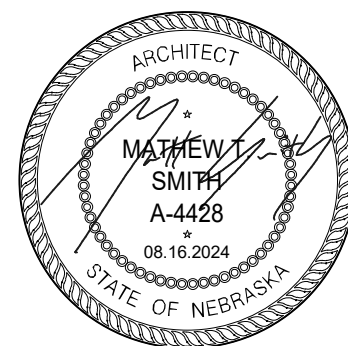


REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	9/12/2024	ADDENDUM 02

NDOT 1600 OFFICE
RENOVATION

PROJECT: 23053 DATE: 09/16/2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS



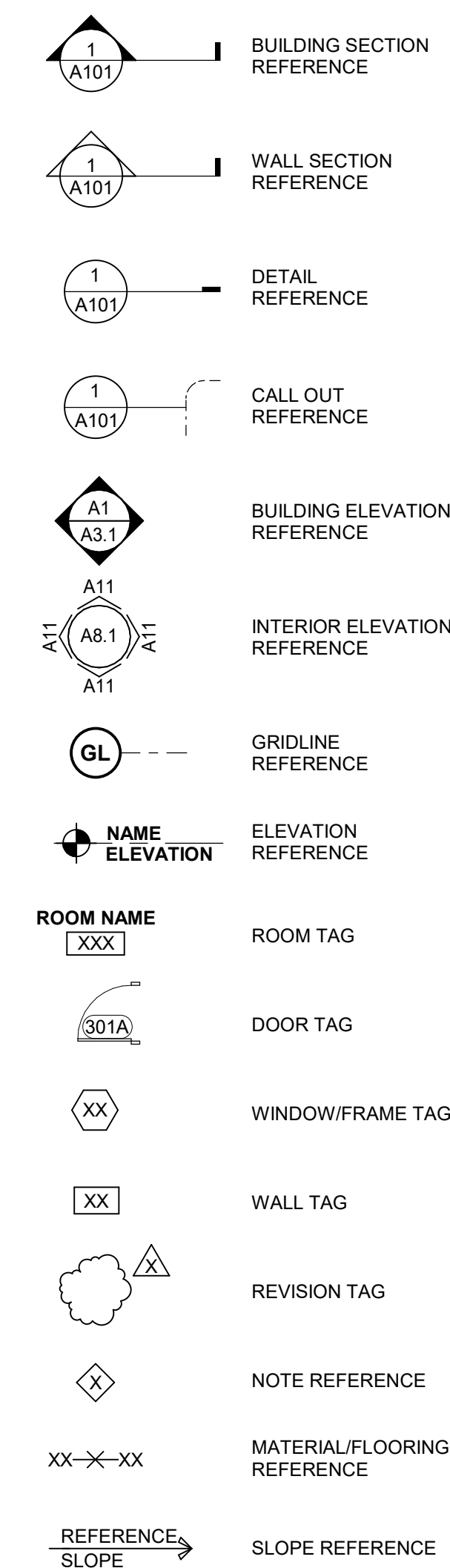
WALL TYPES &
DRAFTING
STANDARDS

WALL TYPE SCHEDULE

WALL TYPE	WIDTH	DESCRIPTION	FIRE RATING	UL TEST	STC (MIN)	STC Test
F10	2 1/8"	1-1/2" FURRING CHANNEL 16" O.C. 5/8" GYPSUM BOARD FINISHED SIDE.	NA		NA	
F20	3 1/8"	2 1/2" METAL STUDS 16" O.C. 5/8" GYPSUM BOARD FINISHED SIDE. WHERE LOCATED AT PERIMETER EXTERIOR WALLS, 2" FOAMED IN PLACE INSULATION MIN. R-11.4	NA		NA	
F30	4 1/4"	3-5/8" METAL STUDS 16" O.C. 5/8" GYPSUM BOARD FINISHED SIDE.	NA		NA	
G10	1/2"	1/2" GYPSUM BOARD	NA		NA	
M30	4 7/8"	3-5/8" METAL STUDS 16" O.C. 5/8" GYPSUM BOARD EACH SIDE. ACOUSTIC INSULATION. STOP AT FINISHED CEILING	NA		40	USC-860808
M31	4 7/8"	3-5/8" METAL STUDS 16" O.C. 3" SAFB, 5/8" GYPSUM BOARD EACH SIDE.	1 HR	U419	49	SA-870-717
M32	5"	3-5/8" METAL STUDS 16" O.C. 3" SAFB, 5/8" GYPSUM BOARD FINISH SIDE, 3/4" PLYWOOD INTERIOR SIDE.	1 HR	U419	49	SA-870-717
M60	7 1/4"	6" METAL STUDS 16" O.C. 1 LAYER 5/8" GYPSUM BOARD EACH SIDE.	NA		40	USC-860808
M61	7 1/4"	6" METAL STUDS 16" O.C. 5" SAFB, 5/8" GYPSUM BOARD EACH SIDE.	1 HR	U419,U465	49	SA-870-717
M62	8"	6" METAL STUDS 16" O.C. 5" SAFB, 5/8" GYPSUM BOARD EACH SIDE.	1 HR	U419,U465	49	SA-870-717

GENERAL NOTES:
SEE SPECIFICATIONS FOR ADDITIONAL WALL DETAILS, STANDARDS, AND REQUIREMENTS.
SEE DRAWINGS AND UL RATING LISTED IN THE SCHEDULE FOR ADDITIONAL WALL DETAILS, STANDARDS, AND REQUIREMENTS.
ALL DIMENSIONS SHOWN ARE TO FACE OF DRYWALL OR FACE OF MASONRY, UNLESS NOTED OTHERWISE. OVERALL THICKNESS OF WALLS DOES NOT INCLUDE THE THICKNESS OF FINISHED MATERIAL SUCH AS TILE, ETC.
SEAL ALL MECH, ELECT, EQUIPMENT, OR DEVICE PENETRATIONS THROUGH UNRATED FLOORS AND WALLS SMOKE TIGHT. METAL TRIM OR ESCUTCHEONS ALONE ARE NOT ACCEPTABLE. SEE 2016 - IBC SECTION 714 FOR FULL CODE REQUIREMENTS.
SEAL ALL MECH AND ELECT PENETRATIONS THROUGH RATED FLOORS AND WALLS PER THE DESIGNATED OR EQUIVALENT UL DESIGN NUMBER FOR A COMPLETE RATED ASSEMBLY.
TYPICAL STUD PARTITION TYPES, PROVIDE WOOD BLOCKING REINFORCEMENT BETWEEN VERTICAL STUDS FOR ALL WALL HUNG ITEMS INCLUDING HANDRAILS, GRAB BARS, MILLWORK, TV'S, ACOUSTICAL PANELS, ETC.
PROVIDE UL RATED AT ALL TOP, BOTTOM, AND SIDES AT ALL RATED PARTITIONS.
REFER TO FINISH SCHEDULE AND SPECIFICATIONS FOR FINISHES FOR SUBSTRATE REQUIREMENTS.
REFER TO STUD FRAMING MANUFACTURER (CLARK DEITRICH OR APPROVED EQUAL) TO VERIFY REQUIREMENTS SPECIFIC TO THIS PROJECT, INCLUDING LIMITING HEIGHTS, WALL DEFLECTION, GAUGE SIZE, ETC.
ACOUSTIC BATT INSULATION TO BE INSTALLED AT ALL METAL STUD WALLS UNLESS NOTED OTHERWISE.
ALL CONDUIT, PIPING, CABELING, ETC TO BE CONCEALED WITHIN STUD PARTITION WALLS UNLESS SPECIFICALLY NOTED OTHERWISE.

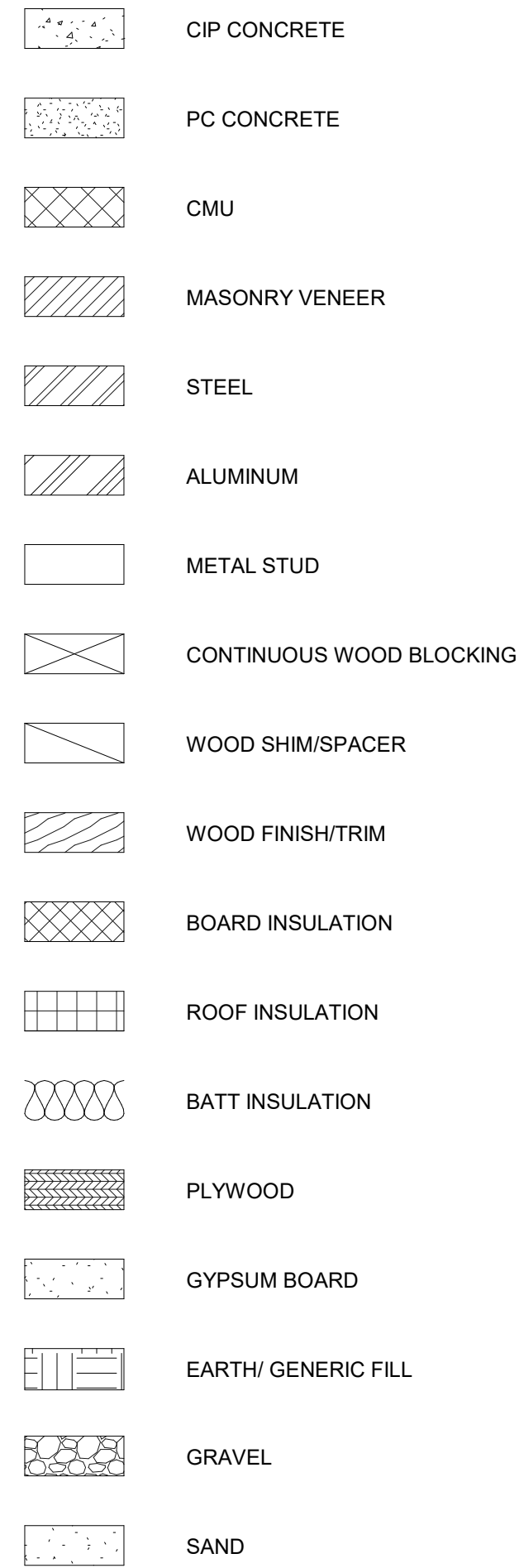
SYMBOLS LEGEND



GENERAL NOTES

NOTES APPLY TO ALL TRADES AND ALL DRAWINGS.
SEE GENERAL CONDITIONS OF THE CONTRACT FOR FULL SCOPE OF CONTRACTOR REQUIREMENTS.
DO NOT SCALE DRAWINGS.
THE KEYNOTING SYSTEM IS USED ON THE DRAWINGS TO IDENTIFY CONSTRUCTION MATERIALS AND TO REFERENCE THEM TO THE TECHNICAL SPECIFICATIONS FOUND IN THE PROJECT MANUAL. THE ORGANIZATION OF THE KEYNOTING SYSTEM ON THE DRAWINGS SHALL NOT CONTROL THE CONTRACTOR IN DIVIDING THE WORK AMONG THE SUBCONTRACTORS OR IN ESTABLISHING THE EXTENT OF WORK TO BE PERFORMED BY ANY TRADE.
VERIFY ALL DIMENSIONS AND REQUIRED CLEARANCES BETWEEN EXISTING OR NEW CONDITIONS PRIOR TO FABRICATION AND INSTALLATION.
THE DRAWINGS SHOW EXISTING CONDITIONS AS ACCURATELY AS POSSIBLE BASED ON AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, LOCATIONS, UTILITIES, EQUIPMENT, ETC. PRIOR TO THE START OF DEMOLITION AND/OR CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
CONDUCT OPERATIONS SO AS TO PERMIT PUBLIC ACCESS TO THE ADJACENT SITE. WALKS, DRIVEWAYS, ENTRANCES, ADJACENT PROPERTIES TO BE USED BY THE PUBLIC SHALL BE MAINTAINED IN A SAFE CONDITION AND SHALL BE KEPT FREE AND CLEAR OF THE CONTRACTOR'S EQUIPMENT, MATERIALS, AND DEBRIS.
CONTRACTOR SHALL COOPERATE WITH THE OWNER IN THE SCHEDULING AND EXECUTION OF THE WORK AND USE OF THE SITE. CONTRACTOR SHALL NOTIFY THE OWNER AND MUNICIPALITIES BEFORE COMMENCEMENT OF ANY WORK OR OPERATION WHICH WOULD INTERFERE WITH THE USE OF AN EXISTING BUILDING OR SURROUNDING SITE/BUILDINGS.
CONTRACTOR'S OPERATIONS AND STORAGE OF MATERIALS SHALL BE CONFINED TO THE MINIMUM AREA OF THE SITE NECESSARY TO ACCOMPLISH THE WORK. DESIGNATED BY THE INDICATED STAGING AREA. ANY ADDITIONAL STAGING OR STORAGE AREAS SHALL BE APPROVED BY THE LOCAL BUILDING AUTHORITY AND THE OWNER.
CONTRACTOR SHALL EXERCISE ALL REASONABLE PRECAUTIONS FOR THE PROTECTION OF PERSONS AND PROPERTY ON THE SITE. ALL SAFETY PROVISIONS AND APPLICABLE LAWS FOR BUILDING AND CONSTRUCTION CODES SHALL BE OBSERVED.
CONTRACTOR SHALL PROTECT THEIR WORK, THE WORK OF OTHERS, AND EXISTING WORK AND PROPERTIES SHOWN TO REMAIN. ANY WORK DAMAGED SHALL BE RETURNED TO BETTER OR EQUAL CONDITION.
SECURITY SHALL BE MAINTAINED IN ALL SITUATIONS.
CONTRACTOR SHALL PROVIDE TEMPORARY DUSTPROOF ENCLOSURES, DUST BARRIERS, COVERED WALKWAYS AND/OR BARRICADES AS REQUIRED TO PROTECT THE PUBLIC, OCCUPANTS AND EXISTING FACILITIES DURING DEMOLITION AND CONSTRUCTION.

MATERIALS LEGEND

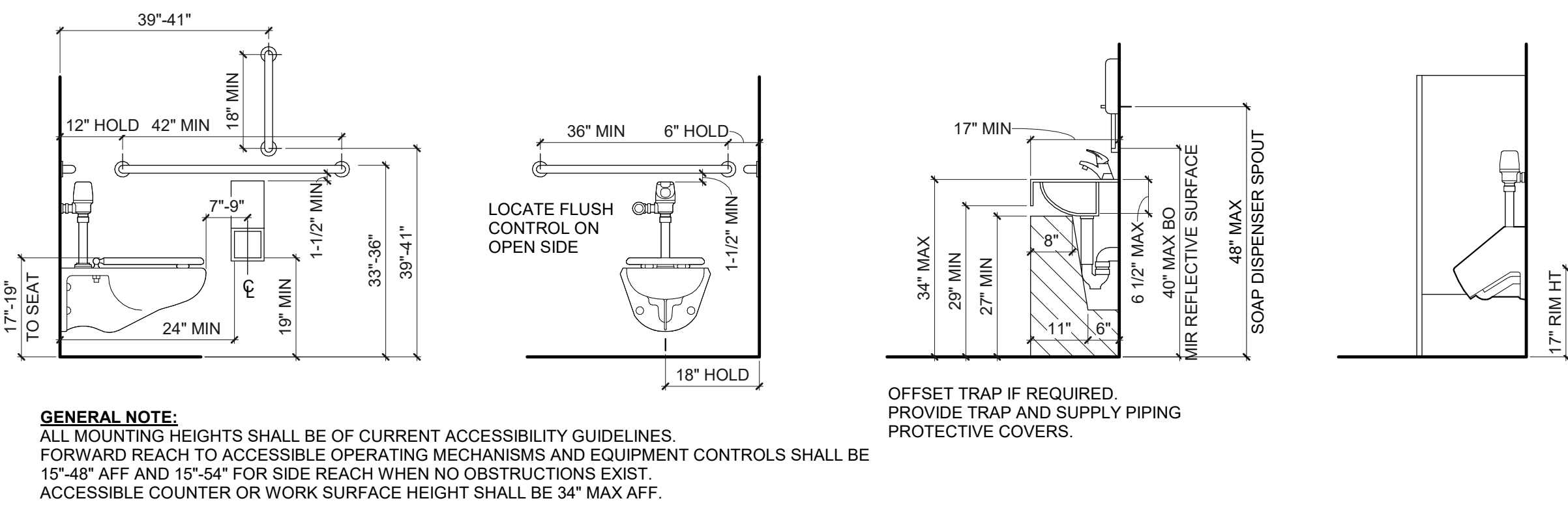


ABBREVIATIONS

ACC ACCESSIBLE/ACCESSIBILITY
ACT ACOUSTICAL CEILING TILE
AFF ABOVE FINISH FLOOR
AHJ AUTHORITY HAVING JURISDICTION
ALT ALTERNATE
ALUM ALUMINUM
ARCH ARCHITECTURAL
AWP ACOUSTICAL WALL PANEL
BCMU BURNISHED CONCRETE MASONRY UNIT
BOS BABY CHANGING STATION
BD BOARD
BLKG BLOCKING
BLKHS BULKHEAD(S)
BO BOTTOM OF
BRNG BEARING
CC CENTER TO CENTER
COD COILING COUNTER DOOR
CIP CAST IN PLACE
CJ CONTROL JOINT
CL CENTERLINE
CLG(S) CEILING(S)
CLR CLEAR
CMU CONCRETE MASONRY UNIT
COL COLUMN
CONC CONCRETE
CONT CONTINUOUS
CPT CARPET
CT CERAMIC TILE
DBL DOUBLE
DEG DEGREE
DF DRINKING FOUNTAIN
DIA DIAMETER
DIM DIMENSION
DN DOWN
DTL DETAIL
DW DISHWASHER
DWG DRAWING
EA EACH
EIFS EXTERIOR INSULATION AND FINISH SYSTEM
EJ EXPANSION JOINT
ELEV ELEVATION
ELEC ELECTRICAL
EQ EQUAL
EQUIP EQUIPMENT
EWC ELECTRIC WATER COOLER
EXG EXISTING
EXT EXTERIOR
FD FLOOR DRAIN
FND FOUNDATION
FE FIRE EXTINGUISHER
FEC FIRE EXTINGUISHER CABINET
FF FINISH FLOOR
FLR FLOOR
FLRG FLOORING
FT FEET
FTG FOOTING
GA GAUGE
GALV GALVANIZED
GB GRAB BAR
GC GENERAL CONTRACTOR
GCMU GLAZED CONCRETE MASONRY UNIT
GSF GROSS SQUARE FOOT
GWB GYPSUM WALLBOARD
HGT HEIGHT
HDWE HARDWARE
HM HOLLOW METAL
HORIZ HORIZONTAL
HR HOUR
IN INCH
INSUL INSULATION
INT INTERIOR
JB JUNCTION BOX
KIT KITCHEN
L LENGTH
LAV LAVATORY
LAM LAMINATE
LF LINEAR FOOT
LOCKR LOCKER
LSC LIFE SAFETY CODE
MAX MAXIMUM
MBD MARKER BOARD
MBH MOP AND BROOM HOLDER
MECH MECHANICAL
MEZZ MEZZANINE
MFR MANUFACTURER
MFRG MANUFACTURING
MIN MINIMUM
MIR MIRROR
NA NOT APPLICABLE
NIC NOT IN CONTRACT
NOM NOMINAL
NTS NOT TO SCALE
OD OUTSIDE DIAMETER
OCG OVERHEAD COILING GRILLE
OHD OVERHEAD DOOR
ORD OVERFLOW ROOF DRAIN
OFCI OWNER FURNISHED CONTRACTOR INSTALLED
OFIO OWNER FURNISHED OWNER INSTALLED
OPNG OPENING
OSD OVERHEAD SECTIONAL DOOR
P PAINT
PC PRECAST
PCT PORCELAIN CERAMIC TILE
PERP PERPENDICULAR
PL PLATE
PLAM PLASTIC LAMINATE
PLYWD PLYWOOD
PORC PORCELAIN
PTD PAPER TOWEL DISPENSER
PTDR COMBINATION TOWEL DISPENSER/RECEPTACLE
QT QUARRY TILE
RAD RADIUS
RB RUBBER BASE
RCP REFLECTED CEILING PLAN
RD ROOF DRAIN
RECS RECOMMENDATIONS
RECPRT RECEPTACLE
REF REFERENCE
REQD REQUIRED
RES RESILIENT
RF RUBBER/RESILIENT FLOOR
RM ROOM
RO ROUGH OPENING
SCD TOILET SEAT COVER DISPENSER
SD SOAP DISPENSER
SF SQUARE FOOT
SFCMU SPLIT-FACED CONCRETE MASONRY UNIT
SHWR SHOWER
SIM SIMILAR
SND SANITARY NAPKIN DISPOSAL
SNV SANITARY NAPKIN VENDOR
SPEC SPECIFICATIONS
SS STAINLESS STEEL
STD STANDARD
STL STEEL
STRCT STRUCTURE
TG TONGUE & GROOVE
TB TOWEL BAR
TBD TACK BOARD
TERR TERRAZZO
TH TOWEL HOOK
THK THICKNESS
T TILE
TO TOP OF
TTD TOILET TISSUE DISPENSER
TW TACK WALL
TYP TYPICAL
UNEX UNEXCAVATED
UNO UNLESS NOTED OTHERWISE
UTS UTILITY SHELF
UTIL UTILITY
VAR VARIES
VB VINYL BASE
VCT VINYL COMPOSITION TILE
WD WOOD
WDW WINDOW
WR WASTE RECEPTACLE

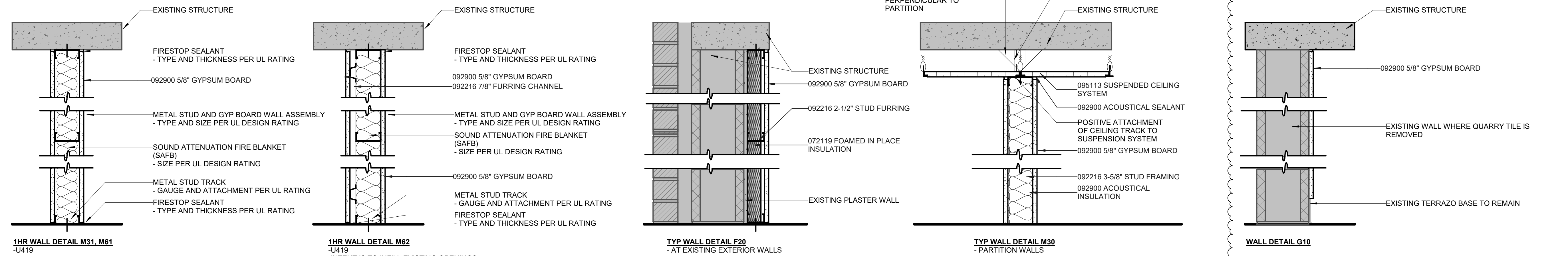
2 ACCESSIBLE PLUMBING FIXTURE GUIDELINES

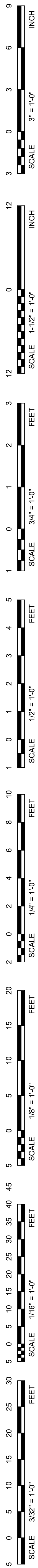
1/2" = 1'-0"



1 TYP WALL DETAILS

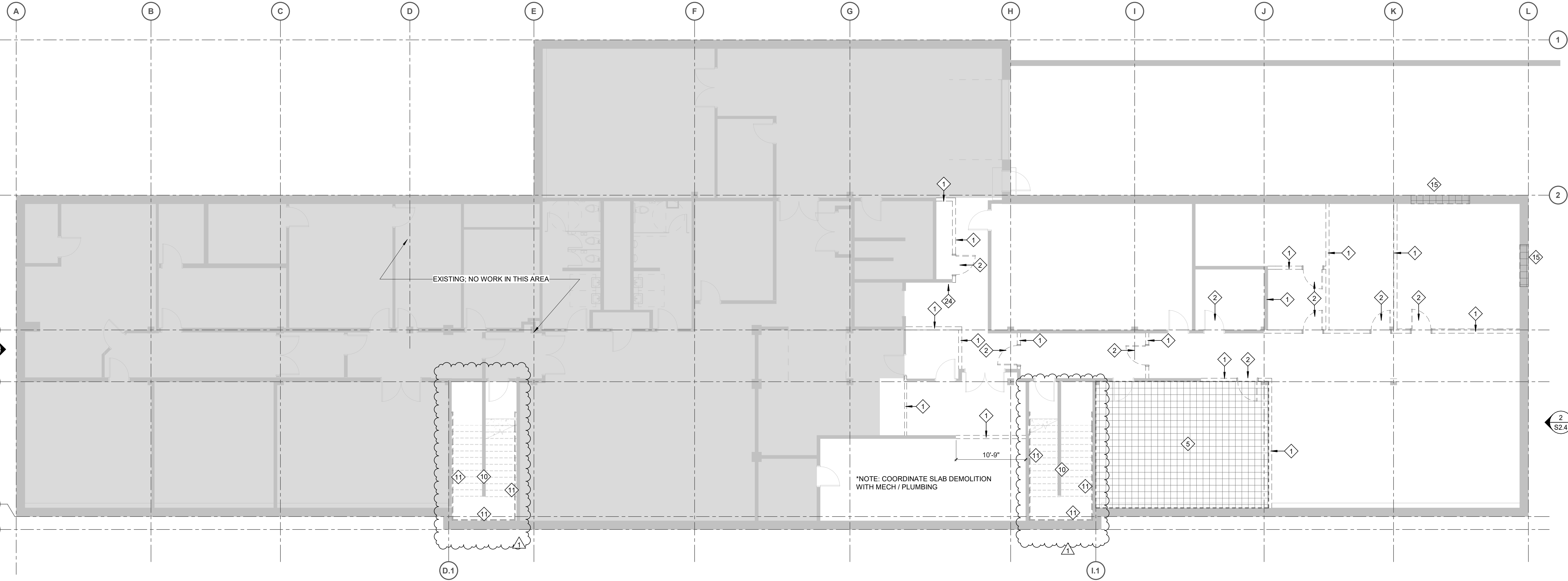
1 1/2" = 1'-0"





2 LOWER LEVEL - DEMOLITION REFLECTED CEILING PLAN

1/8" = 1'-0"



1 LOWER LEVEL - DEMOLITION PLAN

1/8" = 1'-0"

GENERAL DEMOLITION NOTES

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22. REMOVE GYP CEILING COMPLETE
23. REMOVE PLASTER CEILING ABOVE ACT COMPLETE
24. REMOVE AS MUCH WALL AS POSSIBLE TO WIDEN CORRIDOR WITHOUT MODIFYING EXISTING ELECTRICAL

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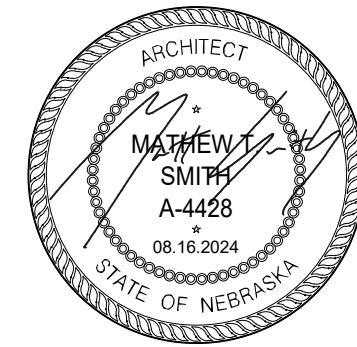
STRUCTURAL ENGINEER
LANGE STRUCTURAL GROUP
1919 S 40TH STREET, SUITE 302
LINCOLN, NE 68506
V 402 421 9540
langestructuralgroup.com

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	9/12/2024	ADDENDUM 02

**NDOT 1600 OFFICE
RENOVATION**

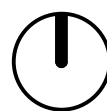
PROJECT: 23053 DATE: 08/16/2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS

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**DEMOLITION PLAN -
LOWER LEVEL**

PROJECT
NORTH



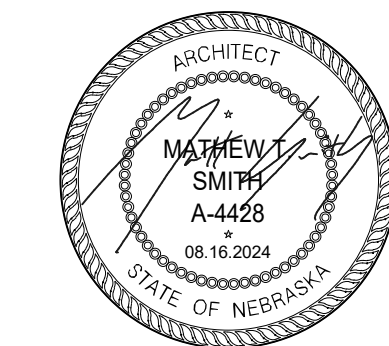
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DEMOLITION PLAN -
FIRST FLOOR

PROJECT
NORTH



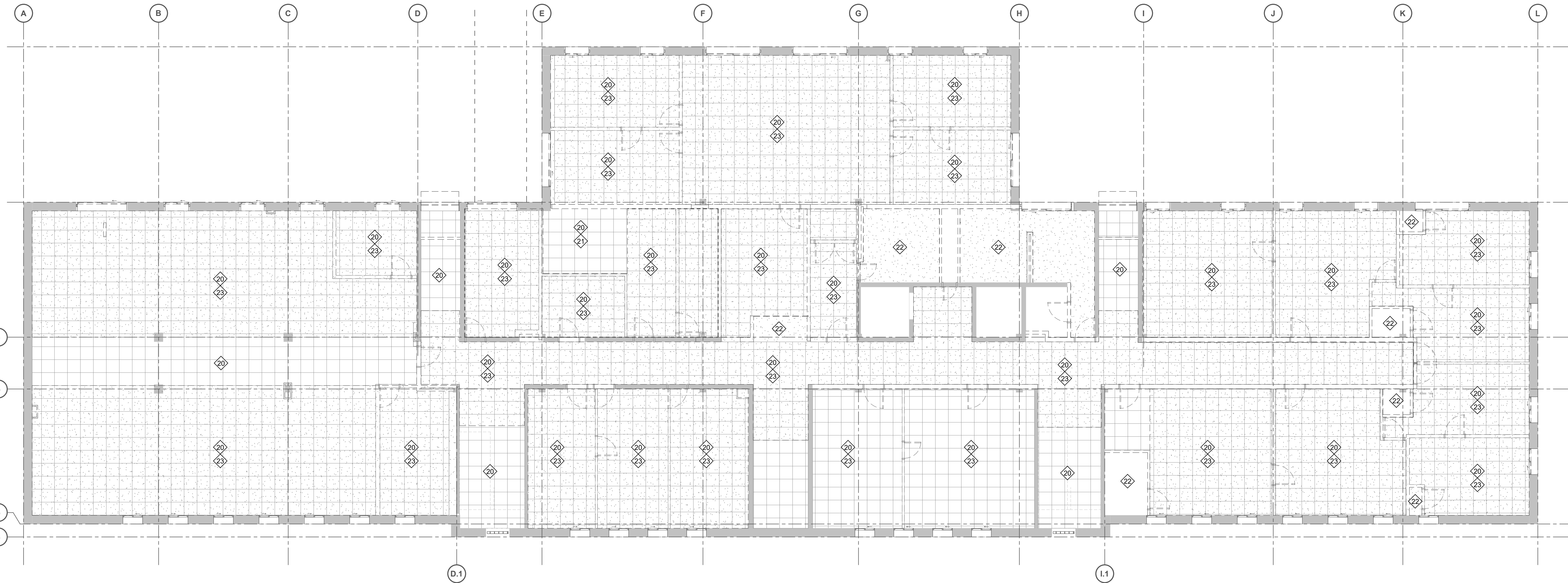
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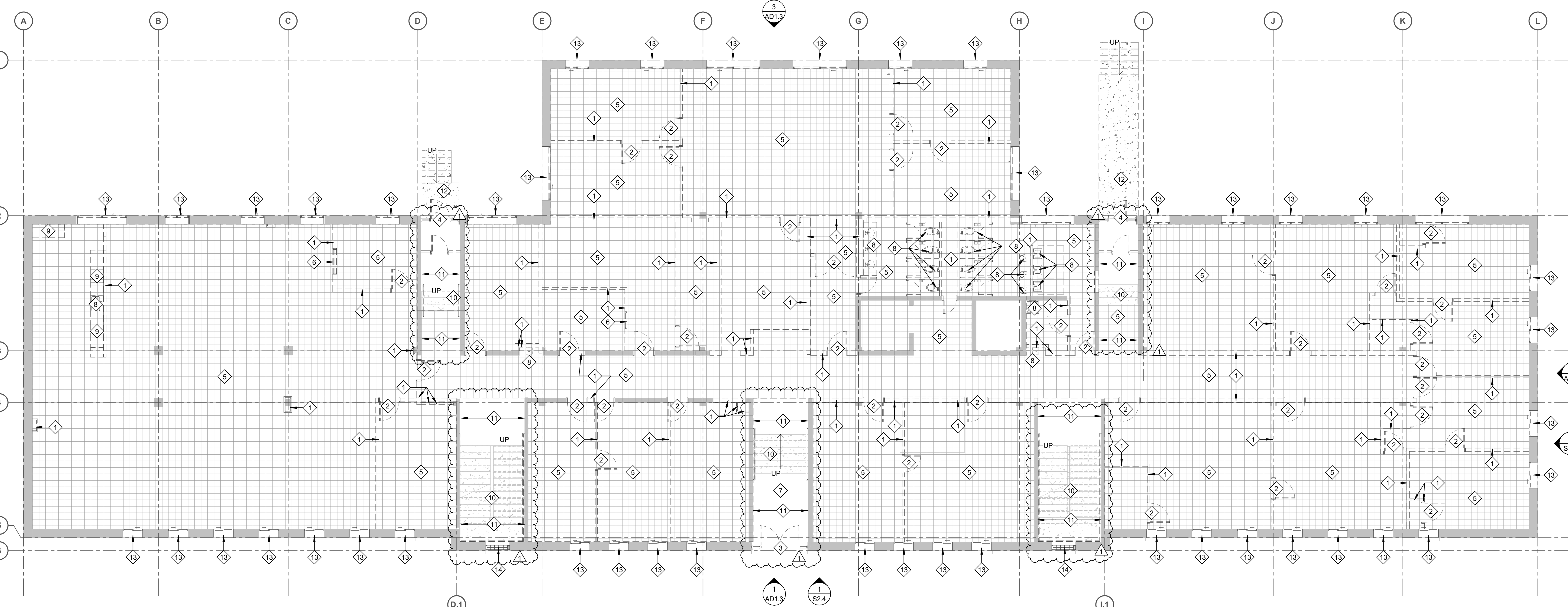
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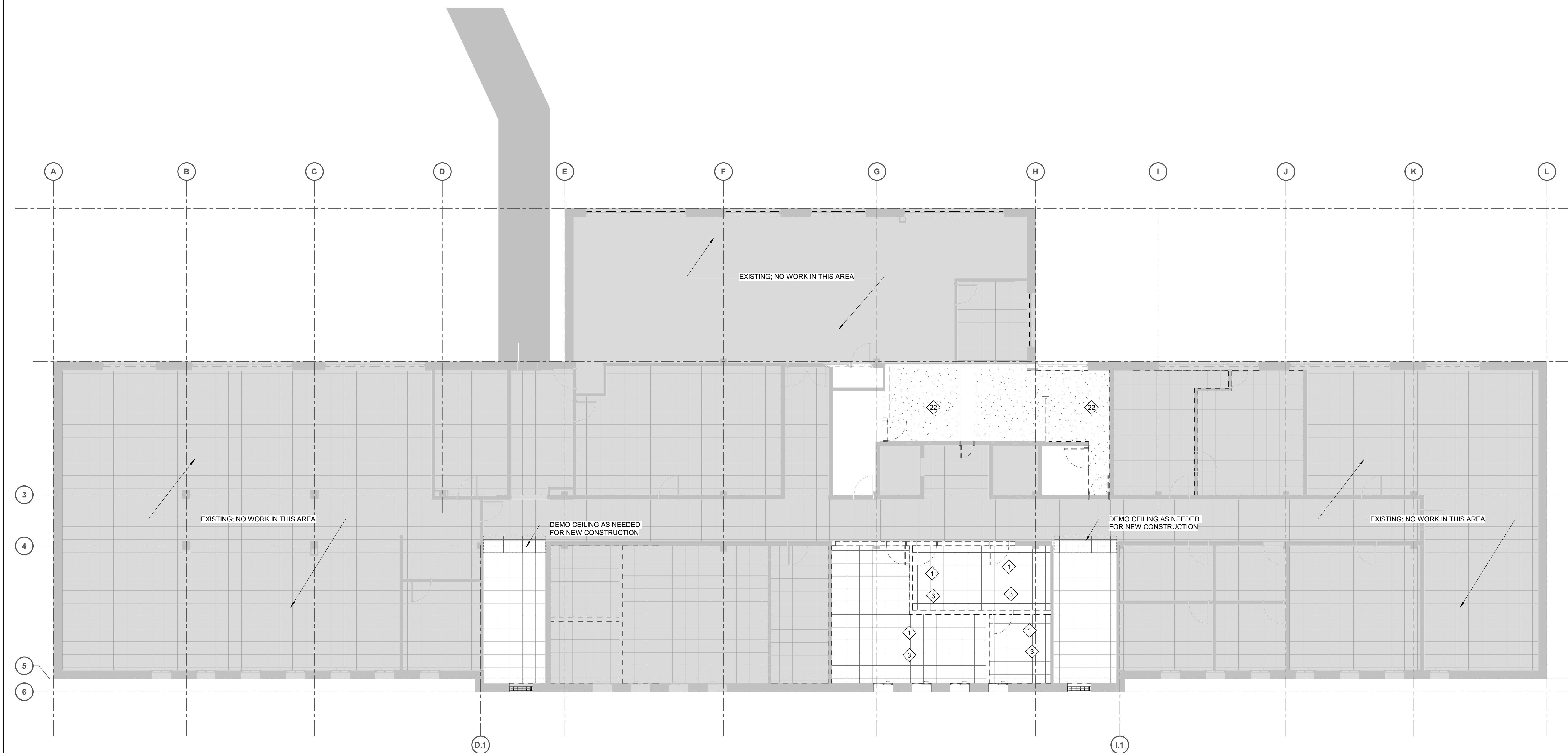
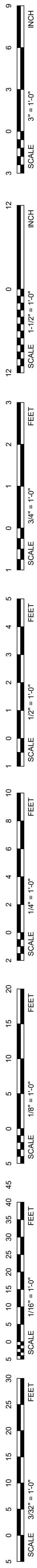
2 FIRST FLOOR - DEMOLITION REFLECTED CEILING PLAN

1/8" = 1'-0"



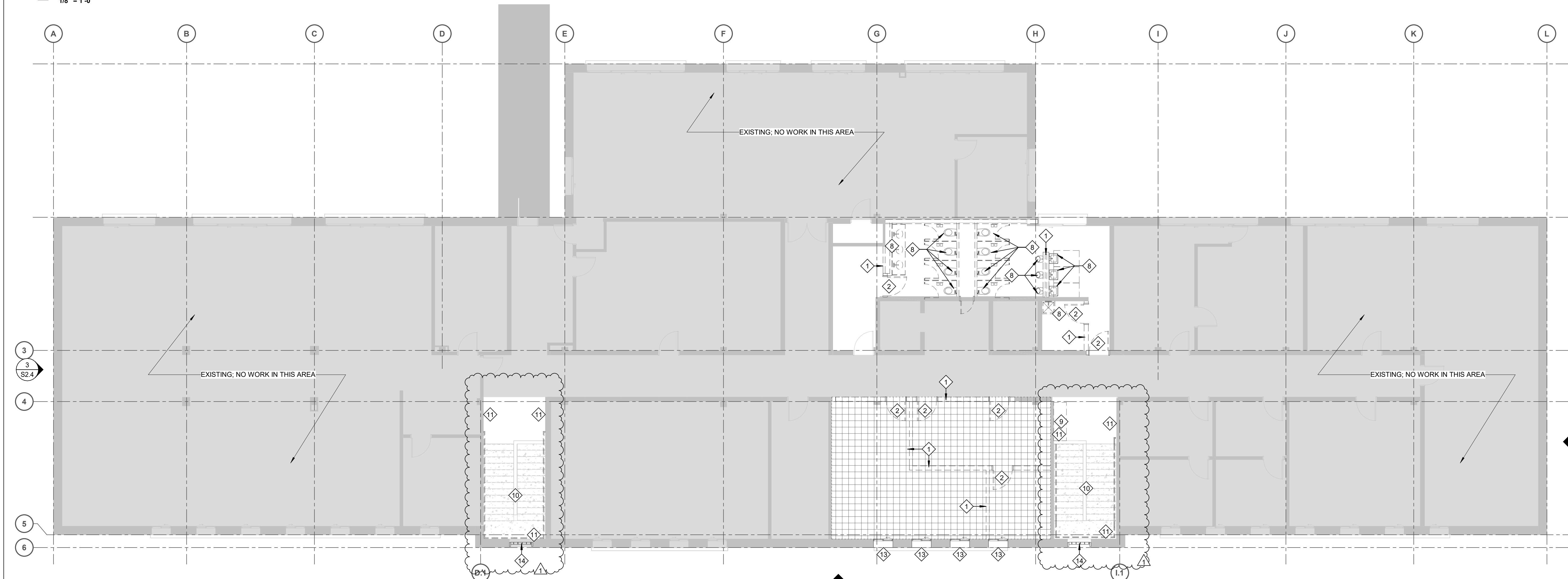
1 FIRST FLOOR - DEMOLITION PLAN

1/8" = 1'-0"



2 SECOND FLOOR - DEMOLITION REFLECTED CEILING PLAN

1/8" = 1'-0"



1 SECOND FLOOR - DEMO PLAN

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REVISIONS SCHEDULE		
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**NDOT 1600 OFFICE
RENOVATION**

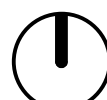
PROJECT: 23053 DATE: 08/16/2024
PROJECT STATUS: CONSTRUCTION
DOCUMENTS

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**DEMOLITION PLAN -
SECOND FLOOR**

PROJECT
NORTH



AD1.2



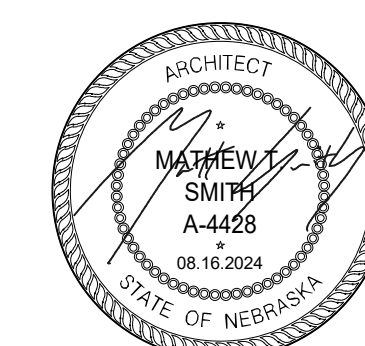
**MECHANICAL, ELECTRICAL AND PLUMBING
ENGINEER**
OLSSON
601 P ST #200
LINCOLN, NE 68508
V 402 474 6311
olsson.com

STRUCTURAL ENGINEER
LARGE STRUCTURAL GROUP
1919 S 40TH STREET, SUITE 302
LINCOLN NE 68506
V 402 421 9540
largestructuralgroup.com

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	9/12/2024	ADDENDUM

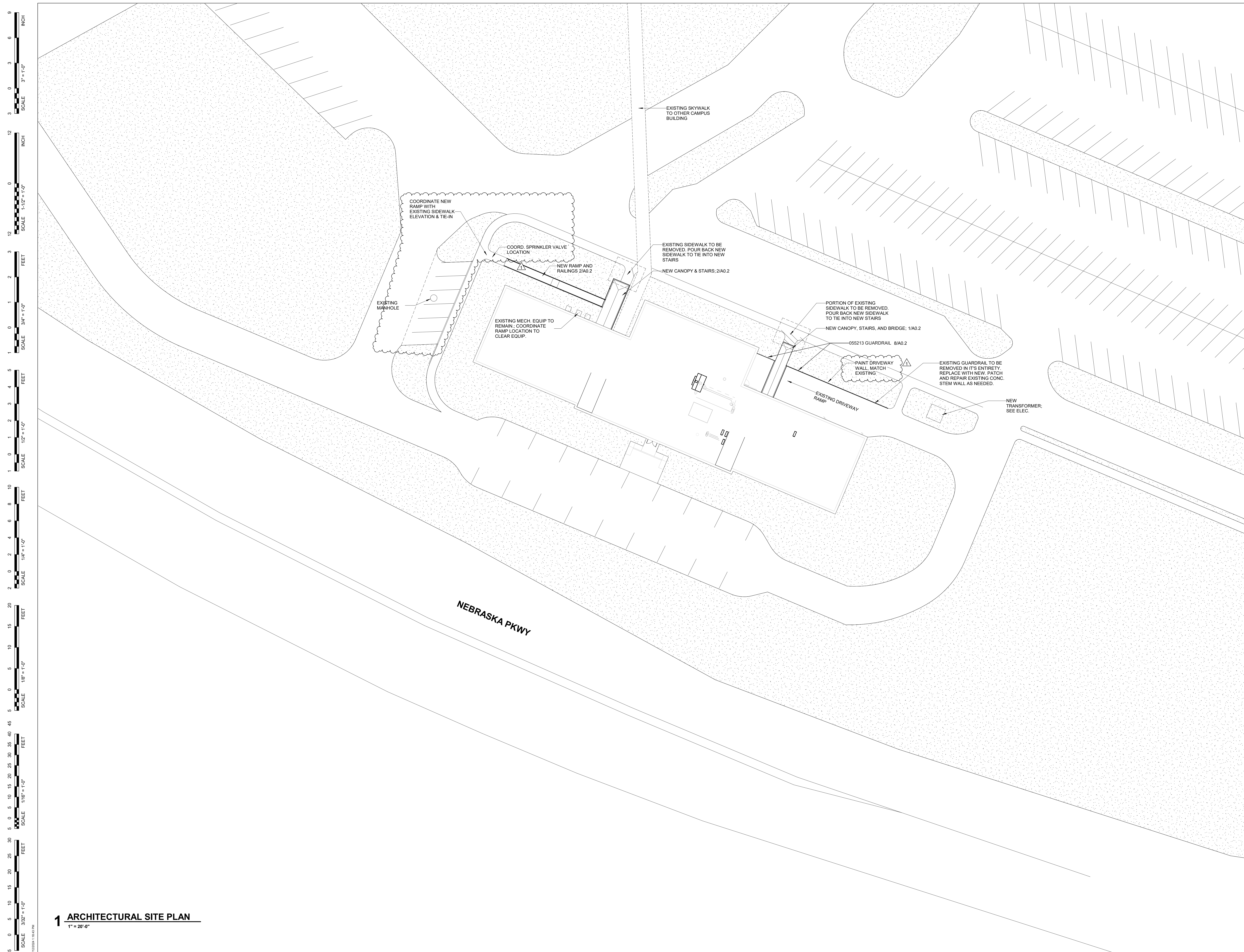
NDOT 1600 OFFICE
RENOVATION

PROJECT: 23053 DATE: 08/16/2024
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DOCUMENTS

ARCHITECTURAL SITE
PLAN

PROJECT
NORTH

A0.2





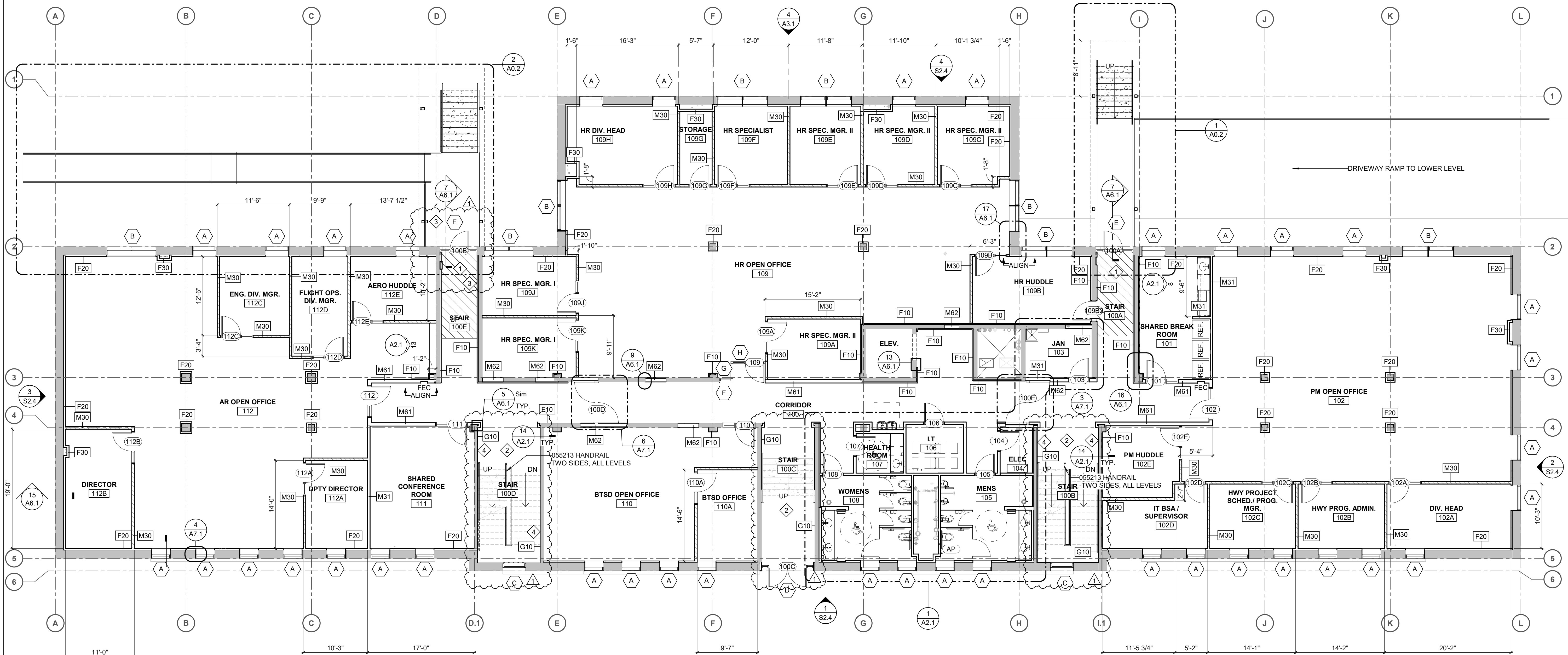
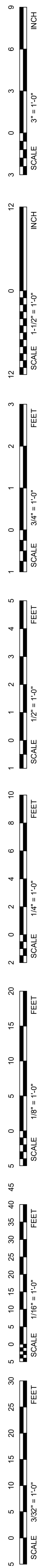
1. ALL DIMENSIONS ARE TO FACE OF WALL U.N.O.
2. SPRAY SHERWIN WILLIAMS WHITE PIGMENTED SHELLACK PRIMER ON ALL EXPOSED DECK BEFORE INSTALLING CEILING.
3. SEE 3/G/1.1 FOR PARTITION WALL DETAIL.
4. AT ALL LOCATIONS OF DEMOLISHED OPENINGS, NEW WALL DEPTH TO MATCH EXISTING FOR FLUSH AND CONTINUOUS SURFACE.
5. HATCHED WALLS (M30) TO END BELOW HEIGHT OF ACT TILES. SEE DETAIL ON G1.1/1 FOR CONSTRUCTION.

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PROJECT
NORTH



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

FLOOR PLAN GENERAL NOTES

1. ALL DIMENSIONS ARE TO FACE OF WALL U.N.O.
2. SPRAY SHERWIN WILLIAMS WHITE PIGMENTED SHELLACK PRIMER ON ALL EXPOSED DECK BEFORE INSTALLING CEILING.
3. SEE 3/8" 1 FOR PARTITION WALL DETAIL.
4. AT ALL LOCATIONS OF DEMOLISHED OPENINGS, NEW WALL DEPTH TO MATCH EXISTING FOR FLUSH AND CONTINUOUS SURFACE.
5. HATCHED WALLS (M30) TO END BELOW HEIGHT OF ACT TILES. SEE DETAIL ON G1.1/1 FOR CONSTRUCTION.

FLOOR PLAN NOTES

1. INFILL FLOOR TO MATCH LEVEL OF FIRST FLOOR.
2. NEW ALUM HANDRAILS AT STAIRS, BOTH SIDES, TYP.
3. ADA ACTUATOR, LOCATE FROM 15" MIN TO MAX 48" AFF.
4. AT FIRST FLOOR STAIR LANDING INSTALL 1/2" GYP BOARD TO 7'-0" AFF WITH TEARAWAY BEAD STRIP AT T.O SHEET

BVH

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	9/12/2024	ADDENDUM 02

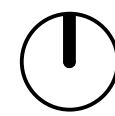
NDOT 1600 OFFICE RENOVATION

PROJECT: 23053 DATE: 08/16/2024
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FLOOR PLAN - FIRST FLOOR

PROJECT NORTH



A1.1



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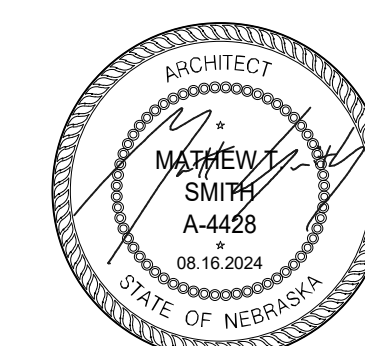
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LANGE STRUCTURAL GROUP
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1. ALL DIMENSIONS ARE TO FACE OF WALL U.N.O.
2. SPRAY SHERWIN WILLIAMS WHITE PIGMENTED SHELLACK PRIMER ON ALL EXPOSED DECK BEFORE INSTALLING CEILING.
3. SEE 3/G1.1 FOR PARTITION WALL DETAIL.
4. AT ALL LOCATIONS OF DEMOLISHED OPENINGS, NEW WALL DEPTH TO MATCH EXISTING FOR FLUSH AND CONTINUOUS SURFACE.
5. HATCHED WALLS (M30) TO END BELOW HEIGHT OF ACT TILES. SEE DETAIL ON G1.1/1 FOR CONSTRUCTION.

1 INFILL FLOOR TO MATCH LEVEL OF FIRST FLOOR
2 NEW ALUM HANDRAILS AT STAIRS, BOTH SIDES; TYP.
3 ADA ACTUATOR; LOCATE FROM 15" MIN TO MAX 48" AFF
4 AT FIRST FLOOR STAIR LANDING INSIDE 1/2" GYP
BOARD TO 7'-0" AFF WITH TEARAWAY BEAD STRIP AT
T.O SHEET

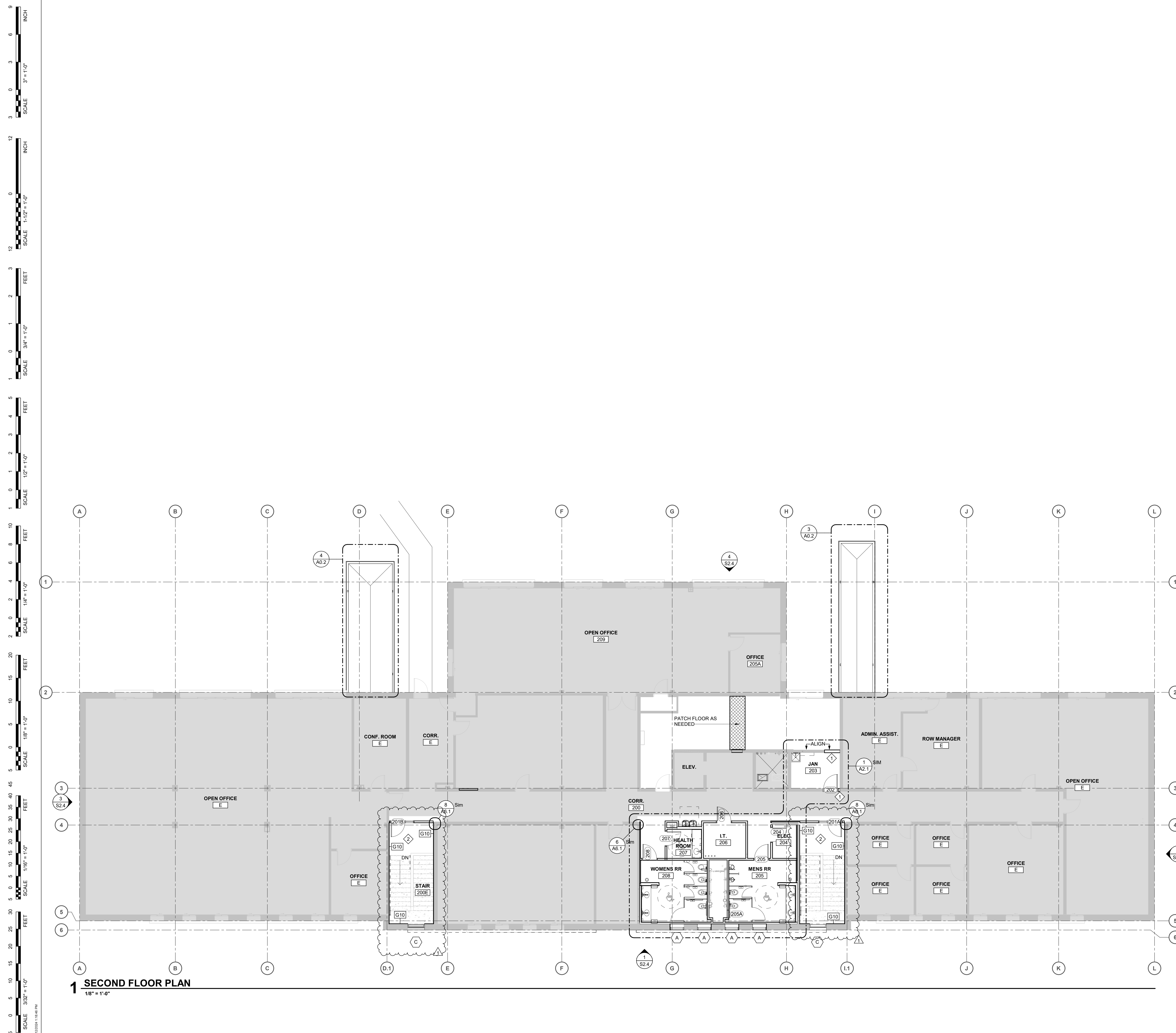
REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	9/12/2024	ADDENDUM

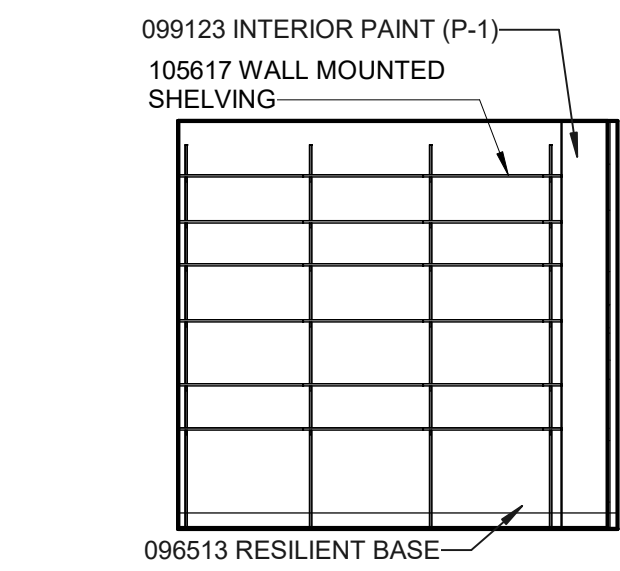
PROJECT: 23053 DATE: 08/16/2024
PROJECT STATUS: CONSTRUCTION
DOCUMENTS



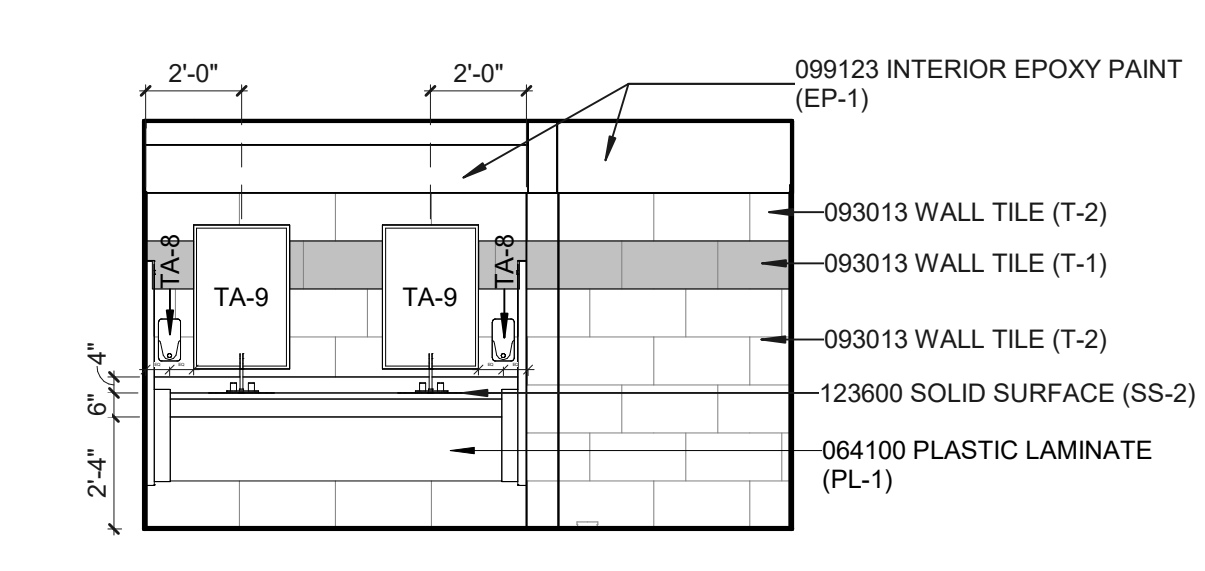
PROJECT NORTH

A1.2

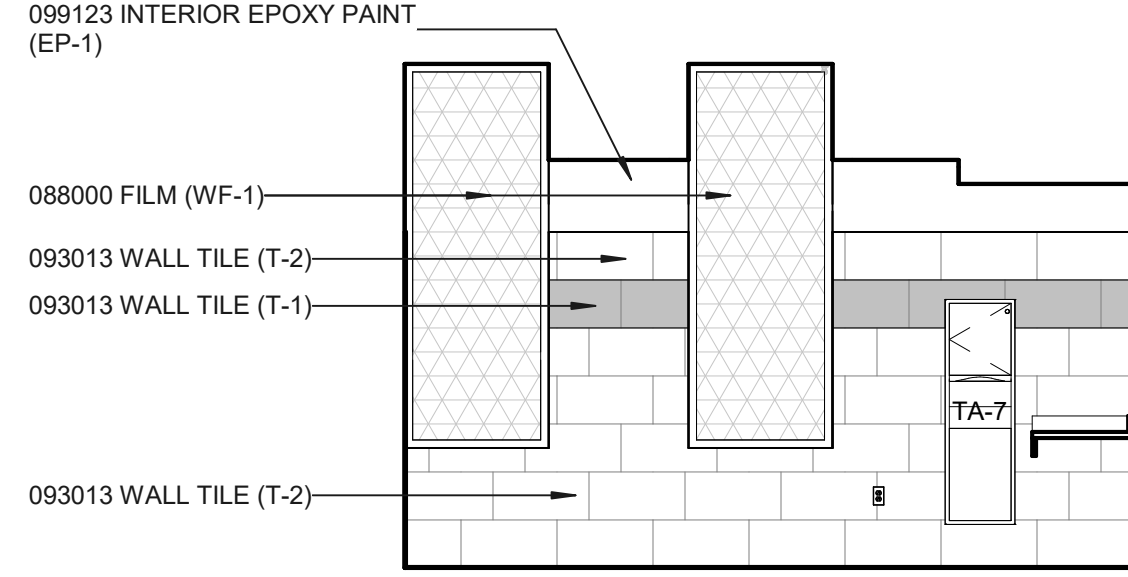




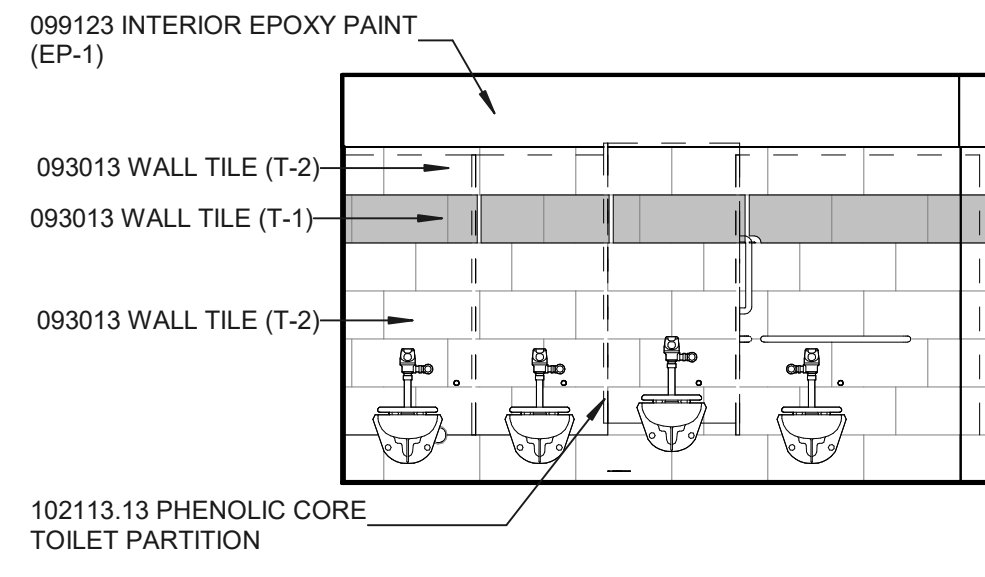
13 SHELVES WALL - AR OPEN OFFICE 112
1/4" = 1'-0"



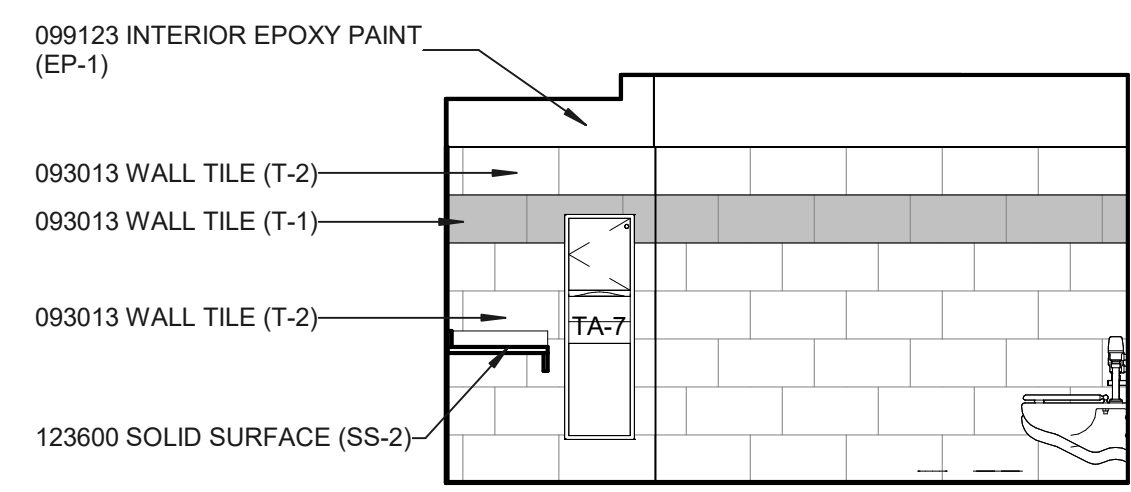
12 WOMENS 108 - WEST
1/4" = 1'-0"



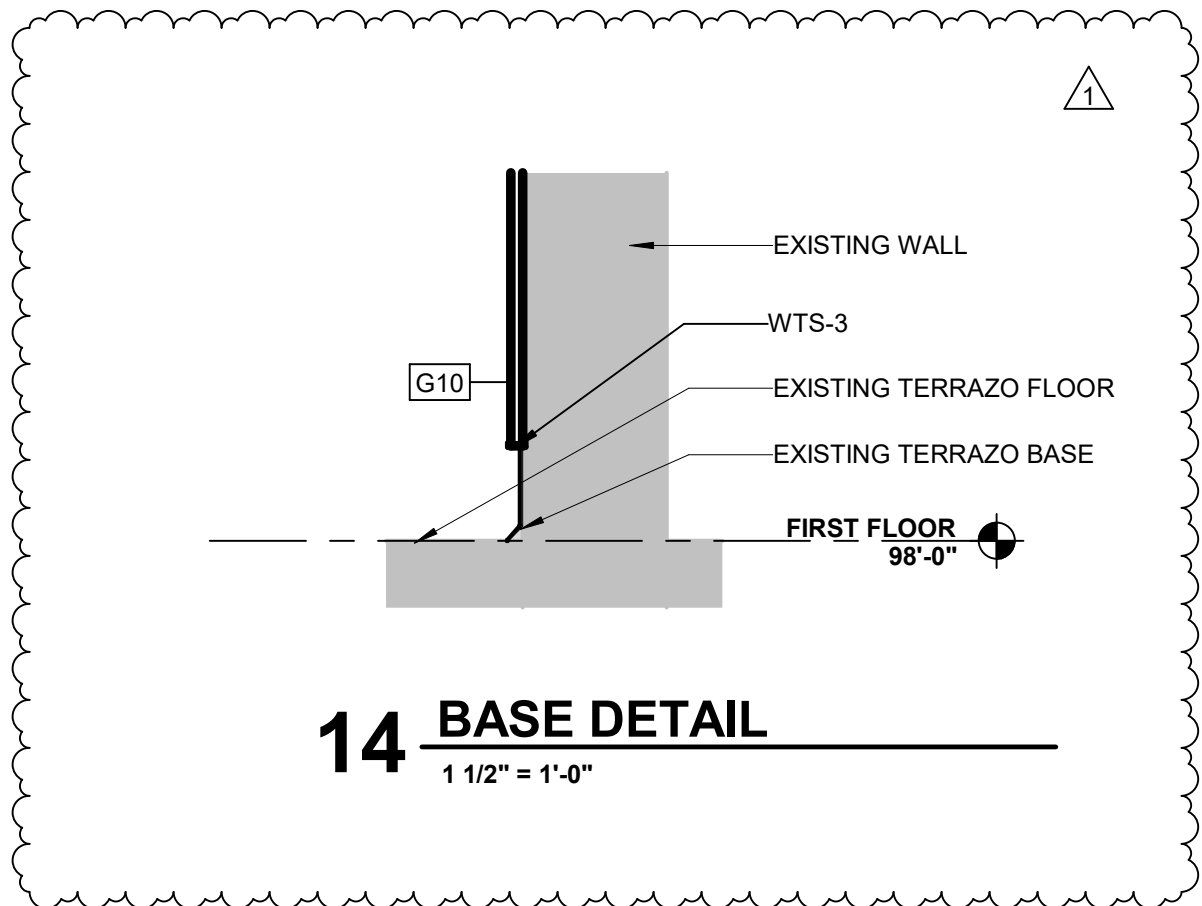
11 WOMENS 108 - SOUTH
1/4" = 1'-0"



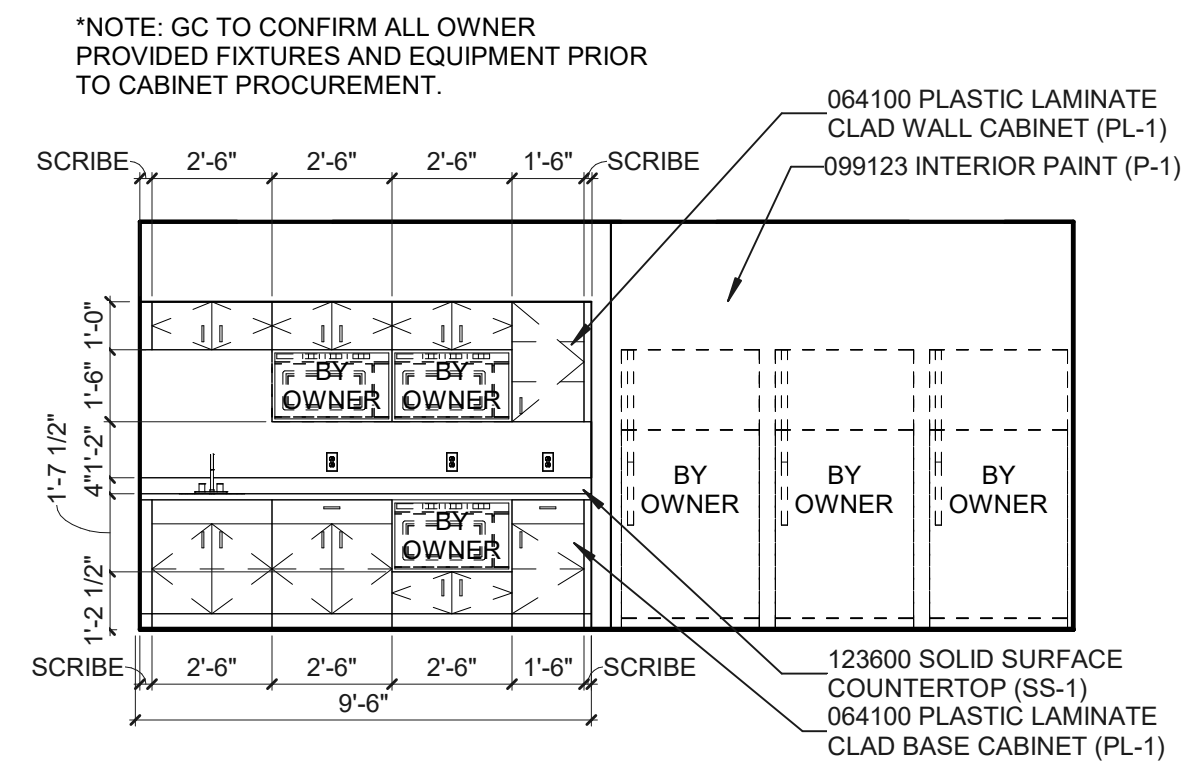
10 WOMENS 108 - EAST
1/4" = 1'-0"



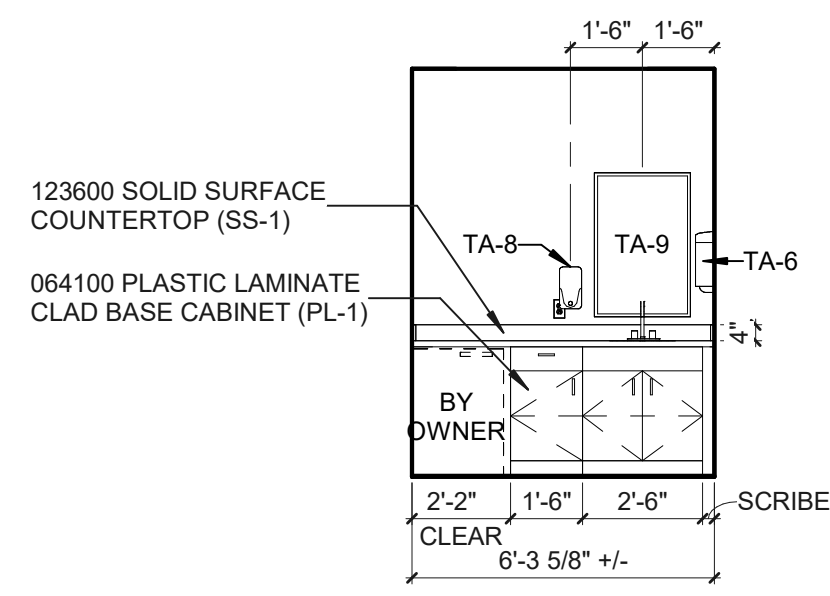
9 WOMENS 108 - NORTH
1/4" = 1'-0"



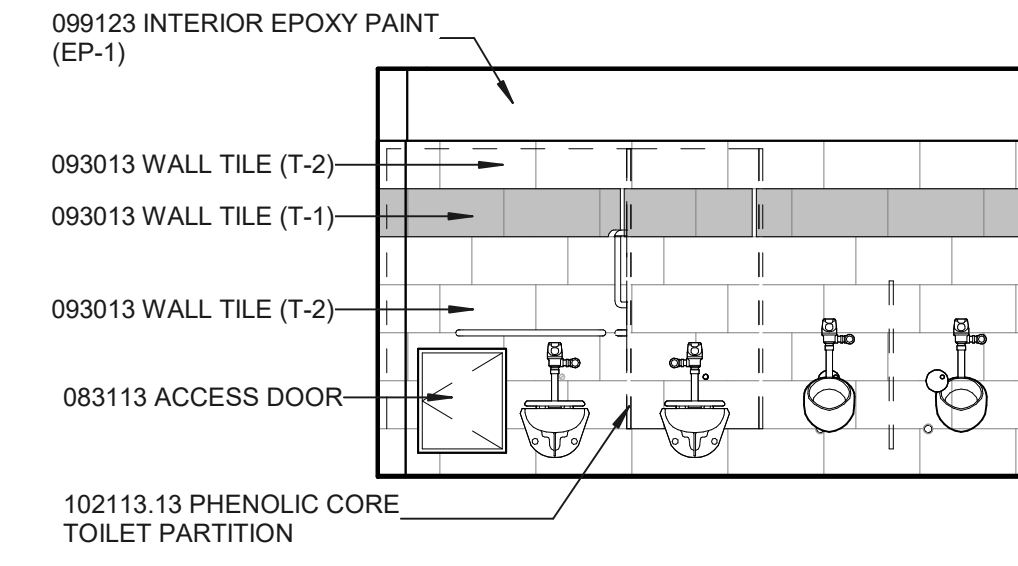
14 BASE DETAIL
1 1/2" = 1'-0"



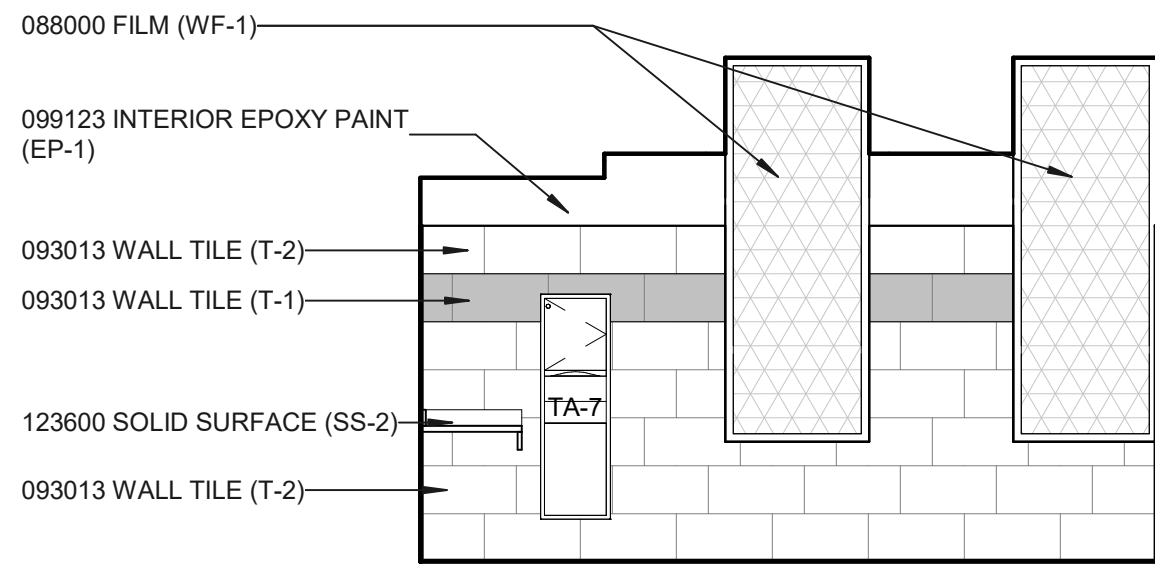
8 SHARED BREAK ROOM 101 - EAST
1/4" = 1'-0"



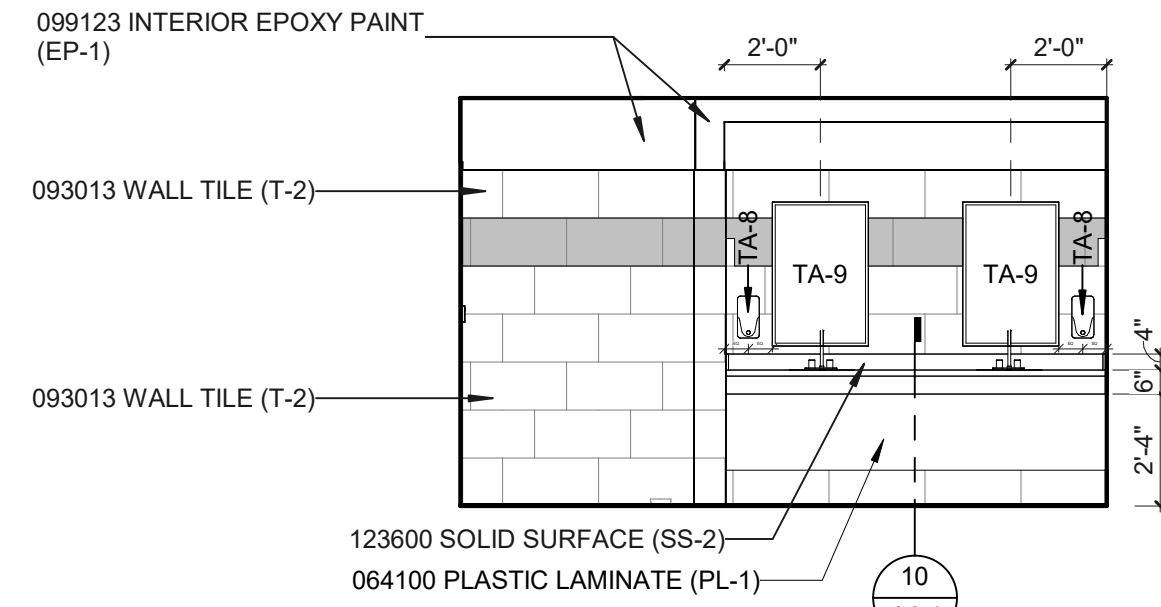
7 HEALTH ROOM 107 - WEST
1/4" = 1'-0"



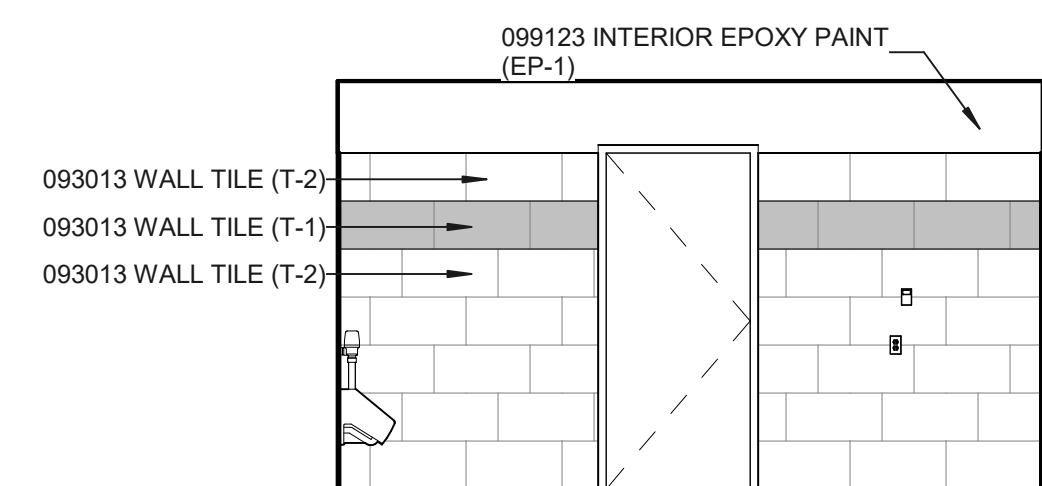
6 MENS 105 - WEST
1/4" = 1'-0"



5 MENS 105 - SOUTH
1/4" = 1'-0"



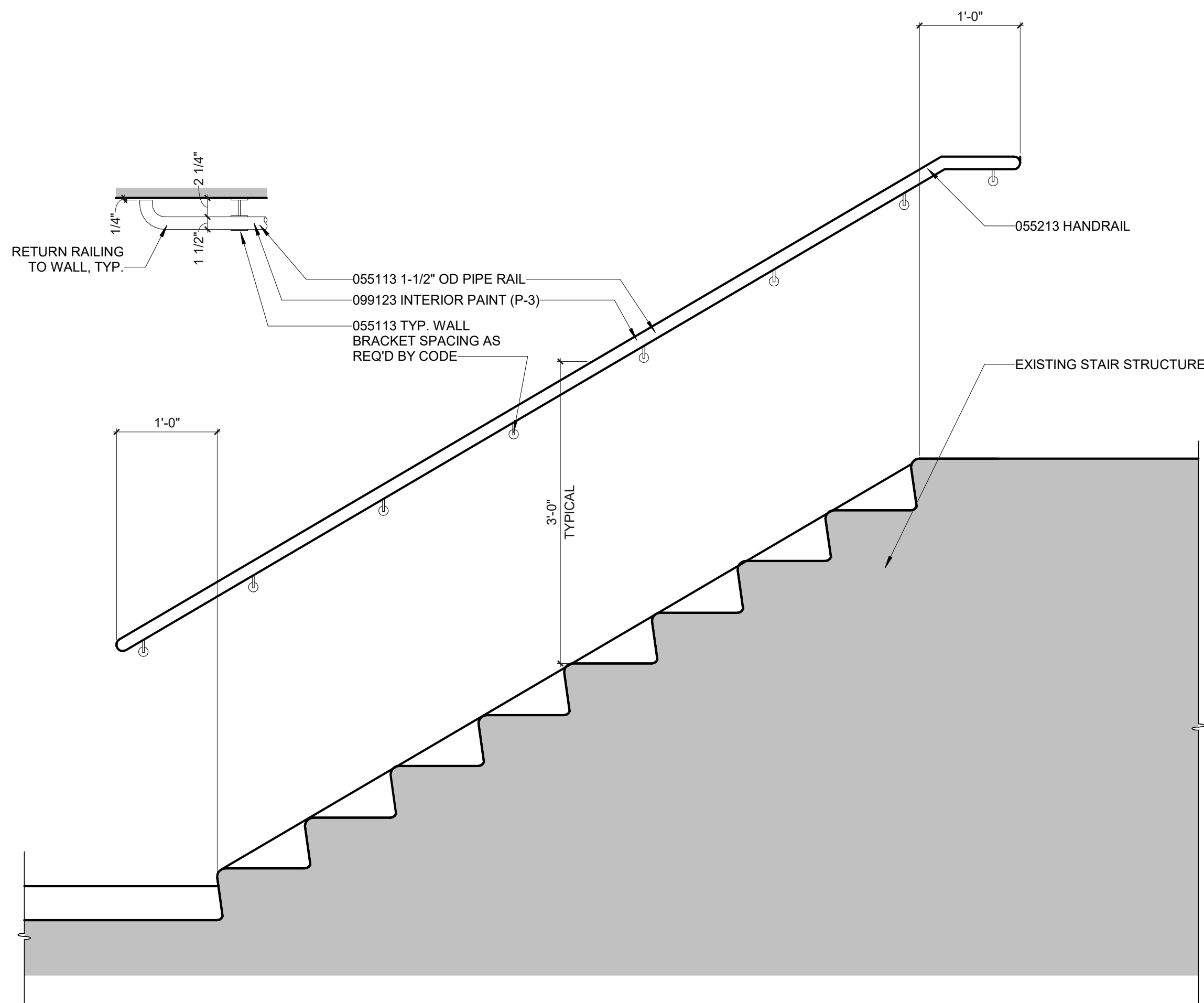
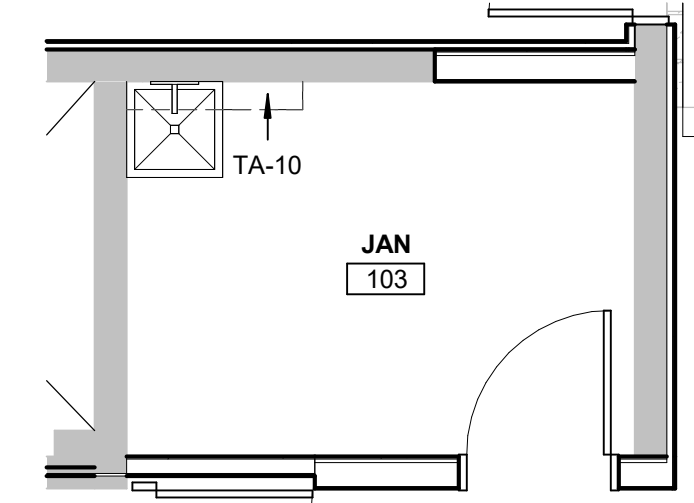
4 MENS 105 - EAST
1/4" = 1'-0"



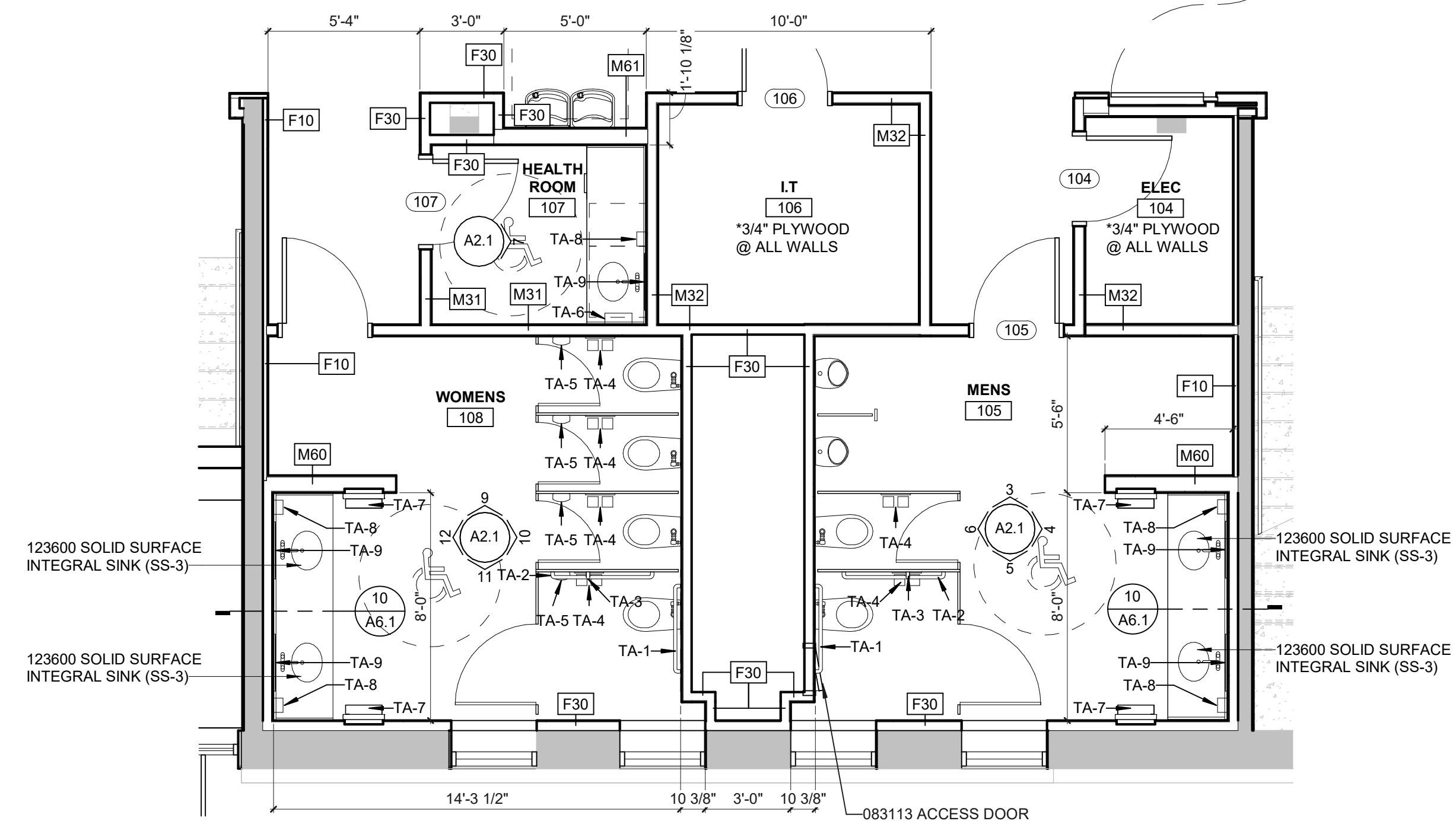
3 MENS 105 - NORTH
1/4" = 1'-0"

102800 TOILET, BATH, AND LAUNDRY ACCESSORIES

MARK	Keynote	DESCRIPTION	COMMENTS
TA-1	102800.A15	GRAB BAR - 36"	
TA-2	102800.A15	GRAB BAR - 42"	
TA-3	102800.A15	GRAB BAR - 18"	VERTICAL
TA-4	102800.A1	TOILET PAPER DISPENSER	
TA-5	102800.A6	SANITARY NAPKIN DISPOSAL	
TA-6	102800.A4	PAPER TOWEL DISPENSER	
TA-7	102813	SEMI-RECESSED COMBINATION TOWEL AND WASTE UNIT	
TA-8	102800.A3	SOAP DISPENSER	
TA-9	102800.A14	FRAMED MIRROR	
TA-10	102800.A13	COMBINATION SHELF, MOP/BROOM HOLDER	



2 TYPICAL INTERIOR HANDRAIL DETAIL
1" = 1'-0"

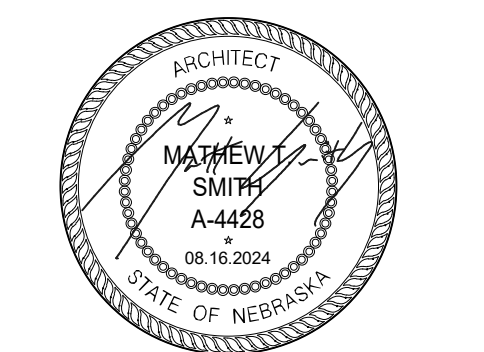


1 ENLARGED PLAN - RESTROOM
1/4" = 1'-0"

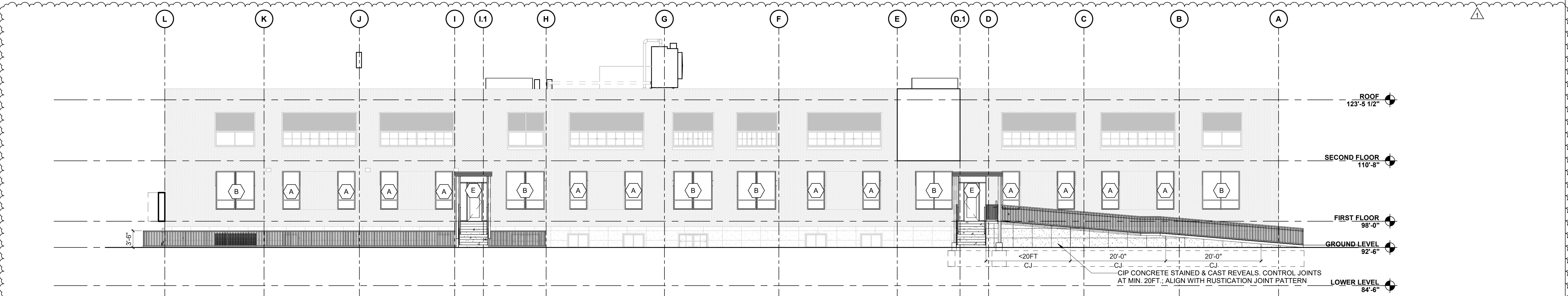
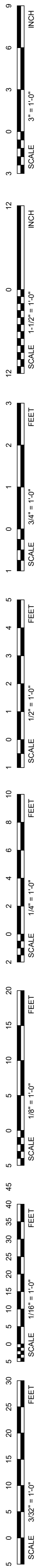
REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	9/12/2024	ADDENDUM 02

NDOT 1600 OFFICE RENOVATION

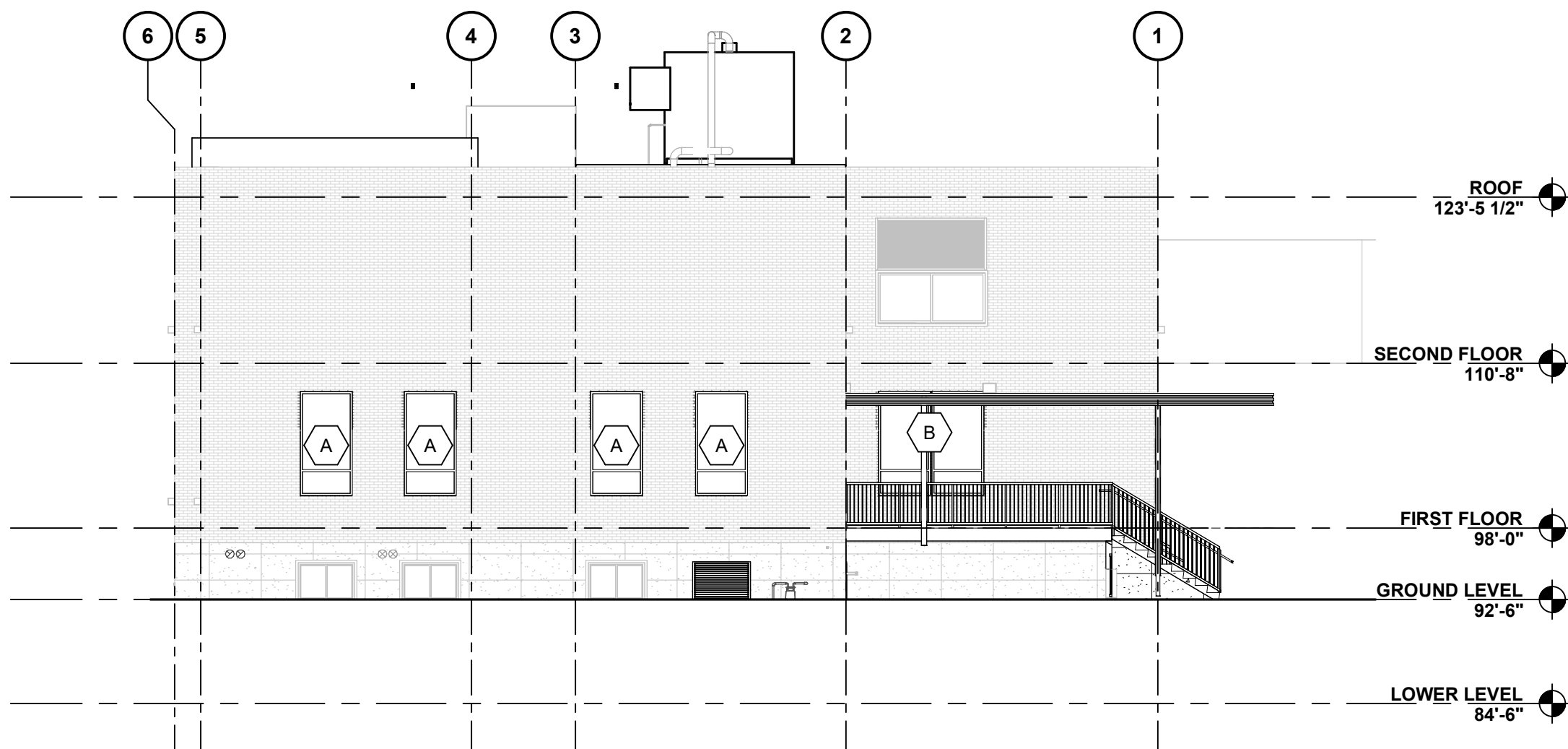
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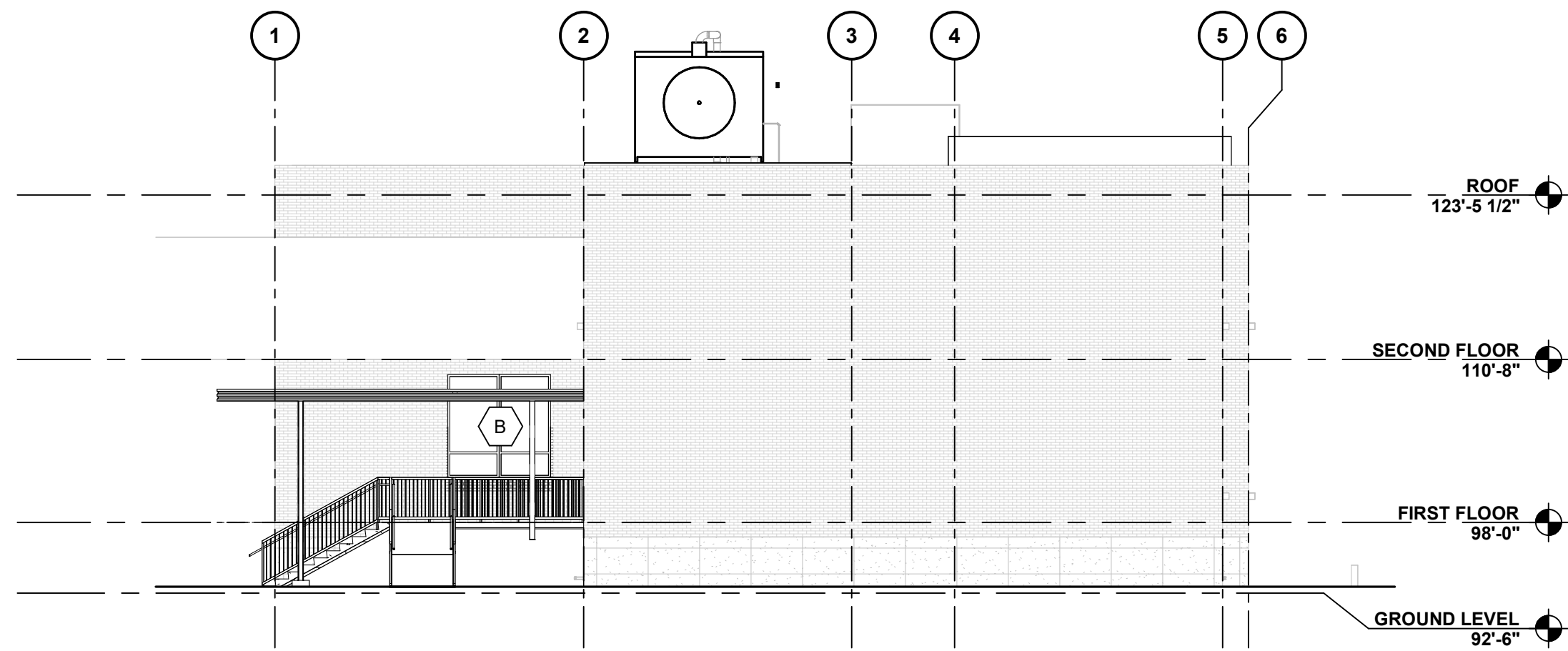
ENLARGED PLANS, INTERIOR ELEVATIONS & DETAILS



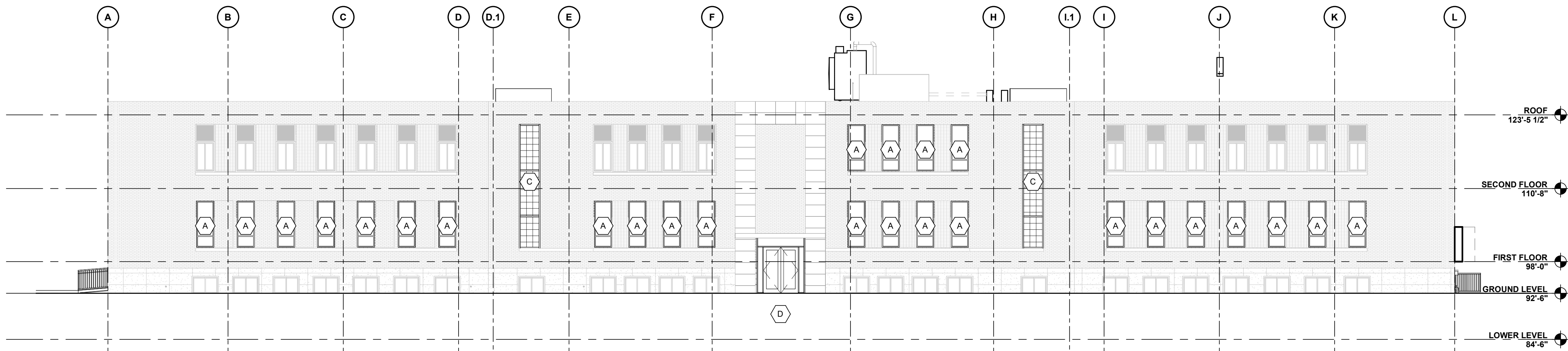
4 NORTH ELEVATION
3/32" = 1'-0"



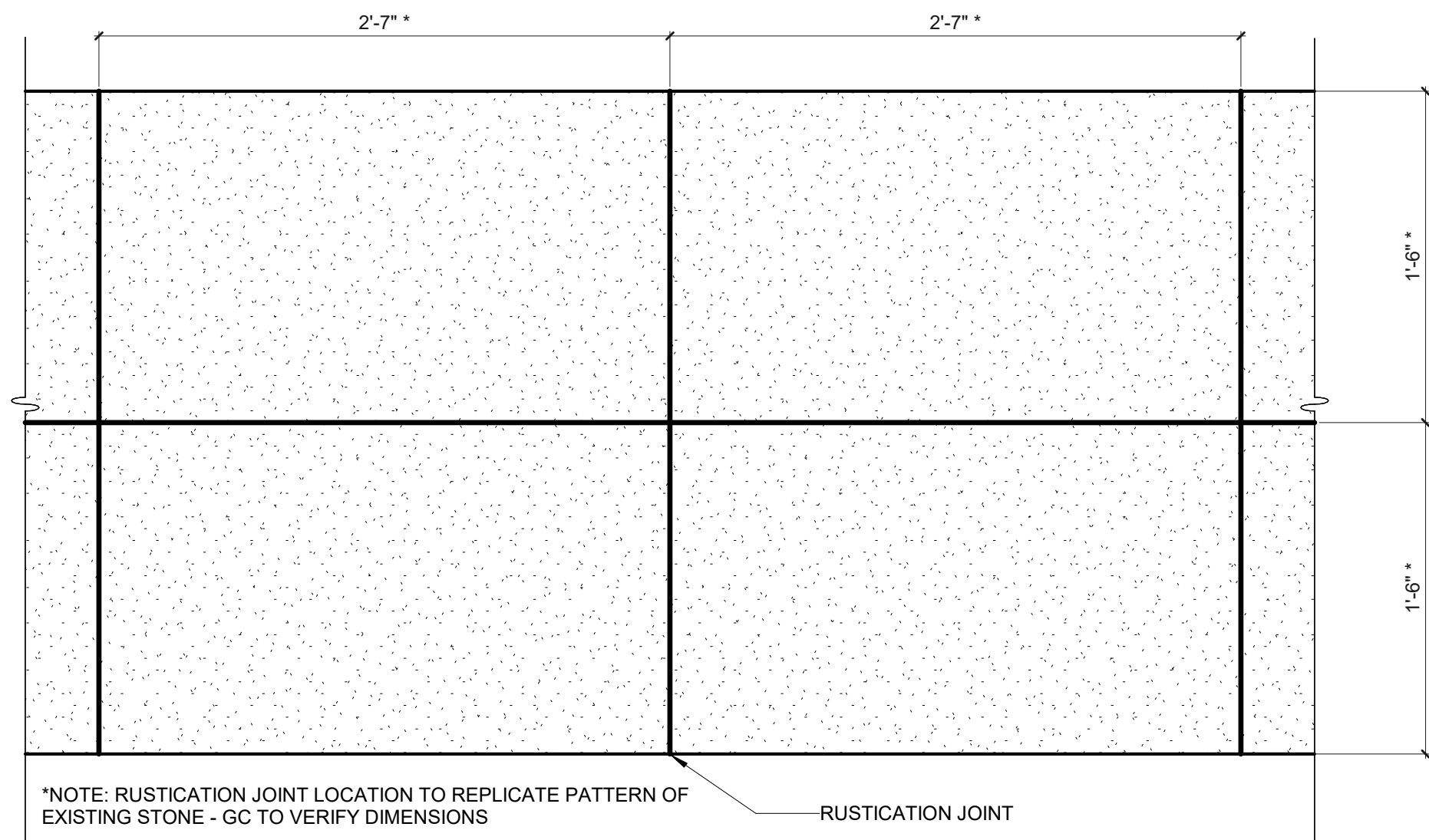
3 EAST ELEVATION
3/32" = 1'-0"



2 WEST ELEVATION
3/32" = 1'-0"



1 SOUTH ELEVATION
3/32" = 1'-0"



5 CIP DETAIL
1 1/2" = 1'-0"

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bvh.com

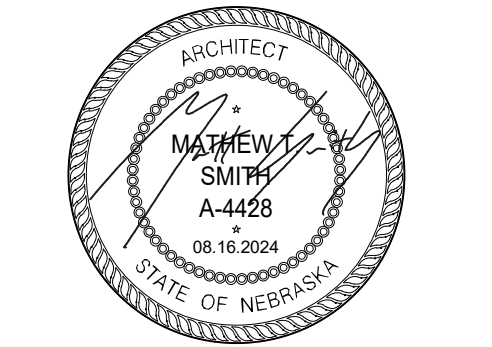
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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	9/12/2024	ADDENDUM 02

NDOT 1600 OFFICE
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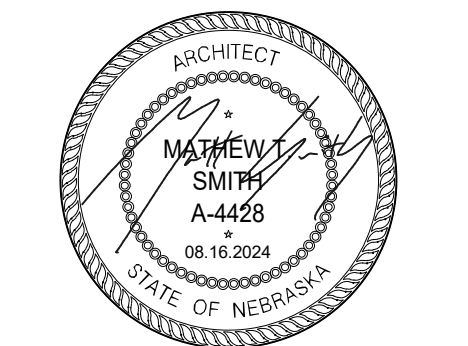


BUILDING
ELEVATIONS

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	9/12/2024	ADDENDUM 02

NDOT 1600 OFFICE
RENOVATION

PROJECT: 23053 DATE: 08/16/2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS



DOOR AND WINDOW
FRAME
TYPES/DETAILS

DOOR SCHEDULE										
NUMBER	DOOR			FRAME		FIRE RATING	CARD READER	DETAIL	COMMENTS	REVISIONS
	LEAFS	WIDTH	HEIGHT	TYPE	MATERIAL					
003	2	3'-0"	7'-0"	F	HM	HM1	60M			
005	1	3'-0"	7'-0"	V	HM	HM1				
006A	1	3'-0"	7'-0"	V	HM	HM1	45M			
006B	2	3'-0"	7'-0"	F	HM	HM1	45M			
100A	1	3'-0"	8'-0"	A1	AL	A	-	X	REUSE EXISTING CARD READER	
100B	1	3'-0"	8'-0"	A1	AL	A	-	X	REUSE EXISTING CARD READER	
100C	2	3'-0"	8'-0"	A1	AL	A	-	X	REUSE EXISTING CARD READER	
100D	2	3'-3"	7'-0"	F	HM	HM1				
100E	2	3'-3"	7'-0"	F	HM	HM1				
101	1	3'-0"	7'-0"	FG	WD	HM3	45M			
102	1	3'-0"	7'-0"	FG	WD	HM3	45M			
102A	1	3'-0"	7'-0"	FG	WD	HM3				
102B	1	3'-0"	7'-0"	FG	WD	HM3				
102C	1	3'-0"	7'-0"	FG	WD	HM3				
102D	1	3'-0"	7'-0"	FG	WD	HM1				
102E	1	3'-0"	7'-0"	FG	WD	HM3				
103	1	3'-0"	7'-0"	F	HM	HM2	45M			
104	1	3'-0"	7'-0"	F	HM	HM2	45M			
105	1	3'-0"	7'-0"	F	HM	HM2	45M			
106	1	3'-0"	7'-0"	F	HM	HM2	45M			
107	1	3'-0"	7'-0"	F	HM	HM2	45M			
108	1	3'-0"	7'-0"	F	HM	HM2	45M			
109	1	3'-0"	7'-0"	A1	AL	A	-	X		
109A	1	3'-0"	7'-0"	FG	WD	HM3				
109B	1	3'-0"	7'-0"	FG	WD	HM3				
109B2	1	3'-0"	7'-0"	F	HM	HM2	45M		EXIT ONLY	
109C	1	3'-0"	7'-0"	FG	WD	HM3				
109D	1	3'-0"	7'-0"	FG	WD	HM3				
109E	1	3'-0"	7'-0"	FG	WD	HM3				
109F	1	3'-0"	7'-0"	FG	WD	HM3				
109G	1	3'-0"	7'-0"	F	WD	HM2				
109H	1	3'-0"	7'-0"	FG	WD	HM3				
109J	1	3'-0"	7'-0"	FG	WD	HM3				
109K	1	3'-0"	7'-0"	FG	WD	HM3				
110	1	3'-0"	7'-0"	FG	WD	HM3	45M			
110A	1	3'-0"	7'-0"	FG	WD	HM3				
111	1	3'-0"	7'-0"	FG	WD	HM3	45M			
112	1	3'-0"	7'-0"	FG	WD	HM3	45M			
112A	1	3'-0"	7'-0"	FG	WD	HM3				
112B	1	3'-0"	7'-0"	FG	WD	HM3				
112C	1	3'-0"	7'-0"	FG	WD	HM3				
112D	1	3'-0"	7'-0"	FG	WD	HM3				
112E	1	3'-0"	7'-0"	FG	WD	HM3				
201A	1	3'-0"	7'-0"	FG	WD	HM3	60M			
201B	1	3'-0"	7'-0"	FG	WD	HM3	60M			
202	1	3'-0"	7'-0"	F	HM	HM2	45M			
204	1	3'-0"	7'-0"	F	HM	HM2	45M			
205	1	3'-0"	7'-0"	F	HM	HM2	45M			
205A	1	1'-6"	2'-0"	F	HM	HM2				
206	1	3'-0"	7'-0"	F	HM	HM2	45M			
207	1	3'-0"	7'-0"	F	HM	HM2	45M			
208	1	3'-0"	7'-0"	F	HM	HM2	45M			

DOOR AND FRAME NOTES

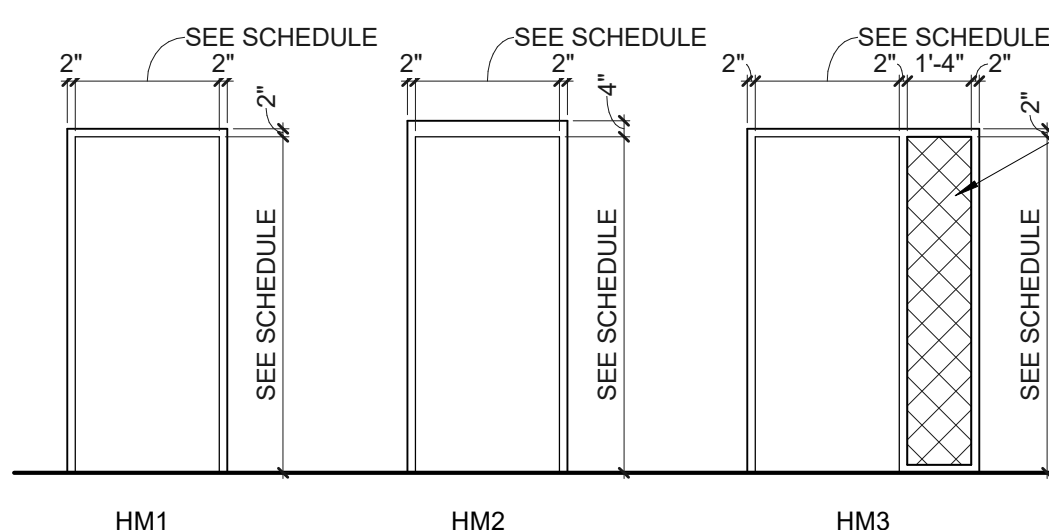
GENERAL NOTES:

SEE SPECIFICATIONS FOR RATED, TEMPERED, AND/OR LAMINATED SAFETY GLAZING REQUIREMENTS.

SEE SPECIFICATIONS FOR HARDWARE REQUIREMENTS.

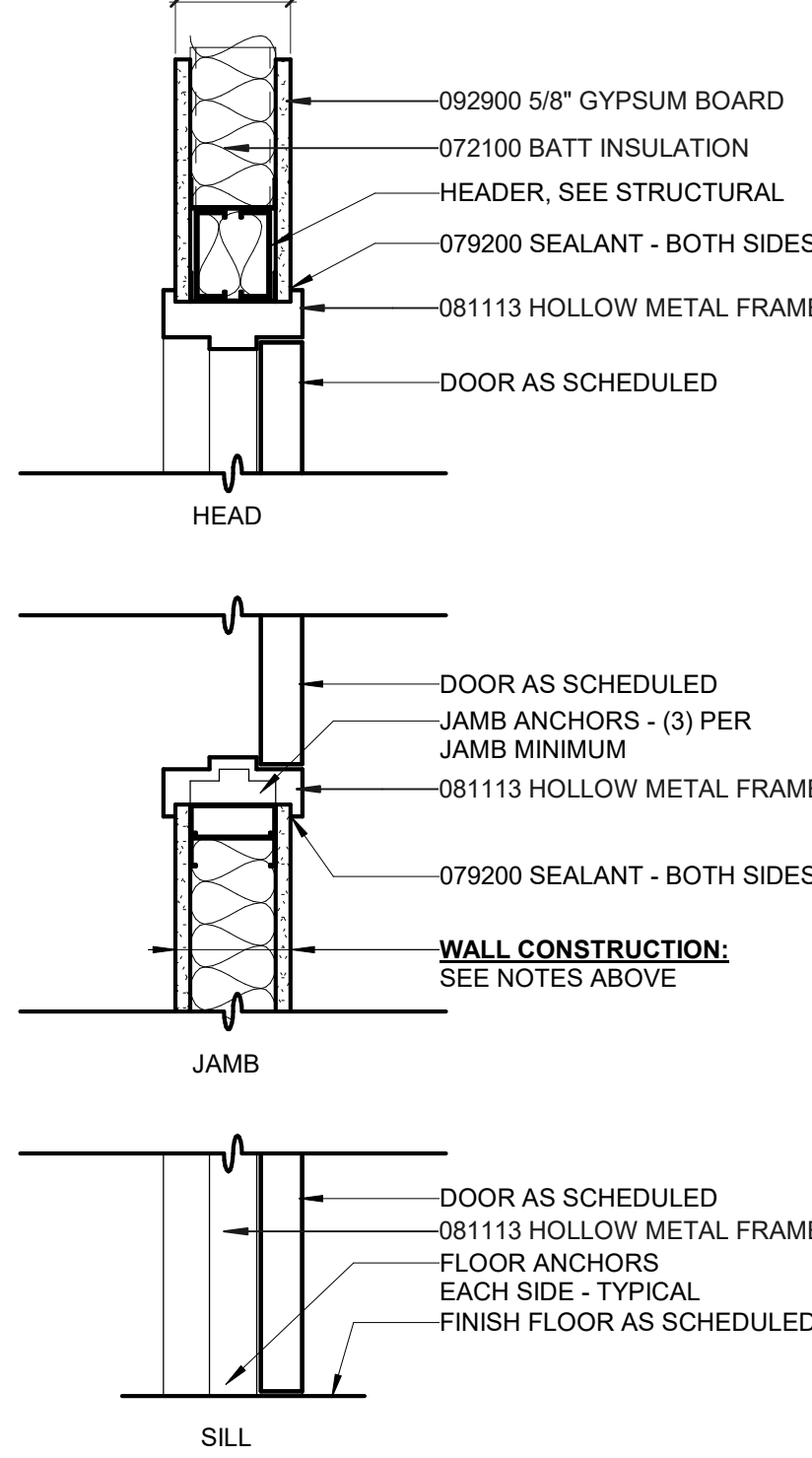
GLAZING LEGEND

- GL-1 - CLEAR GLAZING, INSULATED, TEMPERED
- GL-2 - ETCHED GLAZING
- GL-3 - RATED GLASS
- GL-4 - CLEAR GLAZING, TEMPERED

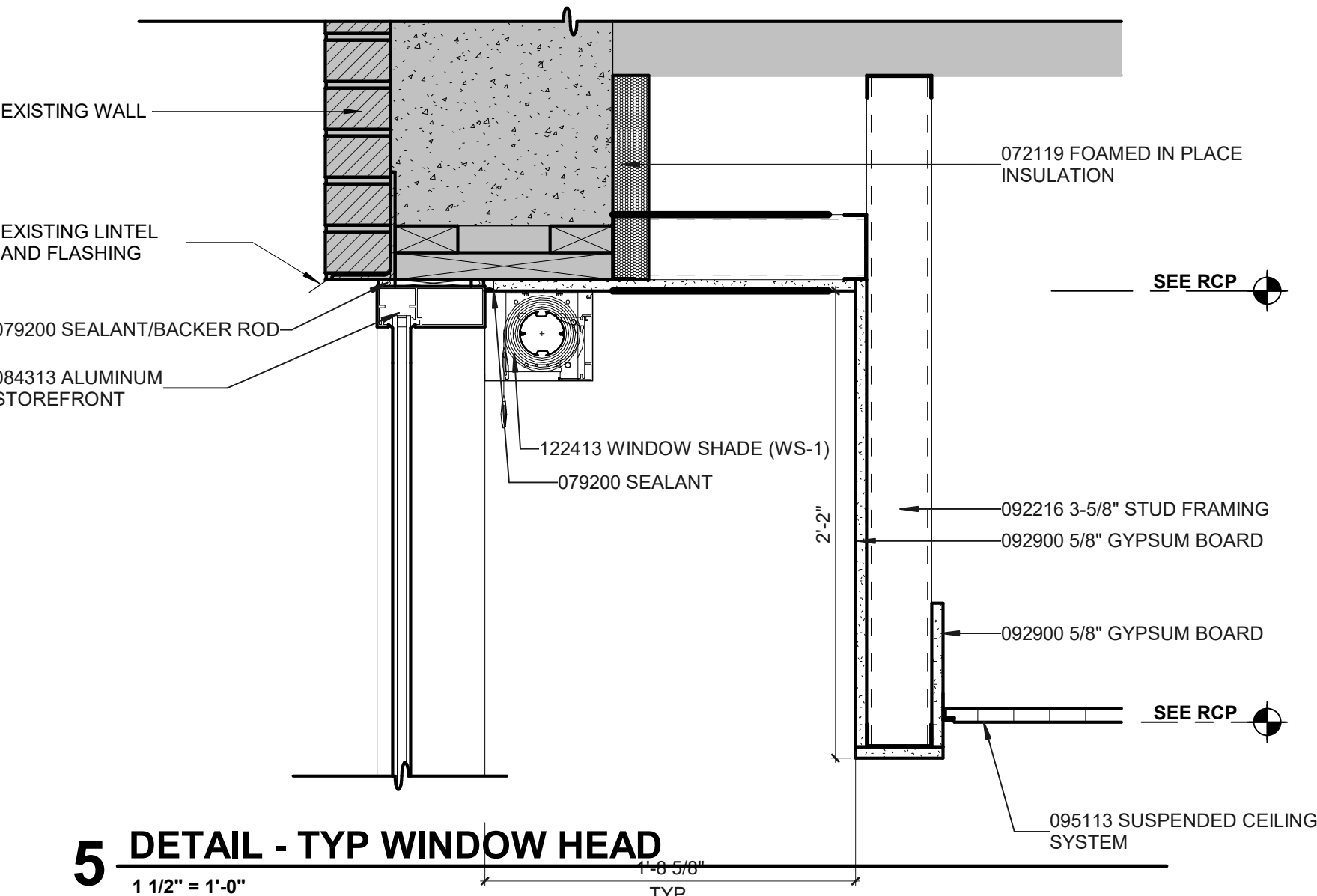


REFERENCE HOLLOW METAL FRAMES SPECIFICATIONS

PER WALL TYPE

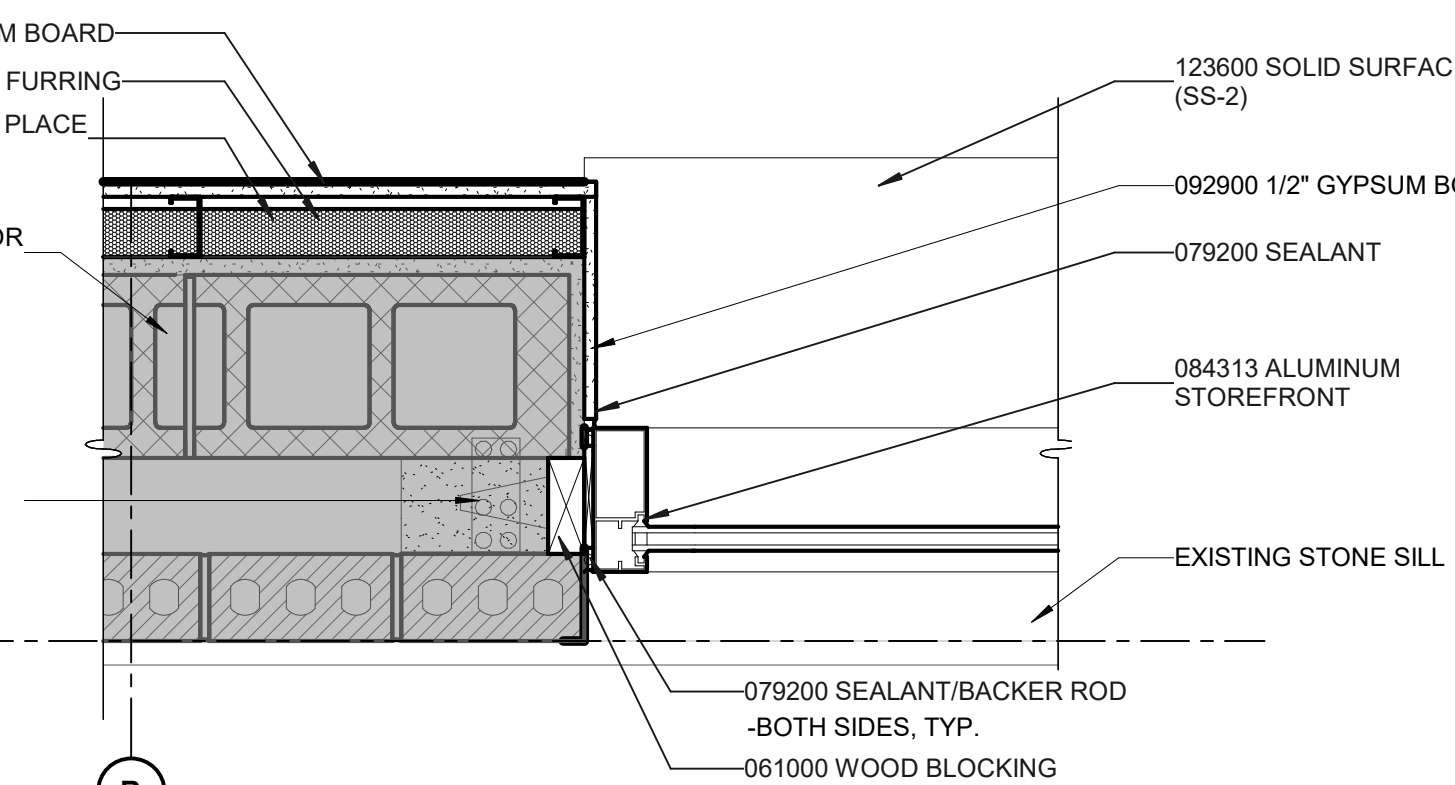


DETAIL - TYPICAL HM FRAME
IN MTL STUD WALL



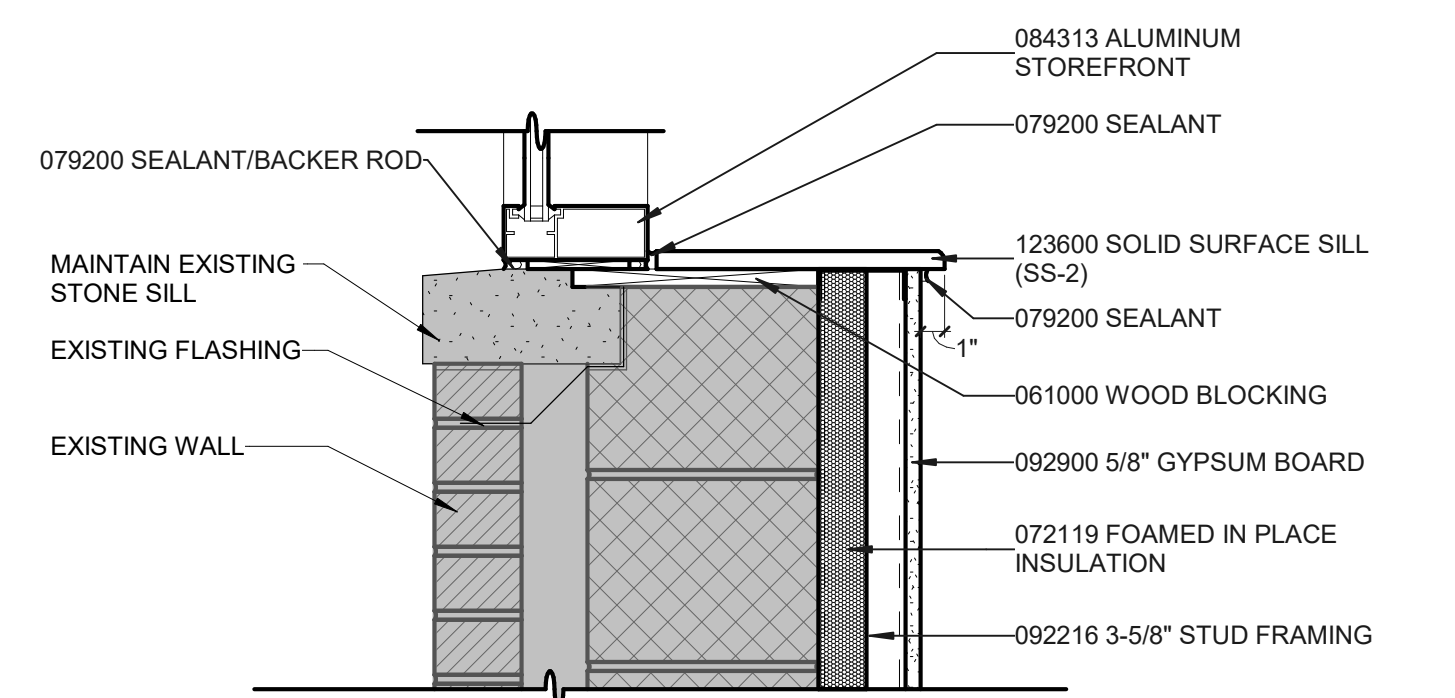
DETAIL - TYP WINDOW HEAD

1 1/2" = 1'-0"



DETAIL - TYP WINDOW JAMB

1 1/2" = 1'-0"

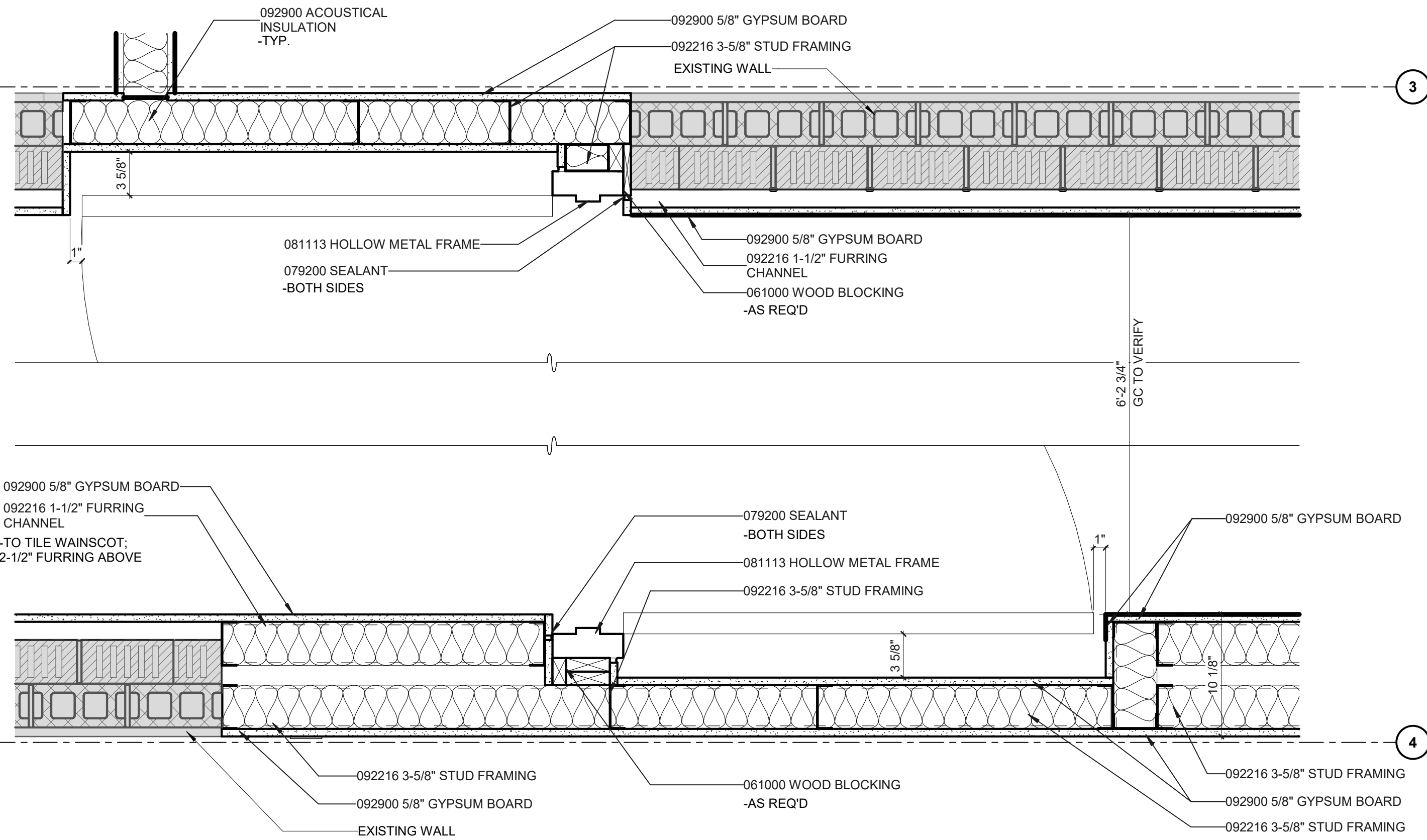


DETAIL - TYP WINDOW SILL

1 1/2" = 1'-0"

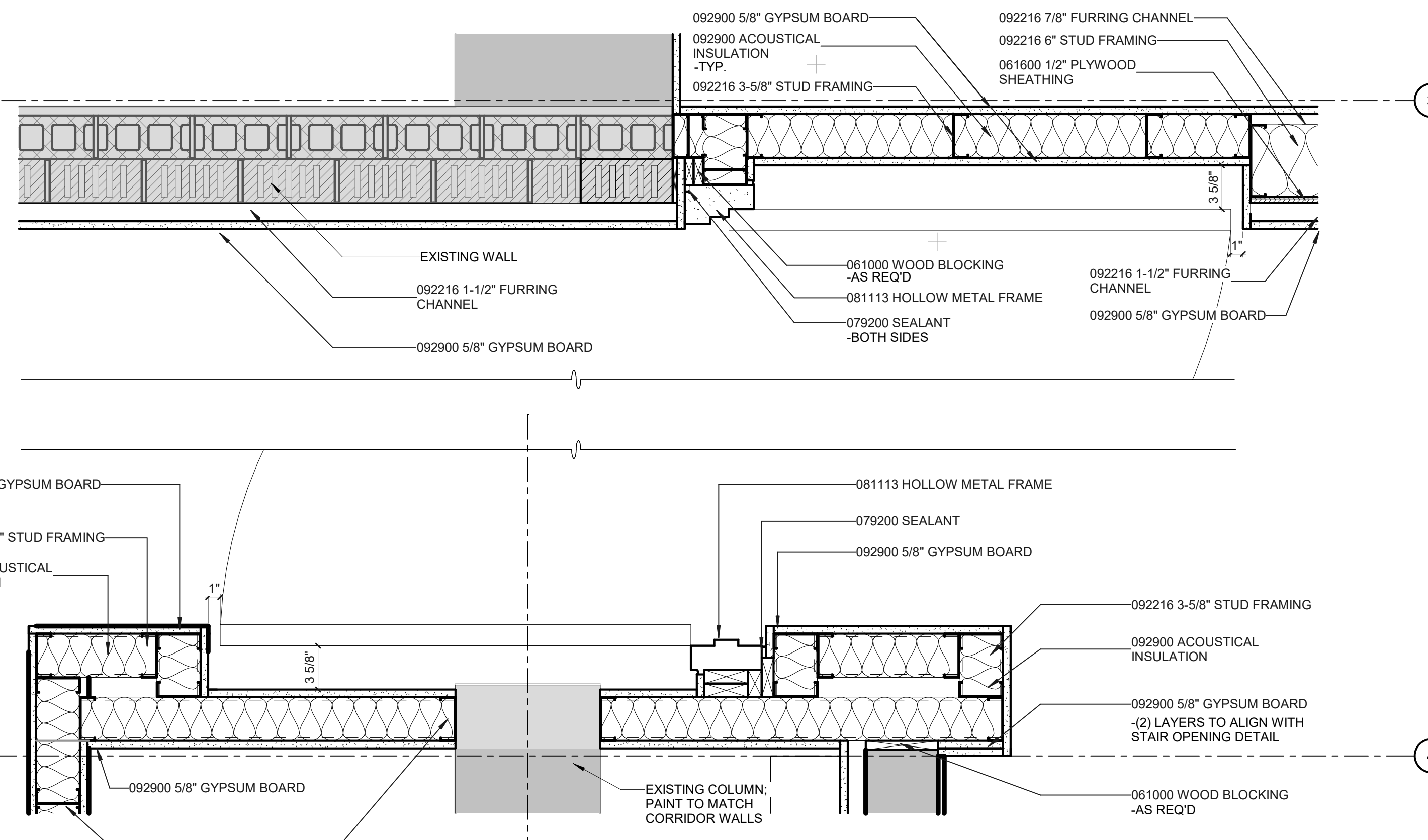
STOREFRONT ELEVATIONS

1/4" = 1'-0"



DOOR 100D JAMB DETAIL

1 1/2" = 1'-0"



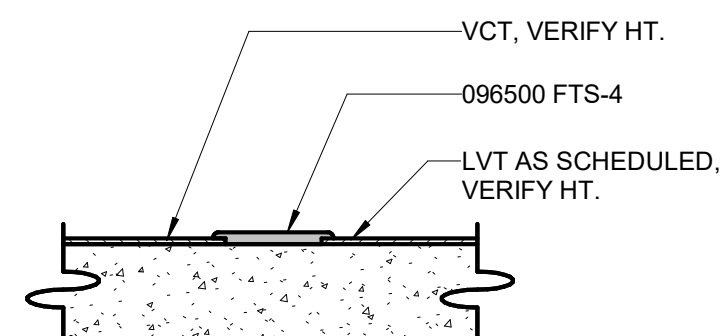
DOOR 100E JAMB DETAIL

1 1/2" = 1'-0"



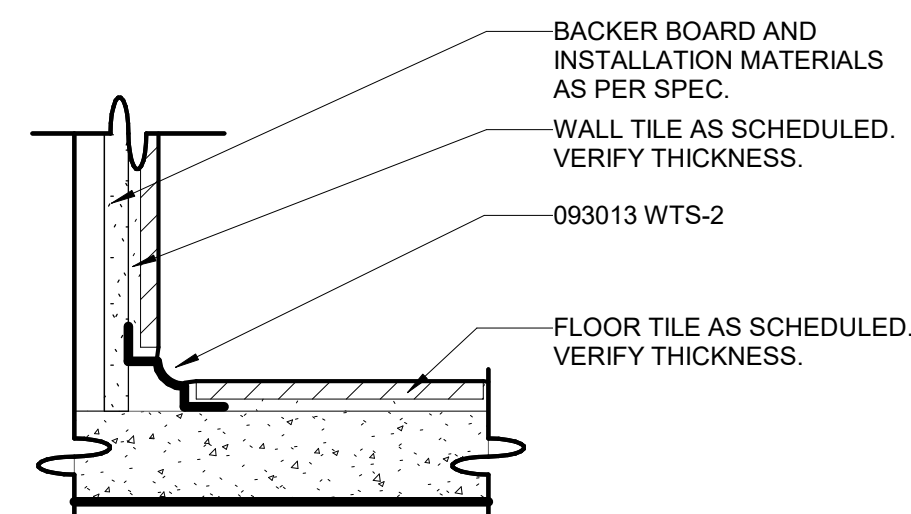
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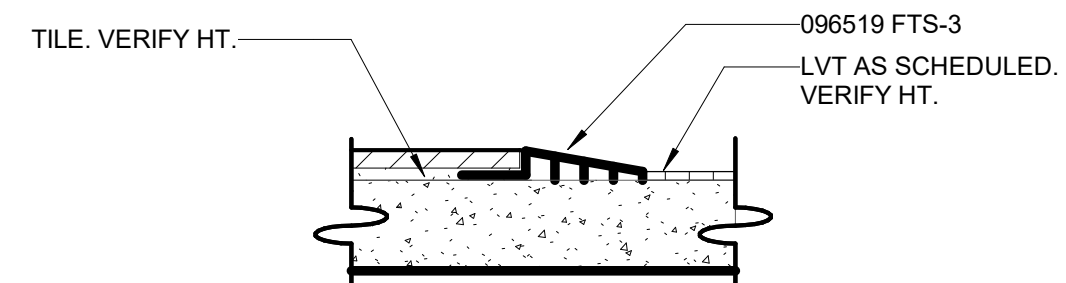
 $\triangle$ 

8 WALL TILE EXPOSED ENDS AND CORNERS

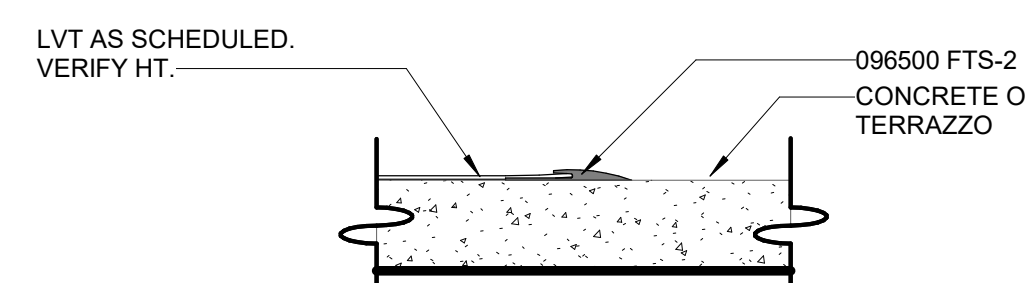
7 LVT TO VCT
3" = 1'-0"



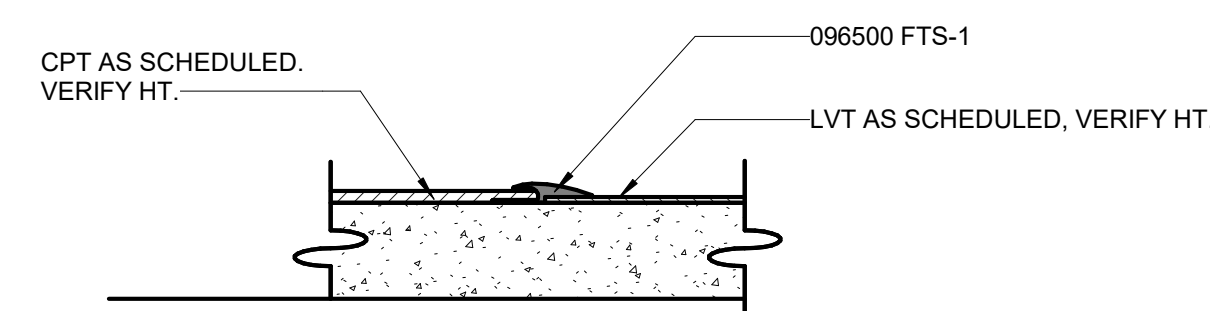
6 WALL TILE TO FLOOR TILE



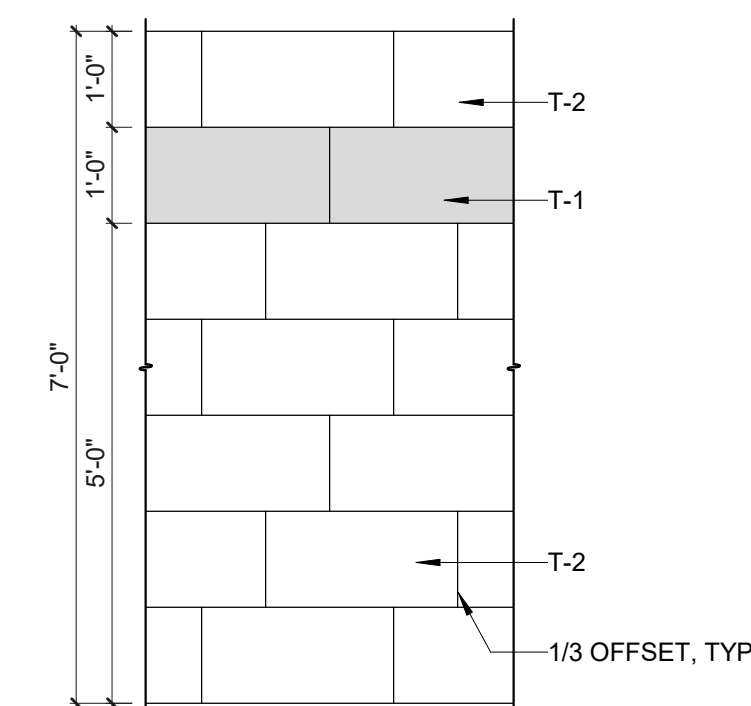
5 LVT TO TILE
3" = 1'-0"



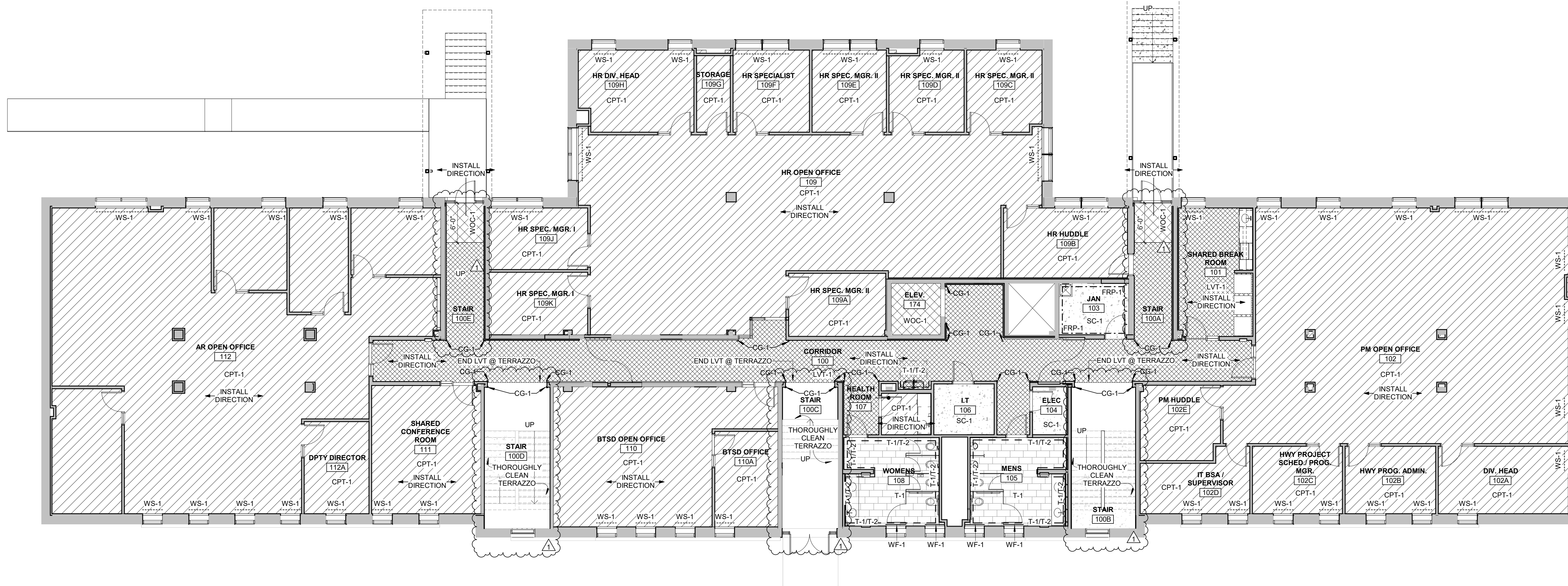
4 LVT TO CONCRETE OR TERRAZZO



3 LVT TO CPT



2 T-1/T-2 TYP. PATTERN
1/2" = 1'-0"



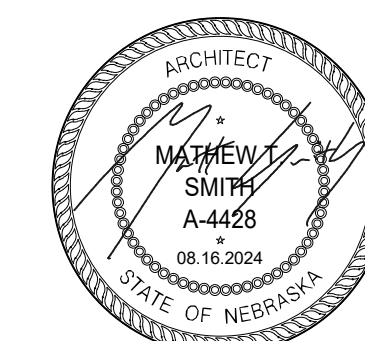
1 FIRST FLOOR FINISH PLAN

FINISHES LEGEND

- | | |
|--|------------|
| | CPT-1 |
| | LVT-1 |
| | WOC-1 |
| | T-1 |
| | SC |
| | UNFINISHED |
| | FRP-1 |
| | T-1/T-2 |
| | WF-1 |
| | WS-1 |

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RENOVATION

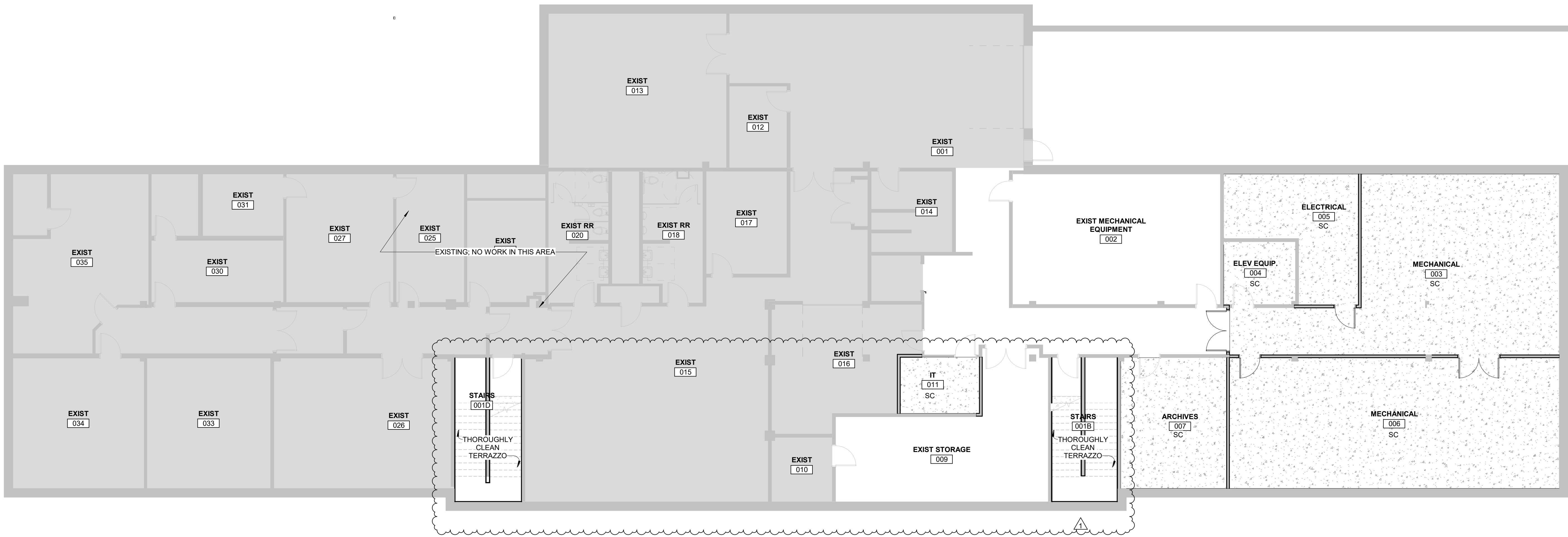
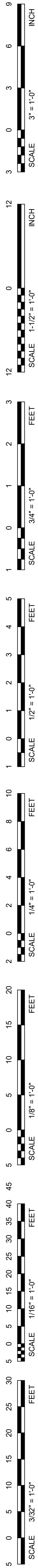
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**FIRST FLOOR FINISH
PLAN**

PROJECT

A9.1



FINISHES LEGEND

- CPT-1
- LVT-1
- WOC-1
- T-1
- SC
- UNFINISHED / EXISTING
- FRP-1
- T-1/T-2
- WF-1
- WS-1

1 LOWER LEVEL FINISH FLOOR PLAN

1/8" = 1'-0"

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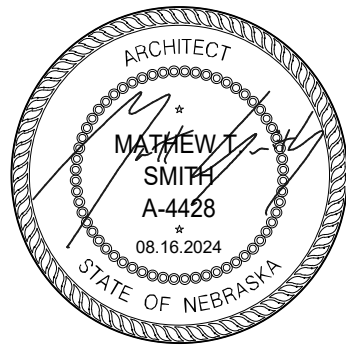
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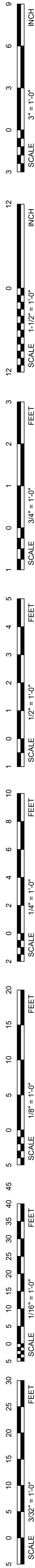


LOWER LEVEL FLOOR
FINISH PLAN

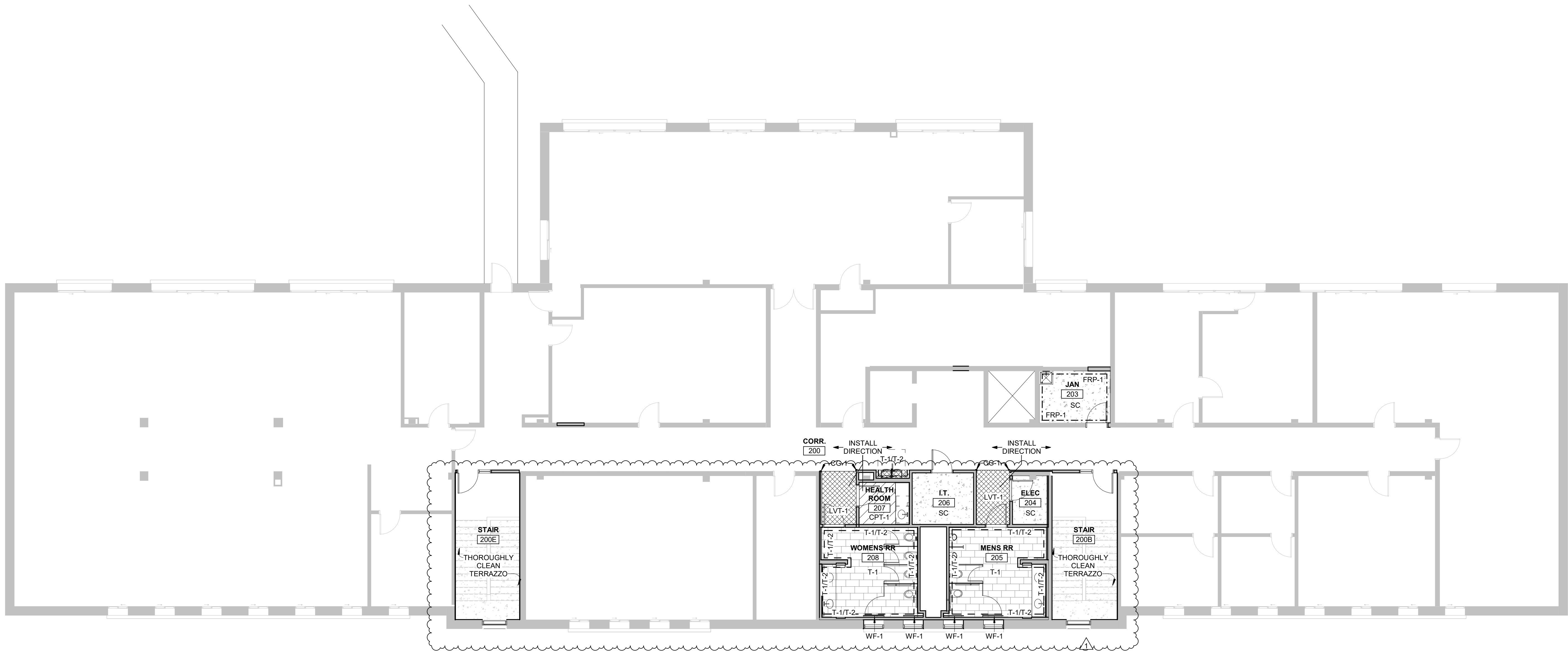
PROJECT
NORTH



A9.2



PDF 2024-10-22 PM



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

FINISHES LEGEND

- CPT-1
- LVT-1
- WOC-1
- T-1
- SC
- UNFINISHED / EXISTING
- FRP-1
- T-1/T-2
- WF-1
- WS-1

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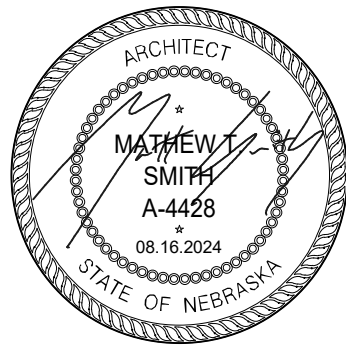
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**SECOND FLOOR
FINISH PLAN**



A9.3

STEAM		GENERAL		SANITARY & DOMESTIC		HVAC		
—BBD—	BOILER BLOW DOWN	— — — — —	EXISTING	— — — — —	SANITARY DRAIN BELOW GRADE (PLAN)	—	CEILING DIFFUSER	
—CD—	STEAM CONDENSATE DRAIN ABOVE GRADE	— — — — —	DEMOLITION	— — — — —	SANITARY DRAIN ABOVE GRADE (PLAN)	—	LINEAR DIFFUSER	
—CD—	STEAM CONDENSATE DRAIN BELOW GRADE	— — — — —	NEW	— — — — —	COLD WATER (CW)	—	SUPPLY REGISTER	
—HPC—	HIGH PRESSURE CONDENSATE	— — — — —	NEW TO EXISTING	— — — — —	HOT WATER (HW)	—	RETURN AIR GRILLE	
—HPS—	HIGH PRESSURE STEAM	— — — — —	SHEET KEYNOTE	— — — — —	HOT WATER CIRCULATING (HWC)	—	RETURN AIR GRILLE	
—MPC—	MEDIUM PRESSURE CONDENSATE	— — — — —	REVISION DELTA	— — — — —	SOFT COLD WATER	—	EXHAUST AIR GRILLE	
—MPS—	MEDIUM PRESSURE STEAM	— — — — —	PIPE UP OR DUCT UP	— — — — —	SHW—	SOFT HOT WATER	—	THERMOSTAT
—LPC—	LOW PRESSURE CONDENSATE	— — — — —	PIPE OR DUCT DOWN	— — — — —	140 HW—	140°F DOMESTIC HOT WATER	—	HUMIDISTAT
—LPS—	LOW PRESSURE STEAM	— — — — —	PIPE OR DUCT CAP	— — — — —	—TW—	TEMPERED WATER	—	CARBON DIOXIDE SENSOR
—	STEAM TRAP	— — — — —	PIPE ANCHOR	— — — — —	—TC—	TEMPERED WATER CIRCULATING	—	RECTANGULAR DUCT (WxH)
HYDRONIC		— — — — —	PIPE GUIDE	— — — — —	—V—	VENT	—	ROUND DUCT (DIA.)
—CHWR—	CHILLED WATER RETURN	— — — — —	PIPE ROLLER SUPPORT	— — — — —	—VBF—	VENT BELOW FLOOR	—	OVAL DUCT (WxH)
—CHWS—	CHILLED WATER SUPPLY	— — — — —	FLOW DIRECTION ARROW	— — — — —	—AV—	ACID VENT	—	SUPPLY AIR/OUTSIDE AIR UP AND DOWN
—MU—	MAKE-UP WATER	— — — — —	PIPE EXPANSION JOINT	— — — — —	—AW—	ACID WASTE	—	RETURN AIR UP AND DOWN
—HHWR—	HEATING WATER RETURN	— — — — —	FLEXIBLE CONNECTOR	— — — — —	—SD—	BLOW DOWN PIPING	—	EXHAUST AIR UP AND DOWN
—HWS—	HEATING WATER SUPPLY	— — — — —	CENTRIC REDUCER	— — — — —	—RD—	ROOF DRAIN (ABOVE GRADE)	—	MANUAL VOLUME DAMPER
—HWR—	HOT/CHILLED WATER RETURN	— — — — —	ECCENTRIC REDUCER	— — — — —	—RD—	ROOF DRAIN (BELOW GRADE)	—	MOTORIZED DAMPER
—HWS—	HOT/CHILLED WATER SUPPLY	— — — — —	T&P RELIEF VALVE	— — — — —	—OD—	OVERFLOW DRAIN (ABOVE GRADE)	—	BACKDRAFT DAMPER
—HPR—	HEAT PUMP RETURN	— — — — —	ISOLATION VALVE	— — — — —	—OD—	OVERFLOW DRAIN (BELOW GRADE)	—	FIRE DAMPER
—HPS—	HEAT PUMP SUPPLY	— — — — —	CHECK VALVE	— — — — —	—SS—	SUB-SOIL DRAIN (DRAIN TILE)	—	SMOKE DAMPER
—CTR—	COOLING TOWER RETURN	— — — — —	BALANCING VALVE	— — — — —	—FM—	FORCE MAIN (PUMP DISCHARGE)	—	COMBINATION FIRE AND SMOKE DAMPER
—CTS—	COOLING TOWER SUPPLY	— — — — —	AUTOMATIC 2-WAY VALVE	— — — — —			—	TURNING VANES
—CR—	CONDENSER WATER RETURN	— — — — —	AUTOMATIC 3-WAY VALVE	— — — — —			—	VOLUME EXTRACTOR
—CS—	CONDENSER WATER SUPPLY	— — — — —	PRESSURE REDUCING & REGULATING VALVE	— — — — —				
—ERR—	ENERGY RECOVERY RETURN	— — — — —	PRESSURE REGULATING VALVE	— — — — —				
—ERS—	ENERGY RECOVERY SUPPLY	— — — — —	DIAPHRAGM VALVE	— — — — —				
—A—	AUTOMATIC AIR VENT	— — — — —	ANGLE VALVE	— — — — —				
—M—	MANUAL AIR VENT	— — — — —	STRAINER	— — — — —				
—SD—	SUCTION DIFFUSER	— — — — —	UNION	— — — — —				
SITE		VALVES		FIRE		HVAC		
—W—	WATER SERVICE	— — — — —	ISOLATION VALVE	— — — — —	FIRE PROTECTION PIPING	—	CEILING DIFFUSER	
—V—	CURB STOP VALVE	— — — — —	ISOLATION VALVE IN VERTICAL POSITION	— — — — —	FIRE DEPARTMENT CONNECTION	—	LINEAR DIFFUSER	
—SAN—	SANITARY SEWER (SITE)	— — — — —	CHECK VALVE	— — — — —	DUCT SMOKE DETECTOR AND RELAY	—	SUPPLY REGISTER	
—P—	POST INDICATOR VALVE	— — — — —	BALANCING VALVE	— — — — —	TAMPER SWITCH	—	RETURN AIR GRILLE	
—P—	POST INDICATOR VALVE WITH TAMPER SWITCH	— — — — —	AUTOMATIC 2-WAY VALVE	— — — — —	FLOW SWITCH	—	RETURN AIR GRILLE	
—F—	BUILDING SPRINKLER FIRE MAIN	— — — — —	AUTOMATIC 3-WAY VALVE	— — — — —	SPRINKLER HEAD, PENDANT	—	EXHAUST AIR GRILLE	
—SS—	STORM SEWER (SITE)	— — — — —	PRESSURE REDUCING & REGULATING VALVE	— — — — —	SPRINKLER HEAD, SIDE WALL	—	THERMOSTAT	
—SD—	STORM DRAIN	— — — — —	PRESSURE REGULATING VALVE	— — — — —		—	HUMIDISTAT	
—T—	THRUST BLOCK	— — — — —	DIAPHRAGM VALVE	— — — — —		—	CARBON DIOXIDE SENSOR	
—LS—	LAWN SPRINKLER	— — — — —	ANGLE VALVE	— — — — —		—	RECTANGULAR DUCT (WxH)	
—W—	WATER MAIN	— — — — —	STRAINER	— — — — —		—	ROUND DUCT (DIA.)	
—W—	WELL	— — — — —	UNION	— — — — —		—	OVAL DUCT (WxH)	
—YHT—	YARD HYDRANT	— — — — —		— — — — —		—	SUPPLY AIR/OUTSIDE AIR UP AND DOWN	
—T—	TREE	— — — — —		— — — — —		—	RETURN AIR UP AND DOWN	
—X—	WIRE FENCE	— — — — —						

MECHANICAL SHEET LIST	
SHEET NO.	SHEET NAME
GM1.0	GENERAL MECHANICAL INFORMATION
PD1.0	PLUMBING DEMOLITION PLAN - FIRST FLOOR
PD1.1	PLUMBING DEMOLITION PLAN - FIRST FLOOR
PD1.2	PLUMBING DEMOLITION PLAN - SECOND FLOOR
P11.0	PLUMBING PLAN - LOWER LEVEL
P11.1	PLUMBING PLAN - FIRST FLOOR
P12	PLUMBING PLAN - SECOND FLOOR
P21	PLUMBING ENLARGED PLANS
PD1	PLUMBING RISERS
MD10	MECHANICAL DEMOLITION PLAN - LOWER LEVEL
MD1.1	MECHANICAL DEMOLITION PLAN - FIRST FLOOR
MD1.2	MECHANICAL DEMOLITION PLAN - SECOND FLOOR
M1.0	HVAC PLAN - LOWER LEVEL
M1.1	HVAC PLAN - FIRST FLOOR
M1.2	HVAC PLAN - SECOND FLOOR
M1.3	MECHANICAL AND PLUMBING PLAN - ROOF
M2.0	MECHANICAL PIPING PLAN - LOWER LEVEL
M2.1	MECHANICAL PIPING PLAN - FIRST FLOOR
M2.2	MECHANICAL PIPING PLAN - SECOND FLOOR
M3.1	MECHANICAL ENLARGED PLANS
MA.1	MECHANICAL P&IDs
MA.2	MECHANICAL P&IDs
M5.1	MECHANICAL DETAILS
M5.2	MECHANICAL DETAILS
ME.1	MECHANICAL SCHEDULES

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NORTH

NORTH

NORTH

GENERAL SHEET NOTES

- A. BUILDING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK SHOWN WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. EXISTING FLOOR, CABINETRY, EQUIPMENT AND FURNITURE MAY REMAIN. CONTRACTOR TO PROTECT ITEMS FROM ANY DUST ACCUMULATION AND/OR CONSTRUCTION DAMAGE. COORDINATE ITEMS REMAINING WITH ARCHITECTURAL SHEETS.
- C. CONTRACTOR TO PROTECT FLOORING THROUGHOUT WORK AREA. ANY DAMAGE TO BE REPAIRED BY CONTRACTOR.
- D. SUPPORT EXISTING ELECTRICAL, DATA, PHONE, AND TV WIRING WHERE REQUIRED WHEN PIPING, DUCTWORK, CEILING, ETC. ARE REMOVED. PROTECT WIRING FROM BEING DAMAGED DURING DEMO AND CONSTRUCTION. ANY DAMAGED CABLING, WIRING, OR FACEWAY SHALL BE REPLACED IN ITS ENTIRETY.
- E. COORDINATE ITEMS TO BE SALVAGED WITH OWNER.
- F. BUILDING TO REMAIN OCCUPIED. COORDINATE TIMEFRAME OF ACTIVITIES RESULTING IN LOUD NOISES OR VIBRATIONS WITH OWNER PRIOR TO STARTING. KEEP NOISE LEVEL TO A MINIMUM DURING NORMAL BUILDING WORKING HOURS.
- G. THIS PROJECT WILL BE ABATED OF ASBESTOS PRIOR TO CONSTRUCTION PHASES. IF ANY MATERIAL IS SUSPECTED TO CONTAIN ASBESTOS CONTACT OWNER FOR REMOVAL.
- H. GENERAL CONTRACTOR SHALL PATCH ALL HOLES LEFT FROM REMOVING PIPES, DUCT, EQUIPMENT, AND CONTROLS.
- I. CONTROL PNEUMATIC TUBING FOR DEMOLISHED MECHANICAL EQUIPMENT SHALL BE REMOVED FROM THE BUILDING. REROUTE TUBING FOR EXISTING MECHANICAL EQUIPMENT TO COORDINATE WITH REROUTED CHILLED WATER AND DRAIN PIPING. COORDINATE REROUTED TUBING WITH NEW WINDOW WELLS.
- J. ALL EXISTING SANITARY WASTE AND VENT LINES TO REMAIN UNLESS INDICATED OTHERWISE.
- K. VENTS THRU ROOF NOT INDICATED TO BE REMOVED SHALL REMAIN. COORDINATE REQUIREMENTS WITH RE-ROOFING CONTRACTOR.

SHEET KEYNOTES

1. REMOVE EXISTING PLUMBING FIXTURE COMPLETE. REMOVE ASSOCIATED COLD WATER, HOT WATER, SANITARY, AND VENT COMPLETE. PATCH FLOOR AS REQUIRED.
2. REMOVE EXISTING COLD WATER, HOT WATER, AND WATER CIRCULATION PIPING AND ALL ASSOCIATED INSULATION, HANGERS, ETC. THROUGHOUT FIRST FLOOR COMPLETE.
3. EXISTING FAN COIL UNIT AND ACCESSORIES SHALL BE DEMOLISHED COMPLETE.
4. REMOVE EXISTING COLD WATER, HOT WATER, AND WATER CIRCULATION PIPING AND ALL ASSOCIATED INSULATION, HANGERS, ETC. SERVING SINK BACK TO ACTIVE MAIN. DO NOT LEAVE DEAD LEGS IN PIPING.

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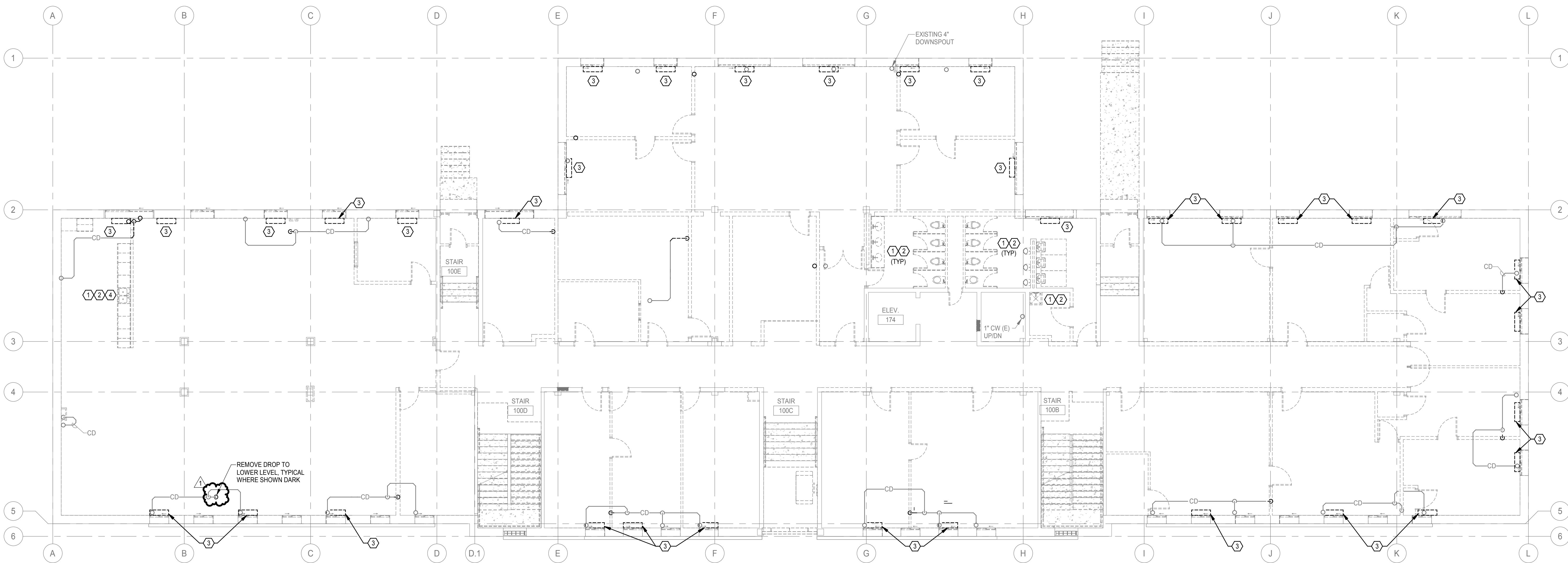
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PLUMBING
DEMOLITION PLAN -
FIRST FLOOR

NORTH



PD1.1



1 PLUMBING DEMOLITION PLAN - FIRST FLOOR

1/8" = 1'-0"

GENERAL SHEET NOTES

- A. BUILDING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK SHOWN WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-0" OR TOP OF PANEL AS PER CODE REQUIREMENTS.
- C. COORDINATE UNDERGROUND PIPING WITH STRUCTURAL FOOTINGS, SITE UTILITIES SERVICES, AND BUILDING SERVICES. FIELD VERIFY LOCATION OF ALL UTILITIES AND EXACT DIMENSIONS DURING BIDDING PORTION OF PROJECT. NOTIFY ANY DISCREPANCY OR INTERFERENCE TO ENGINEER.
- D. UNLESS NOTED/SHOWN OTHERWISE, ALL PIPING SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN PIPES UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL AND HVAC CONTRACTORS PRIOR TO INSTALLATION. VALVES AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.
- E. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.
- F. ROUTE ALL PIPING IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.
- G. PIPING CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.
- H. ALL VALVES TO BE INSTALLED IN ACCESSIBLE LOCATIONS. PROVIDE ACCESS DOORS AS REQUIRED.
- I. BUILDING 4" OR LARGER SANITARY MAIN AND SEWER PIPING SHALL SLOPE AT A MINIMUM 1/8" PER FOOT SLOPE OR GREATER. 3" AND SMALLER PIPING SHALL SLOPE AT A MINIMUM OF 1/4" PER FOOT SLOPE OR GREATER.
- J. ALL PIPING IN AREAS WITH CEILINGS TO BE INSTALLED CONCEALED FROM VIEW UNLESS NOTED OTHERWISE.
- K. COORDINATE ROOF PENETRATIONS WITH ROOFING CONTRACTOR.
- L. REFER TO SANITARY AND VENT RISER DIAGRAMS AND PLUMBING FIXTURE SCHEDULES FOR PIPING AND SIZES NOT SHOWN.
- M. DASHED LINES AROUND EQUIPMENT INDICATE MINIMUM REQUIRED SERVICE CLEARANCE AND FILTER PULL. DO NOT INSTALL HVAC, PIPING, AND ELECTRICAL ITEMS IN THESE AREAS.
- N. ROUGH-IN REQUIREMENTS FOR ALL EQUIPMENT "BY OWNER" SHALL BE VERIFIED WITH OWNER BEFORE INSTALLATION.
- O. FIELD VERIFY EXISTING SANITARY PIPING TO BE REUSED PRIOR TO CONNECTION OF NEW FIXTURES. NOTIFY OWNER IF PIPES CONTAIN EXCESSIVE SEDIMENT BUILD-UP.
- P. PROVIDE WATER HAMMER ARRESTORS ON EACH BRANCH PIPE SERVING A PLUMBING FIXTURE, OR FIXTURE GROUP, ACCORDING TO PD-WH 201 AND DETAIL ON SHEET M-5.1. PROVIDE ACCESS DOOR AS NEEDED FOR MAINTENANCE.
- Q. SUPPORT PIPING ON ROOF USING C-SERIES RUBBER SUPPORT BLOCKS WITH STRUT BY C-PORT OR EQUAL.
- R. EQUIPMENT ON ROOF SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM EDGE OF ROOF.
- S. PLUMBING VENTS AND EXHAUST OUTLETS SHALL BE INSTALLED A MINIMUM OF 10 FEET FROM OUTSIDE AIR INTAKES.
- T. REFER TO "M" SHEETS FOR DETAILS, LEGEND, AND SCHEDULES.

SHEET KEYNOTES

1. 3/4" RPZ BACKFLOW PREVENTER FOR COOLING TOWER MAKE-UP WATER.
2. ROUTE 2" BLOWDOWN PIPING FROM COOLING TOWER TO EXISTING SUMP.
3. BUILDING WATER SERVICE CONNECTED TO EXISTING WATER METER. SEE DETAIL ON SHEET M-5.1.
4. ROUTE CONDENSATE PIPING TO FLOOR DRAIN NORTH OF THIS ROOM.
5. ROUTE FULL-SIZE CONDENSATE DRAIN FROM EQUIPMENT TO FLOOR SINK.
6. PROVIDE DRIP PAN UNDER PIPING IN ELECTRICAL ROOM. ROUTE FULL-SIZE DRAIN PIPE TO EXISTING SUMP ON OTHER SIDE OF WEST WALL.
7. ELECTRICAL PANEL.

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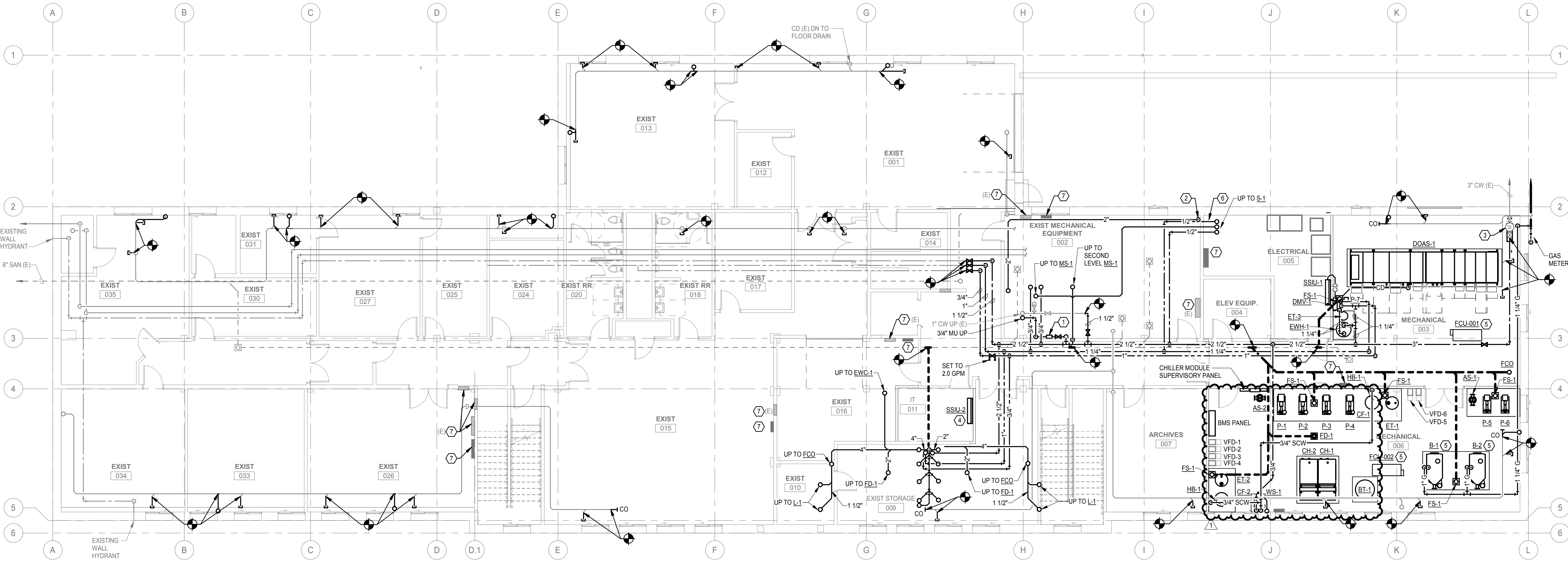
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PLUMBING PLAN -
LOWER LEVEL

NORTH



P1.0



1 PLUMBING PLAN - LOWER LEVEL
1/8" = 1'-0"

BEING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.

B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-0" OR TOP OF PANEL, AS PER CODE REQUIREMENTS.

C. COORDINATE UNDERGROUND PIPING WITH STRUCTURAL FOOTINGS, SITE UTILITIES, AND EXISTING UNDERGROUND UTILITIES. VERIFY LOCATION OF ALL UTILITIES AND EXACT DIMENSIONS DURING BIDDING PORTION OF PROJECT. NOTIFY ANY DISCREPANCY OR INTERFERENCE TO ENGINEER.

D. UNLESS NOTED/SHOWN OTHERWISE, ALL PIPING SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN PIPES UP IN CLOSE PROXIMITY TO STRUCTURE WHERE FEASIBLE. COORDINATE WITH ELECTRICAL AND HVAC CONTRACTORS PRIOR TO INSTALLATION. VALVES AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.

E. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND MAINTENANCE. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED BELOW EQUIPMENT. PROVIDE MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.

F. ROUTE ALL PIPING IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.

G. PIPING CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING ALL PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR FLOOR SEPARATION LOCATIONS.

H. ALL VALVES TO BE INSTALLED IN ACCESSIBLE LOCATIONS. PROVIDE ACCESS DOORS AS REQUIRED.

I. BUILDING 4" OR LARGER SANITARY MAIN AND SEWER PIPING SHALL PROVIDE A MINIMUM OF 8'-0" CLEARANCE OR GREATER. 3" AND SMALLER PIPING SHALL SLOPE AT A MINIMUM OF 1/4" PER FOOT SLOPE OR GREATER.

J. ALL PIPING IN AREAS WITH CEILINGS TO BE INSTALLED CONCEALED FROM VIEW UNLESS NOTED OTHERWISE.

K. COORDINATE ROOF PENETRATIONS WITH ROOFING CONTRACTOR.

L. REFER TO SANITARY AND VENT RISER DIAGRAMS AND PLUMBING FIXTURE SCHEDULES FOR PIPING AND SIZES NOT SHOWN.

M. DASHED LINES AROUND EQUIPMENT INDICATE MINIMUM REQUIRED SERVICE CLEARANCE AND FILTER PULL. DO NOT INSTALL HVAC, PIPING, AND ELECTRICAL ITEMS IN THESE AREAS.

N. ROUGH-IN REQUIREMENTS FOR ALL EQUIPMENT "BY OWNER" SHALL BE VERIFIED WITH OWNER BEFORE INSTALLATION.

O. FIELD VERIFY EXISTING SANITARY PIPING TO BE REUSED PRIOR TO CONNECTION OF NEW FIXTURES. NOTIFY OWNER IF PIPES CONTAIN EXCESSIVE SEDIMENT BUILD-UP.

P. PROVIDE WATER HAMMER ARRESTORS ON EACH BRANCH PIPE SERVING A WATER FIXTURE GROUP, ACCORDING TO PDHWH-201 AND DETAIL ON SHEET M-5.1. PROVIDE ACCESS DOOR AS NEEDED FOR MAINTENANCE.

Q. SUPPORT PIPING ON ROOF USING C-SERIES RUBBER SUPPORT BLOCKS WITH STRUT BY C-PORT OR EQUAL.

R. EQUIPMENT ON ROOF SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM EDGE OF ROOF.

S. PLUMBING VENTS AND EXHAUST OUTLETS SHALL BE INSTALLED A MINIMUM OF 10 FEET FROM OUTSIDE AIR INTAKES.

T. REFER TO "M" SHEETS FOR DETAILS, LEGEND, AND SCHEDULES.

1. PROVIDE CLEANOUT PLUG AT 24" AFF.
2. INSTALL PLUMBING CHASE STACKED VERTICALLY AND TIGHT TO WALL OR CEILING WHENEVER POSSIBLE TO ALLOW EASY ACCESS FOR MAINTENANCE STAFF TO PLUMBING CHASE. PLUMBING SHOWN SPACED OUT FOR CLARITY.
3. ROUTE FULL-SIZE CONDENSATE DRAIN PIPING DOWN TO FLOOR DRAIN OR LOWER LEVEL.
4. ALL NEW CONDENSATE PIPING SHALL BE 1-1/4" UP SIZE EXISTING PIPING 1-1/4" TO MATCH NEW PIPING AS REQUIRED.
5. ELECTRICAL PANEL.

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	09/12/2024	Addendum 2

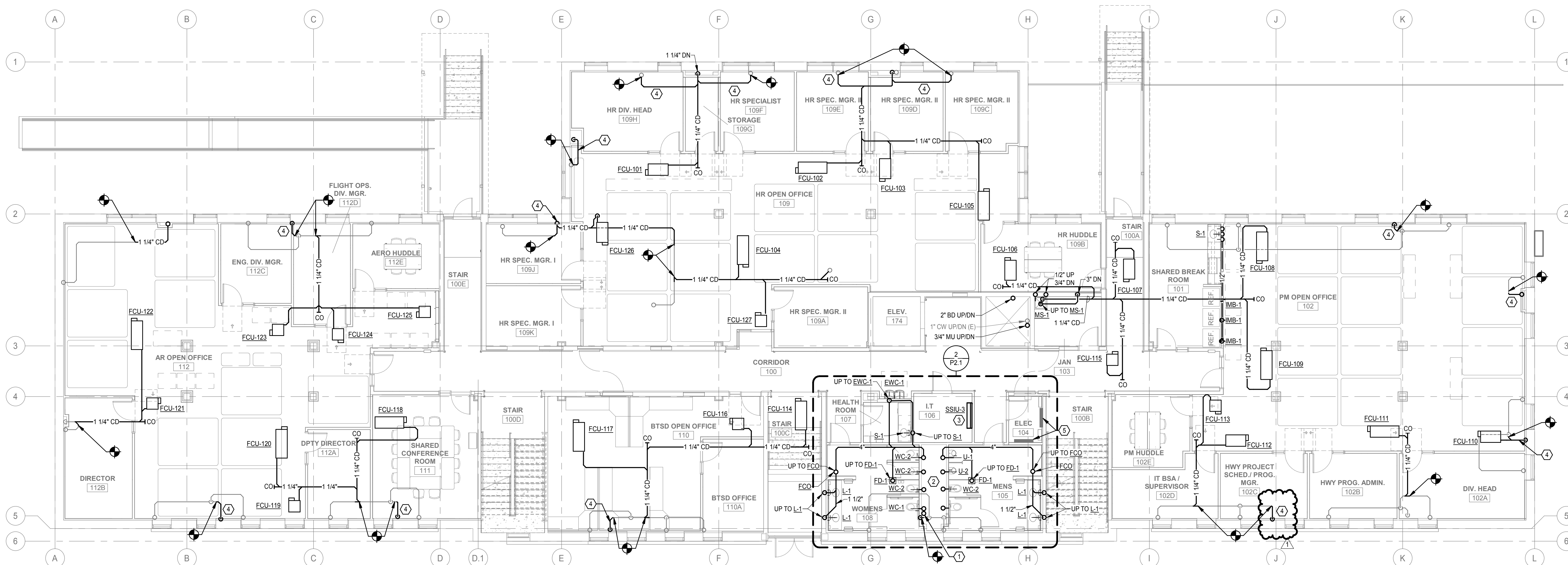
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PLUMBING PLAN - FIRST FLOOR

NORTH

P1.1



1 PLUMBING PLAN - FIRST FLOOR

GENERAL SHEET NOTES

- A. BUILDING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK SHOWN WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-0" OR TOP OF PANEL AS PER CODE REQUIREMENTS.
- C. COORDINATE UNDERGROUND PIPING WITH STRUCTURAL FOOTINGS, SITE UTILITIES SERVICES, AND BUILDING SERVICES. FIELD VERIFY LOCATION OF ALL UTILITIES AND EXACT DIMENSIONS DURING BIDDING PORTION OF PROJECT. NOTIFY ANY DISCREPANCY OR INTERFERENCE TO ENGINEER.
- D. UNLESS NOTED/SHOWN OTHERWISE, ALL PIPING SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN PIPES UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL AND HVAC CONTRACTORS PRIOR TO INSTALLATION. VALVES AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.
- E. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.
- F. ROUTE ALL PIPING IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.
- G. PIPING CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.
- H. ALL VALVES TO BE INSTALLED IN ACCESSIBLE LOCATIONS. PROVIDE ACCESS DOORS AS REQUIRED.
- I. BUILDING 4" OR LARGER SANITARY MAIN AND SEWER PIPING SHALL SLOPE AT A MINIMUM 1/8" PER FOOT SLOPE OR GREATER. 3" AND SMALLER PIPING SHALL SLOPE AT A MINIMUM OF 1/4" PER FOOT SLOPE OR GREATER.
- J. ALL PIPING IN AREAS WITH CEILINGS TO BE INSTALLED CONCEALED FROM VIEW UNLESS NOTED OTHERWISE.
- K. COORDINATE ROOF PENETRATIONS WITH ROOFING CONTRACTOR.
- L. REFER TO SANITARY AND VENT RISER DIAGRAMS AND PLUMBING FIXTURE SCHEDULES FOR PIPING AND SIZES NOT SHOWN.
- M. DASHED LINES AROUND EQUIPMENT INDICATE MINIMUM REQUIRED SERVICE CLEARANCE AND FILTER PULL. DO NOT INSTALL HVAC, PIPING, AND ELECTRICAL ITEMS IN THESE AREAS.
- N. ROUGH-IN REQUIREMENTS FOR ALL EQUIPMENT "BY OWNER" SHALL BE VERIFIED WITH OWNER BEFORE INSTALLATION.
- O. FIELD VERIFY EXISTING SANITARY PIPING TO BE REUSED PRIOR TO CONNECTION OF NEW FIXTURES. NOTIFY OWNER IF PIPES CONTAIN EXCESSIVE SEDIMENT BUILD-UP.
- P. PROVIDE WATER HAMMER ARRESTORS ON EACH BRANCH PIPE SERVING A PLUMBING FIXTURE, OR FIXTURE GROUP, ACCORDING TO PD-WH 201 AND DETAIL ON SHEET M-5.1. PROVIDE ACCESS DOOR AS NEEDED FOR MAINTENANCE.
- Q. SUPPORT PIPING ON ROOF USING C-SERIES RUBBER SUPPORT BLOCKS WITH STRUT BY C-PORT OR EQUAL.
- R. EQUIPMENT ON ROOF SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM EDGE OF ROOF.
- S. PLUMBING VENTS AND EXHAUST OUTLETS SHALL BE INSTALLED A MINIMUM OF 10 FEET FROM OUTSIDE AIR INTAKES.
- T. REFER TO "M" SHEETS FOR DETAILS, LEGEND, AND SCHEDULES.

SHEET KEYNOTES

1. INSTALL PIPING IN PLUMBING CHASE STACKED VERTICALLY AND TIGHT TO WALL OR CEILING WHENEVER POSSIBLE TO ALLOW EASY ACCESS FOR MAINTENANCE STAFF TO PLUMBING CHASE. PLUMBING SHOWN SPACED OUT FOR CLARITY.
2. TERMINATE CONDENSATE DRAIN PIPING INTO MOP SINK.
3. ELECTRICAL PANEL.

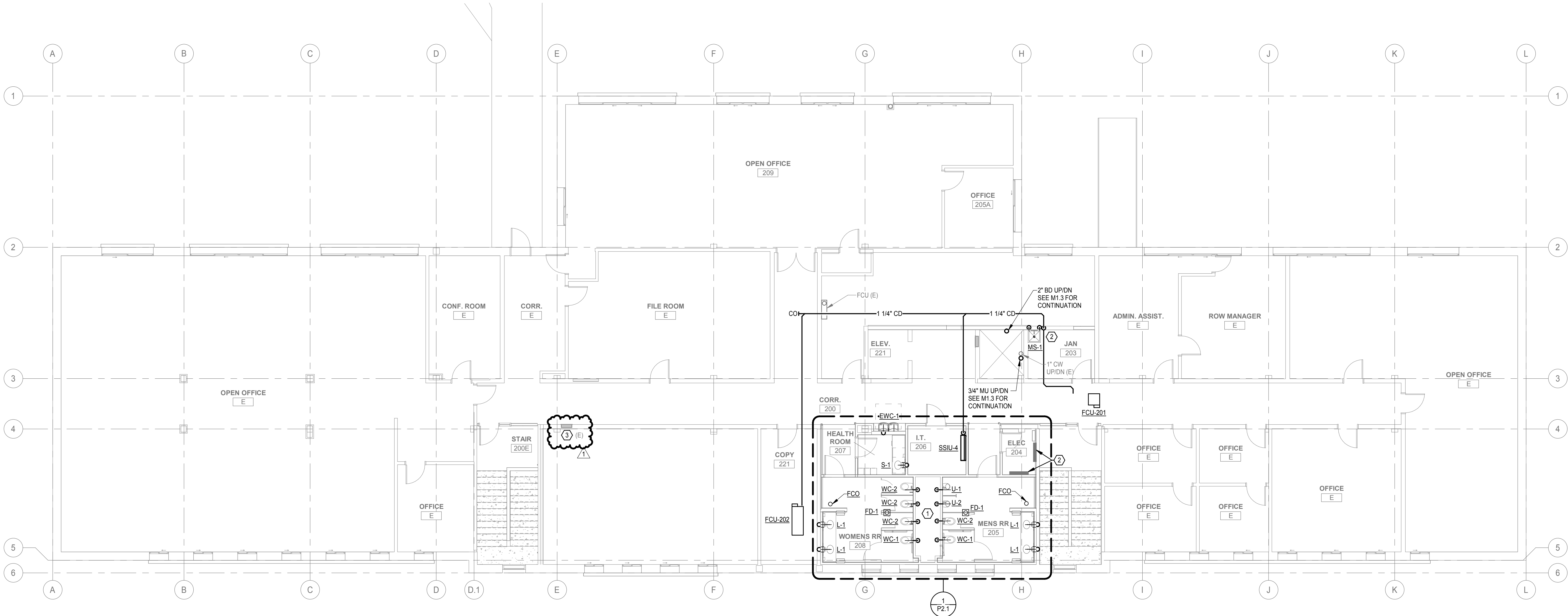
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PLUMBING PLAN -
SECOND FLOOR

NORTH



1 PLUMBING PLAN - SECOND FLOOR
1/8" = 1'-0"

GENERAL SHEET NOTES

- A. BUILDING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK SHOWN WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-0" OR TOP OF PANEL AS PER CODE REQUIREMENTS.
- C. UNLESS NOTED/SHOWN OTHERWISE, ALL DUCTWORK SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN DUCTS UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL, FIRE SPRINKLER, AND PLUMBING CONTRACTORS PRIOR TO INSTALLATION. DAMPERS AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.
- D. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW, AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.
- E. ROUTE ALL PIPING AND DUCT IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF DUCT, PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.
- F. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.
- G. ALL DUCT FITTINGS WHERE TURN IS GREATER THAN 30-DEGREES SHALL BE PROVIDED WITH TURNING VANES UNLESS NOTED OTHERWISE.
- H. PROVIDE A MASONRY WALL LINTEL AT ALL BLOCK OR BRICK WALL PENETRATIONS WIDER THAN 12".
- I. ALL SUPPLY AIR DEVICES SHALL BE INSTALLED WITH MANUAL BALANCING DAMPERS. DAMPER SHALL BE FITTED WITH QUADRANT CONTROL WITH STANDOFF TO EXTEND THRU INSULATION. DAMPERS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.
- J. NEW THERMOSTATS AND SENSORS SHALL BE LOCATED ON WALL NEAR LOCATION SHOWN. LOCATE ON WALL WITH CENTER AT 3'-8" A.F.F. TO CENTER OF T-STAT (MATCHING LIGHT SWITCH HEIGHT). REUSE EXISTING THERMOSTAT ROUGH-INS IN EXISTING BUILDING IF POSSIBLE. WHERE NOT POSSIBLE, WIRES SHALL BE LOCATED INSIDE EXISTING WALL. IF WALL IS LOAD BEARING OR WILL NOT ALLOW WIRE DOWN INSIDE, CONTRACTOR SHALL MOUNT SENSOR IN WIRE MOLD. VERIFY WIRE MOLD INSTALLATIONS WITH ENGINEER PRIOR TO INSTALLATION. CONTRACTOR MAY ROUTE WIRE IN CONDUIT EXPOSED IN STORAGE AREAS WHERE POSSIBLE.
- K. DO NOT HANG DUCTWORK OR PIPING DIRECTLY FROM ROOF DECKING.
- L. DASHED LINES AROUND EQUIPMENT INDICATE CLEARANCE FOR HYDRONIC PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, FILTER PULL, AND MINIMUM REQUIRED SERVICE CLEARANCES. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO INSTALLATION IF SPACE ALLOCATED FOR THE RESPECTIVE WORK CANNOT BE INSTALLED AS INDICATED.
- M. USE CEILING DIFFUSER INLET BOX (SEE DETAIL ON SHEET M5.2) WHERE EXISTING CONDITIONS WILL NOT ALLOW A ROUND ELBOW DOWN TO DIFFUSER.
- N. ALL CEILING DIFFUSERS SHALL HAVE A MINIMUM 2'-0" LENGTH OF FLEXIBLE DUCT FOR SOUND DAMPENING. DO NOT USE FLEX DUCT TO CHANGE DIRECTION.
- O. INSTALL ALL MINI-SPLIT UNITS HIGH ENOUGH TO ALLOW FOR CONDENSATE PIPING TO BE CONCEALED ABOVE THE CEILING OF ADJACENT ROOMS AS ROUTED.
- P. KEEP ALL DUCT OPENINGS AND AIR DEVICES COVERED AIR-TIGHT UNTIL ALL DUST CREATING ACTIVITY HAS BEEN FINISHED AND EQUIPMENT IS READY FOR START-UP.
- Q. EQUIPMENT ON ROOF SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM EDGE OF ROOF.
- R. PNEUMATIC CONTROL TUBING FOR RELOCATED MECHANICAL EQUIPMENT SHALL BE REROUTED THROUGH BUILDING. COORDINATE WITH REROUTED CHILLED WATER AND DRAIN PIPING. COORDINATE REROUTED TUBING WITH NEW WINDOW WELLS.

SHEET KEYNOTES

1. RELOCATED THERMOSTAT AND SPEED CONTROLLER FOR FAN COIL UNIT IN ARCHIVES 007. PROVIDE NEW CONDUIT AND WIRING FOR SENSORS. SEE SHEET MD1.0 FOR PREVIOUS LOCATION.
2. ELECTRICAL PANEL.
3. ROUTE AND SIZE VENT AND COMBUSTION AIR PIPING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. MAINTAIN MINIMUM OF 10'-2" BETWEEN VENT AND COMBUSTION AIR PIPING.

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1	09/12/2024	Addendum 2

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RENOVATION

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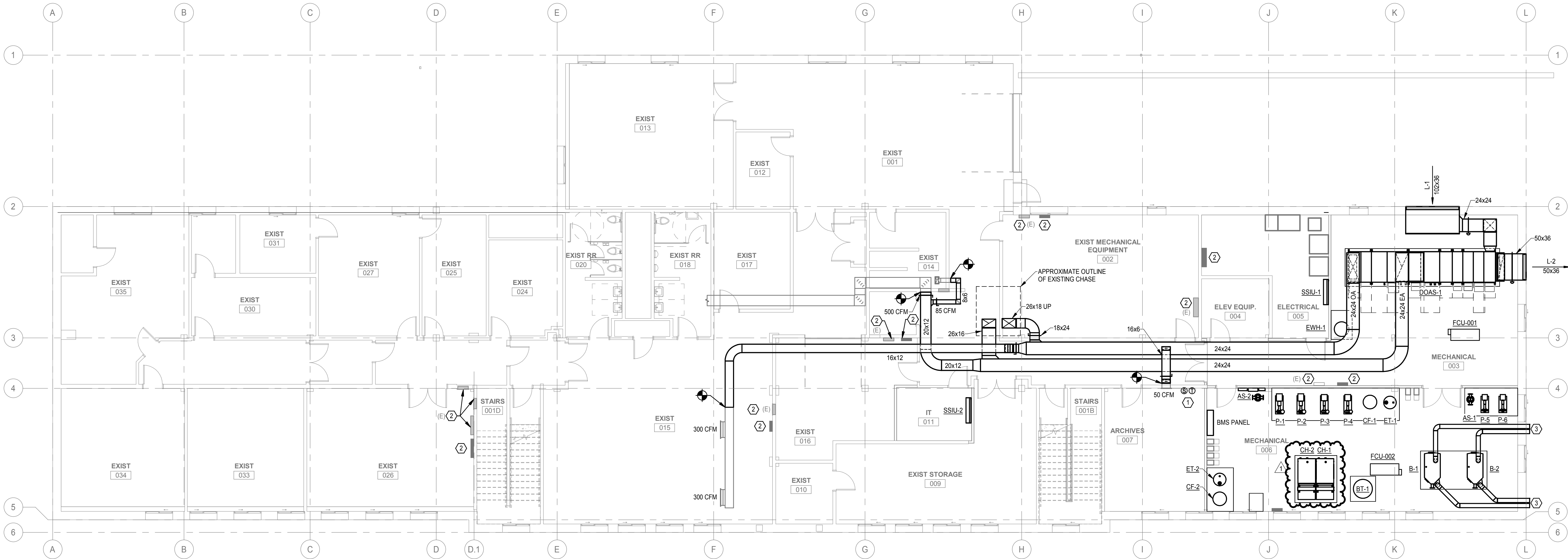
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HVAC PLAN - LOWER
LEVEL

NORTH



M1.0



GENERAL SHEET NOTES

- A. BUILDING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK SHOWN WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-0" OR TOP OF PANEL AS PER CODE REQUIREMENTS.
- C. UNLESS NOTED/SHOWN OTHERWISE, ALL DUCTWORK SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN DUCTS UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL, FIRE SPRINKLER, AND PLUMBING CONTRACTORS PRIOR TO INSTALLATION. DAMPERS AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.
- D. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW, AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.
- E. ROUTE ALL PIPING AND DUCT IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF DUCT, PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.
- F. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.
- G. ALL DUCT FITTINGS WHERE TURN IS GREATER THAN 30-DEGREES SHALL BE PROVIDED WITH TURNING VANES UNLESS NOTED OTHERWISE.
- H. PROVIDE A MASONRY WALL LINTEL AT ALL BLOCK OR BRICK WALL PENETRATIONS WIDER THAN 12".
- I. ALL SUPPLY AIR DEVICES SHALL BE INSTALLED WITH MANUAL BALANCING DAMPERS. DAMPER SHALL BE FITTED WITH QUADRANT CONTROL WITH STANDOFF TO EXTEND THRU INSULATION. DAMPERS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.
- J. NEW THERMOSTATS AND SENSORS SHALL BE LOCATED ON WALL NEAR LOCATION SHOWN. LOCATE ON WALL WITH CENTER AT 3'-8" A.F.F. TO CENTER OF T-STAT (MATCHING LIGHT SWITCH HEIGHT). REUSE EXISTING THERMOSTAT ROUGH-INS IN EXISTING BUILDING IF POSSIBLE. WHERE NOT POSSIBLE, WIRES SHALL BE LOCATED INSIDE EXISTING WALL. IF WALL IS LOAD BEARING OR WILL NOT ALLOW WIRE DOWN INSIDE, CONTRACTOR SHALL MOUNT SENSOR IN WIRE MOLD. VERIFY WIRE MOLD INSTALLATIONS WITH ENGINEER PRIOR TO INSTALLATION. CONTRACTOR MAY ROUTE WIRE IN CONDUIT EXPOSED IN STORAGE AREAS WHERE POSSIBLE.
- K. DO NOT HANG DUCTWORK OR PIPING DIRECTLY FROM ROOF DECKING.
- L. DASHED LINES AROUND EQUIPMENT INDICATE CLEARANCE FOR HYDRONIC PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, FILTER PULL, AND MINIMUM REQUIRED SERVICE CLEARANCES. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO INSTALLATION IF SPACE ALLOCATED FOR THE RESPECTIVE WORK CANNOT BE INSTALLED AS INDICATED.
- M. USE CEILING DIFFUSER INLET BOX (SEE DETAIL ON SHEET M5.2) WHERE EXISTING CONDITIONS WILL NOT ALLOW A ROUND ELBOW DOWN TO DIFFUSER.
- N. ALL CEILING DIFFUSERS SHALL HAVE A MINIMUM 2'-0" LENGTH OF FLEXIBLE DUCT FOR SOUND DAMPENING. DO NOT USE FLEX DUCT TO CHANGE DIRECTION.
- O. INSTALL ALL MINI-SPLIT UNITS HIGH ENOUGH TO ALLOW FOR CONDENSATE PIPING TO BE CONCEALED ABOVE THE CEILING OR ADJACENT ROOMS AS ROUTED.
- P. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING PENETRATIONS THROUGH EXISTING WALLS AND FLOORS FOR ROUTING.
- Q. KEEP ALL DUCT OPENINGS AND AIR DEVICES COVERED AIR-TIGHT UNTIL ALL DUST CREATING ACTIVITY HAS BEEN FINISHED AND EQUIPMENT IS READY FOR START-UP.
- R. EQUIPMENT ON ROOF SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM EDGE OF ROOF.
- S. PNEUMATIC CONTROL TUBING FOR RELOCATED MECHANICAL EQUIPMENT SHALL BE REROUTED THROUGH BUILDING. COORDINATE WITH REROUTED CHILLED WATER AND DRAIN PIPING. COORDINATE REROUTED TUBING WITH NEW WINDOW WELLS.

SHEET KEYNOTES

1. PROVIDE 30" PLENUM BEHIND FAN COIL INTAKE. MATCH PLENUM TO RA OPENING SIZE OF FAN COIL. ALLOW FILTER ACCESS TO UNITS. PROVIDE A MINIMUM 48" BRANCH OF RA DUCT SIZED AS SHOWN ON SIDE OF PLENUM. PROVIDE A FULL SIZE OPENING ON TOP AT END OF BRANCH DUCT. ALL RETURN AIR DUCT SHALL BE LINED (SEE SPECIFICATIONS).
2. ELECTRICAL PANEL.
3. OPEN ENDED DUCT IN PLENUM SPACE.

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NDOT 1600 OFFICE RENOVATION

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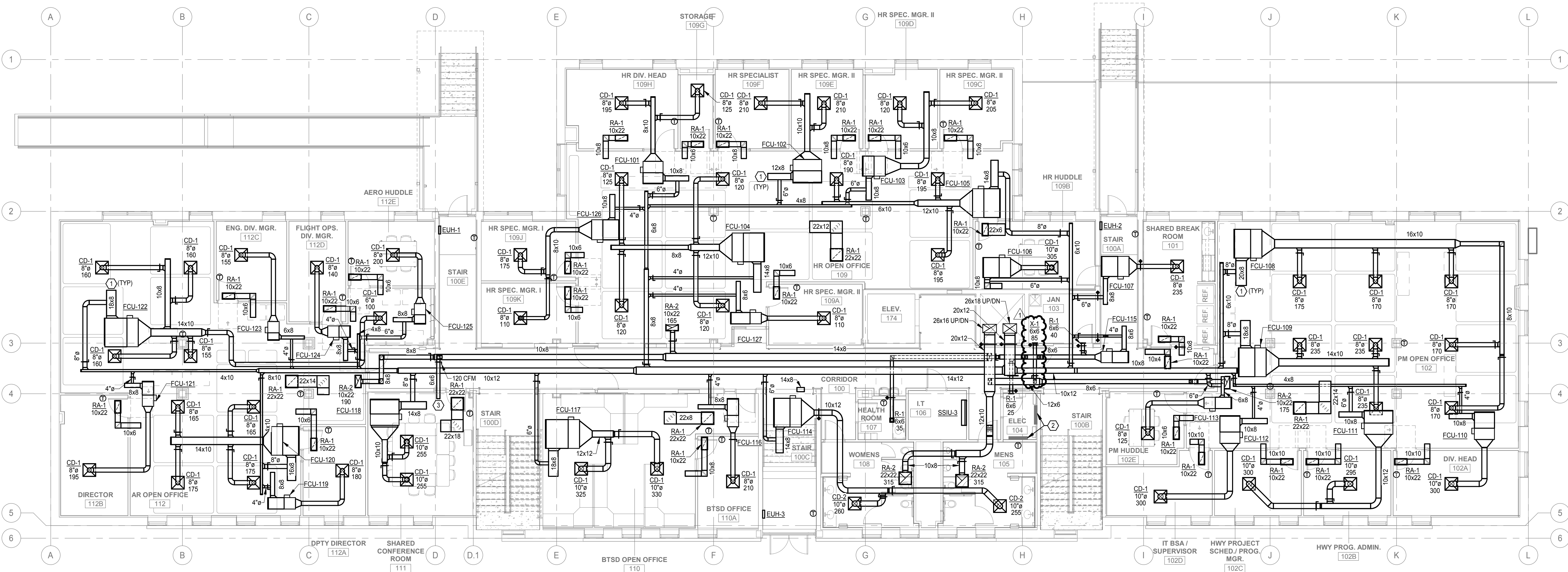
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HVAC PLAN - FIRST FLOOR

NORTH



M1.1



GENERAL SHEET NOTES

- A. BUILDING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK SHOWN WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-0" OR TOP OF PANEL AS PER CODE REQUIREMENTS.
- C. UNLESS NOTED/SHOWN OTHERWISE, ALL DUCTWORK SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN DUCTS UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL, FIRE SPRINKLER, AND PLUMBING CONTRACTORS PRIOR TO INSTALLATION. DAMPERS AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.
- D. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW, AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.
- E. ROUTE ALL PIPING AND DUCT IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF DUCT, PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.
- F. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.
- G. ALL DUCT FITTINGS WHERE TURN IS GREATER THAN 30-DEGREES SHALL BE PROVIDED WITH TURNING VANES UNLESS NOTED OTHERWISE.
- H. PROVIDE A MASONRY WALL LINTEL AT ALL BLOCK OR BRICK WALL PENETRATIONS WIDER THAN 12".
- I. ALL SUPPLY AIR DEVICES SHALL BE INSTALLED WITH MANUAL BALANCING DAMPERS. DAMPER SHALL BE FITTED WITH QUADRANT CONTROL WITH STANDOFF TO EXTEND THRU INSULATION. DAMPERS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.
- J. NEW THERMOSTATS AND SENSORS SHALL BE LOCATED ON WALL NEAR LOCATION SHOWN. LOCATE ON WALL WITH CENTER AT 3'-8" A.F.F. TO CENTER OF T-STAT (MATCHING LIGHT SWITCH HEIGHT). REUSE EXISTING THERMOSTAT ROUGH-INS IN EXISTING BUILDING IF POSSIBLE. WHERE NOT POSSIBLE, WIRES SHALL BE LOCATED INSIDE EXISTING WALL. IF WALL IS LOAD BEARING OR WILL NOT ALLOW WIRE DOWN INSIDE, CONTRACTOR SHALL MOUNT SENSOR IN WIRE MOLD. VERIFY WIRE MOLD INSTALLATIONS WITH ENGINEER PRIOR TO INSTALLATION. CONTRACTOR MAY ROUTE WIRE IN CONDUIT EXPOSED IN STORAGE AREAS WHERE POSSIBLE.
- K. DO NOT HANG DUCTWORK OR PIPING DIRECTLY FROM ROOF DECKING.
- L. DASHED LINES AROUND EQUIPMENT INDICATE CLEARANCE FOR HYDRONIC PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, FILTER PULL, AND MINIMUM REQUIRED SERVICE CLEARANCES. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO INSTALLATION IF SPACE ALLOCATED FOR THE RESPECTIVE WORK CANNOT BE INSTALLED AS INDICATED.
- M. USE CEILING DIFFUSER INLET BOX (SEE DETAIL ON SHEET M5.2) WHERE EXISTING CONDITIONS WILL NOT ALLOW A ROUND ELBOW DOWN TO DIFFUSER.
- N. ALL CEILING DIFFUSERS SHALL HAVE A MINIMUM 2'-0" LENGTH OF FLEXIBLE DUCT FOR SOUND DAMPENING. DO NOT USE FLEX DUCT TO CHANGE DIRECTION.
- O. INSTALL ALL MINI-SPLIT UNITS HIGH ENOUGH TO ALLOW FOR CONDENSATE PIPING TO BE CONCEALED ABOVE THE CEILING OR ADJACENT ROOMS AS ROUTED.
- P. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING PENETRATIONS THROUGH EXISTING WALLS AND FLOORS FOR ROUTING.
- Q. KEEP ALL DUCT OPENINGS AND AIR DEVICES COVERED AIR-TIGHT UNTIL ALL DUST CREATING ACTIVITY HAS BEEN FINISHED AND EQUIPMENT IS READY FOR START-UP.
- R. EQUIPMENT ON ROOF SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM EDGE OF ROOF.
- S. PNEUMATIC CONTROL TUBING FOR RELOCATED MECHANICAL EQUIPMENT SHALL BE REROUTED THROUGH BUILDING. COORDINATE WITH REROUTED CHILLED WATER AND DRAIN PIPING. COORDINATE REROUTED TUBING WITH NEW WINDOW WELLS.

SHEET KEYNOTES

1. ELECTRICAL PANEL.
2. RE-BALANCE EXISTING AIR DEVICE TO CFM SHOWN.
3. PROVIDE 30" PLENUM BEHIND FAN COIL INTAKE. MATCH PLENUM TO RA OPENING SIZE OF FAN COIL. ALLOW FILTER ACCESS TO UNITS. PROVIDE A MINIMUM 48" BRANCH OF RA DUCT SIZED AS SHOWN ON SIDE OF PLENUM. PROVIDE A FULL SIZE OPENING ON TOP AT END OF BRANCH DUCT. ALL RETURN AIR DUCT SHALL BE LINED (SEE SPECIFICATIONS).

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1	09/12/2024	Addendum 2

NDOT 1600 OFFICE
RENOVATION

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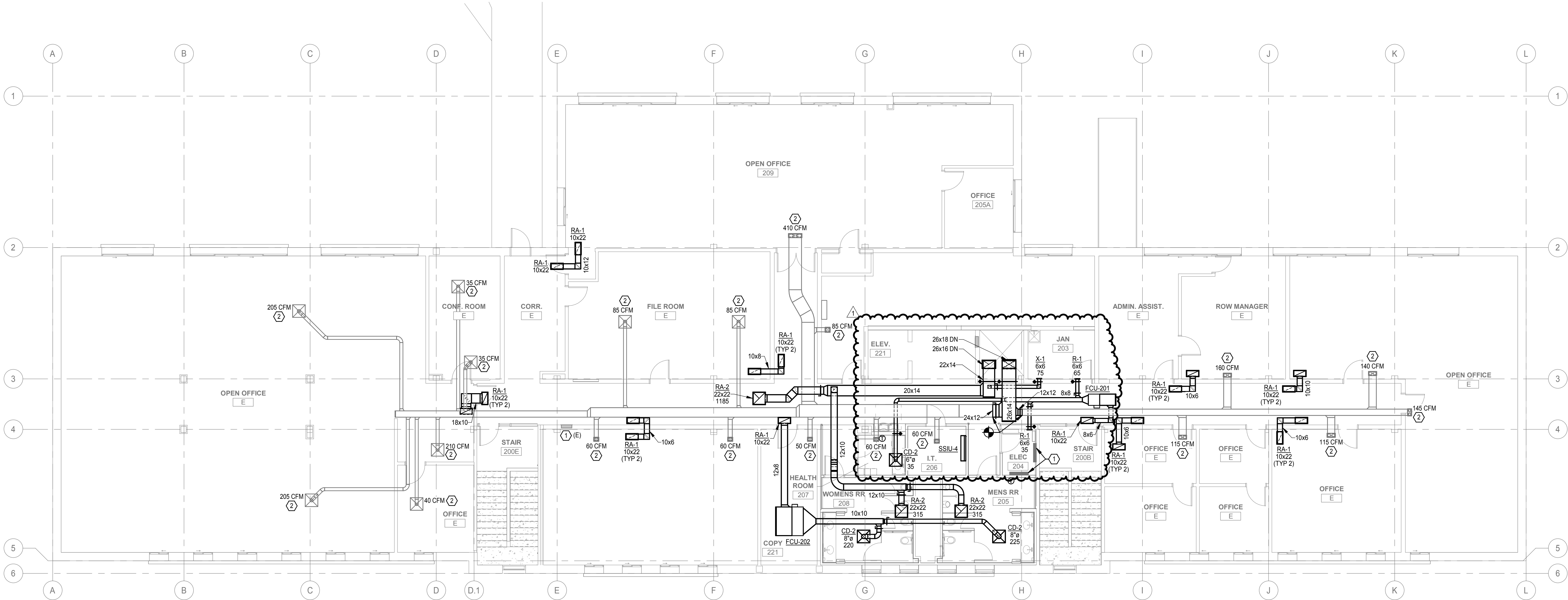
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HVAC PLAN - SECOND
FLOOR

NORTH



M1.2



1 HVAC PLAN - SECOND FLOOR

1/8" = 1'-0"

GENERAL SHEET NOTES

- A. BUILDING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK SHOWN WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS.
- C. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING PENETRATIONS THROUGH EXISTING WALLS AND FLOORS FOR ROUTING.
- E. EQUIPMENT ON ROOF SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM EDGE OF ROOF.
- F. SUPPORT PIPING ON ROOF USING C-SERIES RUBBER SUPPORT BLOCKS WITH STRUT BY C-PORT OR EQUAL.

SHEET KEYNOTES

1. PROVIDE 120V SELF-REGULATING HEAT TRACE CABLE (CHROMALOX OR EQUAL) PROVIDING 5.0 W/FT FOR FREEZE PROTECTION OF EXTERIOR PIPING SHOWN. CABLE SHALL BE ROUTED 45° BELOW HORIZONTAL. PROVIDE WITH ALL ACCESSORIES NEEDED INCLUDING MODEL DTS-HAZ DIGITAL THERMOSTAT AND RTD. COVER PIPING AND HEAT TRACE CABLE WITH 2" RIGID CELLULAR GLASS INSULATION AND POLYGUARD 'ALUMAGUARD' FLEXIBLE WEATHER-PROOFING JACKET.
2. BLOWDOWN VALVE FURNISHED BY COOLING TOWER MANUFACTURER AND INSTALLED BY CONTRACTOR. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
3. PROVIDE 120V SELF-REGULATING HEAT TRACE CABLE (CHROMALOX OR EQUAL) PROVIDING 15.0 W/FT FOR FREEZE PROTECTION OF EXTERIOR PIPING SHOWN. CABLE SHALL BE ROUTED 45° BELOW HORIZONTAL. PROVIDE WITH ALL ACCESSORIES NEEDED INCLUDING MODEL DTS-HAZ DIGITAL THERMOSTAT AND RTD. COVER PIPING AND HEAT TRACE CABLE WITH 2" RIGID CELLULAR GLASS INSULATION AND POLYGUARD 'ALUMAGUARD' FLEXIBLE WEATHER-PROOFING JACKET.
4. PROVIDE REFRIGERANT PIPING FROM OUTDOOR UNIT TO RESPECTIVE INDOOR UNIT. COORDINATE WITH OTHER TRADES PRIOR TO ROUTING. PROVIDE ALL REFRIGERANT SPECIALTIES AND LONG LINE SET AS REQUIRED. SIZE AND INSULATE PIPING PER MANUFACTURER'S RECOMMENDATIONS.

REVISIONS SCHEDULE

MARK	DATE	DESCRIPTION
1	09/12/2024	Addendum 2

NDOT 1600 OFFICE
RENOVATION

PROJECT: 23053 DATE: 08/16/2024
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DOCUMENTS

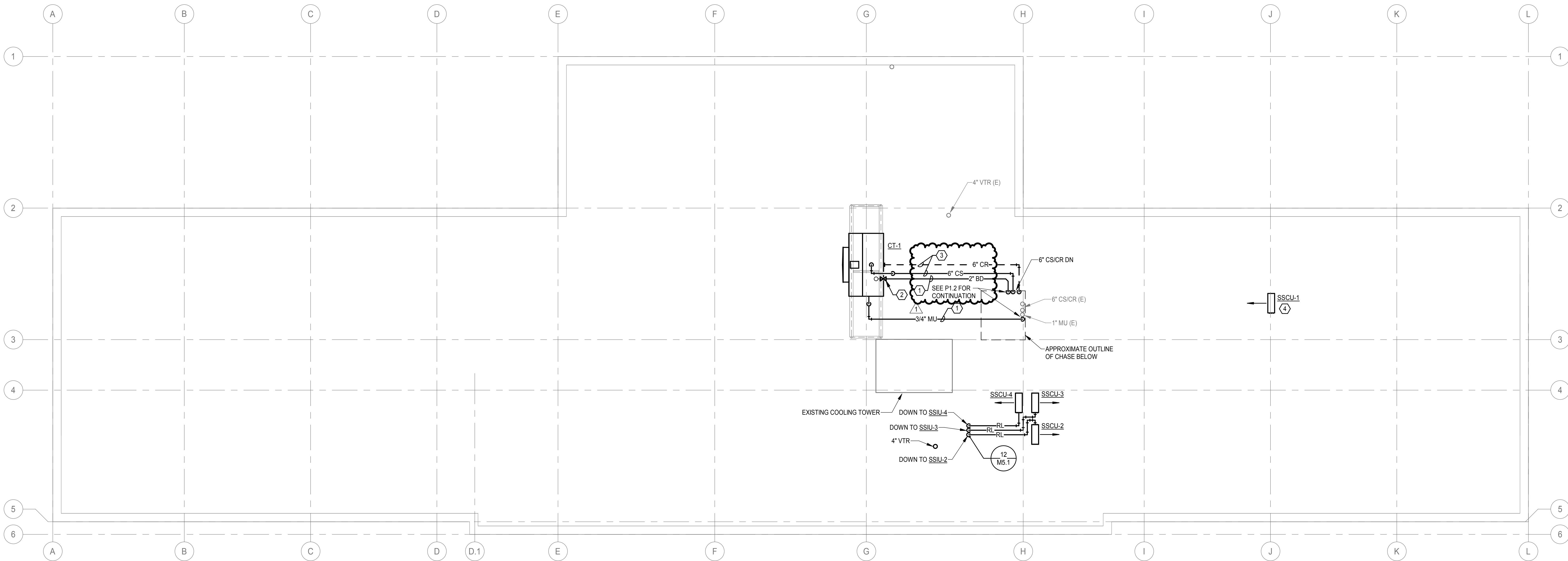
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MECHANICAL AND
PLUMBING PLAN -
ROOF

NORTH



M1.3



1 MECHANICAL AND PLUMBING PLAN - ROOF

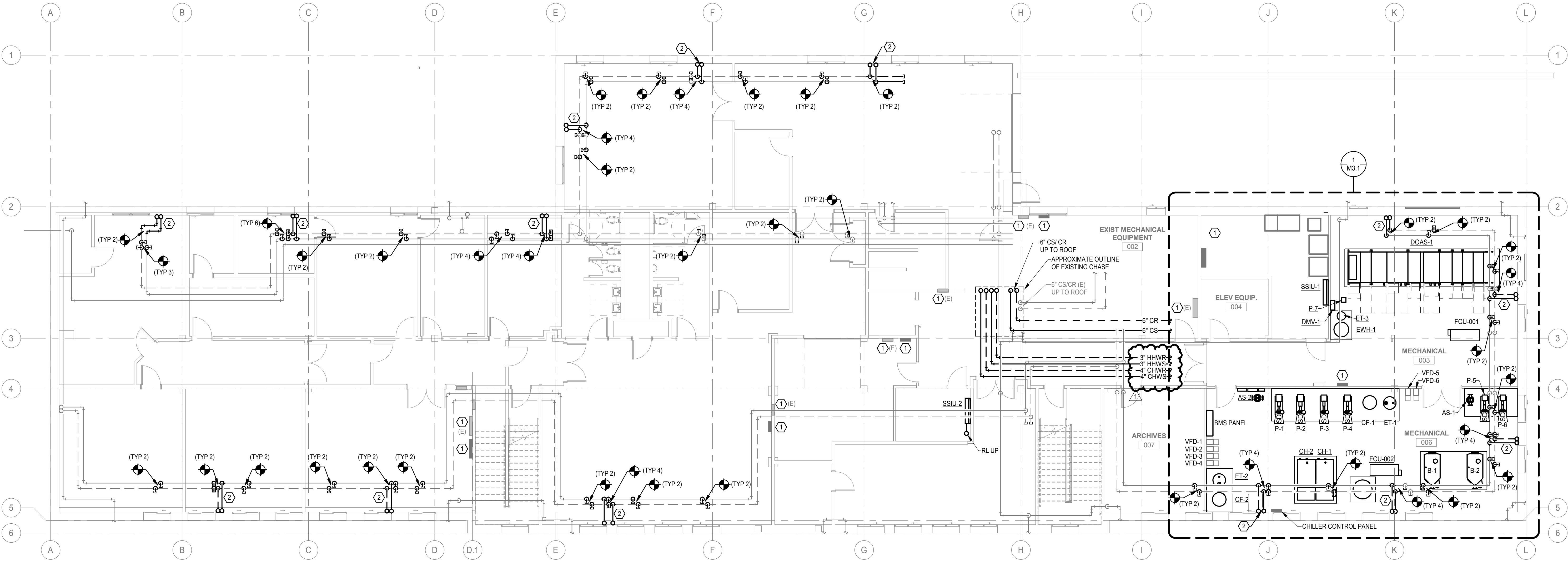
1/8" = 1'-0"

GENERAL SHEET NOTES

- A. BUILDING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF WORK SHOWN WITH PHASING PLAN. SPECIAL CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-6" OR TOP OF PANEL AS PER CODE REQUIREMENTS.
- C. UNLESS NOTED/SHOWN OTHERWISE, ALL PIPING SHALL BE RUN AS HIGH AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN PIPES UP IN JOIST SPACE WHERE INDICATED AND AS REQUIRED. COORDINATE WITH ELECTRICAL, FIRE SPRINKLER, AND HVAC CONTRACTORS PRIOR TO INSTALLATION. VALVES AND OTHER MAINTENANCE ITEMS SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.
- D. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.
- E. ROUTE ALL PIPING IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.
- F. PIPING CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED SEPARATIONS. SEE SPECIFICATIONS FOR FIRE AND SMOKE RATED SEALANTS. COORDINATE WITH ARCHITECTURAL PLANS FOR RATED SEPARATION LOCATIONS.
- G. ALL VALVES AND ACTUATORS TO BE INSTALLED IN ACCESSIBLE LOCATIONS. PROVIDE ACCESS DOORS AS REQUIRED.
- H. ALL PIPING IN AREAS WITH CEILINGS TO BE INSTALLED CONCEALED FROM VIEW UNLESS NOTED OTHERWISE.
- I. DASHED LINES AROUND EQUIPMENT INDICATE CLEARANCE FOR HYDRONIC PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, FILTER PULL, AND MINIMUM REQUIRED SERVICE CLEARANCES. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO INSTALLATION IF SPACE ALLOCATED FOR THE RESPECTIVE WORK CANNOT BE INSTALLED AS INDICATED.
- J. CONTRACTOR TO PRODUCE EXISTING ROOF OR WALL PENETRATIONS AS LARGE AS NEEDED TO PASS FINISHED PIPING THRU ROOF/WALL. CONTRACTOR IS RESPONSIBLE FOR PATCHING EXCESSIVELY LARGE OPENING. ONE INCH CLEARANCE AROUND PIPE AND INSULATION IS EXPECTED TO BE SUFFICIENT. PROVIDE ESCUTOCHRON ON ATTIC SIDE AT ALL PIPES PENETRATING EXISTING METAL ROOF DECK.
- K. PROVIDE PVC JACKET ON ALL EXPOSED INSULATED PIPE EXPOSED IN PUBLIC AREAS.
- L. MINIMUM HYDRONIC PIPE SIZE SHALL BE 3/4".

SHEET KEYNOTES

1. ELECTRICAL PANEL.
2. SIZE TO MATCH EXISTING PIPE.



1 MECHANICAL PIPING PLAN - LOWER LEVEL
1/8" = 1'-0"

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MECHANICAL PIPING
PLAN - LOWER LEVEL

NORTH



M2.0

- A. ALL PIPING TO BE FINISHED IN PHASES AND SHALL BE PARTIALLY OCCUPIED DURING CONSTRUCTION. SEE ARCHITECTURAL PLANS FOR BUILDING PHASING LEGEND AND SCHEDULES. COORDINATE PHASES OF CONSTRUCTION WITH THE PHASES OF THE PROJECT. CASES AND EXCEPTIONS WILL BE NOTED ON THESE PLANS. COORDINATE DELIVERY OF EQUIPMENT AND SCHEDULING WORK AS NEEDED.
- B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM THE TOP OF PANELS TO TOP OF PANELS PER CODE REQUIREMENTS.
- C. UNLESS NOTED/SHOWN OTHERWISE, ALL PIPING SHALL BE RUN AS IS AS POSSIBLE, TIGHT TO STRUCTURE WHERE FEASIBLE. RUN PIPES UP JOIST SPACE THROUGH STRUCTURE AND AS REQUIRED. COORDINATE WITH ELECTRICAL FIRE SPRINKLER, AND HVAC CONTRACTORS PRIOR TO INSTALLING VALVES AND OTHER MAINTENANCE ITEMS THAT SHALL NOT BE INSTALLED HIGHER THAN 2 FEET ABOVE CEILINGS.
- D. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICE. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE NOTED. DO NOT SHOW ON THIS PLAN ANY EQUIPMENT OR SERVICE EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW AND MAINTENANCE AREA AROUND AND ACCESS TO THE FREE END OF THE PIPING. SEE SINGLING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.
- E. ROUTE ALL PIPING IN MECHANICAL ROOMS TO PROVIDE A MINIMUM OF 8'-0" CLEARANCE FROM BOTTOM OF PIPE, INSULATION, OR HANGERS TO FINISHED FLOOR.
- F. PIPING CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SEALING PENETRATIONS THROUGH FIRE RATED AND/OR SMOKE RATED PARTITIONS. SEE SPECIFICATIONS FOR PROPERLY SEALING RATED SEALS. COORDINATE WITH ARCHITECTURAL PLANS THAT RELATE SEPARATION LOCATIONS.
- G. ALL VALVES AND ACTUATORS TO BE INSTALLED IN ACCESSIBLE LOCATIONS. PROVIDE ACCESS DOORS AS REQUIRED.
- H. ALL PIPING IN AREAS WITH CEILINGS TO BE INSTALLED CONCEALED FROM VIEW UNLESS NOTED WITH TIELINE.
- I. DASHED LINES AROUND EQUIPMENT INDICATE CLEARANCE FOR HYDRONIC PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, AND MINOR MECHANICAL CONNECTIONS. THE PIPING CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO INSTALLATION IF SPACE ALLOCATED FOR THE RESPECTIVE WORK CANNOT BE INSTALLED AS SHOWN.
- J. CONTRACTOR TO PROVIDE EXISTING ROOF AND PIPE PENETRATIONS AS REQUIRED TO PASS FINISHED PIPING THROUGH ROOF/WALL. CONTRACTOR IS RESPONSIBLE FOR PATCHING EXCESSIVELY LARGE OPENING. ONE NOH CLEARANCE FOR FLOOD PIPE AND INSULATION IS ALLOWED. THE SURFACE SHALL BE FINISHED ON OPTIC-SIDE LATE ALL PIPES PENETRATING EXISTING MEAT ROOF DECK.
- K. PROVIDE PVC JACKET ON ALL EXPOSED INSULATED PIPE EXPOSED IN PUBLIC AREAS.
- L. MINIMUM HYDRONIC PIPE SIZE SHALL BE 3/4".

2. ELECTRICAL PANEL.

COORDINATE INSTALLATION OF 3" MINIMUM FLOW BYPASS VALVE WITH DUCTWORK, PIPING, CABLE TRAY, AND ELECTRICAL. MAINTAIN REQUIRED CLEARANCES FOR MAINTENANCE OF BYPASS VALVE. INSTALL Y-STRAINER WITH MINIMUM 30-MESH SCREEN AND WITH THE DRAIN AT THE BOTTOM OF THE STRAINER.

3. BRANCH PIPING SHALL AS FOLLOWS:

A. PIPE MAY BE ROUTED TO EACH FAN COIL INDIVIDUALLY FROM THE MAIN OR GROUPED.

B. 1/2" MAY BE ROUTED TO A SINGLE FAN COIL OR GROUP OF FAN COILS TOTALING NOT MORE THAN 12 GPM.

C. 3/4" MAY BE ROUTED TO A SINGLE FAN COIL OR GROUP OF FAN COILS TOTALING NOT MORE THAN 35 GPM.

D. 1" MAY BE ROUTED TO A SINGLE FAN COIL OR GROUP OF FAN COILS TOTALING NOT MORE THAN 75 GPM.

E. 1 1/4" MAY BE ROUTED TO A SINGLE FAN COIL OR GROUP OF FAN COILS TOTALING NOT MORE THAN 135 GPM.

F. 1 1/2" MAY BE ROUTED TO A SINGLE FAN COIL OR GROUP OF FAN COILS TOTALING NOT MORE THAN 220 GPM.

4. SIZE TO MATCH EXISTING PIPE.

4" CHWSR DOWN TO BASEMENT, 2 1/2" CHWSR UP TO SECOND FLOOR, CHWSR BRANCH TO FIRST FLOOR SHALL BE 3". HHWSR DOWN TO BASEMENT, 1 1/2" CHWSR UP TO SECOND FLOOR, HHWSR BRANCH TO FIRST FLOOR SHALL BE 1 1/2".

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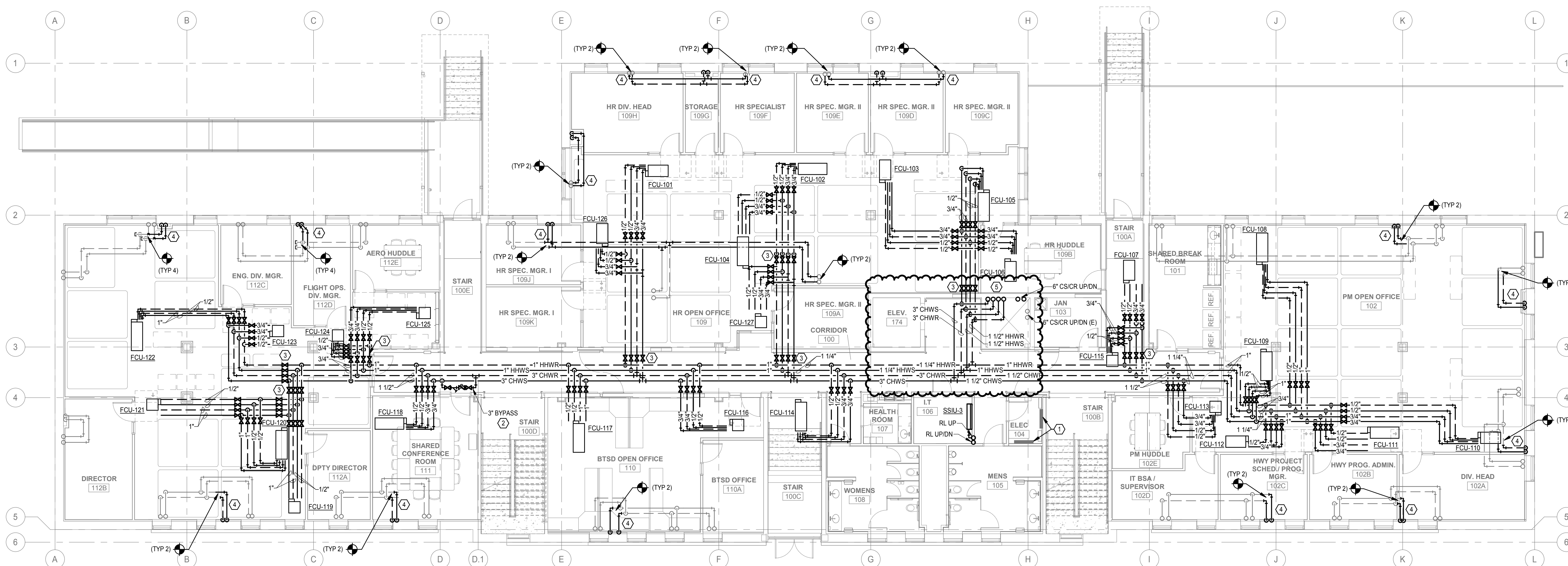
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**MECHANICAL PIPING
PLAN - FIRST FLOOR**

NORTH

M2.1



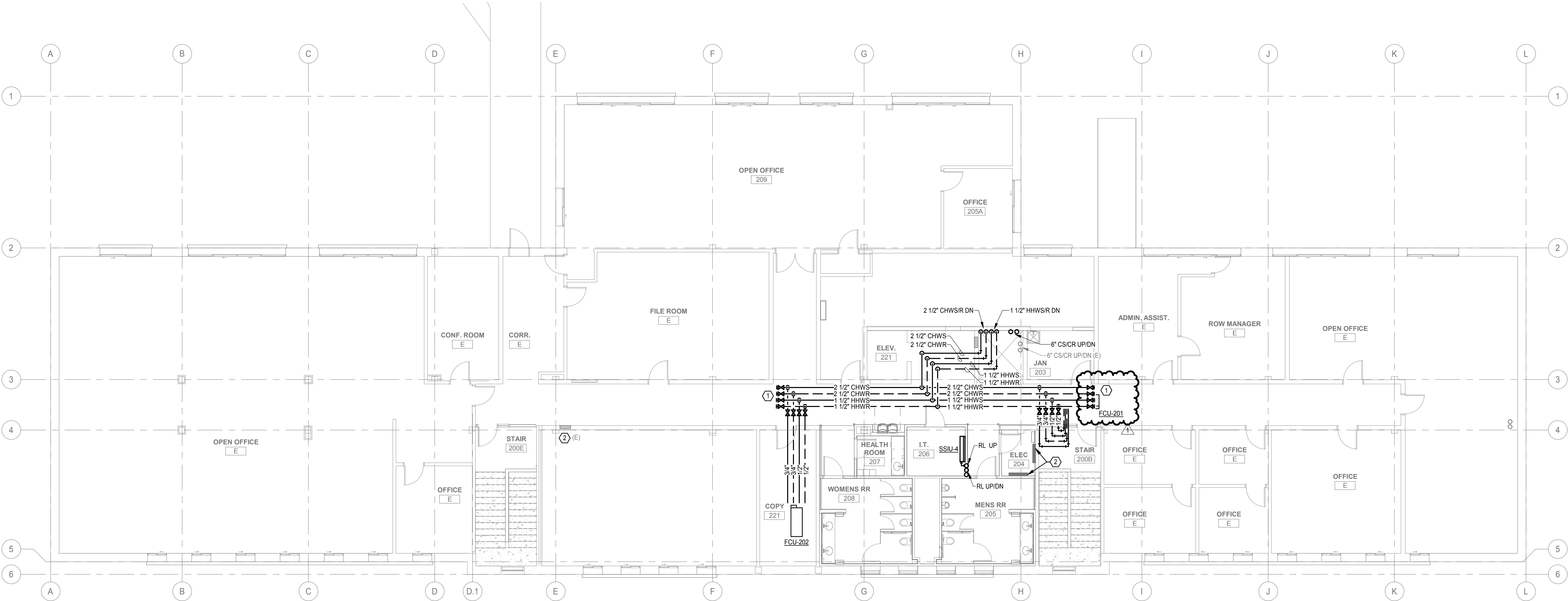
1 MECHANICAL PIPING PLAN - FIRST FLOOR

GENERAL SHEET NOTES

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- B. DO NOT ROUTE ITEMS OVER ELECTRICAL PANELS. PROVIDE 3'-6" CLEARANCE IN FRONT OF ELECTRICAL PANELS AND DEVICES FROM FLOOR TO 6'-6" OR TOP OF PANEL AS PER CODE REQUIREMENTS.
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- D. LOCATE EQUIPMENT TO ALLOW ACCESS FOR ADJUSTMENT AND SERVICING. REFER TO INSTALLATION MANUALS UNLESS OTHERWISE SPECIFICALLY SHOWN ON THESE DRAWINGS. LOCATE HANGING EQUIPMENT WITHIN THE SPACE SO THAT MAINTENANCE ACCESS IS PROVIDED FROM BELOW AND MAINTENANCE AREA AROUND AND ACCESS AREA BELOW IS FREE OF OBSTRUCTIONS INCLUDING PIPING, DUCTWORK, CONDUIT OR OTHER BUILDING ELEMENTS.
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- K. PROVIDE PVC JACKET ON ALL EXPOSED INSULATED PIPE EXPOSED IN PUBLIC AREAS.
- L. MINIMUM HYDRONIC PIPE SIZE SHALL BE 3/4".

SHEET KEYNOTES

1. PROVIDE ISOLATION VALVES AND CAP FOR FUTURE EXPANSION.
2. ELECTRICAL PANEL.



1 MECHANICAL PIPING PLAN - SECOND FLOOR
1/8" = 1'-0"

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MECHANICAL PIPING
PLAN - SECOND
FLOOR

NORTH



GENERAL SHEET NOTES

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- K. PROVIDE PVC JACKET ON ALL EXPOSED INSULATED PIPE EXPOSED IN PUBLIC AREAS.
- L. MINIMUM HYDRONIC PIPE SIZE SHALL BE 3/4".

SHEET KEYNOTES

1. NOT USED.
2. PROVIDE ADJUSTABLE SUPPORT FOR SUCTION DIFFUSER. INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. INSTALL CHILLER MODULE SUPERVISORY PANEL AT THIS LOCATION AT 4'-0" AFF FROM CENTER OF PANEL. COORDINATE WITH ELECTRICAL CONTRACTOR FOR CONDUIT PATHWAYS AND WIRING. DO NOT ROUTE ANY PIPING ABOVE PANEL.
4. ROUTE 4" CHWS DOWN NEXT TO 6" CS AND ROLL ELBOW TO TIE INTO CHILLED WATER CONNECTION.
5. ELECTRICAL PANEL.
6. NON-CHEMICAL TREATMENT PANELS SHALL BE MOUNTED NEXT CHILLER SUPERVISORY PANEL AT 5'-0" AFF FROM CENTER OF PANEL AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

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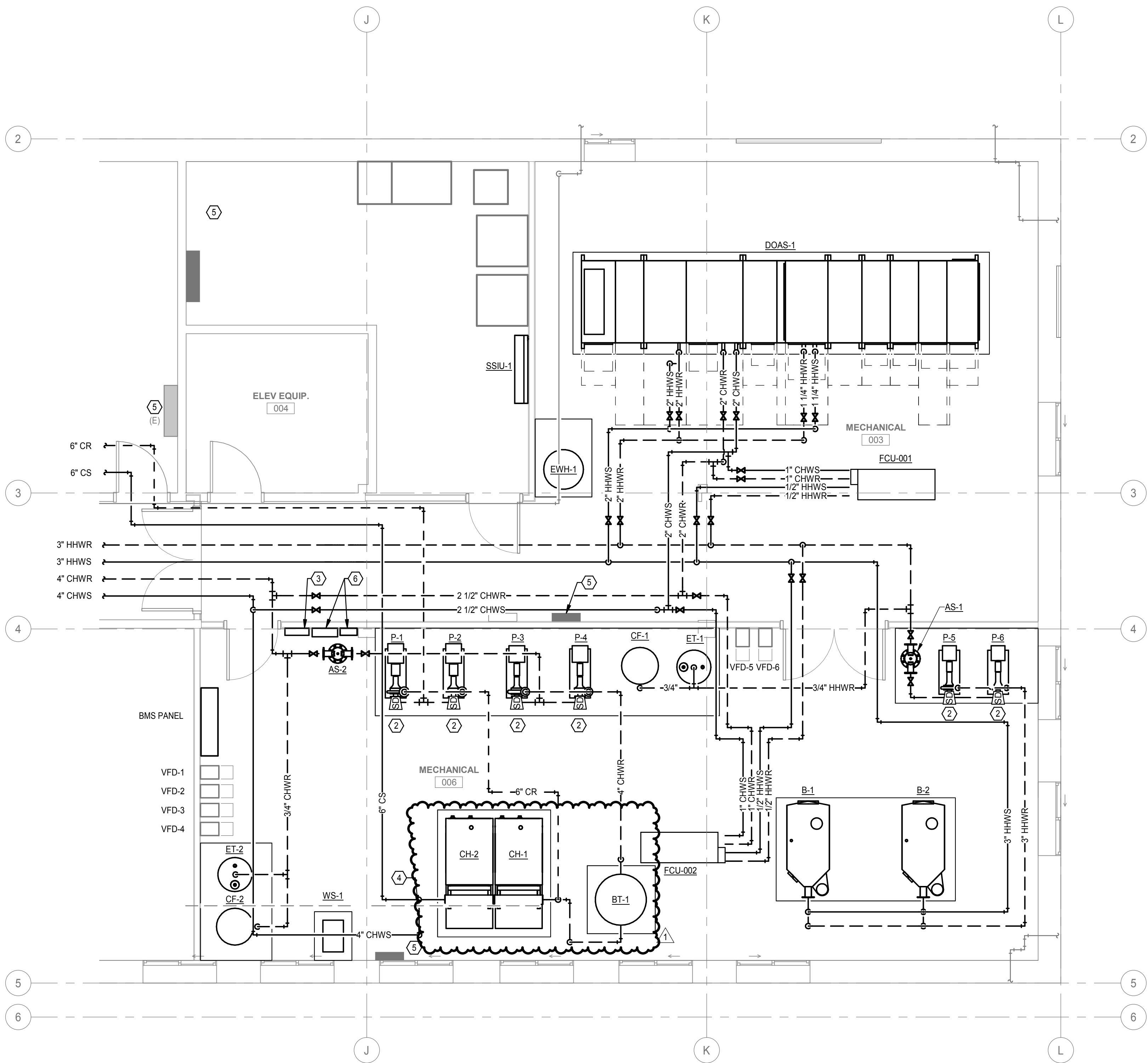
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MECHANICAL
ENLARGED PLANS

NORTH



M3.1



1 ENLARGED MECHANICAL ROOM PIPING PLAN
1/4" = 1'-0"

ARCHITECT

BVH ARCHITECTURE

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OMAHA, NE 68102

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bvh.com

MECHANICAL, ELECTRICAL AND PLUMBING

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OLSSON

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olsson.com

Project # 023-03442

Nebraska COA #CA-0638

STRUCTURAL ENGINEER

LANGE STRUCTURAL GROUP

1919 S 40TH STREET, SUITE 302

LINCOLN, NE 68506

V 402 421 9540

langestructuralgroup.com

GENERAL NOTES:

A. ALL CONTROLS SHOWN IN DIAGRAMS AND DESCRIBED IN SEQUENCES ARE TO BE CONTROLLED BY THE BUILDING MANAGEMENT SYSTEM UNLESS OTHERWISE NOTED.

B. PROVIDE ALL SENSORS AND DEVICES INDICATED ON THIS PLAN. LOCATIONS MAY NOT BE SHOWN ON OTHER CONSTRUCTION PLANS.

C. DEVICES SHOWN ARE SCHEMATIC AND MAY NOT REPRESENT ALL COMPONENTS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. CONTROLS CONTRACTOR SHALL PROVIDE DEVICES REQUIRED BY THEIR SYSTEM ARCHITECTURE TO ACHIEVE THE SEQUENCE. FAULTS AND BMS INTERFACE INDICATED.

D. ROOM SENSORS SHALL BE ADA ACCESSIBLE, MOUNTED WITH TOP OF SENSOR AT 4' F.F. ROOM THERMOSTATS OR SENSORS LOCATED ON CONCRETE BLOCK OR PRECAST WALLS SHALL BE ROUGHED-IN (BOX & CONDUIT INSIDE WALL) BY ELECTRICAL CONTRACTOR. T-STATS/SENSORS SHALL BE HARD-WIRED. WIRELESS SENSORS WILL NOT BE ALLOWED.

E. ALL SET POINTS LISTED IN EACH SEQUENCE SHALL BE ADJUSTABLE THRU THE BMS (WHETHER NOTED AS "ADJ." OR NOT). BMS SHALL ALARM WHEN READINGS ARE OUTSIDE THE NORMAL VALUES.

F. OCCUPIED-MAX, OCCUPIED-MIN, AND UNOCCUPIED MODES OF THIS SYSTEM SHALL BE TIME CLOCK CONFIGURABLE. THE BMS SHALL ALLOW MAINTENANCE PERSONNEL TO ADJUST SCHEDULES.

G. WITH THE SYSTEM SWITCHED TO THE AUTO POSITION, THE CONTROLS SHALL FUNCTION AS SET OUT BELOW. WITH THE SYSTEM SWITCHED TO HAND POSITION, THE CONTROLS SHALL OPERATE ON OCCUPIED SETTING ONLY.

H. ALL ADJUSTABLE FREQUENCY DRIVES CONTROLLING BLOWERS OR MOTORS SHALL RAMP (ADJUSTABLE) TO MAINTAIN SET POINT.

I. VFD'S SHALL SEND THE FOLLOWING TO THE BMS THRU THE NETWORK CONNECTION:

- TOTAL POWER
- VOLTS PER PHASE
- AMPERES PER PHASE
- AVERAGE TOTAL VOLTAGE
- AVERAGE TOTAL CURRENT
- VFD FREQUENCY
- MOTOR SPEED
- FAULT PRESENT ON DRIVE
- DRIVE IS IN LOCAL OR REMOTE
- RUN STATUS OF VFD
- VFD SPEED COMMAND
- START/STOP

J. ALL MODULATING VALVES AND DAMPERS SHALL HAVE MODULATING/PROPORTIONAL CONTROL. FLOATING CONTROL IS NOT ACCEPTABLE.

K. ALL DAMPERS NOTED WITH END SWITCHES SHALL BE PROVEN OPEN BEFORE STARTING FANS ASSOCIATED WITH DAMPERS.

L. SMOKE DETECTORS SHALL BE DOUBLE POLE WITH ONE POLE WIRED TO THE FIRE ALARM SYSTEM AND ONE POLE WIRED TO BLOWER MOTOR.

M. COORDINATE LINE VOLTAGE CIRCUIT REQUIREMENTS FOR LOW-VOLTAGE EQUIPMENT (VAV BOXES, CONTROL PANELS, ETC.) WITH ELECTRICAL CONTRACTOR PRIOR TO BID. ANY ADDITIONAL CIRCUITS REQUIRED AFTER BID DAY WILL FALL UNDER THE RESPONSIBILITY OF THE CONTROLS CONTRACTOR TO PROVIDE AT NO ADDITIONAL COST TO THE OWNER.

N. CONTROL VALVES SHALL FAIL IN THE FOLLOWING POSITIONS:

- HOT WATER (AT FOU, OR OTHER EQUIPMENT WITHOUT AN OUTSIDE AIR CONNECTION) - FAIL IN PLACE
- HOT WATER (AT EQUIPMENT WITH OUTSIDE AIR CONNECTION) - FAIL OPEN
- CILLED WATER - FAIL IN PLACE

O. THE FOLLOWING EQUIPMENT SHALL NOT HAVE ANY BMS CONTROL POINTS:

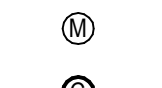
- WATER SOFTENER(S).

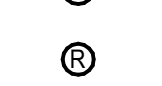
MECHANICAL SYMBOL LEGEND

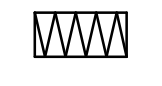
 SUPPLY OR EXHAUST FAN

 PUMP

 AUTOMATIC DAMPER
(24V UNLESS NOTED OTHERWISE)

 MOTOR

 COMPRESSOR

 REVERSING VALVE

 FILTER

 LOUVER

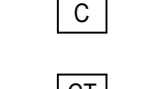
 AUTOMATIC 2-WAY VALVE

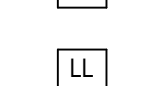
 COIL/HEAT EXCHANGER

 TEMPERATURE AND/OR HUMIDITY SENSOR

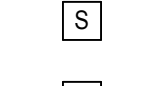
 HUMIDITY SENSOR

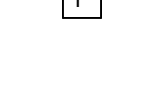
 PRESSURE SENSOR

 PRESSURE SWITCH

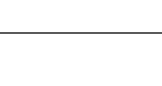
 PRESSURE DIFFERENTIAL SENSOR

 VARIABLE FREQUENCY DRIVE

 SMOKE DETECTOR

 FREEZE STATUS

 CONTROLLER

 CURRENT TRANSFORMER

 LOW LEVEL

 HIGH LEVEL

 SOLENOID

 FLOW METER

NDOT 1600 OFFICE
RENOVATION

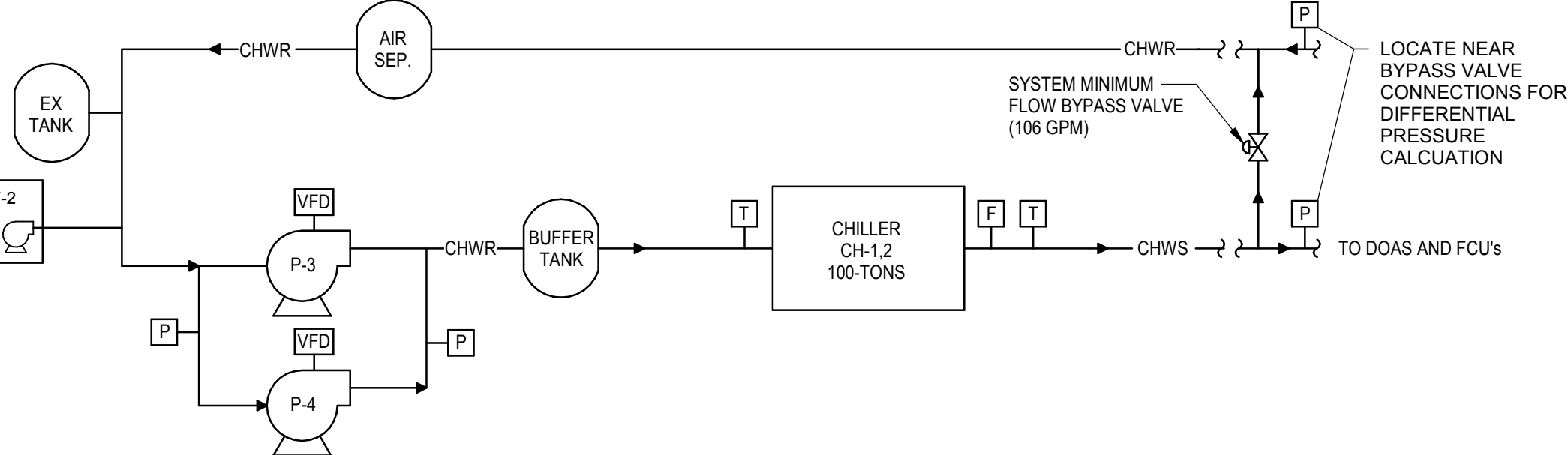
PROJECT: 23053 DATE: 08/16/2024

PROJECT STATUS: CONSTRUCTION DOCUMENTS

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MECHANICAL P&ID'S

NORTH

1 Heating Hot Water P&ID
NOT TO SCALE

HOT WATER BUILDING MANAGEMENT SYSTEM POINTS

POINT(S)	DISCRETE INPUT	DISCRETE OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
BOILER 1 ENABLE/DISABLE, STATUS, ALARM	X	X	---	---	X	
BOILER 2 ENABLE/DISABLE, STATUS, ALARM	X	X	---	---	X	
HEATING HOT WATER SYSTEM TEMPERATURE SETPOINT	---	---	---	X	---	2
BOILER 1 SUPPLY TEMPERATURE	---	---	X	---	---	
BOILER 2 SUPPLY TEMPERATURE	---	---	X	---	---	
BUILDING RETURN TEMPERATURE	---	---	X	---	X	1
BUILDING SUPPLY TEMPERATURE	---	---	X	---	X	1
CHEMICAL FEEDER (CF-1) LOW LEVEL DRY CONTACT	X	---	---	---	X	
P-5 VFD START/STOP, SPEED, STATUS, & ALARM	X	X	---	X	X	
P-6 VFD START/STOP, SPEED, STATUS, & ALARM	X	X	---	X	X	
PUMP SUPPLY/RETURN/DIFFERENTIAL PRESSURES	---	---	X	---	X	1
BUILDING SUPPLY/RETURN/DIFFERENTIAL PRESSURES	---	---	X	---	X	1
MINIMUM FLOW BYPASS VALVE	---	---	---	X	---	
REMARKS: 1. ALARM FOR OPERATING OUTSIDE NORMAL LIMITS WHEN BOILER(S) ARE OPERATING. 2. DATA COMMUNICATED THRU BACNET CONNECTION.						

SEQUENCE OF OPERATION

HEATING HOT WATER SYSTEM:
THE HOT WATER HEATING SYSTEM SHALL BE AVAILABLE YEAR ROUND. IT CONSISTS OF TWO (2) CONDENSING HOT WATER BOILERS, DEDICATED PRIMARY BOILER PUMPS, SECONDARY DISTRIBUTION PUMPS (P-5,6), AND ACCESSORIES TO PROVIDE HEATING HOT WATER TO FAN COIL UNITS AND THE DEDICATED OUTDOOR AIR UNIT.

SET THE OUTDOOR AIR LOCKOUT TEMPERATURE TO 95°F (ADJ.).

HOT WATER BOILERS (B-1,2):
BOILERS ARE HIGH-EFFICIENCY HOT WATER, NATURAL GAS, CONDENSING BOILERS. BOILERS HAVE MODULATING GAS CONTROL VALVES TO MAINTAIN SUPPLY HEATING HOT WATER TEMPERATURE SETPOINT OF 185°F AND RETURN HEATING HOT WATER TEMPERATURE OF 105°F. THE BMS SHALL ALARM IF THE SUPPLY HEATING HOT WATER TEMPERATURE EXCEEDS 145°F.

ENABLE THE PRIMARY BOILER AND CONTROL THE HEATING HOT WATER SUPPLY TEMPERATURE SETPOINT. IF HEATING HOT WATER SUPPLY TEMPERATURE SET POINT IS STILL NOT SATISFIED ENABLE THE SECOND BOILER. FIRING RATE OF BOILERS SHALL BE CONTROLLED THRU INTERNAL CONTROL OF THE BOILERS.

TO EQUALIZE RUNTIME, THE BOILERS SHALL ALTERNATE MONTHLY.

EACH BOILER CONTROLLER SHALL START A DEDICATED VARIABLE SPEED BOILER PUMP WHEN THE ASSOCIATED BOILER IS ENABLED BY THE BMS. THE VARIABLE SPEED BOILER PUMP SHALL BE CONTROLLED TO MAINTAIN A FIXED DIFFERENTIAL TEMPERATURE ACROSS THE BOILER.

SECONDARY (SYSTEM) HOT WATER PUMPS (P-5,6):
START SECONDARY PUMPS WHEN HEATING SYSTEM IS ENABLED AND ANY HEATING CONTROL VALVE CALLS FOR FLOW.

PUMP SPEED SHALL BE CONTROLLED FROM LOOP DIFFERENTIAL PRESSURE CALCULATED FROM REMOTE SYSTEM PRESSURE SENSORS. AT THE BMS, DISPLAY THE SUPPLY, RETURN AND CALCULATED DIFFERENTIAL PRESSURE VALUES FOR THE REMOTE SYSTEM PRESSURE SENSORS AND ACROSS THE PUMPS.

EACH PUMP IS SIZED FOR 100% FULL LOAD. IF THE LEAD PUMP HAS REACHED FULL SPEED AND THE DIFFERENTIAL PRESSURE SETPOINT IS NOT MET, START THE SECOND PUMP. CONTROL PUMP STAGING TO MINIMIZE SYSTEM SURGES.

TO EQUALIZE RUNTIME, THE LEAD PUMP SHALL ALTERNATE MONTHLY.

MINIMUM FLOW BYPASS:
WHEN VFD REACHES MINIMUM SPEED WITH A SINGLE PUMP IN OPERATION, THE MINIMUM FLOW BYPASS VALVE SHALL MODULATE TO MAINTAIN THE DIFFERENTIAL PRESSURE SETPOINT. WHEN THE VFD IS ABOVE THE MINIMUM SPEED, THE BYPASS VALVE SHALL BE CLOSED. THE BYPASS VALVE SHALL BE SIZED FOR A MINIMUM OF 30 GPM AT 5 PSI OF PRESSURE DROP.

HOT WATER RESET SCHEDULE:
THE HOT WATER SYSTEM WILL FOLLOW A RESET SCHEDULE BASED ON OUTSIDE AIR TEMPERATURE. DISABLE RESET WHEN ANY ZONE CANNOT MAINTAIN ITS TEMPERATURE SETPOINT. SEE RESET SCHEDULE BELOW:

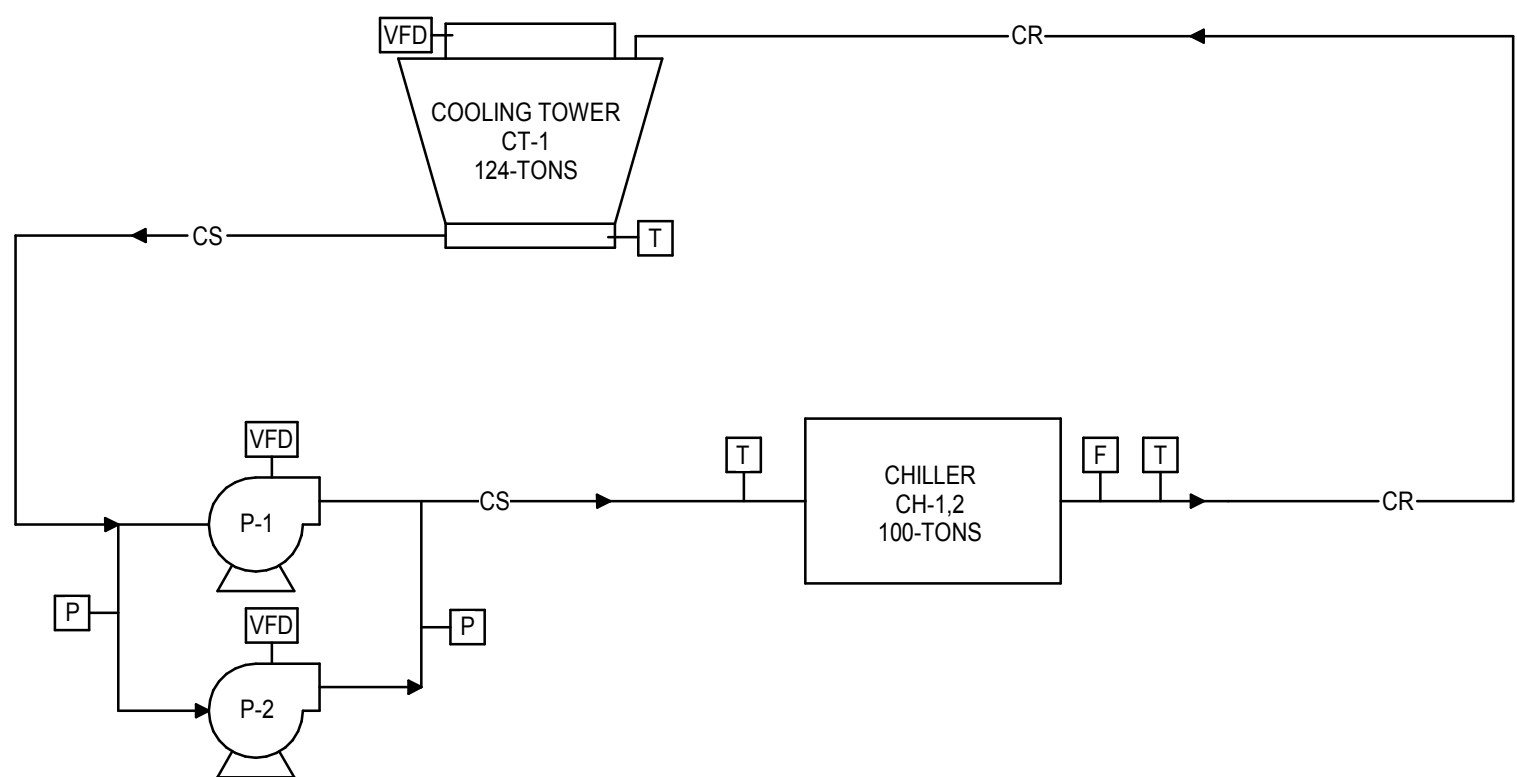
FOR OUTDOOR AIR TEMPERATURES AT 35°F AND BELOW, HOT WATER TEMPERATURE SHALL BE 135°F. FOR OUTDOOR AIR TEMPERATURES AT 60°F AND ABOVE, HOT WATER TEMPERATURE SHALL BE RESET TO 105°F. FOR OUTDOOR AIR TEMPERATURES BETWEEN 35°F AND 60°F, HOT WATER TEMPERATURE SHALL RAMP LINEARLY.

CRITICAL VALVE RESET CONTROL:
THE BUILDING MANAGEMENT SYSTEM (BMS) SHALL CONTINUOUSLY MONITOR THE VALVE POSITION OF ALL HOT WATER VALVES FOR CRITICAL VALVE RESET CONTROL. WHEN ANY VALVE IS MORE THAN 95% (ADJ.) OPEN, THE SYSTEM STATIC PRESSURE SETPOINT SHALL BE RESET UPWARD BY 0.1 PSI (ADJ.) AT A FREQUENCY OF 5 MINUTES (ADJ.). UNTIL NO VALVE IS MORE THAN 95% OPEN OR THE STATIC PRESSURE SETPOINT HAS RESET UPWARD TO THE SYSTEM MAXIMUM STATIC PRESSURE SETPOINT OR THE PUMP VARIABLE-FREQUENCY DRIVE IS AT THE MAXIMUM SPEED SETTING.

WHEN ALL VALVES ARE LESS THAN 80% (ADJ.) OPEN, THE STATIC PRESSURE SETPOINT SHALL BE RESET DOWNWARD BY 0.1 PSI (ADJ.) AT A FREQUENCY OF 5 MINUTES (ADJ.). UNTIL AT LEAST ONE VALVE IS MORE THAN 80% OPEN OR THE STATIC PRESSURE SETPOINT HAS RESET DOWNWARD TO THE SYSTEM MINIMUM STATIC PRESSURE SETPOINT OR THE PUMP VARIABLE-FREQUENCY DRIVE IS AT THE MINIMUM SPEED SETTING. THE CONTROL BANDS, SETPOINT INCREMENT VALUES, SETPOINT DECREMENT VALUES AND ADJUSTMENT FREQUENCIES SHALL BE ADJUSTED TO MAINTAIN MAXIMUM STATIC PRESSURE OPTIMIZATION WITH STABLE SYSTEM CONTROL, AND MAXIMUM COMFORT CONTROL.

THE BMS SHALL HAVE THE CAPABILITY TO ALLOW THE OPERATOR TO EXCLUDE "PROBLEM" ZONES THAT SHOULD NOT BE CONSIDERED WHEN DETERMINING THE OPTIMIZED SETPOINT.

THE BMS SHALL ALSO READ THE STATUS OF THE SYSTEM STATIC PRESSURE SENSOR AND DISPLAY THE ACTIVE STATIC PRESSURE READING ON THE STATUS SCREEN. THE BAS SHALL HAVE THE ABILITY TO IDENTIFY, AND DISPLAY TO THE USER, THE VALVE THAT SERVES THE CRITICAL ZONE (THAT IS, THE ZONE WITH THE MOST WIDE-OPEN VALVE). THIS INFORMATION SHALL UPDATE DYNAMICALLY AS THE LOCATION OF THE CRITICAL ZONE CHANGES BASED ON BUILDING LOAD, AND SYSTEM VALVE STATIC PRESSURE SETPOINT OPTIMIZATION CONTROL.



SEQUENCE OF OPERATION

CONDENSER WATER SYSTEM:
THE CONDENSER WATER SYSTEM SHALL BE AVAILABLE YEAR-ROUND. IT CONSISTS OF TWO (2) 50-TON CHILLER MODULES, COOLING TOWER, CONDENSER WATER PUMPS, AND ACCESSORIES. THE CHILLER AND COOLING TOWER ARE DESIGNED FOR A CONDENSER WATER SUPPLY TEMPERATURE OF 85°F AND A CONDENSER WATER RETURN TEMPERATURE OF 85°F. THE BMS SHALL ALARM IF THE CONDENSER WATER SUPPLY TEMPERATURE DROPS BELOW 60°F (ADJ.).

CONDENSER WATER PUMPS:
CONDENSER WATER PUMPS SHALL OPERATE LEAD/LAG. TO EQUALIZE RUNTIME, THE LEAD PUMP SHALL ALTERNATE MONTHLY.

CONDENSER WATER PUMP SPEED SHALL BE CONTROLLED TO MAINTAIN MINIMUM FLOW THRU EACH CHILLER MODULE BASED ON THE NUMBER OF RUNNING CHILLER MODULES. MODULATE THE PUMPS TO MAINTAIN A MINIMUM 100 GPM (ONE RUNNING MODULE) AND MINIMUM 212 GPM (TWO RUNNING MODULES) FLOW THROUGH THE CHILLER BANK.

EACH PUMP IS SIZED FOR 100% FULL LOAD. IF THE LEAD PUMP HAS REACHED FULL SPEED AND THE MINIMUM FLOW IS NOT MET, START THE SECOND PUMP. CONTROL PUMP STAGING TO MINIMIZE SYSTEM SURGES.

AT THE BMS, DISPLAY THE SUPPLY, RETURN, AND CALCULATED DIFFERENTIAL PRESSURE VALUES FOR THE REMOTE PRESSURE SENSORS AND ACROSS THE PUMPS.

COOLING TOWER FAN CONTROL:
THE COOLING TOWER FAN SPEED SHALL MODULATE TO MAINTAIN THE CONDENSER WATER SUPPLY (COOLING TOWER LEAVING) TEMPERATURE SETPOINT.

COOLING TOWER LEVEL CONTROL:
BASIN LEVEL IS AUTOMATICALLY CONTROLLED BY COOLING TOWER PROVIDED FLOAT AND MAKE-UP WATER VALVE.

COOLING TOWER BASIN TEMPERATURE:
BASIN TEMPERATURE IS AUTOMATICALLY CONTROLLED BY THE COOLING TOWER PROVIDED CONTROL PANEL. THE BMS SHALL MONITOR THE BASIN TEMPERATURE AND ALARM IF THE BASIN TEMPERATURE DROPS BELOW 35°F.

PIPING HEAT TRACE:
THE BMS SHALL ENABLE, DISABLE, AND ALARM THE PIPING HEAT TRACE FOR THE CONDENSER SUPPLY/RETURN WATER, MAKE-UP WATER, AND BLOWDOWN DRAIN PIPING SYSTEM LOCATED ON THE ROOF. ENABLE THE PIPING HEAT TRACE WHEN THE OUTDOOR AIR TEMPERATURE DROPS BELOW 34°F. DISABLE THE PIPING HEAT TRACE WHEN THE OUTDOOR AIR RISES ABOVE 40°F. THE BMS SHALL ALARM BASED ON HIGH TEMPERATURE, LOW TEMPERATURE, AND RTD FAILURE FROM HEAT TRACE MANUFACTURER'S CONTROL ENCLOSURE.

CONDENSER WATER BUILDING MANAGEMENT SYSTEM POINTS

POINT(S)	DISCRETE INPUT	DISCRETE OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
COOLING TOWER FAN VFD ENABLE/DISABLE, STATUS, SPEED, ALARM	---	X	---	---	X	
COOLING TOWER BASIN TEMPERATURE	---	---	X	---	X	1
PIPING HEAT TRACE ENABLE	---	X	---	---	---	
PIPING HEAT TRACE STATUS	X	---	---	---	---	
PIPING HEAT TRACE ALARM	---	---	---	---	X	
PUMP VFD ENABLE/DISABLE, STATUS, & ALARM	X	X	---	---	X	1
PUMP SUPPLY/RETURN/DIFFERENTIAL PRESSURES	---	---	X	---	X	1
CONDENSER WATER SUPPLY TEMPERATURE	---	---	X	---	X	1
CONDENSER WATER RETURN TEMPERATURE	---	---	X	---	X	1
REMARKS: 1. ALARM FOR OPERATING OUTSIDE NORMAL LIMITS WHEN COOLING TOWER IS OPERATING.						

2 Chilled Water P&ID
NOT TO SCALE

P&ID 2024-10-17-PM

3 Condenser Water P&ID
NOT TO SCALE

GENERAL NOTES:

- A. ALL CONTROLS SHOWN IN DIAGRAMS AND DESCRIBED IN SEQUENCES ARE TO BE CONTROLLED BY THE BUILDING MANAGEMENT SYSTEM UNLESS OTHERWISE NOTED.
- B. PROVIDE ALL SENSORS AND DEVICES INDICATED ON THIS PLAN. LOCATIONS MAY NOT BE SHOWN ON OTHER CONSTRUCTION PLANS.
- C. DEVICES SHOWN ARE SCHEMATIC AND MAY NOT REPRESENT ALL COMPONENTS REQUIRED FOR A FULLY OPERATIONAL SYSTEM. CONTROLS CONTRACTOR SHALL PROVIDE DEVICES REQUIRED BY THEIR SYSTEM ARCHITECTURE TO ACHIEVE THE SEQUENCE. FAULTS AND BMS INTERFACE INDICATED.
- D. ROOM SENSORS SHALL BE ADA ACCESSIBLE, MOUNTED WITH TOP OF SENSOR AT 4' & F.F. ROOM THERMOSTATS OR SENSORS LOCATED ON CONCRETE BLOCK OR PRECAST WALLS SHALL BE ROUGHED-IN (BOX & CONDUIT INSIDE WALL) BY ELECTRICAL CONTRACTOR. T-STATS/SENSORS SHALL BE HARD-WIRED. WIRELESS SENSORS WILL NOT BE ALLOWED.
- E. ALL SET POINTS LISTED IN EACH SEQUENCE SHALL BE ADJUSTABLE THRU THE BMS (WHETHER NOTED AS "ADJ." OR NOT). BMS SHALL ALARM WHEN READINGS ARE OUTSIDE THE NORMAL VALUES.
- F. OCCUPIED-MAX, OCCUPIED-MIN, AND UNOCCUPIED MODES OF THIS SYSTEM SHALL BE TIME CLOCK CONFIGURABLE. THE BMS SHALL ALLOW MAINTENANCE PERSONNEL TO ADJUST SCHEDULES.
- G. WITH THE SYSTEM SWITCHED TO THE AUTO POSITION, THE CONTROLS SHALL FUNCTION AS SET OUT BELOW. WITH THE SYSTEM SWITCHED TO HAND POSITION, THE CONTROLS SHALL OPERATE ON OCCUPIED SETTING ONLY.
- H. ALL ADJUSTABLE FREQUENCY DRIVES CONTROLLING BLOWERS OR MOTORS SHALL RAMP (ADJUSTABLE) TO MAINTAIN SET POINT.
- I. VFD'S SHALL SEND THE FOLLOWING TO THE BMS THRU THE NETWORK CONNECTION:
a. TOTAL POWER
b. VOLTS PER PHASE
c. AMPERES PER PHASE
d. AVERAGE TOTAL VOLTAGE
e. AVERAGE TOTAL CURRENT
f. VFD FREQUENCY
g. MOTOR SPEED
h. FAULT PRESENT ON DRIVE
i. DRIVE IS IN LOCAL OR REMOTE
j. RUN STATUS OF VFD
k. VFD SPEED COMMAND
l. START/STOP
- J. ALL MODULATING VALVES AND DAMPERS SHALL HAVE MODULATING/PROPORTIONAL CONTROL. FLOATING CONTROL IS NOT ACCEPTABLE.
- K. ALL DAMPERS NOTED WITH END SWITCHES SHALL BE PROVEN OPEN BEFORE STARTING FANS ASSOCIATED WITH DAMPERS.
- L. SMOKE DETECTORS SHALL BE DOUBLE POLE WITH ONE POLE WIRED TO THE FIRE ALARM SYSTEM AND ONE POLE WIRED TO BLOWER MOTOR.
- M. COORDINATE LINE VOLTAGE CIRCUIT REQUIREMENTS FOR LOW-VOLTAGE EQUIPMENT (VAV BOXES, CONTROL PANELS, ETC.) WITH ELECTRICAL CONTRACTOR PRIOR TO BID. ANY ADDITIONAL CIRCUITS REQUIRED AFTER BID DAY WILL FALL UNDER THE RESPONSIBILITY OF THE CONTROLS CONTRACTOR TO PROVIDE AT NO ADDITIONAL COST TO THE OWNER.
- N. CONTROL VALVES SHALL FAIL IN THE FOLLOWING POSITIONS:
a. HOT WATER (AT FOU, OR OTHER EQUIPMENT WITHOUT AN OUTSIDE AIR CONNECTION) - FAIL IN PLACE
b. HOT WATER (AT EQUIPMENT WITH OUTSIDE AIR CONNECTION) - FAIL OPEN
c. CHILLED WATER - FAIL IN PLACE.
- O. THE FOLLOWING EQUIPMENT SHALL NOT HAVE ANY BMS CONTROL POINTS:
a. WATER SOFTENER(S).

MECHANICAL SYMBOL LEGEND

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	09/12/2024	Addendum 2

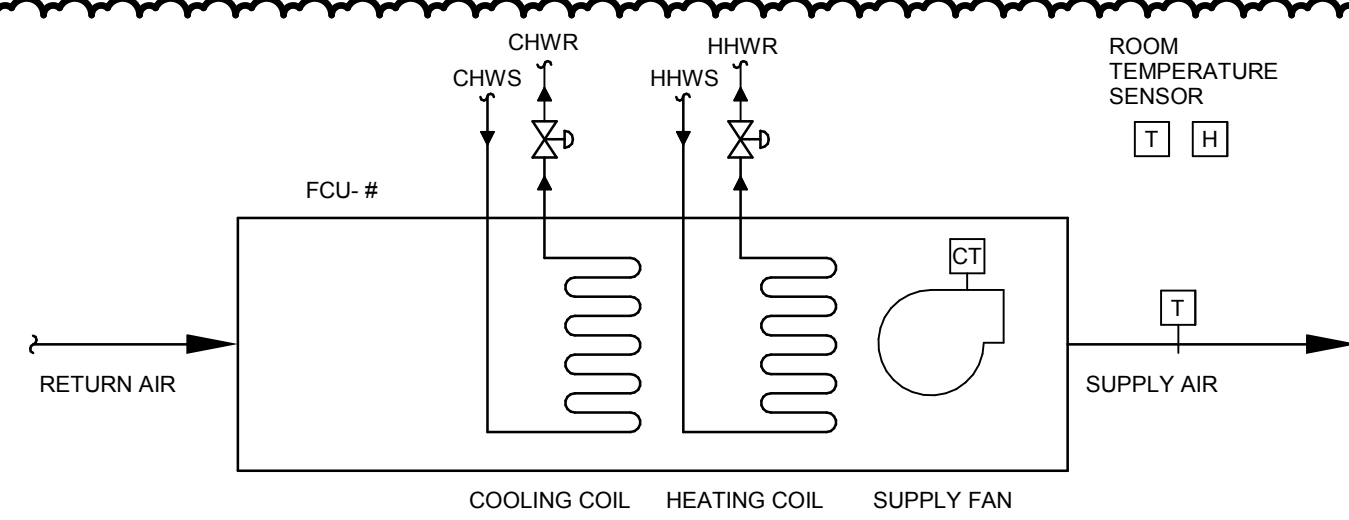
	SUPPLY OR EXHAUST FAN
	PUMP
	AUTOMATIC DAMPER (24V UNLESS NOTED OTHERWISE)
	MOTOR
	COMPRESSOR
	REVERSING VALVE
	FILTER
	LOUVER
	AUTOMATIC 2-WAY VALVE
	COIL / HEAT EXCHANGER
	TEMPERATURE AND/OR HUMIDITY SENSOR
	HUMIDITY SENSOR
	PRESSURE SENSOR
	PRESSURE SWITCH
	PRESSURE DIFFERENTIAL SENSOR
	VARIABLE FREQUENCY DRIVE
	SMOKE DETECTOR
	FREEZE STATUS
	CONTROLLER
	CURRENT TRANSFORMER
	LOW LEVEL
	HIGH LEVEL
	SOLENOID
	FLOW METER

NDOT 1600 OFFICE
RENOVATIONPROJECT: 23053 DATE: 09/16/2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS
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MECHANICAL P&ID'S

NORTH

M4.2



FOUR-PIPE FAN COIL UNITS:

FAN COIL(S) PROVIDE HEATING AND/OR COOLING TO MAINTAIN SPACE TEMPERATURE SETPOINTS IN ALL RENOVATED SPACES.

FOR OPEN-OFFICE AREAS, A TEMPERATURE/HUMIDITY SENSOR MOUNTED ON THE WALL SHALL READ TEMPERATURE/HUMIDITY WITH DISPLAY AND +/- 3°F ADJUSTMENT CONTROL. A TEMPERATURE SENSOR SHALL ALSO BE PROVIDED IN THE SUPPLY AIR DUCTWORK.

FOR NON-OPEN OFFICE AREAS, A TEMPERATURE ONLY SENSOR MOUNTED ON THE WALL SHALL READ TEMPERATURE WITH DISPLAY AND +/- 3°F ADJUSTMENT CONTROL.

OCCUPIED MODE:

IN OCCUPIED MODE, THE FAN SHALL OPERATE CONTINUOUSLY TO PROVIDE HEATING/COOLING AND VENTILATION AIR FROM THE DOAS.

UNOCCUPIED MODE:

IN UNOCCUPIED MODE, THE FAN SHALL OPERATE INTERMITTENTLY TO PROVIDE HEATING/COOLING.

COOLING MODE:

UPON A CALL FOR COOLING, MODULATE THE COOLING COIL CONTROL VALVE TO MAINTAIN ROOM TEMPERATURE SETPOINT.

HEATING MODE:

UPON A CALL FOR HEATING, MODULATE THE HEATING COIL CONTROL VALVE TO MAINTAIN ROOM TEMPERATURE TO SETPOINT.

DEHUMIDIFICATION MODE (OPEN OFFICE AREAS ONLY):

THE BMS SHALL MONITOR OPEN OFFICE AREA'S TEMPERATURE AND HUMIDITY USING A COMBINED TEMPERATURE AND HUMIDITY SENSOR. WHEN THE DEWPOINT RISES ABOVE 55°F, THE FAN COIL SHALL OPERATE IN DEHUMIDIFICATION MODE. IN DEHUMIDIFICATION MODE, THE FAN SHALL OPERATE CONTINUOUSLY. THE COOLING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN DEWPOINT SETPOINT, AND THE HEATING COIL CONTROL VALVE MODULATES TO MAINTAIN ROOM TEMPERATURE SETPOINT.

DISABLE DEHUMIDIFICATION MODE WHEN THE DEWPOINT IS BELOW 53°F.

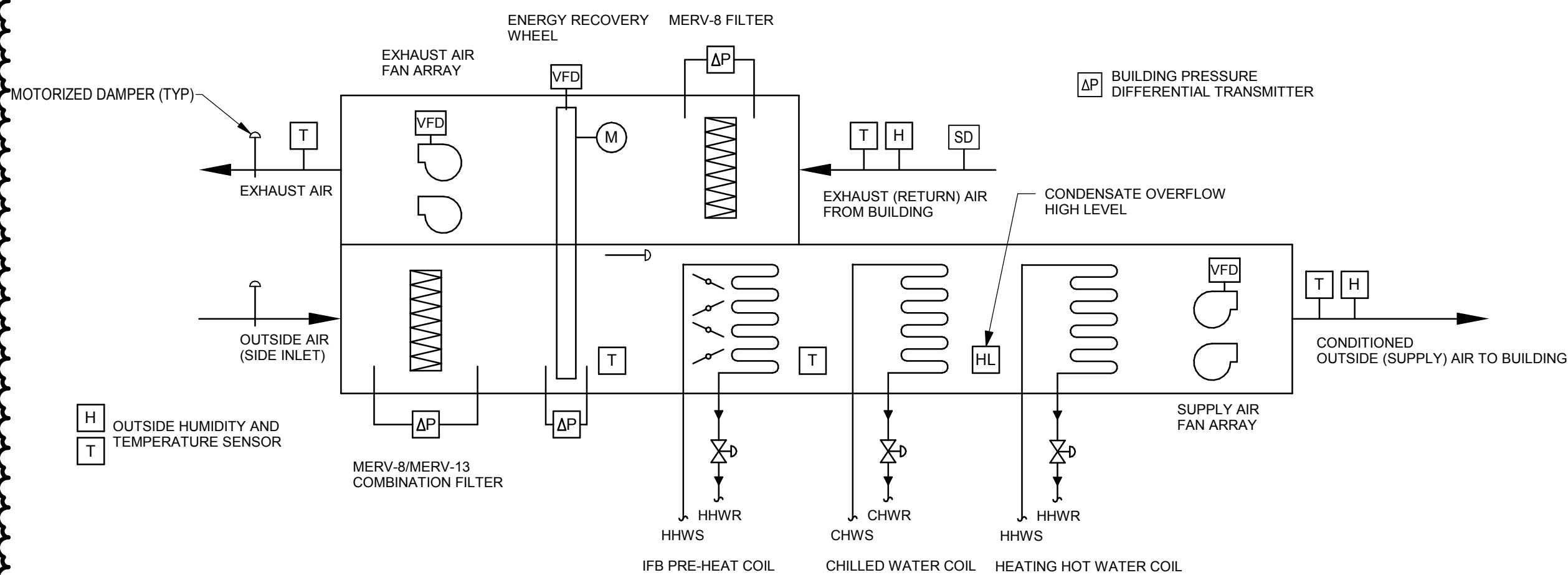
FAN OPERATION:
FAN HAS 0-10V SPEED CONTROL INPUT. COORDINATE SIGNAL REQUIRED WITH TEST AND BALANCE CONTRACTOR. SPEED RANGE IS 2-10V; FAN TURNS OFF AT < 2 V.OCCUPIED ROOM AIR TEMPERATURE SETPOINT (COOLING): 75°F
OCCUPIED ROOM AIR TEMPERATURE SETPOINT (HEATING): 70°F
OCCUPIED ROOM AIR DEWPOINT SETPOINT (OPEN OFFICE AREAS ONLY): 55°F
UNOCCUPIED ROOM AIR TEMPERATURE SETPOINT WINDOW: 62°F HEATING AND 78°F COOLING.

FOUR-PIPE FAN COIL UNIT SYSTEM POINTS

POINT(S)	DISCRETE INPUT	DISCRETE OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
ROOM TEMPERATURE	---	---	X	---	X	1
ROOM TEMPERATURE/HUMIDITY (OPEN OFFICE ONLY)	---	---	X	---	X	1
FAN START/STOP STATUS	X	X	---	---	X	---
MODULATING HEATING COIL CONTROL VALVE	---	---	---	X	---	---
MODULATING COOLING COIL CONTROL VALVE	---	---	---	X	---	---
REMARKS: 1. ALARM FOR OPERATING OUTSIDE NORMAL LIMITS WHEN SYSTEM IS OPERATING						

1 Fan Coil P&ID

NOT TO SCALE



DEDICATED OUTDOOR AIR SYSTEM BMS POINTS (TYPICAL)

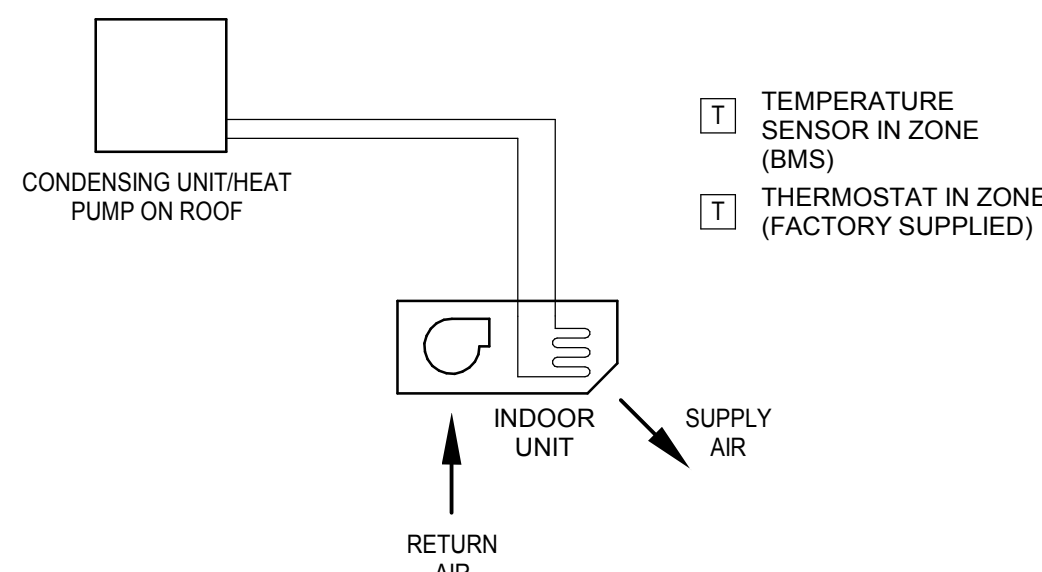
POINT(S)	DISCRETE INPUT	DISCRETE OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
OA INTAKE RH & TEMPERATURE	---	---	X	---	---	---
OA DAMPER(S) POSITION & END SWITCH	OPCL	X	---	---	X	---
OA FILTER HIGH DIFFERENTIAL PRESSURE	---	---	X	---	X	1
ENERGY WHEEL HIGH DIFF. PRESSURE	---	---	X	---	X	1
ENERGY WHEEL START/STOP	---	X	---	---	---	3
ENERGY WHEEL STATUS	X	---	---	---	X	1
ENERGY WHEEL SPEED	---	---	---	X	---	---
IFB COIL DAMPER(S) POSITION	---	---	---	X	---	---
IFB 2 POSITION HEATING COIL VALVE	---	---	---	X	---	---
IFB COIL LEAVING TEMPERATURE	---	---	X	---	X	1
MODULATING COOLING COIL VALVE	---	---	---	X	---	---
CONDENSATE OVERFLOW ALARM	X	---	---	---	X	---
MODULATING HEATING COIL VALVE	---	---	---	X	---	---
SUPPLY AIR FAN ARRAY START/STOP	---	X	---	---	---	3
SUPPLY AIR FAN ARRAY STATUS	X	---	---	---	X	1
SUPPLY AIR FAN ARRAY SPEED	---	---	---	X	---	---
SUPPLY AIR RH & TEMPERATURE	---	---	X	---	X	1
BUILDING DIFFERENTIAL PRESSURE	---	---	X	---	X	12
RETURN AIR SMOKE DETECTOR	X	---	---	---	X	1.4
RETURN AIR RH & TEMPERATURE	---	---	X	---	X	1
RETURN AIR FILTER DIFF. PRESSURE	---	---	X	---	X	1
EXHAUST AIR FAN ARRAY START/STOP	---	X	---	---	---	---
EXHAUST AIR FAN ARRAY STATUS	X	---	---	---	X	1.3
EXHAUST AIR FAN ARRAY SPEED	---	---	---	X	---	---
EXHAUST AIR TEMPERATURE	---	---	X	---	---	1
EXHAUST DAMPER(S) POSITION & END SWITCH	OPCL	X	---	---	X	---

REMARKS:

- ALARM FOR OPERATING OUTSIDE NORMAL LIMITS WHEN SYSTEM IS OPERATING.
- LOCATE BUILDING PRESSURE SENSOR IN STAIR 100C.
- INCLUDE VFD MALFUNCTION ALARM.
- HARD-WIRED TO SHUT DOWN UNIT. COORDINATE WITH FIRE ALARM CONTRACTOR.

4 DOAS P&ID

NOT TO SCALE



SPLIT SYSTEMS (SSIU-# / SSCU-#) P&ID

SPLIT SYSTEM PROVIDES COOLING TO MAINTAIN TEMPERATURE IN DATA CLOSETS AND ELECTRICAL ROOMS.

THE BMS SENSOR WILL READ AND MONITOR TEMPERATURE, BUT SHALL NOT HAVE ANY DISPLAY OR ADJUSTMENT CONTROL.

SEQUENCE OF OPERATION:

COMMUNICATE TO THE SPLIT SYSTEM USING THE FACTORY PROVIDED BACNET CARD. FACTORY PROVIDED THERMOSTAT/CONTROLLER SHALL SEND ROOM ON/OFF, MODE, SETPOINT, AND FAN SPEED SIGNALS.

THE BMS SHALL MONITOR THE ON/OFF STATE, MODE STATE, FAN SPEED STATE, INLET TEMPERATURE STATE, AND FAULT CODE PROVIDED THRU THE BACNET/MODBUS CARD INTERFACE.

COOLING ROOM AIR TEMPERATURE SETPOINT (DATA AND ELECTRICAL ROOMS): 75°F
HEATING ROOM AIR TEMPERATURE SETPOINT (ELECTRICAL 005): 65°F.

SPLIT SYSTEMS (SSIU-# / SSCU-#) BMS POINTS

POINTS	DISCRETE INPUT	DISCRETE OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
ROOM TEMPERATURE	---	---	X	---	X	1
ROOM SETPOINT	---	---	---	---	---	2
OFF/ON STATE	---	---	---	---	---	2
MODE STATE	---	---	---	---	---	2
FAN SPEED STATE	---	---	---	---	---	2
INLET TEMPERATURE STATE	---	---	---	---	---	2
CONDENSATE PUMP ALARM	---	---	---	---	---	2
FAULT CODE	---	---	---	---	X	2

REMARKS:
1. ALARM FOR OPERATING OUTSIDE NORMAL LIMITS.
2. DATA COMMUNICATED THRU A BACNET CONNECTION.

2 DUCTLESS SPLIT SYSTEMS (SSIU-# / SSCU-#) P&ID

NOT TO SCALE

DEDICATED OUTDOOR AIR SYSTEM WITH ENERGY RECOVERY (DOAS-1):

THE DEDICATED OUTDOOR AIR SYSTEM (DOAS-1) DELIVERS CONDITIONED OUTSIDE (SUPPLY) AIR AT ROOM NEUTRAL CONDITIONS (72°F DB) TO THE FAN COILS IN OCCUPIED MODE. IT CONSISTS OF A MERV-8 PANEL FILTER, ENERGY RECOVERY WHEEL, EXHAUST FAN ARRAY, MERV-8/MERV-13 COMBINATION FILTER, INTEGRAL FACE AND BYPASS DAMPER PRE-HEAT COIL, CHILLED WATER COOLING COIL, HEATING HOT WATER COIL, AND SUPPLY FAN ARRAY.

OUTSIDE AIR DRY-BULB TEMPERATURE, WET-BULB TEMPERATURE, DEWPOINT TEMPERATURE, RELATIVE HUMIDITY, AND BUILDING PRESSURE SHALL BE PROVIDED AT THE BMS.

THE CONTROLS CONTRACTOR SHALL PROVIDE THE OUTDOOR AIR DAMPERS, EXHAUST AIR DAMPERS, AND END SWITCHES FOR BOTH OUTDOOR AIR AND EXHAUST AIR DAMPERS. THE CONTROLS CONTRACTOR SHALL ALSO PROVIDE AND SIZE DAMPER ACTUATORS FOR THE INTEGRAL FACE AND BYPASS DAMPER COIL, OUTDOOR AIR INTAKE DAMPERS, AND EXHAUST AIR DAMPERS. THE OUTDOOR AND EXHAUST AIR DAMPERS SHALL BE FAIL CLOSE. THE INTEGRAL FACE AND BYPASS DAMPERS SHALL BE FAIL OPEN.

THE CONTROLS CONTRACTOR SHALL PROVIDE CONTROL VALVES, SENSORS FOR TEMPERATURE, HUMIDITY, PRESSURE, AND CONDENSATE OVERFLOW SWITCH.

UNIT IS PROVIDED WITH VFD'S FOR SUPPLY AIR FAN ARRAY, EXHAUST AIR FAN ARRAY, AND ENERGY RECOVERY WHEEL.

UNOCCUPIED MODE:

THE OUTSIDE AND EXHAUST AIR DAMPERS ARE CLOSED. THE EXHAUST AND SUPPLY FANS ARE OFF. ALL CONTROL VALVES ARE CLOSED. THE ENERGY RECOVERY WHEEL IS OFF.

OCCUPIED MODE:

- A. OPEN THE OUTDOOR AIR AND EXHAUST AIR DAMPERS AND CONFIRM OPEN VIA DAMPER POSITION END SWITCHES. START THE SUPPLY AND EXHAUST AIR FANS. MODULATE THE SUPPLY AIR FANS TO MAINTAIN THE OUTDOOR AIRFLOW SETPOINT. MODULATE THE EXHAUST AIR FANS TO MAINTAIN THE BUILDING PRESSURE SETPOINT. THE MINIMUM OUTDOOR (SUPPLY) AIRFLOW SETPOINT SHALL BE 4445 CFM (ADJ.). THE BUILDING PRESSURE SETPOINT SHALL BE +0.04 IN. WC. (ADJ.).
- B. IF THE OUTDOOR AIR DRY-BULB TEMPERATURE IS BELOW 45°F OR ABOVE 75°F, ENABLE THE ENERGY WHEEL. DISABLE THE WHEEL WHEN THE OUTDOOR AIR DRY-BULB TEMPERATURE IS BETWEEN 45°F AND 75°F.
- C. IF THE ENERGY WHEEL LEAVING AIR TEMPERATURE IS LESS THAN 35°F, FULLY OPEN THE PRE-HEAT COIL CONTROL VALVE AND MODULATE THE INTEGRAL FACE AND BYPASS DAMPERS TO MAINTAIN THE DOWNSTREAM TEMPERATURE OF THE PRE-HEAT COIL AT 50°F. WHEN THE TEMPERATURE LEAVING THE ENERGY WHEEL RISES ABOVE 40°F, FULLY CLOSE THE PRE-HEAT COIL CONTROL VALVE AND THE BYPASS DAMPERS. IF THE TEMPERATURE LEAVING THE PRE-HEAT COIL IS LESS THAN 35°F, OR EITHER THE SUPPLY OR EXHAUST FAN ARRAY FAIL, TURN OFF THE UNIT AND SEND A UNIT FAILURE ALARM TO THE BMS.
- D. A DUCT-MOUNTED TEMPERATURE/HUMIDITY SENSOR SHALL MONITOR THE SUPPLY AIR CONDITION AS IT DISCHARGES FROM THE UNIT. IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 70°F, THE UNIT SHALL ENABLE HEATING MODE. IN HEATING MODE, OPEN THE HEATING HOT WATER COIL CONTROL VALVE AND MODULATE TO MAINTAIN THE SUPPLY AIR HEATING SETPOINT. IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 75°F, THE UNIT SHALL ENABLE COOLING MODE. IN COOLING MODE, OPEN THE CHILLED WATER COIL CONTROL VALVE AND MODULATE TO MAINTAIN THE COOLING SETPOINT.
- E. IF THE RETURN AIR DEWPOINT IS GREATER THAN 55°F, REGARDLESS OF SUPPLY AIR TEMPERATURE, ENABLE DEHUMIDIFICATION MODE TO DEHUMIDIFY THE AIR. IN DEHUMIDIFICATION MODE, THE COOLING COIL AND HEATING HOT WATER CONTROL VALVES SHALL OPEN AND MODULATE TO MAINTAIN THE DEHUMIDIFICATION SETPOINT OF 55°F DEWPOINT TEMPERATURE.
- F. IF THE SUPPLY AIR TEMPERATURE IS BELOW 50°F, TURN OFF THE UNIT AND SEND A LOW SUPPLY AIR TEMPERATURE ALARM TO THE BMS.

DIRTY FILTER:

ANALOG DIFFERENTIAL PRESSURE TRANSMITTERS SHALL MONITOR THE PRESSURE DROP ACROSS EACH FILTER SECTION. PROVIDE A "DIRTY" OR "PLUGGED MEDIA" ALARM WHEN THE DIFFERENTIAL PRESSURE EXCEEDS THE SETPOINT. FOR THE RETURN AIR FILTER, THE DIFFERENTIAL PRESSURE SETPOINT SHALL BE 1.0 INCH W.C. FOR THE OUTDOOR AIR COMBINATION, THE DIFFERENTIAL PRESSURE SETPOINT SHALL BE 2.5 INCH W.C.

SMOKE DETECTION:

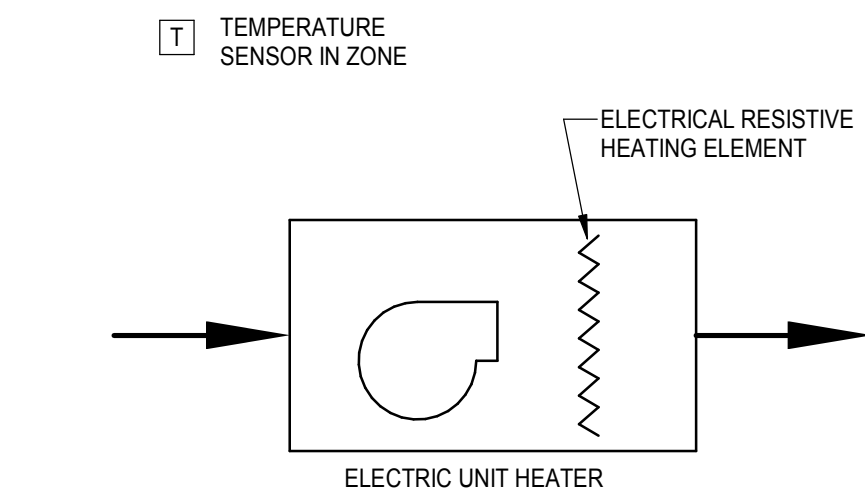
UPON ACTIVATION, THE RETURN AIR SMOKE DETECTION DEVICE SHALL SHUT DOWN THE UNIT AND SEND AN ALARM TO THE BMS AND FIRE ALARM SYSTEMS. THE DOAS UNIT SHALL REMAIN SHUT DOWN UNTIL MANUALLY RESTARTED.

FROST PROTECTION MODE FOR ENERGY WHEEL:

FROST PROTECTION MODE SHALL BE ENABLED WHEN FROST IS DETECTED ON THE WHEEL, BASED ON THE EXHAUST AIR TEMPERATURE AND DIFFERENTIAL PRESSURE ACROSS THE WHEEL. IF THE EXHAUST AIR TEMPERATURE IS BELOW 15°F (ADJ.) AND THE DIFFERENTIAL PRESSURE ACROSS THE WHEEL IS 1.5 INCH W.C. (ADJ.), FROST PROTECTION MODE SHALL BE ENABLED. WHEN FROST PROTECTION IS ENABLED, THE VFD ON THE ENERGY RECOVERY WHEEL SHALL MODULATE THE WHEEL TO A SLOW ROTATIONAL SPEED FOR DEFROST. THE WHEEL SHALL REMAIN IN FROST PROTECTION MODE UNTIL EITHER THE DIFFERENTIAL PRESSURE DECREASES BELOW 1.2 INCH W.C. OR THE EXHAUST AIR TEMPERATURE INCREASES ABOVE 35°F.

COOLING COIL CONDENSATE OVERFLOW ALARM:

A CONDENSATE OVERFLOW (HIGH LIMIT) SWITCH SHALL BE INSTALLED IN THE DRIP PAN BELOW THE COOLING COIL. PER MANUFACTURER'S RECOMMENDATIONS. UPON DETECTION OF OVERFLOW, THE BMS SHALL CLOSE THE COOLING COIL CONTROL VALVE AND GENERATE A CONDENSATE OVERFLOW ALARM. THE COOLING COIL CONTROL VALVE SHALL REMAIN CLOSED WHEN THE OVERFLOW SWITCH IS IN ALARM. THE ALARM MUST BE MANUALLY RESET.



ELECTRIC UNIT HEATER (EUH-#) P&ID

ROOM SENSOR SHALL START THE HEATER TO MAINTAIN TEMPERATURE SETPOINT. SENSOR MAY BE SHARED WITH OTHER UNITS IN THE SAME SPACE.

A SENSOR MOUNTED ON THE WALL WILL READ TEMPERATURE, BUT SHALL NOT HAVE ANY DISPLAY OR ADJUSTMENT CONTROL.

OCCUPIED (NON-VESTIBULE) AIR TEMPERATURE SETPOINT: 65°F (ADJ.)
VESTIBULE OCCUPIED ROOM AIR TEMPERATURE SETPOINT: 60°F (ADJ.)
VESTIBULE UNOCCUPIED ROOM AIR TEMPERATURE SETPOINT: 50°F (ADJ.)

DISABLE VESTIBULE HEATERS WHEN OUTSIDE AIR TEMPERATURE IS ABOVE 45°F (ADJ.).

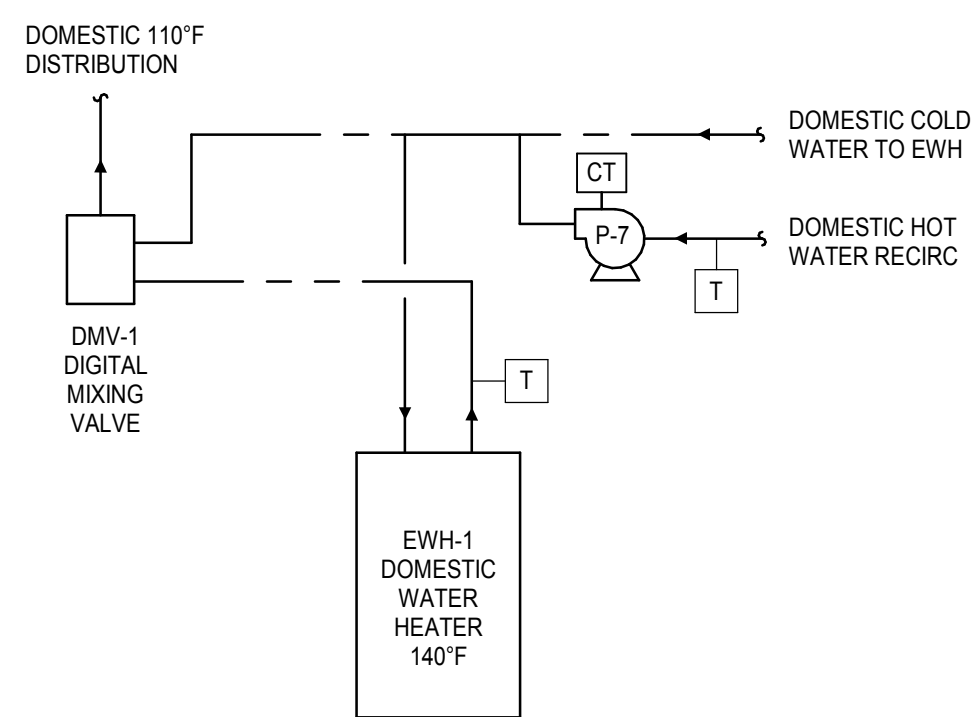
ELECTRIC UNIT HEATER (EUH-#) BMS POINTS

POINTS	DISCRETE INPUT	DISCRETE OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
UNIT HEATER START/STOP	---	X	---	---	---	---
ROOM TEMPERATURE	---	---	X	---	X	1

REMARKS:
1. ALARM FOR OPERATING OUTSIDE NORMAL LIMITS.

3 ELECTRIC UNIT HEATER (EUH-#) P&ID

NOT TO SCALE



DOMESTIC HOT WATER SYSTEM P&ID

THE BUILDING MANAGEMENT SYSTEM SHALL MONITOR THE OUTLET WATER TEMPERATURE OF THE DOMESTIC WATER HEATERS. ALARM WHEN WATER TEMPERATURE EXCEEDS ALARM THRESHOLDS.

PUMP OPERATION:

PUMP SHALL OPERATE ONLY DURING OCCUPIED TIMES AND TURN ON WHEN RETURN WATER TEMPERATURE DROPS BELOW 90°F, AND TURN OFF WHEN RETURN WATER TEMPERATURE REACHES 105°F.

MIXING VALVE:

MIXING VALVE IS PROVIDED WITH A BACNET COMMUNICATION MODULE. THE MODULE WILL ALLOW THE BMS USERS TO MODIFY CONTROL SETTINGS AND READ INLET & OUTLET TEMPERATURES. MAP ALL POINTS AVAILABLE TO THE BMS.

DOMESTIC HOT WATER SYSTEM BMS POINTS

POINT(S)	DISCRETE INPUT	DISCRETE OUTPUT	ANALOG INPUT	ANALOG OUTPUT	ALARM	REMARKS
DWH-1 WATER OUTLET TEMPERATURE	---	---	X	---	X	1
RECIRC PUMP P-7 START AND STATUS	X	X	---	---	X	---
RECIRC RETURN WATER TEMPERATURE	---	---	X	---	---	---
DIGITAL MIXING VALVE	---	---	---	---	---	2

REMARKS:
1. ALARM FOR OPERATING OUTSIDE NORMAL LIMITS.
2. DATA OBTAINED THRU A NETWORK CONNECTION.

5 Domestic Hot Water P&ID

NOT TO SCALE

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	09/12/2024	Addendum 2

NDOT 1600 OFFICE
RENOVATION

PROJECT: 23053 DATE: 08/16/2024
PROJECT STATUS: CONSTRUCTION
DOCUMENTS

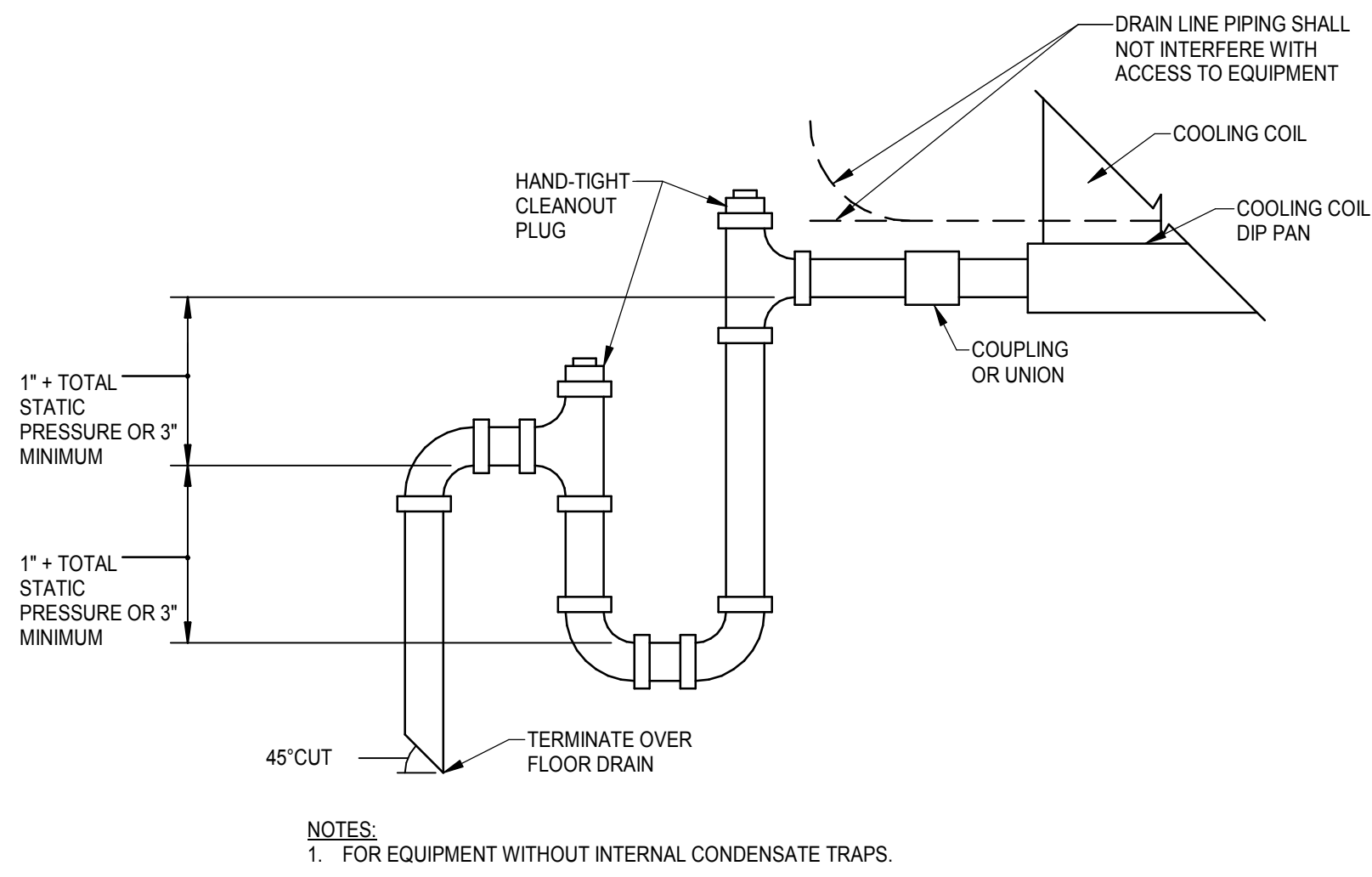
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MECHANICAL DETAILS

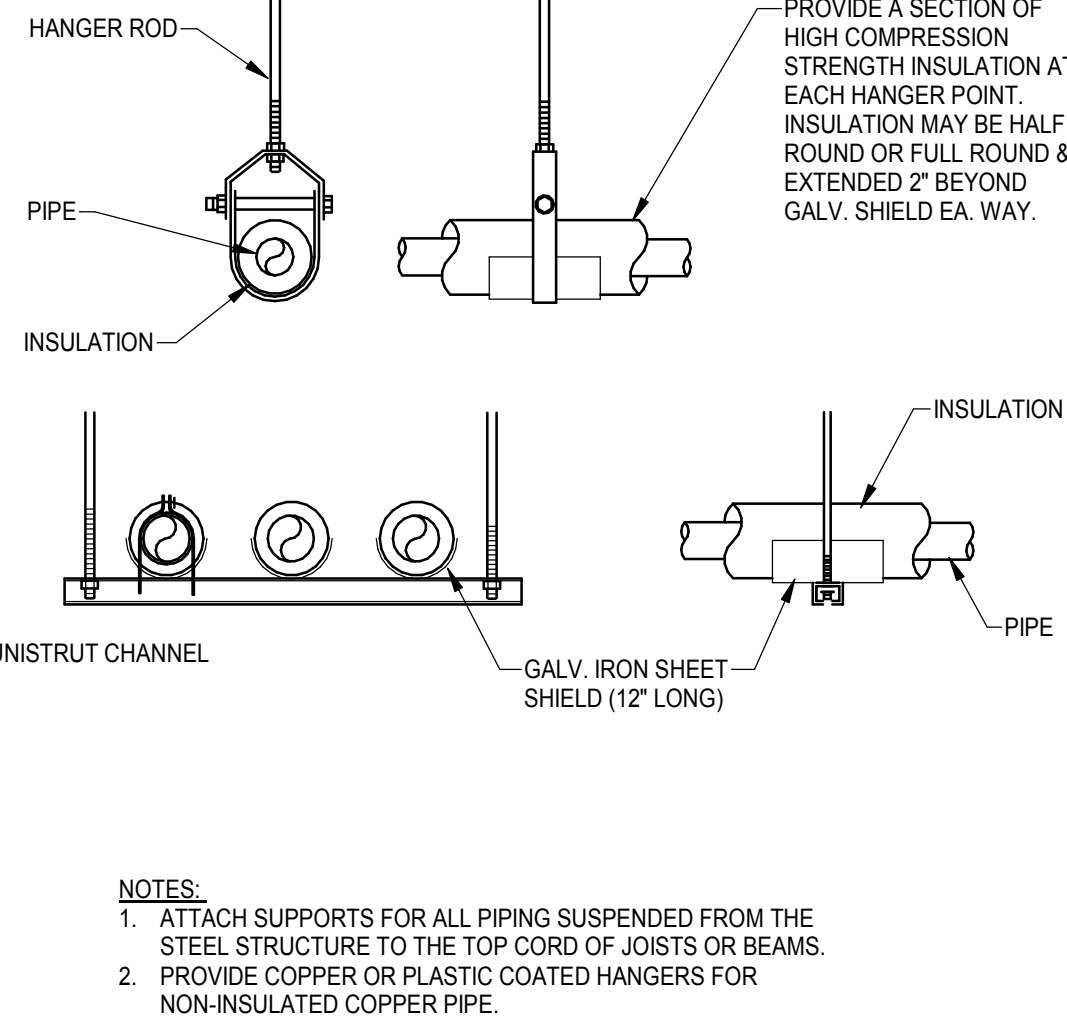
NORTH



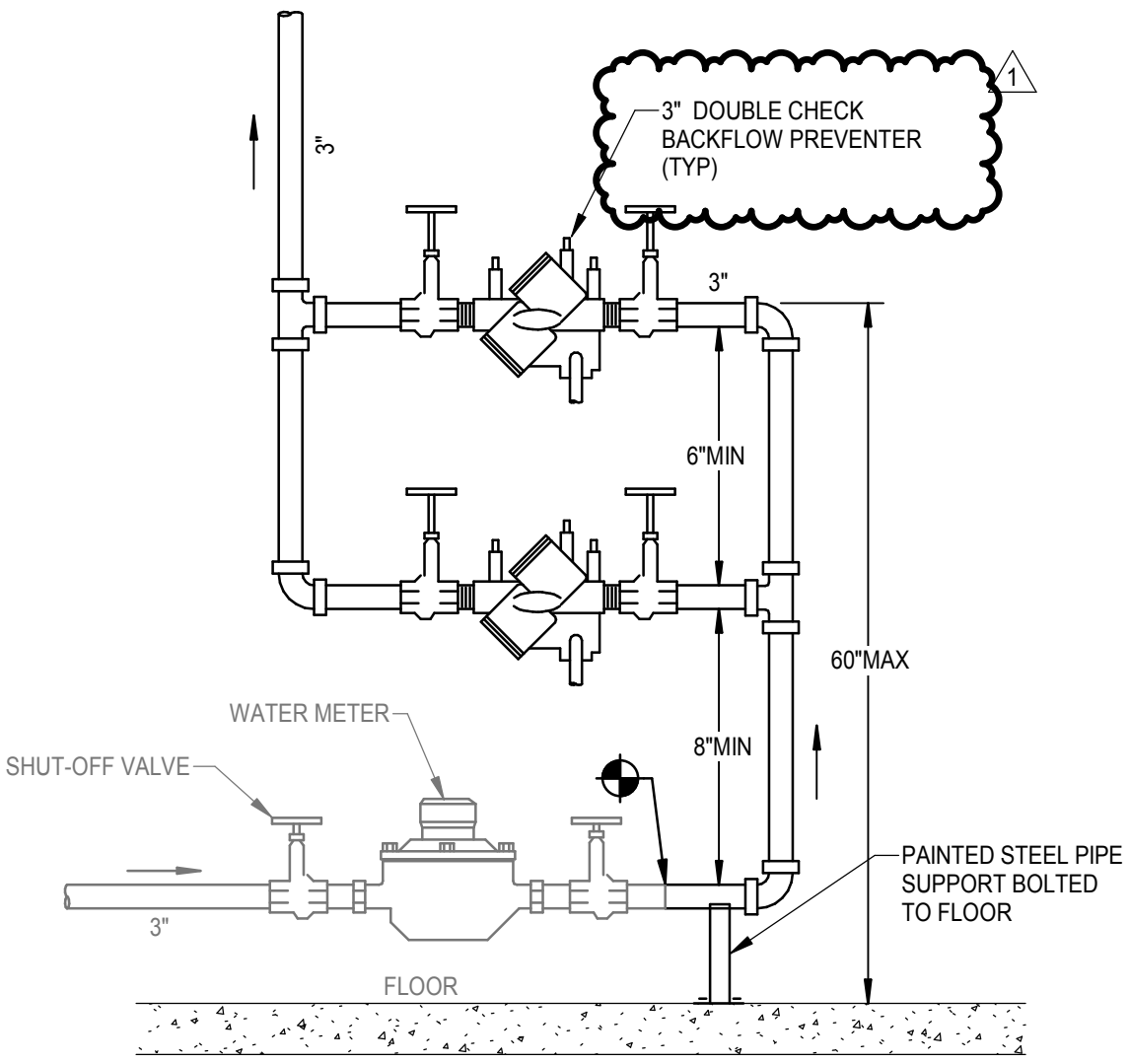
M5.1



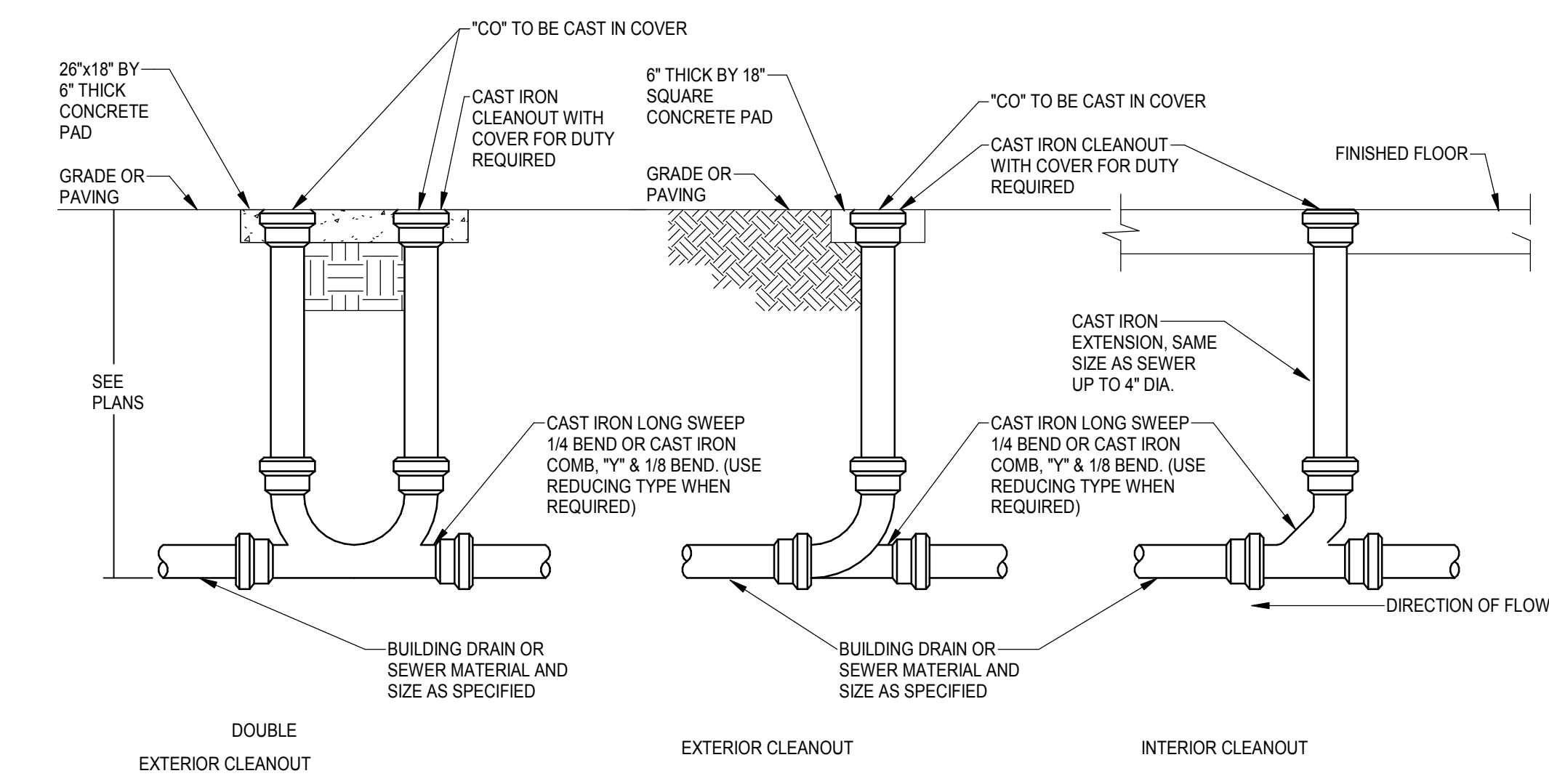
1 CONDENSATE TRAP DETAIL
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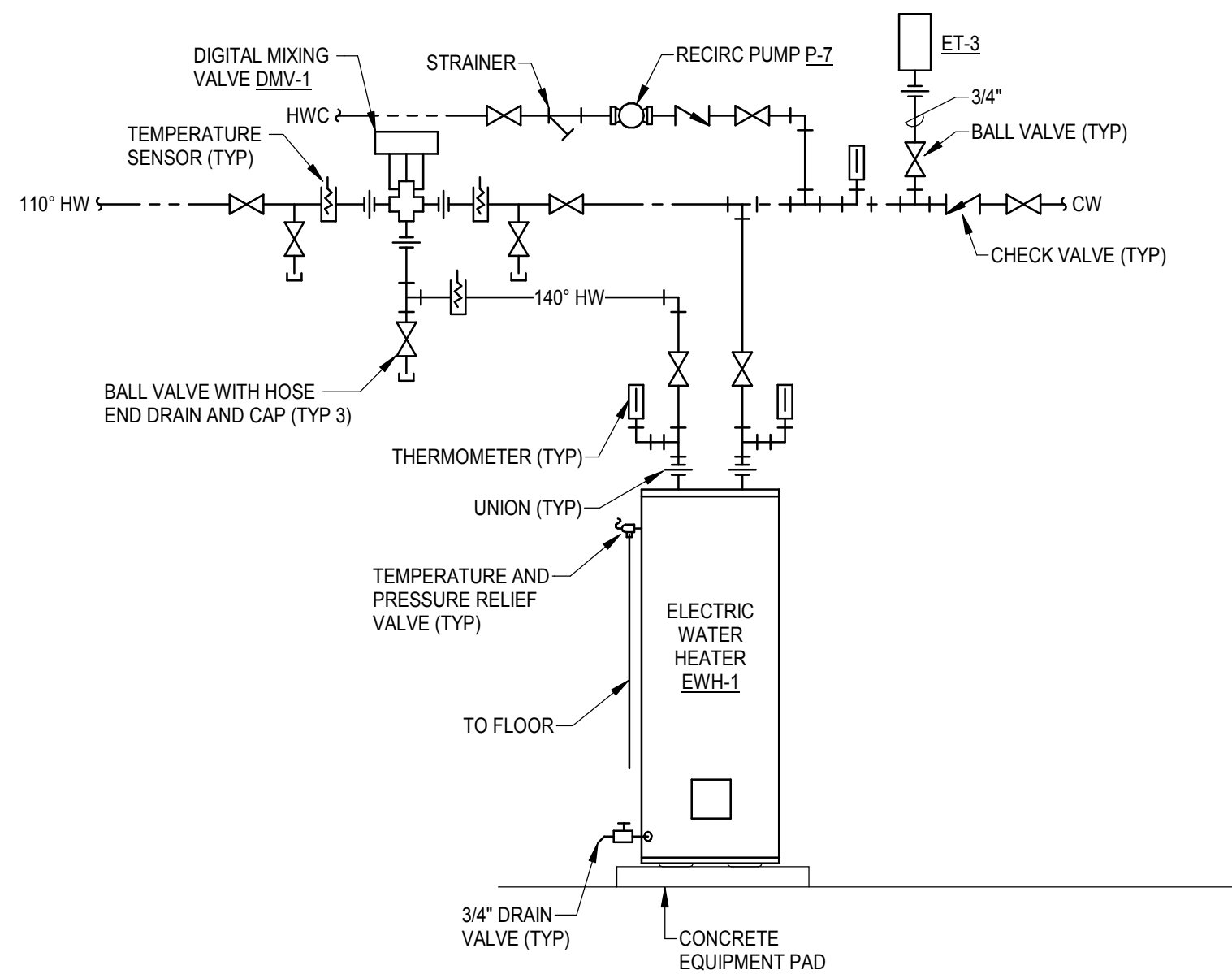
2 PIPE INSULATION DETAIL
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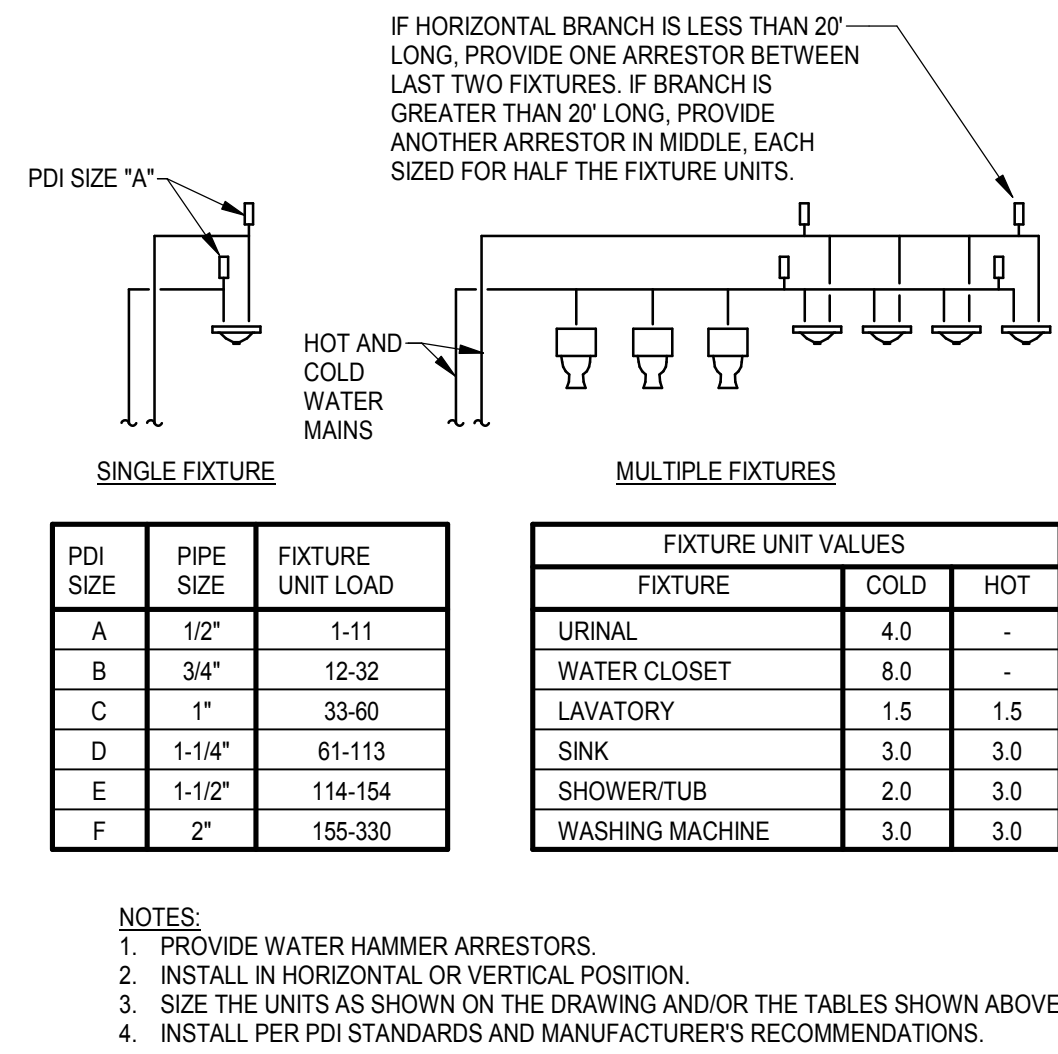
3 WATER SERVICE DETAIL
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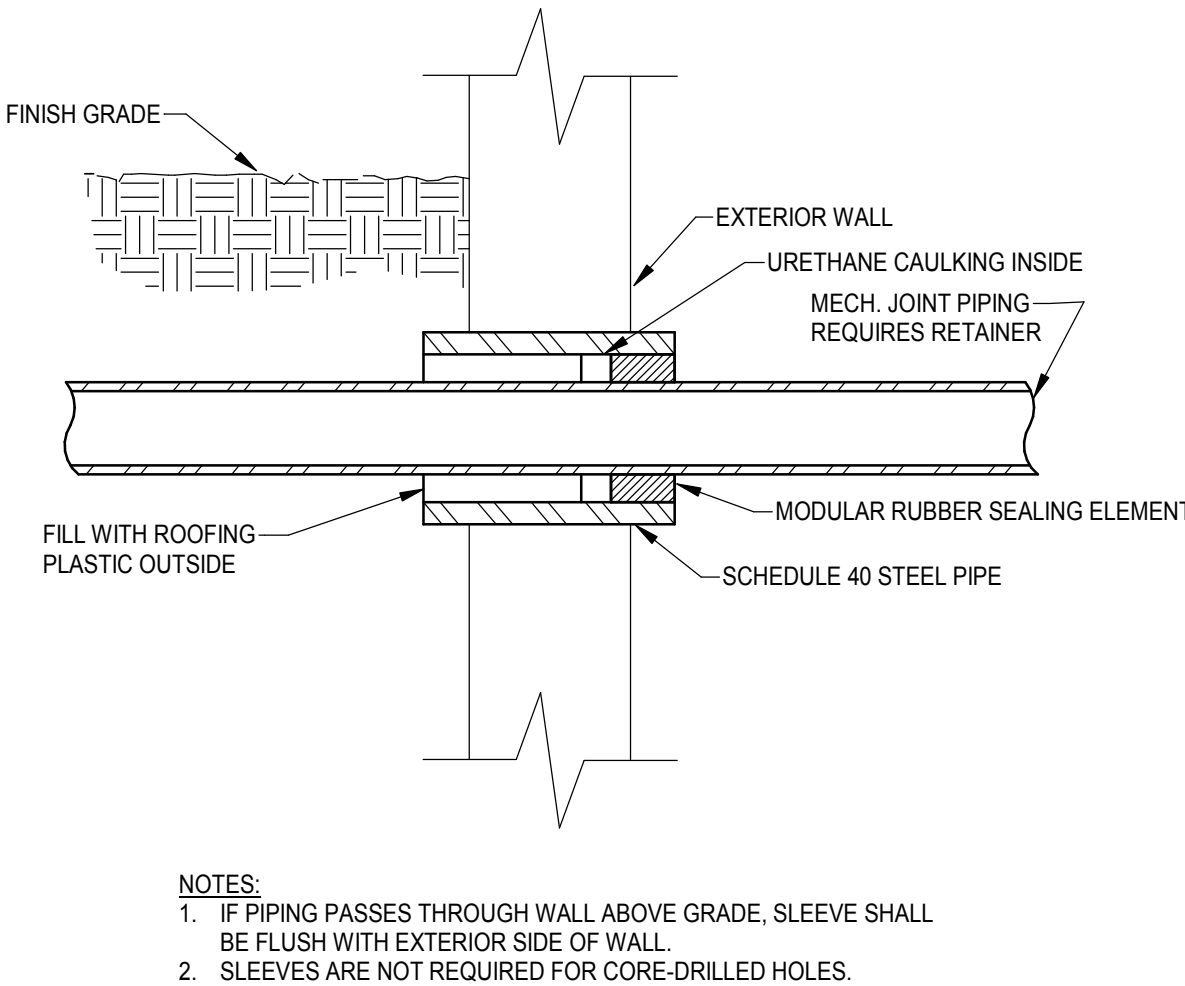
4 TYPICAL CLEANOUTS
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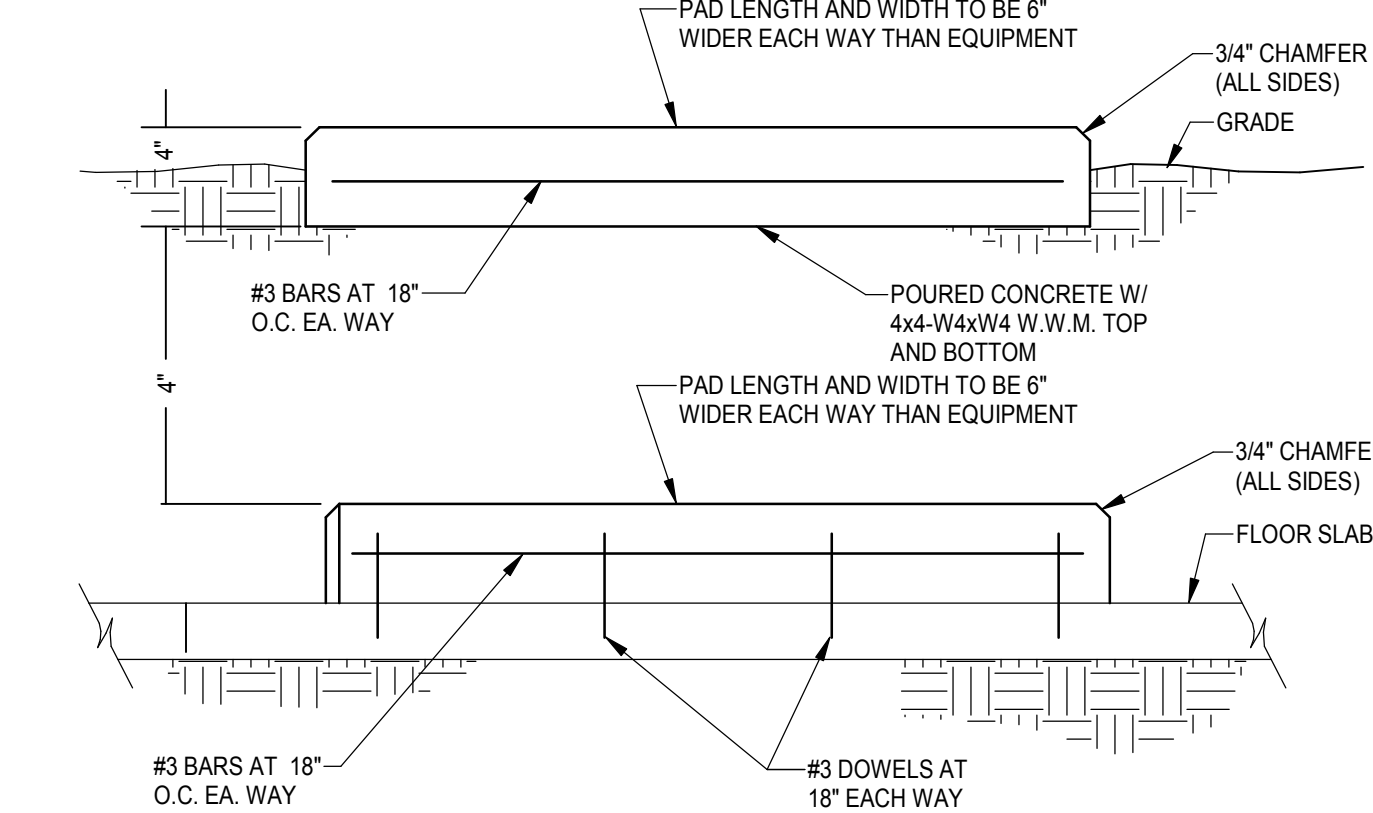
5 DOMESTIC WATER HEATER (EWH-1) PIPING DETAIL
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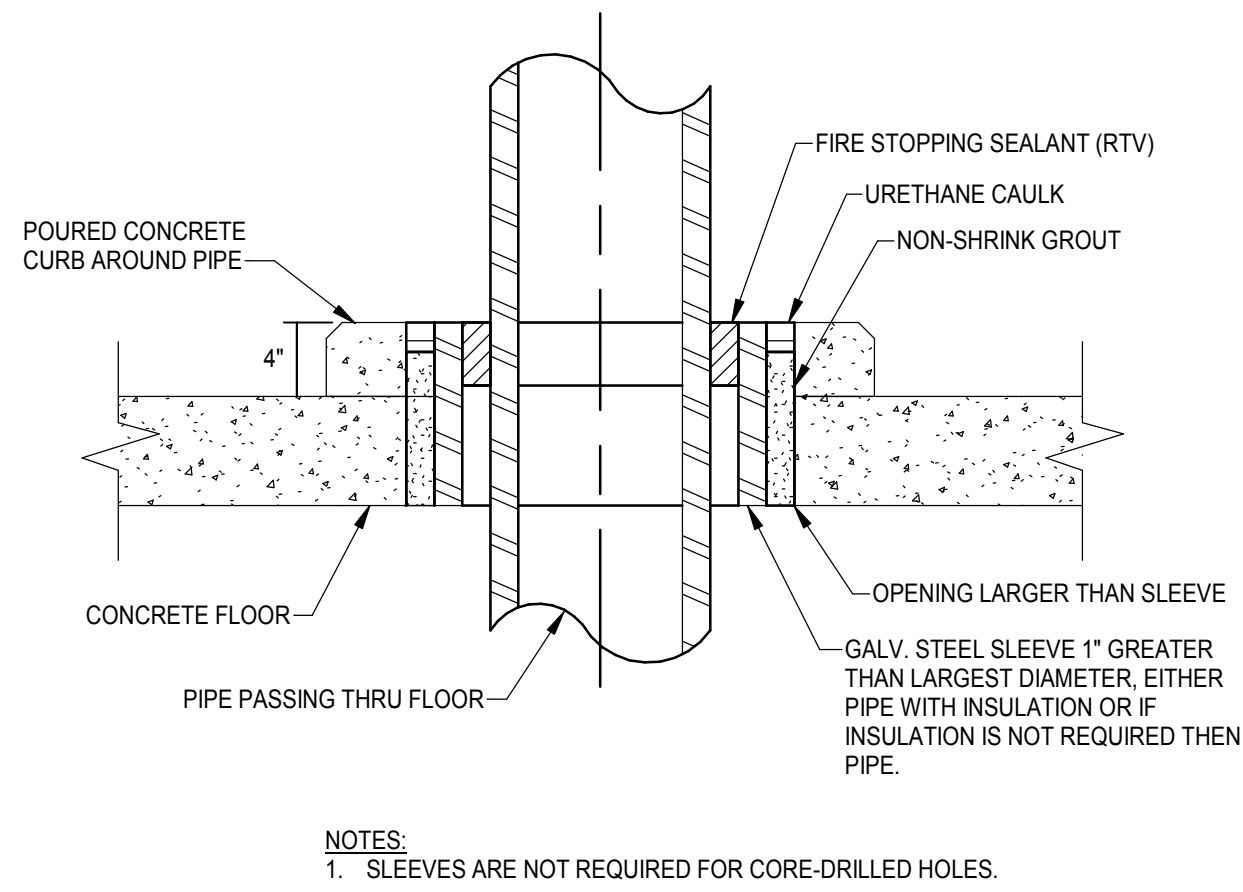
6 WATER HAMMER ARRESTOR DETAIL
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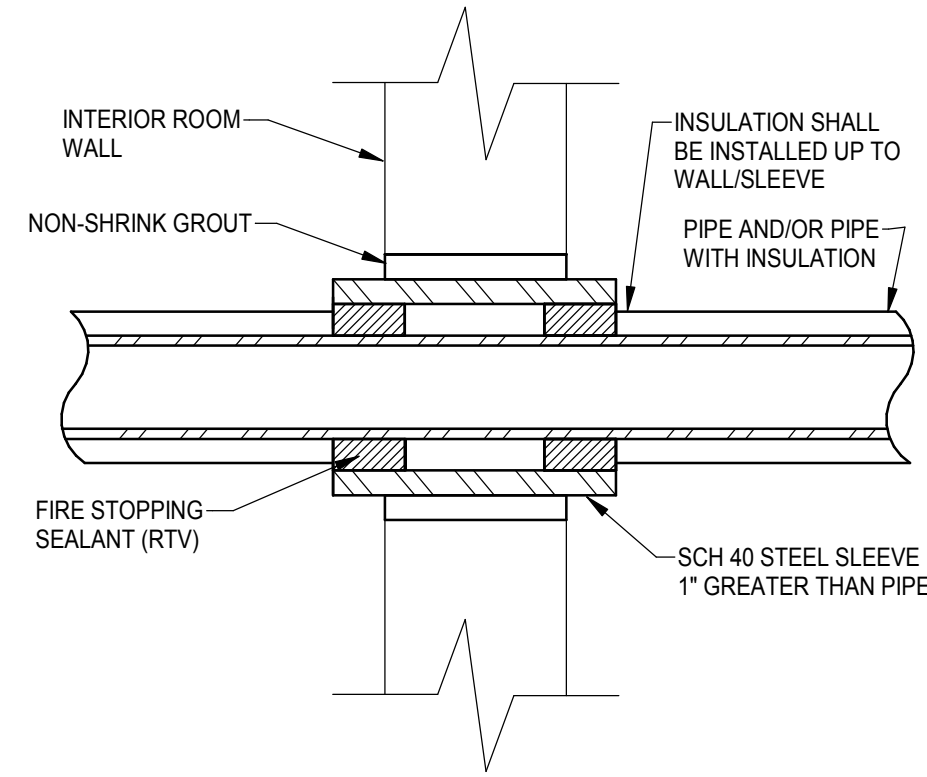
7 PIPE SLEEVE THRU EXTERIOR WALL
NOT TO SCALE



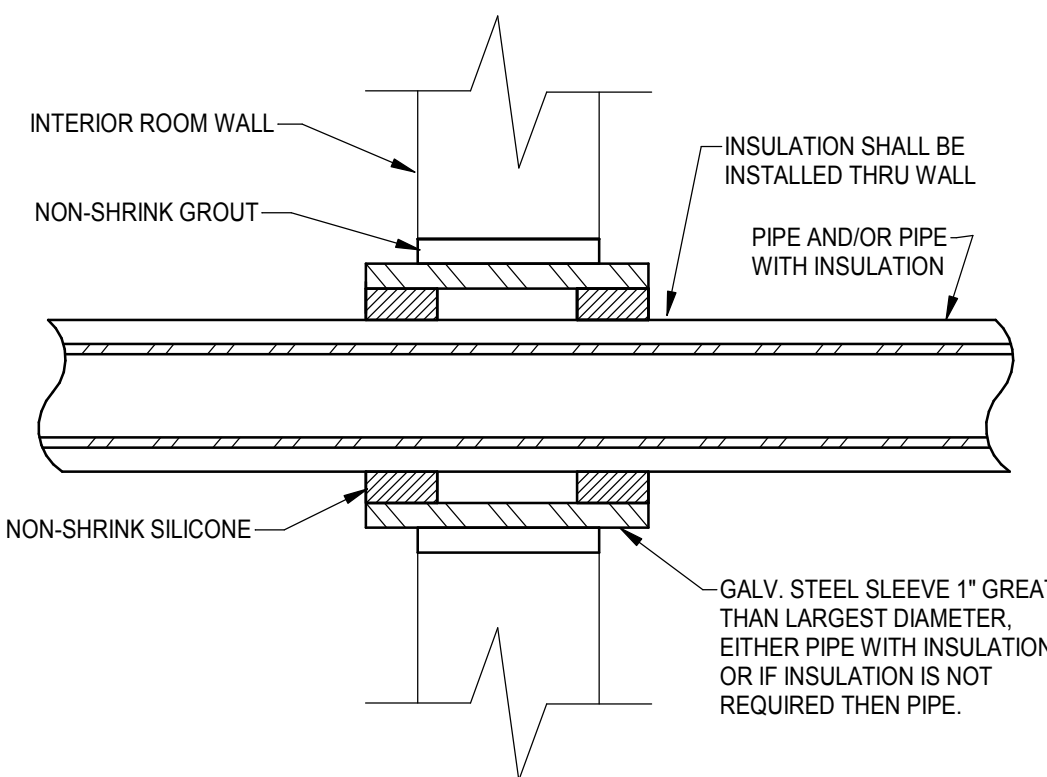
8 EQUIPMENT BASE
NOT TO SCALE



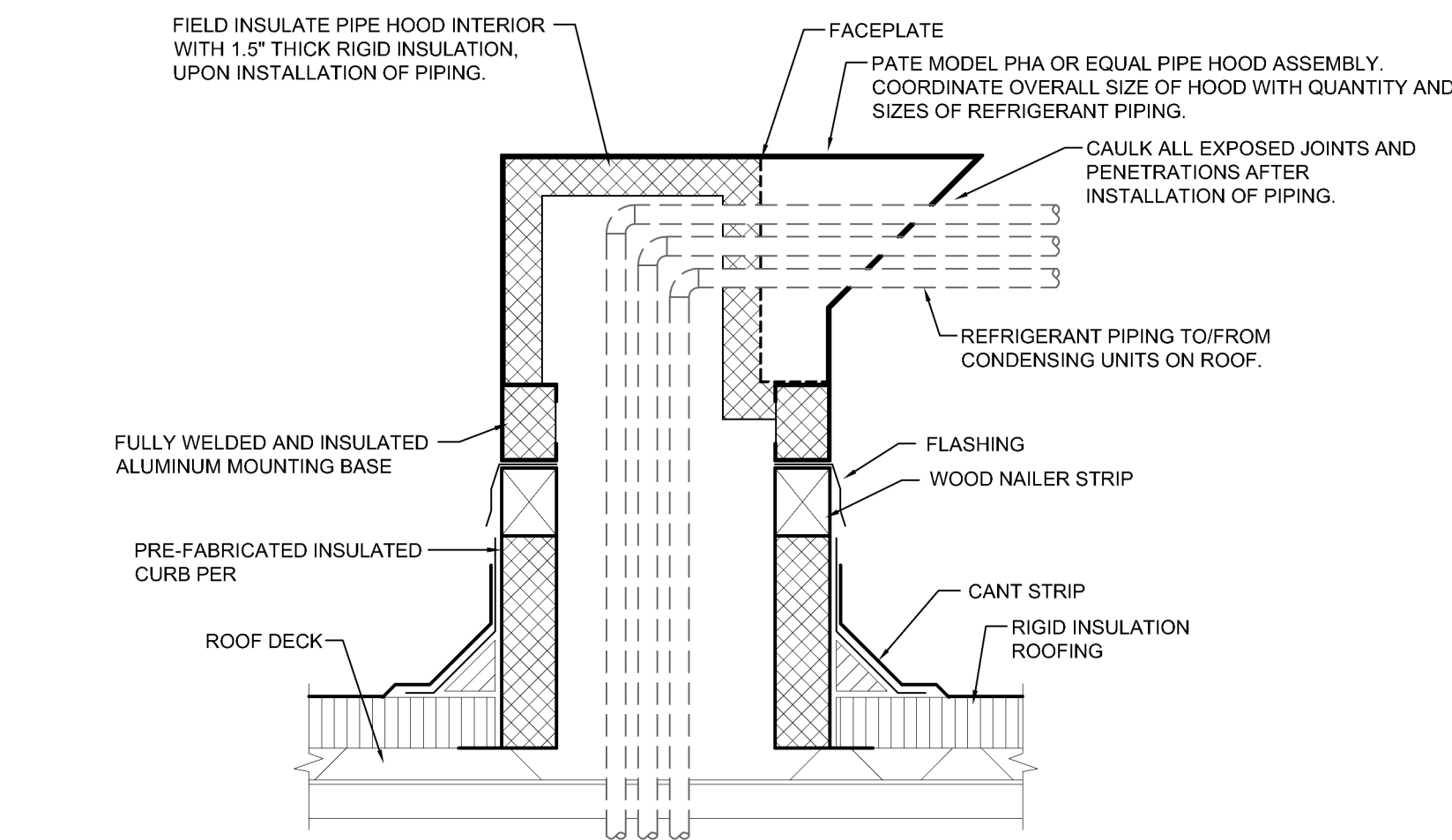
9 PIPE SLEEVE THRU FLOOR
NOT TO SCALE



10 PIPE SLEEVE THRU RATED INTERIOR WALL
NOT TO SCALE



11 PIPE SLEEVE THRU NON-RATED INTERIOR WALL
NOT TO SCALE



12 PIPE ROOF PENETRATION DETAIL
NOT TO SCALE

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	09/12/2024	Addendum 2

NDOT 1600 OFFICE RENOVATION

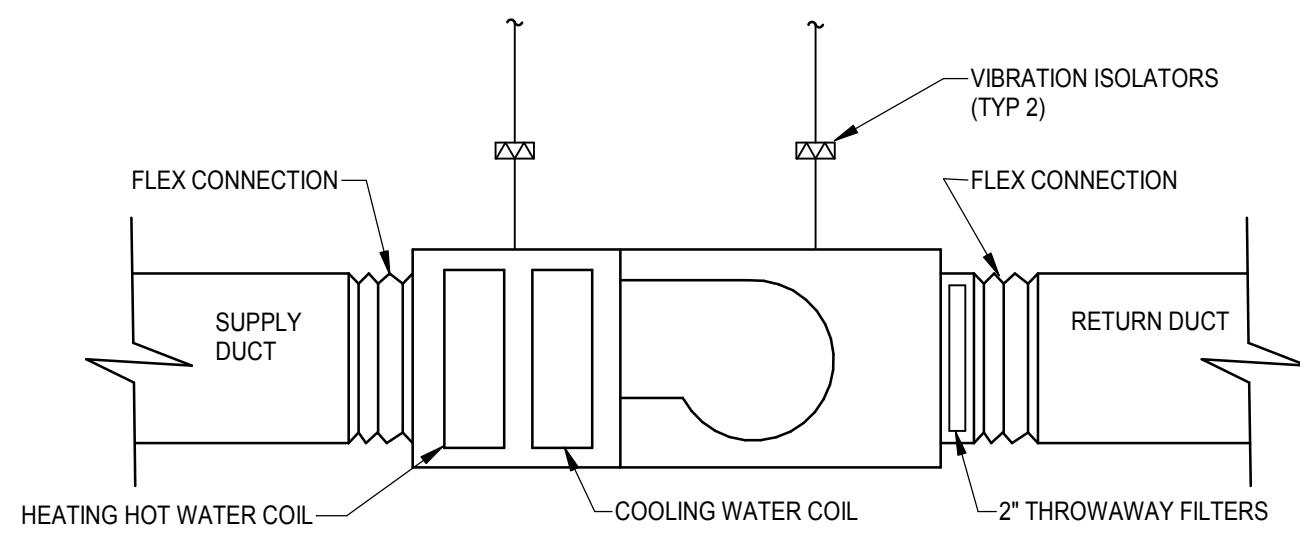
PROJECT: 23053 DATE: 08/16/2024
PROJECT STATUS: CONSTRUCTION DOCUMENTS

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MECHANICAL DETAILS

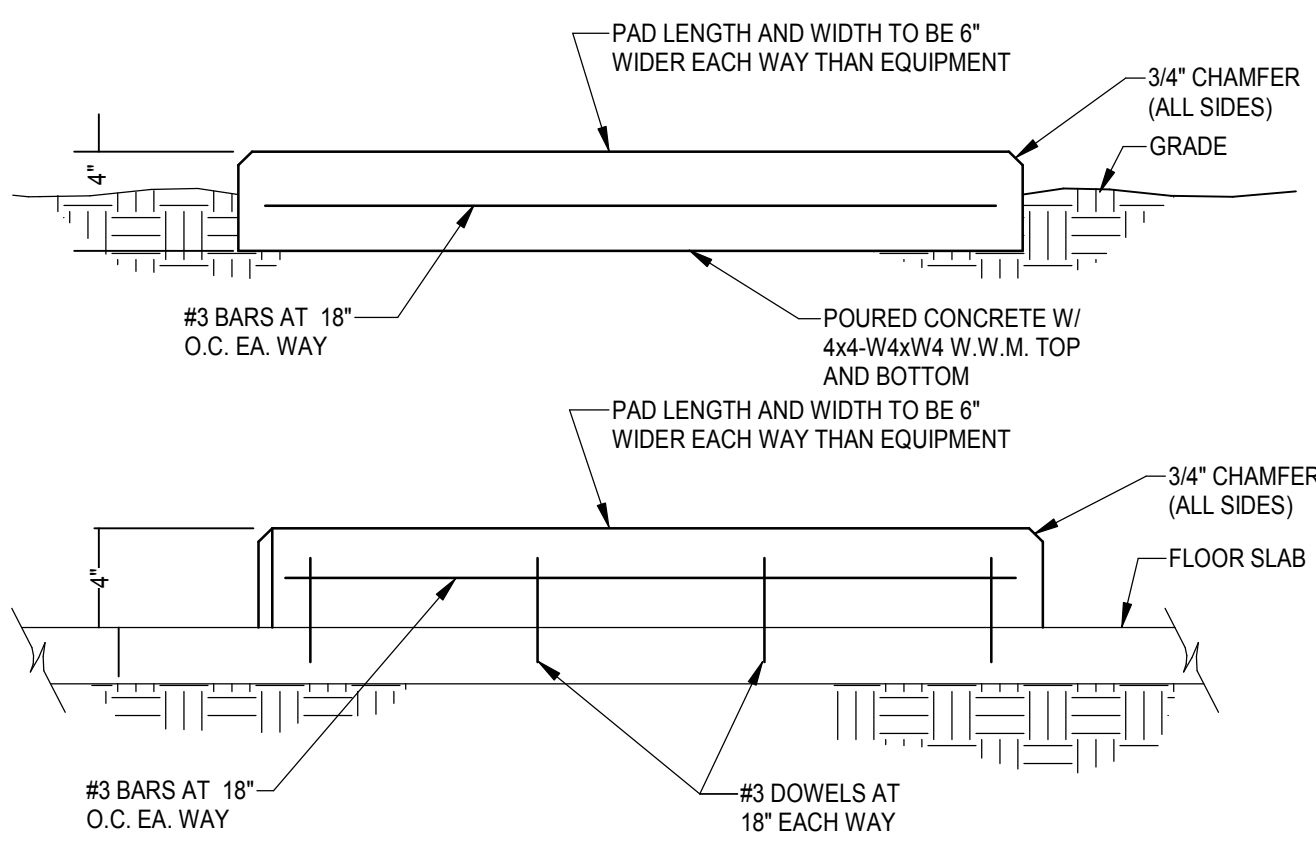
1 FAN COIL UNIT

NOT TO SCALE



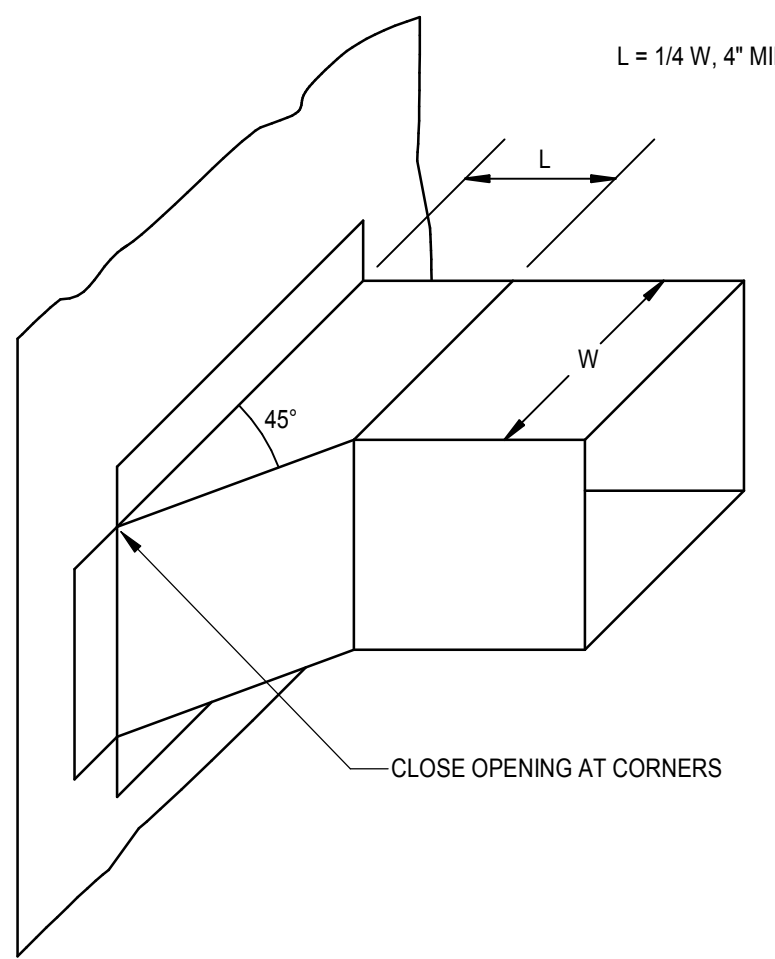
2 EQUIPMENT BASE

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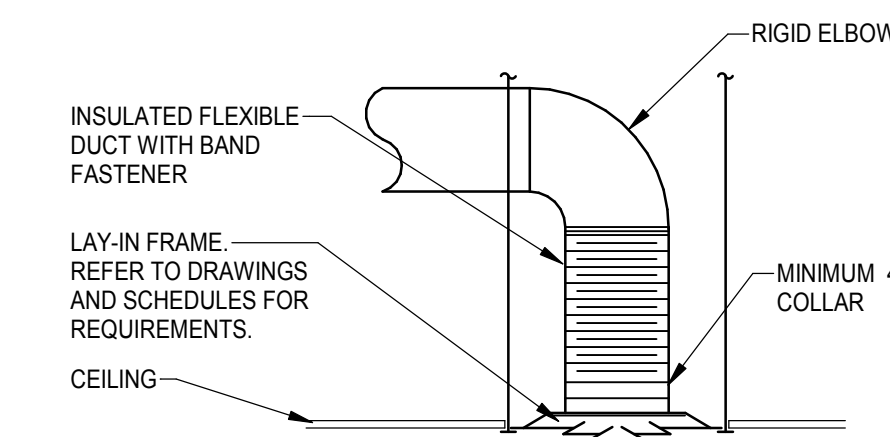
3 45° TAKE-OFF FITTING DETAIL

NOT TO SCALE



4 DIFFUSER CONNECTION DETAIL

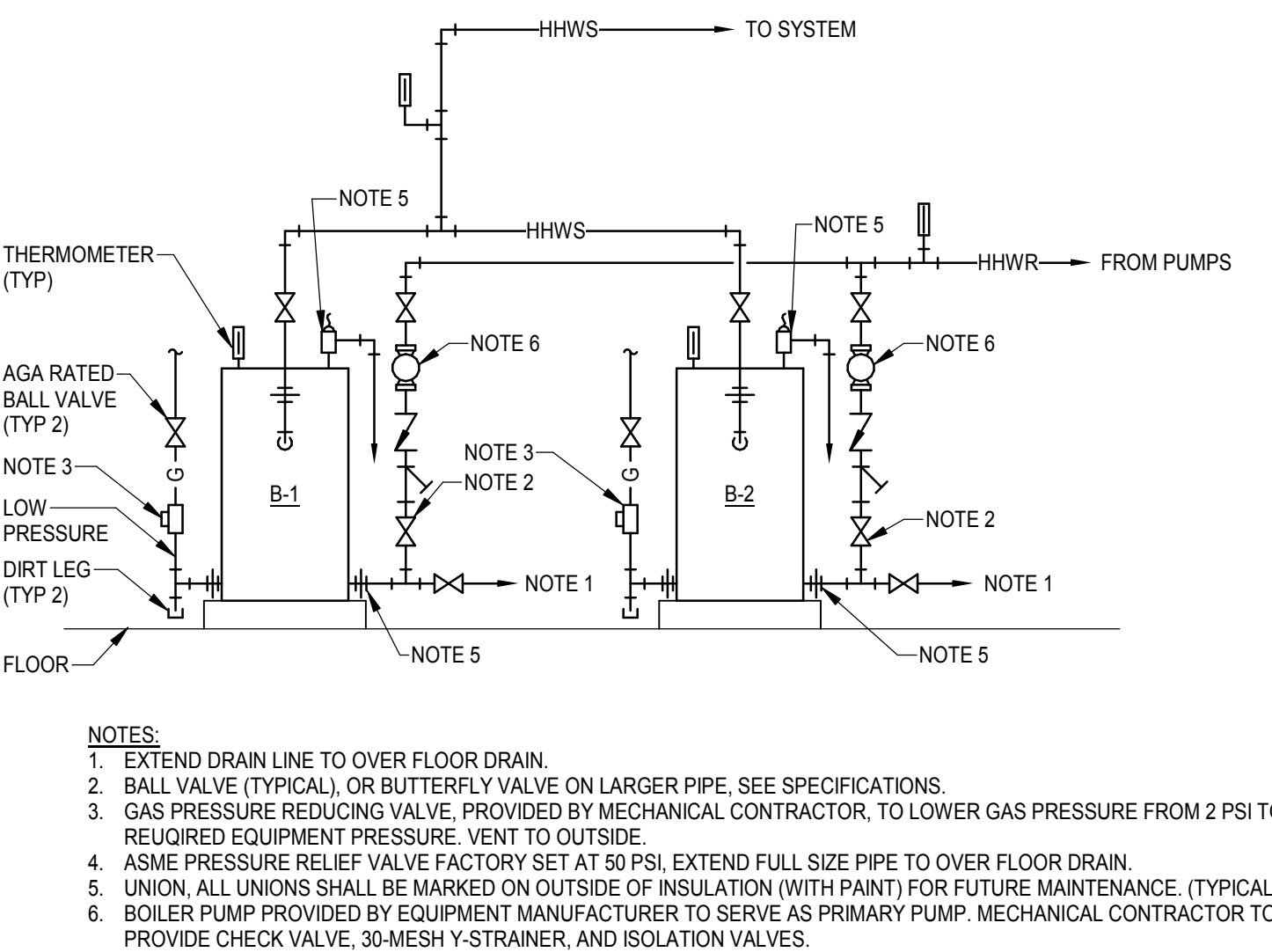
NOT TO SCALE



- NOTES:
1. REFER TO PLANS FOR DUCT SIZES.
2. FLEX DUCT MAY BE ALTERNATIVELY POSITIONED BEFORE THE RIGID ELBOW.

5 BOILER PIPING SCHEMATIC

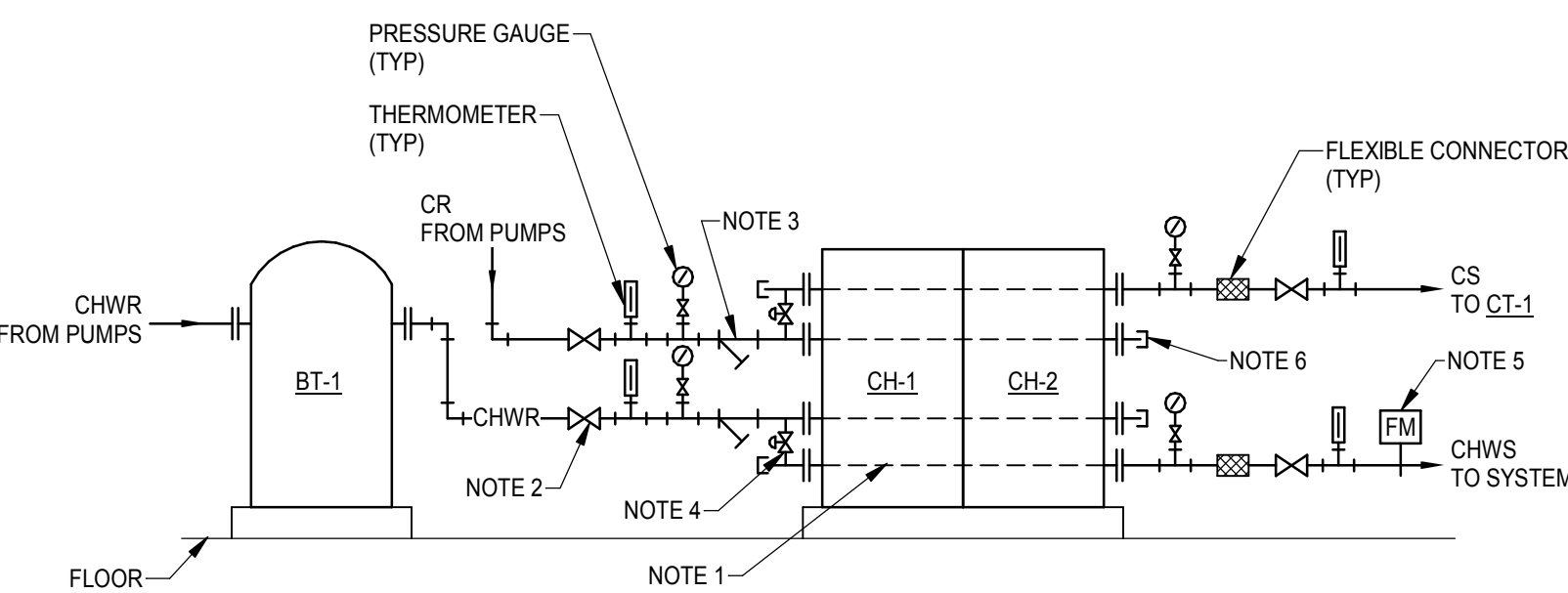
NOT TO SCALE



- NOTES:
1. EXTEND DRAIN LINE TO OVER FLOOR DRAIN.
2. BALL VALVE (TYPICAL) OR BUTTERFLY VALVE ON LARGER PIPE, SEE SPECIFICATIONS.
3. GAS PRESSURE REDUCING VALVE, PROVIDED BY MECHANICAL CONTRACTOR, TO LOWER GAS PRESSURE FROM 2 PSI TO REQUIRED EQUIPMENT PRESSURE. VENT TO OUTSIDE.
4. ASME PRESSURE RELIEF VALVE FACTORY SET AT 50 PSIG. EXTEND FULL SIZE PIPE TO OVER FLOOR DRAIN.
5. UNION, ALL UNIONS SHALL BE MARKED ON OUTSIDE OF INSULATION (WITH PAINT) FOR FUTURE MAINTENANCE. (TYPICAL)
6. BOILER PUMP PROVIDED BY EQUIPMENT MANUFACTURER TO SERVE AS PRIMARY PUMP. MECHANICAL CONTRACTOR TO PROVIDE CHECK VALVE, 30-MESH Y-STRAINER, AND ISOLATION VALVES.

6 CHILLER PIPING SCHEMATIC

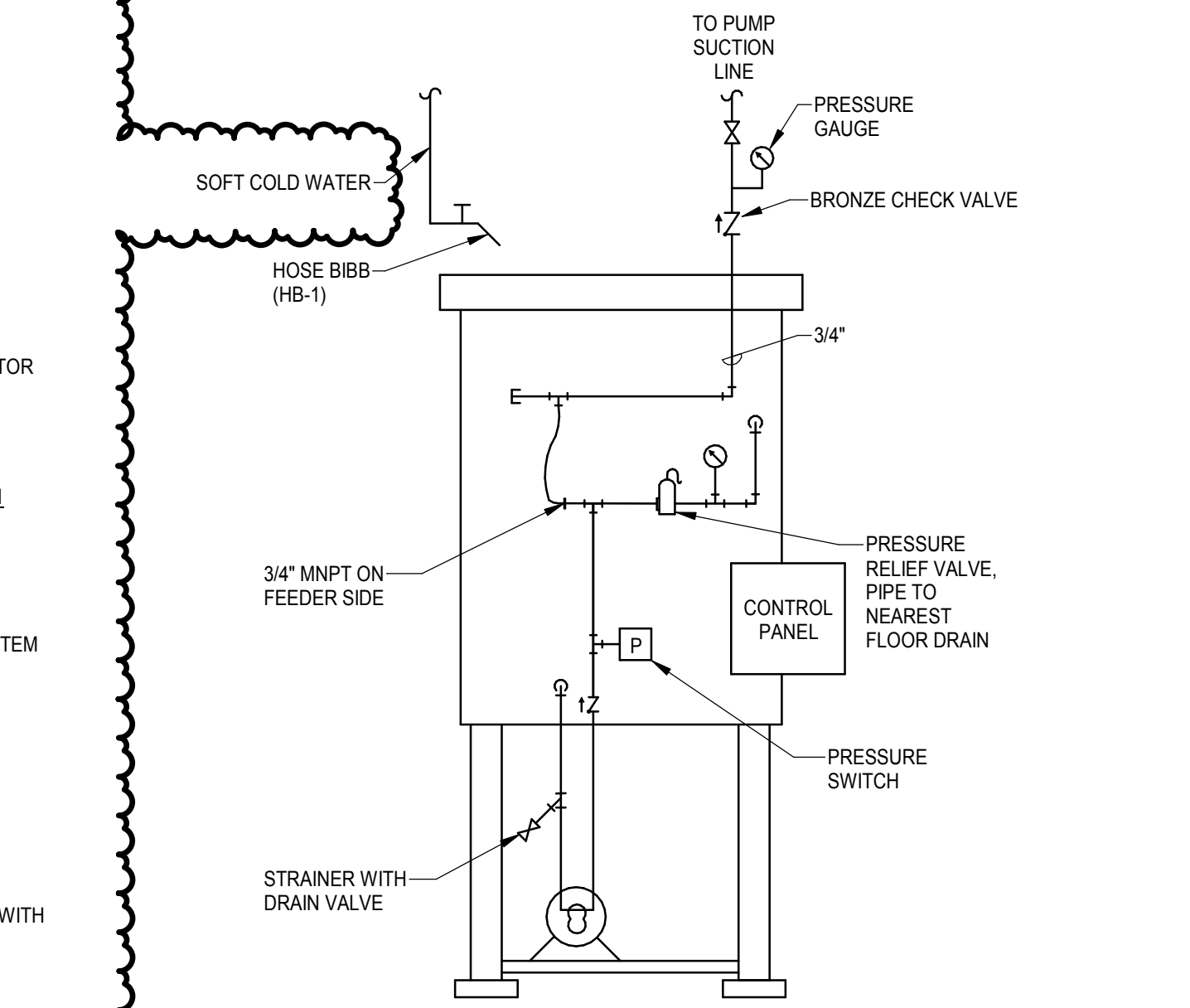
NOT TO SCALE



- NOTES:
1. PIPING ON PIPE RACK LOCATED AT REAR OF UNIT(S).
2. BALL VALVE (TYPICAL) OR BUTTERFLY VALVE ON LARGER PIPE, SEE SPECIFICATIONS.
3. MINIMUM 40-MESH Y-STRAINER PROVIDED BY CHILLER MANUFACTURER.
4. 6" GROOVED BYPASS AND TEMPERATURE HEADER PROVIDED BY CHILLER MANUFACTURER.
5. INSERTION TYPE TURBINE FLOW METER PROVIDED BY CONTROLS CONTRACTOR. COORDINATE INSTALLATION WITH MANUFACTURER'S RECOMMENDATIONS.
6. 6" GROOVED CAP PROVIDED BY CHILLER MANUFACTURER.

7 CHEMICAL FEEDER DETAIL

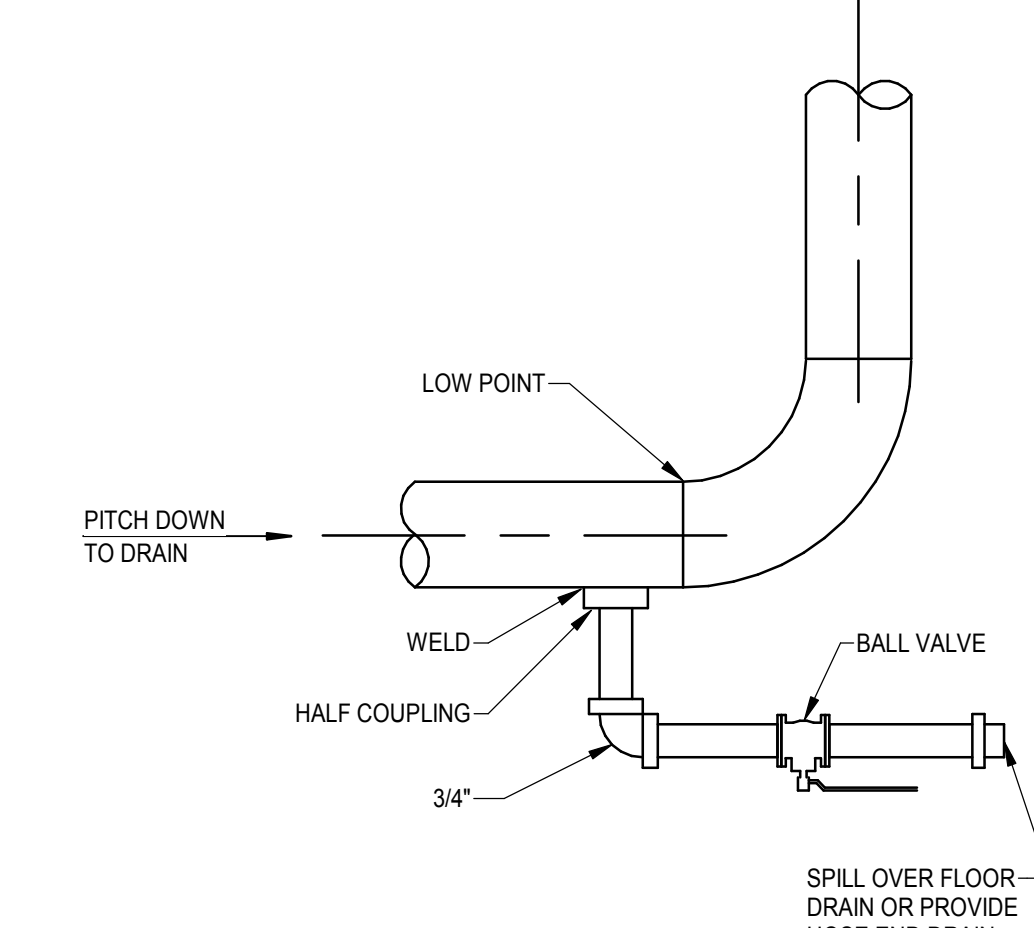
NOT TO SCALE



- NOTES:
1. INSTALL UNIT ON 4" EQUIPMENT BASE.
2. PROVIDE SAME SETUP FOR HOT WATER AND CHILLED WATER LOOP SYSTEMS.

8 DRAIN DETAIL

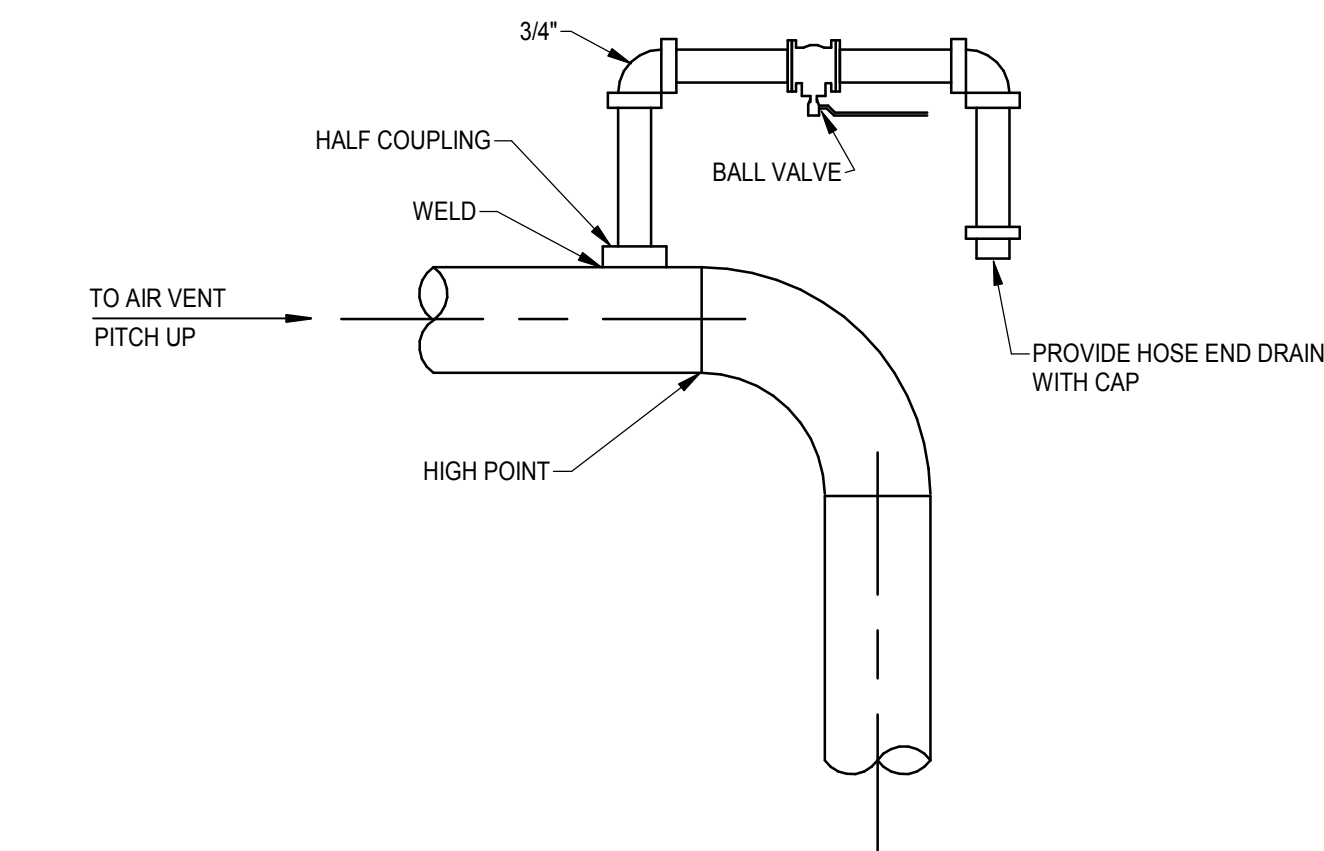
NOT TO SCALE



- NOTES:
1. LOW POINTS IN ALL HYDRONIC PIPING SHALL BE DRAINED.

9 MANUAL AIR VENT DETAIL

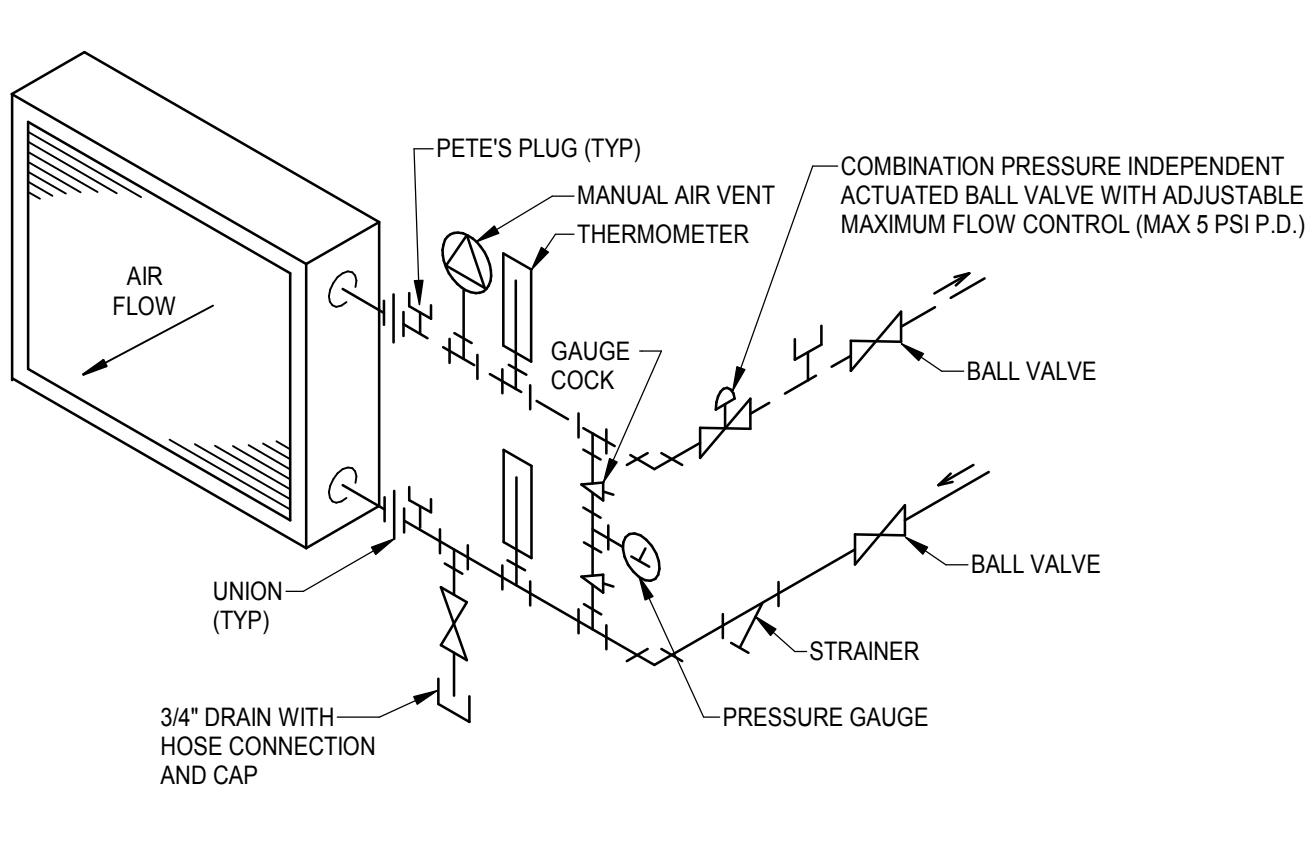
NOT TO SCALE



- NOTES:
1. HIGH POINTS IN ALL HYDRONIC PIPING SHALL HAVE MANUAL AIR VENTS.
2. ALL AIR VENTS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.

10 DOAS COIL DETAIL

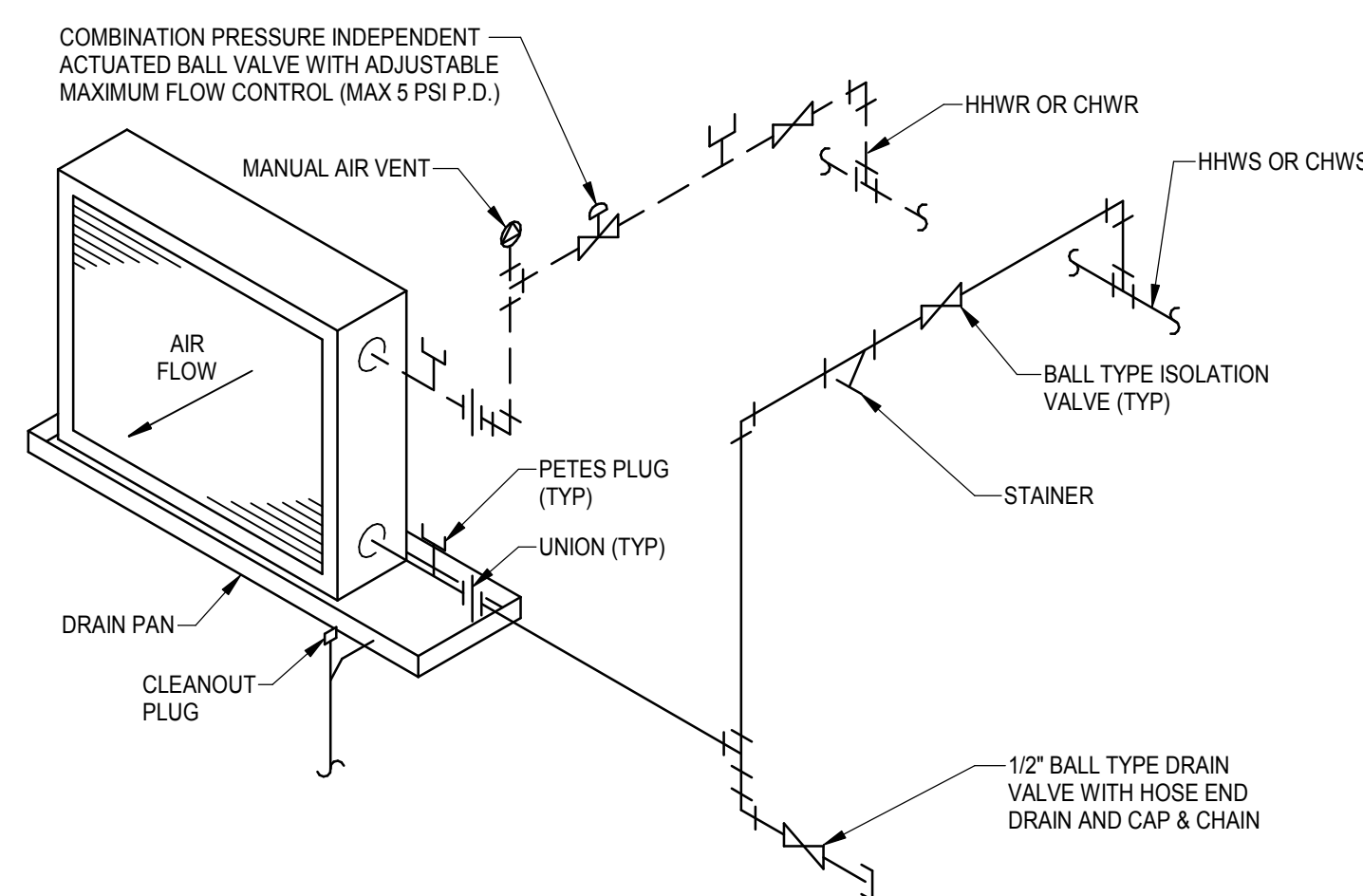
NOT TO SCALE



- NOTES:
1. LOCATE VALVES AND FITTINGS OUT OF THE WAY OF COIL. PULL-OUT SPACE AND ACCESS DOORS.
2. MULTIFUNCTIONAL VALVES AND FITTINGS ARE ALLOWED.

11 FCU COIL PIPING DETAIL

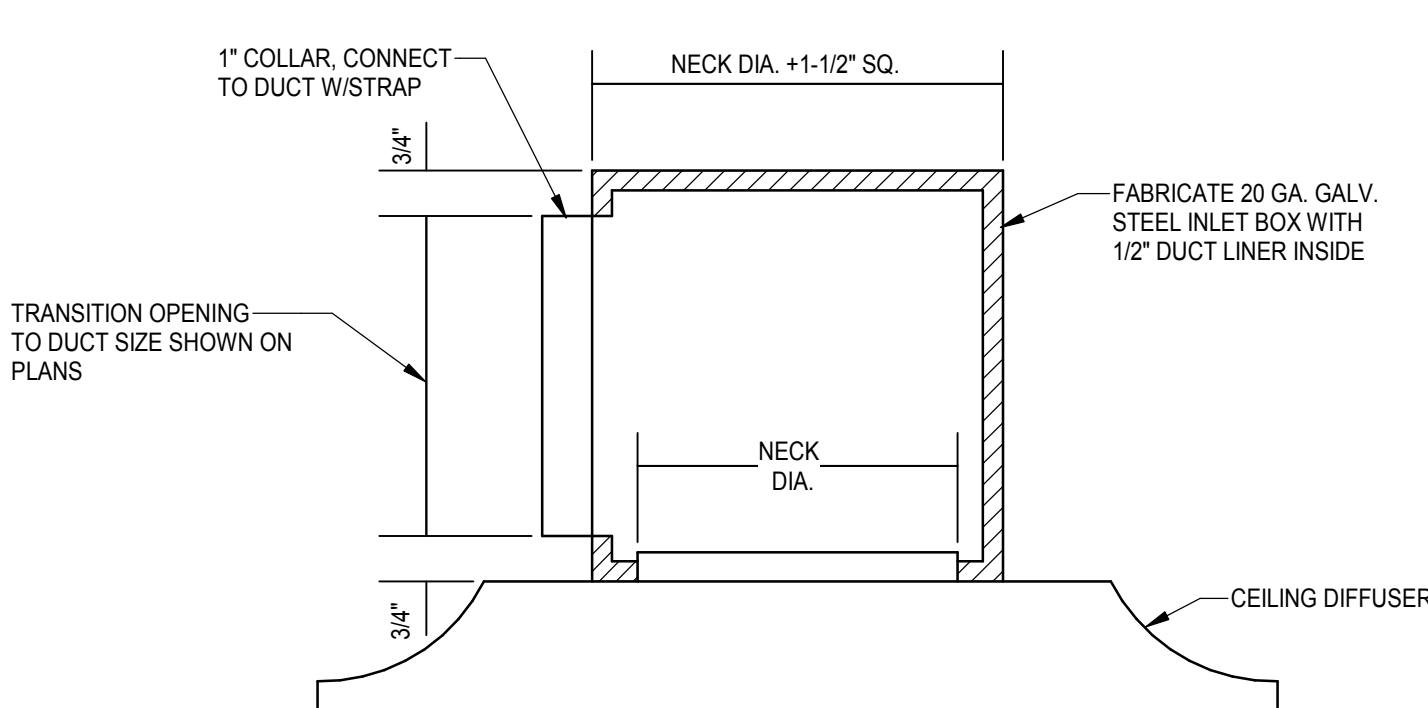
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- NOTES:
1. MULTI-FUNCTIONAL VALVES AND FITTINGS ARE ALLOWED.

12 CEILING DIFFUSER INLET BOX DETAIL

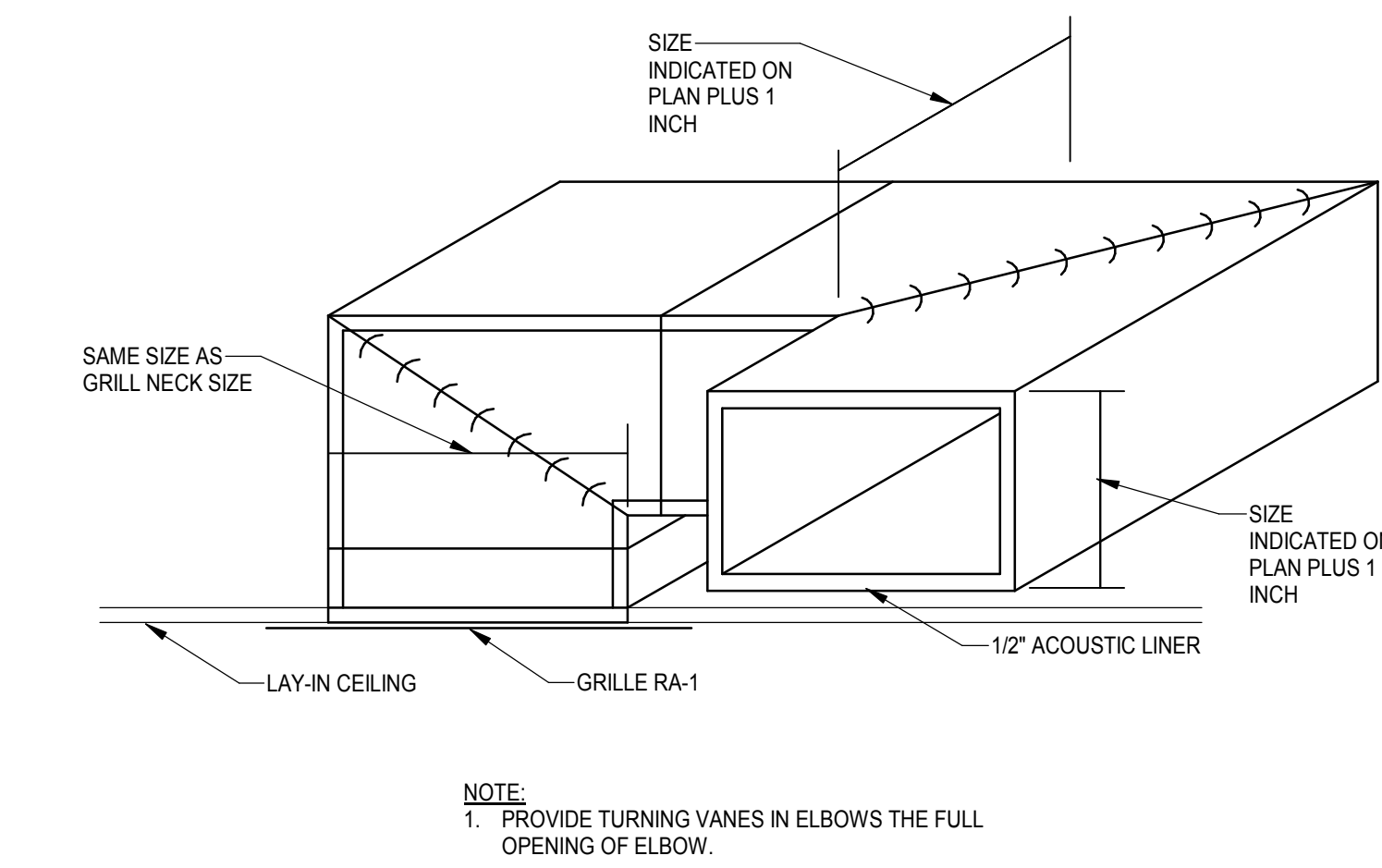
NOT TO SCALE



- NOTES:
1. INSTALL INLET BOX WHERE TIGHT CONDITIONS WILL NOT ALLOW A ROUND ELBOW DOWN TO THE DIFFUSER.

13 RETURN AIR BOOT

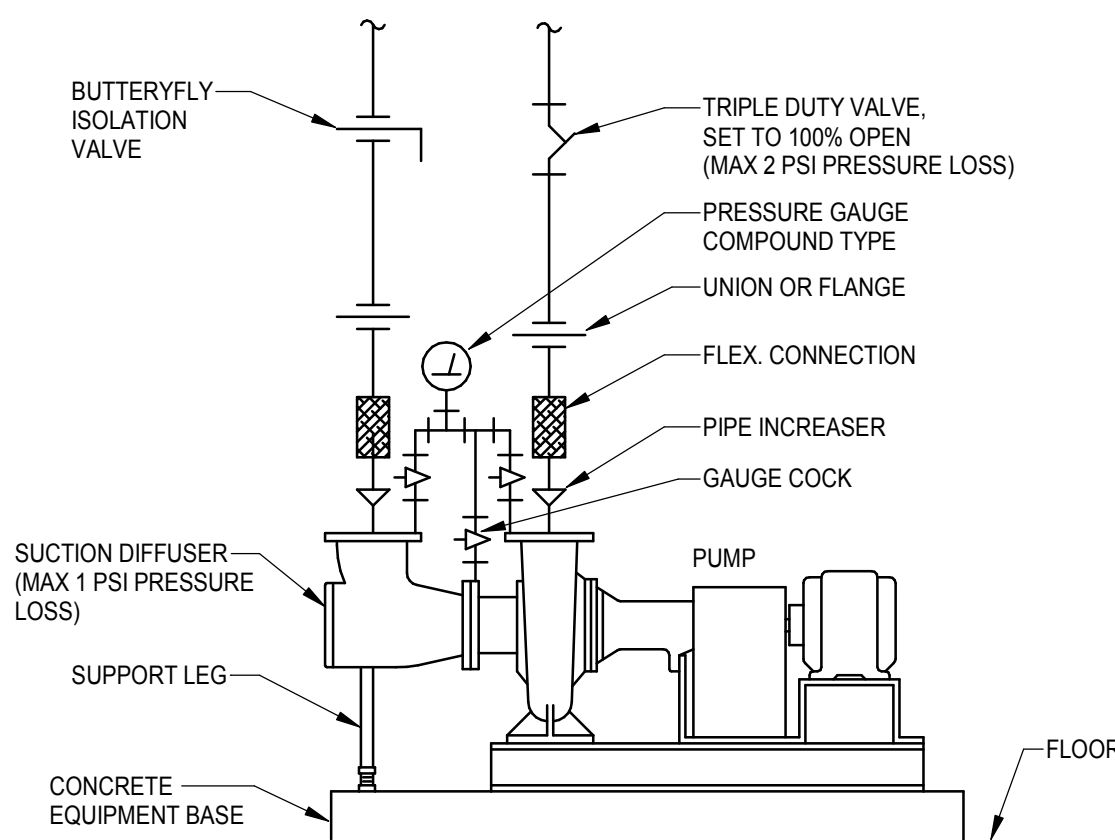
NOT TO SCALE



- NOTE:
1. PROVIDE TURNING VANES IN ELBOWS THE FULL OPENING OF ELBOW.

14 END SUCTION PUMP DETAIL

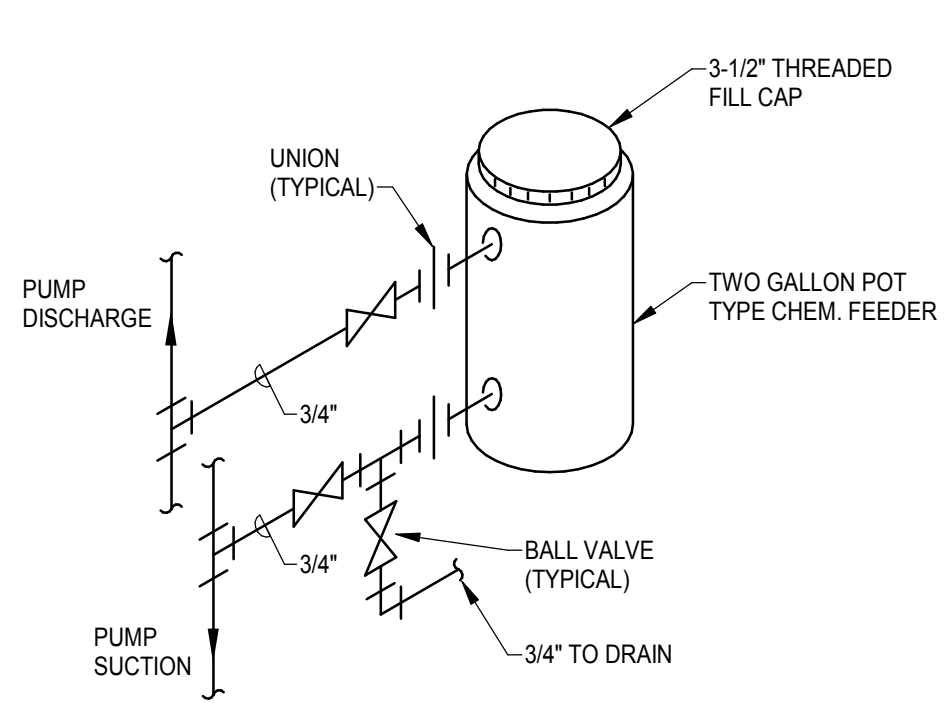
NOT TO SCALE



- NOTES:
1. SEE PAD SHEETS FOR PRESSURE AND TEMPERATURE SENSOR LOCATIONS.
2. CONTRACTOR MAY SUBSTITUTE A CHECK VALVE AND BUTTERFLY VALVE IN PLACE OF TRIPLE DUTY VALVE. THE LISTED MAX PRESSURE DROP SHALL BE MAINTAINED.

15 BY-PASS CHEMICAL FEEDER

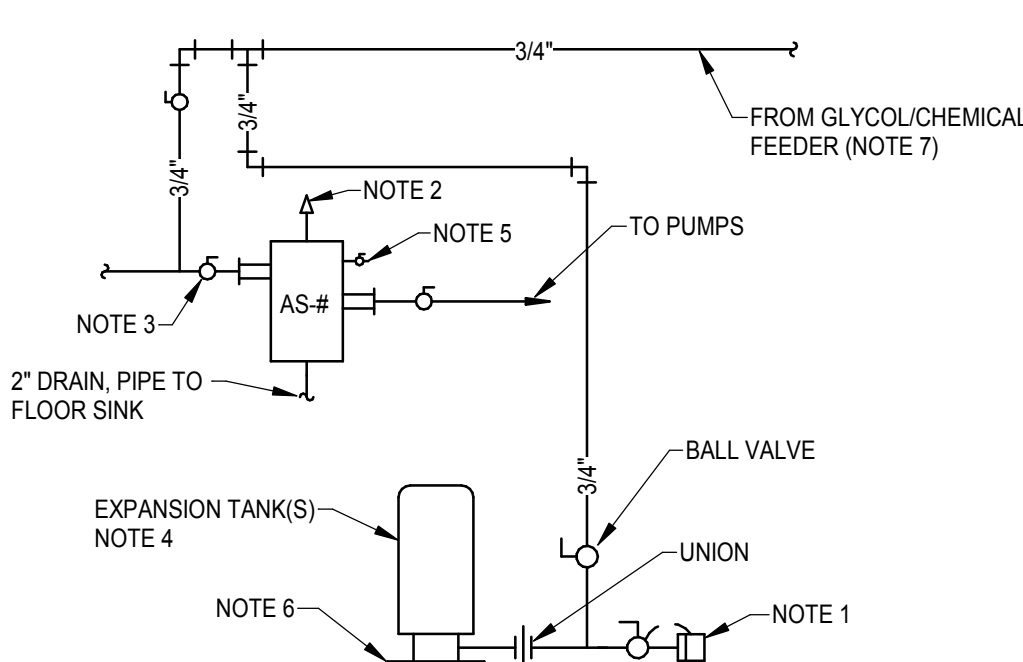
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- NOTES:
1. MOUNT AGAINST WALL AT +48" ABOVE FINISHED FLOOR.
2. INSTALL ON HOT WATER AND CHILLED WATER SYSTEMS.

16 AIR SEPARATOR & EXPANSION TANK DETAIL

NOT TO SCALE



- NOTES:
1. 3/4" MIN. HOSE CONNECTION WITH BALL VALVE, CHAIN AND CAP.
2. AUTOMATIC AIR VENT.
3. BALL VALVE OR BUTTERFLY VALVE. SEE SPECIFICATIONS.
4. HOT WATER HEATING TANK PRESSURE TO BE SET AT 21 PSI.
5. CHILLED WATER TANK PRESSURE TO BE SET TO 21 PSI.
6. MANUAL AIR VENT.
7. INSTALL TANK ON 4" EQUIPMENT BASE.
8. PROVIDE SAME SETUP FOR HEATING WATER AND CHILLED WATER LOOP SYSTEMS.

REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	09/12/2024	Addendum 2

NDOT 1600 OFFICE
RENOVATION

PROJECT: 23053 DATE: 09/16/2024
PROJECT STATUS: CONSTRUCTION
DOCUMENTS

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PLUMBING FIXTURE SCHEDULE

MARK	TYPE	MANUFACTURER	MODEL	DESCRIPTION	ACCESSORIES	CONNECTIONS			
						WASTE	VENT	CW	HW
WC-1	WATER CLOSET WALL MOUNTED FLUSH VALVE ADA	KOHLER	*KINGSTON ULTRA* K-8432S	ELONGATED, VITREOUS CHINA BOWL WITH SIPHON-JET DESIGN, WALL MOUNTED, 13" TOP SPUD, WALL OUTLET, 1.6 GPF, ADA MOUNTING HEIGHT.	INCLUDE FIXTURE CARRIER, BOLT CAPS MATCHING FIXTURE. KOHLER "STRONGHOLD" K-714-G, ELONGATED SEAT, OPEN FRONT, NO BID WHITE. SLOAN ROYAL MODEL 111 MANUAL-OPERATED FLUSHOMETER, 1.6 GPF, ADA COMPLIANT, WITH CHROME-PLATED EXPOSED PIECES. LOCATE FLUSH LEVER ON OPEN SIDE OF FIXTURE, REFER TO PLANS PRIOR TO ORDERING.	4"	2"	1 1/4"	-
WC-2	WATER CLOSET WALL MOUNTED FLUSH VALVE	KOHLER	*KINGSTON ULTRA* K-8432S	SAME AS WC-1, MOUNTED AT STANDARD HEIGHT.	SAME AS WC-1.	4"	2"	1 1/4"	-
U-1	URINAL WALL MOUNTED FLUSH VALVE	KOHLER	*"BARDON" K-4991-ET	WHITE, VITREOUS CHINA, WASH-OUT TYPE, WALL MOUNTED, 3/4" TOP SPUD, STRAINER, WALL OUTLET, 1.0 GPF, STANDARD MOUNTING HEIGHT.	INCLUDE FIXTURE CARRIER. SLOAN ROYAL, MODEL 186 MANUAL-OPERATED FLUSHOMETER, 1.0 GPF, ADA COMPLIANT, WITH CHROME-PLATED EXPOSED PIECES.	2"	1 1/2"	1"	-
U-2	URINAL WALL MOUNTED FLUSH VALVE ADA	KOHLER	*"BARDON" K-4991-ET	SAME AS U-1, MOUNTED AT ADA HEIGHT.	SAME AS U-1.	2"	1 1/2"	1"	-
L-1	LAVATORY	SEE ARCH PLANS	SEE ARCH PLANS	SEE ARCH PLANS.	PROVIDE WITH CHROME-PLATED COPPER SUPPLIES WITH QUARTER TURN STOPS, 1-1/2" CHROME-PLATED CAST-BRASS TRAP WITH CLEANOUT, CHROME-PLATED BRASS GRID STRAINER, AND WALL ESCUTCHEONS. MOEN "CHATEAU" L4685 FAUCET, ADA-COMPLIANT, CHROME-PLATED METAL BODY, ONE-PIECE LEVER HANDLE FAUCET, 0.5 GPM VANDAL RESISTANT AERATOR, AND ADJUSTABLE LIMIT STOP. COVER EXPOSED HOT AND COLD SUPPLIES AND WASTE PIPING WITH TRUEBRO LAVAGUARD 3 INSULATION KIT.	1-1/2"	1-1/4"	1/2"	1/2"
S-1	SINK UNDERMOUNT SINGLE COMPARTMENT	ELKAY	*LUSTERONE* ELJ211510	UNDERMOUNT, 18-GAUGE STAINLESS STEEL TYPE 304, 21X15-3/4X10" DEEP BOWL, SINGLE COMPARTMENT SINK, WITH 5/12" DRAIN OPENING.	PROVIDE WITH CHROME-PLATED COPPER SUPPLIES WITH QUARTER TURN STOPS, 1-1/2" CHROME-PLATED CAST-BRASS TRAP WITH CLEANOUT, AND WALL ESCUTCHEONS. MOEN "ARROW" 75945 PULLDOWN FAUCET, ADA COMPLIANT, CHROME-PLATED, WITH 8" H-ARC SWINGING SPOUT AND REMOVABLE CARTRIDGE, 1.5 GPM. PROVIDE A CRUMB CUP FOR SINK DRAIN OPENING.	2" UP TO 1-1/2" TRAP ARM	1-1/2"	1/2"	1/2"
EW-C-1	ELECTRIC WATER COOLER, TWO STATION ADA	ELKAY	EZSTL8WSLK	TWO STATION WALL MOUNT WATER COOLER 8 GPH AT 90°F AMBIENT, 325 WATTS, 15.0 L/A SELF-CLEANING EASY-TOUCH CONTROLS ON THE FRONT, LEFT AND RIGHT OF EACH UNIT, AND FLEXI-GUARD SAFETY BUBBLER, 1.1 GPM/LAMINAR FLOW BOTTLE FILLER, ELECTRIC SENSOR FOR TOUCHLESS ACTIVATION, ADA COMPLIANT LOW STATION.	PROVIDE WITH CHROME-PLATED COPPER SUPPLIES WITH QUARTER TURN STOPS, 1-1/2" CHROME-PLATED CAST-BRASS TRAP WITH CLEANOUT, AND WALL ESCUTCHEONS.	1-1/2"	1-1/4"	1/2"	-
MS-1	MOP SINK	FIAT	MSB 2424	24"x24"x10" MOLDED STONE BASIN WITH 3" DRAIN OUTLET WITH STRAINER.	PROVIDE WITH 30" FLEXIBLE RUBBER HOSE AND WALL BRACKET. MOEN 8124 SERVICE FAUCET, CHROME-PLATED, WALL MOUNTED, WITH VACUUM BREAKER, INTEGRAL CHECKS, ADJUSTABLE WALL BRACE, PAIL HOOK AND 3/4" HOSE THREAD ON SPOUT.	3"	2"	1/2"	1/2"
HB-1	EXPOSED HOSE BIBB	WOODFORD	24	EXPOSED WALL HOSE BIBB WITH CHROME FINISH, HOSE THREAD SPOUT, ANTI-SIPHON VACUUM BREAKER, AND METAL WHEEL HANDLE.	-	-	-	3/4"	-
IMB-1	ICE MAKER OUTLET BOX	GUY GRAY	MI81AB	RECESSED, ICE MAKER BOX, QUARTER TURN BRASS SUPPLY BALL VALVE, WHITE POWDER COATED STEEL, INCLUDE SUPPORT BRACKETS.	-	-	-	1/2"	-
FD-1	SQUARE FLOOR DRAIN	JAY R SMITH	2005	CAST IRON TWO PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEEP HOLES, REVERSIBLE CLAMPING COLLAR, NICKEL BRONZE ADJUSTABLE STRAINER.	DIMENSIONS OF TOP STRAINER: 2" OUTLET WITH A 3" STRAINER, 3" OR 4" OUTLET WITH 8" STRAINER, 8" OUTLET WITH A 10" STRAINER, VERIFY SIZES ON PLANS. PROVIDE WITH A GASKETED TRAP SEALER BY SURE SEAL OR EQUAL IN NECK OF FLOOR SINK. SEE FLOOR PLANS FOR SIZES.	2"	2"	-	-
FS-1	SQUARE FLOOR SINK	JAY R SMITH	3100	8" x 8" x 6" DEEP CAST IRON BODY WITH WHITE ACID RESISTANT COATED INTERIOR AND SQUARE NICKEL BRONZE GRATE, COMPLETE WITH ANTI-SPLASH BOTTOM DOME STRAINER.	PROVIDE WITH 3/4" TOP GRATE. PROVIDE WITH A GASKETED TRAP SEALER BY SURE SEAL OR EQUAL IN NECK OF FLOOR SINK. SEE FLOOR PLANS FOR SIZES.	2"	2"	-	-
FOO	FLOOR CLEANOUT	JAY R SMITH	4020	CAST IRON BODY, WITH GAS AND WATER-TIGHT ABS TAPERED THREAD PLUG, AND ROUND POLISHED BRONZE SCORATED SECURED TOP, ADJUSTABLE TO FINISH FLOOR.	CLEANOUT SHALL BE THE SAME SIZE AS PIPING UP TO 4". 4" AND LARGER PIPING SHALL BE A 4" CLEANOUT.	-	-	-	-
WCO	WALL CLEANOUT	JAY R SMITH	4472	GAS AND WATER-TIGHT TAPER THREAD BRONZE PLUG, POLISHED STAINLESS STEEL COVER WITH SECURING SCREW.	CLEANOUT SHALL BE THE SAME SIZE AS PIPING UP TO 4". 4" AND LARGER PIPING SHALL BE A 4" CLEANOUT.	-	-	-	-

- REMARKS:
1. VERIFY ALL CONNECTIONS & MOUNTING HEIGHTS WITH CODES, MANUFACTURERS, AND PLANS.
2. SIZES LISTED INDICATE MINIMUM SIZE ONLY, SEE PLUMBING RISERS AND FLOOR PLANS FOR LARGER SIZES.

OPEN-CELL COOLING TOWERS

MARK	SERVES	TYPE	OPERATING TEMP (°F)	# OF CELLS	STATIC LIFT (FT)	GPM	EWT (°F)	LWT (°F)	EAT WB (°F)	FAN DATA				ELECTRICAL DATA				MANUFACTURER	MODEL	REMARKS
										CFM	RPM	HP	V	PH	FLA	MCA	MOCP			
CT-1	CH-1, 2	CROSSFLOW	4,751	1	8.56	300	95	85	80	43,476	563	7.5	208	3	60			MARLEY	496M	1,2,3,4,5,6

REMARKS:
1. 301L STAINLESS STEEL COLLECTION AND DISTRIBUTION BASINS, GALVANIZED STEEL STRUCTURE AND CASING, INDUCED DRAFT, SIDE-DISCHARGE WITH 15 MIL PVC FILL, INTEGRAL DRIFT ELIMINATORS, AND LOUVERS.
2. UNIT SELECTED AT AN ELEVATION OF 1000 FT ABOVE SEA LEVEL.
3. COORDINATE STRUCTURAL STEEL WITH MANUFACTURER'S INSTALLATION REQUIREMENTS AND STRUCTURAL DRAWINGS.
4. PROVIDE WITH 6 KW MARLEY BASIN HEATER SYSTEM AND FACTORY-PROVIDED STAND AND FAN CONTROLS TO ENABLE/DISABLE BASED ON COLLECTION BASIN TEMPERATURE WITH STAINLESS STEEL ELEMENT, NEMA 4X ENCLOSURE, AND
CONTROL PROBE. NEMA 4X ENCLOSURE SHALL INCLUDE MAGNETIC CONTACTOR, 24V TRANSFORMER, AND CIRCUIT BOARD FOR HEATER CONTROL AND LOW-WATER CUTOFF. BASIN SHALL INCLUDE SCREENED SCUTION CONNECTION,
THREADED OVERFLOW CONNECTION, THREADED AND PLUGGED DRAIN CONNECTION, AND A FLOAT-OPERATED MAKE-UP VALVE. PROVIDE BLANK COVER/PLATE(S) FOR UNUSED OPENING(S). COORDINATE INTEGRATION TO BMS WITH P&IDs
AND CONTROLS CONTRACTOR.
5. PROVIDE 6" PIPE FLOWTECH NON-CHEMICAL TREATMENT SYSTEM, 120V PANEL WITH BACNET INTERFACE, CONDUCTIVITY PROBE AND FLOW SWITCH WITH 120V CONTROLLER PANEL AND STAINLESS STEEL MOTORIZED BALL VALVE FOR
BLOWDOWN. COORDINATE INTEGRATION TO BMS WITH CONTROLS CONTRACTOR.
6. PROVIDE WITH FIELD INSTALLED VFD FOR FAN MOTOR. DANFOSS FC-102 MODEL WITH DISCONNECT, SHAFT GROUNDING RING, AND EXTERNALLY MOUNTED MANUAL RESET VIBRATION SWITCH OR EQUIVALENT MODEL.

CHILLERS

MARK	TONS	REFRIG TYPE	CHILLED WATER				CONDENSER WATER				MAX EER	ELECTRICAL DATA					MANUFACTURER	MODEL	REMARKS
			FLOW (GPM)	EWT (°F)	LWT (°F)	PD (PSI)	FLOW (GPM)	EWT (°F)	LWT (°F)	PD (PSI)		VOLTS	PH	FLA	MCA	MOCP			
CH-1	50	R-454B	106	56	44	3.01	155	85	95	6.56	15.9	208	3	197.1	225.8	325	WATER FURNACE	THS050ULN24AA	1, 2, 3, 4
CH-2	50	R-454B	106	56	44	3.01	155	85	95	6.56	15.9	208	3	197.1	225.8	325	WATER FURNACE	THS050ULN24AA	1, 2, 3, 4

REMARKS:
1. DUAL SCROLL CHILLER MODULE WITH LEAD VARIABLE SPEED SCROLL COMPRESSOR, 316 STAINLESS STEEL BRAZED PLATE
HEAT EXCHANGERS INSTALLED AS CHILLER BANK WITH MANUFACTURER PROVIDED 4-PIPE STANDARD HEADER RACK AND
ELECTRONIC EXPANSION VALVE.
2. MANUFACTURER PROVIDED ACCESSORIES INCLUDE: BYPASS HEADER ASSEMBLY WITH 2-WAY MODULATING VALVES,
DIFFERENTIAL WATER PRESSURE TRANSDUCERS, AND TEMPERATURE SENSORS FOR BOTH EVAPORATOR AND
CONDENSER. PROVIDE WITH 6" HEADER END CAPS AND MINIMUM 6" GROOVED 30-MESH Y-STRAINER AT INLET
CONNECTIONS FOR BOTH CHILLED AND CONDENSER WATER.
3. PROVIDE WITH HYDROLINK2 SUPERVISORY CONTROL PANEL WITH BACNET MS/TP CONNECTION. COORDINATE INTEGRATION
WITH P&IDs AND CONTROLS CONTRACTOR. SEE FLOOR PLAN FOR LOCATION.
4. PROVIDE MINIMUM 1/4" DEFLECTION ELASTOMETRIC MOUNTING PADS AND INSTALL ON 4" CONCRETE HOUSEKEEPING PAD.
SEE SPECIFICATION SECTION 230546.13.

FAN COIL UNITS

MARK	LOCATION ROOM	NO.	CFM	OA CFM	CABINET TYPE	ESP	HP	VOLTS	HEATING COIL CAPACITY					COOLING COIL CAPACITY					DAIKIN MODEL	REMARKS		
									EWT	LWT	MBH	GPM	WPD	PIPE SIZE	EWT	LWT	MBH	GPM			WPD	PIPE SIZE
FCL001	MECHANICAL	003	805	75	CABINET	0.5	(2) 1/4	120	135	105	18.4	1.2	2.86	3/4"	44	56.0	22.2	3.7	2.58	1"	FCH210	1-7
FCL002	MECHANICAL	005	145	75	CABINET	0.5	(2) 1/4	120	135	105	18.4	1.2	2.86	3/4"	44	56.0	22.2	3.7	2.58	1"	FCH210	1-7
FCL001	HR OPEN OFFICE	109	320	30	HIDEAWAY	0.5	1/4	120	135	105	9.3	0.6	2.30	3/4"	44	56.0	8.3	1.4	1.15	3/4"	FCH206	1-7
FCL002	HR OPEN OFFICE	109	420	35	HIDEAWAY	0.5	(2) 1/4	120	135	105	13.5	0.9	1.66	3/4"	44	55.8	14.0	2.4	1.19	3/4"	FCH210	1-7
FCL103	HR OPEN OFFICE	109	325	35	HIDEAWAY	0.5	1/4	120	135	105	9.3	0.6	2.30	3/4"	44	56.0	8.3	1.4	1.15	3/4"	FCH206	1-7
FCL104	HR OPEN OFFICE	109	485	125	HIDEAWAY	0.5	(2) 1/4	120	135	105	13.5	0.9	1.66	3/4"	44	55.8	14.0	2.4	1.19	3/4"	FCH210	1-7
FCL105	HR OPEN OFFICE	109	580	100	HIDEAWAY	0.5	(2) 1/4	120	135	105	13.5	0.9	1.66	3/4"	44	55.8	14.0	2.4	1.19	3/4"	FCH210	1-7
FCL106	HR HUBBLE	109B	305	55	HIDEAWAY	0.5	1/4	120	135	105	9.3	0.6	2.30	3/4"	44	56.0	8.3	1.4	1.15	3/4"	FCH206	1-7
FCL107	STAIR	100A	220	30	HIDEAWAY	0.5	1/4	120	135	105	9.3	0.6	2.30	3/4"	44	56.0	8.3	1.4	1.15	3/4"	FCH206	1-7
FCL108	PM OPEN OFFICE	102	855	100	HIDEAWAY	0.5	(2) 1/4	120	135	105	18.4	1.2	2.86	3/4"	44	56.0	22.2	3.7	2.58	1"	FCH210	1-7
FCL109	PM OPEN OFFICE	102	705	125	HIDEAWAY	0.5	(2) 1/4	120	135	105	18.4	1.2	2.86	3/4"	44	56.0	22.2	3.7	2.58	1"	FCH210	1-7
FCL110	PM OPEN OFFICE	102	300	25	HIDEAWAY	0.5	1/4	120	135	105	9.3	0.6	2.30	3/4"	44	56.0	8.3	1.4	1.15	3/4"	FCH206	1-7
FCL111	PM OPEN OFFICE	102	600	35	HIDEAWAY	0.5	(2) 1/4	120	135	105	13.5	0.9	1.66	3/4"	44	55.8	14.0	2.4	1.19	3/4"	FCH210	1-7
FCL112	PM OPEN OFFICE	102	300	20	HIDEAWAY	0.5	1/4	120	135	105	9.3	0.6	2.30	3/4"	44	56.0	8.3	1.4	1.15	3/4"	FCH206	1-7
FCL113	PM OPEN OFFICE	102	125	45	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL114	STAIR	100C	515	35	HIDEAWAY	0.5	(2) 1/4	120	135	105	13.5	0.9	1.66	3/4"	44	55.8	14.0	2.4	1.19	3/4"	FCH210	1-7
FCL115	CORRIDOR	100	100	20	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL116	BTSD OPEN OFFICE	110	210	25	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL117	BTSD OPEN OFFICE	110	655	75	HIDEAWAY	0.5	(2) 1/4	120	135	105	18.4	1.2	2.86	3/4"	44	56.0	22.2	3.7	2.58	1"	FCH210	1-7
FCL118	SHARED CONFERENCE ROOM	111	510	125	HIDEAWAY	0.5	(2) 1/4	120	135	105	13.5	0.9	1.66	3/4"	44	55.8	14.0	2.4	1.19	3/4"	FCH210	1-7
FCL119	AR OPEN OFFICE	112	180	20	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL120	AR OPEN OFFICE	112	680	115	HIDEAWAY	0.5	(2) 1/4	120	135	105	18.4	1.2	2.86	3/4"	44	56.0	22.2	3.7	2.58	1"	FCH210	1-7
FCL121	AR OPEN OFFICE	112	195	25	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL122	AR OPEN OFFICE	112	735	100	HIDEAWAY	0.5	(2) 1/4	120	135	105	18.4	1.2	2.86	3/4"	44	56.0	22.2	3.7	2.58	1"	FCH210	1-7
FCL123	AR OPEN OFFICE	112	155	20	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL124	AR OPEN OFFICE	112	140	20	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL125	AR OPEN OFFICE	112	200	30	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL126	HR OPEN OFFICE	109	285	35	HIDEAWAY	0.5	1/4	120	135	105	9.3	0.6	2.30	3/4"	44	56.0	8.3	1.4	1.15	3/4"	FCH206	1-7
FCL127	HR OPEN OFFICE	109	110	15	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL201	CORRIDOR	200	135	15	HIDEAWAY	0.5	1/4	120	135	105	4.2	0.3	0.39	3/4"	44	51.2	5.2	1.5	0.97	3/4"	FCH202	1-7
FCL202	COPY	221	445	30	HIDEAWAY	0.5	(2) 1/4	120	135	105	13.5	0.9	1.66	3/4"	44	55.8	14.0	2.4	1.19	3/4"	FCH210	1-7

GENERAL DEMOLITION NOTES

- A. THESE DEMOLITION DRAWINGS DEFINE THE PROJECT BOUNDARY AND SCOPE OF DEMOLITION WORK. WHERE INDIVIDUAL ITEMS ARE SHOWN ON DEMOLITION PLANS AS DASHED, OR WHERE LIMITS OF ELECTRICAL DEMOLITION BOUNDARY IS IDENTIFIED AND/OR SHOWN AS HATCHED AREA, ELECTRICAL EQUIPMENT, DEVICES, FIXTURES, WIRING, RACEWAY, AND DATA COMMUNICATIONS SYSTEMS SHALL BE REMOVED IN THEIR ENTIRETY UNLESS OTHERWISE INDICATED. ITEMS WITHIN LIMITS OF ELECTRICAL DEMOLITION THAT SERVE ADJACENT AREAS SHALL REMAIN. RE-SUPPORT ALL RACEWAY AND CABLEING ASSOCIATED WITH THESE EXISTING TO REMAIN ITEMS THAT PASS THROUGH THE DEMOLITION BOUNDARY.
- B. THE CONTRACTOR SHALL VISIT THE PROJECT SITE, REVIEW EXISTING CONDITIONS AGAINST THE CONTRACTOR DOCUMENTS, AND FAMILIARIZE THEMSELVES WITH THE WORK PRIOR TO BIDDING AND COMMENCING THE SCOPE OF WORK. THESE CONTRACT DOCUMENTS DO NOT ACCOUNT FOR ALL ITEMS, NOR DO THEY GUARANTEE THE ACCURACY OF EXISTING CONDITIONS AS PROVIDED AS AN AID IN DEFINING THE DEMOLITION SCOPE OF WORK FOR THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXISTING CONDITIONS AND INCLUDE IN THEIR BID ANY NECESSARY ADJUSTMENTS TO ACCOUNT FOR ACTUAL FIELD CONDITIONS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED AFTER BIDS ARE SUBMITTED FOR CHANGES WHICH OCCUR AS A RESULT OF EXISTING CONDITIONS.
- C. THESE DEMOLITION DRAWINGS DO NOT IDENTIFY ALL ITEMS TO BE REMOVED, NOR ARE ALL COMPONENTS OF AN ELECTRICAL ITEMS IDENTIFIED WHERE INDICATED TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ITEMS WHICH MUST BE REMOVED TO FACILITATE THE EXECUTION OF NEW WORK UNDER THIS PROJECT. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL DOCUMENTS WITHIN THE PROJECT MANUAL (ARCHITECTURAL, MECHANICAL, ETC.) FOR ADDITIONAL ELECTRICAL DEMOLITION ITEMS. WHERE THE CONTRACTOR IS UNCLEAR ABOUT THE SCOPE OF DEMOLITION OF A SPECIFIC ELECTRICAL ITEM, REFER ALL QUESTIONS TO ARCHITECT/ENGINEER PRIOR TO BID FOR CLARIFICATION.
- D. THE OWNER SHALL HAVE SALVAGE RIGHTS TO ANY ITEMS THAT ARE TO BE DEMOLISHED. VERIFY WHAT MATERIALS, IF ANY, OWNER DESIRES TO KEEP PRIOR TO BEGINNING DEMOLITION. THOSE ITEMS THAT THE OWNER WISHES TO SALVAGE SHALL BE CAREFULLY REMOVED, PROTECTED, AND STORED IN A LOCATION AS DIRECTED BY THE OWNER. ALL OTHER ITEMS OF DEMOLITION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE.
- E. PHASING OF ELECTRICAL DEMOLITION SHALL FOLLOW THAT OF THE GENERAL CONTRACTOR. COORDINATE REMOVAL OF ELECTRICAL WORK WITH WORK OF OTHER TRADES. OTHER CONSTRUCTION ACTIVITIES, AND THE REQUIREMENTS OF THE OWNER. ELECTRICAL SYSTEMS SUPPORTING AREAS OF BUILDING NOT IN CURRENT PHASE OF CONSTRUCTION SHALL BE MAINTAINED FULLY OPERATIONAL. COORDINATE WITH WORK OF OTHER TRADES TO PROVIDE TEMPORARY POWER AND LIGHTING IN AREAS OF CURRENT AND FUTURE PHASES AS REQUIRED TO FACILITATE WORK.
- F. WHERE DEMOLITION WORK WILL INTERRUPT OTHER AREAS OF THE FACILITY THAT ARE TO REMAIN IN OPERATION, PROVISIONS SHALL BE INSTALLED TO MAINTAIN THOSE AREAS IN COMPLETE OPERATION. PROVIDE TEMPORARY CONNECTIONS AS REQUIRED. COORDINATE ANY INTERRUPTIONS WITH THE OWNER AT LEAST TWO WEEKS PRIOR AND ACCOMMODATE THE OWNER'S NEEDS AS REQUIRED. PROVIDE ALL NECESSARY ACCOMMODATIONS AHEAD OF TIME TO LIMIT INTERRUPTION OF SYSTEM TO THE TIME NEEDED TO DISCONNECT AND IMMEDIATELY RECONNECT THE SYSTEM TO RESTORE TO FULL OPERATION. ESSENTIAL SERVICES DEEMED BY THE OWNER MAY REQUIRE PREMIUM TIME AND SHALL BE INCLUDED IN CONTRACTOR'S BID. MAINTAIN CONTINUITY OF EXISTING CIRCUITS AS REQUIRED TO PROVIDE POWER TO EQUIPMENT, DEVICES, AND LUMINAIRES THAT ARE NOT BEING REMOVED BY THIS PROJECT. CONTRACTOR SHALL MARK AND IDENTIFY EXISTING ELECTRICAL SYSTEM COMPONENTS WHICH SHALL NOT BE REMOVED, OR MAINTAINED AND PROTECTED FOR ANY REASON DURING CONSTRUCTION BEFORE EARLY DEMOLITION EFFORTS TO REDUCE POSSIBILITY OF ACCIDENTAL INTERRUPTION ON SYSTEM. WHERE EXISTING DEVICE OR JUNCTION BOXES MUST REMAIN IN EXISTING WALLS OR CEILINGS (SUCH AS FOR CIRCUITS THAT MUST BE MAINTAINED TO OTHER AREAS), THEN THEY SHALL BE FITTED WITH BLANK COVER PLATES. WHERE EXISTING TO REMAIN ELECTRICAL ITEMS REQUIRE ACCESS, AND IF REQUIRED TO FACILITATE NEW WORK, CONTRACTOR SHALL RELOCATE ITEM TO AN ACCESSIBLE LOCATION.
- G. WHERE DEMOLITION OF WALL IS INDICATED ON THESE DEMOLITION PLANS, OR ON ARCHITECTURAL DRAWINGS, ALL ELECTRICAL SYSTEM COMPONENTS WITHIN WALL SHALL BE REMOVED IN THEIR ENTIRETY WITH SUPPORTING RACEWAY AND CIRCUITS REMOVED BACK TO THEIR SOURCE. CONTRACTOR SHALL DISCONNECT ALL ELECTRICAL SYSTEM COMPONENTS TO ALLOW WALLS TO BE DEMOLISHED BY OTHERS. RACEWAYS WHICH ARE INSTALLED IN OR BELOW FLOORS OR WITHIN EXISTING TO REMAIN WALLS MAY BE ABANDONED, BUT ALL OVERHEAD OR EXPOSED RACEWAYS SHALL BE REMOVED. CONCEALED RACEWAYS AND BOXES MAINTAINED IN EXISTING TO REMAIN WALLS OR FLOORS MAY BE REUSED WHERE AVAILABLE, TO THE EXTENT POSSIBLE, AND IN GOOD CONDITION. WHERE RACEWAYS ARE ABANDONED IN INACCESSIBLE FLOOR OR WALL, RACEWAY SHALL BE CUT OR CHISELED AT LEAST 2" INTO THE SURFACE WHERE THEY ARE ROUTED, CAPPED, AND THE SURFACE GROUTED/PATCHED SMOOTH TO MATCH EXISTING SURFACE FINISH. ALL ELECTRICAL SYSTEM COMPONENTS THAT ARE EXPOSED AND SURFACE MOUNTED, AND NO LONGER ACTIVE, SHALL BE REMOVED.
- H. WHERE WORKING IN AND AROUND THE EXISTING BUILDING, EXTREME CARE SHALL BE EXERCISED WITH REGARD TO PROTECTION OF THE EXISTING SYSTEMS, STRUCTURE, AND ANY ITEMS WHICH ARE TO REMAIN. IF EXISTING TO REMAIN ELECTRICAL SYSTEM COMPONENTS ARE DAMAGED THROUGHOUT THE COURSE OF WORK, CONTRACTOR IS RESPONSIBLE TO PROVIDE NEW PRODUCTS OF EQUAL TYPE, QUALITY, CAPACITY, AND FUNCTIONALITY. IF HAZARDOUS MATERIAL (E.G. ASBESTOS, PCBs, ETC.) ARE ENCOUNTERED AT ANY TIME DURING CONSTRUCTION IN THE SCOPE OF WORK, STOP WORK IMMEDIATELY AND CONTACT THE ARCHITECT, ENGINEER, OR OWNER.
- I. WHERE NEW OPENINGS ARE MADE (OR EXISTING OPENINGS ARE MODIFIED) TO WALLS OR FLOORS TO ALLOW FOR DEMOLITION OF SPECIFIED ELECTRICAL SYSTEMS, CONTRACTOR SHALL PATCH AND REPAIR TO RESTORE TO PREVIOUS FINISH. PATCHING OF ALL NEW AND EXISTING OPENINGS SHALL BE PERFORMED TO THE SATISFACTION OF THE ARCHITECT/ENGINEER, TO MATCH EXISTING CONSTRUCTION, FINISH, AND FIRE RATING, AND AT NO ADDITIONAL COST. REFER TO ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL PATCHING REQUIREMENTS.
- J. WHERE ELECTRICAL SYSTEM ITEMS TO BE DEMOLISHED RESIDE ON A HOUSEKEEPING PAD, CONTRACTOR SHALL REMOVE PAD IN ITS ENTIRETY AND FLOOR SHALL BE PATCHED SO THAT FINISH MATCHES ADJACENCIES.
- K. WHERE DISTRIBUTION OR BRANCH CIRCUIT EQUIPMENT (PANELBOARDS, SWITCHBOARDS, ETC.) IS TO BE REMOVED, THEN ALL CIRCUITS WHICH FEED ITEMS TO REMAIN SHALL BE RECONNECTED TO NEW DISTRIBUTION OR BRANCH CIRCUIT EQUIPMENT. REFER ALL QUESTIONS TO THE ARCHITECT/ENGINEER FOR CLARIFICATION.
- L. EXISTING PANEL DIRECTORY SHALL BE UPDATED TO ACCURATELY REFLECT CONDITIONS AFTER WORK IS COMPLETE. UNUSED CIRCUIT BREAKERS SHALL BE LABELED AS "SPARE."
- M. ANY EXISTING FIRE ALARM SYSTEM SHALL REMAIN IN OPERATION THROUGHOUT CONSTRUCTION. AUTOMATIC SMOKE DETECTORS IN THE AREA OF CONSTRUCTION SHALL BE DISCONNECTED AND TEMPORARILY REPLACED WITH HEAT DETECTORS WHEN THE SPACE IS STAFFED BY THE CONTRACTOR IN ACCORDANCE WITH THE APPROVED FIRE SAFETY PROCEDURES OF THE OWNER AND THE STATE FIRE MARSHAL, BUT SHALL BE REACTIVATED WHENEVER THE SPACE IS NOT OCCUPIED BY THE CONTRACTOR. AUTOMATIC SMOKE DETECTORS SHALL BE PROTECTED FROM DUST AND DIRT ACCUMULATION BY REMOVING THE DEVICE FROM ITS BASE DURING THOSE TIMES WHEN THE SYSTEM IS ALLOWED TO BE OUT OF OPERATION.
- N. DURING TIMES OF COMPLETE INTERRUPTION OR LOSS OF EXISTING FIRE ALARM SYSTEM OPERATION DURING DEMOLITION, AND PRIOR TO NEW FIRE ALARM SYSTEM ACTIVATION, A FIRE WATCH SHALL BE PROVIDED DURING OCCUPED HOURS.
- O. REMOVE ALL TELECOMMUNICATIONS CABLEING NO LONGER IN USE BACK TO ITS SOURCE.
- P. ELECTRICAL FIXTURES AND EQUIPMENT THAT ARE NO LONGER TO BE RE-USED AND RE-INSTALLED SHALL BE CAREFULLY REMOVED AS NOT TO DAMAGE EQUIPMENT OR FIXTURE AND PROTECTED FROM DAMAGE UNTIL READY FOR RE-INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT COST OF ANY EQUIPMENT OR FIXTURES THAT BECOME DAMAGED PRIOR TO RE-INSTALLATION.

GENERAL SYSTEMS NOTES

- A. UNLESS OTHERWISE NOTED, STANDARD COMMUNICATIONS DEVICES SHALL BE MOUNTED AT 18" A.F.F. REFER TO STANDARD MOUNTING HEIGHT DETAILS FOR OTHER DEVICE REQUIREMENTS. LOCATE VOICEDATA COMMUNICATIONS DEVICES WITHIN 12" OF ADJACENT POWER RECEPTACLE.
- B. FULLY COORDINATE THE INSTALLATION OF ALL COMMUNICATIONS DEVICES WITH THE WORK OF OTHER TRADES. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR DEVICE MOUNTING HEIGHT AND LOCATION WHERE DEVICE IS TO BE INSTALLED IN CASEWORK. BACK-TO-BACK MOUNTING OF DEVICES IS NOT ACCEPTABLE IN A STANDARD 3-5/8" STUD WALL.
- C. ELECTRICAL CONTRACTOR SHALL COORDINATE FINAL ROUGH-IN REQUIREMENTS AND MOUNTING HEIGHTS OF ALL ELECTRONIC PHYSICAL SECURITY EQUIPMENT WITH THE SECURITY CONTRACTOR PRIOR TO ROUGH-IN. SECURITY DEVICE LOCATIONS SHOWN ARE APPROXIMATE.
- D. ALL CONDUITS FOR VOICE OR DATA RECEPTACLES SHALL BE STUBBED TO THE CORRIDOR CEILING SPACE. CONDUITS LEFT EMPTY SHALL BE PROVIDED WITH PULL STRING THROUGHOUT AND EXTENDED 12" BEYOND EACH END OF THE CONDUIT.
- E. COORDINATE THE FINAL ROUGH-IN OF ALL FLOOR BOXES WITH ARCHITECT AND FURNISHINGS PLAN AND SUBMITTALS PRIOR TO ROUGH-IN.
- F. ALL CABLEING SHALL BE SUPPORTED BY AN APPROVED METHOD WITH EITHER J-HOOKS OR CABLE TRAY AS REQUIRED BY TIA-568-C. LAYING CABLE ACROSS CEILING GRID IS NOT CONSIDERED PROPERLY SUPPORTED. ALL CABLEING WITHIN TELECOMMUNICATIONS SPACES SHALL BE SUPPORTED BY CABLE RUNWAY OR BY 1" RINGS IF MOUNTED ON THE WALL. VELCRO STRAPS SHALL BE UTILIZED FOR CABLE BUNDLING. CABLE TIES, OR ZIP TIES SHALL NOT BE USED.
- G. CAT-6 AND OTHER LOW VOLTAGE CABLEING SHALL BE ROUTED IN CONDUIT IN AREAS WITH EXPOSED STRUCTURE. J-HOOKS SHALL NOT BE USED. J-HOOKS ARE PERMITTED IN THE FOLLOWING SPACES ONLY:
a. ABOVE ACCESSIBLE CEILING.
b. MECHANICAL OR ELECTRICAL EQUIPMENT ROOMS
c. STORAGE ROOMS
- H. CEILING MOUNTED DEVICES SHALL BE CENTERED IN CEILING TILE WHERE INSTALLED IN ACOUSTICAL TILE CEILING.
- I. RACEWAY, JUNCTION BOX, PULL BOX, AND OTHER OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE-RESISTANT RATED WALLS, PARTITIONS, FLOORS, OR CEILINGS SHALL BE FIRE STOPPED USING APPROVED METHODS TO MAINTAIN THE FIRE-RESISTANCE RATING OF THE WALL OR FLOOR ASSEMBLY.
- J. ALL CABLEING WITHIN TELECOMMUNICATIONS SPACES SHALL BE SUPPORTED BY CABLE RUNWAY OR BY 1" RINGS IF MOUNTED ON THE WALL.
- K. TELECOMMUNICATIONS AND LOW VOLTAGE CABLEING SHALL NOT BE PAINTED. CABLEING THAT HAS BEEN PAINTED SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR.
- L. FIRE ALARM EQUIPMENT CONTROL WIRING ASSOCIATED WITH FIRE ALARM SYSTEM SHALL BE INSTALLED IN A DEDICATED RACEWAY SYSTEM. THIS SYSTEM SHALL NOT BE USED FOR ANY OTHER WIRE OR CABLE.
- M. REFER TO FLOOR PLANS, ENLARGED PLANS, DETAILS, SYMBOL LEGENDS, AND SCHEDULES FOR ADDITIONAL LOW VOLTAGE SYSTEMS REQUIREMENTS.
- N. COORDINATE THE FINAL REQUIREMENTS OF ALL AUDIOVISUAL ROUGH-INS WITH OWNER PRIOR TO INSTALLATION.
- O. THE GENERAL CONTRACTOR SHALL INCLUDE AN ALLOWANCE PRICED AS A SEPARATE LINE ITEM FOR THE DESIGN AND INSTALLATION OF A FIRE/FIGHTERS EMERGENCY RESPONSE RADIO COVERAGE SYSTEM. THE SYSTEM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NFPA 72 AND NFPA 1221. UPON PROJECT COMPLETION IF IT IS DETERMINED THAT EXISTING COVERAGE INSIDE THE BUILDING IS ADEQUATE, THIS LINE ITEM SHALL BE PROVIDED AS A CREDIT TO THE OVERALL PROJECT COST.
- P. THE CONTRACTOR SHALL INCLUDE IN THEIR BID FOUR (4) ADDITIONAL COMBINATION AUDIO/VISUAL FIRE ALARM NOTIFICATION DEVICES. THESE FOUR ADDITIONAL DEVICES SHALL BE PRICED AS A SEPARATE LINE ITEM AND SHALL BE PLACED AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION IF IT IS DETERMINED THAT ADDITIONAL AUDIO OR VISUAL COVERAGE IS REQUIRED IN A CERTAIN AREA. IF A CERTIFICATE OF OCCUPANCY IS RECEIVED AND THESE DEVICES ARE NOT INSTALLED OR REQUIRED AS PART OF THE PROJECT, A CREDIT SHALL BE ISSUED FOR THE TOTAL INSTALLED COST OF THESE DEVICES AGAINST THE COST OF THE PROJECT.

DATA CABLEING AND CABLEING FOR OWNER PROVIDED SECURITY CAMERAS SHALL BE CATEGORY 6A, BLUE JACKET WITH BLUE JACKS/TERMINATIONS. CABLEING FOR OWNER PROVIDED WIRELESS ACCESS POINTS SHALL BE CATEGORY 6A, BLUE JACKET WITH GREY JACKS/TERMINATIONS.

GENERAL LIGHTING NOTES

- A. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING MOUNTED DEVICES. COORDINATE INSTALLATION WITH ALL OTHER TRADES.
- B. SUPPORT ALL RECESSED AND PENDANT MOUNTED FIXTURES FROM STRUCTURE IN ACCORDANCE WITH APPLICABLE BUILDING CODE REQUIREMENTS. SUSPENDED CEILING MOUNTING SYSTEMS SHALL NOT BE USED TO SUPPORT FIXTURES OR RACEWAYS.
- C. PROVIDE ENCLOSURES AROUND RECESSED LIGHTING FIXTURES AS REQUIRED SO THAT ALL CODE REQUIRED CLEARANCES BETWEEN COMBUSTIBLE MATERIALS, THERMAL INSULATION, ETC. AND LIGHTING FIXTURES ARE MAINTAINED. FULLY COORDINATE ALL REQUIREMENTS WITH THE GENERAL CONTRACTOR.
- D. PROVIDE POWER PACK AND/OR RELAYS AS NECESSARY FOR ALL OCCUPANCY SENSORS, LOW VOLTAGE WALL CONTROLLERS, OR OTHER SENSOR/DEVICES WHERE REQUIRED BY MANUFACTURER'S INSTALLATION REQUIREMENTS. PROVIDE ALL LOW VOLTAGE CABLEING AND ALL DEVICES/CONNECTIONS NECESSARY FOR A COMPLETE, WORKING INSTALLATION, AND PER MANUFACTURER'S REQUIREMENTS.
- E. ALL LOW VOLTAGE CABLEING RELATED TO THE LIGHTING CONTROL SYSTEM SHALL COMPLY WITH REQUIREMENTS DEFINED UNDER DIVISION 27 SPECIFICATIONS AND GENERAL SYSTEMS NOTES ON THIS SHEET.
- F. CONNECT EXIT SIGNS AND BATTERY SENSING LEADS FOR EMERGENCY LIGHTING UNITS AND INTEGRAL EMERGENCY BATTERY BALLASTS/DRIVERS AHEAD OF LOCAL SWITCHING AND LIGHTING CONTROL RELAYS).
- G. EXIT SIGNS SHALL BE CEILING-MOUNTED UNLESS INDICATED OTHERWISE. WHERE WALL-MOUNTED EXIT SIGNS ARE INDICATED ABOVE A DOOR OR TO THE SIDE OF A CORRIDOR, THE EXIT SIGN SHALL BE MOUNTED WITH THE BOTTOM OF THE SIGN 6 INCHES ABOVE THE TOP OF THE DOOR FRAME.
- H. COORDINATE LOCATIONS OF LIGHT SWITCH HEIGHTS WITH CASEWORK, FURNITURE AND EQUIPMENT PLANS PRIOR TO ROUGH-IN TO AVOID ANY CONFLICTS.
- I. LIGHT FIXTURES DENOTED WITH 'N' SHALL BE PROVIDED WITH THEIR OWN DEDICATED POWER PACK TO ALLOW FOR THE LIGHT FIXTURE TO BE CONTROLLED WITH NORMAL LIGHT FIXTURES AND ASSOCIATED CONTROLS WITHIN COMMON SPACE DURING OCCUPIED SCHEDULE, AND REMAIN ON AT 50% AFTER HOURS.
- J. LIGHT FIXTURES DENOTED WITH 'EM' SHALL BE PROVIDED WITH EMERGENCY BATTERY PACK. EMERGENCY LIGHT FIXTURES SHALL BE CONTROLLED WITH NORMAL SOURCE LIGHT FIXTURES AND ASSOCIATED CONTROLS WITHIN COMMON SPACE.
- K. EXIT SIGNS SHALL BE ILLUMINATED 24 HOURS.
- L. WHEN INDICATED WITH SUBSCRIPT '1', '2', ETC. THIS IS INDICATING THE ZONING CONTROL OF THE LIGHT FIXTURES WHERE THERE IS MORE THAN ONE ZONE IN A SPACE. CONTROL LIGHT FIXTURES FROM CONTROL DEVICE SHARING COMMON SUBSCRIPT.
- M. REFER TO FLOOR PLANS, ENLARGED PLANS, DETAILS, SYMBOL LEGENDS, AND SCHEDULES FOR ADDITIONAL LOW VOLTAGE SYSTEMS REQUIREMENTS.

GENERAL ELECTRICAL NOTES

- A. UNLESS OTHERWISE NOTED, ELECTRICAL DEVICES ARE TO BE FLUSH MOUNTED AND ALL WIRE AND CONDUITS ARE TO BE ROUTED CONCEALED. COORDINATE INSTALLATION WITH EXISTING CONDITIONS, INCLUDE PATCHING AND REFINISHING OF EXISTING SURFACES TO ACCOMMODATE THIS REQUIREMENT.
- B. PRIOR TO ROUGH-IN, COORDINATE THE CONNECTIONS OF ALL EQUIPMENT PROVIDED BY OTHERS WITH THE RESPECTIVE CONTRACTOR FURNISHING THE EQUIPMENT. THIS INCLUDES, BUT IS NOT LIMITED TO, MECHANICAL EQUIPMENT, KITCHEN EQUIPMENT, AUDIO/VISUAL EQUIPMENT, FIRE SUPPRESSION SYSTEM EQUIPMENT, FIRE ALARM EQUIPMENT, ETC. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE APPROPRIATE DISCONNECTING MEANS FOR THE EQUIPMENT AND SHALL MAKE THE FINAL CONNECTION TO THE EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AN APPROPRIATE CORD AND PLUG FOR ANY EQUIPMENT THAT REQUIRES AN INTEGRAL CORD AND PLUG IF NOT PROVIDED WITH THE EQUIPMENT.
- C. WHERE A MECHANICAL RETURN AIR PLENUM SYSTEM IS PRESENT, ALL EQUIPMENT AND MATERIALS PROVIDED WITHIN THE PLENUM CEILING RETURN MUST MEET THE SAME SPECIFIED RATINGS OF 250 PSI USE NO. 10 CU IN 3/4". UNLESS OTHERWISE NOTED, METAL HOUSINGS ON LUMINAIRES ARE ACCEPTABLE WITHIN THE PLENUM AND SHALL NOT REQUIRE ENHANCED PLENUM RATINGS.
- D. ALL EQUIPMENT, DEVICES, AND LUMINAIRES SHALL BE SUITABLE FOR THE ENVIRONMENT IN WHICH THEY ARE TO BE INSTALLED. EQUIPMENT MOUNTED OUTDOORS SHALL BE MINIMUM NEMA 3R. DEVICES MOUNTED IN DAMP OR WET LOCATIONS SHALL BE WEATHER RESISTANT. EXTERIOR RECEPTACLES OR RECEPTACLES IN DAMP OR WET LOCATIONS SHALL BE PROVIDED WITH WEATHERPROOF "WHILE-IN-USE" COVERS.
- E. NEW ELECTRICAL RECEPTACLES AND ASSOCIATED COVERPLATES SHALL MATCH FINISH OF SIMILARLY INSTALLED EXISTING DEVICE.
- F. FOR 120V, 20A BRANCH CIRCUIT USE #12 AWG IN 3/4". FOR LONGER HOME RUNS:
WHERE LONGER THAN 75 FEET: USE NO. 10 CU IN 3/4"
WHERE LONGER THAN 125 FEET: USE NO. 8 CU IN 3/4"
WHERE LONGER THAN 200 FEET: USE NO. 4 CU IN 1".
WHERE REQUIRED DUE TO INCREASED WIRE SIZE, TRANSITION TO WIRE SIZE COMPATIBLE WITH CIRCUIT BREAKER LUGS WITHIN 10 FEET OF THE SERVING PANELBOARD.
- G. UNLESS OTHERWISE NOTED, MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS SHALL BE 3/4" EMT. MINIMUM CONDUIT SIZE FOR TELECOMMUNICATIONS OUTLETS SHALL BE 1" EMT. REFER TO FLOOR PLANS, DETAILS, AND SPECIFICATIONS FOR ANY LOCATIONS WHERE LARGER CONDUIT SIZES ARE REQUIRED.
- H. PROVIDE DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V BRANCH CIRCUIT (LIGHTING, POWER, ETC.) SERVED BY A SINGLE POLE CIRCUIT BREAKER. SHARED NEUTRALS ARE NOT ALLOWED. PROVIDE NEUTRAL CONDUCTOR FOR MECHANICAL EQUIPMENT WHERE REQUIRED. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE FOR REQUIREMENTS.
- I. PROVIDE A GREEN INSULATED GROUND WIRE FOR EACH BRANCH CIRCUIT (LIGHTING, POWER, ETC.).
- J. WHERE FLEXIBLE METALLIC CONDUIT (FMC) IS ALLOWED BY THESE CONTRACT DOCUMENTS AND LOCAL BUILDING CODES, LENGTH SHALL NOT EXCEED 8FT.
- K. WHERE CONDUIT ROUTES EXPOSED IN OPEN CEILING AREA, CONDUIT SHALL BE PAINTED TO MATCH CEILING SURFACE. COORDINATE EXACT FINISH WITH ARCHITECT. LIMIT JUNCTION BOXES WITHIN OPEN CEILING AREA.
- L. CEILING MOUNTED ELECTRICAL DEVICES SHALL BE CENTERED IN CEILING TILE WHERE INSTALLED IN ACOUSTICAL TILE CEILING.
- M. WHERE CONDUITS OR OTHER ELECTRICAL ITEMS PENETRATE A FIRE RATED WALL, PROVIDE A UL LISTED THROUGH PENETRATION FIRE STOPPING SYSTEM APPLICABLE TO THE SPECIFIC WALL CONSTRUCTION ASSEMBLY AND COMPLIANT WITH ASTM E814. THE FIRE STOPPING SYSTEM SHALL BE INSTALLED TO MEET MANUFACTURER'S APPROVED DETAILS. WHERE AN EXISTING RATED WALL IS BEING MODIFIED, OR A WALL IS UPGRADED TO A FIRE RATED WALL, ALL NEW AND EXISTING PENETRATIONS SHALL HAVE A UL LISTED THROUGH PENETRATION FIRE STOPPING SYSTEM. REFER TO ARCHITECTURAL LIFE SAFETY PLAN FOR ALL RATED WALL LOCATIONS.
- N. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ANY EQUIPMENT OR FIXTURES THAT BECOME DAMAGED PRIOR TO RE-INSTALLATION, AT NO ADDITIONAL COST TO THE OWNER.
- O. THE ELECTRICAL INSTALLATION SHALL CONFORM TO THE LOCALLY ADOPTED EDITION OF NFPA 70 (NEC) AND ALL APPLICABLE LOCALLY ADOPTED BUILDING AND ENERGY CODES.
- P. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY SLEEVES THROUGH WALLS AND FLOORS TO ALLOW FOR THE ROUTING OF TELECOMMUNICATIONS AND LOW VOLTAGE SYSTEMS CABLEING. REVIEW ROUTING WITH LOW VOLTAGE CONTRACTOR FOR SLEEVE LOCATIONS AND REQUIREMENTS.
- Q. ALL LOOSE CABLEING ABOVE CEILING SHALL BE PROPERLY SUPPORTED WITH INDEPENDENT SUPPORTING ACCOMMODATIONS. CABLES DRAPED ACROSS GRID OR OTHER MEP SYSTEMS IS NOT AN ACCEPTABLE SUPPORTING MEANS.
- R. MECHANICAL CONTROLS SHALL BE INSTALLED BY THE MECHANICAL CONTROLS CONTRACTOR. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL RACEWAYS AND BOXES ASSOCIATED WITH MECHANICAL CONTROLS. FOR EACH THERMOSTAT PROVIDE JUNCTION BOX WITH ONE (1) 3/4" CONDUIT STUBBED TO ABOVE NEAREST ACCESSIBLE CEILING. PROVIDE ADDITIONAL 3/4" CONDUIT FROM EACH TEMPERATURE CONTROL CABINET TO NEAREST CORRIDOR CABLE TRAY WHERE APPLICABLE, OR TO ABOVE NEAREST ACCESSIBLE CORRIDOR CEILING. REFER TO MECHANICAL FLOOR PLANS FOR ALL WALL CONTROL LOCATIONS AND QUANTITIES.

GENERAL POWER NOTES

- A. FULLY COORDINATE THE INSTALLATION OF ALL ELECTRICAL DEVICES WITH THE WORK OF OTHER TRADES. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR DEVICE MOUNTING HEIGHT AND LOCATION WHERE DEVICE IS TO BE INSTALLED IN CASEWORK. BACK-TO-BACK MOUNTING OF DEVICES IS NOT ACCEPTABLE IN A STANDARD 3-5/8" STUD WALL.
- B. UNLESS OTHERWISE NOTED, STANDARD ELECTRICAL RECEPTACLE DEVICES SHALL BE MOUNTED AT 18" A.F.F. REFER TO STANDARD MOUNTING HEIGHT DETAILS FOR OTHER DEVICE REQUIREMENTS.
- C. ALL 120V THROUGH 250V RECEPTACLES SUPPLIED BY SINGLE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 50 AMPERES OR LESS, AND ALL RECEPTACLES SUPPLIED BY 3-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 100 AMPERES OR LESS, INSTALLED IN THE FOLLOWING LOCATIONS SHALL HAVE GROUND FAULT CIRCUIT INTERRUPTER PROTECTION FOR PERSONNEL.
a. BATHROOMS AND RESTROOMS
b. KITCHENS
c. ROOFTOPS
d. OUTDOORS
e. RECEPTACLES WITHIN 6FT OF A SINK
f. INDOOR DAMP AND WET LOCATIONS
g. LOCKER ROOMS WITH ASSOCIATED SHOWER FACILITIES
h. GARAGES
i. CRAWL SPACES
j. UNFINISHED AREAS OF BASEMENTS
k. LAUNDRY AREAS
l. BATHTUBS AND SHOWER STALLS
m. OTHER LOCATIONS AS REQUIRED BY NEC 210.8
- D. PROVIDE 120V POWER TO ALL SMOKE AND FIRE/SMOKE DAMPERS. SOURCE POWER FROM DEDICATED 120V 20A BRANCH CIRCUIT(S) IN NEAREST 208V PANELBOARD SERVING AREA. REFER TO RECEPTACLE BRANCH CIRCUITING IN AREA FOR APPROPRIATE PANELBOARD SOURCE. DAMPERS MAY SHARE COMMON BRANCH CIRCUIT WHERE LOCATED IN COMMON AIR HANDLING UNIT ZONE. EACH BRANCH CIRCUIT SHALL SERVE A MAXIMUM OF 20 DAMPERS. REFER TO MECHANICAL PLANS FOR AIR HANDLING UNIT ZONES AND DAMPER LOCATIONS. CONTROL EACH DAMPER WITH DEDICATED ADDRESSABLE CONTROL MODULE FROM FIRE ALARM SYSTEM. PROVIDE A SYSTEM DUCT SMOKE DETECTOR WITHIN 5FT OF EACH DAMPER, LOCATE IN ACCESSIBLE LOCATION WITH A REMOTE STATUS INDICATOR AND TEST STATION IN CEILING AT DETECTOR LOCATION. COORDINATE EXACT LOCATION OF TEST STATION WITH OWNER PRIOR TO INSTALLATION.
- E. PROVIDE 4" HIGH CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. EXTEND PAD ON ALL SLABS MINIMUM 4" FOOTPRINT OF EQUIPMENT. WHERE MULTIPLE FLOOR MOUNTED EQUIPMENT ARE LOCATED ADJACENT TO ONE-ANOTHER, PAD SHALL BE CONTINUOUS ALONG ENTIRE EQUIPMENT LENGTH.
- F. REFER TO FLOOR PLANS, ENLARGED PLANS, DETAILS, SYMBOL LEGENDS, AND SCHEDULES FOR ADDITIONAL LOW VOLTAGE SYSTEMS REQUIREMENTS.

ELECTRICAL SYMBOL LEGEND

POWER DEVICES	
	DUPLEX RECEPTACLE, MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
	SIMPLEX RECEPTACLE, MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
	FOUR PLEX RECEPTACLE, MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
	DUPLEX RECEPTACLE MOUNTED HORIZONTALLY
	GROUND FAULT INTERRUPTER, DUPLEX RECEPTACLE
	DEAD-FRONT GROUND FAULT INTERRUPTER DEVICE
	PROTECTIVE DOWNSTREAM DEVICE AS INDICATED ON PLANS
	PROVIDE LABEL ON COVERPLATE FOR EQUIPMENT DEVICE IS PROTECTING
	DUPLEX RECEPTACLE, ON EMERGENCY CIRCUIT
	FOUR PLEX RECEPTACLE, ON EMERGENCY CIRCUIT
	CONTROLLED RECEPTACLE
	SPECIAL USE RECEPTACLE
	SPECIAL-PURPOSE OUTLET, LETTER DESIGNATES TYPE, SEE SPECIAL CONNECTION SCHEDULE FOR REQUIREMENTS
	SURFACE RACEWAY WITH OUTLETS AS INDICATED ON PLANS, MOUNTED AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
	WALL MOUNTED JUNCTION BOX
	CEILING MOUNTED JUNCTION BOX

LIGHTING

	CEILING-MOUNTED OR RECESSED LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
	PENDANT MOUNTED LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
	WALL-MOUNTED LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
	2x4 LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
	2x2 FIXTURE; LABEL INDICATES FIXTURE TYPE
	1x4 TYPICAL CEILING MOUNTED FIXTURE; LABEL INDICATES FIXTURE TYPE
	1x4 TYPICAL PENDANT MOUNTED FIXTURE; LABEL INDICATES FIXTURE TYPE
	1x4 TYPICAL WALL MOUNTED FIXTURE; LABEL INDICATES FIXTURE TYPE
	1x2 TYPICAL WALL MOUNTED FIXTURE; LABEL INDICATES FIXTURE TYPE
	INDUSTRIAL STRIP LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
	STRIP LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
	UNDER CABINET FIXTURE; LABEL INDICATES FIXTURE TYPE
	2x4 TYPICAL FIXTURE - NORMAL/EMERGENCY
	2x2 TYPICAL FIXTURE - NORMAL/EMERGENCY
	1x4 TYPICAL CEILING MOUNTED FIXTURE - NORMAL/EMERGENCY
	CEILING MOUNTED OR RECESSED TYPICAL FIXTURE - NORMAL/EMERGENCY
	BRANCH CIRCUIT WIRING CONCEALED IN WALLS OR CEILING
	BRANCH CIRCUIT WIRING EXPOSED
	CEILING OR WALL-MOUNTED OCCUPANCY SENSOR
	CEILING OR WALL-MOUNTED PHOTO CELL
	CEILING OR WALL-MOUNTED DAYLIGHT SENSOR

SPECIAL SYSTEMS

	DATA/TELEPHONE OUTLET, FLOOR MOUNTED
	COMBINATION DATA/TELEPHONE OUTLET
	TELEPHONE
	DATA OUTLET; NUMBER INDICATES QUANTITY, BLANK INDICATES SINGLE OUTLET, MOUNTED AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED.
	DATA, CEILING MOUNTED
	DATA, FLOOR MOUNTED
	TELEVISION OUTLET, CEILING MOUNTED
	TELEVISION CABLE OUTLET; MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED
	WIRELESS ACCESS POINT, CEILING MOUNTED
	MULTI-OUTLET FLOOR BOX, SEE FLOOR BOX SCHEDULE FOR REQUIREMENTS.
	SPEAKER, WALL MOUNTED
	SPEAKER, CEILING MOUNTED
	ELECTRIC VALVE
	INSTRUMENT DEVICE
	INTERIOR SIREN ALARM
	CLOCK, WALL MOUNTED
	CLOCK, CEILING MOUNTED
	CABLE TRAY
	GROUND BAR
	DOWN CONDUCTOR CONNECTION TO GROUND ROD
	BONDING CONNECTION
	GROUND ROD

FIRE ALARM

	MAGNETIC DOOR HOLD DEVICE
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	EXTERIOR REMOTE FLASHING STROBE LIGHT
	MANUAL PULL STATION; MOUNT ACCORDING TO MOUNTING HEIGHT DETAIL AT 46" TO CENTER OF DEVICE AFF, ADA COMPLIANT
	HORN & STROBE; MOUNT SO BOTTOM OF DEVICE IS AT 80" AFF UNLESS OTHERWISE NOTED. ADA COMPLIANT
	HORN & STROBE; CEILING MOUNTED
	STROBE; MOUNT SO BOTTOM OF DEVICE IS AT 80" AFF UNLESS OTHERWISE NOTED. ADA COMPLIANT
	SPEAKER & STROBE; MOUNT SO BOTTOM OF DEVICE IS AT 80" AFF UNLESS OTHERWISE NOTED. ADA COMPLIANT
	FIRE ALARM VOICE WALL MOUNT SPEAKER
	FIRE ALARM VOICE CEILING MOUNT SPEAKER
	SMOKE DETECTOR
	DUCT MOUNTED SMOKE DETECTOR
	THERMAL HEAT DETECTOR
	POST INDICATOR VALVE
	BELL
	SHUTDOWN RELAY WITH REMOTE TEST SWITCH
	SHUTDOWN RELAY AND TEST SWITCH
	FIRE ALARM CONTROL PANEL
	REMOTE ANNUNCIATION PANEL
	NOTIFICATION APPLIANCE CIRCUIT CABINET
	SMOKE DAMPER
	FIRE DAMPER
	COMBINATION FIRE AND SMOKE DAMPER

SECURITY DEVICES

	DOOR CONTROL MODULE
	ACCESS CONTROL PANEL
	ELECTRIC DOOR STRIKE
	VIDEO CAMERA
	VIDEO MONITOR
	VIDEO RECORDER
	ELECTRIC MAGNETIC LOCK
	ELECTRIC CYLINDER LOCK
	CARD READER
	REQUEST TO EXIT
	DOOR CONTACT - RECESSED
	DOOR CONTACT - SURFACE MOUNT
	MOTION DETECTOR, CEILING MOUNTED
	MOTION DETECTOR, WALL MOUNTED
	EMERGENCY DOOR RELEASE BUTTON
	PANIC BUTTON
	SECURITY BUZZER HORN
	INTERCOM SUBSTATION
	INTERCOM SUBSTATION WITH CAMERA
	INTERCOM MASTER STATION
	GLASS BREAK SENSOR
	POWER TRANSFER HINGE

BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZE					
PROTECTION DEVICE RATING (AMPS)	REQUIRED CONDUCTOR SIZE	EQUIPMENT GROUNDING CONDUCTOR SIZE	SINGLE PHASE 2-WIRE + GND. CONDUIT SIZE	SINGLE PHASE 3-WIRE + GND. CONDUIT SIZE	SINGLE PHASE 4-WIRE + GND. CONDUIT SIZE
15	12 AWG	12 AWG	3/4"	3/4"	3/4"
20	12 AWG	12 AWG	3/4"	3/4"	3/4"
25	10 AWG	10 AWG	3/4"	3/4"	3/4"
30	10 AWG	10 AWG	3/4"	3/4"	3/4"
35	8 AWG	10 AWG	3/4"	3/4"	3/4"
40	8 AWG	10 AWG	3/4"	3/4"	3/4"
45	8 AWG	10 AWG	3/4"	3/4"	1"
50	6 AWG	10 AWG	3/4"	3/4"	1"
60	4 AWG	10 AWG	1"	1"	1-1/4"
70	4 AWG	10 AWG	1"	1"	1-1/4"
80	3 AWG	8 AWG	1"	1-1/4"	1-1/4"
90	2 AWG	8 AWG	1"	1-1/4"	1-1/4"
100	1 AWG	8 AWG	1-1/4"	1-1/2"	1-1/2"

- * = UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ** = ALL CONDUCTORS SHOWN IN THIS TABLE ARE BASED ON THREE CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE. CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE NEC IF 4 OR MORE CONDUCTORS ARE PLACED IN A RACEWAY OR CABLE.

*** = THE CONDUCTORS SHOWN IN THIS TABLE ARE BASED ON AN AMBIENT TEMPERATURE OF 86°F. FOR TEMPERATURES ABOVE 86°F THE CONDUCTOR AMPACITY SHALL BE DERATED IN ACCORDANCE WITH THE NEC.

ELECTRICAL SHEET LIST

SHEET NO.	SHEET NAME
E0.0	ELECTRICAL SYMBOLS AND ABBREVIATIONS
ES1.1	SITE ELECTRICAL PLAN
E01.0	LOWER LEVEL - DEMOLITION PLAN - ELECTRICAL
ED1.1	FIRST FLOOR - DEMOLITION PLAN - ELECTRICAL
ED1.2	SECOND FLOOR - DEMOLITION PLAN - ELECTRICAL
E1.0	LOWER LEVEL - LIGHTING PLAN
E1.1	FIRST FLOOR - LIGHTING PLAN
E1.2	SECOND FLOOR - LIGHTING PLAN
E2.0	LOWER LEVEL - POWER PLAN
E2.1	FIRST FLOOR - POWER PLAN
E2.2	SECOND FLOOR AND ROOF - POWER PLAN
E3.0	LOWER LEVEL - SPECIAL SYSTEMS PLAN
E3.1	FIRST FLOOR - SPECIAL SYSTEMS PLAN
E3.2	SECOND FLOOR - SPECIAL SYSTEMS PLAN
ES.1	ELECTRICAL RISER DIAGRAM
ES.1	ELECTRICAL DETAILS
ES.2	ELECTRICAL DETAILS
E7.1	ELECTRICAL SCHEDULES
E7.2	ELECTRICAL SCHEDULES
E7.3	ELECTRICAL SCHEDULES

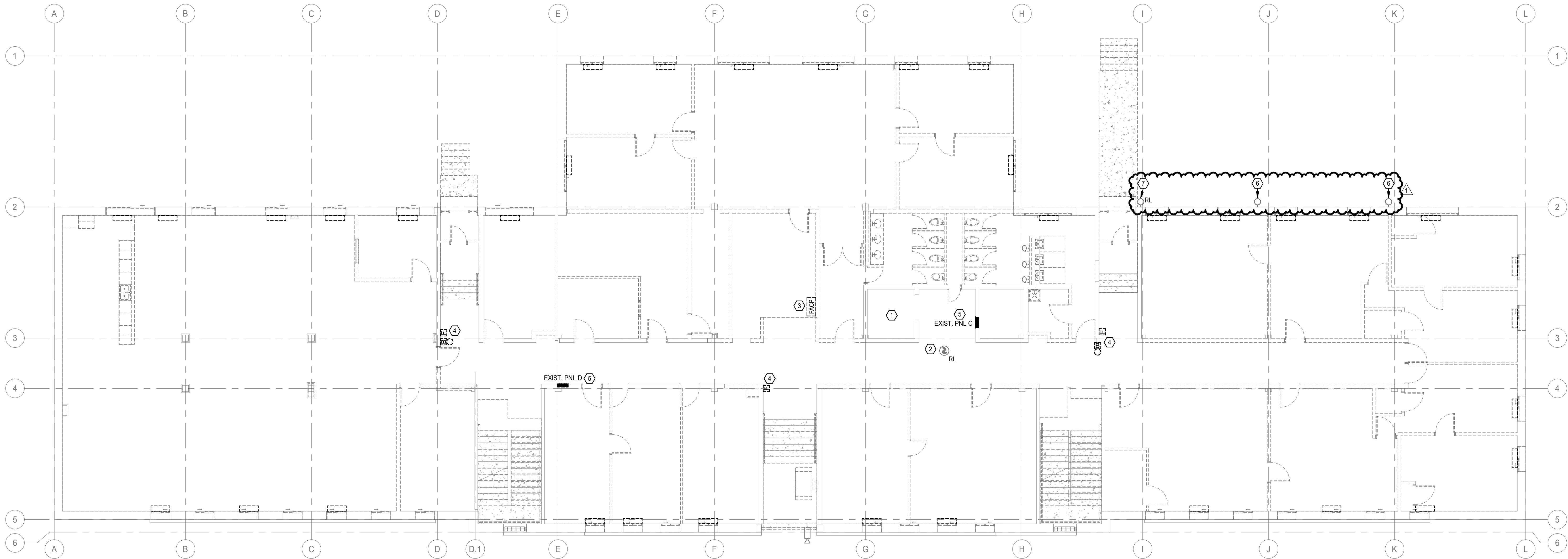
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GENERAL SHEET NOTES

- A. DEMOLISH ALL LIGHTING, POWER, AND SYSTEMS EQUIPMENT AND FIXTURES ON THIS FLOOR, UNO. SEE E0.0 FOR GENERAL DEMOLITION NOTES.
- B. SALVAGE ALL LED LIGHT FIXTURES FOR RE-USE BY OWNER AT OTHER BUILDINGS ON CAMPUS.
- C. SALVAGE ALL CEILING MOUNT INTERCOM SPEAKERS, NOT SHOWN, TO BE RE-INSTALLED THROUGHOUT RENOVATED FIRST FLOOR AREAS. SEE E3.1 FOR NEW LOCATIONS.

SHEET KEYNOTES

1. ELEVATOR NOT PART OF DEMO SCOPE. MAINTAIN FIRE ALARM AND OTHER SYSTEM COMPONENTS ASSOCIATED WITH ELEVATOR DURING CONSTRUCTION TO REMAIN IN OPERATION UPON SUBSTANTIAL COMPLETION.
2. EXISTING SMOKE DETECTOR CONNECTED TO ELEVATOR CONTROLLER TO REMAIN AND BE REINSTALLED AT LOCATION SHOWN ON E3.1.
3. SALVAGE EXISTING FIRE ALARM CONTROL PANEL TO BE HANDED OVER TO NDOT.
4. DEMOLISH EXISTING FIRE ALARM DEVICES. NEW DEVICES TO BE INSTALLED THROUGHOUT FIRST FLOOR AND CONNECTED TO NEW FIRE ALARM SYSTEM.
5. DEMOLISH EXISTING PANEL. PATCH HOLE IN WALL AFTER PANEL IS REMOVED.
6. EXISTING EXTERIOR LIGHTS TO REMAIN. CONNECT TO NEW CIRCUIT AS SHOWN ON NEW LIGHTING PLAN ON E1.1.
7. RELOCATE EXISTING EXTERIOR LIGHT AND CONNECT TO NEW CIRCUIT AS SHOWN ON NEW LIGHTING PLAN ON E1.1.
8. EXISTING EXTERIOR SECURITY CAMERA. PROTECT CAMERA AND ASSOCIATED RACEWAYS IN PLACE. REMOVE ASSOCIATED CABLING AND PROVIDE NEW CABLING ACCORDING TO NEW PLANS AND SPECIFICATIONS.



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

REVISIONS SCHEDULE		
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NDOT 1600 OFFICE
RENOVATION

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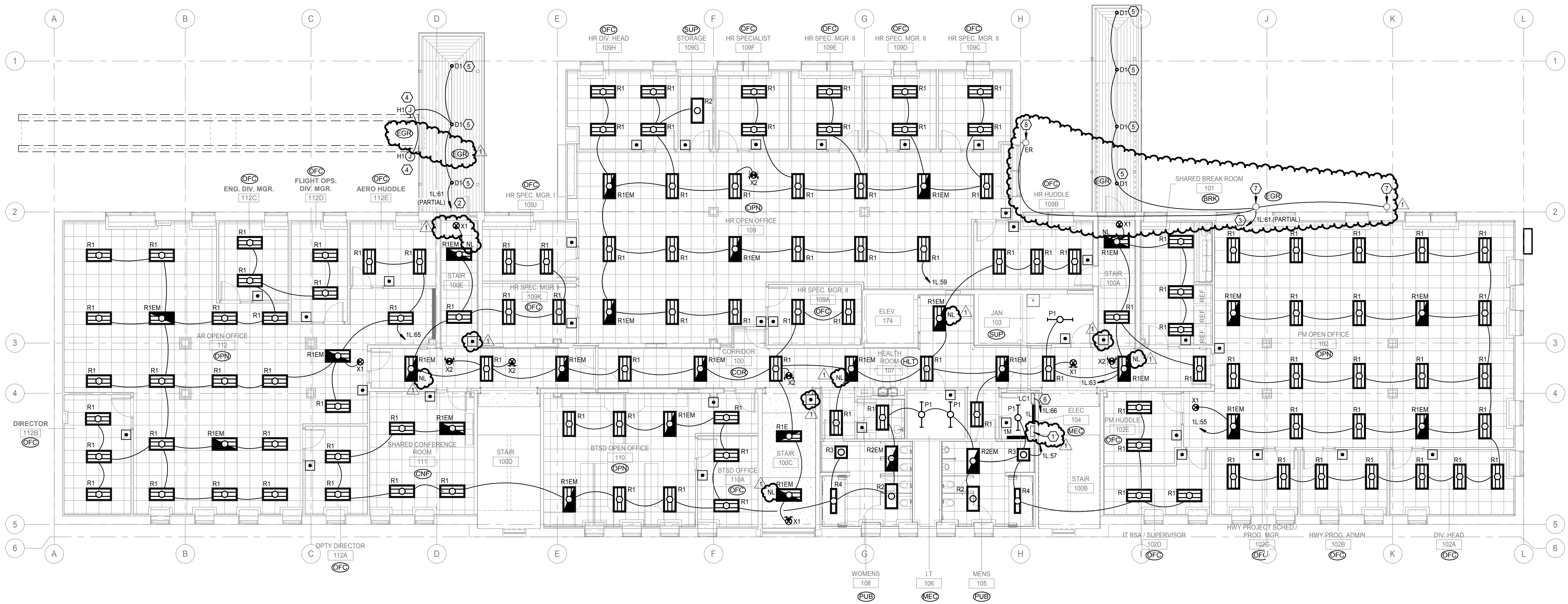
FIRST FLOOR -
DEMOLITION PLAN -
ELECTRICAL

GENERAL SHEET NOTES

A. SEE E0.0 FOR GENERAL LIGHTING NOTES.

SHEET KEYNOTES

1. WALL MOUNT, 375W LIGHTING INVERTER FOR EXTERIOR LIGHTING. MAKE/MODEL: EVENLITE / PWII 37 LC, OR APPROVED EQUAL.
2. POWER CANOPY DOWNLIGHTS AND HANDRAIL LIGHTS VIA LIGHTING INVERTER IN ELEC RM 104.
3. POWER CANOPY DOWNLIGHTS VIA LIGHTING INVERTER IN ELEC RM 104.
4. INTEGRATED HANDRAIL LIGHTS SPACED AT 36" O.C. PROVIDE POWER SUPPLIES AND ALL ADDITIONAL WIRING AND ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. VERIFY LOCATIONS OF POWER SUPPLIES WITH ARCHITECT PRIOR TO INSTALLATION. SEE ARCHITECTURAL DETAIL BIA0.2 FOR MORE INFORMATION.
5. ROUTE CONDUIT TO TYPE D1 DOWNLIGHTS ABOVE CANOPY. CUT HOLE SIZED TO FIT LIQUID TIGHT JUNCTION BOX FLUSH WITH UNDERSIDE OF CANOPY. MOUNT TYPE D1 DOWNLIGHTS FLUSH TO JUNCTION BOX.
6. DESIGNATED SPACE FOR LIGHTING CONTROL COMPONENTS, RELAY PANELS, AND/OR RELAYS. COORDINATE WITH LIGHTING CONTROLS MANUFACTURER FOR ALL NECESSARY COMPONENTS AND INSTALLATION REQUIREMENTS.
7. EXISTING EXTERIOR LIGHTS CONNECTED TO NEW CIRCUIT AS INDICATED VIA LIGHTING INVERTER IN ELEC RM 104.
8. RE-INSTALL EXISTING EXTERIOR LIGHT AT THIS LOCATION AT SAME MOUNTING HEIGHT AS OTHER EXISTING EXTERIOR LIGHTS AND CONNECT TO NEW CIRCUIT AS INDICATED VIA LIGHTING INVERTER IN ELEC RM 104.



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FIRST FLOOR - LIGHTING PLAN

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MECHANICAL, ELECTRICAL AND PLUMBING ENGINEER
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olsson.com
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Nebraska COA #CA-0638

STRUCTURAL ENGINEER
LANGE STRUCTURAL GROUP
1919 S 40TH STREET, SUITE 302
LINCOLN, NE 68506
V 402.421.9540
langestructuralgroup.com

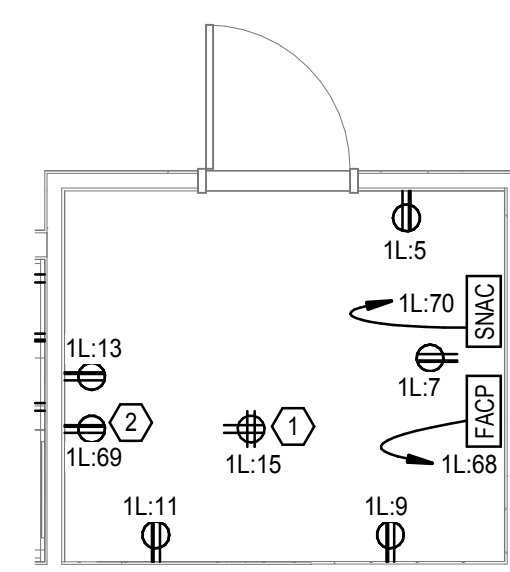
1 FIRST FLOOR - LIGHTING PLAN

1/8" = 1'-0"

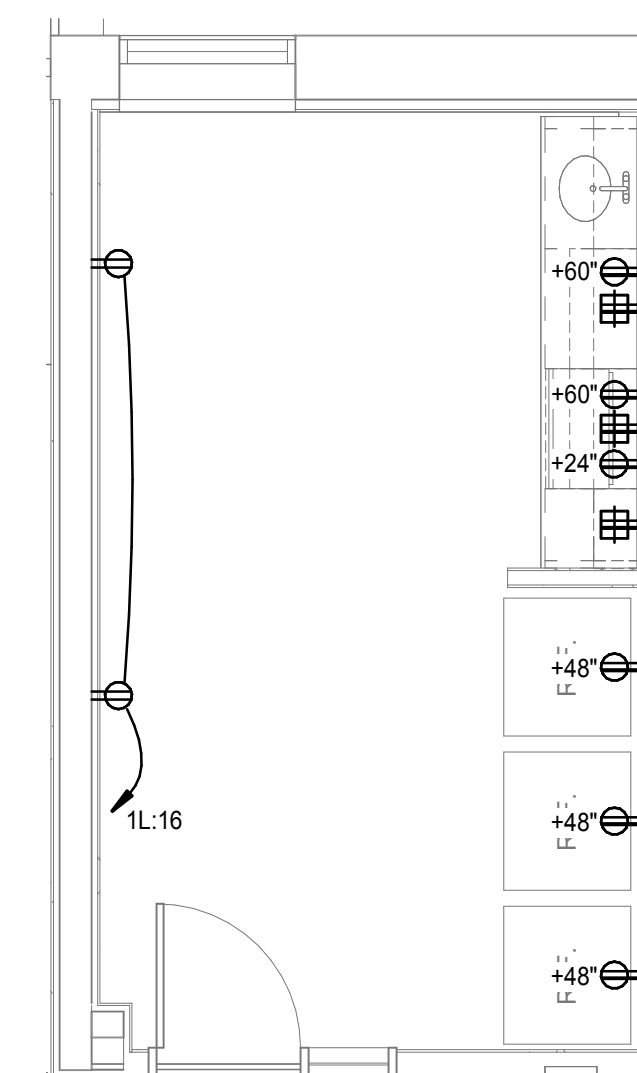
A. SEE E0.0 FOR GENERAL POWER NOTES.

B. VERIFY QUANTITY OF CIRCUITS, REQUIREMENTS, AND LOCATIONS FOR ALL SYSTEMS FURNITURE CONNECTIONS WITH SYSTEMS FURNITURE PROVIDED BY OWNER PRIOR TO INSTALLATION.

1. COORDINATE WITH SYSTEMS FURNITURE TO PROVIDE CONVENIENCE POWER AT THIS LOCATION FOR HOTELING AND/OR PRINTERS. VERIFY REQUIREMENTS WITH OWNER.
4. GROUT HOMERUN FOR SYSTEMS FURNITURE POWER CONNECTION:
(1) HOT CONDUCTORS, (2) NEUTRAL WIRING, (2) GROUND, AND (1) ISO-GROUND.
3. NEMA 3R REMOTE GENERATOR CONNECTION CABINET. SEE E2.0 FOR FEEDER PATHWAY ON LEVEL BELOW. SEE RISON ON E1.0 FOR MORE INFORMATION.
4. COMBINATION POWER AND LOW-VOLTAGE POKE-THRU DEVICE. LEGRAND 8ATC OR APPROVED EQUIV. PROVIDE WITH (2) DUPLEX OUTLETS. (1) COMMUNICATION OUTLET PER SPECIAL SYSTEMS PLAN, AND (1) AN BRACKET FOR ANY CABLES BY OWNER. VERIFY EXACT LOCATION OF POKE-THRU WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION.
5. RECESSED TV WALL BOX FSR PWB-200 WITH OR APPROVED EQUIV. PROVIDE WITH (1) DUPLEX OUTLET, (1) COMMUNICATION OUTLET PER E3.1, AND (1) A/V RACK PER E3.1.1. VERIFY EXACT LOCATION OF WALL BOX WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION.
6. CONNECT WIRING WHIP PROVIDED WITH OWNER PROVIDED MODULAR FURNITURE FROM RECESSED JUNCTION BOX IN WALL TO FURNITURE SYSTEM AND MAKE ALL CONNECTIONS REQUIRED.
7. CONNECT AUTOMATIC DOOR OPERATOR TO CIRCUIT INDICATED. ALL WIRING BY DIVISION 26.
8. PUSH PAD FOR AUTOMATIC DOOR OPERATOR. PROVIDE 3/4" TO OPERATOR.

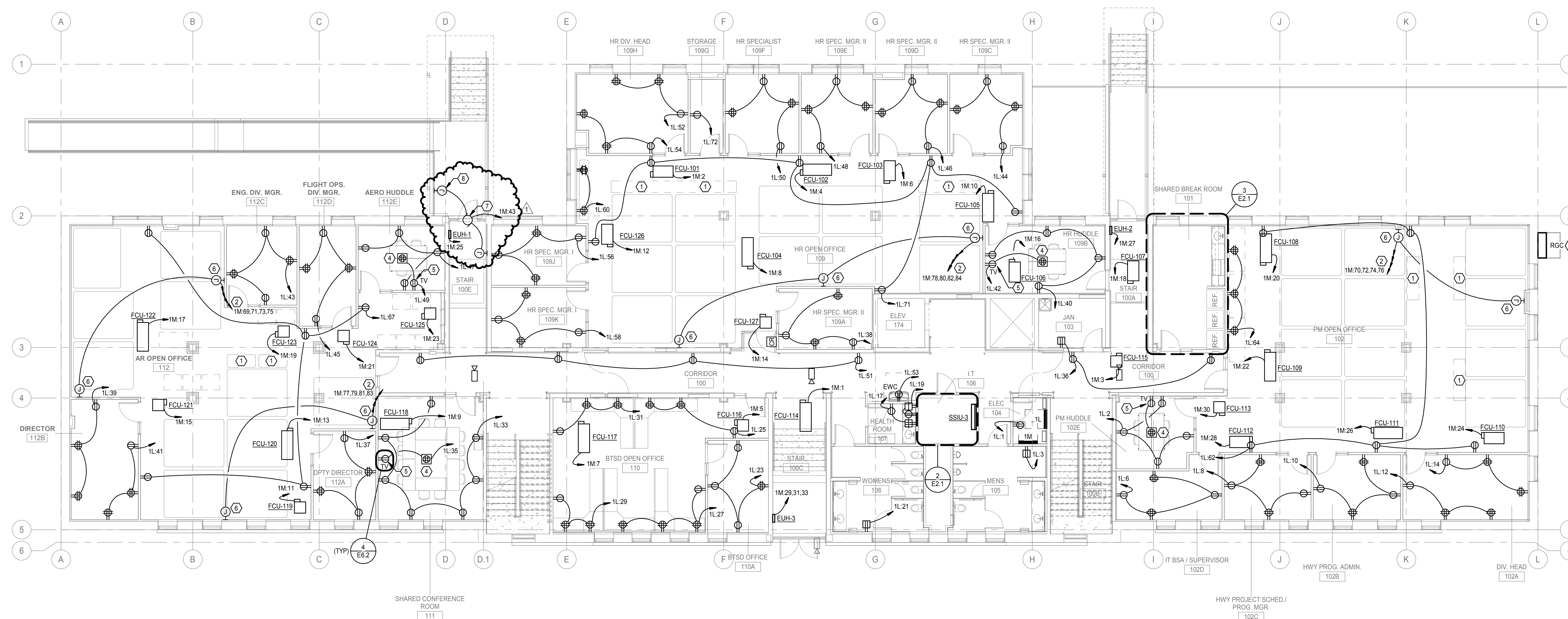


2 RM 106 ENLARGED POWER PLAN
E3.1 SCALE: 1/4" = 1'-0"



3 RM 101 ENLARGED POWER PLAN
E2.4 SCALE: 1/4" = 1'-0"

1. MOUNTED TO CABLE RUNWAY ABOVE NETWORK RACKS.
2. DEDICATED OUTLET FOR INTERCOM SYSTEM HEAD END EQUIPMENT. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.



1 FIRST FLOOR - POWER PLAN

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**FIRST FLOOR -
POWER PLAN**



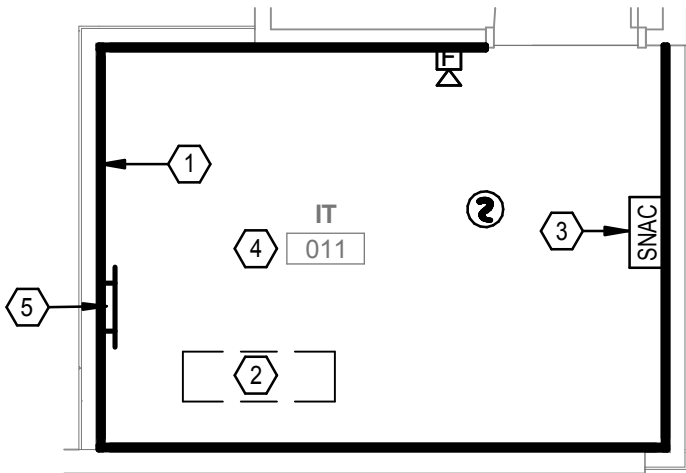
E2.1

GENERAL SHEET NOTES

- A. SEE E0.0 FOR GENERAL SYSTEMS NOTES.
- B. CONTRACTOR TO COMPLETE INSTALLATION OF ALL DIVISION 27 WORK, INCLUDING ALL WORK TO NETWORK RACK(S) IN IT ROOM(S) AND TESTING OF ALL CABLING PER SPECIFICATIONS, 60 DAYS PRIOR TO SUBSTANTIAL COMPLETION.
- C. COORDINATE WITH BUILDING OWNER TO KEEP EXISTING INTERCOM SYSTEM ON LOWER LEVEL OPERATIONAL THROUGHOUT CONSTRUCTION OF THE PROJECT.

SHEET KEYNOTES

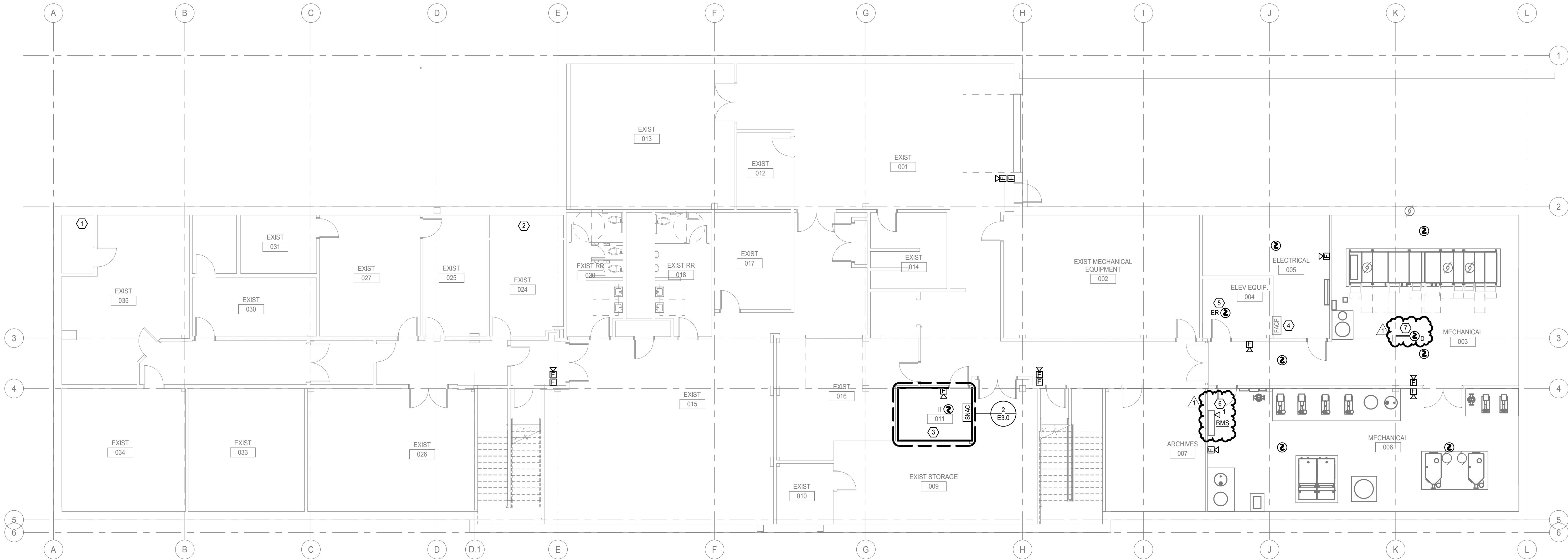
1. PROTECT EXISTING TELECOMMUNICATIONS CABLING SERVICE ENTRANCE FROM THIS LOCATION TO EXISTING DEMARC IDENTIFIED BY KEYNOTE 2.
2. EXISTING TELECOMMUNICATIONS DEMARC LOCATION.
3. ROUTE BACKBONE CABLING TO FLOORS ABOVE THROUGH THIS ROOM.
4. EXISTING FIRE ALARM CONTROL PANEL FOR ELEVATOR COMPONENTS. PROVIDE CONNECTION FROM NEW FIRE ALARM SYSTEM TO THIS PANEL.
5. REINSTALL EXISTING SMOKE DETECTOR IN ELEVATOR EQUIPMENT ROOM.
6. PROVIDE NETWORK DROP TO BUILDING MANAGEMENT SYSTEM PROVIDED UNDER DIVISION 23. VERIFY LOCATION AND CONNECTION REQUIREMENTS WITH OWNER AND CONTROLS CONTRACTOR PRIOR TO INSTALLATION.
7. PROVIDE DUCT DETECTOR IN EXHAUST AIR DUCT SYSTEM UNDER DIVISION 28. DETECTOR SHALL BE INSTALLED BY DIVISION 23 AND WIRED BY DIVISION 28. PROVIDE ALL EQUIPMENT REQUIRED FOR SHUT-DOWN OF DOAS UPON DUCT SMOKE DETECTION OR UPON GENERAL ALARM.



RM 011 ENLARGED SYSTEMS PLAN
SCALE: 1/4" = 1'-0"

ENLARGED PLAN KEYNOTES

1. PROVIDE 8" TALL X 3/4" PLYWOOD TELECOMMUNICATIONS EQUIPMENT BOARD WITH BOTTOM MOUNTED AT 12" AFF ON ALL 4 WALLS. USE FIRE RETARDANT PLYWOOD WITH WHITE PAINT. FIRE RATING LABEL ON PLYWOOD SHALL REMAIN VISIBLE FOR INSPECTION. PROVIDE TELECOMMUNICATIONS GROUND BAR PER DETAIL 4E6.1
2. PROVIDE VERTICAL CABLE RUNWAY OR D-RINGS FOR SUPPORT OF CABLES TO FLOOR SLEEVES AT THIS LOCATION ON LEVEL ABOVE.
3. FIRE ALARM POWER SUPPLY PANEL.
4. PROVIDE (1) 24-STRAND OS2 SM FIBER AND 25 PAIR CAT 3 TO THIS ROOM FROM DEMARC LOCATION IDENTIFIED ON THIS PLAN FOR FUTURE NETWORK EQUIPMENT IN THIS ROOM. PROVIDE 25' SERVICE LOOP FOR CONNECTION TO FUTURE NETWORK EQUIPMENT.
5. TELECOMMUNICATIONS GROUND BAR FOR FUTURE NETWORK EQUIPMENT IN THIS ROOM. PROVIDE GROUND CONNECTIONS TO EQUIPMENT/ELEMENTS AVAILABLE PER DETAIL 6E6.2.



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LOWER LEVEL -
SPECIAL SYSTEMS
PLAN

NORTH



E3.0

1 LOWER LEVEL - SPECIAL SYSTEMS PLAN

1/8" = 1'-0"

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FIRST FLOOR -
SPECIAL SYSTEMS
PLAN

NORTH

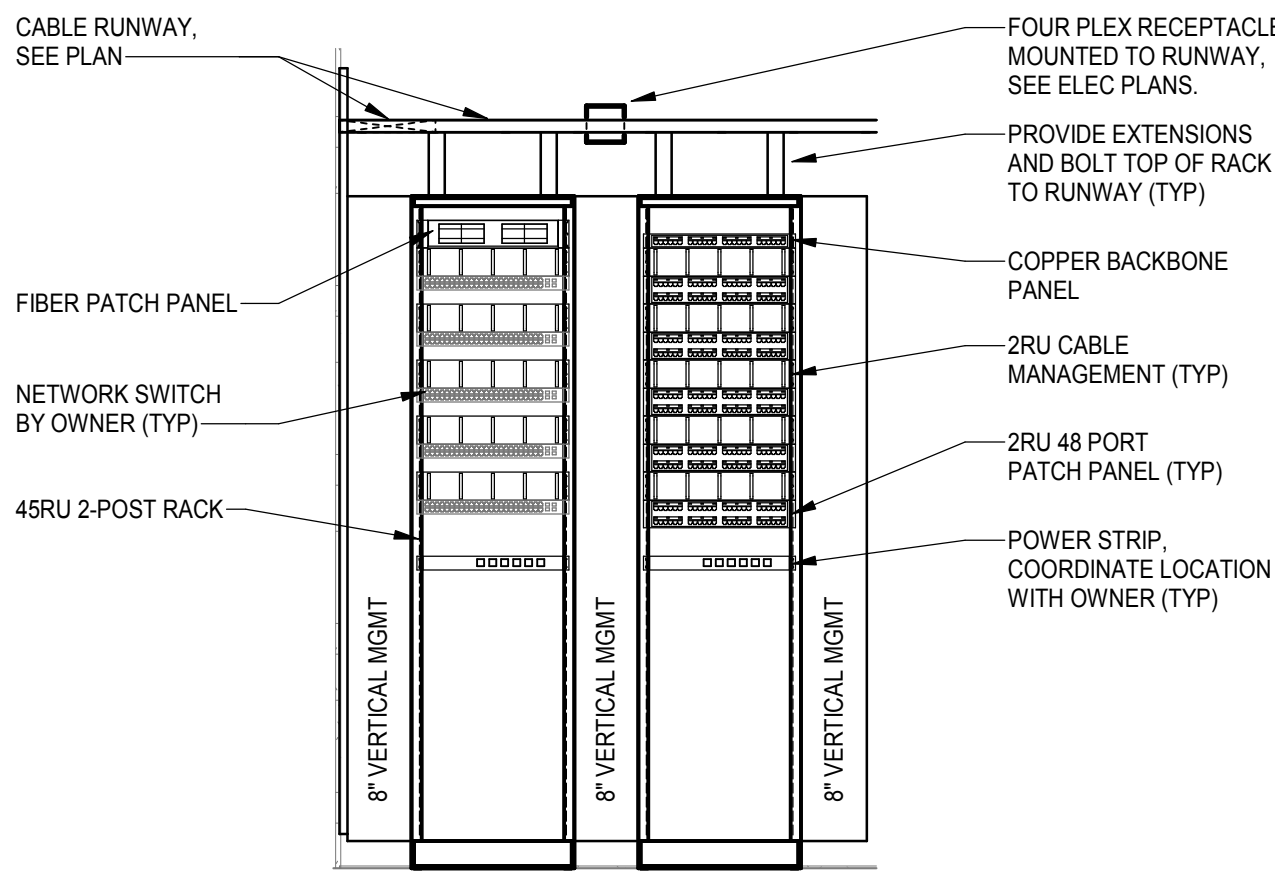
E3.1

GENERAL SHEET NOTES

- A. SEE E0.0 FOR GENERAL SYSTEMS NOTES.
- B. CONTRACTOR TO COMPLETE INSTALLATION OF ALL DIVISION 27 WORK, INCLUDING ALL WORK TO NETWORK RACK(S) IN IT ROOM(S) AND TESTING OF ALL CABLING PER SPECIFICATIONS, 60 DAYS PRIOR TO SUBSTANTIAL COMPLETION.
- C. VERIFY REQUIREMENTS AND LOCATIONS FOR ALL SYSTEMS FURNITURE AND CONFERENCE/HUDDLE ROOM CONNECTIONS WITH EQUIPMENT PROVIDED BY OWNER PRIOR TO INSTALLATION.
- D. FOR ALL WIRELESS ACCESS POINTS PROVIDE (1) CAT 6A CABLE TO LOCATIONS SHOWN WITH 15FT COILED ABOVE CEILING. TERMINATE TO SINGLE PORT MODULAR BOX.
- E. RE-INSTALL EXISTING 70 VOLT CEILING MOUNT INTERCOM SPEAKERS AT LOCATIONS SHOWN ON PLAN. OWNER WILL PROVIDE ADDITIONAL NEW SPEAKERS IF REQUIRED. EACH ZONE SHALL BE DAISSY-CHAINED WITH 14/2 AWG, PROVIDE TERMINAL BLOCK FOR EACH ZONE AND HOME RUN TO HEAD END LOCATION IN IT ROOM 106. VERIFY ZONING WITH OWNER PRIOR TO INSTALLATION.
- F. PROVIDE SEPARATE J-HOOKS AND CONDUITS SLEEVES FOR INTERCOM CABLING. ROUTE INTERCOM CABLING AND HORIZONTAL CAT6 CABLING IN CABLE TRAY - BUNDLE INTERCOM CABLING SEPARATE FROM CAT6 CABLING AND SECURE TO OPPOSITE SIDES OF CABLE TRAY.
1. G. FOR ALL SECURITY CAMERAS PROVIDE (1) CAT 6 CABLE TO LOCATIONS SHOWN WITH 10FT COILED ABOVE CEILING. TERMINATE TO SINGLE PORT MODULAR BOX.

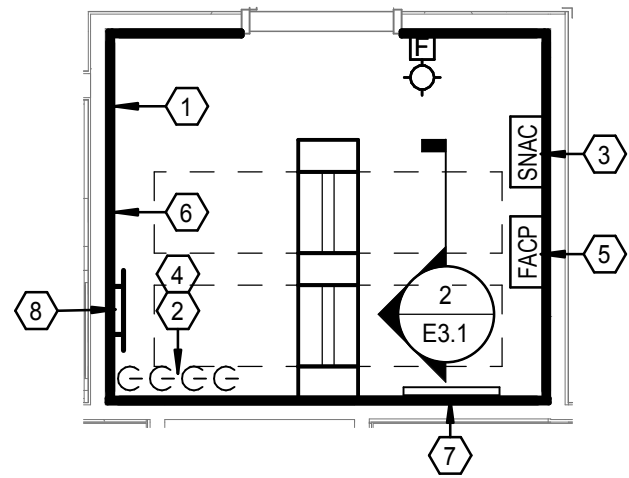
SHEET KEYNOTES

1. REINSTALL EXISTING SMOKE DETECTOR CONNECTED TO ELEVATOR CONTROLLER.
2. ACCESS CONTROLLED DOOR: VERIFY EXISTING PATHWAYS FOR ACCESS CONTROL ARE SUITABLE TO ACCOMMODATE NEW ACCESS CONTROL CABLING AND COMPONENTS. IF NEEDED, PROVIDE ADDITIONAL PATHWAYS AT OWNERS DIRECTION.
3. COORDINATE WITH SYSTEMS FURNITURE TO PROVIDE DATA AT THIS LOCATION AS INDICATED FOR HOTELING AND/OR PRINTERS. VERIFY REQUIREMENTS OWNER.
4. POKE-THRU DEVICE. SEE E2.1 FOR SPECIFICATIONS.
5. DATA OUTLET AND AVY ROUGH-IN LOCATED IN RECESSED TV WALL BOX. SEE E2.1 FOR SPECIFICATIONS.
6. PROVIDE 1" C FROM POKE-THRU TO TV WALLBOX AND 1" C FROM TV WALLBOX STUBBED UP TO ABOVE ACCESSIBLE CEILING PER DETAIL 7/E6.2 FOR DATA CABLING. PROVIDE 1-1/2" C WITH PULLSTRING FROM POKE-THRU TO TV WALLBOX FOR AVY ROUGH-IN.
7. 70 VOLT SPEAKER ZONE. SEE GENERAL NOTES ON THIS SHEET FOR MORE INFORMATION.
8. PROVIDE 2 GANG, 4" DEEP SQUARE JUNCTION BOX WITH A 2" GROMMET FACEPLATE. INSTALL BOX AND SIZE CONDUIT STUB-UP PER DETAIL 7/E6.2. COORDINATE EXACT LOCATION WITH SYSTEM FURNITURE PROVIDED BY OWNER. PROVIDE FLEXIBLE MESH SLEEVE OVER EXPOSED CABLE BUNDLES BETWEEN GROMMET OPENING AND FURNITURE.
9. ROUTE CABLING TO DATA OUTLET AT EACH WORKSTATION VIA JUNCTION BOX PATHWAY INDICATED AND OWNER PROVIDED FURNITURE SYSTEM. PROVIDE AND INSTALL COMPATIBLE DATA OUTLET AND FACEPLATE AT WORKSTATION. COORDINATE WITH OWNER PROVIDED FURNITURE FOR ALL REQUIREMENTS.
1. 10. PROVIDE NEW CATEGORY 6 CABLING TO EXISTING SECURITY CAMERA LOCATION. PROVIDE NEW RACEDWAYS AS REQUIRED TO CONCEAL NEW CABLING. COORDINATE ROUTING AND TERMINATION REQUIREMENTS AT THIS LOCATION WITH OWNER.



RM 106 RACK ELEVATION

SCALE: 1/2" = 1'-0"

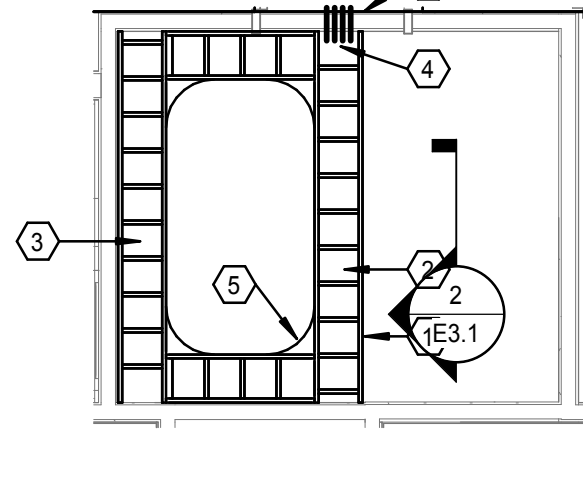


RM 106 ENLARGED SYSTEMS PLAN

SCALE: 1/4" = 1'-0"

ENLARGED PLAN KEYNOTES

1. PROVIDE 8' TALL X 3/4" PLYWOOD TELECOMMUNICATIONS EQUIPMENT BOARD WITH BOTTOM MOUNTED AT 12" AFF ON ALL 4 WALLS. USE FIRE RETARDANT PLYWOOD WITH WHITE PAINT. FIRE RATING LABEL ON PLYWOOD SHALL REMAIN VISIBLE FOR INSPECTION. PROVIDE TELECOMMUNICATIONS GROUND BAR PER DETAIL 4/E6.1.
2. 6" CORE WITH (4) 4" FLOOR SLEEVES - STI EZPATH 44+, OR APPROVED EQUAL. PROVIDE VERTICAL CABLE RUNWAY FOR SUPPORT OF CABLES BETWEEN SLEEVES AND CABLE RUNWAY.
3. FIRE ALARM POWER SUPPLY PANEL.
4. PROVIDE (1) 24-STRAND OS2 SM FIBER AND 25 PAIR CAT 3 TO THIS ROOM FROM DEMARC LOCATION ON LOWER LEVEL. VERIFY ROUTING WITH OWNER PRIOR TO INSTALLATION.
5. FIRE ALARM CONTROL PANEL.
6. HEAD END LOCATION FOR 70 VOLT SPEAKER SYSTEM. HEAD END INTERCOM EQUIPMENT PROVIDED AND INSTALLED BY OWNER.
7. PROVIDE FRAMED CABLE ADMINISTRATION DRAWINGS WITH PLEXIGLASS COVER MOUNTED ON WALL.
8. TELECOMMUNICATIONS GROUND BAR PER DETAIL 6/E6.2.

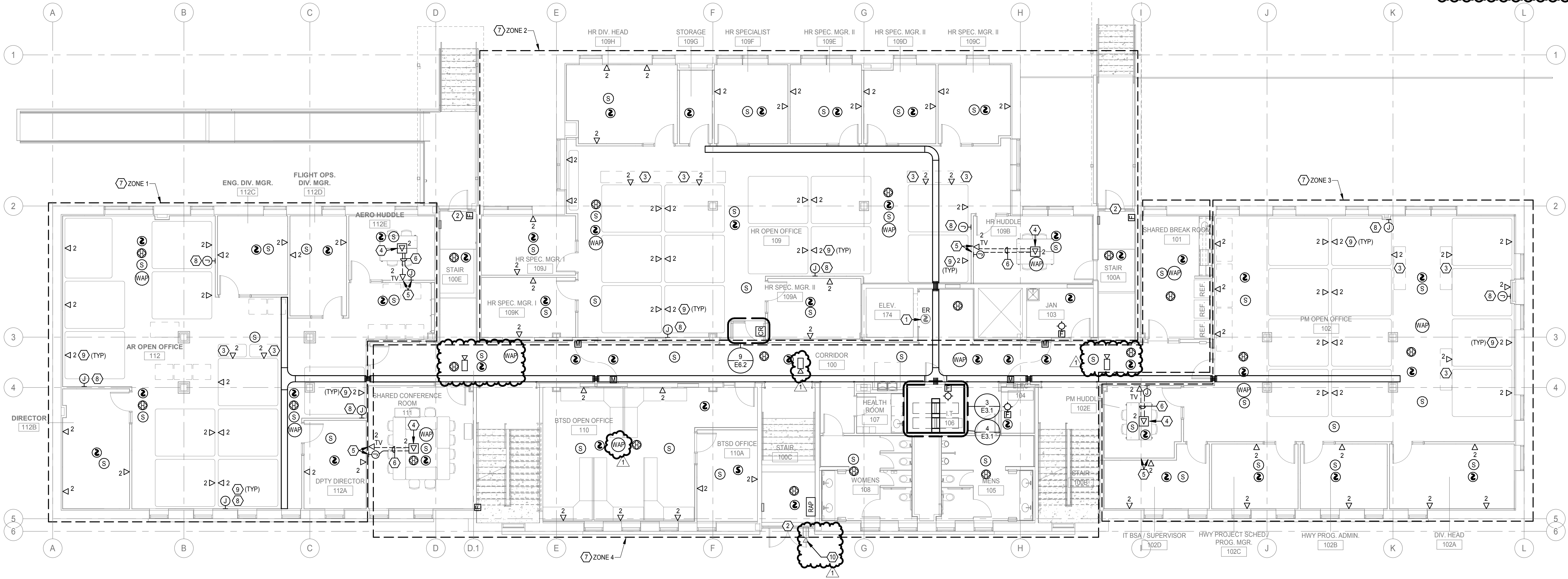


RM 106 CABLE RUNWAY PLAN

SCALE: 1/4" = 1'-0"

ENLARGED PLAN KEYNOTES

1. 12" LADDER TRAY - TYPICAL.
2. PROVIDE CABLE DROP-OUTS AT EACH VERTICAL CABLE MANAGEMENT AND DISTRIBUTION RACK.
3. PROVIDE CABLE DROPS OUTS AT 3'-0" ON CENTER AT WALL FIELD.
4. PROVIDE VERTICAL RUNWAY FOR SUPPORT OF CABLES BETWEEN SLEEVES AND CABLE RUNWAY. TYPICAL.
5. PROVIDE RADIUS CORNER BRACKETS AT RUNWAY CORNERS INDICATED.
6. (4) 4" SLEEVES - STI EZPATH 44+, OR APPROVED EQUAL. TYPICAL OF ALL CABLE TRAY EXTENSIONS, UNO.



1 FIRST FLOOR - SPECIAL SYSTEMS PLAN

1/8" = 1'-0"

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ELECTRICAL
SCHEDULES

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

ITEM	DESCRIPTION	AMPS	KW	HP	VOLTS	PHASE	DISC. BY	DISC. SIZE	DISC. SIZE	PANEL	CIRCUIT NO.	CONDUCTORS				NOTES
												PHASE	NEUTRAL	GROUND	CONDUIT SIZE	
B-1	BOILER	10			120 V	1	SEE NOTES	-	-	BM1	2	12	12	12	3/4"	1
B-2	BOILER	10			120 V	1	SEE NOTES	-	-	BM1	6	12	12	12	3/4"	1
BMS	BUILDING MANAGEMENT SYSTEM	8.3 A	1 KW		120 V	1	SEE NOTES	-	-	BM1	12	12	12	12	3/4"	1
BP-1	BOILER PUMP	8.5 A			120 V	1	SEE NOTES	-	-	BM1	4	12	12	12	3/4"	1
BP-2	BOILER PUMP	8.5 A			120 V	1	SEE NOTES	-	-	BM1	8	12	12	12	3/4"	1
BT-1	BUFFER TANK	7.2 A			120 V	1	SEE NOTES	-	-			12	12	12	3/4"	
CF-1	CHEMICAL FEEDER	7.2 A			120 V	1	SEE NOTES	-	-	BM1	14	12	12	12	3/4"	1
CF-2	CHEMICAL FEEDER	7.2 A			120 V	1	SEE NOTES	-	-	BM1	16	12	12	12	3/4"	1
CH-1	CHILLER	197.1 A			208 V	3	MECH	400/3	22 KA	MSB	11	300 KCMIL	300 KCMIL	4	3"	
CH-2	CHILLER	197.1 A			208 V	3	MECH	400/3	22 KA	MSB	12	300 KCMIL	300 KCMIL	4	3"	
CT-1	COOLING TOWER	25.3 A			208 V	3	MECH	30/3	5 KA	2M	13,15,17	6	6	10	1"	
CT-1 BASIN HEATER	COOLING TOWER BASIN HEATER	21 A	6 KW		208 V	1	MECH	30/1	5 KA	2M	14,16,18	8	8	10	3/4"	
DMV-1	DIGITAL MIXING VALVE				120 V	1	SEE NOTES	-	-	BM2	14					1
DOAS-1 ENERGY RECOVERY	DEDICATED OUTDOOR AIR SYSTEM - ENERGY RECOVERY	1.05			208 V	3	SEE NOTES	-	-	BM2	13,15,17	12	12	12	3/4"	1
DOAS-1 EXHAUST FAN	DEDICATED OUTDOOR AIR SYSTEM - EXHAUST/RETURN FAN	20.3 A			208 V	3	SEE NOTES	-	-	BM2	8,10,12	10	10	10	3/4"	1
DOAS-1 SUPPLY FAN	DEDICATED OUTDOOR AIR SYSTEM - SUPPLY FAN	20.3A			208 V	3	SEE NOTES	-	-	BM2	7,9,11	10	10	10	3/4"	1
EUH-1	ELECTRIC UNIT HEATER	8.3 A	1 KW		120 V	1	MECH	-	5 KA	1M	25	12	12	12	3/4"	
EUH-2	ELECTRIC UNIT HEATER	8.3 A	1 KW		120 V	1	MECH	-	5 KA	1M	27	12	12	12	3/4"	
EUH-3	ELECTRIC UNIT HEATER	14.4 A	3 KW		208 V	3	MECH	-	5 KA	1M	29,31,33	12	12	12	3/4"	
EW-1	ELECTRIC WATER HEATER	34 A			208 V	3	SEE NOTES	-	-	BM2	2,4,6	6	6	10	1"	1
FCU-001	FAN COIL UNIT	7 A			120 V	1	SEE NOTES	-	-	BM2	1	12	12	12	3/4"	1
FCU-002	FAN COIL UNIT	7 A			120 V	1	SEE NOTES	-	-	BM1	10	12	12	12	3/4"	1
FCU-101	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	2	12	12	12	3/4"	
FCU-102	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	4	12	12	12	3/4"	
FCU-103	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	6	12	12	12	3/4"	
FCU-104	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	8	12	12	12	3/4"	
FCU-105	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	10	12	12	12	3/4"	
FCU-106	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	16	12	12	12	3/4"	
FCU-107	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	18	12	12	12	3/4"	
FCU-108	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	20	12	12	12	3/4"	
FCU-109	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	22	12	12	12	3/4"	
FCU-110	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	24	12	12	12	3/4"	
FCU-111	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	26	12	12	12	3/4"	
FCU-112	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	28	12	12	12	3/4"	
FCU-113	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	30	12	12	12	3/4"	
FCU-114	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	1	12	12	12	3/4"	
FCU-115	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	3	12	12	12	3/4"	
FCU-116	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	5	12	12	12	3/4"	
FCU-117	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	7	12	12	12	3/4"	
FCU-118	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	9	12	12	12	3/4"	
FCU-119	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	11	12	12	12	3/4"	
FCU-120	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	13	12	12	12	3/4"	
FCU-121	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	15	12	12	12	3/4"	
FCU-122	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	1M	17	12	12	12	3/4"	
FCU-123	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	19	12	12	12	3/4"	
FCU-124	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	21	12	12	12	3/4"	
FCU-125	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	23	12	12	12	3/4"	
FCU-126	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	12	12	12	12	3/4"	
FCU-127	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	1M	14	12	12	12	3/4"	
FCU-201	FAN COIL UNIT	3.5 A			120 V	1	ELEC	20/1	5 KA	2M	10	12	12	12	3/4"	
FCU-202	FAN COIL UNIT	7 A			120 V	1	ELEC	20/1	5 KA	2M	12	12	12	12	3/4"	
L-1 HEAT TRACE	LOUVER HEAT TRACE		5.5 KW		208 V	1	ELEC	60/2	5 KA	BM2	19,21	8	8	10	3/4"	
P-1	PUMP	32.2 A		10HP	208 V	3	MECH	-	5 KA	BM1	1,3,5	4	4	10	1-1/4"	2
P-2	PUMP	32.2 A		10HP	208 V	3	MECH	-	5 KA	BM1	7,9,11	4	4	10	1-1/4"	2
P-3	PUMP	25.3 A		7.5 HP	208 V	3	MECH	-	5 KA	BM1	13,15,17	6	6	10	1"	2
P-4	PUMP	25.3 A		7.5 HP	208 V	3	MECH	-	5 KA	BM1	19,21,23	6	6	10	1"	2
P-5	PUMP	17.5		5 HP	208 V	3	MECH	-	5 KA	BM1	25,27,29	8	8	10	3/4"	2
P-6	PUMP	17.5		5 HP	208 V	3	MECH	-	5 KA	BM1	31,33,35	8	8	10	3/4"	2
P-7	PUMP			2.5 HP	120 V	1	-	-	-	BM2	3	12	12	12	3/4"	1
SSCU-1	SPLIT SYSTEM CONDENSING UNIT	21 A			208 V	1	ELEC	30/2	5 KA	2M	6,8	10	10	10	3/4"	3, 4, 5
SSCU-2	SPLIT SYSTEM CONDENSING UNIT	21 A			208 V	1	ELEC	30/2	5 KA	2M	2,4	10	10	10	3/4"	3, 4, 5
SSCU-3	SPLIT SYSTEM CONDENSING UNIT	21 A			208 V	1	ELEC	30/2	5 KA	2M	1,3	10	10	10	3/4"	3, 4, 5
SSCU-4	SPLIT SYSTEM CONDENSING UNIT	21 A			208 V	1	ELEC	30/2	5 KA	2M	5,7	10	10	10	3/4"	3, 4, 5
SSIU-1	SPLIT SYSTEM INDOOR UNIT	1 A			208 V	1	ELEC	20/2	5 KA	2M	2,4	12	12	12	3/4"	3, 4, 5
SSIU-2	SPLIT SYSTEM INDOOR UNIT	1 A			208 V	1	ELEC	20/2	5 KA	2M	1,3	12	12	12	3/4"	3, 4, 5
SSIU-3	SPLIT SYSTEM INDOOR UNIT	1 A			208 V	1	ELEC	20/2	5 KA	2M	5,7	12	12	12	3/4"	3, 4, 5
SSIU-4	SPLIT SYSTEM INDOOR UNIT	1 A			208 V	1	ELEC	20/2	5 KA	2M	6,8	12	12	12	3/4"	3, 4, 5

MECHANICAL EQUIPMENT CONNECTION SCHEDULE GENERAL NOTES:
A. PROVIDE ALL DISCONNECTS SHOWN IN SCHEDULE ABOVE AND MAKE ALL CONNECTIONS REQUIRED TO MECHANICAL EQUIPMENT. PROVIDE STARTERS AS REQUIRED.
B. COORDINATE CHANGES WITH MECHANICAL EQUIPMENT PROVIDED PRIOR TO INSTALLATION.
C. MOUNT DISCONNECTS VERTICALLY WITH "ON" AT TOP OF UNIT. MOUNT DISCONNECTS WITHIN 6 FEET OF UNIT SERVED UNLESS SHOWN OR OTHERWISE NOTED.

MECHANICAL EQUIPMENT CONNECTION KEYED GENERAL NOTES:
1. DISCONNECTING MEANS PROVIDED FROM CIRCUIT BREAKER LOCATED IN SAME ROOM AS EQUIPMENT.
2. ROUTE POWER THROUGH ASSOCIATED VFD. VFD BY MECHANICAL.
3. INDOOR UNIT POWER FROM ASSOCIATED OUTDOOR UNIT.
4. ROUTE 34°C WITH PULLSTRING BETWEEN INDOOR UNIT AND OUTDOOR UNIT FOR CONTROL WIRING BY MECHANICAL CONTRACTOR.
5. VERIFY REQUIREMENTS FOR DISCONNECTING MEANS FOR INDOOR UNIT WITH AHJ PRIOR TO ORDERING EQUIPMENT. PROVIDE DISCONNECT IF REQUIRED. IF AHJ WILL NOT ALLOW DISCONNECTING MEANS LOCAL TO INDOOR UNIT, PROVIDE LOCKABLE TYPE DISCONNECT LOCATED AT OUTDOOR UNIT.

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	DESCRIPTION	BASIS-OF-DESIGN MANUFACTURER	BASIS-OF-DESIGN MODEL	ALTERNATE MANUFACTURERS	LAMP			APPARENT LOAD INPUT POWER	VOLTAGE	MOUNTING SURFACE	NOTES
					LUMENS	CCT	CRI				
D1	SURFACE DOWNLIGHT - 5"	JUNO	J8F 5IN Ø7LM SWWS	LITHONIA, COOPER, HALO	700	3500 K	90	10 VA	120 V		
H1	HANDRAIL LIGHT	MILA	PICK-XT RD 3K A8B	LITHONIA, COOPER, HE WILLIAMS	160	3000 K	80	2 VA	120 V	HANDRAIL	2
P1EM	SUSPENDED 4" STRIP LIGHT	LITHONIA	CLJ L48 800LM SEP RFL MVOLT G210 35K 80CRI	COLUMBIA, COOPER, HE WILLIAMS	5000	3500 K	80	35 VA	120 V	CHAIN HUNG	
R1	RECESSED 2X4 VOLUMETRIC TROFFER	LITHONIA	2BLT 48BL ADP EZ1 LP935	COLUMBIA, COOPER, HE WILLIAMS	6000	3500 K	80	47 VA	120 V	RECESSED	
R1EM	RECESSED 2X4 VOLUMETRIC TROFFER	LITHONIA	2BLT 48BL ADP EZ1 LP935	COLUMBIA, COOPER, HE WILLIAMS	6000	3500 K	80	47 VA	120 V	RECESSED	
R2	RECESSED 2X4 FLAT PANEL	LITHONIA	EPANL 2X4 4000LM 80CRI 35K MIN10 ZT MVOLT	COLUMBIA, COOPER, HE WILLIAMS	4000	3500 K	80	38 VA	120 V	RECESSED	
R2EM	RECESSED 2X4 FLAT PANEL	LITHONIA	EPANL 2X4 4000LM 80CRI 35K MIN10 ZT MVOLT	COLUMBIA, COOPER, HE WILLIAMS	4000	3500 K	80	38 VA	120 V	RECESSED	
R3	RECESSED 2X2 FLAT PANEL	LITHONIA	EPANL 2X2 4000LM 80CRI 35K	COLUMBIA, COOPER, HE WILLIAMS	4000	3500 K	80	37 VA	120 V	RECESSED	
R4	RECESSED 1X4 FLAT PANEL	LITHONIA	EPANL 1X4 3000LM 80CRI 35K	COLUMBIA, COOPER, HE WILLIAMS	4000	3500 K	80	37 VA	120 V	RECESSED	
X1	EXIT SIGN - RED LETTERING, SINGLE FACE	LITHONIA	LQW-EL-N	COLUMBIA, COOPER, HE WILLIAMS	3200 K			5 VA	120 V	UNIVERSAL	
X2	EXIT SIGN - RED LETTERING, DOUBLE FACE	LITHONIA	LQW-EL-N	COLUMBIA, COOPER, HE WILLIAMS	3200 K			5 VA	120 V	UNIVERSAL	

LIGHT FIXTURE SCHEDULE GENERAL NOTES:
A. LIGHT FIXTURES INDICATED WITH LETTER "EM" SHALL BE PROVIDED WITH AN EMERGENCY BATTERY PACK, 1400 LUMENS MINIMUM.

LIGHT FIXTURE SCHEDULE KEYED NOTES:
1. SCHEDULED INFORMATION IS PER LIGHT FIXTURE. LIGHTS ARE INTEGRATED INTO HANDRAIL FURNISHED UNDER DIVISION 08. SEE LIGHTING PLAN ON E1-1 FOR MORE INFORMATION.

LIGHTING CONTROL SCHEDULE

TAG	ROOM TYPE	DEVICES						SEQUENCE OF OPERATION
		OCC	DAY LT	AUX	NETWK	WALL		
BRK	BREAK AREA	DT	Y	N	N	Y	L4	AUTO ON: UPON OCCUPANCY DETECTION, LIGHTS TO 50% WALL DEVICE: PROVIDE HIGH, MED, LOW, AND OFF SCENES OCC DELAY: 15 MIN DELAY, LIGHTS TO 0% MANUAL ON: LIGHTS TO 100% WALL DEVICE: PROVIDE ON/OFF AND 4 SCENE CONTROL (HIGH, MED, LOW, AND A/V SCENES), AND DIMMING OCC DELAY: 15 MIN DELAY, LIGHTS TO 0% PROVIDE SEPARATE RELAY(S) FOR DAYLIGHT ZONE(S) INDICATED ON PLANS
CNF	CONFERENCE ROOM	DT	N	N	Y	Y	LS	AUTO ON (DURING AFTER HOURS): UPON OCCUPANCY DETECTION, LIGHTS TO 50% OCC DELAY: 30 MINUTE DELAY, RETURN TO SCHEDULE AFTER HOURS: LIGHTS TO 0% FROM 10:00 PM

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REVISIONS SCHEDULE		
MARK	DATE	DESCRIPTION
1	09/12/2024	Addendum 2

NDOT 1600 OFFICE
RENOVATION

PROJECT: 23053 DATE: 08/16/2024
PROJECT STATUS: CONSTRUCTION
DOCUMENTS

ELECTRICAL
SCHEDULES

PANEL 2M VOLTAGE 208Y/120V 3PH MCB OR MLO 300 A MCB FED FROM MSB					PHASE BUS RATING 300 A BRANCH MINIMUM KAIC 10K					LOCATION ELEC 204 MOUNTING SURFACE NO. OF POLES 84 PANEL SECTIONS 2				
NOTE	LOAD DESCRIPTION	AMP	P	CKT. NO.	A	B	C	CKT. NO.	P	AMP	LOAD DESCRIPTION	NOTE		
	SSCU-2, SSUI-2	30 A	2	1	2288	2288		2	2	30 A	SSCU-1, SSUI-1			
--	--	--	--	3	--	2288	2288	--	4	--	--	--		
	SSCU-3, SSUI-3	30 A	2	5			2288	2288	6	2	30 A	SSCU-4, SSUI-4		
--	--	--	--	7	2288	2288		8	--	--	--	--		
	BLOWN DOWN VALVE	20 A	1	9		100	420	10	1	15 A	FCU-201 RM 200			
	HEAT TRACE	20 A	1	11			432	840	12	1	15 A	FCU-202 RM 221		
	CT-1	50 A	3	13	3039	2000		14	3	40 A	CT-1 BASIN HEATER			
--	--	--	--	15	--	3039	2000	16	--	--	--	--		
--	--	--	--	17	--	--	3039	2000	18	--	--	--		
	HEAT TRACE (CR)	20 A	1	19	888	888		20	1	20 A	HEAT TRACE (CS)			
	FIRE SMOKE DAMPERS	20 A	1	21		0	0	22	1	15 A	SPARE			
	SPARE	15 A	1	23			0	0	24	1	15 A	SPARE		
	SPARE	15 A	1	25	0	0			26	1	15 A	SPARE		
	SPARE	15 A	1	27		0	0		28	1	15 A	SPARE		
	SPARE	15 A	1	29			0	0	30	1	15 A	SPARE		
	SPARE	15 A	1	31	0	0			32	1	15 A	SPARE		
	SPARE	15 A	1	33		0	0		34	1	15 A	SPARE		
	SPARE	15 A	1	35			0	0	36	1	15 A	SPARE		
	SPARE	15 A	1	37	0	0			38	1	15 A	SPARE		
	SPARE	15 A	1	39		0	0		40	1	15 A	SPARE		
	SPARE	15 A	1	41			0	0	42	1	15 A	SPARE		
	SPARE	20 A	1	43	0	0			44	1	20 A	SPARE		
	SPARE	20 A	1	45		0	0		46	1	20 A	SPARE		
	SPARE	20 A	1	47			0	0	48	1	20 A	SPARE		
	SPARE	20 A	1	49	0	0			50	1	20 A	SPARE		
	SPARE	20 A	1	51		0	0		52	1	20 A	SPARE		
	SPARE	20 A	1	53			0	0	54	1	20 A	SPARE		
	SPARE	20 A	1	55	0	0			56	1	20 A	SPARE		
	SPARE	20 A	1	57		0	0		58	1	20 A	SPARE		
	SPARE	20 A	1	59			0	0	60	1	20 A	SPARE		
	SPARE	20 A	1	61	0	0			62	1	20 A	SPARE		
	SPARE	20 A	1	63		0	0		64	1	20 A	SPARE		
	SPARE	20 A	1	65			0	0	66	1	20 A	SPARE		
	SPARE	20 A	1	67	0	0			68	1	20 A	SPARE		
	SPARE	20 A	1	69		0	0		70	1	20 A	SPARE		
	SPARE	20 A	1	71			0	0	72	1	20 A	SPARE		
	SPARE	20 A	1	73	0	--			74	1	--	SPACE		
	SPARE	20 A	1	75		0	--		76	1	--	SPACE		
	SPARE	20 A	1	77			0	--	78	1	--	SPACE		
	SPACE	--	1	79	--	0		--	80	3	150 A	EXIST. PNL E		
	SPACE	--	1	81		--	0		82	--	--	--	--	
	SPACE	--	1	83			--	0	84	--	--	--	--	
					KVA AMPS	15,967 134	KVA AMPS	10,135 84	KVA AMPS	10,887 92				
LOAD CLASSIFICATIONS		CONNECTE D (VA)	DEMAND FACTOR	DEMAND (VA)	NOTES:									
HVAC	Heating	18304 VA	100.00%	18304 VA	AFCI - ARC FAULT CIRCUIT INTERRUPTION TYPE CIRCUIT BREAKER									
	Motor	7260 VA	120.66%	8760 VA	C24 - CONTROL ZONE NUMBER FOR REMOTE CONTROL									
	Other	9217 VA	100.00%	9217 VA	BMSF - ROUTE CIRCUIT THROUGH BUILDING MANAGEMENT SYSTEM									
					GFCI - GROUND FAULT CIRCUIT INTERRUPTING TYPE CIRCUIT...									
					GFPE - GROUND FAULT PROTECTION EQUIPMENT CIRCUIT BREAKER									
					HLO - HANDLE LOCK ON DEVICE FOR CIRCUIT BREAKER									
					HPL- PADLOCK ATTACHMENT TO LOCK C/B HANDLE IN OPEN POSITION									
					RED - RED IDENTIFICATION FOR FIRE ALARM BRANCH CIRCUITS									
					ERMS - ENERGY REDUCING MAINTENANCE SWITCH									
					ZSI - ZONE SELECTIVE INTERLOCK									
					SHU - PROVIDE SHUNT TRIP DEVICE FOR BRANCH CIRCUIT									