWS TYPE, PRE-CHARGED, ALL LEAD FREE STAINLESS STEEL CONSTRUCTION, ASSE 1010 APPROVED, PDI CERTIFIED, RATED FOR 12-32 FIXTURE UNITS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.	ZURN (Z1700), JR SMITH (5005-5050), WADE (W5-100), JOSAM (75000 SERIES), WATTS (SS), MIFAB (WHB)
WM-1	WATER METER - DISC TYPE, ALL BRONZE CONSTRUCTION, 1 1/2" SIZE, TOP READING CUMULATIVE DIAL WITH FACE PLATE CAP, AWWA COMPLIANT. PROVIDE FULL SIZE BYPASS WITH LOCKABLE VALVE.	NEPTUNE, BADGER, HERSEY
WS-1	WATER SOFTENER - AUTOMATIC REGENERATION TYPE, SIMPLEX SOFTENER TANKS, POWER SUPPLY WITH CORD AND PLUG. CONTINUOUS FLOW RATE OF 9.8 GPM AT 10 PSI PRESSURE DROP, MAXIMUM FLOW RATE OF 13.1 GPM AT 15 PSI PRESSURE DROP. ELECTRICAL REQUIREMENTS - 120V-1 PHASE RECEPTACLE REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.	REFER TO SPECIFICATIONS
YCO-1	YARD CLEANOUT - ROUND, DURA-COATED CAST IRON, SIZE AS LISTED ON DRAWINGS, DOUBLE FLANGED HOUSING, HEAVY DUTY SECURED SCORIATED DURA-COATED CAST IRON COVER, LIFTING DEVICE, BRONZE CLEANOUT PLUG WITH GAS/WATER-TIGHT SEAL.	ZURN (Z1474), SMITH (4261), WADE (8401), JOSAM (58680), WATTS (CO-300-MF)

OPN
ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

Project
Madison Public Library
Maintenance & Support
Center Remodel & Addition

1301 West Badger Road
Madison, WI 53713

General Contractor
.

Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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WW
ENGINEERING
CONSULTANTS
The FUTURE.
Built SMARTER®.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com

PROJECT # 16.0141.00

REFERENCE SCALE IN INCHES
0 1 2 3

Drawing
MATERIAL LIST - PLUMBING

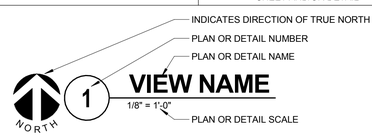
OPN Project No. **15617000**

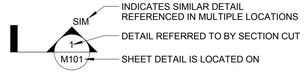
P500

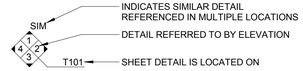
VIEW KEY

NAME — LEVEL NAME
10' - 0" — HEIGHT ABOVE PROJECT 0' - 0"

1 — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL







LINE TYPE KEY:

- NEW WORK BY THIS CONTRACTOR (DARK SOLID LINE)
- NEW WORK UNDERFLOOR OR UNDERGROUND BY THIS CONTRACTOR (DARK LONG DASHED LINE)
- NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
- EXISTING TO BE REMOVED BY THIS CONTRACTOR (DARK SHORT DASHED LINE)

TECHNOLOGY SYMBOL LIST

SYMBOL:	EQUIPMENT LIST ABBREVIATION:	DESCRIPTION:	NOTE:
C#-WAP	SC-IO-CWAP	INFORMATION OUTLET-WIRELESS ACCESS POINT (CEILING)	1.
C#	SC-IO-W	INFORMATION OUTLET (WALL)	1.
HH	SC-HH	TELECOMMUNICATIONS HAND HOLE	
MD	ID-MD-C	MOTION DETECTOR (CEILING)	.
CR1	AC-CR1-W	CREDENTIAL READER - TYPE 1	.
REX	AC-REX	ACCESS CONTROL REQUEST TO EXIT	.
CSS	N/A	CONTROLLED SECURITY SCHEME SCHEDULE IDENTIFIER	2.
DC	AC-DC	ACCESS CONTROL DOOR CONTACT	.
PB	AC-PB-1	ACCESS CONTROL PUSH BUTTON DOOR RELEASE (WALL)	2.
EDH	AC-EDH-W	ACCESS CONTROL ELECTRIFIED DOOR LOCKING	.
CAM ##-##	N/A	CLOSED CIRCUIT TELEVISION (CCTV) WALL CAMERA	3.
CAM ##-##	N/A	CLOSED CIRCUIT TELEVISION (CCTV) CEILING CAMERA	3.
IM	IC-IM-1	INTERCOM DOOR MASTER STATION (WALL)	.
IS	IC-IS-1	INTERCOM DOOR STATION (WALL)	.
H	N/A	PA LOUD SPEAKER HORN (WALL)	5.
MP1	AV-MP-1	AUDIO/VIDEO MICROPHONE (CEILING) TYPE 1	.
SP1	AV-SP-1	AUDIO/VIDEO SPEAKER (CEILING) - TYPE 1	.
CAM	AV-CAM-1	AUDIO/VIDEO CAMERA (POLYCOM) - TYPE 1	.
CD	AV-CD-1	AUDIO/VIDEO CODEC (POLYCOM)	.
AMP	AV-AMP-1	AUDIO AMPLIFIER (POLYCOM)	.
"WIDTH" X "HEIGHT"		LADDER RACK	
DIAMETERø C		CONDUIT	
		CONDUIT DOWN	
		CONDUIT UP OR UP/DOWN	
		CONDUIT SLEEVE	
		CONTINUATION	

GENERAL NOTES:

1. ALL SYMBOLS AND ABBREVIATIONS LISTED MAY NOT BE APPLICABLE TO THIS PROJECT. REFER TO THE GENERAL TECHNOLOGY EQUIPMENT SCHEDULE FOR MORE COMPLETE DESCRIPTION AND ITEMS.
2. ALL SYMBOLS AND ABBREVIATIONS REFER TO TECHNOLOGY SHEETS ONLY AS DEFINED ON THE SHEET INDEX. REFER TO THE GENERAL TECHNOLOGY NOTES FOR ADDITIONAL INFORMATION.
3. ALL SYMBOLS LISTED ABOVE ARE FOR REFERENCE ONLY. REFER TO PLANS AND LINE TYPE KEY FOR NEW, EXISTING TO REMAIN AND TO BE REMOVED ITEMS FOR ADDITIONAL INFORMATION.

TECHNOLOGY SYMBOL NOTES:

1. "C#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION. REFER TO INFORMATION OUTLET SCHEDULE ON T500 FOR ADDITIONAL INFORMATION.
2. REFER TO CONTROLLED SECURITY SCHEME (CSS) TYPE SCHEDULE ON T500 FOR ADDITIONAL INFORMATION.
3. REFER TO CLOSED CIRCUIT (CCTV) INDIVIDUAL CAMERA REQUIREMENTS SCHEDULE ON T501 AND CAMERA TYPE SCHEDULE ON T501 FOR ADDITIONAL INFORMATION. REFER TO THE INDIVIDUAL CAMERA SCHEDULE AND THE INDIVIDUAL CAMERA TYPE SCHEDULE FOR ADDITIONAL INFORMATION.
4. INFORMATION OUTLET INSTALLED IN E.C. PROVIDED FLOOR BOX. "C#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION. REFER TO INFORMATION OUTLET SCHEDULE ON T500 FOR ADDITIONAL INFORMATION. REFER TO THE ELECTRICAL FLOOR PLANS AND ELECTRICAL EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
5. DEVICE WILL BE REMOVED DURING THE DEMOLITION PHASE OF PROJECT.

TECHNOLOGY ABBREVIATION KEY

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
BFC	BELOW FINISHED CEILING
C	CONDUIT
J-BOX	JUNCTION BOX
SIM	SIMILAR
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
+#	MOUNTING HEIGHT ABOVE FINISHED FLOOR
TR-#	COMMUNICATIONS ROOM

SUGGESTED MATRIX OF RESPONSIBILITY

ITEM:	SHOWN ON:	FURNISHED BY:	INSTALLED BY:	NOTES:
TECHNOLOGY ROUGH-IN, REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR DEFINITION	T-SERIES	E.C.	E.C.	3. 4.
INFORMATION OUTLET FACEPLATES, JACKS, AND TERMINATIONS	T-SERIES	T.C.	T.C.	
CONDUIT SLEEVES (WHEN SHOWN ON DRAWINGS)	T-SERIES	E.C.	E.C.	
CONDUIT SLEEVES (NOT SHOWN BUT REQUIRED FOR PROPER INSTALLATION OF SYSTEM)	N/A	T.C.	T.C.	2. 4.
TELECOMMUNICATION SYSTEMS ROUGH-IN	T-SERIES	E.C.	E.C.	1.
TELECOMMUNICATION EQUIPMENT, CABLING, AND TERMINATIONS	T-SERIES	T.C.	T.C.	
GROUNDING LUGS ON TECHNOLOGY EQUIPMENT	T-SERIES	T.C.	E.C.	6.
BONDING SYSTEM FOR TECHNOLOGY SYSTEM, REFER TO SPECIFICATION SECTION 27 05 26 FOR DEFINITION	T-SERIES	E.C.	E.C.	7. 8.
CONNECTION OF TECHNOLOGY BONDING SYSTEM TO THE ELECTRICAL GROUND SYSTEM	T-SERIES	E.C.	E.C.	
LINE VOLTAGE POWER (+120V OR GREATER)	E-SERIES	E.C.	E.C.	
LINE VOLTAGE POWER (NOT SHOWN BUT REQUIRED FOR PROPER INSTALLATION OF SYSTEM)	N/A	T.C.	E.C.	2. 4.
LINE VOLTAGE POWER FOR DOOR HARDWARE POWER SUPPLIES	ARCH SPEC	E.C.	E.C.	
LOW VOLTAGE CABLING FOR TECHNOLOGY SYSTEMS	T-SERIES	T.C.	T.C.	
CABLE HANGERS AND SUPPORTS OR OTHER CABLE ROUTING METHODS (OTHER THAN CONDUIT AND CABLE TRAY)	T-SERIES	T.C.	T.C.	5.
TECHNOLOGY SERVICE ENTRANCE CONDUITS, HANDHOLES.	T-SERIES	E.C.	E.C.	

SUGGESTED MATRIX OF RESPONSIBILITY NOTES

1. LOCATIONS OF COMMUNICATIONS ROUGH-INS SHALL BE INDICATED BY THE INFORMATION OUTLET SYMBOLS ON THE DRAWINGS. REFER TO THE TECHNOLOGY SYMBOL LIST FOR ADDITIONAL INFORMATION.
2. BASED ON THE INHERENT DIFFERENCES IN PRODUCTS FROM VARIOUS MANUFACTURERS, ALL REQUIRED EQUIPMENT MAY NOT BE SHOWN ON THE DRAWINGS FOR ALL ACCEPTABLE MANUFACTURERS.
3. INCLUDES BACKBOXES AND CONDUIT REQUIRED FOR THE TECHNOLOGY SYSTEMS INSTALLATION. THE E.C. SHALL BASE THE BID ON THE BASIS OF DESIGN SHOWN ON THE CONTRACT DOCUMENTS.
4. ALL CHANGES TO THE SLEEVES, BACKBOXES, CONDUITS, AND POWER REQUIRED BECAUSE OF THE T.C.'S SELECTION OF AN ALTERNATE ACCEPTABLE MANUFACTURER OR FROM SYSTEM CONFIGURATIONS THAT ARE LEFT TO THE CHOICE OF THE CONTRACTOR SHALL BE INCLUDED IN THE T.C.'S BID.
5. UNLESS TRADE RULES DICTATE OTHERWISE.
6. FURNISHED AS PART OF THE EQUIPMENT WHEN POSSIBLE, OR FURNISHED TO THE E.C. FOR INSTALLATION IN THE FIELD.
7. INCLUDES ALL CONDUCTORS, GROUND BARS, AND TERMINATIONS FOR THE COMPLETE BONDING SYSTEM REQUIRED BY THE SPECIFICATIONS.
8. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF PANELS AND SWITCHBOARDS SHOWN IN THE TECHNOLOGY BONDING RISER DIAGRAM AND TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR

TELECOM ROOM REFERENCES

TELECOM ROOM	DETAIL / SHEET REFERENCE	FLOOR PLAN REFERENCE	ARCH ROOM NUMBER
MDF	1/T300	1/T101.1	113

TECHNOLOGY GENERAL NOTES:

1. T-001 INDICATES GENERAL TECHNOLOGY EQUIPMENT SCHEDULE ITEM LABELED AS "EQUIPMENT TAG"
2. REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR FULL DESCRIPTIONS AND MANUFACTURERS OF ALL DEVICES.

TECHNOLOGY MOUNTING SUBSCRIPT KEY:
- A MOUNT AT +6" TO CENTERLINE ABOVE COUNTER OR BACKSPLASH
- H MOUNT ORIENTED HORIZONTALLY
- L MOUNT IN CASEWORK
- M MOUNT IN MODULAR FURNITURE
- S MOUNT IN SURFACE RACEWAY

A SLASH IS USED BETWEEN TWO SUBSCRIPTS, e.g., A/H.

TECHNOLOGY INSTALLATION NOTES:

1. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN. REFER TO THE ADA GUIDELINES FOR ALL CONFIGURATIONS DETAIL ON THIS PAGE FOR ADDITIONAL INFORMATION.
2. CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, ABOVE CEILING. UNLESS OTHERWISE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. CONDUIT IN MECHANICAL ROOMS AND STORAGE ROOMS WITHOUT CEILINGS MAY BE EXPOSED ON BUILDING STRUCTURE.
3. BOXES LOCATED ON OPPOSITE SIDES OF NON-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE OFFSET A MINIMUM OF 24" HORIZONTALLY. "THRU-THE-WALL" BOXES SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
4. VERIFY ALL FURNITURE AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS, AND REVIEWED SHOP DRAWINGS. PRIOR TO MAKING THE ACTUAL COMMUNICATIONS INSTALLATION, ADJUST OUTLETS OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
5. COMMUNICATIONS EQUIPMENT SHALL BE MOUNTED TO ALLOW ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF TELECOMMUNICATION DEVICES ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
7. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO DIVISION 21 FOR ADDITIONAL INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
8. REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED FOR THE EXECUTION OF COMMUNICATIONS WORK THAT IS OUTSIDE THE CONTRACT LIMITS OF CONSTRUCTION. REPLACE CEILING TILES WITH IDENTICAL MATERIAL WHERE DAMAGED BY THIS CONTRACTOR.
9. ALL LADDER RACK SIZES ARE AS DEFINED ON THE DRAWINGS. REFER TO SPECIFICATION SECTIONS FOR APPROVED MANUFACTURERS AND INSTALLATION REQUIREMENTS.
10. FLUSH MOUNT ALL TELECOMMUNICATION OUTLETS AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.

TECHNOLOGY OUTSIDE PLANT NOTES

1. THE LOCATION OF THE CONDUIT, HAND HOLES SHOWN ARE APPROXIMATE LOCATIONS. FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIVATE AND/OR PUBLIC PRIOR TO THE INSTALLATION OF THE COMPONENT. FIELD COORDINATE THE FINAL LOCATION WITH THE OWNER AND ENGINEER PRIOR TO INSTALLATION.
2. POTHOLING TO LOCATE EXISTING UNDERGROUND UTILITIES, IF APPLICABLE, SHALL BE INCLUDED WITHIN THE CONTRACTORS BID. CONTRACTOR IS RESPONSIBLE FOR FINAL PLACEMENT OF HANDHOLES AND SHALL NOTIFY THE ENGINEER OF FINAL LOCATIONS PRIOR TO INSTALLATION.
3. HAND HOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE FRAME WILL BE FLUSH WITH THE GROUND LINE.
4. CONTRACTOR SHALL INCLUDE WITHIN THEIR BID ANY REMOVAL AND REPLACEMENT OF EXISTING SIDEWALK, PAVEMENT, GRASS, SHRUBS, TREES, ETC. THAT WILL BE IMPACTED BY THE INSTALLATION OF THE NEW CONDUITS SHOWN ON THE DRAWINGS. IF TREES ARE REQUIRED TO BE REMOVED THE CONTRACTOR SHALL CONTACT THE OWNER AND DISCUSS OPTIONS PRIOR TO CUTTING DOWN ANY TREE OR SHRUB OVER 5" IN HEIGHT.
5. NO ADDITIONAL COST SHALL BE APPROVED FOR PLACING CONDUITS DEEPER THAN REQUIRED MINIMUM DEPTH TO AVOID EXISTING UNDERGROUND UTILITIES.
6. PROVIDE A MINIMUM OF 25'-0" SLACK LOOP WITHIN EACH HAND HOLE. SLACK LOOP SHALL BE SECURE SO COPPER FIBER IS NOT RESTING ON EARTH AFTER FINAL INSTALLATION.

TECHNOLOGY SHEET INDEX

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

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1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
PROJECT # 16.0141.00

REFERENCE SCALE IN INCHES
0 1 2 3

Drawing
TECHNOLOGY COVER SHEET

OPN Project No. 15617000

T000

GENERAL TECHNOLOGY EQUIPMENT SCHEDULE

THE EQUIPMENT TAGS AND THE GENERAL TECHNOLOGY EQUIPMENT SCHEDULE ARE FOR THE CONVENIENCE OF THE CONTRACTOR. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF QUANTITIES AND SHALL FURNISH ALL MATERIAL REQUIRED, WHETHER SPECIFIED OR NOT, TO PRODUCE A SATISFACTORY WORKING SYSTEM.

CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN ONLY TO AID THE CONTRACTOR IN THE SEARCH FOR MATERIAL. NO MATERIAL SHALL BE ORDERED BY MANUFACTURER OR CATALOG NUMBER ONLY. EACH CONTRACTOR SHALL FIRST READ THE COMPLETE DESCRIPTION OF THE MATERIAL AND EQUIPMENT ON THESE DRAWINGS AND SPECIFICATIONS. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN. "STANDARD COLOR" INDICATES FACTORY FINISH AVAILABLE AT NO ADDITIONAL CHARGE.

ITEM NO.	EQUIPMENT TAG	DESCRIPTION	APPROVED MANUFACTURERS
1	SC-IO-W	INFORMATION OUTLET, WALL MOUNT. 2, 4, OR 6-PORT FACEPLATE AS INDICATED IN INFORMATION OUTLET SCHEDULE ON DRAWING T500. "#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION AS INDICATED ON THE FLOOR PLANS. REFER TO INFORMATION OUTLET SCHEDULE ON DRAWING T500 FOR DESCRIPTION OF EACH CONFIGURATION AND FOR PIN CONFIGURATION OF JACKS. "W" INDICATES INFORMATION OUTLET FOR WALL PHONE. PROVIDE (1) RJ-45 JACK IN STAINLESS STEEL FACEPLATE WITH WALL PHONE MATING LUGS AT +48" AFF FOR WALL HUNG TELEPHONE. TELEPHONE BY OWNER. INSTALL INFORMATION OUTLET IN A 4" SQUARE 2-1/8" DEEP BACK BOX WITH A SINGLE GANG PLASTER RING AND A 1" EMT CONDUIT STUBBED TO NON-CONTINUOUS CABLE SUPPORT ROUTE OR CABLE TRAY ABOVE NEAREST ACCESSIBLE CEILING. REFER TO 1/T500 FOR TECHNOLOGY ROUGH-IN MOUNTING DETAIL. REFER TO SUGGESTED MATRIX OF SCOPE RESPONSIBILITY ON DRAWING T000 FOR ADDITIONAL INFORMATION. ALL WALL MOUNT OUTLETS WILL BE AT 18" AFF UNLESS NOTED OTHERWISE. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED FACEPLATE PORTS.	FACEPLATE: HUBBELL IFP14EI CAT6 JACK: HUBBELL HXJ6EI BLANK: HUBBELL SFB10
2	SC-IO-CWAP	INFORMATION OUTLET, CEILING MOUNT. 2, 4, OR 6-PORT FACEPLATE AS INDICATED IN INFORMATION OUTLET SCHEDULE ON DRAWING T500. "#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION AS INDICATED ON THE FLOOR PLANS. REFER TO INFORMATION OUTLET SCHEDULE ON DRAWING T500 FOR DESCRIPTION OF EACH CONFIGURATION AND FOR PIN CONFIGURATION OF JACKS. INSTALL INFORMATION OUTLET IN A 4" SQUARE 2-1/8" DEEP BACK BOX WITH A SINGLE GANG PLASTER RING AND A 1" EMT CONDUIT STUBBED TO NON-CONTINUOUS CABLE SUPPORT ROUTE OR CABLE TRAY ABOVE NEAREST ACCESSIBLE CEILING (MINIMUM 6" BEYOND BACK BOX). REFER TO SUGGESTED MATRIX OF SCOPE RESPONSIBILITY ON DRAWING T000 FOR ADDITIONAL INFORMATION. PROVIDE REMOVABLE BLANK INSERTS FOR UNUSED FACEPLATE PORTS.	FACEPLATE: HUBBELL IFP14EI CAT6 JACK: HUBBELL HXJ6EI BLANK: HUBBELL SFB10
3	SC-TTB-1	TELECOMMUNICATIONS TERMINAL BOARD. 4' X 8' X 3/4" A-C GRADE FIRE-RATED PLYWOOD. EXPOSED SIDE SHALL BE SMOOTH. MOUNT ORIENTED VERTICALLY WITH TOP OF PLYWOOD AT 8'6" A.F.F. RATING STAMP MUST REMAIN VISIBLE.	.
4	SC-LR-1	LADDER RACK. 18" WIDE TUBULAR STEEL CONSTRUCTION, RUST RESISTANT BLACK ENAMEL FINISH, UL LISTED. PROVIDE COMPLETE WITH ALL NECESSARY ADAPTERS, SUPPORT HARDWARE, AND FITTINGS, TO INCLUDE RADIUS DROPS. REMOVE SHARP BURRS FROM LADDER RACK AND REPAINT ALL AREAS THAT HAVE BEEN FIELD MODIFIED, CUT OR EXPOSED.	CHATSWORTH PRODUCTS 11275-718 B-LINE HOFFMAN
5	SC-GND-1	WALL-MOUNT GROUND BAR. MINIMUM 4" H X 12" L X 1/4" D COPPER, ELECTRICALLY ISOLATED BY INSULATORS INTEGRAL TO MOUNTING BRACKETS. PROVIDE UNIT CONFIGURED WITH SIXTEEN (16) SETS OF 5/16" HOLES SPACED 5/8" ON CENTER TO ACCOMMODATE "A" SPACED TWO-HOLE COMPRESSION LUGS AND THREE (3) SETS OF 7/16" HOLES SPACED 1" ON CENTER TO ACCOMMODATE "C" SPACED TWO-HOLE COMPRESSION LUGS. ANSI/EIA/TIA-607 AND BICSI COMPLIANT. UL LISTED. REFER TO 1/T500 FOR ADDITIONAL INFORMATION.	CHATSWORTH PRODUCTS 40153-012 ERICO HARGER
6	SC-GND-2	RACK MOUNT GROUND BAR. MINIMUM 3/16" D X 3/4" H X 19" W COPPER, CONFIGURED WITH MINIMUM EIGHT (8) #6-32 TAPPED HOLES AND MINIMUM FOUR (4) 5/16" UNTAPPED HOLES. UL LISTED AND ANSI/EIA/TIA-607 AND BICSI COMPLIANT. REQUIRES ONE (1) 1.75" RACK MOUNTING SPACE.	.
7	SC-ER-1	EQUIPMENT RACK. 84"H X 20.25"W X 15"D TWO-POST CONFIGURATION. PROVIDE COMPLETE WITH TWO (2) TWO-SIDED VERTICAL WIRE MANAGERS PER RACK, EACH WITH MINIMUM 6" X 6" CAPACITY FRONT AND REAR, AND WITH LADDER RACK CONNECTION HARDWARE ACCESSORIES AND RADIUS DROP LADDER RACK.	EXISTING OWNER FURNISHED
8	SC-FDC-1	FIBER OPTIC DISTRIBUTION CABINET, RACK MOUNT. ACCOMMODATES TWELVE (12) MODULAR ADAPTER PANELS OR MODULES. WELDED STEEL CONSTRUCTION, BLACK POWDER-COAT FINISH, INTEGRATED FRONT CABLE MANAGEMENT THROUGH, LOCKABLE. REQUIRES TWO(2) 1.75" RACK MOUNTING SPACES.	.
9	SC-HWM-1	HORIZONTAL CABLE MANAGEMENT, FINGER DUCT STYLE, 3" X 3" CAPACITY FRONT, 2" X 5" CAPACITY REAR. REMOVABLE FRONT AND REAR COVERS. PASS THROUGH HOLES TO FACILITATE FRONT TO REAR CABLING. REQUIRES (2) 1.75" MOUNTING SPACES.	HUBBELL HC219CC3P NO EQUALS
10	SC-MPP-1	MODULAR PATCH PANEL. FORTY EIGHT (**48**) MODULAR RJ-45 SNAP-IN JACKS. WELDED STEEL CONSTRUCTION, BLACK POWDER COAT FINISH, MOUNTS DIRECTLY TO EIA/TIA STANDARD 19" RELAY RACK. REQUIRES (2) 1.75" MOUNTING SPACES. PROVIDE COMPLETE FULLY POPULATED WITH JACKS.	HUBBELL CAT 6: P6E48U NO EQUALS

GENERAL TECHNOLOGY EQUIPMENT SCHEDULE (CONTINUED)

ITEM NO.	EQUIPMENT TAG	DESCRIPTION	APPROVED MANUFACTURERS
11	SC-HH	TELECOMMUNICATIONS HAND HOLE. IN GROUND HAND HOLE TIER 5 APPROXIMATE SIZE 13"X 24" WITH STANDARD COVER.	.
12	AC-CR1-W	CARD READER. PROVIDED AS INTEGRAL PART OF SECURITY MANAGEMENT SYSTEM. CARD READERS SHOWN ON PLANS TO IDENTIFY INTENDED MOUNTING LOCATION. REFER TO SPECIFICATION SECTION 28 13 00 FOR COMPLETE INFORMATION.	KEYSCAN
13	AC-MD-C	MOTION DETECTOR, CEILING MOUNTED. PROVIDE WITH CEILING MOUNT BRACKET. INSTALL IN A 4" SQUARE 2-1/8" DEEP BACKBOX WITH A SINGLE GANG PLASTER RING AND A 1" EMT CONDUIT STUBBED TO NON-CONTINUOUS CABLE SUPPORT ROUTE ABOVE NEAREST ACCESSIBLE CEILING (MINIMUM 6" BEYOND BOX). REFER TO SUGGESTED MATRIX OF RESPONSIBILITY ON DRAWING T000 FOR ADDITIONAL INFORMATION.	.
14	AC-EDH	ACCESS CONTROL ELECTRIFIED DOOR HARDWARE. FURNISHED AND INSTALLED BY OTHERS, CABLING AND CONNECTION TO ELECTRONIC ACCESS CONTROL SYSTEM PANEL BY THIS CONTRACTOR. COORDINATE CONNECTIONS AND TESTING WITH ON-SITE DOOR CONTRACTOR. REFER TO 3/T400 FOR WIRING REQUIREMENTS.	.
15	IC-IM-1	DOOR INTERCOM MASTER STATION. INSTALL 4" SQUARE 2-1/8 DEEP BOX WITH SINGLE-GANG PLASTER RING. 3/4" EMT CONDUIT STUBBED TO NON-CONTINUOUS CABLE SUPPORT ROUTE ABOVE NEAREST ACCESSIBLE CEILING. LOCATE IN PRINT SHOP AREA AS DIRECTED BY OWNER, FIELD COORDINATE FINAL LOCATION BEFORE BEGINNING INSTALLATION. FURNISH AND INSTALL ONE CAT 6 CABLE AND TERMINATE WITH CAT 6 JACK. INSTALL DEVICE AS DIRECTED BY OWNER, FIELD COORDINATE PRIOR TO FINAL INSTALLATION, REFER TO SUGGESTED MATRIX OF SCOPE RESPONSIBILITY ON DRAWING T000 FOR ADDITIONAL INFORMATION. REFER TO 2/T401 FOR CABLING REQUIREMENTS.	.
16	IC-IS-1	DOOR INTERCOM STATION, FLUSH WALL MOUNTED, VANDAL RESISTANT. INSTALL IN MANUFACTURER'S MATCHING ACCESSORY WITH 3/4" EMT CONDUIT STUBBED TO NON-CONTINUOUS CABLE SUPPORT ROUTE ABOVE NEAREST ACCESSIBLE CEILING. REFER TO SUGGESTED MATRIX OF SCOPE RESPONSIBILITY ON DRAWING T000 FOR ADDITIONAL INFORMATION. FURNISH AND INSTALL ONE (1) CAT 6 CABLE AND TERMINATE WITH RJ-45 PLUG. REFER TO 2/T000 FOR CABLING REQUIREMENTS.	.
17	AC-PB-1	ACCESS CONTROL PUSH BUTTON DOOR RELEASE, WALL MOUNT. SPST, HARD-WIRE, MOMENTARY. INSTALL IN A 4" SINGLE 2-1/8" DEEP BACKBOX WITH A SINGLE GANG PLASTER RING AND 3/4" CONDUIT STUBBED TO NON-CONTINUOUS CABLE SUPPORT ROUTE ABOVE NEAREST ACCESSIBLE CEILING (MINIMUM 6" BEYOND BOX). REFER TO SUGGESTED MATRIX OF SCOPE RESPONSIBILITY DRAWING ON T000 FOR ADDITIONAL INFORMATION.	.
18	AV-MON-1	VIDEO DISPLAY. 80" DIAGONAL LED VIDEO DISPLAY. 16:9 FORMAT, 1920X1080 RESOLUTION WITH HDMI (3) INPUTS AND (1) VGA INPUT MINIMUM. PROVIDE AND INSTALL WITH WALL MOUNT. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.	.
19	AV-CD-1	AUDIO VIDEO POLYCOM CODEC. PROVIDED BY OWNER, INSTALLED BY CONTRACTOR. FIELD COORDINATE LOCATION IN CONFERENCE ROOM, MOUNT IN CASEWORK IF POSSIBLE.	.
20	AV-CAM-1	AUDIO VIDEO CAMERA (POLYCOM). PROVIDED BY OWNER, INSTALLED BY CONTRACTOR. FIELD COORDINATE LOCATION IN CONFERENCE ROOM, MOUNT ON CASEWORK FACING TABLES.	.
21	AV-SP-1	AUDIO VIDEO RECESSED CEILING SPEAKER TYPE 1, 70 VOLT, 8 INCH DIAMETER, BY CONTRACTOR, SEE SPECIFICATION FOR ADDITIONAL INFORMATION.	.
22	AV-MP-1	AUDIO VIDEO RECESSED CEILING MICROPHONE TYPE , BY OWNER.	.
23	AV-AMP-1	AUDIO AMPLIFIER, BY CONTRACTOR. MOUNT IN CASEWORK, SEE 6/A403 FOR LOCATION. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION. MOUNT IN CASEWORK.	.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

201 W Mifflin St
Madison, WI 53703

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Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

Key Plan

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The FUTURE. Built SMARTER.
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MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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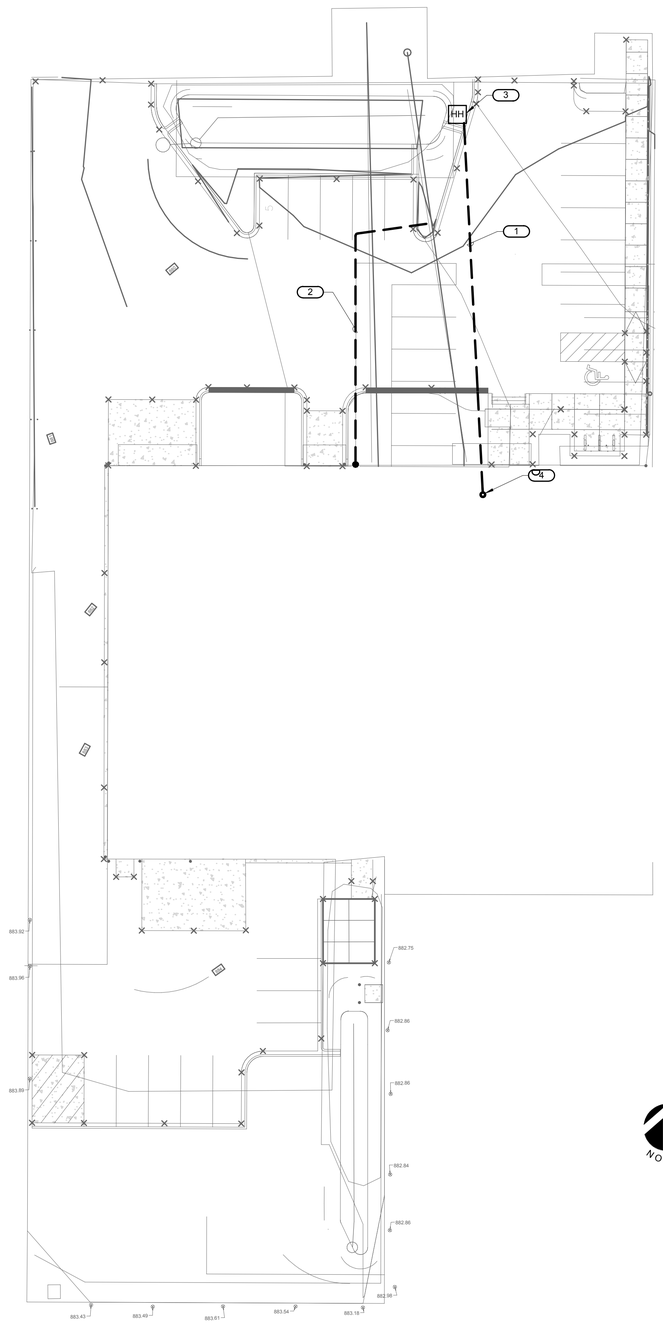
Drawing
GENERAL TECHNOLOGY EQUIPMENT SCHEDULE

OPN Project No. **15617000**

T001



KEYNOTES: (#)

1. CONTRACTOR TO ROUTE (1) 3" UNDERGROUND HDPE CONDUIT FROM NEW HAND HOLE TO FRONT OF BUILDING. DEPTH OF CONDUIT SHOULD BE A MINIMUM OF 30" TO ALLOW FOR RECOMMENDED BEND RADIUS AND TO BE BELOW FROST LINE. CONDUIT AND CABLING BEING PROVIDED AND INSTALLED BY CONTRACTOR. FOR CONTINUATION SEE SHEET T101.1.
2. CONTRACTOR TO ROUTE (1) 1" GALVANIZED RIGID CONDUIT UNDERGROUND FROM THE BUILDING FOR FUTURE VIDEO SURVEILLANCE CAMERA TO THE LIGHT POLE IN THIS APPROXIMATE LOCATION. COORDINATE WITH ELECTRICAL CONTRACTOR AND ROUTE THIS CONDUIT ALONG SIDE CONDUIT FEEDING LIGHT FIXTURE AT POLE.
3. CONTRACTOR TO PROVIDE NEW HANDHOLE FOR CONNECTION OF NEW OPTICAL FIBER CABLE (12 STRAND OS2 SINGLE MODE) NOTED IN 1 ABOVE.
4. APPROXIMATE LOCATION WHERE (1) 3" CONDUIT SHOULD BEND UP AND INTO BUILDING IN THE PRINT OFFICE AS INDICATED ON SHEET T101.1.

NORTH

1 SITE PLAN - TECHNOLOGY

1" = 20'-0"

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Snyder & Associates, Inc.
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Madison, WI 53718
P. 608.838.0444

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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SITE PLAN - TECHNOLOGY

OPN Project No. **15617000**

T050

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The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
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www.kjww.com
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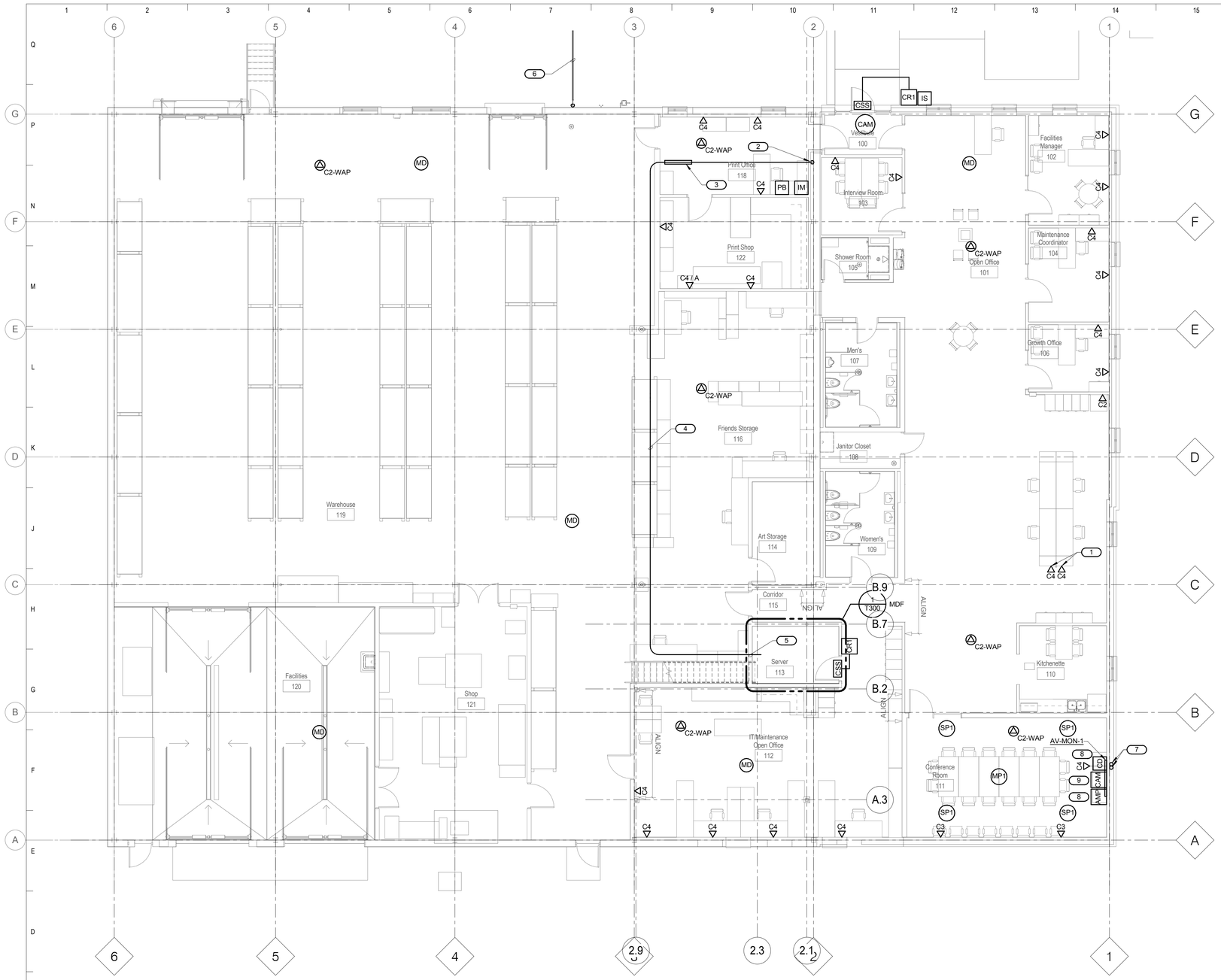

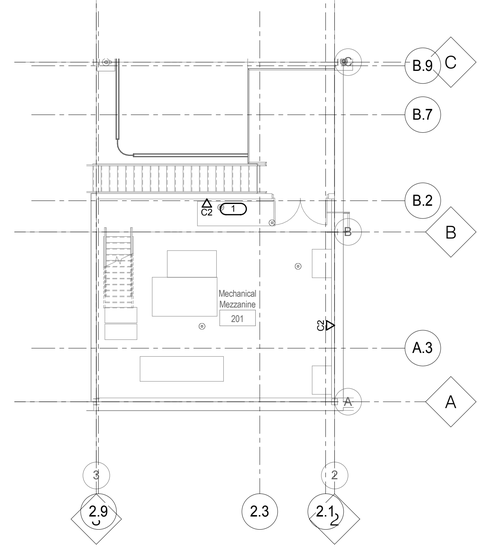

1 FIRST FLOOR - TECHNOLOGY

1/8" = 1'-0"

KEYNOTES:

1. POWER POLE IS BEING PROVIDED BY ELECTRICAL IN THIS LOCATION . CONTRACTOR TO PROVIDE (2) C4 OUTLETS ON POWER POLE.
2. (1) 3" CONDUIT TO ROUTE INTO BUILDING UNDER FLOOR. MAINTAIN 30 INCH BEND RADIUS PER TIA/EIA/BICSI RECOMMENDATIONS. SECURE FROM STRUCTURE OF BUILDING AND ROUTE UP AND OVER CEILING, FIELD COORDINATE EXACT MOUNTING HEIGHT WITH ALL TRADES AND EXISTING DEVICES, PREFERRED HEIGHT OF 12'-0" TO CENTER OF CONDUIT.
3. (1) 3" CONDUIT ROUTED ABOVE CEILING AND EXACT LOCATION COORDINATED WITH OTHER TRADES IN PRINT SHOP AREA. PROVIDE A 12" WIDE x 48" LONG x 5" DEEP BOX WITH ACCESS ON BOTTOM FOR CONTRACTOR TO PULL OPTICAL FIBER CABLING.
4. ROUTE THE 3" CONDUIT FROM THE HEIGHT WHERE IT ROUTES OVER PRINT SHOP TO A LOWER HEIGHT OF APPROXIMATELY 8 FEET AFF TO ENTER INTO SERVER ROOM ABOVE RACK BUT BELOW STRUCTURE OF SPACE, GRADUATE THE BENDS TO NOT REQUIRE AN INSTALL OF AN ADDITIONAL PULL BOX.
5. SAME CONDUIT IN NOTE 2 ABOVE TO ENTER SERVER ROOM 113 ABOVE LADDER RACK WITH MAXIMUM 12" WATERFALL. PROVIDE CONDUIT WITH WATERFALL.
6. 1" GALVANIZED RIGID CONDUIT SHOWN FOR FUTURE DATA CABLING TO LIGHT POLE (SEE SITE PLAN T050) FOR FUTURE VIDEO SURVEILLANCE CAMERA.
7. CONTRACTOR TO PROVIDE (2) 1-1/4" CONDUITS IN WALL BEHIND MONITOR FROM CODEC LOCATED IN WALL CABINET. (1) CONDUIT IS FOR SPEAKER CABLING AND (1) CONDUIT IS FOR MICROPHONE CABLING.
8. CONTRACTOR TO FIELD COORDINATE LOCATION OF CODEC AND AMPLIFIER WITHIN WALL CABINET ADJACENT TO OWNER PROVIDED LAPTOP COMPUTER.
9. CONTRACTOR TO FIELD COORDINATE LOCATION OF CAMERA (POLYCOM) WITH WALL CABINET. MOUNT ON THE TOP OF THE CABINET.

2 MEZZANINE - TECHNOLOGY

1/8" = 1'-0"

KEYNOTES:

1. DATA OUTLET FOR DDC PANEL. FIELD COORDINATE LOCATION OF PANEL BEFORE ROUGHIN WITH MECHANICAL CONTRACTOR.

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CEDAR RAPIDS
DES MOINES
MADISON

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KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
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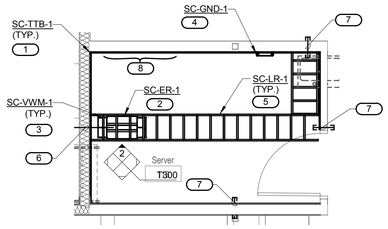
Drawing
FIRST FLOOR - TECHNOLOGY

OPN Project No. 15617000

T101.1

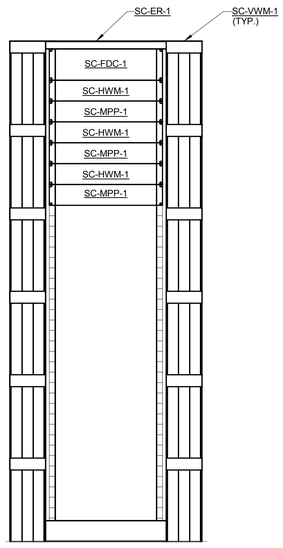


1 TECHNOLOGY ROOM - MDF 113 ENLARGEMENT

1/4" = 1'-0"

NOTES:

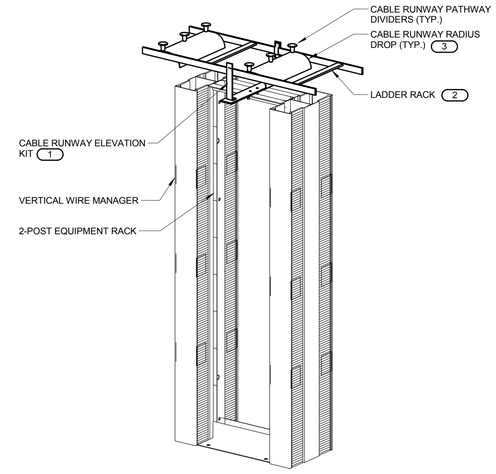
KEYNOTES:
1. CONTRACTOR TO INSTALL COMMUNICATIONS BACKBOARD.
2. CONTRACTOR TO INSTALL OWNER PROVIDED 2-POST (19 ") RACKS IN ROOM ON FLOOR.
3. PROVIDE NEW VERTICAL CABLE MANAGERS AS INDICATED. REFER TO SPECIFICATION SECTION 27 11 00 FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO INSTALL MAIN COMMUNICATIONS GROUND BAR MOUNT AFF 72" AFF.
5. PROVIDE NEW 18" CABLE RUNWAY.
6. PROVIDE NEW 3" CONDUIT WITH NEW 12 STRAND SINGLE-MODE OPTICAL FIBER CABLE FROM HAND HOLE IN STREET. REFER TO SHEETS T050 AND T101.1 FOR CONDUIT ROUTING.
7. PROVIDE NEW 2" CONDUITS EXITING/ENTERING ROOM FOR NEW DATA CABLING BEING INSTALLED IN THE BUILDING.
8. SPACE RESERVED FOR ACCESS CONTROL PANEL AC-ACP-1 AND DETECTION PANELS.



2 TECHNOLOGY ROOM - MDF 113 RACK ELEVATION

1" = 1'-0"

NOTES:
1. COORDINATE ALL DEVICE LOCATION AND MOUNTING LOCATIONS IN MAIN TECHNOLOGY ROOM ON SITE WITH USER AGENCY PRIOR TO INSTALLATION.
2. OWNER PROVIDED 19" RELAY RACKS.
3. CONTRACTOR TO INSTALL MINIMUM 6" WIDE VERTICAL CABLE MANAGERS AT EACH END AND BETWEEN EACH RACK. REFER TO SPECIFICATION SECTION 27 11 00 FOR ADDITIONAL INFORMATION.



3 LADDER RACK MOUNTING DETAIL

NO SCALE

NOTES:
1. ALL LADDER RACK AND ACCESSORIES TO BE INSTALLED FOR A COMPLETE INSTALLATION SHALL BE FROM THE SAME MANUFACTURER.

KEYNOTES:
1. MOUNT THE LADDER RACK NO MORE THAN +6" ABOVE THE FLOOR MOUNTED RACK. ADJUST THE CABLE RUNWAY ELEVATION KIT AS REQUIRED.
2. REFER TO THE INDIVIDUAL PATHWAY DRAWINGS FOR THE LADDER RACK SIZE.
3. A MINIMUM OF (1) RADIUS DROP INTO EACH VERTICAL WIRE MANAGER. REFER TO THE INDIVIDUAL TELECOM ROOM LAYOUTS, PATHWAY LAYOUTS, AND RACK ELEVATIONS FOR QUANTITY OF WIRE MANAGERS AND ADDITIONAL INFORMATION.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
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Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
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1800 Deming Way
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P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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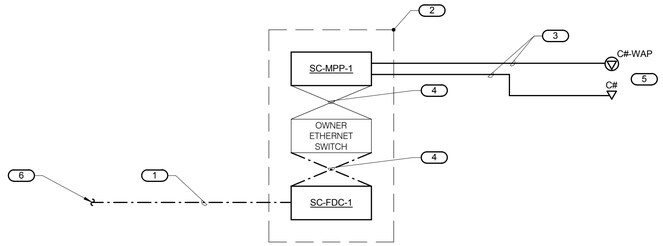
Drawing
ENLARGED PLANS – TECHNOLOGY

OPN Project No. 15617000

T300

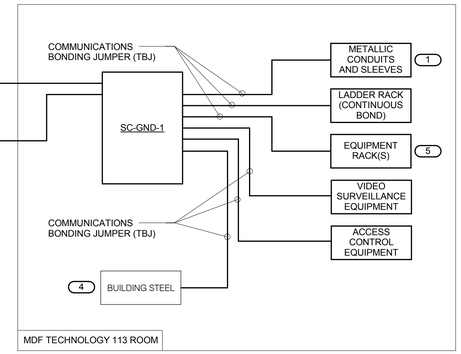


1 MDF TELECOM ROOM CONNECTIVITY DIAGRAM

NO SCALE

NOTES:
1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS SHOWN. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CABLE TYPES. COMMUNICATIONS OUTLETS SHOWN ARE TYPICAL OF THE COMMUNICATIONS OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF COMMUNICATIONS OUTLETS AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO FLOOR PLANS FOR COMMUNICATIONS ROOM SERVING ZONE INFORMATION.

KEYNOTES:
1. 12-STRAND OS2 SINGLEMODE FIBER OPTIC CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. EQUIPMENT RACK. REFER TO SHEET T300 FOR TECHNOLOGY ROOM ENLARGED PLANS AND RACK ELEVATIONS FOR ADDITIONAL INFORMATION.
3. 24 GAUGE 4-PAIR CATEGORY 6 UNSHIELDED TWISTED PAIR CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
4. ALL CROSS-CONNECTS AND PATCHES BY OWNER. ALL UTP COPPER AND FIBER OPTIC PATCH CABLES FURNISHED AND INSTALLED BY OWNER. SHOWN FOR REFERENCE ONLY.
5. COMMUNICATIONS OUTLETS SHOWN ARE TYPICAL OF THE COMMUNICATIONS OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF COMMUNICATIONS OUTLETS AND MORE SPECIFIC ROUTING INFORMATION. REFER TO COMMUNICATIONS OUTLET SCHEDULE ON DRAWING T500 FOR QUANTITY OF CABLES AND JACKS TO BE INSTALLED AT EACH COMMUNICATIONS OUTLET CONFIGURATION TYPE AND FOR OTHER INDIVIDUAL REQUIREMENTS FOR EACH OUTLET CONFIGURATION TYPE.
6. REFER TO SITE PLAN SHEET T050 FOR CONTINUATION.

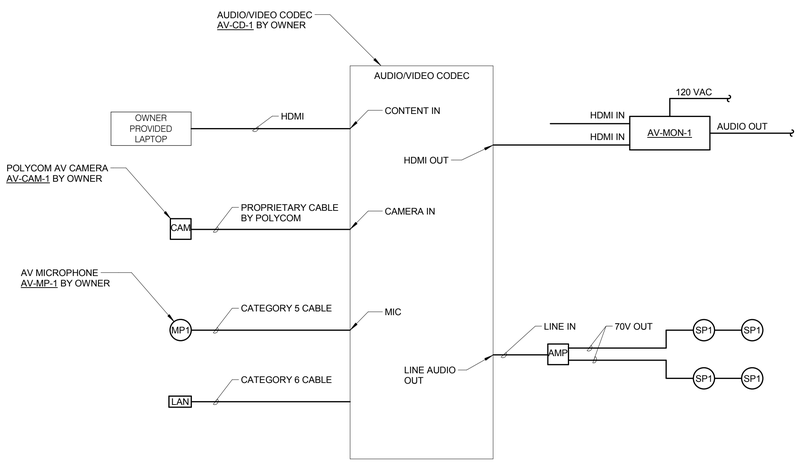


2 TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM

NO SCALE

NOTES:
1. THIS FLOW DIAGRAM IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS FLOW DIAGRAM IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CONDUCTOR TYPE. ALL CONNECTIONS AND SYSTEM DEVICES SHOWN ARE TYPICAL AND NOT REPRESENTATIVE OF ACTUAL PROJECT QUANTITIES. REFER TO FLOOR PLANS AND ENLARGED FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. ALL CONDUCTORS IN THE TECHNOLOGY BONDING SYSTEM SHALL BE MINIMUM SIZE OF 3/0 AWG COPPER (GREEN OR MARKED WITH A DISTINCTIVE GREEN COLOR) UNLESS CONDUCTOR LENGTH IS LESS THAN 66 FEET. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING CRITERIA FOR CONDUCTORS LESS THAN 66 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. ALL BONDING CONDUCTORS AND BONDING JUMPERS SHALL BE CONNECTED BY COMPRESSION LUGS, EXOTHERMIC WELDING, OR IRREVERSIBLE COMPRESSION CONNECTORS. SOLDER IS NOT AN ACCEPTABLE MEANS OF CONNECTION. SHEET METAL SCREWS SHALL NOT BE USED TO CONNECT COMMUNICATIONS BONDING CONDUCTORS TO EQUIPMENT. WHERE NECESSARY, REMOVE PAINT AND/OR USE PAINT-PIERCING WASHERS TO PROVIDE PROPER ELECTRICAL BOND AT ALL CONNECTIONS.
4. REFER TO T500 FOR BONDING BUS BAR DETAIL AND ADDITIONAL INFORMATION AND REQUIREMENTS FOR SC-GND-1.

KEYNOTES:
1. INCLUDES HORIZONTAL AND VERTICAL CONDUIT SLEEVES FOR TECHNOLOGY CABLING.
2. COMMUNICATIONS BONDING BACKBONE (TBB).
3. BONDING CONDUCTOR FOR COMMUNICATIONS(BCT), TO ELECTRICAL ENTRANCE INTERSYSTEM BONDING TERMINATION.
4. REFER TO THE ELECTRICAL DRAWINGS FOR LOCATION.
5. PROVIDE SC-GND-2 RACK MOUNT COMMUNICATIONS BONDING BUSBAR AT EACH EQUIPMENT RACK.



3 AUDIO/VIDEO CONNECTIVITY DIAGRAM

NO SCALE

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

Owner
MADISON PUBLIC LIBRARY

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Madison, WI 53703

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Madison Public Library
Maintenance & Support
Center Remodel & Addition

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Madison, WI 53713

General Contractor
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Consultants

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Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
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ELECTRICAL ENGINEER
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P. 608.223.9600

Key Plan

Sheet Issue Date

Permit Set	09/09/2016

Previous Issue Dates

CD Set	09/09/2016
60% CD Set	08/24/2016
Design Development	06/16/2016
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Revision Dates

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The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
www.kjww.com
PROJECT # 16.0141.00

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0 1 2 3

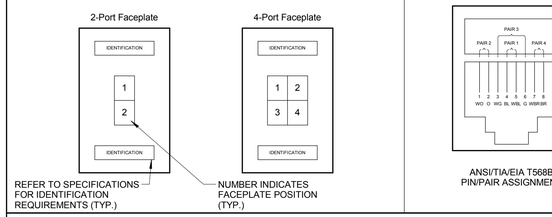
Drawing
RISER DIAGRAMS - TECHNOLOGY

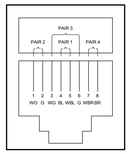
OPN Project No. 15617000

T400

INFORMATION OUTLET DETAILS

SINGLE GANG WALLPLATES





ANSI/TIA/EIA T568B
PIN/PAIR ASSIGNMENT

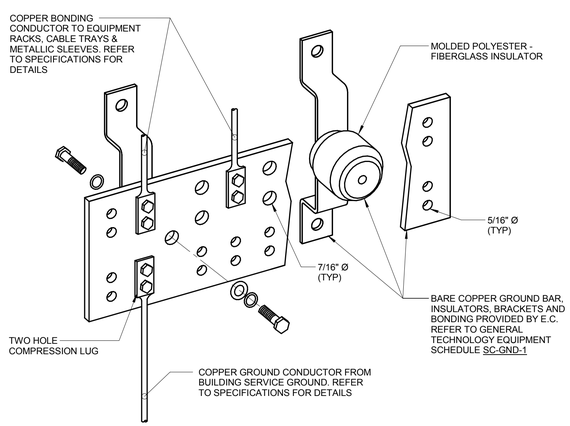
INFORMATION OUTLET SCHEDULE LEGEND

JACK TYPE	IO SCHEDULE DESCRIPTION
DATA	CAT 6 RJ-45

INFORMATION OUTLET SCHEDULE

NOTE: REFER TO THE INFORMATION OUTLET SCHEDULE LEGEND FOR POSITION JACK TYPE DESCRIPTION, THE INFORMATION OUTLET DETAILS AND GENERAL TECHNOLOGY EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.

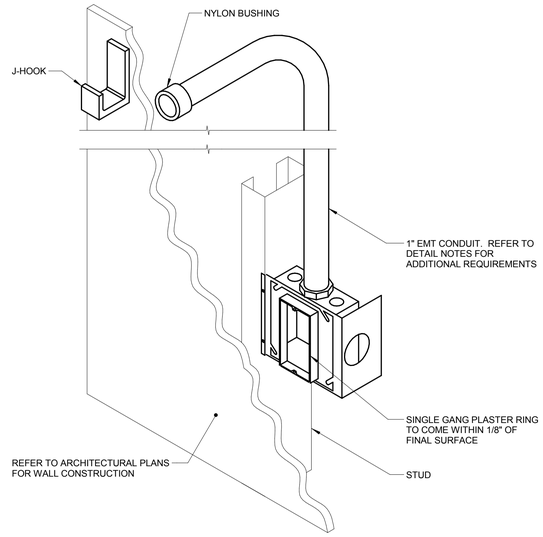
CONFIGURATION	FACEPLATE PORTS	FACEPLATE FEATURES: POSITION 1 JACK TYPE	POSITION 2 JACK TYPE	POSITION 3 JACK TYPE	POSITION 4 JACK TYPE	POSITION 5 JACK TYPE	POSITION 6 JACK TYPE	POSITION 7 JACK TYPE	POSITION 8 JACK TYPE	POSITION 9 JACK TYPE	POSITION 10 JACK TYPE	POSITION 11 JACK TYPE	POSITION 12 JACK TYPE	SCHEDULE NOTES
C2	2	DATA	DATA											
C2-WAP	2	DATA	DATA											
C3	4	DATA	DATA	DATA	BLANK									
C4	4	DATA	DATA	DATA	DATA									



1 BONDING BUS BAR DETAIL

NO SCALE

NOTES:
1. REFER TO GENERAL TECHNOLOGY EQUIPMENT SCHEDULE SC-GND-1 FOR WIDTH REQUIREMENTS.
2. REFER TO 2/T400 FOR TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.



2 INFORMATION OUTLET ROUGH-IN DETAIL

NO SCALE

NOTES:
1. 1" EMT CONDUIT SHALL STUB UP TO NEAREST ACCESSIBLE CEILING AND TERMINATE ORIENTED HORIZONTALLY AT THE HEIGHT OF THE ASSOCIATED CABLE TRAY OR J-HOOK ROUTE. CONDUIT RUN SHALL NOT CONTAIN MORE THAN 180 DEGREES OF BEND BETWEEN ACCESSIBLE JUNCTION BOXES OR BETWEEN JUNCTION BOX AND END OF CONDUIT.
2. WHERE CONDUIT STUB IS LOCATED IN A ROOM WITH AN ACCESSIBLE CEILING AND IS NOT REQUIRED TO RUN TO CABLE ROUTE LOCATED OUTSIDE THE ROOM, STUB MUST TERMINATE ABOVE THE ACCESSIBLE CEILING WITH A 90-DEGREE BEND AT THE TOP ORIENTED IN TO THE ROOM AT THE HEIGHT OF THE ASSOCIATED CABLE TRAY OR J-HOOK ROUTE IN THE ROOM.
3. ALL STUBS MUST BE FITTED WITH A NYLON BUSHING ON EACH END OF THE CONDUIT.
4. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR TECHNOLOGY ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR FIRESTOP REQUIREMENTS.

3 CABLE RUNWAY RADIUS DROP

NO SCALE

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Drawing
DETAILS AND SCHEDULES -TECHNOLOGY

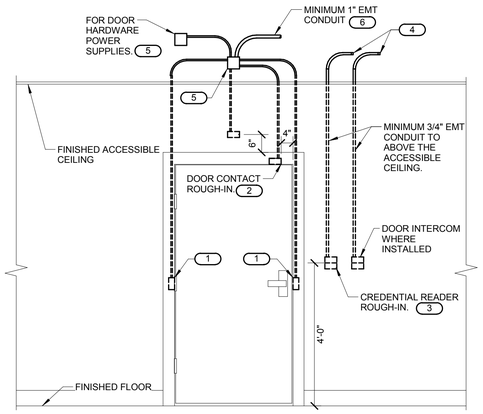
OPN Project No. 15617000

T500

CONTROLLED SECURITY SCHEME (CSS) TYPE SCHEDULE

ELECTRONIC DOOR HARDWARE SUCH AS ELECTRIC STRIKES, ELECTRIC LATCH RETRACTION, ETC. SHALL BE PROVIDED AND INSTALLED BY OTHERS. REFER TO THE GENERAL TECHNOLOGY EQUIPMENT SCHEDULE FOR CREDENTIAL READER TYPE INFORMATION.

	CREDENTIAL READER	INTEGRATION			DOOR HARDWARE		
DOOR #	CREDENTIAL READER TYPE	VIDEO SURVEILLANCE	INTERNAL ELECTRIFIED HARDWARE CONNECTION	REMOTE PUSH BUTTON	ELECTRONIC LOCKING HARDWARE (BY OTHERS)	MONITOR DOOR CONTACT SPDT	NOTES
100A	CR1	•	•	•	•	•	
113	CR1		•			•	



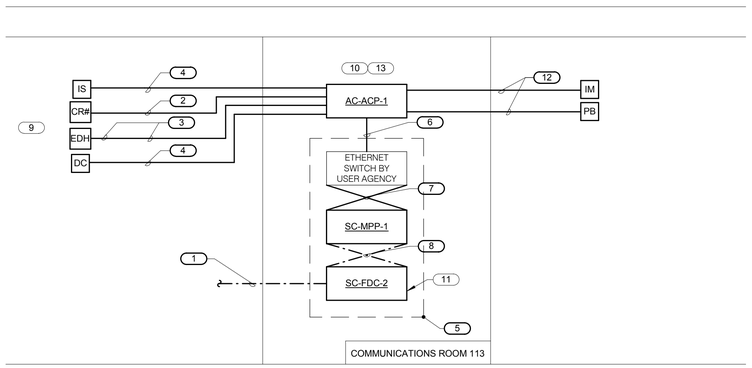
DOOR FRAME ROUGH-IN DIAGRAM
(ALL SINGLE DOORS)

2 CONTROLLED SECURITY SCHEME DOOR ROUGH-IN DETAIL

NO SCALE

NOTES:
1. CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC, INTENDED TO DESCRIBE THE CONTROLLED SECURITY SCHEME ROUGH-IN REQUIREMENTS OF THE DOORS. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DOOR SIZE, DOOR SWING, DOOR HARDWARE, OR DOOR FUNCTIONALITY. REFER TO ARCHITECTURAL DOOR HARDWARE SCHEDULE, DOOR HARDWARE GROUPS AND DOOR HARDWARE SPECIFICATIONS FOR COMPLETE INFORMATION. MIRROR THE DETAIL AS REQUIRED.
2. ROUGH IN SHOWN IN THE DETAIL ABOVE REPRESENTS THE MINIMUM REQUIREMENTS FOR ALL CONTROLLED SECURITY SYSTEM DEVICES AND CABLING UNLESS OTHERWISE NOTED. COORDINATE EXACT REQUIREMENTS WITH SELECTED DOOR MATERIALS, DOOR HARDWARE, AND CONTROLLED SECURITY DEVICES AND CABLING PRIOR TO INSTALLATION.
3. ALL CABLING IN WALLS AND WHERE EXPOSED ON VERTICAL SURFACES SHALL BE INSTALLED IN EMT CONDUIT OR SURFACE MOUNT RACEWAY. CABLING ROUTED HORIZONTALLY ABOVE THE ACCESSIBLE CEILING MAY BE INSTALLED FREE-AIR CABLING PROPERLY RATED FOR THE CEILING ENVIRONMENT.
4. THE ELECTRICAL OR SECURITY CONTRACTOR SHALL NOT MODIFY ANY FIRE RATED DOOR AND/OR DOOR FRAME. REFER TO THE ARCHITECTURAL DOOR SCHEDULE, DOOR HARDWARE SCHEDULE, AND DOOR HARDWARE SPECIFICATION FOR ADDITIONAL INFORMATION. MODIFICATION TO ANY FIRE RATED DOOR AND/OR FRAME WILL REQUIRE A RE-CERTIFICATION OF THE DOOR AND FRAME WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
5. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR ALL CONTROLLED SECURITY SCHEME ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
6. INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC. REFER TO THE SUGGESTED MATRIX OF SCOPE RESPONSIBILITY FOR ADDITIONAL INFORMATION.

KEYNOTES:
1. PROVIDE JUNCTION BOXES IN THE DOOR FRAME WHERE SHOWN ON THIS DETAIL. ROUGH-IN SHALL BE PROVIDED WHETHER THE CURRENT SECURITY SCHEME UTILIZES THEM OR NOT. ALL CONDUITS SHALL BE EMT CONDUIT UNLESS OTHERWISE NOTED. FLEXIBLE CONDUIT OF ANY TYPE WILL NOT BE ACCEPTED. COORDINATE INSTALLATION WITH ON-SITE DOOR FRAME INSTALLATION CONTRACTOR.
2. ALL DOOR POSITION SWITCHES ARE REQUIRED TO BE RECESSED UNLESS OTHERWISE NOTED. ELECTRIC HINGE MONITORS ARE NOT AN ACCEPTABLE REPLACEMENT FOR THE RECESSED DOOR POSITION SWITCH.
3. DOUBLE GANG BACKBOX WITH SINGLE GANG PLASTER RING. REFER TO FLOOR PLAN(S) FOR ACTUAL CREDENTIAL READER TYPE AND ROUGH-IN LOCATIONS.
4. CONDUIT SHALL ROUTE FROM THE CREDENTIAL READER TO THE SECURE SIDE OF THE DOOR. CONDUIT SHALL ROUTE TO NEAREST CABLE TRAY. PROVIDE A NYLON BUSHING ON CONDUIT END.
5. MOUNT A MINIMUM 4" SQUARE 2-1/8" DEEP JUNCTION BOX WITH BLANK COVER PLATE ON THE SECURE SIDE OF THE DOOR ABOVE ACCESSIBLE CEILING. INSTALLING CONTRACTOR SHALL SIZE THE JUNCTION BOXES PER SYSTEM INSTALLATION REQUIREMENTS AND APPLICABLE CODES. MAINTAIN ACCESS TO THE JUNCTION BOX.
6. CONDUIT SHALL ROUTE TO THE NEAREST TELECOM ROOM OR TO NEAREST CABLE TRAY. CONTRACTOR SHALL PROVIDE A NYLON BUSHING ON CONDUIT END.



1 ACCESS CONTROL RISER DIAGRAM

NO SCALE

NOTES:
1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS SHOWN. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CABLE TYPES. SYSTEM DEVICES SHOWN ARE TYPICAL OF THE SYSTEM DEVICES IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF SYSTEM DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO FLOOR PLANS FOR COMMUNICATION ROOM LOCATIONS.

KEYNOTES:
1. FIBER OPTIC CABLE FURNISHED AND INSTALLED AS PART OF THE STRUCTURED CABLING SYSTEM, SHARED WITH ACCESS CONTROL SYSTEM. SHOWN FOR REFERENCE ONLY.
2. ONE (1) 18/9 SHIELDED CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. ONE (1) 14/2 UNSHIELDED CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
4. ONE (1) 18/2 UNSHIELDED CABLE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
5. EQUIPMENT RACK AS DEFINED IN THE COMMUNICATIONS ROOM ENLARGED PLAN. REFER TO COMMUNICATIONS ROOM ENLARGED PLANS AND COMMUNICATIONS ROOM RACK ELEVATIONS FOR ADDITIONAL INFORMATION.
6. ONE (1) 23 GAUGE 4-PAIR CATEGORY 6 UNSHIELDED TWISTED PAIR PATCH CABLE PER AC-ACP-1 INSTALLED, FURNISHED AND INSTALLED BY THIS CONTRACTOR.
7. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
8. ALL UTP COPPER PATCH CABLES FURNISHED AND INSTALLED BY THIS CONTRACTOR.
9. SHOWN FOR REFERENCE ONLY.
10. SYSTEM DEVICES SHOWN ARE TYPICAL OF SYSTEM DEVICES SHOWN ON THE FLOOR PLANS REFER TO FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF CSS AND THE LOCATIONS OF THE CREDENTIAL READERS AND MORE SPECIFIC ROUTING INFORMATION.
11. PROPERLY BOND TO NEAREST SC-GND-1 WITH MINIMUM #6 AWG COPPER (GREEN). REFER TO SPECIFICATIONS FOR CONDUCTOR SIZING CRITERIA AND ADDITIONAL REQUIREMENTS.
12. ONE (1) 18/4 UNSHIELDED CABLE BETWEEN STATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
13. CONTACT CLOSURE CONNECTION TO INTERCOM DOOR STATION TO FACILITATE REMOTE UNLOCKING OF DOOR VIA INTERCOM SYSTEM MASTER STATION. REFER TO CONTROLLED SECURITY SCHEME (CSS) SCHEDULE ON DRAWING FOR INFORMATION ON DOORS REQUIRING INTEGRATION WITH DOOR INTERCOM STATION.

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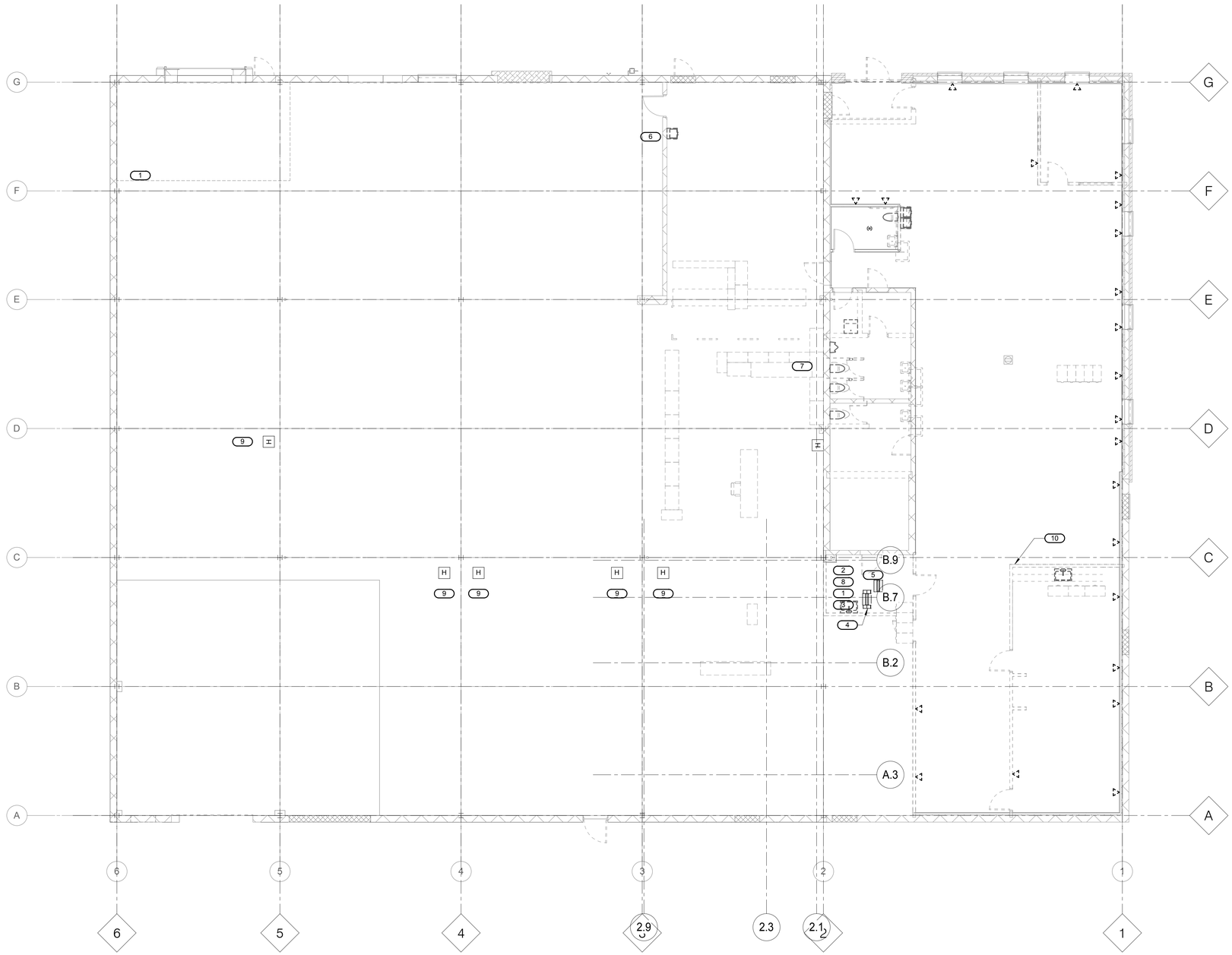
Drawing
DETAILS AND SCHEDULES -TECHNOLOGY

OPN Project No. 15617000

T501



1 FIRST FLOOR DEMOLITION - TECHNOLOGY

1/8" = 1'-0"

NORTH

KEYNOTES:

1. REMOVE EXISTING 66 VOICE BLOCKS AND CABLING TO SOURCE, COORDINATE WITH OWNER AND SERVICE PROVIDER TO REMOVE EXISTING VOICE SERVICES TO BUILDING.
2. REMOVE EXISTING VALCOM V2003A HEAD END EQUIPMENT AND CABLE TO SOURCE.
3. REMOVE EXISTING CARRIER AIR SYSTEM FOR THIS ROOM.
4. TURN OVER (1) EXISTING RACK AND ALL ASSOCIATED EQUIPMENT TO OWNER FOR REINSTALLATION.
5. REMOVE (1) EXISTING CABINET AND ALL ASSOCIATED EQUIPMENT.
6. REMOVE EXISTING BELL SYSTEM, ALL ASSOCIATED EQUIPMENT AND CABLING.
7. REMOVE EXISTING ADT PANEL, ALL ASSOCIATED EQUIPMENT AND CABLING.
8. REMOVE EXISTING BOGEN PAGING SYSTEM, EQUIPMENT AND CABLING.
9. REMOVE EXISTING PAGING HORN TYPE SPEAKER AND CABLING TO SOURCE.
10. REMOVE EXISTING CONDUITS WITH DATA CABLING WHEN WALL IS REMOVED DURING DEMOLITION PORTION OF PROJECT. REMOVE CABLING BACK TO SOURCE (LIKELY EXISTING DATA RACK).

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Drawing
FIRST FLOOR DEMOLITION - TECHNOLOGY

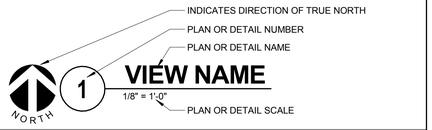
OPN Project No. 15617000

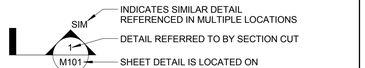
TD101.1

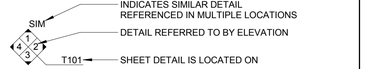
VIEW KEY

NAME — LEVEL NAME
10' - 0" — HEIGHT ABOVE PROJECT 0' - 0"

1 — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL







LINE TYPE KEY:

- NEW WORK BY THIS CONTRACTOR (DARK SOLID LINE)
- NEW WORK UNDERFLOOR OR UNDERGROUND BY THIS CONTRACTOR (DARK LONG DASHED LINE)
- NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
- EXISTING TO BE REMOVED BY THIS CONTRACTOR (DARK SHORT DASHED LINE)

FIRE PROTECTION SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
CAF	COMPRESSED AIR - FIRE PROTECTION
DFP	DRAIN
FP	FIRE PROTECTION
FPD	FIRE PROTECTION - DRY SYSTEM
W	SERVICE WATER - POTABLE
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	NEW CONNECTION
	UNION/FLANGE
	DIRECTION OF FLOW IN PIPE
	SHUTOFF VALVE NORMALLY OPEN
	AUTOMATIC DRAIN VALVE
	AIR PRESSURE MAINTENANCE DEVICE
	AIR SUPERVISORY SWITCH
	ANGLE VALVE
	BUTTERFLY VALVE WITH MONITOR SWITCH
	CHECK VALVE
	INSPECTOR TEST AND DRAIN VALVE
	OS&Y GATE VALVE
	OS&Y GATE VALVE WITH MONITOR SWITCH
	PRESSURE SWITCH
	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	MONITOR SWITCH
NO HATCH	LIGHT HAZARD
	ORDINARY GROUP 1
	ORDINARY GROUP 2
	DEMOLITION
	EXTRA GROUP 1
	EXTRA GROUP 2
	SPRINKLER - WALL MOUNTED
	SPRINKLER
	SPRINKLER - CONCEALED
	SPRINKLER
	SPRINKLER
	SPRINKLER
$\bullet_A$	SPRINKLER
$\circ_A$	SPRINKLER

FIRE PROTECTION ABBREVIATION KEY

ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
BFP	BACKFLOW PREVENTER
I.E.	INVERT ELEVATION
NC	NEW CONNECTION
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE

MECHANICAL RENOVATION NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL.

1. EXISTING CONDITIONS ARE SHOWN BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, EXISTING BUILDING DOCUMENTS, AND STAFF. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.
2. NOT ALL EXISTING DUCTWORK AND PIPING IS SHOWN. VERIFY EXISTING CONDITIONS BEFORE STARTING WORK. NOTIFY ENGINEER OF ANY CONFLICTS WITH NEW WORK.
3. FIELD VERIFY THE AVAILABLE CLEARANCES FOR DUCTWORK AND PIPING BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.
4. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE REMOVED OR RELOCATED TO ALLOW ACCESS TO HIS AREA OF WORK.
5. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CUTTING, REMOVAL AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY THE GC OF AFFECTED AREAS PRIOR TO BIDDING.
6. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILINGS, CEILING TILES, AND CEILING GRIDS ASSOCIATED WITH AREAS OF WORK BY ALL CONTRACTORS. NOTIFY THE GENERAL CONTRACTOR OF AFFECTED AREAS PRIOR TO BIDDING.
7. WHERE EXISTING MECHANICAL SYSTEMS ARE LOCATED IN AREAS THAT CONFLICT WITH NEW EQUIPMENT, PIPING, OR DUCTWORK TO BE INSTALLED, EACH CONTRACTOR SHALL EITHER ARRANGE NEW EQUIPMENT, PIPING, OR DUCTWORK IN SUCH A FASHION THAT IT DOES NOT CONFLICT WITH EXISTING SYSTEMS, OR REWORK EXISTING MECHANICAL SYSTEMS TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, OR DUCTWORK.
8. DISCONNECT AND REMOVE MECHANICAL DEVICES AND EQUIPMENT SERVING EQUIPMENT THAT HAS BEEN REMOVED.

FIRE HYDRANT FLOW TEST DATA

TEST DATE:	06/16/2015
HYDRANT ELEVATION:	882'-0"
LOCATION:	1501 BADGER ROAD
STATIC PRESSURE:	75 PSI
RESIDUAL PRESSURE:	63 PSI
TOTAL FLOW:	1210 GPM
SIZE OF MAIN:	8"

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR

FIRE PROTECTION SHEET INDEX

FIRE PROTECTION GENERAL NOTES:

1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
2. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER IS THE BASIS OF DESIGN.
3. FIRE PROTECTION PIPE ROUTING IS SHOWN FOR GENERAL LAYOUT. DETERMINE EXACT NUMBER OF SPRINKLERS, PIPE SIZING, AND PIPE ROUTING.
4. CENTER SPRINKLERS IN CEILING TILES IN BOTH DIRECTIONS IN ALL AREAS. IN AREAS WITH 2'X4' CEILING TILES CENTERING USING A 2'X2' CEILING PATTERN IS ACCEPTABLE.
5. NEW SPRINKLERS SHALL BE QUICK RESPONSE TYPE, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL NOT MIX STANDARD RESPONSE SPRINKLERS WITH QUICK RESPONSE SPRINKLERS IN UNPARTITIONED SPACES.

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION, PIPING AND TEMPERATURE CONTROL.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
9. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
10. SEAL ALL FLOOR, WALL, AND ROOF PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
11. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
12. WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
13. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY BETWEEN DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
14. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
15. MAINTAIN MINIMUM 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL PANELS, MOTOR STARTERS, SWITCHES, AND DISCONNECTS.
16. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
17. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

OPN ARCHITECTS
CEDAR RAPIDS
DES MOINES
MADISON

OPN ARCHITECTS
301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
608-819-0261 FAX
www.opnarchitects.com
opn@opnarchitects.com

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Madison, WI 53703

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Madison, WI 53713

General Contractor
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Consultants

CIVIL ENGINEER
Snyder & Associates, Inc.
5010 Voges Road
Madison, WI 53718
P. 608.838.0444

STRUCTURAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

MECHANICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

ELECTRICAL ENGINEER
KJWW Engineering Consultants
1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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The FUTURE. Built SMARTER.
1800 DEMING WAY SUITE 200
MIDDLETON, WISCONSIN 53562
608.223.9600 FAX: 608.836.0415
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REFERENCE SCALE IN INCHES
0 1 2 3

Drawing
FIRE PROTECTION COVER SHEET

OPN Project No. 15617000

F000

KEY NOTES : (#)

1. REMOVE EXISTING SPRINKLERS AND BRANCH PIPING AS REQUIRED FOR THE RENOVATED SPACES. PREPARE FOR INSTALLATION OF NEW SPRINKLERS FOR NEW BUILDING LAYOUT. EXISTING FIRE PROTECTION SERVICE AND FIRE DEPARTMENT CONNECTION TO REMAIN. REFER TO F101.1 FOR NEW ROOM CONFIGURATION.
2. EXISTING WATER SERVICE TO BE REPLACED. REMOVE INCOMING SERVICE PIPING NEAR FLOOR LEVEL AND PREPARE FOR CONNECTION FROM NEW INCOMING SERVICE LINE TO EXISTING FIRE PROTECTION SERVICE.

1 FIRST FLOOR DEMOLITION - FIRE PROTECTION

1/8" = 1'-0"

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CEDAR RAPIDS
DES MOINES
MADISON

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Middleton, WI 53562
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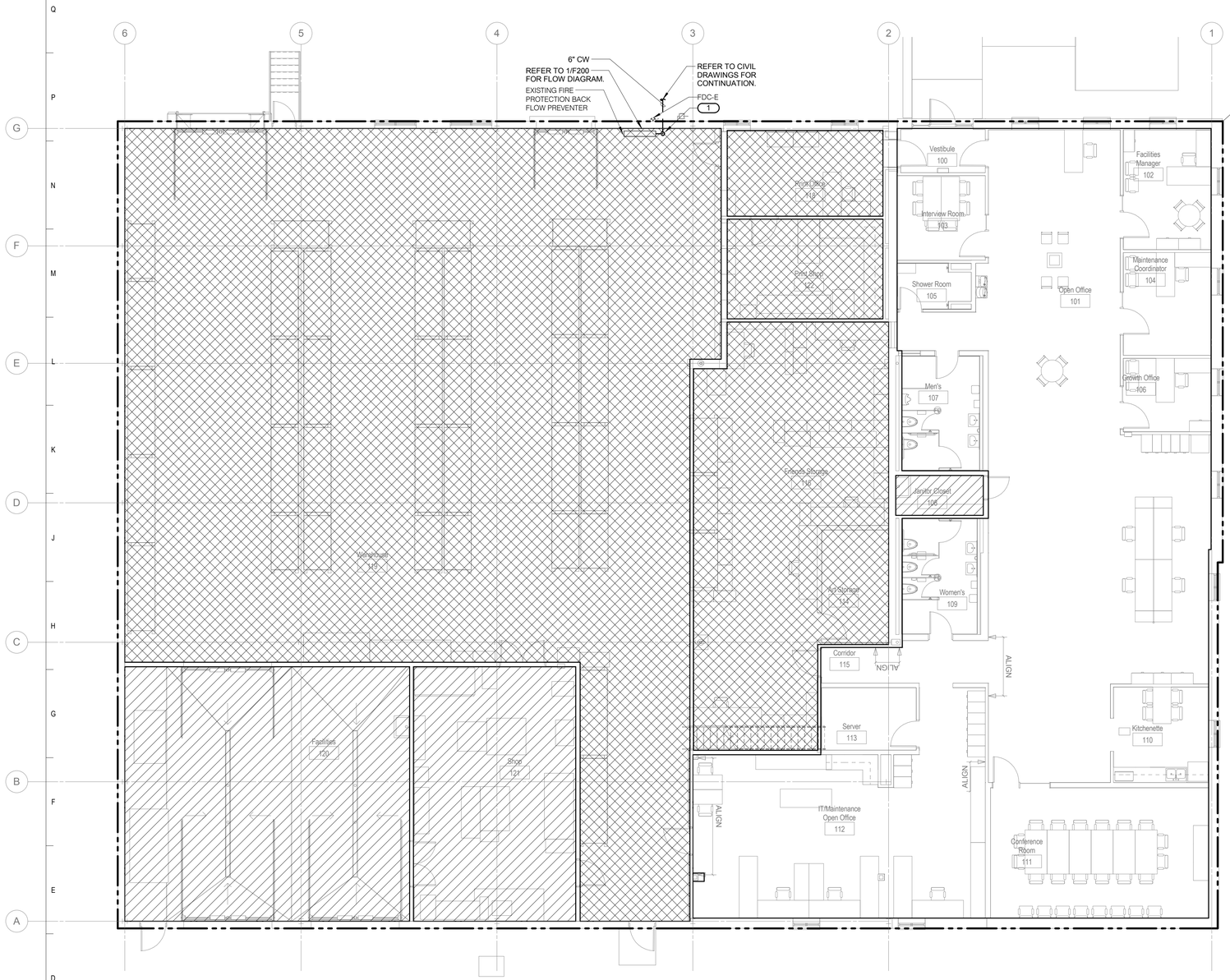
Drawing
FIRST FLOOR DEMOLITION - FIRE PROTECTION

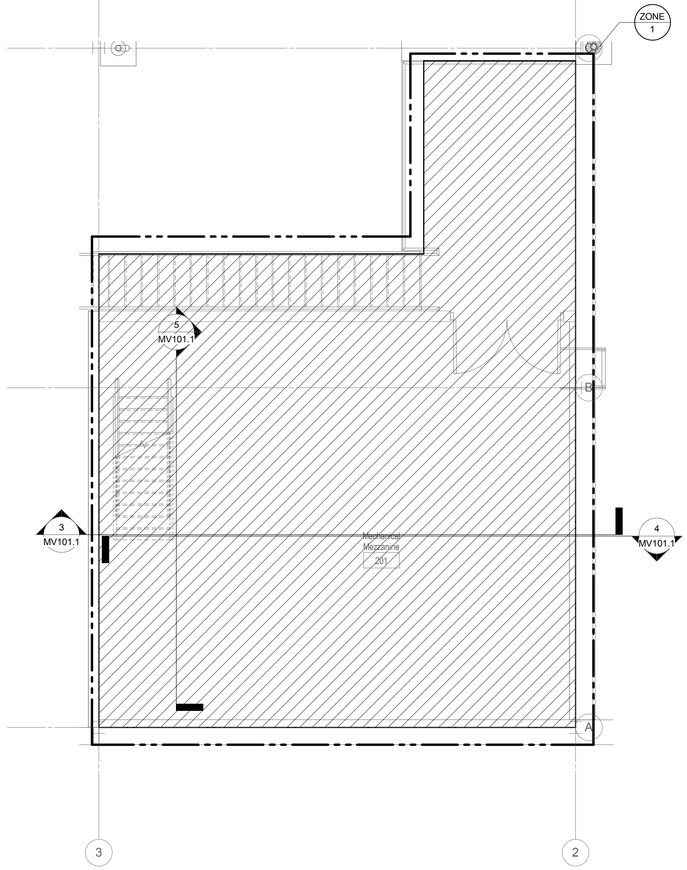
OPN Project No. 15617000

FD101.1



1 FIRST FLOOR - FIRE PROTECTION

1/8" = 1'-0"



2 ENLARGED PLAN - MEZZANINE - FIRE PROTECTION

1/4" = 1'-0"

GENERAL NOTES:

1. REFER TO 2/FP200 FOR PIPE SUPPORT DETAIL FOR ALL PIPE HANGERS AND SUPPORTS.

KEYNOTES: (#)

1. PROVIDE NEW INCOMING WATER MAIN TO EXISTING FIRE PROTECTION BACKFLOW PREVENTER. COORDINATE WITH CIVIL DRAWINGS.

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CEDAR RAPIDS
DES MOINES
MADISON

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301 NORTH BROOM STREET
MADISON, WI 53703
608-819-0260 PHONE
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Madison, WI 53718
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1800 Deming Way
Middleton, WI 53562
P. 608.223.9600

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KJWW Engineering Consultants
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Middleton, WI 53562
P. 608.223.9600

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KJWW Engineering Consultants
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Middleton, WI 53562
P. 608.223.9600

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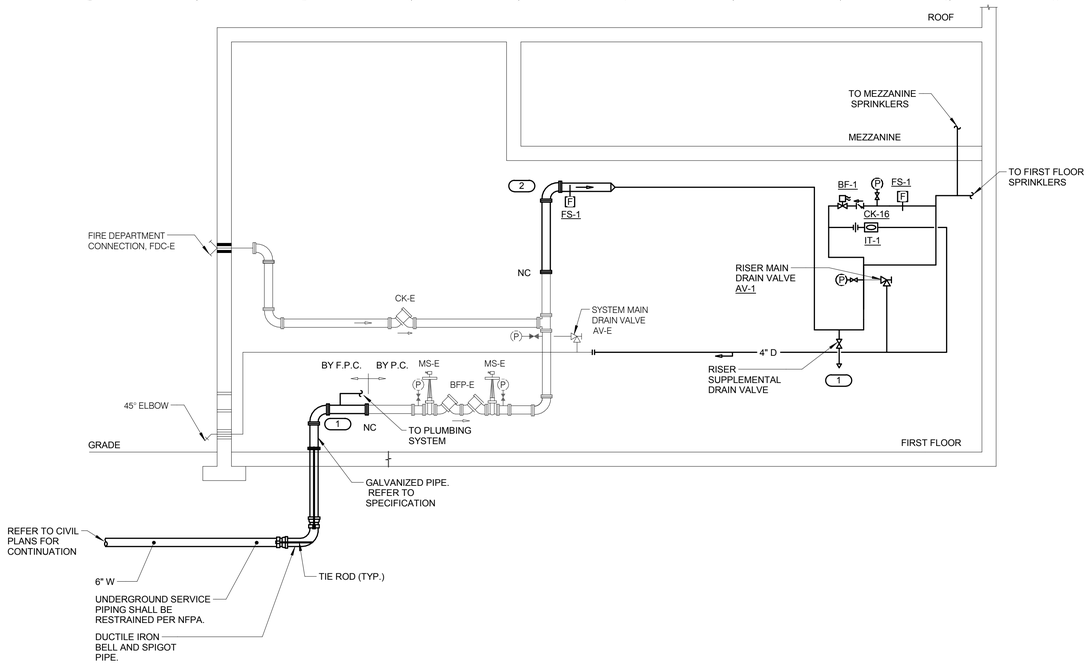
Drawing
FIRST FLOOR - FIRE PROTECTION

OPN Project No. 15617000

F101.1

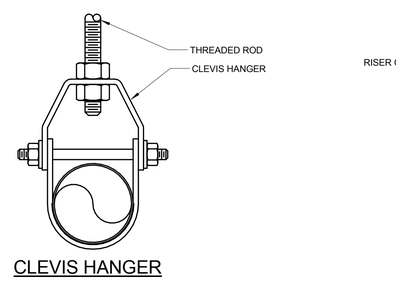


1 FIRE PROTECTION RISER DIAGRAM

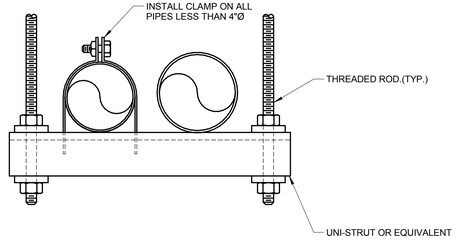
NO SCALE

KEYNOTES:-

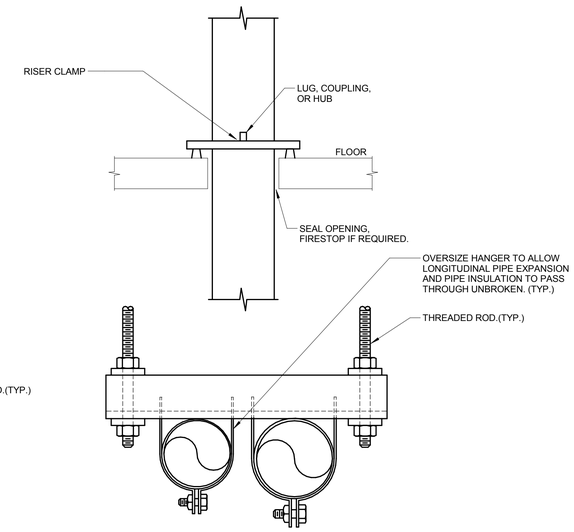
1. NEW IN COMING WATER SERVING TO BE PROVIDED TO THE BUILDING. CONNECT NEW INCOMING WATER SERVING PIPE TO EXISTING FIRE PROTECTION SYSTEM.
2. REVISE EXISTING SPRINKLER MAIN TO PROVIDE SEPARATE ZONES TO THE FIRST FLOOR AND MEZZANINE LEVELS.



CLEVIS HANGER



TRAPEZE HANGER



STRUCTURAL CLAMP HANGERS

2 PIPE SUPPORT DETAIL

NO SCALE

NOTES:

1. REFER TO SPECIFICATION SECTION 21 05 29.

FIRE PROTECTION MATERIAL LIST

TAG NAME	DESCRIPTION	MANF. & MODEL
AV-1	ANGLE VALVE, 1/2" TO 2", 175 PSI, BRONZE BODY, INTEGRAL SEAT, SOFT DISC, HANDWHEEL, THREADED. UL.	UNITED 126S UL NIBCO KT-67-UL / T-301-W KENNEDY 98 SD, FPPI
BF-1	2" TO 12" BUTTERFLY VALVE, 175 [250] PSI WP, LUGGED OR GROOVED TYPE, IRON BODY, ALUMINUM BRONZE OR EPDM COATED IRON DISC, STAINLESS STEEL STEM AND SCREWS, EPDM SEAT, INTEGRAL MONITOR SWITCH, RATED FOR DEAD END SERVICE, UL/FM. 1" TO 2-1/2" SLOW CLOSE BUTTERFLY VALVE, 175 PSI WP, BRONZE BODY, TYPE 304 STAINLESS STEEL ELASTOMER COATED DISK, SLOW CLOSE MANUAL OPERATOR WITH INTEGRAL TAMPER SWITCH, GROOVED OR THREADED ENDS. UL/FM.	2" TO 12": GEM, TYCO, KENNEDY, NIBCO, VICTAULIC, KENNEDY, ANVILSTAR 1" TO 2-1/2": MILWAUKEE BB-SCS OR APPROVED EQUAL
CK-16	2-1/2" TO 12" SWING CHECK VALVE, 175 PSI WP, FLANGED OR GROOVED, IRON BODY, BRONZE MOUNTED, BRONZE SEAT RING AND RUBBER CLAPPER FACING, SWING TYPE, UL/FM.	VIKING D-1/G-1 TYCO CV-2 RELIABLE D OR G KENNEDY 126A OR 426
FS-1	FLOW SWITCH - VANE TYPE FOR USE ON WET PIPE SPRINKLER SYSTEM TO DETECT A MINIMUM FLOW OF 10 GPM. TWO SINGLE POLE DOUBLE THROW SWITCHES WITH PNEUMATIC RETARD-ADJUSTABLE FROM 0-90 SECONDS WITH AUTOMATIC RESET, TAMPER RESISTANT METAL HOUSING. UL/FM.	SYSTEM SENSOR WFD SERIES, POTTER ELECTRIC VSR-F
IT-1	1" INSPECTOR'S TEST AND DRAIN VALVE WITH INTEGRAL SIGHT GLASS, BALL VALVE WITH INTEGRAL LABELED PLATE SHOWING OFF-TEST-DRAIN POSITIONS. FURNISHED WITH TEST ORIFICE GIVING FLOW EQUIVALENT TO ONE SPRINKLER OF A TYPE HAVING THE SMALLEST ORIFICE INSTALLED ON THE SYSTEM, UL.	RELIABLE B W/1" BALL VALVE TYCO F350 AGF MODEL 1000

FIRE SPRINKLER USAGE SCHEDULE

NOTES:
1. SEE FLOOR PLANS FOR ZONING REQUIREMENTS.
2. ALL SPRINKLERS SHALL BE UL LISTED.
3. CONTRACTOR TO VERIFY SPRINKLER REQUIREMENTS BASED ON ACTUAL INSTALLATION, USAGE, ARCHITECTURAL CEILING PLAN AND NFPA 13 REQUIREMENTS.
4. TAG NAME IS PRIMARILY FOR IDENTIFIYING SPRINKLERS IN SUBMITTALS. IT MAY OR MAY NOT BE FOUND ELSEWHERE ON THE DRAWINGS. CONTRACTOR TO SUBMIT ALL SPRINKLER TYPES TO BE USED.
5. AREAS ARE GENERAL IN NATURE. CONTRACTOR TO MATCH UNSCHEDULED AREAS TO SIMILAR SPACES.
6. SPRINKLERS SPECIFIED WITHIN FIRE SPRINKLER USAGE SCHEDULE ARE STANDARD COVERAGE TYPE. EXTENDED COVERAGE SPRINKLERS ARE PERMITTED PROVIDED SPRINKLERS MEET THE REQUIREMENTS OF UL.
7. COORDINATE WITH NFPA REQUIREMENTS.

AREA TYPE (NOTE 1 & 6)	AREA HAZARD	SPRINKLER				TEMPERATURE RATING	MANUFACTURER & MODEL	NOTES
		TAG NAME (NOTE 4 & 5)	SPRINKLER TYPE	RESPONSE CATEGORY	FINISH			
ROOMS WITH CEILING (SEE PLANS)	SEE PLANS	SPR-1	SEMI RECESSED PENDENT	QUICK	WHITE	NOTE 7	VIKING VK, RELIABLE XL, TYCO , VICTAULIC	NOTE 2,3,7
ROOMS WITHOUT CEILING (SEE PLANS.)	SEE PLANS	SPR-2	UPRIGHT	QUICK	ROUGH BRASS	NOTE 7	VIKING VK, RELIABLE F1FR, TYCO TY-FRB, VICTAULIC V2708	NOTE 2,3,7

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Drawing
FIRE PROTECTION DETAILS AND SCHEDULES

OPN Project No. 15617000

F200