



ENGINEERING AND SUPPORT CENTER HUNTSVILLE

AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

ISSUE DATE: 23 OCTOBER 2024

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US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER REDSTONE GATEWAY (RG300) REDSTONE ARSENAL AL 35808	DESIGNED BY: Josh Annett	ISSUE DATE: 23 OCTOBER 2024
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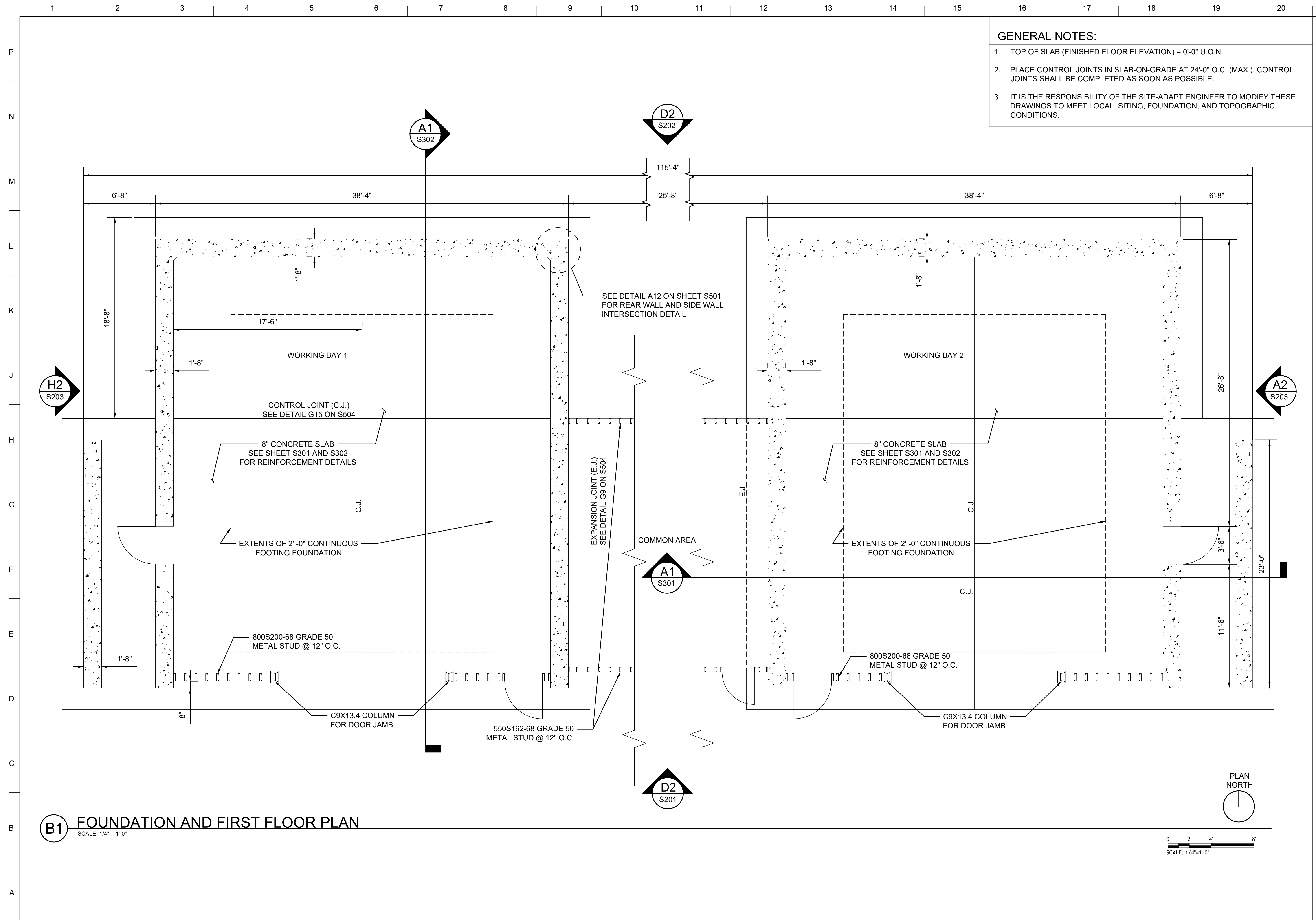
AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN
COVER SHEET

SHEET ID
G-001

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.0 DESIGN CRITERIA:						3.6 ALL DISTURBED EARTH UNDER FOOTINGS SHALL BE REPLACED WITH LEAN CONCRETE.						5.6 ALL EXTERIOR STEEL EXPOSED TO THE WEATHER SHALL BE HOT DIPPED GALVANIZED, UON. MEMBERS NOT REQUIRED FOR CORROSION PROTECTION SHALL RECEIVE ONE COAT OF STANDARD PRIMER PAINT. DO NOT PRIME OR PAINT SURFACES WHICH ARE TO RECEIVE FIELD WELDED HEADED SHEAR STUDS. PROVIDE 3" MINIMUM CONCRETE COVER FOR ALL STEEL BELOW GRADE AND PAINT WITH 2 COATS OF COAL TAR EPOXY. EPOXY SHALL MEET THE REQUIREMENTS OF PAINT SPECIFICATION SSPC-PAINT 16.						 US Army Corps of Engineers®	
A. BUILDING CODES AND SPECIFICATIONS:																			
1. INTERNATIONAL BUILDING CODE 2021 (IBC) AS MODIFIED BY UFC 1-200-01						3.7 CONCRETE SHALL NOT BE PLACED OVER FROZEN SOIL OR FOOTING EXCAVATIONS SUBJECTED TO WATER.						6.0 BAR JOISTS:							
2. AMERICAN CONCRETE INSTITUTE (ACI 318)																			
3. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC 13th ED.)						4.0 CONCRETE:						6.1 DESIGN, FABRICATE, AND ERECT STEEL JOISTS IN ACCORDANCE WITH STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS AND LOAD TABLES.							
4. AMERICAN WELDING SOCIETY, A.W.S.																			
B. LIVE LOADS						4.1 ALL CONCRETE WORK INCLUDING DETAILING, FABRICATION, PLACEMENT OF REINFORCING, MIXING, HANDLING, PLACING, FINISHING, AND CURING SHALL CONFORM TO THE FOLLOWING DOCUMENTS:						6.2 PROVIDE A MINIMUM END BEARING ON STEEL SUPPORTS AS REQUIRED BY THE STEEL JOIST INSTITUTE. STAGGER THE ENDS OF THE JOINTS IF NECESSARY. CONTRACTOR SHALL COORDINATE METAL DECK LOCATION TO CENTER OVER JOIST.							
ROOF-----20 PSF																			
FORKLIFT LOAD-----8 KIPS PER AXLE						4.2 ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 6000 PSI AT 28 DAYS, U.O.N. ALL CONCRETE SHALL CONFORM TO ASTM C94.						6.3 PROVIDE HORIZONTAL AND DIAGONAL BRIDGING IN ACCORDANCE WITH STEEL JOIST INSTITUTE TO PROVIDE ADEQUATE JOIST CHORD BRACING.							
FLOOR-----500 PSF																			
SNOW LOAD:						4.3 REINFORCING BARS SHALL BE DEFORMED TYPE CONFORMING TO ASTM A615 GRADE 60 U.O.N.						7.0 METAL DECK:							
GROUND SNOW LOAD (Pg) = 60 PSF																			
IMPORTANCE FACTOR (I) = 1.2						4.4 WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A185. MINIMUM LAP AND EMBEDMENT TO BE THE GREATER OF ONE CROSS WIRE SPACING PLUS 2" OR 6", WHICHEVER IS GREATER.						7.1 METAL DECK SHALL BE IN ACCORDANCE WITH THE STEEL DECK INSTITUTE AND AISI'S "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS."							
EXPOSURE CATEGORY (Ce) = 1.0																			
THERMAL CATEGORY (Ct) = 1.0						4.5 FABRICATE AND PROVIDE BAR SUPPORTING ACCESSORIES IN ACCORDANCE WITH ACI MANUAL OF STANDARD PRACTICE AND C.R.S.I. SPECIFICATIONS. REINFORCING SHALL NOT BE WELDED IN ANY MANNER U.O.N. IN CONSTRUCTION DOCUMENTS.						7.2 ALL FIELD WELDING OF DECK SHALL CONFORM WITH ANSI/AWS D1.3 "STRUCTURAL WELDING CODE-SHEET STEEL."							
C. WIND LOAD:																			
BASIC WIND SPEED: 111 MPH						4.6 REINFORCING SHALL BE CONTINUOUS WITH CLASS "B" TENSION LAP SPLICES, U.O.N.						7.3 ROOF DECK: AS NOTED ON PLAN							
IMPORTANCE FACTOR (I): 1.15																			
EXPOSURE CATEGORY: C						4.7 CONCRETE COVERAGE OF REINFORCEMENT FOR CAST-IN-PLACE CONSTRUCTION U.O.N.:						7.4 METAL DECK SHALL BE CONNECTED TO SUPPORTING STRUCTURE WITH 5/8" DIAMETER PUDDLE WELDS IN A 36/4 PATTERN, EXCEPT AT PERIMETER STEEL PROVIDE 5/8" DIAMETER PUDDLE WELDS AT 6" O.C. SIDE LAP FASTENERS SHALL BE #10 TEK SCREWS. PROVIDE 4 SIDE LAP FASTENERS PER SPAN.							
ENCLOSURE CLASSIFICATION: ENCLOSED																			
D. EARTHQUAKE:						CONCRETE CAST AGAINST EARTH:-----3 INCHES						7.5 LIGHT-GAGE FRAMING, SUSPENDED CEILING, LIGHT FIXTURES, AND DUCTS OR OTHER UTILITIES SHALL NOT BE SUPPORTED BY THE STEEL DECK.							
RISK CATEGORY=III																			
Ie= 1.25						FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:						7.6 DECK ENDS MAY BE EITHER BUTTED OR LAPPED OVER SUPPORTS. PROVIDE A MINIMUM OF 1 1/2" BEARING AT ALL SUPPORTING STEEL, U.O.N							
Ss= 0.65																			
Sds= 0.54						CONCRETE NOT EXPOSED TO WEATHER:						7.7 STEEL DECK SHALL BE CONTINUED OVER THREE OR MORE SPANS UNLESS SPECIFICALLY DETAILED OTHERWISE.							
S1 = 0.18																			
Sd1 = 0.18						SLABS, WALLS, JOISTS-----1 INCHES						7.8 STEEL SHALL BE GALVANIZED FINISHED IN A G-60 COATING CONFORMING TO ASTM A653, GRADE 33, MIN.							
SITE CLASS: C																			
BASIC SEISMIC-FORCE RESISTING SYSTEM=						4.8 PROVIDE REINFORCING BARS IN CONCRETE FOOTINGS TO MATCH THE SIZE AND SPACING OF THE HORIZONTAL REINFORCING AT ALL CORNERS AND INTERSECTIONS OF STRIP FOOTINGS. PROVIDE LEG LENGTH EQUIVALENT TO CLASS "A" TENSION LAP SPLICE U.O.N.						8.0 LIGHTENING PROTECTION SYSTEM (LPS):							
SPECIAL REINFORCED CONCRETE SHEAR WALLS, R = 5																			
SEISMIC DESIGN CATEGORY= D						4.9 VERTICAL AND HORIZONTAL REINFORCING BAR SPLICES IN WALLS SHALL BE STAGGERED ON OPPOSITE FACES OF THE WALLS BY THE SPLICE LENGTH IN ACCORDANCE WITH UFC 3-340-02. ALSO STAGGER THE MID-DEPTH TENSION REINFORCEMENT SPLICES FROM ADJACENT REINFORCEMENT BY THE SPLICE LENGTH.						8.1 FOR LPS REQUIREMENTS, SEE ELECTRICAL GENERAL NOTES.							
ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE PROCEDURE																			
2.0 GENERAL:						4.10 REINFORCING BAR SPLICES ON TOP AND BOTTOM ROOF FACES AND IN BOTH DIRECTIONS SHALL BE STAGGERED BY THE SPLICE LENGTH IN ACCORDANCE WITH UFC 3-340-02. ALSO STAGGER THE MID-DEPTH TENSION REINFORCEMENT SPLICES FROM ADJACENT REINFORCEMENT BY THE SPLICE LENGTH.						9.0 FIRE PROTECTION SYSTEM:							
2.1 CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO CONSTRUCTION/FABRICATION. CONTRACTOR SHALL NOTIFY CONTRACTING OFFICER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.																		9.1 FOR FIRE PROTECTION REQUIREMENTS, SEE LIFE SAFETY GENERAL NOTES.	
2.2 THE STRUCTURE (MEMBERS AND CONNECTIONS) HAS BEEN DESIGNED TO SUPPORT IN-PLACE DESIGN LOADS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIMITING CONSTRUCTION LOADS SUCH THAT THESE LOADS DO NOT EXCEED THE DESIGN LOADS NOTED ABOVE.						10.0 COLD-FORMED FRAMING:													
2.3 IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES TO ENSURE STABILITY AND SAFETY DURING CONSTRUCTION. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT AND MAINTAIN THE STRUCTURAL INTEGRITY OF ALL NEW AND EXISTING CONSTRUCTION AT ALL STAGES.												10.1 COLD-FORMED METAL FRAMING SHALL BE DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISI'S "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS," LATEST EDITION.							
2.4 SECTIONS AND DETAILS SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS THAT DO NOT HAVE A SPECIFIC SECTION INDICATED.						10.2 CUT ALL FRAMING COMPONENTS SO THEY FIT SQUARELY TOGETHER. BEARING WALL STUDS MUST HAVE FULL BEARING AGAINST THE INSIDE TRACK WEB TOP AND BOTTOM.													
2.5 THE CONTRACTOR SHALL COORDINATE STANDARD DRAWINGS WITH THE VENDOR/MANF. SHOP DRAWINGS TO VERIFY SIZES AND LOCATIONS OF OPENINGS, SLEEVES, INSERTS, DEPRESSIONS, FINISHES, SLOPES, ETC. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER.												10.3 BOTTOM TRACKS AND STANDARD TOP TRACKS SHALL MATCH STUD GAUGE. TOP DEFLECTION TRACKS, WHERE REQUIRED, SHALL BE ONE GAUGE THICKNESS HEAVIER THAN THE STUDS.							
2.6 SEE CIVIL SITE LAYOUT DRAWINGS (PART OF SITE ADAPTION) FOR ACTUAL FINISHED FLOOR ELEVATIONS (F.F.E.) FOR ALL BUILDINGS. ELEVATIONS SHOWN IN STRUCTURAL DOCUMENTS WILL BE BASED ON REFERENCED F.F.E. EQUAL TO 0'-0", U.O.N.						10.4 PROVIDE STUD WALL BRIDGING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.													
2.7 ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS, REFERENCE STANDARDS, OR GOVERNING CODE, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN. CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER OF DISCREPANCIES AND OBTAIN DIRECTION PRIOR TO PROCEEDING.												10.5 ALL FRAMING AND COMPONENTS SPECIFIED ON THE STRUCTURAL DRAWINGS SHALL FOLLOW THE PRODUCT STANDARDS AND QUALITY STANDARDS AS REQUIRED BY "STEEL STUD MANUFACTURERS ASSOCIATION" (SSMA).							
2.8 CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING OF ALL STRUCTURAL WORK, AND SOIL EXCAVATION AS REQUIRED. SHORING AND BRACING SHALL NOT BE REMOVED UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE DRAWINGS, AND MATERIALS HAVE ACHIEVED DESIGN STRENGTH.						10.6 ALL MEMBERS SHALL HAVE 1 5/8" FLANGE WIDTH UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL STUD/JOIST MEMBERS SHALL HAVE A FLANGE LIP.													
2.9 CONTRACTOR SHALL ASSURE COORDINATION WITH THE BASE CONTRACTING OFFICER AND THE INSTALLATION SAFETY OFFICE. COORDINATION WILL CONSIST OF DISCUSSION ON WORK CONDUCTED WITHIN AN ESTABLISHED EXPLOSIVE CLEAR ZONE THAT MAY PRODUCE A HAZARD TO PRESENT EXPLOSIVES AND CONTRACTORS EVACUATION PROCEDURES.												10.7 SPLICES IN STUDS SHALL NOT BE PERMITTED. DO NOT CUT STUDS WITHOUT APPROVAL OF CONTRACTING OFFICER.							
3.0 FOUNDATIONS:						10.8 BOTH STUD FLANGES SHALL BE ATTACHED TO TRACK AT TOP AND BOTTOM WITH #12 SCREWS OR WELD.													
3.1 SEE CIVIL DRAWINGS AND SPECIFICATIONS (PART OF SITE ADAPTION) FOR EARTHWORK PREPARATION OF FOUNDATIONS INCLUDING THE REMOVAL OF ORGANIC MATERIALS, COMPACTING SOILS BENEATH STRUCTURES, BACK FILL REQUIREMENTS FOR OVER EXCAVATION AND REMOVAL OF UNSUITABLE MATERIALS.												10.9 NUMBER OF FULL-HEIGHT STUDS ON EACH SIDE OF WALL OPENINGS SHALL BE 1/2 OF THE INTERRUPTED STUDS PLUS ONE STUD AT EACH SIDE UNLESS NOTED OTHERWISE. USE MINIMUM OF TWO STUDS EACH SIDE. WELD STUD FLANGES TOGETHER WITH FILLET WELDS, 2" TOP AND BOTTOM AND 1" AT 16" O.C. BOTH SIDES IN-BETWEEN.							
3.2 MAXIMUM ASSUMED NET SOIL BEARING PRESSURE USED FOR DESIGN:																			



GENERAL NOTES:

1. TOP OF SLAB (FINISHED FLOOR ELEVATION) = 0'-0" O.O.N.
2. PLACE CONTROL JOINTS IN SLAB-ON-GRADE AT 24'-0" O.C. (MAX.). CONTROL JOINTS SHALL BE COMPLETED AS SOON AS POSSIBLE.
3. IT IS THE RESPONSIBILITY OF THE SITE-ADAPT ENGINEER TO MODIFY THESE DRAWINGS TO MEET LOCAL SITING, FOUNDATION, AND TOPOGRAPHIC CONDITIONS.



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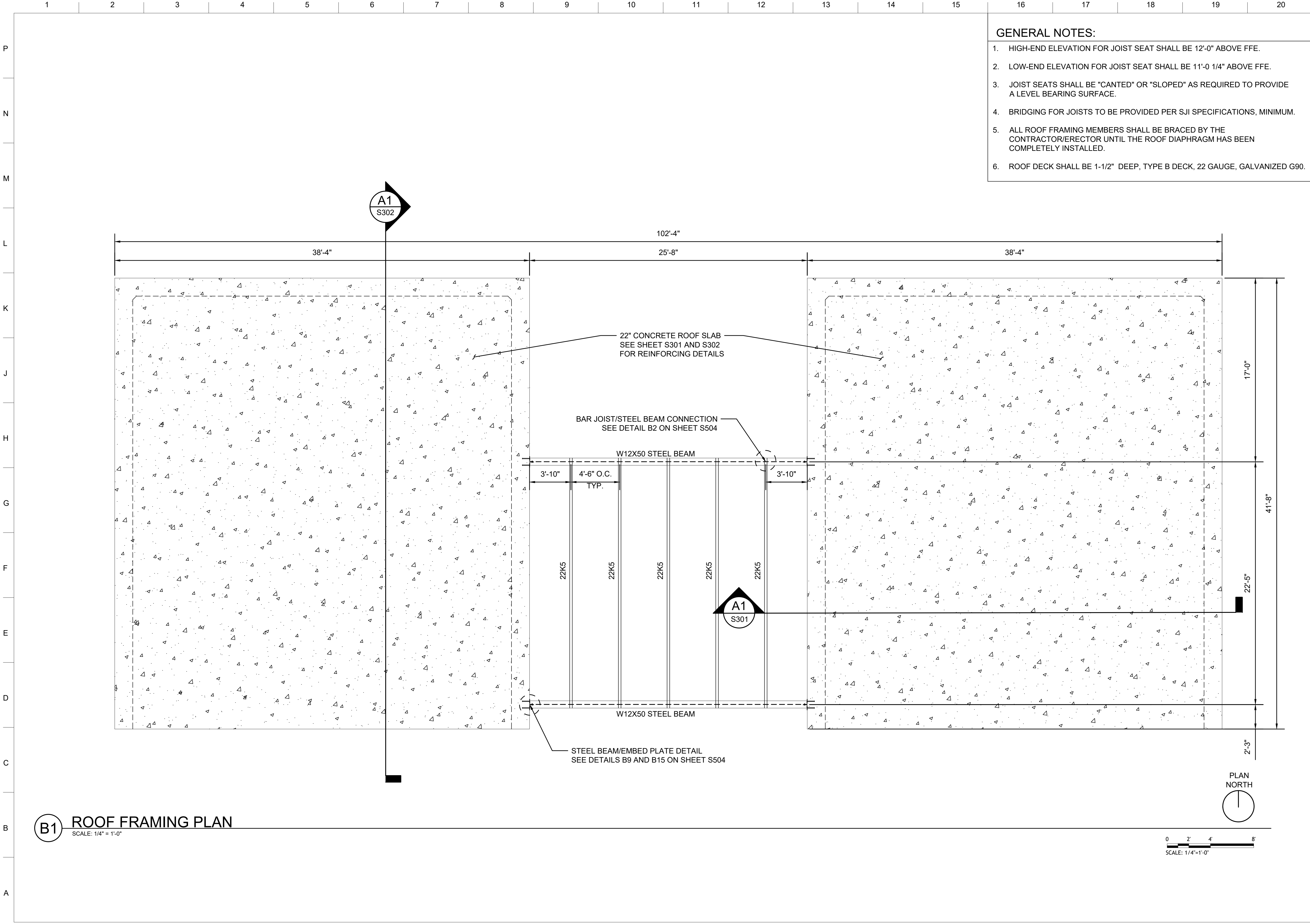
US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER REDSTONE GATEWAY (RG300) REDSTONE ARSENAL, AL 35808	DESIGNED BY:	ISSUE DATE:
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FOUNDATION AND
FIRST FLOOR PLAN

SHEET ID

S-101



- GENERAL NOTES:
- HIGH-END ELEVATION FOR JOIST SEAT SHALL BE 12'-0" ABOVE FFE.
 - LOW-END ELEVATION FOR JOIST SEAT SHALL BE 11'-0 1/4" ABOVE FFE.
 - JOIST SEATS SHALL BE "CANTED" OR "SLOPED" AS REQUIRED TO PROVIDE A LEVEL BEARING SURFACE.
 - BRIDGING FOR JOISTS TO BE PROVIDED PER SJI SPECIFICATIONS, MINIMUM.
 - ALL ROOF FRAMING MEMBERS SHALL BE BRACED BY THE CONTRACTOR/ERECTOR UNTIL THE ROOF DIAPHRAGM HAS BEEN COMPLETELY INSTALLED.
 - ROOF DECK SHALL BE 1-1/2" DEEP, TYPE B DECK, 22 GAUGE, GALVANIZED G90.

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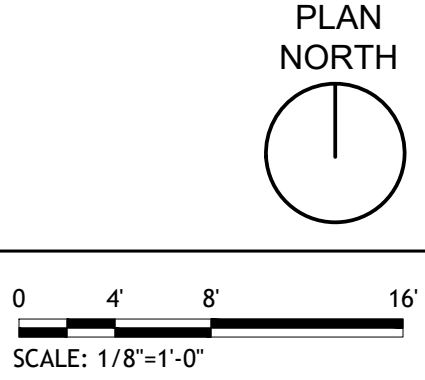
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ROOF FRAMING PLAN

SHEET ID

S-102

CUI - FINAL DESIGN SUBMITTAL



GENERAL NOTES:

1. THE BARRICADE IS AN OPTION WHEN THE DEFAULT INHABITED BUILDING DISTANCE (IBD) CANNOT BE MET IN THE FRONT DIRECTION DUE TO LIMITED SPACE. IF THE BARRICADE IS USED, IT MUST MEET REQUIREMENTS SHOWN ON THIS DRAWING LAYOUT AND THE NOTES PROVIDED BELOW.
2. BARRICADE MUST BE 40-FT IN HEIGHT.
3. BARRICADE DESIGN IS BASED ON DESIGN B17 OF THE STANDARD BARRICADE DEFINITIVE DRAWINGS (DEF-149-30-01). IF ANOTHER BARRICADE DESIGN IS CHOSEN, THE BARRICADE MUST BE OF EARTHEN CONSTRUCTION OR DESIGNED IN ACCORDANCE WITH UFC 3-340-02 "STRUCTURES TO RESIST THE EFFECTS OF ACCIDENTAL DETONATIONS" TO ENSURE THE BARRICADE DOES NOT CONTRIBUTE TO SECONDARY DEBRIS.
4. ANY BARRICADE NOT MEETING THE REQUIREMENTS OUTLINED IN NOTES 1 THROUGH 4 ABOVE WILL INVALIDATE THE APPROVED STANDARD DESIGN.
5. OTHER BARRICADE CONFIGURATIONS MEETING OR EXCEEDING REQUIREMENTS SPECIFIED ABOVE WILL BE ACCEPTABLE ON A CASE-BY-CASE BASIS.
6. BARRICADE MUST BE DESIGNED FOR CONVENTIONAL LOADING SUCH AS WIND, SEISMIC, ETC.

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AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN BARRICADE LAYOUT PLAN

SHEET ID

S-103



1. STUDS MUST BE BRACED AT 48" O.C. ALONG THE HEIGHT OF THE WALL.
2. SEE SHEET S-504 AND S-505 FOR CONNECTION DETAILS REGARDING MAINTENANCE BAY AND COMMON AREA CURTAIN WALL, RESPECTIVELY.
3. SEE ARCHITECTURAL DRAWINGS FOR WALL FINISHES.
4. ROLL-UP DOORS ARE TO BE CENTERED IN EACH OF THE MAINTENANCE BAYS.

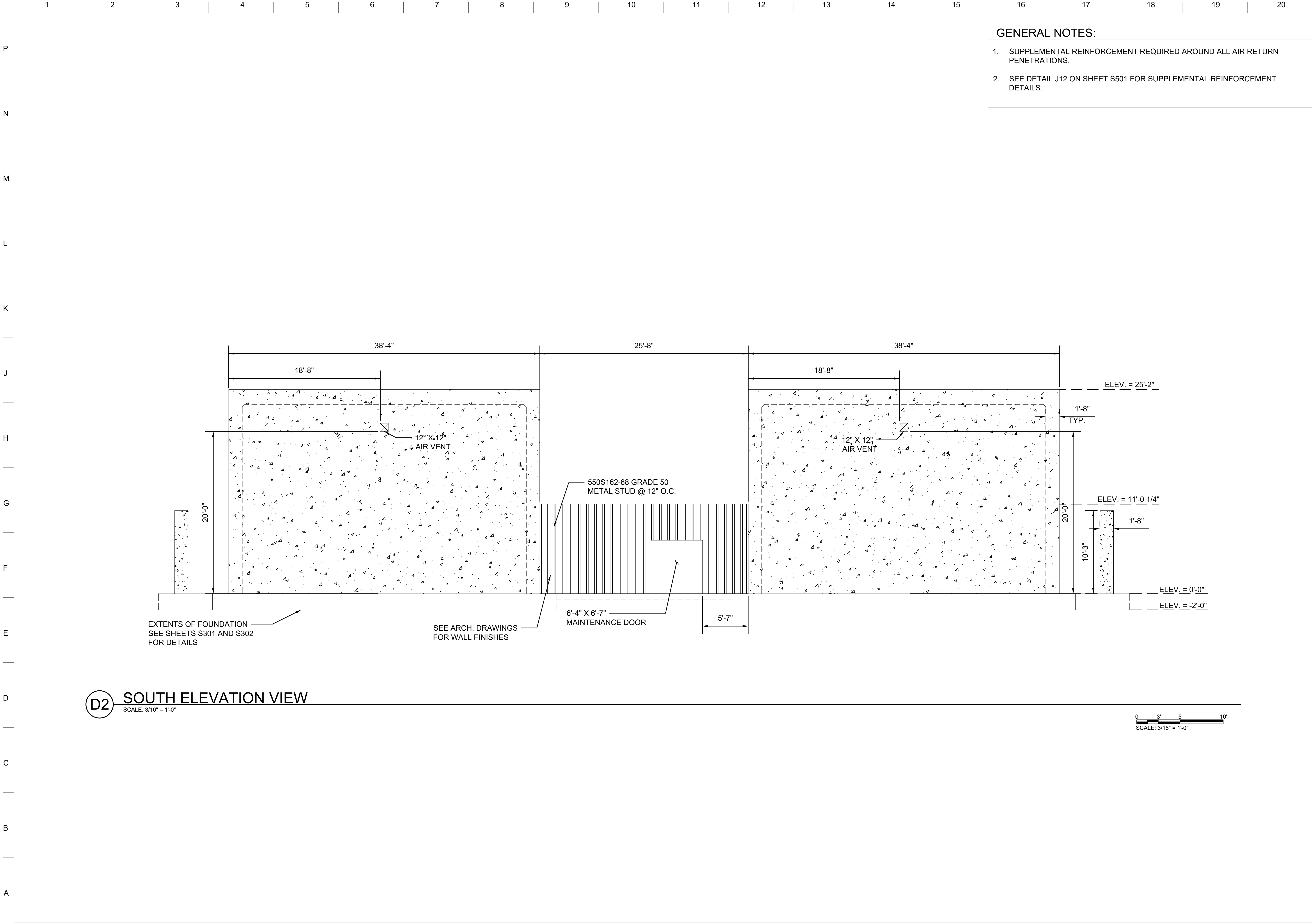
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MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

SHEET ID

S-201





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MARK	DESCRIPTION	DATE

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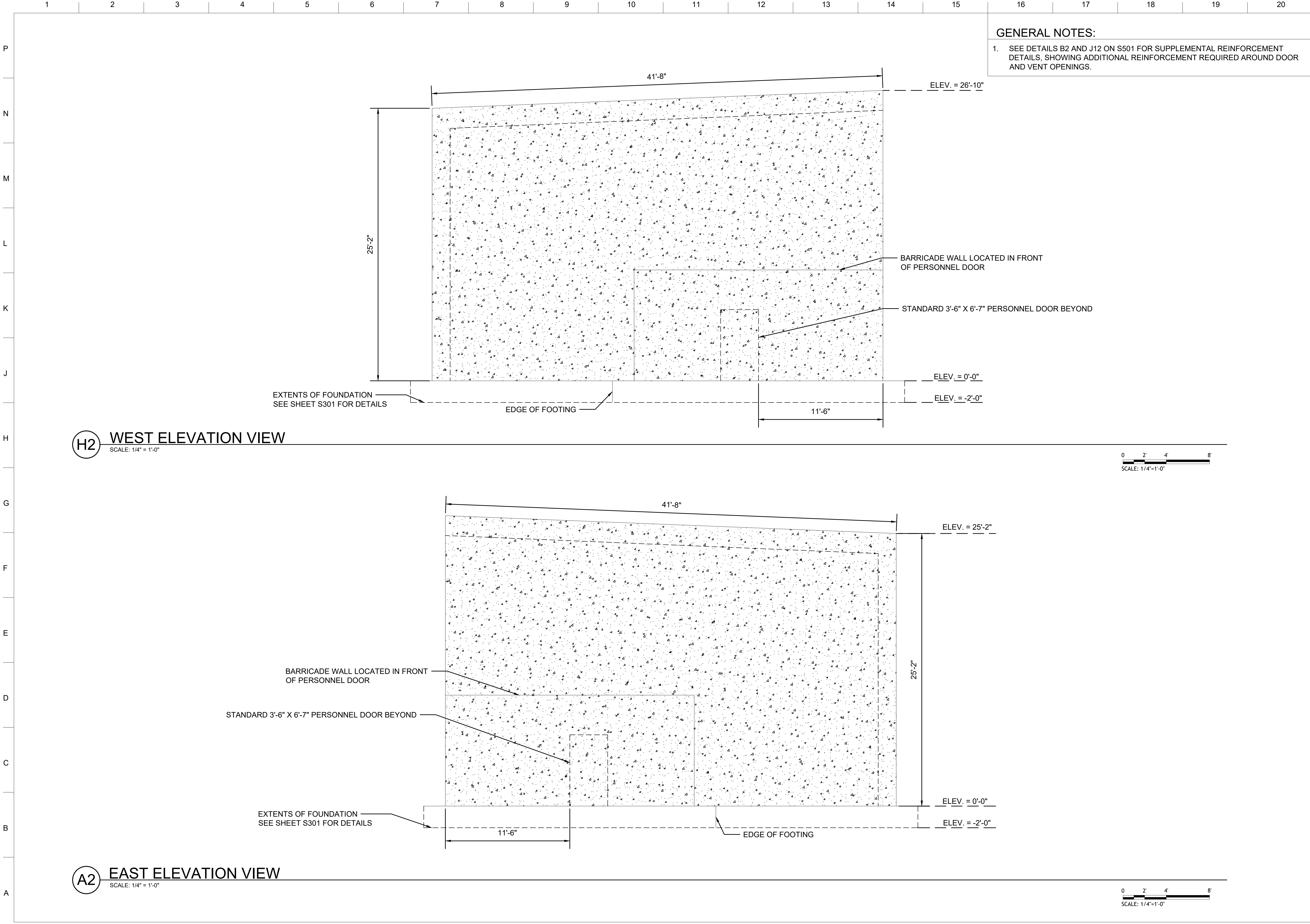
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SOUTH ELEVATION VIEW

SHEET ID

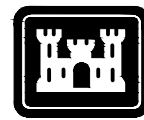
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CUJ - FINAL DESIGN SUBMITTAL



GENERAL NOTES:

- SEE DETAILS B2 AND J12 ON S501 FOR SUPPLEMENTAL REINFORCEMENT DETAILS, SHOWING ADDITIONAL REINFORCEMENT REQUIRED AROUND DOOR AND VENT OPENINGS.



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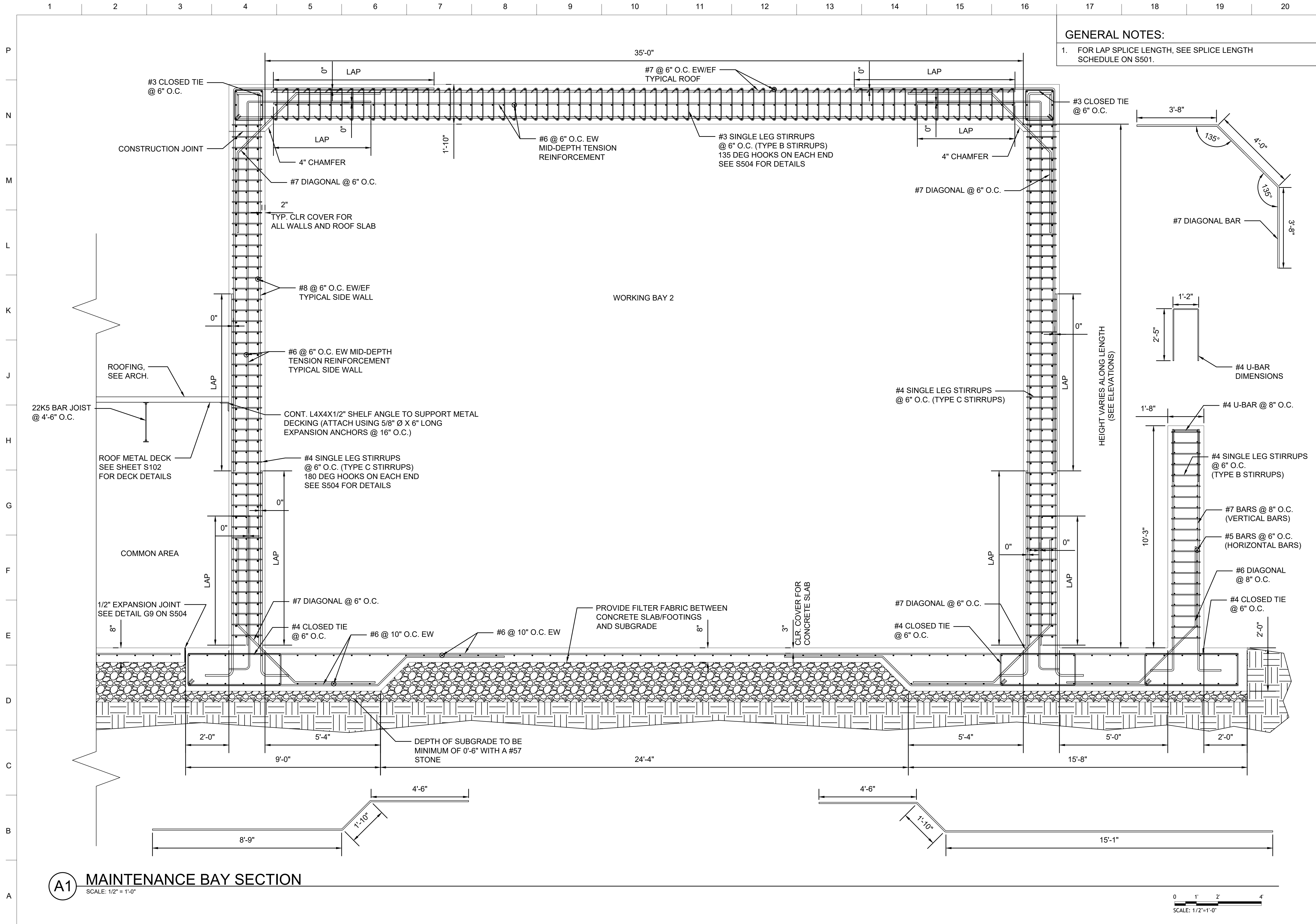
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REDSTONE ARSENAL AL 35898

AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

EAST AND WEST
ELEVATION VIEW

SHEET ID

S-203



GENERAL NOTES:

1. FOR LAP SPLICE LENGTH, SEE SPLICE LENGTH SCHEDULE ON S501.



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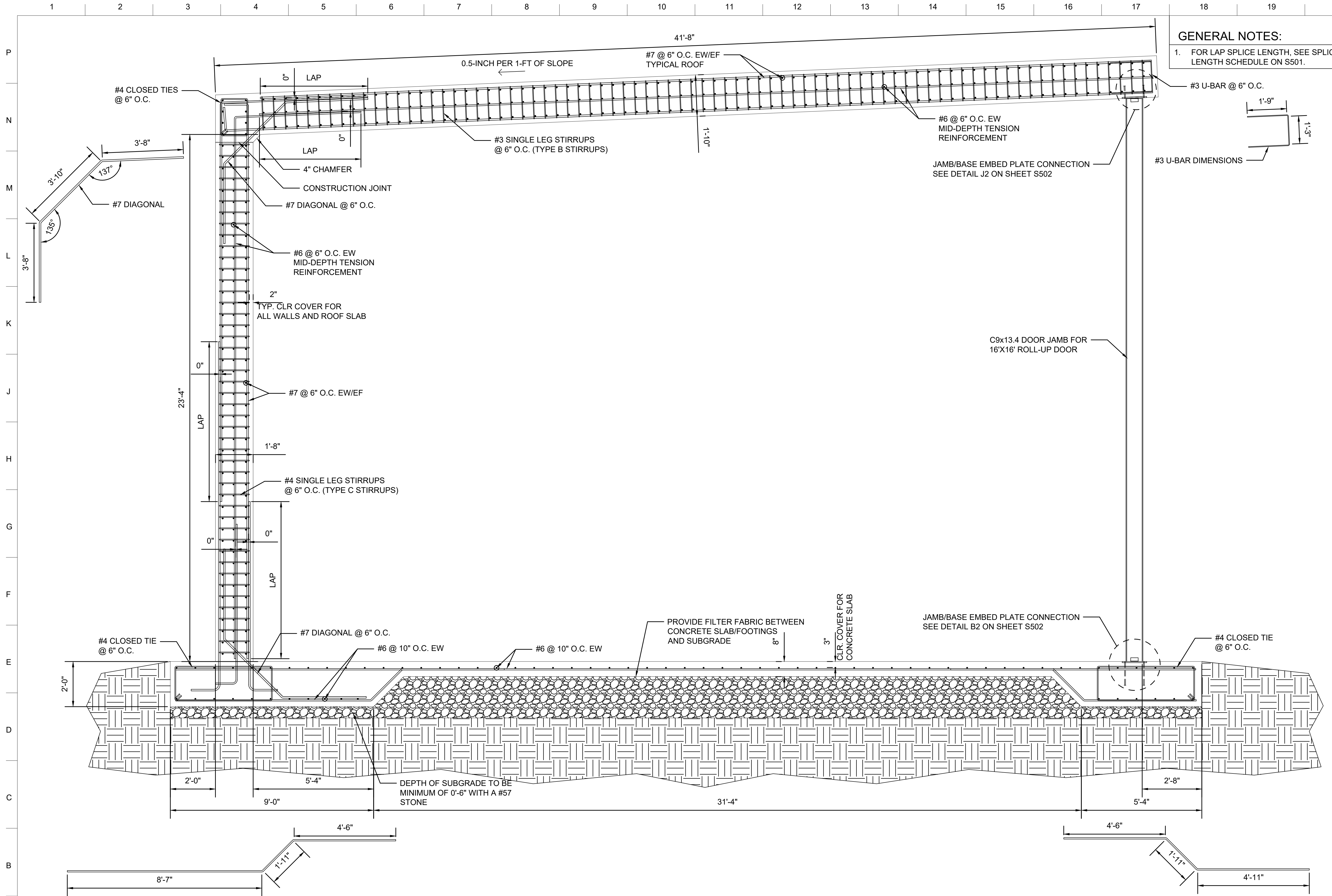
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AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN	BUILDING SECTIONS
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GENERAL NOTES:

- FOR LAP SPLICE LENGTH, SEE SPLICE LENGTH SCHEDULE ON S501.



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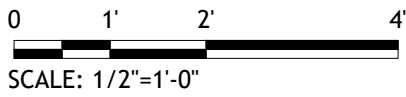
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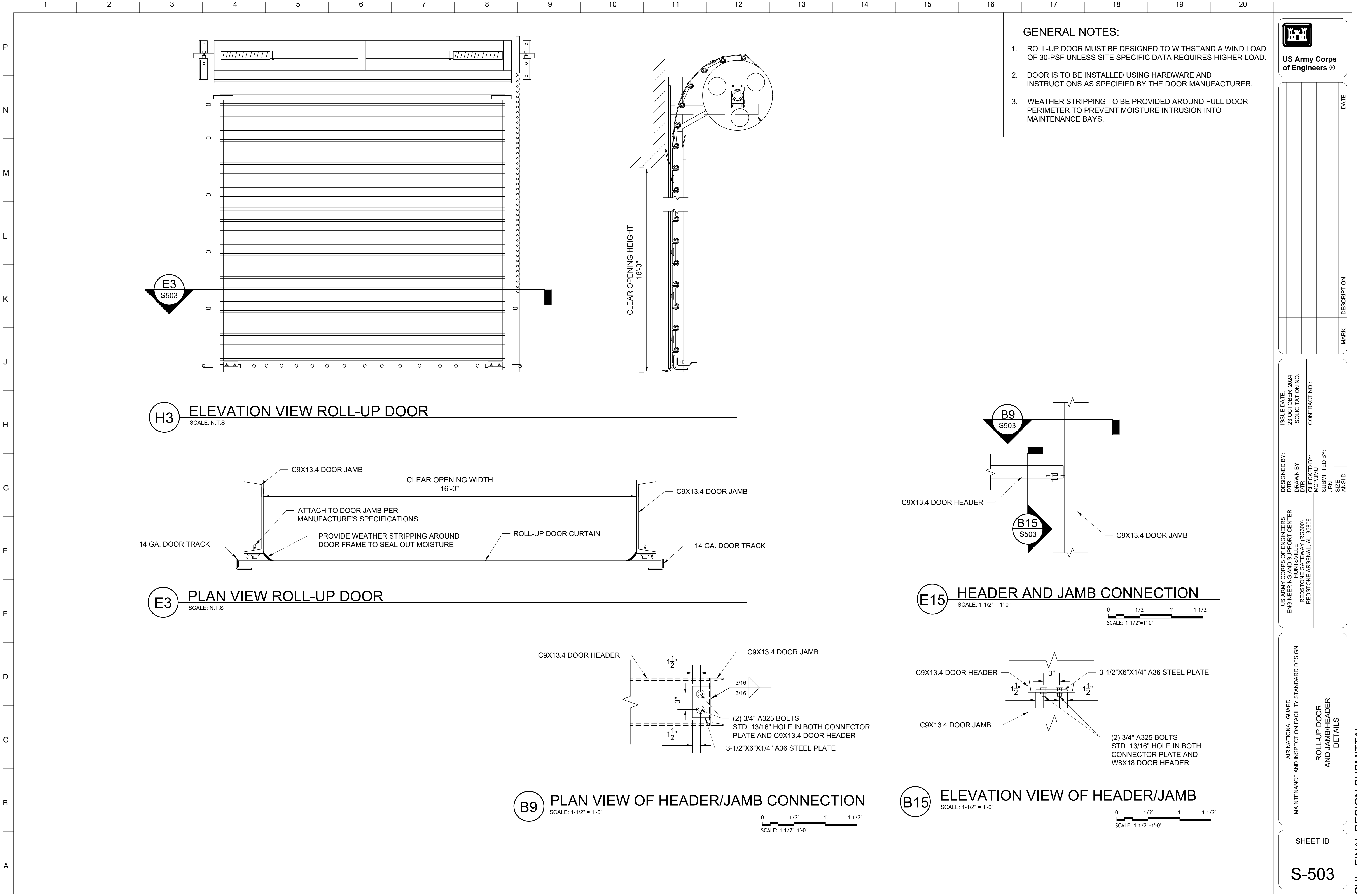
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BUILDING SECTIONS

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CUI - FINAL DESIGN SUBMITTAL

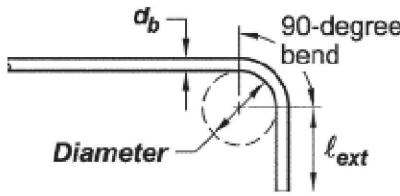
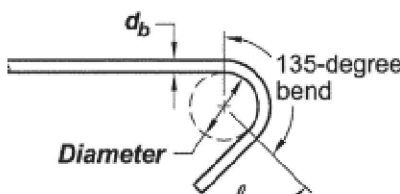
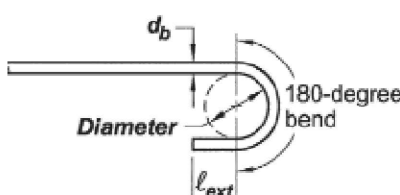
A1 MAINTENANCE BAY SECTION
SCALE: 1/2" = 1'-0"



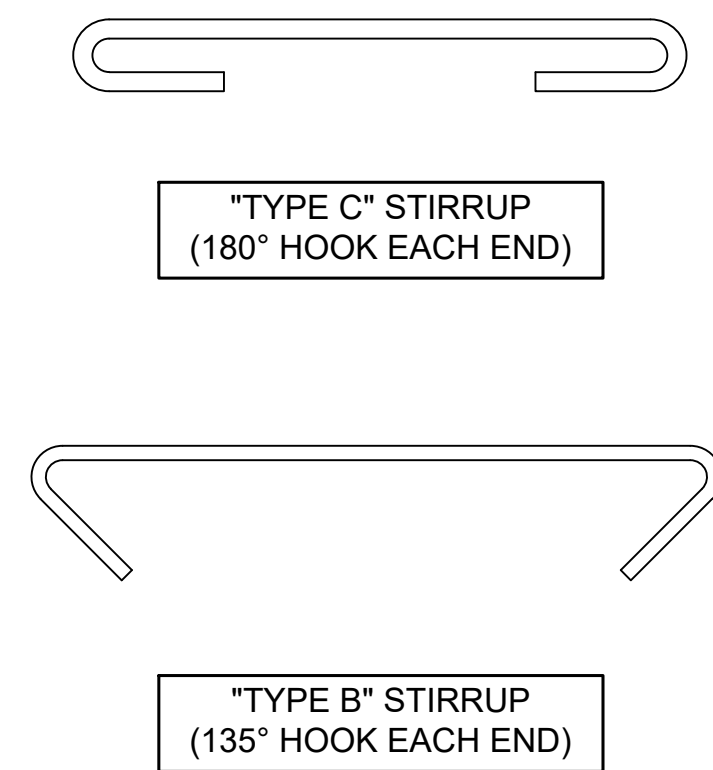


 US Army Corps of Engineers ®	
ISSUE DATE: 23 OCTOBER 2024	SOLICITATION NO.:
DESIGNED BY: DTR	CHECKED BY: MCP/JMU
DRAWN BY: DTR	SUBMITTED BY: JRN
US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER HUNTSVILLE REDSTONE GATEWAY (RG300) REDSTONE ARSENAL AL 35808	CONTRACT NO.:
AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN	ROLL-UP DOOR AND JAMB/HEADER DETAILS
SHEET ID S-503	

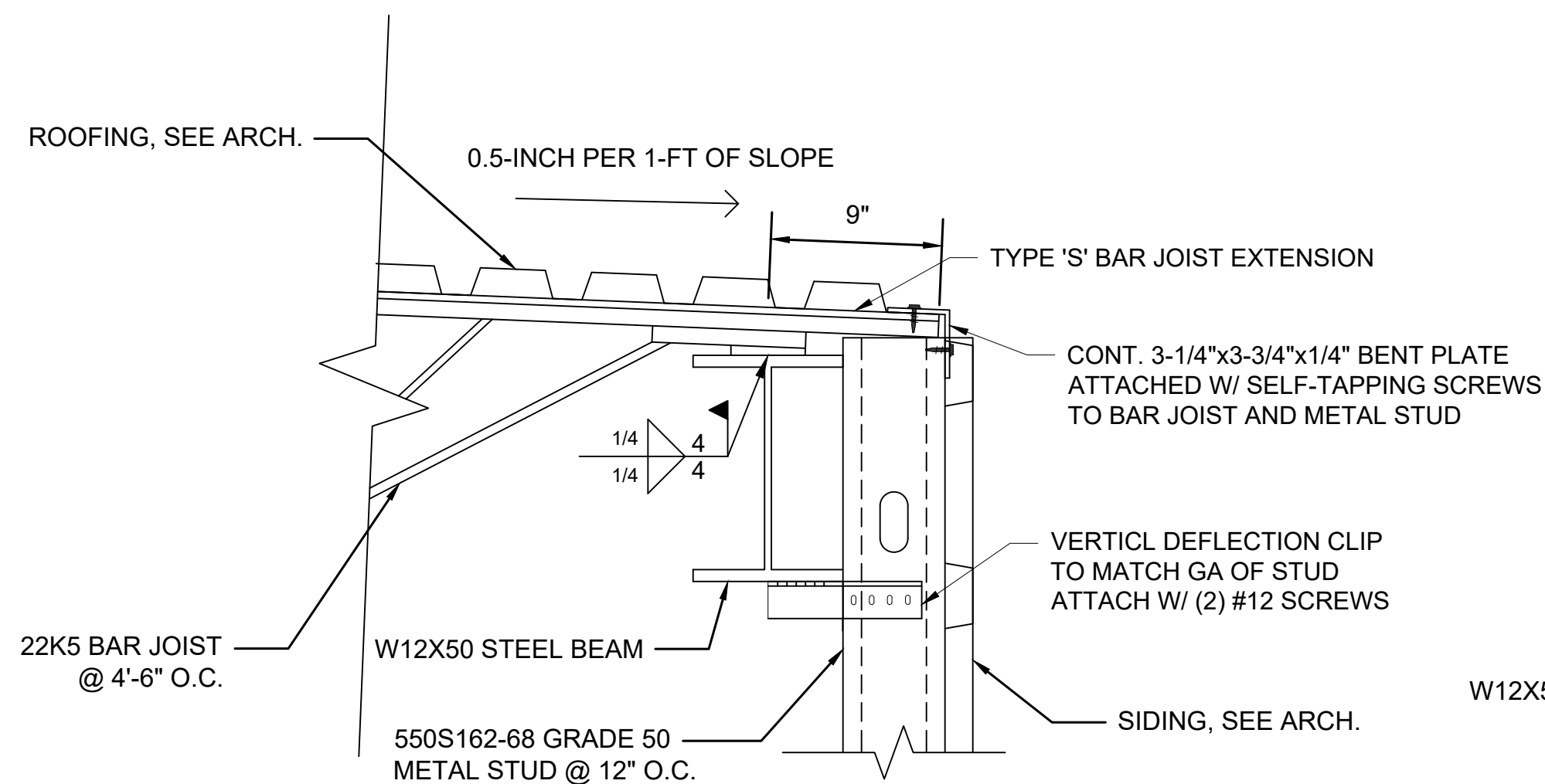
Table 25.3.2—Minimum inside bend diameters and standard hook geometry for stirrups, ties, and hoops

Type of standard hook	Bar size	Minimum inside bend diameter, in.	Straight extension ^[1] ℓ_{ext} in.	Type of standard hook
90-degree hook	No. 3 through No. 5	$4d_b$	Greater of $6d_b$ and 3 in.	
	No. 6 through No. 8	$6d_b$	$12d_b$	
135-degree hook	No. 3 through No. 5	$4d_b$	Greater of $6d_b$ and 3 in.	
	No. 6 through No. 8	$6d_b$		
180-degree hook	No. 3 through No. 5	$4d_b$	Greater of $4d_b$ and 2.5 in.	
	No. 6 through No. 8	$6d_b$		

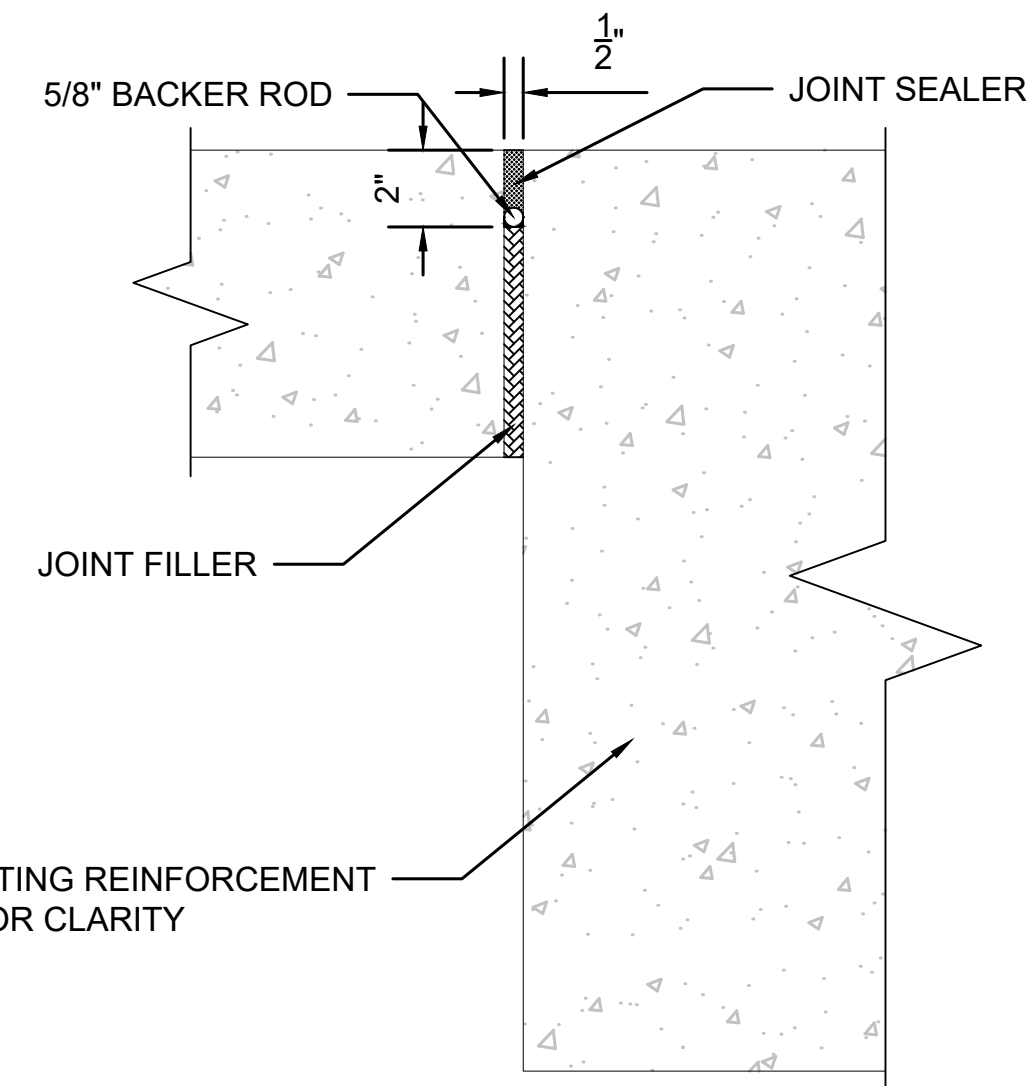
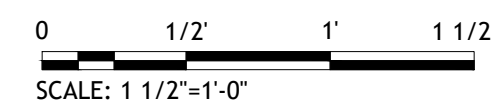
^[1]A standard hook for stirrups, ties, and hoops includes the specific inside bend diameter and straight extension length. It shall be permitted to use a longer straight extension at the end of a hook. A longer extension shall not be considered to increase the anchorage capacity of the hook.



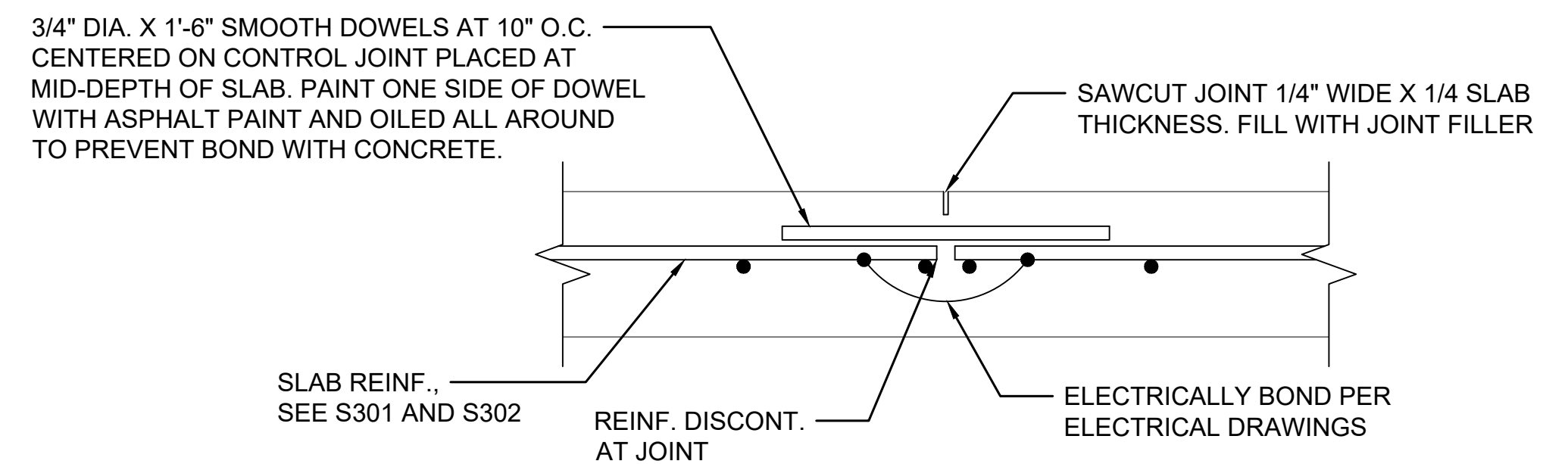
G3 STIRRUP DETAIL
SCALE: N.T.S.



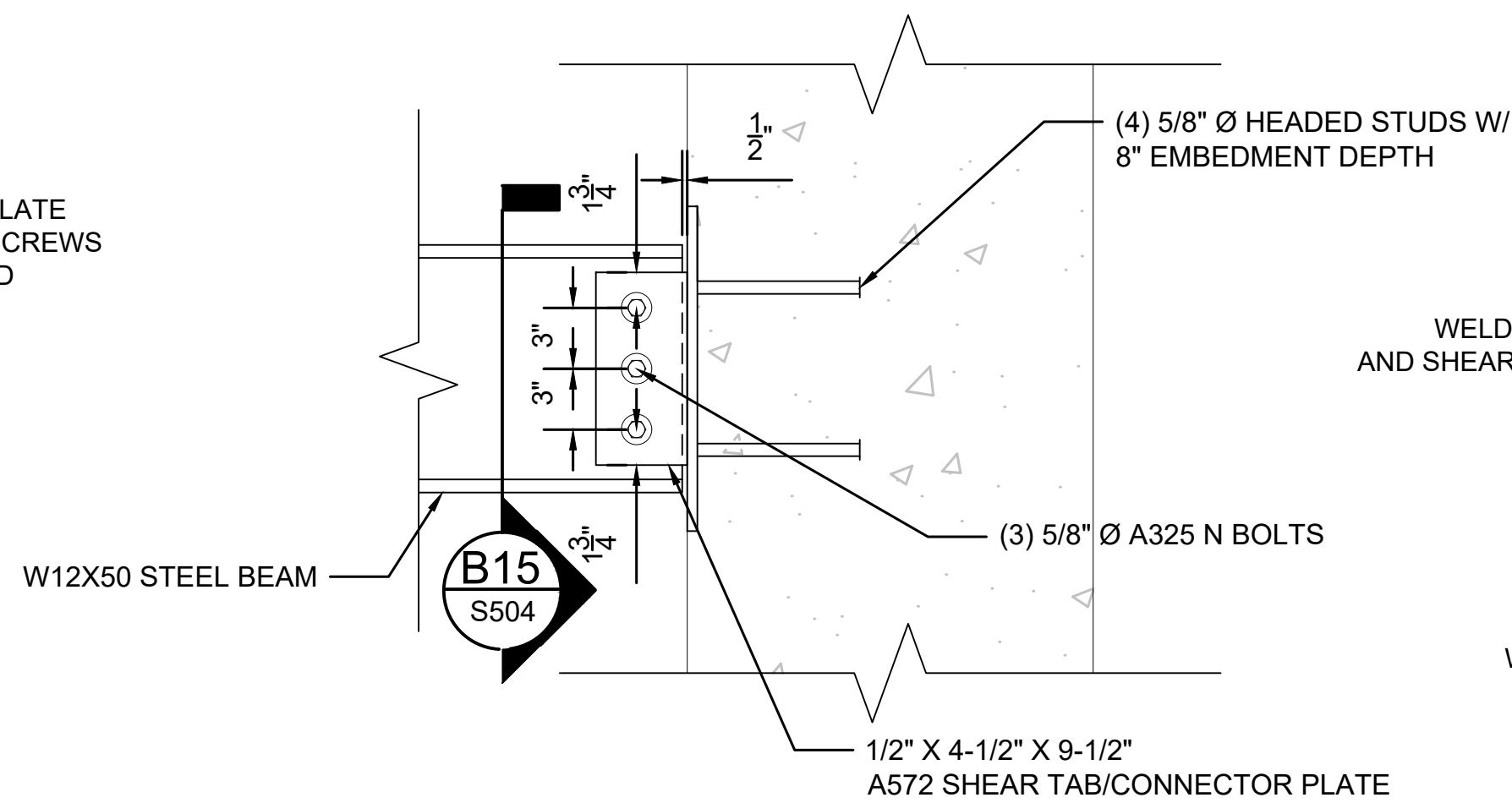
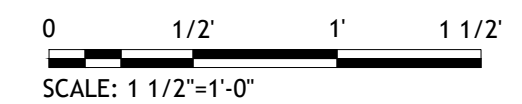
B2 **BAR JOIST/STEEL BEAM CONNECTION**
SCALE: 1-1/2" = 1'-0"



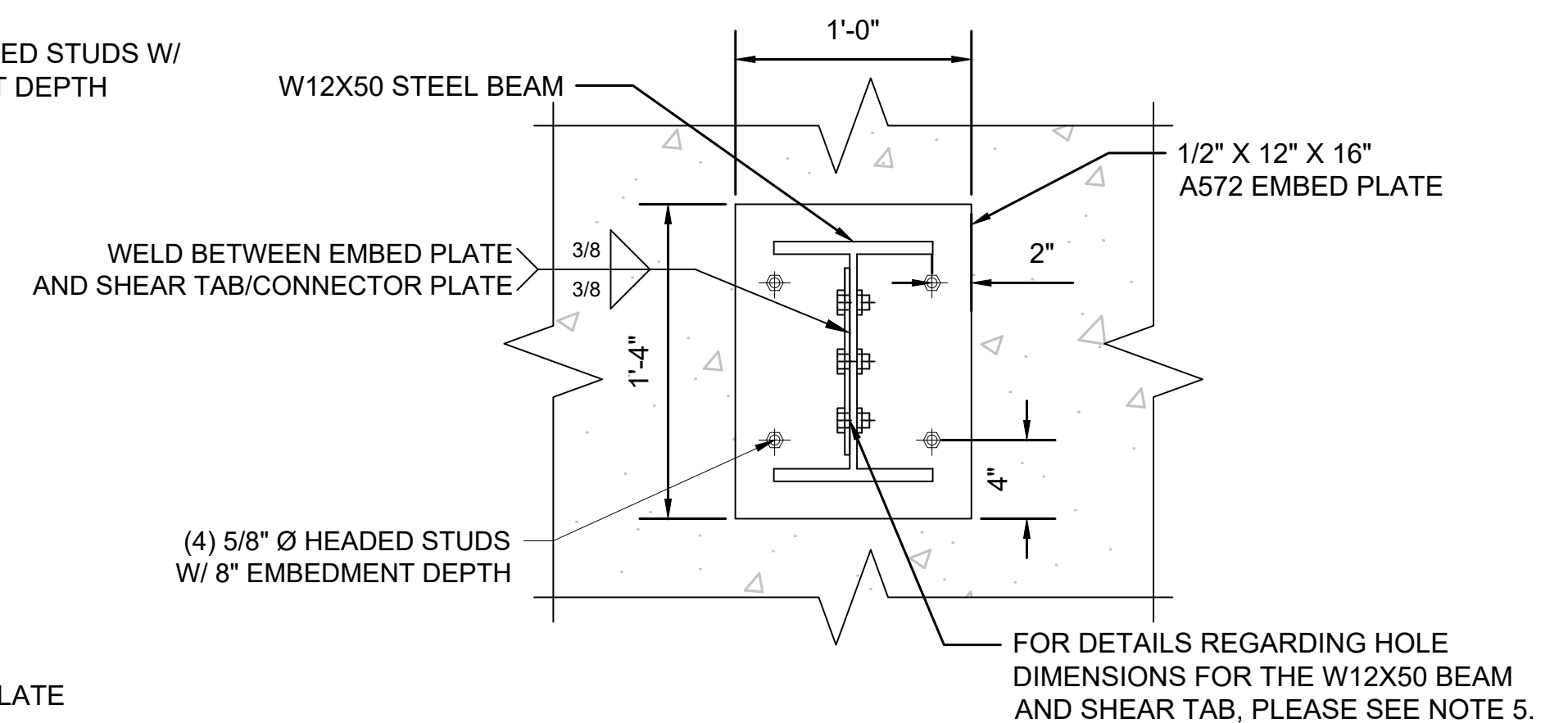
G9 **EXPANSION JOINT**
SCALE: N.T.S.



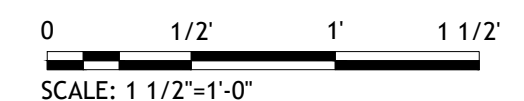
G15 SAWED CONTROL JOINT
SCALE: 1'-1/2" = 1'-0" 0



B9 EMBED PLATE/STEEL BEAM CONNECTION
SCALE: 1-1/2" = 1'-0"



B15 **EMBED PLATE/STEEL BEAM CONNECTION**
SCALE: 1'-1/2" = 1'-0"



GENERAL NOTES:

1. JOIST SEATS SHALL BE "CANTED" OR "SLOPED" AS REQUIRED TO PROVIDE A LEVEL BEARING SURFACE.
2. BRIDGING FOR JOISTS TO BE PROVIDED PER SJI SPECIFICATIONS, MINIMUM.
3. ALL ROOF FRAMING MEMBERS SHALL BE BRACED BY THE CONTRACTOR/ERECTOR UNTIL THE ROOF DIAPHRAGM HAS BEEN COMPLETELY INSTALLED.
4. ROOF DECK SHALL BE 1-1/2" DEEP, TYPE B DECK, 22 GAUGE, GALVANIZED G90.
5. HOLE TYPE SHEAR TAB/CONNECTOR PLATE: STANDARD (STD) 11/16" HOLE
HOLE TYPE W12X50 BEAM: SHORT SLOTTED (SSL) 11/16" X 7/8" HOLE IN HORIZ. DIRECTION
6. SEE ROOF FRAMING PLAN FOR BAR JOIST SEAT ELEV.
7. FOR SINGLE LEG STIRRUP INFORMATION REGARDING MINIMUM BEND DIAMETERS AND LEG EXTENSION LENGTHS, REFER TO THE ACCOMPANYING TABLE ON THIS SHEET.



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[illegible]

ENGINEERING AND SUPPORT CENTER		SUBMITTED BY:	JRN	SIZE INCHES D	
REDSTONE GATEWAY (RG300)	DTR	CHECKED BY:	MCP/JMU		
REDSTONE ARSENAL, AL 38808	DITR	CONTRACT NO.:			
	DITR	SOLICITATION NO.:			23 OCTOBER 2024

MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

SHEET ID

S-504

CUI - FINAL DESIGN SUBMITTAL

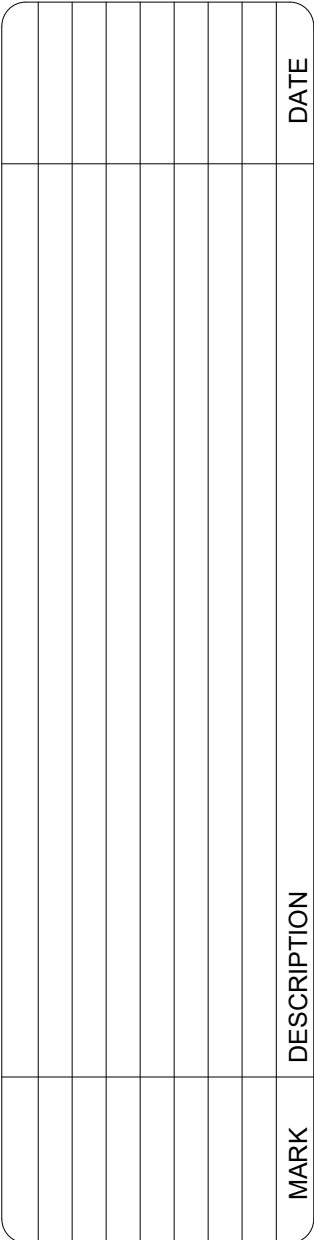


Isometric view of the base of the curtain wall assembly. The diagram shows a concrete foundation supporting a series of metal studs and tracks. The studs are labeled "GRADE 50 METAL STUD @ 12 O.C.". The tracks are labeled "SEE CURTAIN WALL SCHEDULE FOR STUD AND TRACK DETAILS". The connection between the track and the metal stud is labeled "CONNECT TRACK TO METAL STUD USING APPROPRIATE CLIP W/ (2) #12 SCREWS".

F13 TYPICAL CURTAIN WALL BASE CONNECTION
SCALE: N.T.S.



1. CORRUGATED METAL WALL PANELING FOR MAINTENANCE BAYS SHALL BE ATTACHED TO STRAPPING USING QUICK RELEASE FASTENERS. STRENGTH OF FASTENER SHALL NOT EXCEED MORE THAN 10 PERCENT OF THAT REQUIRED TO PREVENT FAILURE UNDER NEGATIVE WIND PRESSURE.
2. RESISTANCE OF CORRUGATED METAL WALL PANELING SHALL NOT EXCEED MORE THAN 10 PERCENT OF THAT REQUIRED TO PREVENT FAILURE UNDER NEGATIVE WIND PRESSURE.



US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER REDSTONE GATEWAY (RG300) REDSTONE ARSENAL, AL 35898	DESIGNED BY:	ISSUE DATE:
	DTR	23 OCTOBER 2024
	DRAWN BY:	SOLICITATION NO.:
	DTR	
	CHECKED BY:	CONTRACT NO.:
	MCP/JMU	
	SUBMITTED BY:	
	JRNL	
	APPROVED BY:	
	ANSI D	

CURTAIN WALL DETAILS

S-505

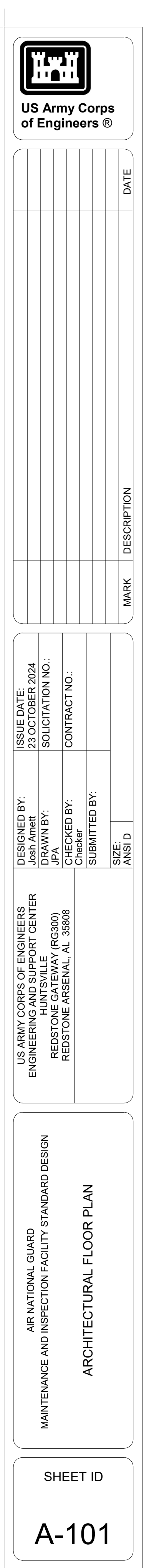


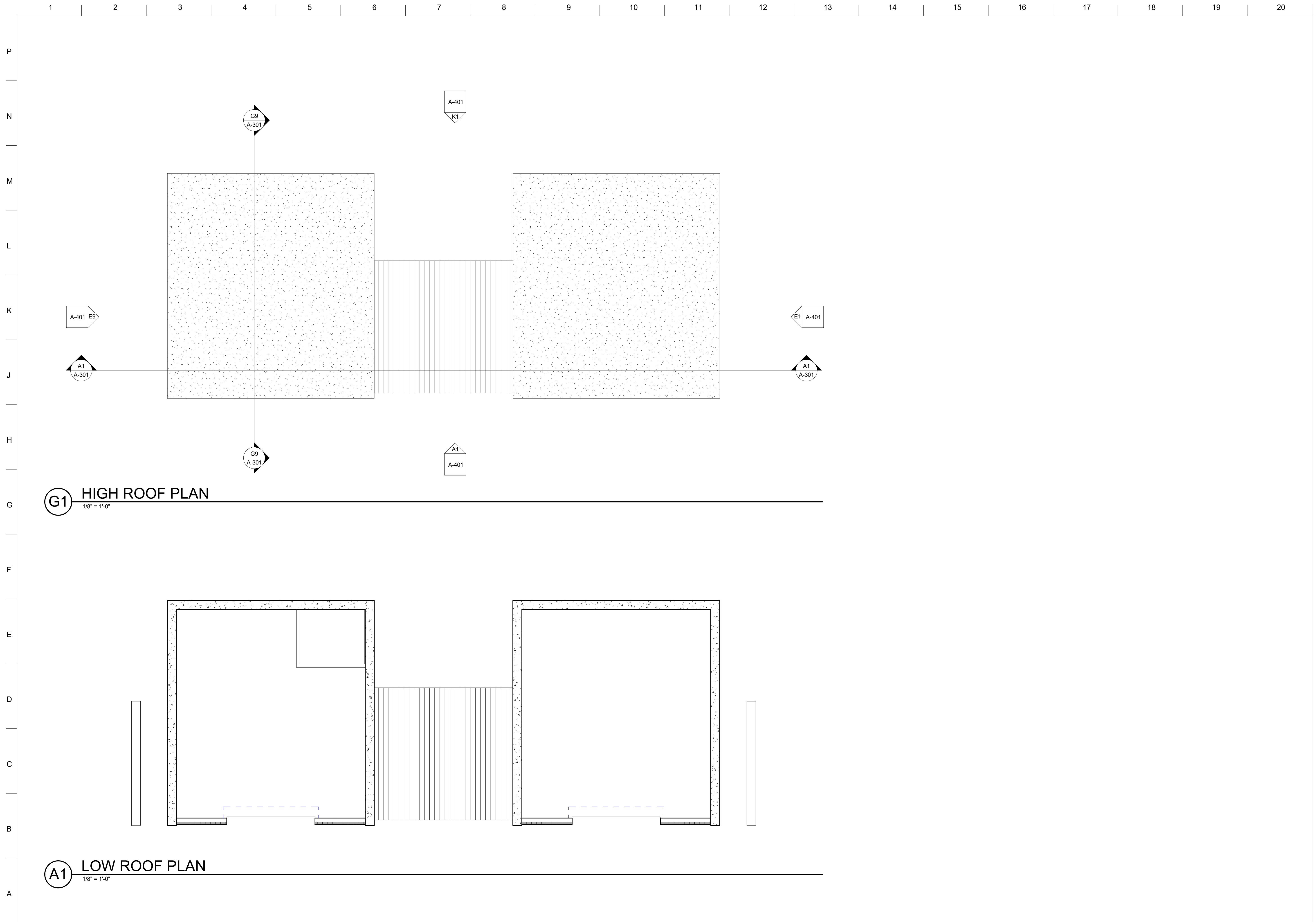
A1 LIFE SAFETY CALCULATIONS

ANG M&I Facility Travel Paths							
Area	Occupancy Type	Common Path		Dead End Corridor		Travel Distance	
		Allowed	Actual	Allowed	Actual	Allowed	Actual
Bay 1	High Hazard Industrial	0	0	0	0	50	
Bay 2		0	0	0	0	75	43
Shared Work Space		25*	19	0	0	50	
Comms, Corr, Rest Mech/Elec Room	New Business	75	23	0	0	23	
Riser Room		10	10	50	0	300	31
					0	10	

*Permitted per NFPA 101 7.11.4 for rooms less than 200 ft² and occupant load of 3 people or less.

 TWO HOUR FIRE BARRIER





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[illegible]

US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER REDSTONE GATEWAY (RG300) REDSTONE ARSENAL AL 35808	DESIGNED BY: Josh Annett	ISSUE DATE: 23 OCTOBER 2024
	DRAWN BY: JP	SOLICITATION NO.:
	CHECKED BY: Checker	CONTRACT NO.:
	SUBMITTED BY:	
	SIZE: ANSI D	

AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

ROOF PLANS

SHEET ID

A-110

CUI - FINAL DESIGN SUBMITTAL

Plot Date: 8/23/2024 10:09:48 AM

File Path:

C:\Users\ae0edc\pa\Documents\ANG M&I Facility_HOST_REVISED_07082024_a0edc\pa.rvt

[illegible]

US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER REDSTONE GATEWAY (RG300) REDSTONE ARSENAL AL 35808	DESIGNED BY: Josh Annett	ISSUE DATE: 23 OCTOBER 2024
	DRAWN BY: JPA	SOLICITATION NO.:
	CHECKED BY: Checker	CONTRACT NO.:
	SUBMITTED BY:	
	SIZE: ANSI D	

AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

BUILDING SECTIONS

SHEET ID

A-301

P

N

M

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J

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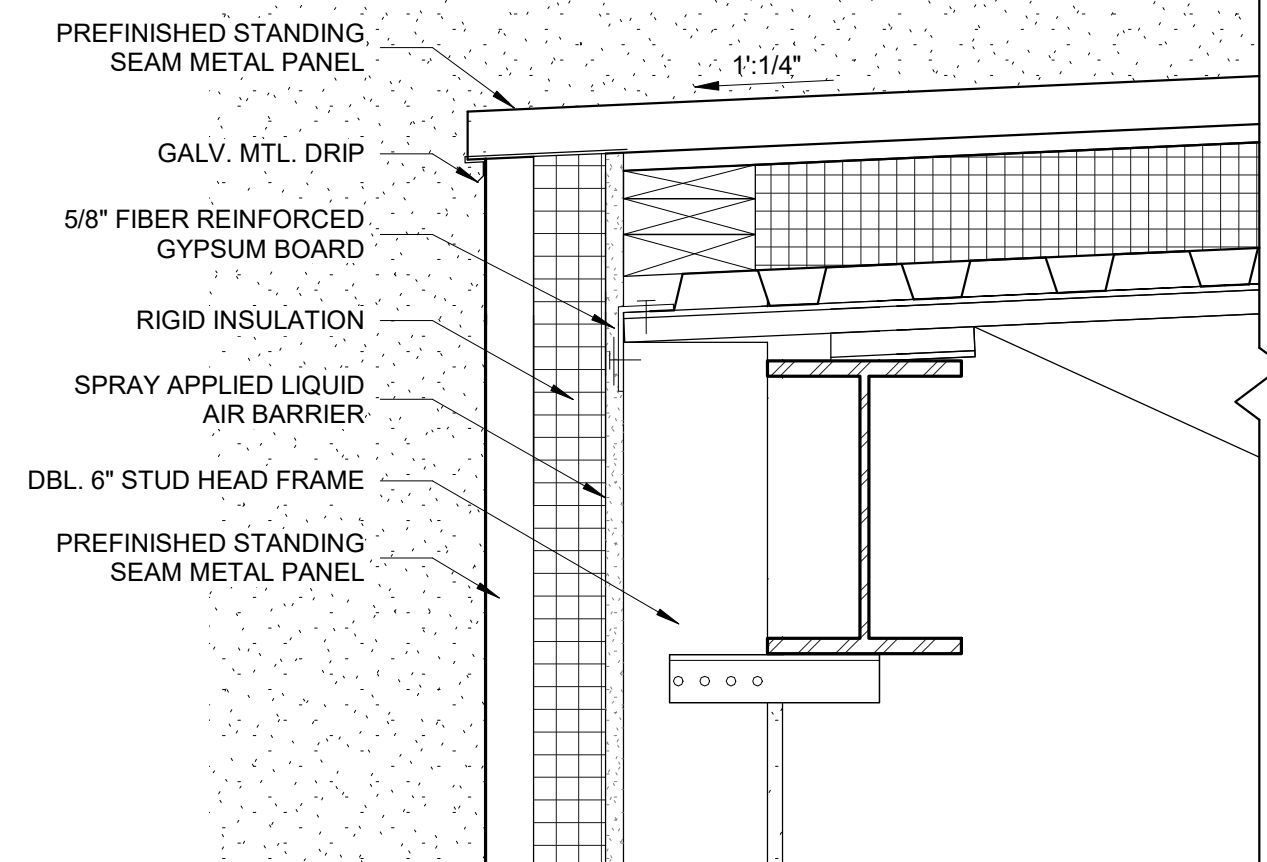
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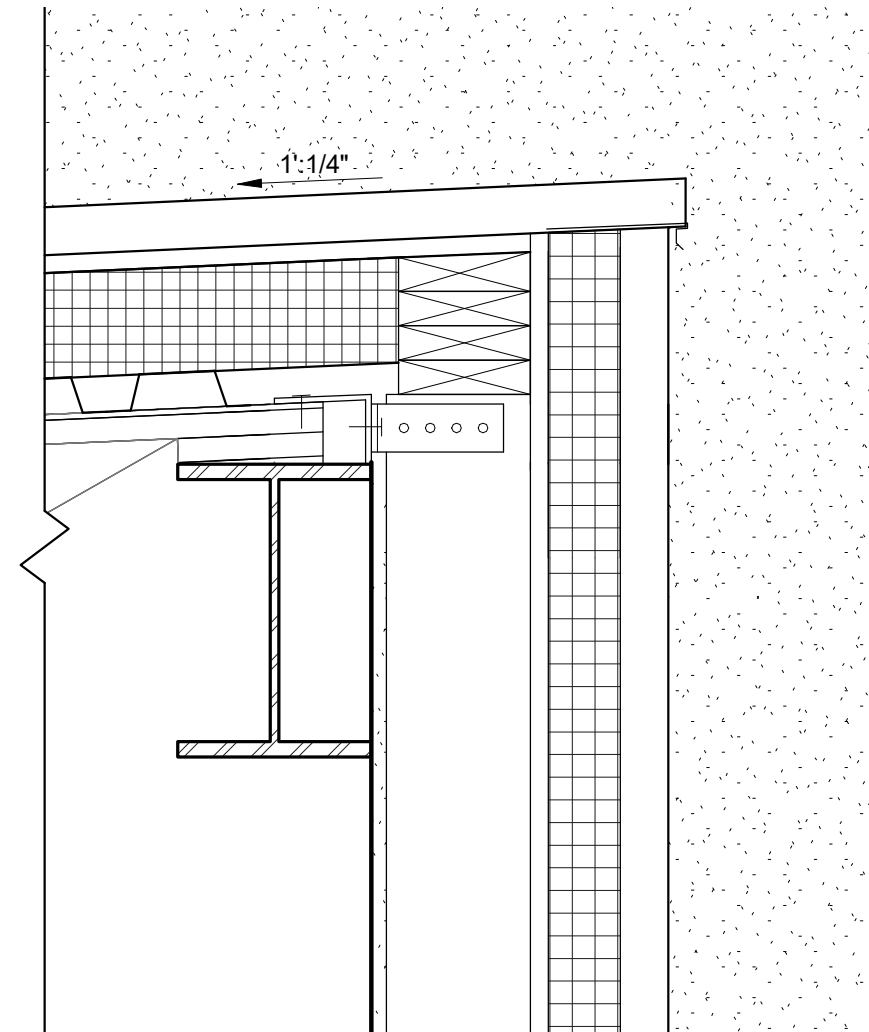
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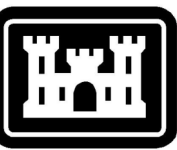
A



(K1) SHARED SPACE ROOF LOW DETAIL
1 1/2" = 1'-0"



(K6) SHARED SPACE ROOF HIGH DETAIL
1 1/2" = 1'-0"



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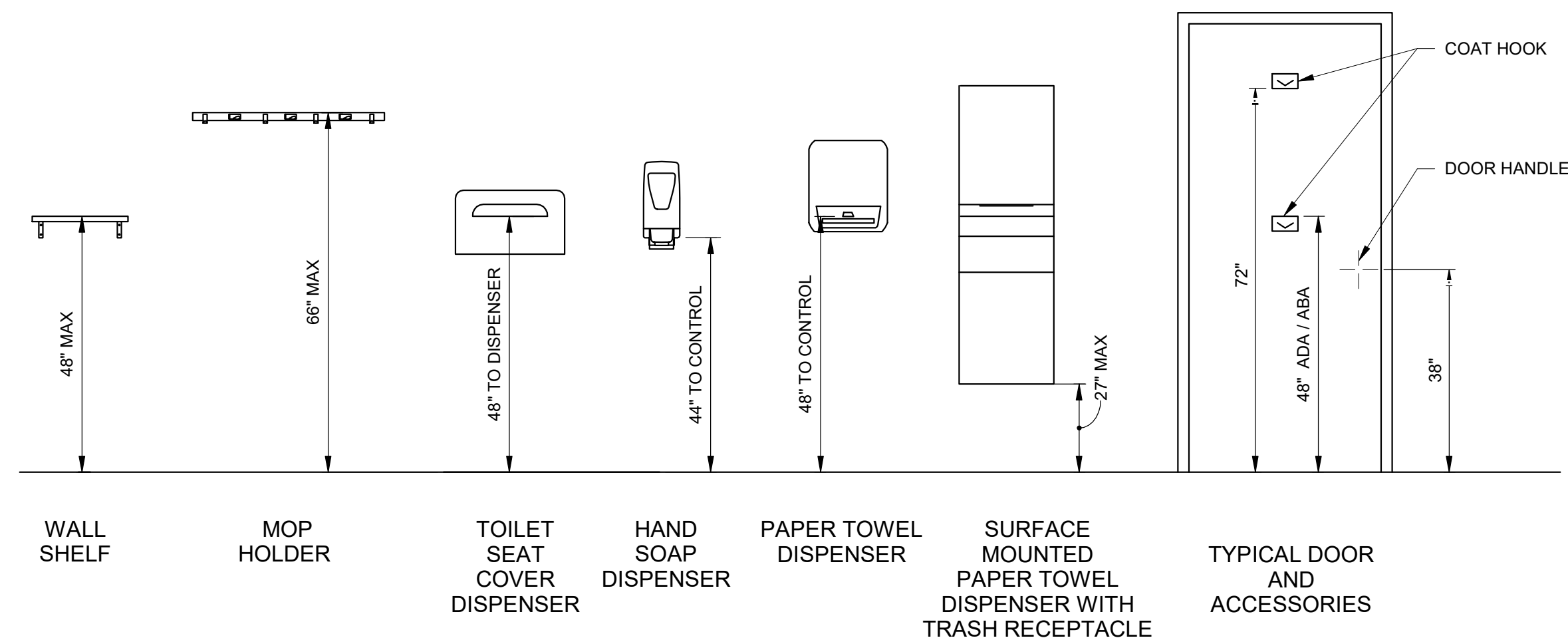
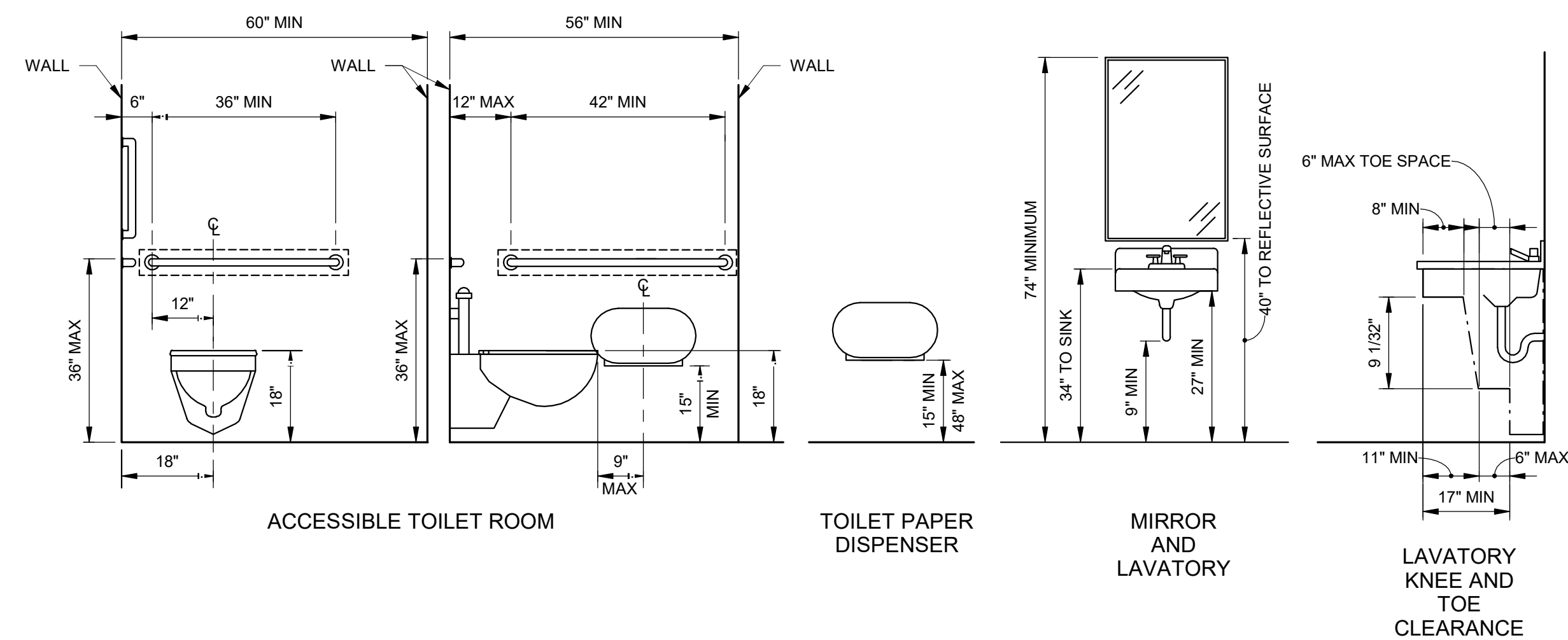
[illegible]

US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER REDSTONE GATEWAY (RG300) REDSTONE ARSENAL, AL 35808	DESIGNED BY:	ISSUE DATE:
	DRAWN BY:	23 OCTOBER 2024
	CHECKED BY:	SOLICITATION NO.:
	CHECKER	CONTRACT NO.:
	SUBMITTED BY:	
	SIZE:	ANSI D

AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

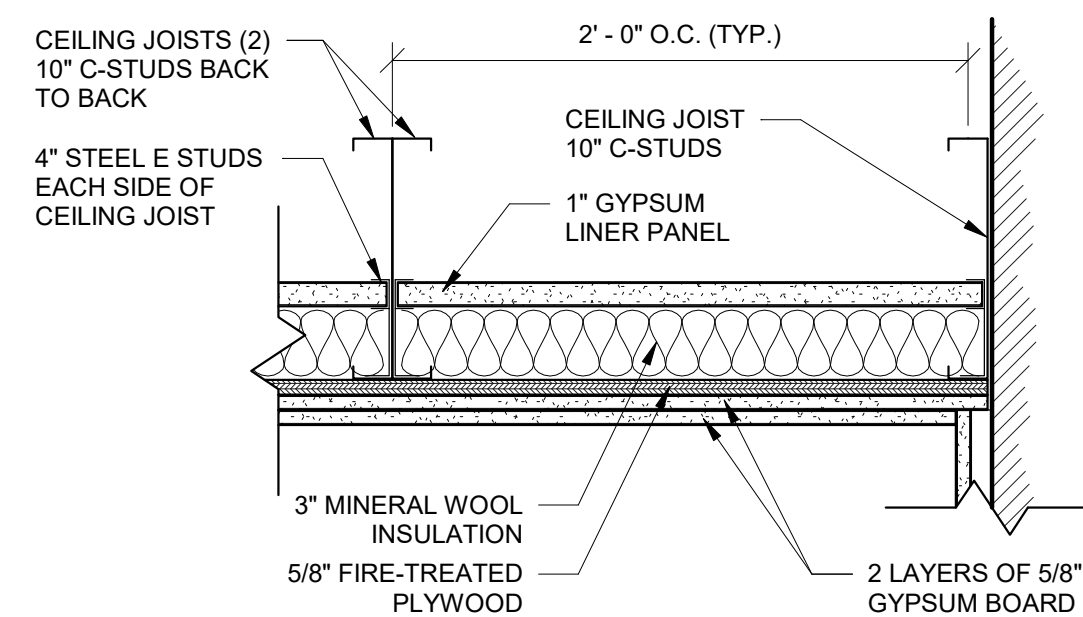
WALL SECTIONS

SHEET ID
A-310

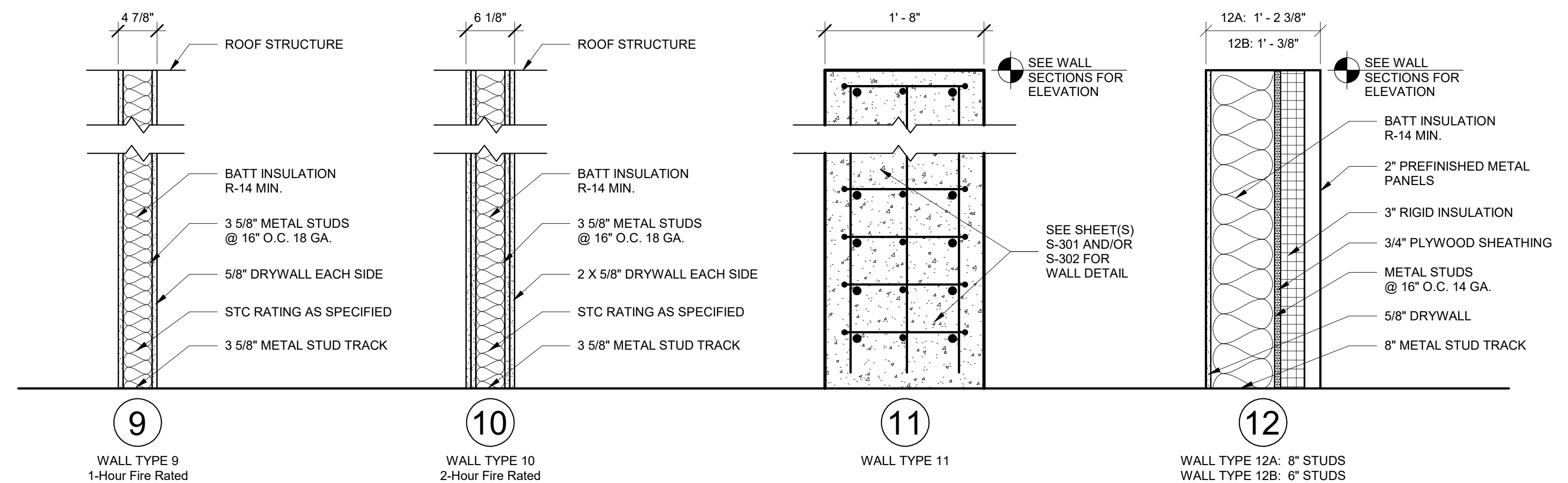
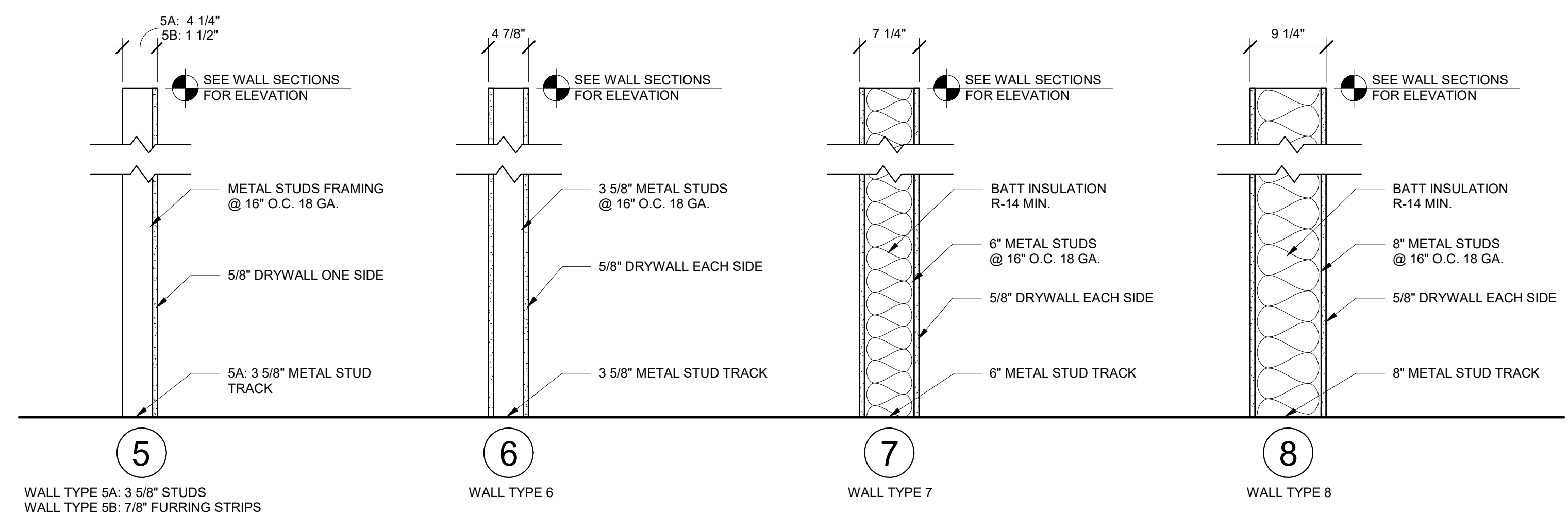
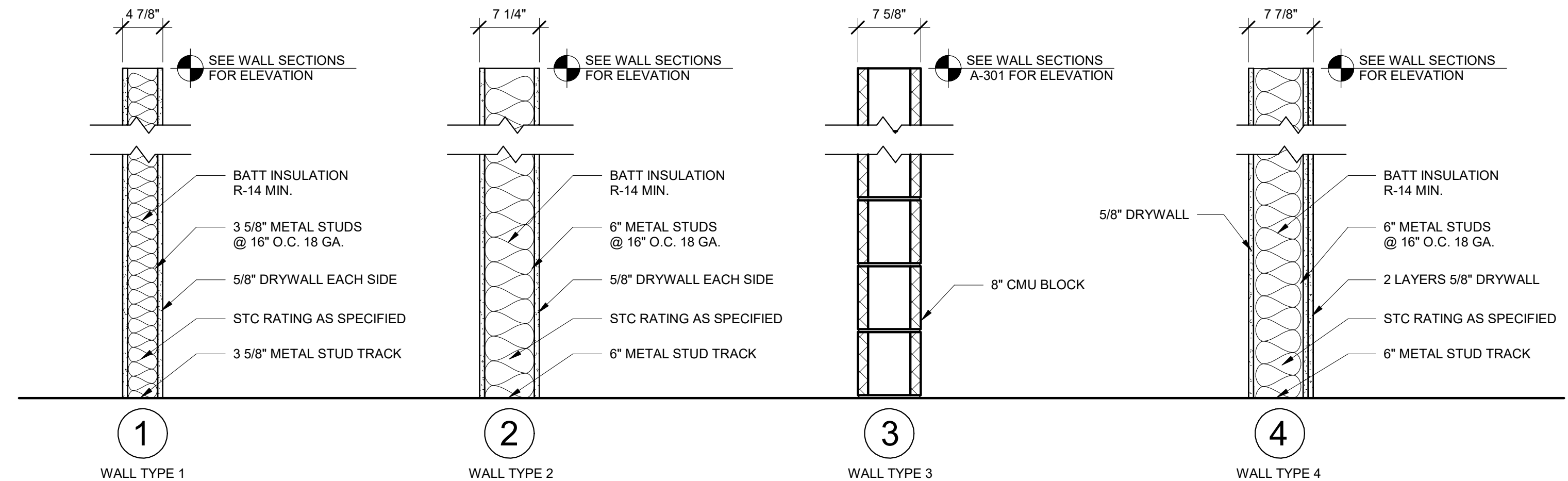


NOTE:
TYPICAL ADA/ABA DETAILS ARE PROVIDED FOR REFERENCE TO INDICATE COMPLIANT MOUNTING LOCATIONS AND RANGES. FINAL MOUNTING LOCATIONS MUST BE FIELD COORDINATED WITH OTHER FIXTURES AND ACCESSORIES.

E1 TYPICAL MOUNTING HEIGHTS



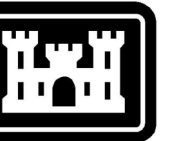
B6 **CEILING DETAIL**
1 1/2" = 1'-0"



(B10) WALL TYPES
1" = 1'-0"

WALL TYPE GENERAL NOTES

1. SEALANT UNDER ALL METAL STUD TRACK INSTALLATION.
2. SEAL ALL GAPS AT METAL STUD TRACK/SLAB AND CMU/SLAB.



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[illegible]

ENGINEERING AND SUPPORT CENTER HUNTSVILLE REDSTONE ARSENAL (RG300) REDSTONE ARSENAL, AL 35898	Josh Annett	23 OCTOBER 2024
	DRAWN BY:	SOLICITATION NO.:
	CHECKED BY:	CONTRACT NO.:
	Checker	
	SUBMITTED BY:	
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	ANSI D	

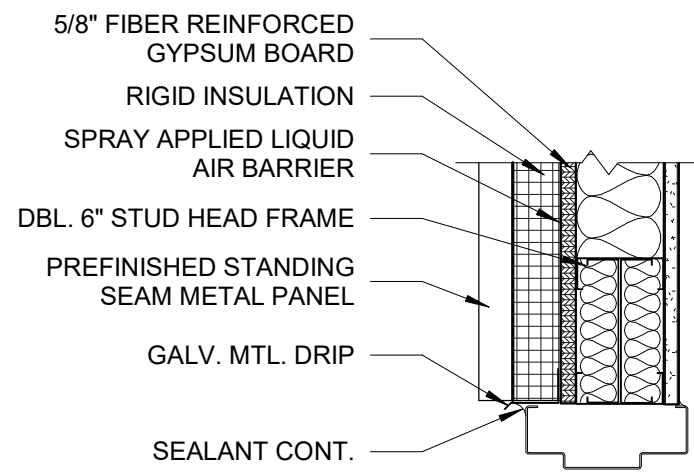
WALL TYPES

SHEET ID

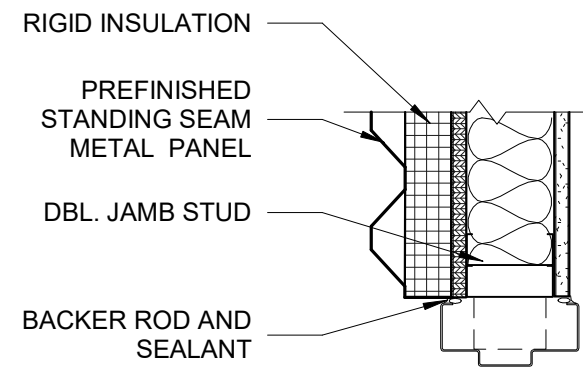
A-601

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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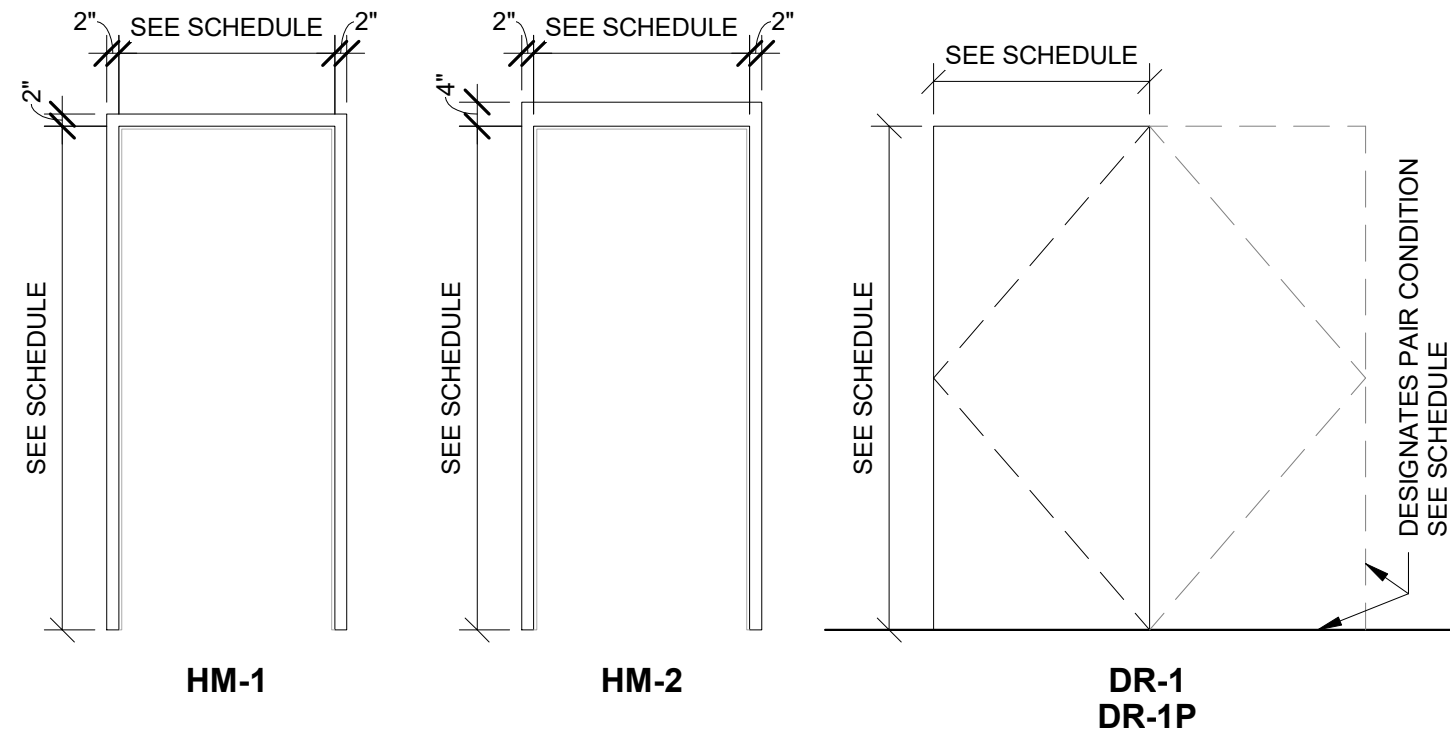
DOOR SCHEDULE														
DOOR NO.	WIDTH	HEIGHT	THICKNESS	DOOR			FIRE RATING	FRAME					HDW SET	COMMENTS
				MATERIAL	TYPE	FINISH		MATERIAL	TYPE	HEAD	DETAIL JAMB	SILL		
100A	16' - 4"	16' - 4"	3"	STL	DR-3	PT	NA	STL	MANF	H3/S-503	A7/A-801	H3/S-503	TBD	
100B	3' - 6"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	J1/A-801	J1/A-801	F5/A-801	TBD	
100C	3' - 6"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	B1/A-801	A1/A-801	F5/A-801	TBD	
200A	16' - 4"	16' - 4"	3"	STL	DR-3	PT	NA	STL	MANF	H3/S-503	A7/A-801	H3/S-503	TBD	
200B	3' - 6"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	J1/A-801	J1/A-801	F5/A-801	TBD	
200C	3' - 6"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	A1/A-801	A1/A-801	F5/A-801	TBD	
300	3' - 0"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	F1/A-801	F1/A-801	NA	TBD	
400	3' - 0"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	F1/A-801	F1/A-801	NA	TBD	
500	3' - 0"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	F1/A-801	F1/A-801	NA	TBD	
600	3' - 0"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	J1/A-801	J1/A-801	F5/A-801	TBD	
700	3' - 6"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	J1/A-801	J1/A-801	F5/A-801	TBD	
800	3' - 0"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	F1/A-801 SIM	F1/A-801 SIM	NA	TBD	
900A	3' - 0"	7' - 0"	2"	HM	DR-1	PT	NA	HM	HM-1	F1/A-801	F1/A-801	NA	TBD	
900B	6' - 0"	7' - 0"	2"	STL	DR-1P	PT	NA	STL	HM-1	J1/A-801	J1/A-801	F5/A-801	TBD	



HEAD

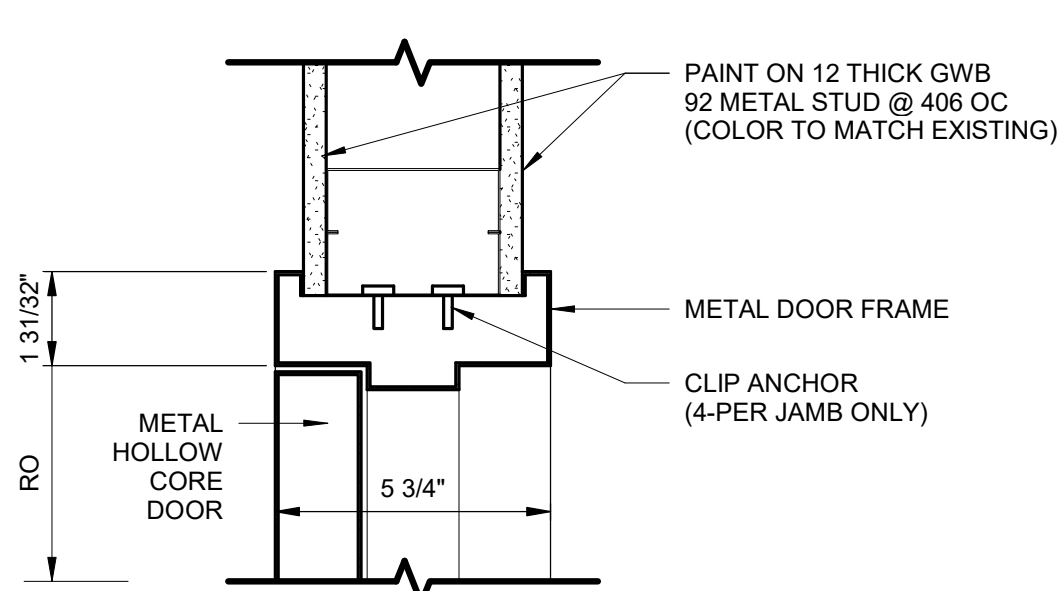


JAMB

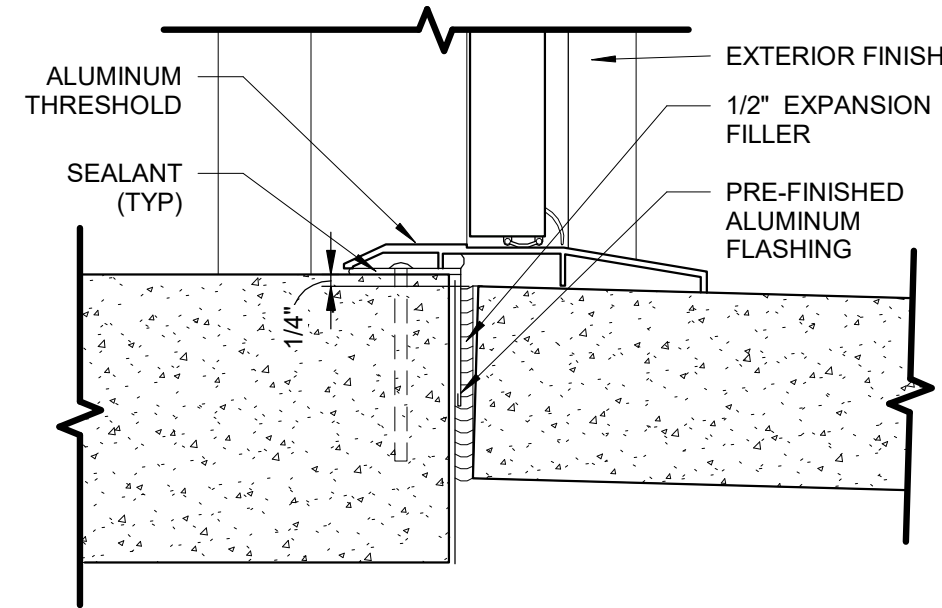


DOOR AND FRAME TYPES

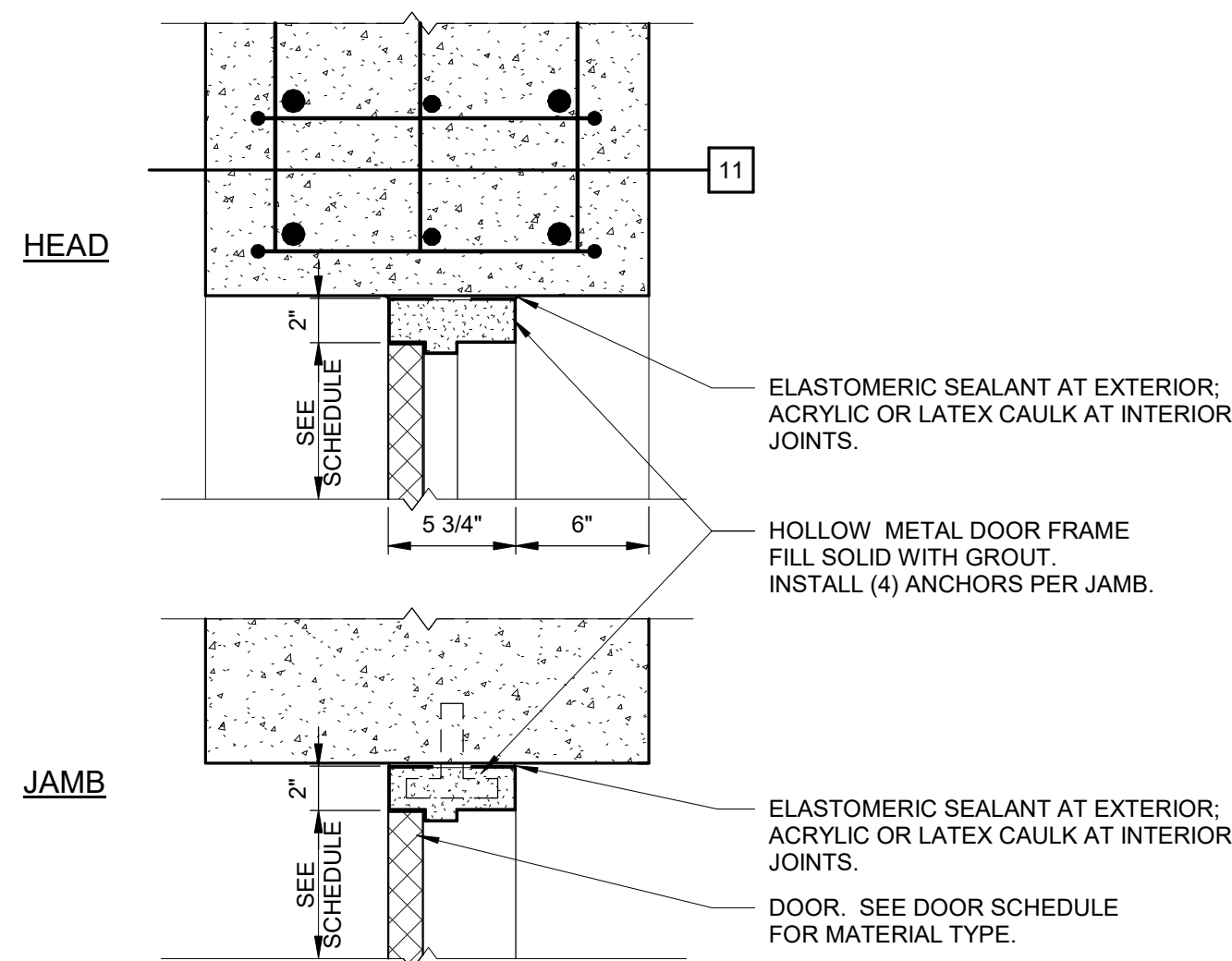
J1 EXTERIOR OPENING HEAD AND JAMB DETAIL
1 1/2" = 1'-0"

$$1\ 1/2'' = 1'-0''$$


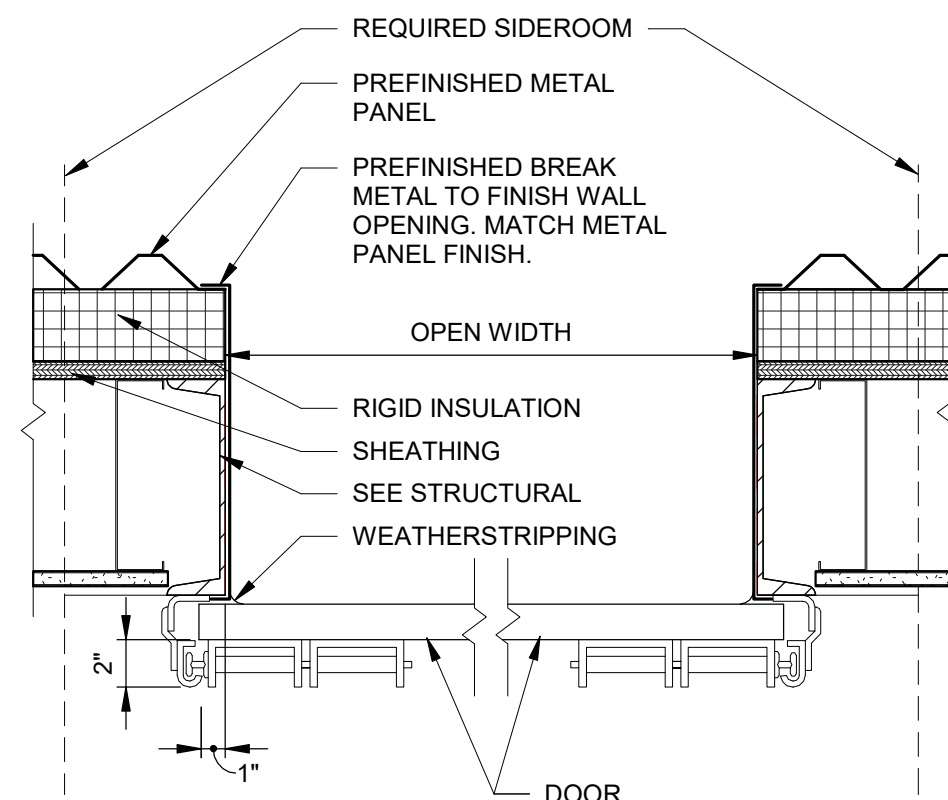
F1 DRYWALL HEAD/JAMB
3" = 1'-0"

$$3'' = 1'-0''$$


F5 SILL DETAIL
3" = 1'-0"

$$3'' = 1'-0''$$


(A1) DOOR - HM CONCRETE WALL
1 1/2" = 1'-0"

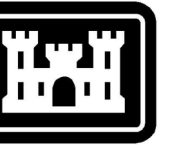
$$1\frac{1}{2}'' = 1'-0''$$


A7 ROLLING DOOR JAMB
1 1/2" = 1'-0"

$$1\frac{1}{2}'' = 1'-0''$$

FINISH SCHEDULE REVISED									
ROOM NO	ROOM NAME	WALL FINISH				FLOOR FINISH	BASE	CEILING FINISH	NOTES & REMARKS
		NORTH	EAST	SOUTH	WEST				
100	BAY 1	NA	NA	PT1	NA	SCON	NA	NA	
200	BAY 2	NA	NA	PT1	NA	SCON	NA	NA	
300	TLT	T2	PT2	PT2	PT2	T1	T3	ACT2	
400	ELECT	PT1	PT1	PT1	PT1	SCON	WB1	NA	
500	COMM	PT1	PT1	PT1	PT1	VCT1	WB1	ACT1	
600	RISER ROOM	PT1	PT1	PT1	PT1	SCON	WB1	NA	
700	CORRIDOR	PT1	PT1	PT1	PT1	SCON	WB1	ACT1	
800	SHARED WORKSPACE	PT1	PT1	PT1	PT1	SCON	WB1	GBC, PT4	
900	MECH	PT1	PT1	PT1	PT1	SCON	WB1	NA	

FINISH LEGEND	
FINISH	MATERIAL
ACT1	ACOUSTICAL CEILING TILE
ACT2	ACOUSTICAL CEILING TILE - MOISTURE RESISTANT
GBC	GYPSUM BOARD CEILING
PT1	PAINT
PT2	PAINT - EPOXY
PT3	PAINT
PT4	CEILING PAINT
SCON	SEALED CONCRETE
T1	CERAMIC FLOOR TILE
T2	CERAMIC WALL TILE
T3	CERAMIC BASE TILE
VCT1	VINYL COMPOSITION TILE - STATIC DISSIPATIVE
WB1	RUBBER BASE



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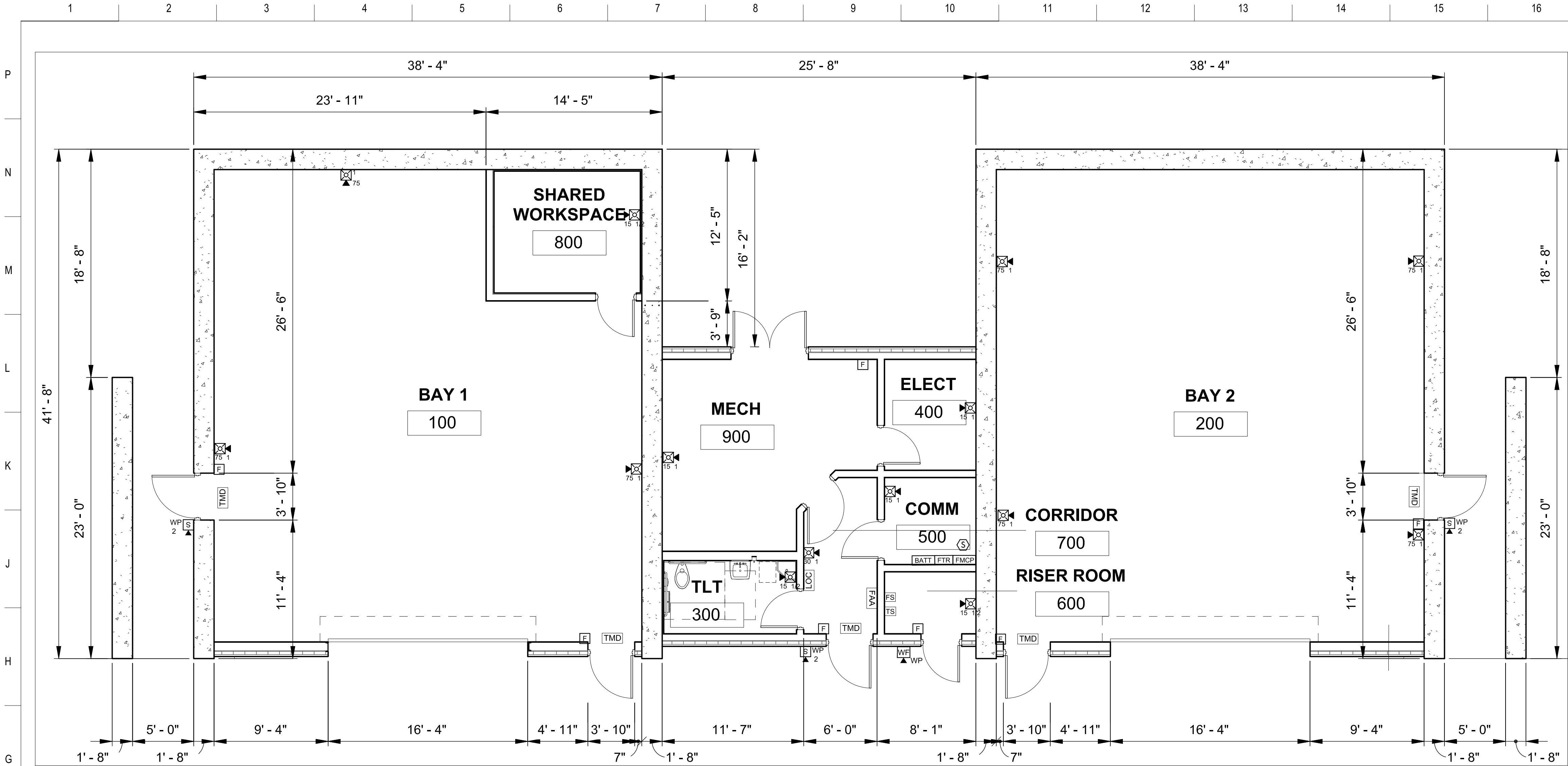
Josh Annett	23 OCTOBER 2024
DRAWN BY: JPA	SOLICITATION NO.:
CHECKED BY: JD	CONTRACT NO.:
SUBMITTED BY:	
SIZE: ANSI D	

AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

DOOR & FINISH SCHEDULES

SHEET ID

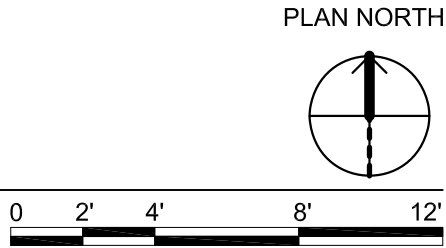
A-801



F1

FIRE ALARM FLOOR PLAN

SCALE: 3/16" = 1'-0"

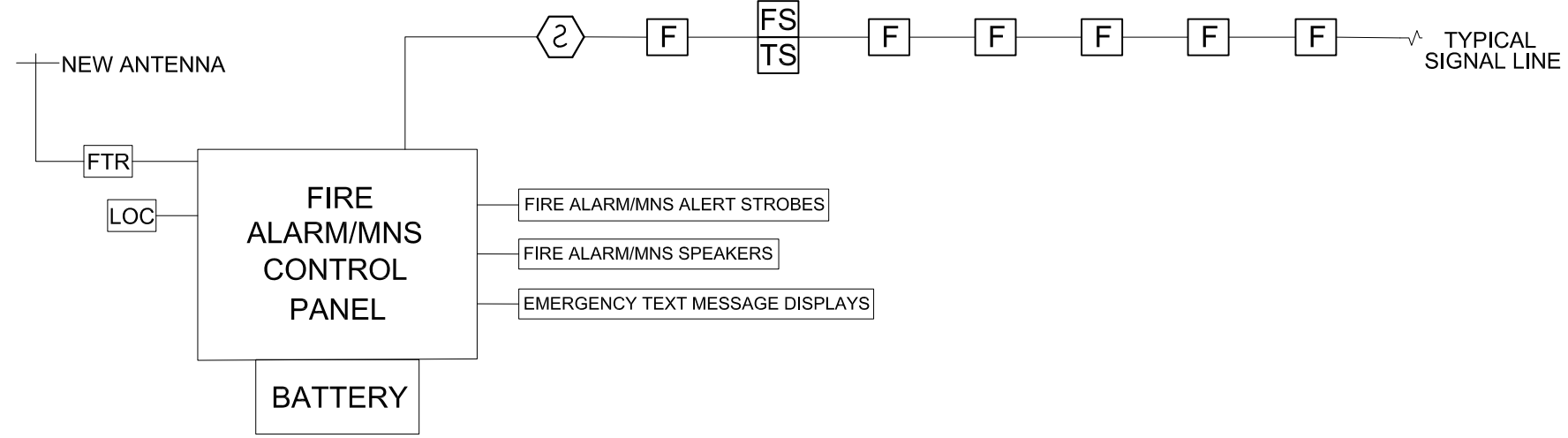


		CONTROL UNIT ANNUNCIATION						NOTIFICATION				TRANSMIT SIGNAL				
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	MANUAL PULL STATION	X	X					X	X		X		X			
2	WATER FLOW SWITCH BUILDING	X	X					X	X	X	X					
3	AREA SMOKE DETECTOR	X	X					X	X		X		X			
4	MASS NOTIFICATION ANNOUNCEMENT							X	X		X	X				X
5	VALVE TAMPER SWITCH			X	X								X			
6	MNS OVERRIDE OF FIRE ALARM SIGNAL															X
7	FIRE ALARM CONTROL PANEL AC FAILURE			X	X										X	
8	FIRE ALARM CONTROL PANEL LOW BATTERY				X	X									X	
9	FIRE ALARM OPEN CIRCUIT				X	X									X	
10	FIRE ALARM CIRCUIT GROUND FAULT CIRCUIT				X	X									X	
11	NOTIFICATION APPLIANCE CIRCUIT SHORT				X	X									X	

A1

FIRE ALARM MATRIX

NTS



A10

FIRE ALARM DIAGRAM

NTS

GENERAL SHEET NOTES

FIRE ALARM / MNS GENERAL NOTES:

- PROTECT THE BUILDING WITH A FIRE DETECTION, ALARM, AND MASS NOTIFICATION SYSTEM INSTALLED IN ACCORDANCE WITH UFC 3-800-01 (CHANGE 6, 6 MAY 2021), UFC 4-021-01 (1 JAN 2010), ECB 2018-17 REV. 2 AND NFPA 72 (2021 EDITION).
- CONTRACTOR IS RESPONSIBLE FOR ADVANCED REVIEW OF THE WORK REQUIRED IN THE DESIGN DOCUMENTS. IF DISCREPANCIES ARE FOUND IN THE DESIGN DOCUMENTS, THE CONTRACTING OFFICERS REPRESENTATIVE SHALL BE IMMEDIATELY NOTIFIED TO REQUEST RESOLUTION. CONTRACTOR SHALL COORDINATE THE RESOLUTION OF DISCREPANCIES IN ADVANCE OF STARTING WORK.
- ALL NEW FIRE ALARM SYSTEM EQUIPMENT SHALL BE U.L. LISTED
- ALL CONDUIT SHALL BE 3/4" UNLESS OTHERWISE SPECIFIED.
- CONDUIT FITTINGS SHALL BE COMPRESSION TYPE.
- ALL JUNCTION BOXES SHALL BE SIZED IN ACCORDANCE WITH NFPA 70 (NEC) AND JUNCTION BOX COVERS SHALL BE PAINTED RED.
- ALL PULL STATIONS AND NOTIFICATION APPLIANCES SHALL BE WEATHERPROOF
- POWER SUPPLY FOR FACP SHALL BE A DEDICATED BRANCH CIRCUIT FED FROM A MECHANICALLY PROTECTED CIRCUIT BREAKER PAINTED RED AND LOCKED IN THE OPEN POSITION WITH A LISTED LOCKING DEVICE. THE LOCATION OF THE CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL PANEL.
- SYNCHRONIZE ALL STROBES PER NFPA 72.
- SLC AND NAC CIRCUITS SHALL BE CLASS B.

SHEET LEGEND

- | | |
|---------------------------|---|
| FMCP | FIRE ALARM/MNS CONTROL PANEL |
| LOC | LOCAL OPERATING CONSOLE |
| TMD | EMERGENCY TEXT MESSAGE DISPLAY |
| FAA | FIRE ALARM ANNUNCIATOR |
| BATT | FIRE ALARM BATTERY SUPPLY |
| FTR | FIRE ALARM TRANSMITTER |
| FS | SPRINKLER FLOW SWITCH |
| TS | SPRINKLER TAMPER SWITCH |
| F | DOUBLE-ACTION FIRE ALARM PULL STATION |
| ◇ | PHOTOELECTRIC SMOKE DETECTOR |
| ▽ Y
◇ X | FIRE ALARM/MNS WALL MOUNTED SPEAKER/STROBE COMBO.
"Y" INDICATES SPEAKER WATTAGE
"X" INDICATES STROBE CANDELLA |
| ▽ Y
□ S | FIRE ALARM/MNS WALL MOUNTED SPEAKER.
"Y" INDICATES SPEAKER WATTAGE |
| ▽ Y
○ X | FIRE ALARM/MNS SPEAKER
"Y" INDICATES SPEAKER WATTAGE
"X" INDICATES STROBE CANDELLA |
| ▽ WP
WF | SPRINKLER WATER FLOW ALARM
"WP" INDICATES WEATHERPROOF |
| ▽ WP
S Y | EXTERIOR FIRE ALARM/MNS SPEAKER
"WP" INDICATES WEATHERPROOF
"Y" INDICATES SPEAKER WATTAGE |

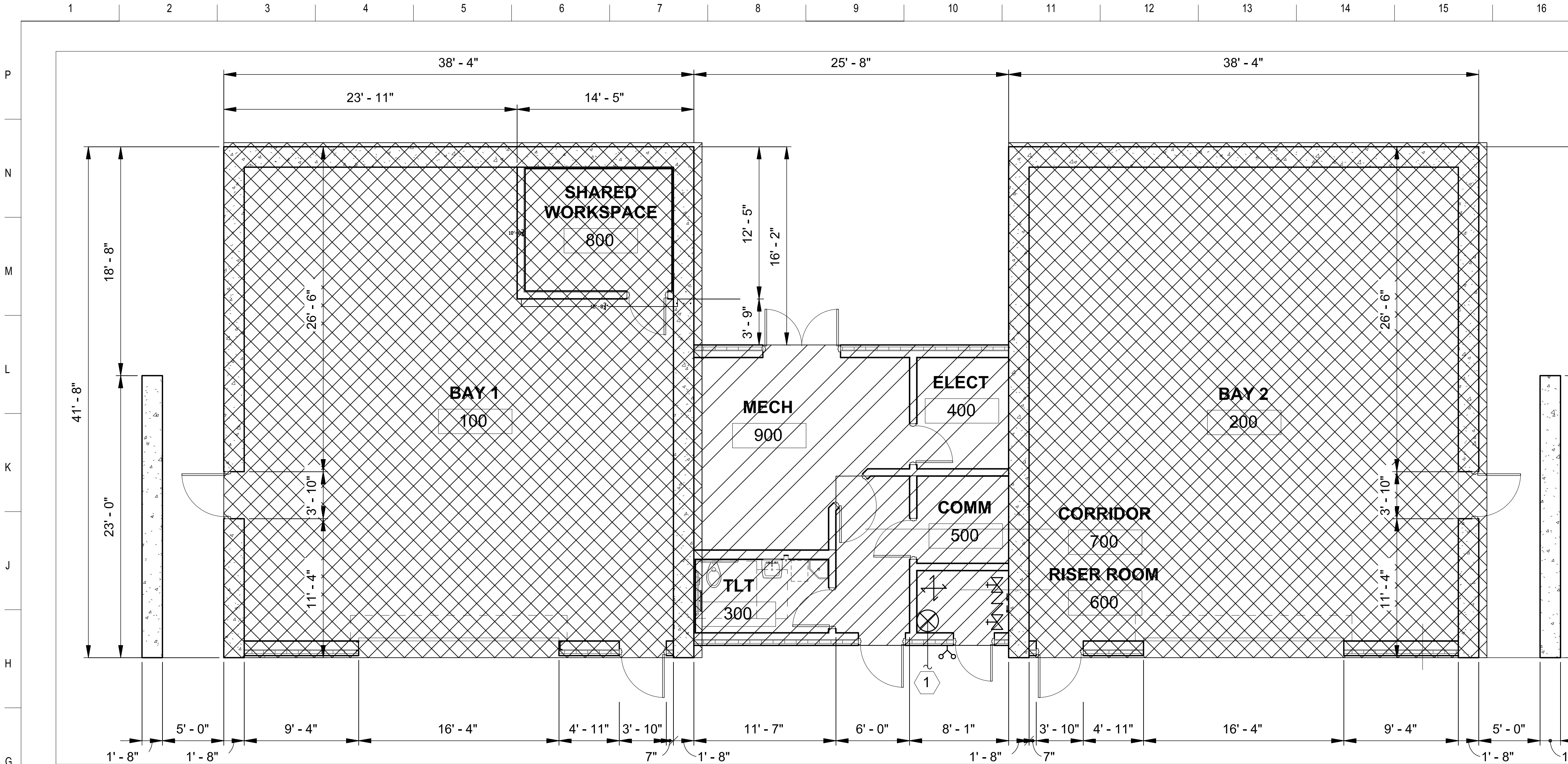


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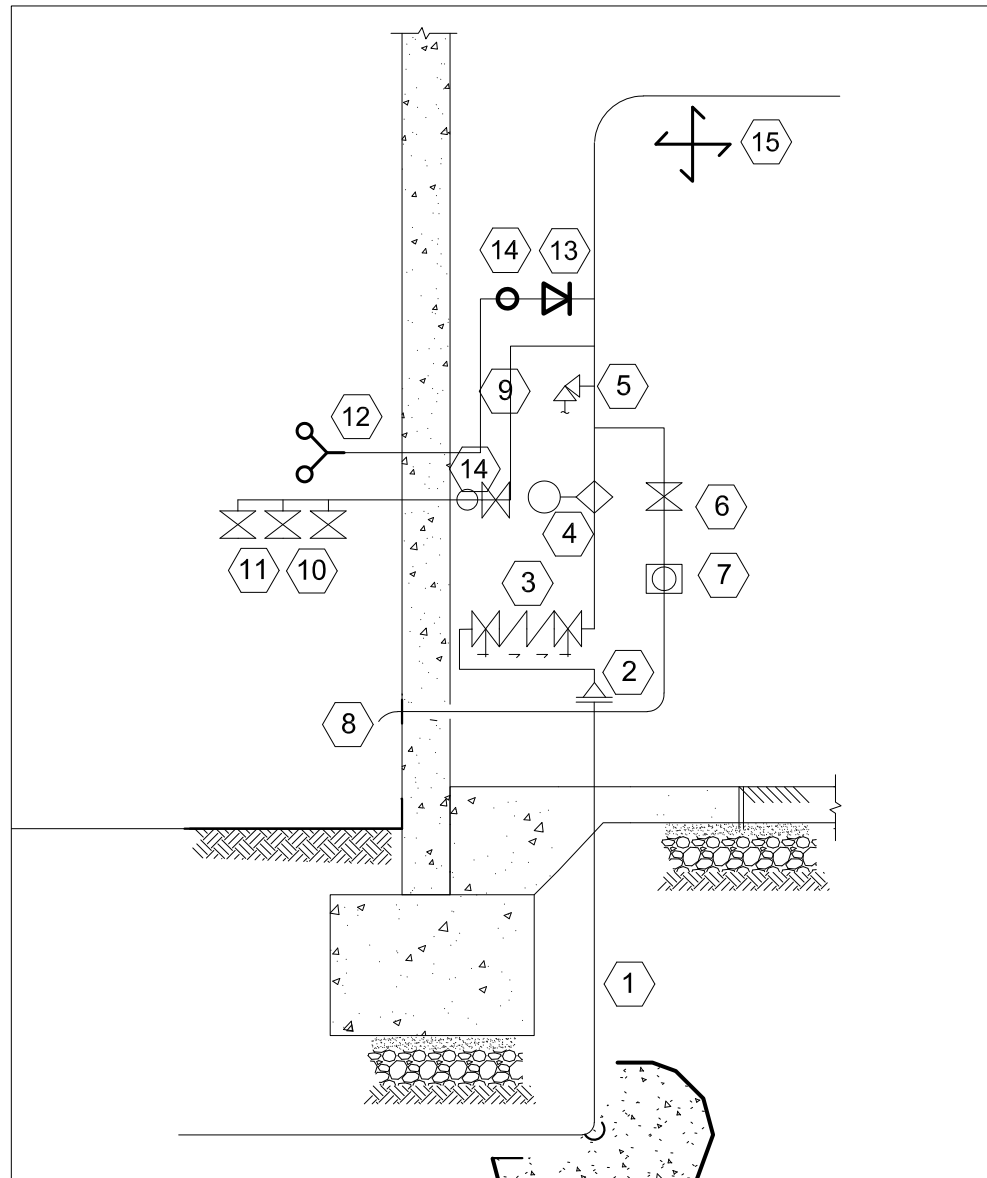
FIRE ALARM PLAN

SHEET ID

FA-101



F1 FIRE PROTECTION FLOOR PLAN
3/16" = 1'-0"



A1 SPRINKLER SYSTEM DETAIL
NTS

SPRINKLER DETAIL KEYED NOTES:

- 1 NEW 6" FIRE PROTECTION SUPPLY LINE
- 2 REDUCER POC
- 3 DOUBLE CHECK VALVE
- 4 FLOWSWITCH
- 5 PRESSURE RELIEF VALVE
- 6 DRAIN AND INSPECTORS TEST COMBO
- 7 SIGHT GLASS
- 8 DRAIN DISCHARGE
- 9 SUPERVISED NORMALLY CLOSED BACKFLOW TEST HEADER BUTTERFLY VALVE
- 10 HOSE VALVE
- 11 BACKFLOW PREVENTOR TEST
- 12 FIRE DEPARTMENT CONNECTION
- 13 CHECK VALVE
- 14 BALL DRIP
- 15 4-WAY SEISMIC BRACE

Sprinkler System Demand Flow Estimate				
Occupancy Hazard Classification		Extra Hazard		Note: Where NFPA 13 uses the term OH group 1 &2 or EH Group 1 &2 must for follow UFC 3-600-01, Tab 9-3
Sprinkler Design Density Sprinkler Remote Area of Operation Preliminary Sprinkler Demand Flow Imbalance Factor Total Flow	0.3	GPM/SQFT	$D_{density}$ (Note: UFC 3-600-01, Tab 9-3)	
	2500	SQFT	$A_{Sprinkler}$ (Note: UFC 3-600-01, Tab 9-3)	
	750	GPM	$Q_{Prelim} = D_{Density} \times A_{Sprinkler}$	
	30%		$QF_{Sprinkler}$ (Note: Good rule of thumb should be around 30% for preliminary hydraulic calculation)	
	975	GPM	$Q_{T, Sprinkler} = Q_{Prelim} \times QF_{Sprinkler}$	
Hose Stream Demand Per UFC 3-600-01				
Inside Outside Duration	0	GPM	H_{Inside}	
	500	GPM	$H_{Outside}$ (Note: UFC 3-600-01, Tab 9-4)	
	90	MINUTES	T (Note: UFC 3-600-01, Tab 9-4)	
			(Note: Outside hose not included in flow estimate, but considered for available pressure)	
Total Flow Required	1475	GPM	$Q_{T, Req.} = Q_{T, Sprinkler} + H_{outside}$	

A9 SPRINKLER CALCULATIONS
NTS

GENERAL SHEET NOTES

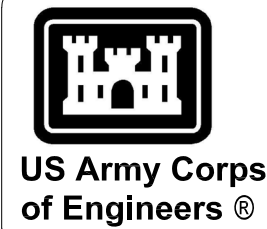
- PROTECT AREAS OF THE BUILDING AS SHOWN WITH A COMPLETE SUPERVISED WET-PIPE SPRINKLER SYSTEM IN ACCORDANCE WITH UFC 3-600-01 (CHANGE 6, 6 MAY 2021) AND NFPA 13 (2022 EDITION).
- CONTRACTOR IS RESPONSIBLE FOR ADVANCED REVIEW OF THE WORK REQUIRED IN THE DESIGN DOCUMENTS. IF DISCREPANCIES ARE FOUND IN THE DESIGN DOCUMENTS, THE CONTRACTING OFFICER SHALL BE IMMEDIATELY NOTIFIED TO REQUEST RESOLUTION. CONTRACTOR SHALL COORDINATE THE RESOLUTION OF DISCREPANCIES PRIOR TO STARTING WORK.
- COORDINATE SPRINKLER PIPE ROUTING AND SPRINKLER LOCATIONS WITH THE WORK OF ALL OTHER DISCIPLINES AND TRADES.
- PROVIDE FLEXIBLE COUPLINGS, FOUR-WAY BRACING, PIPE SLEEVES, SEISMIC BRACING AND ALL OTHER SEISMIC DESIGN REQUIREMENTS FOR SPRINKLER SYSTEM IN ACCORDANCE WITH UFC 3-600-01 AND NFPA 13.
- ROUTE MAIN DRAIN AND INSPECTOR'S TEST STATION DRAIN TO PENETRATION THROUGH BUILDING EXTERIOR LESS THAN 610 mm ABOVE FINISHED GRADE ONTO PAVEMENT OR A SPLASH BLOCK.
- PROVIDE AUXILIARY DRAINS FOR ALL TRAPPED PIPING.
- AUXILIARY DRAIN LINES SHALL BE PROVIDED WITH SIGNS AS REQUIRED BY NFPA 13 AND SHALL BE PIPED TO A BUILDING DRAIN OR TO THE BUILDING EXTERIOR.
- PROVIDE A TAMPER SWITCH FOR EACH OPERABLE VALVE ON FIRE PROTECTION PIPING, EXCLUDING DRAIN VALVES.
- ONLY NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) LISTED MATERIALS AND EQUIPMENT SHALL BE USED FOR CONSTRUCTION OF THE SPRINKLER SYSTEM.
- PROVIDE A MINIMUM CLEARANCE OF THREE FEET FOR ALL EQUIPMENT.
- A SET OF APPROVED PLANS SHALL BE MAINTAINED AT ALL TIMES ON THE JOB SITE.
- ALL VALVES SHALL HAVE A PERMANENTLY AFFIXED SIGN INDICATING VALVE FUNCTION AND NORMAL POSITION.
- A STOCK OF SIX SPARE SPRINKLERS OF EACH STYLE, TYPE, AND TEMPERATURE RATING, ALONG WITH A LISTED SPRINKLER WRENCH COMPATIBLE WITH THE SPRINKLER, SHALL BE LOCATED AT THE RISER PER NFPA 13.
- ALL NEW SPRINKLERS SHALL BE QUICK RESPONSE TYPE. PROVIDE SCHEDULE 40 BLACK STEEL PIPING FOR SIZES 2 INCHES OR LESS IN DIAMETER. PROVIDE NO LESS THAN SCHEDULE 10 BLACK STEEL PIPING FOR SIZES LARGER THAN 2 INCHES IN DIAMETER.
- FITTINGS THAT USE STEEL GRIPPING DEVICES THAT BITE INTO THE PIPE FACE PROHIBITED. STEEL PIPING WITH WALL THICKNESS LESS THAN SCHEDULE 40 MUST NOT BE THREADED.
- SYSTEM LAYOUT SHOWN INCLUDES RISER, FEED MAIN AND CROSS MAINS ONLY. CONTRACTOR IS RESPONSIBLE FOR COMPLETING LAYOUT INCLUDING BUT NOT LIMITED TO BRANCH LINE AND SPRINKLER LOCATIONS, HANGER LOCATIONS, AND SEISMIC BRACING.

SHEET KEYED NOTES

- 1 NEW 6" FIRE PROTECTION SUPPLY LINE.

PLAN LEGEND

- DOUBLE CHECK BACKFLOW PREVENTER
- FIRE DEPARTMENT CONNECTION
- 6" SPRINKLER RISER
- FOUR-WAY SEISMIC RISER BRACE
- LIGHT HAZARD COVERAGE AREA
DESIGN: (0.1 GPM/FT²)/1500 FT²
K-FACTOR: 5.6
- ORDINARY HAZARD COVERAGE AREA
DESIGN: (0.2 GPM/FT²)/2500 FT²
K-FACTOR: 8.0
- EXTRA HAZARD COVERAGE AREA
DESIGN: (0.3 GPM/FT²)/2500 FT²
K-FACTOR: 11.2

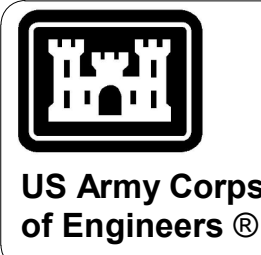
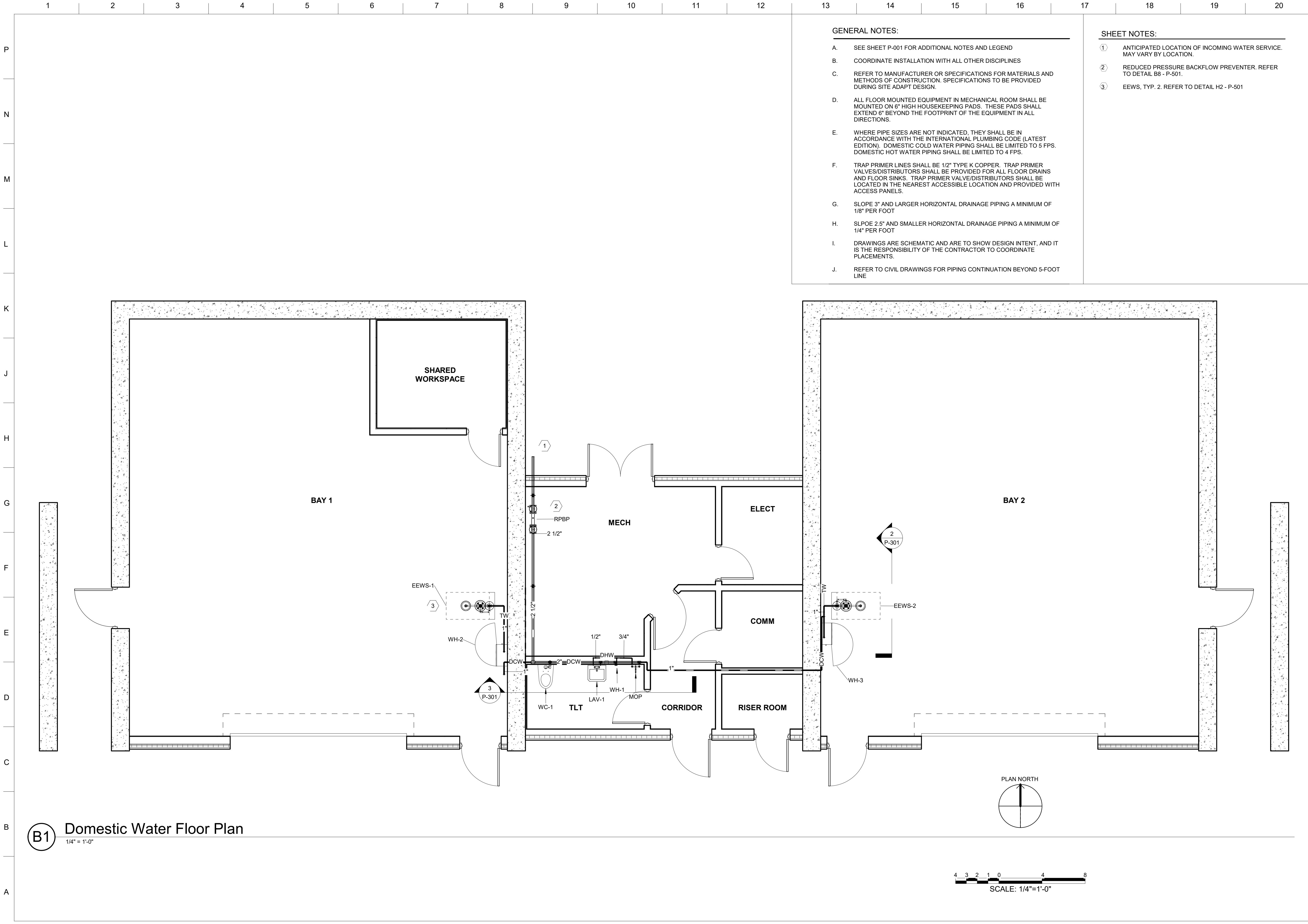


MARK	DESCRIPTION	DATE

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CHECKED BY: WLL	CONTRACT NO.:
SUBMITTED BY: SIZE:	ANSI D
US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER HUNTSVILLE REDSTONE GATEWAY (RG300) REDSTONE ARSENAL, AL 35808	

AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN	FIRE PROTECTION PLAN
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SHEET ID
FP-101



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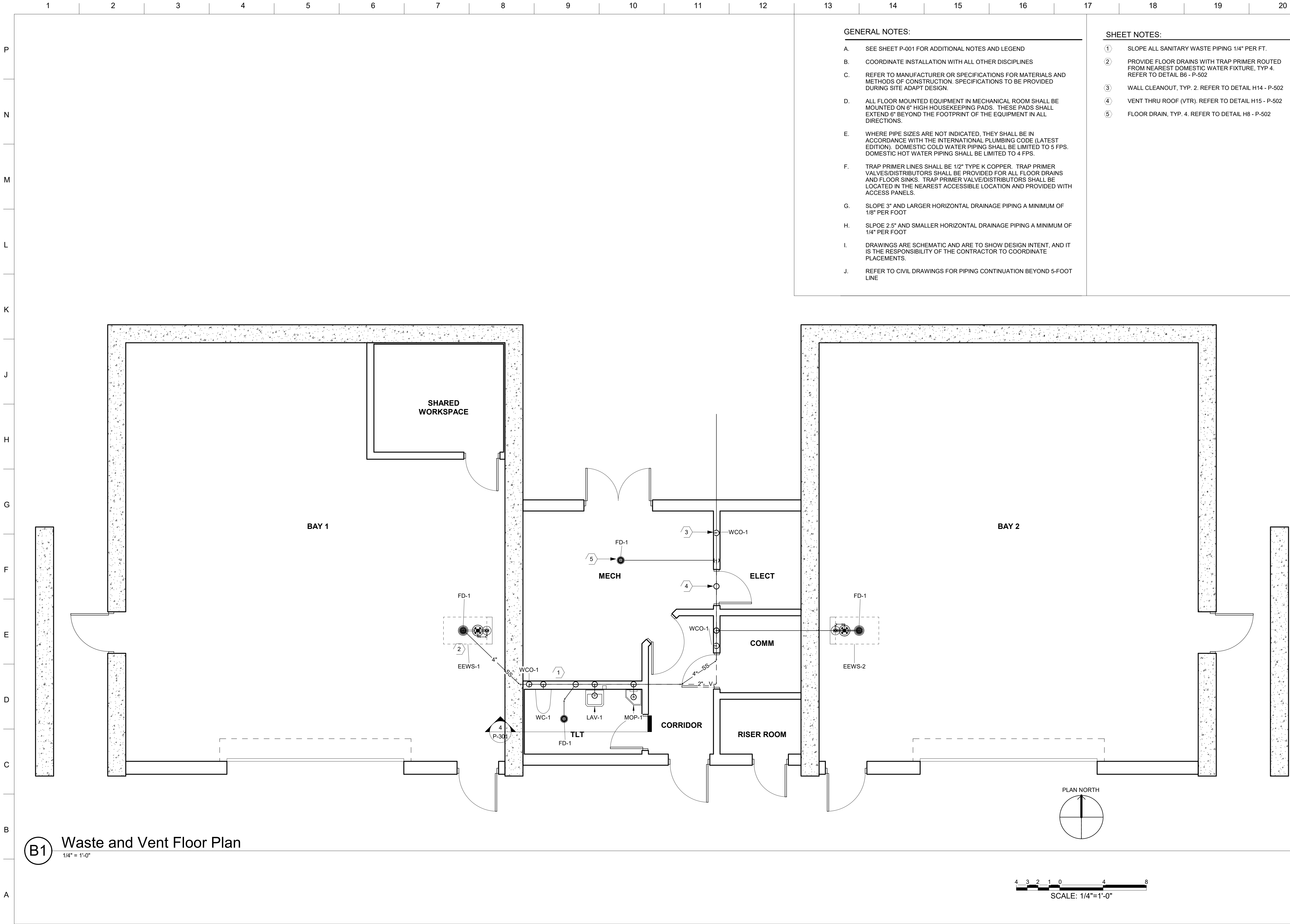
US ARMY CORPS OF ENGINEERS
ENGINEERING AND SUPPORT CENTER
HUNTSVILLE
REDSTONE GATEWAY (RG300)
REDSTONE ARSENAL, AL 38808

AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

PLUMBING FLOOR PLAN - DOMESTIC WATER

SHEET ID

P-101



- GENERAL NOTES:
- A. SEE SHEET P-001 FOR ADDITIONAL NOTES AND LEGEND
- B. COORDINATE INSTALLATION WITH ALL OTHER DISCIPLINES
- C. REFER TO MANUFACTURER OR SPECIFICATIONS FOR MATERIALS AND METHODS OF CONSTRUCTION. SPECIFICATIONS TO BE PROVIDED DURING SITE ADAPT DESIGN.
- D. ALL FLOOR MOUNTED EQUIPMENT IN MECHANICAL ROOM SHALL BE MOUNTED ON 6" HIGH HOUSEKEEPING PADS. THESE PADS SHALL EXTEND 6" BEYOND THE FOOTPRINT OF THE EQUIPMENT IN ALL DIRECTIONS.
- E. WHERE PIPE SIZES ARE NOT INDICATED, THEY SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE (LATEST EDITION). DOMESTIC COLD WATER PIPING SHALL BE LIMITED TO 5 FPS. DOMESTIC HOT WATER PIPING SHALL BE LIMITED TO 4 FPS.
- F. TRAP PRIMER LINES SHALL BE 1/2" TYPE K COPPER. TRAP PRIMER VALVES/DISTRIBUTORS SHALL BE PROVIDED FOR ALL FLOOR DRAINS AND FLOOR SINKS. TRAP PRIMER VALVE/DISTRIBUTORS SHALL BE LOCATED IN THE NEAREST ACCESSIBLE LOCATION AND PROVIDED WITH ACCESS PANELS.
- G. SLOPE 3" AND LARGER HORIZONTAL DRAINAGE PIPING A MINIMUM OF 1/8" PER FOOT
- H. SLOPE 2.5" AND SMALLER HORIZONTAL DRAINAGE PIPING A MINIMUM OF 1/4" PER FOOT
- I. DRAWINGS ARE SCHEMATIC AND ARE TO SHOW DESIGN INTENT, AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE PLACEMENTS.
- J. REFER TO CIVIL DRAWINGS FOR PIPING CONTINUATION BEYOND 5-FOOT LINE

- SHEET NOTES:
- ① SLOPE ALL SANITARY WASTE PIPING 1/4" PER FT.
- ② PROVIDE FLOOR DRAINS WITH TRAP PRIMER ROUTED FROM NEAREST DOMESTIC WATER FIXTURE, TYP 4. REFER TO DETAIL B6 - P-502
- ③ WALL CLEANOUT, TYP. 2. REFER TO DETAIL H14 - P-502
- ④ VENT THRU ROOF (VTR). REFER TO DETAIL H15 - P-502
- ⑤ FLOOR DRAIN, TYP. 4. REFER TO DETAIL H8 - P-502



MARK	DESCRIPTION	DATE

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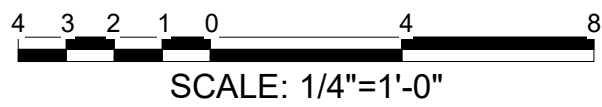
US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER HUNTSVILLE REDSTONE GATEWAY (RG300) REDSTONE ARSENAL, AL 38808	
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MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

PLUMBING FLOOR PLAN - WASTE AND VENT

SHEET ID

P-102



A. SEE SHEET P-001 FOR ADDITIONAL NOTES AND LEGEND

B. COORDINATE INSTALLATION WITH ALL OTHER DISCIPLINES

C. REFER TO MANUFACTURER OR SPECIFICATIONS FOR MATERIALS AND METHODS OF CONSTRUCTION. SPECIFICATIONS TO BE PROVIDED DURING SITE ADAPT DESIGN.

D. ALL FLOOR MOUNTED EQUIPMENT IN MECHANICAL ROOM SHALL BE MOUNTED ON 6" HIGH HOUSEKEEPING PADS. THESE PADS SHALL EXTEND 6" BEYOND THE FOOTPRINT OF THE EQUIPMENT IN ALL DIRECTIONS.

E. WHERE PIPE SIZES ARE NOT INDICATED, THEY SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE (LATEST EDITION). DOMESTIC COLD WATER PIPING SHALL BE LIMITED TO 5 FPS. DOMESTIC HOT WATER PIPING SHALL BE LIMITED TO 4 FPS.

F. TRAP PRIMER LINES SHALL BE 1/2" TYPE K COPPER. TRAP PRIMER VALVES/DISTRIBUTORS SHALL BE PROVIDED FOR ALL FLOOR DRAINS AND FLOOR SINKS. TRAP PRIMER VALVE/DISTRIBUTORS SHALL BE LOCATED IN THE NEAREST ACCESSIBLE LOCATION AND PROVIDED WITH ACCESS PANELS.

G. SLOPE 3" AND LARGER HORIZONTAL DRAINAGE PIPING A MINIMUM OF 1/8" PER FOOT

H. SLOPE 2.5" AND SMALLER HORIZONTAL DRAINAGE PIPING A MINIMUM OF 1/4" PER FOOT

I. DRAWINGS ARE SCHEMATIC AND ARE TO SHOW DESIGN INTENT, AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE PLACEMENTS.

J. REFER TO CIVIL DRAWINGS FOR PIPING CONTINUATION BEYOND 5-FOOT LINE

- ① LOW PRESSURE COMPRESSED AIR DROP, TYP. 2. REFER TO DETAIL B2 - P-502.
- ② VERTICAL AIR COMPRESSOR. REFER TO DETAIL H2 - P-502.
- ③ HIGH PRESSURE COMPRESSED AIR DROP, TYP. 2. FINAL LOCATION AND HOOKUPS TO BE DETERMINED DURING SITE ADAPTATION DESIGN EFFORT
- ④ ROUTE CONDENSATE TO MECHANICAL ROOM FLOOR DRAIN

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US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER 10000 REDSTONE GATEWAY (RG3000) REDSTONE ARSENAL, AL. 35808	DESIGNED BY:	ISSUE DATE:
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PLUMBING FLOOR PLAN - COMPRESSED AIR

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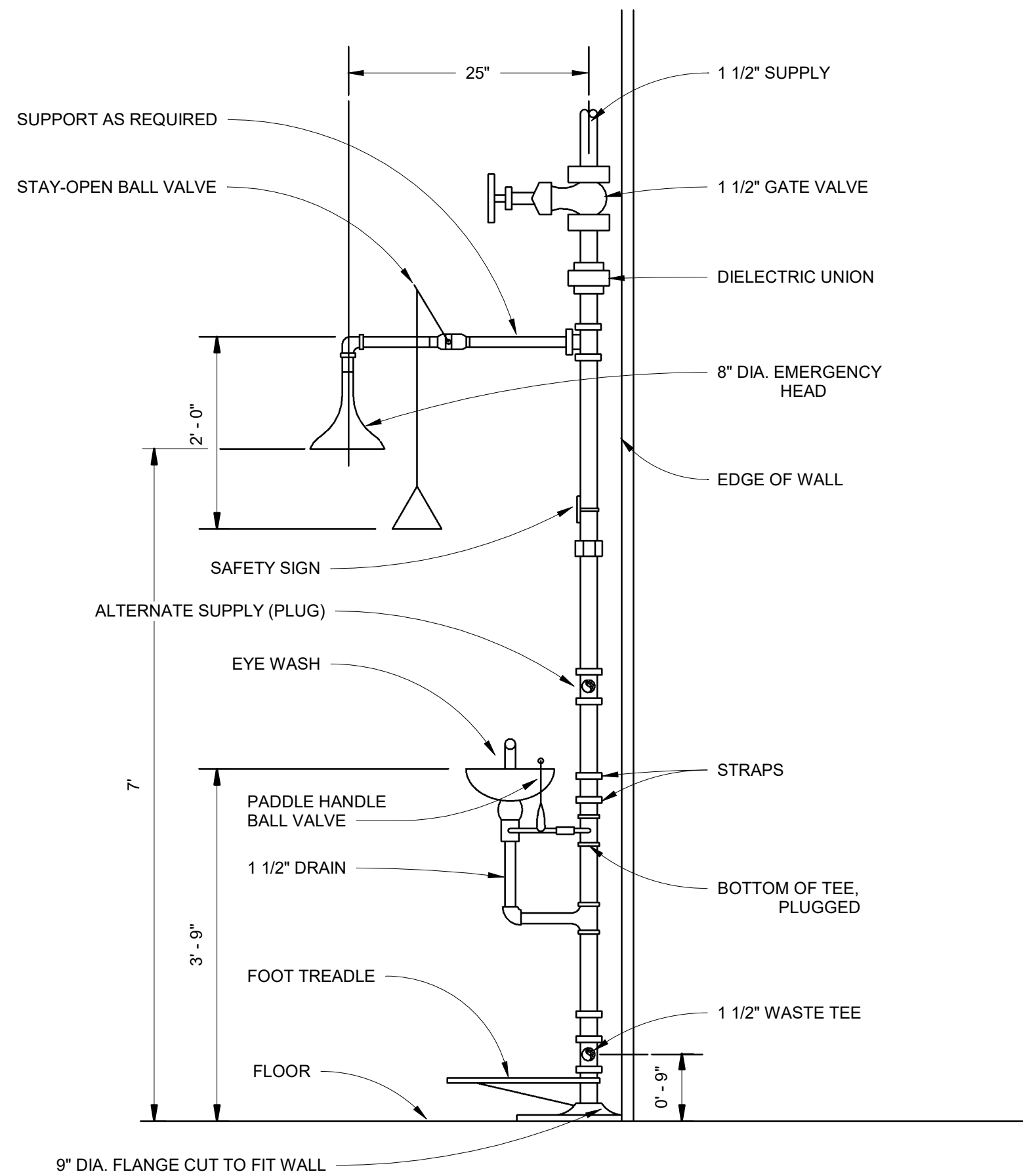
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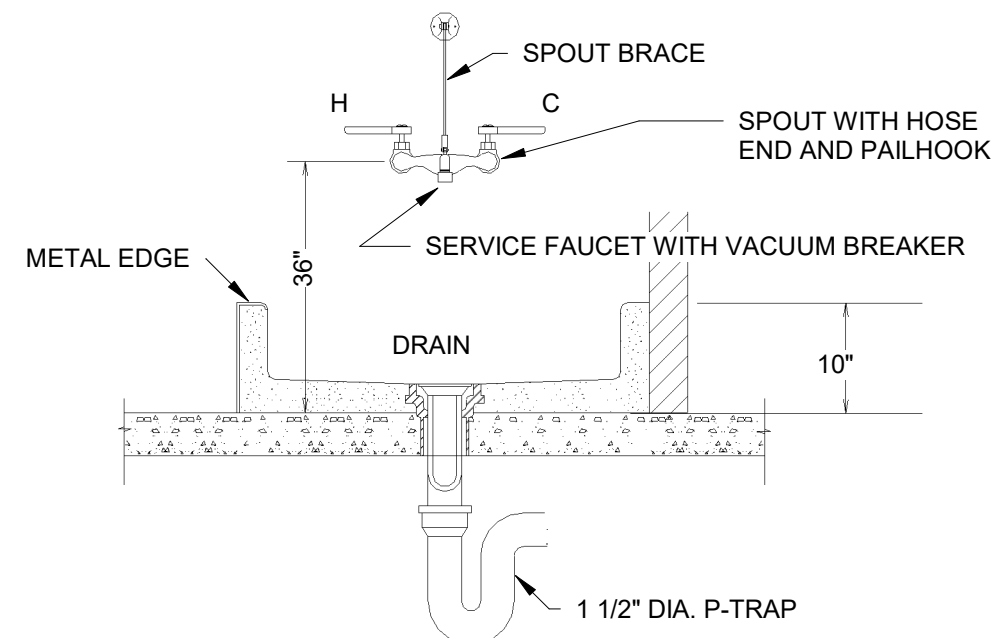
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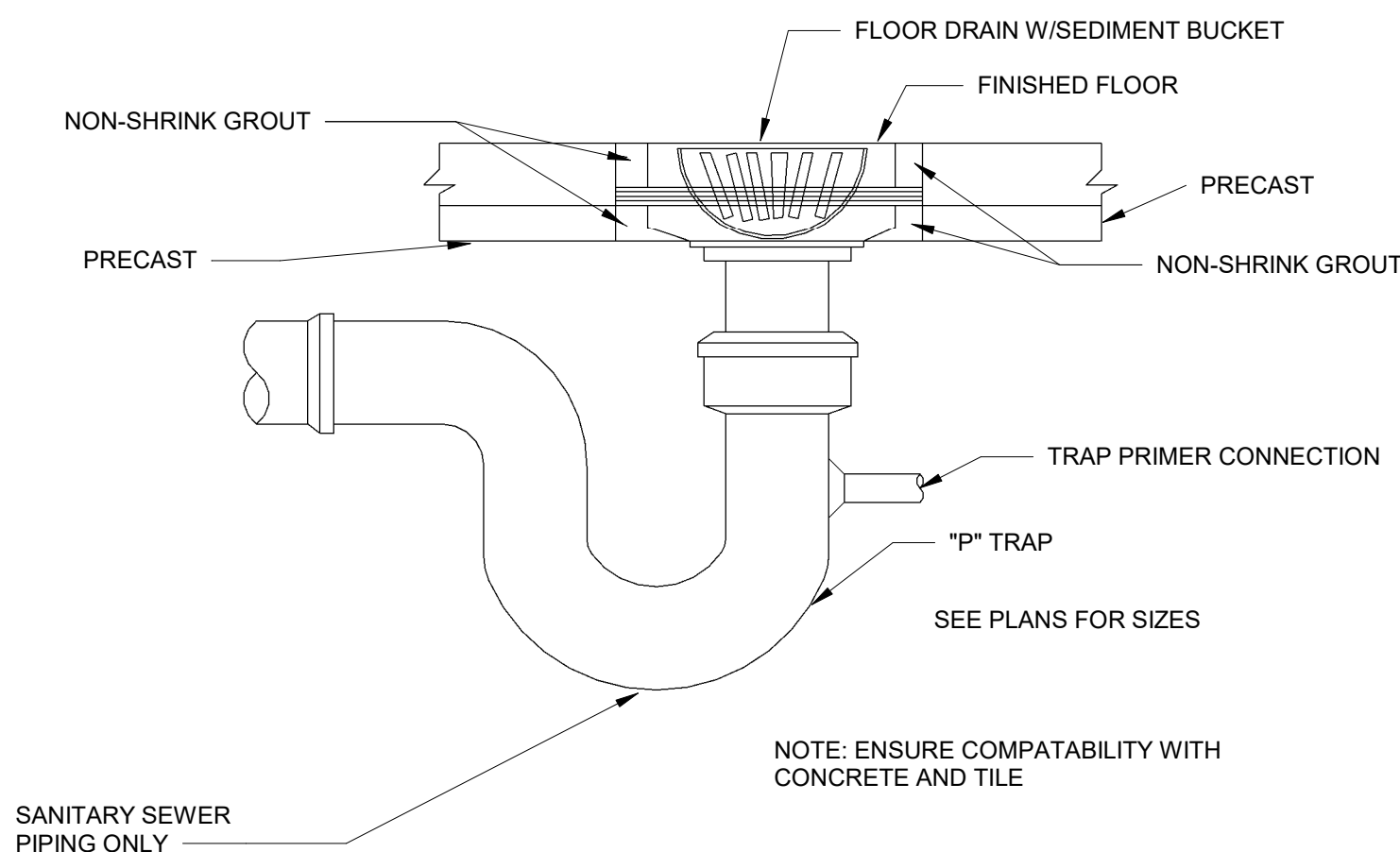
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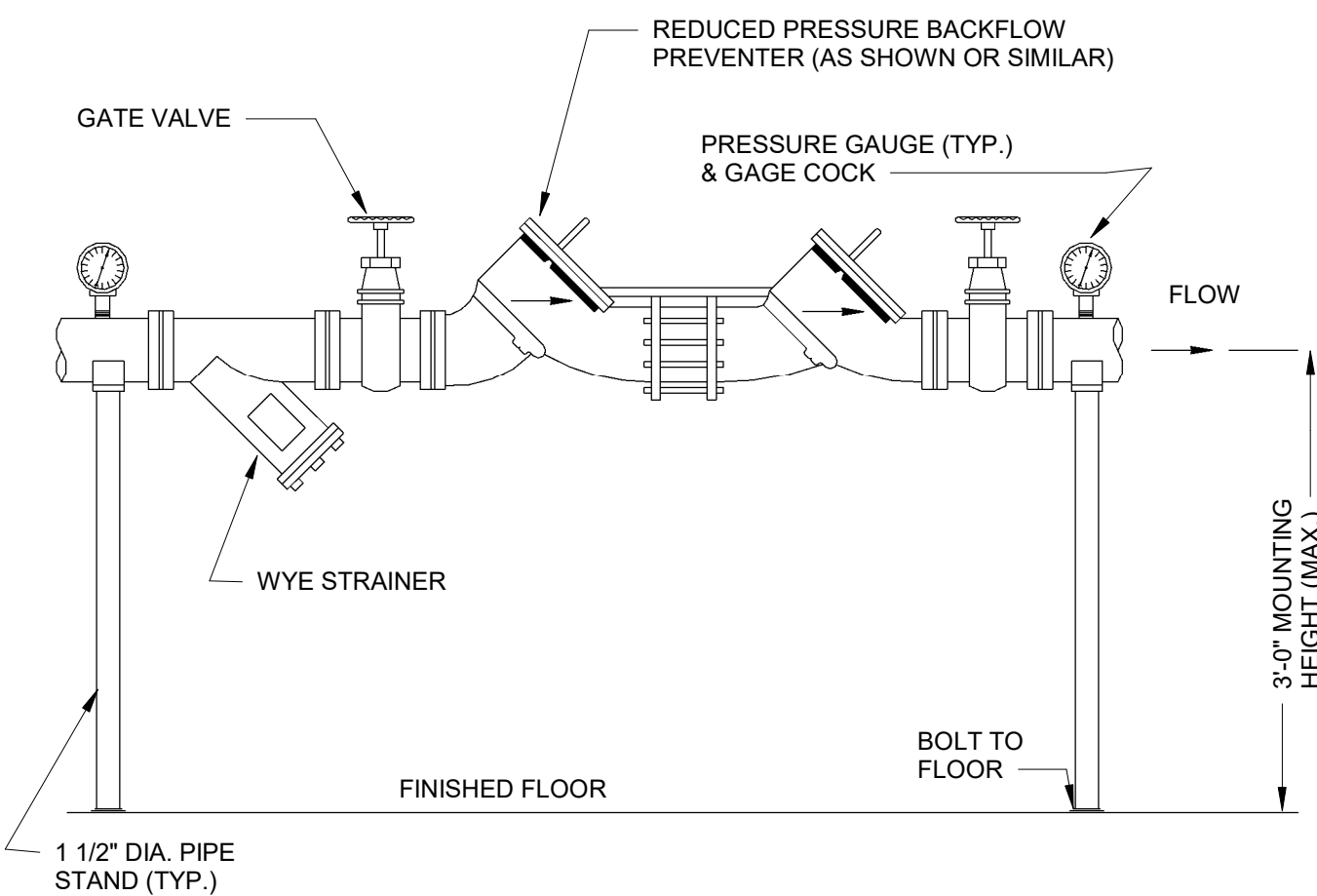
H2 SAFETY SHOWER - EYE WASH DETAIL



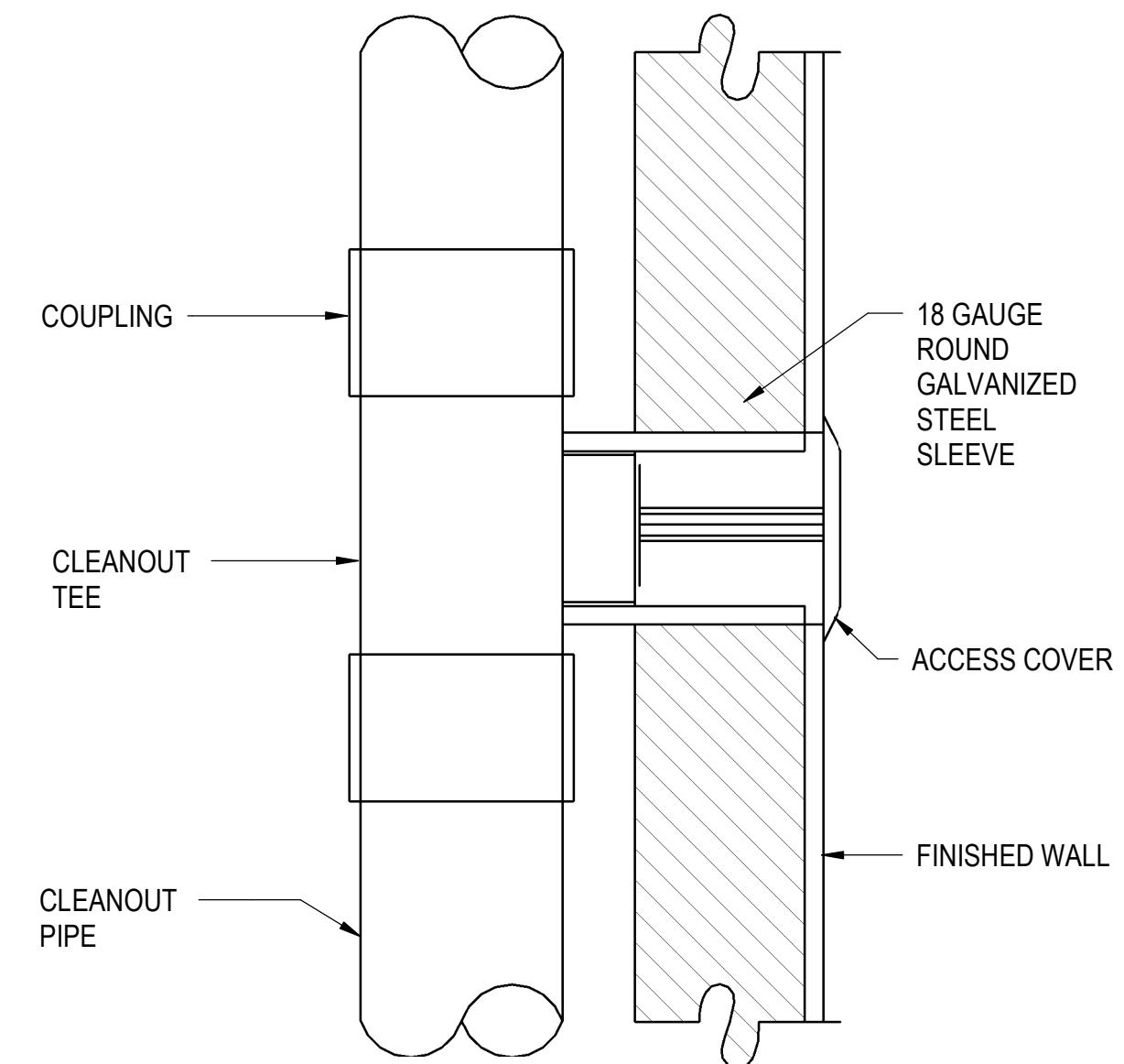
B2 MOP SINK DETAIL



(H8) FLOOR DRAIN WITH TRAP PRIMER
NTS



B8 REDUCED PRESSURE BACKFLOW PREVENTER



H14 WALL CLEANOUT



**S Army Corps
f Engineers ®**

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ENGINEERING SUPPORT CENTER ENGINEERING DIVISION		SUBMITTED BY:		DATE: MM/DD/YYYY	10/23/2024
REDSTONE GATEWAY (RG300)	JBG	CHECKED BY:	JBG	SOLICITATION NO.:	
REDSTONE ARSENAL AL 39808	RAF			CONTRACT NO.:	

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PLUMBING DETAILS

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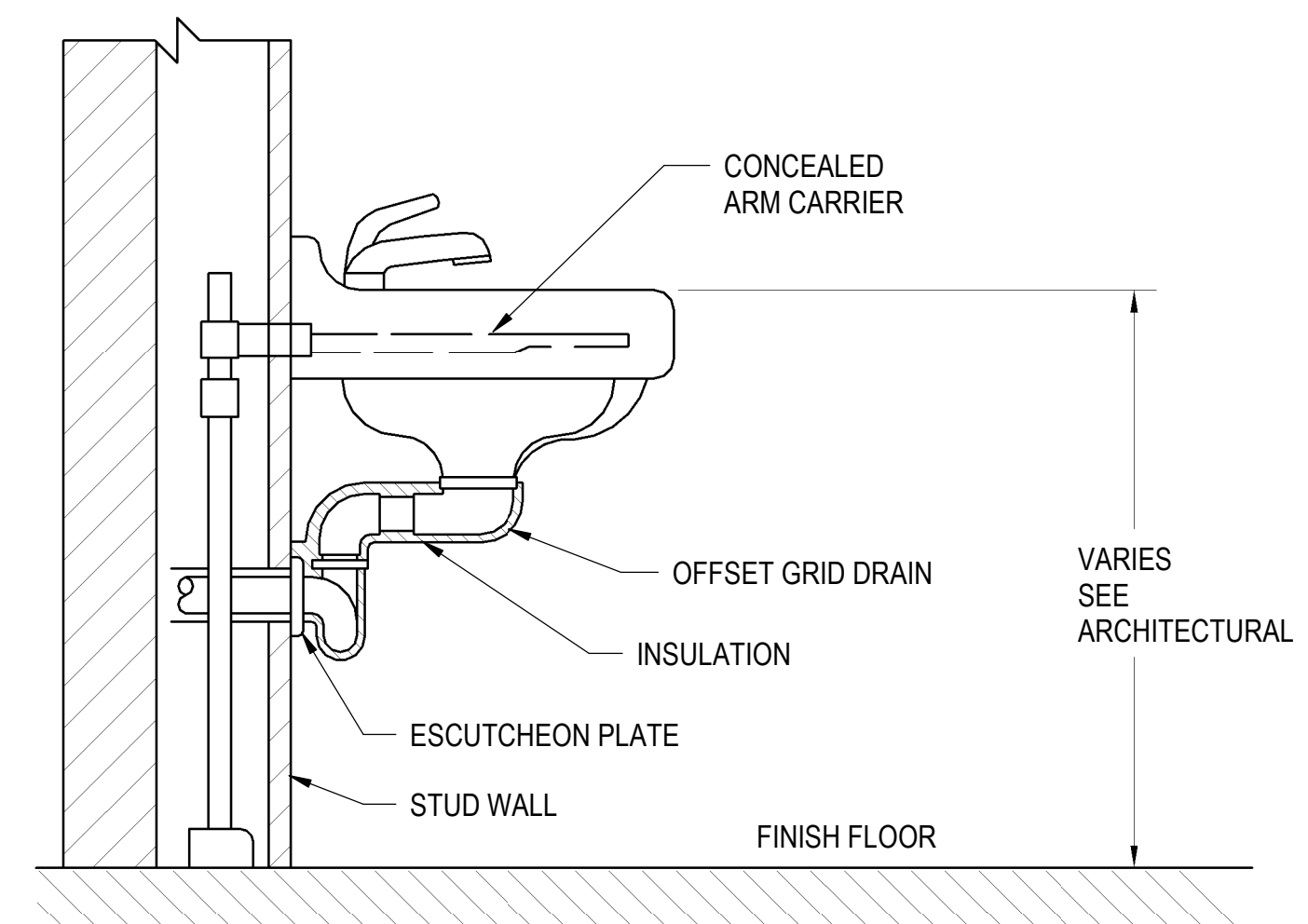
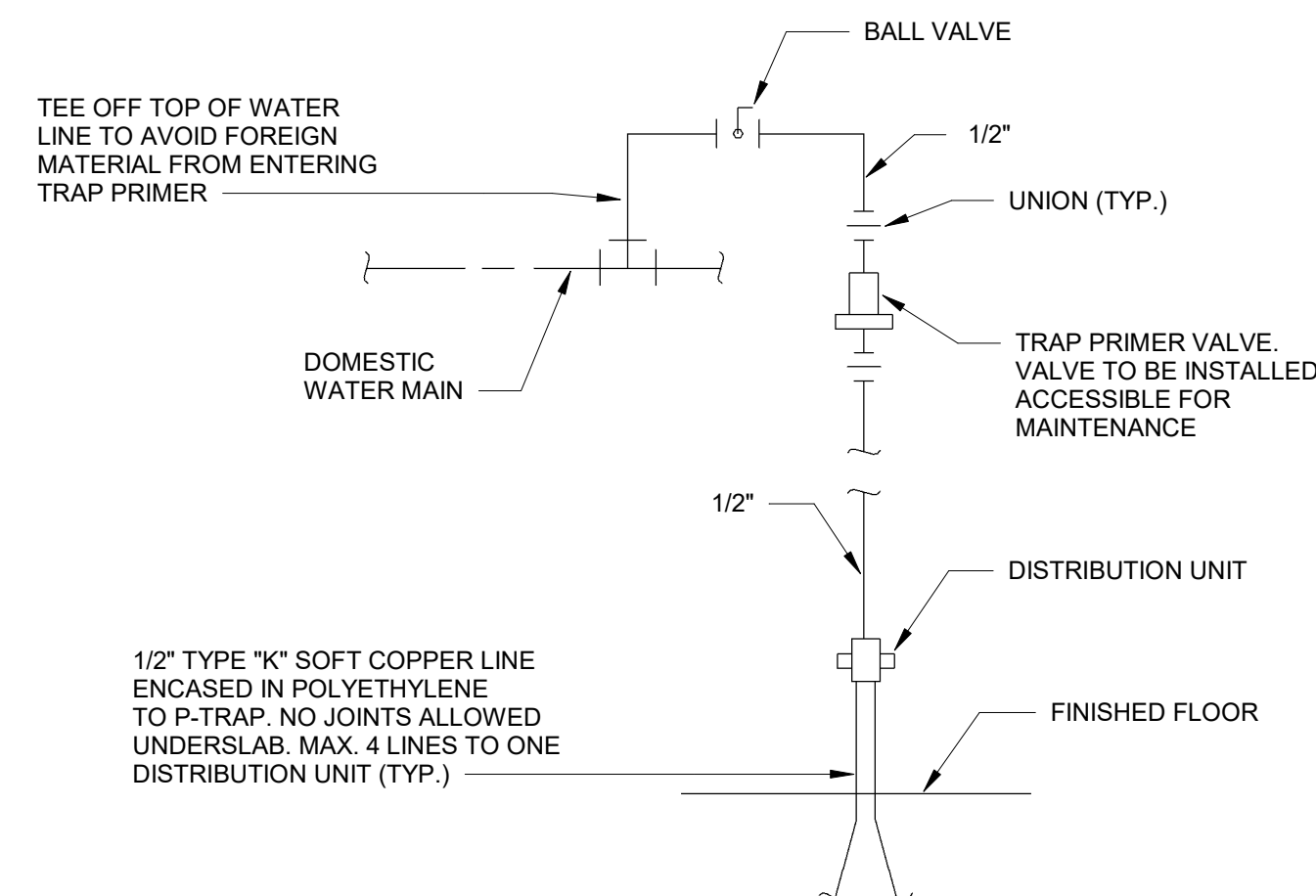
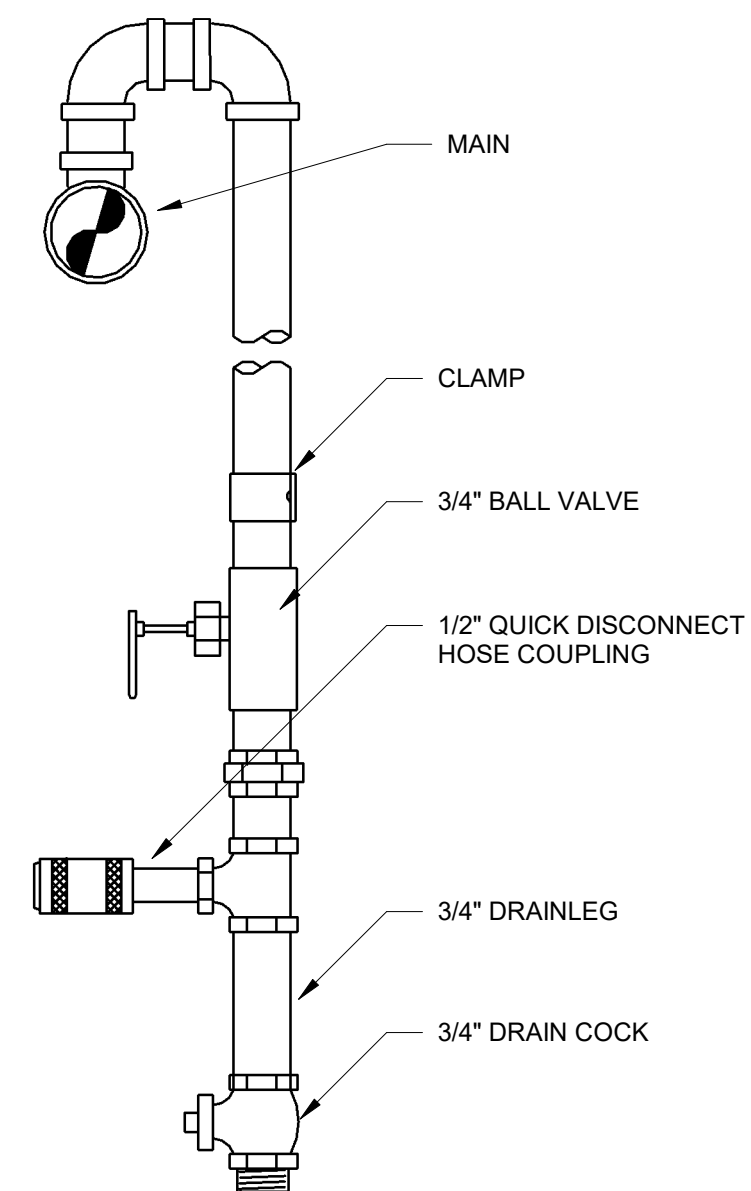
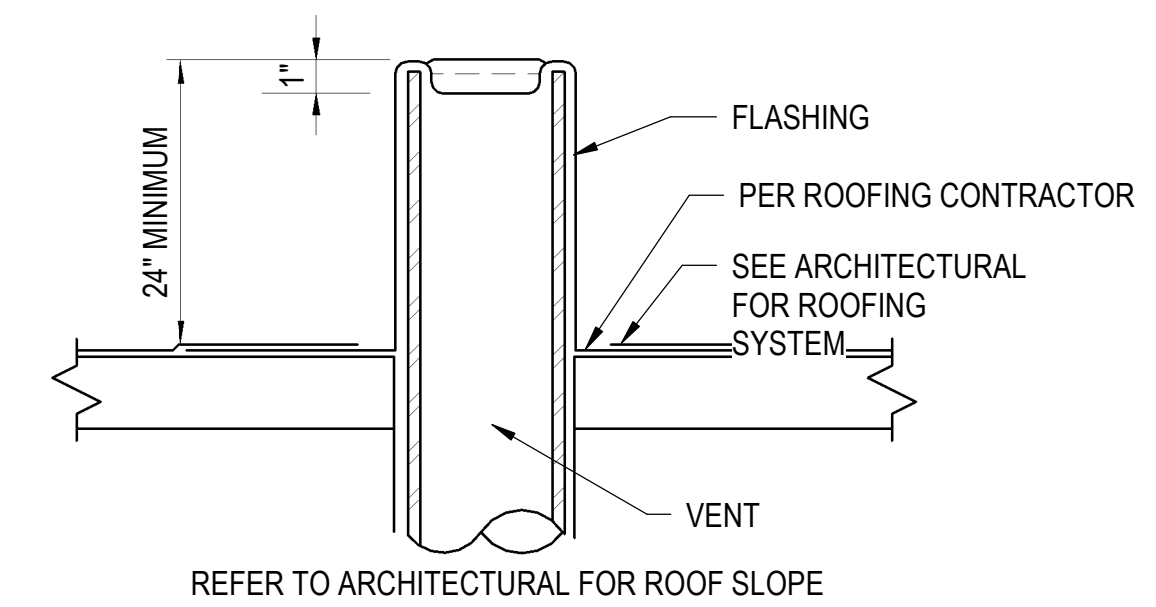
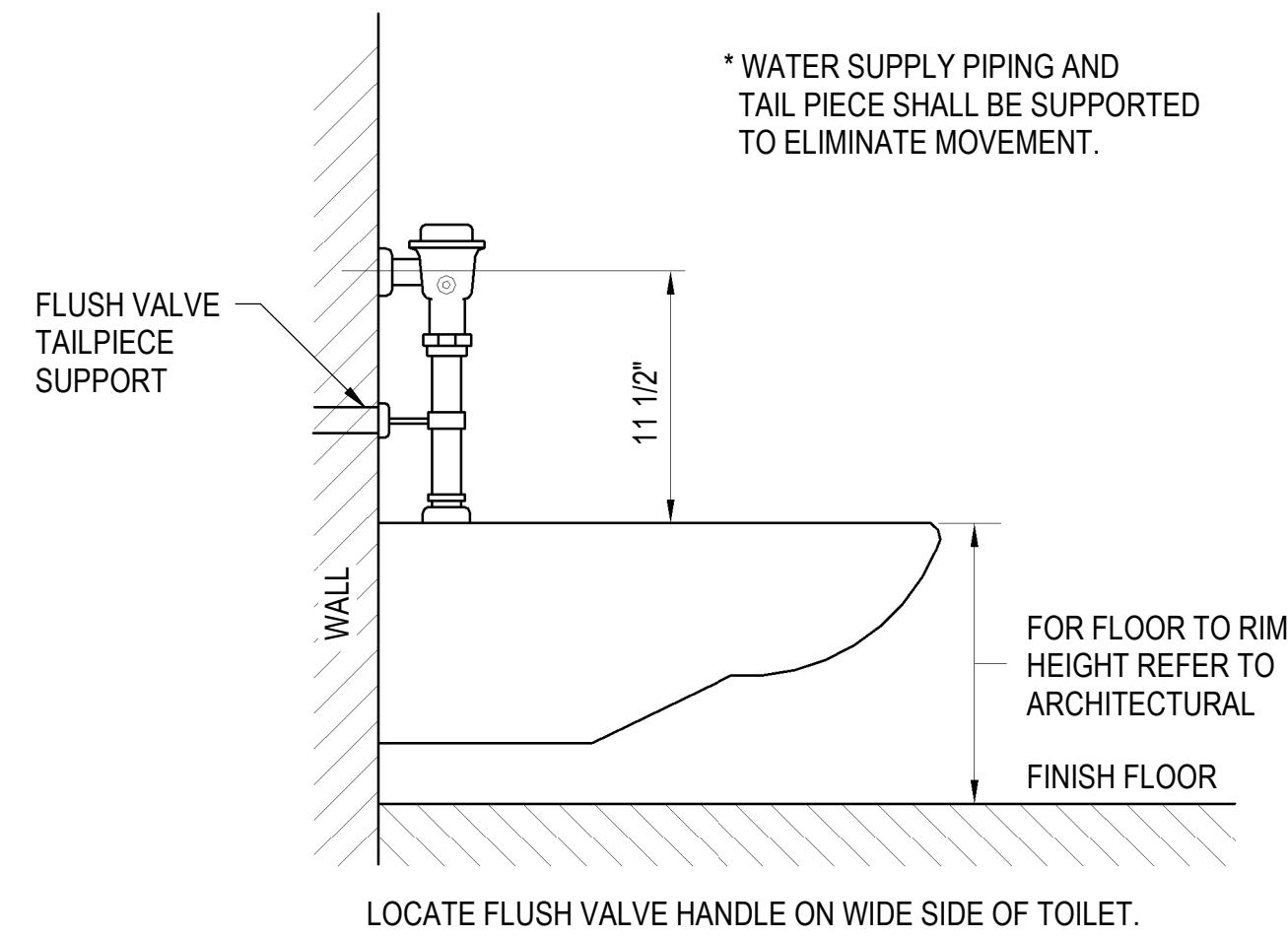
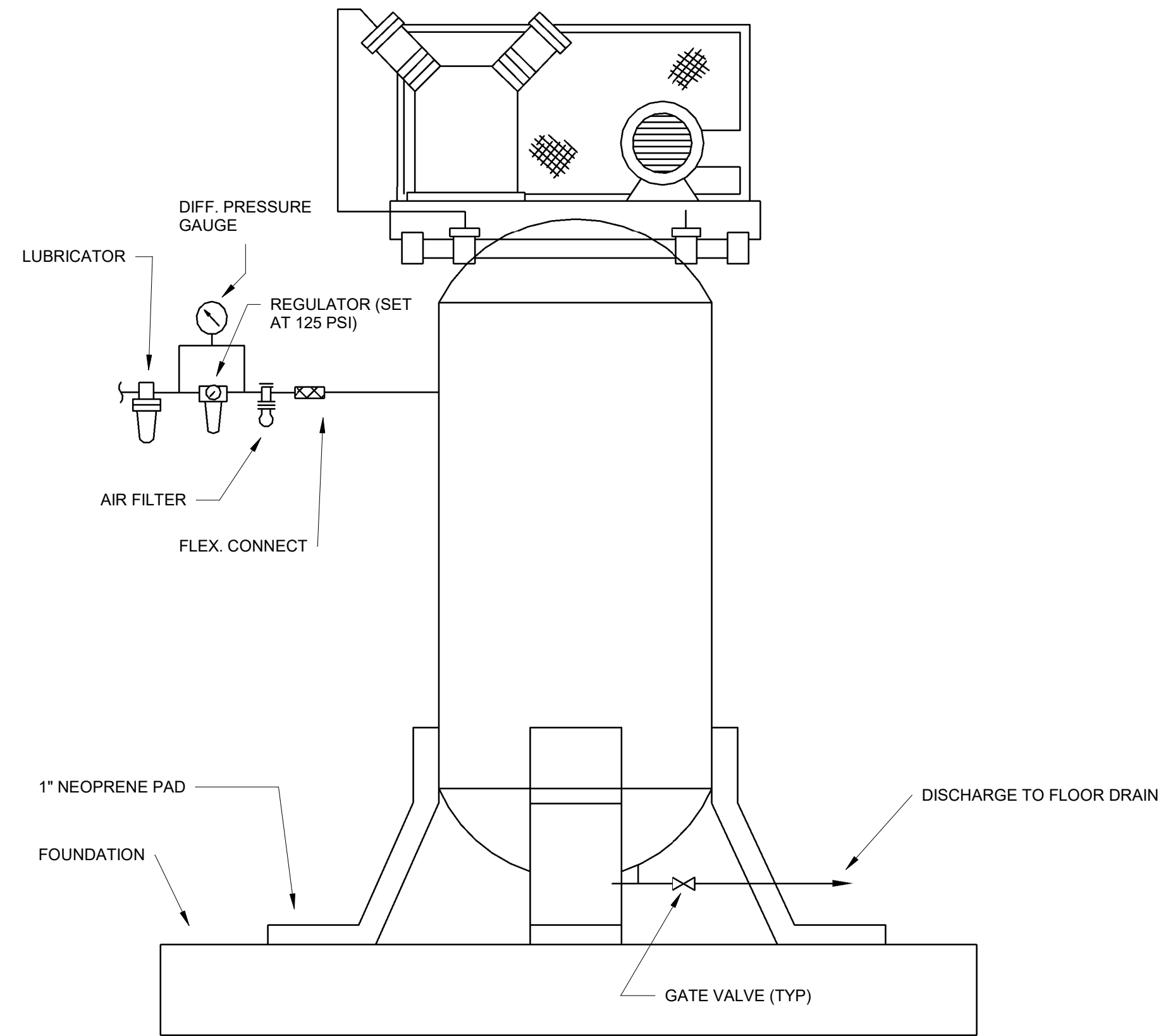
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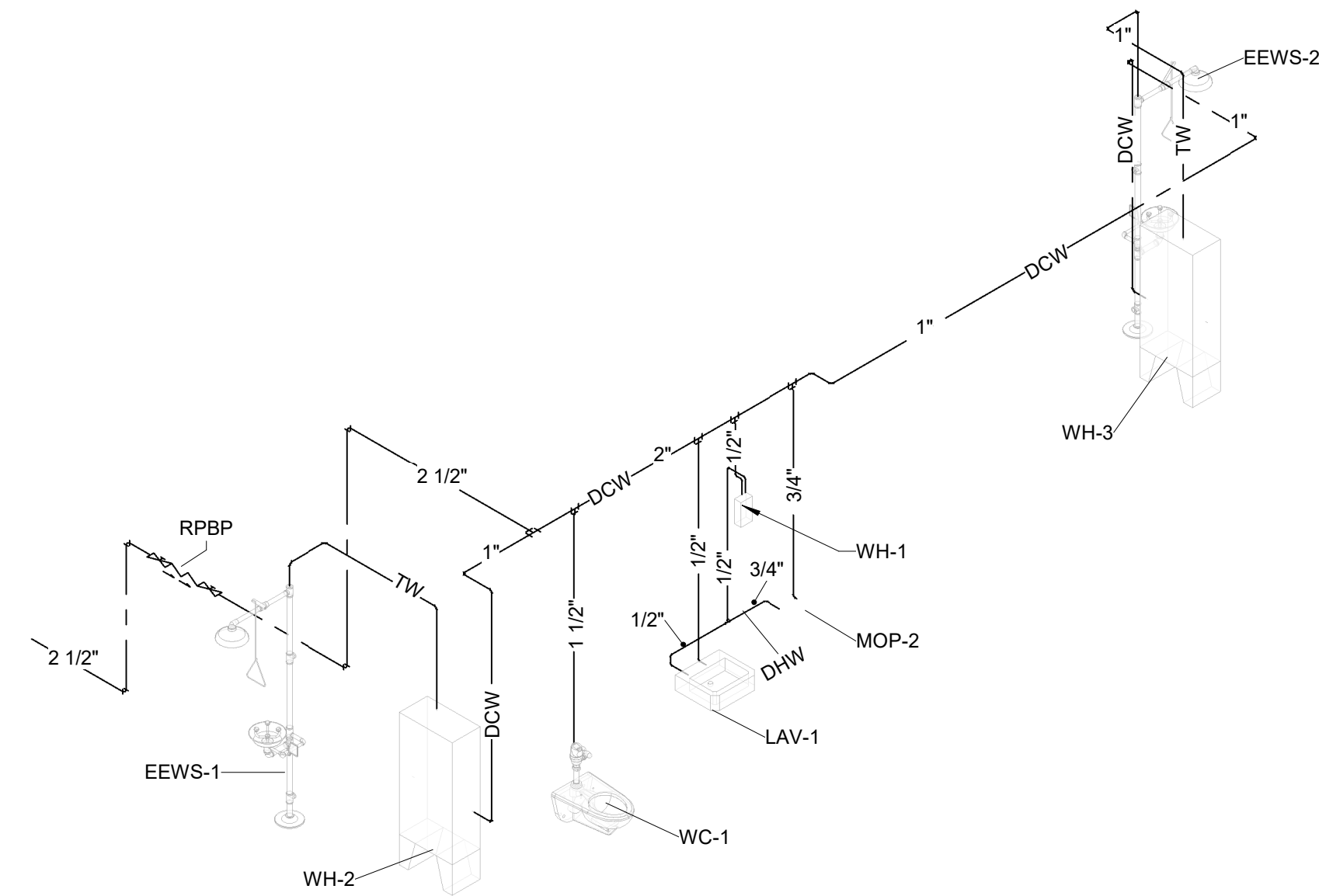
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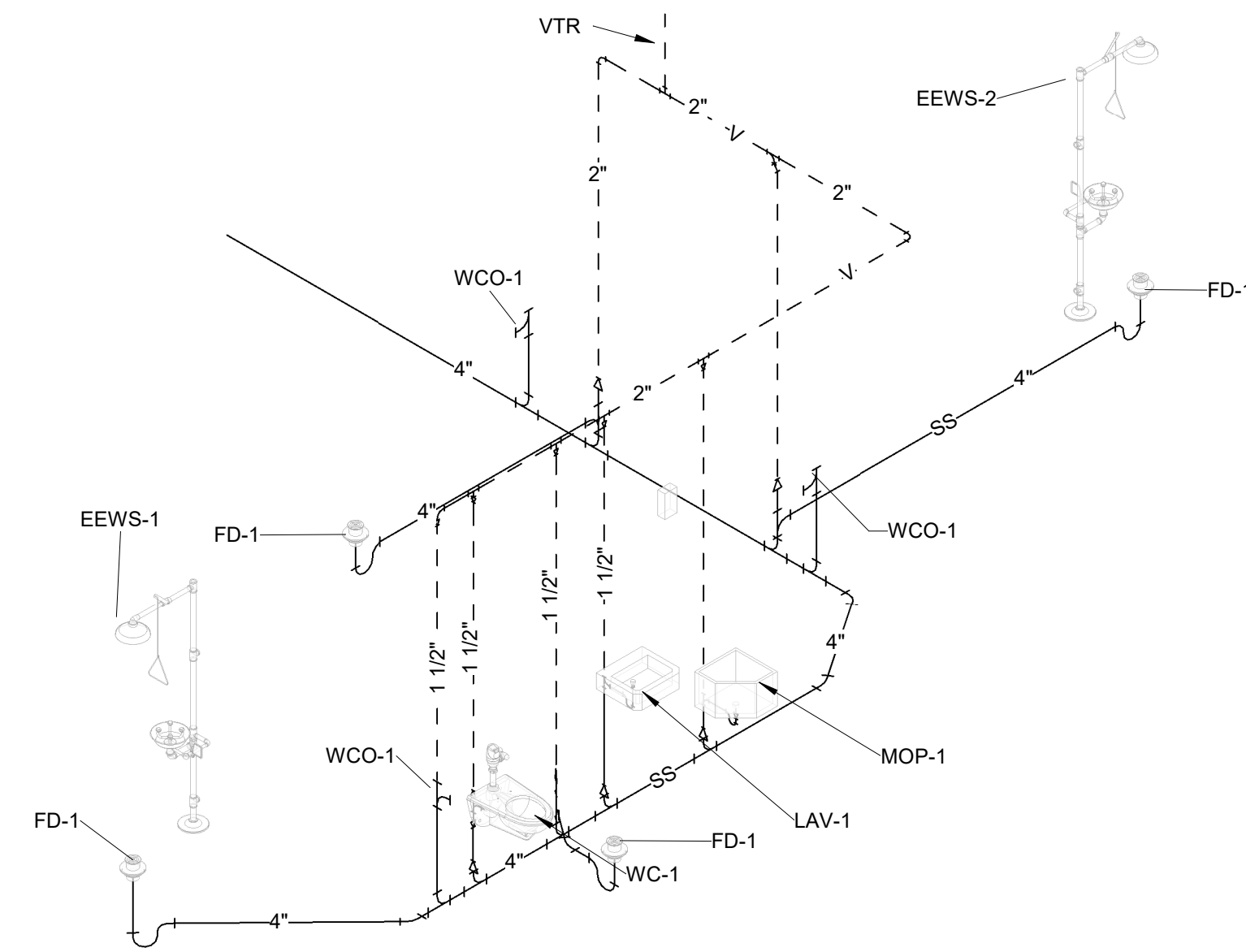
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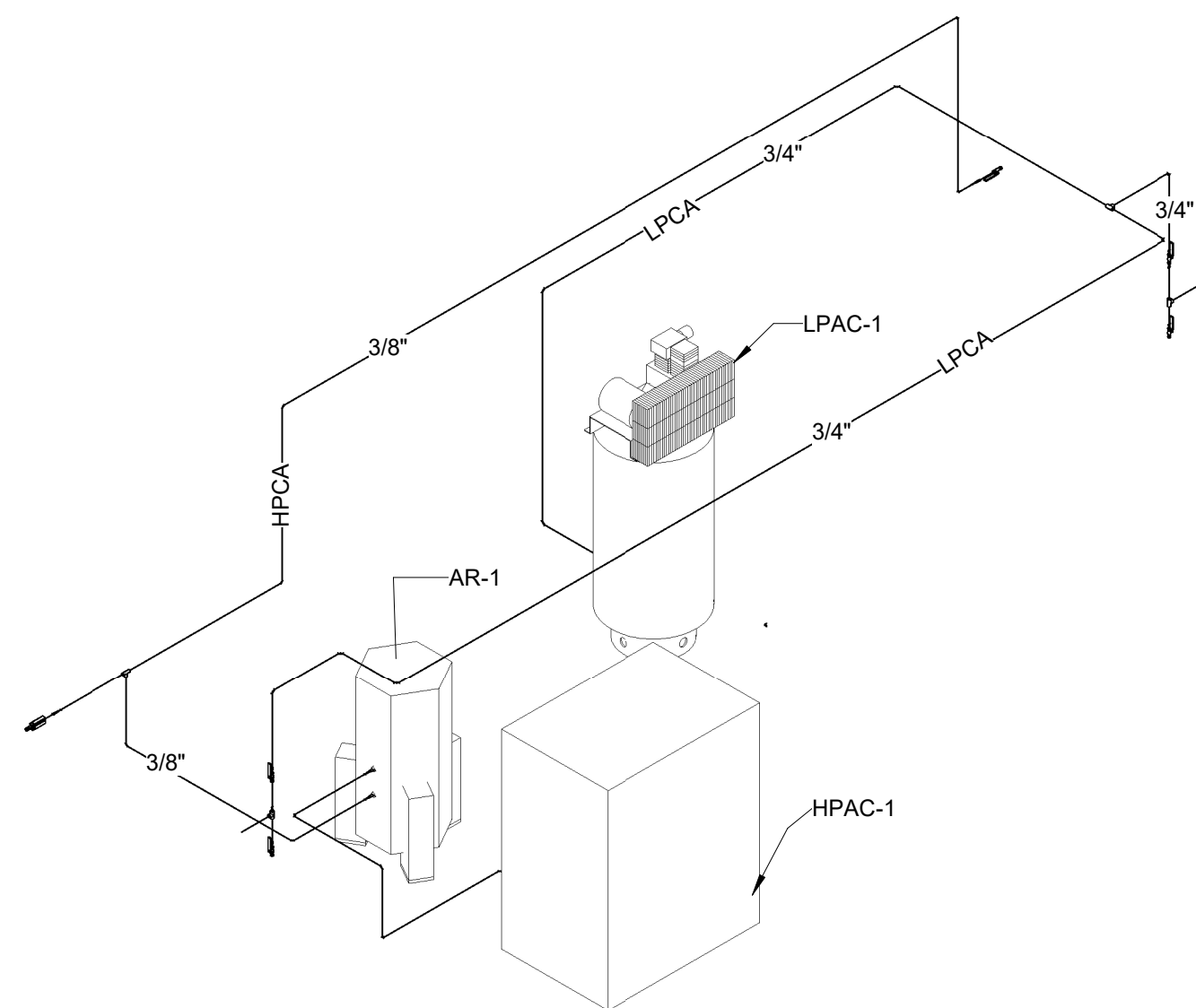
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P-502



H2 HOT AND COLD WATER RISER DIAGRAM



H11 WASTE AND VENT RISER DIAGRAM



(B7) COMPRESSED AIR RISER DIAGRAM
NTS



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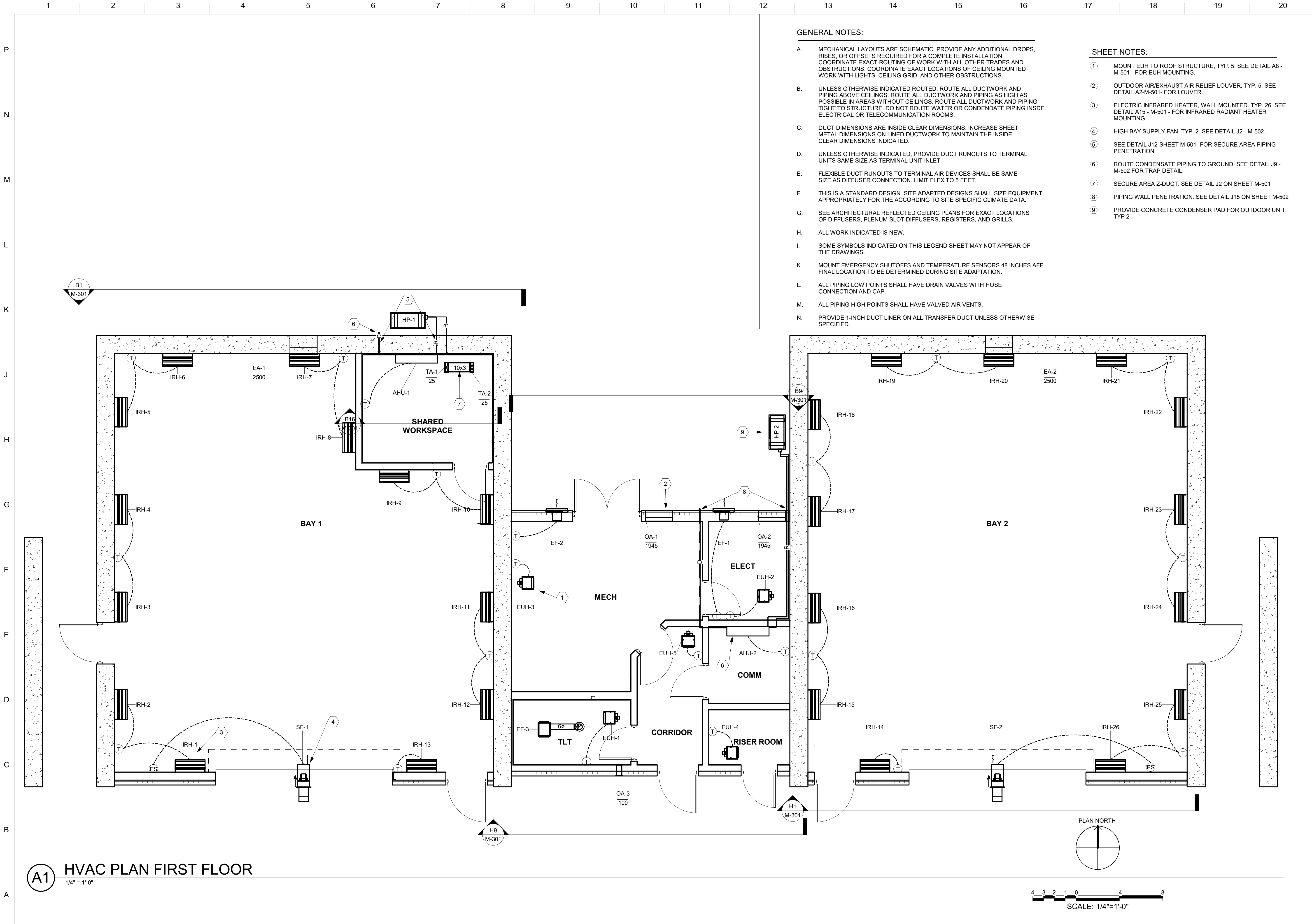
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PLUMBING RISER DIAGRAMS

SHEET ID

P-901



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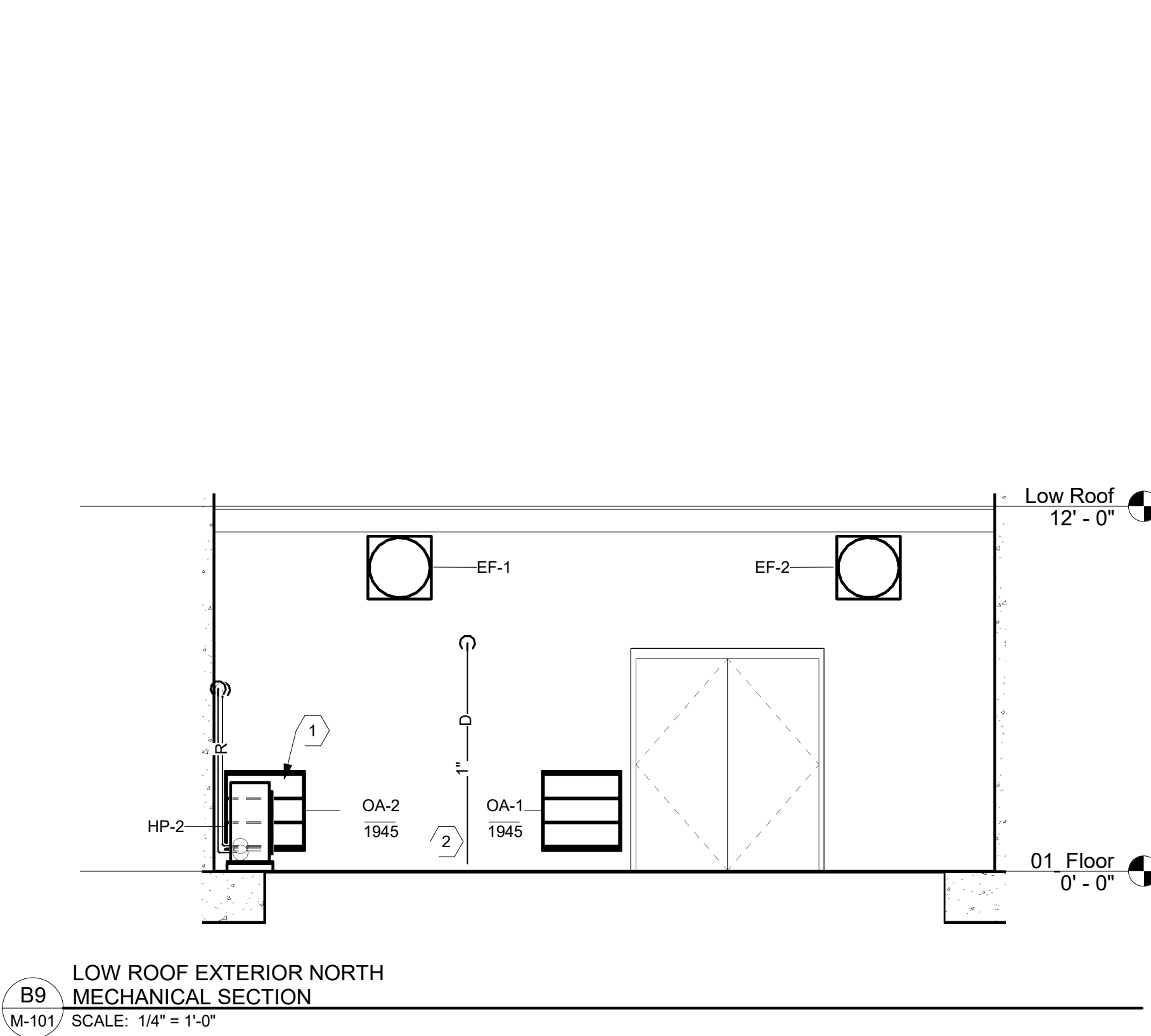
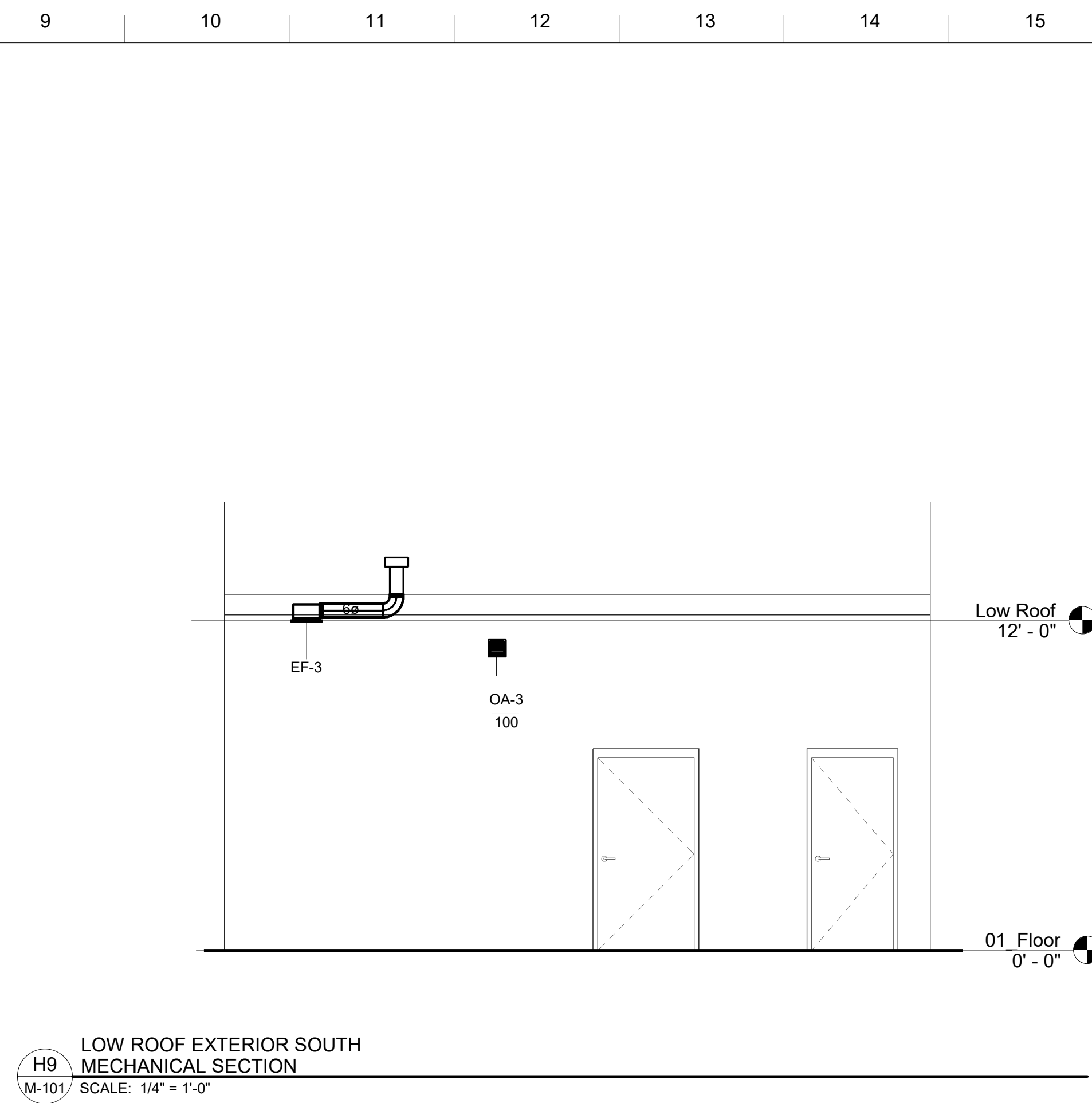
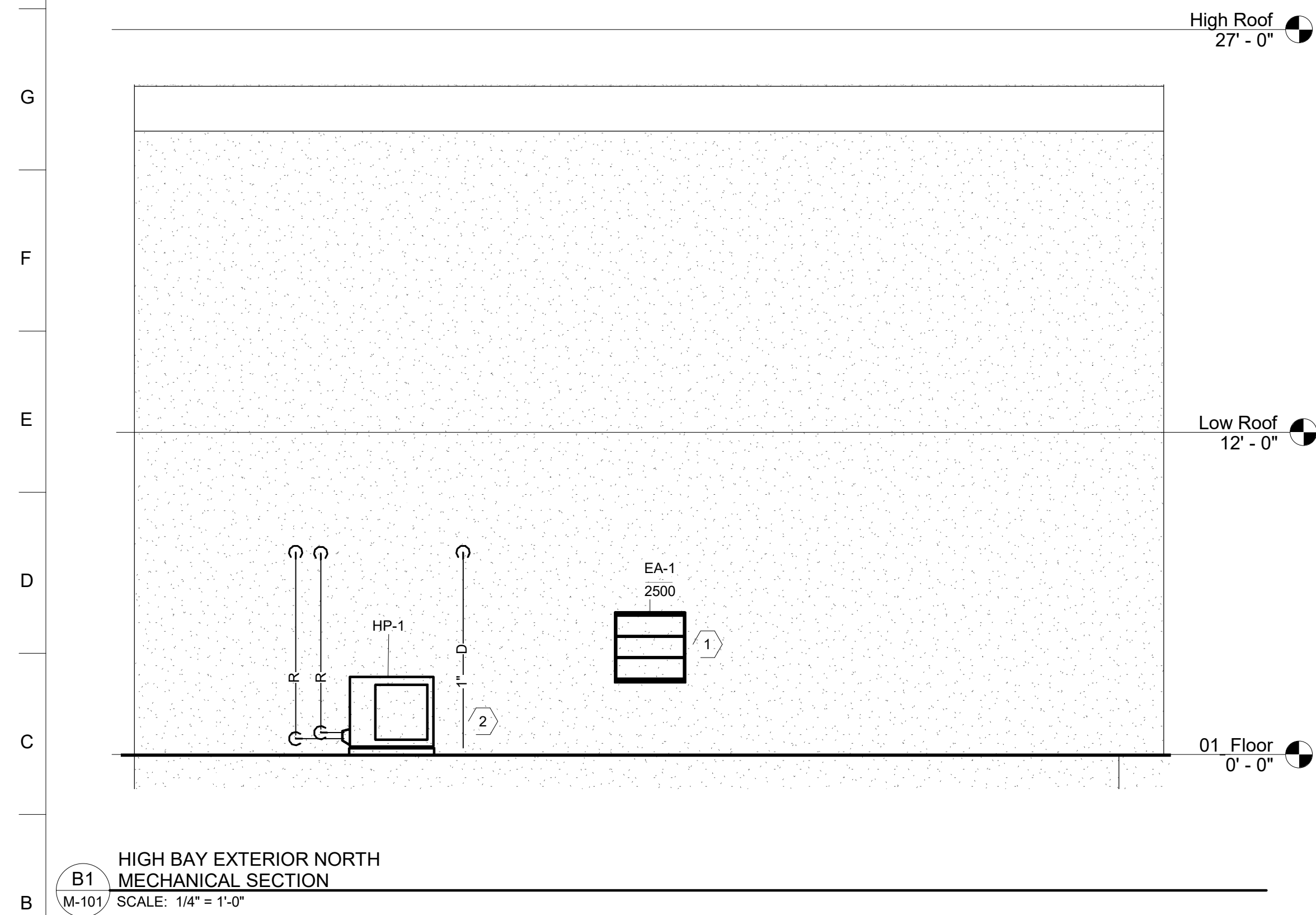
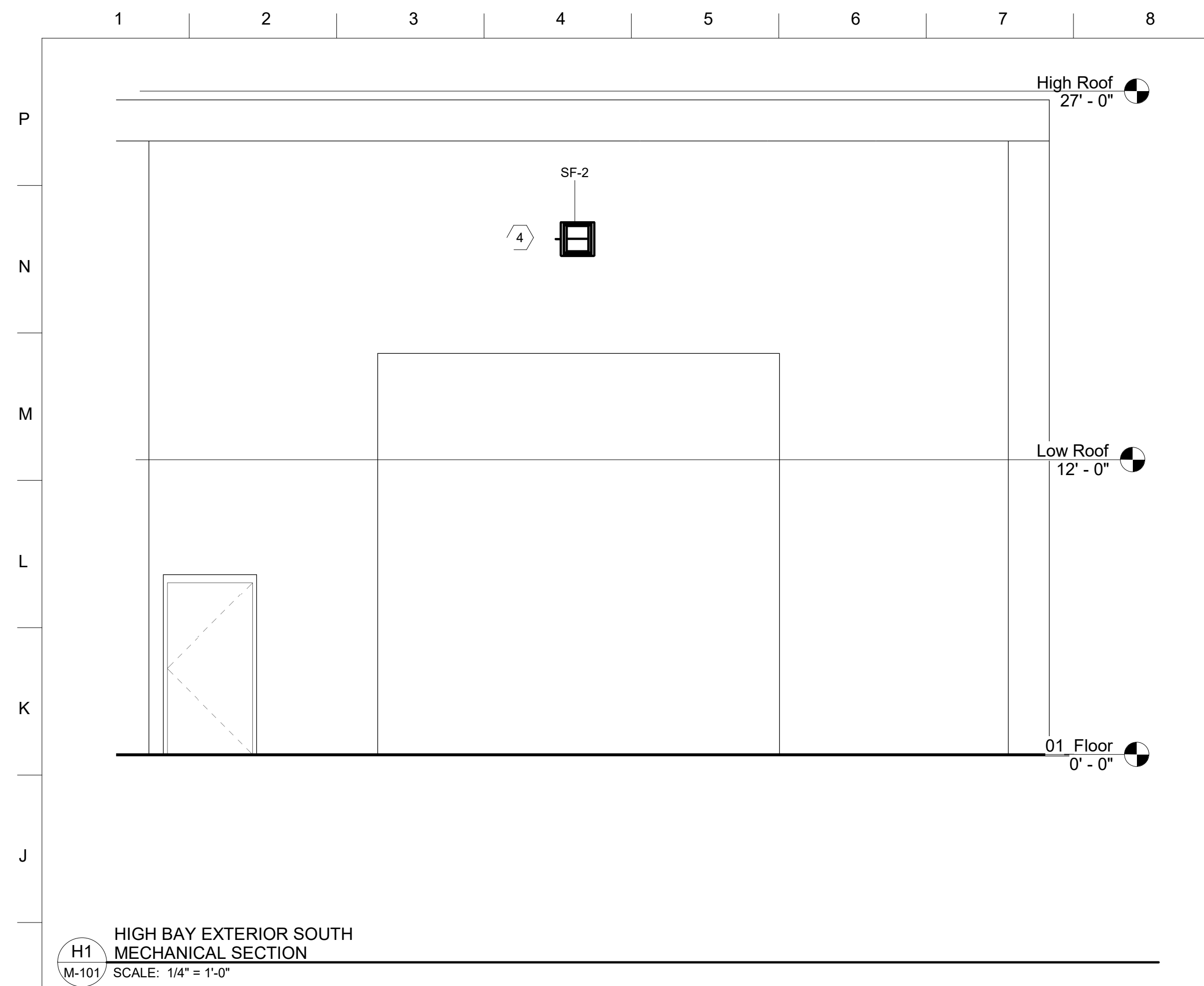
MECHANICAL FLOOR PLAN

SHEET ID

M-101

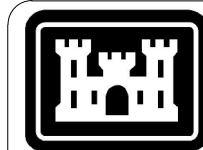
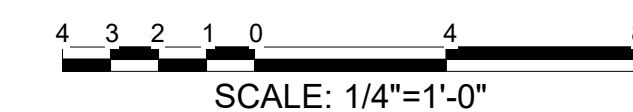
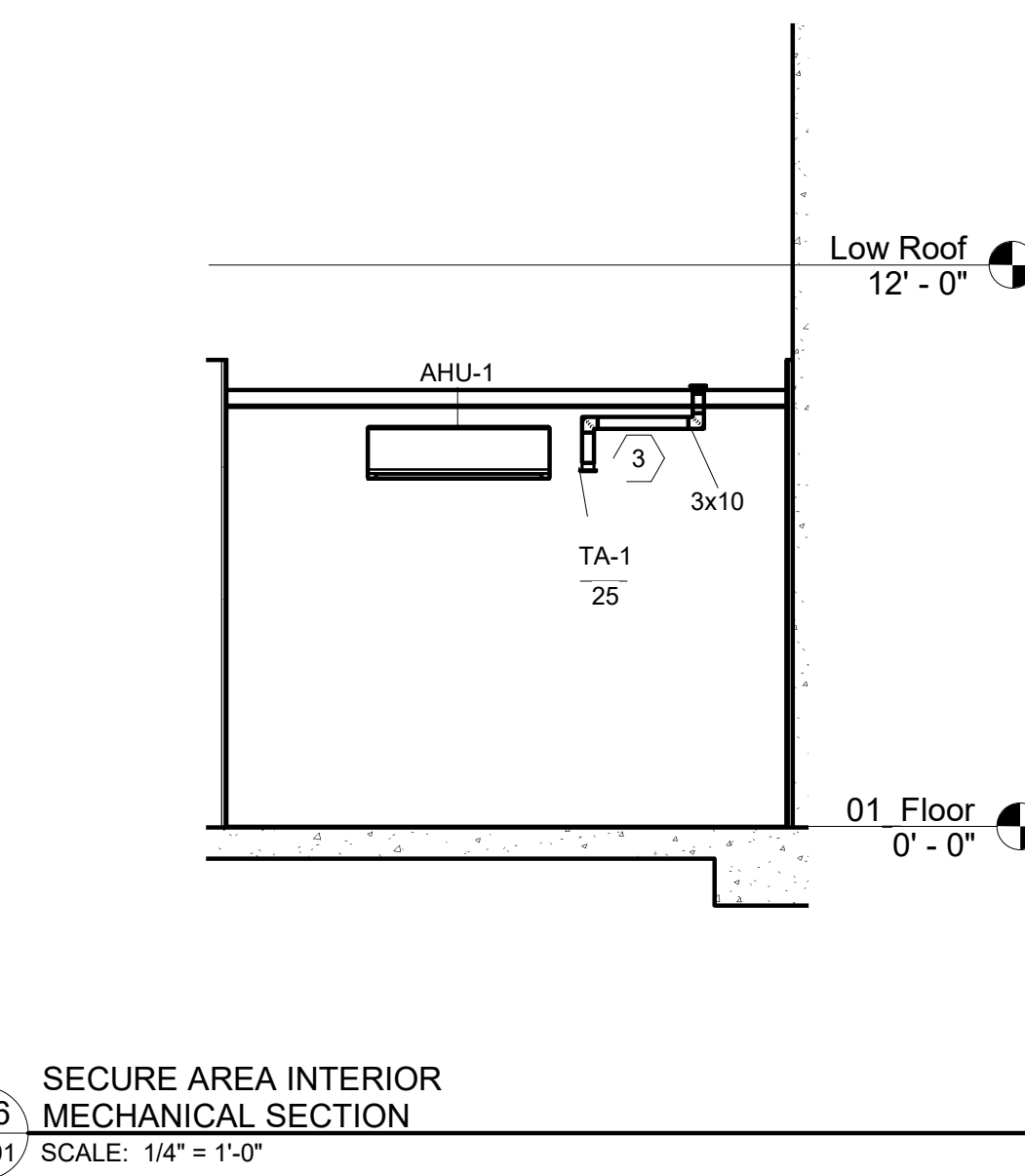
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US ARMY CORPS OF ENGINEERS
ENGINEERING AND SUPPORT CENTER
HUNTSVILLE
REDSTONE GATEWAY (RG300)
REDSTONE ARSENAL, AL 38808



- ## GENERAL NOTES:
- A. MECHANICAL LAYOUTS ARE SCHEMATIC. PROVIDE ANY ADDITIONAL DROPS, RISERS, OR OFFSETS REQUIRED FOR A COMPLETE INSTALLATION. COORDINATE EXACT ROUTING OF WORK WITH ALL OTHER TRADES AND OBSTRUCTIONS. COORDINATE EXACT LOCATIONS OF CEILING MOUNTED WORK WITH LIGHTS, CEILING GRID, AND OTHER OBSTRUCTIONS.
 - B. UNLESS OTHERWISE INDICATED ROUTED, ROUTE ALL DUCTWORK AND PIPING ABOVE CEILINGS. ROUTE ALL DUCTWORK AND PIPING AS HIGH AS POSSIBLE IN AREAS WITHOUT CEILINGS. ROUTE ALL DUCTWORK AND PIPING TIGHT TO STRUCTURE. DO NOT ROUTE WATER OR CONDENSATE PIPING INSIDE ELECTRICAL OR TELECOMMUNICATION ROOMS.
 - C. DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS. INCREASE SHEET METAL DIMENSIONS ON LINED DUCTWORK TO MAINTAIN THE INSIDE CLEAR DIMENSIONS INDICATED.
 - D. UNLESS OTHERWISE INDICATED, PROVIDE DUCT RUNOUTS TO TERMINAL UNITS SAME SIZE AS TERMINAL UNIT INLET.
 - E. FLEXIBLE DUCT RUNOUTS TO TERMINAL AIR DEVICES SHALL BE SAME SIZE AS DIFFUSER CONNECTION. LIMIT FLEX TO 5 FEET.
 - F. THIS IS A STANDARD DESIGN. SITE ADAPTED DESIGNS SHALL SIZE EQUIPMENT APPROPRIATELY FOR THE ACCORDING TO SITE SPECIFIC CLIMATE DATA.
 - G. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS, PLENUM SLOT DIFFUSERS, REGISTERS, AND GRILLS.
 - H. ALL WORK INDICATED IS NEW.
 - I. SOME SYMBOLS INDICATED ON THIS LEGEND SHEET MAY NOT APPEAR OF THE DRAWINGS.
 - K. MOUNT EMERGENCY SHUTOFFS AND TEMPERATURE SENSORS 48 INCHES AFF. FINAL LOCATION TO BE DETERMINED DURING SITE ADAPTATION.
 - L. ALL PIPING LOW POINTS SHALL HAVE DRAIN VALVES WITH HOSE CONNECTION AND CAP.
 - M. ALL PIPING HIGH POINTS SHALL HAVE VALVED AIR VENTS.
 - N. PROVIDE 1-INCH DUCT LINER ON ALL TRANSFER DUCT UNLESS OTHERWISE SPECIFIED.

- | SHEET NOTES: | |
|--------------|---|
| ① | OUTDOOR AIR/EXHAUST AIR RELIEF LOUVER, TYP. 5. SEE DETAIL A2 - M-501. FOR LOUVER. |
| ② | ROUTE CONDENSATE PIPING TO GROUND. SEE DETAIL J9 M-502 FOR TRAP DETAIL. |
| ③ | PROVIDE Z-DUCT IN ACCORDANCE WITH ICD/IDS 705 STANDARDS. REFER TO DETAIL J2 - M-501 |
| ④ | HIGH BAY SUPPLY FAN, TYP. 2. SEE DETAIL J2 - M-502. |



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[illegible]

US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER HUNTSVILLE REDSTONE ARSENAL (RG3000) REDSTONE ARSENAL AL 35908	DESIGNED BY: JBG	ISSUE DATE: 10/23/2024
	DRAWN BY: JBG	SOLICITATION NO.:
	CHECKED BY: RAF	CONTRACT NO.:
	SUBMITTED BY:	
	SIZE ANSI D	

AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

HVAC SECTIONS

SHEET ID

M-301

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
P																					
N																					
M																					
L																					
K																					
J																					
H																					
G																					
F																					
E																					
D																					
C																					
B																					
A																					

INFRARED HEATER SCHEDULE

			HEATING DATA		FAN DATA		ELECTRICAL DATA			
EQUIPMENT ID	EQUIPMENT DESCRIPTION	ROOM LOCATION	HEATING CAPACITY MBH (KW)	HEATING AIRFLOW CFM	OUTDOOR AIR CFM	TOTAL AIRFLOW CFM	VOLTAGE	HEATER AMPS	HEATER WATTAGE	NOTES
IRH-1-13	INFRARED RADIANT HEATER	HIGH BAY 1	7.5 (2.5)	1355	159	3000	277	9.02	2.5 KW	1, 2
IRH-14-26	INFRARED RADIANT HEATER	HIGH BAY 2	7.5 (2.5)	1355	159	3000	277	9.02	2.5 KW	1, 2

1) MOUNT HEATERS ON VERTICAL SURFACES.
2) MOUNTING HEIGHT DETERMINED BY MANUFACTURER. ENSURE OVERLAPPING COVERAGE OF HEATING ZONES.

VENTILATION FAN SCHEDULE

			FAN DATA					
EQUIPMENT ID	EQUIPMENT DESCRIPTION	ROOM LOCATION	EXTERNAL STATIC PRESSURE (IN W.C.)	APPROX. BHP	FAN RPM	OUTDOOR AIR CFM	NOTES	
SF-1	VENTILATION FAN	HIGH BAY 1	0.125	0.38	1750	HIGH-SPEED: 2,500 LOW-SPEED: 142	1	
SF-2	VENTILATION FAN	HIGH BAY 2	0.125	0.38	1750	HIGH-SPEED: 2,500 LOW-SPEED: 142	1	

1) PROVIDE WITH TWO-SPEED CONTROLLER

MINI-SPLIT SCHEDULE

EQUIPMENT ID	EQUIPMENT DESCRIPTION	ROOM LOCATION	COOLING CAPACITY (TONS)	COOLING AIRFLOW CFM	HEATING CAPACITY MBH	HEATING AIRFLOW CFM	VOLTS	PHASE	MCA	MOCP	NOTES
HP-1	COMM ROOM MINI-SPLIT	COMMUNICATION ROOM	2.4	1074	0.1	1074	208	1	23	30	1
HP-2	SECURE OFFICE MINI-SPLIT	SHARED WORKSPACE	2.4	961	9.9	961	208	1	23	30	

1) PROVIDE CONDENSATE PUMP

ELECTRIC UNIT HEATER (EUH) SCHEDULE

EQUIPMENT ID	EQUIPMENT DESCRIPTION	ROOM LOCATION	DESIGN HEATING CAPACITY WATTS	ACTUAL HEATING CAPACITY KW	DESIGN AIRFLOW CFM	ACTUAL AIRFLOW CFM	HEAT THROW FT.	VOLTS	RPM	NOTES
EUH-1	RESTROOM EUH	RESTROOM	59	3	2	380	12	208, SINGLE PHASE	1550	1
EUH-2	ELECTRICAL ROOM EUH	ELECTRICAL	88	3	8	380	12	208, SINGLE PHASE	1550	1
EUH-3	MECHANICAL ROOM EUH	MECHANICAL	88	3	8	380	12	208, SINGLE PHASE	1550	1
EUH-4	RISER ROOM EUH	RISER ROOM	88	3	5	380	12	208, SINGLE PHASE	1550	1
EUH-5	CORRIDOR EUH	CORRIDOR	293	3	9	380	12	208, SINGLE PHASE	1550	1

1) CEILING HUNG FROM ROOF STRUCTURE

EXHAUST FAN SCHEDULE

EQUIPMENT ID	EQUIPMENT DESCRIPTION	ROOM LOCATION	COOLING AIRFLOW CFM	FAN PRESSURE IN. H2O	FAN RPM	POWER	VOLTS	FLA	NOTES
EF-1	ELECTRICAL ROOM 2-SPEED	ELECTRICAL	HI-SPEED: 1,945 LOW-SPEED: 1,494	0.2	-	HI-SPEED: 108 W LOW-SPEED: 70 W	120	1.9	1
EF-2	MECHANICALL ROOM 2-SPEED	MECHANICAL	HI-SPEED: 1,945 LOW-SPEED: 1,494	0.2	-	HI-SPEED: 108 W LOW-SPEED: 70 W	120	1.9	1
EF-3	RESTROOM EXHAUST FAN	RESTROOM	94	0.5	950	8 W	120	-	2

1) FAN IS TWO-SPEED, THERMOSTATICALLY CONTROLLED. 2) PROVIDE PROGRAMMABLE SWITCH, CONTROLLED TO OCCUPANCY TIME OF DAY

LOUVER SCHEDULE

EQUIPMENT ID	EQUIPMENT DESCRIPTION	ROOM LOCATION	LOUVER SIZE	ESTIMATED FREE AREA SQ. FT.	FREE AREA VELOCITY FPM	NOTES
EA-1	ROOM EXHAUST	HIGH BAY 1	30"X30"	3.13	798	1
EA-2	ROOM EXHAUST	HIGH BAY 2	30"X30"	3.13	798	1
OA-1	COMPRESSOR INTAKE RELIEF	MECHANICAL ROOM	30"X30"	3.13	621	1
OA-2	ELECTRICAL ROOM VENTILATION AIR	ELECTRICAL ROOM	30"X30"	3.13	621	1
OA-3	RESTROOM VENTLIATION AIR	RESTROOM	6" X 6"	0.5	100	1

1) PROVIDE WITH INSECT SCREEN

AIR DIFFUSER SCHEDULE

EQUIPMENT ID	EQUIPMENT DESCRIPTION	ROOM LOCATION	DIFFUSER TYPE	DIFFUSER SIZE	AIRFLOW
TA 1 & 2	TRANSFER AIR GRILLE	SHARED WORKSPACE	GRILLE	3" X 10"	25 CFM

US ARMY CORPS OF ENGINEERS
ENGINEERING AND SUPPORT CENTER
HUNTSVILLE
REDSTONE GATEWAY (RG300)
REDSTONE ARSENAL, AL 38808

DESIGNED BY:
JBG

DRAWN BY:
JBG

CHECKED BY:
JBG

SUBMITTED BY:
ANSI D

SIZE:
ANSI D

ISSUE DATE:
10/23/2024

SOLICITATION NO.:
JBG

CONTRACT NO.:
JBG

US ARMY CORPS OF ENGINEERS®
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MARK

DESCRIPTION

DATE

MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN
HVAC SCHEDULES

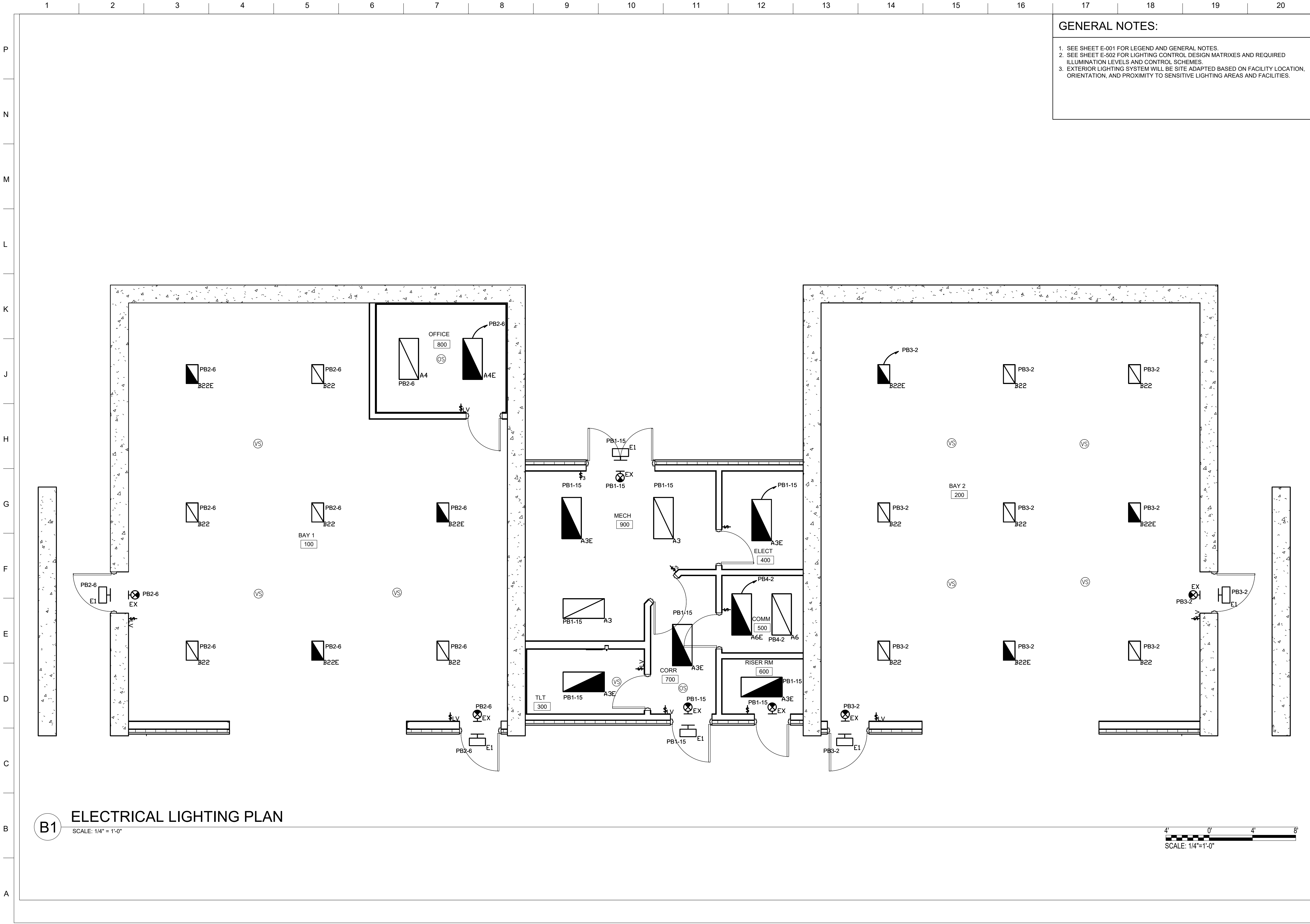
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M-601

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CUI - FINAL DESIGN SUBMITTAL





GENERAL NOTES:

1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.
2. SEE SHEET E-502 FOR LIGHTING CONTROL DESIGN MATRIXES AND REQUIRED ILLUMINATION LEVELS AND CONTROL SCHEMES.
3. EXTERIOR LIGHTING SYSTEM WILL BE SITE ADAPTED BASED ON FACILITY LOCATION, ORIENTATION, AND PROXIMITY TO SENSITIVE LIGHTING AREAS AND FACILITIES.

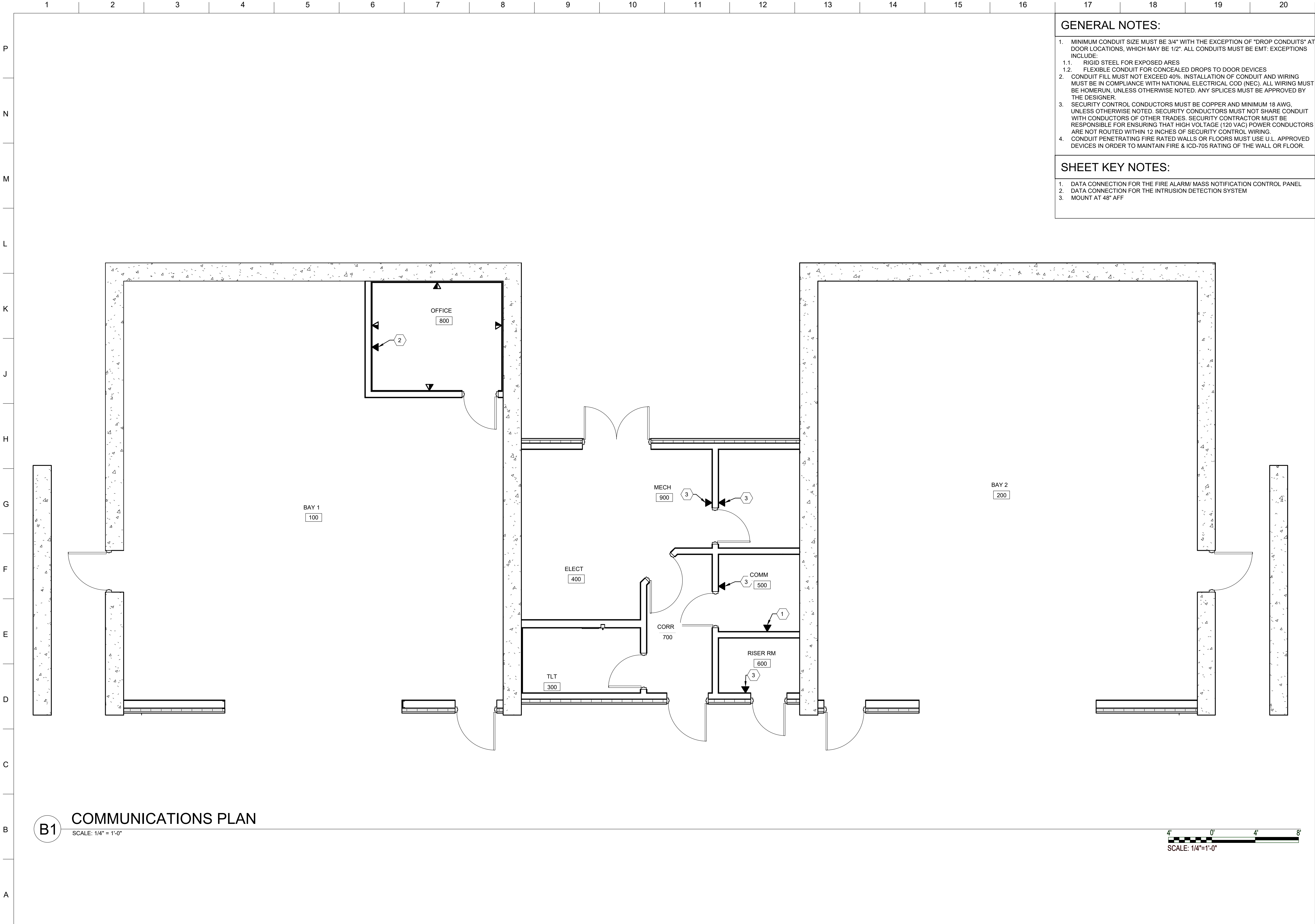


DESIGNED BY:	ISSUE DATE:	MARK	DESCRIPTION	DATE
JRD	10/23/2024			
DRAWN BY:	SOLICITATION NO.:			
JRD				
CHECKED BY:	CONTRACT NO.:			
SUBMITTED BY:				

US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER HUNTSVILLE REDSTONE GATEWAY (RG300) REDSTONE ARSENAL, AL 35808	DESIGNED BY: JRD	ISSUE DATE: 10/23/2024
	DRAWN BY: JRD	SOLICITATION NO.:
	CHECKED BY:	CONTRACT NO.:
	SUBMITTED BY:	
	SIZE:	ANSI D

AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN LIGHTING PLAN
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SHEET ID E-102

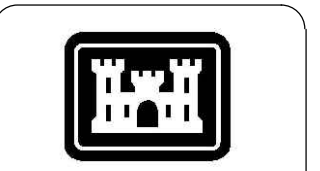


GENERAL NOTES:

1. MINIMUM CONDUIT SIZE MUST BE 3/4" WITH THE EXCEPTION OF "DROP CONDUITS" AT DOOR LOCATIONS, WHICH MAY BE 1/2". ALL CONDUITS MUST BE EMT. EXCEPTIONS INCLUDE:
 - 1.1. RIGID STEEL FOR EXPOSED AREAS
 - 1.2. FLEXIBLE CONDUIT FOR CONCEALED DROPS TO DOOR DEVICES
2. CONDUIT FILL MUST NOT EXCEED 40%. INSTALLATION OF CONDUIT AND WIRING MUST BE IN COMPLIANCE WITH NATIONAL ELECTRICAL CODE (NEC). ALL WIRING MUST BE HOMERUN, UNLESS OTHERWISE NOTED. ANY SPLICES MUST BE APPROVED BY THE DESIGNER.
3. SECURITY CONTROL CONDUCTORS MUST BE COPPER AND MINIMUM 18 AWG, UNLESS OTHERWISE NOTED. SECURITY CONDUCTORS MUST NOT SHARE CONDUIT WITH CONDUCTORS OF OTHER TRADES. SECURITY CONTRACTOR MUST BE RESPONSIBLE FOR ENSURING THAT HIGH VOLTAGE (120 VAC) POWER CONDUCTORS ARE NOT ROUTED WITHIN 12 INCHES OF SECURITY CONTROL WIRING.
4. CONDUIT PENETRATING FIRE RATED WALLS OR FLOORS MUST USE U.L. APPROVED DEVICES IN ORDER TO MAINTAIN FIRE & ICD-705 RATING OF THE WALL OR FLOOR.

SHEET KEY NOTES:

1. DATA CONNECTION FOR THE FIRE ALARM/ MASS NOTIFICATION CONTROL PANEL
2. DATA CONNECTION FOR THE INTRUSION DETECTION SYSTEM
3. MOUNT AT 48" AFF



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MARK				DESCRIPTION	DATE

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JRD	10/23/2024

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JRD	

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JRD	

SUBMITTED BY:	SIZE:
	ANSI D

US ARMY CORPS OF ENGINEERS
ENGINEERING AND SUPPORT CENTER
HUNTSVILLE
REDSTONE GATEWAY (RG300)
REDSTONE ARSENAL, AL 35808

AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN
TELECOMMUNICATION
SYSTEM PLAN

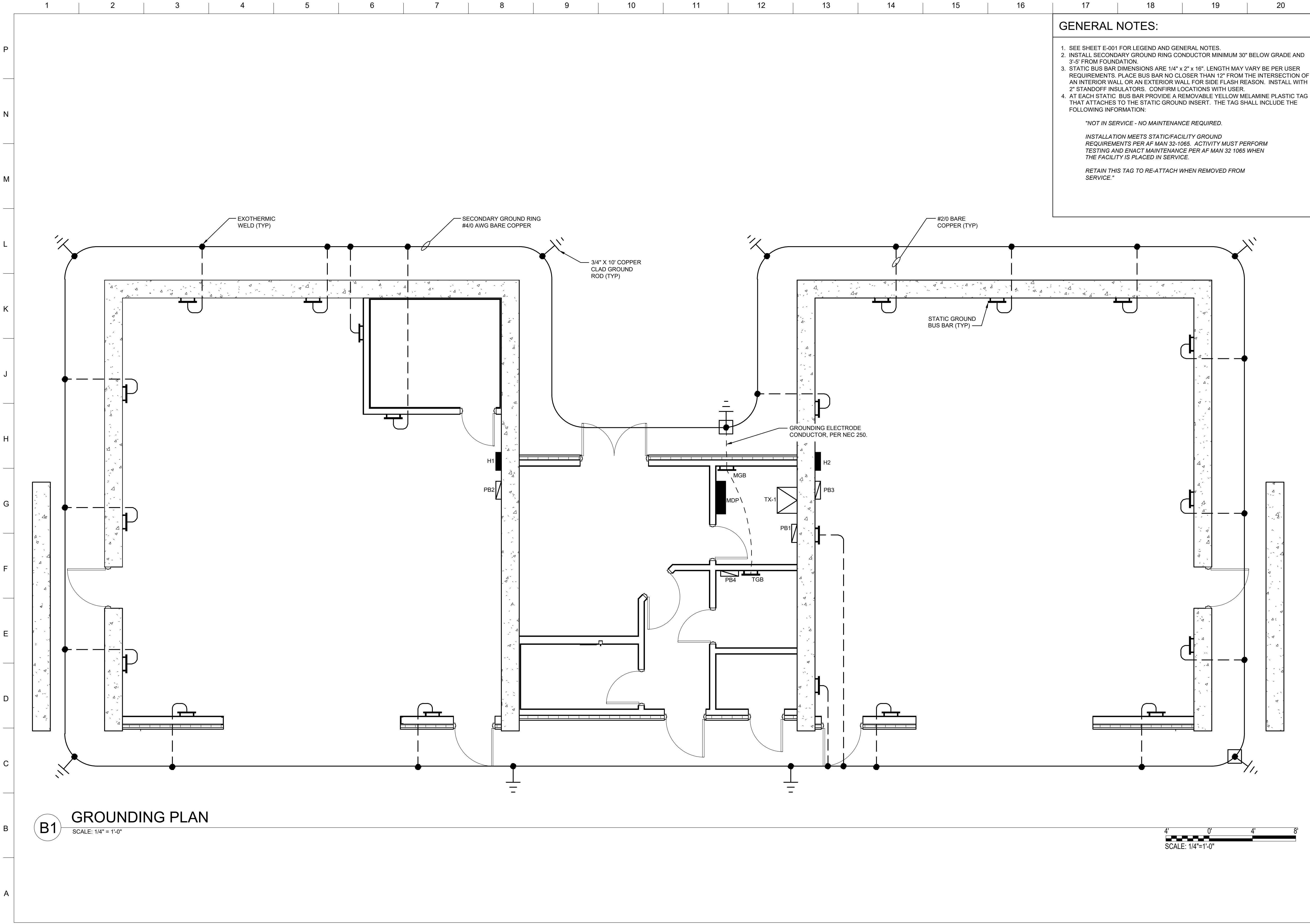
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E-103

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CUI - FINAL DESIGN SUBMITTAL



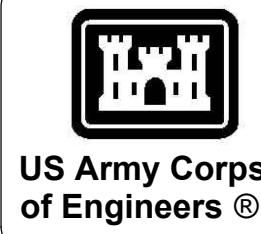
GENERAL NOTES:

1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.
2. INSTALL SECONDARY GROUND RING CONDUCTOR MINIMUM 30" BELOW GRADE AND 3'-5" FROM FOUNDATION.
3. STATIC BUS BAR DIMENSIONS ARE 1/4" x 2" x 16". LENGTH MAY VARY BE PER USER REQUIREMENTS. PLACE BUS BAR NO CLOSER THAN 12" FROM THE INTERSECTION OF AN INTERIOR WALL OR AN EXTERIOR WALL FOR SIDE FLASH REASON. INSTALL WITH 2" STANDOFF INSULATORS. CONFIRM LOCATIONS WITH USER.
4. AT EACH STATIC BUS BAR PROVIDE A REMOVABLE YELLOW MELAMINE PLASTIC TAG THAT ATTACHES TO THE STATIC GROUND INSERT. THE TAG SHALL INCLUDE THE FOLLOWING INFORMATION:

"NOT IN SERVICE - NO MAINTENANCE REQUIRED.

INSTALLATION MEETS STATIC/FACILITY GROUND REQUIREMENTS PER AF MAN 32-1065. ACTIVITY MUST PERFORM TESTING AND ENACT MAINTENANCE PER AF MAN 32 1065 WHEN THE FACILITY IS PLACED IN SERVICE.

RETAIN THIS TAG TO RE-ATTACH WHEN REMOVED FROM SERVICE."

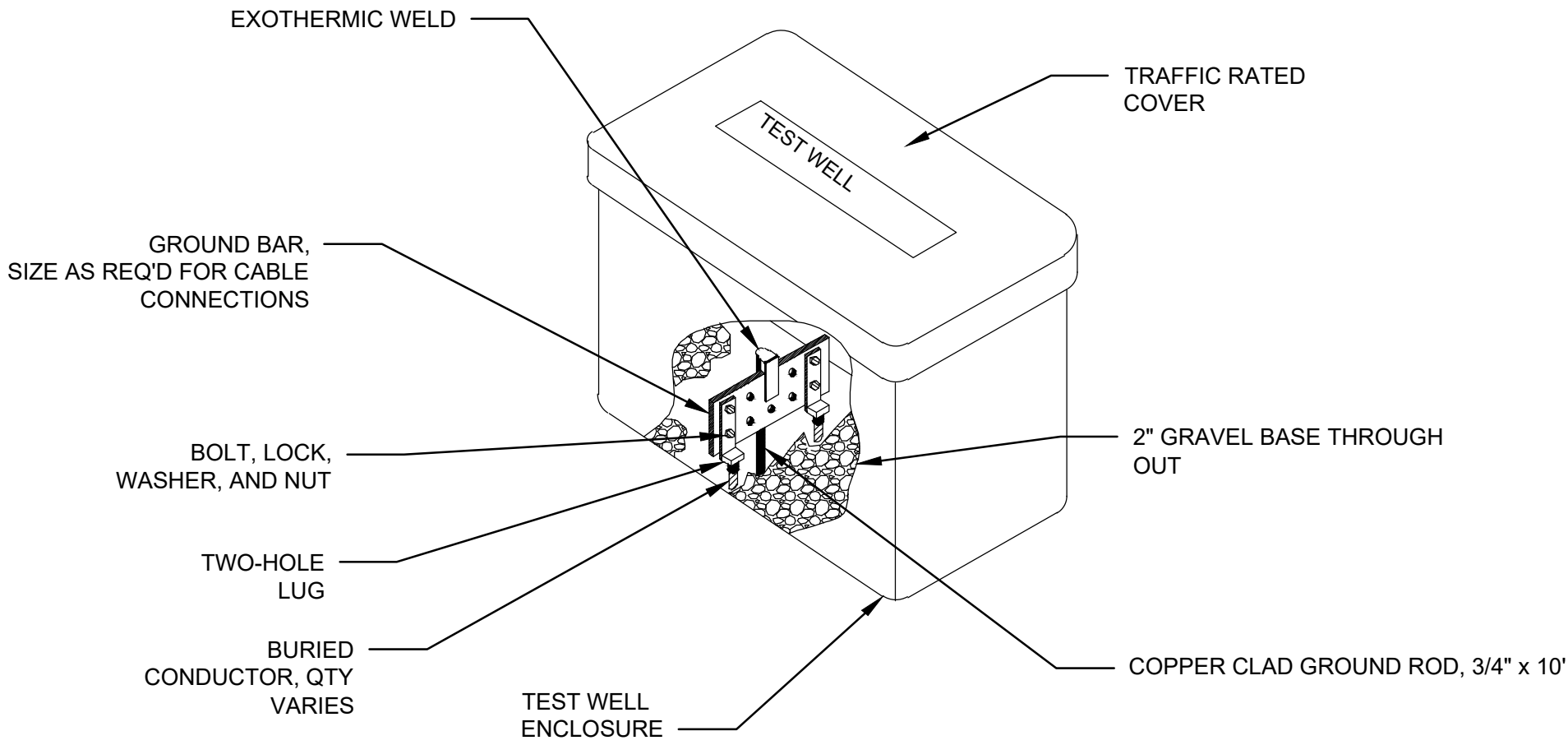


MARK	DESCRIPTION	DATE

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AIR NATIONAL GUARD MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN GROUNDING PLAN

SHEET ID E-105

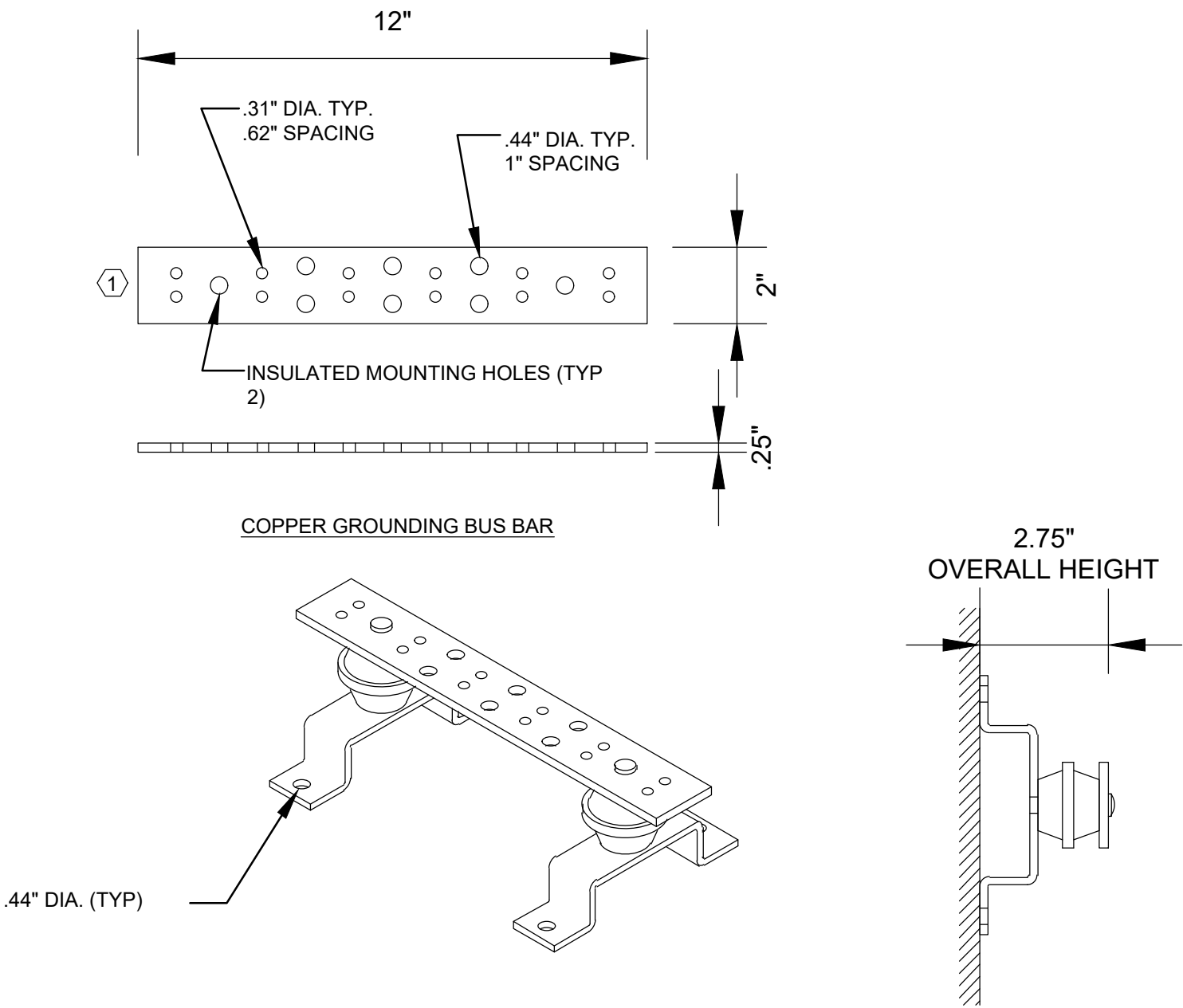


NOTE:
A. RECTANGULAR ENCLOSURE ILLUSTRATED - EXAMPLE ONLY.

K9

GROUND TEST WELL DETAIL

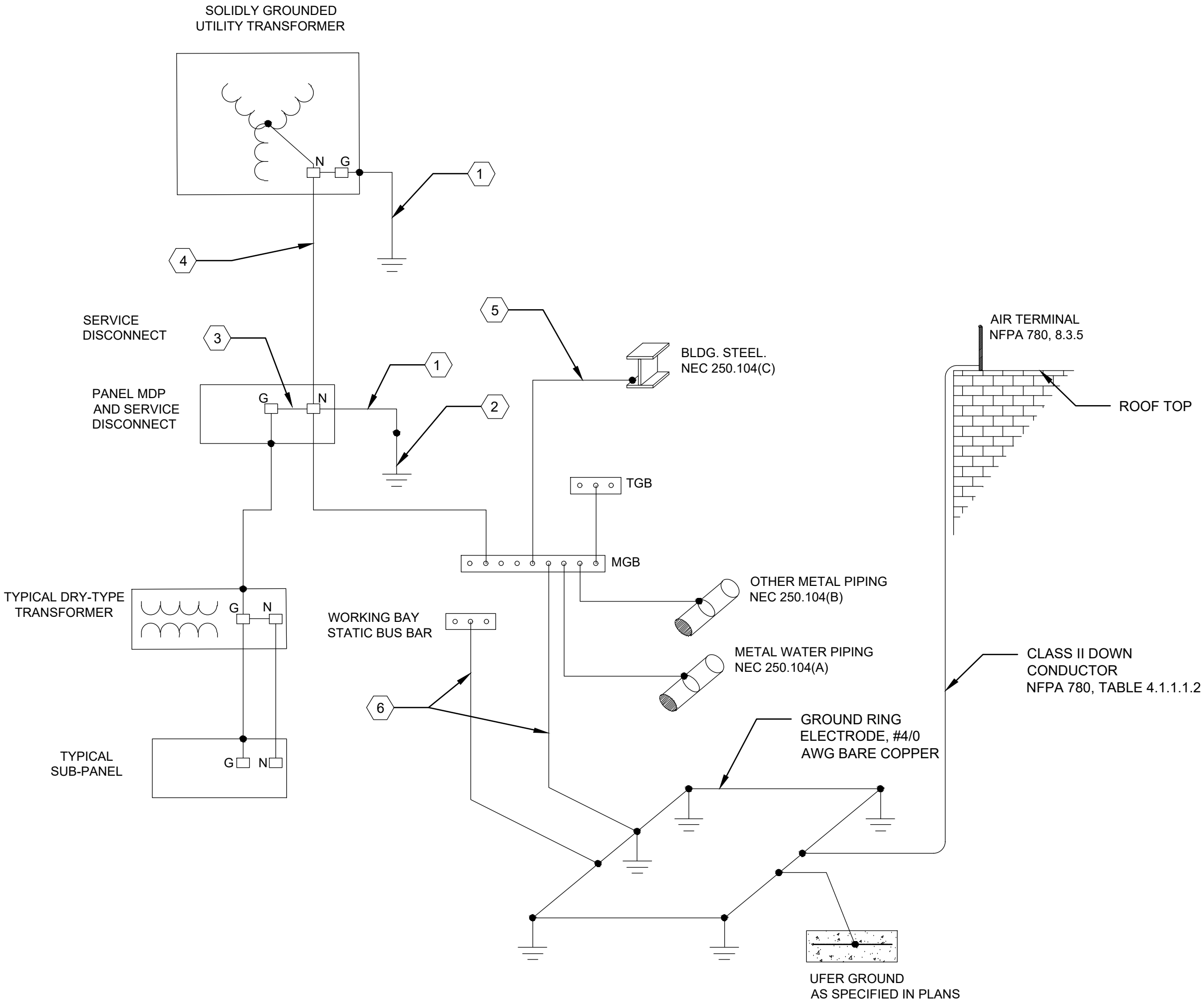
NOT TO SCALE



A5

MAIN GROUNDING BUS BAR "MGB"

NOT TO SCALE



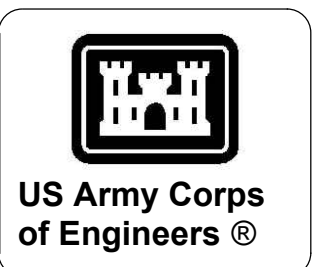
A12

GROUNDING RISER DIAGRAM

NOT TO SCALE

SHEET KEY NOTES

- GROUNDING ELECTRODE CONDUCTOR. NEC 250.66.
- GROUNDING ELECTRODE. COPPER CLAD STEEL OR BETTER, 3/4" x 10' MINIMUM (TYP).
- MAIN BONDING JUMPER. NEC 250.28 AND TABLE 250.102(C)(1).
- GROUND CONDUCTOR. SIZE SPECIFIED ON THE PLANS.
- GROUNDING ELECTRODE CONDUCTOR, BARE COPPER (TYP). NEC 250.66.
- #2/0 AWG BARE COPPER CONDUCTOR, OR AS SPECIFIED ON THE PLANS.



MARK	DESCRIPTION	DATE

DESIGNED BY: JRD	ISSUE DATE: 10/23/2024
DRAWN BY: JRD	SOLICITATION NO.:
CHECKED BY: 	CONTRACT NO.:
SUBMITTED BY: 	
SIZE: ANSI D	

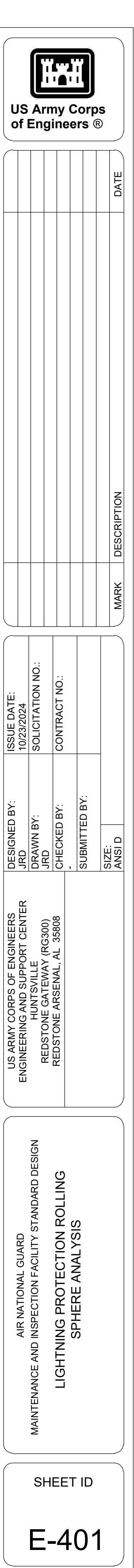
US ARMY CORPS OF ENGINEERS
ENGINEERING AND SUPPORT CENTER
HUNTSVILLE
REDSTONE GATEWAY (RG300)
REDSTONE ARSENAL, AL 35808

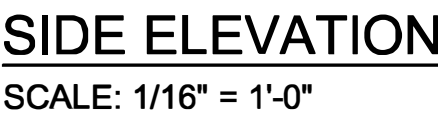
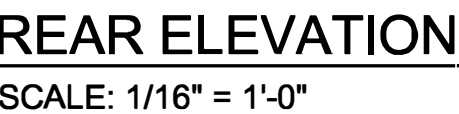
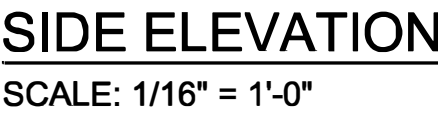
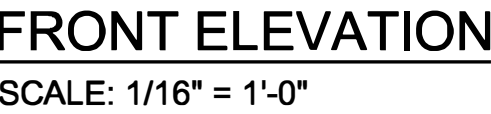
AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

GROUNDING DETAILS

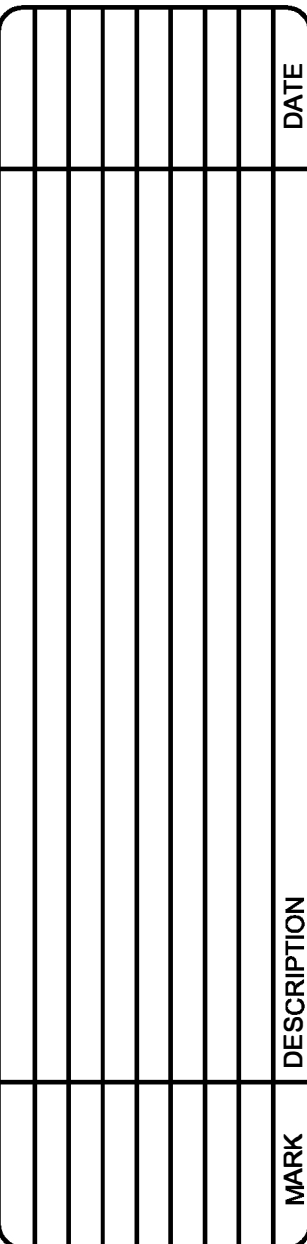
SHEET ID

E-301





1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.
2. LIGHTNING PROTECTION SYSTEM DESIGN AND LAYOUT REPRESENTS A MINIMUM ACCEPTABLE LEVEL OF PROTECTION. ALTERNATE DESIGNS OR LAYOUT MAY BE CONSIDERED BASED ON SITE CONDITIONS IF ADVANTAGEOUS TO THE GOVERNMENT.
3. GROUNDING AND BONDING REQUIREMENTS ARE NOT DEPICTED WITHIN THE ROLLING SPHERE METHOD ANALYSIS.



US ARMY CORPS OF ENGINEERS ENGINEERING AND SUPPORT CENTER REDSTONE GATEWAY (RG300) REDSTONE ARSENAL, AL. 3508	DESIGNED BY:	ISSUE DATE:
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	DRAWN BY:	SOLICITATION NO.:
	DRD	
	CHECKED BY:	CONTRACT NO.:
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	SIZE:	
	ANSI D	

AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN

LIGHTNING PROTECTION
ROLLING SPHERE
ANALYSIS ELEVATIONS

SHEET ID

E-402

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Panelboard: PB2

Location: WORKING BAY 1

Fed From: PB1

Mounting: SURFACE

Enclosure: NEMA 1

System Voltage

Phase - Phase: 208

Phase - Neutral: 120

Phase / Wires: 3 / 4

Primary Feeders: 4-#3, #8 GND, 1-1/4" C

A.I.C. Rating: 10KA

Main Type: MLO

Main Rating: 100

Top/Bottom Fed: BOTTOM

POLE NO.	CKT. NO.	CKT. BKR. TRIP	POLE	DESCRIPTION		LOAD (KVA)					DESCRIPTION	CKT. TRIP	BKR. POLE	CKT. NO.	POLE NO.
					KVA	A	B	C	KVA						
1	1	20	1	REC - BAY 1	R	2.4	3.00		0.6	R	REC - BAY 1 OFFICE	20	1	2	2
3	3	20	1	REC - BAY 1	R	2.4	3.20		0.8	R	REC - BAY 1 OFFICE	20	1	4	4
5	5	20	1	REC - BAY 1	R	2.4		3.83	1.43	L	LIGHTS - BAY 1	20	1	6	6
7	7	20	1	REC - BAY 1	R	1.6	2.20		0.6	O	ESS	20	1	8	8
9	9	20	1	REC - BAY 1 EXTERIOR	R	0.6	3.00		2.4	M				10	10
11	11	20	1	SF-1	M	0.38		2.78	2.4	M	HP-1	30	2	12	12
13	13	20	1	SPARE			0.00				SPARE	20	1	14	14
15	15	20	1	SPARE			0.00				SPARE	20	1	16	16
17	17	20	1	SPARE				0.00			BLANK			18	18
19	19			BLANK			0.00				BLANK			20	20
21	21			BLANK			0.00				BLANK			22	22
23	23			BLANK				0.00			BLANK			24	24
25	25			BLANK			0.00				BLANK			26	26
27	27			BLANK				0.00			BLANK			28	28
29	29			BLANK				0.00			BLANK			30	30
				TOTAL KVA / PHASE		5.2	6.2	6.6							
				TOTAL AMPS / PHASE		43.3	51.7	55.1							
Load Classification				Connected Load		Demand Factor	Estimated Demand			Panelboard Totals					
L Lighting				1.4 KVA		100%	1.4 KVA			Total Connected Load:		18.0 KVA			
R Receptacles				10.8 KVA		100%	10.8 KVA			Total Estimated Demand Load:		18.0 KVA			
M Motor				5.2 KVA		100%	5.2 KVA			Total Connected Amps		50.1 A			
O Other				0.6 KVA		100%	0.6 KVA			Total Estimated Demand Amps:		50.1 A			

Panelboard: PB3

Location: WORKING BAY 2

Fed From: PB1

Mounting: SURFACE

Enclosure: NEMA 1

System Voltage

Phase - Phase: 208

Phase - Neutral: 120

Phase / Wires: 3 / 4

Primary Feeders: 4-#3, #8 GND, 1-1/4" C

A.I.C. Rating: 10KA

Main Type: MLO

Main Rating: 100

Top/Bottom Fed: BOTTOM

POLE NO.	CKT. NO.	CKT. BKR. TRIP	POLE	DESCRIPTION		LOAD (KVA)					DESCRIPTION	CKT. TRIP	BKR. POLE	CKT. NO.	POLE NO.	
					KVA	A	B	C	KVA							
1	1	20	1	REC - BAY 2	R	2.4	3.90			1.5	L	LIGHTS - BAY 2	20	1	2	2
3	3	20	1	REC - BAY 2	R	2.4		2.40			SPARE	20	1	4	4	
5	5	20	1	REC - BAY 2	R	2.4			2.40		SPARE	20	1	6	6	
7	7	20	1	REC - BAY 2	R	1.6	1.60				SPARE	20	1	8	8	
9	9	20	1	REC - BAY 2 EXTERIOR	R	0.40		0.40			SPARE	20	1	10	10	
11	11	20	1	SF-2	M	0.38			0.38		SPARE	20	1	12	12	
13	13			BLANK			0.00				BLANK			14	14	
15	15			BLANK				0.00			BLANK			16	16	
17	17			BLANK					0.00		BLANK			18	18	
19	19			BLANK			0.00				BLANK			20	20	
21	21			BLANK				0.00			BLANK			22	22	
23	23			BLANK					0.00		BLANK			24	24	
25	25			BLANK			0.00				BLANK			26	26	
27	27			BLANK				0.00			BLANK			28	28	
29	29			BLANK					0.00		BLANK			30	30	
				TOTAL KVA / PHASE		5.5	2.8	2.8								
				TOTAL AMPS / PHASE		45.8	23.3	23.2								
Load Classification				Connected Load		Demand Factor	Estimated Demand			Panelboard Totals						
L Lighting				1.5 KVA		100%	1.5 KVA			Total Connected Load:		11.1 KVA				
R Receptacles				9.2 KVA		100%	9.2 KVA			Total Estimated Demand Load:		11.1 KVA				
M Motor				0.4 KVA		100%	0.4 KVA			Total Connected Amps		30.8 A				
O Other				0.0 KVA		100%	0.0 KVA			Total Estimated Demand Amps:		30.8 A				

Panelboard: PB4

Location: COMM. ROOM

Fed From: PB1

Mounting: SURFACE

Enclosure: NEMA 1

System Voltage

Phase - Phase: 208

Phase - Neutral: 120

Phase / Wires: 3 / 4

Primary Feeders: 4-#1, #8 GND, 1-1/2" C

A.I.C. Rating: 10KA

Main Type: MLO

Main Rating: 100

Top/Bottom Fed: BOTTOM

POLE NO.	CKT. NO.	CKT. BKR. TRIP	POLE	DESCRIPTION		LOAD (KVA)					DESCRIPTION	CKT. TRIP	BKR. POLE	CKT. NO.	POLE NO.
					KVA	A	B	C	KVA						
1	1			RECEPT COMM RACK	R	0.4	0.53		0.13	L	LIGHTS - COMM. ROOM	20	1	2	2
3	3				R	0.4		2.80	2.4	M				4	4
5	5	20	1	REC - COMM RACK	R	0.4		2.80	2.4	M	HP-2	30	2	6	6
7	7	20	1	REC - WALL	R	0.6	1.20		0.6	R	REC - WALL	20	1	8	8
9	9	20	1	SPARE				0.00			SPARE	20	1	10	10
11	11	20	1	SPARE					0.00		SPARE	20	1	12	12
13	13	20	1	SPARE			0.00				BLANK			14	14
15	15			BLANK				0.00			BLANK			16	16
17	17			BLANK					0.00		BLANK			18	18
19	19			BLANK			0.00				BLANK			20	20
21	21			BLANK				0.00			BLANK			22	22
23	23			BLANK					0.00		BLANK			24	24
25	25			BLANK			0.00				BLANK			26	26
27	27			BLANK				0.00			BLANK			28	28
29	29			BLANK					0.00		BLANK			30	30
				TOTAL KVA / PHASE		1.7	2.8	2.8							
				TOTAL AMPS / PHASE		14.4	23.3	23.3							
Load Classification				Connected Load		Demand Factor	Estimated Demand			Panelboard Totals					
L Lighting				0.1 KVA		100%	0.1 KVA			Total Connected Load:		7.3 KVA			
R Receptacles				2.4 KVA		100%	2.4 KVA			Total Estimated Demand Load:		7.3 KVA			
M Motor				4.8 KVA		100%	4.8 KVA			Total Connected Amps		20.4 A			
O Other				0.0 KVA		100%	0.0 KVA			Total Estimated Demand Amps:		20.4 A			

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HUNTSVILLE
REDSTONE GATEWAY (RG300)
REDSTONE ARSENAL, AL 35808

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DRAWN BY:
CHECKED BY:
SUBMITTED BY:

ISSUE DATE:
10/23/2024
SOLICITATION NO.:
CONTRACT NO.:

SIZE:
ANSI D

AIR NATIONAL GUARD
MAINTENANCE AND INSPECTION FACILITY STANDARD DESIGN
PANELBOARD SCHEDULES

SHEET ID
E-502

DATE

DESCRIPTION

MARK

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Plot Date:

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LIGHTING FIXTURE SCHEDULE

FIXTURE MARK	DESCRIPTION	LAMP					NOMINAL LUMENS	FIXTURE VOLTAGE	FIXTURE MOUNTING	REMARKS
		TYPE	CRI	NO.	COLOR	WATTS				
A3	2'X4' LED FLAT PANEL LUMINAIRE, FULLY LUMINOUS ACROSS FACE OF LENS. ALUMINUM, SEAMLESS FRAME, SATIN WHITE LENS. LOW PROFILE. 0-10V DIMMING STANDARD.	LED	80	-	35K	29	3266	120	RECESS	
A3E	2'X4' LED FLAT PANEL LUMINAIRE, FULLY LUMINOUS ACROSS FACE OF LENS. ALUMINUM, SEAMLESS FRAME, SATIN WHITE LENS. LOW PROFILE. 0-10V DIMMING STANDARD.	LED	80	-	35K	29	3266	120	RECESS	EM SELF-DIAGNOSTIC BATTERY PACK, 10W CONSTANT POWER
A4	2'X4' LED FLAT PANEL LUMINAIRE, FULLY LUMINOUS ACROSS FACE OF LENS. ALUMINUM, SEAMLESS FRAME, SATIN WHITE LENS. LOW PROFILE. 0-10V DIMMING STANDARD.	LED	80	-	35K	45	5119	120	RECESS	
A4E	2'X4' LED FLAT PANEL LUMINAIRE, FULLY LUMINOUS ACROSS FACE OF LENS. ALUMINUM, SEAMLESS FRAME, SATIN WHITE LENS. LOW PROFILE. 0-10V DIMMING STANDARD.	LED	80	-	35K	45	5119	120	RECESS	EM SELF-DIAGNOSTIC BATTERY PACK, 10W CONSTANT POWER
A6	2'X4' LED FLAT PANEL LUMINAIRE, FULLY LUMINOUS ACROSS FACE OF LENS. ALUMINUM, SEAMLESS FRAME, SATIN WHITE LENS. LOW PROFILE. 0-10V DIMMING STANDARD.	LED	80	-	35K	62	7269	120	RECESS	
A6E	2'X4' LED FLAT PANEL LUMINAIRE, FULLY LUMINOUS ACROSS FACE OF LENS. ALUMINUM, SEAMLESS FRAME, SATIN WHITE LENS. LOW PROFILE. 0-10V DIMMING STANDARD.	LED	80	-	35K	62	7269	120	RECESS	EM SELF-DIAGNOSTIC BATTERY PACK, 10W CONSTANT POWER
B22	2' LED LOW BAY LUMINAIRE STEEL/FULL BODY HOUSING. ACRYLIC POLYMER LENS. HIGH-GLOSS BAKED WHITE ENAMEL FINISH. 0-10V DIMMING STANDARD.	LED	80	-	40K	166	21200	120	SUSPENSION	
B22E	2' LED LOW BAY LUMINAIRE STEEL/FULL BODY HOUSING. ACRYLIC POLYMER LENS. HIGH-GLOSS BAKED WHITE ENAMEL FINISH. 0-10V DIMMING STANDARD.	LED	80	-	40K	166	21200	120	SUSPENSION	EM SELF-DIAGNOSTIC BATTERY PACK, 15W CONSTANT POWER
EX	LED EXIT LIGHT. DIE-CAST ALUMINUM, SINGLE FACED. RED LETTERS. CONCEALED DIRECTIONAL CHEVRONS KNOCKOUTS. NI-CAD BATTERY, AC-ON INDICATOR LAMP AND TEST SWITCH. PROVIDE UNIVERSAL MOUNTING KIT.	LED	-	-	-	3.3	-	120	UNIVERSAL	
E1	EXTERIOR EMERGENCY LIGHT. DIE-CAST ALUMINUM, ARCHITECTURAL DESIGN.	LED	-	-	40K	4	2000	120	WALL	EM SELF-DIAGNOSTIC BATTERY PACK, MOUNT 8 FEET A.F.F.

NOTE: THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LUMINAIRE REQUIREMENTS:

- HOUSING - DIE-FORMED, COLD ROLLED STEEL. SIZE AS INDICATED IN LUMINAIRE SCHEDULE.
- OPTICS - ACRYLIC OR POLYCARBONATE LENS AS INDICATED IN LUMINAIRE SCHEDULE.
- LIGHT SOURCE - SOLID STATE LEDS, 3500K CCT UDN, MINIMUM 80 CRI UDN, AND MINIMUM EFFICACY OF 100 LUMENS/WATT UDN. INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE.
- DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, AND < 20% THD. ON/OFF CONTROL AND FULLY DIMMABLE DOWN TO 10% MINIMUM OR AS INDICATED IN LUMINAIRE SCHEDULE.
- CERTIFICATION - UL LISTED FOR DRY OR DAMP LOCATION, ROHS COMPLIANT, DLC QUALIFIED. COMPLIES WITH IES LM79, LM80 AND TM21 TESTING STANDARDS.
- MOUNTING - RECESSED IN HARD OR ACOUSTICAL TILE CEILING.
- OPTIONS - EDGE-LIT LENS, PRISMATIC LENS, EMERGENCY BATTERY BACK-UP, INTEGRAL OCCUPANCY/VACANCY SENSOR, VARIOUS SIZE AND OUTPUT OPTIONS, SURFACE-MOUNTING KIT.

FLAT LENS LED LUMINAIRE

REVISED: NOVEMBER 2020 LIGHTING PLATE: A3, A4, A6

LIGHTING DESIGN MATRIX

ROOM NUMBER	ROOM DESCRIPTION	AREA (FT ²)	CRITERIA VALUES ^{1,2}			DESIGN VALUES ³		
			LIGHTING POWER DENSITY (W/FT ²)	FOOTCANDLES (FC)	AVERAGE TO MINIMUM RATIO	LIGHTING POWER DENSITY (W/FT ²)	FOOTCANDLES (FC)	AVERAGE TO MINIMUM RATIO
100	WORKING BAY 1	1215.6	1.14	30-50	3:1	1.1	51.4	1.5:1
200	WORKING BAY 2	1352.6	1.14	30-50	3:1	1.1	55.3	1.4:1
300	TOILET	64.7	0.85	5.0	3:1	0.4	12.0	1.1:1
400	ELECTRICAL, RISER	65.7	0.43	20.0	3:1	0.4	19.5	1.3:1
500	COMMUNICATIONS	53.6	1.33	50.0	3:1	2.3	77.3	1.2:1
600	RISER	37.6	0.43	20.0	3:1	0.8	22.9	1.2:1
700	CORRIDOR	76.8	0.66	5.0	3:1	0.4	10.9	1.2:1
800	OFFICE	119.3	0.93	30.0	2:1	0.8	36.0	1.3:1
900	MECHANICAL	221.6	1.5	20.0	3:1	0.4	19.8	1.6:1

NOTES:

- LIGHTING POWER DENSITY (LPD) VALUES TAKEN FROM ASHRAE 90.1, 2016.
- FOOT CANDLE AND AVG:MIN RATIO VALUES TAKEN FROM UFC 5-530-01, INTERIOR AND EXTERIOR LIGHTING SYSTEMS, 09 FEBRUARY 2023.
- DESIGN VALUES ARE TAKEN FROM LIGHTING CALCULATIONS.

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DRAWN BY: JRD
CHECKED BY: JRD
SUBMITTED BY: JRD
SIZE: ANS I D

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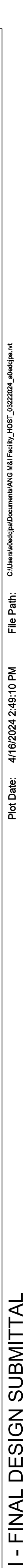
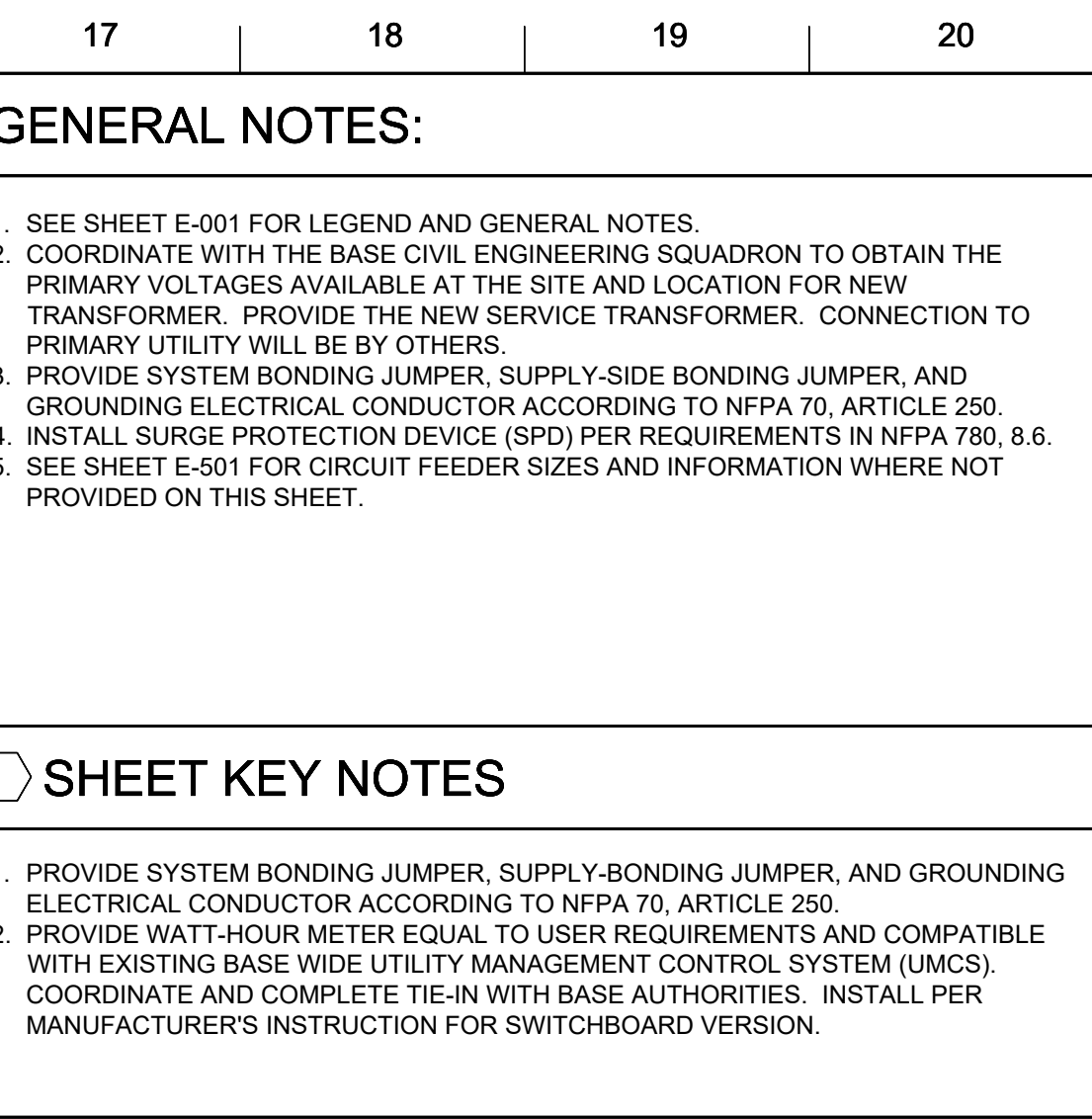
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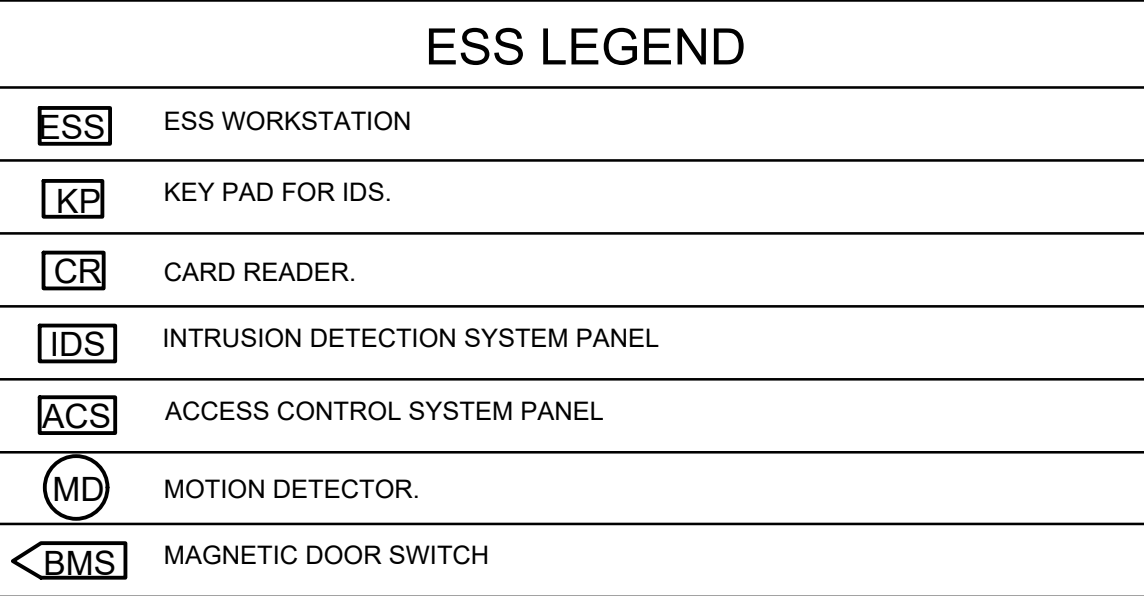
LIGHTING SCHEDULES AND WIRING DIAGRAM

SHEET ID
E-503

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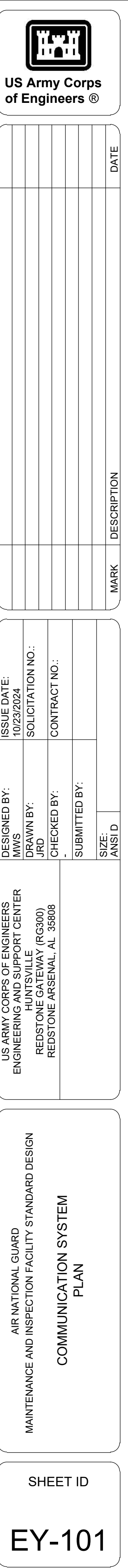
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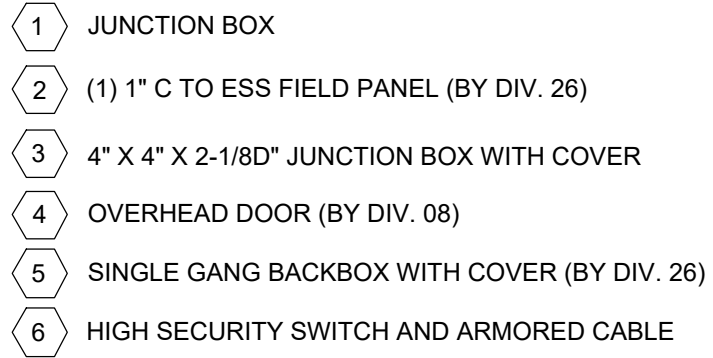




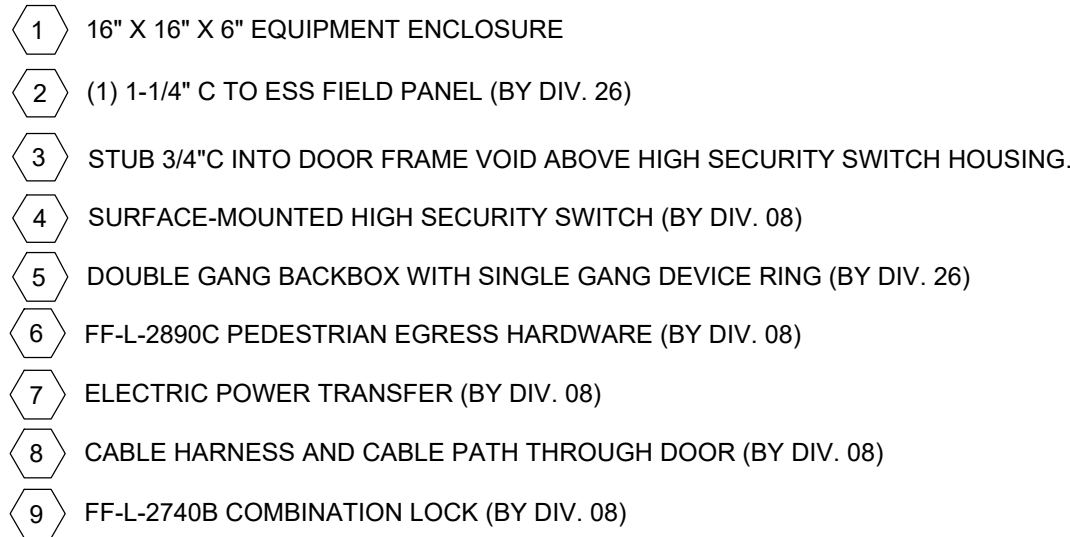
GENERAL NOTES:

1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.

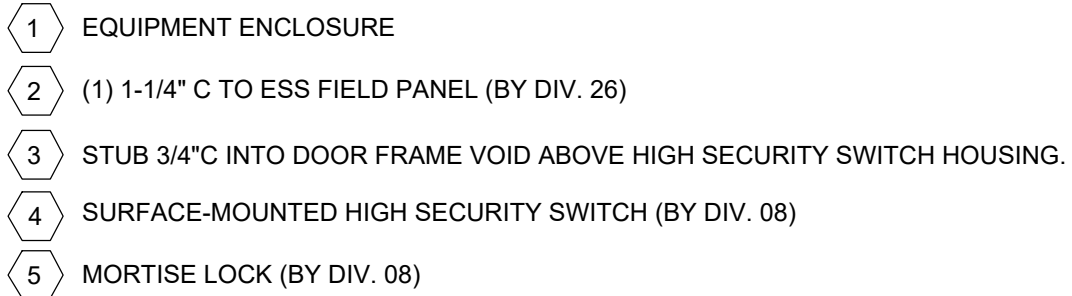




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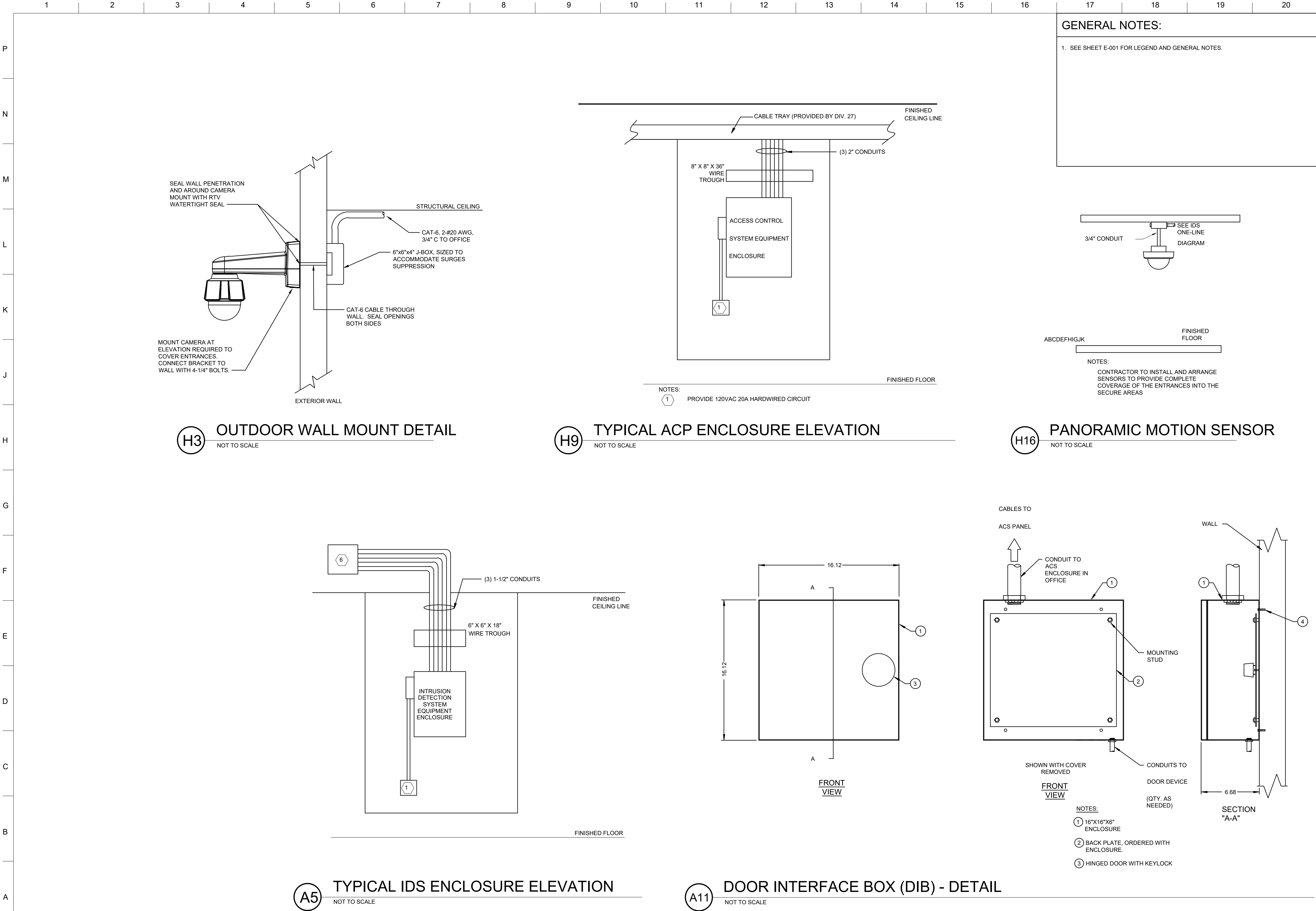


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ELECTRONIC SECURITY DETAILS

EY-301



GENERAL NOTES:

1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.



MARK	DESCRIPTION	DATE

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