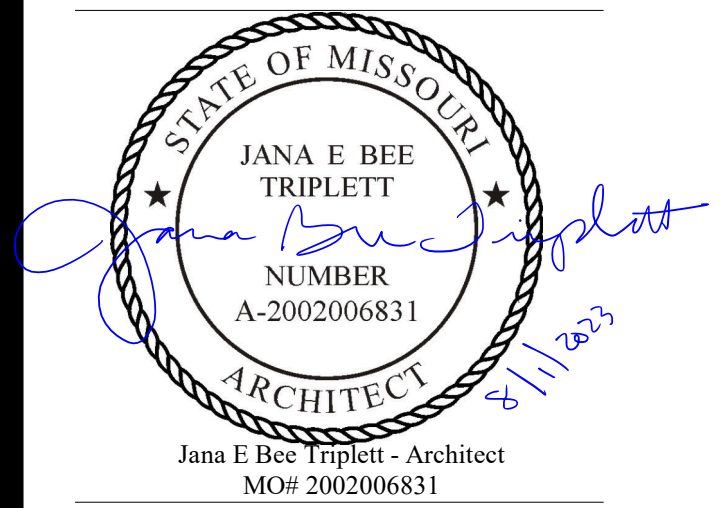


# Troop A Headquarters, MSHP Lee's Summit, Missouri

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
Project Number: 2102.152

### Designers

Architects: GastingerWalker&, Certificate of Authority #2023012872

Civil: Phelps Engineering, Inc., Certificate of Authority #2007005058

Structural: Bob D Campbell & Company, Certificate of Authority #PE000042

Mechanical, Plumbing, Electrical, Fire Protection, and Technology: IMEG, Certificate of Authority #F001325536

State Project # R2219-01

Site # 6018

Facility # 8136018019

Submission: Bid Documents - 01 August 2023

G-001	Cover Sheet	S102	Foundation Plan - West	A-303	Building & Wall Sections - Firing Range (Alternate #04)	P213	Floor Plan - Plumbing - Firing Range (Alternate #04)	MP221	Roof Plan - Piping - East
G-002	Life Safety Plan / Code Analysis	S103	Foundation Plan - Firing Range (Alternate #04) & Site Foundations	A-310	Wall Sections	P221	Roof Plan - Plumbing - East	MP222	Roof Plan - Piping - West
G-003	Code Summary & Accessibility Diagrams	S110	Low Roof Framing Plan - Overall	A-311	Wall Sections	P222	Roof Plan - Plumbing - West	MP300	Mechanical Flow Diagrams
G-004	Wall Types	S111	Low Roof Framing Plan - East	A-312	Wall Sections	P223	Roof Plan - Plumbing - Firing Range (Alternate #04)	E000	Electrical Coversheet
C-100	Existing Conditions / Demolition Plan	S112	Low Roof Framing Plan - West	A-401	Enlarged Floor Plans	P300	Plumbing Enlarged Plans	E201	Floor Plan - Lighting - East
C-200	Overall Site Plan	S113	Roof Framing Plan - Firing Range (Alternate #04)	A-402	Enlarged Floor Plans	P401	Plumbing Riser Diagrams - Sanitary Waste and Vent	E202	Floor Plan - Lighting West
C-300	Overall Grading Plan	S120	High Roof Framing Plan	A-501	Details	P402	Plumbing Riser Diagrams - Domestic Water	E203	Floor Plan - Lighting - Firing Range (Alternate #04)
C-301	Enlarged Grading Plan	S200	Foundation Sections	A-502	Details	P403	Plumbing Riser Diagrams - Sanitary Waste and Vent - Firing Range (Alternate #04)	E204	Site Plan - Lighting
C-302	Enlarged Grading Plan	S201	Foundation Sections	A-503	Details	P404	Plumbing Riser Diagrams - Domestic Water - Firing Range (Alternate #04)	E205	Site Plan - Lighting with Firing Range (Alternate #04)
C-303	Enlarged Grading Plan	S202	Foundation Sections	A-510	Millwork Details	P500	Plumbing Details	E211	Floor Plan - Power - East
C-304	Enlarged Grading Plan	S300	Framing Sections	A-511	Millwork Details	P501	Plumbing Details	E212	Floor Plan - Power - West
C-305	Enlarged Grading Plan	S301	Framing Sections	A-601	Door Schedule	P502	Plumbing Details	E213	Floor Plan - Power - Firing Range (Alternate #04)
C-306	Enlarged Grading Plan	S302	Framing Sections	A-602	Door and Frame Types	P503	Plumbing Details	E214	Roof Plan - Electrical - East
C-400	Overall Utility Plan	S303	Framing Sections	A-603	Window Types	P600	Plumbing Schedules	E215	Roof Plan - Electrical - West
C-401	Secondary Storm Plan	S304	Framing Sections	A-700	Overall Reflected Ceiling Plan - Main Building	P601	Plumbing Schedules	E216	Roof Plan - Electrical - Firing Range (Alternate #04)
C-500	Storm Sewer Plan and Profile	S305	Framing Sections - Firing Range (Alternate #04)	A-701	Partial Reflected Ceiling Plan - Main Building	E221	Mechanical Coversheet	E221	Floor Plan - Systems - East
C-501	Storm Sewer Plan and Profile	S306	Framing Sections	A-702	Partial Reflected Ceiling Plan - Main Building	M000	Mechanical Enlarged Plans	E222	Floor Plan - Systems - West
C-502	Storm Sewer Plan and Profile	A-020	Architectural Site Plan	A-703	Reflected Ceiling Plan & Interior Renderings - Lobby	M211	Floor Plan - Ventilation - East	E223	Floor Plan - Systems - Firing Range (Alternate #04)
C-503	Storm Sewer Plan and Profile	A-021	Site Details	A-900	Exterior Rendering	M212	Floor Plan - Ventilation - West	E300	Electrical Enlarged Floor Plans
C-600	Drainage Map	A-022	Architectural Site Plan with Firing Range (Alternate #04)	I-610	Finish Legend & Schedule	M213	Floor Plan - Ventilation - Firing Range (Alternate #04)	E400	Electrical Details
C-601	Drainage Calculations	A-100	Overall Floor Plan	I-611	Partial Finish Plan and Schedule	M221	Roof Plan - Ventilation - East	E401	Electrical Details
C-700	Erosion Control Phase I	A-101	Partial Floor Plan - Main Building	I-612	Partial Finish Plan and Schedule	M222	Roof Plan - Ventilation - West	E402	Electrical Details
C-701	Erosion Control Phase II	A-102	Partial Floor Plan - Main Building	I-613	Partial Furniture, Equipment Plan and Schedule	M223	Roof Plan - Ventilation - Firing Range (Alternate #04)	E500	Electrical Riser Diagram - Base Bid
C-702	Erosion Control Details	A-104	Tilt-Up Wall Reveal Plan - East Main Building & Firing Range (Alt. #04)	I-614	Partial Furniture and Equipment Plan	M300	Mechanical Enlarged Plans	E501	Electrical Riser Diagram (Alternate #03)
C-800	Standard Details	A-105	Tilt-Up Wall Reveal Plan - West Main Building	I-615	Finish, Furniture Plans and Schedule - Firing Range (Alternate #04)	M400	Mechanical Control Diagrams	E600	Electrical Schedules
C-801	Standard Details	A-106	Floor Plans, Reflected Ceiling & Roof Plan - Firing Range (Alt. #04)	I-801	Signage Plan and Schedule	M401	Mechanical Control Diagrams	E700	Electrical Panel Schedules
C-802	Standard Details	A-120	Roof Plan and Details	I-802	Signage Key	M402	Mechanical Control Diagrams (Alternate #04)	E701	Electrical Panel Schedules
C-805	Storm Sewer Details	FP000	Fire Protection Cover Sheet	FP000	Fire Protection Cover Sheet	M403	Mechanical Control Diagrams	E702	Electrical Panel Schedules
C-900	Firing Range Site Plan (Alternate #04)	FP201	Floor Plan - Fire Protection - East	FP201	Floor Plan - Fire Protection - East	M500	Mechanical Details	E703	Electrical Panel Schedules
C-901	Firing Range Grading Plan (Alternate #04)	FP202	Floor Plan - Fire Protection - West	FP202	Floor Plan - Fire Protection - West	M501	Mechanical Details	E704	Electrical Panel Schedules
C-902	Firing Range Utility Plan (Alternate #04)	FP300	Fire Protection Enlarged Plans	FP300	Fire Protection Enlarged Plans	M502	Mechanical Details	T000	Technology Coversheet
C-903	Firing Range Secondary Storm Plan (Alternate #04)	FP400	Fire Protection Details	FP400	Fire Protection Details	M503	Mechanical Details	T011	Site Plan - Technology
L-100	Landscape Plan	FP401	Fire Protection Details	FP401	Fire Protection Details	M504	Mechanical Details	T012	Site Plan - Technology with Firing Range (Alternate #04)
S001	General Notes	FP600	Fire Protection Schedules	FP600	Fire Protection Schedules	M505	Mechanical Details	T201	Floor Plan - Technology - East
S002	CMU Details	A-210	Interior Elevations	P000	Plumbing Cover Sheet	M506	Mechanical Details	T202	Floor Plan - Technology - West
S003	Building Design Loads	A-211	Interior Elevations	P201	Floor Plan - Underfloor Plumbing - East	M600	Mechanical Schedules	T203	Floor Plan - Technology - Firing Range (Alternate #04)
S004	Schedules	A-212	Interior Elevations	P202	Floor Plan - Underfloor Plumbing - West	M601	Mechanical Schedules	T300	Technology Room Enlargements
S005	Tilt-Up Shear Wall Design Loads	A-213	Interior Elevations	P203	Floor Plan - Underfloor Plumbing - Firing Range (Alternate #04)	M602	Mechanical Schedules	T400	Technology Details
S100	Foundation Plan - Overall	A-214	Interior Elevations	MP000	Mechanical Piping Coversheet	MP201	Floor Plan - Piping - East	T401	Technology Details
S101	Foundation Plan - East	A-301	Building Sections	MP201	Floor Plan - Piping - East	MP202	Floor Plan - Piping - West	T402	Technology Details
		A-302	Building Sections	P211	Floor Plan - Plumbing - East			T500	Technology Diagrams
				P212	Floor Plan - Plumbing - West			T600	Technology Schedules

GastingerWalker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

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Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
CHECKED BY:  
DESIGNED BY:  
SHEET TITLE:

CAD DWG FILE: G-001.dwg  
DRAWN BY: LS  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

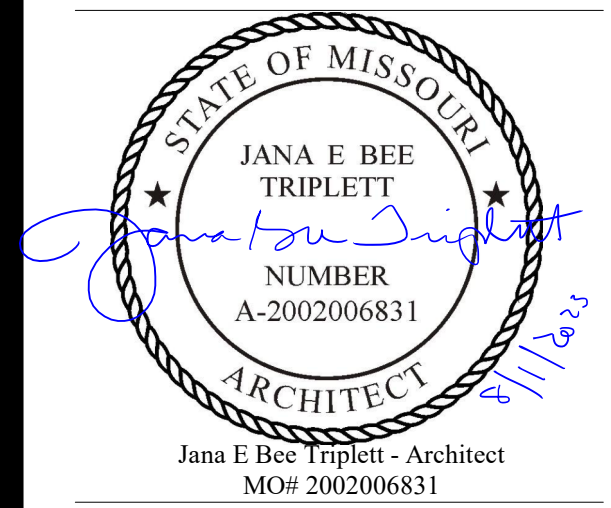
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G-001

SHEET 001 OF 202

08/01/2023



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817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 21022.152

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Missouri Certificate of Authority: #2023012872

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ISSUE DATE: 01 August 2023

CAD DWG FILE: G-002.dwg  
DRAWN BY: CM  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

Life Safety Plan / Code  
Analysis

SHEET NUMBER:

**G-002**

SHEET 002 OF 202

08/01/2023

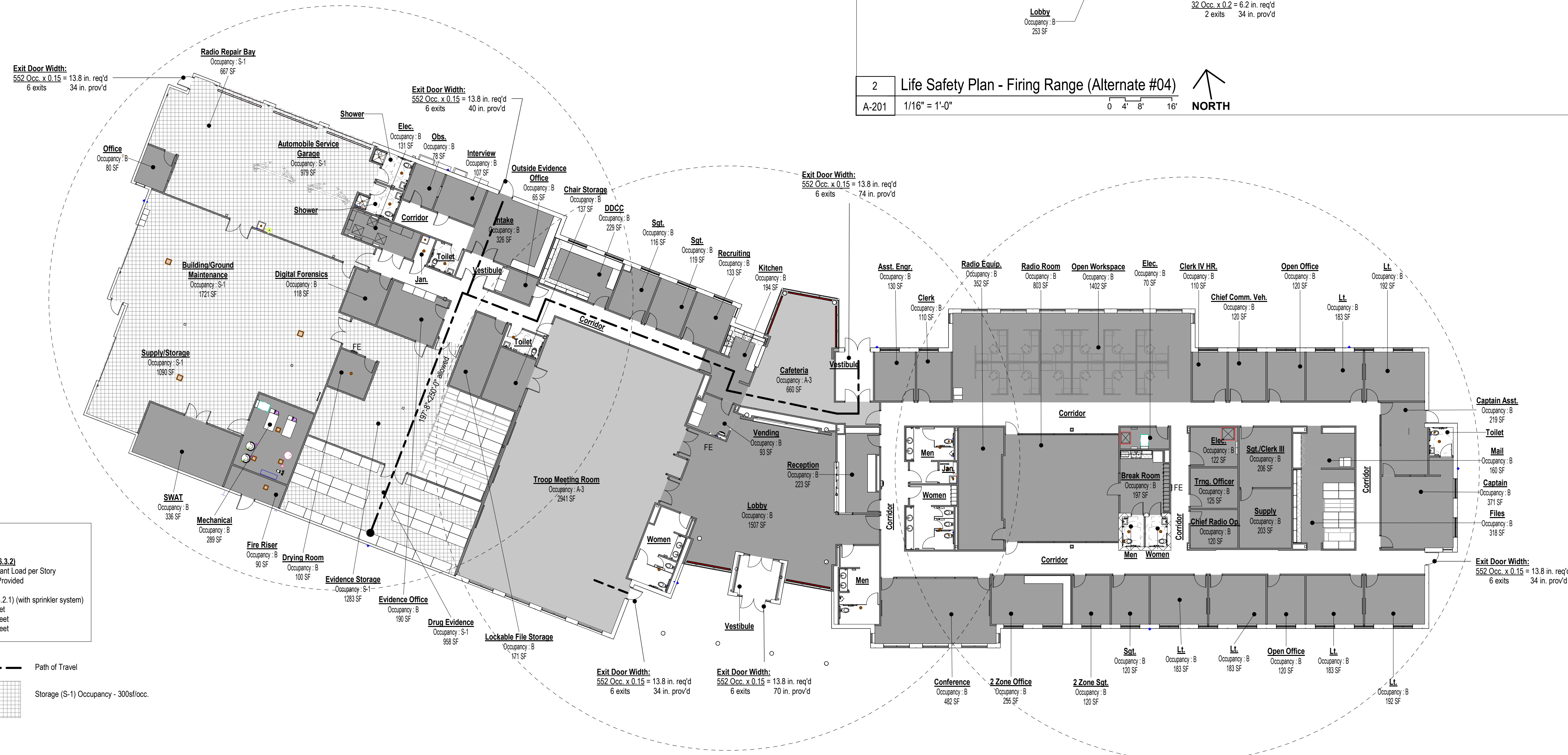
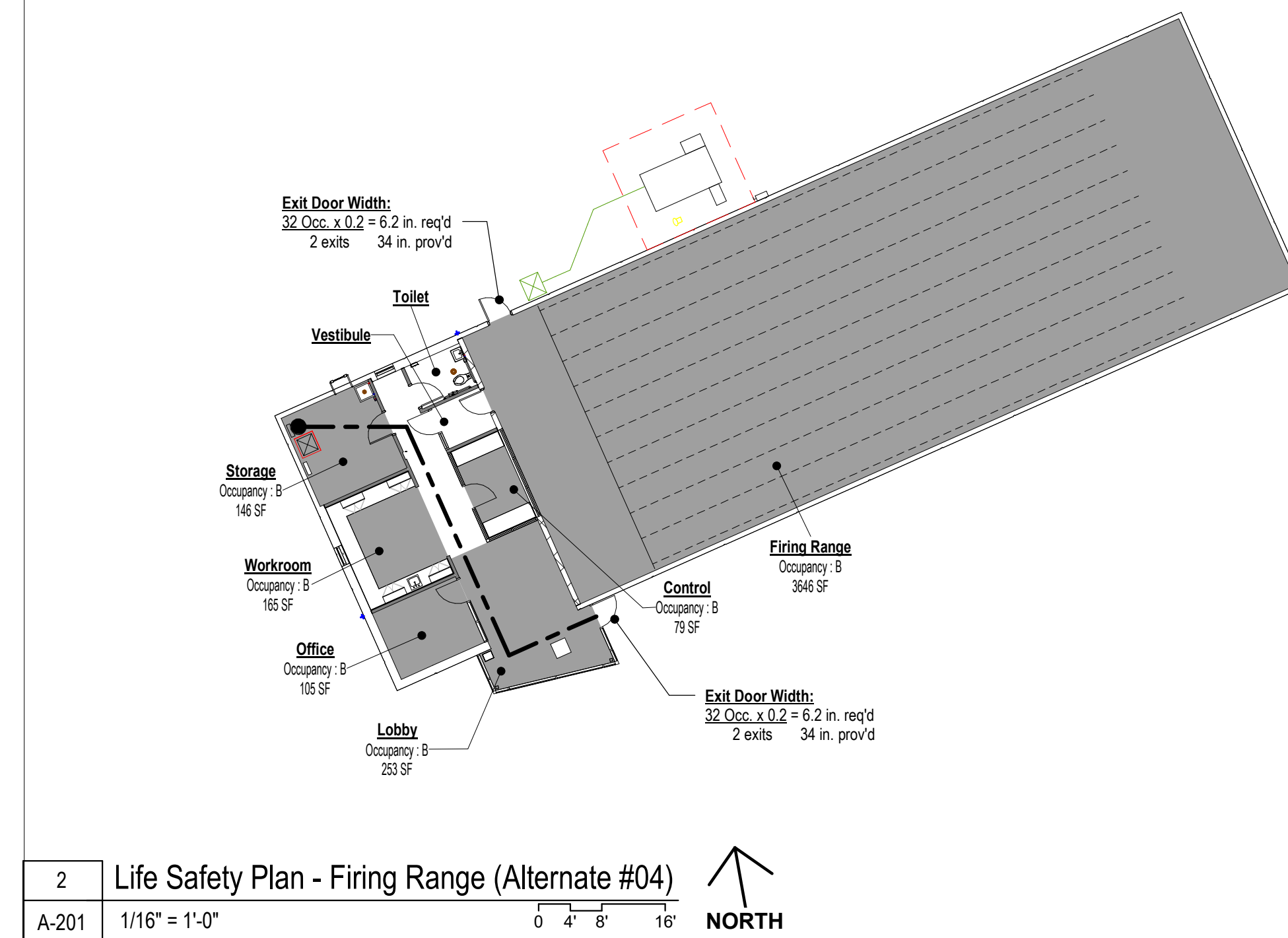
Occupancy Schedule		
Name	Area	Occupancy Load
A-3		
Troop Meeting Room	2941 SF	197
Cafeteria	660 SF	44
B		
Conference	482 SF	4
2 Zone Office	255 SF	2
2 Zone Sgt.	120 SF	1
Sgt.	120 SF	1
Lt.	183 SF	2
Open Office	120 SF	1
Lt.	183 SF	2
Lt.	183 SF	2
Radio Equip.	362 SF	3
Radio Room	803 SF	6
Elec.	70 SF	1
Break Room	197 SF	2
Trng. Officer	125 SF	1
Chief Radio Op.	120 SF	1
Sgt./Clerk III	206 SF	2
Supply	203 SF	2
Mail	160 SF	2
Files	318 SF	3
Captain	371 SF	3
Captain Asst.	219 SF	2
Lt.	192 SF	2
Lt.	183 SF	2
Open Office	120 SF	1
Chief Comm. Veh.	120 SF	1
Clerk IV HR.	110 SF	1
Reception	223 SF	2
Open Workspace	1402 SF	10
Clerk	110 SF	1
Asst. Engr.	130 SF	1
Recruiting	133 SF	1
Sgt.	119 SF	1
Sgt.	116 SF	1
DDCC	229 SF	2
Kitchen	194 SF	2
Intake	326 SF	3
Elec.	131 SF	1
Interview	107 SF	1
Obs.	78 SF	1
Office	80 SF	1
Digital Forensics	118 SF	1
Evidence Office	190 SF	2
Lockable File Storage	171 SF	2
Chair Storage	137 SF	1
Vending	93 SF	1
Lobby	253 SF	2
Office	105 SF	1
Workroom	165 SF	2
Storage	146 SF	1
Control	79 SF	1
Firing Range	3646 SF	25
Lobby	1507 SF	11
Outside Evidence Office	65 SF	1
Drying Room	100 SF	1
SWAT	336 SF	3
Mechanical	289 SF	2
Fire Riser	90 SF	1
Lt.	183 SF	2
Elec.	122 SF	1
16697 SF 139		
S-1		
Automobile Service Garage	979 SF	5
Radio Repair Bay	667 SF	4
Building/Ground Maintenance	1721 SF	6
Supply/Storage	1090 SF	6
Evidence Storage	1283 SF	5
Drug Evidence	958 SF	7
6698 SF 33		
Totals 26995 SF 413		

IBC 2018 PLUMBING COUNTS: By Occupancy				
TOILETS		OCCUPANTS	REQUIRED	PROVIDED
Male (A Occupancy)	Male 1 per 125	121	1	1 toilets, 1 urinal
	URINALS - max. 67% of req'd toilets			
Female (A Occupancy)	Female 1 per 65	121	2	2
	URINALS - max. 67% of req'd toilets			
Male (B Occupancy)	1 per 25 for the first 50; 1 per 50	69	3	2 toilets, 1 urinal
	URINALS - max. 67% of req'd toilets			
Female (B Occupancy)	1 per 25 for the first 50; 1 per 50	69	3	4
	URINALS - max. 67% of req'd toilets			
(S Occupancy)	Male 1 per 100	17	1	-
	Female 1 per 100	17	1	-
LAVATORIES				
Male (A Occupancy)	1 per 200	121	1	2
Female (A Occupancy)	1 per 200	121	1	2
Male (B Occupancy)	1 per 40 for the first 80; 1 per 80	69	2	3
Female (B Occupancy)	1 per 40 for the first 80; 1 per 80	69	2	3
(S Occupancy)	Male 1 per 100	17	1	1
	Female 1 per 100	17	1	1
DRINKING FOUNTAINS (or Water Bottle Fillers)				
B Occupancy	1 per 100	139	2	2
SERVICE SINK				
		414	1	1

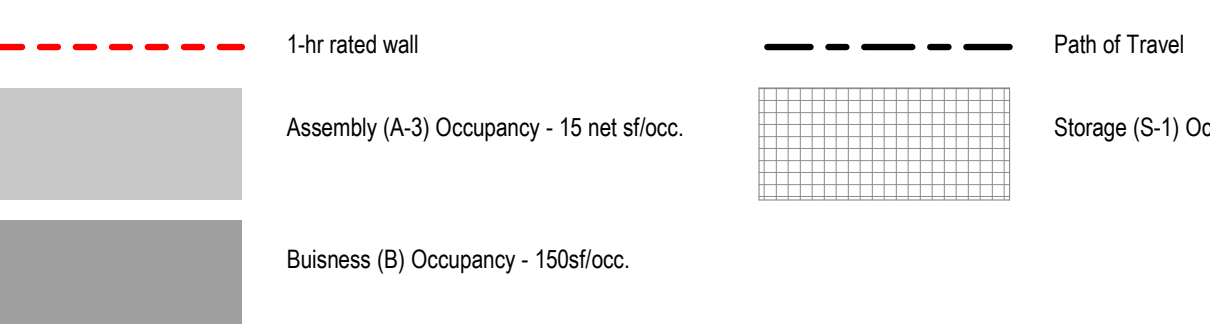
IBC 2018 PLUMBING COUNTS: Totals (Main Building)			
TOILETS	OCCUPANTS	REQUIRED	PROVIDED
Male	207	5	3 toilets, 2 urinals
Female	207	6	6
Unisex (Single Occupant)	-	-	4
LAVATORIES			
Male	207	4	5
Female	207	4	5
Unisex (Single Occupant)	-	-	4

Firing Range (Alternate #04) Occupancy Schedule		
Name	Area	Occupancy Load
B		
Lobby	253 SF	2
Office	105 SF	1
Workroom	165 SF	2
Storage	146 SF	1
Control	79 SF	1
Firing Range	3646 SF	25
Total Occupants	4394 SF	32

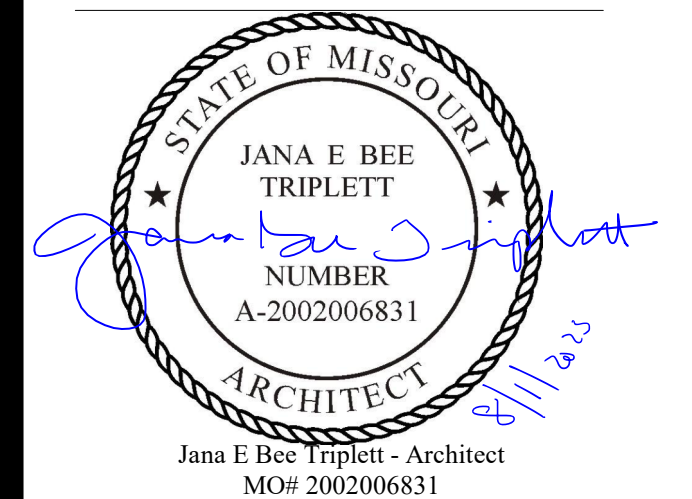
IBC 2018 PLUMBING COUNTS: Firing Range (Alternate #04)			
TOILETS	OCCUPANTS	REQUIRED	PROVIDED
Unisex (Single Occupant)	17	1	1
LAVATORIES			
Unisex (Single Occupant)	17	1	1
SERVICE SINK			
	17	1	1



EXITS & EGRESS WIDTHS - TABLE 1006.3.2	
<b>Exit Access:</b>	<b>Exits &amp; Egress Widths (Table 1006.3.2)</b>
Travel Distance (Table 1017.2) (with sprinkler system)	Minimum Number of Exits for Occupant Load per Story
A Occupancy: 250 feet	1-500 = 2 Exits Required / 3 Exits Provided
B Occupancy: 300 feet	
S-1 Occupancy: 250 feet	
	Common Path of Travel (Table 1006.2.1) (with sprinkler system)
	A Occupancy: 75 feet
	B Occupancy: 100 feet
	S Occupancy: 100 feet







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817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

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FACILITY # 8136018019

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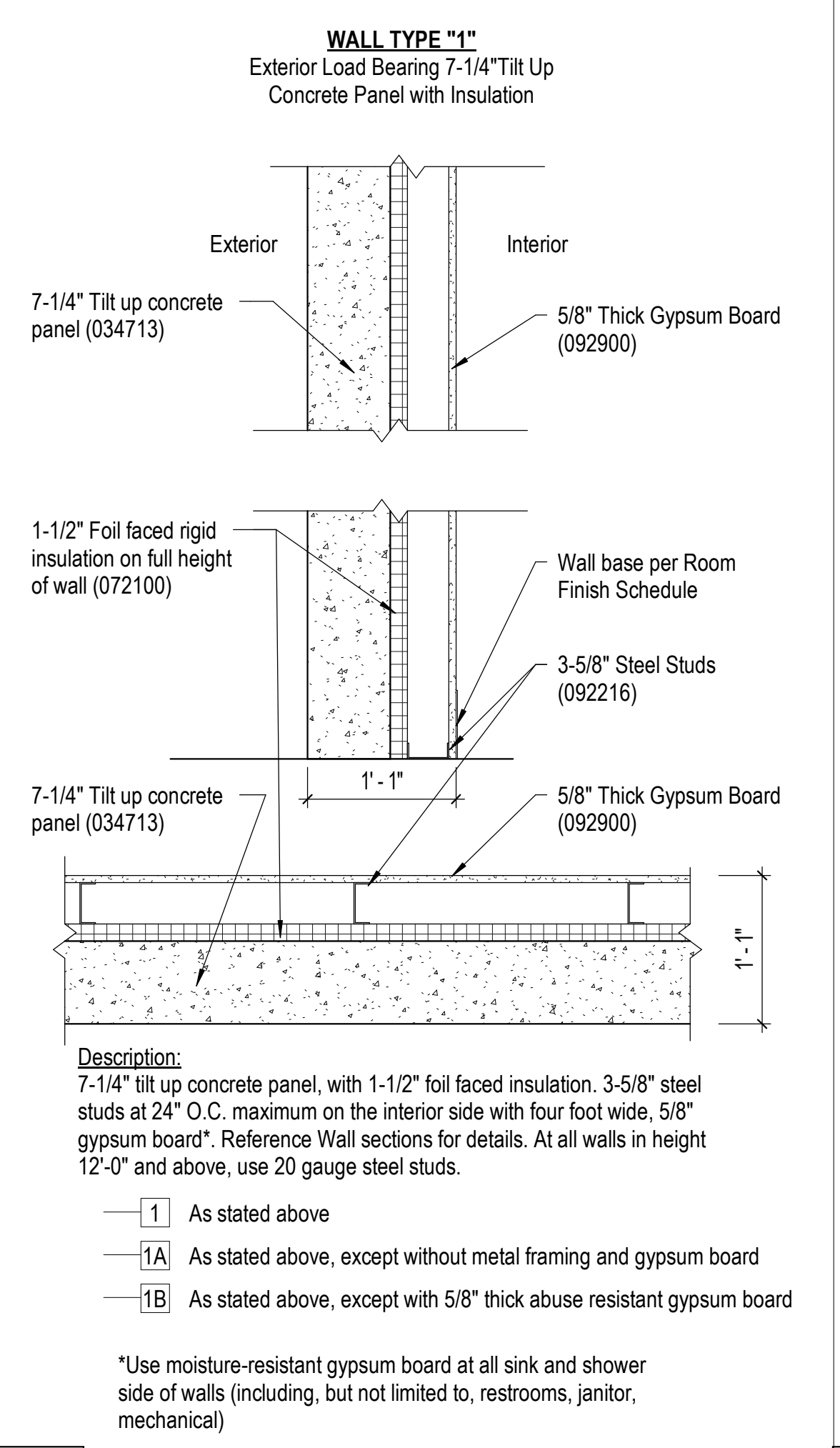
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DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:  
**Wall Types**

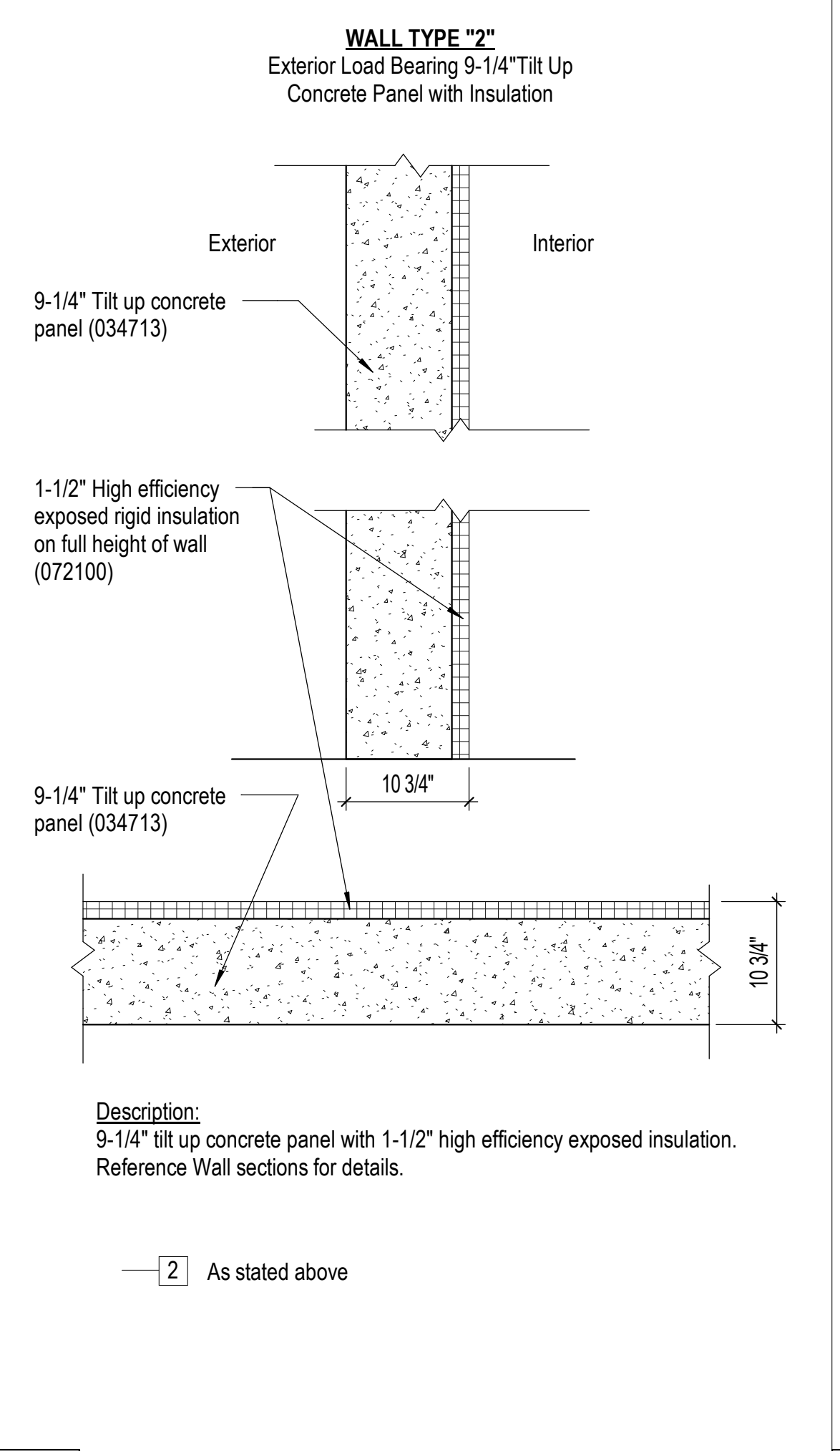
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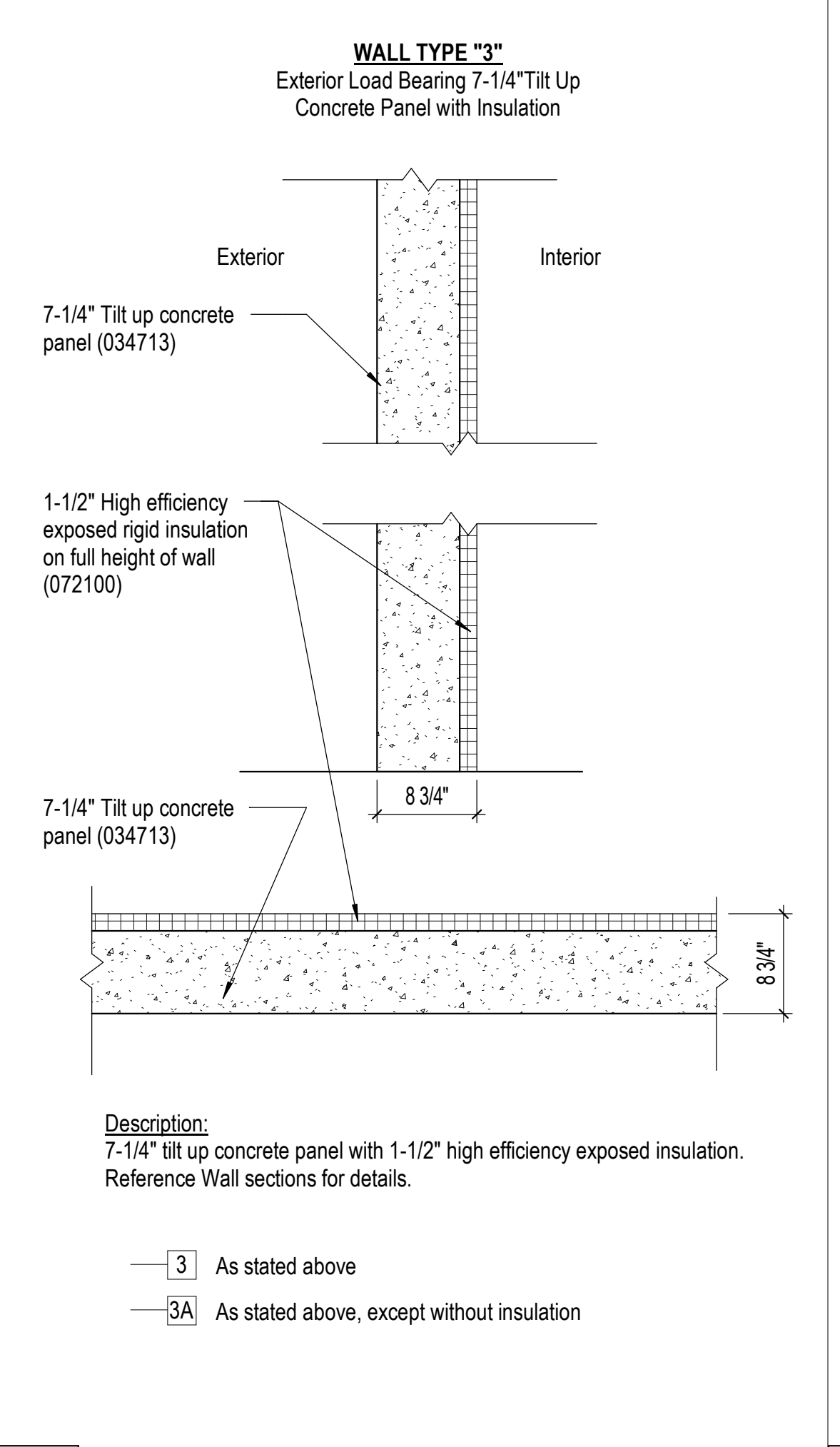
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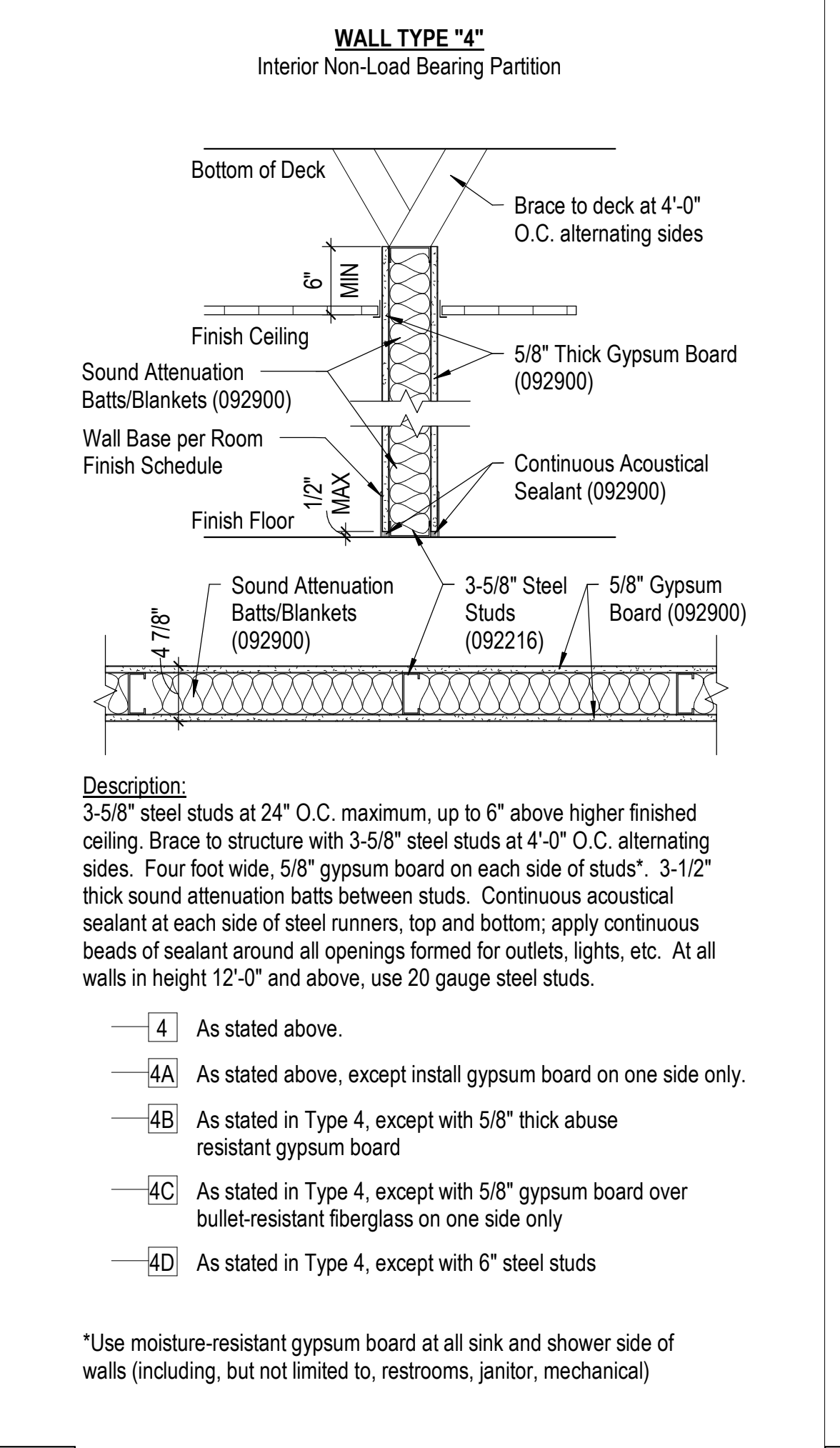
6 Wall Type 1 - Exterior Wall  
1" = 1'-0" 0 3' 6' 1'



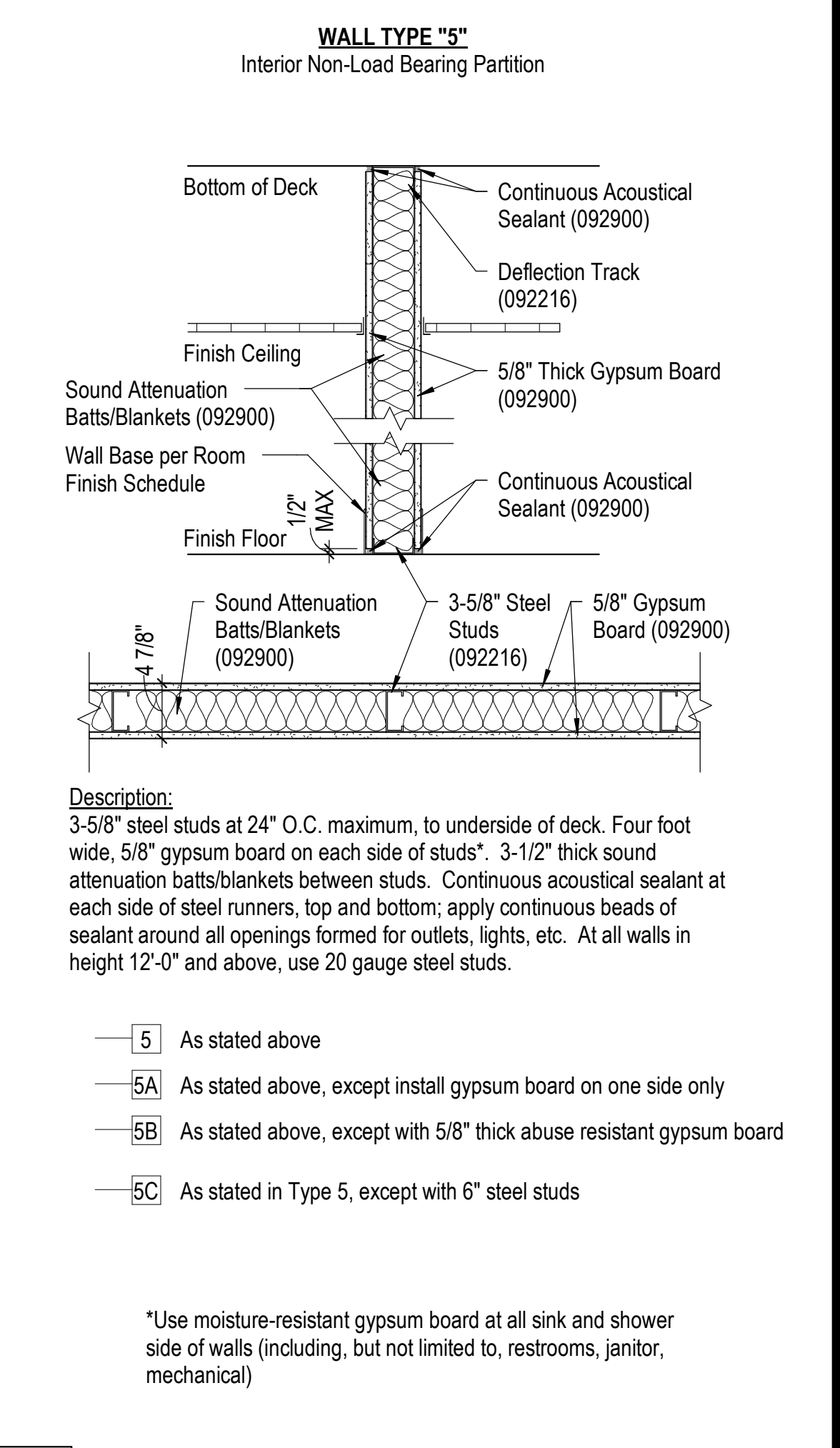
7 Wall Type 2 - Exterior Wall  
1" = 1'-0" 0 3' 6' 1'



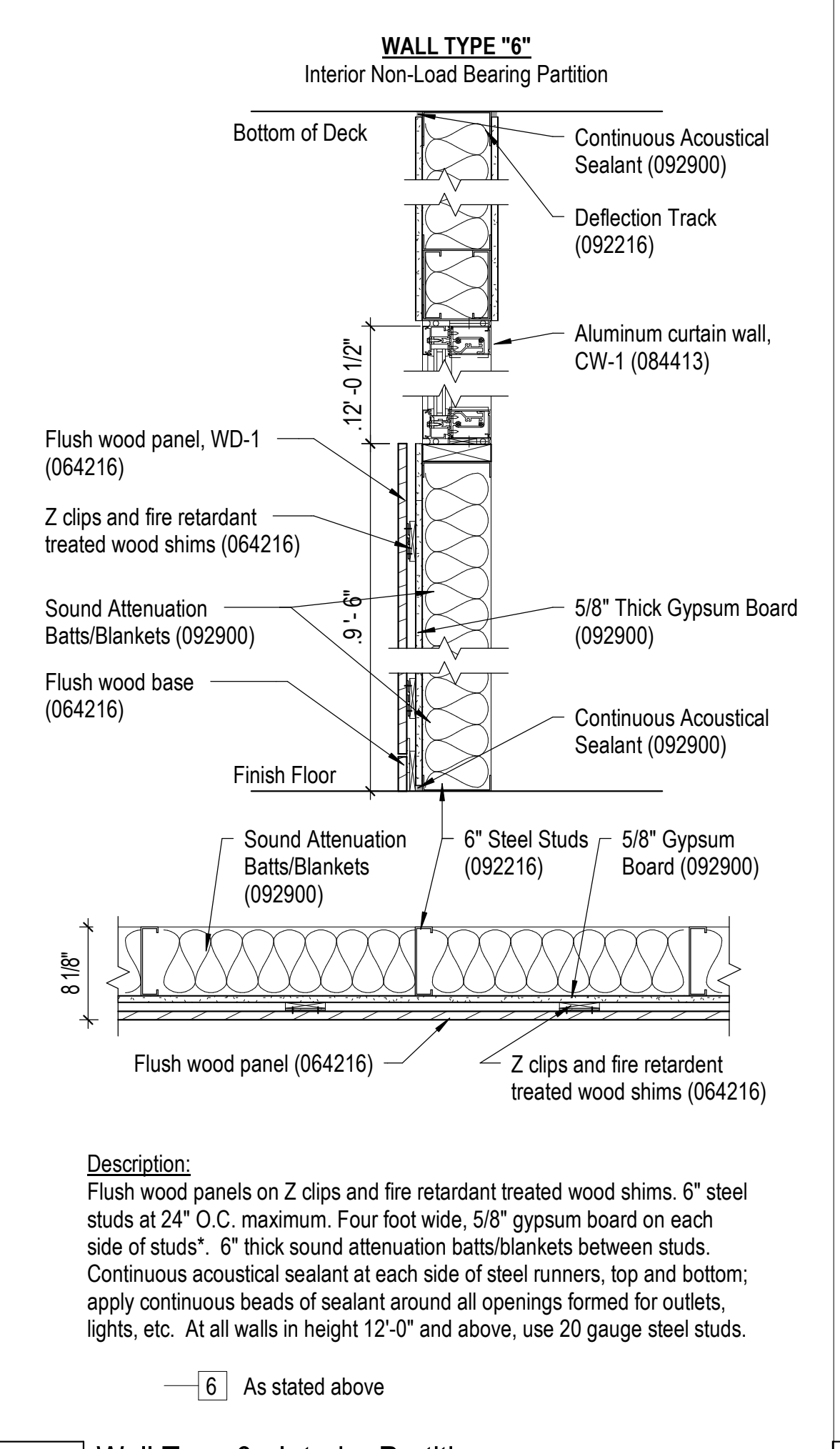
8 Wall Type 3 - Exterior Wall  
1" = 1'-0" 0 3' 6' 1'



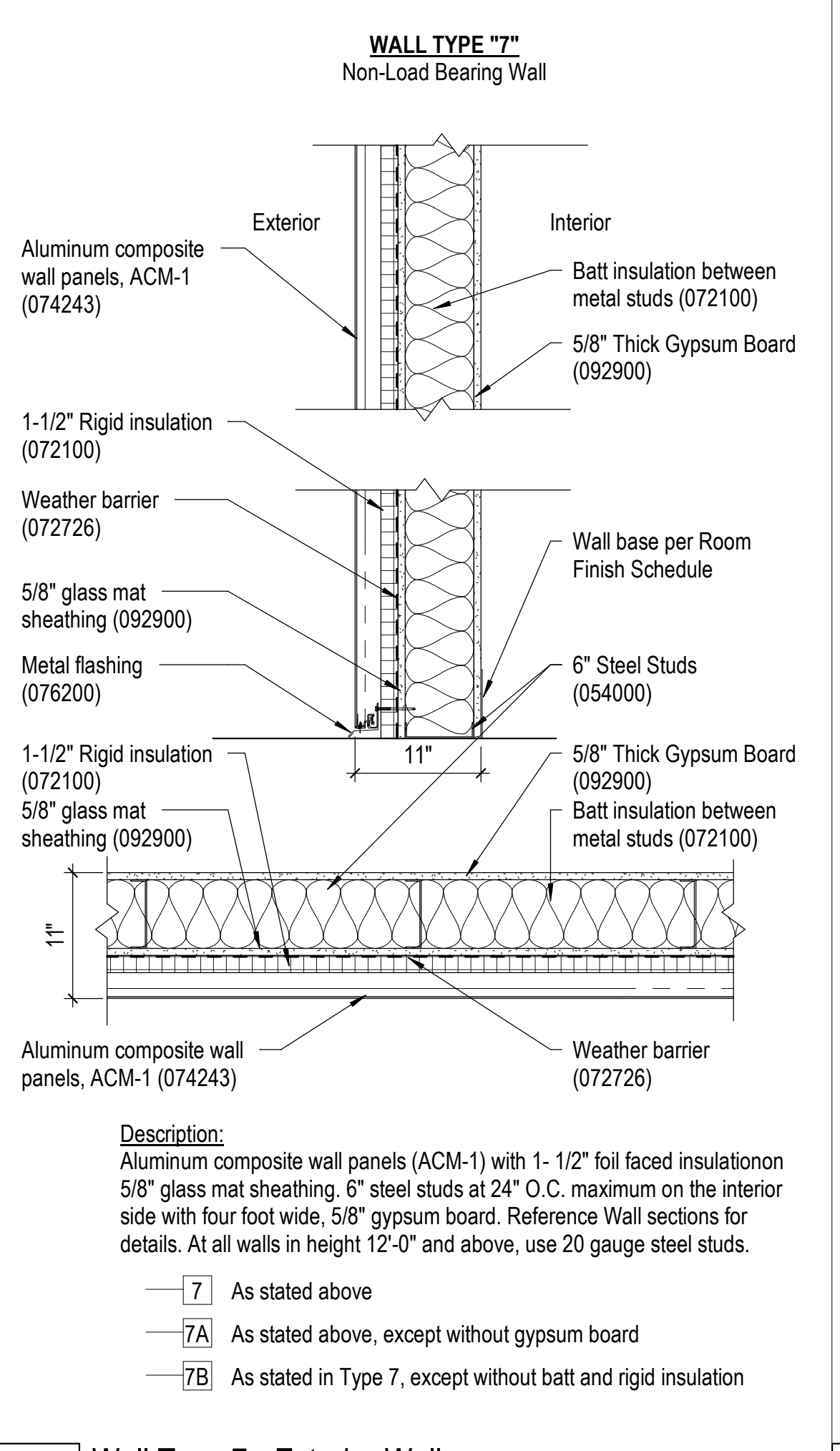
9 Wall Type 4 - Interior Partition  
1" = 1'-0" 0 3' 6' 1'



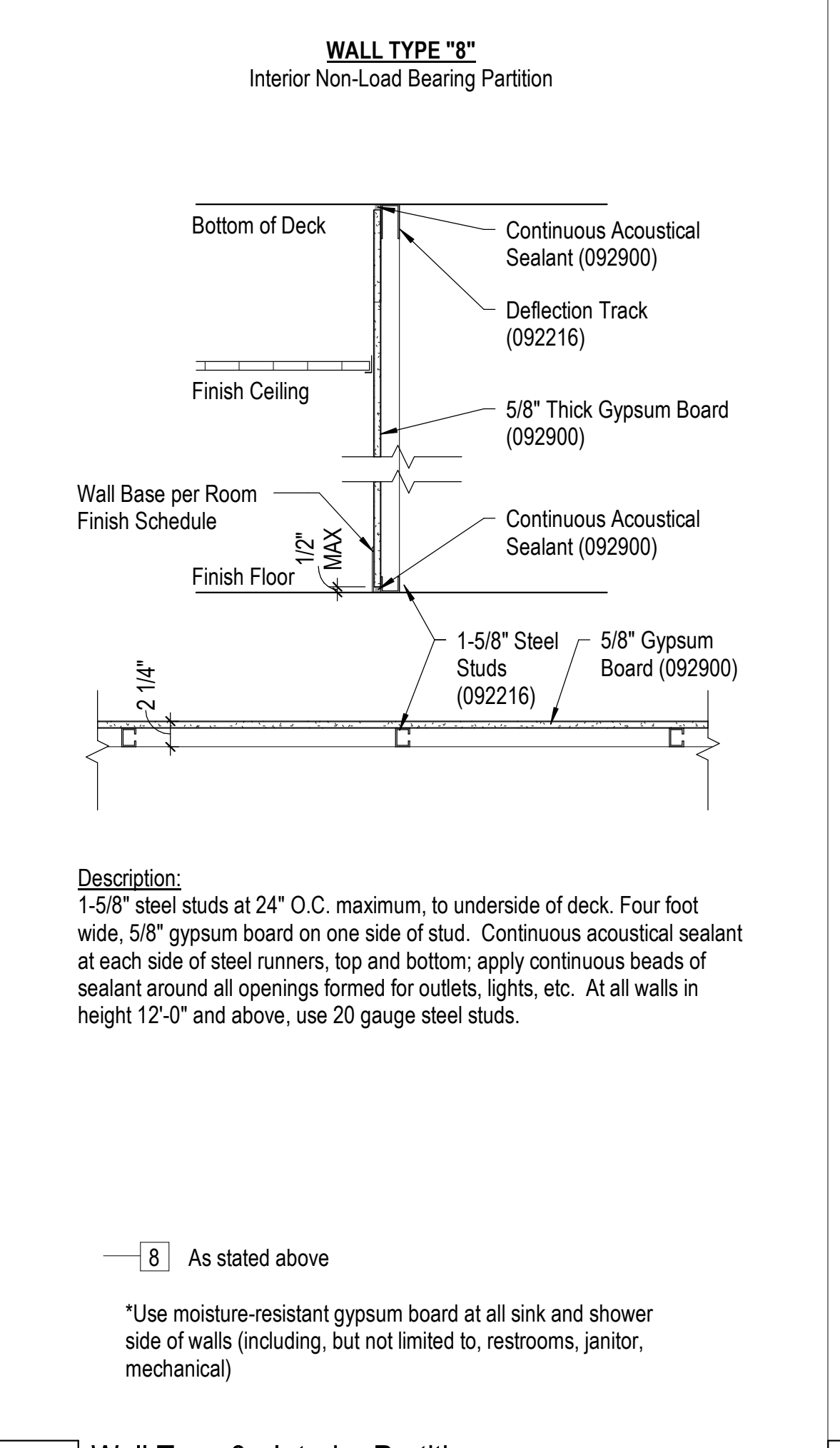
10 Wall Type 5 - Interior Partition  
1" = 1'-0" 0 3' 6' 1'



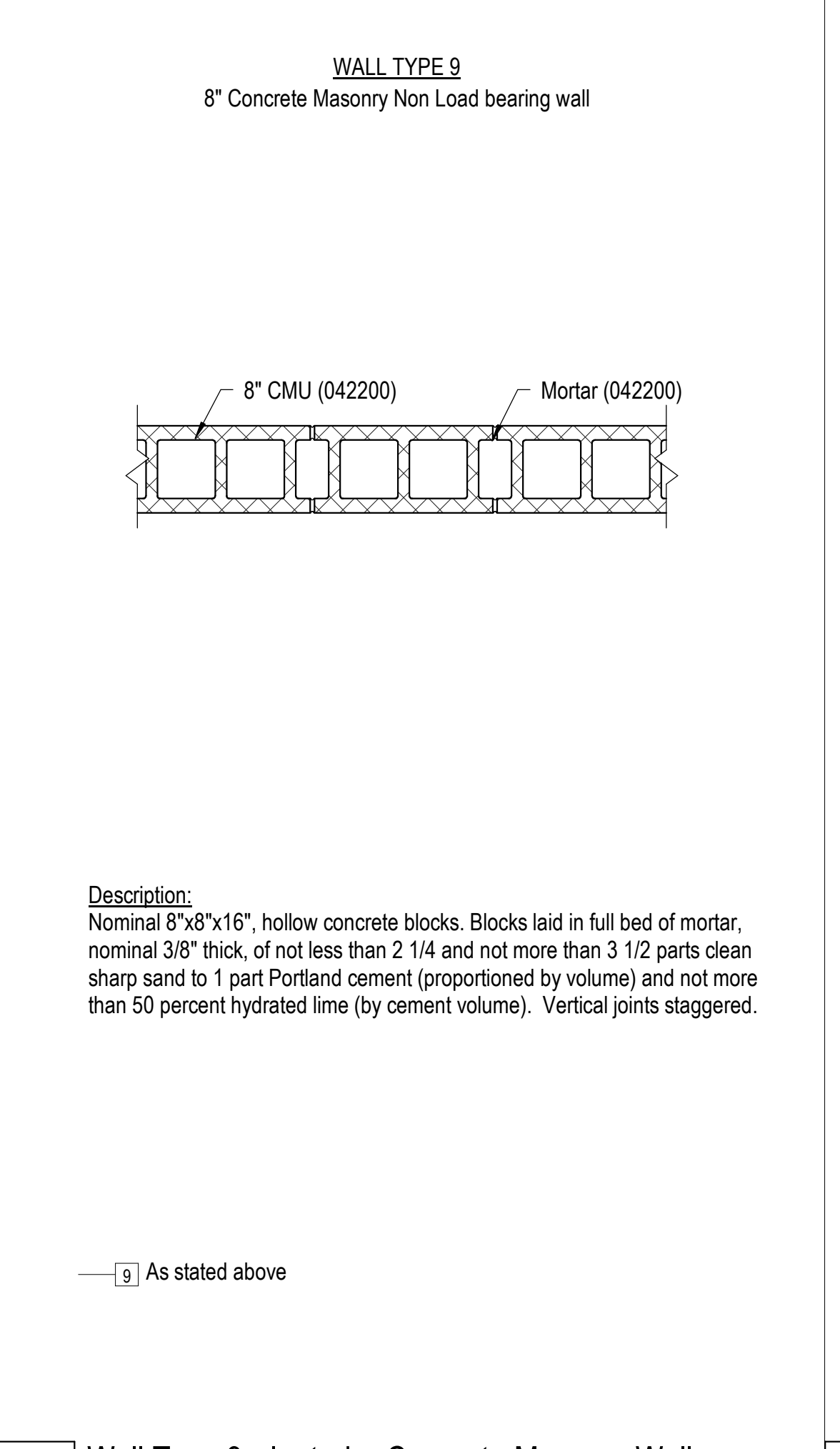
1 Wall Type 6 - Interior Partition  
1" = 1'-0" 0 3' 6' 1'



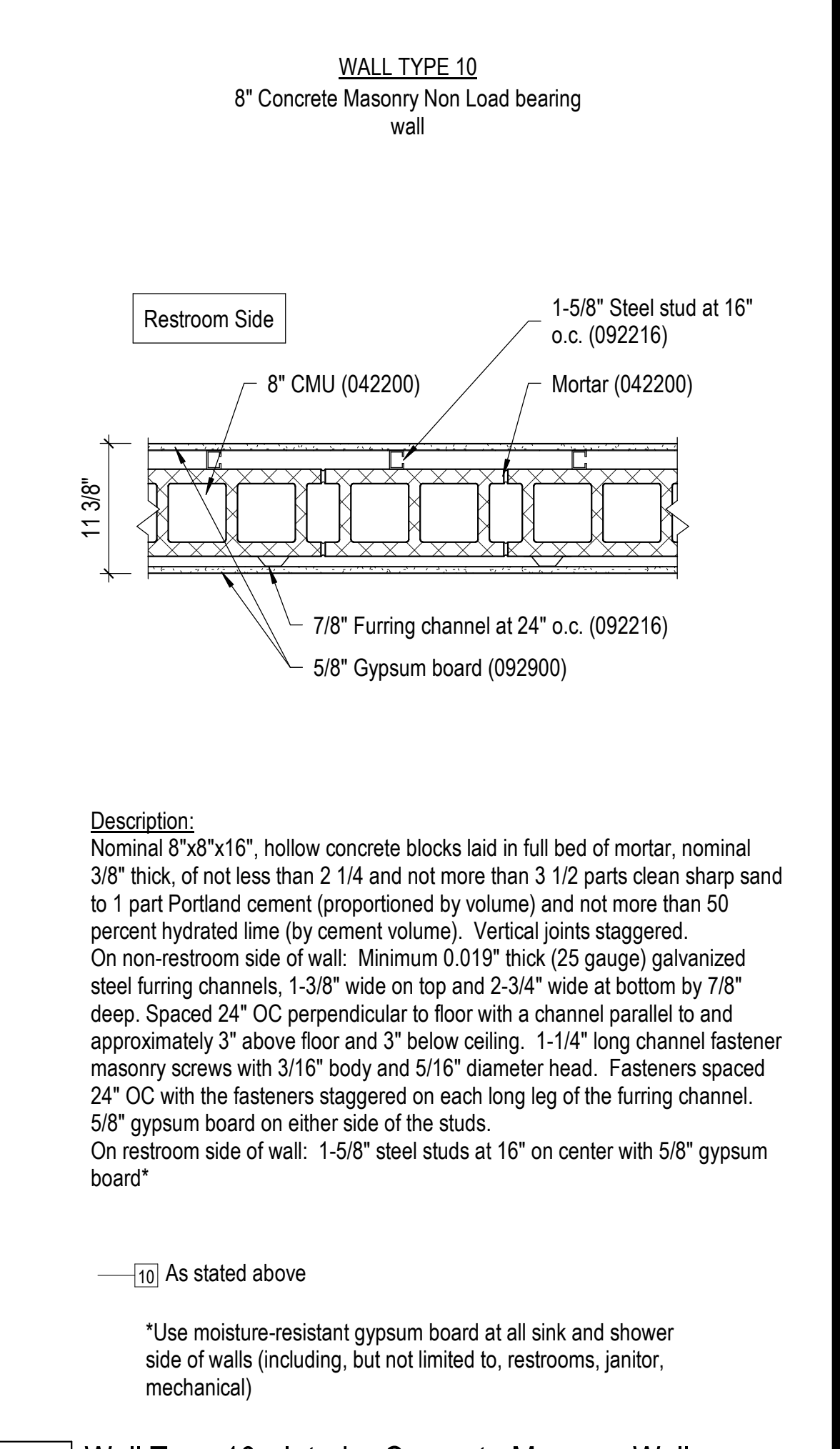
2 Wall Type 7 - Exterior Wall  
1" = 1'-0" 0 3' 6' 1'



3 Wall Type 8 - Interior Partition  
1" = 1'-0" 0 3' 6' 1'



4 Wall Type 9 - Interior Concrete Masonry Wall  
1" = 1'-0" 0 3' 6' 1'



5 Wall Type 10 - Interior Concrete Masonry Wall  
1" = 1'-0" 0 3' 6' 1'



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Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
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Project Name  
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1950 NE Independence Ave.  
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PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

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CAD DWG FILE: C-100.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

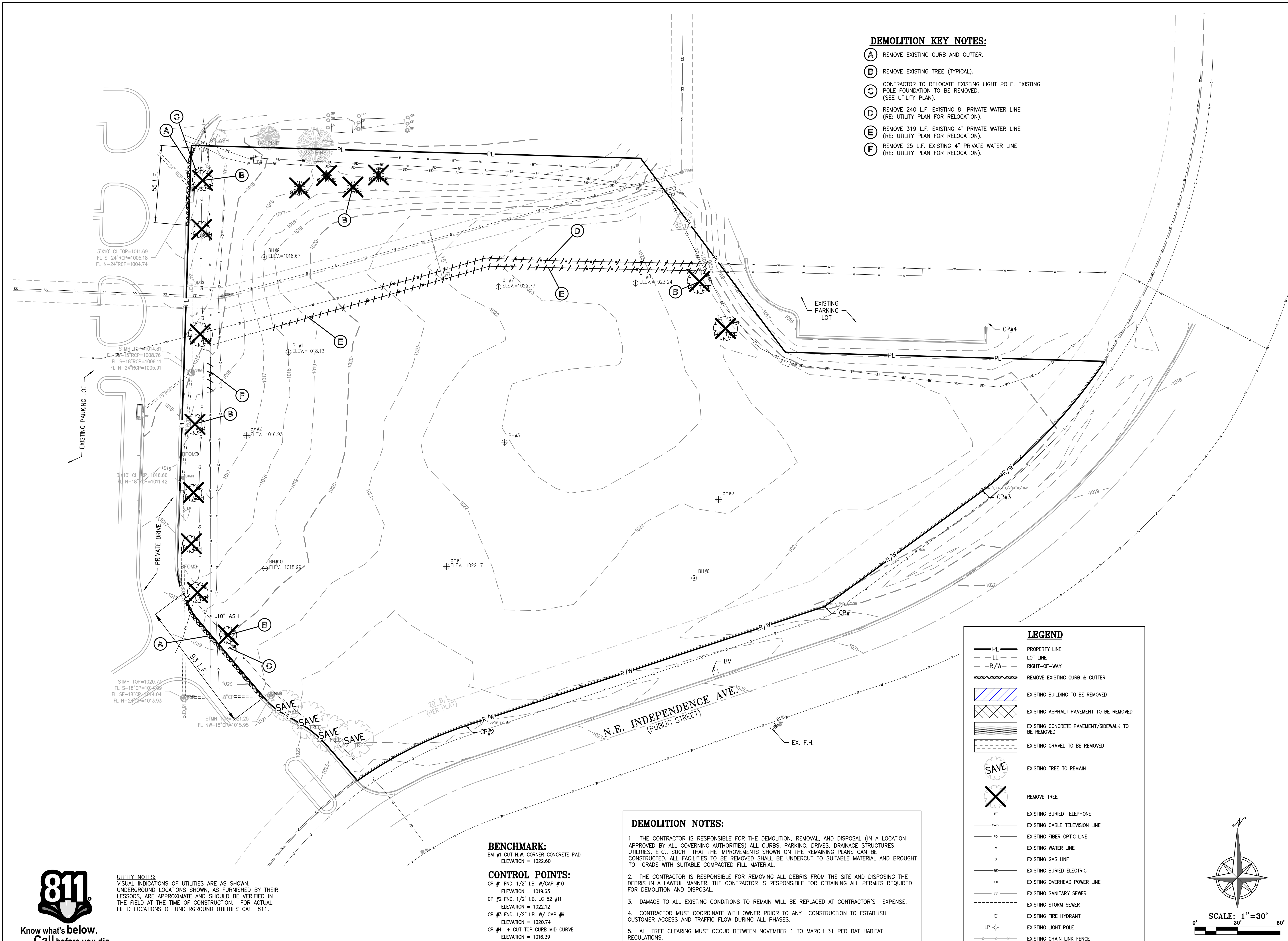
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EXISTING  
CONDITIONS /  
DEMOLITION PLAN

SHEET NUMBER:

**C-100**

SHEET 005 OF 202  
08/01/2023



**DEMOLITION KEY NOTES:**

- (A) REMOVE EXISTING CURB AND GUTTER.
- (B) REMOVE EXISTING TREE (TYPICAL).
- (C) CONTRACTOR TO RELOCATE EXISTING LIGHT POLE. EXISTING POLE FOUNDATION TO BE REMOVED. (SEE UTILITY PLAN).
- (D) REMOVE 240 L.F. EXISTING 8" PRIVATE WATER LINE (RE: UTILITY PLAN FOR RELOCATION).
- (E) REMOVE 319 L.F. EXISTING 4" PRIVATE WATER LINE (RE: UTILITY PLAN FOR RELOCATION).
- (F) REMOVE 25 L.F. EXISTING 4" PRIVATE WATER LINE (RE: UTILITY PLAN FOR RELOCATION).

**DEMOLITION NOTES:**

1. THE CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION, REMOVAL AND DISPOSAL (IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES) ALL CURBS, PARKING, DRIVES, DRAINAGE STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL.
2. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL DEBRIS FROM THE SITE AND DISPOSING THE DEBRIS IN A LAWFUL MANNER. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.
3. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED AT CONTRACTOR'S EXPENSE.
4. CONTRACTOR MUST COORDINATE WITH OWNER PRIOR TO ANY CONSTRUCTION TO ESTABLISH CUSTOMER ACCESS AND TRAFFIC FLOW DURING ALL PHASES.
5. ALL TREE CLEARING MUST OCCUR BETWEEN NOVEMBER 1 TO MARCH 31 PER BAT HABITAT REGULATIONS.

**BENCHMARK:**  
BM #1 CUT N.W. CORNER CONCRETE PAD  
ELEVATION = 1022.60

**CONTROL POINTS:**  
CP #1 FND. 1/2" I.B. W/CAP #10  
ELEVATION = 1019.65  
CP #2 FND. 1/2" I.B. LC 52 #11  
ELEVATION = 1022.12  
CP #3 FND. 1/2" I.B. W/ CAP #9  
ELEVATION = 1020.74  
CP #4 + CUT TOP CURB MID CURVE  
ELEVATION = 1016.39

**UTILITY NOTES:**  
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.



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Know what's below.  
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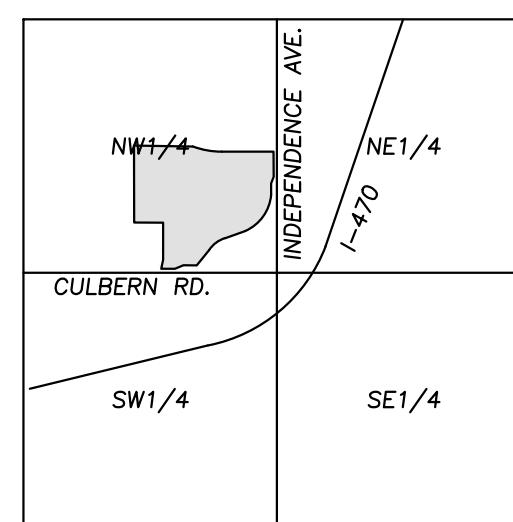
**UTILITY NOTES:**  
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

**BUILDING & LOT DATA**

Site Area	178,701 S.F./4.10 Ac.
Zoning	CP-2
Proposed Building No. of Stories	1 Story
Main Building S.F.	28,666 S.F.
Total Building S.F.	28,666 S.F.
Floor Area Ratio (FAR)	0.16

**PARKING SUMMARY**

Parking Provided - Lot X	
Standard Parking Provided	108 Spaces
Handicap Accessible Parking Spaces Provided	6 Spaces
Total Parking Provided	114 Spaces

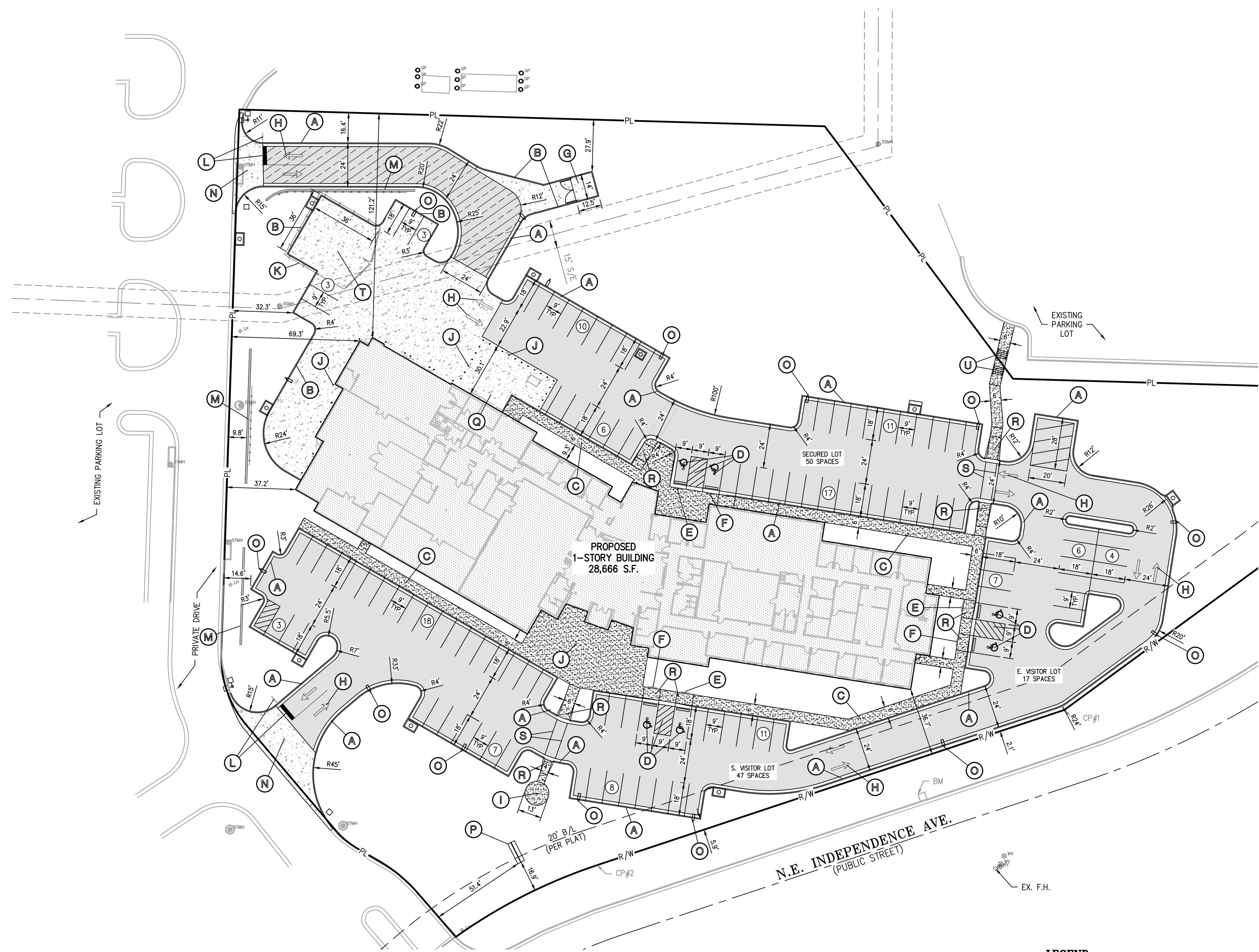
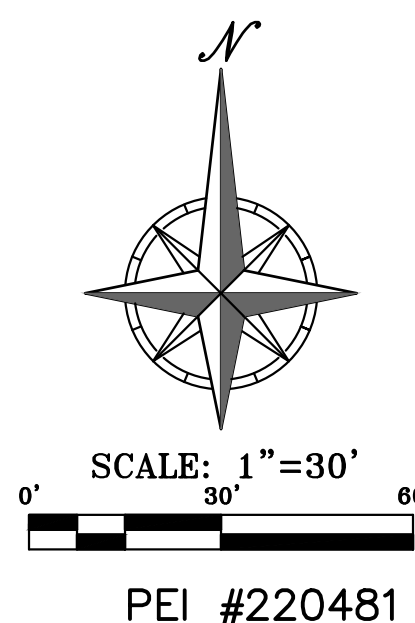


VICINITY MAP  
SEC. 19-48-31



**LEGEND**

- PL — PROPERTY LINE
- LL — LOT LINE
- R/W — RIGHT-OF-WAY
- 2' CURB & GUTTER
- 6" CURB
- STANDARD DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- PROPOSED BUILDING
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- RETAINING WALL
- PARKING LOT LIGHT



**SITE PLAN NOTES:**

- All construction materials and procedures on this project shall conform to the latest revision of the following governing requirements, incorporated herein by reference:  
A) City ordinances & O.S.H.A. Regulations.  
B) Project Specifications
- The contractor shall have one (1) signed copy of the plans (approved by the City) and one (1) copy of the appropriate Design and Construction Standards and Specifications at the job site at all times.
- The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits, bonds and insurance shall be the contractor's responsibility and shall be included in the bid for the work.
- The contractor is responsible for coordination of his and his sub-contractor's work. The contractor shall assume all responsibility for protecting and maintaining his work during the construction period and between the various trades/sub-contractors constructing the work.
- The demolition and removal (or relocation) of existing pavement, curbs, structures, utilities, and all other features necessary to construct the proposed improvements, shall be performed by the contractor. All waste material removed during construction shall be disposed off the project site. The contractor shall be responsible for all permits for hauling and disposing of waste material. The disposal of waste material shall be in accordance with all local, state and federal regulations.
- Contractor shall be responsible for all relocations, including but not limited to, all utilities, storm drainages, sanitary sewer services, signs, traffic signals & poles, etc. as required. All work shall be in accordance with governing authorities specifications and shall be approved by such. All cost shall be included in base bid.
- All existing utilities indicated on the drawings are according to the best information available to the Engineer; however, all utilities actually existing may not be shown. The contractor shall be responsible for contacting all utility companies for an exact field location of each utility prior to any construction. All underground utilities shall be protected at the contractor's expense. All utilities, shown and unshown, damaged through the negligence of the contractor shall be repaired or replaced by the contractor at his expense.
- The contractor will be responsible for all damage to existing utilities, pavement, fences, structures and other features not designated for removal. The contractor shall repair all damages at his expense.
- The contractor shall verify the flow lines of all existing storm or sanitary sewer connections and utility crossings prior to the start of construction. Notify the engineer of any discrepancies.
- SAFETY NOTICE TO CONTRACTOR:** In accordance with generally accepted construction practices, the contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. Any construction observation by the engineer of the contractor's performance is not intended to include review of the adequacy of the contractor's safety measures, in, on, or near the construction site.
- All site concrete (curbs, pavements, sidewalks, etc.) shall meet Kansas City Materials Metro Board (KCMMB) mix design specifications for 4,000 p.s.i. air entrained concrete. APWA detail references are provided for all geometrical and other design information.
- Refer to the building plans for site lighting electrical requirements, including conduits, pole bases, pull boxes, etc.

**SITE DIMENSION NOTES:**

- BUILDING TIES SHOWN ARE TO THE OUTSIDE FACE OF PROPOSED WALLS. THE SUBCONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR SPECIFIC DIMENSIONS AND LAYOUT INFORMATION FOR THE BUILDINGS.
- ALL DIMENSIONS SHOWN FOR THE PARKING LOT AND CURBS ARE MEASURED FROM BACK OF CURB TO BACK OF CURB.

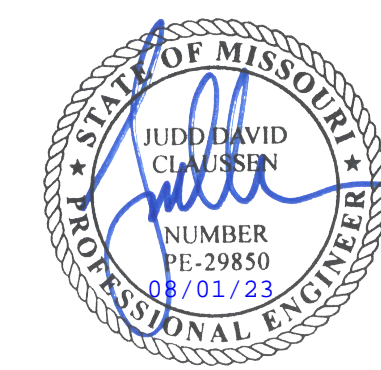
**PAVEMENT MARKING AND SIGNAGE NOTES:**

- PARKING STALL MARKING STRIPES SHALL BE FOUR INCH (4") WIDE WHITE STRIPES. DIRECTIONAL ARROW AND HANDICAP STALL MARKINGS SHALL BE FURNISHED AT LOCATIONS SHOWN ON PLANS.
- HANDICAP PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO ALL FEDERAL (AMERICANS WITH DISABILITIES ACT) AND STATE LAWS AND REGULATIONS.
- TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".
- STOP SIGNS SHALL BE PROVIDED AT ALL LOCATIONS AS SHOWN ON PLANS AND SHALL CONFORM TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". SIGNS SHALL BE 18" X 12", 18 GAUGE STEEL AND SHALL BE ENGINEER GRADE REFLECTIVE.
- TRAFFIC CONTROL AND PAVEMENT MARKINGS SHALL BE PAINTED WITH A WHITE SHERWIN WILLIAMS S-W TRAFFIC MARKING SERIES B-2922 OR APPROVED EQUAL. THE PAVEMENT MARKING SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. APPLY ON A CLEAN, DRY SURFACE AND AT A SURFACE TEMPERATURE OF NOT LESS THAN 70°F AND THE AMBIENT AIR TEMPERATURE SHALL NOT BE LESS THAN 60°F AND RISING. TWO COATS SHALL BE APPLIED.

**SITE KEY NOTES:**

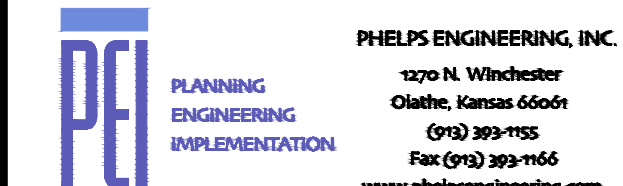
- (A) CONSTRUCT 2' CONCRETE & CURB & GUTTER (TYPICAL) (RE: DETAIL #4, SHEET C-800).
- (B) CONSTRUCT 6" CONCRETE CURB (TYPICAL).
- (C) CONSTRUCT CONCRETE SIDEWALK (TYPICAL) (RE: DETAIL #4, SHEET C-800).
- (D) CONSTRUCT ACCESSIBLE PARKING SPACE. INSTALL MARKINGS PER STANDARD DETAIL, AND CONCRETE WHEEL STOPS (RE: DETAIL #4, SHEET C-801).
- (E) INSTALL ACCESSIBLE PARKING SIGN (RE: DETAILS #1-#2, SHEET C-801).
- (F) INSTALL VAN ACCESSIBLE PARKING SIGN (RE: DETAILS #1-#2, SHEET C-801).
- (G) INSTALL TILT UP CONCRETE TRASH ENCLOSURE (RE: ARCHITECT PLANS).
- (H) INSTALL DIRECTIONAL ROAD MARKINGS (RE: DETAIL #2, SHEET C-803).
- (I) INSTALL FLAG POLE (RE: ARCHITECT PLANS).
- (J) INSTALL BOLLARDS (RE: ARCHITECT PLANS).
- (K) INSTALL 6' GALVANIZED CHAIN LINK FENCE AROUND CAR IMPOUND AREA (RE: ARCHITECT PLANS).
- (L) INSTALL STOP SIGN, 10 L.F. SOLID WHITE 24" STOP BAR & 23 L.F. 6" SOLID WHITE LINE. (RE: DETAIL #2, SHEET C-803).
- (M) CONSTRUCT RETAINING WALL (W/ HANDRAIL AT ANY LOCATION WALL EXCEEDS 30" IN HEIGHT) (RE: DETAIL #1, SHEET C-802).
- (N) CONSTRUCT CONCRETE ENTRANCE (RE: DETAIL #3, SHEET C-800).
- (O) PARKING LOT LIGHT POLE (RE: SITE LIGHTING PLANS).
- (P) INSTALL MONUMENT SIGN (RE: ARCH PLANS) (RE: MEP PLANS FOR CONDUIT REQUIREMENTS).
- (Q) MECHANICAL EQUIPMENT YARD (RE: MEP PLANS).
- (R) CONSTRUCT PRIVATE SIDEWALK RAMP (RE: DETAIL #3, SHEET C-801).
- (S) INSTALL 6" SOLID WHITE PAINTED CROSSWALK.
- (T) CAR IMPOUND AREA (RE: ARCH PLANS).
- (U) INSTALL CONCRETE STEPS WITH HANDRAILS ON BOTH SIDES AND CONCRETE CHECK WALL (RE: DETAIL #1, SHEET C-803).

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

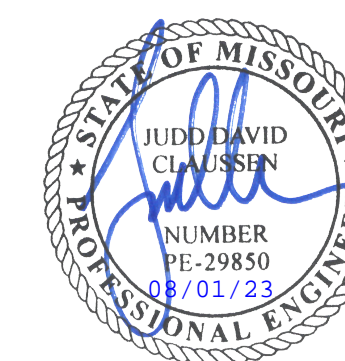
PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-200.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
**OVERALL  
SITE  
PLAN**

SHEET NUMBER:  
**C-200**  
SHEET 006 OF 202  
08/01/2023



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
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FACILITY # 8136018019

REVISION:  
DATE:  
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DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-300.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:

OVERALL  
GRADING  
PLAN

SHEET NUMBER:

**C-300**

SHEET 007 OF 202

08/01/2023

**SITE GRADING NOTES:**

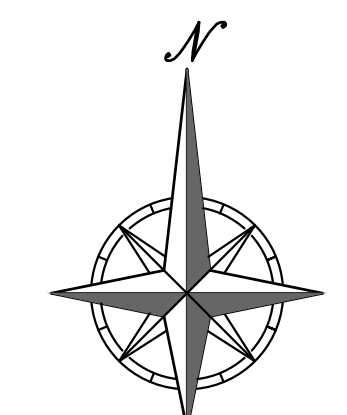
- CONTOURS AND ELEVATIONS: Existing and proposed contours are shown on plans at one foot (1') contour intervals, unless otherwise noted, proposed contours and elevations shown represent approximate finish grade. Contractor shall hold down subgrades to allow for pavement and sub-base thicknesses.
- If the contractor does not accept existing topography as shown on the plans, without exception, he shall have made at his expense, a topographic survey by a registered land surveyor and submit it to the owner for review.
- CLEARING AND GRUBBING: Prior to beginning preparation of subgrade, all areas under pavements or building shall be stripped of all topsoil, vegetation, large rock fragments (greater than 6 inches in any dimension) and any other deleterious material. The actual stripping depth should be based on visual examination during construction and the results of proof-rolling operations. The root systems of all trees (not designated to remain) shall be removed in their entirety. Stripping materials shall not be incorporated into structural fills.
- TOPSOIL STRIPPING: Prior to the start of site grading, the contractor shall strip all topsoil from areas to be graded, and stockpiled at a location on or adjacent to the site as directed by the owner. At completion of grading operations and related construction, the contractor will be responsible for redistribution of topsoil over all areas disturbed by the construction activities. Topsoil shall be placed to a minimum depth of six inches (6") and in accordance with specifications for landscaping. At that time, and prior to the installation of landscaping or irrigation, all topsoil graded areas shall be visually inspected and accepted by the owner and ILL.
- Contractor shall adjust and/or cut existing pavement as necessary to assure a smooth fill and continuous grade. Contractor shall assure positive drainage away from buildings for all natural and paved areas.
- SUBGRADE PREPARATION: Prior to placement of new fill material, the existing subgrade shall be proofrolled and approved under the direction of the Geotechnical Engineer or his representative.
- PROOFROLLING: Subsequent to completion of stripping and over-excavation, all building and pavement areas to receive engineered fill shall be systematically proof-rolled using a tandem axle dump truck loaded to approximately 20,000 pounds per axle. Also, any finished subgrade areas to receive paving shall be proof-rolled within 48 hours of paving. Unstable soils that are detected and that can not be recompacted should be over-excavated and replaced with controlled structural fill.
- EARTHWORK:
  - GEOTECHNICAL: All earthwork shall conform to the recommendations of the Geotechnical report. Said report and its recommendations are herein incorporated into the project requirements by reference. Prior to beginning construction, the contractor shall obtain a copy of and become familiar with the geotechnical report. Unless specifically noted on the plans, the recommendations in the geotechnical report are hereby incorporated into the project requirements and specifications.
  - SURFACE WATER: Surface water shall be intercepted and diverted during the placement of fill.
  - FILLS: All fills shall be considered controlled or structural fill and shall be free of vegetation, organic matter, topsoil and debris. In areas where the thickness of the engineered fill is greater than five feet building and pavement construction should not commence until so authorized by the on-site geotechnical engineer to allow for consolidation.
  - BUILDING SUBGRADE: As specified in the Geotechnical Engineering Report, the upper section of building subgrade shall consist of Low Volume Change (LVC) material defined as approved, compacted granular fill or low to moderate plasticity cohesive soil materials stabilized with Class C Flyash. Granular fill shall consist of compacted granular materials with a maximum particle size of two (2) inches or less, such as limestone screenings. Refer to geotechnical report for complete requirements.
  - EXISTING SLOPES: Where fill material is to be placed on existing slopes greater than 5:1 (horizontal to vertical), existing slope shall be bench cut to a minimum vertical face of twelve inches (12"). The benches should be cut wide enough to accommodate the compaction equipment. Fill material shall be placed and compacted in horizontal lifts not exceeding nine inches (9") (loose lift measurement), unless otherwise approved by the Geotechnical Engineer.
  - COMPACTION REQUIREMENTS: The upper 9 inches of pavement subgrade areas shall be compacted to a minimum density of ninety five percent (95%) of the material's maximum dry density as determined by ASTM D698 (standard proctor compaction). The moisture content at the time of placement and compaction shall within a range of 0% below to 4% above optimum moisture content as defined by the standard proctor compaction procedure. The moisture contents shall be maintained within this range until completion of the work. Where compaction of earth fill by a large roller is impractical or undesirable, the earth fill shall be hand compacted with small vibrating rollers or mechanical tampers.
- All cut or fill slopes shall be 3:1 or flatter. All asphalt parking areas shall be a minimum of 1% slope but not more than 5% slope unless otherwise noted. All pavements within ADA parking areas shall not exceed 2% total slope. All grades around building shall be held down 6" from finish floor and slope away another 6" in 10 feet. Contractor shall notify engineer prior to final subgrade construction of any areas not within this slope requirement.
- TESTING AND INSPECTION: Owner's Independent Testing Laboratory (ITL) shall make tests of earthwork during construction and observe the placement of fills and other work performed on this project to verify that work has been completed in accordance with Geotechnical Engineering Report, Project Specifications and within industry standards. The ITL will be selected by the owner and the cost of testing will be the owner's responsibility.
- CLASSIFICATION: All excavation shall be considered unclassified. No separate or additional payments shall be made for rock excavation.
- PERMANENT RESTORATION: All areas disturbed by earthwork operations shall be sodded, unless shown otherwise by the landscaping plan or erosion control plan.
- UTILITIES: The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to relocate all existing utilities which conflict with the proposed improvements shown on the plans.
- LAND DISTURBANCE: The contractor shall adhere to all terms & conditions as outlined in the EPA or applicable state N.P.D.E.S. permit for storm water discharge associated with construction activities. Refer to project S.W.P.P.P. requirements.

Earthwork Summary	
Troop A	
5/30/2023	
Raw Excavation	2,880 Cu. Yds.
In Place Compaction (+15%)	-6,738 Cu. Yds.
Building Adjustment	2,569 Cu. Yds. (assume 24" of additional excavation)
Pavement Adjustment	2,452 Cu. Yds. (assume 12" of additional excavation)
On Site Net	1,162 Cu. Yds.

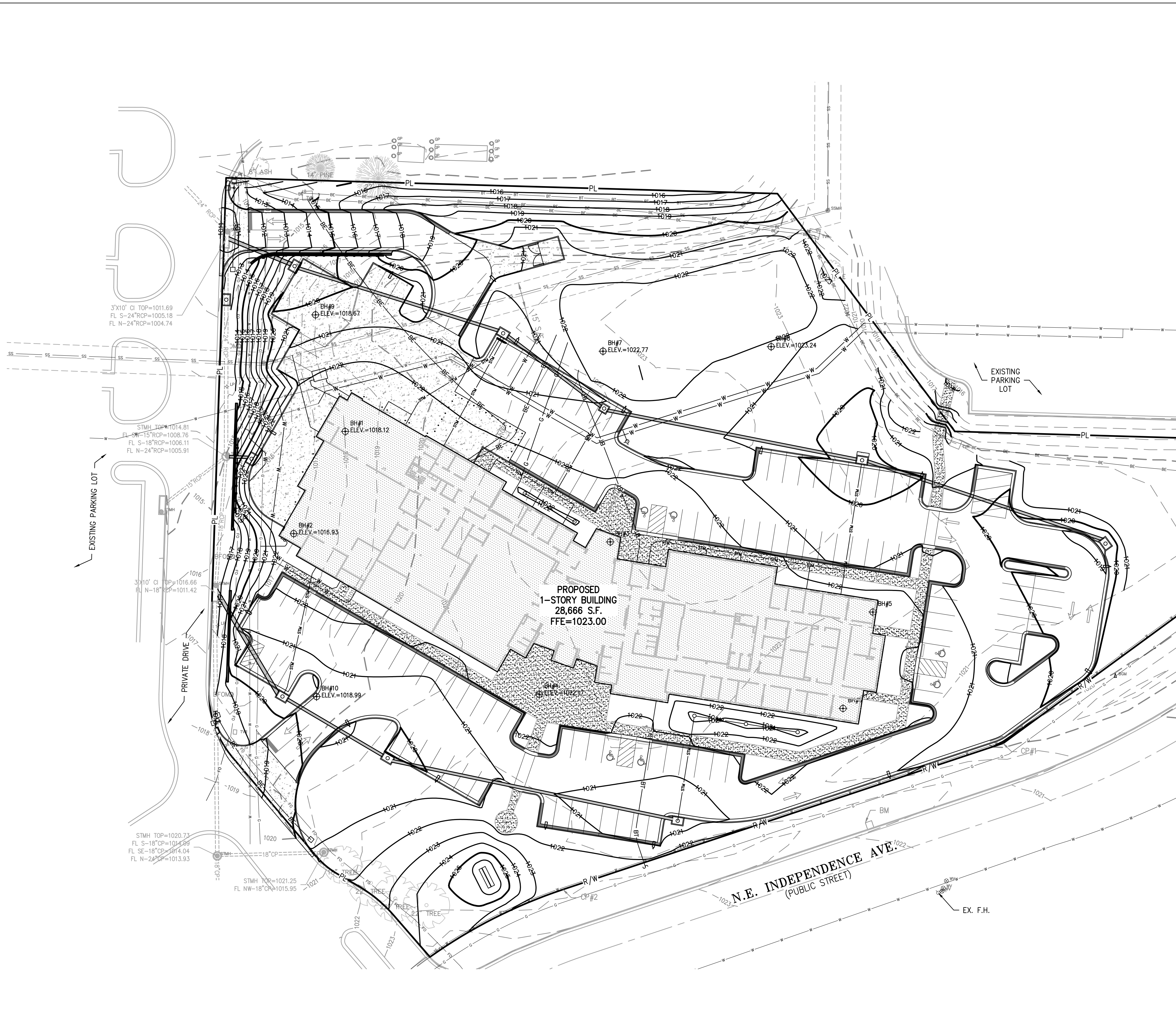
\* EARTHWORK COMPUTATIONS BY PHELPS ENGINEERING, INC. ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND SHALL BE VERIFIED BY CONTRACTORS BY THEIR CHOSEN METHOD PRIOR TO PLACING BID. ALL EARTHWORK SHALL BE CONSIDERED UNCLASSIFIED. 15% WAS ADDED INTO RAW FILL QUANTITY TO ACCOUNT FOR SHRINKAGE.

**LEGEND**

- PL — PROPERTY LINE
- LL — LOT LINE
- R/W — RIGHT-OF-WAY
- 2' CURB & GUTTER
- 920 — EXISTING CONTOURS
- 920 — PROPOSED CONTOURS
- 918 — PROPOSED SPOT ELEVATION
- LG LIP OF GUTTER
- TC TOP OF CURB
- SW SIDEWALK
- ME MATCH EXISTING
- HP HIGH POINT
- LP LOW POINT
- P TOP OF PAVEMENT
- TE TOP OF STRUCTURE
- GR GROUND ELEVATION
- BS BOTTOM OF STEPS
- TS TOP OF STEPS
- BW BOTTOM OF WALL
- TW TOP OF WALL
- — EXISTING STORM SEWER
- — PROPOSED STORM PIPE
- — PROPOSED WET CURB & GUTTER
- — PROPOSED DRY CURB & GUTTER
- — PROPOSED RETAINING WALL



SCALE: 1"=30'  
0' 30' 60'  
PEI #220481



PROPOSED  
1-STORY BUILDING  
28,666 S.F.  
FFE=1023.00

N.E. INDEPENDENCE AVE.  
(PUBLIC STREET)

**FLOOD NOTE:**  
THIS PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANGE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C0430C, AND DATED JANUARY 20, 2017.

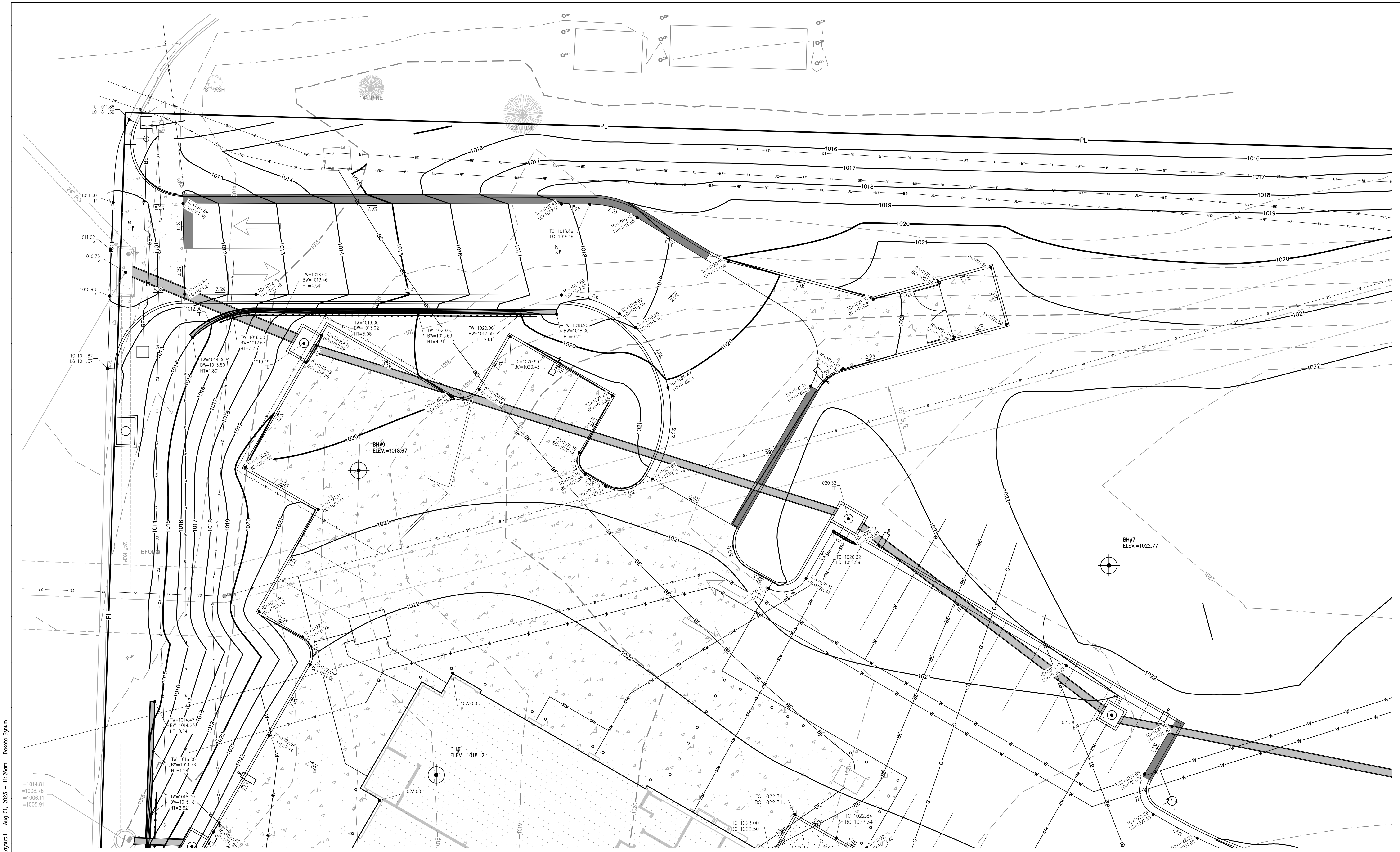
**BENCHMARK:**  
BM #1 CUT N.W. CORNER CONCRETE PAD  
ELEVATION = 1022.60

**CONTROL POINTS:**  
CP #1 FND. 1/2" LB. W/CAP #10  
ELEVATION = 1019.65  
CP #2 FND. 1/2" LB. LC 52 #11  
ELEVATION = 1022.12  
CP #3 FND. 1/2" LB. W/CAP #9  
ELEVATION = 1020.74  
CP #4 + CUT TOP CURB MID CURVE  
ELEVATION = 1016.39

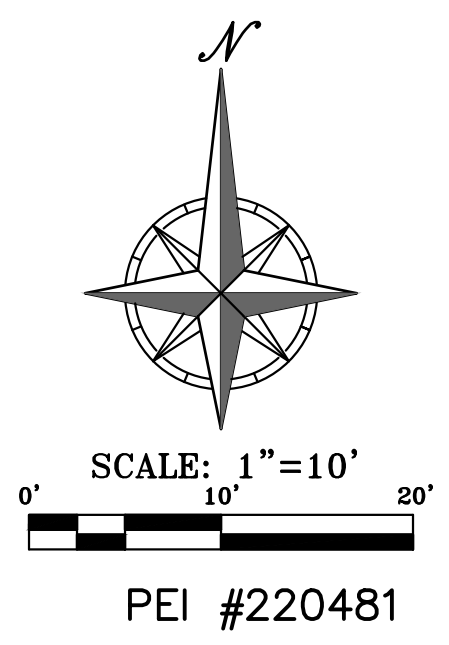
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Know what's below.  
Call before you dig.



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 =1008.76  
 =1006.11  
 =1005.91



STATE OF MISSOURI  
 MIKE PARSON,  
 GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
 Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION  
 KANSAS LAND SURVEYING - LS-82  
 ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
 MISSOURI LAND SURVEYING - 2007001128  
 ENGINEERING - 2007005628

**OFFICE OF  
 ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION**

Project Name  
 Troop A Headquarters,  
 MSHP

1950 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: C-301.dwg  
 DRAWN BY: SNH  
 CHECKED BY: DAF  
 DESIGNED BY: JDC

SHEET TITLE:  
**ENLARGED  
 GRADING  
 PLAN**

SHEET NUMBER:  
**C-301**  
 SHEET 008 OF 202  
 08/01/2023





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STATE OF MISSOURI  
 MIKE PARSON,  
 GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](mailto:gastingerwalker.com)  
 Project Number: 2022.152

**PEI** PHELPS ENGINEERING, INC.  
 1320 N. Winchester  
 Olathe, Kansas 66061  
 (913) 393-1937  
 Fax (913) 393-1966  
[www.phelpsengineering.com](http://www.phelpsengineering.com)

CERTIFICATE OF AUTHORIZATION  
 KANSAS LAND SURVEYING - LS-82  
 ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
 MISSOURI LAND SURVEYING - 2007001128  
 ENGINEERING - 2007005628

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 Lee's Summit, MO 64086

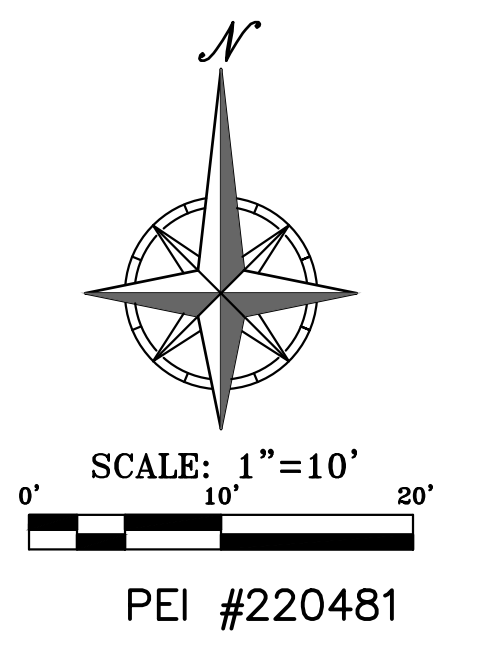
PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

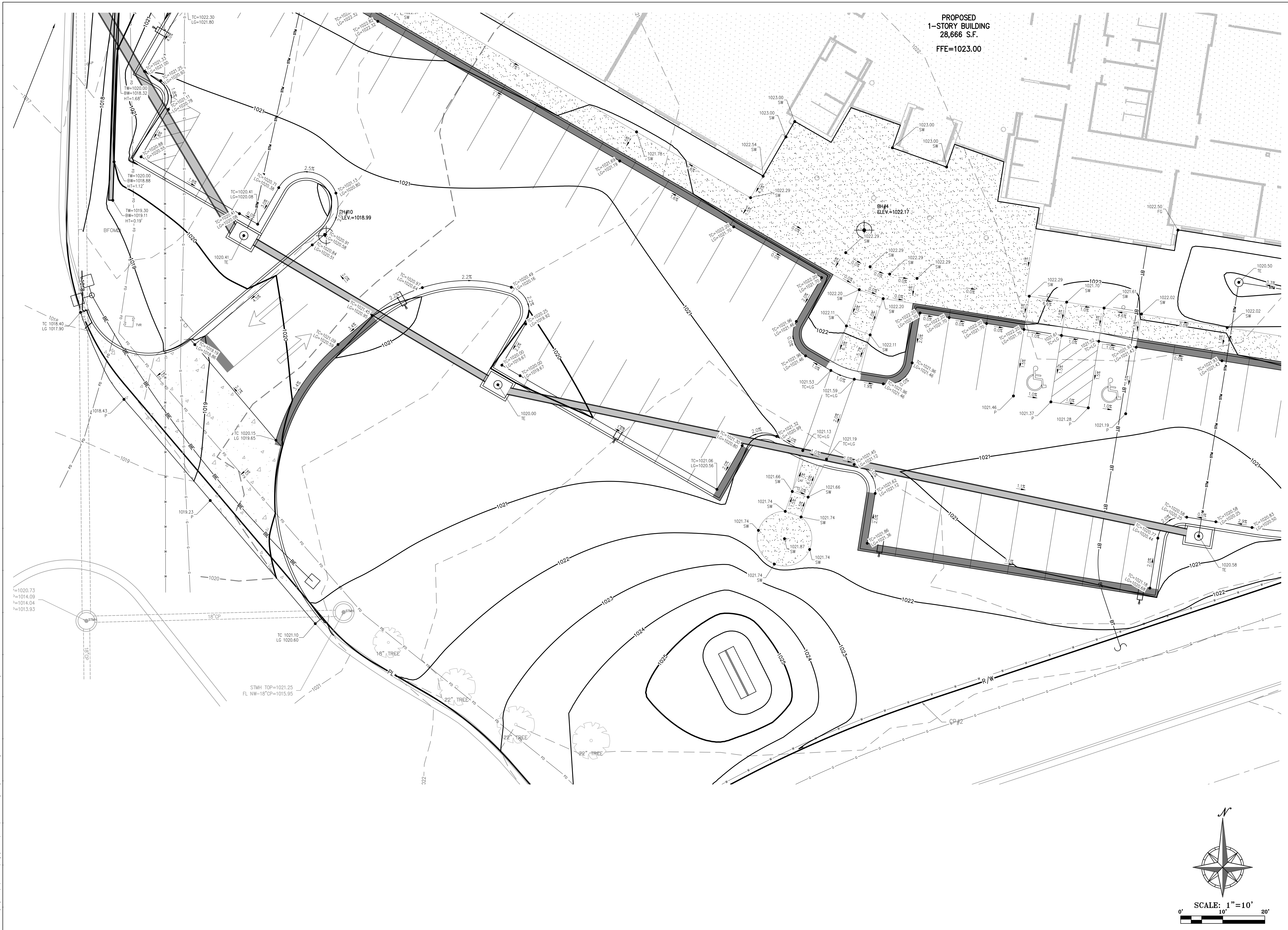
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: C-302.dwg  
 DRAWN BY: SNH  
 CHECKED BY: DAF  
 DESIGNED BY: JDC

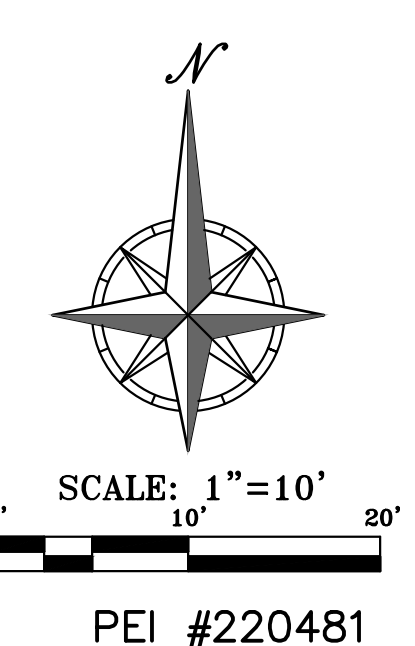
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**ENLARGED  
 GRADING  
 PLAN**

SHEET NUMBER:  
**C-302**  
 SHEET 009 OF 202  
 08/01/2023





PROPOSED  
1-STORY BUILDING  
28,666 S.F.  
FFE=1023.00

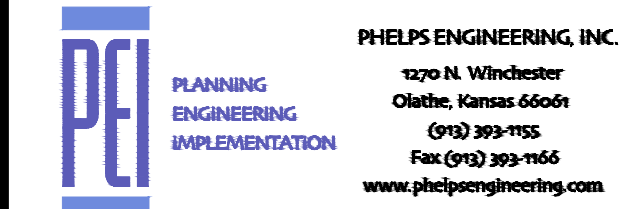


STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



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ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
MISSOURI LAND SURVEYING - 2007001128  
ENGINEERING - 2007005068

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FACILITY # 8136018019

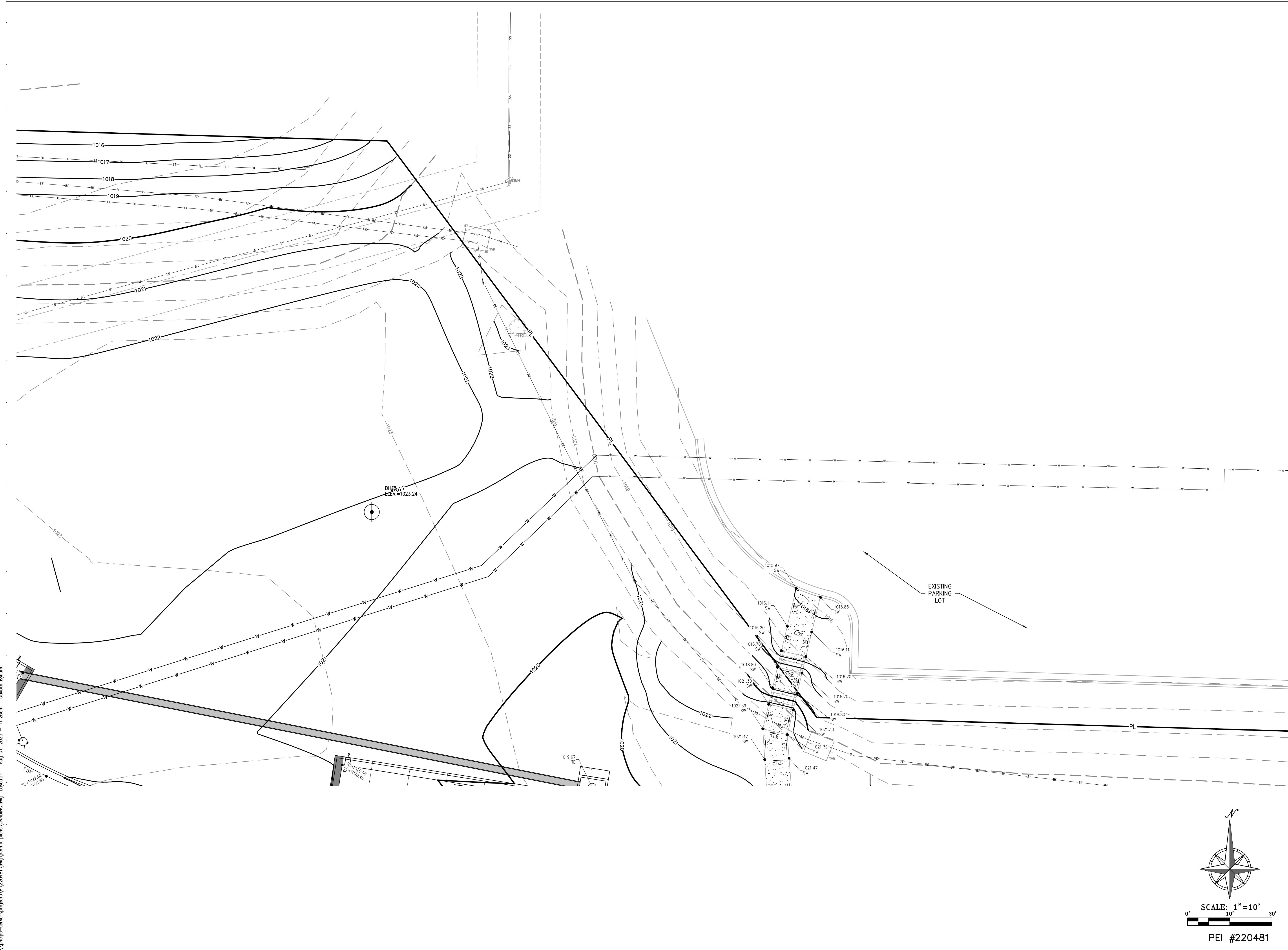
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

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DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
**ENLARGED  
GRADING  
PLAN**

SHEET NUMBER:  
**C-303**  
SHEET 010 OF 202  
08/01/2023

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STATE OF MISSOURI  
 MIKE PARSON,  
 GOVERNOR



# GastingerWalker &

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
 Project Number: 2022.152

**PEI** PHILIPS ENGINEERING, INC.  
 PLANNING  
 ENGINEERING  
 IMPLEMENTATION  
 1320 N. Winchester  
 Olathe, Kansas 66061  
 (913) 393-1955  
 Fax (913) 393-1956  
[www.phelpsengineering.com](http://www.phelpsengineering.com)

CERTIFICATE OF AUTHORIZATION  
 KANSAS LAND SURVEYING - LS-82  
 ENGINEERING - E-391  
 MISSOURI  
 LAND SURVEYING-2007001128  
 ENGINEERING-2007005068

**OFFICE OF  
 ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION**

Project Name  
 Troop A Headquarters,  
 MSHP  
 1950 NE Independence Ave.  
 Lee's Summit, MO 64086

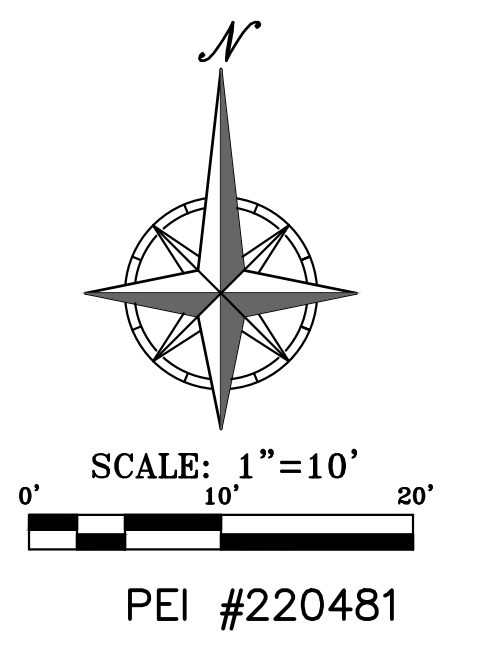
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 SITE # 6018  
 FACILITY # 8136018019

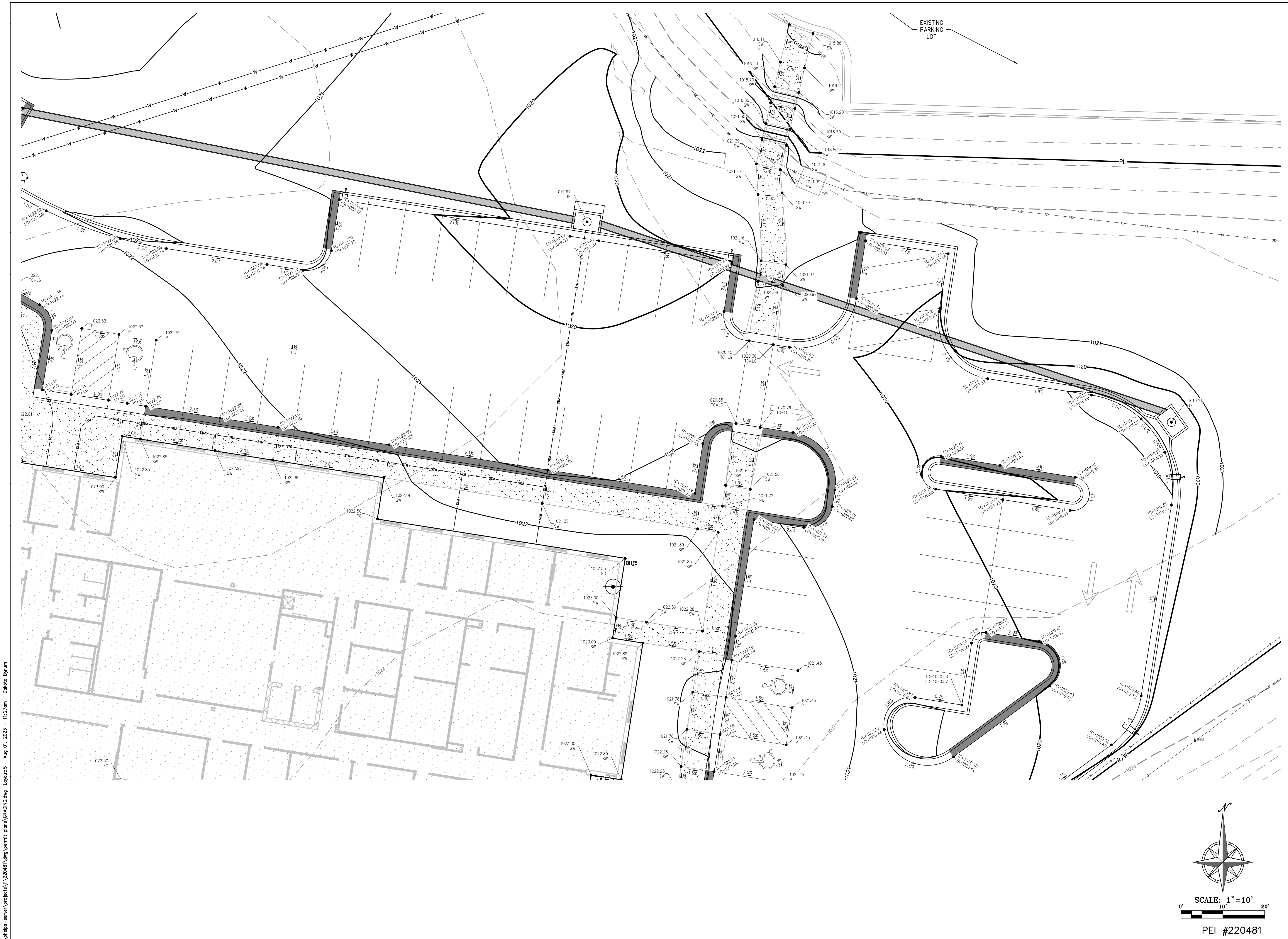
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 DESIGNED BY: JDC

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SHEET NUMBER:  
**C-304**  
 SHEET 011 OF 202  
 08/01/2023





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 Fax: (913) 393-1466  
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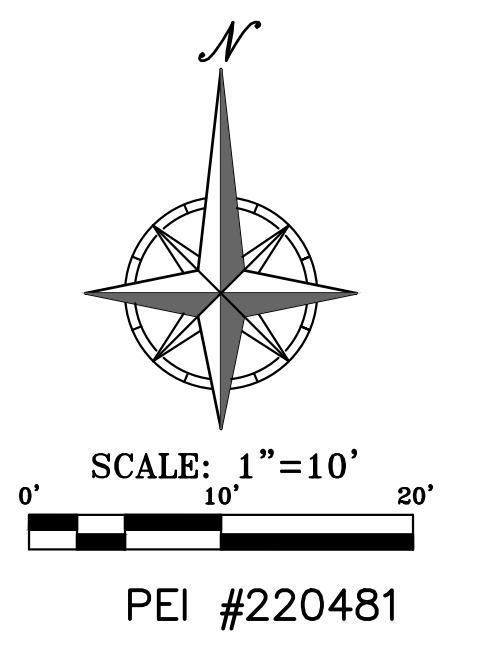
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 FACILITY # 8136018019

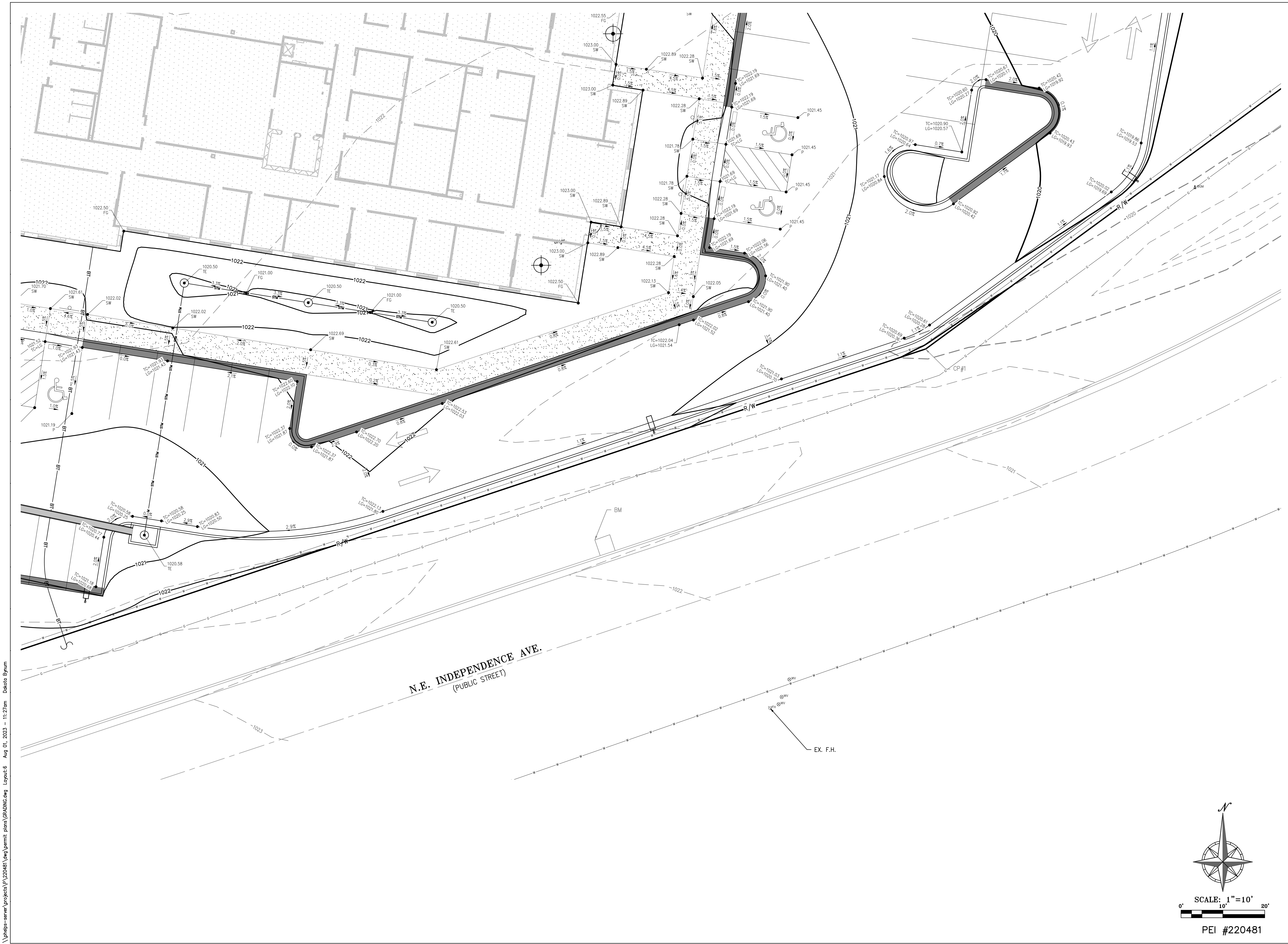
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 CHECKED BY: DAF  
 DESIGNED BY: JDC

SHEET TITLE:  
  
**ENLARGED  
 GRADING  
 PLAN**

SHEET NUMBER:  
**C-305**  
 SHEET 012 OF 202  
 08/01/2023





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 MIKE PARSON,  
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**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
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**PEI** PHELPS ENGINEERING, INC.  
 PLANNING ENGINEERING IMPLEMENTATION  
 1320 N. Winchester  
 Olathe, Kansas 66061  
 (913) 399-9955  
 Fax (913) 399-1166  
[www.phelpsengineering.com](http://www.phelpsengineering.com)

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 ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
 MISSOURI LAND SURVEYING - 2007001128  
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Project Name  
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1950 NE Independence Ave.  
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PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: C-306.dwg  
 DRAWN BY: SNH  
 CHECKED BY: DAF  
 DESIGNED BY: JDC

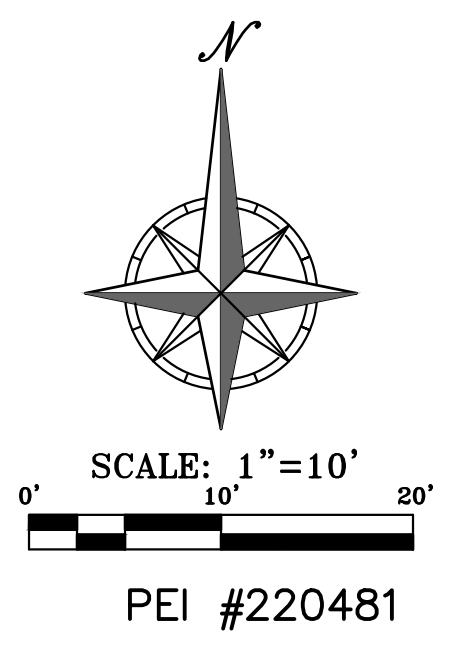
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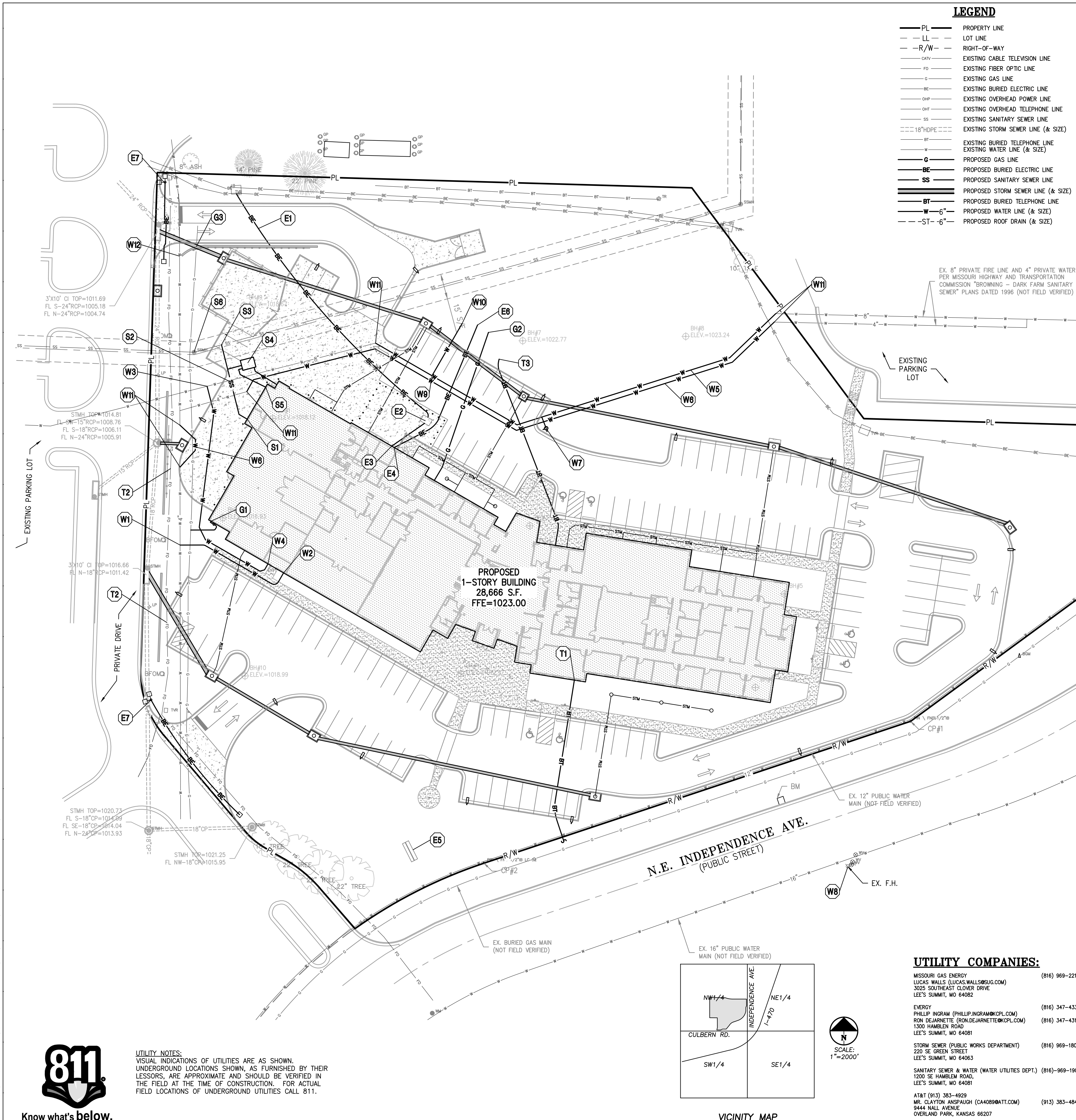
**ENLARGED  
 GRADING  
 PLAN**

SHEET NUMBER:

**C-306**

SHEET 013 OF 202  
 08/01/2023





**LEGEND**

- PL — PROPERTY LINE
- LL — LOT LINE
- R/W — RIGHT-OF-WAY
- CATV — EXISTING CABLE TELEVISION LINE
- FO — EXISTING FIBER OPTIC LINE
- G — EXISTING GAS LINE
- BE — EXISTING BURIED ELECTRIC LINE
- OHT — EXISTING OVERHEAD TELEPHONE LINE
- SS — EXISTING SANITARY SEWER LINE
- SSW — EXISTING STORM SEWER LINE (& SIZE)
- 18" DPIPE — EXISTING BURIED TELEPHONE LINE
- W — EXISTING WATER LINE (& SIZE)
- G — PROPOSED GAS LINE
- BE — PROPOSED BURIED ELECTRIC LINE
- SS — PROPOSED SANITARY SEWER LINE
- SSW — PROPOSED STORM SEWER LINE (& SIZE)
- BT — PROPOSED BURIED TELEPHONE LINE
- W-6" — PROPOSED WATER LINE (& SIZE)
- ST-6" — PROPOSED ROOF DRAIN (& SIZE)

**UTILITY NOTES:**

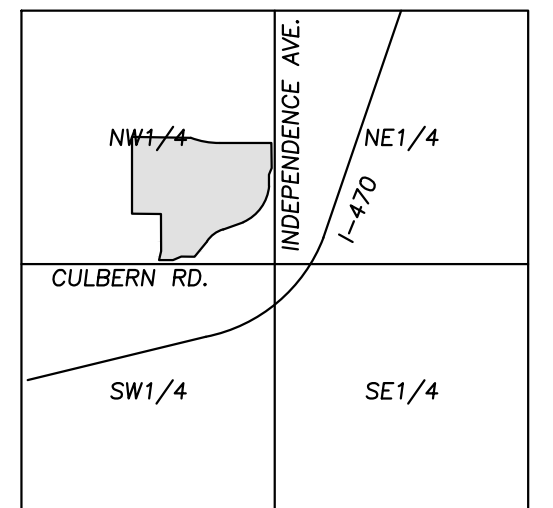
1. The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to coordinate with and relocate &/or remove all existing utilities which conflict with the proposed improvements shown on the plans.
2. The construction of storm sewers on this project shall conform to the project specifications.
3. The contractor shall field verify the exact location and elevation of the existing storm sewer lines and the existing elevation at locations where the proposed storm sewer collects or releases to existing ground. If discrepancies are encountered from the information shown on the plans, the contractor shall contact the design engineer. No pipes shall be laid until direction is received from the design engineer.
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5. Inlet locations, horizontal pipe information and vertical pipe information is shown to the center of the structure. Deflection angles shown for storm sewer pipes are measured from the center of curb inlets and manholes. The contractor shall adjust the horizontal location of the pipes to go to the face of the boxes. All roof drains shall be connected to storm sewer structures. Provide cleanouts on roof drain lines at 100' max. Spacing and at all bend points. Do not connect roof drains directly to storm sewer pipes.
6. The contractor shall be responsible for furnishing and installing all fire and domestic water lines, meters, backflow devices, pits, valves and all other incidentals required for a complete operable fire protection and domestic water system. All costs associated with the complete water system for the buildings shall be the responsibility of the contractor. All work shall conform to the requirements of City.
7. The contractor shall be responsible for furnishing and installing all sanitary sewer service lines from the buildings to the public line. All work shall conform to the requirements of the City.
8. The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, City, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits bonds and insurance shall be the contractor's responsibility and shall be included in the bid for the work.
9. By the use of these construction documents the contractor hereby agrees that he/she shall be solely responsible for the safety of the construction workers and the public. The contractor agrees to hold the engineer and owner harmless for any and all injuries, claims, losses or damages related to the project.
10. The Contractor shall be responsible for furnishing all materials, tools and equipment and installation of electrical power, telephone and gas service from a point of connection from the public utility lines to the building structures. This will include all conduits, service lines, meters, concrete pits and all other incidentals required for a complete and operational system as required by the owner and the public utilities. Refer to building plans for exact in-in locations of all utilities. Contractor shall verify connection points prior to installation of utility line.
11. All fill material is to be in place, compacted, and consolidated before installation of proposed utilities. On-site geotechnical engineer shall provide written confirmation that this requirement has been met and that utilities may proceed in the fill areas. All utilities are to be placed in trench conditions.
12. Contractor shall notify the utility authorities inspectors 48 hours before connecting to any existing line.
13. Water lines shall be per the project specifications.
14. Minimum trench width shall be 2 feet.
15. Contractor shall maintain a minimum of 42" cover on all waterlines. All water line joints are to be mechanical joints with thrust blocking as called out in specifications and construction plans. Water mains and service lines shall be constructed in accordance to waterline's specifications for commercial services.
16. All waterlines shall be kept min. ten (10') apart (parallel) from sanitary sewer lines or manholes. Or when crossing, a 24" vertical clearance (outside edge of pipe to outside edge of pipe) of the water line above the sewer line is required.
17. Sanitary conflicts will be resolved prior to permit issuance.
18. In the event of a vertical conflict between waterlines, sanitary lines, storm lines and gas lines (existing and proposed), the sanitary line shall be ductile iron pipe with mechanical joints at least 10 feet on both sides of crossing (or encased in concrete this same distance), the waterline shall have mechanical joints with appropriate thrust blocking as required to provide a minimum of 24" clearance. Meeting requirements of ANSI A21.10 or ANSI 21.11 (AWWA C-151) (CASS 50).
19. All underground storm, sanitary, water and other utility lines shall be installed, inspected and approved before backfilling. Failure to have inspection approval prior to backfill will constitute rejection of work.
20. All necessary inspections and/or certifications required by codes and/or utility service companies shall be performed prior to announced building possession and the final connection of service. Contractor shall coordinate with all utility companies for installation requirements and specifications.
21. Refer to building plans for site lighting electrical plan, irrigation, parking lot security system and associated conduit requirements. Coordinate with Owner that all required conduits are in place & tested prior to paving.
22. When a building utility connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such site utility terminations.
23. Refer to the building plans for site lighting electrical requirements, including conduits, pole boxes, pull boxes, etc.

**UTILITY KEY NOTES:**

- E1 FOLLOW ELECTRIC COMPANY WORK ORDER AND SPECIFICATIONS FOR PRIMARY ELECTRICAL SERVICE ROUTING AND CONNECTION TO EXISTING.
- E2 INSTALL CONCRETE TRANSFORMER PAD. CONTRACTOR TO VERIFY EXACT LOCATION AND SIZE WITH ELECTRIC COMPANY PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF CONCRETE PAD AND CONDUIT AS REQUIRED BY THE ELECTRIC COMPANY. CONTRACTOR SHALL COORDINATE SAID WORK WITH THE ELECTRIC COMPANY.
- E3 ELECTRIC ENTRY INTO BUILDING. FOLLOW ELECTRIC COMPANY REQUIREMENTS (RE: MEP PLANS).
- E4 INSTALL SECONDARY ELECTRICAL SERVICE FROM MAIN BUILDING TO FUTURE FIRING RANGE BUILDING (RE: MEP PLANS).
- E5 CONTRACTOR TO INSTALL CONDUITS TO MONUMENT SIGN (RE: BUILDING ELECTRICAL PLANS FOR POWER REQUIREMENTS).
- E6 CONTRACTOR TO COORDINATE INSTALLATION OF ELECTRICAL CONDUITS FOR FUTURE FIRING RANGE BUILDING. CAP AND MARK WITH TEE POST.
- E7 CONTRACTOR TO INTERCEPT EXISTING STREET LIGHT CABLE, INSTALL NEW JUNCTION BOX, AND INSTALL RELOCATED STREET LIGHT.
- W1 CONTRACTOR TO CONNECT TO EXISTING 4" PRIVATE WATER LINE FOR NEW 3" PRIVATE DOMESTIC SERVICE LINE W/ TS&V.
- W2 3" DOMESTIC WATER LINE ENTRY TO BUILDING. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ANY APPURTENANCES ON THE DOMESTIC LINE SUCH AS BACKFLOW PREVENTION DEVICES (RE: BUILDING PLANS), GATE VALVES, REDUCERS, BENDS, TEES, ETC., WHICH MAY BE REQUIRED. CONTRACTOR TO COORDINATE WITH THE DEVELOPMENT SERVICES INSPECTOR.
- W3 CONTRACTOR TO INSTALL 8" 8" 6" TS&V ON EXISTING PRIVATE 8" FIRE LINE FOR PROPOSED 6" PRIVATE BUILDING FIRE LINE.
- W4 6" PRIVATE FIRE LINE ENTRY TO BUILDING (UPSTREAM OF BACKFLOW PREVENTION DEVICE). BACKFLOW PREVENTION DEVICE SHALL BE LOCATED INSIDE BUILDING (RE: BUILDING PLANS FOR BACKFLOW PREVENTION DEVICE DETAILS AND SPECIFICATIONS).
- W5 CONTRACTOR TO INSTALL 8" PRIVATE FIRE LINE AROUND BUILDING. SEE DEMOLITION PLAN FOR EXISTING LOCATION.
- W6 CONTRACTOR TO INSTALL 4" PRIVATE WATER LINE AROUND BUILDING. SEE DEMOLITION PLAN FOR EXISTING LOCATION.
- W7 CONTRACTOR TO INSTALL PRIVATE FIRE HYDRANT. PRIVATE FIRE SHALL BE PAINTED RED. (RE: DETAIL #2, SHEET C-802).
- W8 EXISTING PUBLIC FIRE HYDRANT TO REMAIN.
- W9 CONTRACTOR TO CONNECT TO EXISTING 4" PRIVATE WATER LINE FOR FUTURE 1-1/2" PRIVATE DOMESTIC SERVICE LINE W/ TS&V.
- W10 INSTALL 1-1/2" DOMESTIC WATER LINE FOR FUTURE FIRING RANGE BUILDING. CAP AND INSTALL TEE POST.
- W11 INSTALL STRADDLE BLOCKS AT CONNECTION TO EXISTING PRIVATE WATER LINES (TYP). (SEE DETAIL #3, SHEET C-803).
- W12 CONTRACTOR TO COORDINATE RELOCATION OF EXISTING 4" PRIVATE WATER LINE, AS NEEDED, FOR RETAINING WALL INSTALLATION.
- T1 CONTRACTOR TO PROVIDE TWO (2) - 4" PVC SCH. 40 CONDUITS FROM BUILDING TO R/W. CONTRACTOR TO TERMINATE IN QUARTZITE BOX WITH PULL STRING FROM BUILDING TO TELEPHONE FEED POINT. CONTRACTOR TO VERIFY EXACT ROUTING AND FEED POINT WITH TELEPHONE COMPANY.
- T2 CONTRACTOR TO COORDINATE RELOCATION OF EXISTING BURIED FIBER LINE, AS NEEDED, FOR RETAINING WALL INSTALLATION.
- T3 CONTRACTOR TO COORDINATE ONE (1) - 4" PVC SCH. 40 CONDUITS ROUTING FROM MAIN BUILDING TO FUTURE FIRING RANGE BUILDING (RE: MEP PLANS). CAP AND INSTALL TEE POST.
- S1 CONNECT TO BLDG. INTERIOR PLUMBING SANITARY SEWER LINE. TRANSITION FROM 4" (INTERIOR) TO 6" (EXTERIOR) AT FOUNDATION WALL (RE: MEP PLANS). FD=1023.00 FL 6"=1018.00
- S2 INSTALL 41 L.F. 6" PVC SANITARY SEWER SERVICE LINE (SDR-26) @ 1.0% MIN. SLOPE.
- S3 INSTALL 8"x6" WYE CONNECTION TO CONNECT TO EXISTING PUBLIC SANITARY SEWER MAIN. FL=997.78
- S4 INSTALL 500 GALLON SAND/OIL INTERCEPTOR (REF: PRECEPTOR BY GREENTURLE 500, HIGHLAND TANK 550, STREM 500, OR BETTER OPTION).
- S5 CONNECT 4" VENT FROM BUILDING TO SAND/OIL INTERCEPTOR (RE: MEP PLANS).
- S6 ADJUST EXISTING SANITARY SEWER MANHOLE TO NEW FINISHED GRADE. FD=1019.44
- G1 INSTALL 4" GAS ENTRY WITH GAS METER. CONTRACTOR SHALL COORDINATE WITH GAS COMPANY FOR TYING OF INDIVIDUAL METER. SIZE OF GAS MAIN SHALL BE AS DETERMINED BY UTILITY OR AS SHOWN ON BUILDING PLANS. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH GAS COMPANY REGARDING THE SIZE & INSTALLATION OF GAS SERVICE LINE.
- G2 CONTRACTOR TO COORDINATE 1-1/2" GAS SERVICE ROUTING FROM MAIN BUILDING TO FUTURE FIRING RANGE BUILDING (RE: MEP PLANS). CAP AND INSTALL TEE POST.
- G3 CONTRACTOR TO COORDINATE RELOCATION OF EXISTING GAS LINE, AS NEEDED, FOR RETAINING WALL INSTALLATION.

**UTILITY COMPANIES:**

- MISSOURI GAS ENERGY (816) 969-2218  
LUCAS WALLS (LUCAS.WALLS@SG.COM)  
3025 SOUTHEAST CLOVER DRIVE  
LEE'S SUMMIT, MO 64082
- ENERGY PHILLIP INGRAM (PHILLIP.INGRAM@CPL.COM) (816) 347-4339  
RON DEJARNETTE (RON.DEJARNETTE@CPL.COM) (816) 347-4316  
1300 HAMBLEN ROAD  
LEE'S SUMMIT, MO 64081
- STORM SEWER (PUBLIC WORKS DEPARTMENT) (816) 969-1800  
220 SE GREEN STREET  
LEE'S SUMMIT, MO 64063
- SANITARY SEWER & WATER (WATER UTILITIES DEPT.) (816)-969-1900  
1200 SE HAMBLEN ROAD  
LEE'S SUMMIT, MO 64081
- AT&T (913) 383-4929  
MR. CLAYTON ANSPAUGH (CA408@ATT.COM) (913) 383-4849-FAX  
9444 HALL AVENUE  
OVERLAND PARK, KANSAS 66207



VICINITY MAP  
SEC. 19-48-31



Know what's below.  
Call before you dig.

**UTILITY NOTES:**  
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



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817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION  
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ENGINEERING - E-391

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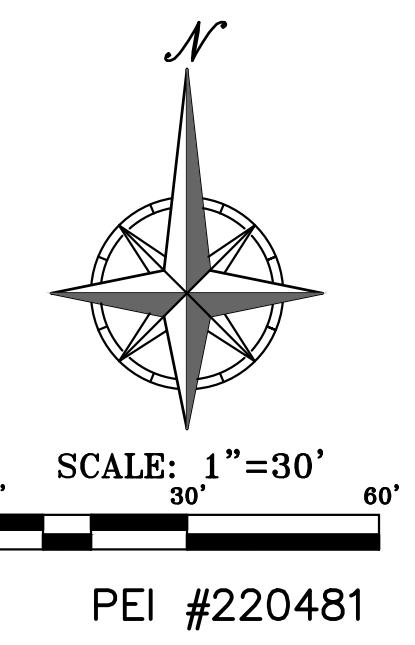
PROJECT # R2219-01  
SITE # 6018  
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REVISION:  
DATE:  
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-400.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
**OVERALL  
UTILITY  
PLAN**

SHEET NUMBER:  
**C-400**  
SHEET 014 OF 202  
08/01/2023



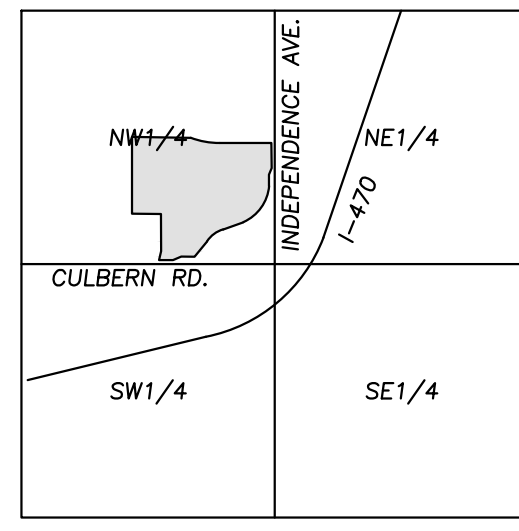
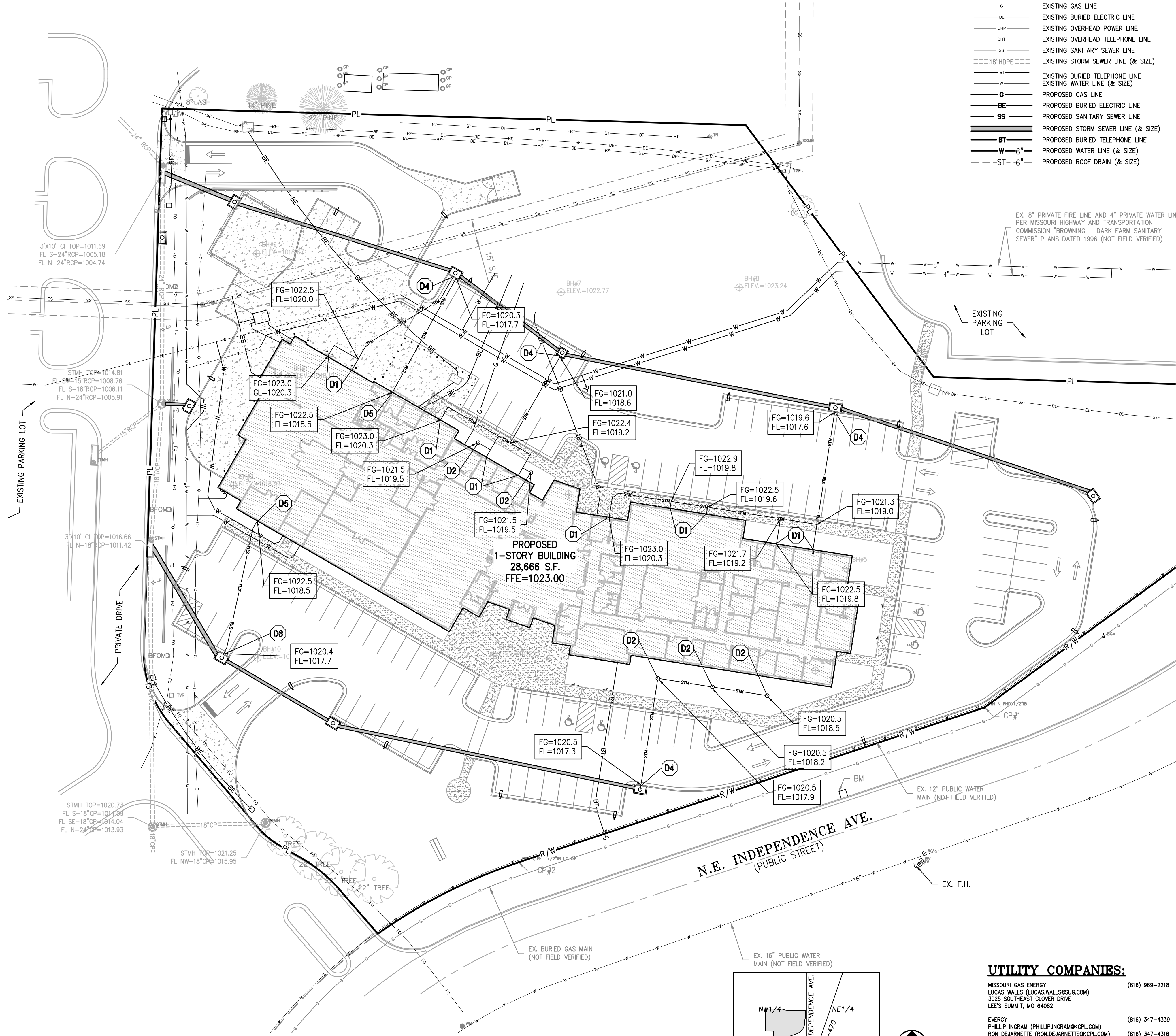
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VICINITY MAP SEC. 19-48-31

**LEGEND**

— PL —	PROPERTY LINE
— LL —	LOT LINE
— R/W —	RIGHT-OF-WAY
— CATV —	EXISTING CABLE TELEVISION LINE
— FO —	EXISTING FIBER OPTIC LINE
— G —	EXISTING GAS LINE
— BE —	EXISTING BURIED ELECTRIC LINE
— OHP —	EXISTING OVERHEAD POWER LINE
— OHT —	EXISTING OVERHEAD TELEPHONE LINE
— SS —	EXISTING SANITARY SEWER LINE
— SSS —	EXISTING STORM SEWER LINE (& SIZE)
— 18" HOPE —	18" HOPE
— BT —	EXISTING BURIED TELEPHONE LINE
— W —	EXISTING WATER LINE (& SIZE)
— G —	PROPOSED GAS LINE
— BE —	PROPOSED BURIED ELECTRIC LINE
— SS —	PROPOSED SANITARY SEWER LINE
— BT —	PROPOSED BURIED TELEPHONE LINE
— W — 6" —	PROPOSED WATER LINE (& SIZE)
— ST — 6" —	PROPOSED ROOF DRAIN (& SIZE)

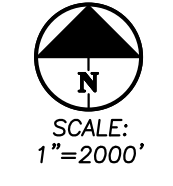
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- The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, City, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits bonds and insurance shall be the contractor's responsibility and shall be included in the bid for the work.
- By the use of these construction documents the contractor hereby agrees that he/she shall be solely responsible for the safety of the construction workers and the public. The contractor agrees to hold the engineer and owner harmless for any and all injuries, claims, losses or damages related to the project.
- The Contractor shall be responsible for furnishing all materials, tools and equipment and installation of electrical power, telephone and gas service from a point of connection from the public utility lines to the building structures. This will include all conduits, service lines, meters, concrete pads and all other incidentals required for a complete and operational system as required by the owner and the public utilities. Refer to building plans for exact in-in locations of all utilities. Contractor shall verify connection points prior to installation of utility line.
- All fill material is to be in place, compacted, and consolidated before installation of proposed utilities. On-site geotechnical engineer shall provide written confirmation that this requirement has been met and that utilities may proceed in the fill areas. All utilities are to be placed in trench conditions.
- Contractor shall notify the utility authorities inspectors 48 hours before connecting to any existing line.
- Water lines shall be per the project specifications.
- Minimum trench width shall be 2 feet.
- Contractor shall maintain a minimum of 42" cover on all waterlines. All water line joints are to be mechanical joints with thrust blocking as called out in specifications and construction plans. Water mains and service lines shall be constructed in accordance to waterline's specifications for commercial services.
- All waterlines shall be kept min. ten (10') apart (parallel) from sanitary sewer lines or manholes. Or when crossing, a 24" vertical clearance (outside edge of pipe to outside edge of pipe) of the water line above the sewer line is required.
- Sanitary conflicts will be resolved prior to permit issuance.
- In the event of a vertical conflict between waterlines, sanitary lines, storm lines and gas lines (existing and proposed), the sanitary line shall be ductile iron pipe with mechanical joints at least 10 feet on both sides of crossing (or encased in concrete this same distance), the waterline shall have mechanical joints with appropriate thrust blocking as required to provide a minimum of 24" clearance. Meeting requirements of ANSI A21.10 or ANSI 21.11 (AWWA C-151) (CLASS 50).
- All underground storm, sanitary, water and other utility lines shall be installed, inspected and approved before backfilling. Failure to have inspection approval prior to backfill will constitute rejection of work.
- All necessary inspections and/or certifications required by codes and/or utility service companies shall be performed prior to announced building possession and the final connection of service. Contractor shall coordinate with all utility companies for installation requirements and specifications.
- Refer to building plans for site lighting electrical plan, irrigation, parking lot security system and associated conduit requirements. Coordinate with Owner that all required conduits are in place & tested prior to paving.
- When a building utility connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such site utility terminations.
- Refer to the building plans for site lighting electrical requirements, including conduits, pole boxes, pull boxes, etc.

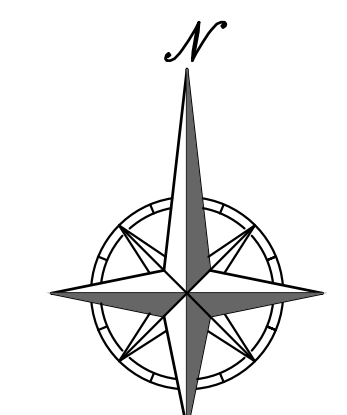
- D1** TYPICAL STORM WATER DRAIN LINE FROM ROOF. ALL SECONDARY STORM LINES SHALL BE PVC SDR 35 OR HOPE (ST). SEE ARCH PLANS FOR BUILDING CONNECTION LOCATIONS.
- D2** INSTALL 18" NYOPLAST DRAIN BASIN W/ STANDARD GRATE.
- D3** INSTALL SECONDARY STORM SEWER FROM ROOF DRAINS AND NYOPLAST DRAIN BASINS. ALL SECONDARY STORM LINES SHALL BE 8" (MINIMUM) WITH 18" COVER (MINIMUM) UNLESS OTHERWISE NOTED ON PLANS. ALL SECONDARY STORM LINES SHALL HAVE A MINIMUM SLOPE SHALL OF 1.0% AND MINIMUM COVER DEPTH OF 18".
- D4** CONNECT SECONDARY STORM LINE TO PROPOSED STORM STRUCTURE.
- D5** INSTALL 6" PVC SDR 35 OR HOPE (ST) @ 1.0% SLOPE (MINIMUM) FROM FOUNDATION DRAIN SYSTEM TO PROPOSED STORM STRUCTURE.
- D6** CONNECT FOUNDATION DRAIN SYSTEM OUTLET PIPE TO PROPOSED STORM STRUCTURE.

**UTILITY COMPANIES:**

MISSOURI GAS ENERGY LUCAS WALLS (LUCAS.WALLS@SG.COM) 3025 SOUTHEAST CLOVER DRIVE LEE'S SUMMIT, MO 64082	(816) 969-2218
ENERGY PHILLIP INGRAM (PHILLIP.INGRAM@CPL.COM) RON DEJARNETTE (RON.DEJARNETTE@CPL.COM) 1300 HAMBLEN ROAD LEE'S SUMMIT, MO 64081	(816) 347-4339 (816) 347-4316
STORM SEWER (PUBLIC WORKS DEPARTMENT) 220 SE GREEN STREET LEE'S SUMMIT, MO 64063	(816) 969-1800
SANITARY SEWER & WATER (WATER UTILITIES DEPT.) 1200 SE HAMBLEN ROAD LEE'S SUMMIT, MO 64081	(816)-969-1900
AT&T (913) 383-4929 MR. CLAYTON ANSPAUGH (CA408@ATT.COM) 9444 HALL AVENUE OVERLAND PARK, KANSAS 66207	(913) 383-4849-FAX



SCALE: 1"=200'



SCALE: 1"=30' 60'

PEI #220481

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

**PEI** PHILIPS ENGINEERING, INC.  
1320 N. Winchester  
Olathe, Kansas 66061  
Cell: 913-393-7025  
Fax: (913) 393-1066  
www.phelpsengineering.com

CERTIFICATE OF AUTHORIZATION  
KANSAS  
LAND SURVEYING - LS-82  
ENGINEERING - E-391

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

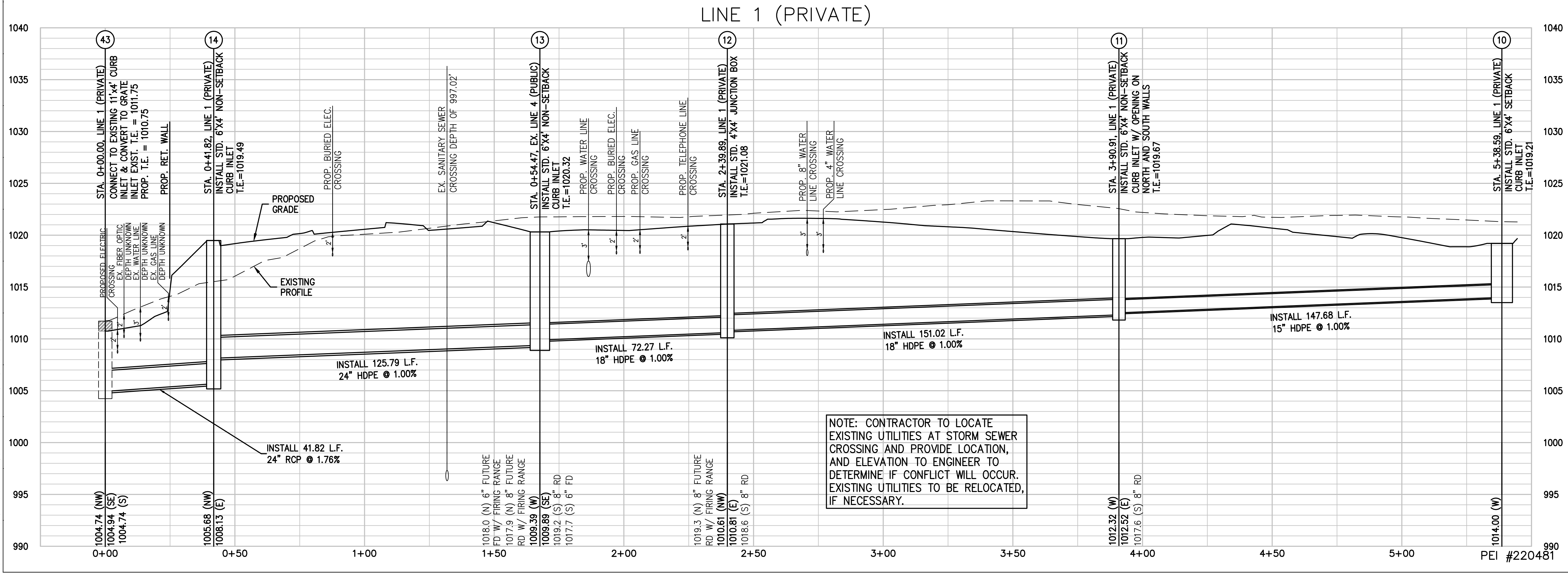
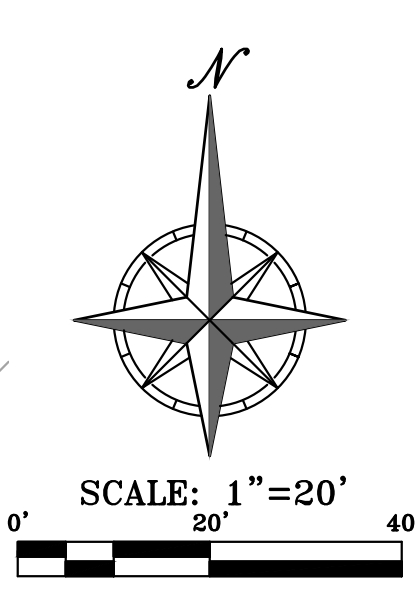
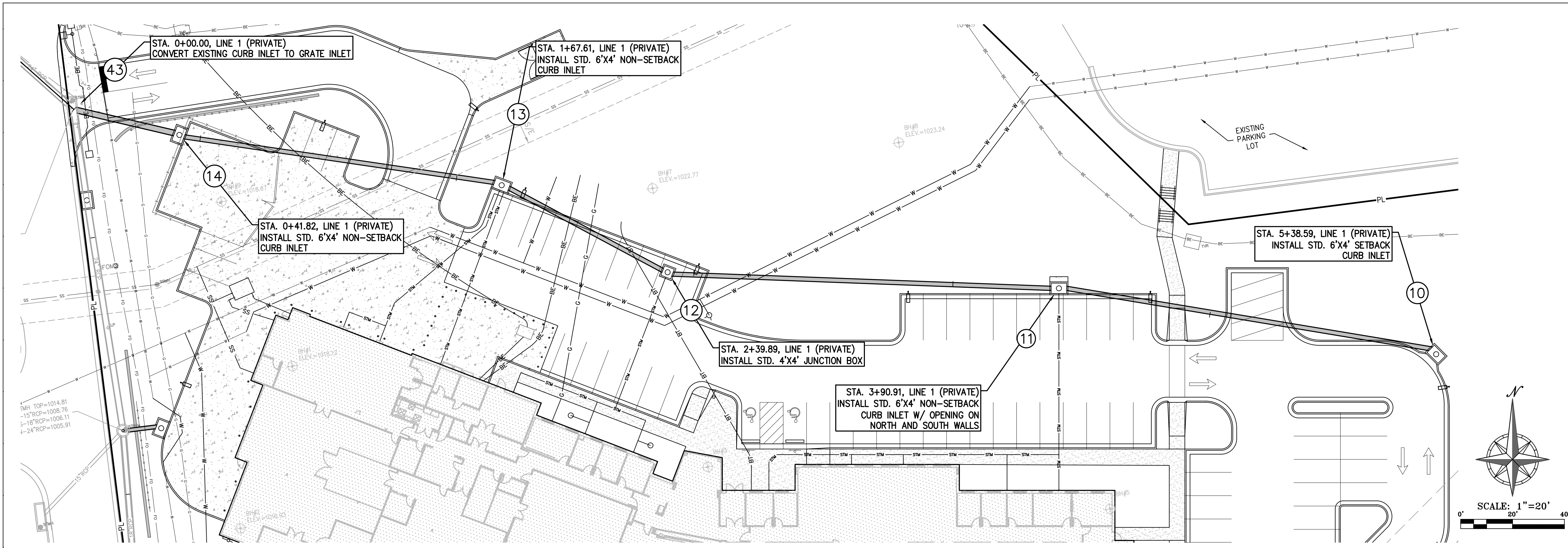
PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-401.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
**SECONDARY  
STORM  
PLAN**

SHEET NUMBER:  
**C-401**  
SHEET 015 OF 202  
08/01/2023



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STATE OF MISSOURI  
MIKE PARSON,  
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Project Number: 2022.152

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CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
MISSOURI LAND SURVEYING - 2007001128  
ENGINEERING - 2007005068

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CONSTRUCTION

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Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

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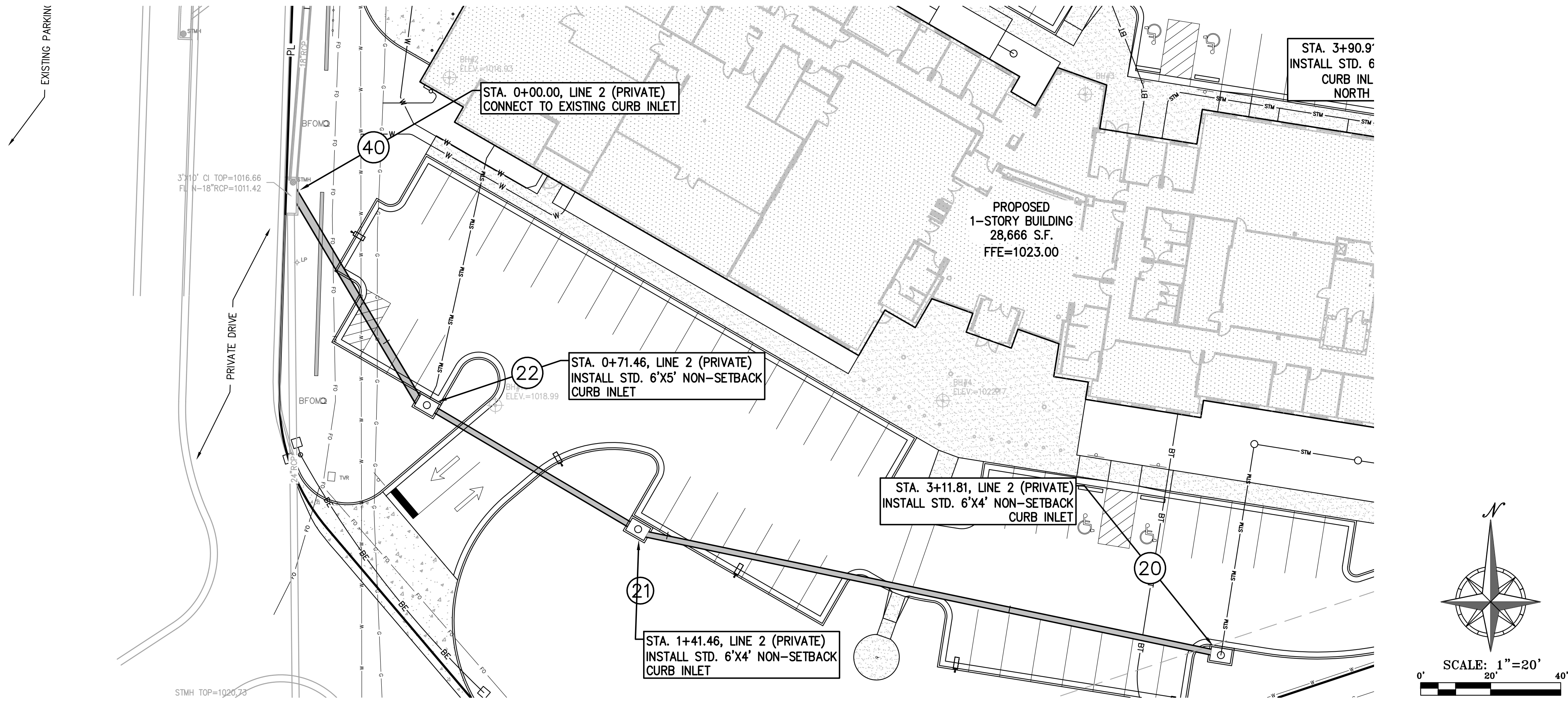
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PLAN AND  
PROFILE**

SHEET NUMBER:  
**C-500**

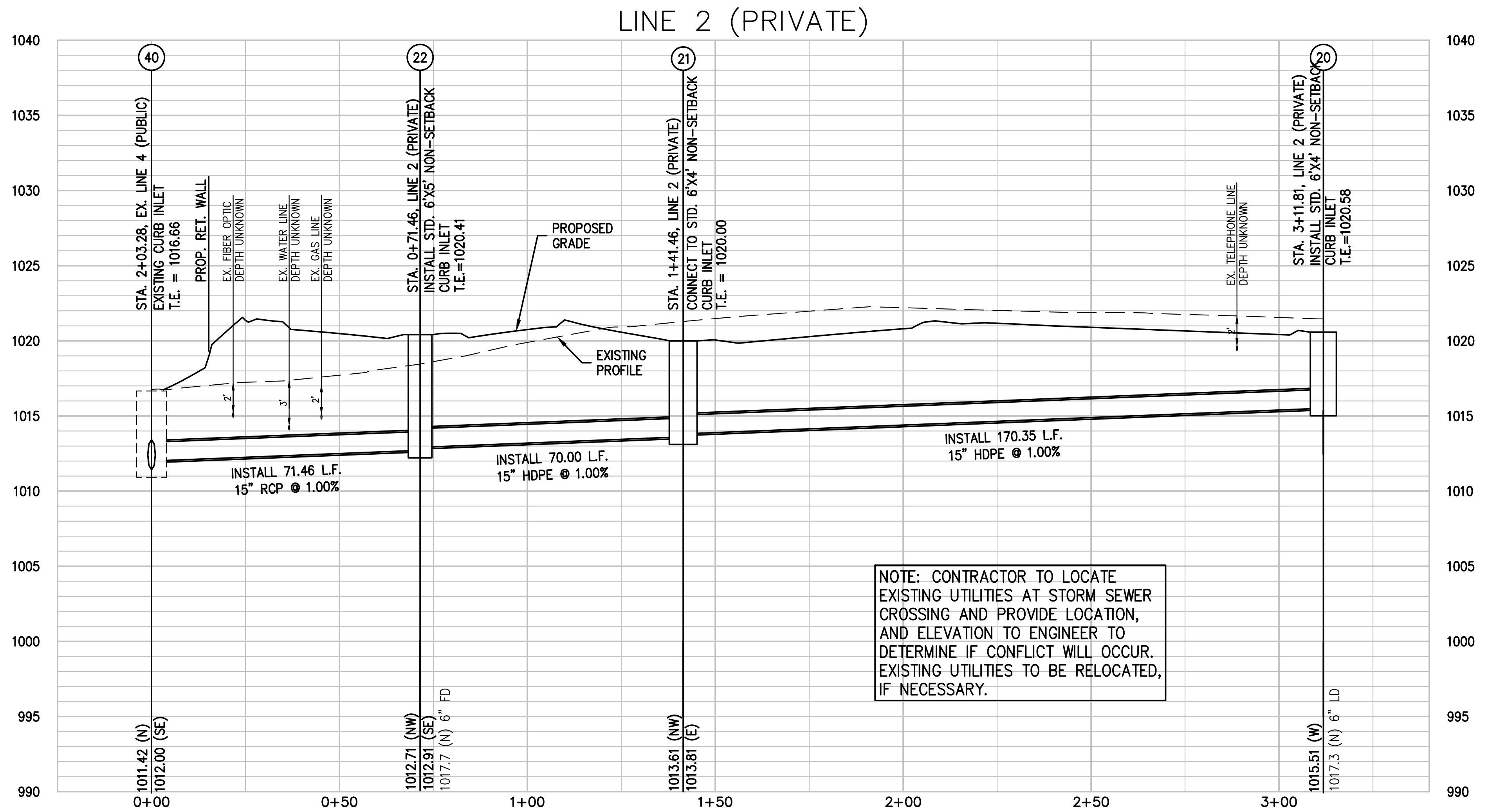
SHEET 016 OF 202  
08/01/2023



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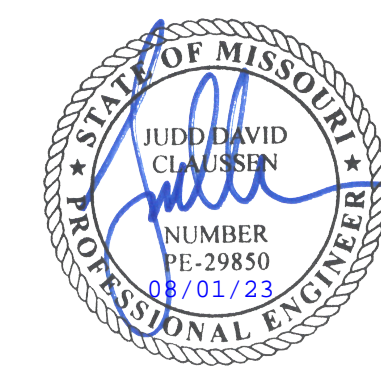


SCALE: 1"=20' HORIZ.  
1"= 5' VERT.



PEI #220481

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



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CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
MISSOURI LAND SURVEYING - 2007001128  
ENGINEERING - 2007005668

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MSHP  
  
1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

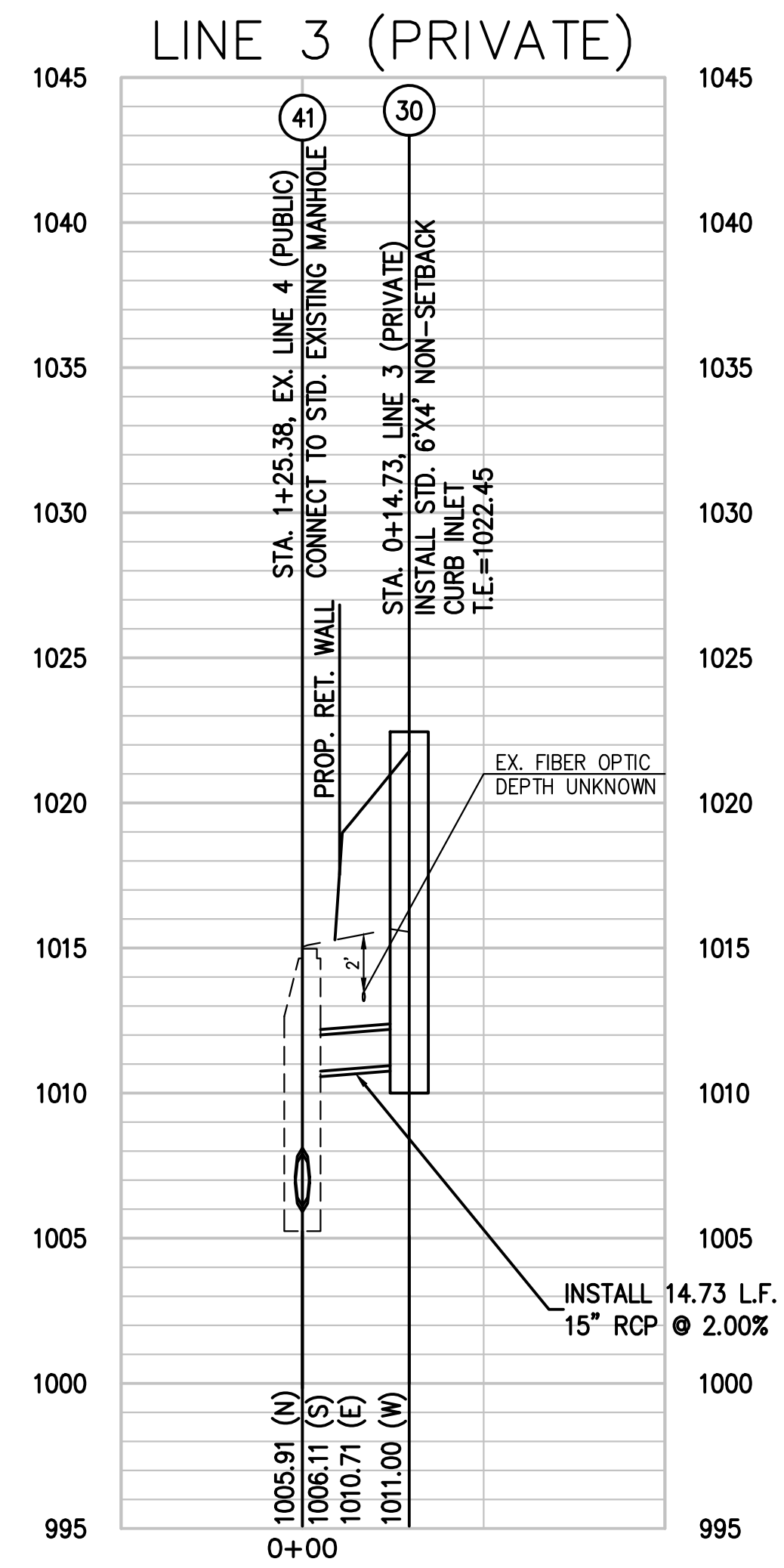
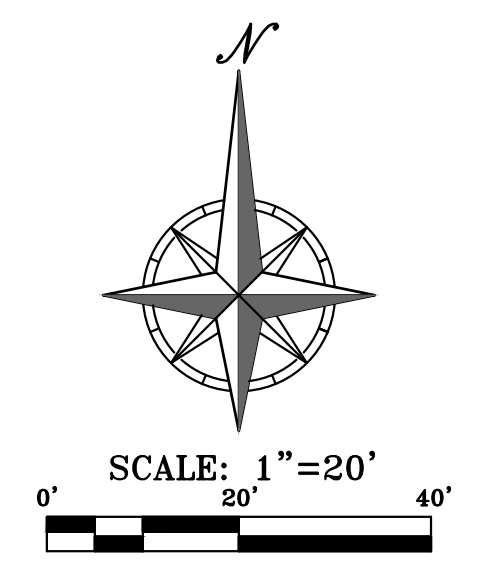
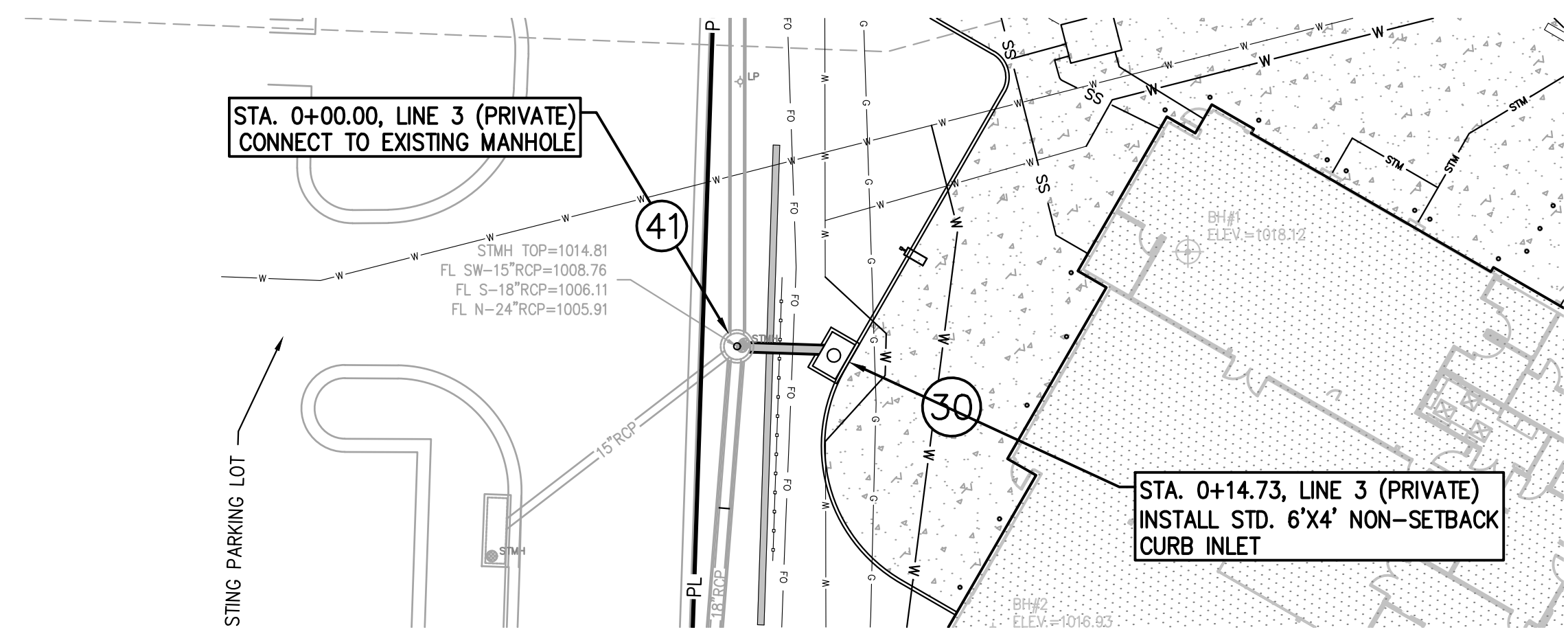
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

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DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
  
STORM SEWER  
PLAN AND  
PROFILE

SHEET NUMBER:  
**C-501**  
SHEET 017 OF 202  
08/01/2023

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NOTE: CONTRACTOR TO LOCATE EXISTING UTILITIES AT STORM SEWER CROSSING AND PROVIDE LOCATION, AND ELEVATION TO ENGINEER TO DETERMINE IF CONFLICT WILL OCCUR. EXISTING UTILITIES TO BE RELOCATED, IF NECESSARY.

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



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Project Number: 2022.152

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CERTIFICATE OF AUTHORIZATION  
KANSAS  
LAND SURVEYING - LS-82  
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CERTIFICATE OF AUTHORIZATION  
MISSOURI  
LAND SURVEYING-2007001128  
ENGINEERING-2007005068

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1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

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ISSUE DATE: 01 August 2023

CAD DWG FILE: C-502.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
**STORM SEWER  
PLAN AND  
PROFILE**

SHEET NUMBER:  
**C-502**  
SHEET 018 OF 202  
08/01/2023

PEI #220481



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Project Number: 2022.152



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KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
MISSOURI LAND SURVEYING - 2007001128  
ENGINEERING - 2007005668

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SITE # 6018  
FACILITY # 8136018019

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REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

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CHECKED BY: DAF  
DESIGNED BY: JDC

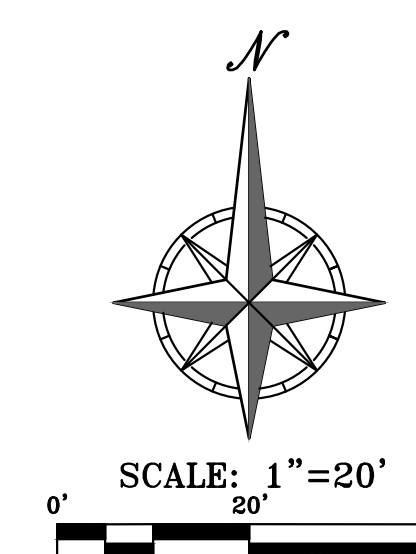
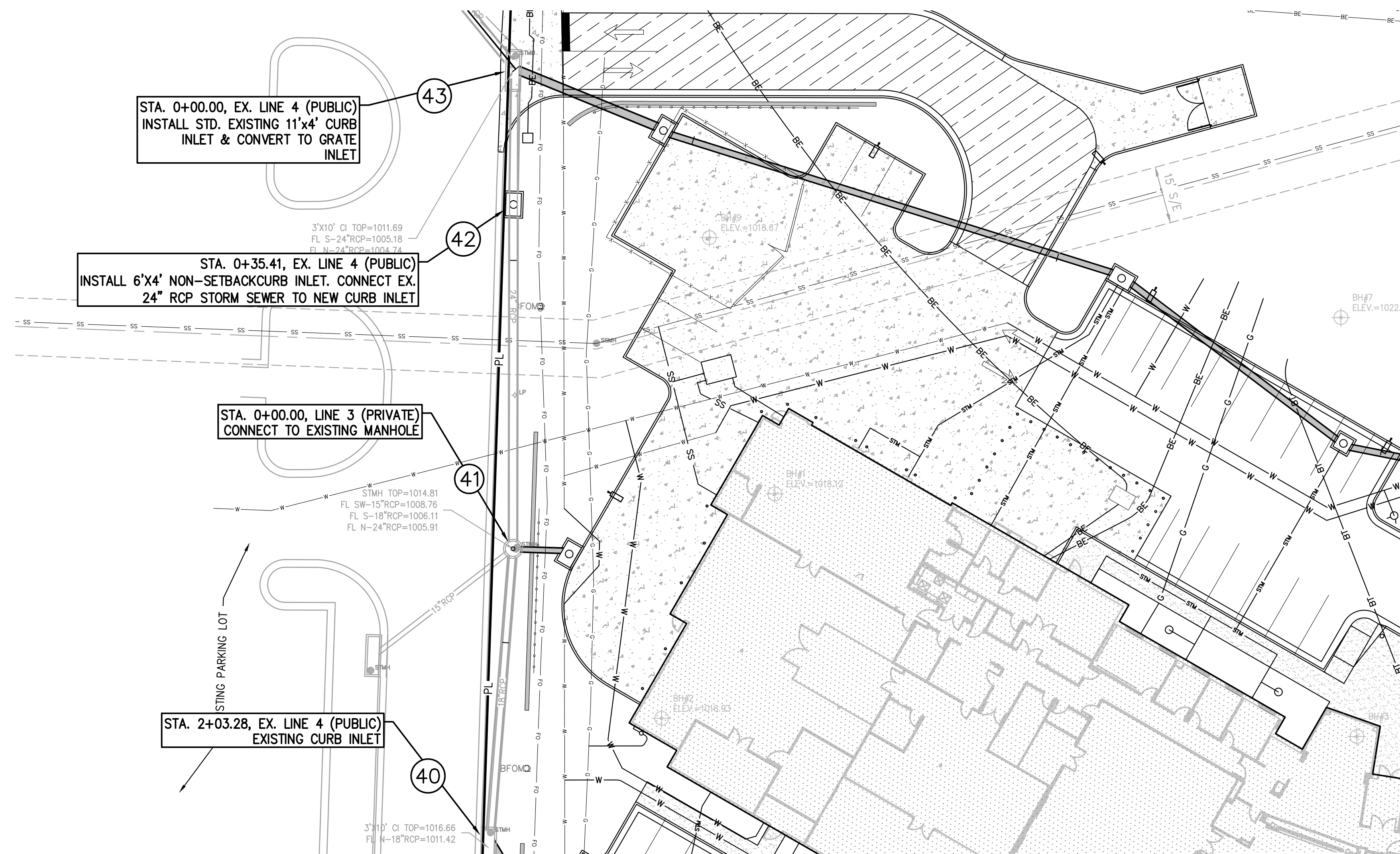
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STORM SEWER  
PLAN AND  
PROFILE

SHEET NUMBER:

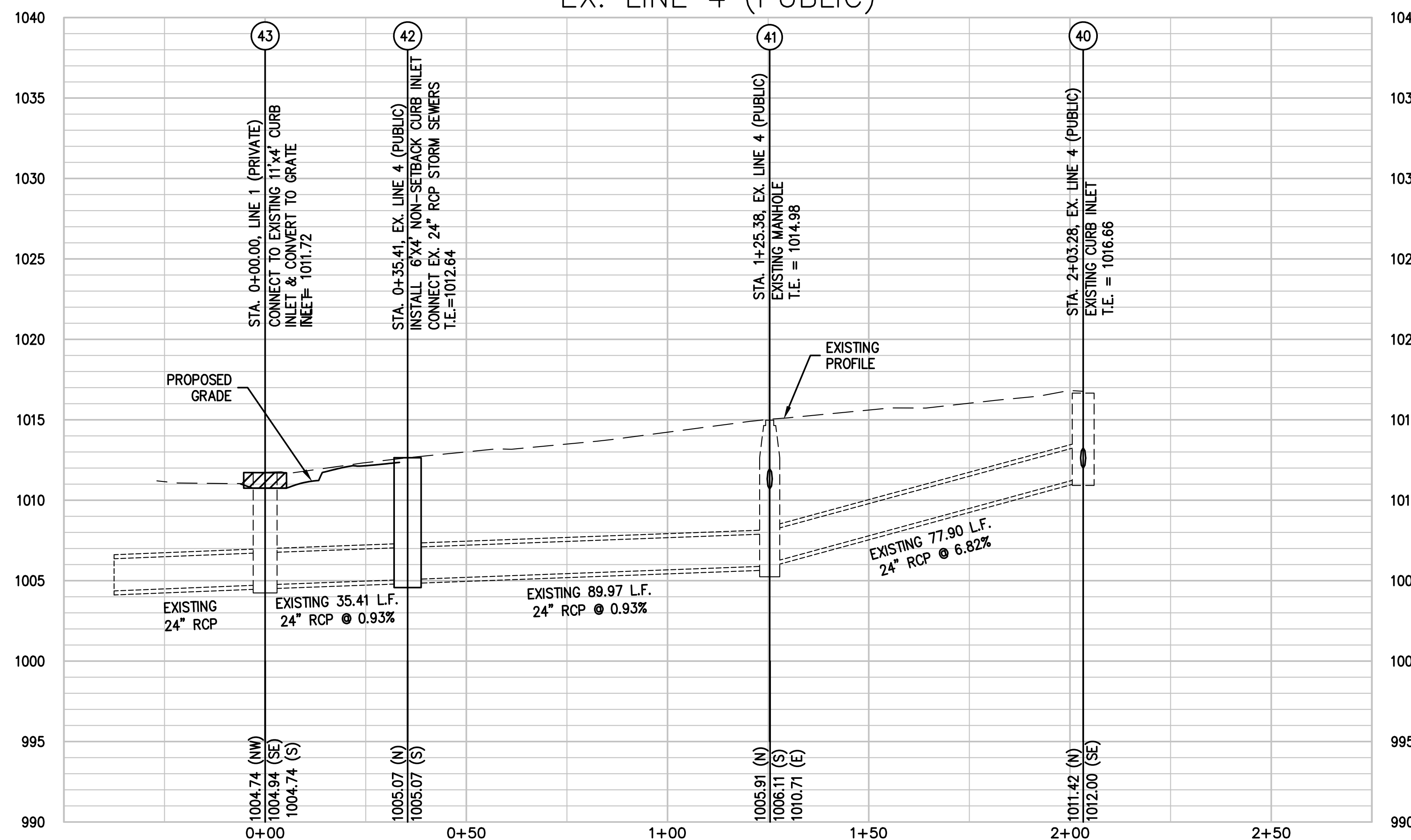
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SHEET 019 OF 202  
08/01/2023

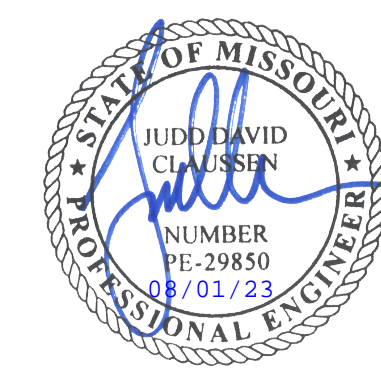


SCALE: 1" = 20' HORIZ.  
1" = 5' VERT.

EX. LINE 4 (PUBLIC)



PEI #220481



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817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
Project Number: 2022.152

**PEI** PHILIPS ENGINEERING, INC.  
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1320 N. Winchester  
Olathe, Kansas 66061  
(913) 393-1100  
Fax (913) 393-1166  
[www.philipsengineering.com](http://www.philipsengineering.com)

CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
MISSOURI LAND SURVEYING - 2007001128  
ENGINEERING - 2007005068

OFFICE OF  
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Project Name  
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MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-600.dwg  
DRAWN BY: SNH  
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DESIGNED BY: JDC

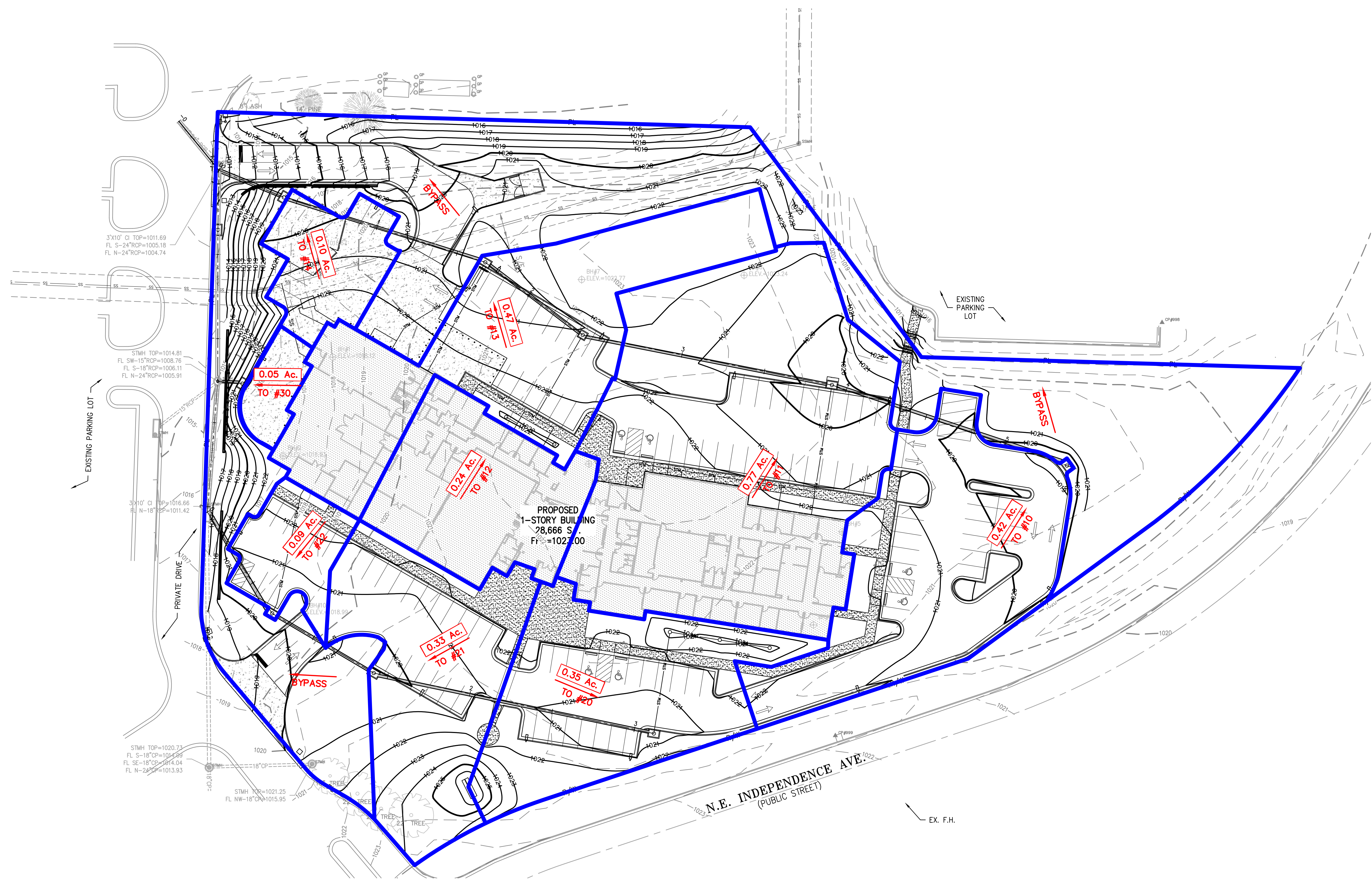
SHEET TITLE:

DRAINAGE  
MAP

SHEET NUMBER:

## C-600

SHEET 020 OF 202  
08/01/2023



**FLOOD NOTE:**  
THIS PROPERTY LIES WITHIN ZONE X, DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN ON THE FLOOD INSURANCE RATE MAP PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY FOR THE CITY OF LEE'S SUMMIT, COMMUNITY NO. 290174, JACKSON COUNTY, MISSOURI, MAP NO. 29095C04306, AND DATED JANUARY 20, 2017.

**UTILITY NOTES:**  
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

**LEGEND**

- XXX --- EXISTING CONTOURS
- XXX --- PROPOSED CONTOURS
- DENOTES DRAINAGE AREA
- DENOTES FLOW DIRECTION
- X.XX Ac. DENOTES DRAINAGE AREA TO STRUCTURE
- ⊗ DENOTES STRUCTURE NUMBER

SCALE: 1"=30'  
PEI #220481



\\phelps-servers\projects\VP\_220481\Drawings\DRAINAGE\_MAP.dwg Layout:1 Aug 01, 2023 - 11:28am Daniela Byrum



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817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
Project Number: 2022.152

**STORM DRAINAGE CALCULATIONS**

L I M B N E E R	S T R U C T U R E	I. RUNOFF									III. PIPE DESIGN							REMARKS		
		INCREMENTAL			CUMULATIVE			SYSTEM TIME OF CONCENTRATION "T <sub>c</sub> " AT STRUCTURE (MIN)	RAINFALL INTENSITY "I <sub>25</sub> / I <sub>100</sub> " (IN/HR)	ANTECEDENT PRECIPITATION FACTOR "K <sub>25</sub> / K <sub>100</sub> "	RUNOFF "Q <sub>25</sub> / Q <sub>100</sub> " (CFS)	STRUCTURE		PIPE					25-Year Check	
		RUNOFF COEFFICIENT "C"	AREA "A" (ACRES)	C x A	AREA "A" (ACRES)	C x A	Upstream Structure Number					Downstream Structure Number	Diameter "D" (IN)	Slope "S" (FT/FT)	Velocity Full V <sub>p</sub> (FPS)	Runoff Q <sub>25</sub> (CFS)	Runoff Q <sub>100</sub> (CFS)			Full Flow Q <sub>p</sub> (CFS)
1	10	0.81	0.42	0.34	0.42	0.34	6.00	8.19	1.10	3.1	10	11	15	0.0100	5.3	3.1	4.2	7.6	OK	
	11	0.81	0.77	0.62	1.19	0.96	6.00	9.92	1.25	4.2	11	12	18	0.0100	6.0	8.6	11.9	12.4	OK	
	12	0.81	0.24	0.19	1.43	1.15	6.00	9.92	1.25	11.9	12	13	18	0.0100	6.0	10.4	14.3	12.4	OK	
	13	0.81	0.47	0.38	1.90	1.53	6.00	9.92	1.25	14.3	13	14	24	0.0100	7.2	13.8	19.0	26.7	OK	
	14	0.81	0.10	0.08	2.00	1.61	6.00	9.92	1.25	19.0	14	43	24	0.0176	9.6	14.5	20.0	35.5	OK	
	20	0.81	0.35	0.28	0.35	0.28	6.00	8.19	1.10	2.5	20	21	15	0.0100	5.3	2.5	3.5	7.6	OK	
2	21	0.81	0.33	0.27	0.68	0.55	6.00	9.92	1.25	3.5	21	22	15	0.0100	5.3	5.0	6.8	7.6	OK	
	22	0.81	0.09	0.07	0.77	0.62	6.00	9.92	1.25	6.8	22	40	15	0.0100	5.3	5.6	7.7	7.6	OK	
	30	0.81	0.05	0.04	0.05	0.04	6.00	8.19	1.10	5.6	30	41	15	0.0200	7.5	0.4	0.5	10.8	OK	
								9.92	1.25	7.7										



CERTIFICATE OF AUTHORIZATION KANSAS LAND SURVEYING - E-391  
 CERTIFICATE OF AUTHORIZATION MISSOURI LAND SURVEYING - 2007001128 ENGINEERING - 2007005068

**OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION: DATE:  
 REVISION: DATE:  
 REVISION: DATE:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: C-601.dwg  
 DRAWN BY: SNH  
 CHECKED BY: DAF  
 DESIGNED BY: JDC

SHEET TITLE:

**DRAINAGE  
CALCULATIONS**

SHEET NUMBER:

**C-601**

SHEET 021 OF 202  
08/01/2023



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CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

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REVISION:  
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REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-700.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:

EROSION  
CONTROL  
PHASE I

SHEET NUMBER:

**C-700**

SHEET 022 OF 202

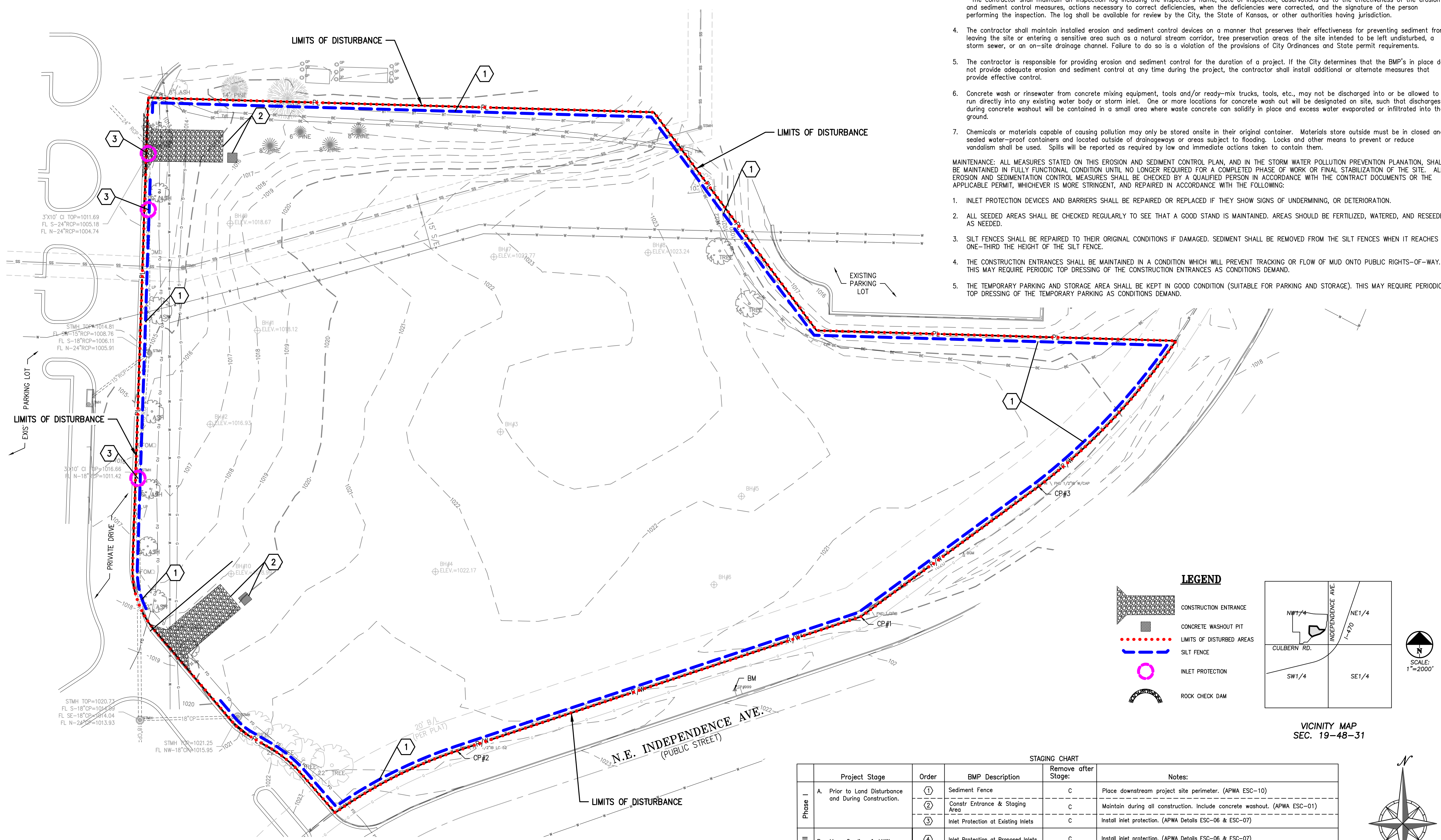
08/01/2023

**EROSION AND SEDIMENT CONTROL GENERAL NOTES:**

- Prior to Land Disturbance activities, the contractor shall:
  - Delineate the outer limits of any tree or stream preservation designated to remain with construction fencing.
  - Construct a stabilized entrance/parking/delivery area and install all perimeter sediment controls on the site.
  - Install and request the inspection of the preconstruction erosion and sediment control measures designated on the approved erosion and sediment control plan. Land disturbance work shall not proceed until there is a satisfactory inspection.
  - Identify the limits of construction on the ground with easily recognizable indications such as construction staking, construction fencing, placement of physical barriers or other means acceptable to the contractor and the City inspector.
- Erosion and sediment control devices protecting the public right-of-way shall be installed as soon as the right-of-way has been backfilled and graded.
- The contractor shall comply with all requirements of City Ordinances or State permit requirements, such as:
  - The contractor shall seed, mulch, or otherwise stabilize any disturbed area where the land disturbance activity has ceased for more than 14 days.
  - The contractor shall perform inspections of erosion and sediment control measures at least once every 14 days and within 24 hours following each rainfall event of 1/8" or more within any 24-hour period.
  - The contractor shall maintain an inspection log including the inspector's name, date of inspection, observations as to the effectiveness of the erosion and sediment control measures, actions necessary to correct deficiencies, when the deficiencies were corrected, and the signature of the person performing the inspection. The log shall be available for review by the City, the State of Kansas, or other authorities having jurisdiction.
- The contractor shall maintain installed erosion and sediment control devices on a manner that preserves their effectiveness for preventing sediment from leaving the site or entering a sensitive area such as a natural stream corridor, tree preservation areas of the site intended to be left undisturbed, a storm sewer, or an on-site drainage channel. Failure to do so is a violation of the provisions of City Ordinances and State permit requirements.
- The contractor is responsible for providing erosion and sediment control for the duration of a project. If the City determines that the BMP's in place do not provide adequate erosion and sediment control at any time during the project, the contractor shall install additional or alternate measures that provide effective control.
- Concrete wash or rinsewater from concrete mixing equipment, tools and/or ready-mix trucks, tools, etc., may not be discharged into or be allowed to run directly into any existing water body or storm inlet. One or more locations for concrete wash out will be designated on site, such that discharges during concrete washout will be contained in a small area where waste concrete can solidify in place and excess water evaporated or infiltrated into the ground.
- Chemicals or materials capable of causing pollution may only be stored onsite in their original container. Materials store outside must be in closed and sealed water-proof containers and located outside of drainways or areas subject to flooding. Locks and other means to prevent or reduce vandalism shall be used. Spills will be reported as required by law and immediate actions taken to contain them.

**MAINTENANCE:** ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

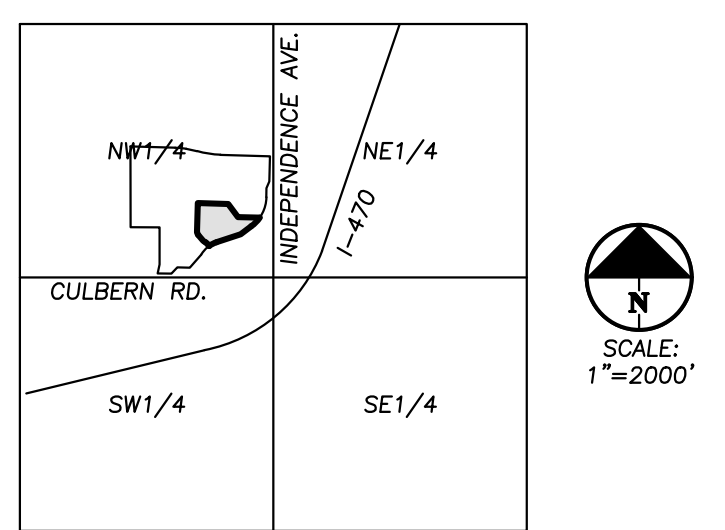
- INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
- ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
- SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-THIRD THE HEIGHT OF THE SILT FENCE.
- THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
- THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE), THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.



DISTURBED AREA = 4.10± ACRES

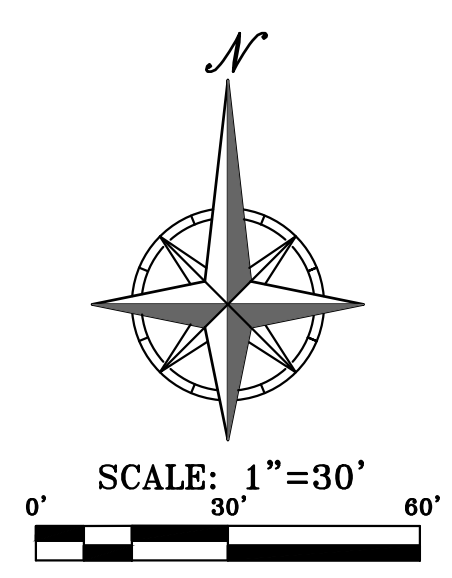
**LEGEND**

- CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT PIT
- LIMITS OF DISTURBED AREAS
- SILT FENCE
- INLET PROTECTION
- ROCK CHECK DAM



**STAGING CHART**

Project Stage	Order	BMP Description	Remove after Stage:	Notes:
Phase I A. Prior to Land Disturbance and During Construction.	①	Sediment Fence	C	Place downstream project site perimeter. (APWA ESC-10)
	②	Constr Entrance & Staging Area	C	Maintain during all construction. Include concrete washout. (APWA ESC-01)
	③	Inlet Protection at Existing Inlets	C	Install inlet protection. (APWA Details ESC-06 & ESC-07)
Phase II B. Mass Grading & Utility Installation	④	Inlet Protection at Proposed Inlets	C	Install inlet protection. (APWA Details ESC-06 & ESC-07)
Phase III C. Final Stabilization Prior to closure of Land Disturbance Permit		Final Stabilization	N/A	Final Stabilization of all disturbed areas.



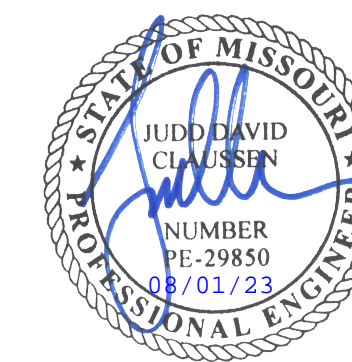
PEI #220481

Refer to Overall Grading Plan and Landscape Plan for final contours and final land cover.

\\phelps-server\projects\p\220481\eng\permit\plans\erosion\CONTRD.dwg Layout:1 Aug 01, 2023 - 11:28am Dakota Byrum



**UTILITY NOTES:**  
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
Project Number: 2022.152

**PEI** PHILIPS ENGINEERING, INC.  
1320 N. Winchester  
Columbia, Kansas 66604  
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Fax (913) 393-1656  
[www.philipsengineering.com](http://www.philipsengineering.com)

CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
MISSOURI LAND SURVEYING - 2007001128  
ENGINEERING - 2007005668

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-701.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:

EROSION  
CONTROL  
PHASE II

SHEET NUMBER:

**C-701**

SHEET 023 OF 202

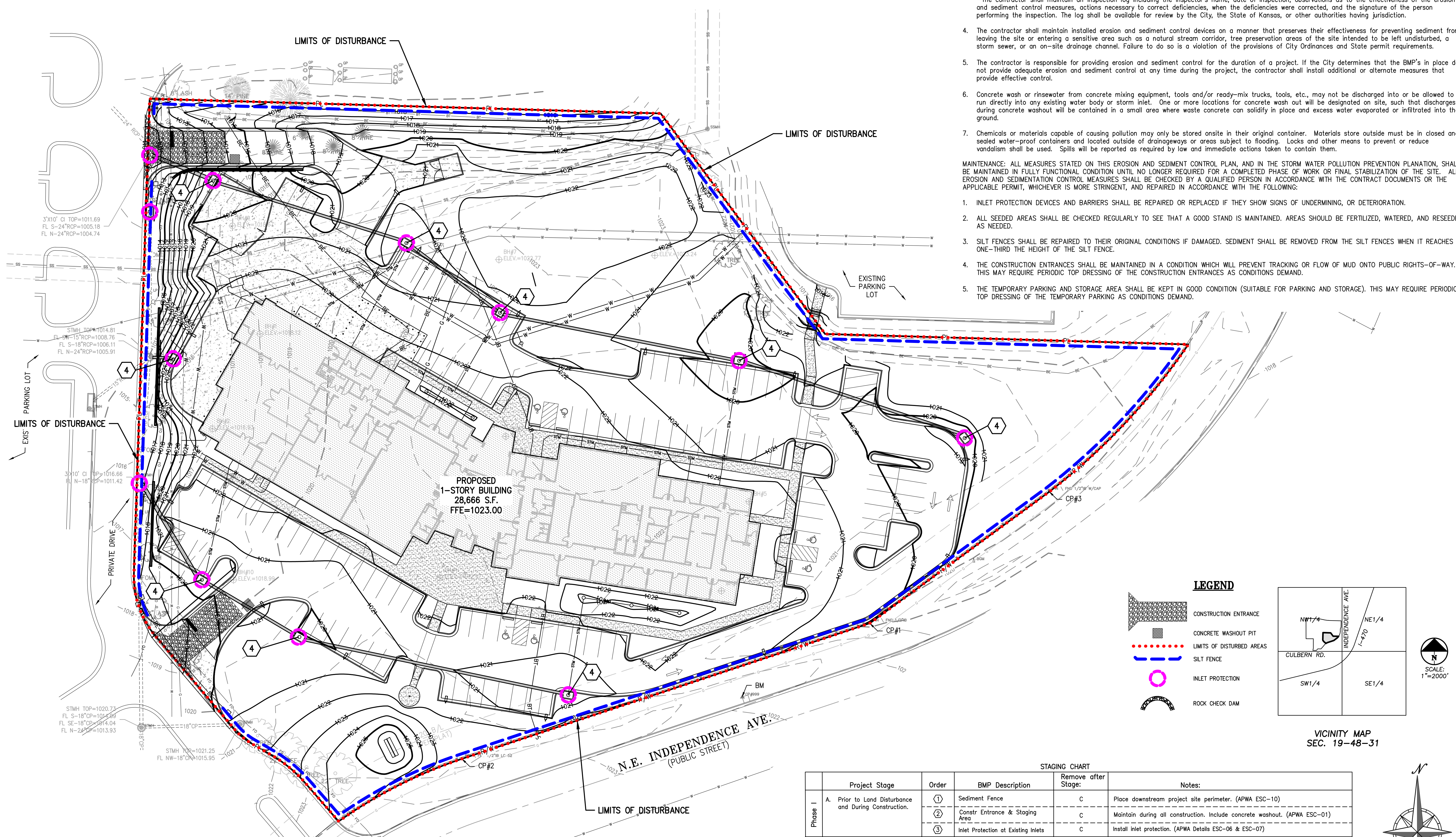
08/01/2023

EROSION AND SEDIMENT CONTROL GENERAL NOTES:

- Prior to Land Disturbance activities, the contractor shall:
  - Delineate the outer limits of any tree or stream preservation designated to remain with construction fencing.
  - Construct a stabilized entrance/parking/delivery area and install all perimeter sediment controls on the site.
  - Install and request the inspection of the preconstruction erosion and sediment control measures designated on the approved erosion and sediment control plan. Land disturbance work shall not proceed until there is a satisfactory inspection.
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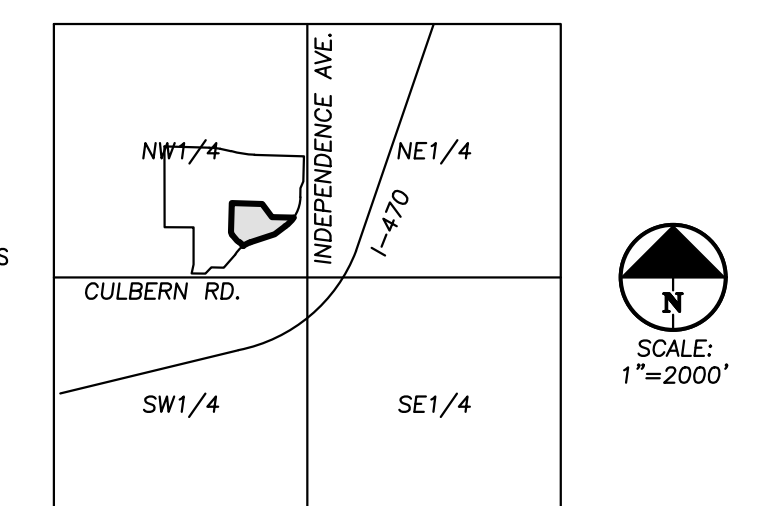
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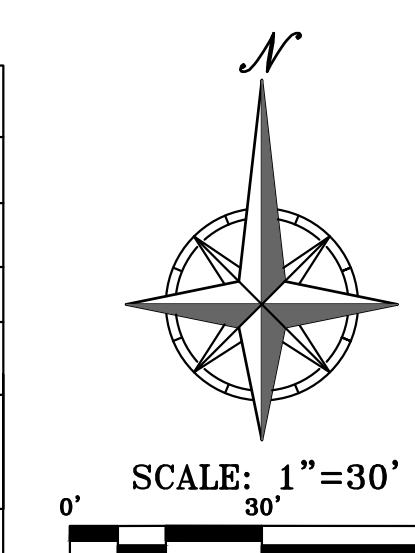
**LEGEND**

- CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT PIT
- LIMITS OF DISTURBED AREAS
- SILT FENCE
- INLET PROTECTION
- ROCK CHECK DAM



STAGING CHART

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Phase I A. Prior to Land Disturbance and During Construction.	①	Sediment Fence	C	Place downstream project site perimeter. (APWA ESC-10)
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DISTURBED AREA = 4.10± ACRES

Refer to Overall Grading Plan and Landscape Plan for final contours and final land cover.

\\phelps-serv\projects\p\220481\eng\permit\plans\EROSION CONTROL.dwg Layout 2 Aug 01, 2023 - 11:28am Dakota Byrum



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Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-702.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:

EROSION  
CONTROL  
DETAILS

SHEET NUMBER:

**C-702**

SHEET 024 OF 202  
08/01/2023

PEI #220481

**Notes for Concrete Washout:**

- Concrete washout areas shall be installed prior to any concrete placement on site.
- Concrete washout areas shall include a flat sub-surface pit sized to receive the amount of concrete to be placed on site. The slope leading out of the sub-surface pit shall be 2:1. The vehicle tracking post shall be placed towards the concrete washout area.
- Vehicle tracking control is required at the access point to all concrete washout areas.
- Slope shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
- A one-piece impervious liner may be required along the bottom and sides of the sub-surface pit in gravelly soils.

**Maintenance for Concrete Washout:**

- Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
- Concrete washout areas shall be enlarged as necessary to maintain capacity for washed concrete.
- Concrete washout water, washed pieces of concrete and all other debris in the sub-surface pit shall be transported from the site site in a water-tight container and disposed of properly.
- Concrete washout areas shall remain in place until all concrete for the project is placed.
- When concrete washout areas are removed, excavations shall be filled with suitable compacted base(s) and topped, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

**Notes for Construction Entrance:**

- Install paving on steep slopes, at curves on public roads, or downhill of abutment areas.
- Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
- If slope towards the public road exceeds 2%, construct a 6" to 8" high ridge with 20:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
- Install pipe under the entrance if needed to maintain drainage ditches along public roads.
- Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
- Divert all surface runoff and drainage from the entrance to a sediment control device.
- If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

**Maintenance for Construction Entrances:**

- Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

**CONCRETE WASHOUT**

**CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT**

AMERICAN PUBLIC WORKS ASSOCIATION  
KANSAS CITY METRO CHAPTER  
STANDARD DRAWING NUMBER ESC-03  
ADOPTED: 10/24/2016

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control. Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

**Notes:**

- In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
- Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
- Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
- Attach fabric to upstream side of post.
- Install posts a minimum of 2' into the ground.
- Tranching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

**Maintenance:**

- Remove and dispose of sediment deposits when the deposit approaches to the height of silt fence.
- Repair as necessary to maintain function and structure.

**ESSENTS**

- MIN. LENGTH: 4'
- HARDWOOD: 2" x 4" x 1" x 4"
- NO. 2 SOUTHERN PINE: 2" x 4" x 2" x 4"
- STEEL: 1.53 LB/FT

**Geotextile Fabric** shall meet the requirements of ASTM D 3085.

**CONCRETE WASHOUT**

**CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT**

AMERICAN PUBLIC WORKS ASSOCIATION  
KANSAS CITY METRO CHAPTER  
STANDARD DRAWING NUMBER ESC-03  
ADOPTED: 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

**Notes:**

- Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" x 10" (min.) board impinged in all fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
- When inlet is completed and curb poured, filter socks or approved board should be used (Late Stage Curb Inlet). Show details are not approved for curb inlet use.
- Contractor to field verify pouring water shall not create a traffic hazard.

**Maintenance:**

- Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
- Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
- Repair or replace as necessary to maintain function and integrity of installation.

**CONCRETE WASHOUT**

**CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT**

AMERICAN PUBLIC WORKS ASSOCIATION  
KANSAS CITY METRO CHAPTER  
STANDARD DRAWING NUMBER ESC-05  
ADOPTED: 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

**Notes:**

- Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
- Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
- Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
- Wire reinforced silt fence may be used in place of silt fence attached to wood frame.

**Maintenance:**

- Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
- Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
- Repair or replace as necessary to maintain function and integrity of installation.

**CONCRETE WASHOUT**

**CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT**

AMERICAN PUBLIC WORKS ASSOCIATION  
KANSAS CITY METRO CHAPTER  
STANDARD DRAWING NUMBER ESC-07  
ADOPTED: 10/24/2016

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.





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Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
MISSOURI LAND SURVEYING - 2007001128  
ENGINEERING - 200700568

OFFICE OF  
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PROJECT # R2219-01  
SITE # 6018  
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REVISION:  
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DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-800.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:

STANDARD  
DETAILS

SHEET NUMBER:

**C-800**

SHEET 025 OF 202  
08/01/2023

PEI #220481

Dowel size <sup>a</sup>			
Slab depth, in. (mm)	Dowel diameter, in. (mm)	Dowel embedment, in. (mm) <sup>b</sup>	Total dowel length, in. (mm) <sup>b</sup>
5 (125)	5/8 (16)	5 (125)	12 (300)
6 (150)	3/4 (19)	6 (150)	14 (360)
7 (180)	7/8 (22)	6 (150)	14 (360)
8 (200)	1 (25)	6 (150)	14 (360)
9 (230)	1-1/8 (29)	7 (180)	16 (400)

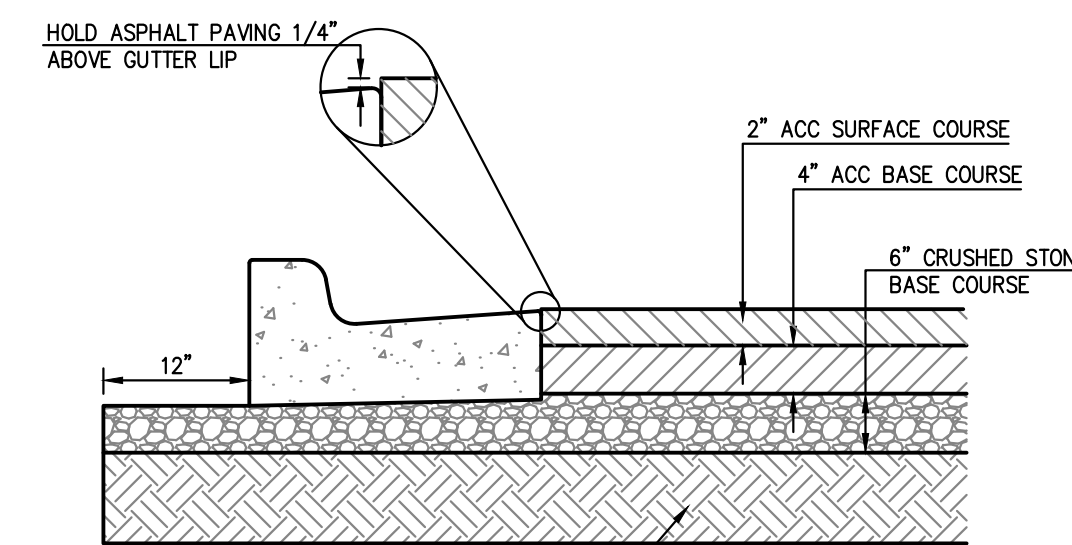
<sup>a</sup>All dowels spaced at 12 in. (300 mm) centers.  
<sup>b</sup>On each side of joint.

<sup>c</sup>Allowance made for joint openings and for minor errors in positioning dowels.

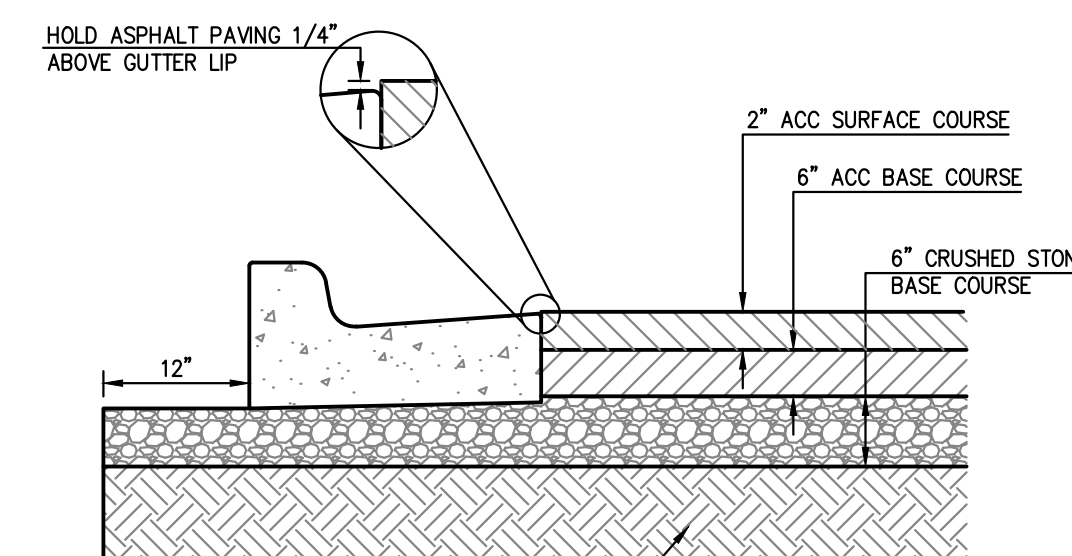
Tie bar dimensions				
Slab depth, in. (mm)	Tiebar size, in. (mm)	Tiebar spacing		
		10 ft. in. (mm)	12 ft. in. (mm)	14 ft. in. (mm)
5 (125)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	28 (710)
5-1/2 (140)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	25 (630)
6 (150)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	23 (580)
6-1/2 (165)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	21 (530)
7 (180)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	20 (510)
7-1/2 (190)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	18 (460)
8 (200)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	17 (430)
8-1/2 (215)	1/2 x 24 (13 x 610)	30 (760)	30 (760)	16 (410)
9 (230)	1/2 x 30 (13 x 760)	36 (910)	36 (910)	24 (610)

**GENERAL PAVING NOTES:**

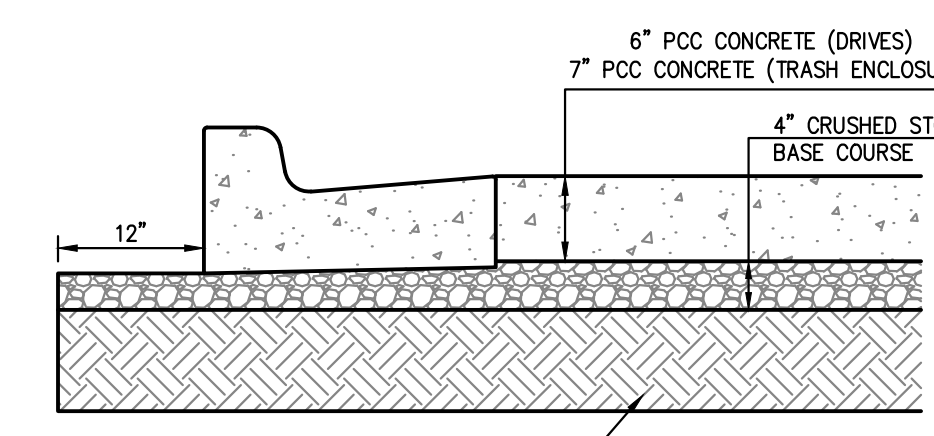
- PRIOR TO PLACEMENT OF GRANULAR BASE OR ASPHALT, PROOF ROLL AND RE-COMPACT THE EXPOSED SURFACES UP TO A MINIMUM LATERAL DISTANCE OF TWO (2) FEET OUTSIDE THE PAVEMENT. ANY LOCALIZED SOFT, WET, OR LOOSE AREAS IDENTIFIED DURING THE PROOF ROLLING SHOULD BE REPAIRED PRIOR TO PAVING. FILL MATERIAL SHOULD BE PLACED IN LOOSE LIFTS UP TO A MAXIMUM OF EIGHT (8) INCHES IN THICKNESS AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698 AT MOISTURE CONTENTS WITHIN 0% AND +4% OF THE OPTIMUM FOR SOILS WITH A LIQUID LIMIT OF GREATER THAN 40, AND - +/- 3% OF THE OPTIMUM FOR SOILS WITH A LIQUID LIMIT OF LESS THAN 40. MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT SHOULD BE DETERMINED BY THE STANDARD PROCTOR TEST (ASTM D 698).
- PROOFROLL WITH A 25 TON RUBBER TIRE VEHICLE AND REPAIR SUBGRADE DEFICIENCIES. IF ANY SIGNIFICANT EVENT SUCH AS PRECIPITATION OCCURS AFTER PROOFROLLING, THE SUBGRADE SHOULD BE REVIEWED BY QUALIFIED PERSONNEL IMMEDIATELY PRIOR TO PLACING THE PAVEMENT.
- CRUSHED STONE BASE COURSE USED BENEATH CONCRETE PAVING SHALL BE COMPACTED AB-3 OR EQUIVALENT.
- ASPHALTIC SURFACE COURSE SHALL BE APWA TYPE 3. THE SURFACE COURSE SHOULD BE COMPACTED TO A MINIMUM OF 97% MARSHALL DENSITY (ASTM SPECIFICATION D 1559). 30% RAP IS ALLOWED.
- ASPHALTIC BASE COURSE SHALL BE APWA TYPE 1. THE BASE COURSE SHOULD BE COMPACTED TO A MINIMUM OF 95% MARSHALL DENSITY (ASTM SPECIFICATION D 1559). 30% RAP IS ALLOWED.
- THE CONTRACTOR SHALL PROVIDE A TACK COAT BETWEEN LIFTS OF ASPHALT.
- ALL SITE CONCRETE (CURBS, PAVEMENTS, SIDEWALKS, ETC.) SHALL MEET KANSAS CITY MATERIALS METRO BOARD (KCMMB) MIX DESIGN SPECIFICATIONS FOR 4,000 P.S.I. AIR ENTRAINED CONCRETE.
- IN NEW PAVEMENT AREAS, CONTRACTOR SHALL OVER EXCAVATE AS REQUIRED TO ESTABLISH NEW COMPACTED SUBGRADE ELEVATIONS.
- CONTRACTOR IS RESPONSIBLE FOR ALL PAVEMENT AND SUBGRADE MATERIALS TESTING.



ASPHALT PAVING - STANDARD DUTY AREAS

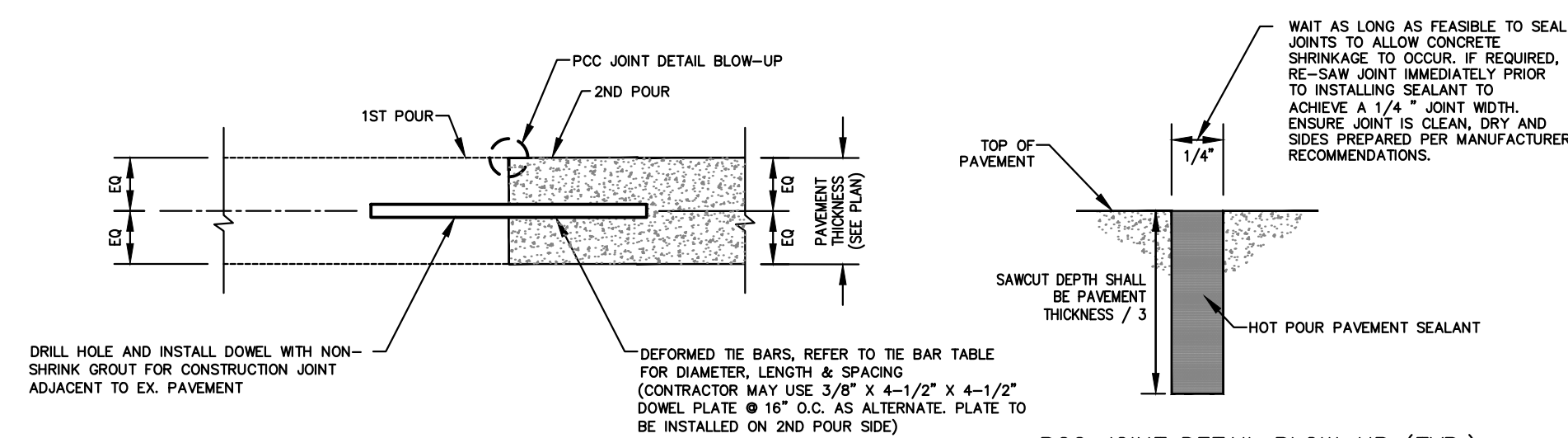


ASPHALT PAVING - HEAVY DUTY AREAS



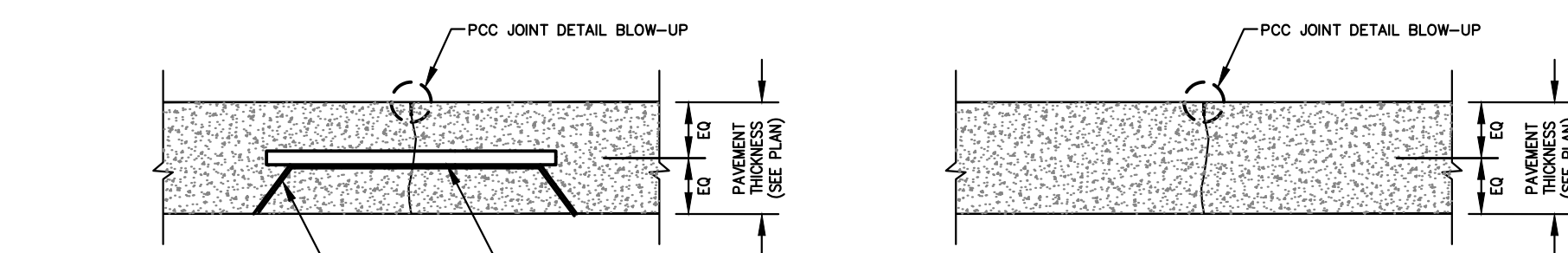
CONCRETE PAVING

**3 PAVING SECTIONS**  
C-800 SCALE: N.T.S.



CONSTRUCTION JOINT

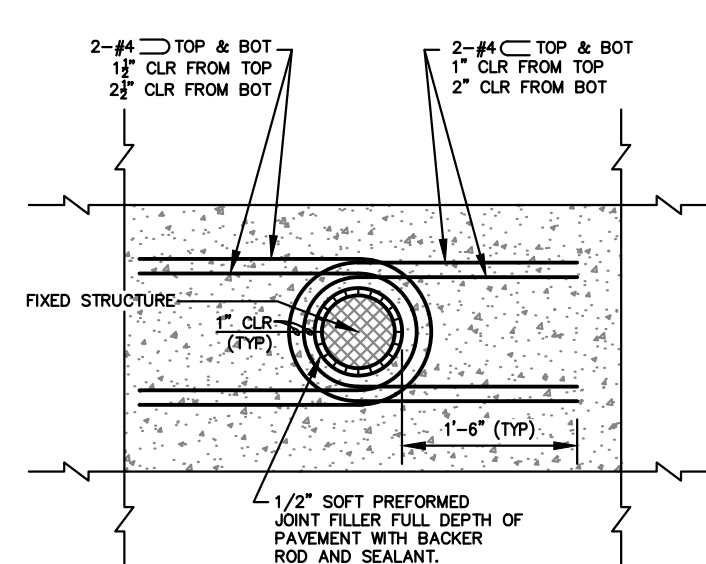
PCC JOINT DETAIL BLOW-UP (TYP.)



CONTRACTION JOINT (DOWELED)

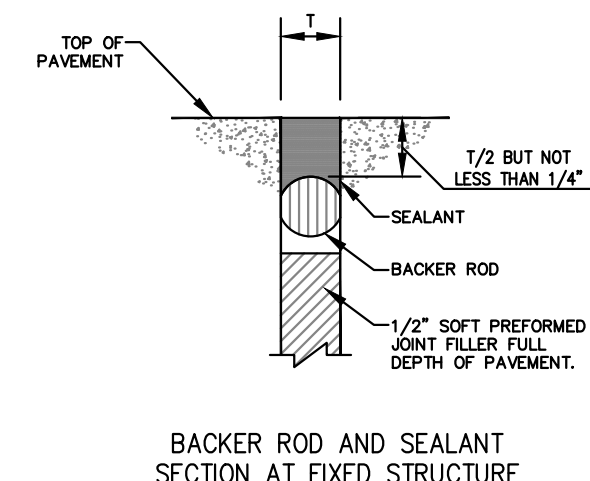
CONTRACTION JOINT (UNDOWELED)

**1 CONCRETE JOINT DETAILS**  
C-800 SCALE: N.T.S.

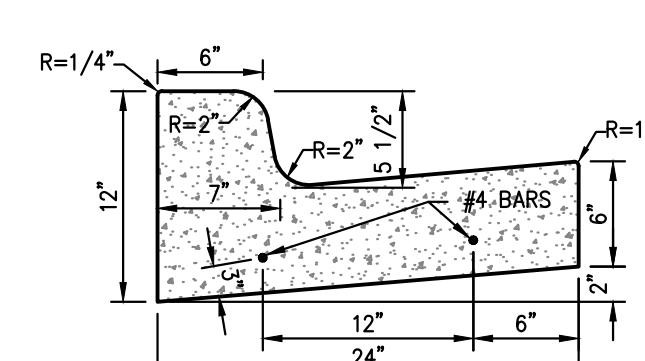


TYPICAL ROUND FIXED STRUCTURE PLAN DETAIL

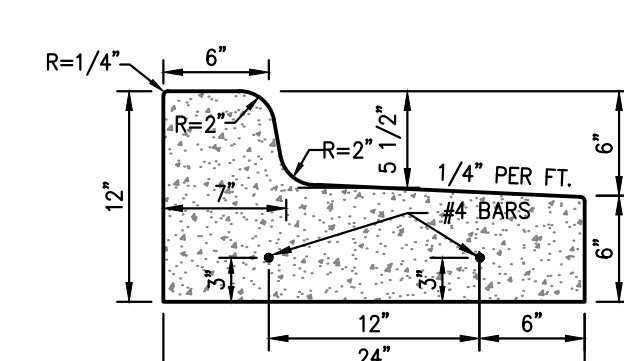
USES: MANHOLES, LIGHT POLE BASES AND BOLLARDS



BACKER ROD AND SEALANT SECTION AT FIXED STRUCTURE

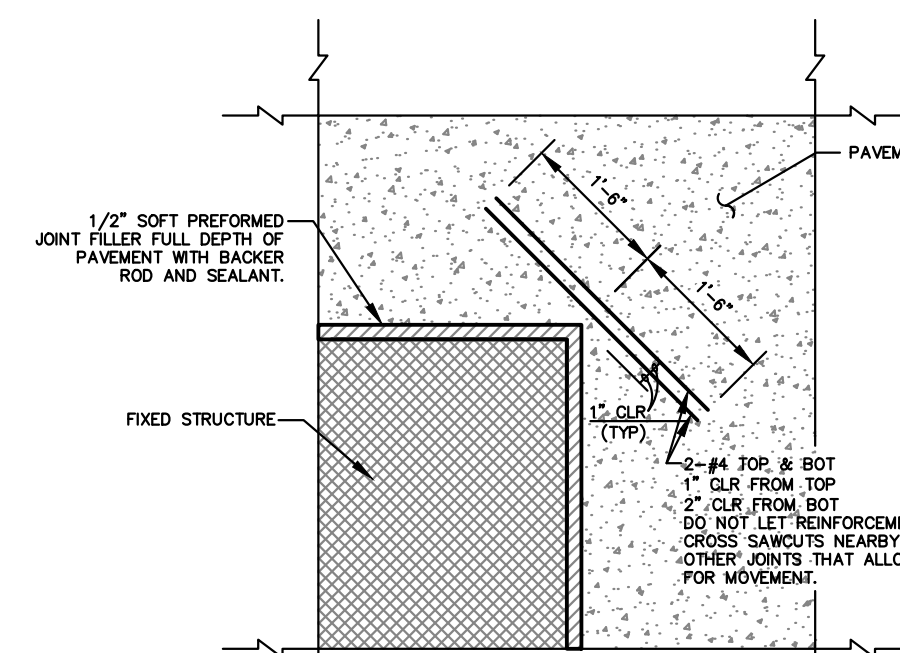


TYPE "B" CURB & GUTTER



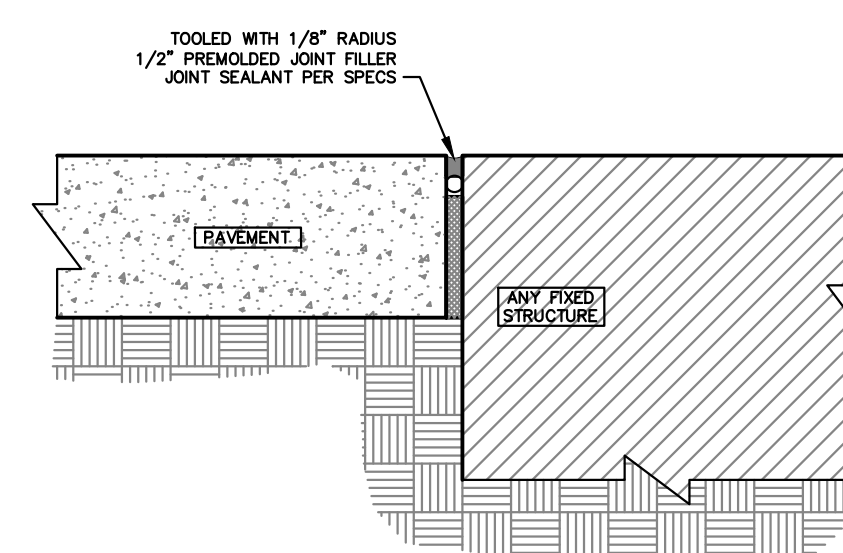
TYPE "B" TIP-OUT CURB & GUTTER

**4 PRIVATE CURB & GUTTER DETAILS**  
C-800 SCALE: N.T.S.



TYPICAL RECTANGULAR FIXED STRUCTURE PLAN DETAIL

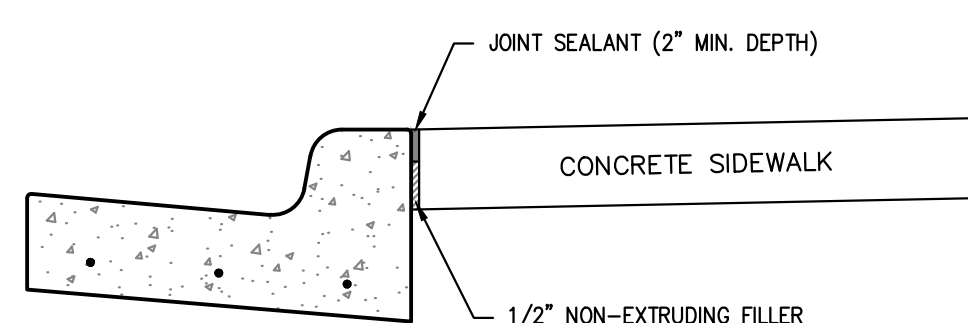
USES: BUILDINGS, RETAINING WALLS/DOCK WALLS AND DROP INLETS



ISOLATION JOINT

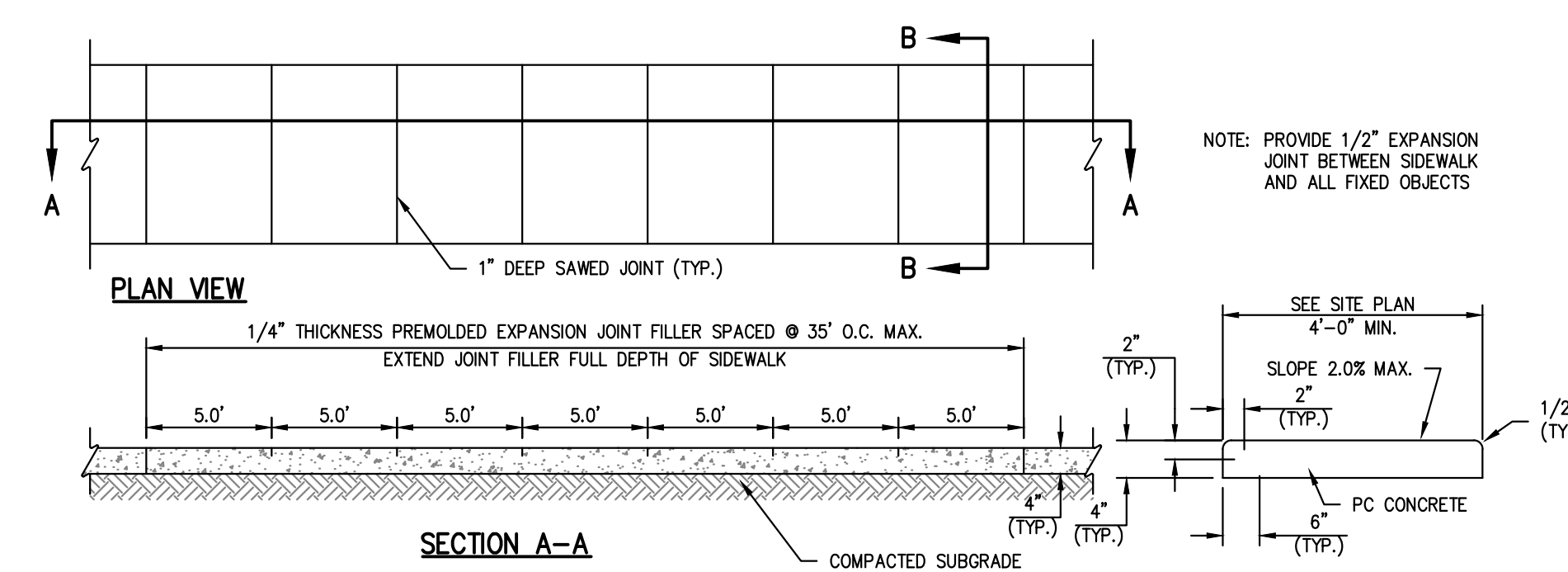
NOTES:  
ISOLATION JOINT TO BE USED FOR FIXED STRUCTURES SUCH AS BUILDINGS, RETAINING WALLS/DOCK WALLS, DROP INLETS, MANHOLES, LIGHT POLE BASES AND BOLLARDS.  
PAVEMENT IS NOT CONSIDERED A FIXED STRUCTURE.

**2 ISOLATION JOINT DETAILS**  
C-800 SCALE: N.T.S.



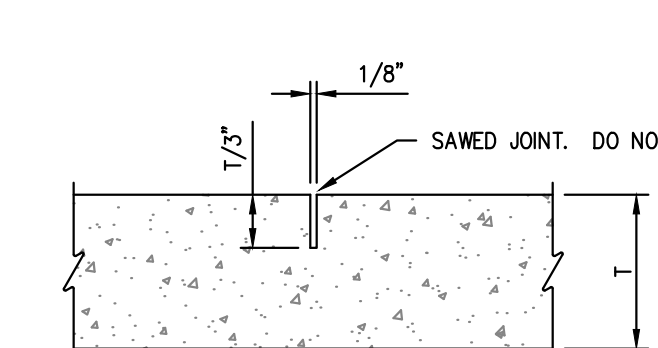
ALL OTHER DETAILS SAME AS SHOWN PER THIS SHEET.

**6 SIDEWALK AT CURB DETAIL**  
C-800 SCALE: N.T.S.

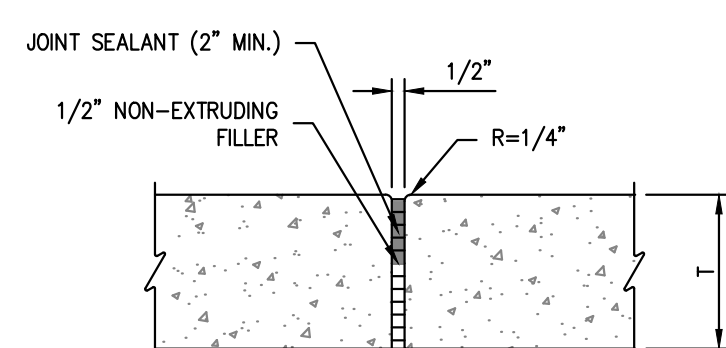


NOTE:  
1. USE KANSAS CITY MATERIALS METRO BOARD (KCMMB) MIX DESIGN SPECIFICATIONS FOR 4,000 P.S.I. AIR ENTRAINED CONCRETE FOR ALL PRIVATE SIDEWALKS.

**5 PRIVATE CONCRETE SIDEWALKS (NON REINFORCED)**  
C-800 SCALE: N.T.S.



TYPE A JOINT

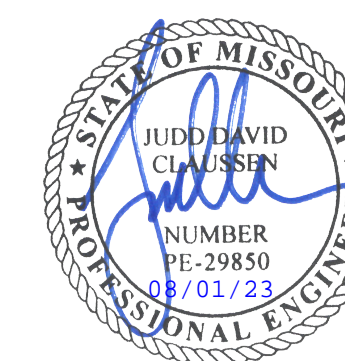


TYPE B JOINT

NOTE: TYPE A JOINTS SHALL NOT EXCEED 20 TIMES THE PAVEMENT THICKNESS (T).

**7 CONCRETE SIDEWALK JOINT DETAILS**  
C-800 SCALE: N.T.S.

\\phelps-serv\projects\p\220481\dwg\permit\plans\DETAILS - PRIVATE\PAVE 1 - Aug 01, 2023 - 11:28am Dakota Bryant



# GastingerWalker &

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)

**PEI** PHELPS ENGINEERING, INC.  
1320 N. Winchester  
Olathe, Kansas 66061  
CND 393-1055  
Fax (913) 393-1056  
[www.phelpsengineering.com](http://www.phelpsengineering.com)

CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
MISSOURI LAND SURVEYING - 2007001128  
ENGINEERING - 2007005068

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-801.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

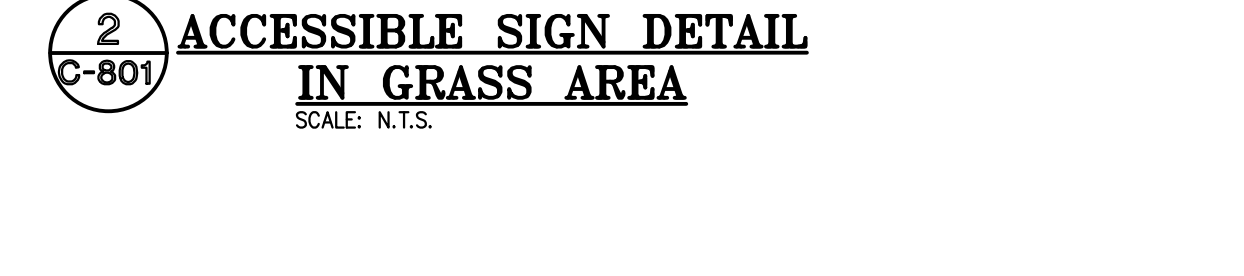
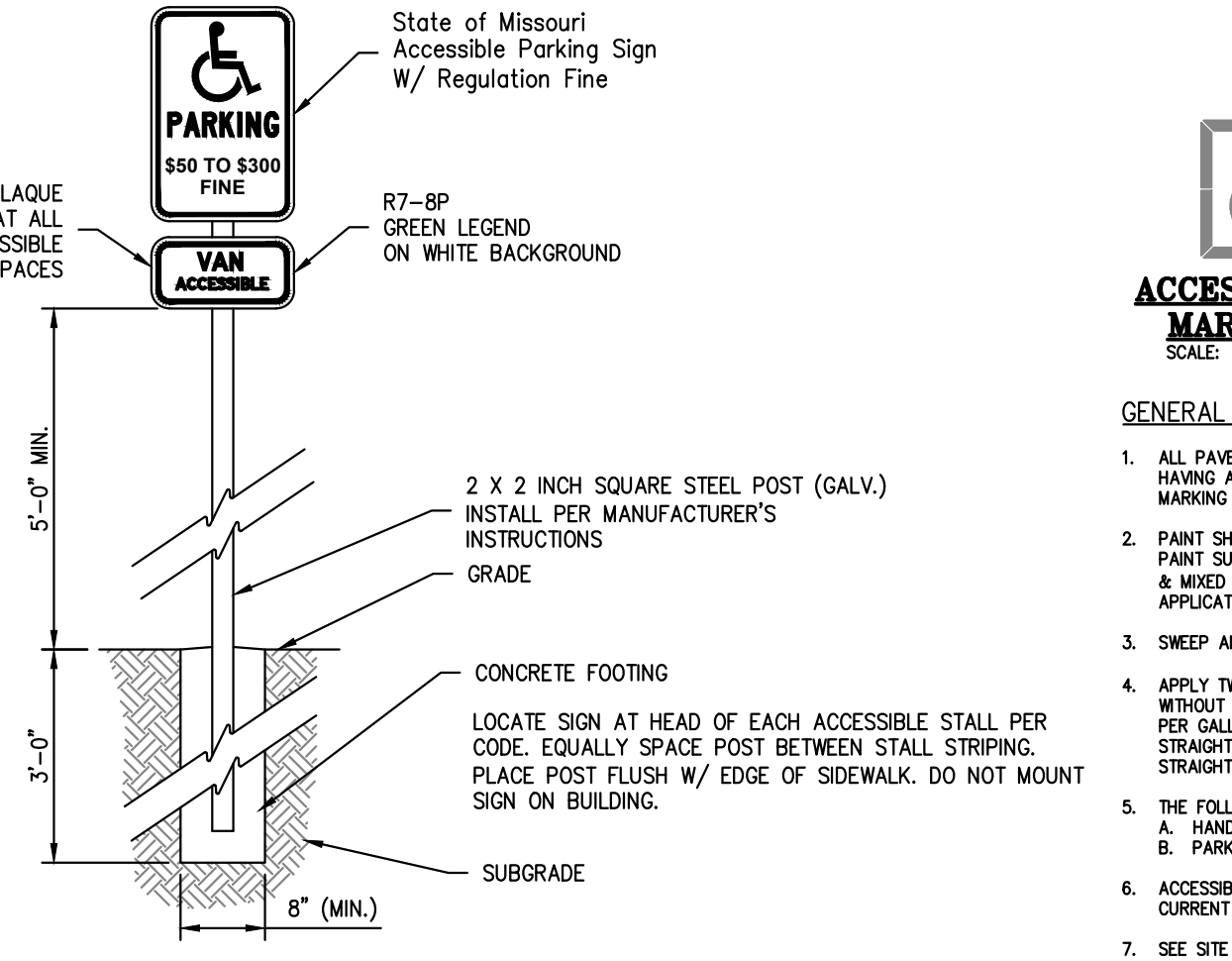
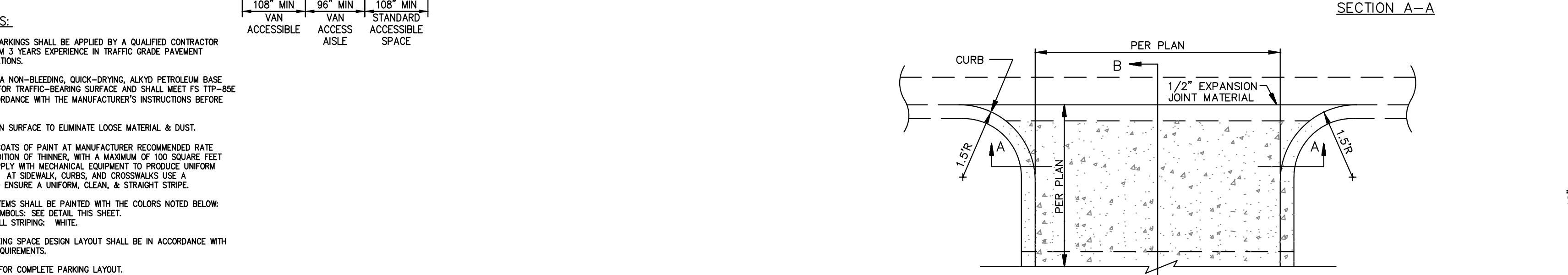
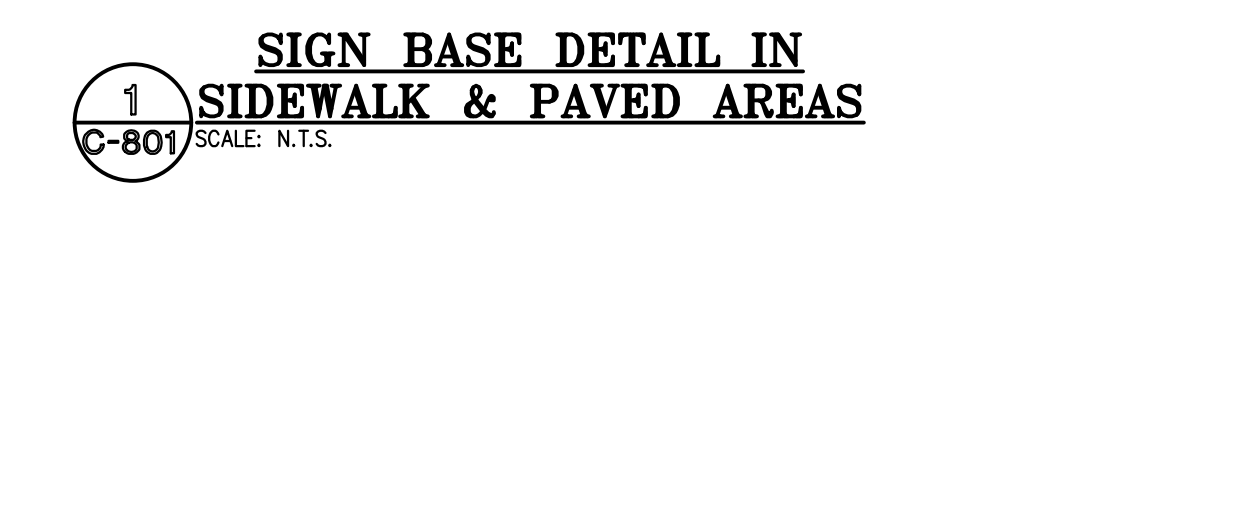
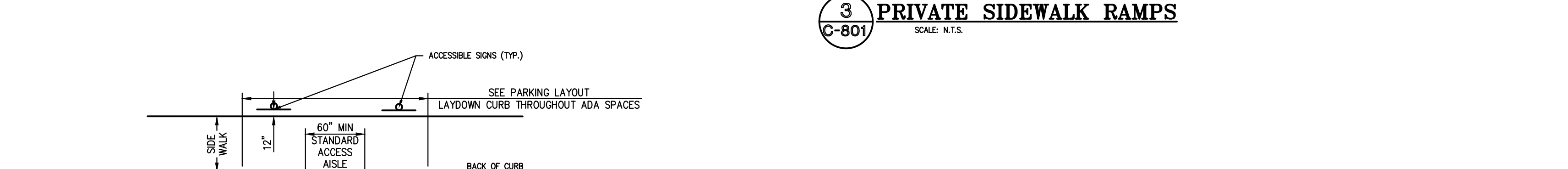
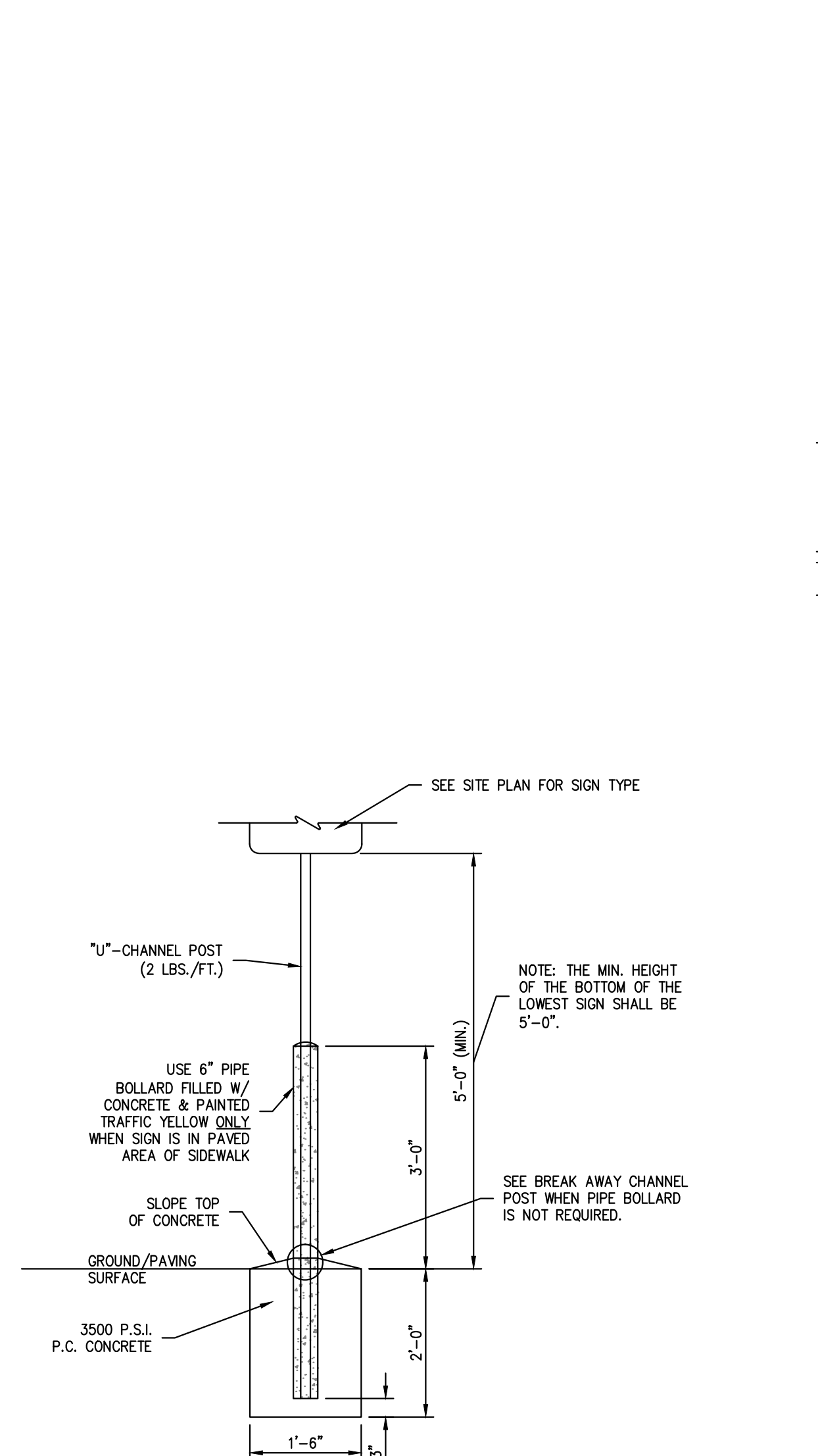
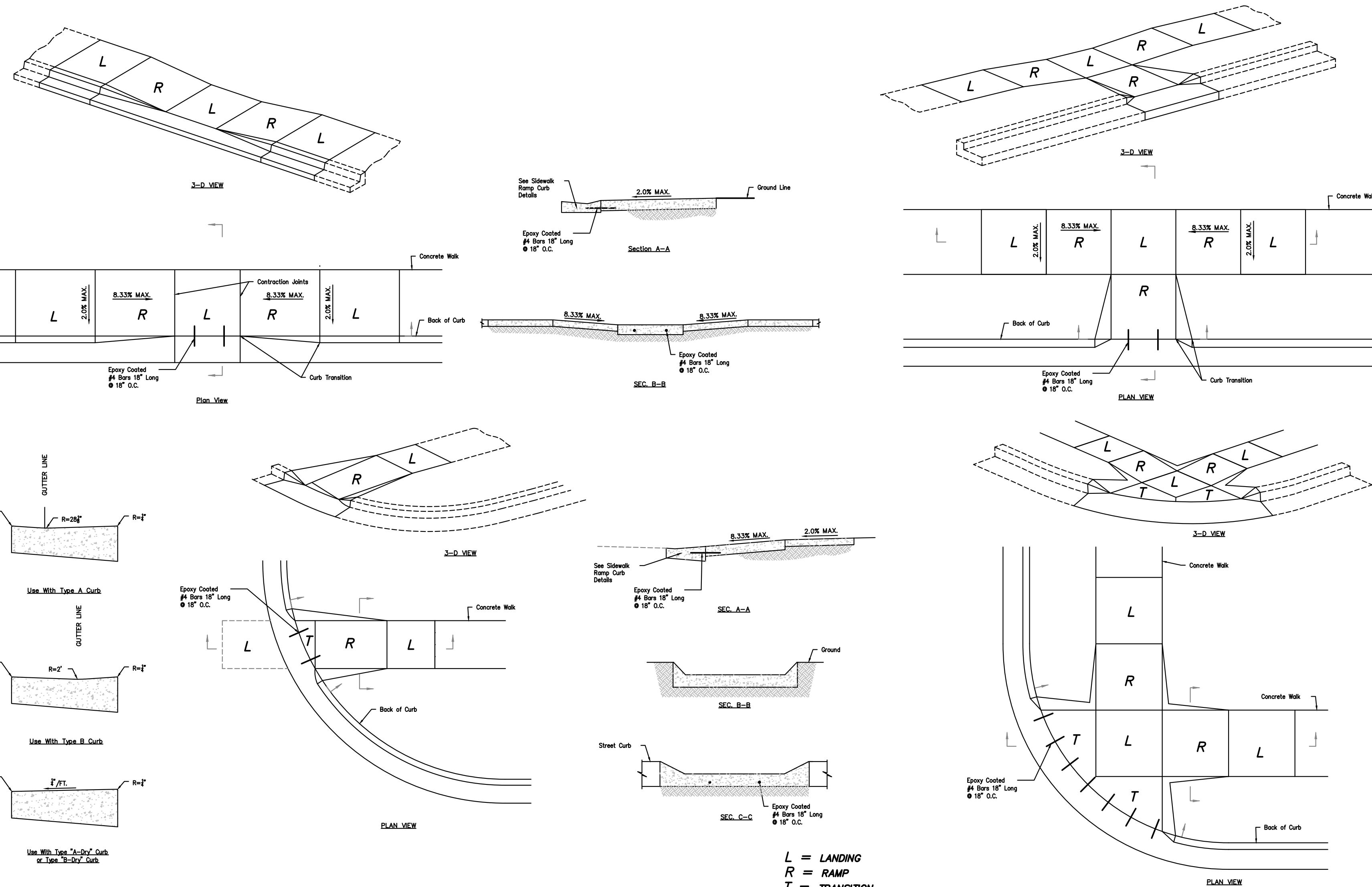
## STANDARD DETAILS

SHEET NUMBER:

# C-801

SHEET 026 OF 202  
08/01/2023

PEI #220481



\\phelps-serv\projects\p\220481\Draw\Permit\plans\DETAILS - PRIVATE.dwg Layout:PAVE 2 Aug 01, 2023 - 11:28am Dorota Bynum



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

**PEI** PLANNING ENGINEERING IMPLEMENTATION  
1320 N. Winchester, Olathe, Kansas 66061  
913.399.1955 Fax: 913.393.1466 www.peiengineering.com

CERTIFICATE OF AUTHORIZATION KANSAS LAND SURVEYING - LS-82 ENGINEERING - E-391  
CERTIFICATE OF AUTHORIZATION MISSOURI LAND SURVEYING - 2007001128 ENGINEERING - 2007000568

OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

Project Name  
Troop A Headquarters, MSHF  
1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION: DATE: Bid Documents  
REVISION: DATE: 01 August 2023  
ISSUE DATE: 01 August 2023

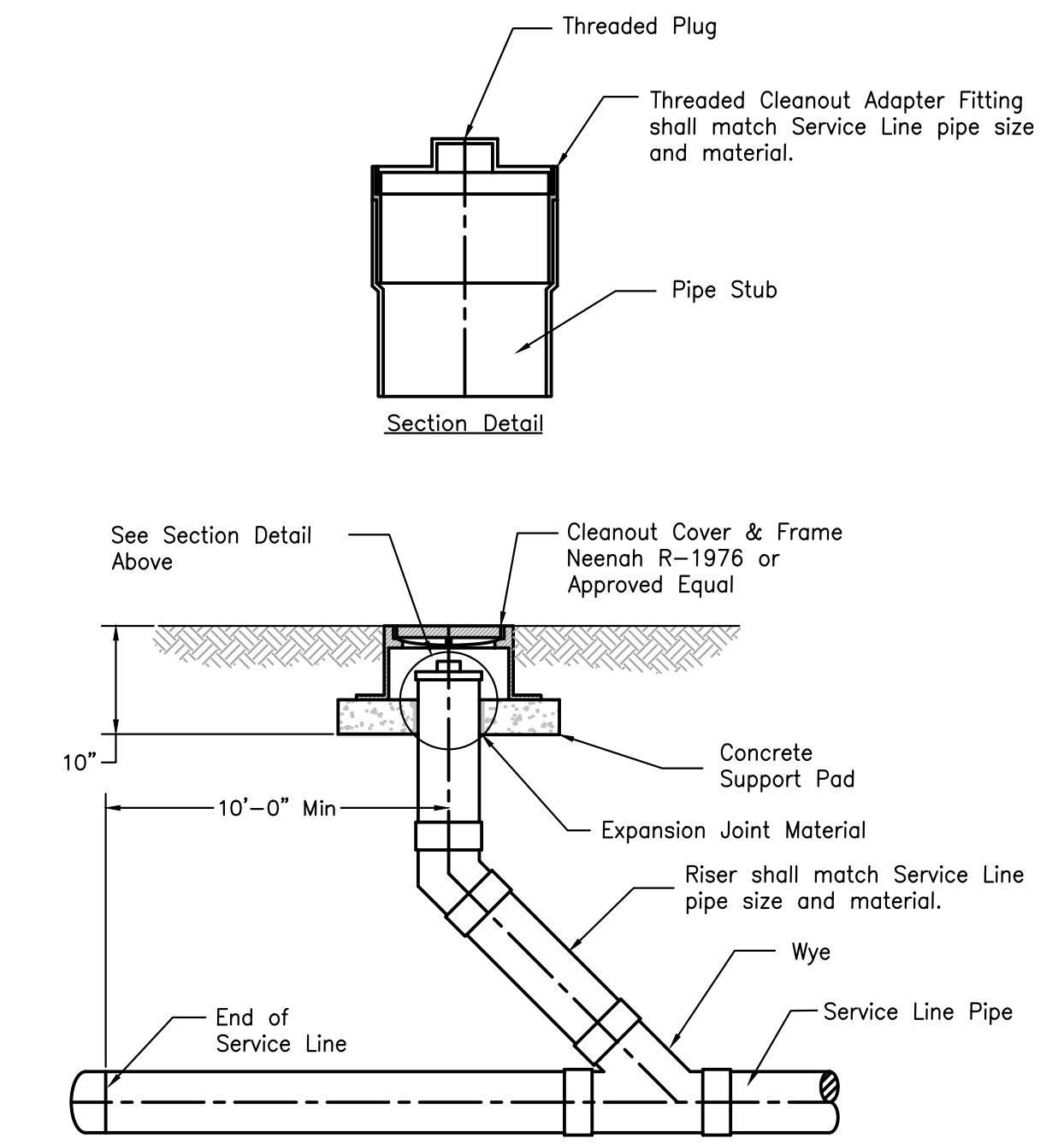
CAD DWG FILE: C-802.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
**STANDARD DETAILS**

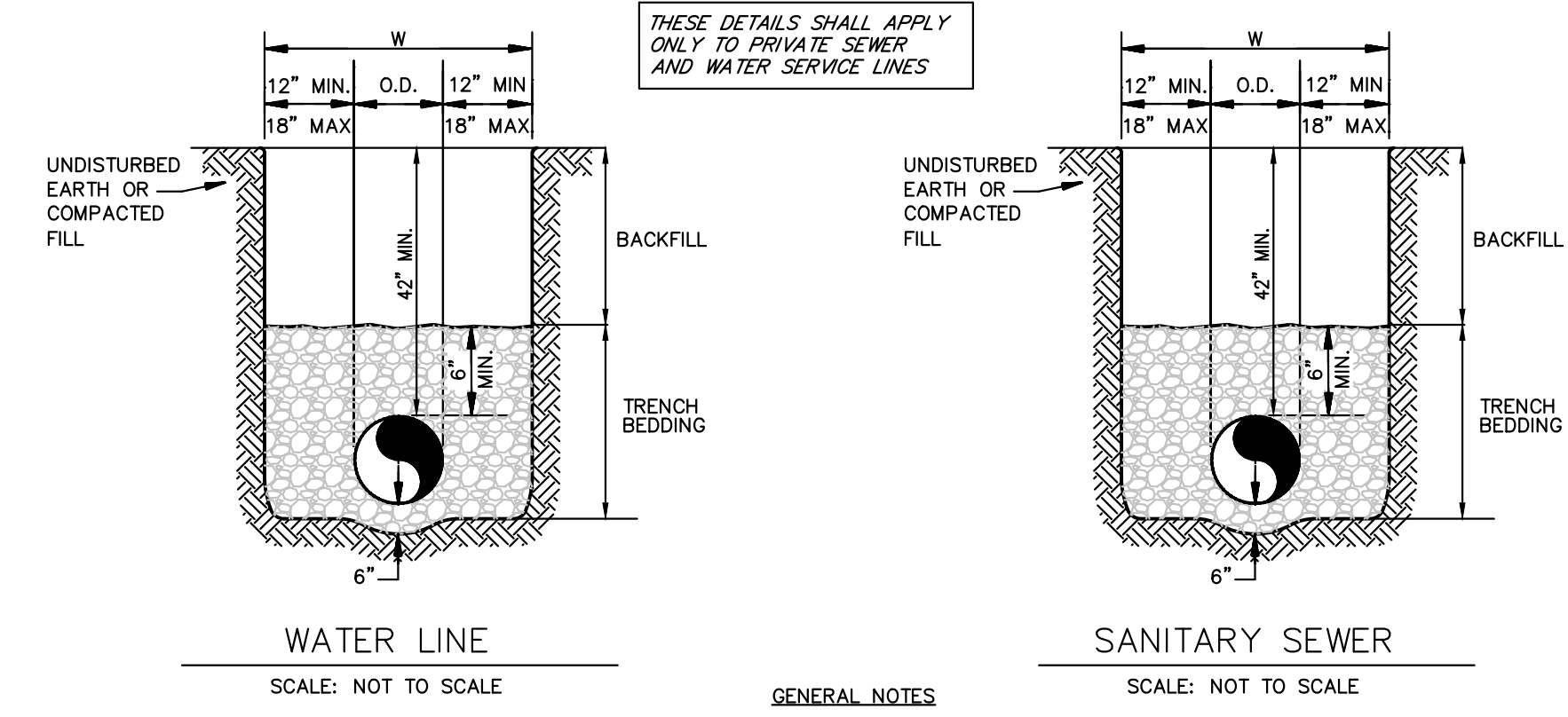
SHEET NUMBER:

**C-802**

SHEET 027 OF 202  
08/01/2023



**3 CLEANOUT DETAIL (NON-PAVED AREAS)**  
SCALE: N.T.S.



**GENERAL NOTES**

**BACKFILL**

- ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321-89.
- ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698, CLASS III AND IV-A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
- FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".
- ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES. (SEE SPECIFICATIONS)

**TRENCH BEDDING**

- GRANULAR EMBEDMENT SHALL BE KDOT STD. SPEC. SECT. 1100, PB-2 COURSE AGGREGATE FOR CONCRETE, WASHED STONE OR GRAVEL, MEETING THE FOLLOWING CONDITIONS:

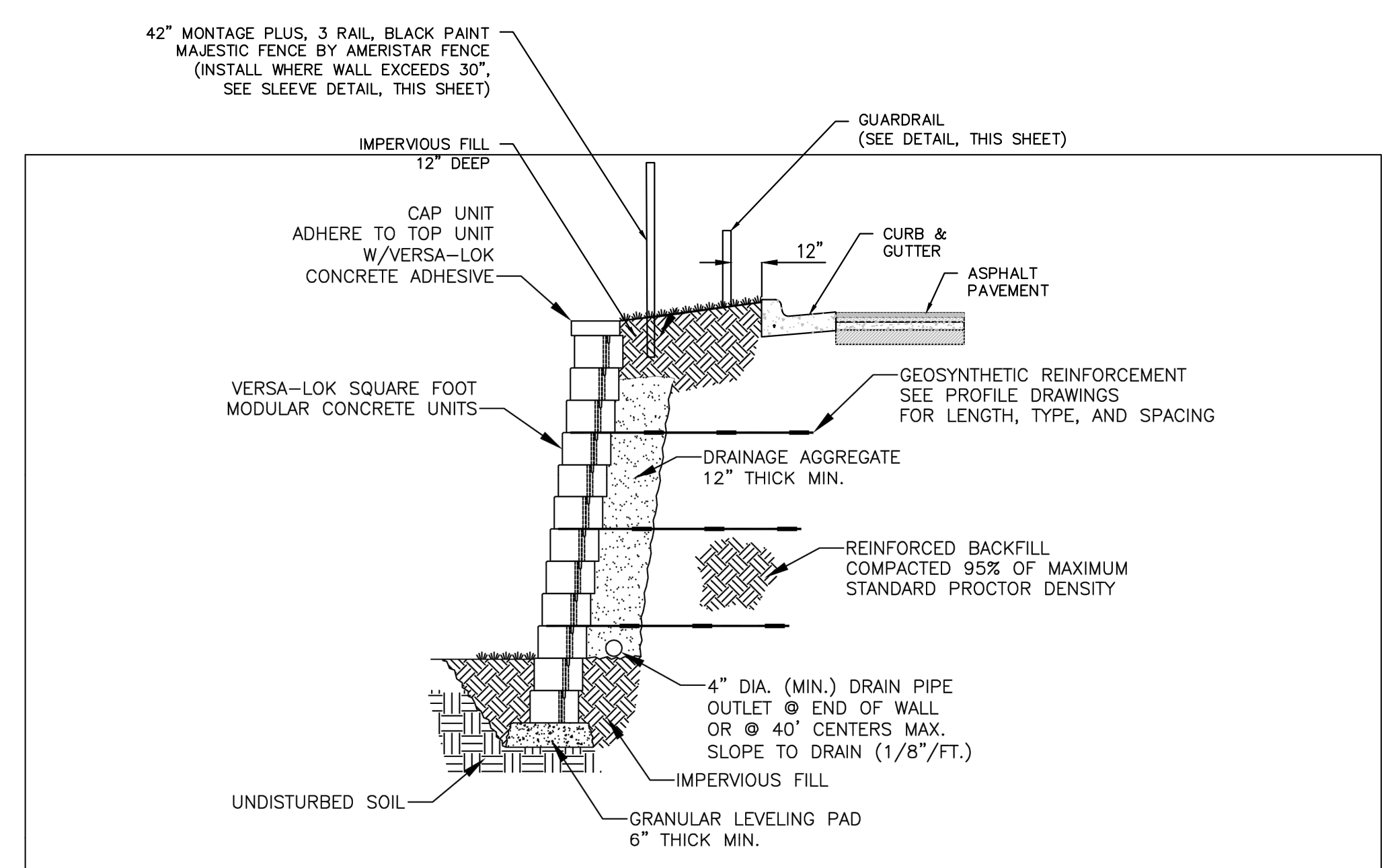
SIeve SIZE	PERCENT RETAINED
1-INCH	0
2-INCH	0-20
3-INCH	40-70
No. 8	95-100

GRANULAR EMBEDMENT FROM THE TOP OF PIPE DOWN SHALL BE COMPACTED TO 85% MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.

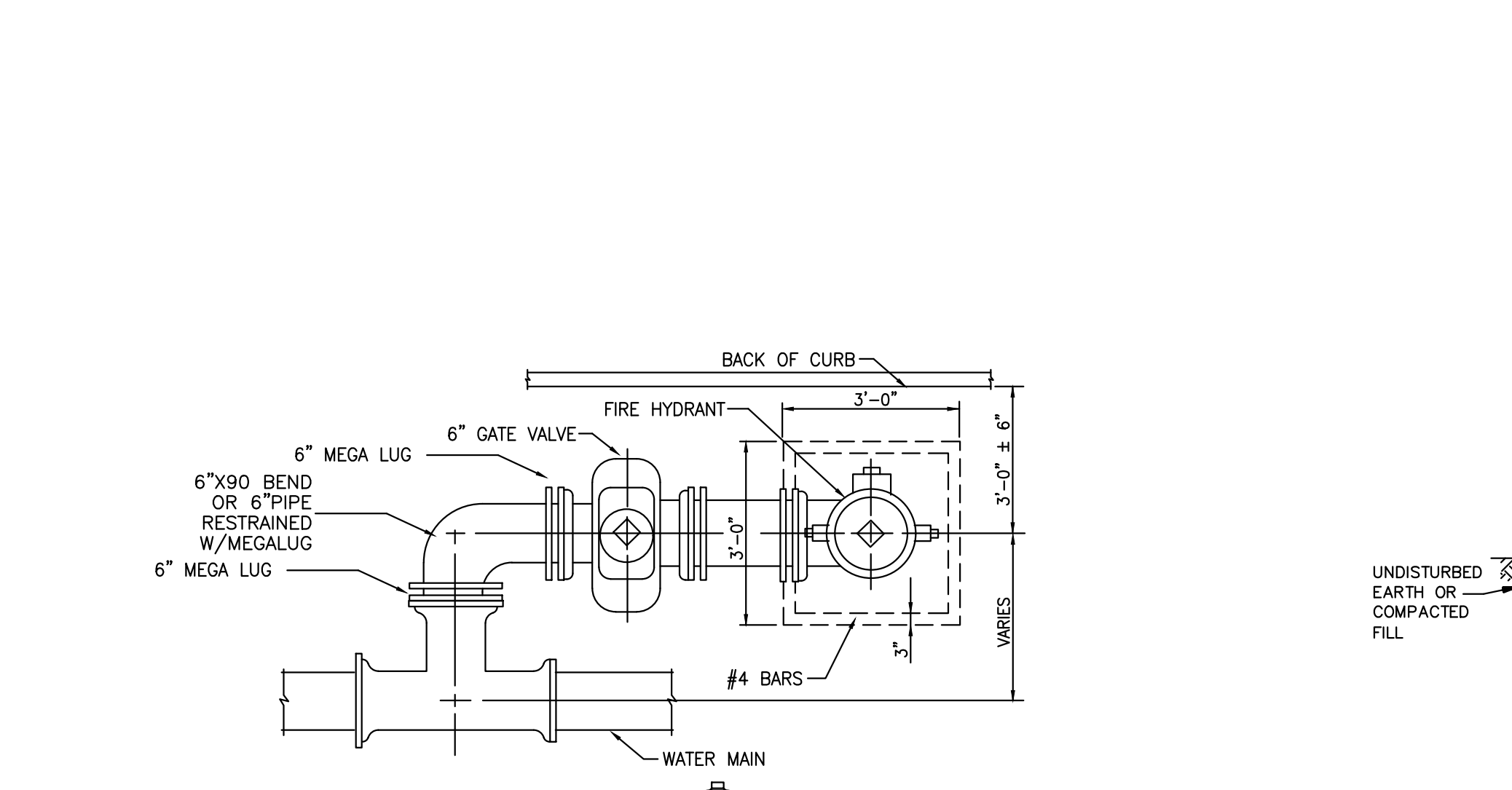
GRANULAR EMBEDMENT ABOVE TOP OF PIPE SHALL BE AN UN-COMPACTED LAYER FOR ALL INSTALLATIONS.

- TRENCH OUTLINES DO NOT INDICATE ACTUAL TRENCH EXCAVATION SHAPE, SOIL CONDITIONS, OR PRESENCE OF SHEETING LEFT IN PLACE. EMBEDMENT MATERIAL SHALL EXTEND THE FULL WIDTH OF THE ACTUAL TRENCH EXCAVATION.

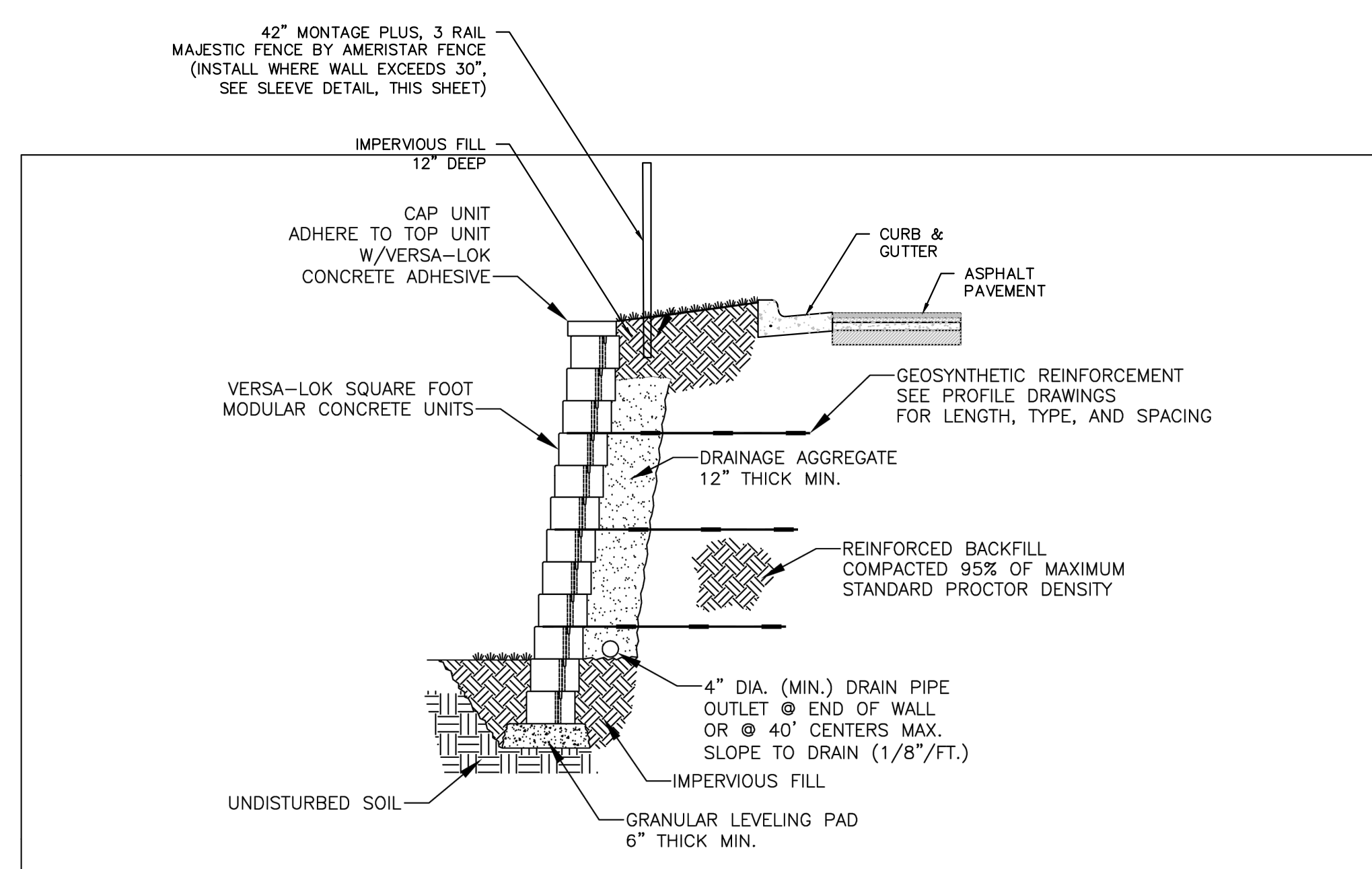
**4 UTILITY TRENCH AND BEDDING**  
SCALE: N.T.S.



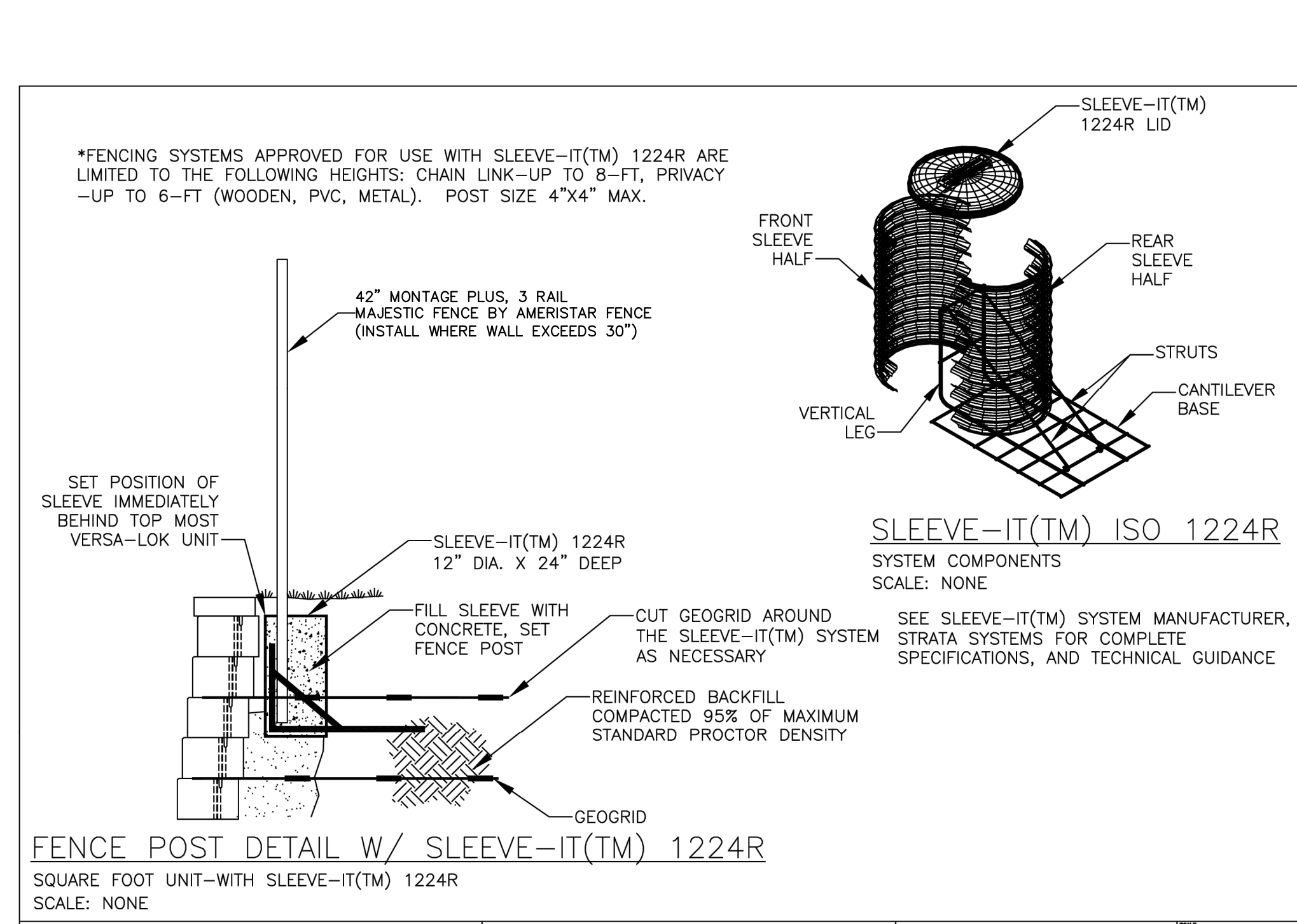
**2 PRIVATE FIRE HYDRANT INSTALLATION DETAIL**  
SCALE: N.T.S.



**1 REINFORCED LANDSCAPE RETAINING WALL DETAILS**  
SCALE: N.T.S.



**1 TYPICAL SECTION-REINFORCED RETAINING WALL**  
SCALE: NONE



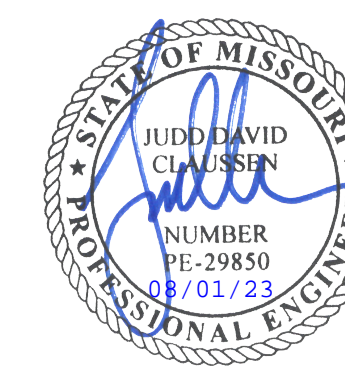
**2 SLEEVE-IT(TM) ISO 1224R SYSTEM COMPONENTS**  
SCALE: NONE



**3 FENCE POST DETAIL W/ SLEEVE-IT(TM) 1224R**  
SCALE: NONE

VERSALOK SQUARE FOOT DETAILS  
REINFORCED TYPICAL SECTION  
FENCEPOST WITH SLEEVE IT

\\phelps-serv\projects\p\220481\dwg\permit\plans\DETAILS - PRIVATE.dwg Layout:PAVE 3 Aug 01, 2023 - 11:28am Dakota Bynum



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION MISSOURI LAND SURVEYING - LS-82 ENGINEERING - E-391  
PHELPS ENGINEERING, INC. 1320 N. Winchester Olathe, Kansas 66061 (913) 399-1955 Fax (913) 399-1956 www.phelpsengineering.com

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-803.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:

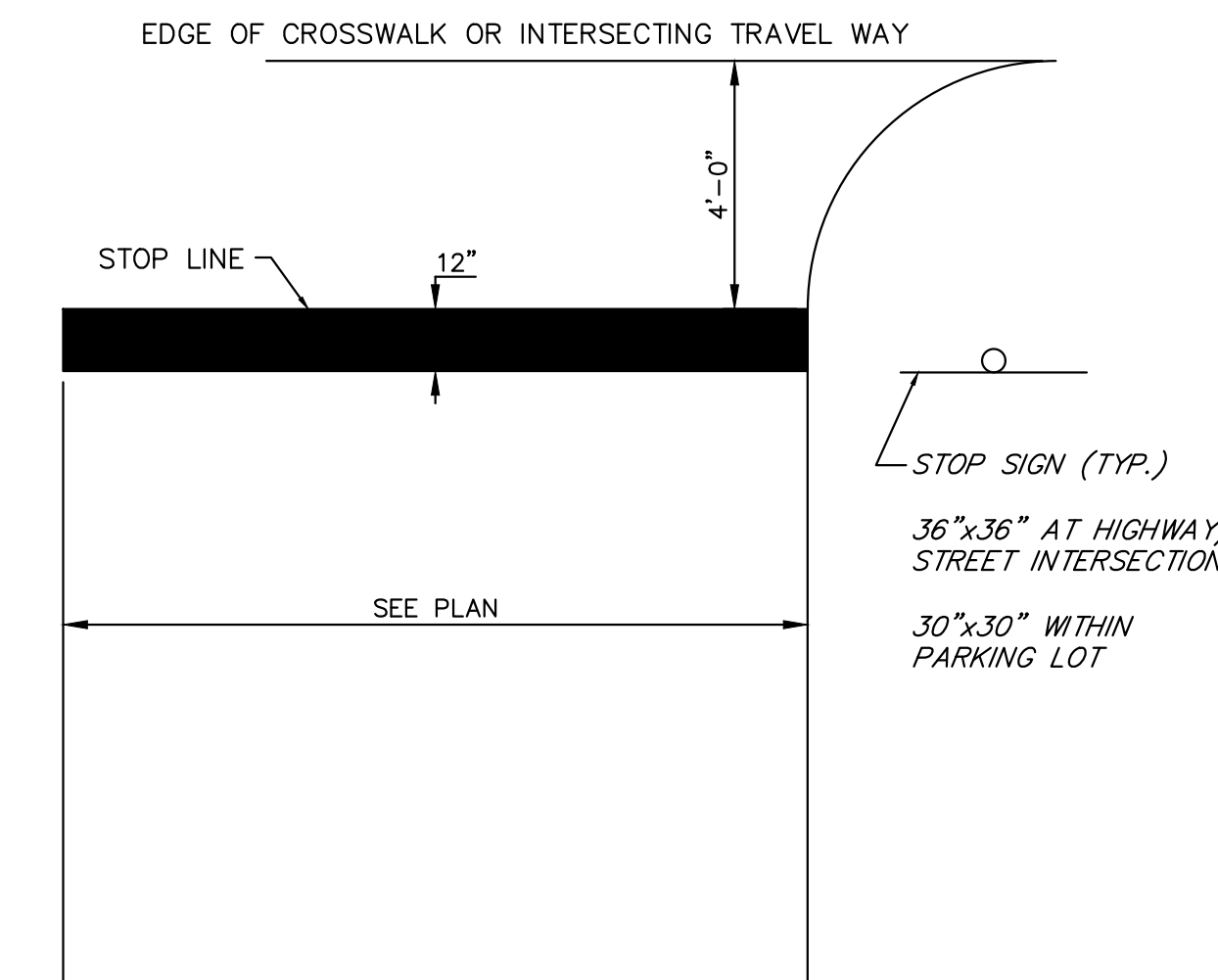
STANDARD  
DETAILS

SHEET NUMBER:

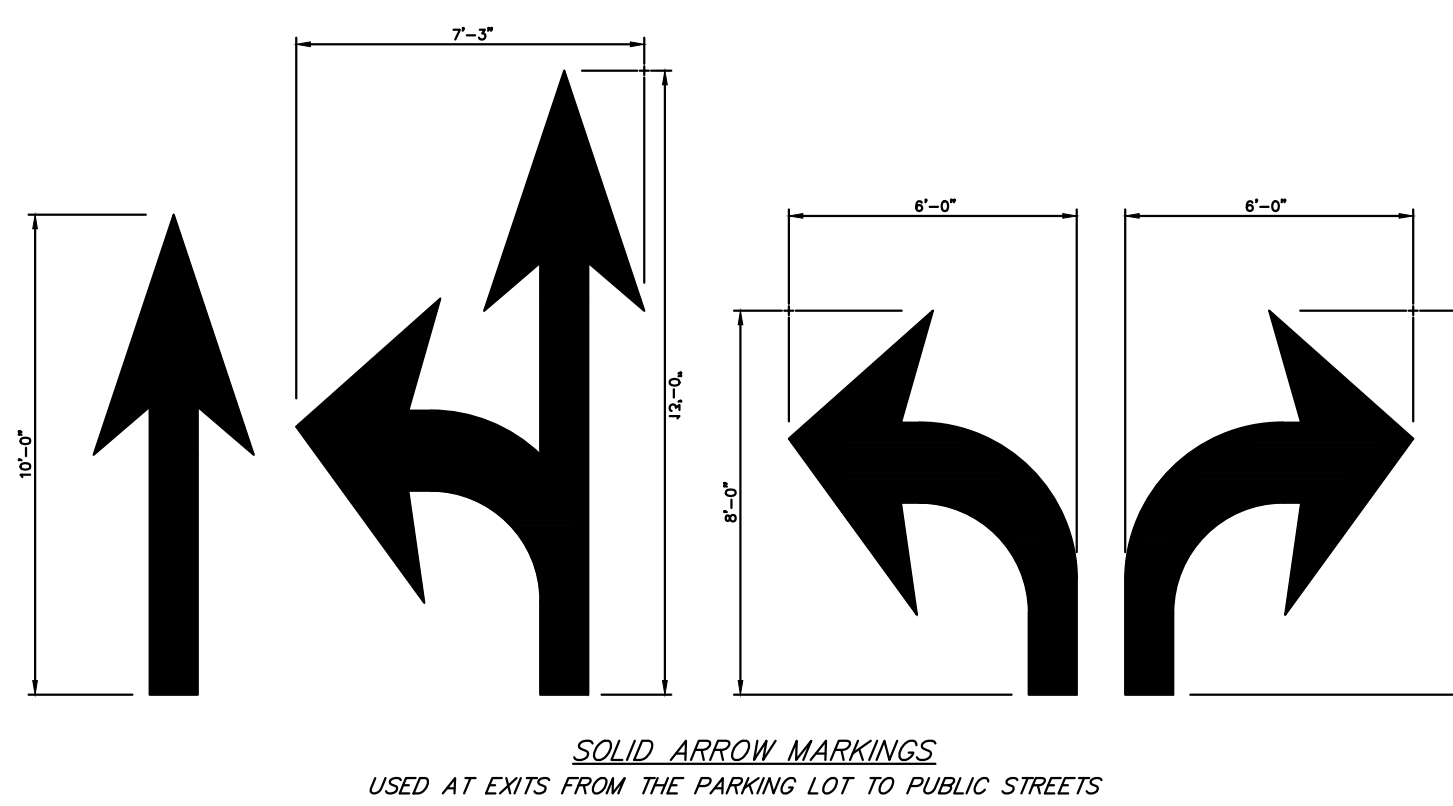
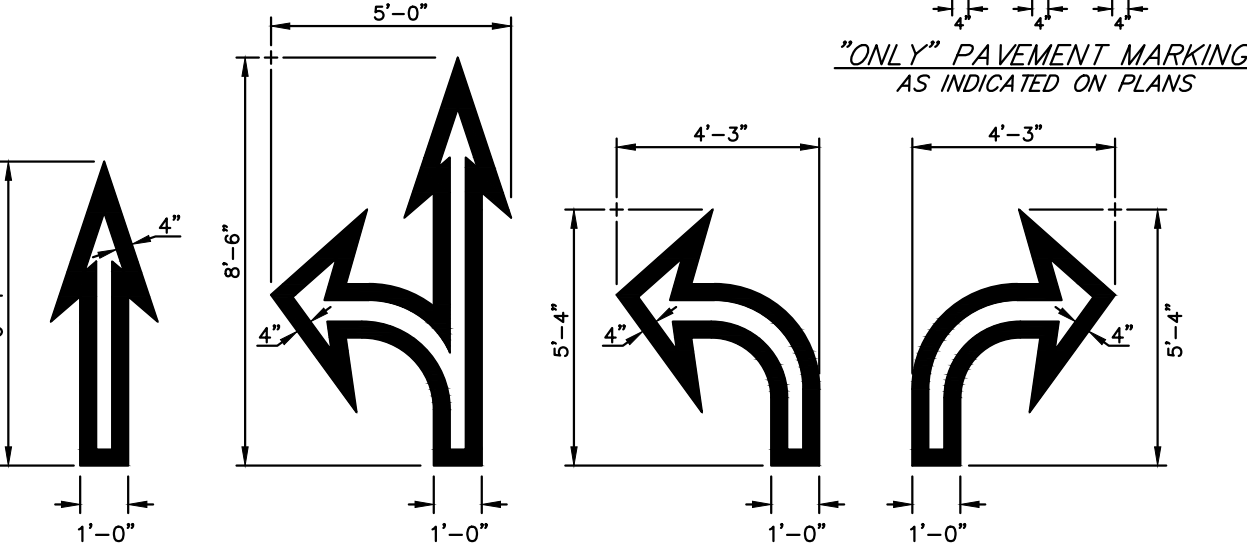
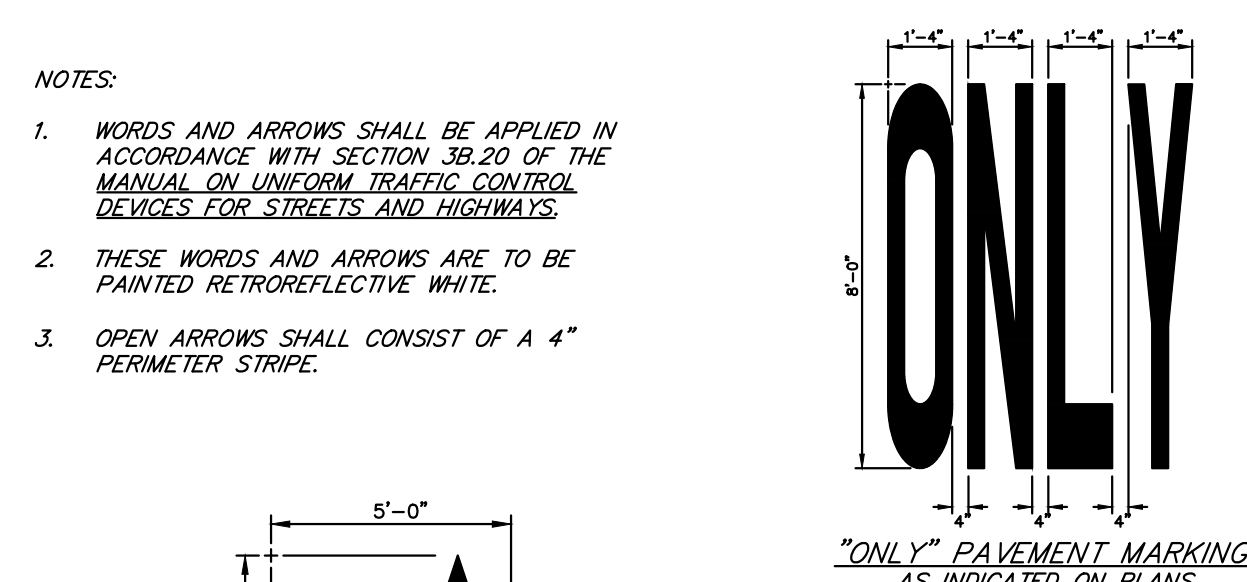
**C-803**

SHEET 028 OF 202  
08/01/2023

PEI #220481

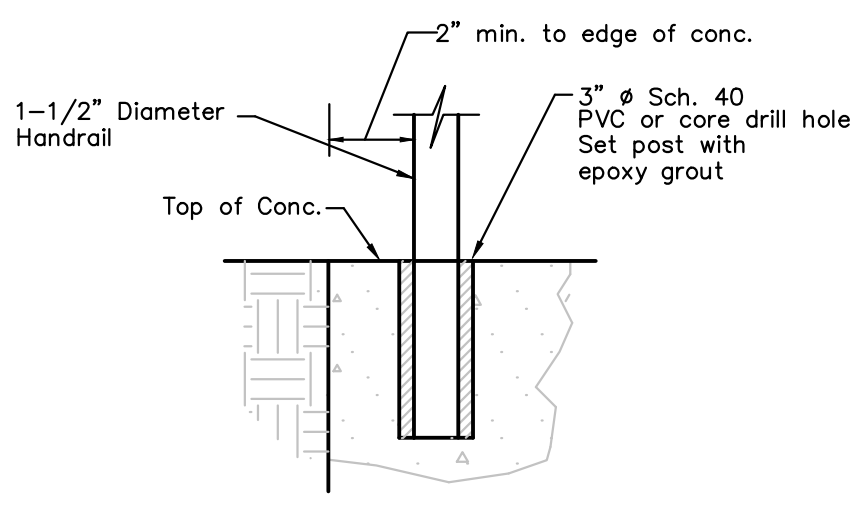
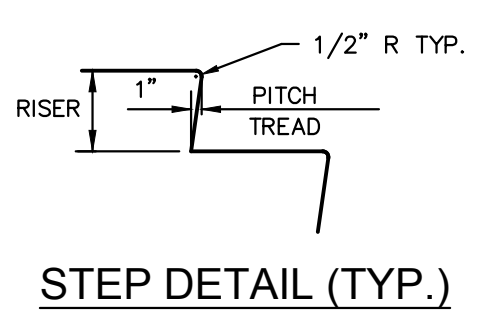


- NOTE:
- WORDS AND LINES SHALL BE APPLIED IN ACCORDANCE WITH SECTIONS 3B.16 AND 3B.20 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
  - THESE WORDS AND BAR ARE TO BE PAINTED RETROREFLECTIVE WHITE. SCALE: N.T.S.



- NOTES:
- WORDS AND ARROWS SHALL BE APPLIED IN ACCORDANCE WITH SECTION 3B.20 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
  - THESE WORDS AND ARROWS ARE TO BE PAINTED RETROREFLECTIVE WHITE.
  - OPEN ARROWS SHALL CONSIST OF A 4" PERIMETER STRIPE.

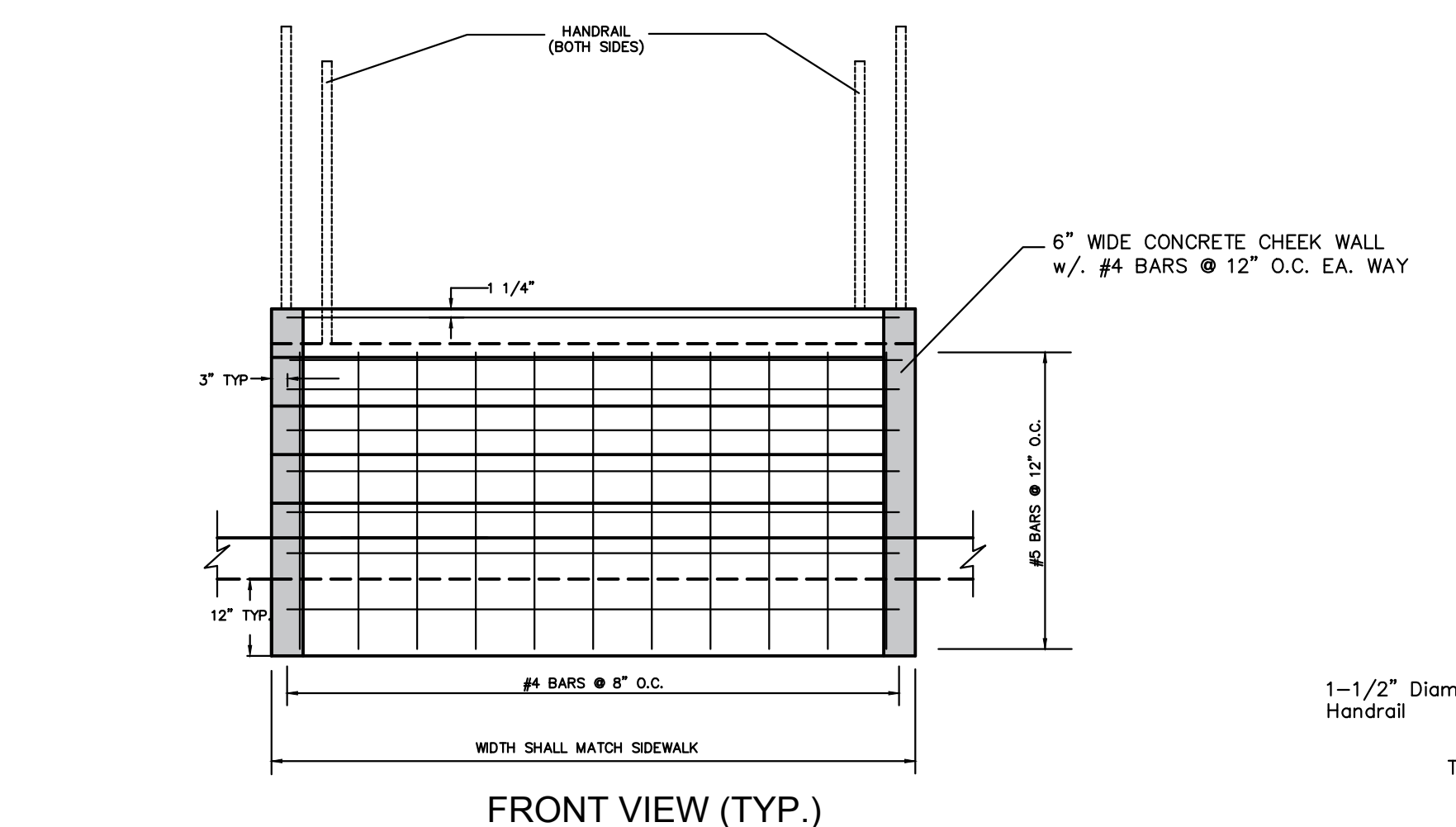
SLOPE	TREAD	RISE
2:1	12"	6"



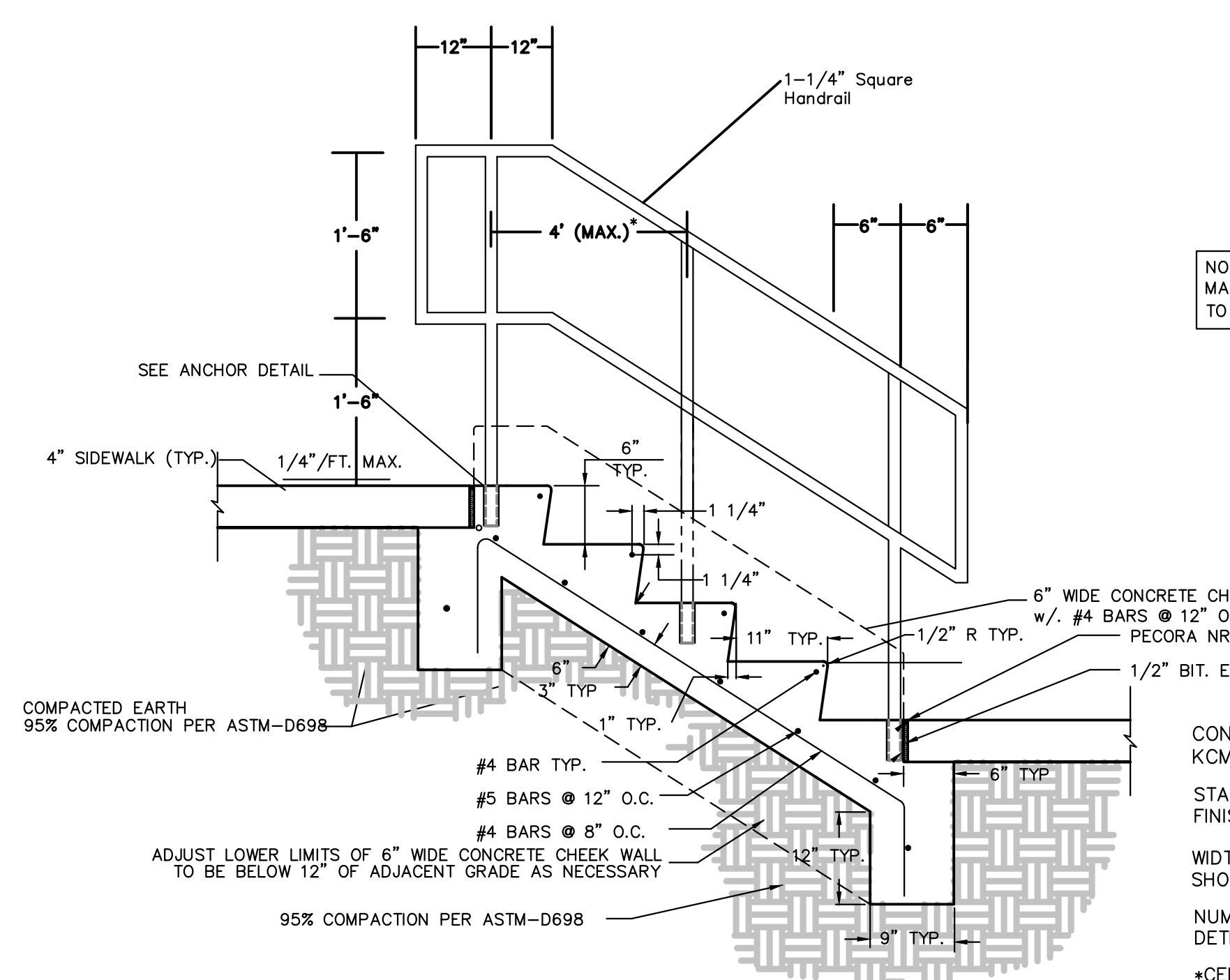
STAIR ANCHOR

NOTE:  
MAINTAIN 30" MAX. DISTANCE FROM STEPS TO ADJACENT GRADE.

**2 PAVEMENT MARKING DETAILS**



FRONT VIEW (TYP.)

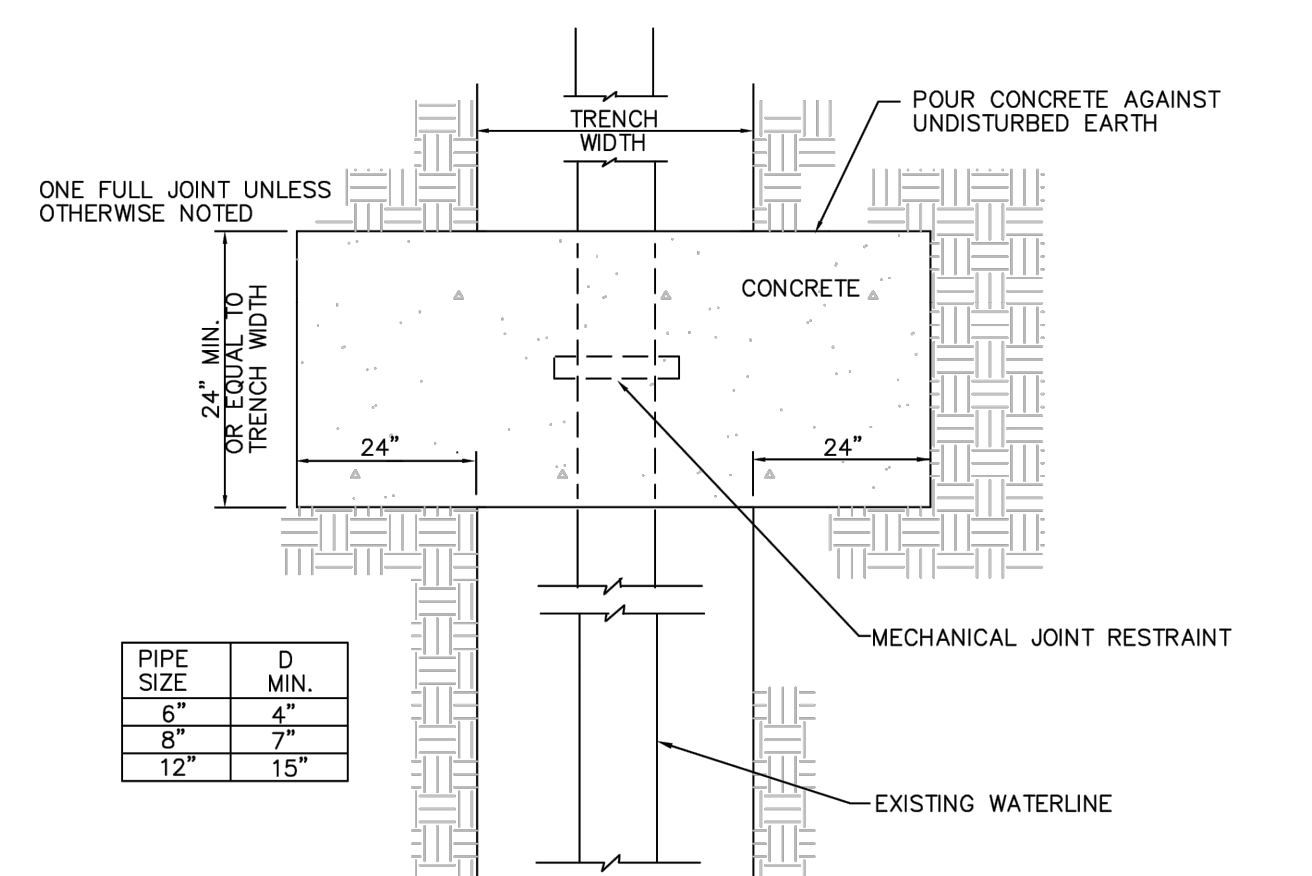


STAIR SECTION DETAIL (TYP.)

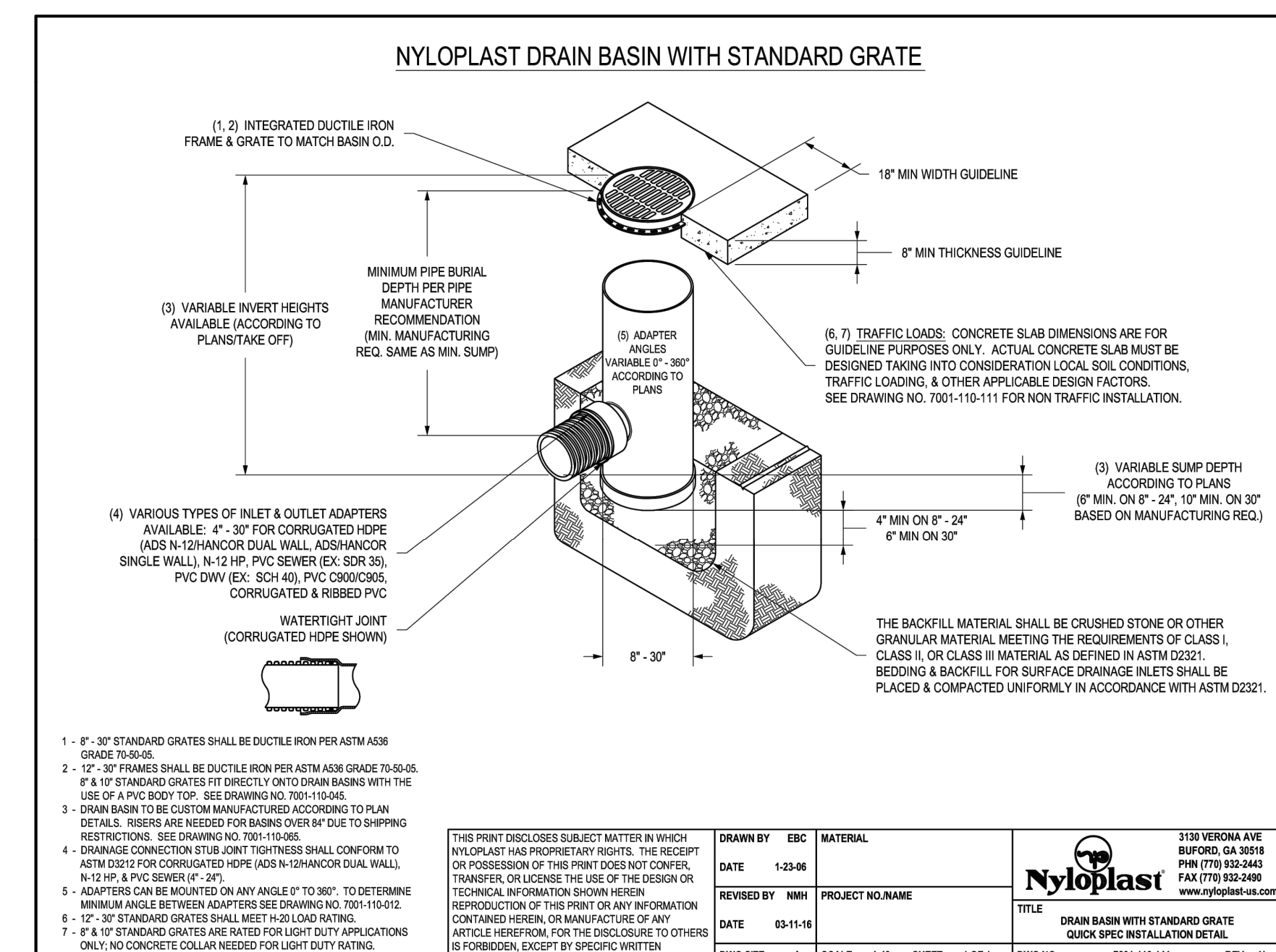
**1 CONCRETE STAIRS WITH CHEEK WALL AND HANDRAIL DETAILS**

SCALE: N.T.S.

CONCRETE MIX DESIGN:  
KOMMB4K  
STAIR TREADS SHALL HAVE A BROOM FINISH PERPENDICULAR TO TRAVEL  
WIDTH OF STAIRS IS 5'-0", UNLESS SHOWN OTHERWISE IN PLAN VIEW.  
NUMBER OF TREAD AND RISERS TO BE DETERMINED AS PER PLAN.  
\*CENTER SUPPORT MAY BE OMITTED IF END POSTS ARE 4' APART OR LESS  
CONTRACTOR TO SUBMIT SHOP DWGS. FOR HANDRAIL FOR APPROVAL



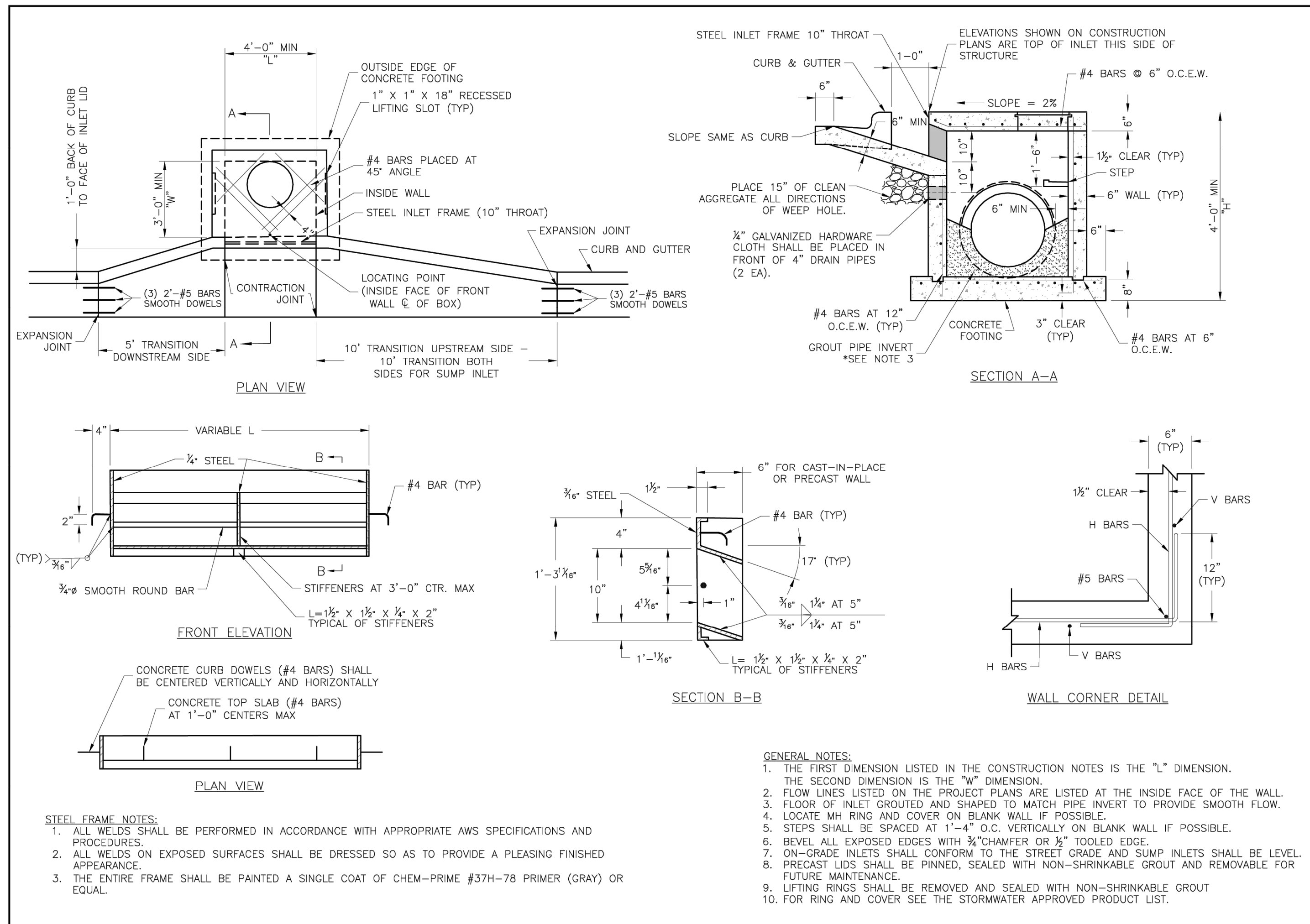
**3 STRADDLE BLOCK**



**4 NYOPLAST DRAIN BASIN**

\\phelps-serv\projects\p\220481\dwg\perm\shom\DETAILS - PRIVATE.dwg Layout:PAVE 4 Aug 01, 2023 - 11:28am Dakota Bynum

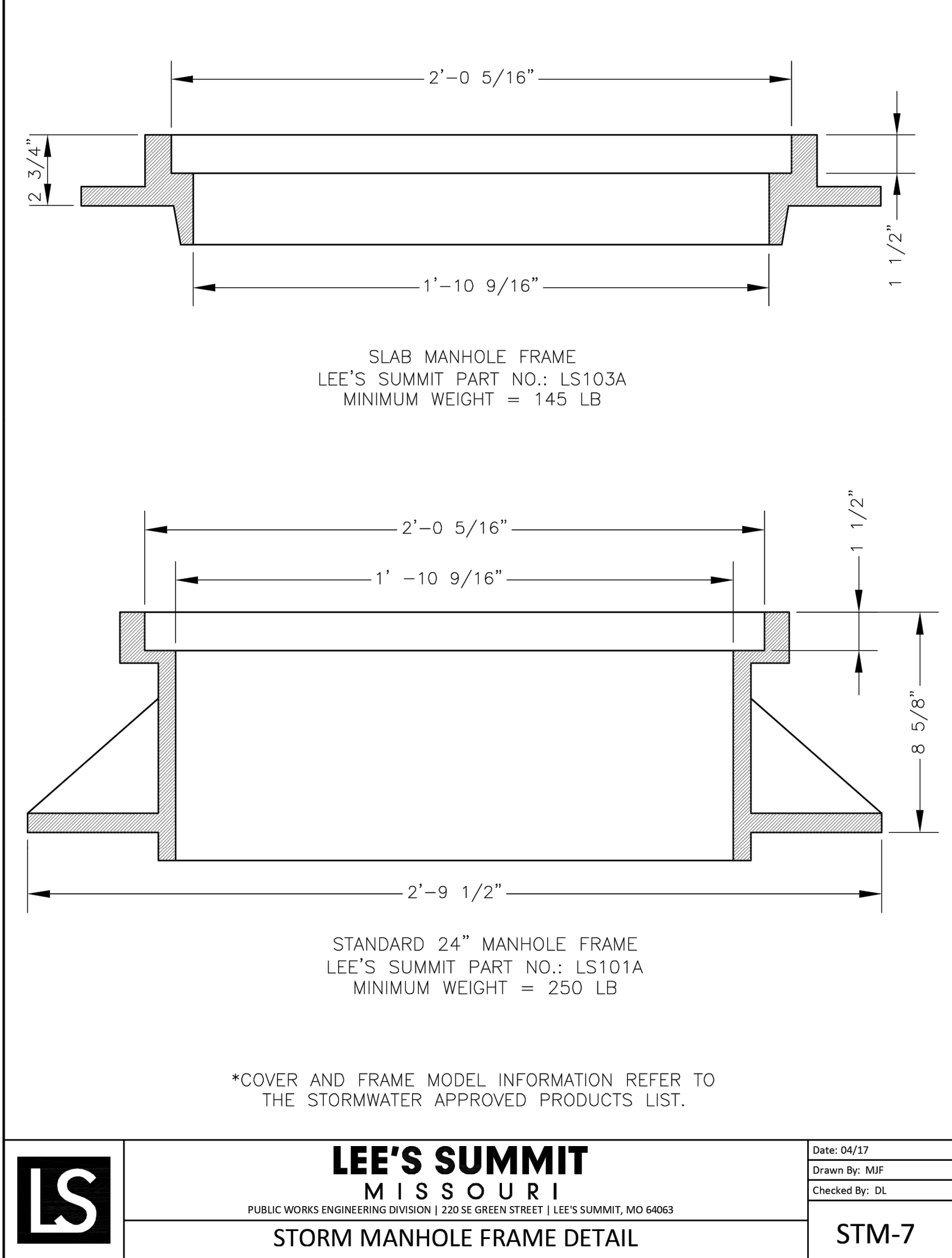




**LEE'S SUMMIT MISSOURI**  
 PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64663

**STANDARD DETAILS**  
 CITY OF LEE'S SUMMIT, MO  
 LEE'S SUMMIT, JACKSON COUNTY, MO

**STM-1**



STATE OF MISSOURI  
 MIKE PARSON,  
 GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
 Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION  
 KANSAS LAND SURVEYING - LS-82  
 ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
 MISSOURI LAND SURVEYING - 2007001128  
 ENGINEERING - 200700568

**OFFICE OF ADMINISTRATION**  
**DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION**

Project Name  
 Troop A Headquarters, MSHP

1950 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: C-805.dwg  
 DRAWN BY: SNH  
 CHECKED BY: DAF  
 DESIGNED BY: JDC

SHEET TITLE:  
**STORM SEWER DETAILS**

SHEET NUMBER:  
**C-805**  
 SHEET 030 OF 202  
 08/01/2023

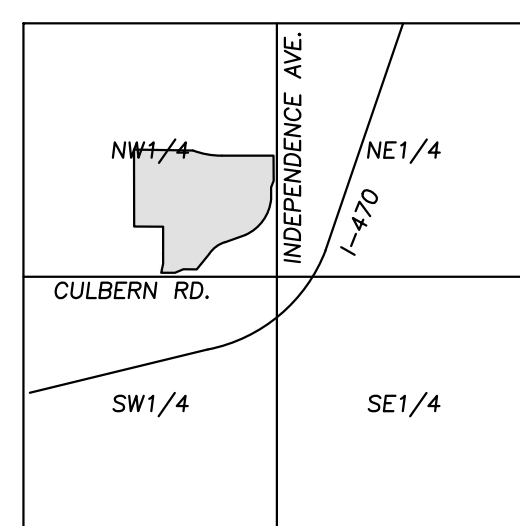
\\phelps-engineering.com\projects\VP\_220481\Draw\Permit\plans\SITE - 2.dwg Layout:200 Aug 07, 2023 - 2:42pm Daniel Finn



Know what's below.  
Call before you dig.

UTILITY NOTES:  
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN.  
UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.

SCOPE SHOWN ON THIS SHEET  
SHALL BE PART OF ALTERNATE #4



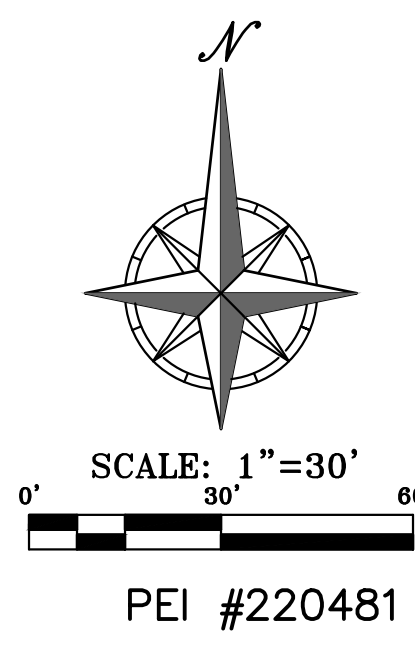
VICINITY MAP  
SEC. 19-48-31



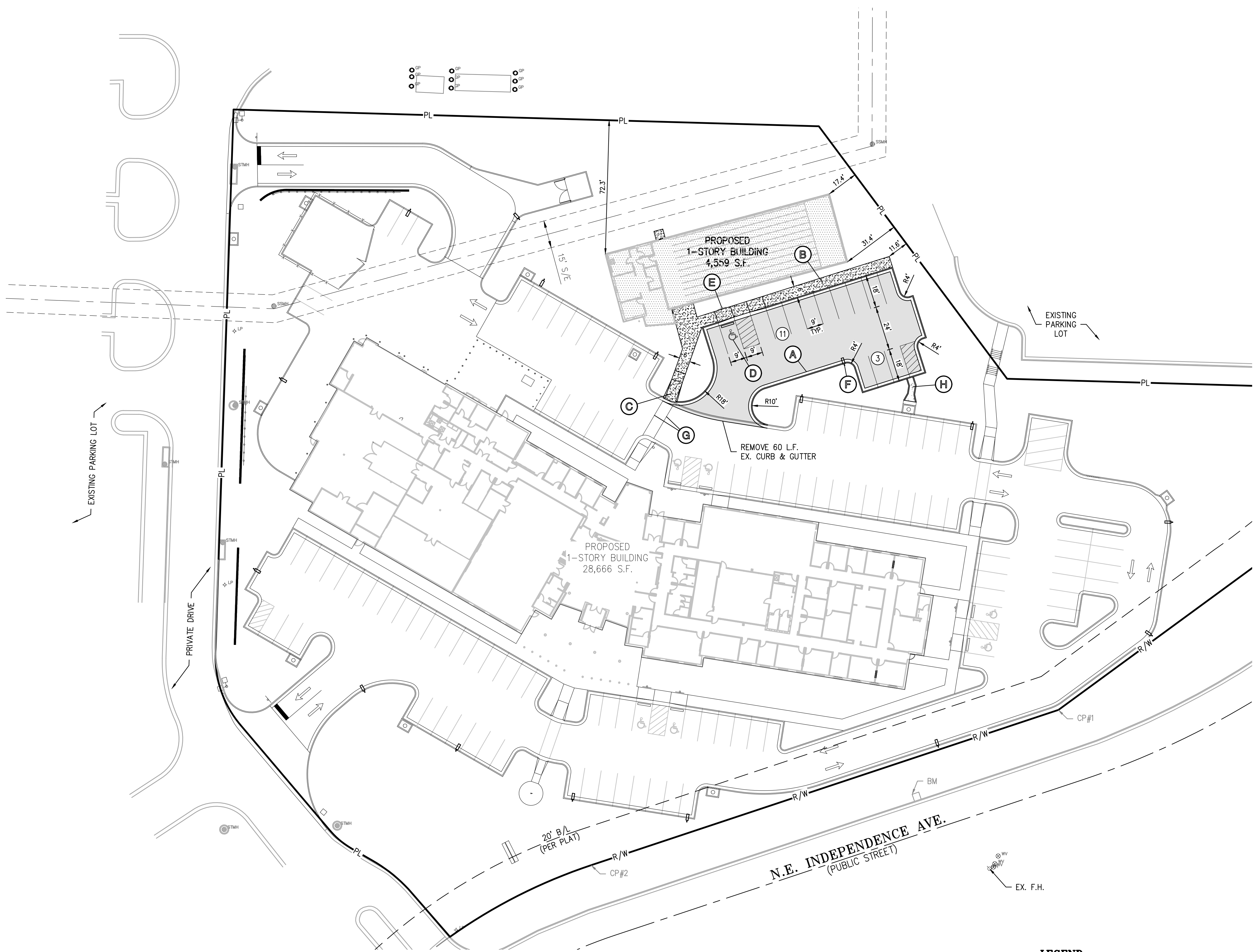
SCALE: 1"=2000'

LEGEND

- PL — PROPERTY LINE
- - - LL - LOT LINE
- R/W- RIGHT-OF-WAY
- 2' CURB & GUTTER
- 6" CURB
- STANDARD DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- PROPOSED BUILDING
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- RETAINING WALL
- PARKING LOT LIGHT



SCALE: 1"=30'  
0' 30' 60'  
PEI #220481



SITE PLAN NOTES:

- All construction materials and procedures on this project shall conform to the latest revision of the following governing requirements, incorporated herein by reference:  
A) City ordinances & O.S.H.A. Regulations.  
B) Project Specifications
- The contractor shall have one (1) signed copy of the plans (approved by the City) and one (1) copy of the appropriate Design and Construction Standards and Specifications at the job site at all times.
- The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits, bonds and insurance shall be the contractor's responsibility and shall be included in the bid for the work.
- The contractor is responsible for coordination of his and his sub-contractor's work. The contractor shall assume all responsibility for protecting and maintaining his work during the construction period and between the various trades/sub-contractors constructing the work.
- The demolition and removal (or relocation) of existing pavement, curbs, structures, utilities, and all other features necessary to construct the proposed improvements, shall be performed by the contractor. All waste material removed during construction shall be disposed off the project site. The contractor shall be responsible for all permits for hauling and disposing of waste material. The disposal of waste material shall be in accordance with all local, state and federal regulations.
- Contractor shall be responsible for all relocations, including but not limited to, all utilities, storm drainages, sanitary sewer services, signs, traffic signals & poles, etc. as required. All work shall be in accordance with governing authorities specifications and shall be approved by such. All cost shall be included in base bid.
- All existing utilities indicated on the drawings are according to the best information available to the Engineer; however, all utilities actually existing may not be shown. The contractor shall be responsible for contacting all utility companies for an exact field location of each utility prior to any construction. All underground utilities shall be protected at the contractor's expense. All utilities, shown and unshown, damaged through the negligence of the contractor shall be repaired or replaced by the contractor at his expense.
- The contractor will be responsible for all damage to existing utilities, pavement, fences, structures and other features not designated for removal. The contractor shall repair all damages at his expense.
- The contractor shall verify the flow lines of all existing storm or sanitary sewer connections and utility crossings prior to the start of construction. Notify the engineer of any discrepancies.
- SAFETY NOTICE TO CONTRACTOR:** In accordance with generally accepted construction practices, the contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. Any construction observation by the engineer of the contractor's performance is not intended to include review of the adequacy of the contractor's safety measures, in, on or near the construction site.
- All site concrete (curbs, pavements, sidewalks, etc.) shall meet Kansas City Materials Metro Board (KCMMB) mix design specifications for 4,000 p.s.i. air entrained concrete. APWA detail references are provided for all geometrical and other design information.
- Refer to the building plans for site lighting electrical requirements, including conduits, pole bases, pull boxes, etc.

SITE DIMENSION NOTES:

- BUILDING TIES SHOWN ARE TO THE OUTSIDE FACE OF PROPOSED WALLS. THE SUBCONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR SPECIFIC DIMENSIONS AND LAYOUT INFORMATION FOR THE BUILDINGS.
- ALL DIMENSIONS SHOWN FOR THE PARKING LOT AND CURBS ARE MEASURED FROM BACK OF CURB TO BACK OF CURB.

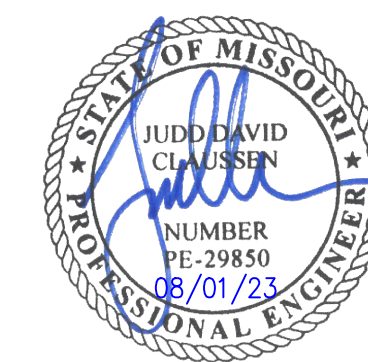
PAVEMENT MARKING AND SIGNAGE NOTES:

- PARKING STALL MARKING STRIPES SHALL BE FOUR INCH (4") WIDE WHITE STRIPES. DIRECTIONAL ARROW AND HANDICAP STALL MARKINGS SHALL BE FURNISHED AT LOCATIONS SHOWN ON PLANS.
- HANDICAP PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO ALL FEDERAL (AMERICANS WITH DISABILITIES ACT) AND STATE LAWS AND REGULATIONS.
- TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".
- STOP SIGNS SHALL BE PROVIDED AT ALL LOCATIONS AS SHOWN ON PLANS AND SHALL CONFORM TO THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". SIGNS SHALL BE 18" X 12", 18 GAUGE STEEL AND SHALL BE ENGINEER GRADE REFLECTIVE.
- TRAFFIC CONTROL AND PAVEMENT MARKINGS SHALL BE PAINTED WITH A WHITE SHERWIN WILLIAMS S-W TRAFFIC MARKING SERIES B-29Y2 OR APPROVED EQUAL. THE PAVEMENT MARKING SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. APPLY ON A CLEAN, DRY SURFACE AND AT A SURFACE TEMPERATURE OF NOT LESS THAN 70°F AND THE AMBIENT AIR TEMPERATURE SHALL NOT BE LESS THAN 60°F AND RISING. TWO COATS SHALL BE APPLIED.

SITE KEY NOTES:

- (A) CONSTRUCT 2' CONCRETE & CURB & GUTTER (TYPICAL) (RE: DETAIL #4, SHEET C-800).
- (B) CONSTRUCT CONCRETE SIDEWALK (TYPICAL) (RE: DETAIL #4, SHEET C-800).
- (C) CONSTRUCT PRIVATE SIDEWALK RAMP (RE: DETAIL #3, SHEET C-801).
- (D) CONSTRUCT ACCESSIBLE PARKING SPACE. INSTALL MARKINGS PER STANDARD DETAIL, AND CONCRETE WHEEL STOPS (RE: DETAIL #4, SHEET C-801).
- (E) INSTALL VAN ACCESSIBLE PARKING SIGN (RE: DETAILS #1-#2, SHEET C-801).
- (F) PARKING LOT LIGHT POLE (RE: SITE LIGHTING PLANS).
- (G) INSTALL 6" SOLID WHITE PAINTED CROSSWALK.
- (H) CONSTRUCT CONCRETE FLUME (RE: DETAIL #5, SHEET C-801).

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
Project Number: 2022.152



CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-900.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:

FIRING RANGE  
SITE PLAN  
(ALTERNATE #04)

SHEET NUMBER:

C-900

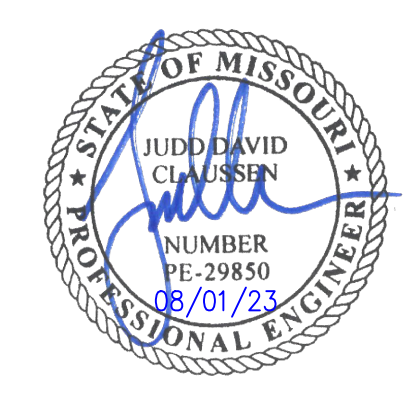
SHEET 006 OF 202

08/01/2023



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STATE OF MISSOURI  
 MIKE PARSON,  
 GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
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CERTIFICATE OF AUTHORIZATION  
 KANSAS LAND SURVEYING - LS-82  
 ENGINEERING - E-391

CERTIFICATE OF AUTHORIZATION  
 MISSOURI LAND SURVEYING-2007001128  
 ENGINEERING-2007005668

OFFICE OF  
 ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION

Project Name  
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 MSHP

1950 NE Independence Ave.  
 Lee's Summit, MO 64086

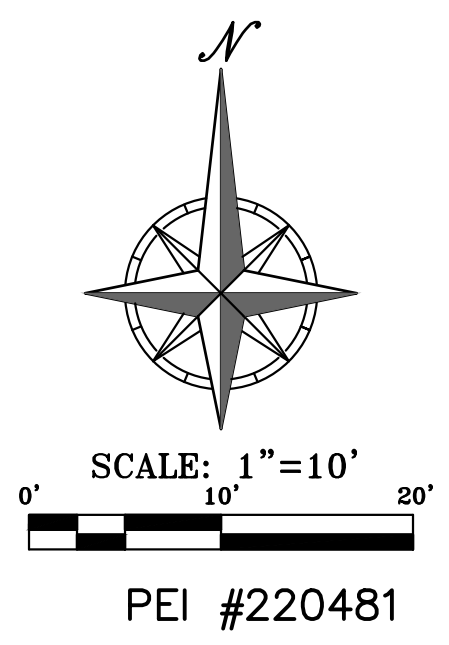
PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: C-901.dwg  
 DRAWN BY: SNH  
 CHECKED BY: DAF  
 DESIGNED BY: JDC

SHEET TITLE:  
 FIRING RANGE  
 GRADING PLAN  
 (ALTERNATE #04)

SHEET NUMBER:  
**C-901**  
 SHEET 013 OF 202  
 08/01/2023



SCOPE SHOWN ON THIS SHEET  
 SHALL BE PART OF ALTERNATE #4

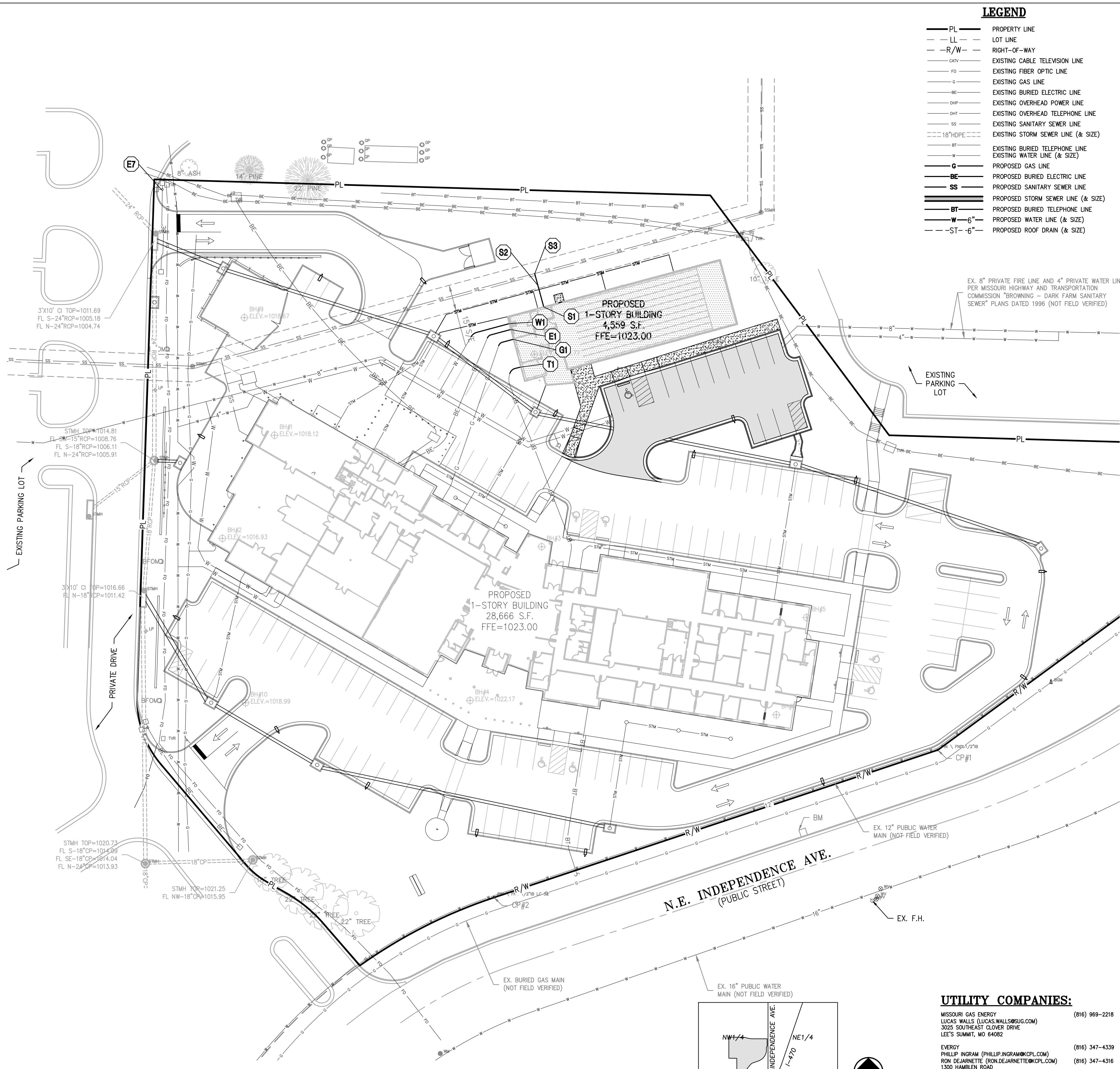


\\phelps-engineering.com\projects\220481\Utility.dwg (permitted phone) UTILITY - 2.dwg Layout:1 Aug 07, 2023 - 2:44pm Detail:Fin



Know what's below.  
Call before you dig.

**UTILITY NOTES:**  
VISUAL INDICATIONS OF UTILITIES ARE AS SHOWN. UNDERGROUND LOCATIONS SHOWN, AS FURNISHED BY THEIR LESSORS, ARE APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD AT THE TIME OF CONSTRUCTION. FOR ACTUAL FIELD LOCATIONS OF UNDERGROUND UTILITIES CALL 811.



**LEGEND**

— PL —	PROPERTY LINE
— LL —	LOT LINE
— R/W —	RIGHT-OF-WAY
— CATV —	EXISTING CABLE TELEVISION LINE
— FO —	EXISTING FIBER OPTIC LINE
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— SSW —	EXISTING STORM SEWER LINE (& SIZE)
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— ST — 6" —	PROPOSED ROOF DRAIN (& SIZE)

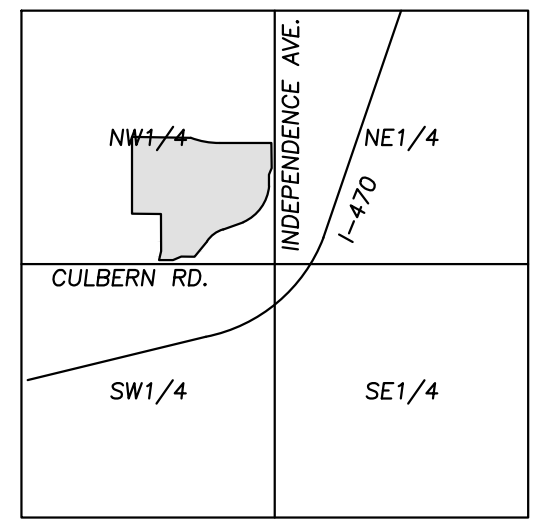
- UTILITY NOTES:**
- The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to coordinate with and relocate &/or remove all existing utilities which conflict with the proposed improvements shown on the plans.
  - The construction of storm sewers on this project shall conform to the project specifications.
  - The contractor shall field verify the exact location and elevation of the existing storm sewer lines and the existing elevation at locations where the proposed storm sewer collects or releases to existing ground. If discrepancies are encountered from the information shown on the plans, the contractor shall contact the design engineer. No pipes shall be laid until direction is received from the design engineer.
  - It will be the contractor's responsibility to field adjust the top of all manholes and boxes as necessary to match the grade of the adjacent area. Tops of existing manholes shall be raised as necessary to be flush with proposed pavement elevations, and to be 6-inches above finished ground elevations in non-paved areas. No separate or additional compensation will be made to the contractor for making final adjustments to the manholes and boxes.
  - Inlet locations, horizontal pipe information and vertical pipe information is shown to the center of the structure. Deflection angles shown for storm sewer pipes are measured from the center of curb inlets and manholes. The contractor shall adjust the horizontal location of the pipes to go to the face of the boxes. All roof drains shall be connected to storm sewer structures. Provide cleanouts on roof drain lines at 100' max. Spacing and at all bend points. Do not connect roof drains directly to storm sewer pipes.
  - The contractor shall be responsible for furnishing and installing all fire and domestic water lines, meters, backflow devices, pits, valves and all other incidentals required for a complete operable fire protection and domestic water system. All costs associated with the complete water system for the buildings shall be the responsibility of the contractor. All work shall conform to the requirements of City.
  - The contractor shall be responsible for furnishing and installing all sanitary sewer service lines from the buildings to the public line. All work shall conform to the requirements of the City.
  - The contractor will be responsible for securing all permits, bonds and insurance required by the contract documents, City, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all permits bonds and insurance shall be the contractor's responsibility and shall be included in the bid for the work.
  - By the use of these construction documents the contractor hereby agrees that he/she shall be solely responsible for the safety of the construction workers and the public. The contractor agrees to hold the engineer and owner harmless for any and all injuries, claims, losses or damages related to the project.
  - The Contractor shall be responsible for furnishing all materials, tools and equipment and installation of electrical power, telephone and gas service from a point of connection from the public utility lines to the building structures. This will include all conduits, service lines, meters, concrete pads and all other incidentals required for a complete and operational system as required by the owner and the public utilities. Refer to building plans for exact in-in locations of all utilities. Contractor shall verify connection points prior to installation of utility line.
  - All fill material is to be in place, compacted, and consolidated before installation of proposed utilities. On-site geotechnical engineer shall provide written confirmation that this requirement has been met and that utilities may proceed in the fill areas. All utilities are to be placed in trench conditions.
  - Contractor shall notify the utility authorities inspectors 48 hours before connecting to any existing line.
  - Water lines shall be per the project specifications.
  - Minimum trench width shall be 2 feet.
  - Contractor shall maintain a minimum of 42" cover on all waterlines. All water line joints are to be mechanical joints with thrust blocking as called out in specifications and construction plans. Water mains and service lines shall be constructed in accordance to waterline's specifications for commercial services.
  - All waterlines shall be least min. ten (10) foot (partially) from sanitary sewer lines or manholes. Or when crossing, a 24" vertical clearance (outside edge of pipe to outside edge of pipe) of the water line above the sewer line is required.
  - Sanitary conflicts will be resolved prior to permit issuance.
  - In the event of a vertical conflict between waterlines, sanitary lines, storm lines and gas lines (existing and proposed), the sanitary line shall be ductile iron pipe with mechanical joints at least 10 feet on both sides of crossing (or encased in concrete this same distance), the waterline shall have mechanical joints with appropriate thrust blocking as required to provide a minimum of 24" clearance. Meeting requirements of ANSI A21.10 or ANSI 21.11 (AWWA C-151) (CLASS 50).
  - All underground storm, sanitary, water and other utility lines shall be installed, inspected and approved before backfilling. Failure to have inspection approval prior to backfill will constitute rejection of work.
  - All necessary inspections and/or certifications required by codes and/or utility service companies shall be performed prior to announced building possession and the final connection of service. Contractor shall coordinate with all utility companies for installation requirements and specifications.
  - Refer to building plans for site lighting electrical plan, irrigation, parking lot security system and associated conduit requirements. Coordinate with Owner that all required conduits are in place & tested prior to paving.
  - When a building utility connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such site utility terminations.
  - Refer to the building plans for site lighting electrical requirements, including conduits, pole boxes, pull boxes, etc.

**UTILITY KEY NOTES:**

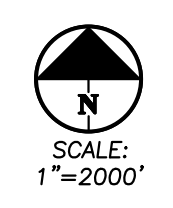
- G1** CONTRACTOR TO COORDINATE 1-1/2" GAS SERVICE ROUTING FROM MAIN BUILDING TO FIRING RANGE BUILDING (RE: MEP PLANS).
- E1** CONTRACTOR TO INTERCEPT EXISTING CONDUITS AND PROVIDE ELECTRIC ENTRY INTO BUILDING. FOLLOW ELECTRIC COMPANY REQUIREMENTS (RE: MEP PLANS).
- W1** 1-1/2" DOMESTIC WATER LINE ENTRY TO BUILDING. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ANY APPURTENANCES ON THE DOMESTIC LINE SUCH AS BACKFLOW PREVENTION DEVICES (RE: BUILDING PLANS), GATE VALVES, REDUCERS, BENDS, TEES, ETC., WHICH MAY BE REQUIRED.
- T1** CONTRACTOR TO COORDINATE ONE (1) - 4" PVC SCH. 40 CONDUITS ROUTING FROM MAIN BUILDING TO FIRING RANGE BUILDING (RE: MEP PLANS).
- S1** CONNECT TO BLDG. INTERIOR PLUMBING SANITARY SEWER LINE. TRANSITION FROM 4" (INTERIOR) TO 6" (EXTERIOR) AT FOUNDATION WALL (RE: MEP PLANS). FO=1022.50 FL 6"=1018.50
- S2** INSTALL 20 L.F. 6" PVC SANITARY SEWER SERVICE LINE (SDR-26) @ 1.0% MIN. SLOPE.
- S3** INSTALL 8"x6" WYE CONNECTION TO CONNECT TO EXISTING PUBLIC SANITARY SEWER MAIN.

**UTILITY COMPANIES:**

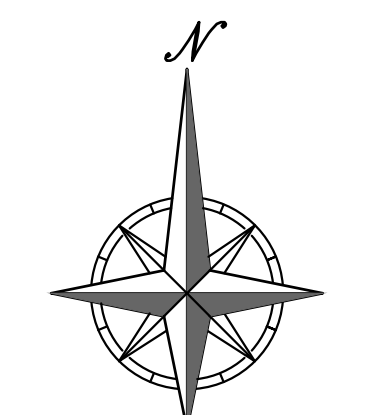
MISSOURI GAS ENERGY LUCAS WALLS (LUCAS.WALLS@SG.COM) 3025 SOUTHEAST CLOVER DRIVE LEE'S SUMMIT, MO 64082	(816) 969-2218
ENERGY PHILLIP INGRAM (PHILLIP.INGRAM@CPL.COM) RON DEJARNETTE (RON.DEJARNETTE@CPL.COM) 1300 HAMBLEN ROAD LEE'S SUMMIT, MO 64081	(816) 347-4339 (816) 347-4316
STORM SEWER (PUBLIC WORKS DEPARTMENT) 220 SE GREEN STREET LEE'S SUMMIT, MO 64063	(816) 969-1800
SANITARY SEWER & WATER (WATER UTILITIES DEPT.) 1200 SE HAMBLEN ROAD, LEE'S SUMMIT, MO 64081	(816)-969-1900
AT&T (913) 383-4929 MR. CLAYTON ANSPAUGH (CA4089@ATT.COM) 9444 HALL AVENUE OVERLAND PARK, KANSAS 66207	(913) 383-4849-FAX



VICINITY MAP  
SEC. 19-48-31

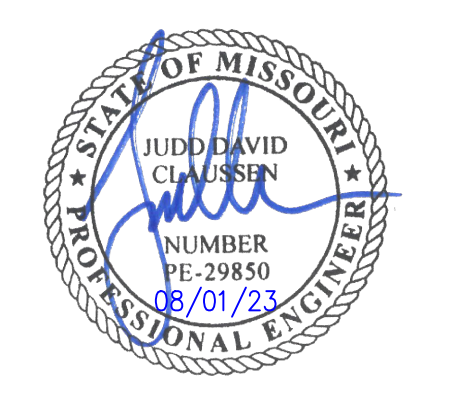


SCOPE SHOWN ON THIS SHEET  
SHALL BE PART OF ALTERNATE #4



SCALE: 1"=30' 60"  
PEI #220481

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

**PEI** PHILIPS ENGINEERING, INC.  
1320 N. Winchester  
Olathe, Kansas 66061  
Cell (913) 393-9955  
Fax (913) 393-1166  
www.phelpsengineering.com

CERTIFICATE OF AUTHORIZATION  
KANSAS LAND SURVEYING - LS-82  
ENGINEERING - E-391

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: C-902.dwg  
DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
**FIRING RANGE  
UTILITY PLAN  
(ALTERNATE #04)**

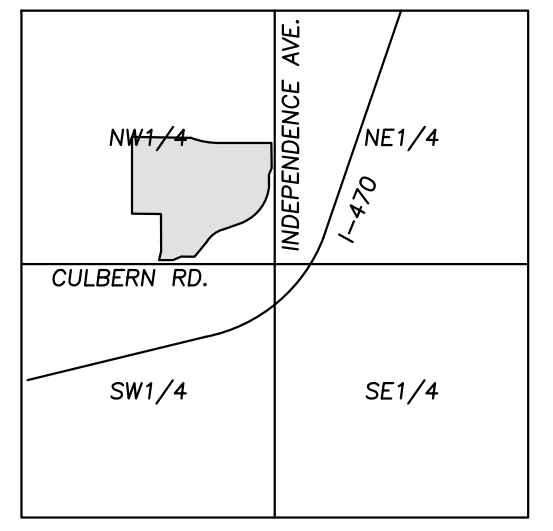
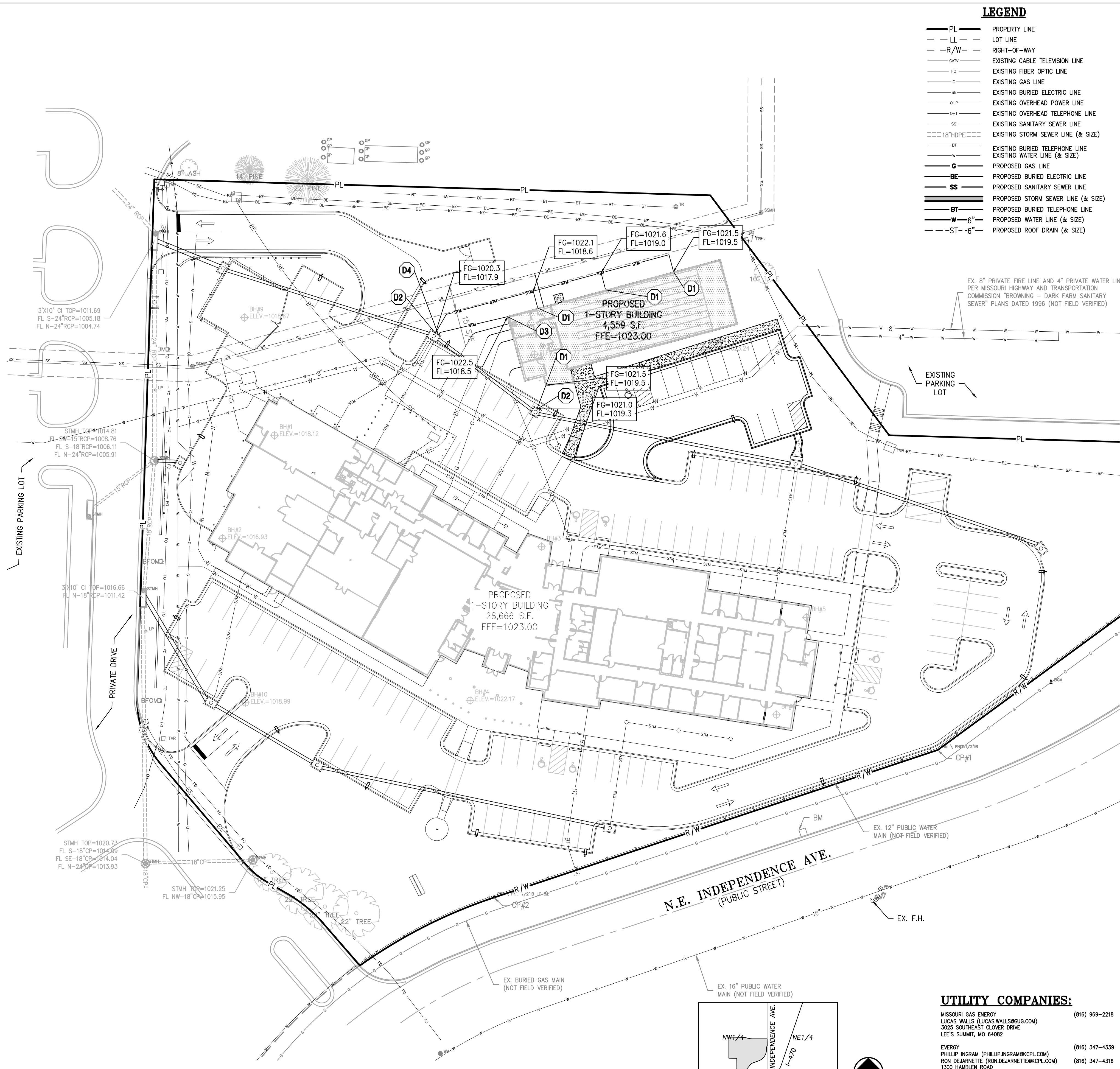
SHEET NUMBER:  
**C-902**  
SHEET 014 OF 202  
08/01/2023

\\phelps-engineering.com\projects\220481\DWG\Permit\Storm\SECONDARY STORM PLAN - 2.dwg Layout:1 Aug 07, 2023 - 2:44pm Daniel Finn



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VICINITY MAP  
SEC. 19-48-31

**LEGEND**

— PL —	PROPERTY LINE
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**UTILITY NOTES:**

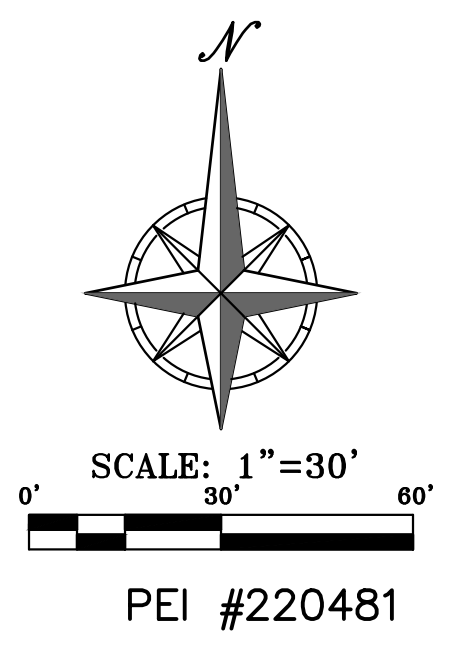
- The contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to coordinate with and relocate &/or remove all existing utilities which conflict with the proposed improvements shown on the plans.
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- Contractor shall notify the utility authorities inspectors 48 hours before connecting to any existing line.
- Water lines shall be per the project specifications.
- Minimum trench width shall be 2 feet.
- Contractor shall maintain a minimum of 42" cover on all waterlines. All water line joints are to be mechanical joints with thrust blocking as called out in specifications and construction plans. Water mains and service lines shall be constructed in accordance to waterline's specifications for commercial services.
- All waterlines shall be least min. ten (10') apart (parallel) from sanitary sewer lines or manholes. Or when crossing, a 24" vertical clearance (outside edge of pipe to outside edge of pipe) of the water line above the sewer line is required.
- Sanitary conflicts will be resolved prior to permit issuance.
- In the event of a vertical conflict between waterlines, sanitary lines, storm lines and gas lines (existing and proposed), the sanitary line shall be ductile iron pipe with mechanical joints at least 10 feet on both sides of crossing (or encased in concrete this same distance), the waterline shall have mechanical joints with appropriate thrust blocking as required to provide a minimum of 24" clearance. Meeting requirements of ANSI A21.10 or ANSI 21.11 (AWWA C-151) (CJSS 50).
- All underground storm, sanitary, water and other utility lines shall be installed, inspected and approved before backfilling. Failure to have inspection approval prior to backfill will constitute rejection of work.
- All necessary inspections and/or certifications required by codes and/or utility service companies shall be performed prior to announced building possession and the final connection of service. Contractor shall coordinate with all utility companies for installation requirements and specifications.
- Refer to building plans for site lighting electrical plan, irrigation, parking lot security system and associated conduit requirements. Coordinate with Owner that all required conduits are in place & tested prior to paving.
- When a building utility connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such site utility terminations.
- Refer to the building plans for site lighting electrical requirements, including conduits, pole boxes, pull boxes, etc.

- D1** TYPICAL STORM WATER DRAIN LINE FROM ROOF. ALL SECONDARY STORM LINES SHALL BE PVC SDR 35 OR HDPE (ST). SEE ARCH PLANS FOR BUILDING CONNECTION LOCATIONS.
- D2** CONNECT SECONDARY STORM LINE TO PROPOSED STORM STRUCTURE.
- D3** INSTALL 6" PVC SDR 35 OR HDPE (ST) @ 1.0% SLOPE (MINIMUM) FROM FOUNDATION DRAIN SYSTEM TO PROPOSED STORM STRUCTURE.
- D4** CONNECT FOUNDATION DRAIN SYSTEM OUTLET PIPE TO PROPOSED STORM STRUCTURE.

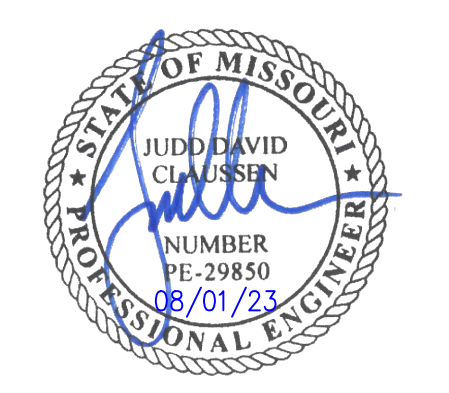
**UTILITY COMPANIES:**

MISSOURI GAS ENERGY LUCAS WALLS (LUCAS.WALLS@SG.COM) 3025 SOUTHEAST CLOVER DRIVE LEE'S SUMMIT, MO 64082	(816) 969-2218
ENERGY PHILLIP INGRAM (PHILLIP.INGRAM@CPL.COM) RON DEJARNETTE (RON.DEJARNETTE@CPL.COM) 1300 HAMBLEN ROAD LEE'S SUMMIT, MO 64081	(816) 347-4339 (816) 347-4316
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AT&T (913) 383-4929 MR. CLAYTON ANSPAUGH (CA408@ATT.COM) 9444 HALL AVENUE OVERLAND PARK, KANSAS 66207	(913) 383-4849-FAX

SCOPE SHOWN ON THIS SHEET  
SHALL BE PART OF ALTERNATE #4



STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**GastingerWalker &**

Architects | Interior Designers | Construction Managers  
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Project Number: 2022.152

**PEI** PHILIPS ENGINEERING, INC.  
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CERTIFICATE OF AUTHORIZATION  
KANSAS  
LAND SURVEYING - LS-82  
ENGINEERING - E-391

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name  
Troop A Headquarters,  
MSHP

1950 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

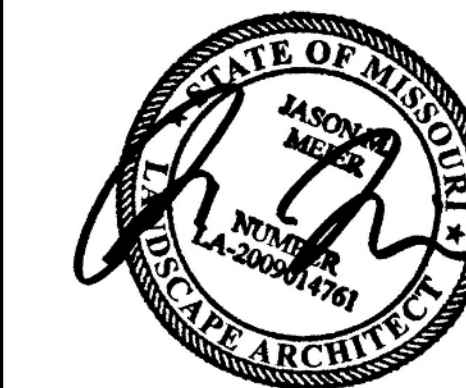
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DRAWN BY: SNH  
CHECKED BY: DAF  
DESIGNED BY: JDC

SHEET TITLE:  
FIRING RANGE  
SECONDARY STORM  
PLAN  
(ALTERNATE #04)

SHEET NUMBER:

**C-903**

SHEET 015 OF 202  
08/01/2023



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OFFICE OF  
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CAD DWG FILE: L-100.dwg  
DRAWN BY: JMM  
CHECKED BY: JMM  
DESIGNED BY: JMM

SHEET TITLE:

Landscape  
Plan

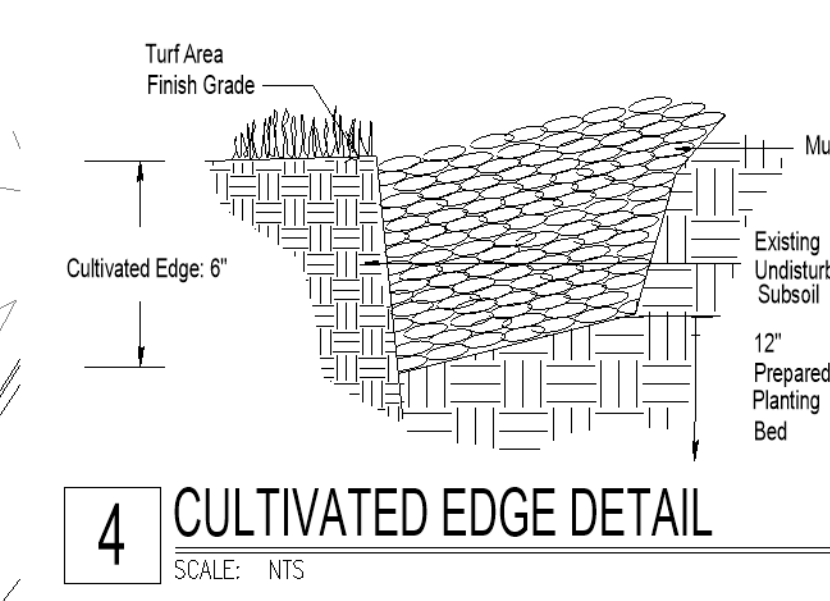
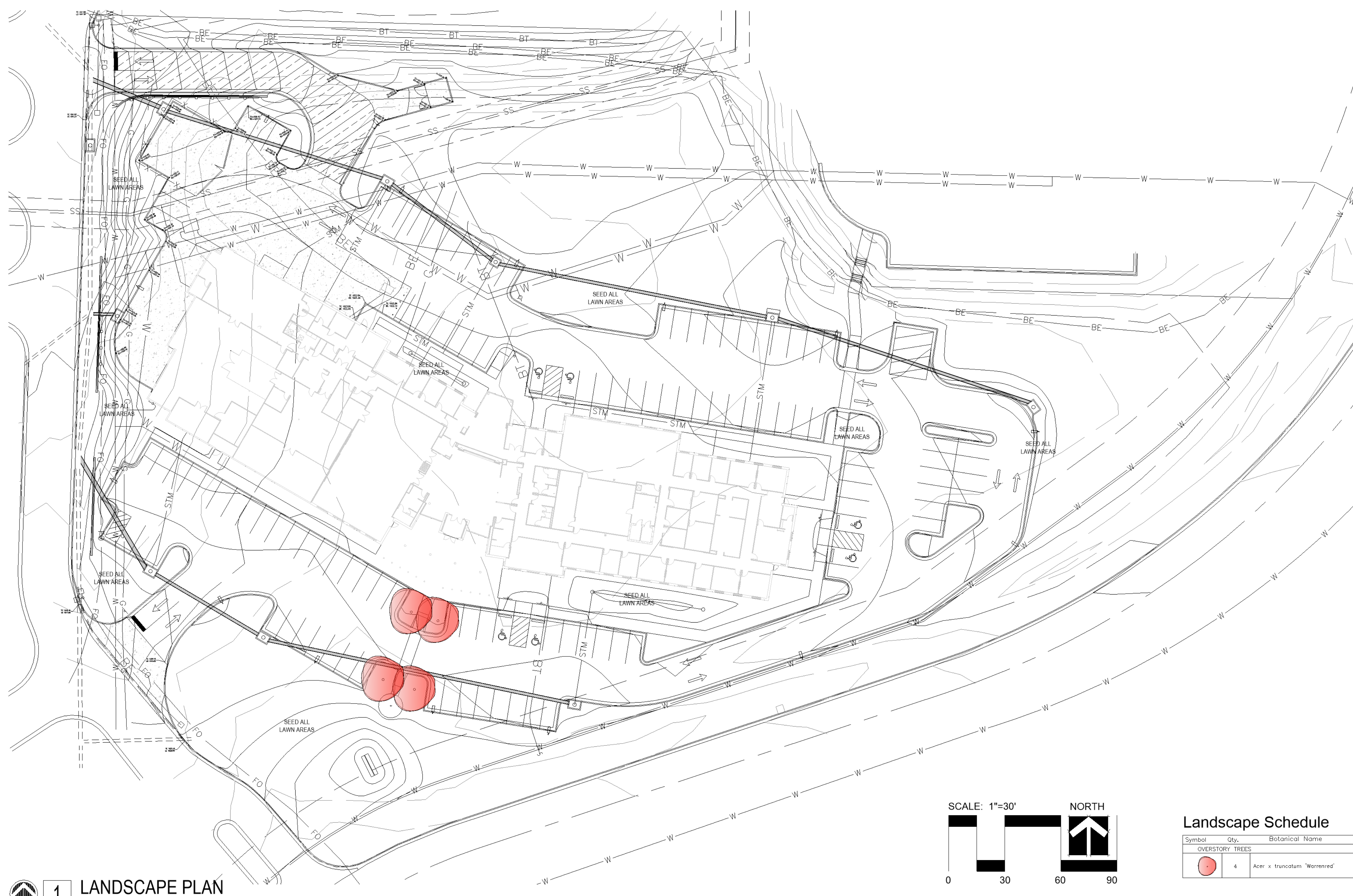
SHEET NUMBER:

**L-100**

SHEET 35 OF 202

08/01/2023

MLA #: 932



- Planting Notes**
- Location of all existing utilities needs to be done before commencing work.
  - The planting plan graphically illustrates overall plant massings. Each plant species massing shall be placed in the field to utilize the greatest coverage of ground plane. The following applies for individual plantings:
    - Creeping groundcover shall be a minimum of 6" from paving edge.
    - All trees shall be a minimum of 3' from paving edge.
    - All plants of the same species shall be equally spaced apart and placed for best aesthetic viewing.
    - All shrubs shall be a minimum of 2' from paved edge.
  - Mulch all planting bed areas to a minimum depth of 3". Mulch individual trees to a minimum depth of 4".
  - Note: If plants are not labeled - they are existing and shall remain.
  - All landscaped areas in ROW shall be sodded and irrigated unless otherwise specified.

- Materials:**
- Plant material shall be healthy, vigorous, and free of disease and insects as per AAN standards.
  - Shredded bark mulch installed at trees shall be finely chipped and shredded hardwood chips, consisting of pure wood products and free of all other foreign substances. Pine bark compost mulch installed at planting bed areas shall be free of all other foreign substances.

- Installation:**
- All planting beds shall be amended with 1 cubic yard of peat moss per 1,000 square feet. Till peat moss into soil to a 6" depth. A 10-10-10 fertilizer shall be spread over all planting areas prior to planting, at a rate of 50 pounds per 2,000 square feet.
  - After plants have been installed, all planting beds shall be treated with Dacthal pre-emergent herbicide prior to mulch application.
  - Plant pit backfill for trees and shrubs shall be 50% peat or well composted manure and 50% topsoil.
  - Plant material shall be maintained and guaranteed for a period of one year after Owner's acceptance of finished job. All dead or damaged plant material shall be replaced at Landscape Contractor's expense.
  - Landscape contractor shall maintain all plant material until final acceptance, at which point the one year guarantee begins.

**Landscape Schedule**

Symbol	Qty.	Botanical Name	Common Name	Min. Root	Min. Size	Caliper	Remarks
<b>OVERSTORY TREES</b>							
	4	Acer x truncatum 'Warrenred'	Pacific Sunset Maple	2.5"	6'	min. clear, ground to canopy	

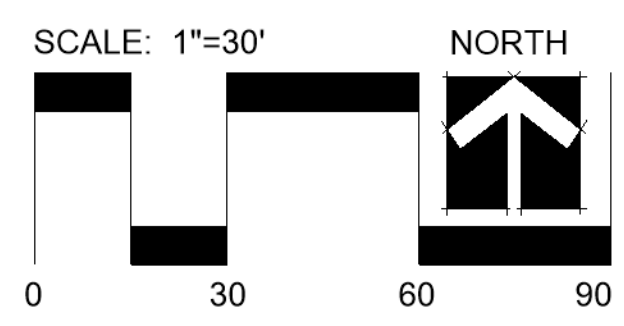
**1 LANDSCAPE PLAN**  
SCALE: 1"=30'-0"

Inches Between Plants

Inches Between Plants	Plant Quantities Per Square Foot
10"	Square Feet x 1.50
12"	Square Feet x 1.00
18"	Square Feet x .44
30"	Square Feet x .16
36"	Square Feet x .11

- NOTES:**
- SPACING FOR GROUNDCOVERS, SHRUBS, AND PERENNIALS NOTED ON PLANS.
  - TILL SOIL IN BED TO A 12" MINIMUM DEPTH AND THOROUGHLY MIX IN SOIL AMENITIES AS NOTED ON PLANS.

**2 GROUNDCOVER/SHRUB DETAIL**  
SCALE: NTS



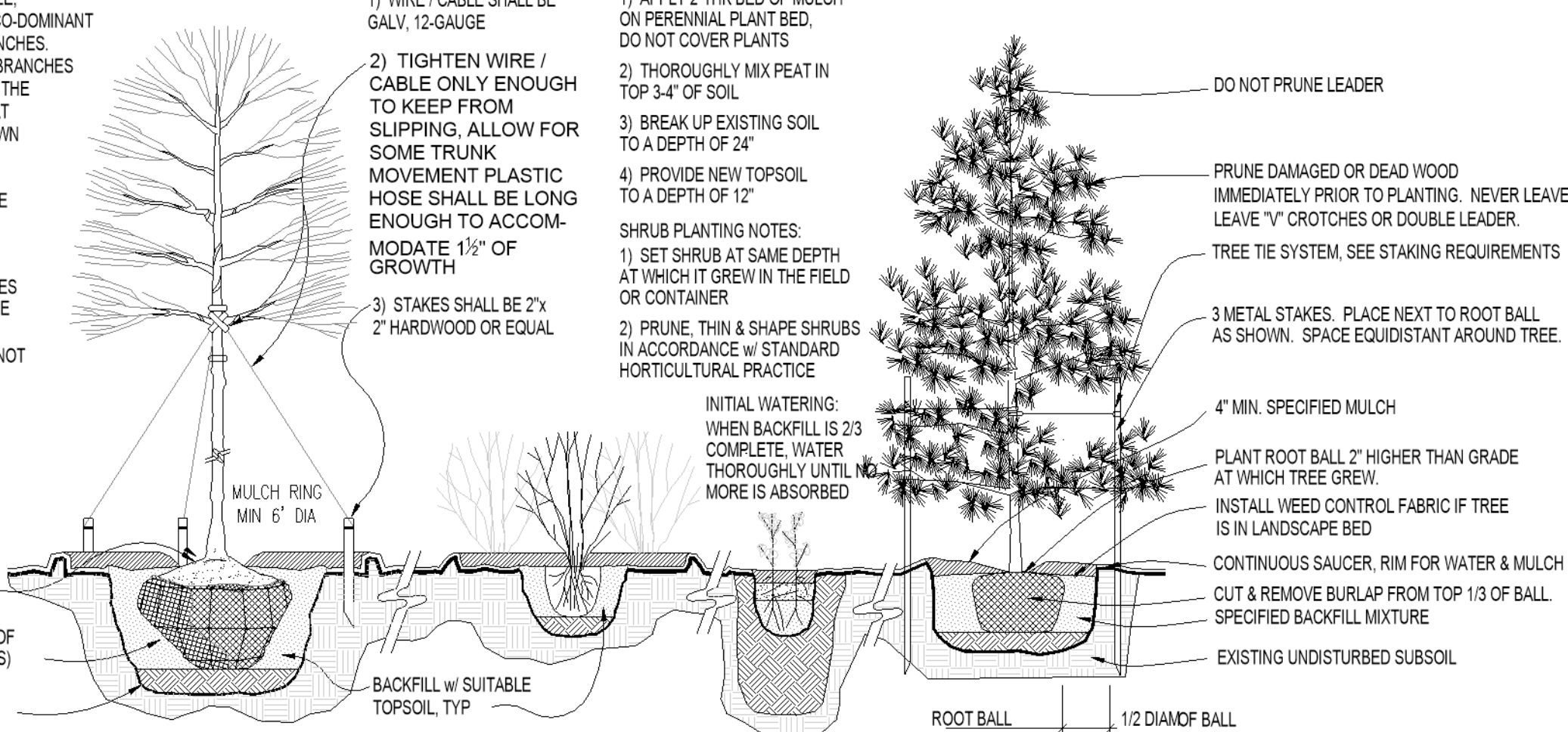
- TREE PLANTING NOTES:**
- DO NOT HEAVILY PRUNE THE TREE. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, & BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS & LATERAL BRANCHES MAY BE PRUNED. DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.
  - MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE.
  - SET TOP OF ROOT BALL 1-2 INCHES HIGHER THAN SURROUNDING GRADE.
  - APPLY 4" THK WOOD MULCH. DO NOT PLACE MULCH IN DIRECT CONTACT w/ TREE TRUNK.
  - EACH TREE MUST BE PLANTED SUCH THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL. TREES WHERE THE FLARE IS NOT VISIBLE SHALL BE REJECTED. DO NOT COVER THE TOP OF THE ROOT BALL w/ SOIL.
  - REMOVE ALL TWINE, ROPE, WIRE AND BURLAP FROM THE UPPER 1/3 OF ROOT BALL (REMOVE WIRE BASKETS).
  - PLACE ALL ROOT BALLS ON UN-EXCAVATED OR TAMPED SOIL, TYP.

- STAKING REQUIREMENTS:**
- WIRE / CABLE SHALL BE GALV. 12-GAUGE.
  - TIGHTEN WIRE / CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 1/2" OF GROWTH.
  - STAKES SHALL BE 2" x 2" HARDWOOD OR EQUAL.

- PERENNIAL PLANTING NOTES:**
- APPLY 2" THK BED OF MULCH ON PERENNIAL PLANT BED. DO NOT COVER PLANTS.
  - THOROUGHLY MIX PEAT IN TOP 3-4" OF SOIL.
  - BREAK UP EXISTING SOIL TO A DEPTH OF 24".
  - PROVIDE NEW TOPSOIL TO A DEPTH OF 12".

- SHRUB PLANTING NOTES:**
- SET SHRUB AT SAME DEPTH AT WHICH IT GREW IN THE FIELD OR CONTAINER.
  - PRUNE THIN & SHAPE SHRUBS IN ACCORDANCE w/ STANDARD HORTICULTURAL PRACTICE.

**INITIAL WATERING:**  
WHEN BACKFILL IS 2/3 COMPLETE, WATER THOROUGHLY UNTIL NO MORE IS ABSORBED.



**3 PLANTING INSTALLATION DETAILS**  
SCALE: NTS





Clark A. Basinger - Engineer  
MO# 2010026832

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Missouri Certificate of Authority: #PE000042

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CAD DWG FILE: S002.dwg  
DRAWN BY: MJF  
CHECKED BY: CAB  
DESIGNED BY: BDC

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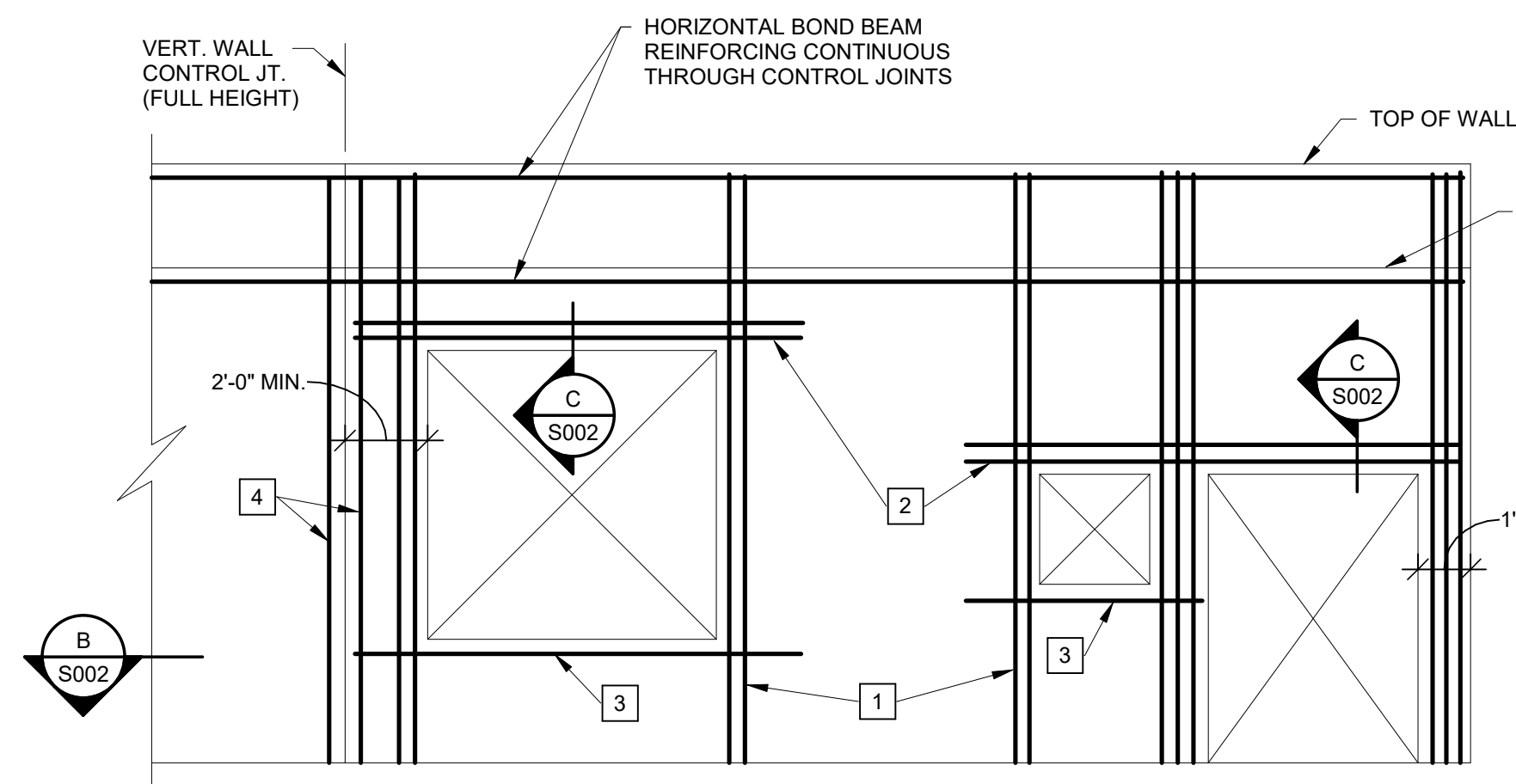
CMU DETAILS

SHEET NUMBER:

**S002**

SHEET 037 OF 202

08/01/2023



TYPICAL CMU WALL REINFORCING AT OPENINGS

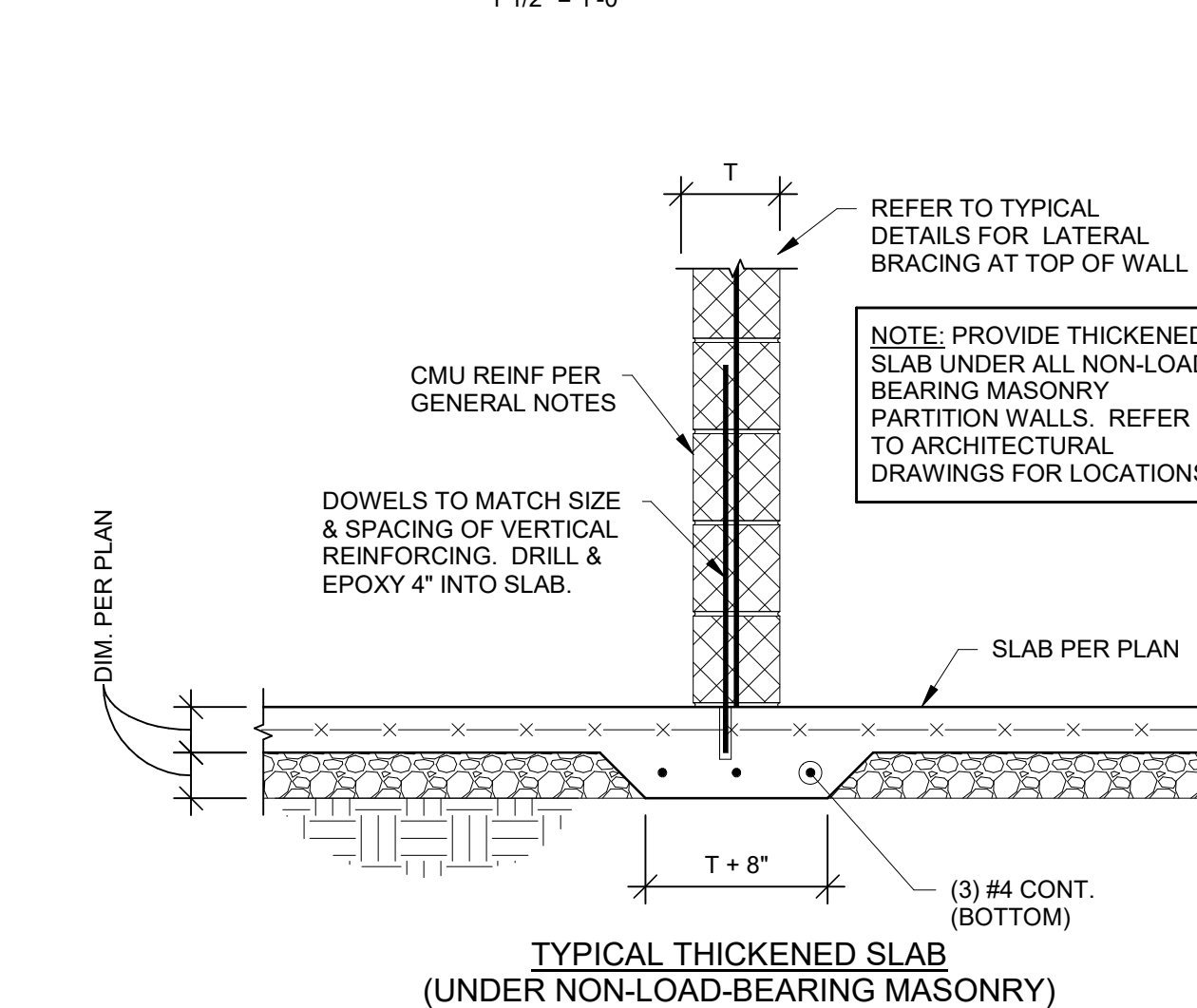
LEGEND:

- 1 FULL HEIGHT VERTICAL BARS AS JAMB REINFORCING IN FIRST 2 CELLS ADJACENT TO OPENING. REINFORCE EACH CELL WITH SIZE & QUANTITY OF BAR TO MATCH WALL REINFORCING (1 BAR TYPICAL IN 8" WALLS AND 2 BARS TYPICAL IN 12" WALLS).
- 2 LINTEL REINFORCING PER SECTION C. EXTEND 2'-0" PAST EDGE OF OPENING ON EACH SIDE (TYPICAL).
- 3 2-#5 CONTINUOUS HORIZONTAL BARS AS SILL REINFORCING IN 8" COURSE BELOW OPENING (U.N.O.). EXTEND 2'-0" PAST EDGE OF OPENING ON EACH SIDE (TYPICAL).
- 4 FULL HEIGHT VERTICAL BARS PER MASONRY VERTICAL REINFORCING SCHEDULE LOCATED IN END CELL AT EACH SIDE OF VERTICAL WALL CONTROL JOINTS.

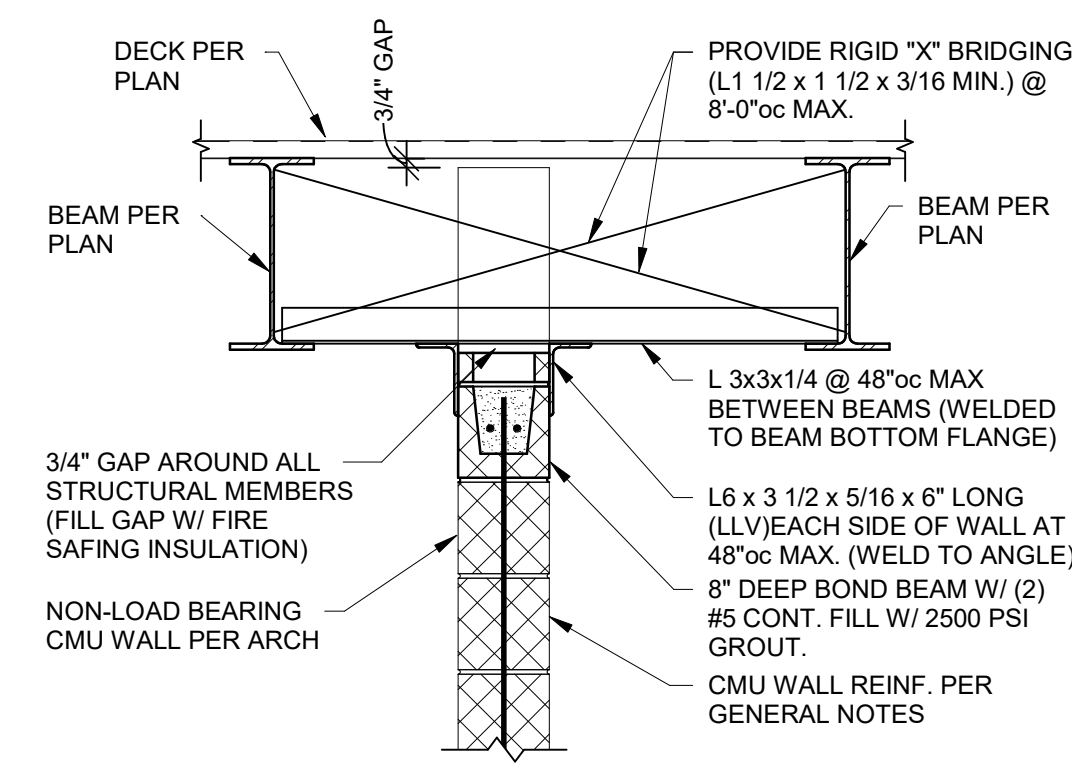
GENERAL CRITERIA: (SECTION A CONTINUED):

1. VERTICAL REINFORCING BARS SHALL BE DOWELED TO FOUNDATION WITH A DOWEL OF MATCHING SIZE AND SPACING.
2. CONTRACTOR SHALL COORDINATE AND VERIFY OPENINGS IN MASONRY WALLS. OPENINGS SHALL BE DETAILED ON REINFORCING STEEL SHOP DRAWING ELEVATIONS.
3. VERTICAL CONTROL JOINTS IN MASONRY WALLS SHALL BE 3/8" WIDE, FULL HEIGHT OF WALL. JOINTS SHALL BE SPACED AT A MAXIMUM OF 24'-0" ON CENTER AND NOT LESS THAN 2'-0" FROM THE EDGE OF ANY OPENING. ALL HORIZONTAL JOINT REINFORCING SHALL BE DISCONTINUOUS AT CONTROL JOINTS. ALL BOND BEAM HORIZONTAL REINFORCING SHALL BE CONTINUOUS THROUGH CONTROL JOINTS. CONTRACTOR SHALL COORDINATE AND VERIFY ALL CONTROL JOINT LOCATIONS.

**A CMU WALL ELEVATION**  
1 1/2" = 1'-0"

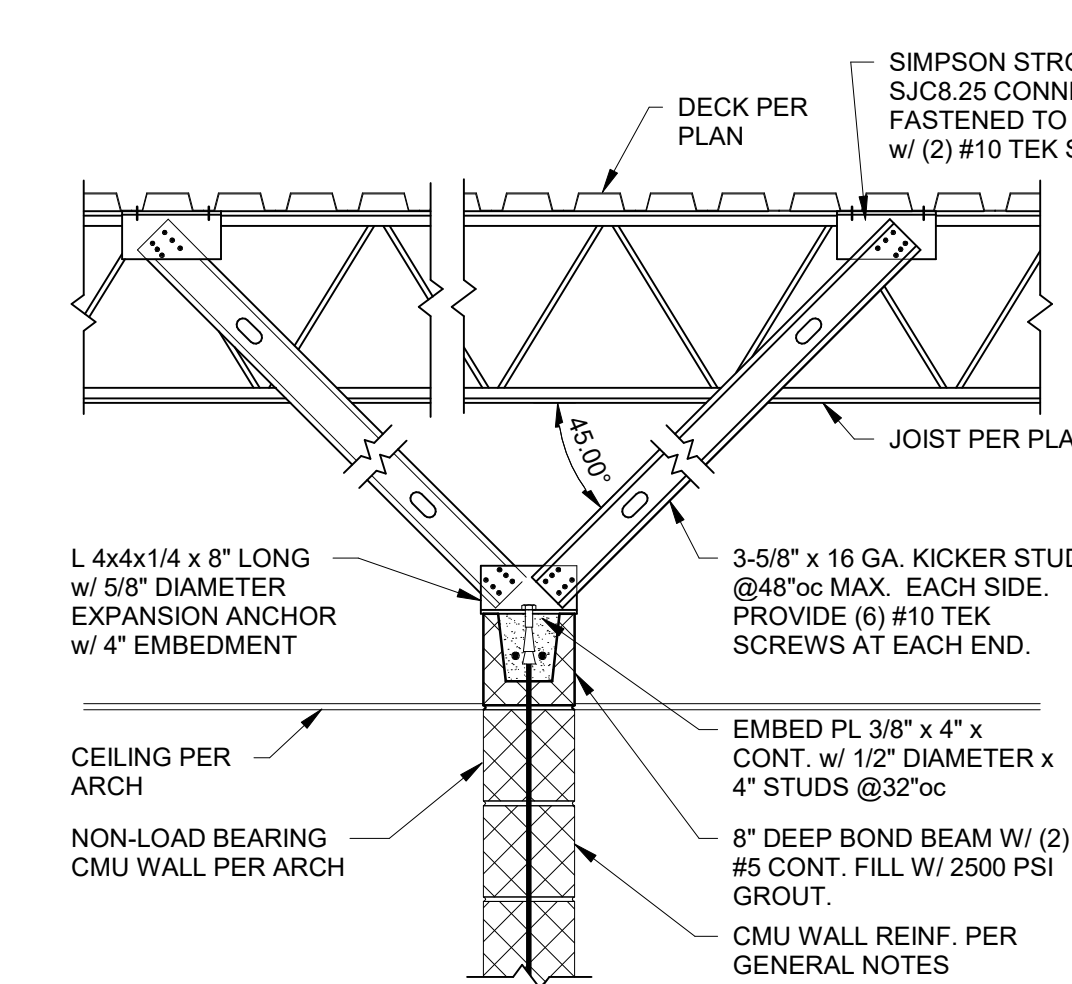


**1 SECTION**  
3/4" = 1'-0"



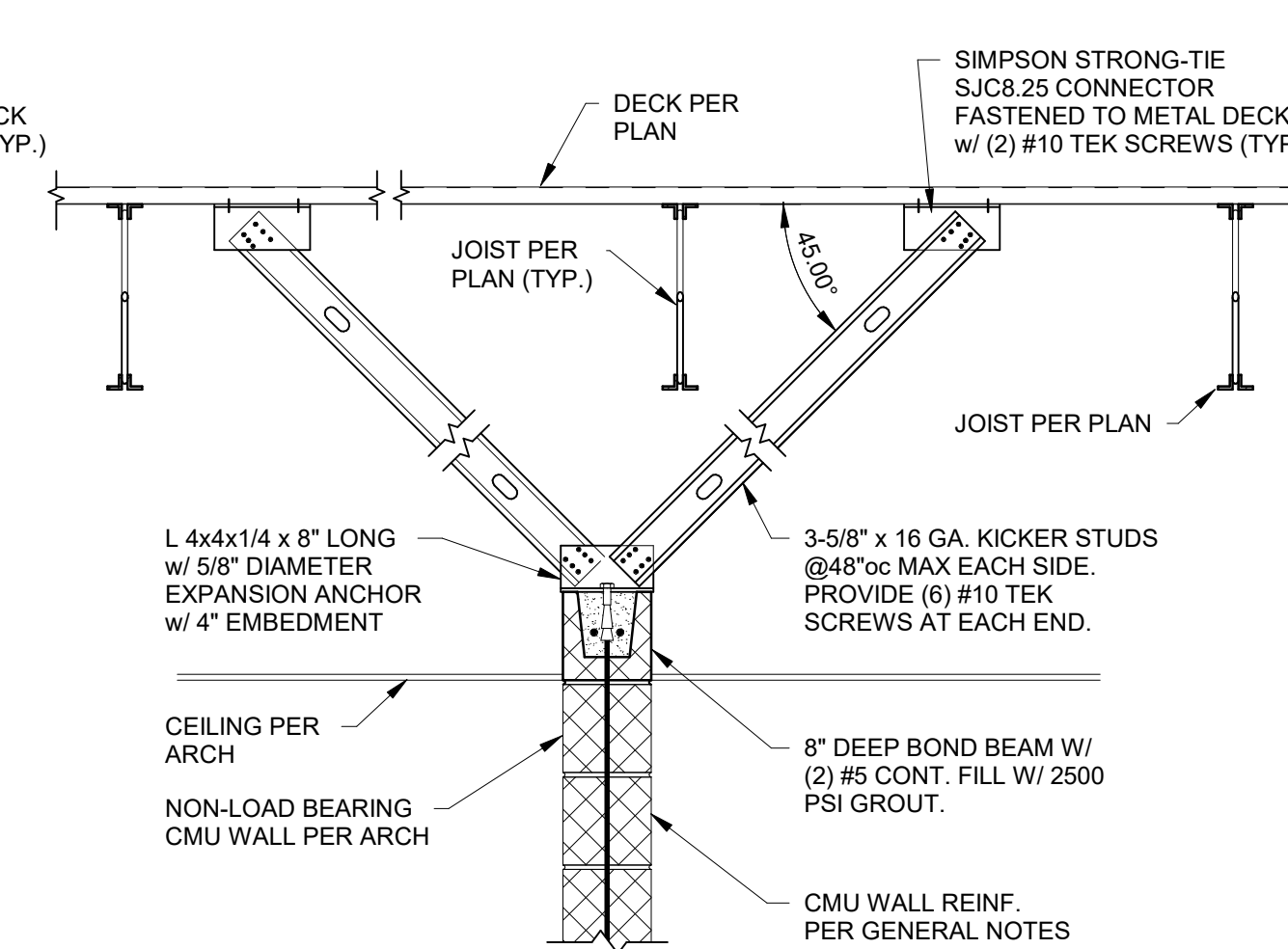
TYPICAL BRACING DETAILS FOR NON-LOAD-BEARING CMU WALLS THAT EXTEND TO DECK (REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION)

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



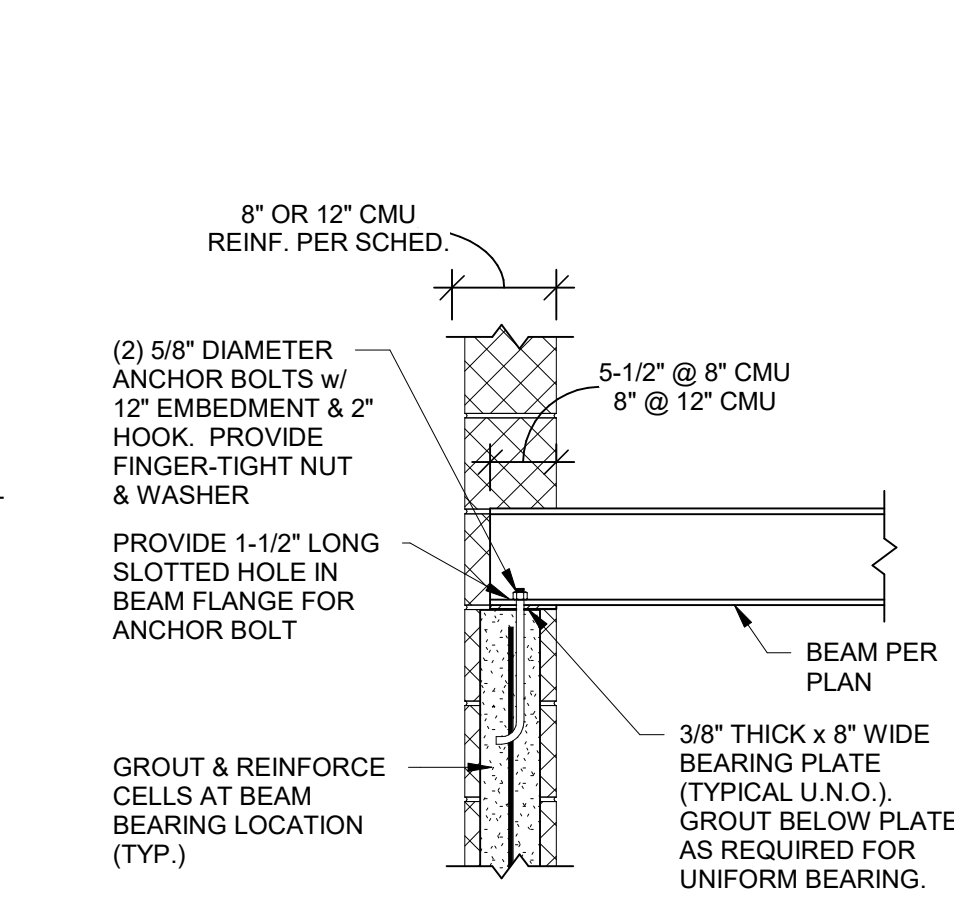
TYPICAL BRACING DETAILS FOR NON-LOAD-BEARING CMU WALLS THAT DO NOT EXTEND TO DECK (REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION)

**5 SECTION**  
3/4" = 1'-0"



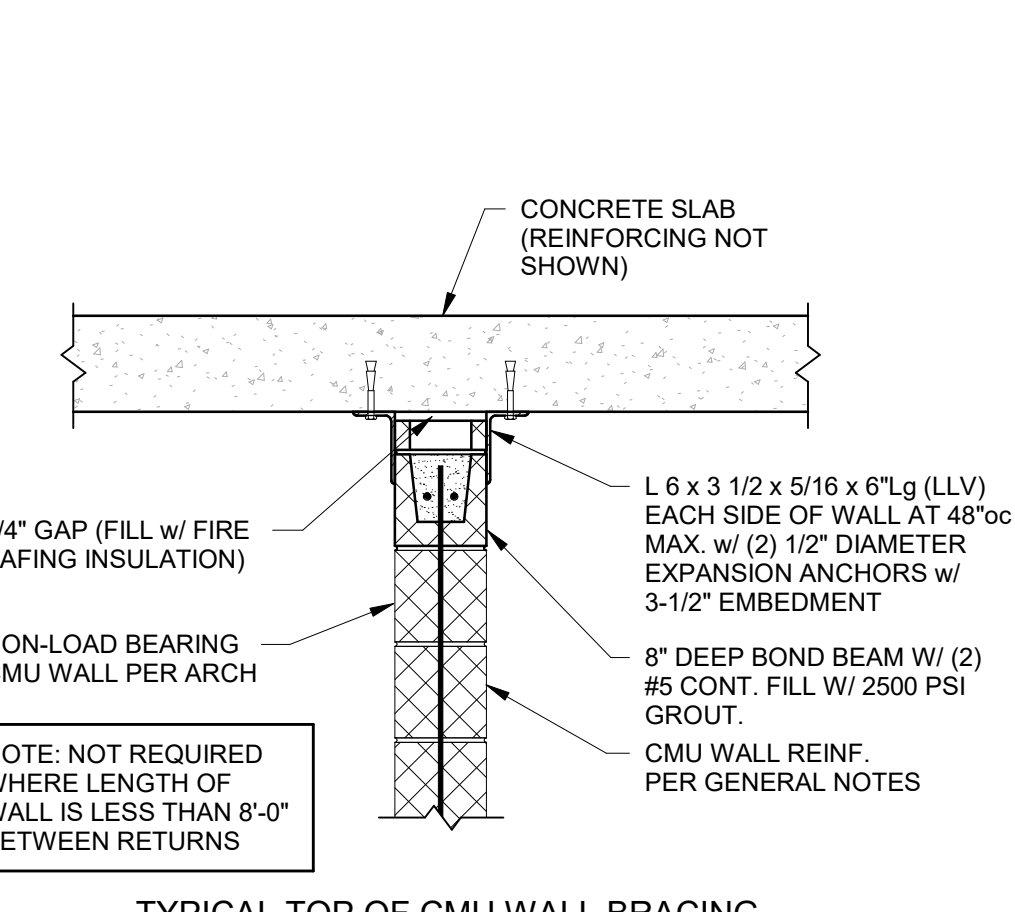
WALL PARALLEL TO JOIST

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

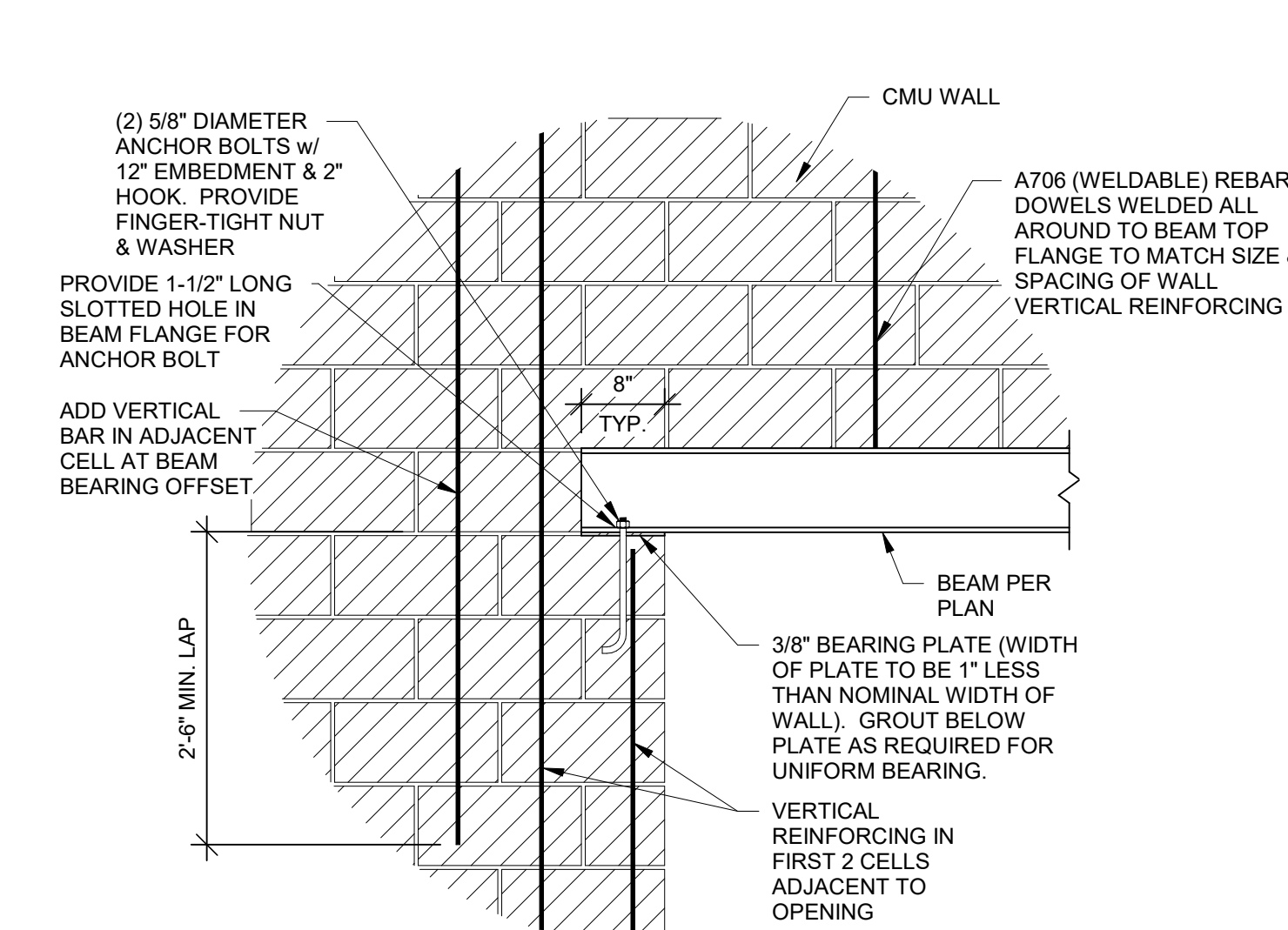


TYPICAL WIDE FLANGE BEAM BEARING ON CMU (U.N.O.)

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

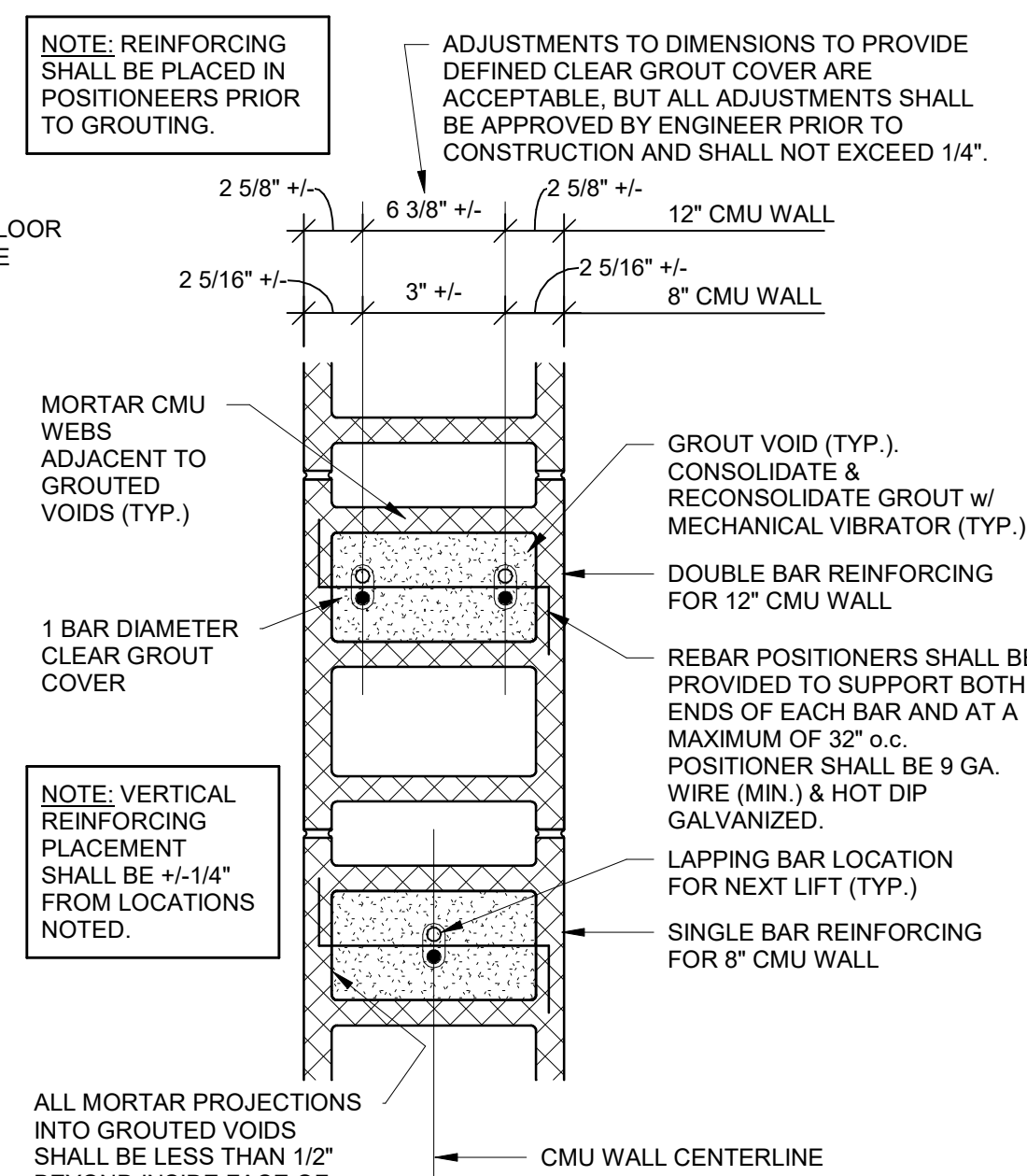


TYPICAL TOP OF CMU WALL BRACING BELOW CONCRETE SLAB



TYPICAL STEEL LINTEL DETAIL AT CMU WALL

**6 SECTION**  
3/4" = 1'-0"



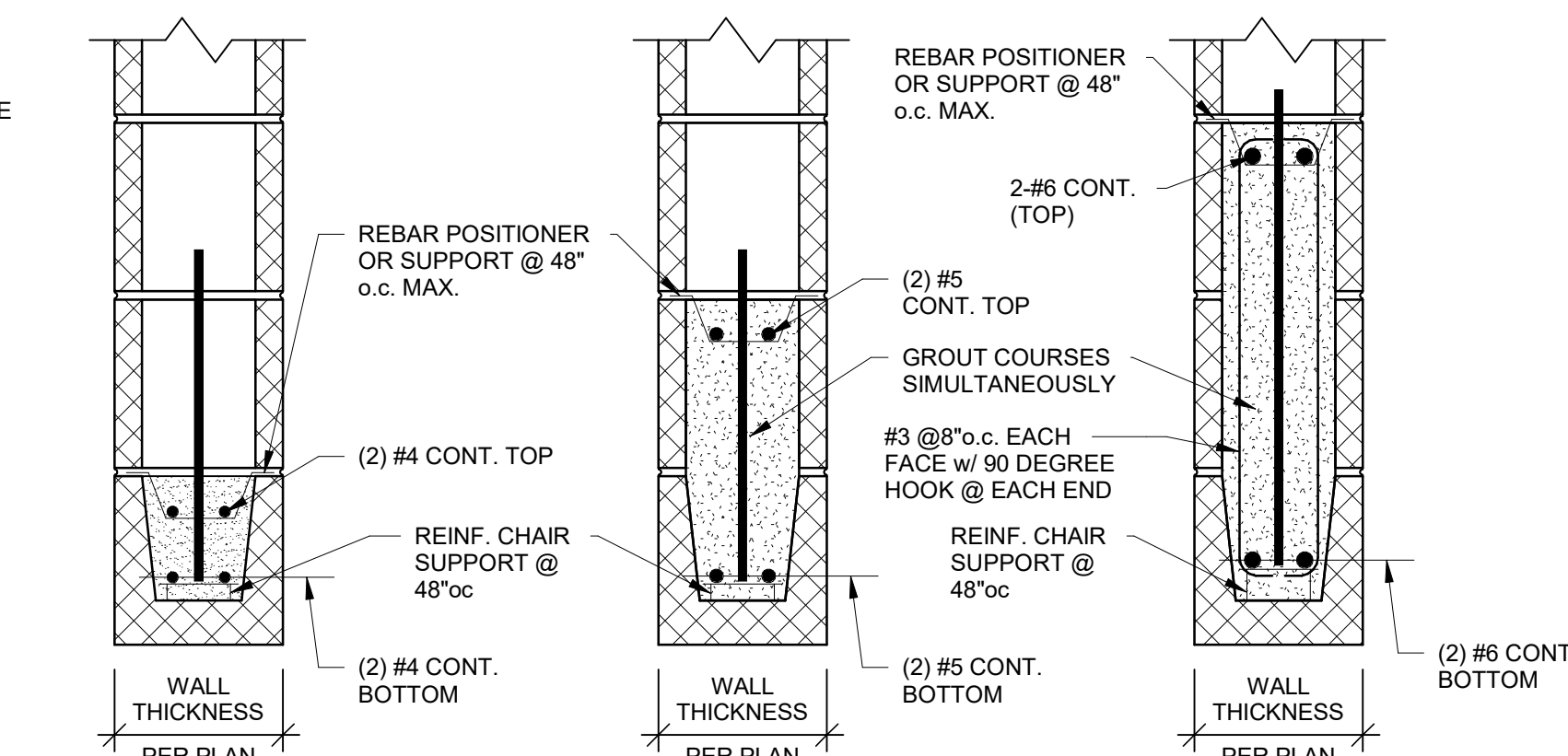
NOTE: ALL MASONRY VOIDS AND BOND BEAMS TO BE GROUTED SHALL BE FREE OF DEBRIS AND MORTAR DROPPINGS PRIOR TO GROUTING. ANY MASONRY W/ DROPPINGS OR DEBRIS OBSERVED IN VOIDS SHALL BE REJECTED.

TYPICAL REBAR POSITIONING DETAIL

**B SECTION**  
1 1/2" = 1'-0"

**TYPICAL MASONRY REINFORCING NOTE:**

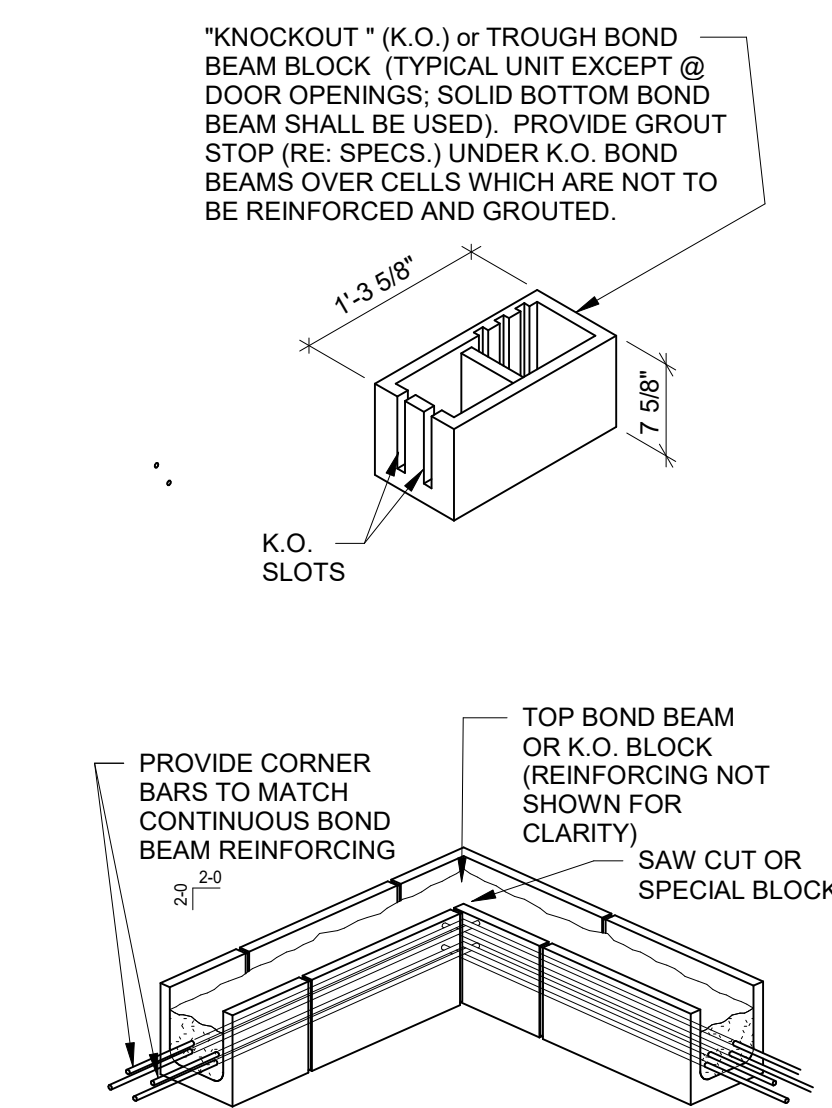
ALL INTERIOR & EXTERIOR MASONRY WALLS SHOWN ON ARCHITECTURAL AND STRUCTURAL DRAWINGS ARE TO BE REINFORCED HORIZONTALLY WITH BOND BEAMS (2 - #5 BOTTOM) AT BOTTOM COURSE, TOP COURSE, JOIST BEARING ELEVATION AND AT 8'-0" MAXIMUM O.C. AND VERTICALLY AS INDICATED ON DRAWINGS. THESE WALLS ARE TO BE ANCHORED TOP AND BOTTOM TO THE FOUNDATION, FLOOR, OR ROOF PER TYPICAL DETAILS. THE VERTICAL REINFORCING IS CONTINUOUS (IN 6'-6" MAXIMUM LENGTHS, LAPPED 2'-8" MINIMUM), FILL BLOCK CELLS AND BOND BEAMS WITH 2,500psi GROUT. RE: DETAILS "A" THROUGH "E" ON THIS SHEET.



TYPICAL LINTELS AT ALL CMU WALLS (U.N.O.)

TYPICAL LINTELS AT ALL CMU WALLS (U.N.O.)

**C SECTION**  
1 1/2" = 1'-0"



TYPICAL BOND BEAM DETAIL AT CORNER OF CMU WALL

**D DETAIL**  
3/4" = 1'-0"



Clark A. Basinger - Engineer  
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CHECKED BY: CAB  
DESIGNED BY: BDC  
SHEET TITLE:

BUILDING DESIGN  
LOADS

SHEET NUMBER:

**S003**

SHEET 038 OF 202

08/01/2023

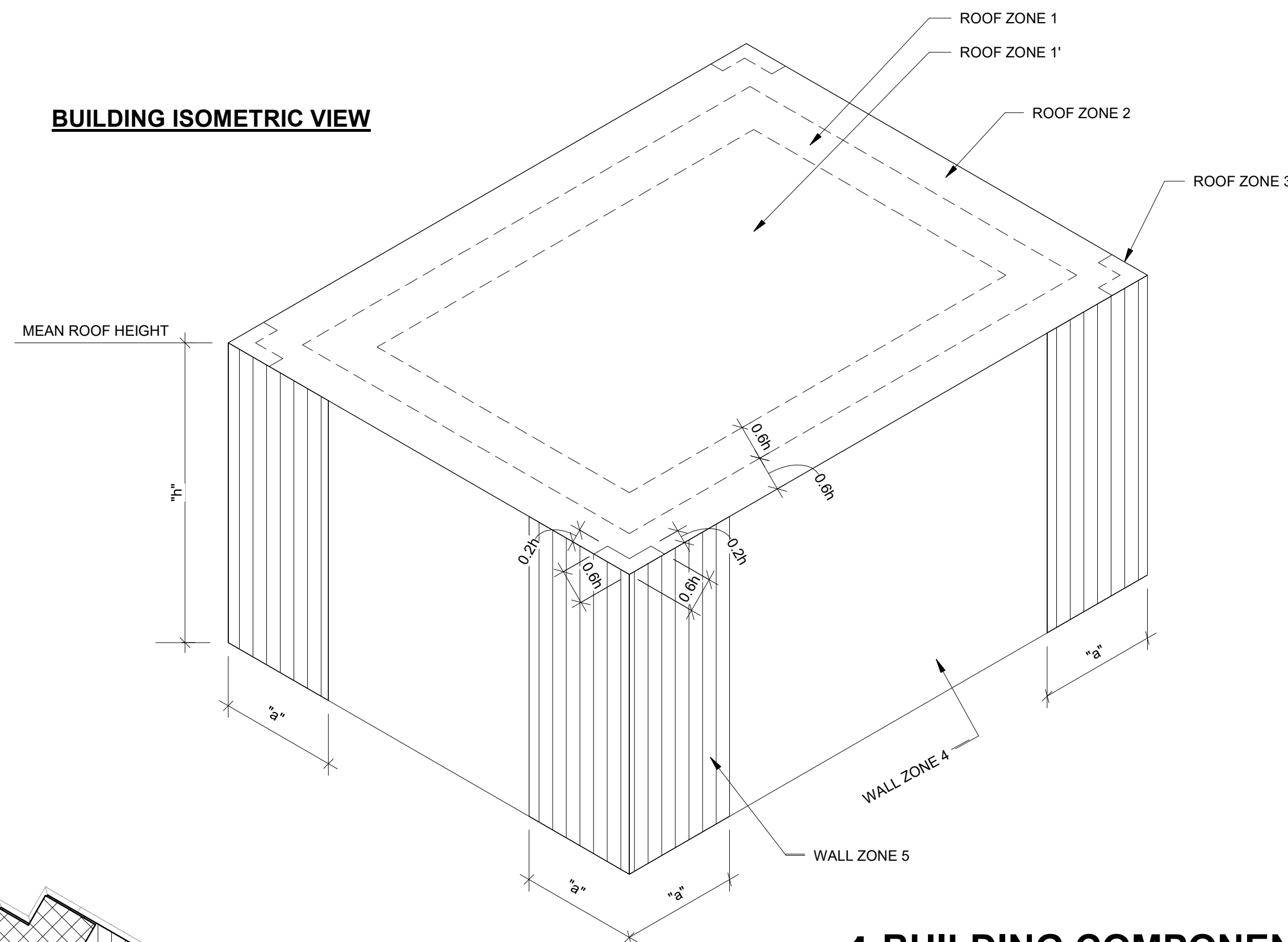
ASCE 7-16 BASIC LOAD CASE 1.0W COMPONENT AND CLADDING WIND PRESSURE DIAGRAM NOTES:

- REFER TO GENERAL NOTES FOR WIND LOAD DESIGN CRITERIA.
- POSITIVE LOADS ACT IN A PERPENDICULAR DIRECTION TOWARDS THE SURFACE. NEGATIVE LOADS ACT IN PERPENDICULAR DIRECTION AWAY FROM THE SURFACE.
- WIND LOADS CALCULATED ARE BASED ON THE PROVISIONS OF ASCE 7. VALUES SHOWN ARE DETERMINED ASSUMING AN ENCLOSED BUILDING WITH AN INTERNAL PRESSURE COEFFICIENT = +/- 0.18 AND A K<sub>d</sub> FACTOR = 0.85. LOADS SHOWN ARE FROM UNFACTORED BASIC LOAD CASE 1.0W.
- LINEAR INTERPOLATION IS PERMITTED FOR TRIBUTARY AREAS BETWEEN VALUES GIVEN.
- "a" SHALL BE THE LESSER OF 10 PERCENT OF THE LEAST HORIZONTAL DIMENSION OR 0.4x"t", BUT NOT LESS THAN 4 PERCENT OF THE LEAST HORIZONTAL DIMENSION OR 3 FT.
- FIGURES SHOWN ARE ILLUSTRATIVE ONLY AND ARE NOT INTENDED TO DEPICT THE ACTUAL STRUCTURE DIMENSIONS.
- ALL DESIGNERS USING THIS WIND LOAD DIAGRAM MUST INDEPENDENTLY VERIFY THE DESIGN PRESSURES BASED ON THE APPLICABLE BUILDING CODE.
- ROOF PRESSURES ARE FOR FLAT ROOF ONLY. WIND LOADS FOR THE DESIGN OF SLOPED ROOFS (WITH ANGLES GREATER THAN 10 DEGREES) SHALL BE OBTAINED USING THE PROVISIONS OF ASCE 7-16.
- PARAPETS SHALL BE DESIGNED FOR COMPONENTS AND CLADDING LOADS PER ASCE 7 SECTION 6.5.12.4.4. IF A PARAPET 3'-0" OR HIGHER OCCURS AROUND THE PERIMETER OF THE ROOF, ZONE 3 MAY BE TREATED AS ZONE 2 FOR ROOF PRESSURE AND SUCTION.

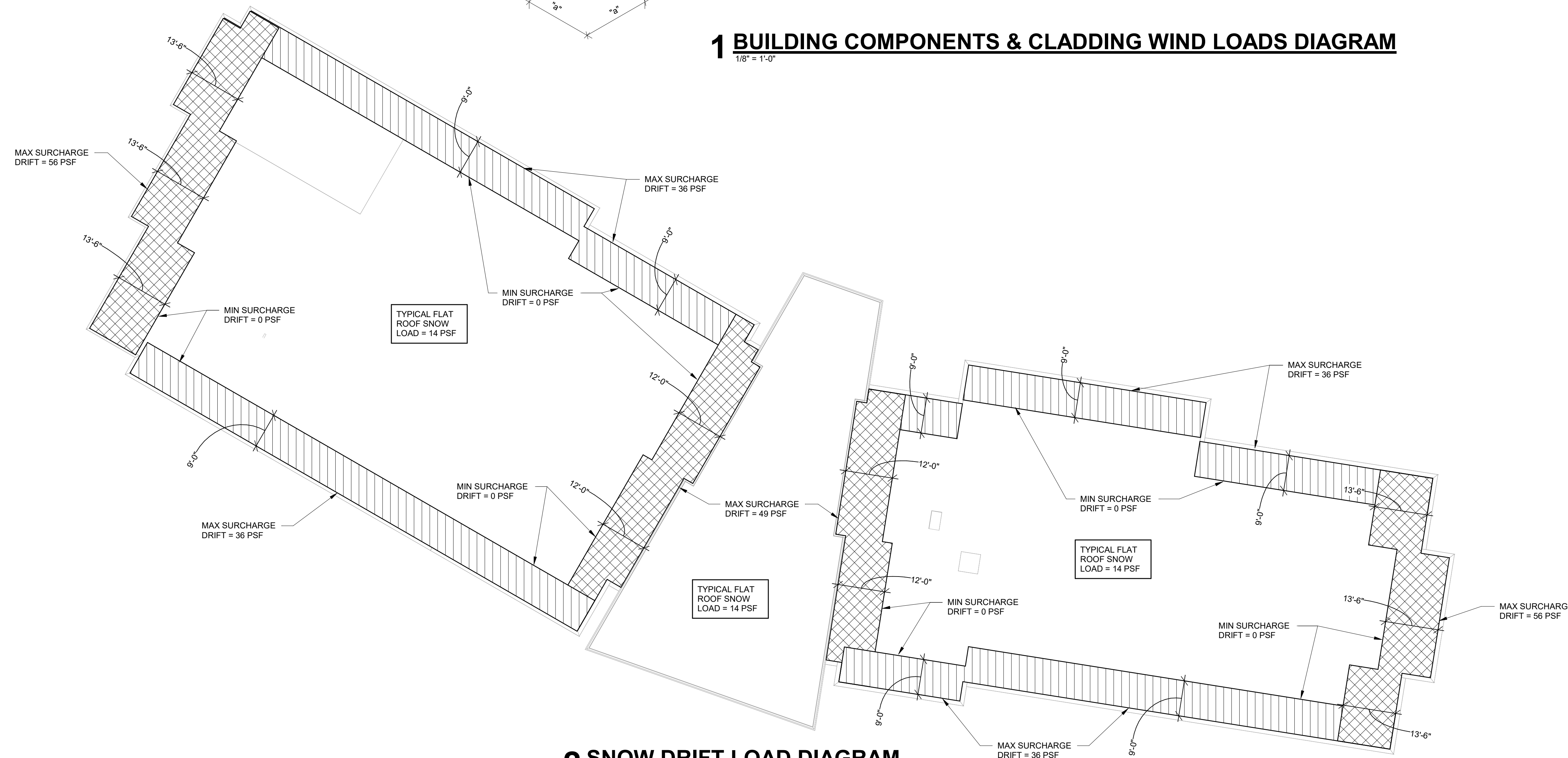
FLAT ROOF (SLOPE LESS THAN 3 DEGREES)  
BUILDING COMPONENT AND CLADDING  
DESIGN WIND PRESSURES (+) AND SUCTION (-) (PSF)

EFFECTIVE AREA (SQ. FT.)	10	20	50	100	200	500	1000
ZONE 1	-47.6	12.2	-45.1	10.9	-40.0	10.1	-37.5
ZONE 1'	-27.4	12.2	-27.4	10.9	-27.4	10.1	-27.4
ZONE 2	-62.8	12.2	-59.0	10.9	-54.0	10.1	-50.2
ZONE 3	-85.6	12.2	-78.0	10.9	-66.6	10.1	-59.0
ZONE 4	-29.6	27.4	-28.5	26.2	-27.1	24.4	-25.1
ZONE 5	-36.5	27.4	-34.2	26.2	-30.8	24.4	-28.5

BUILDING ISOMETRIC VIEW



**1 BUILDING COMPONENTS & CLADDING WIND LOADS DIAGRAM**  
1/8" = 1'-0"



**2 SNOW DRIFT LOAD DIAGRAM**  
1/16" = 1'-0"

1/16" = 1'-0"



Clark A. Basinger - Engineer  
 MO# 2010026832

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 CHECKED BY: CAB  
 DESIGNED BY: BDC

SHEET TITLE:

SCHEDULES

SHEET NUMBER:

**S004**

SHEET 039 OF 202

08/01/2023

Structural Foundation Schedule

NOTE:  
 1.) EXTERIOR FOOTINGS OR FOOTING AT GRADE BEAM SHALL MATCH GRADE BEAM DEPTH AND BE PLACED WITH GRADE BEAM. PROVIDE SPECIFIED REBAR TOP AND BOTTOM WITH 4 STANDEES TO SUPPORT MATS.  
 2.) PROVIDE REINFORCING PER SCHEDULE EACH WAY IN TOP OF FTG. AT ALL MOMENT FRAME AND BRACED BAY COLUMNS.  
 3.) CENTER FOOTINGS ON COLUMNS AND/OR WALL CENTER LINES PER PLAN UNLESS NOTED OTHERWISE (U.N.O.).

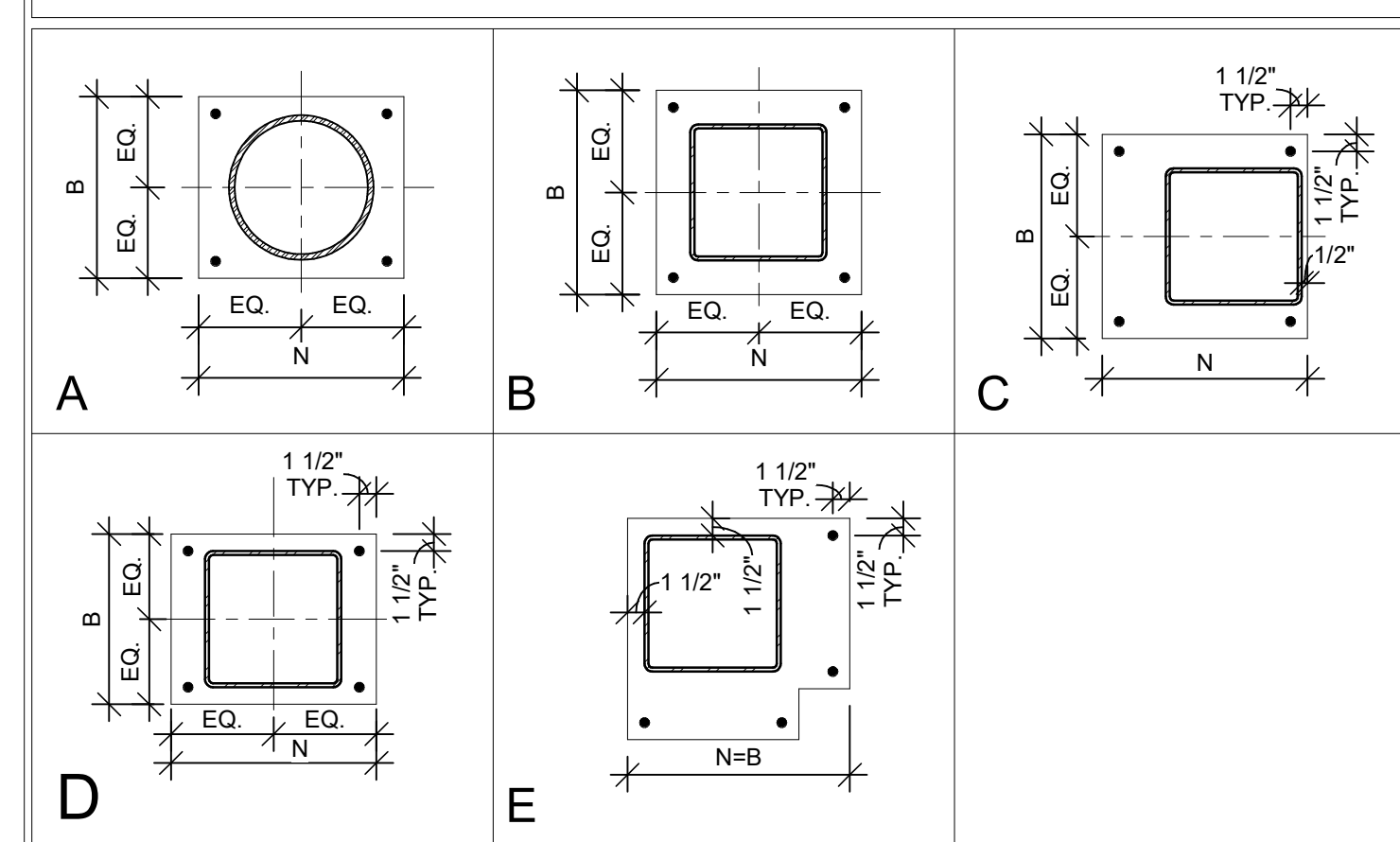
Type Mark	Length	Width	Footing Thickness	Bar Size	Bar Quantity (E.W. Top & Bot. U.N.O.,)	Count
3.0	3'-0"	3'-0"	1'-4"	Rebar : # 4	6	1
3.0A	3'-0"	3'-0"	2'-8"	Rebar : # 4	6	2
4.0A	4'-0"	4'-0"	2'-8"	Rebar : # 4	7	6
5.0A	5'-0"	5'-0"	2'-8"	Rebar : # 4	9	1
5.5A	5'-6"	5'-6"	2'-8"	Rebar : # 4	10	1
6.0A	6'-0"	6'-0"	2'-8"	Rebar : # 4	11	1
6.5A	6'-6"	6'-6"	2'-8"	Rebar : # 4	12	12
6x3	3'-0"	6'-0"	1'-4"	Rebar : # 4	7	2
7.0A	7'-0"	7'-0"	2'-8"	Rebar : # 4	13	4
7.5A	7'-6"	7'-6"	2'-8"	Rebar : # 4	13	3
8.0A	8'-0"	8'-0"	2'-8"	Rebar : # 4	14	8

COLUMN BASE PLATE SCHEDULE

TYPE	COLUMN	BASE PLATE (xBxN)	SHAPE	ANCHOR RODS	EMBEDMENT
1	PER PLAN	3/4x12"x12"	B	4- 3/4" DIA.	12"
2	PER PLAN	1 1/4"x18"x18"	A	4- 3/4" DIA.	12"
3	PER PLAN	3/4"x15"x15"	A	4- 3/4" DIA.	12"
4	PER PLAN	3/4"x10"x10"	B	4- 3/4" DIA.	9"

NOTES:  
 1. SEE PLAN FOR ORIENTATION OF COLUMNS.  
 2. PROVIDE PLATE WASHER & EMBEDDED PLATE PER SCHEDULE @ ALL ANCHOR BOLTS.  
 3. U.N.O. ALL THREADED ROD A.B's SHALL BE F1554 (36ksi) MATERIAL.

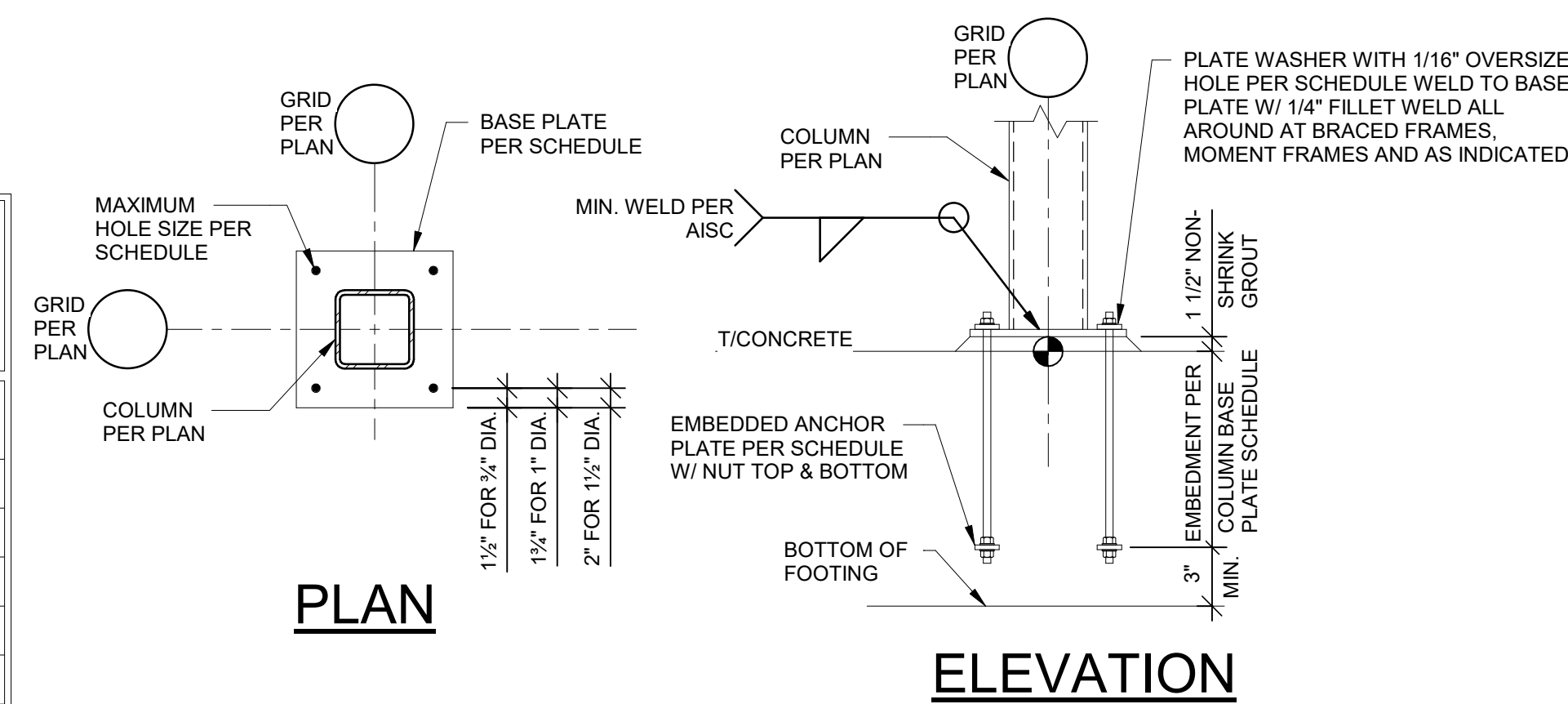
BASE PLATE SHAPE (NOT TO SCALE)



COLUMN BASE PLATE AND ANCHOR-ROD CRITERIA

ANCHOR-ROD DIAMETER.	MAX. BASE PLATE HOLE DIAMETER.	MIN. PLATE WASHER SIZE.	MIN. PLATE WASHER THICKNESS	EMBEDDED ANCHOR PLATE SIZE
3/4"	1 5/16"	2"	1/4"	1/2"x2 1/2"x2 1/2"
7/8"	1 9/16"	2 1/2"	5/16"	1/2"x2 1/2"x2 1/2"
1"	1 7/8"	3"	3/8"	5/8"x3"x3"
1 1/4"	2 1/8"	3 1/2"	1/2"	5/8"x3 1/2"x3 1/2"
1 1/2"	2 3/8"	4"	1/2"	5/8"x3 1/2"x3 1/2"
1 3/4"	2 7/8"	4 1/2"	5/8"	3/4"x3 1/2"x3 1/2"
2"	3 1/4"	5"	3/4"	3/4"x3 1/2"x3 1/2"
2 1/2"	3 3/4"	5 1/2"	7/8"	3/4"x3 1/2"x3 1/2"

NOTES:  
 1. HOLE SIZES PROVIDED ARE BASED ON ANCHOR ROD SIZE AND CORRELATE WITH ACI 117 (ACI, 2010)  
 2. CIRCULAR OR SQUARE WASHERS MEETING THE WASHER SIZE ARE ACCEPTABLE.  
 3. HOLE IN PLATE WASHER SHALL BE 1/16" LARGER THAN ANCHOR DIAMETER.









Clark A. Basinger - Engineer  
 MO# 2010026832

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.152

Bob D. Campbell & Company  
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OFFICE OF  
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 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
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 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

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 DRAWN BY: MJF  
 CHECKED BY: CAB  
 DESIGNED BY: BDC  
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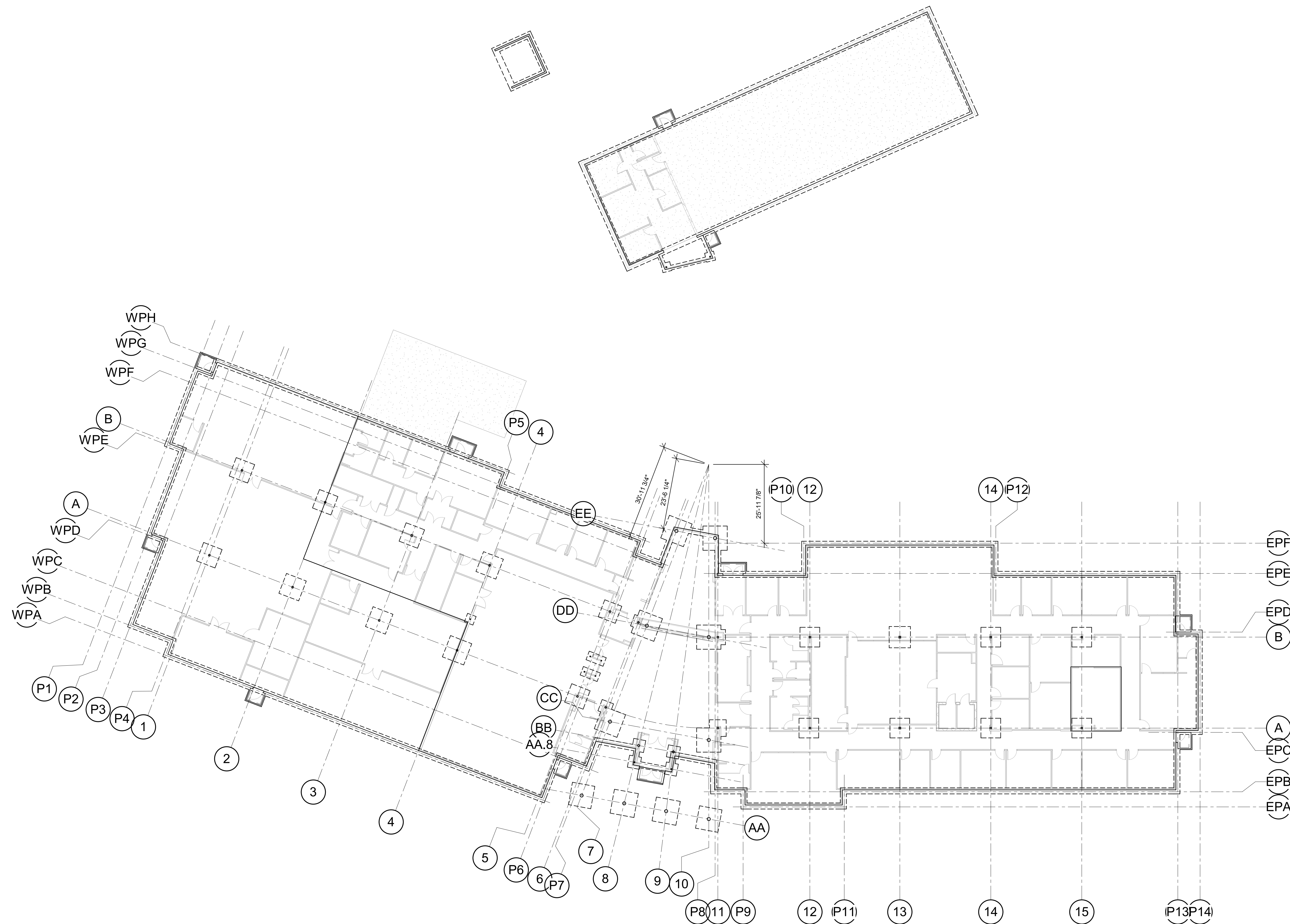
FOUNDATION PLAN -  
 OVERALL

SHEET NUMBER:

**S100**

SHEET 041 OF 202

08/01/2023



**1 FOUNDATION PLAN - OVERALL**  
 1/16" = 1'-0"



Clark A. Basinger - Engineer  
 MO# 2010026832

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 FACILITY # 8136018019

REVISION:  
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 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

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 DRAWN BY: MJF  
 CHECKED BY: CAB  
 DESIGNED BY: BDC  
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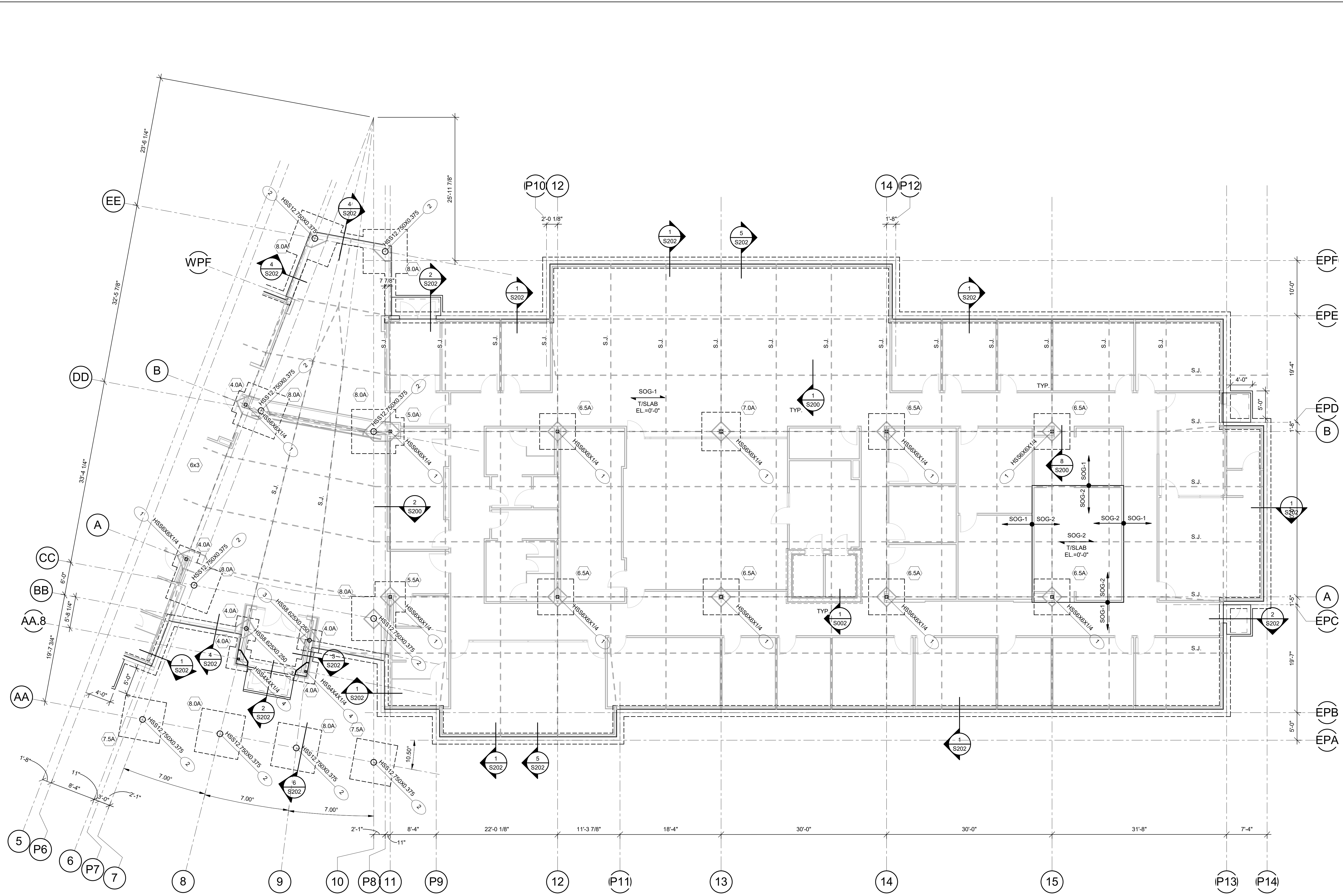
FOUNDATION PLAN -  
 EAST

SHEET NUMBER:

**S101**

SHEET 042 OF 202

08/01/2023



**1 FOUNDATION PLAN - EAST**  
 1/8" = 1'-0"



Clark A. Basinger - Engineer  
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 ISSUE DATE: 01 August 2023

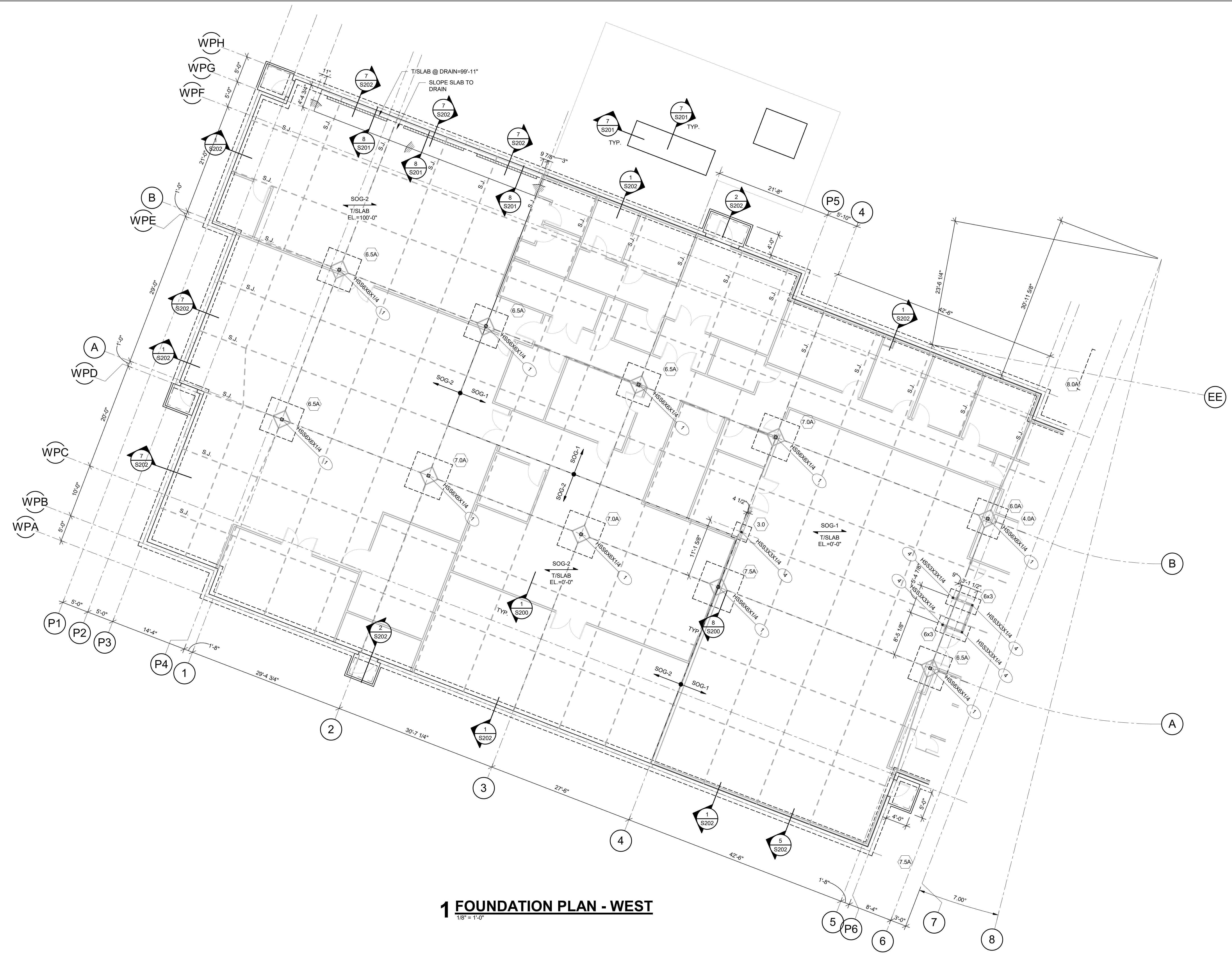
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 DRAWN BY: MJF  
 CHECKED BY: CAB  
 DESIGNED BY: BDC  
 SHEET TITLE:

FOUNDATION PLAN -  
 WEST

SHEET NUMBER:

**S102**

SHEET 043 OF 202  
 08/01/2023



**1 FOUNDATION PLAN - WEST**  
 1/8" = 1'-0"



Clark A. Basinger - Engineer  
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 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
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 DATE:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: S103.dwg  
 DRAWN BY: MJF  
 CHECKED BY: CAB  
 DESIGNED BY: BDC

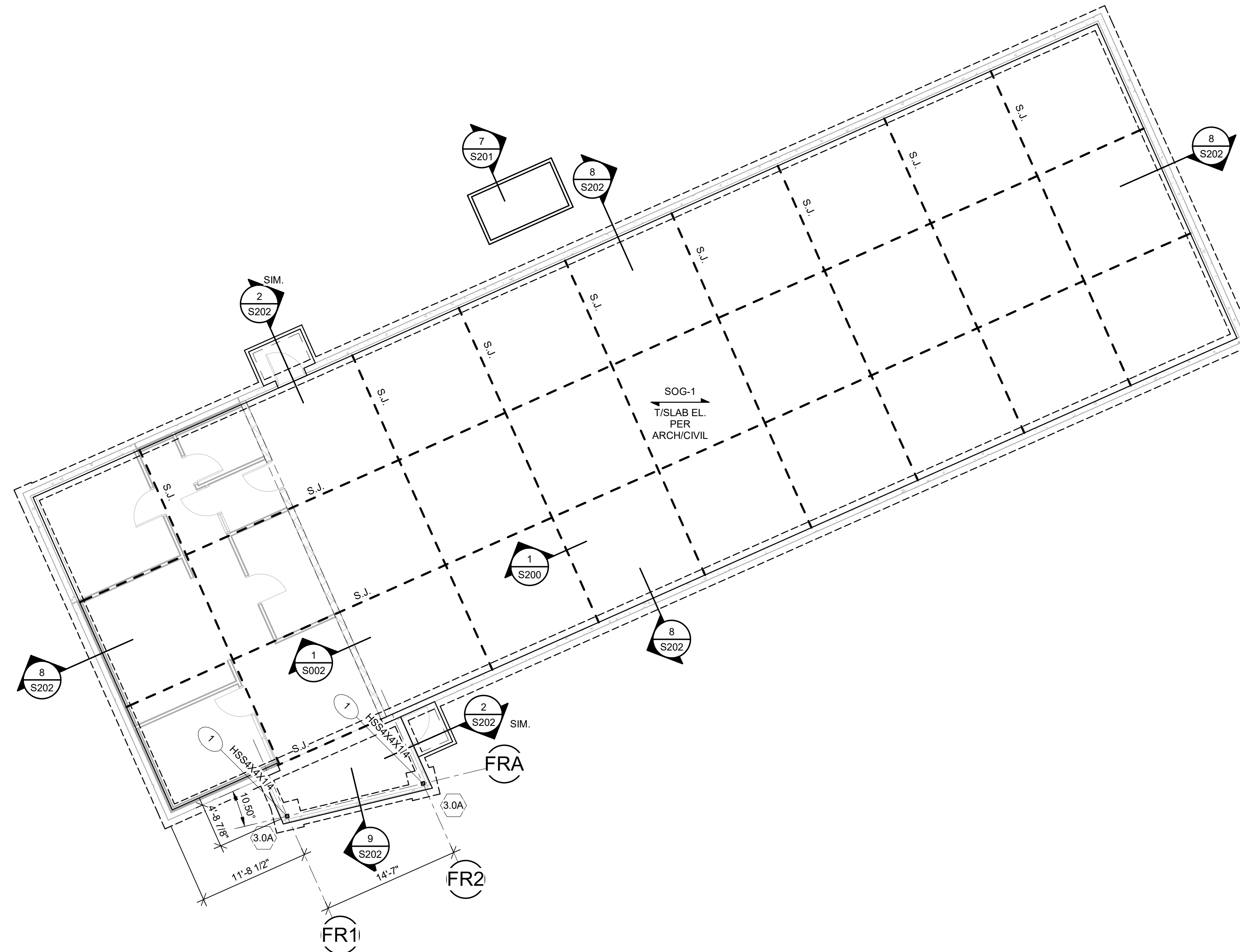
SHEET TITLE:  
**FOUNDATION PLAN -  
 FIRING RANGE  
 (ALTERNATE #04) &  
 SITE FOUNDATIONS**

SHEET NUMBER:

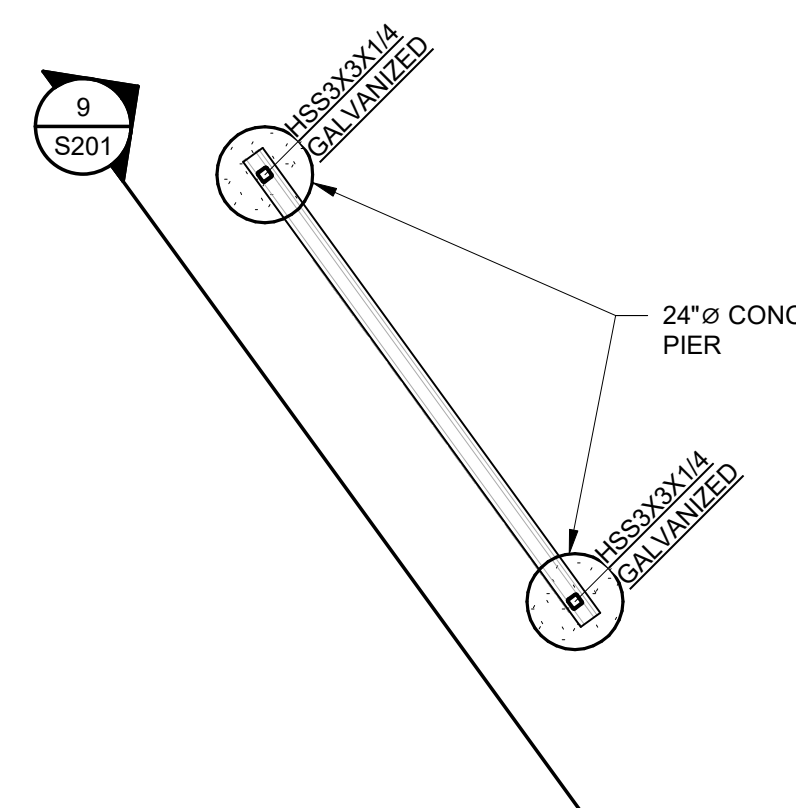
**S103**

SHEET 044 OF 202

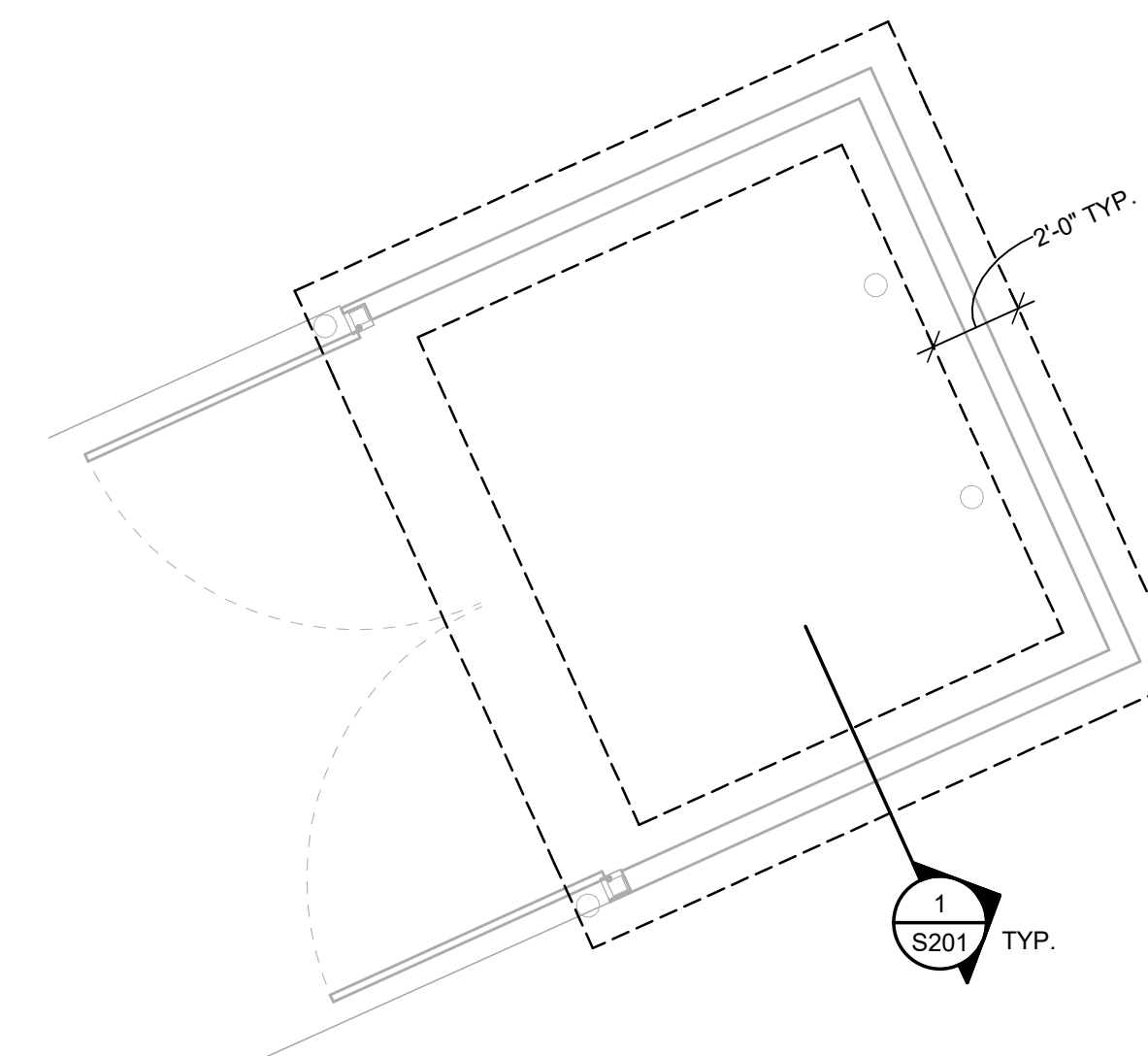
08/01/2023



**1 FOUNDATION PLAN - FIRING RANGE (ALTERNATE #04)**  
 1/8" = 1'-0"



**2 FOUNDATION PLAN - MONUMENT SIGN**  
 1/4" = 1'-0"



**3 FOUNDATION PLAN - TRASH ENCLOSURE**  
 1/4" = 1'-0"



Clark A. Basinger - Engineer  
 MO# 2010026832

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 FACILITY # 8136018019

REVISION:  
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 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

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 DESIGNED BY: BDC  
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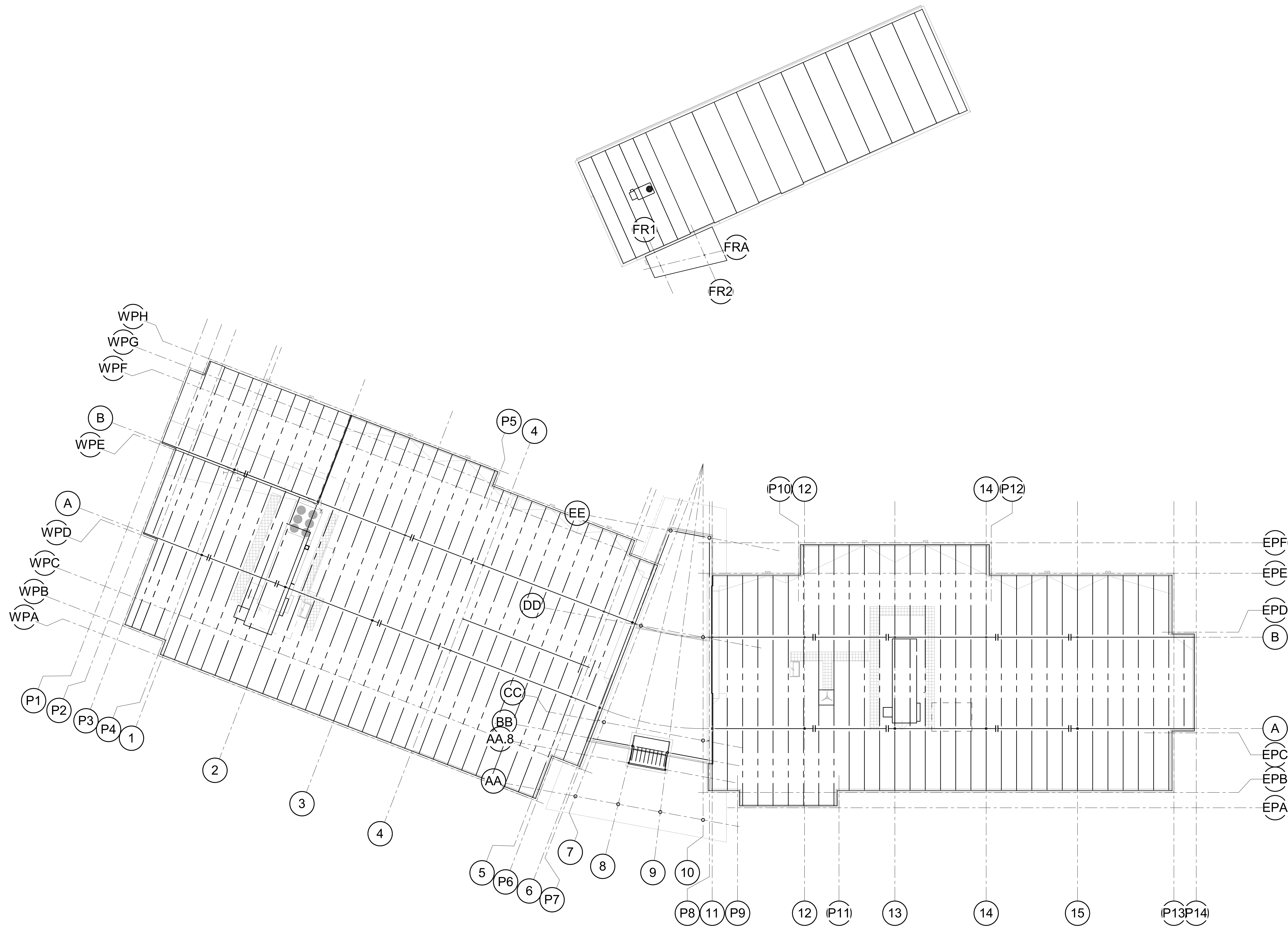
LOW ROOF FRAMING  
 PLAN - OVERALL

SHEET NUMBER:

**S110**

SHEET 045 OF 202

08/01/2023



**1 LOW ROOF FRAMING PLAN - OVERALL**  
 1/16" = 1'-0"



Clark A. Basinger - Engineer  
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 FACILITY # 8136018019

REVISION:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

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 DESIGNED BY: BDC  
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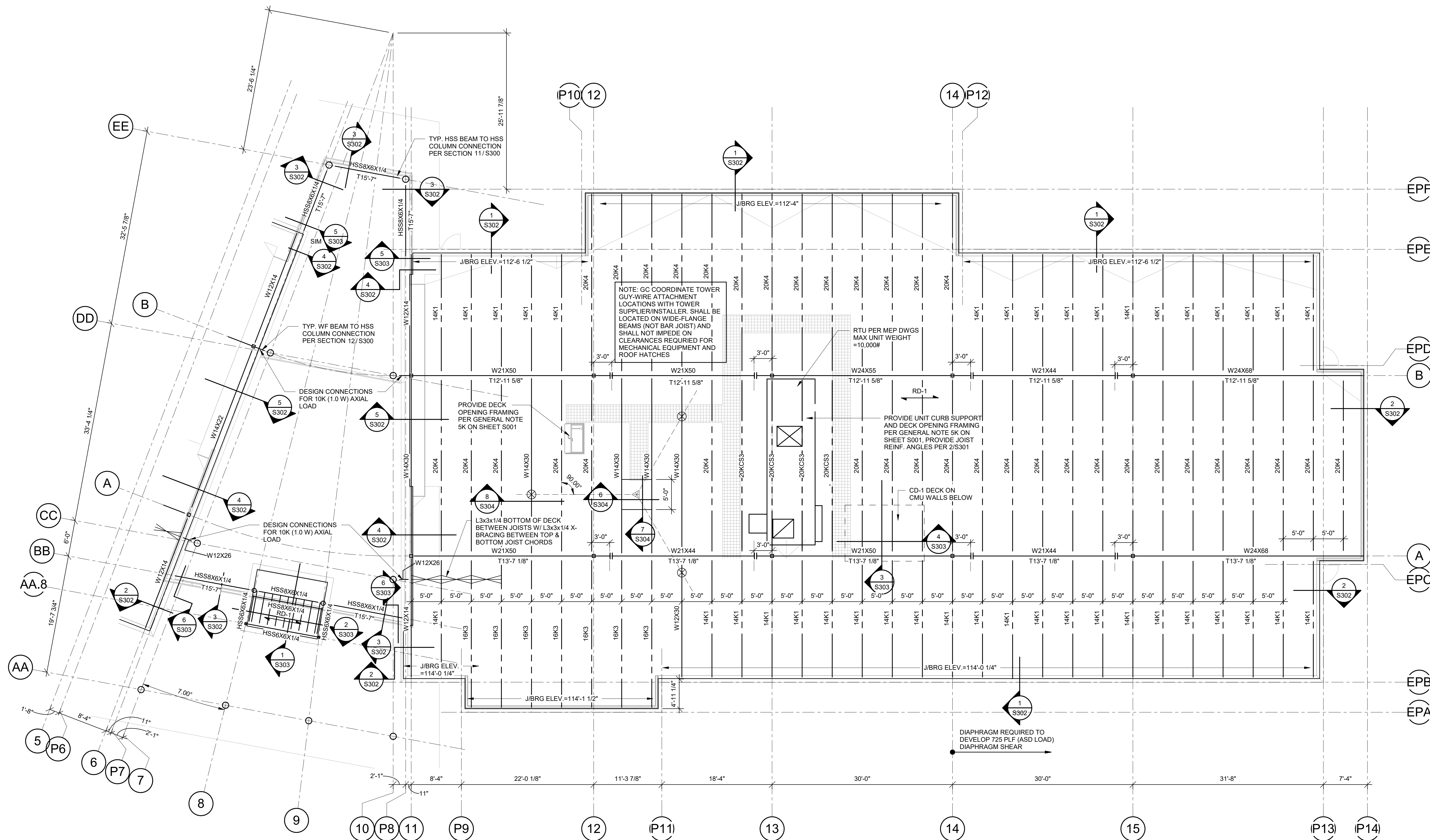
LOW ROOF FRAMING  
 PLAN - EAST

SHEET NUMBER:

**S111**

SHEET 046 OF 202

08/01/2023



**1 LOW ROOF FRAMING PLAN - EAST**  
 1/8" = 1'-0"



Clark A. Basinger - Engineer  
 MO# 2010026832

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PROJECT # R2219-01  
 SITE # 6018  
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 ISSUE DATE: 01 August 2023

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 CHECKED BY: CAB  
 DESIGNED BY: BDC  
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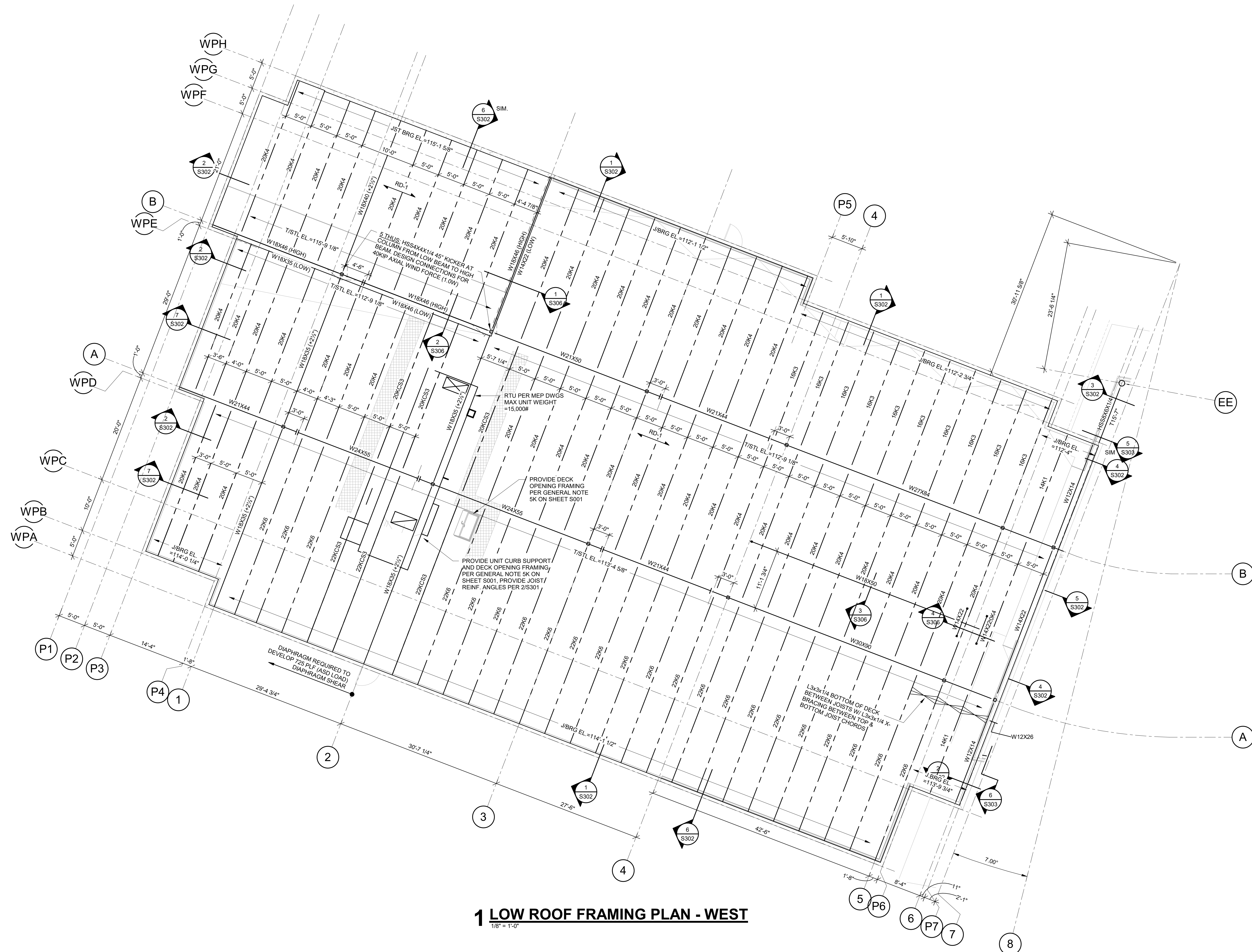
LOW ROOF FRAMING  
 PLAN - WEST

SHEET NUMBER:

**S112**

SHEET 047 OF 202

08/01/2023



**1 LOW ROOF FRAMING PLAN - WEST**  
 1/8" = 1'-0"



Clark A. Basinger - Engineer  
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 ISSUE DATE: 01 August 2023

CAD DWG FILE: S113.dwg  
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 DESIGNED BY: BDC

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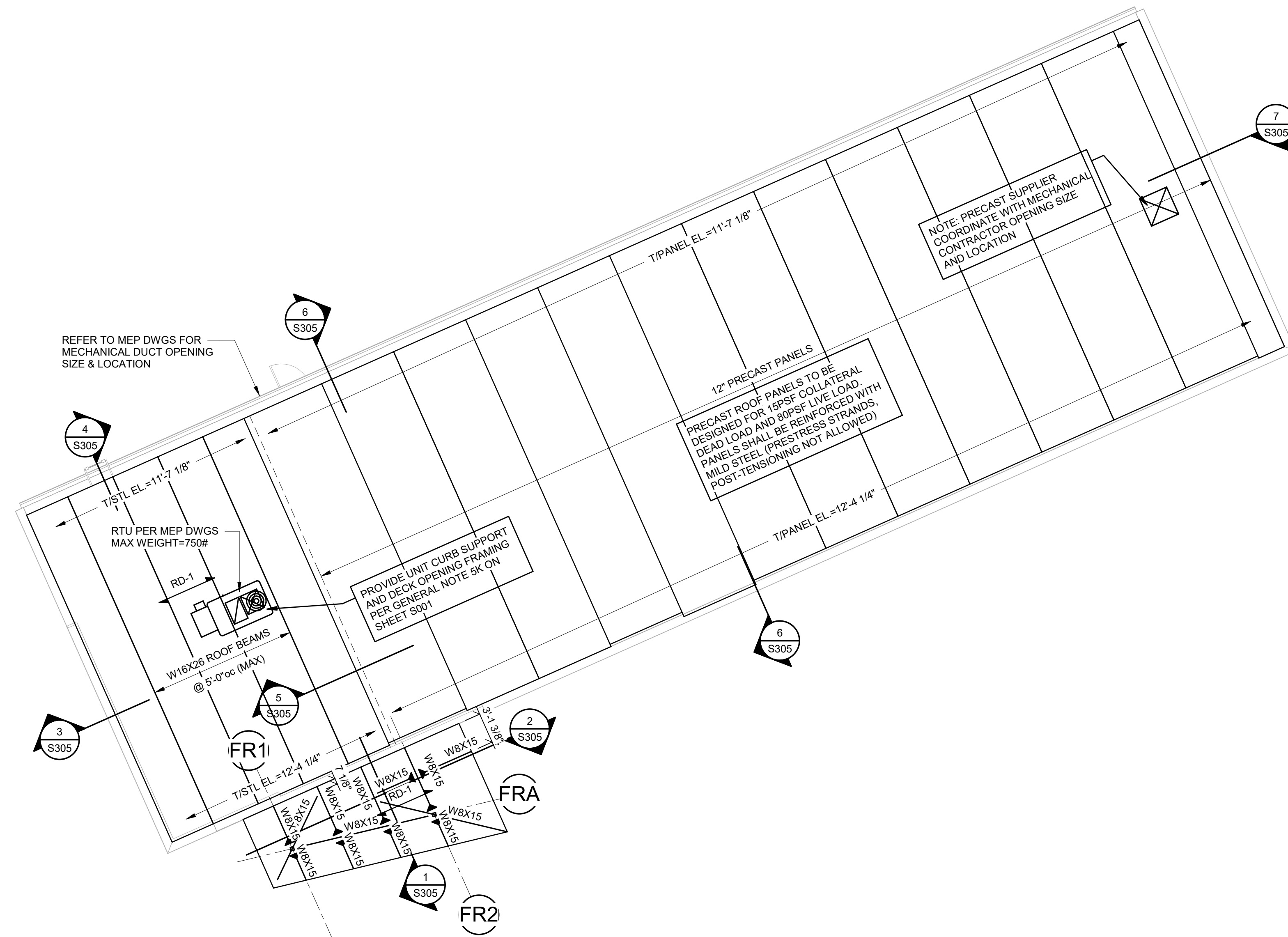
ROOF FRAMING PLAN  
 - FIRING RANGE  
 (ALTERNATE #04)

SHEET NUMBER:

**S113**

SHEET 048 OF 202

08/01/2023



**1 ROOF FRAMING PLAN - FIRING RANGE (ALTERNATE #04)**

1/8" = 1'-0"





Clark A. Basinger - Engineer  
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 Project Number: 2022.1.52

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Project Name:  
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PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
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 DATE:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: S120.dwg  
 DRAWN BY: MLF  
 CHECKED BY: CAB  
 DESIGNED BY: BDC  
 SHEET TITLE:

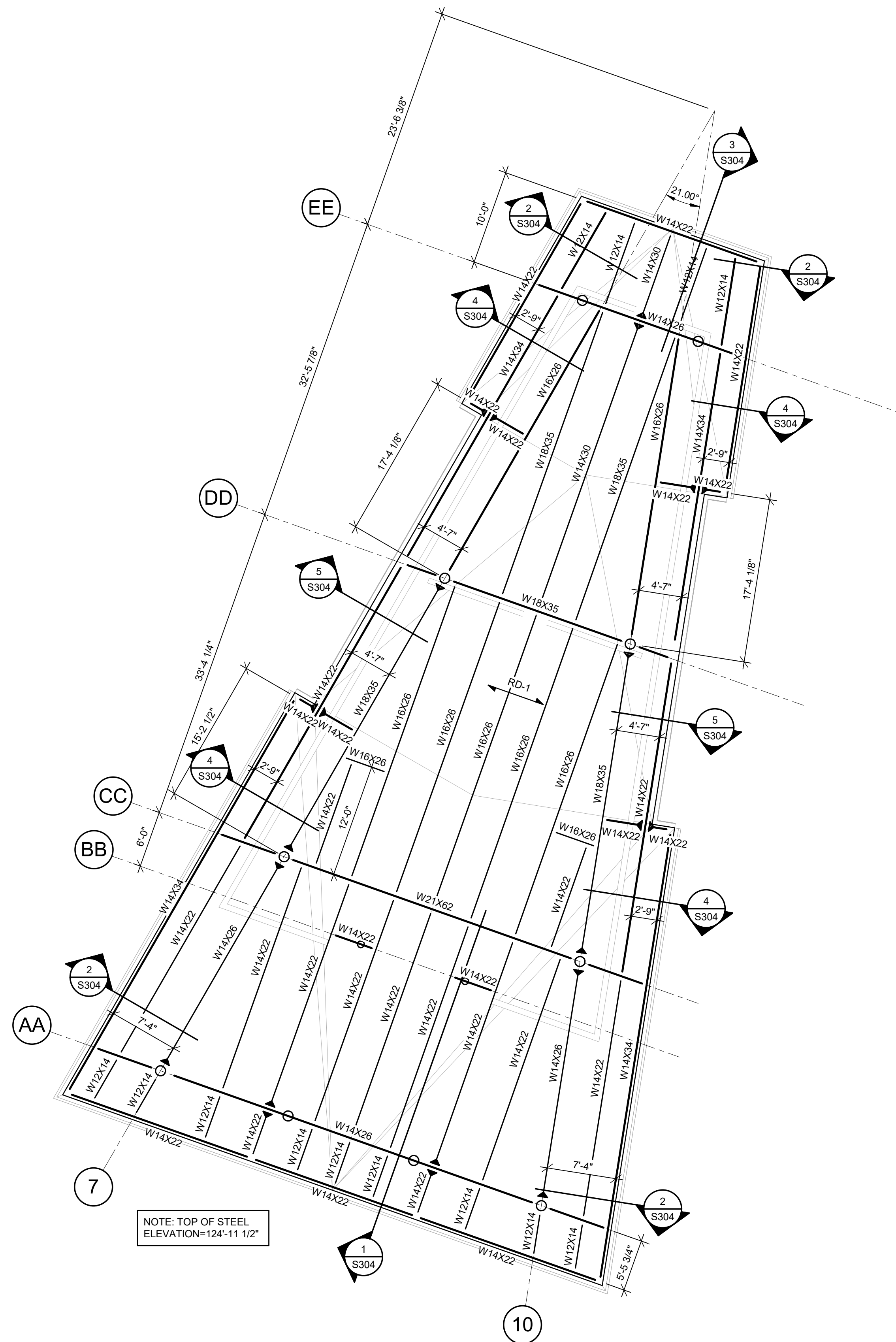
HIGH ROOF FRAMING  
 PLAN

SHEET NUMBER:

**S120**

SHEET 049 OF 202

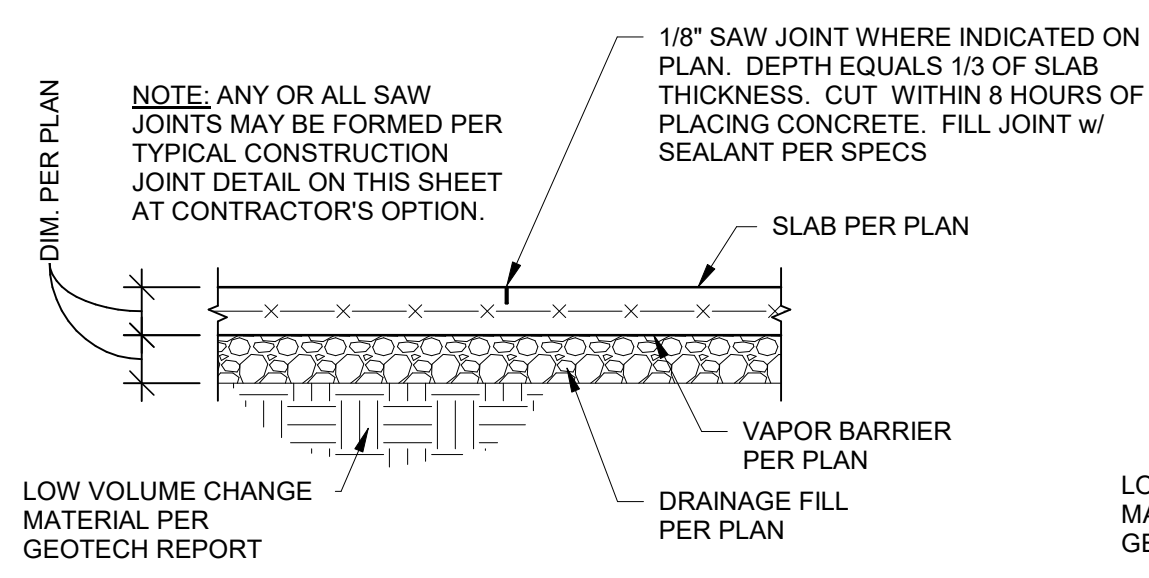
08/01/2023



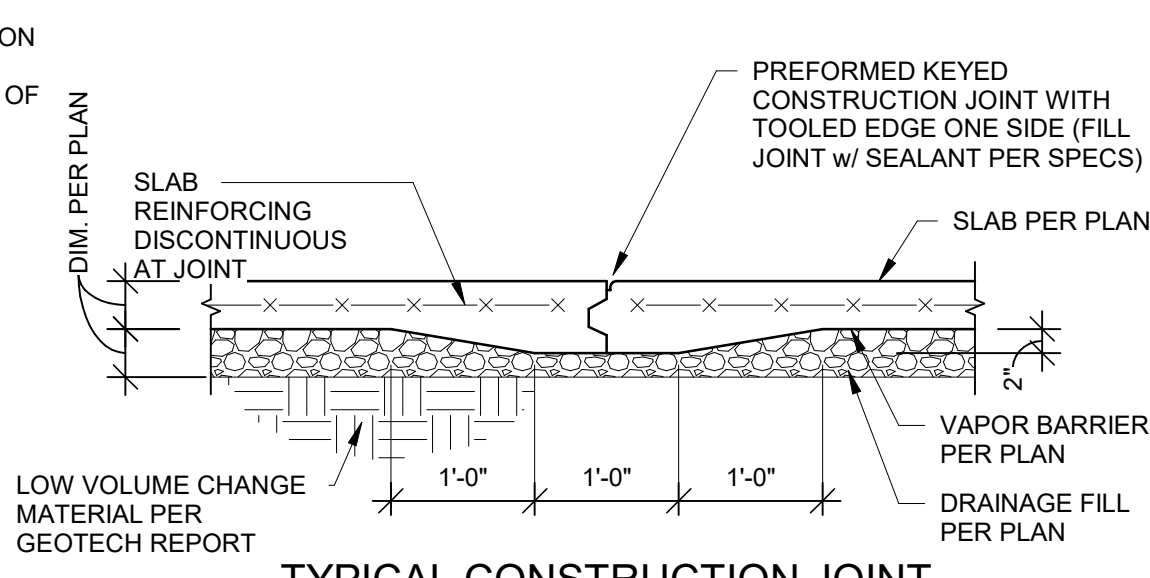
**1 HIGH ROOF FRAMING PLAN**  
 1/8" = 1'-0"



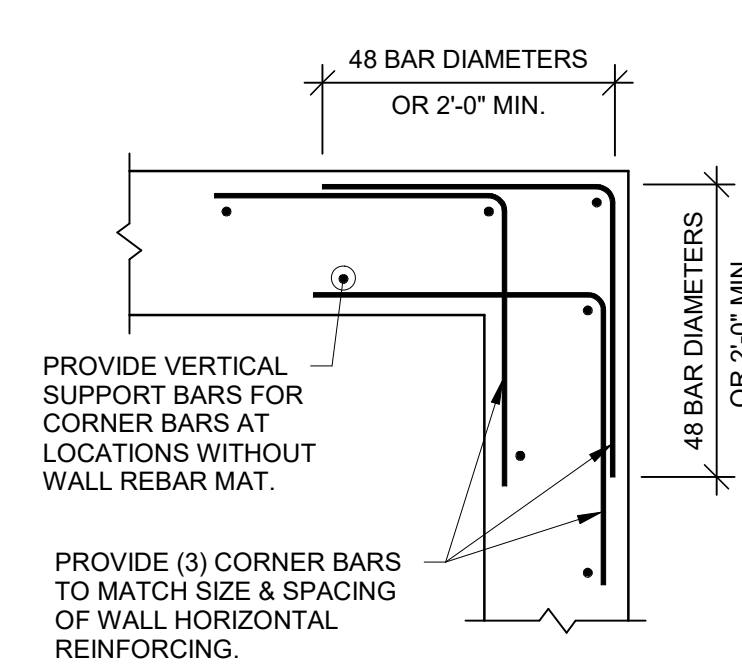
Clark A. Basinger - Engineer  
MO# 2010026832



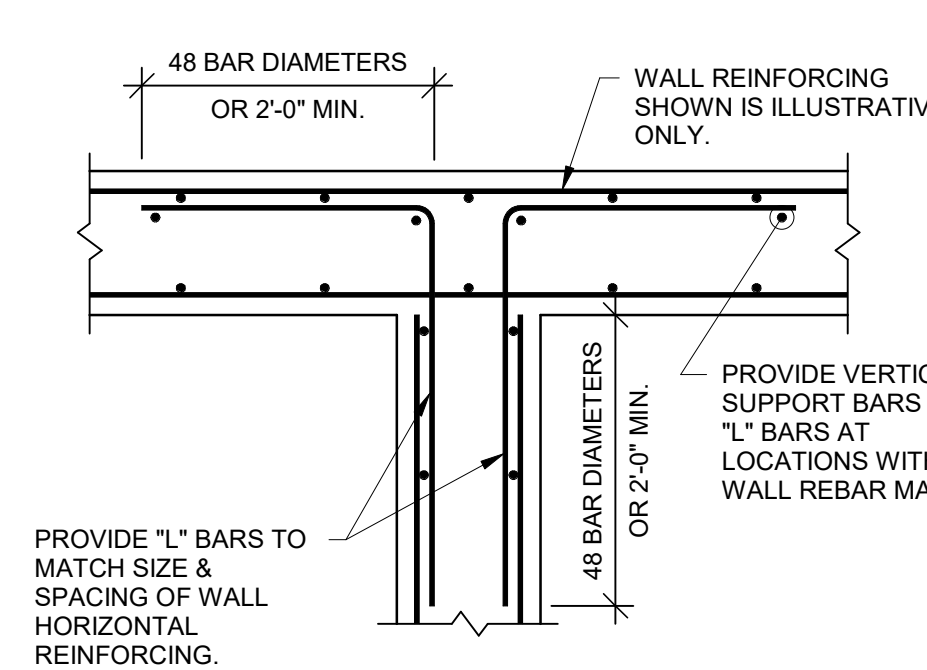
**TYPICAL SAW JOINT**  
NOTED "SJ" ON PLAN  
**1 SECTION**  
3/4" = 1'-0"



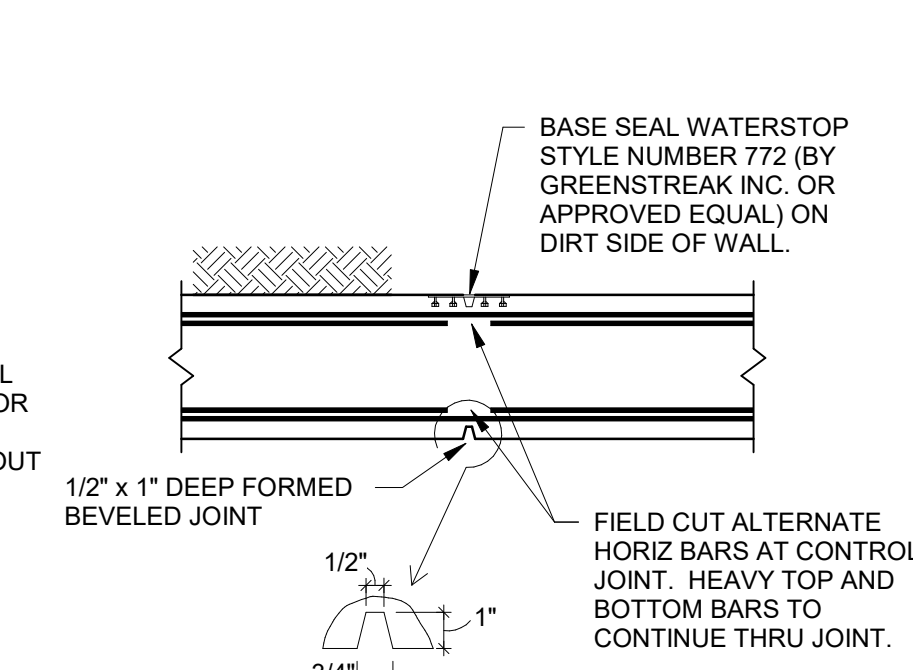
**TYPICAL CONSTRUCTION JOINT**  
NOTED "CJ" ON PLAN  
**2 SECTION**  
3/4" = 1'-0"



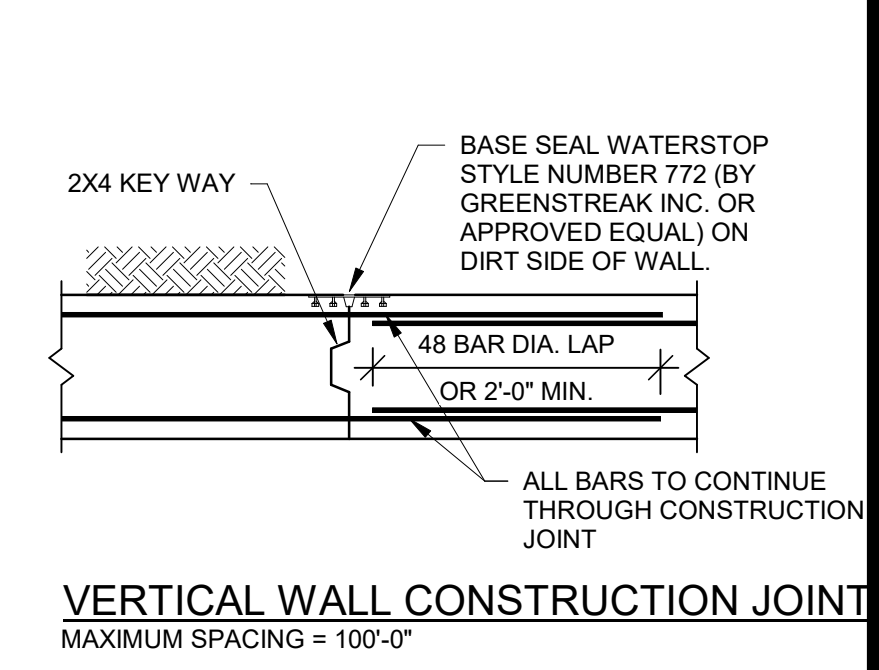
**TYPICAL CORNER BARS AT**  
**CONCRETE WALLS & FOUNDATIONS**



**TYPICAL T-INTERSECTION REINFORCING**  
**AT CONCRETE WALLS & FOUNDATIONS**



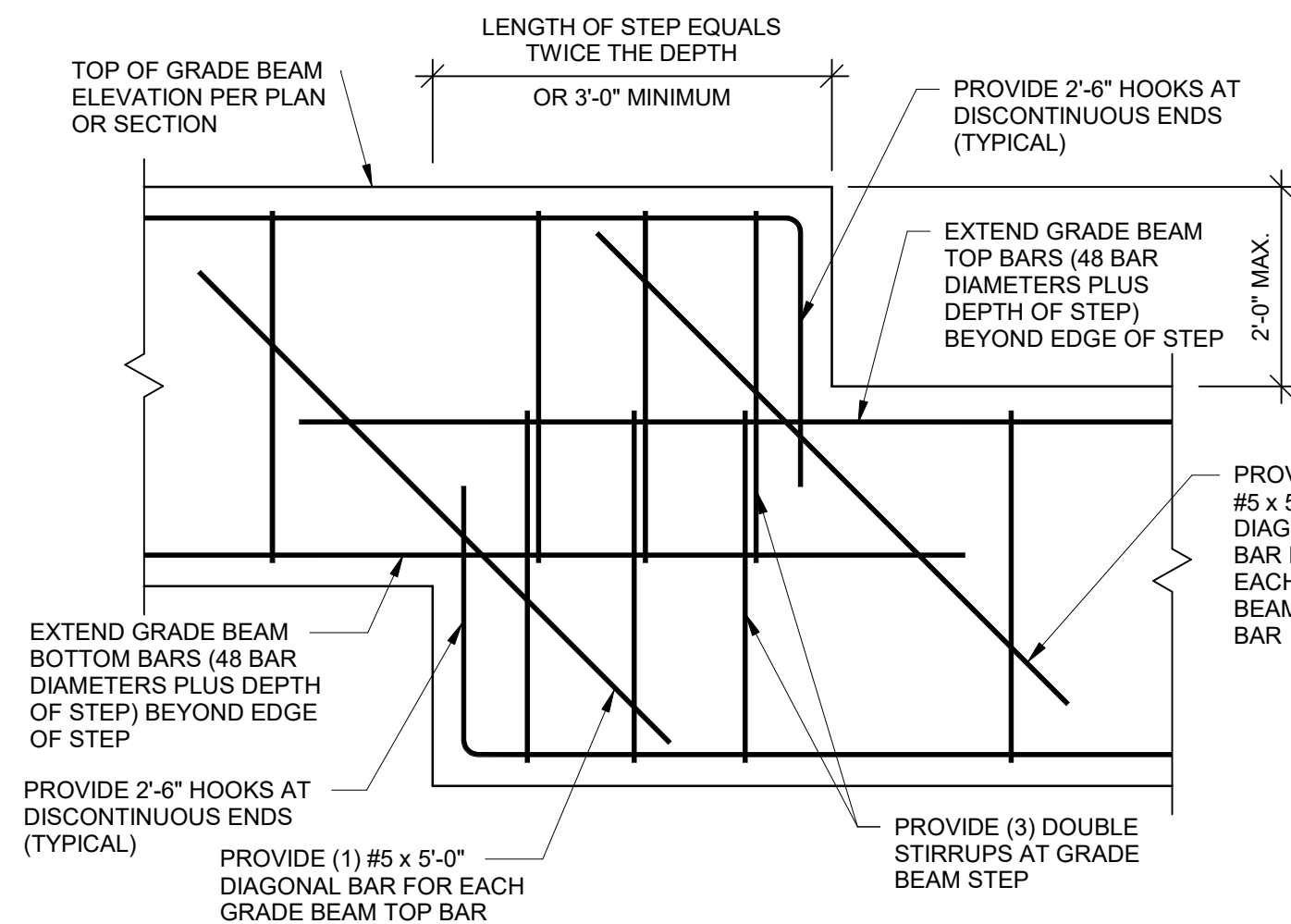
**VERTICAL WALL CONTROL JOINT**  
MAXIMUM SPACING = 25'-0"  
(COORDINATE LOCATIONS WITH ARCHITECTURAL ALIGN  
WITH MASONRY CONTROL/EXPANSION JOINTS ABOVE)



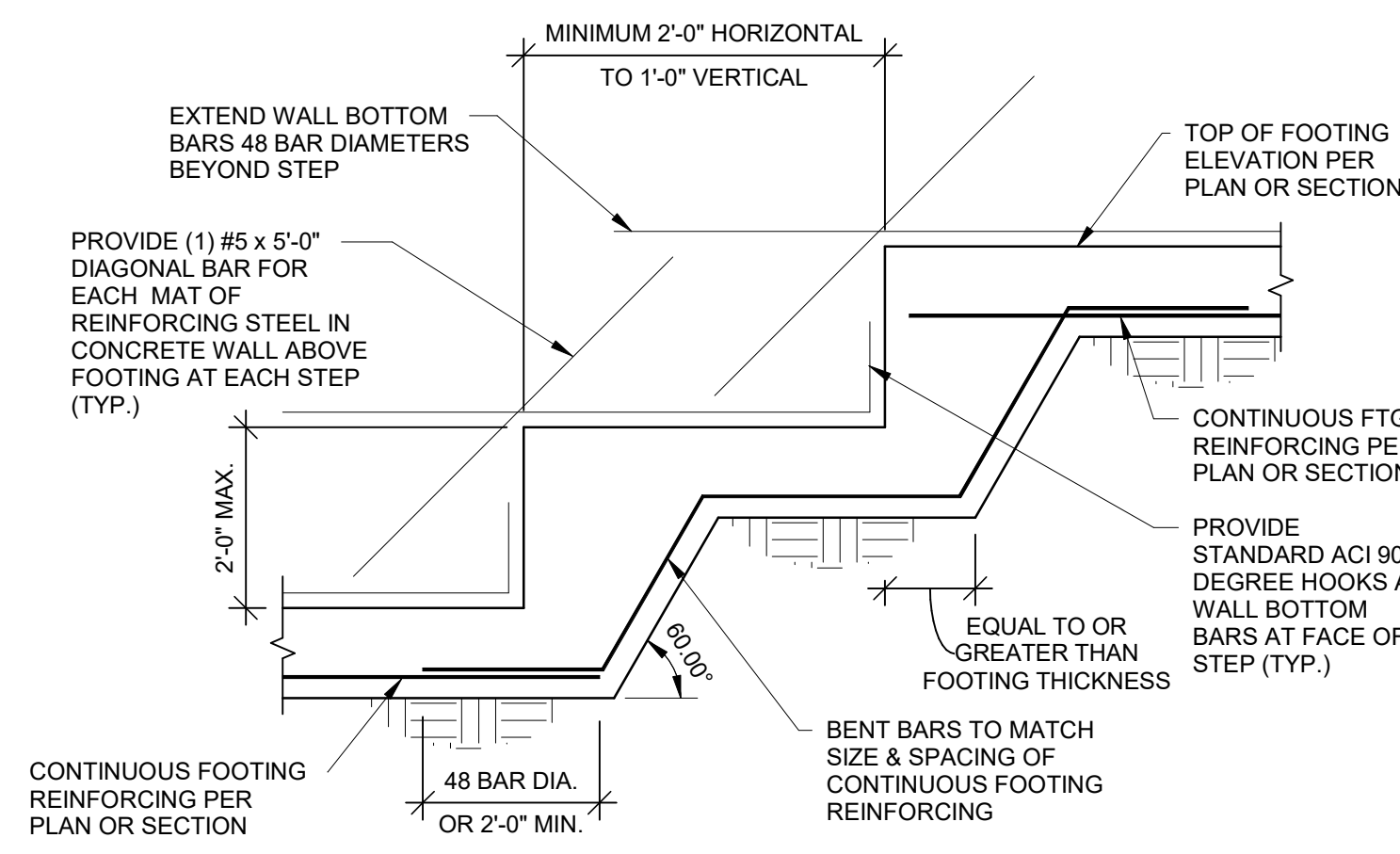
**VERTICAL WALL CONSTRUCTION JOINT**  
MAXIMUM SPACING = 100'-0"

**TYPICAL INTERSECTING CONCRETE**  
**3 WALL REINFORCING**  
3/4" = 1'-0"

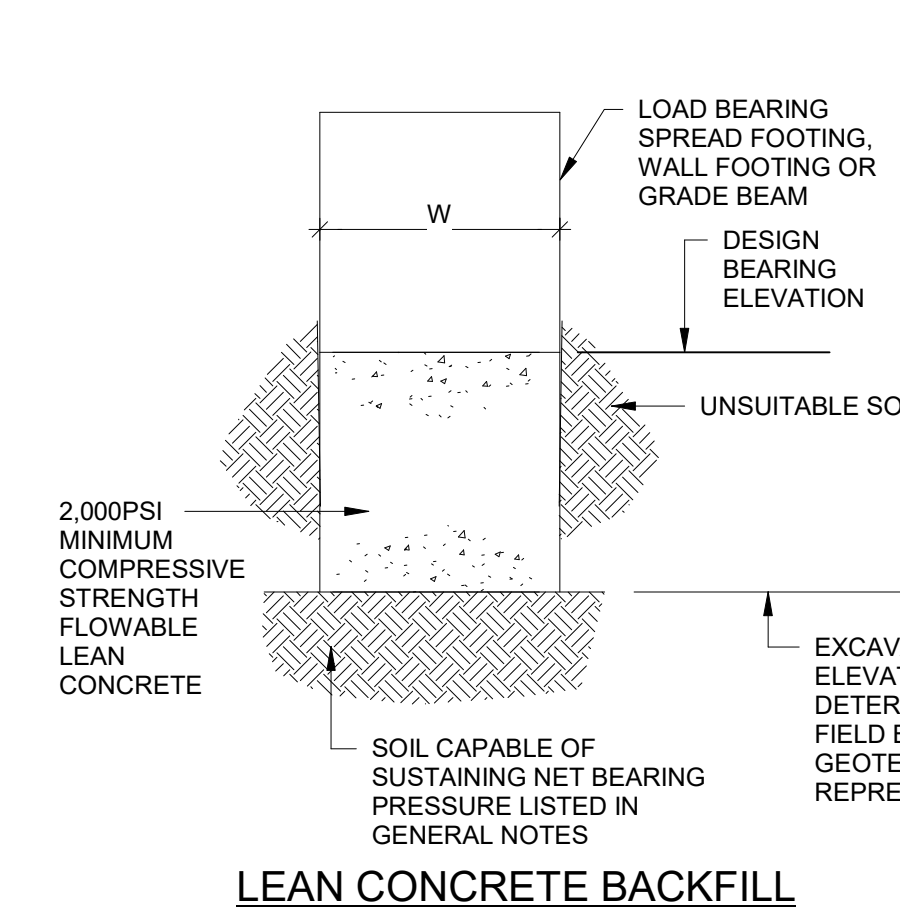
**4 VERTICAL WALL CONTROL JOINT**  
3/4" = 1'-0"



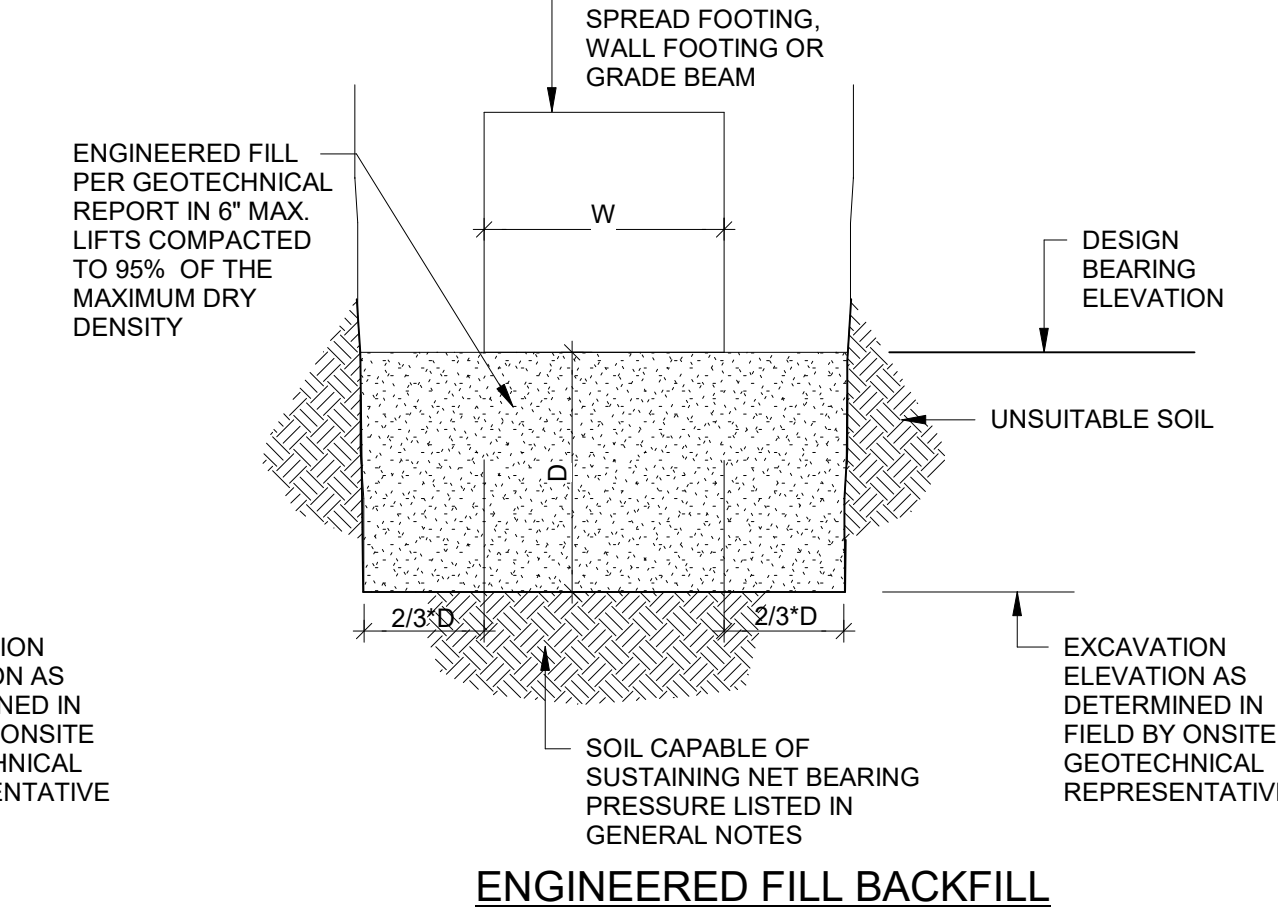
**5 TYPICAL GRADE BEAM STEP**  
3/4" = 1'-0"



**6 TYPICAL FOOTING STEP**  
1/2" = 1'-0"

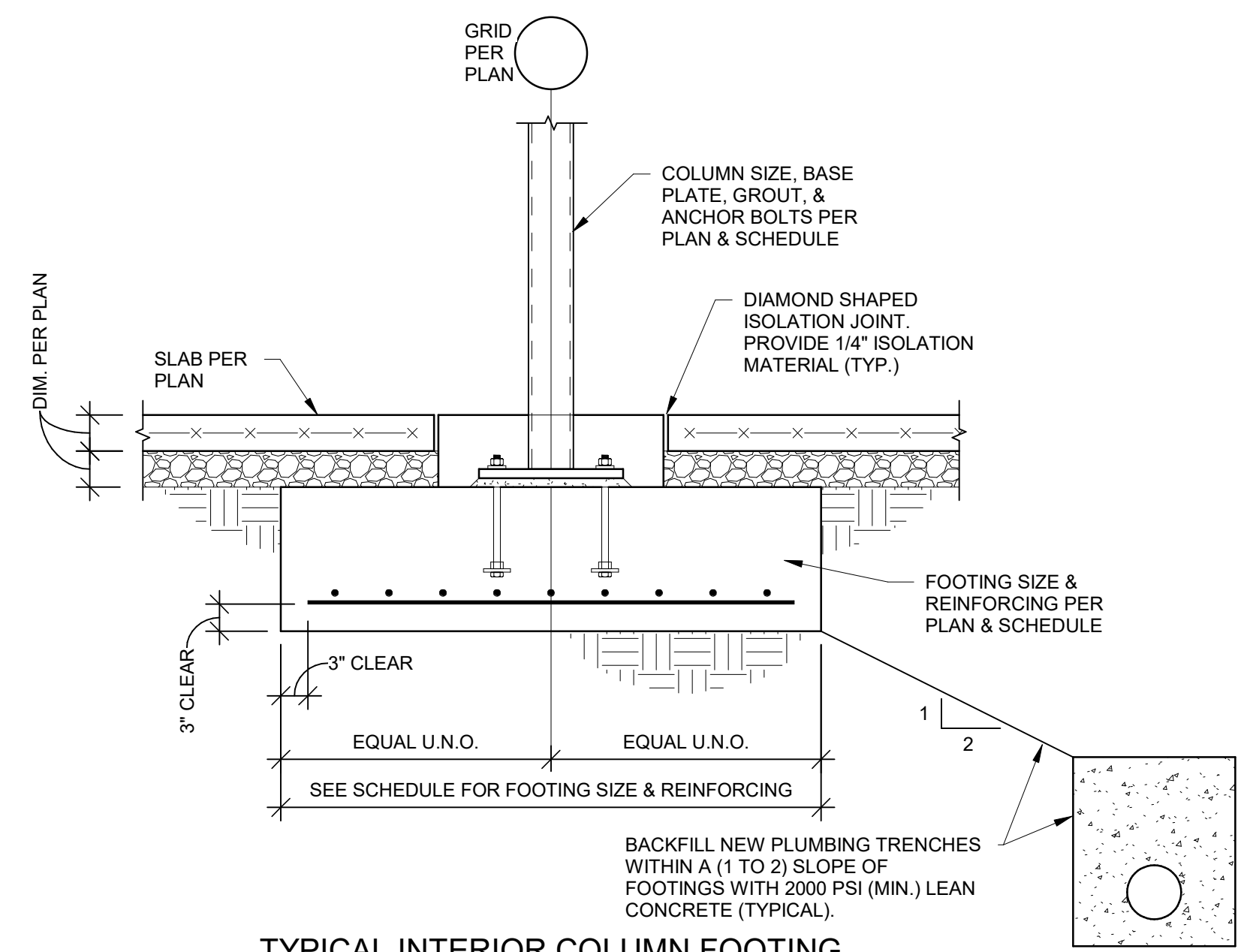


**LEAN CONCRETE BACKFILL**



**ENGINEERED FILL BACKFILL**

**7 OVEREXCAVATION DETAIL**  
3/4" = 1'-0"



**TYPICAL INTERIOR COLUMN FOOTING**  
**8 SECTION**  
3/4" = 1'-0"

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817 Wyandotte Kansas City, Missouri 64105 816.421.8200 gastingerwalker.com  
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Missouri Certificate of Authority: #PE000042

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Project Name:  
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MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

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CAD DWG FILE: S200.dwg  
DRAWN BY: MLF  
CHECKED BY: CAB  
DESIGNED BY: BDC  
SHEET TITLE:

FOUNDATION  
SECTIONS

SHEET NUMBER:

**S200**

SHEET 050 OF 202

08/01/2023



Clark A. Basinger - Engineer  
MO# 2010026832

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DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: S201.dwg  
DRAWN BY: MLF  
CHECKED BY: CAB  
DESIGNED BY: BDC

SHEET TITLE:

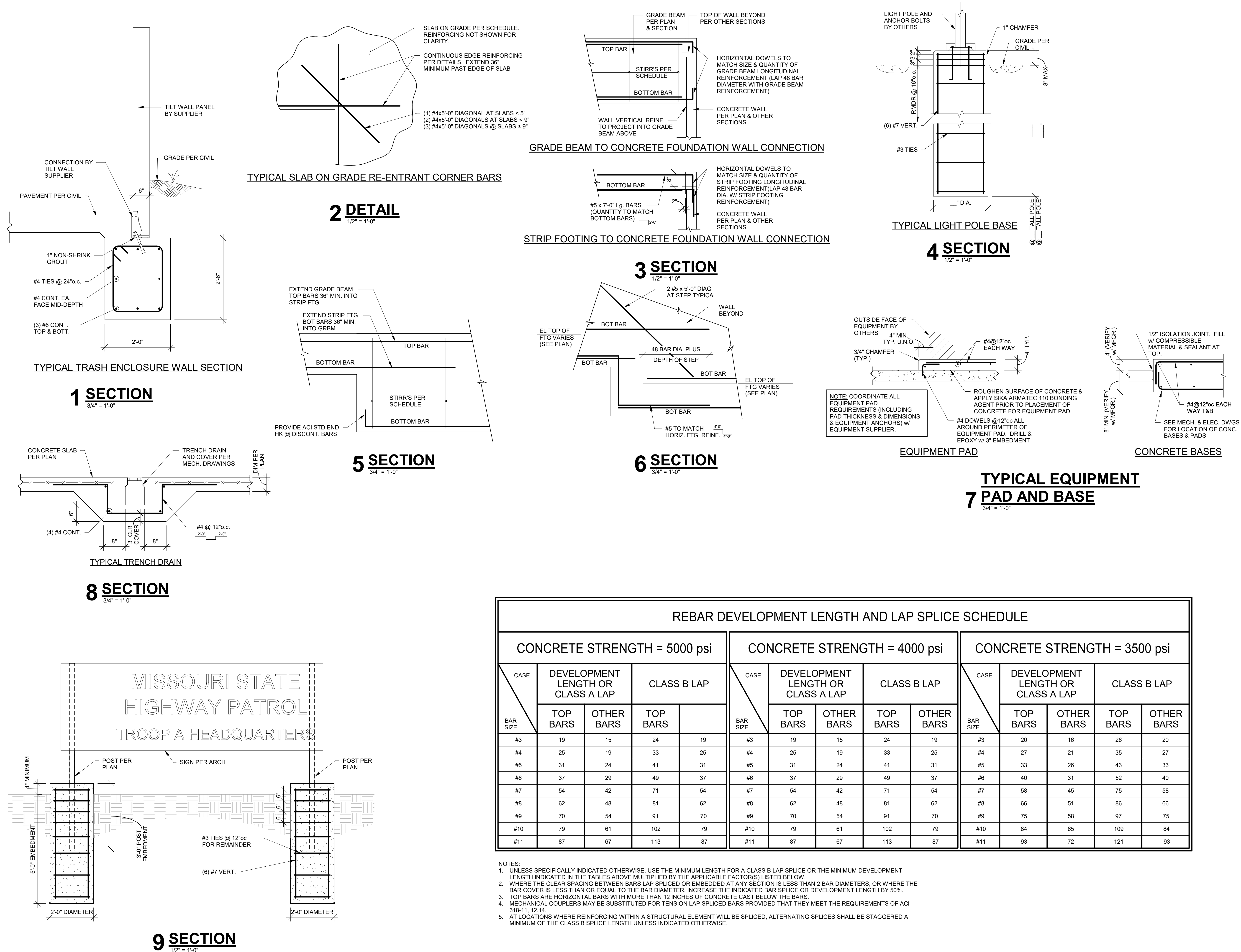
FOUNDATION  
SECTIONS

SHEET NUMBER:

**S201**

SHEET 051 OF 202

08/01/2023





Clark A. Basinger - Engineer  
MO# 2010026832

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Lee's Summit, MO 64086

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FACILITY # 8136018019

REVISION:  
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REVISION:  
DATE:  
REVISION:  
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ISSUE DATE: 01 August 2023

CAD DWG FILE: S202.dwg  
DRAWN BY: MLF  
CHECKED BY: CAB  
DESIGNED BY: BDC  
SHEET TITLE:

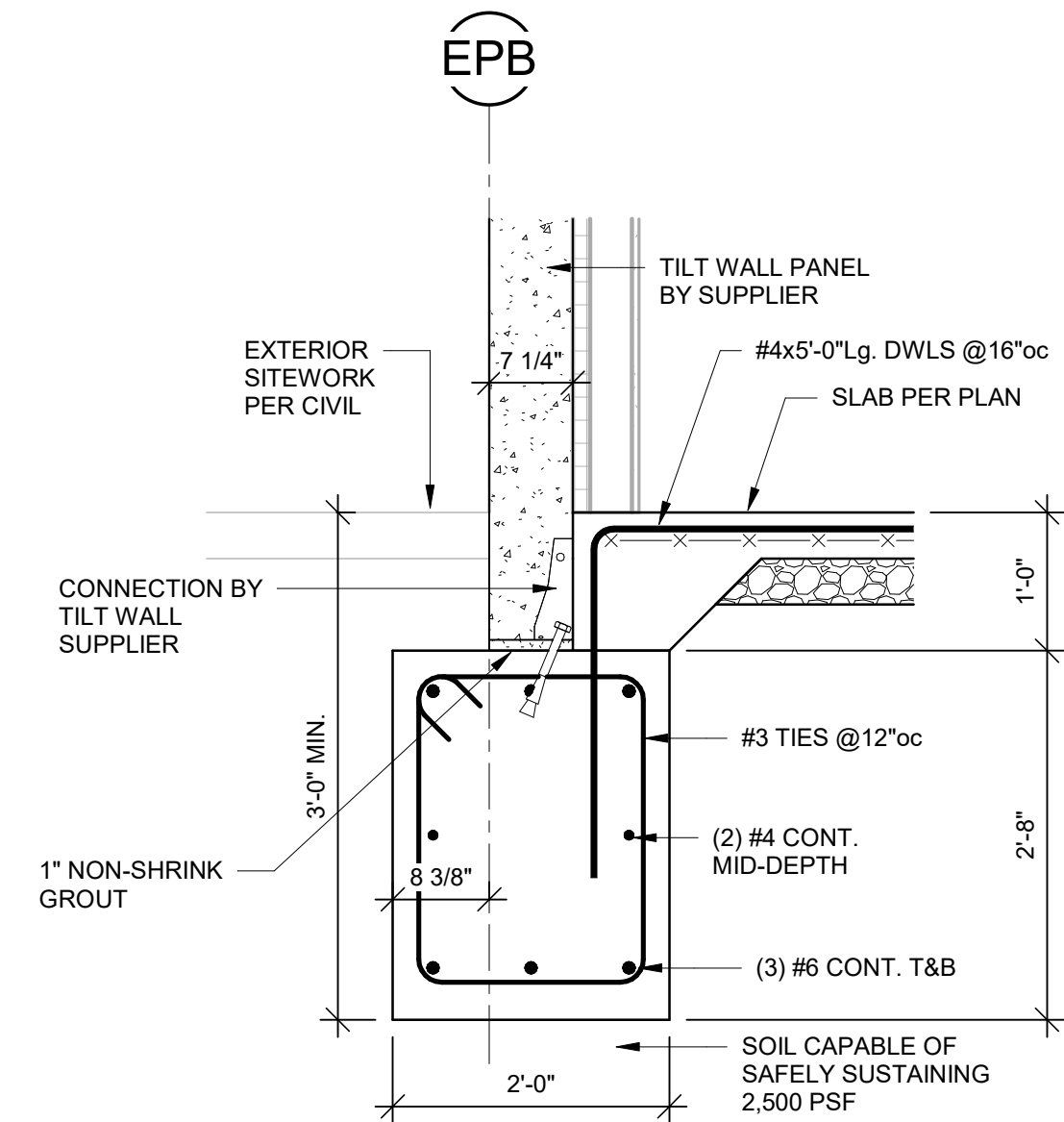
FOUNDATION  
SECTIONS

SHEET NUMBER:

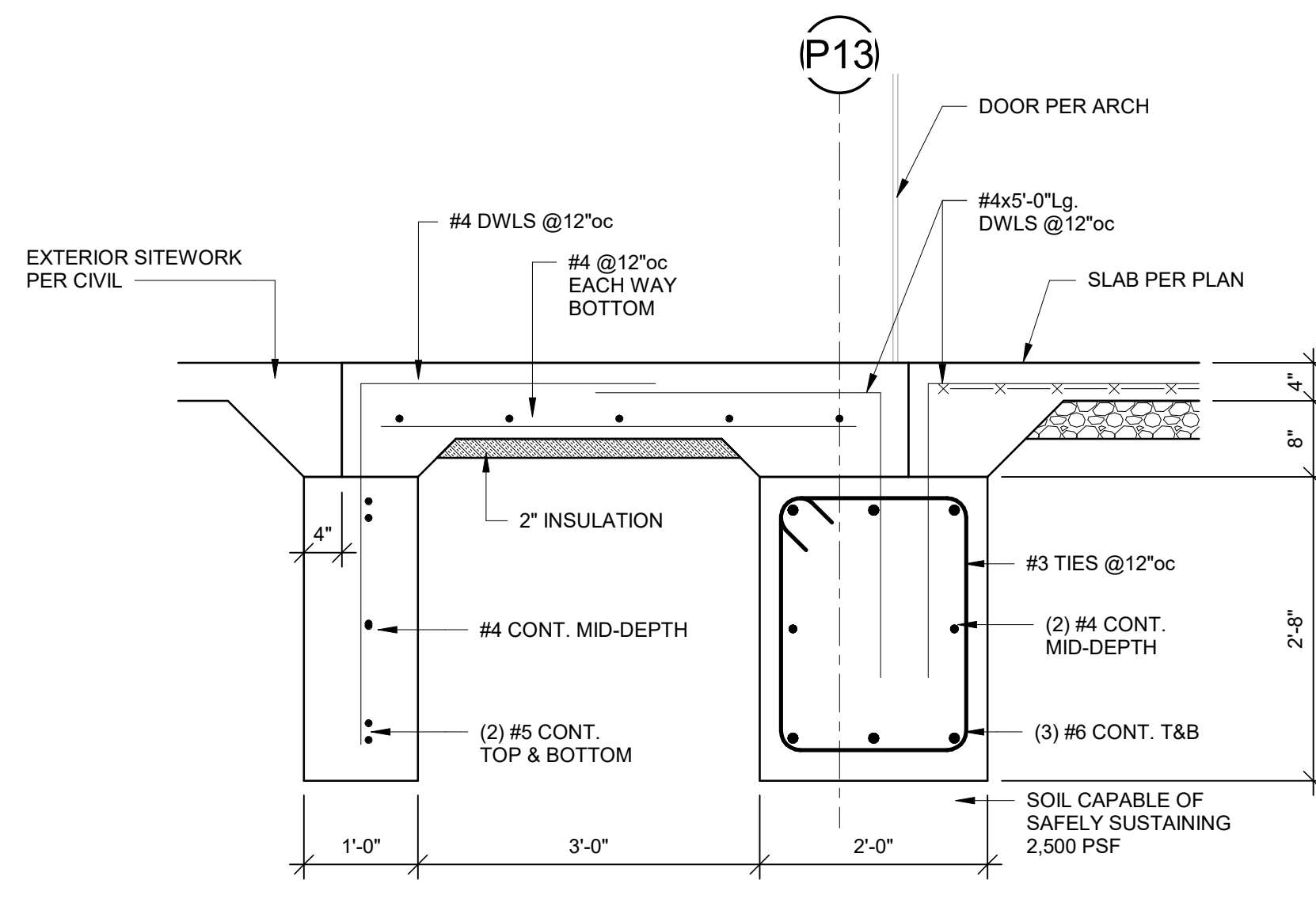
**S202**

SHEET 052 OF 202

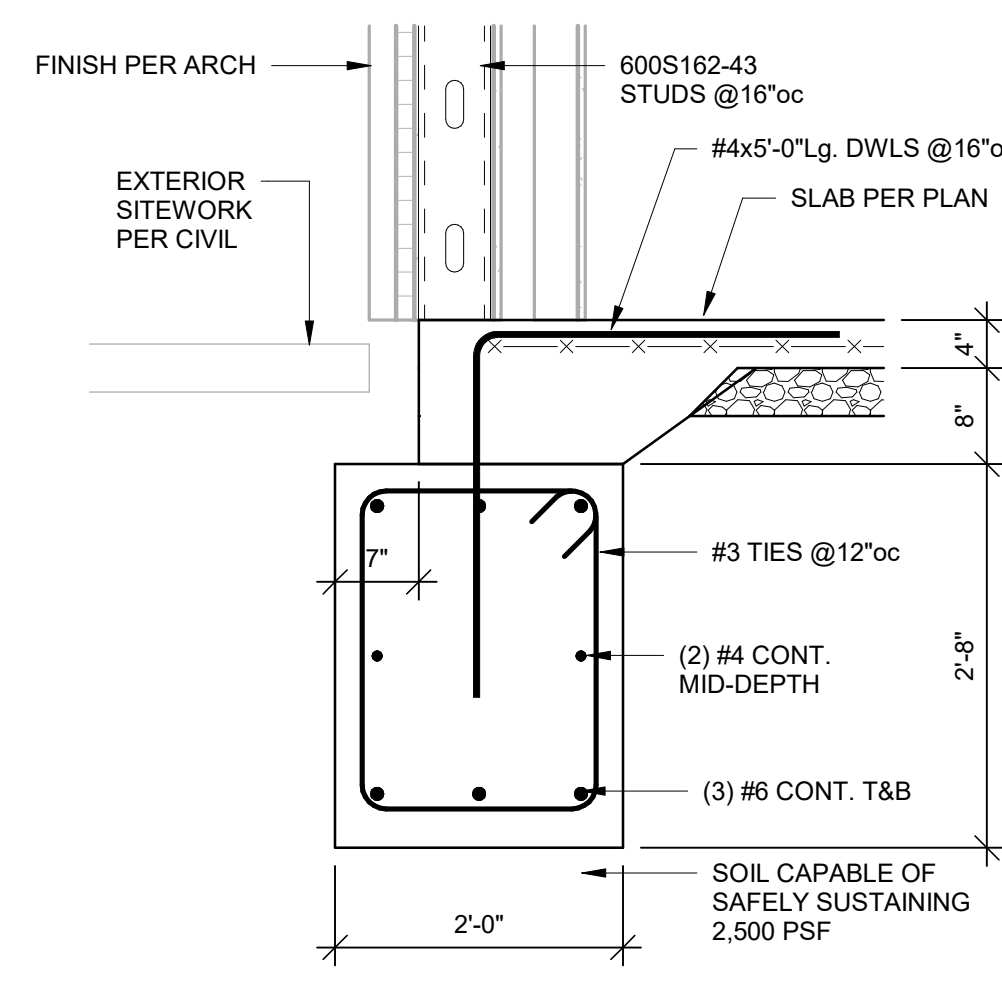
08/01/2023



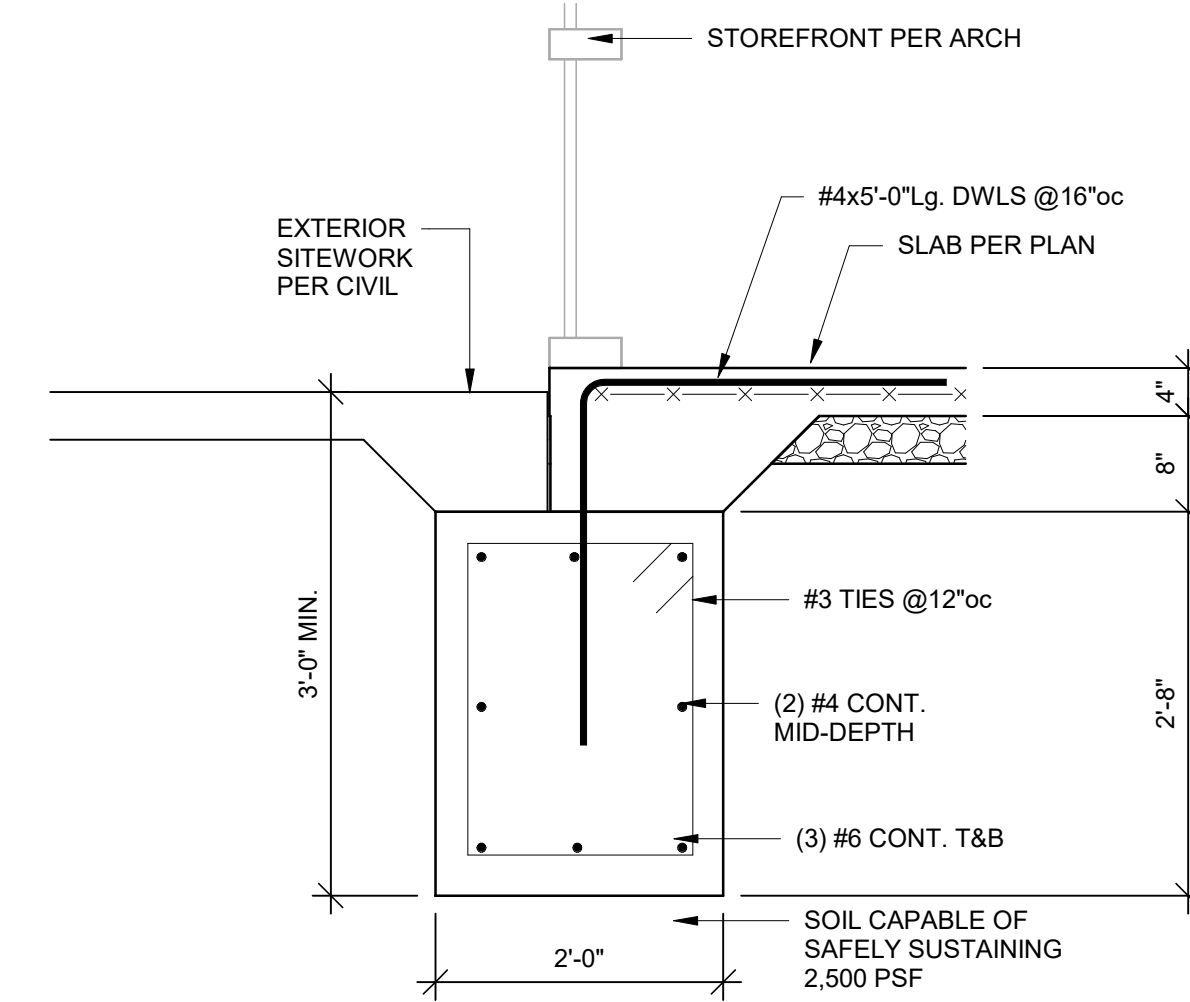
**1 SECTION**  
3/4" = 1'-0"



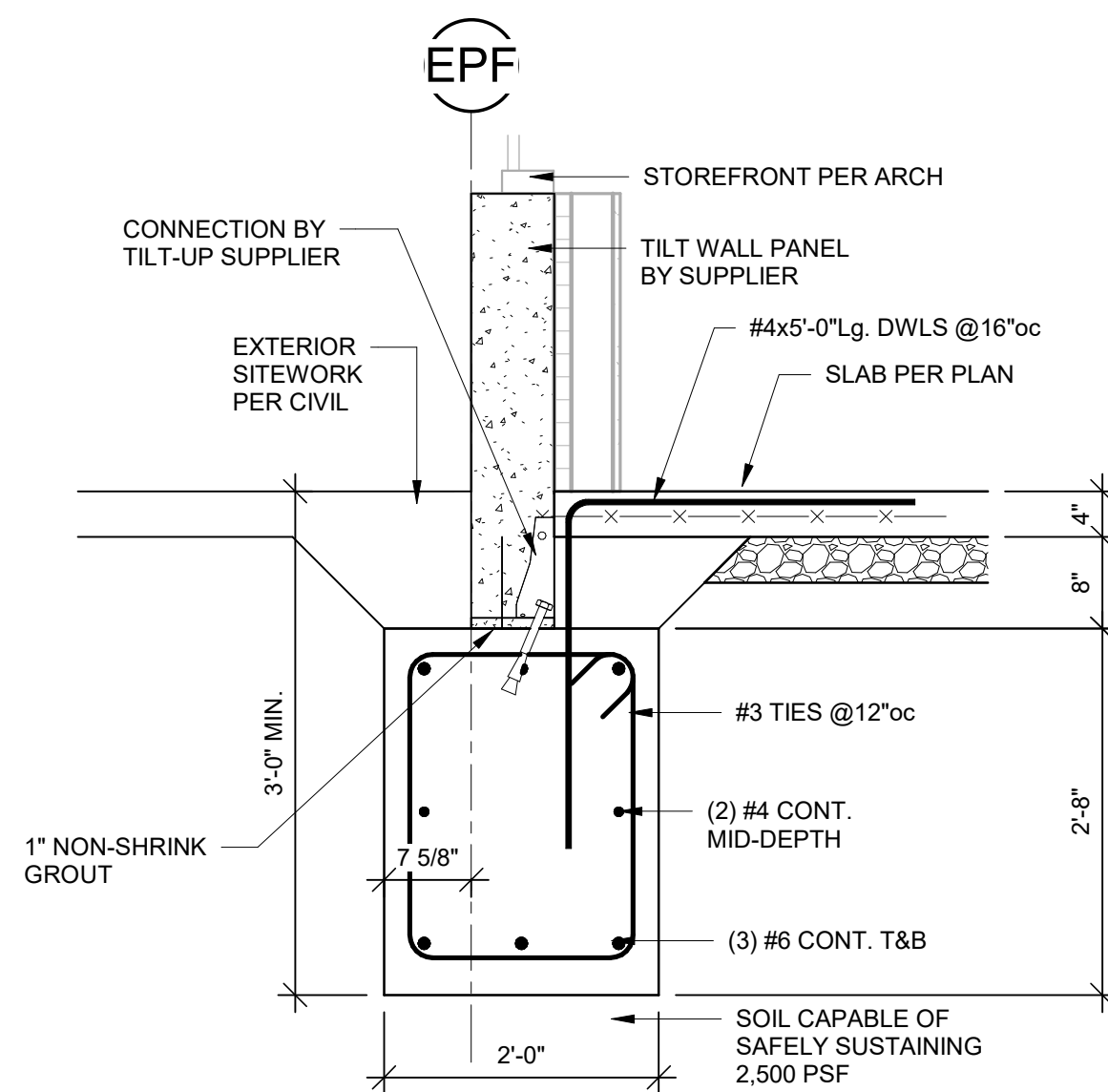
**2 SECTION**  
3/4" = 1'-0"



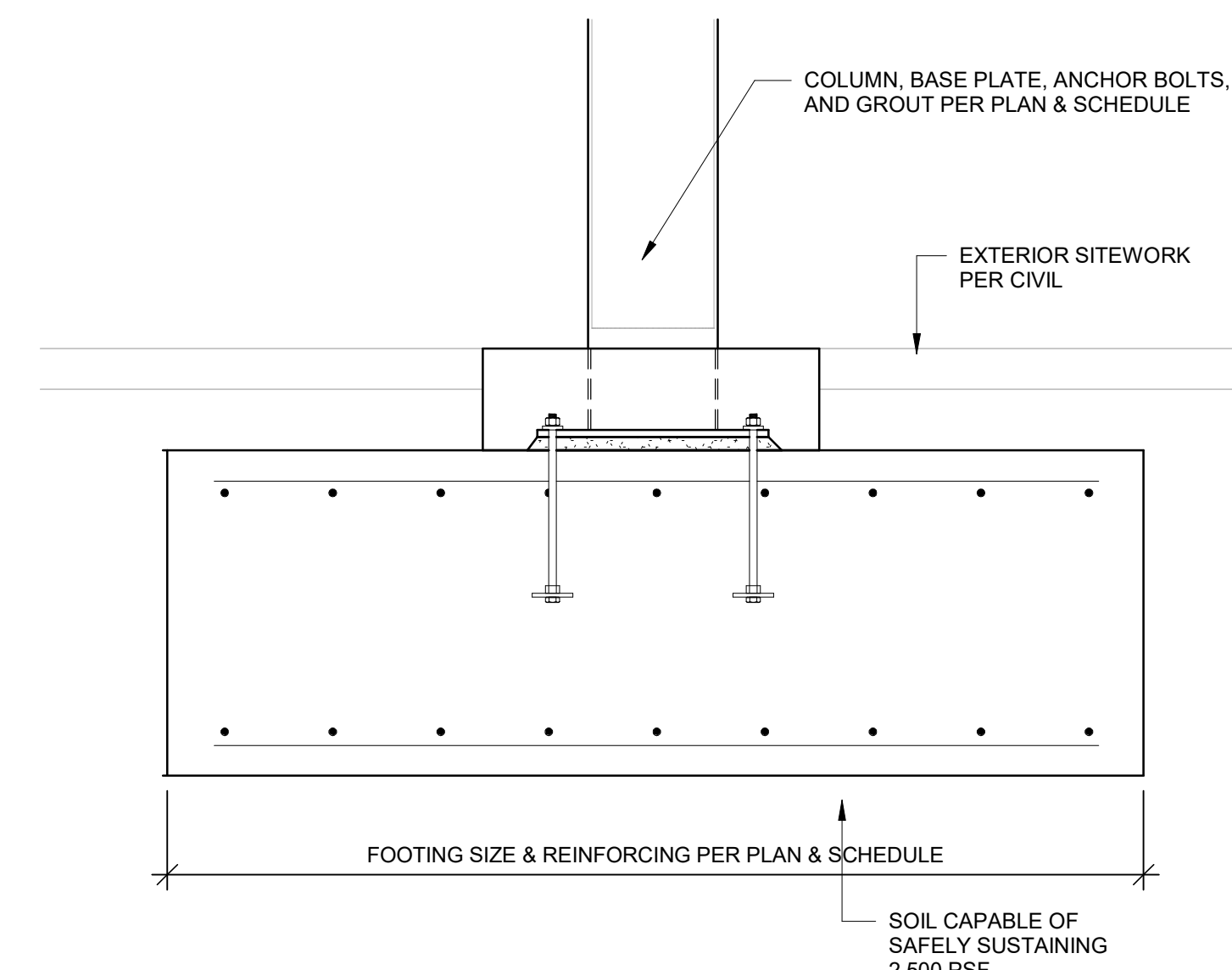
**3 SECTION**  
3/4" = 1'-0"



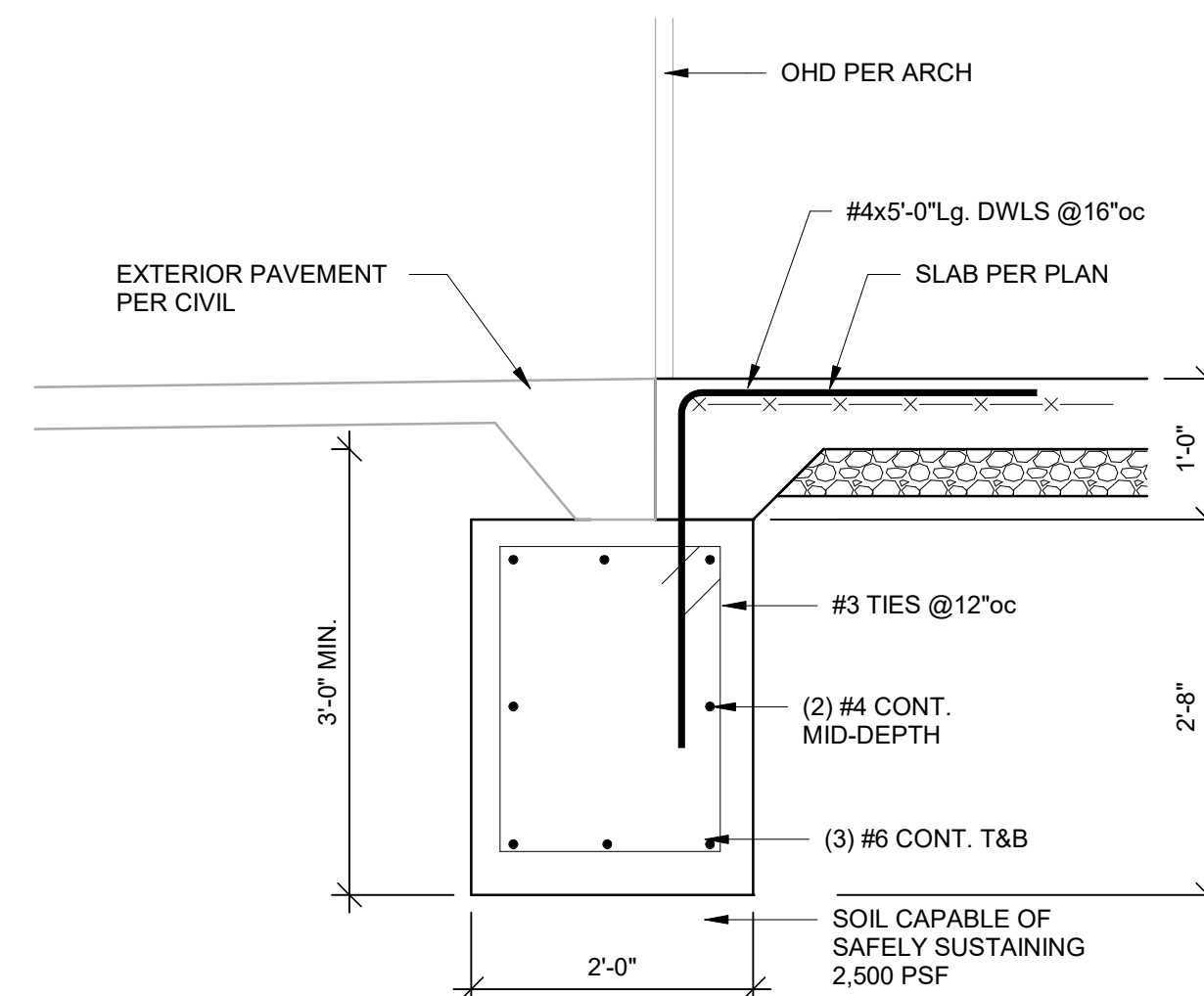
**4 SECTION**  
3/4" = 1'-0"



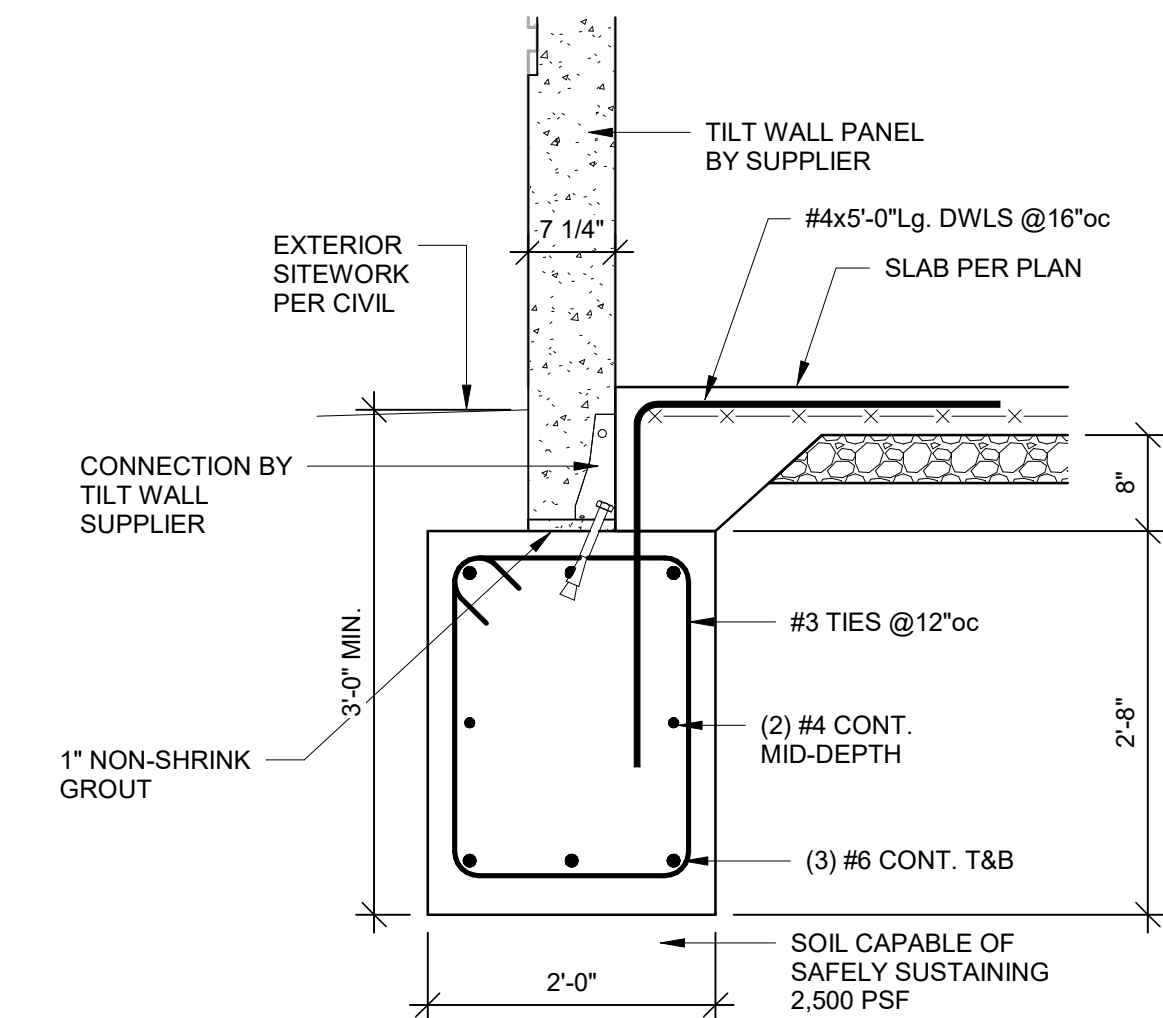
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3/4" = 1'-0"



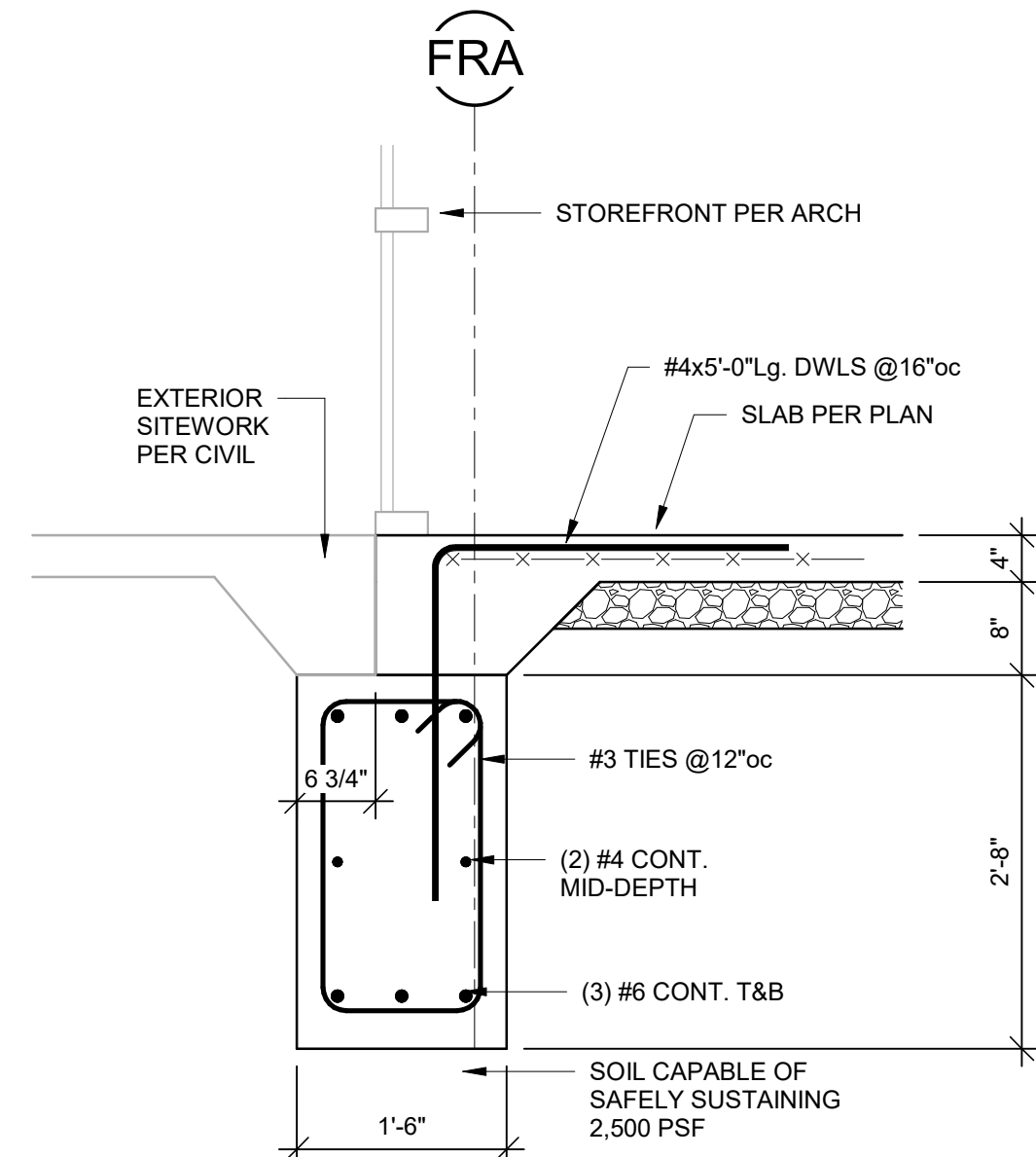
**6 SECTION**  
3/4" = 1'-0"



**7 SECTION**  
3/4" = 1'-0"



**8 SECTION (ALTERNATE #04)**  
3/4" = 1'-0"



**9 SECTION (ALTERNATE #04)**  
3/4" = 1'-0"



Clark A. Basinger - Engineer  
MO# 2010026832

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Project Number: 2022.152

Bob D. Campbell & Company  
Missouri Certificate of Authority: #PE000042

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: S300.dwg  
DRAWN BY: MLF  
CHECKED BY: CAB  
DESIGNED BY: BDC

SHEET TITLE:

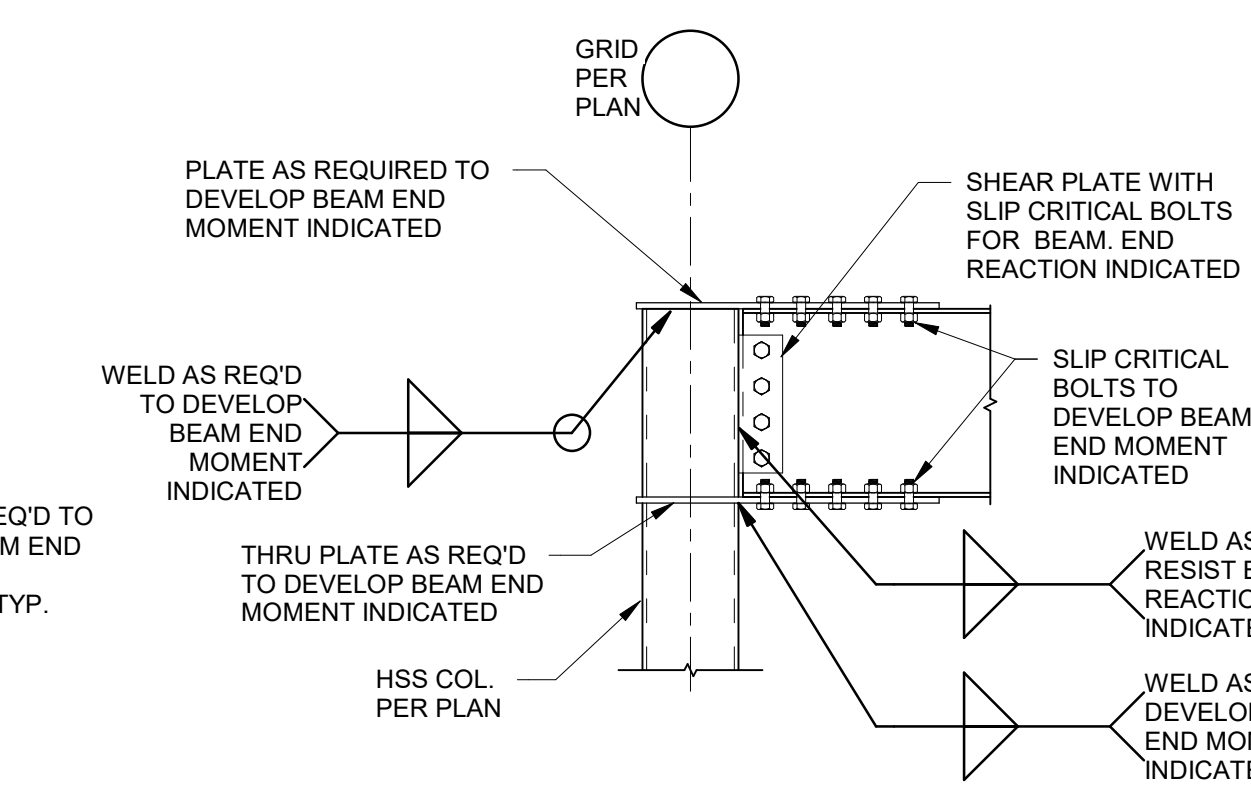
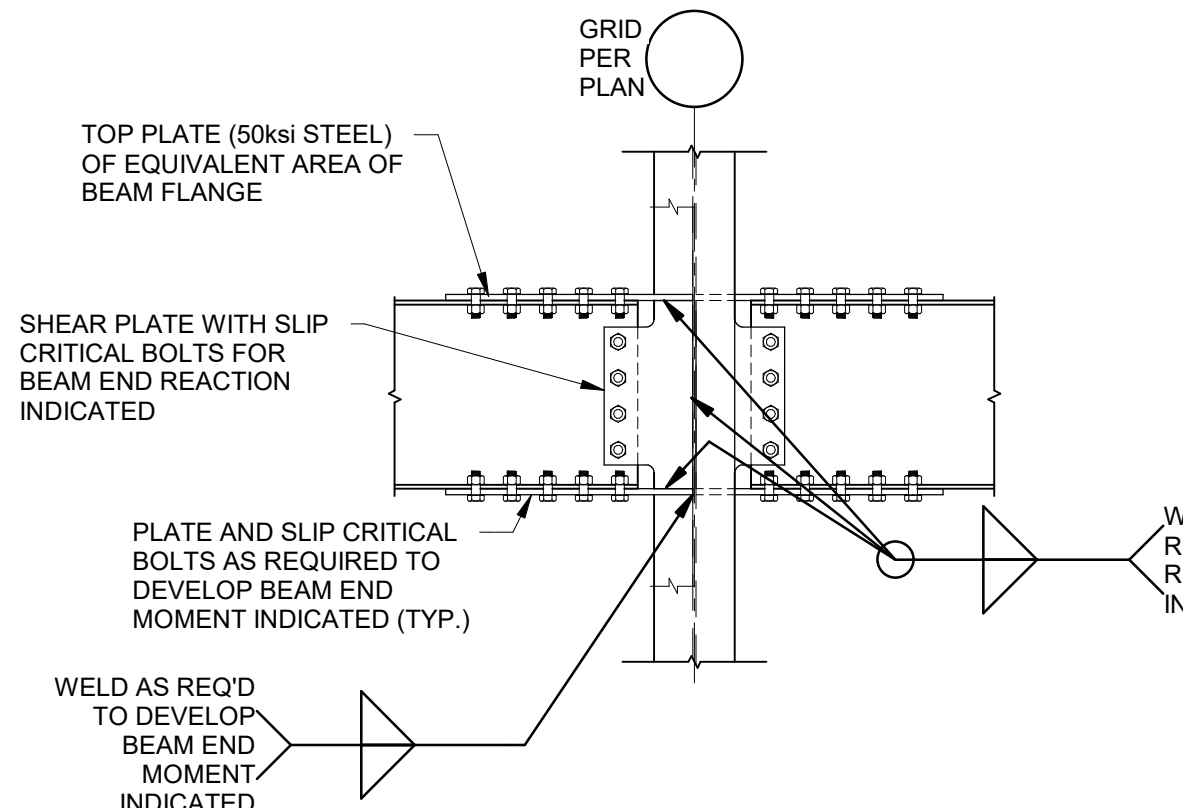
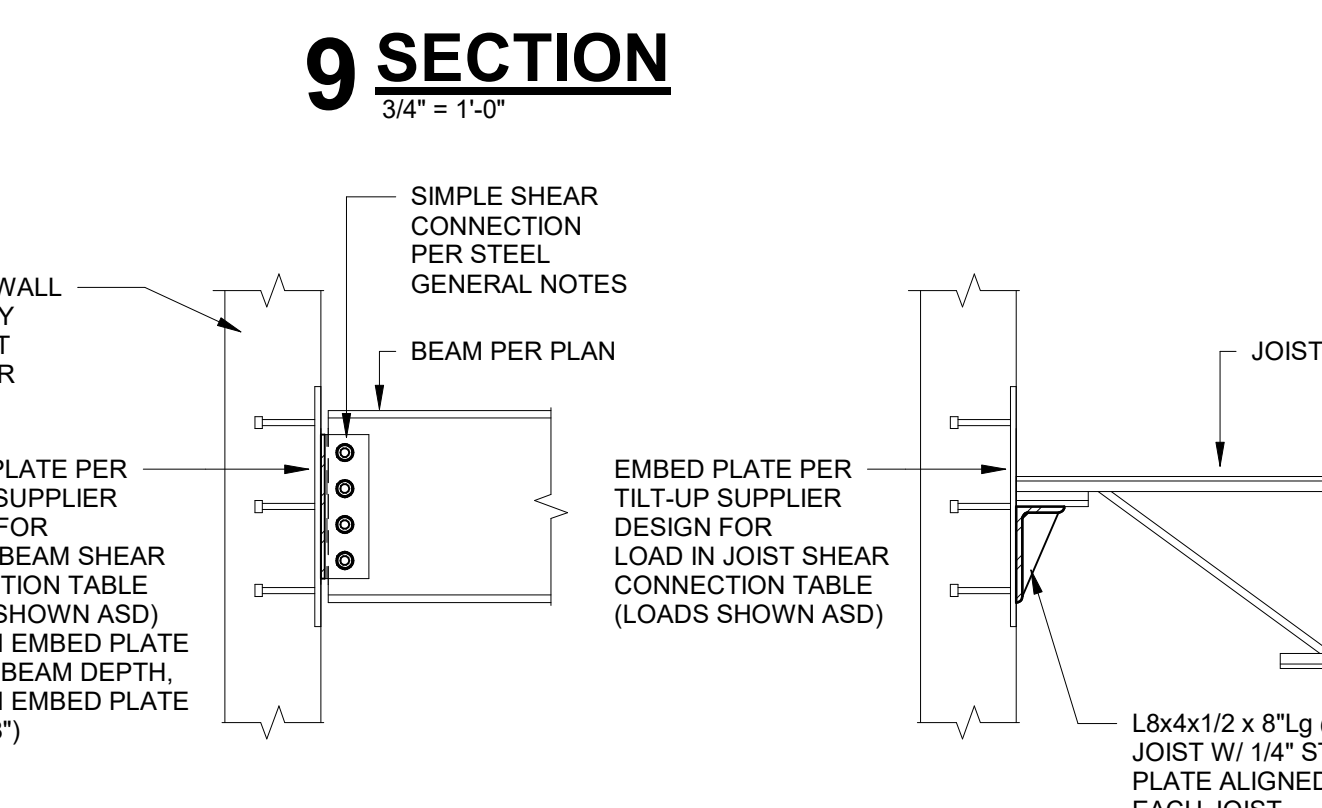
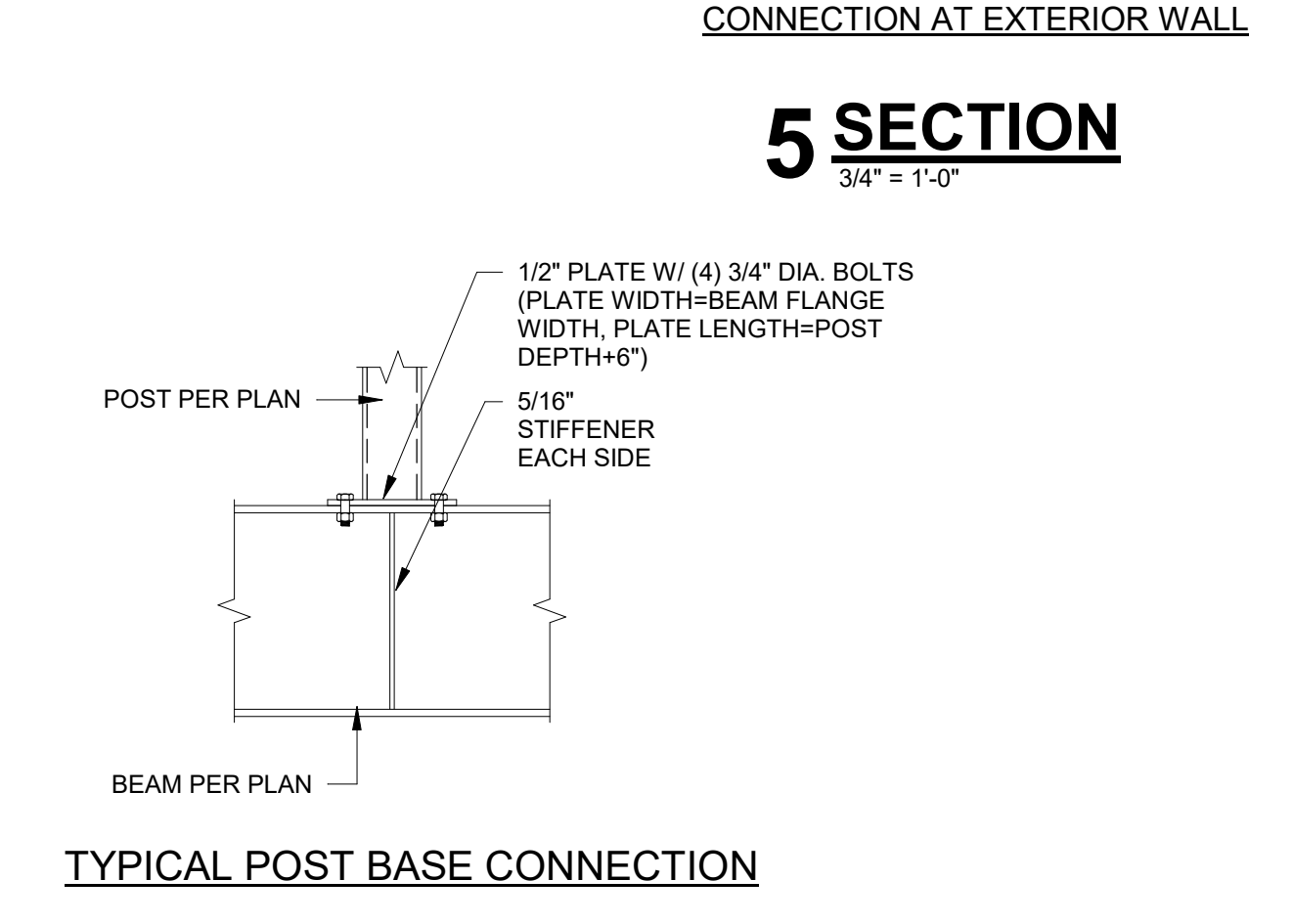
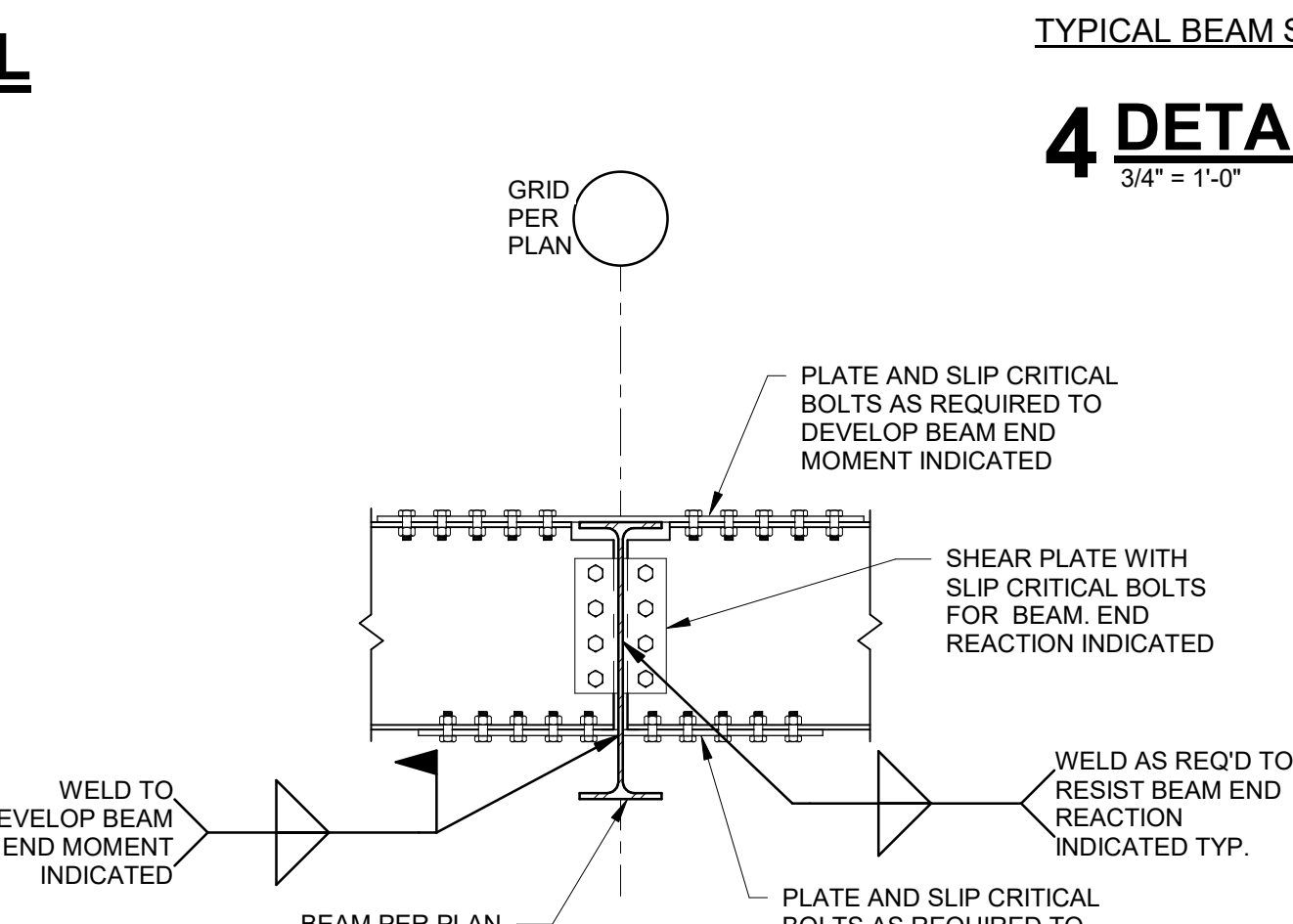
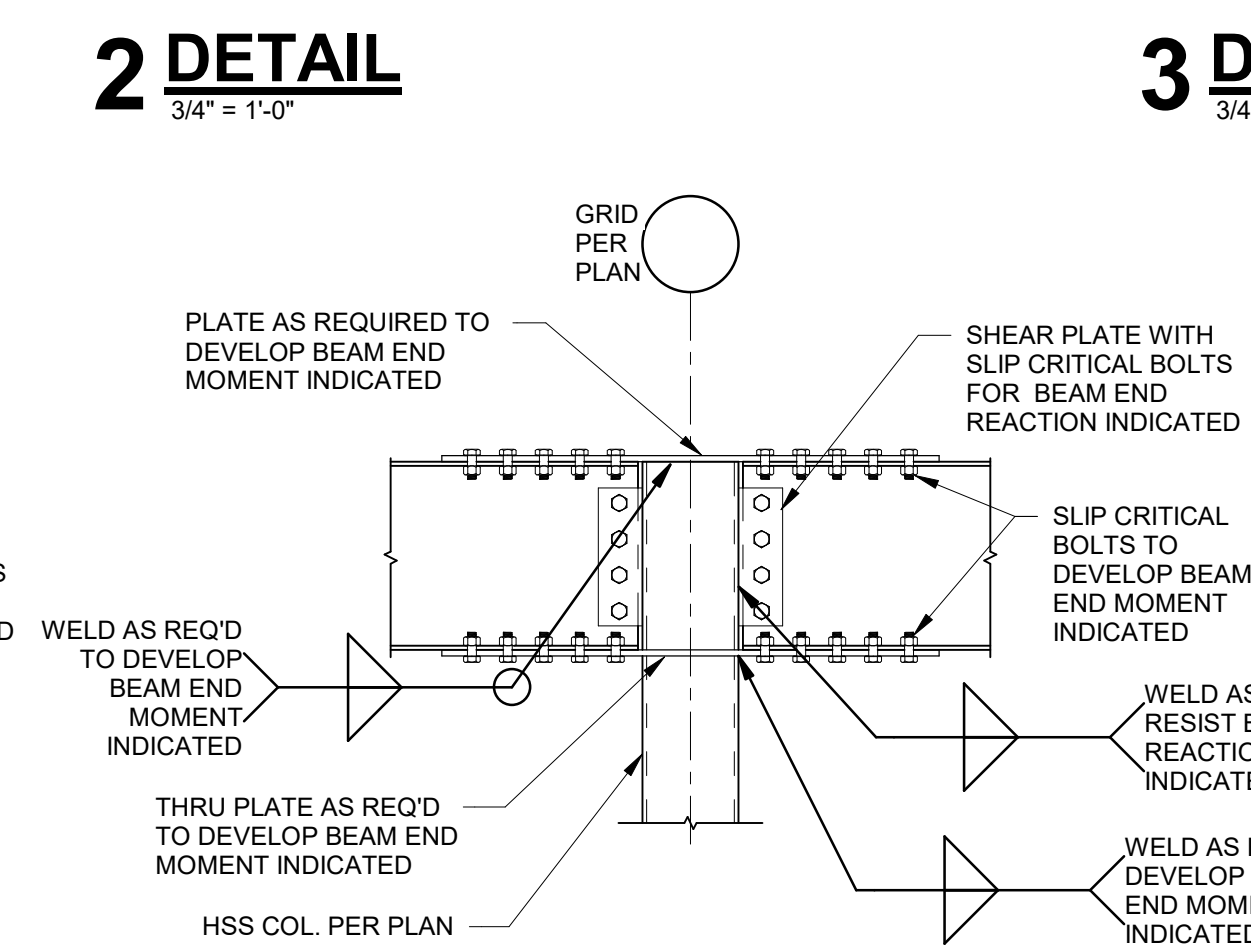
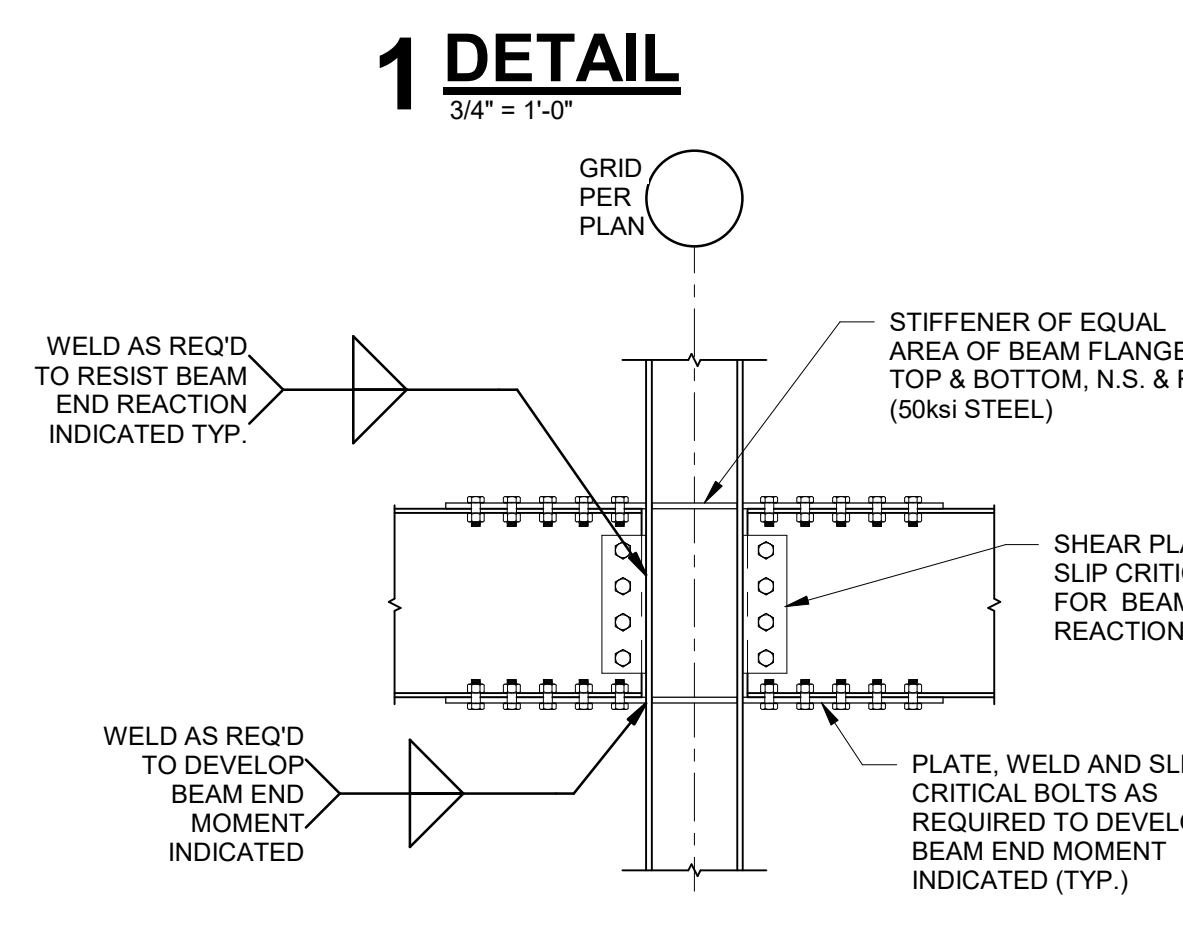
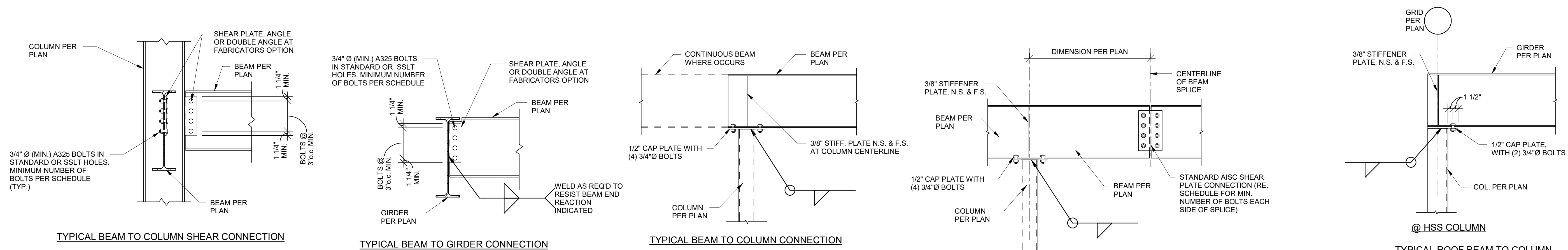
FRAMING SECTIONS

SHEET NUMBER:

**S300**

SHEET 053 OF 202

08/01/2023



**(ASD) JOIST BEARING LOAD SCHEDULE**

JOIST DEPTH	DEAD LOAD (POUNDS)	ROOF LIVE LOAD (POUNDS)	SNOW LOAD (POUNDS)
12" Dp	1,750	2,250	2,250
14" Dp	2,000	2,500	2,500
16" Dp	2,250	2,750	2,750
18" Dp	2,500	3,000	3,000
20" Dp	2,750	3,250	3,250
22" Dp	3,000	3,500	3,500
24" Dp	3,250	3,750	3,750

**BEAM SHEAR CONNECTION SCHEDULE**

BEAM SIZE	MINIMUM ROWS OF BOLTS	END REACTION (kips)(U.N.O.)
W8,C8	2	16
W10,C10	2	16
W12,C12	2	16
W14	3	24
W16,C16	3	24
W18	4	32
W21	5	40
W24	6	48
W27	7	56

- STEEL CONNECTION NOTES:**
- REFER TO GENERAL NOTES ON SHEET S001.
  - CONNECTIONS SHOWN IN THESE DETAILS ARE MINIMUM REQUIREMENTS.
  - FABRICATOR SHALL BE RESPONSIBLE FOR THE ENGINEERING, DESIGNING, AND DETAILING OF EACH CONNECTION FOR LOADS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS AND THE STRUCTURAL GENERAL NOTES.
  - SUGGESTED CONNECTION DETAILS ARE SHOWN. FINAL CONNECTION CONFIGURATION AND DESIGN SHALL BE COMPLETED BY THE CONNECTION ENGINEER. CONNECTION DESIGN SHALL INCLUDE COLUMN OR BEAM CONTINUITY PLATES, WEB STIFFENERS, AND/OR DOUBLER PLATES AS REQUIRED FOR THE FORCES INDICATED.
  - FABRICATOR MAY OPT TO USE OTHER AISC APPROVED CONNECTIONS IN LIEU OF THESE SHOWN HEREIN TO MEET END REACTION REQUIREMENTS (i.e. DOUBLE ANGLE CONNECTION).
  - CONNECTION DETAILING SHALL COMPLY WITH THE STANDARD DETAILS SHOWN IN THE LATEST EDITION OF THE AISC MANUAL OF STEEL CONSTRUCTION.
  - ALL BOLTS SHALL BE 3/4" Ø ASTM A325 MINIMUM.
  - ALL BOLTS SHALL BE SPACED AT 3" O.C. MINIMUM.
  - COL. BOLTS SHALL HAVE HEAVY HEX NUTS.
  - ALL BOLTS SHALL BE FULLY PRE-TENSIONED.
  - BOLT SPACING AND EDGE DISTANCES SHALL BE ADJUSTED PER AISC MANUAL FOR BOLTS LARGER THAN 3/4" DIAMETER.
  - CLIP ANGLES MAY BE SHOP WELDED TO BEAM WEB PER AISC.
  - FOR BEAMS WITH AXIAL LOADS PER DRAWINGS, BOLTS AND CONNECTIONS SHALL BE SLIP-CRITICAL PER AISC GUIDELINES. INCREASE NUMBER OF BOLTS AND/OR PROVIDE EXTENDED SHEAR PLATE CONNECTION W/ AN ADDITIONAL COLUMN OF BOLTS TO ACCOMMODATE COMBINED FORCES.
  - PROVIDE ASTM A490 BOLTS IF REQUIRED TO MEET END REACTION LOAD REQUIREMENTS.
  - REFER TO BRACING ELEVATIONS FOR BRACE FORCES. REFER TO PLANS FOR ADDITIONAL BEAM AXIAL FORCES. BRACE AND BEAM FORCES INDICATED ARE UNFACTORED (ASD) LOADS AND SHALL BE CONSIDERED CONCURRENT W/ BEAM SHEAR DESIGN FORCES LISTED IN THE BEAM SHEAR CONNECTION SCHEDULE.
  - COORDINATE BRACED FRAME CONNECTION W/ ARCHITECTURAL WALLS AS REQUIRED TO AVOID CONFLICT OR EXPOSURE OUTSIDE OF WALL OR FINISH.
  - ALL END REACTIONS INDICATED ARE UNFACTORED (ASD) LOADS.

**NOTE:**  
1. LOADS SHOWN APPLY TO K-SERIES JOISTS ONLY. DO NOT USE BEARING VALUES FOR KC/S OR KSP SERIES JOISTS.



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Project Number: 2022.152

Bob D. Campbell & Company  
Missouri Certificate of Authority: #PE000042

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1900 NE Independence Ave.  
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PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: S301.dwg  
DRAWN BY: MLF  
CHECKED BY: CAB  
DESIGNED BY: BDC

SHEET TITLE:

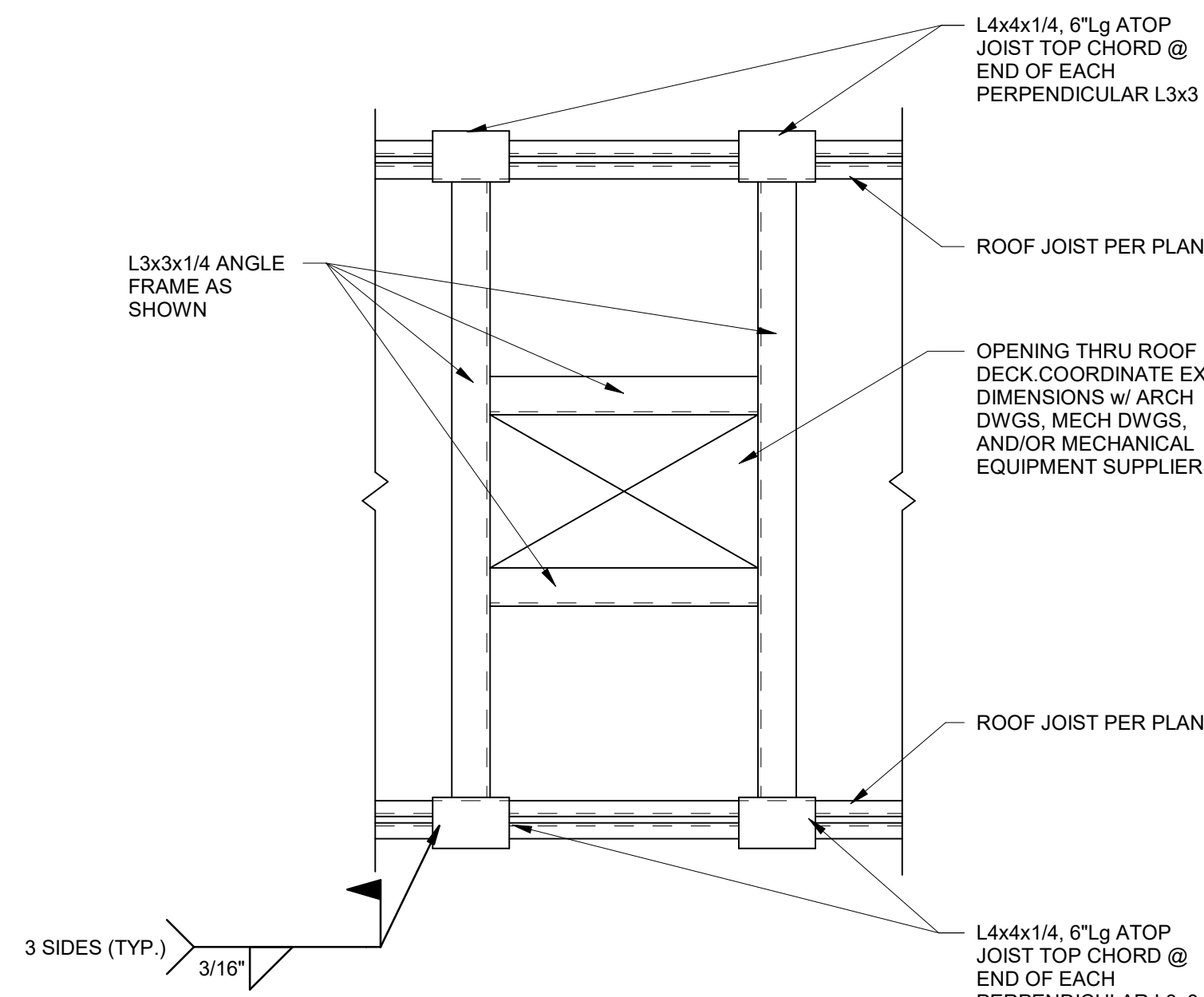
FRAMING SECTIONS

SHEET NUMBER:

**S301**

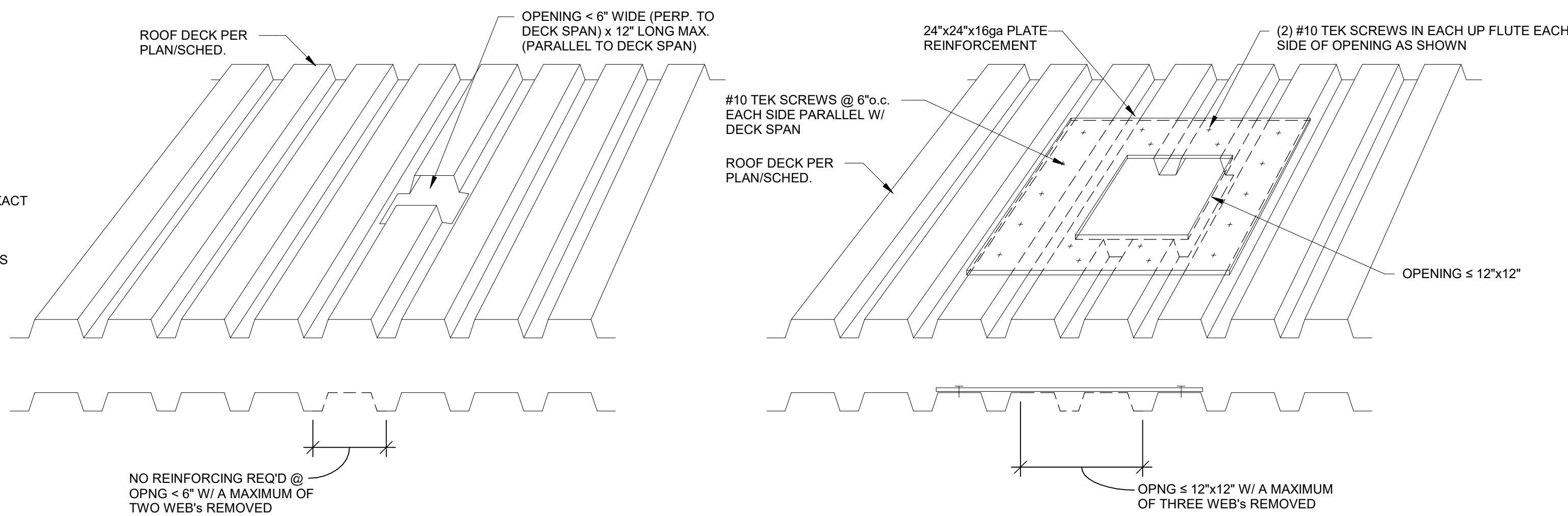
SHEET 054 OF 202

08/01/2023



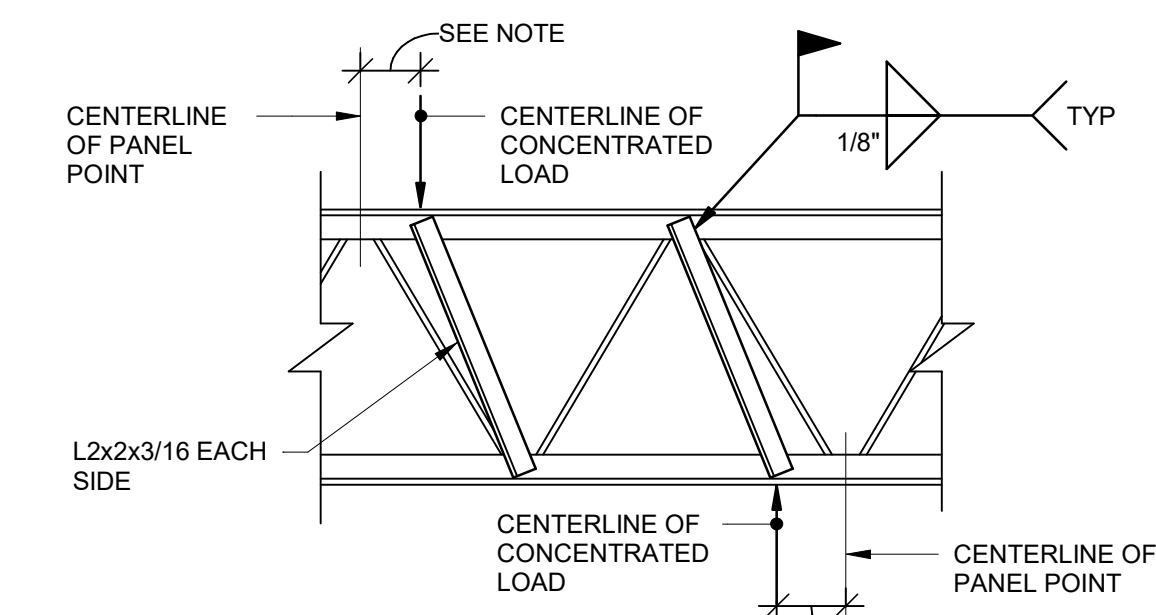
TYPICAL ANGLE FRAME AT  
OPENINGS > 12" WIDE IN ROOF DECK

**1 DETAIL**  
1" = 1'-0"



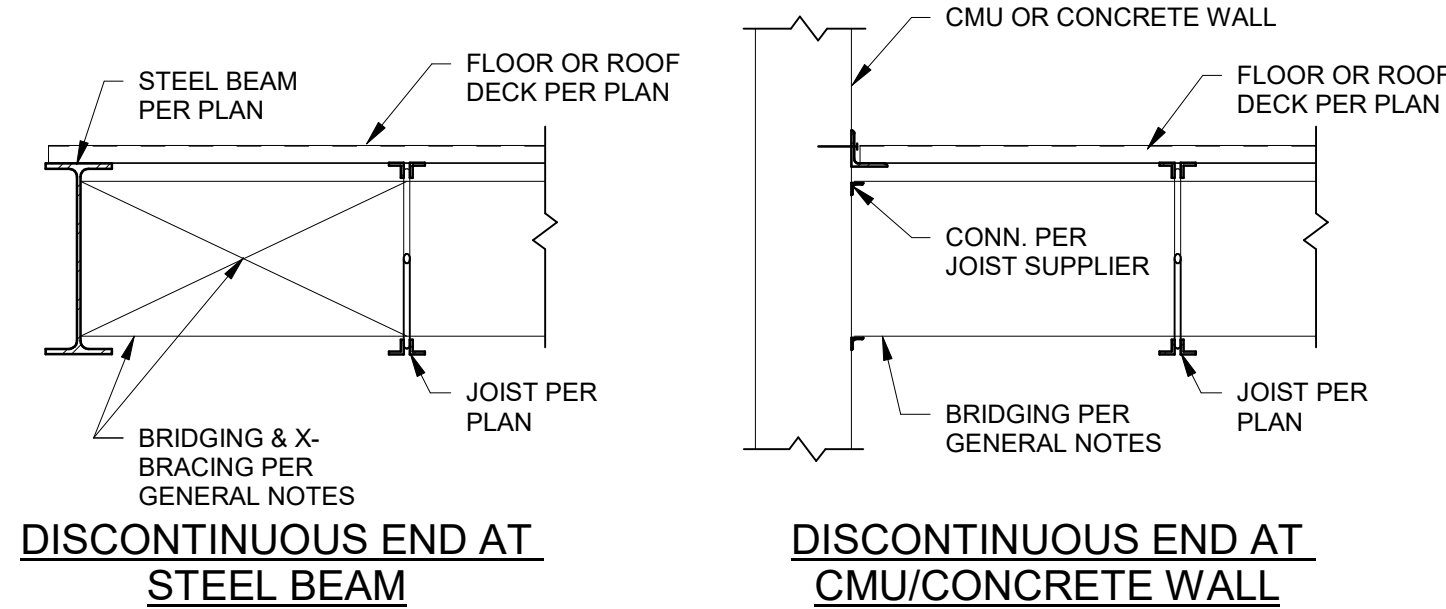
TYPICAL DECK REINFORCING AT SMALL OPENINGS IN ROOF DECK

**1A DETAIL**  
1 1/2" = 1'-0"

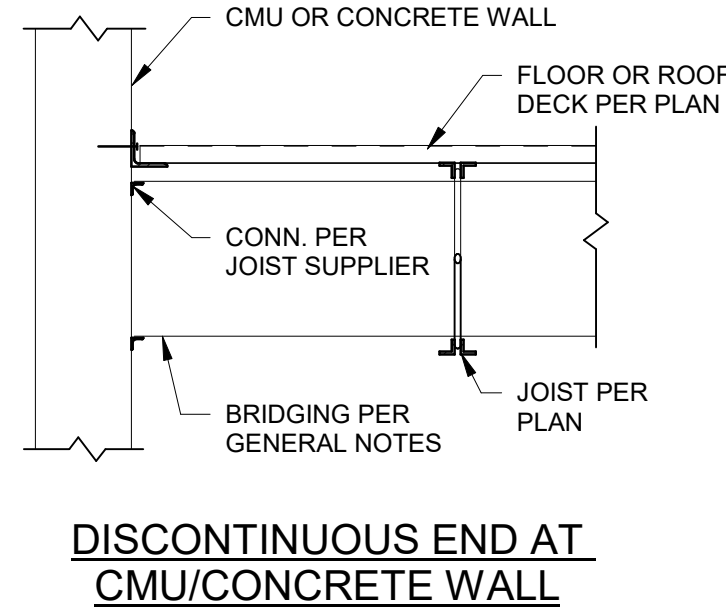


TYPICAL JOIST REINFORCING DETAIL

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

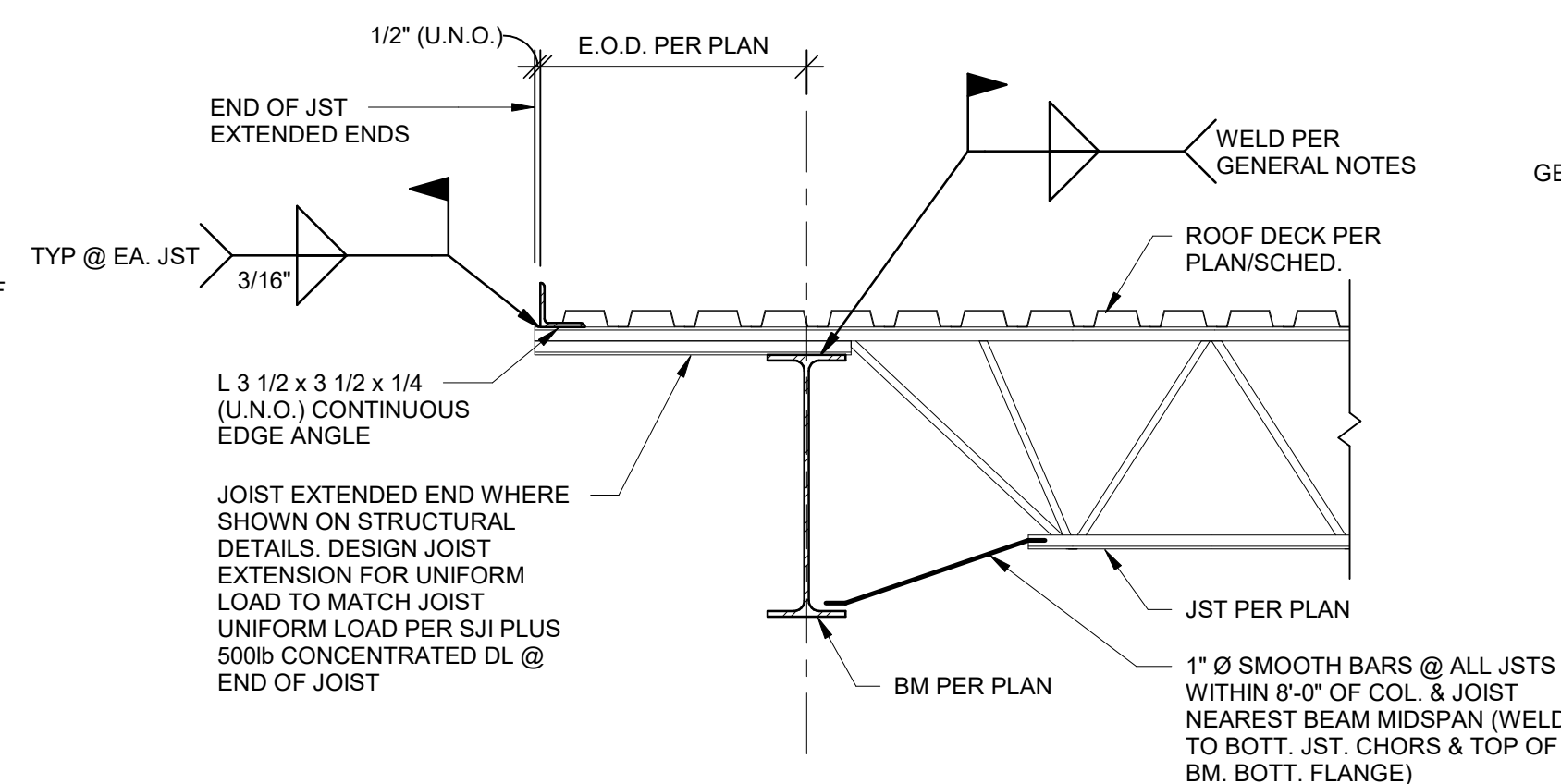


DISCONTINUOUS END AT  
STEEL BEAM



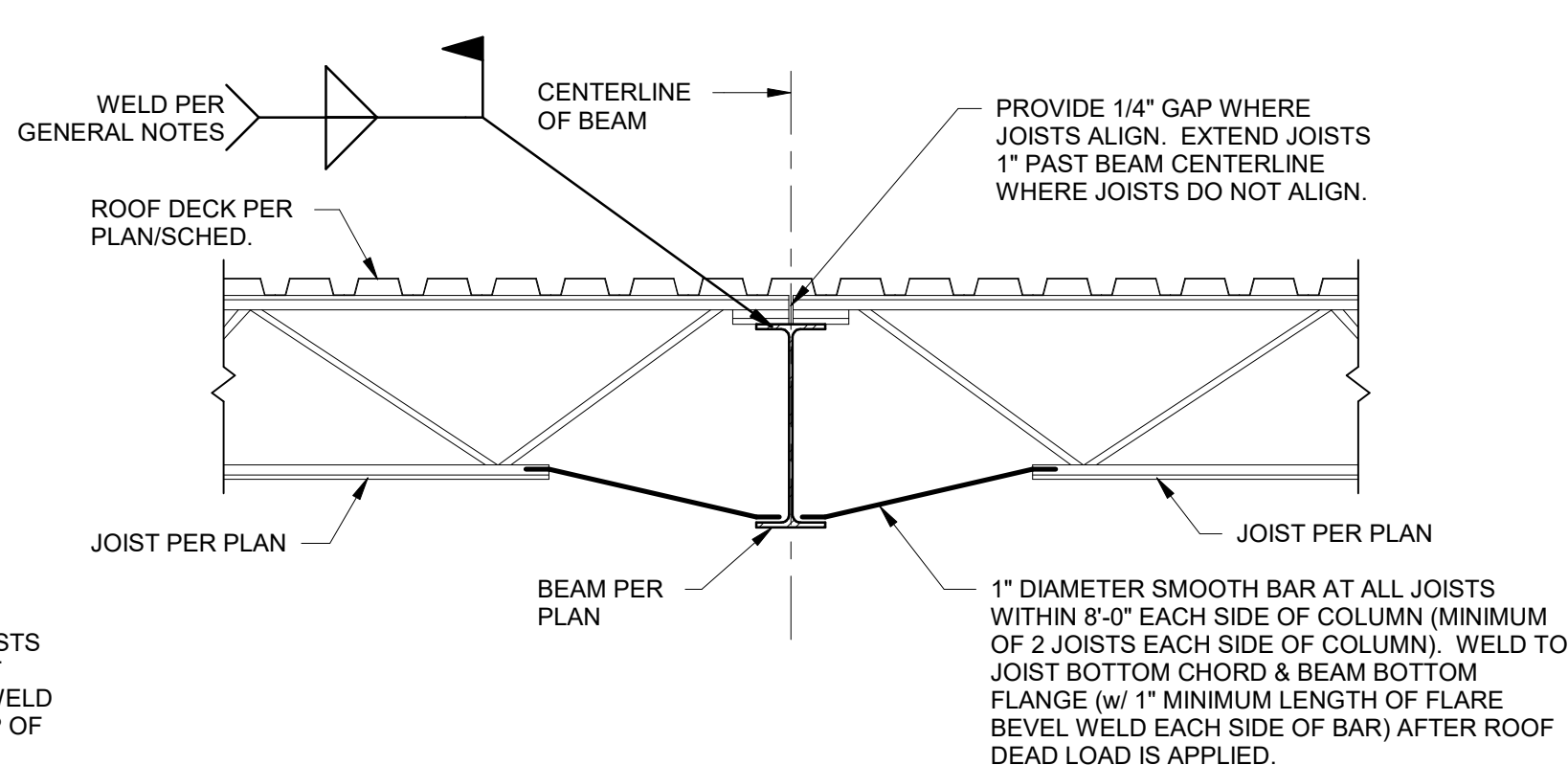
DISCONTINUOUS END AT  
CMU/CONCRETE WALL

**3 JOIST BRIDGING DETAIL**  
3/4" = 1'-0"



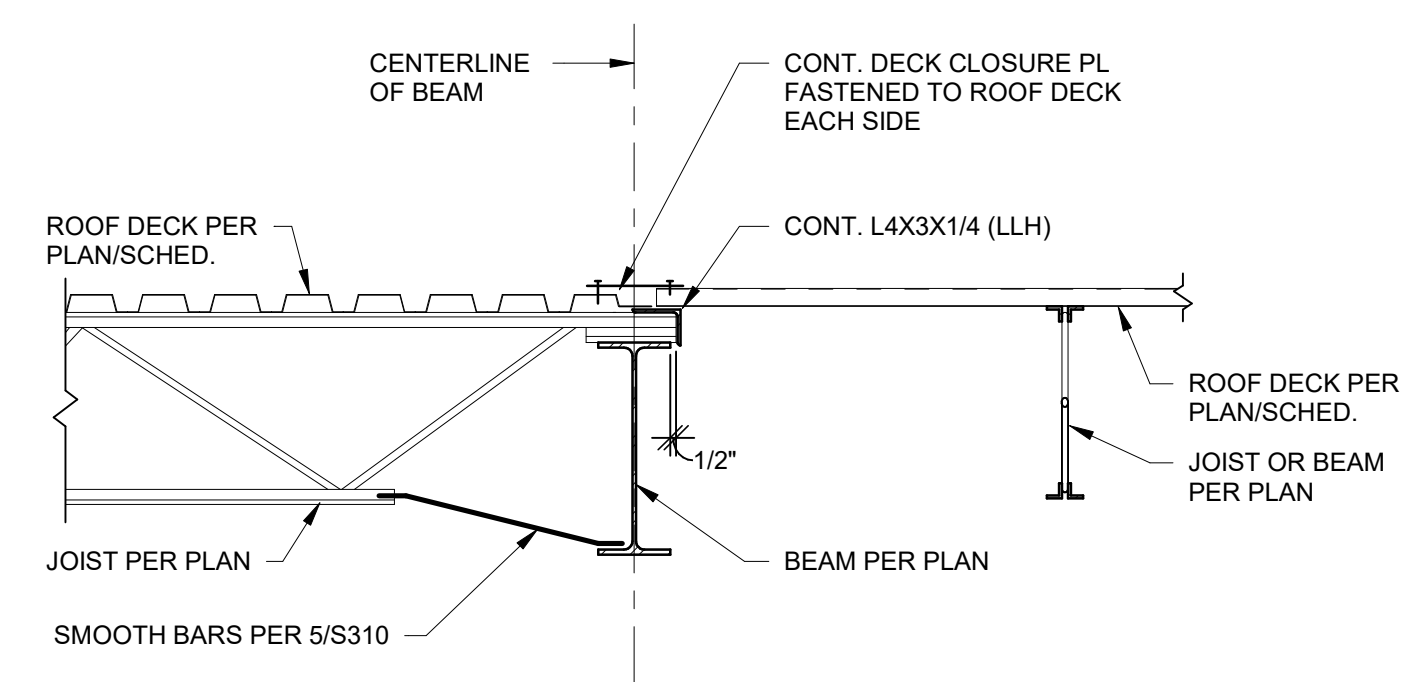
TYPICAL JOIST BEARING AT EXTERIOR BEAM

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



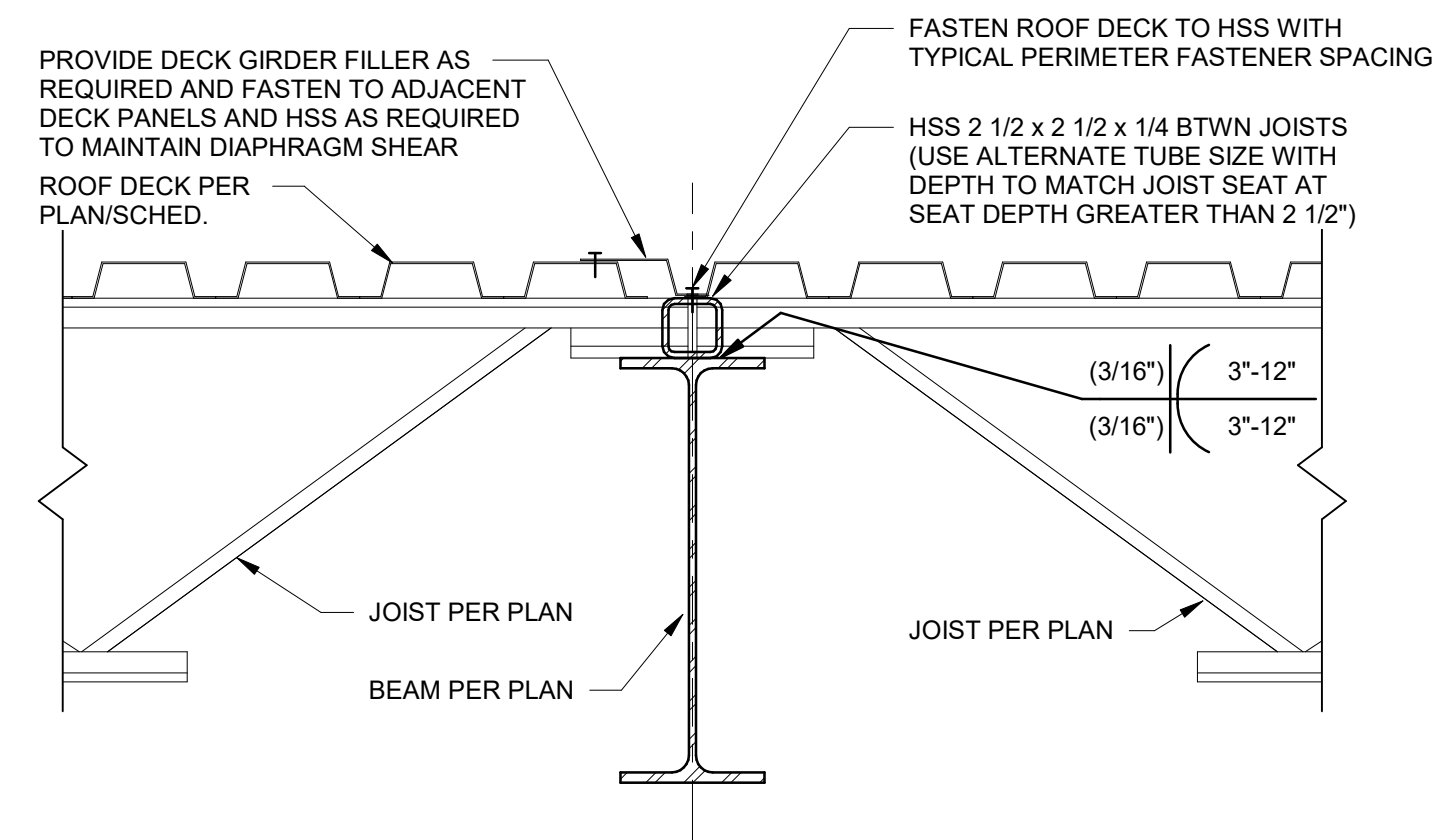
TYPICAL JOIST BEARING AT INTERIOR BEAM

**5 SECTION**  
3/4" = 1'-0"



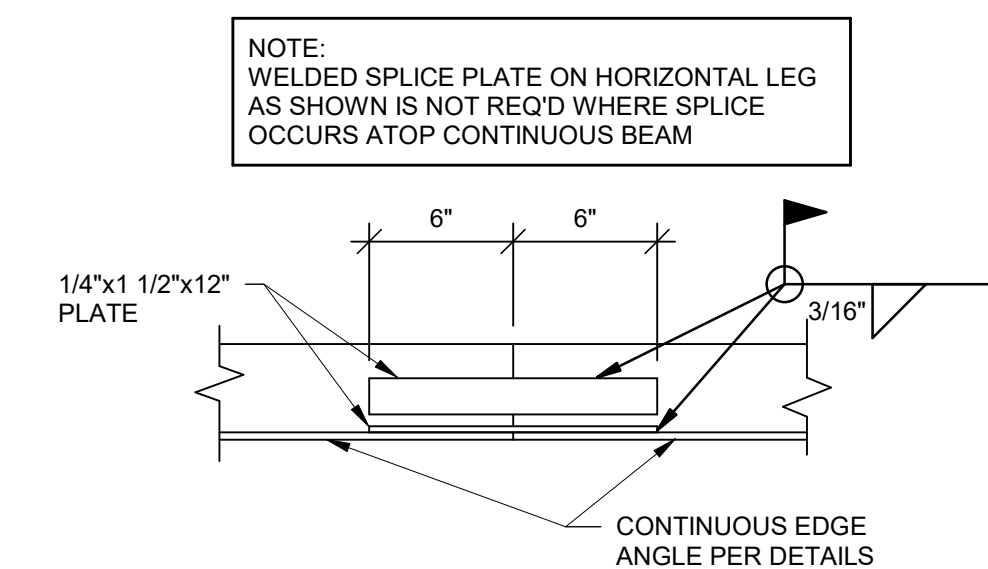
TYPICAL INTERIOR ROOF BEAM AT  
JOIST ORIENTATION TRANSITION

**6 SECTION**  
3/4" = 1'-0"



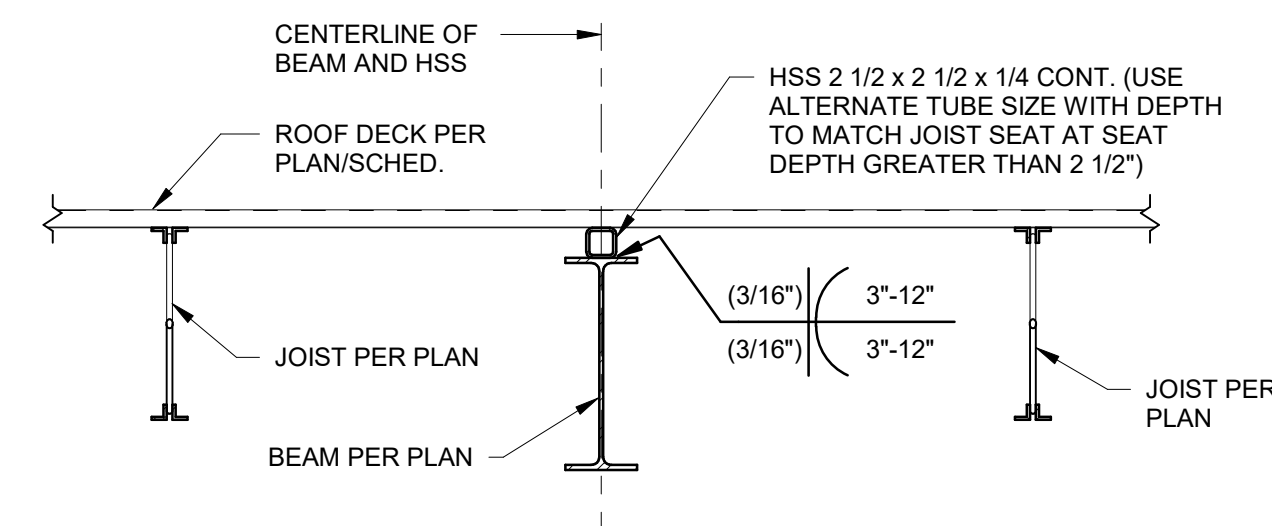
TYPICAL COLLECTOR ELEMENT ATOP BEAMS ALIGNED WITH  
BRACED FRAMES OR MOMENT FRAMES

**8 SECTION**  
1 1/2" = 1'-0"



TYPICAL ROOF DECK ANGLE SPLICE

**9 SECTION**  
1 1/2" = 1'-0"



TYPICAL INTERIOR ROOF BEAM PARALLEL TO JOISTS

**7 SECTION**  
3/4" = 1'-0"



Clark A. Basinger - Engineer  
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Project Number: 2022.1.52

Bob D. Campbell & Company  
Missouri Certificate of Authority: #PE000042

OFFICE OF  
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CONSTRUCTION

Project Name:  
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MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: S302.dwg  
DRAWN BY: MLF  
CHECKED BY: CAB  
DESIGNED BY: BDC  
SHEET TITLE:

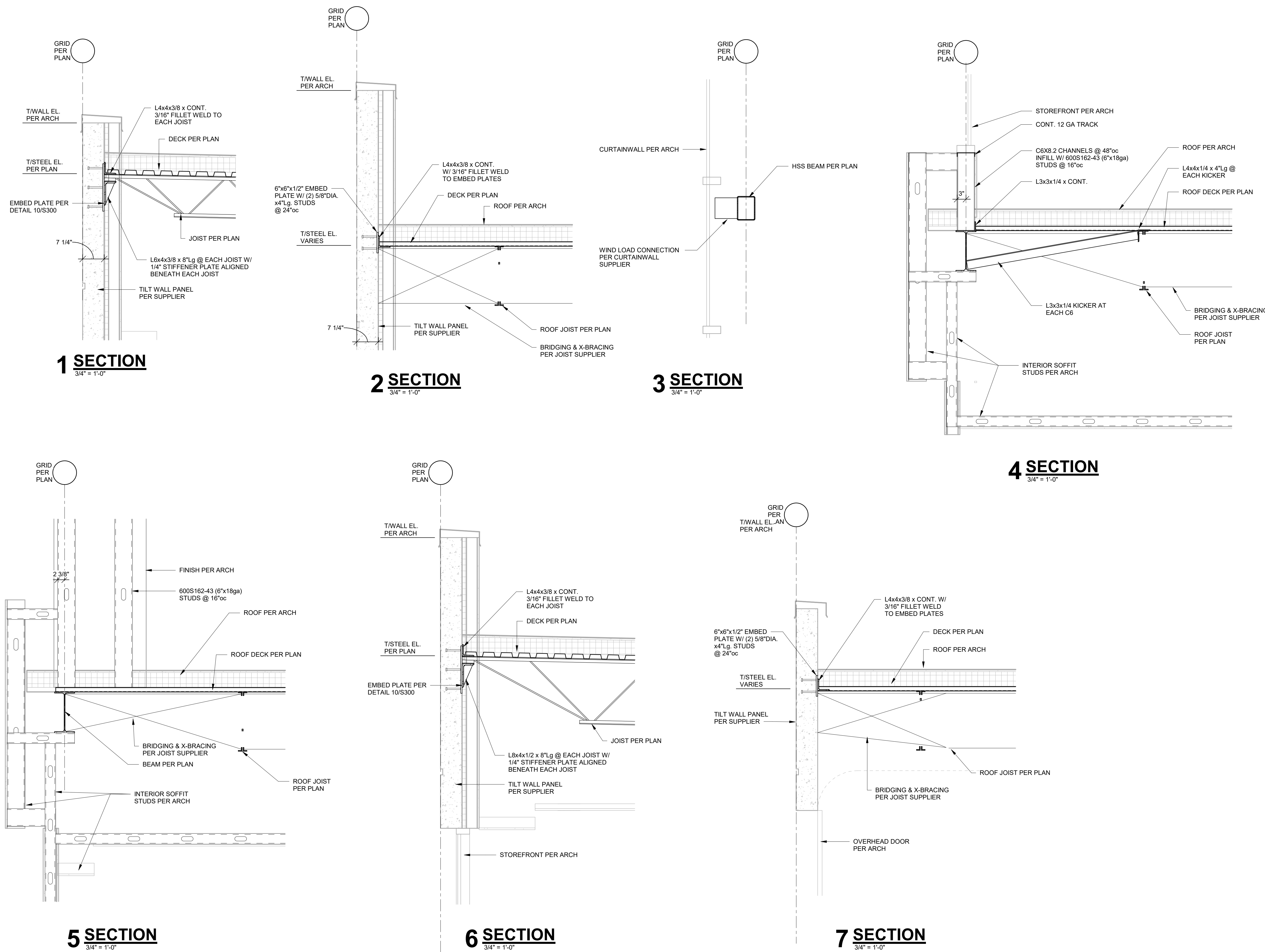
FRAMING SECTIONS

SHEET NUMBER:

**S302**

SHEET 055 OF 202

08/01/2023





Clark A. Basinger - Engineer  
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817 Wyandotte Kansas City, Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

Bob D. Campbell & Company  
Missouri Certificate of Authority: #PE000042

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Lee's Summit, MO 64086

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SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: S303.dwg  
DRAWN BY: MLF  
CHECKED BY: CAB  
DESIGNED BY: BDC  
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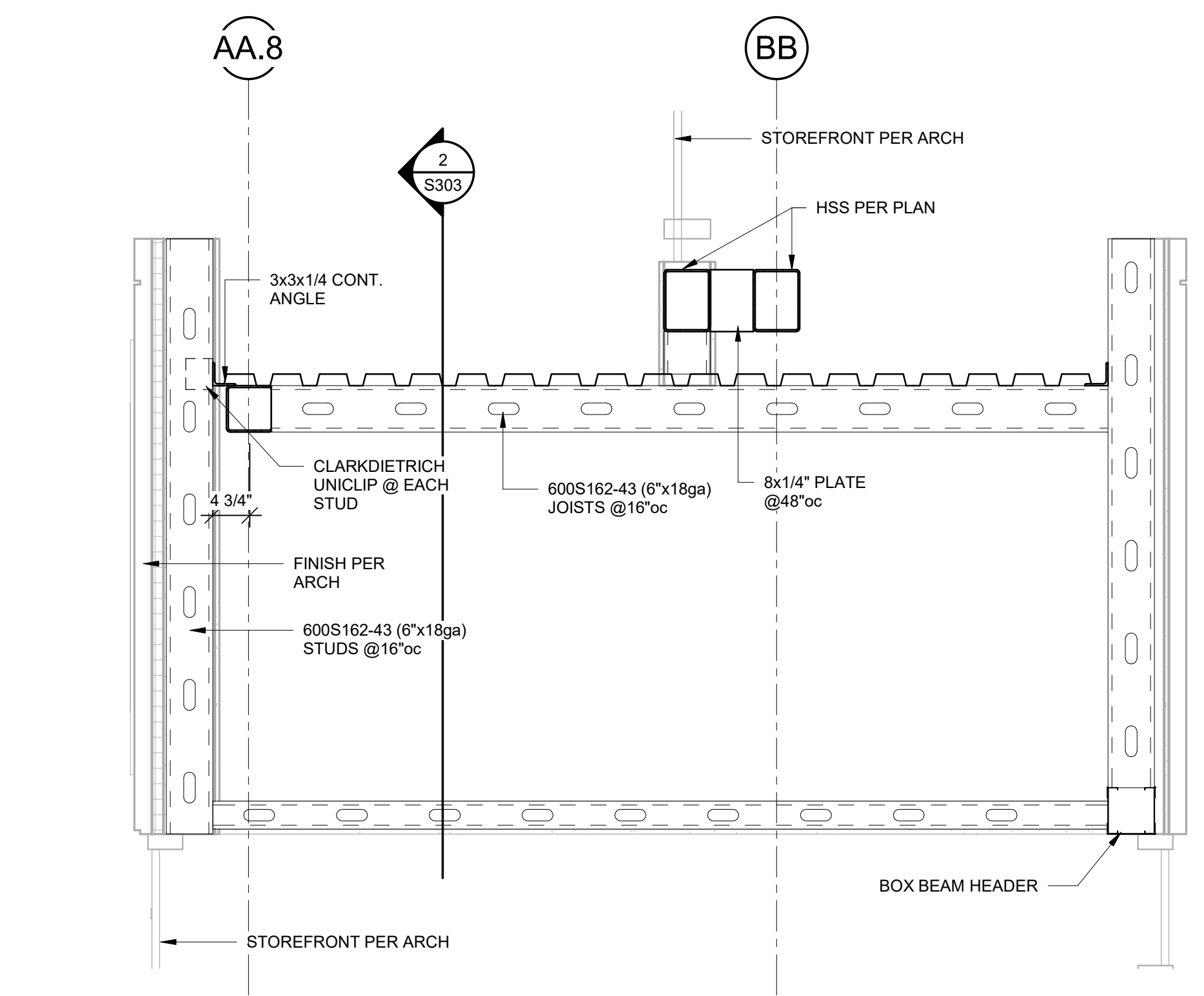
FRAMING SECTIONS

SHEET NUMBER:

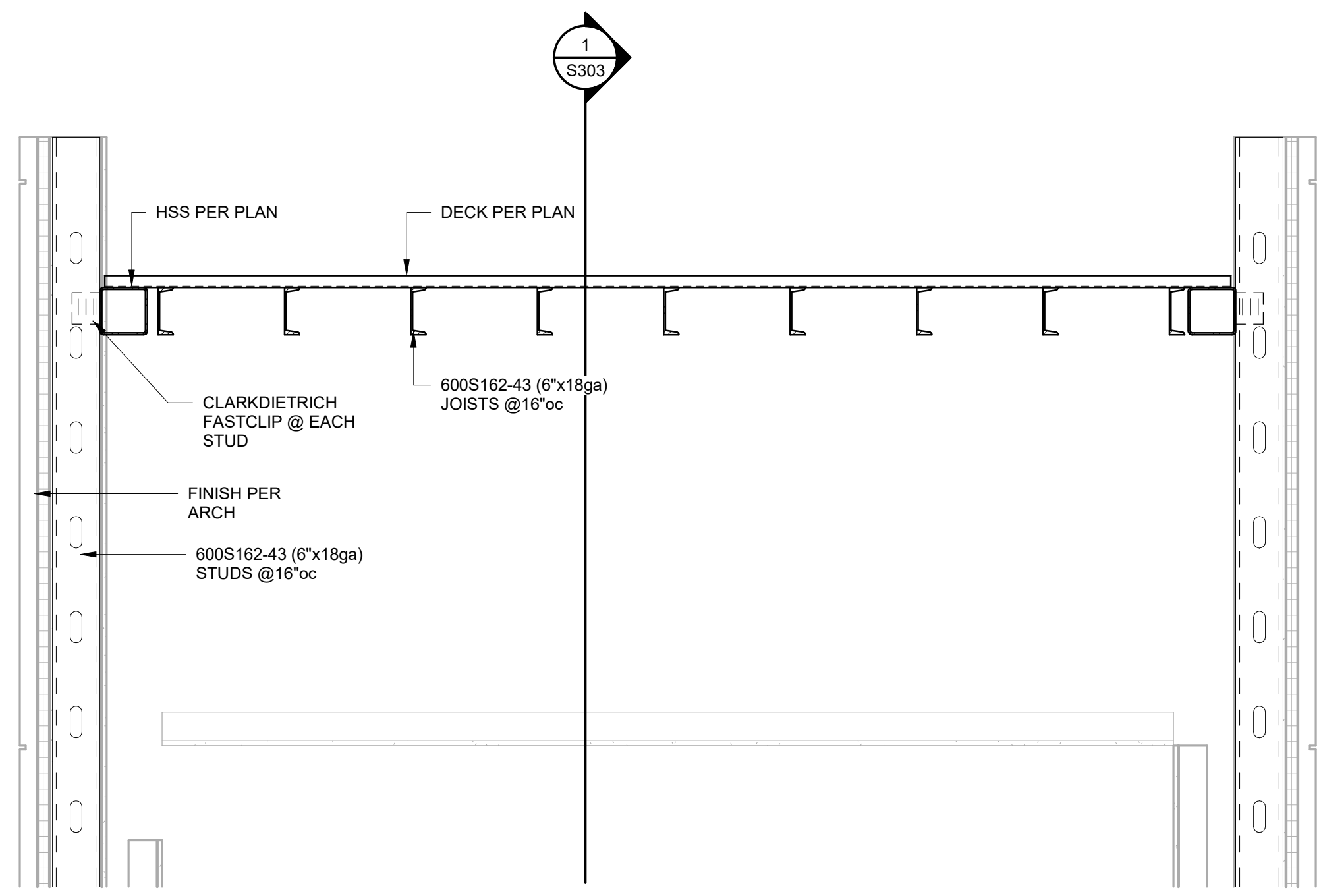
**S303**

SHEET 056 OF 202

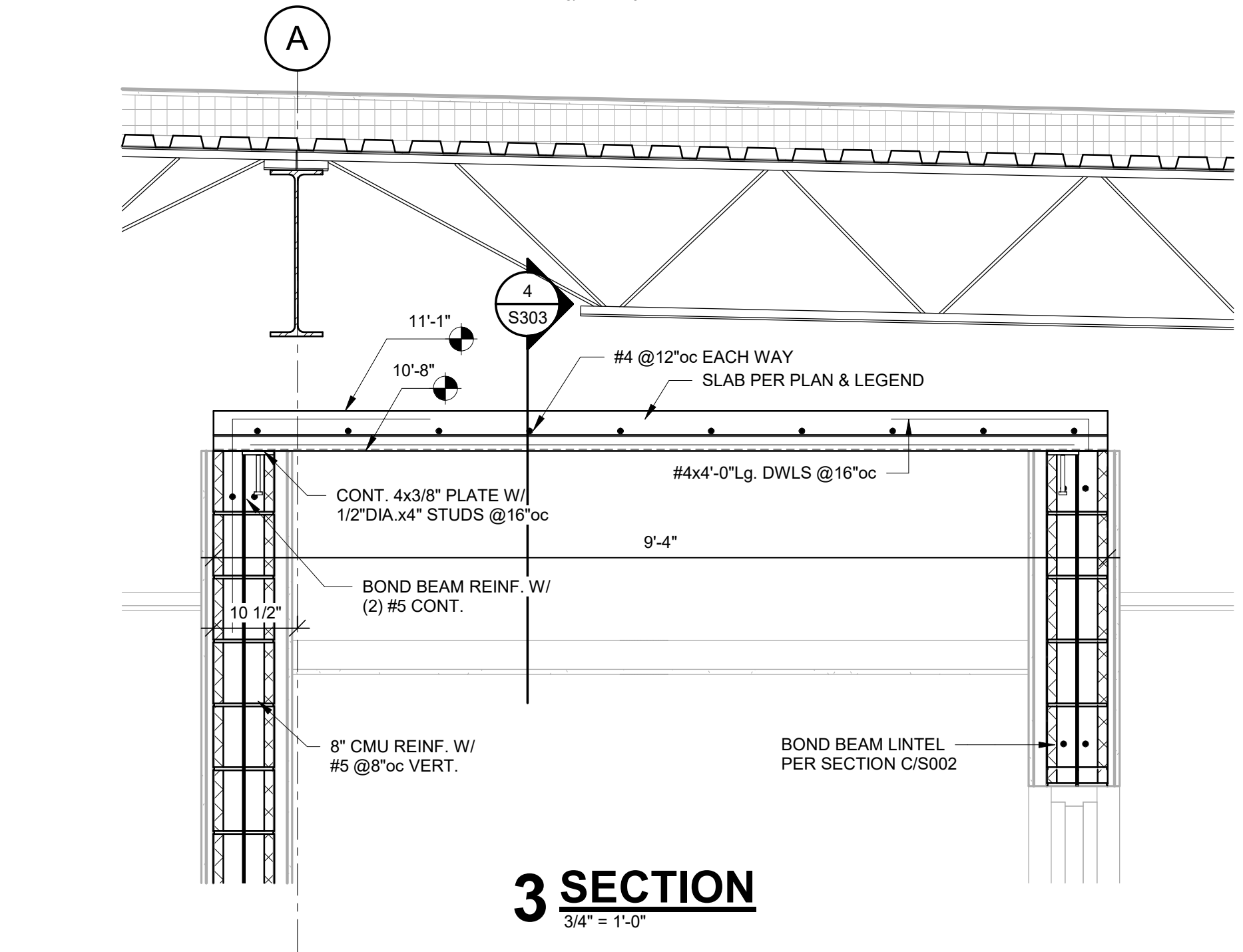
08/01/2023



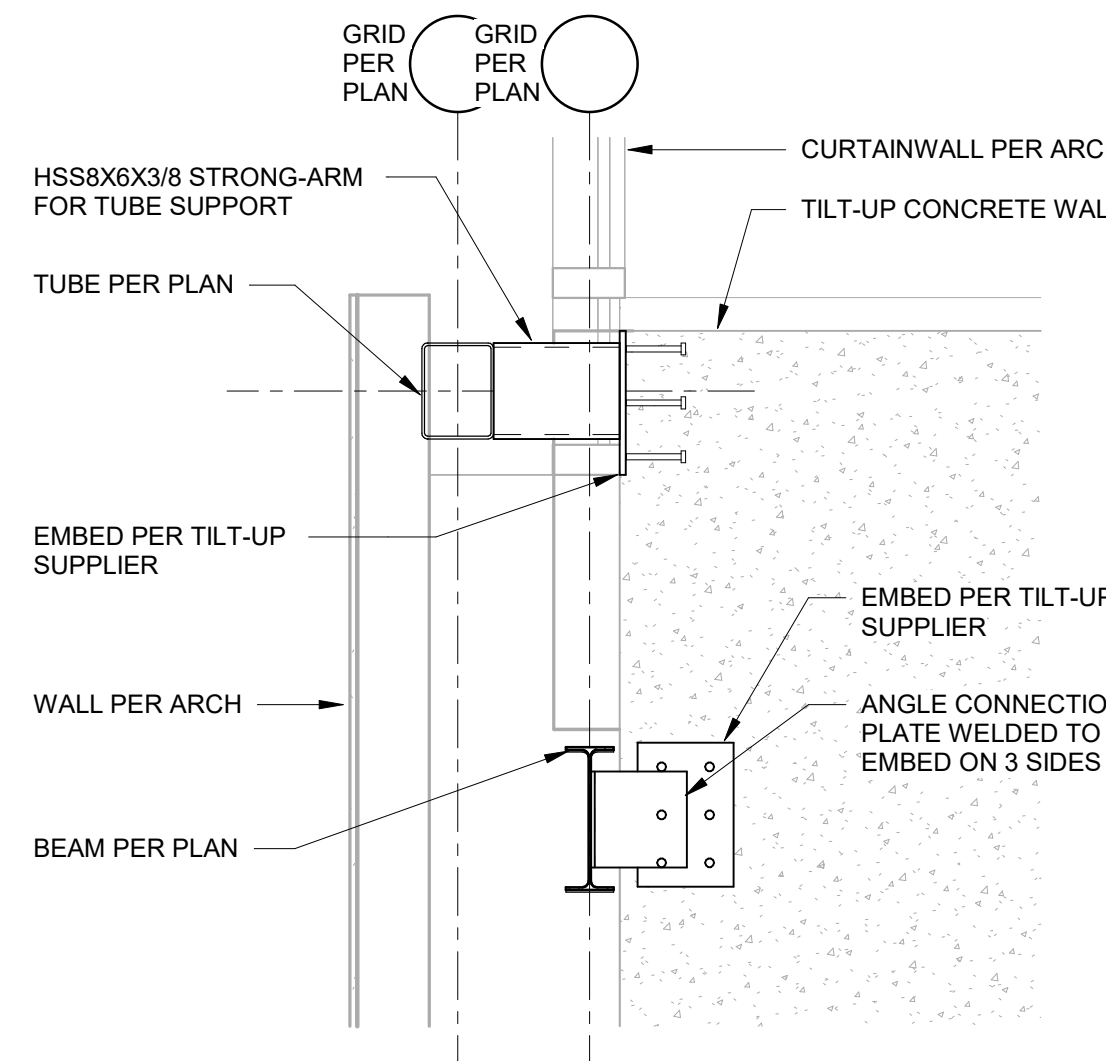
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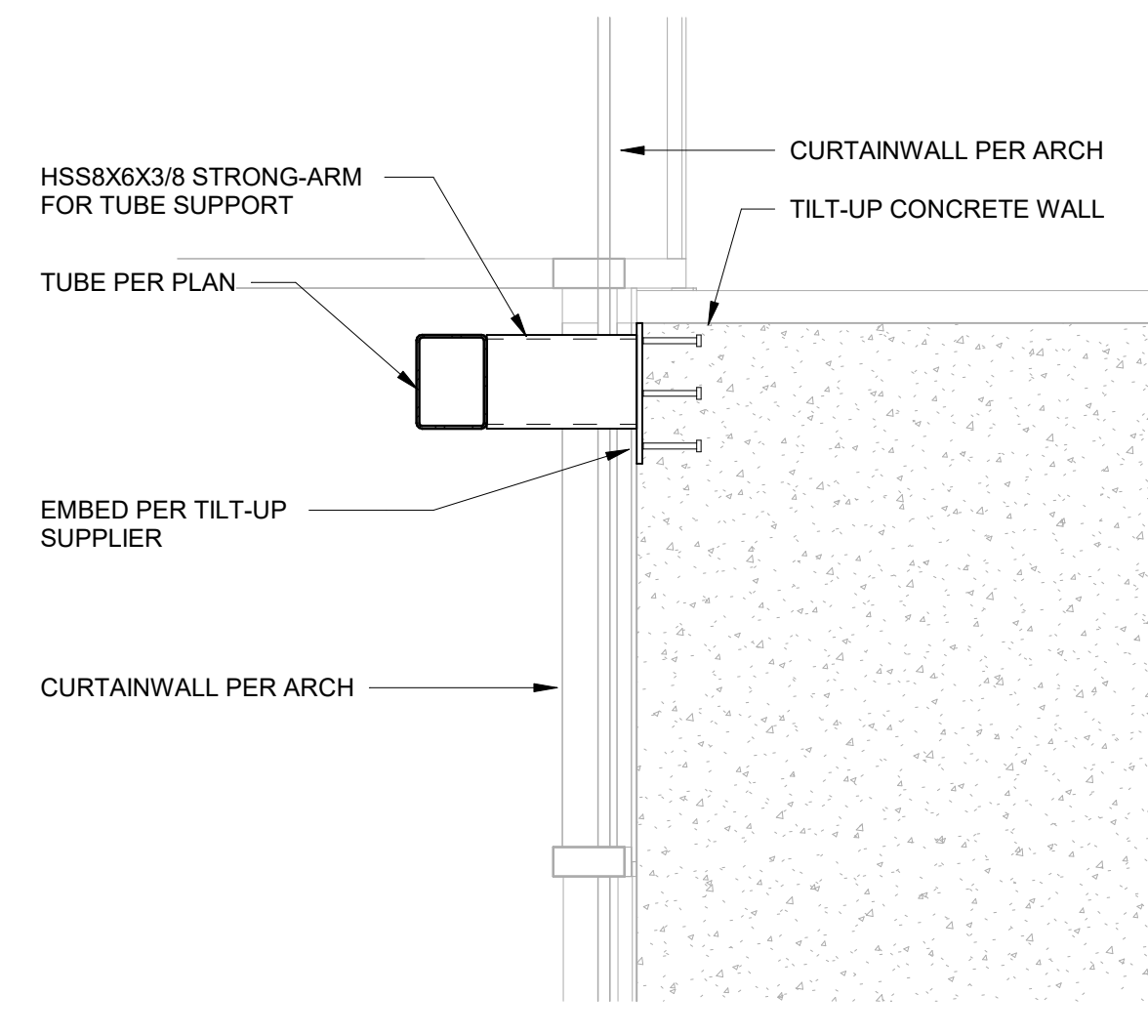
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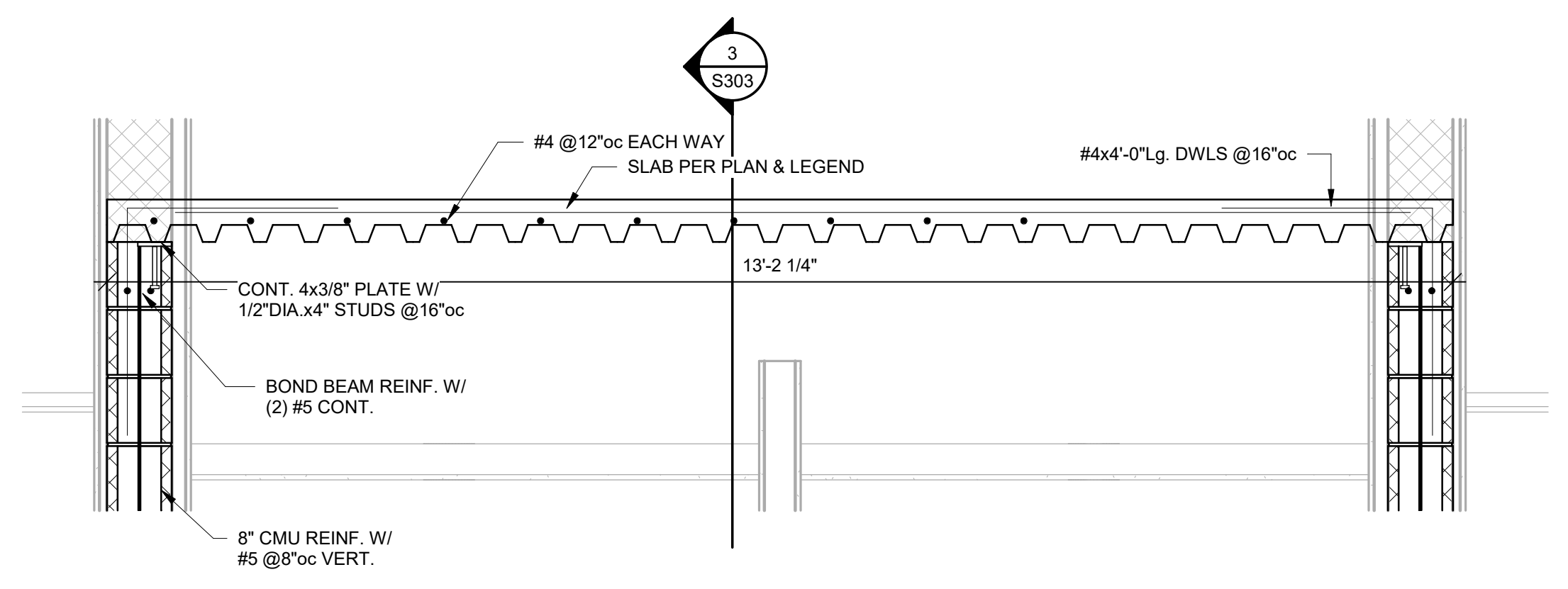
**3 SECTION**  
3/4" = 1'-0"



**5 SECTION**  
3/4" = 1'-0"



**6 SECTION**  
3/4" = 1'-0"



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





Clark A. Basinger - Engineer  
 MO# 2010026832

**Gastinger Walker &**

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 817 Wyandotte Kansas City, Missouri 64105 816.421.8200 gastingerwalker.com  
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 MSHP

1900 NE Independence Ave.  
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PROJECT # R2219-01  
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REVISION:  
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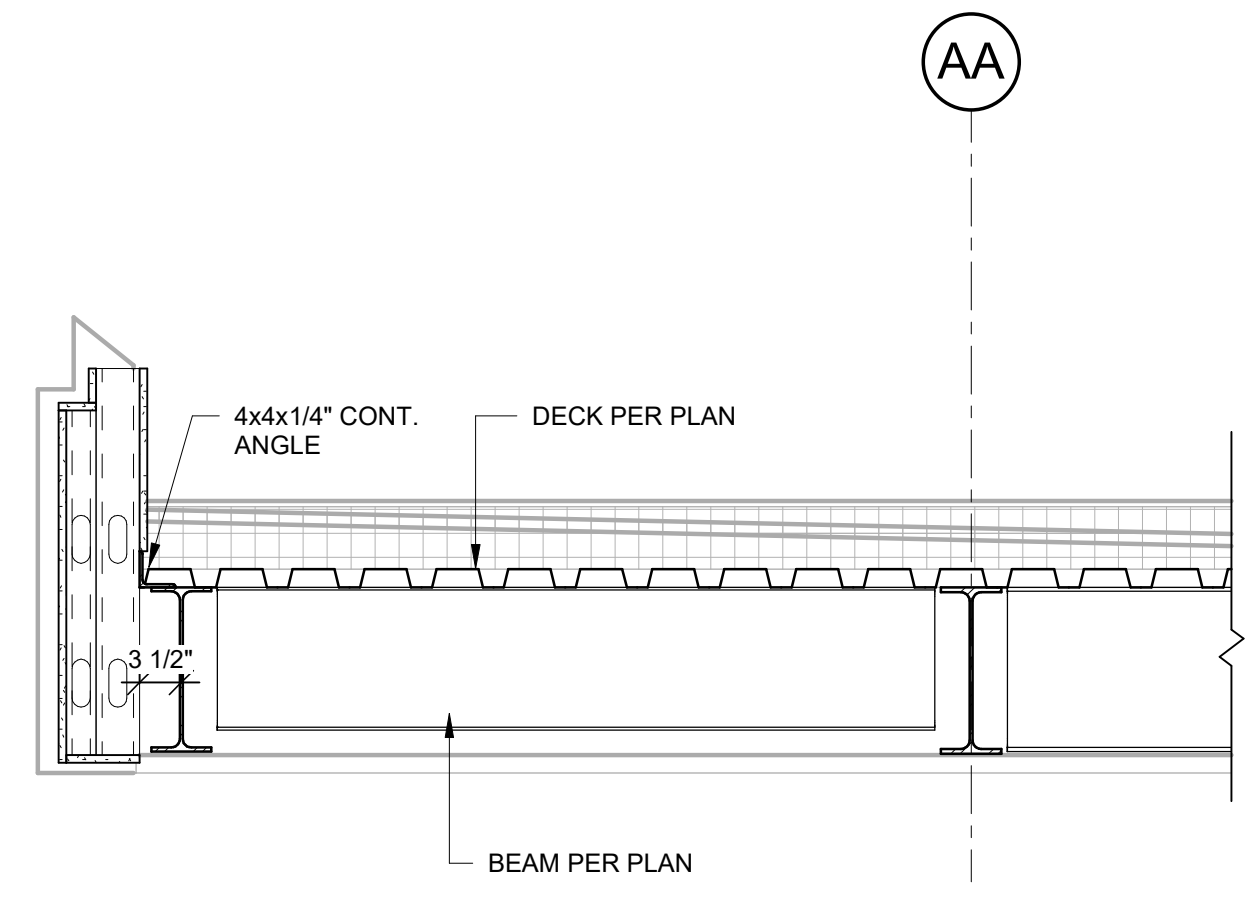
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 CHECKED BY: CAB  
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 SHEET TITLE:

FRAMING SECTIONS

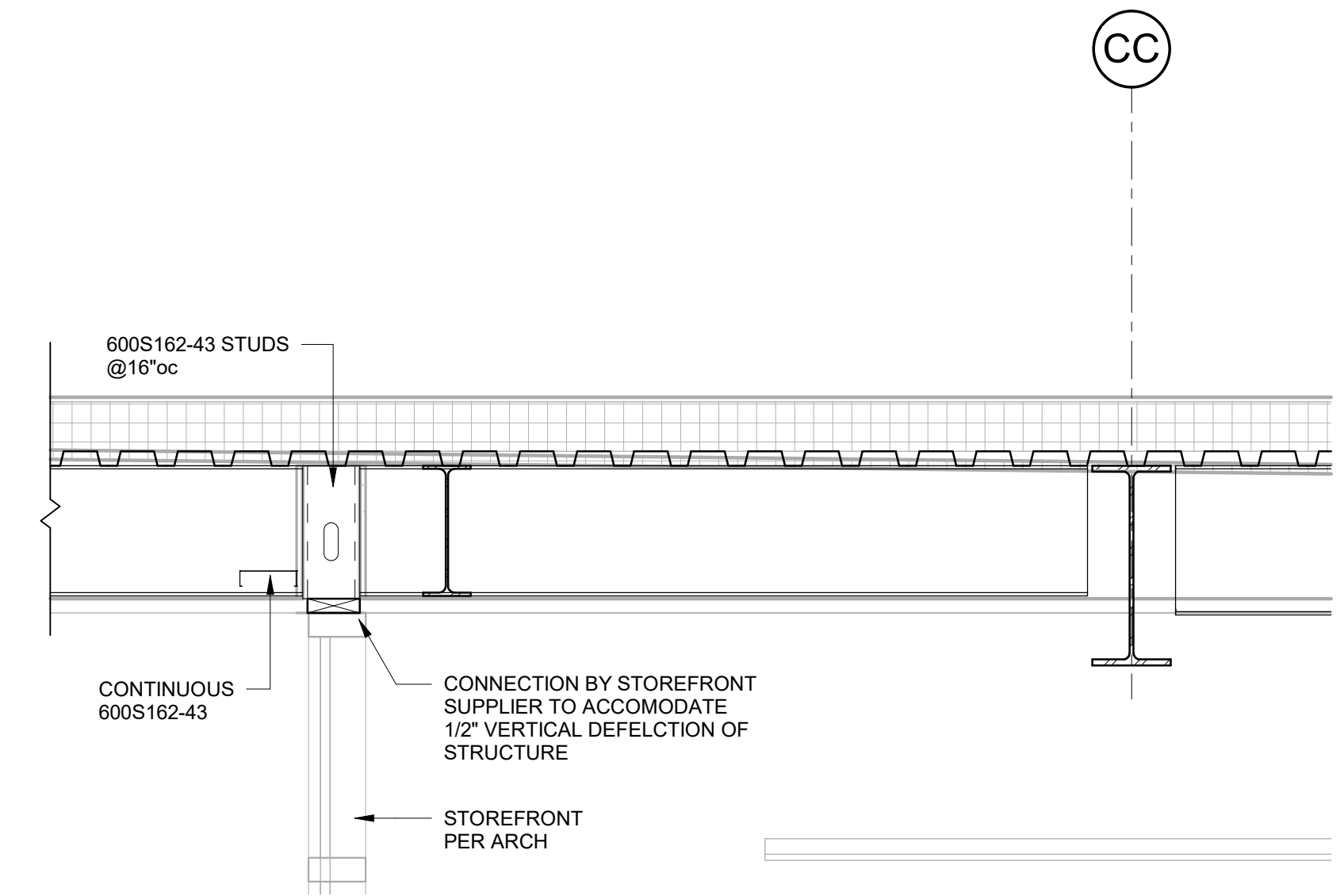
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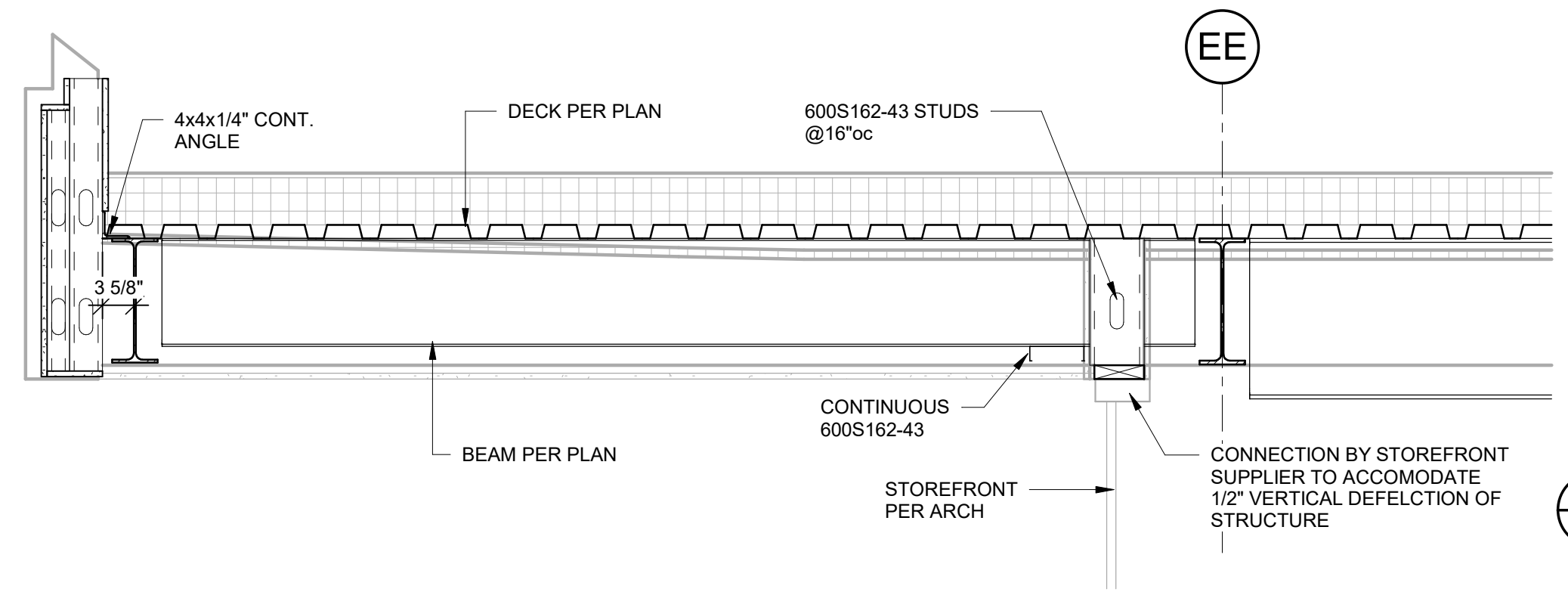
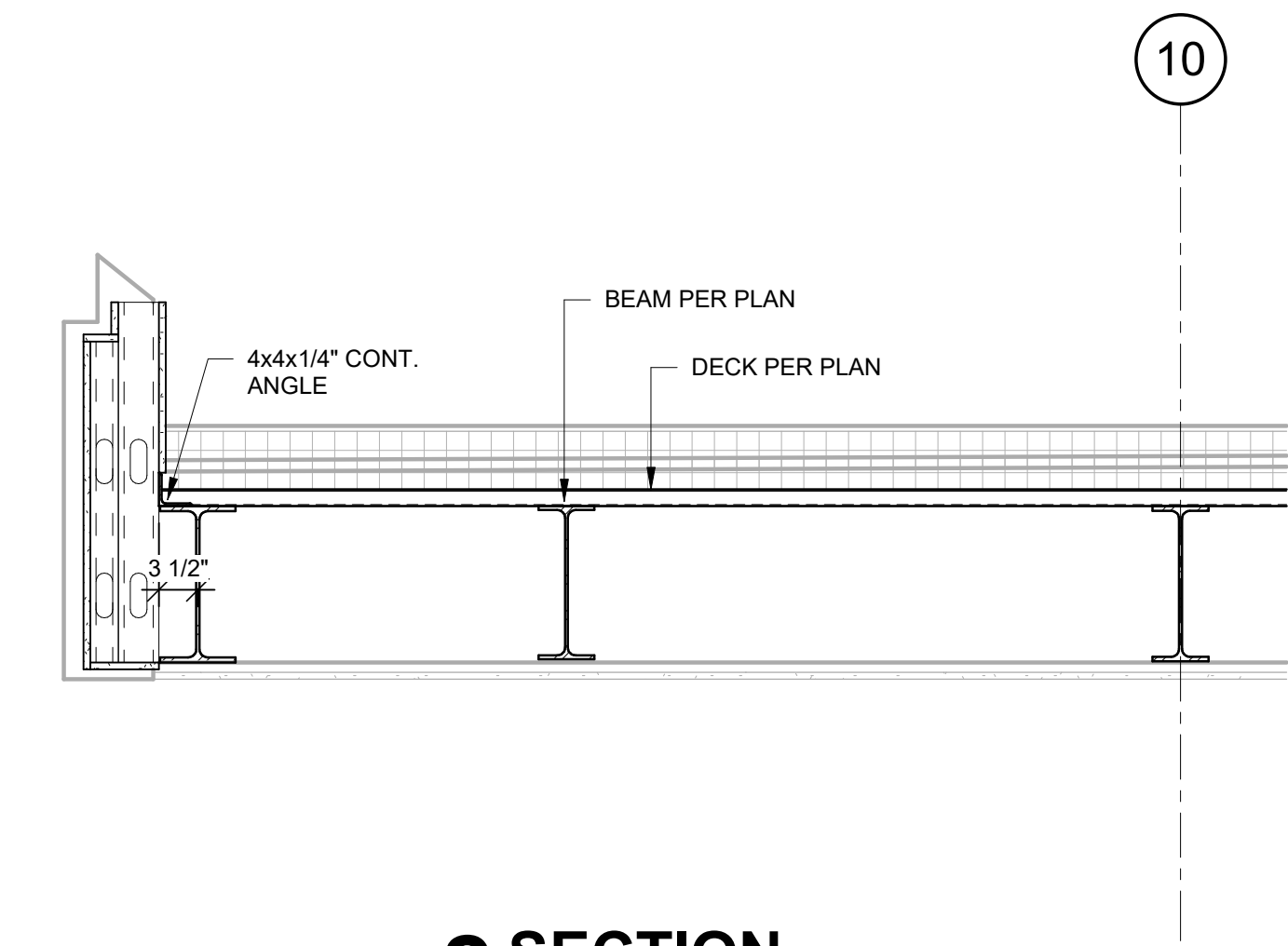
SHEET 057 OF 202  
 08/01/2023



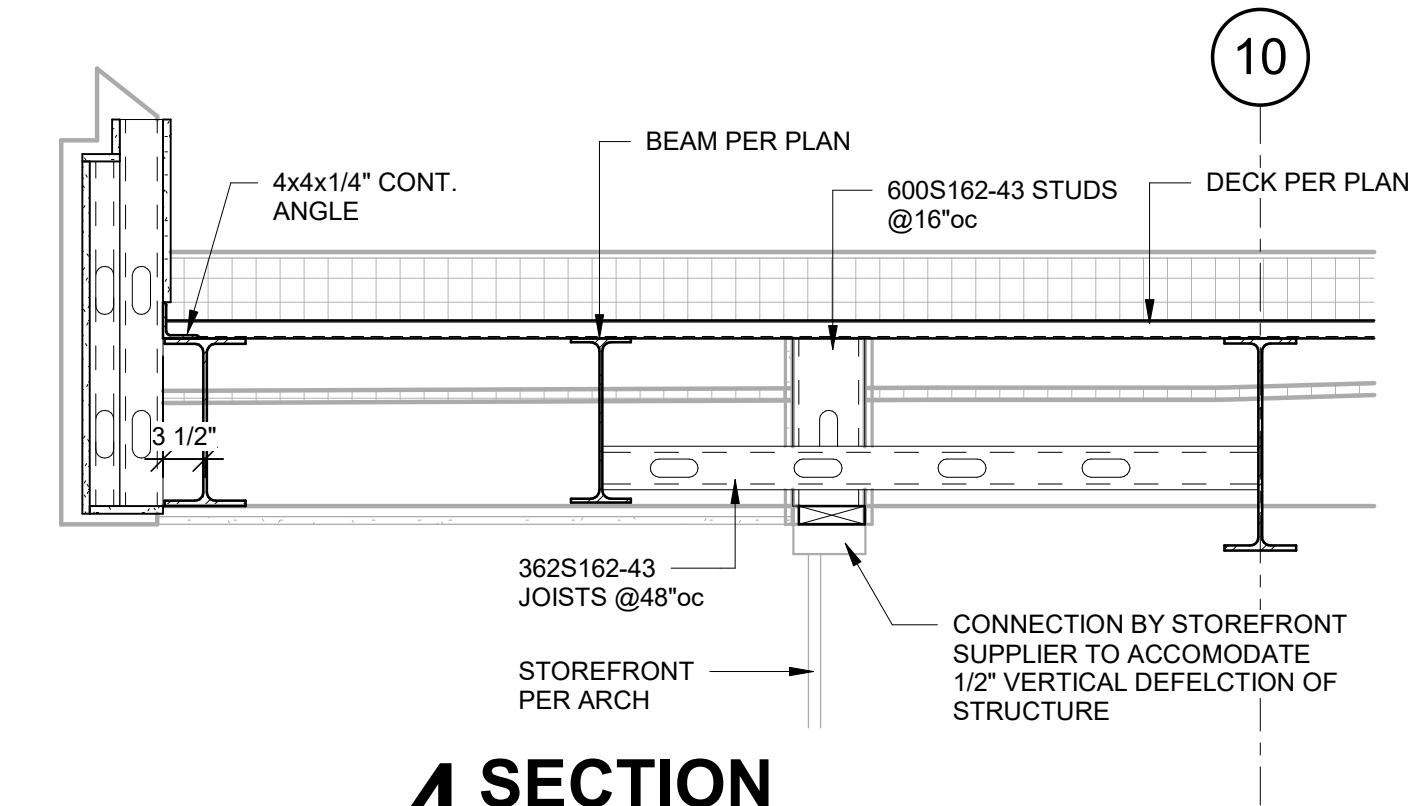
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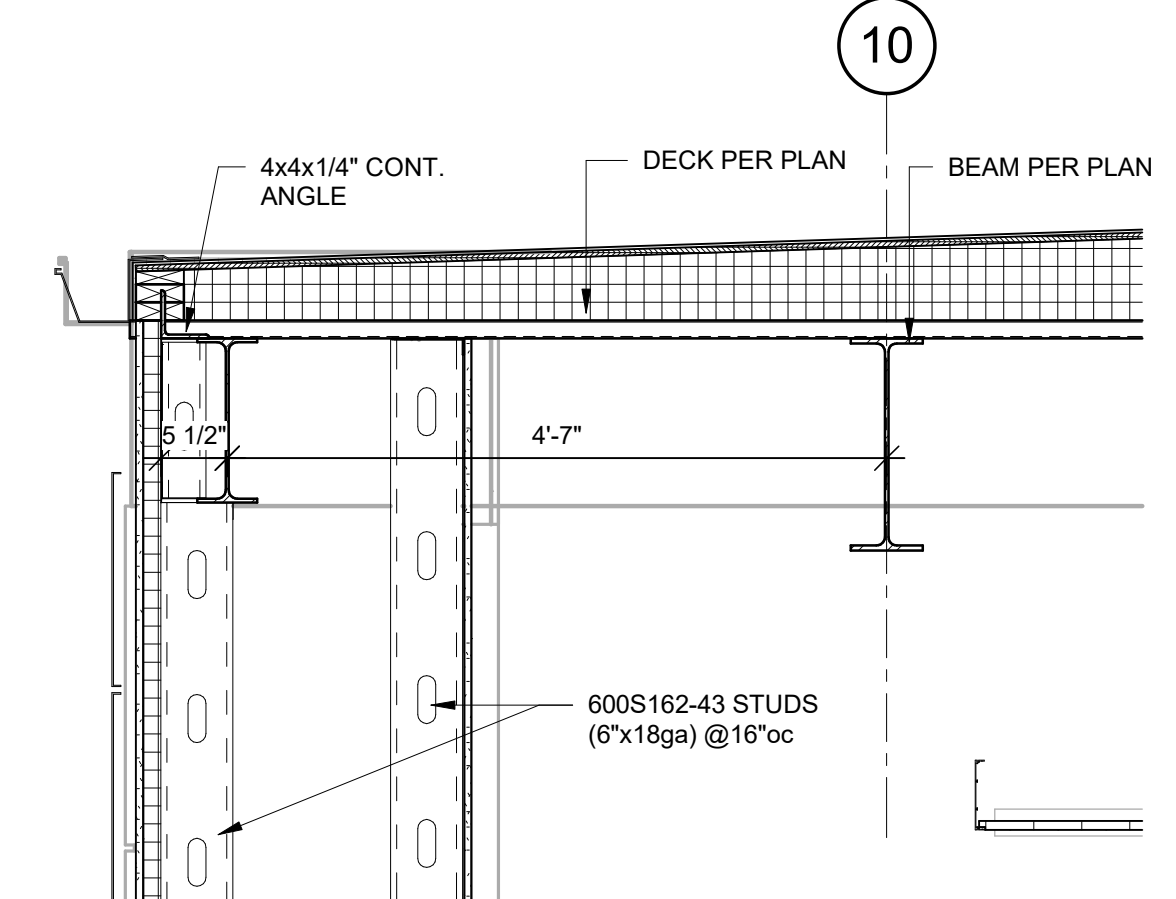
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 3/4" = 1'-0"



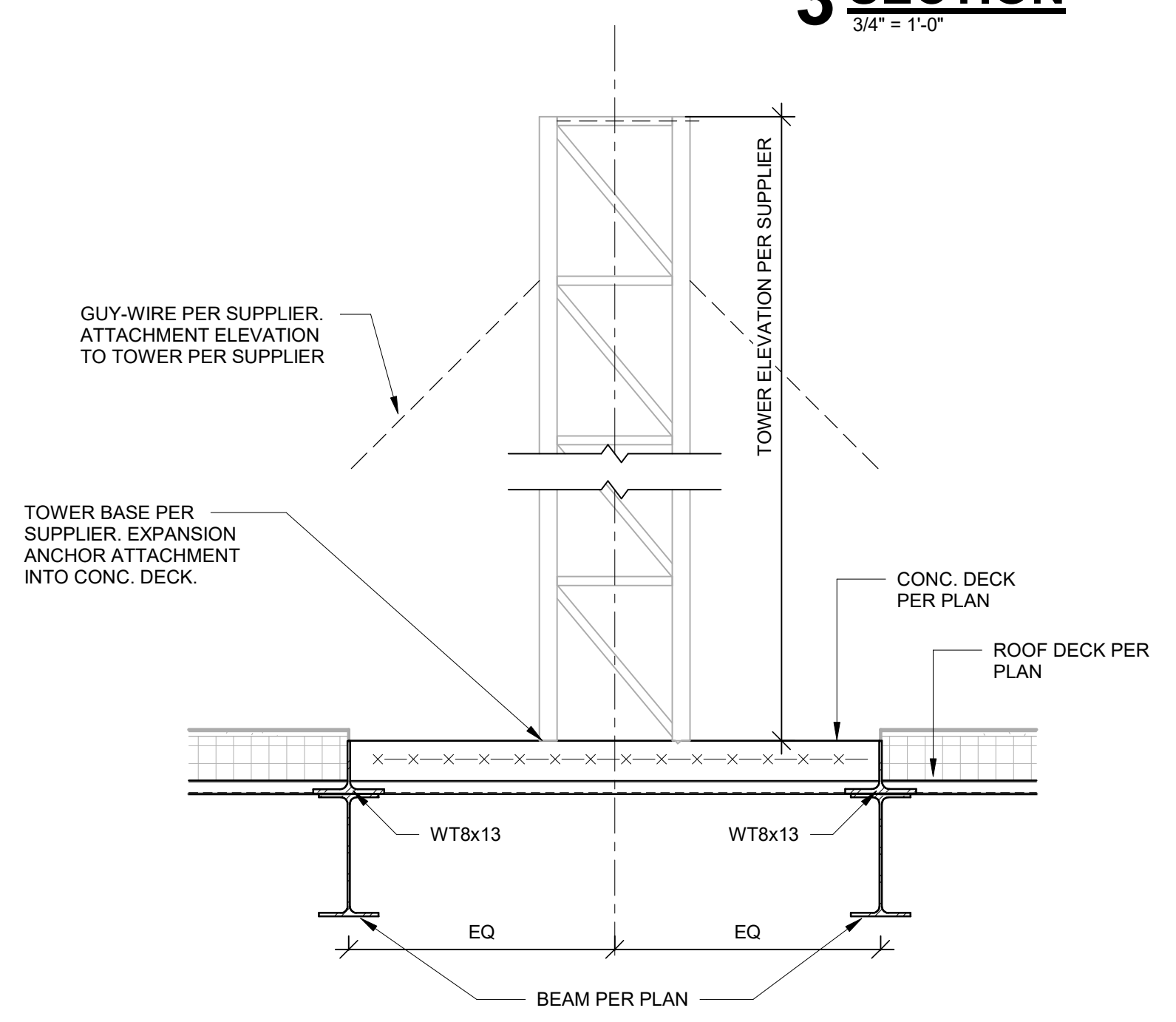
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 3/4" = 1'-0"



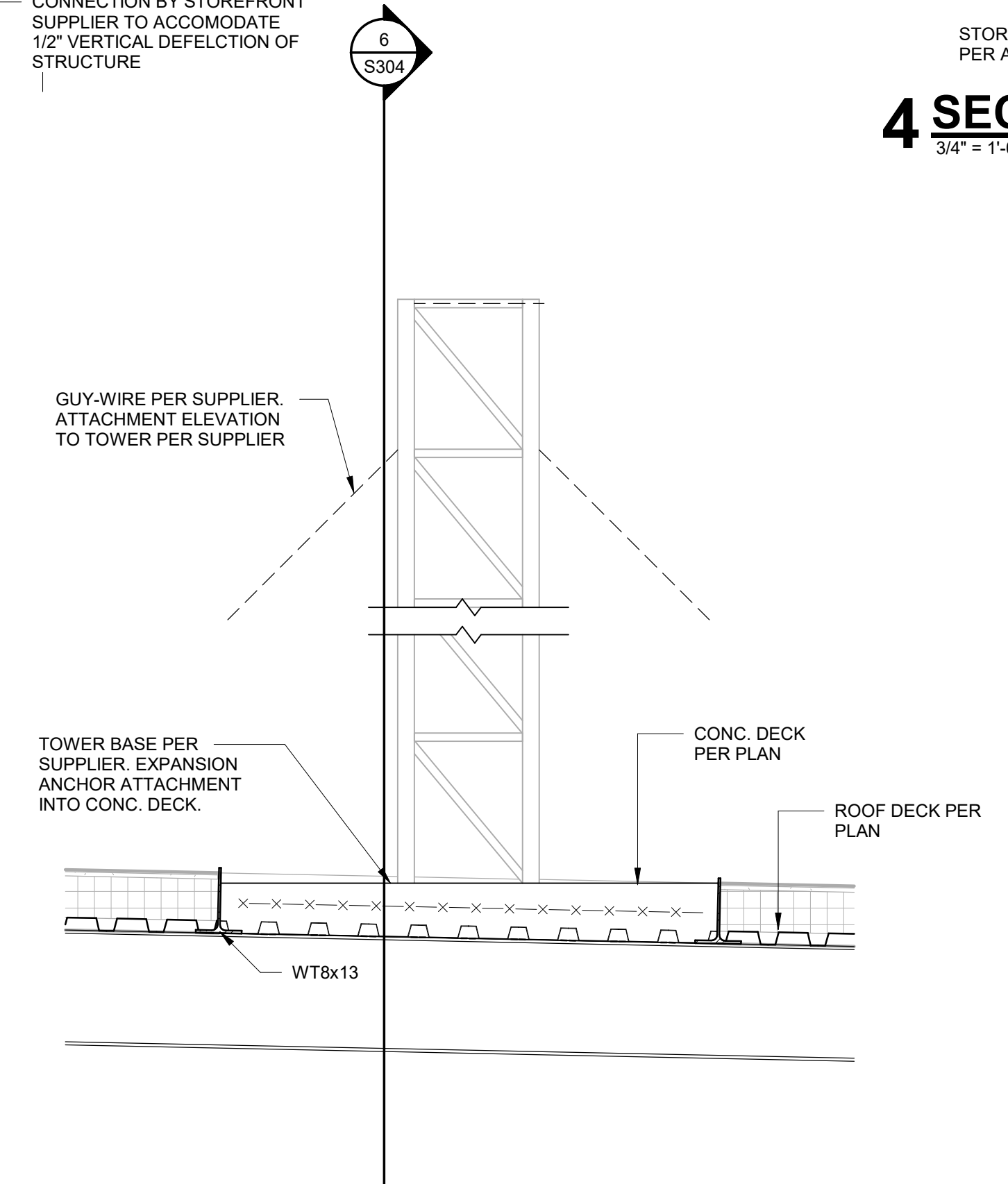
**4 SECTION**  
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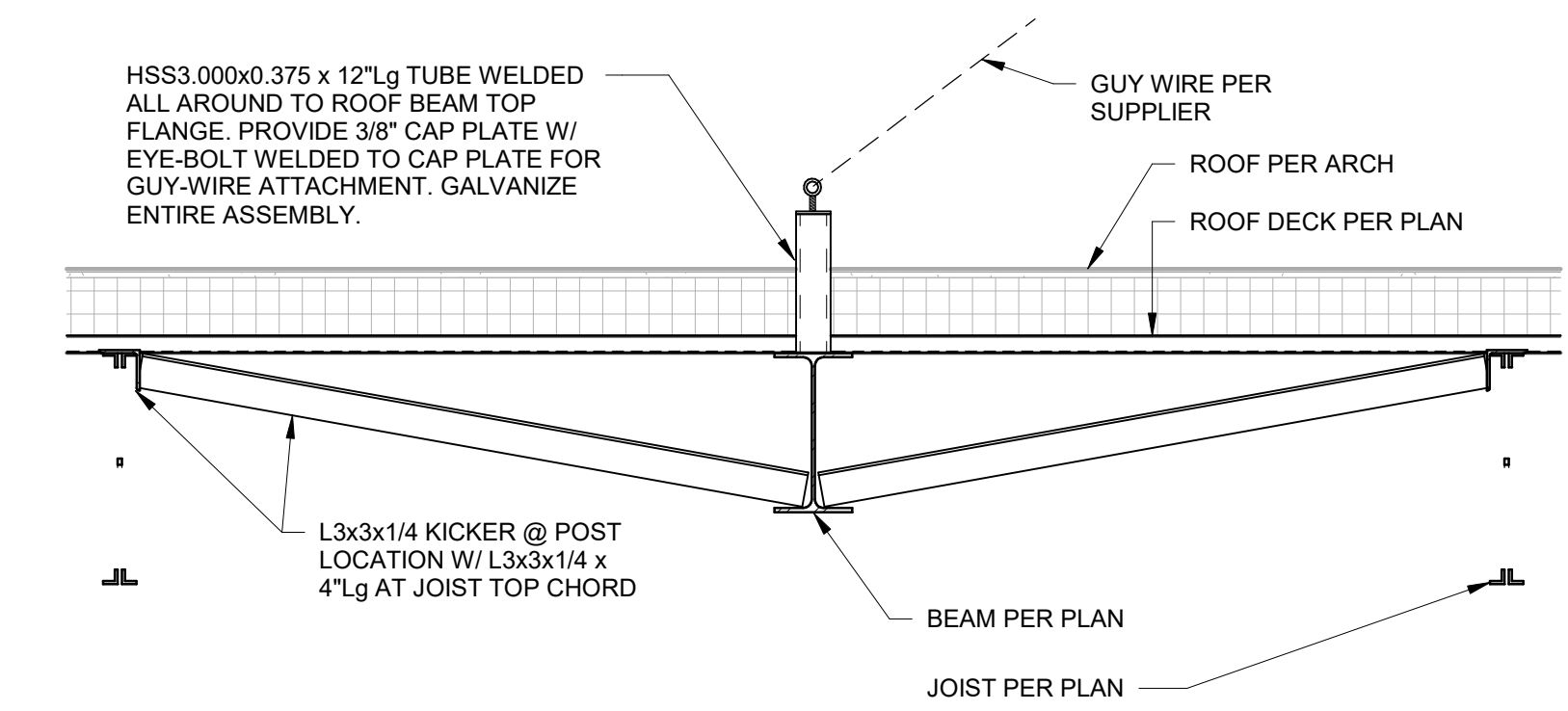
**5 SECTION**  
 3/4" = 1'-0"



**6 SECTION**  
 3/4" = 1'-0"



**7 SECTION**  
 3/4" = 1'-0"



**8 SECTION**  
 3/4" = 1'-0"



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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: S305.dwg  
DRAWN BY: MLF  
CHECKED BY: CAB  
DESIGNED BY: BDC  
SHEET TITLE:

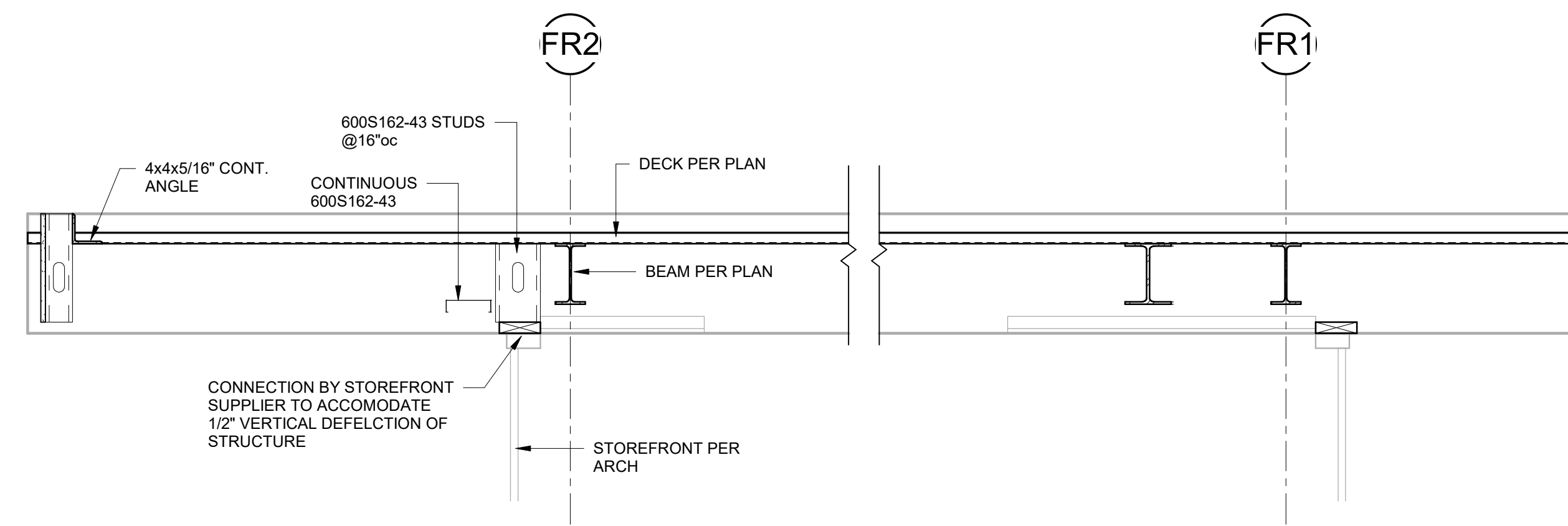
FRAMING SECTIONS -  
FIRING RANGE  
(ALTERNATE #04)

SHEET NUMBER:

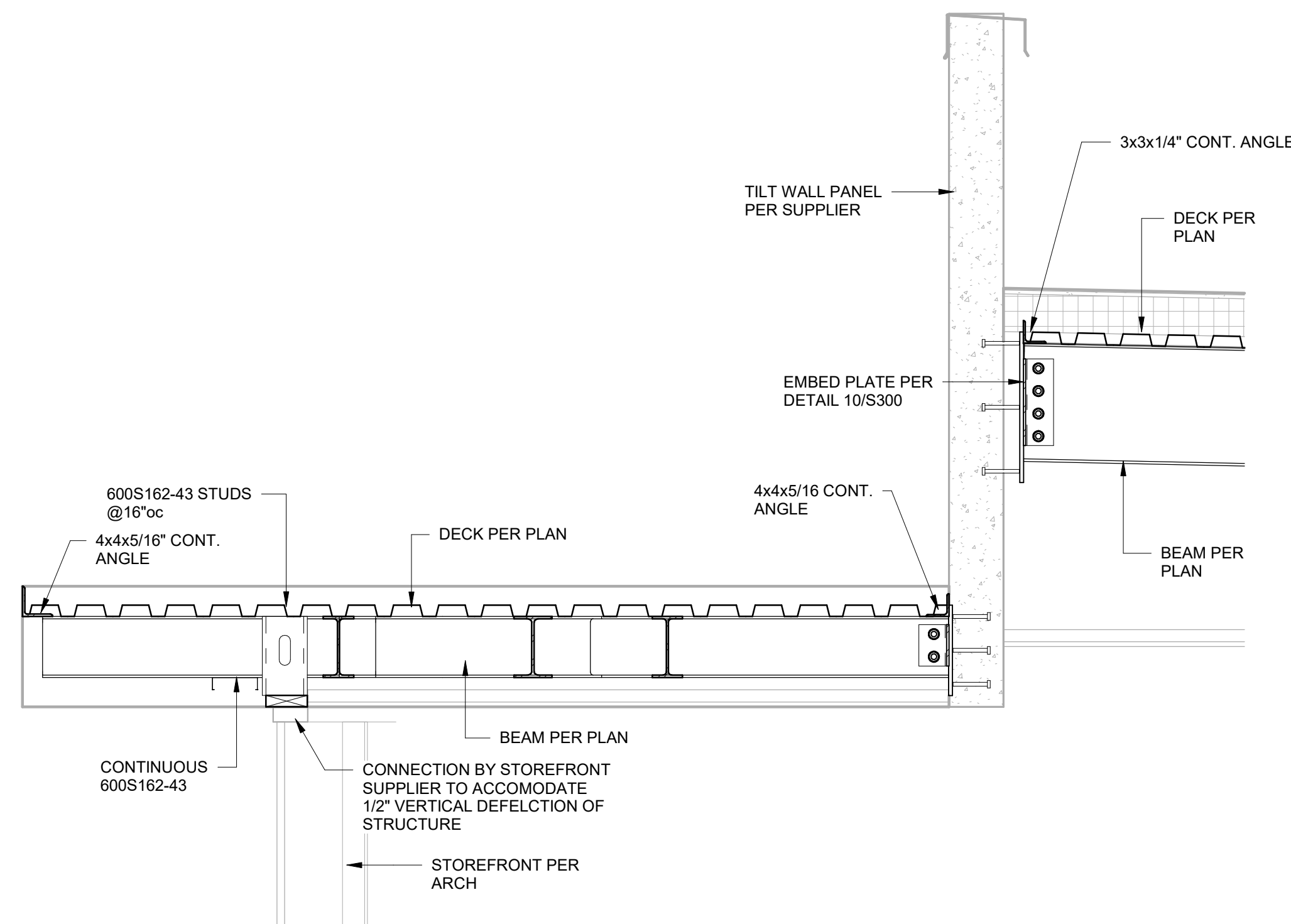
**S305**

SHEET 058 OF 202

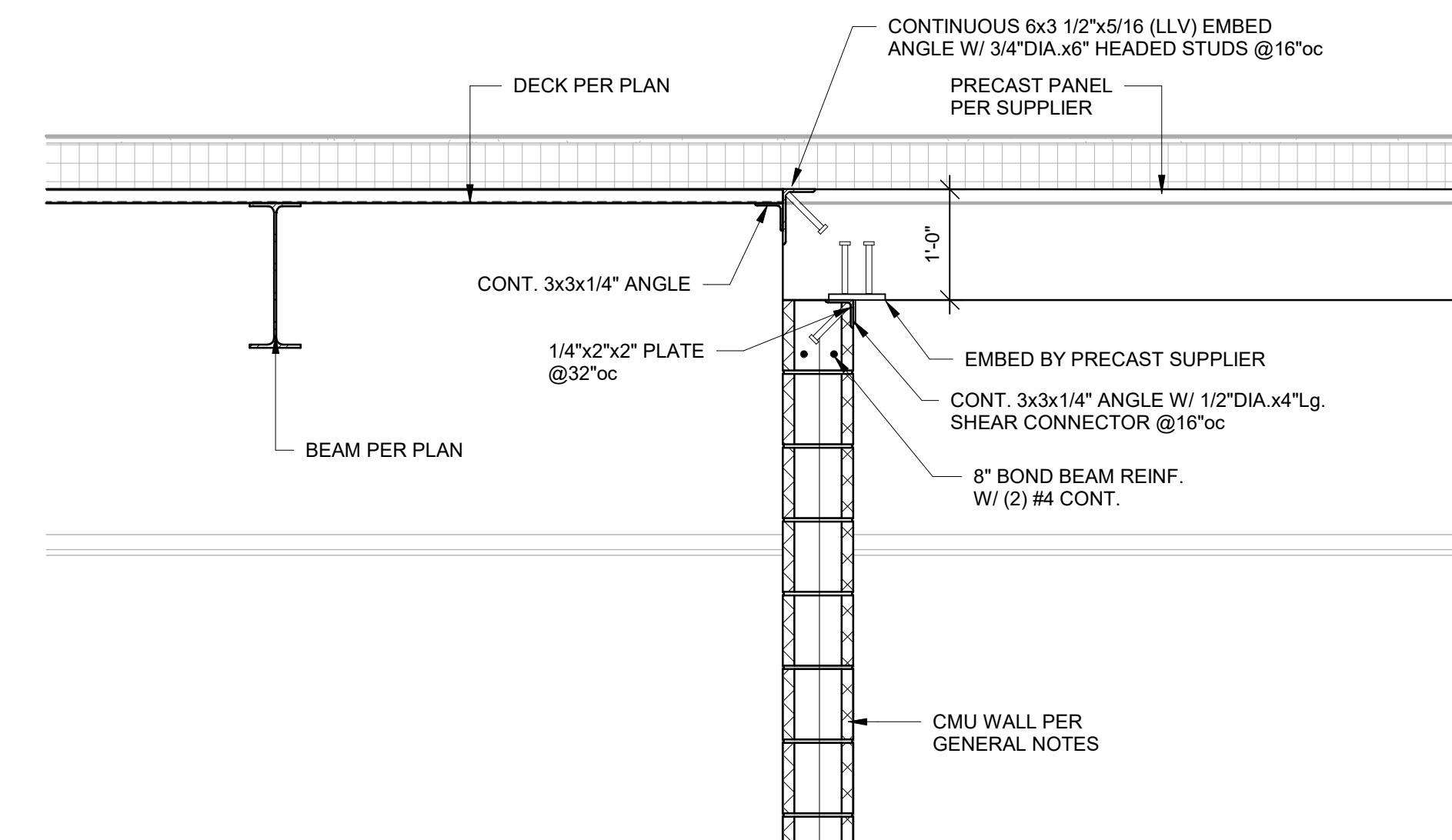
08/01/2023



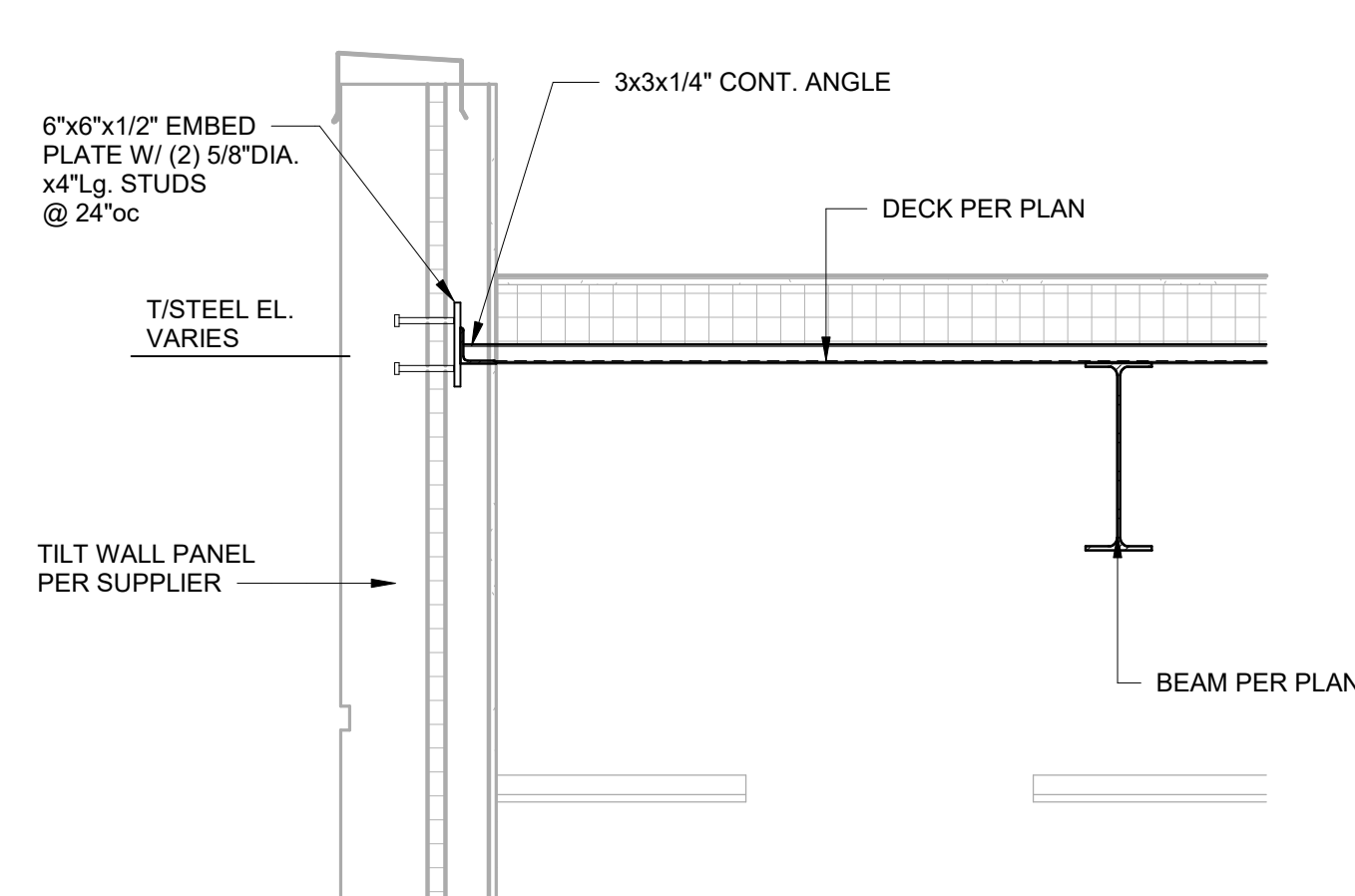
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3/4" = 1'-0"



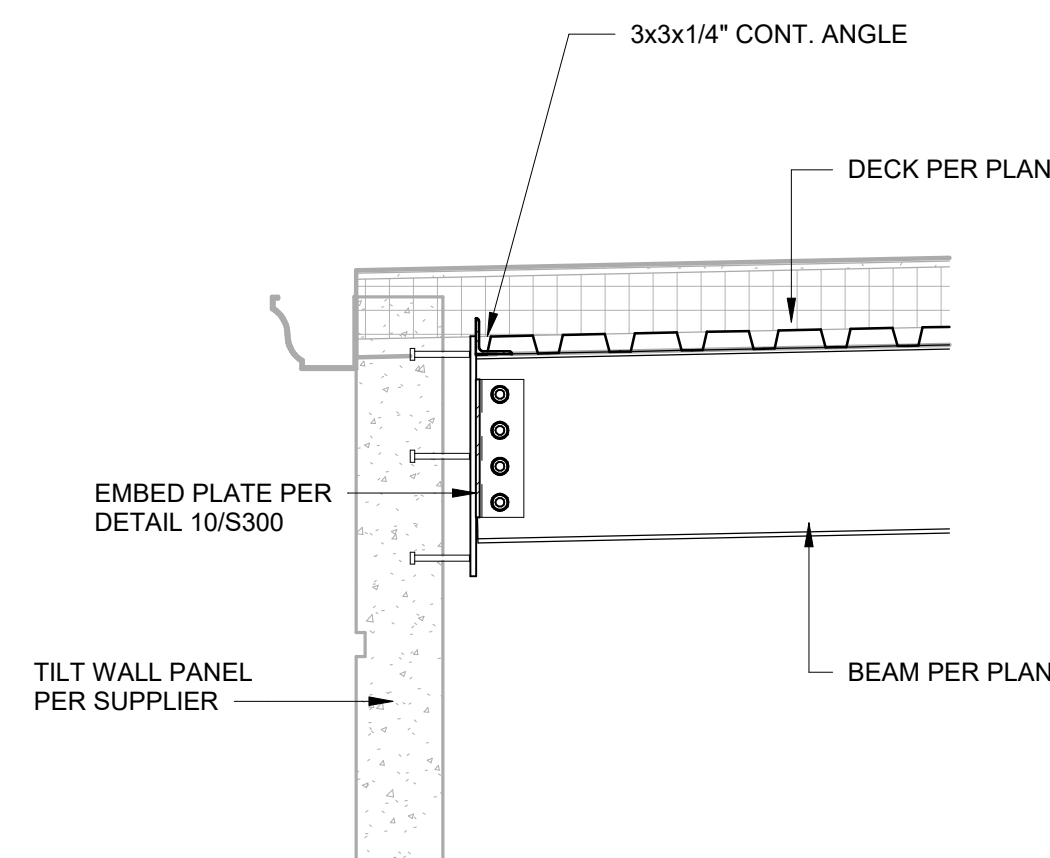
**1 SECTION (ALTERNATE #04)**  
3/4" = 1'-0"



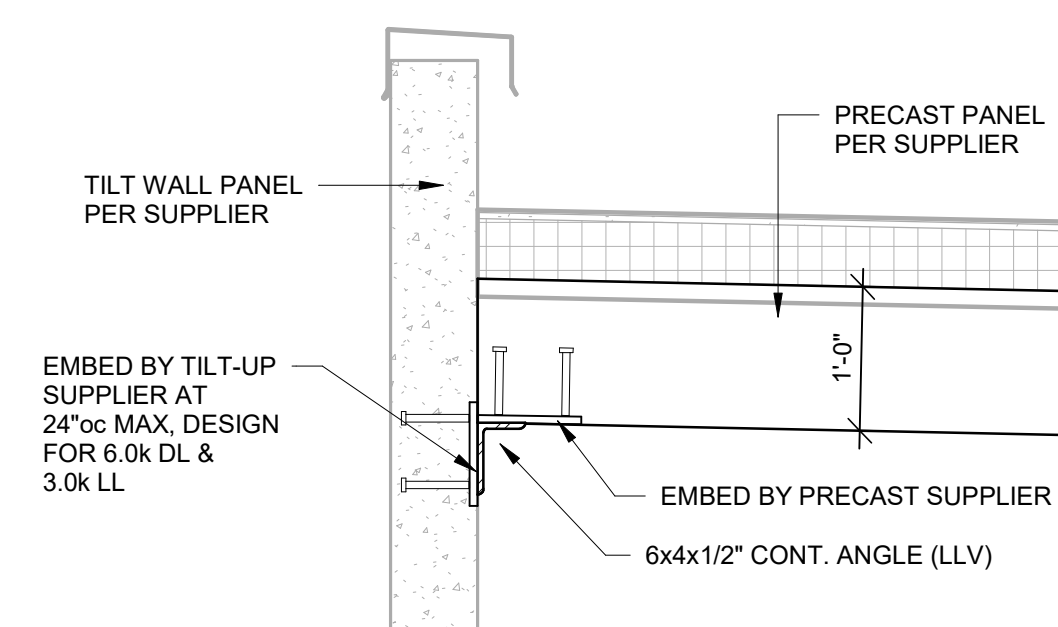
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3/4" = 1'-0"



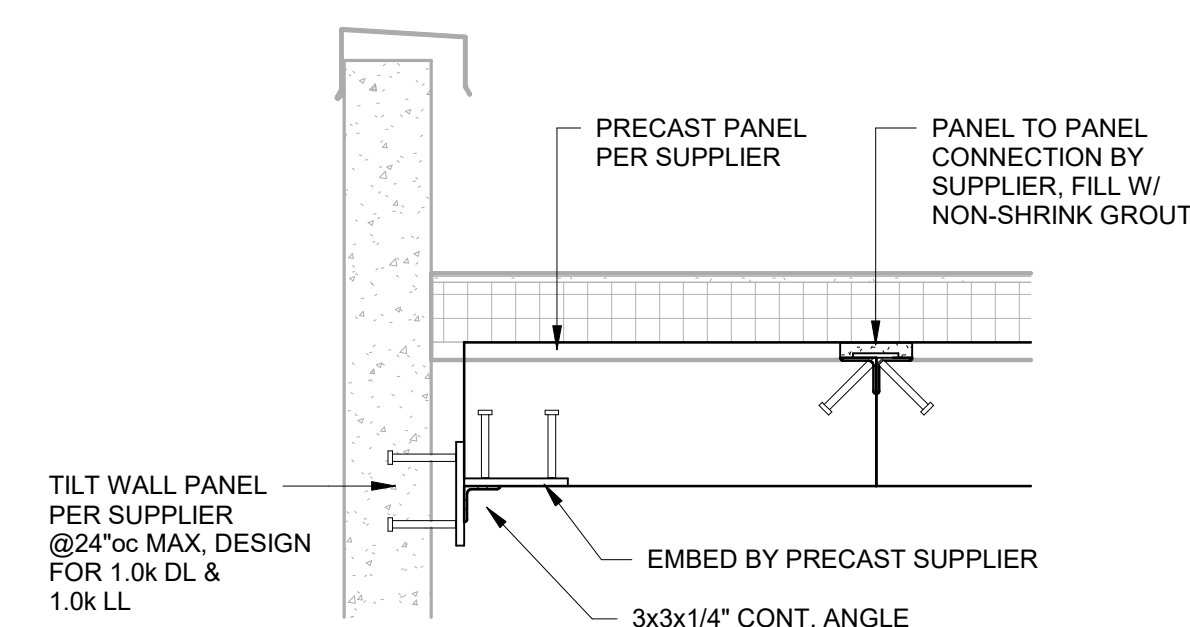
**3 SECTION (ALTERNATE #04)**  
3/4" = 1'-0"



**4 SECTION (ALTERNATE #04)**  
3/4" = 1'-0"



**6 SECTION (ALTERNATE #04)**  
3/4" = 1'-0"



**7 SECTION (ALTERNATE #04)**  
3/4" = 1'-0"



Clark A. Basinger - Engineer  
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 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: S306.dwg  
 DRAWN BY: MLF  
 CHECKED BY: CAB  
 DESIGNED BY: BDC  
 SHEET TITLE:

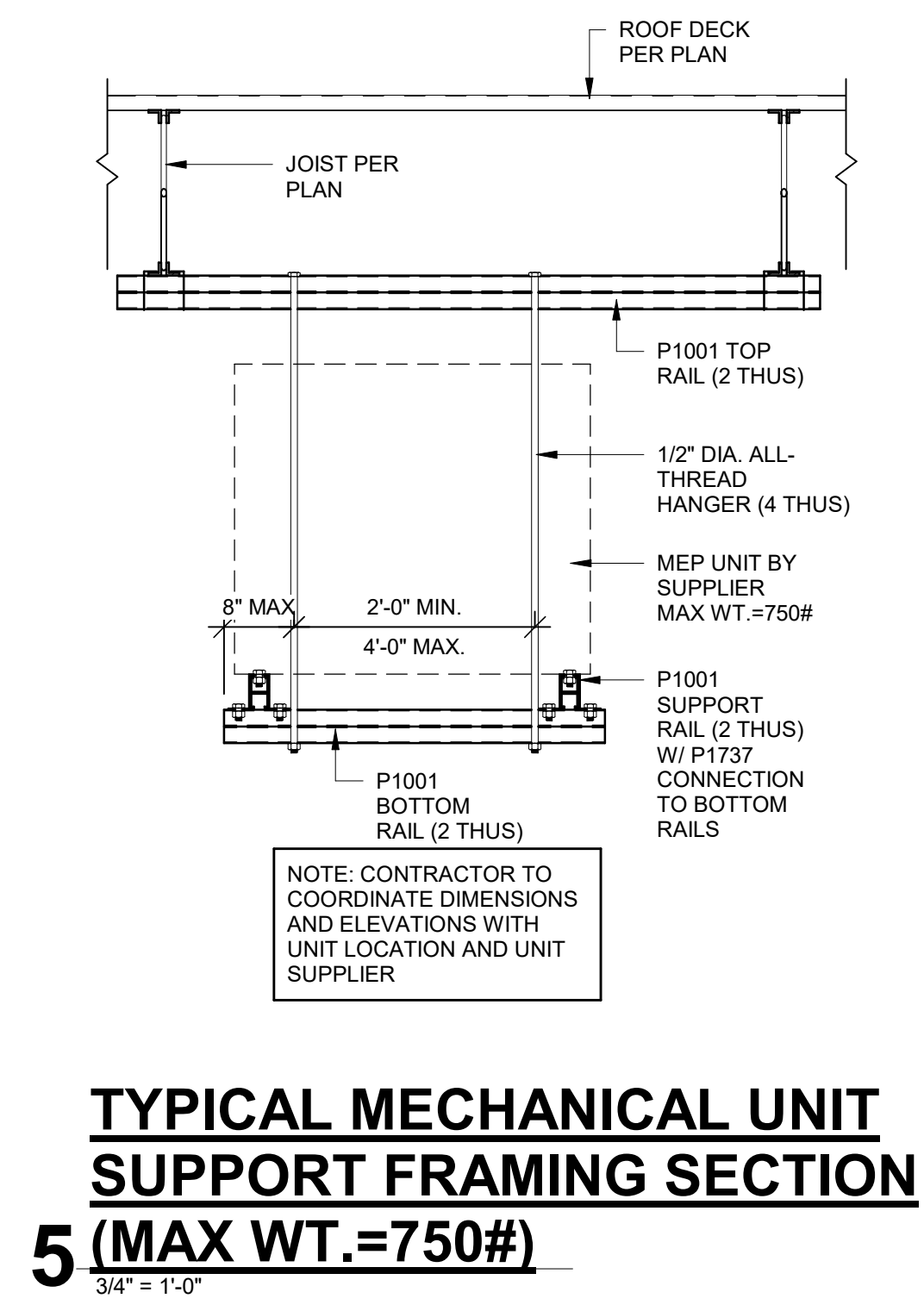
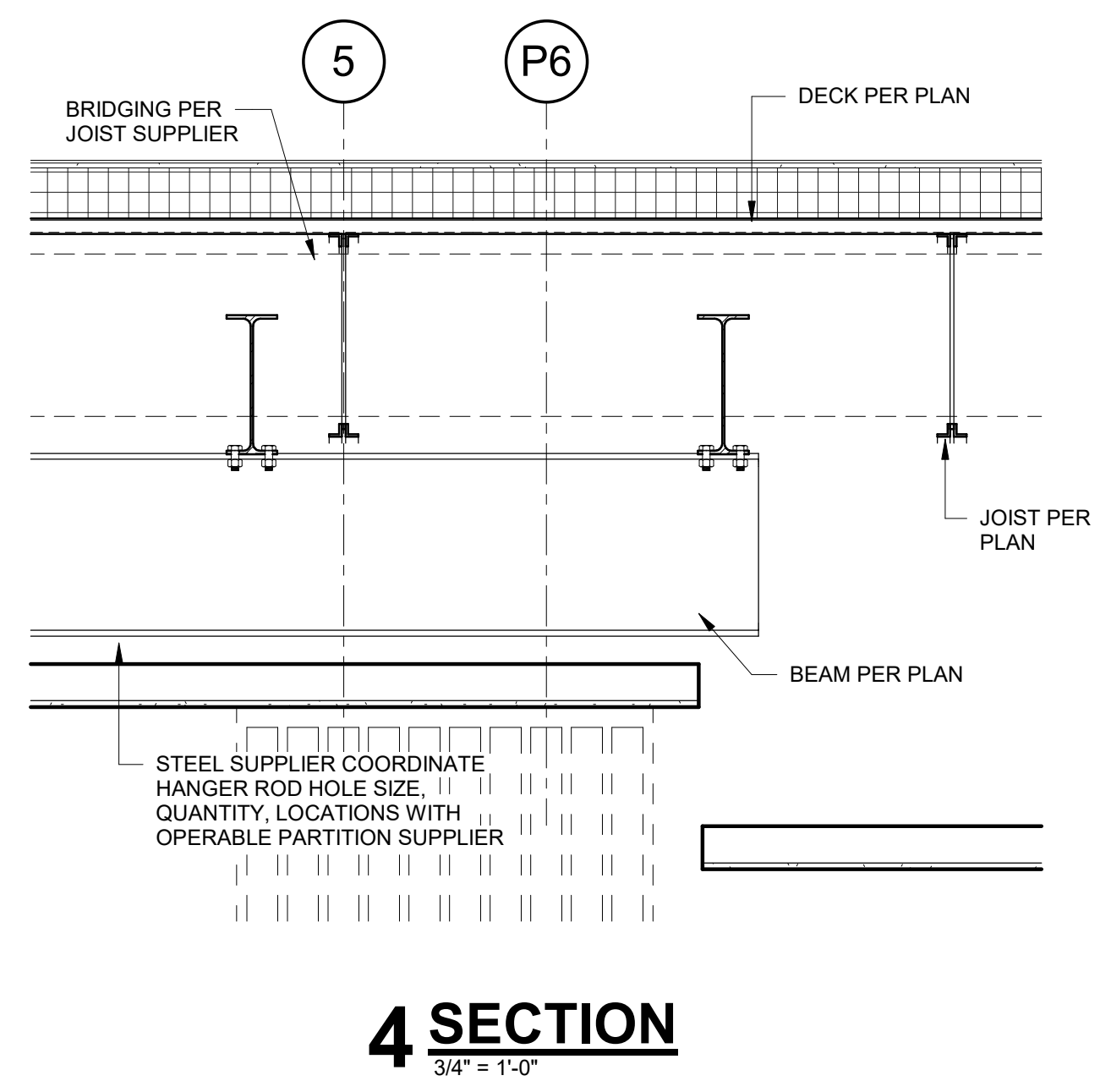
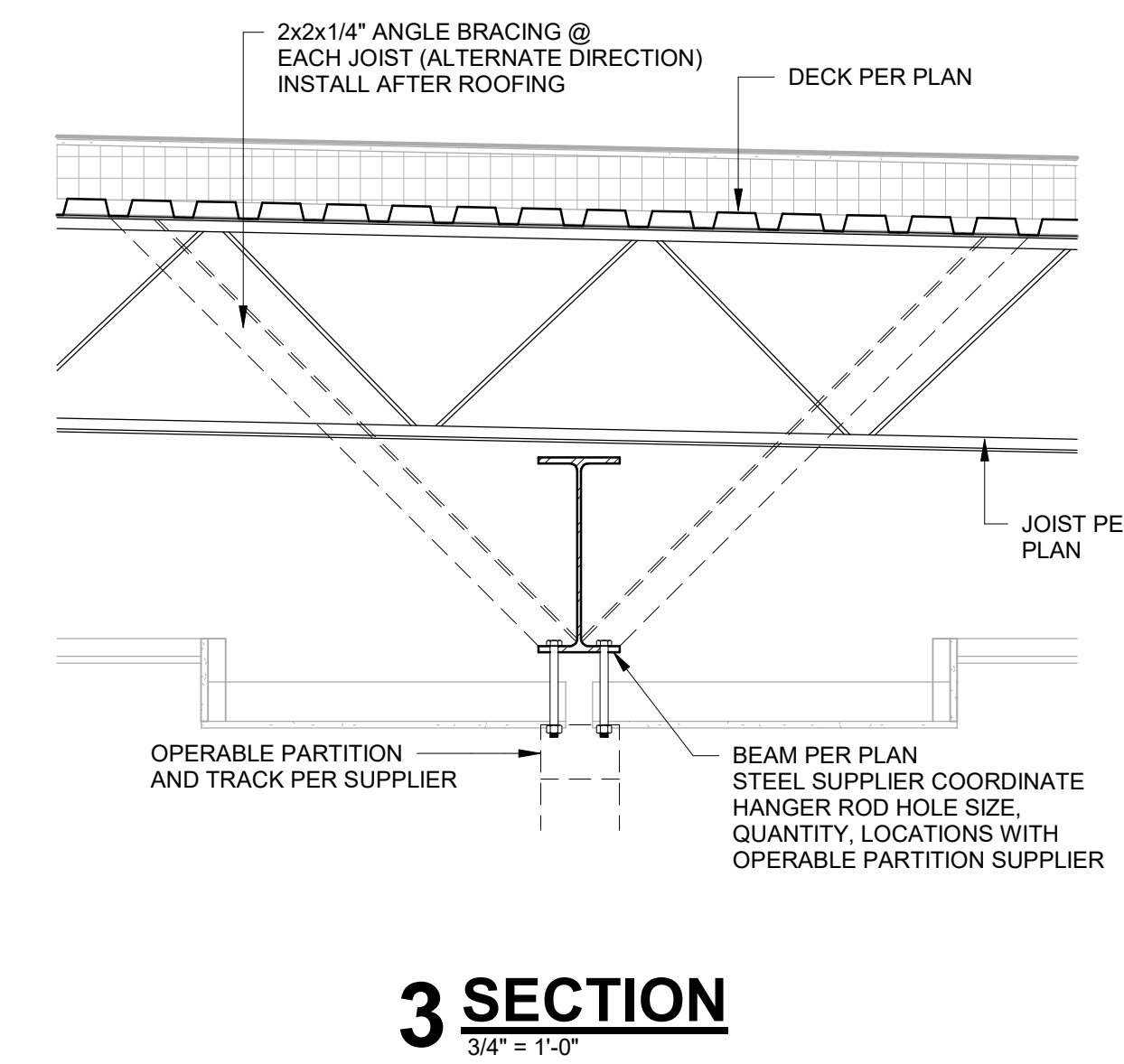
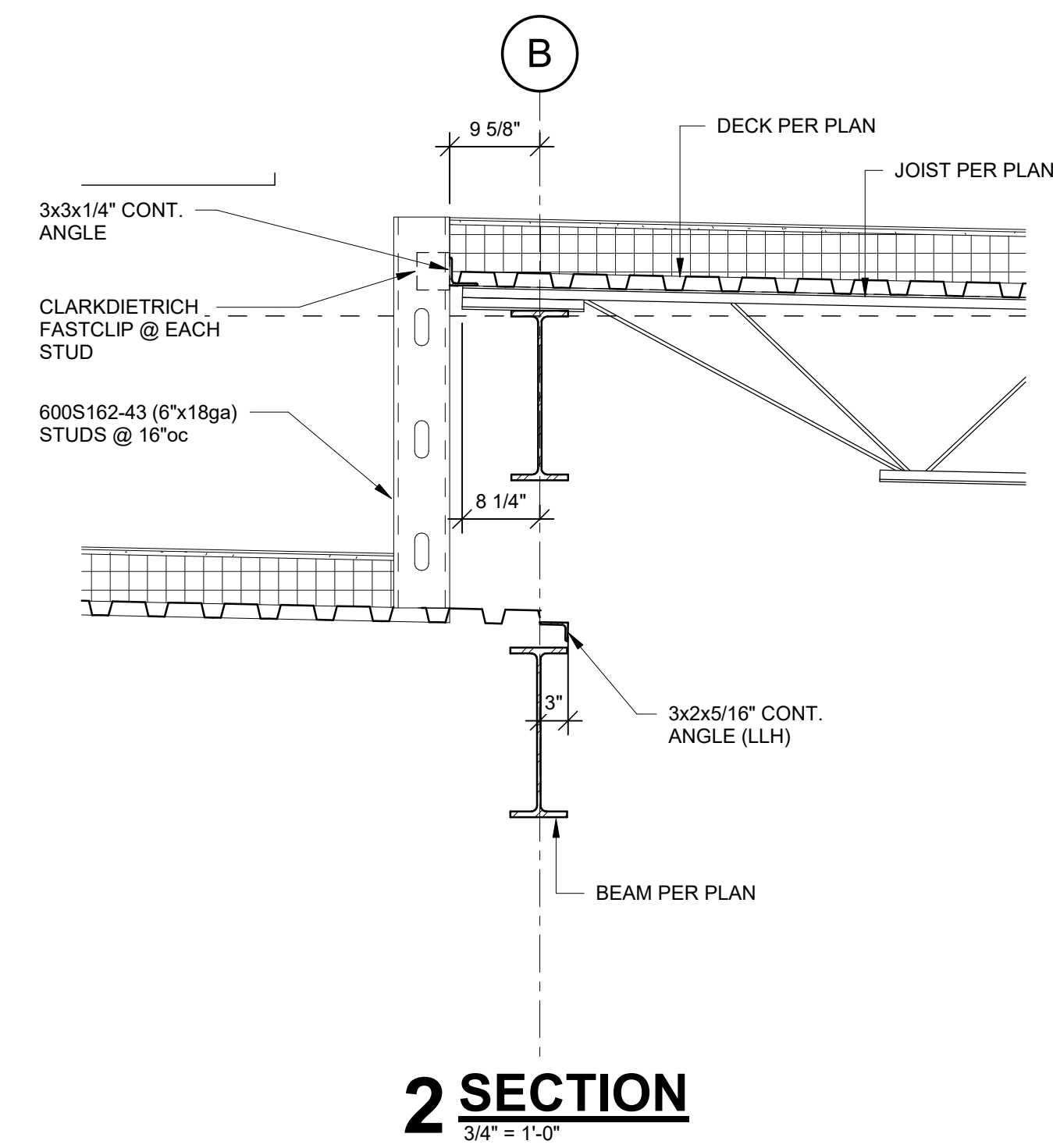
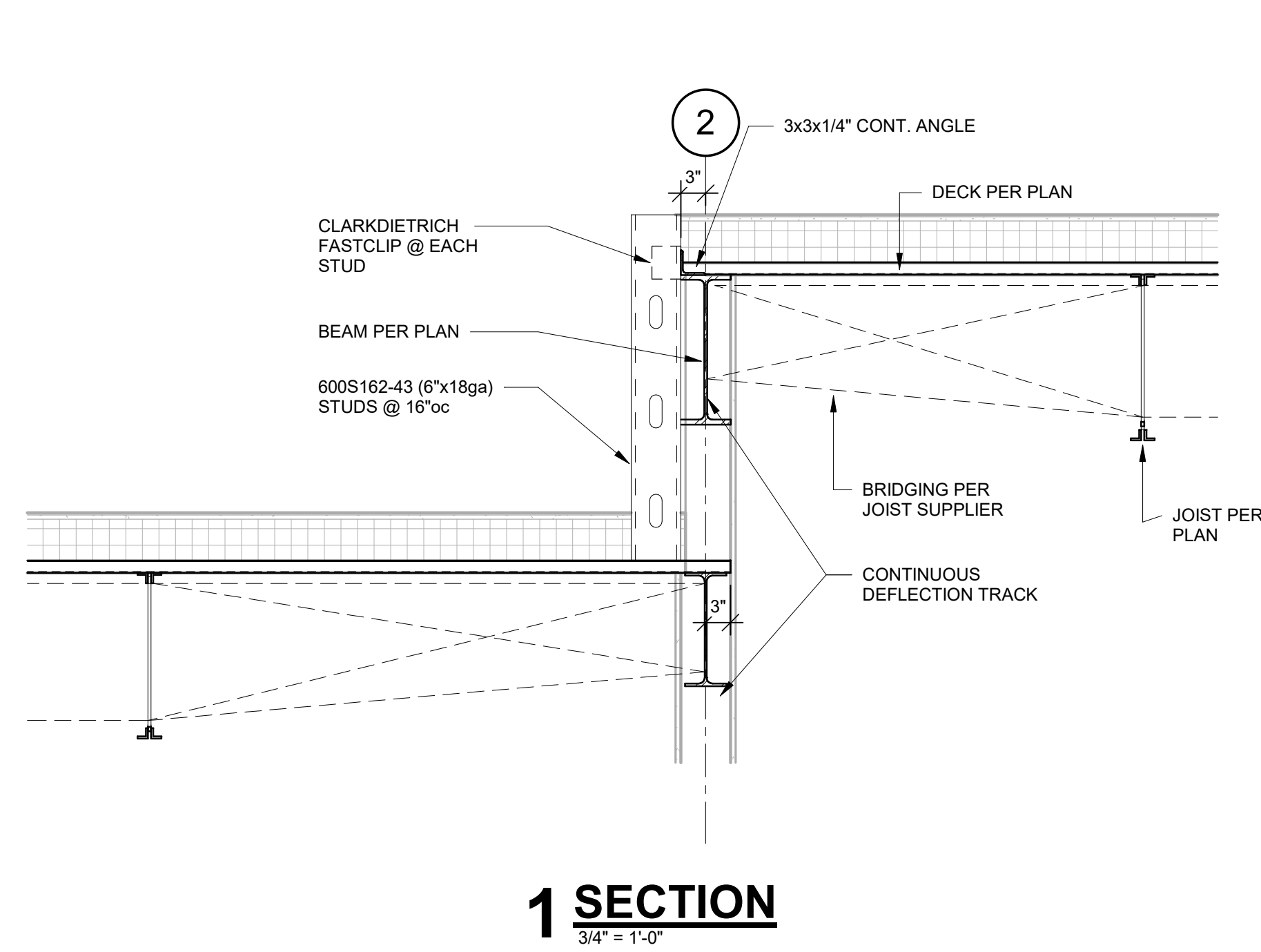
FRAMING SECTIONS

SHEET NUMBER:

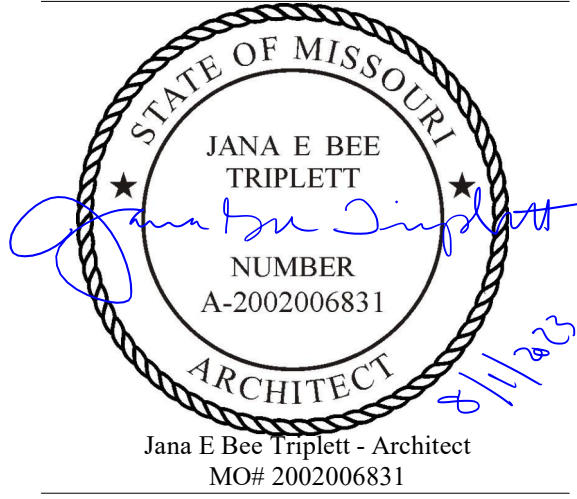
**S306**

SHEET 059 OF 202

08/01/2023



**TYPICAL MECHANICAL UNIT  
 SUPPORT FRAMING SECTION**



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 Project Number: 2102.152

Gastinger Walker & Architects, LLC.  
 Missouri Certificate of Authority: #2023012872

OFFICE OF  
 ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
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CAD DWG FILE: A-020.dwg  
 DRAWN BY: LS/JL  
 CHECKED BY: JBT  
 DESIGNED BY: GW&

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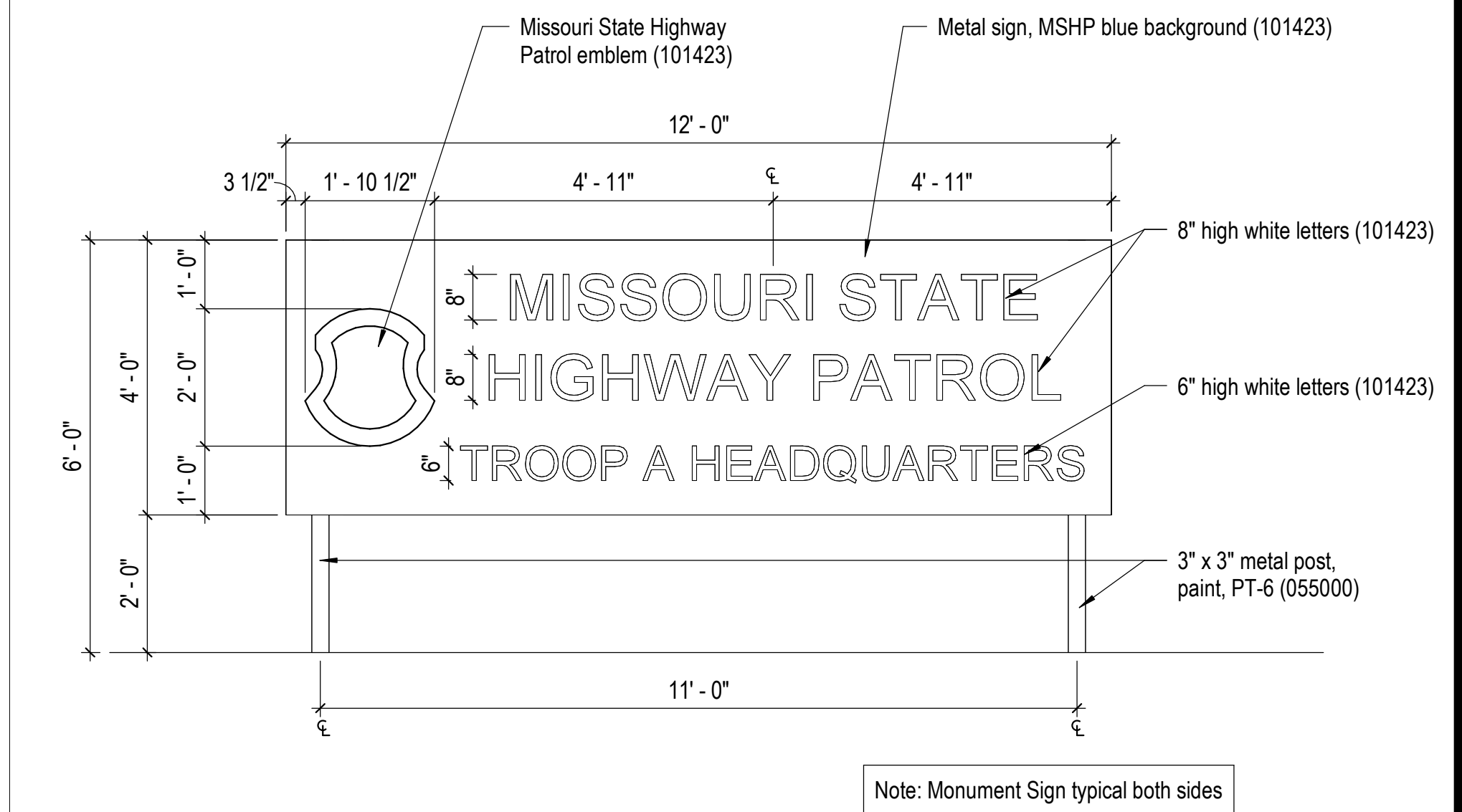
Architectural Site Plan

SHEET NUMBER:

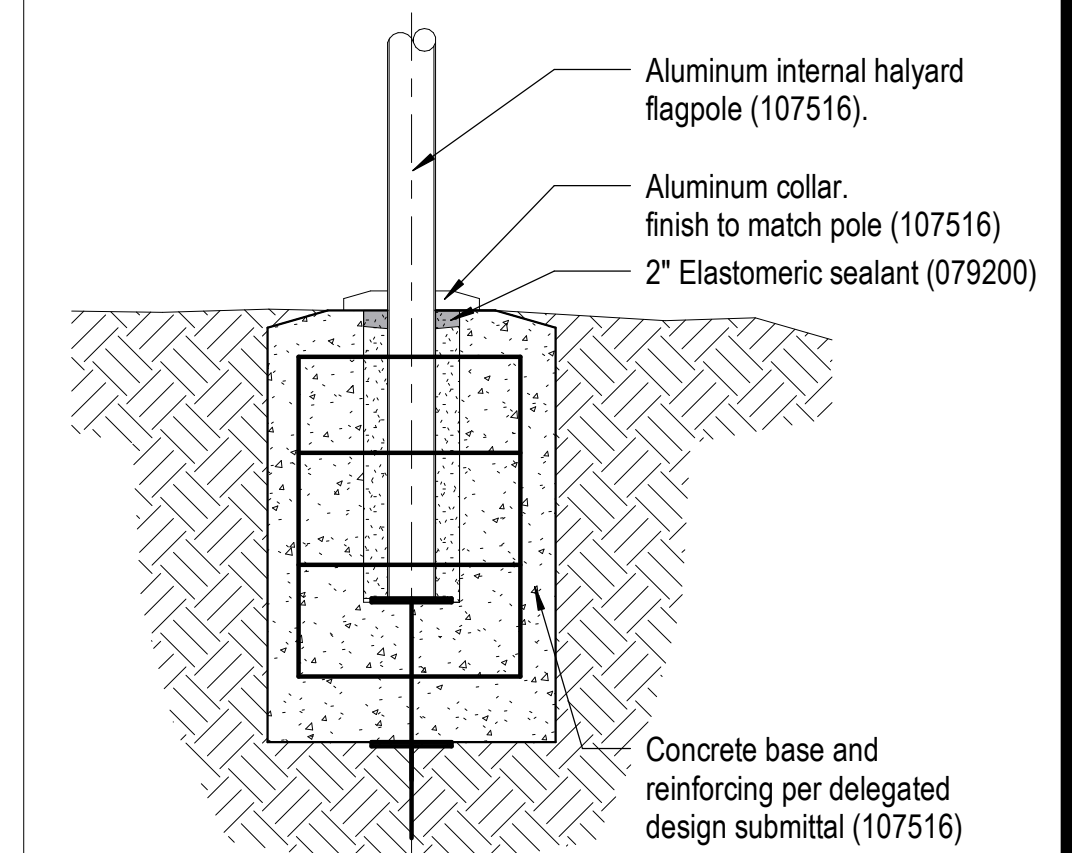
**A-020**

SHEET 060 OF 202

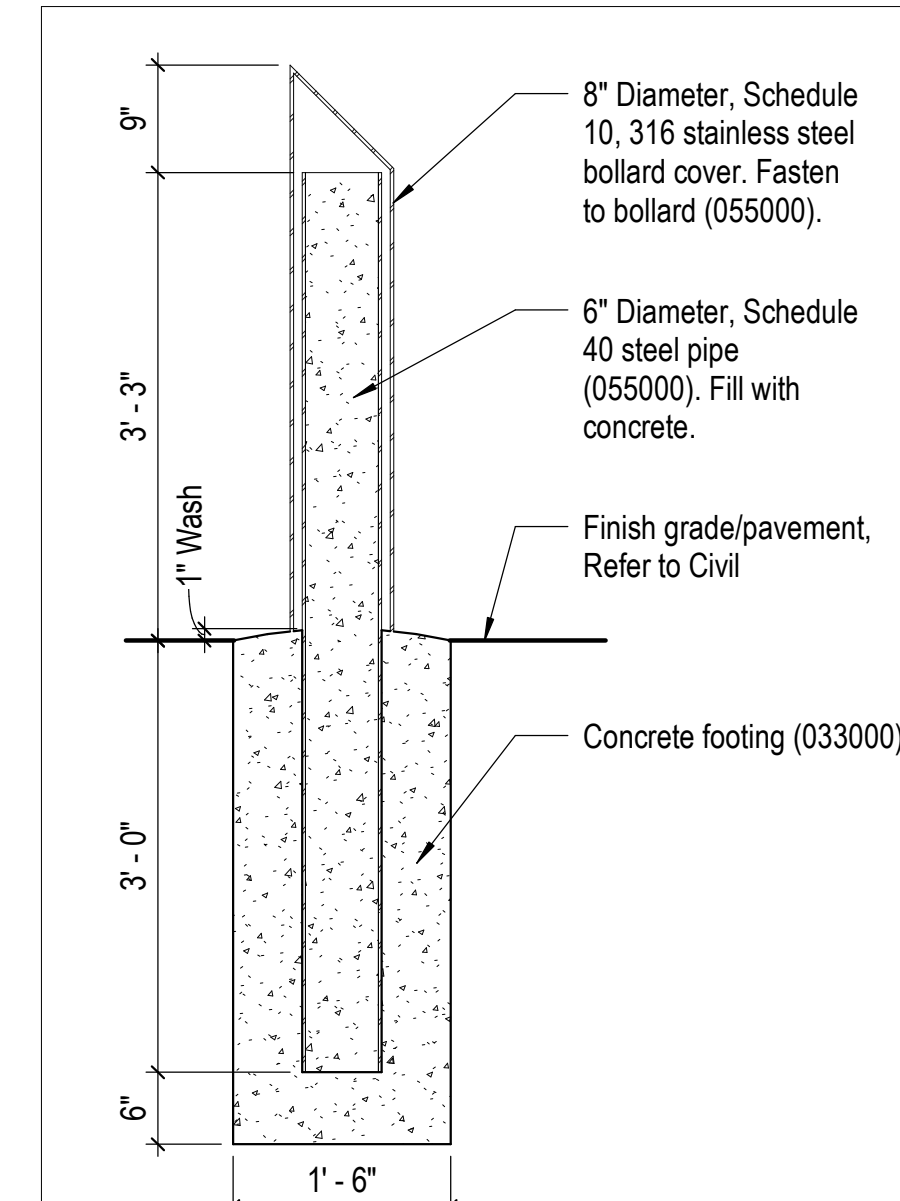
08/01/2023



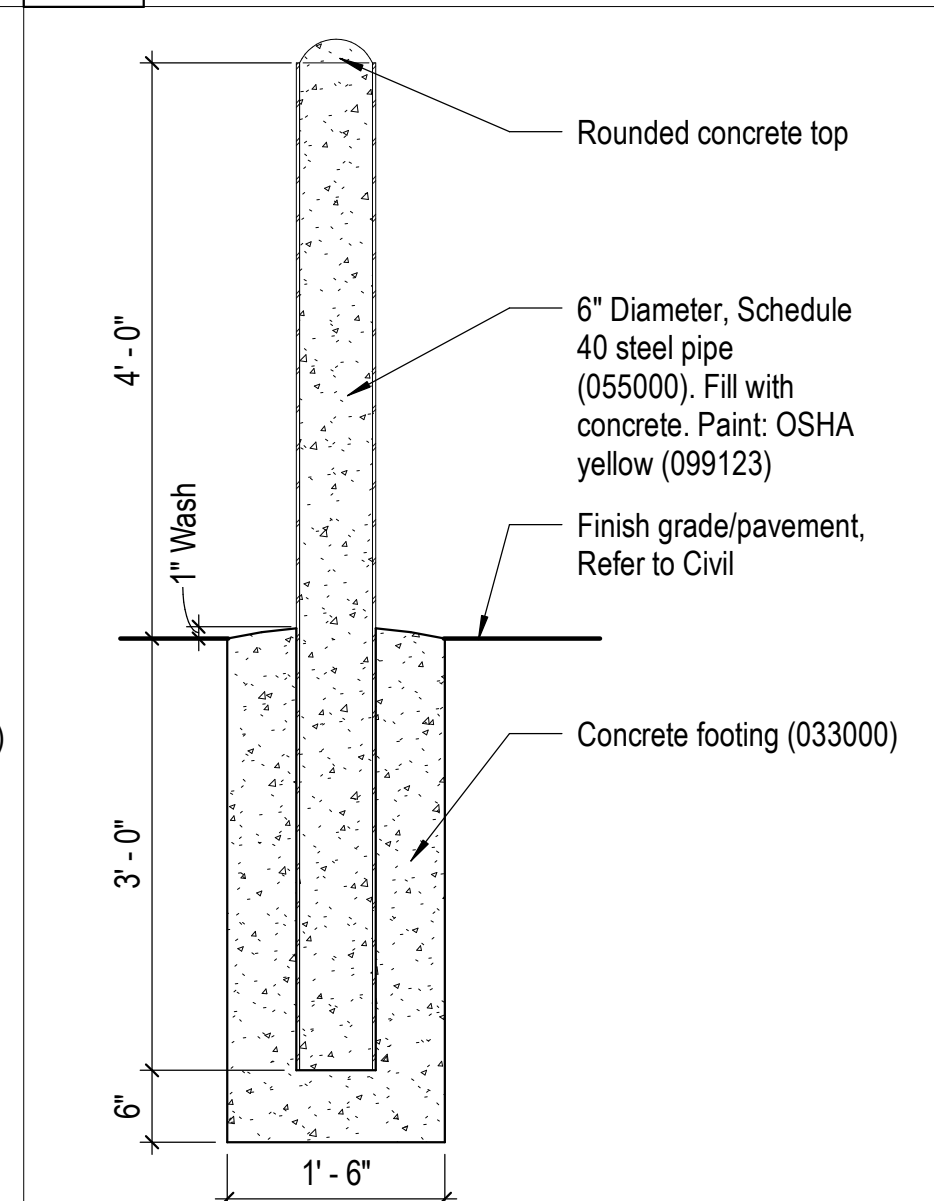
5 Monument Sign Elevation  
 A-020 1/2" = 1'-0" 0 6" 1' 2'



4 Flag Pole Detail  
 1/2" = 1'-0" 0 6" 1' 2'



2 Stainless Steel Bollard Detail  
 A-021 3/4" = 1'-0" 0 4" 8" 14"

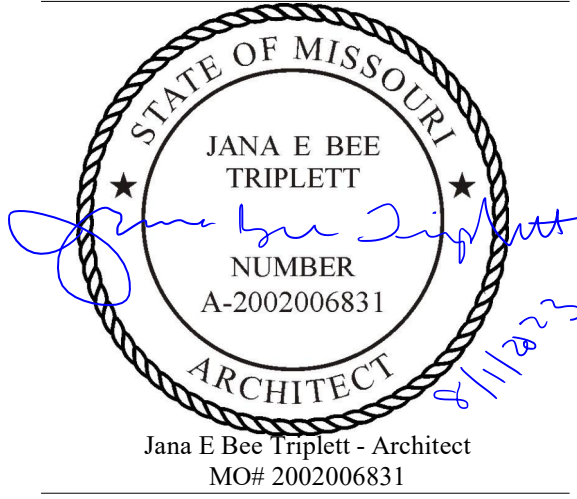


3 Typical Bollard Detail  
 A-501 3/4" = 1'-0" 0 4" 8" 14"



Note:  
 DS = Downspout

1 Architectural Site Plan  
 A-201 1" = 30'-0" 0 7.5' 15' 30' NORTH



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MSHP

1900 NE Independence Ave.  
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SITE # 6018  
FACILITY # 8136018019

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ISSUE DATE: 01 August 2023

CAD DWG FILE: A-021.dwg  
DRAWN BY: JL  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

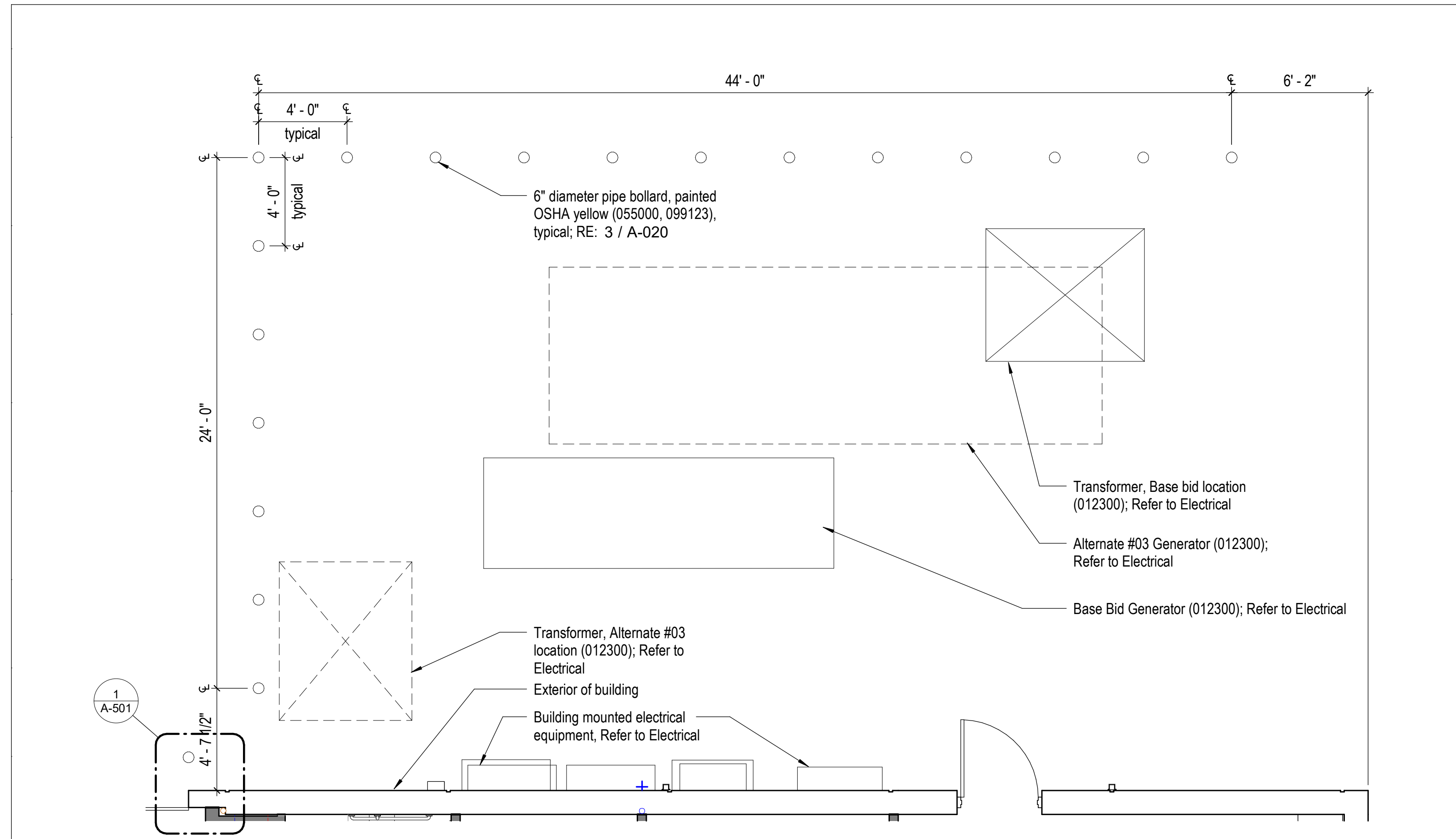
Site Details

SHEET NUMBER:

**A-021**

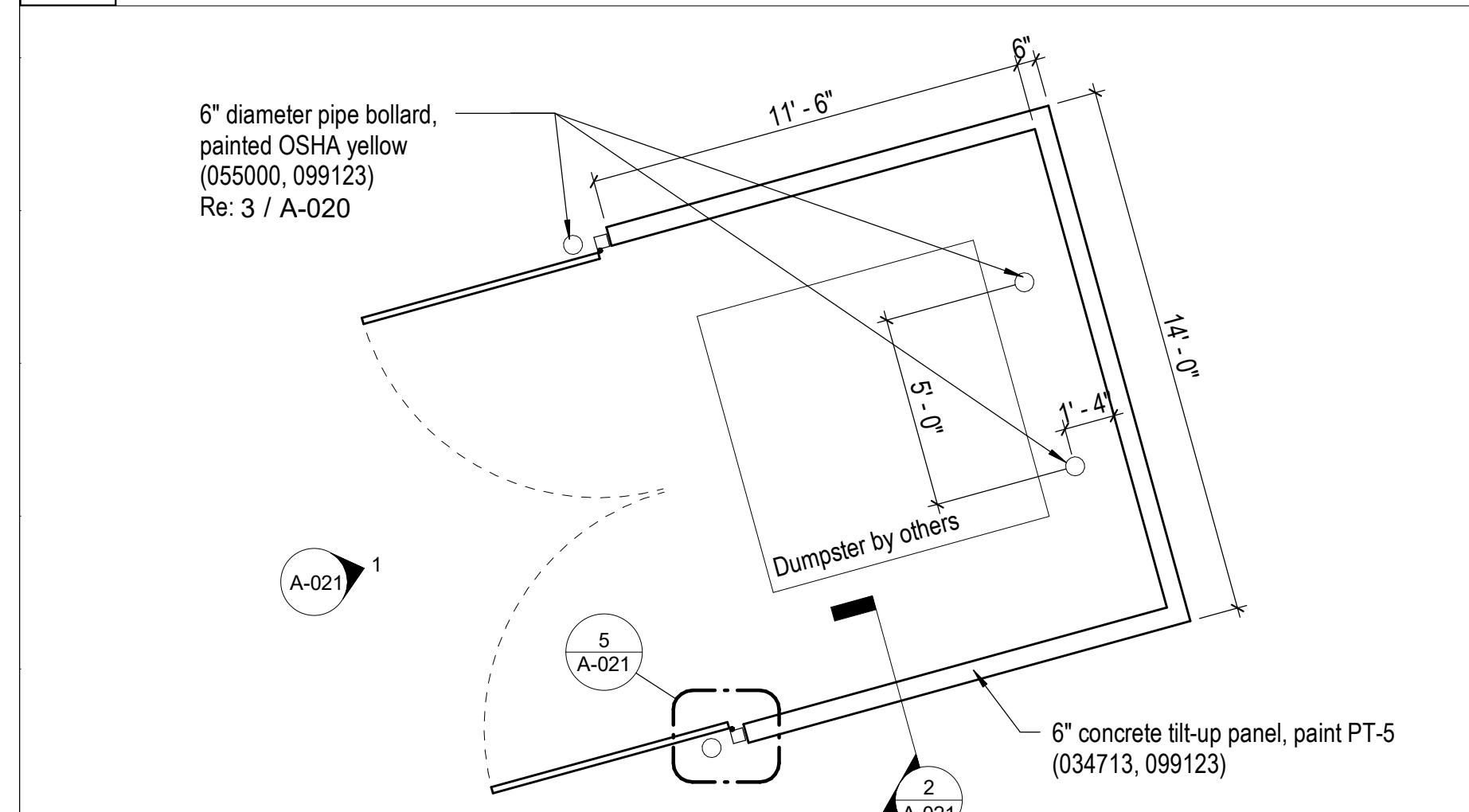
SHEET 061 OF 202

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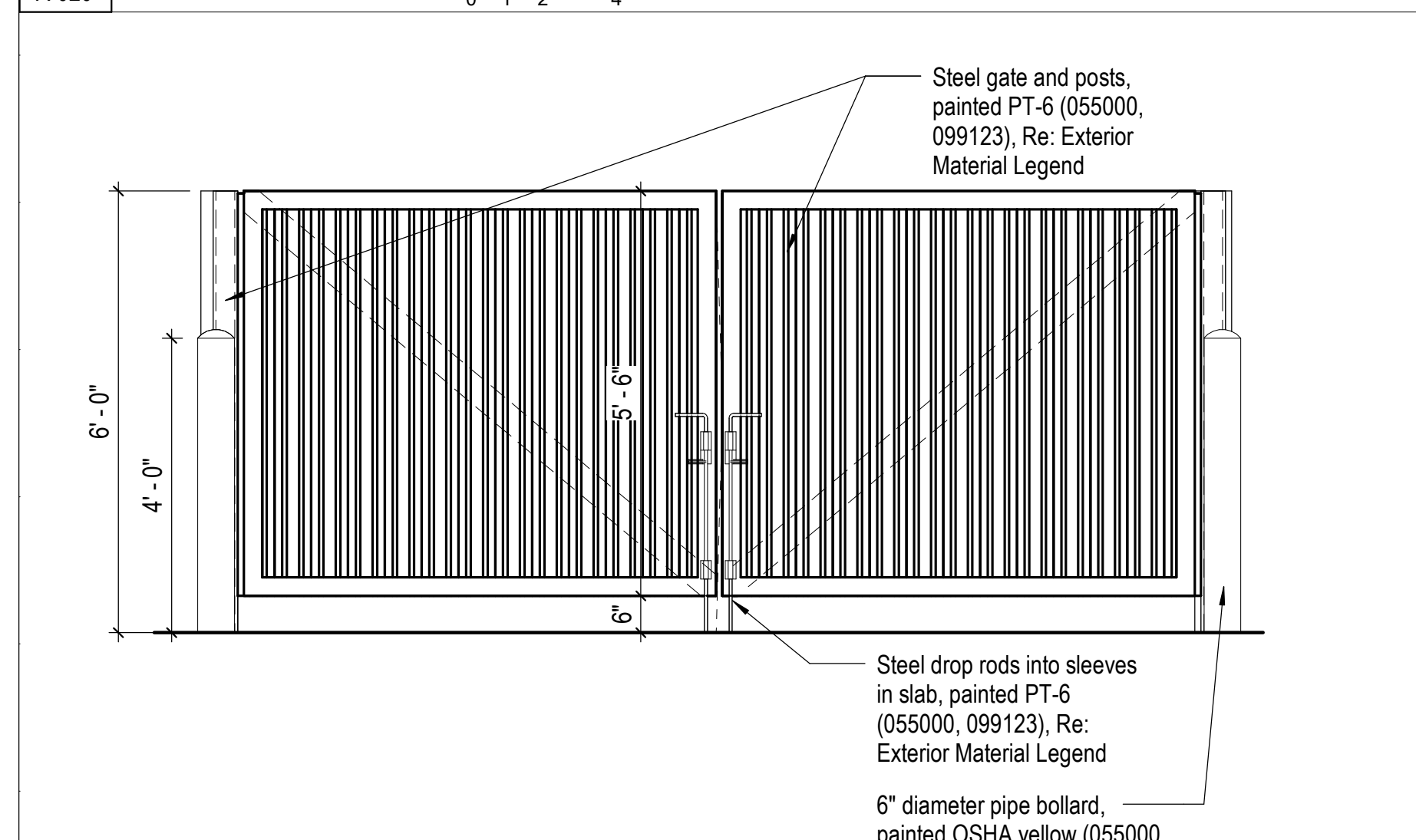
6 Enlarged Plan at Equipment Pad

A-020 1/4" = 1'-0" 0 1 2 4



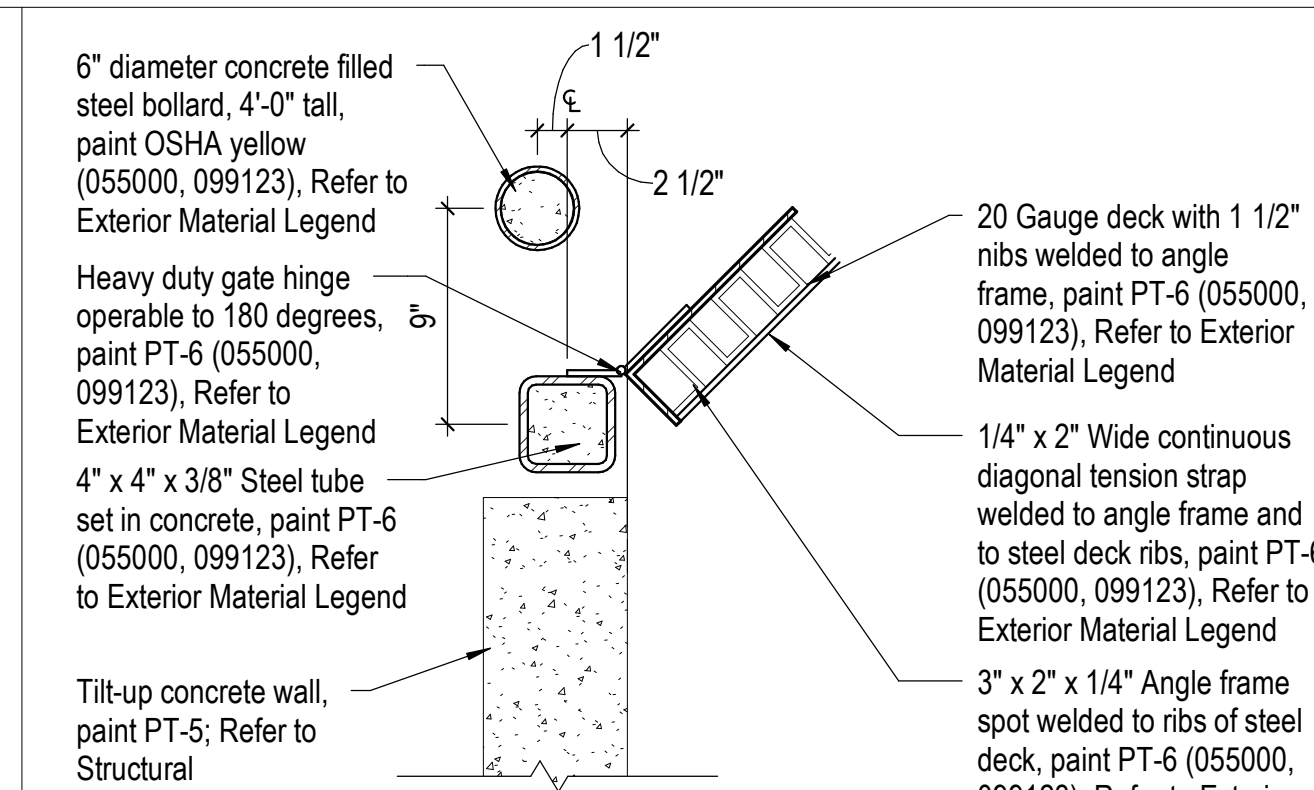
4 Enlarged Plan at Trash Enclosure

A-020 1/4" = 1'-0" 0 1 2 4



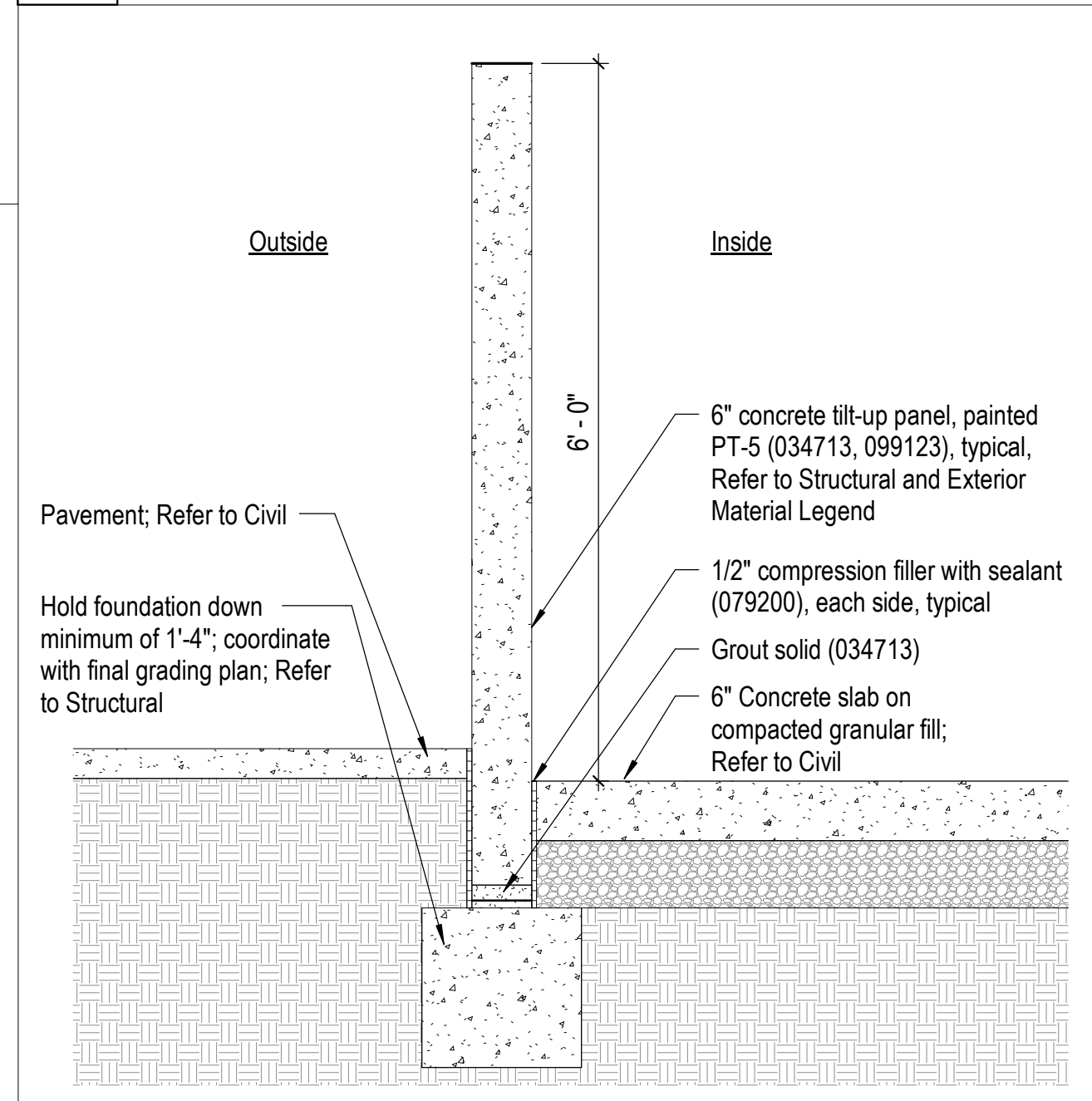
1 Trash Enclosure Gate Elevation

A-021 1/2" = 1'-0" 0 6 1 2



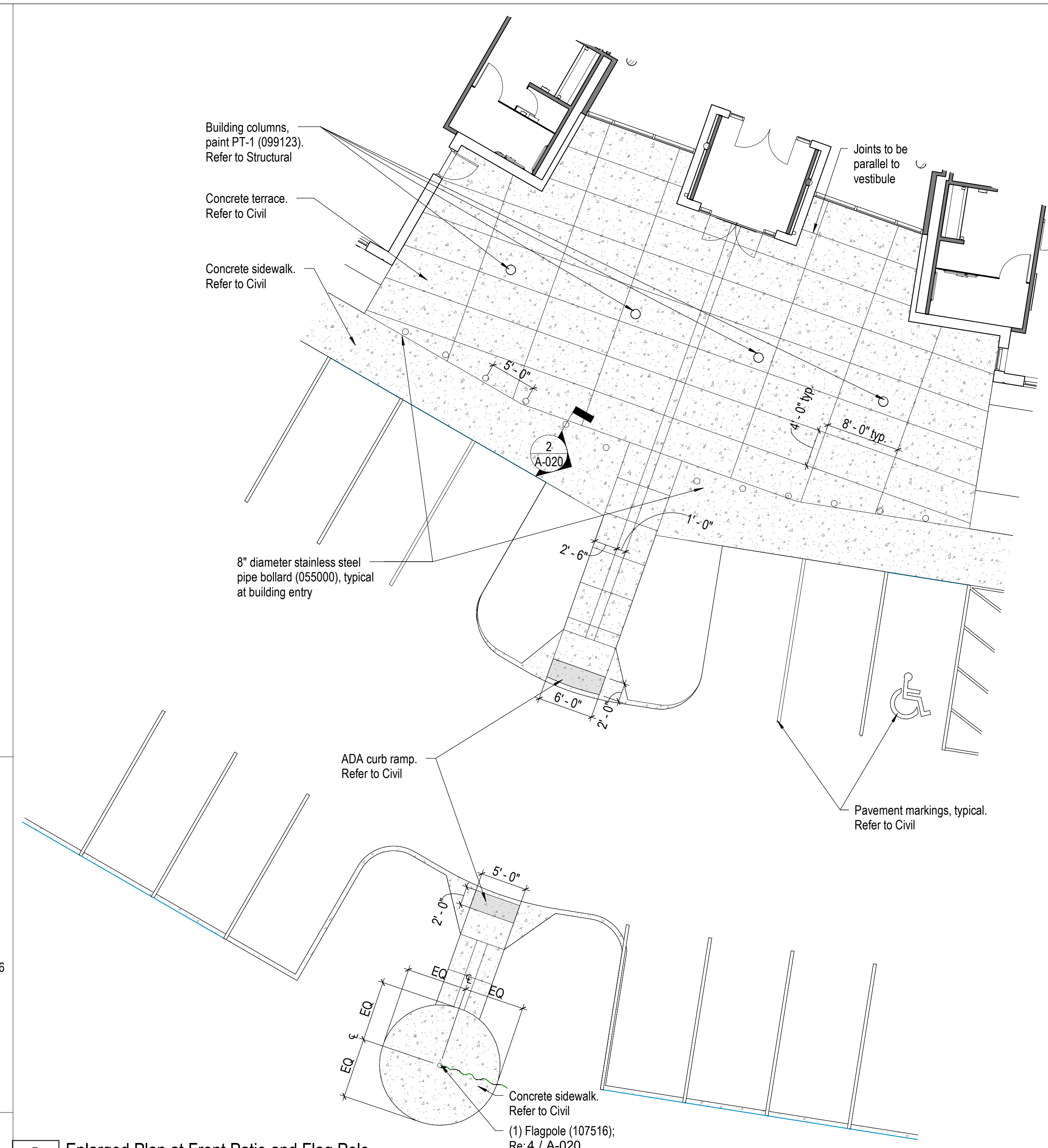
5 Trash Enclosure - Gate Detail

A-021 1 1/2" = 1'-0" 0 2 4 8



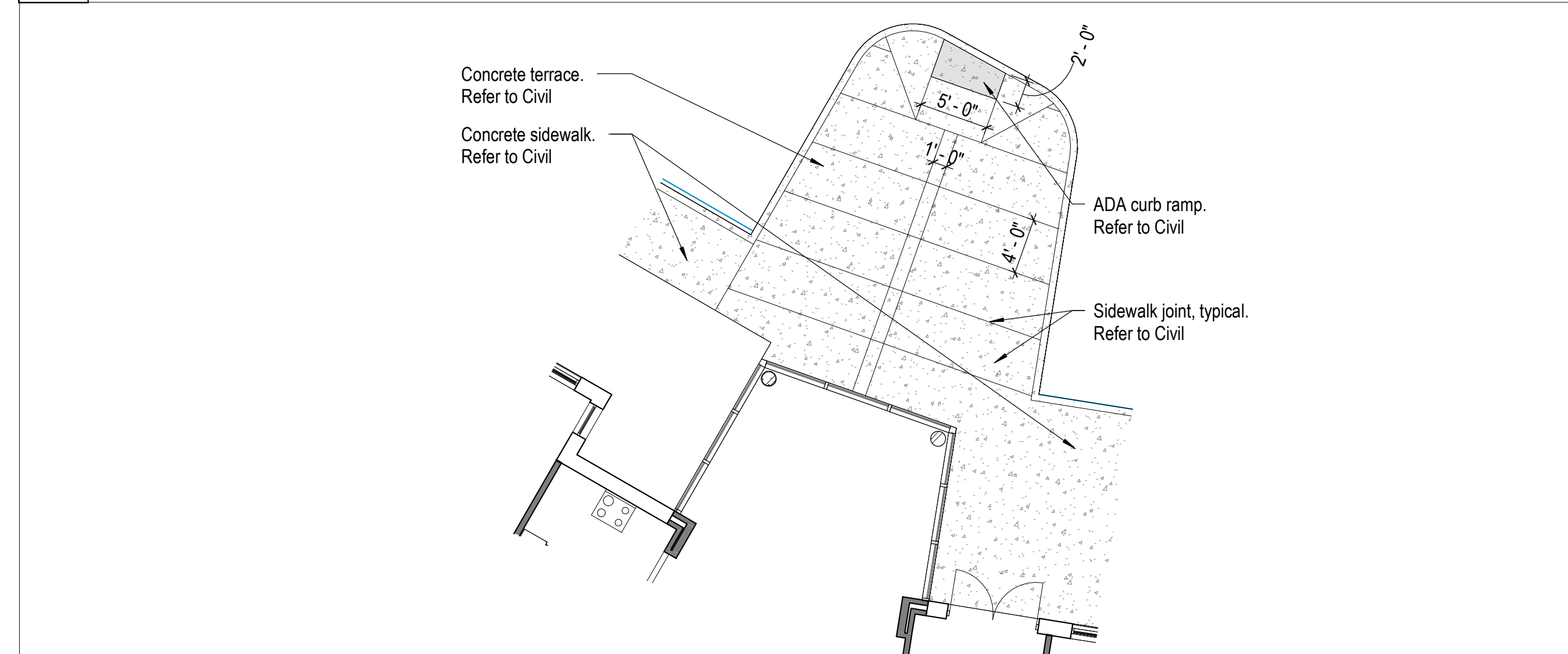
2 Typical Section at Enclosure Walls

A-021 3/4" = 1'-0" 0 4 8 14



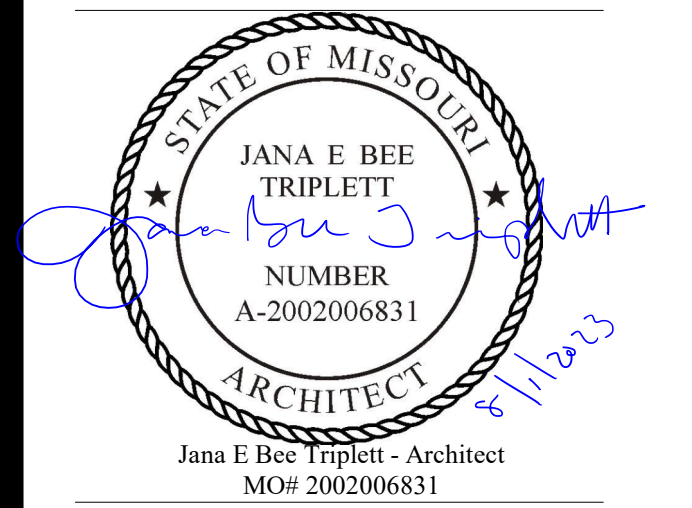
7 Enlarged Plan at Front Patio and Flag Pole

A-020 1/8" = 1'-0" 0 2 4 8



3 Enlarged Plan at Back Patio

A-020 1/8" = 1'-0" 0 2 4 8



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Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
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 ISSUE DATE: 01 August 2023

CAD DWG FILE: A-022.dwg  
 DRAWN BY: LS  
 CHECKED BY: JBT  
 DESIGNED BY: GW&

SHEET TITLE:

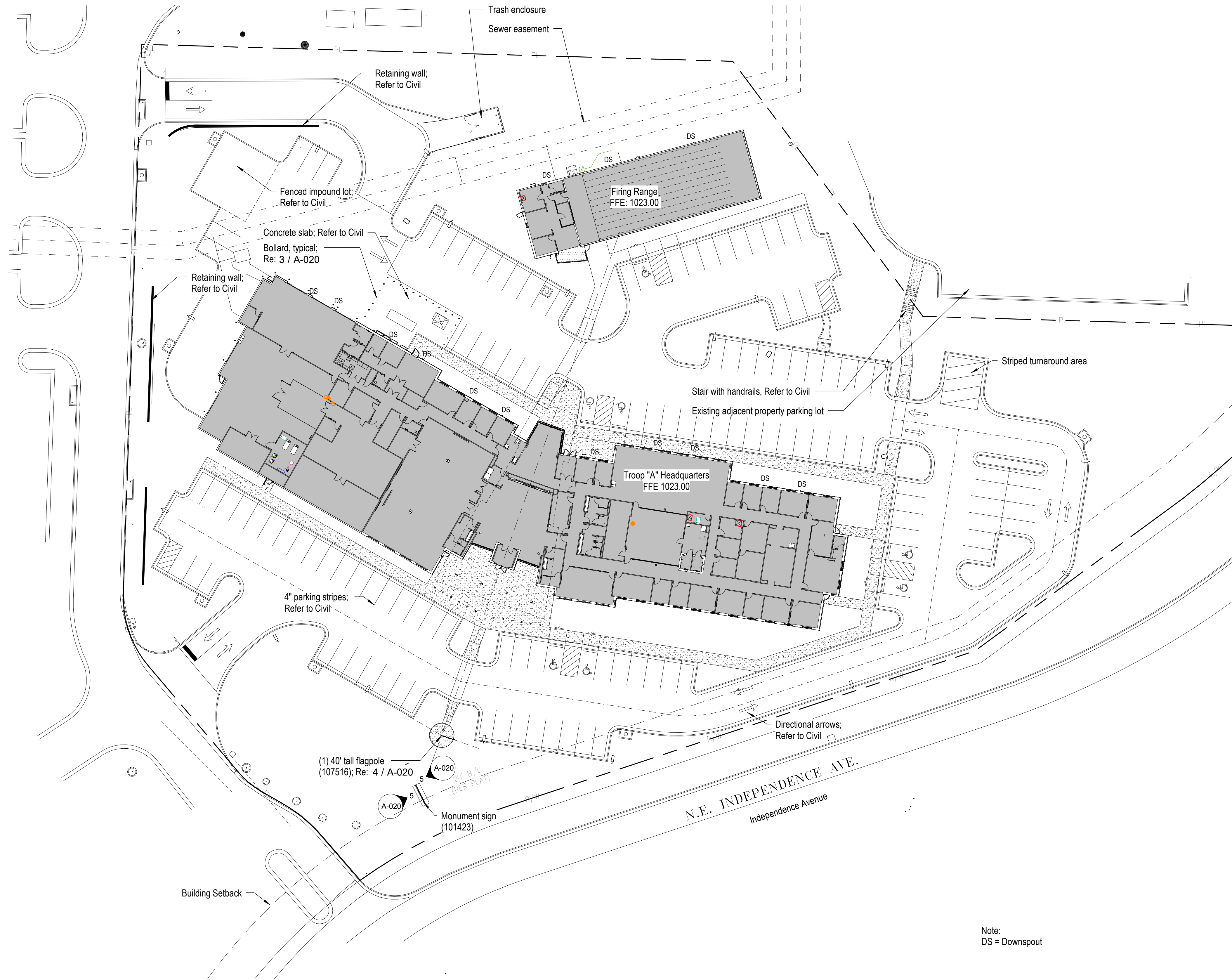
Architectural Site Plan  
 with Firing Range  
 (Alternate #04)

SHEET NUMBER:

**A-022**

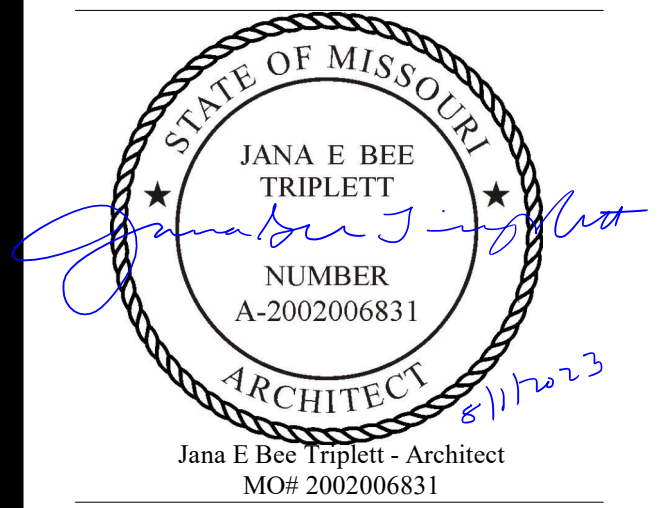
SHEET 062 OF 202

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Note:  
 DS = Downspout





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Project Name:  
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 SITE # 6018  
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 CHECKED BY: JBT  
 DESIGNED BY: GW&  
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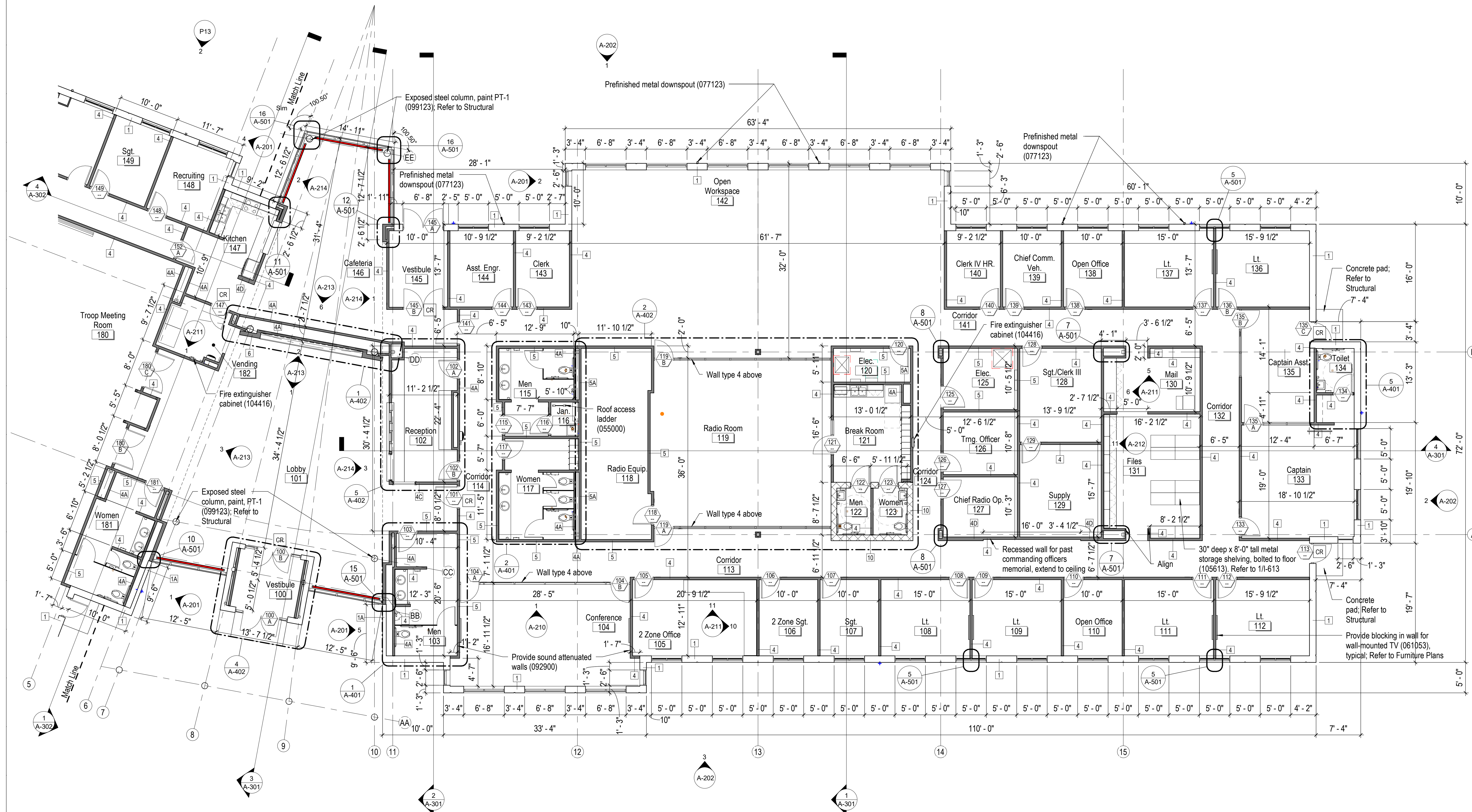
Partial Floor Plan - Main  
 Building

SHEET NUMBER:

**A-101**

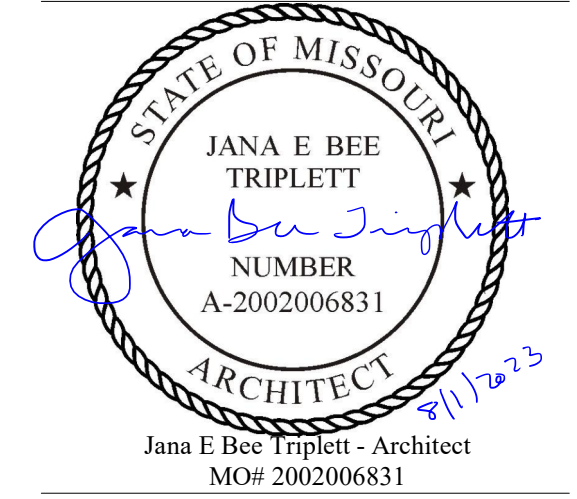
SHEET 064 OF 202

08/01/2023



1 Floor Plan - East  
 A-100 1/8" = 1'-0" NORTH





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 SITE # 6018  
 FACILITY # 8136018019

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 DATE:  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: A-102.dwg  
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 CHECKED BY: JBT  
 DESIGNED BY: GW&  
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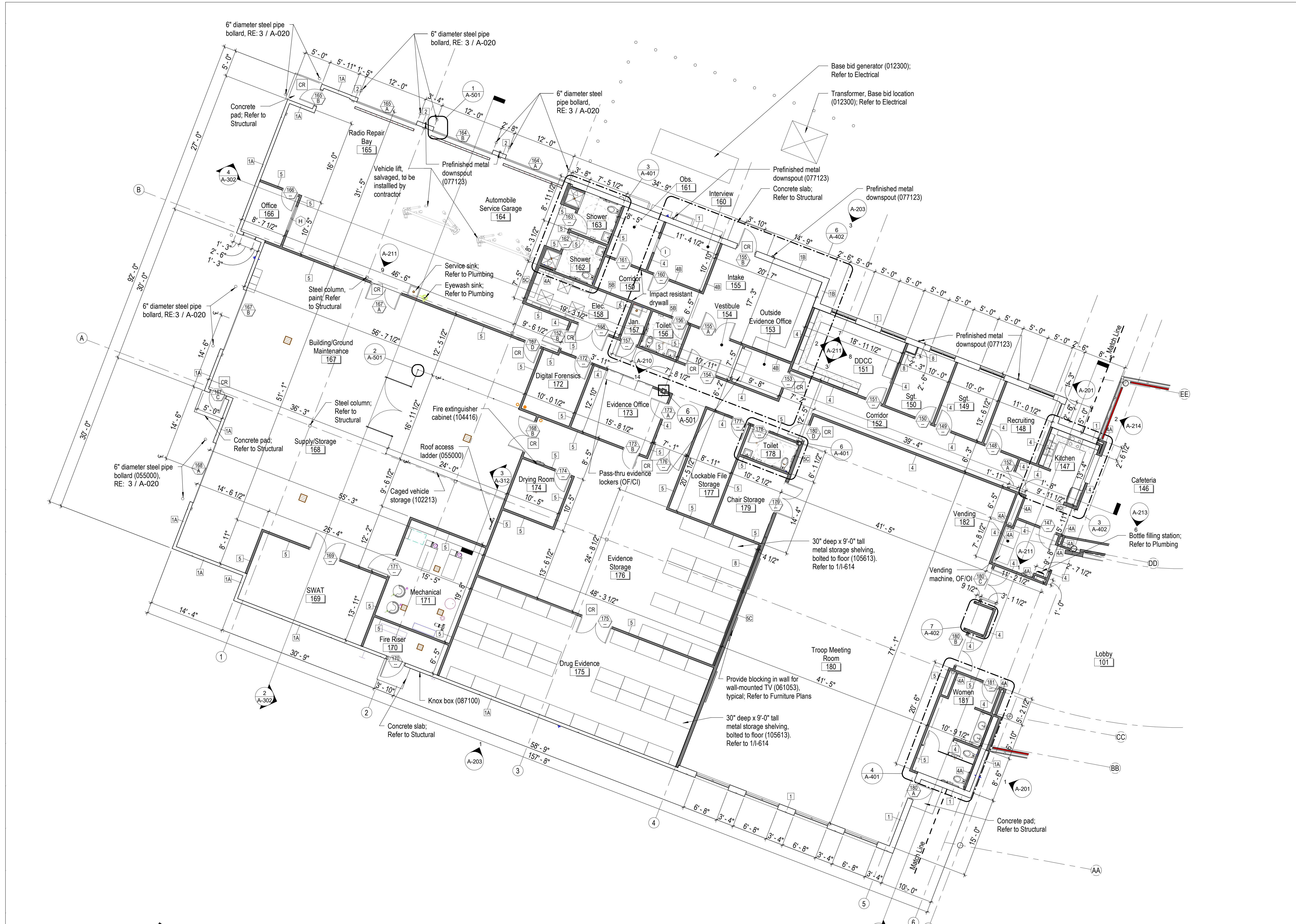
Partial Floor Plan - Main  
 Building

SHEET NUMBER:

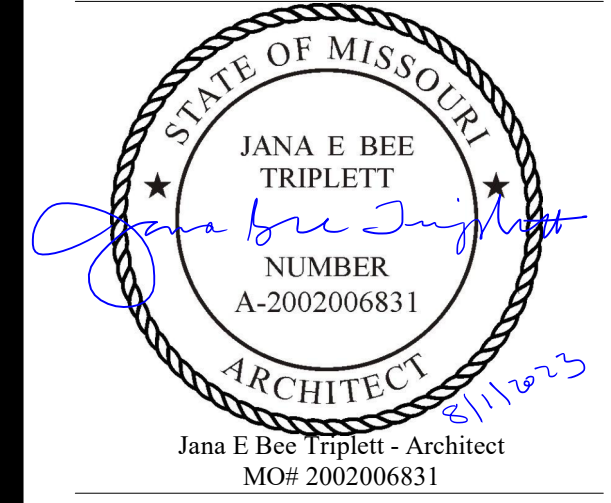
**A-102**

SHEET 065 OF 202

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1 Floor Plan - West  
 A-100 1/8" = 1'-0" 0 2' 4' 8' NORTH



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 ISSUE DATE: 01 August 2023

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 CHECKED BY: JBT  
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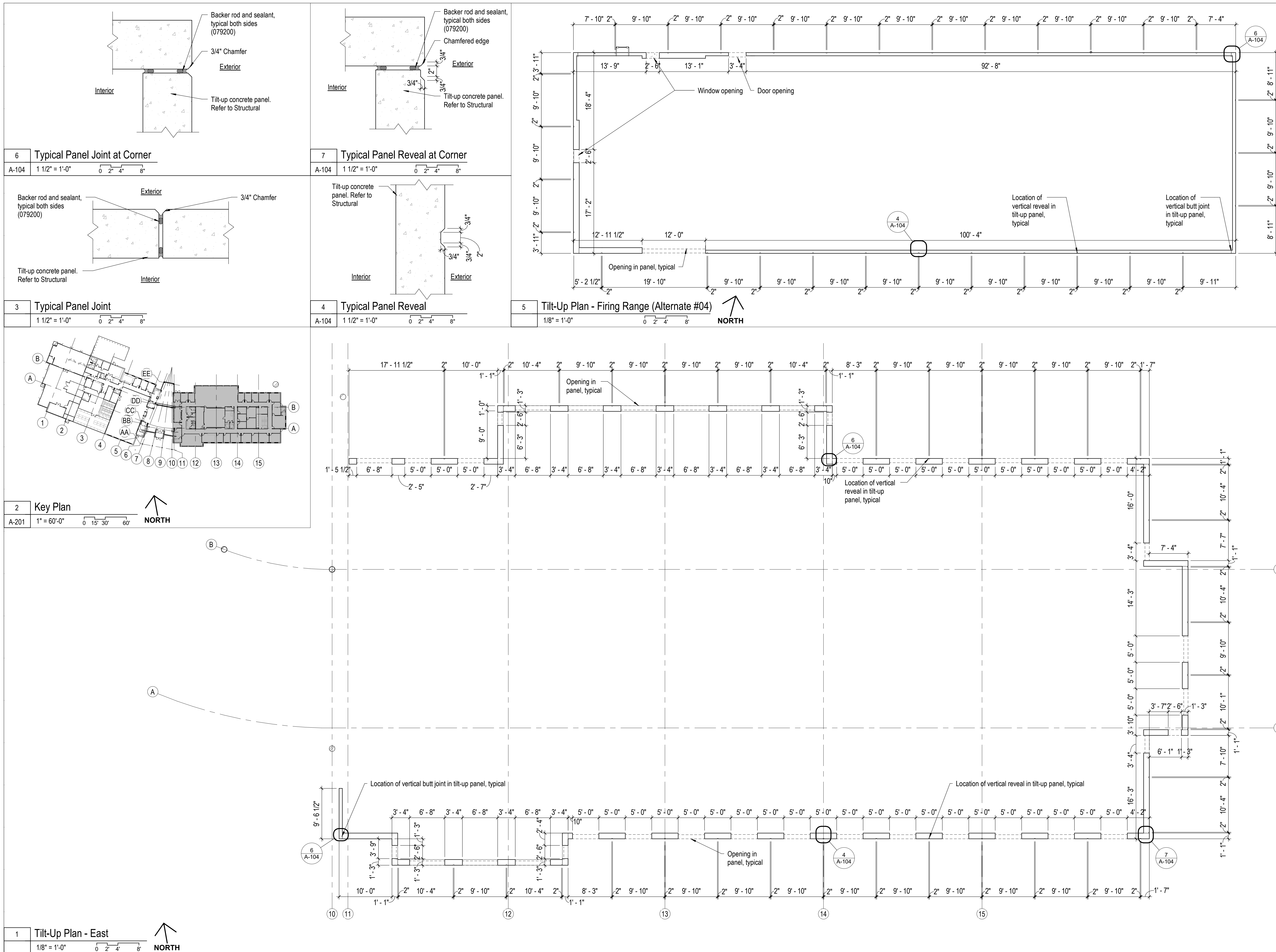
Tilt-Up Wall Reveal Plan -  
 East Main Building &  
 Firing Range (Alt. #04)

SHEET NUMBER:

**A-104**

SHEET 066 OF 202

08/01/2023



1 Tilt-Up Plan - East  
 1/8" = 1'-0" 0 2' 4' 8" NORTH

2 Key Plan  
 A-201 1" = 60'-0" 0 15' 30' 60' NORTH

3 Typical Panel Joint  
 1 1/2" = 1'-0" 0 2' 4' 8"

Backer rod and sealant, typical both sides (079200)  
 Tilt-up concrete panel. Refer to Structural  
 3/4" Chamfer  
 Exterior  
 Interior

6 Typical Panel Joint at Corner  
 A-104 1 1/2" = 1'-0" 0 2' 4' 8"

4 Typical Panel Reveal  
 A-104 1 1/2" = 1'-0" 0 2' 4' 8"

Tilt-up concrete panel. Refer to Structural  
 3/4" Chamfer  
 Exterior  
 Interior

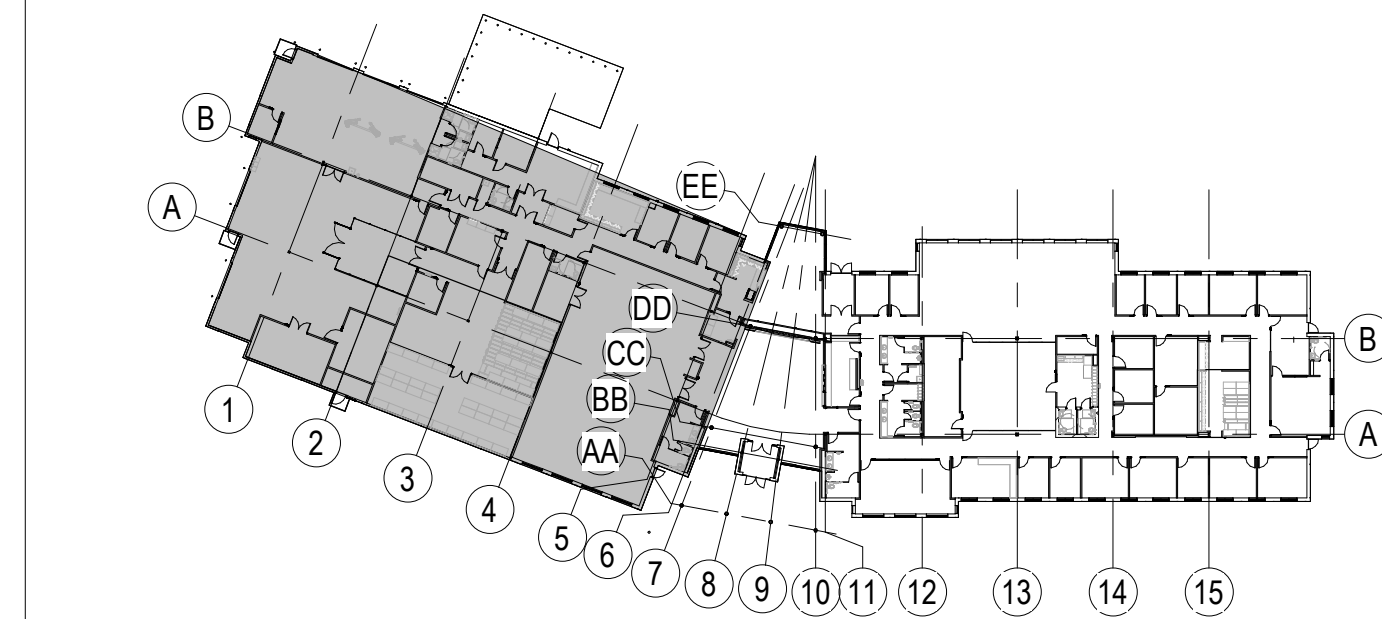
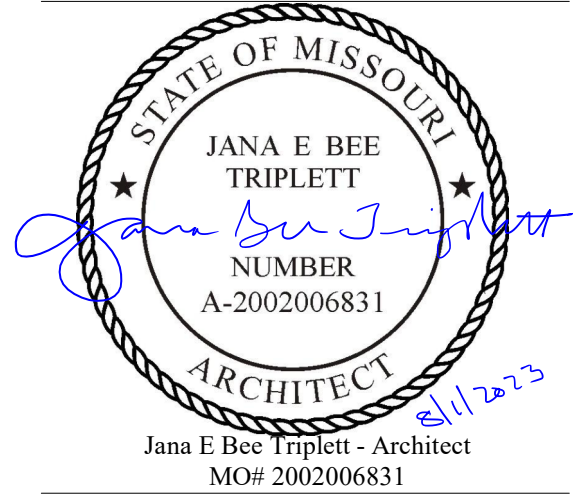
7 Typical Panel Reveal at Corner  
 A-104 1 1/2" = 1'-0" 0 2' 4' 8"

5 Tilt-Up Plan - Firing Range (Alternate #04)  
 1/8" = 1'-0" 0 2' 4' 8" NORTH

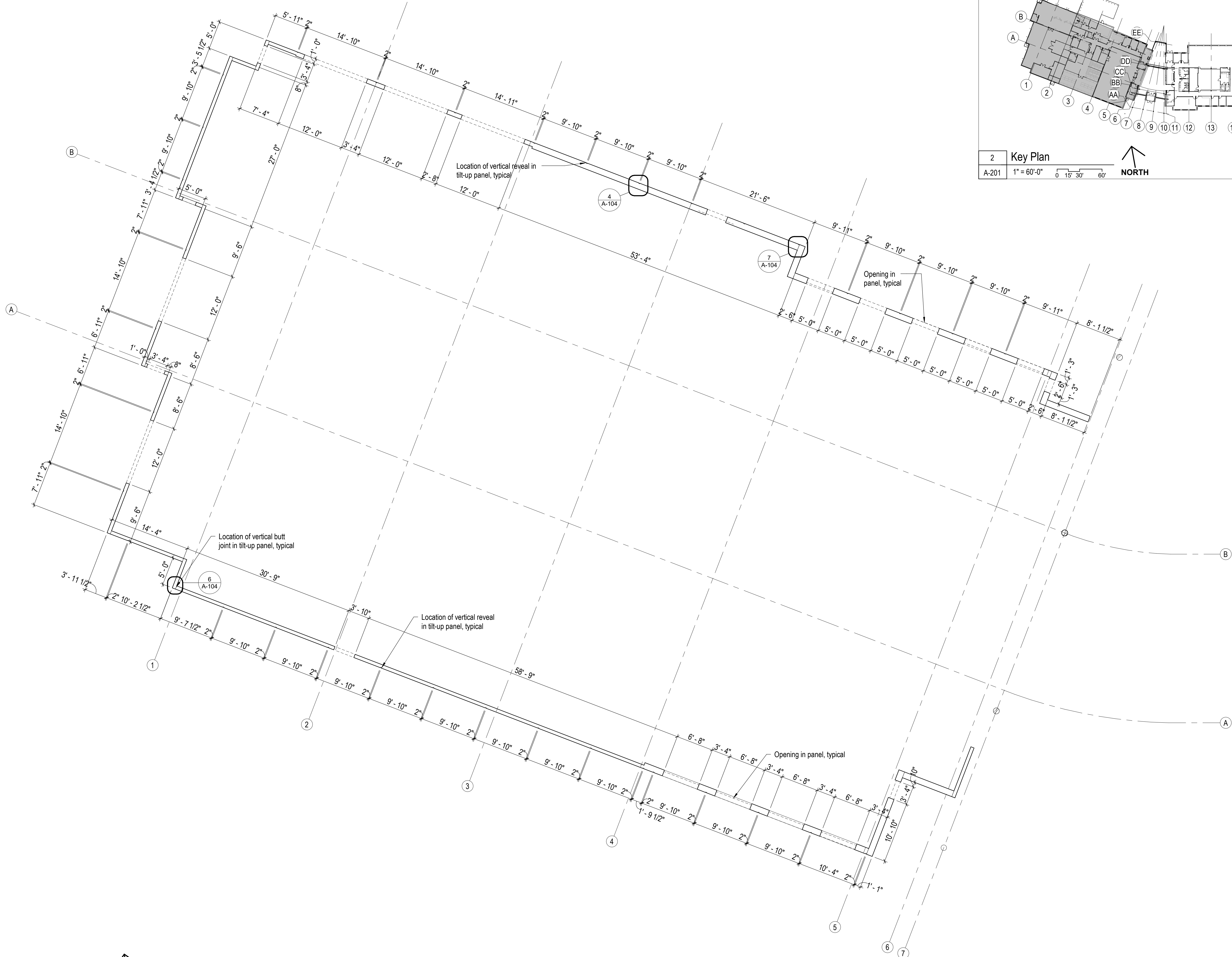
Window opening  
 Door opening  
 Location of vertical reveal in tilt-up panel, typical  
 Location of vertical butt joint in tilt-up panel, typical  
 100'-4"

6 Typical Panel Joint at Corner  
 A-104 1 1/2" = 1'-0" 0 2' 4' 8"

Backer rod and sealant, typical both sides (079200)  
 Chamfered edge  
 Exterior  
 Interior  
 Tilt-up concrete panel. Refer to Structural  
 3/4" Chamfer



2 Key Plan  
A-201 1" = 60'-0" 0 15' 30' 60' NORTH



1 Tilt-Up Plan - West  
1/8" = 1'-0" 0 2' 4' 8' NORTH

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Project Name:  
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MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

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REVISION:  
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ISSUE DATE: 01 August 2023

CAD DWG FILE: A-105.dwg  
DRAWN BY: JL  
CHECKED BY: JBT  
DESIGNED BY: GW&  
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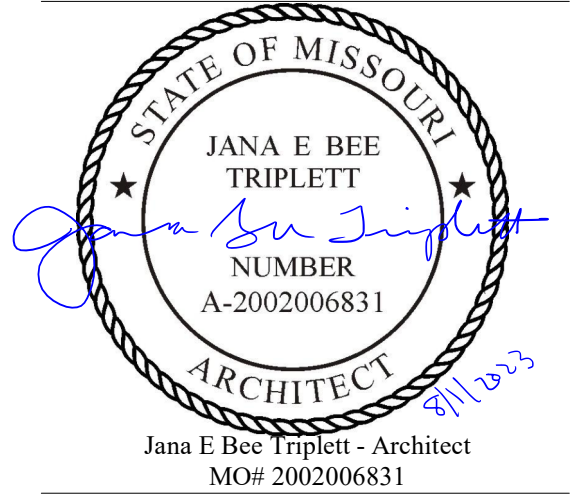
Tilt-Up Wall Reveal Plan -  
West Main Building

SHEET NUMBER:

**A-105**

SHEET 067 OF 202

08/01/2023



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ISSUE DATE: 01 August 2023

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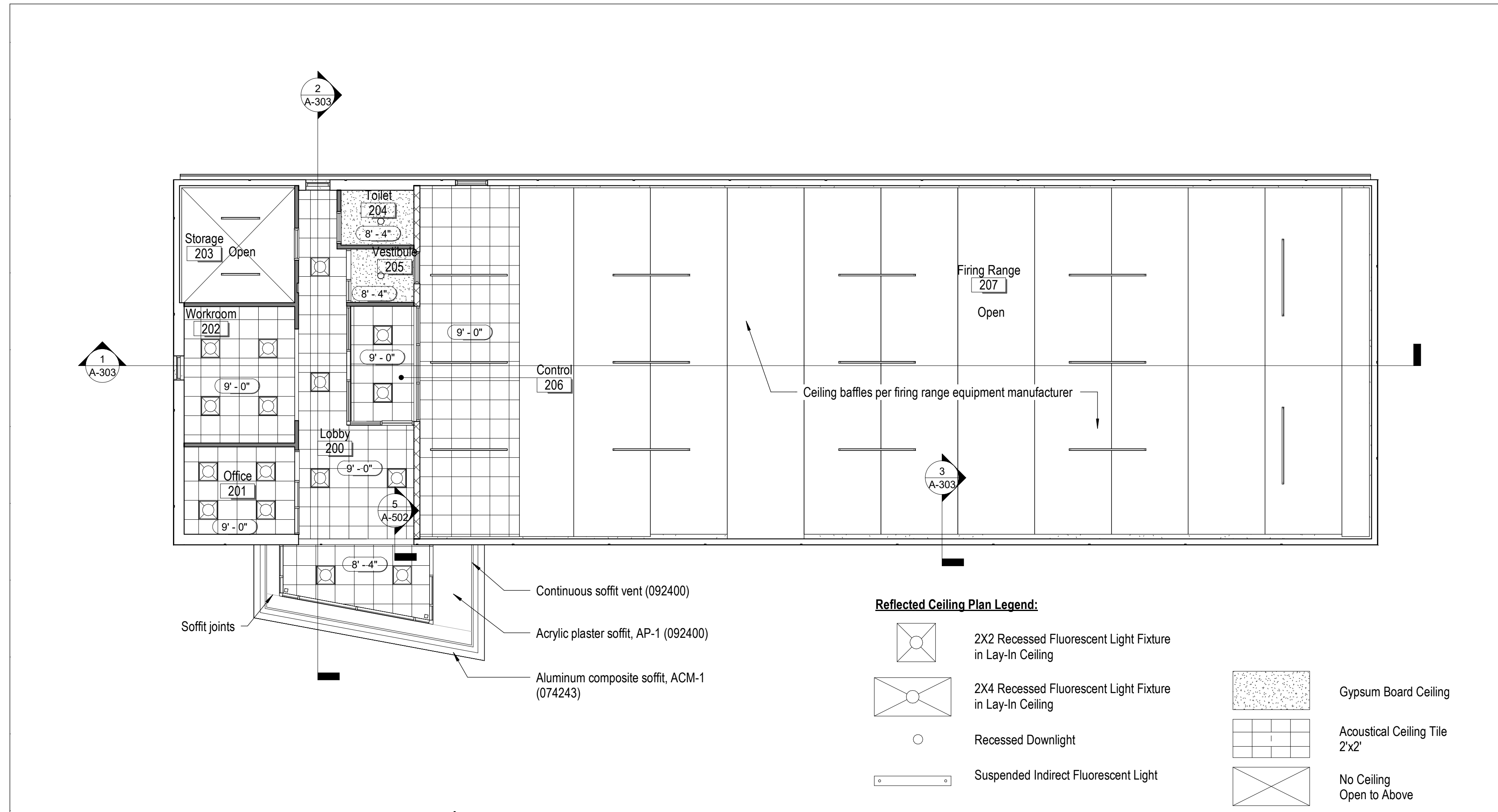
Floor Plans, Reflected  
Ceiling & Roof Plan -  
Firing Range (Alt. #04)

SHEET NUMBER:

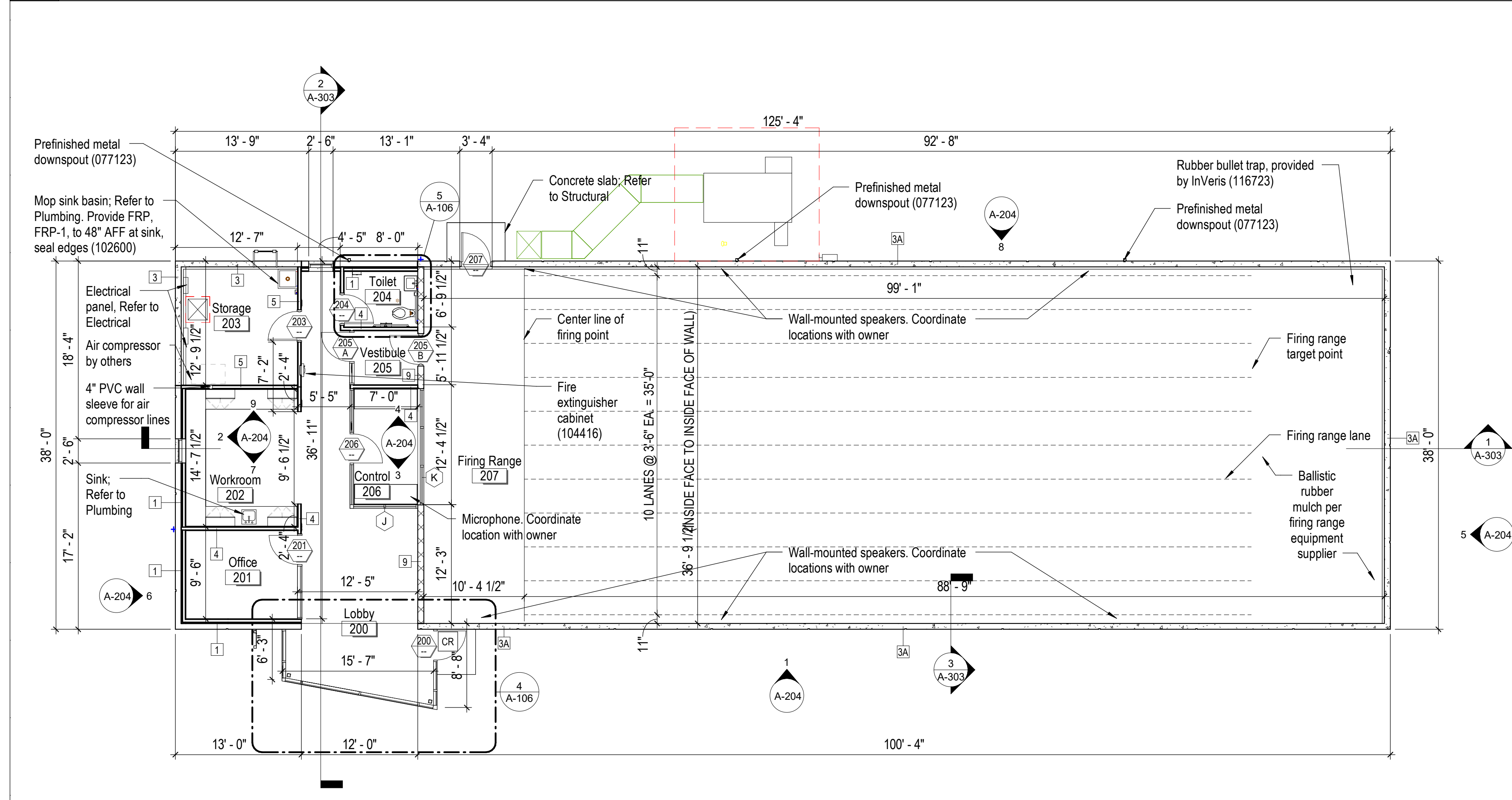
**A-106**

SHEET 068 OF 202

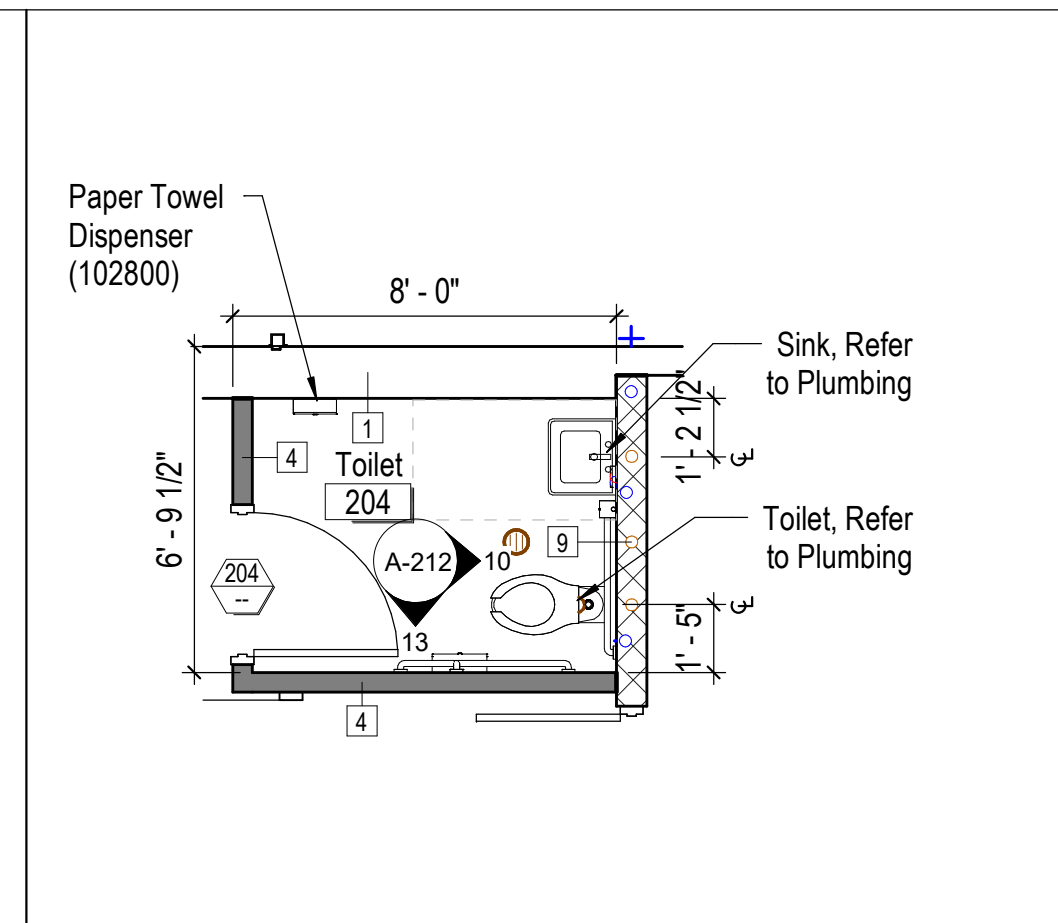
08/01/2023



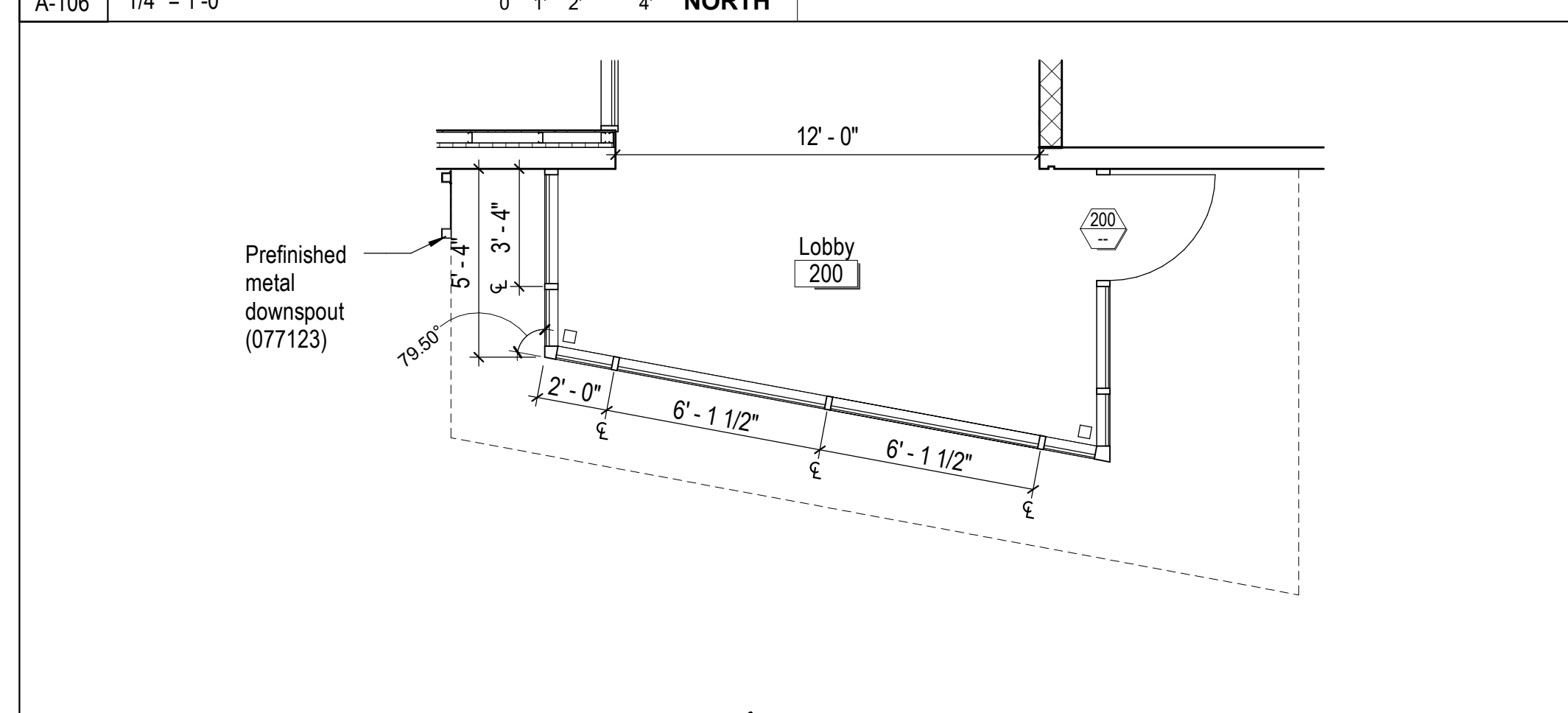
3 Reflected Ceiling - Firing Range (Alternate #04)  
1/8" = 1'-0" NORTH



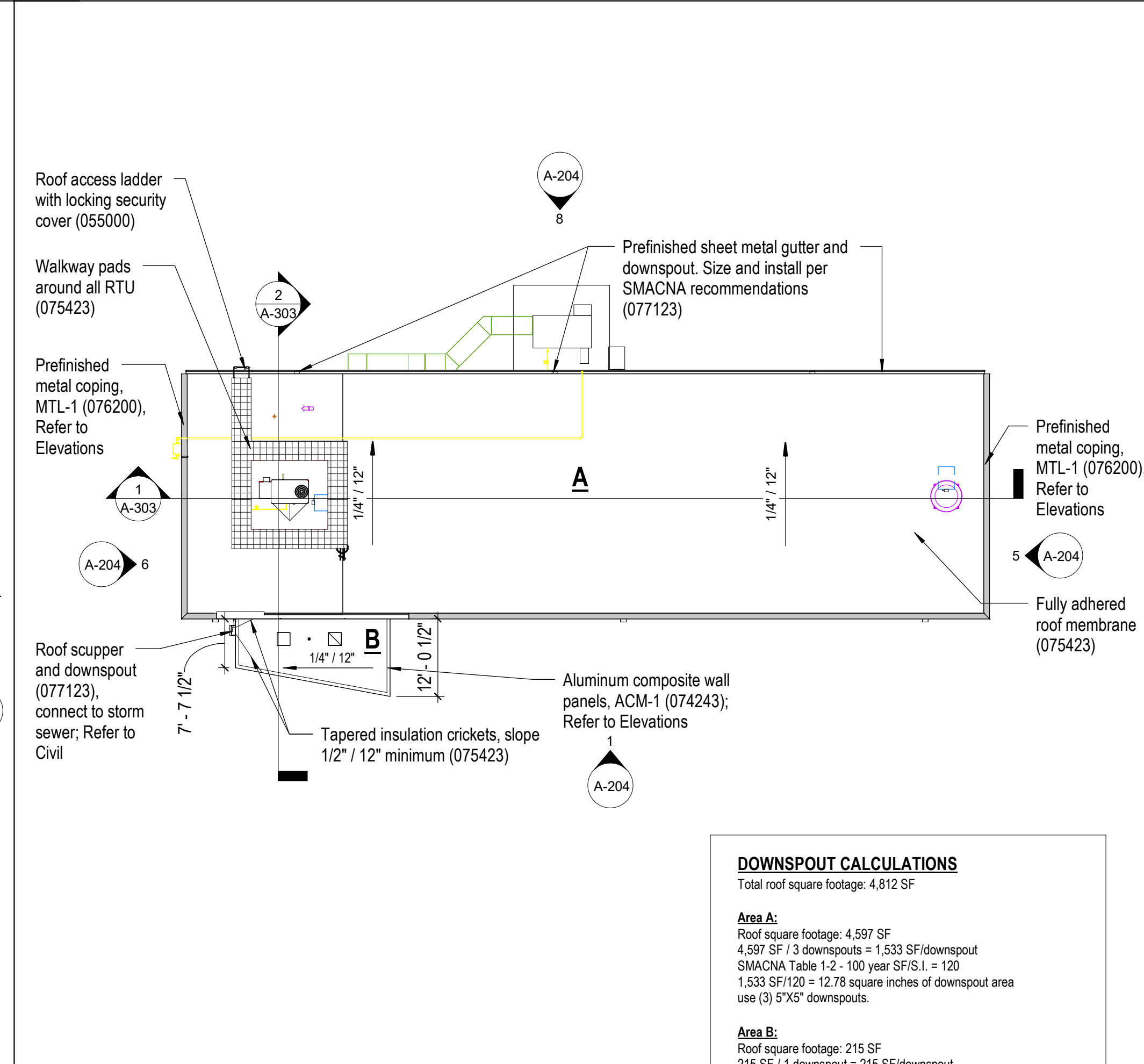
1 Floor Plan - Firing Range (Alternate #04)  
1/8" = 1'-0" NORTH



5 Enlarged Plan - Toilet 204 (Alternate #04)  
1/4" = 1'-0" NORTH



4 Enlarged Plan - Lobby 200 (Alternate #04)  
1/4" = 1'-0" NORTH

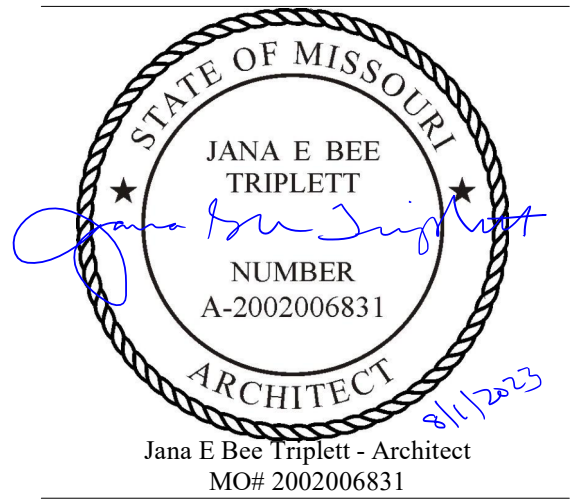


2 Roof - Firing Range (Alternate #04)  
1/16" = 1'-0" NORTH

**DOWNSPOUT CALCULATIONS**  
Total roof square footage: 4,812 SF

**Area A:**  
Roof square footage: 4,597 SF  
4,597 SF / 3 downspouts = 1,533 SF/downspout  
SMACNA Table 1-2 - 100 year SF/S.I. = 120  
1,533 SF/120 = 12.78 square inches of downspout area  
use (3) 5'X5' downspouts.

**Area B:**  
Roof square footage: 215 SF  
215 SF / 1 downspout = 215 SF/downspout  
SMACNA Table 1-2 - 100 year SF/S.I. = 120  
215 SF/120 = 1.8 square inches of downspout area  
use (1) 4'X4' downspout.



Jana E Bee Triplett - Architect  
MO# 2002006831

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Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-120.dwg  
DRAWN BY: JH  
CHECKED BY: JBT  
DESIGNED BY: GW&

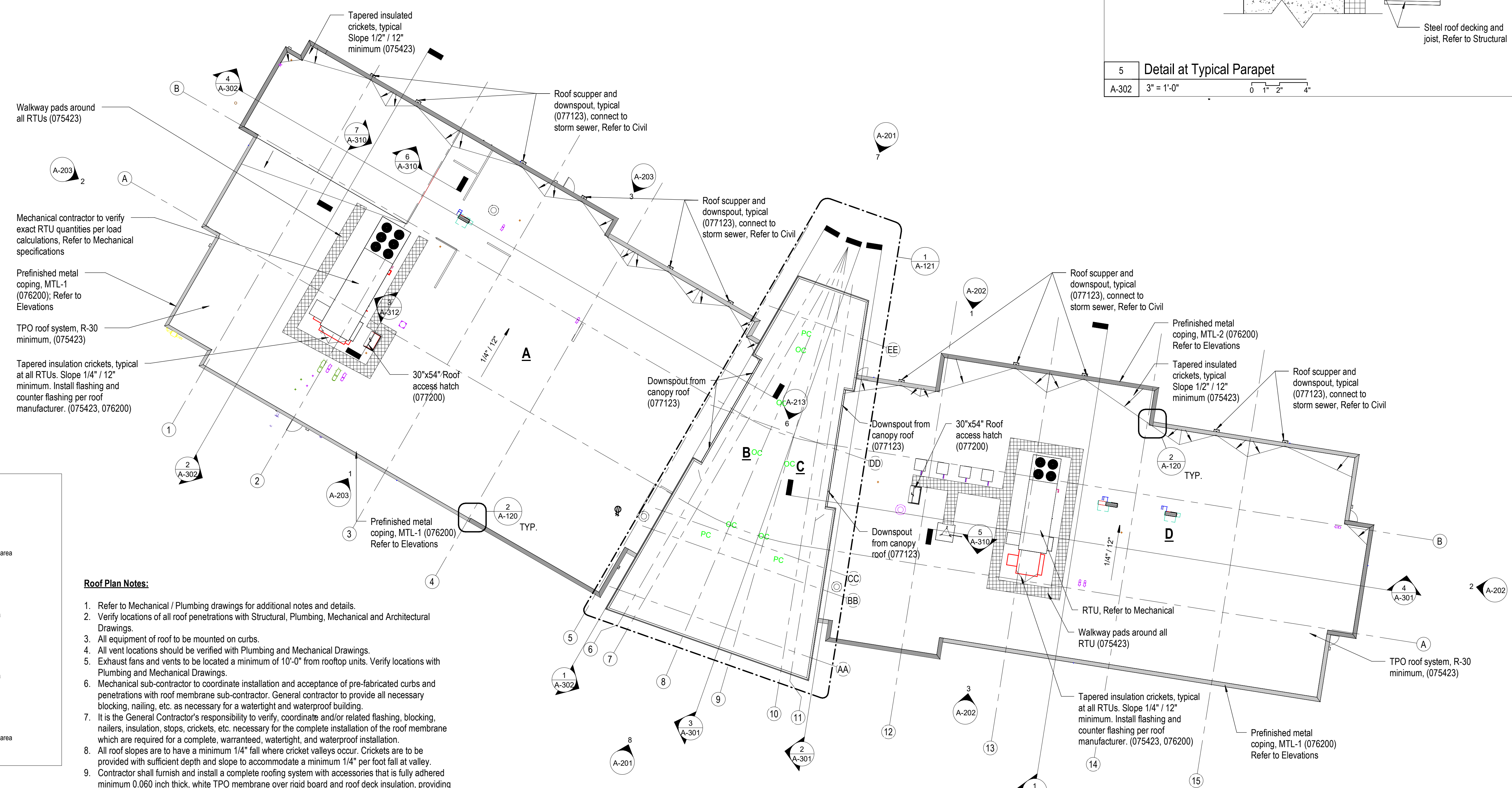
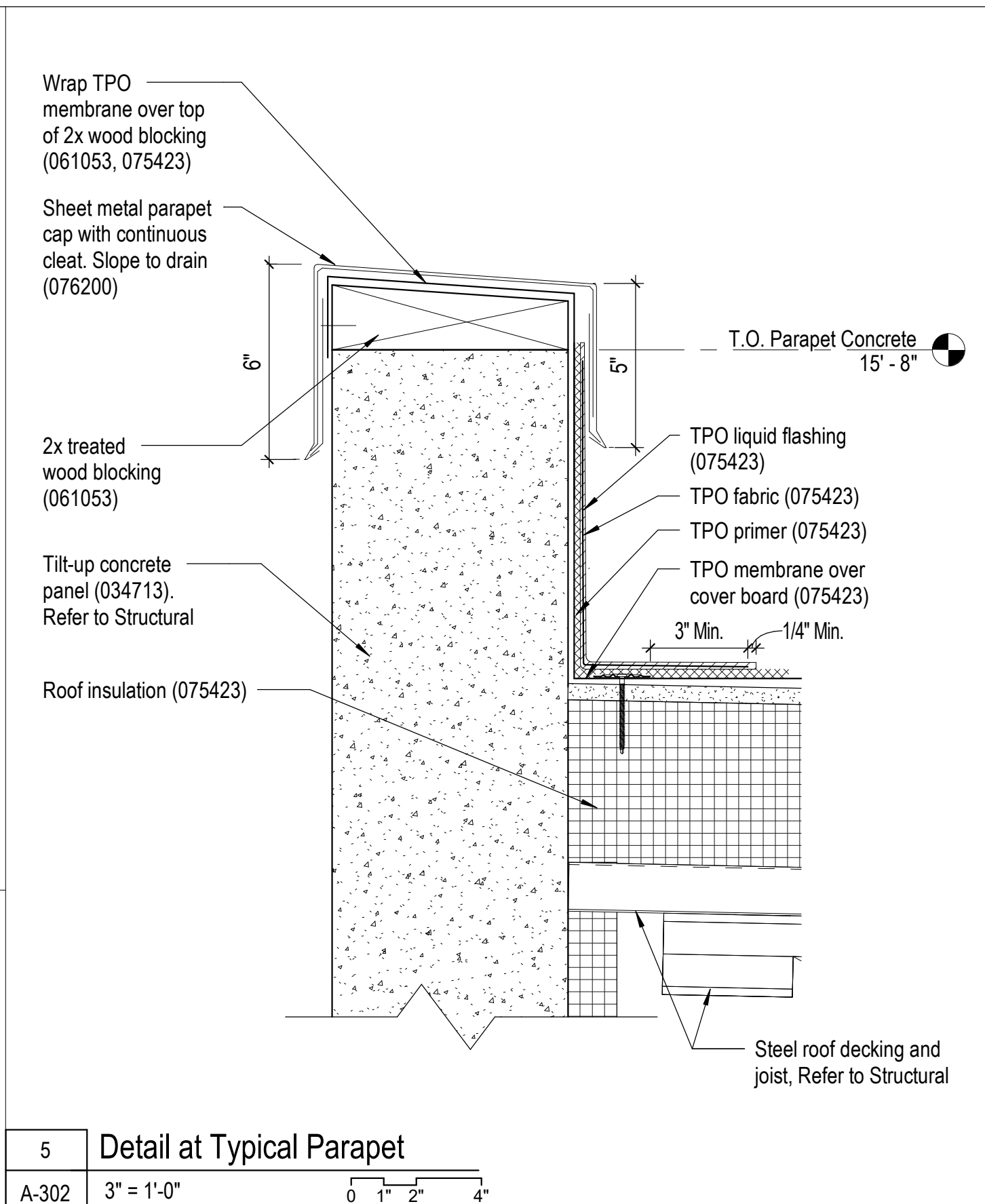
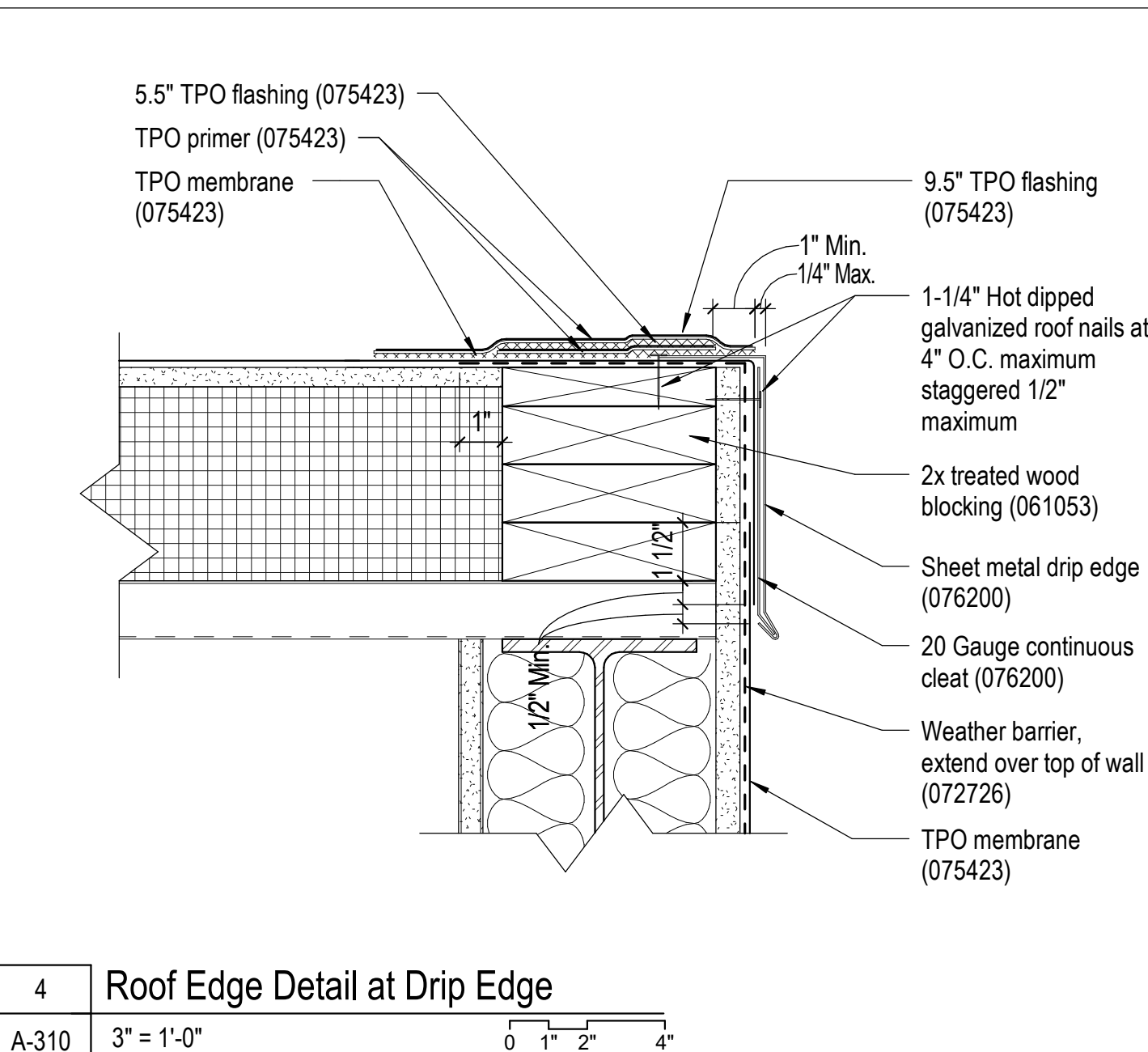
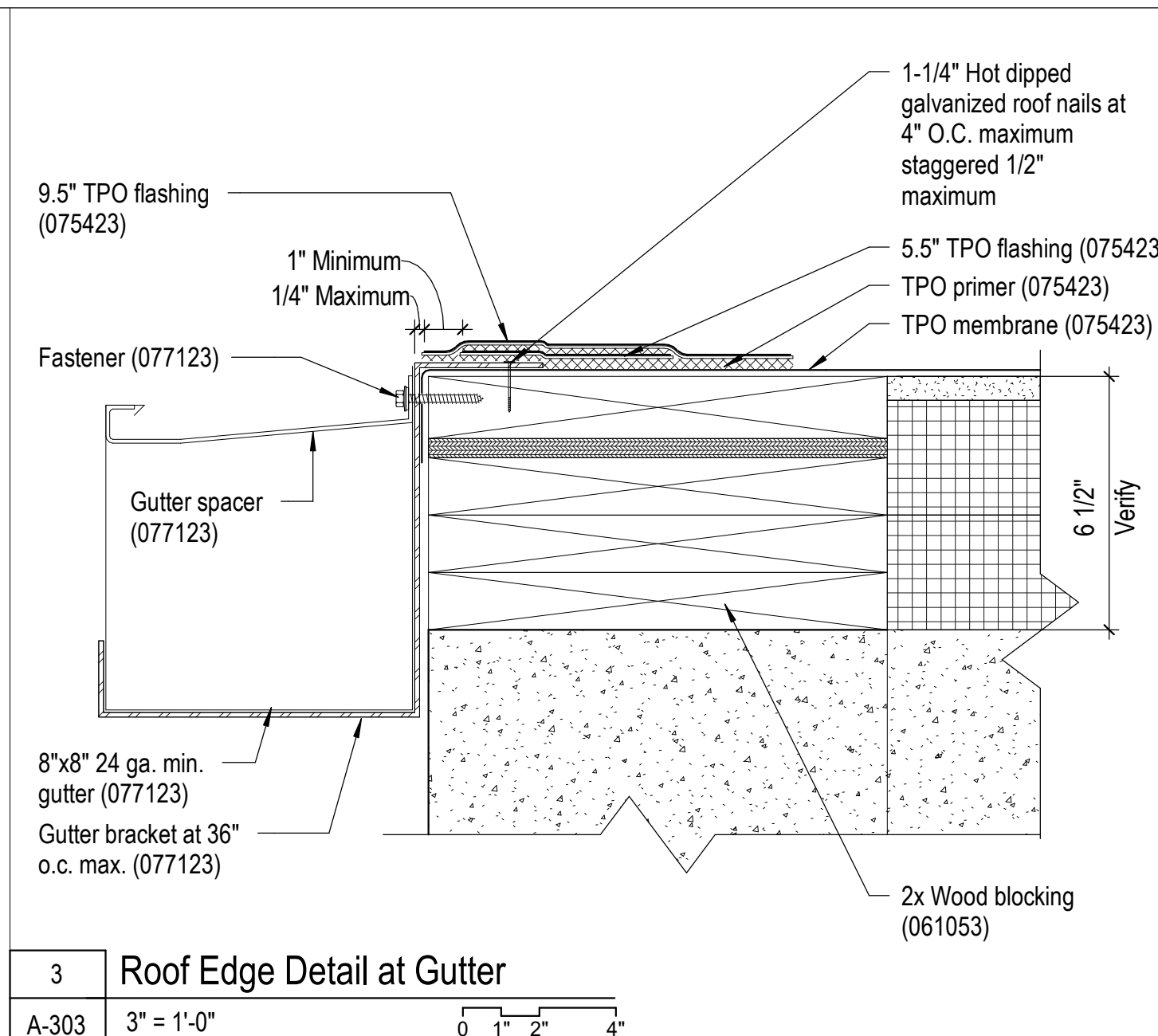
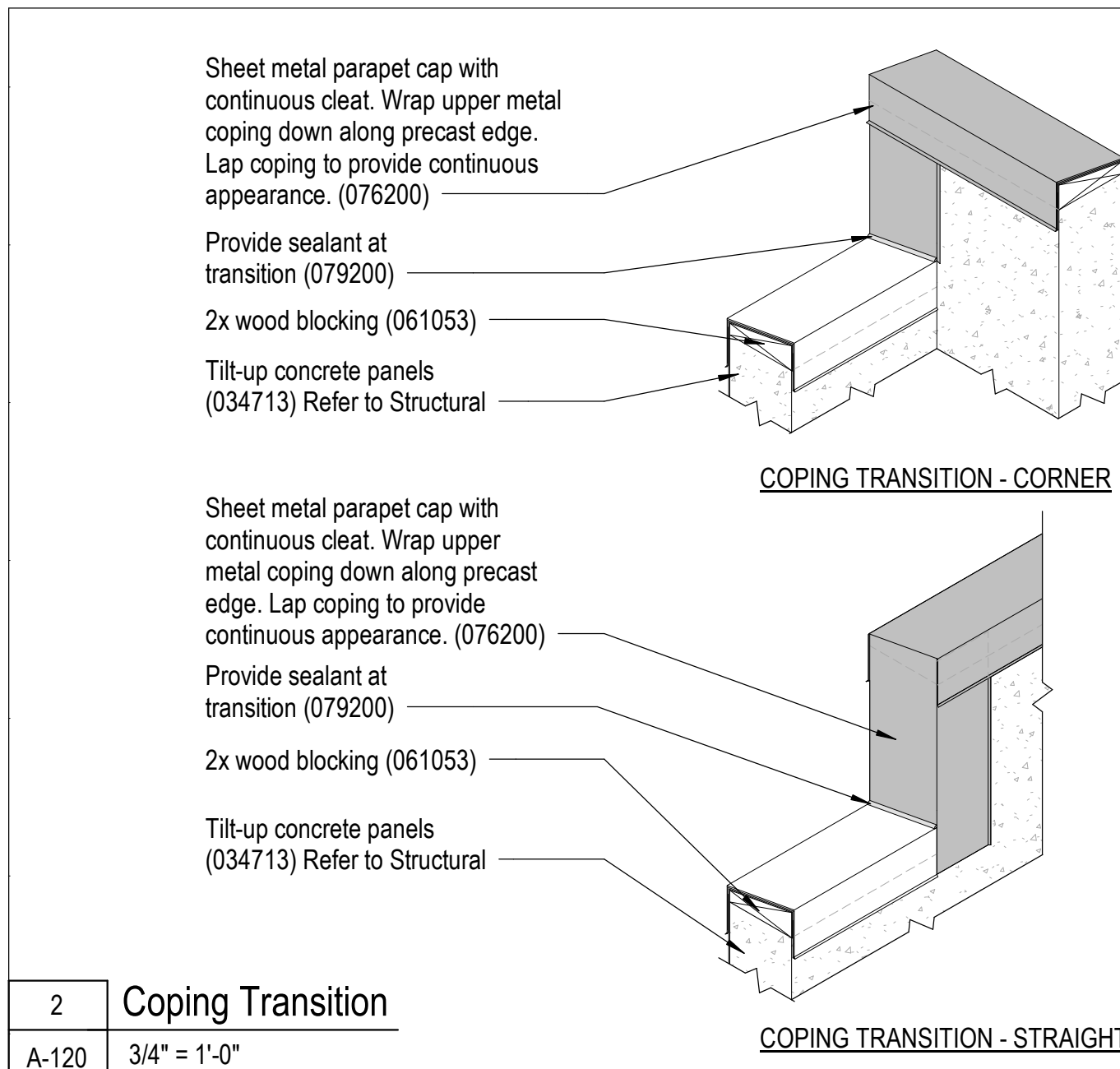
SHEET TITLE:  
**Roof Plan and Details**

SHEET NUMBER:

**A-120**

SHEET 069 OF 202

08/01/2023



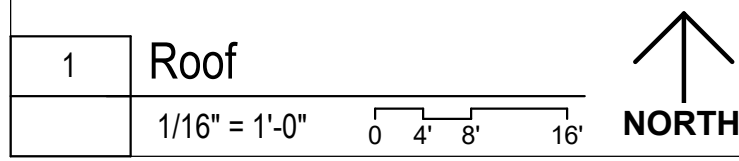
**DOWNSPOUT CALCULATIONS**  
Total roof square footage: 30,994 SF

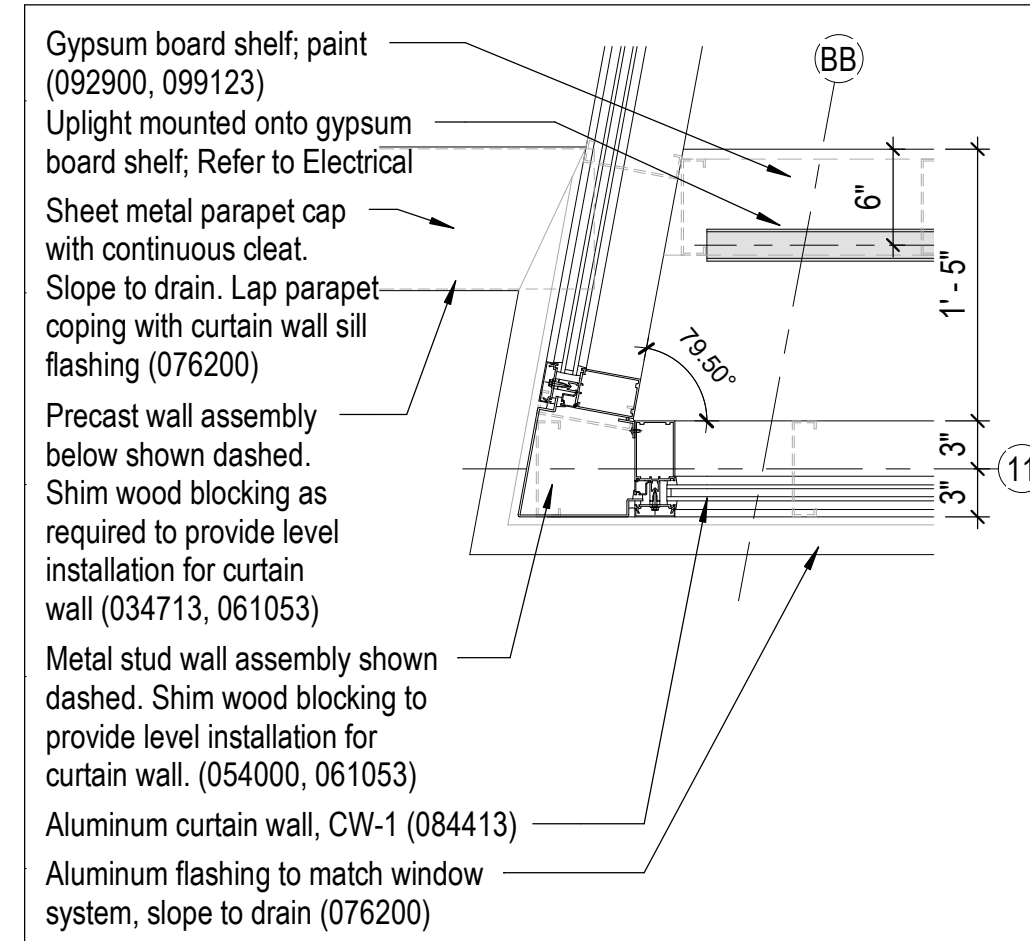
**Area A:**  
Roof square footage: 16,998 SF  
16,998 SF / 5 downspouts = 3,400 S.F./downspout  
SMACNA Table 1-2 - 100 year SF/S.I. = 120  
3,400 SF/120 = 28.33 square inches of downspout area use (5) 6"x6" downspouts.

**Area B:**  
Roof square footage: 2,374 SF  
2,374 SF / 3 downspouts = 792 SF/downspout  
SMACNA Table 1-2 - 100 year SF/S.I. = 120  
792 SF/120 = 6.6 square inches of downspout area use (3) 4"x4" downspouts.

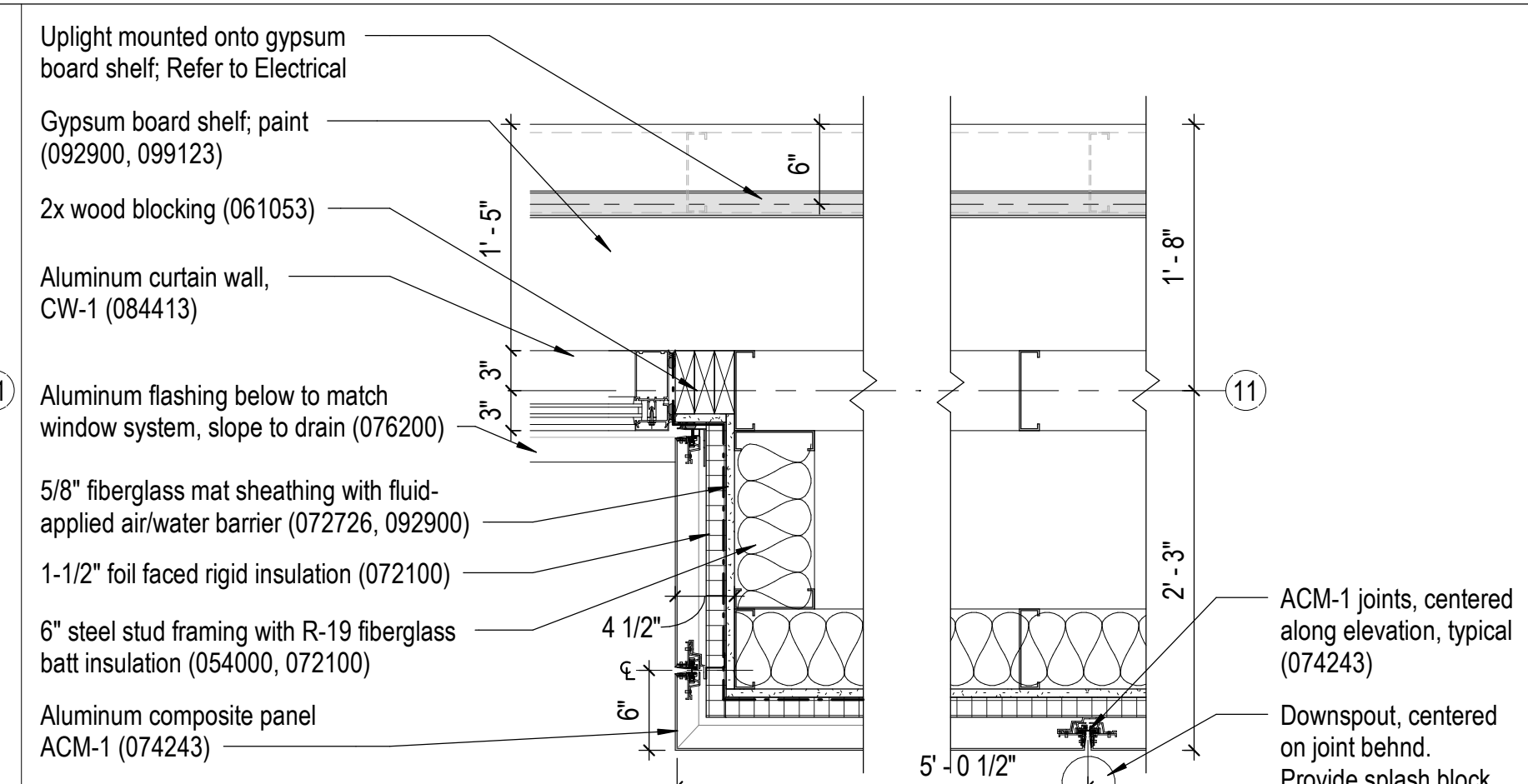
**Area C:**  
Roof square footage: 2,374 SF  
2,374 SF / 3 downspouts = 792 SF/downspout  
SMACNA Table 1-2 - 100 year SF/S.I. = 120  
792 SF/120 = 6.6 square inches of downspout area use (3) 4"x4" downspouts.

**Area D:**  
Roof square footage: 13,968 SF  
13,968 SF / 5 downspouts = 2,794 SF/downspout  
SMACNA Table 1-2 - 100 year SF/S.I. = 120  
2,794 SF/120 = 23.29 square inches of downspout area use (5) 6"x6" downspouts.

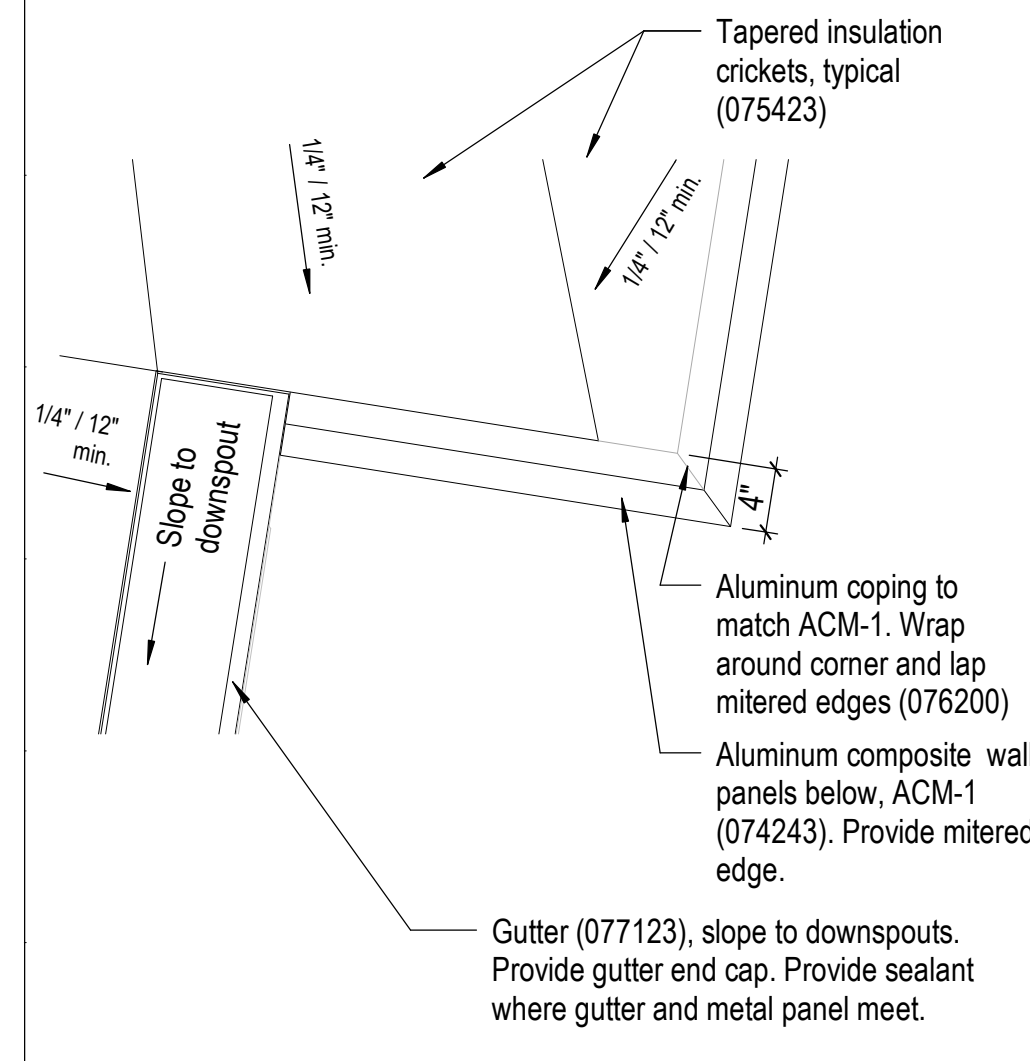




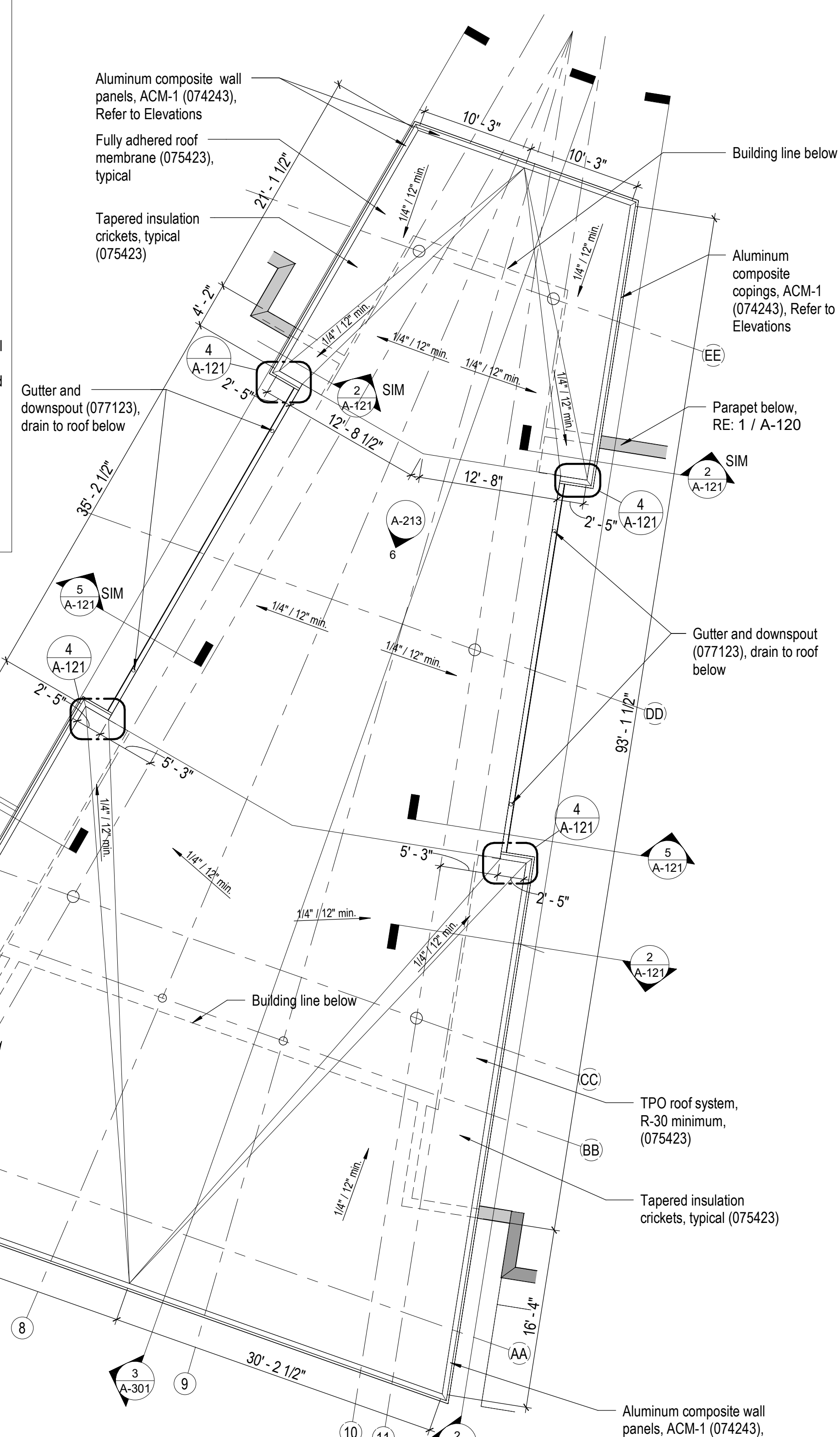
**7 Plan Detail - Clerestory Outside Corner**  
A-214 1" = 1'-0" NORTH



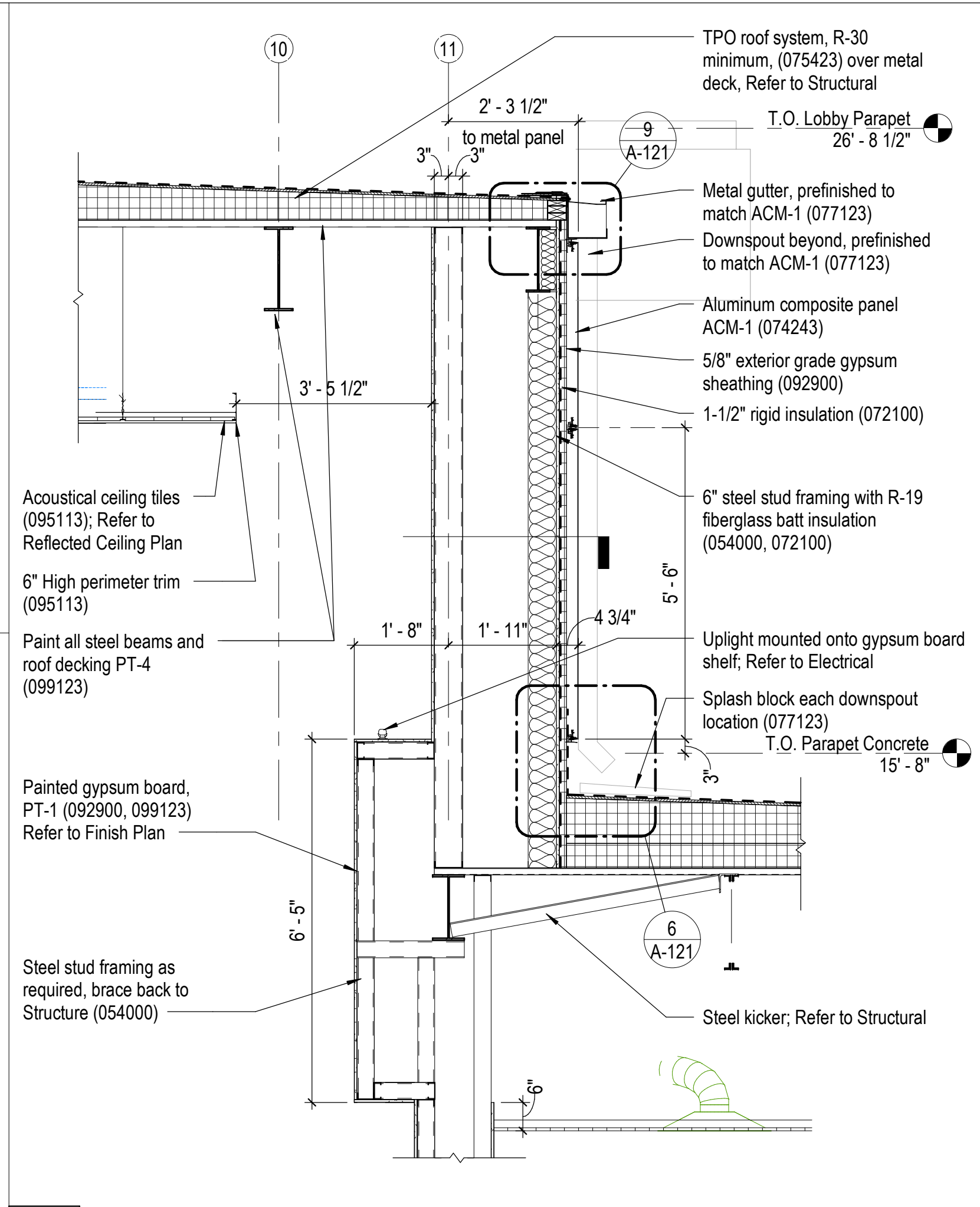
**8 Plan Detail - Metal Panel to Curtain Wall**  
A-121 1" = 1'-0" NORTH



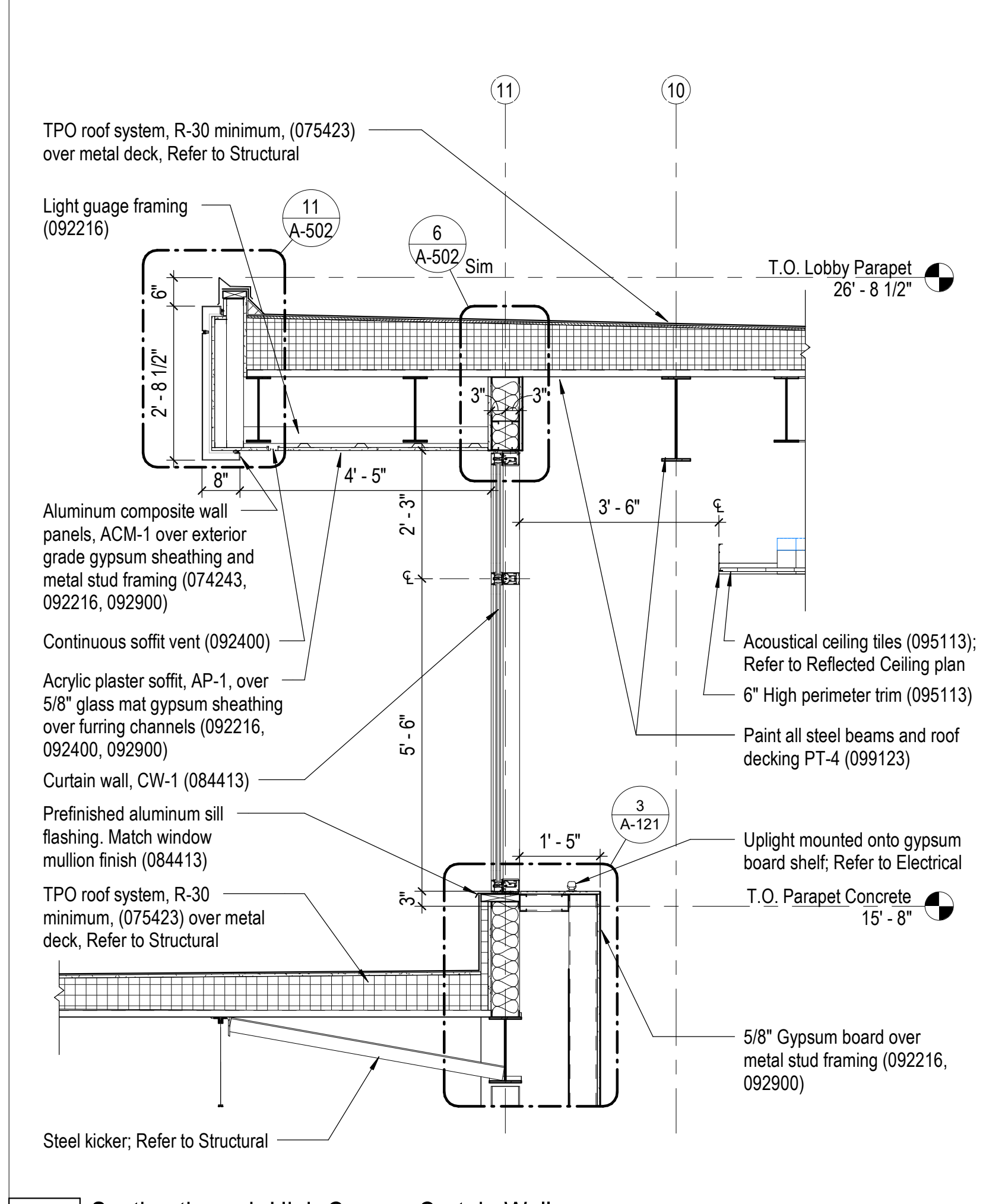
**4 Detail - Gutter to Metal Panel**  
A-121 1" = 1'-0" NORTH



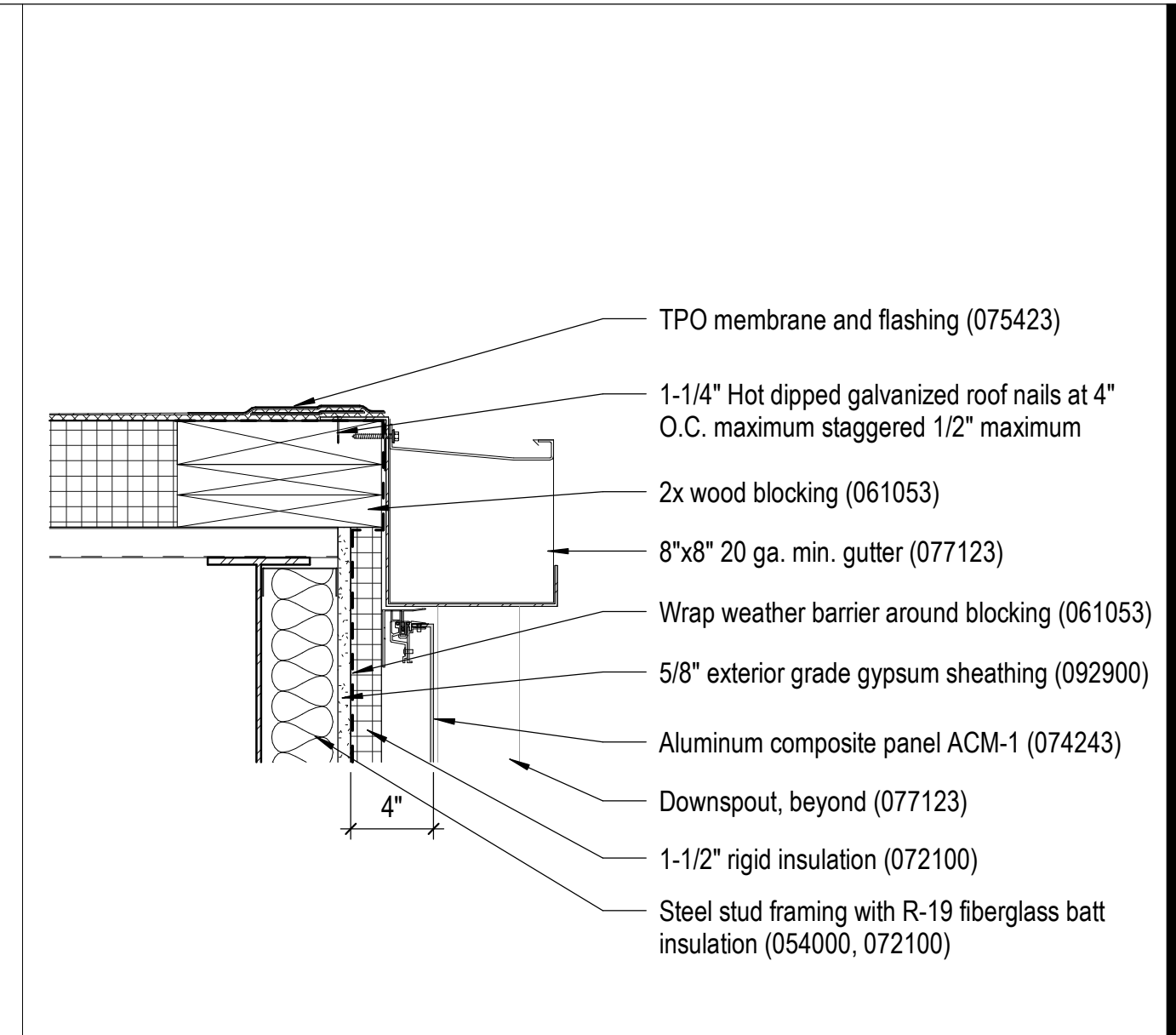
**1 Roof - High Canopy**  
A-120 1/8" = 1'-0" NORTH



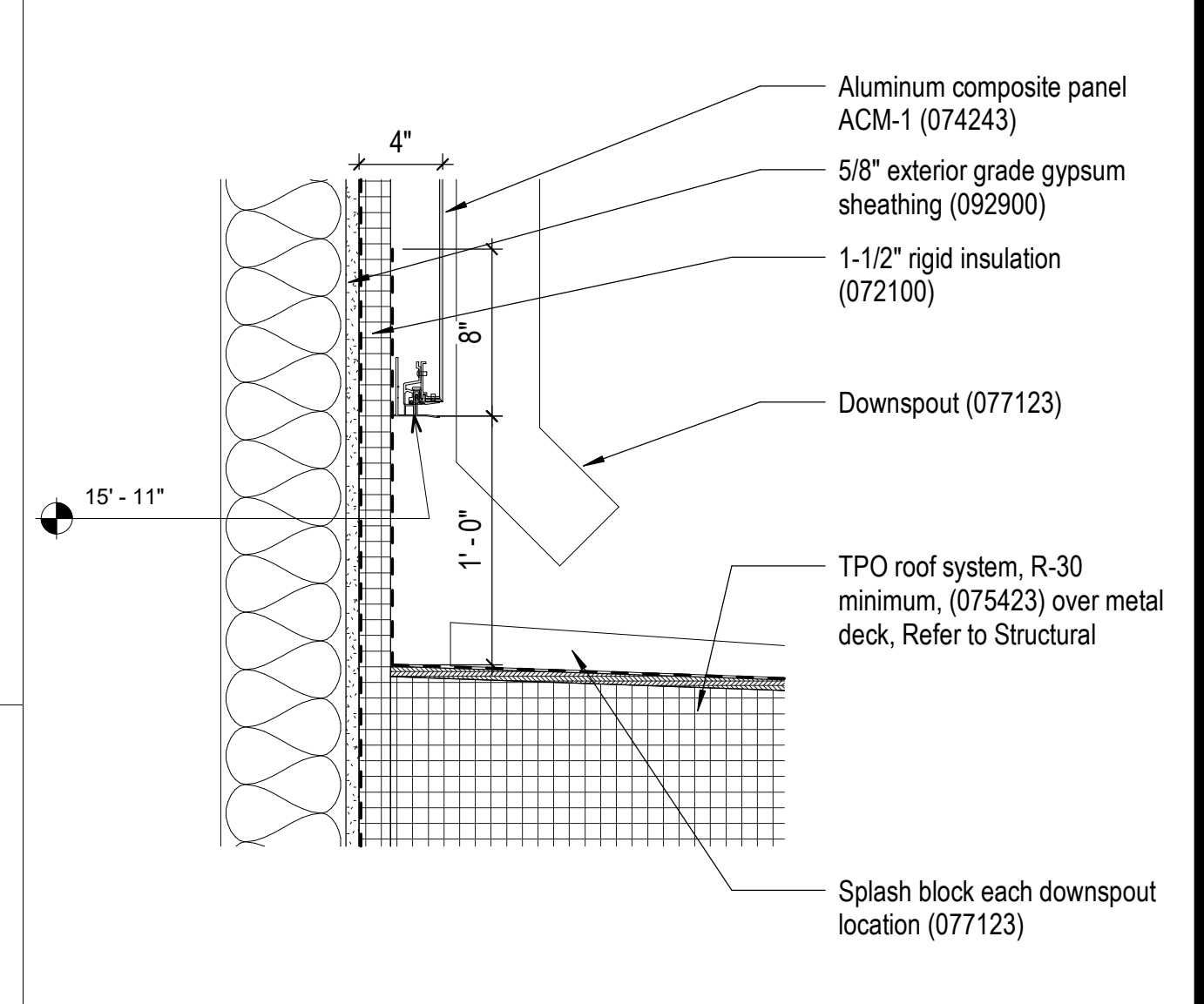
**5 Section through High Roof**  
A-121 1/2" = 1'-0"



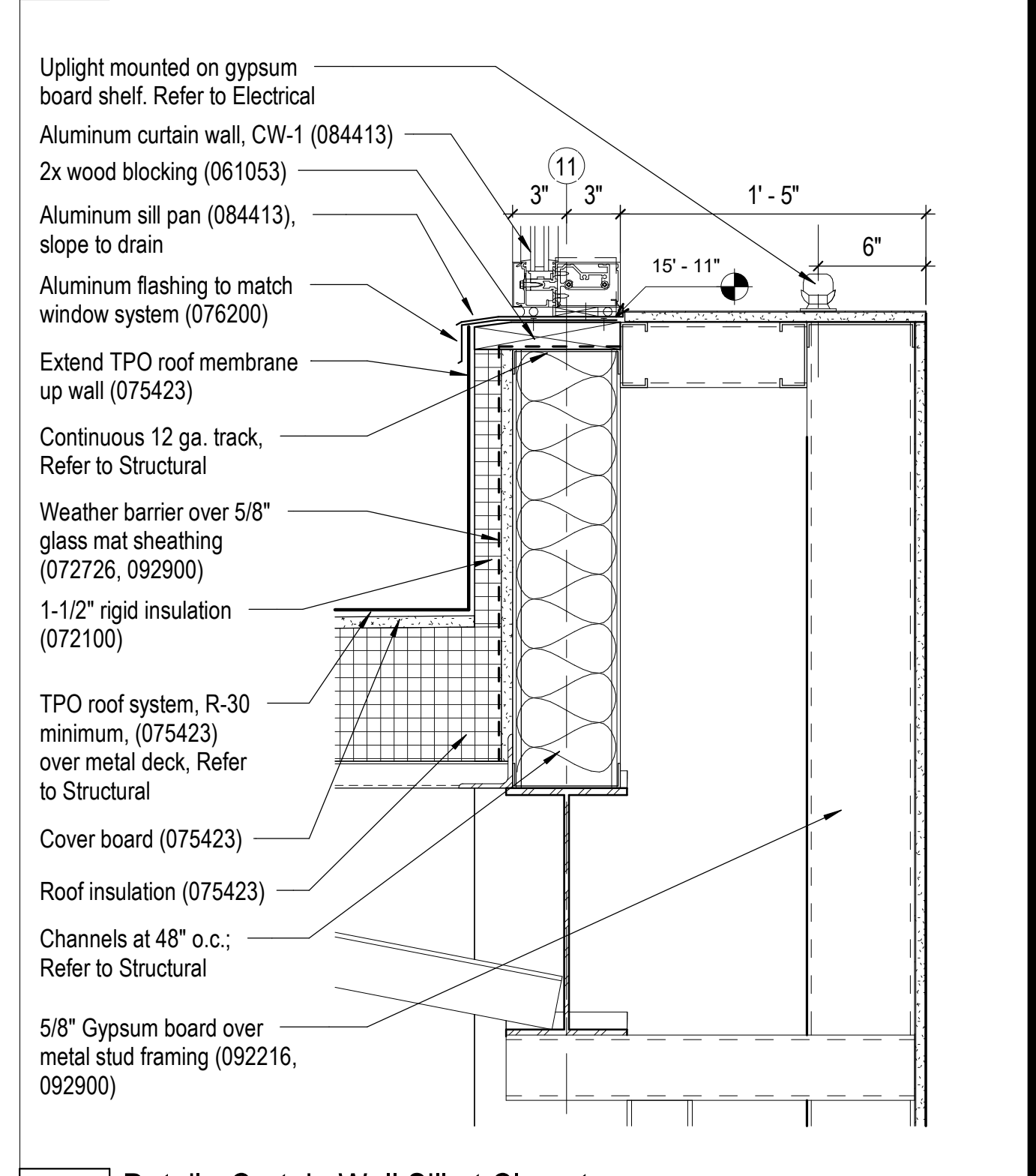
**2 Section through High Canopy Curtain Wall**  
A-121 1/2" = 1'-0"



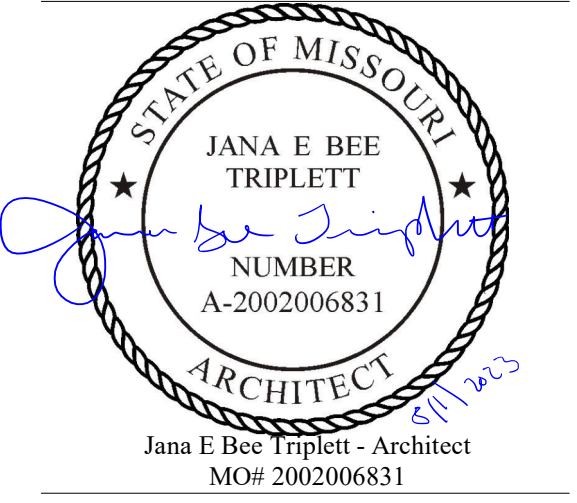
**9 Detail - Gutter at Metal Wall Panel**  
A-121 1 1/2" = 1'-0"

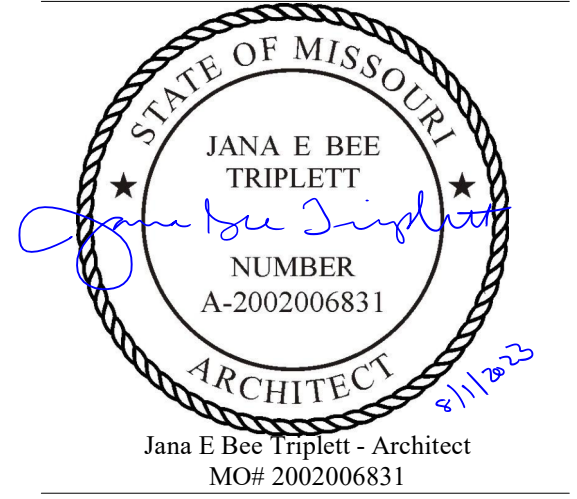


**6 Detail - Metal Panel Base to Roof**  
A-121 1 1/2" = 1'-0"



**3 Detail - Curtain Wall Sill at Clerestory**  
A-121 1 1/2" = 1'-0"





**Gastinger Walker &**

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Project Number: 2102.152

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Missouri Certificate of Authority: #2023012872

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DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-201.dwg  
DRAWN BY: CM/JH  
CHECKED BY: JBT  
DESIGNED BY: GW&

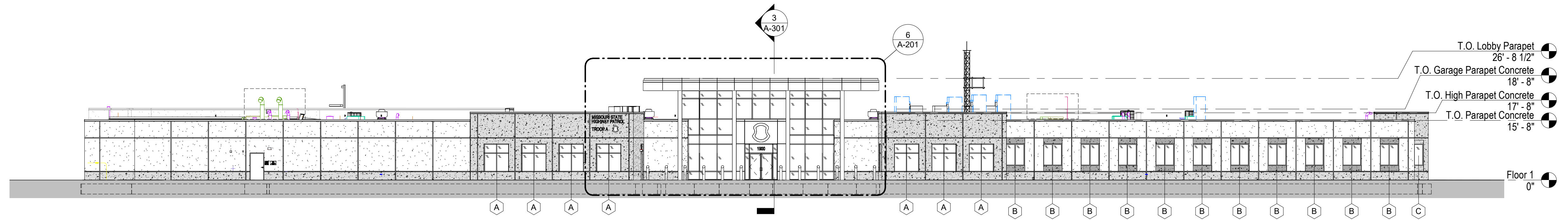
SHEET TITLE:  
Exterior Elevations - Main  
Building

SHEET NUMBER:

**A-201**

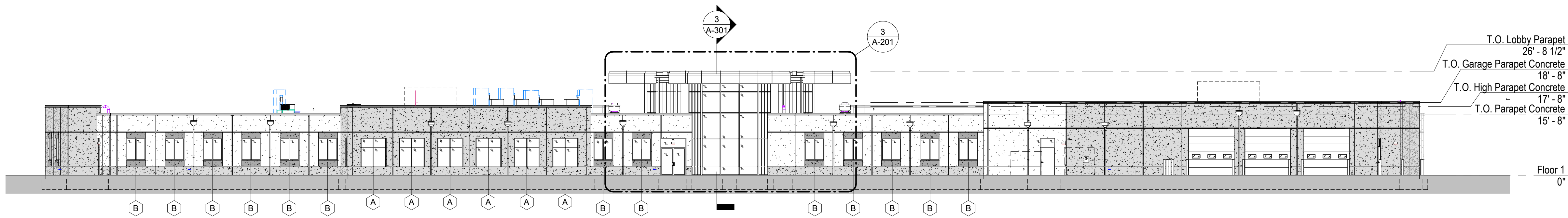
SHEET 071 OF 202

08/01/2023



8 South Overall Building Elevation

A-100 1/16" = 1'-0" 0 4' 8' 16'



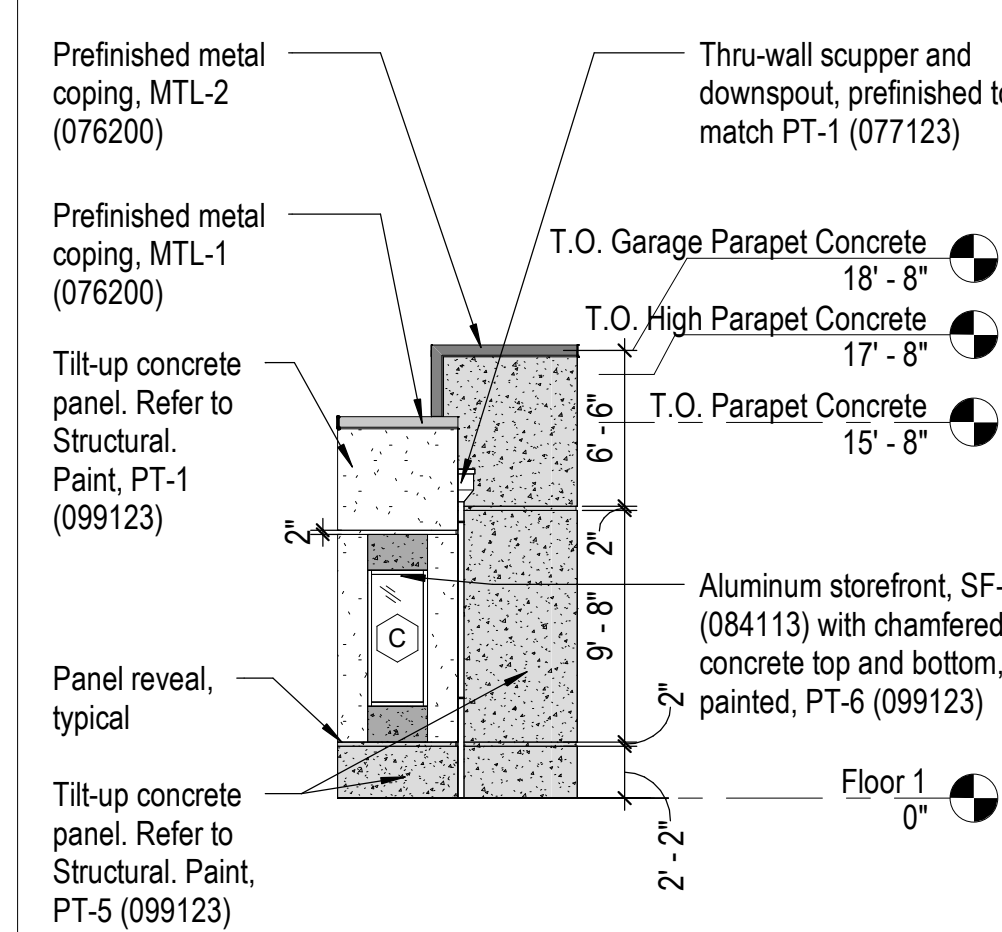
7 North Overall Building Elevation

A-021 1/16" = 1'-0" 0 4' 8' 16'

**EXTERIOR MATERIAL LEGEND**

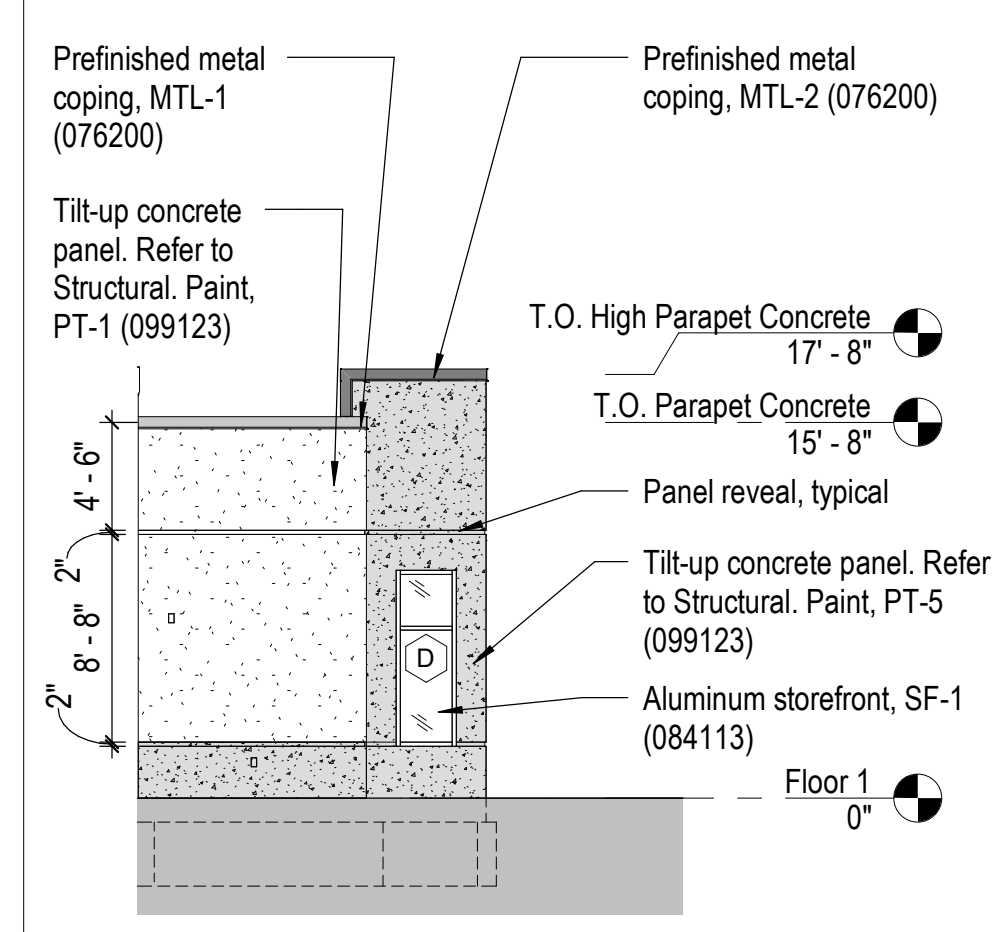
- ACM-1 074243 Composite Wall Panels  
Architectural Composite Metal  
Color: Bone White
- MTL-1: 076200 Sheet Metal Flashing and Trim  
Prefinished metal coping  
Color: To be selected by Architect
- MTL-2: 076200 Sheet Metal Flashing and Trim  
Prefinished metal coping  
Color: To be selected by Architect
- SF-1 084113 Aluminum-Framed Entrances and Storefronts  
Aluminum and Glass Storefront System  
Basis-of-Design Manufacturer: Kawneer Trifab 451T (thermal)  
2" sightline x 4-1/2" depth  
Finish: Medium Bronze
- CW-1 084413 Glazed Aluminum Curtain Walls  
Aluminum and Glass Curtain Wall System  
Basis-of-Design Manufacturer: Kawneer 1600, System 1  
2-1/2" sightline x 6" depth, 4-sided captured  
Finish: Clear Anodized Aluminum
- GL-1: Low-E coated clear insulating glass.  
Basis-of-Design: Vitro, Solarban 60 (2) Optigray
- GL-2: Low-E coated tinted insulating glass.  
Basis-of-Design: Vitro, Solarban 60 (3) Optigray
- AP-1: 092400 Cement Plastering  
Acrylic Plaster Exterior Soffit  
Color: (Integral color) Heron Plume SW6070.  
Finish: Sand
- PT-1: 099123 Painting  
Exterior paint  
Basis-of-Design Manufacturer: Sherwin Williams  
Color: Heron Plume SW6070  
Finish: Eggshell
- PT-5: 099123 Painting  
Exterior paint  
Basis-of-Design Manufacturer: Sherwin Williams  
Color: Mega Greige SW 7031  
Finish: Eggshell
- PT-6: 099123 Painting  
Exterior paint  
Basis-of-Design Manufacturer: Sherwin Williams  
Color: Warm Stone SW 7032  
Finish: Eggshell

NOTE: Listed manufacturers are basis-of-design. Reference specifications for approved alternates.



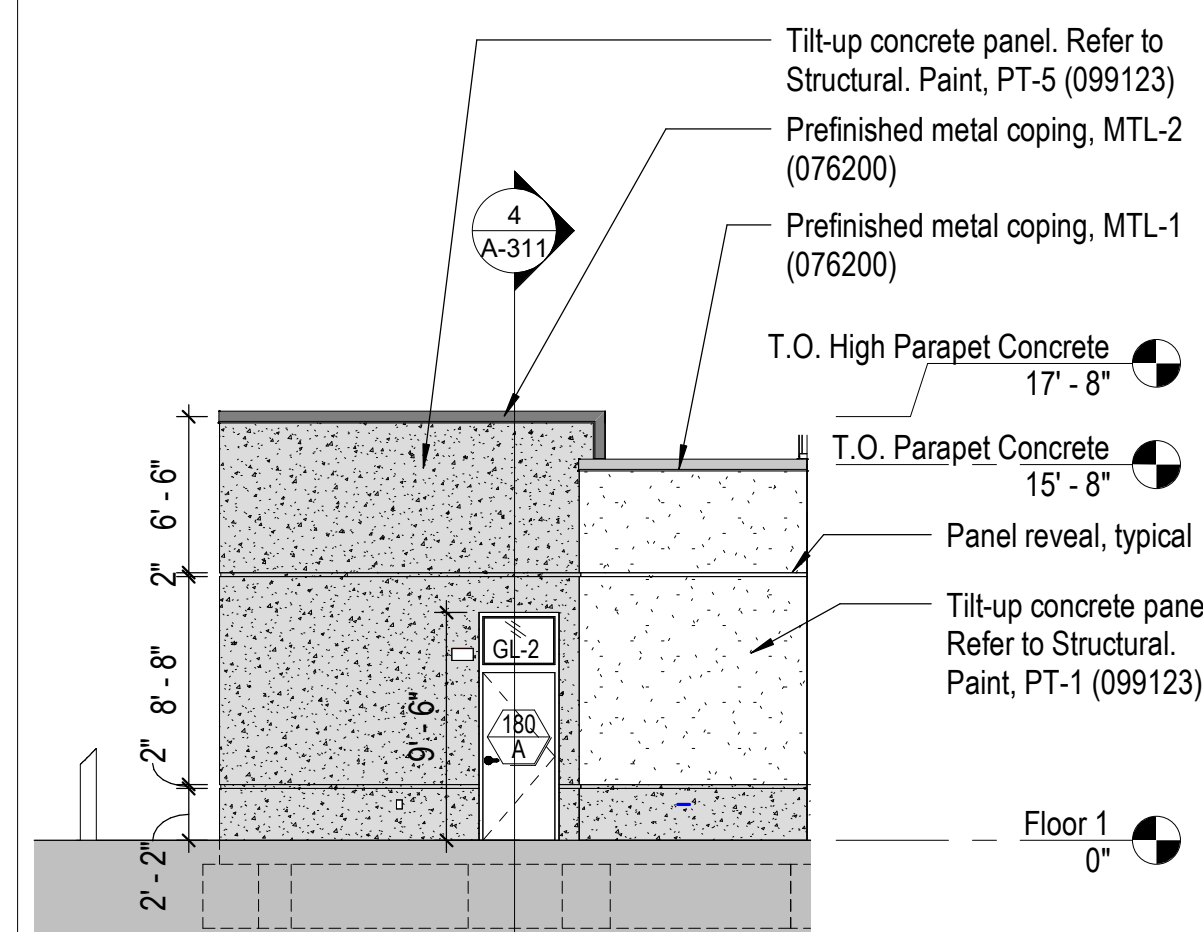
4 North Elevation - Wing Wall West

A-101 1/8" = 1'-0" 0 2' 4' 8'



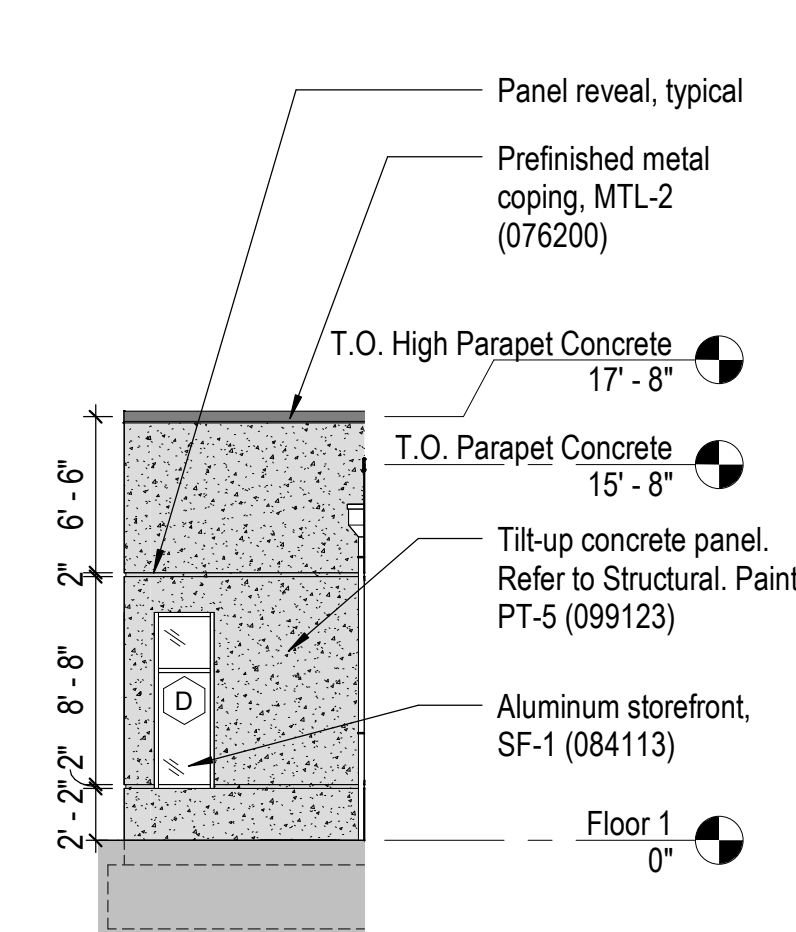
5 South Elevation - Wing Wall East

A-101 1/8" = 1'-0" 0 2' 4' 8'



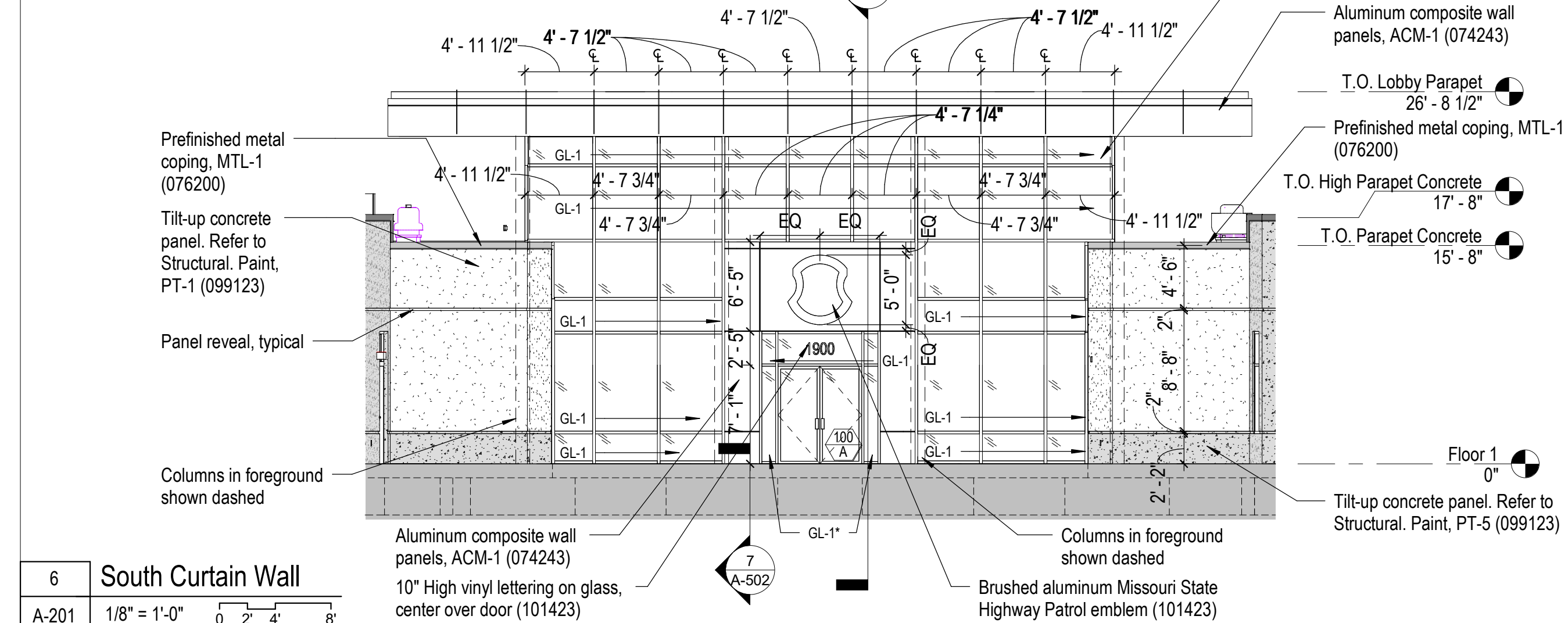
1 South Elevation - Wing Wall West

A-101 1/8" = 1'-0" 0 2' 4' 8'



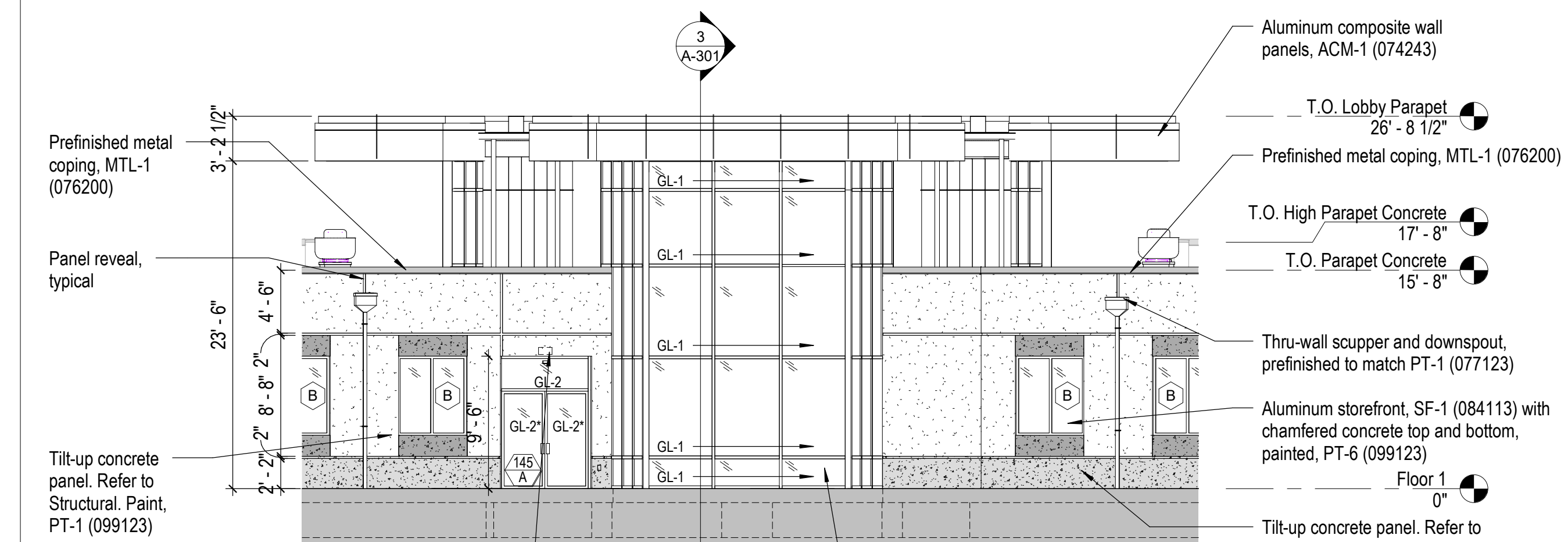
2 North Elevation - Wing Wall East

A-101 1/8" = 1'-0" 0 2' 4' 8'



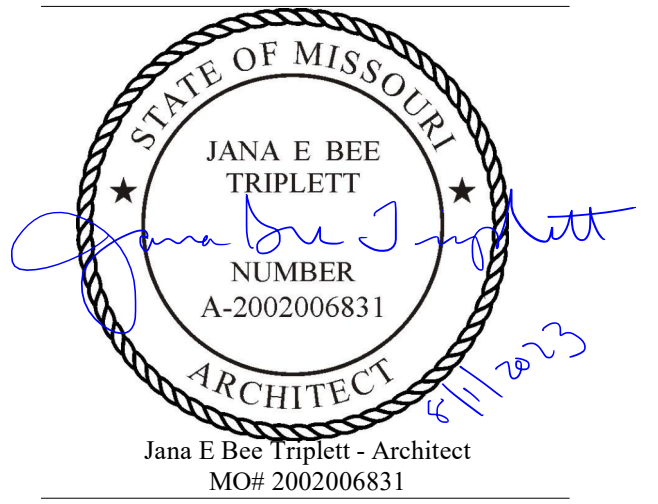
6 South Curtain Wall

A-201 1/8" = 1'-0" 0 2' 4' 8'



3 North Curtain Wall

A-201 1/8" = 1'-0" 0 2' 4' 8'



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SITE # 6018  
FACILITY # 8136018019

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ISSUE DATE: 01 August 2023

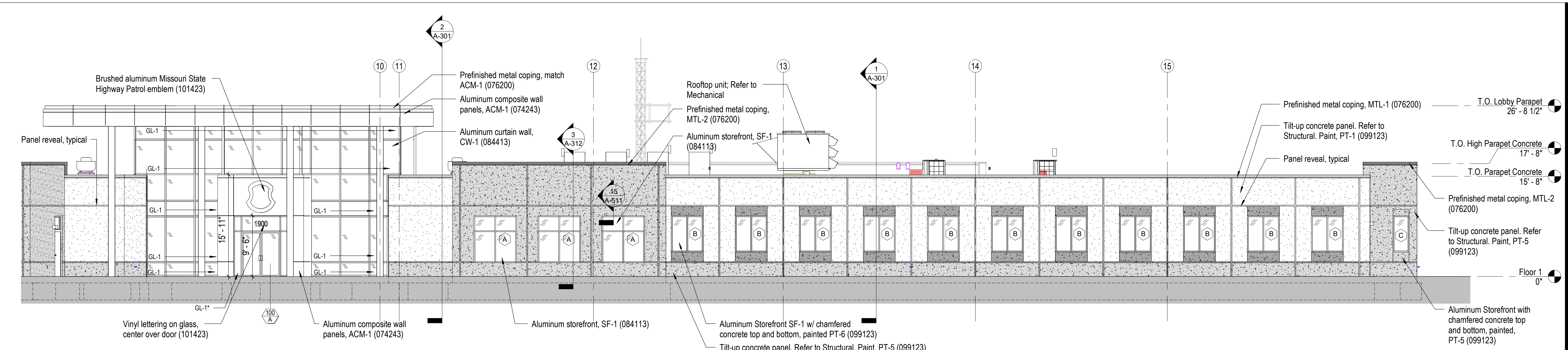
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DRAWN BY: CM/JH  
CHECKED BY: JBT  
DESIGNED BY: GW&  
SHEET TITLE:

Exterior Elevations - Main  
Building

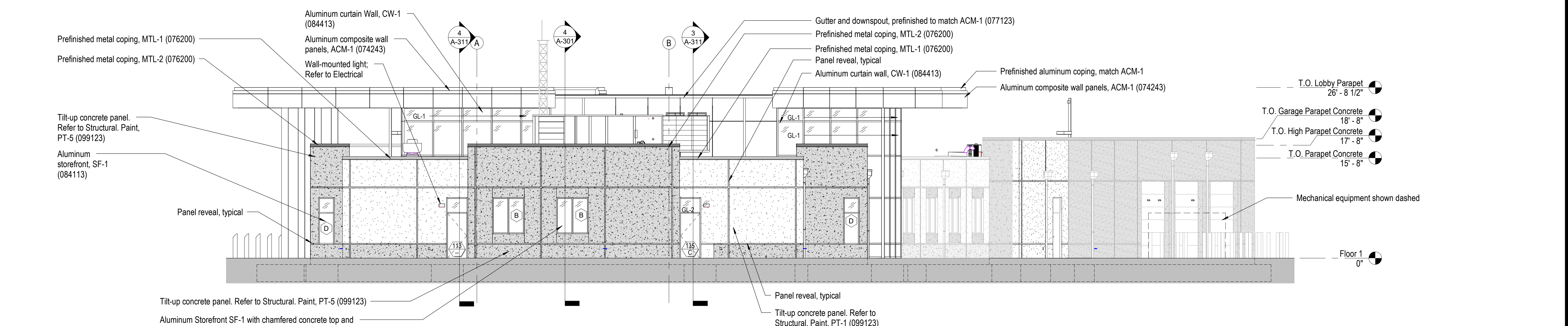
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**A-202**

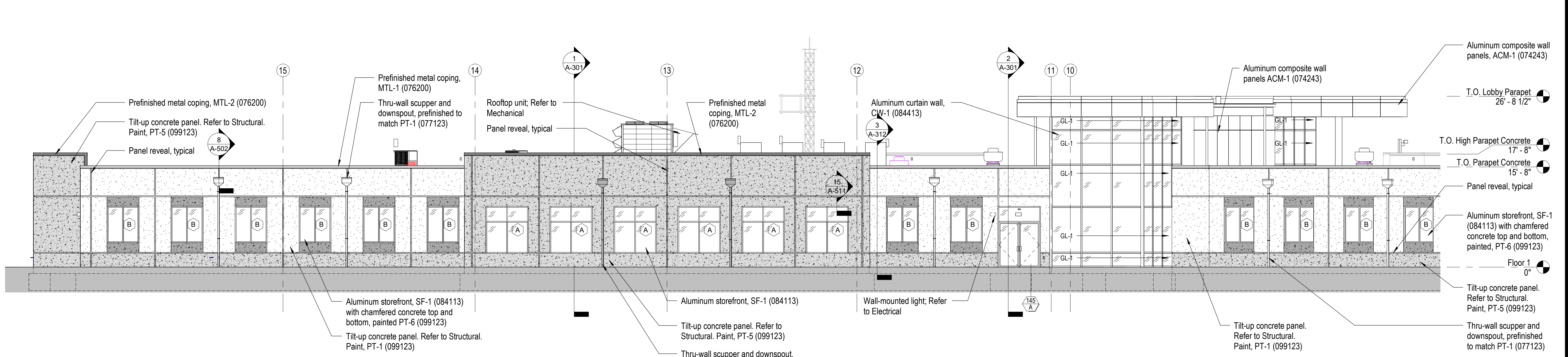
SHEET 072 OF 202  
08/01/2023



3 Enlarged South Elevation - East  
A-101 1/8" = 1'-0"

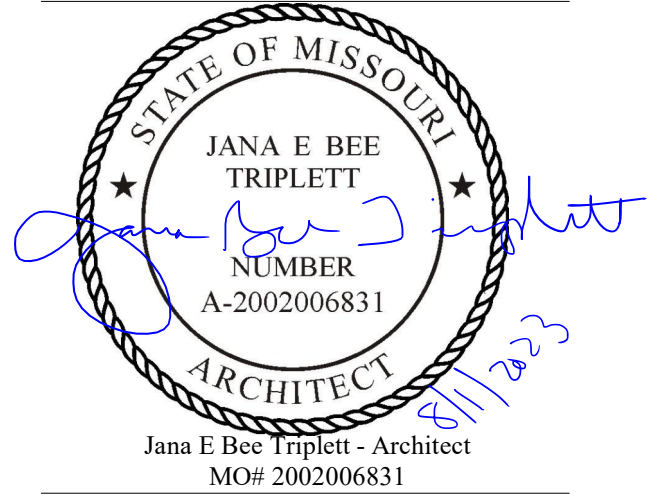


2 East Elevation  
A-100 1/8" = 1'-0"



1 Enlarged North Elevation - East  
A-101 1/8" = 1'-0"





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FACILITY # 8136018019

REVISION:  
DATE:  
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REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

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DRAWN BY: CM/JH  
CHECKED BY: JBT  
DESIGNED BY: GW&  
SHEET TITLE:

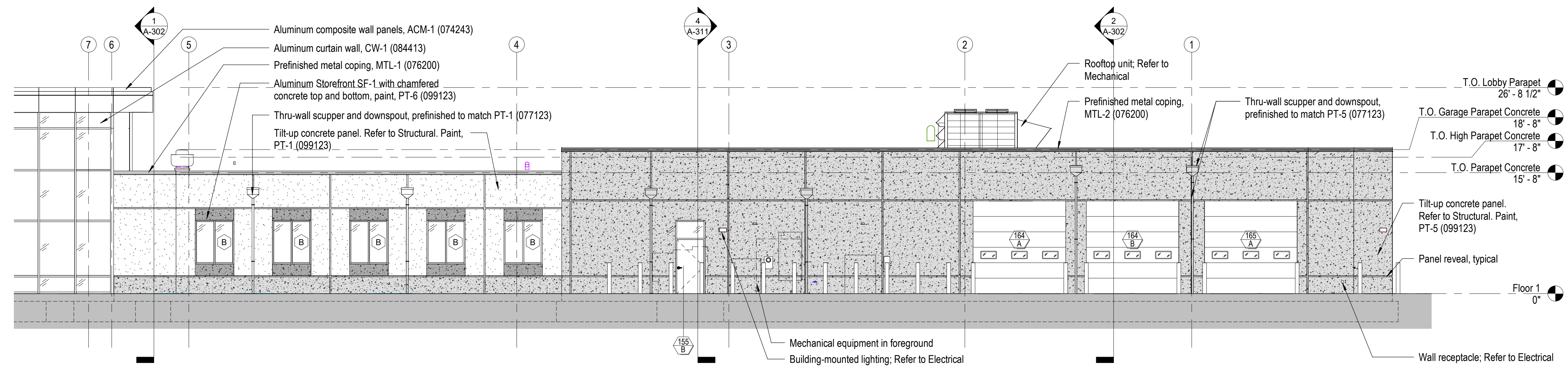
Exterior Elevations - Main  
Building

SHEET NUMBER:

**A-203**

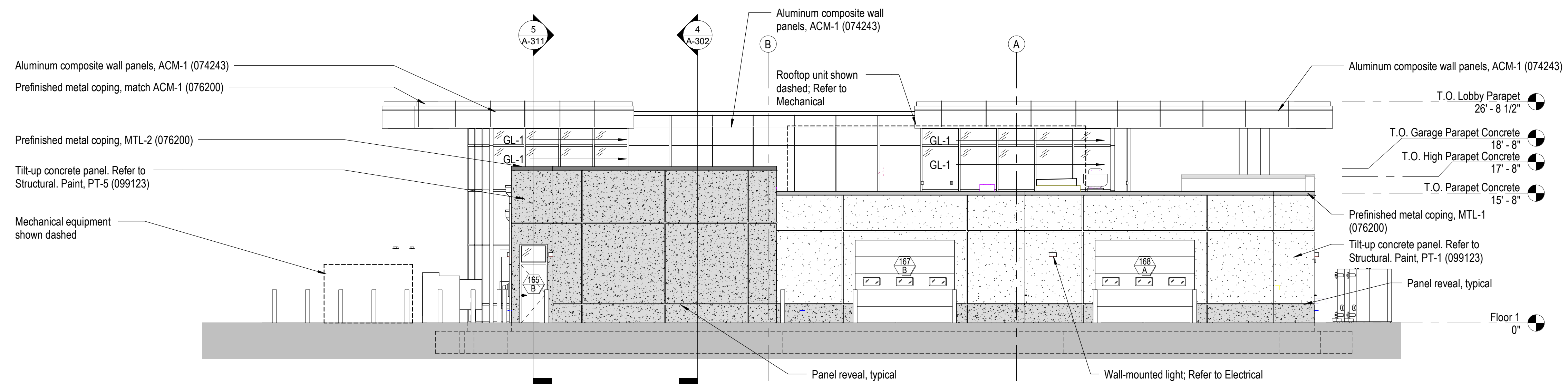
SHEET 073 OF 202

08/01/2023



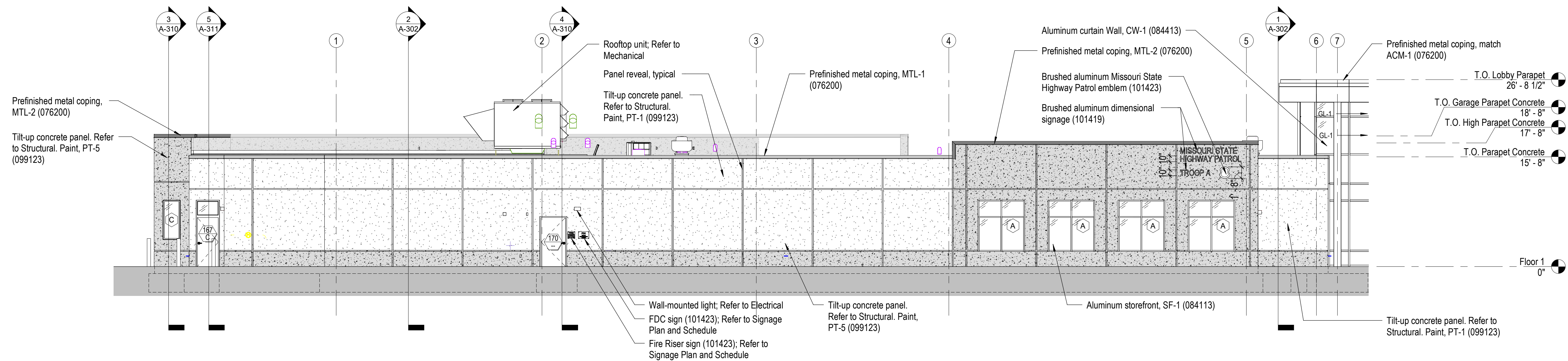
3 Enlarged North Elevation - West

A-101 1/8" = 1'-0" 0 2' 4' 8'



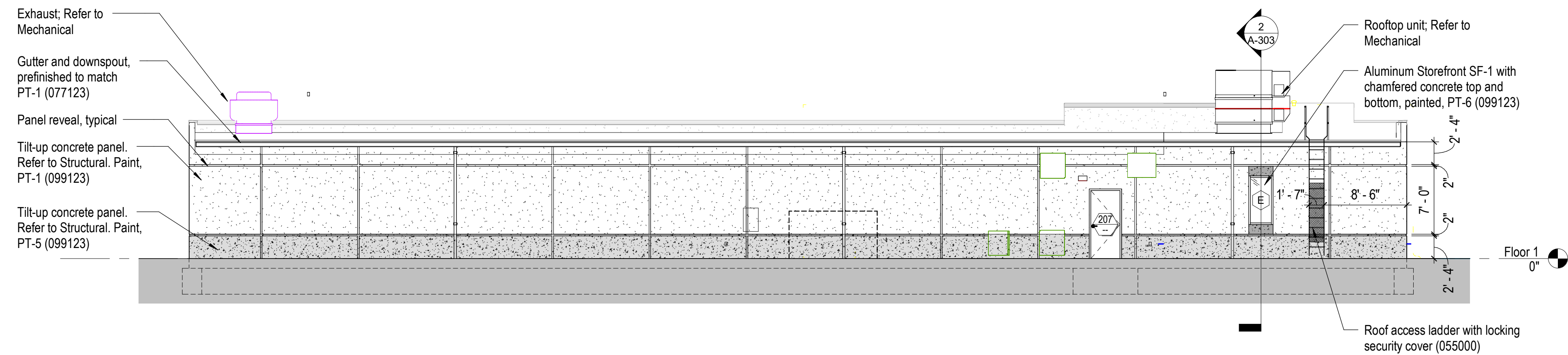
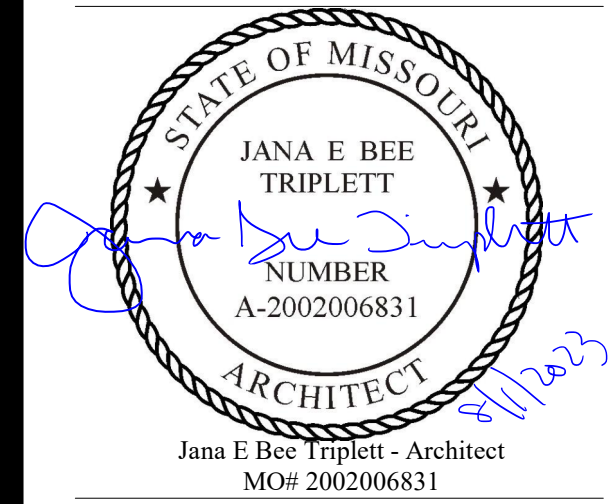
2 West Elevation

A-100 1/8" = 1'-0" 0 2' 4' 8'

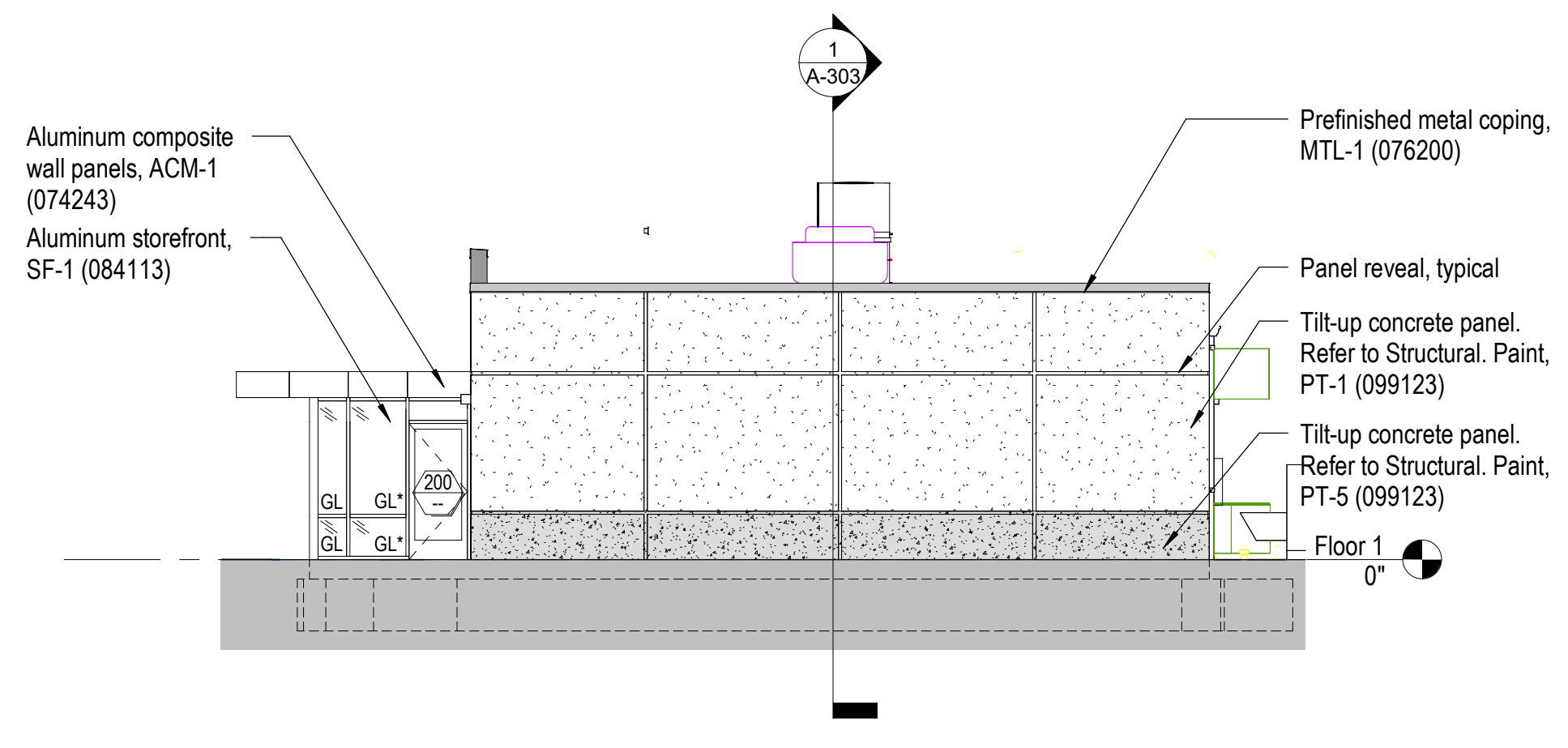


1 Enlarged South Elevation - West

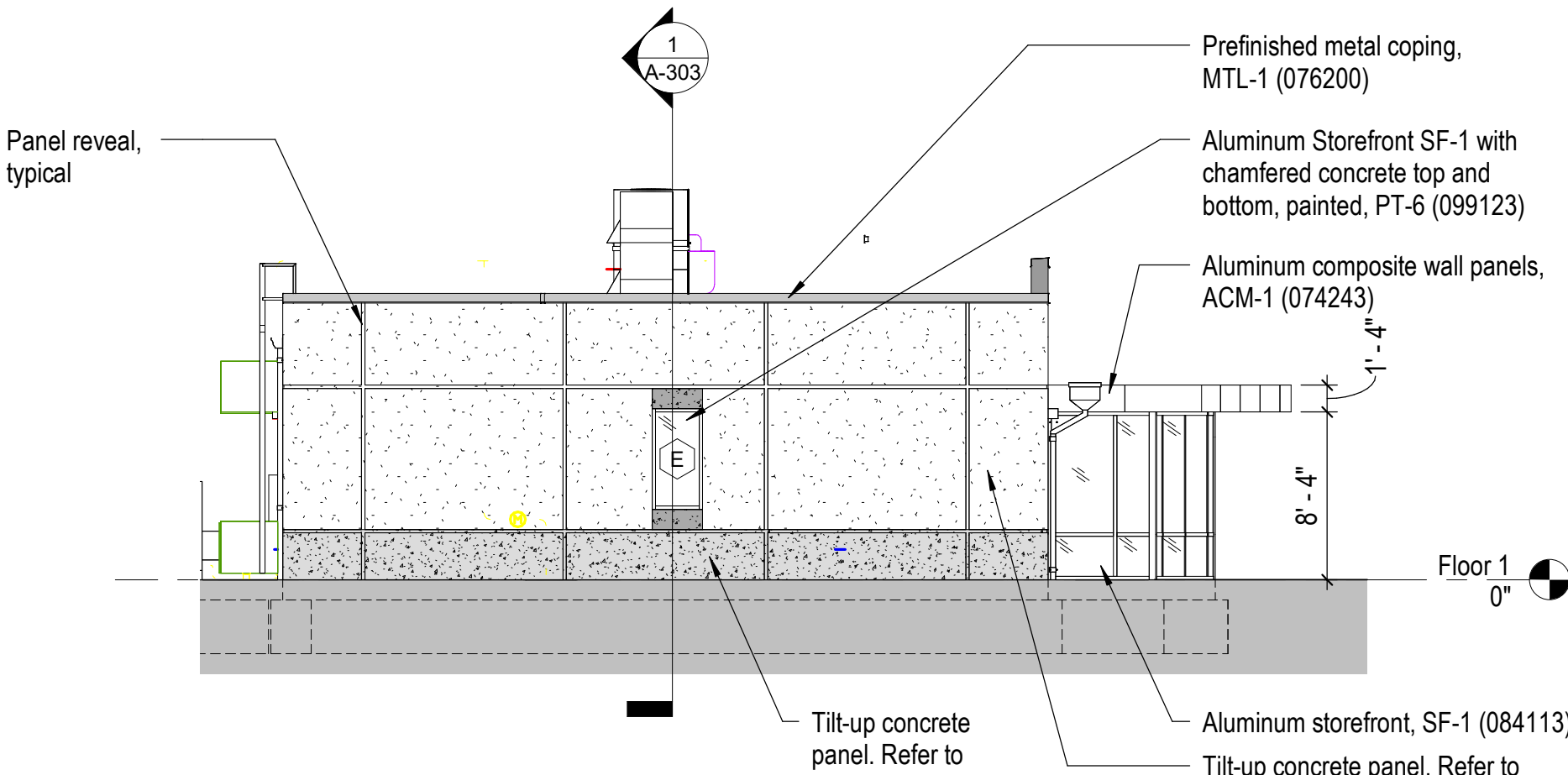
A-101 1/8" = 1'-0" 0 2' 4' 8'



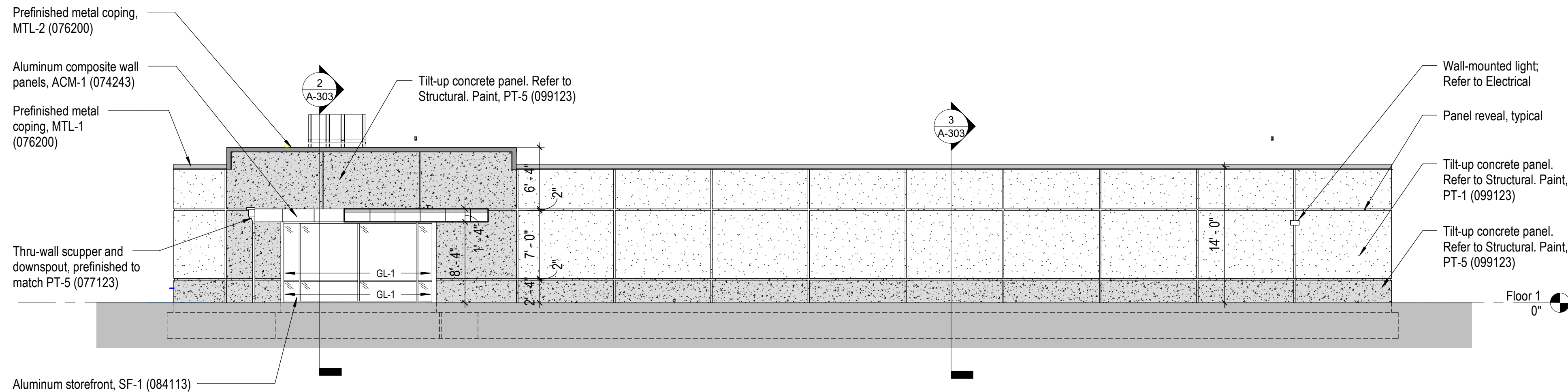
8 North Elevation - Firing Range (Alternate #04)  
A-106 1/8" = 1'-0" 0 2' 4' 8'



5 East Elevation - Firing Range (Alternate #04)  
A-106 1/8" = 1'-0" 0 2' 4' 8'

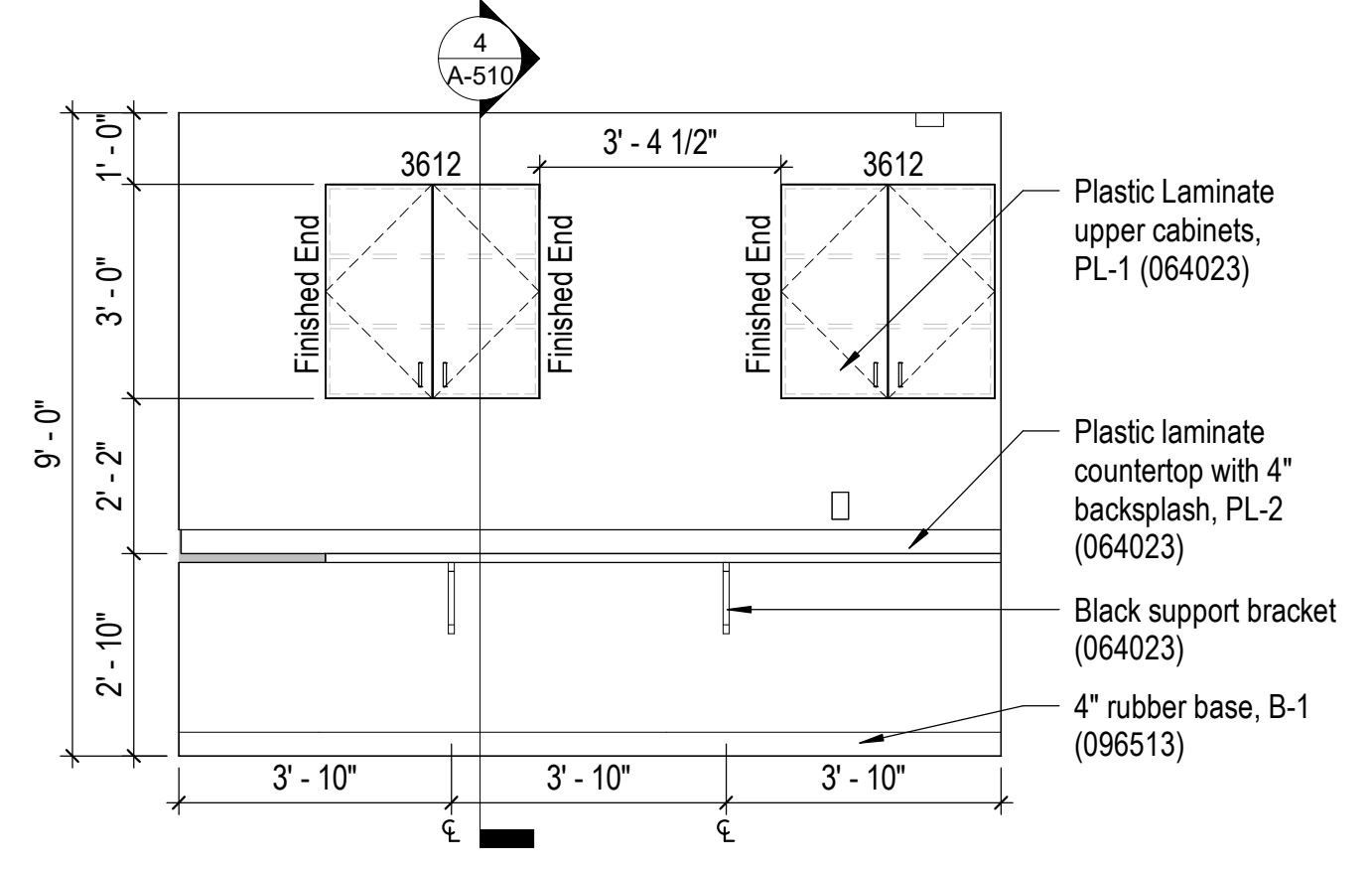


6 West Elevation - Firing Range (Alternate #04)  
A-106 1/8" = 1'-0" 0 2' 4' 8'

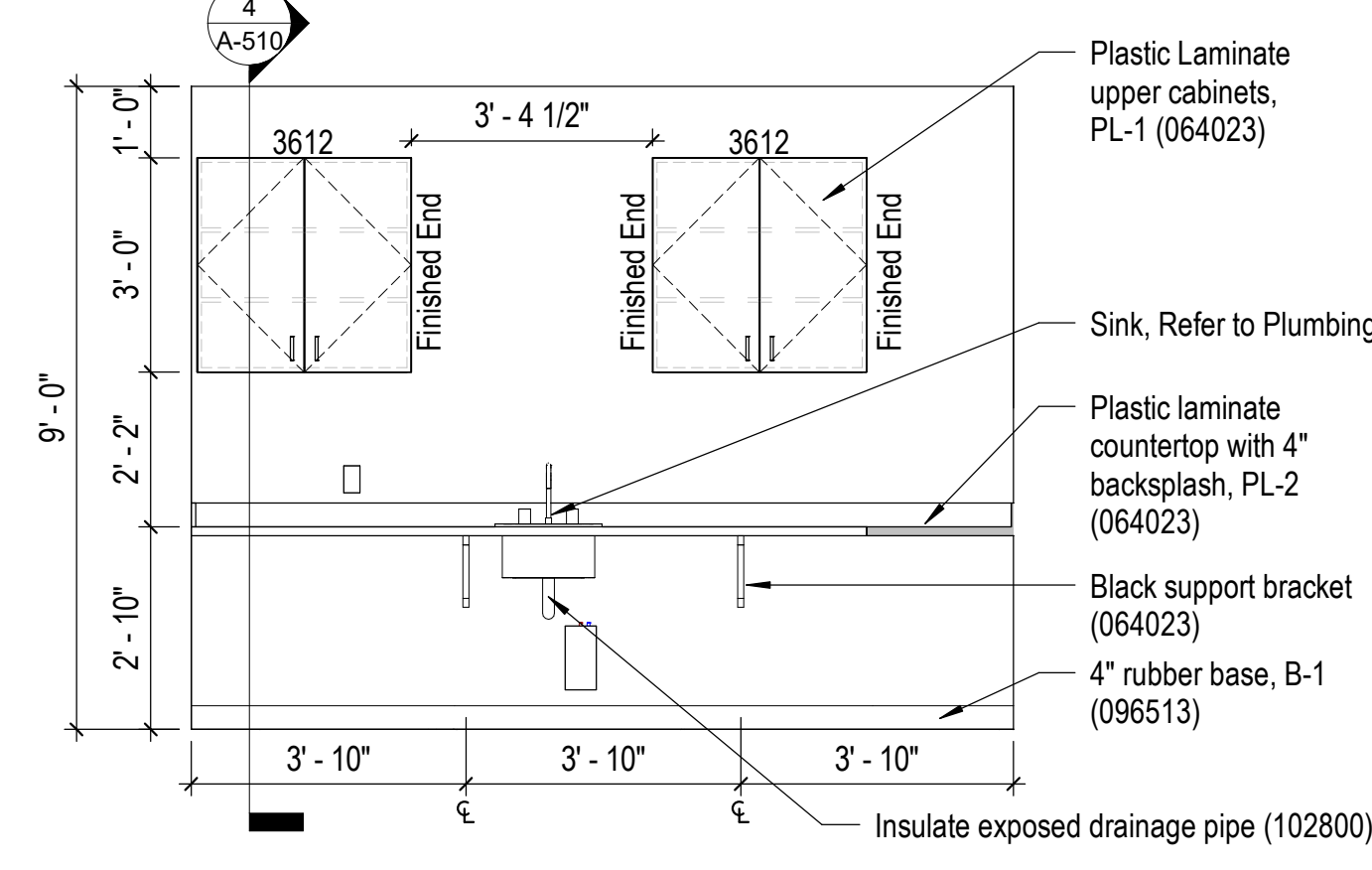


1 South Elevation - Firing Range (Alternate #04)  
A-102 1/8" = 1'-0" 0 2' 4' 8'

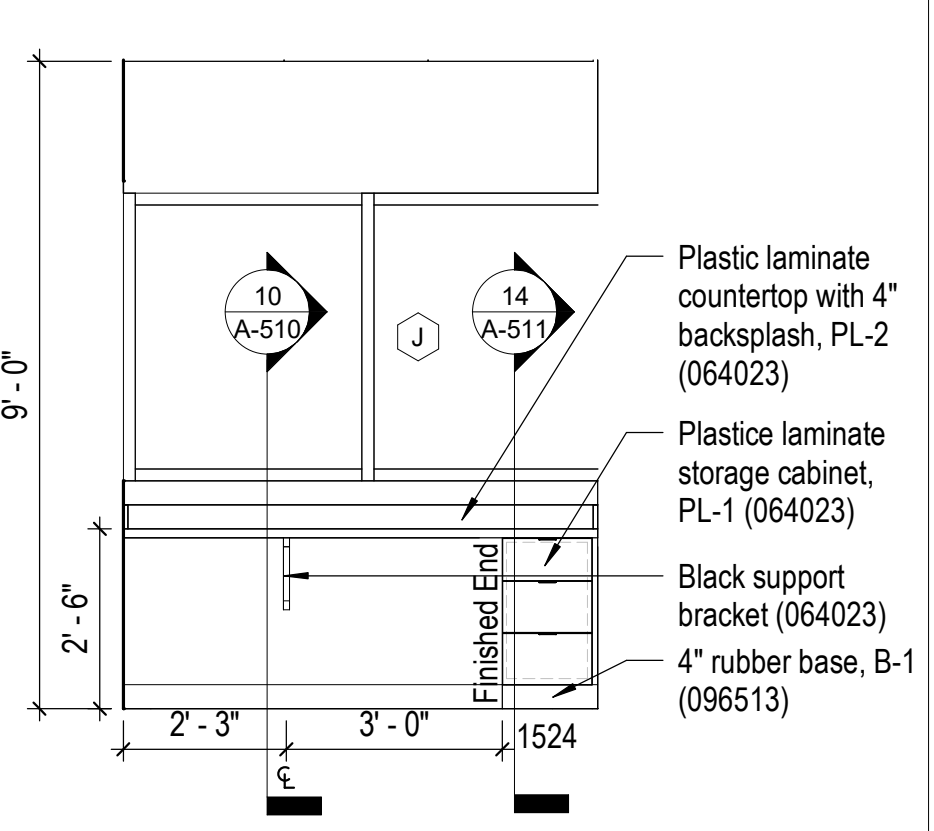
9 Workroom 202 North Elevation  
A-106 3/8" = 1'-0" 0 8' 14" 28"



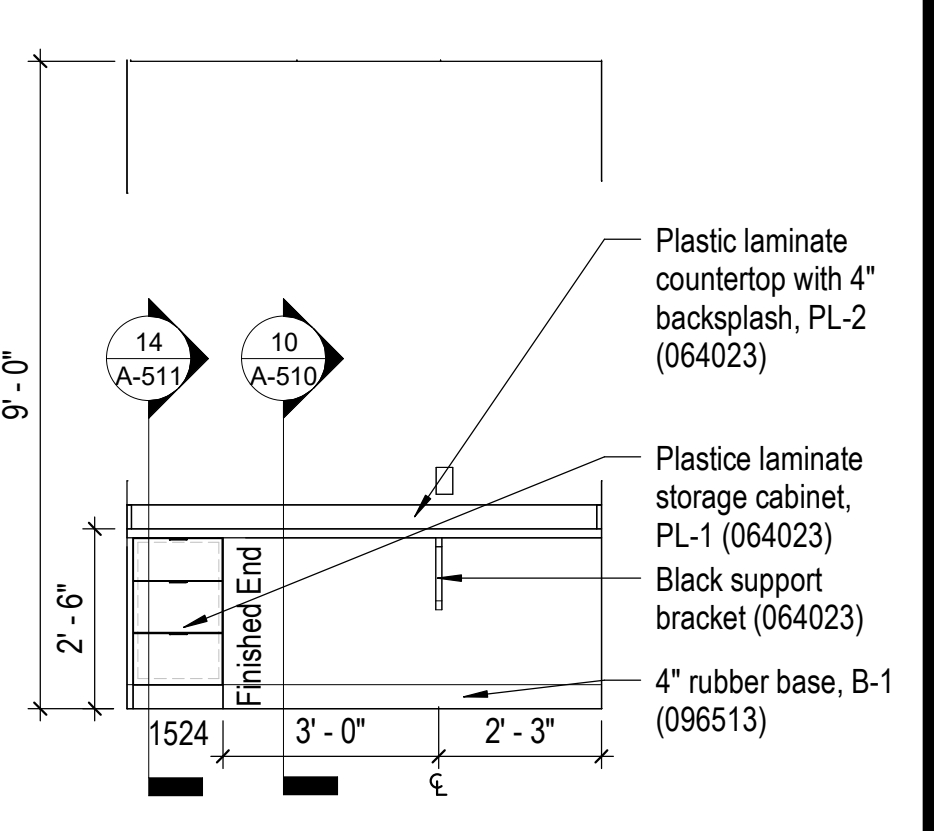
7 Workroom 202 South Elevation (Alternate #04)  
A-106 3/8" = 1'-0" 0 8' 14" 28"



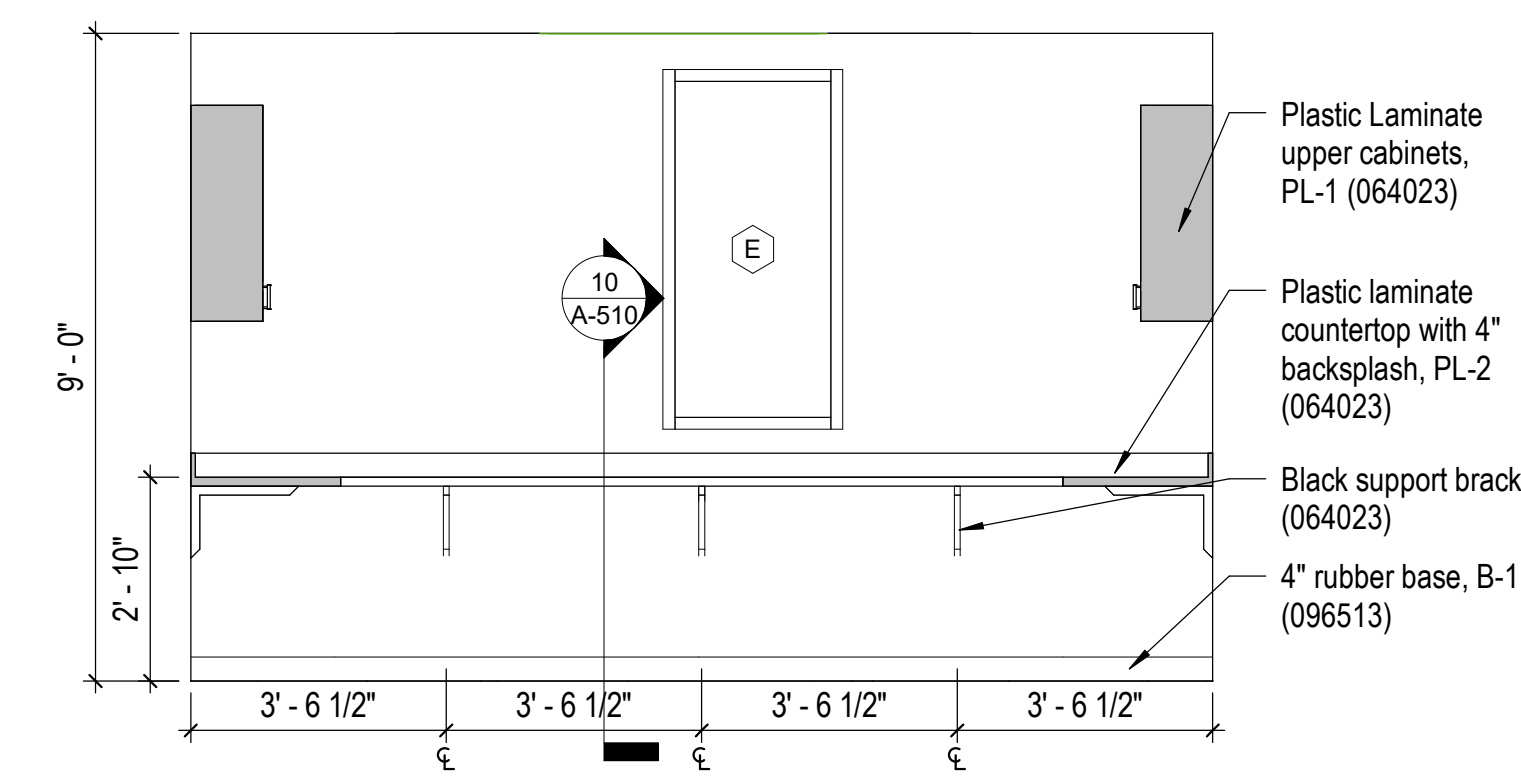
3 Control 206 South Elevation (Alternate #04)  
A-106 3/8" = 1'-0" 0 8' 14" 28"

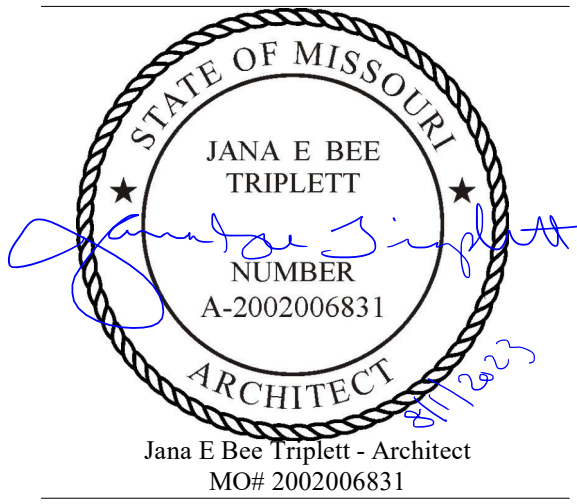


4 Control 206 North Elevation (Alternate #04)  
A-106 3/8" = 1'-0" 0 8' 14" 28"



2 Workroom 202 West Elevation (Alternate #04)  
A-106 3/8" = 1'-0" 0 8' 14" 28"





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REVISION:  
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 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: A-210.dwg  
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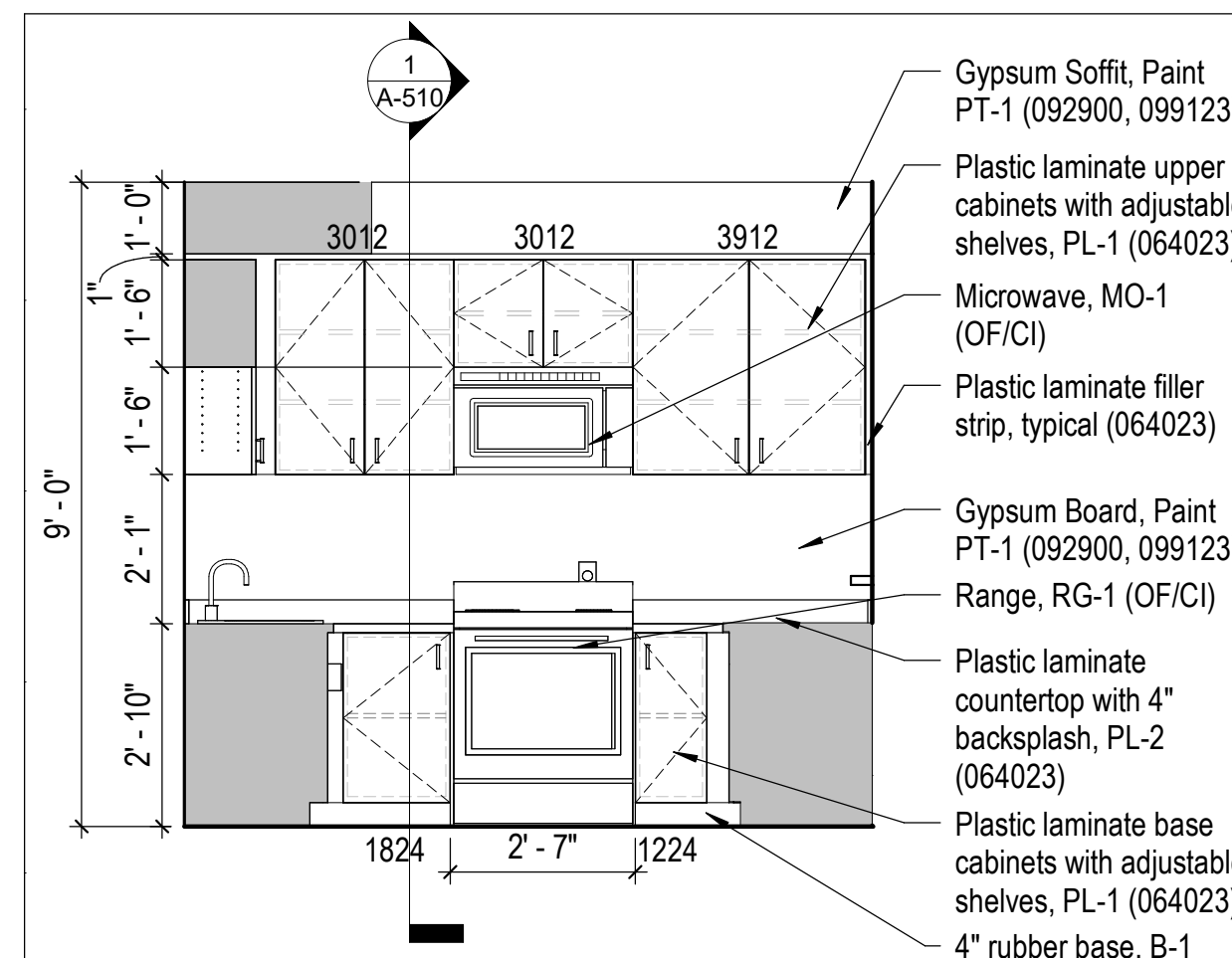
Interior Elevations

SHEET NUMBER:

**A-210**

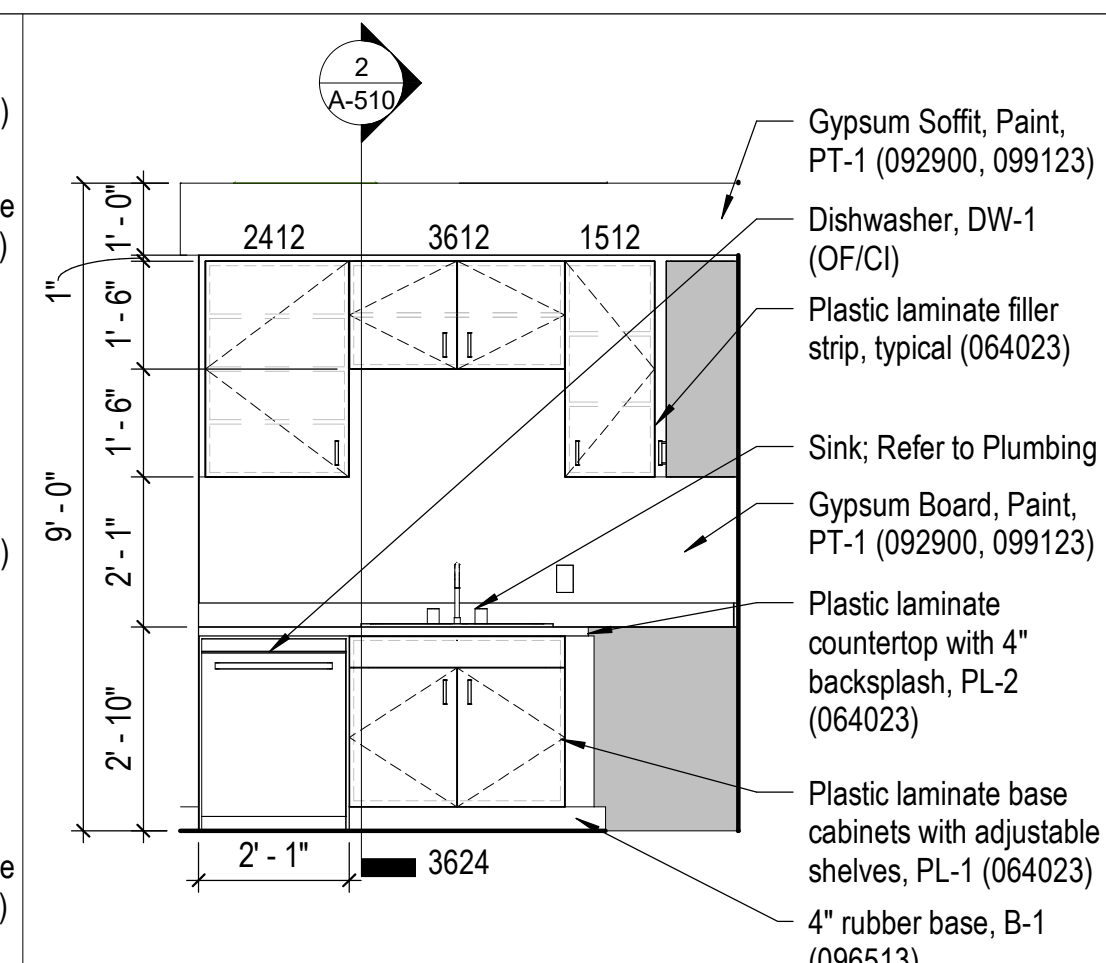
SHEET 075 OF 202

08/01/2023



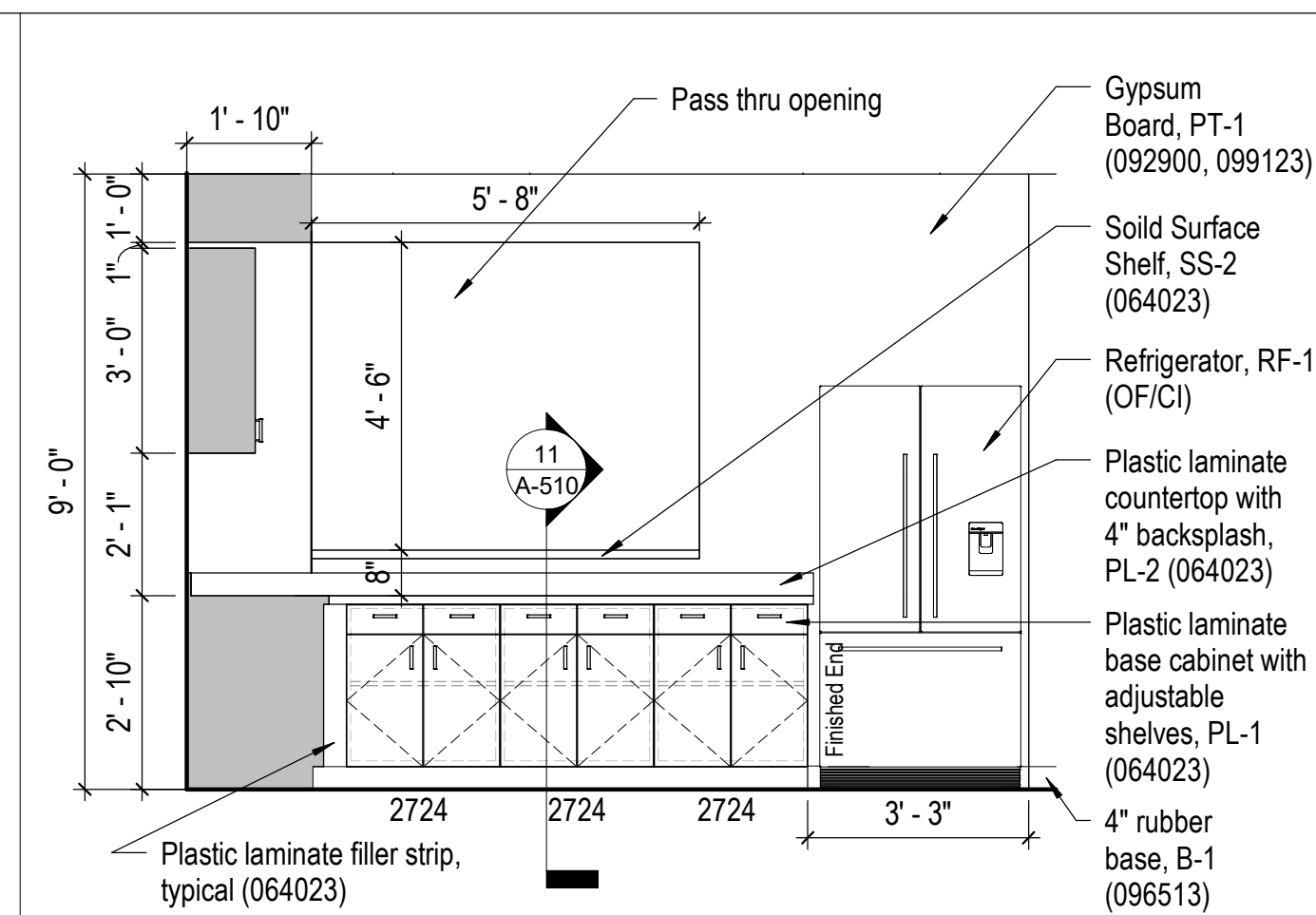
10 Kitchen 145 North Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



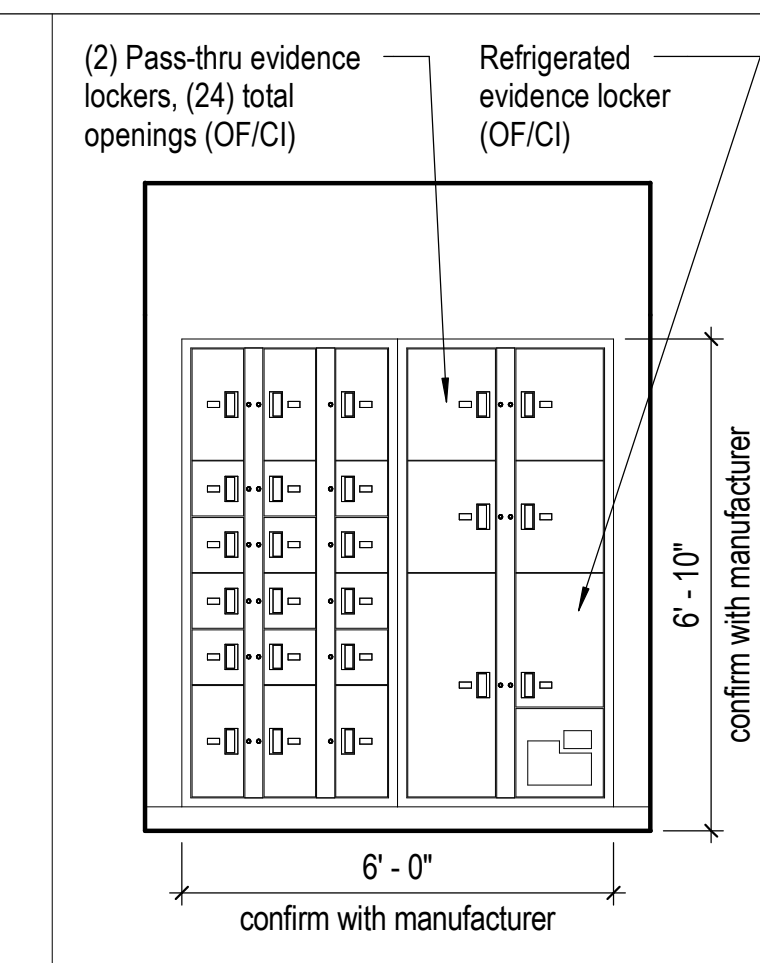
11 Kitchen 147 West Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



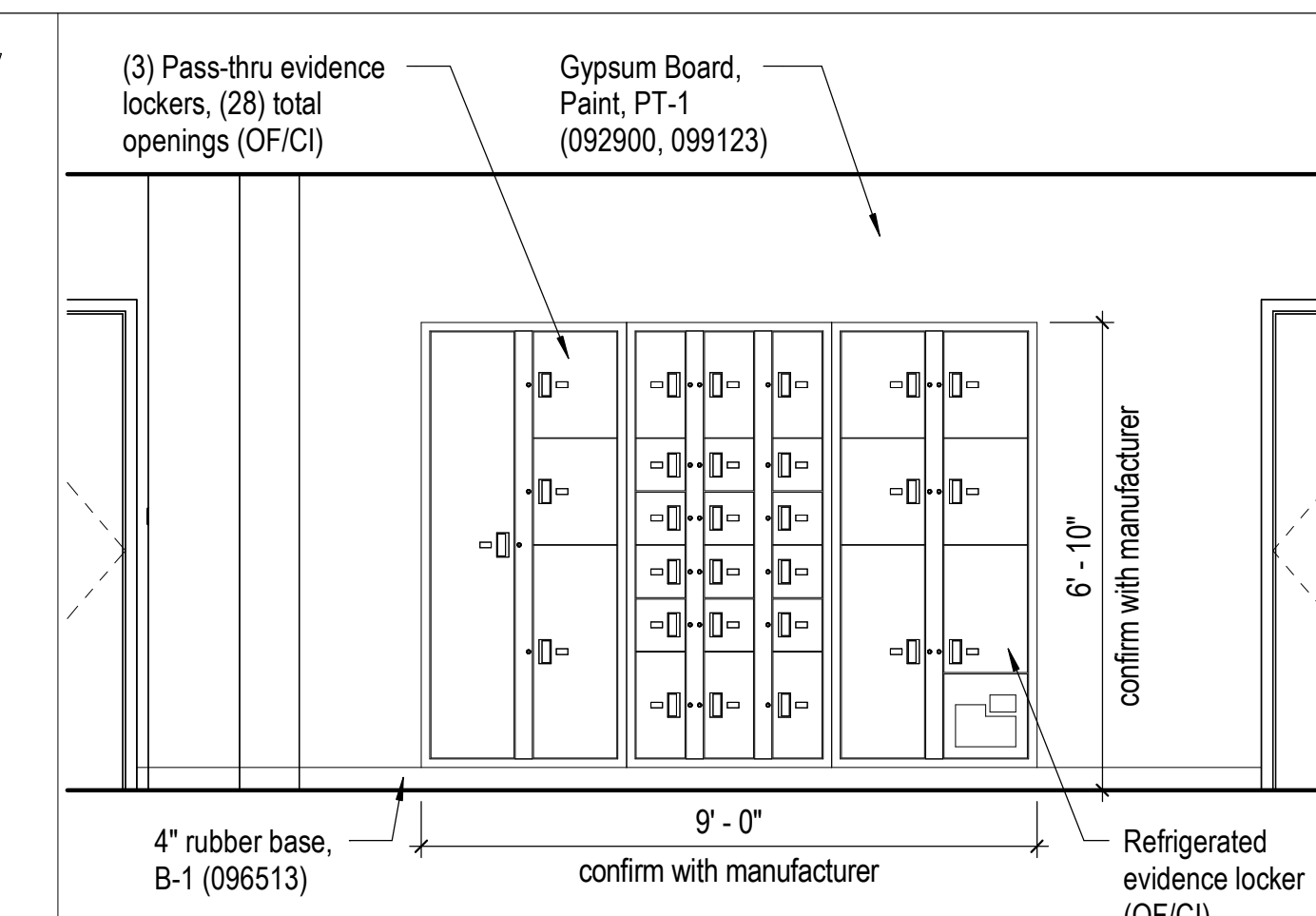
12 Kitchen 145 East Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



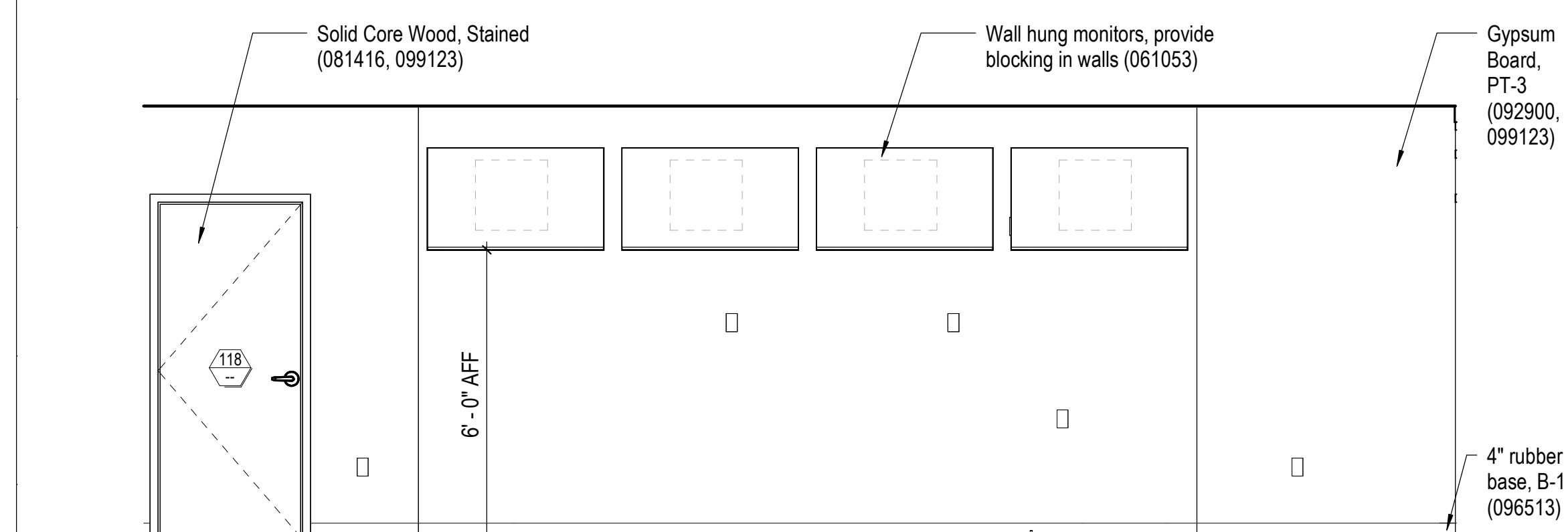
13 Evidence Outside Lockers

A-402 3/8" = 1'-0" 0 8" 14" 28"



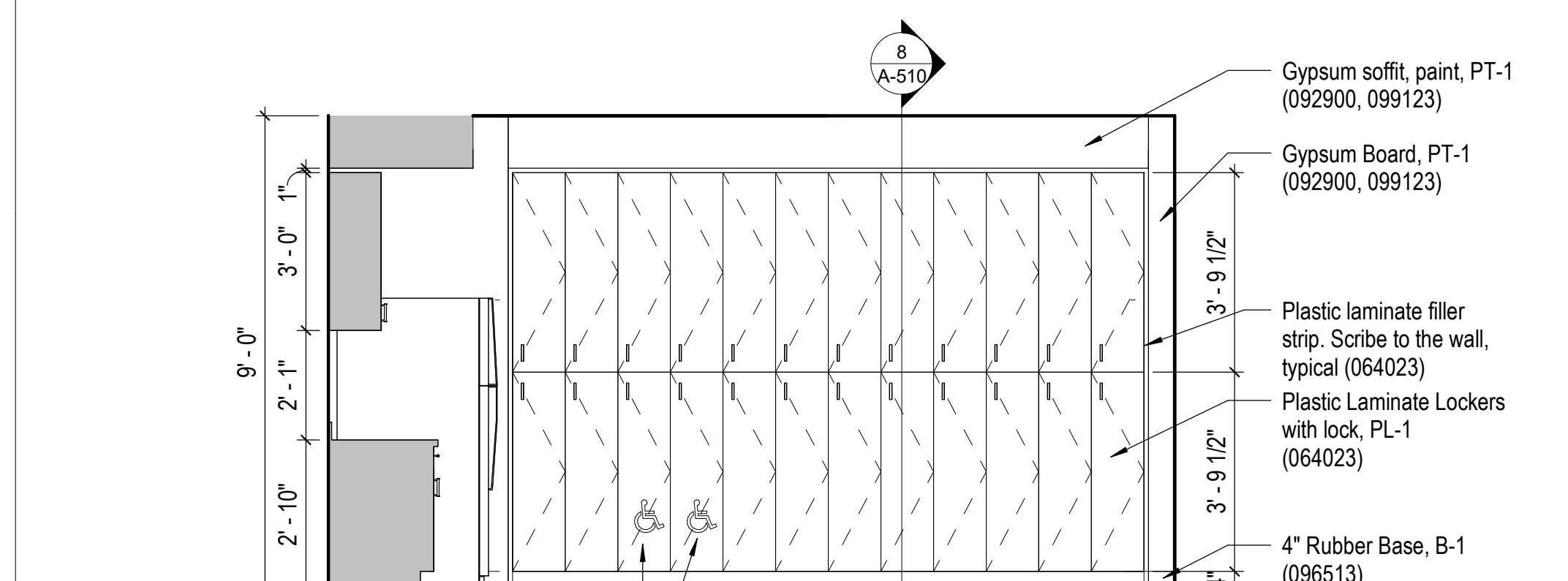
14 Evidence Office 173 Lockers Elevation

A-102 3/8" = 1'-0" 0 8" 14" 28"



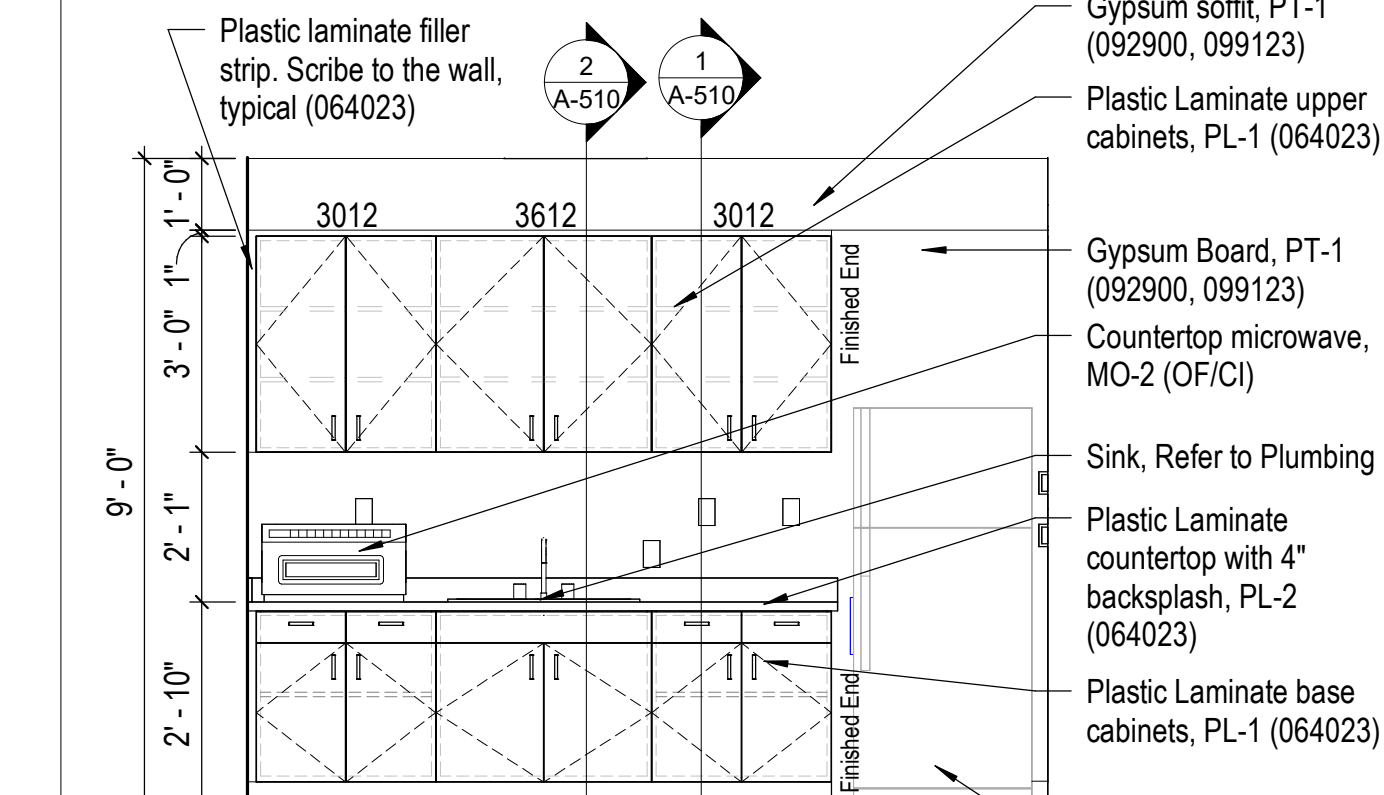
7 Radio Room 119 West Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



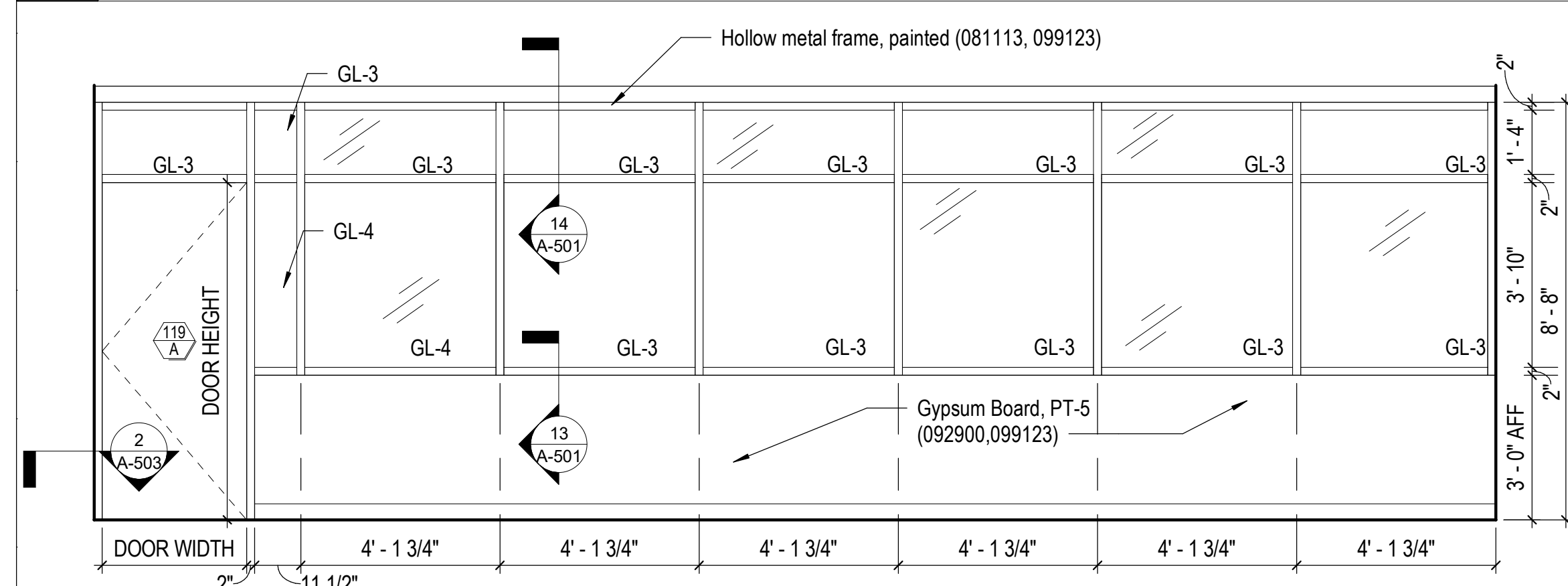
8 Breakroom 121 East Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



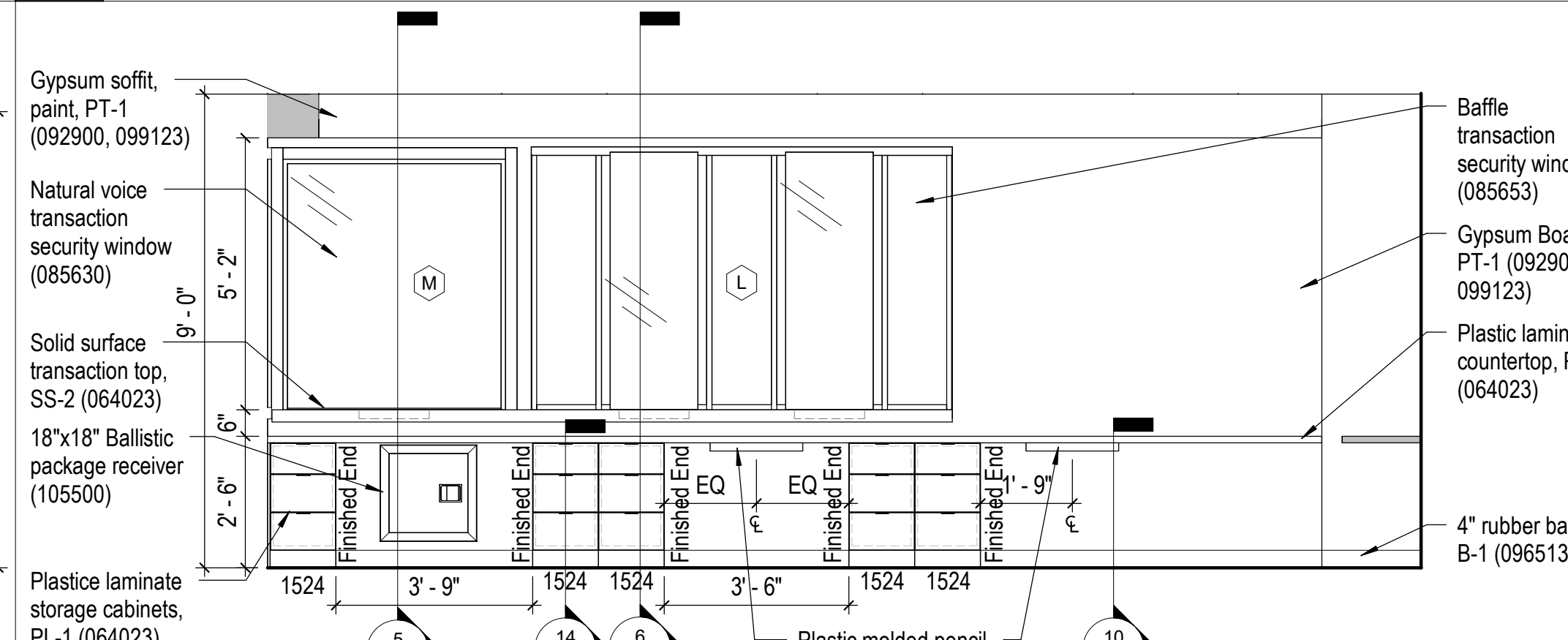
9 Breakroom 121 North Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



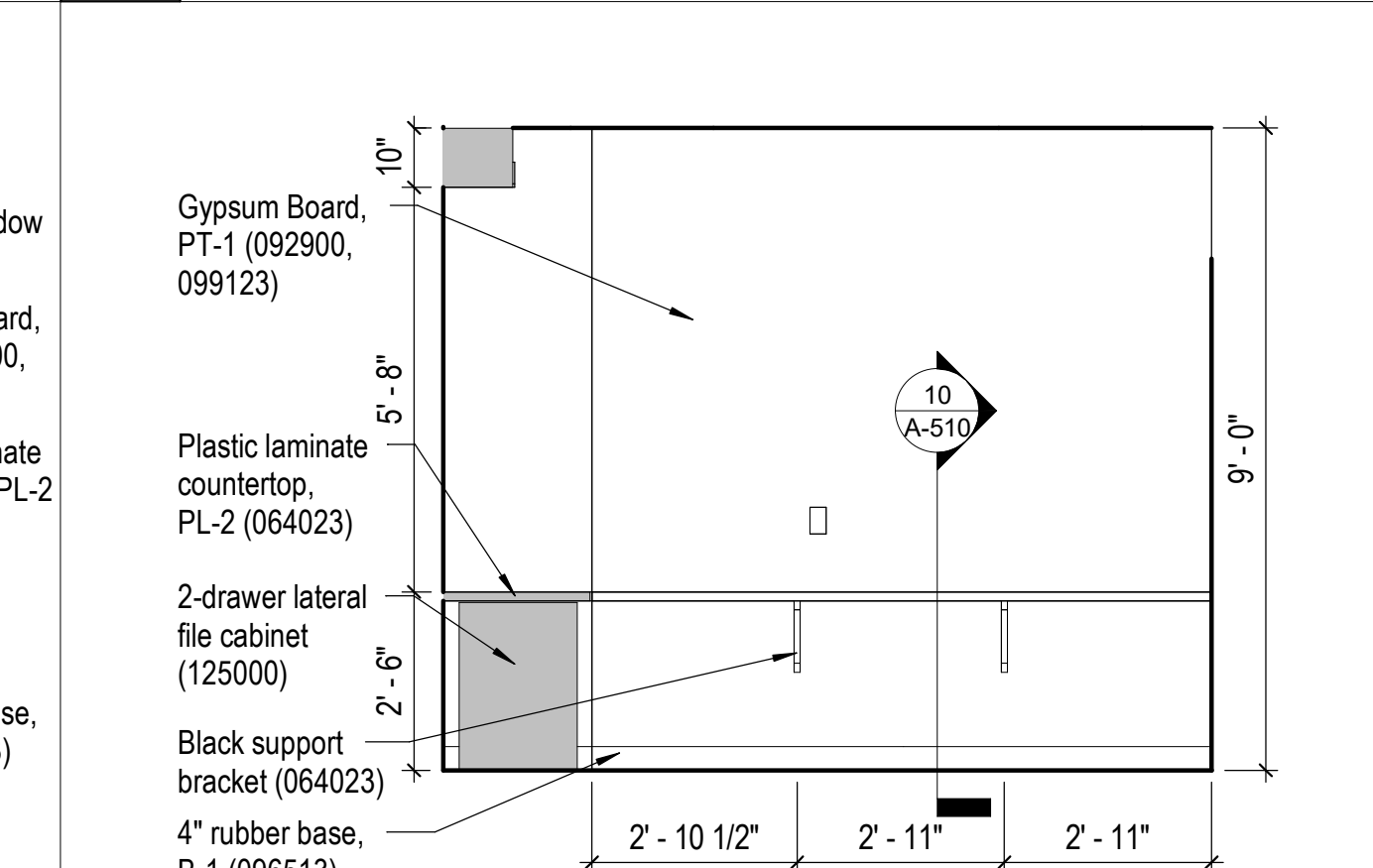
4 Radio Room 119 Glass Wall From Corridor

A-402 3/8" = 1'-0" 0 8" 14" 28"



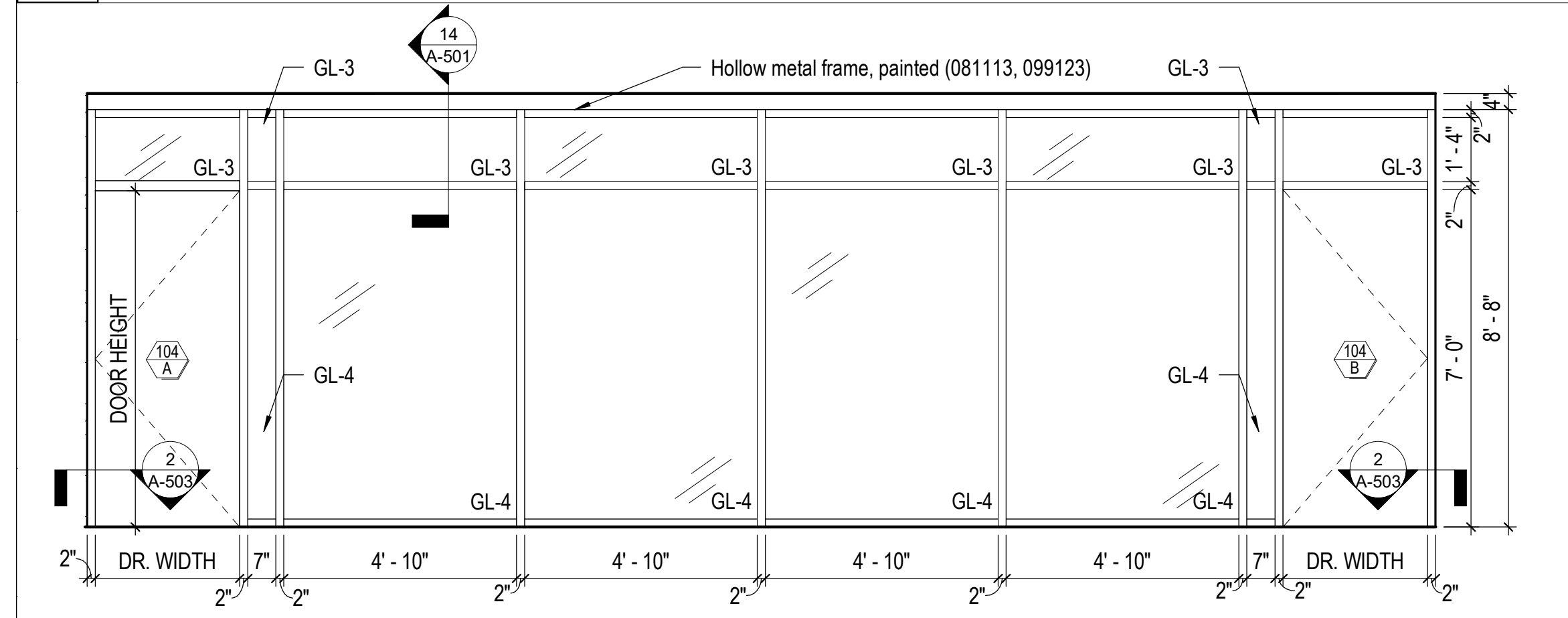
5 Reception 102 West Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



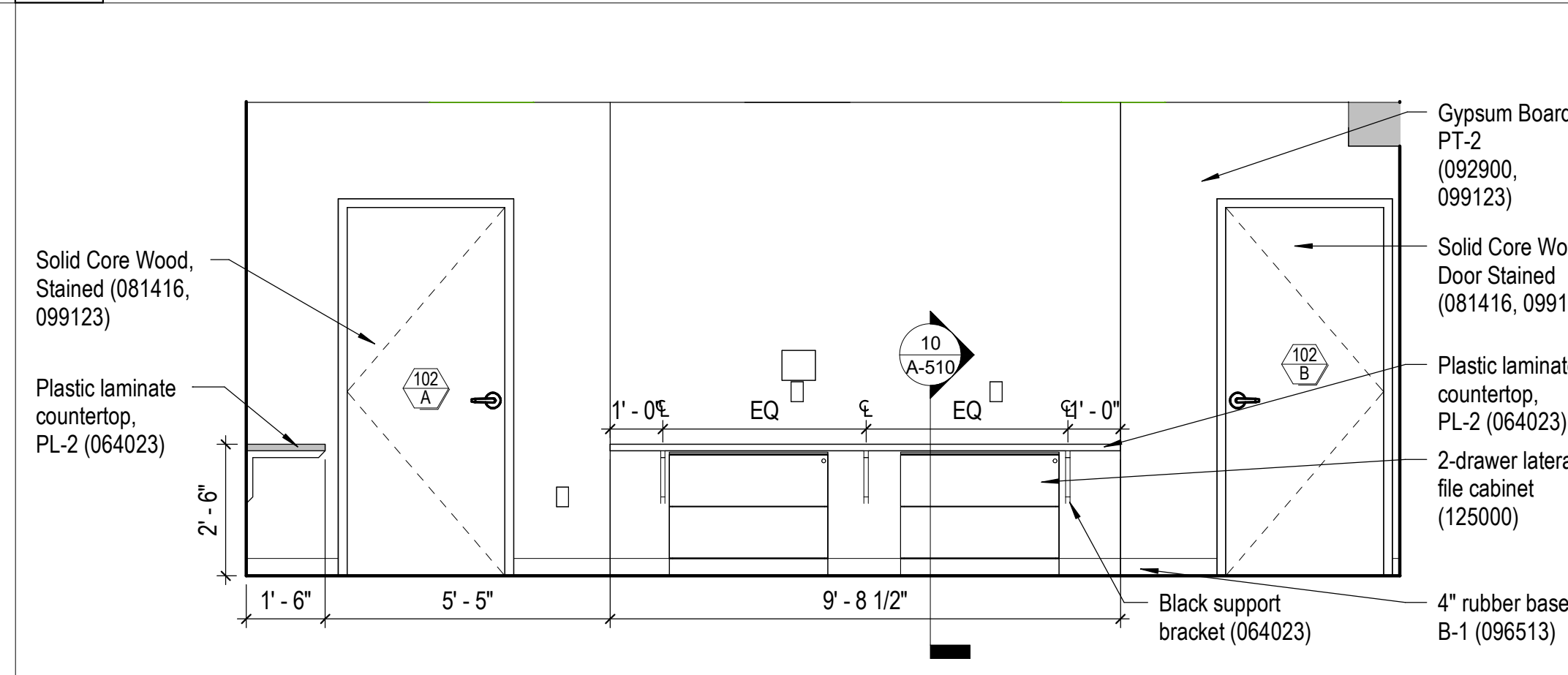
6 Reception 102 North Elevation

A-102 3/8" = 1'-0" 0 8" 14" 28"



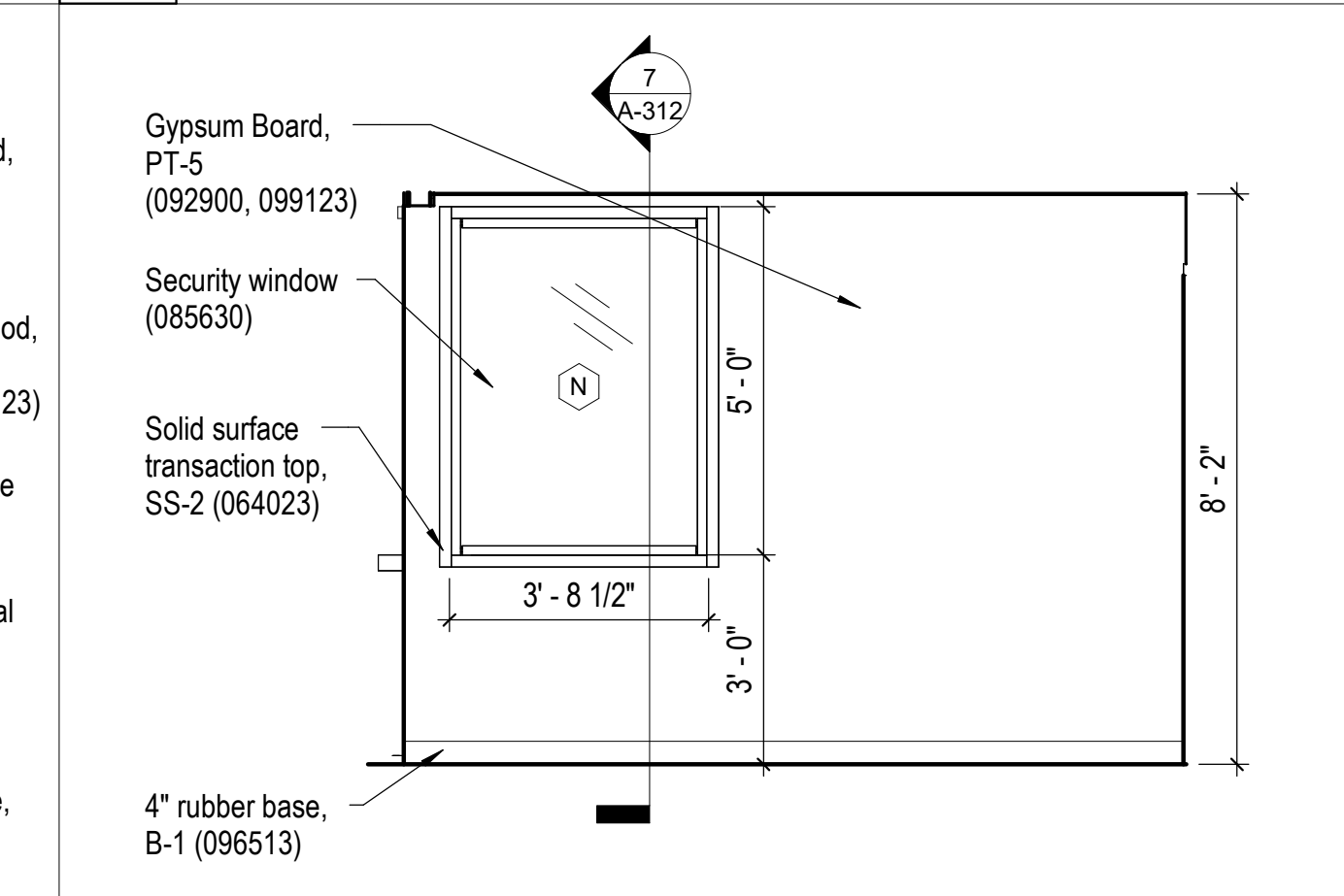
1 Conference 104 Elevation

A-101 3/8" = 1'-0" 0 8" 14" 28"



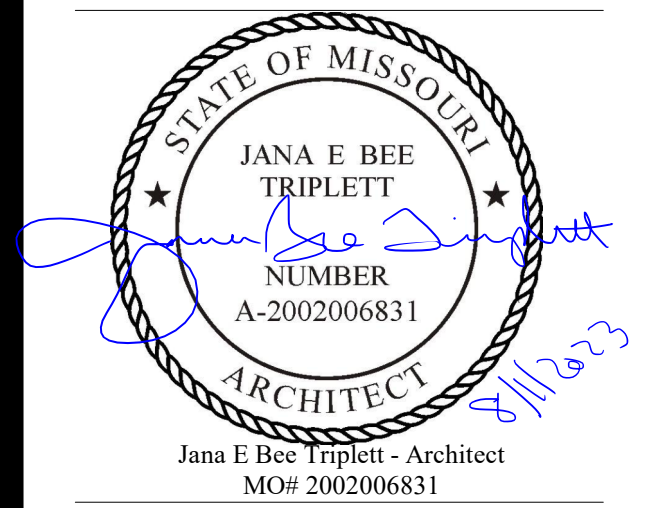
2 Reception 102 East Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



3 Reception South Window Elevation

A-402 3/8" = 1'-0" 0 8" 14" 28"



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OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-211.dwg  
DRAWN BY: SW  
CHECKED BY: JBT  
DESIGNED BY: GW&  
SHEET TITLE:

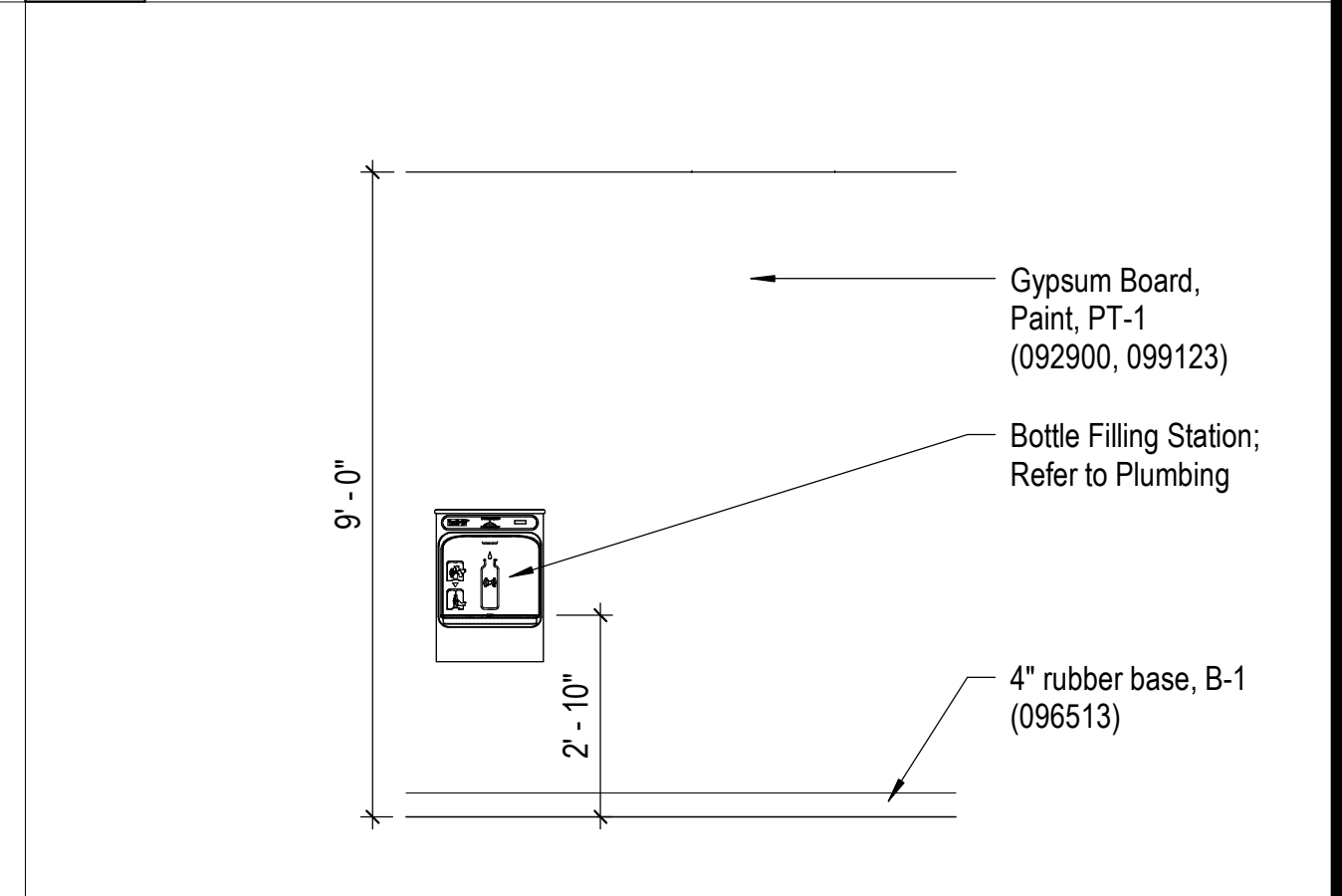
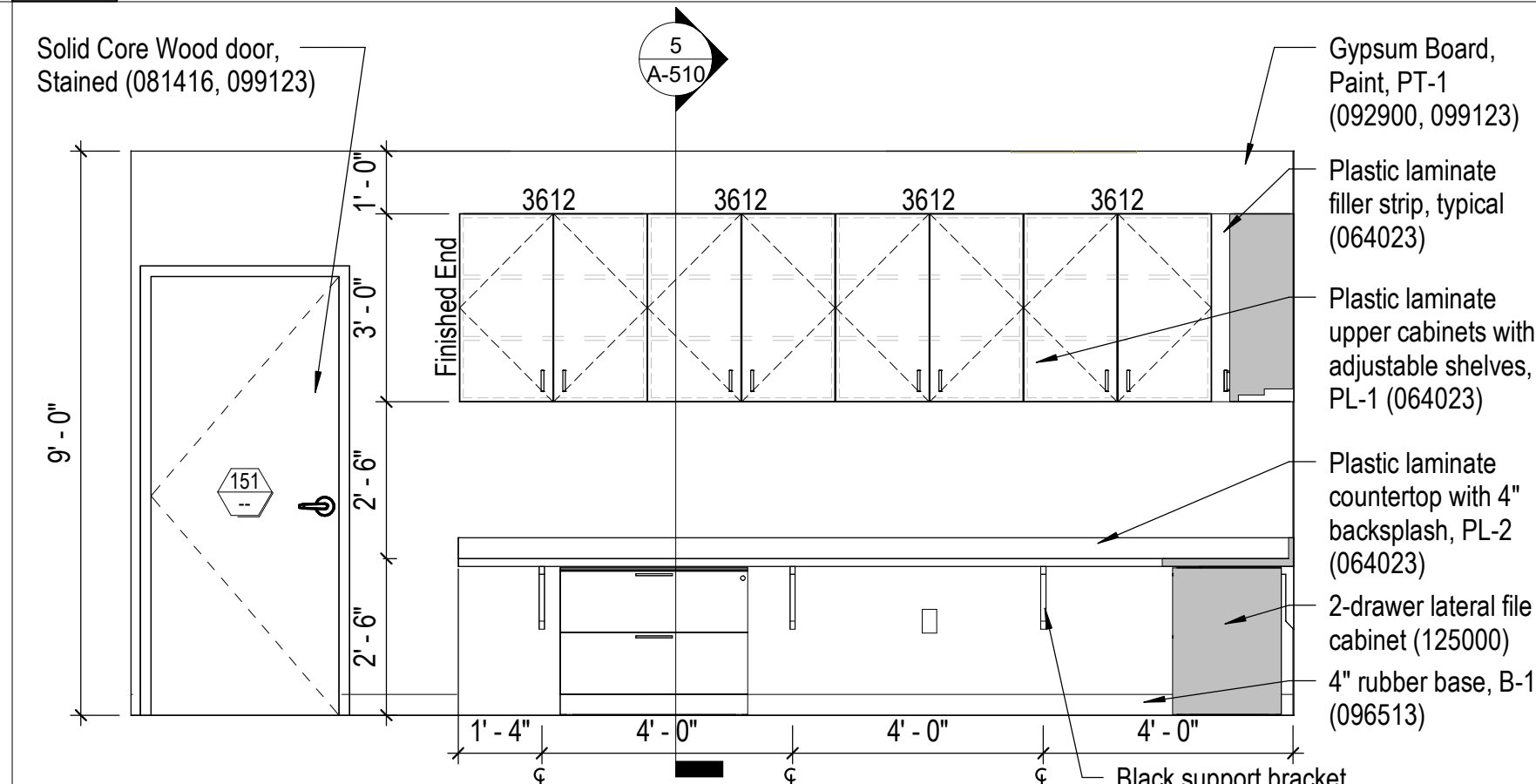
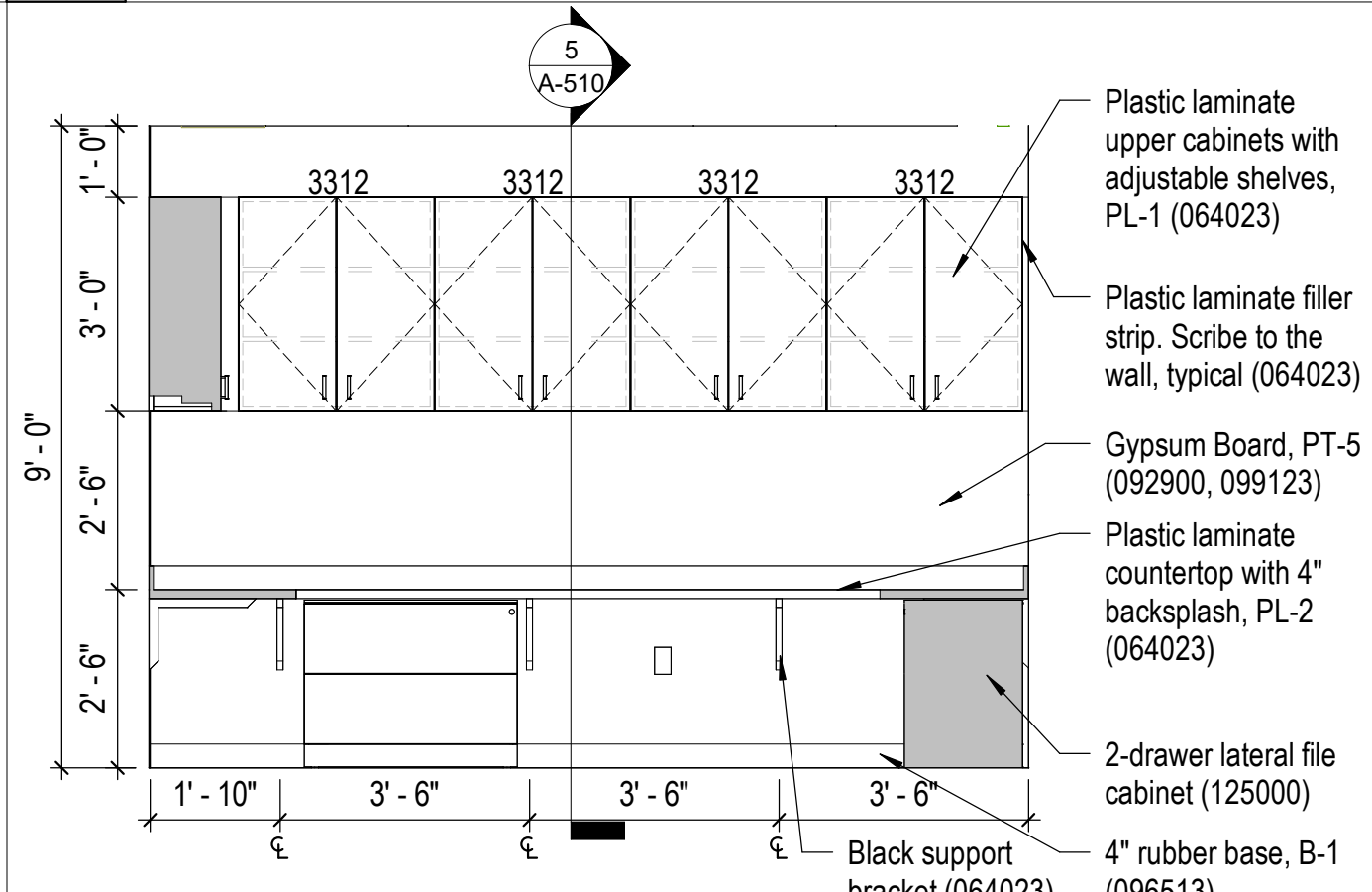
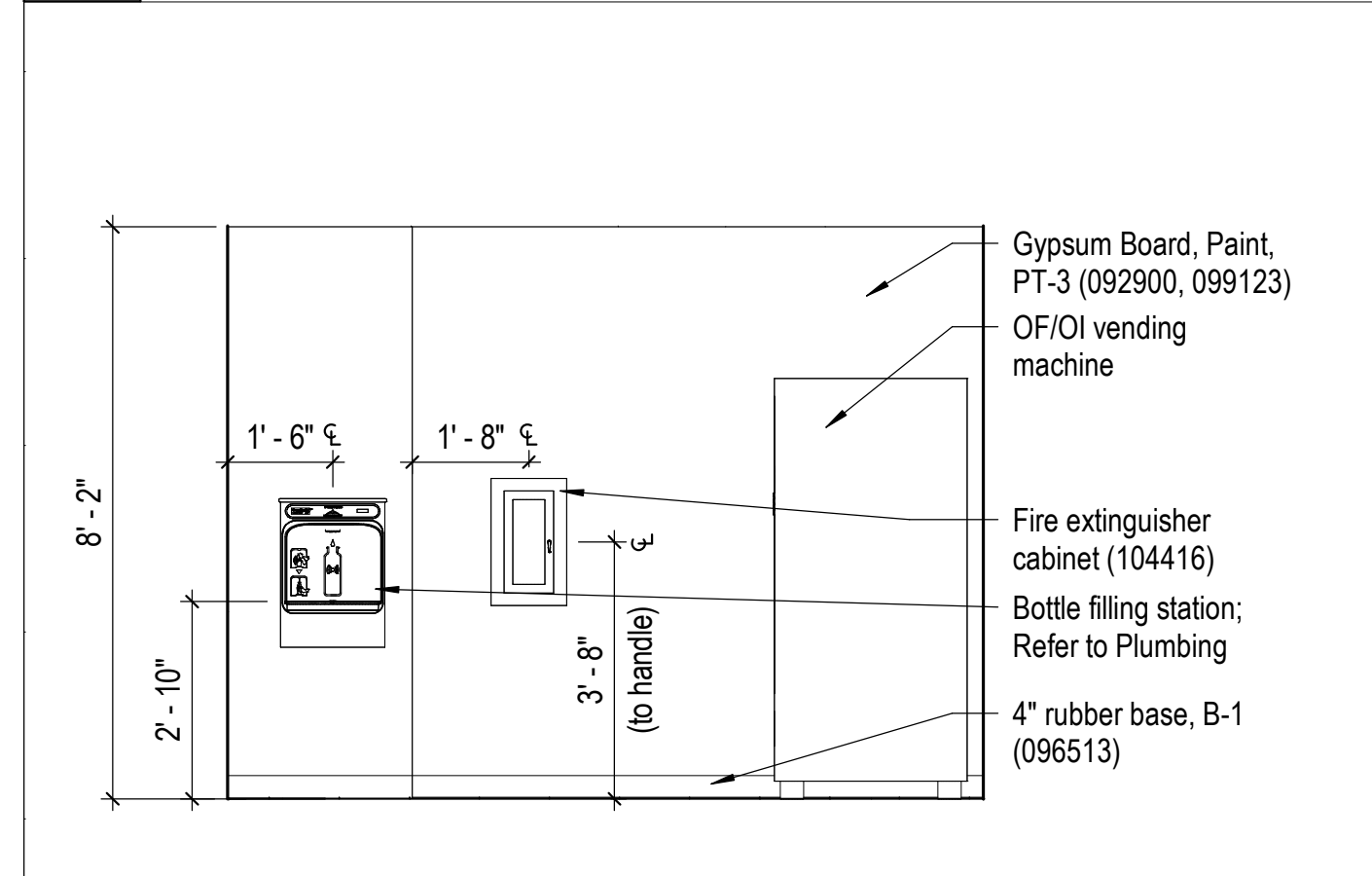
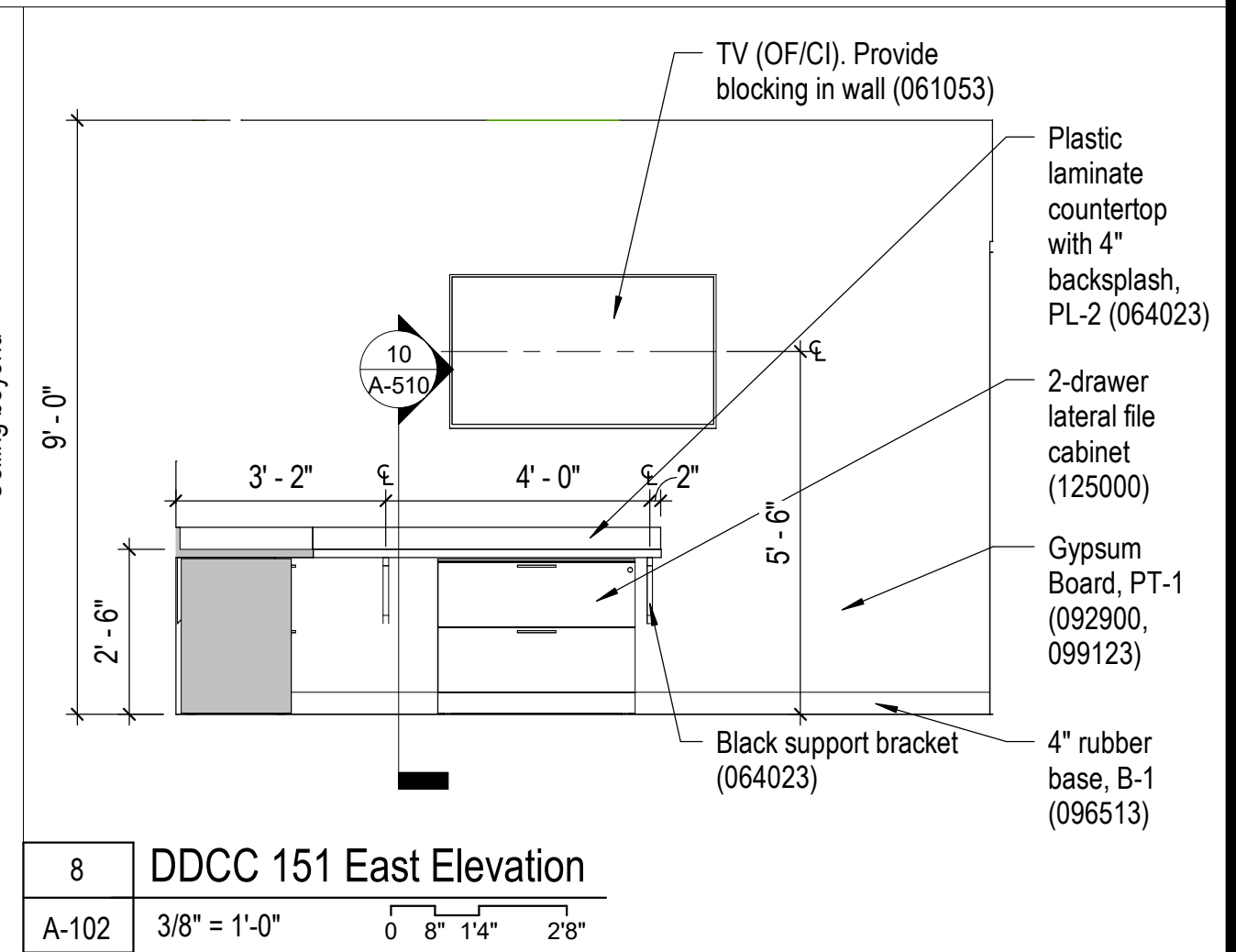
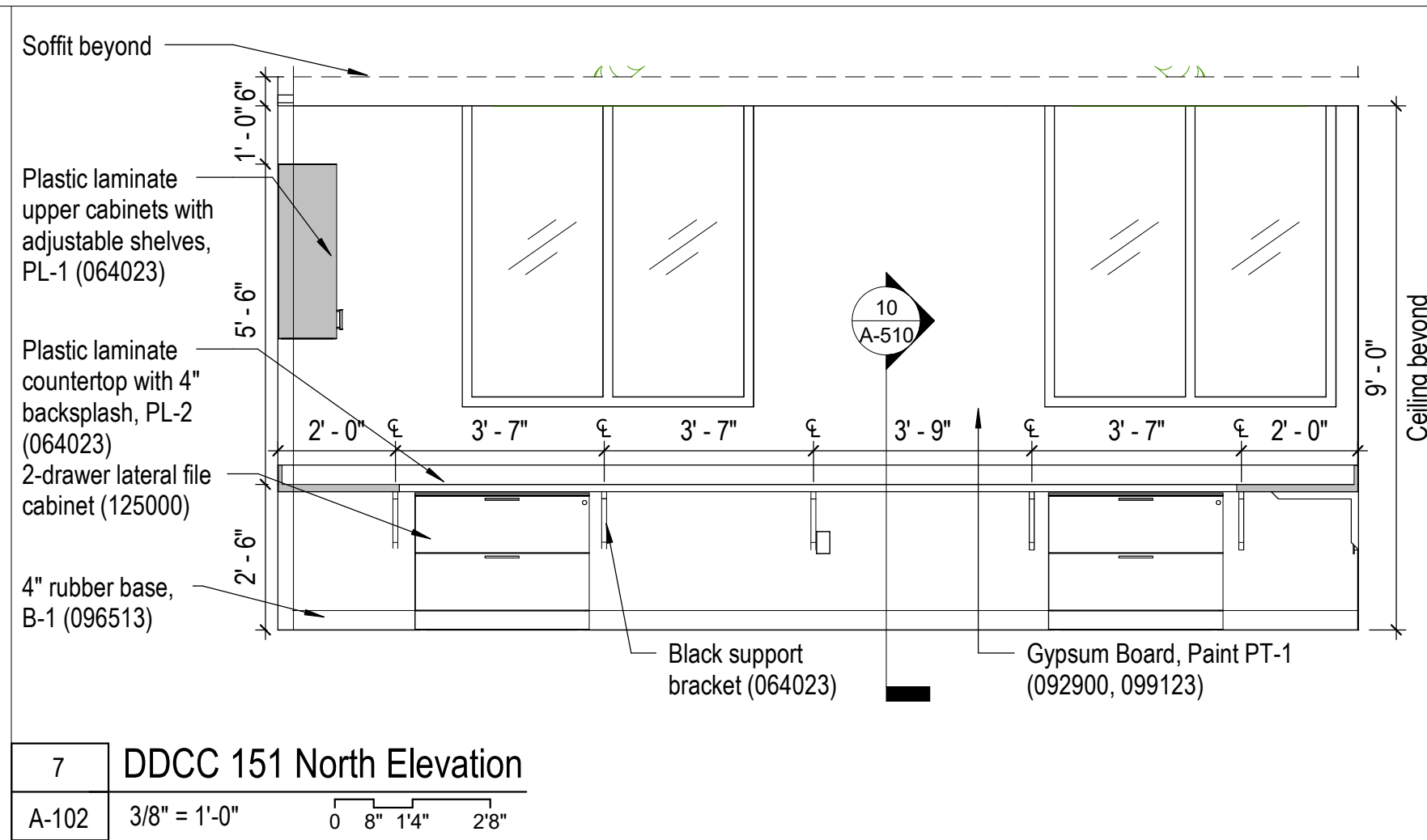
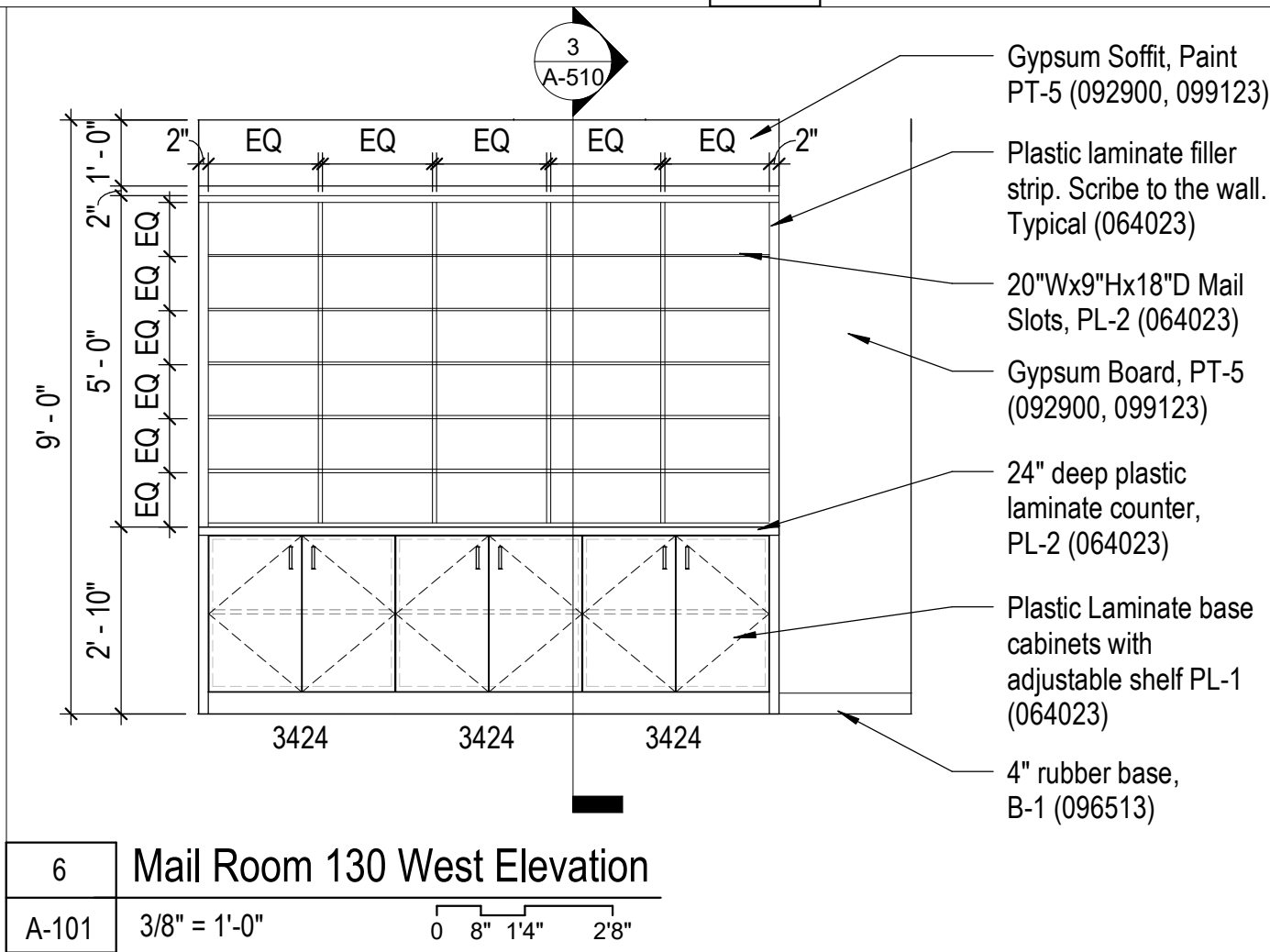
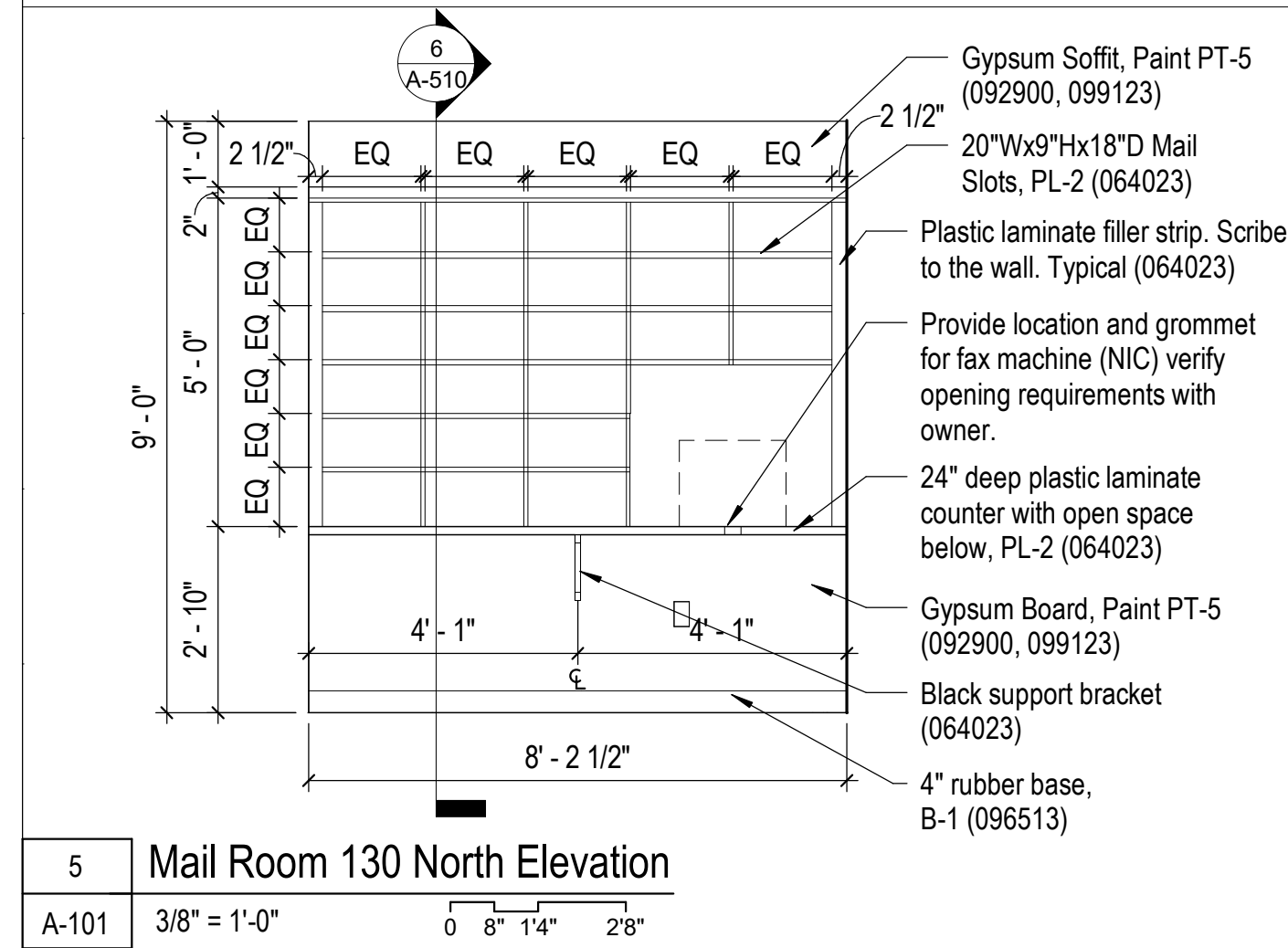
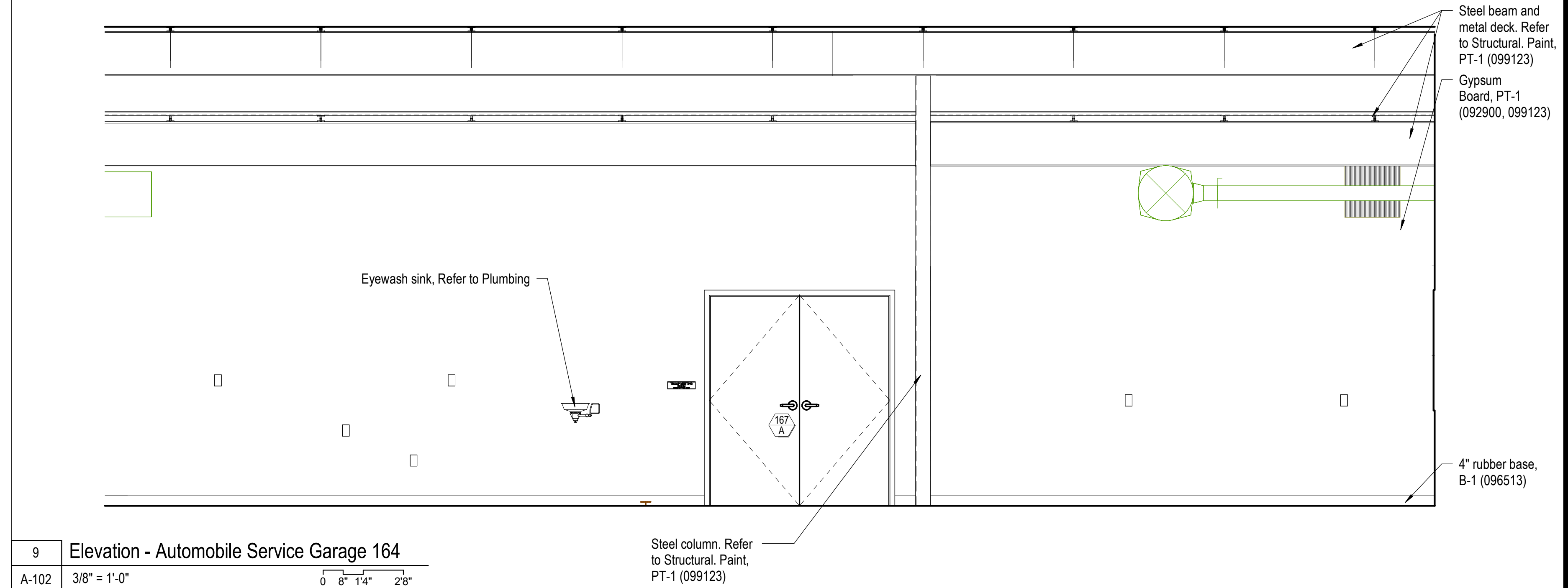
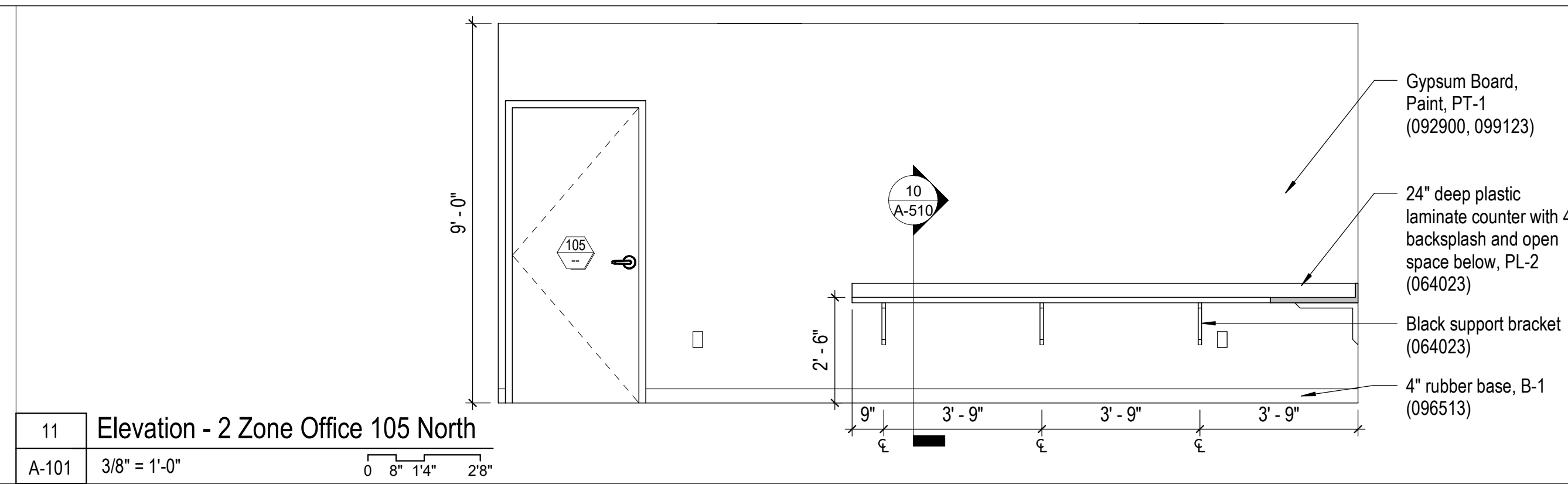
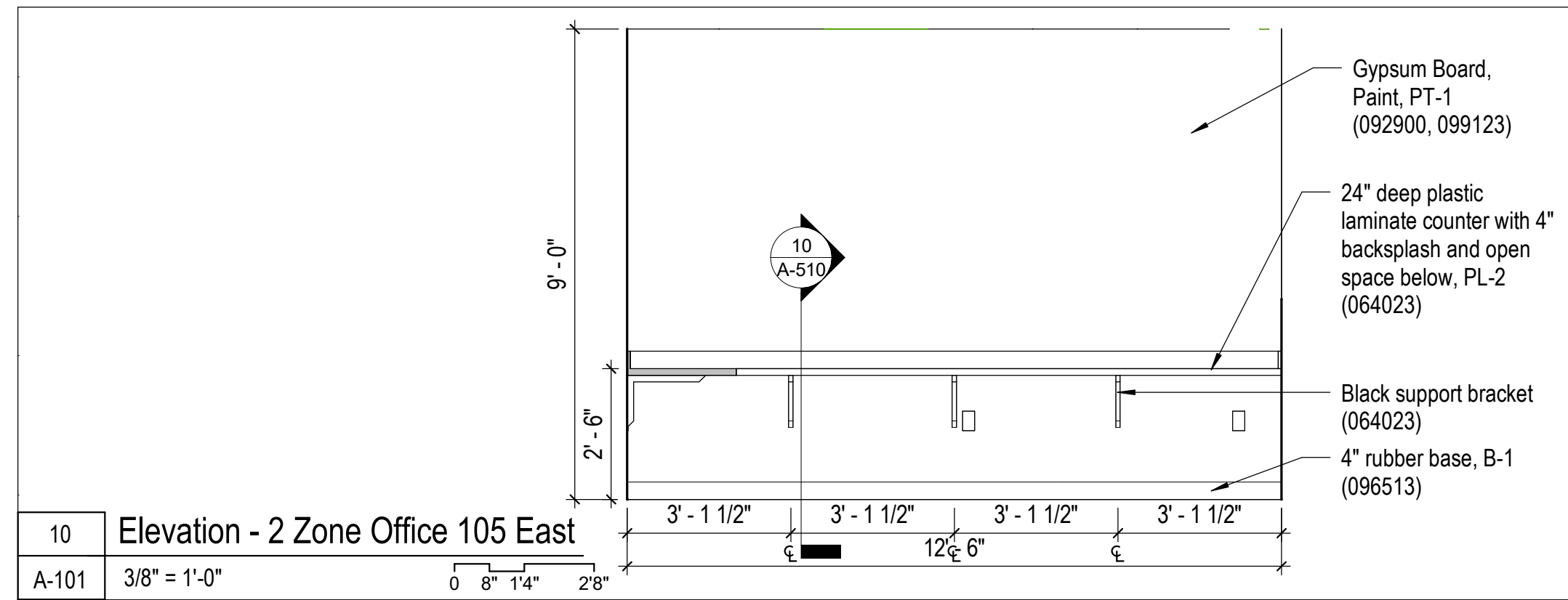
Interior Elevations

SHEET NUMBER:

**A-211**

SHEET 076 OF 202

08/01/2023



1 Vending 182 Bottle Filling Station  
A-101 3/8" = 1'-0" 0 8' 14" 28"

2 DDCC 151 West Elevation  
A-102 3/8" = 1'-0" 0 8' 14" 28"

3 DDCC 151 South Elevation  
A-102 3/8" = 1'-0" 0 8' 14" 28"

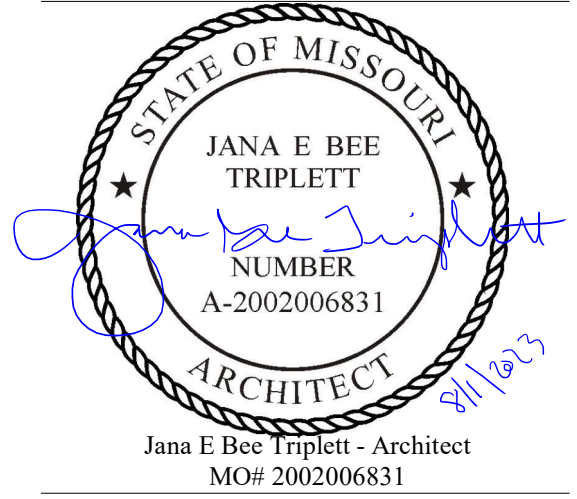
4 Corridor 114 Bottle Filling Station  
A-402 3/8" = 1'-0" 0 8' 14" 28"

5 Mail Room 130 North Elevation  
A-101 3/8" = 1'-0" 0 8' 14" 28"

6 Mail Room 130 West Elevation  
A-101 3/8" = 1'-0" 0 8' 14" 28"

7 DDCC 151 North Elevation  
A-102 3/8" = 1'-0" 0 8' 14" 28"

8 DDCC 151 East Elevation  
A-102 3/8" = 1'-0" 0 8' 14" 28"



**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2102.152

GastingerWalker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

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FACILITY # 8136018019

REVISION:  
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ISSUE DATE: 01 August 2023

CAD DWG FILE: A-212.dwg  
DRAWN BY: SW  
CHECKED BY: JBT  
DESIGNED BY: GW&

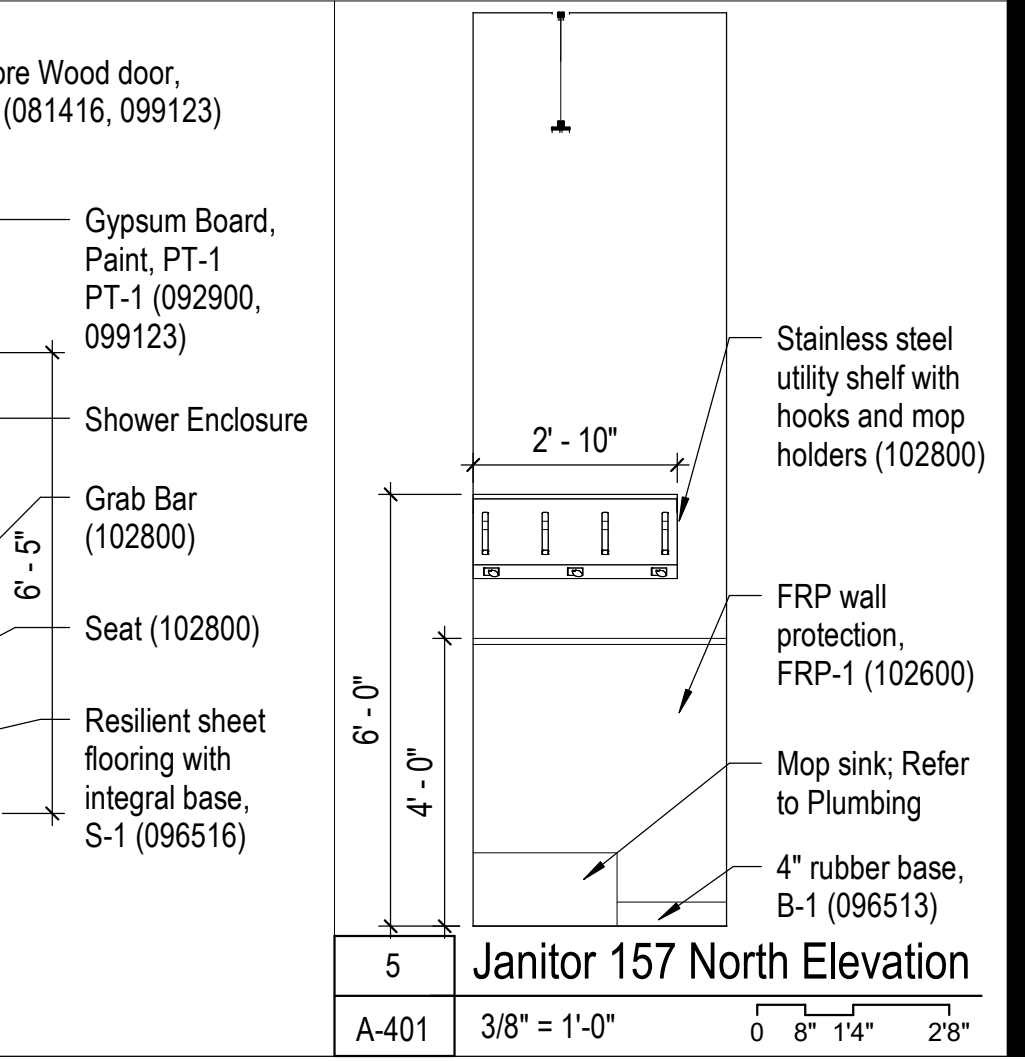
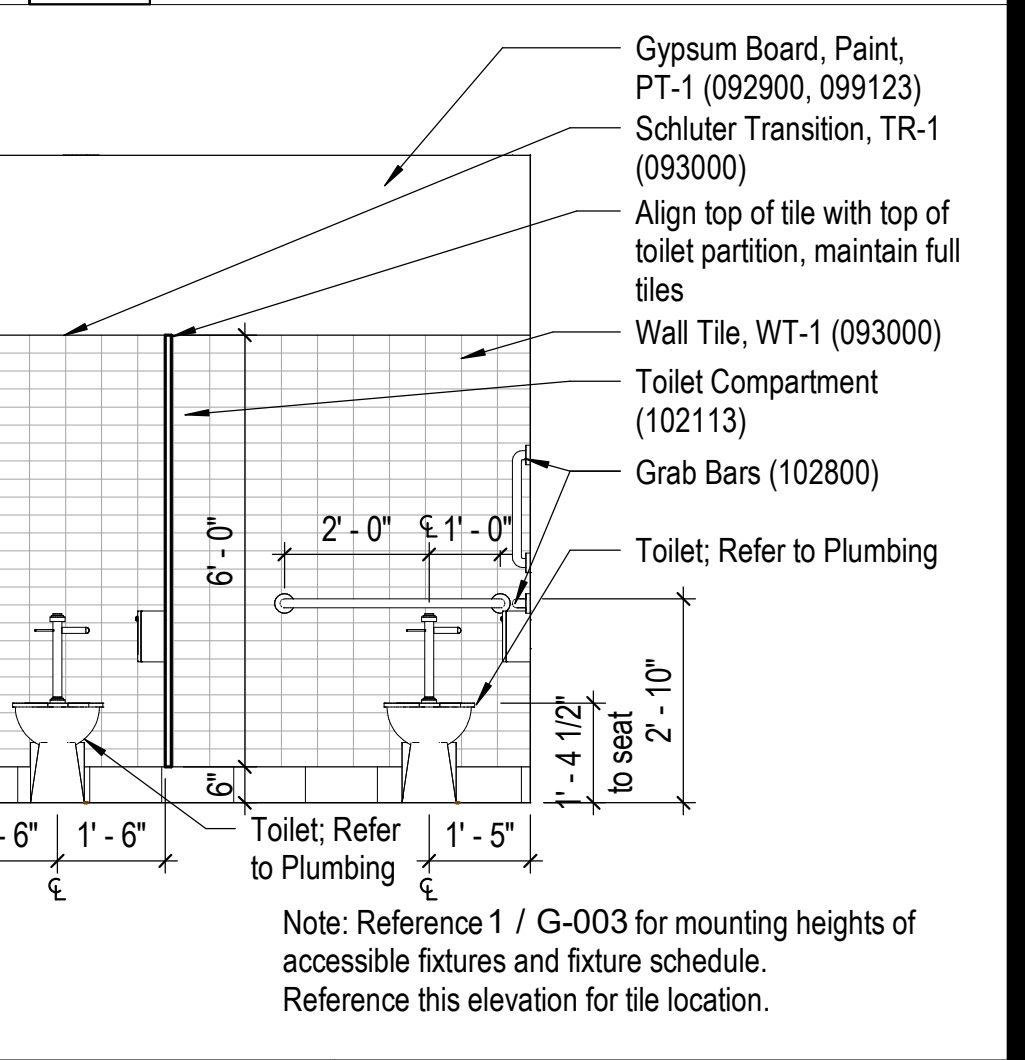
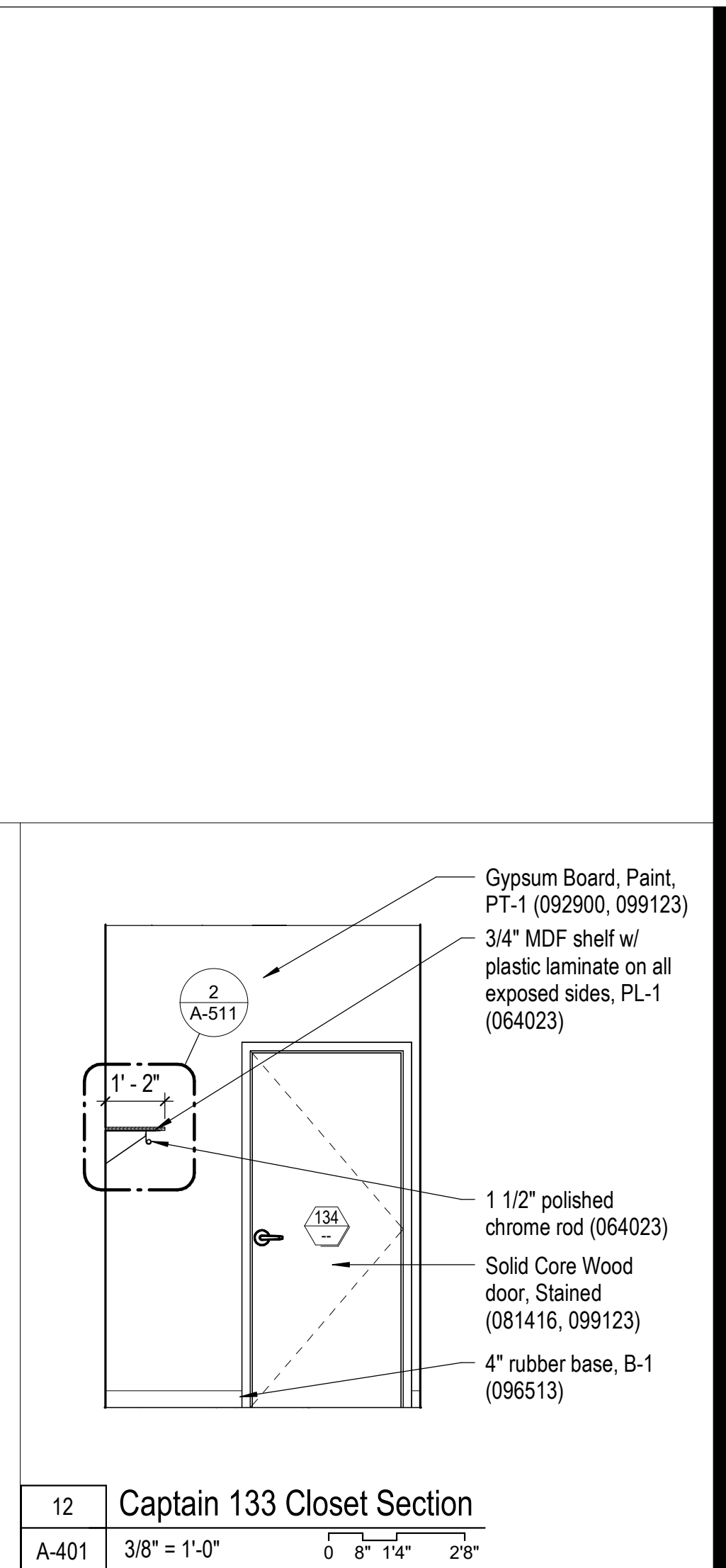
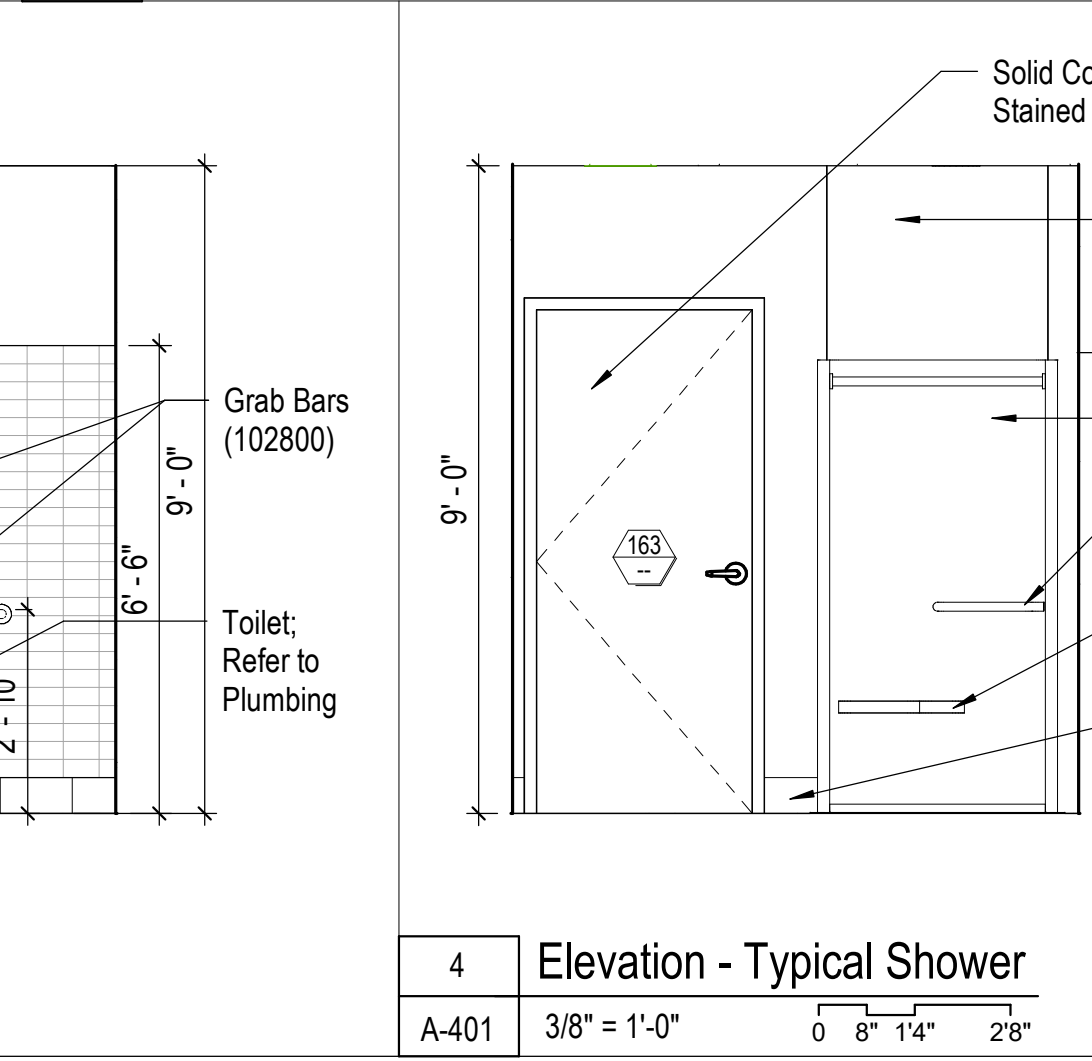
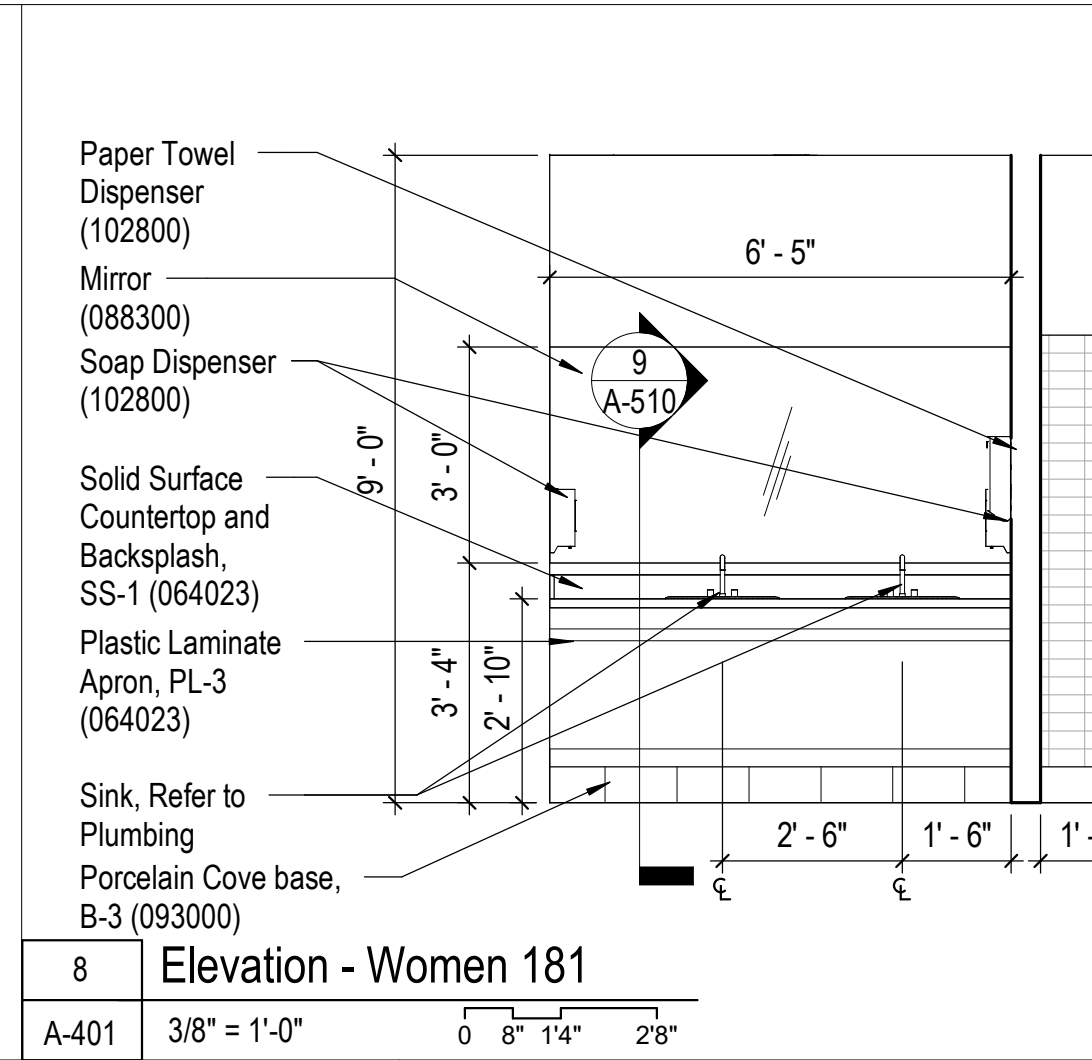
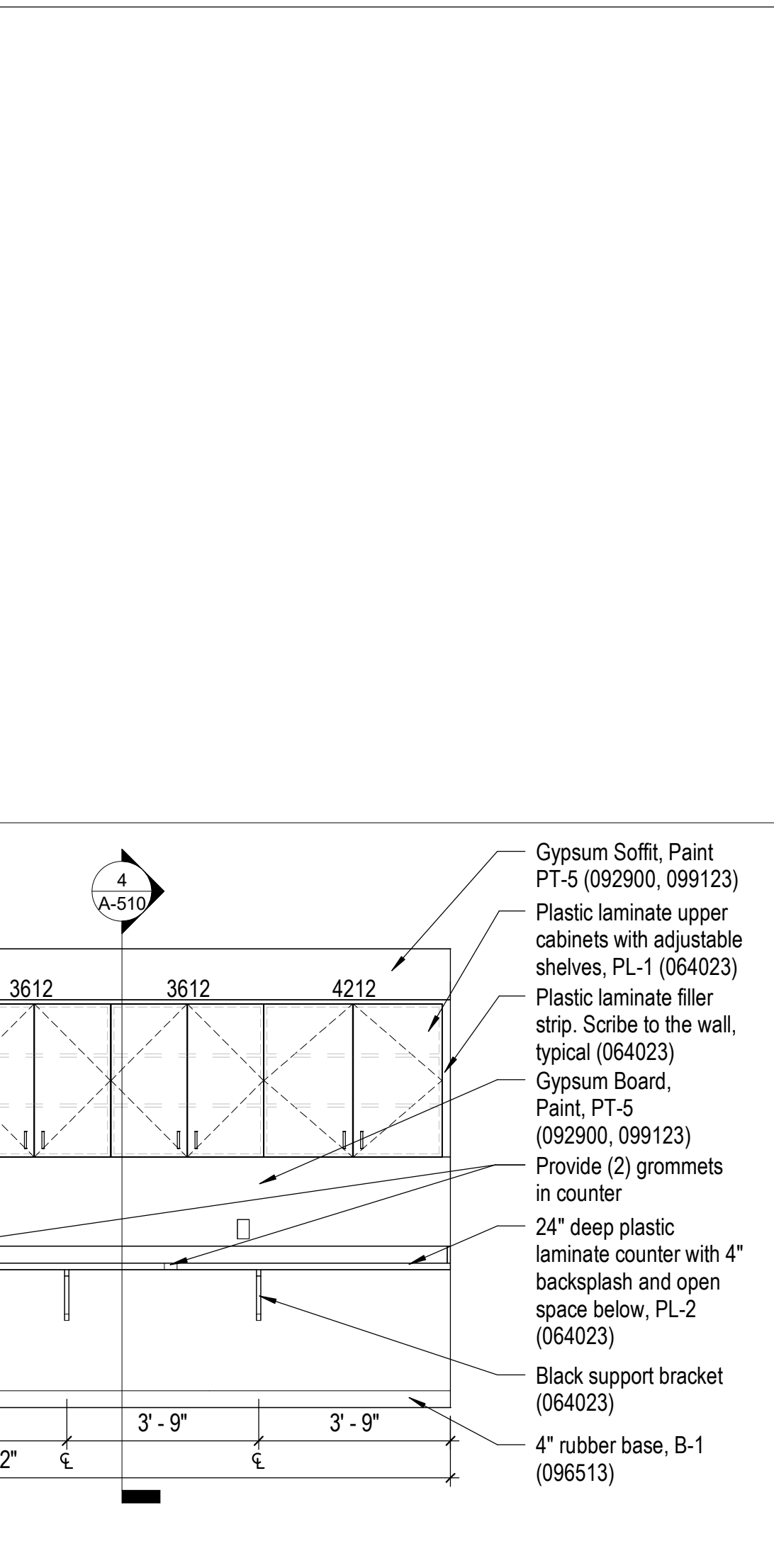
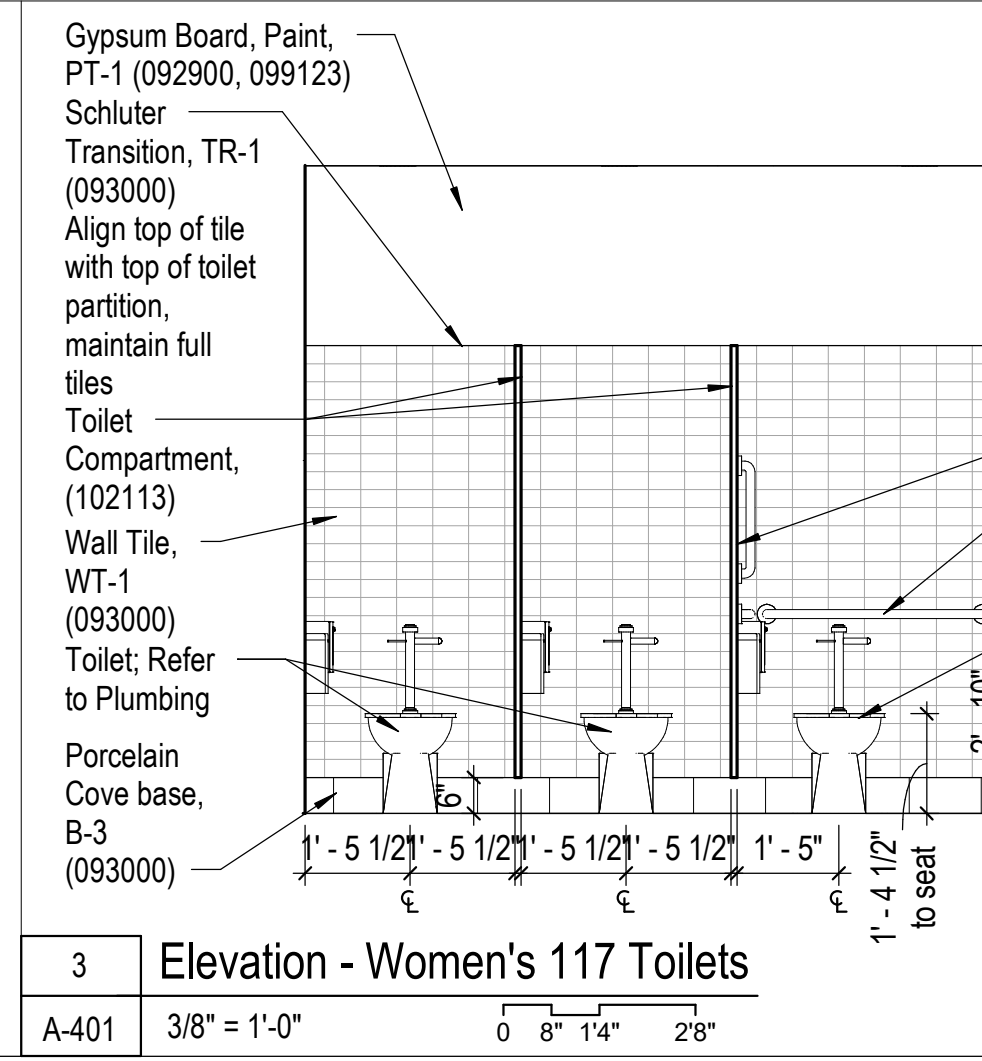
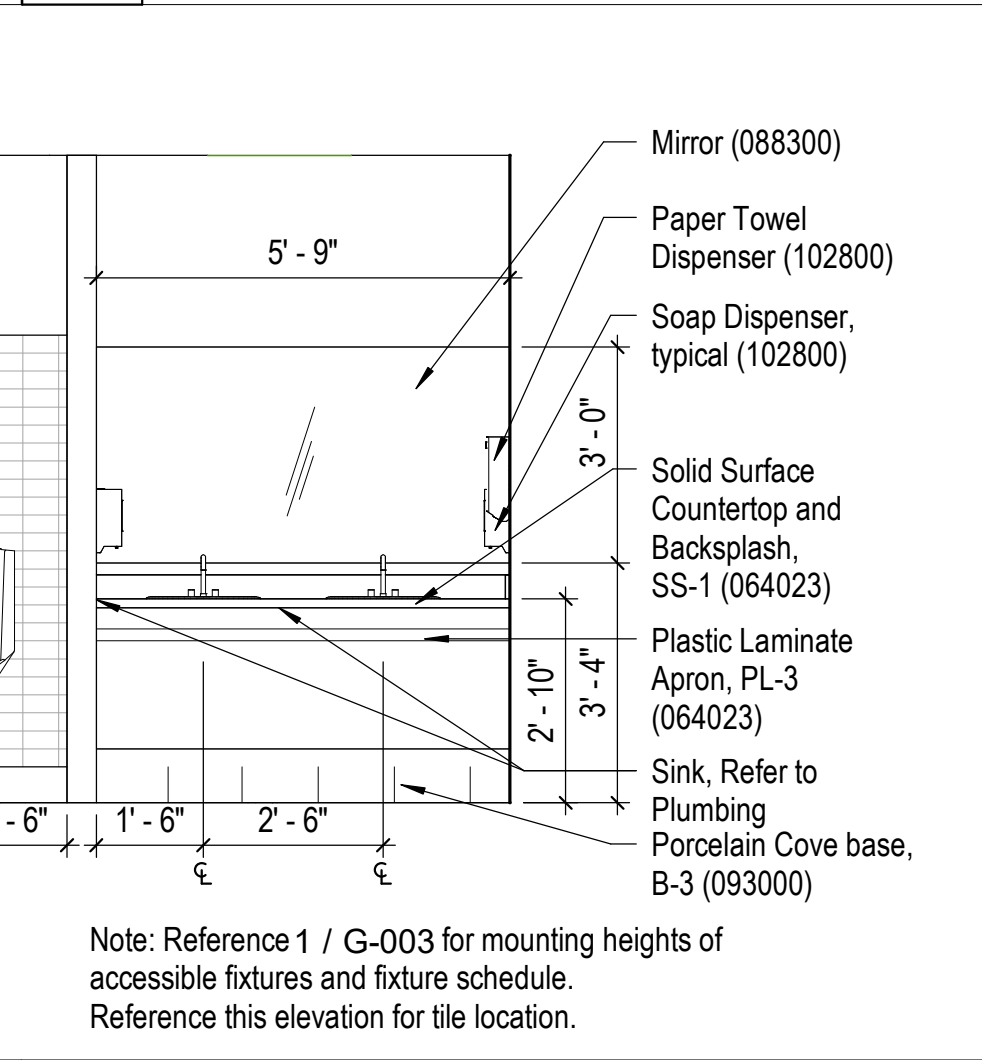
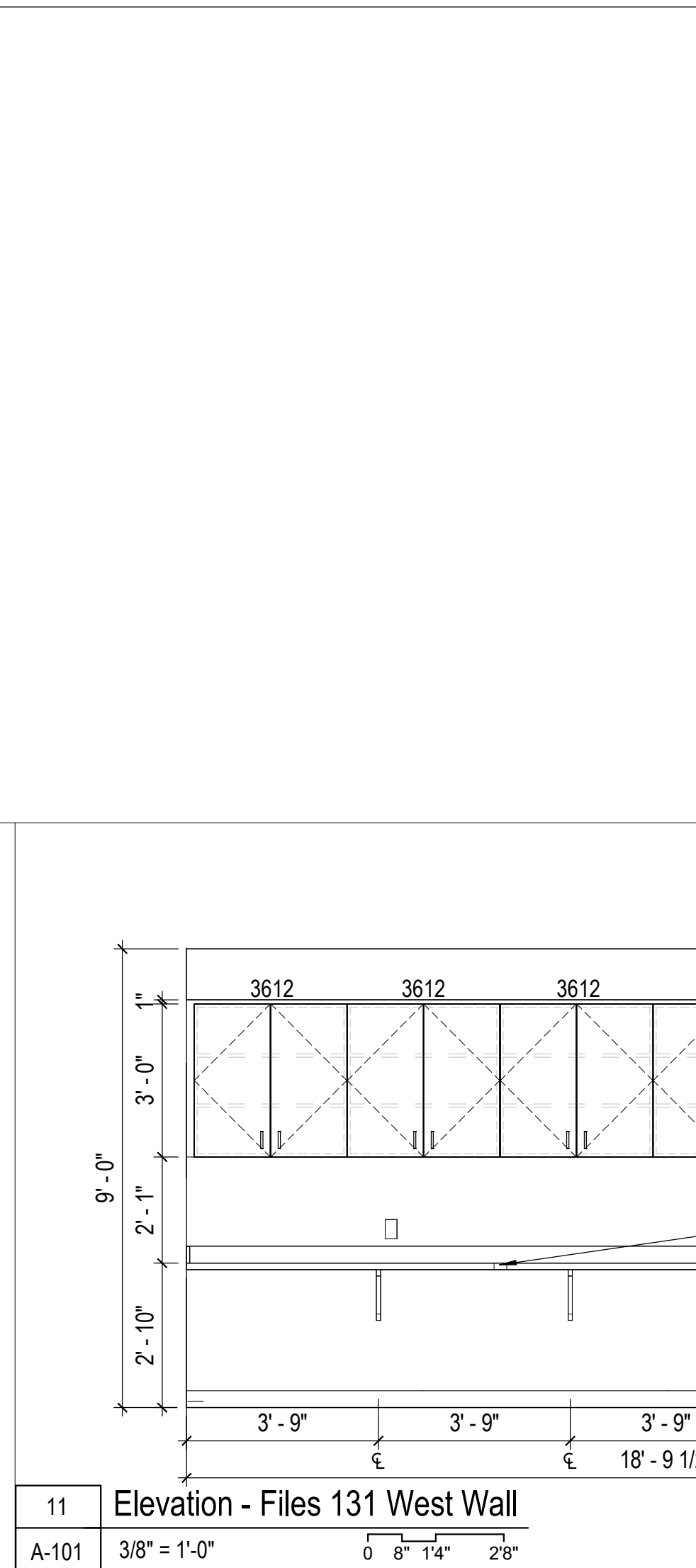
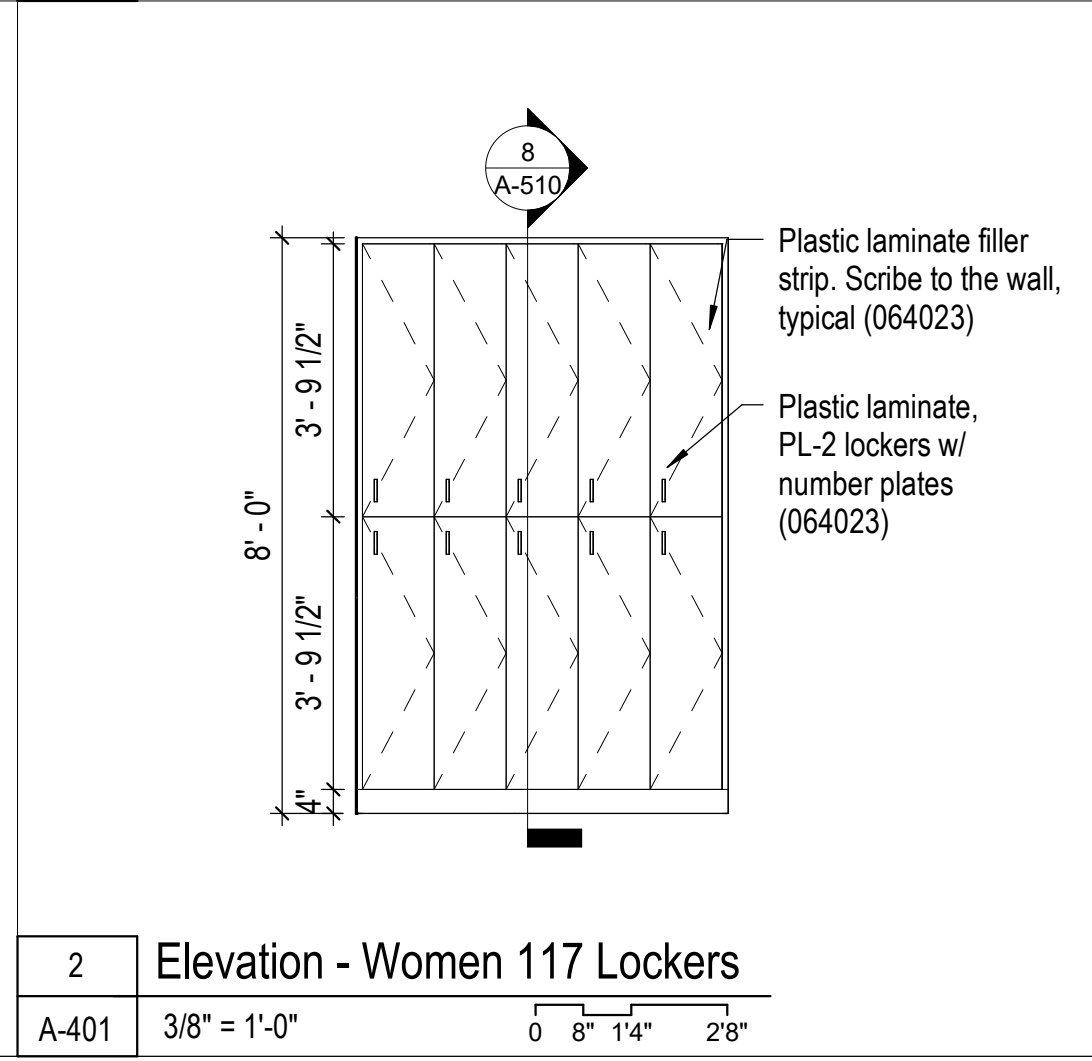
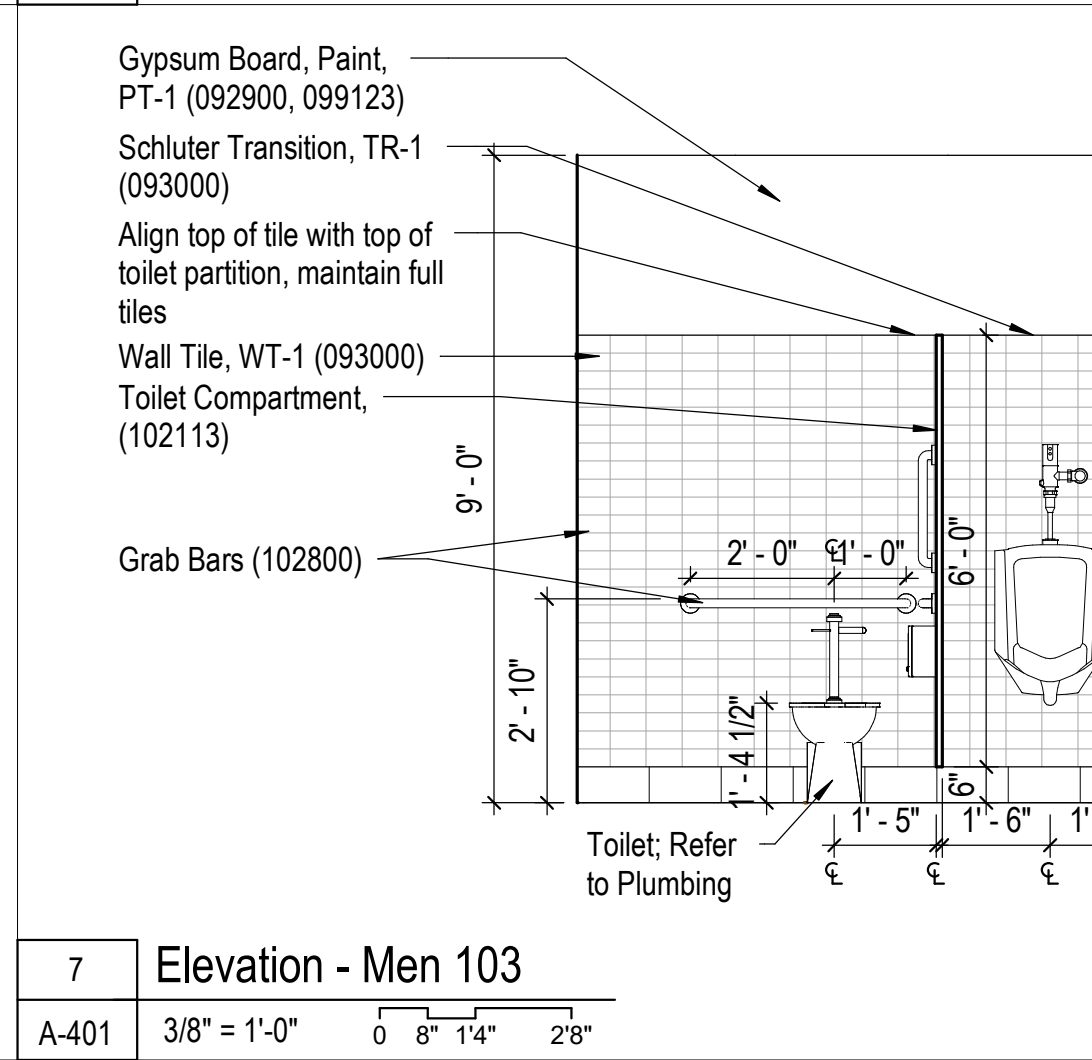
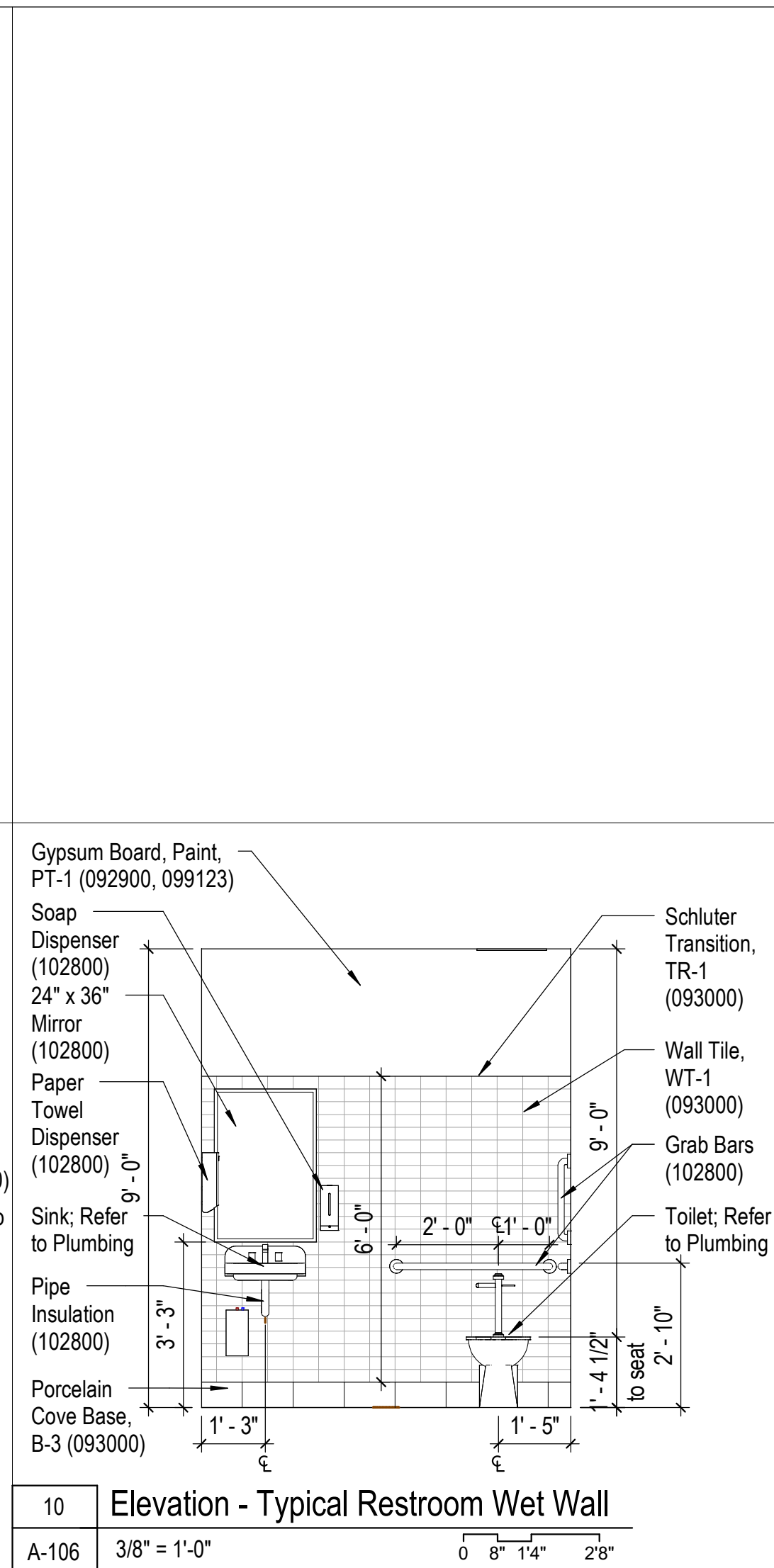
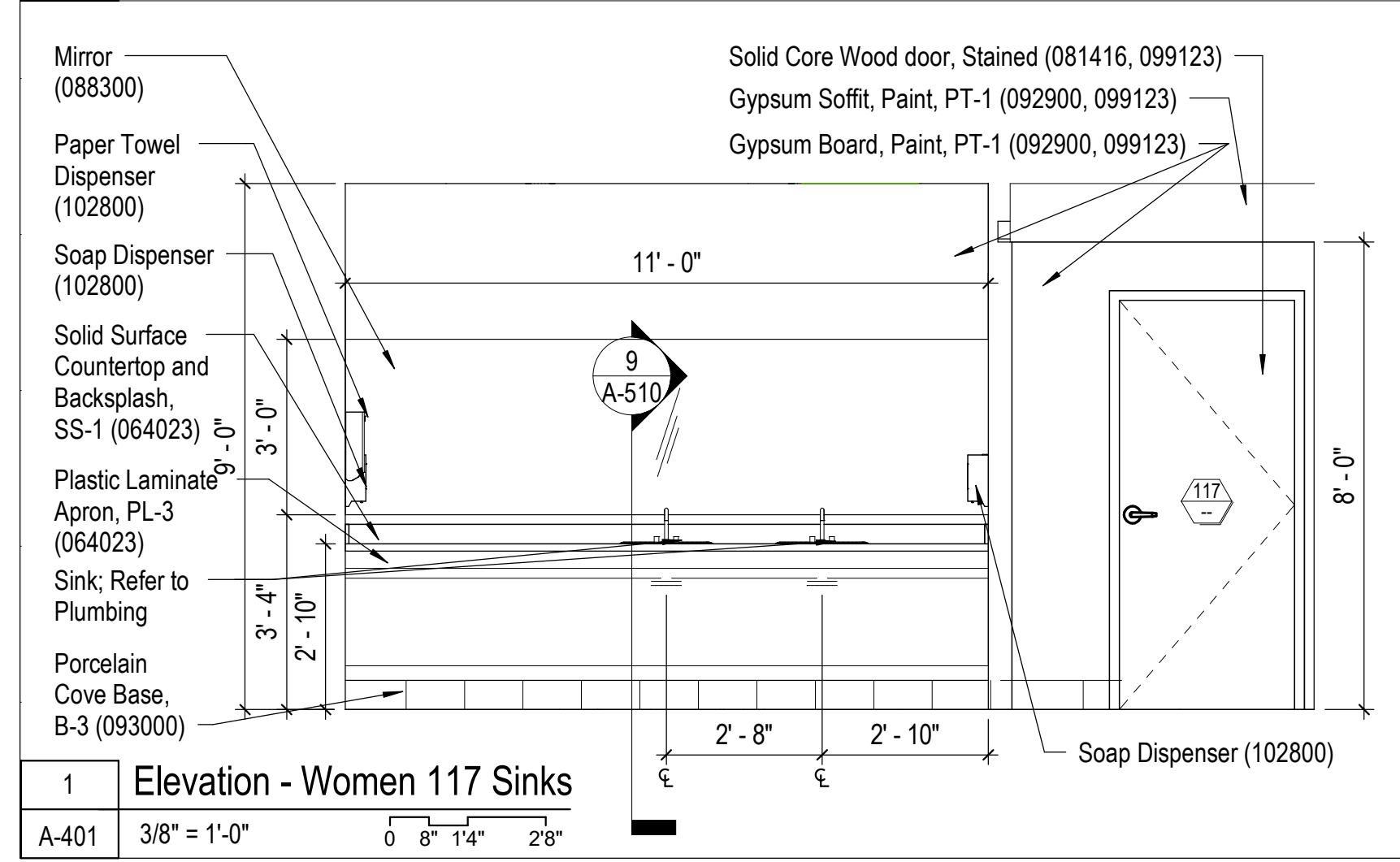
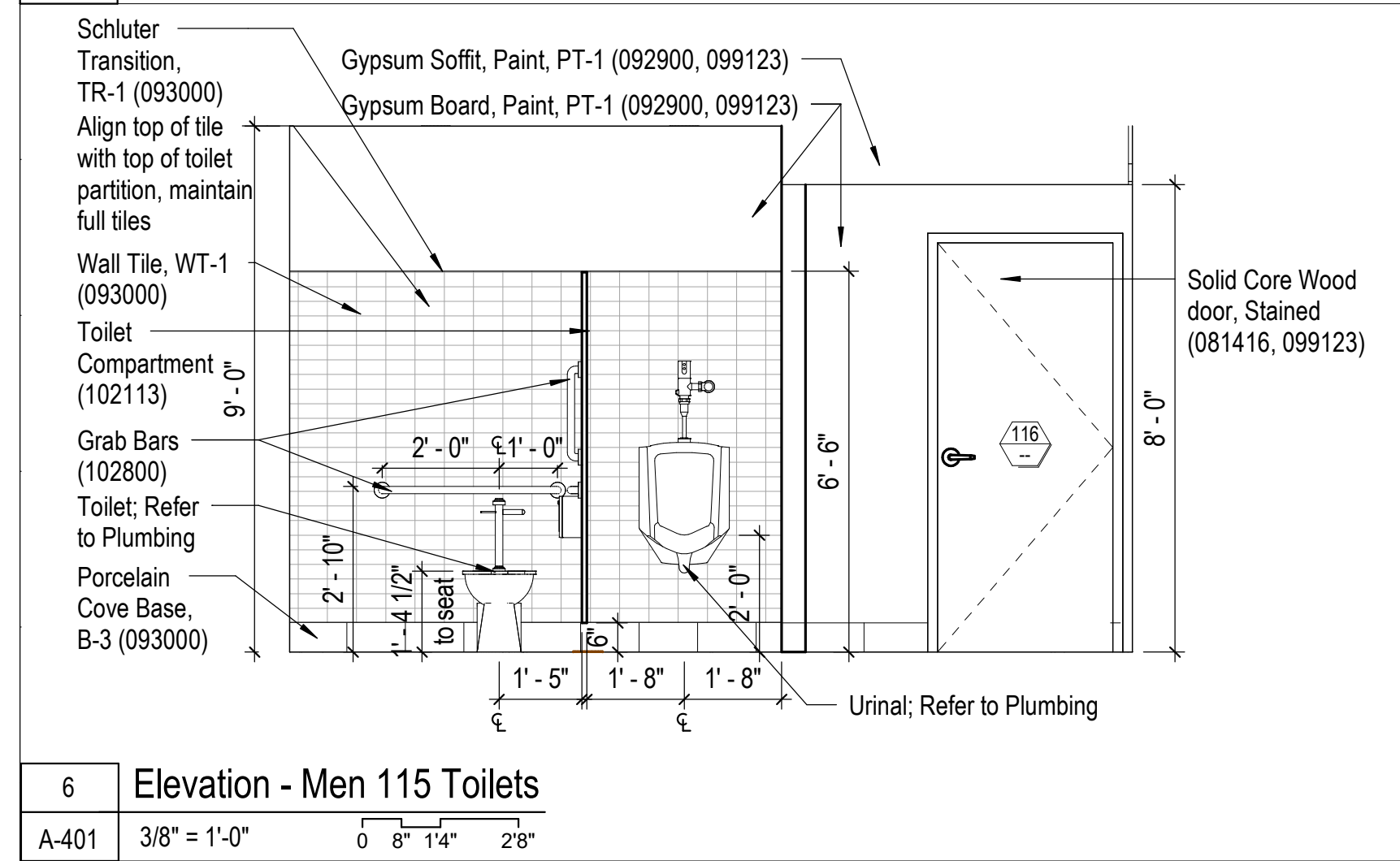
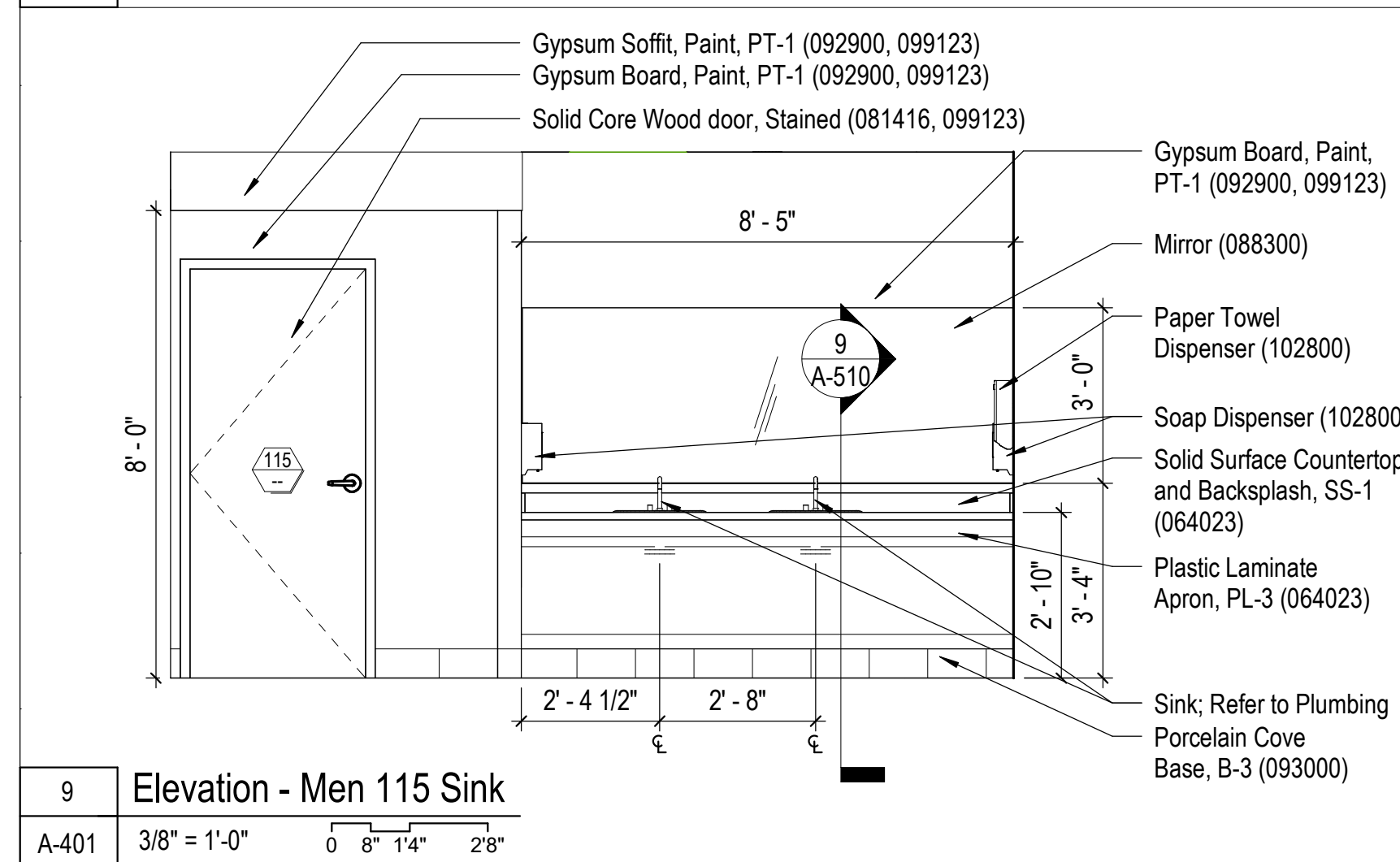
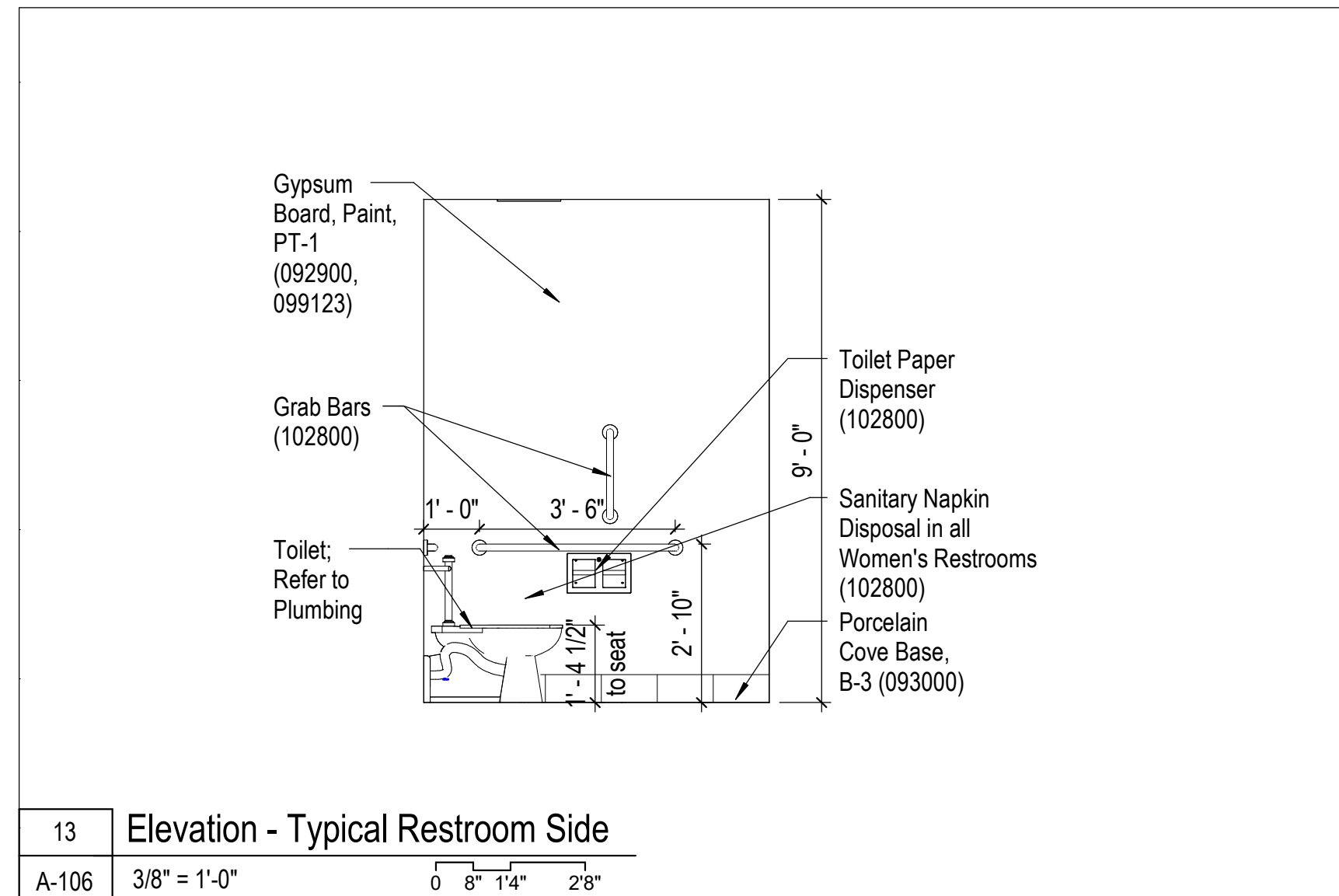
SHEET TITLE:  
**Interior Elevations**

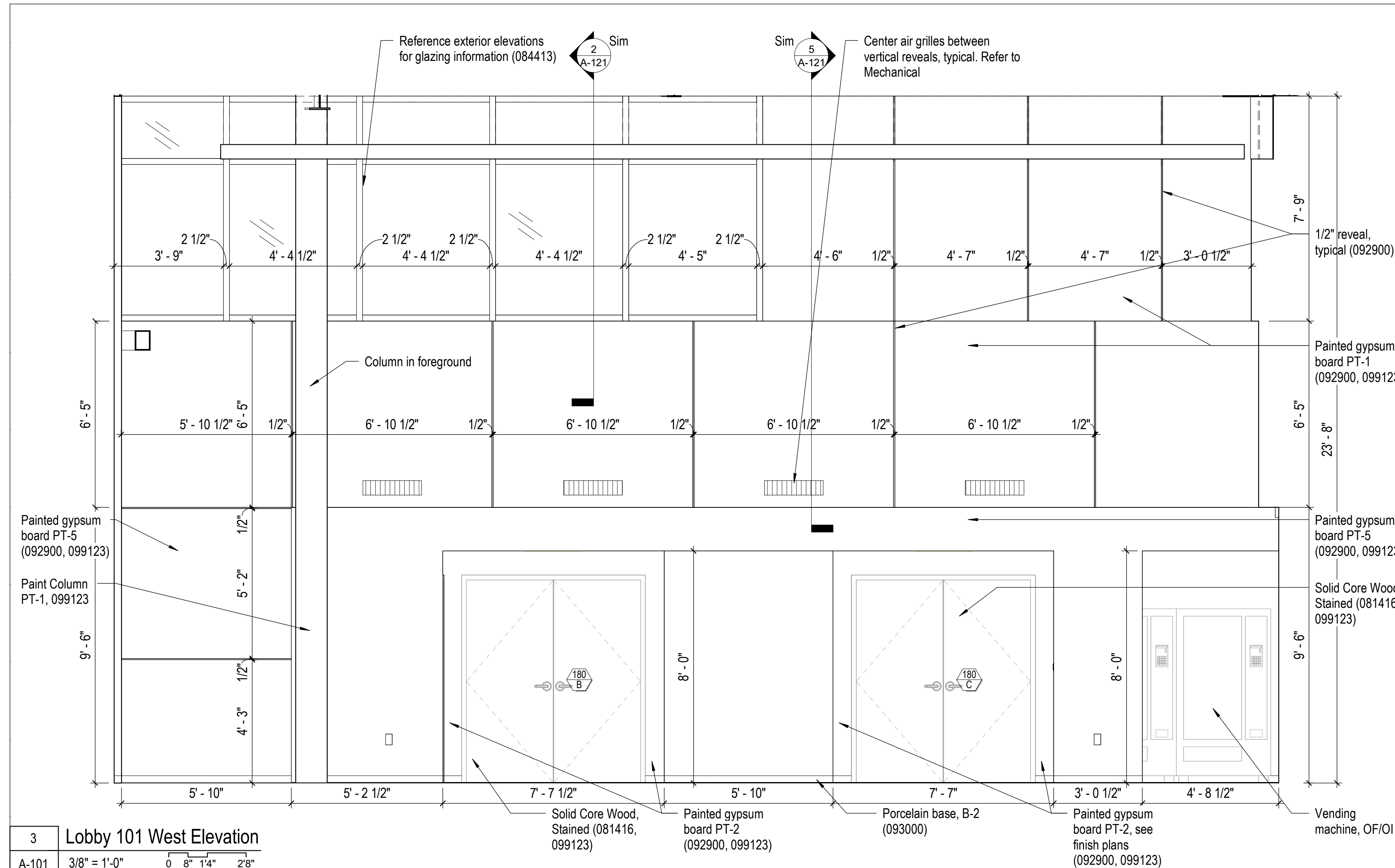
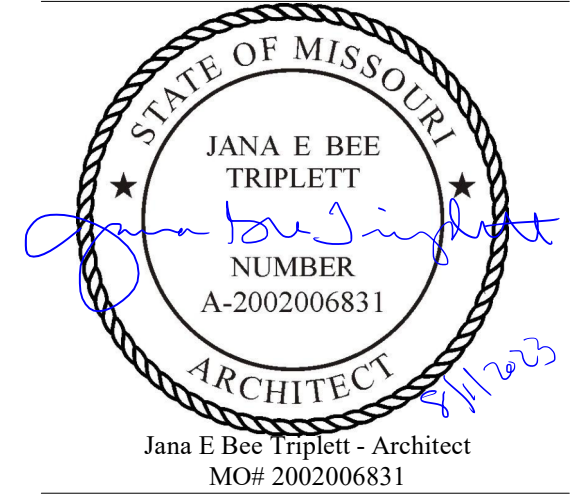
SHEET NUMBER:

**A-212**

SHEET 077 OF 202

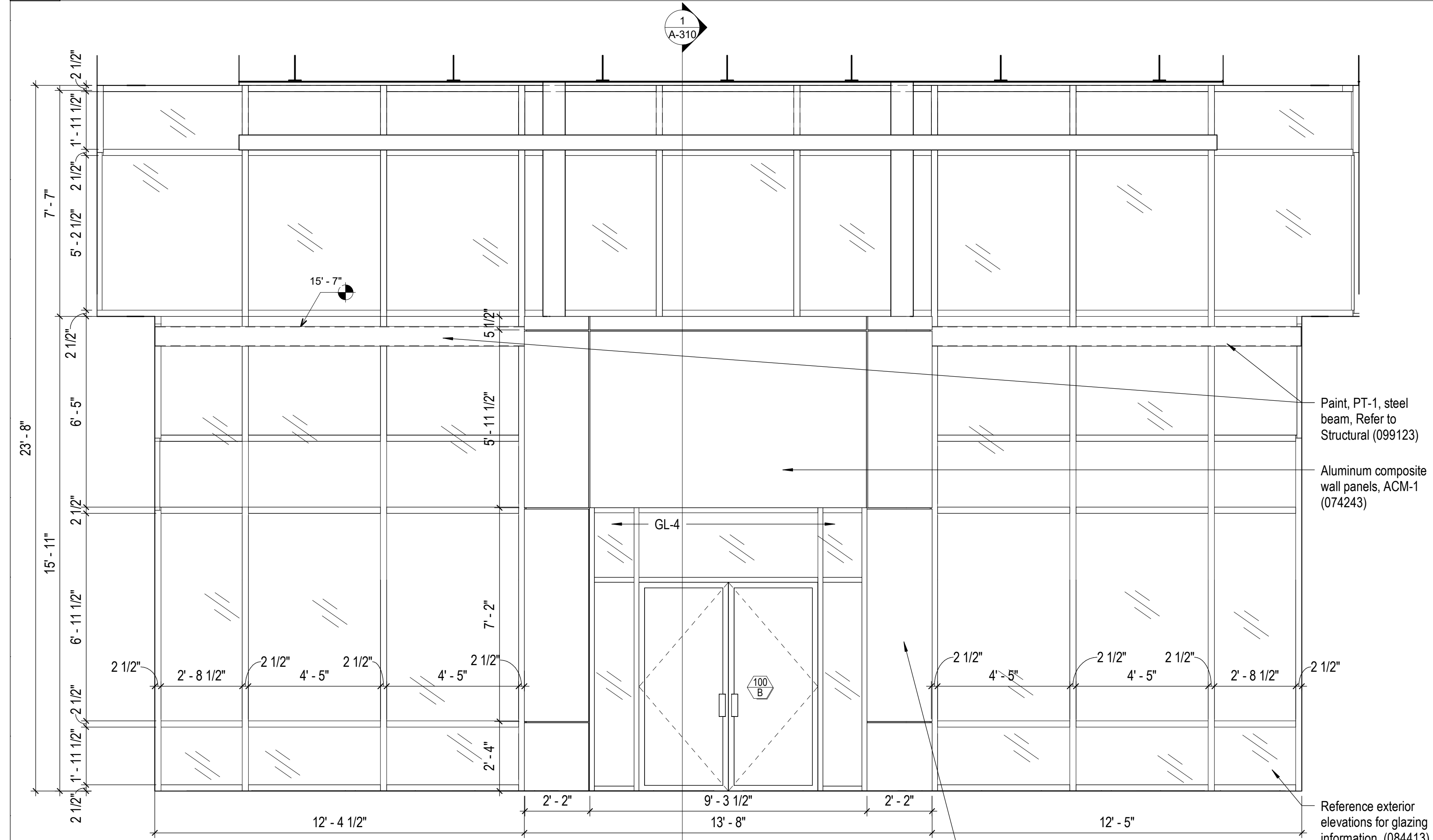
08/01/2023





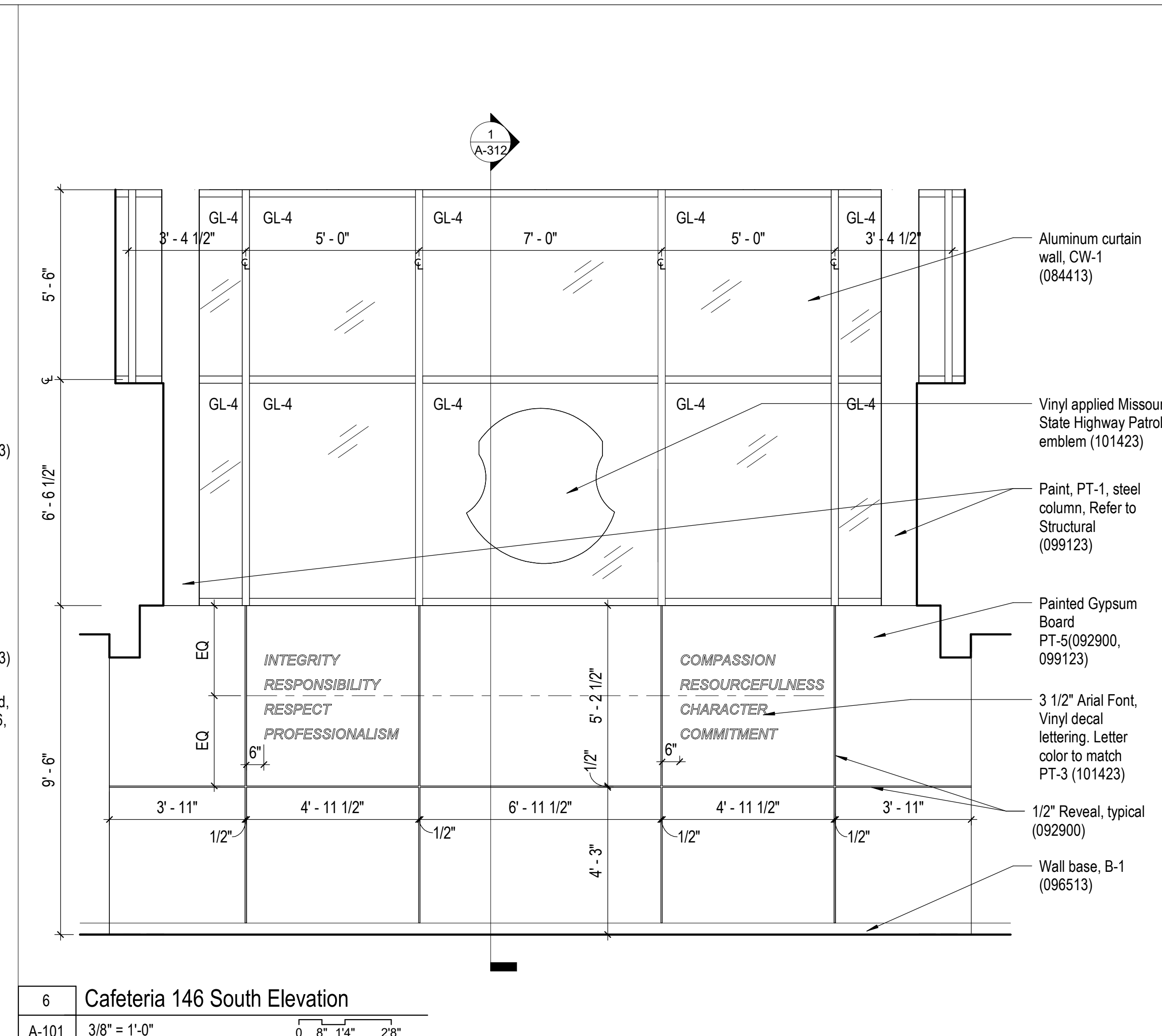
3 Lobby 101 West Elevation

A-101 3/8" = 1'-0" 0 8' 14' 28"



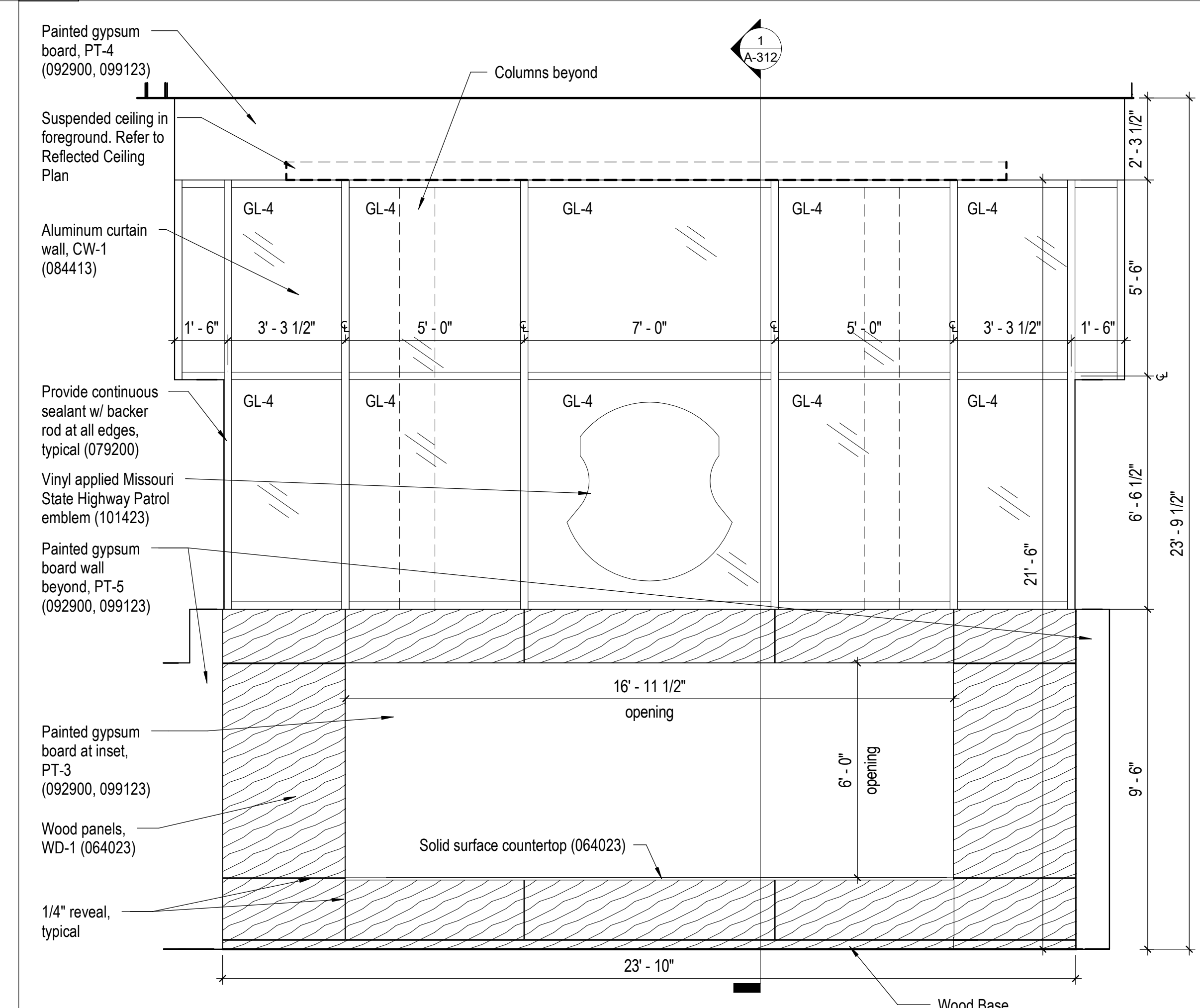
1 Lobby 101 South Elevation

A-101 3/8" = 1'-0" 0 8' 14' 28"



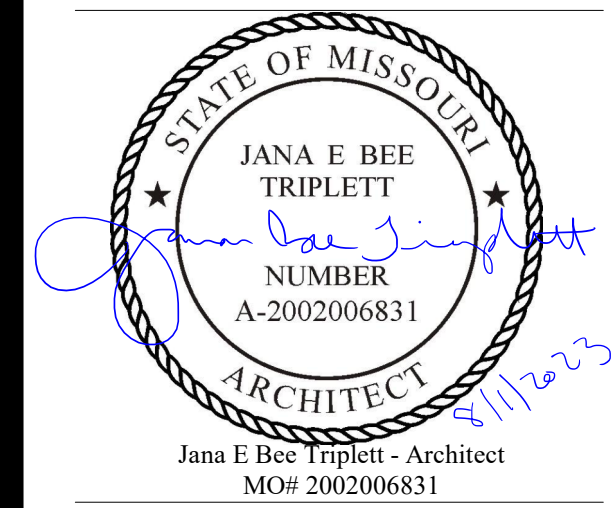
6 Cafeteria 146 South Elevation

A-101 3/8" = 1'-0" 0 8' 14' 28"



2 Lobby 101 Honor Wall Elevation

A-101 3/8" = 1'-0" 0 8' 14' 28"



**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2102.152

GastingerWalker & Architects, LLC.  
 Missouri Certificate of Authority: #2023012872

OFFICE OF  
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Project Name:  
 Troop A Headquarters,  
 MSHF

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: A-214.dwg  
 DRAWN BY: SW  
 CHECKED BY: JBT  
 DESIGNED BY: GW&

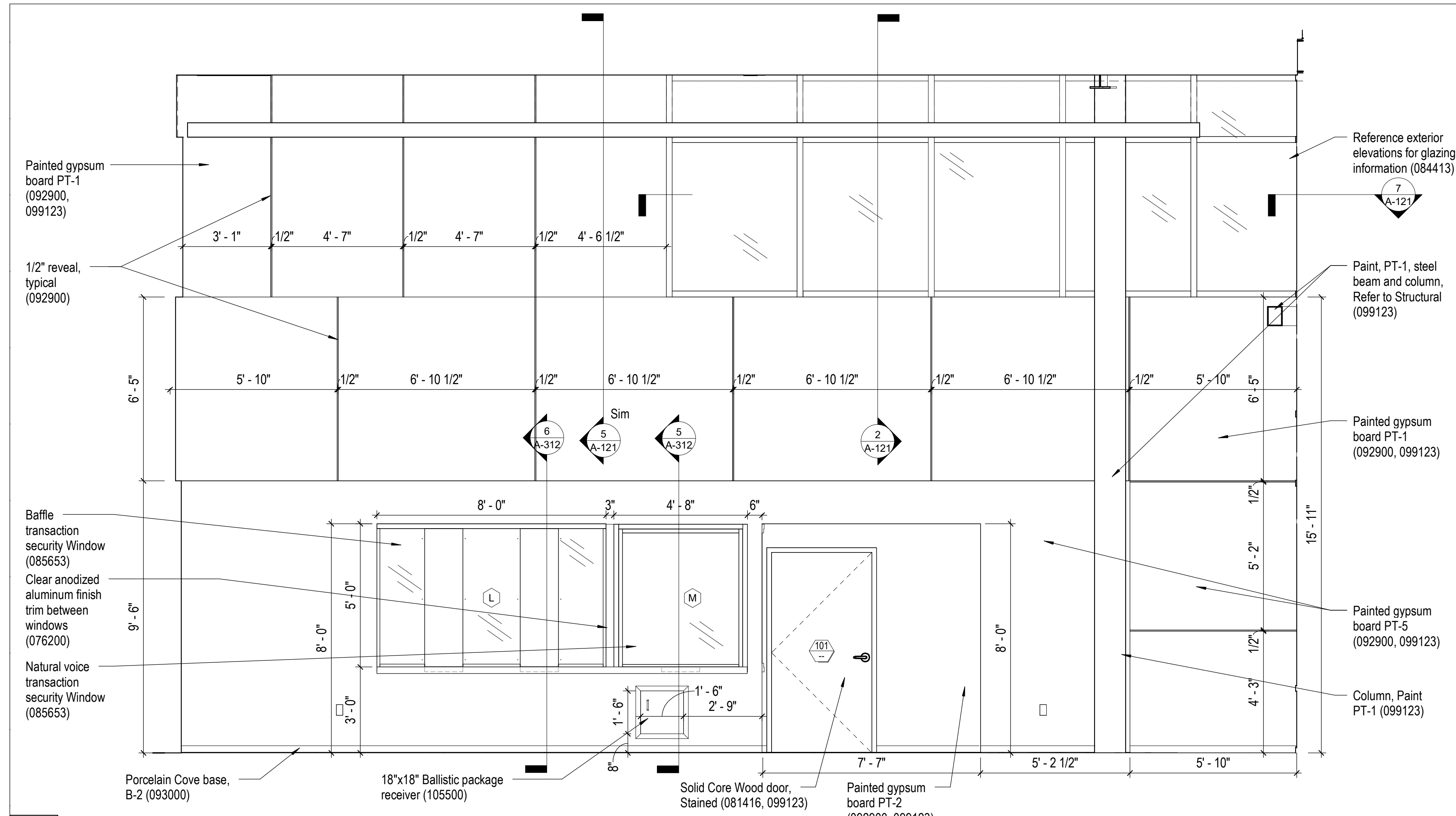
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 Interior Elevations

SHEET NUMBER:

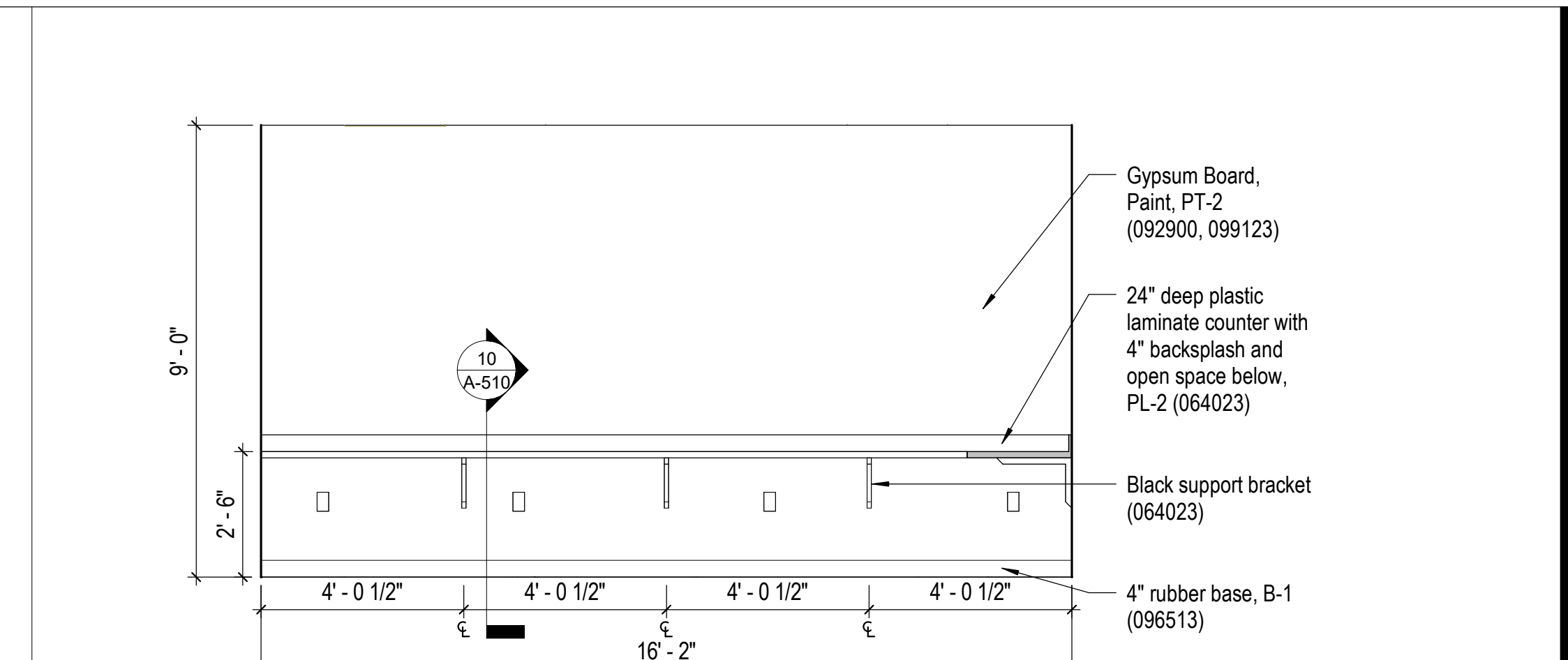
**A-214**

SHEET 079 OF 202

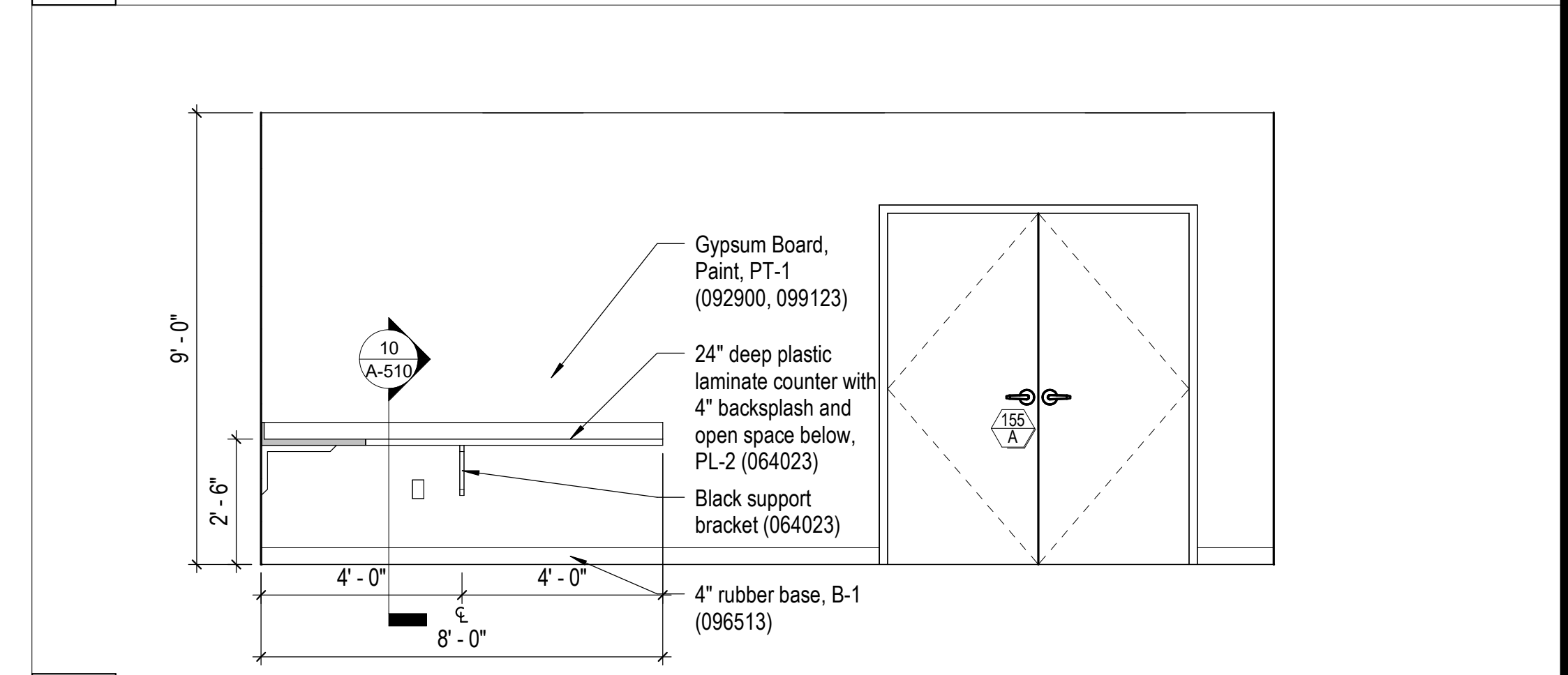
08/01/2023



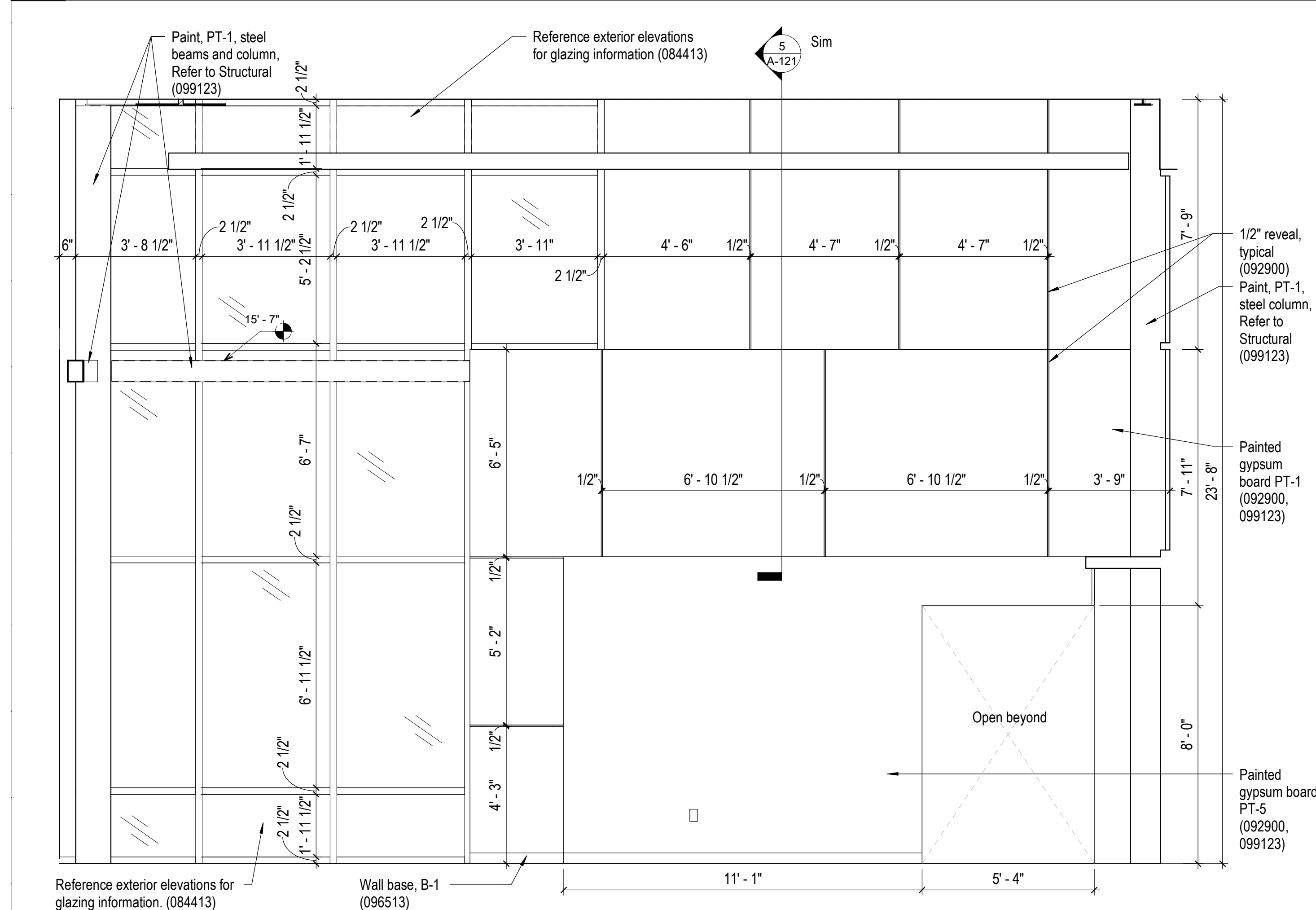
3 Lobby 101 East Elevation  
 A-101 3/8" = 1'-0" 0 8" 14" 28"



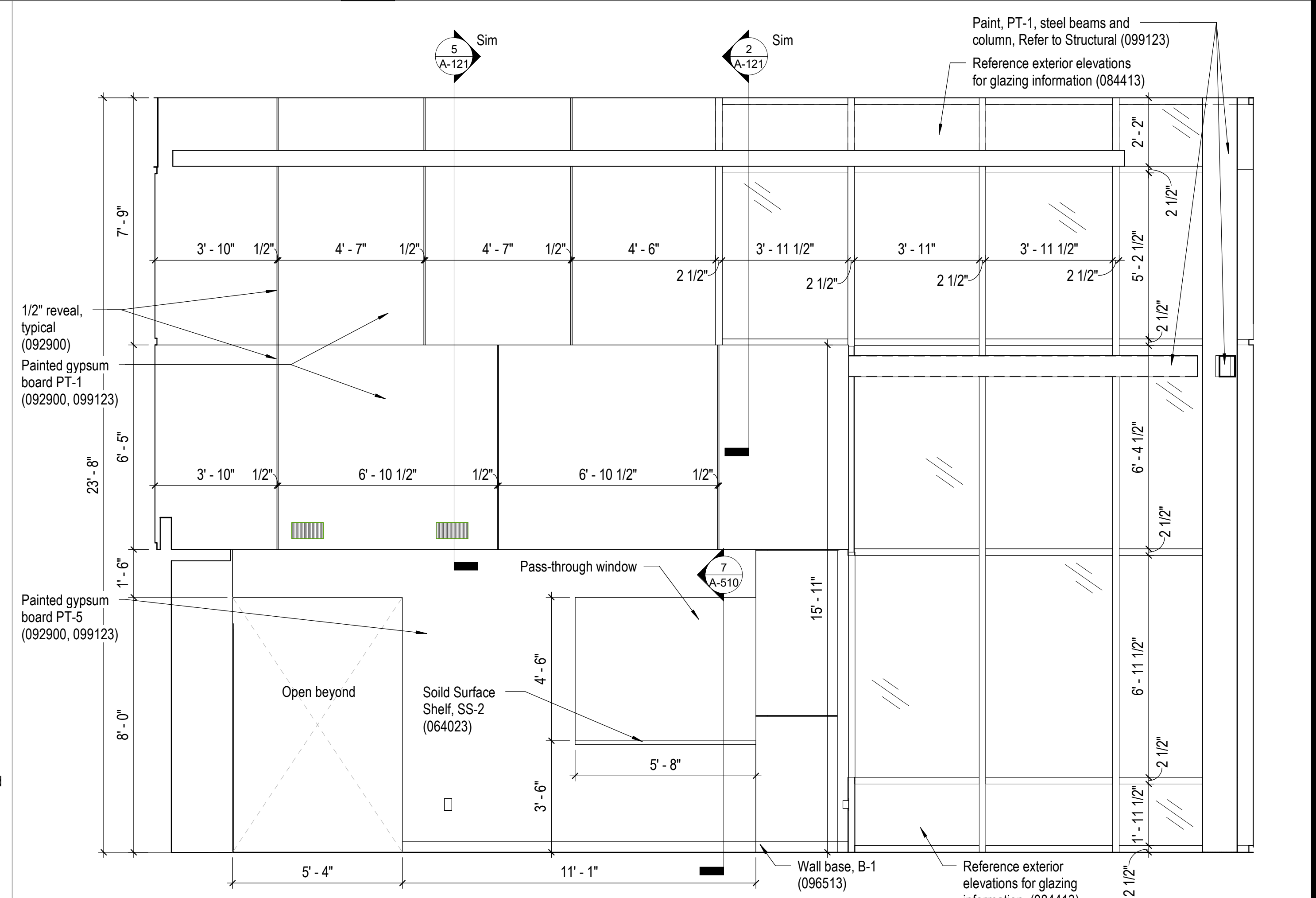
5 Elevation - Intake 155 East  
 A-021 3/8" = 1'-0" 0 8" 14" 28"



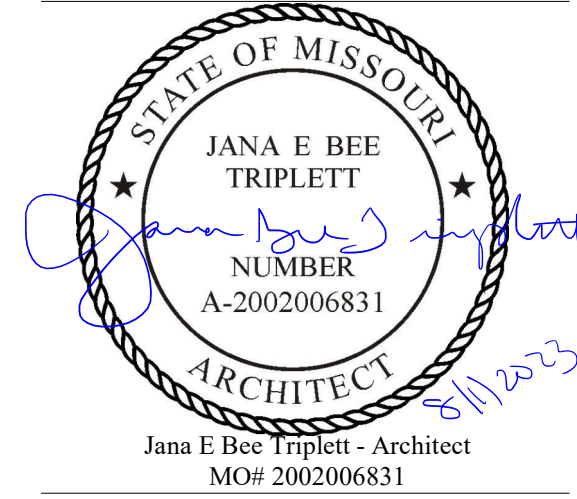
4 Elevation - Intake 155 South  
 A-402 3/8" = 1'-0" 0 8" 14" 28"



1 Cafeteria 146 East Elevation  
 A-101 3/8" = 1'-0" 0 8" 14" 28"



2 Cafeteria 146 West Elevation  
 A-101 3/8" = 1'-0" 0 8" 14" 28"



**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
Project Number: 21022.152

Gastinger Walker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

OFFICE OF  
ADMINISTRATION  
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MANAGEMENT,  
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Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-301.dwg  
DRAWN BY: LS  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

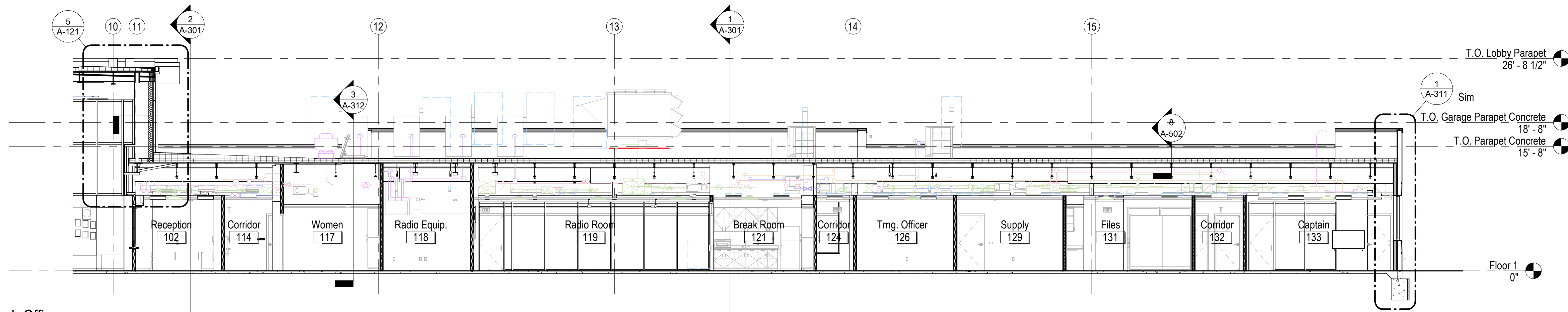
Building Sections

SHEET NUMBER:

**A-301**

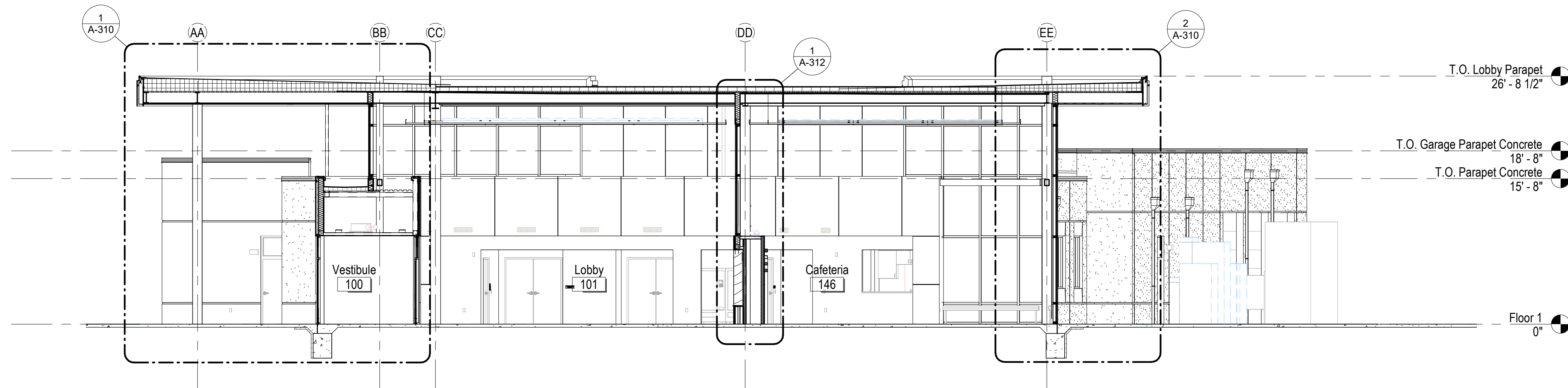
SHEET 080 OF 202

08/01/2023



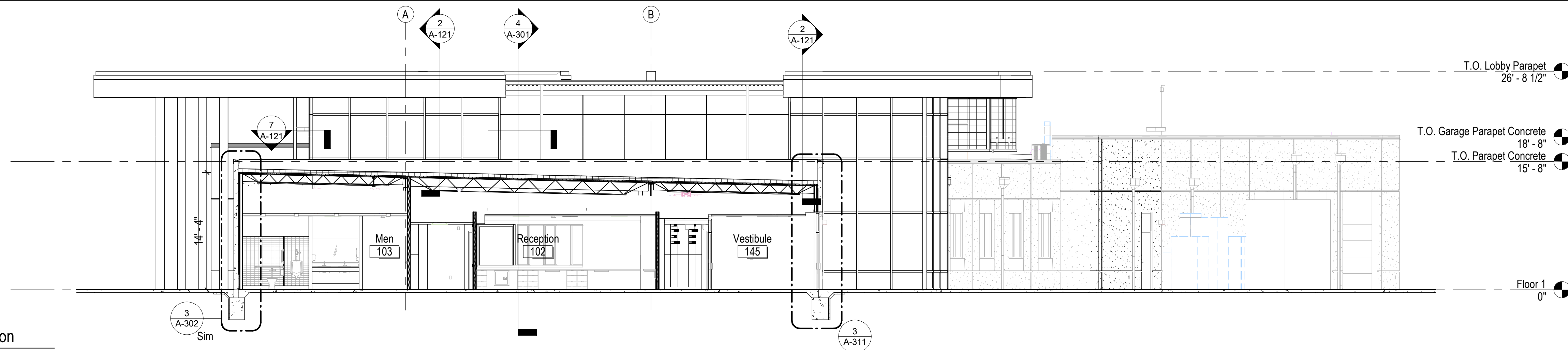
4 Building Section Through Offices

A-100 1/8" = 1'-0" 0 2' 4' 8'



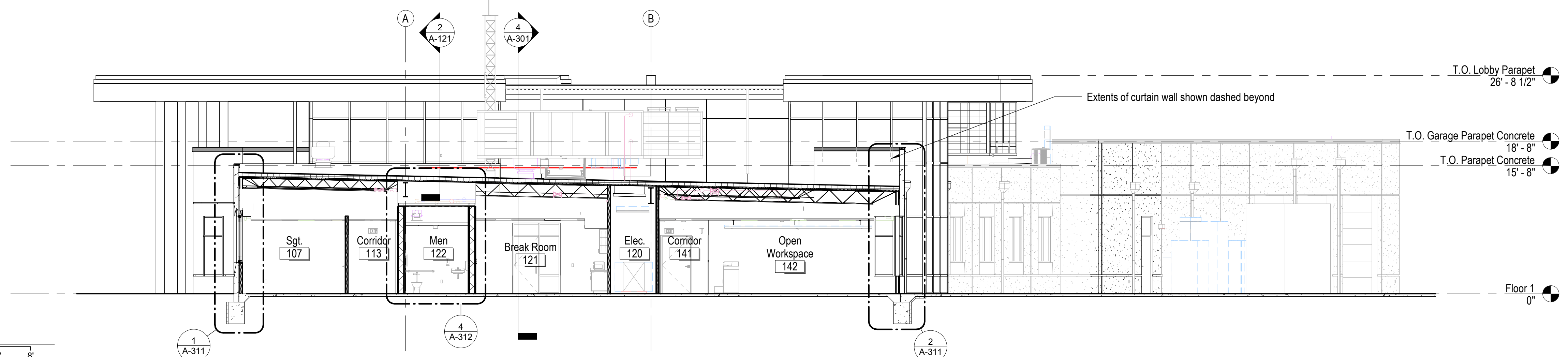
3 Building Section Through Lobby

A-100 1/8" = 1'-0" 0 2' 4' 8'



2 Building Section Through Reception

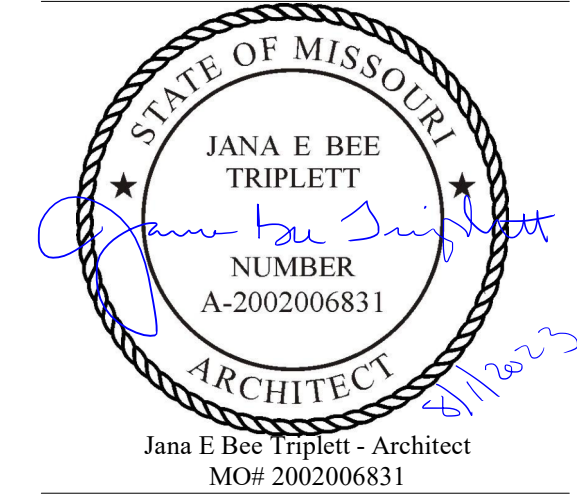
A-100 1/8" = 1'-0" 0 2' 4' 8'



1 Building Section Through Offices

A-100 1/8" = 1'-0" 0 2' 4' 8'





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Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
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Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
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**PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019**

REVISION:  
 DATE:  
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 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: A-302.dwg  
 DRAWN BY: LS  
 CHECKED BY: JBT  
 DESIGNED BY: GW&

SHEET TITLE:

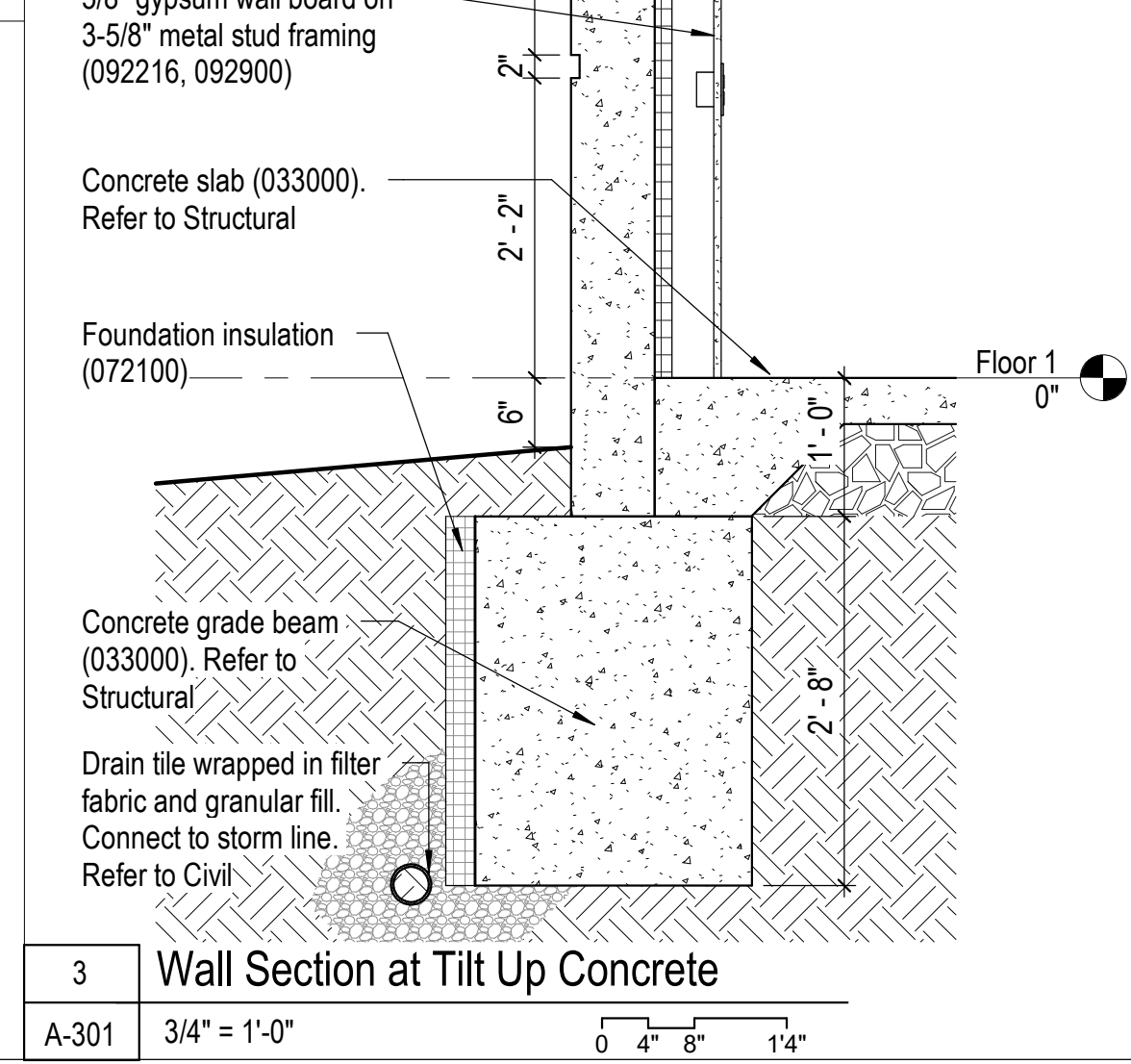
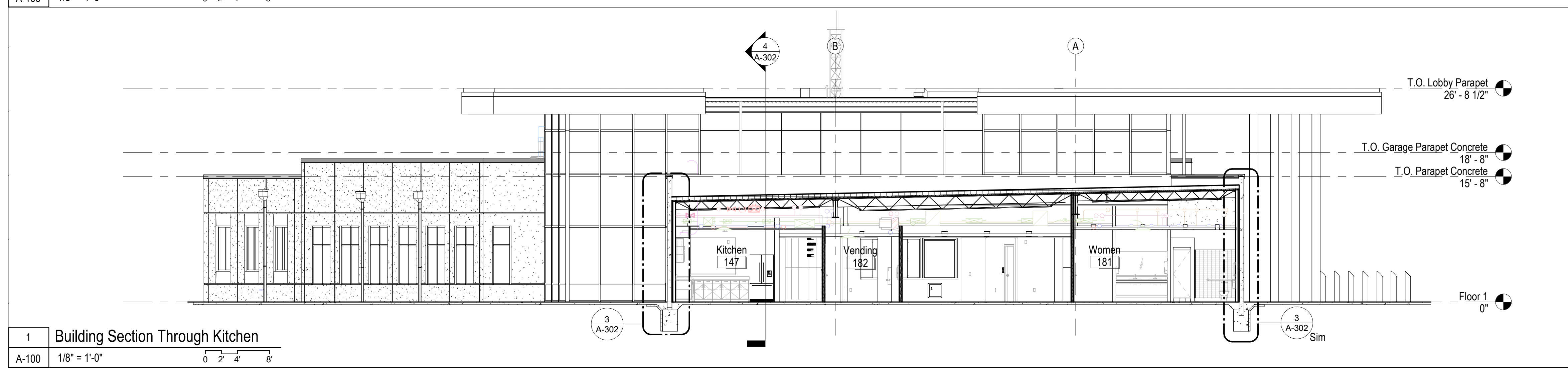
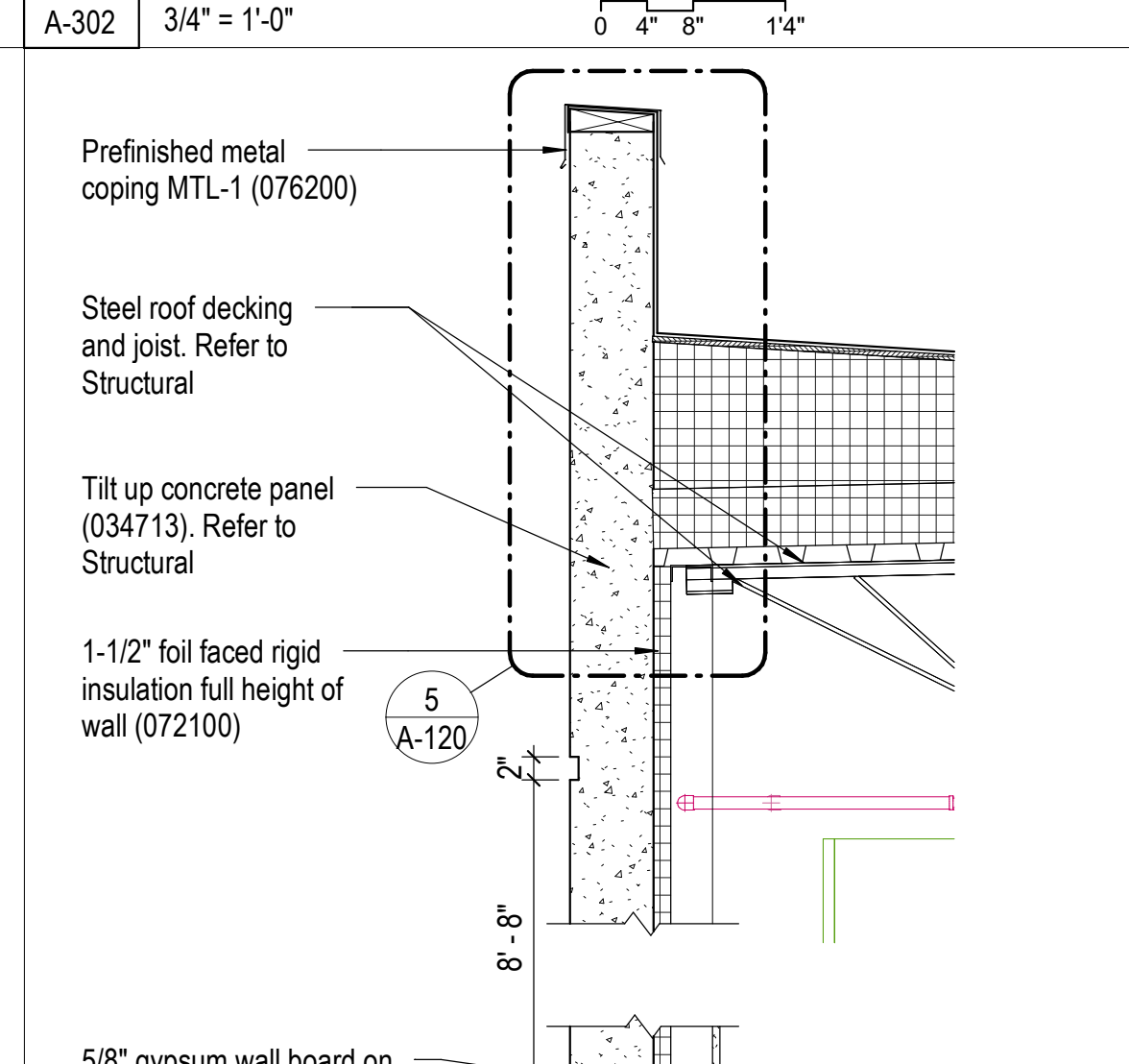
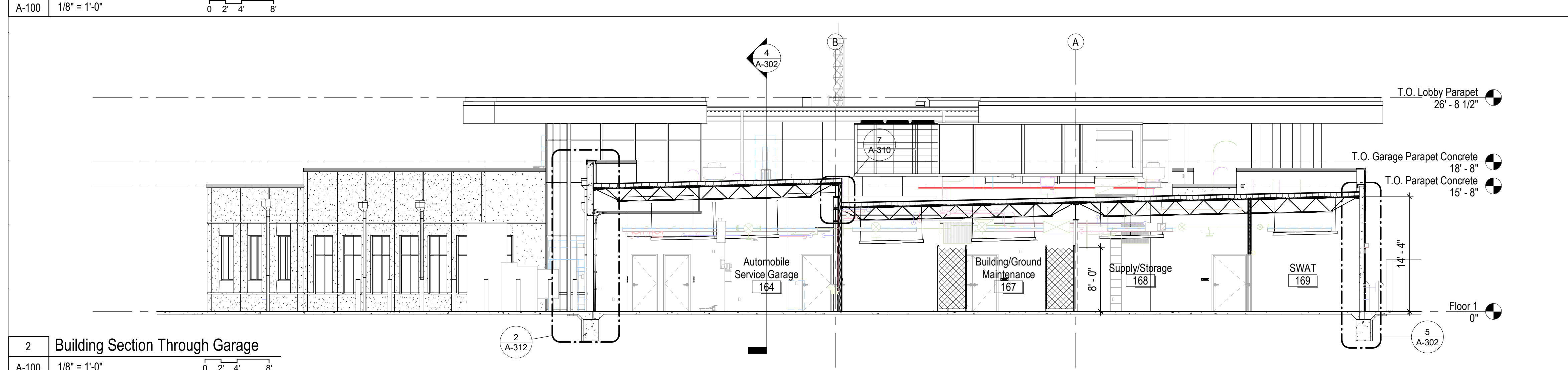
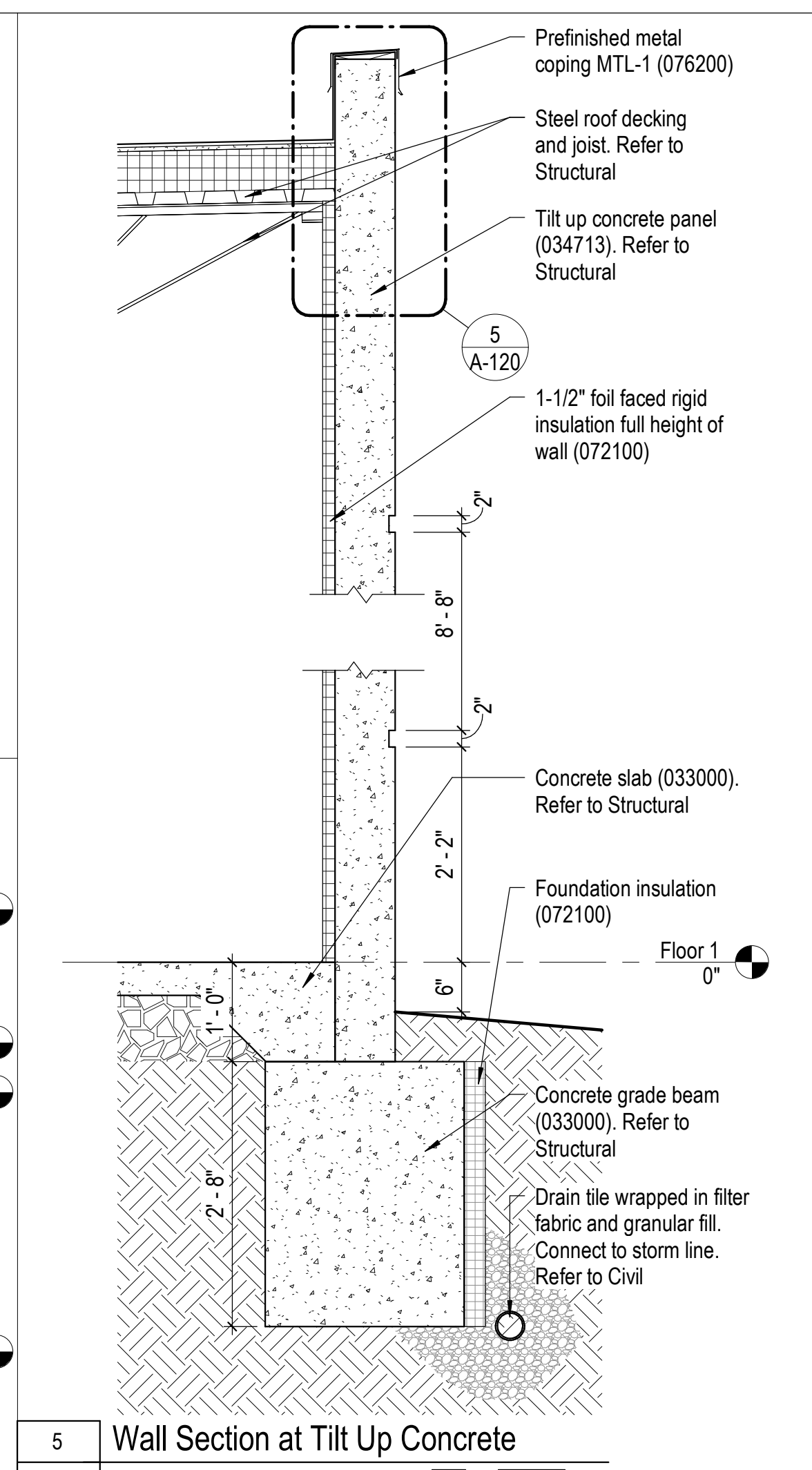
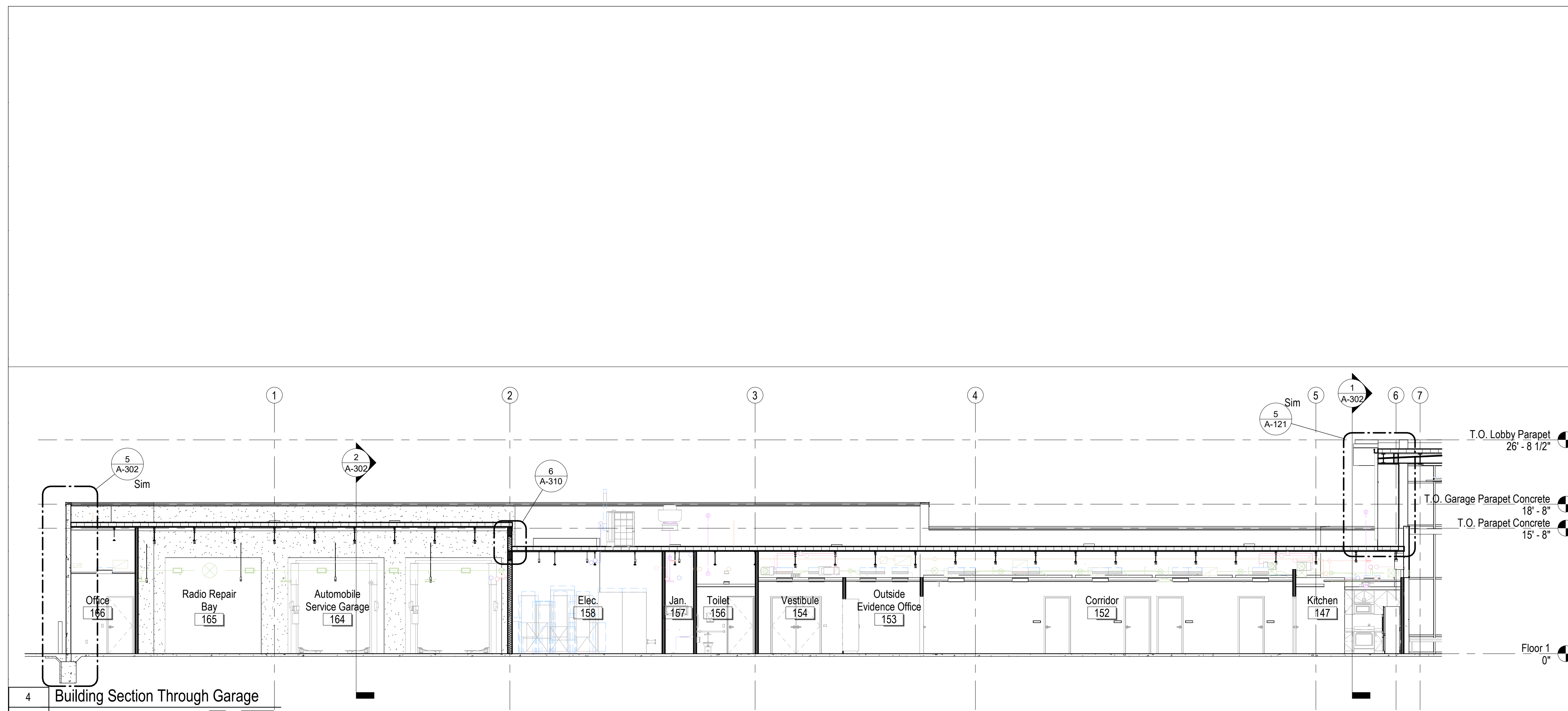
Building Sections

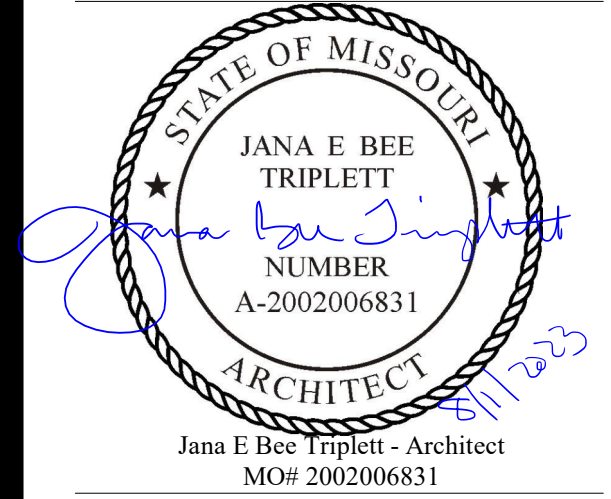
SHEET NUMBER:

**A-302**

SHEET 081 OF 202

08/01/2023





**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
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ISSUE DATE: 01 August 2023

CAD DWG FILE: A-303.dwg  
DRAWN BY: Author  
CHECKED BY: Checker  
DESIGNED BY: GW&  
SHEET TITLE:

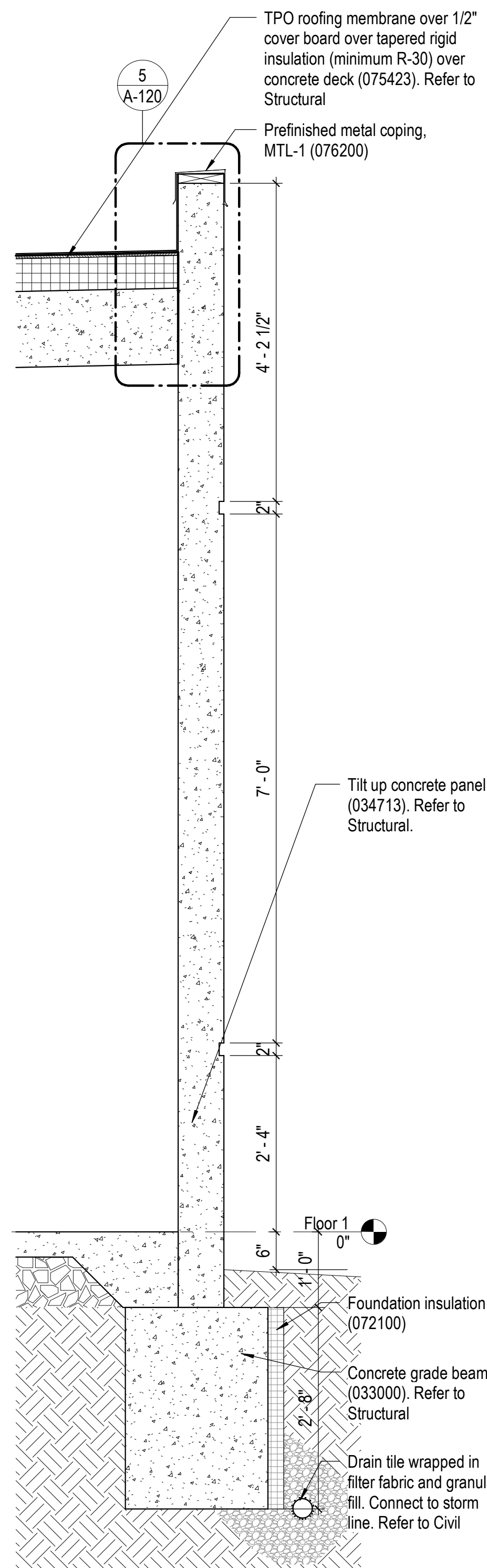
Building & Wall Sections  
- Firing Range  
(Alternate #04)

SHEET NUMBER:

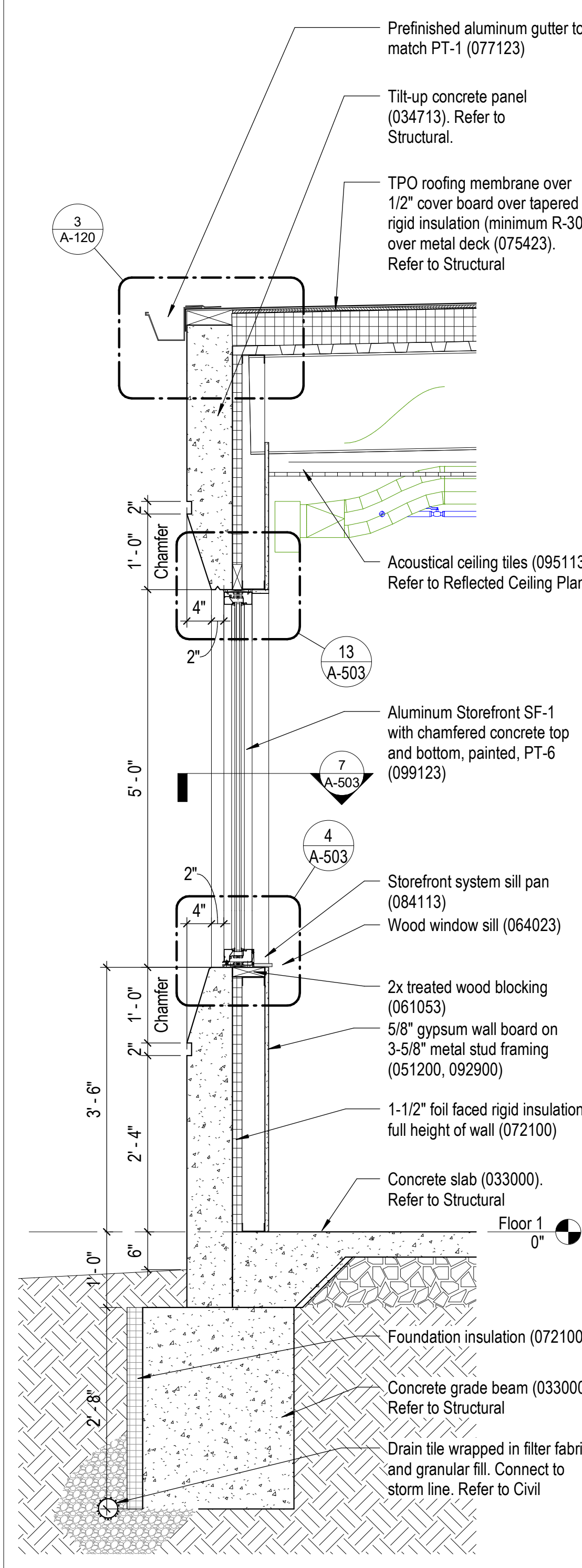
**A-303**

SHEET 082 OF 202

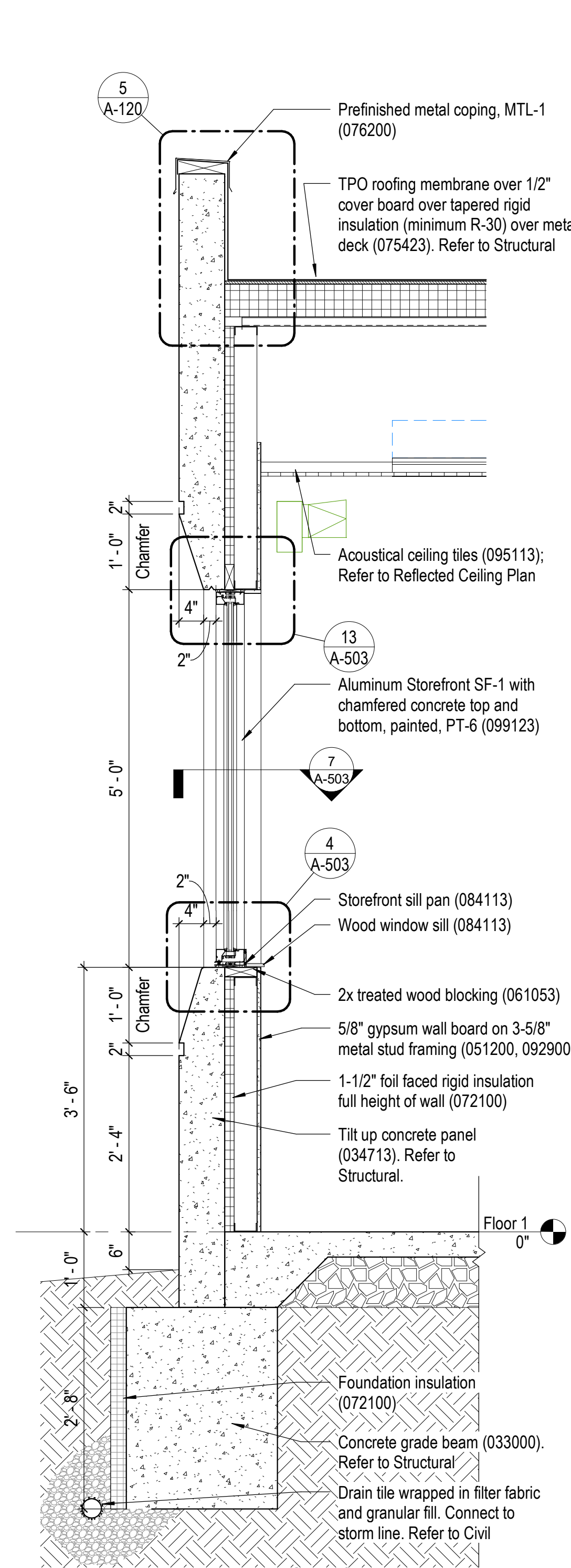
08/01/2023



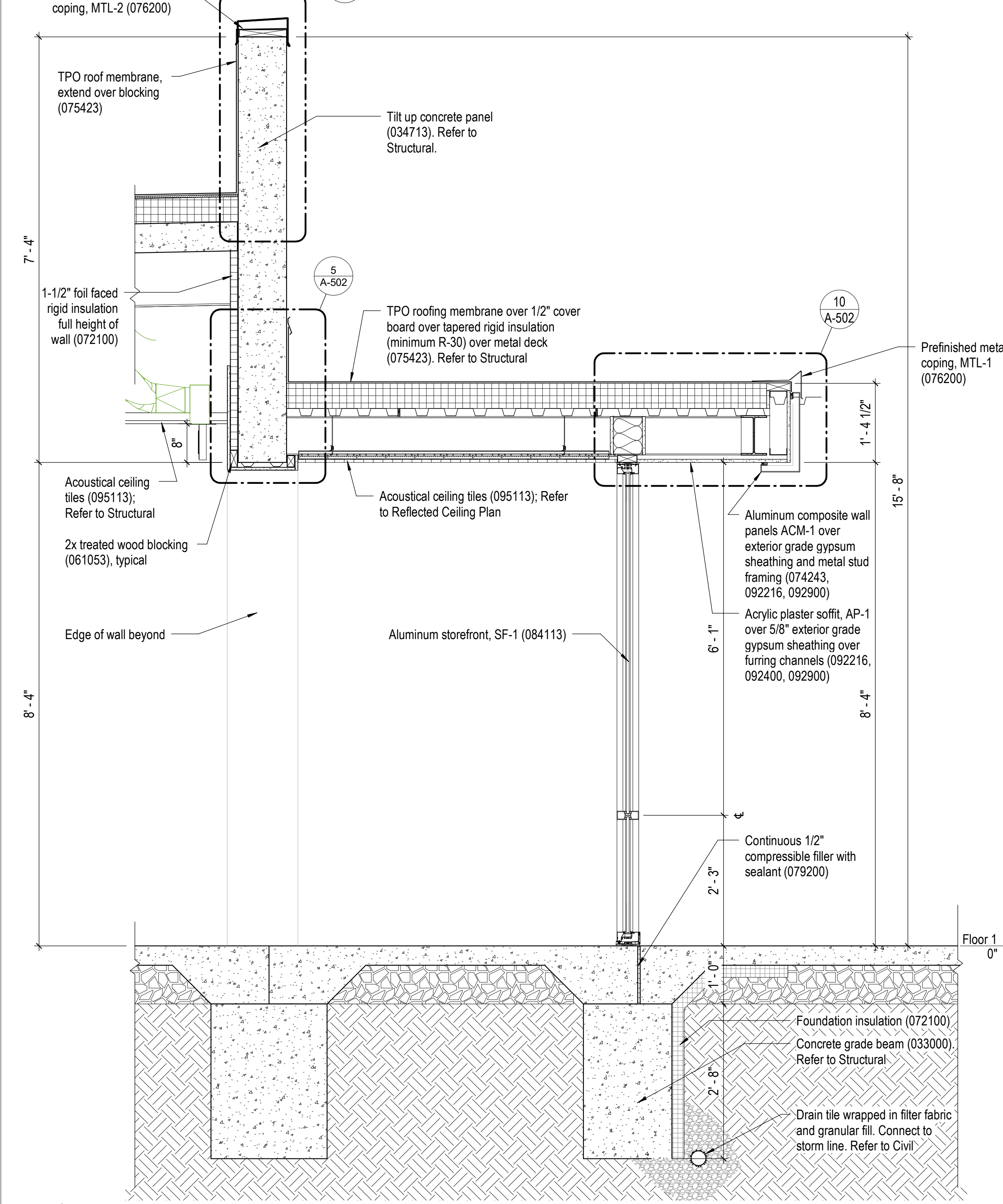
3 Section at Firing Range (Alternate #04)  
A-106 3/4" = 1'-0" 0 4" 8" 14"



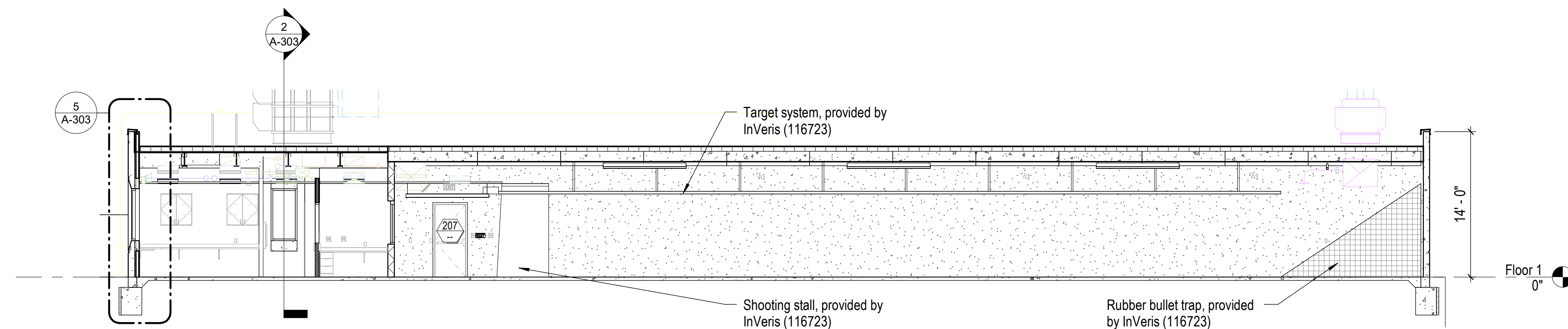
4 Section at Firing Range Gutter (Alternate #04)  
A-303 3/4" = 1'-0" 0 4" 8" 14"



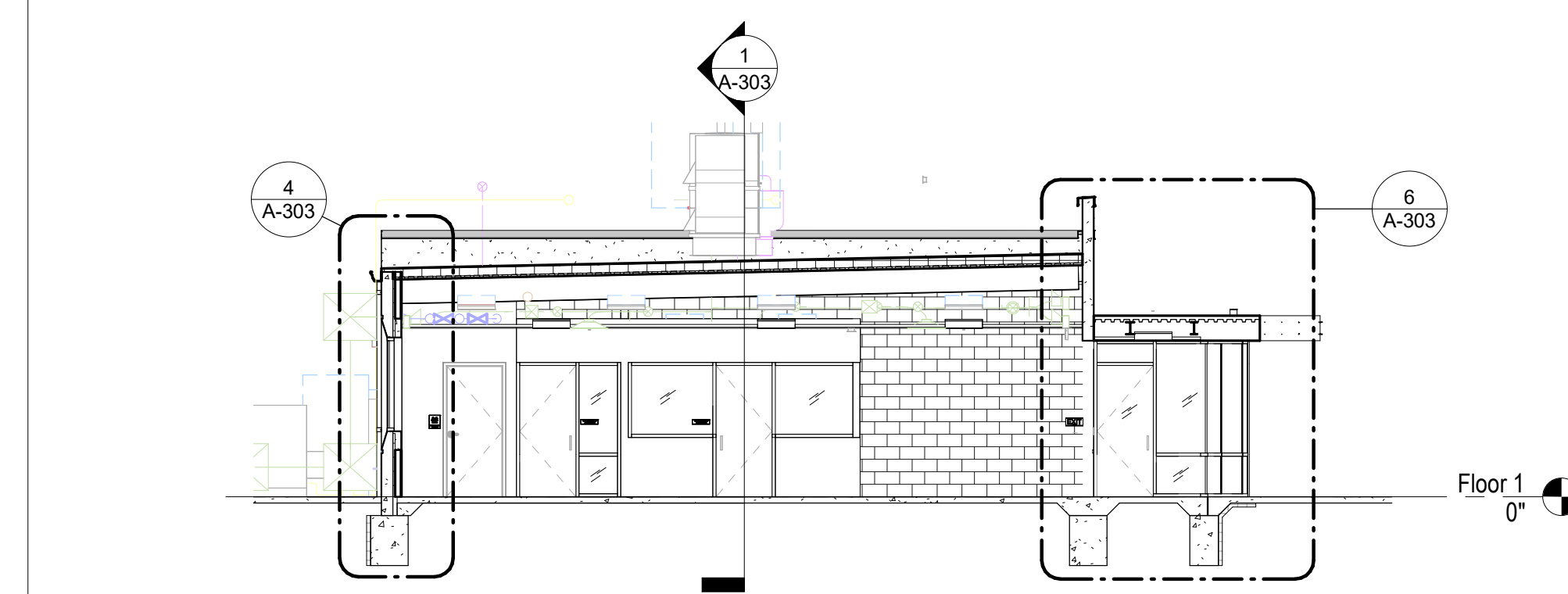
5 Section at Firing Range Storefront (Alternate #04)  
A-303 3/4" = 1'-0" 0 4" 8" 14"



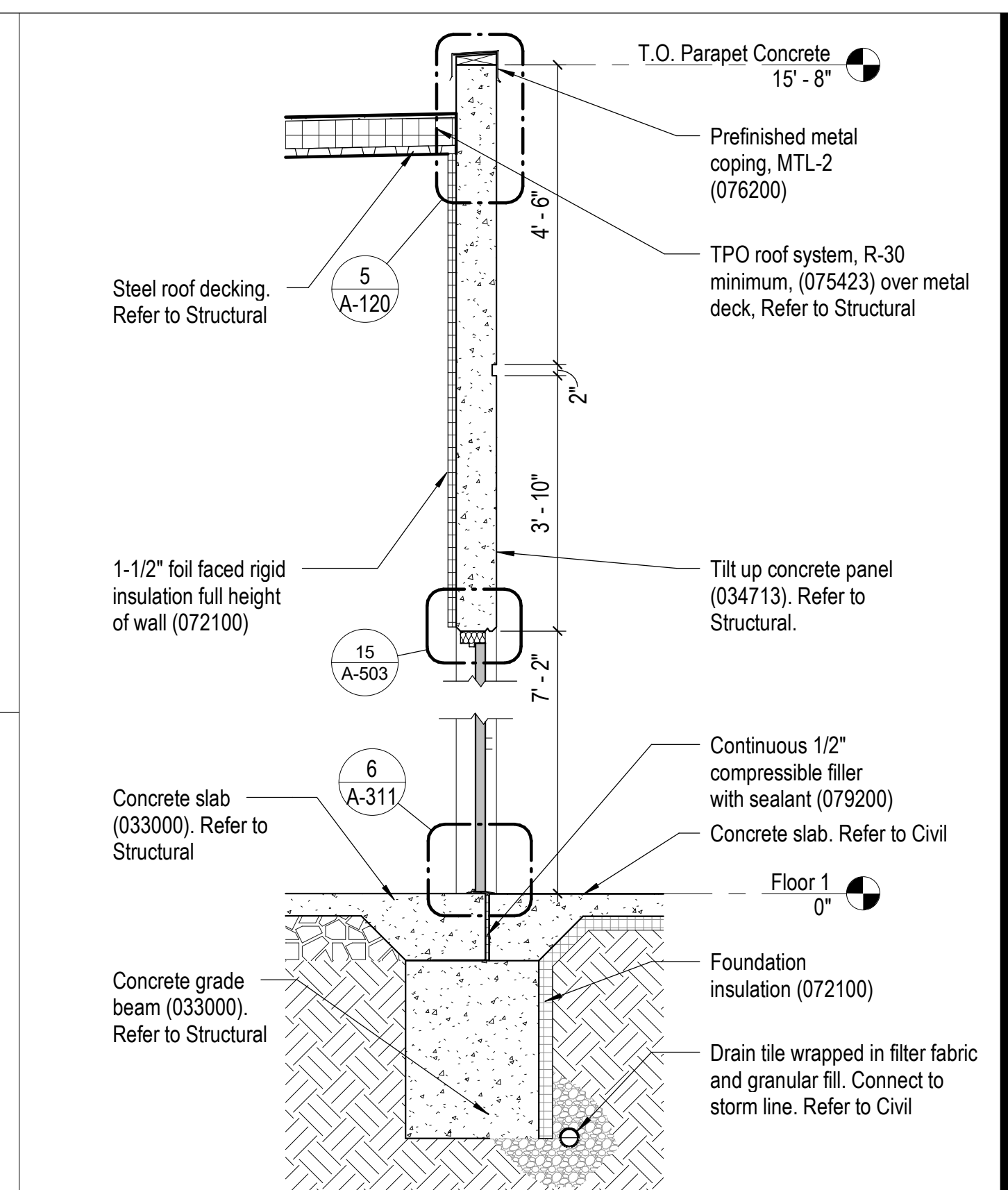
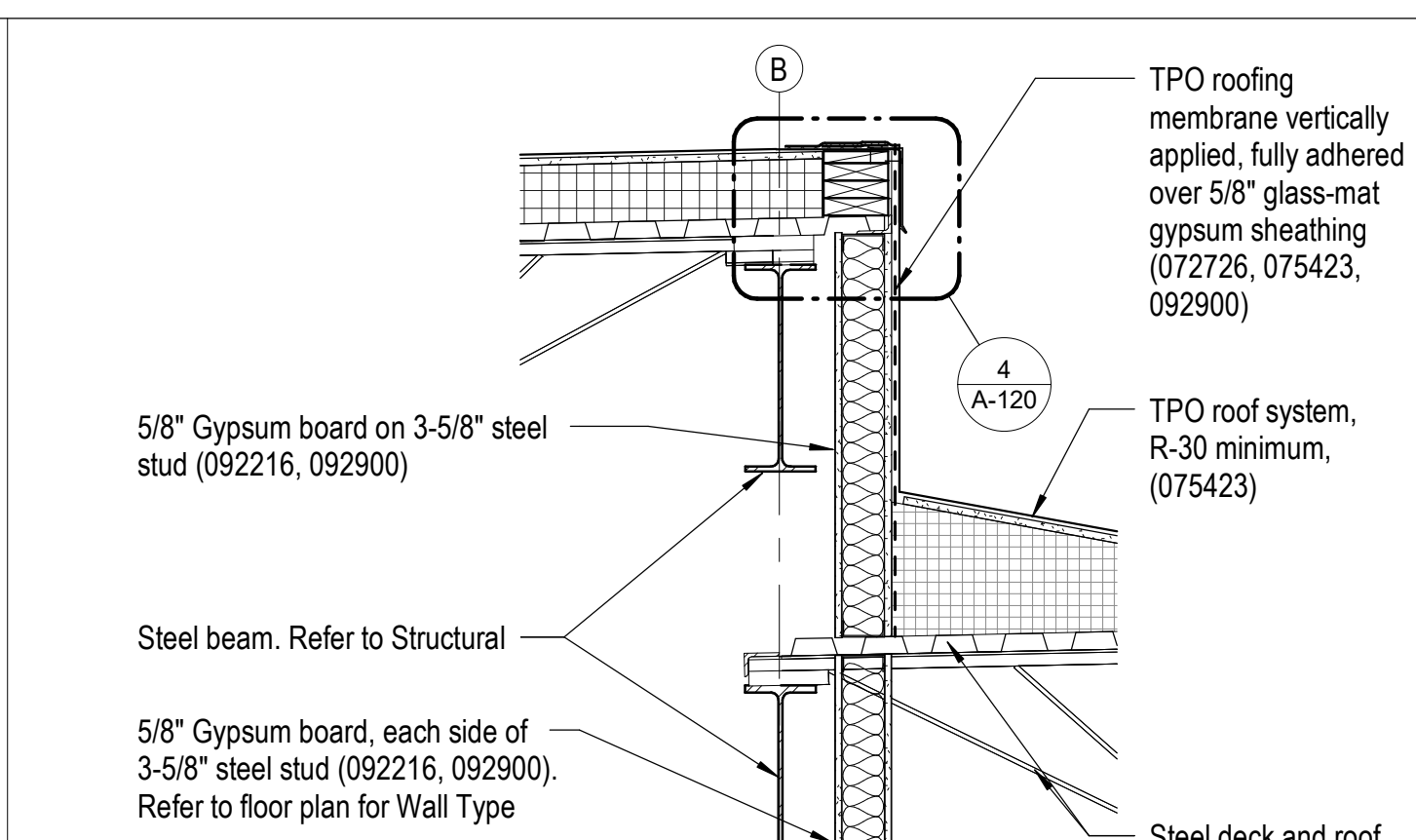
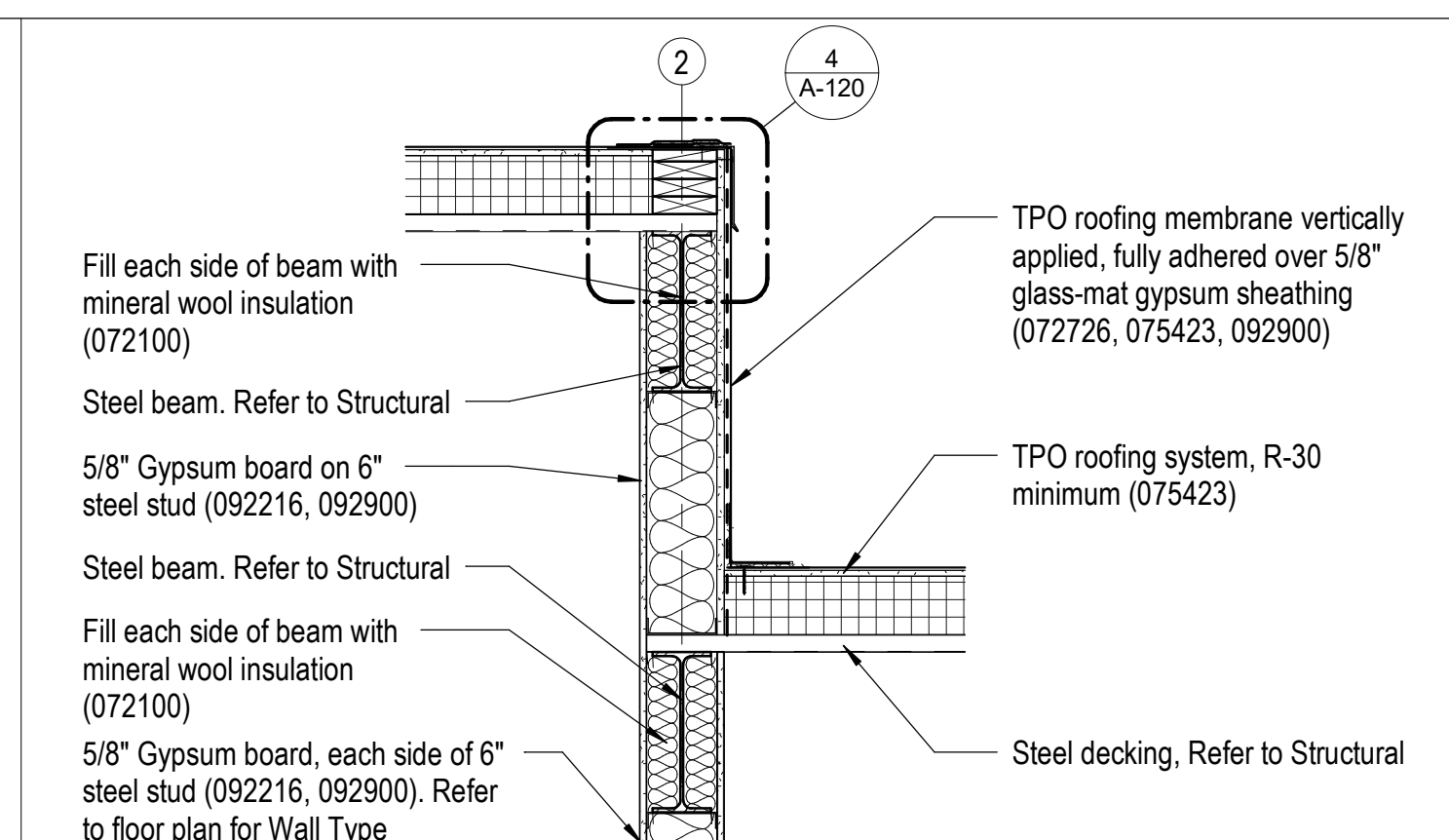
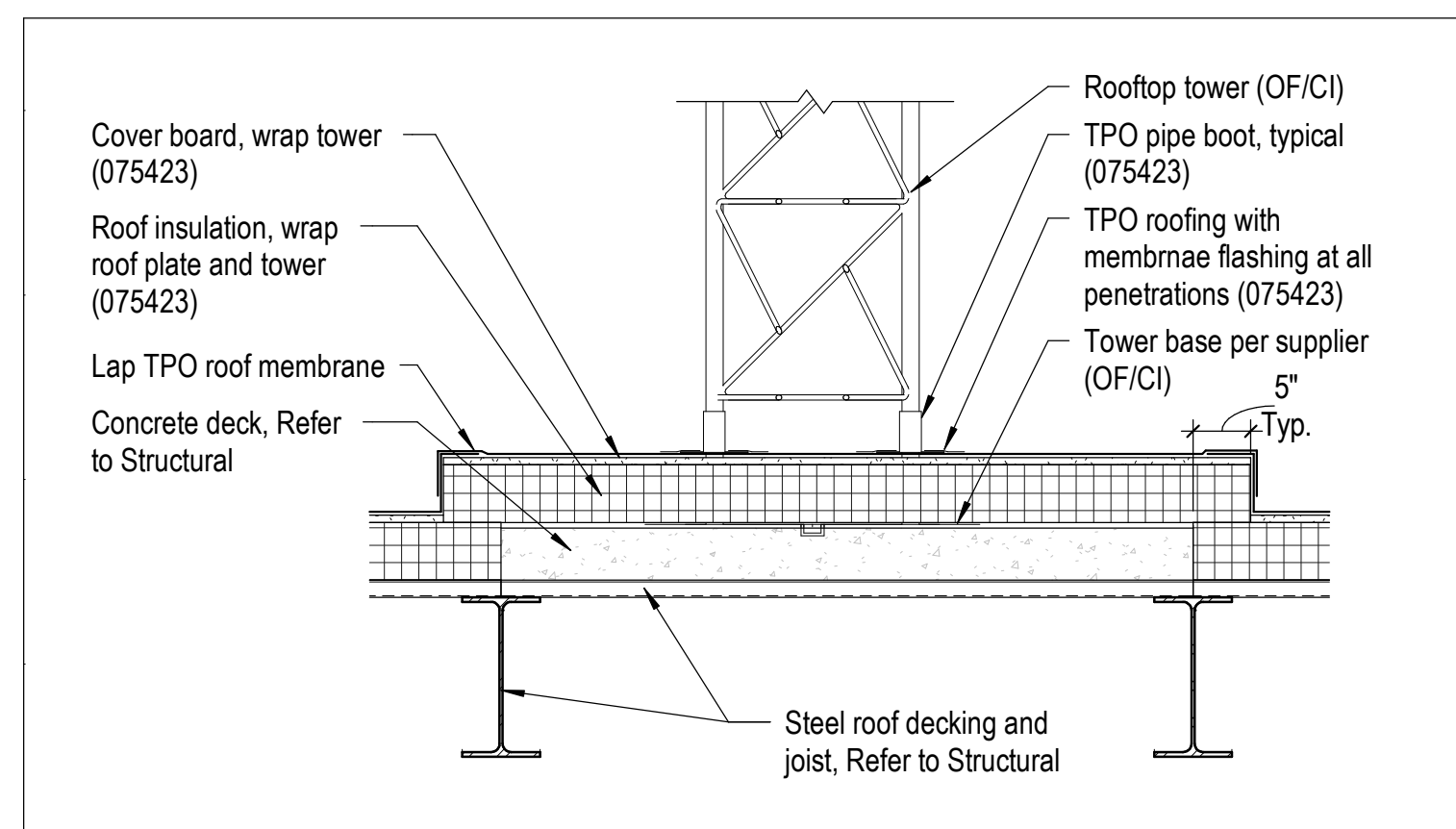
6 Section at Firing Range Vestibule (Alternate #04)  
A-303 3/4" = 1'-0" 0 4" 8" 14"



1 Building Section - Firing Range (Alternate #04)  
A-106 1/8" = 1'-0" 0 2" 4" 8"



2 Building Section - Firing Range (Alternate #04)  
A-106 1/8" = 1'-0" 0 2" 4" 8"

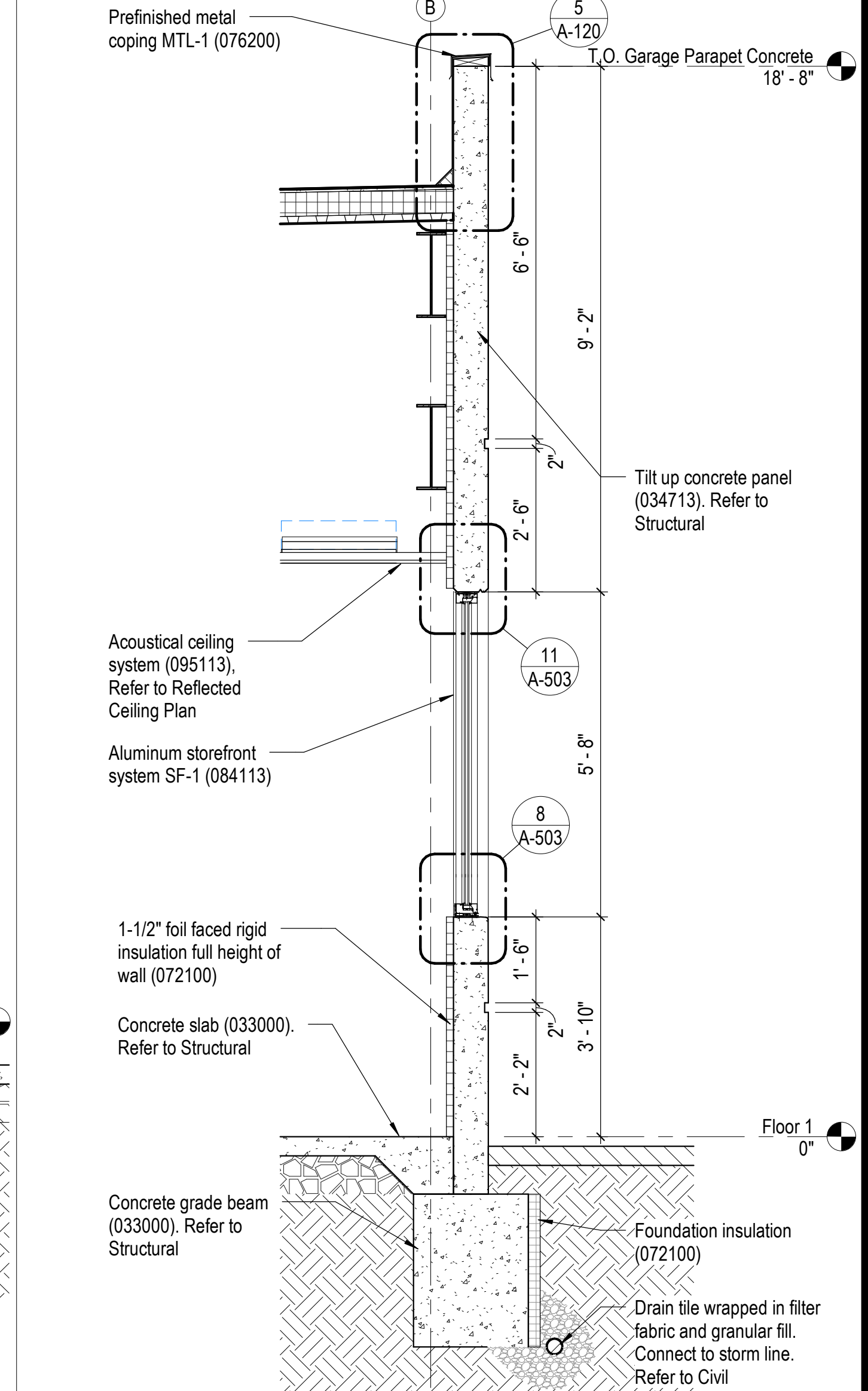
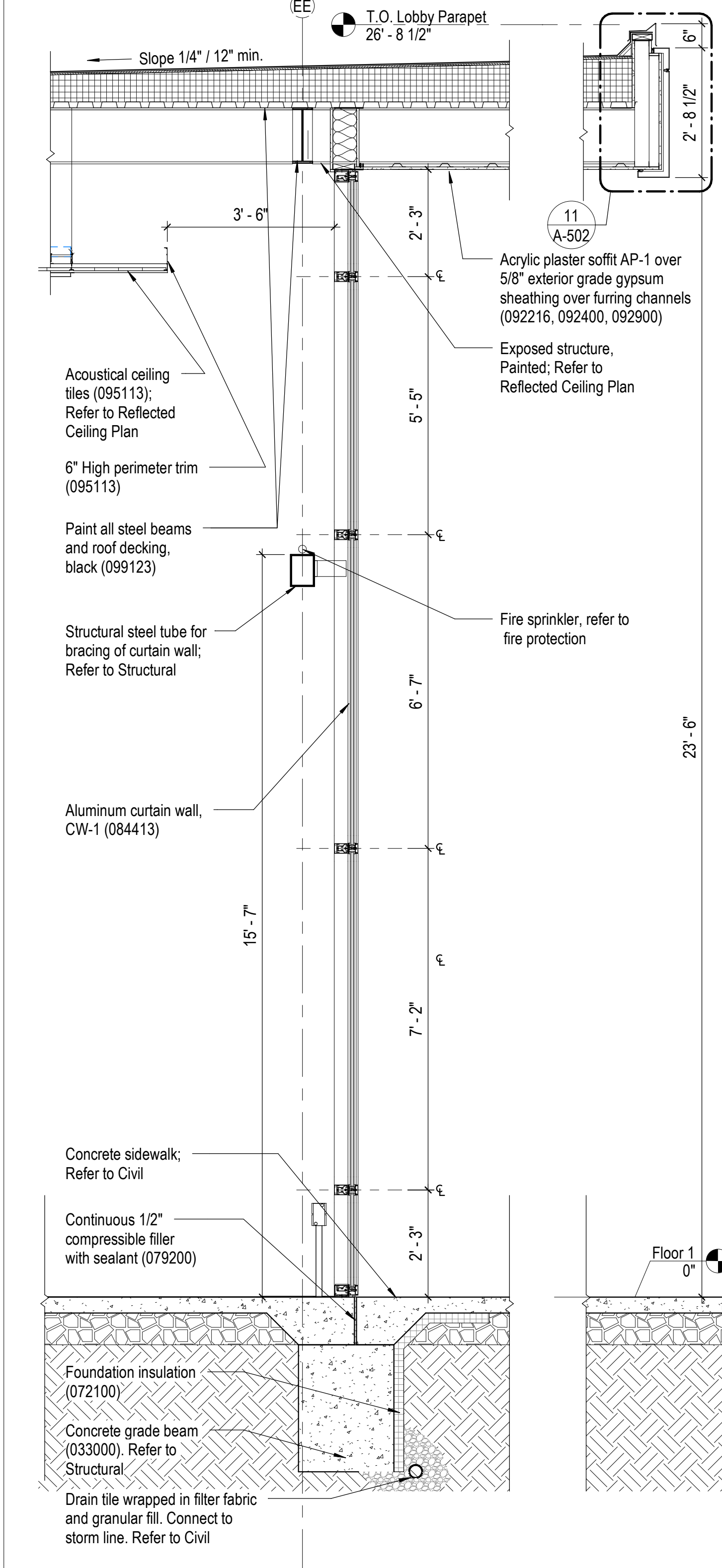
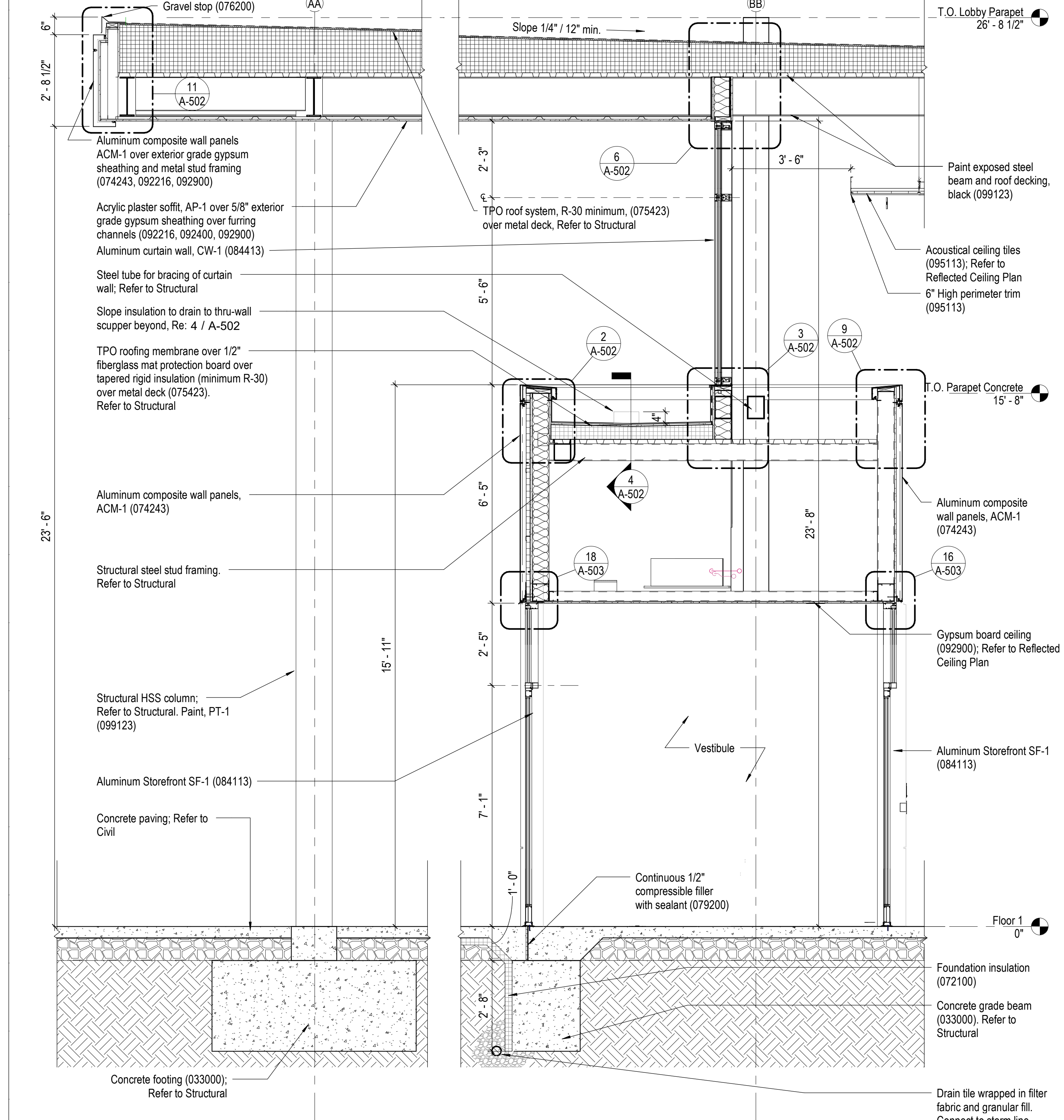


5 Section at Antenna Tower Base  
A-120 3/4" = 1'-0"

6 Section at Roof Transition Grid 2  
A-120 3/4" = 1'-0"

7 Section at Roof Transition Grid B  
A-120 3/4" = 1'-0"

4 Section at Fire Door  
A-203 1/2" = 1'-0"

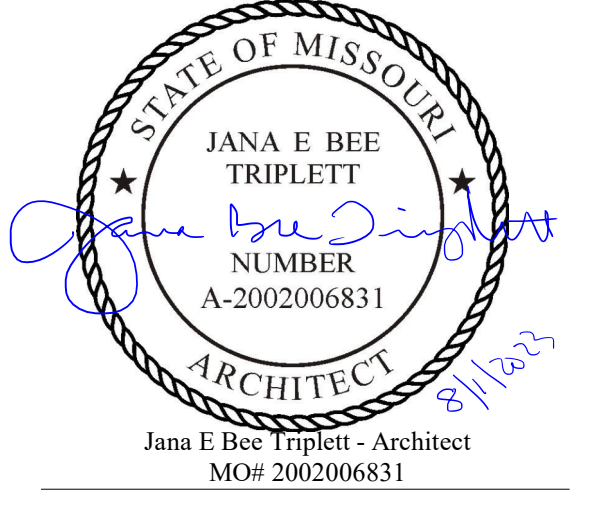


1 Section at South Entry  
A-213 1/2" = 1'-0"

2 Section at North Lobby  
A-301 1/2" = 1'-0"

3 Section at Window C Garage  
A-203 1/2" = 1'-0"

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**Gastinger Walker &**  
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817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2102.152

GastingerWalker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

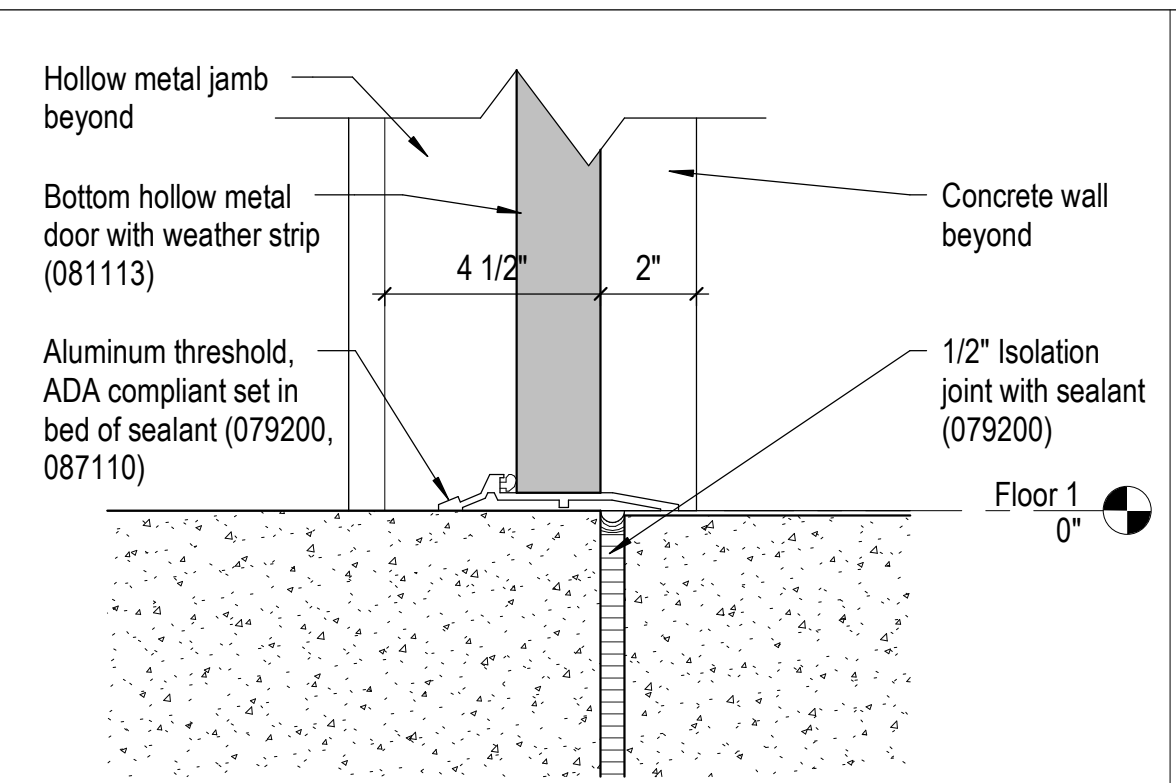
PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 01 August 2023

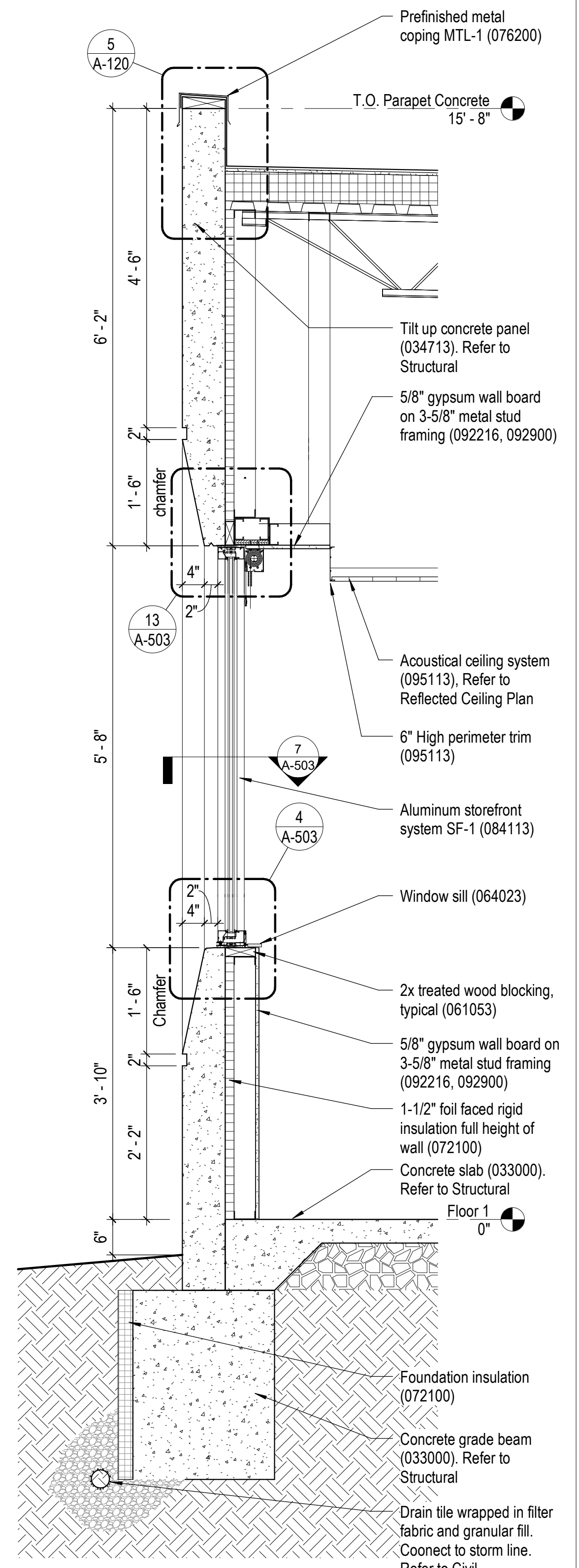
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DRAWN BY: JH  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:  
**Wall Sections**

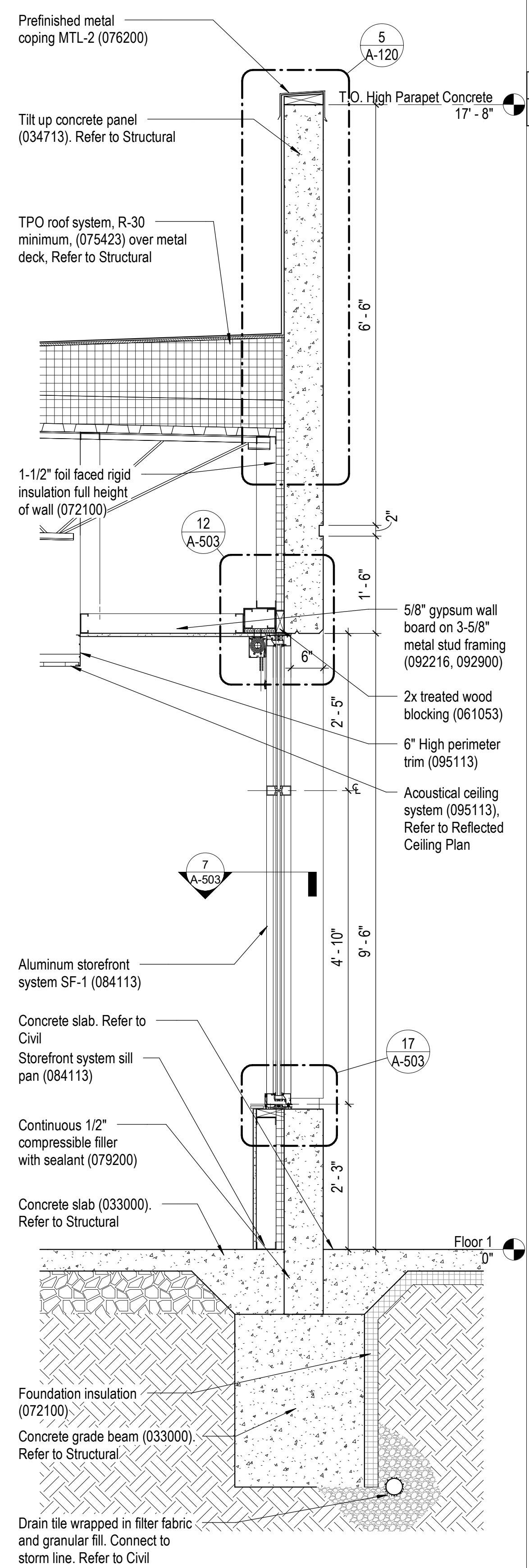
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**A-310**  
SHEET 083 OF 202  
08/01/2023



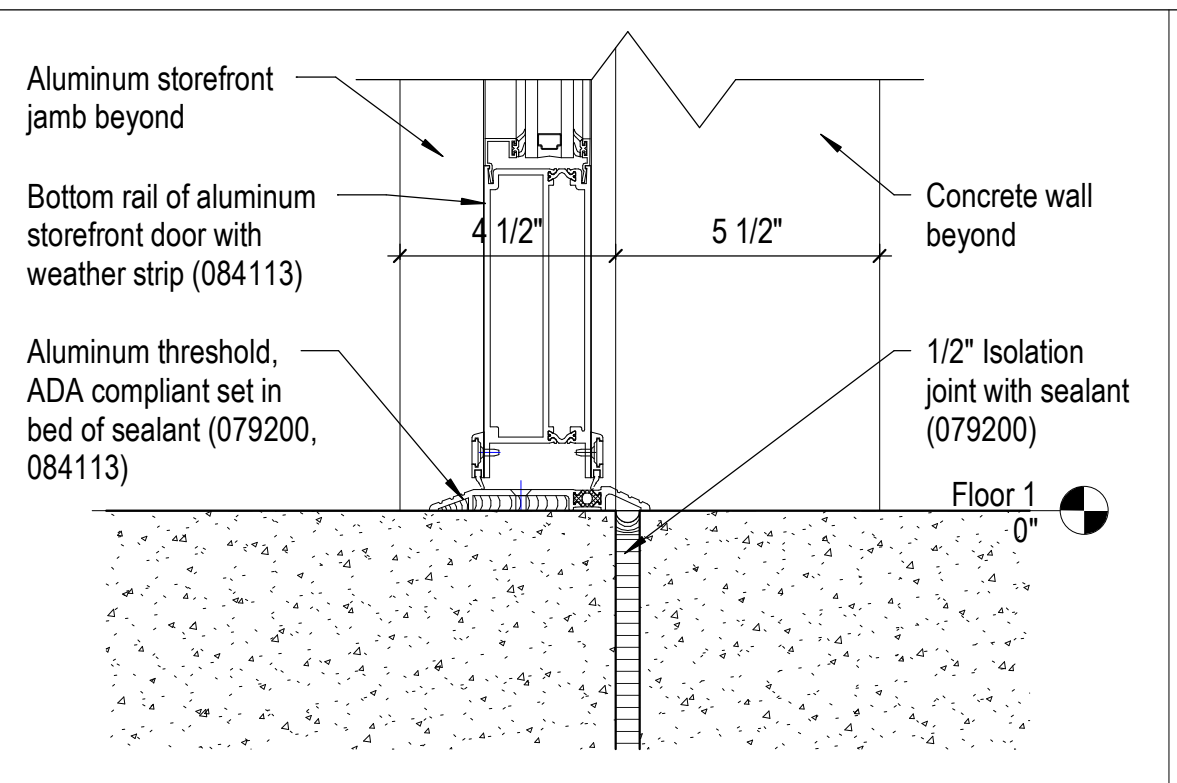
6 Hollow Metal Door Sill Detail  
A-310 3" = 1'-0" 0 1" 2" 4"



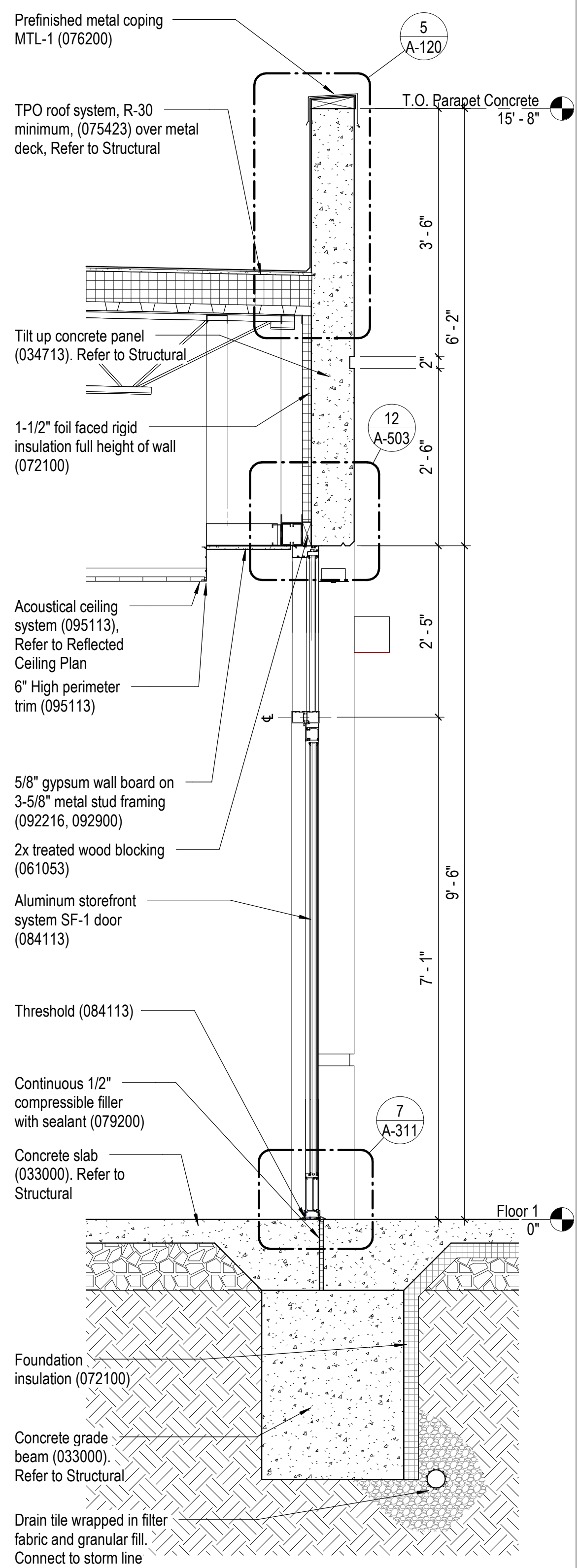
1 Wall Section at Window Type B and C  
A-301 3/4" = 1'-0" 0 4" 8" 14"



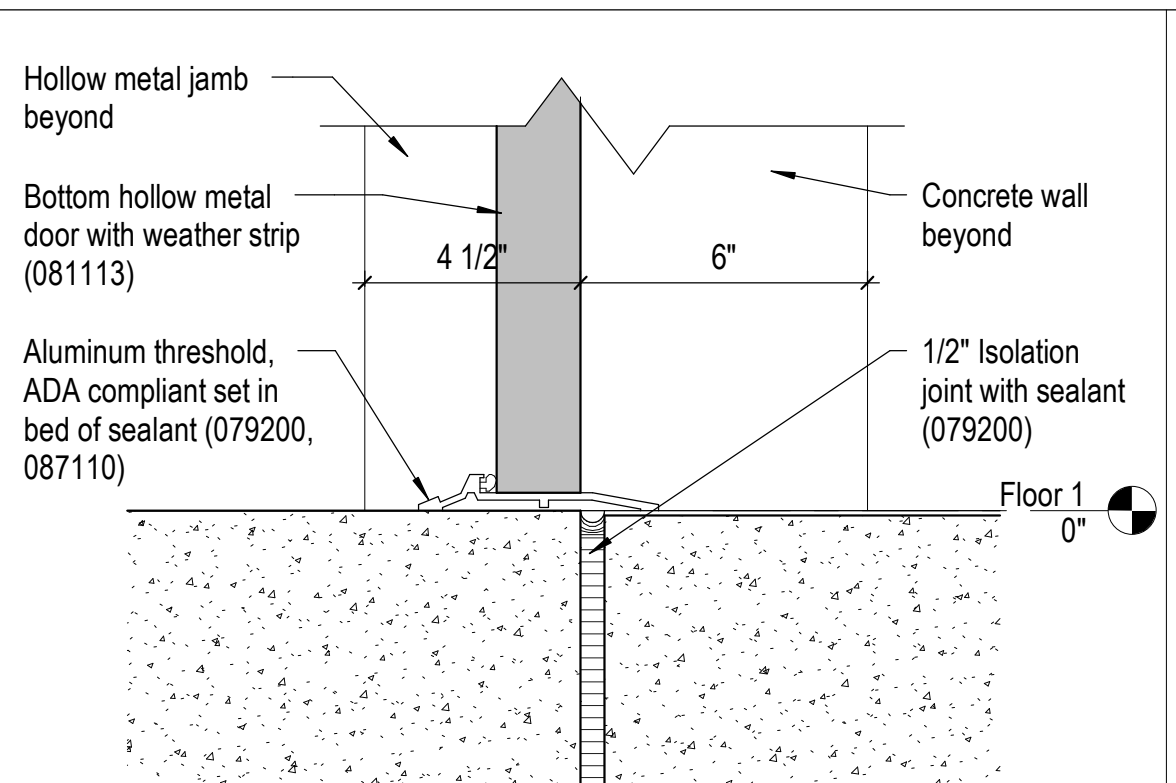
2 Wall Section at Window Type A and D  
A-301 3/4" = 1'-0" 0 4" 8" 14"



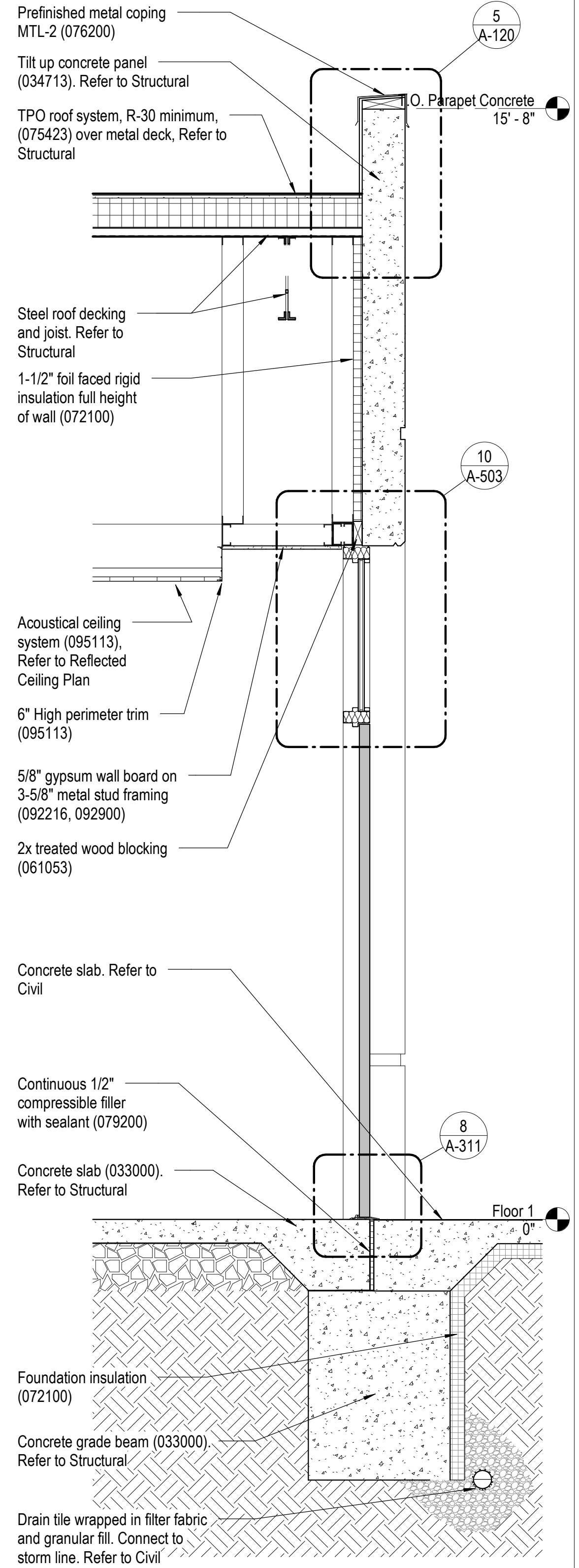
7 Aluminum Door Sill Detail  
A-311 3" = 1'-0" 0 1" 2" 4"



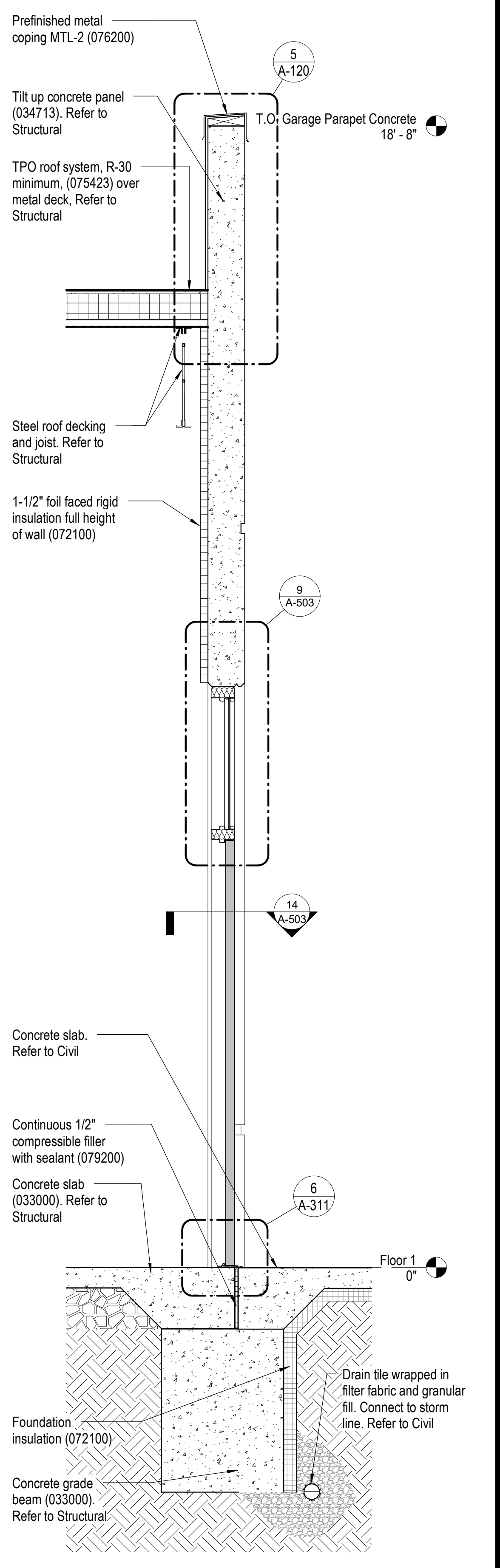
3 Wall Section at Typical Storefront Door  
A-202 3/4" = 1'-0" 0 4" 8" 14"



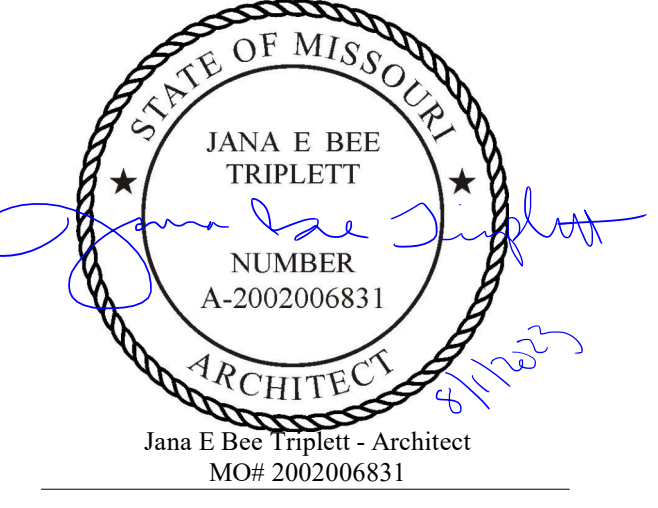
8 Hollow Metal Door Sill Detail  
A-311 3" = 1'-0" 0 1" 2" 4"

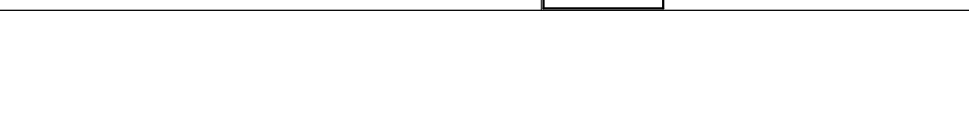
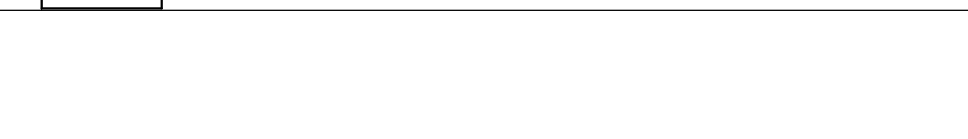
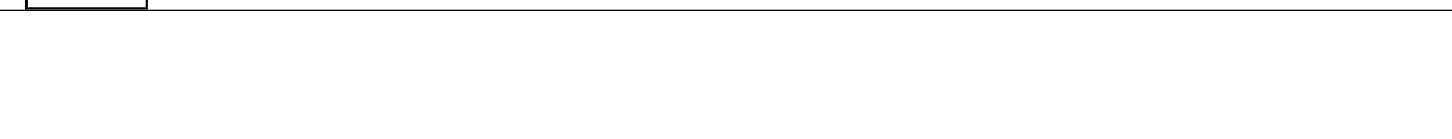
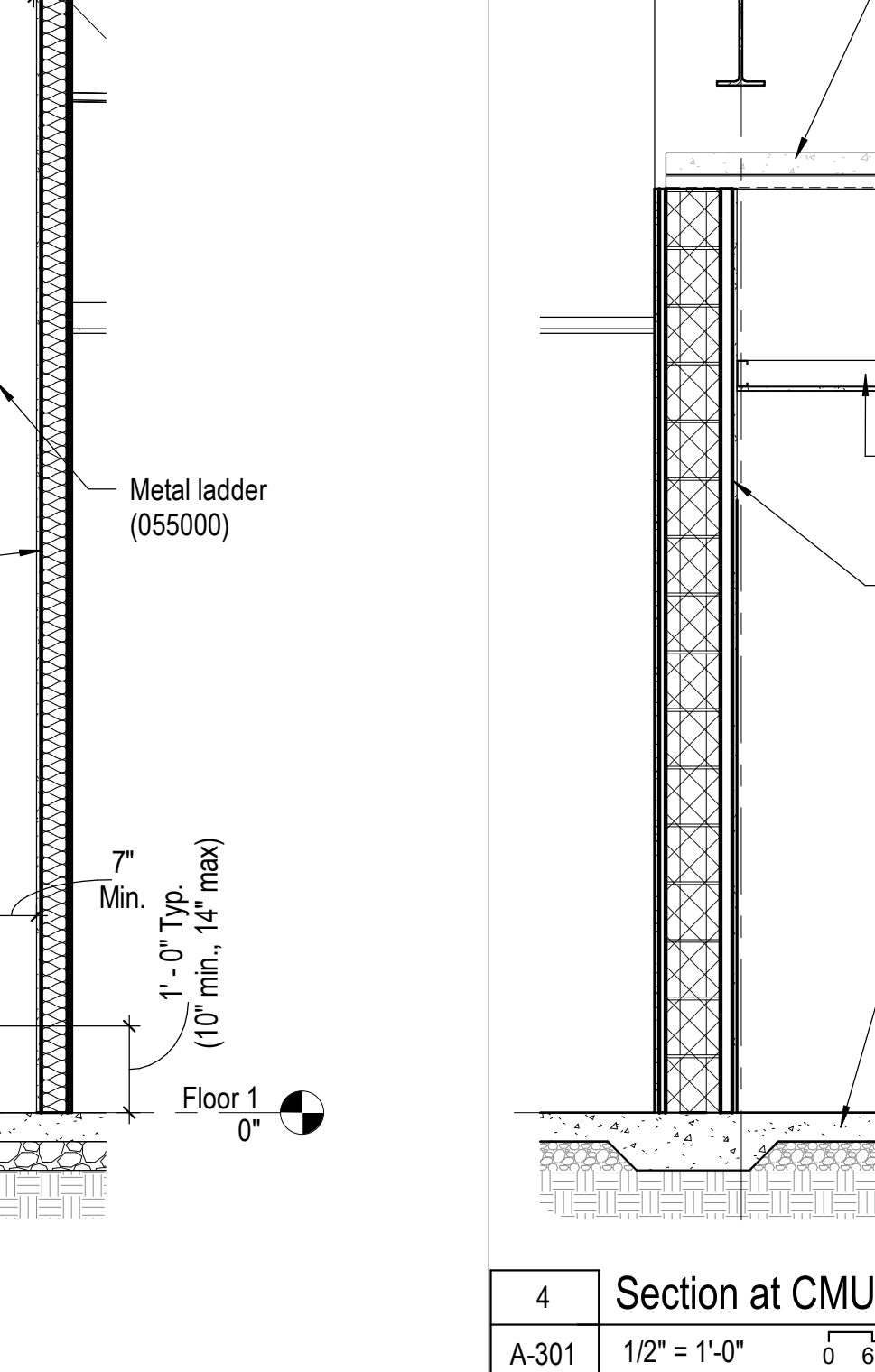
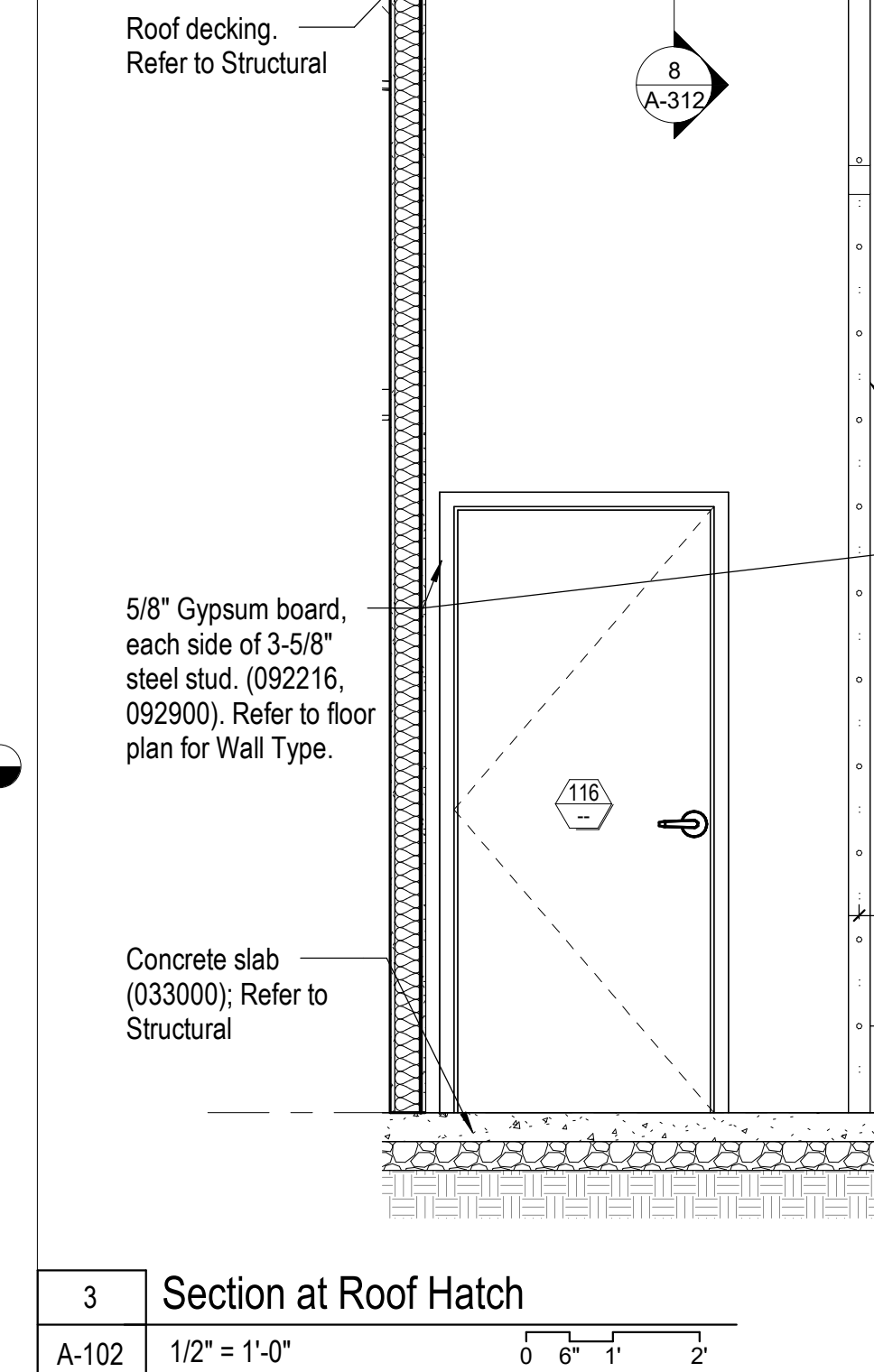
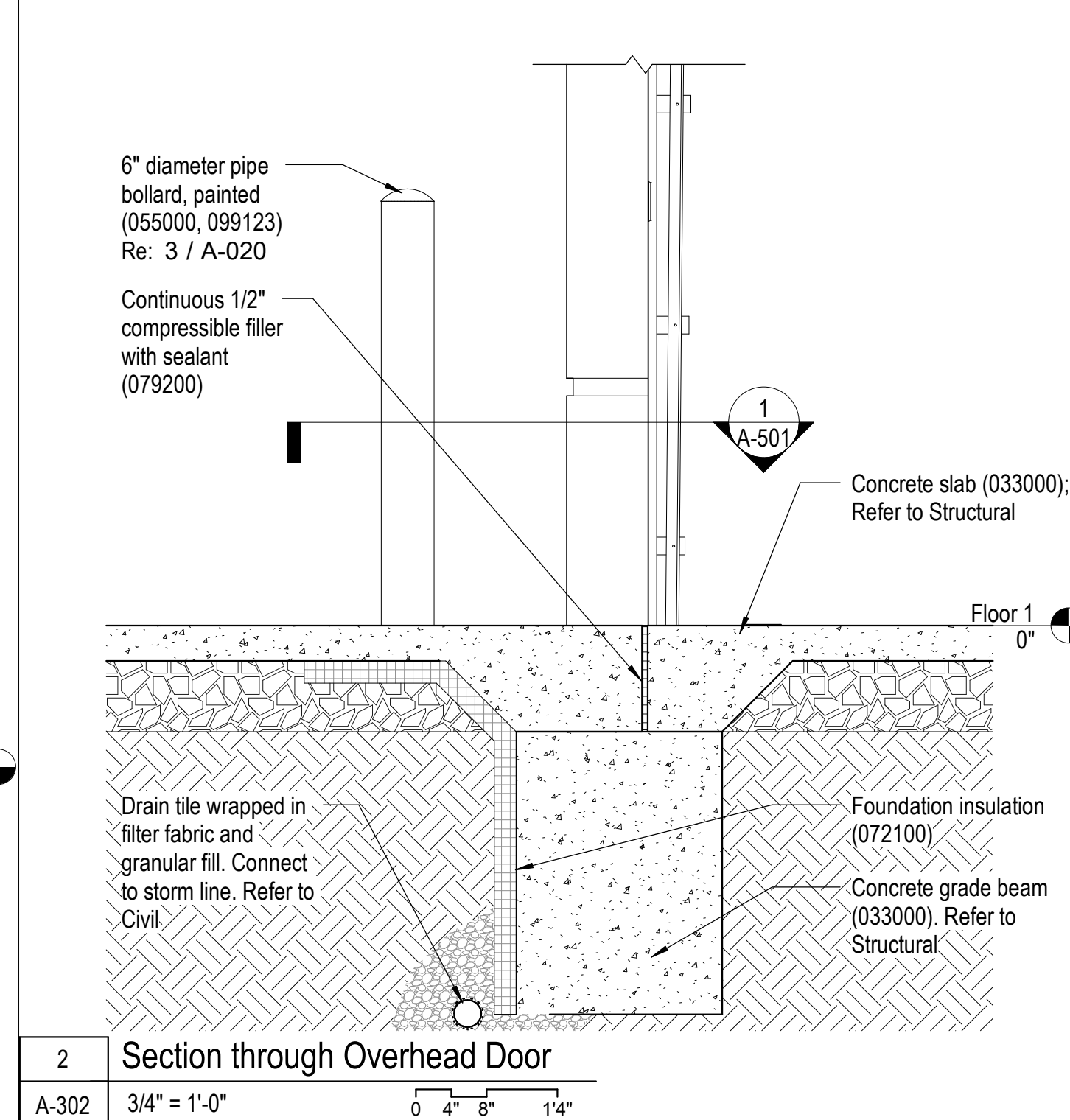
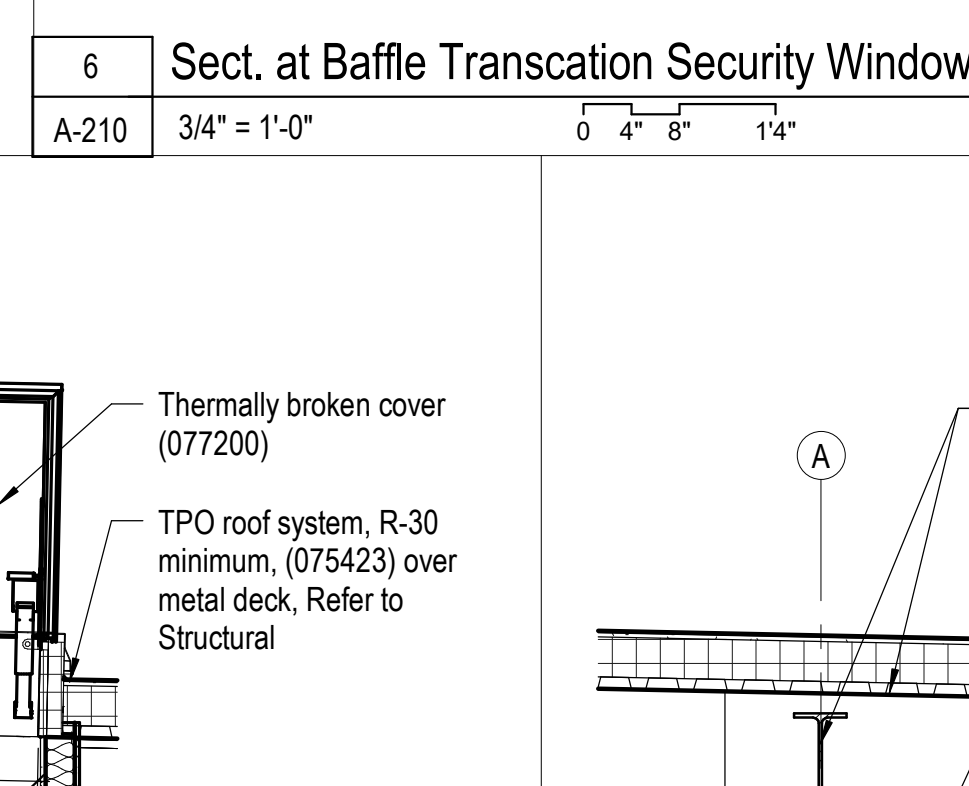
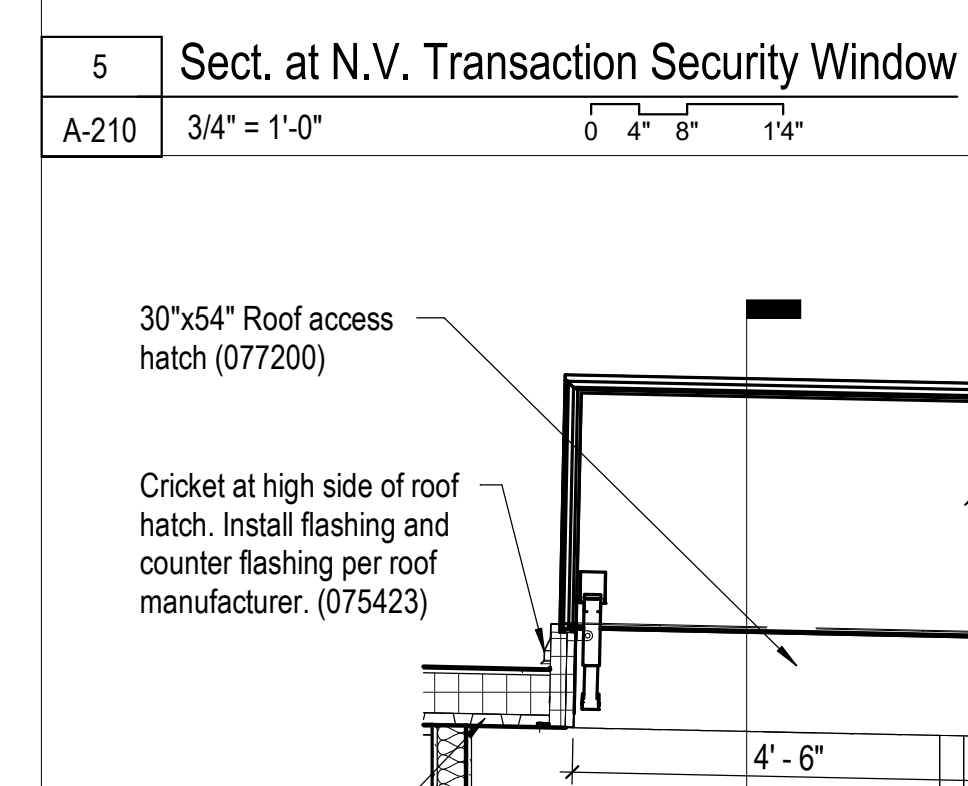
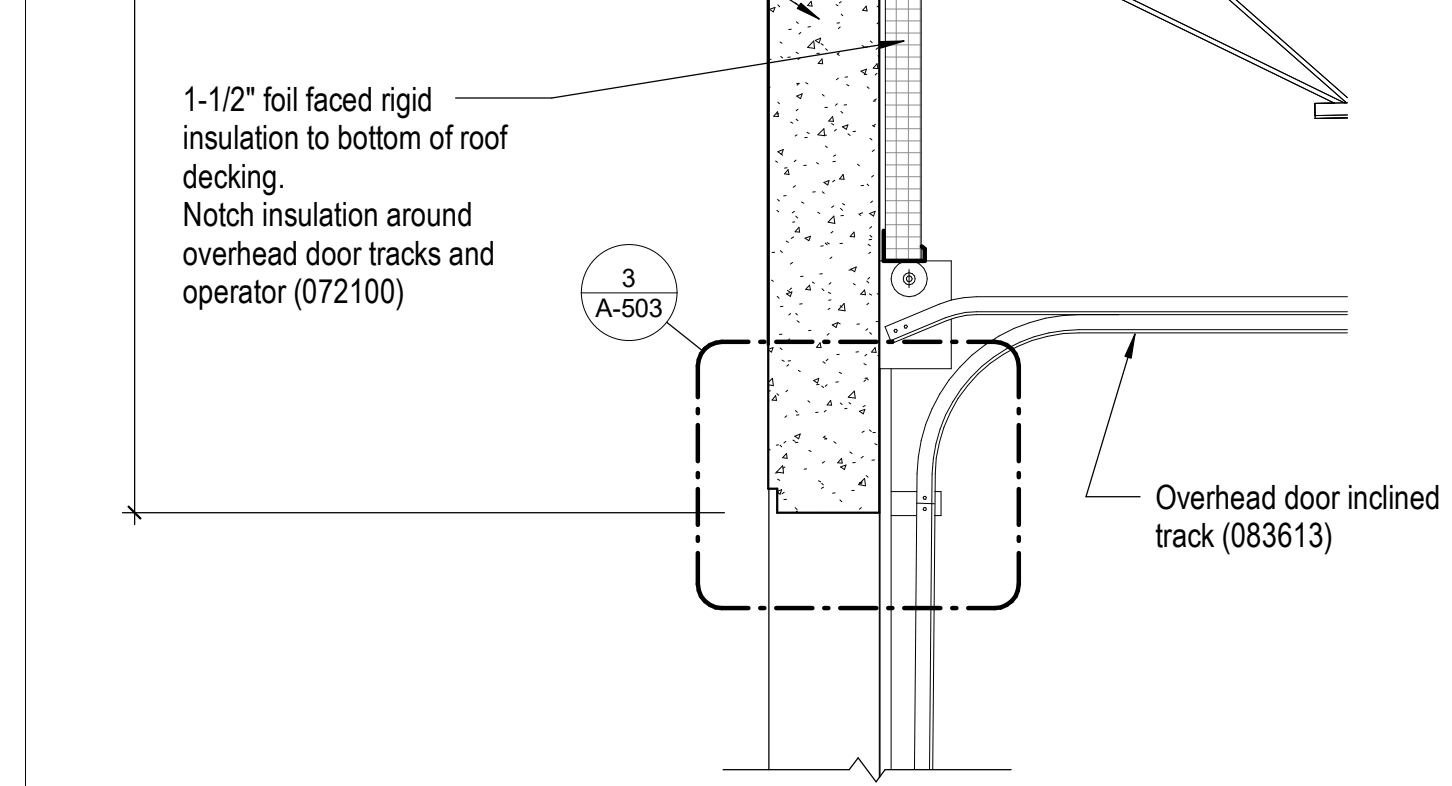
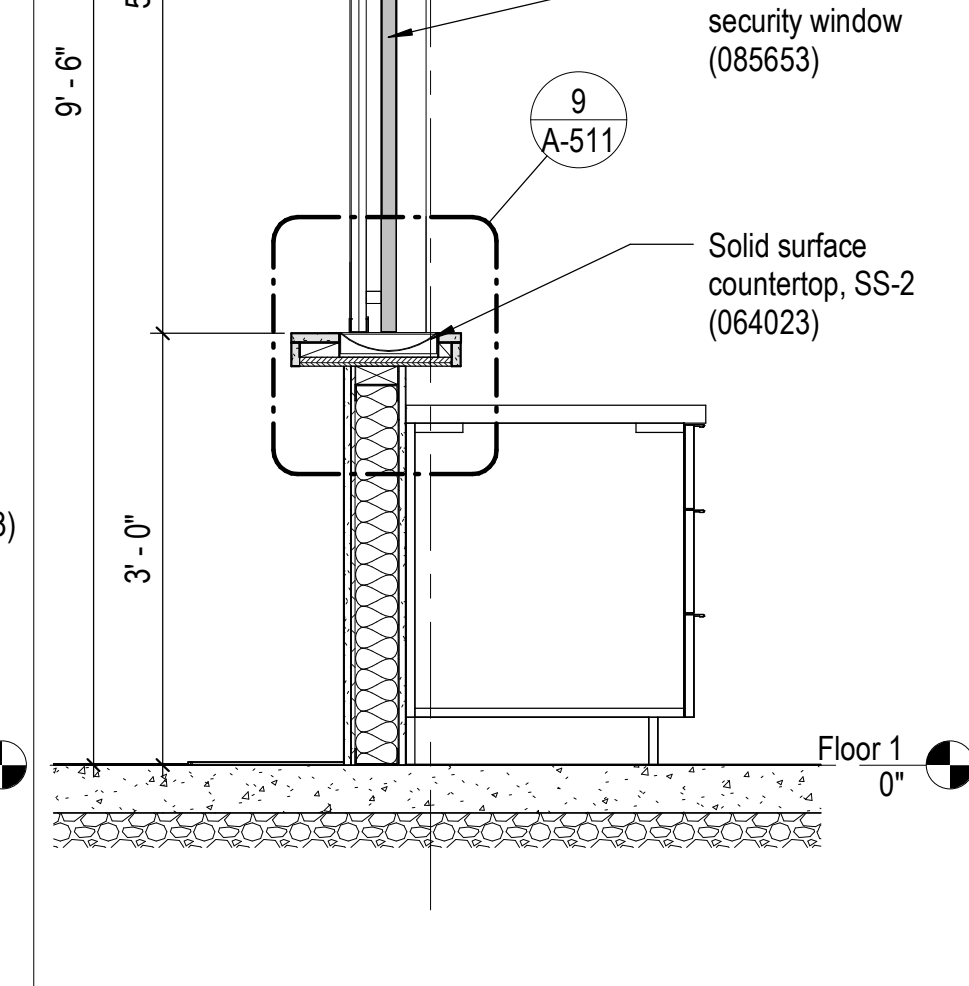
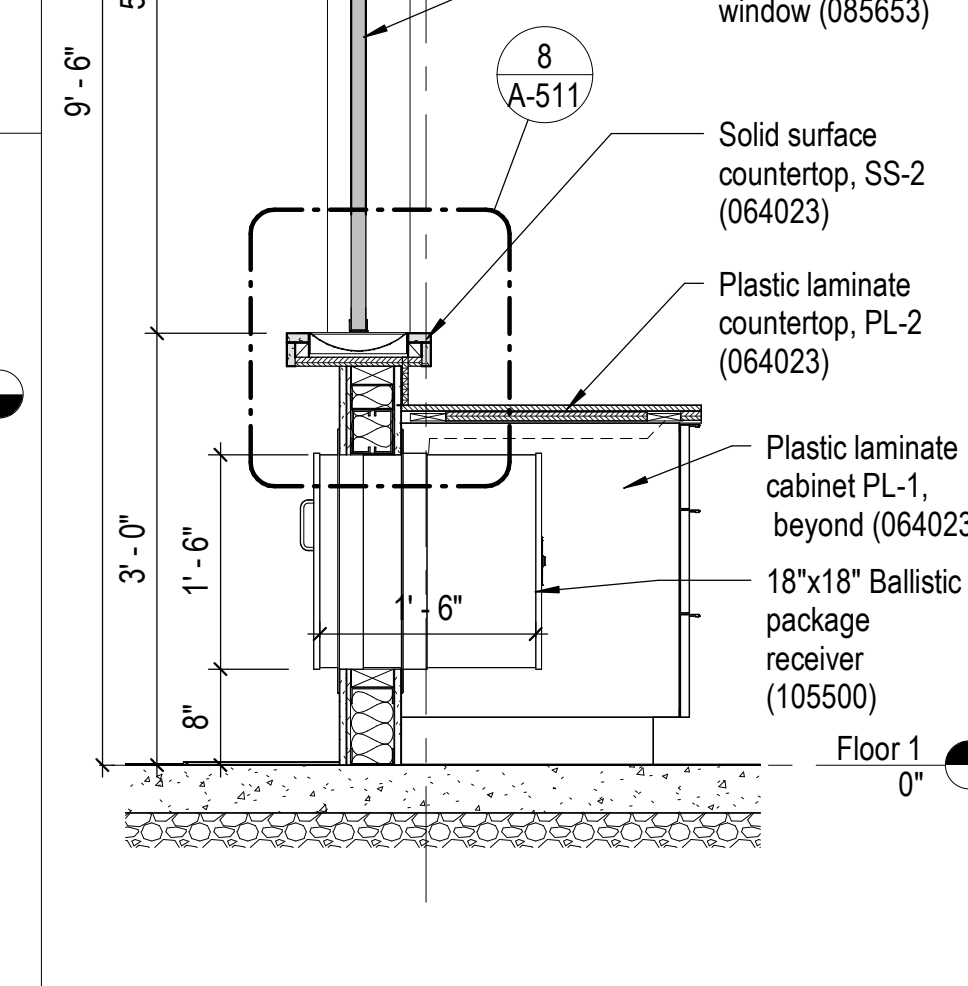
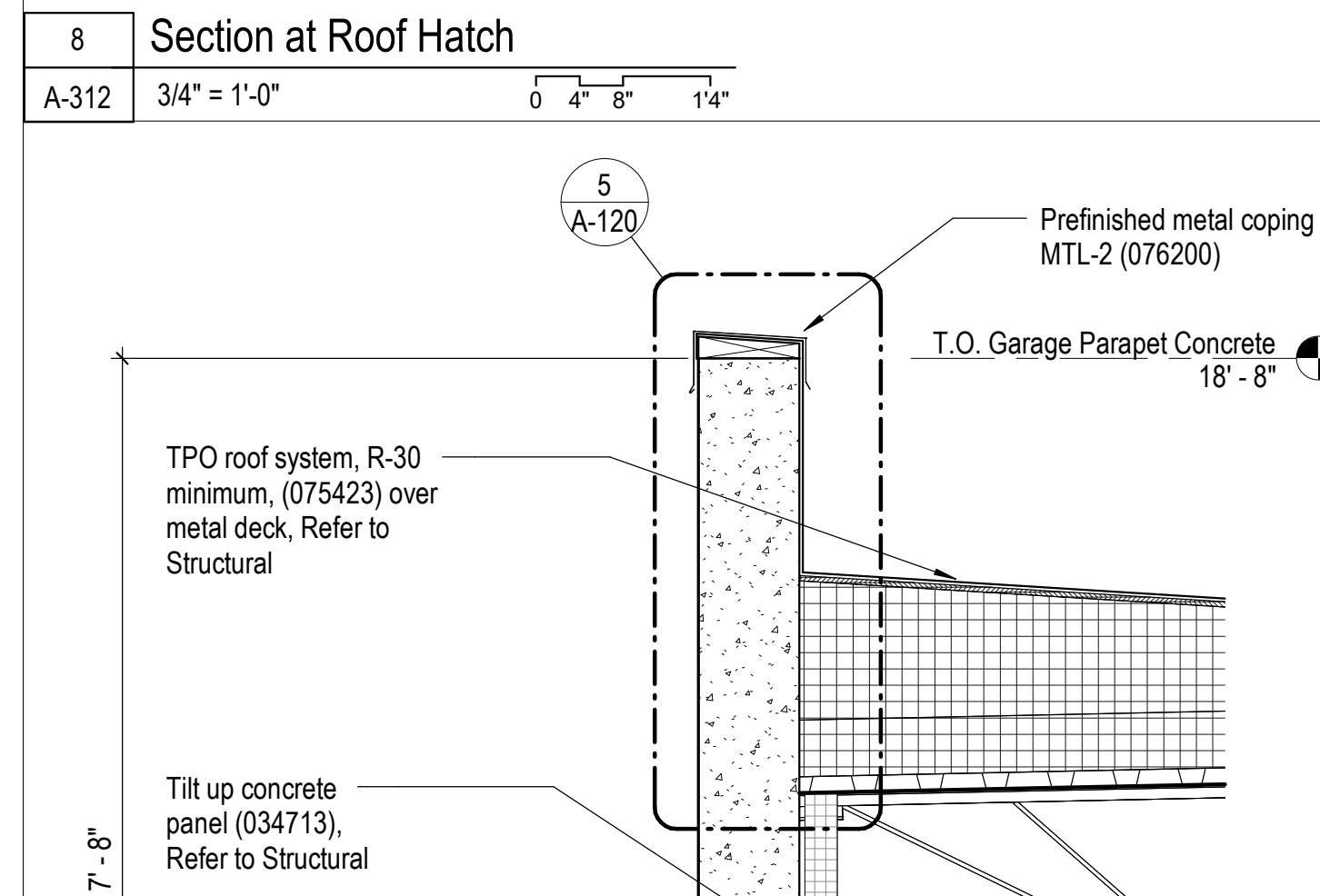
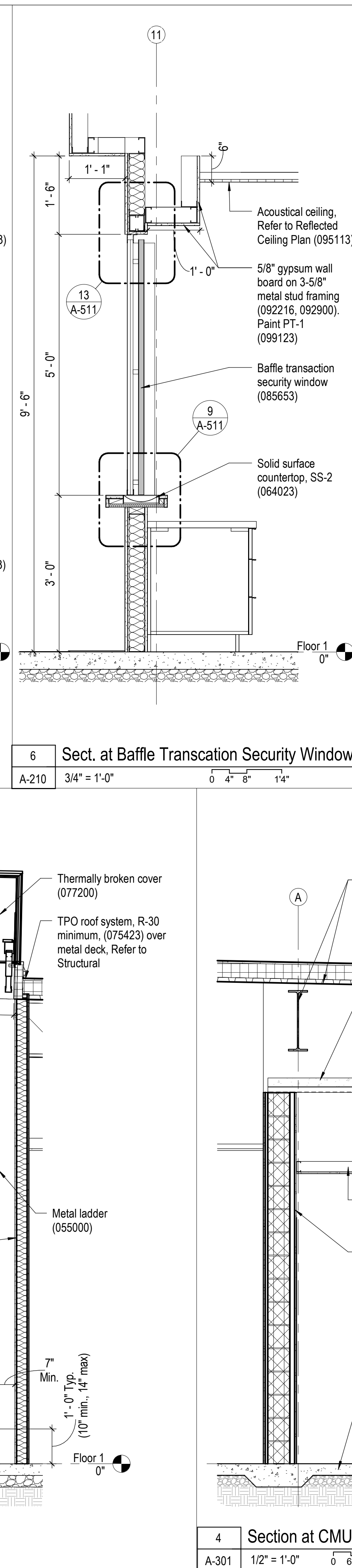
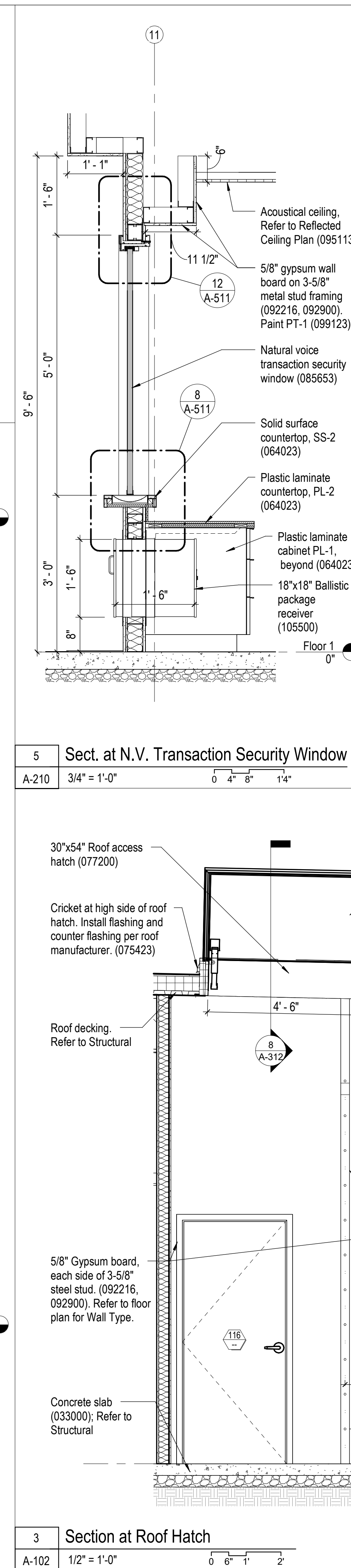
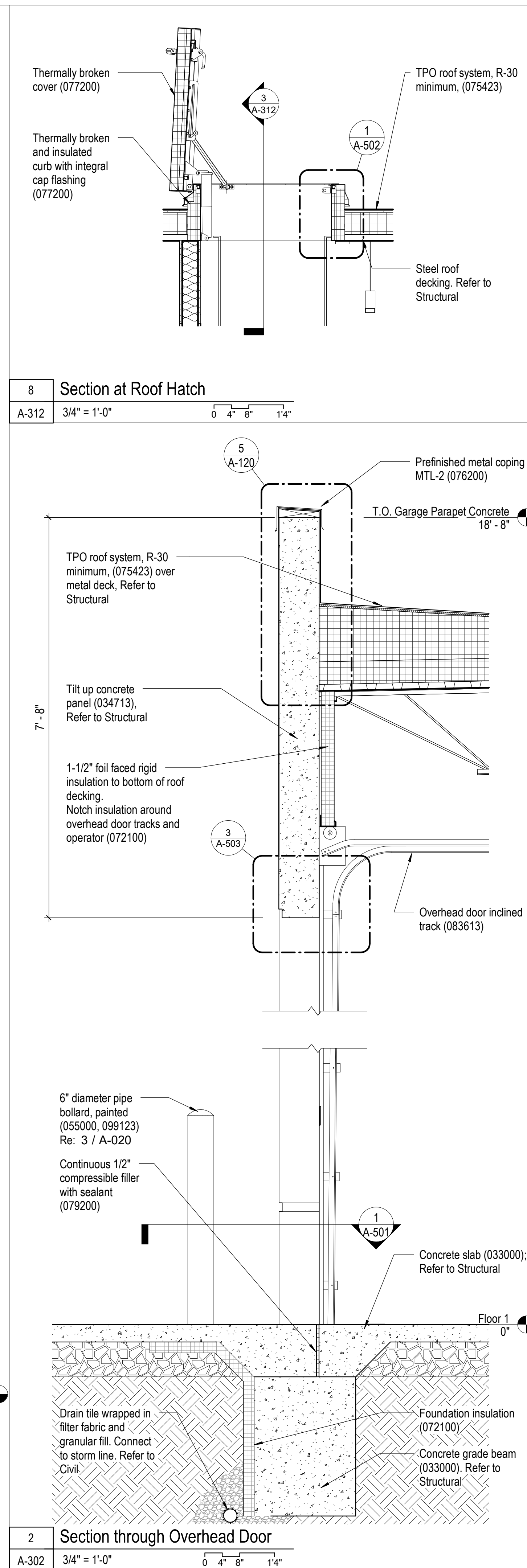
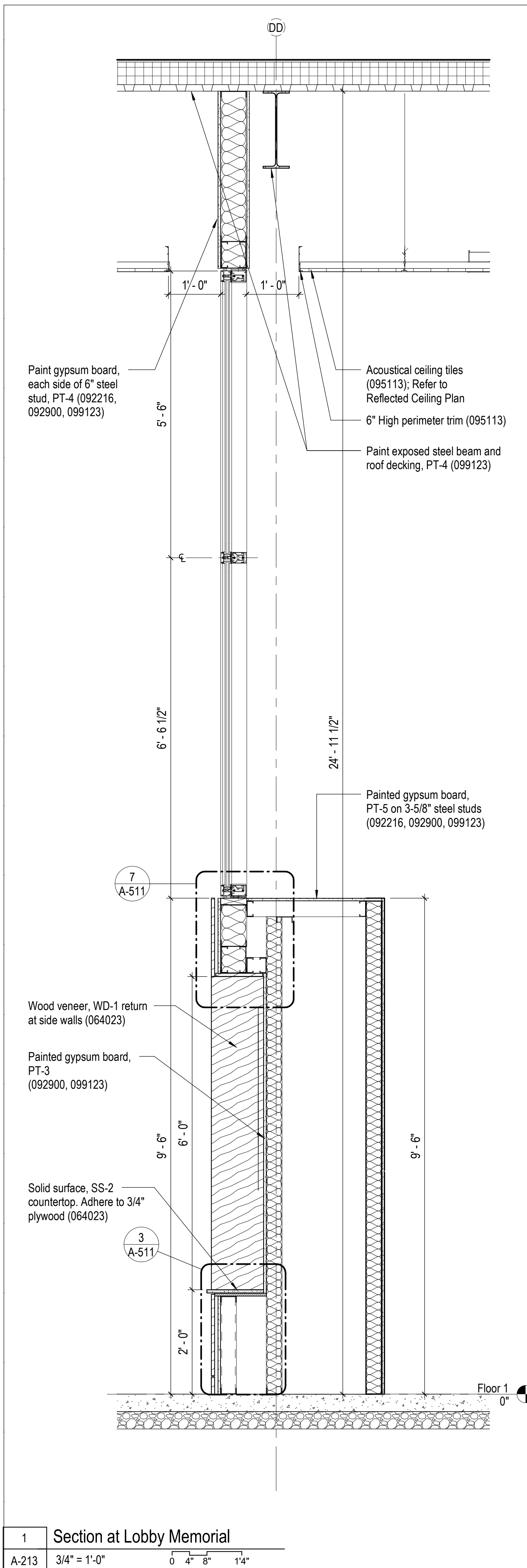
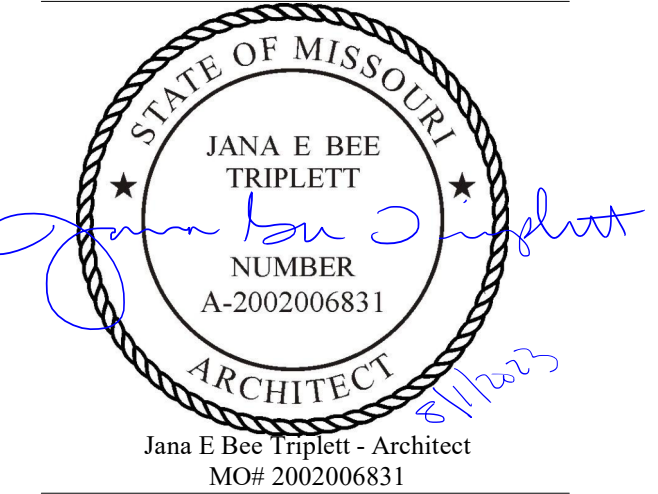


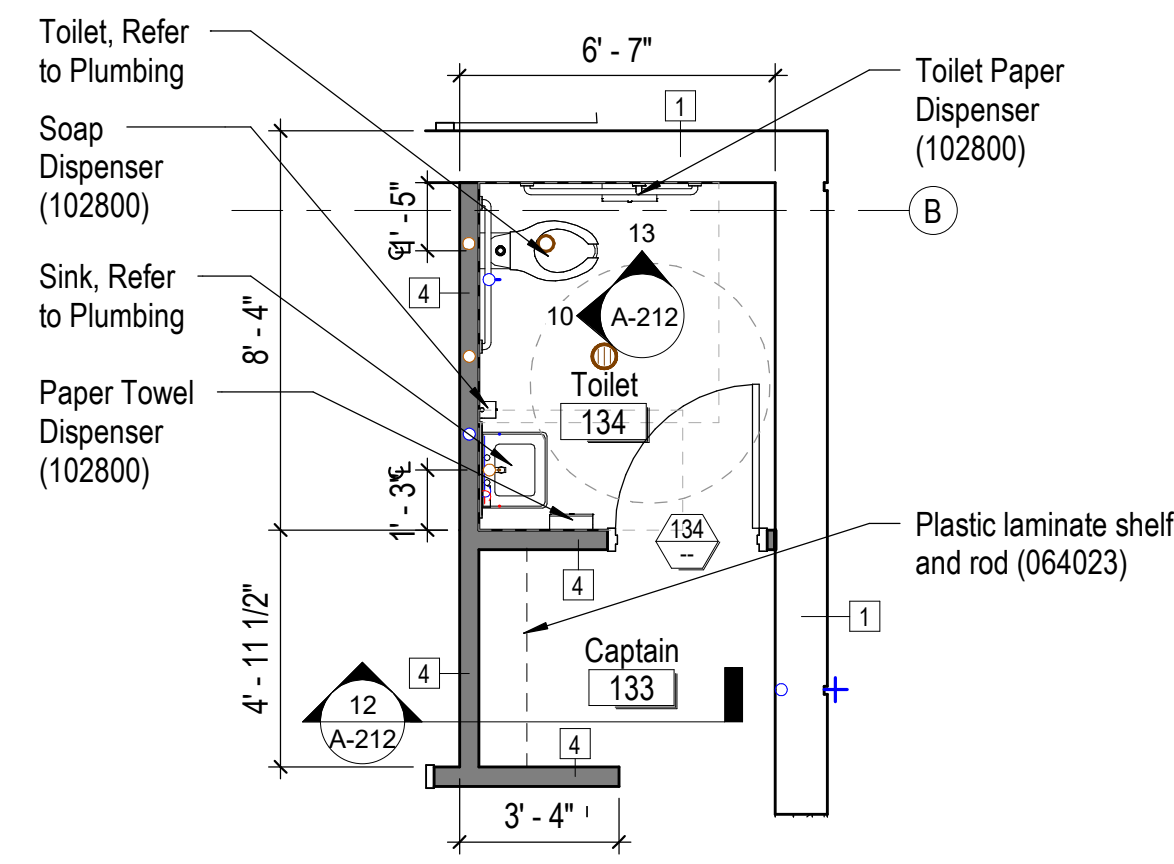
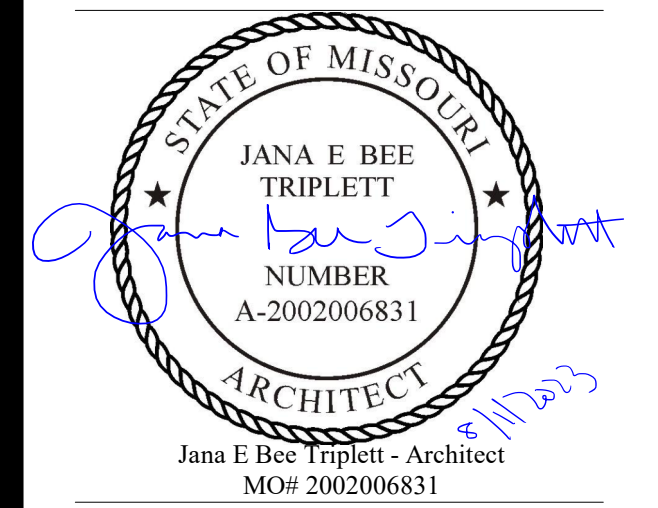
4 Wall Section at H.M. Door with Transom  
A-201 3/4" = 1'-0" 0 4" 8" 14"



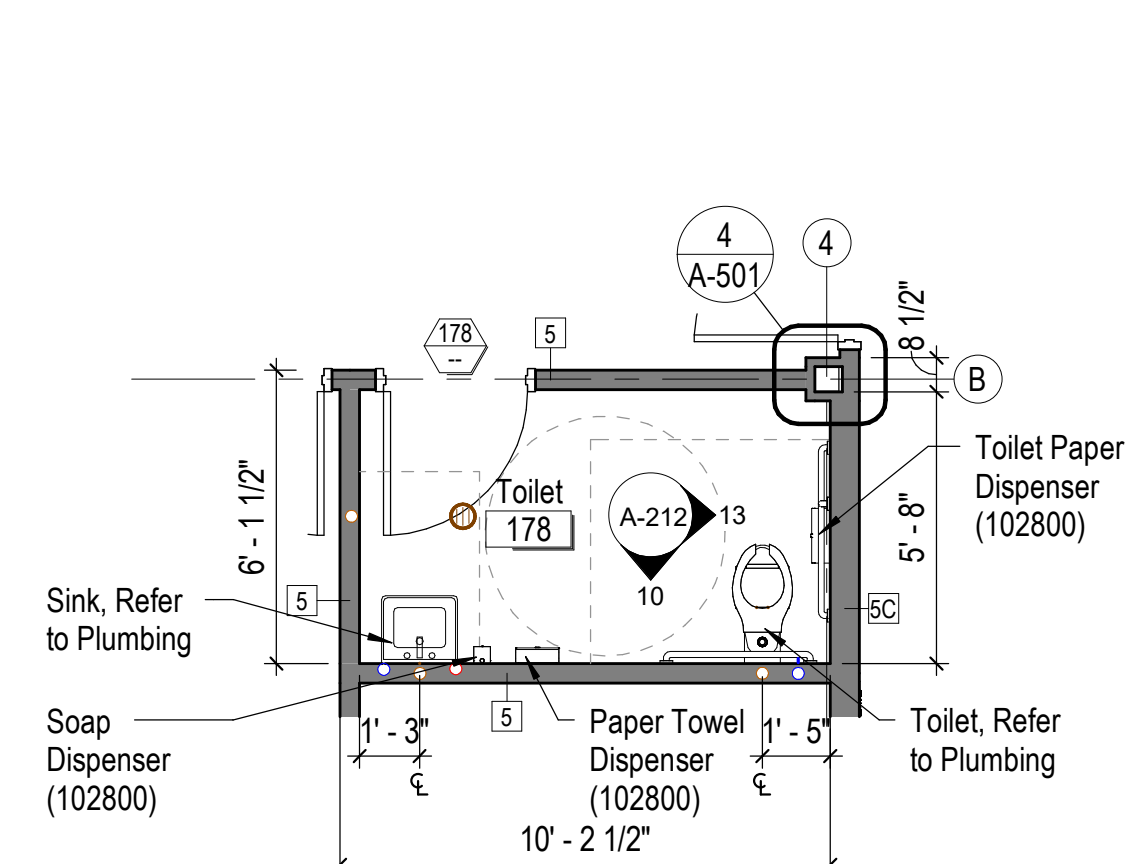
5 Wall Section at H.M. Door with Transom  
A-203 3/4" = 1'-0" 0 4" 8" 14"



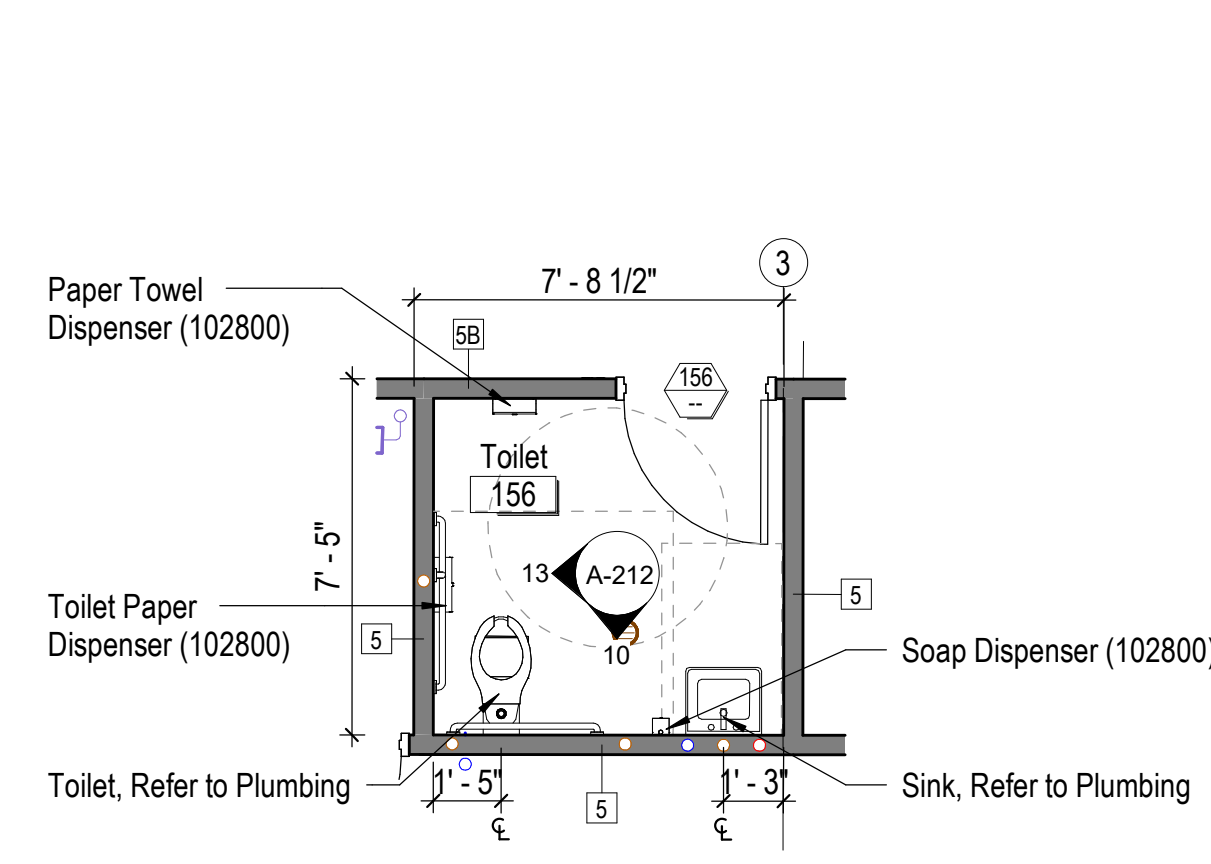




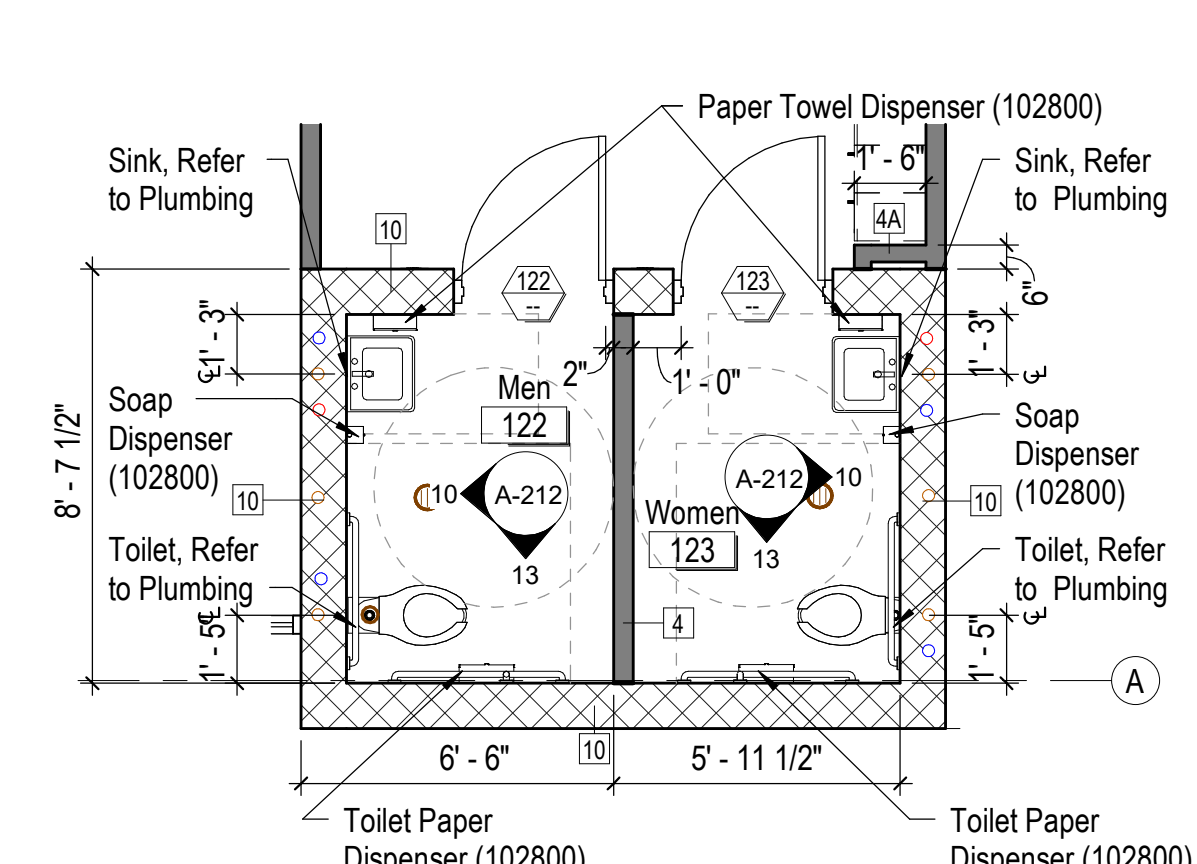
5 Enlarged Plan - Toilet 134  
A-101 1/4" = 1'-0" NORTH



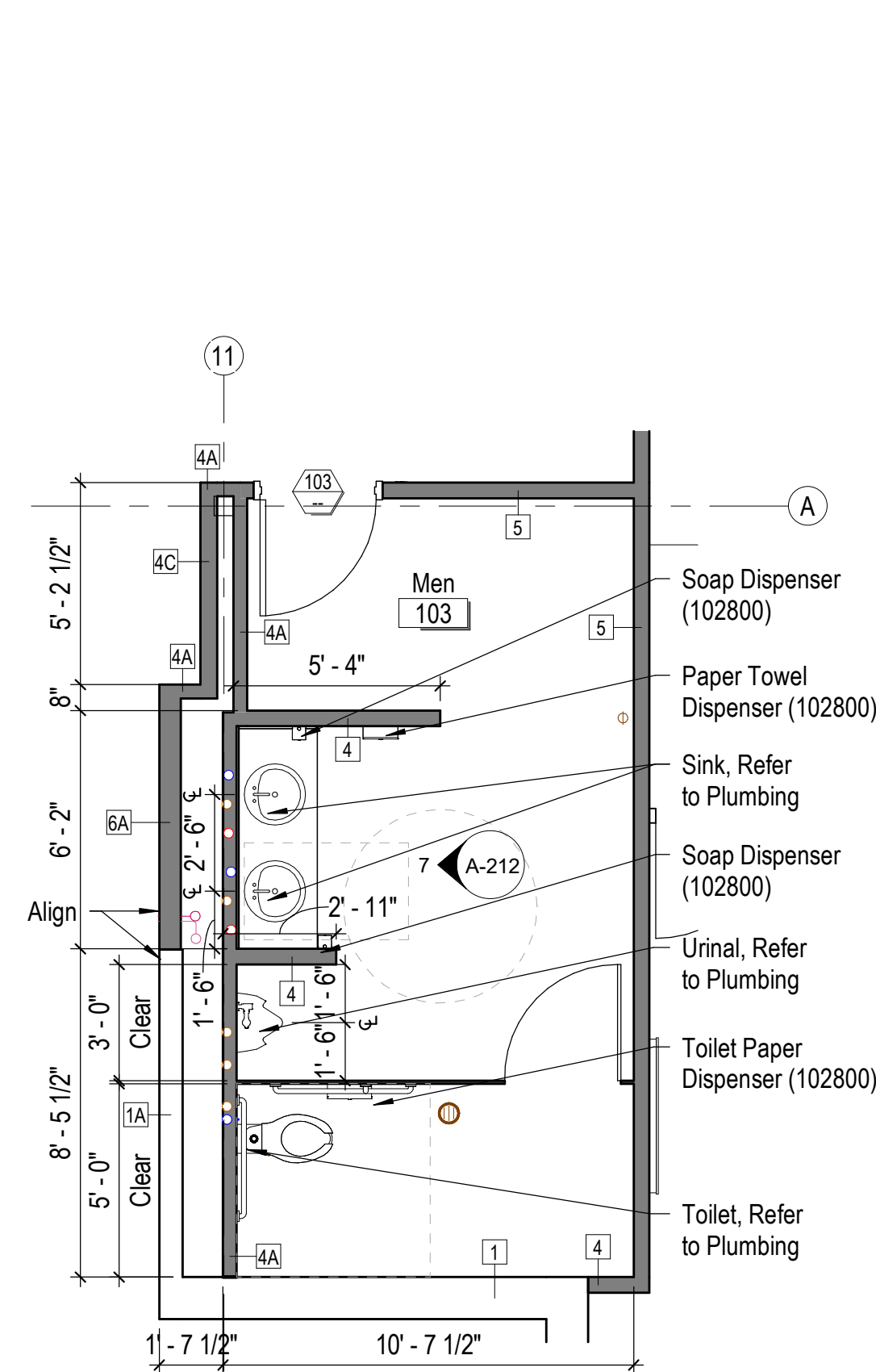
6 Enlarged Plan - Toilet 178  
A-102 1/4" = 1'-0" NORTH



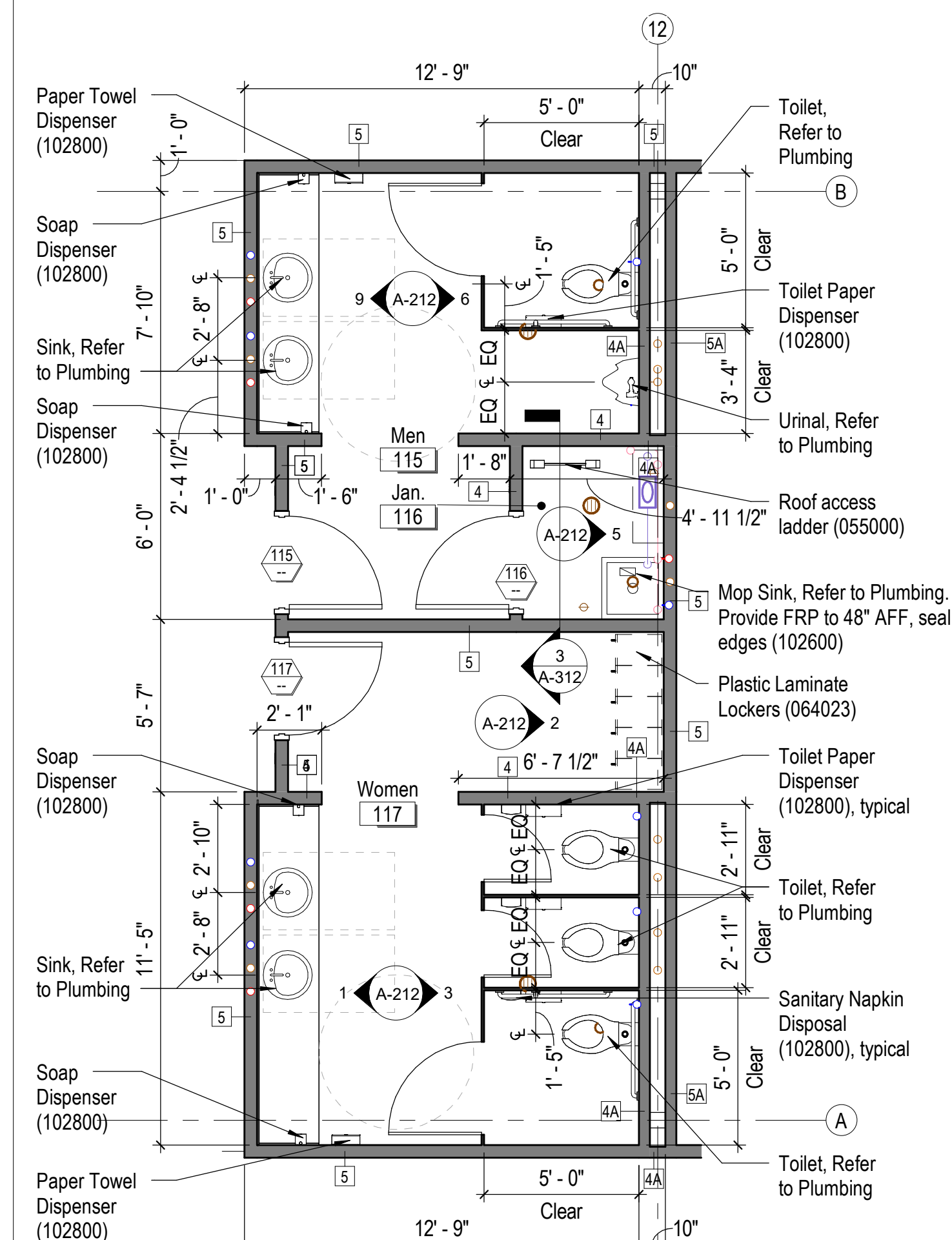
7 Enlarged Plan - Toilet 156  
A-402 1/4" = 1'-0" NORTH



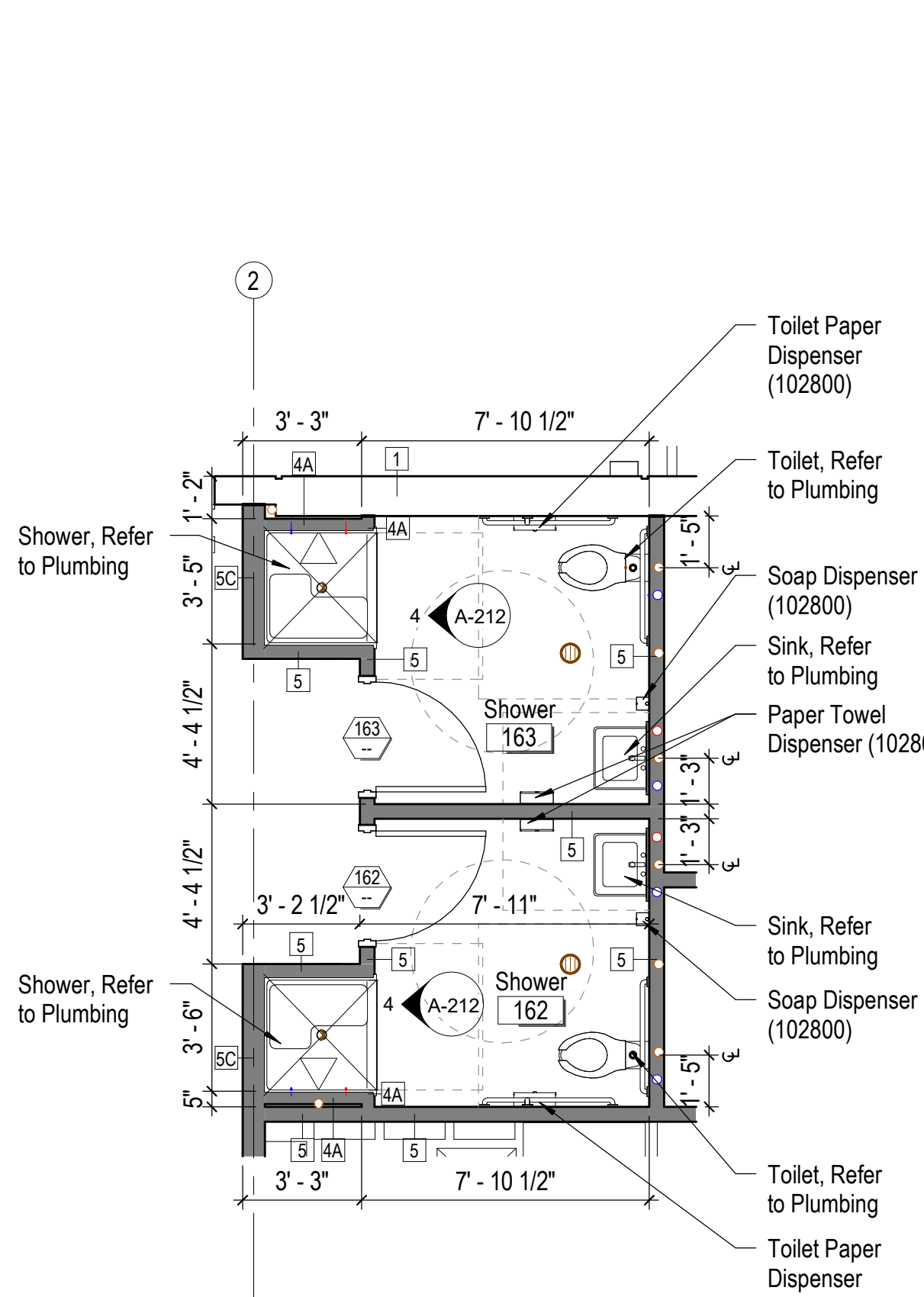
8 Enlarged Plan - Men/Women 122/123  
A-402 1/4" = 1'-0" NORTH



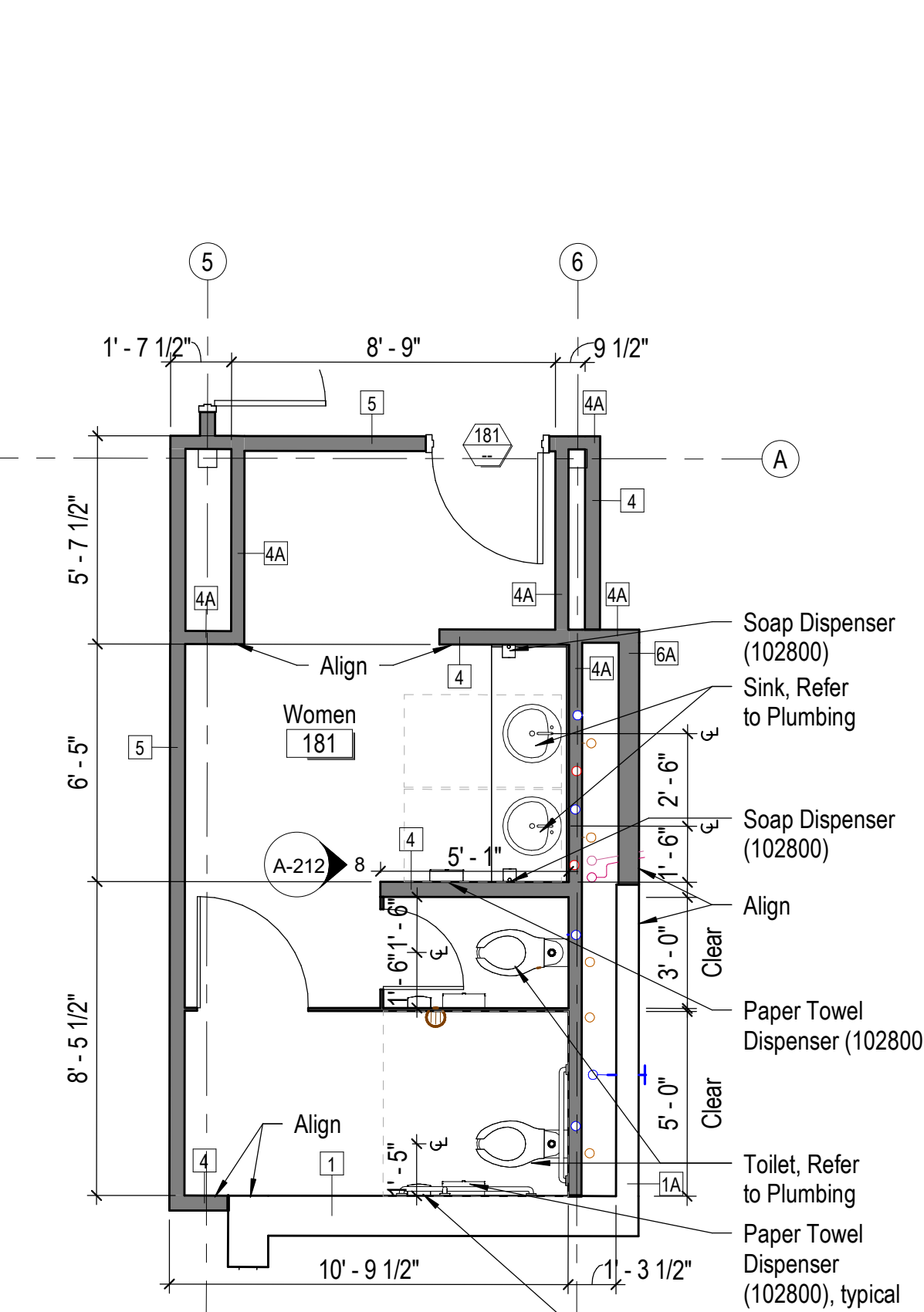
1 Enlarged Plan - Men 103  
A-101 1/4" = 1'-0" NORTH



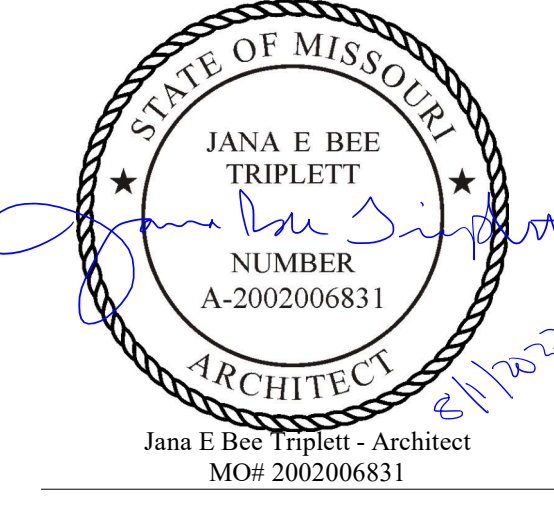
2 Enlarged Plan - Men/Women 115/117  
A-101 1/4" = 1'-0" NORTH



3 Enlarged Plan - Men/Women Shower 162/163  
A-102 1/4" = 1'-0" NORTH



4 Enlarged Plan - Women 181  
A-102 1/4" = 1'-0" NORTH



Jana E Bee Triplett - Architect  
 MO# 200206831

**Gastinger Walker &**  
 Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2102.152

GastingerWalker & Architects, LLC.  
 Missouri Certificate of Authority: #2023012872

**OFFICE OF  
 ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION**

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

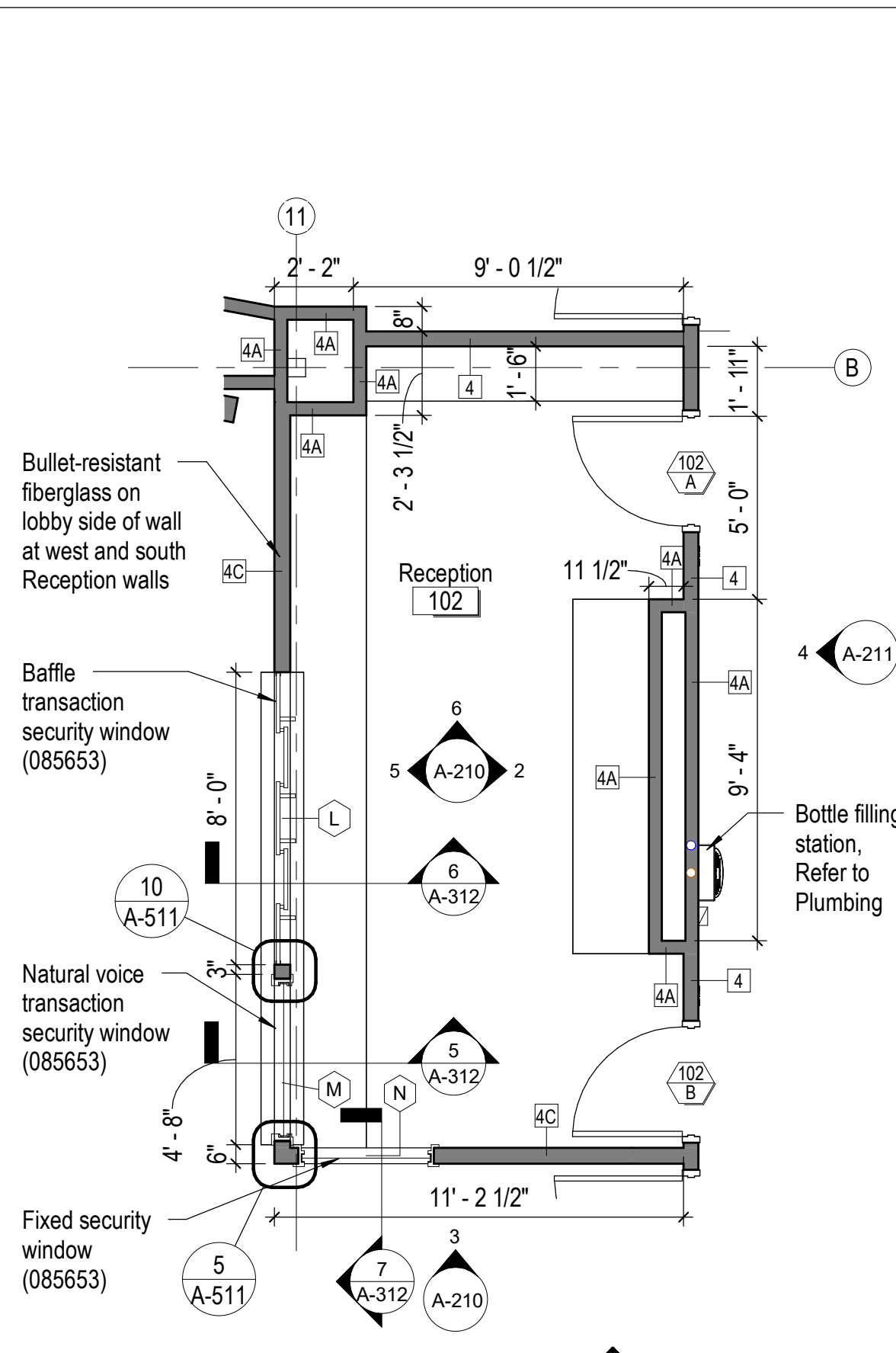
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 DATE:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

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 CHECKED BY: JBT  
 DESIGNED BY: GW&

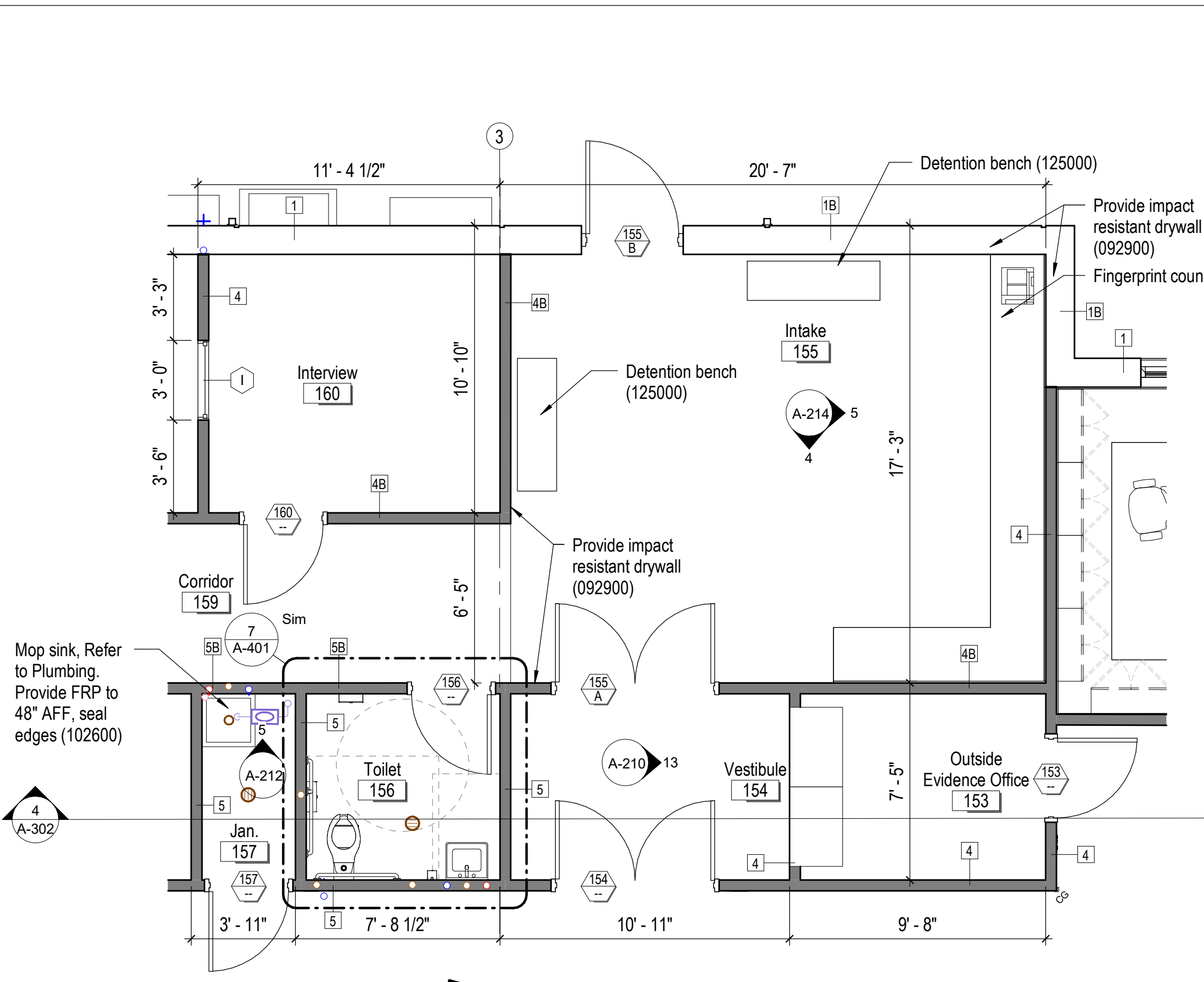
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**Enlarged Floor Plans**

SHEET NUMBER:  
**A-402**

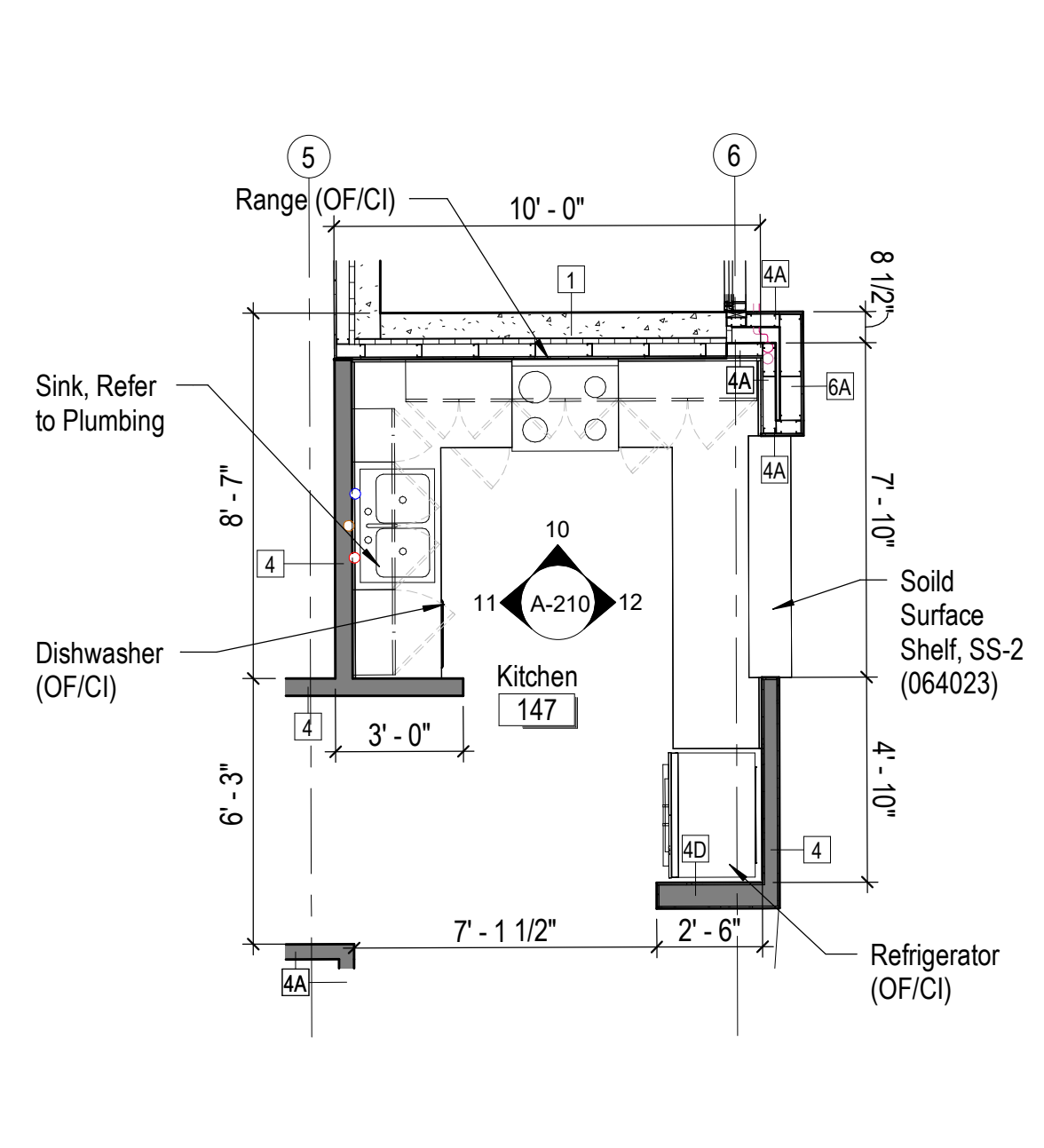
SHEET 087 OF 202  
 08/01/2023



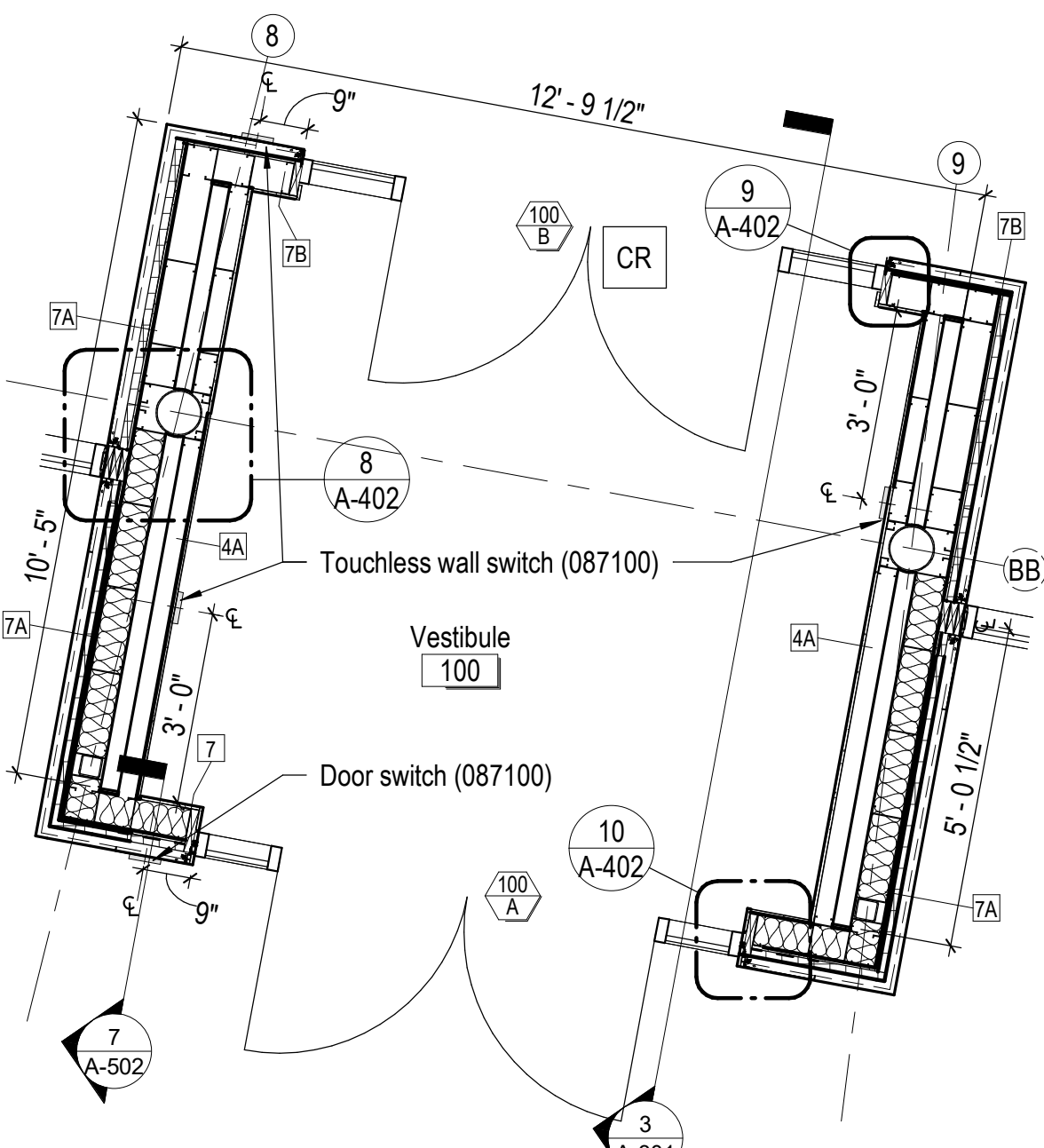
5 Enlarged Plan - Reception 102  
 A-101 1/4" = 1'-0" NORTH



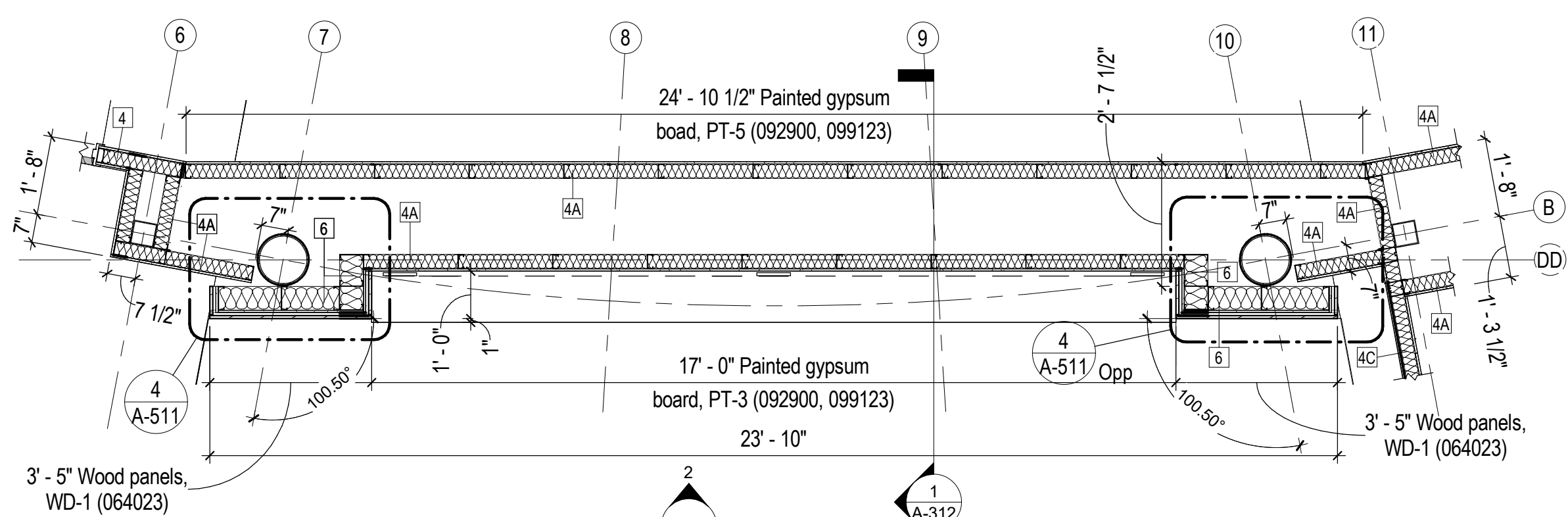
6 Enlarged Plan - Road Office 155  
 A-102 1/4" = 1'-0" NORTH



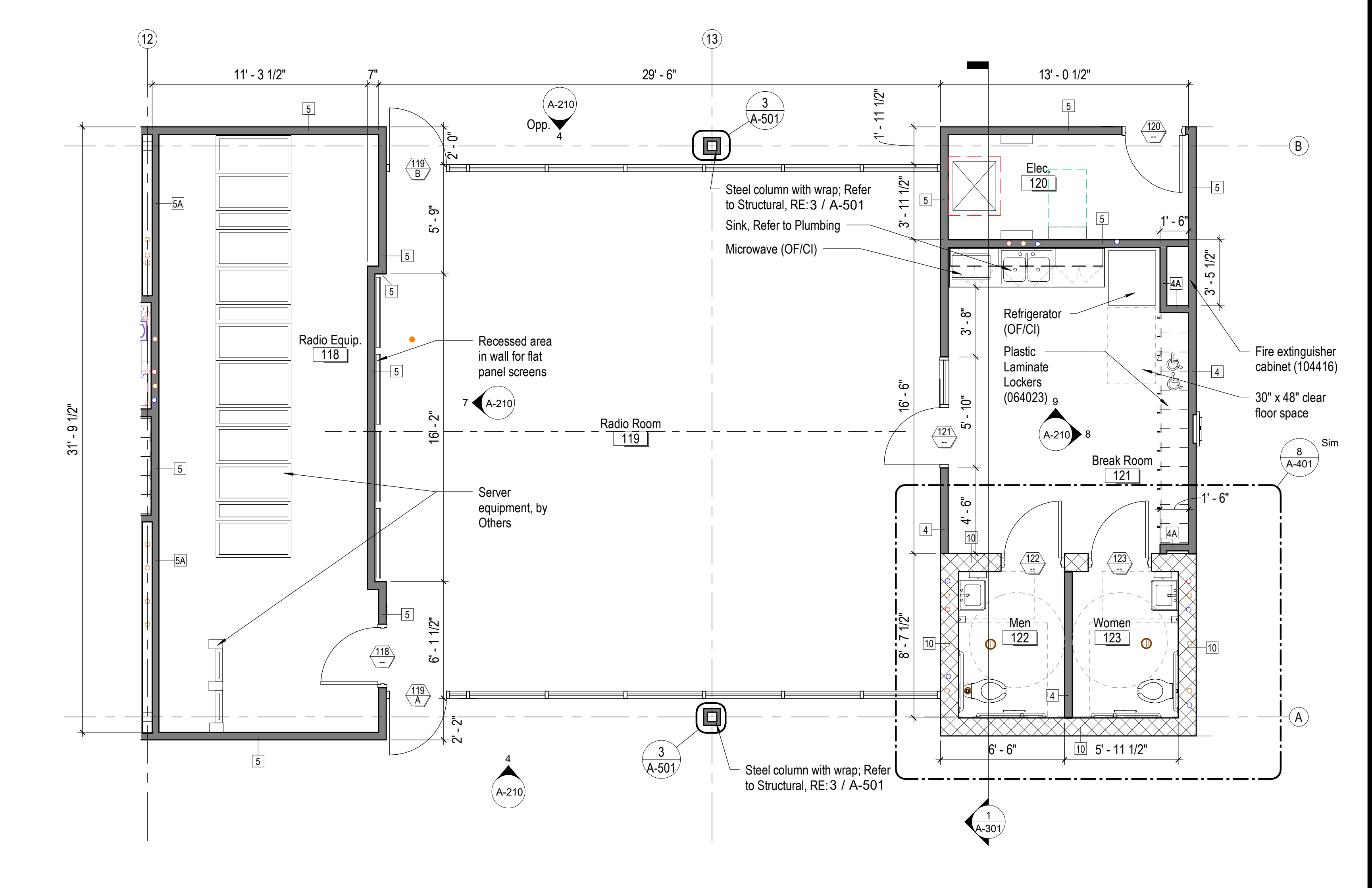
3 Enlarged Plan - Kitchen 147  
 A-102 1/4" = 1'-0" NORTH



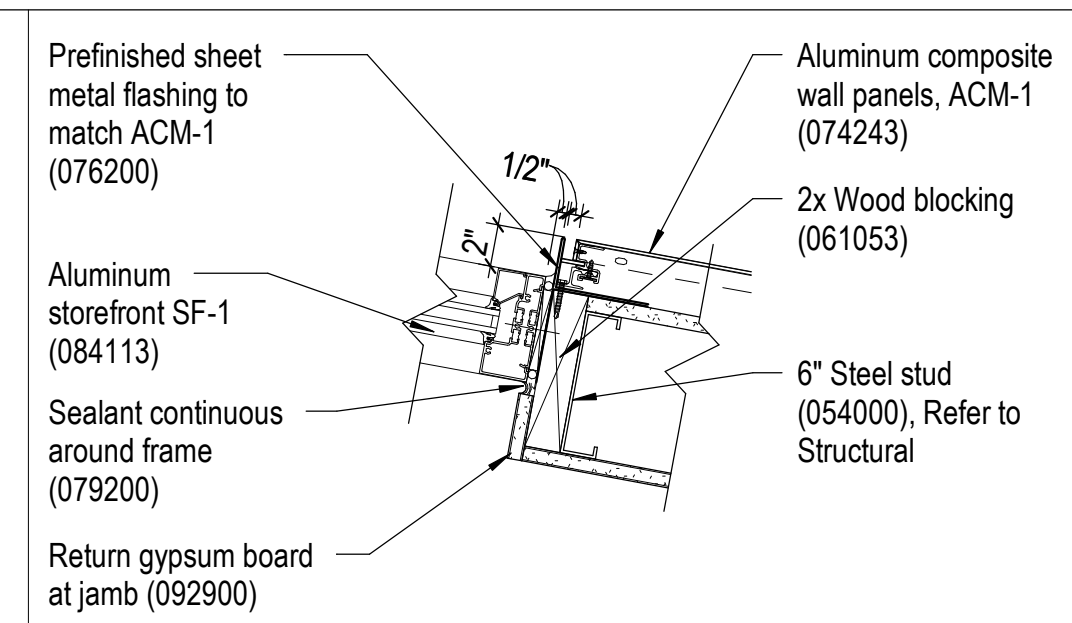
4 Enlarged Plan - Vestibule 100  
 A-101 3/8" = 1'-0" NORTH



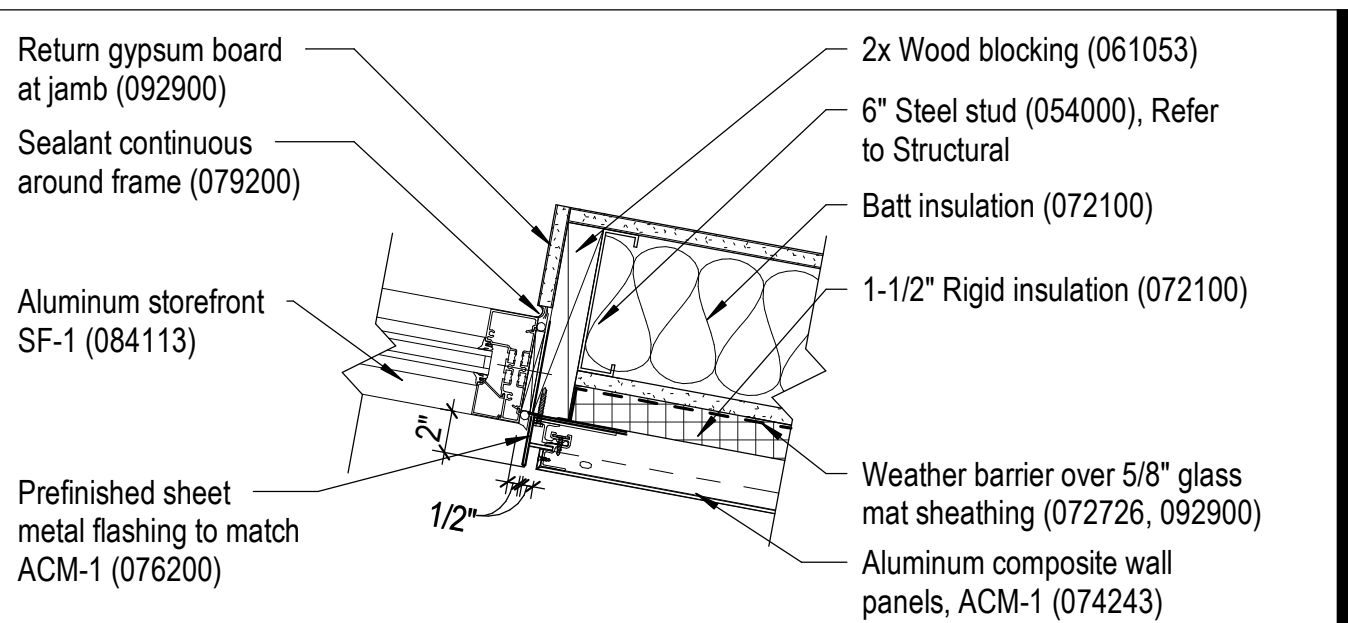
1 Enlarged Plan - Lobby 101  
 A-101 3/8" = 1'-0" NORTH



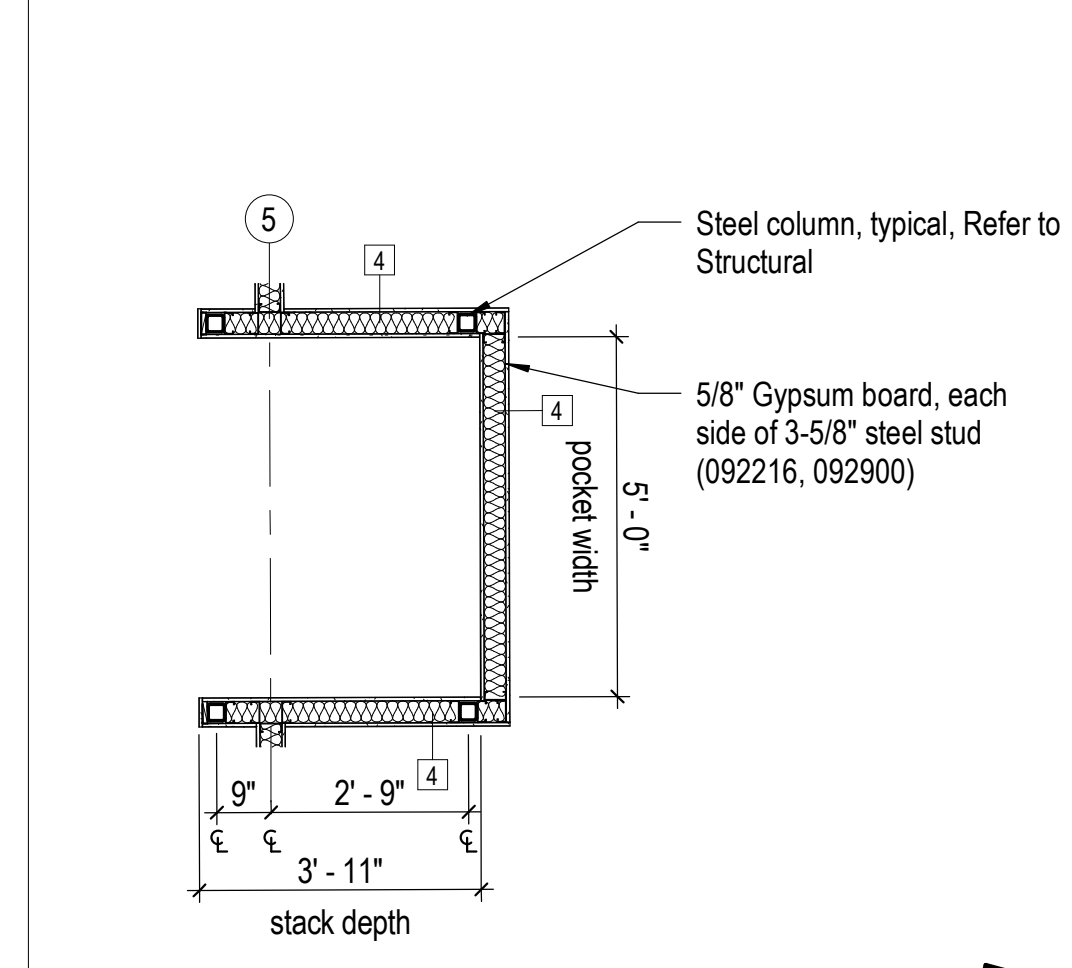
2 Enlarged Plan - Radio Room 119  
 A-101 1/4" = 1'-0" NORTH



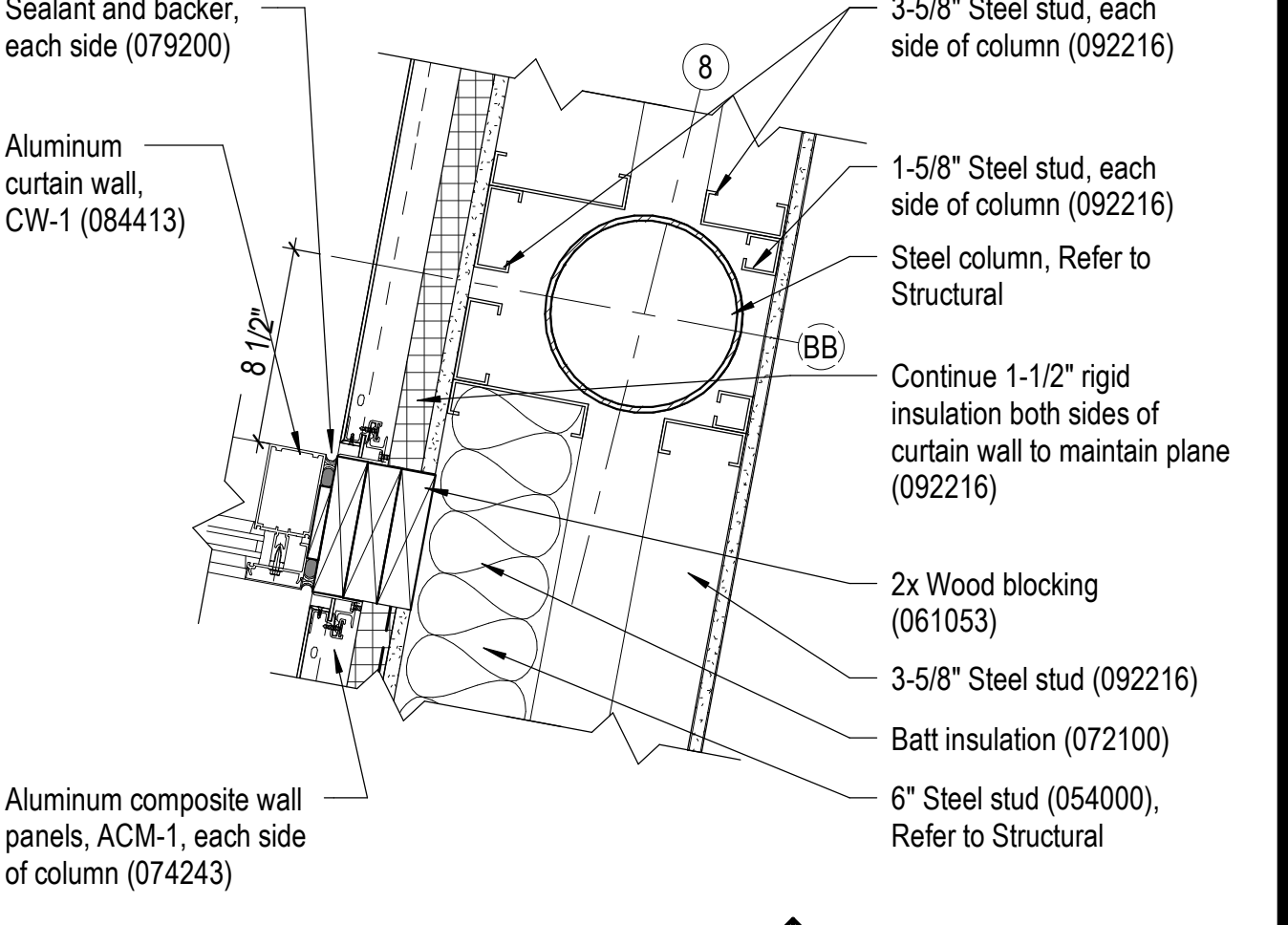
9 Jamb Detail at Vestibule Interior  
 A-402 1 1/2" = 1'-0" NORTH



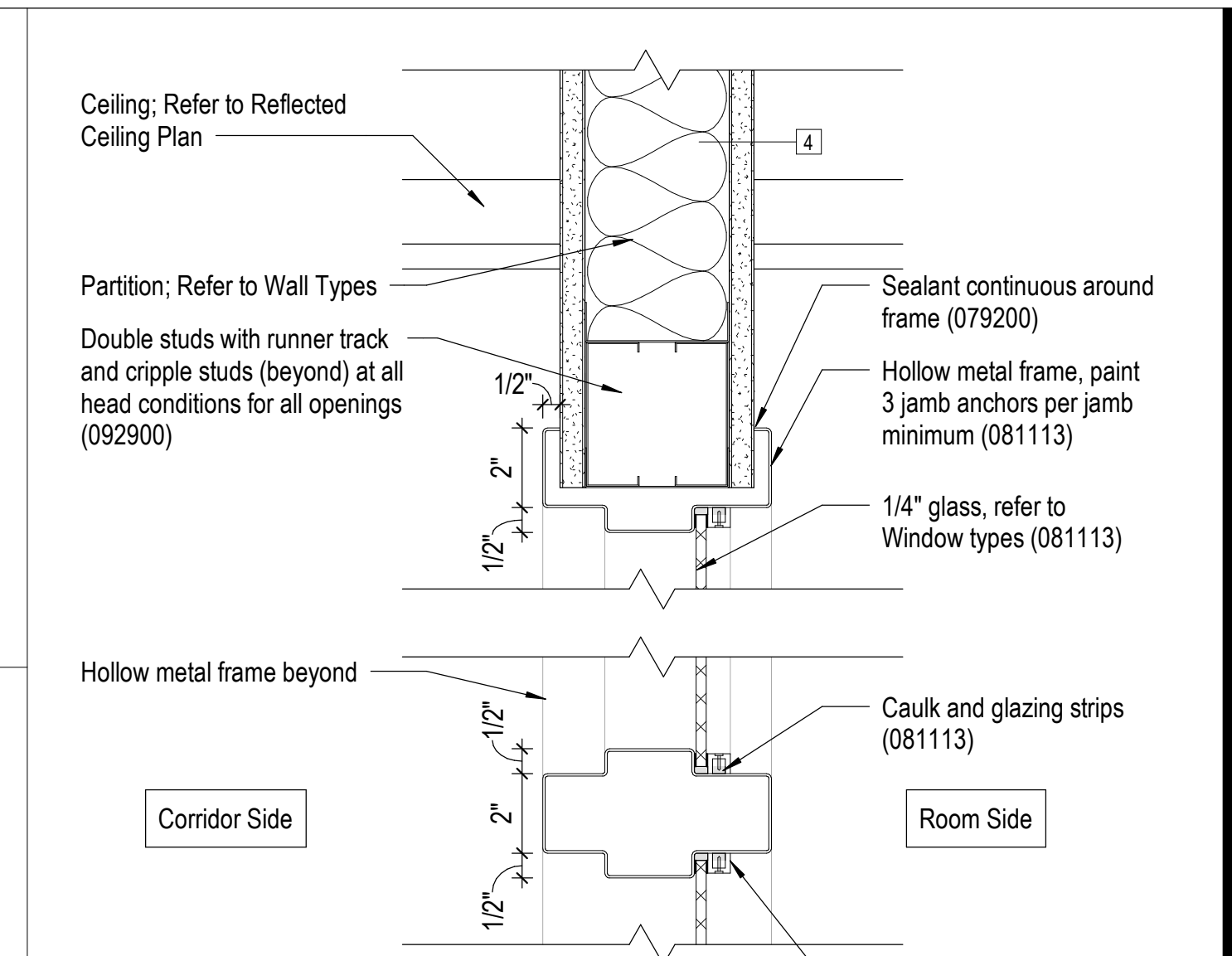
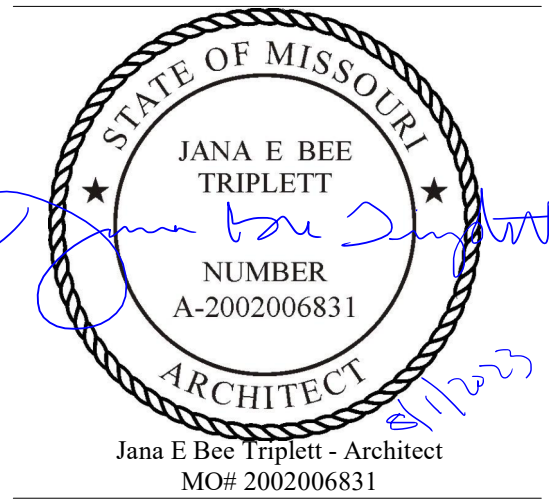
10 Jamb Detail at Vestibule Exterior  
 A-402 1 1/2" = 1'-0" NORTH



7 Enlarged Plan - Troop Meeting Room 180  
 A-102 3/8" = 1'-0" NORTH

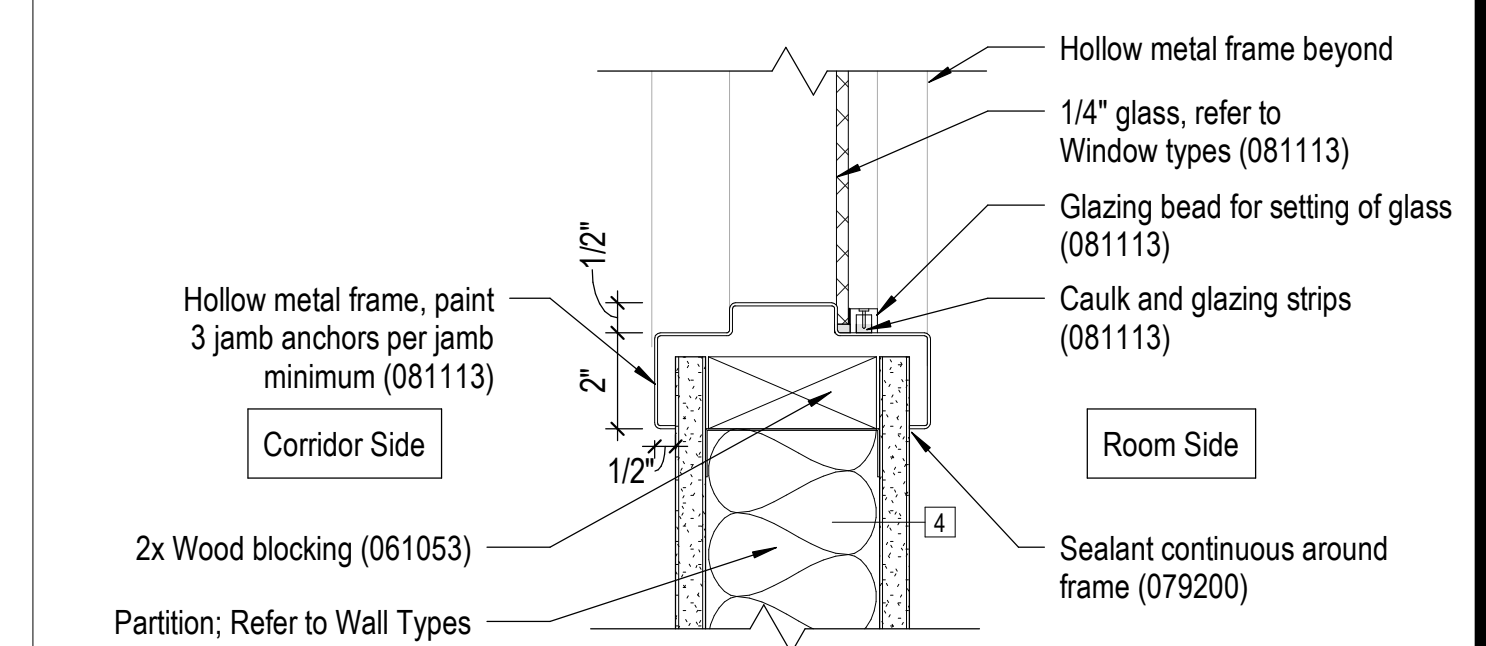


8 Detail at Vestibule Column  
 A-402 1 1/2" = 1'-0" NORTH



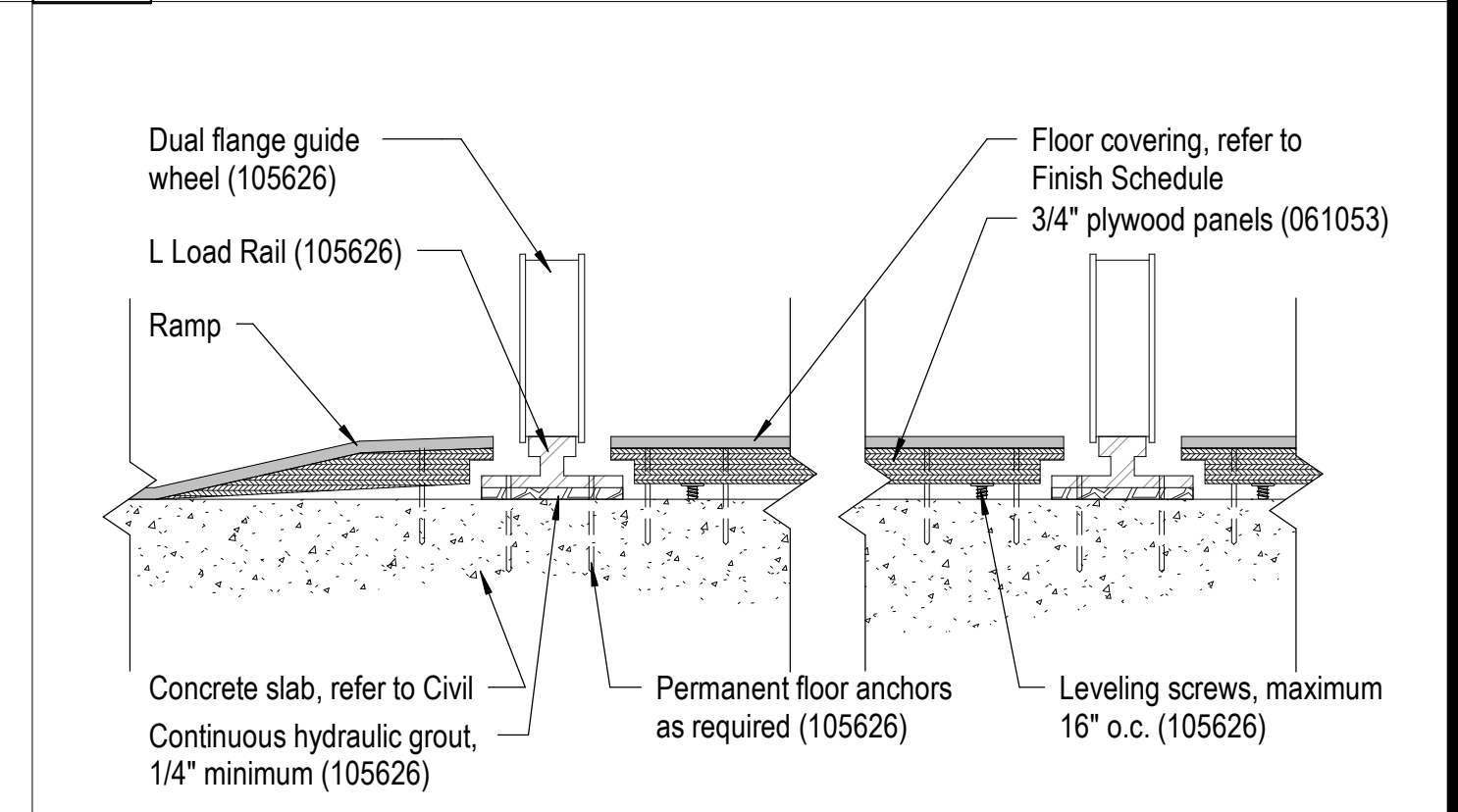
14 Detail - Hollow Metal Frame Head / Mullion

A-210 3" = 1'-0"



13 Detail - Hollow Metal Frame Half Height Wall

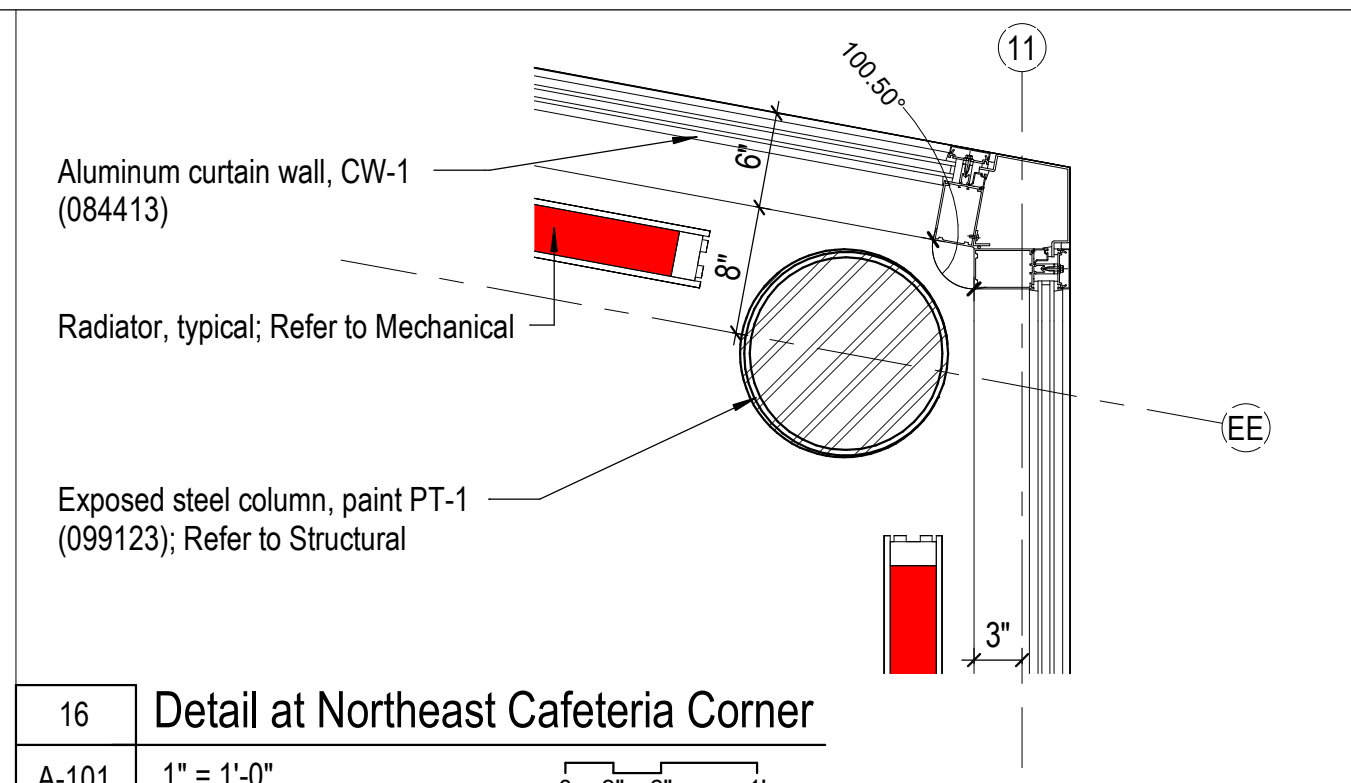
A-210 3" = 1'-0"



High Density Shelving Floor and Ramp

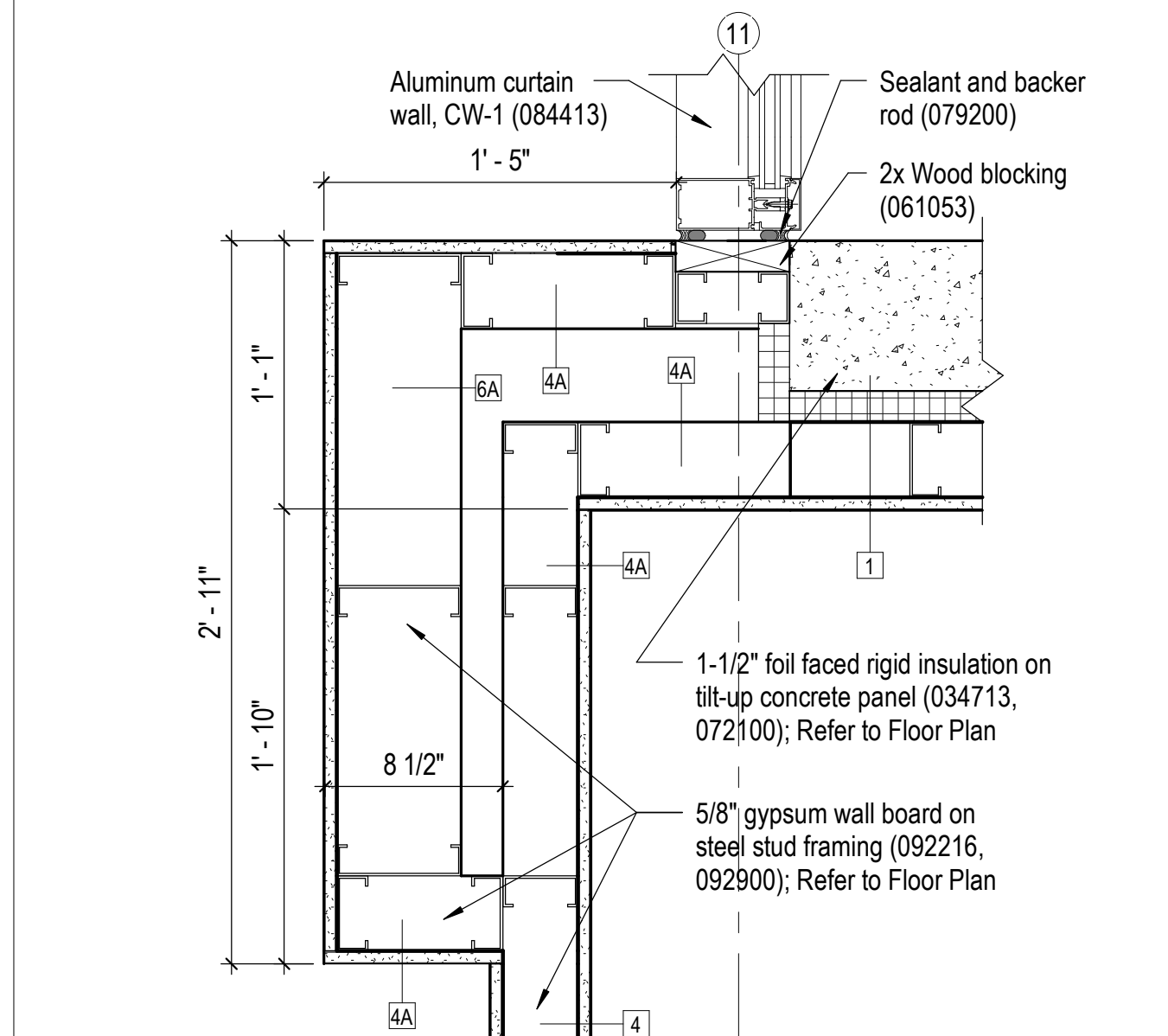
(Alternate #02)

I-613 3" = 1'-0"



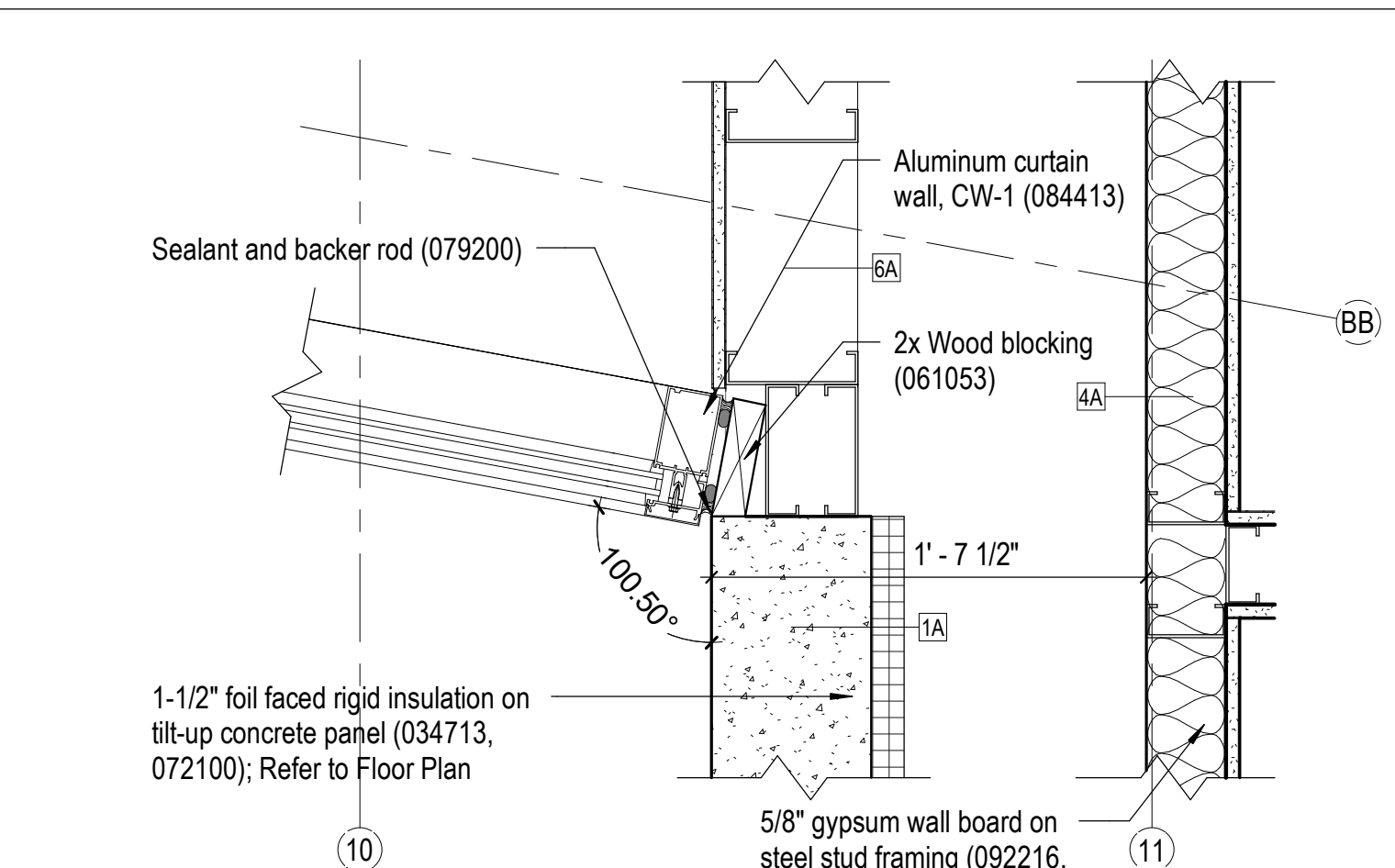
16 Detail at Northeast Cafeteria Corner

A-101 1" = 1'-0"



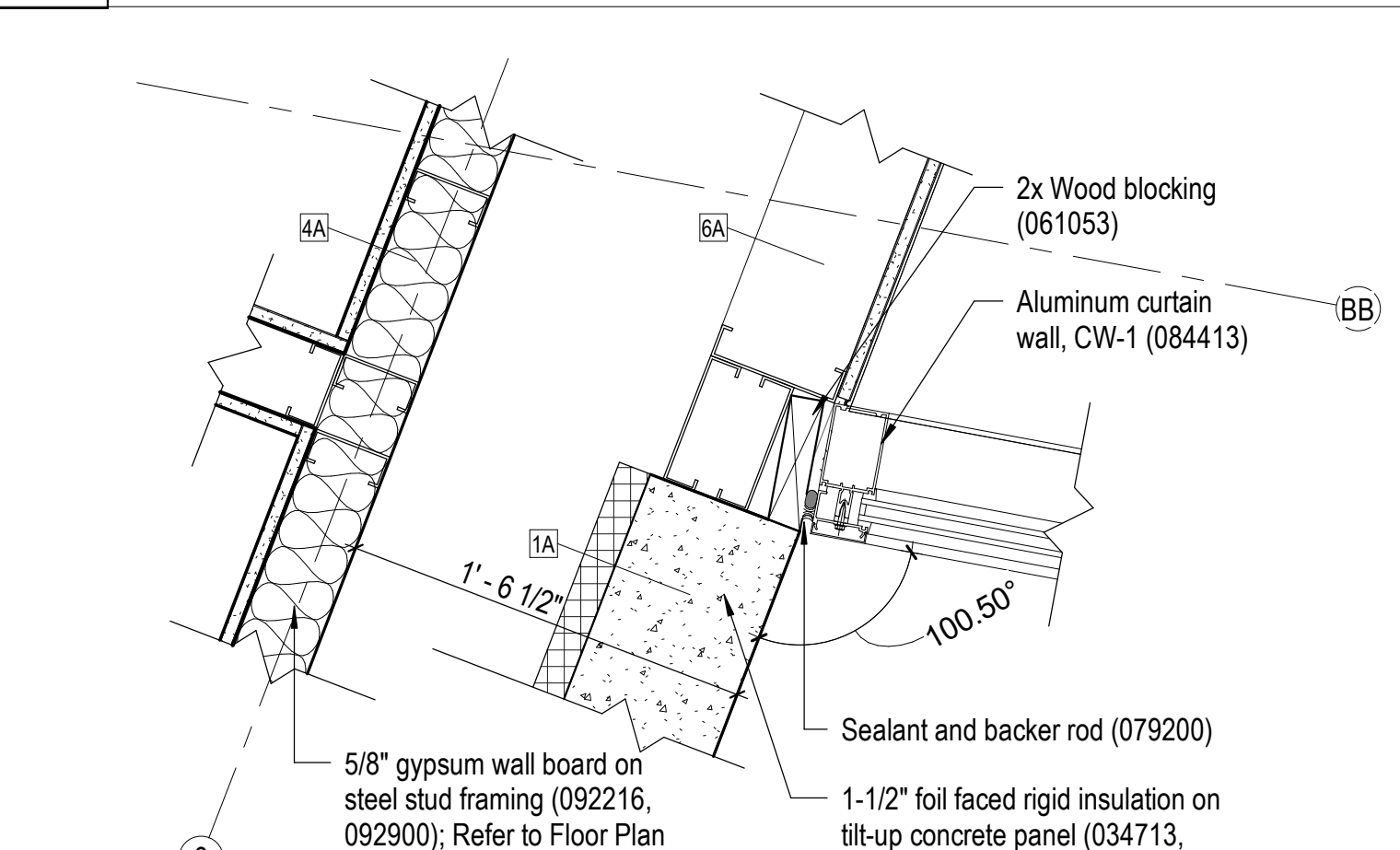
12 Detail at Northeast Lobby Corner

A-101 1 1/2" = 1'-0"



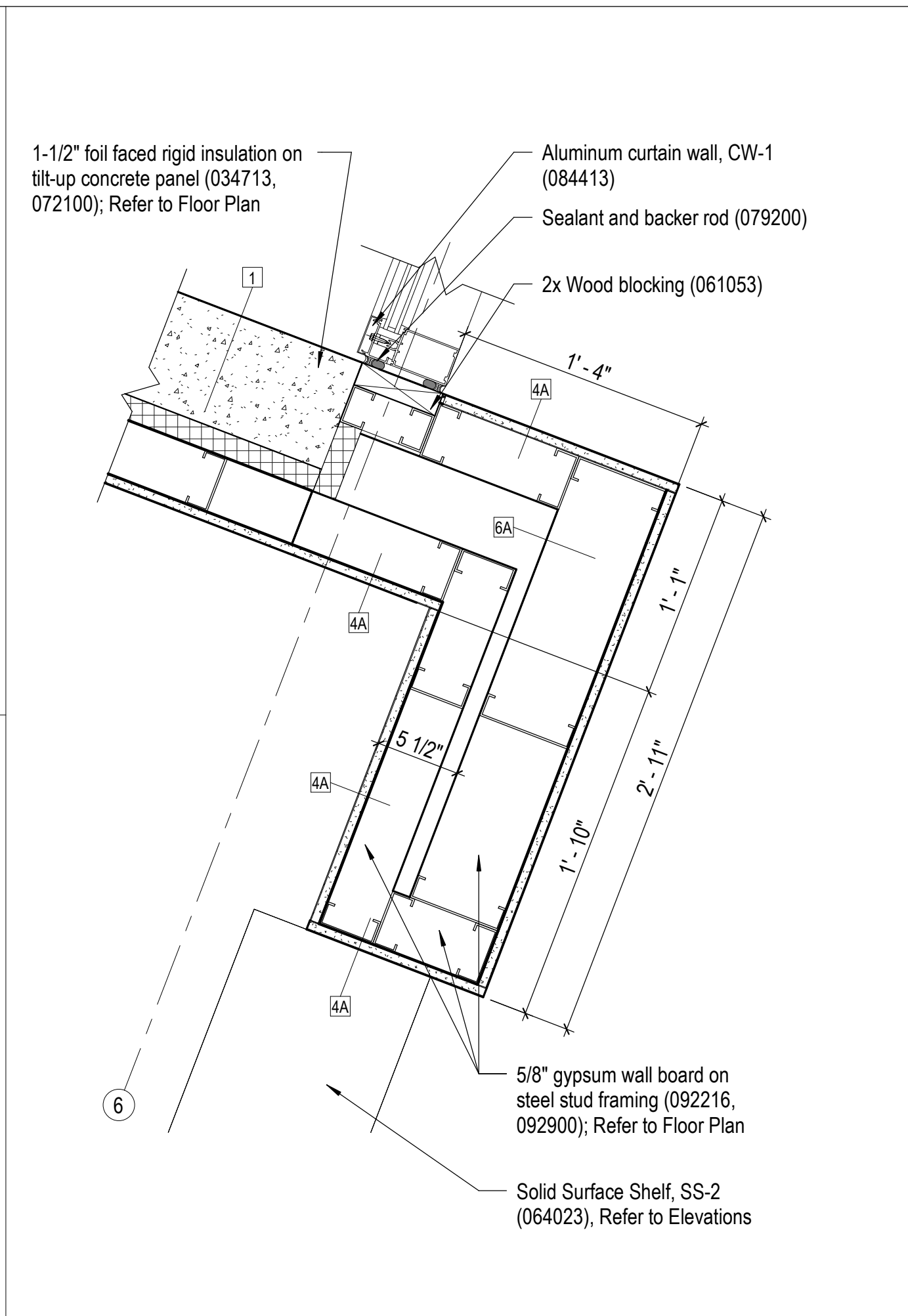
15 Detail at Southeast Lobby Corner

A-101 1 1/2" = 1'-0"



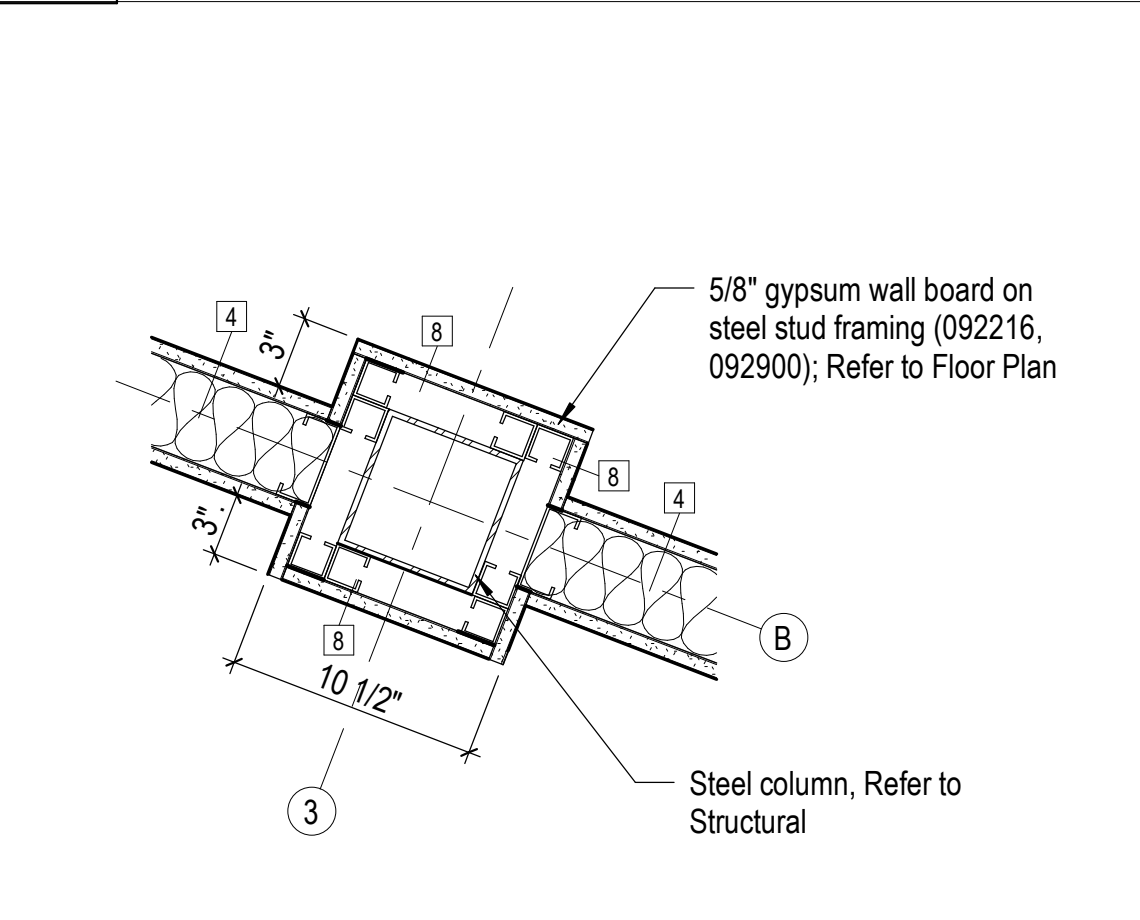
10 Detail at Southwest Lobby Corner

A-101 1 1/2" = 1'-0"



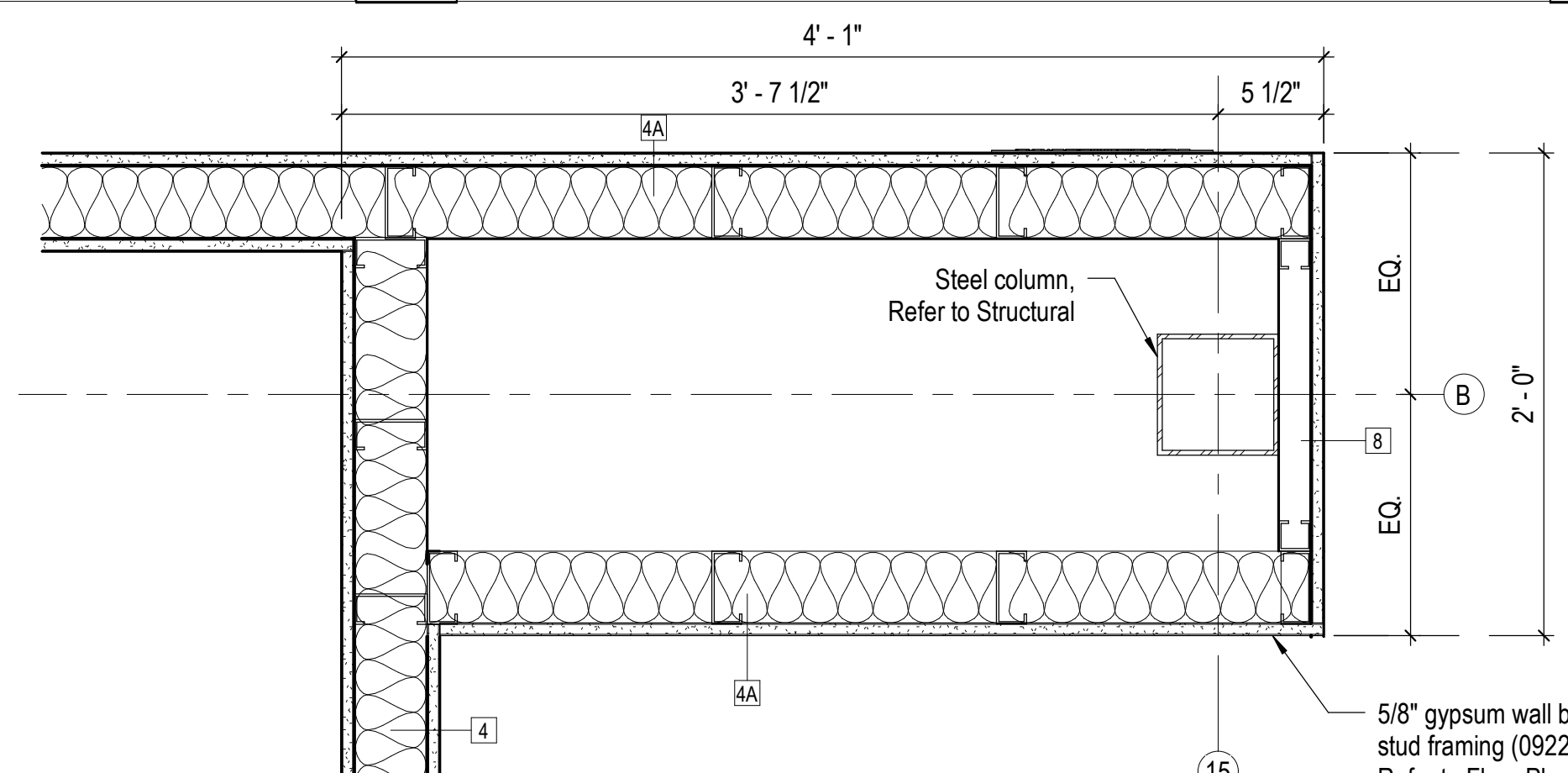
11 Detail at Northwest Lobby Corner

A-101 1 1/2" = 1'-0"



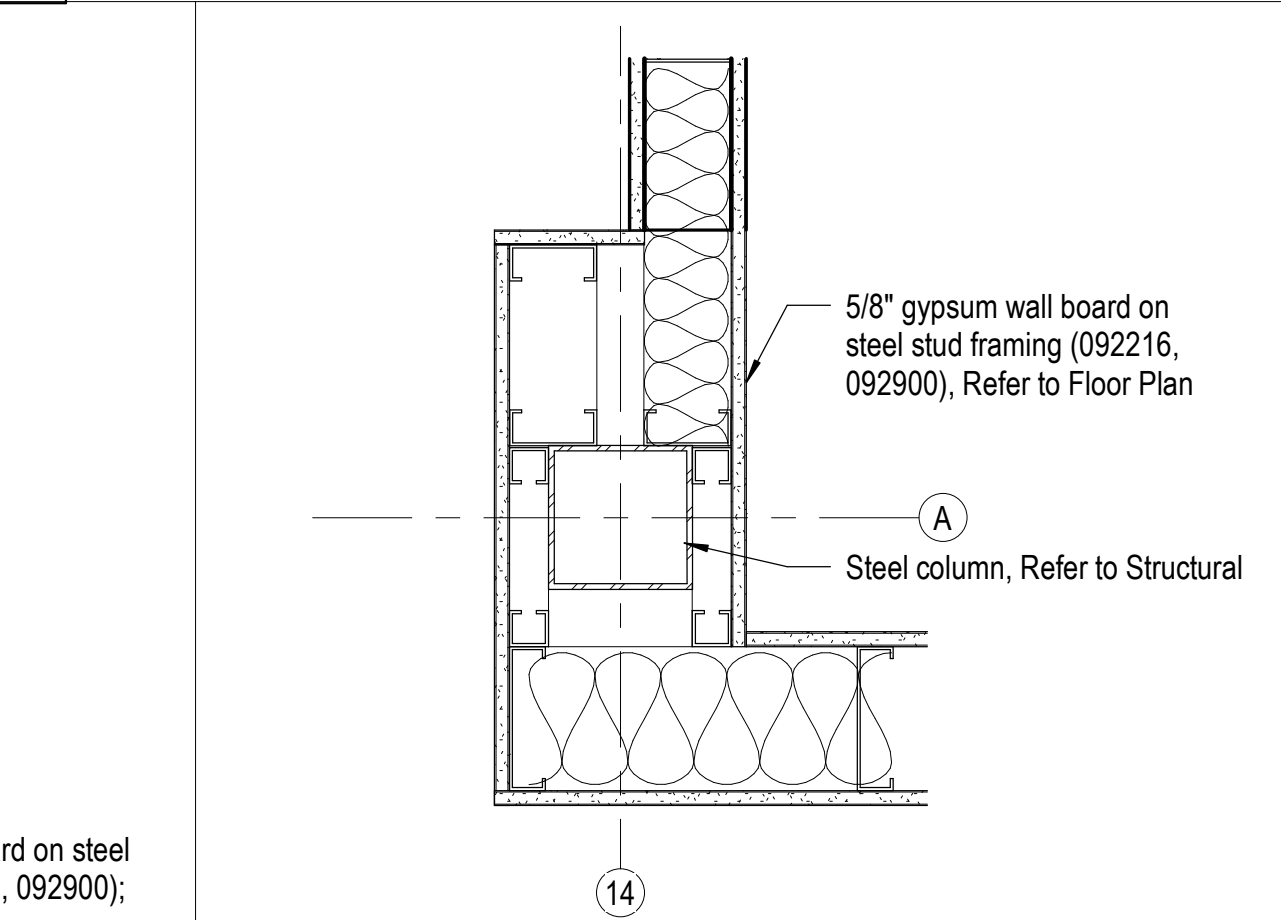
6 Detail at Interior Column

A-102 1 1/2" = 1'-0"



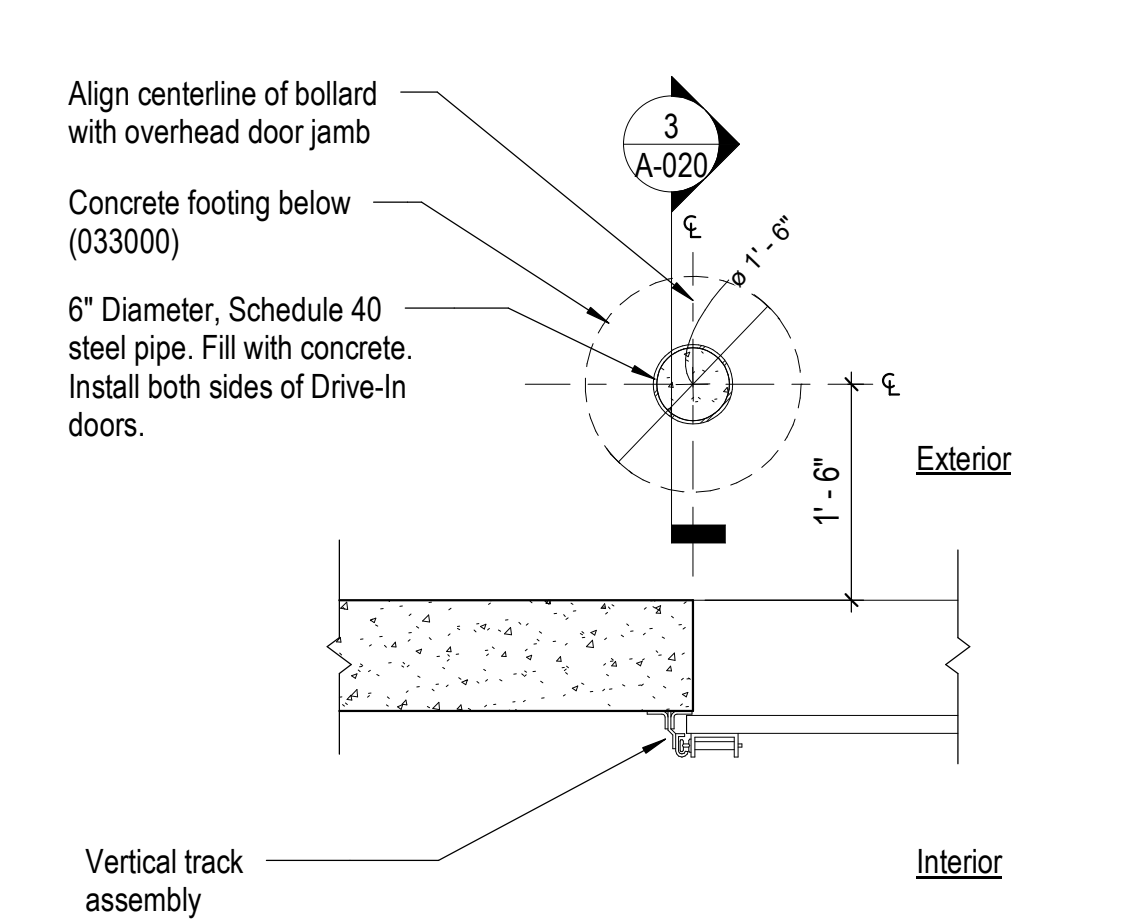
7 Detail at Interior Column

A-101 1 1/2" = 1'-0"



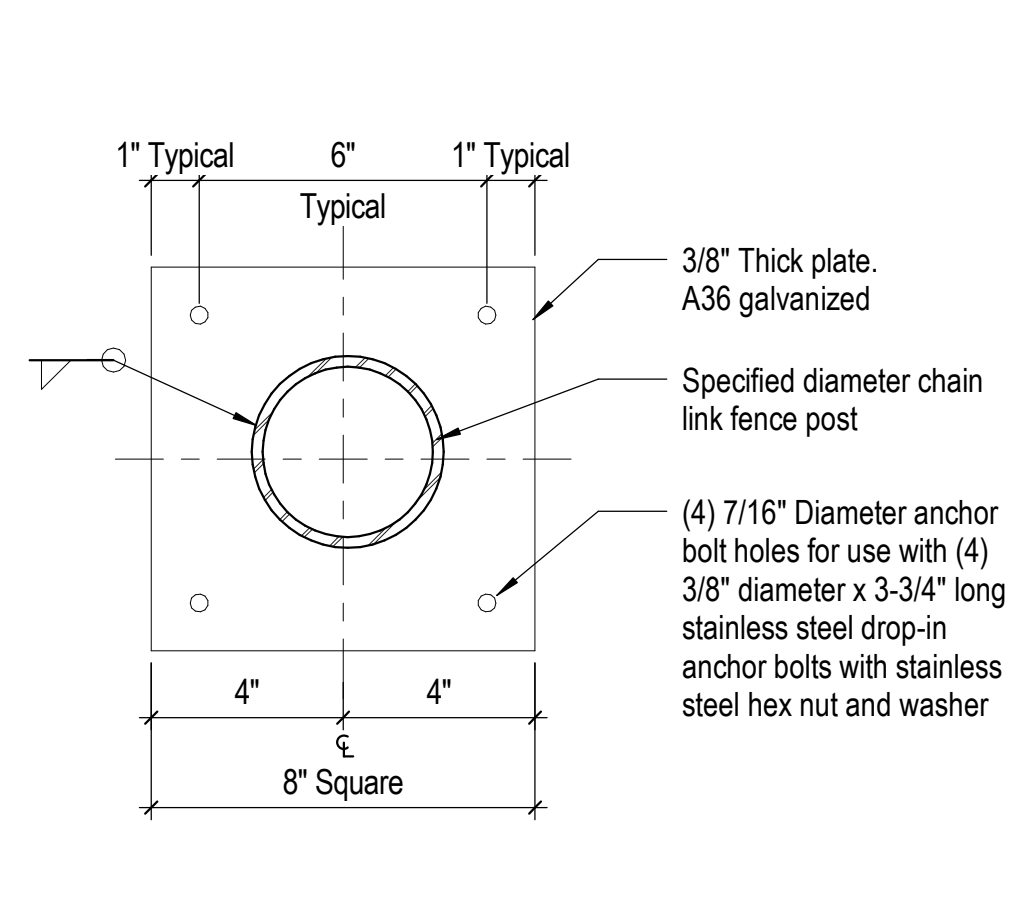
8 Detail at Interior Column

A-101 1 1/2" = 1'-0"



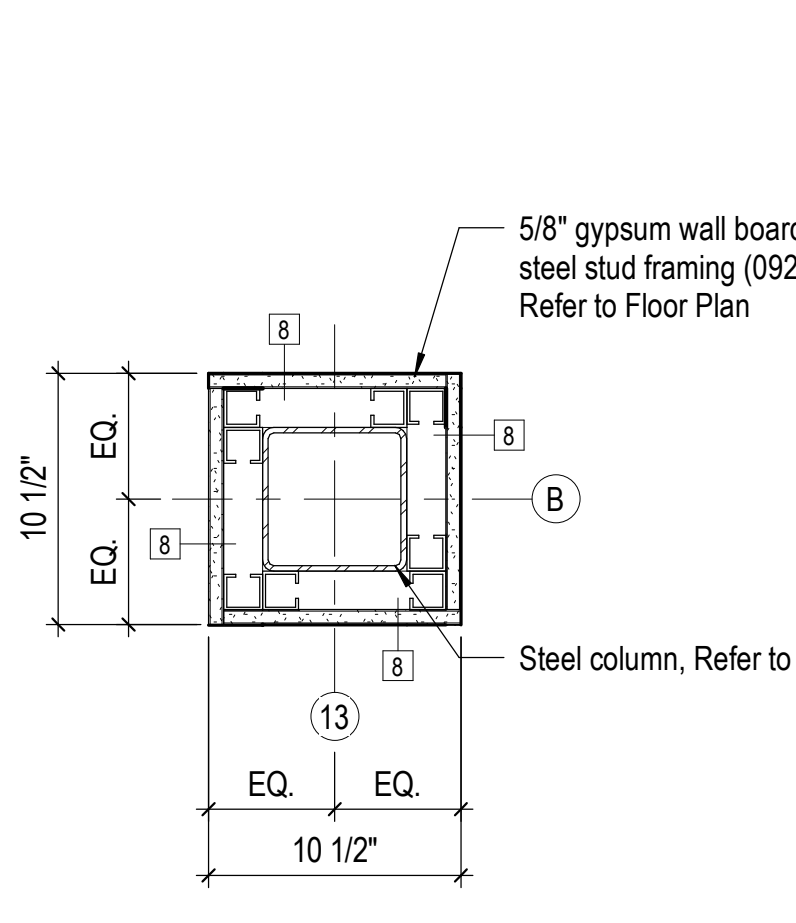
1 Bollard Plan Detail

A-021 3/4" = 1'-0"



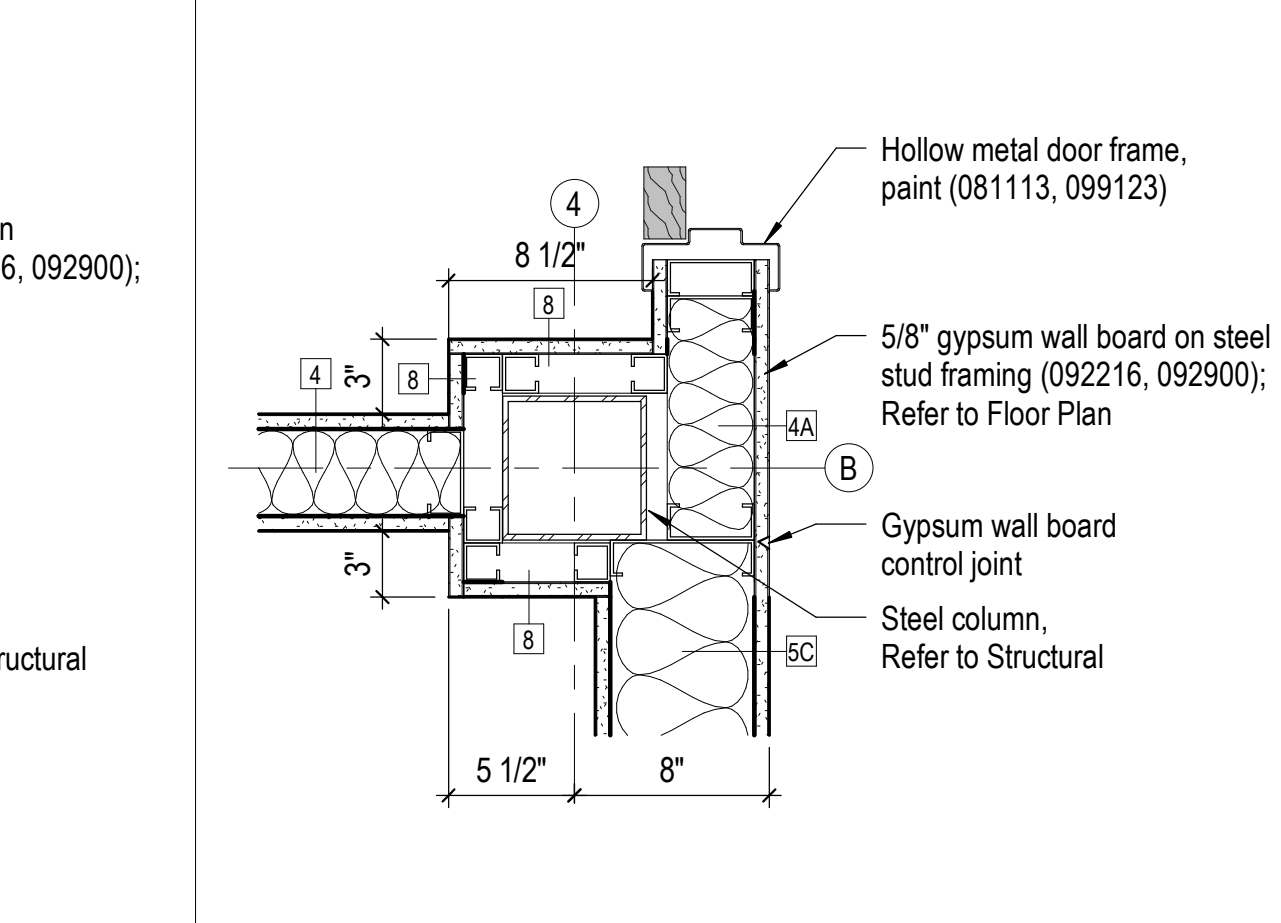
2 Fence Post Base Detail

A-102 3" = 1'-0"



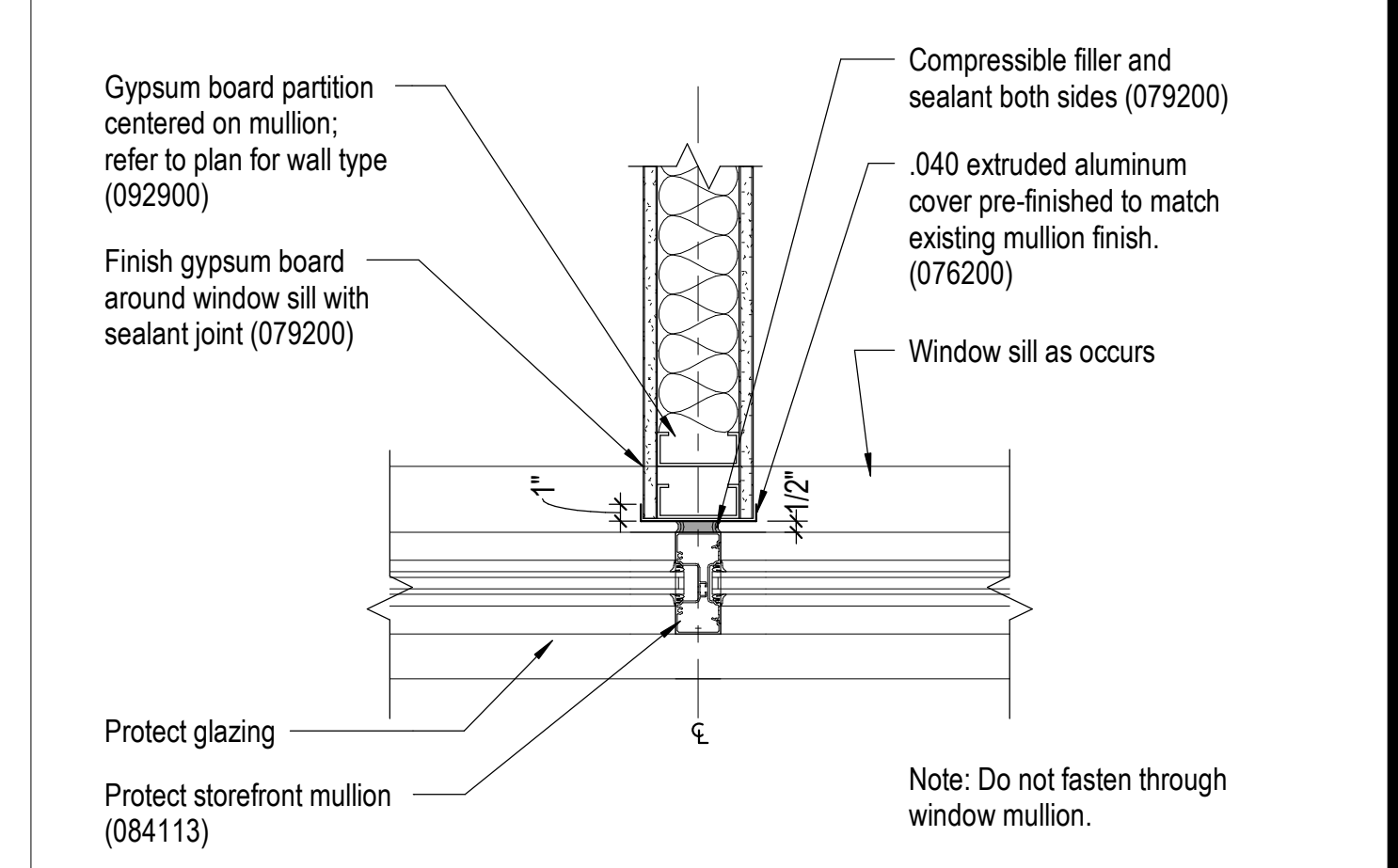
3 Detail at Interior Column

A-402 1 1/2" = 1'-0"



4 Detail at Interior Column

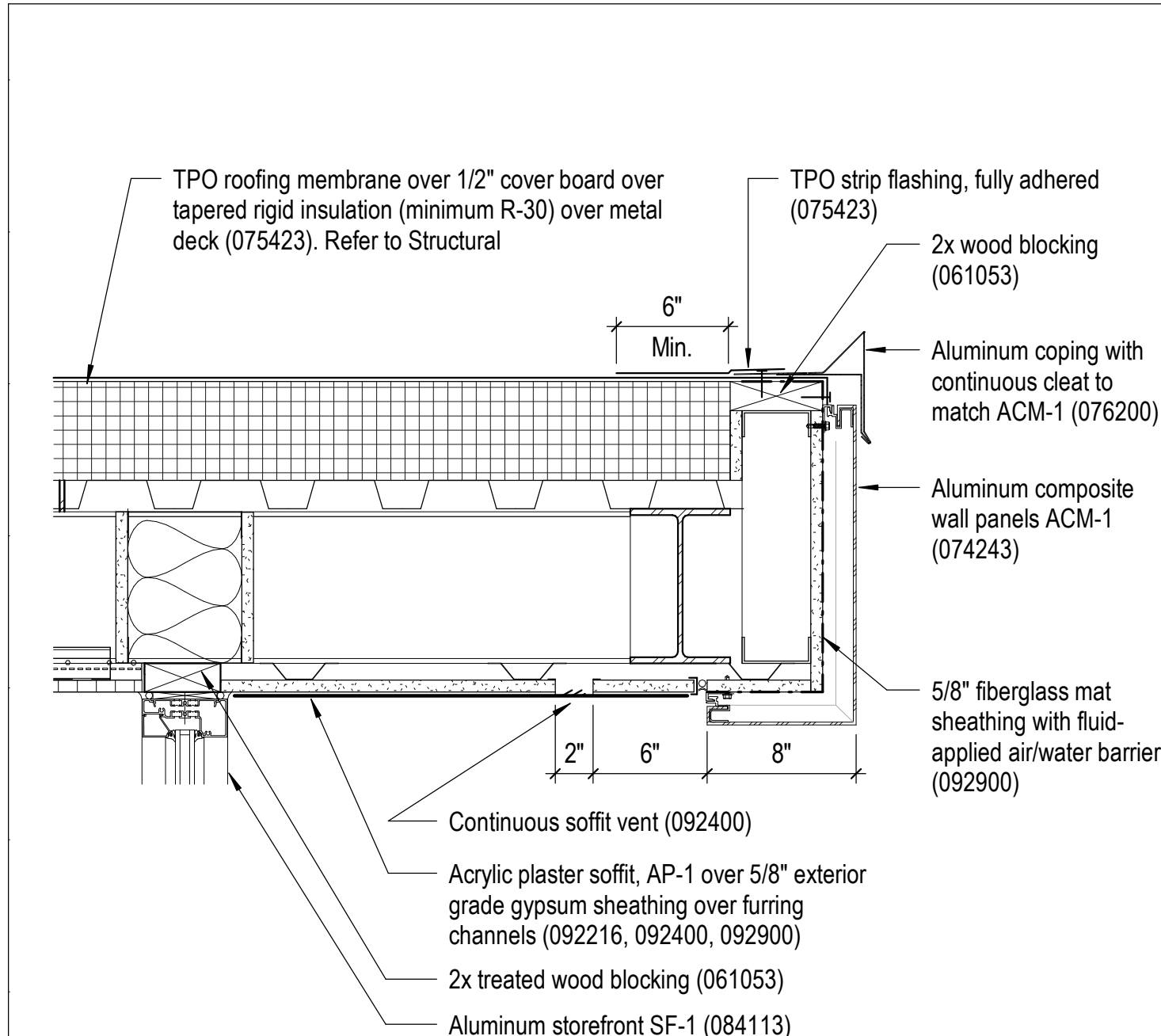
A-401 1 1/2" = 1'-0"



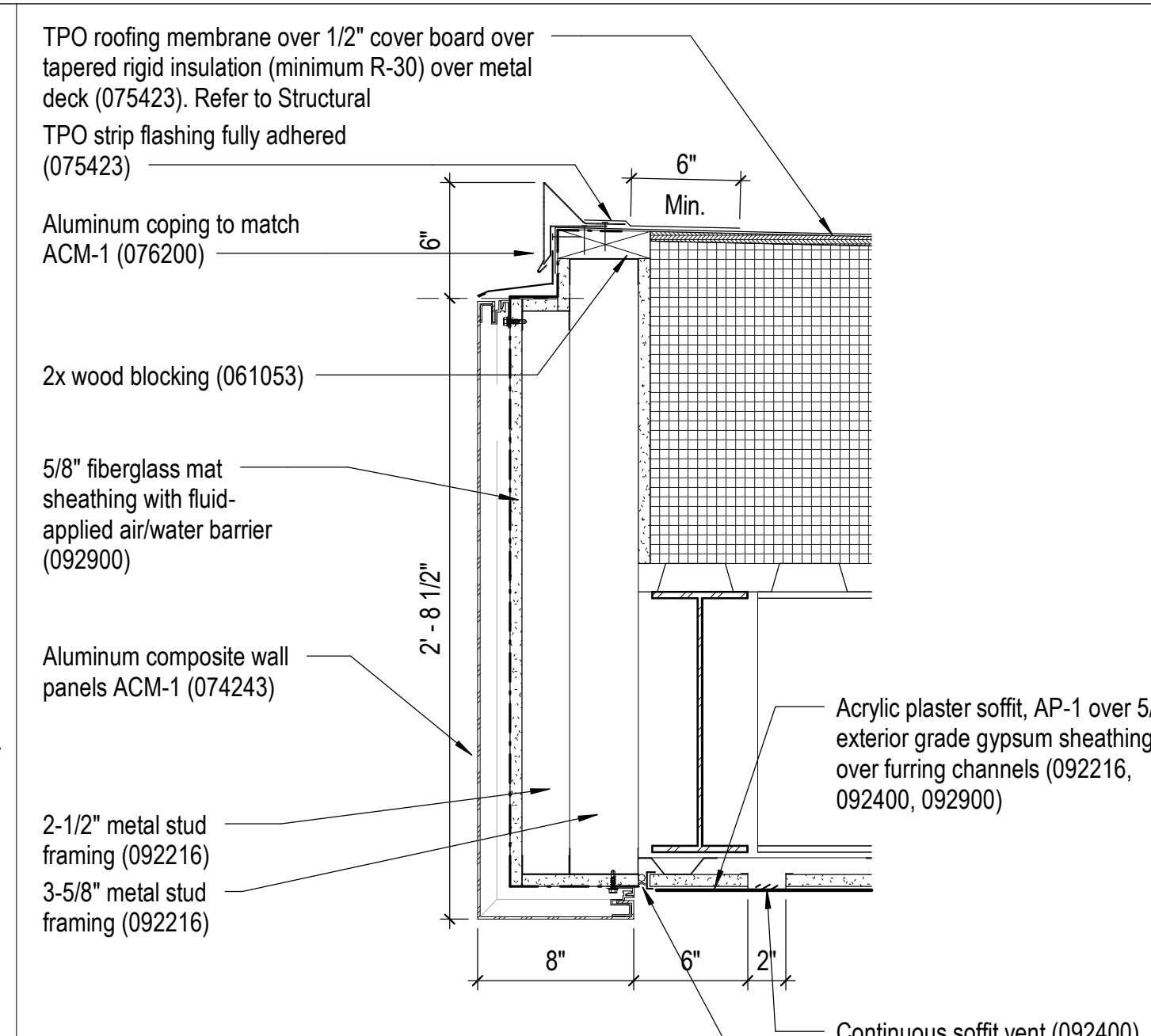
5 Detail - Window Mullion

A-101 1 1/2" = 1'-0"

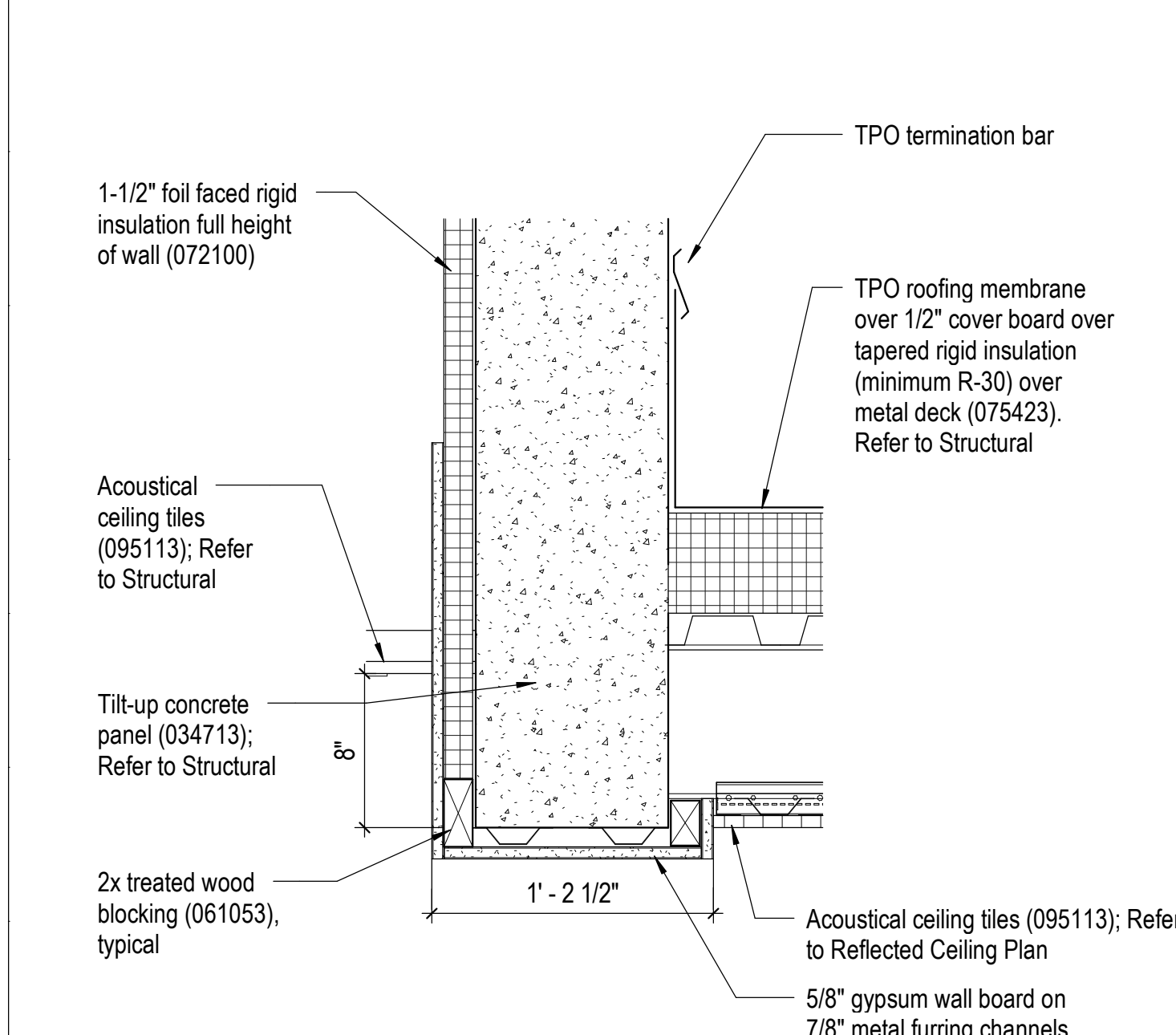




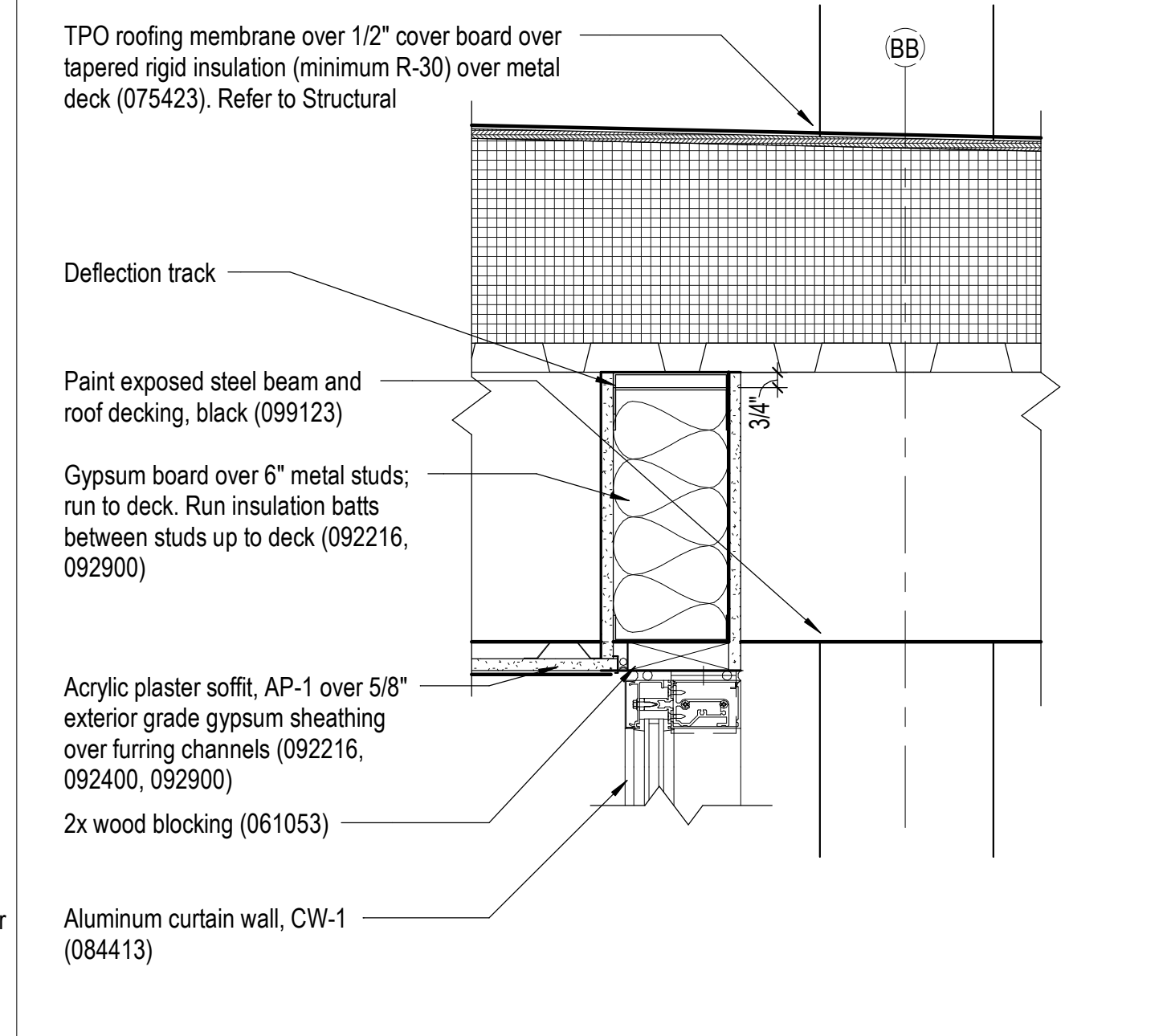
**10 Firing Range Fascia (Alternate #04)**  
 A-303 1 1/2" = 1'-0"  
 0 2" 4" 8"



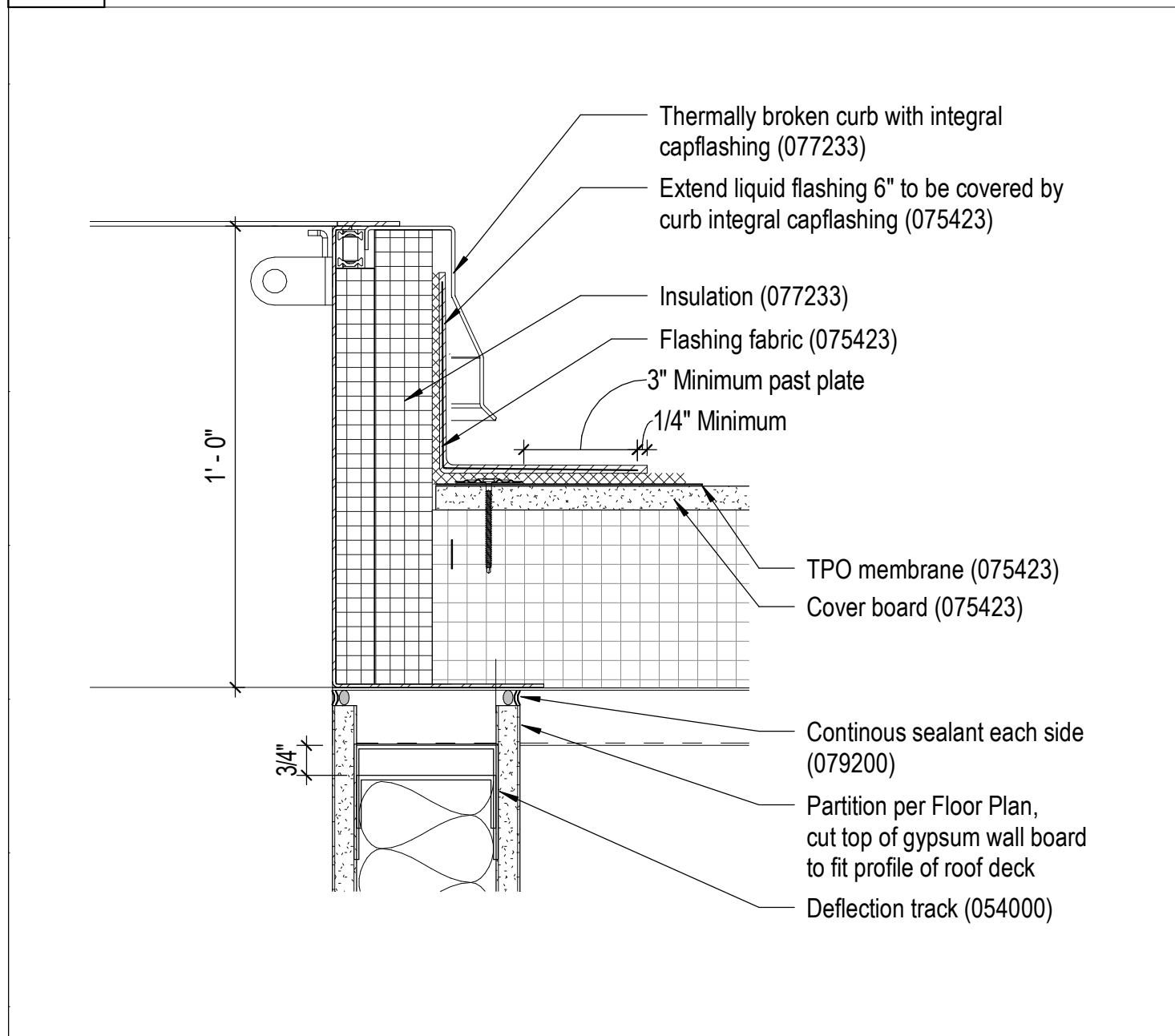
**11 Detail at High Roof Fascia**  
 A-121 1 1/2" = 1'-0"  
 0 2" 4" 8"



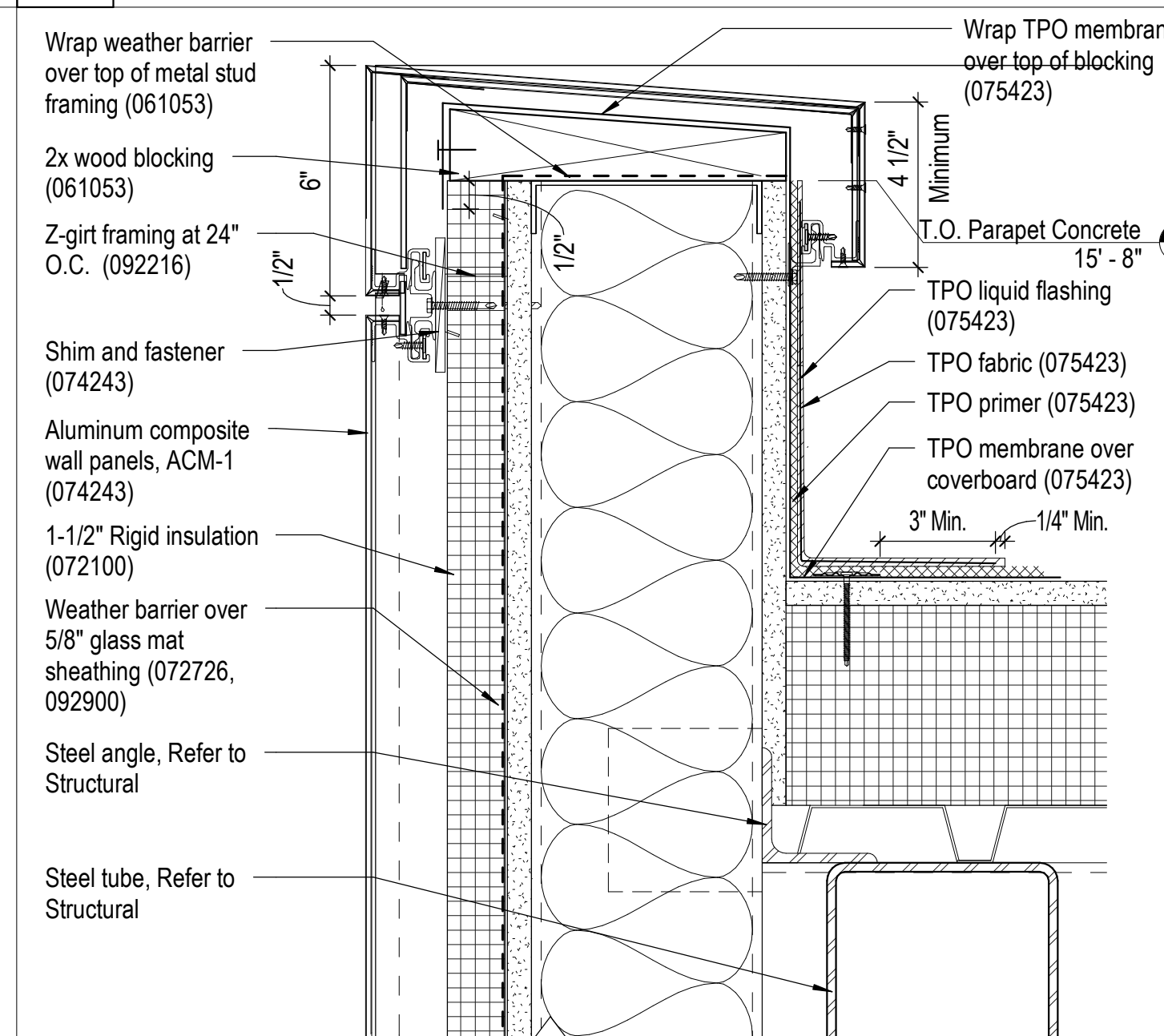
**5 Detail at Firing Range Soffit (Alternate #04)**  
 A-106 1 1/2" = 1'-0"  
 0 2" 4" 8"



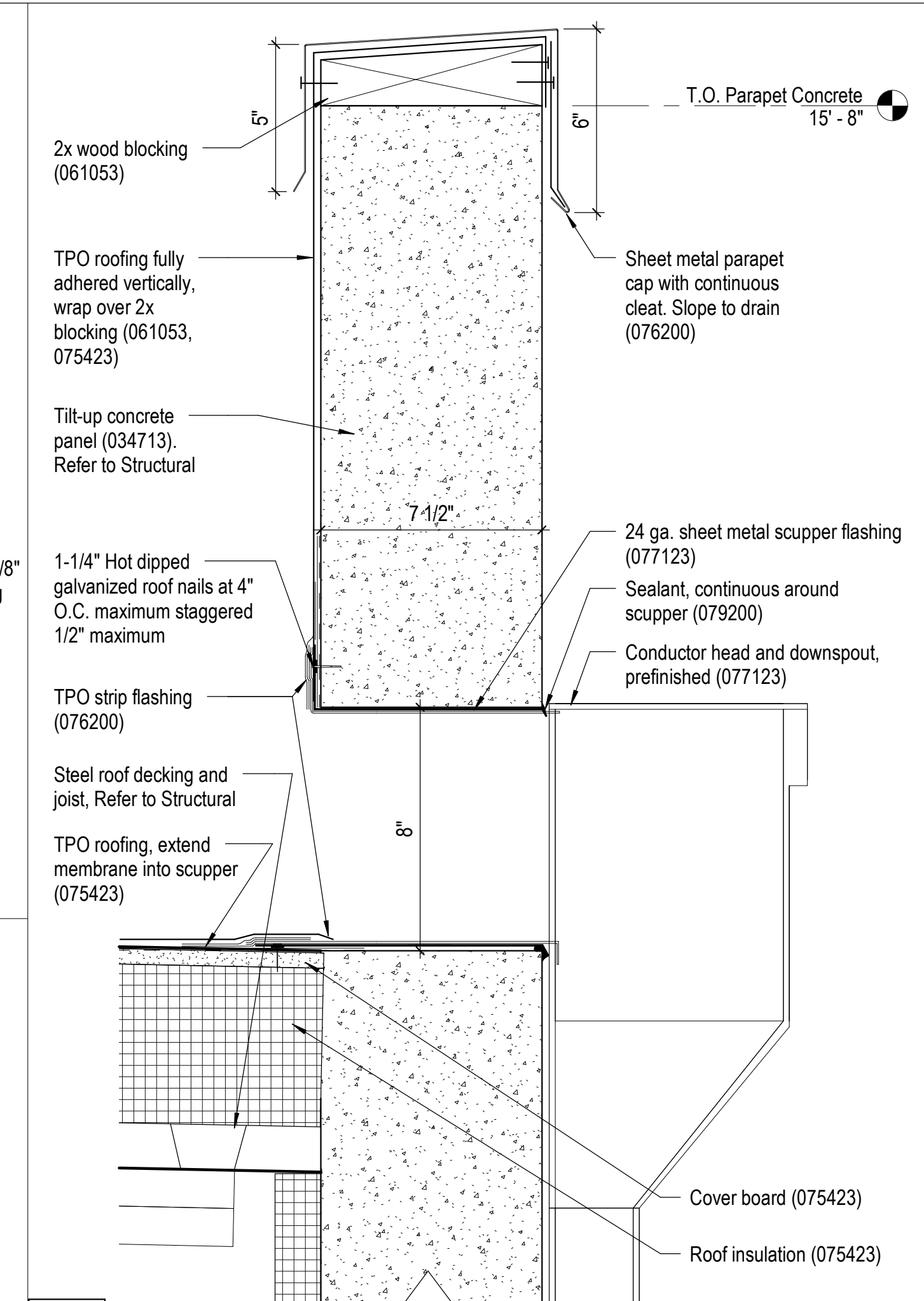
**6 Detail at Curtain Wall Head**  
 A-121 1 1/2" = 1'-0"  
 0 2" 4" 8"



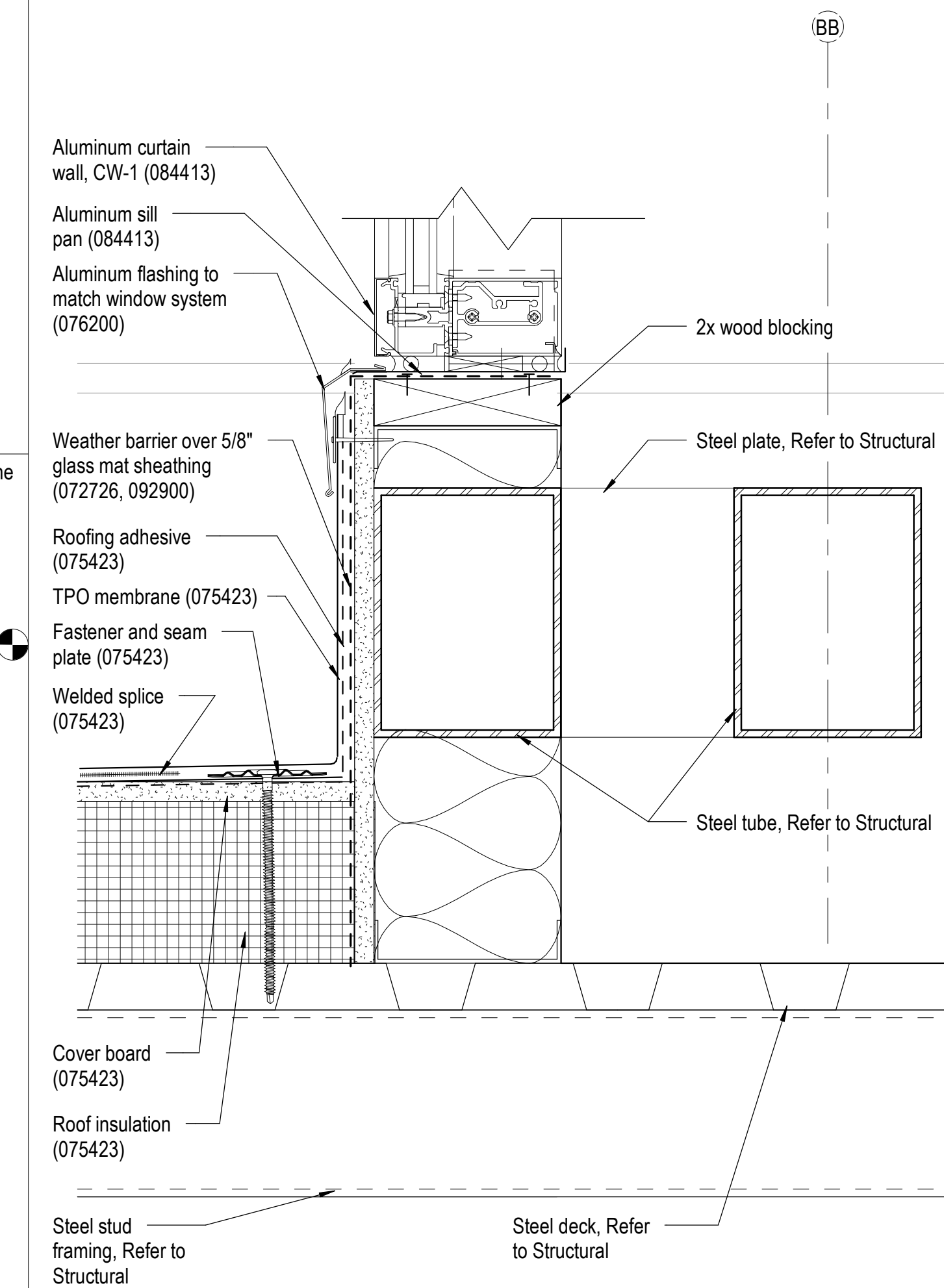
**1 Detail at Roof Hatch Curb**  
 A-312 3" = 1'-0"  
 0 1" 2" 4"



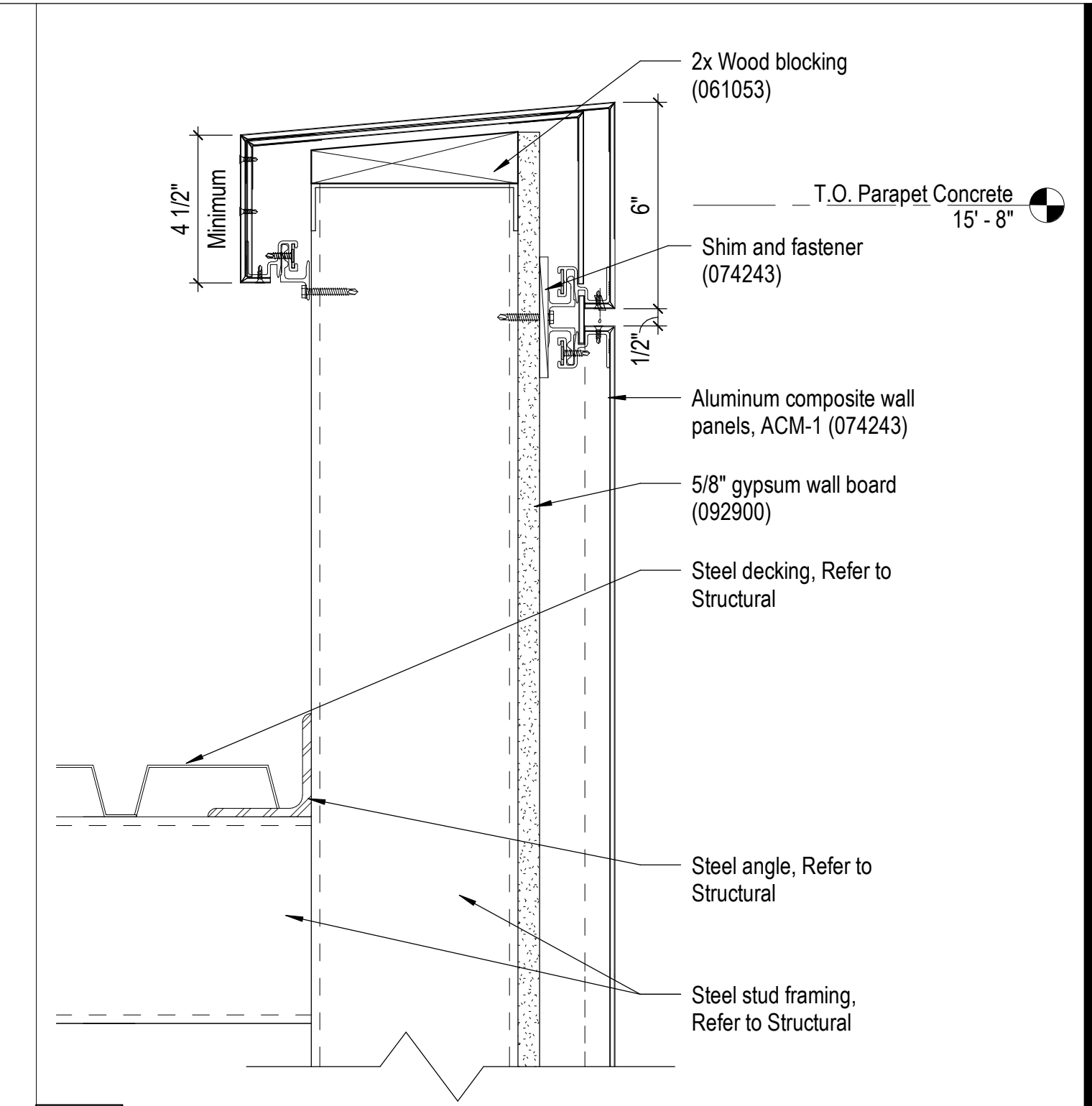
**2 Detail at Vestibule Parapet**  
 A-310 3" = 1'-0"  
 0 1" 2" 4"



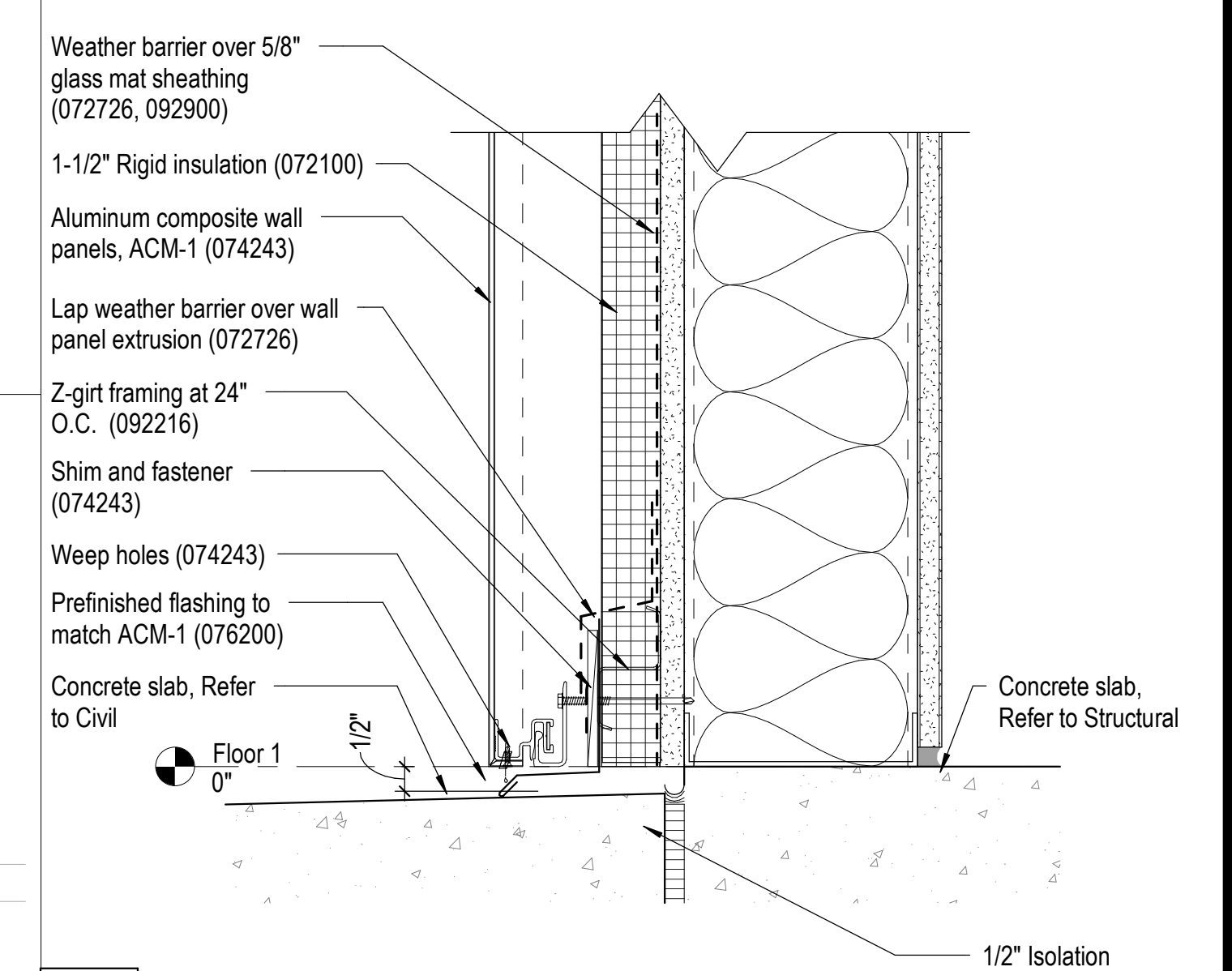
**8 Detail at Scupper**  
 A-202 3" = 1'-0"  
 0 1" 2" 4"



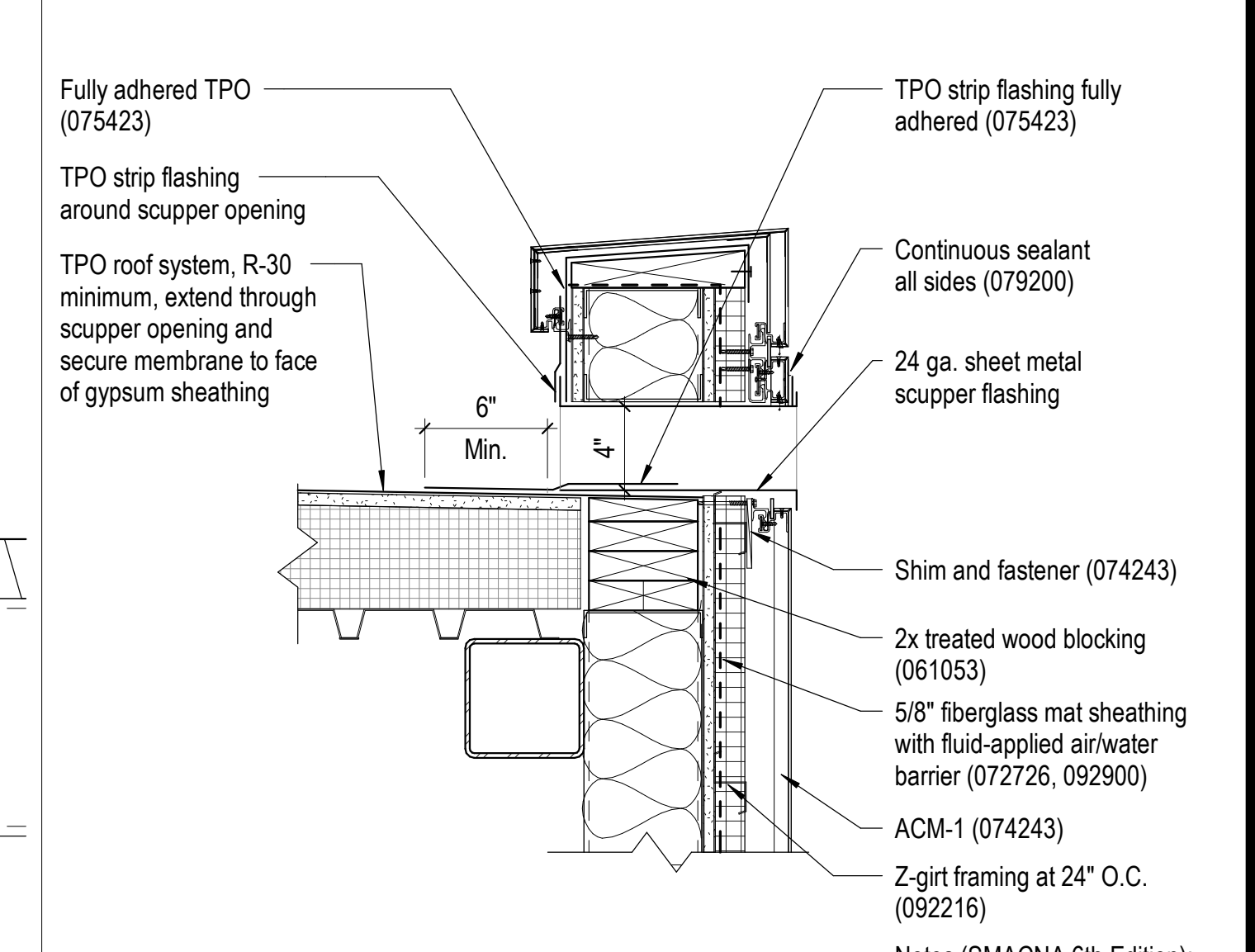
**3 Detail at Vestibule to Curtain Wall Connection**  
 A-310 3" = 1'-0"  
 0 1" 2" 4"



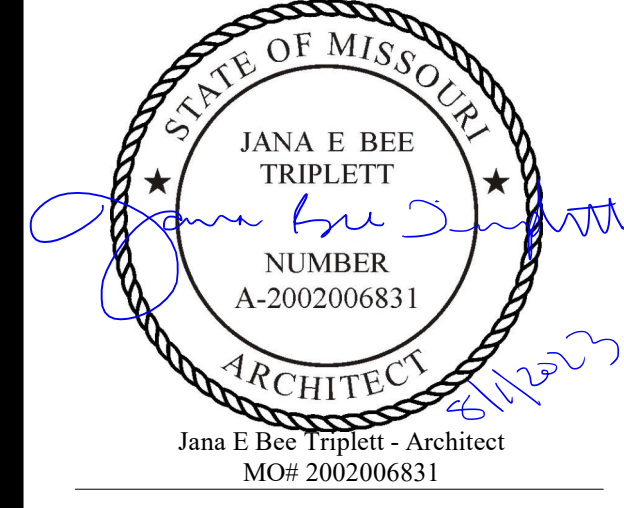
**9 Detail at Vestibule Parapet Interior**  
 A-310 3" = 1'-0"  
 0 1" 2" 4"

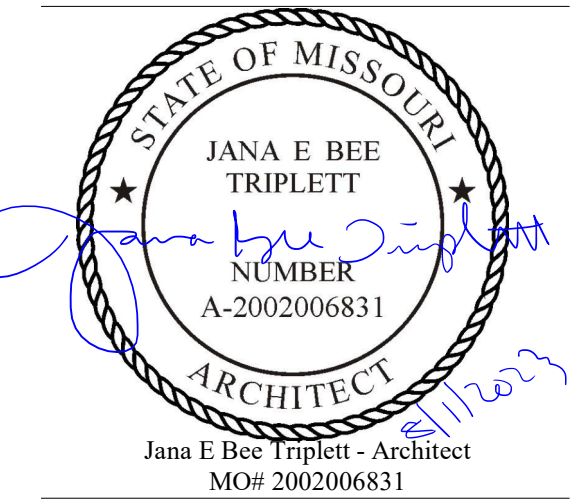


**7 Detail at Bottom of Vestibule Wall**  
 A-201 3" = 1'-0"  
 0 1" 2" 4"



**4 Detail at Vestibule Scupper**  
 A-310 1 1/2" = 1'-0"  
 0 2" 4" 8"





Jana E Bee Triplett - Architect  
MO# 2002006831

**Gastinger Walker &**

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817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2102.152

GastingerWalker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-503.dwg  
DRAWN BY: Author  
CHECKED BY: JBT  
DESIGNED BY: GW&  
SHEET TITLE:

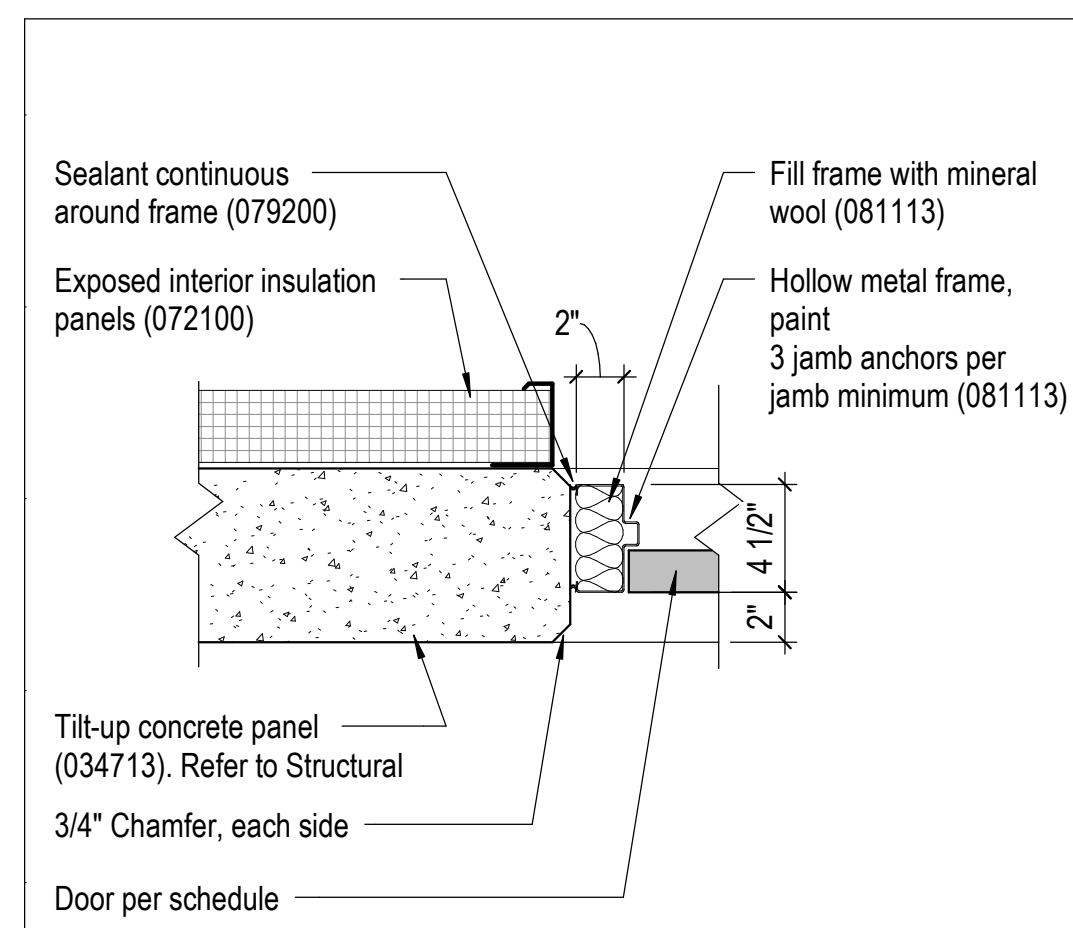
Details

SHEET NUMBER:

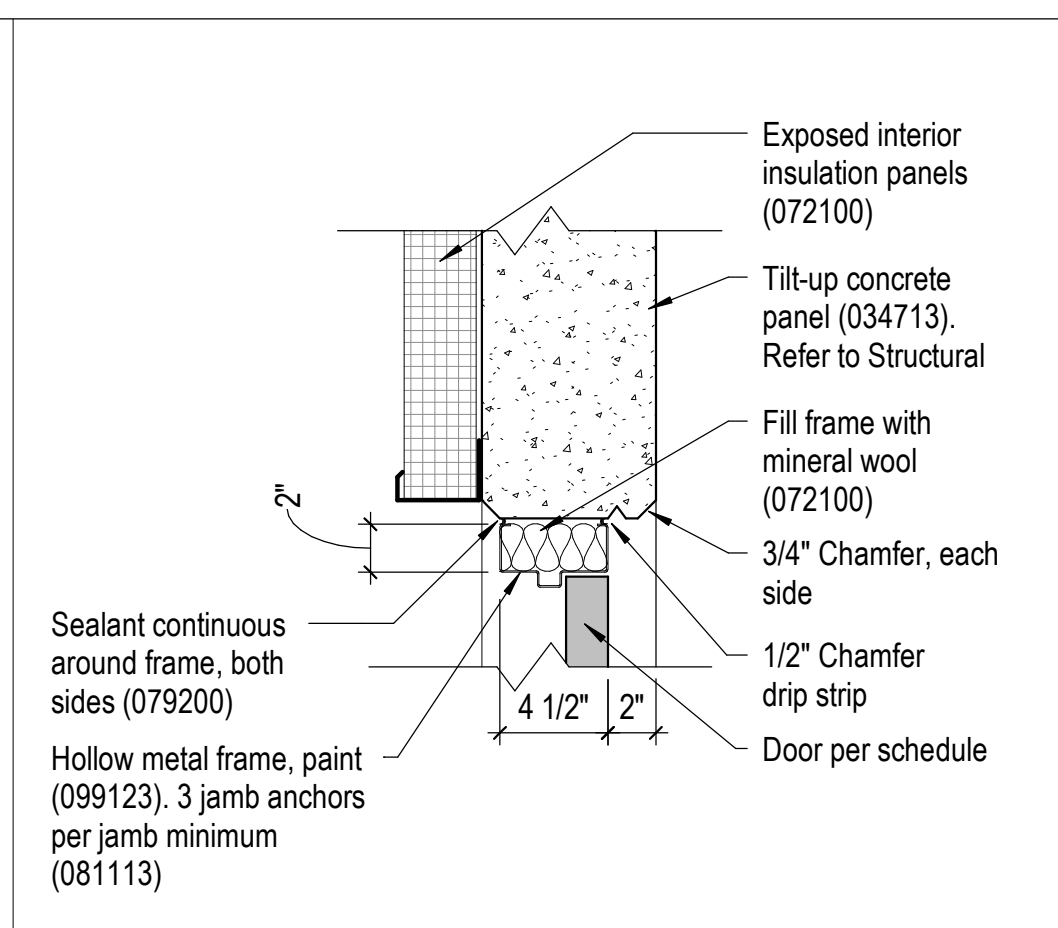
**A-503**

SHEET 090 OF 202

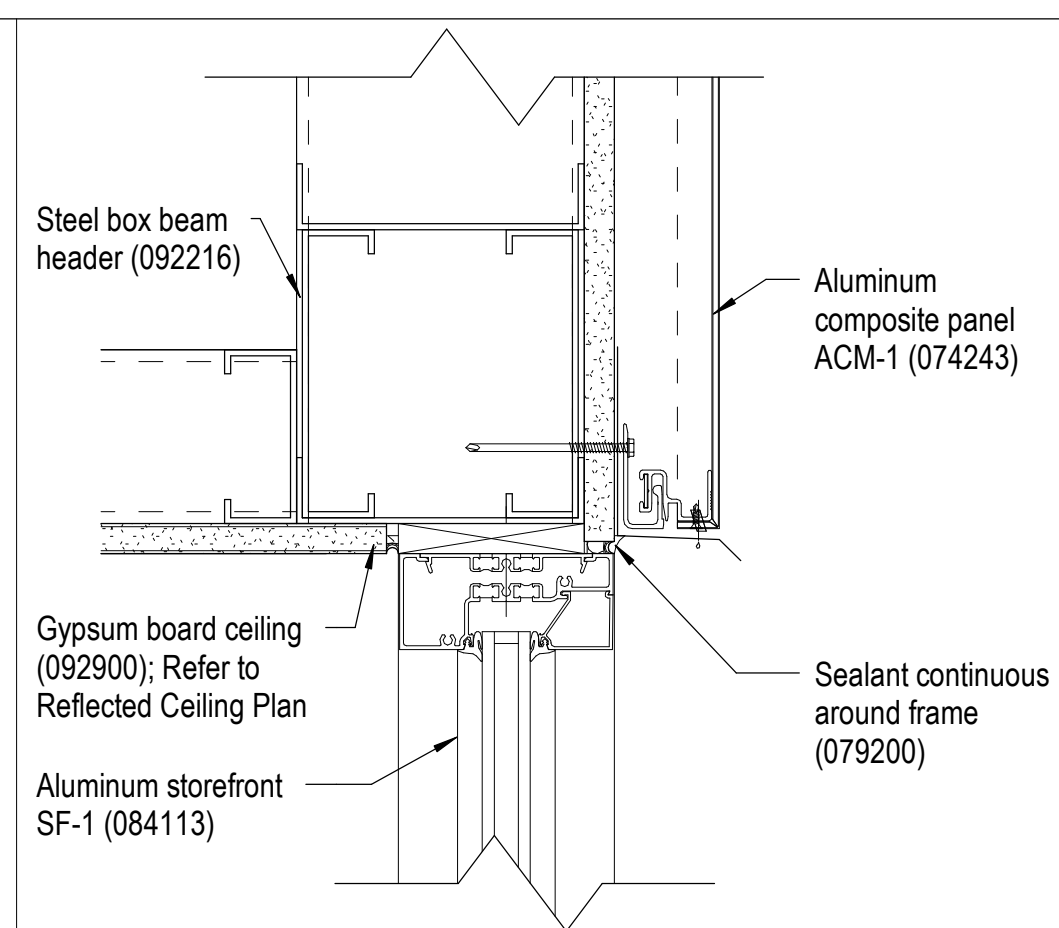
08/01/2023



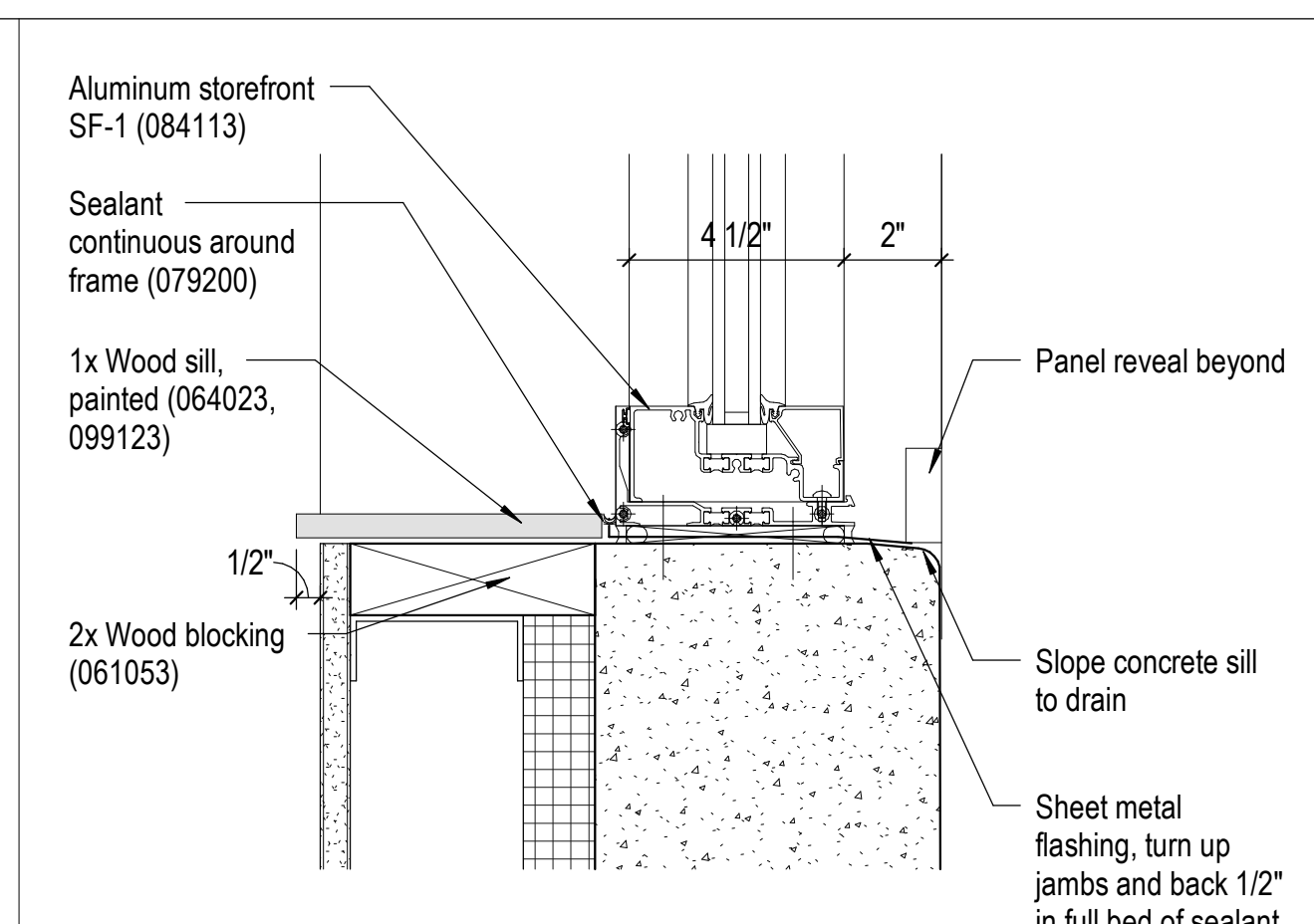
14 Hollow Metal Door Jamb Detail  
A-311 1 1/2" = 1'-0" 0 2" 4" 8"



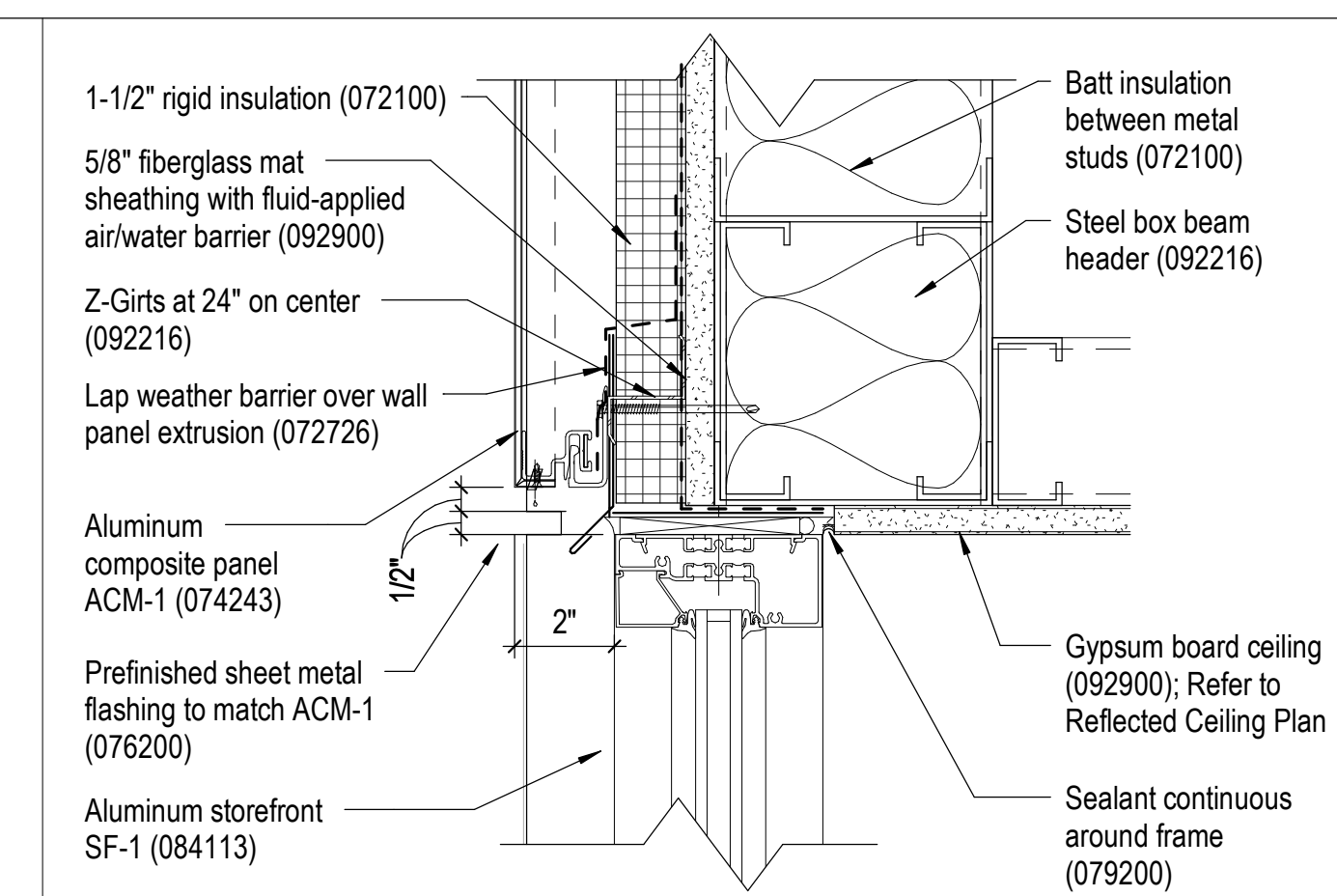
15 Hollow Metal Door Head Detail  
A-310 1 1/2" = 1'-0" 0 2" 4" 8"



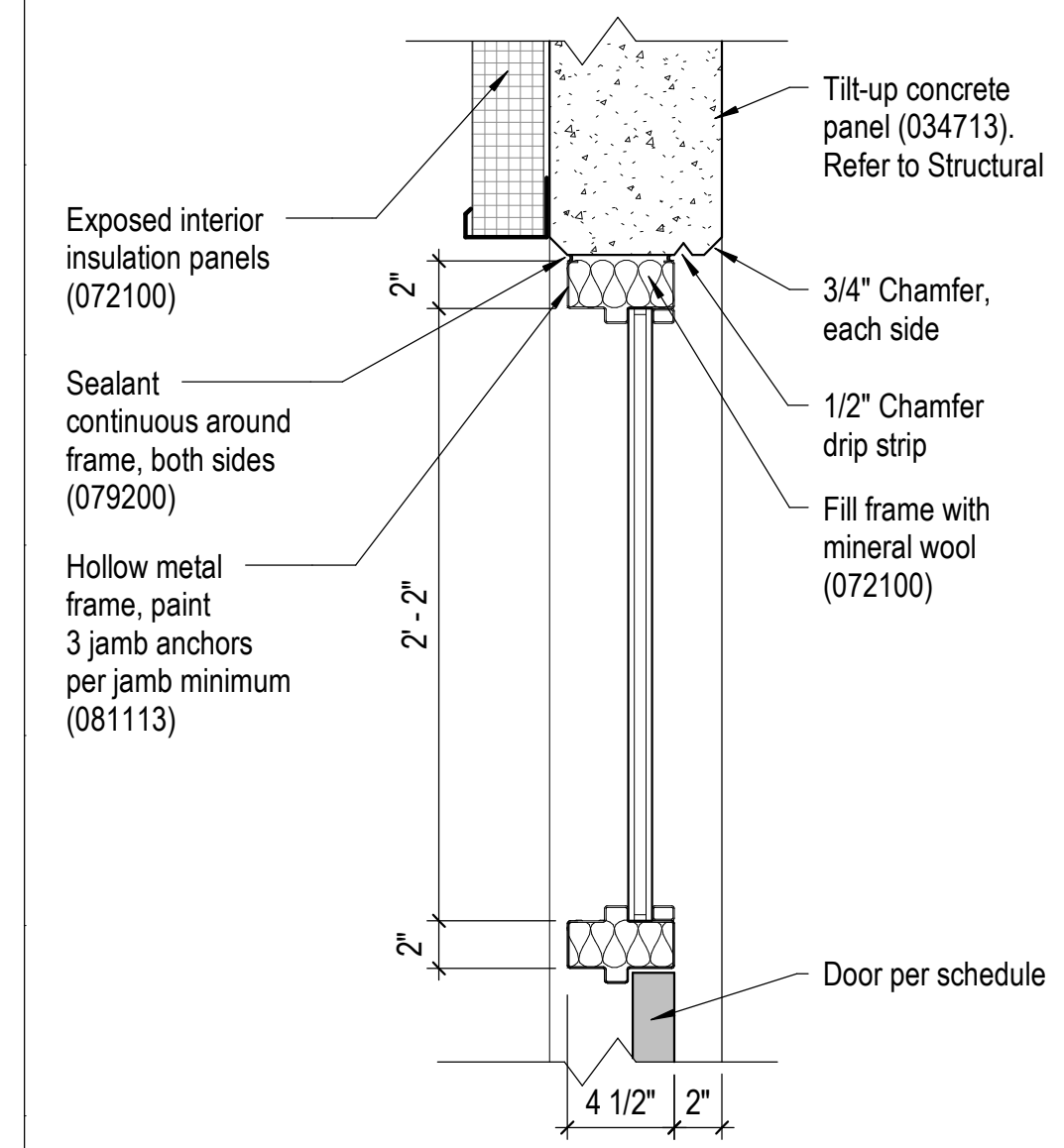
16 Detail at Window Head  
A-310 3" = 1'-0" 0 1" 2" 4"



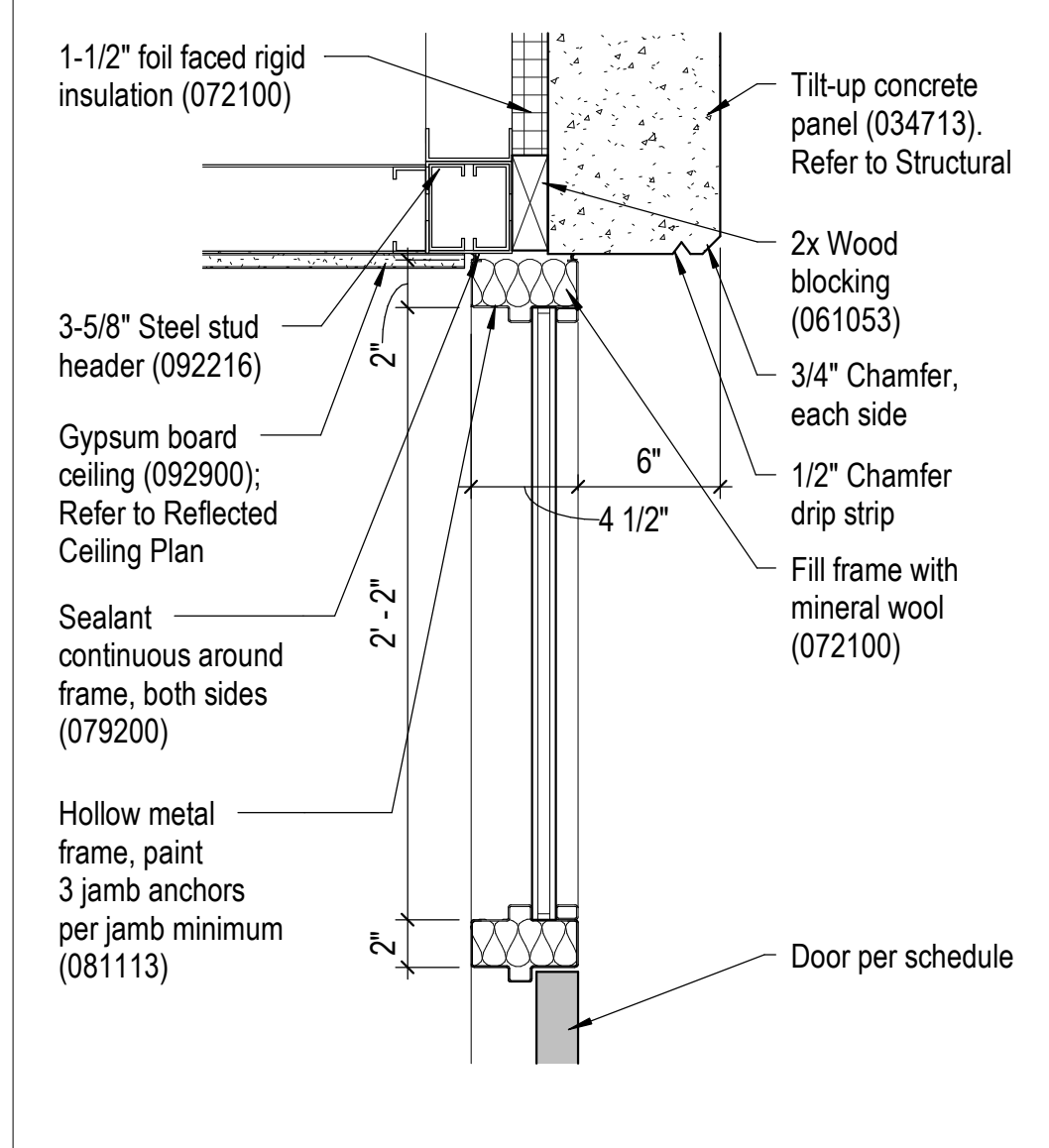
17 Detail at Window Type A & D Sill  
A-311 3" = 1'-0" 0 1" 2" 4"



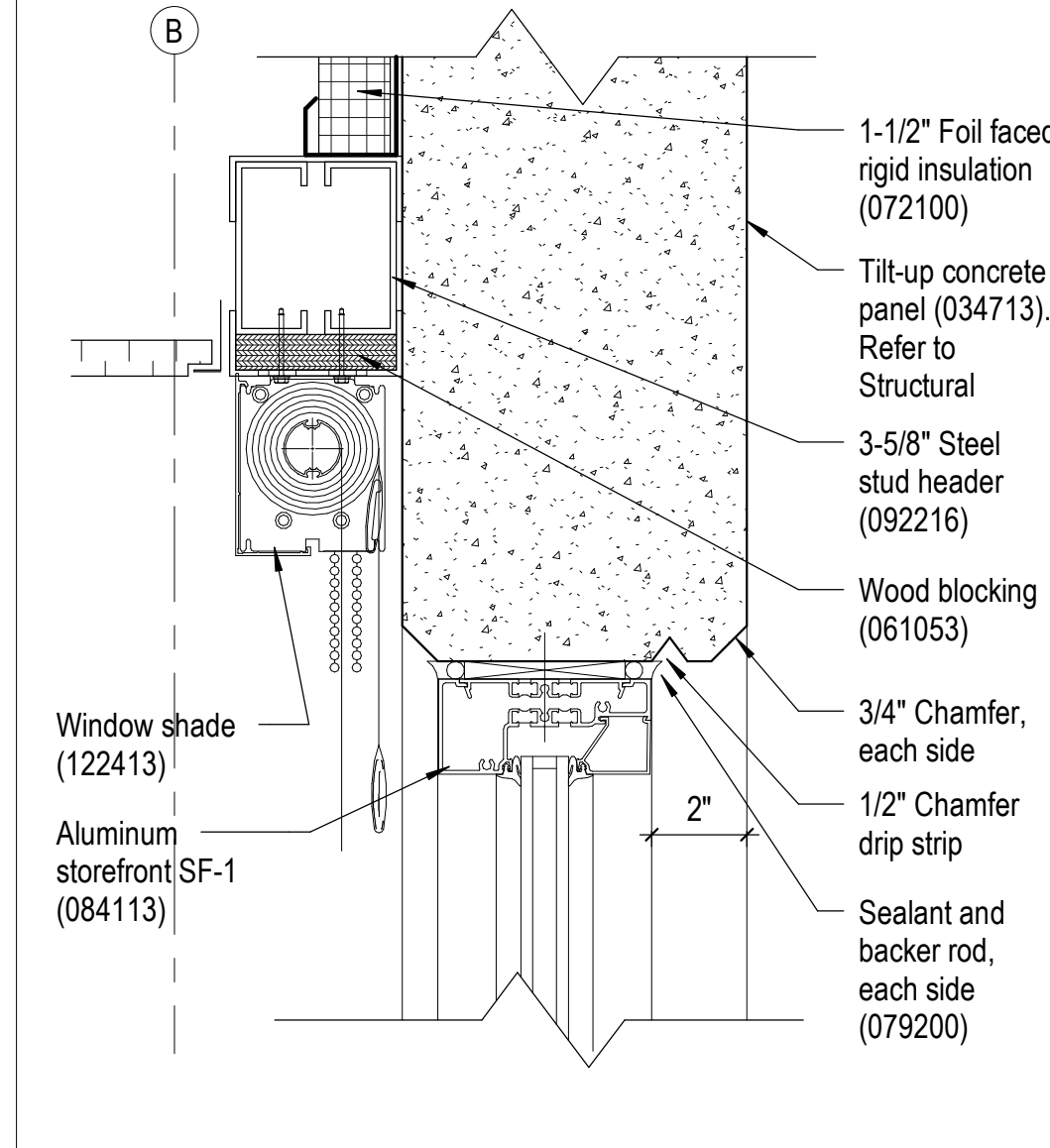
18 Detail at Window Head  
A-310 3" = 1'-0" 0 1" 2" 4"



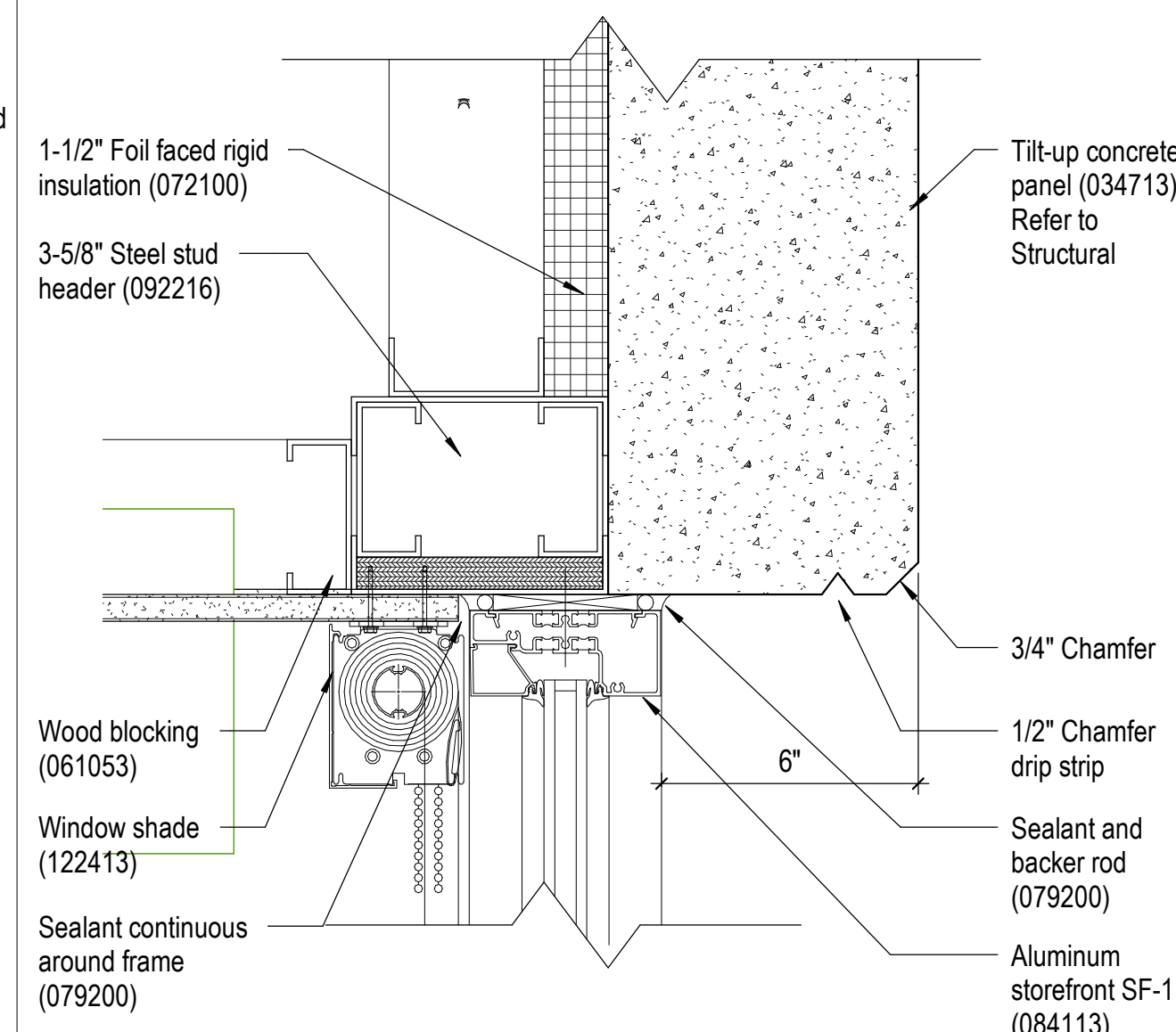
9 Hollow Metal Door Head/Transom Detail  
A-311 1 1/2" = 1'-0" 0 2" 4" 8"



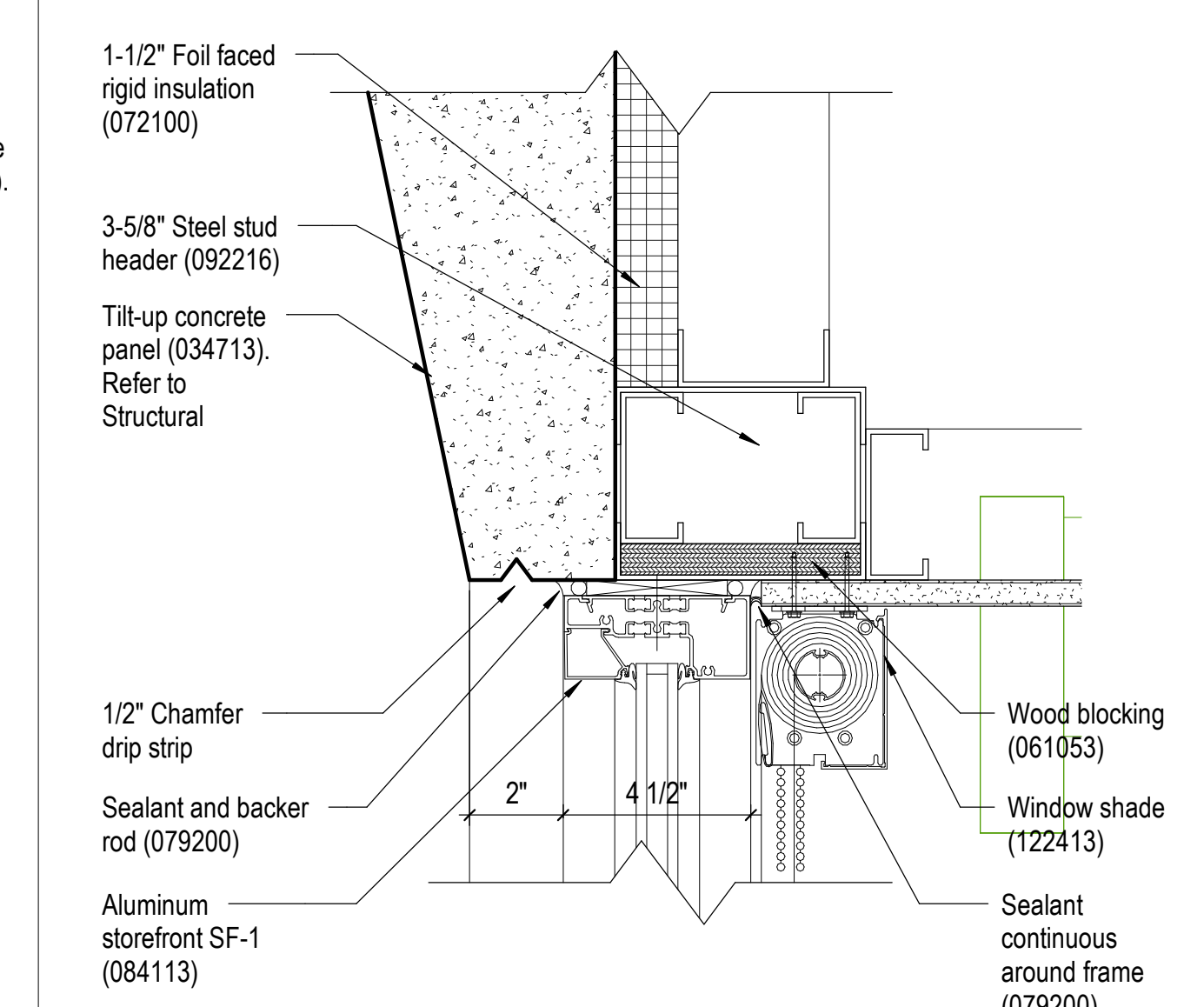
10 Hollow Metal Door Head/Transom Detail  
A-311 1 1/2" = 1'-0" 0 2" 4" 8"



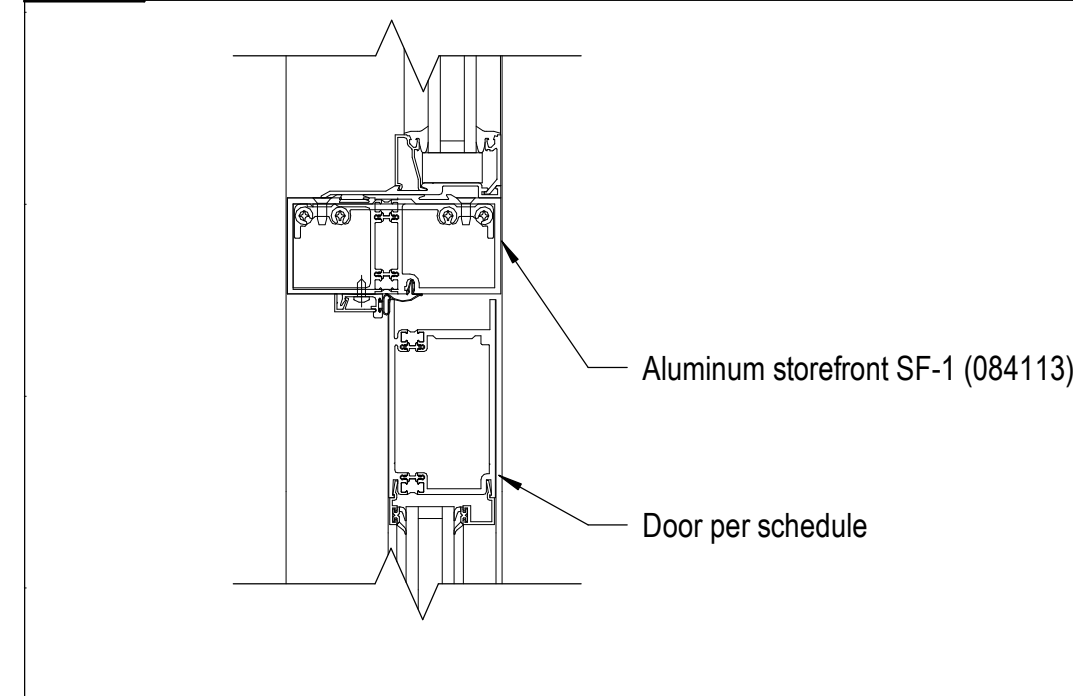
11 Detail at Window Head  
A-310 3" = 1'-0" 0 1" 2" 4"



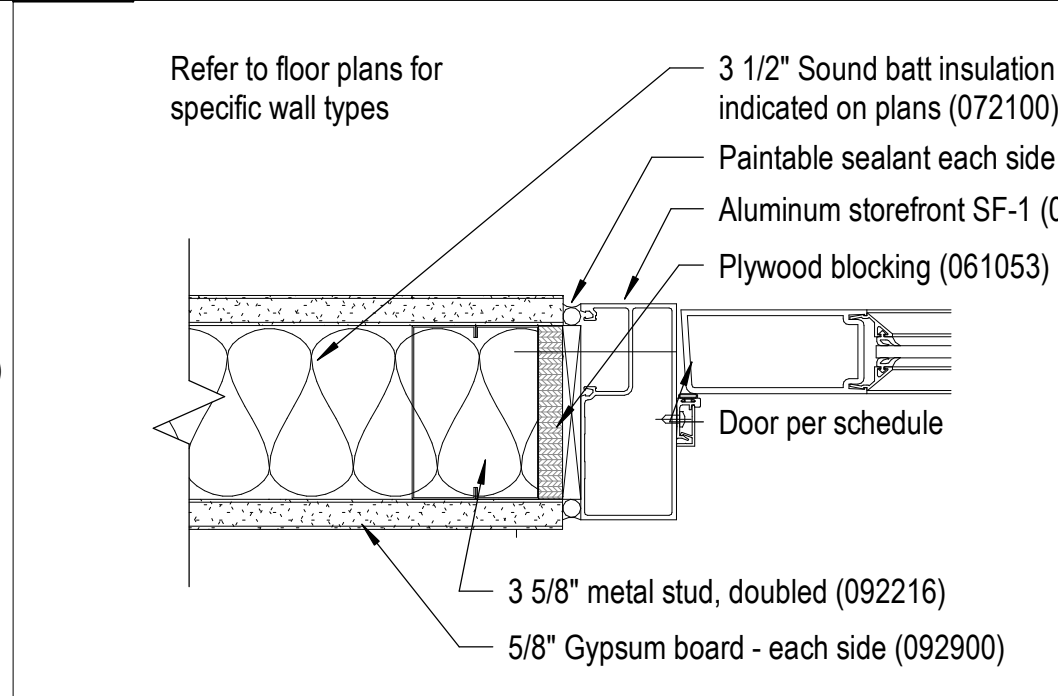
12 Detail at Window Head  
A-311 3" = 1'-0" 0 1" 2" 4"



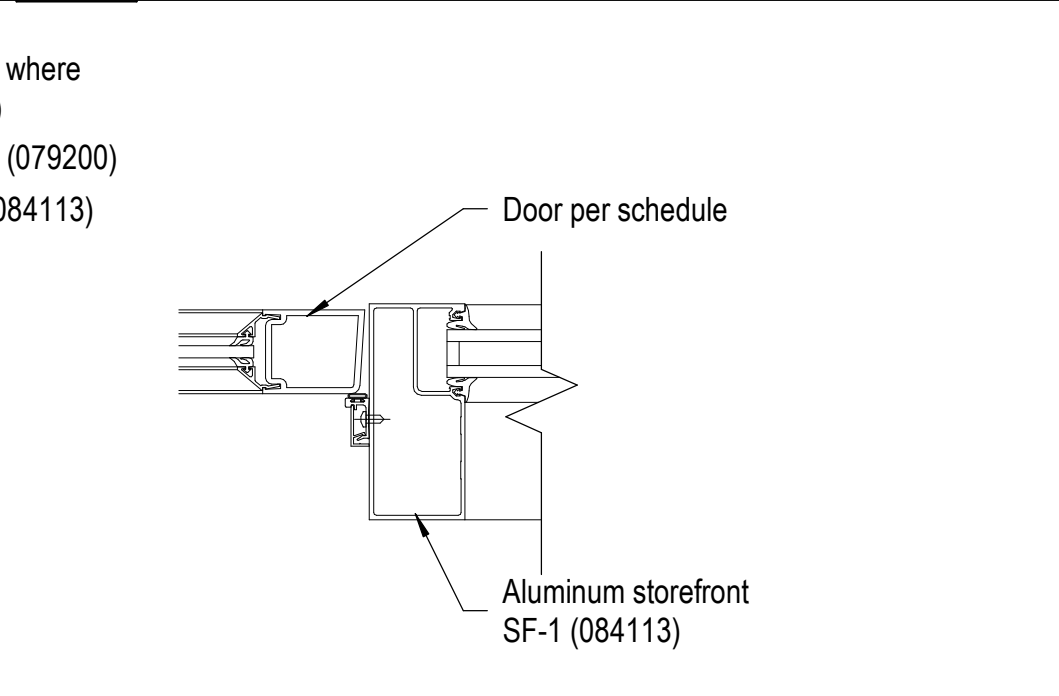
13 Detail at Window Head  
A-303 3" = 1'-0" 0 1" 2" 4"



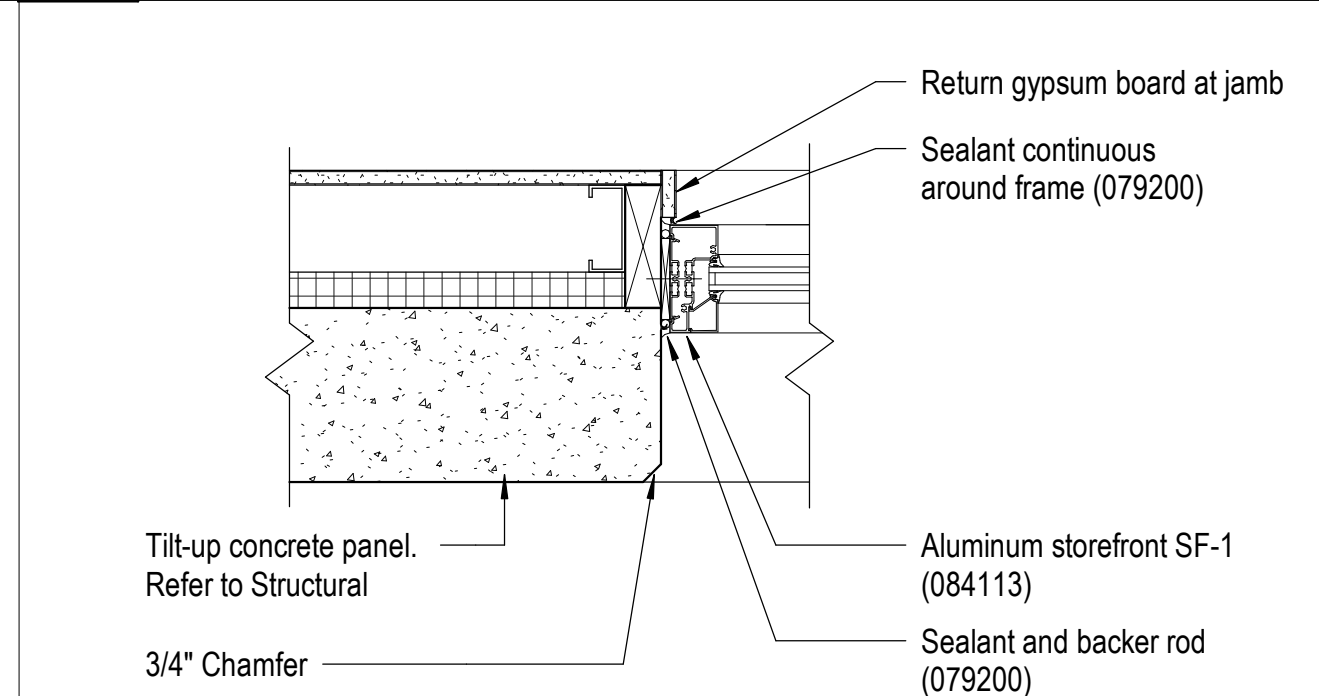
5 Detail - Head at Aluminum Frame  
3" = 1'-0" 0 1" 2" 4"



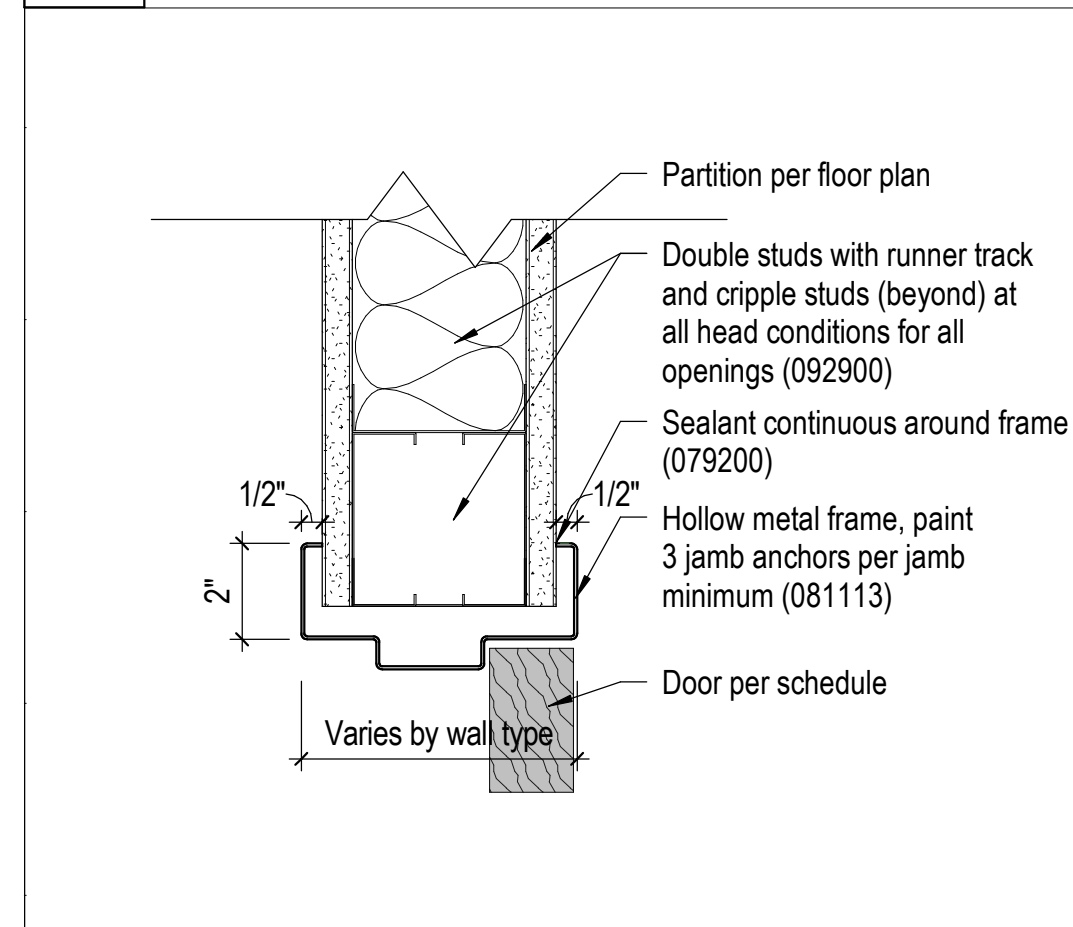
6 Detail - Jamb at Aluminum Frame  
3" = 1'-0" 0 1" 2" 4"



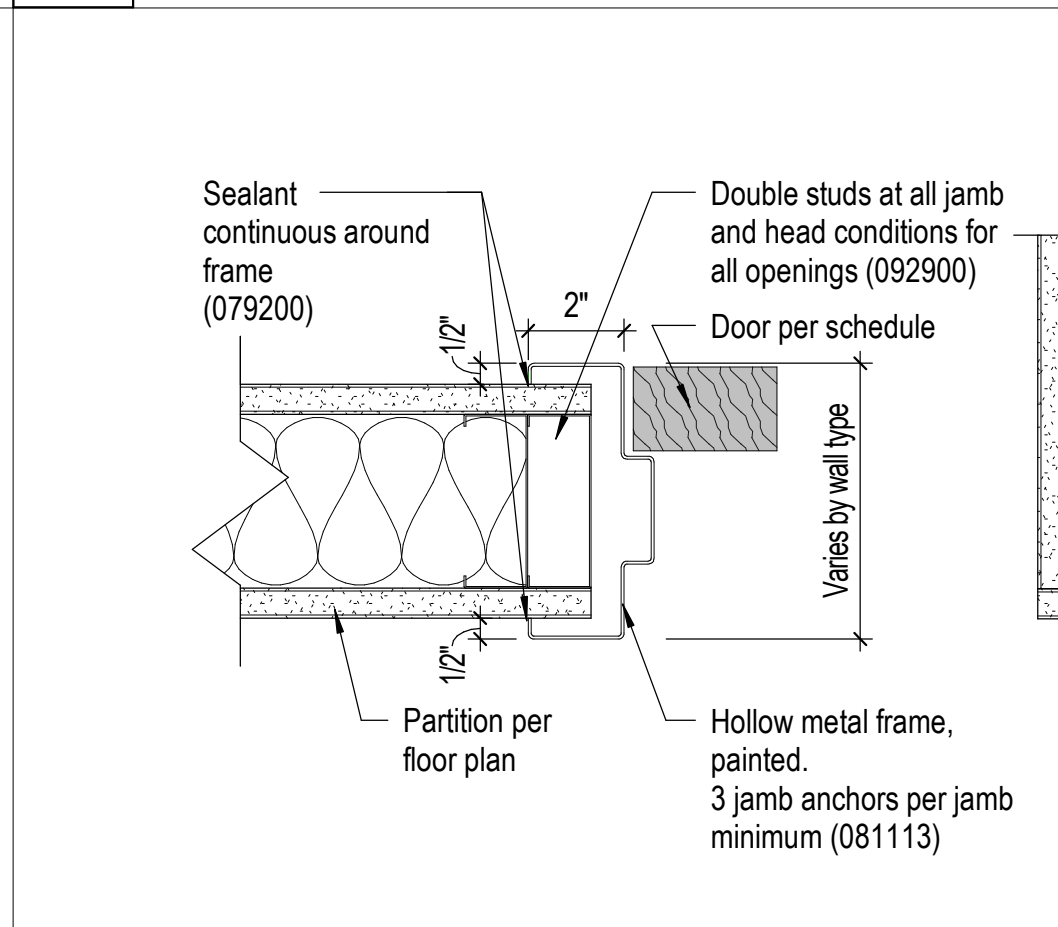
7 Detail at Window Jamb  
A-303 1 1/2" = 1'-0" 0 2" 4" 8"



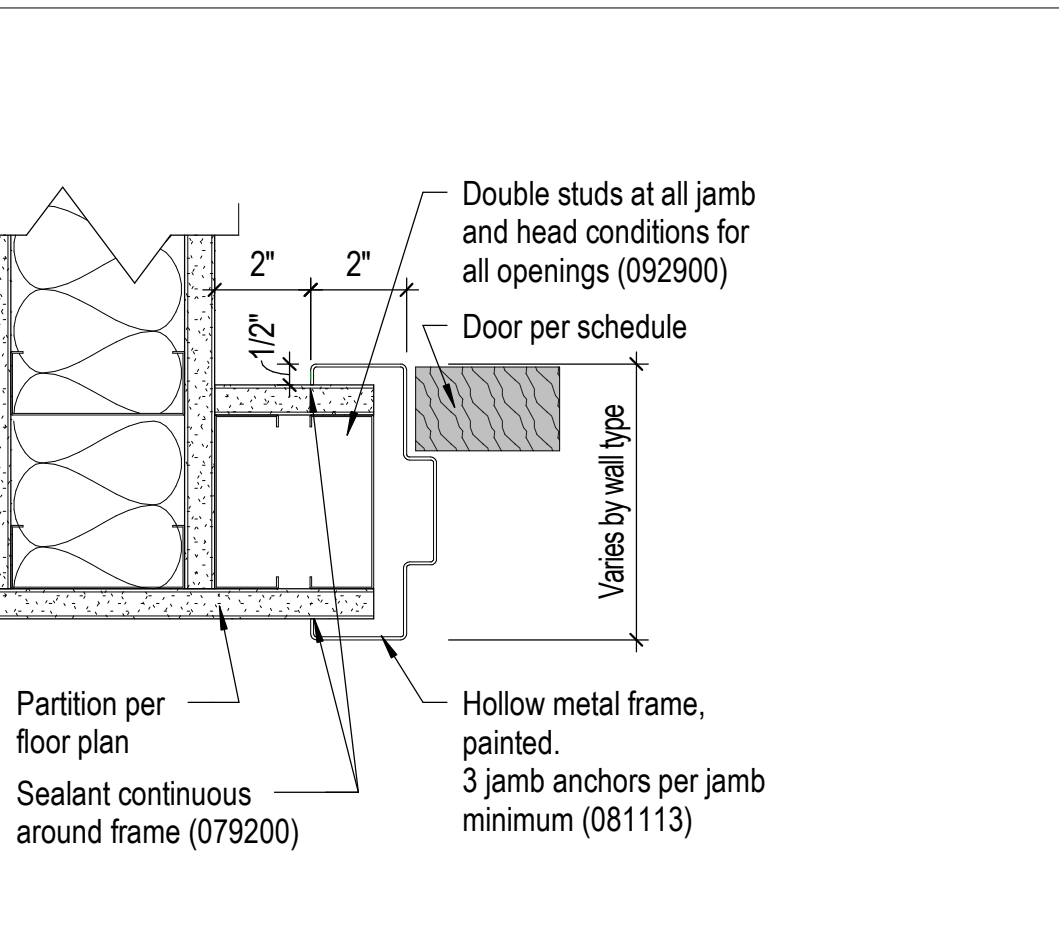
8 Detail at Window Type C Sill at Office 166  
A-310 3" = 1'-0" 0 1" 2" 4"



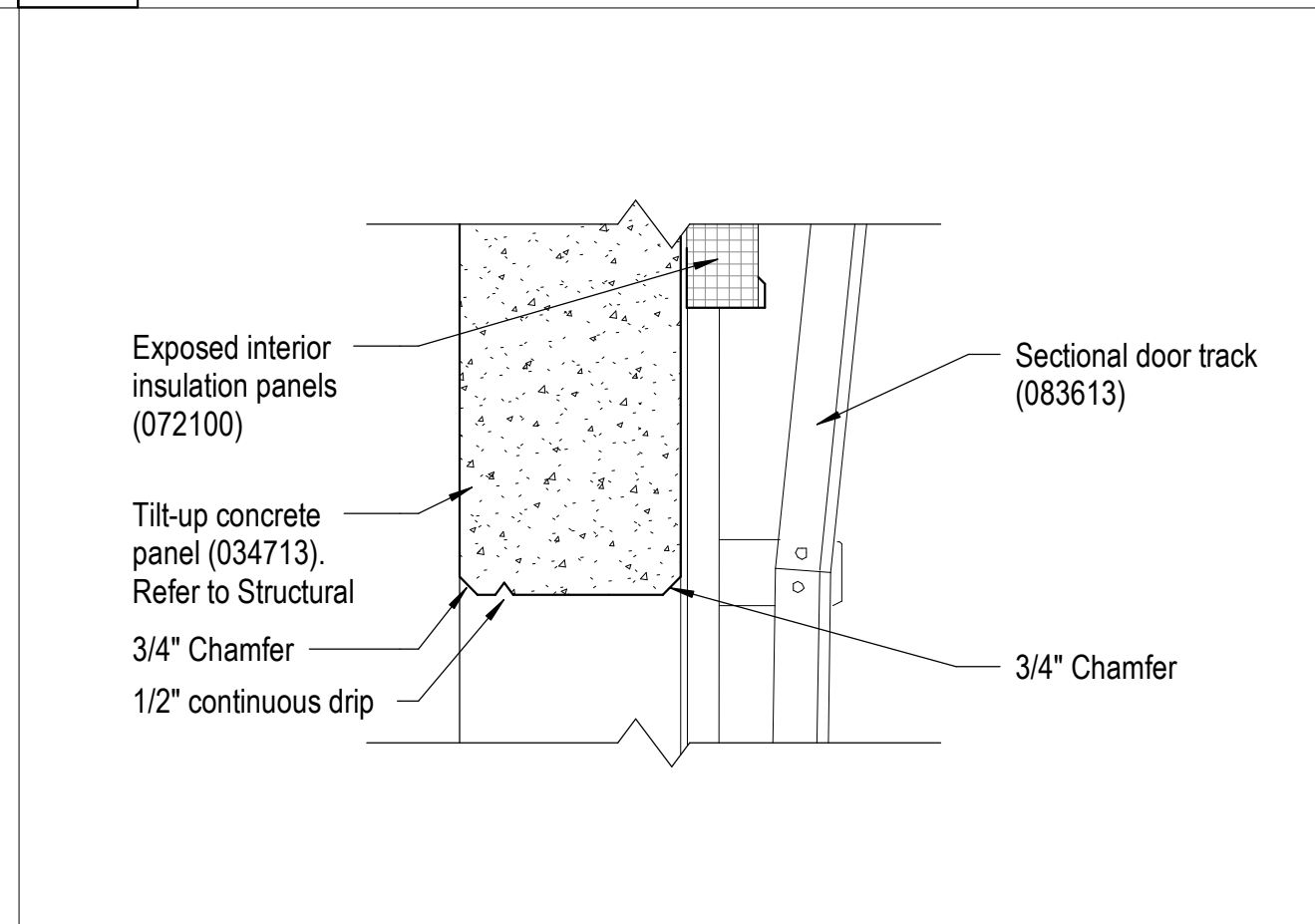
1 Door Head Details  
3" = 1'-0" 0 1" 2" 4"



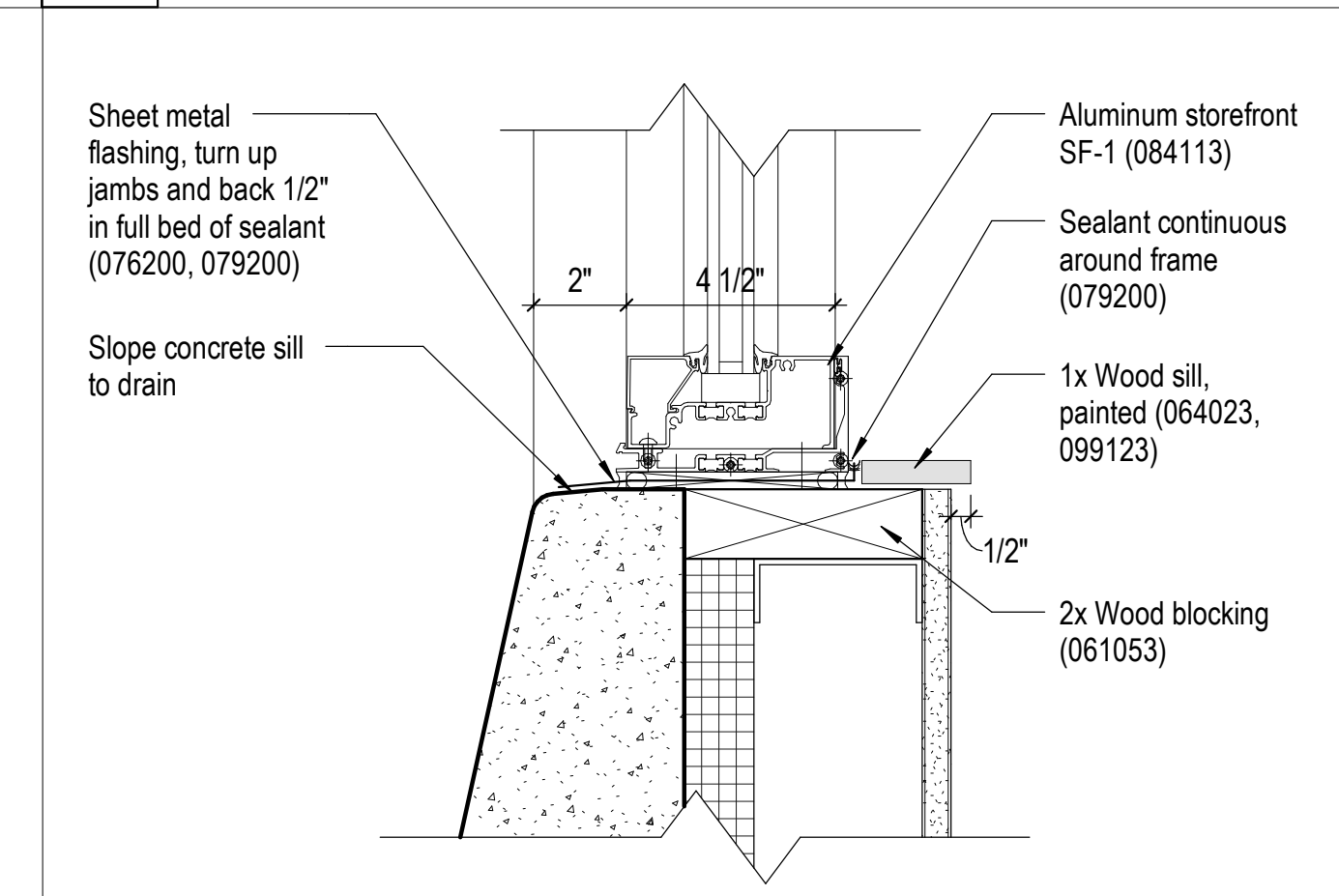
2 Door Jamb Details  
A-210 3" = 1'-0" 0 1" 2" 4"



3 Garage Door Head Detail  
A-312 1 1/2" = 1'-0" 0 2" 4" 8"



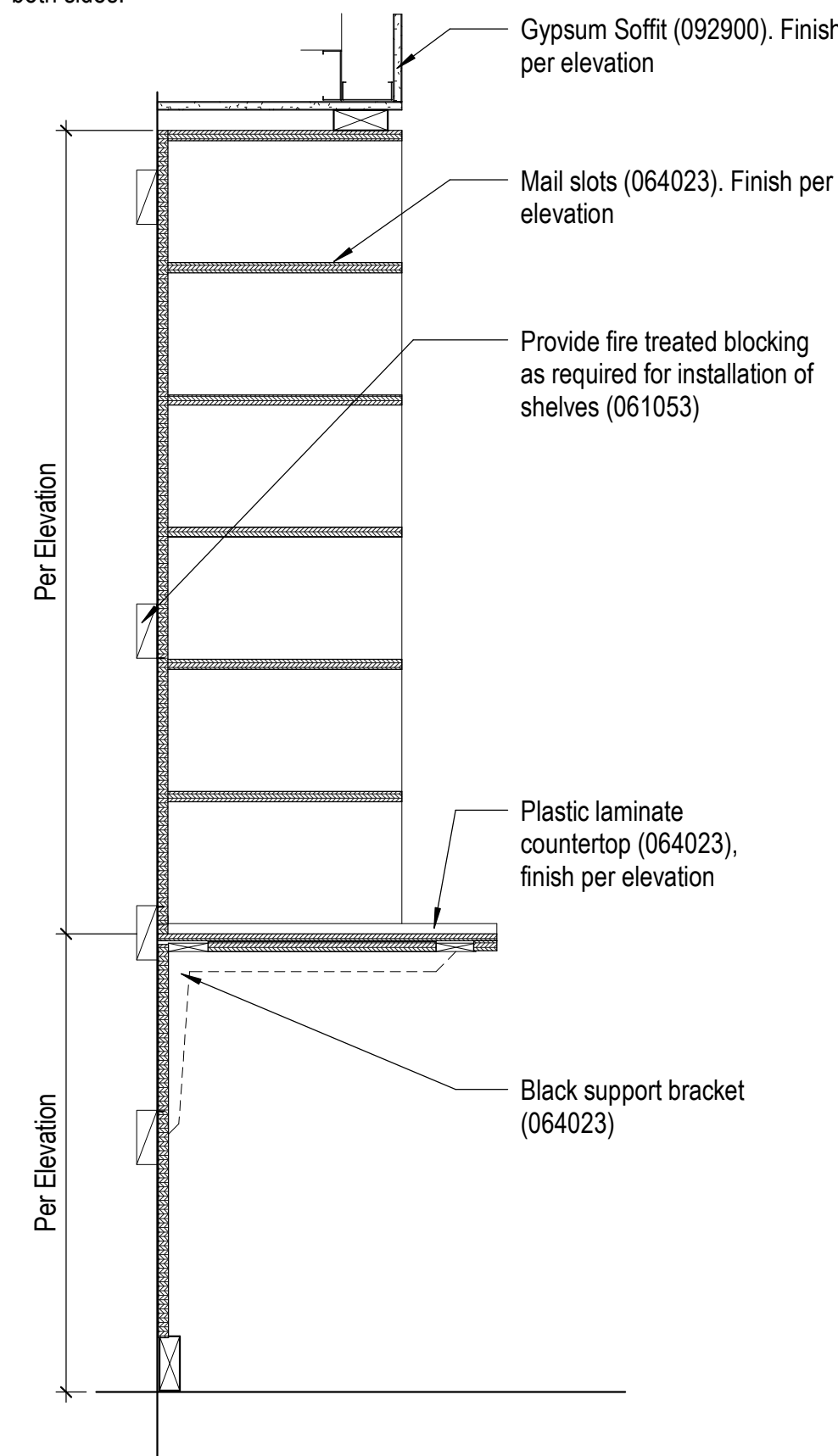
3 Garage Door Head Detail  
A-312 1 1/2" = 1'-0" 0 2" 4" 8"



4 Detail at Window Type B & C Sill  
A-303 3" = 1'-0" 0 1" 2" 4"

Note: Use concealed hinges on all cabinet doors.

Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces. Interior surfaces may be white melamine. Doors to be plastic laminate both sides.

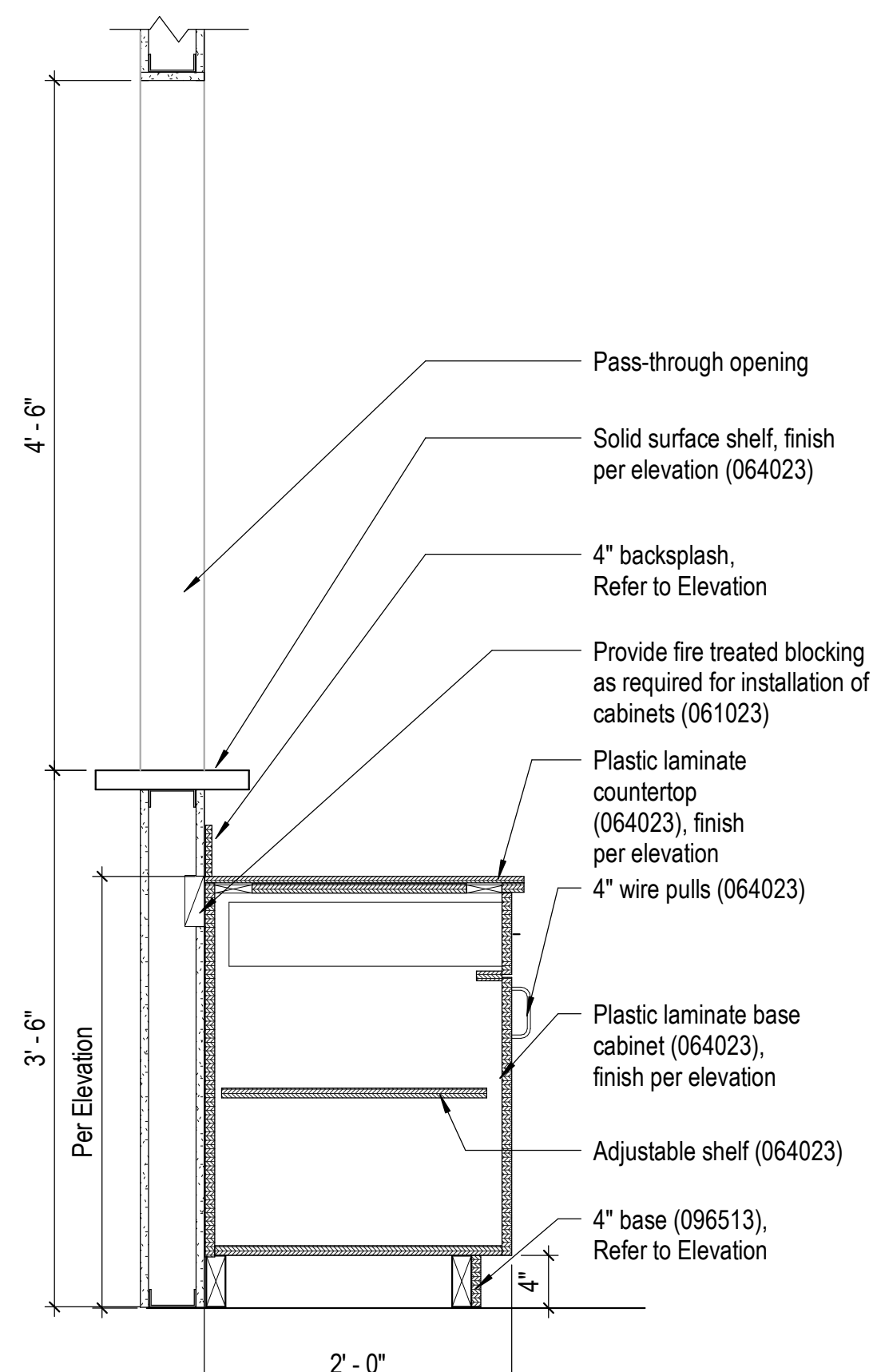


6 Section - Mail Boxes/Floating Counter

A-211 1" = 1'-0" 0 3' 6" 1'

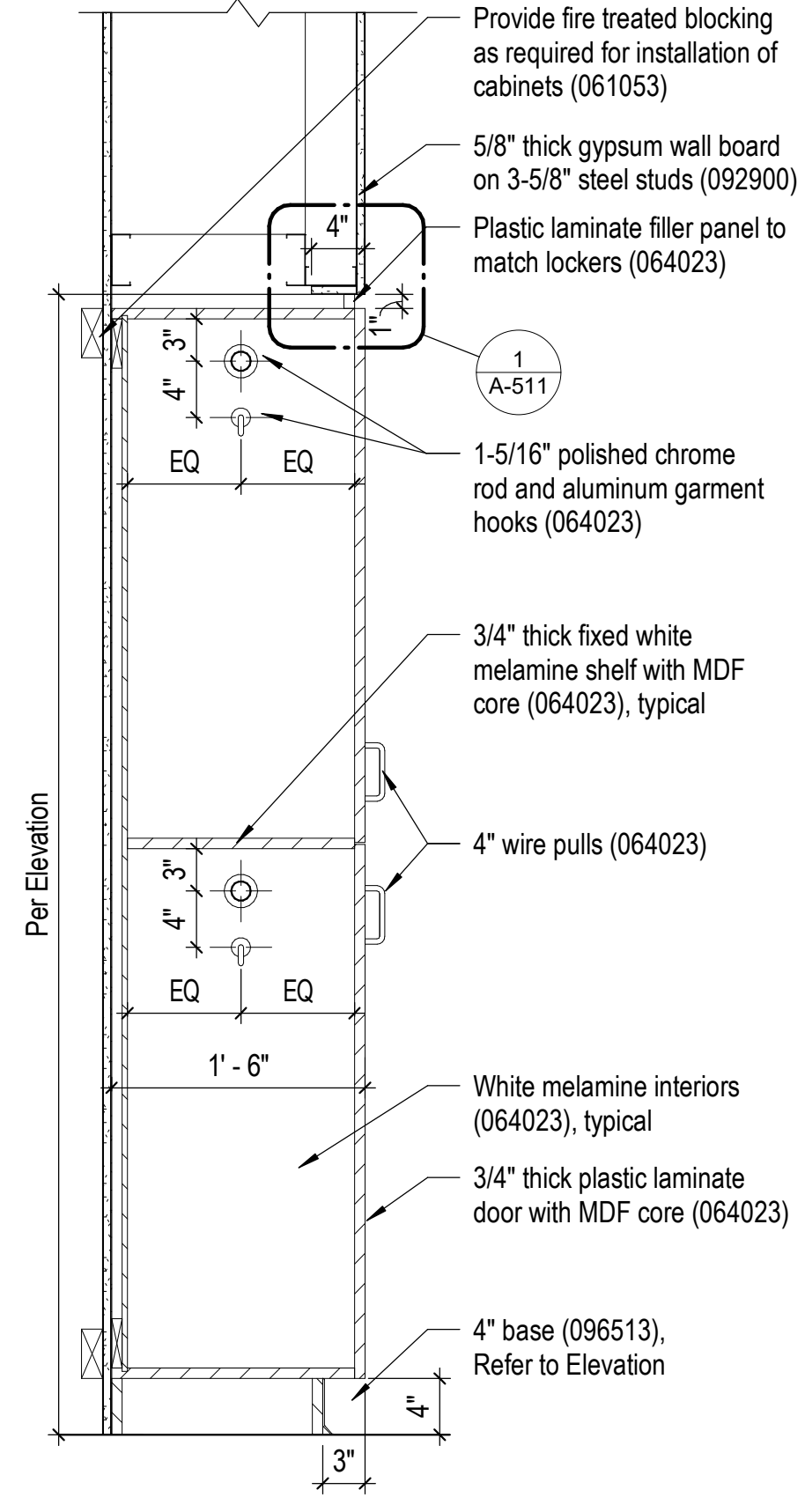
Note: Use concealed hinges on all cabinet doors.

Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces. Interior surfaces may be white melamine. Doors to be plastic laminate both sides.



7 Section - Pass Through Window

A-214 1" = 1'-0" 0 3' 6" 1'

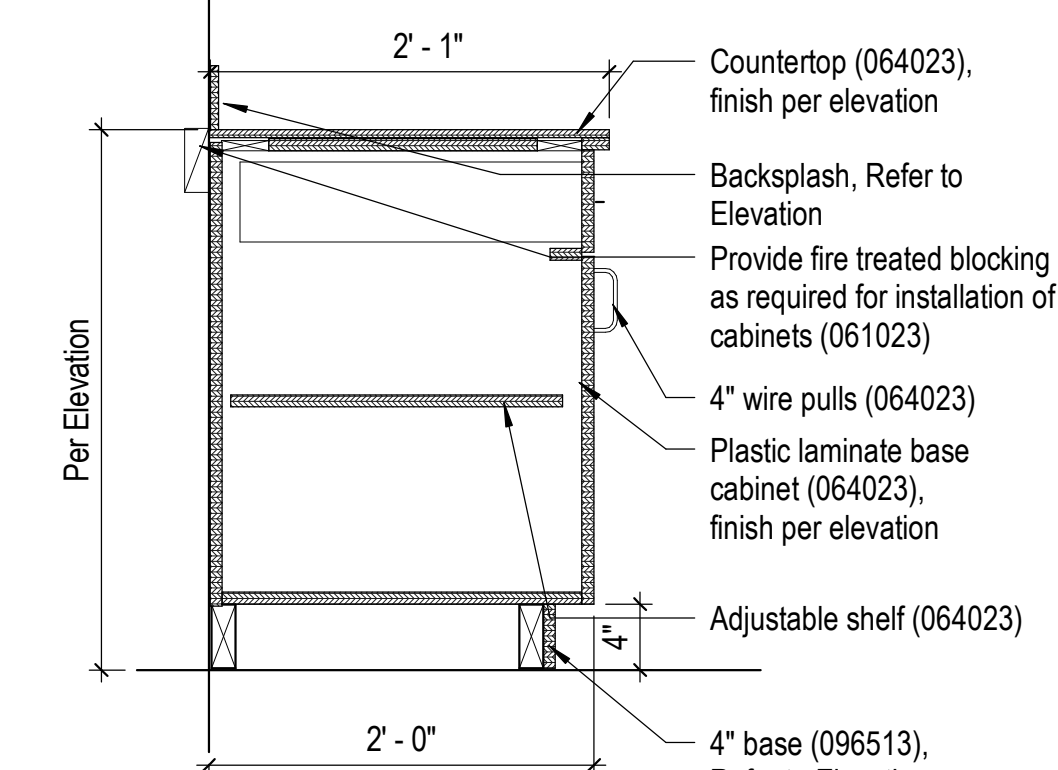


8 Section - Staff Lockers

A-210 1" = 1'-0" 0 3' 6" 1'

Note: Use concealed hinges on all cabinet doors.

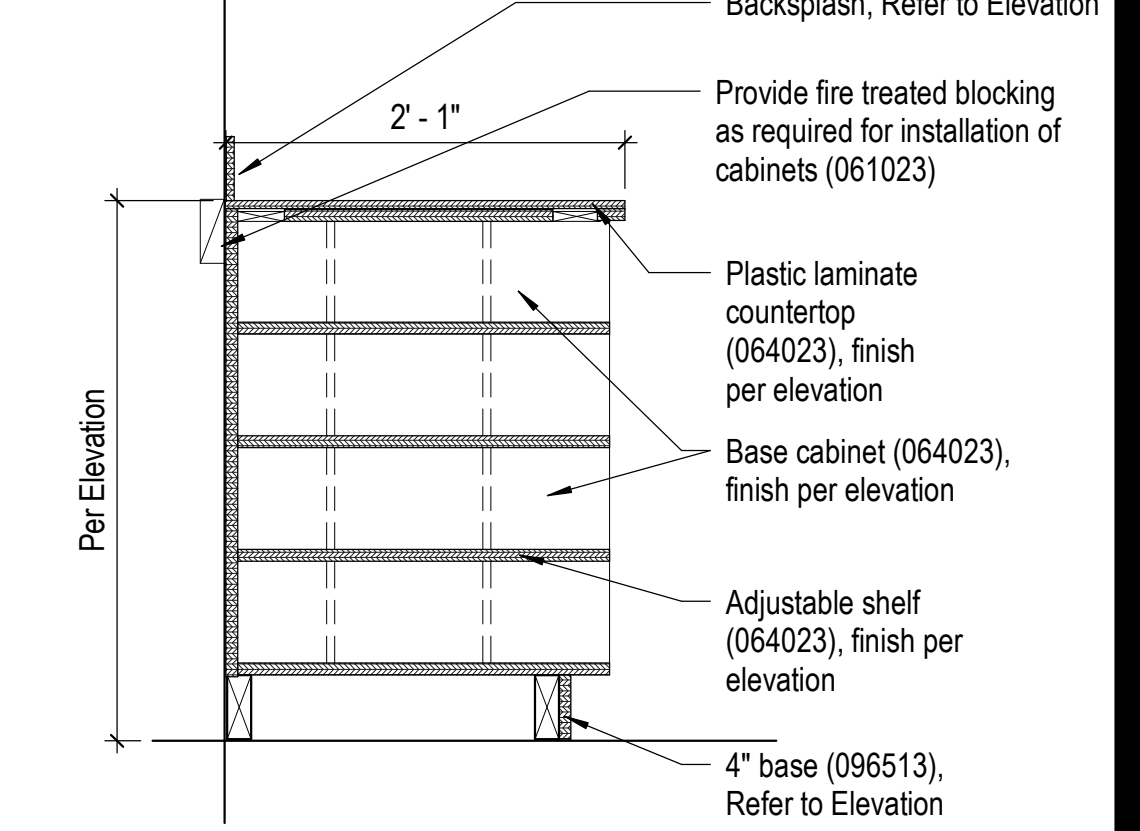
Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces. Interior surfaces may be white melamine. Doors to be plastic laminate both sides.



11 Section - Base Cabinet

A-210 1" = 1'-0" 0 3' 6" 1'

Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces.

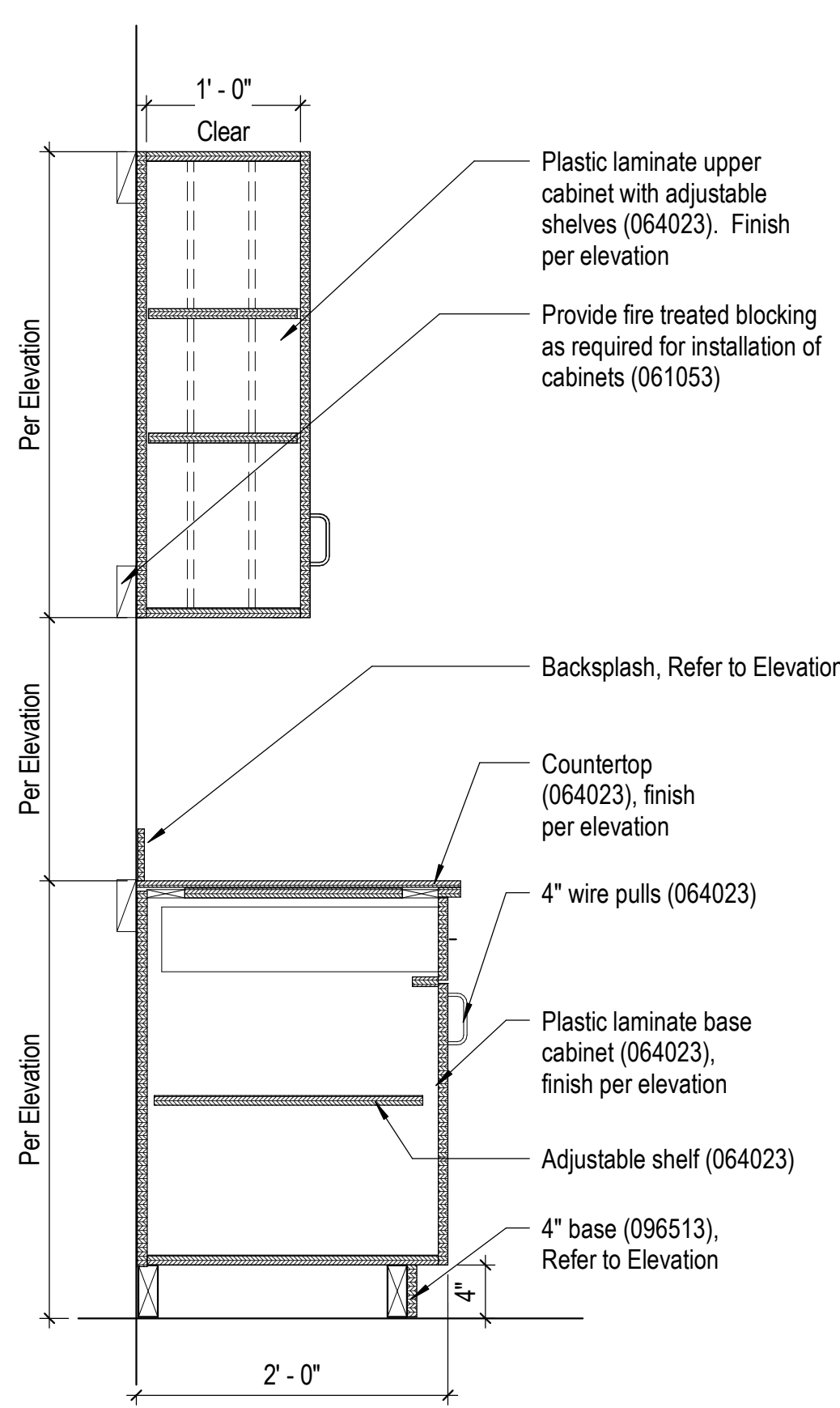


12 Section - Open Shelving

A-210 1" = 1'-0" 0 3' 6" 1'

Note: Use concealed hinges on all cabinet doors.

Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces. Interior surfaces may be white melamine. Doors to be plastic laminate both sides.

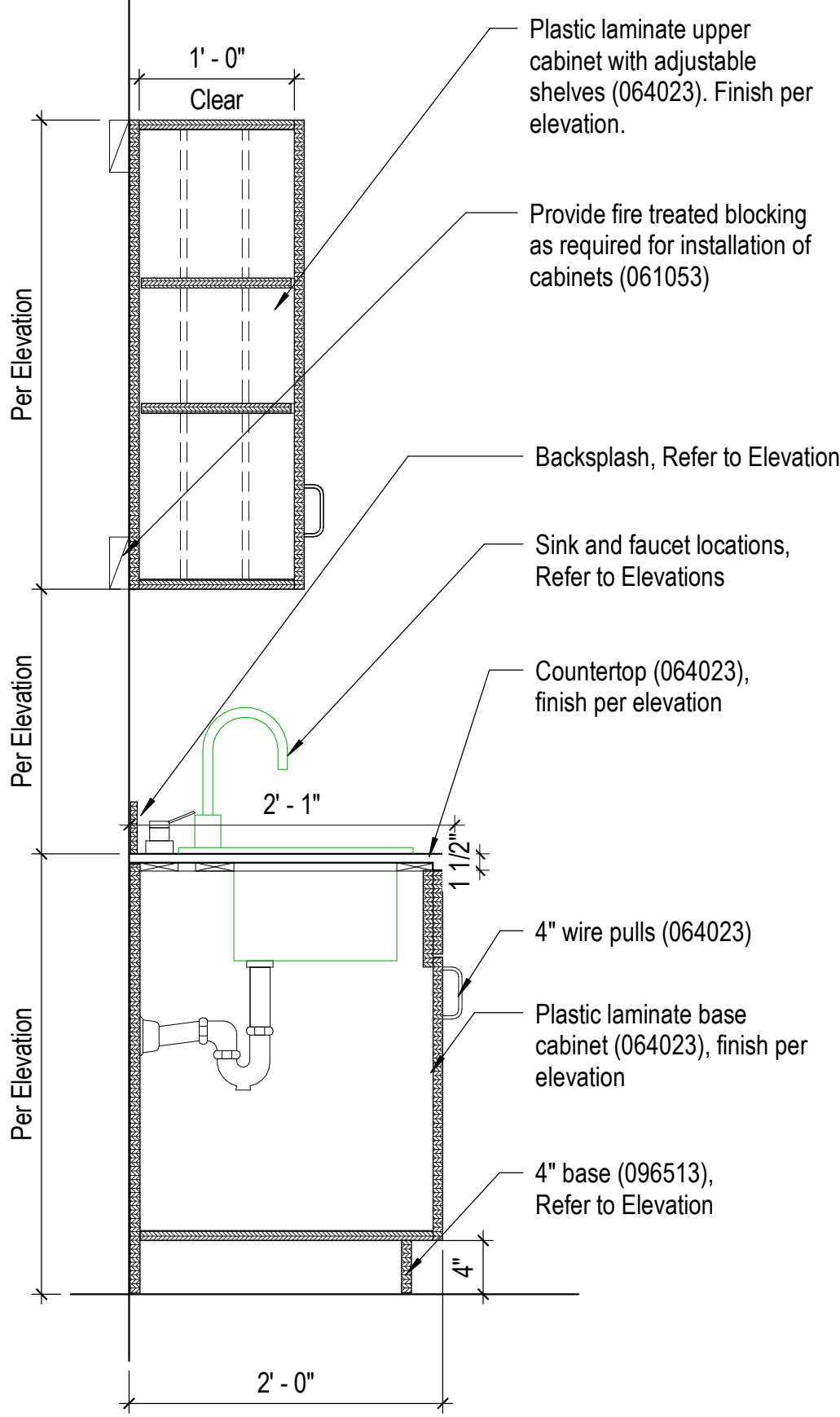


1 Section - No Sink

A-210 1" = 1'-0" 0 3' 6" 1'

Note: Use concealed hinges on all cabinet doors.

Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces. Interior surfaces may be white melamine. Doors to be plastic laminate both sides.

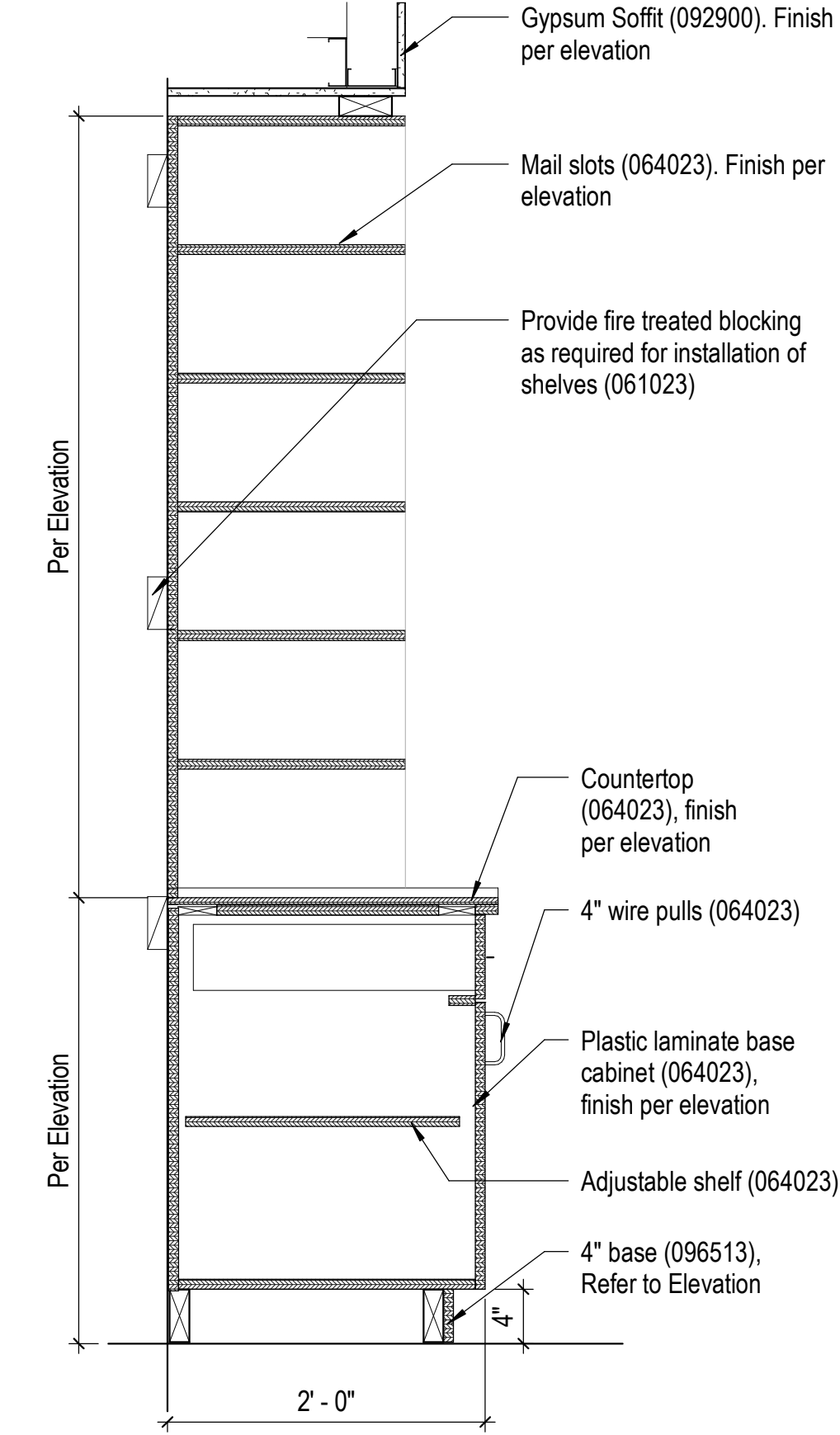


2 Section - Sink

A-210 1" = 1'-0" 0 3' 6" 1'

Note: Use concealed hinges on all cabinet doors.

Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces. Interior surfaces may be white melamine. Doors to be plastic laminate both sides.

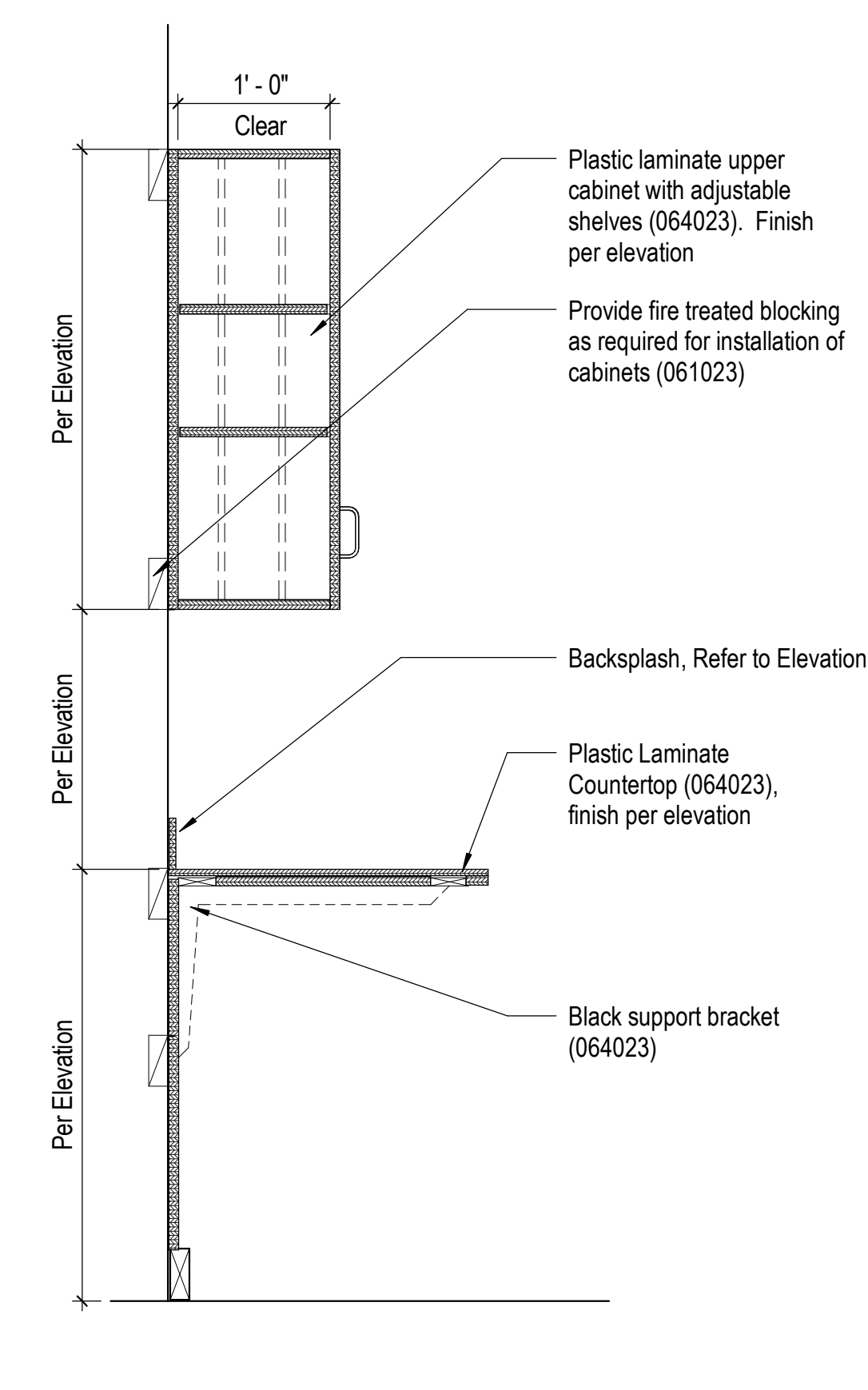


3 Section - Mail Boxes

A-211 1" = 1'-0" 0 3' 6" 1'

Note: Use concealed hinges on all cabinet doors.

Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces. Interior surfaces may be white melamine. Doors to be plastic laminate both sides.

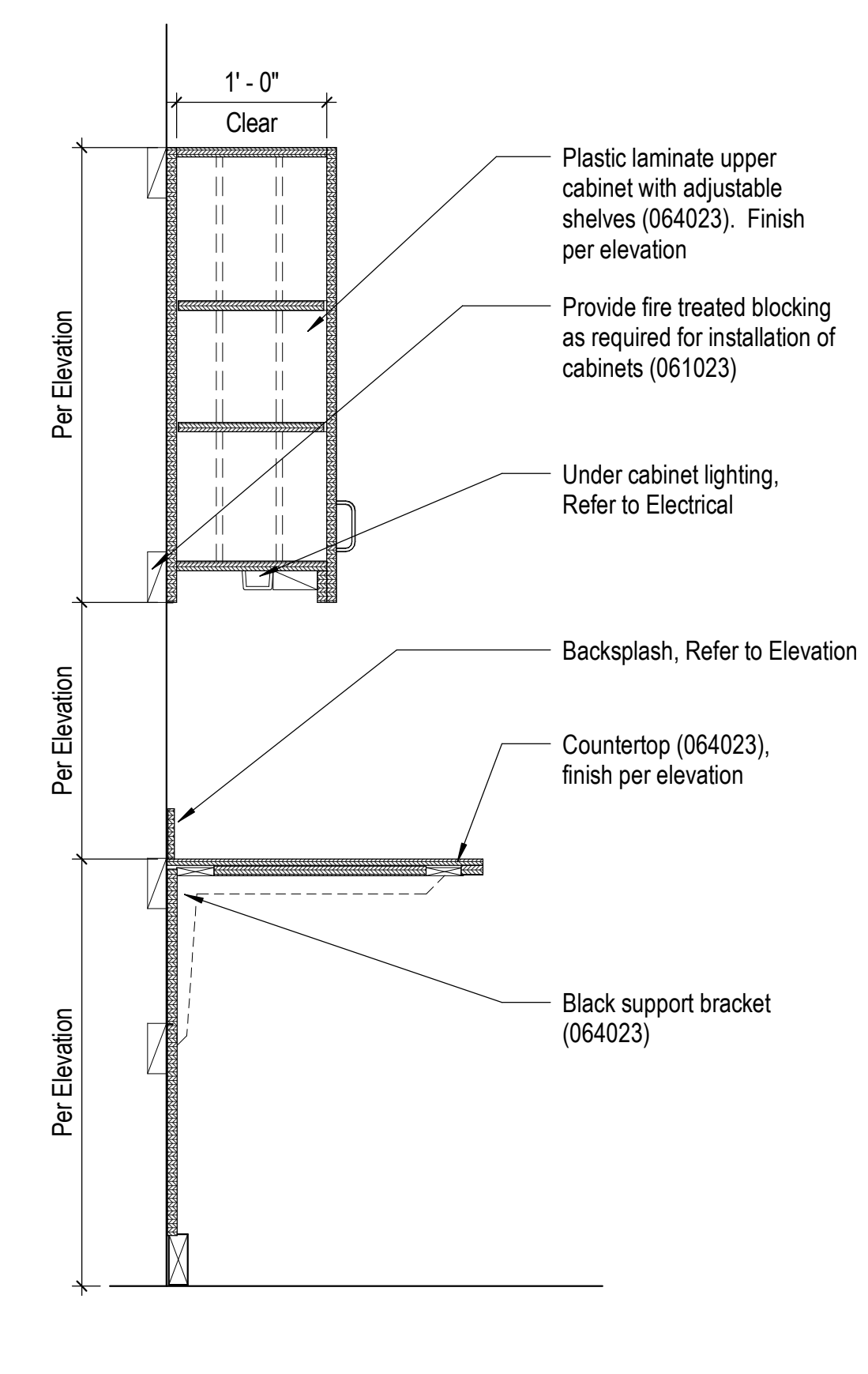


4 Section - Floating Countertop Millwork

A-204 1" = 1'-0" 0 3' 6" 1'

Note: Use concealed hinges on all cabinet doors.

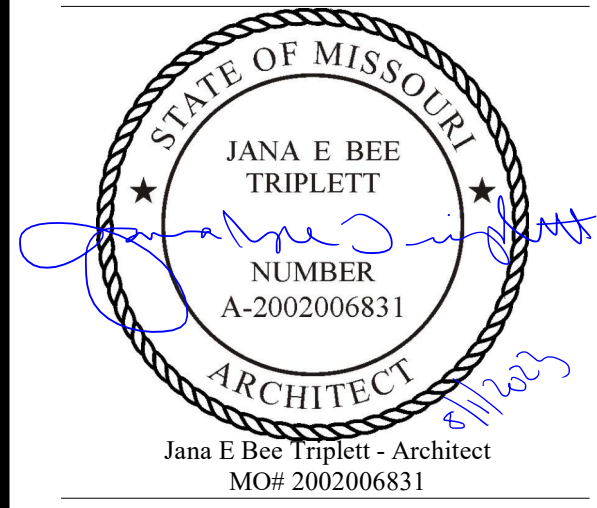
Cabinet construction to be 3/4" plywood with plastic laminate on all exposed surfaces. Interior surfaces may be white melamine. Doors to be plastic laminate both sides.



5 Section - Millwork with Under Cabinet Lighting

A-211 1" = 1'-0" 0 3' 6" 1'

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2102.152

GastingerWalker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-510.dwg  
DRAWN BY: TF  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

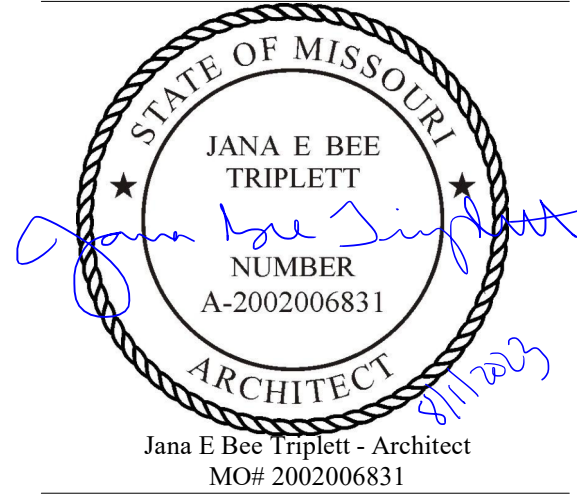
Millwork Details

SHEET NUMBER:

**A-510**

SHEET 091 OF 202

08/01/2023



Jana E Bee Triplett - Architect  
MO# 200206831

**Gastinger Walker &**  
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DATE:  
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DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-511.dwg  
DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&  
SHEET TITLE:

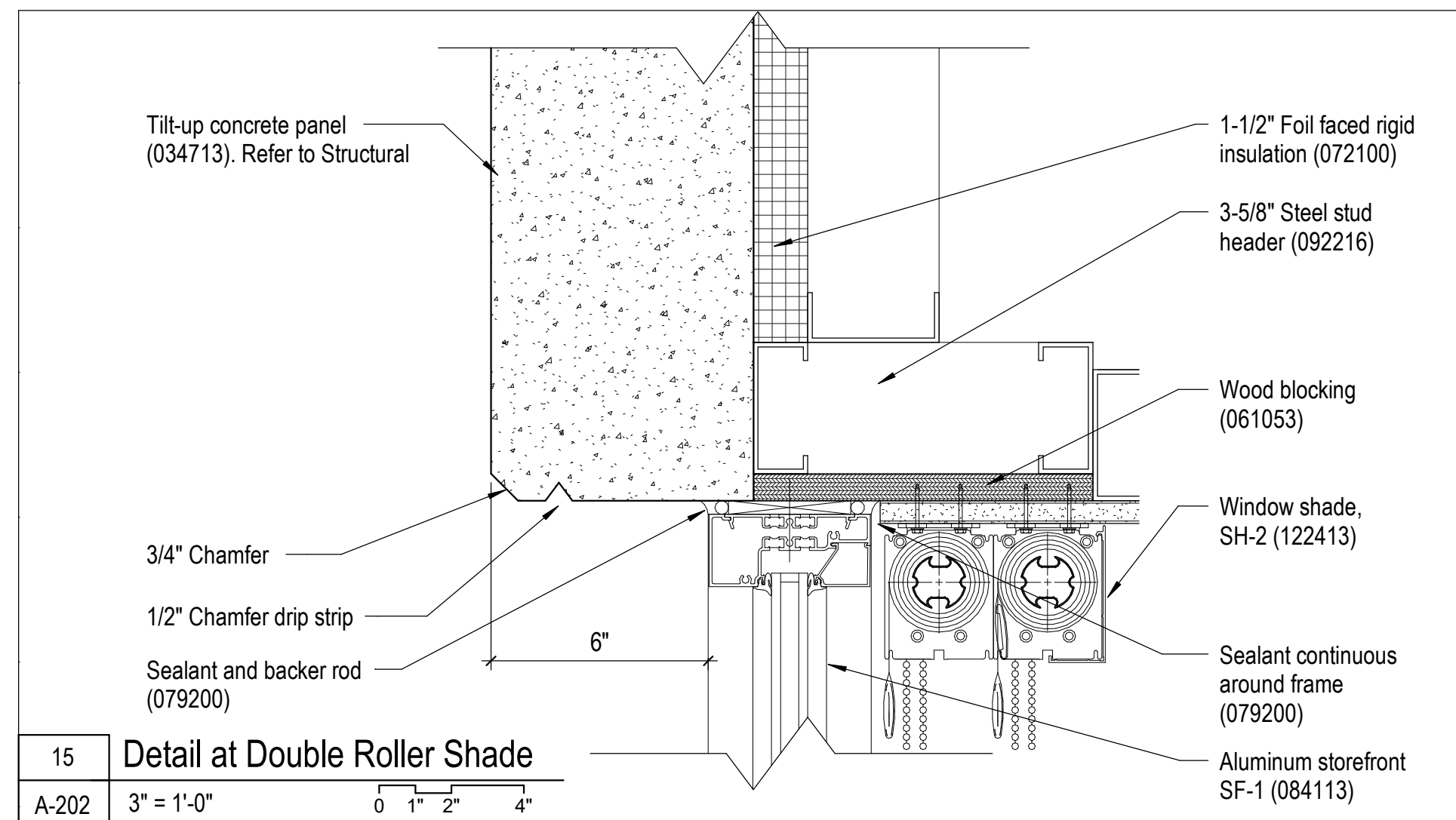
Millwork Details

SHEET NUMBER:

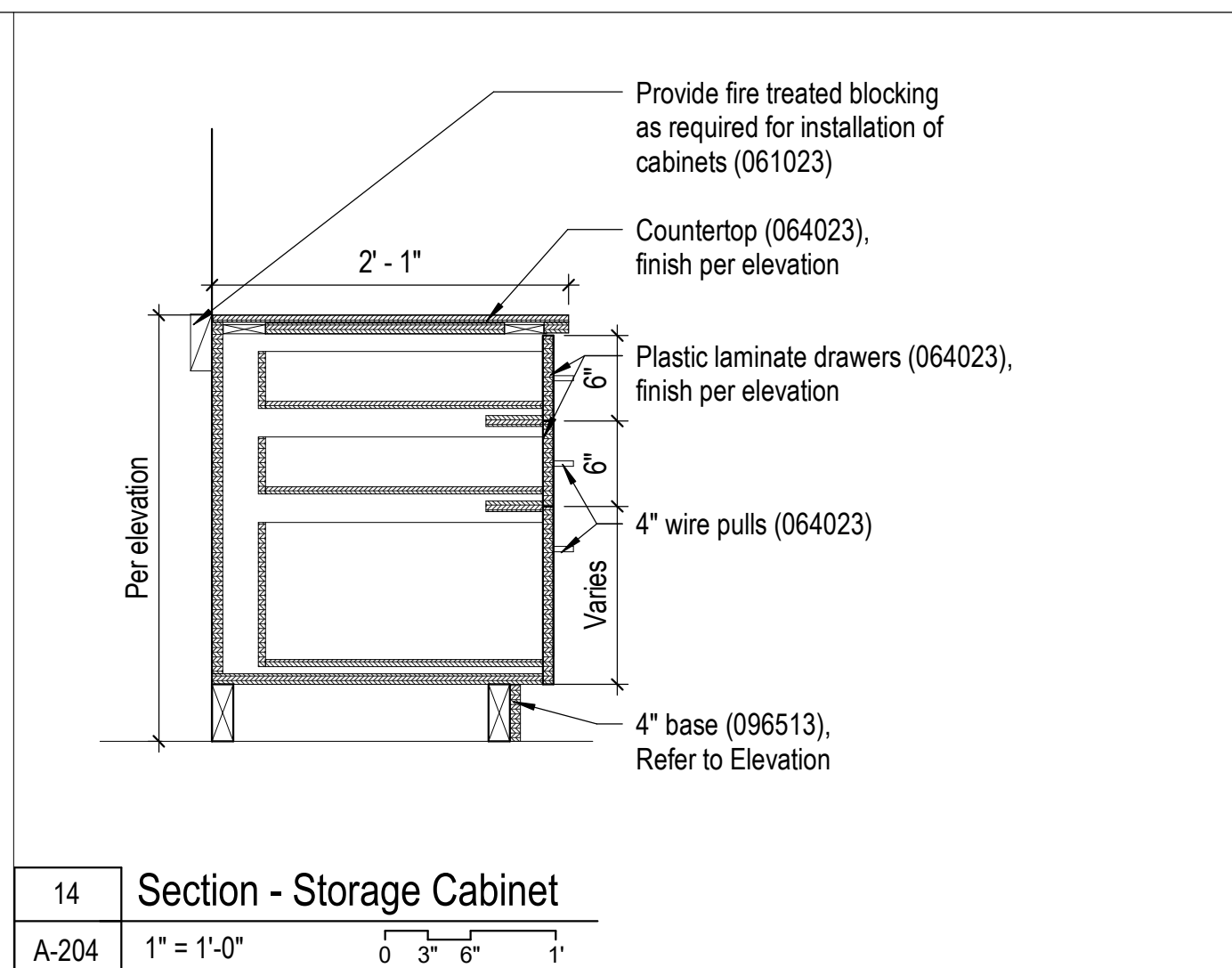
**A-511**

SHEET 092 OF 202

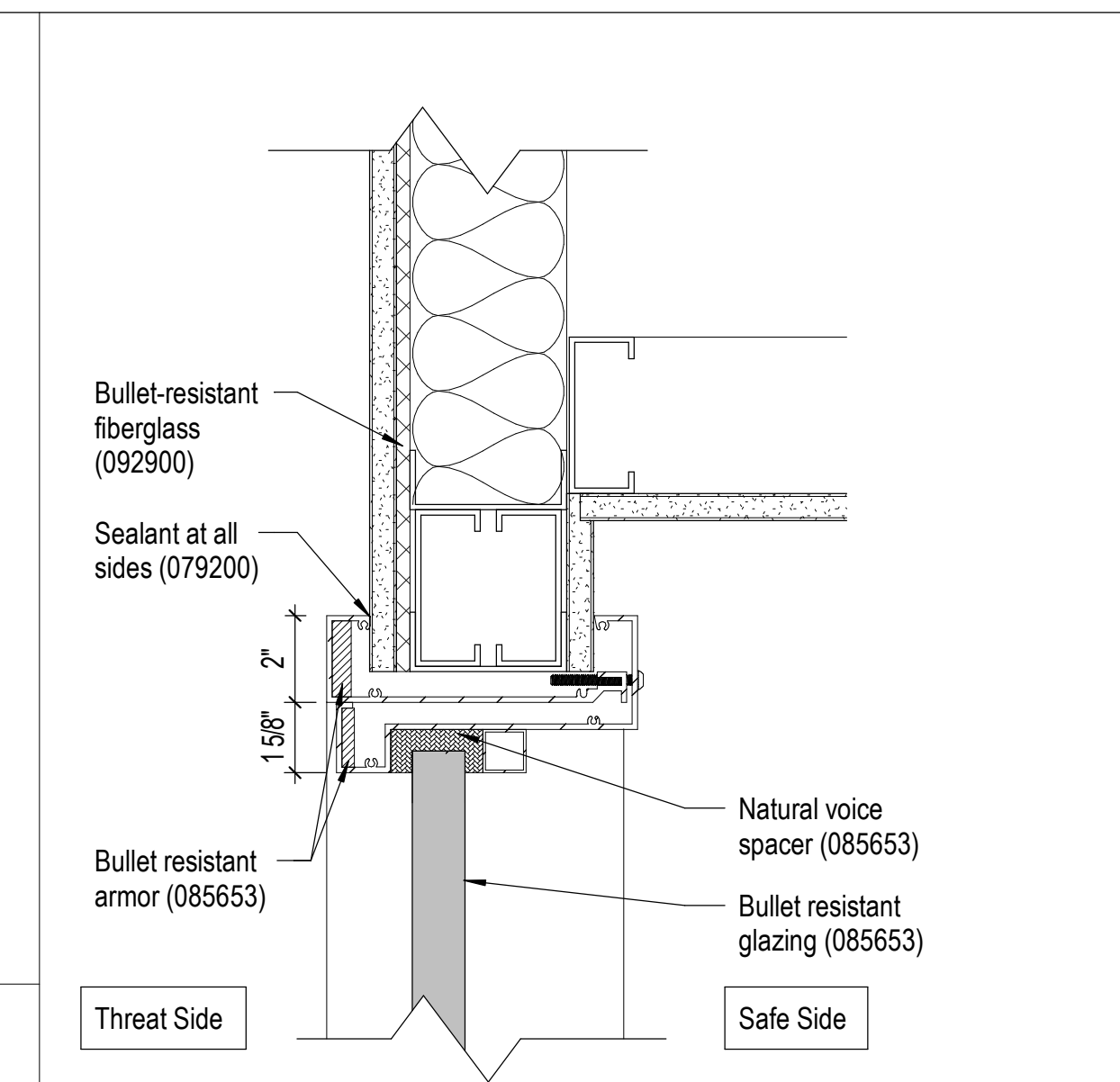
08/01/2023



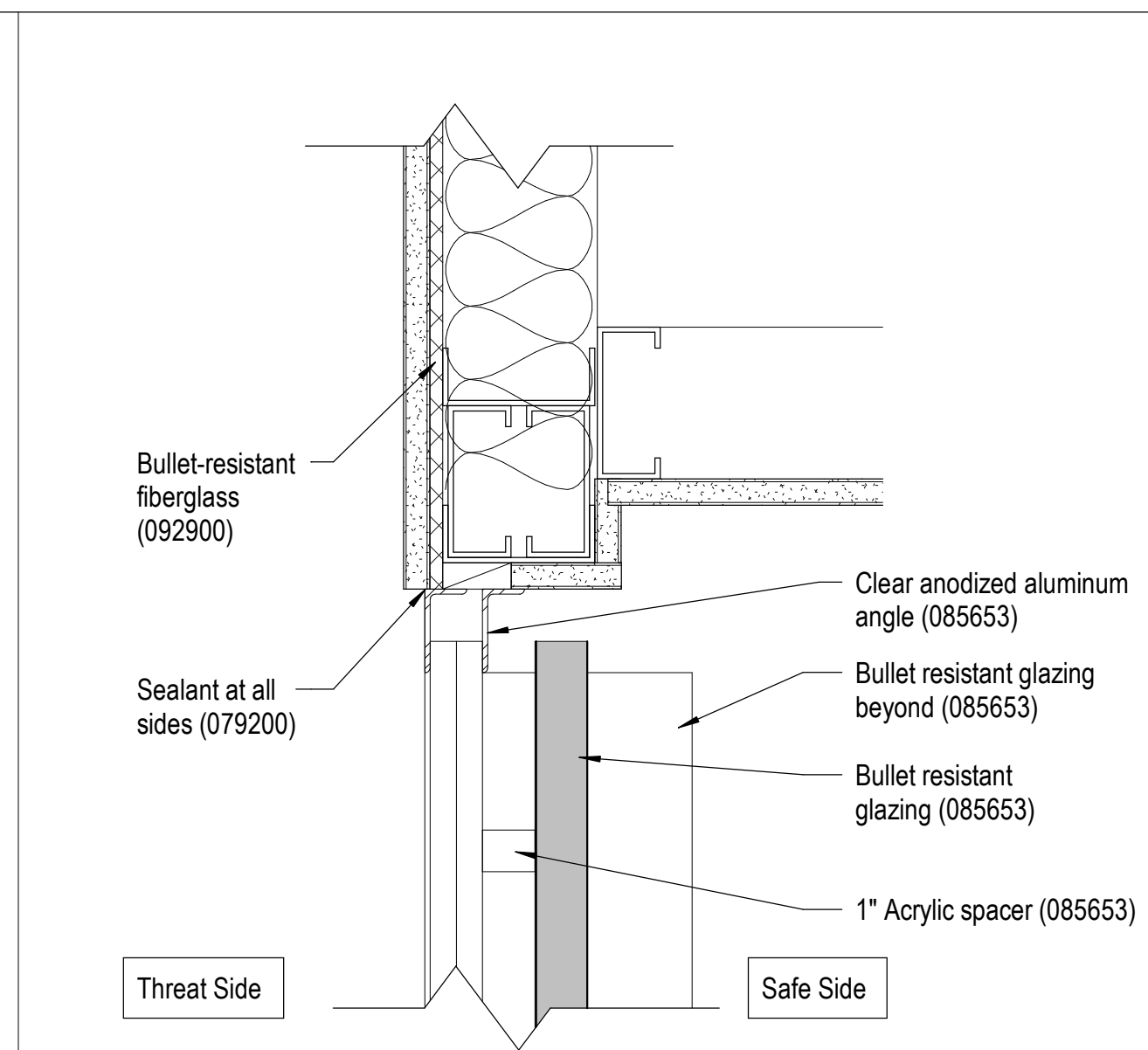
15 Detail at Double Roller Shade  
A-202 3" = 1'-0"



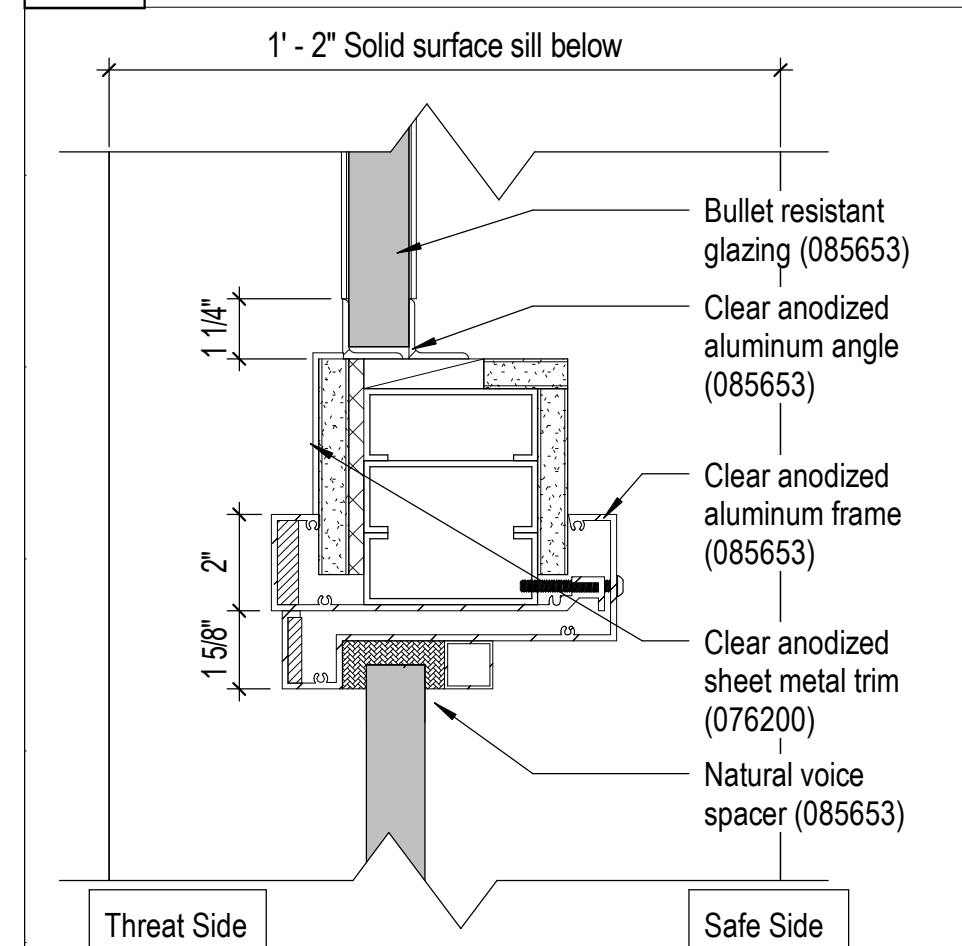
14 Section - Storage Cabinet  
A-204 1" = 1'-0"



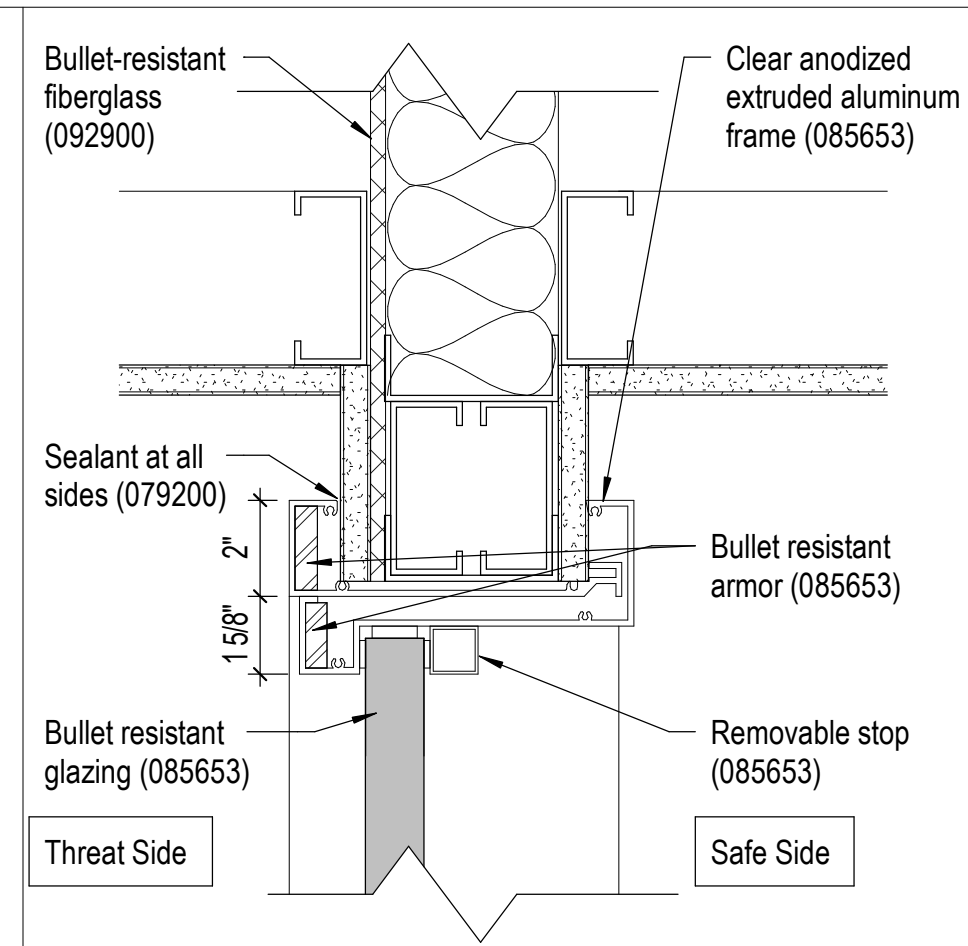
12 Head Detail at Security Window  
A-312 3" = 1'-0"



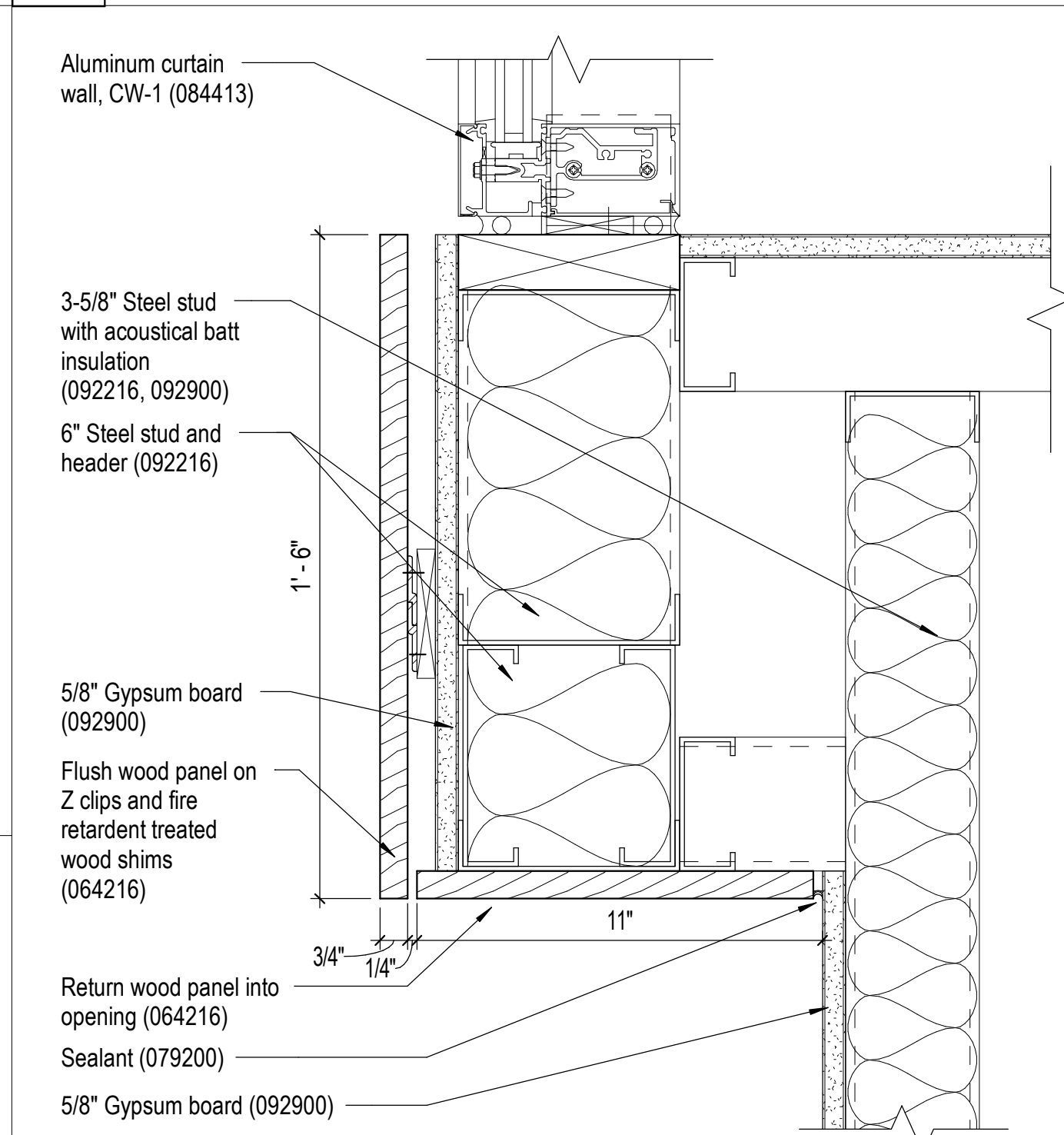
13 Head Detail at Security Window  
A-312 3" = 1'-0"



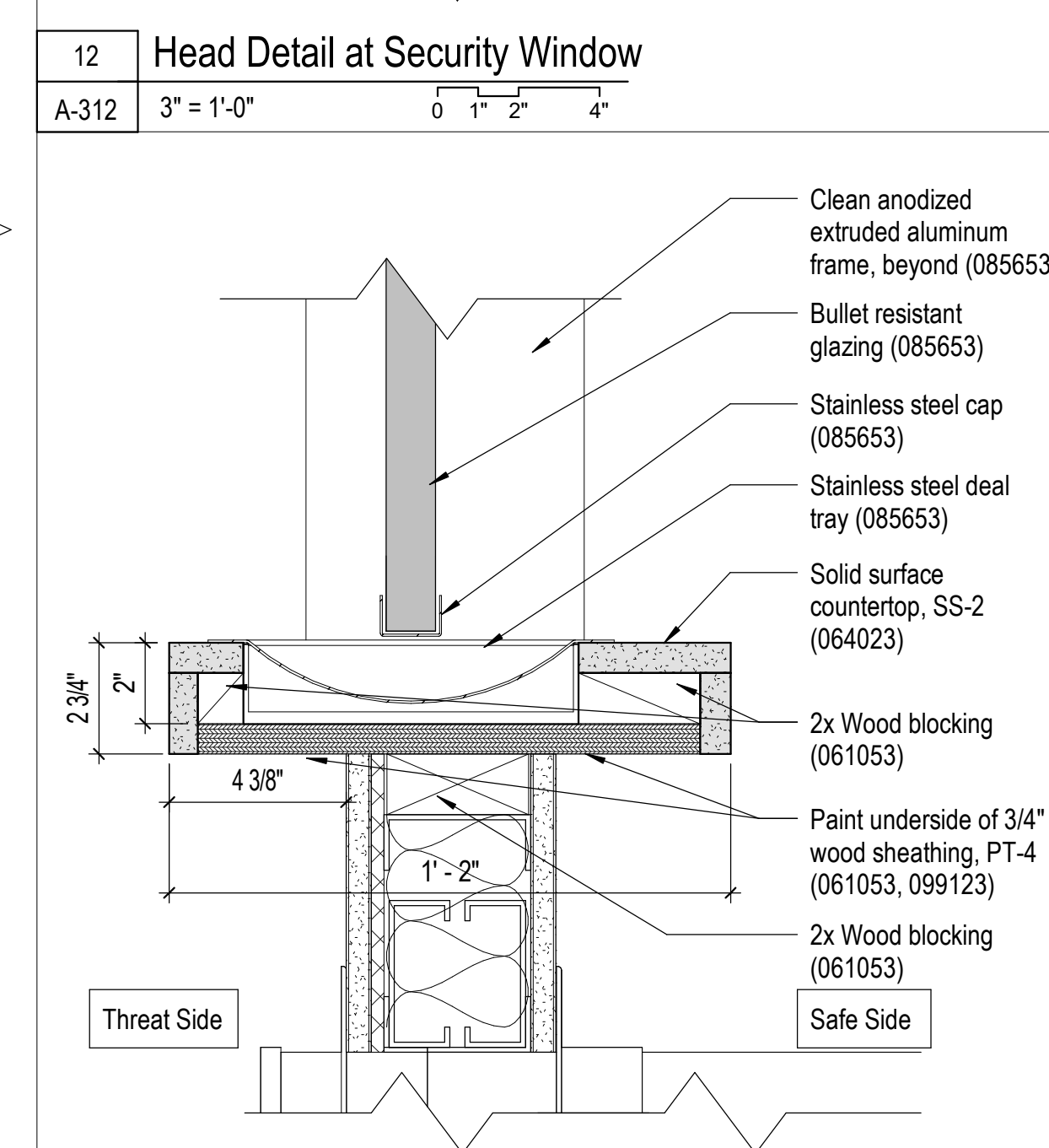
10 Plan Detail at Security Window Corner  
A-402 3" = 1'-0"



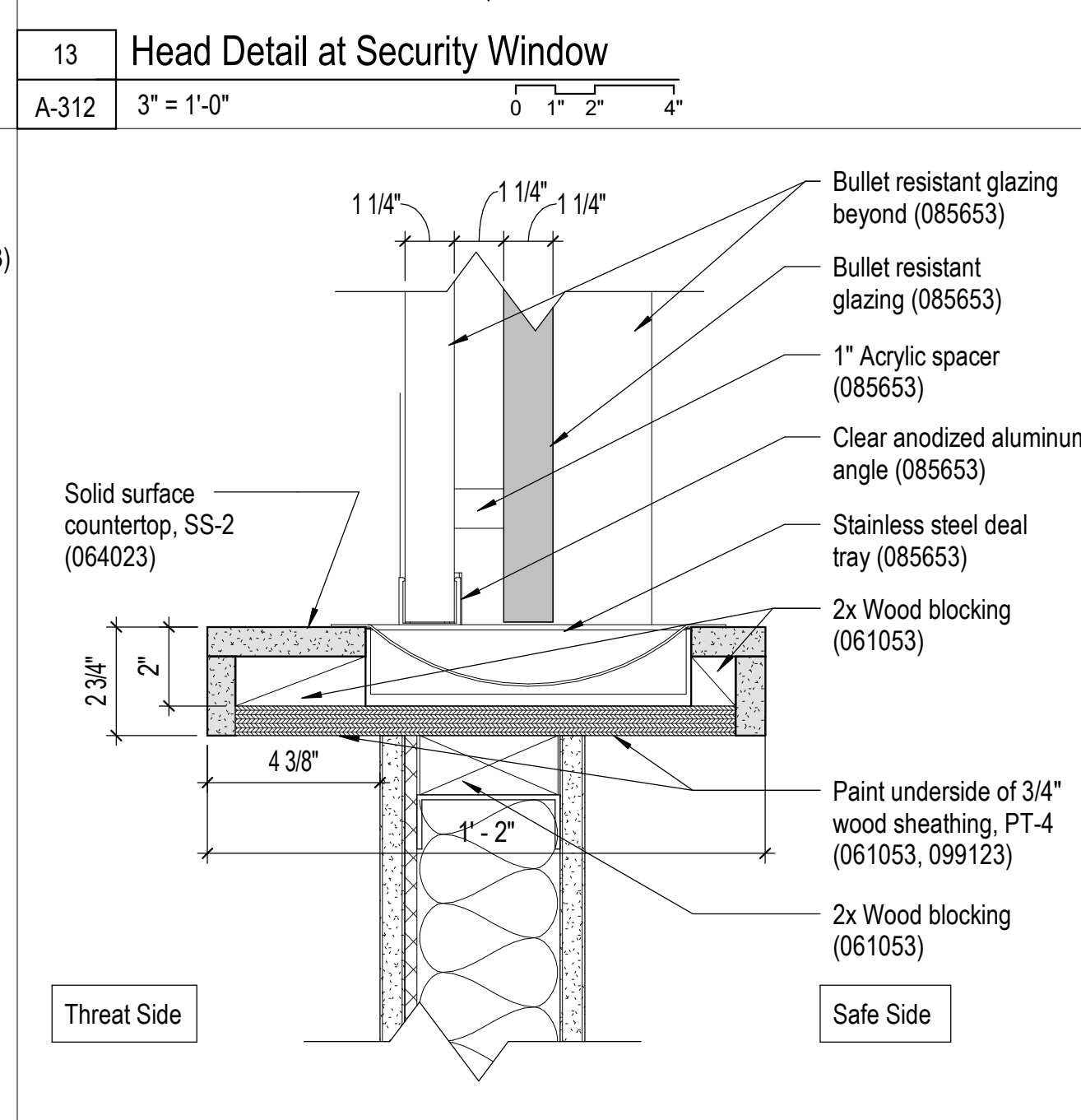
11 Head Detail at Security Window  
A-312 3" = 1'-0"



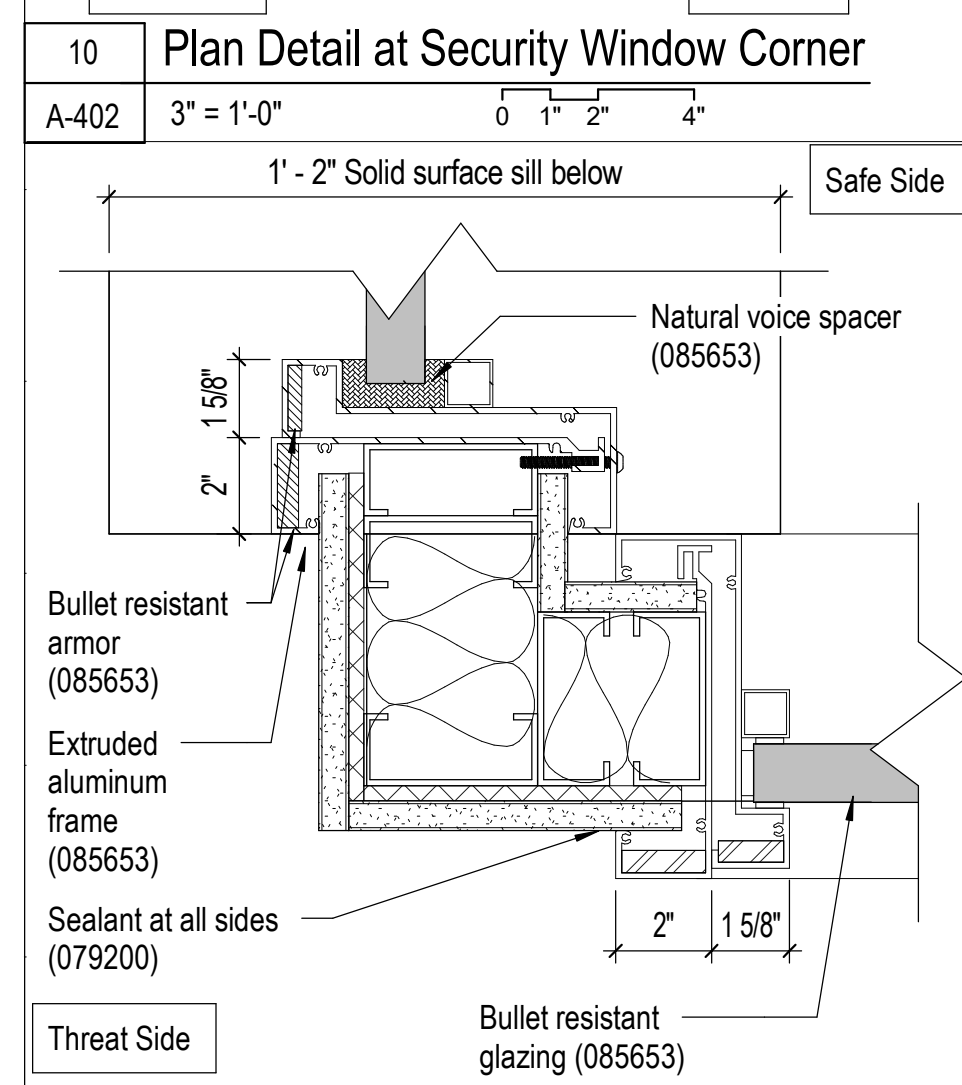
7 Detail at Top of Honor Wall  
A-312 3" = 1'-0"



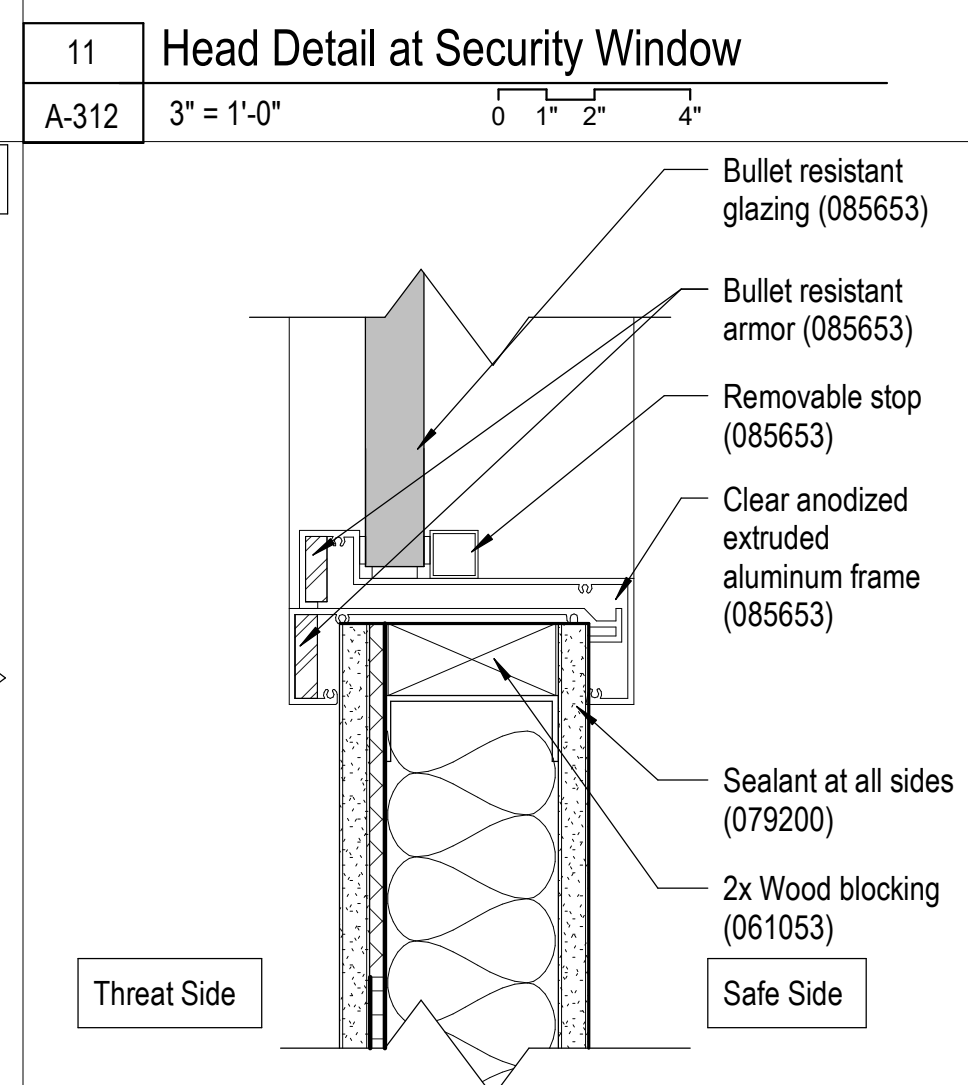
8 Sill Detail at Security Window  
A-312 3" = 1'-0"



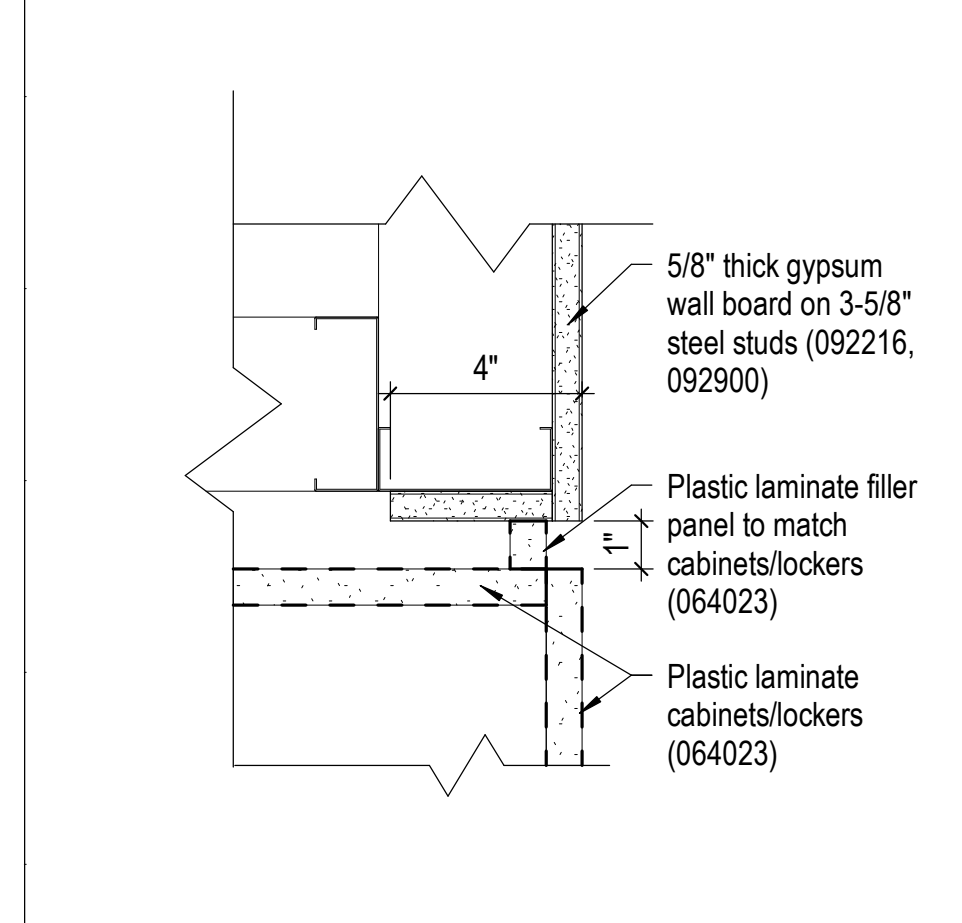
9 Sill Detail at Security Window  
A-312 3" = 1'-0"



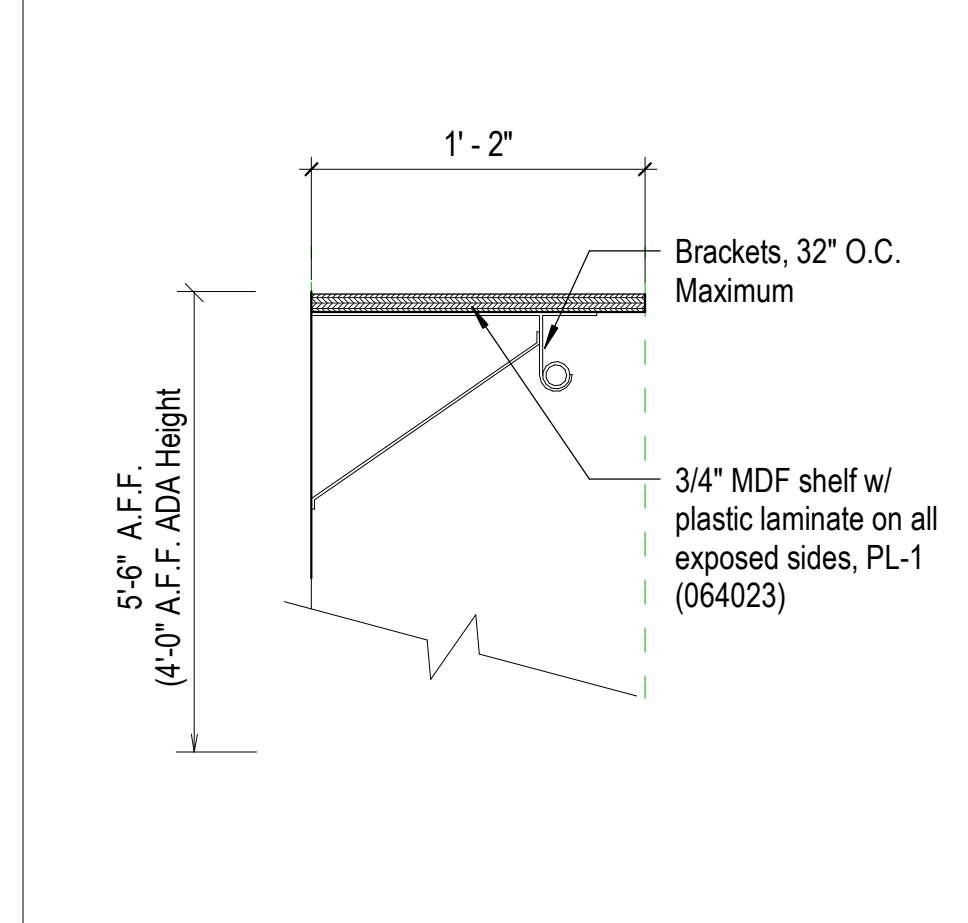
5 Plan Detail at Security Window Corner  
A-402 3" = 1'-0"



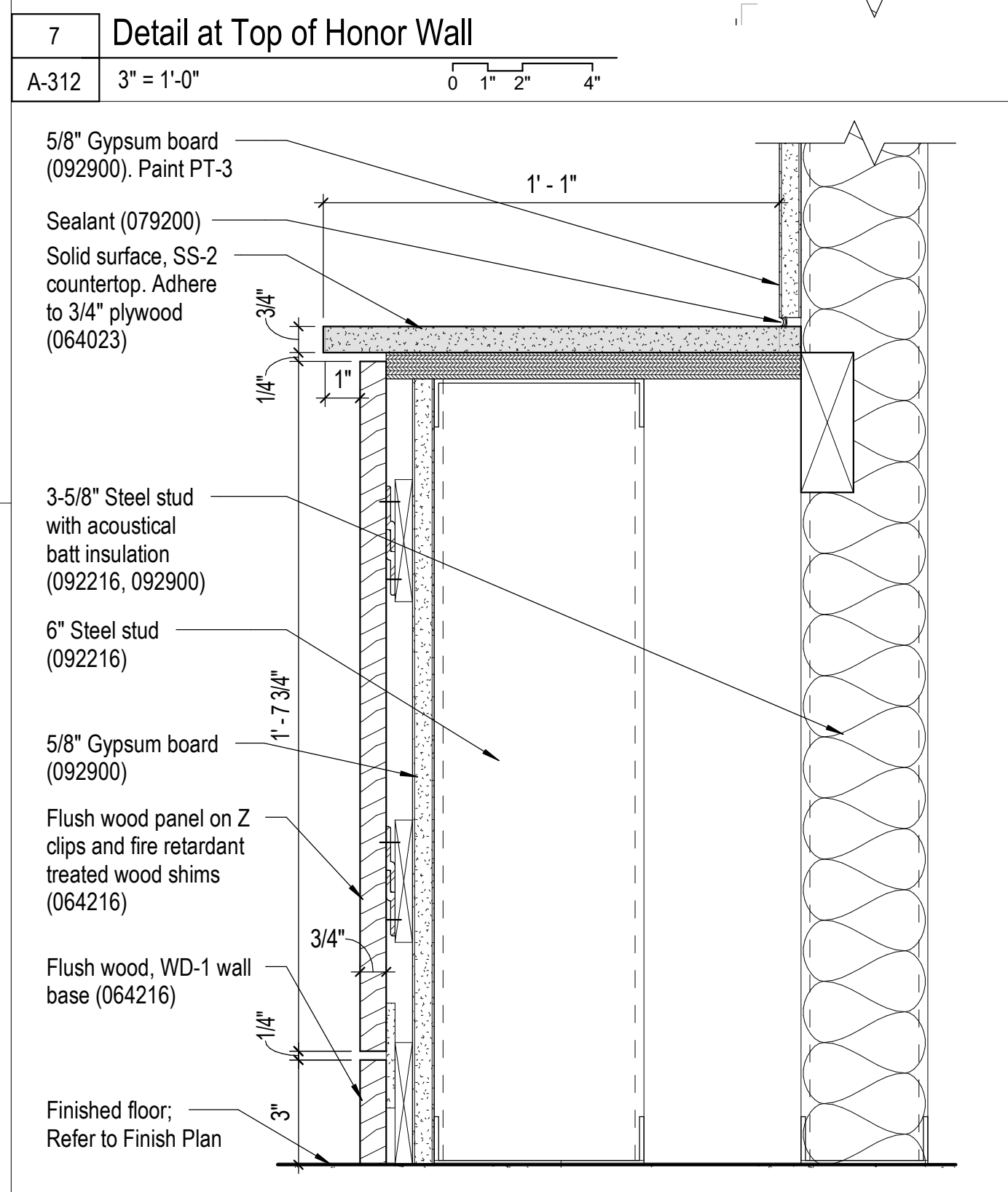
6 Sill Detail at Security Window  
A-312 3" = 1'-0"



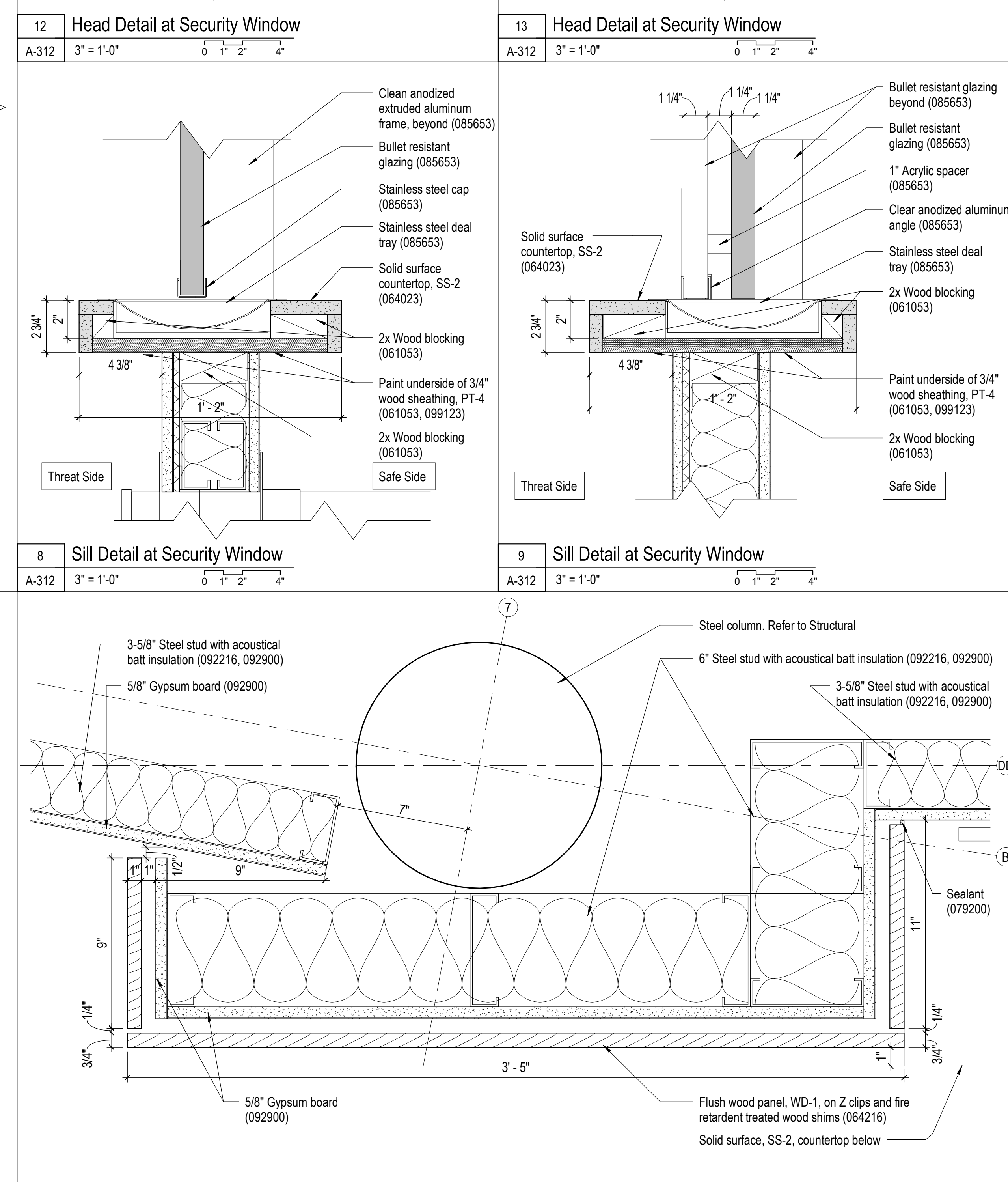
1 Section - Soffit at Millwork  
A-510 3" = 1'-0"



2 Detail - Coat Rod/Shelf  
A-212 1 1/2" = 1'-0"

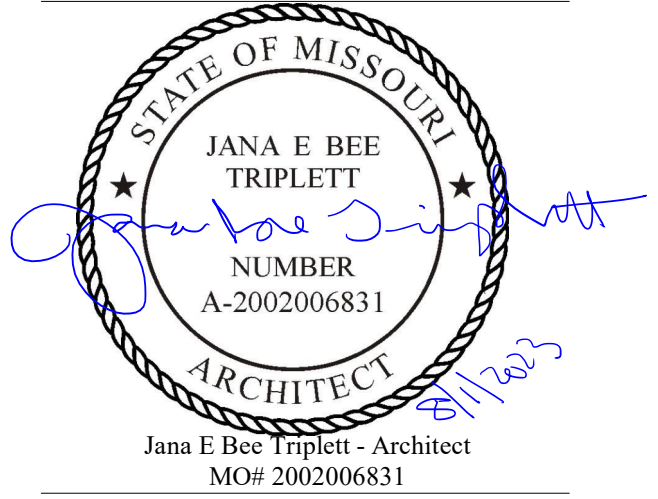


3 Detail at Bottom of Honor Wall  
A-312 3" = 1'-0"



4 Plan Detail at Honor Wall  
A-402 3" = 1'-0"

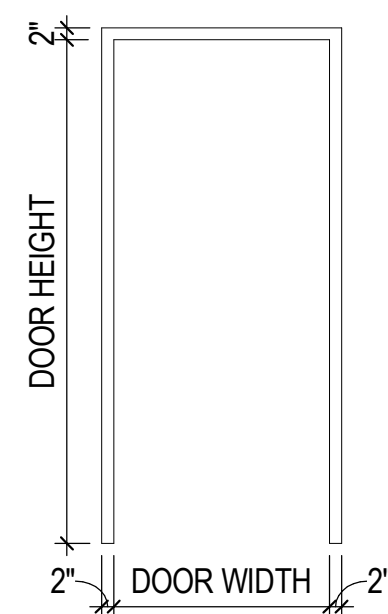




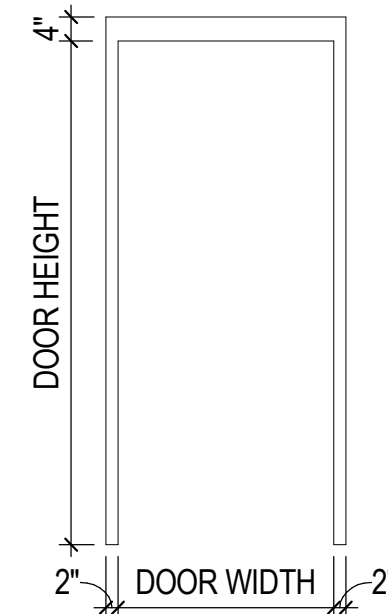
**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
Project Number: 2102.152

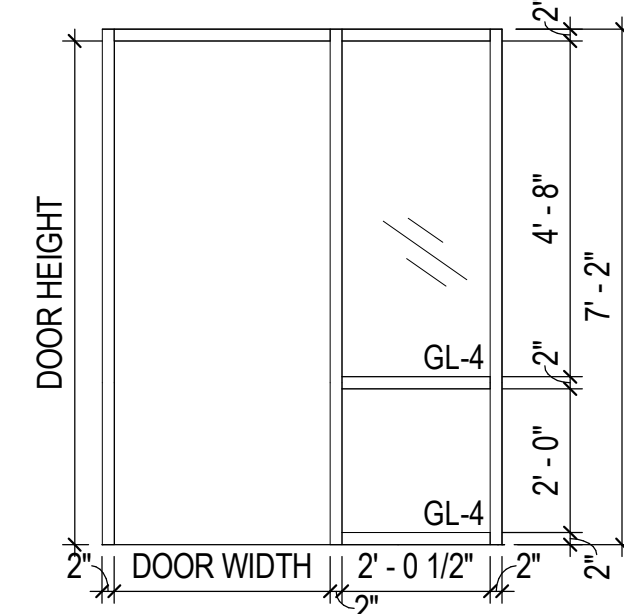
**Frame Types**



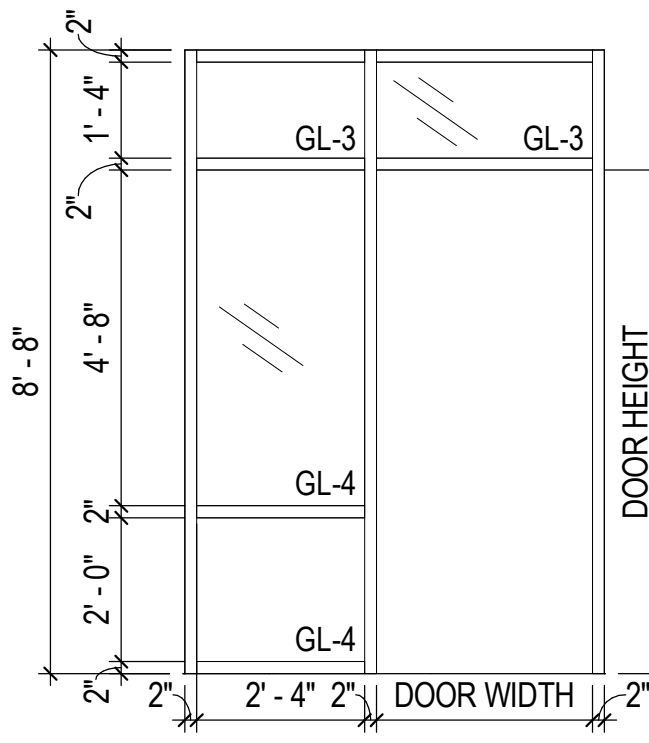
Frame Type '1'  
Knock Down Hollow Metal, Painted  
(081113, 099123)



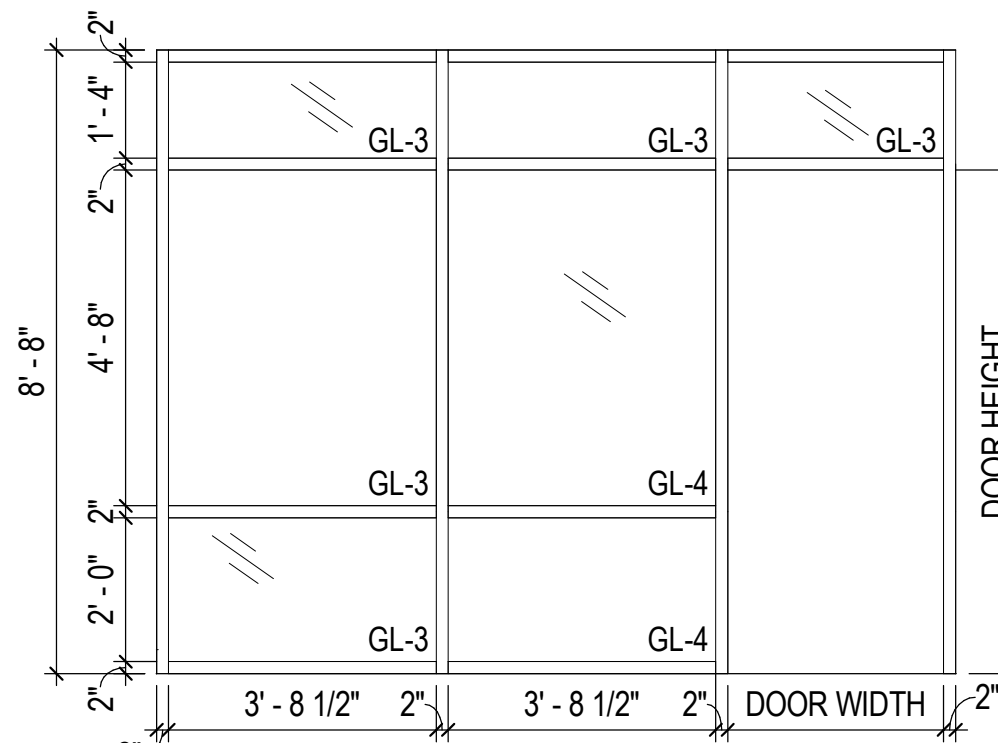
Frame Type '2'  
Welded Hollow Metal, Painted  
(081113, 099123)



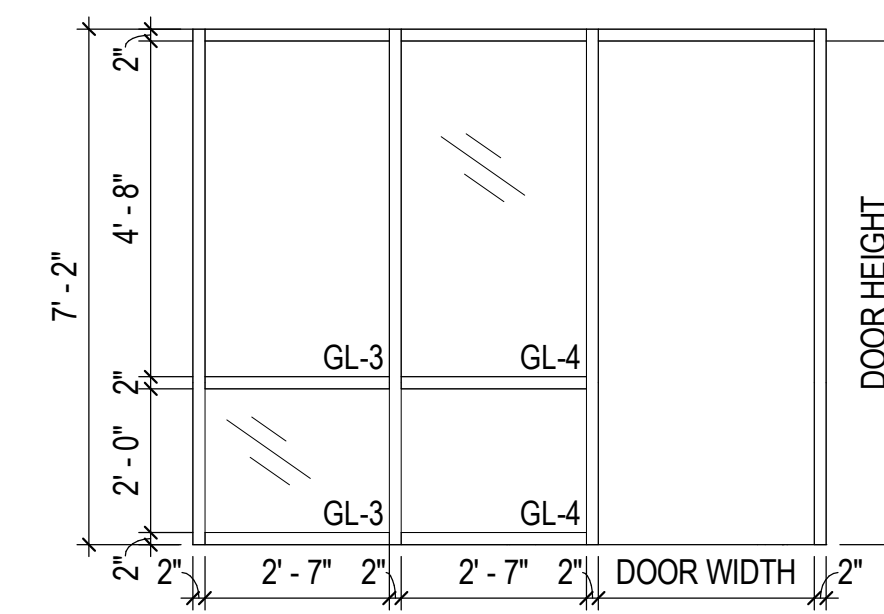
Frame Type '3' (Alternate #04)  
Knock Down Hollow Metal, Painted  
(081113, 099123)



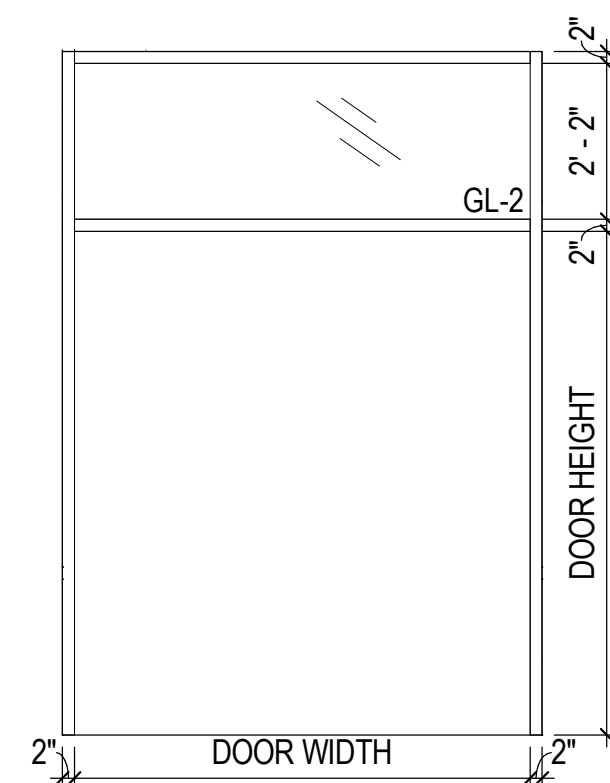
Frame Type '4'  
Knock Down Hollow Metal, Painted  
(081113, 099123)



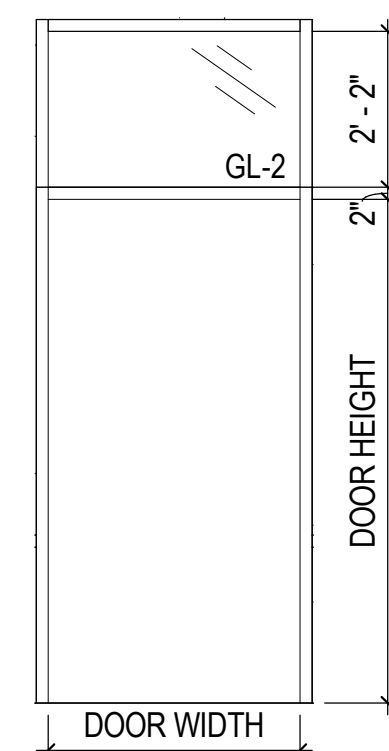
Frame Type '5'  
Knock Down Hollow Metal, Painted  
(081113, 099123)



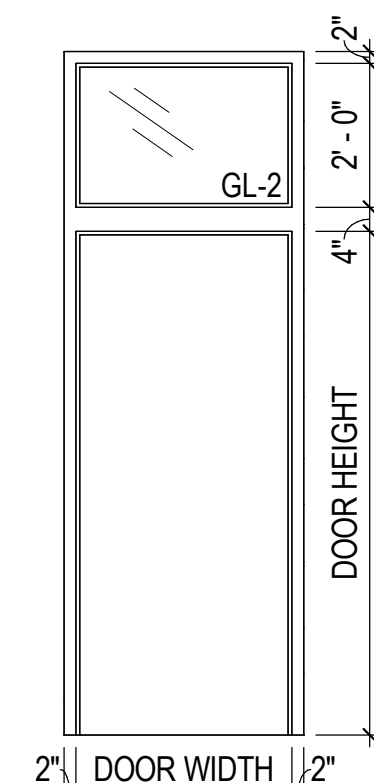
Frame Type '6' (Alternate #04)  
Knock Down Hollow Metal, Painted  
(081113, 099123)



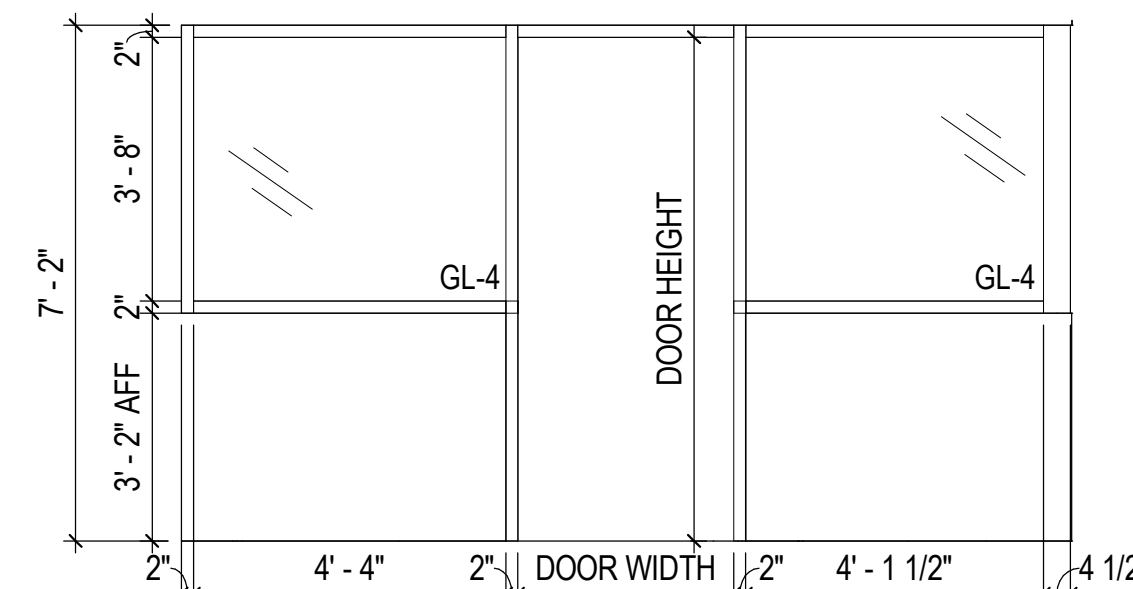
Frame Type '7'  
Welded Hollow Metal, Painted  
(084113)



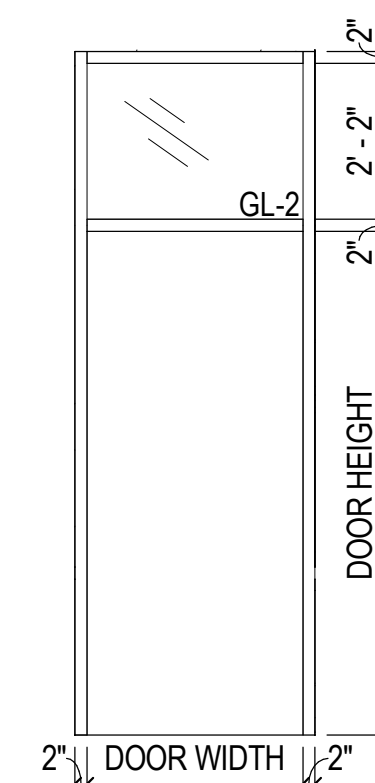
Frame Type '8'  
Welded Hollow Metal, Painted  
(081113, 099123)



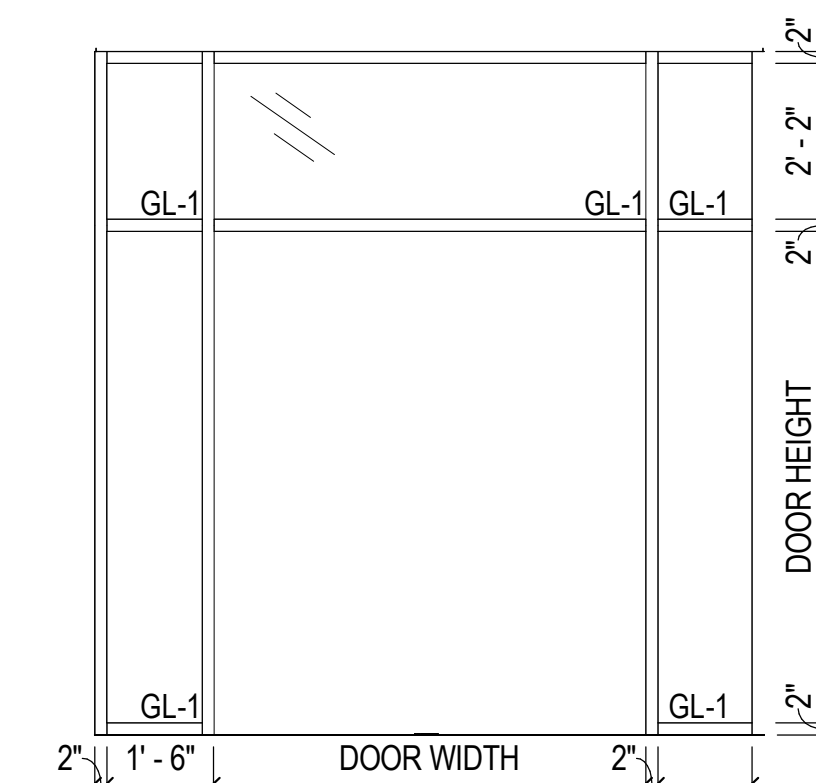
Frame Type '9'  
Welded Hollow Metal, Painted  
(081113, 099123)



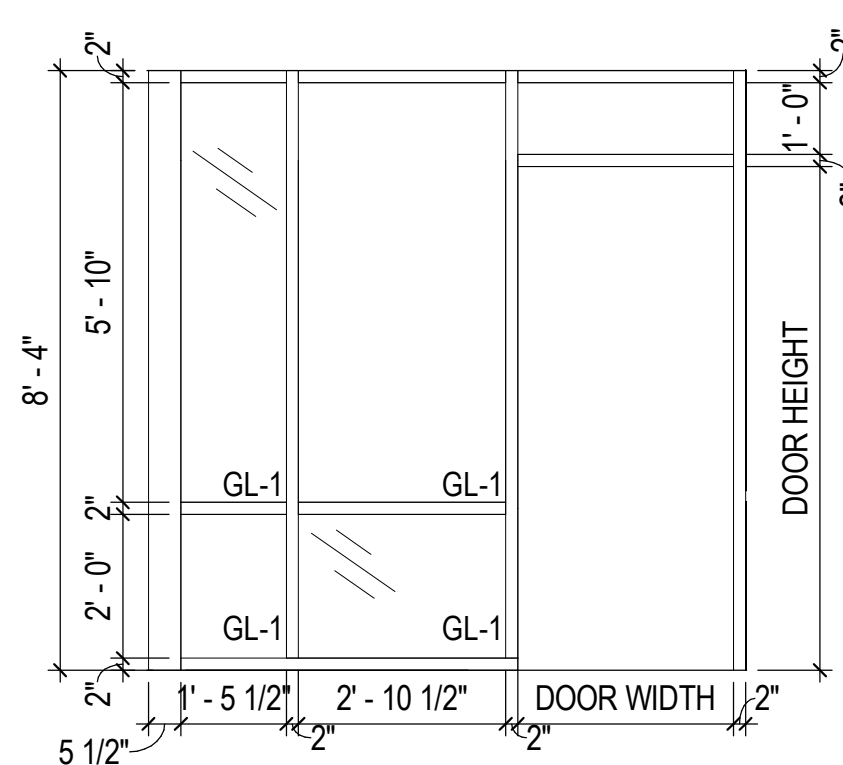
Frame Type '10' (Alternate #04)  
Knock Down Hollow Metal, Painted  
(081113, 099123)



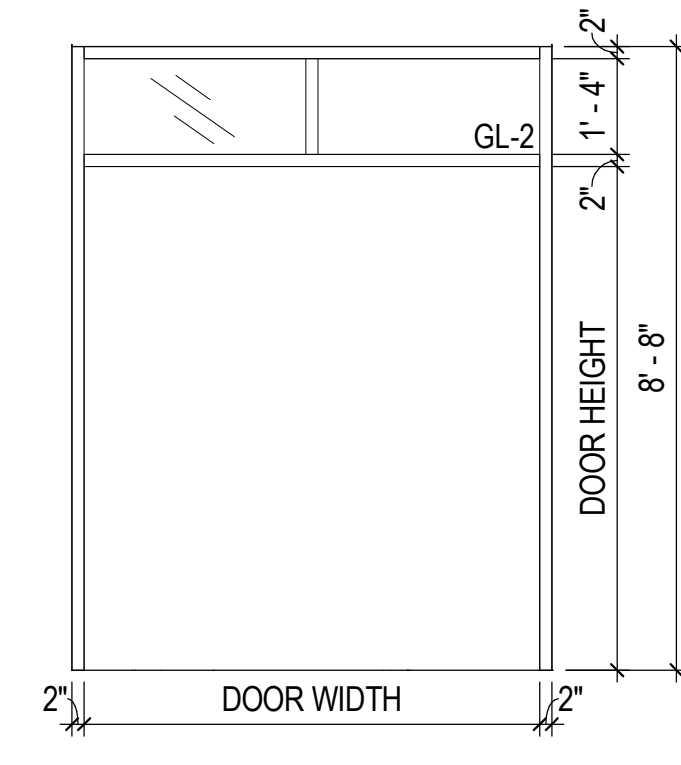
Frame Type '11'  
Aluminum Storefront, Medium Bronze  
(084113)



Frame Type '12'  
Aluminum Storefront, Clear  
(084113)

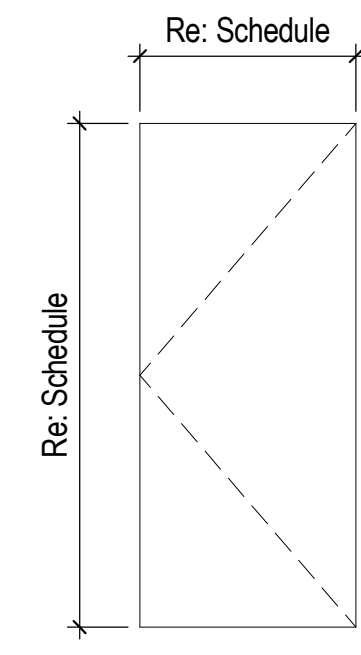


Frame Type '13' (Alternate #04)  
Aluminum Storefront, Medium Bronze  
(084113)

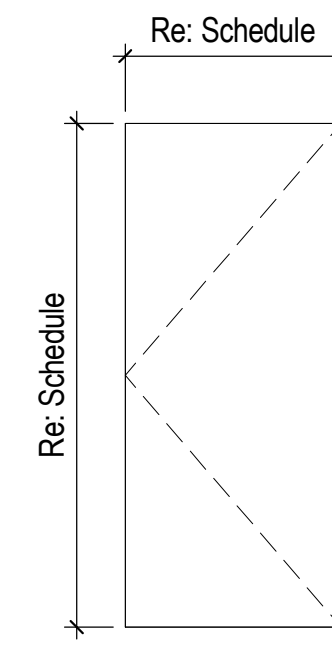


Frame Type '14'  
Knock Down Hollow Metal, Painted  
(081113, 099123)

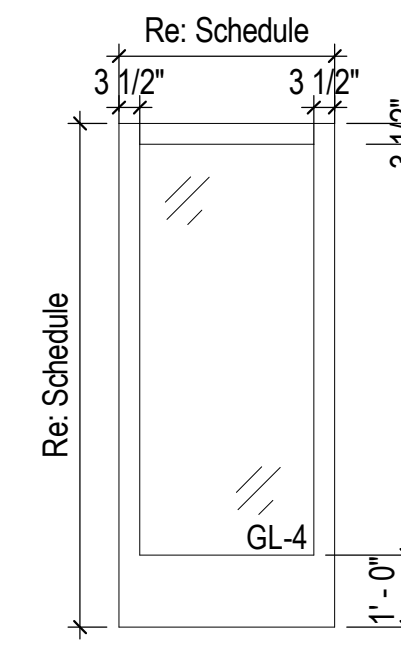
**Door Types:**



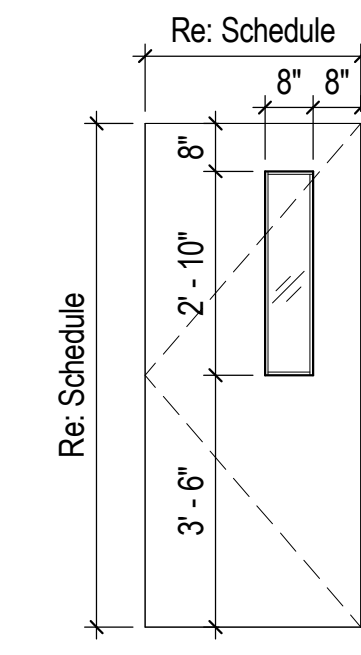
Door Type 'A'  
Hollow Metal, Painted  
(081113, 099123)



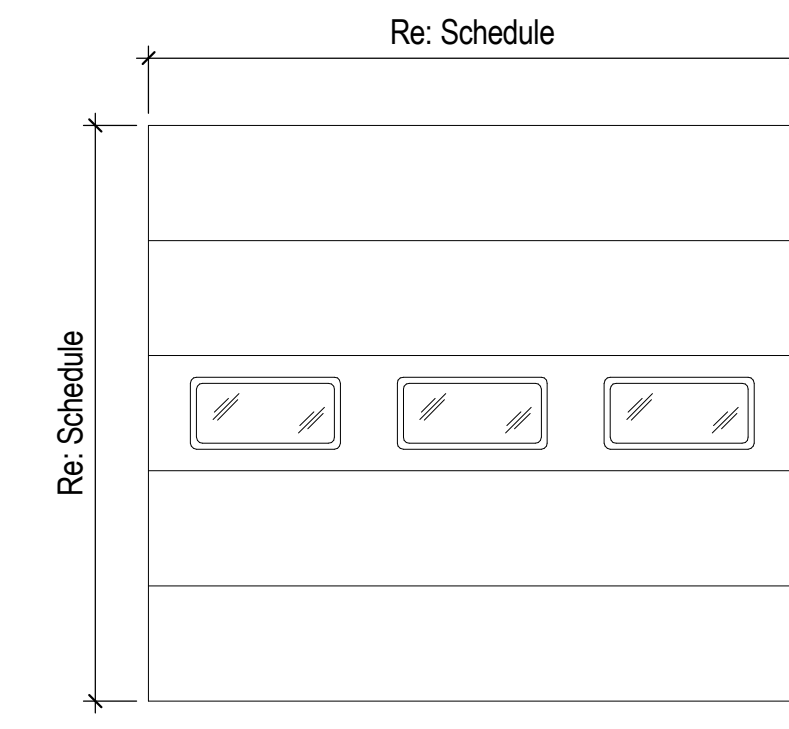
Door Type 'B'  
Solid Core Wood, Stained  
(081416, 099123)



Door Type 'C'  
Aluminum Entrance with Full Lite  
(084113)



Door Type 'D'  
Hollow Metal with Lite, Painted  
(081113, 099123)



Door Type 'E'  
Overhead Sectional  
(083613)

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Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-602.dwg  
DRAWN BY: SW  
CHECKED BY: JBT  
DESIGNED BY: GW&

**Door and Frame Types**

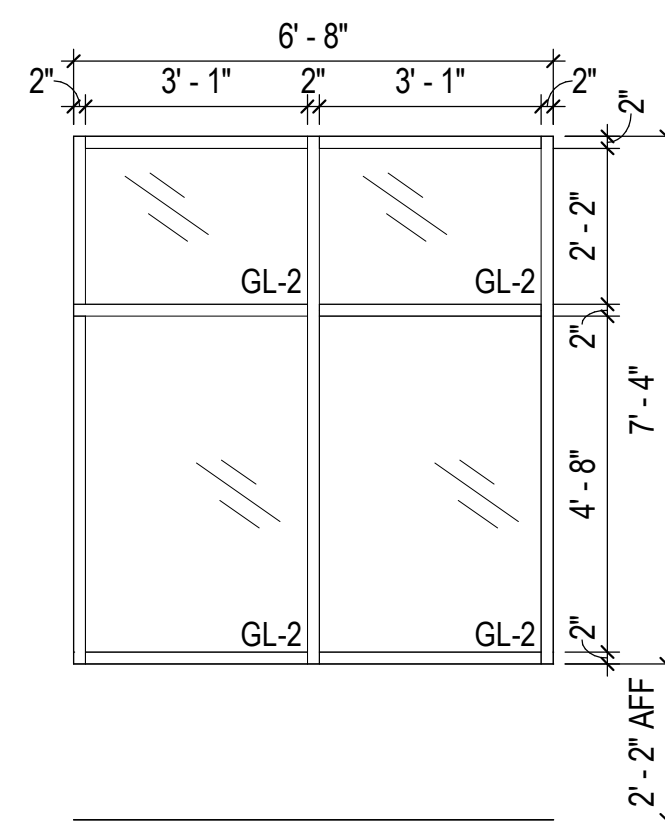
SHEET NUMBER:

**A-602**

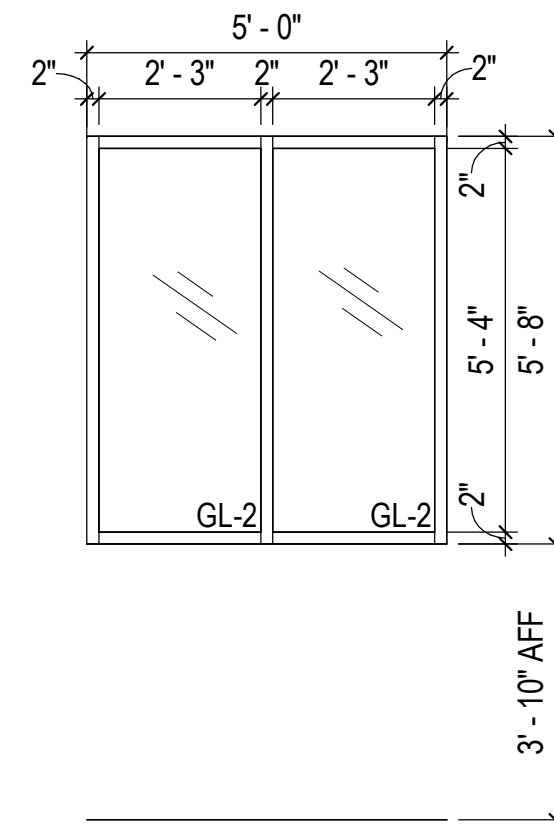
SHEET 094 OF 202

08/01/2023

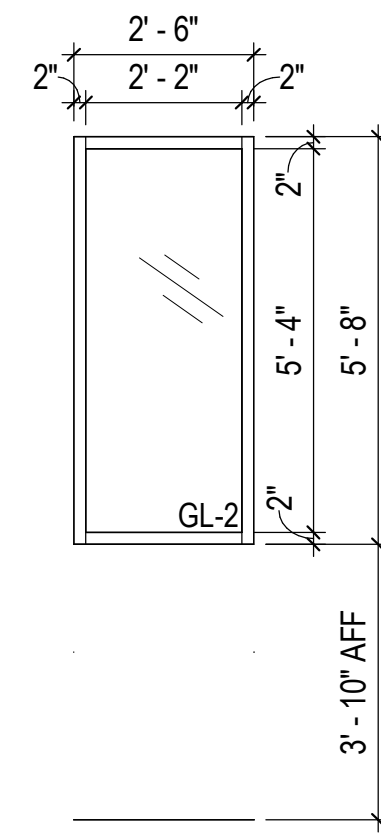
**Exterior Window Types**



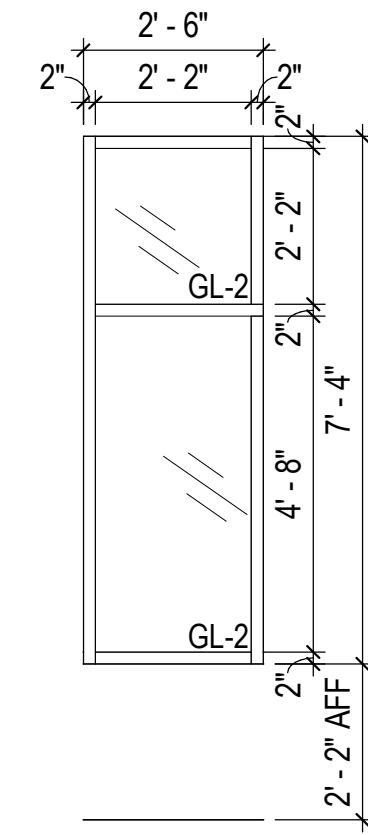
Window Type 'A'  
Aluminum Storefront, Medium Bronze  
(084113)



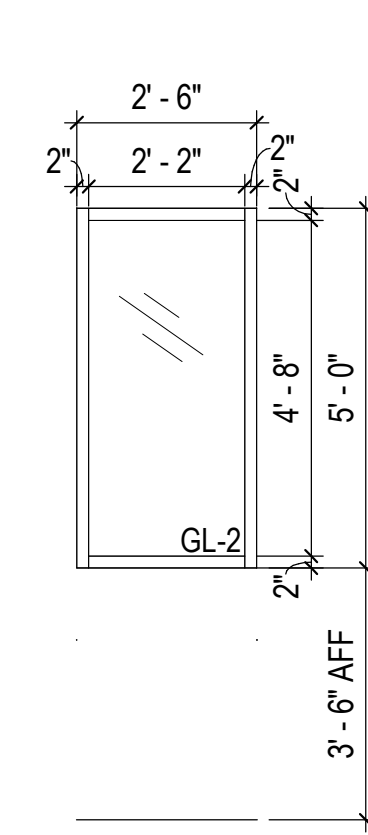
Window Type 'B'  
Aluminum Storefront, Medium Bronze  
(084113)



Window Type 'C'  
Aluminum Storefront, Medium Bronze  
(084113)



Window Type 'D'  
Aluminum Storefront, Medium Bronze  
(084113)

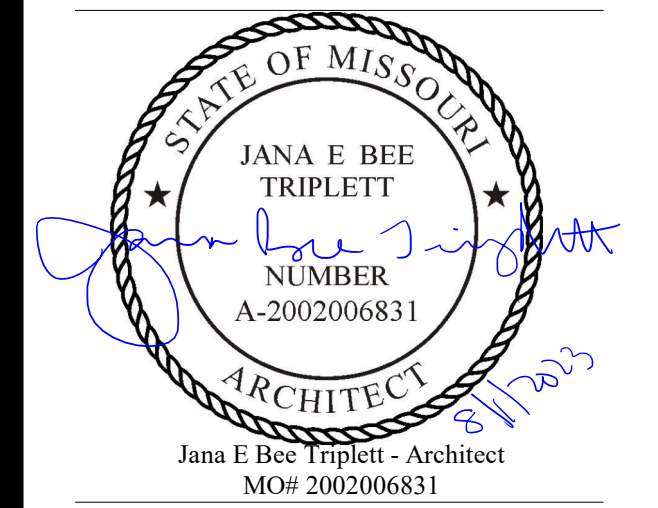


Window Type 'E' (Alternate #04)  
Aluminum Storefront, Medium Bronze  
(084113)

**GLAZING TYPES**

- GL-1: Low-E coated clear insulating glass.  
Basis-of-Design: Vitro, Solarban 60 (2) Optigray
- GL-2: Low-E coated tinted insulating glass.  
Basis-of-Design: Vitro, Solarban 60 (3) Optigray
- GL-3: 1/4" Clear Float Glass
- GL-4: 1/4" Clear Tempered Glass
- GL-5: 1/2" Laminated Safety Glass with Mirrored, One-way Coating
- GL-6: Bullet-Resistant Glazing

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2102.152

Gastinger Walker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

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1900 NE Independence Ave.  
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PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-603.dwg  
DRAWN BY: SW  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

Window Types

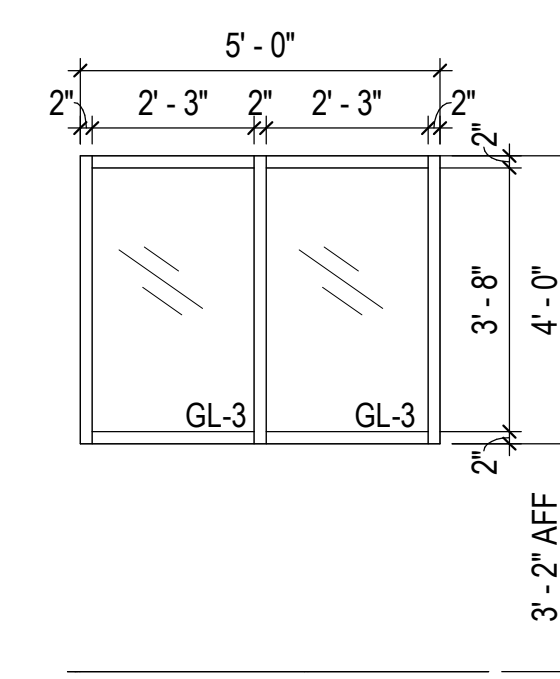
SHEET NUMBER:

**A-603**

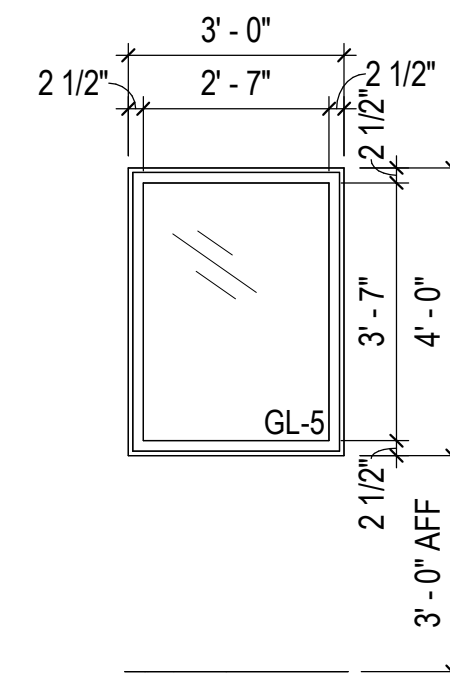
SHEET 095 OF 202

08/01/2023

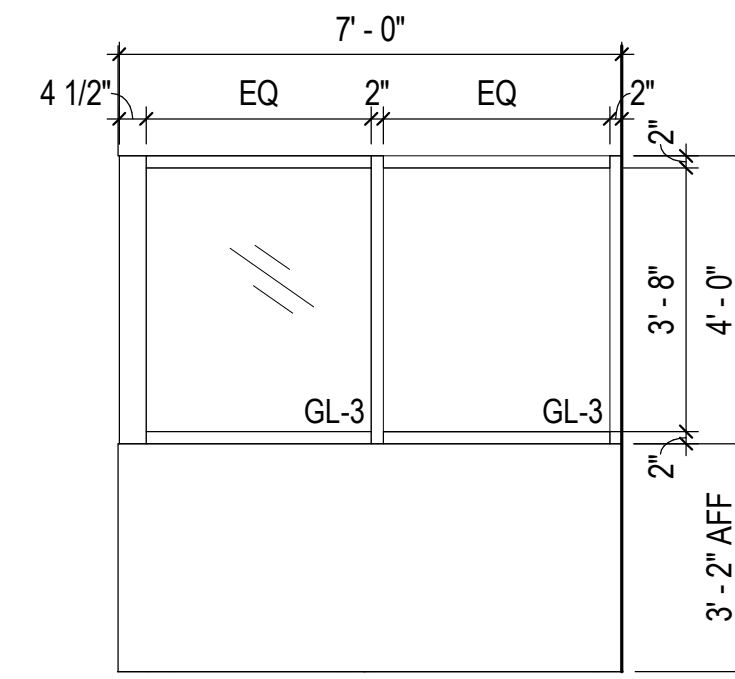
**Interior Window Types**



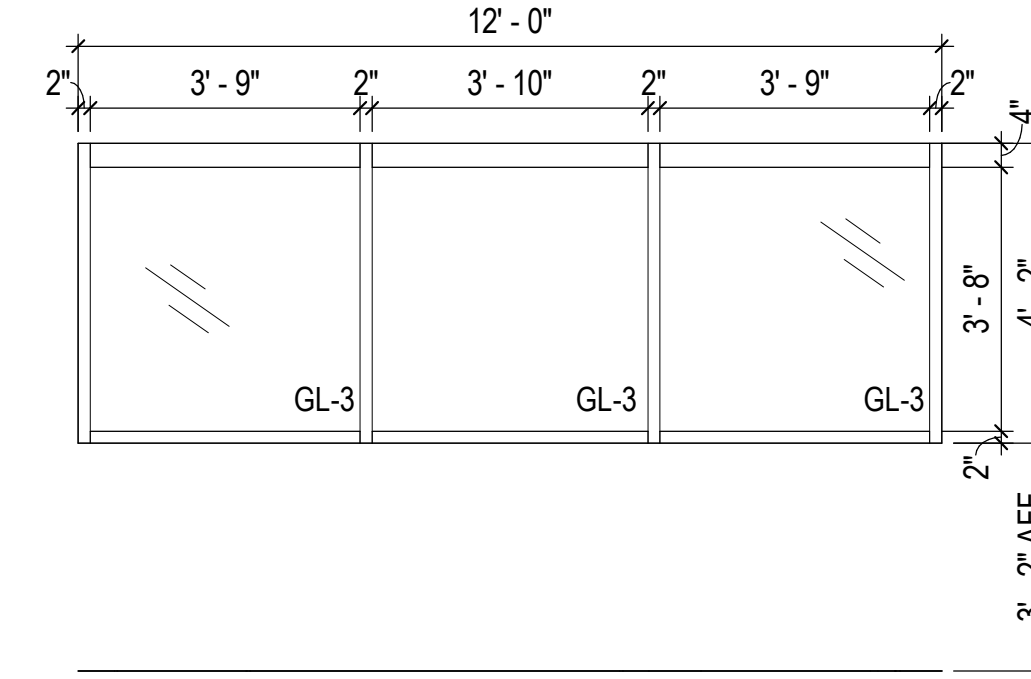
Window Type 'H'  
Knock Down Hollow Metal, Painted  
(081113, 099123)



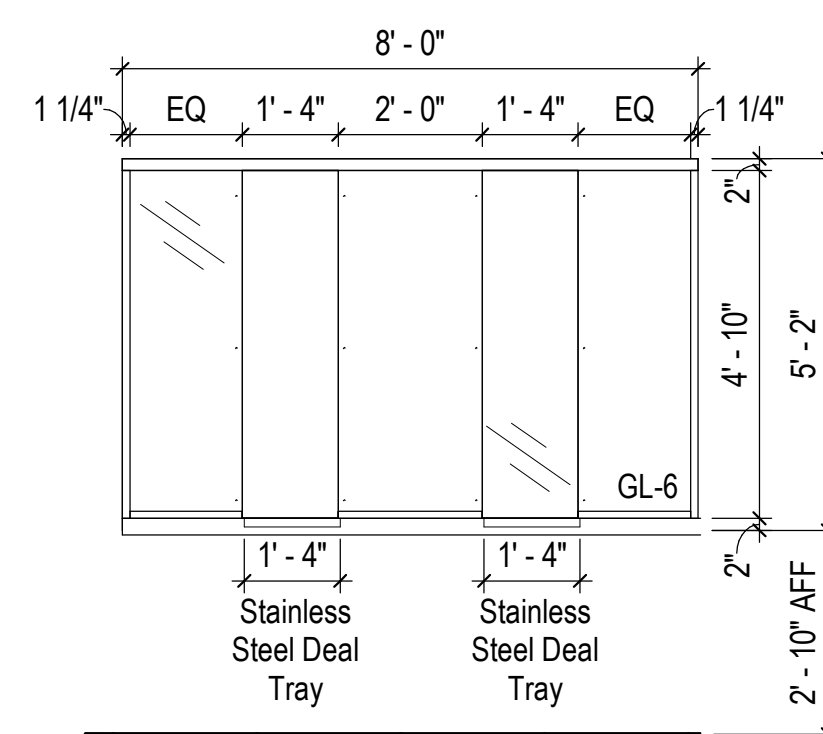
Window Type 'I'  
Knock Down Hollow Metal, Painted  
(081113, 099123)



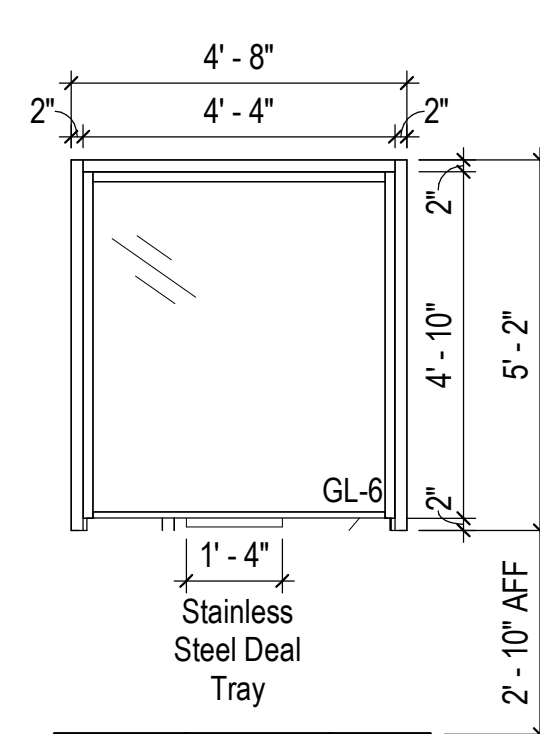
Window Type 'J' (Alternate #04)  
Knock Down Hollow Metal, Painted  
(081113, 099123)



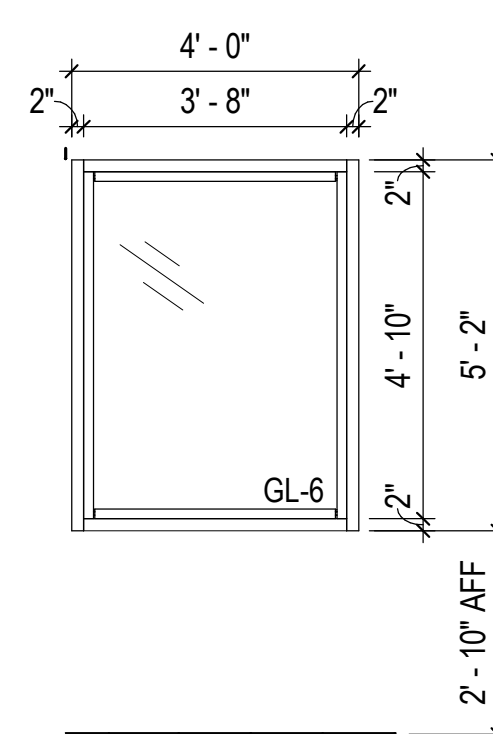
Window Type 'K' (Alternate #04)  
Knock Down Hollow Metal, Painted  
(081113, 099123)



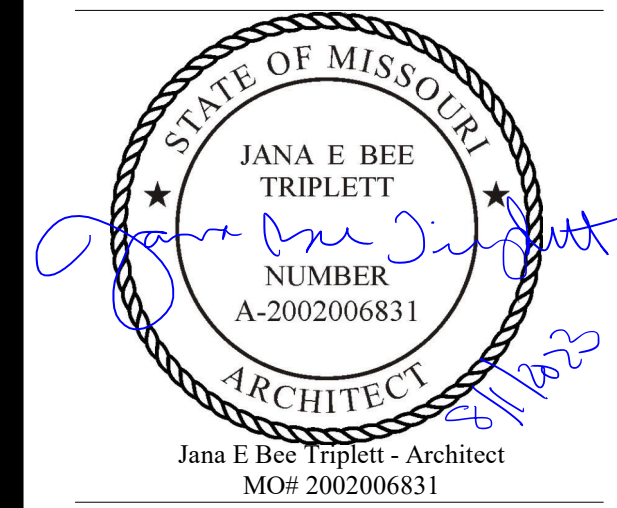
Window Type 'L'  
Security Baffle Transaction  
Aluminum, Clear Anodized  
(085653)



Window Type 'M'  
Security Natural Voice Transaction  
Aluminum, Clear Anodized  
(085653)



Window Type 'N'  
Security Fixed  
Aluminum, Clear Anodized  
(085653)



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 Missouri Certificate of Authority: #2023012872

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Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: A-700.dwg  
 DRAWN BY: KJ  
 CHECKED BY: JBT  
 DESIGNED BY: GW&  
 SHEET TITLE:

Overall Reflected Ceiling  
 Plan - Main Building

SHEET NUMBER:

**A-700**

SHEET 096 OF 202

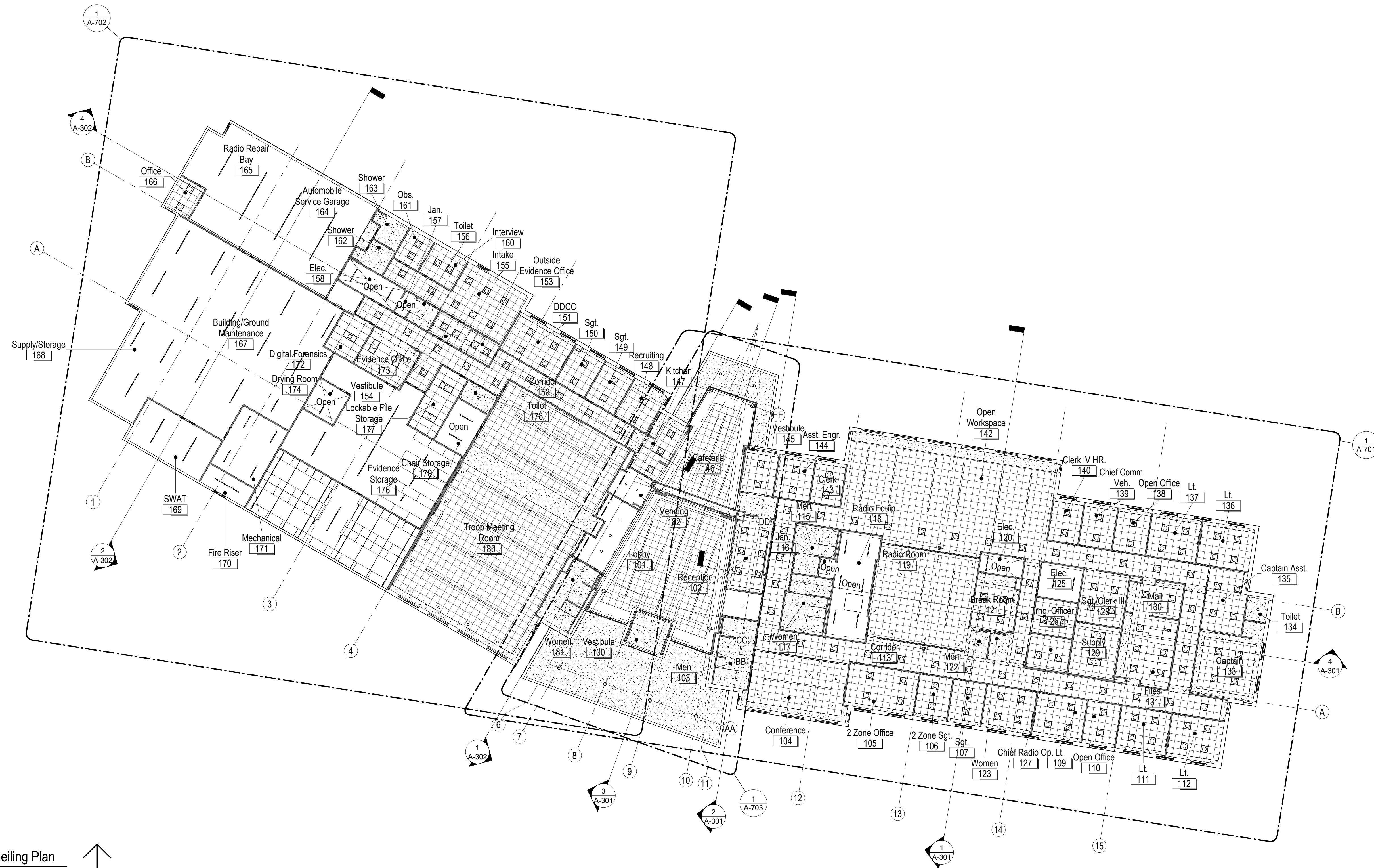
08/01/2023

**General Reflected Ceiling Plan Notes**

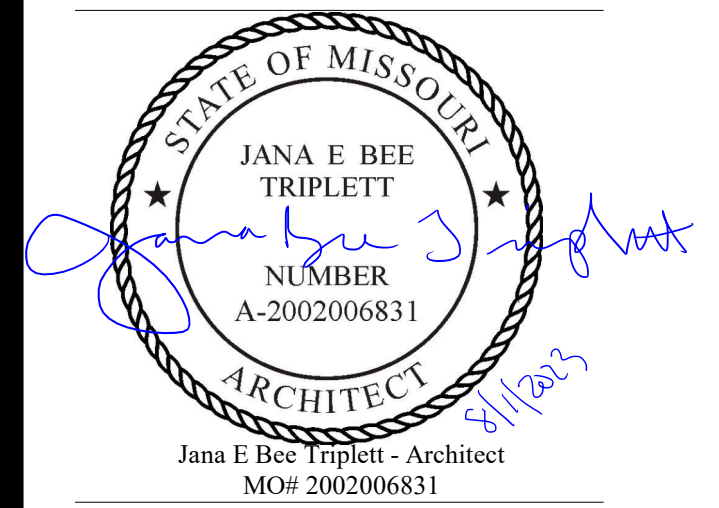
1. See electrical drawings for light fixture types and night light locations.
2. Ceiling grid system is to be centered within room in both directions unless otherwise noted.
3. All ceiling mounted devices shall be centered within the ceiling tile unless otherwise noted.
4. Verify the exact locations of soffit and ceiling control joints with the architect in the field prior to installation.

2 General Reflected Ceiling Plan Notes

Not to Scale







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1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
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 DATE:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: A-701.dwg  
 DRAWN BY: KJ  
 CHECKED BY: JBT  
 DESIGNED BY: GW&

SHEET TITLE:

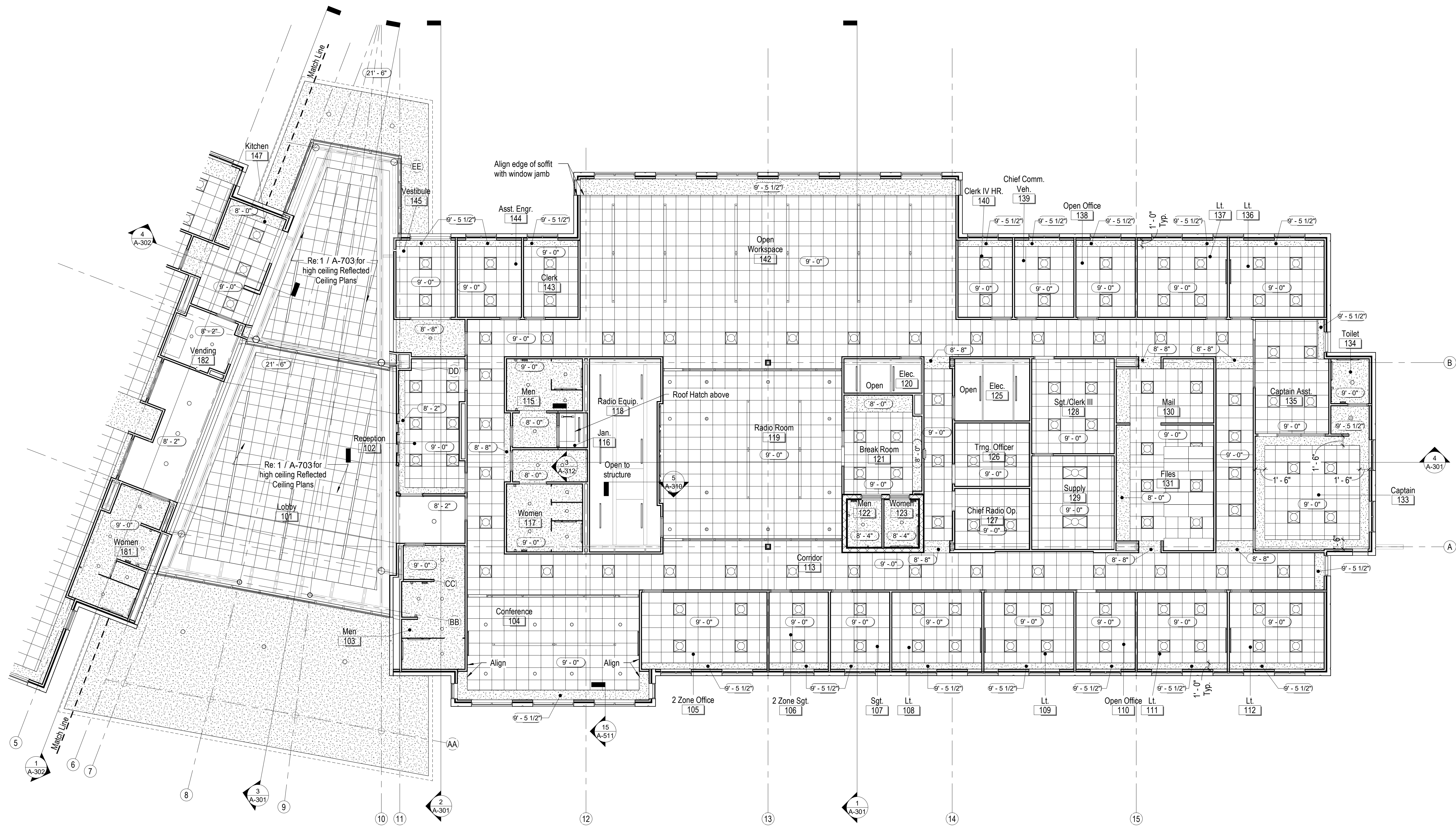
Partial Reflected Ceiling  
 Plan - Main Building

SHEET NUMBER:

**A-701**

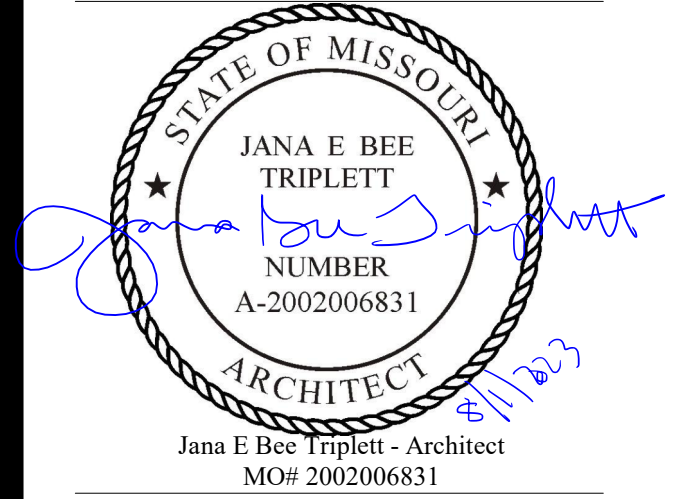
SHEET 097 OF 202

08/01/2023



**Reflected Ceiling Plan Legend:**

- |  |  |  |                               |
|--|--|--|-------------------------------|
|  | 2X2 Recessed Fluorescent Light Fixture in Lay-In Ceiling |  | Gypsum Board Ceiling          |
|  | 2X4 Recessed Fluorescent Light Fixture in Lay-In Ceiling |  | Acoustical Ceiling Tile 2'x2' |
|  | Recessed Downlight                                       |  | No Ceiling Open to Above      |
|  | Suspended Indirect Fluorescent Light                     |  |                               |
|  | Fluorescent Light Strip Hung From Structure Above        |  |                               |



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1900 NE Independence Ave.  
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PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
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REVISION:  
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ISSUE DATE: 01 August 2023

CAD DWG FILE: A-702.dwg  
DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&  
SHEET TITLE:

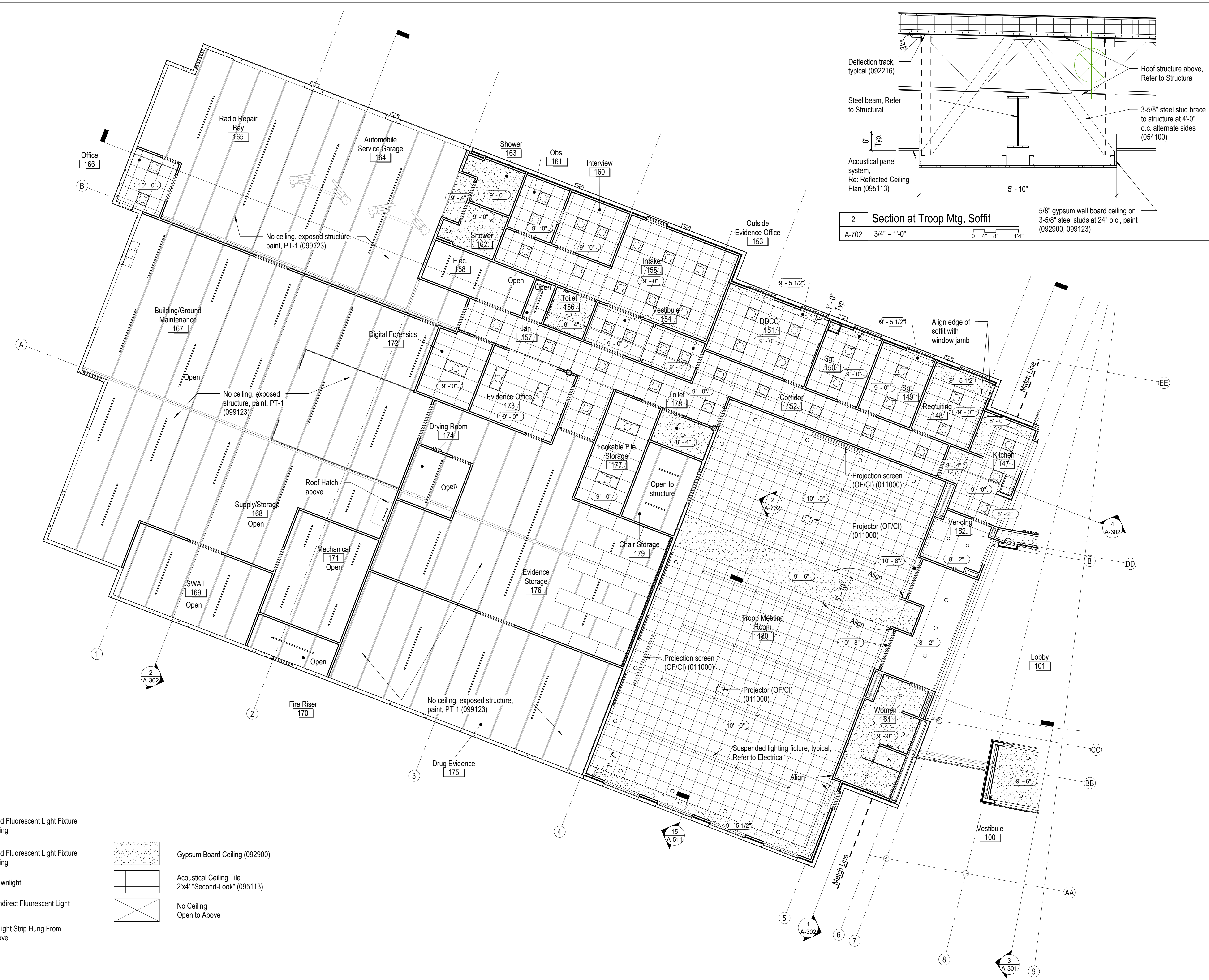
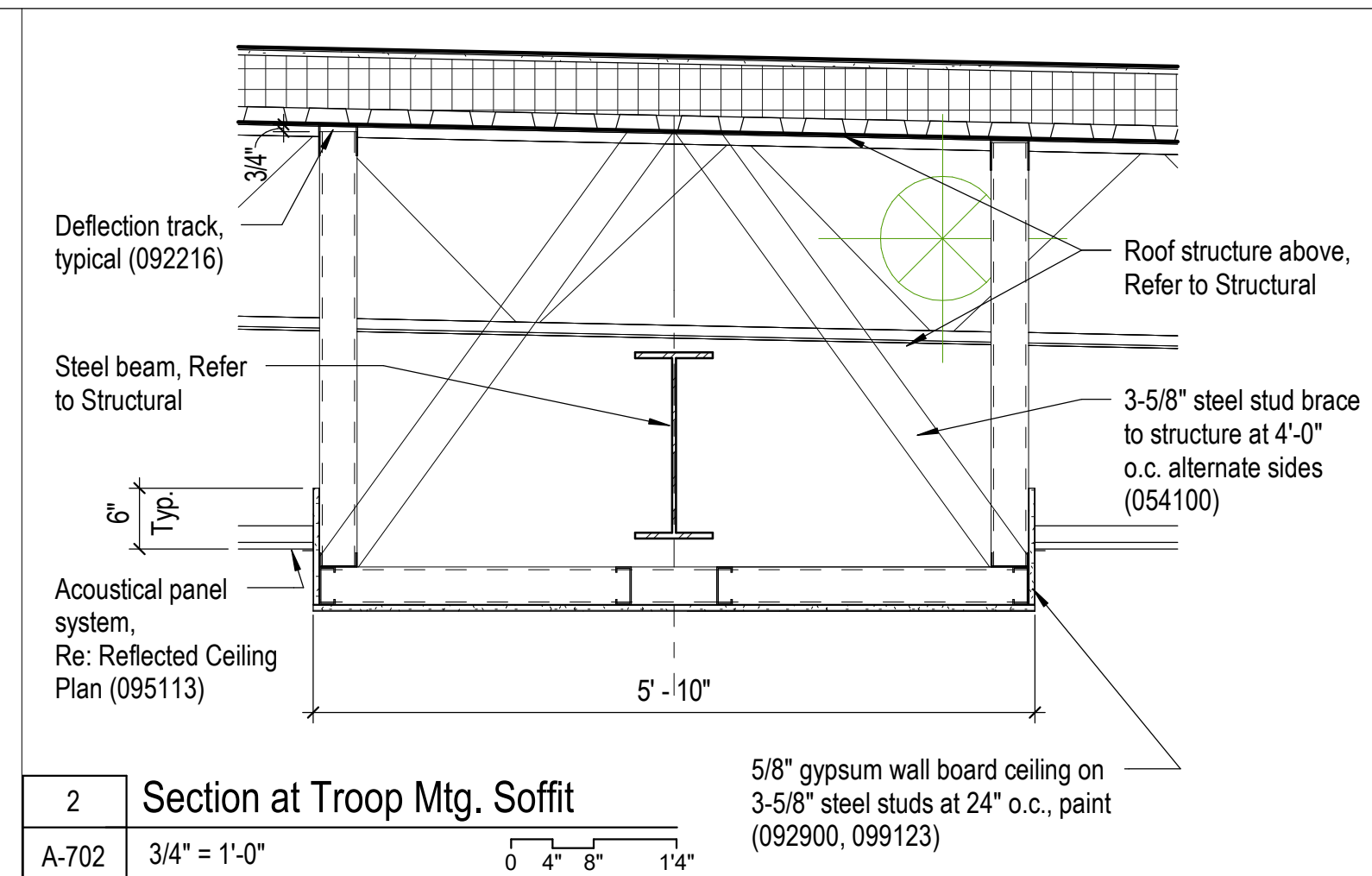
Partial Reflected Ceiling  
Plan - Main Building

SHEET NUMBER:

**A-702**

SHEET 098 OF 202

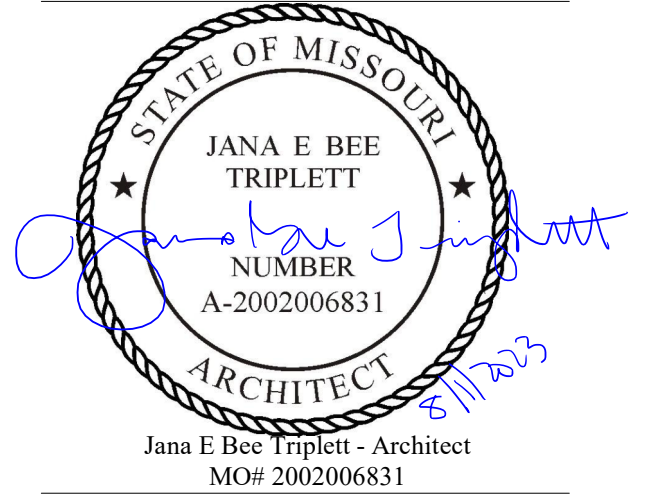
08/01/2023



**Reflected Ceiling Plan Legend:**

- 2X2 Recessed Fluorescent Light Fixture in Lay-In Ceiling
- 2X4 Recessed Fluorescent Light Fixture in Lay-In Ceiling
- Recessed Downlight
- Suspended Indirect Fluorescent Light
- Fluorescent Light Strip Hung From Structure Above
- Gypsum Board Ceiling (092900)
- Acoustical Ceiling Tile 2'x4' "Second-Look" (095113)
- No Ceiling Open to Above

1 Reflected Ceiling Plan - West  
A-700 1/8" = 1'-0" NORTH



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Project Name:  
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1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: A-703.dwg  
DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&  
SHEET TITLE:

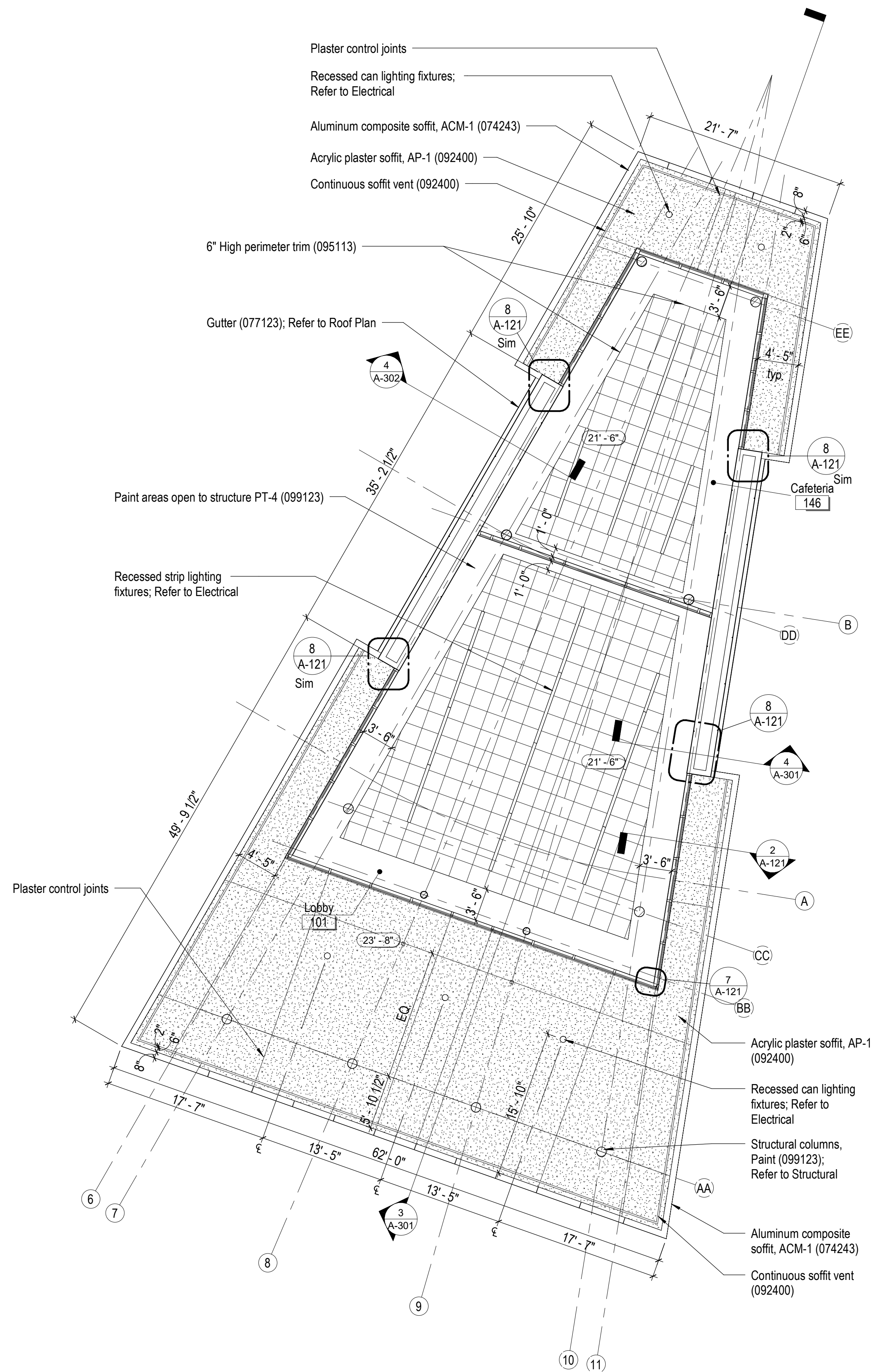
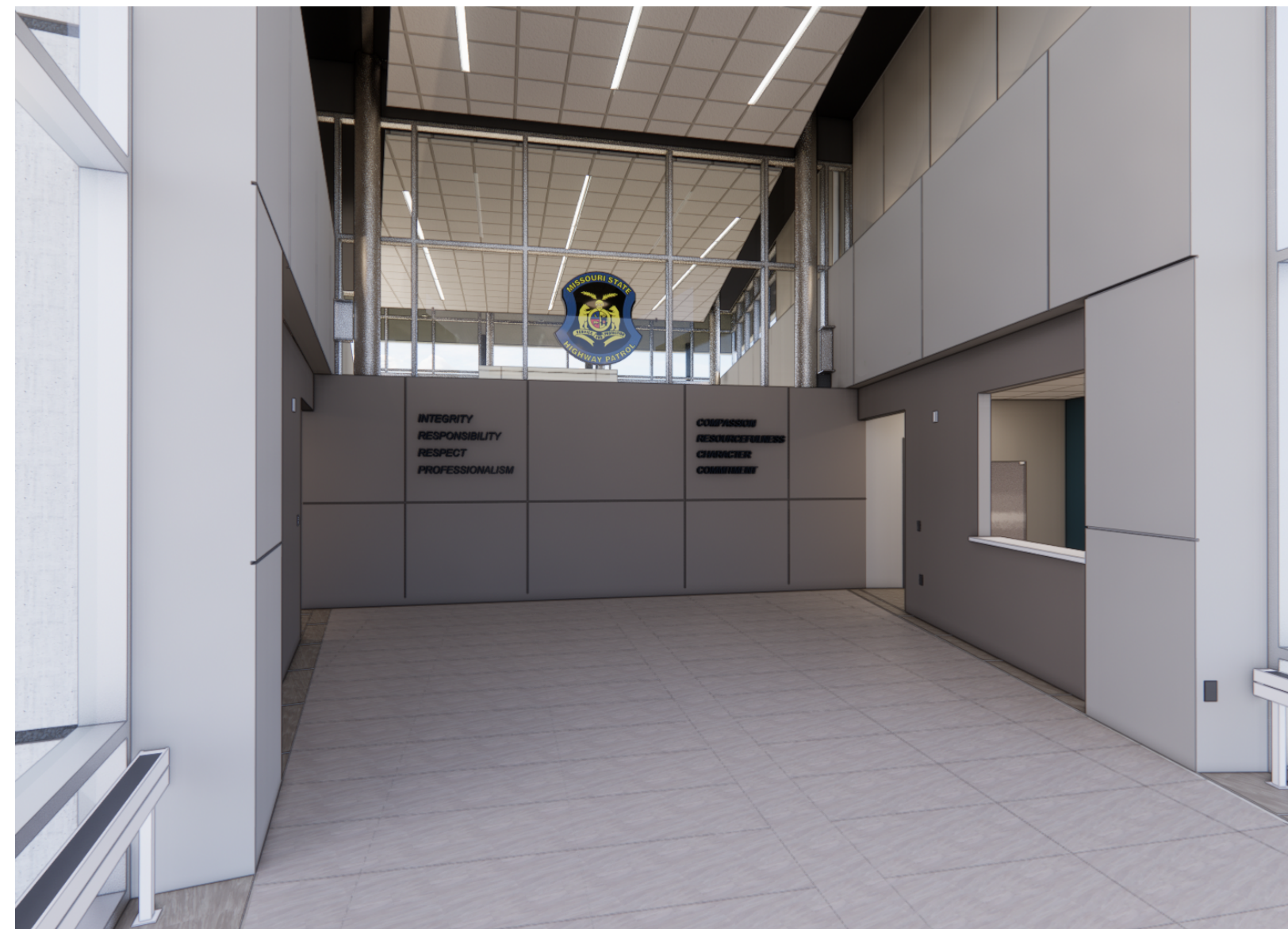
Reflected Ceiling Plan &  
Interior Renderings -  
Lobby

SHEET NUMBER:

**A-703**

SHEET 097 OF 202

08/01/2023

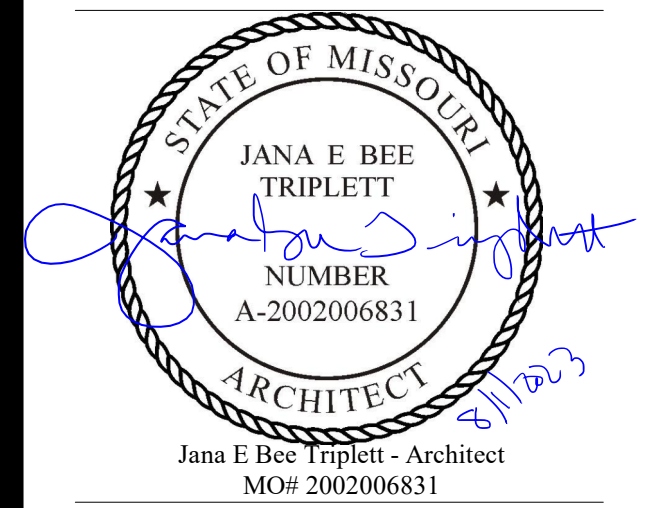


2 Interior Renderings

Not to Scale

Reflected Ceiling Plan Legend:

- 2X2 Recessed Fluorescent Light Fixture in Lay-In Ceiling
- 2X4 Recessed Fluorescent Light Fixture in Lay-In Ceiling
- Recessed Downlight
- Suspended Indirect Fluorescent Light
- Fluorescent Light Strip Hung From Structure Above
- Gypsum Board Ceiling
- Acoustical Ceiling Tile 2x2
- No Ceiling Open to Above



**Gastinger Walker &**

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 Project Number: 2102.152

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 MSHP

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 SITE # 6018  
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REVISION:  
 DATE:  
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 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: A-900.dwg  
 DRAWN BY: JL  
 CHECKED BY: JBT  
 DESIGNED BY: GW&

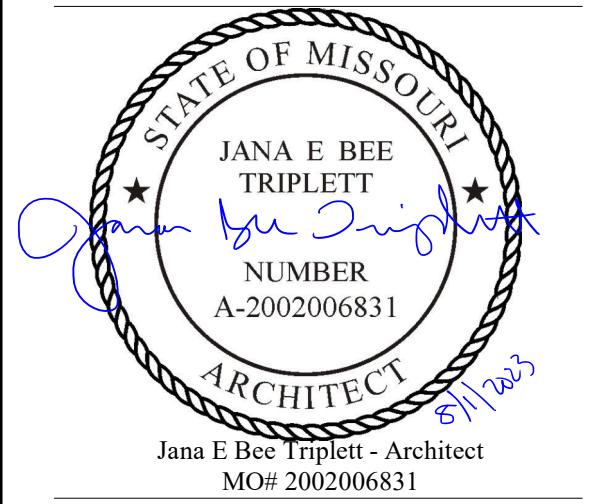
SHEET TITLE:  
**Exterior Rendering**

SHEET NUMBER:

**A-900**

SHEET 100 OF 202

08/01/2023



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### OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

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1900 NE Independence Ave.  
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REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: I-610.dwg  
DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

### Finish Legend & Schedule

SHEET NUMBER:

# I-610

SHEET 101 OF 202

08/01/2023

### Room Finish Schedule

Room Number	Room Name	Floor Finish	Base Finish	Walls				Ceiling Finish	Ceiling Height	Comments
				North	East	South	West			
100	Vestibule	WALK	B-1	PT-1	PT-1	PT-1	PT-1	GYP-1	9' - 6"	
101	Lobby	T-1, T-2	B-2	PT-1, PT-3, PT-5	PT-1, PT-2, PT-5	PT-1	PT-1, PT-2, PT-5	ACT-1, GYP-1	VARIES	1, 2
102	Reception	CPT-3	B-1	PT-1	PT-2	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
103	Men	T-3	B-4	PT-1	PT-1	PT-1	WT-1	GYP-1	9' - 0"	
104	Conference	CPT-2	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
105	2 Zone Office	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
106	2 Zone Sgt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
107	Sgt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
108	Lt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
109	Lt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
110	Open Office	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
111	Lt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
112	Lt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
113	Corridor	CPT-1	B-1	RE:PLAN	RE:PLAN	RE:PLAN	RE:PLAN	ACT-1, GYP-1	9' - 0"	
114	Corridor	CPT-1	B-1	RE:PLAN	RE:PLAN	RE:PLAN	RE:PLAN	ACT-1	9' - 0"	
115	Men	T-3	B-4	PT-1	WT-1, PT-1	PT-1	PT-1	GYP-1	VARIES	
116	Jan.	CONC	B-1	PT-1/FRP-1	PT-1/FRP-1	PT-1/FRP-1	PT-1/FRP-1	OPEN	-	4, 8
117	Women	T-3	B-4	PT-1	WT-1, PT-1	PT-1	PT-1	GYP-1	VARIES	
118	Radio Equip.	CONC	B-1	PT-5	PT-5	PT-5	PT-5	OPEN	-	4, 7
119	Radio Room	CPT-3	B-1	PT-1	PT-1	PT-1	PT-3	ACT-1, GYP-1	9' - 0"	
120	Elec.	CONC.	B-1	--	--	--	--	OPEN	-	4, 7
121	Break Room	LVT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
122	Men	T-3	B-4	PT-1	PT-1	PT-1	WT-1	GYP-1	8' - 4"	
123	Women	T-3	B-4	PT-1	WT-1, PT-1	PT-1	PT-1	GYP-1	8' - 4"	
124	Corridor	CPT-1	B-1	PT-5	PT-5	PT-5	PT-5	ACT-1	9' - 0"	
125	Elec.	CONC.	B-1	--	--	--	--	OPEN	-	4, 7
126	Trng. Officer	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
127	Chief Radio Op.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
128	Sgt./Clerk III	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
129	Supply	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
130	Mail	CPT-1	B-1	PT-5	PT-5	PT-3, PT-5	PT-5	ACT-1, GYP-1	9' - 0"	
131	Files	CPT-1	B-1	PT-3, PT-5	PT-5	PT-5	PT-5	ACT-1, GYP-1	9' - 0"	
132	Corridor	CPT-1	B-1	PT-1	PT-1	PT-1	PT-5	ACT-1, GYP-1	9' - 0"	
133	Captain	CPT-3	B-1	PT-1	PT-1	PT-3	PT-3	ACT-1, GYP-1	9' - 0"	
134	Toilet	T-3	B-4	PT-1	PT-1	PT-1	WT-1	GYP-1	9' - 0"	
135	Captain Asst.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
136	Lt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
137	Lt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
138	Open Office	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
139	Chief Comm. Veh.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
140	Clerk IV HR.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
141	Corridor	CPT-1	B-1	RE:PLAN	RE:PLAN	RE:PLAN	RE:PLAN	ACT-1	9' - 0"	
142	Open Workspace	CPT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
143	Clerk	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
144	Asst. Engr.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
145	Vestibule	WALK	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
146	Cafeteria	LVT-1, LVT-2	B-1	PT-1	RE:PLAN	PT-1	RE:PLAN	ACT-1, GYP-1	VARIES	1, 2
147	Kitchen	LVT-2	B-1	PT-1	PT-1	PT-1	PT-1, PT-2	ACT-1, GYP-1	VARIES	
148	Recruiting	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
149	Sgt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
150	Sgt.	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
151	DDCC	CPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1, GYP-1	9' - 0"	
152	Corridor	VCT-1, VCT-2	B-1	PT-1 / PT-2	PT-1	PT-1 / PT-2	PT-1	ACT-1	9' - 0"	
153	Outside Evidence Office	VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
154	Vestibule	VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
155	Intake	VCT-1, VCT-2	B-1	PT-1	PT-2	PT-1	PT-1	ACT-1	9' - 0"	
156	Toilet	S-1	-	PT-1	PT-1	WT-1, PT-1	PT-1	GYP-1	8' - 4"	
157	Jan.	CONC	B-1	PT-1/FRP-1	PT-1/FRP-1	PT-1/FRP-1	PT-1/FRP-1	OPEN	-	4, 8
158	Elec.	CONC	B-1	PT-1	PT-1	PT-1	PT-1	OPEN	-	4, 7
159	Corridor	VCT-1, VCT-2	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
160	Interview	VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
161	Obs.	VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
162	Shower	S-1	-	FRP-2	FRP-2	FRP-2	FRP-2	GYP-1	9' - 0"	
163	Shower	S-1	-	FRP-2	FRP-2	FRP-2	FRP-2	GYP-1	9' - 0"	
164	Automobile Service Garage	CONC	B-1	PT-1	PT-1	PT-1	PT-1	OPEN, PT-1	-	2, 5
165	Radio Repair Bay	CONC	B-1	PT-1	PT-1	PT-1	PT-1	OPEN, PT-1	-	2, 5
166	Office	CONC	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	10' - 0"	
167	Building/Ground Maintenance	CONC	B-1	PT-1	PT-1	PT-1	PT-1	OPEN, PT-1	-	2, 5
168	Supply/Storage	CONC	B-1	PT-1	PT-1	PT-1	PT-1	OPEN, PT-1	-	2, 5
169	SWAT	CONC	B-1	PT-5	PT-5	PT-5	PT-5	OPEN, PT-1	-	2, 5
170	Fire Riser	CONC	B-1	PT-5	PT-5	PT-5	PT-5	OPEN	-	4
171	Mechanical	CONC	B-1	PT-1	PT-1	PT-1	PT-1	OPEN	-	4
172	Digital Forensics	GPT-3	B-1	PT-1	PT-1	PT-1	PT-1	ACT-2	9' - 0"	
173	Evidence Office	VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-2	9' - 0"	
174	Drying Room	CONC	B-1	PT-5	PT-5	PT-5	PT-5	OPEN, PT-1	-	2
175	Drug Evidence	CONC	B-1	PT-5	PT-5	PT-5	PT-5	OPEN, PT-1	-	2, 5
176	Evidence Storage	CONC	B-1	PT-5	PT-5	PT-5	PT-5	OPEN, PT-1	-	2
177	Lockable File Storage	VCT-1	B-1	PT-5	PT-5	PT-5	PT-5	ACT-2	9' - 0"	
178	Toilet	T-3	B-4	PT-1	PT-1	WT-1, PT-1	PT-1	GYP-1	8' - 4"	
179	Chair Storage	VCT-1	B-1	PT-5	PT-5	PT-5	PT-5	OPEN	-	4
180	Troop Meeting Room	CPT-2	B-1	PT-3	PT-5	PT-5	PT-5	ACT-1, GYP-1	VARIES	
181	Women	T-3	B-4	PT-1	WT-1, PT-1	PT-1	PT-1	GYP-1	9' - 0"	
182	Vending	T-2	B-2	PT-5	PT-5	PT-3	PT-5	GYP-1	8' - 2"	

#### General Finish Notes

- A. Listed manufacturers are basis-of-design. Reference specifications for approved alternates.
- B. Casework in all rooms will have PL1 base cabinets & PL2 countertops and backsplashes where applicable.
- C. See finish plan for accent wall paint locations and flooring finish transitions.
- D. Epoxy painted gypsum board, wall surfaces typical at all in restrooms.
- E. Provide transition strip between dissimilar materials. See transition details.
- F. Gypsum board soffits and ceilings to be painted, P-1, unless noted otherwise (092900, 099123)
- G. All floor surfaces shall be stable, firm, and slip resistant per ICC/ANSI A117.1-2009; changes in floor level shall not exceed 1/4" vertical height.
- H. Specified flooring is to be extended under all existing millwork knee spaces, equipment, and/or other openings where the floor is exposed.
- I. All windows to receive roller window shades (122413).
- J. All interior finishes to have a Class A flame spread and smoke development ratings.

#### Room Finish Schedule Comments

1. Paint exposed structure, PT-4.
2. Paint exposed structure, PT-1.
3. Paint lower gypsum ceilings/soffits, PT-1.
4. Do not paint exposed structure.
5. Do not paint exposed concrete or CMU walls.
6. Provide Level 1 finish on walls.
7. Provide 3/4" fire-retardant plywood over walls to height of 7'-0" (061053); do not paint.
8. Provide 48" high fiberglass reinforced panels on all walls. Mount bottom of panel at 4" above wall base (top of FRP at 52" AFF).

#### FLOOR

##### CPT-1 096813 Tile Carpeting

Manufacturer: Interface  
Collection: Net Effect  
Style: B701  
Color: 102888 Black Sea  
Size: 25cm X 1m  
Install: Ashlar

##### CPT-2 096813 Tile Carpeting

Manufacturer: Interface  
Collection: Whole Earth  
Style: WE151  
Color: 104480 Midnight  
Size: 25cm X 1m  
Install: Ashlar

##### CPT-3 096813 Tile Carpeting

Manufacturer: Interface  
Collection: Simple Abstraction  
Style: Veiled Brushwork  
Color: 106007 Ink  
Size: 25cm X 1m  
Install: Ashlar

##### WALK 096813 Tile Carpeting

Manufacturer: J+J Flooring Walk off  
Style: Catwalk II Modular (Style 7268)  
Color: 1429 Photo Op  
Install: Quarter Turn

##### T-1 093000 Porcelain Tiling

Manufacturer: Daltile  
Style: Articulo  
Color: Editorial White AR06  
Size: 12" x 24"  
Grout: Mapei 93 Warm Gray

##### T-2 093000 Porcelain Tiling

Manufacturer: Daltile  
Style: Articulo  
Color: Feature Beige AR07  
Size: 12" x 24", Re: finish plans  
Grout: Mapei 93 Warm Gray

##### T-3 093000 Porcelain Tiling

Manufacturer: Daltile  
Style: Archaia  
Color: Relic White AR40  
Size: 12" X 24"  
Grout: Mapei 93 Warm Gray

#### TILE

##### WT-1 093000 Porcelain Tiling

Manufacturer: Daltile  
Series: Color Wheel Classic  
Color: Galaxy 1469  
Size: 3" X 6"  
Grout: Mapei Black

#### CONCRETE

##### CONC - 033000 Concrete

Concrete Floor  
See Specifications

#### RESILIENT FLOORING

##### VCT-1 096519 Resilient Tile Flooring

Manufacturer: Armstrong Flooring  
Style: Imperial Texture  
Color: Washed Linen 51810  
Size: 12" x 12"

##### VCT-2 096519 Resilient Tile Flooring

Manufacturer: Armstrong Flooring  
Style: Imperial Texture  
Color: Earthstone Greige 51804  
Size: 12" x 12" Accent Color

##### LVT-1 096519 Resilient Tile Flooring

Manufacturer: Armstrong Flooring  
Style: Natural Creations  
Color: NA310 Parsa, Irish Cream  
Size: 18" X 36"

##### LVT-2 096519 Resilient Tile Flooring

Manufacturer: Armstrong Flooring  
Style: Natural Creations  
Color: NA311 Parsa, Cafe au Lait  
Size: 18" X 36"

##### S-1 096516 Resilient Sheet Flooring

Manufacturer: Mohawk Group  
Homogeneous Sheet  
Notes: Cove product up for an integral base  
Style: Medella Hues - C2062  
Color: H5311 Natural White

#### PAINT

##### PT-1 099123 Painting

Manufacturer: Sherwin Williams  
Color: Heron Plume SW6070  
Finish: Eggshell (walls), Flat (ceilings), Semi-gloss (steel)  
Color of all Walls U.N.O., Color of Gypsum board ceilings and exposed steel U.N.O.

##### PT-2 099123 Painting

Manufacturer: Sherwin Williams  
Color: Santorini Blue SW7607  
Finish: Eggshell  
Color of Accent Walls

##### PT-3 099123 Painting

Manufacturer: Sherwin Williams  
Color: Indigo Batik SW7602  
Finish: Eggshell  
Color of Accent Walls

##### PT-4 099123 Painting

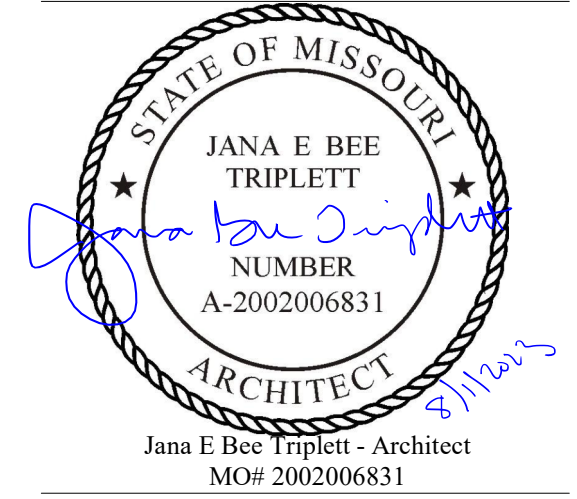
Manufacturer: Sherwin Williams  
Color: Tricorn Black SW6258  
Finish: Eggshell  
Exposed structure in lobby

##### PT-5 099123 Painting

Manufacturer: Sherwin Williams  
Color: Mega Greige SW7031  
Finish: Eggshell/ Semi-gloss on Frames  
Corridor accent walls, HM door frames

#### FRP

##### FRP-1 102600 Fiberglass Reinforced Plastic



Jana E Bee Triplett - Architect  
MO# 200206831

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2102.152

GastingerWalker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: I-611.dwg  
DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:  
  
Partial Finish Plan and  
Schedule

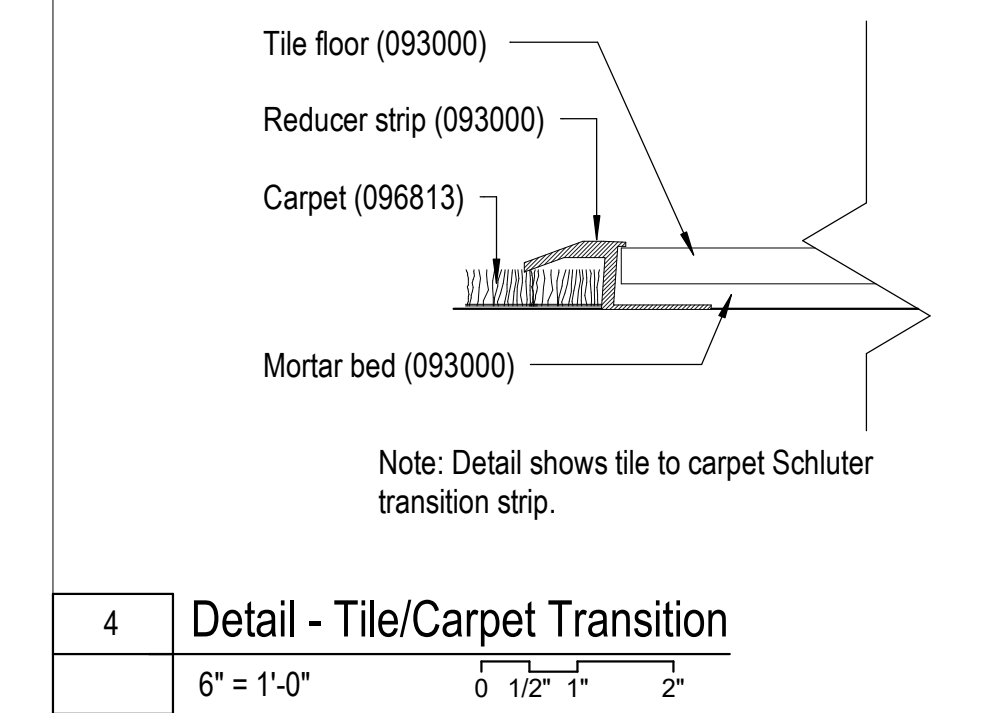
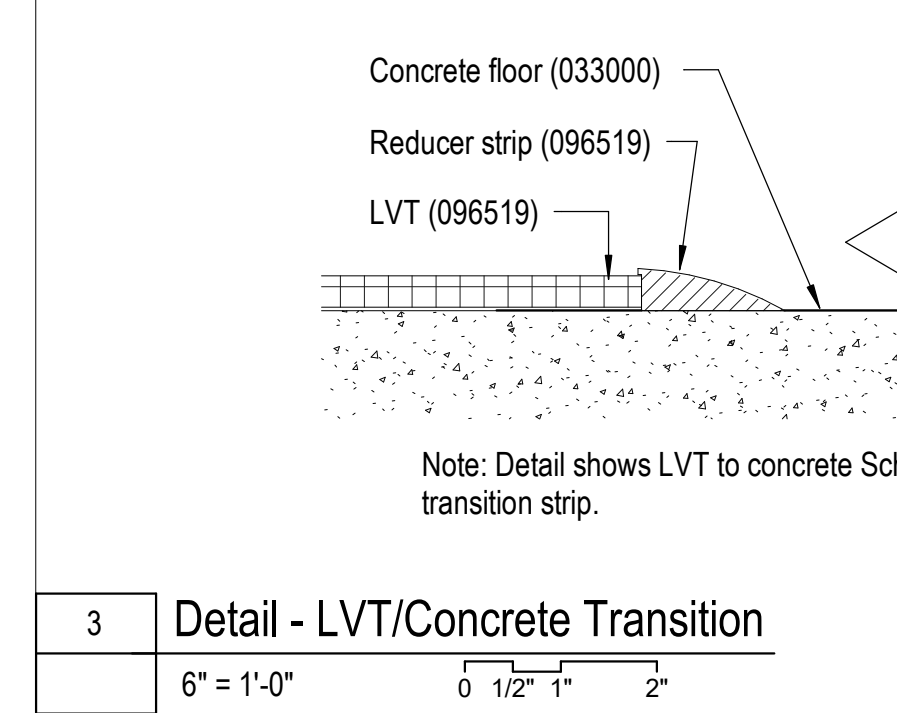
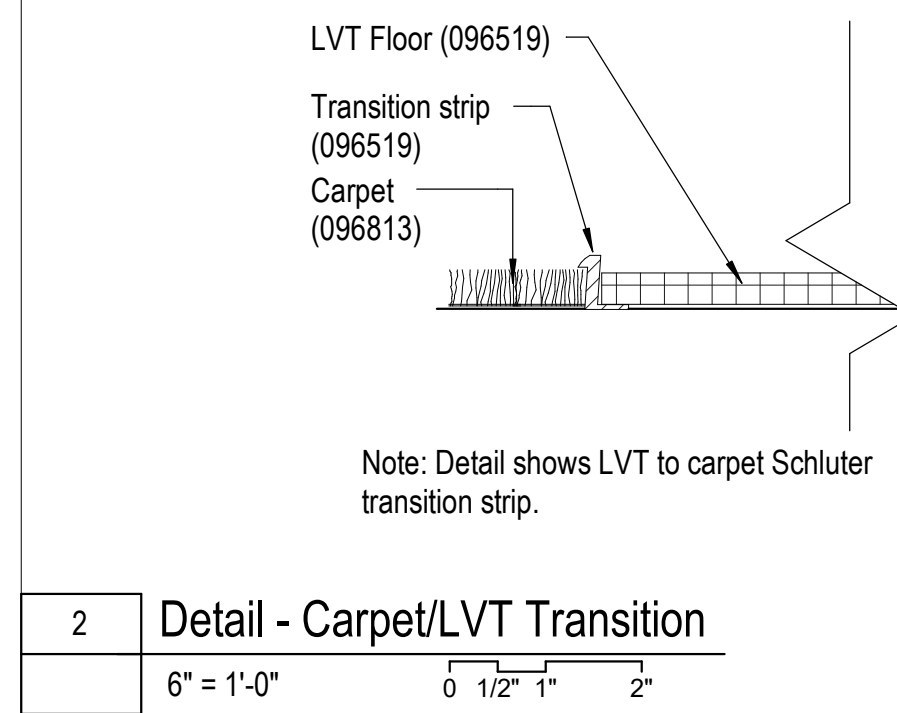
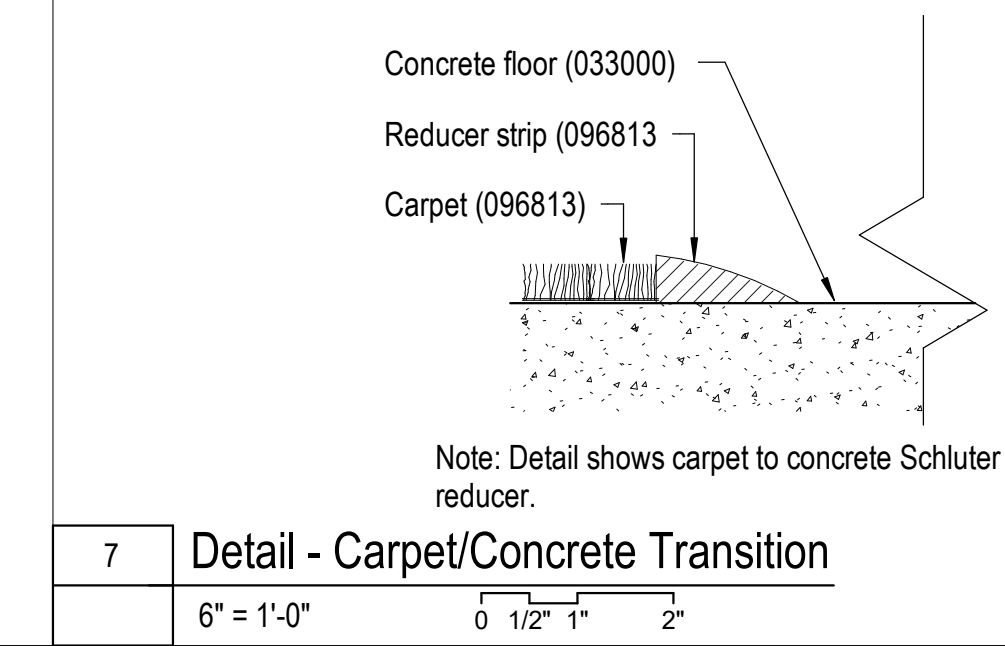
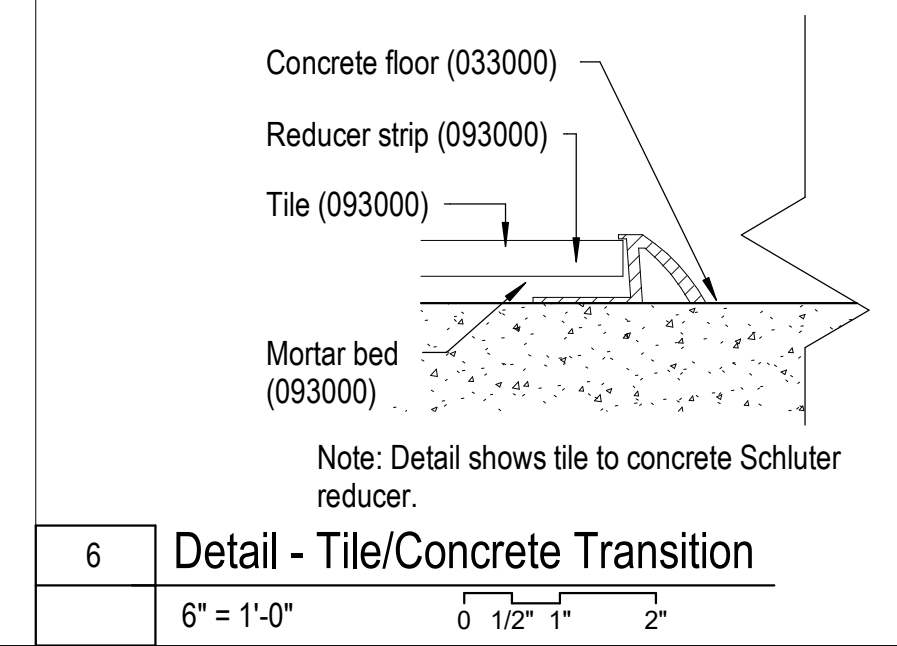
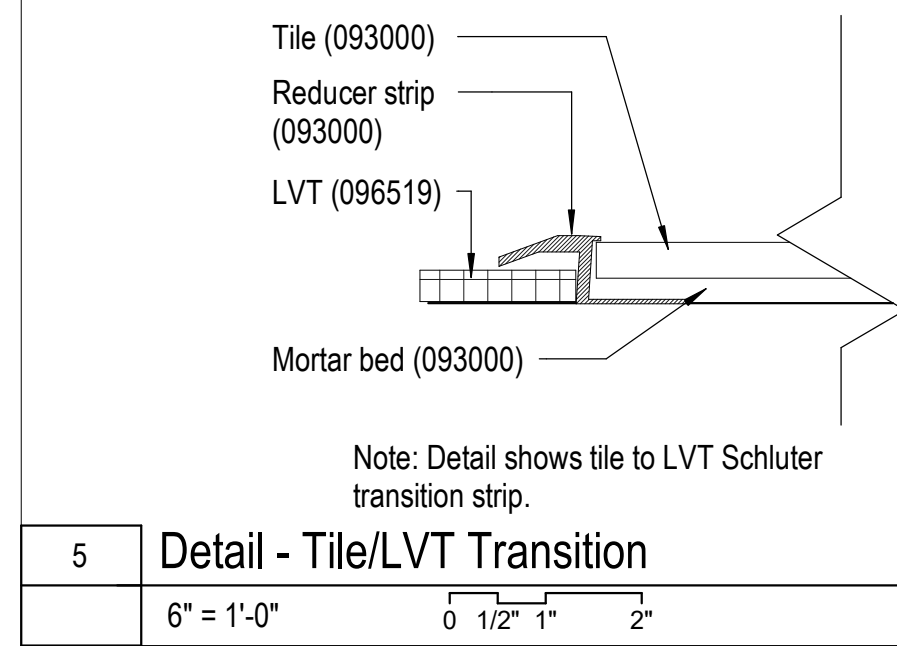
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**I-611**

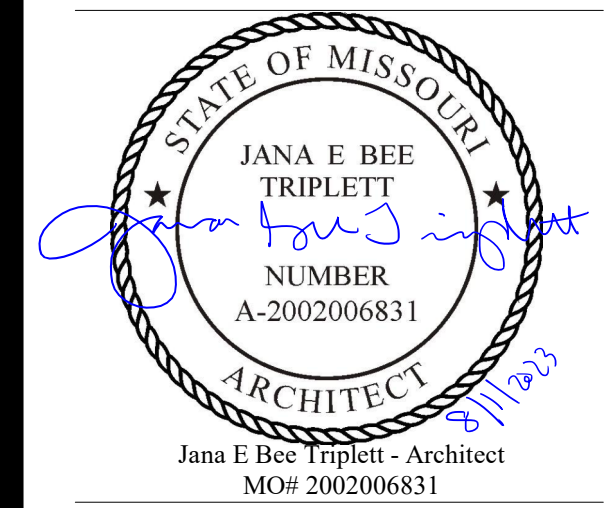
SHEET 102 OF 202

08/01/2023

FLOORING KEY:		FINISH KEY:	
	CPT-1		PT-5 Mega Greige
	CPT-2		SH-1
	CPT-3		SH-2
	WALK		
	LVT-1		
	LVT-2		
	VCT-1		
	VCT-2		
	T-1		
	T-2		



1 Floor 1 - East Finish Plan  
1/8" = 1'-0" 0 2' 4' 8" NORTH



**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2102.152

Gastinger Walker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: I-612.dwg  
DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

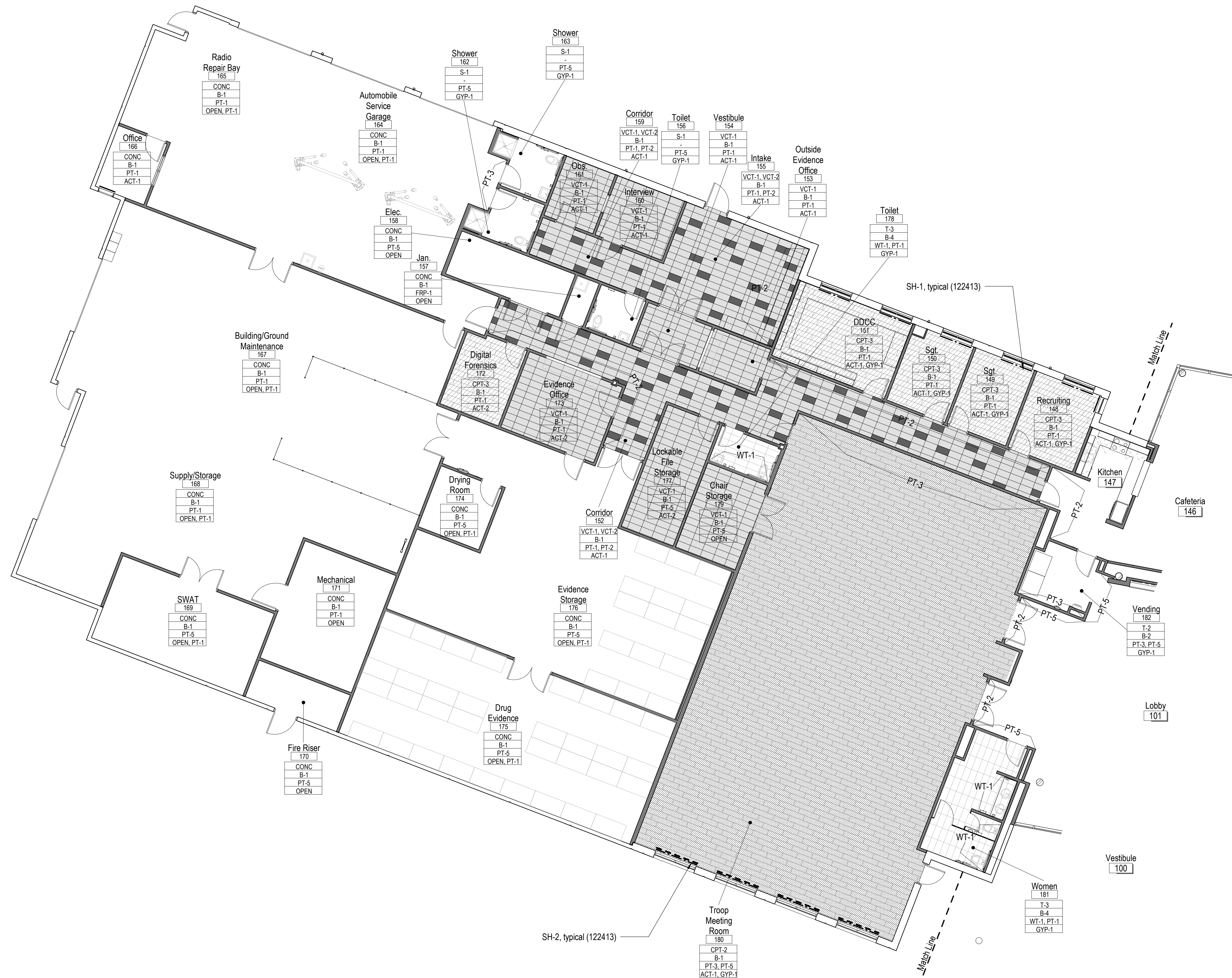
Partial Finish Plan and  
Schedule

SHEET NUMBER:

**I-612**

SHEET 103 OF 202

08/01/2023

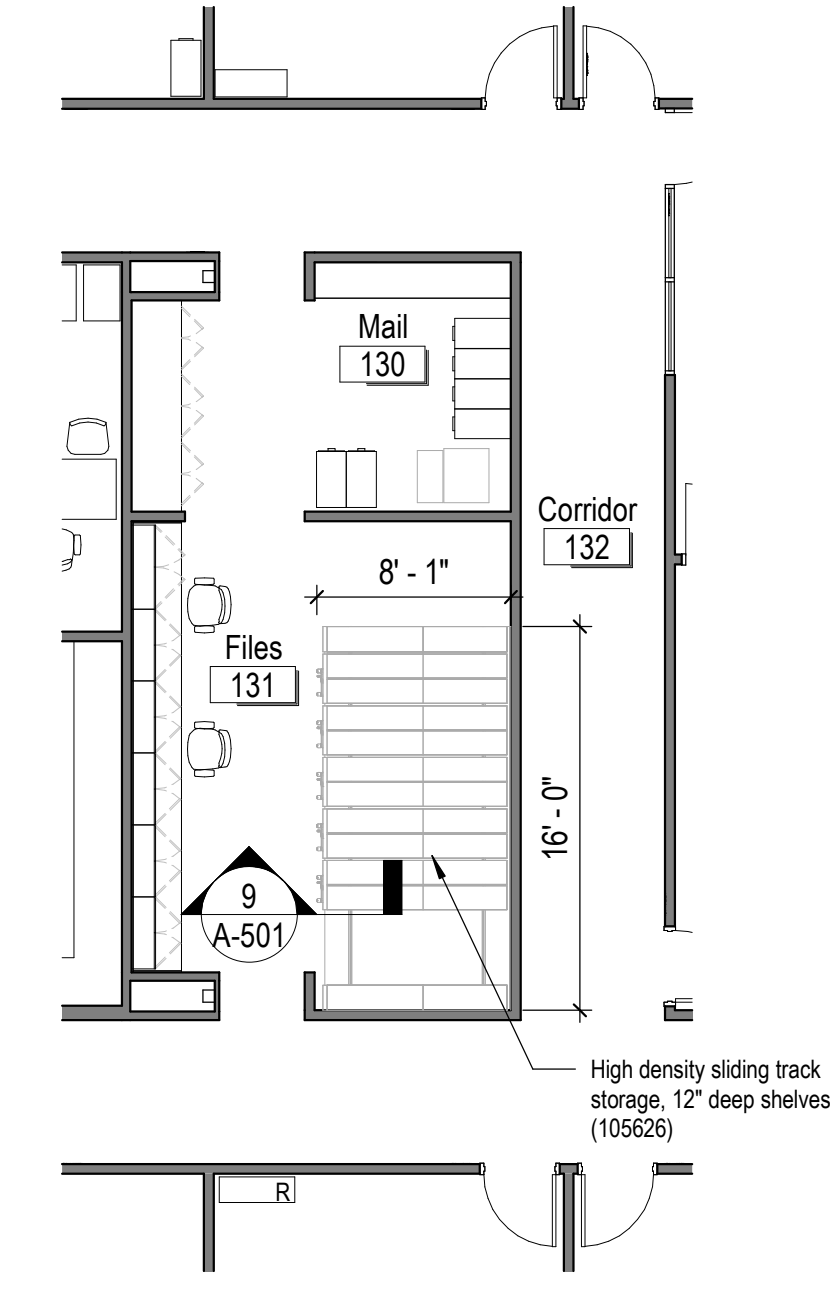


Furniture Schedule

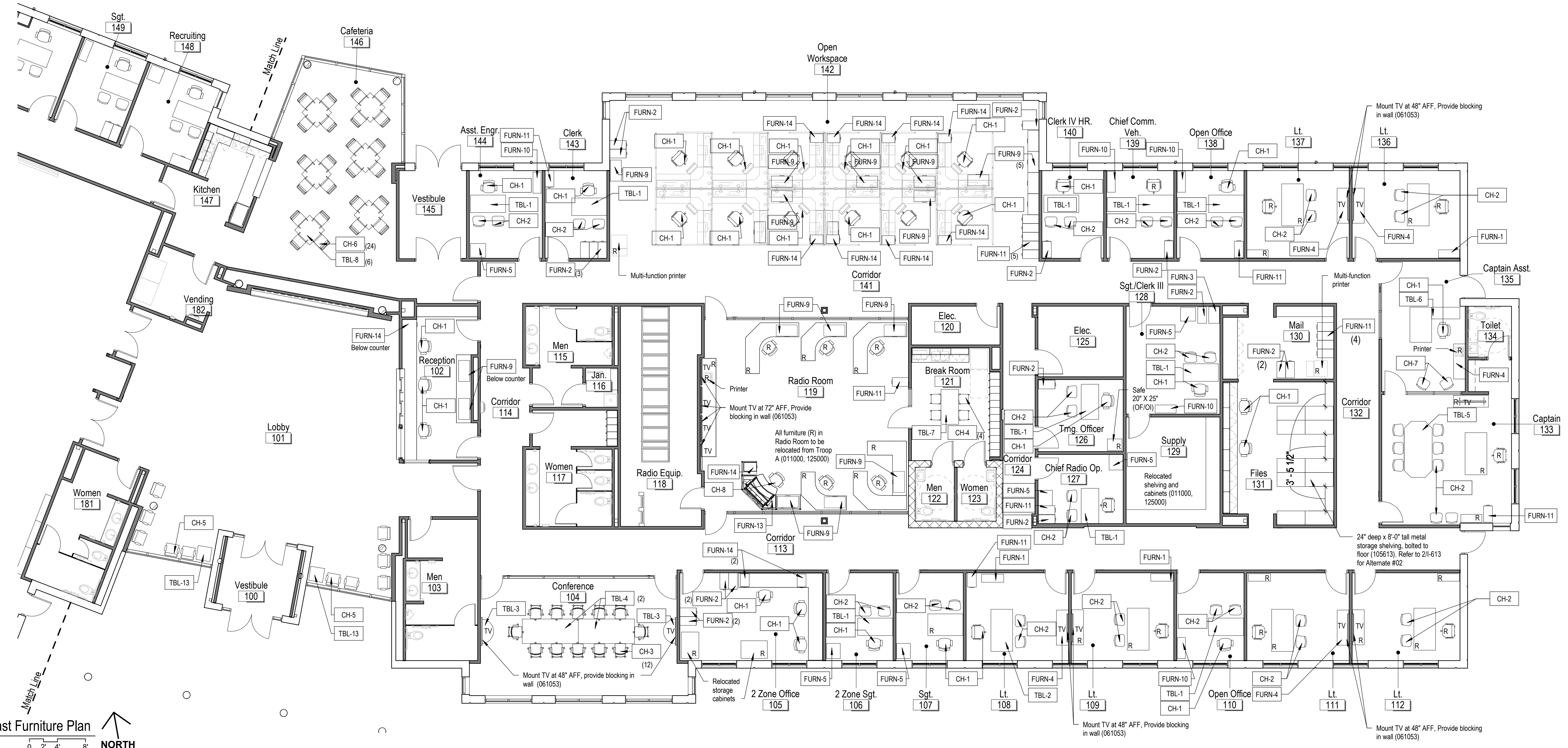
Furniture Type Mark	Description	Product Information	Size	Additional Details	Quantity
CH-1	Task Chair	Ithaca Task Chair J-661	Seat: 20.5" W X 18"-20.5" D (adj.) X 17 1/4" X 22 1/4" H (adj.)	Upholstery: Patio, Oceanic 420-004, Carpet Casters	38
CH-1A	Task Chair	Ithaca Task Chair J-661	Seat: 20.5" W X 18"-20.5" D (adj.) X 17 1/4" X 22 1/4" H (adj.)	Upholstery: Patio, Oceanic 420-004, Tile Casters	5
CH-2	Guest Chair	Ithaca Guest Chair with Loop Arms	Seat: 20 1/2" W X 18" D X 18" H Back: 21"H	Upholstery: Patio, Oceanic 420-004,	48
CH-3	Conference Room Chairs	VXO Conference Chair J-103.BLK	24.5"-25.5"W x 27"-29.5"D x 47.5"-55"H	Upholstery: Patio, Oceanic 420-004, Carpet Casters	12
CH-4	Breakroom Chairs	Heavy Duty Stackable Study Chair K-1920	19"	Seat Color: Black, Frame: Ansi 70 Gray	4
CH-5	Lobby Armchairs	Windsor Guest Chair J-588	28"D x 24 1/2"W x 40"H	Upholstery: Maverick, Harbor MK-014, Frame: Dark Oak Stain	10
CH-6	Cafe Chairs	Padded Stacking Chair K-1912	Seat: 17"W x 16.5"D, Back: 10.5"W x 33.5"H	Upholstery: Patio, Oceanic 420-004, Frame: Ansi 70 Gray	24
CH-7	Captain's Assistant Chairs	Auditorium Chairs	Seat: 21"W x 15"D, Back: 19 1/2"H x 21"W	Upholstery: Patio, Oceanic 420-004, Frame: Vador Black	2
CH-8	Radio Room Chair	Breath Chair with Head Rest J664-HR	Seat: 21 5/8"W x 19 1/2"D, Back: 22 5/8"W x 24"H	Upholstery: Black, Carpet Casters	1
FURN-1	Bookcase in Lt. Offices	Judges Collection J-380A	37 1/4"W x 12 1/4"D X 60" H	Dark Oak Stain	2
FURN-2	Vertical File Cabinet	4 Drawer Letter Size, Flush Handle, w/ Lock M-100-4LA	28"D x 15"W x 51"H	Baked Enamel Finish: Slate Gray	30
FURN-3	Vertical File Cabinet	5 Drawer Letter Size, Flush Handle, w/ Lock M-100-5LA	28"D x 15"W x 58"H	Baked Enamel Finish: Slate Gray	4
FURN-4	Storage Credenza in Lt. Offices	Judges Collection J-282A	20"W x 60"L x 30"H	Dark Oak Stain	5
FURN-5	Storage Cabinet / Wall Locker	Steel Storage Cabinet M-400	23 1/2"D x 26"W x 64 1/2"H	Baked Enamel Finish: Slate Gray	7
FURN-6	Bookcase Credenza	Judges Collection J-282B	20"W x 60"L x 30"H	Dark Oak Stain	1
FURN-7	Grounds Maintenance Lockers	Single Door Locker M526-A with stand	18"D x 18"W x 73 3/32"H	Baked Enamel Finish: Dark Neutral	3
FURN-8	Intake Bench	Security Bench	17 1/4"D x 60"W x 20 1/2"H	Baked Enamel Finish: Slate Gray	2
FURN-9	Lateral Filing Cabinets	111-2LA 2 Drawer, with 23 3/4" Flush Handle	19 1/16"D x 36 3/4"W x 27"H	Baked Enamel Finish: Slate Gray	25
FURN-10	Bookcase in Offices	Senate Collection J820A	13 3/4"D x 36"W x 48" H	Dark Oak Stain	5
FURN-11	Vertical File Cabinet	2 Drawer Letter Size, Flush Handle, w/ Lock M-100-2LA	28"D x 15"W x 29"H	Baked Enamel Finish: Slate Gray	21
FURN-12	Open Office Furniture	Modular System Open Office (12 pk) 1 unit	23-104.RevB		
FURN-13	Radio Room Desk	Modular System Radio Room (1 Station) 1 unit	23-105.RevA		
FURN-14	Mobile File Cabinets	2 Drawer M-240	15"W x 22"D x 27.4"H	Color: D327 Pepperdust	12
TBL-1	60" Executive Desk	Senate Collection J-801	30"D x 60"W x 30"H	Dark Oak Stain	16
TBL-2	72" Executive Desk	Judges Collection J-784	72"W x 37 1/4"D x 31"H	Dark Oak Stain	1
TBL-3	Side table in Conference Room	3200 Series Fixed Leg Half Round J-1685	42"Diameter	Vinyl Edge: Black, Base Color: Black, Top Color: D327 Pepperdust	2
TBL-4	Conference Room Table	Judges Collection J981A	42"W x 30"H X 96" L	Dark Oak Stain	2
TBL-5	Captain's room conference table	Judges Collection Octagonal Table J-982	Base: 24" x 24", Top: 48"W x 48"L x 30"H	Dark Oak Stain	1
TBL-6	Captain's Assistant Desk	Judges Collection Computer Desk with Return	Overall: 60"W x 84"L x 31"H	Dark Oak Stain, Right Return	1
TBL-7	Breakroom Table	3200 Series Fixed Leg Rectangular top, T base J-1643	30"W x 60"L	Vinyl Edge: Black, Base Color: Black, Top Color: D327 Pepperdust	1
TBL-8	Cafe Tables	3200 Series Fixed Leg Square top, X base J-1603	36"W x 36"L	Vinyl Edge: Black, Base Color: Black, Top Color: D327 Pepperdust	6
TBL-9	Troop Room Training Tables	Mobius Nesting Tables J-1619	24" W X 72"	Laminated Finish: D381-60 Fashion Gray	20
TBL-10	Digital Forensics Office Table	Toggle Table J-2002 with digital switch J2004A	30"D X 72" W	Vinyl Edge: Black, Base Color: Black, Top Color: D327 Pepperdust	1
TBL-11	Table in Observation Room	General Purpose Table J-1041B	30"W x 30"H X 60"L	Dark Oak Stain	1
TBL-12	Side Tables in Troop Room	Rectangle Top, T Base J-1720	24"W x 60"L X 30" H	Vinyl Edge: Black, Base Color: Black, Top Color: D327 Pepperdust	2
TBL-13	End Table in Lobby	Executive Collection End Table	24"W x 24"L x 20"H	Dark Oak Stain	2

Notes

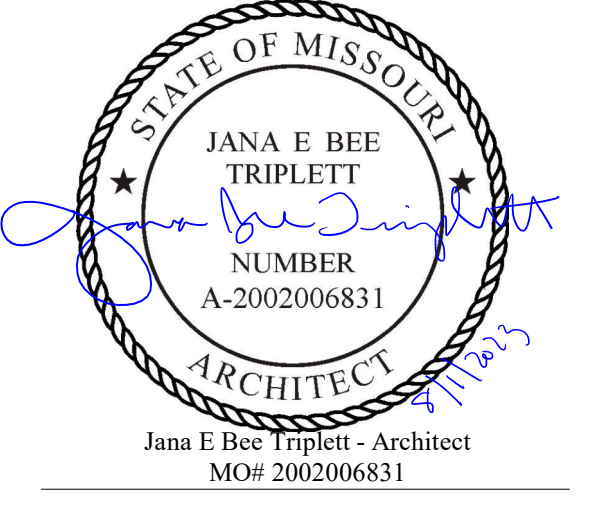
- All TVs shown on plan are to be removed and reinstalled, by Contractor, from existing Troop A to new Troop A headquarters (011000, 125000).
- 'R' denotes furniture/equipment to be removed and reinstalled, by Contractor, from existing Troop A to new Troop A headquarters (011000, 125000).
- 'CG' denotes corner guards. Refer to finish schedule.
- See sheet I-615 for Firing Range Furniture plan and schedule.



2 Floor Plan - Files 131 - Alternate #02  
A-100 1/8" = 1'-0" 0 2' 4' 8' NORTH



1 Floor 1 - East Furniture Plan  
1/8" = 1'-0" 0 2' 4' 8' NORTH



**Gastinger Walker &**  
Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2102.152

GastingerWalker & Architects, LLC.  
Missouri Certificate of Authority: #2023012872

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: I-613.dwg  
DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&

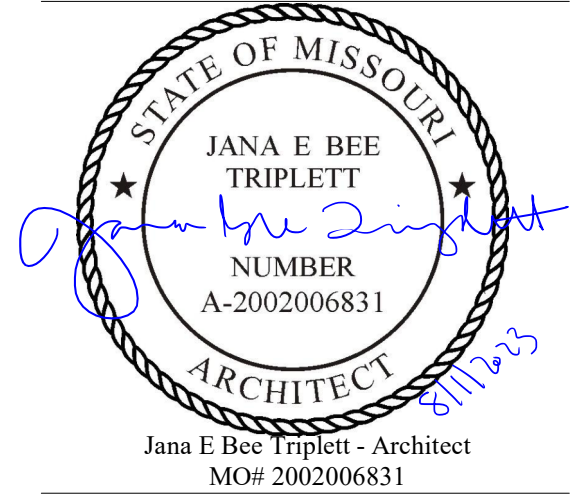
Partial Furniture,  
Equipment Plan and  
Schedule

SHEET NUMBER:

I-613

SHEET 104 OF 202  
08/01/2023





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Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

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 CHECKED BY: JBT  
 DESIGNED BY: GW&

SHEET TITLE:

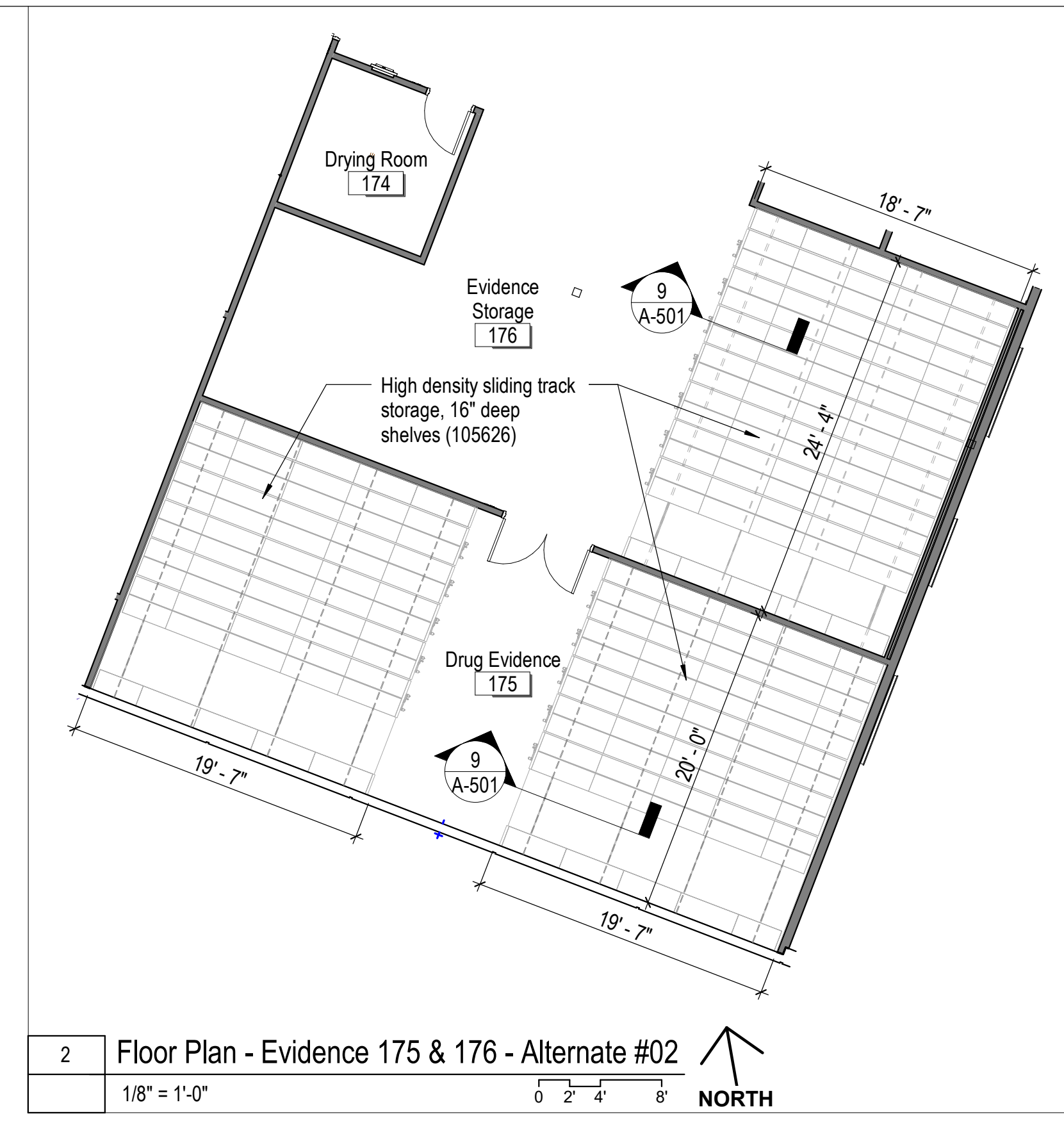
Partial Furniture and  
 Equipment Plan

SHEET NUMBER:

**I-614**

SHEET 105 OF 202

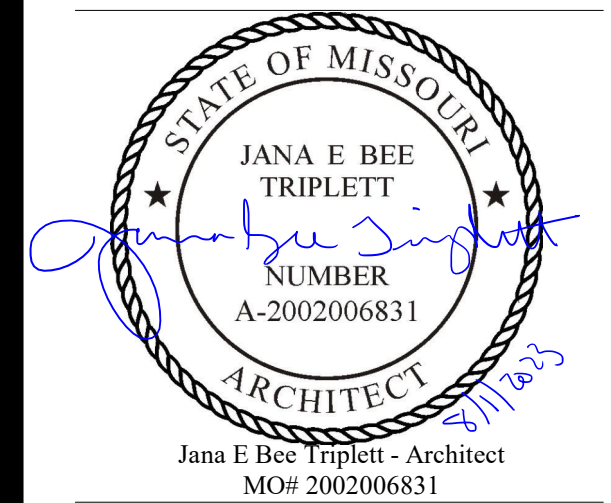
08/01/2023



2 Floor Plan - Evidence 175 & 176 - Alternate #02  
 1/8" = 1'-0" 0 2' 4' 8" NORTH



1 Floor 1 - West Furniture Plan  
 1/8" = 1'-0" 0 2' 4' 8" NORTH



**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
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FACILITY # 8136018019

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REVISION:  
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REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: I-615.dwg  
DRAWN BY: KJ  
CHECKED BY: JBT  
DESIGNED BY: GW&

SHEET TITLE:

Finish, Furniture Plans  
and Schedule - Firing Range  
(Alternate #04)

SHEET NUMBER:

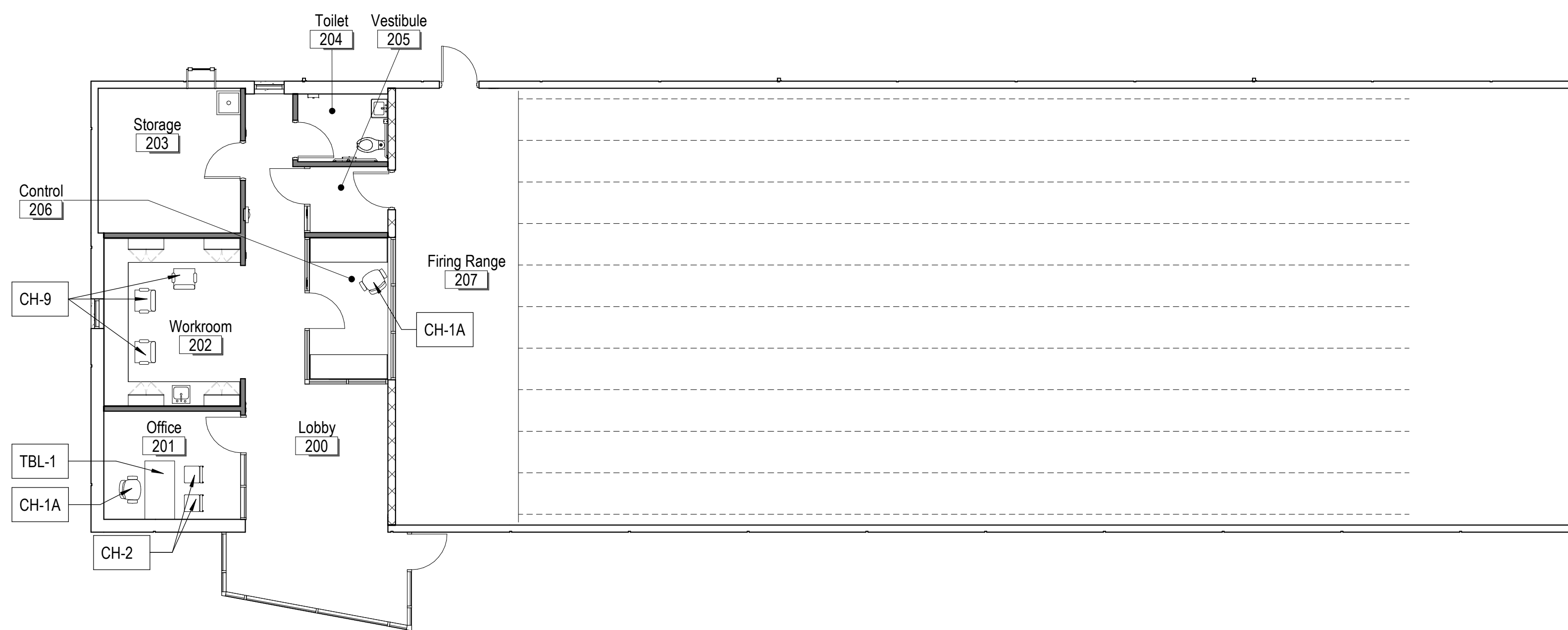
**I-615**

SHEET 106 OF 202

08/01/2023

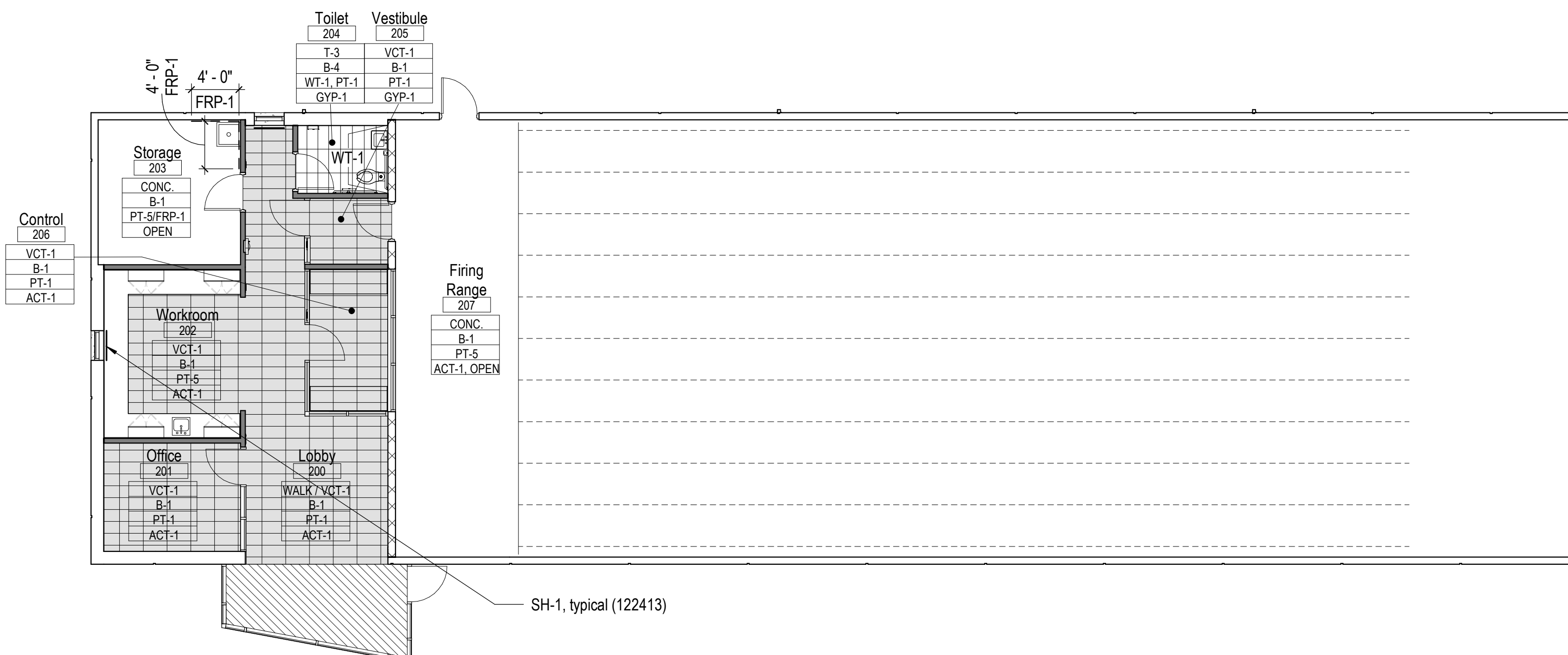
Furniture Schedule

Furniture Type Mark	Description	Product Information	Size	Additional Details	Quantity
CH-1A	Task Chair	Ithaca Task Chair J-661	Seat: 20.5" W X 18"-20.5" D (adj.) X 17 1/4" X 22 1/4" H (adj.)	Upholstery: Patio, Oceanic 420-004, Tile Casters	2
CH-2	Guest Chair	Ithaca Ultra Guest Chair	Seat: 20 1/2" W X 19" D X 18 1/2" H	Upholstery: Patio, Oceanic 420-004	2
CH-9	Height Adjustable Stool	VXO Stool	26-28" W X 26" D X 20" - 28" H	Upholstery: Patio, Oceanic 420-004, Tile Casters	3
TBL-1	60" Executive Desk	Senate Collection J-801	30"D x 60"W x 30"H	Dark Oak Stain	1



2 Furniture Plan - Firing Range (Alternate #04)

1/8" = 1'-0" 0 2' 4' 8' NORTH



1 Finish Plan - Firing Range (Alternate #04)

1/8" = 1'-0" 0 2' 4' 8' NORTH

General Finish Notes

- Manufacturer is basis-of-design. Reference specifications for approved alternates.
- Casework in all rooms will have PL1 base cabinets & PL2 countertops and backsplashes where applicable.
- See finish plan for accent wall paint locations and flooring finish transitions.
- Epoxy painted gypsum board, wall surfaces typical at all in restrooms.
- Provide transition strip between dissimilar materials. See transition details.
- Gypsum board soffits and ceilings to be painted, P-1, unless noted otherwise (092900, 099123)
- All floor surfaces shall be stable, firm, and slip resistant per ICC/ANSI A117.1-2009, changes in floor level shall not exceed 1/4" vertical height.
- Specified flooring is to be extended under all existing millwork knee spaces, equipment, and/or other openings where the floor is exposed.
- All windows to receive roller window shades (122413).
- All interior finishes to have a Class A flame spread and smoke development ratings.

Room Finish Schedule Comments

- Paint exposed structure, PT-4.
- Paint exposed structure, PT-1.
- Paint lower gypsum ceilings/soffits, PT-1.
- Do not paint exposed structure.
- Do not paint exposed concrete or CMU walls.
- Provide Level 1 finish on walls.
- Provide 3/4" fire-retardant plywood over walls to height of 7'-0" (061053); do not paint.
- Provide 48" high fiberglass reinforced panels on all walls. Mount bottom of panel at 4" above wall base (top of FRP at 52" AFF).

FLOOR

**WALK 096813 Tile Carpeting**  
Manufacturer: J-J Flooring Walk off  
Style: Catwalk II Modular (Style 7268)  
Color: 1429 Photo Op  
Install: Quarter Turn

**T-3 093000 Porcelain Tiling**  
Manufacturer: Daltile  
Style: Archaia  
Color: Relic White AR40  
Size: 12" X 24"  
Grout: Mapei 93 Warm Gray

TRANSITIONS

**TR-1: 093000 Porcelain Tiling**  
Manufacturer: Schluter Systems  
Style: Quadeq finishing edge  
Size: Coordinate with tile thickness  
Finish: Matte Black

BASE

**B-1 096513 Resilient Base and Accessories**  
Tarkett  
Style: 4" Traditional Toeless Vinyl Base  
Color: 63 Burnt Umber

**B-3 093000 Tiling**  
Manufacturer: Daltile Porcelain Cove base  
Collection: Synchronic  
Size: 6" Base  
Grout: Mapei 93 Warm Gray

TILE

**WT-1 093000 Porcelain Tiling**  
Manufacturer: Daltile  
Series: Color Wheel Classic  
Color: Galaxy 1469  
Size: 3" X 6"  
Grout: Mapei Black

CONCRETE

**CONC - 033500**  
Concrete Floor  
See Specifications

RESILIENT FLOORING

**VCT-1 096519 Resilient Tile Flooring**  
Manufacturer: Armstrong Flooring  
Style: Imperial Texture  
Color: Washed Linen 51810  
Size: 12" x 12"

CEILING

**ACT-1 095113 Acoustical Ceilings**  
Manufacturer: Armstrong  
Style: Ultima Beveled Tegular  
Size: 24" X 24"  
Grid: 9/16" Superfine XL  
Color: White  
NRC: 0.75

**GYP-1 092900 Gypsum Board Assemblies**  
Finish: Painted PT-1

PAINT

**PT-1 099123 Painting**  
Manufacturer: Sherwin Williams  
Color: Heron Plume SW6070  
Finish: Eggshell  
Color of all Walls, Color of Gypsum board ceilings

**PT-5 099123 Painting**  
Manufacturer: Sherwin Williams  
Color: Mega Greige SW7031  
Finish: Eggshell/ Semi-gloss on Frames  
Corridor accent walls, HM door frames

FRP

**FRP-1 102600 Fiberglass Reinforced Plastic**  
Manufacturer: Marlite  
Color: Pebbled P100 White

MILLWORK

**PL-1 064023 Interior Architectural Woodwork**  
Manufacturer: Wilsonart Laminates  
Color: Walnut Heights 7965K-12  
Location: Base Cabinets  
Install with matching PVC edgeband

**PL-2 064023 Interior Architectural Woodwork**  
Manufacturer: Wilsonart Laminates  
Color: Peppercust D327-60, Matte Finish  
Location: Counters

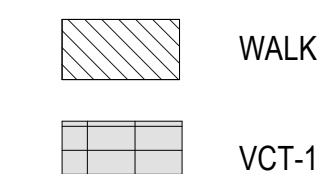
SHADES

**SH-1 122413 Roller Window Shades**  
Manufacturer: Mechoshade  
Description: Single Roll  
Color: 6000 Series Euro Twill 3%, 6018 Stone  
Location: At all exterior windows, unless noted otherwise

Finish Legend - Firing Range (Alternate #04)

Not to Scale

FLOORING KEY:

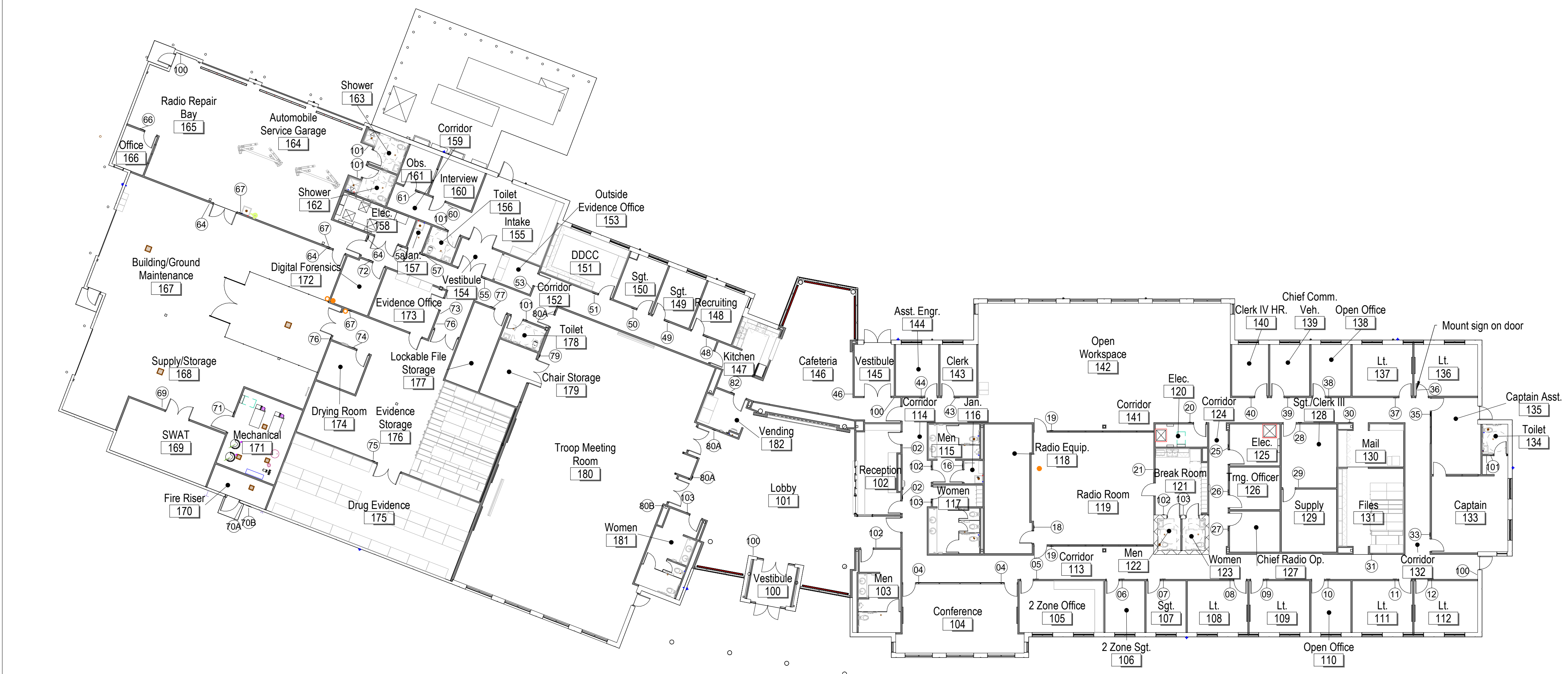
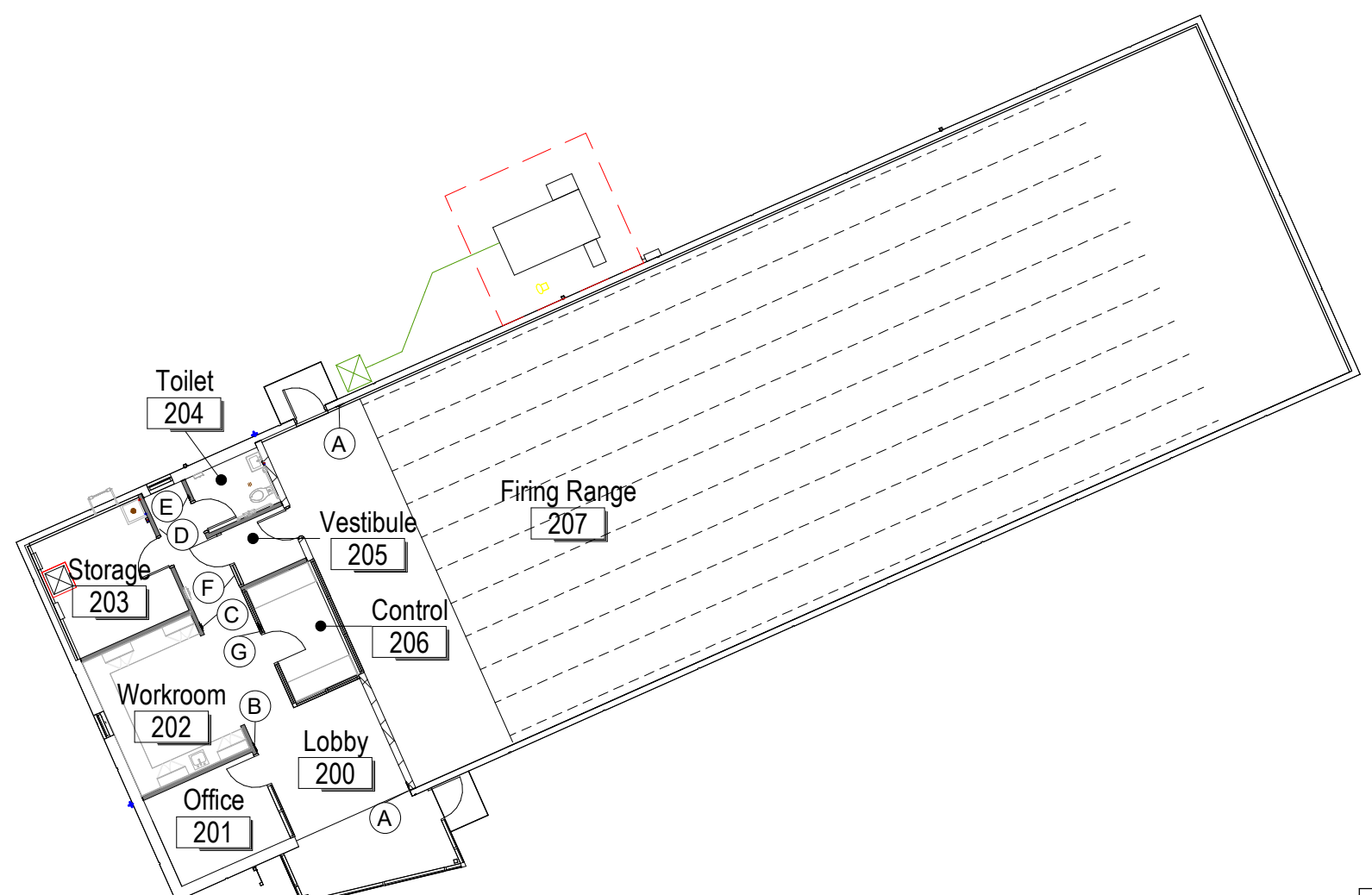


Room Finish Schedule - Firing Range (Alternate #04)

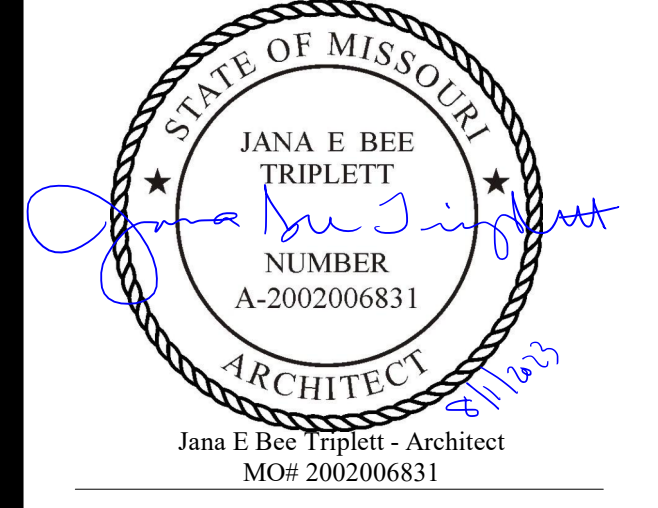
Room Number	Room Name	Floor Finish	Base Finish	Walls				Ceiling Finish	Ceiling Height	Comments
				North	East	South	West			
200	Lobby	WALK / VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	VARIABLES	
201	Office	VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
202	Workroom	VCT-1	B-1	PT-5	PT-5	PT-5	PT-5	ACT-1	9' - 0"	
203	Storage	CONC.	B-1	PT-5/FRP-1	PT-5/FRP-1	PT-5	PT-5	OPEN	-	4, 5, 8
204	Toilet	T-3	B-4	PT-1	WT-1, PT-1	PT-1	PT-1	GYP-1	8' - 4"	
205	Vestibule	VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	GYP-1	8' - 4"	
206	Control	VCT-1	B-1	PT-1	PT-1	PT-1	PT-1	ACT-1	9' - 0"	
207	Firing Range	CONC.	B-1	--	--	--	PT-5	ACT-1, OPEN	9' - 0"	4, 5

Signage Schedule				
Mark	Sign Type	QTY	Text	Description
02	B	2	Reception	
04	B	2	Conference	
05	A	1	(Confirm insert text with Owner)	
06	A	1	(Confirm insert text with Owner)	
07	A	1	(Confirm insert text with Owner)	
08	A	1	(Confirm insert text with Owner)	
09	A	1	(Confirm insert text with Owner)	
10	A	1	(Confirm insert text with Owner)	
11	A	1	(Confirm insert text with Owner)	
12	A	1	(Confirm insert text with Owner)	
16	B	1	Janitor	
18	B	1	Radio Equipment	
19	B	2	Radio Room	
20	B	1	Electrical	
21	B	1	Break Room	
25	B	1	Electrical	
26	A	1	(Confirm insert text with Owner)	
27	A	1	(Confirm insert text with Owner)	
28	A	1	(Confirm insert text with Owner)	
29	B	1	Supply	
30	B	1	Mail Room	
31	B	1	Files	
33	A	1	(Confirm insert text with Owner)	
35	A	1	(Confirm insert text with Owner)	
36	A	1	(Confirm insert text with Owner)	
37	A	1	(Confirm insert text with Owner)	
38	A	1	(Confirm insert text with Owner)	
39	A	1	(Confirm insert text with Owner)	
40	A	1	(Confirm insert text with Owner)	
43	A	1	(Confirm insert text with Owner)	
44	A	1	(Confirm insert text with Owner)	
46	D	1	Maximum Occuancy 44	
48	A	1	(Confirm insert text with Owner)	
49	A	1	(Confirm insert text with Owner)	
50	A	1	(Confirm insert text with Owner)	
51	A	1	(Confirm insert text with Owner)	
53	B	1	Outside Evidence	
55	B	1	Intake	
57	B	1	Janitor	
58	B	1	Electrical	
60	B	1	Interview Room	
61	B	1	Observation Room	
64	B	3	Garage	
66	A	1	(Confirm insert text with Owner)	
67	B	3	Maintenance	
69	B	1	SWAT	
70A	I	1		
70B	J	1		
71	B	1	Mechanical	
72	A	1	(Confirm insert text with Owner)	
73	B	1	Evidence Office	
74	B	1	Drying Room	
75	B	1	Drug Evidence	
76	B	2	Evidence Storage	
77	B	1	File Storage	
79	B	1	Storage	
80A	B	3	Troop Meeting Room	
80B	D	1	Maximum Occupancy 196	
82	B	1	Vending	
100	C	4		
101	E	5		
102	F	3		
103	G	3		
A	C	2		Alternate #04
B	A	1	(Confirm insert text with Owner)	Alternate #04
C	B	1	Workroom	Alternate #04
D	B	1	Storage	Alternate #04
E	H	1		Alternate #04
F	B	1	Firing Range	Alternate #04
G	B	1	Control	Alternate #04

2 Signage Plan - Firing Range (Alternate #04)  
 A-201 1/16" = 1'-0" 0 4' 8' 16' NORTH



1 Signage Plan  
 A-201 1/16" = 1'-0" 0 4' 8' 16' NORTH



**Gastinger Walker &**  
 Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2102.152

GastingerWalker & Architects, LLC.  
 Missouri Certificate of Authority: #2023012872

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 FACILITY # 8136018019

REVISION:  
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 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

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 DRAWN BY: SW  
 CHECKED BY: JBT  
 DESIGNED BY: GW&

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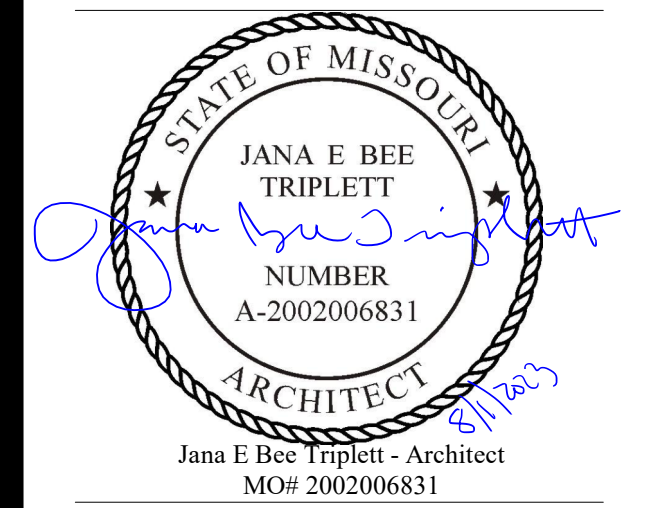
**Signage Plan and  
 Schedule**

SHEET NUMBER:

**I-801**

SHEET 107 OF 202

08/01/2023



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Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 [gastingerwalker.com](http://gastingerwalker.com)  
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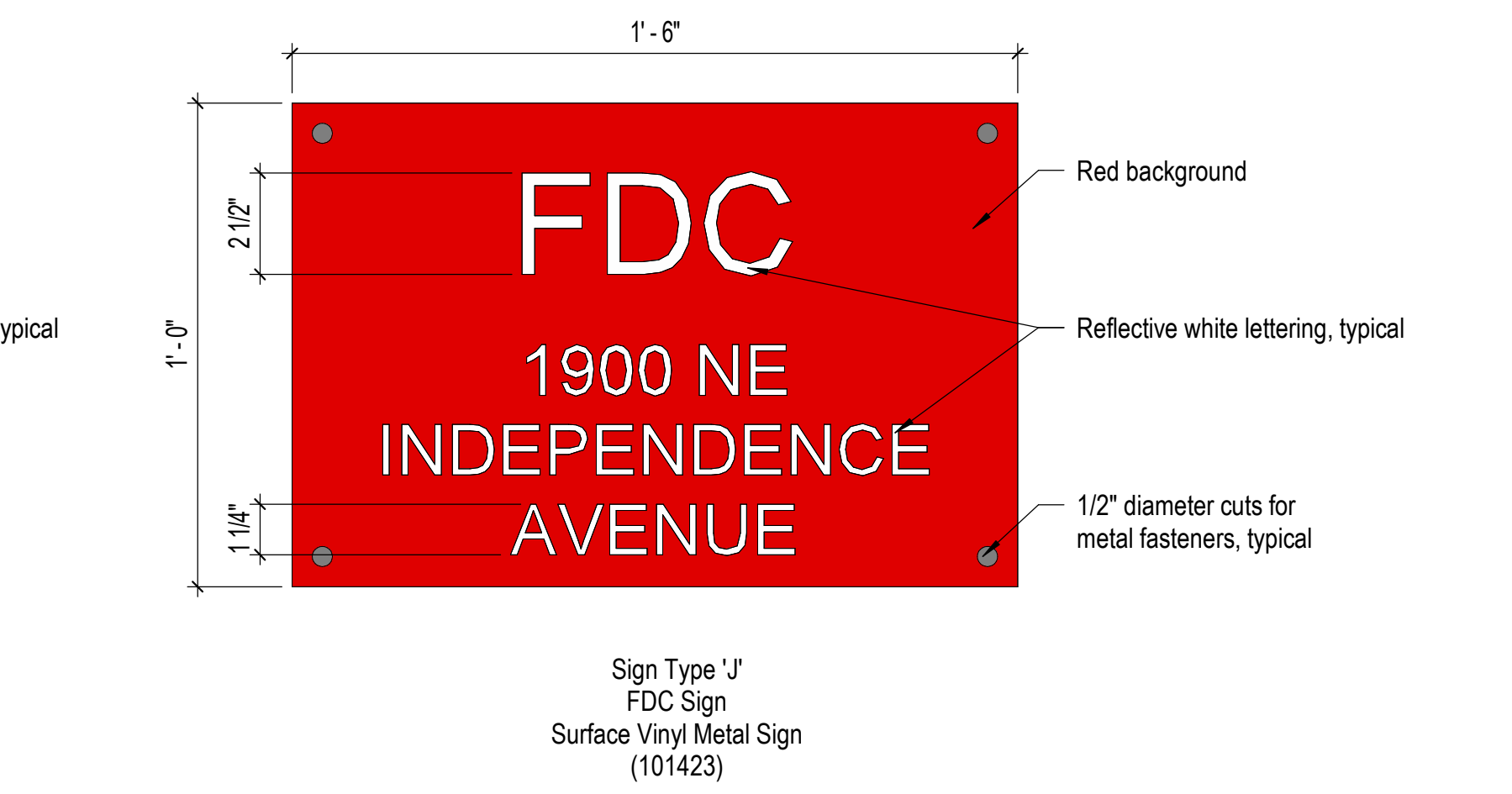
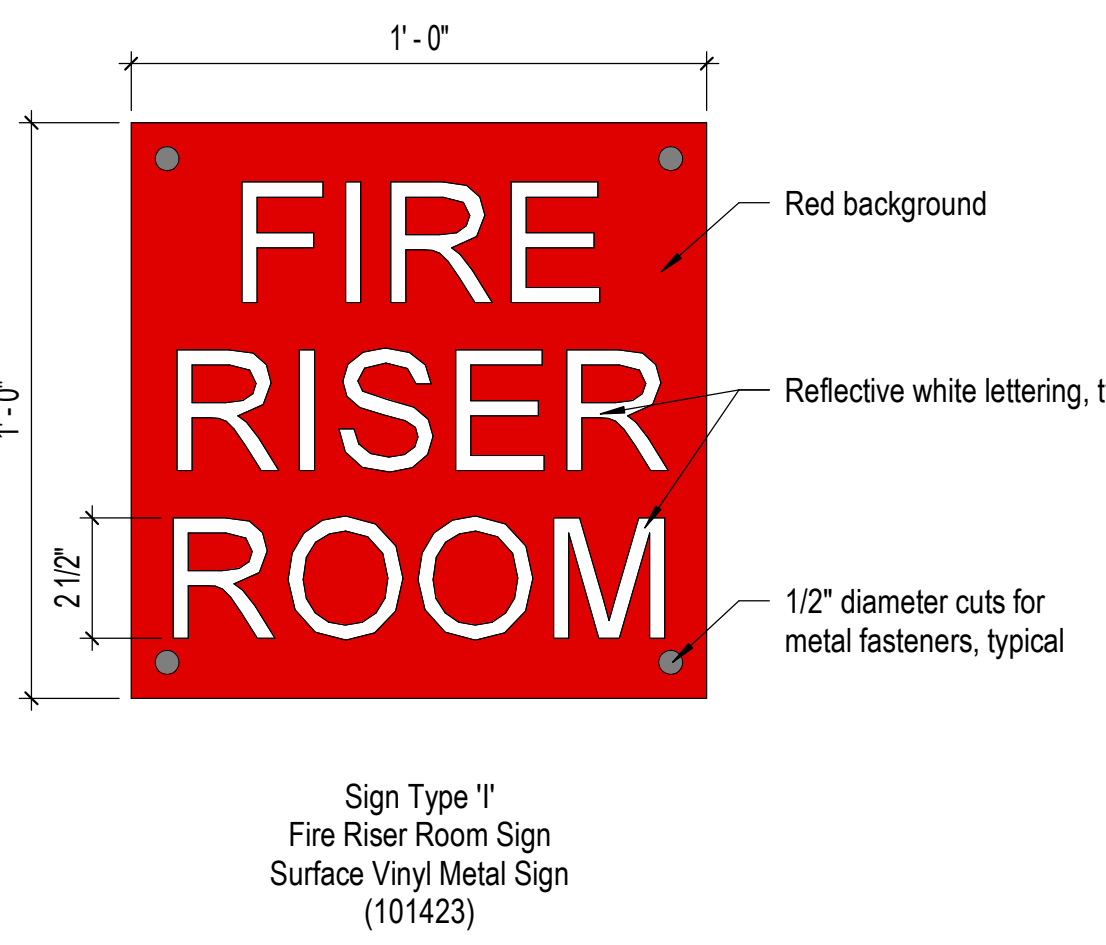
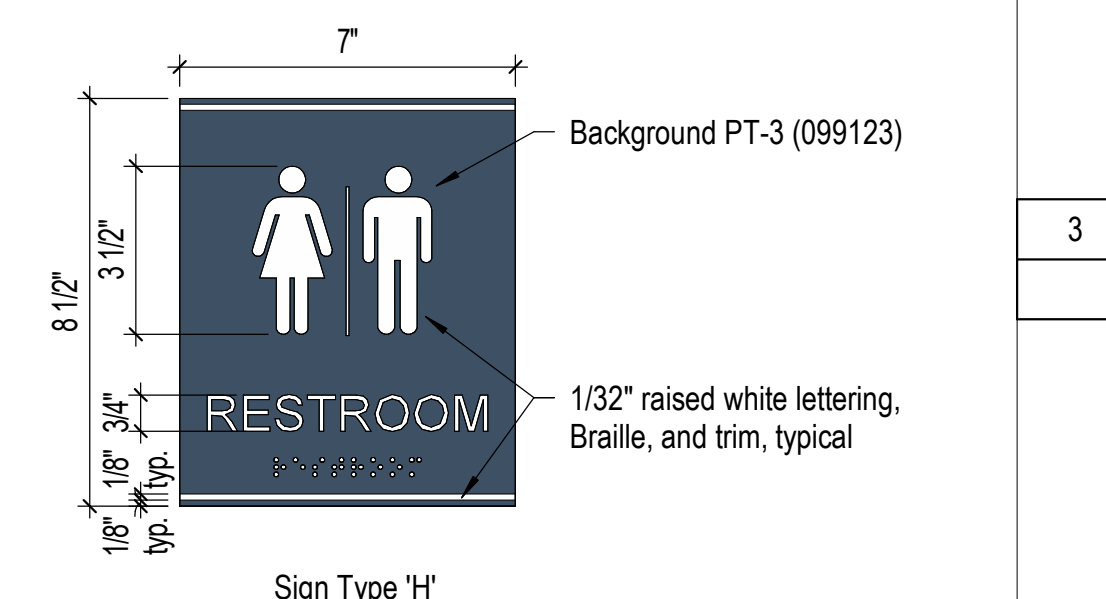
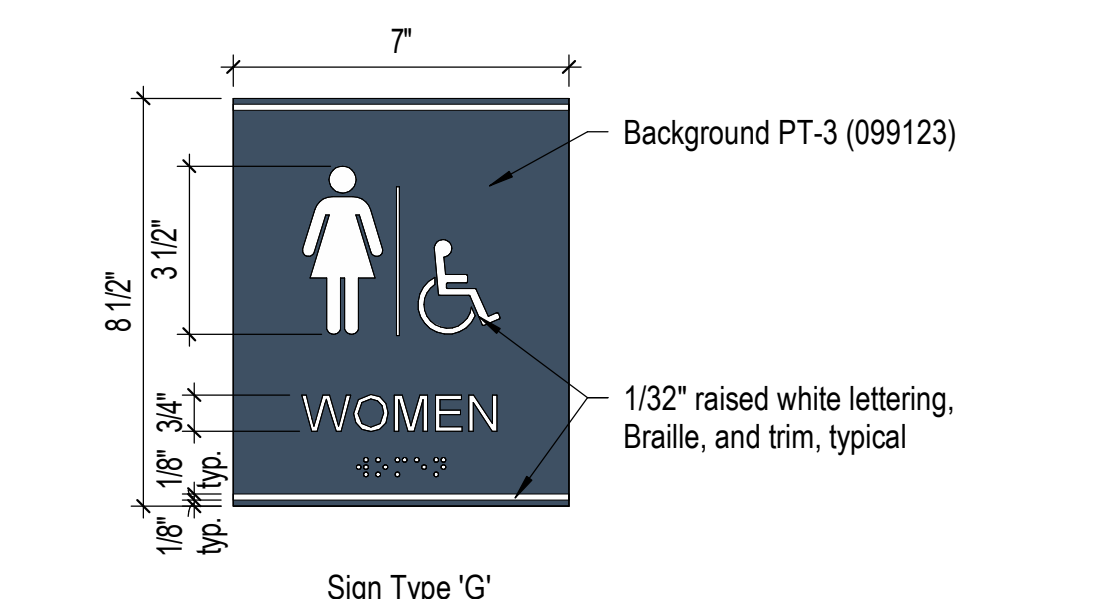
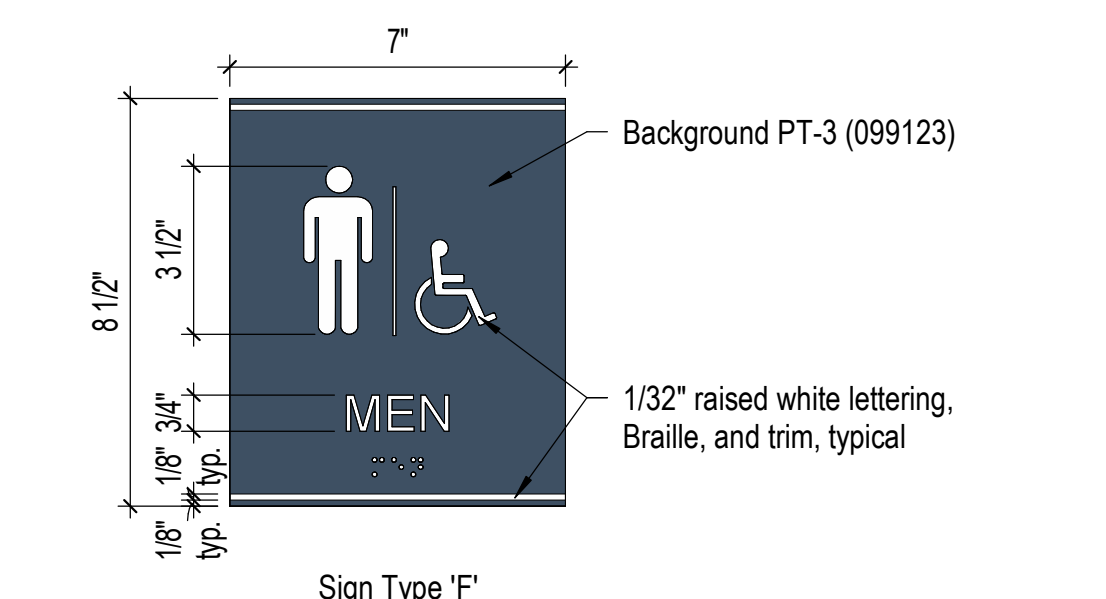
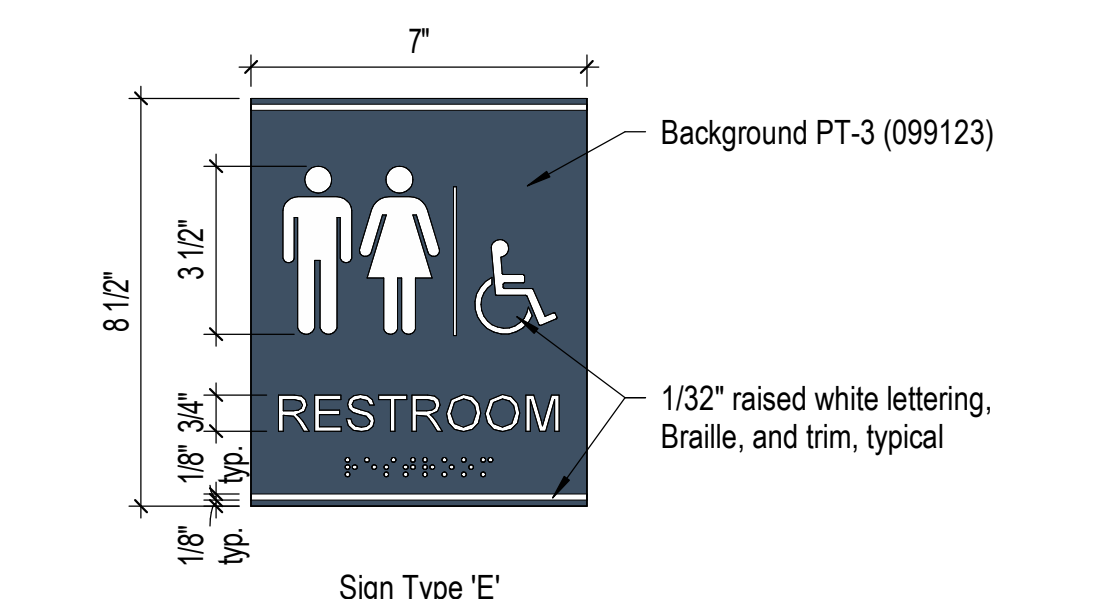
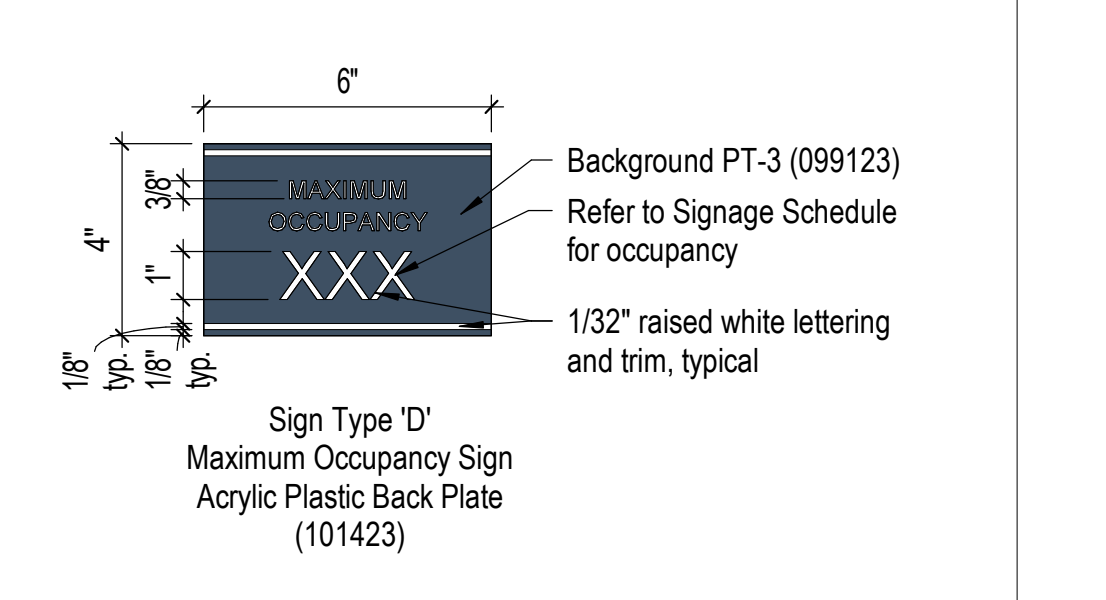
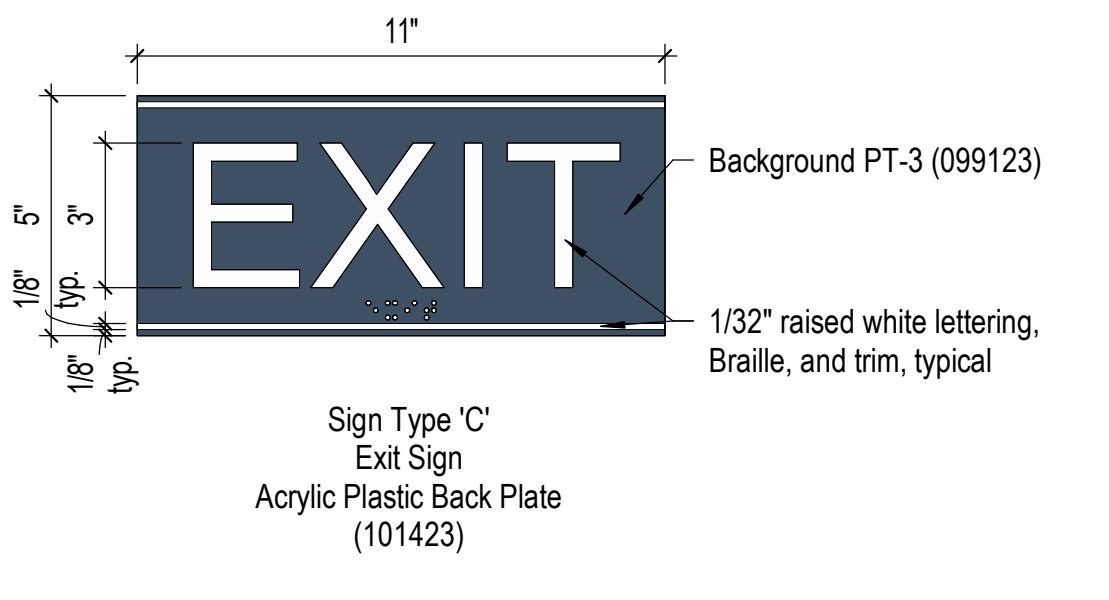
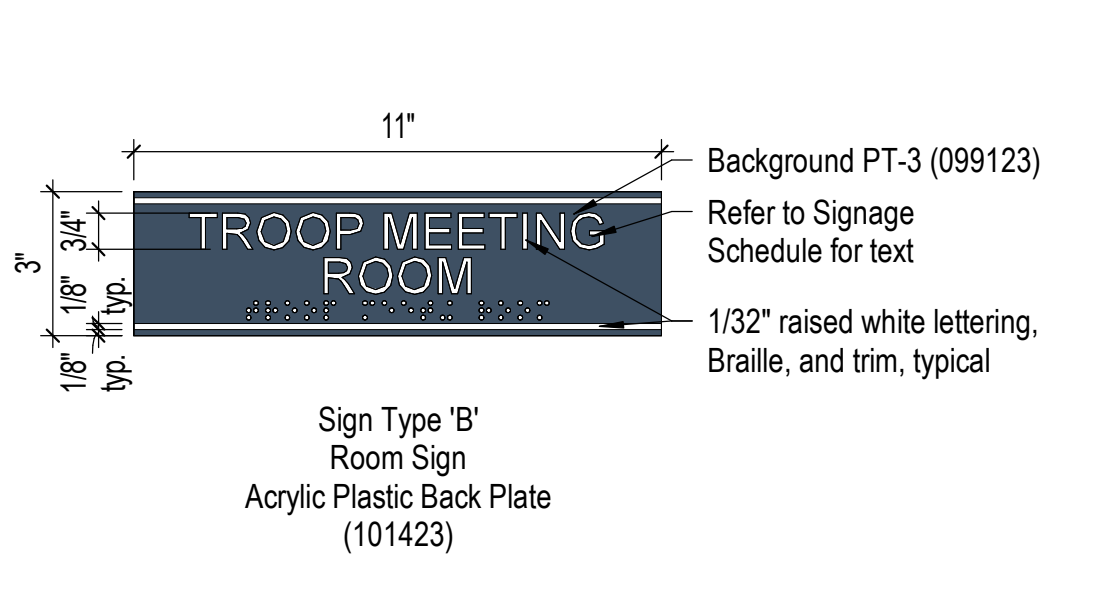
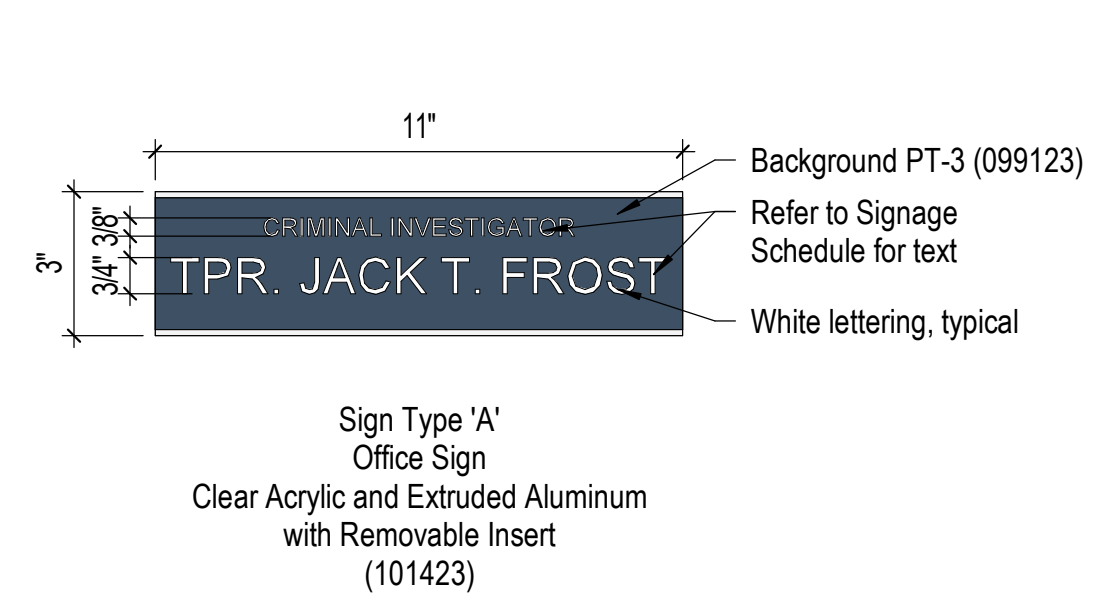
**Signage Key**

SHEET NUMBER:

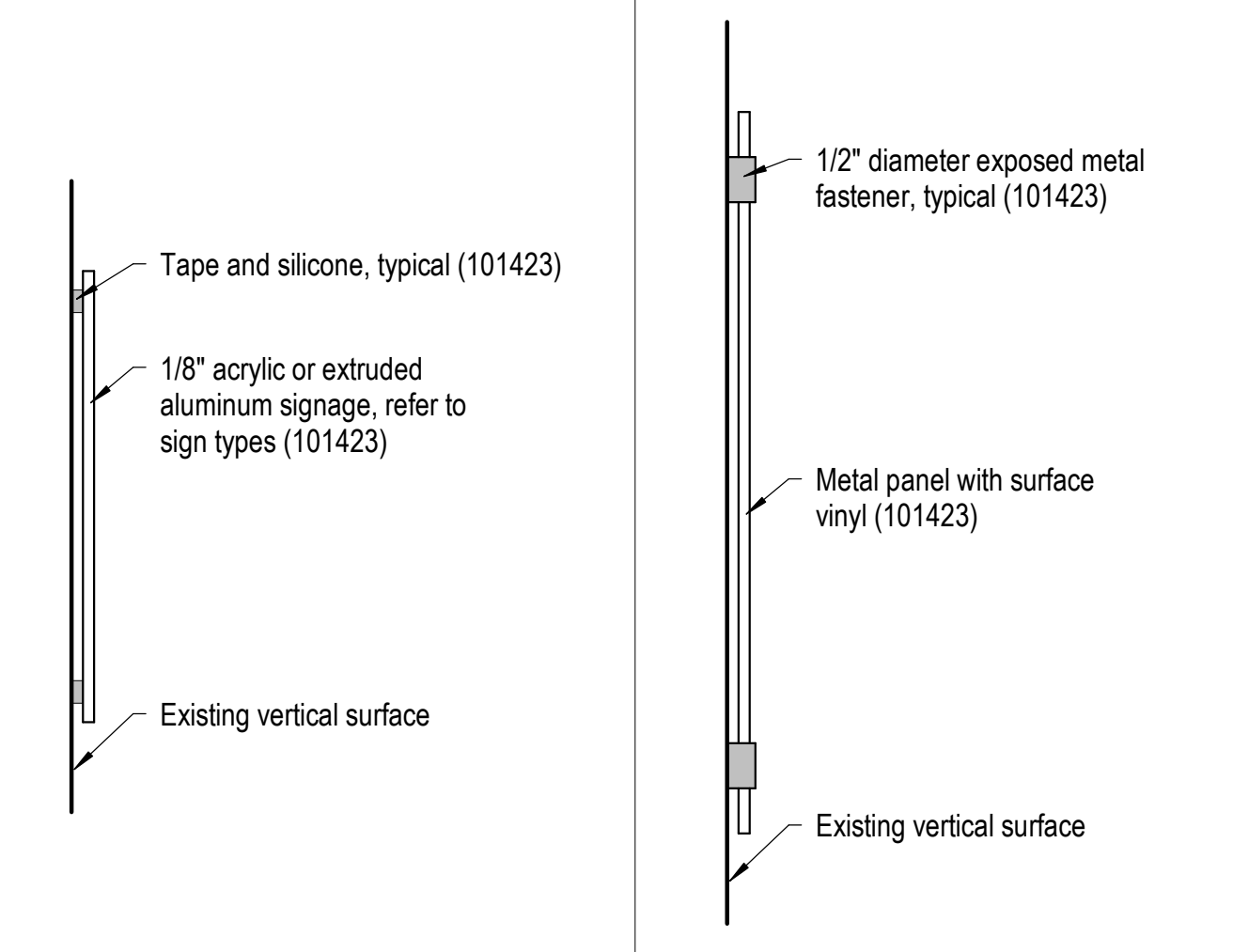
**I-802**

SHEET 108 OF 202

08/01/2023

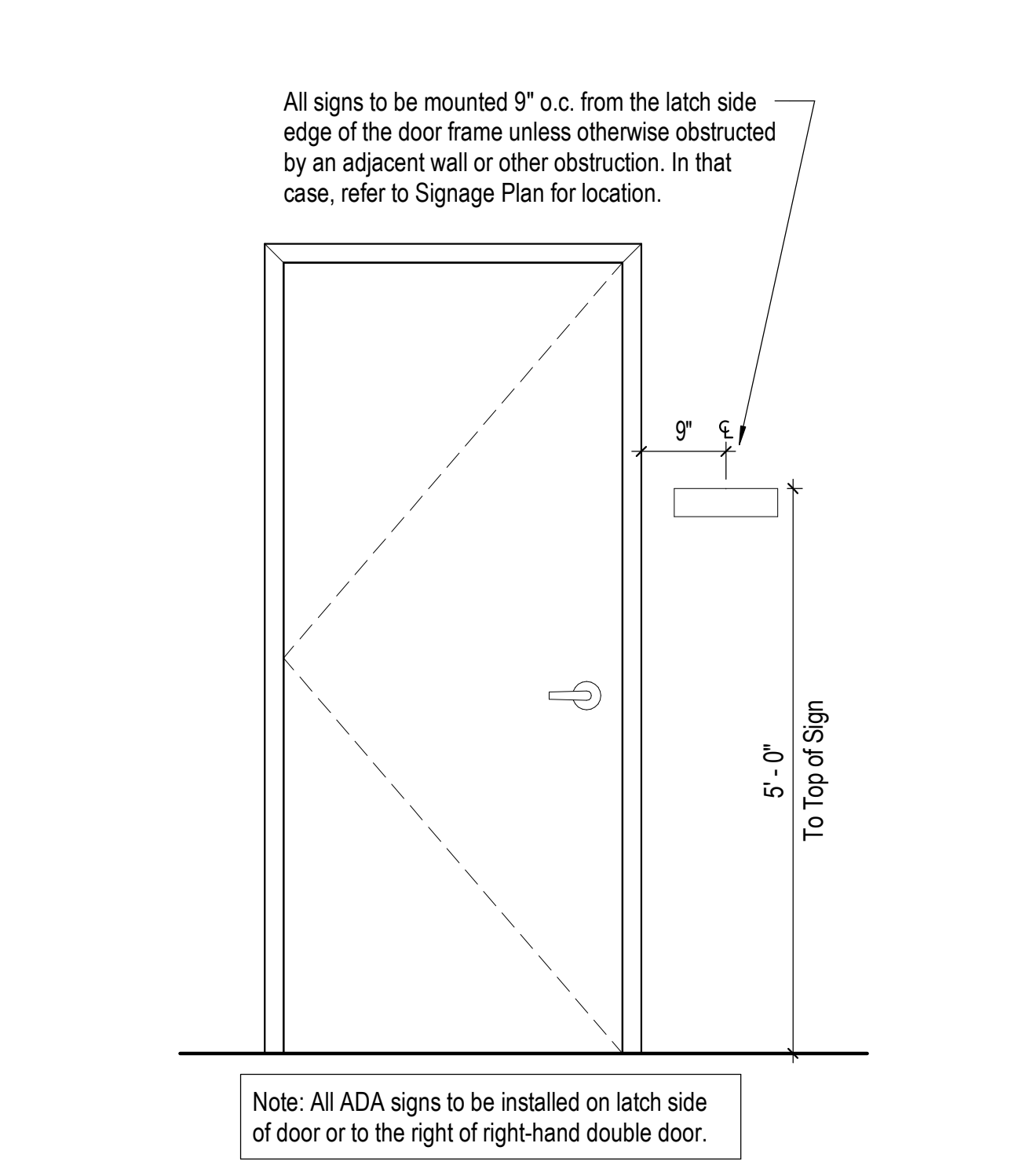


- Signage Notes:**
- Typeface: Aerial - Uppercase
  - Corner Condition: Squared
  - Braille: Standard Grade II unless otherwise indicated
  - All signage to be approved by owner before installation.
  - Provide blank back plates at signage applied to glass.



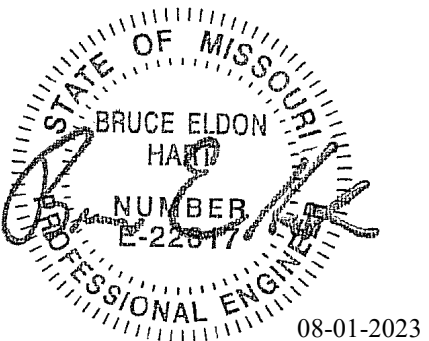
3 Signage Mount - Interior  
6" = 1'-0" 0 1/2" 1" 2"

4 Signage Mount - Exterior  
6" = 1'-0" 0 1/2" 1" 2"



2 Signage Mounting Heights  
3/4" = 1'-0" 0 4" 8" 14"

1 Signage Key  
3" = 1'-0" 0 1" 2" 4"



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.1.52

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

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ISSUE DATE: 01 August 2023

CAD DWG FILE: FP000.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**FIRE PROTECTION  
COVERSHEET**

SHEET NUMBER:

**FP000**

SHEET 109 OF 202

08/01/2023

VIEW KEY	
	NAME 10'-0" — HEIGHT ABOVE PROJECT 0'-0"
	INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL.
	INDICATES DIRECTION OF TRUE NORTH
	PLAN OR DETAIL NUMBER
	PLAN OR DETAIL NAME
	1/8" = 1'-0" — PLAN OR DETAIL SCALE
	VIEW NAME
	INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS
	DETAIL REFERRED TO BY SECTION CUT
	SHEET DETAIL IS LOCATED ON
<b>LINE TYPE AND TAG KEY:</b>	
	NEW WORK BY THIS CONTRACTOR (WIDE LINE)
	EXISTING TO BE REMOVED (SHORT DASHED PATTERN)
	NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)
	EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)
	EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)
	EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)
HALFTONING DOES NOT MODIFY SCOPE.	
	'TAG'-E TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING
	<u>TAG</u> UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST
	INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

APPLICABLE CODES	
CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS.	
BUILDING CODE:	IBC 2018 EDITION
FIRE CODE:	IFC 2018 EDITION
PLUMBING CODE:	IPC 2018 EDITION
MECHANICAL CODE:	IMC 2018 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2017 EDITION
ENERGY CONSERVATION CODE:	ASHRAE 90.1 2019
HEALTH DEPARTMENT CODE:	CURRENT EDITION
LOCAL BUILDING CODE:	CURRENT EDITION

CONTRACTOR ABBREVIATION KEY	
ABBR:	DESCRIPTION:
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
S.C.	SECURITY CONTRACTOR

CONTACT PERSONS:	
DESCRIPTION:	PERSON:
PROJECT MANAGER	ANDY MEYER, AIA, LEED AP BD+C - GASTINGER WALKER AMEYER@GASTINGERWALKER.COM 816.569.0624
MECHANICAL	BRUCE E. HART, P.E., LEED AP - IMEG BRUCE.E.HART@IMEG.CORP.COM 816.652.0091
ELECTRICAL	PHILLIP I. PARRA, P.E. - IMEG PHILLIP.I.PARRA@IMEG.CORP.COM 816.652.0109
TECHNOLOGY	NICK WNUK, RCDD, CPP, PMP - IMEG NICK.J.WNUK@IMEG.CORP.COM 314.951.2546

FIRE PROTECTION SYMBOL LIST	
NOT ALL SYMBOLS MAY APPLY.	
SYMBOL:	DESCRIPTION:
	DRAIN
	FIRE PROTECTION
	FIRE PROTECTION - DRY SYSTEM
	SERVICE WATER - POTABLE
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	UNION/FLANGE
	DIRECTION OF FLOW IN PIPE
	ROUTE TO DRAIN
	SHUTOFF VALVE NORMALLY OPEN
	AUTOMATIC DRAIN VALVE
	AIR PRESSURE MAINTENANCE DEVICE
	AIR SUPERVISORY SWITCH
	ANGLE VALVE
	BUTTERFLY VALVE WITH MONITOR SWITCH
	CHECK VALVE
	BACKFLOW PREVENTER
	INSPECTOR TEST AND DRAIN VALVE
	OS&Y GATE VALVE
	OS&Y GATE VALVE WITH MONITOR SWITCH
	FLOW SWITCH
	PRESSURE SWITCH
	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	MONITOR SWITCH
	AREA BOUNDARY
	LIGHT HAZARD
	ORDINARY GROUP 1
	ORDINARY GROUP 2
	EXTRA GROUP 1

FIRE PROTECTION ABBREVIATION KEY	
ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
BFP	BACKFLOW PREVENTER
I.E.	INVERT ELEVATION
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
SCCR	SHORT CIRCUIT CURRENT RATING
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTES

FIRE HYDRANT FLOW TEST DATA	
TEST DATE:	08/01/2022
RESIDUAL HYDRANT #:	017-077
HYDRANT ELEVATION:	1008 FT
LOCATION:	9380 NE TOWN CENTRE DR
STATIC PRESSURE:	81 PSI
RESIDUAL PRESSURE:	64 PSI
TOTAL FLOW:	2000 GPM
SIZE OF MAIN:	12"

**FIRE PROTECTION GENERAL NOTES:**

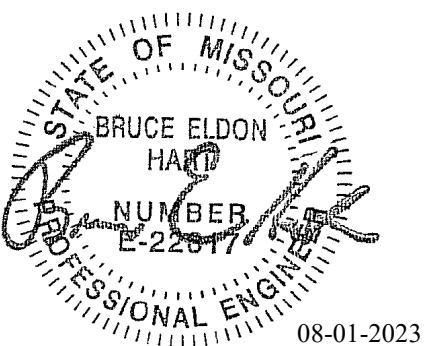
- THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
- CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER IS THE BASIS OF DESIGN.
- CENTER SPRINKLERS IN CEILING TILES IN BOTH DIRECTIONS IN ALL AREAS. IN AREAS WITH 2'X4' CEILING TILES CENTERING USING A 2'X2' CEILING PATTERN IS ACCEPTABLE. SPRINKLER HEADS SHALL BE ALIGNED WITH OTHER SPRINKLER HEADS, LIGHTING, DIFFUSERS, AND ANY OTHER FEATURES IN THE CEILING.
- NEW SPRINKLERS SHALL BE QUICK RESPONSE TYPE, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL NOT MIX STANDARD RESPONSE SPRINKLERS WITH QUICK RESPONSE SPRINKLERS IN UNPARTITIONED SPACES.
- PROVIDE COVERAGE ABOVE AND BELOW ALL DUCTWORK GREATER THAN 48" WIDE. PROVIDE COVERAGE ABOVE (IF APPLICABLE) AND BELOW FLOATING CEILINGS, REFER TO ARCHITECTURAL PLANS.
- FIRE PROTECTION PIPE ROUTING IS SHOWN FOR GENERAL LAYOUT. DETERMINE EXACT NUMBER OF SPRINKLERS, PIPE SIZING, AND PIPE ROUTING.
- THE FIRE PROTECTION SYSTEM SHALL BE DESIGNED TO MEET OWNER'S INSURANCE COMPANY STANDARDS WHERE APPLICABLE. THE MORE STRINGENT OF THE OWNER'S INSURANCE UNDERWRITER'S DESIGN CRITERIA AND THE NFPA STANDARDS SHALL BE USED.
- ALL BUILDING AREA SHALL BE FULLY SPRINKLERED INCLUDING CANOPIES, WALKWAYS, OVERHANGS, SOFFITS, AND BUILDING PROJECTIONS. ALL ACCESSIBLE COMBUSTIBLE CONCEALED SPACES SHALL BE FULLY PROTECTED BY THE SPRINKLER SYSTEM.
- EACH ASSEMBLY SHALL INCLUDE CHECK VALVE INDICATING "OPEN" OR "CLOSED" POSITION, TEST INSPECTION VALVE, FLOW SWITCH AND PRESSURE GAUGES.
- PROVIDE RISER ROOM IDENTIFICATION SIGNAGE OUTSIDE THE FIRE RISER ROOM. COORDINATE EXACT SIGN LANGUAGE WITH AHJ.
- WHERE FEASIBLE INSTALL PIPES HIGH AS POSSIBLE TO AVOID CONFLICT WITH OTHER DISCIPLINES, AND TO REDUCE THE AMOUNT OF REQUIRED ROD STIFFENER SUPPORTS.

**FIRE PROTECTION GENERAL NOTES:**

- INSTALL SYSTEM DRAINS AT LOW POCKET AREAS CONTAINING FIVE GALLONS OF WATER OR MORE. PROVIDE WITH ISOLATION VALVE AND THREADED HOSE CONNECTION.
- MAIN PIPING PASSING BELOW SKYLIGHTS OR CLERESTORIES ARE NOT PERMITTED.
- FOLLOW STRUCTURAL DETAILS WHEN PENETRATING OR PASSING THROUGH STRUCTURAL ELEMENTS. ALTERNATE DESIGNS WILL NEED TO BE APPROVED THROUGH THE STRUCTURAL ENGINEER.
- PROVIDE INTERMEDIATE TEMPERATURE SPRINKLER HEADS WHERE REQUIRED BY NFPA 13 UNLESS OTHERWISE NOTED.
- FINAL HEAD LOCATION, TYPE AND FINISH SHALL BE REVIEWED AND APPROVED BY THE ARCHITECT.
- A GRAPHIC ANNUNCIATOR PANEL SHALL BE PROVIDED TO INCLUDE AREAS BEING PROVIDED WITH A PRE-ACTION OR CLEAN AGENT SYSTEM WHICH HAVE CONCEALED AREAS.
- EXACT LOCATION OF THE ALL PANELS SHALL BE VERIFIED ON SITE AND COORDINATED WITH THE ELECTRICAL CONTRACTOR.
- PAINT ALL EXPOSED PIPING TO MATCH BACKGROUND OR AS DIRECTED BY THE ARCHITECT.
- THE OWNER MUST BE NOTIFIED PRIOR TO EACH AND EVERY DRAINING OR RECHARGING OF THE SPRINKLER SYSTEM.
- THE CONTRACTOR SHALL PREPARE A COORDINATED SET OF SHOP DRAWINGS AND SHALL OBTAIN APPROVAL FROM THE AUTHORITIES HAVING JURISDICTION AND THE LOCAL FIRE DEPARTMENT PRIOR TO ANY INSTALLATION.
- DRAWING SHOW LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC. AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
- VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.

FIRE PROTECTION SHEET INDEX	
FP000	FIRE PROTECTION COVERSHEET
FP201	FLOOR PLAN - FIRE PROTECTION - EAST
FP202	FLOOR PLAN - FIRE PROTECTION - WEST
FP300	FIRE PROTECTION ENLARGED PLANS
FP400	FIRE PROTECTION DETAILS
FP401	FIRE PROTECTION DETAILS
FP600	FIRE PROTECTION SCHEDULES
GRAND TOTAL: 7	

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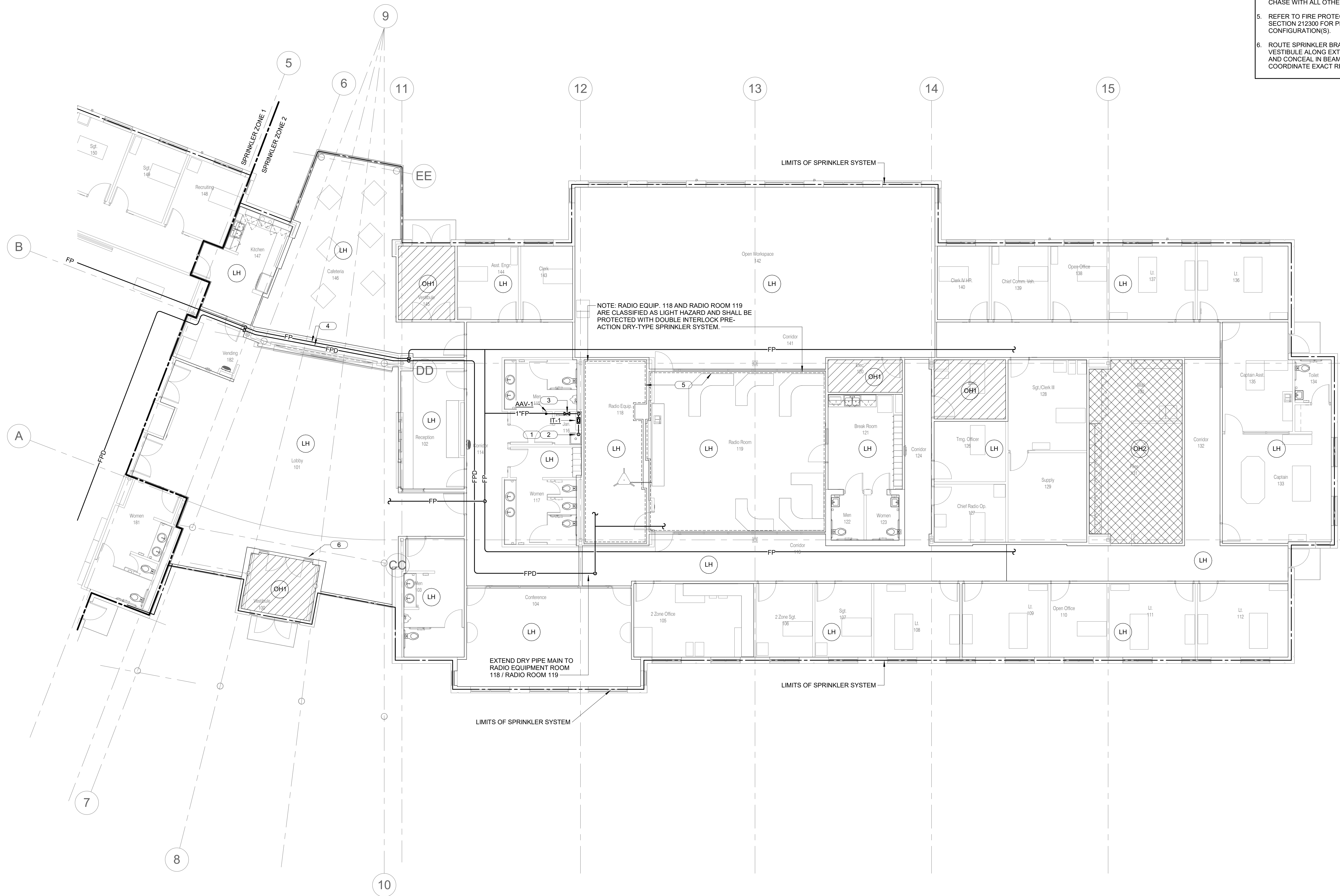


Bruce E Hart - Engineer  
 MO# 22817

**SHEET NOTES:**  
 1. SPRINKLER ZONES SHALL BE DESIGNED FOR LIGHT HAZARD UNLESS NOTED OTHERWISE.

**KEYNOTES:** #

- INSPECTOR'S TEST STATION.
- LOCATE DRY PIPE VALVE IN JANITOR CLOSET.
- LOCATE INSPECTOR TEST/DRAIN VALVE WITHIN 6'-0" OF FINISHED FLOOR ELEVATION FOR ACCESS.
- COORDINATE EAST WING FIRE SPRINKLER MAIN AND DRY-PIPE SYSTEM MAIN IN WALL CHASE WITH ALL OTHER DISCIPLINES.
- REFER TO FIRE PROTECTION SPECIFICATION SECTION 212300 FOR PRE-ACTION SYSTEM CONFIGURATION(S).
- ROUTE SPRINKLER BRANCH PIPING TO VESTIBULE ALONG EXTERIOR WALL FILL BEAM AND CONCEAL IN BEAM ENCLOSURE. FIELD COORDINATE EXACT REQUIREMENTS.



**1 FLOOR PLAN - FIRE PROTECTION - EAST**  
 1/8" = 1'-0"  
 0 2' 4' 8'  
 NORTH

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 SITE # 6018  
 FACILITY # 8136018019

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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

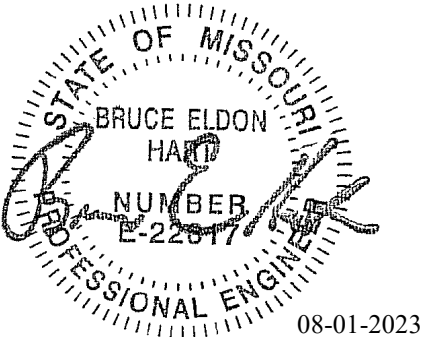
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 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN - FIRE  
 PROTECTION - EAST**

SHEET NUMBER:

**FP201**

SHEET 110 OF 202  
 08/01/2023



Bruce E Hart - Engineer  
 MO# 22817

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CAD DWG FILE: FP202.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
 FLOOR PLAN - FIRE  
 PROTECTION - WEST

SHEET NUMBER:

**FP202**

SHEET 111 OF 202

08/01/2023

**SHEET NOTES:**

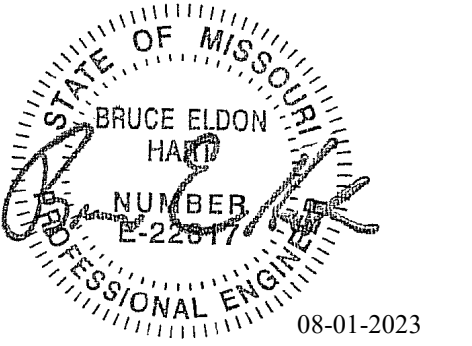
1. SPRINKLER ZONES SHALL BE DESIGNED FOR LIGHT HAZARD UNLESS NOTED OTHERWISE.

**KEYNOTES:** #

1. FIRE PROTECTION SPRINKLER VALVE ASSEMBLY.
2. FIRE SPRINKLER ZONE DISTRIBUTION MAIN.
3. WALL INDICATING VALVE.
4. FIRE DEPARTMENT CONNECTION, INDICATING STROBE, AND ALARM HORN.
5. INSPECTOR'S TEST STATION.
6. LOCATE INSPECTOR TEST/DRAIN VALVE WITHIN 6'-0" OF FINISHED FLOOR ELEVATION FOR ACCESS.
7. COORDINATE EAST WING FIRE SPRINKLER MAIN AND DRY-PIPE SYSTEM MAIN IN WALL CHASE WITH ALL OTHER DISCIPLINES.
8. EVIDENCE STORAGE 178, DRUG EVIDENCE 175, DRYING ROOM 174 IS CLASSIFIED AS ORDINARY HAZARD GROUP 2 AND SHALL BE PROTECTED WITH HEAD COVER GUARDS.
9. REFER TO 3/FP401 FOR FIRE PROTECTION WATER SERVICE DETAIL.
10. 6" FIRE PROTECTION WATER SERVICE TO 5'-0" OUTSIDE BUILDING FOR CONNECTION BY SITE UTILITIES CONTRACTOR. MAINTAIN MINIMUM 4'-0" BURY.



**1 FLOOR PLAN - FIRE PROTECTION - WEST**  
 1/8" = 1'-0"  
 0 2' 4' 8'  
 NORTH



Bruce E Hart - Engineer  
 MO# 22817

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CAD DWG FILE: FP300.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**FIRE PROTECTION  
 ENLARGED PLANS**

SHEET NUMBER:

**FP300**

SHEET 112 OF 202

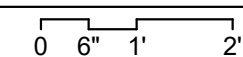
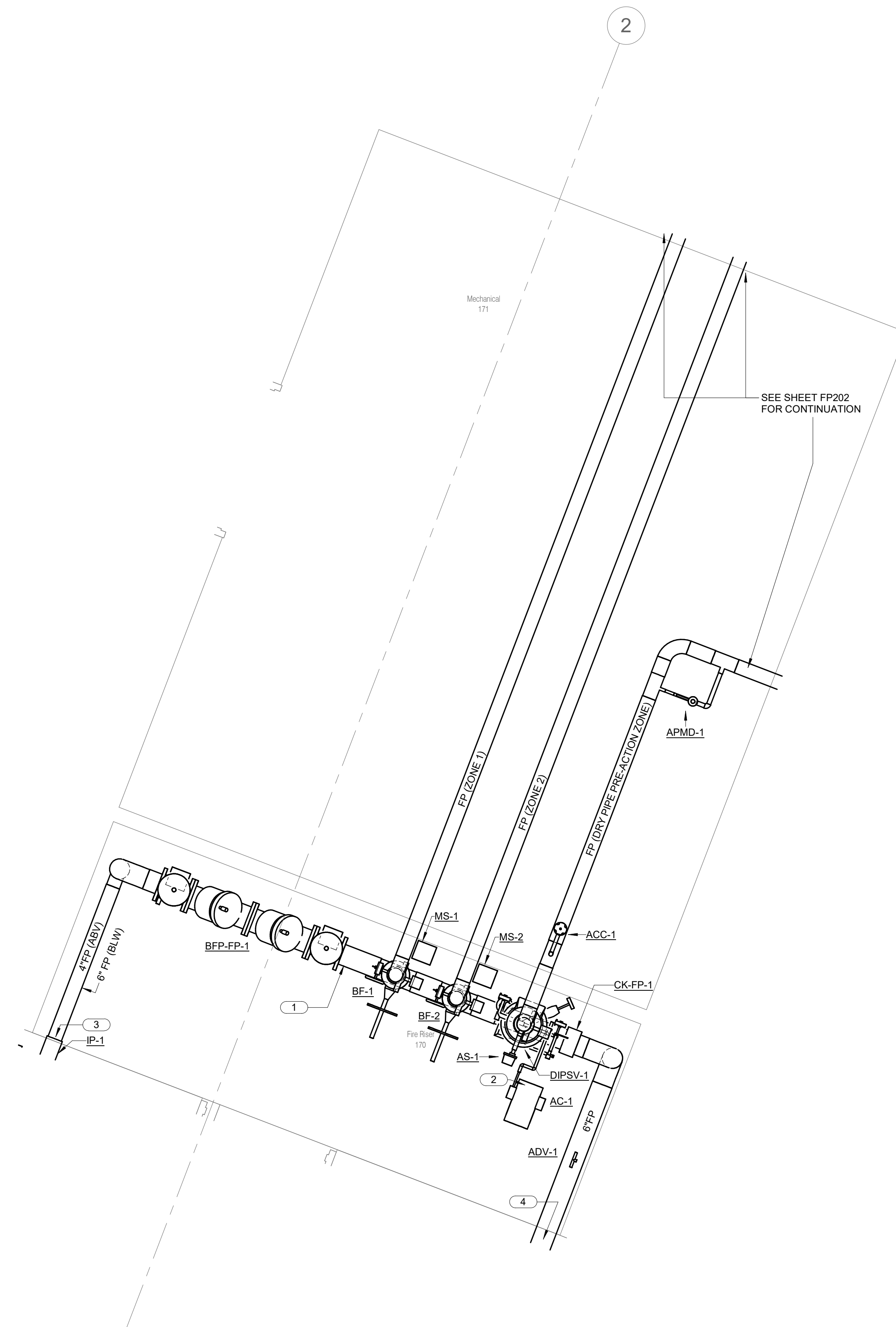
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**SHEET NOTES:**

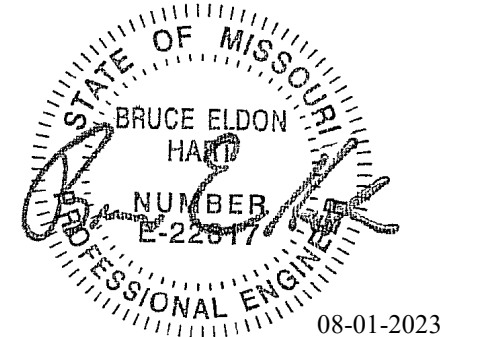
1. SPRINKLER ZONES SHALL BE DESIGNED FOR LIGHT HAZARD UNLESS NOTED OTHERWISE.

**KEYNOTES:** #

1. REFER TO FIRE PROTECTION SERVICE DETAIL 3/FP401 FOR FURTHER INFORMATION.
2. FIELD COORDINATE INSTALLATION AND MOUNTING OF DRY-SYSTEM AIR COMPRESSOR AC-1 ON PIPE RISER.
3. REFER TO SHEET FP202 FOR CONTINUATION TO INDICATOR POST ASSEMBLY.
4. REFER TO SHEET FP202 FOR CONTINUATION TO FIRE DEPARTMENT CONNECTION.







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 CHECKED BY: BEH  
 DESIGNED BY: GW&

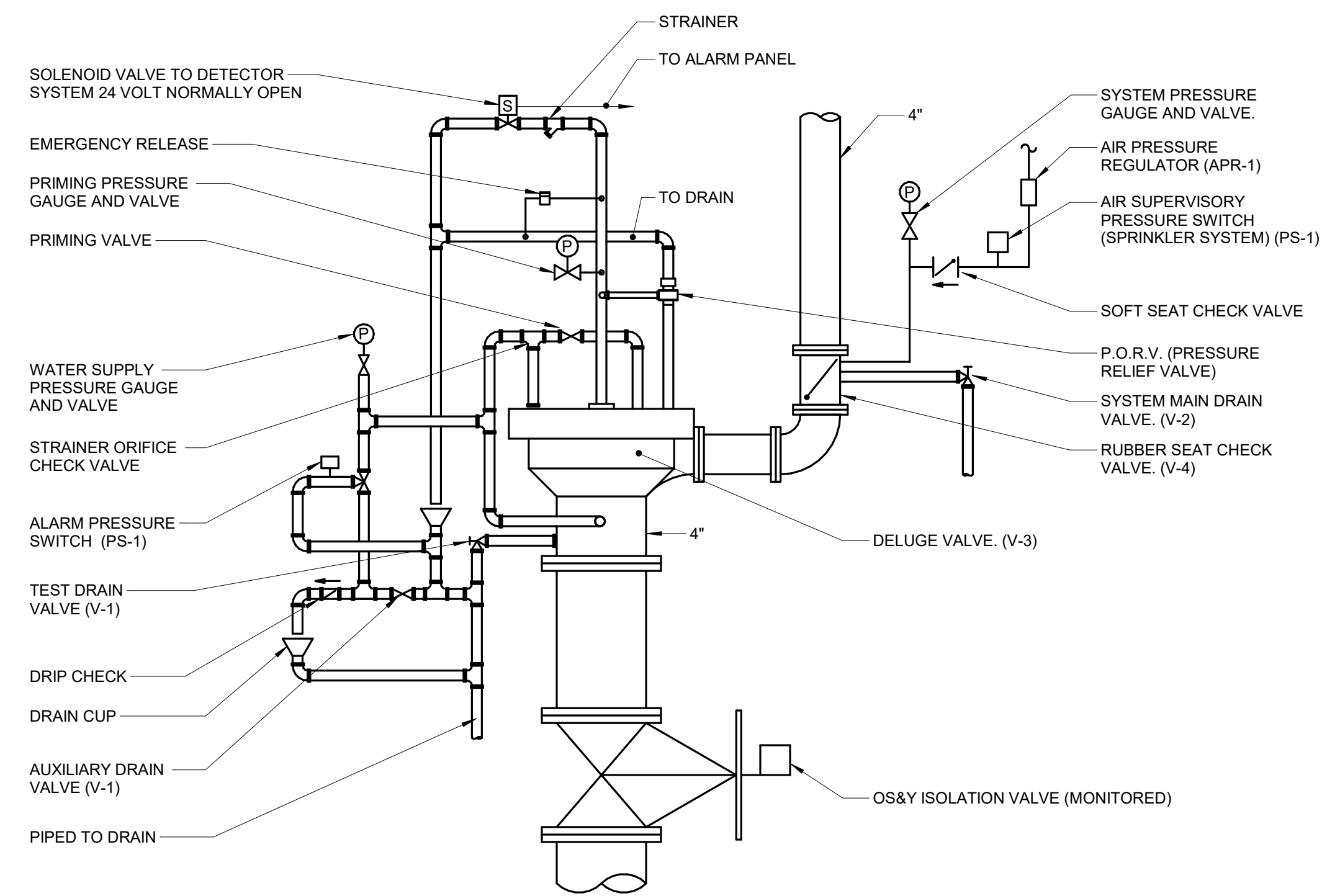
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 DETAILS**

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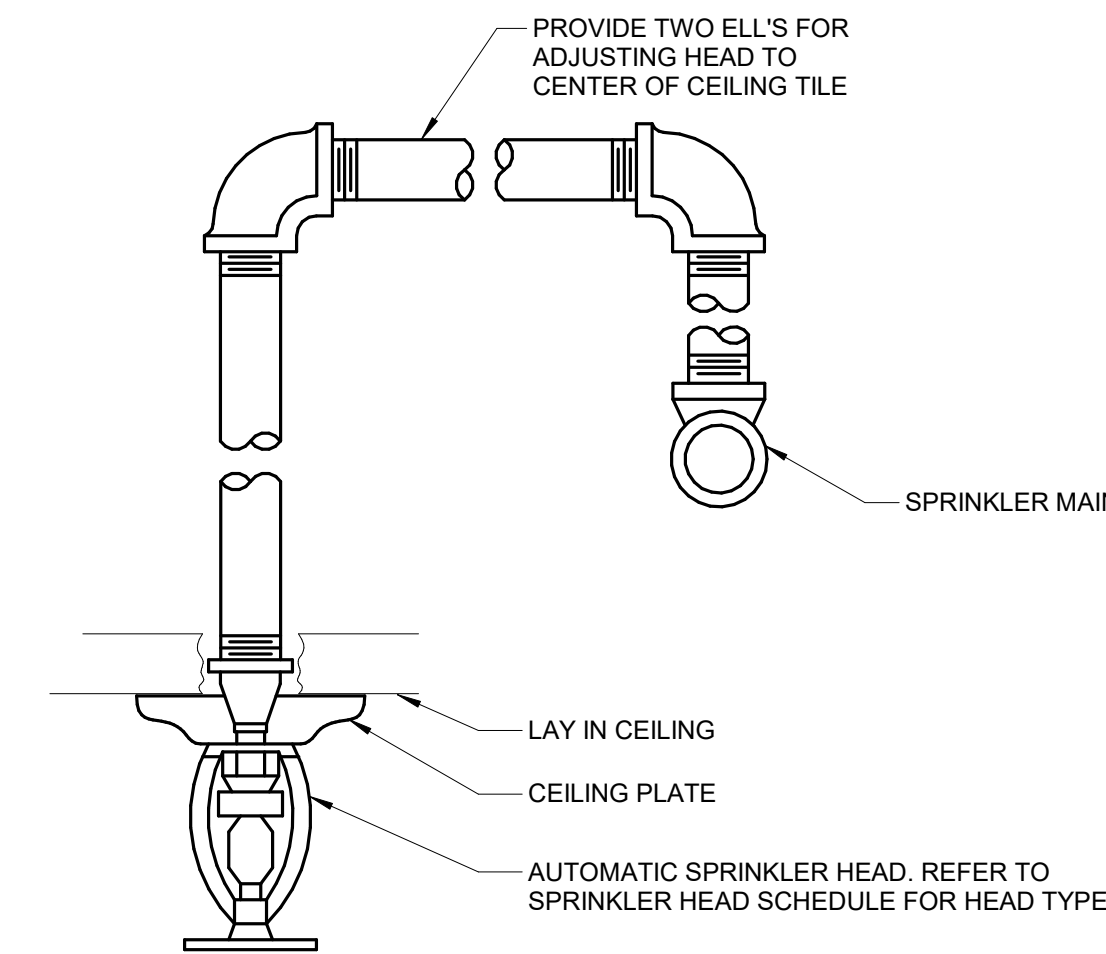
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SHEET 113 OF 202

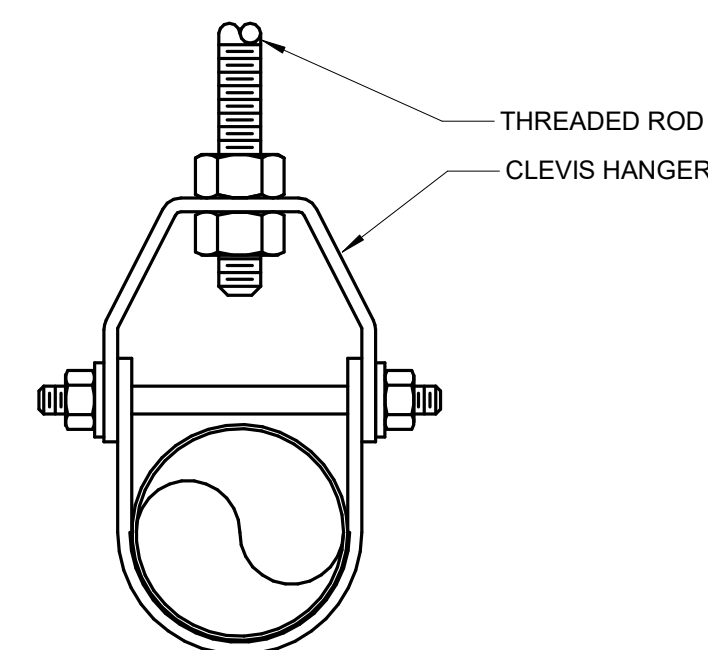
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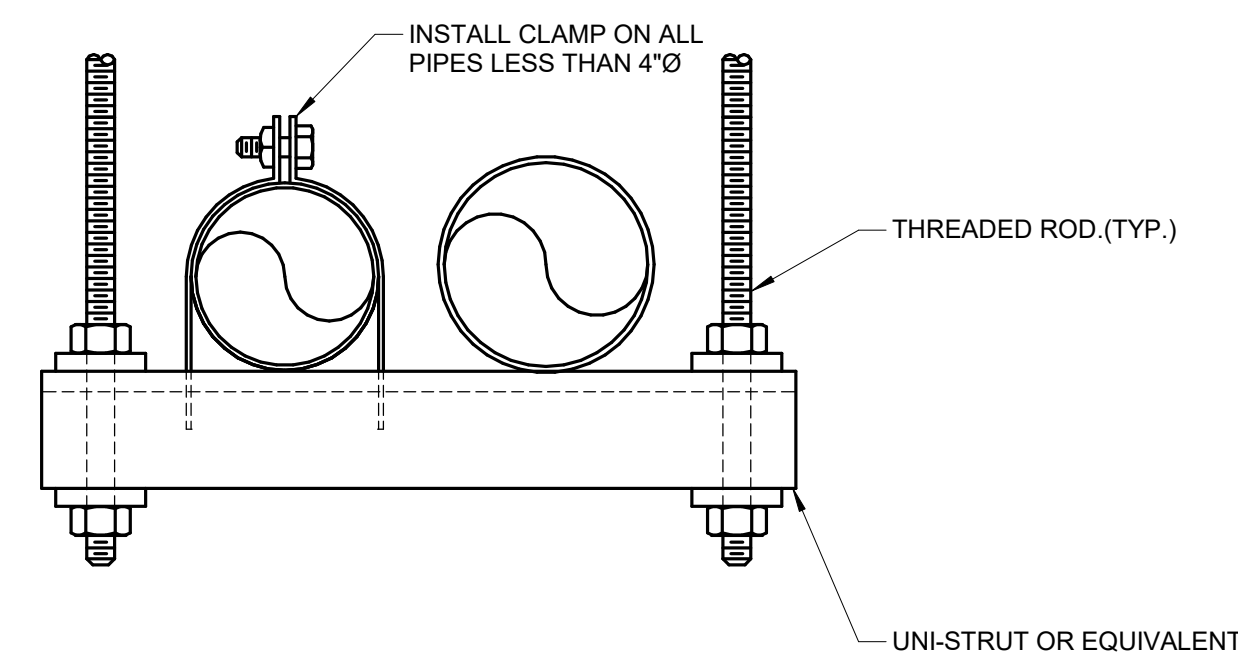
**1 FIRE PROTECTION RISER #1 & #2**  
 NO SCALE



**2 SPRINKLER HEAD MOUNTING DETAIL**  
 NO SCALE



**CLEVIS HANGER**

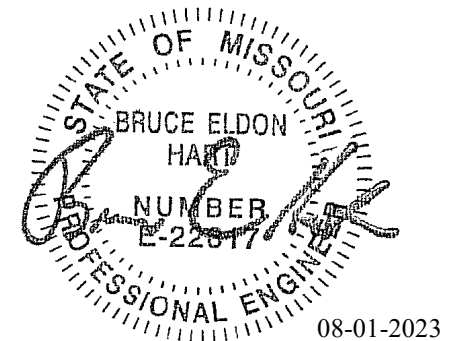


**TRAPEZE HANGER**

**NOTES:**

- REFER TO SPECIFICATION SECTION 21 05 29.

**3 PIPE SUPPORT DETAIL**  
 NO SCALE



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CAD DWG FILE: FP401.dwg  
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 CHECKED BY: BEH  
 DESIGNED BY: GW&

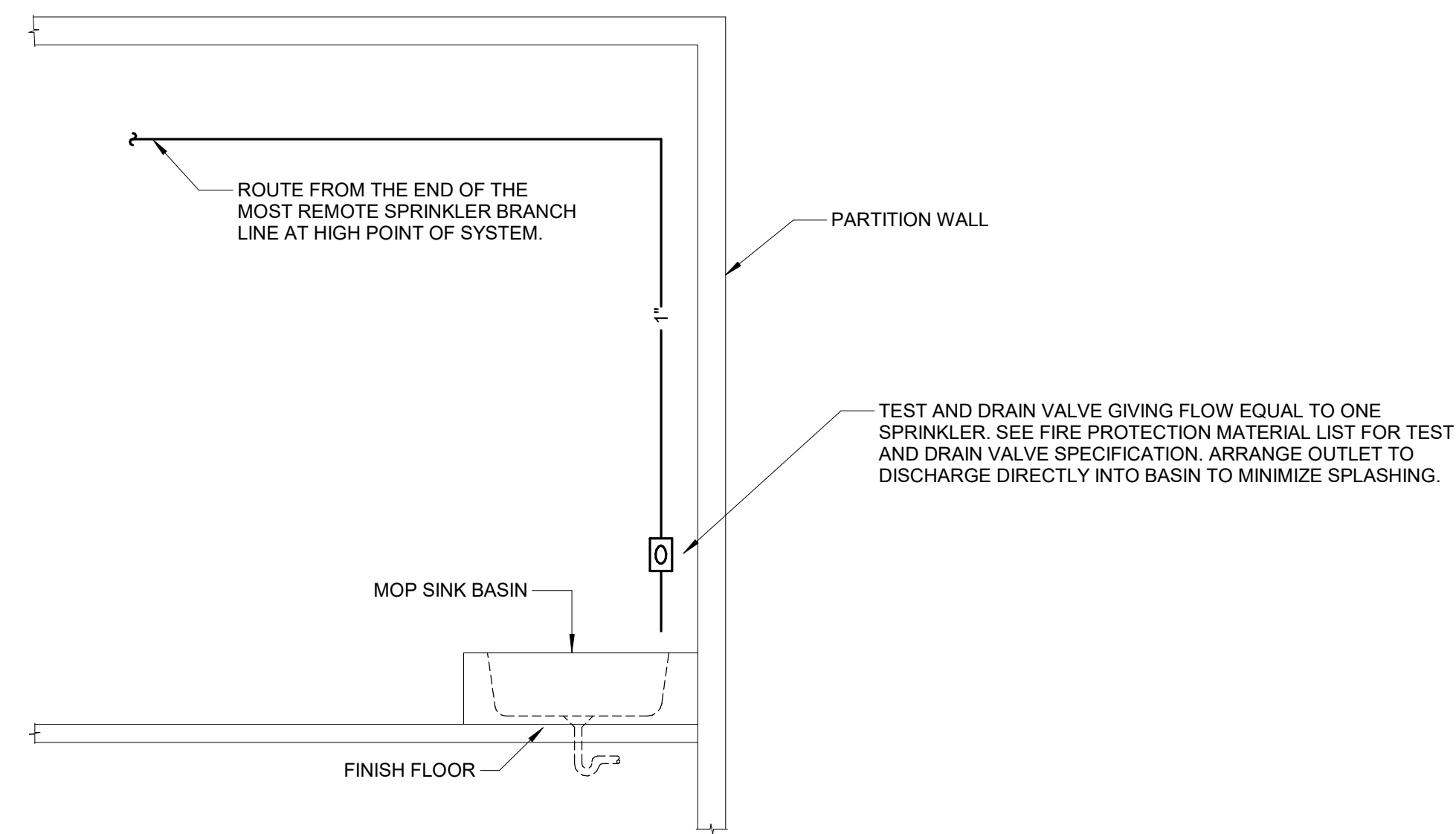
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 DETAILS**

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**FP401**

SHEET 114 OF 202

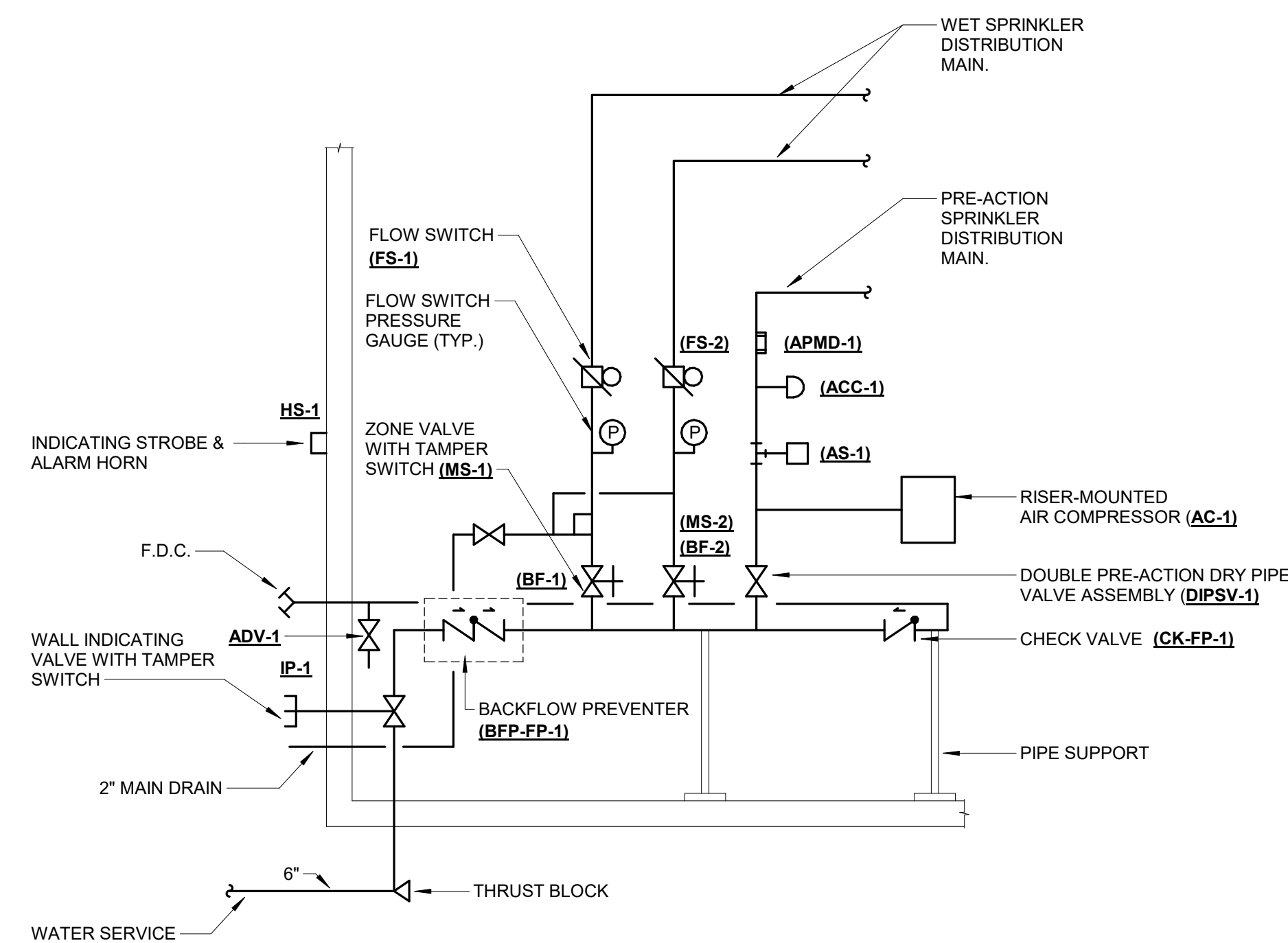
08/01/2023



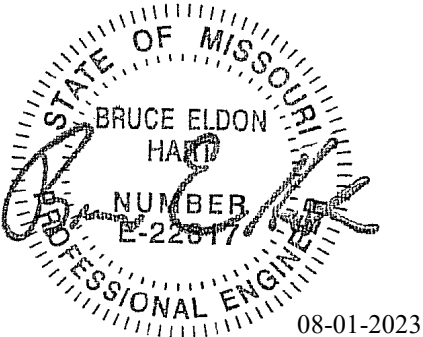
NOTES:

1. LOCATE INSPECTOR TEST STATION IN STORAGE CLOSET OR IN MECHANICAL ROOM UNLESS OTHERWISE SHOWN ON PLANS. INSPECTOR TEST STATION SHALL NOT BE LOCATED IN VESTIBULES, CORRIDORS, TOILET ROOMS OR OTHER OCCUPIED SPACES.
2. MOUNT INSPECTOR TEST STATION SIGN ON WALL OR PIPE NEAR TEST AND DRAIN VALVE.

**1 INSPECTOR TEST STATION DETAIL**  
 NO SCALE



**2 FIRE PROTECTION WATER SERVICE DETAIL**  
 NO SCALE



Bruce E Hart - Engineer  
MO# 22817

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**PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019**

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DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: FP600.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**FIRE PROTECTION  
SCHEDULES**

SHEET NUMBER:

**FP600**

SHEET 115 OF 202

08/01/2023

**FIRE SPRINKLER USAGE SCHEDULE**

NOTES:  
1. SEE FLOOR PLANS FOR ZONING REQUIREMENTS.  
2. SPRINKLER SHALL HAVE COLOR CODED BULB THERMAL ELEMENT.  
3. ALL SPRINKLERS SHALL BE UL LISTED.  
4. CONTRACTOR TO VERIFY SPRINKLER REQUIREMENTS BASED ON ACTUAL INSTALLATION, USAGE, ARCHITECTURAL CEILING PLAN AND NFPA 13 REQUIREMENTS.  
5. TAG NAME IS PRIMARILY FOR IDENTIFYING SPRINKLERS IN SUBMITTALS. IT MAY OR MAY NOT BE FOUND ELSEWHERE ON THE DRAWINGS. CONTRACTOR TO SUBMIT ALL SPRINKLER TYPES TO BE USED.  
6. AREAS ARE GENERAL IN NATURE. CONTRACTOR TO MATCH UNSCHEDULED AREAS TO SIMILAR SPACES.  
7. NON-FERROUS SPRINKLER FOR USE IN MAGNETIC AND CORROSIVE ENVIRONMENTS.  
8. SPRINKLER FOR USE IN DUST-FREE ENVIRONMENTS.  
9. SPRINKLER SHALL BE UL LISTED FOR 2-HR FIRE SEPARATION EQUIVALENCE.  
10. SPRINKLERS SHALL HAVE A 3mm QUICK RESPONSE BULB.  
11. SPRINKLERS SPECIFIED WITHIN FIRE SPRINKLER USAGE SCHEDULE ARE STANDARD COVERAGE TYPE. EXTENDED COVERAGE SPRINKLERS ARE PERMITTED PROVIDED SPRINKLERS MEET THE REQUIREMENTS OF UL.  
12. SPRINKLER HEAD TO BE PROVIDED WITH WIRE GUARDS IN EVIDENCE STORAGE AREAS (SEE PLAN NOTES).

DRY PENDENT SPRINKLERS SHALL BE PROVIDED OFF OF ALL DRY SYSTEMS.  
DRY PENDENTS SHALL BE USED TO AVOID TRAPPING WATER IN AN AREA SUBJECT TO FREEZING.

AREA TYPE (NOTE 1 & 6)	AREA HAZARD	SPRINKLER				TEMPERATURE RATING	MANUFACTURER & MODEL	NOTES
		TAG NAME (NOTE 4 & 5)	SPRINKLER TYPE	RESPONSE CATEGORY	FINISH			
LAY-IN / HARD LID CEILING	SEE PLANS	SPR-1	PENDENT	STANDARD	ROUGH BRASS	PER NFPA	VIKING VK, RELIABLE F1, TYCO TY-B, VICTAULIC V2707	NOTE 3
EXPOSED	SEE PLANS	SPR-2	UPRIGHT	STANDARD	ROUGH BRASS	PER NFPA	VIKING VK, RELIABLE F1, TYCO TY-B, VICTAULIC V2703	NOTE 3, 12
DRY SYSTEM - RADIO ROOM 119	SEE PLANS	SPR-3	DRY PENDENT	QUICK	ROUGH BRASS	PER NFPA	VIKING VK, RELIABLE F3QR, TYCO DS, VICTAULIC V3606	NOTE 3, 10
DRY SYSTEM - RADIO EQUIP 118	SEE PLANS	SPR-4	DRY UPRIGHT	QUICK	ROUGH BRASS	PER NFPA	VIKING VK184, VICTAULIC V3402	NOTE 3, 10

**FIRE PROTECTION MATERIAL LIST**

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
AAV-1	AUTOMATIC AIR VENT, 175 PSI, CAST IRON BODY, STAINLESS STEEL ORIFICE, LINKAGE, AND FLOAT, CAST IRON VALVE COVER WITH GASKET, THREADED NPT INLET AND OUTLET, 1/2" BALL VALVE AND 1/2" STRAINER, UL/FM.	METRAFLEX MVC-15, POTTER PAV, AGF M7900AAV
AC-1	RISER MOUNTED AIR COMPRESSOR, FULLY AUTOMATIC, DIRECT DRIVE, OIL LESS PISTON COMPRESSOR, SINGLE STAGE, AIR COOLED, UL LISTED FIELD ADJUSTABLE PRESSURE SWITCH, PRESSURE GAUGE, PRESSURE RELIEF VALVE, BUBBLE TIGHT CHECK VALVE, INTAKE FILTER, RISER MOUNTING BRACKET, STAINLESS STEEL FLEXIBLE HOSE, UL 1450 FOR USE WITH FIRE SPRINKLER SYSTEMS.  CAPACITY: SIZED TO FILL SPRINKLER SYSTEM TO 40 PSI WITHIN 30 MINUTES PER NFPA 13 REQUIREMENTS.	GENERAL AIR PRODUCTS OL PLUS SERIES, GAST
ACC-1	ACCELERATOR, 250 PSI, PILOT OPERATED, 1500 GALLON MAXIMUM SYSTEM CAPACITY, AUTOMATIC OR MANUAL RESET, INTEGRAL OR EXTERNAL ANTI-FLOOD DEVICE, UL/FM.  ACCELERATOR SHALL BE THE SAME MFR. OF DRY PIPE VALVE. PROVIDE ALL REQUIRED TRIM FOR PROPER SYSTEM OPERATION.	TYCO ACC-1, RELIABLE B-1, VICTUALIC SERIES 746-LPA, DEVICE, UL/FM.
ADV-1	AUTOMATIC DRIP VALVE, FOR USE ON INLET SIDE OF FDC OR PUMPER CONNECTION, 175 PSI, BRASS OR BRONZE BODY, STAINLESS STEEL OR BERYLLIUM COPPER SPRING AND RETAINING RING, MIN. CLOSING PRESSURE 7 PSI WITH INCREASING PRESSURE, MIN OPENING PRESSURE 5 PSI WITH DECREASING PRESSURE, 1/2" NPT INLET AND 1/4" NPT DRAIN OUTLET, VALVE ORIENTATION SHALL BE INSTALLED ACCORDING TO MFR. RECOMMENDATIONS, UL/FM.	VIKING B-1, TYCO AD-2, RELIABLE MODEL C
APMD-1	AIR PRESSURE MAINTENANCE DEVICE, 175 PSI RATED, MAIN AND BYPASS LINE BALL/GLOBE VALVES, UNION, WYE-STRAINER, PRESSURE GAUGE TEST PORT, FIELD ADJUSTABLE PRESSURE REGULATOR, RESTRICTIVE ORIFICE CHECK VALVE, UL/FM.	GENERAL AIR AMD-1, VIKING CORP D-2, TYCO AMD-1, RELIABLE A-2
AS-1	HIGH-LOW AIR SUPERVISORY PRESSURE SWITCH, 250 PSI, 10 TO 100 PSI FIELD ADJUSTABLE PRESSURE RANGE, 2 TO 5 PSI ACTUATION DIFFERENTIAL, TWO SINGLE POLE DOUBLE THROW CONTACTS, NEMA 4 INDOOR/OUTDOOR RATED METAL HOUSING, BLEEDER VALVE, UL/FM.	POTTER PS40, SYSTEM SENSOR EPS40
BF-1	INDICATING BUTTERFLY VALVE, NORMALLY OPEN, 175 PSI WWP, GROOVED TYPE, DUCTILE IRON BODY WITH PROTECTIVE COATING, ELECTROLESS NICKEL OR EPDM COATED DUCTILE IRON DISC, STAINLESS STEEL STEM AND SCREWS, CAST OR DUCTILE IRON HANDWHEEL, EPDM SEAT, INDICATOR FLAG, FACTORY MOUNTED INTEGRAL MONITOR SWITCHES, UL/FM.  LUGGED OR WAFER VALVES ARE ACCEPTABLE PROVIDED THEY HAVE THE FEATURES LISTED ABOVE.	NIBCO GD-4765-8N, VICTAULIC SERIES 705, TYCO BFV-300, KENNEDY G300, GLOBE GLR300G, REL-BFG-300
BF-2	INDICATING BUTTERFLY VALVE, NORMALLY OPEN, 175 PSI WWP, GROOVED TYPE, DUCTILE IRON BODY WITH PROTECTIVE COATING, ELECTROLESS NICKEL OR EPDM COATED DUCTILE IRON DISC, STAINLESS STEEL STEM AND SCREWS, CAST OR DUCTILE IRON HANDWHEEL, EPDM SEAT, INDICATOR FLAG, FACTORY MOUNTED INTEGRAL MONITOR SWITCHES, UL/FM.	NIBCO GD-4865-8N, VICTAULIC SERIES 705, TYCO BFV-300, KENNEDY G300, GLOBE GLR300G, REL-BFG-300
BFP-FP-1	DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER - LISTED FOR USE IN FIRE PROTECTION SYSTEM, 175 PSI WWP AT 33°F TO 140°F, LEAD FREE, STAINLESS STEEL CONSTRUCTION, SAME SIZE AS PIPE, NON-CORROSIVE INTERNAL PARTS, STAINLESS STEEL SPRINGS, SPRING-LOADED CHECK VALVES, OSY INDICATING BUTTERFLY SHUT-OFF VALVES ON INLET AND OUTLET OF UNIT, TEST PORTS WITH SHUT-OFF VALVES, BYPASS CONSISTING OF WATER METER, AND BACKFLOW PREVENTER WITH TEST COCKS, FACTORY TESTED, 8 PSI (MAXIMUM) PRESSURE DROP AT 10 FPS, ALL PARTS TO BE SERVICEABLE WITHOUT REMOVING UNIT FROM LINE, APPROVED BY USC FCCC & HR, AWWA C510-82, ASSE 1015, IAPMO AND SBCCI LISTED, UL/FM.  MOUNT WITHIN 60" OF FINISHED FLOOR, FLOW PRESSURE DROP CURVES SHALL BE SUBMITTED. LISTED FOR HORIZONTAL OR VERTICAL CONFIGURATIONS.	AMES C300, ZURN WILKINS 350ASTDA, APOLLO DCDALF
DIPSV-1	DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE, PREASSEMBLED VALVE AND RELEASING PANEL, UL/FM.  DELUGE/PREACTION VALVE - LATCHING DIFFERENTIAL TYPE VALVE, GROOVED/FLANGED INLET/OUTLET, 175 PSI RATING, DUCTILE IRON BODY AND VALVE COVER, LATCHING SPRING LOADED CLAPPER ASSEMBLY, EXTERNAL RESET CAPABILITY, AIR TO WATER PRESSURE AREA DIFFERENTIAL OF APPROXIMATELY 6 TO 1, TAPPED OUTLET FOR DRAIN VALVE, RISER CHECK VALVE AS REQUIRED, UL/FM.  VALVE TRIM PIPE AND FITTINGS SHALL BE GALVANIZED. PROVIDE ELECTRIC SOLENOID, PNEUMATIC ACTUATOR, ALARM PRESSURE SWITCH, AIR SUPERVISORY SWITCH, AIR AND WATER GAUGES, ISOLATION VALVES, CHECK VALVES, DRIP CUP, ACCELERATOR, TEST AND DRAIN VALVES AS REQUIRED FOR PROPER SYSTEM OPERATION.  REFER TO MATERIAL LIST FOR EXTERNAL AIR COMPRESSOR SPECIFICATION.  RELEASE CONTROL PANEL - 120VAC, BATTERY BACKUP WITH CHARGER, FOUR INPUT CIRCUITS, FOUR OUTPUT CIRCUITS, ALARM RELAY, TROUBLE RELAY, TONE SILENCE, ALARM SILENCE [AND DISCHARGE TIMER].	VIKING MODEL G PREACTION, TYCO DV-5 PREACTION, RELIABLE DDX TYPE F, VICTAULIC 769, GLOBE RCW PREACTION
FDC-1	FLUSH TWO WAY FIRE DEPT. INLET CONNECTION, CAST BRASS BODY WITH POLISHED BRASS FINISH, 4" OR 6" OUTLET WITH TWO 2-1/2" INLETS AND DROP CLAPPERS, DOUBLE FEMALE SNOOTS WITH RIGID END N.P.T. X PIN LUG HOSE THREAD SWIVELS, PLUGS AND CHAINS, WALL PLATE WITH SAME FINISH AS BODY LABELED "AUTO SPKR", UL.  HOSE THREAD TYPE SHALL MATCH LOCAL FIRE DEPARTMENT REQUIREMENTS.  CONTRACTOR TO COORDINATE PURCHASE OF LOCKING CAPS WITH LOCAL FIRE DEPARTMENT.	FDC: POTTER ROEMER 5020 SERIES, ELKHART BRASS MODEL 166, CROKER SERIES 6010/6020, GUARDIAN SERIES 6020  LOCKING CAP: KNOX COMPANY 3041
FS-1	FLOW SWITCH - VANE TYPE, 450 PSI, FLOW SENSITIVITY OF 4-10 GPM, TWO SINGLE POLE DOUBLE THROW SWITCHES, PNEUMATIC RETARD ADJUSTABLE FROM 0-90 SECONDS WITH AUTOMATIC RESET, NEMA 4 INDOOR/OUTDOOR RATED METAL HOUSING, UL/FM.	POTTER VSR, SYSTEM SENSOR WFD
FS-2	FLOW SWITCH - VANE TYPE, 450 PSI, FLOW SENSITIVITY OF 4-10 GPM, TWO SINGLE POLE DOUBLE THROW SWITCHES, PNEUMATIC RETARD ADJUSTABLE FROM 0-90 SECONDS WITH AUTOMATIC RESET, NEMA 4 INDOOR/OUTDOOR RATED METAL HOUSING, UL/FM.	POTTER VSR, SYSTEM SENSOR WFD
HS-1	FIRE SPRINKLER HORN/STROBE - RATED FOR INDOOR OR OUTDOOR USE, WEATHERPROOF RED HOUSING AND BACKBOX, WHITE LETTERING "SPRINKLER FIRE - ALARM", FIELD SELECTABLE CANDELA RATING, 120VAC, UL.	POTTER SASH, SYSTEM SENSOR P2RHK
IP-1	WALL INDICATOR POST, FOR USE WITH 4" TO 16" GATE VALVES, 175 PSI WP, STEEL STEM, CAST/DUCTILE IRON POST HEAD WITH POLYCARBONATE WINDOW INDICATING "OPEN" OR "SHUT", CAST IRON BASE FLANGE, DUCTILE IRON OPERATING NUT, STEEL/DUCTILE/CAST IRON HANDWHEEL WITH EYEBOLT, UL/FM.  GATE VALVE, NON RISING STEAM (NRS), RESILIENT WEDGE, MINIMUM 200 PSI WWP, FLANGED OR GROOVED JOINTS, DUCTILE/CAST IRON BODY AND BONNET WITH PROTECTIVE COATING, DUCTILE IRON ENCAPSULATED DISC, STAINLESS STEEL/BRONZE/BRASS STEM, STAINLESS STEEL BOLTS AND NUTS, ADJUSTABLE PACKING, CAST IRON OPERATING NUT, COUNTERCLOCKWISE TO OPEN, UL/FM.	MUELLER A-20814, KENNEDY 641, NIBCO NIP-3AJ
IT-1	COMBINATION INSPECTOR'S TEST AND DRAIN VALVE, 300 PSI, INTEGRAL SIGHT GLASS, BALL VALVE PLATE INDICATING OFF-TEST-DRAIN POSITIONS, FURNISHED WITH TEST ORIFICE GIVING FLOW EQUIVALENT TO ONE SPRINKLER OF A TYPE HAVING THE SMALLEST ORIFICE INSTALLED ON THE SYSTEM, PRESSURE RELIEF VALVE, UL/FM.	AGF M1011A, RELIABLE MODEL TD, VICTAULIC TESTMASTER, GLOBE UTD W/ MODEL ARV PRV

### VIEW KEY

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

INDICATES DIRECTION OF TRUE NORTH  
NEW  
PLAN OR DETAIL NUMBER  
PLAN OR DETAIL NAME

**VIEW NAME**  
1/8" = 1'-0"  
PLAN OR DETAIL SCALE

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS  
DETAIL REFERRED TO BY SECTION CUT  
SHEET DETAIL IS LOCATED ON

**LINE TYPE AND TAG KEY:**  
NEW WORK BY THIS CONTRACTOR (WIDE LINE)  
--- EXISTING TO BE REMOVED (SHORT DASHED PATTERN)  
--- NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)  
EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)  
--- EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)  
--- EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)  
HALFTONING DOES NOT MODIFY SCOPE.

'TAG'-E TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

**TAG** UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

### APPLICABLE CODES

CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS.

BUILDING CODE:	IBC 2018 EDITION
FIRE CODE:	IFC 2018 EDITION
PLUMBING CODE:	IPC 2018 EDITION
MECHANICAL CODE:	IMC 2018 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2017 EDITION
ENERGY CONSERVATION CODE:	ASHRAE 90.1 2019
HEALTH DEPARTMENT CODE:	CURRENT EDITION
LOCAL BUILDING CODE:	CURRENT EDITION

### CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
S.C.	SECURITY CONTRACTOR

### CONTACT PERSONS:

DESCRIPTION:	PERSON:
PROJECT MANAGER	ANDY MEYER, AIA, LEED AP BD+C - GASTINGER WALKER AMEYER@GASTINGERWALKER.COM 816.569.0824
MECHANICAL	BRUCE E. HART, P.E., LEED AP - IMEG BRUCE.E.HART@IMEG.CORP.COM 816.652.0091
ELECTRICAL	PHILLIP I. PARRA, P.E. - IMEG PHILLIP.I.PARRA@IMEG.CORP.COM 816.652.0109
TECHNOLOGY	NICK WNUCK, RCDD, CPP, PMP - IMEG NICK.J.WNUCK@IMEG.CORP.COM 314.951.2546

### PLUMBING SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
CA	COMPRESSED AIR
CW	COLD WATER - POTABLE
D	DRAIN
DI	DEIONIZED WATER
DT	DRAIN TILE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
G	NATURAL GAS
GRV	GAS REGULATOR VENT
HW	HOT WATER - POTABLE
HWG	HOT WATER CIRCULATING - POTABLE
HW140	HOT WATER - POTABLE NUMBER INDICATES TEMP
HWG140	HOT WATER CIRC. - POTABLE NUMBER INDICATES TEMP
NGW	NON-POTABLE COLD WATER
NHW	NON-POTABLE HOT WATER
PD	PUMPED DISCHARGE
SAN	SANITARY DRAINAGE
SCW	SOFT COLD WATER
SHW	SOFT HOT WATER
ST(1,000)	STORM DRAINAGE (ROOF SQUARE FOOTAGE)
STS	STORM DRAINAGE (SECONDARY)
STW	SOFT TEMPERED WATER
→	PIPE CONTINUATION
⊥	PIPE CAP
↓	PIPE DOWN
↑	PIPE UP OR UP/DOWN
○	PIPE SERVING FIXTURE ON FLOOR ABOVE (EXAMPLE: FD = FLOOR DRAIN)
○	FD
→	PITCH PIPE IN DIRECTION
→	DIRECTION OF FLOW IN PIPE
↓	ROUTE TO DRAIN
RD-1 6"(1000)	ROOF DRAIN PROPERTIES SYMBOL SIZE (ROOF SQ. FT.)
	DIELECTRIC CONNECTION
⊥	UNION/FLANGE
⊥	SHUTOFF VALVE NORMALLY OPEN
⊥	SHUTOFF VALVE NORMALLY CLOSED
⊥	BALANCING VALVE (NUMBER INDICATES GPM)
⊥	CHECK VALVE
⊥	BACKFLOW PREVENTER
⊥	SOLENOID VALVE
⊥	SAFETY/RELIEF VALVE
⊥	VACUUM BREAKER
⊥	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
⊥	PRESSURE SENSOR (FURNISHED WITH BALL VALVE)
⊥	TEMPERATURE SENSOR WITH WELL
⊥	THERMOMETER WITH WELL (DIAL TYPE)
⊥	THERMOMETER WITH WELL (FILLED TYPE)
⊥	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND POT/FOB
⊥	PRESSURE REDUCING VALVE (LIQUID/GAS)
⊥	PUMP
⊥	METER
⊥	ALIGNMENT GUIDE
⊥	PIPE ANCHOR
⊥	EXPANSION JOINT #.# IS THE EXPANSION TRAVEL INCHES
⊥	AIR ADMITTANCE VALVE

### PLUMBING ABBREVIATION KEY

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

### PLUMBING ROUGH-IN SCHEDULE

NOTES: (APPLIES TO ALL PLUMBING FIXTURES LISTED BELOW)  
1) SIZES SHOWN ARE MINIMUMS. LARGER SIZES SHOWN ON THE DRAWING SHALL DICTATE THE ROUGH-IN SIZE. 2) SANITARY RISERS UP IN WALL TO FIXTURES SHALL BE A MINIMUM OF 2". 3) DOMESTIC WATER BRANCH PIPING OUTSIDE OF THE WALL/CHASE SHALL BE A MINIMUM OF 3/4" UNLESS NOTED OTHERWISE. ONLY THE FINAL RISE-DROP SHALL BE SMALLER. 4) FINAL SANITARY SIZE SHALL MATCH P-TRAP SIZE (REFER TO MATERIAL LIST).

TAG NAME	DESCRIPTION	COLD WATER	HOT WATER	SANITARY	VENT
EE-1	EMERGENCY EYE-FACE WASH				
EWC-1	ELECTRIC WATER COOLER (ACCESSIBLE)	1/2"	-	1 1/2"	1 1/2"
FD-1	FLOOR DRAIN			2"	1 1/2"
FS-1	FLOOR SINK	1/2"	1/2"	4"	2"
FS-2	FLOOR SINK	1/2"	1/2"	3"	1 1/2"
L-1	LAVATORY (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
L-2	LAVATORY (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
MB-1	MOP BASIN	3/4"	3/4"	3"	1 1/2"
SH-1	SHOWER	1/2"	1/2"	2"	1 1/2"
SK-1	SINK (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
SK-2	SINK (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
TD-1	TRENCH DRAIN				
UB-1	UTILITY WATER BOX	1/2"	-	-	-
UR-1	URINAL (ACCESSIBLE)			2"	1 1/2"
WC-1	WATER CLOSET (ACCESSIBLE)	1 1/2"	-	4"	2"
WC-1	WATER CLOSET (ACCESSIBLE)	1/2"	-	4"	2"

### PLUMBING SLOPE REQUIREMENTS:

BASED ON PLUMBING CODE: IPC-2018

<b>INTERIOR:</b>	
<b>SANITARY WASTE:</b>	≤2-1/2" = 1/4" PER FOOT ≥2-1/2" = 1/8" PER FOOT
<b>STORM (GRAVITY):</b>	1/8" PER FOOT
<b>CONDENSATE AND INDIRECT DRAINAGE:</b>	1/8" PER FOOT
<b>SANITARY AND GREASE VENT:</b>	NO SPECIFIC PITCH, PITCH TO FIXTURES
<b>DOMESTIC WATER:</b>	NO SPECIFIC PITCH, PITCH TO FIXTURES

### PLUMBING GENERAL NOTES:

- THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
- CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN.
- CONTRACTOR SHALL VERIFY THAT FIXTURES SUPPLIED ARE APPROVED PER ALL APPLICABLE STATE, LOCAL AND GOVERNING AUTHORITIES.
- ALL FIXTURES SHALL CONFORM TO FEDERAL ACT 5.3874
- INVERT ELEVATIONS ARE FROM EXISTING DRAWINGS AND MAY NOT BE ACCURATE. VERIFY ALL ELEVATIONS BEFORE BEGINNING WORK.
- VERIFY UNDERGROUND PIPE SIZES, INVERT ELEVATIONS, AND LOCATIONS PRIOR TO BEGINNING ANY WORK.
- REFER TO THE PLUMBING ROUGH-IN SCHEDULE FOR THE SIZES OF BRANCH PIPES TO PLUMBING FIXTURES.
- FOR CLARITY, NOT ALL VALVES HAVE BEEN SHOWN. PROVIDE SHUTOFF VALVES IN DOMESTIC WATER PIPING SERVING EACH ROOM WITH FIXTURES. ANGLE STOPS SHALL NOT BE CONSIDERED SHUTOFF VALVES.
- EXISTING CONDITIONS ON DEMOLITION PLANS ARE PROVIDED TO INDICATE THE GENERAL SCOPE OF ITEMS TO BE REMOVED. REFER TO SPECIFICATION SECTION 22 05 05 FOR ADDITIONAL DEMOLITION INFORMATION.
- P.C. SHALL CUT AND PATCH EXISTING AS REQUIRED FOR NEW OR DEMOLITION WORK UNLESS NOTED OTHERWISE. REFER TO SPECIFICATION SECTION 22 05 05 FOR ADDITIONAL INFORMATION.

### MECHANICAL GENERAL NOTES:

- THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, MEDICAL GAS, VENTILATION, PIPING AND TEMPERATURE CONTROL.
- DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
  - DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
  - COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE FABRICATION OR EQUIPMENT ORDERS.
  - REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
  - ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
  - EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
  - REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
  - EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
  - IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
  - SEAL ALL WALL, AND ROOF PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
  - CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
  - WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
  - EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
  - MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-6" IN FRONT OF ALL ELECTRICAL EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS.
  - MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING; DUCTWORK, PIPING, ETC.
  - PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
  - DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

### PLUMBING SHEET INDEX

P000	PLUMBING COVERSHEET
P201	FLOOR PLAN - UNDERFLOOR PLUMBING - EAST
P202	FLOOR PLAN - UNDERFLOOR PLUMBING - WEST
P203	FLOOR PLAN - UNDERFLOOR PLUMBING - FIRING RANGE - ALTERNATE #04
P211	FLOOR PLAN - PLUMBING - EAST
P212	FLOOR PLAN - PLUMBING - WEST
P213	FLOOR PLAN - PLUMBING - FIRING RANGE - ALTERNATE #04
P221	ROOF PLAN - PLUMBING - EAST
P222	ROOF PLAN - PLUMBING - WEST
P223	ROOF PLAN - PLUMBING - FIRING RANGE - ALTERNATE #04
P300	PLUMBING ENLARGED PLANS
P401	PLUMBING RISER DIAGRAMS - WASTE AND VENT
P402	PLUMBING RISER DIAGRAMS - DOMESTIC WATER
P403	PLUMBING RISER DIAGRAM - WASTE AND VENT - FIRING RANGE - ALTERNATE #04
P404	PLUMBING RISER DIAGRAM - DOMESTIC WATER - FIRING RANGE - ALTERNATE #04
P500	PLUMBING DETAILS
P501	PLUMBING DETAILS
P502	PLUMBING DETAILS
P600	PLUMBING SCHEDULES
P601	PLUMBING SCHEDULES
GRAND TOTAL: 20	

**IMEG** 1000 BALTIMORE  
SUITE 300  
KANSAS CITY, MO 64108  
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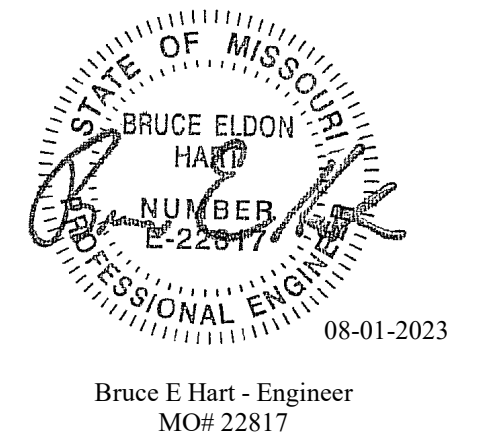
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0 1 2 3  
REF. SCALE IN INCHES PROJECT #22001285.00

STATE OF MISSOURI  
MIKE PARSON,  
GOVERNOR



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

Construction Managers  
816.421.8200 gastingerwalker.com

Interior Designers  
64105 816.421.8200

Architects  
817 Wyandotte  
Kansas City Missouri  
Project Number: 2022.1.52

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Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

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DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

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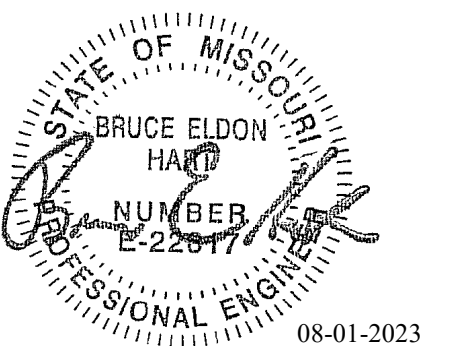
PLUMBING COVERSHEET

SHEET NUMBER:

**P000**

SHEET 116 OF 202

08/01/2023



Bruce E Hart - Engineer  
MO# 22817

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Project Number: 2022.15.2

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CAD DWG FILE: P201.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
FLOOR PLAN -  
UNDERFLOOR  
PLUMBING - EAST

SHEET NUMBER:

**P201**

SHEET 117 OF 202

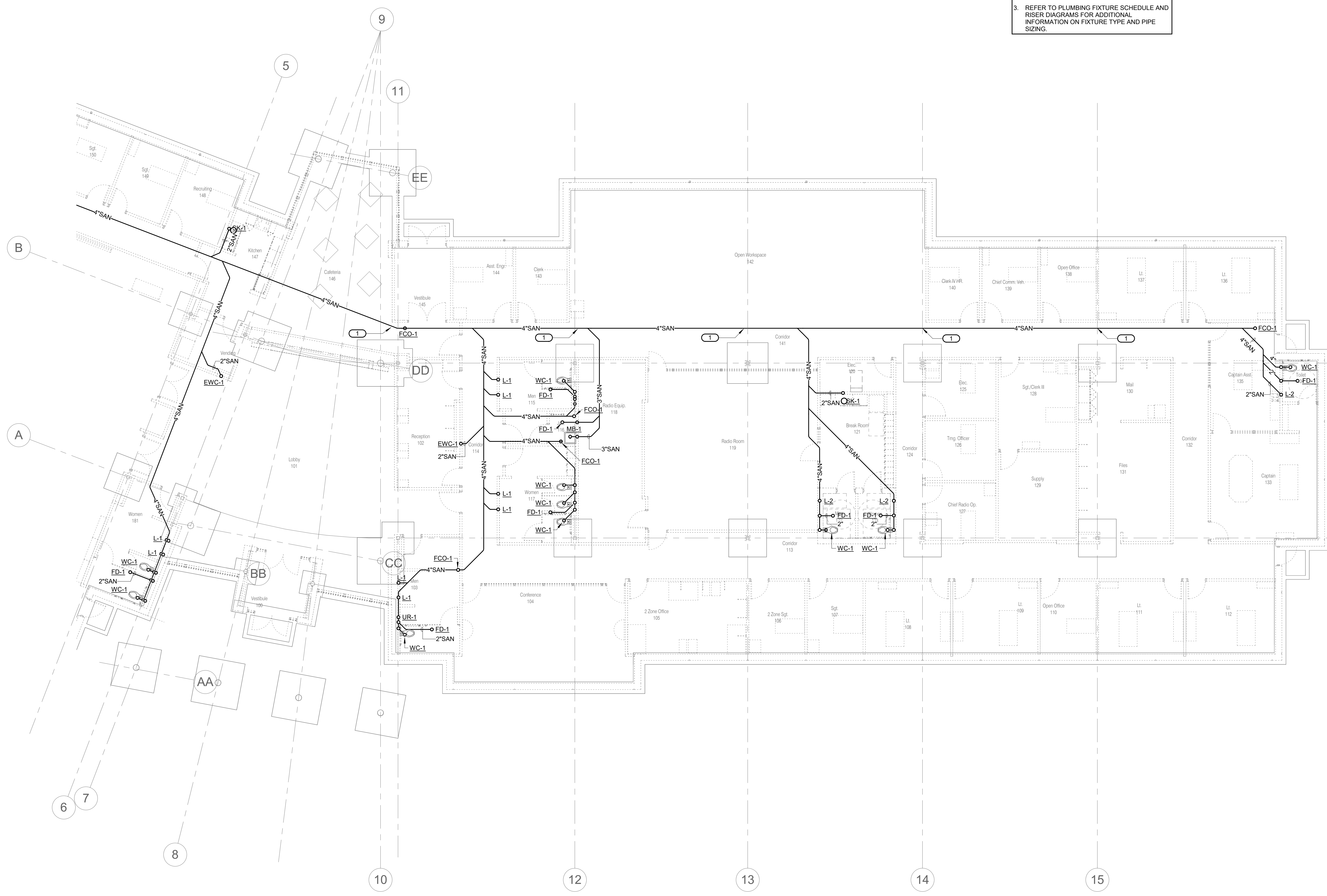
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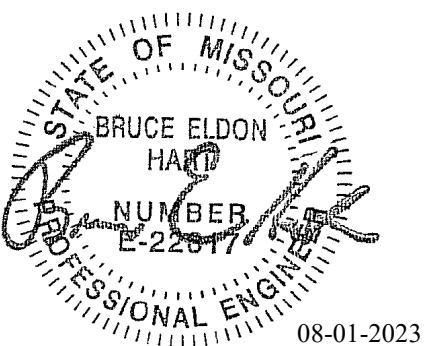
1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. ALL PIPING SHALL BE CONCEALED. SURFACE MOUNTED PIPING IS NOT ACCEPTABLE, UNLESS NOTED OTHERWISE.
3. REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION ON FIXTURE TYPE AND PIPE SIZING.

**KEYNOTES:** #

1. FIELD COORDINATE EXACT INVERT ELEVATIONS OF SANITARY DRAINAGE MAIN PIPING. MAINTAIN CLEARANCE FROM STRUCTURAL FOOTING.



**1 FLOOR PLAN - UNDERFLOOR PLUMBING - EAST**  
1/8" = 1'-0"  
0 2' 4' 8'  
NORTH



Bruce E Hart - Engineer  
 MO# 22817

**Gastinger Walker &**

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 REVISION:  
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 ISSUE DATE: 01 August 2023

CAD DWG FILE: P202.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN -  
 UNDERFLOOR  
 PLUMBING - WEST**

SHEET NUMBER:

**P202**

SHEET 118 OF 202

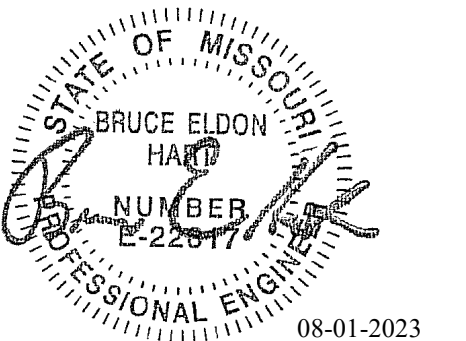
08/01/2023

- SHEET NOTES:**
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  - ALL PIPING SHALL BE CONCEALED. SURFACE MOUNTED PIPING IS NOT ACCEPTABLE, UNLESS NOTED OTHERWISE.
  - REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION ON FIXTURE TYPE AND PIPE SIZING.

- KEYNOTES: #**
- FIELD COORDINATE EXACT INVERT ELEVATIONS OF SANITARY DRAINAGE MAIN PIPING. MAINTAIN CLEARANCE FROM STRUCTURAL FOOTING.
  - TRENCH DRAIN LOCATION IS APPROXIMATE ONLY. COORDINATE FINAL POSITION OF TRENCH DRAIN FIXTURE IN SLAB WITH GENERAL CONTRACTOR AND GARAGE MAINTENANCE EQUIPMENT PLAN(S).
  - ROUTE NEW 4" SANITARY VENT FOR OIL/SAND SEPARATOR THRU ROOF.
  - CONNECT NEW 4" SANITARY VENT AND 4" SANITARY DRAIN TO OIL/SAND SEPARATOR BY CIVIL/SITE CONTRACTOR.
  - PLUMBING CONTRACTOR TO FIELD COORDINATE WITH GENERAL CONTRACTOR AND CIVIL SITE UTILITY CONTRACTOR FOR FINAL ROUTING AND CONNECTION OF MAINTENANCE GARAGE SANITARY LINE TO MAIN BUILDING SANITARY LINE.
  - EXTEND BUILDING SANITARY DRAINAGE MAIN PIPE TO CIVIL SITE DRAINAGE LINE AND COORDINATE FINAL CONNECTION, ROUTING AND INVERT ELEVATION WITH SITE UTILITY CONTRACTOR. REFER TO CIVIL SITE DRAWINGS FOR CONNECTION TO CITY SANITARY.
  - ROUTE NEW 3" DOMESTIC WATER SERVICE TO MECHANICAL ROOM - COORDINATE RISER LOCATION AND ROUTING WITH FIRE RISER ROOM EQUIPMENT. REFER TO SHEET P212 FOR CONTINUATION.
  - ROUTE NEW 4" NATURAL GAS SERVICE TO EXTERIOR MOUNTED METER. REFER TO SHEET P212 FOR CONTINUATION.
  - CIVIL SITE UTILITY CONTRACTOR TO EXTEND NEW 4" NATURAL GAS LINE BELOW GRADE FROM NEW SITE SERVICE CONNECTION TO METER ASSEMBLY AT BUILDING. COORDINATE REQUIREMENTS WITH CIVIL SITE UTILITY CONTRACTOR AND GAS UTILITY SERVICE PROVIDER.



**1 FLOOR PLAN - UNDERFLOOR PLUMBING - WEST**  
 1/8" = 1'-0"  
 0 2 4 8  
 NORTH



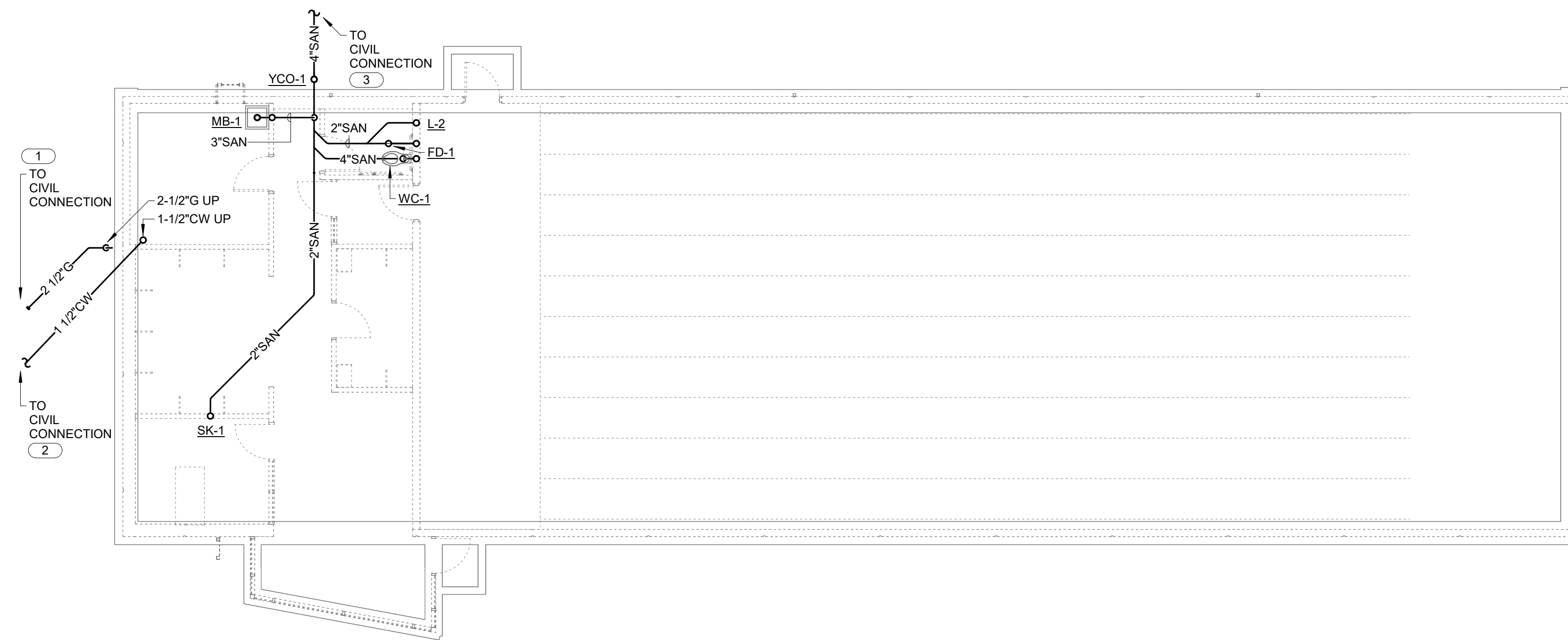
Bruce E Hart - Engineer  
 MO# 22817

**SHEET NOTES:**

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. ALL PIPING SHALL BE CONCEALED. SURFACE MOUNTED PIPING IS NOT ACCEPTABLE, UNLESS NOTED OTHERWISE.
3. REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR ADDITIONAL INFORMATION ON FIXTURE TYPE AND PIPE SIZING.
4. ALL WORK SHOWN ON THIS SHEET SHALL BE CLASSIFIED AS PROJECT ALTERNATE #4.

**KEYNOTES:** (E)

1. CIVIL SITE UTILITY CONTRACTOR TO EXTEND NEW 1-1/4" NATURAL GAS LINE BELOW GRADE FROM NEW SITE SERVICE CONNECTION TO METER ASSEMBLY AT BUILDING. COORDINATE REQUIREMENTS WITH CIVIL SITE UTILITY CONTRACTOR AND GAS UTILITY SERVICE PROVIDER.
2. EXTEND NEW 1-1/2" DOMESTIC COLD WATER PIPING BELOW GRADE TO CIVIL SITE CONNECTION. FIELD COORDINATE FINAL ROUTING AND ELEVATION WITH CIVIL SITE UTILITY CONTRACTOR. REFER TO CIVIL SITE DRAWINGS FOR CONTINUATION.
3. EXTEND BUILDING SANITARY DRAINAGE MAIN PIPE TO CIVIL SANITARY CONNECTION. COORDINATE FINAL ROUTING AND INVERT WITH ALL OTHER SITE UTILITIES. CONTRACTOR TO REFER TO CIVIL SITE DRAWINGS FOR FINAL CONNECTION LOCATION.



1 FLOOR PLAN - UNDERFLOOR PLUMBING - FIRING RANGE -  
 ALTERNATE #04  
 1/8" = 1'-0" 0 2' 4' 8' NORTH

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 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.152

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Project Name:  
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1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
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 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: P201A.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

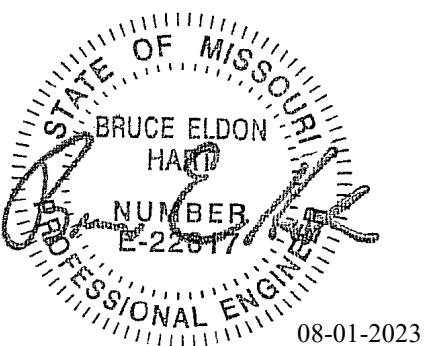
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**FLOOR PLAN -  
 UNDERFLOOR  
 PLUMBING - FIRING  
 RANGE - ALTERNATE #04**

SHEET NUMBER:

**P203**

SHEET 119 OF 202

08/01/2023



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

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Project Number: 2022.152

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REVISION:  
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ISSUE DATE: 01 August 2023

CAD DWG FILE: P211.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
FLOOR PLAN -  
PLUMBING - EAST

SHEET NUMBER:

**P211**

SHEET 120 OF 202

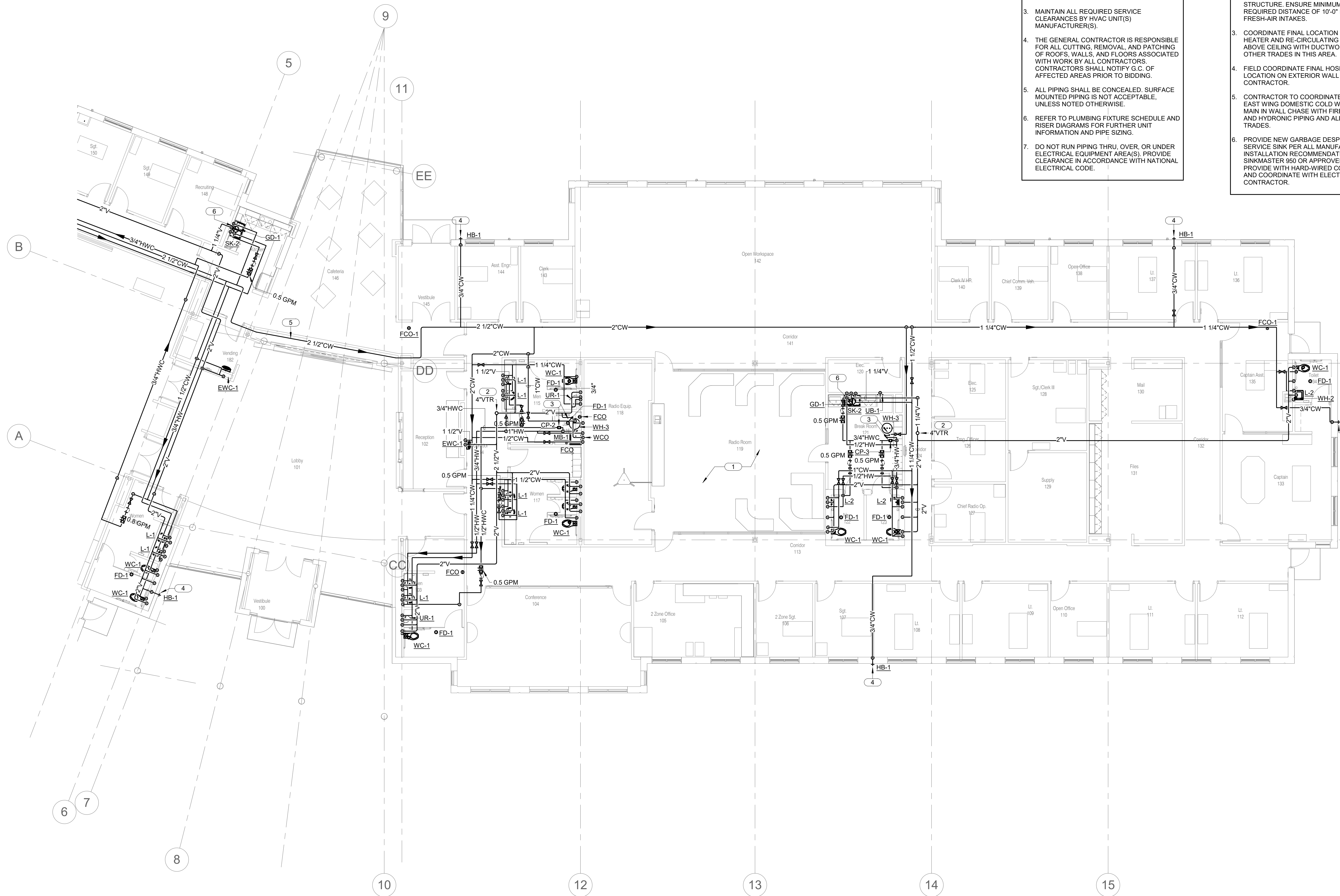
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**SHEET NOTES:**

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
3. MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
5. ALL PIPING SHALL BE CONCEALED. SURFACE MOUNTED PIPING IS NOT ACCEPTABLE, UNLESS NOTED OTHERWISE.
6. REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR FURTHER UNIT INFORMATION AND PIPE SIZING.
7. DO NOT RUN PIPING THRU, OVER, OR UNDER ELECTRICAL EQUIPMENT AREA(S), PROVIDE CLEARANCE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

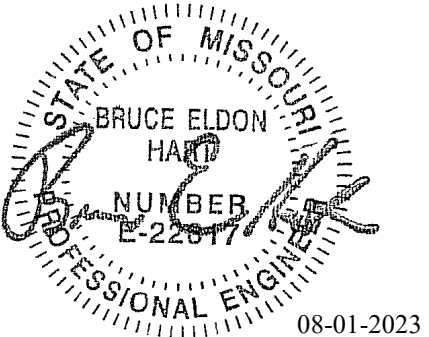
**KEYNOTES: #**

1. ALL VENT PIPING TO BE INSTALLED SUSPENDED BELOW THE BOTTOM OF THE ROOF TRUSSES. ELECTRICAL CONDUITS WILL BE INSTALLED DIRECTLY TO THE BOTTOM OF THE ROOF TRUSSES, AS HIGH AS POSSIBLE. COORDINATE ROUTING IN FIELD WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
2. ROUTE NEW 4" VENT THROUGH ROOF - FIELD COORDINATE FINAL LOCATION WITH ROOF STRUCTURE. ENSURE MINIMUM CODE REQUIRED DISTANCE OF 10'-0" FROM ALL FRESH-AIR INTAKES.
3. COORDINATE FINAL LOCATION OF WATER HEATER AND RE-CIRCULATING PUMP UNIT ABOVE CEILING WITH DUCTWORK AND ALL OTHER TRADES IN THIS AREA.
4. FIELD COORDINATE FINAL HOSE-BIBB LOCATION ON EXTERIOR WALL WITH GENERAL CONTRACTOR.
5. CONTRACTOR TO COORDINATE ROUTING OF EAST WING DOMESTIC COLD WATER SUPPLY MAIN IN WALL CHASE WITH FIRE PROTECTION AND HYDRONIC PIPING AND ALL OTHER TRADES.
6. PROVIDE NEW GARBAGE DISPOSAL UNIT IN SERVICE SINK PER ALL MANUFACTURER INSTALLATION RECOMMENDATIONS - SINKMASTER 950 OR APPROVED EQUAL. PROVIDE WITH HARD-WIRED CONNECTION AND COORDINATE WITH ELECTRICAL CONTRACTOR.



**1 FLOOR PLAN - PLUMBING - EAST**  
1/8" = 1'-0"  
0 2' 4' 8'  
NORTH





Bruce E Hart - Engineer  
 MO# 22817

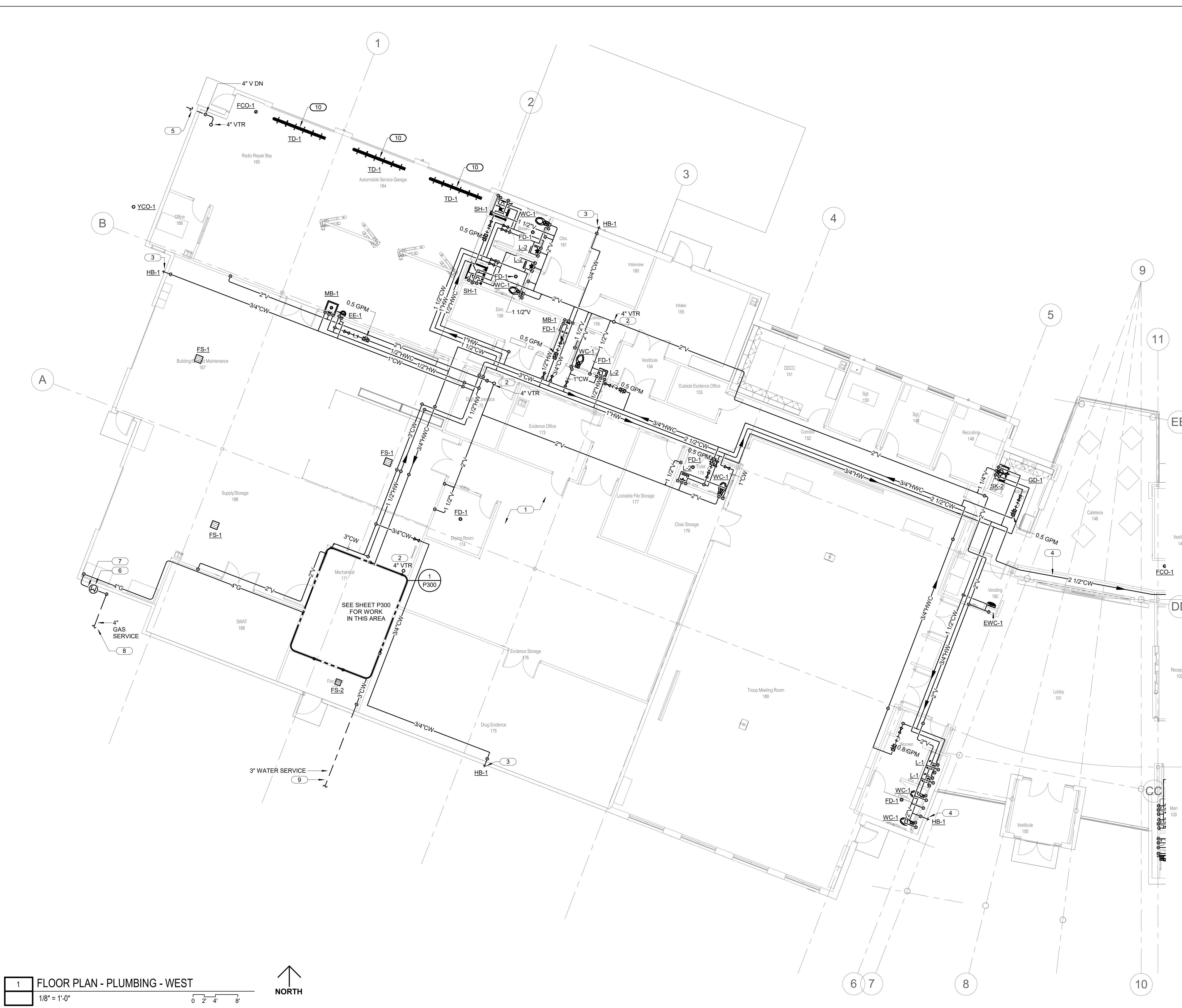
**Gastinger Walker &**

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 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com

Project Number: 2022.152

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  - MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
  - THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
  - ALL PIPING SHALL BE CONCEALED. SURFACE MOUNTED PIPING IS NOT ACCEPTABLE, UNLESS NOTED OTHERWISE.
  - REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR FURTHER UNIT INFORMATION AND PIPE SIZING.
  - DO NOT RUN PIPING THRU, OVER, OR UNDER ELECTRICAL EQUIPMENT AREA(S). PROVIDE CLEARANCE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

- KEYNOTES: #**
- ALL VENT PIPING TO BE INSTALLED SUSPENDED BELOW THE BOTTOM OF THE ROOF TRUSSES. ELECTRICAL CONDUITS WILL BE INSTALLED DIRECTLY TO THE BOTTOM OF THE ROOF TRUSSES, AS HIGH AS POSSIBLE. COORDINATE ROUTING IN FIELD WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
  - ROUTE NEW 4" VENT THROUGH ROOF - FIELD COORDINATE FINAL LOCATION WITH ROOF STRUCTURE. ENSURE MINIMUM CODE REQUIRED DISTANCE OF 10'-0" FROM ALL FRESH-AIR INTAKES.
  - FIELD COORDINATE FINAL HOSE-BIBB LOCATION ON EXTERIOR WALL WITH GENERAL CONTRACTOR.
  - CONTRACTOR TO COORDINATE ROUTING OF EAST WING DOMESTIC COLD WATER SUPPLY MAIN IN WALL CHASE WITH FIRE PROTECTION AND HYDRONIC PIPING AND ALL OTHER TRADES.
  - ROUTE NEW 4" SANITARY VENT PIPING BELOW GRADE TO OIL-SAND SEPARATOR BY OTHERS. REFER TO SHEET P202 FOR CONTINUATION.
  - NEW BUILDING GAS METER - INSTALL ACCORDING TO ALL STANDARDS AND REQUIREMENTS OF THE NATURAL GAS UTILITY. CONTRACTOR TO COORDINATE EXACT METER SIZE AND ALL NECESSARY ACCESSORIES FOR INSTALLATION. PROVIDE SHUT-OFF VALVE FOR NEW GAS PIPING INSIDE OF BUILDING. DOWNSTREAM GAS PIPE SIZING BASED ON TABLE 402.4(2) OF THE 2018 IFGC. 7" W.C. DISCHARGE PRESSURE. 120' EQUIVALENT PIPE LENGTH AND 3300 CFH (MBH) TOTAL LOAD. VERIFY ROUTING AND PRESSURE WITH UTILITY PRIOR TO START OF WORK.
  - ALL EXPOSED NATURAL GAS PIPING TO BE PAINTED TO MATCH BUILDING EXTERIOR. COORDINATE WITH GENERAL CONTRACTOR.
  - CIVIL SITE UTILITY CONTRACTOR TO EXTEND NEW 4" NATURAL GAS LINE BELOW GRADE FROM NEW SITE SERVICE CONNECTION TO METER ASSEMBLY AS SHOWN. VERIFY REQUIREMENTS WITH CIVIL SITE CONTRACTOR AND NATURAL GAS UTILITY PROVIDER.
  - EXTEND 3" DOMESTIC WATER PIPING BRANCH BELOW GRADE TO NEW SITE SERVICE CONNECTION. FIELD COORDINATE FINAL ROUTING AND ELEVATION WITH CIVIL SITE UTILITY CONTRACTOR. REFER TO CIVIL DRAWINGS FOR FURTHER INFORMATION.
  - CONTRACTOR TO CENTER TRENCH DRAIN UNIT IN GARAGE DOOR BAY. COORDINATE FINAL LOCATION WITH GENERAL CONTRACTOR AND STRUCTURAL DRAWINGS, AND SLAB SLOPING REQUIREMENTS.



**1 FLOOR PLAN - PLUMBING - WEST**  
 1/8" = 1'-0"  
 NORTH

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 Missouri Certificate of Authority: #F001325536

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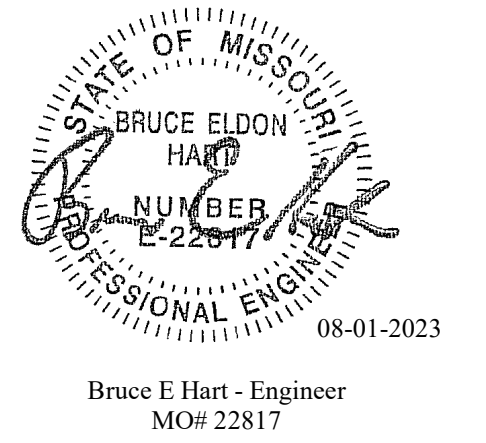
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 FACILITY # 8136018019

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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: P212.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN -  
 PLUMBING - WEST**

SHEET NUMBER:  
**P212**  
 SHEET 121 OF 202  
 08/01/2023



Bruce E Hart - Engineer  
 MO# 22817

**Gastinger Walker &**

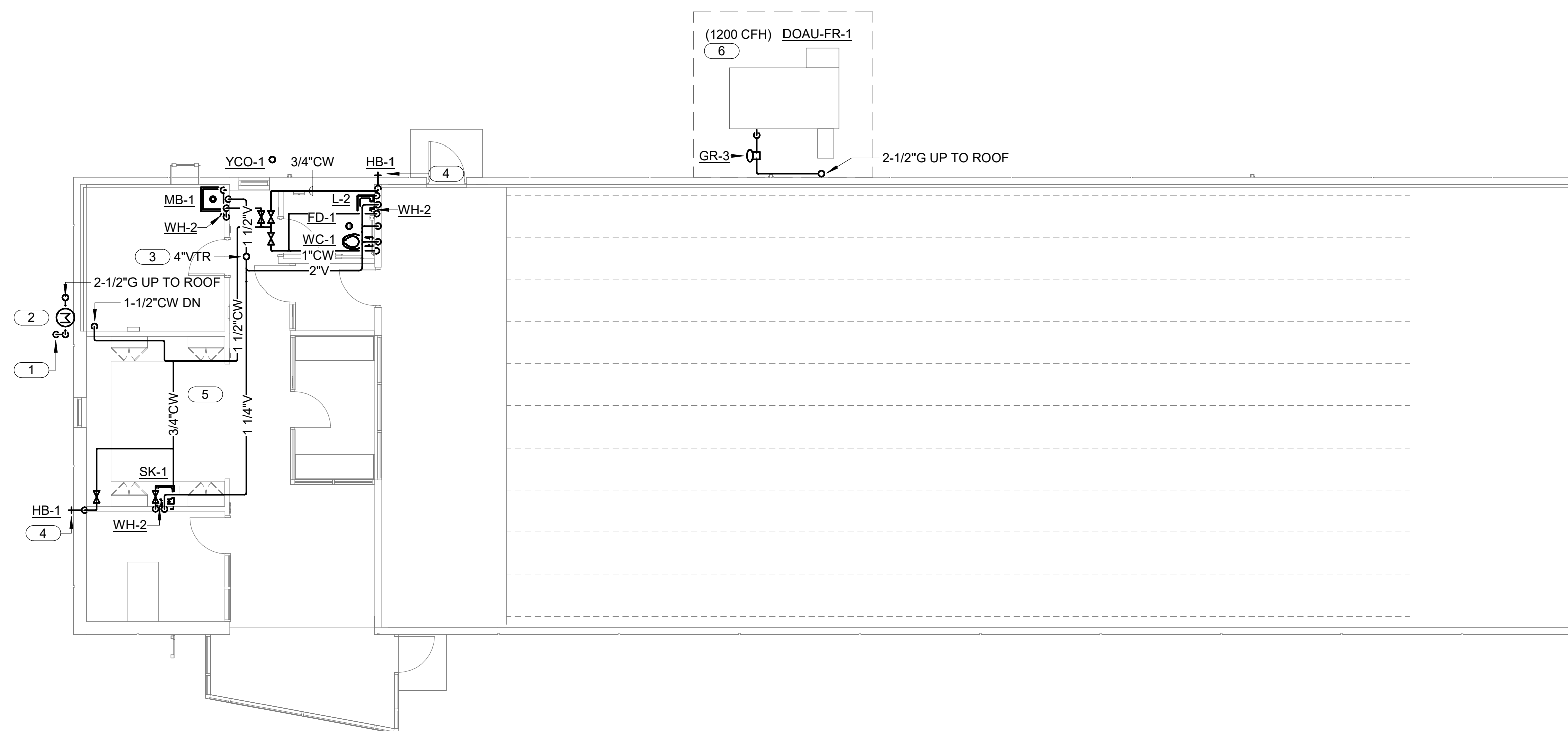
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 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.15.2

**SHEET NOTES:**

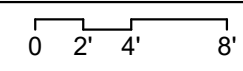
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- DO NOT RUN PIPING THRU. OVER, OR UNDER ELECTRICAL EQUIPMENT AREA(S). PROVIDE CLEARANCE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.
- ALL WORK SHOWN ON THIS SHEET SHALL BE CLASSIFIED AS PROJECT ALTERNATE #4.

**KEYNOTES: (E)**

- CIVIL SITE UTILITY CONTRACTOR TO EXTEND NEW 1-1/2" NATURAL GAS LINE BELOW GRADE FROM NEW SITE SERVICE CONNECTION TO METER ASSEMBLY AS SHOWN. VERIFY REQUIREMENTS WITH CIVIL SITE CONTRACTOR AND NATURAL GAS UTILITY PROVIDER.
- NEW BUILDING GAS METER - INSTALL ACCORDING TO ALL STANDARDS AND REQUIREMENTS OF THE NATURAL GAS UTILITY. CONTRACTOR TO COORDINATE EXACT METER SIZE AND ALL NECESSARY ACCESSORIES FOR INSTALLATION. PROVIDE SHUT-OFF VALVE FOR NEW GAS PIPING INSIDE OF BUILDING. DOWNSTREAM GAS PIPE SIZING BASED ON TABLE 402.4(2) OF THE 2018 IFGC. 7" W.C. DISCHARGE PRESSURE, 125' EQUIVALENT PIPE LENGTH AND 1250 CFH (MBH) TOTAL LOAD. VERIFY ROUTING AND PRESSURE WITH UTILITY PRIOR TO START OF WORK.
- ROUTE NEW 4" VENT THROUGH ROOF - FIELD COORDINATE FINAL LOCATION WITH ROOF STRUCTURE. ENSURE MINIMUM CODE REQUIRED DISTANCE OF 10'-0" FROM ALL FRESH-AIR INTAKES.
- FIELD COORDINATE FINAL HOSE-BIBB LOCATION ON EXTERIOR WALL WITH GENERAL CONTRACTOR.
- ALL VENT PIPING TO BE INSTALLED SUSPENDED BELOW THE BOTTOM OF THE ROOF TRUSSES. ELECTRICAL CONDUITS WILL BE INSTALLED DIRECTLY TO THE BOTTOM OF THE ROOF TRUSSES, AS HIGH AS POSSIBLE. COORDINATE ROUTING IN FIELD WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
- GRADE MOUNTED DEDICATED OUTSIDE AIR UNIT. FIELD COORDINATE FINAL INSTALLATION LOCATION OF GAS PIPING WITH MECHANICAL CONTRACTOR AND GENERAL CONTRACTOR AND CIVIL SITE CONTRACTOR. PROVIDE BRANCH PRESSURE REGULATOR.



1 FLOOR PLAN - PLUMBING - FIRING RANGE - ALTERNATE #04  
 1/8" = 1'-0"



IMEG, CORP.  
 Missouri Certificate of Authority: #F001325536

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 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION**

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: P213.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

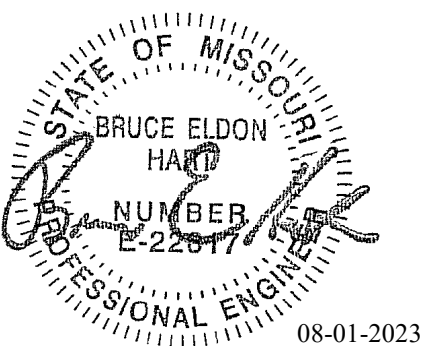
SHEET TITLE:  
 FLOOR PLAN -  
 PLUMBING - FIRING  
 RANGE - ALTERNATE #04

SHEET NUMBER:

**P213**

SHEET 122 OF 202

08/01/2023



Bruce E Hart - Engineer  
 MO# 22817

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.152

IMEG, CORP.  
 Missouri Certificate of Authority: #F001325536

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REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: P221.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**ROOF PLAN - PLUMBING  
 - EAST**

SHEET NUMBER:

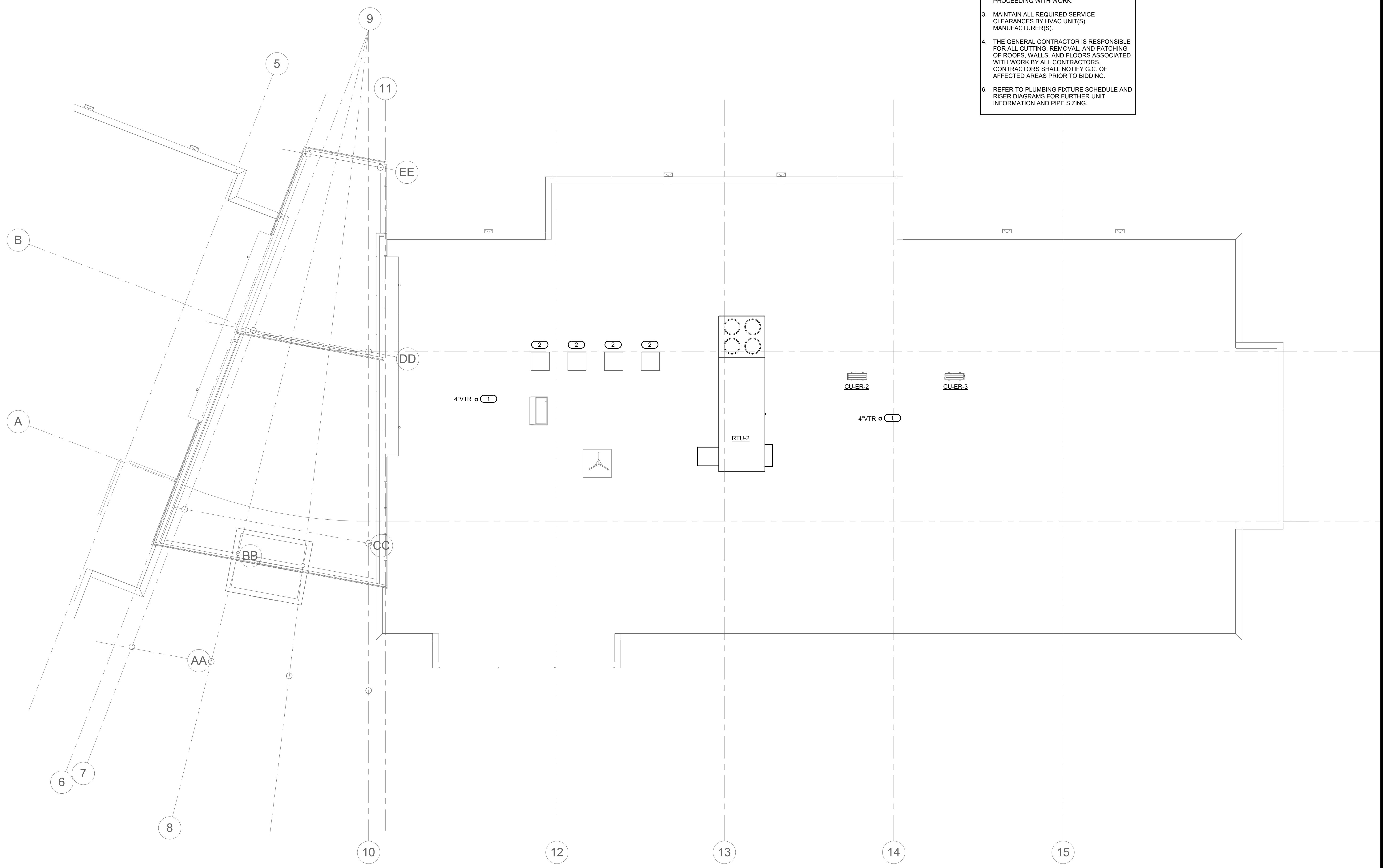
**P221**

SHEET 123 OF 202

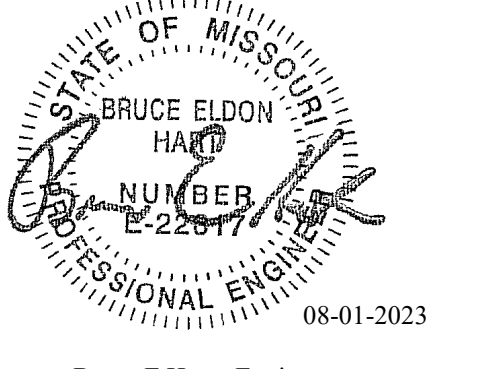
08/01/2023

- SHEET NOTES:**
1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  2. NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
  3. MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
  4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
  6. REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR FURTHER UNIT INFORMATION AND PIPE SIZING.

- KEYNOTES: (#)**
1. CONTRACTOR TO COORDINATE FINAL PENETRATION LOCATION FOR VENT THRU ROOF. SEE PLUMBING DETAILS FOR FURTHER INFORMATION.
  2. OWNER PROVIDED DATA ROOM CONDENSING UNIT - REFER TO MECHANICAL DRAWINGS FOR FURTHER INFORMATION.



1 ROOF PLAN - PLUMBING - EAST  
 1/8" = 1'-0"  
 0 2' 4' 8'  
 NORTH



Bruce E Hart - Engineer  
MO# 22817

# Gastinger Walker &

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
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IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

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Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: P222.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**ROOF PLAN - PLUMBING  
- WEST**

SHEET NUMBER:

## P222

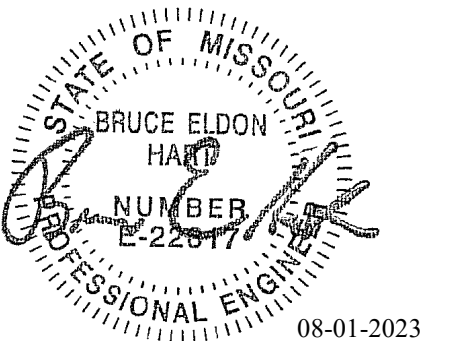
SHEET 124 OF 202  
08/01/2023

- SHEET NOTES:**
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  - NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
  - MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
  - THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
  - REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR FURTHER UNIT INFORMATION AND PIPE SIZING.

- KEYNOTES: #**
- CONTRACTOR TO COORDINATE FINAL PENETRATION LOCATION FOR VENT THRU ROOF. SEE PLUMBING DETAILS FOR FURTHER INFORMATION.



1 ROOF PLAN - PLUMBING - WEST  
1/8" = 1'-0"  
0 2' 4' 8'  
NORTH



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

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REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: P223.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**ROOF PLAN - PLUMBING  
- FIRING RANGE -  
ALTERNATE #04**

SHEET NUMBER:

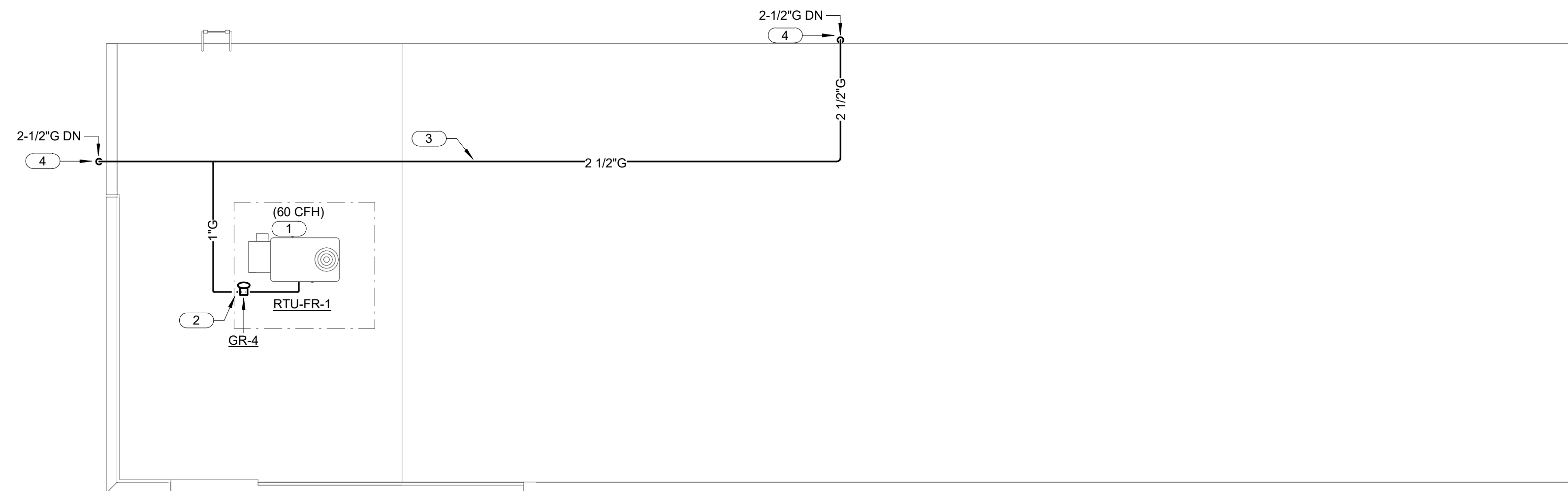
**P223**

SHEET 125 OF 202

08/01/2023

- SHEET NOTES:**
1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  2. NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
  3. MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
  4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
  6. REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR FURTHER UNIT INFORMATION AND PIPE SIZING.
  7. ALL WORK SHOWN ON THIS SHEET SHALL BE CLASSIFIED AS PROJECT ALTERNATE #4.

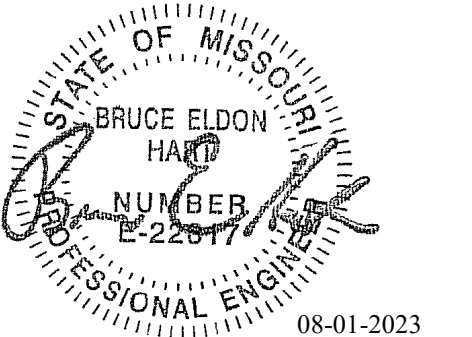
- KEYNOTES: (#)**
1. GAS-FIRED ROOFTOP UNIT, REFER TO ROOFTOP UNIT SCHEDULE ON SHEET M601 FOR LOAD INFORMATION.
  2. EXTEND AND CONNECT NEW NATURAL GAS PIPING TO ROOFTOP UNIT, PROVIDE BRANCH PRESSURE REGULATOR. REFER TO MECHANICAL DETAILS FOR FURTHER INFORMATION.
  3. CONTRACTOR TO PAINT ALL ROOF-MOUNTED NATURAL GAS PIPING SAFETY YELLOW. REFER TO MECHANICAL DETAIL 5/M501 FOR ROOF-MOUNTED PIPING SUPPORT DETAIL.
  4. NATURAL GAS PIPING RISER DOWN TO FLOOR BELOW. CONTRACTOR TO PAINT ALL PIPING MOUNTED ON EXTERIOR WALL TO MATCH BUILDING COLOR. COORDINATE WITH GENERAL CONTRACTOR.



1 ROOF PLAN - PLUMBING - FIRING RANGE - ALTERNATE #04  
1/8" = 1'-0"

0 2' 4' 8'





Bruce E Hart - Engineer  
MO# 22817

# Gastinger Walker &

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817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

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Missouri Certificate of Authority: #F001325536

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Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: P300.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**PLUMBING ENLARGED  
PLANS**

SHEET NUMBER:

# P300

SHEET 126 OF 202

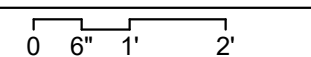
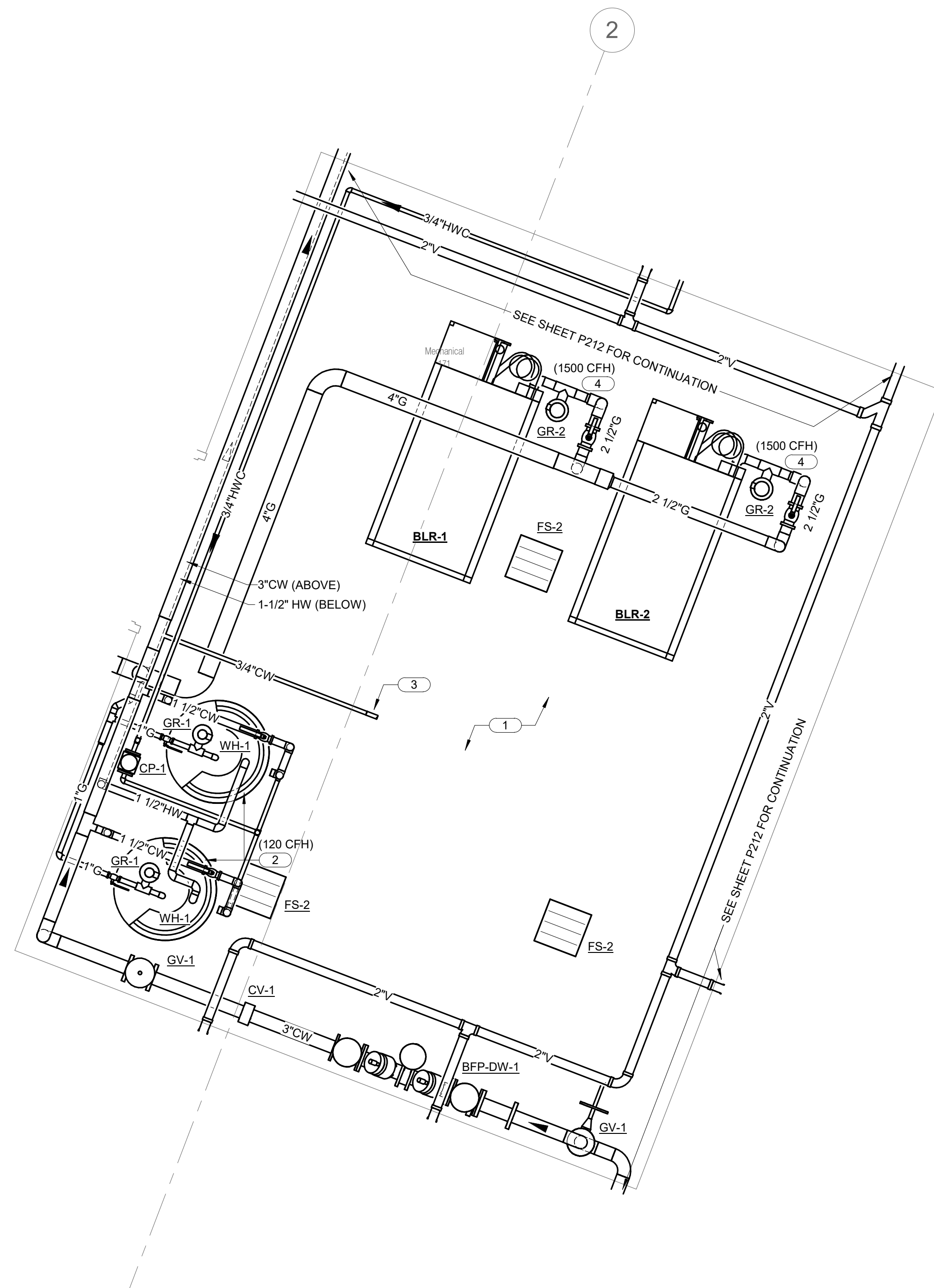
08/01/2023

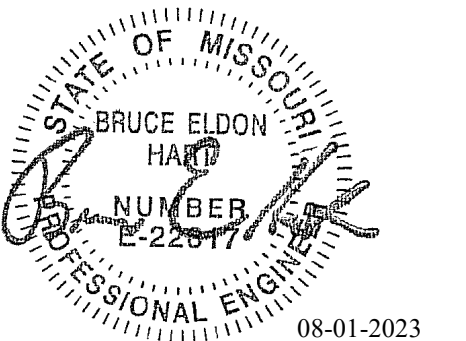
**SHEET NOTES:**

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
- MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
- REFER TO PLUMBING FIXTURE SCHEDULE AND RISER DIAGRAMS FOR FURTHER UNIT INFORMATION AND PIPE SIZING.
- PROVIDE WRAP INSULATION FOR PROPER FLAME SPREAD AND SMOKE RATING OF RETURN AIR PLENUM ON ALL SANITARY PIPING IN RETURN AIR PLENUM.
- DO NOT RUN PIPING THRU, OVER, OR UNDER ELECTRICAL EQUIPMENT AREA(S). PROVIDE CLEARANCE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

**KEYNOTES: (#)**

- ALL VENT PIPING TO BE INSTALLED SUSPENDED BELOW THE BOTTOM OF THE ROOF TRUSSES. ELECTRICAL CONDUITS WILL BE INSTALLED DIRECTLY TO THE BOTTOM OF THE ROOF TRUSSES, AS HIGH AS POSSIBLE. COORDINATE ROUTING IN FIELD WITH ALL OTHER TRADES PRIOR TO INSTALLATION.
- REFER TO DETAIL 1/P502 FOR WATER HEATER PIPING IN THIS AREA. CONTRACTOR TO PROVIDE GAS SHUT-OFF VALVES AND BRANCH PRESSURE REGULATORS. PROVIDE ALL WATER PIPING ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR TO EXTEND DOMESTIC WATER FILL LINE AND CONNECT TO HYDRONIC HEATING SYSTEM. PROVIDE BACKFLOW PREVENTER. REFER TO MECHANICAL DRAWINGS AND COORDINATE WITH MECHANICAL CONTRACTOR FOR CONNECTION LOCATION.
- EXTEND AND CONNECT NEW GAS BRANCH LINES TO HYDRONIC BOILERS - PROVIDE SHUT OFF VALVES AND BRANCH PRESSURE REGULATORS.





Bruce E Hart - Engineer  
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 Project Number: 2022.15.2

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 Missouri Certificate of Authority: #F001325536

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 DESIGN AND  
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Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: P401.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

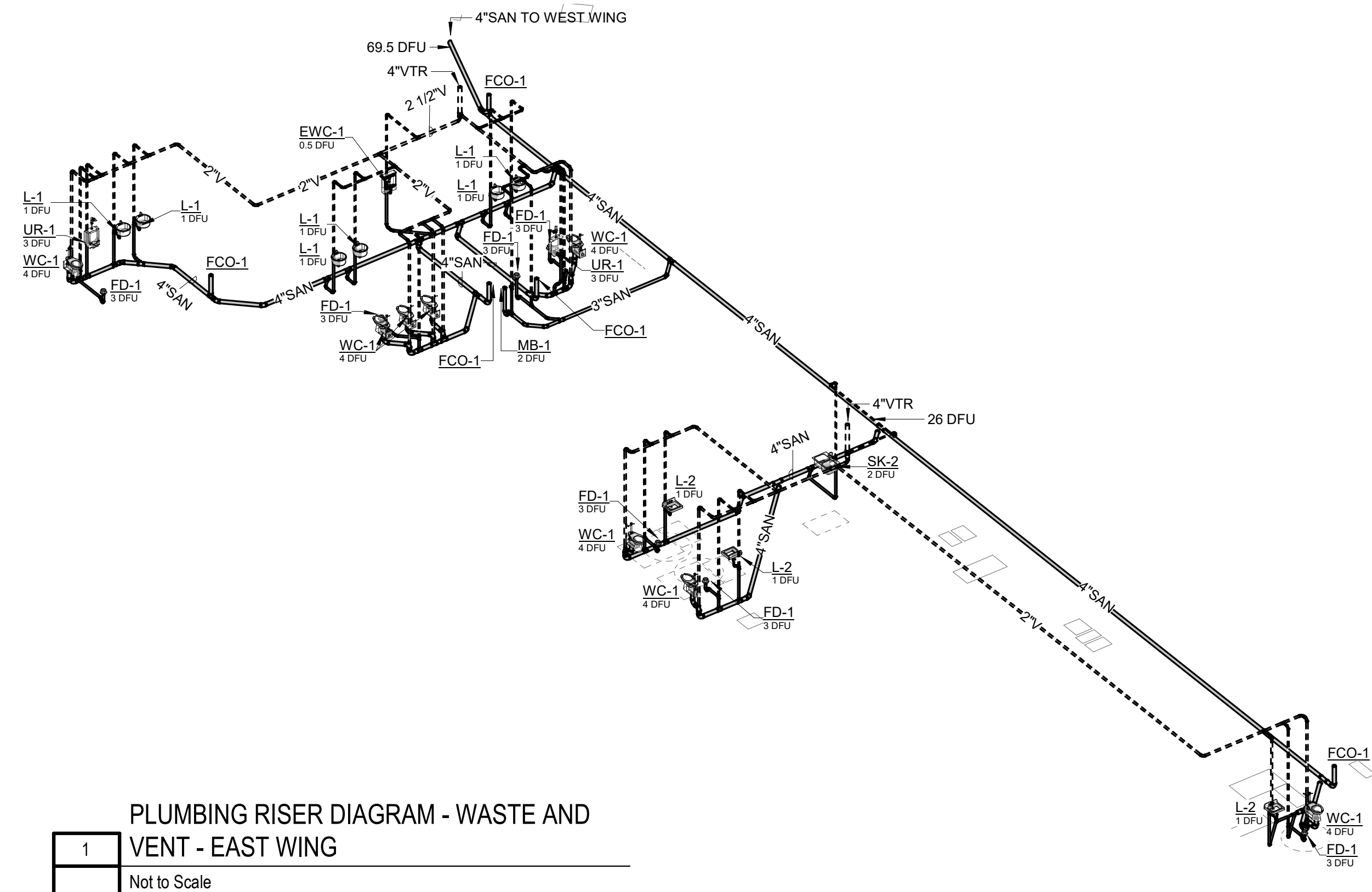
SHEET TITLE:  
**PLUMBING RISER  
 DIAGRAMS - WASTE AND  
 VENT**

SHEET NUMBER:

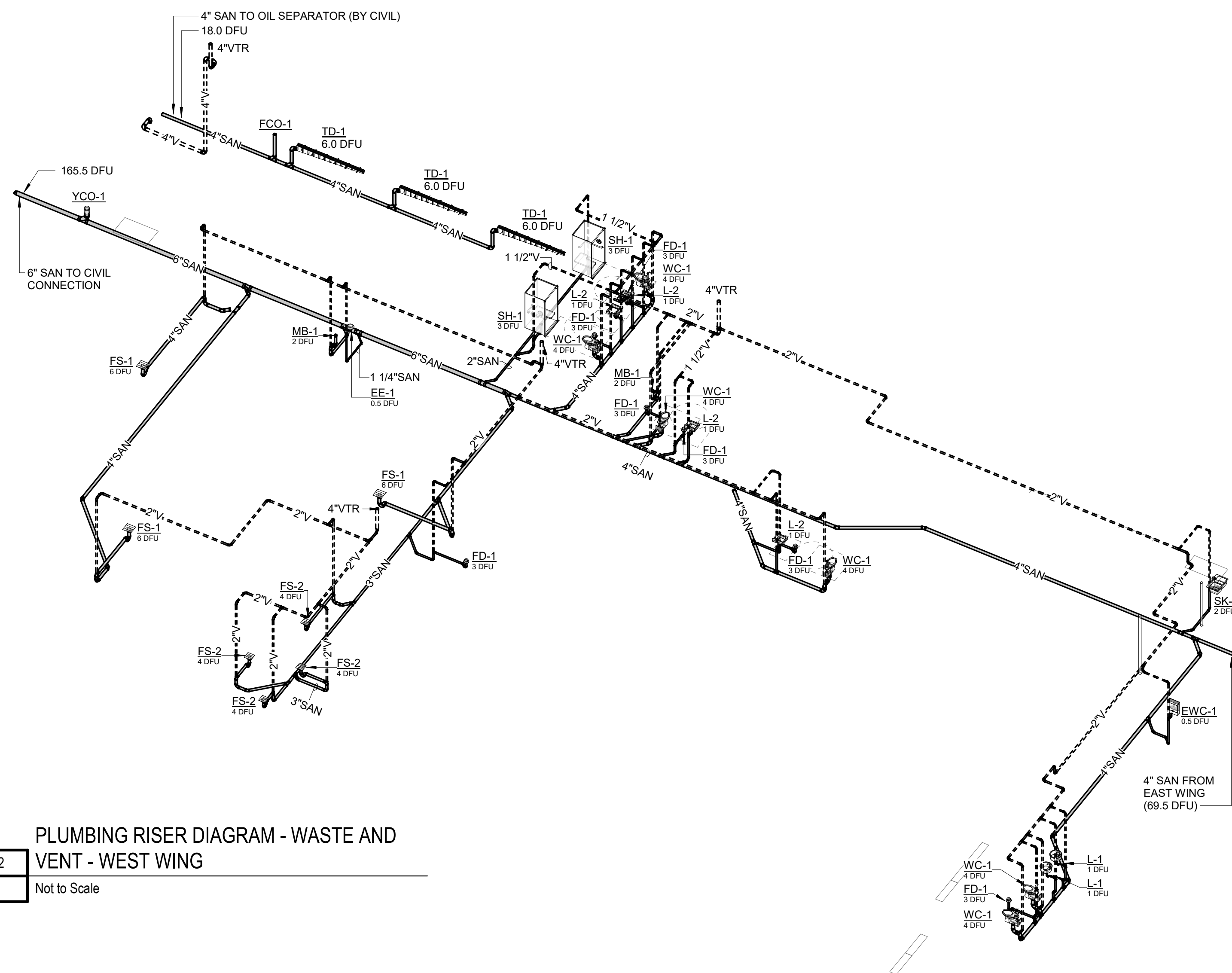
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SHEET 127 OF 202

08/01/2023



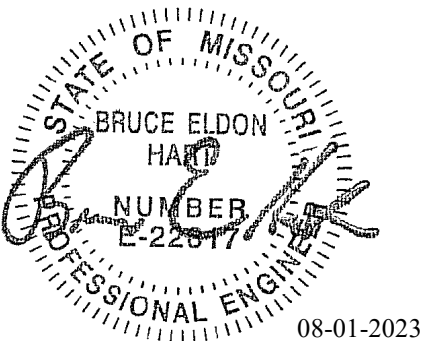
1 PLUMBING RISER DIAGRAM - WASTE AND VENT - EAST WING  
 Not to Scale



2 PLUMBING RISER DIAGRAM - WASTE AND VENT - WEST WING  
 Not to Scale

**SANITARY DRAINAGE FIXTURES  
 BASED ON 2018 INTERNATIONAL PLUMBING CODE**

DESIGN ID	FIXTURE DESCRIPTION	COUNT	TOTAL D.F.U.	
			FIXTURE UNITS	TOTAL D.F.U.
EE-1	EMERGENCY EYEWASH STATION	1	0.5	0.5
EWC-1	ELECTRIC WATER COOLER	2	0.5	1.0
FD-1	2" FLOOR DRAIN	13	3.0	39.0
FS-1	4" FLOOR SINK	3	6.0	18.0
FS-2	3" FLOOR SINK	4	4.0	16.0
L-1	RECESSED COUNTER LAVATORY	8	1.0	8.0
L-2	WALL-MOUNTED LAVATORY	7	1.0	7.0
MB-1	MOP SINK	2	2.0	4.0
SK-2	SERVICE SINK	2	2.0	4.0
SH-1	SHOWER	2	3.0	6.0
WC-1	WATER CLOSET (FLUSH TYPE)	14	4.0	56.0
UR-1	URINAL	2	3.0	6.0
TOTAL =				165.5



Bruce E Hart - Engineer  
 MO# 22817

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Project Name:  
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 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: P402.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

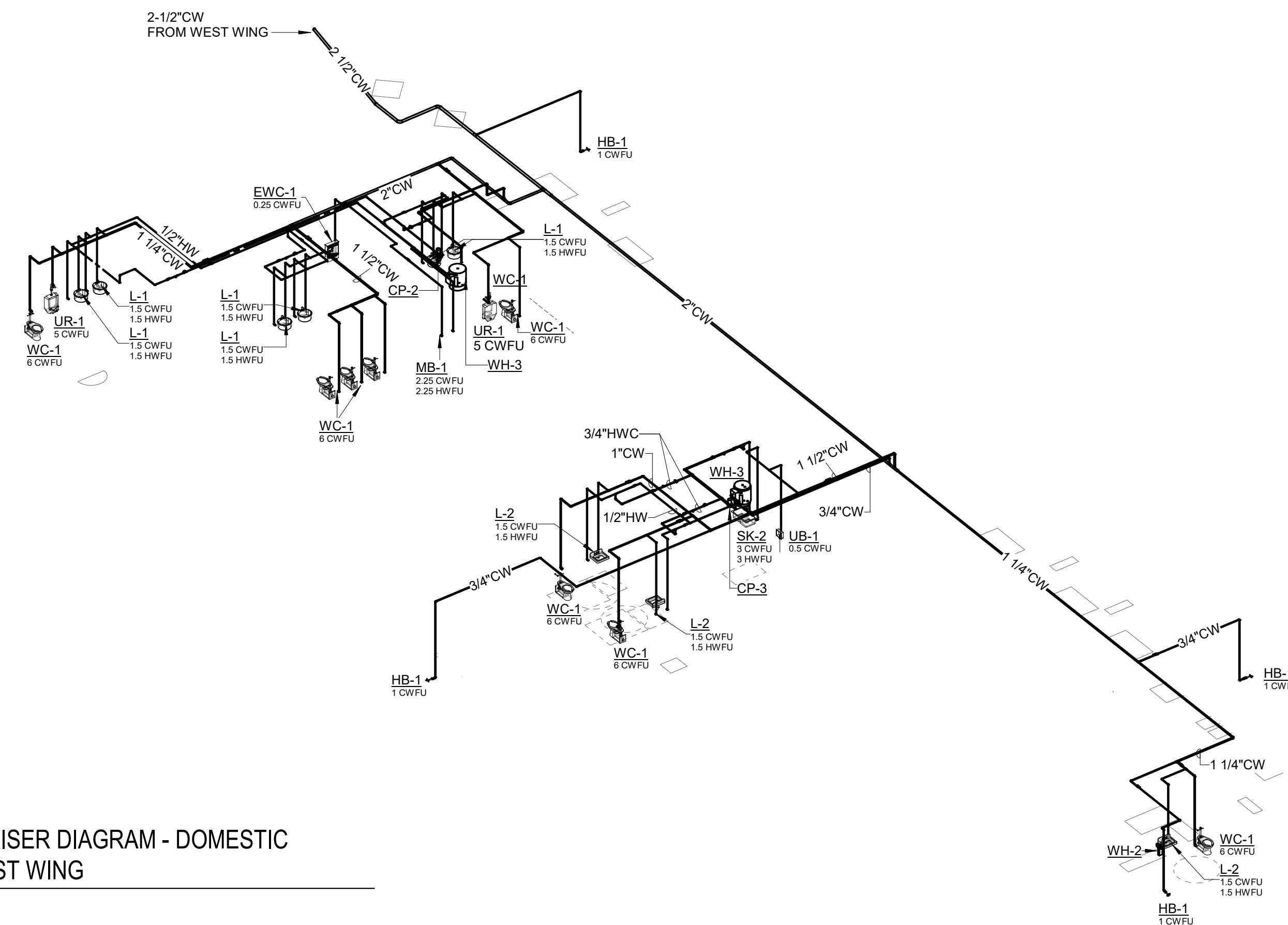
SHEET TITLE:  
**PLUMBING RISER  
 DIAGRAMS - DOMESTIC  
 WATER**

SHEET NUMBER:

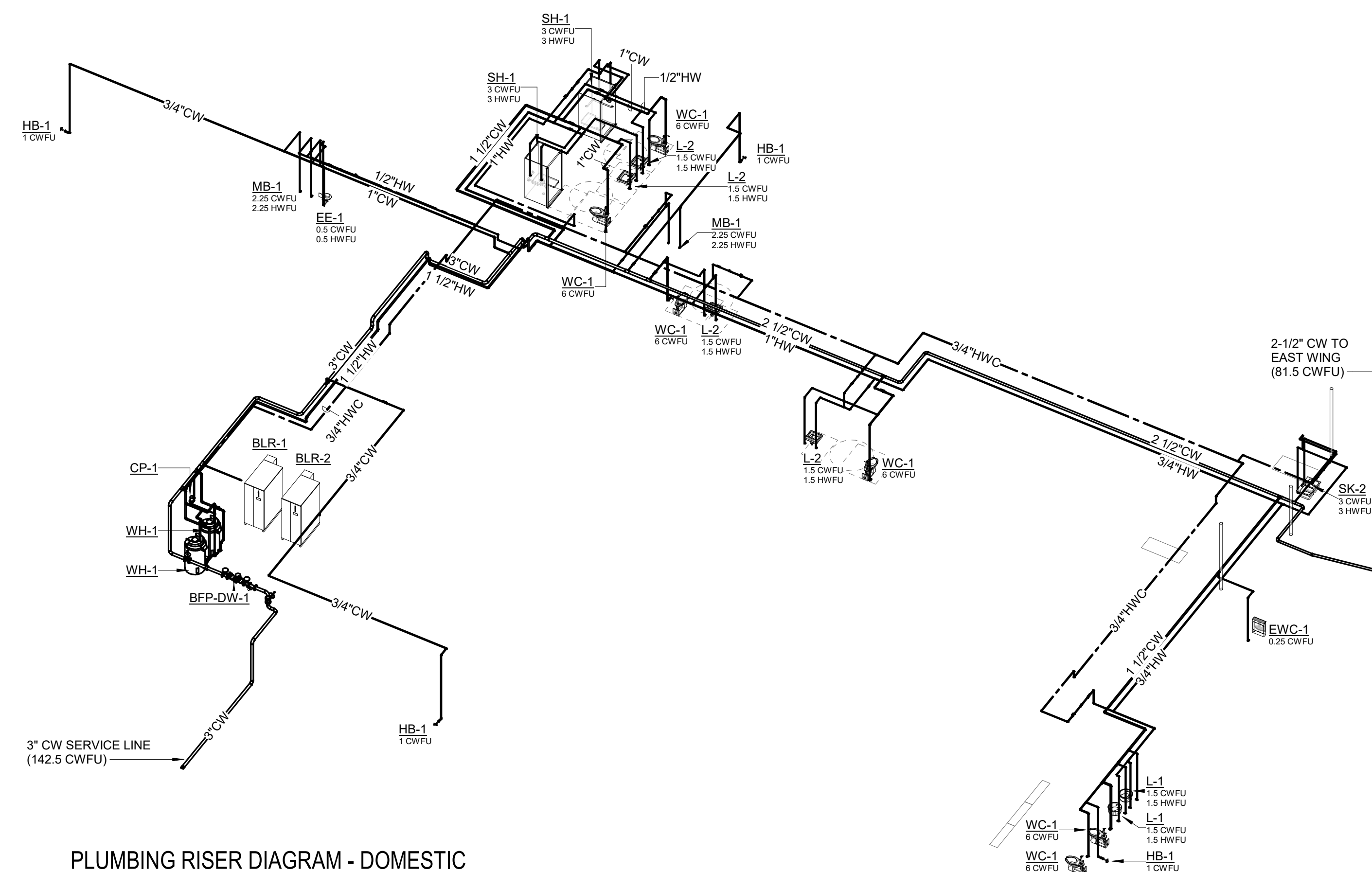
**P402**

SHEET 128 OF 202

08/01/2023



1 PLUMBING RISER DIAGRAM - DOMESTIC  
 WATER - EAST WING  
 Not to Scale



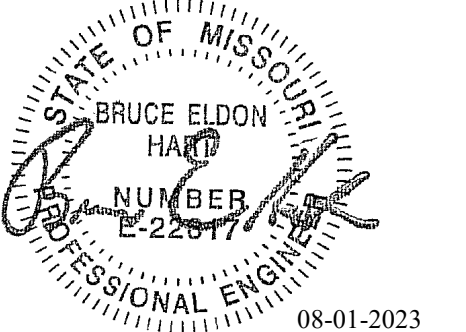
2 PLUMBING RISER DIAGRAM - DOMESTIC  
 WATER AND GAS - WEST WING  
 Not to Scale

DOMESTIC WATER FIXTURES  
 BASED ON 2018 INTERNATIONAL PLUMBING CODE

DESIGN ID	FIXTURE DESCRIPTION	COUNT	FIXTURE UNITS		TOTAL F.U.	
			CW	HW	CW	HW
EE-1	EMERGENCY EYEWASH STATION	1	0.5	0.5	0.5	0.5
EWC-1	ELECTRIC WATER COOLER	2	0.25	-	0.5	-
HB-1	HOSE BIBB - EXTERIOR	8	1.0	-	8.0	-
L-1	RECESSED COUNTER LAVATORY	8	1.5	1.5	12.0	12.0
L-2	WALL-MOUNTED LAVATORY	7	1.5	1.5	10.5	10.5
MB-1	MOP SINK	2	2.25	2.25	4.5	4.5
SK-2	SERVICE SINK	2	3.0	3.0	6.0	6.0
SH-1	SHOWER	2	3.0	3.0	6.0	6.0
WC-1	WATER CLOSET (FLUSH TYPE)	14	6.0	-	84.0	-
UB-1	UTILITY BOX	1	0.5	-	0.5	-
UR-1	URINAL	2	5.0	-	10.0	-
TOTAL =					142.5	39.5







Bruce E Hart - Engineer  
 MO# 22817

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 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: P404.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

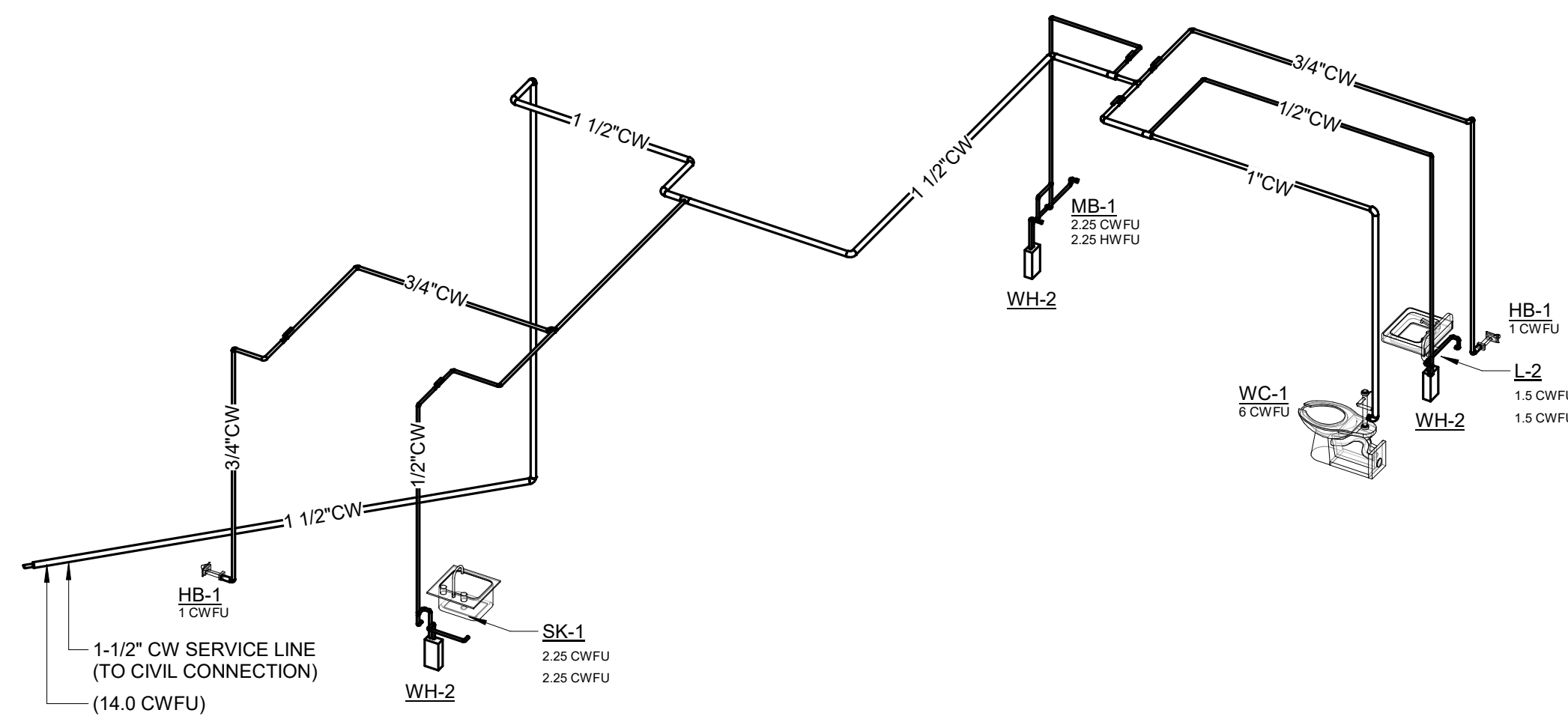
**SHEET TITLE:  
 PLUMBING RISER  
 DIAGRAM - DOMESTIC  
 WATER - FIRING RANGE -  
 ALTERNATE #04**

SHEET NUMBER:

**P404**

SHEET 130 OF 202

08/01/2023

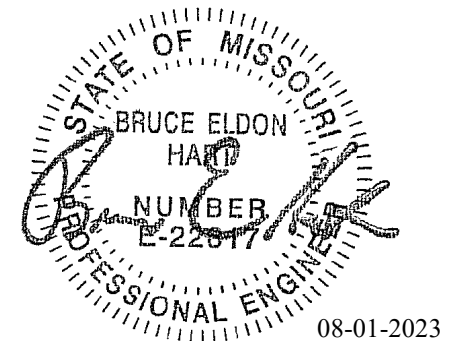


PLUMBING RISER DIAGRAM - DOMESTIC  
 WATER AND GAS - FIRING RANGE -  
 ALTERNATE #04

1  
 Not to Scale

**DOMESTIC WATER FIXTURES  
 BASED ON 2018 INTERNATIONAL PLUMBING CODE**

DESIGN ID	FIXTURE DESCRIPTION	COUNT	FIXTURE UNITS		TOTAL F.U.	
			CW	HW	CW	HW
HB-1	HOSE BIBB - EXTERIOR	2	1.0	-	2.0	-
L-2	WALL-MOUNTED LAVATORY	1	1.5	1.5	1.5	1.5
MB-1	MOP SINK	1	2.25	2.25	2.25	2.25
SK-1	SERVICE SINK	1	2.25	2.25	2.25	2.25
WC-1	WATER CLOSET (FLUSH TYPE)	1	6.0	-	6.0	-
			TOTAL =		14.0	6.5



Bruce E Hart - Engineer  
 MO# 22817

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 REVISION:  
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 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: P500.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

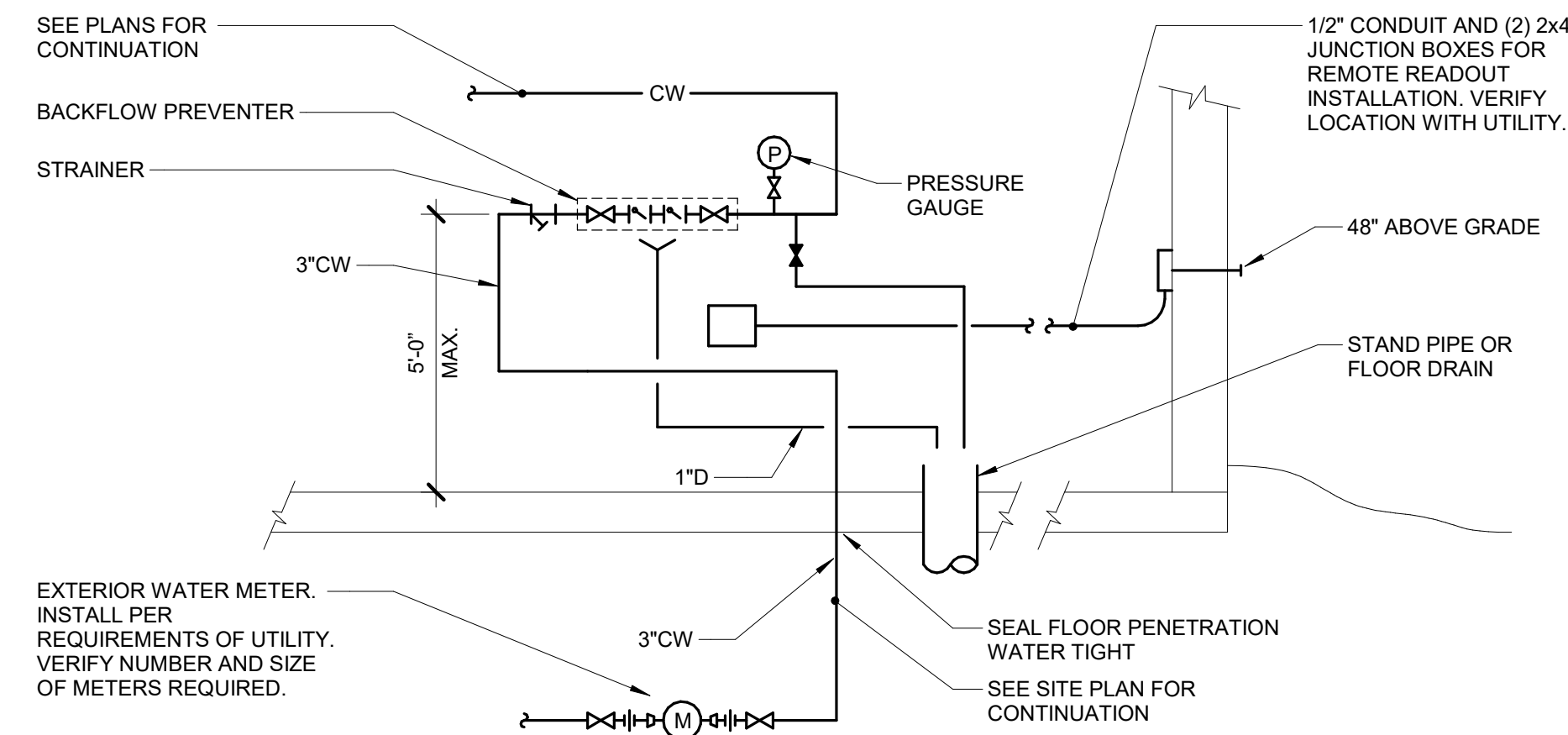
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 PLUMBING DETAILS

SHEET NUMBER:

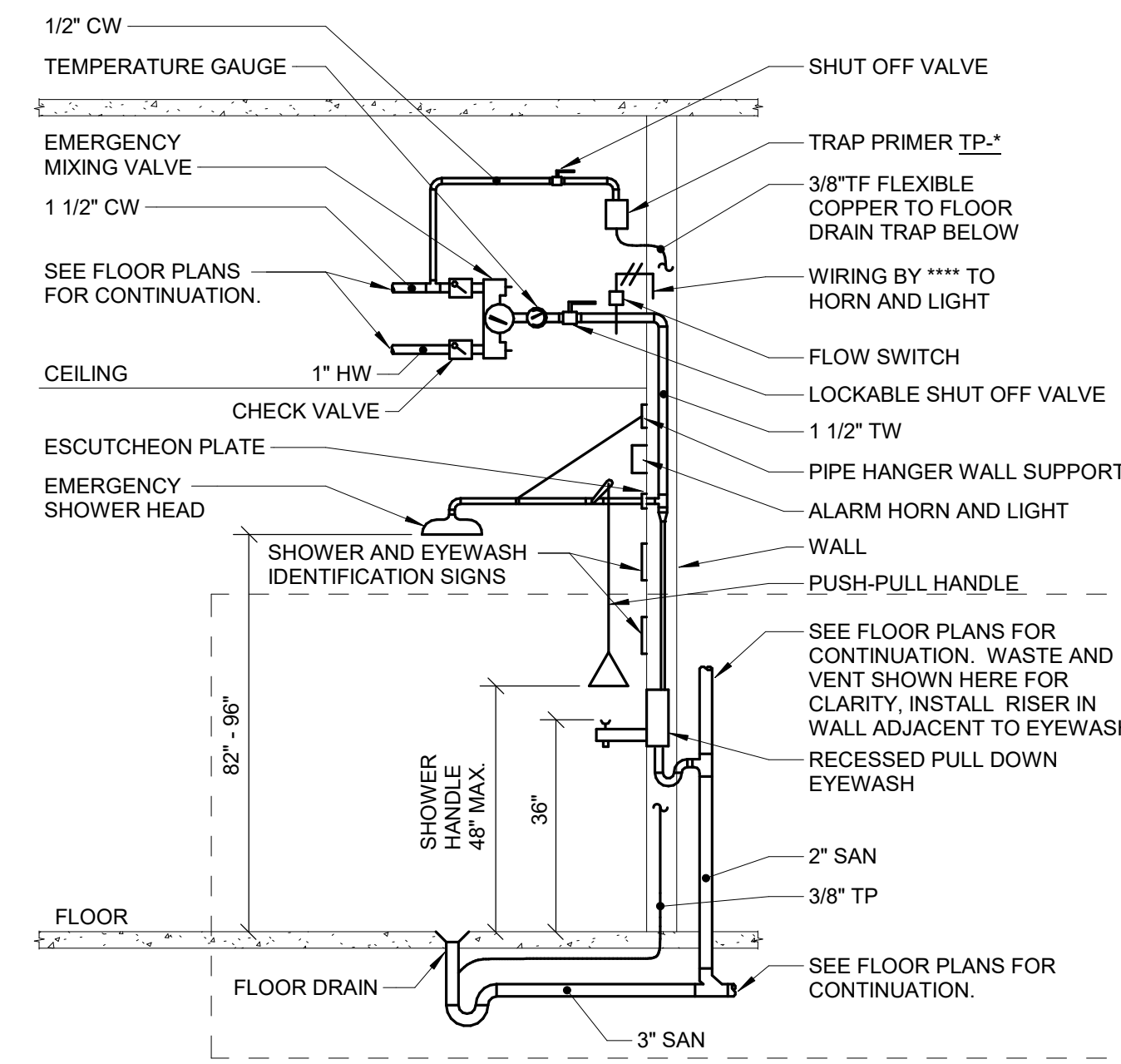
**P500**

SHEET 131 OF 202

08/01/2023

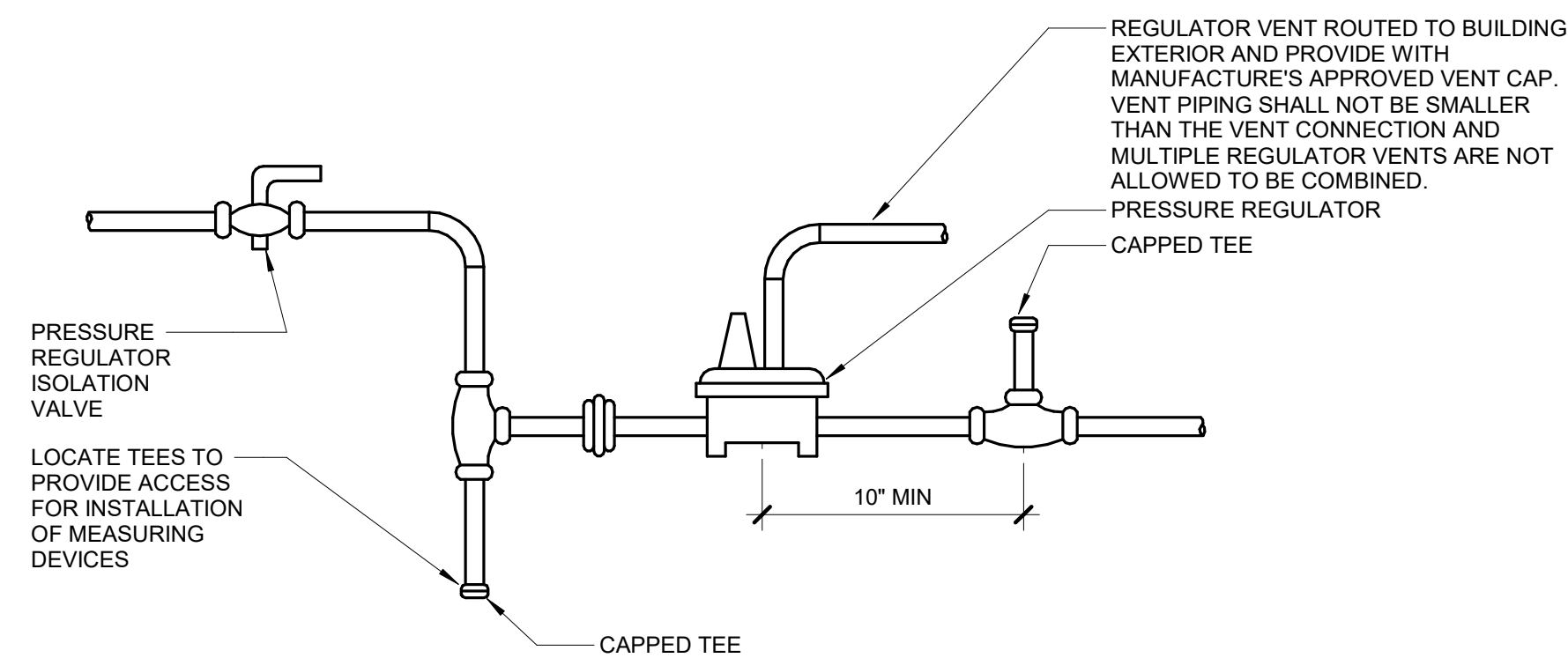


**1 DOMESTIC WATER ENTRANCE**  
 NO SCALE

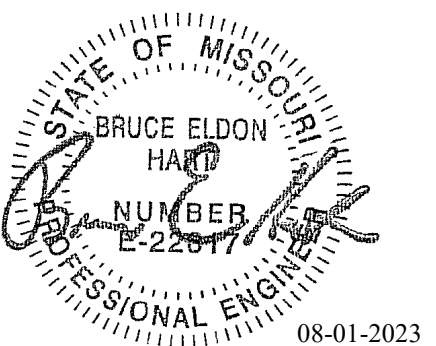


NOTES:  
 1. EYEWASH PERFORMANCE AND ROUGH-IN SHALL MEET THE CURRENT VERSION OF ANSI Z358.1.

**2 EMERGENCY EYEWASH DETAIL (RECESSED WALL)**  
 NO SCALE



**3 GAS PRESSURE REGULATOR DETAIL**  
 NO SCALE



Bruce E Hart - Engineer  
MO# 22817

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Project Number: 2022.15.2

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: P501.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

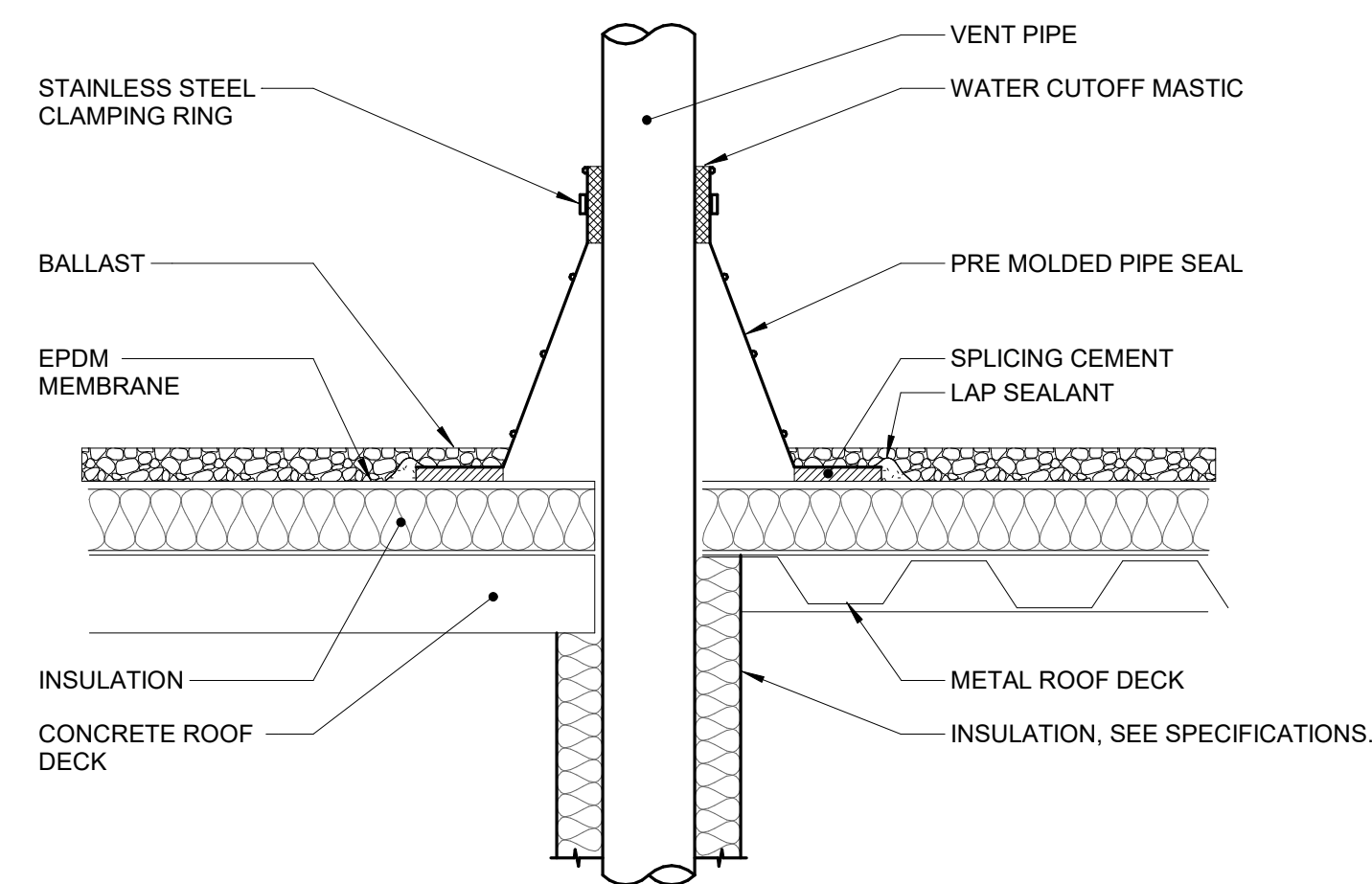
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PLUMBING DETAILS

SHEET NUMBER:

**P501**

SHEET 132 OF 202

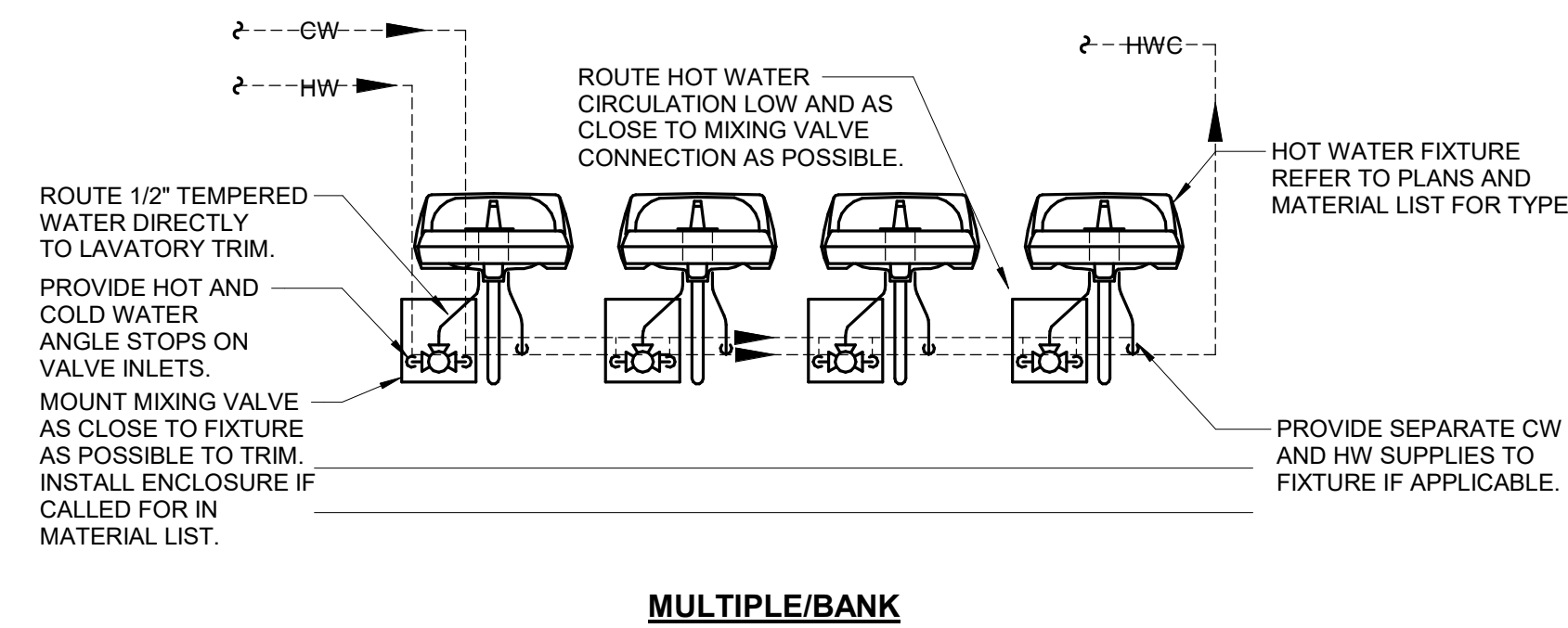
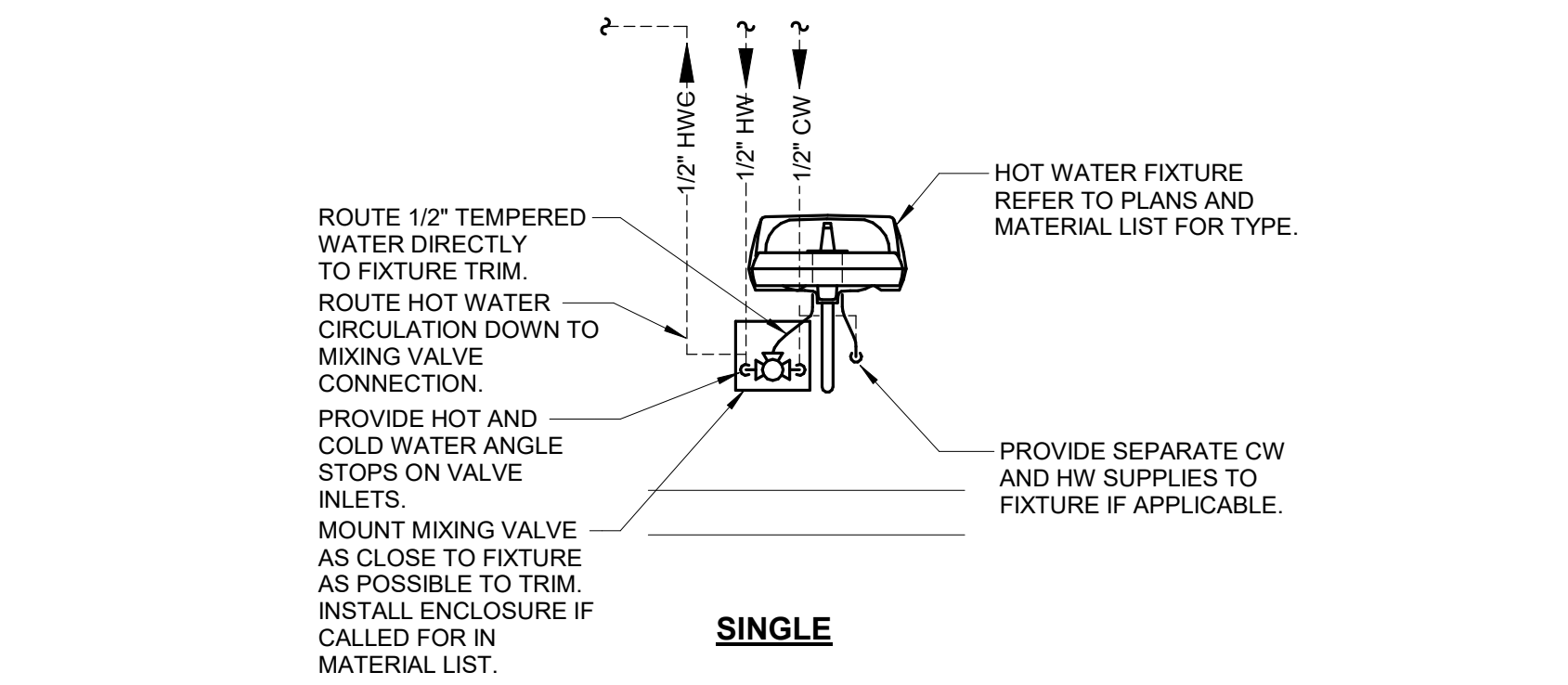
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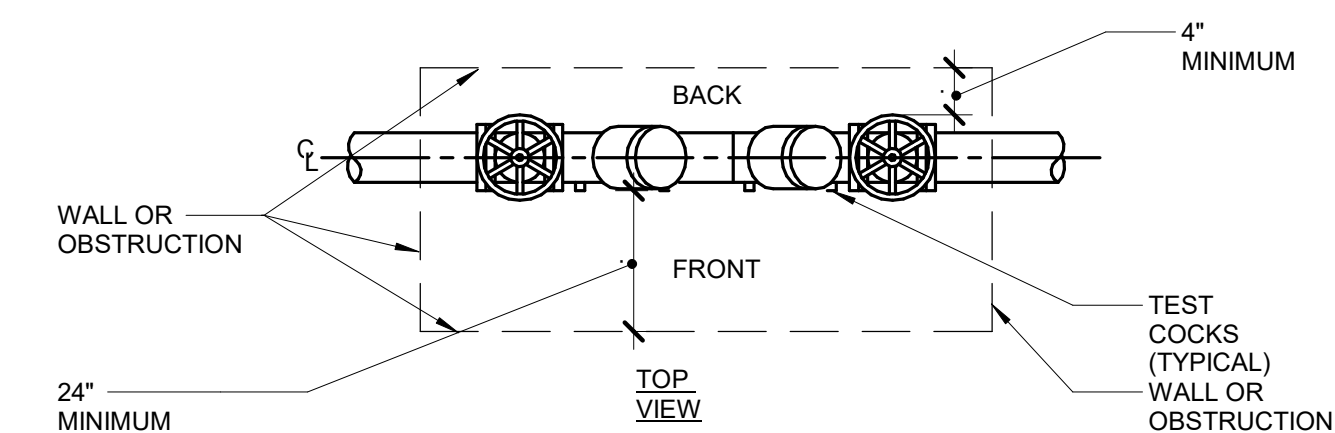
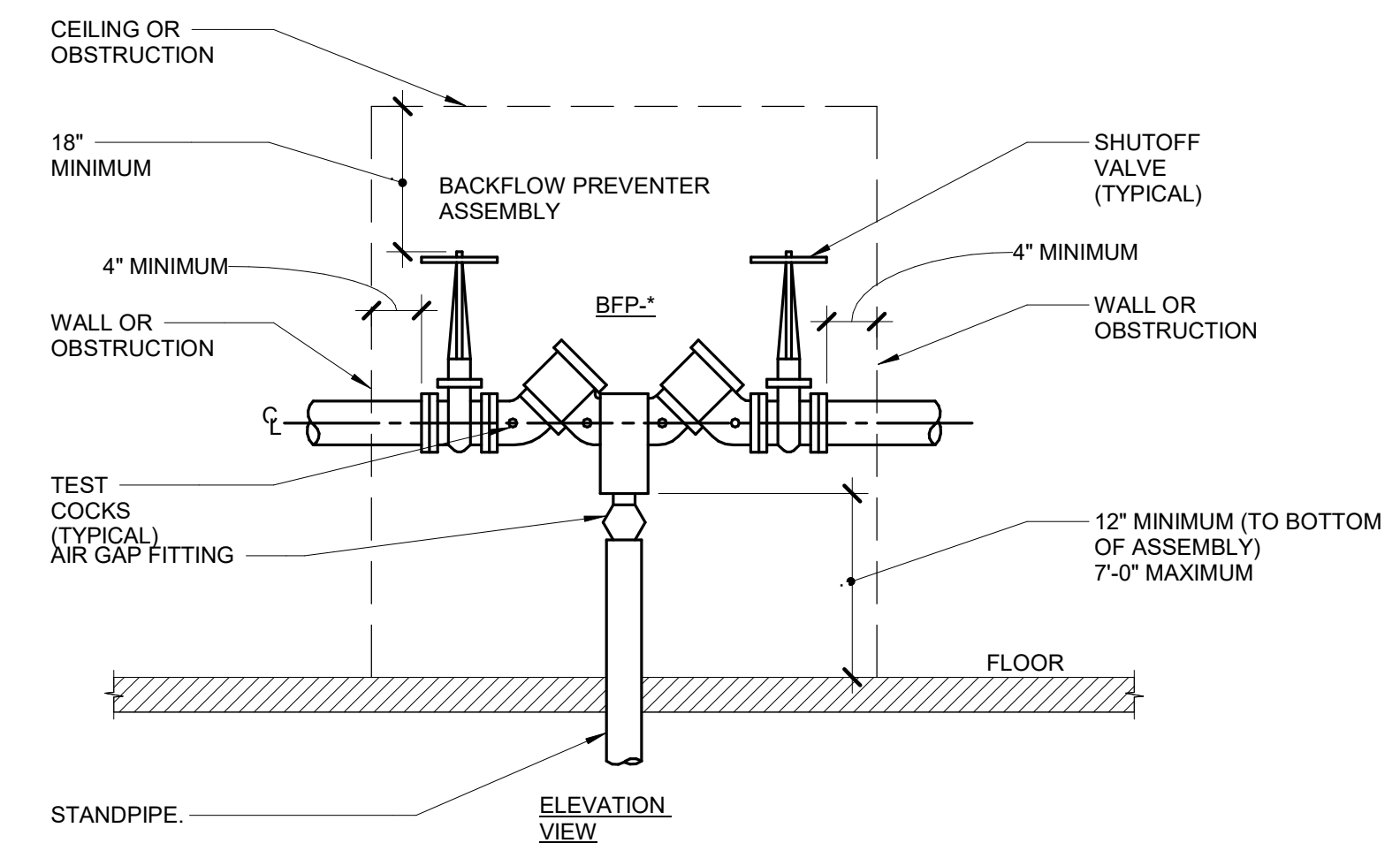
1. VENT PIPE SHALL BE A MINIMUM OF 3" DIAMETER UNLESS NOTED LARGER ON FLOOR PLANS. INCREASERS, IF REQUIRED TO TRANSITION TO THE LARGER VTR SIZE, MUST BE INSTALLED AT LEAST 12 INCHES BELOW THE THERMAL ENVELOPE OF THE BUILDING.
2. EXTEND VENT PIPE AT LEAST 7 FEET ABOVE ROOF LEVEL WHEN ROOF AREA IS INTENDED TO BE USED BY THE GENERAL PUBLIC. THIS INCLUDES PROMENADES, OBSERVATION DECKS, ETC. THIS IS NOT REQUIRED FOR ROOFS THAT ARE ACCESSIBLE BY MAINTENANCE PERSONNEL ONLY.

**1 VENT PIPE FLASHING**  
NO SCALE



LAVATORY SHOWN: DETAIL IS APPLICABLE TO ALL HW FIXTURES AND DEVICES (E.G. LAVATORIES, SINKS, SHOWERS, TUBS, MOP SINKS, LAUNDRY TUBS, ETC.).

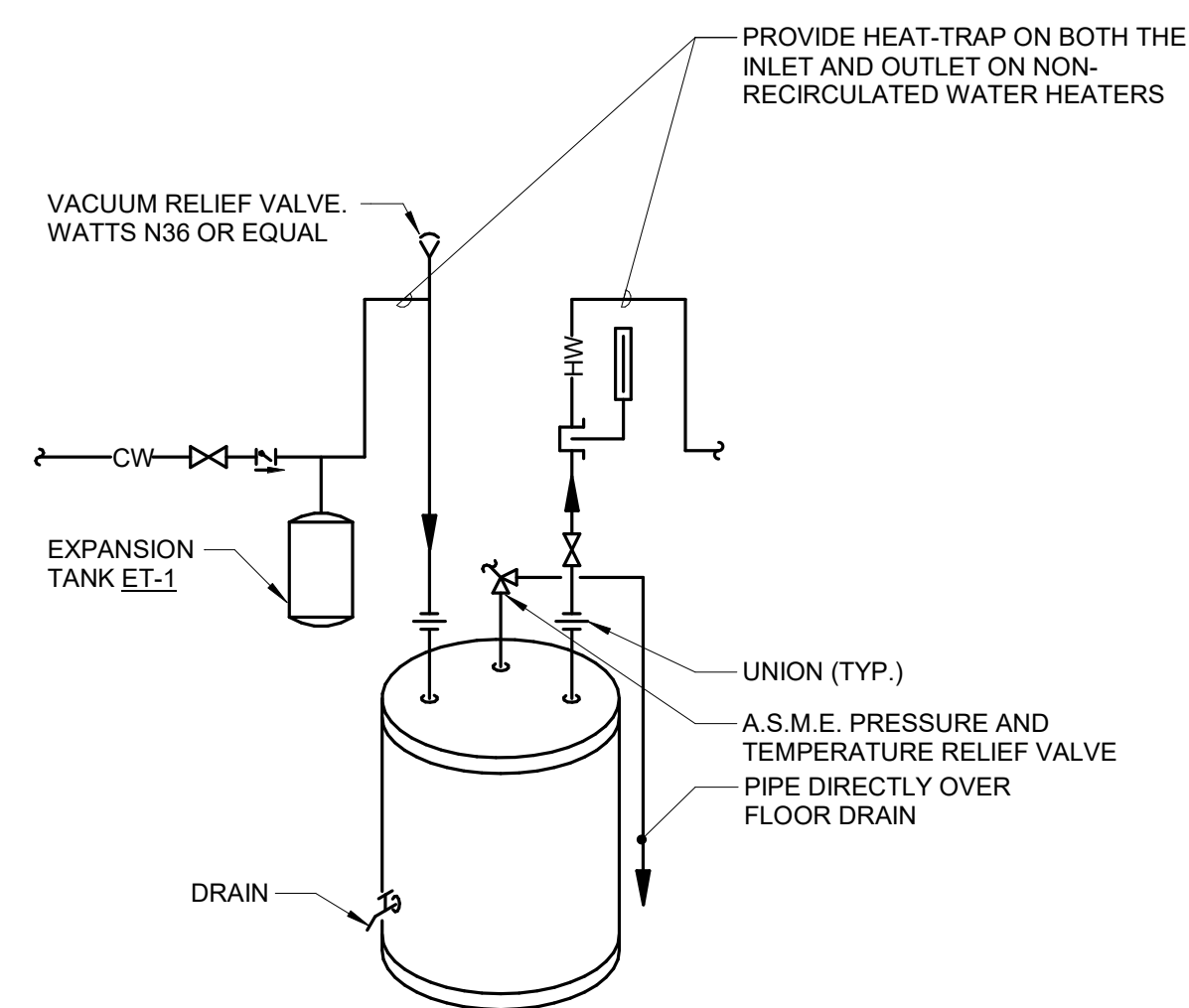
**2 FIXTURE HOT WATER ROUTING DETAIL**  
NO SCALE



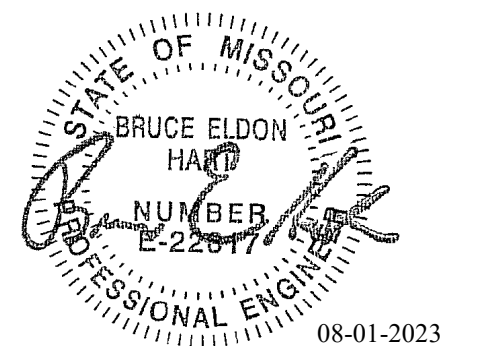
NOTES:

1. REFER TO MATERIAL LIST FOR ASSEMBLY TYPE, SIZE, AND CONFIGURATION.

**3 BACKFLOW PREVENTER DETAIL**  
NO SCALE



**4 WATER HEATER - ELECTRIC TANK**  
NO SCALE



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 Missouri Certificate of Authority: #F001325536

OFFICE OF  
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 DESIGN AND  
 CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
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PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

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 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

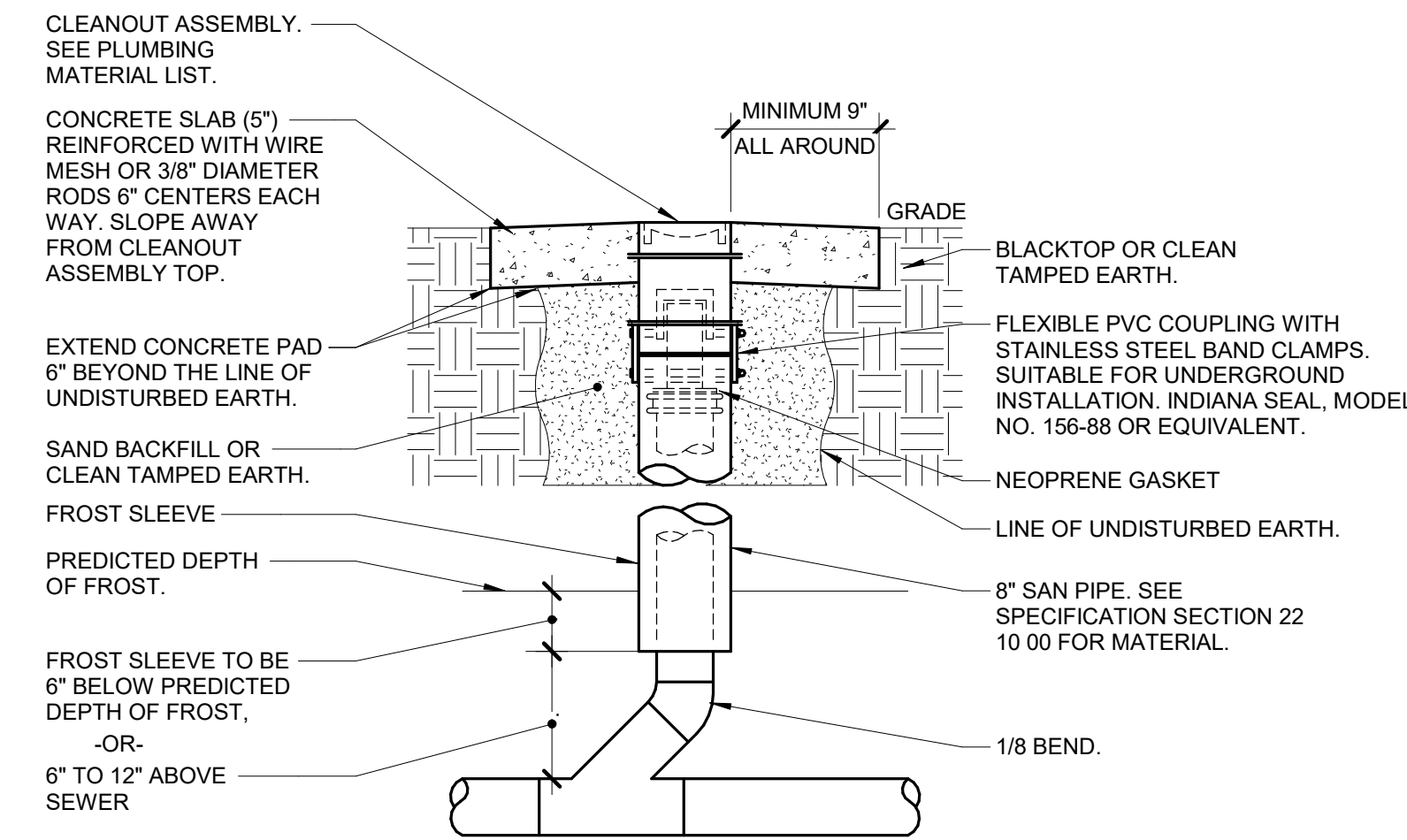
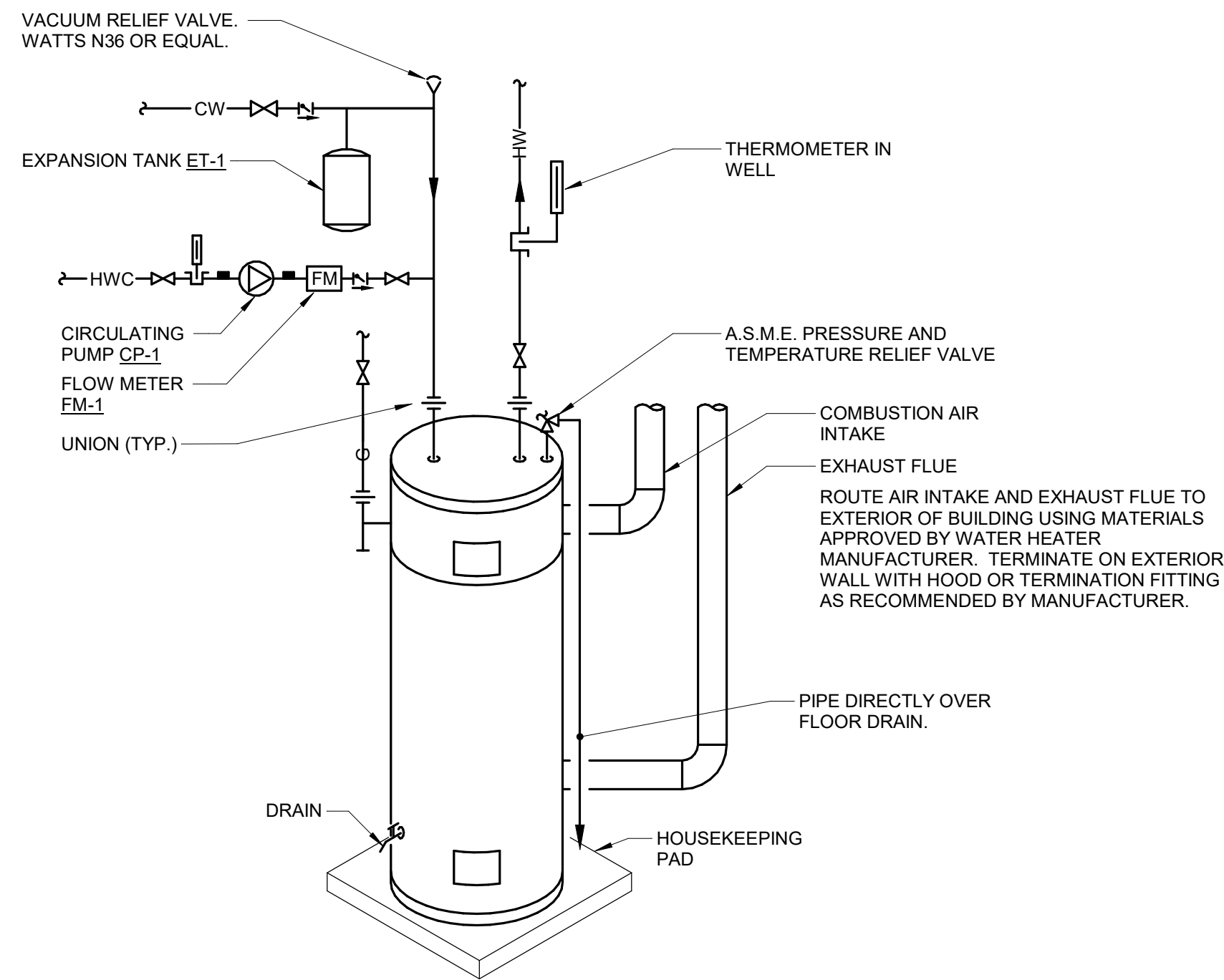
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**PLUMBING DETAILS**

SHEET NUMBER:

**P502**

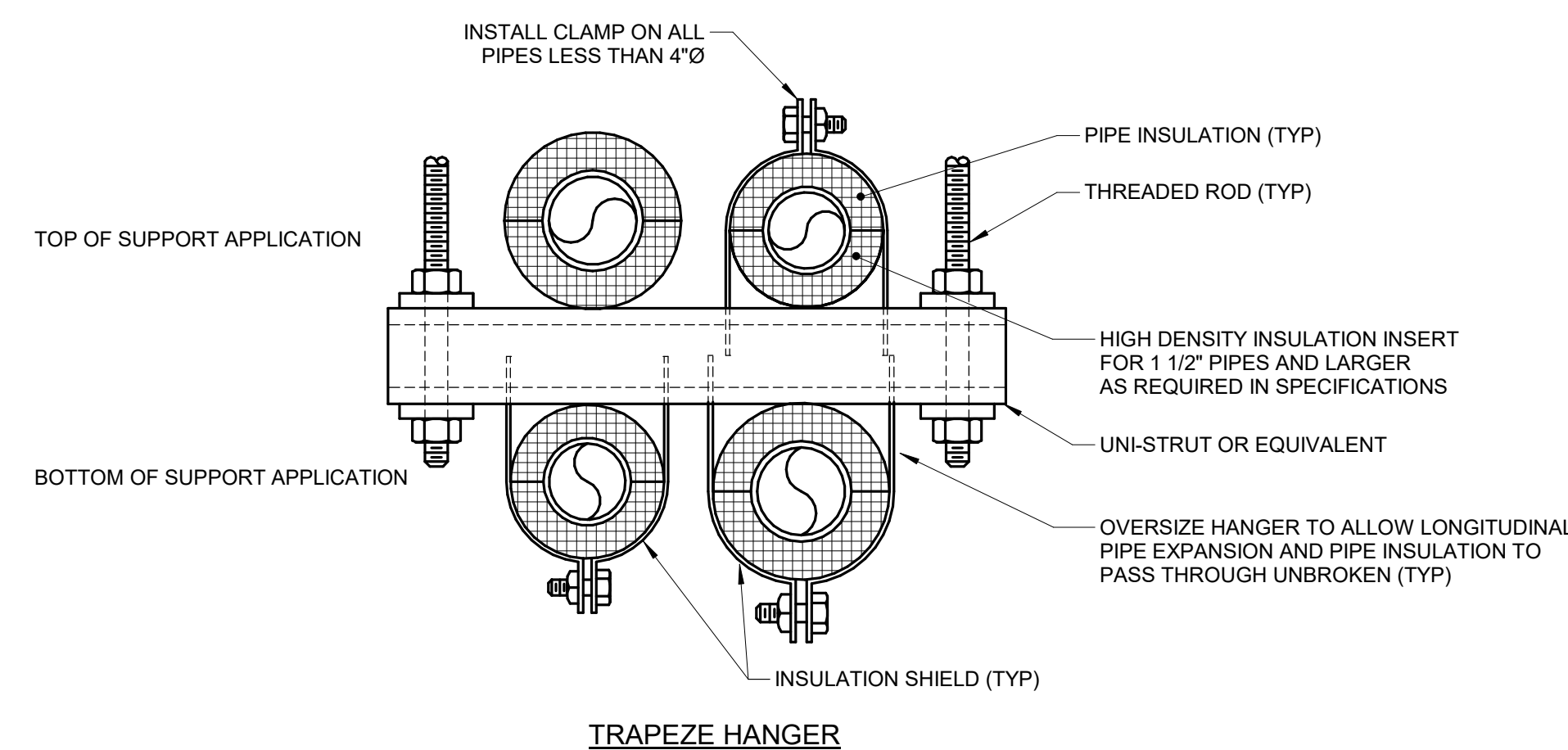
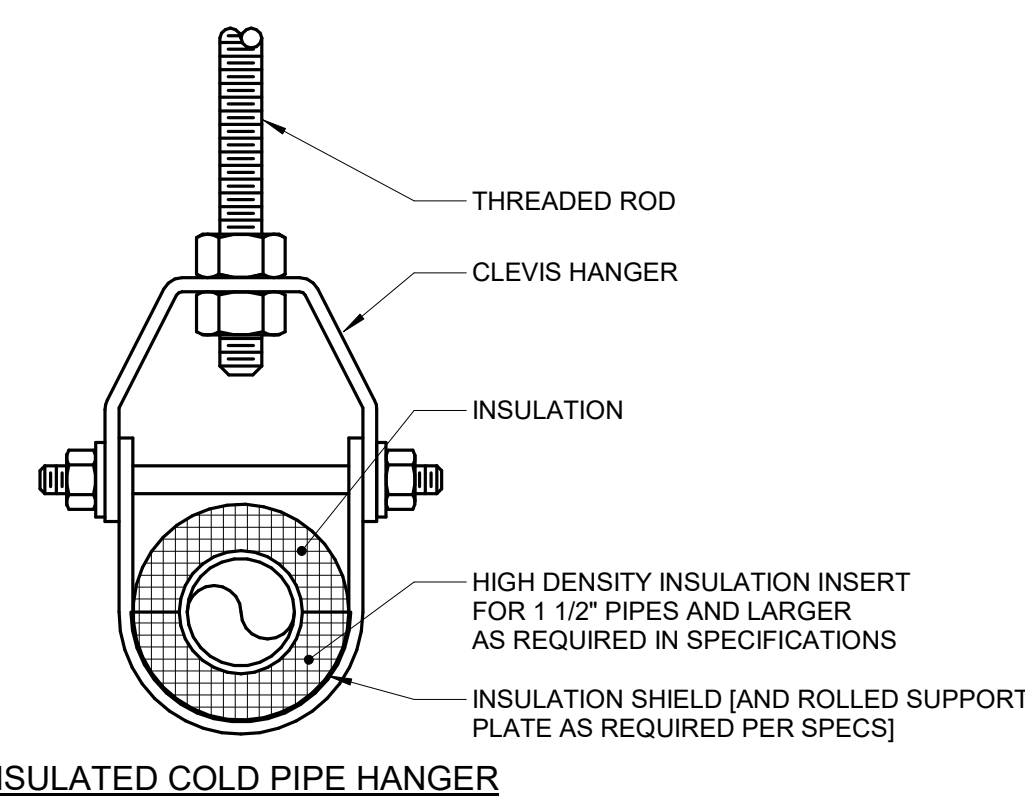
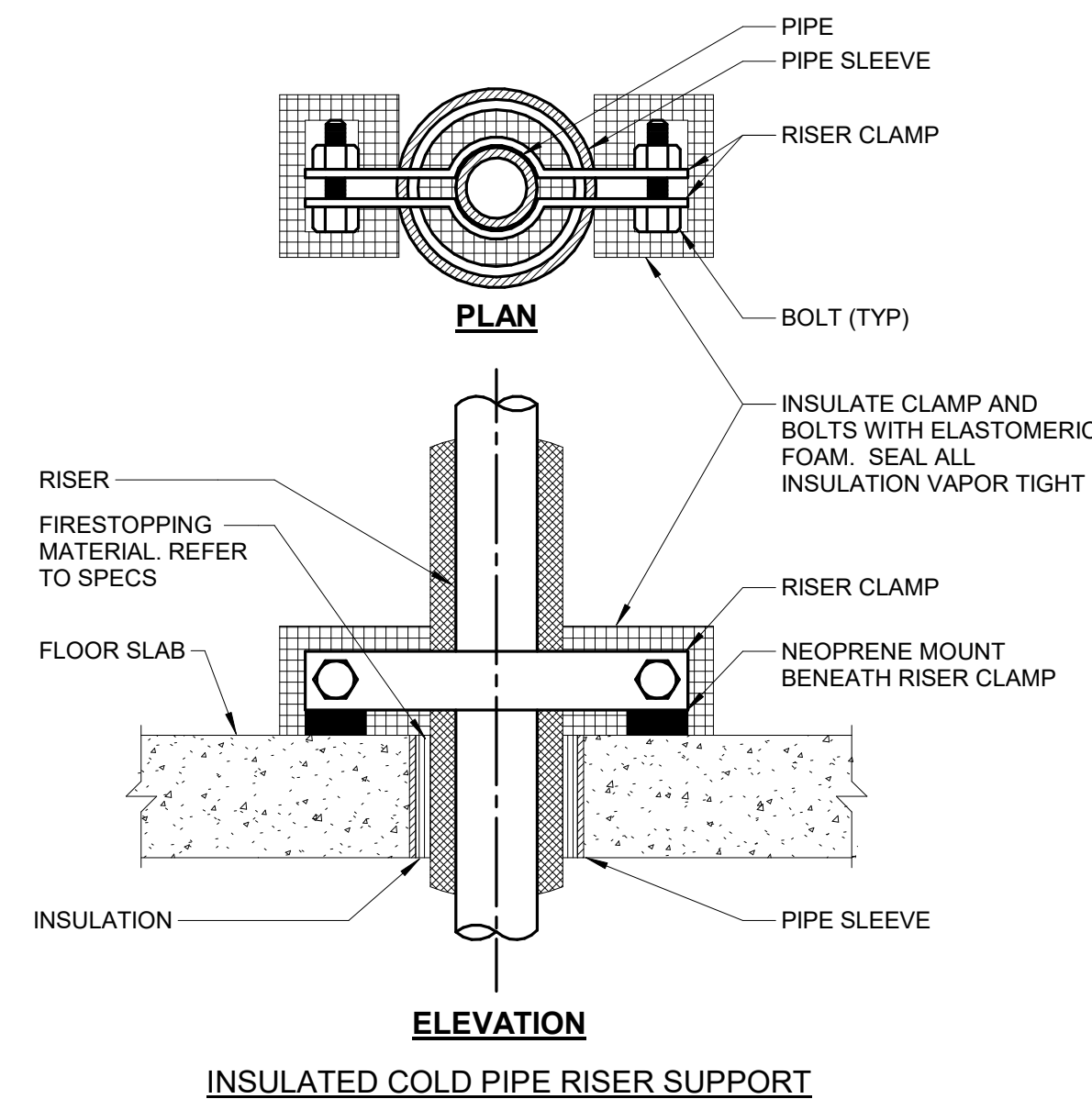
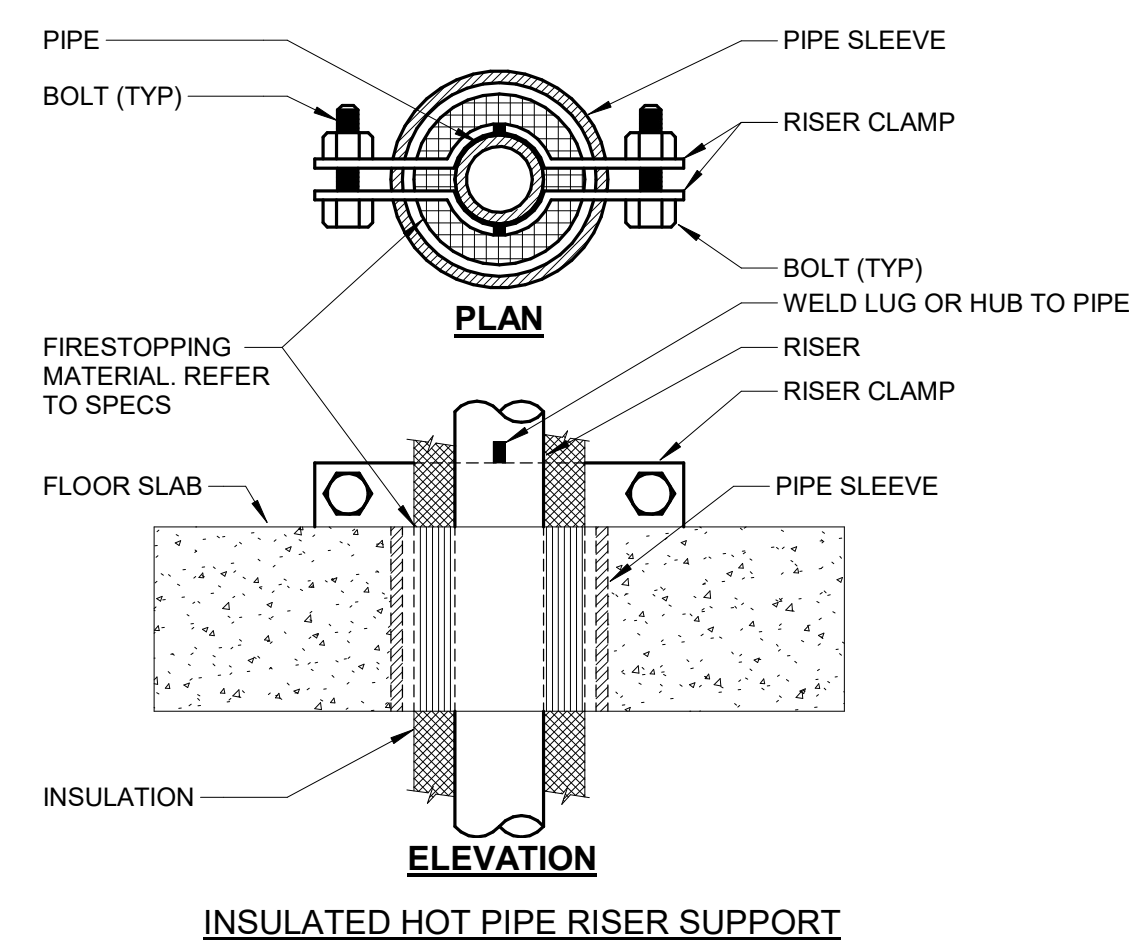
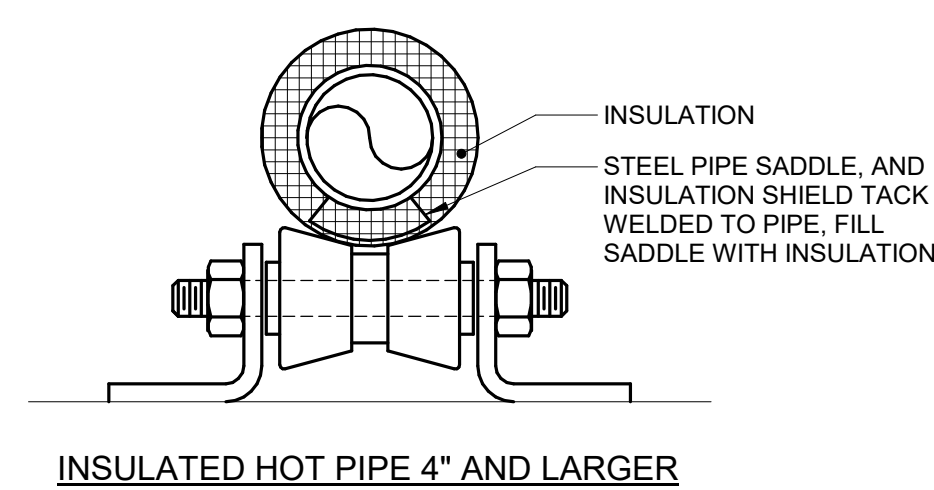
SHEET 133 OF 202

08/01/2023



**1 GAS-FIRED WATER HEATER - TANK W / HWC**  
 NO SCALE

**2 YARD CLEANOUT DETAIL**  
 NO SCALE



NOTES:  
 1. REFER TO SPECIFICATION SECTIONS (SECTION 22 05 29- PLUMBING, SECTION 23 05 29-HVAC) & (SECTION 22 07 19- PLUMBING, SECTION 23 07 19-HVAC).

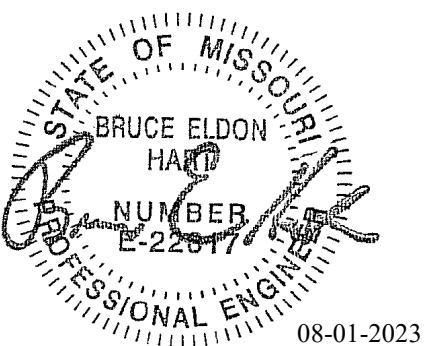
**3 PIPE - HANGERS AND SUPPORTS**  
 NO SCALE

SHEET NUMBER:

**P502**

SHEET 133 OF 202

08/01/2023



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Project Name:  
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MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
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REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 01 August 2023

CAD DWG FILE: P600.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**PLUMBING SCHEDULES**

SHEET NUMBER:

**P600**

SHEET 134 OF 202

08/01/2023

**PLUMBING ROUGH-IN SCHEDULE**

NOTES: (APPLIES TO ALL PLUMBING FIXTURES LISTED BELOW)  
1) SIZES SHOWN ARE MINIMUMS. LARGER SIZES SHOWN ON THE DRAWING SHALL DICTATE THE ROUGH-IN SIZE. 2) SANITARY RISERS UP IN WALL TO FIXTURES SHALL BE A MINIMUM OF 2". 3) DOMESTIC WATER BRANCH PIPING OUTSIDE OF THE WALL/CHASE SHALL BE A MINIMUM OF 3/4" UNLESS NOTED OTHERWISE. ONLY THE FINAL RISE-DROP SHALL BE SMALLER. 4) FINAL SANITARY SIZE SHALL MATCH P-TRAP SIZE (REFER TO MATERIAL LIST).

TAG NAME	DESCRIPTION	COLD WATER	HOT WATER	SANITARY	VENT
EE-1	EMERGENCY EYE-FACE WASH			2"	1 1/2"
EW-1	ELECTRIC WATER COOLER (ACCESSIBLE)	1/2"	-	1 1/2"	1 1/2"
FD-1	FLOOR DRAIN			2"	1 1/2"
FS-1	FLOOR SINK	1/2"	1/2"	4"	2"
FS-2	FLOOR SINK	1/2"	1/2"	3"	1 1/2"
L-1	LAVATORY (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
L-2	LAVATORY (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
MB-1	MOP BASIN	3/4"	3/4"	3"	1 1/2"
SH-1	SHOWER	1/2"	1/2"	2"	1 1/2"
SK-1	SINK (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
SK-2	SINK (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
TD-1	TRENCH DRAIN				
UB-1	UTILITY WATER BOX	1/2"	-	-	-
UR-1	URINAL (ACCESSIBLE)	3/4"	-	2"	1 1/2"
WC-1	WATER CLOSET (ACCESSIBLE)	1 1/2"	-	4"	2"
WC-1	WATER CLOSET (ACCESSIBLE)	1/2"	-	4"	2"

**PIPE INSULATION SCHEDULE (PLUMBING)**

GENERAL NOTES:  
1. REFER TO THE SPECIFICATIONS FOR TYPE DESCRIPTIONS AND JACKETING REQUIREMENTS. VALUES LISTED BELOW ARE BASED ON ASHRAE / IECC REQUIREMENTS.  
2. TYPE A INSULATION IS NOT ALLOWED IN NON-AIR CONDITIONED SPACES, SUCH AS MECHANICAL ROOMS, EXTERIOR, ATTICS, ETC.  
3. TYPE B INSULATION GREATER THAN 1" THICK SHALL BE INSTALLED USING MULTIPLE LAYERS OF 3/4" OR 1" WITH STAGGERED SEAMS.  
4. TYPE E IS NOT ALLOWED IN RETURN AIR PLENUMS, UNLESS LISTED AND LABELED AS 25/50 RATED PER ASTM E84/UL723  
5. TYPE G 4" SHALL BE INSTALLED IN TWO (2) 2" LAYERS WITH STAGGERED SEAMS.  
6. PROVIDE RIGID INSERT AT HANGERS, EITHER PRE-MANUFACTURED COUPLINGS (REFER TO PIPE HANGER AND SUPPORTS SPECIFICATIONS) OR TYPE C, D, OR E INSULATION. SEE SPEC. FOR MORE DETAILS.

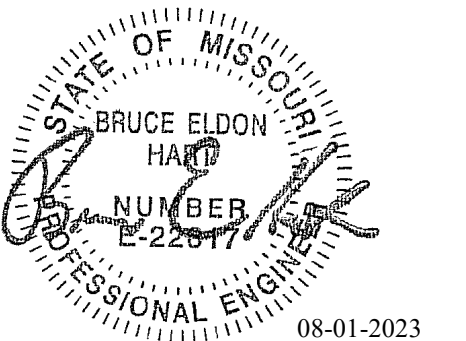
PIPE SYSTEM	INSULATION TYPE AND THICKNESS PER NOMINAL PIPE OR TUBE SIZE					INSULATION TYPE AND THICKNESS PER NOMINAL PIPE OR TUBE SIZE (DIRECT BURIED)					NOTES	
	< 1"	1" TO < 1.5"	1.5" TO < 4"	4" TO < 8"	≥ 8"	< 1"	1" TO < 1.5"	1.5" TO < 4"	4" TO < 8"	≥ 8"		
CW - COLD WATER - POTABLE	A 0.5", B 0.5", E 0.5"	A 0.5", B 0.5", E 0.5"	A 1", B 1", E 1"	A 1", B 1", E 1"	A 1", B 1", E 1"							
D - DRAIN - PLUMBING	A 0.5", B 0.5", E 0.5"	A 0.5", B 0.5", E 0.5"	A 1", B 1", E 1"	A 1", B 1", E 1"	A 1", B 1", E 1"							APPLY INSULATION ONLY TO LOW TEMP DRAINS (55 DEG AND LOWER IE: COOLING COIL CONDENSATE, ICE MACHINE DRAINS, ETC.)
HW - HOT WATER - POTABLE	A 1", B 1", E 1"	A 1", B 1", E 1"	A 1.5", E 1"	A 1.5", E 1"	A 1.5", E 1"	C 1", E 1"	C 1", E 1"	C 1", E 1"	C 1", E 1"	C 1", E 1"		
HWC - HOT WATER CIRCULATING - POTABLE	A 1", B 1", E 1"	A 1", B 1", E 1"	A 1.5", E 1"	A 1.5", E 1"	A 1.5", E 1"	C 1", E 1"	C 1", E 1"	C 1", E 1"	C 1", E 1"	C 1", E 1"		
SAN - SANITARY DRAINAGE	A 0.5", B 0.5", E 0.5"	A 0.5", B 0.5", E 0.5"	A 1", B 1", E 1"	A 1", B 1", E 1"	A 1", B 1", E 1"							APPLY INSULATION ONLY TO FLOOR DRAIN BODY, P-TRAP AND 10' DOWNSTREAM AT LOW TEMP DRAIN DISCHARGE (55 DEG AND LOWER IE: COOLING COIL CONDENSATE, ICE MACHINE DRAINS, ETC.)
V - VENT	A 0.5", B 0.5", E 0.5"	A 0.5", B 0.5", E 0.5"	A 1", B 1", E 1"	A 1", B 1", E 1"	A 1", B 1", E 1"							APPLY INSULATION ONLY WITHIN 10' OF EXTERIOR PENETRATION

**PLUMBING MATERIAL LIST**

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
BFP-DW-1	BACK FLOW PREVENTER - REDUCED PRESSURE ZONE, LEAD FREE BRONZE CONSTRUCTION, SIZE SAME AS PIPE 3", NON-CORROSIVE INTERNAL PARTS, STAINLESS STEEL SPRINGS, DIFFERENTIAL PRESSURE RELIEF VALVE BETWEEN SPRING-LOADED CHECK VALVES, BALL STYLE SHUT-OFF VALVES ON INLET AND OUTLET OF UNIT, AIR GAP DRAIN FITTING, TEST PORTS WITH SHUT-OFF VALVES, RATED FOR 175 PSI AT 33°F TO 140°F, 15 PSI (MAXIMUM) PRESSURE DROP AT 10 FPS, FACTORY TESTED, ALL PARTS TO BE SERVICEABLE WITHOUT REMOVING UNIT FROM LINE, APPROVED BY USC FOCC & HR, AWWA C511-92, ASSE 1013, IAPMO AND SBCCI LISTED.	WATTS (LF009)
CP-1	MOUNT WITHIN 60" OF FINISHED FLOOR. ROUTE DRAIN PIPE FROM AIR GAP FITTING TO FLOOR DRAIN. PROVIDE AND INSTALL BRONZE OR EPOXY COATED STRAINER UPSTREAM OF EACH UNIT AND ADDITIONAL VALVE UPSTREAM OF EACH STRAINER. FLOW PRESSURE DROP CURVES SHALL BE SUBMITTED. CIRCULATING PUMP - VARIABLE SPEED CONTROLLER WITH SETTINGS TO ADJUST AND MAINTAIN A CONSTANT SPEED, FIXED PRESSURE, OR PROPORTIONAL PRESSURE. LEAD FREE BRONZE OR STAINLESS STEEL CONSTRUCTION, PERMANENTLY LUBRICATED SEALED BEARINGS, MECHANICAL SEAL, OIL LUBRICATED, ECM MOTOR WITH INTEGRATED VARIABLE SPEED CONTROL, FLANGED CONNECTIONS, RATED FOR 125 PSIG AT 225°F, UL LISTED. 4 GPM @ 10 FEET OF HEAD. MOTOR SHALL BE 0.65 AMPS. ELECTRICAL REQUIREMENTS - 120V, 1 PHASE - HARD-WIRE	PUMP - GRUNDFOS (ALPHA SERIES), B&G (ECOIRC SERIES), ARMSTRONG (COMPASS 20-20 SS SERIES)
CP-2	CIRCULATING PUMP - VARIABLE SPEED CONTROLLER WITH SETTINGS TO ADJUST AND MAINTAIN A CONSTANT SPEED, FIXED PRESSURE, OR PROPORTIONAL PRESSURE. LEAD FREE BRONZE OR STAINLESS STEEL CONSTRUCTION, PERMANENTLY LUBRICATED SEALED BEARINGS, MECHANICAL SEAL, OIL LUBRICATED, ECM MOTOR WITH INTEGRATED VARIABLE SPEED CONTROL, FLANGED CONNECTIONS, RATED FOR 125 PSIG AT 225°F, UL LISTED. 2 GPM @ 5 FEET OF HEAD. MOTOR SHALL BE 0.65 AMPS. ELECTRICAL REQUIREMENTS - 120V, 1 PHASE - HARD-WIRE	PUMP - GRUNDFOS (ALPHA SERIES), B&G (ECOIRC SERIES), ARMSTRONG (COMPASS 20-20 SS SERIES)
CP-3	CIRCULATING PUMP - VARIABLE SPEED CONTROLLER WITH SETTINGS TO ADJUST AND MAINTAIN A CONSTANT SPEED, FIXED PRESSURE, OR PROPORTIONAL PRESSURE. LEAD FREE BRONZE OR STAINLESS STEEL CONSTRUCTION, PERMANENTLY LUBRICATED SEALED BEARINGS, MECHANICAL SEAL, OIL LUBRICATED, ECM MOTOR WITH INTEGRATED VARIABLE SPEED CONTROL, FLANGED CONNECTIONS, RATED FOR 125 PSIG AT 225°F, UL LISTED. 2 GPM @ 5 FEET OF HEAD. MOTOR SHALL BE 0.65 AMPS. ELECTRICAL REQUIREMENTS - 120V, 1 PHASE - HARD-WIRE	PUMP - GRUNDFOS (ALPHA SERIES), B&G (ECOIRC SERIES), ARMSTRONG (COMPASS 20-20 SS SERIES)
EE-1	EMERGENCY EYE/FACE WASH - ACCESSIBLE, WALL MOUNTED, STAINLESS STEEL BOWL WITH HINGED DUST COVER, TWIN SPRAY HEADS WITH CAPS AND RETAINING CHAINS/STRAPS, BRASS SUPPLY ARMS, INTEGRAL FLOW CONTROL FITTING, BRASS PIPING AND FITTINGS WITH BRASS/BRONZE STAY OPEN BALL VALVE, 1-1/4" DRAIN OUTLET WITH CHROME PLATED BRASS TAILPIECE AND TRAP, UNIVERSAL IDENTIFICATION SIGN, ANSI Z358.1-2004 COMPLIANT. MINIMUM FLOW RATE OF 3.0 GPM AT 30 PSI. ACTIVATION TIME SHALL BE 1 SECOND OR LESS. BRASS/BRONZE PIPING, FITTINGS, AND VALVES SHALL BE CHROME-PLATED OR CHEMICAL-RESISTANT POWDER COATED. MOUNT WITH OUTLET HEADS AT 36" ABOVE FINISH FLOOR WITH MINIMUM 27" OF KNEE CLEARANCE BELOW, AND MINIMUM OF 19" OF CLEARANCE FROM CENTER OF BOWL TO WALL OR OBSTRUCTION, IN COMPLIANCE WITH LATEST ADA AND ANSI 117.1 STANDARDS. MIXING VALVE - THERMOSTATIC MIXING VALVE FOR EMERGENCY EYEWASH OR COMBINATION EYEWASH/FACEWASH FIXTURE, BRONZE BODY CONSTRUCTION, COLD WATER BYPASS, OUTLET THERMOMETER, COMBINATION CHECK STOPS OR SEPARATE SUPPLY CHECK VALVES AND SHUT OFF VALVES, MOUNTING BRACKET. SUPPLY SHUT OFF VALVES SHALL BE LOCKED OPEN OR CONTRACTOR SHALL PROVIDE A LOCKING CABINET TO PREVENT UNAUTHORIZED CLOSURE. CABINET SHALL BE SURFACE MOUNTED 18 GAUGE STAINLESS STEEL WITH 16 GAUGE LOCKING DOOR TO ENCLOSE VALVE, INLET CHECK STOPS, OUTLET THERMOMETER. THERMOSTATIC MIXING AND PRESSURE REGULATING VALVES TO DELIVER 3 GPM OF TEMPERED WATER (60-100 DEGREE F) WITH 10 PSI PRESSURE DIFFERENTIAL. EYEWASH SHALL COMPLY WITH ANSI Z358.1 AND ASME A112.18.1. MIXING VALVE SHALL BE ASSE 1071 LISTED AND APPROVED.	BOWL - BRADLEY (S19224T), ACORN SAFETY (S0440), ENCON (01045501), GUARDIAN (G1750), SPEAKMAN (SE-490) MIXING VALVE - LEONARD (TA-LF), ARMSTRONG (Z358), APOLLO (SHELF), BRADLEY (S19 SERIES)
EW-1	BOTTLE FILLING STATION - RECESSED MOUNTED, SENSOR OPERATED WITH AUTOMATIC SHUTOFF, 1.1 GPM FILL RATE WITH LAMINAR FLOW OUTLET, REAR DRAIN OUTLET, STAINLESS STEEL CONSTRUCTION AND FINISH, REPLACEABLE LEAD-CHLORINE-TASTE-ODOR WATER FILTER, BOTTLE COUNTER, FILTER REPLACEMENT INDICATOR, CHILLED WATER SUPPLIED TO UNIT, HERMETIC COMPRESSOR TO OPERATE ON HFC-134A REFRIGERANT, CONCEALED ELECTRICAL CONNECTIONS, ADA COMPLIANT, CONFORMS TO THE LATEST ANSI A117.1 AND ADA STANDARDS. UNIT SHALL COMPLY WITH FEDERAL ACT S.3874. UNIT SHALL PROVIDE 8.0 GPH OF WATER FROM 80°F TO 50°F AT 90°F AMBIENT. TANK SHALL BE TESTED TO 125 PSIG. ELECTRICAL REQUIREMENTS - 1/2 HP MOTOR, 120V-1 PHASE, HARD WIRED, GFCI BREAKER, DISCONNECT BY E.C. WATER OUTLET SHALL BE AT 38" (MAXIMUM) ABOVE FINISHED FLOOR IN COMPLIANCE WITH LATEST ADA STANDARDS.	ELECTRIC WATER COOLER - ELKAY (LZW5M8K), HALSEY TAYLOR (HTHB-8), HAWS (2000S)
FD-1	FLOOR DRAIN - CAST IRON BODY, NICKEL BRONZE ADJUSTABLE TOP, 6" ROUND, 2" BOTTOM OUTLET, FLASHING COLLAR, DEEP SEAL TRAP. TRAP SEAL - 2", PLASTIC HOUSING WITH FLEXIBLE DIAPHRAGM, SEALING GASKETS, RECLOSERS AND SEALS WHEN DISCHARGE IS COMPLETED, ASSE 1072.	FLOOR DRAIN - ZURN (Z-415), SMITH (2005), WADE (1100), JOSAM (30000), WATTS (FD-100), MIFAB (F1100), SUN (FD1000) TRAP SEAL - SURE SEAL (SS), PROVENT (TRAP GUARD), SMITH (QUAD CLOSE), GREEN DRAIN, MIFAB (MI-GARD), ZURN (Z1072)
FS-1	FLOOR SINK - CAST IRON BODY, NICKEL BRONZE RIM AND GRATE, 12" SQUARE, 4" BOTTOM OUTLET, 6" DEEP RECEPTOR WITH STAINLESS STEEL MECH SEDIMENT BUCKET, ACID RESISTANT COATED INTERIOR, SEEPAGE FLANGE WITH CLAMP, DEEP SEAL TRAP.	ZURN (Z1901), SMITH (3151), WADE (9140), JOSAM (49340A), WATTS (FS-740), SIOUX CHIEF (961-2XFNWC), SUN (FS2000), MIFAB (FS1730)
FS-2	FLOOR SINK - CAST IRON BODY, NICKEL BRONZE RIM AND GRATE, 8" SQUARE, 4" BOTTOM OUTLET, 6" DEEP RECEPTOR WITH ALUMINUM DOME STRAINER, ACID RESISTANT COATED INTERIOR, SEEPAGE FLANGE WITH CLAMP.	ZURN (Z1910), SMITH (3101), WADE (W-9110), JOSAM (49300), WATTS (FS-710), SIOUX CHIEF (961-2XFNWC), MIFAB (FS1520)
GD-1	GARBAGE DISPOSER - CONTINUOUS FEED, SINGLE DIRECTION, CORROSION PROTECTION SHIELD, SERVICE WRENCH, STAINLESS STEEL GRINDING ELEMENTS, MANUALLY RESET OVERLOAD PROTECTION, FULL 4 YEAR WARRANTY. ELECTRICAL REQUIREMENTS - 120V-1 PHASE, HARD WIRED, 3/4 HP MOTOR, 15 AMPS.	IN-SINK-ERATOR (EVOLUTION SERIES), SINKMASTER (950), WASTE KING (3300)
GR-1	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 7 IN. W.C. INLET PRESSURE, OUTLET PRESSURE PER EQUIPMENT REQUIREMENTS, CFH CAPACITY AS SHOWN ON DRAWING, MINIMUM CONTROLLABLE FLOW OF 100 CFH. CONTRACTOR SHALL SIZE AND ROUTE REGULATOR VENTING PER MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH A MAXIMUM EQUIVALENT LENGTH OF 60 FEET.	FISHER HSR, ITRON B42, SENSUS 143,
GR-2	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 7 IN. W.C. INLET PRESSURE, OUTLET PRESSURE PER EQUIPMENT REQUIREMENTS, CFH CAPACITY AS SHOWN ON DRAWING, MINIMUM CONTROLLABLE FLOW OF 1300 CFH. CONTRACTOR SHALL SIZE AND ROUTE REGULATOR VENTING PER MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH A MAXIMUM EQUIVALENT LENGTH OF 60 FEET.	FISHER CS800, ITRON B43, SENSUS 243,
GR-3	GAS PRESSURE REGULATOR - CAST IRON BODY, EXTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 7 IN. W.C. INLET PRESSURE, OUTLET PRESSURE PER EQUIPMENT REQUIREMENTS, CFH CAPACITY AS SHOWN ON DRAWING, MINIMUM CONTROLLABLE FLOW OF 250 CFH. CONTRACTOR SHALL SIZE AND ROUTE REGULATOR VENTING PER MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH A MAXIMUM EQUIVALENT LENGTH OF 60 FEET.	FISHER HSR, ITRON B42, SENSUS 143,
GR-4	GAS PRESSURE REGULATOR - CAST IRON BODY, INTERNAL PRESSURE RELIEF, THREADED CONNECTIONS, ADJUSTABLE PRESSURE SETTING, TIGHT SHUTOFF. 7 IN. W.C. INLET PRESSURE, OUTLET PRESSURE PER EQUIPMENT REQUIREMENTS, CFH CAPACITY AS SHOWN ON DRAWING, MINIMUM CONTROLLABLE FLOW OF 50 CFH. CONTRACTOR SHALL SIZE AND ROUTE REGULATOR VENTING PER MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH A MAXIMUM EQUIVALENT LENGTH OF 60 FEET.	FISHER HSR, ITRON B42, SENSUS 143,
HB-1	HOSE BIBB - FREEZELESS WALL HYDRANT, BRASS VALVE BODY AND SEAT, STANDARD FINISH, NON-FERROUS METAL STEM, AUTOMATIC DRAINING, VACUUM BREAKER, 3/4" MALE HOSE THREAD, WALL CLAMP, CONCEALED IN FLUSH MOUNTED LOCKABLE WALL BOX, KEY OPERATED, ASSE 1019 OR 1052 LISTED AND APPROVED. VERIFY NUMBER OF KEY OPERATORS TO BE PROVIDED WITH OWNER. BOX COVER AND HYDRANT SHALL USE A COMMON KEY. MOUNT AT 18" ABOVE GRADE UNLESS NOTED OTHERWISE ON DRAWINGS.	PRIER (C-6348X), WOODFORD (867), ZURN (Z1300), WATTS (HY-725), MIFAB (MHY-20), SMITH (5509QT), WADE (8700)

**PLUMBING MATERIAL LIST**

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
L-1	LAVATORY - UNDER-COUNTER MOUNTED, WHITE VITREOUS CHINA, 19"x16" O.D. OVAL BOWL, FRONT OVERFLOW. LAVATORY TRIM - TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, CONVENTIONAL SPOUT WITH AERATOR, SINGLE WING HANDLES AT 4" CENTERS, CERAMIC DISC CARTRIDGE, PERFORATED GRID STRAINER WITH 1-1/4" 17 GAUGE TAILPIECE. MAXIMUM FLOW TO BE 0.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1M. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. PROVIDE RESTRICTIVE DEVICE AS REQUIRED. PROVIDE WITH LEONARD 170-LF THERMOSTATIC MIING VALVE INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES, AND SUPPLY LINES. ACCESSORIES - QUARTER-TURN 3/8" CHROME PLATED HEAVY BRASS ANGLE SUPPLY LOOSE KEY STOPS, CHROME PLATED SOFT COPPER SUPPLY LINES, 1-1/4" 17 GAUGE CAST BRASS P-TRAP. COORDINATE OPENINGS REQUIRED IN COUNTERTOP WITH GENERAL CONTRACTOR. FIELD CUT OPENINGS WILL NOT BE ACCEPTABLE.	LAVATORY - AMERICAN STANDARD (0496.221) KOHLER (K-2210), SLOAN (SS-3001), TOTO (LT569) LAVATORY TRIM - AMERICAN STANDARD (5500.170), CHICAGO FAUCET (802), MOEN (8218) INSULATION KIT - TRUEBRO (LAV-GUARD), BROCAR PRODUCTS (TRAP WRAP), MCGUIRE (PROWRAP), PLUMBEX (PRO-EXTREME)
L-2	LAVATORY - ACCESSIBLE, WALL MOUNTED, WHITE VITREOUS CHINA, 20" X 18", FAUCET HOLES ON 4" CENTERS, DRILLED FOR CONCEALED ARM CARRIER. LAVATORY TRIM - TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, CONVENTIONAL SPOUT WITH AERATOR, SINGLE WING HANDLES AT 4" CENTERS, CERAMIC DISC CARTRIDGE, PERFORATED GRID STRAINER WITH 1-1/4" 17 GAUGE TAILPIECE. MAXIMUM FLOW TO BE 0.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1M. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. PROVIDE RESTRICTIVE DEVICE AS REQUIRED. PROVIDE WITH LEONARD 170-LF THERMOSTATIC MIING VALVE INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES AND SUPPLY LINES. ACCESSORIES - QUARTER-TURN 3/8" CHROME PLATED HEAVY BRASS ANGLE SUPPLY LOOSE KEY STOPS, CHROME PLATED SOFT COPPER SUPPLY LINES, DRAIN AND OFFSET TAILPIECE, 1-1/4" 17 GAUGE CAST BRASS P-TRAP, SUPPORT CARRIER. MOUNT LAVATORY WITH SUPPORT CARRIER BOLTED SECURELY TO FLOOR. TOP OF RIM SHALL BE AT 34" ABOVE FLOOR IN COMPLIANCE WITH LATEST ADA STANDARD. PROVIDE 29" MINIMUM CLEARANCE FROM FLOOR TO BOTTOM OF APRON IN COMPLIANCE WITH LATEST ANSI A117.1 AND ADA STANDARDS.	LAVATORY - KOHLER (K-2054), SLOAN (SS-3000), ZURN (Z5314) LAVATORY TRIM - AMERICAN STANDARD (5502.140), CHICAGO FAUCET (802) MOEN 8218, INSULATION KIT - TRUEBRO (LAV-GUARD), BROCAR PRODUCTS (TRAP WRAP), MCGUIRE (PROWRAP), PLUMBEX (PRO-EXTREME)
MB-1	MOP BASIN - PRECAST TERRAZZO, 24"x24"x12", STAINLESS STEEL INTEGRAL DRAIN WITH REMOVABLE STRAINER, 3" OUTLET, CONTINUOUS STAINLESS STEEL CAP ON ALL EDGES. TRIM - EXPOSED TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, SINGLE WING HANDLES, 1/4 TURN CERAMIC DISC CARTRIDGE, 3/4" HOSE THREAD SPOUT WITH INTEGRAL VACUUM BREAKER, WALL BRACE, PAIL HOOK, CHECK STOPS OR INLINE CHECK VALVES TO PREVENT THERMAL CROSSOVER. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. ACCESSORIES - MOP HANGER, HOSE AND HOSE BRACKET, TRAP ONE 24" WIDE STAINLESS STEEL WALL GUARD	MOP BASIN - FIAT (TSB-100), ACORN (TSH), CREATIVE INDUSTRIES (MC), WILLIAMS (SB) TRIM - AMERICAN STANDARD (8344.012), CHICAGO FAUCETS (897-CP), MOEN (8124) VACUUM BREAKER - WATTS (8A), OR APPROVED EQUAL
SH-1	SHOWER - ONE PIECE, FIBERGLASS CONSTRUCTION, WHITE GELCOATED FINISH, 36"x36" (NOMINAL), INTEGRAL SOAP DISH, 2" FLOOR DRAIN, CHROME-PLATED BRASS STRAINER. SHOWER VALVE - ACCESSIBLE, SINGLE HANDLE PRESSURE BALANCED MIXING FAUCET, BRASS OR BRONZE CONSTRUCTION, WASHERLESS DESIGN, OFF-COLD-HOT TEMPERATURE RANGE INDICATOR DIAL, POLISHED CHROME CAST METAL LEVER HANDLE, INTEGRAL CHECK STOPS, ADJUSTABLE TEMPERATURE LIMIT STOP. ASSE 1016 LISTED. ACCESSORIES - 1" DIAMETER CHROME-PLATED SHOWER ROD, COMMERCIAL GRADE VINYL SHOWER CURTAIN. MOUNT SHOWER ROD AS HIGH AS POSSIBLE. PROVIDE BLOCKING AT SHOWER ROD CONNECTIONS.	SHOWER - OASIS (SH-3636), AQUARIUS (G3679SH), AQUATIC (1363-BFSD) SHOWER VALVE - MOEN COMMERCIAL 8342/52236GBM25], SYMMONS 9605-PLR, AMERICAN STANDARD 1662.223
SK-1	SINK - ACCESSIBLE, SELF-RIMMING SINGLE COMPARTMENT WITH FAUCET DECK AND OVERFLOW, 18 GAUGE TYPE 304 STAINLESS STEEL, 24" (SIDE-TO-SIDE) x 22" (FRONT-TO-BACK) OVERALL SIZE, COMPLETELY UNDERCOATED, 3-1/2" DIAMETER DRAIN OUTLET LOCATION CENTERED IN BOWL, PERFORATED TYPE 304 STAINLESS STEEL GRID STRAINER. SINK TRIM - TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, GOOSENECK SWING SPOUT, NOMINAL 8" REACH, LAMINAR FLOW OUTLET, 6" WRISTBLADE HANDLES AT 8" CENTERS, 1/4-TURN OPERATION CERAMIC DISC CARTRIDGE. ACCESSORIES - OFFSET 1-1/2" 17 GAUGE CHROME-PLATED BRASS TAILPIECE AND P-TRAP, QUARTER-TURN BALL VALVE TYPE 3/8" CHROME-PLATED BRASS ANGLE SUPPLIES WITH LOOSE KEY STOPS, CHROME-PLATED SOFT COPPER SUPPLY LINES. INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES, AND SUPPLY LINES. <b>ALTERNATE #04</b>	SINK - ELKAY (LRAD/LKAD18), JUST (SL-ADA/J-ADA-35-FS), FRANKE (ALBS) SINK TRIM - CHICAGO FAUCET (895-317), AMERICAN STANDARD (7230.000), MOEN (8225), SPEAKMAN (SC-3000 SERIES), ZURN (Z831-XL) INSULATION KIT - MCGUIRE (PROWRAP), JUST (J-ADA), PLUMBEX (PRO-EXTREME), TRUEBRO (LAV-GUARD2)
SK-2	SINK - ACCESSIBLE, SELF-RIMMING DOUBLE COMPARTMENT WITH FAUCET DECK AND OVERFLOW IN EACH BOWL, 18 GAUGE TYPE 304 STAINLESS STEEL, COMPLETELY UNDERCOATED, 33" (SIDE-TO-SIDE) x 22" (FRONT-TO-BACK) OVERALL SIZE, EACH COMPARTMENT 13-1/2" x 16" x 6-1/8" DEEP, 3-1/2" DIAMETER DRAIN OUTLET LOCATION OFF-CENTERED REAR IN EACH BOWL, PERFORATED TYPE STAINLESS STEEL GRID STRAINER. SINK TRIM - TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, INTEGRAL CAST BODY, CHROME-PLATED FINISH, GOOSENECK SWING SPOUT, NOMINAL 8" REACH, AERATOR, 4" WRISTBLADE HANDLES AT 4" CENTERS, 1/4-TURN OPERATION CERAMIC DISC CARTRIDGE. SPRAY HOSE WITH LEVER CONTROL ACCESSORIES - OFFSET 1-1/2" 17 GAUGE CHROME-PLATED BRASS TAILPIECE AND P-TRAP, QUARTER-TURN BALL VALVE TYPE 3/8" CHROME-PLATED BRASS ANGLE SUPPLIES WITH LOOSE KEY STOPS, CHROME-PLATED SOFT COPPER SUPPLY LINES. INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES, AND SUPPLY LINES.	SINK - ELKAY (LRADQ33), JUST DL-ADA-1625-A-GR SINK TRIM - CHICAGO FAUCET (200), AMERICAN STANDARD (7231.000), MOEN (8244), SPEAKMAN (SC-3000 SERIES), ZURN (Z831-XL) INSULATION KIT - MCGUIRE (PROWRAP)
TD-1	TRENCH DRAIN - MODULAR, PRE-SLOPED, HEAVY DUTY PRECAST POLYMER CONCRETE, 4" WIDE CHANNEL, 0.6% SLOPE, INTEGRAL CATCH BASINS WITH SEDIMENT BUCKETS, 4" OUTLETS, LENGTH AS SHOWN ON DRAWINGS. GRATE - EXTRA HEAVY DUTY LOCKING DUCTILE IRON GRATE, CLASS E RATED.	SMITH (9895), ABT (POLYDRAIN), ACO (S100K), MIFAB (T1500)
UB-1	UTILITY BOX - UNPAINTED GALVANIZED STEEL OR WHITE PAINTED STEEL ENCLOSURE, MATCHING FACEPLATE , ANGLE VALVE WITH 1/4" COMPRESSION OUTLET, INTREGAL WATER HAMMER ARRESTOR.	GUY GRAY (BIM875AB)
UR-1	URINAL - ACCESSIBLE, WALL MOUNTED, WHITE VITREOUS CHINA, FLUSH VALVE TYPE, WASHOUT ACTION, ELONGATED RIM, EXTENDED SIDE SHIELDS, 3/4" TOP SPUD, 2" OUTLET. FLUSH VALVE - EXPOSED, MANUAL OPERATION, 0.5 GALLONS PER FLUSH, 11-1/2" ROUGH-IN, CHROME-PLATED, 3/4" I.P.S. SCREWDRIVER STOP-CHECK VALVE WITH VANDAL RESISTANT CAP, HIGH BACK PRESSURE VACUUM BREAKER, NON-HOLD-OPEN HANDLE, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, WALL FLANGE WITH SET SCREW, CHLORAMINE RESISTANT MATERIALS, 3-YEAR WARRANTY. CONTRACTOR OPTION: COMBINATION URINAL/FLUSH VALVE PACKAGED SYSTEM BY AMERICAN STANDARD, KOHLER, SLOAN, OR ZURN ACCESSORIES - SUPPORT CARRIER WITH TOP AND BOTTOM BEARING PLATES. MOUNT WITH CARRIER BOLTED SECURELY TO FLOOR. TOP OF BOWL RIM SHALL BE AT 17" (MAXIMUM) ABOVE FLOOR IN COMPLIANCE WITH LATEST ADA STANDARDS. FLUSH HANDLE SHALL BE AT 44" (MAXIMUM) ABOVE FLOOR AND OPERATE WITH NO GREATER THAN 5 LB FORCE IN COMPLIANCE WITH LATEST ADA STANDARDS. VERIFY EQUIPMENT REQUIREMENTS AND ROUGH-IN LOCATIONS.	URINAL - KOHLER (K-4991-ET), SLOAN (SU-1006/SU-1009), GERBER (27-780), TOTO (UT447) FLUSH VALVE - ZURN (Z6003AV), SLOAN (ROYAL 186), AMERICAN STANDARD (6045.051), KOHLER (K-13519-CP), TOTO (TMTJLN12WC) FLUSH VALVE - ZURN (Z6003AV), SLOAN (ROYAL 186), AMERICAN STANDARD (6045.051), KOHLER (K-13519-CP), TOTO (TMTJLN12WC) SEAT - BEMIS (1685SSCT), CHURCH (9500C), BENEKE (533), KOHLER (K-4666-C)
WC-1	WATER CLOSET - ACCESSIBLE, FLOOR MOUNTED, FLUSH VALVE TYPE, WHITE VITREOUS CHINA, SIPHON JET, WATER SAVING, ELONGATED BOWL, 1-1/2" TOP SPUD, BOLT CAPS. FLUSH VALVE - EXPOSED, MANUAL OPERATION, DUAL FLOW 1.6 GALLONS PER FLUSH, 11-1/2" ROUGH-IN, CHROME PLATED, 1" I.P.S. SCREWDRIVER STOP-CHECK VALVE WITH VANDAL RESISTANT CAP, HIGH BACK PRESSURE VACUUM BREAKER, SPUD COUPLING AND FLANGE, WALL FLANGE WITH SET SCREW, NON-HOLD-OPEN HANDLE, ADJUSTABLE TAILPIECE, ADA COMPLIANT, 3 YEAR WARRANTY. SEAT - WHITE, EXTRA HEAVY, OPEN FRONT, INJECTION MOLDED SOLID PLASTIC, SELF-SUSTAINING HINGE, STAINLESS STEEL OR PLATED STEEL POSTS AND NUTS. CONTRACTOR OPTION: COMBINATION WATER CLOSET/FLUSH VALVE PACKAGED SYSTEM BY AMERICAN STANDARD, KOHLER, SLOAN, OR ZURN TOP OF SEAT SHALL BE AT 17"-19" ABOVE FINISHED FLOOR. FLUSH HANDLE SHALL BE LOCATED ON THE WIDE SIDE OF THE TOILET STALL AND BE 12" (MAXIMUM) ABOVE BOWL RIM AND OPERATE WITH NO GREATER THAN 5 LB FORCE IN COMPLIANCE WITH LATEST ADA STANDARDS. VERIFY EQUIPMENT REQUIREMENTS AND ROUGH-IN LOCATIONS.	WATER CLOSET - AMERICAN STANDARD (3043.001), KOHLER (K-96057-0), SLOAN (ST-2023) FLUSH VALVE - ZURN (Z6000AV-DF), SLOAN (111), AMERICAN STANDARD (6047.161), KOHLER (K-13516-CP), TOTO (TMT1NNC-32) SEAT - BEMIS (1685SSCT), CHURCH (9500C), BENEKE (533), KOHLER (K-4666-C)
WH-1	WATER HEATER - GAS FIRED, CONDENSING, VERTICAL, MINIMUM 94% EFFICIENT, SEALED COMBUSTION, METAL CABINET, BAKED ENAMEL FINISH, ASME STAMPED GLASS-LINED STEEL OR STAINLESS STEEL TANK, 160 PSI WORKING PRESSURE, FIBERGLASS OR FOAM INSULATION, BRASS WATER CONNECTIONS AND DRAIN VALVE, ASME APPROVED T&P RELIEF VALVE, MULTIPLE MAGNESIUM ANODE RODS, VENT PIPING, CYCLOPONE MAXI BTH, BOCK (OT SERIES), BRADFORD WHITE (EF SERIES, RHEEM (GHE) 60 GALLON CAPACITY, 120,000 BTUH INPUT NATURAL GAS, 276 GPH RECOVERY AT 100°F RISE. ELECTRICAL REQUIREMENTS - 120V CIRCUIT FOR BLOWER AND CONTROLS, HARD-WIRED SET WATER TEMPERATURE AT 140°F. SET SUPPLY GAS PRESSURE AT 7" W.C. CONDENSATE DRAIN NEUTRALIZATION TANK - RATED FOR MAXIMUM 4,000 MBH WATER HEATER AND 32 GPH CONDENSATE FLOW, POLYPROPYLENE RECTANGULAR TANK, 1"FNPT INLET AND OUTLET, REMOVABLE ACCESS COVER FOR CLEANING AND PELLET REPLACEMENT, 12.5 LBS PH NEUTRALIZING PELLETS.	WATER HEATER - A.O. SMITH (CYCLOPONE MAXI BTH), BOCK (OT SERIES), BRADFORD WHITE (EF SERIES, RHEEM (GHE) NEUTRALIZATION TANK - JIM BOILER WORKS (NB-4), NUTRASAFE (CN4T)
WH-2	WATER HEATER - ELECTRIC INSTANTANEOUS POINT-OF-USE (FOR SINGLE LOW FLOW FIXTURE), HIGH STRENGTH REINFORCED PLASTIC BODY, 3/8" COMPRESSION FITTINGS, REPLACEABLE ELEMENT, NEMA 4 PAINTED STEEL WATERPROOF ENCLOSURE, HIGH TEMPERATURE LIMIT SWITCH, FLOW RESTRICTING AERATOR FOR FAUCET OUTLET, 150 PSI WORKING PRESSURE, 1-YEAR WARRANTY ON ELEMENT, 5-YEAR WARRANTY ON HEATER BODY/ELEMENT ASSEMBLY, UL LISTED. 56°F RISE AT 0.5 GPM, 4.1 KW ELEMENT ELECTRICAL REQUIREMENTS - 208V- 1 PHASE, HARD-WIRED MOUNT WATER HEATER ON WALL BELOW SINK OR LAVATORY. SET OUTPUT WATER TEMPERATURE AT 95°F.	EEMAX (SP), BRADFORD WHITE (ES), CHRONOMITE (SR)
WH-3	WATER HEATER - ELECTRIC, VERTICAL, METAL CABINET, BAKED ENAMEL FINISH, GLASS-LINED WELDED STEEL TANK, 150 PSI WORKING PRESSURE, FIBERGLASS OR FOAM INSULATION, BRASS WATER CONNECTIONS AND DRAIN VALVE, ASME APPROVED T&P RELIEF VALVE, MAGNESIUM ANODE ROD, LOW WATT DENSITY IMMERSION ELEMENTS, AUTOMATIC THERMOSTAT WITH EXTERNAL ADJUSTMENT, HIGH TEMPERATURE CUTOFF SWITCH, ENCLOSED CONTROLS AND ELECTRICAL JUNCTION BOX, 1-YEAR WARRANTY, UL LISTED, COMPLIANT TO NAECA, ASHRAE 90.1 AND ASHRAE 90A. 19 GALLON CAPACITY, 1-4500 WATT ELEMENT, 7 GPH RECOVERY AT 90°F RISE. ELECTRICAL REQUIREMENTS - 240 V, HARD-WIRED CONNECTION SET WATER TEMPERATURE AT 110°F.	A.O. SMITH (DEL-20), BOCK (LCE SERIES), AMERICAN (E61), BRADFORD WHITE (M-1), RHEEM (81VP)
YCO-1	YARD CLEANOUT - ROUND, DURA-COATED CAST IRON, SIZE AS LISTED ON DRAWINGS, DOUBLE FLANGED HOUSING, HEAVY DUTY SECURED SCORRIATED DURA-COATED CAST IRON COVER, LIFTING DEVICE, BRONZE CLEANOUT PLUG WITH GAS/WATER-TIGHT SEAL.	ZURN (Z1474), SMITH (4261), WADE (8401), JOSAM (58680), WATTS (CO-300-MF)



Bruce E Hart - Engineer  
MO# 22817

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Project Number: 2022.L5.2

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

**PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019**

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: P601.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:

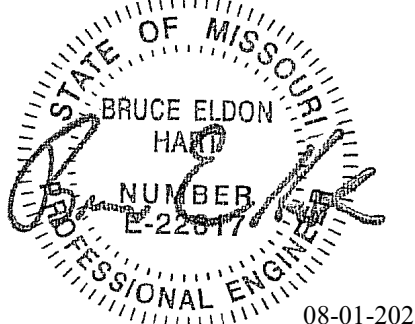
**PLUMBING SCHEDULES**

SHEET NUMBER:

**P601**

SHEET 135 OF 202

08/01/2023



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

Architects — Interior Designers — Construction Managers

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Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

**OFFICE OF ADMINISTRATION  
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: M000.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**MECHANICAL  
COVERSHEET**

SHEET NUMBER:

**M000**

SHEET 136 OF 202

08/01/2023

**VENTILATION GENERAL NOTES:**

- UNLESS NOTED OTHERWISE, THE SIZE OF EACH BRANCH DUCT TO A TERMINAL AIR BOX (TAB) SHALL MATCH THE INLET SIZE UNLESS THE BRANCH IS GREATER THAN 6FEET IN LENGTH, IN WHICH CASE THE BRANCH DUCT SHALL BE SIZED AT A PRESSURE DROP OF 0.07W C.F. PER 100' OF DUCTWORK.
- UNLESS NOTED OTHERWISE, THE SIZE OF EACH BRANCH DUCT TO AN AIR TERMINAL SHALL MATCH THE INLET SIZE.
- ALIGN TEMPERATURE SENSORS WITH LIGHT SWITCHES AND WHEN IN CLOSE PROXIMITY TO EACH OTHER.
- PROVIDE ACCESS DOORS AT ALL DUCT MOUNTED EQUIPMENT.
- EXISTING AIR INLET AND OUTLET CFM SHOWN ON DRAWINGS ARE FROM EXISTING DRAWINGS, AND ARE FOR REFERENCE ONLY. CONTRACTOR SHALL USE PRE-BALANCE VALUES, AND NOT EXISTING CFM SHOWN ON DRAWINGS.

**MECHANICAL GENERAL NOTES:**

- THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, MEDICAL GAS, VENTILATION, PIPING AND TEMPERATURE CONTROL.
- DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
  - DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
  - COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
  - REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
  - ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
  - EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT THAT DIFFERS FROM THE BASIS OF DESIGN.
  - REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
  - EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. IF THESE WORK CAUSES DAMAGE, IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
  - IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
  - SEAL ALL WALL AND ROOF PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
  - CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
  - WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
  - EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
  - DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
  - MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-6" IN FRONT OF ALL ELECTRICAL EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS.
  - MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING; DUCTWORK, PIPING, ETC.
  - PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
  - DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

**TAB POST-CONSTRUCTION NOTES:**

- AFTER CONSTRUCTION ACTIVITIES ARE COMPLETE, TESTING, ADJUSTING (TAB) AND BALANCING CONTRACTOR SHALL REBALANCE AIR HANDLING UNITS AND EXHAUST FANS AS REQUIRED TO ACHIEVE THE NEW AIRFLOW VALUES SHOWN ON THE CONSTRUCTION DRAWINGS.
- AREAS SERVED BY THIS EQUIPMENT WHICH WERE NOT RENOVATED SHALL BE RE-BALANCED TO THE AIRFLOW RATES MEASURED BEFORE THE RENOVATION OCCURRED (REFER TO THE FINAL PRE-DEMOLITION REPORT).
- IF DUCT TRAVERSE LOCATION AS MARKED ON THE DRAWINGS IS INACCESSIBLE FOR MEASUREMENT, THE TAB CONTRACTOR SHALL PERFORM THE TRAVERSE AT AN ALTERNATE LOCATION OR SHALL TAKE MULTIPLE DUCT TRAVERSES AND/OR GRILLE READINGS AS REQUIRED TO DETERMINE THE FLOW RATE. IN THE EVENT TRAVERSES ARE TAKEN AT AN ALTERNATE LOCATION(S), TAB CONTRACTOR SHALL INCLUDE A DRAWING THAT SHOWS THE LOCATIONS WHERE THE ACTUAL MEASUREMENTS WERE TAKEN.
- A DUCT STATIC PRESSURE READING SHALL BE TAKEN AT EACH LOCATION WHERE A DUCT TRAVERSE READING IS TAKEN AND SHALL BE INCLUDED IN THE FINAL POST-CONSTRUCTION TAB REPORT.
- TAB CONTRACTOR SHALL COMPILE AND SUBMIT COPIES OF THE FINAL POST-CONSTRUCTION TAB REPORT AS REQUIRED BY SECTION 23 05 93.
- THE FINAL POST CONSTRUCTION REPORT SHALL INCLUDE ALL ITEMS REQUIRED IN THE SPECIFICATIONS.

**MECHANICAL SHEET INDEX**

M000	MECHANICAL COVERSHEET
M211	FLOOR PLAN - VENTILATION - EAST
M212	FLOOR PLAN - VENTILATION - WEST
M213	FLOOR PLAN - VENTILATION - FIRING RANGE - ALTERNATE #04
M221	ROOF PLAN - VENTILATION - EAST
M222	ROOF PLAN - VENTILATION - WEST
M223	ROOF PLAN - VENTILATION - FIRING RANGE - ALTERNATE #04
M300	MECHANICAL ENLARGED PLANS
M400	MECHANICAL CONTROL DIAGRAMS
M401	MECHANICAL CONTROL DIAGRAMS
M402	MECHANICAL CONTROL DIAGRAMS - ALTERNATE #04
M403	MECHANICAL CONTROL DIAGRAMS
M500	MECHANICAL DETAILS
M501	MECHANICAL DETAILS
M502	MECHANICAL DETAILS
M503	MECHANICAL DETAILS
M504	MECHANICAL DETAILS
M505	MECHANICAL DETAILS
M506	MECHANICAL DETAILS
M600	MECHANICAL SCHEDULES
M601	MECHANICAL SCHEDULES
M602	MECHANICAL SCHEDULES
GRAND TOTAL:	22

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0 1 2 3  
REF. SCALE IN INCHES PROJECT #22003285.00

**MECHANICAL SYMBOL LIST**

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
→	DIRECTION OF AIR FLOW
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER
R	RISE IN DIRECTION OF AIR FLOW
D	DROP IN DIRECTION OF AIR FLOW
▭	DUCT CAP
▭	DUCT DOWN
▭	DUCT UP
⊠	SUPPLY/OUTSIDE AIR DUCT SECTION
⊠	RETURN AIR DUCT SECTION
⊠	EXHAUST/RELIEF AIR DUCT SECTION
⊠	4-WAY DIFFUSER WITH BLANKOFF IN ONE DIRECTION
SD-1 6/115	AIR TERMINAL PROPERTIES SYMBOL NECK SIZE/CFM
###	TERMINAL AIR BOX (REFER TO SCHEDULE)
###	TERMINAL AIR BOX w/REHEAT COIL (REFER TO SCHEDULE)
☐	FAN POWERED TERMINAL AIR BOX w/REHEAT COIL (REFER TO SCHEDULE)
▨	OPPOSED BLADE DAMPER (REFER TO SCHEDULE)
▨	PARALLEL BLADE DAMPER (REFER TO SCHEDULE)
⊖	DIFFERENTIAL PRESSURE SENSOR
⊖	OCCUPANCY SENSOR
⊖	PRESSURE SENSOR/MONITOR
⊖	PRESSURE SENSOR (DUCT MOUNTED)
⊖	THERMOSTAT/SENSOR
⊖	TEMPERATURE SENSOR
⊖	THERMOSTAT/SENSOR WITH HEAVY DUTY ENCLOSURE
⊖	TEMPERATURE SENSOR WITH WELL
⊖	THERMOMETER WITH WELL (DIAL TYPE)
⊖	THERMOMETER WITH WELL (FILLED TYPE)

**MECHANICAL ABBREVIATION KEY**

ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
C	COMMON
CO	CLEANOUT
CFSD	CONTROL/FIRE/SMOKE DAMPER
DPG (0-2")	DIFFERENTIAL PRESSURE GAUGE (RANGE)
DPS	DIFFERENTIAL PRESSURE SWITCH
EA	EXHAUST/RELIEF AIR
FD	FIRE DAMPER
FSD	FIRE/SMOKE DAMPER
MA	MIXED AIR
MV	MIXING VALVE
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
OA	OUTSIDE AIR
PS	PRESSURE SWITCH
RA	RETURN AIR
SA	SUPPLY AIR
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DAMPER
TAB	TERMINAL AIR BOX
TD	TRANSFER DUCT
TYP	TYPICAL
UC-1	DOOR UNDERCUT BY OTHERS (1" TYPICAL)
UON	UNLESS OTHERWISE NOTES

**MECHANICAL SYMBOL LIST**

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
BD	BOILER BLOW DOWN
BF	BOILER FEED WATER
CA	COMPRESSED AIR
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
DPP	DRAIN
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
G	NATURAL GAS
GV	GAS REGULATOR VENT
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
LIG	REFRIGERANT LIQUID
LPS	LOW PRESSURE STEAM
PC	PUMPED CONDENSATE
PD	PUMPED DISCHARGE
RUC	REFRIGERANT SUCTION
PC	PIPE CAP
PD	PIPE DOWN
↑	PIPE UP OR UP/DOWN
→	PITCH PIPE IN DIRECTION
→	DIRECTION OF FLOW IN PIPE
⊖	DIELECTRIC CONNECTION
⊖	UNION/FLANGE
⊖	SHUTOFF VALVE NORMALLY OPEN
⊖	SHUTOFF VALVE NORMALLY CLOSED
⊖	THROTTLING VALVE
⊖	BALANCING VALVE (NUMBER INDICATES GPM)
⊖	AUTOMATIC BALANCING VALVE
⊖	MIXING VALVE
⊖	CONTROL VALVE (THREE-WAY)
⊖	CONTROL VALVE (TWO-WAY)
⊖	SOLENOID VALVE
⊖	CHECK VALVE
⊖	BACKFLOW PREVENTER
⊖	SAFETY/RELIEF VALVE
⊖	PRESSURE REDUCING VALVE (LIQUID/GAS)
⊖	PRESSURE REDUCING VALVE (STEAM)
⊖	TRIPLE DUTY VALVE (ANGLE TYPE)
⊖	TRIPLE DUTY VALVE (IN-LINE TYPE)
⊖	PUMP
⊖	VACUUM BREAKER
⊖	"WYE" - STRAINER
⊖	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
⊖	BASKET STRAINER
⊖	FLEXIBLE CONNECTION
⊖	PRESSURE/TEMPERATURE TEST PLUG
⊖	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
⊖	SUCTION DIFFUSER WITH SUPPORT FOOT
⊖	AUTOMATIC AIR VENT
⊖	MANUAL AIR VENT
⊖	DRAIN VALVE WITH HOSE CONNECTION AND CAP
⊖	PRESSURE SENSOR (FURNISHED WITH BALL VALVE)
⊖	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
⊖	DIFFERENTIAL PRESSURE SENSOR
⊖	STATIC SWITCH
⊖	FLOW METER
⊖	FLOW SWITCH
⊖	FLOW SENSOR
⊖	ALIGNMENT GUIDE
⊖	PIPE ANCHOR
⊖	EXPANSION JOINT #.#" IS THE EXPANSION TRAVEL INCHES
⊖	METER

**VIEW KEY**

NAME 10'-0"	LEVEL NAME HEIGHT ABOVE PROJECT 0'-0"	INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL.
----------------	--	--

INDICATES DIRECTION OF TRUE NORTH  
PLAN OR DETAIL NUMBER  
PLAN OR DETAIL NAME  
PLAN OR DETAIL SCALE  
1/8" = 1'-0"

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS  
DETAIL REFERRED TO BY SECTION CUT  
SHEET DETAIL IS LOCATED ON

**LINE TYPE AND TAG KEY:**

**NEW WORK BY THIS CONTRACTOR (WIDE LINE)**  
 ——— NEW  
 - - - - - EXISTING TO BE REMOVED (SHORT DASHED PATTERN)  
 - - - - - NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

**EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)**  
 ——— EXISTING  
 - - - - - EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)  
 - - - - - EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE.

\*TAG-'E TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

**TAG** UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

⊕ INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

**APPLICABLE CODES**

CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS.

BUILDING CODE:	IBC 2018 EDITION
FIRE CODE:	IFC 2018 EDITION
PLUMBING CODE:	IPC 2018 EDITION
MECHANICAL CODE:	IMC 2018 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2017 EDITION
ENERGY CONSERVATION CODE:	ASHRAE 90.1 2019
HEALTH DEPARTMENT CODE:	CURRENT EDITION
LOCAL BUILDING CODE:	CURRENT EDITION

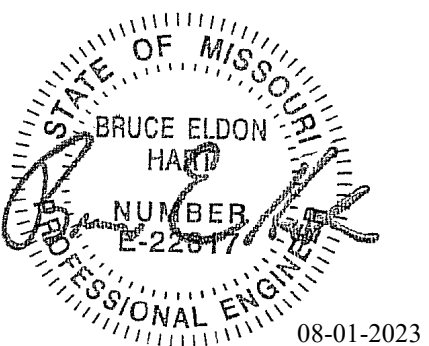
**CONTRACTOR ABBREVIATION KEY**

ABBR:	DESCRIPTION:
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
S.C.	SECURITY CONTRACTOR

**CONTACT PERSONS:**

DESCRIPTION:	PERSON:
PROJECT MANAGER	ANDY MEYER, AIA, LEED AP BD+C - GASTINGER WALKER AMEYER@GASTINGERWALKER.COM 816.569.0624
MECHANICAL	BRUCE E. HART, P.E., LEED AP - IMEG BRUCE.E.HART@IMEGCORP.COM 816.652.0091
ELECTRICAL	PHILLIP I. PARRA, P.E. - IMEG PHILLIP.I.PARRA@IMEGCORP.COM 816.652.0109
TECHNOLOGY	NICK WNUK, RCDD, CPP, PMP - IMEG NICK.J.WNUK@IMEGCORP.COM 314.951.2546





Bruce E Hart - Engineer  
MO# 22817

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Project Name:  
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MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
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REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: M211.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
FLOOR PLAN -  
VENTILATION - EAST

SHEET NUMBER:

**M211**

SHEET 137 OF 202

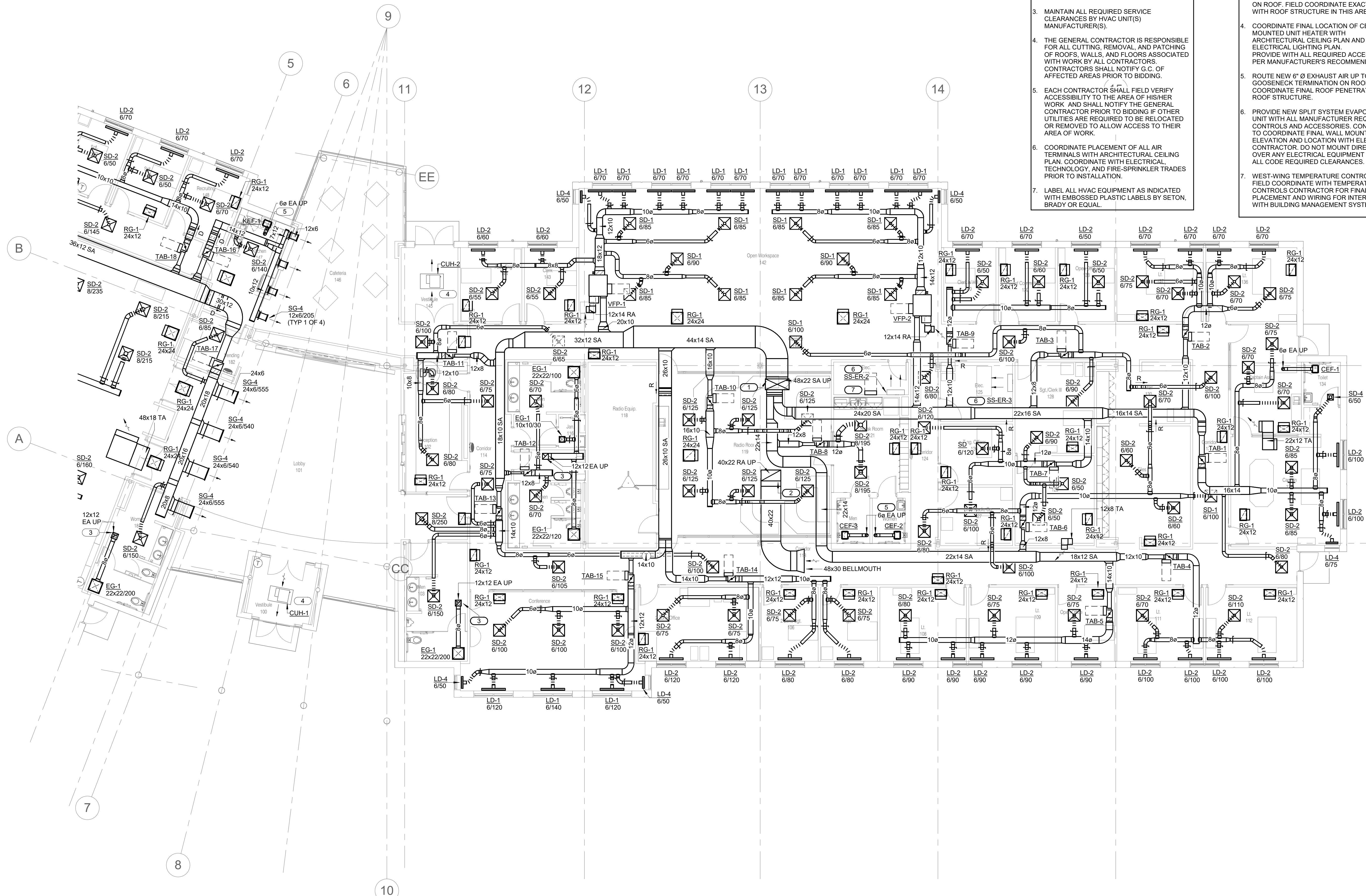
08/01/2023

**SHEET NOTES:**

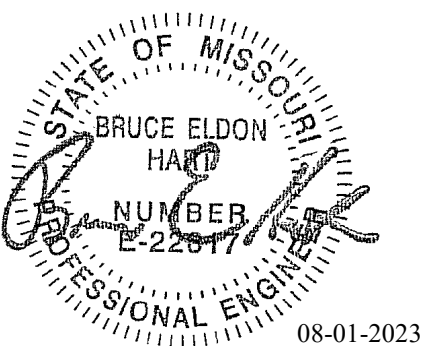
1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
3. MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
5. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS/HER WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE RELOCATED OR REMOVED TO ALLOW ACCESS TO THEIR AREA OF WORK.
6. COORDINATE PLACEMENT OF ALL AIR TERMINALS WITH ARCHITECTURAL CEILING PLAN. COORDINATE WITH ELECTRICAL, TECHNOLOGY, AND FIRE-SPRINKLER TRADES PRIOR TO INSTALLATION.
7. LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.

**KEYNOTES: #**

1. ROUTE SUPPLY AIR DUCT RISER UP TO RTU-2 ON ROOF. FIELD COORDINATE EXACT ROUTING WITH ROOF STRUCTURE IN THIS AREA.
2. ROUTE RETURN AIR DUCT RISER UP TO RTU-2 ON ROOF. FIELD COORDINATE EXACT ROUTING WITH ROOF STRUCTURE IN THIS AREA.
3. ROUTE EXHAUST AIR DUCT RISER UP TO ASSOCIATED POWER VENTILATOR FAN UNIT ON ROOF. FIELD COORDINATE EXACT ROUTING WITH ROOF STRUCTURE IN THIS AREA.
4. COORDINATE FINAL LOCATION OF CEILING MOUNTED UNIT HEATER WITH ARCHITECTURAL CEILING PLAN AND ELECTRICAL LIGHTING PLAN. PROVIDE WITH ALL REQUIRED ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS.
5. ROUTE NEW 6" Ø EXHAUST AIR UP TO GOOSENECK TERMINATION ON ROOF. COORDINATE FINAL ROOF PENETRATION WITH ROOF STRUCTURE.
6. PROVIDE NEW SPLIT SYSTEM EVAPORATOR UNIT WITH ALL MANUFACTURER REQUIRED CONTROLS AND ACCESSORIES. CONTRACTOR TO COORDINATE FINAL WALL MOUNTED ELEVATION AND LOCATION WITH ELECTRICAL CONTRACTOR. DO NOT MOUNT DIRECTLY OVER ANY ELECTRICAL EQUIPMENT AND MEET ALL CODE REQUIRED CLEARANCES.
7. WEST-WING TEMPERATURE CONTROL PANEL. FIELD COORDINATE WITH TEMPERATURE CONTROLS CONTRACTOR FOR FINAL PLACEMENT AND WIRING FOR INTERFACE WITH BUILDING MANAGEMENT SYSTEM.



1 FLOOR PLAN - VENTILATION - EAST  
1/8" = 1'-0"  
0 2 4 8  
NORTH



Bruce E Hart - Engineer  
 MO# 22817

**Gastinger Walker &**

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CAD DRAWN FILE: M212.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
 FLOOR PLAN -  
 VENTILATION - WEST

SHEET NUMBER:

**M212**

SHEET 138 OF 202

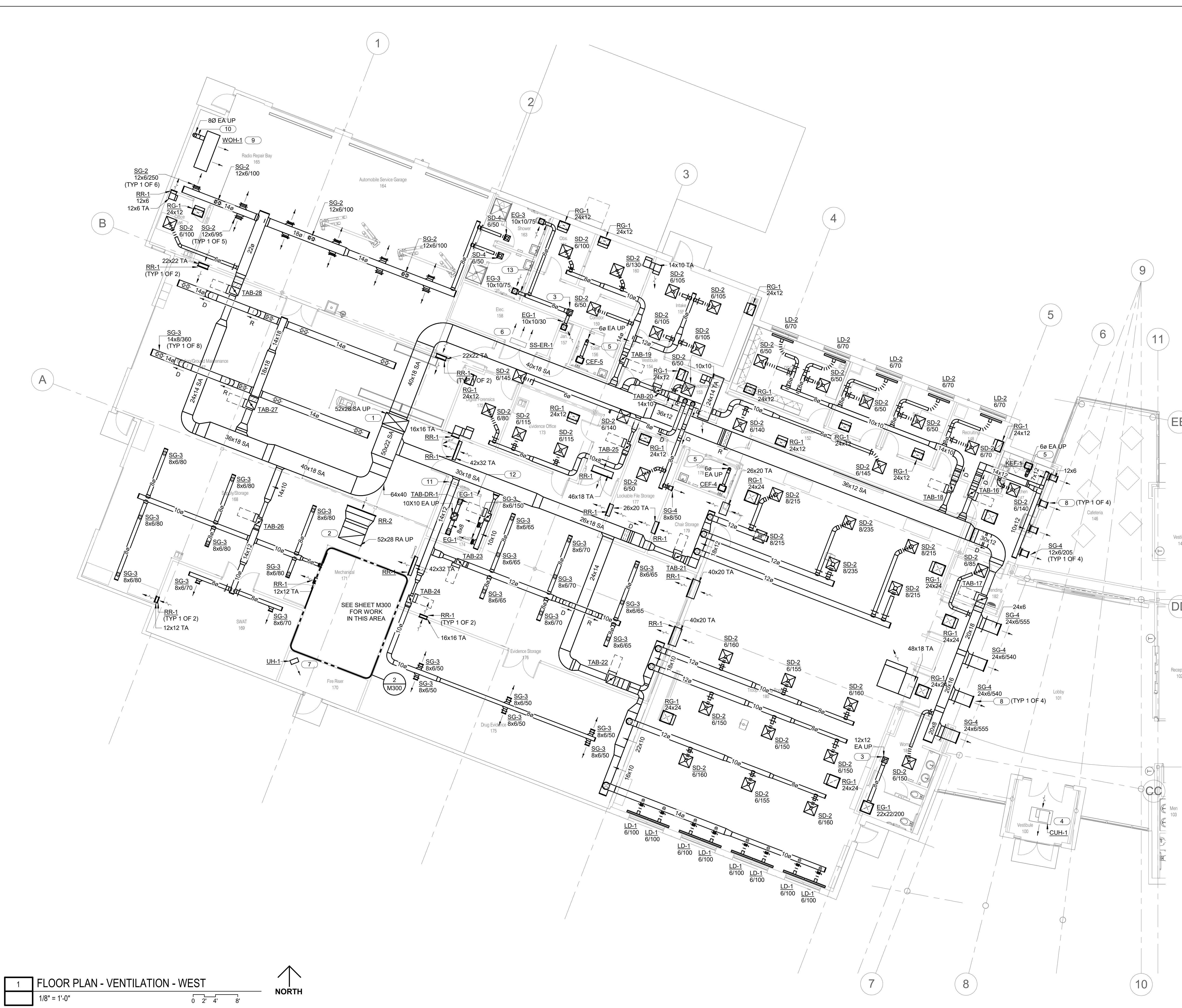
08/01/2023

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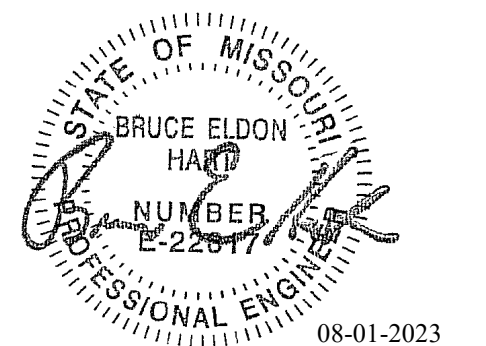
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3. MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
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7. LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.

**KEYNOTES: #**

1. ROUTE SUPPLY AIR DUCT RISER UP TO RTU-1 ON ROOF. FIELD COORDINATE EXACT ROUTING WITH ROOF STRUCTURE IN THIS AREA.
2. ROUTE RETURN AIR DUCT RISER UP TO RTU-1 ON ROOF. FIELD COORDINATE EXACT ROUTING WITH ROOF STRUCTURE IN THIS AREA.
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5. ROUTE NEW 6" Ø EXHAUST AIR UP TO GOOSENECK TERMINATION ON ROOF. COORDINATE FINAL ROOF PENETRATION WITH ROOF STRUCTURE.
6. PROVIDE NEW SPLIT SYSTEM EVAPORATOR UNIT WITH ALL MANUFACTURER REQUIRED CONTROLS AND ACCESSORIES. CONTRACTOR TO COORDINATE FINAL WALL MOUNTED ELEVATION AND LOCATION WITH ELECTRICAL CONTRACTOR. DO NOT MOUNT DIRECTLY OVER ANY ELECTRICAL EQUIPMENT AND MEET ALL CODE REQUIRED CLEARANCES.
7. COORDINATE FINAL MOUNTING LOCATION OF UNIT HEATER WITH ALL FIRE RISER ROOM EQUIPMENT AND PIPING. PROVIDE WITH ALL ASSOCIATED CONTROLS AND ACCESSORIES. REFER TO MECHANICAL SCHEDULES FOR PERFORMANCE INFORMATION.
8. CONTRACTOR TO FIELD COORDINATE WITH ARCHITECTURAL FINISH PLAN FOR FINAL LOCATION OF SIDE-WALL MOUNTED GRILLES. CENTER IN WALL PANEL AS REQUIRED FOR EQUAL SPACING.
9. BASE BID: OWNER-PROVIDED WASTE OIL HEATER AND ASSOCIATED STORAGE TANK - CONTRACTOR TO INSTALL WITH ALL ASSOCIATED CONTROLS. COORDINATE FINAL REQUIREMENTS WITH OWNER AND GENERAL CONTRACTOR. ALTERNATE #1: PROVIDE NEW WASTE OIL HEATER WOH-1, ASSOCIATED STORAGE TANK AND ALL CONTROLS. REFER TO MECHANICAL SCHEDULES FOR FURTHER INFORMATION.
10. ROUTE WASTE OIL FLUE STACK TO ROOF AND TERMINATE WITH GOOSENECK FITTING. COORDINATE FINAL ROUTING AND PENETRATION LOCATION WITH ROOF STRUCTURE.
11. PROVIDE NEW LOCAL START / TIMER SWITCH FOR EF-DR-1 FAN - COORDINATE FINAL MOUNTING LOCATION WITH ARCHITECTURAL FINISH PLAN AND ALL OTHER WALL MOUNTED EQUIPMENT IN THIS LOCATION. FIELD COORDINATE WIRING REQUIREMENTS WITH TEMPERATURE CONTROLS CONTRACTOR. SEE MECHANICAL CONTROL DIAGRAM 5/M403 FOR FURTHER INFORMATION.
12. PROVIDE NEW ROOM PRESSURE SENSOR AND INTERFACE WITH EF-DR-1 AND TAB-DR-1 SYSTEM.
13. EXHAUST DUCTWORK ON EF-4 SYSTEM SHALL BE ALUMINUM ON ALL RUNS AND FITTINGS.



**1 FLOOR PLAN - VENTILATION - WEST**  
 1/8" = 1'-0"  
 NORTH



Bruce E Hart - Engineer  
 MO# 22817

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CAD DWG FILE: M213.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN -  
 VENTILATION - FIRING  
 RANGE - ALTERNATE #04**

SHEET NUMBER:

**M213**

SHEET 139 OF 202

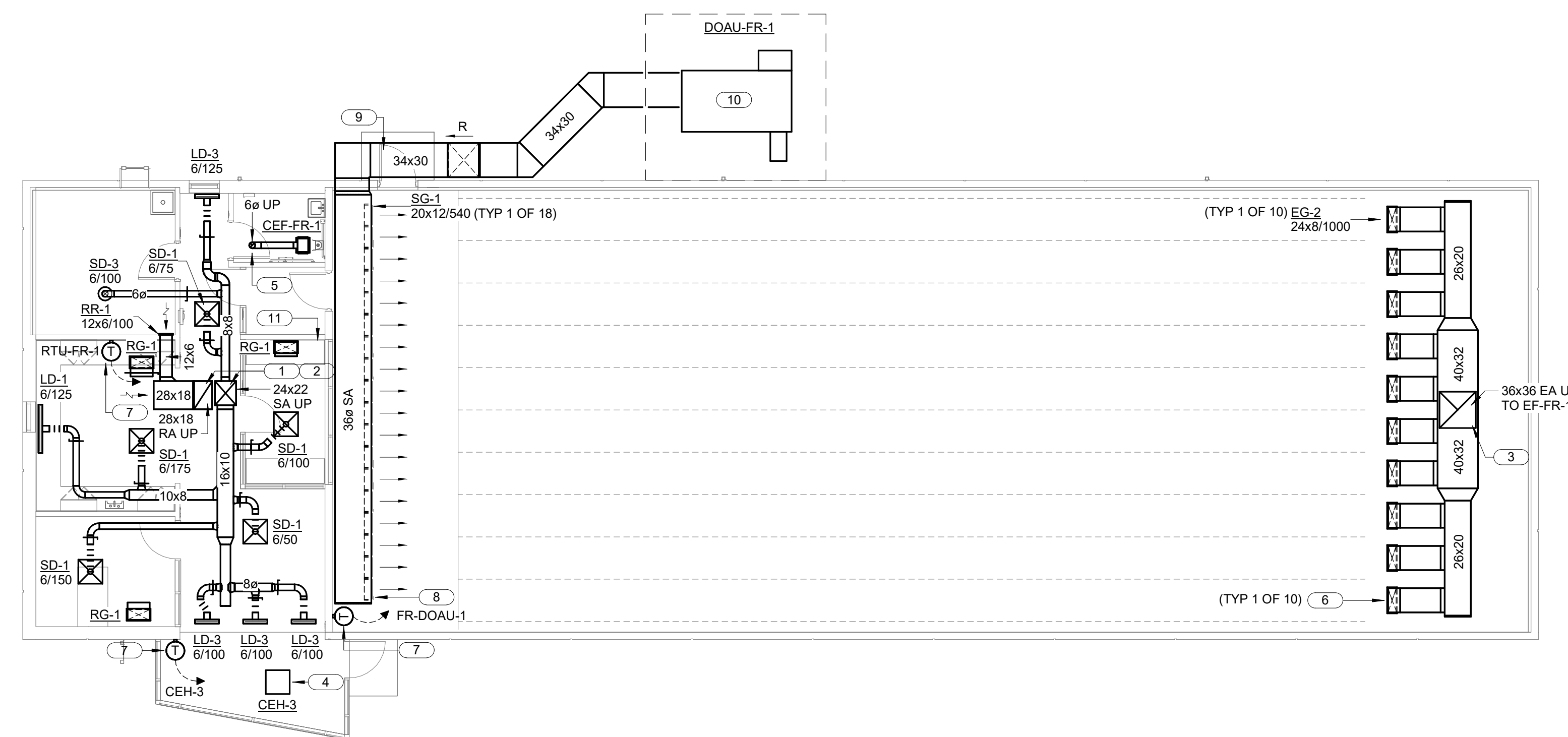
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**SHEET NOTES:**

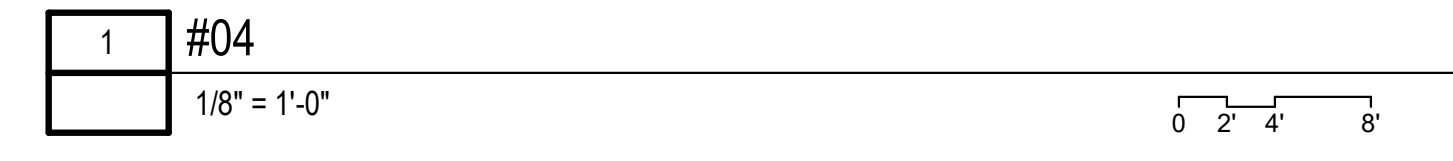
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
- MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
- EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS/HER WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE RELOCATED OR REMOVED TO ALLOW ACCESS TO THEIR AREA OF WORK.
- COORDINATE PLACEMENT OF ALL AIR TERMINALS WITH ARCHITECTURAL CEILING PLAN, COORDINATE WITH ELECTRICAL, TECHNOLOGY, AND FIRE-SPRINKLER TRADES PRIOR TO INSTALLATION.
- LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.
- ALL WORK SHOWN ON THIS SHEET SHALL BE CLASSIFIED AS PROJECT ALTERNATE #4.

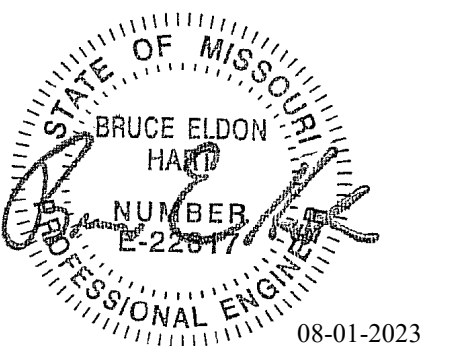
**KEYNOTES: #**

- ROUTE SUPPLY AIR DUCT RISER UP TO RTU-FR-1 ON ROOF. FIELD COORDINATE EXACT ROUTING WITH ROOF STRUCTURE IN THIS AREA.
- ROUTE RETURN AIR DUCT RISER UP TO RTU-FR-1 ON ROOF. FIELD COORDINATE EXACT ROUTING WITH ROOF STRUCTURE IN THIS AREA.
- ROUTE EXHAUST AIR DUCT RISER UP TO ASSOCIATED POWER VENTILATOR FAN UNIT ON ROOF. FIELD COORDINATE EXACT ROUTING WITH ROOF STRUCTURE IN THIS AREA.
- COORDINATE FINAL LOCATION OF CEILING MOUNTED UNIT HEATER WITH ARCHITECTURAL CEILING PLAN AND ELECTRICAL LIGHTING PLAN. PROVIDE WITH ALL REQUIRED ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS.
- ROUTE NEW 6" Ø EXHAUST AIR UP TO GOOSENECK TERMINATION ON ROOF. COORDINATE FINAL ROOF PENETRATION WITH ROOF STRUCTURE.
- COORDINATE FINAL PLACEMENT OF FIRING LINE EXHAUST GRILLE WITH GENERAL CONTRACTOR AND ARCHITECTURAL CASEWORK. CENTER IN FIRING LINE STALL.
- PROVIDE NEW THERMOSTAT AND LENGTH OF SHIELDED POWER AND CONTROL WIRING AS REQUIRED IN THIS LOCATION. FIELD COORDINATE FINAL MOUNTING POSITION WITH ARCHITECTURAL FINISH PLAN AND ALL OTHER DEVICES.
- MOUNT ROUND OUTSIDE AIR DUCT/PLENUM AS HIGH AS POSSIBLE AND COORDINATE WITH FIRING LINE CEILING GRID. PROVIDE PERFORATED DIFFUSERS SIDE-BY-SIDE AND CENTER DIFFUSER ASSEMBLY AS REQUIRED. REFER TO MECHANICAL DETAIL 6/M504 FOR ADDITIONAL INFORMATION.
- PROVIDE DOUBLE-WALL SUPPLY DUCTWORK AND SECURE TO BUILDING EXTERIOR. COORDINATE WITH BUILDING ENTRY DOOR AND MOUNT AS HIGH AS POSSIBLE. PROVIDE AIR TURNING VANES IN ALL MITERED ELBOW FITTINGS.
- GRADE MOUNTED DEDICATED OUTSIDE AIR UNIT. FIELD COORDINATE FINAL INSTALLATION LOCATION WITH GENERAL CONTRACTOR AND CIVIL SITE CONTRACTOR. PROVIDE WITH ALL PACKAGED CONTROLS AND ACCESSORIES. CONTROLS CONTRACTOR TO INTERFACE UNIT OPERATION WITH FIRING LINE EXHAUST FAN EF-FR-1 OPERATION. REFER TO MECHANICAL CONTROLS DIAGRAMS AND MECHANICAL DETAIL 1/M500 FOR EQUIPMENT SUPPORT INFORMATION.
- PROVIDE NEW START SWITCH FOR DOAU-FR-1 AND EF-FR-1 IN FIRING LINE CONTROL ROOM. COORDINATE FINAL REQUIREMENTS WITH TEMPERATURE CONTROLS CONTRACTOR. REFER TO MECHANICAL CONTROL DIAGRAMS FOR FURTHER INFORMATION.



FLOOR PLAN - VENTILATION - FIRING RANGE - ALTERNATE #04





Bruce E Hart - Engineer  
 MO# 22817

# Gastinger Walker &

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.152

IMEG, CORP.  
 Missouri Certificate of Authority: #F001325536

## OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: M221.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**ROOF PLAN -  
 VENTILATION - EAST**

SHEET NUMBER:

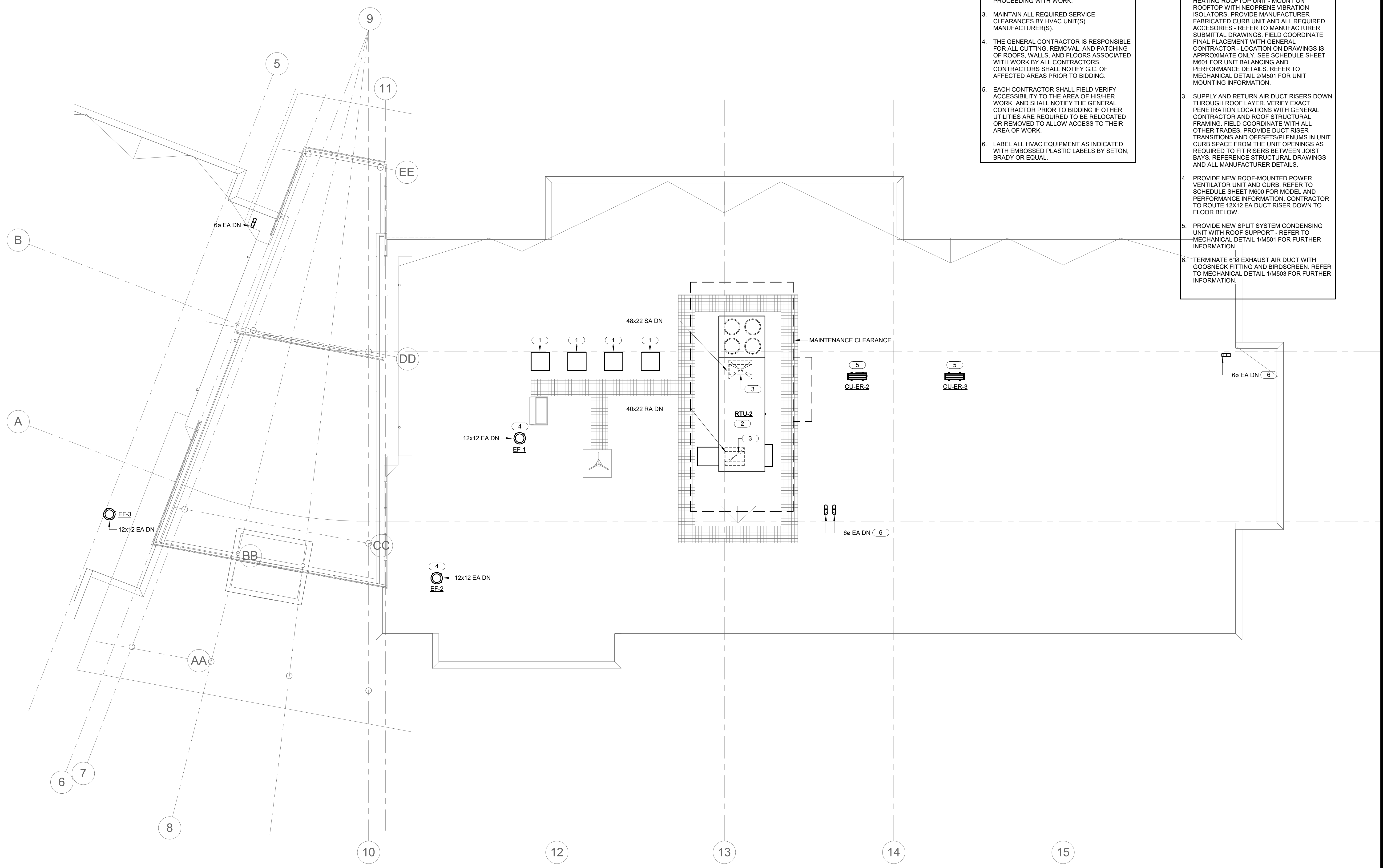
# M221

SHEET 140 OF 202

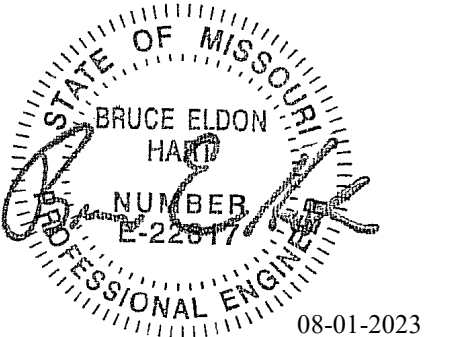
08/01/2023

- SHEET NOTES:**
1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  2. NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
  3. MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
  4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
  5. EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS/HER WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE RELOCATED OR REMOVED TO ALLOW ACCESS TO THEIR AREA OF WORK.
  6. LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.

- KEYNOTES: #**
1. DATA ROOM CONDENSING UNIT TO BE PURCHASED BY OWNER AND RECEIVED/DELIVERED TO SITE BY GENERAL CONTRACTOR. UNIT AND CURB TO BE INSTALLED BY MECHANICAL CONTRACTOR. FIELD COORDINATE FINAL MOUNTING LOCATION WITH GENERAL CONTRACTOR.
  2. NEW PACKAGED DX-COOLING / HYDRONIC HEATING ROOFTOP UNIT - MOUNT ON ROOFTOP WITH NEOPRENE VIBRATION ISOLATORS. PROVIDE MANUFACTURER FABRICATED CURB UNIT AND ALL REQUIRED ACCESSORIES - REFER TO MANUFACTURER SUBMITTAL DRAWINGS. FIELD COORDINATE FINAL PLACEMENT WITH GENERAL CONTRACTOR - LOCATION ON DRAWINGS IS APPROXIMATE ONLY. SEE SCHEDULE SHEET M601 FOR UNIT BALANCING AND PERFORMANCE DETAILS. REFER TO MECHANICAL DETAIL 2/M501 FOR UNIT MOUNTING INFORMATION.
  3. SUPPLY AND RETURN AIR DUCT RISERS DOWN THROUGH ROOF LAYER. VERIFY EXACT PENETRATION LOCATIONS WITH GENERAL CONTRACTOR AND ROOF STRUCTURAL FRAMING. FIELD COORDINATE WITH ALL OTHER TRADES. PROVIDE DUCT RISER TRANSITIONS AND OFFSETS/PLENUMS IN UNIT CURB SPACE FROM THE UNIT OPENINGS AS REQUIRED TO FIT RISERS BETWEEN JOIST BAYS. REFERENCE STRUCTURAL DRAWINGS AND ALL MANUFACTURER DETAILS.
  4. PROVIDE NEW ROOF-MOUNTED POWER VENTILATOR UNIT AND CURB. REFER TO SCHEDULE SHEET M600 FOR MODEL AND PERFORMANCE INFORMATION. CONTRACTOR TO ROUTE 12X12 EA DUCT RISER DOWN TO FLOOR BELOW.
  5. PROVIDE NEW SPLIT SYSTEM CONDENSING UNIT WITH ROOF SUPPORT - REFER TO MECHANICAL DETAIL 1/M501 FOR FURTHER INFORMATION.
  6. TERMINATE 6" EXHAUST AIR DUCT WITH GOOSNECK FITTING AND BIRDSCREEN. REFER TO MECHANICAL DETAIL 1/M503 FOR FURTHER INFORMATION.



1 ROOF PLAN - VENTILATION - EAST  
 1/8" = 1'-0"  
 0 2 4 8  
 NORTH



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

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Lee's Summit, MO 64086

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FACILITY # 8136018019

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REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: M222.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
ROOF PLAN -  
VENTILATION - WEST

SHEET NUMBER:

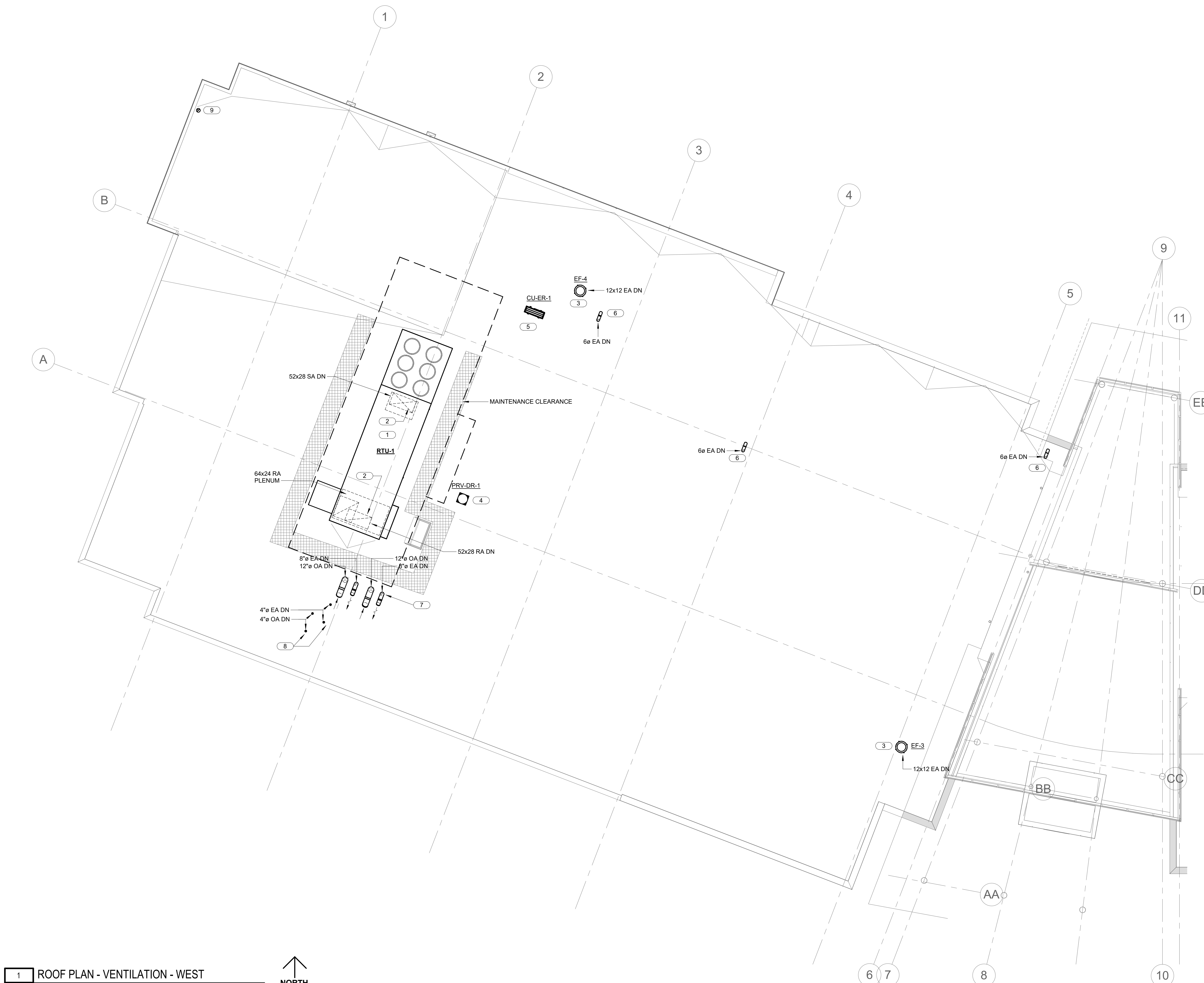
**M222**

SHEET 141 OF 202

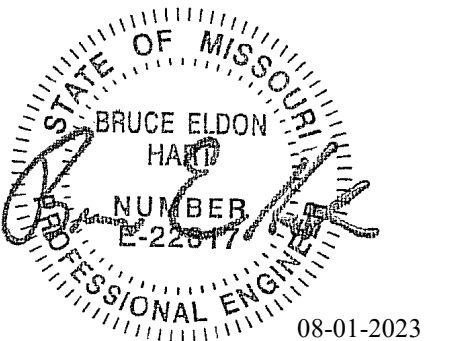
08/01/2023

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  - NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
  - MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
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  - EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS/HER WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE RELOCATED OR REMOVED TO ALLOW ACCESS TO THEIR AREA OF WORK.
  - LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.

- KEYNOTES: #**
- NEW PACKAGED DX-COOLING / HYDRONIC HEATING ROOF-TOP UNIT - MOUNT ON ROOFTOP WITH NEOPRENE VIBRATION ISOLATORS. PROVIDE MANUFACTURER FABRICATED CURB UNIT AND ALL REQUIRED ACCESSORIES - REFER TO MANUFACTURER SUBMITTAL DRAWINGS. FIELD COORDINATE FINAL PLACEMENT WITH GENERAL CONTRACTOR - LOCATION ON DRAWINGS IS APPROXIMATE ONLY. SEE SCHEDULE SHEET M601 FOR UNIT BALANCING AND PERFORMANCE DETAILS. REFER TO MECHANICAL DETAIL 2/M501 FOR UNIT MOUNTING INFORMATION.
  - SUPPLY AND RETURN AIR DUCT RISERS DOWN THROUGH ROOF LAYER. VERIFY EXACT PENETRATION LOCATIONS WITH GENERAL CONTRACTOR AND ROOF STRUCTURAL FRAMING. FIELD COORDINATE WITH ALL OTHER TRADES. PROVIDE DUCT RISER TRANSITIONS AND OFFSETS/PLENUMS IN UNIT CURB SPACE FROM THE UNIT OPENINGS AS REQUIRED TO FIT RISERS BETWEEN JOIST BAYS. REFERENCE STRUCTURAL DRAWINGS AND ALL MANUFACTURER DETAILS.
  - PROVIDE NEW ROOF-MOUNTED POWER VENTILATOR UNIT AND CURB. REFER TO SCHEDULE SHEET M600 FOR MODEL AND PERFORMANCE INFORMATION. CONTRACTOR TO ROUTE 12X12 EA DUCT RISER DOWN TO FLOOR BELOW.
  - PROVIDE NEW ROOF-MOUNTED POWER VENTILATOR UNIT AND CURB. REFER TO SCHEDULE SHEET M600 FOR MODEL AND PERFORMANCE INFORMATION. CONTRACTOR TO ROUTE 10X10 EA DUCT RISER DOWN TO FLOOR BELOW.
  - PROVIDE NEW SPLIT SYSTEM CONDENSING UNIT WITH ROOF SUPPORT - REFER TO MECHANICAL DETAIL 1/M501 FOR FURTHER INFORMATION.
  - TERMINATE 6" EXHAUST AIR DUCT WITH GOOSNECK FITTING AND BIRDSCREEN. REFER TO MECHANICAL DETAIL 1/M503 FOR FURTHER INFORMATION.
  - TERMINATE HYDRONIC BOILER INTAKE/FLUE STACKS WITH GOOSNECK FITTING AND BIRDSCREEN. FIELD COORDINATE FINAL ROOF PENETRATION WITH ROOF STRUCTURE. MAINTAIN 10'-0" CLEAR DISTANCE FROM RTU-1 OUTSIDE AIR INTAKE. TERMINATE BOILER INTAKE DUCTS ABOVE BOILER FLUE DUCTS. REFER TO MECHANICAL DETAIL 1/M503 FOR FURTHER INFORMATION.
  - TERMINATE WATER HEATER INTAKE/FLUE STACKS WITH GOOSNECK FITTING AND BIRDSCREEN. FIELD COORDINATE FINAL ROOF PENETRATION WITH ROOF STRUCTURE. MAINTAIN 10'-0" CLEAR DISTANCE FROM RTU-1 OUTSIDE AIR INTAKE. REFER TO MECHANICAL DETAIL 1/M503 FOR FURTHER INFORMATION.
  - NEW EXHAUST FLUE DUCT FOR GARAGE WASTE OIL HEATER UNIT. TERMINATE DUCT WITH GOOSNECK FITTING AND BIRDSCREEN. REFER TO MECHANICAL DETAIL 1/M503 FOR FURTHER INFORMATION.



1 ROOF PLAN - VENTILATION - WEST  
1/8" = 1'-0"  
0 2' 4' 8'  
NORTH



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

OFFICE OF  
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Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: M223.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
ROOF PLAN -  
VENTILATION - FIRING  
RANGE - ALTERNATE #04

SHEET NUMBER:

**M223**

SHEET 142 OF 202

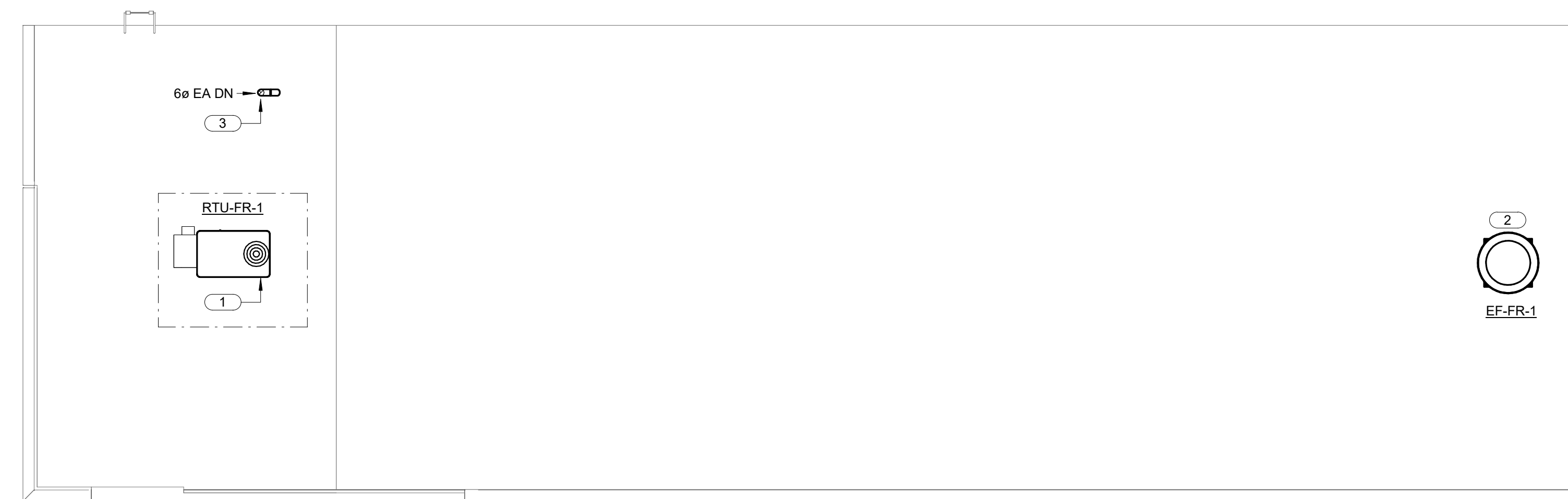
08/01/2023

**SHEET NOTES:**

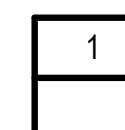
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6. LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.
7. ALL WORK SHOWN ON THIS SHEET SHALL BE CLASSIFIED AS PROJECT ALTERNATE #4.

**KEYNOTES: #**

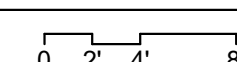
1. NEW GAS-HEAT / DX-COOLING ROOFTOP UNIT - PROVIDE WITH MANUFACTURER FABRICATED CURB AND ALL REQUIRED ACCESSORIES. COORDINATE FINAL PLACEMENT WITH GENERAL CONTRACTOR AND ROUTE SUPPLY AND RETURN AIR RISERS DOWN THROUGH ROOF STRUCTURE.
2. PROVIDE NEW FIRING-LINE POWER-ROOF VENTILATOR EXHAUST FAN UNIT AND COORDINATE WITH CONTROLS CONTRACTOR FOR OPERATION INTERFACE WITH GRADE-MOUNTED OUTDOOR AIR UNIT DOAU-FR-1. REFER TO MECHANICAL SCHEDULES FOR PERFORMANCE INFORMATION.
3. TERMINATE 6"Ø EXHAUST AIR DUCT WITH GOOSNECK FITTING AND BIRDSCREEN. REFER TO MECHANICAL DETAIL 1/M903 FOR FURTHER INFORMATION.

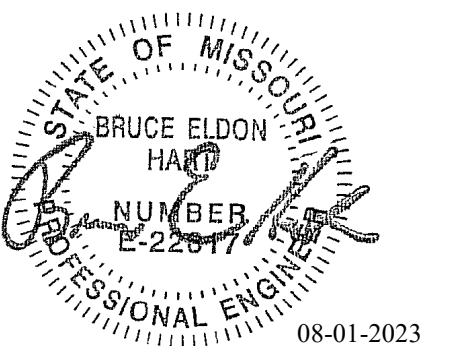


ROOF PLAN - VENTILATION - FIRING RANGE - ALTERNATE #04



1/8" = 1'-0"





Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.15.2

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

OFFICE OF  
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Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: M300.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
MECHANICAL  
ENLARGED PLANS

SHEET NUMBER:

**M300**

SHEET 143 OF 202

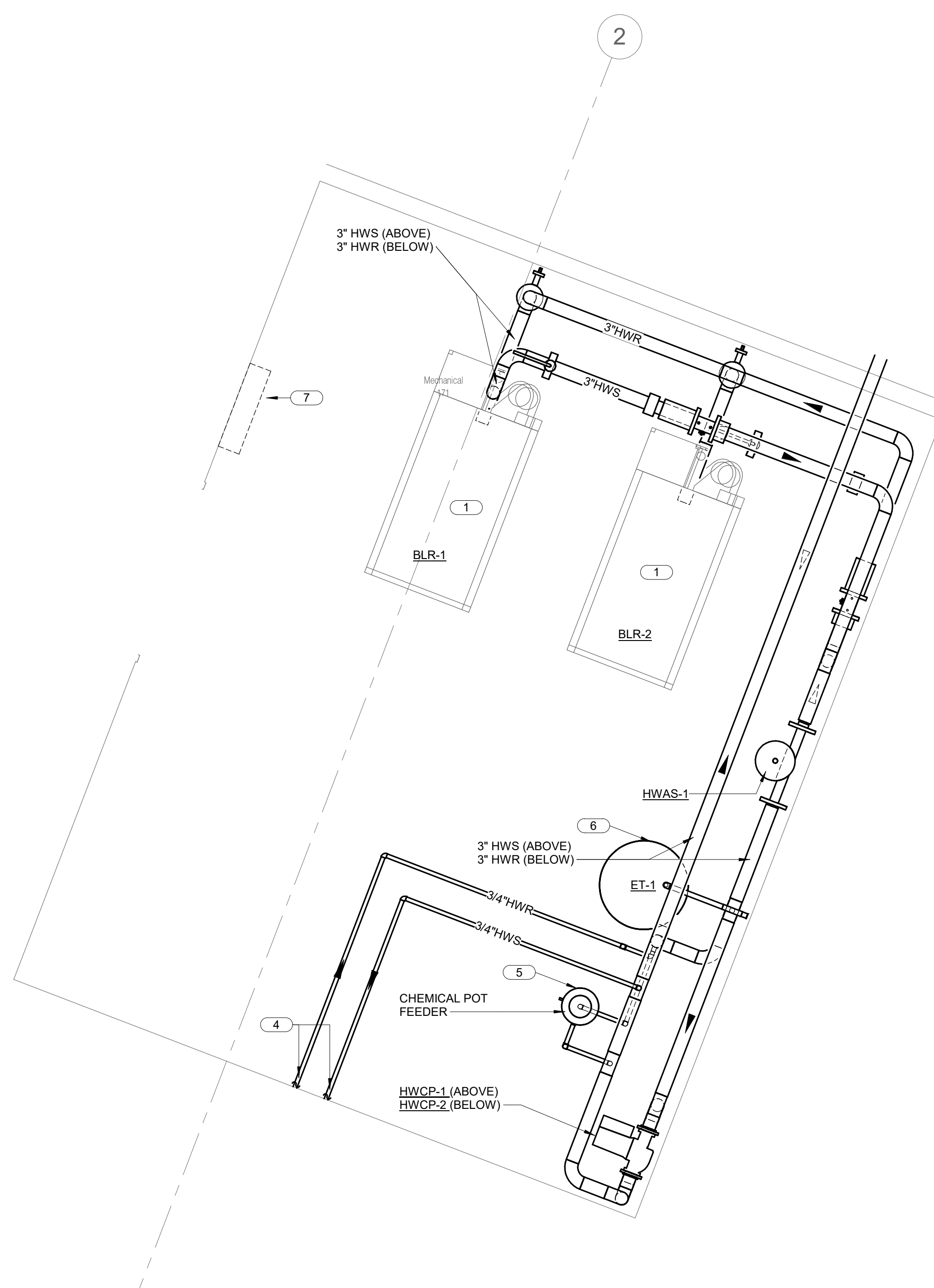
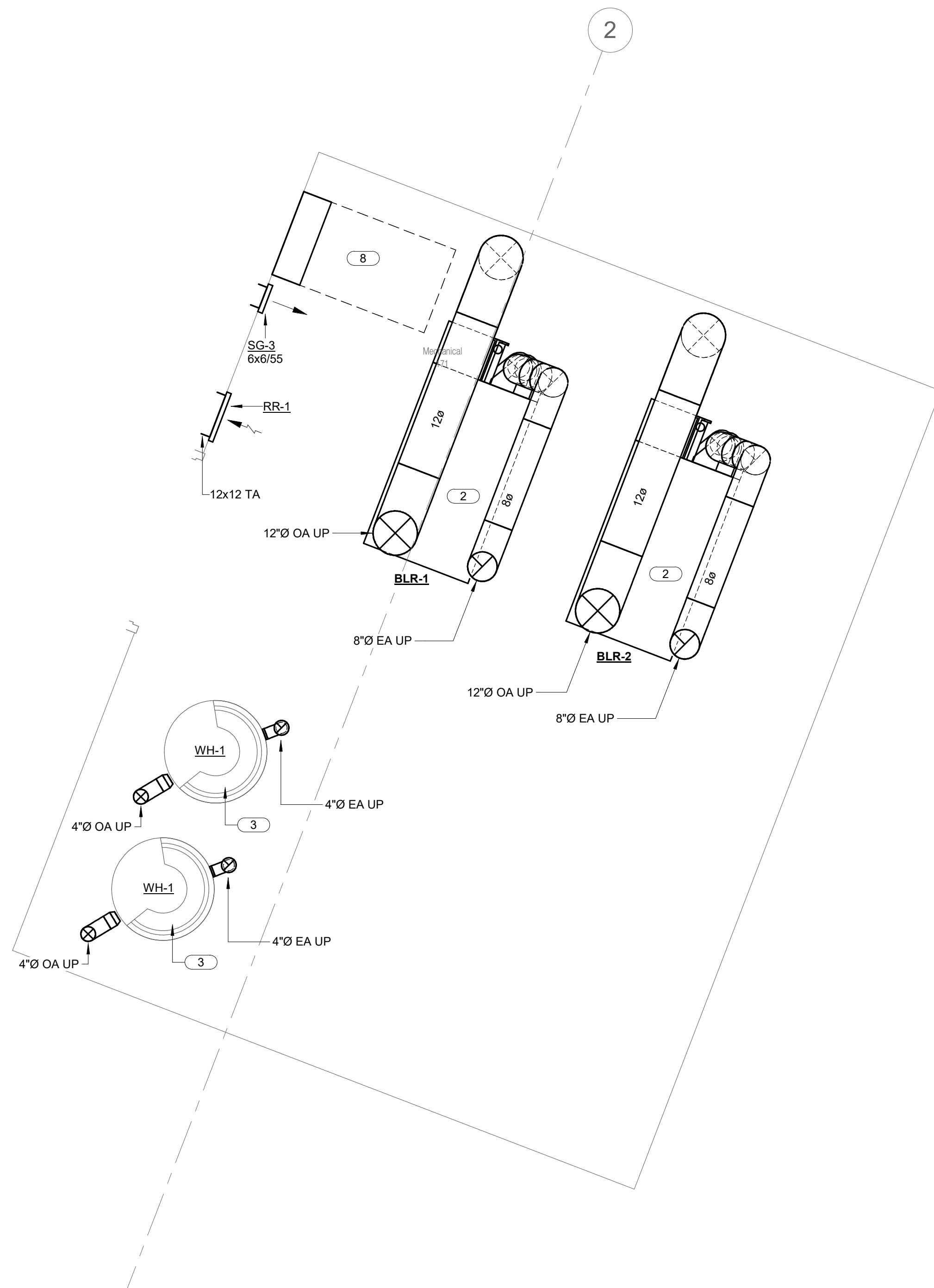
08/01/2023

**SHEET NOTES:**

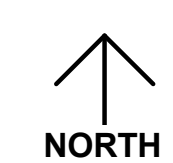
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- LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.
- PROVIDE WRAP INSULATION FOR PROPER FLAME SPREAD AND SMOKE RATING OF RETURN AIR PLENUM ON ALL HYDRONIC PIPING IN RETURN AIR PLENUM.
- DO NOT RUN PIPING THRU, OVER, OR UNDER ELECTRICAL EQUIPMENT AREAS. PROVIDE CLEARANCE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

**KEYNOTES: #**

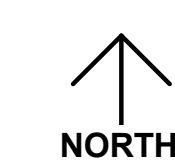
- PROVIDE NEW GAS FIRED HYDRONIC BOILER WITH ALL REQUIRED ACCESSORIES AND CONTROLS. PROVIDE NEW BOILER CONTROL PANEL AND COORDINATE WITH ELECTRICAL CONTRACTOR. REFER TO MECHANICAL SCHEDULES FOR PERFORMANCE INFORMATION. GENERAL CONTRACTOR TO PROVIDE EQUIPMENT HOUSEKEEPING PAD.
- FIELD COORDINATE FINAL ROUTING OF OUTSIDE AIR INTAKE AND FLUE STACK DUCT RISER PENETRATIONS WITH ROOF STRUCTURE AND ALL OTHER TRADES.
- FIELD COORDINATE FINAL ROUTING OF WATER HEATER OUTSIDE AIR INTAKE AND FLUE STACK DUCT RISER PENETRATIONS WITH ROOF STRUCTURE AND ALL OTHER TRADES.
- ROUTE NEW HEATING WATER SUPPLY AND RETURN BRANCH PIPING AS HIGH AS POSSIBLE TO UNIT HEATER IN FIRE RISER ROOM. SEE SHEET MP202 FOR CONTINUATION.
- COORDINATE WITH GENERAL CONTRACTOR FOR INSTALLATION OF HOUSEKEEPING PAD FOR FLOOR MOUNTED EQUIPMENT IN THIS AREA.
- COORDINATE WITH GENERAL CONTRACTOR FOR INSTALLATION OF WALL-MOUNTED BRACKET STRUCTURE FOR EXPANSION TANK SUPPORTS.
- BOILER CONTROL PANEL - COORDINATE FINAL PLACEMENT LOCATION WITH ELECTRICAL CONTRACTOR AND DEVICES FROM ALL OTHER TRADES.
- WEST-WING TEMPERATURE CONTROL PANEL. FIELD COORDINATE WITH TEMPERATURE CONTROLS CONTRACTOR FOR FINAL PLACEMENT AND WIRING FOR INTERFACE WITH BUILDING MANAGEMENT SYSTEM.

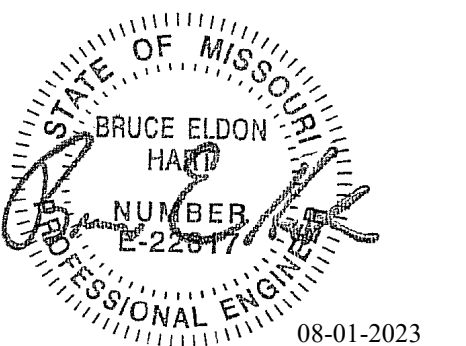


2 FLOOR PLAN - VENTILATION - MECHANICAL ROOM - ENLARGED  
1/2" = 1'-0"



1 FLOOR PLAN - PIPING - MECHANICAL ROOM - ENLARGED  
1/2" = 1'-0"





Bruce E Hart - Engineer  
MO# 22817

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ISSUE DATE: 01 August 2023

CAD DWG FILE: M400.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

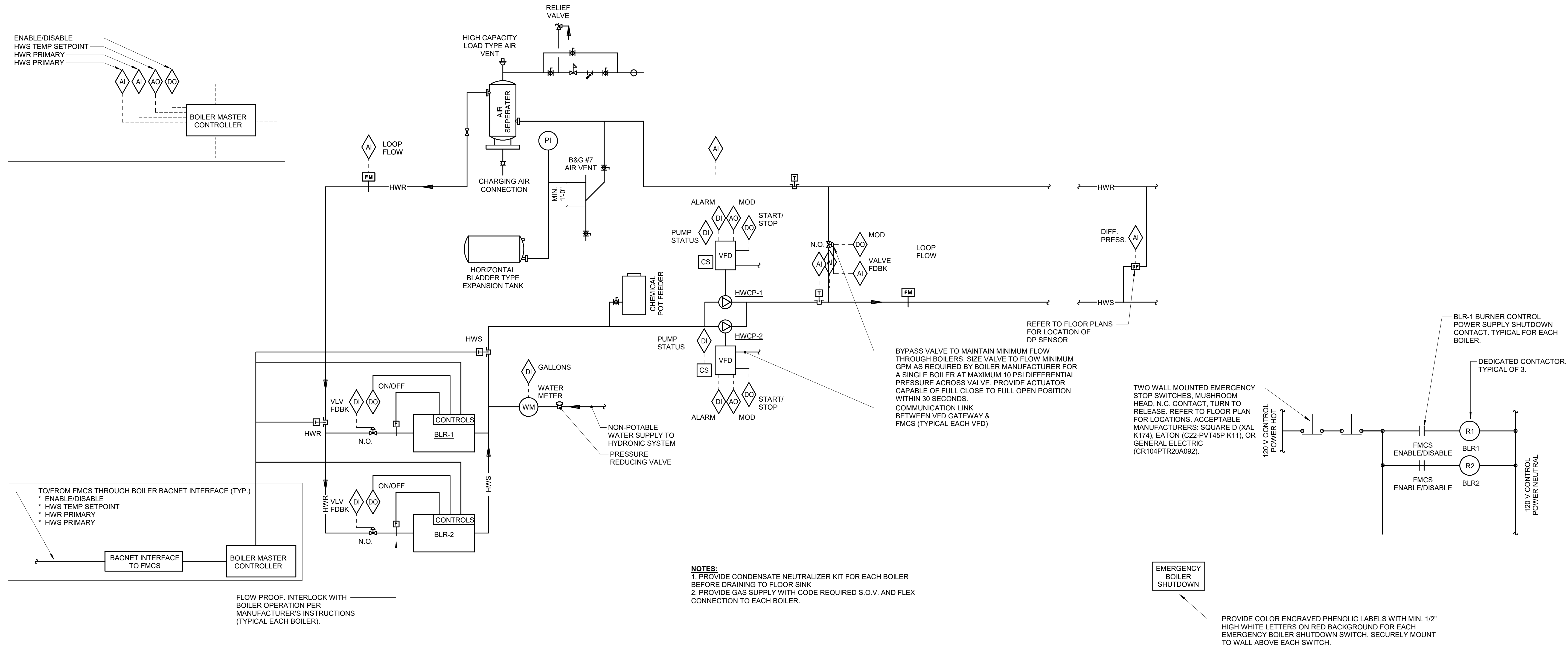
SHEET TITLE:  
**MECHANICAL CONTROL  
DIAGRAMS**

SHEET NUMBER:

**M400**

SHEET 144 OF 202

08/01/2023



**NOTES:**  
1. PROVIDE CONDENSATE NEUTRALIZER KIT FOR EACH BOILER BEFORE DRAINING TO FLOOR SINK  
2. PROVIDE GAS SUPPLY WITH CODE REQUIRED S.O.V. AND FLEX CONNECTION TO EACH BOILER.

**ALARMS, INTERLOCKS, AND SAFETIES:**  
TCC SHALL PROVIDE EMERGENCY BOILER SHUTDOWN SWITCH AT EACH BOILER ROOM EXIT MEETING CSD-1 REQUIREMENTS. ACTIVATION OF ANY SWITCH SHALL INTERRUPT POWER TO ALL BOILER CONTROLS VIA BOILER SAFETY SHUTDOWN CONTACTS.

TYPICAL FOR BLR-1, BLR-2

**EMERGENCY BOILER SHUTDOWN**

**SEQUENCE OF OPERATION:**  
HEATING WATER BOILERS SHALL HAVE UNIT MOUNTED CONTROLS AND A BOILER MANAGEMENT CONTROL PANEL PROVIDED BY THE BOILER MANUFACTURER. TCC SHALL INTERFACE WITH BOILER MANUFACTURER CONTROLS AS DESCRIBED IN THIS SEQUENCE OF OPERATION. BOILER MANUFACTURER SHALL PROVIDE A GATEWAY INTERFACE CARD THAT IS COMPATIBLE WITH THE COMMUNICATION PROTOCOL OF THE FMCS NETWORK. SEQUENCES OF OPERATION FOR BOTH BOILER CONTROL SYSTEM AND FMCS SHALL BE AS FOLLOWS:

**BOILER CONTROL PANEL SEQUENCE OF OPERATION:**  
WHEN THE FMCS ENABLES THE BOILER MASTER CONTROLLER TO RUN, THE BOILER MASTER CONTROLLER SHALL ENABLE THE LEAD BOILER, OPEN THE ASSOCIATED TWO-POSITION ISOLATION VALVE, AND ENERGIZE THE LEAD PUMP.

THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL STAGE AND MODULATE THE BOILER PLANT TO MAINTAIN THE HIGHEST PLANT EFFICIENCY THAT WILL PROVIDE THE REQUIRED SUPPLY WATER TEMPERATURE. THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL OPEN AND CLOSE BOILER ISOLATION VALVES IN SUCH A WAY AS TO PROVIDE PRE AND POST FLOW. THE ON BOARD BOILER SEQUENCING CONTROLLER SHALL VERIFY PROOF OF WATER FLOW BEFORE FIRING BOILERS. THE BOILER SEQUENCING CONTROLLER CAN STAGE ON MULTIPLE BOILERS AT PART LOAD TO INCREASE THE EFFICIENCY OF THE PLANT. BOILER SEQUENCING CONTROLLER PANEL SHALL START/STOP BOILERS ON A FIRST ON/FIRST OFF BASIS TO EQUALIZE RUN TIME BETWEEN BOILERS. TWO-POSITION ISOLATION VALVE OPERATION SHALL BE CONTROLLED BY THE BOILER CONTROL PANEL OF THE RESPECTIVE BOILER THEY SERVE.

THE FOLLOWING BOILER SEQUENCING CONTROLLER POINTS (TO INCLUDE BUT NOT LIMITED TO) SHALL BE CONTROLLED BY THE FMCS AND DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN:  
• BOILER SYSTEM STATUS: ENABLE/DISABLE  
• BOILER OUTLET WATER TEMPERATURE SETPOINT: 180°F

THE FOLLOWING BOILER SEQUENCING CONTROLLER POINTS (TO INCLUDE BUT NOT LIMITED TO) SHALL BE MONITORED BY THE FMCS AND DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN:  
• BOILER STATUS: DISABLED/STANDBY/MANUAL OPERATION/REMOTE OPERATION/AUTO/FAULT  
• FIRING RATE INPUT: [0 - 100%]  
• FIRING RATE OUTPUT: [0 - 100%]  
• ACTIVE SETPOINT: [°F]  
• SYSTEM HWR TEMP: [°F]  
• SYSTEM HWS TEMP: [°F]  
• FAULT MESSAGE DISPLAY CODE: [NUMERICAL]  
• RUN CYCLES: [NUMERICAL]  
• RUN HOURS: [NUMERICAL]

**ALARMS, INTERLOCKS & SAFETIES:**  
BOILER CONTROLS SHALL BE PROGRAMMED TO MAINTAIN CONSTANT SETPOINT (LAST KNOWN VALUE) IN THE EVENT THE FMCS NETWORK COMMUNICATION SIGNAL IS LOST.

**FMCS SEQUENCE OF OPERATION:**  
FMCS SHALL OPERATE HEATING WATER SYSTEM 24 HOURS/DAY, 365 DAYS/YEAR.  
ONLY ONE HEATING WATER PUMP SHALL RUN AT TIME. THE SECOND HEATING WATER PUMP IS FULLY REDUNDANT. FMCS SHALL AUTOMATICALLY ROTATE THE LEAD HEATING WATER PUMP ONCE/ WEEK (10:00 AM EACH TUESDAY, ADJ.) TO EQUALIZE RUN TIME BETWEEN PUMPS. PROVIDE GRAPHICAL BUTTON ON OPERATOR WORKSTATION GRAPHICAL SCREEN TO ALLOW FMCS OPERATOR TO SWITCH LEAD PUMP TO NEXT ROTATION IN THE EVENT THE CURRENT LEAD PUMP REQUIRES MAINTENANCE.

FMCS SHALL MODULATE SIGNAL TO LEAD PUMP VFD AS REQUIRED TO MAINTAIN HEATING WATER DIFFERENTIAL PRESSURE (DP) SETPOINT. FMCS SHALL RESET HEATING WATER DIFFERENTIAL PRESSURE (DP) SETPOINT AS REQUIRED TO MAINTAIN AT LEAST ONE HEATING WATER VALVE 95% (ADJ.) OPEN. FMCS SHALL UTILIZE COMMAND TO ALL HEATING WATER VALVE POSITIONS TO RESET THE HEATING WATER DIFFERENTIAL PRESSURE. IN NO EVENT SHALL THE FMCS DECREASE THE HEATING WATER (DP) SETPOINT BELOW 4 PSI (ADJ.) OR ABOVE 10 PSI (ADJ.).

ALL CONTROLLED AND MONITORED POINTS LISTED IN THE BOILER CONTROL PANEL SEQUENCE ABOVE SHALL BE DISPLAYED ON THE OPERATOR WORKSTATION GRAPHICAL SCREEN.

**SEQUENCE OF OPERATION:**  
**MINIMUM HEATING WATER FLOW CONTROL:**  
FMCS SHALL MODULATE THE HEATING WATER BYPASS CONTROL VALVE AS REQUIRED TO MAINTAIN MINIMUM FLOW THROUGH EACH OPERATIONAL BOILER. TCC SHALL VERIFY THE MINIMUM FLOW LIMIT OF EACH BOILER WITH EQUIPMENT MANUFACTURER. ADEQUATE FLOW THROUGH EACH BOILER SHALL BE DETERMINED BY THE FLOW METER IN THE HEATING WATER RETURN PIPING.

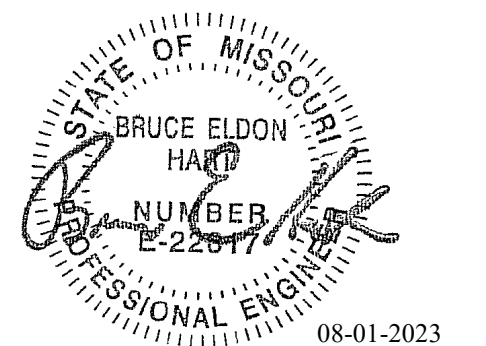
**ALARMS, INTERLOCKS & SAFETIES:**  
TCC SHALL COORDINATE ALL SAFETY AND INTERLOCK REQUIREMENTS WITH BOILER MANUFACTURER. TCC SHALL COORDINATE AND PROVIDE THE INSTALLATION AND WIRING OF BOILER WATER DIFFERENTIAL PRESSURE/FLOW SWITCHES AND OTHER COMPONENTS PROVIDED WITH THE BOILER AS REQUIRED FOR PROPER OPERATION. TCC SHALL PROVIDE AND TERMINATE ALL SAFETY AND INTERLOCK WIRING WITH BOILER CONTROL PANELS AS REQUIRED.

FMCS SHALL AUTOMATICALLY ENABLE THE LAG HEATING WATER PUMP TO RUN IN THE EVENT THE LEAD HEATING WATER PUMP FAILS TO OPERATE.

TCC SHALL VERIFY THE ACCEPTABLE TEMPERATURE RANGES THE BOILERS ARE APPROVED TO OPERATE AS PUBLISHED IN THE BOILER MANUFACTURER'S LITERATURE. IF THE TEMPERATURE RANGES LISTED IN THE MANUFACTURER'S LITERATURE DIFFER FROM THOSE IN THIS SEQUENCE OF OPERATION, CONTACT PROJECT ARCHITECT/ENGINEER FOR DIRECTION.

AN ALARM SHALL BE INDICATED TO THE FMCS OPERATOR WORKSTATION IN THE EVENT ANY OF THE FOLLOWING OCCUR:  
• HWR TEMPERATURE DROPS BELOW 50°F (ADJ.) FOR 5 MINUTES (ADJ.) (AUTO RESET).  
• HWS TEMPERATURE RISES MORE THAN 10°F (ADJ.) ABOVE SETPOINT (AUTO RESET).  
• HWS TEMPERATURE DROPS MORE THAN 10°F (ADJ.) BELOW SETPOINT (AUTO RESET).  
• AN ALARM IS INDICATED AT ANY BOILER ALARM PANEL.  
• AN ALARM IS INDICATED AT ANY PUMP VFD  
• SHOULD THE FMCS COMMAND THE LEAD HEATING WATER PUMP TO OPERATE AND THE PUMP FAILS TO DO SO AS DETERMINED BY THE VFD STATUS, AN ALARM SHALL BE INDICATED AT THE FMCS OPERATOR WORKSTATION AND THE LAG HW PUMP SHALL AUTOMATICALLY START.  
• WHEN 2 GALLONS (ADJ.) OF HYDRONIC SYSTEM MAKE-UP WATER FLOWS THROUGH METER AFTER THE LAST ACKNOWLEDGEMENT. WHEN ALARM IS MANUALLY ACKNOWLEDGED, THE FMCS SHALL RE-ZERO THE COUNTER.





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SITE # 6018  
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ISSUE DATE: 01 August 2023

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CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**MECHANICAL CONTROL  
DIAGRAMS**

SHEET NUMBER:

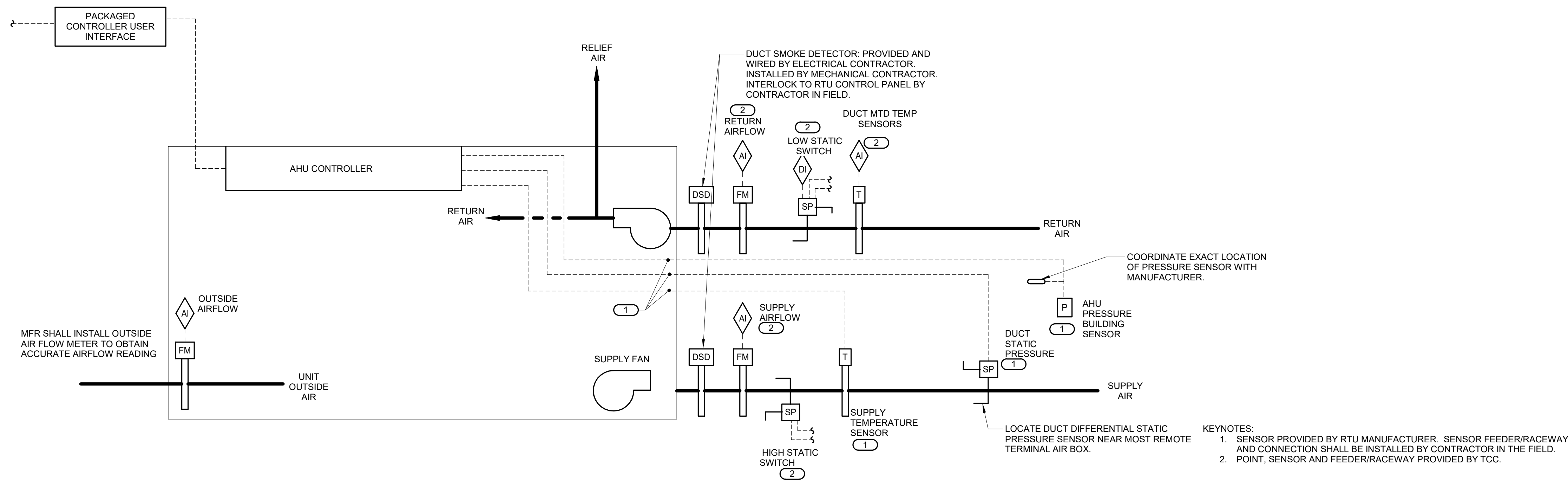
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SHEET 145 OF 202

08/01/2023

<b>AHU REPORT GENERATION:</b> DDC FMCS SHALL MONITOR THE FOLLOWING POINTS ON 10 MINUTE (ADJ.) INTERVALS WITHIN A SINGLE TREND. THE TREND SHALL RUN FOR 365 DAY (ADJ.) DURATION AT WHICH POINT THE NEWEST VALUES SHALL AUTOMATICALLY OVERWRITE THE OLDEST VALUES.	
<b>PROVIDED BY PACKAGED MANUFACTURER THROUGH GATEWAY TO FMCS:</b>	<b>POINTS PROVIDED BY FMCS AND SYSTEM:</b>
<ul style="list-style-type: none"> <li>SUPPLY AIR TEMP (SAT) [°F]</li> <li>OUTSIDE AIRFLOW [CFM]</li> <li>FILTER SWITCH</li> <li>SUPPLY FAN VFD OUTPUT [% FULL SPEED]</li> <li>RETURN FAN VFD OUTPUT [% FULL SPEED]</li> <li>OUTSIDE AIR DAMPER POSITION [% OPEN]</li> <li>RETURN AIR DAMPER POSITION [% OPEN]</li> </ul>	<ul style="list-style-type: none"> <li>DATE</li> <li>TIME</li> <li>GLOBAL OUTSIDE AIR TEMP [°F]</li> <li>GLOBAL OUTSIDE AIR DEWPOINT [°F] GLOBAL OUTSIDE AIR HUMIDITY [%RH]</li> <li>SUPPLY AIR RELATIVE HUMIDITY [%]</li> <li>ROOM AIR TEMP SETPOINT [°F]</li> <li>RETURN AIR TEMP [°F]</li> <li>RETURN AIR RELATIVE HUMIDITY [%]</li> <li>SUPPLY AIRFLOW [CFM]</li> </ul>
THIS INFORMATION SHALL BE ACCESSIBLE TO VIEW IN EITHER TABULAR OR GRAPHICAL FORM ON THE FMCS OPERATOR WORKSTATION.	

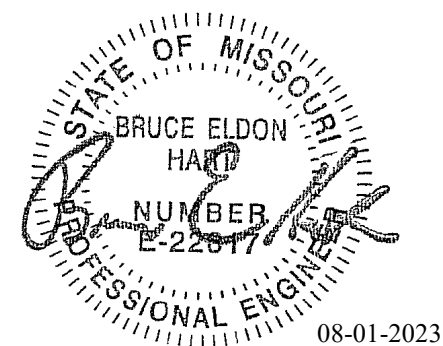
<b>EXTERNAL CONTROLS PROVIDED BY CONTROLS CONTRACTOR AND WIRED TO FMCS:</b>
<ul style="list-style-type: none"> <li>STATIC SWITCH</li> <li>SUPPLY / RETURN TEMPERATURE SENSOR</li> <li>DUCT SMOKE DETECTOR</li> <li>DUCT SMOKE DETECTOR INTERLOCK</li> </ul>



<b>CONTROLS SEQUENCE PROVIDED BY CONTRACTOR IN FIELD:</b>
<b>WHEN RTU IS INDEXED TO RUN, THE FOLLOWING SHALL OCCUR:</b>
<ul style="list-style-type: none"> <li>SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS SHALL OPEN.</li> <li>AFTER A 30 SECOND DELAY TO ALLOW FOR OPENING OF COMBINATION FIRE/SMOKE DAMPERS, SUPPLY FAN SHALL BE ENABLED TO RUN.</li> <li>WHEN THE SUPPLY FAN HAS STARTED THE INTERLOCKED EXHAUST FANS SHALL START AS SHOWN IN THE FAN INTERLOCK SCHEDULE.</li> </ul>
<b>BUILDING OCCUPANCY SCHEDULING:</b>
ENABLE RTU TO RUN CONTINUOUSLY.
<b>CONTRACTOR SHALL FIELD INSTALL THE FOLLOWING MANUFACTURER PROVIDED EXTERNAL SENSORS AND WIRE BACK TO RTU CONTROLLER:</b>
<ul style="list-style-type: none"> <li>DUCT STATIC PRESSURE SENSOR IN SUPPLY DUCT.</li> <li>BUILDING PRESSURE SENSOR.</li> <li>SUPPLY AIR TEMPERATURE IN SUPPLY DUCT.</li> </ul>
<b>ALARMS, INTERLOCKS AND SAFETIES:</b>
THE FOLLOWING SAFETIES SHALL BE INSTALLED AND WIRED IN THE FIELD.
<ul style="list-style-type: none"> <li>HIGH STATIC SWITCH (WIRED TO UNIT ENABLE/DISABLE TO TURN FANS OFF)</li> <li>LOW STATIC SWITCH (WIRED TO UNIT ENABLE/DISABLE TO TURN FANS OFF)</li> <li>FIRE ALARM RELAY (WIRED TO UNIT ENABLE/DISABLE TO TURN FANS OFF)</li> </ul>

<b>CONTROLS PROVIDED BY PACKAGED EQUIPMENT MANUFACTURER:</b>
<b>PACKAGE ROOFTOP UNIT SYSTEM DESCRIPTION:</b>
REFER TO SECTION 23 74 11 FOR A DESCRIPTION OF THE RTU AND THE CONTROLS PROVIDED BY THE RTU MANUFACTURER.
<b>SUPPLY FAN CONTROL:</b>
RTU CONTROLLER SHALL MODULATE SIGNAL TO SUPPLY FAN VFD AS REQUIRED TO MAINTAIN DUCT STATIC PRESSURE SETPOINT AS MEASURED BY STATIC PRESSURE TRANSMITTER. FMCS SHALL RESET SUPPLY DUCT STATIC PRESSURE SETPOINT AS REQUIRED TO MAINTAIN AT LEAST ONE SUPPLY TAB DAMPER 95% (ADJ.) OPEN. FMCS SHALL UTILIZE COMMAND TO ALL SUPPLY TERMINAL AIRBOX POSITIONS TO RESET THE SUPPLY DUCT DIFFERENTIAL STATIC PRESSURE
<b>RETURN FAN CONTROL:</b>
RTU CONTROLLER SHALL MODULATE THE RETURN FAN VFD TO MAINTAIN A CONSTANT DIFFERENTIAL AIRFLOW BETWEEN THE SUPPLY AIR AND RETURN AIR. THE RETURN FAN AIRFLOW SHALL BE CALCULATED AS FOLLOWS: RETURN AIR CFM= SUPPLY AIR CFM - UNIT'S MINIMUM OUTSIDE AIR CFM - REQUIRED BUILDING PRESSURIZATION OF + 0.05"
<b>VENTILATION CONTROL:</b>
WHENEVER THE UNIT IS IN OCCUPIED MODE THE OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN MINIMUM OUTSIDE AIR CFM BASED ON QUANTITY OF AIR FROM UNIT MOUNTED AIRFLOW MEASURING STATION.
<b>SUPPLY AIR TEMPERATURE CONTROL:</b>
DISCHARGE AIR TEMPERATURE SHALL BE 55°F (ADJ.). WHENEVER THE SUPPLY AIR TEMPERATURE IS ABOVE SETPOINT, THE FOLLOWING SHALL OCCUR IN SEQUENCE:
<ul style="list-style-type: none"> <li>CLOSE HEATING WATER VALVE.</li> <li>MODULATE OA DAMPER AS REQUIRED UNTIL SET POINT IS REACHED.</li> <li>IF SET POINT CANNOT BE MAINTAINED BY OA DAMPER CONTROL.</li> <li>THE COMPRESSORS SHALL BE ENABLED AND MFR SHALL MODULATE COMPRESSOR CAPACITY AS REQUIRED TO MAINTAIN SET POINT.</li> </ul>
WHENEVER THE DISCHARGE AIR TEMPERATURE IS BELOW SETPOINT, THE FOLLOWING SHALL OCCUR IN SEQUENCE:
<ul style="list-style-type: none"> <li>IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 5°F (ADJ.) BELOW SETPOINT. MFR SHALL MODULATE COMPRESSORS OFF.</li> <li>MODULATE OA DAMPER AS REQUIRED UNTIL SET POINT IS REACHED.</li> <li>IF SET POINT CANNOT BE MAINTAINED BY OA DAMPER CONTROL, MODULATE HEATING WATER CONTROL VALVE AS REQUIRED TO MAINTAIN SET POINT.</li> </ul>
<b>ECONOMIZER MODE:</b>
<ul style="list-style-type: none"> <li>IF OUTSIDE AIR TEMPERATURE IS ABOVE 62 (ADJ.), THE ECONOMIZER MODE WILL BE DISABLE.</li> <li>IF OUTSIDE AIR TEMPERATURE IS BELOW 62 (ADJ.) AND ABOVE 52 (ADJ.) FOR MORE THAN 10 MINUTES THEN ENABLE THE ECONOMIZER MODE TO MAINTAIN THE SUPPLY AIR TEMPERATURE AT 55 DEGREE (AS SPECIFIED IN THE EQUIPMENT SCHEDULE)</li> <li>IF OUTSIDE AIR TEMPERATURE IS BELOW 52 DEGREE FOR 10 MINUTES, DISABLE THE ECONOMIZER MODE.</li> </ul>
<b>FILTRATION:</b>
PROVIDE DIFFERENTIAL PRESSURE MEASURING DEVICE ACROSS EACH FILTER BANK. THE FOLLOWING CONDITIONS SHALL INDICATE AN ALARM AT THE FMCS, HOWEVER AHU SHALL CONTINUE TO OPERATE:
<ul style="list-style-type: none"> <li>DIFFERENTIAL PRESSURE SWITCH ACROSS PRE-FILTER (30%) BANK EXCEEDS 0.6 INCHES W.G. (ADJ.)</li> <li>DIFFERENTIAL PRESSURE SWITCH ACROSS FINAL-FILTER (60%) BANK EXCEEDS 0.8 INCHES W.G. (ADJ.)</li> <li>THE TOTAL DIFFERENTIAL PRESSURE ACROSS ALL FILTER BANKS EXCEEDS 2.0 INCHES W.G. (ADJ.)</li> </ul>

**1 PACKAGED AIR HANDLING UNIT CONTROL (VAV) WITH EXHAUST FAN - RTU-1 / RTU-2**  
NO SCALE



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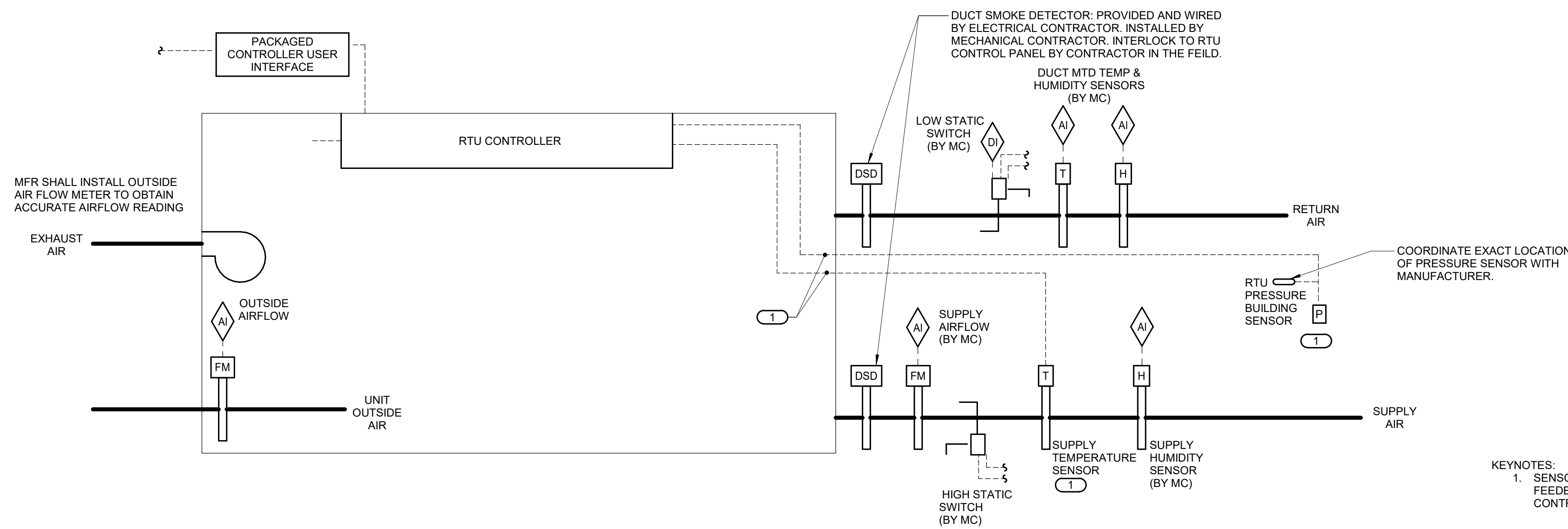
SHEET TITLE:  
MECHANICAL CONTROL  
DIAGRAMS - ALTERNATE  
#04

SHEET NUMBER:

**M402**

SHEET 146 OF 202

08/01/2023



KEYNOTES:  
1. SENSOR PROVIDED BY RTU MANUFACTURER. SENSOR FEEDER/RACEWAY AND CONNECTION SHALL BE INSTALLED BY CONTRACTOR IN THE FIELD.

**CONTROLS PROVIDED BY PACKED EQUIPMENT MANUFACTURER:**

PACKAGE ROOFTOP UNIT SYSTEM DESCRIPTION:  
REFER TO SECTION 23 74 11 FOR A DESCRIPTION OF THE RTU AND THE CONTROLS PROVIDED BY THE RTU MANUFACTURER.

**SUPPLY FAN CONTROL:**  
RTU CONTROLLER SHALL START, SUPPLY FAN. SUPPLY FAN SHALL RUN CONTINUOUSLY WHEN OCCUPIED.

**EXHAUST FAN CONTROL:**  
RTU CONTROLLER SHALL MONITOR BUILDING PRESSURE SIGNAL. MODULATE SIGNAL TO EXHAUST FAN VFD AS REQUIRED TO MAINTAIN +0.05" (ADJ.) W.C..

**VENTILATION CONTROL:**  
WHENEVER THE UNIT IS IN OCCUPIED MODE THE OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN MINIMUM OUTSIDE AIR CFM BASED ON QUANTITY OF AIR FROM UNIT MOUNTED AIRFLOW MEASURING STATION.

**SUPPLY AIR CONTROL:**  
DISCHARGE AIR TEMPERATURE SHALL BE MODULATED AS REQUIRED TO MAINTAIN SPACE SETPOINT. WHENEVER THE SUPPLY AIR TEMPERATURE IS ABOVE SETPOINT, THE FOLLOWING SHALL OCCUR IN SEQUENCE:  
• MODULATE GAS BURNER OFF.  
• MODULATE OA DAMPER AS REQUIRED UNTIL SET POINT IS REACHED.  
• IF SET POINT CANNOT BE MAINTAINED BY OA DAMPER CONTROL.  
• THE COMPRESSORS SHALL BE ENABLED AND MFR SHALL MODULATE COMPRESSOR CAPACITY AS REQUIRED TO MAINTAIN SET POINT.

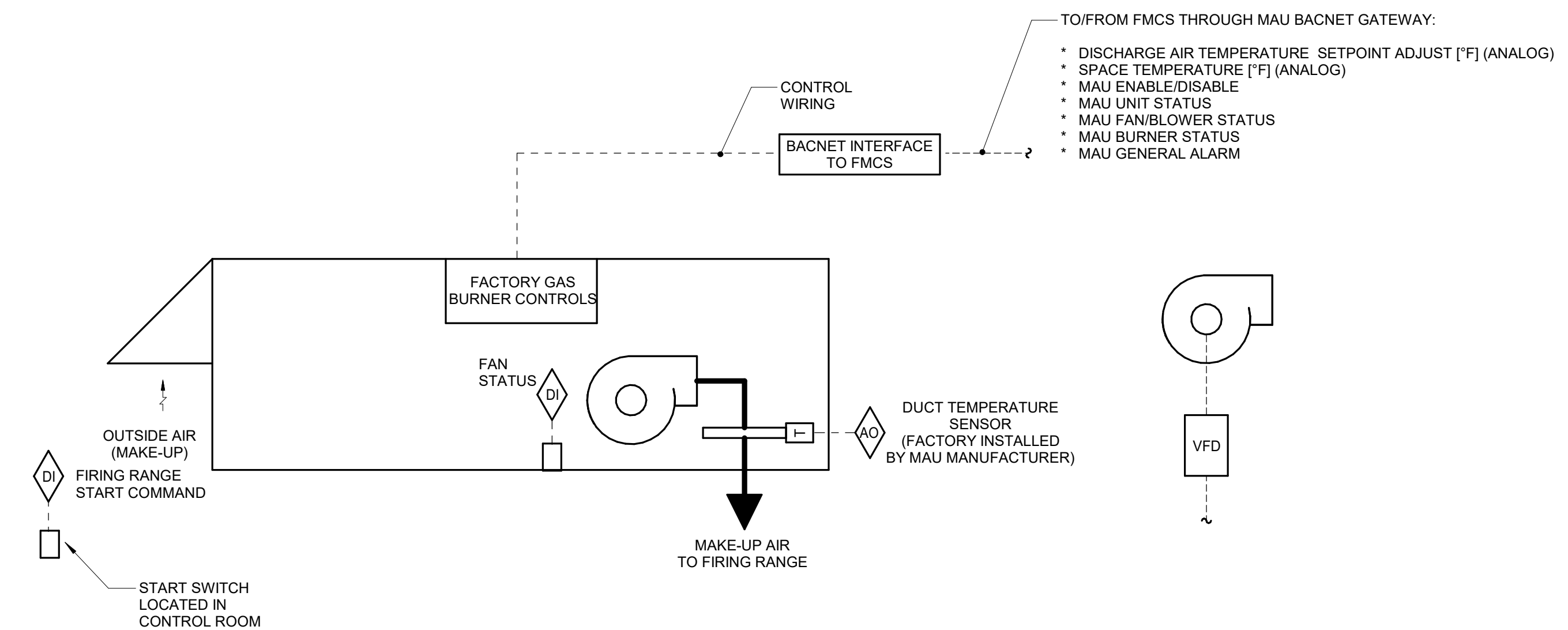
WHENEVER THE DISCHARGE AIR TEMPERATURE IS BELOW SETPOINT, THE FOLLOWING SHALL OCCUR IN SEQUENCE:  
• IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 5°F (ADJ) BELOW SETPOINT, MFR SHALL MODULATE COMPRESSORS OFF.  
• MODULATE OA DAMPER AS REQUIRED UNTIL SET POINT IS REACHED.  
• IF SET POINT CANNOT BE MAINTAINED BY OA DAMPER CONTROL, MODULATE GAS BURNER AS REQUIRED TO MAINTAIN SET POINT.

WHENEVER RTU IS SHUTDOWN THE RTU CONTROLLER SHALL COMMAND THE FOLLOWING TO OCCUR:  
• SUPPLY FAN AND EXHAUST FAN SHALL STOP.  
• OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL FULLY CLOSE. THE RETURN AIR DAMPER SHALL FULLY OPEN.  
• HEATING AND COOLING SHALL BE DISABLED.  
• THE ENERGY RECOVERY WHEEL SHALL STOP.  
• OUTSIDE AIR AND RELIEF AIR DAMPER SHALL REMAIN CLOSED. RETURN AIR DAMPER SHALL BE 100% OPEN

**UN-OCCUPIED MODE OPERATION:**  
• OUTSIDE AIR AND RELIEF AIR DAMPER SHALL REMAIN CLOSED. RETURN AIR DAMPER SHALL BE 100% OPEN.

**1 FIRING RANGE- PACKAGED ROOFTOP UNIT SINGLE ZONE CONSTANT - ALTERNATE #04**

NO SCALE



**FIRING RANGE EXHAUST FAN OPERATION:**  
FIRING RANGE EXHAUST FAN SHALL START FROM THE FOLLOWING INPUTS:  
• SWITCH AT CONTROL ROOM TURNED TO ON POSITION.  
• ONCE THE SYSTEM IS ENERGIZED (VIA ANY INPUT) THE EXHAUST FAN SHALL CONTINUE TO OPERATE FOR A MIN. 20 MINUTE (ADJ.) TIME DURATION TO PREVENT SHORT CYCLING.

FMCS SHALL ENABLE THE INTERLOCKED MAU WHEN THE FAN IS ENABLED.

**SEQUENCE OF OPERATION:**  
REFER TO SPECIFICATION SECTION 23 74 23.13 FOR A DESCRIPTION OF THE MAU AND CONTROLS PROVIDED BY THE MANUFACTURER. THE UNIT SHALL OPERATE BY PACKAGE CONTROLS TO MAINTAIN THE DISCHARGE AIR TEMPERATURE (DAT) OF 68°F (ADJ.) DAT SETPOINT SHALL BE SET BY THE FMCS OPERATOR WORK STATION. THE BAS SHALL PROVIDE A BURNER MODULATION SIGNAL (0-10V DC) BASED ON THE DIFFERENCE BETWEEN MEASURED DAT AND SETPOINT. THE MAU PACKAGE CONTROLS SHALL OPEN THE ASSOCIATED UNIT DAMPERS AND ENABLE HEATING BASED ON OUTSIDE AIR TEMPERATURE (E.G. T < 60°F).

**ALARMS, INTERLOCKS AND SAFETIES:**  
AN ALARM SHALL BE GENERATED AT THE FMCS OPERATOR WORKSTATION IN THE EVENT OF THE FOLLOWING:  
• THE FMCS COMMANDS THE EXHAUST FAN TO OPERATE AND THE CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT DRAW.  
• AN ALARM SHALL BE SENT TO THE FMCS WHEN THE MAU IS COMMANDED TO RUN AND THE CURRENT STATUS SWITCH INDICATES INSUFFICIENT CURRENT.  
• WHEN THE FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION THE EXHAUST FAN SHALL BE SHUT DOWN.  
• THE MAU SHALL PROVIDE A GENERAL ALARM TO THE FMCS OPERATOR WORK STATION.

**SHUTDOWN:**  
• WHEN THE EF IS SHUTDOWN THE INTERLOCKED MAU SHALL BE SHUTDOWN.  
• MAU PACKAGE CONTROLS SHALL CLOSE THE UNIT DAMPERS AND CLOSE THE HEATING GAS VALVES.

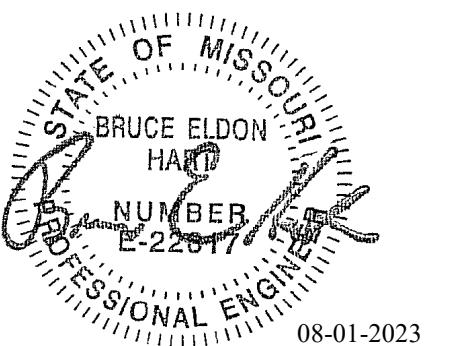
EXHAUST FAN AIRFLOW SCHEDULE				
SYSTEM	EXHAUST CFM	MAU	MAU CFM	REMARKS
EF-FR-1	10,000	MAU-1	10,000	NOTES 1,2

NOTES:  
1. CORRESPONDING MAU SHALL BE INTERLOCKED TO OPERATE WHENEVER THE EXHAUST FAN IS TURNED ON.  
2. EXHAUST EXCEEDS MAKE-UP TO MAINTAIN SPACE SLIGHTLY NEGATIVE.

**MAU REPORT GENERATION:**  
DDC FMCS SHALL MONITOR THE FOLLOWING POINTS ON 10 MINUTE (ADJ.) INTERVALS WITHIN A SINGLE TREND. THE TREND SHALL RUN FOR A 14-DAY (ADJ.) DURATION AT WHICH POINT THE NEWEST VALUES SHALL AUTOMATICALLY OVERWRITE THE OLDEST VALUES:  
• DATE  
• TIME  
• GLOBAL OUTSIDE AIR TEMPERATURE (°F)  
• DISCHARGE AIR TEMP (DAT) (°F)  
• DAT SETPOINT (°F)  
• BLOWER STATUS (ON/OFF)  
• BURNER STATUS (ON/OFF)

**2 FIRING RANGE DOAU - GAS - ALTERNATE #04**

NO SCALE



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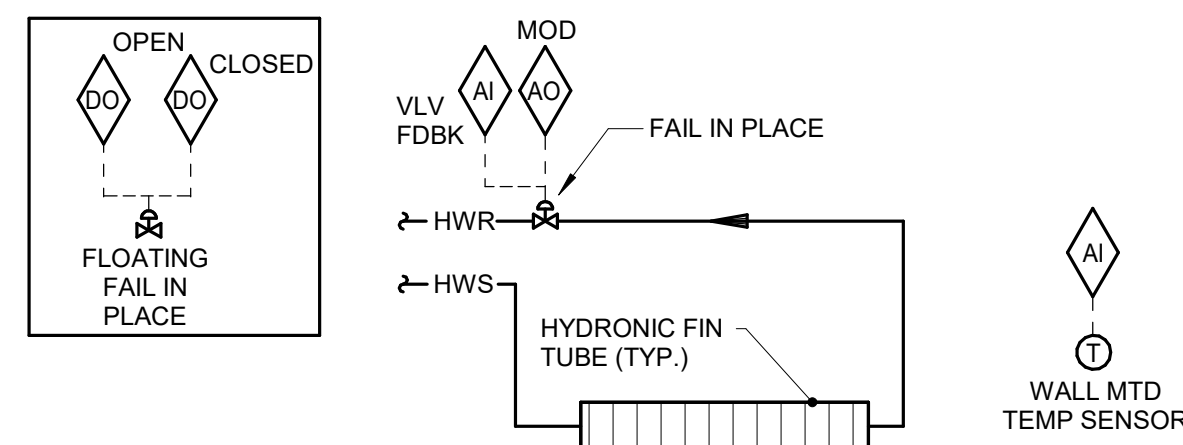
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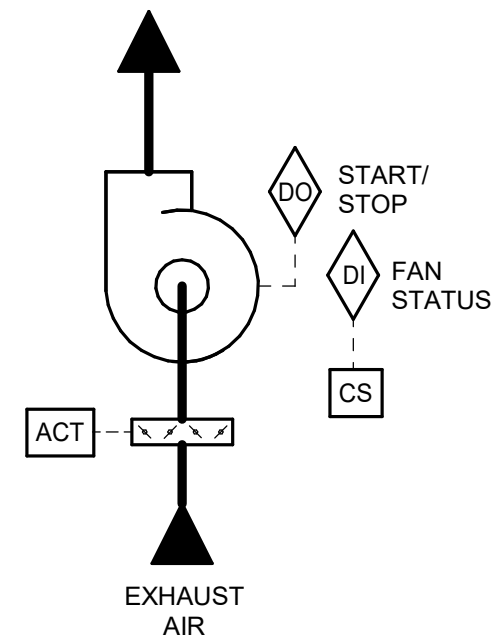
SHEET 147 OF 202

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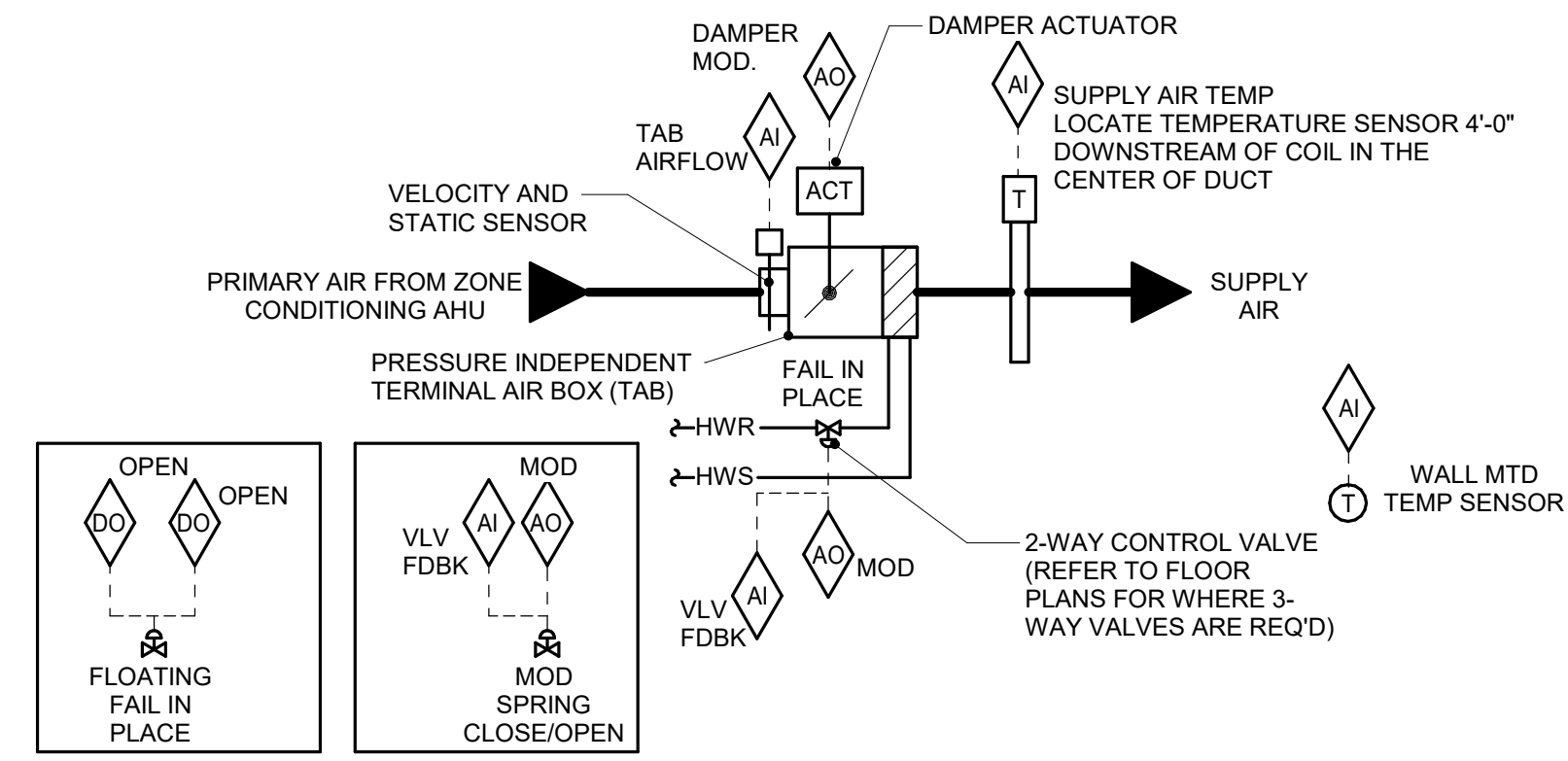
**SEQUENCE OF OPERATION:**  
WHEN THE OUTDOOR AIR TEMPERATURE IS BELOW 60°F (ADJ.), THE FMCS SHALL MODULATE THE RADIATION CONTROL VALVE TO MAINTAIN A SPACE TEMPERATURE SETPOINT OF 70°F (ADJ.).  
WHEN THE OUTDOOR AIR TEMPERATURE IS ABOVE 60°F (ADJ.), CONTROL VALVE SHALL BE FULLY CLOSED.  
WHEN FLOATING CV'S ARE USED, FMCS SHALL PERFORM AN AUTO-ZERO FUNCTION EVERY NIGHT DURING UNOCCUPIED TIMES. THE FMCS SHALL STAGGER AUTO-ZERO SEQUENCES SO THAT ALL VALVES DO NOT SIMULTANEOUSLY CLOSE.  
**NIGHT SETBACK CONTROL:** OCCUPIED/UNOCCUPIED SCHEDULE SHALL BE SET AT THE OPERATOR INTERFACE FOR THIS ZONE. WHEN THE ZONE IS SCHEDULED UNOCCUPIED, THE SPACE TEMPERATURE SETPOINT SHALL BE RESET TO 55°F (ADJ.).  
**ALARMS, INTERLOCKS & SAFETIES:**  
SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE FALLS 10°F (ADJ.) BELOW SETPOINT.  
**NOTES:**  
1. TYPICAL FOR ALL RADIATION NOT CONTROLLED BY TERMINAL AIR BOX SEQUENCE.

**1 STAND ALONE RADIATION CONTROL**  
NO SCALE



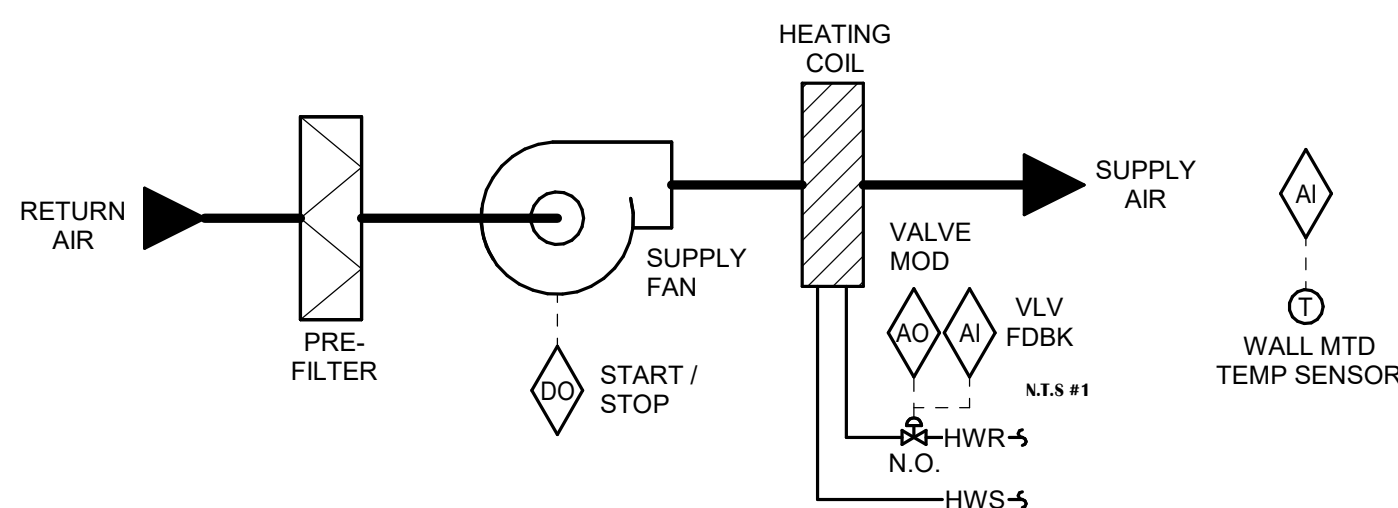
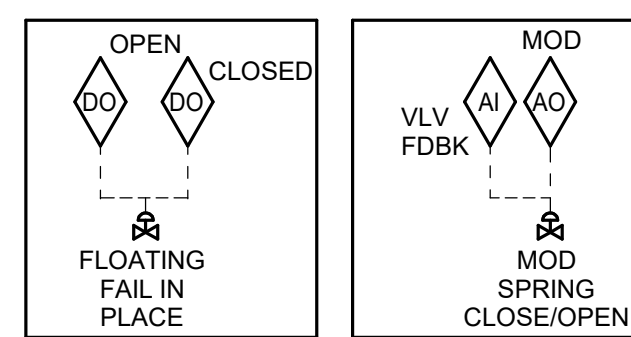
**SEQUENCE OF OPERATION:**  
EXHAUST FAN SHALL BE TO RUN CONTINUOUSLY.  
2-POSITION DAMPER SHALL FULLY OPEN WHEN FAN IS ENERGIZED. WHEN FAN IS DE-ENERGIZED, 2-POSITION DAMPER SHALL FULLY CLOSE.  
**ALARMS, INTERLOCKS AND SAFETIES:**  
AN ALARM SHALL BE GENERATED AT THE FMCS OPERATOR WORKSTATION IN THE EVENT THE FMCS COMMANDS THE EXHAUST FAN TO OPERATE AND THE CURRENT SENSING RELAY DETECTS INSUFFICIENT CURRENT DRAW.

**2 FAN - RUN CONTINUOUSLY**  
NO SCALE



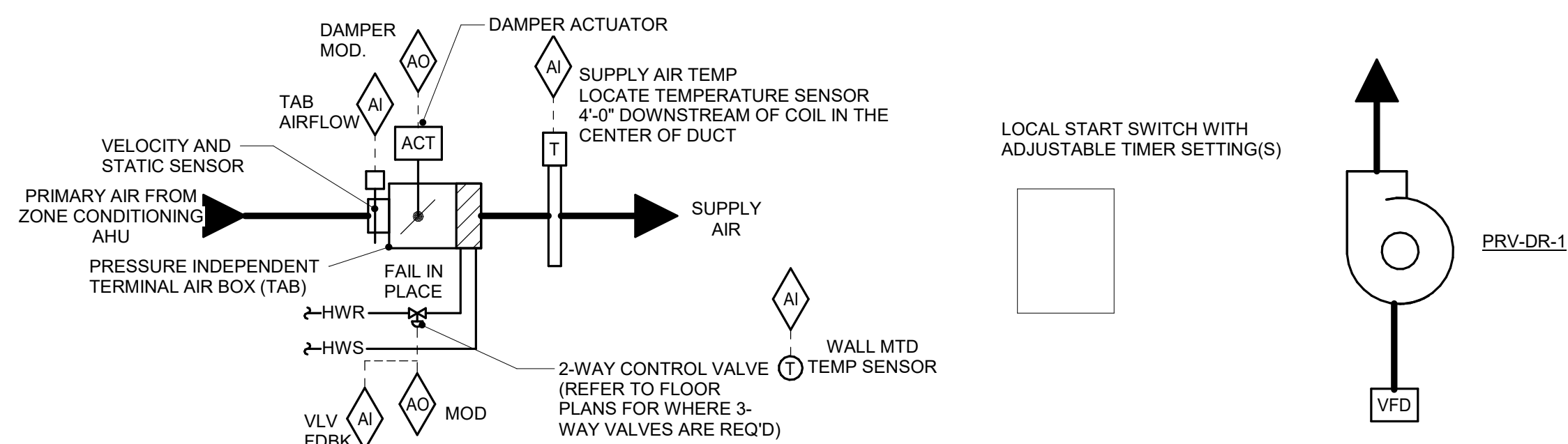
**SEQUENCE OF OPERATION:**  
FMCS TAB CONTROLLER SHALL MODULATE THE TAB DAMPER AND TAB HW REHEAT COIL CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE OF 72°F (ADJ.) WITH 5°F (ADJ.) DEAD BAND BASED ON A SIGNAL FROM A WALL MOUNTED TEMPERATURE SENSOR. SPACES WITH ADJUSTABLE THERMOSTATS WILL ALLOW A +/- 3°F (ADJ.) OFFSET FROM THE DDC SETPOINT.  
AT FULL COOLING, THE TAB SHALL BE OPEN TO MAXIMUM CFM POSITION. THE REHEAT COIL CONTROL VALVE SHALL BE CLOSED.  
UPON A FALL IN SPACE TEMPERATURE, THE TAB SHALL MODULATE CLOSED UNTIL SPACE SETPOINT IS MAINTAINED, OR UNTIL IT REACHES ITS MINIMUM SCHEDULED CFM POSITION PER THE TAB SCHEDULE. THE REHEAT COIL CONTROL VALVE SHALL BE CLOSED.  
UPON A FURTHER FALL IN SPACE TEMPERATURE, THE REHEAT COIL CONTROL VALVE SHALL MODULATE OPEN TO MAINTAIN SPACE SETPOINT UNTIL THE SUPPLY AIR TEMPERATURE IS 20°F ABOVE ROOM TEMPERATURE SETPOINT.  
UPON A FURTHER FALL IN SPACE TEMPERATURE, TAB SHALL OPEN TO MAINTAIN SETPOINT UNTIL TAB AIRFLOW REACHES ITS MAXIMUM HEATING SETTING. THE REHEAT CONTROL VALVE SHALL CONTINUE TO MODULATE OPEN TO MAINTAIN MAXIMUM DELTA T LISTED ABOVE.  
THE FMCS SHALL UTILIZE OUTPUT FROM ALL TERMINAL AIR BOX POSITIONS TO RESET THE SUPPLY DUCT DIFFERENTIAL STATIC PRESSURE.  
WHEN FLOATING CV'S ARE USED, FMCS SHALL PERFORM AN AUTO-ZERO FUNCTION EVERY NIGHT DURING UNOCCUPIED TIMES. THE FMCS SHALL STAGGER AUTO-ZERO SEQUENCES SO THAT ALL VALVES DO NOT SIMULTANEOUSLY CLOSE.  
**ALARMS, INTERLOCKS & SAFETIES:**  
SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT.

**3 TAB CONTROL W/ HOT WATER REHEAT - TAB-1 THRU TAB-28**  
NO SCALE



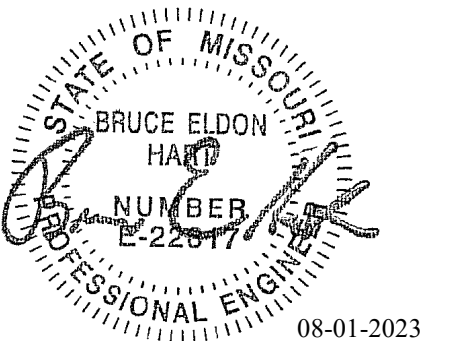
**SEQUENCE OF OPERATION:**  
THE CABINET HEATER SHALL BE FURNISHED WITH A UNIT MOUNTED FAN SPEED SELECTOR SWITCH (OFF-HIGH-MED-LOW). THE UNIT SHALL MAINTAIN A SPACE TEMPERATURE OF NO MORE THAN 60°F.  
WHEN THE OUTDOOR AIR TEMPERATURE IS ABOVE 45°F, THE FMCS SHALL MODULATE THE CONTROL VALVE TO MAINTAIN SETPOINT. FMCS SHALL ENABLE THE FAN WHEN THE CONTROL VALVE IS OPEN AND DISABLE THE FAN WHEN THE CONTROL VALVE IS CLOSED.  
WHEN THE OUTDOOR AIR TEMPERATURE IS BELOW 45°F, THE FMCS SHALL MODULATE THE CONTROL VALVE TO MAINTAIN SETPOINT AND THE FAN SHALL RUN CONTINUOUSLY.  
**ALARMS, INTERLOCKS & SAFETIES:**  
SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF SPACE TEMPERATURE FALLS 10°F (ADJ.) BELOW SETPOINT.

**4 CABINET HEATER CONTROL - HYDRONIC**  
NO SCALE



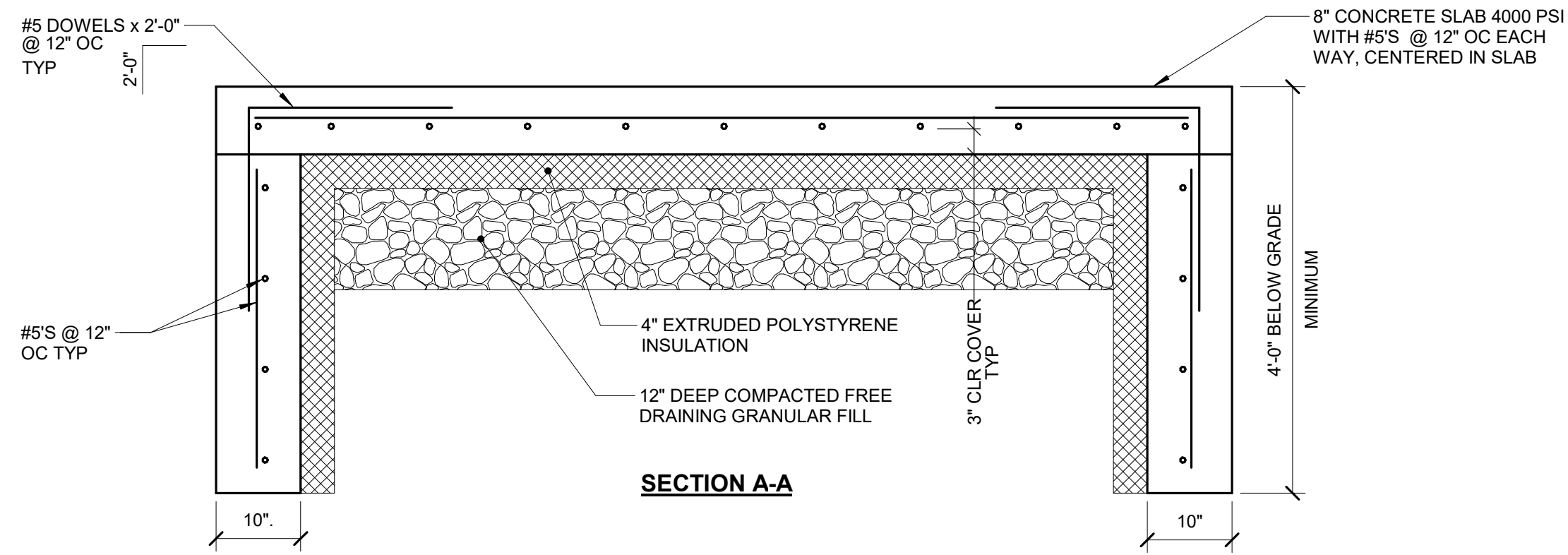
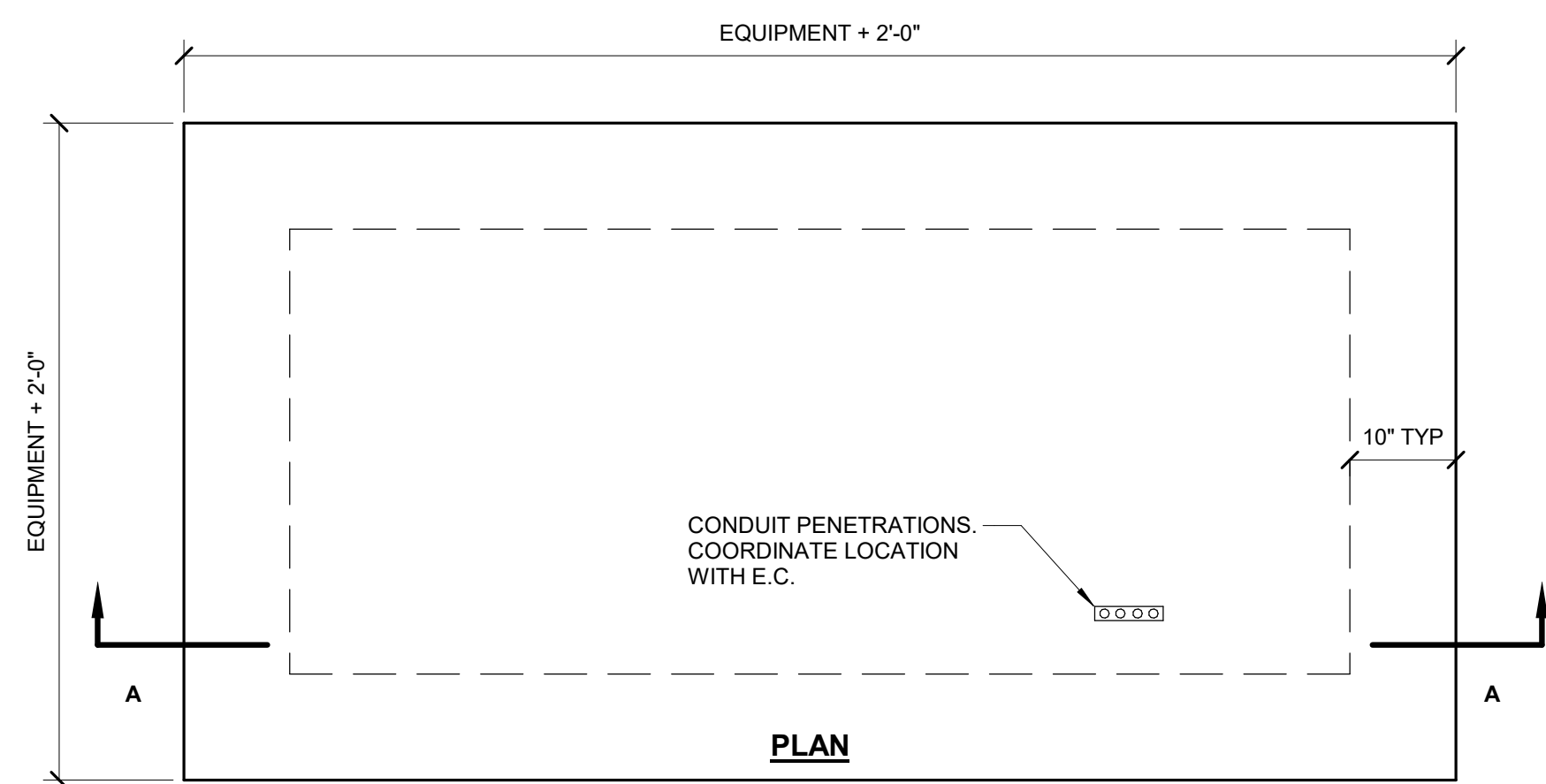
**SEQUENCE OF OPERATION:**  
DRYING ROOM EF-DR-1 SHALL OPERATE CONTINUOUSLY AT A PRESET SPEED OF 20% OF MAX. CFM (ADJ.)  
FMCS TAB CONTROLLER SHALL MODULATE THE TAB DAMPER TO MAINTAIN CONSTANT SUPPLY AIRFLOW TO THE ROOM. AIRFLOW SHALL BE 90% OF EXHAUST AIRFLOW.  
FMCS TAB CONTROLLER SHALL MODULATE TAB HW REHEAT COIL CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE OF 72°F (ADJ.) WITH 5°F (ADJ.) DEAD BAND BASED ON A SIGNAL FROM A WALL MOUNTED TEMPERATURE SENSOR. SPACES WITH ADJUSTABLE THERMOSTATS WILL ALLOW A +/- 3°F (ADJ.) OFFSET FROM THE DDC SETPOINT.  
THE FMCS SHALL UTILIZE OUTPUT FROM ALL TERMINAL AIR BOX POSITIONS TO RESET THE SUPPLY DUCT DIFFERENTIAL STATIC PRESSURE.  
PROVIDE WITH LOCAL START SWITCH THAT WILL RAMP EXHAUST FAN TO 100% AND OPEN TAB TO MAINTAIN 90% OF EXHAUST AIRFLOW. START SWITCH SHALL BE CAPABLE OF SELECTING OPERATION HOURS FROM 1 TO 24 HOURS.  
**ALARMS, INTERLOCKS & SAFETIES:**  
SEND AN ALARM TO THE FMCS OPERATOR INTERFACE IF THE SPACE TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT.

**5 CONSTANT VOLUME TAB CONTROL - TAB-DR-1**  
NO SCALE



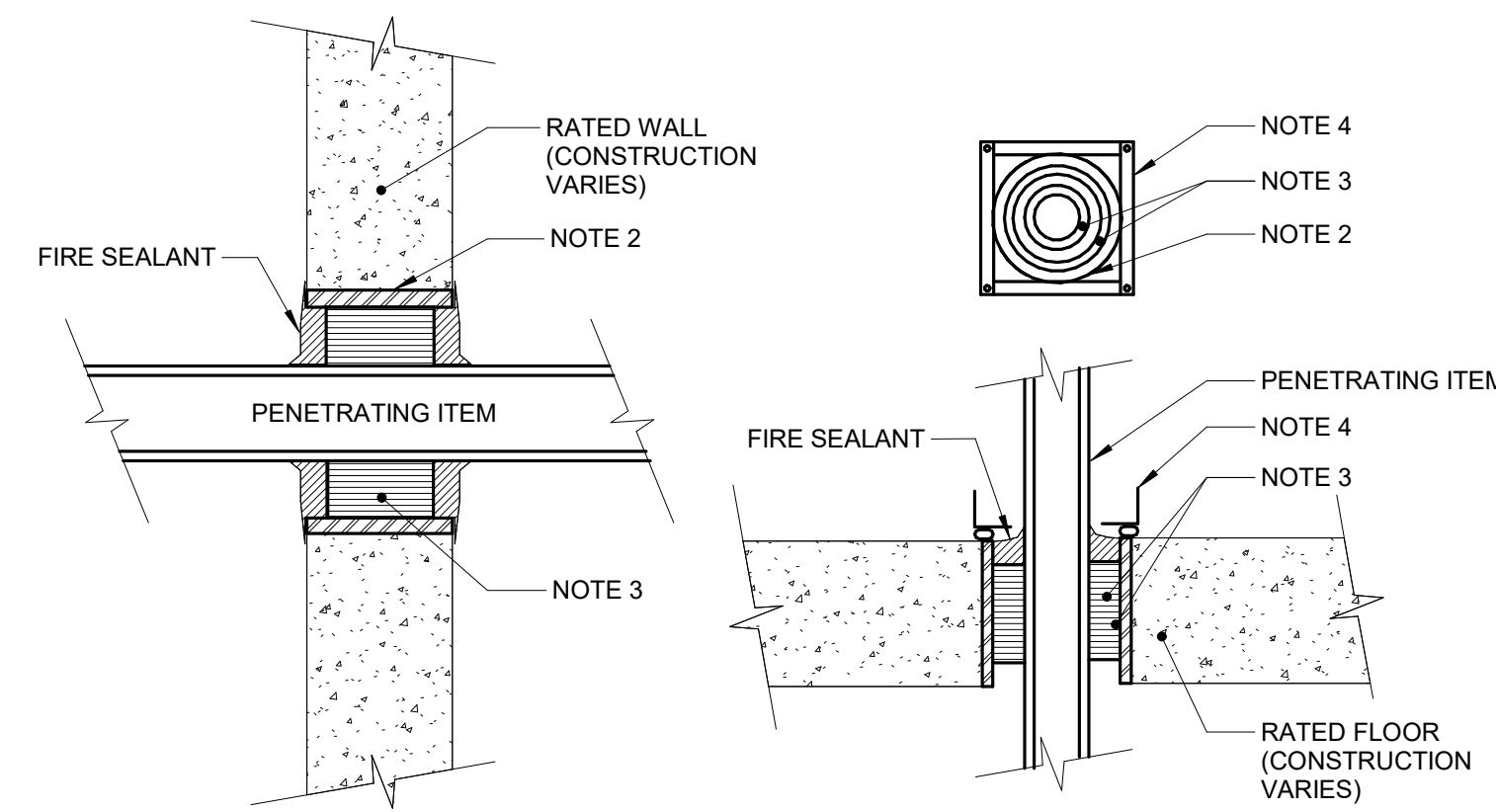
Bruce E Hart - Engineer  
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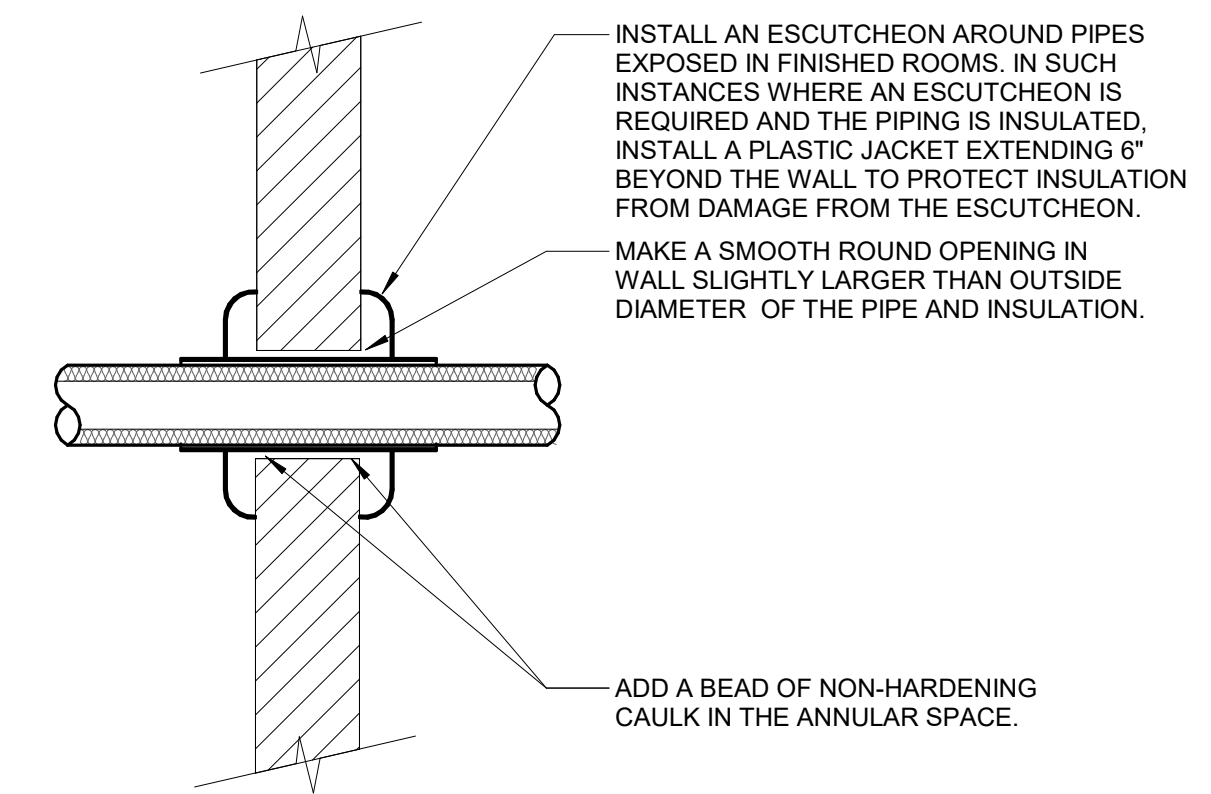
- NOTES:
1. ALL REINFORCING TO BE GRADE 60 KSI.
  2. COORDINATE PAD DIMENSION WITH EQUIPMENT SUPPLIER PRIOR TO CONSTRUCTION.

**1 EQUIPMENT SUPPORT - EXTERIOR SLAB WITH FOOTING**  
 NO SCALE



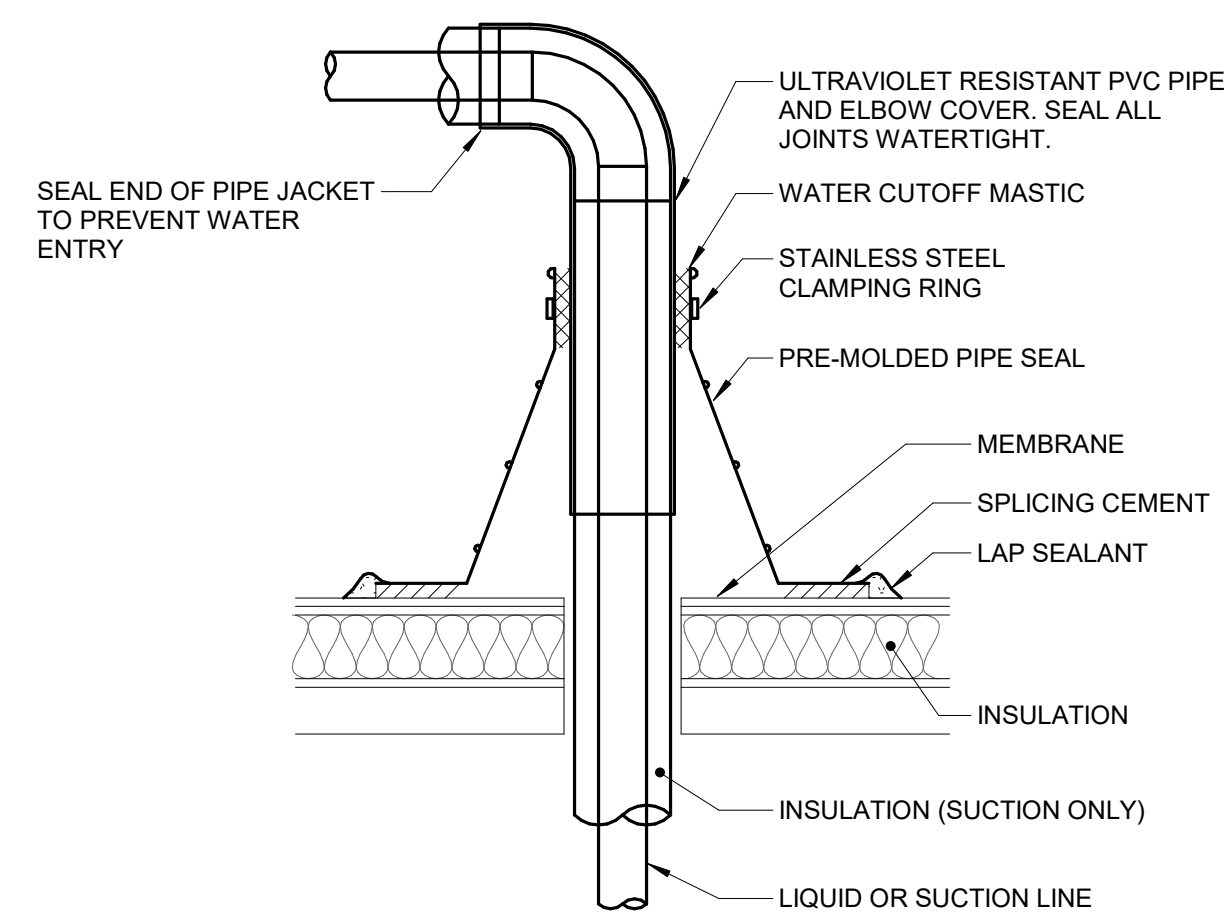
- NOTES:
1. THIS GENERAL DETAIL APPLIES TO ALL ITEMS PENETRATING FIRE RATED WALLS OR FLOORS. THE INTENT IS TO MAINTAIN THE FIRE RATING AND TO ALLOW LONGITUDINAL MOVEMENT. REFER TO SPECIFICATION SECTION 07840 (07 84 00) (SECTION 21 05 03 - FIRE PROTECTION, SECTION 22 05 03 - PLUMBING, SECTION 23 05 03 - HVAC) FOR SELECTION OF THROUGH PENETRATION FIRE STOPPING.
  2. SCHEDULE 5 PIPE SLEEVE EMBEDDED IN WALL OR FLOOR, OR SMOOTH CORE DRILL. EACH CONTRACTOR FURNISHES SLEEVE TO G.C., COORDINATES SLEEVE LOCATIONS AND DEBURS SLEEVE. G.C. BUILDS SLEEVE INTO WALL OR FLOOR ALLOWING NO GAP AROUND SLEEVE. IF SLEEVE IS NOT PROVIDED WHEN WALL OR FLOOR IS BUILT, CONTRACTOR SHALL INSTALL SLEEVE. SLEEVE SIZE SHALL ALLOW ANNULAR SPACE REQUIRED BY THE SELECTED FIRE STOP SYSTEM.
  3. INSTALL BACKING MATERIAL, SUCH AS MINERAL WOOL SAFING, AS REQUIRED FOR FIRE STOP SYSTEM. INSTALL IN ACCORDANCE WITH FIRE STOP SYSTEM APPLICATION LISTING. SECURE TO WALL OR FLOOR TO ALLOW LONGITUDINAL MOVEMENT OF PENETRATING ITEM WITHOUT MOVEMENT OF FIRE BARRIER.
  4. WATERTIGHT WELDED 1"x1" 20 GAUGE MINIMUM GALVANIZED SHEET METAL ANGLE FRAME, BY CONTRACTOR IN EQUIPMENT ROOMS FOR WATER STOP. PLACE A BEAD OF WATERPROOF SEALANT BETWEEN FLOOR AND BOTTOM OF ANGLE FRAME. SECURE TO FLOOR WITH MASONRY ANCHORS IN CORNERS AND ON 12" MAXIMUM CENTERS. MULTIPLE PENETRATING ITEMS MAY BE ENCLOSED IN ONE FRAME.

**2 FLOOR/WALL PENETRATION - RATED FIRE BARRIER**  
 NO SCALE



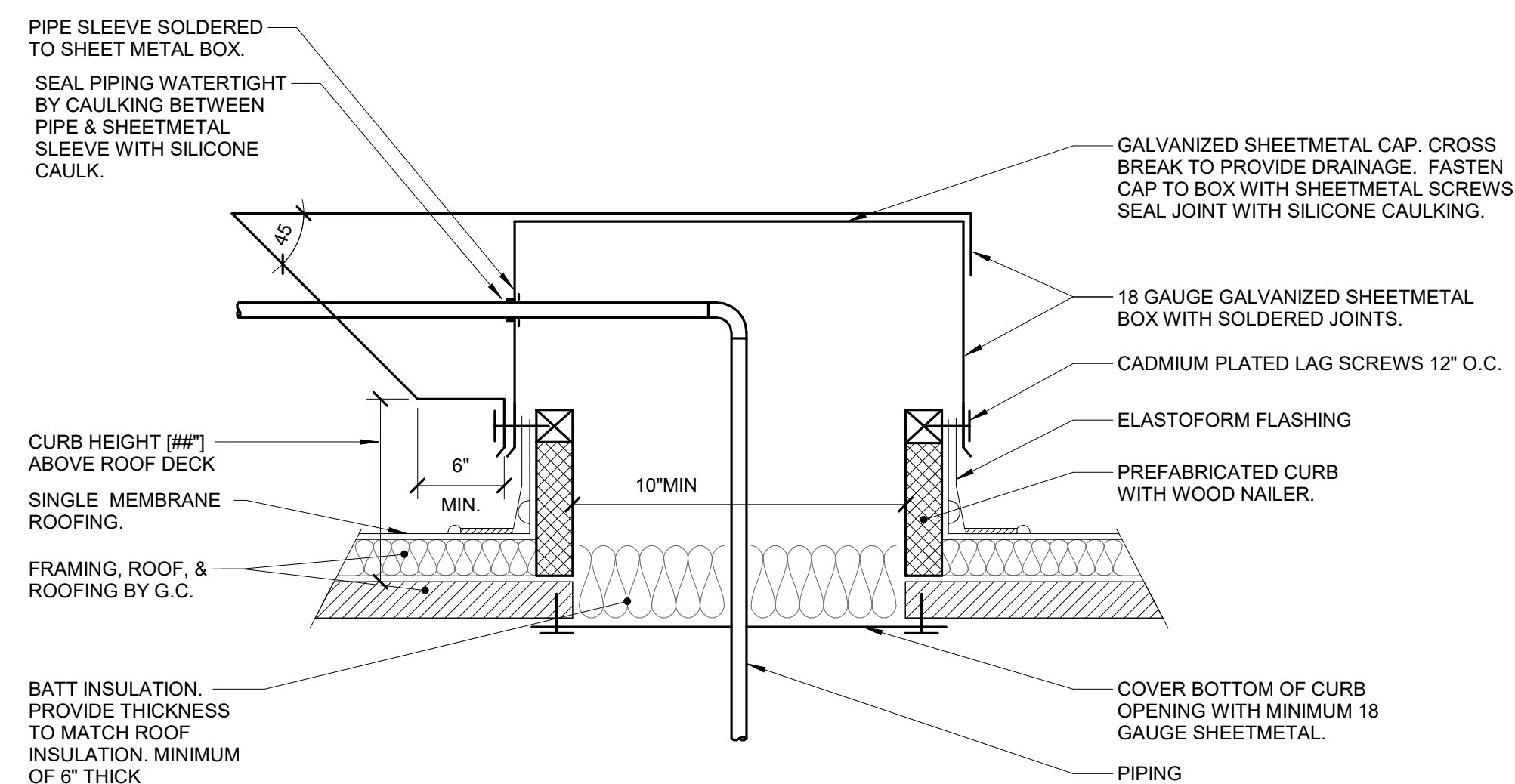
- NOTES:
1. THIS DETAIL APPLIES TO ALL PIPES. THE INTENTION IS TO CONTINUE THE INSULATION AND VAPOR BARRIER THROUGH ALL PENETRATIONS. PERMIT THERMAL EXPANSION WITHOUT DAMAGING INSULATION, AND TO SEAL AIRTIGHT AROUND INSULATED AND UNINSULATED PIPES FOR NOISE TRANSMISSION CONTROL.
  2. SEE SPECIFICATION SECTIONS (SECTION 22 05 29 - PLUMBING, SECTION 23 05 29 - HVAC) FOR ADDITIONAL INFORMATION.
  3. FLOOR OPENINGS ARE SIMILAR. SEE SPECIFICATION SECTION (SECTION 22 05 29 - PLUMBING, SECTION 23 05 29 - HVAC) FOR DIFFERENCES BETWEEN FLOOR AND WALL PENETRATIONS.

**3 WALL PENETRATION - NON-FIRE RATED**  
 NO SCALE

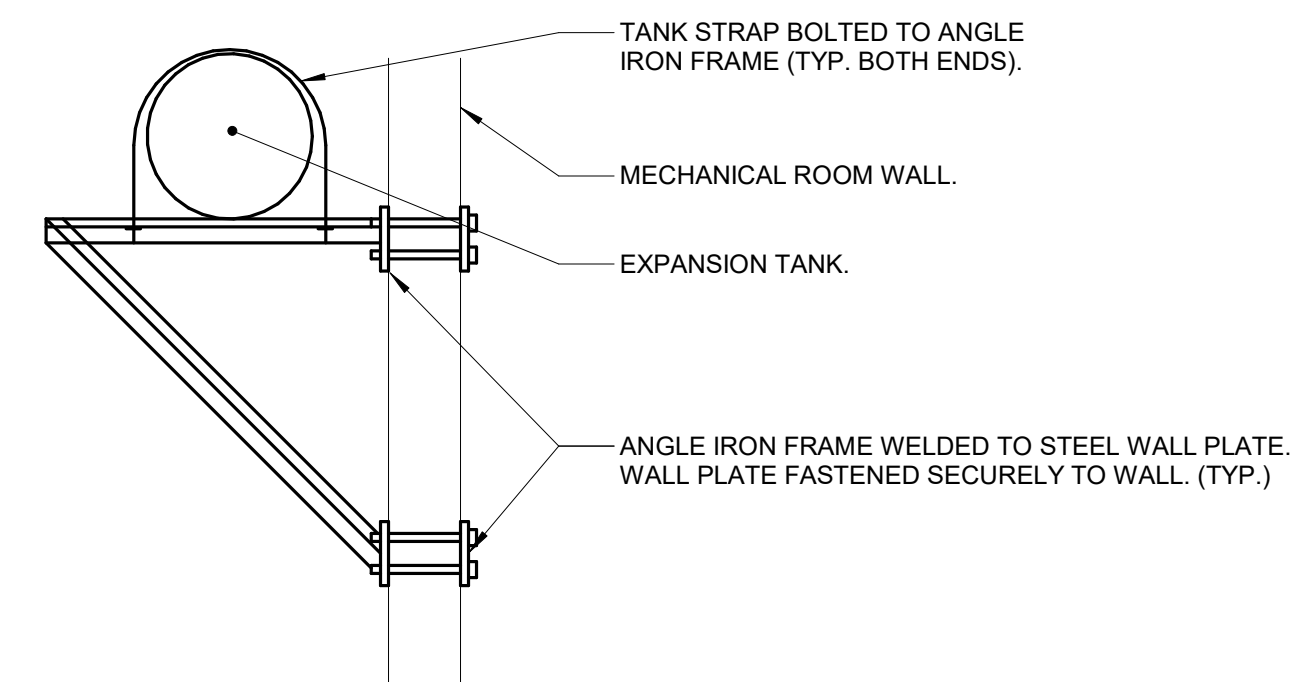


- NOTES:
1. MASTIC, PIPE SEAL, AND CEMENT TO MATCH ROOFING SUPPLIERS REQUIREMENTS.

**4 ROOF PENETRATION - INSULATED PIPE**  
 NO SCALE



**5 ROOF PENETRATION - INSULATED PIPE HOUSING - MEMBRANE ROOF**  
 NO SCALE



**6 EQUIPMENT SUPPORT - WALL MOUNT EXPANSION TANK**  
 NO SCALE

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 DESIGN AND  
 CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: M500.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

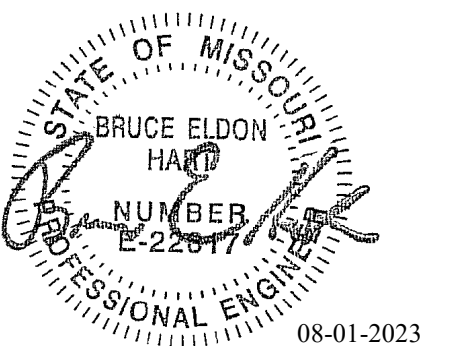
SHEET TITLE:  
 MECHANICAL DETAILS

SHEET NUMBER:

**M500**

SHEET 148 OF 202

08/01/2023



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 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

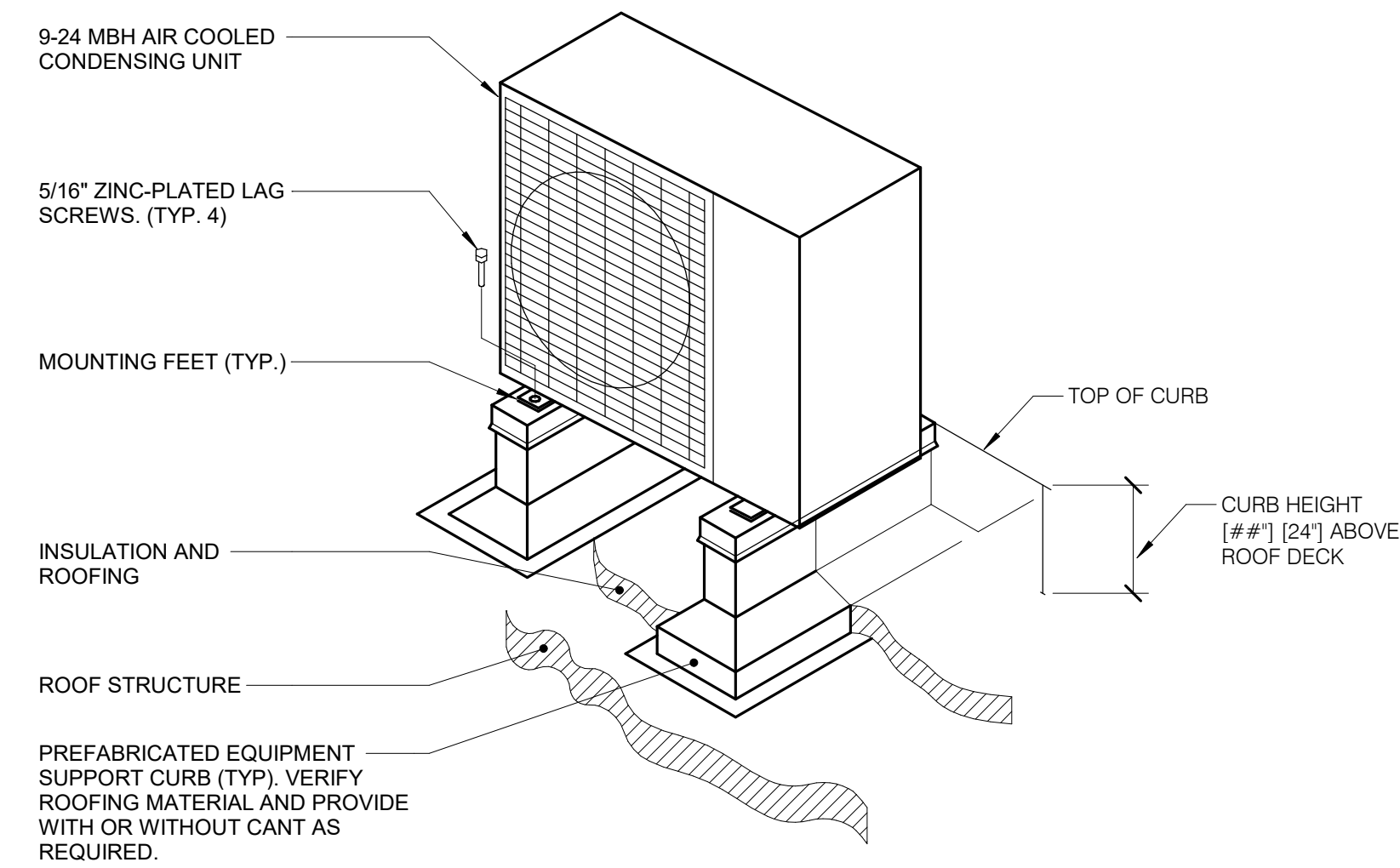
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**MECHANICAL DETAILS**

SHEET NUMBER:

**M501**

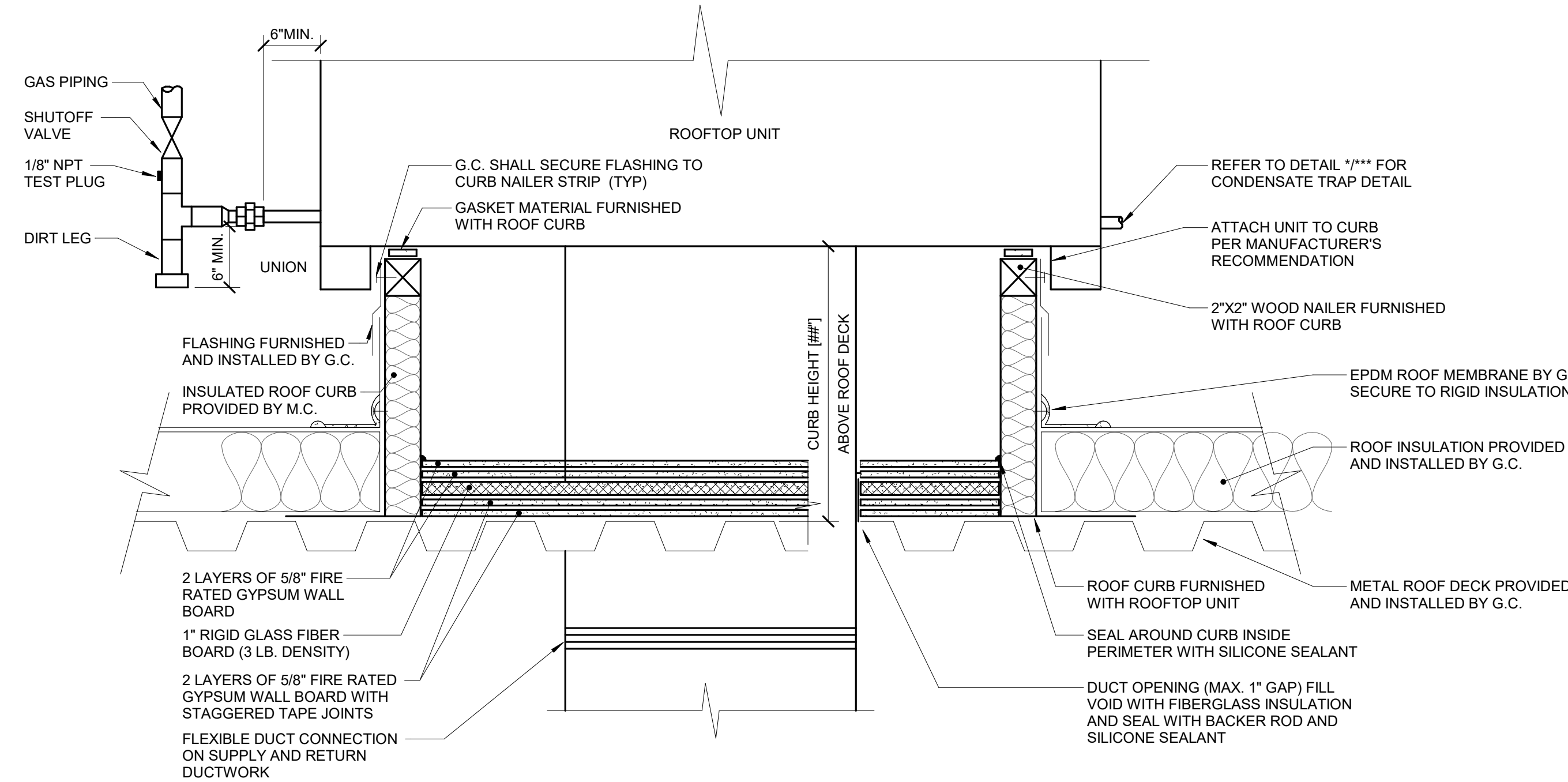
SHEET 149 OF 202

08/01/2023



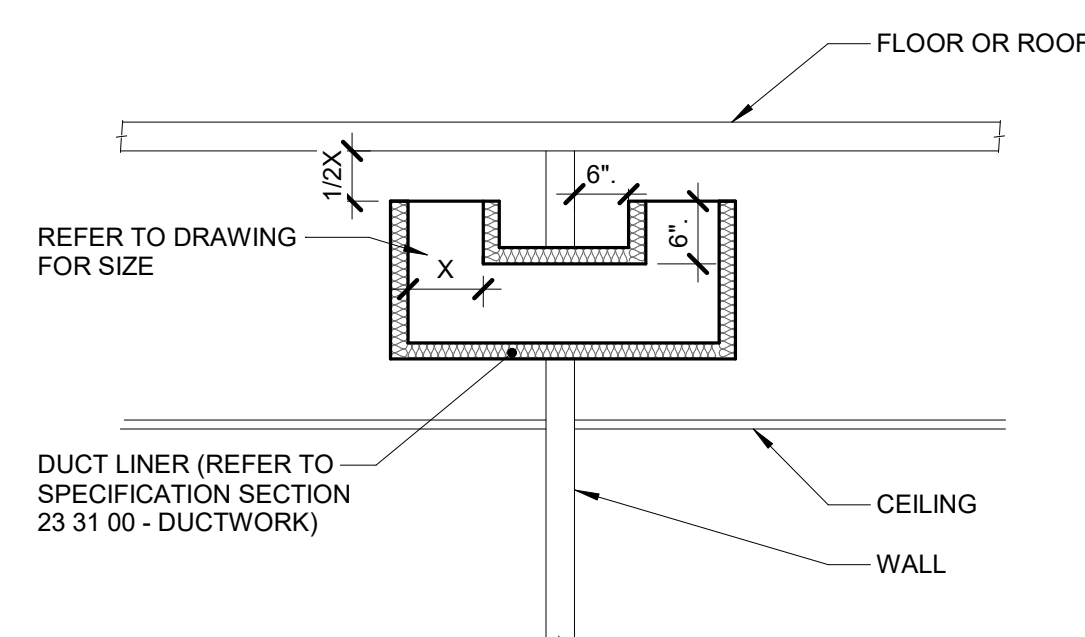
- NOTES:
1. VERIFY DIAMETER OF ANCHOR BOLT REQUIRED TO FIT WITHIN MOUNTING FEET ANCHOR HOLES.

**1 ROOF SUPPORT - EQUIPMENT RAIL**  
 NO SCALE

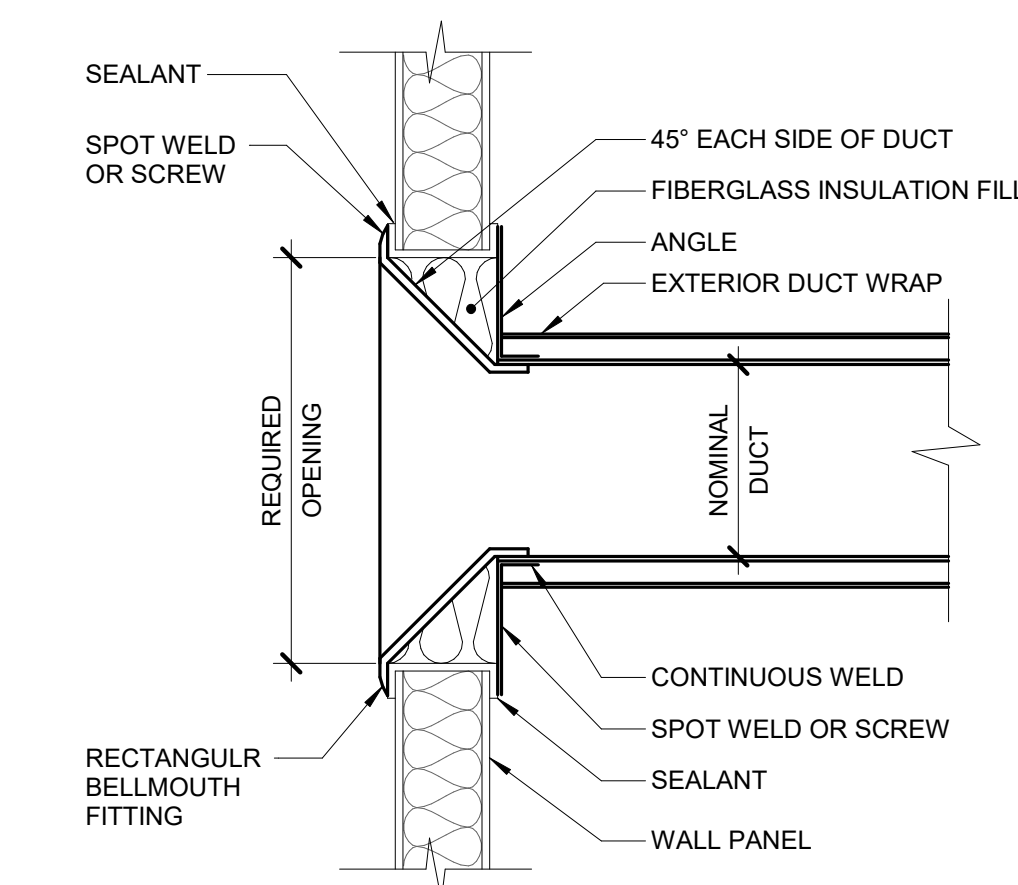


- NOTES:
1. ALL ROOF FLASHING SHALL BE PER ROOF MANUFACTURER'S RECOMMENDATIONS.
  2. ROOF CURB SHALL BE INSTALLED PER ROOF CURB MANUFACTURER'S RECOMMENDATIONS.
  3. PROVIDE EXTENDED CURB AS REQUIRED TO MAINTAIN 12\"/>

**2 ROOF SUPPORT - ROOF TOP UNIT CURB**  
 NO SCALE

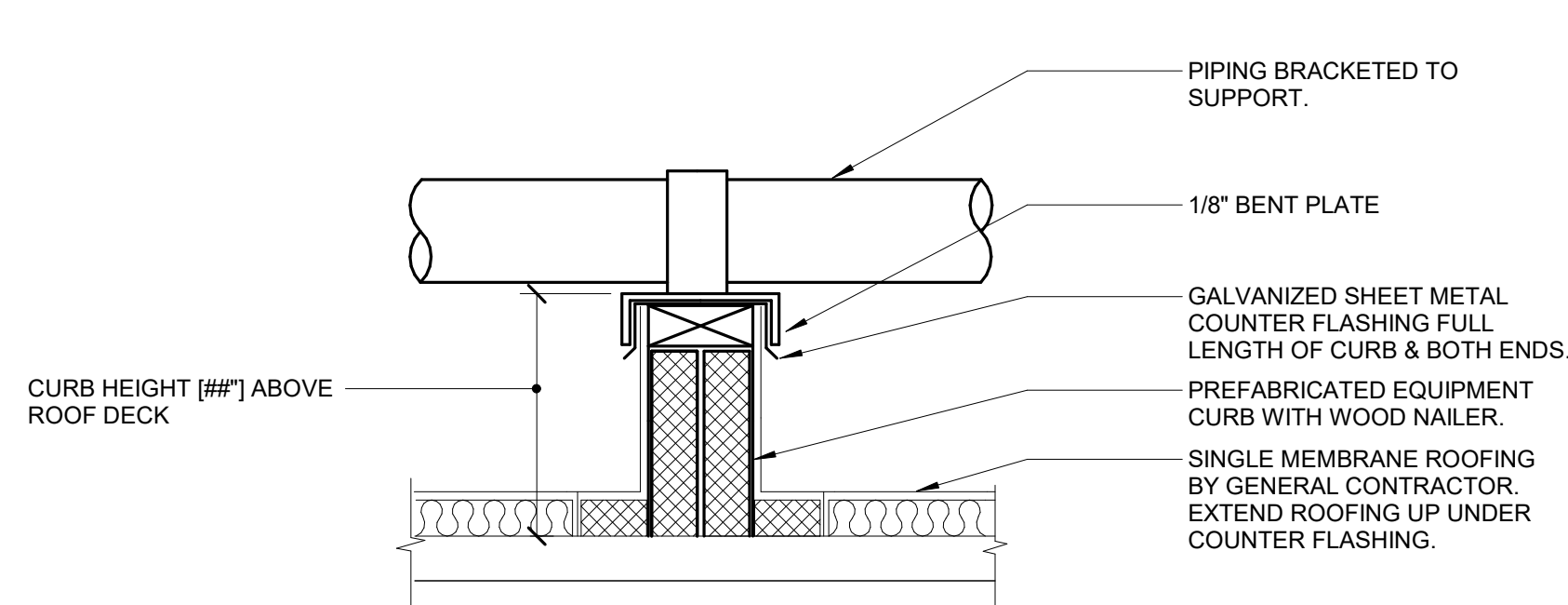


**3 TRANSFER DUCT - ELBOW ENDS**  
 NO SCALE

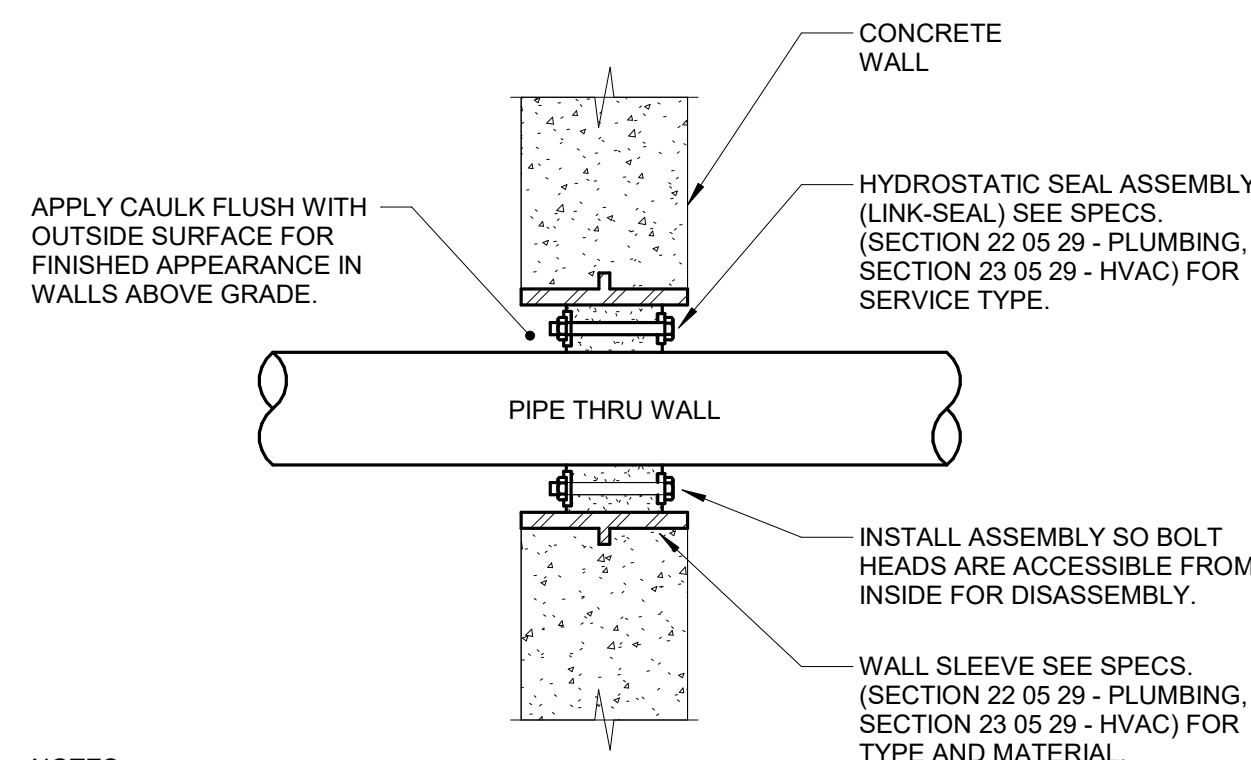


**4 BELLMOUTH IN WALL DETAIL - RECTANGULAR**  
 NO SCALE

- NOTES:
1. COORDINATE WITH HOUSING PANEL MANUFACTURER FOR EXACT BELLMOUTH FITTING INSTALLATION REQUIREMENTS.

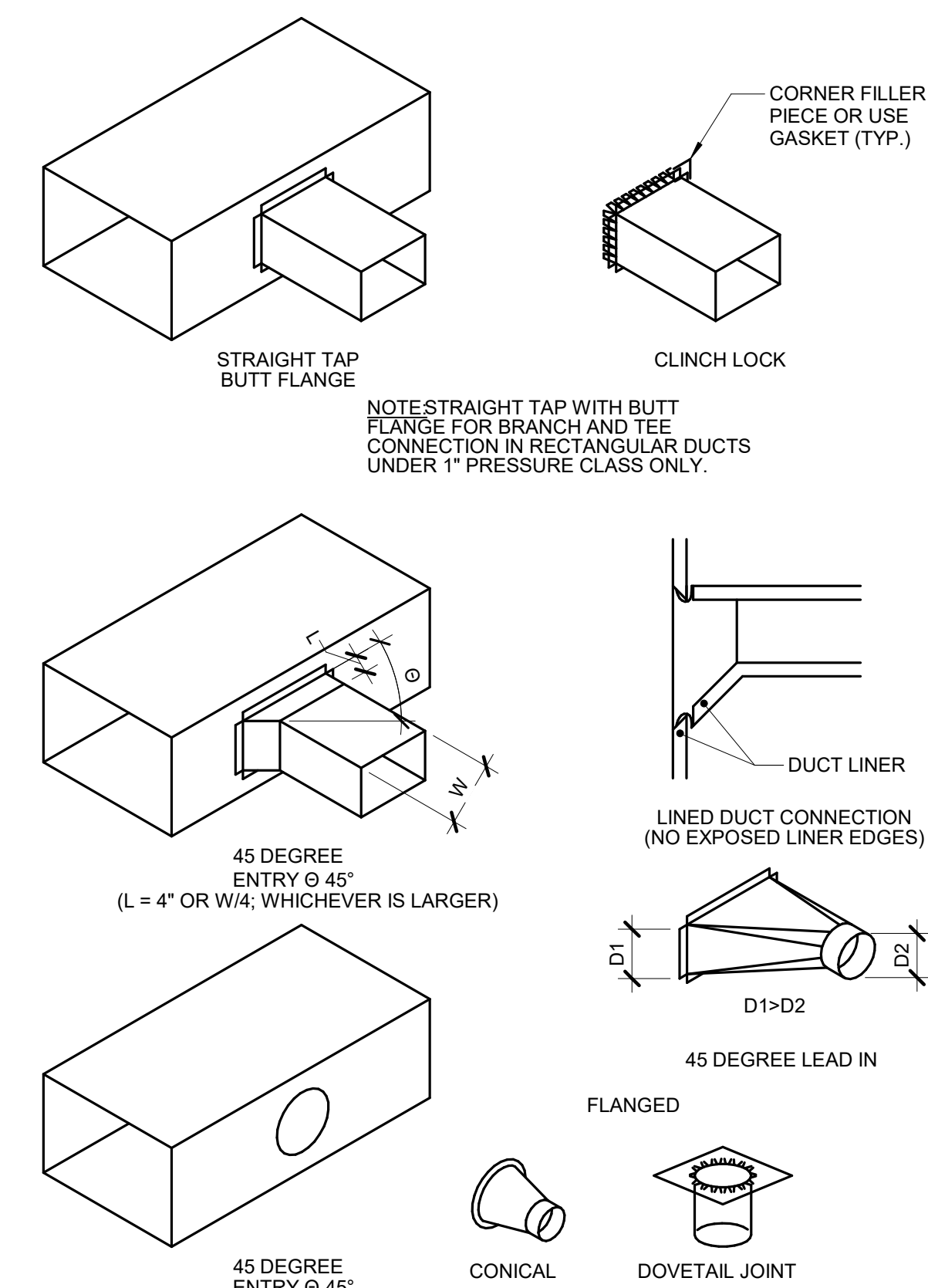


**5 ROOF SUPPORT - EXPOSED PIPING RAIL**  
 NO SCALE



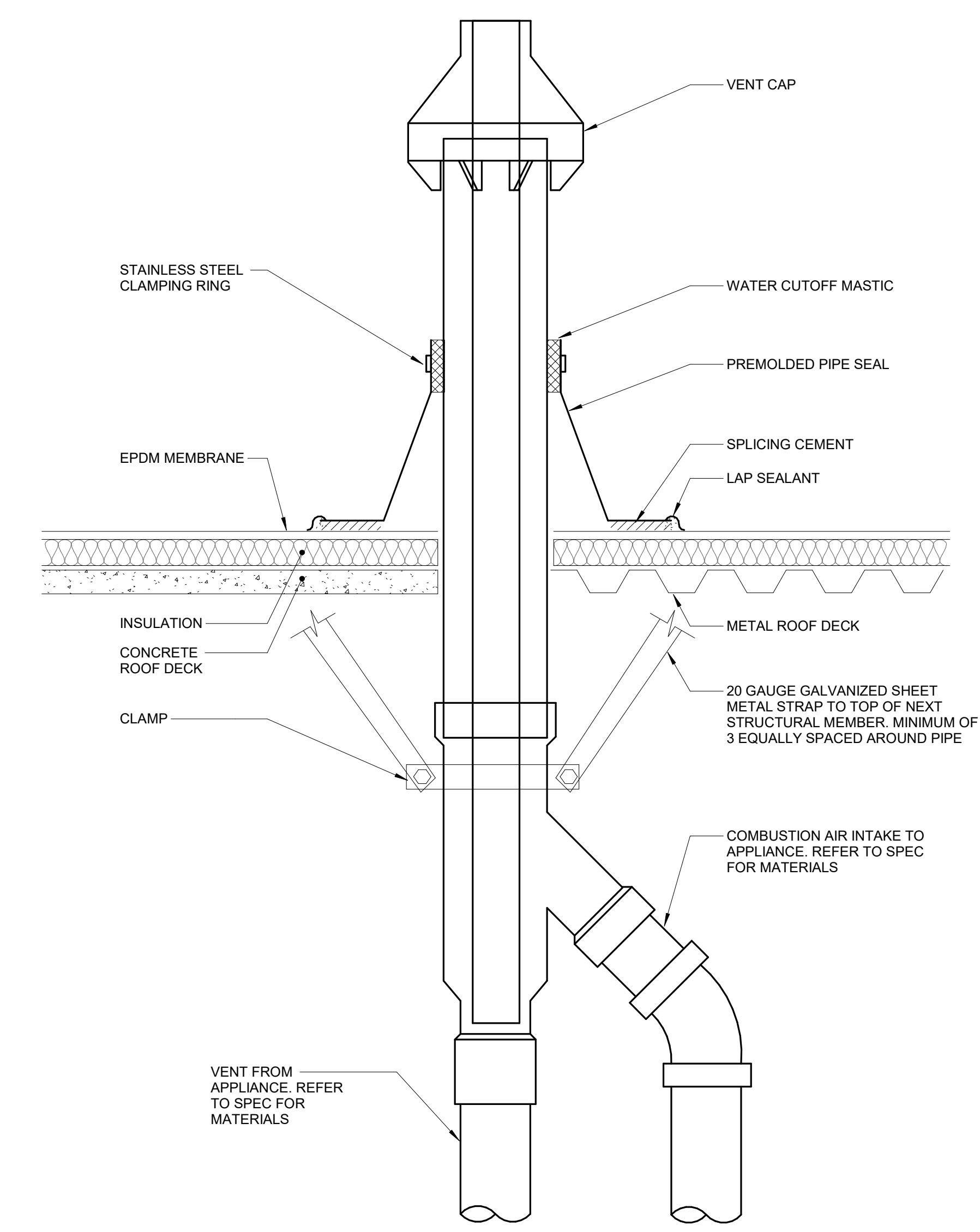
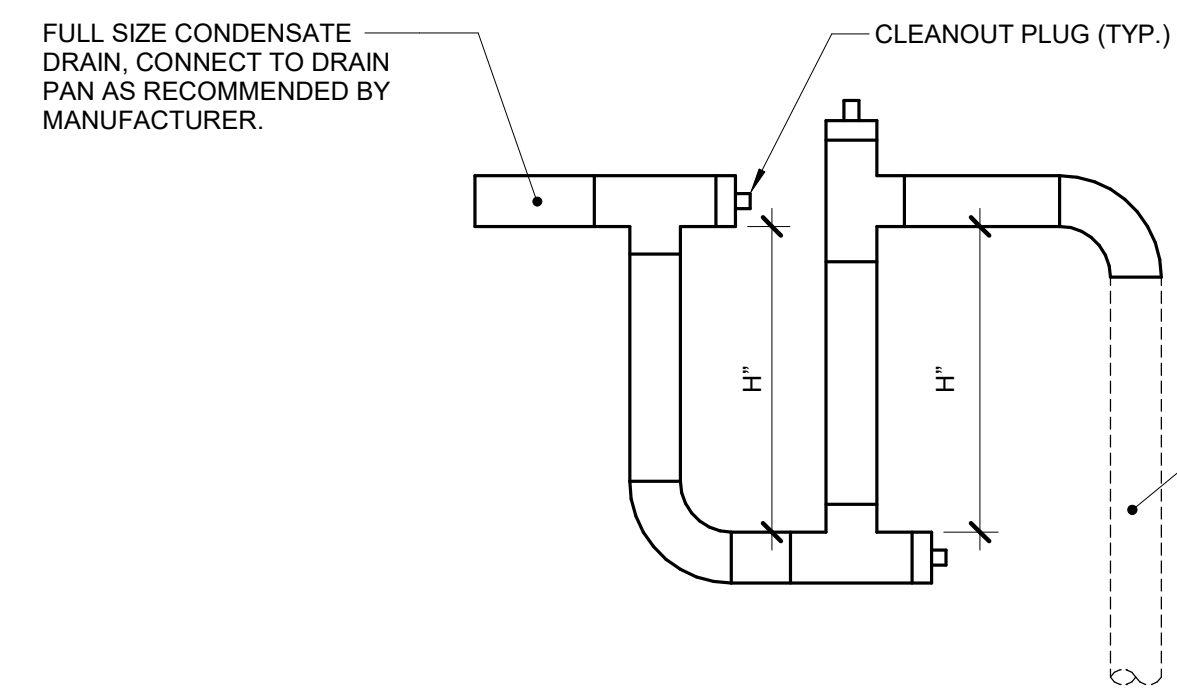
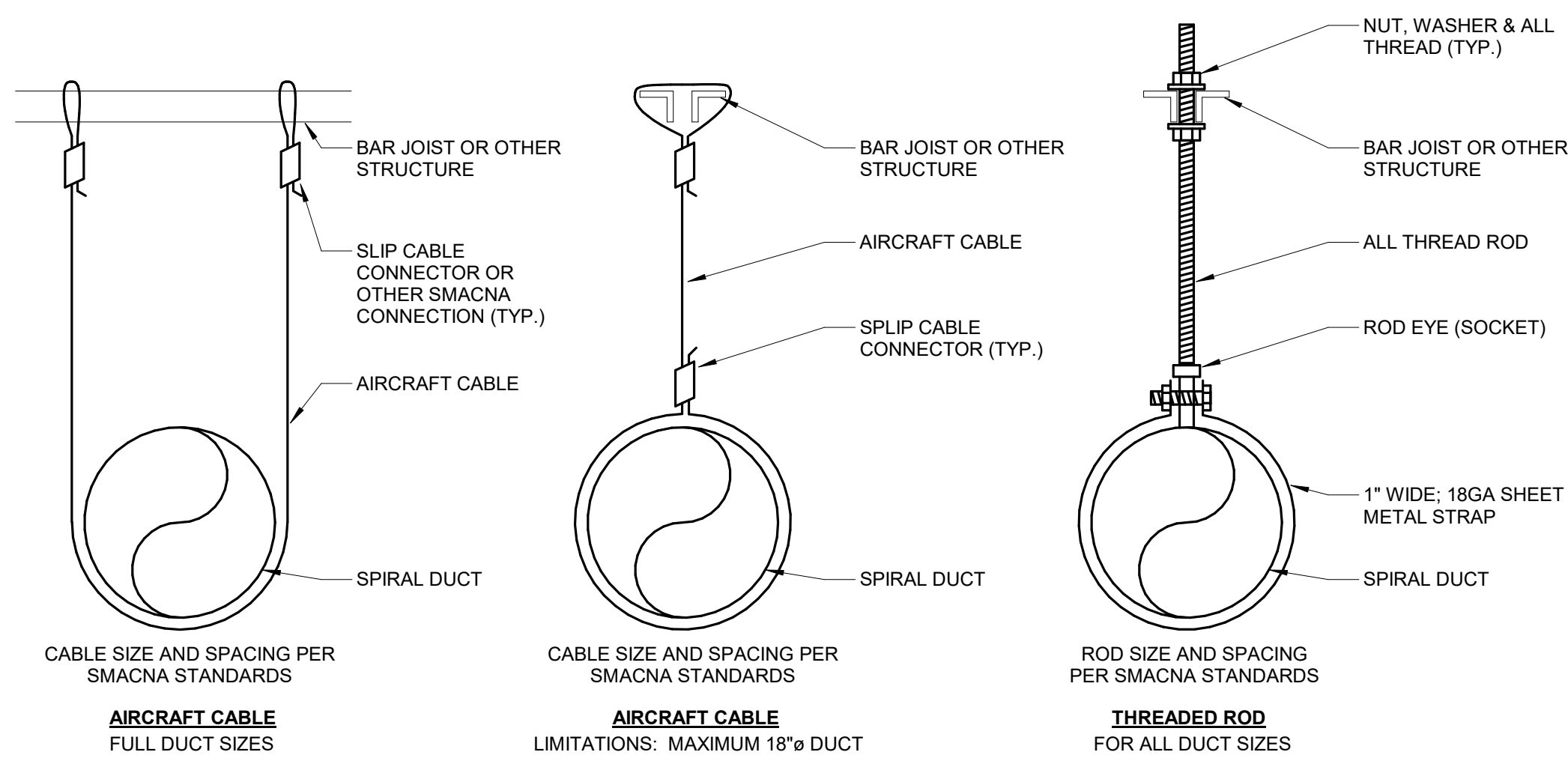
**6 WALL PENETRATION - EXTERIOR - PIPING**  
 NO SCALE

- NOTES:
1. CONTRACTOR MAY FABRICATE PIPE SLEEVE.
  2. SEAL SELECTION BASED ON O.D. OF PIPE THRU WALL AND I.D. OF SLEEVE.
  3. SLEEVE NOT REQUIRED FOR CORE DRILLED PENETRATIONS.



- NOTES:
1. DO NOT USE CONNECTIONS WITH SCOOPS.
  2. FIT ALL CONNECTIONS TO AVOID VISIBLE OPENINGS AND SECURE THEM SUITABLY FOR THE PRESSURE CLASS.
  3. ADDITIONAL MECHANICAL FASTENERS ARE REQUIRED FOR 4\"/>

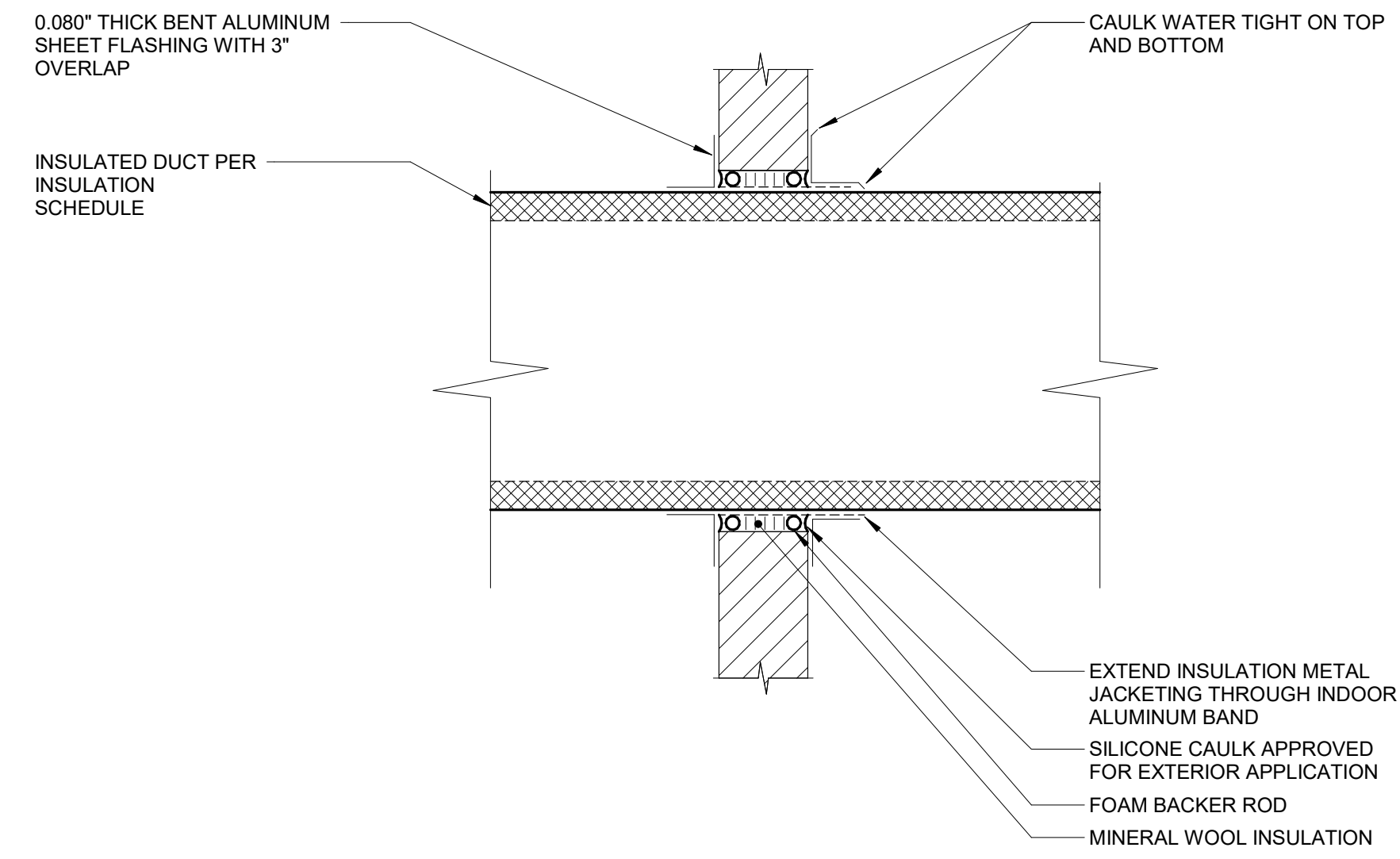
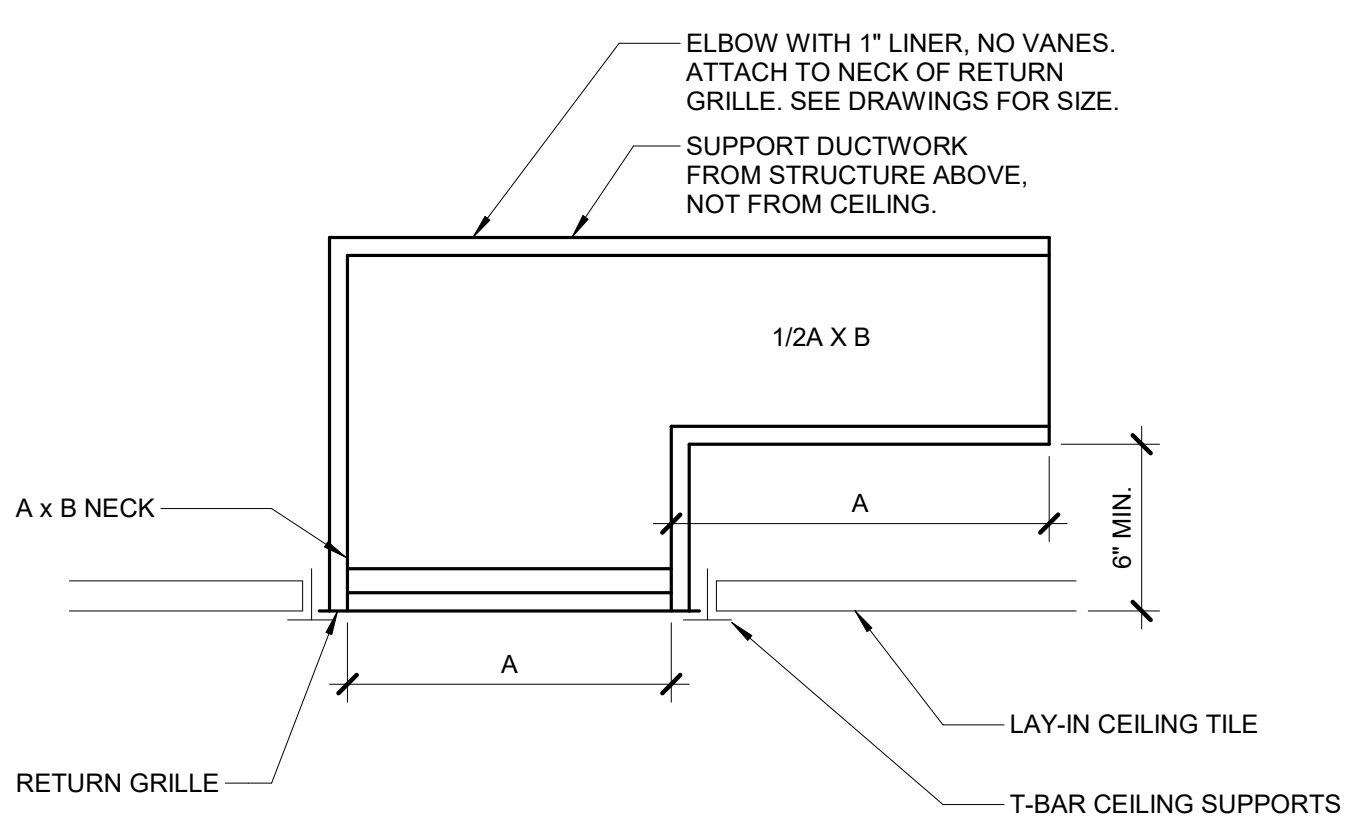
**7 BRANCH CONNECTIONS**  
 NO SCALE



**1 DUCT - HANGERS EXPOSED SPACES**  
NO SCALE

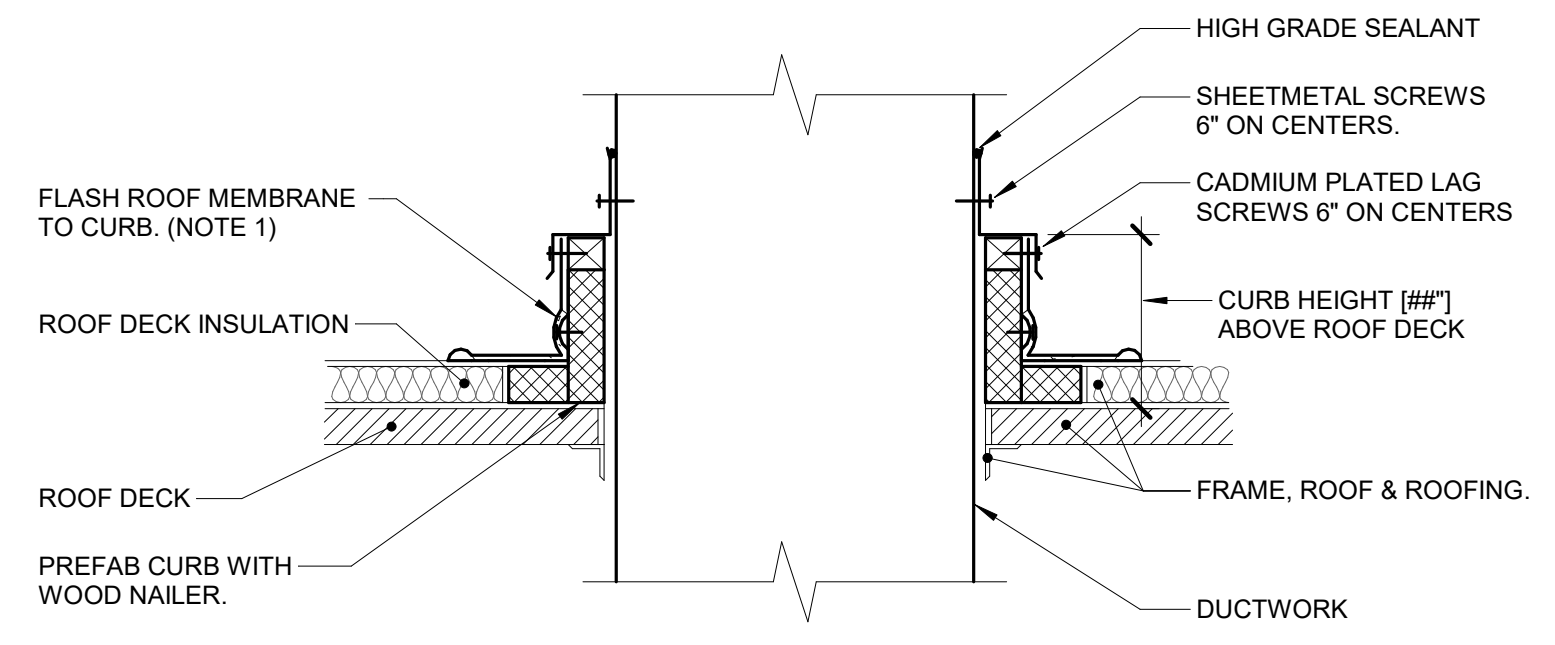
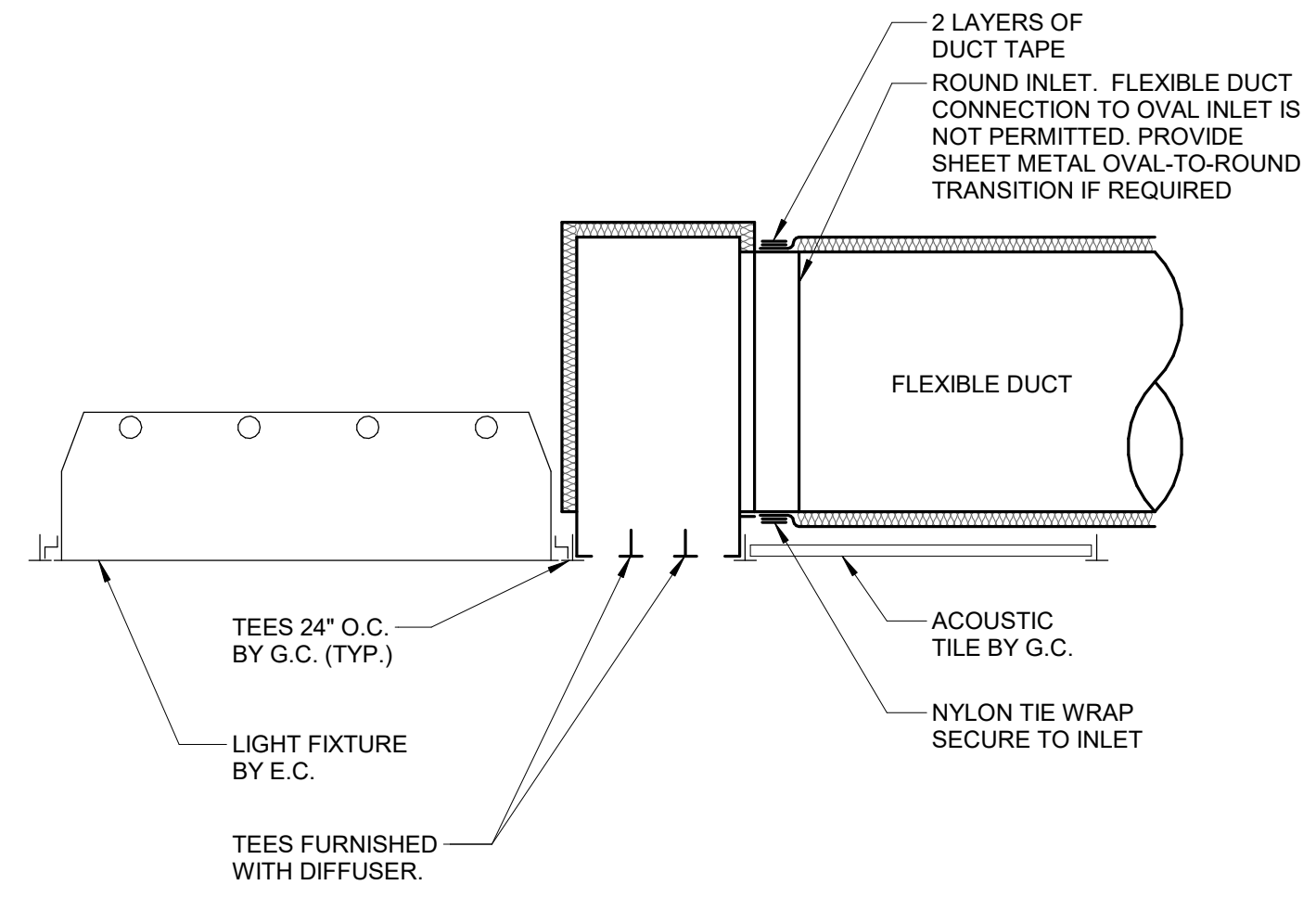
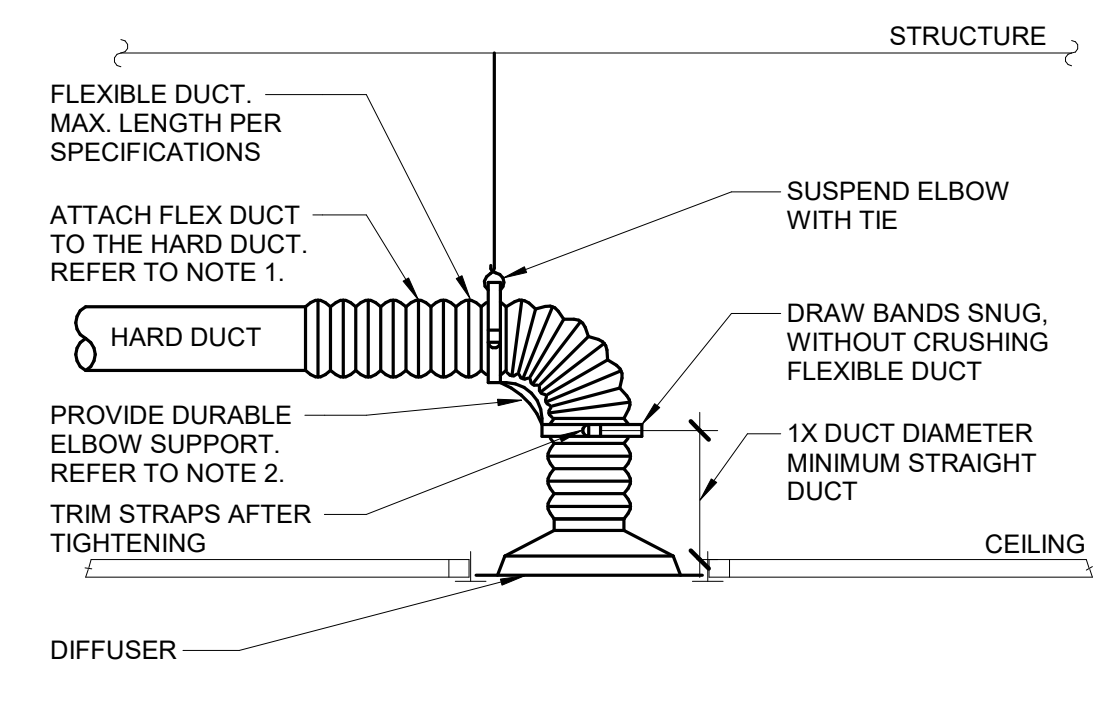
**2 CONDENSATE TRAP - BLOW THROUGH COIL**  
NO SCALE

**3 CONCENTRIC GAS VENT/INTAKE DETAIL**  
NO SCALE



**4 CEILING RETURN GRILLE W/BOOT**  
NO SCALE

**5 EXTERIOR WALL PENETRATION DETAIL**  
NO SCALE



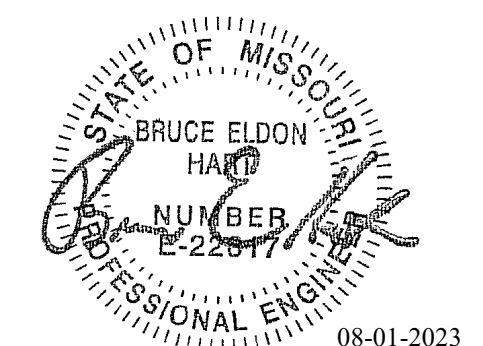
- NOTES:**
1. TO ATTACH FLEX DUCT TO THE HARD DUCT, TAPE THE INNER LINER TO THE HARD DUCT THEN ATTACH WITH TWO NYLON TIE WRAPS; ONE FOR THE INNER LINER AND ONE FOR THE OUTER SHELL. FOLD THE OUTER SHELL INSIDE ITSELF SO IT HAS NEAT EDGES PRIOR TO TIE WRAPPING
  2. DURABLE ELBOW SUPPORT ACCEPTABLE MANUFACTURER AND MODEL: HART AND COOLEY - SMARTFLOW, THERMAFLEX - FLEXFLOW, TITUS - FLEXRIGHT, OR APPROVED EQUAL.

- NOTES:**
1. ALL ROOF FLASHING SHALL BE PER ROOF MANUFACTURER'S RECOMMENDATIONS.

**6 DIFFUSER CONNECTION DETAIL (W/ RADIUS FORMING ELBOW)**  
NO SCALE

**7 SLOT DIFFUSER MOUNTING DETAIL**  
NO SCALE

**8 DUCT ROOF PENETRATION (MEMBRANE ROOF)**  
NO SCALE



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CHECKED BY: BEH  
DESIGNED BY: GW&

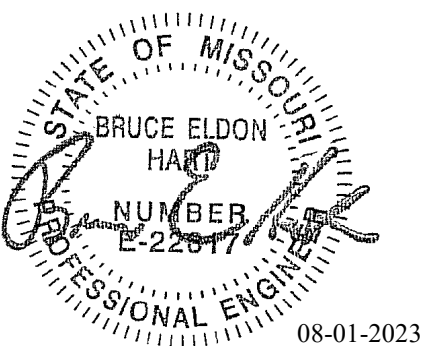
SHEET TITLE:  
**MECHANICAL DETAILS**

SHEET NUMBER:

**M502**

SHEET 150 OF 202

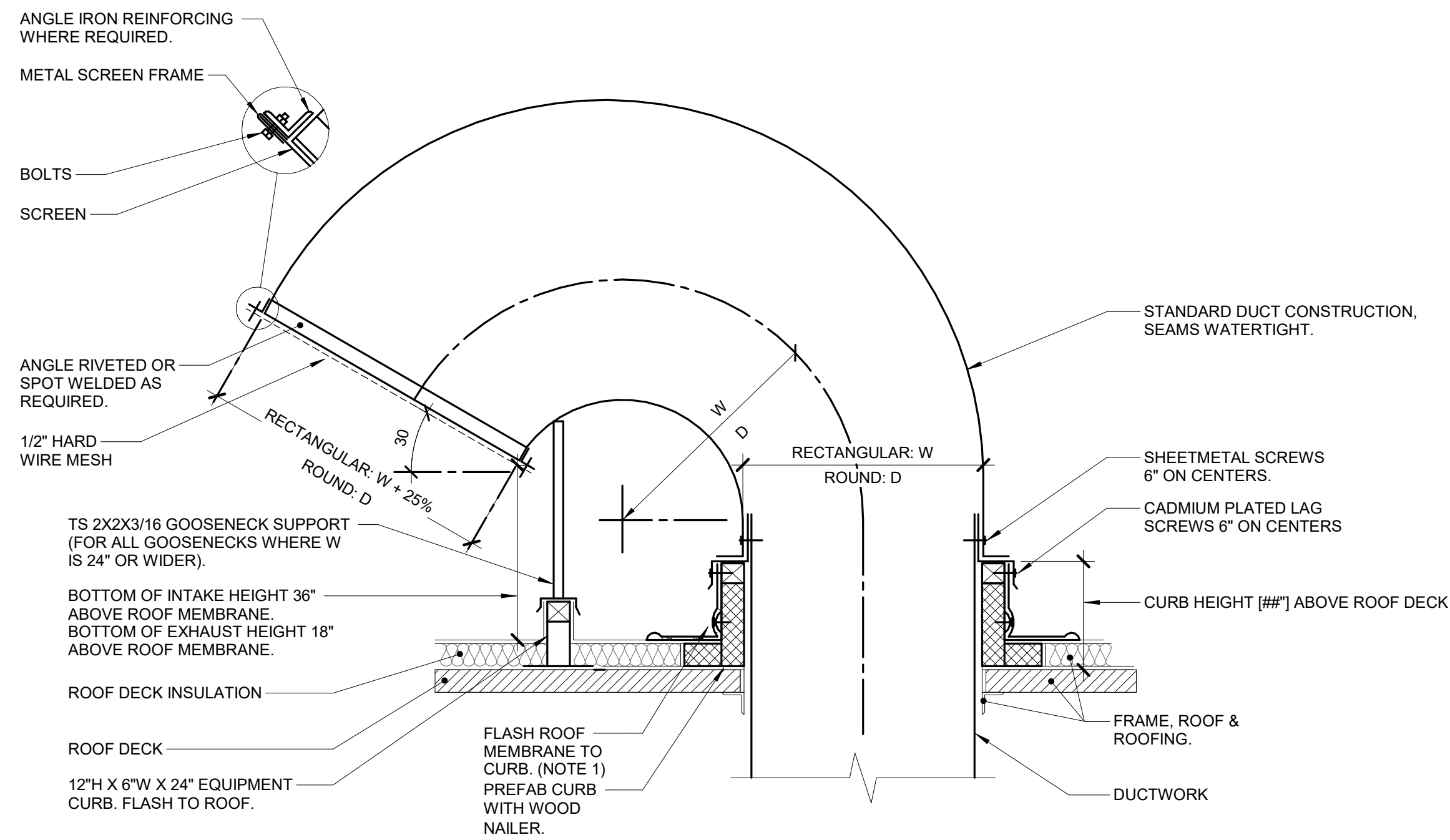
08/01/2023



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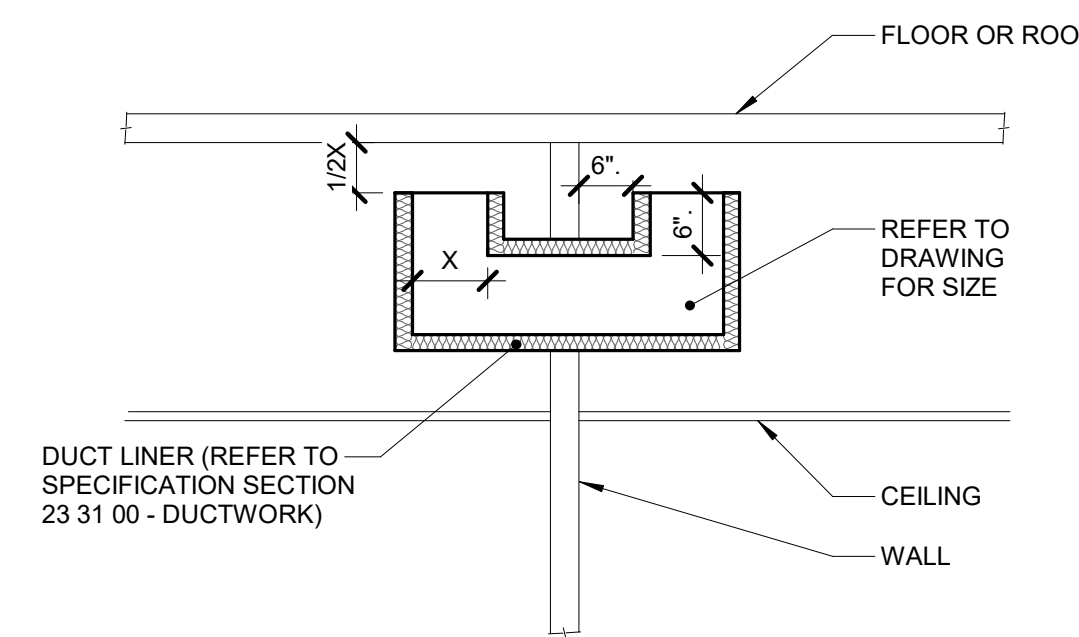
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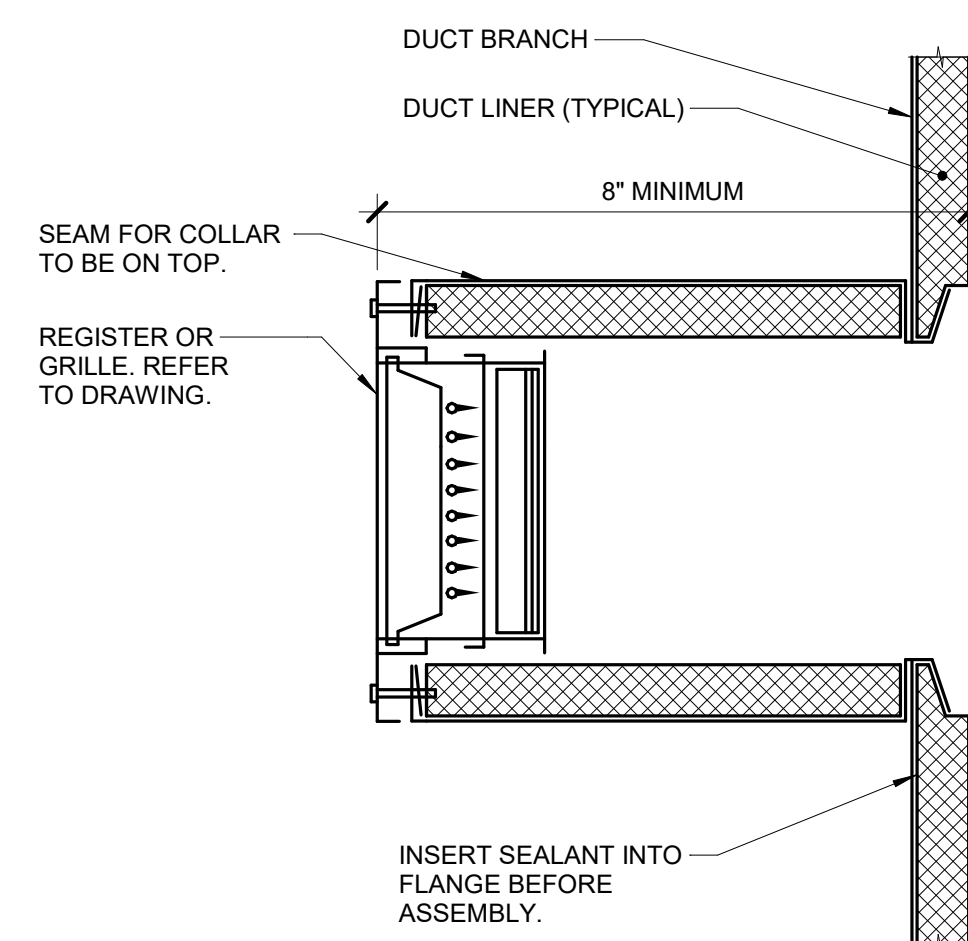


NOTES:  
 1. ALL ROOF FLASHING SHALL BE PER ROOF MANUFACTURER'S RECOMMENDATIONS.

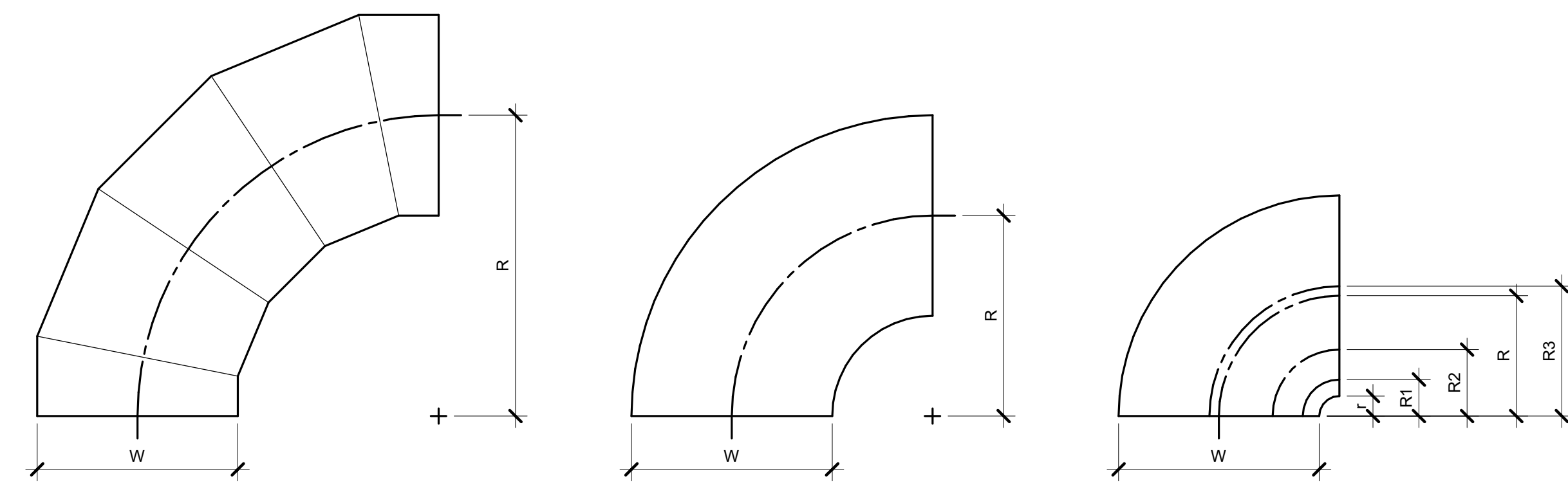
**1 GOOSENECK DETAIL (MEMBRANE ROOF)**  
 NO SCALE



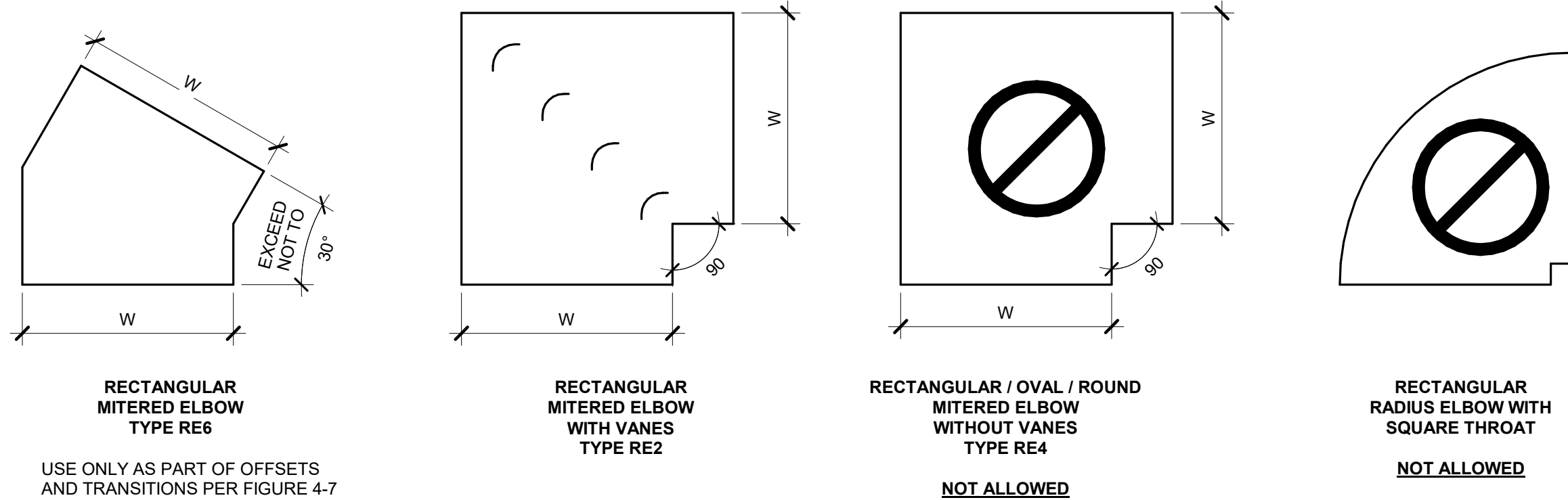
**3 TRANSFER DUCT DETAIL (ENDS UP)**  
 NO SCALE



**4 EXPOSED REGISTER**  
 NO SCALE



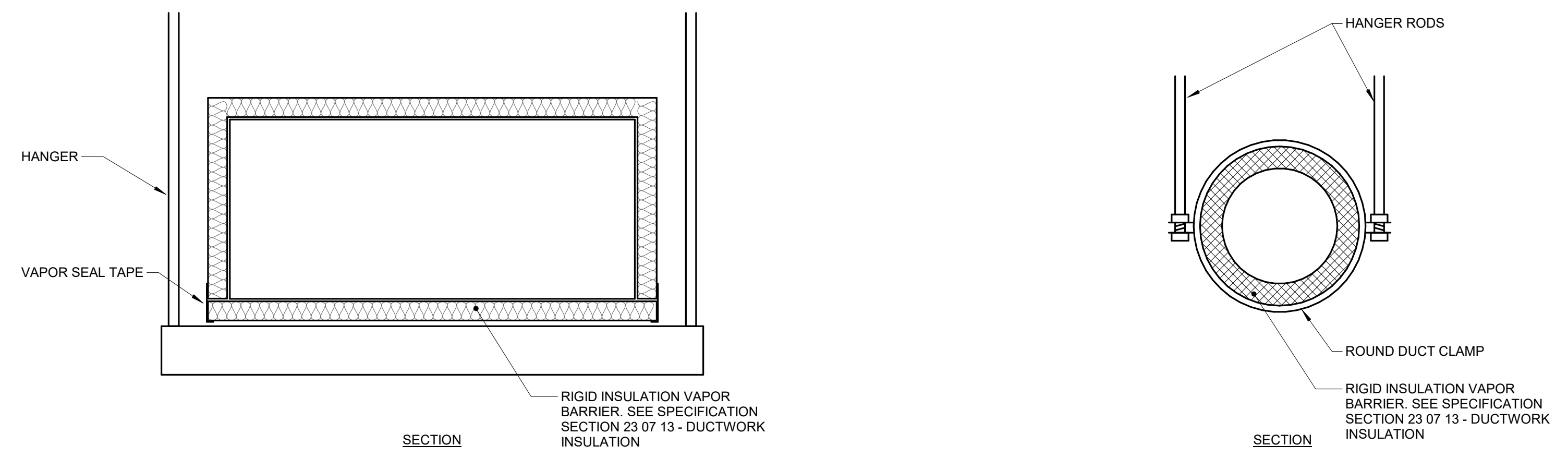
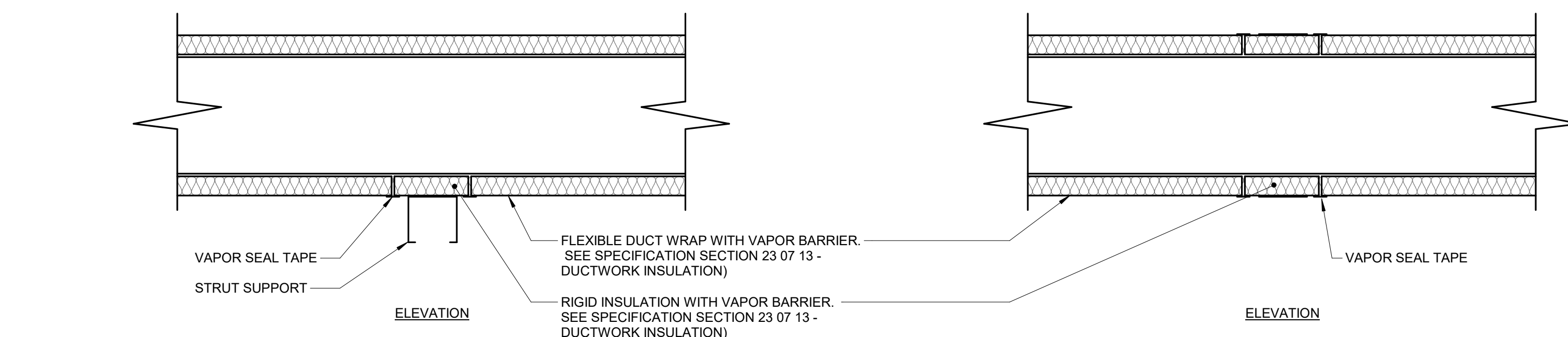
REFER TO SMACNA HVAC SYSTEMS DUCT DESIGN MANUAL, FOURTH EDITION, SECTION 5.14 "SPLITTER VANES" AND SMACNA HVAC DUCT CONSTRUCTION STANDARDS, THIRD EDITION, FIGURES 4-2 AND 4-9 AND CHARTS 4-1 AND 4-1M. ELBOW SHALL HAVE THREE SPLITTER VANES AND  $r/w = 0.10$  ( $r/w = 0.60$ ) UNLESS NOTED OTHERWISE.



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

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

**2 ELBOW CONSTRUCTION**  
 NO SCALE



NOTES:  
 1. DETAIL FOR USE WHERE DUCTS REQUIRE TRAPEZE OR DOUBLE ROD HANGERS (36" DIA. OR EQUIVALENT)

**5 TRAPEZE HANGER DUCT WRAP VAPOR SEAL**  
 NO SCALE

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 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: M503.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

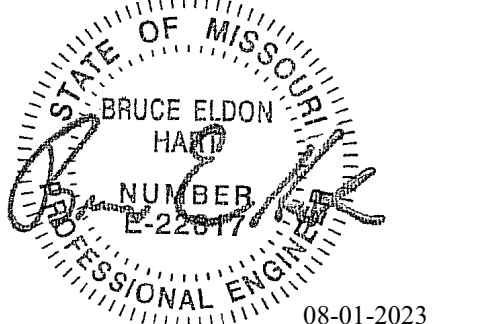
SHEET TITLE:  
 MECHANICAL DETAILS

SHEET NUMBER:

**M503**

SHEET 151 OF 202

08/01/2023



Bruce E Hart - Engineer  
 MO# 22817

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.152

IMEG, CORP.  
 Missouri Certificate of Authority: #F001325536

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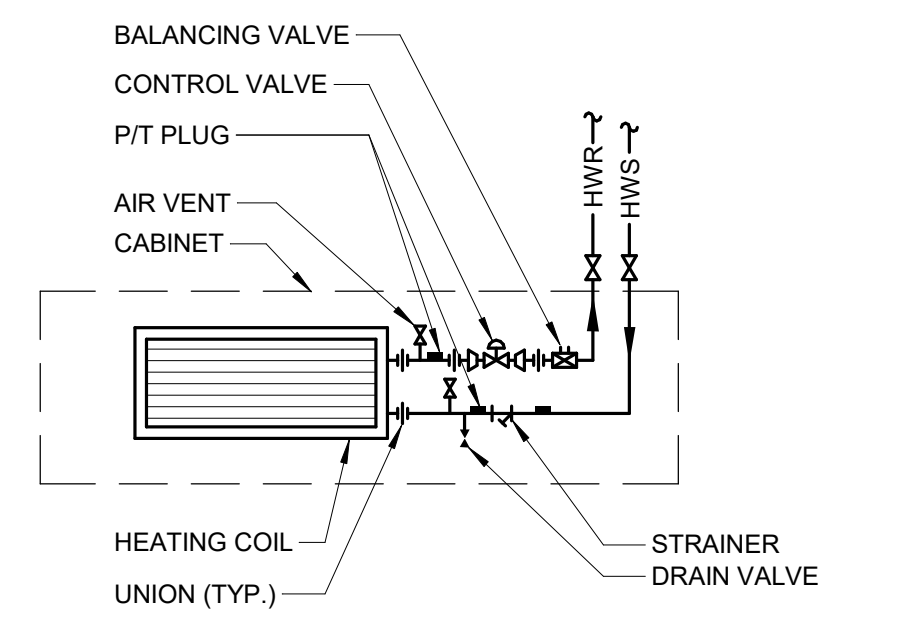
CAD DWG FILE: M504.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**MECHANICAL DETAILS**

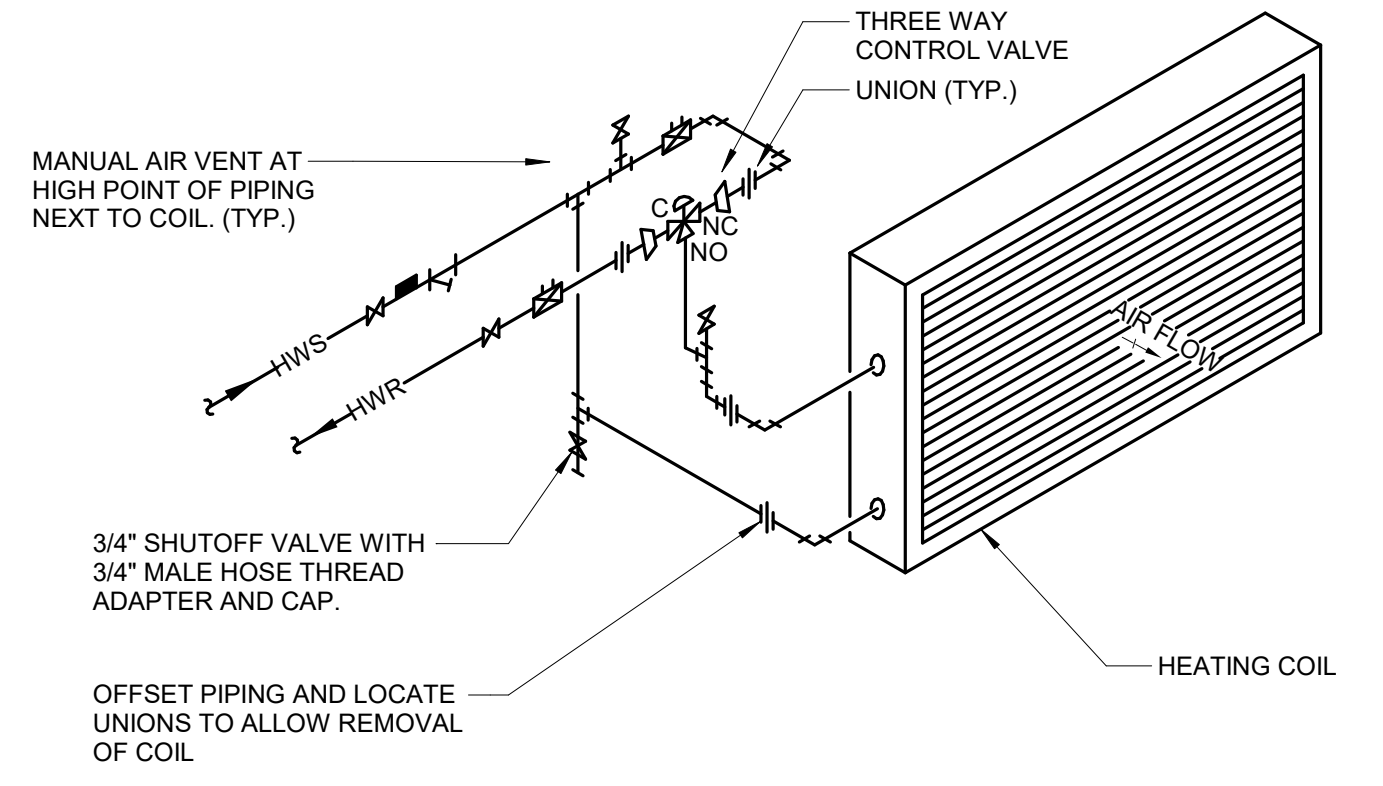
SHEET NUMBER:

**M504**

SHEET 152 OF 202  
 08/01/2023

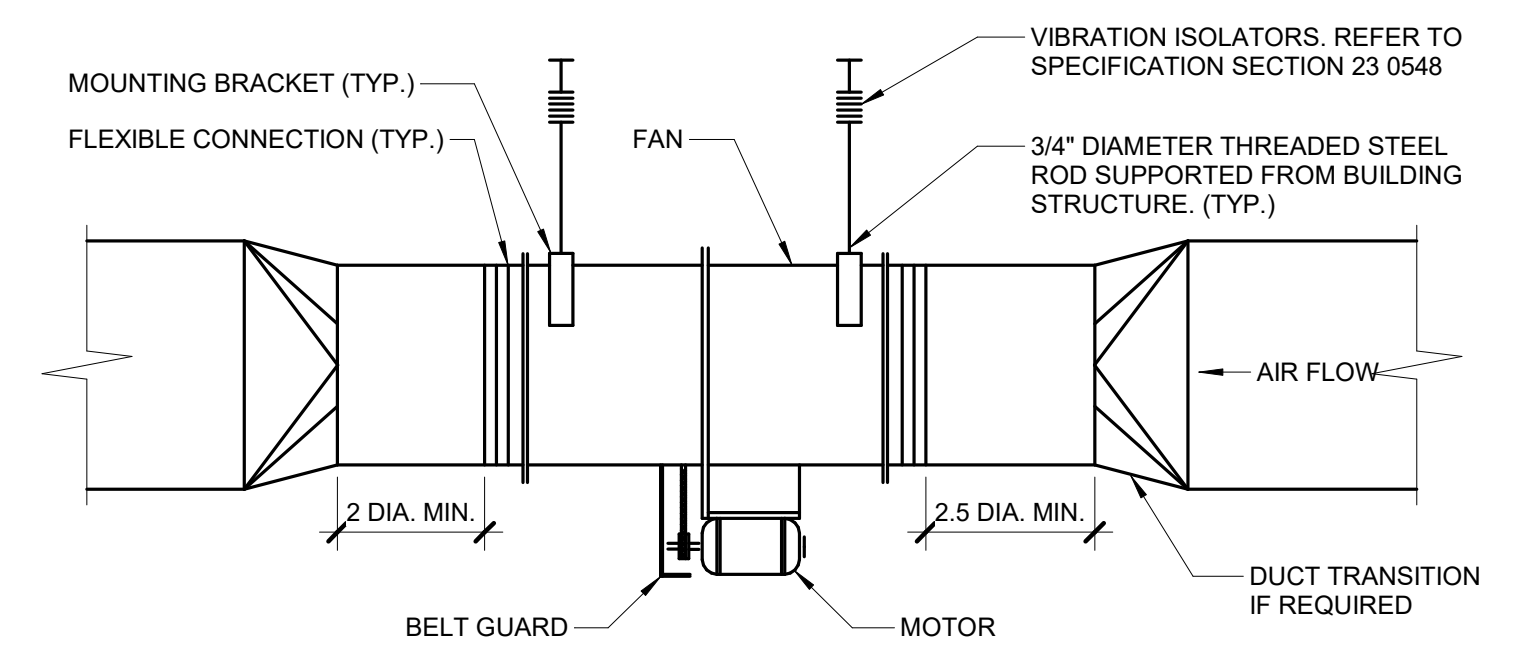


**1 CABINET HEATER - 2-PIPE PIPING DIAGRAM**  
 NO SCALE

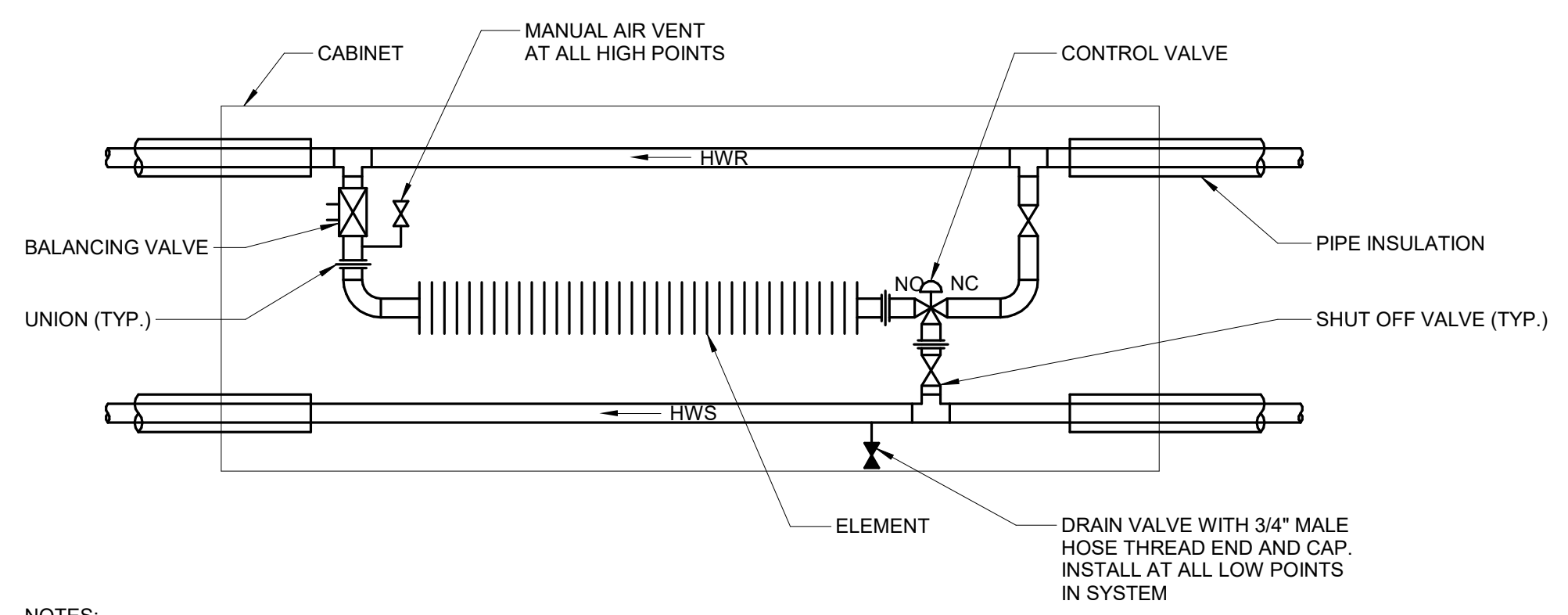


NOTES:  
 1. SEE SPECIFICATION SECTION 23 21 00 - HYDRONIC PIPING FOR  
 BALANCE VALVE SIZING REQUIREMENTS.

**2 COIL - HOT WATER PIPING DIAGRAM W/3-WAY VALVE**  
 NO SCALE

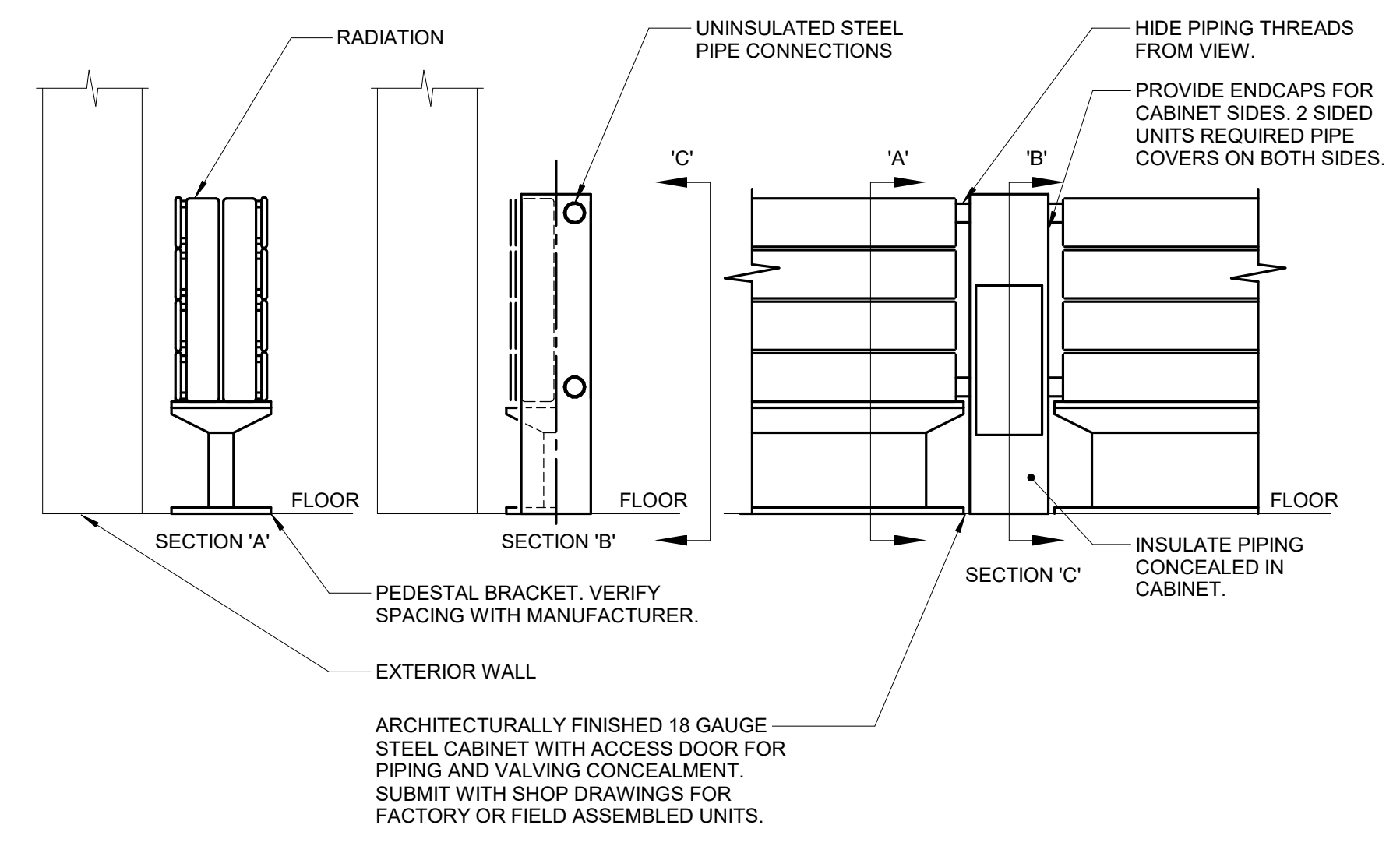


**3 FAN - IN-LINE EXHAUST**  
 NO SCALE

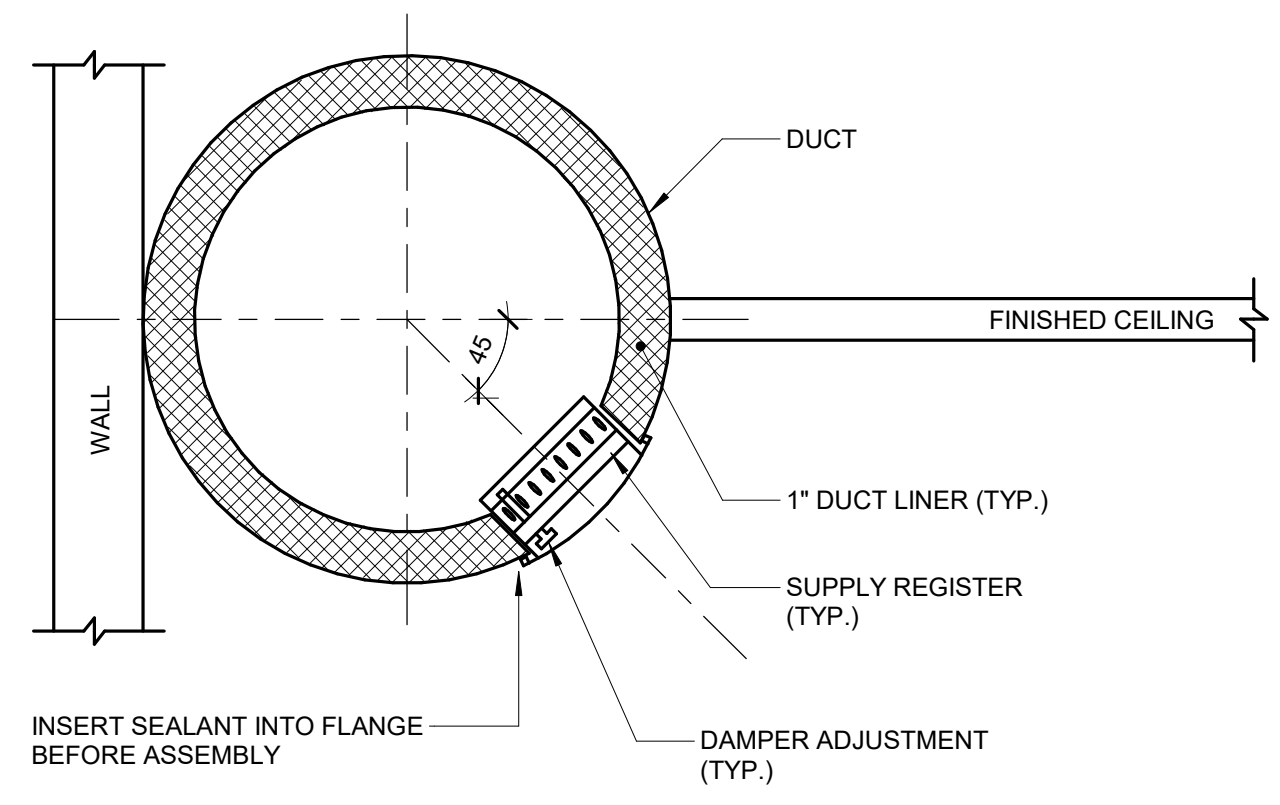


NOTES:  
 1. PIPE INSULATION SHALL NOT BE RUN ABOVE OR BELOW  
 FINNED ELEMENT.  
 2. RADIATION PIPING SHOWN WITH HWS & HWR IN CABINET. FOR  
 LAST RADIATOR ON LOOP.

**4 RADIATION - IN CABINET PIPING DIAGRAM W/3-WAY VALVE**  
 NO SCALE

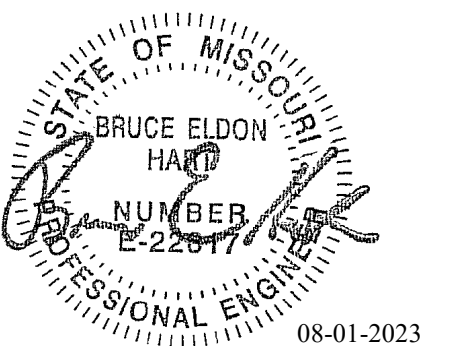


**5 RADIATION - PANEL PEDESTAL**  
 NO SCALE



**6 AIR TERMINAL - SUPPLY REGISTER ROUND INSET - FIRING RANGE**  
 NO SCALE





Bruce E Hart - Engineer  
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PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
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REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: M505.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

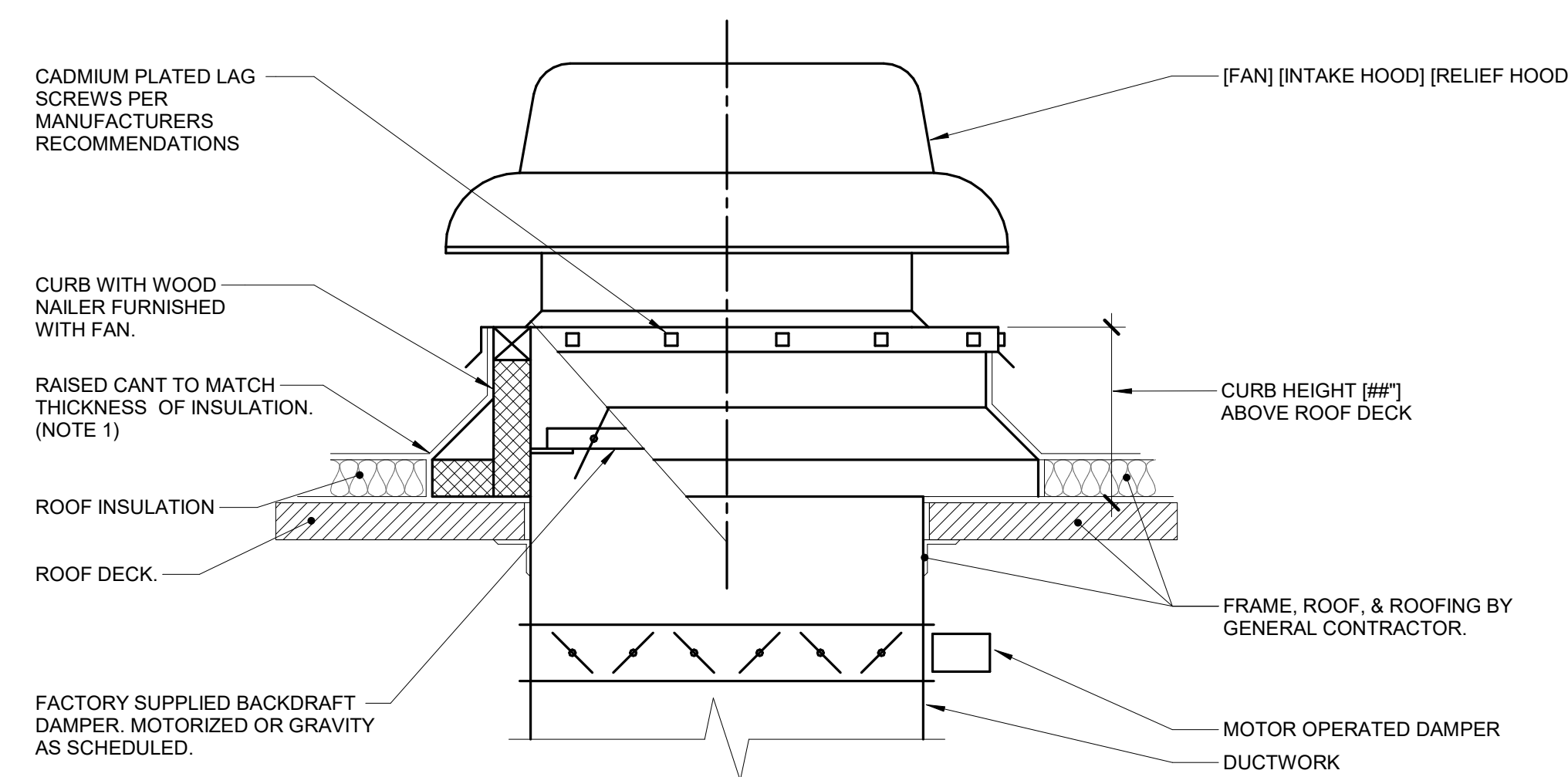
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MECHANICAL DETAILS

SHEET NUMBER:

**M505**

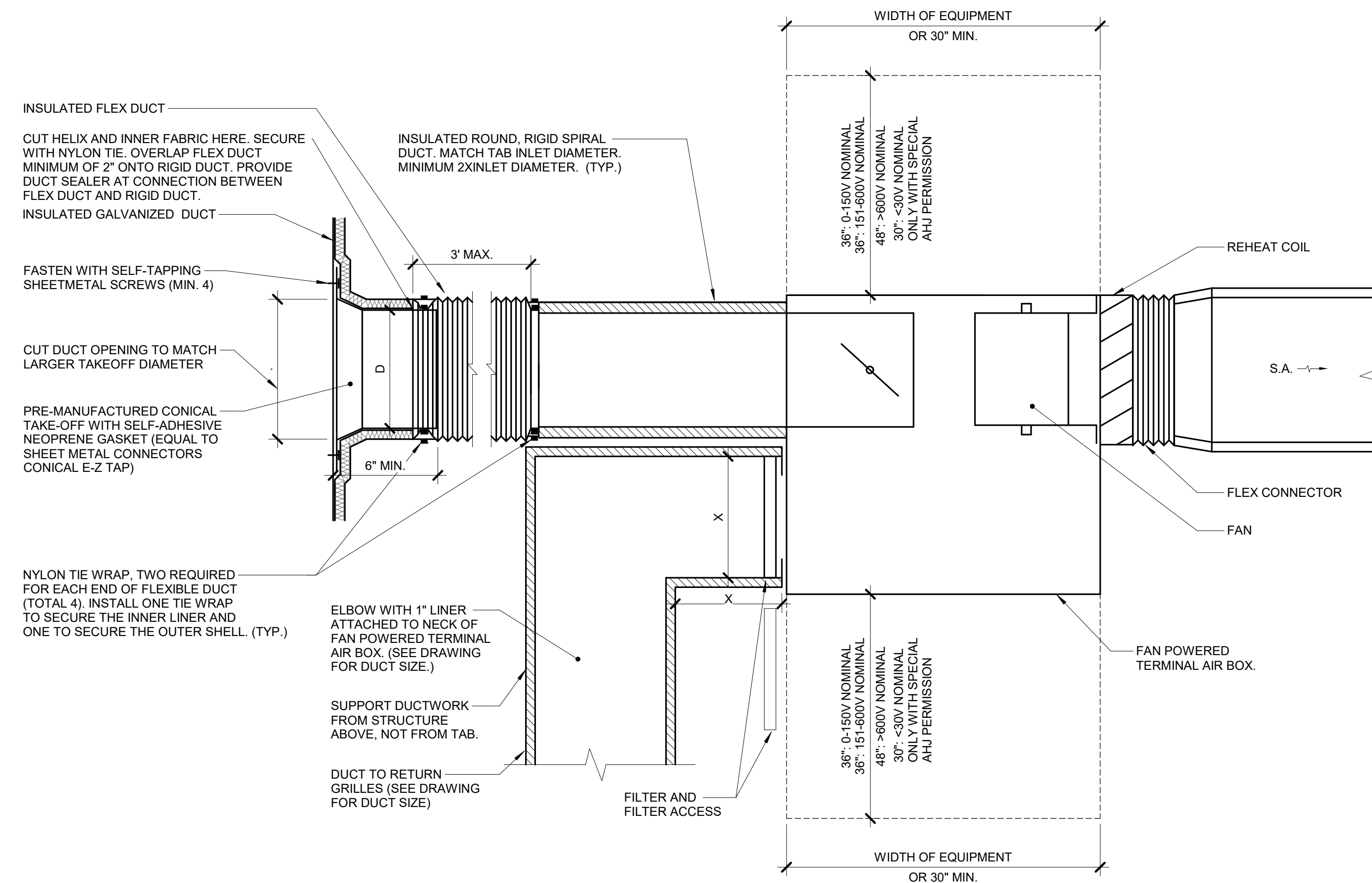
SHEET 153 OF 202

08/01/2023

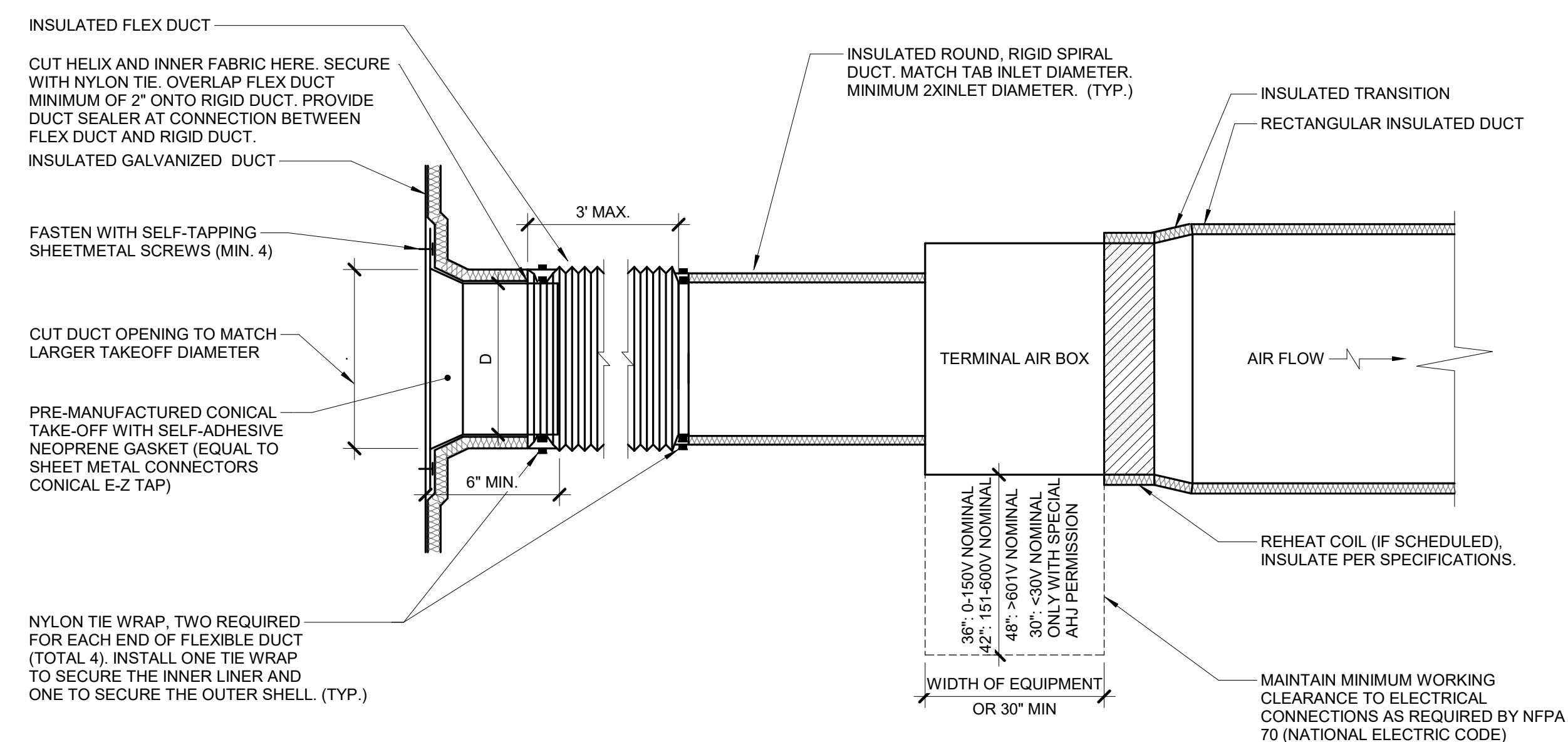


- NOTES:
1. ALL ROOF FLASHING SHALL BE PER ROOFING MANUFACTURERS RECOMMENDATIONS.

**1 ROOF SUPPORT - FAN/HOOD CURB**  
NO SCALE

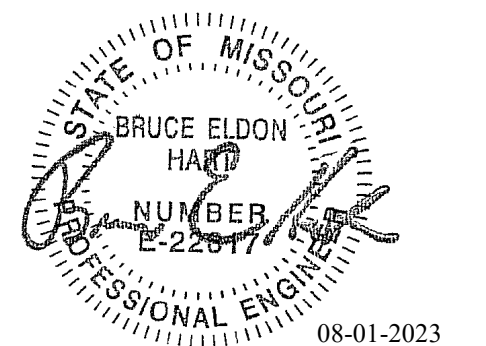


**2 TERMINAL AIR BOX - FAN POWERED SERIES - WRAPPED**  
NO SCALE



- NOTES:
1. THIS DETAIL APPLIES ONLY TO TAPS OFF WRAPPED DUCTS.
  2. THIS DETAIL APPLIES TO TERMINAL AIR BOXES WITH ROUND INLETS AND RECTANGULAR OUTLETS.
  3. DUCT LEADING TO TAB INLET MUST BE STRAIGHT FOR 1.5 DIAMETER UPSTREAM.
  4. MAINTAIN VAPOR BARRIER FROM MAIN TO BRANCH DUCT.

**3 TERMINAL AIR BOX - SINGLE DUCT - WRAPPED**  
NO SCALE



Bruce E Hart - Engineer  
MO# 22817

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Project Number: 2022.152

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REVISION:  
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REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: M506.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

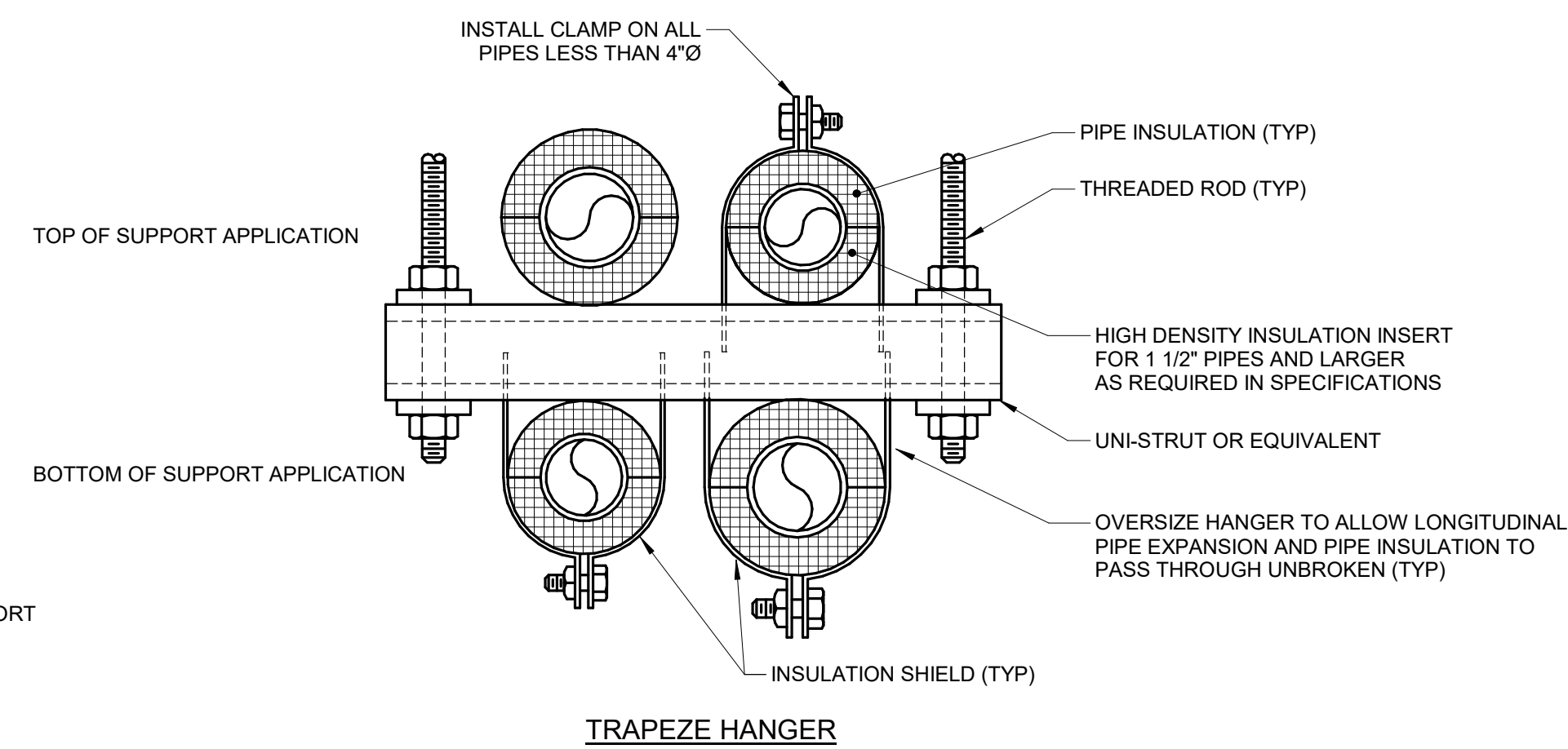
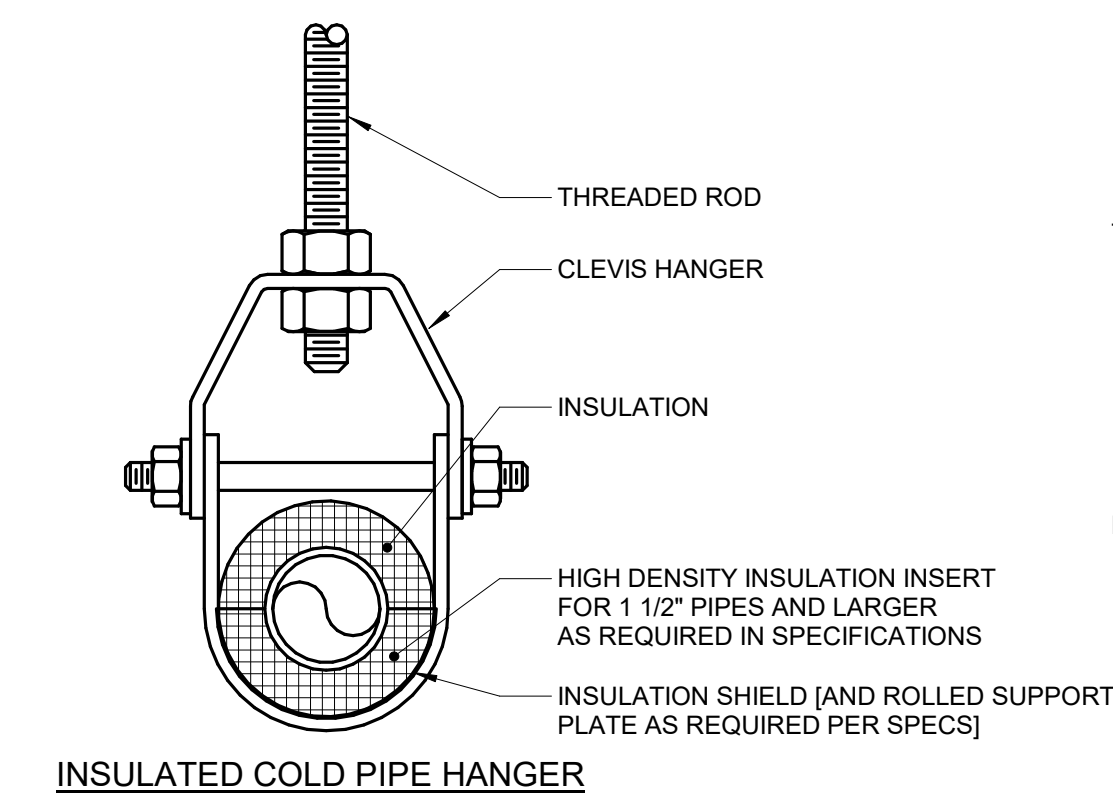
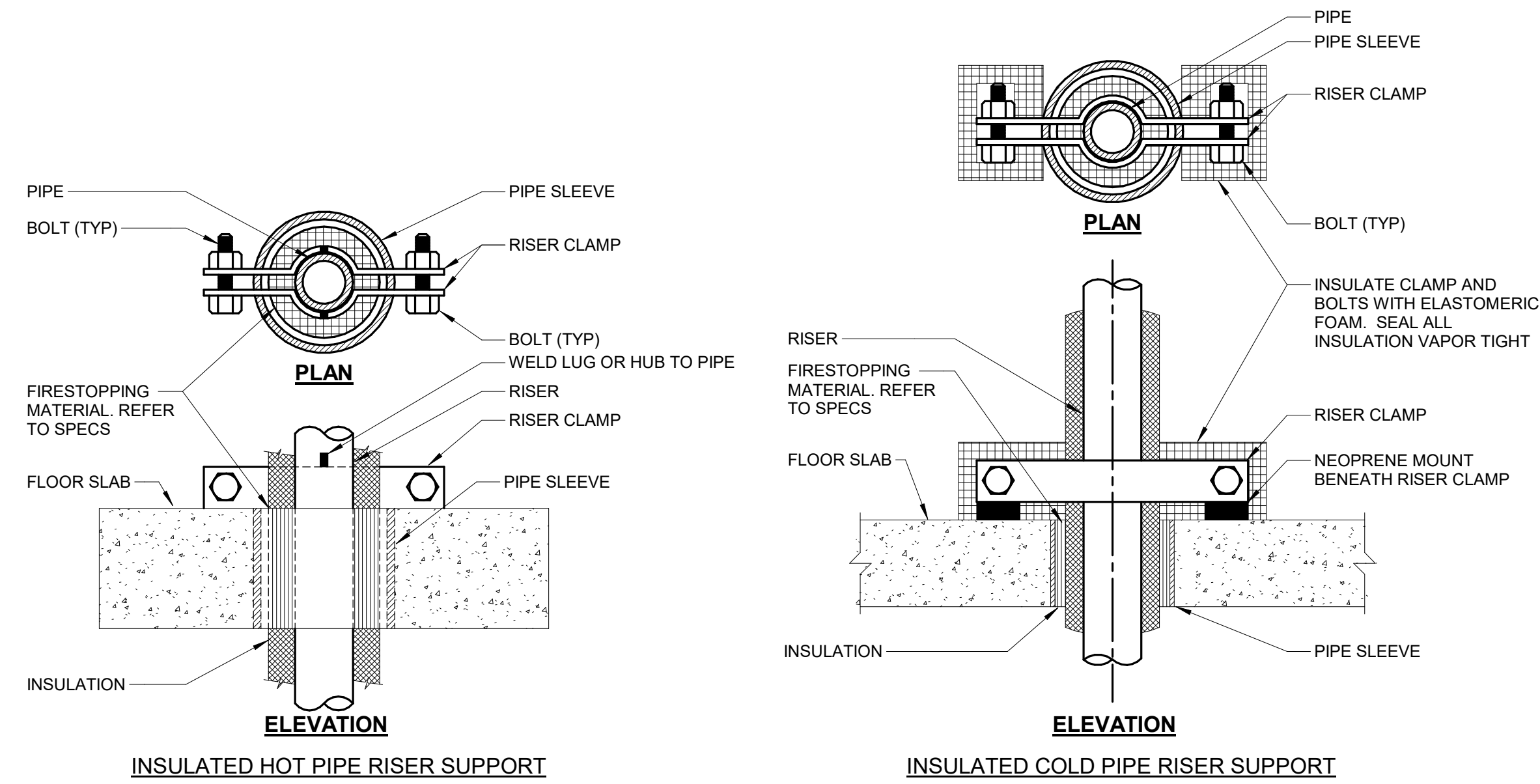
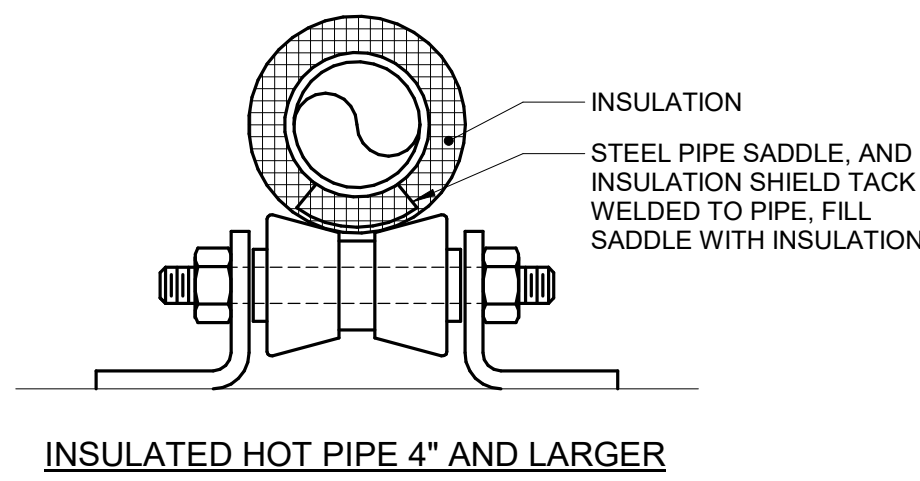
SHEET TITLE:  
**MECHANICAL DETAILS**

SHEET NUMBER:

**M506**

SHEET 154 OF 202

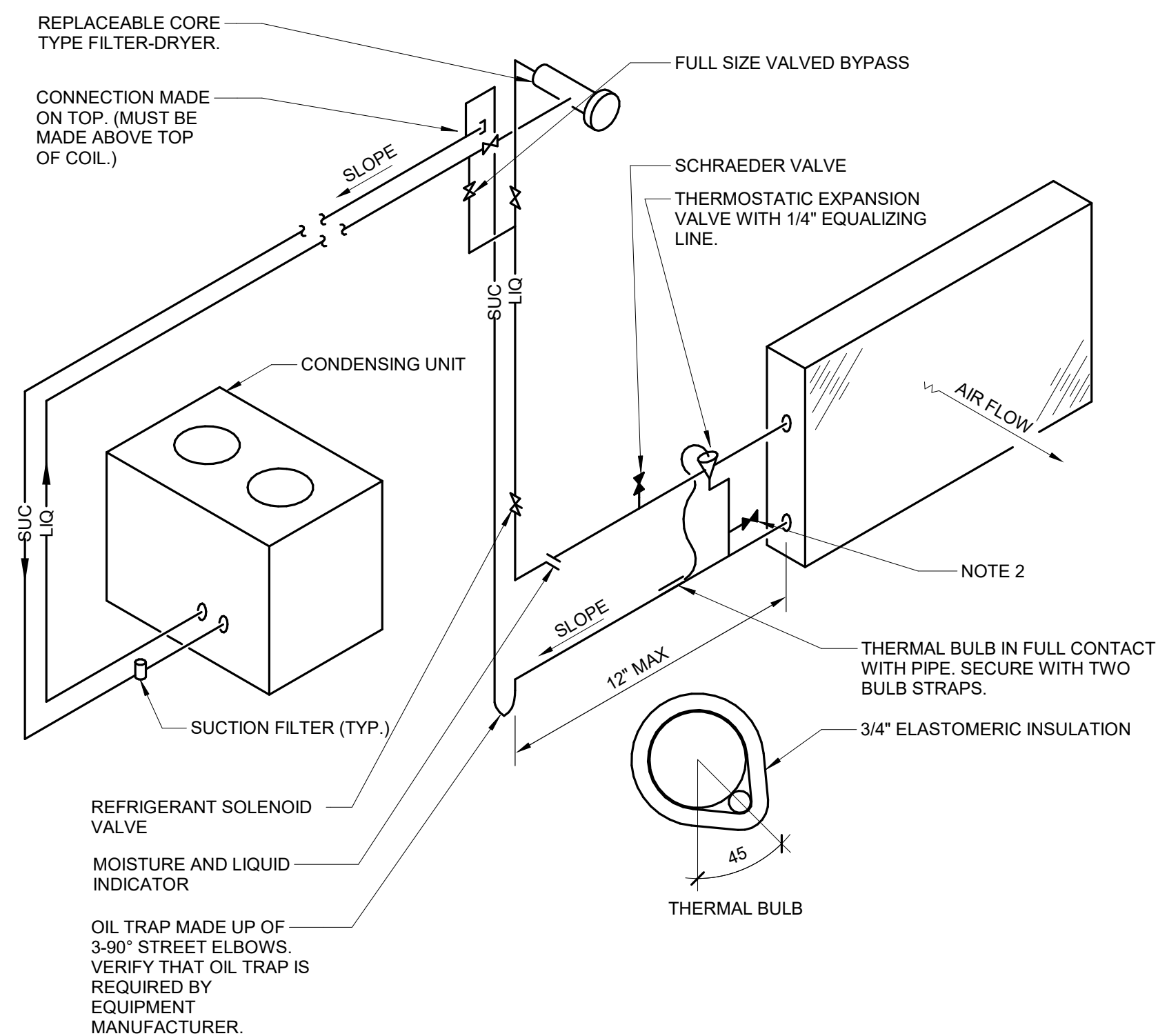
08/01/2023



NOTES:

- REFER TO SPECIFICATION SECTIONS (SECTION 22 05 29- PLUMBING, SECTION 23 05 29-HVAC) & (SECTION 22 07 19- PLUMBING, SECTION 23 07 19-HVAC).

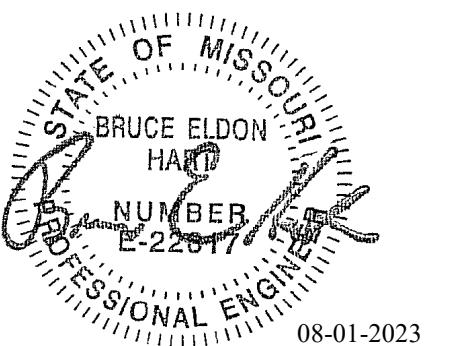
**1 PIPE - HANGERS AND SUPPORTS**  
NO SCALE



NOTES:

- THIS DIAGRAM IS SCHEMATIC IN NATURE. UNIT MANUFACTURER SHALL SUBMIT DETAILED PIPING DIAGRAM SHOWING RECOMMENDED PIPING ARRANGEMENT IF DIFFERENT FROM ABOVE.
- INSTALL 1/4" SCHRAEDER VALVE TO MEASURE REFRIGERANT PRESSURE WITH REFRIGERANT GAUGES.
- PIPE SIZES, IF SHOWN ON DRAWINGS, ARE ONLY FOR THE CONVENIENCE OF THE BIDDERS. ACTUAL NUMBERS AND SIZES OF PIPES AND ANY ACCESSORIES SUCH AS ACCUMULATORS, RECEIVERS, SEPARATORS AND HEAT TRACING SHALL BE DETERMINED BY THE COIL SUPPLIER AND SUBMITTED AS SHOP DRAWINGS. NO COMPENSATION WILL BE MADE IF ACTUAL NUMBER OR SIZES OF PIPES EXCEED WHAT IS SHOWN.

**2 REFRIGERANT PIPING DETAIL (SINGLE)**  
NO SCALE



Bruce E Hart - Engineer  
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DATE:  
REVISION:  
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ISSUE DATE: 01 August 2023

CAD DWG FILE: M600.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
**MECHANICAL  
SCHEDULES**

SHEET NUMBER:

**M600**

SHEET 155 OF 202

08/01/2023

**FAN SCHEDULE**

NOTES:  
1. PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 230513.

TAG NAME	AREA SERVED	CFM	S.P. IN. W.C.	FAN CLASS	WHEEL DIA. INCHES	FAN RPM	DRIVE TYPE	BACKDRAFT DAMPER TYPE	ELECTRICAL (NOTE 1)											VIBRATION ISOLATION	MANUFACTURER	MODEL	NOTES
									BHP	MHP	VOLTAGE	PHASES	DISCONNECT		CONTROLLER/ STARTER			WEIGHT (LBS)	TYPE				
													BY	TYPE	BY	TYPE	SCCR						
CEF-1	TOILET 134	50	0.50	CEILING	0	760	DIRECT	INTEGRAL	0.05	0.1	120	1	EC	NF	MFR	SWITCH	5000	25	GREENHECK	SP-B110-QD			
CEF-2	WOMEN RR 123	50	0.00	CEILING	0	760	DIRECT	INTEGRAL	0.05	0.1	120	1	EC	NF	MFR	SWITCH	5000	25	GREENHECK	SP-B110-QD			
CEF-3	MEN RR 122	50	0.00	CEILING	0	760	DIRECT	INTEGRAL	0.05	0.1	120	1	EC	NF	MFR	SWITCH	5000	25	GREENHECK	SP-B110-QD			
CEF-4	TOILET 178	50	0.00	CEILING	0	760	DIRECT	INTEGRAL	0.05	0.1	120	1	EC	NF	MFR	SWITCH	5000	25	GREENHECK	SP-B110-QD			
CEF-5	TOILET 156	50	0.00	CEILING	0	760	DIRECT	INTEGRAL	0.05	0.1	120	1	EC	NF	MFR	SWITCH	5000	25	GREENHECK	SP-B110-QD			
CEF-FR-1	TOILET 204	50	0.00	CEILING	0	760	DIRECT	INTEGRAL	0.05	0.1	120	1	EC	NF	MFR	SWITCH	5000	25	GREENHECK	SP-B110-QD			
EF-1	MENS RESTROOM 115 / WOMENS RESTROOM 117	250	0.80	DOWNBLAST	24	1725	DIRECT		0.13	0.25	120	1	EC	FUSED	MC	SWITCH	5000	40	GREENHECK	G-100HP-A			
EF-2	MENS RESTROOM 103	200	0.80	DOWNBLAST	24	1725	DIRECT		0.12	0.25	120	1	EC	FUSED	MC	SWITCH	5000	49	GREENHECK	G-097-VG			
EF-3	WOMENS RESTROOM 181	200	0.80	DOWNBLAST	24	1725	DIRECT		0.12	0.25	120	1	EC	FUSED	MC	SWITCH	5000	49	GREENHECK	G-097-VG			
EF-4	MENS SHOWER 162 / WOMENS SHOWER 163	180	0.80	DOWNBLAST	24	1720	DIRECT		0.12	0.25	120	1	EC	FUSED	MC	SWITCH	5000	49	GREENHECK	G-097-VG			
EF-FR-1	FIRING RANGE - FIRING LINE GENERAL EXHAUST	10000	1.00	DOWNBLAST	50	751	BELT		3	5	480	3	EC	FUSED	MC	SWITCH	5000	245	GREENHECK	G-300-VG	ALTERNATE #04		
KEF-1	KITCHEN GENERAL EXHAUST	150	0.80	CEILING	0	1400	DIRECT	INTEGRAL	0.05	0.1	120	1	EC	NF	MC	SWITCH	5000	25	GREENHECK	SP-A190-QD			
PRV-DR-1	DRYER ROOM 174	350	0.30	UPBLAST	22	1183	DIRECT		0.05	0.1	120	1	EC	FUSED	MC	SWITCH	5000	35	GREENHECK	CUE-090-VG			

**UNIT HEATER SCHEDULE - ELECTRIC**

NOTES:  
1.

TAG NAME	AREA SERVED	CONFIGURATION	CFM	ELECTRICAL				LAT °F	HEATING ELEMENT				ELECTRICAL				MAX. DIMENSIONS				WEIGHT	MANUFACTURER	MODEL	NOTES		
				HP	RPM	EAT °F	NUMBER OF STAGES		TOTAL KW (QTY * KW)	VOLTAGE	PHASES	# OF WIRES	FLA	DISCONNECT	CONTROLLER/ STARTER	CONTROL	LENGTH	WIDTH	HEIGHT							
CEH-1	LOBBY 100 VESTIBULE - FIRING RANGE	HORIZONTAL	300	0.25	1400	70.0	90.0	1	1	5	208	1	1	24.0	MFR	NF	MFR	5000	DDC	22	22	8	45	BERKO	FFCH	ALTERNATE #04

**RADIATION SCHEDULE**

NOTES:  
1. REFER TO CONTROL DRAWINGS FOR DESCRIPTION OF CONTROL TYPE.  
2. PROVIDE WITH PEDESTAL FLOOR MOUNT PACKAGE.

TAG NAME	AREA SERVED	MBH	GPM	ELEMENT						CABINET				AVERAGE WATER TEMP °F	CONTROL TYPE (NOTE 1)	SENSOR TYPE (NOTE 1)	MANUFACTURER	MODEL	NOTES
				MAT'L	LENGTH FT.	PIPE SIZE	FIN HEIGHT	FIN WIDTH	NUMBER OF ROWS	FINS PER FOOT	LENGTH	HEIGHT	DEPTH						
RAD-1	LOBBY 101 / CAFETERIA 146	10.1	1.5	STEEL	11' - 4"	3/4"	6"	3"	2	32	11' - 4"	17"	4"	145	-		RUNTAL	RZF-6	NOTE 1,2
RAD-2	CAFETERIA 146	9.4	1.0	STEEL	10' - 6"	3/4"	6"	3"	2	32	10' - 6"	14"	4"	145	-		RUNTAL	RZF-6	NOTE 1,2

**TERMINAL AIR BOX SCHEDULE - SINGLE DUCT**

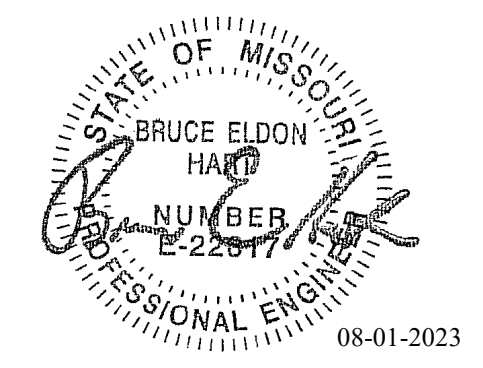
NOTES:  
1. NEITHER RADIATED NOR DISCHARGE SOUND LEVELS SHALL EXCEED NC 35 AT 1.5" INLET STATIC PRESSURE WHEN TESTED PER AHRI STANDARD 885-2008 USING 5/8" 20-LB DENSITY MINERAL FIBER CEILING TILE.  
2. TOTAL AIR PRESSURE DROP OF TAB AND REHEAT COIL SHALL NOT EXCEED 0.50" WC.  
3. REFER TO CONTROL DRAWINGS FOR DESCRIPTION OF CONTROL TYPE.  
4. SENSOR TYPES: 1 - SENSOR ONLY, 2 - SENSOR WITH ADJUSTMENT, 3 - SENSOR WITH OVERRIDE, 4 - SENSOR WITH ADJUSTMENT AND OVERRIDE.  
5. HEATING COIL IS BASED ON MAX. HEATING AIR FLOW. WATER PRESSURE DROP OF REHEAT COILS SHALL NOT EXCEED 5". PROVIDE REHEAT COILS SEPARATE FROM BOXES IF REQUIRED TO MEET WATER PRESSURE DROP REQS. WHEN LAT °F, EWT °F, AND GPM VALUES ARE BLANK, HEATING COIL IS NOT REQUIRED FOR TAB.  
6. HEATING COIL SELECTION SHALL BE BASED ON A FIXED LEAVING AIR TEMPERATURE AND VARIABLE FLOW (GPM). PROVIDE FINAL MAXIMUM FLOW RATE (GPM) TO TEST & BALANCE TEMPERATURE CONTROLS CONTRACTORS.

TAG NAME	AREA SERVED	CFM		HEATING COIL (NOTES 5, 6)						MIN. INLET SIZE (IN.) DIA.	CONTROL TYPE	SENSOR TYPE	MANUFACTURER	MODEL (NOTES 1, 2)	NOTES
		COOLING MAX.	HEATING MAX.	MIN.	EAT °F	LAT °F	EWT °F	MAX. GPM							
TAB-1	CAPTAIN OFFICE 133 / CAPT. ASSIST. 135	790	395	240	55.0	95.0	160	0.8	10"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-2	LIEUTENANT OFFICE 135 / 136	570	285	165	55.0	95.0	160	0.5	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-3	EAST CORRIDOR	470	235	140	55.0	95.0	160	0.6	6"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-4	LIEUTANANT OFFICE 111 / 112	580	290	175	55.0	95.0	160	0.5	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-5	LIEUTANANT OFFICE 109 / CLERK 110	680	340	205	55.0	95.0	160	0.8	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-6	FILE STORAGE 131 / CORRIDOR	470	235	140	55.0	95.0	160	0.8	6"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-7	TRAINING OFFICER 126	530	265	205	55.0	95.0	160	0.8	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-8	BREAK ROOM 121	390	195	75	55.0	95.0	160	0.5	6"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-9	OPEN OFFICE 138	350	175	100	55.0	95.0	160	0.5	6"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-10	RADIO ROOM 119	750	375	225	55.0	95.0	160	0.8	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-11	RECEPTION 102	400	200	150	55.0	95.0	160	0.5	6"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-12	MEN RESTROOM 115 / WOMENS RESTROOM 117	140	140	140	55.0	95.0	160	0.5	4"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-13	CORRIDOR 113 / MENS RR 103	680	340	220	55.0	95.0	160	0.5	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-14	SRGT 106 / 107	700	300	210	55.0	95.0	160	0.8	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-15	CONFERENCE 104	780	390	235	55.0	95.0	160	0.8	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-16	CAFETERIA 146 / KITCHEN 147	960	480	330	55.0	95.0	160	0.8	10"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-17	LOBBY 101 / WOMENS RESTROOM 181	2450	1300	735	55.0	95.0	160	1.7	14"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-18	CORPORAL OFFICE 148	620	310	185	55.0	95.0	160	0.8	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-19	ROAD OFFICE 155	700	400	210	55.0	95.0	160	0.8	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-20	CORRIDOR 152	720	360	220	55.0	95.0	160	0.5	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-21	TROOP MEETING RM 180	1330	665	350	55.0	95.0	160	0.8	10"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-22	TROOP MEETING RM 180	2200	1100	750	55.0	95.0	160	1.5	14"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-23	EVIDENCE STORAGE 176	600	300	180	55.0	95.0	160	0.8	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-24	DRUG EVIDENCE 176	300	150	90	55.0	95.0	160	0.5	5"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-25	GROUPS OFFICE 173 / EVIDENCE OFFICE 175	310	155	95	55.0	95.0	160	0.5	5"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-26	SUPPLY STORAGE 168 / SWAT STORAGE	755	380	155	55.0	95.0	160	0.5	8"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-27	BLDG GROUND MAINTENANCE 178	2880	1440	580	55.0	95.0	160	1.4	14"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-28	AUTO SERVICE GARAGE 164	2475	1240	495	55.0	95.0	160	1.2	14"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1,2,3,4,5,6	
TAB-DR-1	DRYING ROOM 174	300	0	0	55.0	95.0	160	0.5	5"	NOTE 3	NOTE 4	TITUS	DESV	NOTES 1	

**AIR TERMINAL SCHEDULE**

NOTES:  
1. CONTRACTOR SHALL DETERMINE PROPER BORDER TYPE TO MATCH CEILING CONSTRUCTION.  
2. REFER TO DRAWINGS FOR NECK SIZE. ALL BRANCH DUCTWORK TO AIR TERMINALS SHALL BE NECK SIZE UNLESS NOTED OTHERWISE.

TAG NAME	FACE SIZE (IN.) (NOTE 2)	TYPE	BORDER (NOTE 1)	MATERIAL	FINISH	VOLUME DAMPER REQUIRED	MANUFACTURER	MODEL	NOTES
EG-1	INLET +2	45 DEGREE DEFLECTION	1 1/4"	STEEL	WHITE	NO	TITUS	45F	
EG-2	INLET +2	45 DEGREE DEFLECTION	1 1/4"	STEEL	WHITE	NO	TITUS	350RL	ALTERNATE #04
EG-3	INLET +2	45 DEGREE DEFLECTION	1 1/4"	ALUMINUM	WHITE	NO	TITUS	45F	
RG-1	INLET +2	35 DEGREE DEFLECTION	1 1/4"	STEEL	WHITE	NO	TITUS	45F	
RR-1	INLET +2	DOUBLE DEFLECTION	1 1/4"	STEEL	WHITE	YES	TITUS	350RL	FRONT BLADES VERTICAL UNLESS NOTED OTHERWISE
RR-2	INLET +2	DOUBLE DEFLECTION	1 1/4"	STEEL	WHITE	YES	TITUS	55FS	FRONT BLADES VERTICAL UNLESS NOTED OTHERWISE
SD-1	24x24	LOUVER FACE	LAY-IN	STEEL	WHITE	NO	TITUS	TMS-AA	ALTERNATE #04. STAMPED LOUVER DROP FACE. MINIMUM OF TWO STEPDOWN DIFFUSION CONES
SD-2	24x24	PANEL FACE	LAY-IN	STEEL	WHITE	NO	TITUS	OMNI	FLUSH FACE PANEL
SD-3	ON PLAN	LOUVER FACE	LAY-IN	STEEL	WHITE	NO	TITUS	TMRA-AA	ALTERNATE #04. MINIMUM OF THREE STEPDOWN DIFFUSION CONES
SD-4	12x12	LOUVERED	LAY-IN	ALUMINUM	WHITE	NO	TITUS	TDG	NON-FERROUS CONSTRUCTION FOR DAMP LOCATION
SG-1	INLET + 1 1/2	DOUBLE DEFLECTION		ALUMINUM	WHITE	YES	PRICE	SDGER	ALTERNATE #04
SG-2	INLET + 1 1/2	DOUBLE DEFLECTION		ALUMINUM	WHITE	YES	TITUS	S-DL	
SG-3	INLET + 2	35 DEGREE DEFLECTION				YES	TITUS	132RL	



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Project Name:  
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SITE # 6018  
FACILITY # 8136018019

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MECHANICAL  
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SHEET NUMBER:

**M601**

SHEET 156 OF 202  
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**AIR HANDLING SCHEDULE**

NOTES:  
1. PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.

TAG NAME	AREA SERVED	SUPPLY FAN (NOTE 1)						RETURN FAN (NOTE 1)						ELECTRICAL						HEATING COIL - WATER															
		NO. OF FANS	CFM TOTAL	MIN. CFM	EXT. S.P.	TYPE	R.P.M.	BHP EACH	MHP EACH	NO. OF FANS	CFM TOTAL	MIN. CFM	EXT. S.P.	TYPE	R.P.M.	BHP EACH	MHP EACH	MINIMUM OUTSIDE AIR CFM	NO. OF POWER CONNECTIONS	VOLTAGE	PHASES	DISCONNECT(S)	CONTROLLER STARTER(S)	SCCR	NO. OF AUXILIARY CONNECTIONS	EAT °F	LAT °F	EWT °F	LWT °F	GPM	MBH	MAX. A.P.D. IN. W.C.	W.P.D. FEET W.C.		
RTU-1	WEST WING ADMIN / SERVICE GARAGES	2	16270	4100	2.5	PLENUM	1328	8.8	10	1	16270	4100	1.0	PLENUM	941	5.8	7.5	4070	1	480	3	EC	FUSED	MC	VFD	5000	0	50.0	83.9	160	130	45.4	719	0.2	0.9
RTU-2	EAST WING ADMIN	2	10280	2600	2.5	PLENUM	1023	4.4	5	1	10280	2600	1.0	PLENUM	902	3.7	5	2570	1	480	3	EC	FUSED	MC	VFD	5000	0	50.0	95.2	160	130	34.2	504	0.2	0.7

**AIR HANDLING SCHEDULE - CONT.**

TAG NAME	COOLING COIL	DX COIL						FILTER						MAX. DIMENSIONS			WEIGHT (LBS.)		MANUFACTURER	MODEL	NOTES	
		CFM	EAT DB °F	EAT WB °F	LAT DB °F	LAT WB °F	TOTAL MBH	MAX. A.P.D. IN. W.C.	TYPE	PRE-FILTER			FINAL-FILTER			LENGTH (IN.)	WIDTH (IN.)	HEIGHT (IN.)				OPERATING
										FACE VELOCITY	DIRTY	CLEAN	TYPE	FACE VELOCITY	DIRTY							
RTU-1	16270	80.0	67.0	54.6	53.2	702	0.8	MERV 8	230	0.5	0.1	MERV 8	230	0.5	0.1	432	113	80	13769	JOHNSON CONTROLS	CUSTOM	GVH2L-4B5JA-2A60D
RTU-2	10280	80.0	67.0	56.7	54.8	397	0.9	MERV 8	192	0.5	0.1	MERV 8	192	0.5	0.1	331	96	70	8330	JOHNSON CONTROLS	CUSTOM	GVC2L-4B5JA-2A60A

**DEDICATED OUTDOOR AIR UNIT**

NOTES:  
1. PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.  
2. LAT LISTED IS AT LEAVING SIDE OF COOLING COIL.

TAG NAME	AREA SERVED	SUPPLY FAN						HEATING COIL			COOLING COIL - DX (NOTE 2)						FILTER			ELECTRICAL (NOTE 1)						MAX. DIMENSIONS (IN.)			WEIGHT		VIBRATION ISOLATION		MANUFACTURER	MODEL	NOTES							
		NO. OF FANS	CFM TOTAL	MIN. CFM	EXT. S.P.	TYPE	R.P.M.	BHP EACH	MHP EACH	MIN. O.A. CFM	EAT	LAT	CAPACITY MBH	EAT °F DB	EAT °F WB	MAX. LAT °F DB	LAT °F WB	TOTAL MBH	MAX. A.P.D. IN. W.C.	TYPE	VELOCITY	PRESSURE DROP CLEANDIRTY	NO. OF POWER CONNECTIONS	VOLTAGE	PHASES	FLA	MCA	MOCOP	BY	TYPE	BY	TYPE				NO. OF AUXILIARY CONNECTIONS	LENGTH	WIDTH	HEIGHT	DRY	OPERATING	TYPE
DOAU-FR-1	FIRING RANGE LINE	1	10000	10000	1.50	PLENUM	1945	8.6	10	10000	0	88.9	960	99.0	77.0	55.8	54.7	777	0.5	MERV 8	346	0.2	1	480	3	117	123	125	EC	FUSED	MC	VFD	0	352.8	87.13	91.75	7638	7638	0.000	YORK	JROA660H	ALTERNATE #04

**PACKAGED ROOFTOP UNIT SCHEDULE - GAS-DX**

NOTES:  
1. TOTAL OPERATING WEIGHT INCLUDES UNIT, CURB, ACCESSORIES AND UNIT MOUNTED POWER EXHAUST. DUCT MOUNTED ACCESSORIES AND EQUIPMENT ARE NOT INCLUDED. CONTRACTOR IS RESPONSIBLE FOR ALL CHANGES REQUIRED DUE TO ROOFTOP UNIT HEAVIER THAN THE BASIS OF DESIGN AT NO ADDITIONAL COST.  
2. PROVIDE SHAFT GROUNDING IF REQUIRED IN THE MOTOR SPECIFICATION — [23 05 13].  
3. LAT LISTED IS AT LEAVING SIDE OF COOLING COIL.  
4. STAGES: DIG = DIGITAL SCROLLS, VFD = INVERTER, # = NUMBER OF COMPRESSOR STAGES.

TAG NAME	AREA SERVED	NOMINAL TONS	MINIMUM OUTSIDE AIR (CFM)	SUPPLY FAN (NOTE 3)						UNIT ELECTRICAL DATA						COOLING COIL - DX						HEATING - GAS						SEER	FILTER TYPE	DISCHARGE DIRECTION							
				NO. OF FANS	CFM TOTAL	EXT. S.P. IN. W.C.	R.P.M.	BHP EACH	MHP EACH	NO. OF POWER CONNECTIONS	VOLTAGE	PHASES	FLA	MCA	MOCOP	BY	TYPE	BY	TYPE	SCCR	NO. OF AUXILIARY CONNECTIONS	EAT DB °F	EAT WB °F	LAT DB °F	LAT WB °F	SENSIBLE MBH	TOTAL MBH				AMB TEMP °F	STAGES	MIN EFF AFUE	MIN INPUT MBH	MIN OUTPUT MBH	TURN DOWNSTEPS	FUEL PRESSURE PSI
RTU-FR-1	FIRING RANGE - SUPPORT	3	500	1	1200	1.0	883	0.7	1.5	1	480	3	117	123	125	EC	FUSED	MC	VFD	5000	0	80.0	67.7	60.6	57.8	28	35	105	1	81.5	6	48	2	0	14.5	PLEATED	DOWNFLOW

**PACKAGED ROOFTOP UNIT SCHEDULE - GAS-DX - CONT.**

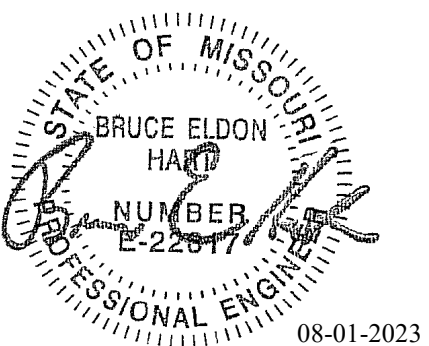
TAG NAME	CONTROL TYPE	CURB TYPE	MAX DIMENSIONS			WEIGHT (NOTE 2)		POWER EXHAUST WEIGHT	(TOTAL) OPERATING	AUTOMATIC SMOKE DETECTION SHUTOFF	MANUFACTURER	MODEL	NOTES
			LENGTH	WIDTH	HEIGHT	UNIT WEIGHT	CURB WEIGHT						
RTU-FR-1	MFR		89.0	59.0	42.0	925	0	0	925	YES	YORK	ZJ037N06D4B6BCA2A3	ALTERNATE #04

**CABINET HEATER SCHEDULE - HOT WATER**

NOTES:  
1. COORDINATE COLOR SELECTION WITH ARCHITECT.

TAG NAME	AREA SERVED	CONFIGURATION	NOMINAL CFM	MBH	GPM	EWT °F	LWT °F	MAX W.P.D. FT. HD	CONTROL TYPE	CABINET (NOTE 1)			ELECTRICAL				WEIGHT		MANUFACTURER	MODEL	NOTES					
										HEIGHT	WIDTH	DEPTH	FAN HP	RPM	VOLTAGE	PHASES	# OF WIRES	DISCONNECT				CONTROLLER/ STARTER	DRY	OPERATING		
CUH-1	VESTIBULE 100	INVERTED VERTICAL RECESSED	375	22.7	2.5	160	130	0.42	DDC	30"	47"	10"	0.1	1050	120	1	1	MFR	NF	MFR	5000	78	82	STERLING	RC04	COORDINATE COLOR SELECTION WITH ARCHITECT.
CUH-2	VESTIBULE 145	INVERTED VERTICAL RECESSED	240	29	2.0	160	130	0.26	DDC	30"	47"	10"	0.1	1050	120	1	1	MFR	NF	MFR	5000	78	82	STERLING	RC03	COORDINATE COLOR SELECTION WITH ARCHITECT.
UH-1	FIRE RISER 170	HORIZONTAL	370	13.7	1.7	160	145	0.80	DDC	13"	13"	6"	0.05	1550	120	1	1	MFR	NF	MFR	5000	20	25	MODINE	HC 24	

GENERAL SHEET NOTE: MANUFACTURER(S) LISTED ARE BASIS OF DESIGN (B.O.D.). SEE SPECIFICATIONS FOR APPROVED ALTERNATES



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**TERMINAL AIR BOX SCHEDULE - FAN POWERED WITH REHEAT**

NOTES:  
1. NEITHER RADIATED NOR DISCHARGE SOUND LEVELS SHALL EXCEED NC 35 AT 1.5" INLET STATIC PRESSURE WHEN TESTED PER AHRI STANDARD 885-2008 USING 5/8" 20-LB DENSITY MINERAL FIBER CEILING TILE.  
2. TOTAL AIR PRESSURE DROP OF TAB AND REHEAT COIL SHALL NOT EXCEED 0.50" W.C.  
3. REFER TO CONTROL DRAWINGS FOR DESCRIPTION OF CONTROL TYPE.  
4. SENSOR TYPES: 1 - SENSOR ONLY, 2 - SENSOR WITH ADJUSTMENT, 3 - SENSOR WITH OVERRIDE, 4 - SENSOR WITH ADJUSTMENT AND OVERRIDE.  
5. HEATING COIL IS BASED ON HEATING AIR FLOW. WATER PRESSURE DROP OF REHEAT COILS SHALL NOT EXCEED 5'. PROVIDE REHEAT COILS SEPARATE FROM BOXES IF REQUIRED TO MEET WATER PRESSURE DROP REQUIREMENTS.  
6. HEATING COIL SELECTION SHALL BE BASED ON A FIXED LEAVING AIR TEMPERATURE AND VARIABLE FLOW (GPM). PROVIDE FINAL MAXIMUM FLOW RATE (GPM) TO TEST & BALANCE AND TEMPERATURE CONTROLS CONTRACTORS.

TAG NAME	AREA SERVED	CONFIGURATION	CFM		HEATING COIL (NOTE 5)					FAN				ELECTRICAL				CONTROL TYPE (NOTE 3)	SENSOR TYPE (NOTE 4)	WEIGHT	MANUFACTURER	MODEL (NOTES 1, 2)	NOTES	
			MAX.	MIN.	EAT °F	LAT °F	EWI °F	MAX. GPM	MIN. INLET SIZE	CFM	S.P. IN. W.C.	HP	VOLTAGE	PHASES	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/ STARTER BY (NOTE A)							CONTROLLER / STARTER / STARTER
VFP-1	OPEN WORKSPACE 142 / CHIEF COMM. ENGR. 144	PARALLEL	1130	340	60	95	160	1.0	12"	450	0.5	0.25	120	1	EC	NF	MC	5000	NOTE 3	NOTE 4	24	TITUS	DTQP	NOTES 1, 2
VFP-2	OPEN WORKSPACE 142	PARALLEL	900	270	60	95	160	1.0	10"	450	0.5	0.25	120	1	EC	NF	MC	5000	NOTE 3	NOTE 4	20	TITUS	DTQP	NOTES 1, 2

**BOILER SCHEDULE - HOT WATER**

NOTES:  
1.

TAG NAME	NOMINAL BHP	FUEL	INLET FUEL PRESSURE (PSI)	TURNDOWN RATIO	INPUT MBH	OUTPUT MBH	EWT °F	LWT °F	OPERATING PRESSURE PSI	ELECTRICAL				MAX. DIMENSIONS (IN.)			WEIGHT (LBS)		MANUFACTURER	MODEL	NOTES			
										DISCONNECT BY	DISCONNECT TYPE	CONTROLLER/ STARTER BY	CONTROLLER/ STARTER / STARTER	LENGTH	WIDTH	HEIGHT	DRY	OPERATING						
BLR-1	42.5	NAT. GAS	2	20:1	1500	1425	130	160	0	0	120	1	EC	FUSED	MC	5000	60.3	30.2	80.0	1600	2292	LAARS Heating Systems	MAGNATHERM FT	
BLR-2	42.5	NAT. GAS	2	20:1	1500	1425	130	160	0	0	120	1	EC	FUSED	MC	5000	60.3	30.2	80.0	1600	2292	LAARS Heating Systems	MAGNATHERM FT	

**SPLIT SYSTEM UNIT SCHEDULE**

NOTES:  
1. PROVIDE LOW AMBIENT WIND BAFFLE FOR OUTDOOR UNIT

TAG NAME	AREA SERVED	CFM	COOLING MBH	INDOOR UNIT				WEIGHT	MODEL	SEER	OUTDOOR UNIT			WEIGHT	MODEL	VOLTAGE	PHASE	MCA	MOCAP AMPS	ELECTRICAL		CONTROLLER/ STARTER		MANUFACTURER	NOTES
				LENGTH	WIDTH	HEIGHT	MAX. DIMENSIONS				HEIGHT	LENGTH	WIDTH							DISCONNECT BY	DISCONNECT TYPE	BY	SCCR		
CU-ER-1	ELEC RM 158	455	18	35	9	11	28	PKA-A18-LA	21.4	2'-0"	2'-8"	1'-0"	92	PUY-A18NKA7	208	1	19.0	26	EC	FUSED	MC	5000	mitsubishi	1	
CU-ER-2	ELEC RM 120	310	12	35	9	11	28	PKA-A12-LA	21.4	2'-0"	2'-8"	1'-0"	92	PUY-A12NKA7	208	1	19.0	26	EC	FUSED	MC	5000	mitsubishi	1	
CU-ER-3	ELEC RM 120	455	18	35	9	11	28	PKA-A18-LA	21.4	2'-0"	2'-8"	1'-0"	92	PUY-A18NKA7	208	1	19.0	26	EC	FUSED	MC	5000	mitsubishi	1	

**PUMP SCHEDULE**

NOTES:  
1. PROVIDE SHAFT GROUNDING AS REQUIRED IN THE MOTOR SPECIFICATION 23 05 13.

TAG NAME	AREA SERVED	GPM	PUMP FT. HEAD AT DESIGN	MINIMUM PUMP EFFICIENCY	INLET SIZE	IMPELLER SIZE	HP (NOTE E)	RPM	VOLTAGE	PHASES	ELECTRICAL (NOTE 1)				MAX. DIMENSIONS			WEIGHT	MANUFACTURER	MODEL	NOTES
											DISCONNECT BY	DISCONNECT TYPE	CONTROLLER/ STARTER BY	CONTROLLER/ STARTER / STARTER	LENGTH	WIDTH	HEIGHT				
HWCP-1	HQ BUILDING - PRIMARY	128.0	10.00	61.8	3"	7.000	2	1883	208	1	EC	FUSED	MC	ECM	12	10	16	49	B & G	ecocirc XL 27-320	
HWCP-2	HQ BUILDING - PRIMARY	128.0	10.00	61.8	3"	7.000	2	1883	208	1	EC	FUSED	MC	ECM	12	10	16	49	B & G	ecocirc XL 27-320	

**WASTE OIL HEATER/FURNACE SCHEDULE**

NOTES:  
1. BASE BID - OWNER PROVIDED WOH OF EQUAL SIZE AND MODEL. ALTERNATE #1: CLEAN-BURN 1750 CENTRAL FURNACE PACKAGE WITH OIL STORAGE TANK

TAG NAME	AREA SERVED	EXT. S.P. IN. W.C.	CFM (HIGH SPEED)	MAX. COIL A.P.D. IN. W.C.	FAN/BLOWER			ELECTRICAL				HEATING CAPACITY - BTU/HR	OIL CONSUMPTION (G.P.H.)	MAX. DIMENSIONS (IN.)			WEIGHT		VIBRATION ISOLATION	MANUFACTURER	MODEL	NOTES		
					HP	RPM	AIR FLOW TYPE	DISCONNECT BY	DISCONNECT TYPE	CONTROLLER/ STARTER BY	CONTROLLER/ STARTER / STARTER			LENGTH	WIDTH	HEIGHT	DRY	OPERATING						
WOH-1	AUTO SERVICE GARAGE 164	0.5	1,700	0.25	0.75	3200	CROSSFLOW	120 V	1	EC	SWITCH	MFR	5000	175000	1.2	83	27	27	400	406	NEOPRENE	CLEAN BURN	CB-1750	

**LINEAR DIFFUSER SCHEDULE**

NOTES:  
1. CONTRACTOR SHALL DETERMINE PROPER MARGIN STYLE TO MATCH CEILING CONSTRUCTION.  
2. PROVIDE WITH CONCEALED FASTENERS.  
3. DIFFUSERS WITH MULTIPLE SLOTS SHALL HAVE THE INNER MOST SLOT DIRECTED TOWARDS THE INTERIOR OF THE BUILDING, THE REMAINING SHALL BE DIRECTED TOWARDS THE EXTERIOR UNLESS NOTED OTHERWISE. 2 - 34375

TAG NAME	MATERIAL	SLOT WIDTH	NO. OF SLOTS	WIDTH	LENGTH	PLENUM REQUIRED	PLENUM INSULATION TYPE	PLENUM INLET SIZE	PATTERN CONTROL REQUIRED	BALANCING DAMPER REQUIRED	FINISH	MANUFACTURER	MODEL	NOTES
LD-1	STEEL	1"	2	4"	4'-0"	Yes	WRAPPED	SEE DWG.	Yes	No	WHITE	TITUS	TBD	NOTE 1, 2, & 3
LD-2	STEEL	1"	1	4"	4'-0"	Yes	WRAPPED	SEE DWG.	Yes	No	WHITE	TITUS	TBD	NOTE 1, 2, & 3
LD-3	STEEL	1"	1	4"	2'-0"	Yes	WRAPPED	SEE DWG.	Yes	No	WHITE	TITUS	TBD	NOTE 1, 2, & 3
LD-4	STEEL	3/4"	2	3 1/2"	2'-0"	Yes	WRAPPED	SEE DWG.	Yes	No	WHITE	TITUS	TBD	NOTE 1, 2, & 3

GENERAL SHEET NOTE: MANUFACTURER(S) LISTED ARE BASIS OF DESIGN (B.O.D.). SEE SPECIFICATIONS FOR APPROVED ALTERNATES

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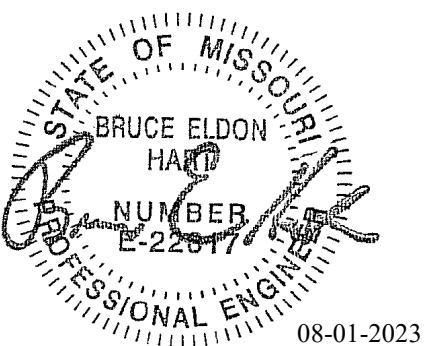
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SHEET 157 OF 202

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DESIGNED BY: GW&

SHEET TITLE:

**MECHANICAL PIPING  
COVERSHEET**

SHEET NUMBER:

**MP000**

SHEET 158 OF 202

08/01/2023

**PIPING GENERAL NOTES:**

1. THE SIZE OF BRANCH PIPING TO TERMINAL HEATING DEVICES AND COILS SHALL BE 3/4" UNLESS NOTED OTHERWISE.
2. PIPE DRAIN LINES FROM EQUIPMENT TO NEAREST FLOOR DRAIN.
3. INSTALL ALL REFRIGERANT LIQUID AND SUCTION PIPING SIZED PER EQUIPMENT MANUFACTURER RECOMMENDATIONS.

**MECHANICAL GENERAL NOTES:**

- THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, MEDICAL GAS, VENTILATION, PIPING AND TEMPERATURE CONTROL.
1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
  2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
  3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
  4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
  5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
  6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
  7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
  8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
  9. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
  10. SEAL ALL WALL, AND ROOF PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE. PENETRATIONS THROUGH EXTERIOR WALLS AND ROOF SHALL BE SEALED AIRTIGHT WITH WATERPROOFING MATERIALS RECOMMENDED BY MANUFACTURER FOR OUTDOOR USE.
  11. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
  12. WHERE PIPES AND DUCTS ARE SHOWN TO PENETRATE FLOORS, PROVIDE SLEEVED OPENINGS WITH THE TOP EDGE RAISED ABOVE FLOOR SURFACE IN ACCORDANCE WITH ALL RELEVANT SPEC SECTIONS. SEAL SLEEVE PERIMETER TO BE WATERTIGHT.
  13. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
  14. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
  15. MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-6" IN FRONT OF ALL ELECTRICAL EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS.
  16. MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING; DUCTWORK, PIPING, ETC.
  17. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
  18. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

**PIPING ABBREVIATION KEY**

ABBR:	DESCRIPTION:
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
C	COMMON
CO	CLEANOUT
DPG (0-2")	DIFFERENTIAL PRESSURE GAUGE (RANGE)
DPS	DIFFERENTIAL PRESSURE SWITCH
EA	EXHAUST/RELIEF AIR
EP	ELECTRICAL TO PNEUMATIC VALVE
MA	MIXED AIR
MV	MIXING VALVE
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
OA	OUTSIDE AIR
PS	PRESSURE SWITCH
RA	RETURN AIR
SA	SUPPLY AIR
SCCR	SHORT CIRCUIT CURRENT RATING
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTES

**PIPING SYMBOL LIST**

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
BD	BOILER BLOW DOWN
BF	BOILER FEED WATER
GA	COMPRESSED AIR
GWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
DRAIN	DRAIN
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
G	NATURAL GAS
GV	GAS REGULATOR VENT
HC	REFRIGERANT HOT GAS
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
LIG	REFRIGERANT LIQUID
LPC	LOW PRESSURE CONDENSATE
PC	PUMPED CONDENSATE
PD	PUMPED DISCHARGE
SUG	REFRIGERANT SUCTION
— —	PIPE CAP
— —	PIPE DOWN
— —	PIPE UP OR UP/DOWN
— —	PITCH PIPE IN DIRECTION
— —	DIRECTION OF FLOW IN PIPE
— —	DIELECTRIC CONNECTION
— —	UNION/FLANGE
— —	SHUTOFF VALVE NORMALLY OPEN
— —	SHUTOFF VALVE NORMALLY CLOSED
— —	THROTTLING VALVE
— —	BALANCING VALVE (NUMBER INDICATES GPM)
— —	AUTOMATIC BALANCING VALVE
— —	MIXING VALVE
— —	CONTROL VALVE (THREE-WAY)
— —	CONTROL VALVE (TWO-WAY)
— —	SOLENOID VALVE
— —	CHECK VALVE
— —	BACKFLOW PREVENTER
— —	SAFETY/RELIEF VALVE
— —	PRESSURE REDUCING VALVE (LIQUID/GAS)
— —	PUMP
— —	"WYE" - STRAINER
— —	"WYE" - STRAINER W/SHUTOFF VALVE AND HOSE CONNECTION WITH CAP
— —	BASKET STRAINER
— —	FLEXIBLE CONNECTION
— —	PRESSURE/TEMPERATURE TEST PLUG
— —	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
— —	MANUAL AIR VENT
— —	DRAIN VALVE WITH HOSE CONNECTION AND CAP
— —	PRESSURE SENSOR (FURNISHED WITH BALL VALVE)
— —	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
— —	DIFFERENTIAL PRESSURE SENSOR
— —	STATIC SWITCH
— —	FLOW METER
— —	FLOW SWITCH
— —	FLOW SENSOR
— —	THERMOSTAT
— —	THERMOSTAT/SENSOR WITH HEAVY DUTY ENCLOSURE
— —	TEMPERATURE SENSOR
— —	TEMPERATURE SENSOR WITH WELL
— —	THERMOMETER WITH WELL (DIAL TYPE)
— —	THERMOMETER WITH WELL (FILLED TYPE)
— —	ALIGNMENT GUIDE
— —	PIPE ANCHOR
— —	EXPANSION JOINT #.#" IS THE EXPANSION TRAVEL INCHES
— —	METER
— —	TERMINAL AIR BOX w/REHEAT COIL (REFER TO SCHEDULE)
— —	OCCUPANCY SENSOR

**VIEW KEY**

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

INDICATES DIRECTION OF TRUE NORTH  
PLAN OR DETAIL NUMBER  
PLAN OR DETAIL NAME  
1/8" = 1'-0"  
PLAN OR DETAIL SCALE

**VIEW NAME**

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS  
DETAIL REFERRED TO BY SECTION CUT  
SHEET DETAIL IS LOCATED ON

**LINE TYPE AND TAG KEY:**

NEW WORK BY THIS CONTRACTOR (WIDE LINE)  
NEW  
EXISTING TO BE REMOVED (SHORT DASHED PATTERN)  
NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)  
EXISTING  
EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)  
EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE.

\*TAG-E TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

**TAG** UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

**APPLICABLE CODES**

CONTRACTOR SHALL COMPLY WITH APPLICABLE CODES AND LOCAL AMENDMENTS.

BUILDING CODE:	IBC 2018 EDITION
FIRE CODE:	IFC 2018 EDITION
PLUMBING CODE:	IPC 2018 EDITION
MECHANICAL CODE:	IMC 2018 EDITION
ELECTRICAL CODE:	NFPA 70 (NEC) 2017 EDITION
ENERGY CONSERVATION CODE:	ASHRAE 90.1 2019
HEALTH DEPARTMENT CODE:	CURRENT EDITION
LOCAL BUILDING CODE:	CURRENT EDITION

**CONTRACTOR ABBREVIATION KEY**

ABBR:	DESCRIPTION:
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
S.C.	SECURITY CONTRACTOR

**CONTACT PERSONS:**

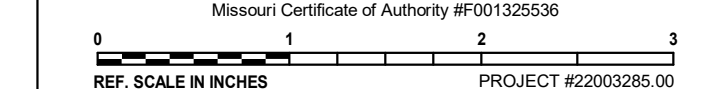
DESCRIPTION:	PERSON:
PROJECT MANAGER	ANDY MEYER, AIA, LEED AP BD+C - GASTINGER WALKER AMEYER@GASTINGERWALKER.COM 816.569.0624
MECHANICAL	BRUCE E. HART, P.E., LEED AP - IMEG BRUCE.E.HART@IMEGCORP.COM 816.652.0091
ELECTRICAL	PHILLIP I. PARRA, P.E. - IMEG PHILLIP.I.PARRA@IMEGCORP.COM 816.652.0109
TECHNOLOGY	NICK WNUK, RCDD, CPP, PMP - IMEG NICK.J.WNUK@IMEGCORP.COM 314.951.2546

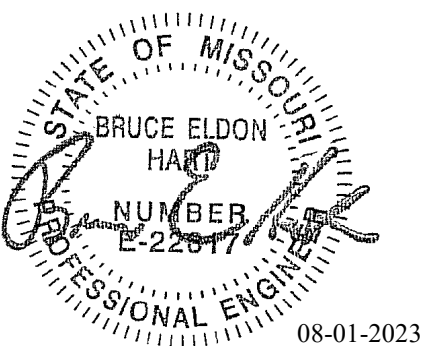
**PIPING SHEET INDEX**

MP000	MECHANICAL PIPING COVERSHEET
MP201	FLOOR PLAN - PIPING - EAST
MP202	FLOOR PLAN - PIPING - WEST
MP221	ROOF PLAN - PIPING - EAST
MP222	ROOF PLAN - PIPING - WEST
MP300	MECHANICAL FLOW DIAGRAMS
GRAND TOTAL: 6	



MISSOURI CERTIFICATE OF AUTHORITY #F001325536





Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

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Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: MP201.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
FLOOR PLAN - PIPING -  
EAST

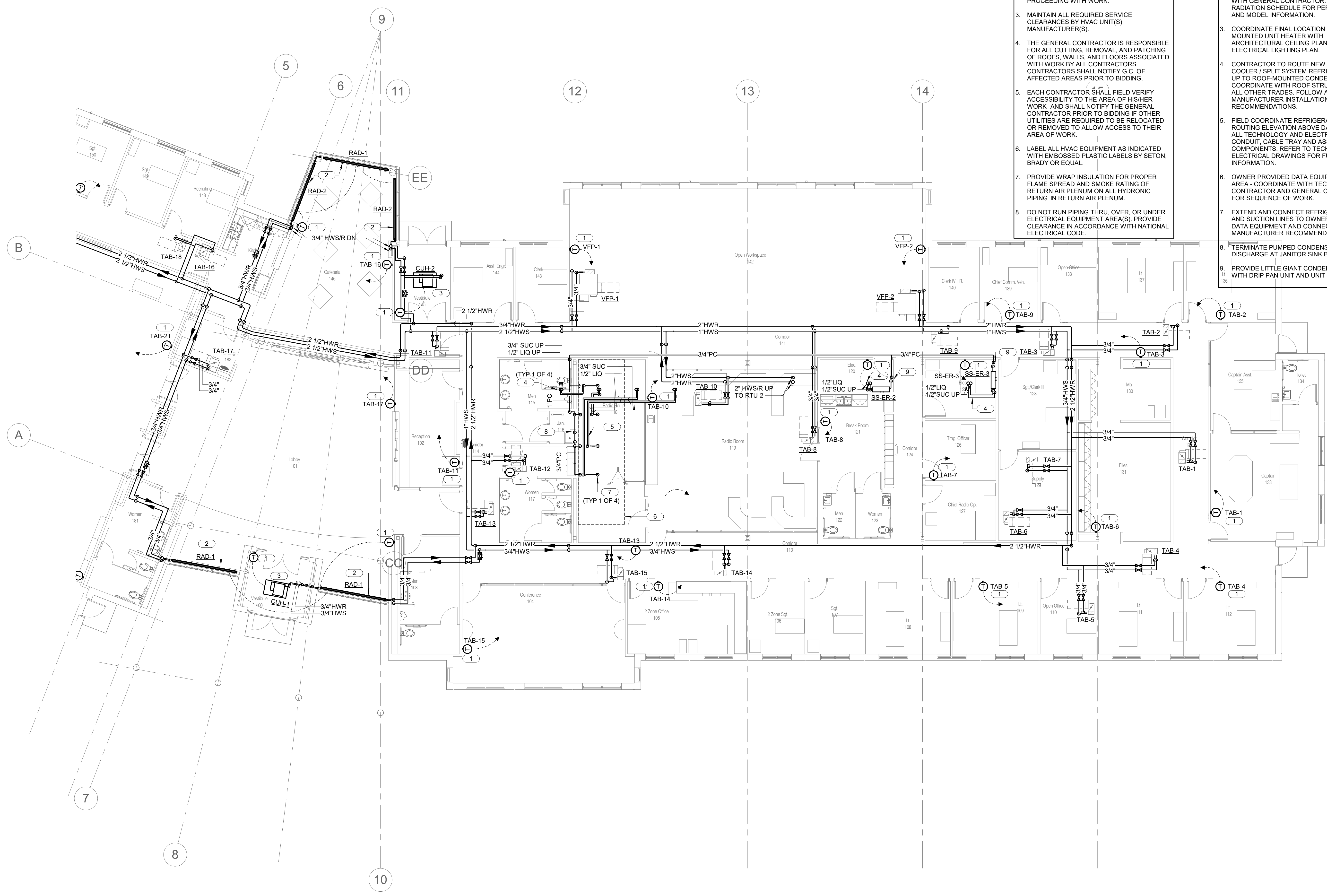
SHEET NUMBER:

**MP201**

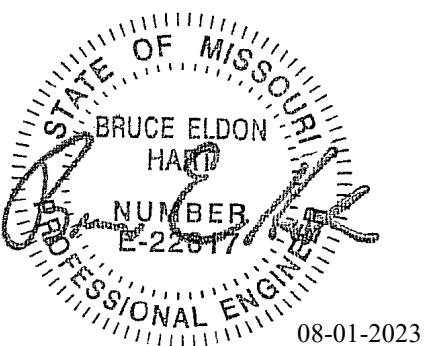
SHEET 159 OF 202  
08/01/2023

- SHEET NOTES:**
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  - NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
  - MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
  - THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
  - EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS/HER WORK, AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE RELOCATED OR REMOVED TO ALLOW ACCESS TO THEIR AREA OF WORK.
  - LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.
  - PROVIDE WRAP INSULATION FOR PROPER FLAME SPREAD AND SMOKE RATING OF RETURN AIR PLENUM ON ALL HYDRONIC PIPING IN RETURN AIR PLENUM.
  - DO NOT RUN PIPING THRU, OVER, OR UNDER ELECTRICAL EQUIPMENT AREA(S). PROVIDE CLEARANCE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

- KEYNOTES: #**
- PROVIDE NEW THERMOSTAT AND LENGTH OF SHIELDED POWER AND CONTROL WIRING AS REQUIRED IN THIS LOCATION. FIELD COORDINATE FINAL MOUNTING POSITION WITH ARCHITECTURAL FINISH PLAN AND ALL OTHER DEVICES.
  - PEDESTAL MOUNTED FIN-TUBE RADIATION - COORDINATE FINAL INSTALLATION HEIGHT WITH GENERAL CONTRACTOR. REFER TO RADIATION SCHEDULE FOR PERFORMANCE AND MODEL INFORMATION.
  - COORDINATE FINAL LOCATION OF CEILING MOUNTED UNIT HEATER WITH ARCHITECTURAL CEILING PLAN AND ELECTRICAL LIGHTING PLAN.
  - CONTRACTOR TO ROUTE NEW DATA ROOM COOLER / SPLIT SYSTEM REFRIGERANT PIPING UP TO ROOF-MOUNTED CONDENSING UNIT COORDINATE WITH ROOF STRUCTURE AND ALL OTHER TRADES. FOLLOW ALL MANUFACTURER INSTALLATION RECOMMENDATIONS.
  - FIELD COORDINATE REFRIGERANT PIPING ROUTING ELEVATION ABOVE DATA ROOM WITH ALL TECHNOLOGY AND ELECTRICAL WIRING, CONDUIT, CABLE TRAY AND ASSOCIATED COMPONENTS. REFER TO TECHNOLOGY AND ELECTRICAL DRAWINGS FOR FURTHER INFORMATION.
  - OWNER PROVIDED DATA EQUIPMENT IN THIS AREA - COORDINATE WITH TECHNOLOGY CONTRACTOR AND GENERAL CONTRACTOR FOR SEQUENCE OF WORK.
  - EXTEND AND CONNECT REFRIGERANT LIQUID AND SUCTION LINES TO OWNER PROVIDED DATA EQUIPMENT AND CONNECT PER MANUFACTURER RECOMMENDATIONS.
  - TERMINATE PUMPED CONDENSATE LINE DISCHARGE AT JANITOR SINK BASIN.
  - PROVIDE LITTLE GIANT CONDENSATE PUMP WITH DRIP PAN UNIT AND UNIT ALARM.



1 FLOOR PLAN - PIPING - EAST  
1/8" = 1'-0"  
0 2 4 8  
NORTH



Bruce E Hart - Engineer  
 MO# 22817

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.15.2

IMEG, CORP.  
 Missouri Certificate of Authority: #F001325536

**OFFICE OF  
 ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION**

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: MP202.dwg  
 DRAWN BY: JCL  
 CHECKED BY: BEH  
 DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN - PIPING -  
 WEST**

SHEET NUMBER:

**MP202**

SHEET 160 OF 202

08/01/2023

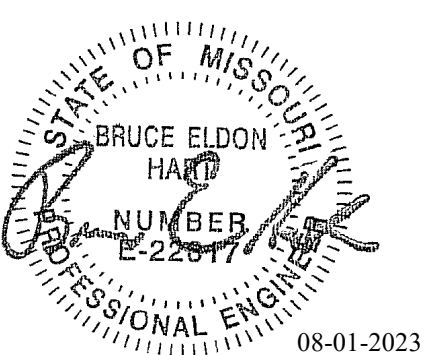
- SHEET NOTES:**
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH APPLICABLE LOCAL, STATE AND NATIONAL CODES, AND INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  - NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
  - MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
  - THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
  - EACH CONTRACTOR SHALL FIELD VERIFY ACCESSIBILITY TO THE AREA OF HIS/HER WORK AND SHALL NOTIFY THE GENERAL CONTRACTOR PRIOR TO BIDDING IF OTHER UTILITIES ARE REQUIRED TO BE RELOCATED OR REMOVED TO ALLOW ACCESS TO THEIR AREA OF WORK.
  - LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.
  - PROVIDE WRAP INSULATION FOR PROPER FLAME SPREAD AND SMOKE RATING OF RETURN AIR PLENUM ON ALL HYDRONIC PIPING IN RETURN AIR PLENUM.
  - DO NOT RUN PIPING THRU, OVER, OR UNDER ELECTRICAL EQUIPMENT AREAS; PROVIDE CLEARANCE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

- KEYNOTES: (#)**
- PROVIDE NEW THERMOSTAT AND LENGTH OF SHIELDED POWER AND CONTROL WIRING AS REQUIRED IN THIS LOCATION. FIELD COORDINATE FINAL MOUNTING POSITION WITH ARCHITECTURAL FINISH PLAN AND ALL OTHER DEVICES.
  - PEDESTAL MOUNTED FIN-TUBE RADIATION - COORDINATE FINAL INSTALLATION HEIGHT WITH GENERAL CONTRACTOR. REFER TO RADIATION SCHEDULE FOR PERFORMANCE AND MODEL INFORMATION.
  - COORDINATE FINAL LOCATION OF CEILING MOUNTED UNIT HEATER WITH ARCHITECTURAL CEILING PLAN AND ELECTRICAL LIGHTING PLAN.
  - ROUTE NEW HEATING WATER PIPING UP TO ROOF-MOUNTED AIR HANDLING UNIT. COORDINATE FINAL PENETRATION LOCATIONS WITH ROOF STRUCTURE AND ALL OTHER TRADES.
  - TERMINATE PUMPED CONDENSATE LINE DISCHARGE AT JANITOR SINK BASIN.
  - PROVIDE LITTLE GIANT CONDENSATE PUMP WITH DRIP PAN UNIT AND UNIT ALARM.



**1 FLOOR PLAN - PIPING - WEST**  
 1/8" = 1'-0"  
 0 2 4 8  
 NORTH





Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

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817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

OFFICE OF  
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DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: MP221.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
ROOF PLAN - PIPING -  
EAST

SHEET NUMBER:

**MP221**

SHEET 161 OF 202

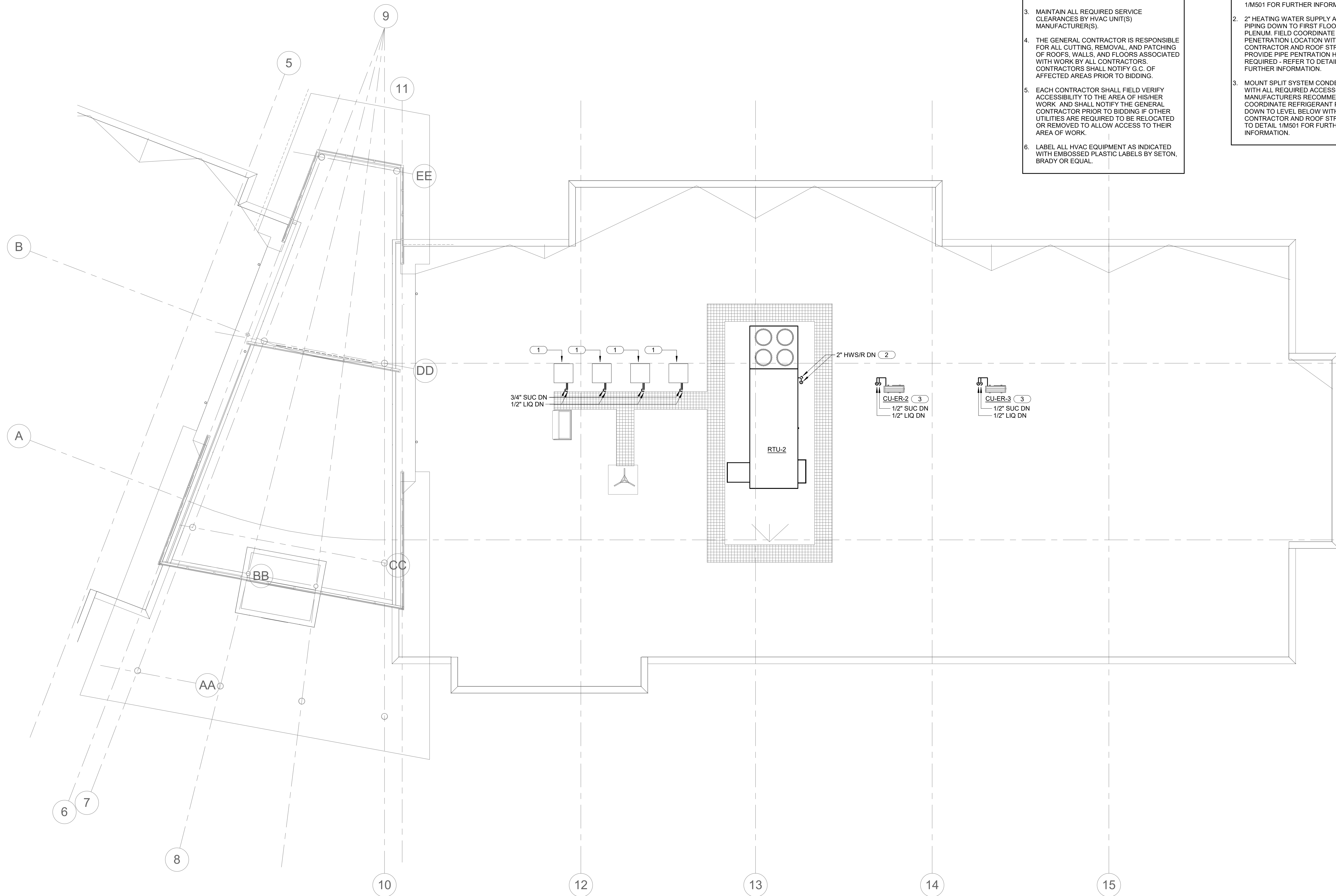
08/01/2023

**SHEET NOTES:**

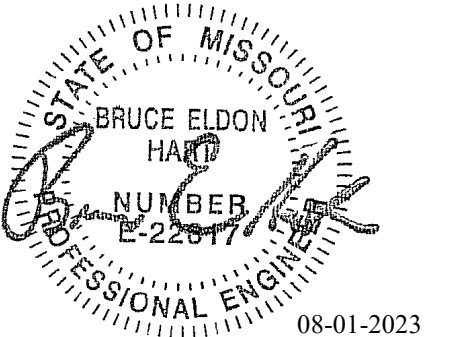
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- NOT ALL ARCHITECTURAL AND STRUCTURAL ELEMENTS ARE SHOWN. NOTIFY THE ENGINEER OF ANY CONFLICTS BEFORE PROCEEDING WITH WORK.
- MAINTAIN ALL REQUIRED SERVICE CLEARANCES BY HVAC UNIT(S) MANUFACTURER(S).
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, REMOVAL, AND PATCHING OF ROOFS, WALLS, AND FLOORS ASSOCIATED WITH WORK BY ALL CONTRACTORS. CONTRACTORS SHALL NOTIFY G.C. OF AFFECTED AREAS PRIOR TO BIDDING.
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- LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.

**KEYNOTES: #**

- DATA ROOM CONDENSING UNIT TO BE PROVIDED BY OWNER AND DELIVERED TO SITE BY GENERAL CONTRACTOR. PROVIDE ROOF CURB AND MOUNT WITH ALL REQUIRED REFRIGERANT PIPING AND ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS. ROUTE REFRIGERANT PIPING DOWN TO DATA ROOM - FIELD COORDINATE EXACT PENETRATION LOCATIONS WITH GENERAL CONTRACTOR. REFER TO DETAIL 31M500 AND 11M501 FOR FURTHER INFORMATION.
- 2" HEATING WATER SUPPLY AND RETURN PIPING DOWN TO FIRST FLOOR CEILING PLENUM. FIELD COORDINATE FINAL PENETRATION LOCATION WITH GENERAL CONTRACTOR AND ROOF STRUCTURE. PROVIDE PIPE PENETRATION HOUSING AS REQUIRED - REFER TO DETAIL 11M400 FOR FURTHER INFORMATION.
- MOUNT SPLIT SYSTEM CONDENSING UNIT WITH ALL REQUIRED ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS. FIELD COORDINATE REFRIGERANT PIPE ROUTING DOWN TO LEVEL BELOW WITH GENERAL CONTRACTOR AND ROOF STRUCTURE. REFER TO DETAIL 11M501 FOR FURTHER INFORMATION.



1 ROOF PLAN - PIPING - EAST  
1/8" = 1'-0"  
0 2' 4' 8'  
NORTH



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

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817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

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1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: MP222.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
ROOF PLAN - PIPING -  
WEST

SHEET NUMBER:

**MP222**

SHEET 162 OF 202

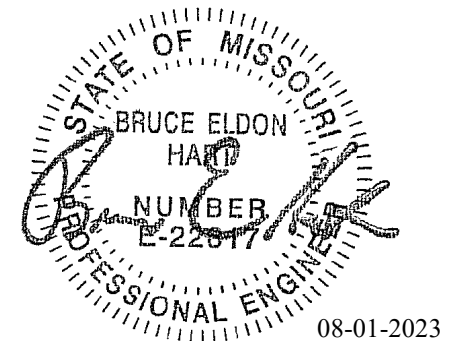
08/01/2023

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  - LABEL ALL HVAC EQUIPMENT AS INDICATED WITH EMBOSSED PLASTIC LABELS BY SETON, BRADY OR EQUAL.

- KEYNOTES: #**
- 2" HEATING WATER SUPPLY AND RETURN PIPING DOWN TO FIRST FLOOR CEILING PLENUM. FIELD COORDINATE FINAL PENETRATION LOCATION WITH GENERAL CONTRACTOR AND ROOF STRUCTURE. PROVIDE PIPE PENETRATION HOUSING AS REQUIRED - REFER TO DETAIL 1/M400 FOR FURTHER INFORMATION.
  - MOUNT SPLIT SYSTEM CONDENSING UNIT WITH ALL REQUIRED ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS. FIELD COORDINATE REFRIGERANT PIPE ROUTING DOWN TO LEVEL BELOW WITH GENERAL CONTRACTOR AND ROOF STRUCTURE. REFER TO DETAIL 1/M501 FOR FURTHER INFORMATION.



1 ROOF PLAN - PIPING - WEST  
1/8" = 1'-0"  
0 2' 4' 8'  
NORTH



Bruce E Hart - Engineer  
MO# 22817

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OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

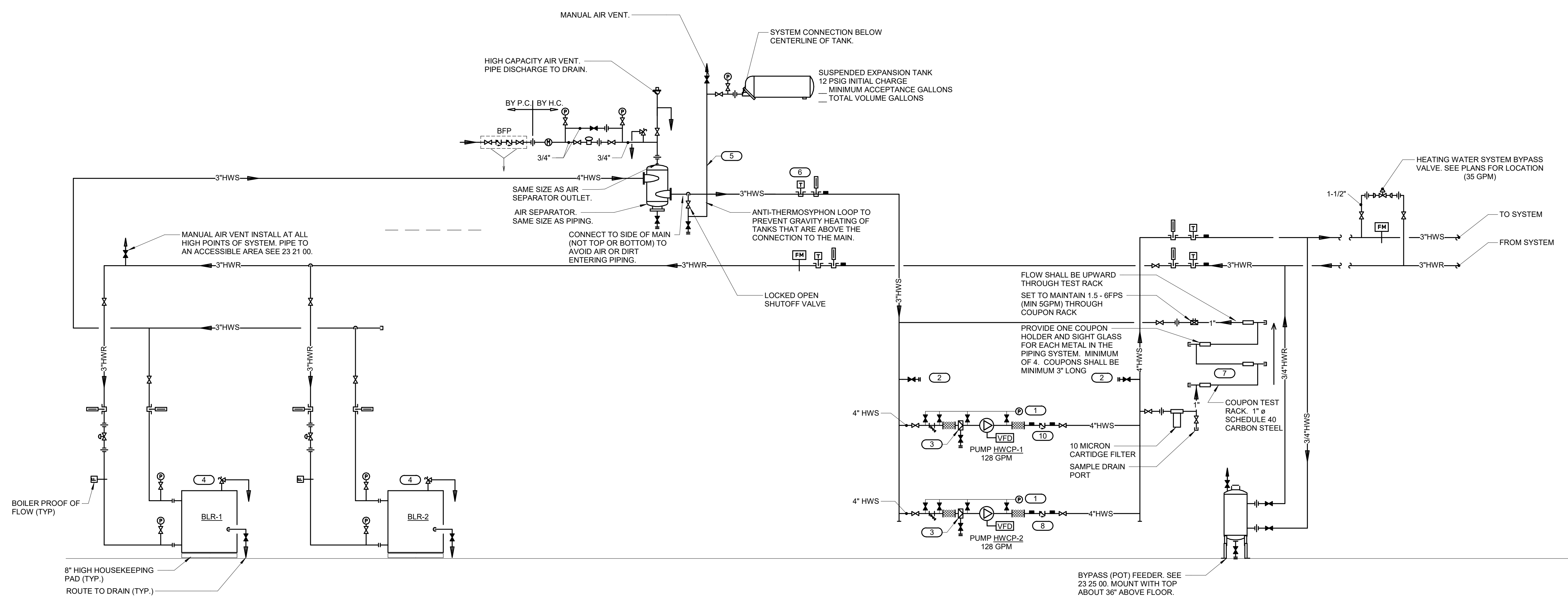
CAD DWG FILE: MP300.dwg  
DRAWN BY: JCL  
CHECKED BY: BEH  
DESIGNED BY: GW&

SHEET TITLE:  
MECHANICAL FLOW  
DIAGRAMS

SHEET NUMBER:

**MP300**

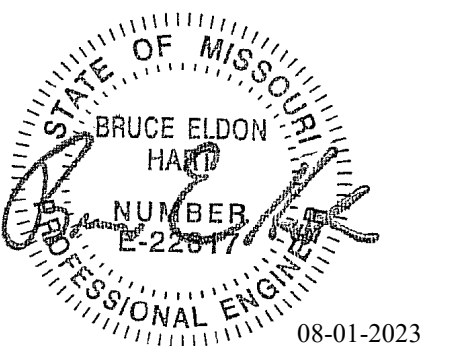
SHEET 163 OF 202  
08/01/2023



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

- KEYNOTES**
- PRESSURE GAUGE WITH SNUBBER PER SECTION 23 09 13. INSTALL WITH MOUNTING ON WALL, STAND, OR VIBRATION-FREE PIPE ABOVE PUMP FLEXIBLE CONNECTOR. INSTALL FLEXIBLE COPPER TUBING TO PIPING CONNECTIONS TO AVOID VIBRATION DAMAGE TO THE GAUGE. PREFERRED CONNECTION LOCATIONS ARE: (a) JUST UPSTREAM OF STRAINER, (b) GAUGE PORT ON SUCTION DIFFUSER OR BETWEEN STRAINER AND PUMP INLET (c) GAUGE TAPPING ON PUMP INLET FLANGE, (d) GAUGE TAPPING ON PUMP OUTLET FLANGE.
  - PROVIDE 2 1/2" OR LARGER CONNECTIONS FOR CONNECTION OF FIRE HOSES FOR FLUSHING AND CLEANING OF SYSTEM, IF CHEMICAL CLEANING IS NOT USED.
  - REMOVE & RETAIN TEMPORARY STRAINER FROM SUCTION DIFFUSER AT END OF CONSTRUCTION. PROVIDE SUPPORT LEG AS REQUIRED BY MANUFACTURER.
  - INSTALL SAFETY RELIEF VALVE PROVIDED BY BOILER MANUFACTURER. PIPE TO DRAIN. SUPPORT SOLIDLY.
  - SIZE PER BLADDER TANK MANUFACTURER'S RECOMMENDATIONS BUT NOT SMALLER THAN CONNECTION TO TANK.
  - TEMPERATURE SENSOR PROVIDED BY BOILER MANUFACTURER, WIRED TO BOILER/BOILER CONTROL PANEL.
  - PROVIDE COUPON TEST RACK AS INDICATED FOR EACH SYSTEM AS SHOWN.
  - TRIPLE DUTY OR BALANCING VALVES ARE NOT PERMITTED ON VARIABLE VOLUME SYSTEMS.

HEATING WATER FLOW DIAGRAM -  
CONDENSING BOILER VARIABLE/PRIMARY  
1  
Not to Scale



Bruce E Hart - Engineer  
MOW 22817

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Project Number: 2022.152

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Missouri Certificate of Authority: #F001325536

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CAD DWG FILE: E000.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
**ELECTRICAL  
COVERSHEET**

SHEET NUMBER:

**E000**

SHEET 164 OF 202

08/01/2023

**ELECTRICAL GENERAL NOTES:**

- "NL" INDICATES LUMINAIRE IS UNSWITCHED FOR NIGHT LIGHT.
- "SE" INDICATES LUMINAIRE IS SWITCHED/CONTROLLED DURING NORMAL OPERATION AND OPERATES FROM EMERGENCY CIRCUIT UPON LOSS OF POWER.
- SHADED LUMINAIRE OR DEVICE INDICATES LUMINAIRE OR DEVICE IS CONNECTED TO AN EMERGENCY CIRCUIT.
- REFER TO SHEET E600 FOR LUMINAIRE SCHEDULE.
- LM# DENOTES THE LIGHTING SEQUENCE OF OPERATIONS FOR THIS SPACE. REFER TO SHEET E600.
- VACANCY/OCCUPANCY SENSOR LAYOUT: SENSORS ARE SHOWN ON THE PLANS FOR DESIGN INTENT AND MAY NOT REPRESENT EVERY DEVICE. PROVIDE MANUFACTURER SPECIFIC FLOOR PLAN LAYOUTS SHOWING LOCATION, ORIENTATION, AND COVERAGE AREA OF EACH CONTROL DEVICE, SENSOR, AND CONTROLLER/INTERFACE. AREAS REQUIRING MULTIPLE SENSOR DEVICES FOR APPROPRIATE COVERAGE, SUBMIT SPECIFIC MANUFACTURER-APPROVED SENSOR LAYOUT AS AN OVERLAY DIRECTLY ON THE PROJECT DRAWINGS, EITHER IN PRINT OR APPROVED ELECTRONIC FORM.

**LUMINAIRE KEY:**

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

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

**DEVICE KEY:**

A = MOUNTING (IF APPLICABLE)  
1 = CIRCUIT NUMBER

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

**ELECTRICAL MOUNTING SUBSCRIPT KEY:**

A MOUNT AT #1 TO CENTERLINE ABOVE COUNTER OR BACKSPLASH  
C MOUNT AT CEILING  
M MOUNT IN FURNITURE SYSTEM

**ELECTRICAL INSTALLATION NOTES:**

- THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN.
- CIRCUIT NUMBERS ARE SHOWN FOR CIRCUIT IDENTIFICATION. CIRCUITING SHALL AGREE WITH NUMBERING ON THE PANEL PROVIDED. COMMON NEUTRALS MAY NOT BE USED FOR BRANCH CIRCUITS.
- EMERGENCY, LEGALLY-REQUIRED BRANCH WIRING FOR FEEDERS AND BRANCH CIRCUITS SHALL BE ROUTED IN SEPARATE RACEWAY, JUNCTION BOXES, PULL BOXES, AND CABINETS. WIRING FOR EACH BRANCH SHALL BE INDEPENDENT FROM OTHER BRANCHES, INCLUDING THE NORMAL BRANCH.
- FLUSH MOUNT ALL LIGHTING CONTROL DEVICES AT +42" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. DEVICES MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED.
- FLUSH MOUNT ALL DUPLEX RECEPTACLES AND TECHNOLOGY OUTLETS AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. RECEPTACLES AND OUTLETS MAY BE SURFACE MOUNTED WHEN CONDUIT IS SPECIFIED EXPOSED. MOUNT EXTERIOR LOCATED RECEPTACLES WITH WHILE-IN-USE COVERS AT +20" FROM FINISHED GRADE (CENTER DIMENSIONS) TO MAINTAIN INSTALLATION ADA COMPLIANCE.
- ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO 26 05 03 FOR ADDITIONAL INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
- MOUNT ALL FIRE ALARM PULL STATIONS AT +42" FROM FLOOR (CENTERLINE DIMENSION) EXCEPT WHERE OTHERWISE NOTED.
- INSTALL ALL WALL MOUNTED FIRE ALARM NOTIFICATION DEVICES AT 90" ABOVE FINISHED FLOOR OR 6" BELOW THE CEILING, WHICHEVER IS LOWER, EXCEPT WHERE OTHERWISE NOTED. HEIGHT SHALL BE MEASURED TO THE TOP OF THE DEVICE.
- CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CEILING MOUNTED DEVICES AND EQUIPMENT WITH LUMINAIRES, SPRINKLER, AND CEILING DIFFUSERS. CENTER ALL DEVICES IN CEILING TILE PATTERN. SMOKE DETECTORS AND OCCUPANCY/VACANCY SENSORS SHALL BE LOCATED NO CLOSER THAN 3 FEET TO AN AIR SUPPLY DIFFUSER OR RETURN GRILLE.
- CONTRACTOR SHALL VERIFY ALL FURNITURE AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS, AND REVIEWED SHOP DRAWINGS. PRIOR TO MAKING THE ACTUAL ELECTRICAL INSTALLATION, THIS CONTRACTOR SHALL ADJUST RECEPTACLES, OUTLETS, OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
- ELECTRICAL AND TECHNOLOGY EQUIPMENT SHALL BE MOUNTED TO AVOID IMPEDANCE OF OPERATION OF AND/OR ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF ELECTRICAL AND TELECOMMUNICATIONS EQUIPMENT, ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR, SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
- EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO THE WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER ELECTRICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
- ELECTRICAL IDENTIFICATION. REFER TO SPECIFICATION SECTION 26 05 53 FOR COLOR/LABEL REQUIREMENTS FOR CONDUIT, BOX, CABLE/WIRE, AND EQUIPMENT.

**ELECTRICAL EQUIPMENT TAGS**

TAG:	DESCRIPTION:	RELATED SPECIFICATION
ATS-#	AUTOMATIC TRANSFER SWITCH, REFER TO TRANSFER SWITCH SCHEDULE	26 36 00
GCC-#	GENERATOR/LOAD BANK CONNECTION CABINET	26 32 13
GEN-#	GENERATOR	26 32 13
MX-#	MANUAL SWITCH, REFER TO DISCONNECT AND STARTER SCHEDULE	26 24 19
SB-#	SWITCHBOARD	26 24 13
SPD-#	SURGE PROTECTION DEVICE	26 43 00
UPS-#	UNINTERRUPTIBLE POWER SUPPLY	26 33 53
VFD-#	VARIABLE FREQUENCY DRIVE - REFER TO VFD SCHEDULE	26 29 23

**ELECTRICAL ABBREVIATION KEY**

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
C	CONDUIT
GFI	GROUND FAULT INTERRUPTER
N.C.	NORMALLY CLOSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED

**CONTRACTOR ABBREVIATION KEY**

ABBR:	DESCRIPTION:
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
S.C.	SECURITY CONTRACTOR

**ELECTRICAL SYMBOL LIST**

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
			LINEAR LUMINAIRES
			TROFFER
			DOWNLIGHT LUMINAIRE
			INDUSTRIAL LUMINAIRE
			SINGLE FACE EXIT SIGN
			DOUBLE FACE EXIT SIGN
			EMERGENCY UNIT

**LUMINAIRE SYMBOL KEY**

SYMBOL:	DESCRIPTION:
	NORMAL BRANCH LUMINAIRE
	EMERGENCY LIFE SAFETY BRANCH LUMINAIRE UNSWITCHED FOR NIGHT LIGHT, UNLESS NOTED 'SE'

**ELECTRICAL SHEET INDEX**

E000	ELECTRICAL COVERSHEET
E201	FLOOR PLAN - LIGHTING - EAST
E202	FLOOR PLAN - LIGHTING - WEST
E203	FLOOR PLAN - LIGHTING - FIRING RANGE (ALTERNATE #04)
E204	SITE PLAN - LIGHTING
E205	SITE PLAN - LIGHTING (ALTERNATE #04)
E211	FLOOR PLAN - POWER - EAST
E212	FLOOR PLAN - POWER - WEST
E213	FLOOR PLAN - POWER - FIRING RANGE (ALTERNATE #04)
E214	ROOF PLAN - ELECTRICAL - EAST
E215	ROOF PLAN - ELECTRICAL - WEST
E216	ROOF PLAN - ELECTRICAL - FIRING RANGE (ALTERNATE #04)
E221	FLOOR PLAN - SYSTEMS - EAST
E222	FLOOR PLAN - SYSTEMS - WEST
E223	FLOOR PLAN - SYSTEMS - FIRING RANGE (ALTERNATE #04)
E300	ELECTRICAL ENLARGED PLANS
E400	ELECTRICAL DETAILS
E401	ELECTRICAL DETAILS
E402	ELECTRICAL DETAILS
E500	ELECTRICAL RISER DIAGRAM - BASE BID
E501	ELECTRICAL RISER DIAGRAM (ALTERNATE #03)
E600	ELECTRICAL SCHEDULES
E700	ELECTRICAL PANEL SCHEDULES
E701	ELECTRICAL PANEL SCHEDULES
E702	ELECTRICAL PANEL SCHEDULES
E703	ELECTRICAL PANEL SCHEDULES
E704	ELECTRICAL PANEL SCHEDULES
GRAND TOTAL: 27	

**ELECTRICAL SYMBOL LIST**

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	ECONN	26 05 33	ELECTRICAL CONNECTION
	JB	26 05 33	JUNCTION BOX
	FB-#	26 27 26	FLOOR BOX
	PANEL /###/	26 24 16	PANELBOARD - SURFACE MOUNT
	MX-#/MS-#	26 24 19	MANUAL SWITCH / STARTER / REFER TO DISC/STA SCHEDULE
	TR-#	26 22 00	TRANSFORMER. REFER TO TRANSFORMER SCHEDULE
	DS-#/FDS-#	26 28 16	DISCONNECT. REFER TO DISC/STA SCHEDULE
	REC-DUP	26 27 26	DUPLEX RECEPTACLE, 125V
	REC-DUP-GFI	26 27 26	DUPLEX GFI RECEPTACLE, 125V
	REC-DUP-WP	26 27 26	DUPLEX GFI WEATHERPROOF RECEPTACLE 125V
	REC-USB	26 27 26	DUPLEX RECEPTACLE, USB CHARGING
	REC-QUAD	26 27 26	QUAD RECEPTACLE, 125V
	REC-SIM-L630R	26 27 26	RECEPTACLE, LOCKING L6-30R, 250V
	REC-SIM-L1420R	26 27 26	RECEPTACLE, LOCKING L14-20R, 125/250V
	REC-SIM-L2130R	26 27 26	RECEPTACLE, LOCKING L21-30R, 125/250V
	REC-DUP-TP	26 27 26	TAMPER PROOF DUPLEX RECEPTACLE, 125V
	SW-1P	26 09 33	SWITCH - SINGLE POLE
	SW-3W	26 09 33	SWITCH - THREE WAY
	SW-4W	26 09 33	SWITCH - FOUR WAY
	DW-D3-LED	26 09 33	DIMMER - LED - 3-WAY
	SW-OD	26 09 33	DIMMER - WALL DIMMER OCCPANCY SENSOR
	SW-LS	26 09 33	DAYLIGHT LEVEL SENSOR
	SW-OC-D	26 09 33	OCCUPANCY SENSOR - DUAL TECHNOLOGY
	SW-OC-P-P	26 09 33	OCCUPANCY SENSOR - PASSIVE INFRARED 360 DEGREE COVERAGE
	SW-OC-P-D	26 09 33	SWITCH - OCCUPANCY SENSOR WALL SWITCH
	SW-OC-R	26 09 33	WATTSTOPPER DIGITAL LIGHTING MANAGEMENT ROOM CONTROLLER. # = REFERS TO NUMBER OF RELAYS D = REFERS TO 0-10V DIMMING CONTROLLER WALL CONTROL STATION
	SW	26 09 33	TIME CLOCK
	TC	26 09 33	DIMMER CONTROL STATION # - INDICATES NUMBER OF BUTTONS
	SW-DCS	26 09 33	LIGHTING CONTROL STATION
	LCS-#	26 09 33	AUTOMATIC LOAD CONTROL RELAY
	ALCR20	26 09 33	FIRE ALARM CONTROL PANEL
	SW	26 09 33	SUBSCRIPTS: TYPE / PROGRAMMING W = WEATHERPROOF DH = DOOR HOLD RELEASE # = 15, 30, 75, 110, 177 CANDELA RATING CD = CANDELA RATING SELECTED BY NICET DESIGNER
	FA-120	28 31 00	FIRE ALARM CONTROL PANEL
	FA-130	28 31 00	FIRE ALARM ANNUNCIATOR
	FA-210	28 31 00	FIRE ALARM EXTENDER PANEL
	GAP-#	26 32 13	GENERATOR ANNUNCIATOR PANEL
	FA-120	28 31 00	FIRE ALARM SMOKE DETECTOR # = EQUIP OR SYSTEM
	FA-122	28 31 00	FIRE ALARM DUCT SMOKE DETECTOR # = EQUIP OR SYSTEM
	FA-200	28 31 00	FIRE ALARM VISUAL ALARM DEVICE, CEILING OR WALL MOUNT # = CANDELA RATING. CD = CANDELA RATING SELECTED BY NICET DESIGNER
	FA-130	28 31 00	FIRE ALARM MANUAL PULL STATION
	FA-130	28 31 00	FIRE ALARM MANUAL PULL STATION WITH COVER
	FA-210	28 31 00	COMBINATION AUDIO HORN/CHIME AND VISUAL ALARM DEVICE, CEILING OR WALL MOUNTED # = CANDELA RATING. CD = CANDELA RATING SELECTED BY NICET DESIGNER
	FA-263	28 31 00	FIRE ALARM ELECTRIC BELL FOR SPRINKLER SYSTEM
	FA-161	28 31 00	FIRE ALARM ADDRESSABLE CONTROL MODULE
	FA-242	28 31 00	FIRE ALARM REMOTE INDICATOR W/ TEST SWITCH
	FA-260	28 31 00	FIRE ALARM FLOW SWITCH TO MONITOR SPRINKLER SYSTEM
	FA-261	28 31 00	FIRE ALARM TAMPER SWITCH TO MONITOR SPRINKLER SYSTEM
	FA-160	28 31 00	FIRE ALARM ADDRESSABLE MONITOR MODULE

COMMON AND SEQUENCE OF OPERATION SUBSCRIPTS

**VIEW KEY**

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

INDICATES DIRECTION OF TRUE NORTH  
PLAN OR DETAIL NUMBER  
PLAN OR DETAIL NAME  
PLAN OR DETAIL SCALE

**VIEW NAME**  
1  
1/8" = 1'-0"

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS  
DETAIL REFERRED TO BY SECTION CUT  
SHEET DETAIL IS LOCATED ON

**LINE TYPE AND TAG KEY:**

NEW WORK BY THIS CONTRACTOR (WIDE LINE)  
NEW EXISTING TO BE REMOVED (SHORT DASHED PATTERN)  
NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)  
EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)  
EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE.

TAG-'E TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

TAG UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

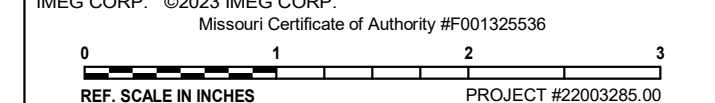
**CONDUIT INSTALLATION SCHEDULE**

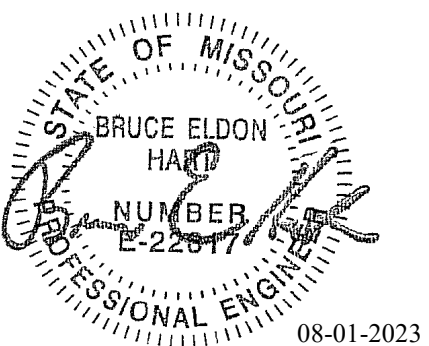
THE FOLLOWING SCHEDULE SHALL BE ADHERED TO UNLESS THEY CONSTITUTE A VIOLATION OF APPLICABLE CODES OR ARE NOTED OTHERWISE ON THE DRAWINGS. THE INSTALLATION OF RMC CONDUIT WILL BE PERMITTED IN PLACE OF ALL CONDUIT SPECIFIED IN THIS SCHEDULE. REFER TO CONDUIT AND BOXES SPECIFICATION 26 05 33 FOR ADDITIONAL INFORMATION.

INSTALLATION TYPE	RMC	EMT	PVC	PVC CONCRETE ENCASED
FEEDERS: SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS, MOTOR CONTROL CENTERS, ETC.		X		
BRANCH CIRCUITS: LIGHTING, RECEPTACLES, CONTROLS, ETC.		X		
MECHANICAL EQUIPMENT FEEDERS: PUMPS, CHILLERS, AIR HANDLING UNITS, ETC.		X		
FLOOR MOUNTED EQUIPMENT FEEDERS: PUMPS, ETC. (INCLUDE NO MORE THAN 6 FEET OF LFMC TO PUMP)		X		
CONTROLS (LIGHTING, POWER, BUILDING AUTOMATION, ETC.)		X		
FINISHED SPACES / CONCEALED		X		
WET AND DAMP LOCATIONS: (CONDUIT, BOXES, FITTINGS, INSTALLED AND EQUIPPED TO PREVENT WATER ENTRY)	X			
CORROSIVE LOCATIONS				
ELEVATED CONCRETE SLABS (ABOVE GRADE)	X		X	
INTERIOR LOCATIONS: CONCEALED		X		
INTERIOR LOCATIONS: EXPOSED		X		
INTERIOR LOCATIONS: EXISTING WALLS AND EXPOSED INSTALLATION (FINISHED SPACES)		X		
<b>UNDERGROUND / SLABS ON GRADE (IN OR UNDER SLABS ON GRADE)</b>				
WITHIN 5' FROM THE PERIMETER OF THE BUILDING	X		X	
WITHIN 5' FROM THE PERIMETER OF THE BUILDING WHEN PASSING THROUGH THE PERIMETER OF THE BUILDING FOUNDATION:	X			X
<b>UNDERGROUND SITE CONDUITS:</b>				
WITHIN 5' FROM THE PERIMETER OF A BUILDING FOUNDATION	X		X	
5' OR GREATER FROM THE PERIMETER OF A BUILDING FOUNDATION	X		X	
UNDER ROADS, DRIVES, AND VEHICLE TRAVELED WAYS. WHEN HDPE DIRECTIONAL BORING IS ALLOWED: PROVIDE PRESSURIZED GROUT			X	
<b>DUCTBANKS (REFER TO DUCTBANK DETAILS WHEN APPLICABLE)</b>				
REINFORCING SHALL CONSIST OF ONE-HALF INCH DEFORMED BARS SPACED 12 INCHES ON CENTER, PARALLELING THE DUCTS ON BOTTOM, WITH ONE-HALF INCH DEFORMED THE BARS SPACED TWELVE INCHES ON CENTERS.				X
BARS SHALL OVERLAP 40 DIAMETERS AND SHALL EXTEND 5' BEYOND ROADS, DRIVES, TRAVELED WAYS, ETC.				X
PROVIDE MINIMUM 3" CONCRETE COVER ON ALL SIDES OF REINFORCING.				X
ENTIRE DUCTBANK SHALL BE INSTALLED ON PRECAST CONCRETE PAVERS ON 3' CENTERS.				X
HAZARDOUS (CLASSIFIED LOCATIONS AS DEFIED BY THE NATIONAL ELECTRICAL CODE: COMPLETE WITH SCREWED FITTINGS AND CONDUIT SEALS	X			
<b>DEFINITIONS:</b>				
CONCRETE ENCASEMENT: CONDUIT WITH A MINIMUM OF 3" THICKNESS BETWEEN THE SURFACE OF THE CONCRETE AND THE NEAREST CONDUIT. CONCRETE TO BE DOWELED INTO THE FOUNDATION.				



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 Project Number: 2022.15.2

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 Missouri Certificate of Authority: #F001325536

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CAD DWG FILE: E201.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN - LIGHTING  
 - EAST**

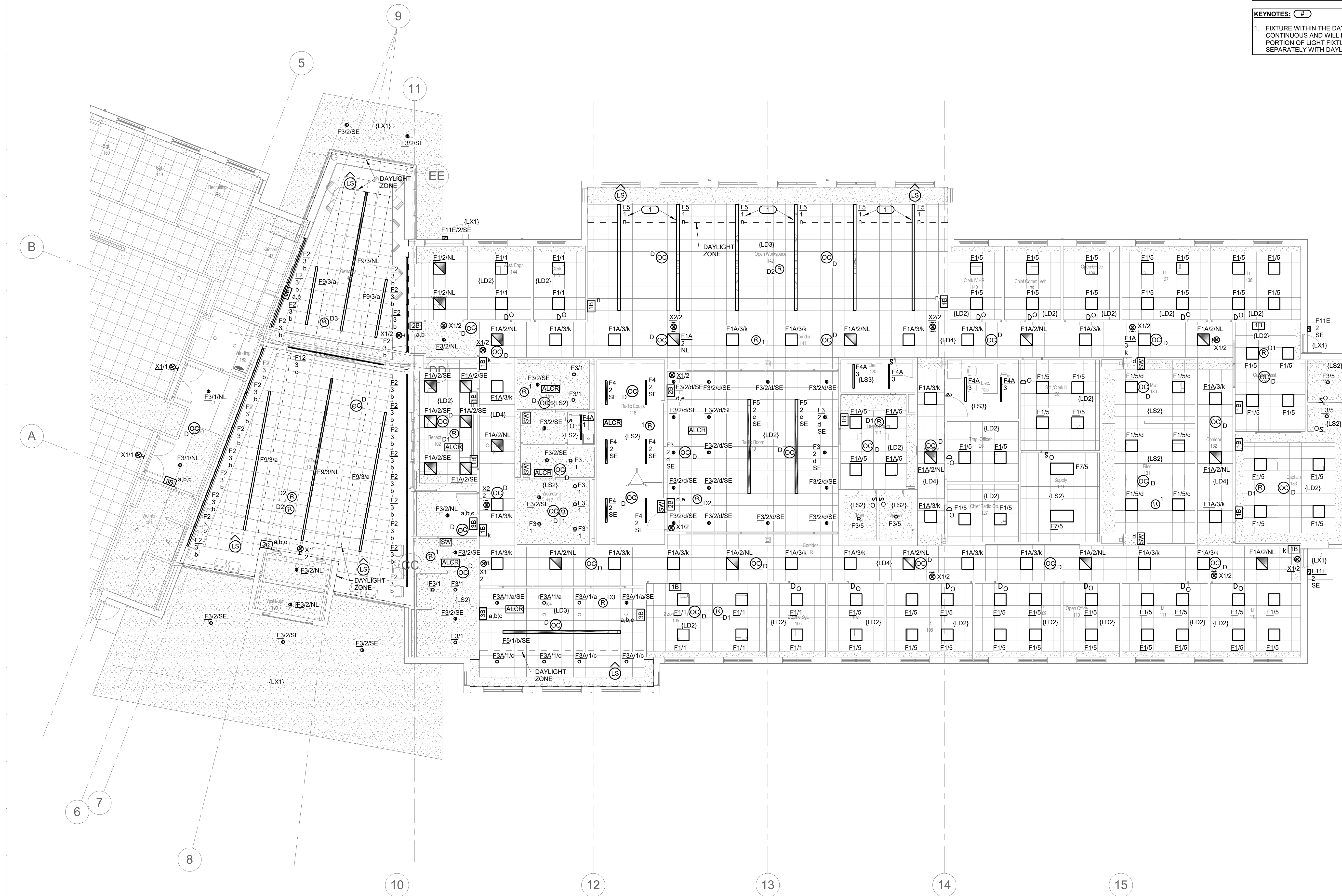
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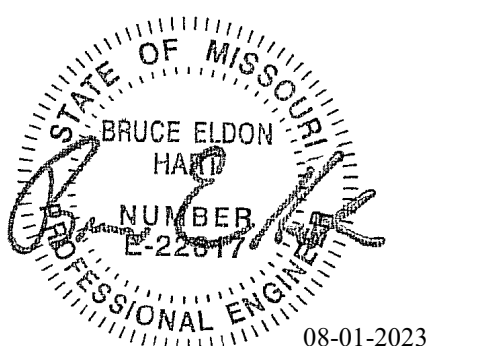
SHEET 165 OF 202

08/01/2023

- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
  - ALL NORMAL LIGHTING CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL LP2A LOCATED IN ELECTRICAL ROOM 120, UNLESS NOTED OTHERWISE.
  - ALL EMERGENCY LIGHTING CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL ELP1 LOCATED IN THE MAIN ELECTRICAL ROOM 158, UNLESS NOTED OTHERWISE.
- KEYNOTES: ( # )**
- FIXTURE WITHIN THE DAYLIGHT ZONE IS CONTINUOUS AND WILL NEED TO HAVE PORTION OF LIGHT FIXTURE CONTROLLED SEPARATELY WITH DAYLIGHT SENSOR.



1 FLOOR PLAN - LIGHTING - EAST  
 1/8" = 1'-0"  
 0 4' 8' 16'  
 NORTH



Bruce E Hart - Engineer  
 MO# 22817

**Gastinger Walker &**  
 Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.L52

IMEG, CORP.  
 Missouri Certificate of Authority: #F001325536

OFFICE OF  
 ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: E202.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN - LIGHTING  
 - WEST**

SHEET NUMBER:

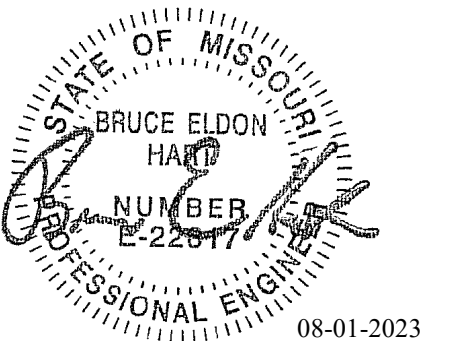
**E202**

SHEET 166 OF 202  
 08/01/2023

- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
  - ALL NORMAL LIGHTING CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL LP1, UNLESS NOTED OTHERWISE.
  - ALL EMERGENCY LIGHTING CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL ELP1, UNLESS NOTED OTHERWISE.
- KEYNOTES: #**
- LIGHT SWITCH FOR INTERVIEW ROOM IS LOCATED OUTSIDE OF ROOM FOR SECURITY.
  - WATTSTOPPER LMZC-301 ZONE CONTROLLER SHALL CONTROL EXTERIOR LIGHTS ON SITE PLAN. REFER TO SHEET E600 FOR THE LIGHTING SEQUENCE OF OPERATION. DEVICE SHALL ALSO SERVE AS A TIME CLOCK.
  - RELAY SERVING EXTERIOR LIGHTING.



1 FLOOR PLAN - LIGHTING - WEST  
 1/8" = 1'-0"  
 0 4' 8' 16'  
 NORTH



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

OFFICE OF  
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Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
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REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E203.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
FLOOR PLAN - LIGHTING  
- FIRING RANGE  
(ALTERNATE #04)

SHEET NUMBER:

**E203**

SHEET 167 OF 202

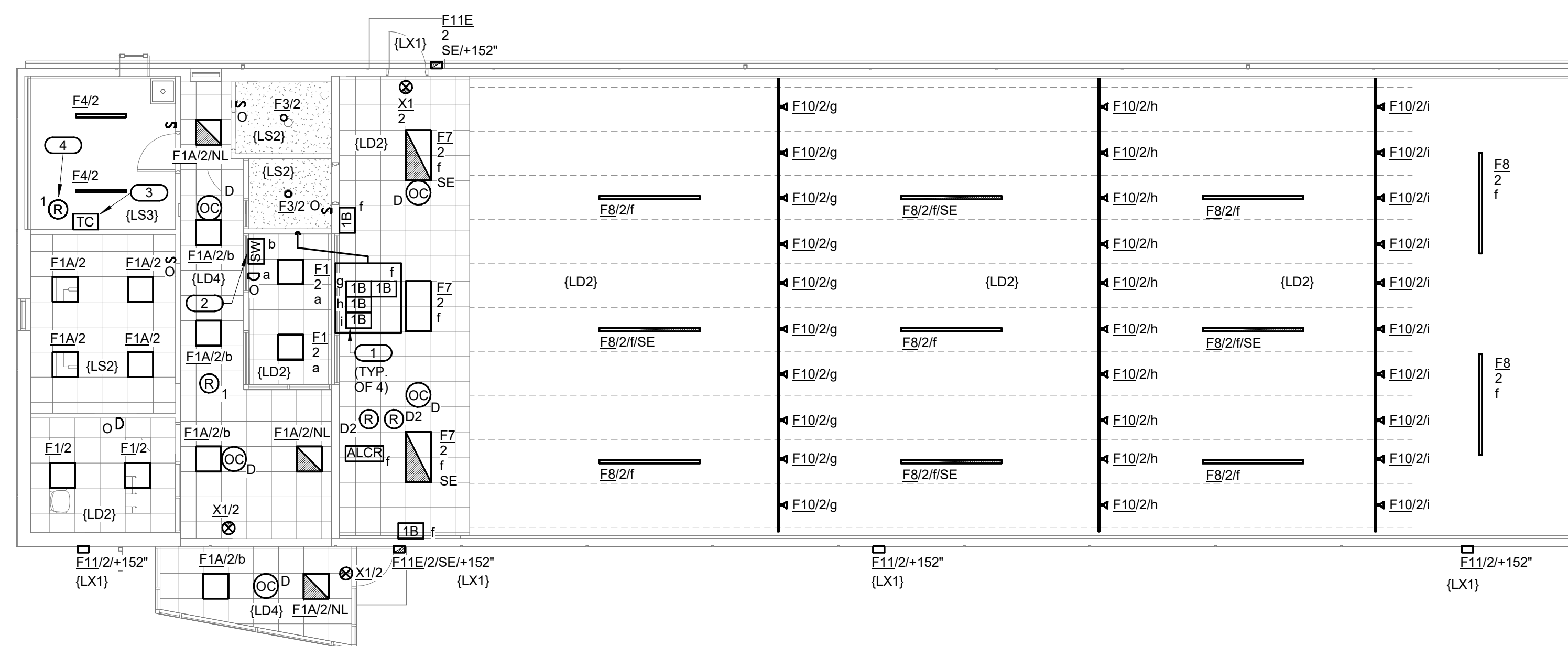
08/01/2023

**SHEET NOTES:**

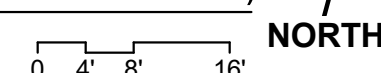
1. REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
2. ALL WORK SHOWN ON THIS SHEET IS A PART OF ALTERNATE BID #4
3. ALL LIGHTING CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL LP3, UNLESS NOTED OTHERWISE.
4. LIGHT FIXTURES SHOWN AS HALF-SHADED, INDICATED WITH 'HL' OR 'SE' AND EXIT SIGNS SHALL BE FURNISHED WITH INTEGRAL BATTERY INVERTER. CONNECT BATTERY INVERTER OF SWITCHED EMERGENCY LUMINAIRE TO NON-SWITCH PORTION OF CIRCUIT SERVING LIGHT FIXTURE.

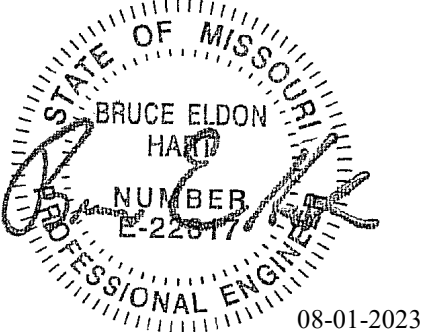
**KEYNOTES: #**

1. LABEL SWITCHES WITH AREA SERVED. STACK THE DEVICES ON WALL, IF NECESSARY.
2. LIGHT SWITCH CONTROLLING LIGHTS IN CORRIDOR IS LOCATED IN CONTROL 206 FOR EASE OF ACCESS TO SECURITY.
3. WATTSTOPPER LMZC-301 ZONE CONTROLLER SHALL CONTROL EXTERIOR LIGHTS ON THIS SHEET. REFER TO SHEET E600 FOR THE LIGHTING SEQUENCE OF OPERATION. DEVICE SHALL ALSO SERVE AS A TIME CLOCK.
4. RELAY SERVING EXTERIOR LIGHTING FOR FIRING RANGE.



1 FLOOR PLAN - LIGHTING - FIRING RANGE (ALTERNATE #04)  
1/8" = 1'-0" NORTH





Bruce E Hart - Engineer  
 MO# 22817

# Gastinger Walker &

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## OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: E204.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

SHEET TITLE:  
 SITE PLAN - LIGHTING

SHEET NUMBER:

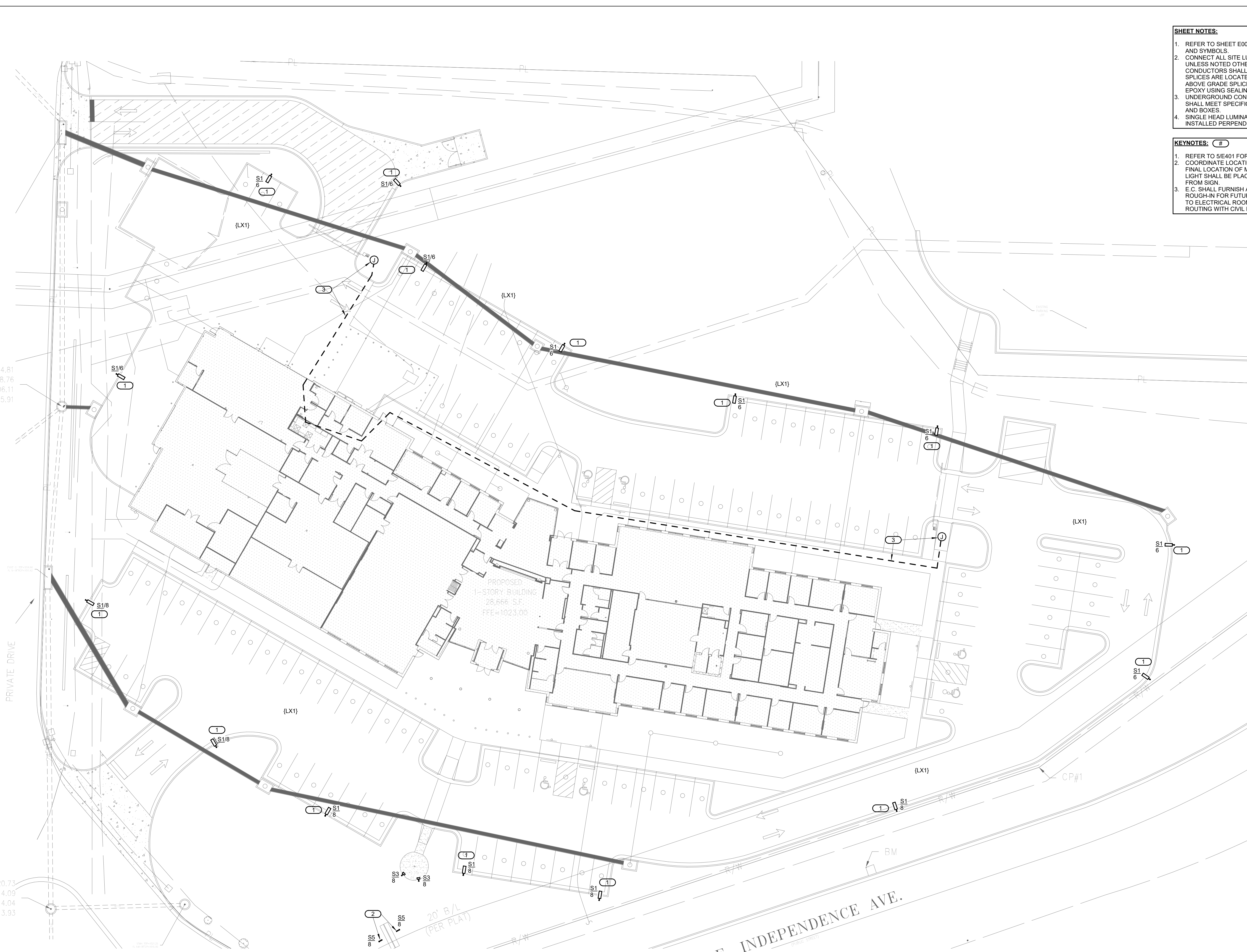
# E204

SHEET 168 OF 202

08/01/2023

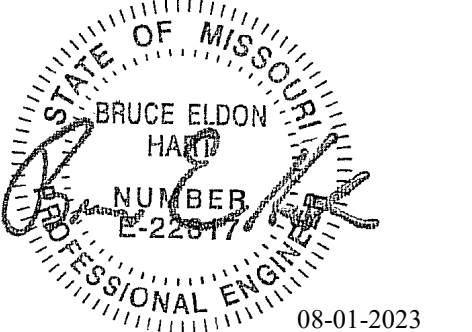
- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
  - CONNECT ALL SITE LUMINAIRES TO PANEL LP1. UNLESS NOTED OTHERWISE, CONDUIT AND CONDUCTORS SHALL BE ROUTED SO NO SPLICES ARE LOCATED AT OR BELOW GRADE. ABOVE GRADE SPLICES SHALL BE SEALED IN EPOXY USING SEALING KIT.
  - UNDERGROUND CONDUIT INSTALLATION SHALL MEET SPECIFICATION 26 05 33 CONDUIT AND BOXES.
  - SINGLE HEAD LUMINAIRES SHALL BE INSTALLED PERPENDICULAR TO THE CURB.

- KEYNOTES:**
- REFER TO S/E401 FOR POLE BASE DETAIL.
  - COORDINATE LOCATION OF FLOOD LIGHT WITH FINAL LOCATION OF MONUMENT SIGN. FLOOD LIGHT SHALL BE PLACED FIVE FEET AWAY FROM SIGN.
  - E.C. SHALL FURNISH AND INSTALL 1" CONDUIT ROUGH-IN FOR FUTURE ELECTRONIC GATES TO ELECTRICAL ROOM 158. COORDINATE ROUTING WITH CIVIL PLANS.



1 FLOOR - SITE - LIGHTING  
 1" = 20'-0"





Bruce E Hart - Engineer  
 MO# 22817

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 REVISION:  
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 ISSUE DATE: 01 August 2023

CAD DWG FILE: E205.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

SHEET TITLE:  
**SITE PLAN - LIGHTING  
 (ALTERNATE #04)**

SHEET NUMBER:

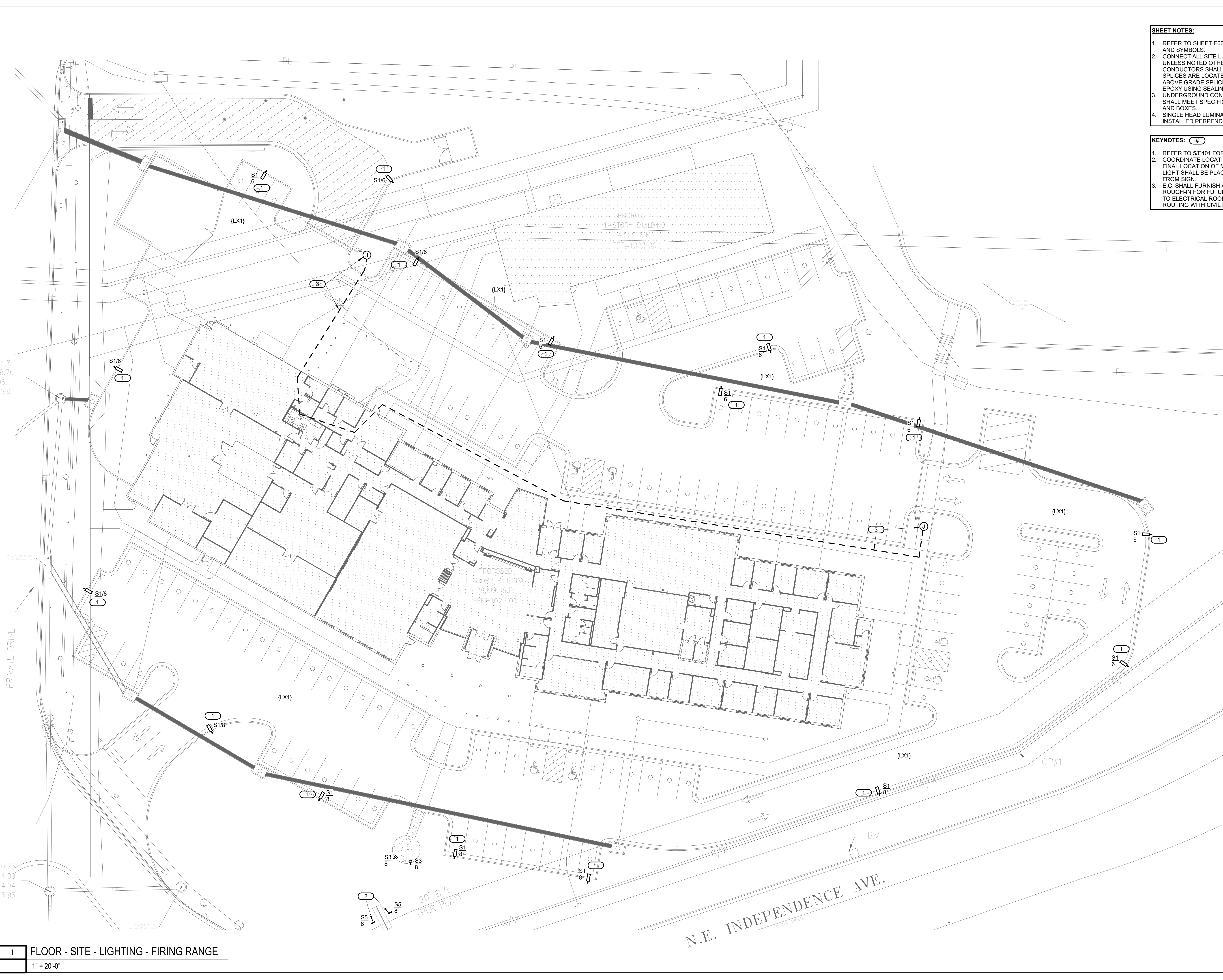
# E205

SHEET 169 OF 202

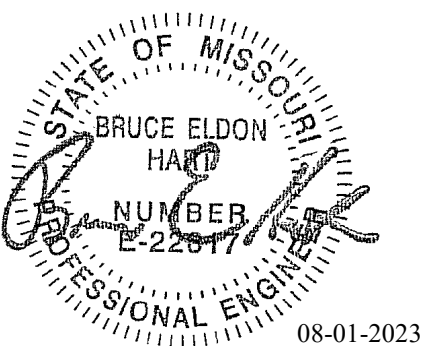
08/01/23

- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
  - CONNECT ALL SITE LUMINAIRES TO PANEL LP1. UNLESS NOTED OTHERWISE, CONDUIT AND CONDUCTORS SHALL BE ROUTED SO NO SPLICES ARE LOCATED AT OR BELOW GRADE. ABOVE GRADE SPLICES SHALL BE SEALED IN EPOXY USING SEALING KIT.
  - UNDERGROUND CONDUIT INSTALLATION SHALL MEET SPECIFICATION 26 05 33 CONDUIT AND BOXES.
  - SINGLE HEAD LUMINAIRES SHALL BE INSTALLED PERPENDICULAR TO THE CURB.

- KEYNOTES:**
- REFER TO 5/E401 FOR POLE BASE DETAIL.
  - COORDINATE LOCATION OF FLOOD LIGHT WITH FINAL LOCATION OF MONUMENT SIGN. FLOOD LIGHT SHALL BE PLACED FIVE FEET AWAY FROM SIGN.
  - E.C. SHALL FURNISH AND INSTALL 1" CONDUIT ROUGH-IN FOR FUTURE ELECTRONIC GATES TO ELECTRICAL ROOM 158. COORDINATE ROUTING WITH CIVIL PLANS.



**1 FLOOR - SITE - LIGHTING - FIRING RANGE**  
 1" = 20'-0"



Bruce E Hart - Engineer  
MO# 22817

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FACILITY # 8136018019

REVISION:  
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E211.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
FLOOR PLAN - POWER -  
EAST

SHEET NUMBER:

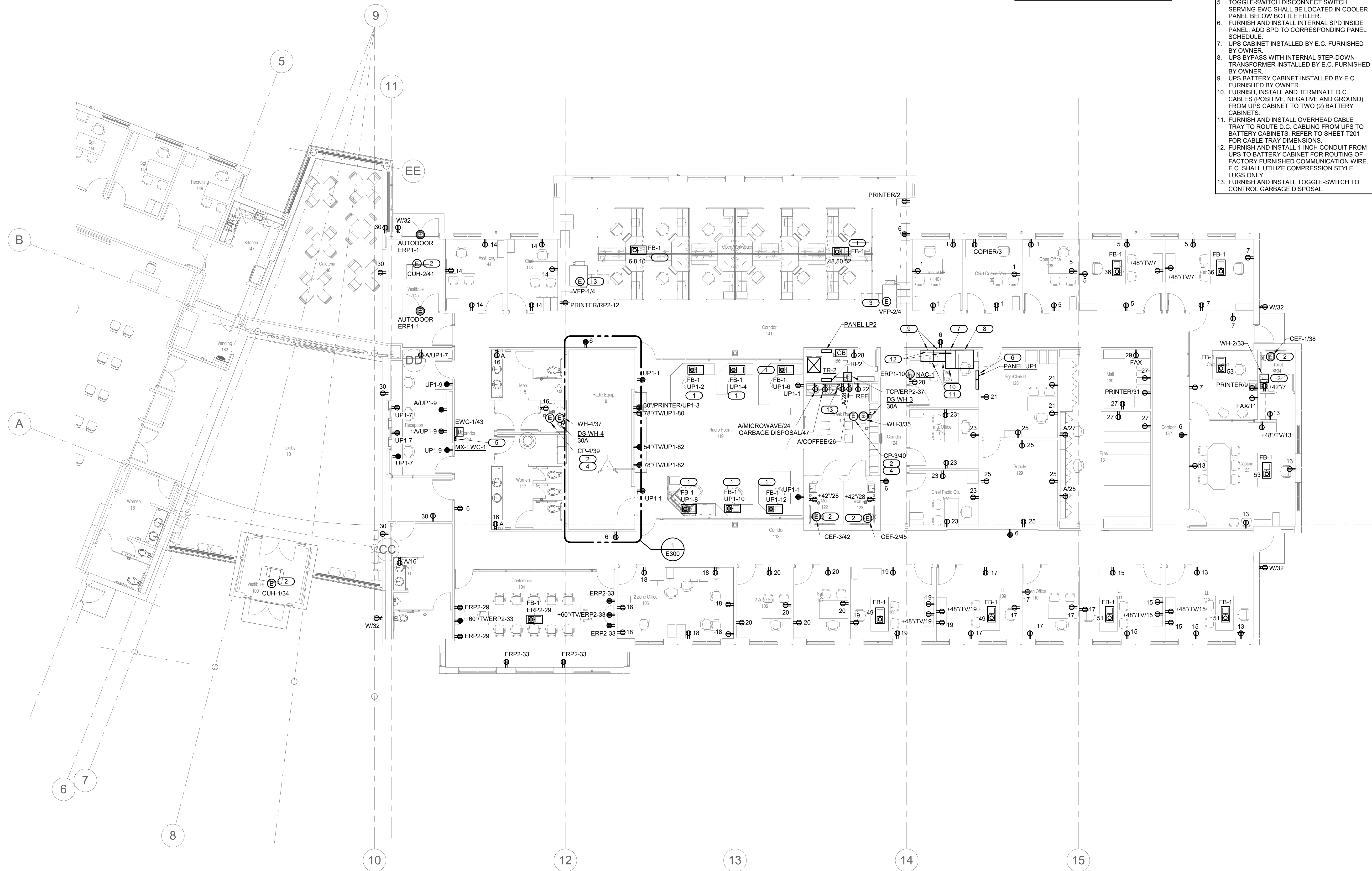
**E211**

SHEET 170 OF 202

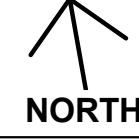
08/01/2023

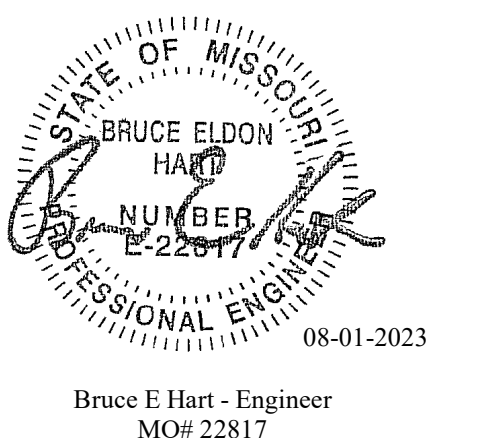
- SHEET NOTES:**
1. REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
  2. ALL NORMAL BRANCH POWER CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL RP2, UNLESS NOTED OTHERWISE.
  3. ALL EMERGENCY BRANCH POWER CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL ERP2, UNLESS NOTED OTHERWISE.
  4. ALL UPS EQUIPMENT SHALL BE COORDINATED WITH SCHNEIDER ELECTRIC REPRESENTATIVE.

- KEYNOTES:**
1. POWER TO BE FED THROUGH THE FURNITURE FEED FROM THE FLOOR.
  2. EQUIPMENT ASSOCIATED DISCONNECT/STARTER PROVIDED BY MANUFACTURER, INSTALLED BY E.C.
  3. EQUIPMENT ASSOCIATED DISCONNECT/STARTER PROVIDED BY M.C., INSTALLED BY E.C.
  4. CP-3 AND CP-4 CONNECTION SHALL BE ABOVE CEILING NEAR WH-3 AND WH-4.
  5. TOGGLE-SWITCH DISCONNECT SWITCH SERVING EWC SHALL BE LOCATED IN COOLER PANEL BELOW BOTTLE FILLER.
  6. FURNISH AND INSTALL INTERNAL SPD INSIDE PANEL. ADD SPD TO CORRESPONDING PANEL SCHEDULE.
  7. UPS CABINET INSTALLED BY E.C. FURNISHED BY OWNER.
  8. UPS BYPASS WITH INTERNAL STEP-DOWN TRANSFORMER INSTALLED BY E.C. FURNISHED BY OWNER.
  9. UPS BATTERY CABINET INSTALLED BY E.C. FURNISHED BY OWNER.
  10. FURNISH, INSTALL AND TERMINATE D.C. CABLES (POSITIVE, NEGATIVE AND GROUND) FROM UPS CABINET TO TWO (2) BATTERY CABINETS.
  11. FURNISH AND INSTALL OVERHEAD CABLE TRAY TO ROUTE D.C. CABLING FROM UPS TO BATTERY CABINETS. REFER TO SHEET T201 FOR CABLE TRAY DIMENSIONS.
  12. FURNISH AND INSTALL 1-INCH CONDUIT FROM UPS TO BATTERY CABINET FOR ROUTING OF FACTORY FURNISHED COMMUNICATION WIRE. E.C. SHALL UTILIZE COMPRESSION STYLE LUGS ONLY.
  13. FURNISH AND INSTALL TOGGLE-SWITCH TO CONTROL GARBAGE DISPOSAL.



1 FLOOR PLAN - POWER - EAST  
1/8" = 1'-0"





Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

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Project Number: 2022.152

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Missouri Certificate of Authority: #F001325536

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Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
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DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E212.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN - POWER -  
WEST**

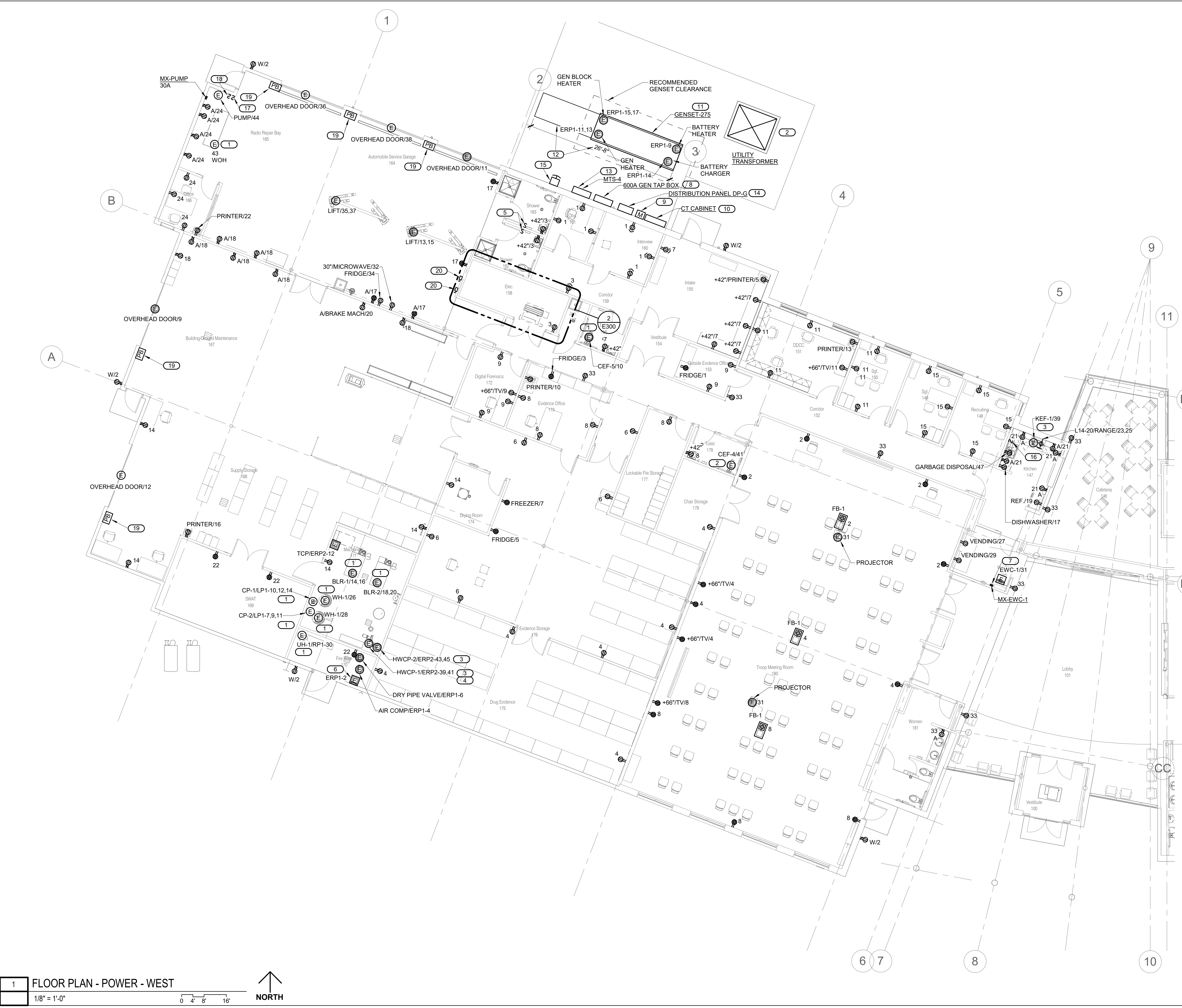
SHEET NUMBER:

**E212**

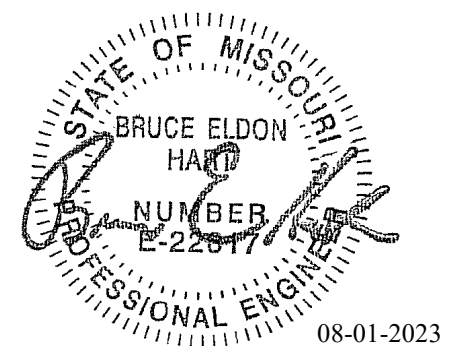
SHEET 171 OF 202

08/01/2023

- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
  - ALL NORMAL BRANCH POWER CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL RP1, UNLESS NOTED OTHERWISE.
  - ALL EMERGENCY BRANCH POWER CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL ERP2, UNLESS NOTED OTHERWISE. REFER TO SHEET E500 FOR BASE BID ELECTRICAL RISER DIAGRAM AND WIRE SIZES.
  - REFER TO SHEET E501 FOR ALTERNATE BID ELECTRICAL RISER DIAGRAM AND WIRE SIZES.
  - REFER TO SHEET E300 FOR 800KW DIESEL GENERATOR SET ALTERNATE BID INFORMATION.
- KEYNOTES: #**
- EQUIPMENT ASSOCIATED DISCONNECT/STARTER PROVIDED BY MANUFACTURER, INSTALLED BY E.C.
  - 1500KVA EVERGY TRANSFORMER. TRANSFORMER FURNISHED AND INSTALLED BY EVERGY. PAD FURNISHED AND INSTALLED BY CONTRACTOR. PAD SHALL BE CONSTRUCTED TO EVERGY STANDARDS.
  - EQUIPMENT ASSOCIATED DISCONNECT/STARTER PROVIDED BY M.C., INSTALLED BY E.C.
  - HWCP-1 CONNECTION IS ABOVE THE HWCP-2 CONNECTION
  - TOGGLE-SWITCH SHALL CONTROL EXHAUST FANS FOR BOTH SHOWER ROOMS. REFER TO SHEET M403 FOR MORE EXHAUST FAN CONTROL INFORMATION.
  - DOUBLE INTERRUPT LOCK PREACTION SYSTEM PANEL (DIPS). REFER TO SHEET FP401 DETAIL 2 FOR MORE INFORMATION.
  - TOGGLE-SWITCH DISCONNECT SWITCH SERVING EWC SHALL BE LOCATED IN COOLER PANEL BELOW BOTTLE FILLER
  - FURNISH AND INSTALL 600 AMP GENERATOR QUICK CONNECT TAP BOX. TAP BOX SHALL HAVE KIRK KEY FUNCTIONALITY TO ALTERNATE BETWEEN THE MAIN GENERATOR AND A TEMPORARY GENERATOR. TAP BOX SHALL ALSO INCLUDE A CIRCUIT BREAKER TO PROTECT THE MAIN GENERATOR.
  - INSTALL UTILITY METER PROVIDED BY UTILITY COMPANY PER EVERGY STANDARDS. FURNISH AND INSTALL METERING CONDUIT TO CT CABINET. ALL GROUND FITTINGS AS REQUIRED.
  - FURNISH AND INSTALL 1200 AMP, MILBANK CT CABINET. INSTALL AS INDICATED PER EVERGY STANDARDS.
  - 275KW/344KVA DIESEL GENERATOR SET. THIS GENERATOR SIZE IS A PART OF BASE BID. REFER TO SHEET E500 FOR MORE INFORMATION.
  - FURNISH AND INSTALL GENSET WITH A 72-HOUR FUEL TANK. 72-HOUR FUEL TANK.
  - MTS-4 IS A PART OF BASE BID AND WILL ALLOW FOR ADDITIONAL TEMPORARY GEN HOOKUP TO SERVE THE NORMAL DISTRIBUTION SYSTEM. MTS-4 SHALL HAVE KIRK KEY FUNCTIONALITY TO ALTERNATE BETWEEN NORMAL DISTRIBUTION AND TEMPORARY GENERATOR HOOKUP. REFER TO SHEET E500 FOR MORE INFORMATION.
  - 600AMP DISTRIBUTION PANEL IS A PART OF BASE BID.
  - FURNISH AND INSTALL EMERGENCY POWER OFF BUTTON IN NEMA-3R ENCLOSURE FOR GENSET.
  - FURNISH AND INSTALL TOGGLE-SWITCH TO CONTROL GARBAGE DISPOSAL
  - FURNISH AND INSTALL TOGGLE-SWITCH DISCONNECT FOR WASTE OIL HEATER.
  - FURNISH AND INSTALL TOGGLE-SWITCH DISCONNECT FOR GARBAGE PUMP
  - FURNISH AND INSTALL THREE-BUTTON STATION WITH 'OPEN-CLOSE-STOP' IN NEMA 1 ENCLOSURE. SURFACE MOUNTED TO CONTROL OVERHEAD DOOR.
  - FURNISH AND INSTALL NEW 30 AMP, 2-POLE NON-FUSED DISCONNECT SWITCH WITH A NEMA 1 ENCLOSURE SERVING GARAGE LIFT.



1 FLOOR PLAN - POWER - WEST  
1/8" = 1'-0"  
0 4' 8' 16'  
NORTH



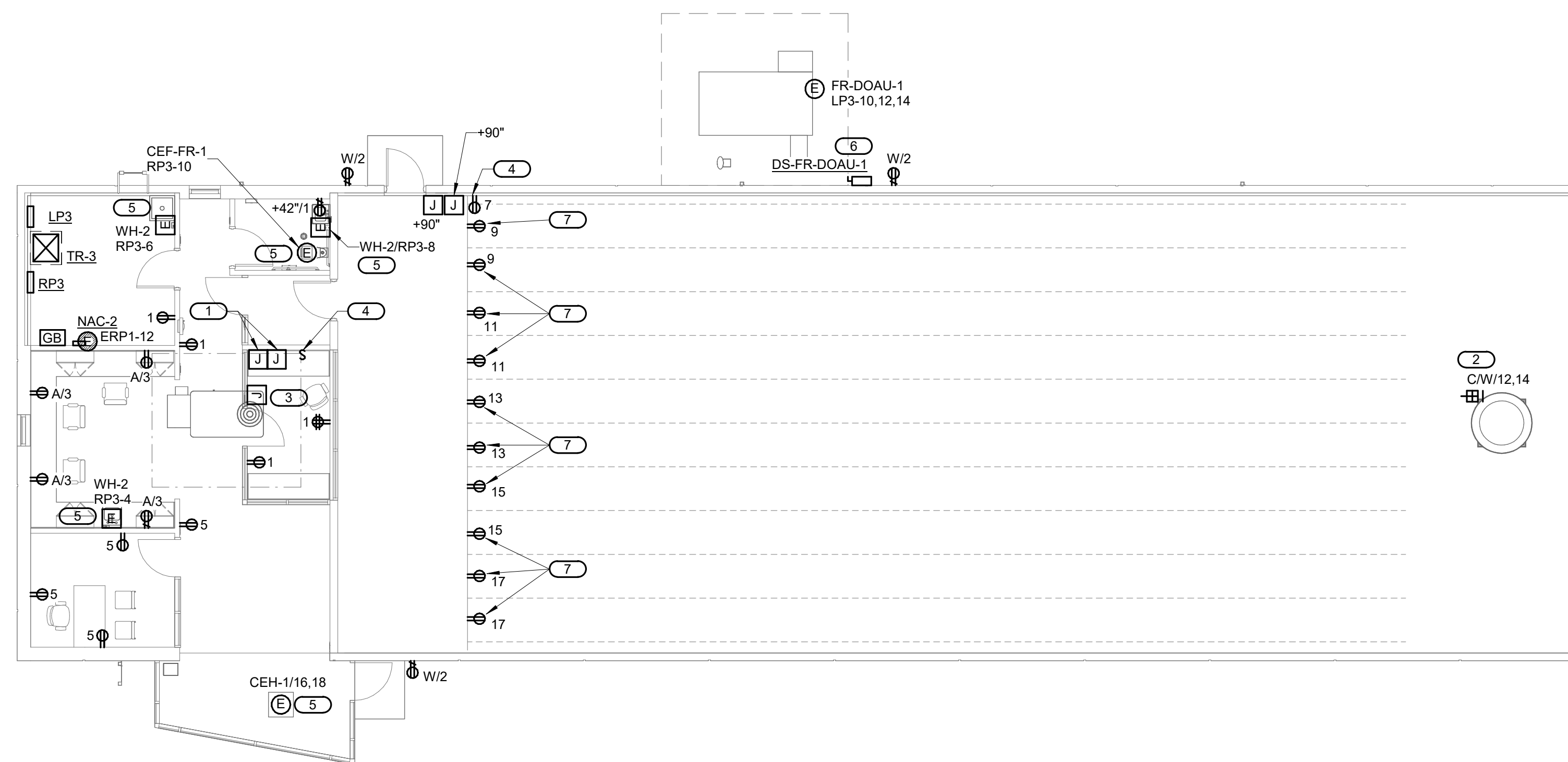
Bruce E Hart - Engineer  
 MO# 22817

**Gastinger Walker &**

Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City, Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.152

- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
  - ALL WORK SHOWN ON THIS SHEET IS A PART OF ALTERNATE BID #4
  - ALL NORMAL BRANCH POWER CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL RP3, UNLESS NOTED OTHERWISE.
  - ALL EMERGENCY BRANCH POWER CIRCUITS ON THIS SHEET SHALL BE CONNECTED TO PANEL ERP1, UNLESS NOTED OTHERWISE.

- KEYNOTES: #**
- PROVIDE 8"X8" JUNCTION BOX BENEATH COUNTERTOP. (1) 2" CONDUIT SHALL BE RUN TO LEFT SIDEWALL OF RANGE FOR TARGET AND COMMUNICATION SYSTEMS CABLING.
  - PROVIDE AND INSTALL 208V-1PH 30A RECEPTACLE WITH COVER FOR BULLET TRAP SERVICE.
  - CONNECTION TO VENTILATION SYSTEM CONTROL PANEL. PROVIDE (1) 3/4" CONDUIT TO THE VENTILATION UNITS FOR CONTROL WIRING.
  - SWITCHED RECEPTACLE FOR FUTURE LIGHT BAR OR SPECIAL EFFECTS LIGHTING.
  - EQUIPMENT ASSOCIATED DISCONNECT/STARTER PROVIDED BY MANUFACTURER. INSTALLED BY E.C.
  - FURNISH AND INSTALL 200AMP, 3P NON-FUSED DISCONNECT SWITCH IN NEMA-3R ENCLOSURE.
  - DEVICE MOUNTED TO BACKSIDE OF COUNTER TO SUPPLY POWER TO MODULE AT COUNTERTOP.



1 FLOOR PLAN - POWER - FIRING RANGE (ALTERNATE #04)  
 1/8" = 1'-0" 0 4' 8' 16' NORTH

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PROJECT # R2219-01  
 SITE # 6018  
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REVISION:  
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 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: E213.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

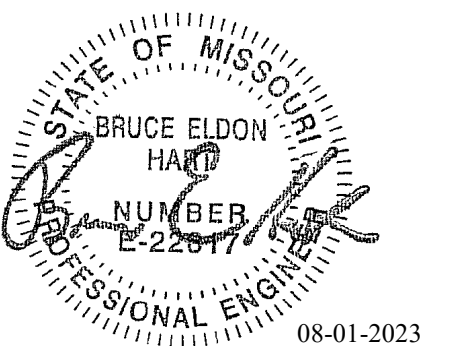
SHEET TITLE:  
**FLOOR PLAN - POWER -  
 FIRING RANGE  
 (ALTERNATE #04)**

SHEET NUMBER:

**E213**

SHEET 172 OF 202

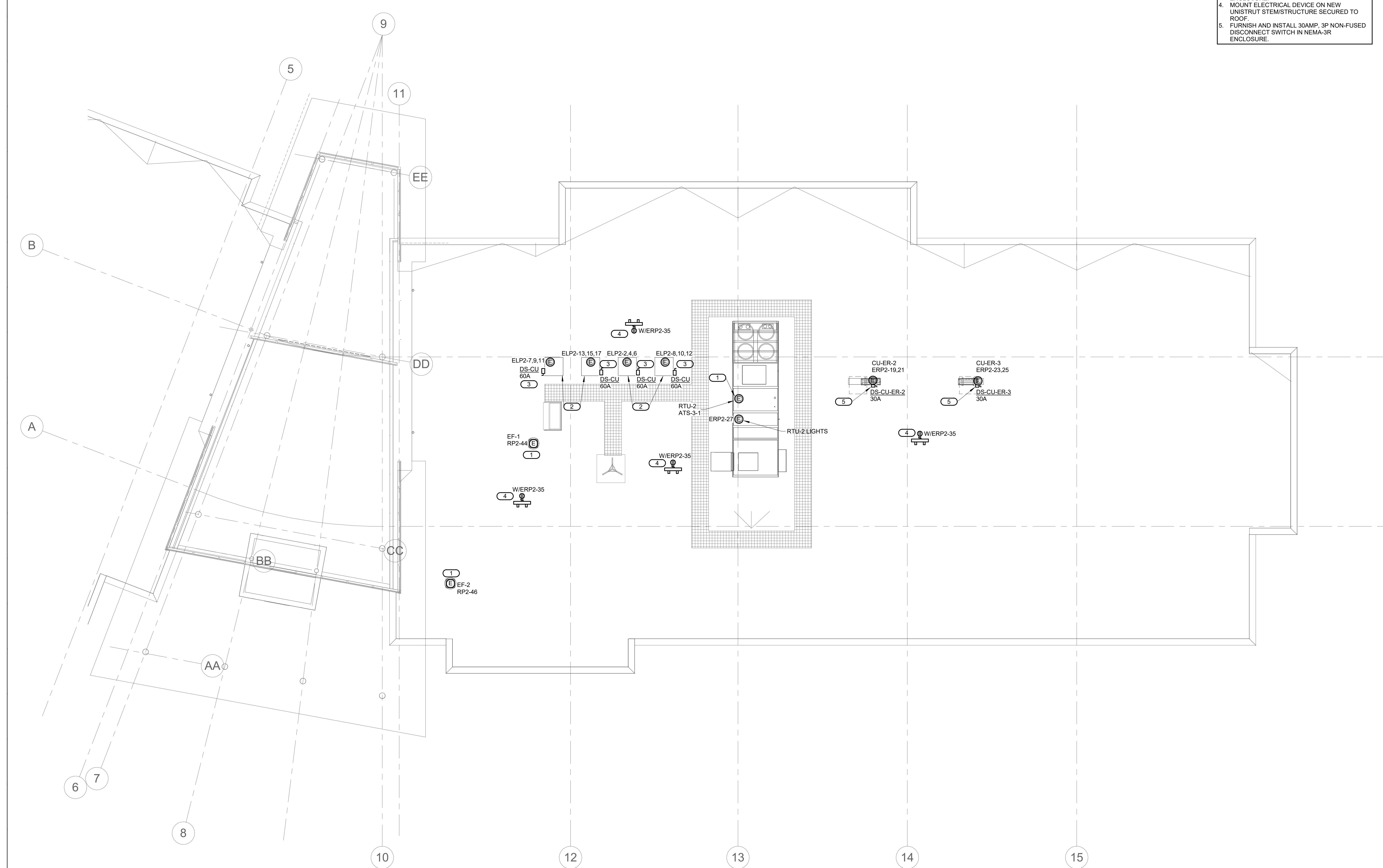
08/01/2023



Bruce E Hart - Engineer  
 MO# 22817

**SHEET NOTES:**  
 1. REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.

**KEYNOTES: (#)**  
 1. EQUIPMENT ASSOCIATED DISCONNECT/STARTER PROVIDED BY M.C., INSTALLED BY E.C.  
 2. CONDENSING UNIT SERVING IN-ROW COOLER IN RADIO EQUIPMENT ROOM FURNISHED BY OWNER. E.C. SHALL INSTALL ELECTRICAL CONNECTION TO UNIT.  
 3. FURNISH AND INSTALL 60AMP, 3P NON-FUSED DISCONNECT SWITCH IN NEMA-3R ENCLOSURE.  
 4. MOUNT ELECTRICAL DEVICE ON NEW UNISTRUT STEM/STRUCTURE SECURED TO ROOF.  
 5. FURNISH AND INSTALL 30AMP, 3P NON-FUSED DISCONNECT SWITCH IN NEMA-3R ENCLOSURE.



1 ROOF PLAN - ELECTRICAL - EAST  
 1/8" = 1'-0"  
 0 4' 8' 16'  
 NORTH

**Gastinger Walker &**  
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CAD DWG FILE: E214.dwg  
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 DESIGNED BY: GW&

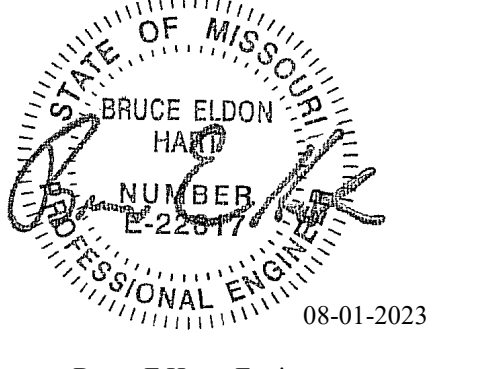
SHEET TITLE:  
**ROOF PLAN -  
 ELECTRICAL - EAST**

SHEET NUMBER:

**E214**

SHEET 173 OF 202

08/01/2023



Bruce E Hart - Engineer  
 MO# 22817

# Gastinger Walker &

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 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.152

IMEG, CORP.  
 Missouri Certificate of Authority: #F001325536

**OFFICE OF  
 ADMINISTRATION  
 DIVISION OF FACILITIES  
 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION**

Project Name:  
 Troop A Headquarters,  
 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: E215.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

SHEET TITLE:  
**ROOF PLAN -  
 ELECTRICAL - WEST**

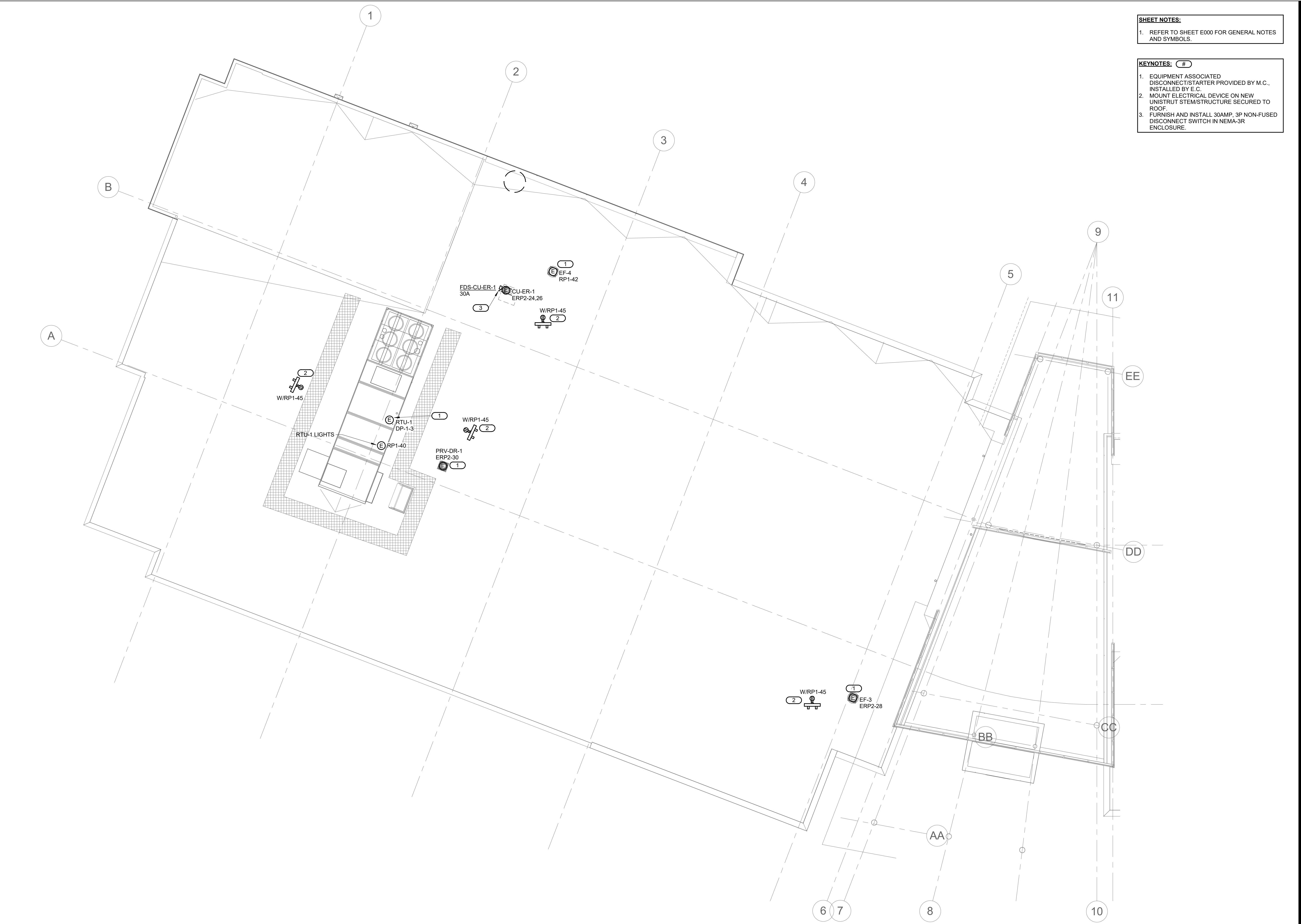
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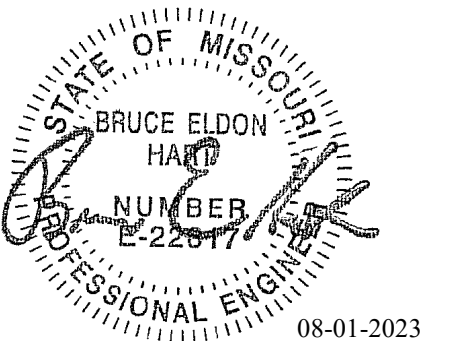
## E215

SHEET 174 OF 202  
 08/01/2023

**SHEET NOTES:**  
 1. REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.

**KEYNOTES:** #  
 1. EQUIPMENT ASSOCIATED DISCONNECT/STARTER PROVIDED BY M.C., INSTALLED BY E.C.  
 2. MOUNT ELECTRICAL DEVICE ON NEW UNISTRUT STEM/STRUCTURE SECURED TO ROOF.  
 3. FURNISH AND INSTALL 30AMP, 3P NON-FUSED DISCONNECT SWITCH IN NEMA-3R ENCLOSURE.





Bruce E Hart - Engineer  
 MO# 22817

**SHEET NOTES:**

- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
- ALL WORK SHOWN ON THIS SHEET IS A PART OF ALTERNATE BID #4.

**KEYNOTES:** #

- EQUIPMENT ASSOCIATED DISCONNECT/STARTER PROVIDED BY M.C., INSTALLED BY E.C.
- MOUNT ELECTRICAL DEVICE ON NEW UNISTRUT STEM/STRUCTURE SECURED TO ROOF.

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CAD DWG FILE: E216.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

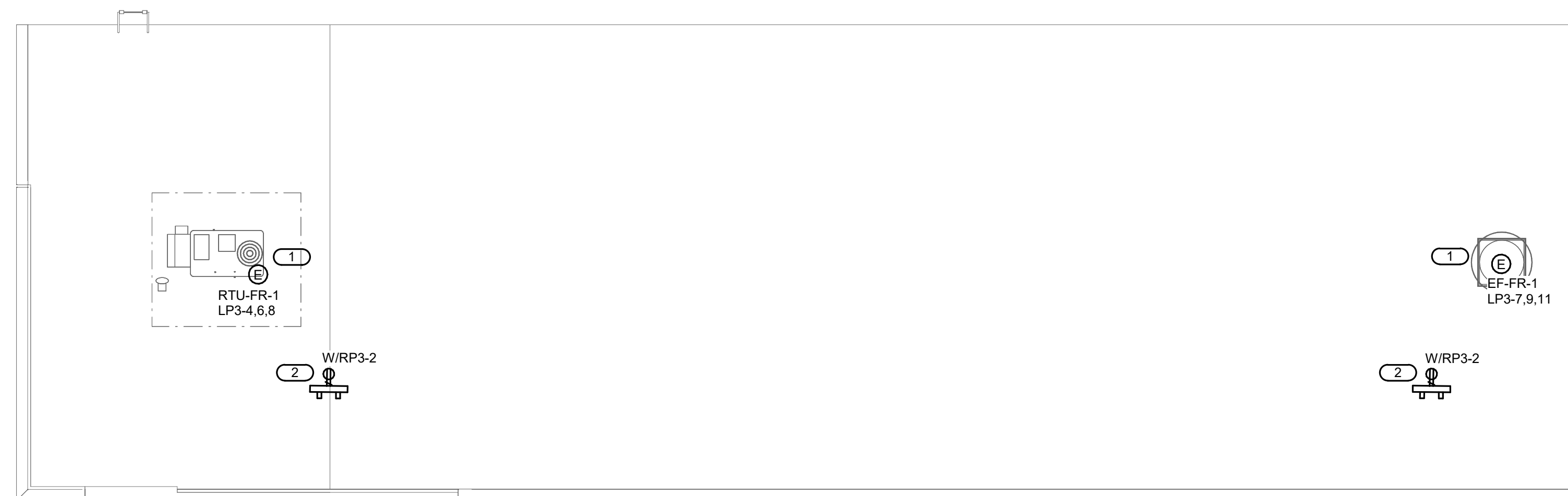
SHEET TITLE:  
**ROOF PLAN -  
 ELECTRICAL - FIRING  
 RANGE (ALTERNATE #04)**

SHEET NUMBER:

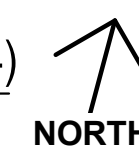
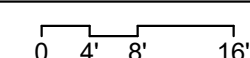
**E216**

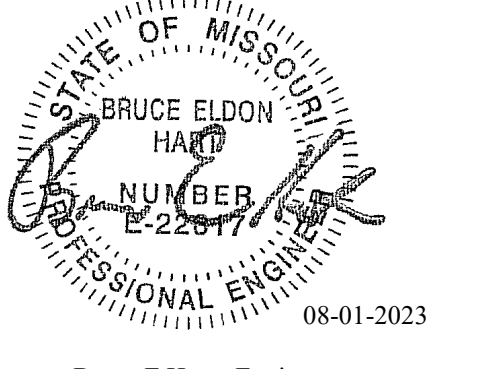
SHEET 175 OF 202

08/01/2023



1 ROOF PLAN - ELECTRICAL - FIRING RANGE (ALTERNATE #04)  
 1/8" = 1'-0"





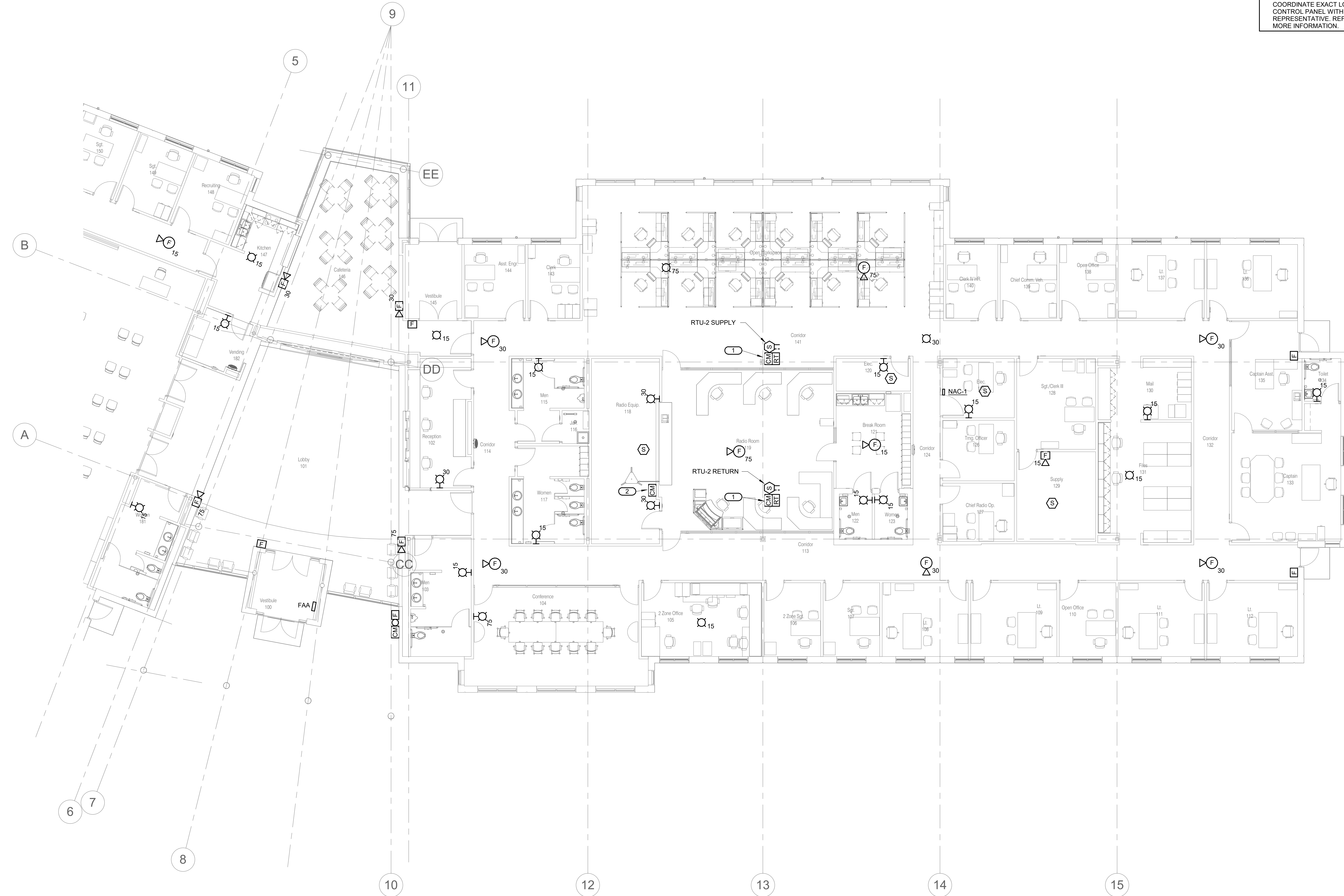
Bruce E Hart - Engineer  
 MO# 22817

**SHEET NOTES:**

1. REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.

**KEYNOTES:** ( # )

1. FURNISH AND INSTALL SHUT-DOWN RELAY FOR FAN SHUT-DOWN OF RTU.
2. PROGRAMMABLE RELAY TO ACCESS CONTROL SYSTEM TO INTERFACE WITH FACP. COORDINATE EXACT LOCATION OF ACCESS CONTROL PANEL WITH OWNER'S REPRESENTATIVE. REFER TO SHEET E402 FOR MORE INFORMATION.



1 FLOOR PLAN - SYSTEMS - AREA A  
 1/8" = 1'-0"  
 0 4' 8' 16'  
 NORTH

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CAD DWG FILE: E221.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

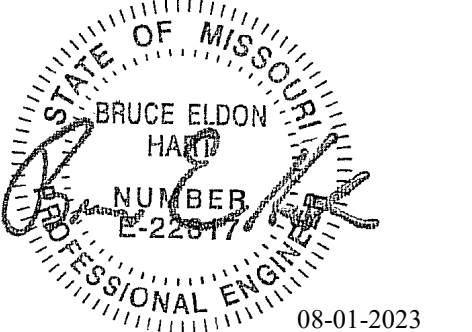
SHEET TITLE:  
**FLOOR PLAN - SYSTEMS -  
 EAST**

SHEET NUMBER:

## E221

SHEET 176 OF 202  
 08/01/2023





Bruce E Hart - Engineer  
 MO# 22817

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CAD DWG FILE: E222.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

### SHEET TITLE: FLOOR PLAN - SYSTEMS - WEST

SHEET NUMBER:

# E222

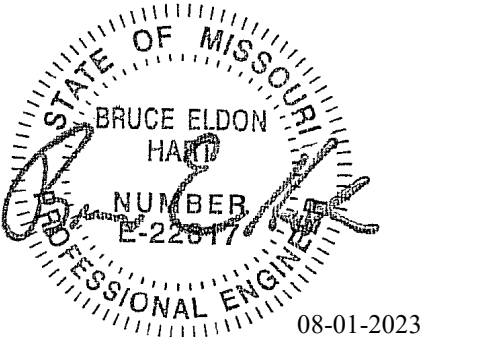
SHEET 177 OF 202

08/01/2023

- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
- KEYNOTES: #**
- FIRE PROTECTION WATER SERVICE DEVICES. REFER TO SHEET FP401 DETAIL 2 FOR MORE INFORMATION.
  - FURNISH AND INSTALL SHUT-DOWN RELAY FOR FAN SHUT-DOWN OF RTU.



1 FLOOR PLAN - SYSTEMS - AREA B  
 1/8" = 1'-0"  
 0 4' 8' 16'  
 NORTH



Bruce E Hart - Engineer  
MO# 22817

- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL NOTES AND SYMBOLS.
  - ALL WORK SHOWN ON THIS SHEET IS A PART OF ALTERNATE BID #4.
- KEYNOTES: #**
- FIRE ALARM EXTENDER PANEL SHALL INTERFACE WITH MAIN BUILDING FIRE ALARM SYSTEM.
  - FURNISH AND INSTALL SHUT-DOWN RELAY FOR FOR FAN SHUT-DOWN OF DOAS UNIT.



1 FLOOR PLAN - SYSTEMS (ALTERNATE #04)  
1/8" = 1'-0" 0 4' 8' 16' NORTH

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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E223.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

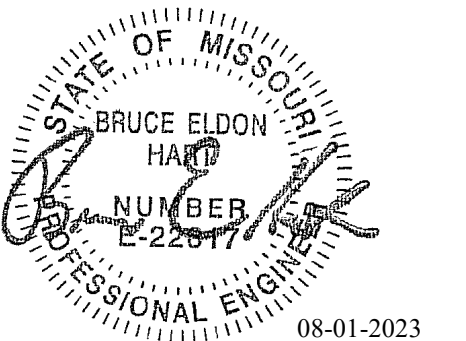
SHEET TITLE:  
FLOOR PLAN - SYSTEMS -  
FIRING RANGE  
(ALTERNATE #04)

SHEET NUMBER:

**E223**

SHEET 178 OF 202

08/01/2023



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CAD DWG FILE: FP300.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

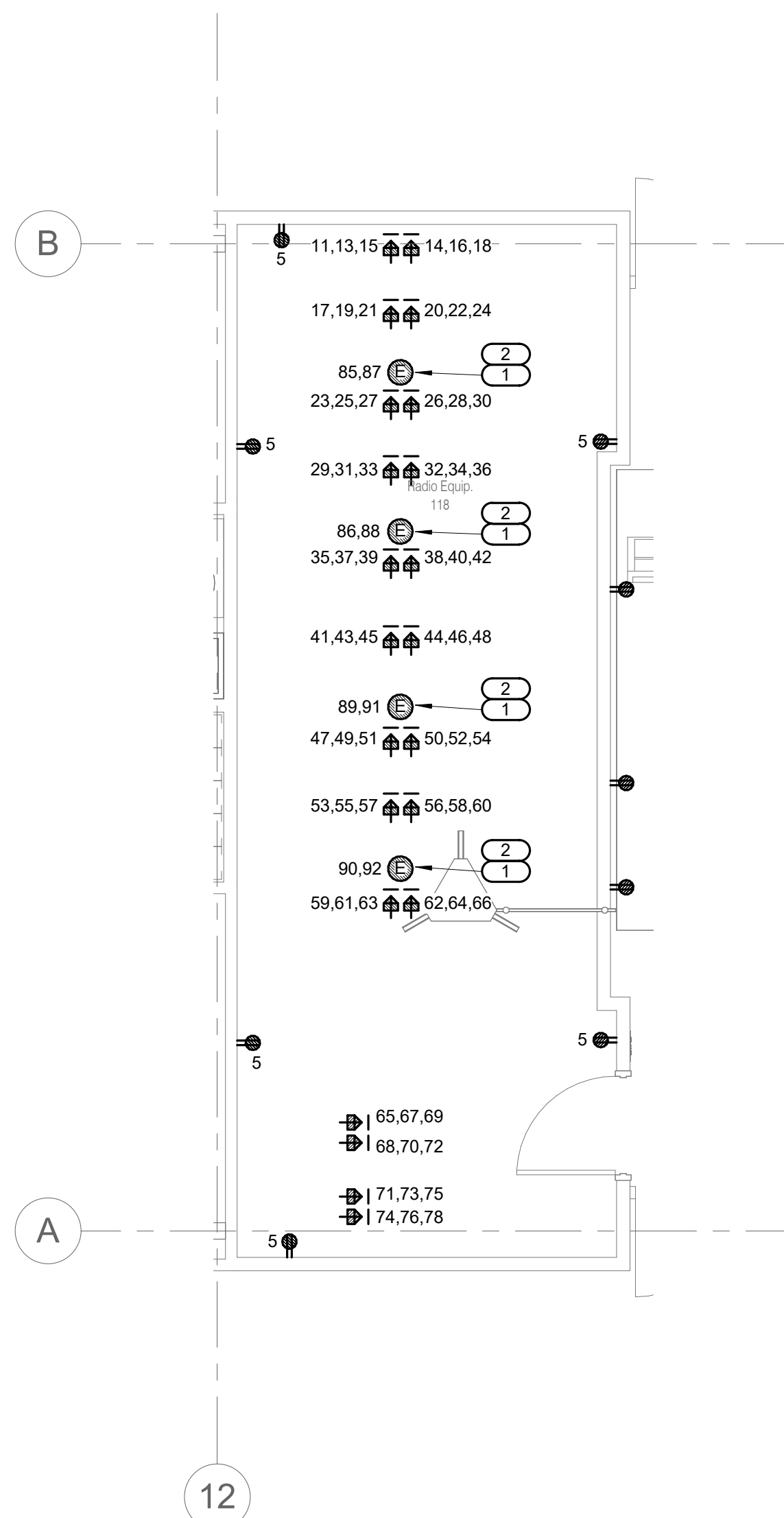
SHEET TITLE:  
**ELECTRICAL ENLARGED  
 PLANS**

SHEET NUMBER:

**E300**

SHEET 179 OF 202

08/01/2023



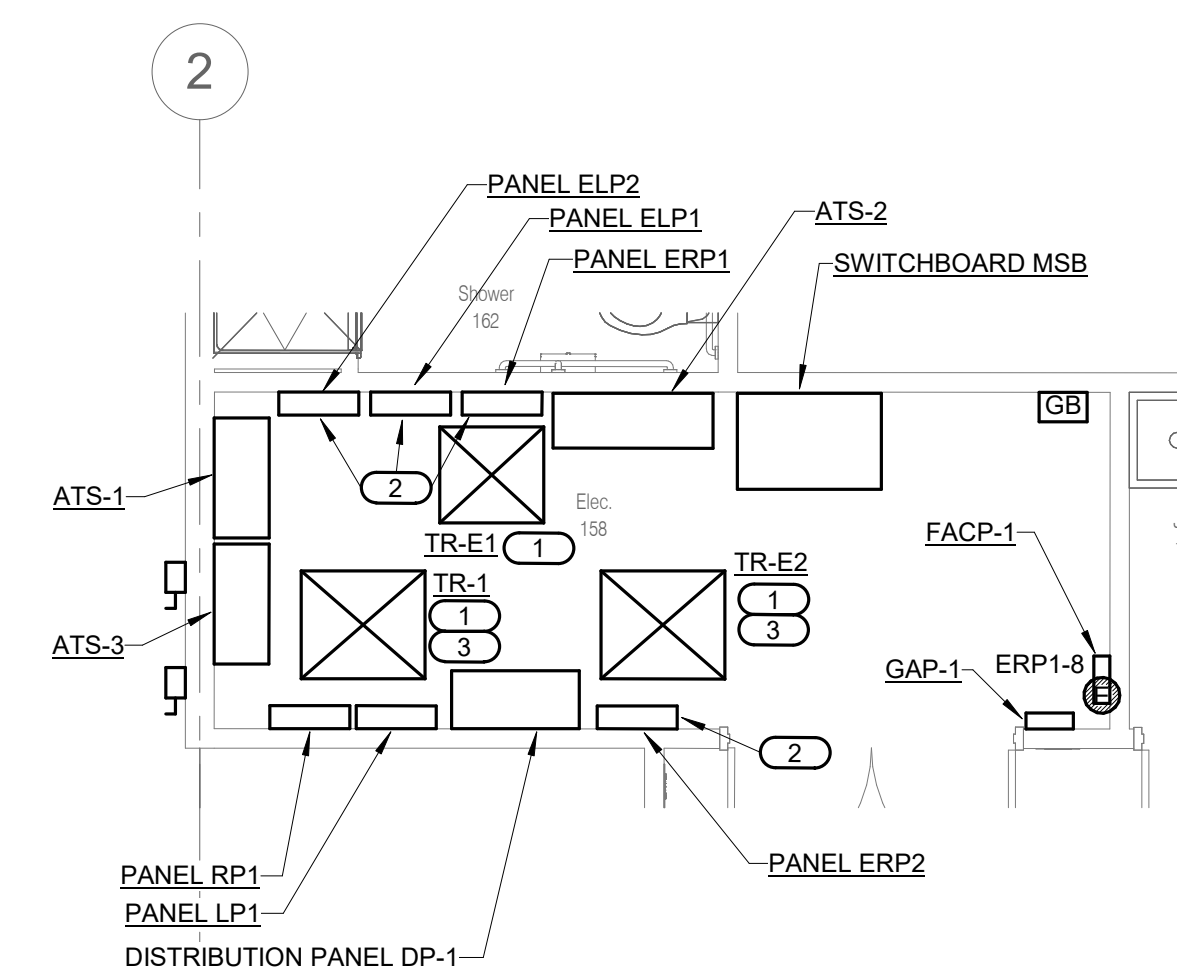
**1 ENLARGED POWER PLAN - RADIO EQUIP. 118**  
 1/4" = 1'-0"

**NOTES:**

- ALL POWER CIRCUITS ON THIS VIEW PLAN SHALL BE CONNECTED TO PANEL UP1, UNLESS NOTED OTHERWISE.
- FURNISH AND INSTALL CONDUIT PATHWAY FOR COMMUNICATION WIRING BETWEEN CONDENSING UNIT ON ROOF AND IN-ROW COOLING UNIT. REFER TO MANUFACTURER REQUIREMENTS PROVIDED BY CRITICAL FACILITIES TECHNOLOGY FOR PRODUCT INSTALLATION.
- RECEPTACLES SERVING SERVER RACKS SHALL BE MOUNTED TO OVERHEAD RACK.
- E.C. SHALL BE ON-SITE FOR START UP AND COMMISSIONING OF EQUIPMENT AFTER INSTALLATION. COORDINATE START UP WITH OWNER AND SCHNEIDER ELECTRIC REPRESENTATIVE.

**KEYNOTES:**

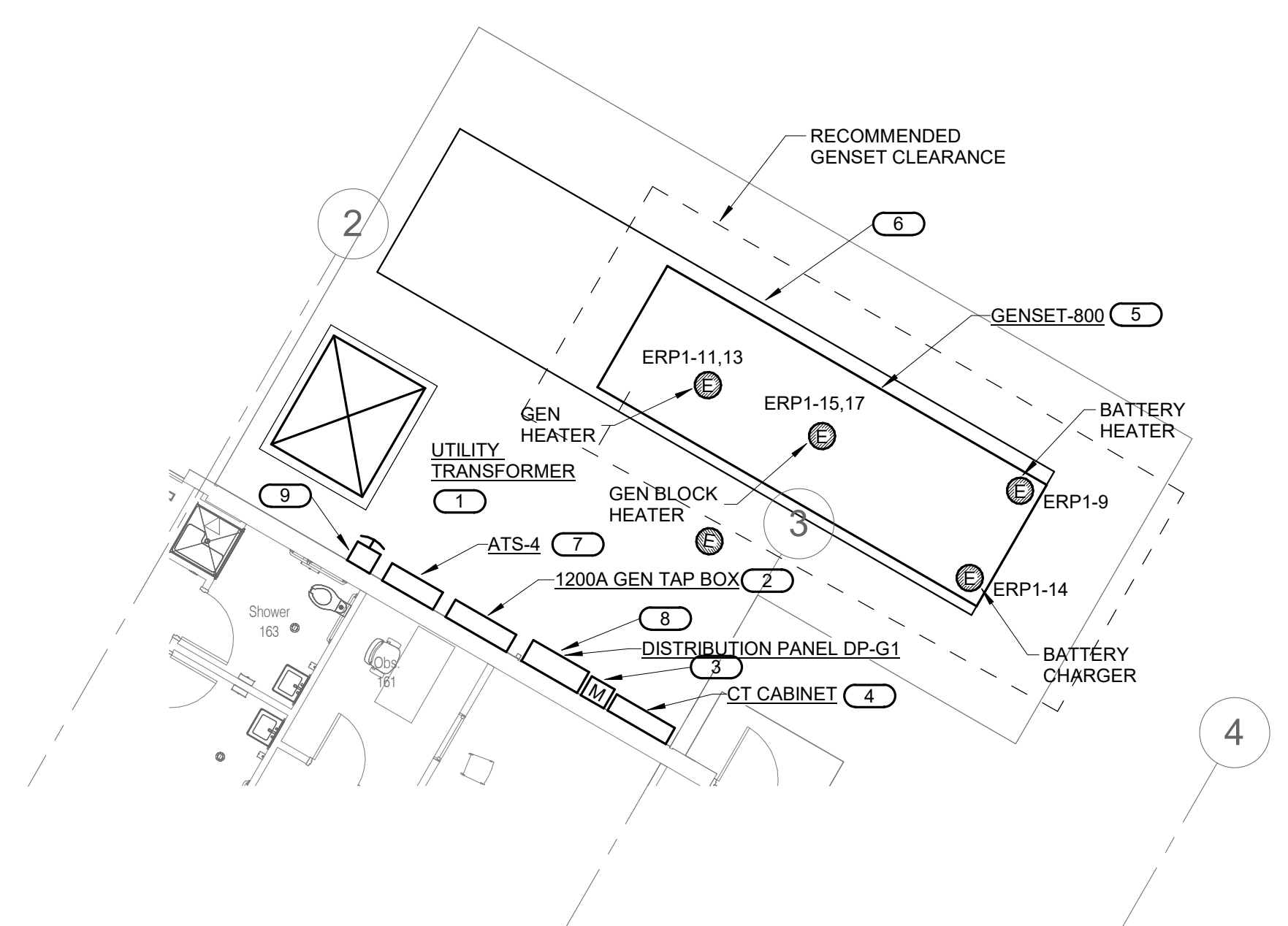
- IN-ROW COOLING UNIT FURNISHED BY OWNER. PROVIDE OVERHEAD POWER TO COOLER.
- FURNISH AND INSTALL CONDUIT PATHWAY FOR COMMUNICATION WIRING BETWEEN CONDENSING UNIT ON ROOF AND IN-ROW COOLING UNIT. REFER TO MANUFACTURER REQUIREMENTS PROVIDED BY CRITICAL FACILITIES TECHNOLOGY FOR PRODUCT INSTALLATION.



**2 ENLARGED POWER PLAN - WEST ELECTRICAL ROOM**  
 1/4" = 1'-0"

**KEYNOTES:**

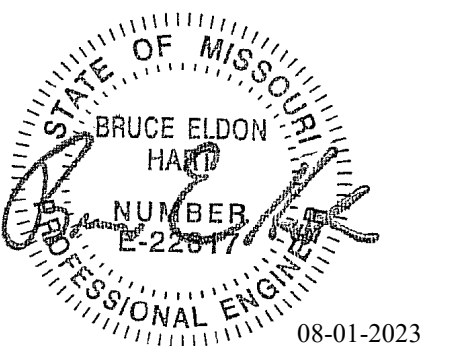
- REFER TO 3/E401 FOR TRAPEZE MOUNT TRANSFORMER DETAIL.
- FURNISH AND INSTALL INTERNAL SPD INSIDE PANEL.
- REFER TO 5/S306 FOR SUPPORT FRAMING DETAIL OF TRAPEZE MOUNT TRANSFORMER.



**3 FLOOR PLAN - POWER (ALTERNATE #03)**  
 1/8" = 1'-0"

**KEYNOTES:**

- 1500KVA EVERGY TRANSFORMER. TRANSFORMER FURNISHED AND INSTALLED BY EVERGY. PAD FURNISHED AND INSTALLED BY CONTRACTOR. PAD SHALL BE CONSTRUCTED TO EVERGY STANDARDS.
- FURNISH AND INSTALL 1200 AMP GENERATOR QUICK CONNECT TAP BOX. TAP BOX SHALL HAVE KIRK KEY FUNCTIONALITY TO ALTERNATE BETWEEN THE MAIN GENERATOR AND A TEMPORARY GENERATOR. TAP BOX SHALL ALSO INCLUDE A CIRCUIT BREAKER TO PROTECT THE MAIN GENERATOR.
- INSTALL UTILITY METER PROVIDED BY UTILITY COMPANY PER EVERGY STANDARDS. FURNISH AND INSTALL METERING CONDUIT TO CT CABINET. ALL GROUND FITTINGS AS REQUIRED.
- FURNISH AND INSTALL 1200 AMP, MILBANK CT CABINET. INSTALL AS INDICATED PER EVERGY STANDARDS.
- 800KW/1000KVA DIESEL GENERATOR SET. THIS GENERATOR SIZE IS A PART OF ALTERNATE BID #4. REFER TO SHEET E501 FOR MORE INFORMATION.
- FURNISH AND INSTALL GENSET WITH A 72-HOUR FUEL TANK. 72-HOUR FUEL TANK IS A PART OF AN ALTERNATE BID #3.
- ATS-4 IS A PART OF ALTERNATE BID #3 AND WILL ALLOW FOR THE NORMAL DISTRIBUTION 'DP-1' TO HAVE ALTERNATE POWER BEING SERVED FROM THE MAIN GENERATOR. REFER TO SHEET E501 FOR MORE INFORMATION.
- 1200AMP DISTRIBUTION PANEL IS A PART OF ALTERNATE BID #3.
- FURNISH AND INSTALL EMERGENCY POWER OFF BUTTON IN NEMA-3R ENCLOSURE FOR GENSET.



Bruce E Hart - Engineer  
 MO# 22817

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CAD DWG FILE: E400.dwg  
 DRAWN BY: JTS  
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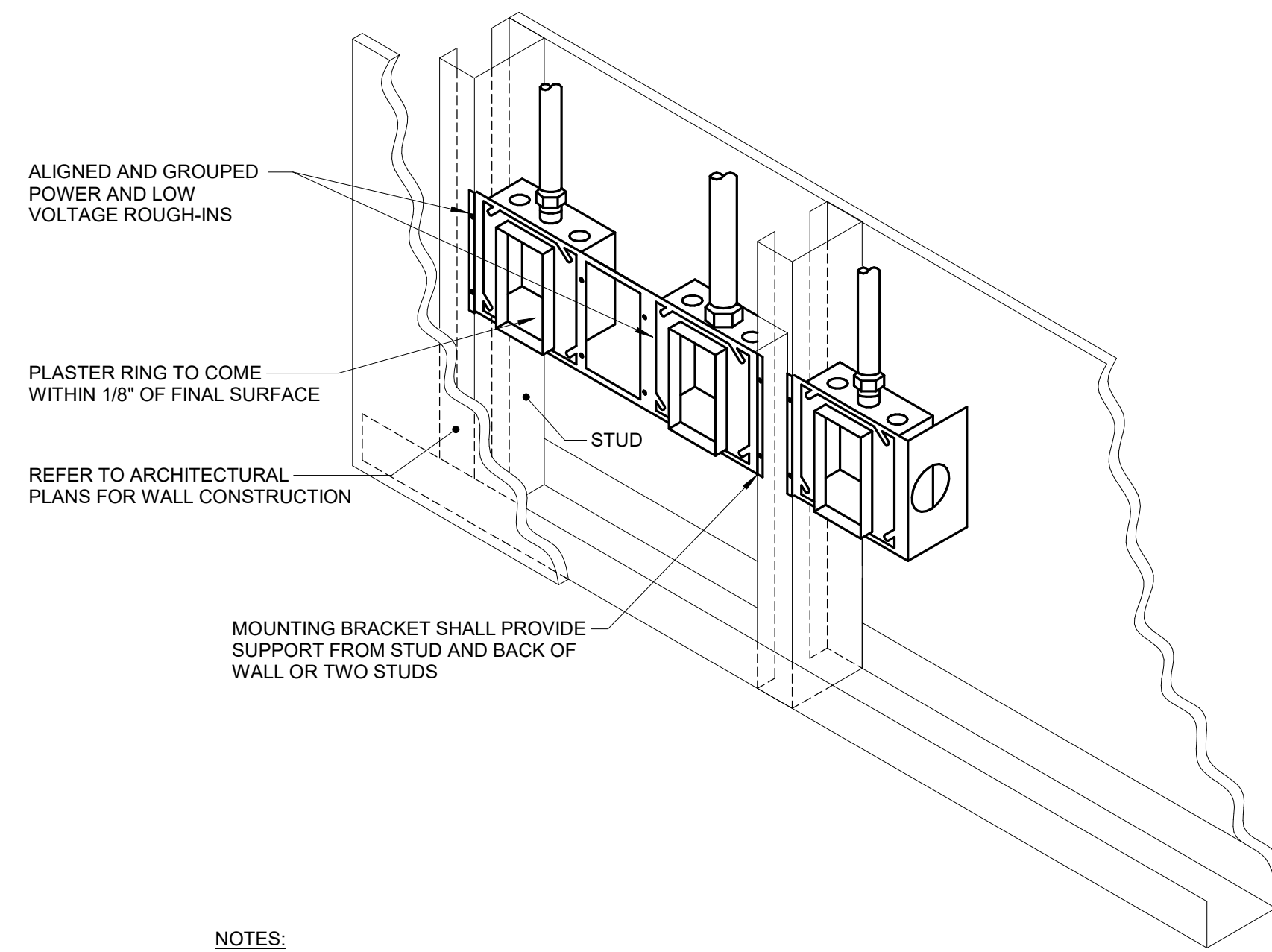
SHEET TITLE:  
 ELECTRICAL DETAILS

SHEET NUMBER:

**E400**

SHEET 180 OF 202

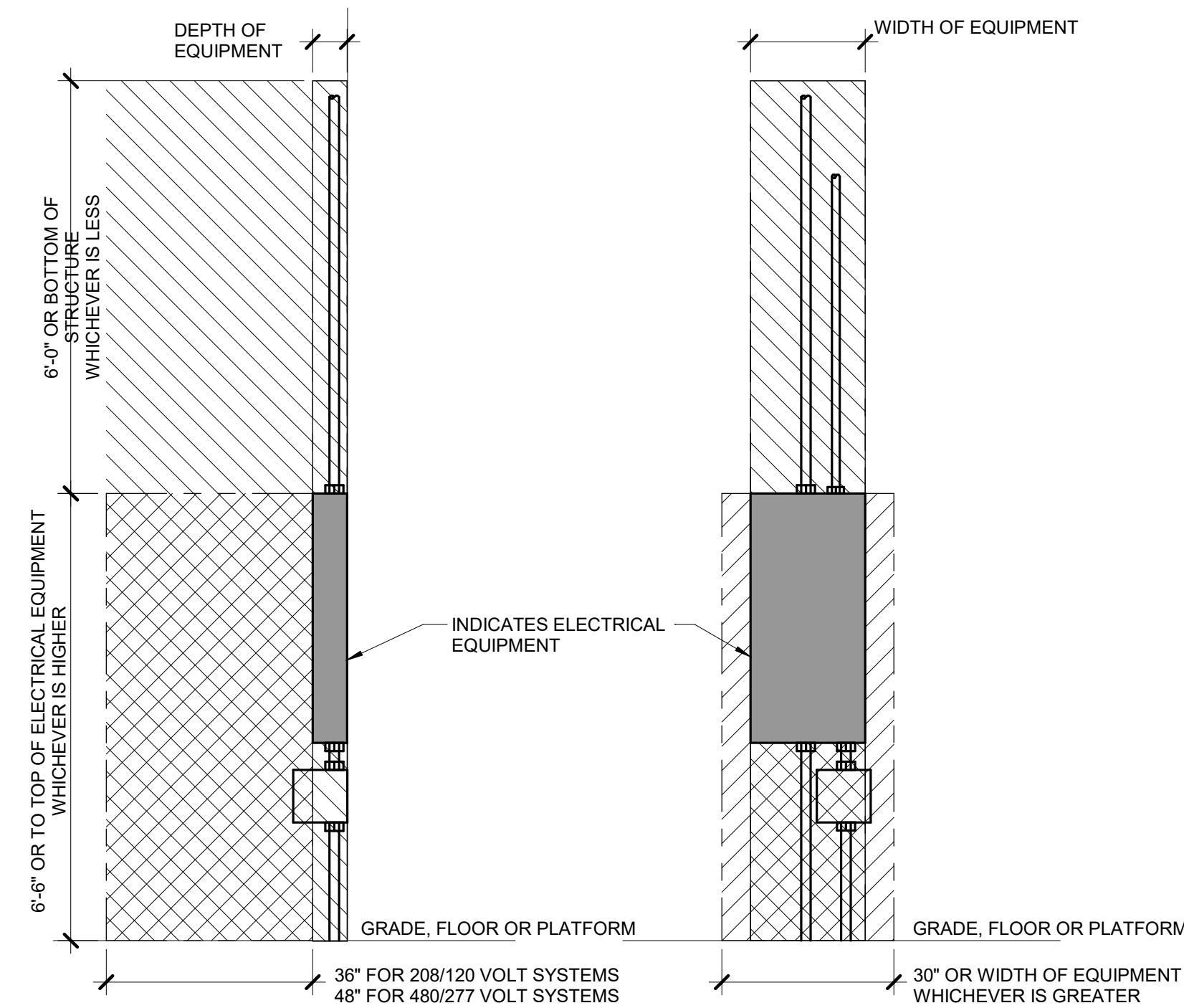
08/01/2023



**NOTES:**

1. THE INTENT OF THE DETAIL IS TO ALIGN AND GROUP DEVICE ROUGH-INS FOR POWER AND LOW VOLTAGE TECHNOLOGY SYSTEMS. SOLIDLY MOUNTED AND THE SURFACE OF THE TRIM IS EITHER FLUSH WITH THE WALL SURFACE OR WITHIN 1/8" OF THE WALL SURFACE. JUNCTION BOXES LARGER THAN 4" SQUARE SHALL BE MOUNTED IN A MANNER THAT IS SIMILAR TO THE SYSTEM NOTED ABOVE OR ACHIEVES THE SAME RESULTS.
2. PLASTER RINGS DEPTH SHALL BE 1/8" DEEPER THAN THE GYP BOARD APPLIED TO THE WALL. PLASTER RING SHALL BE 3/4" FOR USE WITH 5/8" GYP BOARD.
3. METAL STUD-TO-STUD MOUNTING BRACKETS FOR MULTIPLE BOXES BETWEEN STUD. ERICO CADDY RBS# SERIES, EATON B-LINE BB SERIES, OR EQUAL.
4. MOUNTING SUPPORT BRACKETS SIZES FOR SINGLE BOXES IN A STUD CAVITY SHALL MATCH THE STUD DEPTH. ERICO CADDY H# SERIES, EATON B-LINE BB# SERIES, OR EQUAL.
5. WHERE RECEPTACLE AND TECHNOLOGY DEVICES ARE SHOWN SERVING A COMMON COMPUTER OR EQUIPMENT, OR SHOWN IN SIMILAR LOCATIONS ON THE DRAWINGS THE DEVICES SHALL BE INSTALLED IN THE SAME STUD CAVITY WITH MOUNTING BRACKETS OR ALIGNED ON OPPOSITE SIDES OF A COMMON STUD WITH SEPARATE SUPPORT.

**1 BACKBOX MOUNTING DETAIL**  
 NO SCALE

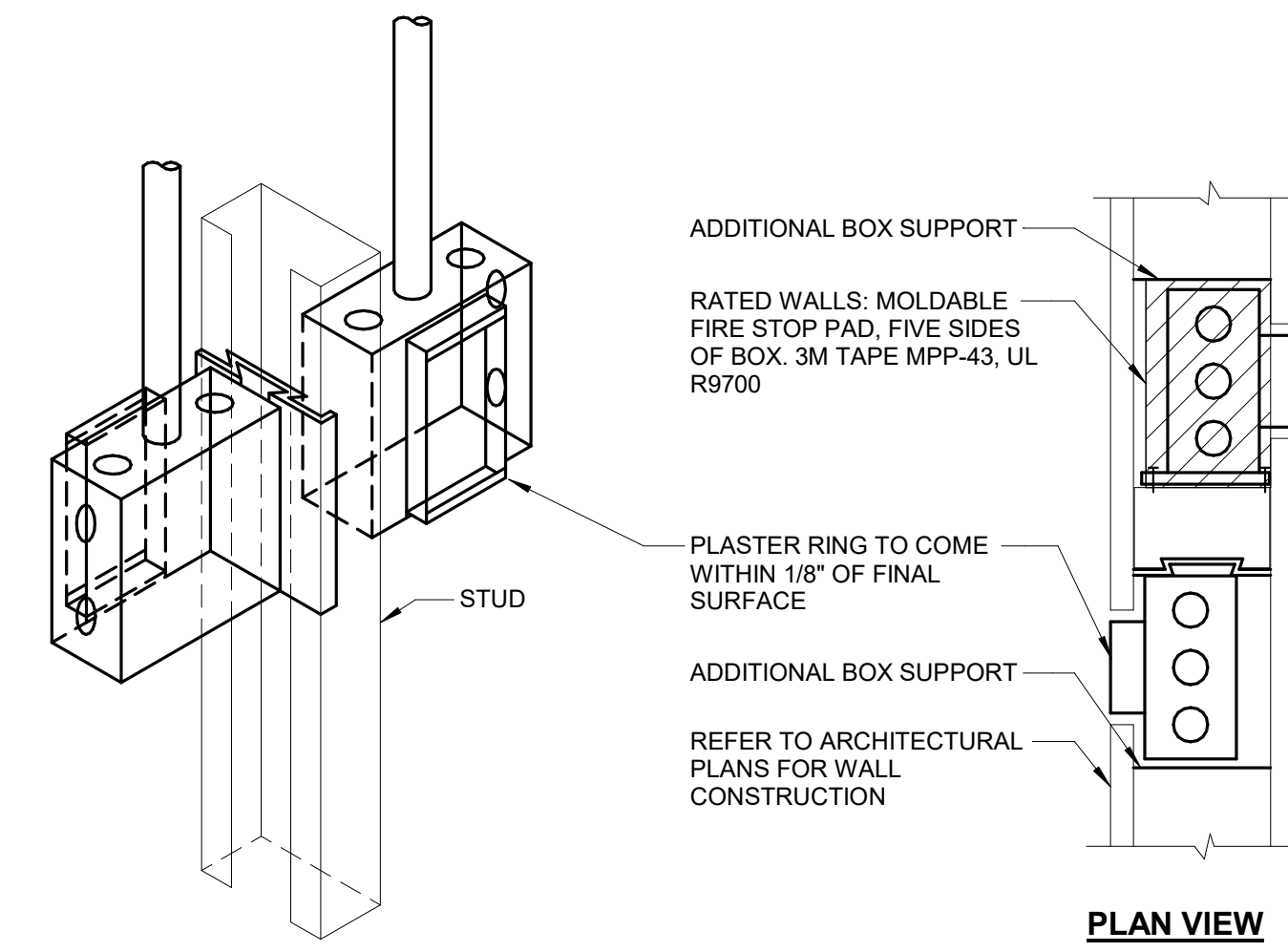


**SECTION**

**ELEVATION**

- INDICATES WORKING SPACE REQUIRED PER LOCAL ELECTRICAL CODE. ELECTRICAL EQUIPMENT LOCATED ABOVE OR BELOW OTHER RELATED EQUIPMENT SHALL NOT EXTEND MORE THAN 6" IN FRONT OF SUCH EQUIPMENT.
- INDICATES DEDICATED ELECTRICAL SPACE REQUIRED PER LOCAL ELECTRICAL CODE

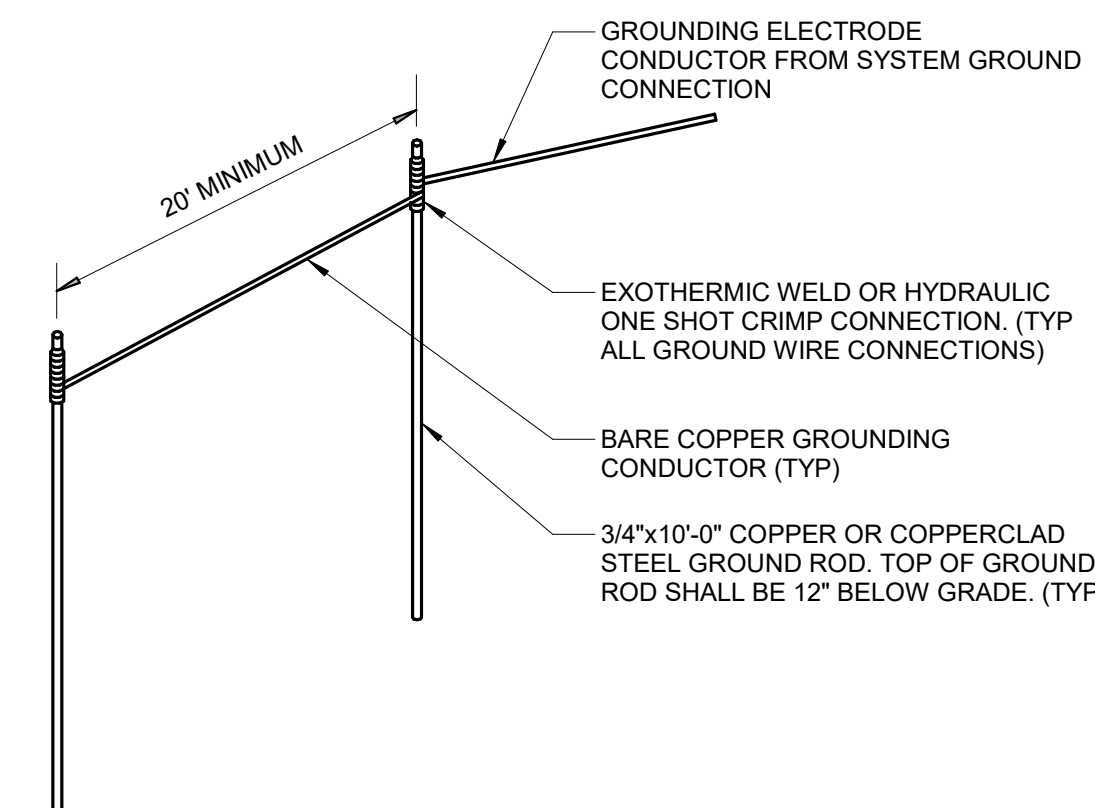
**2 PANELBOARD EQUIPMENT CLEARANCES**  
 NO SCALE



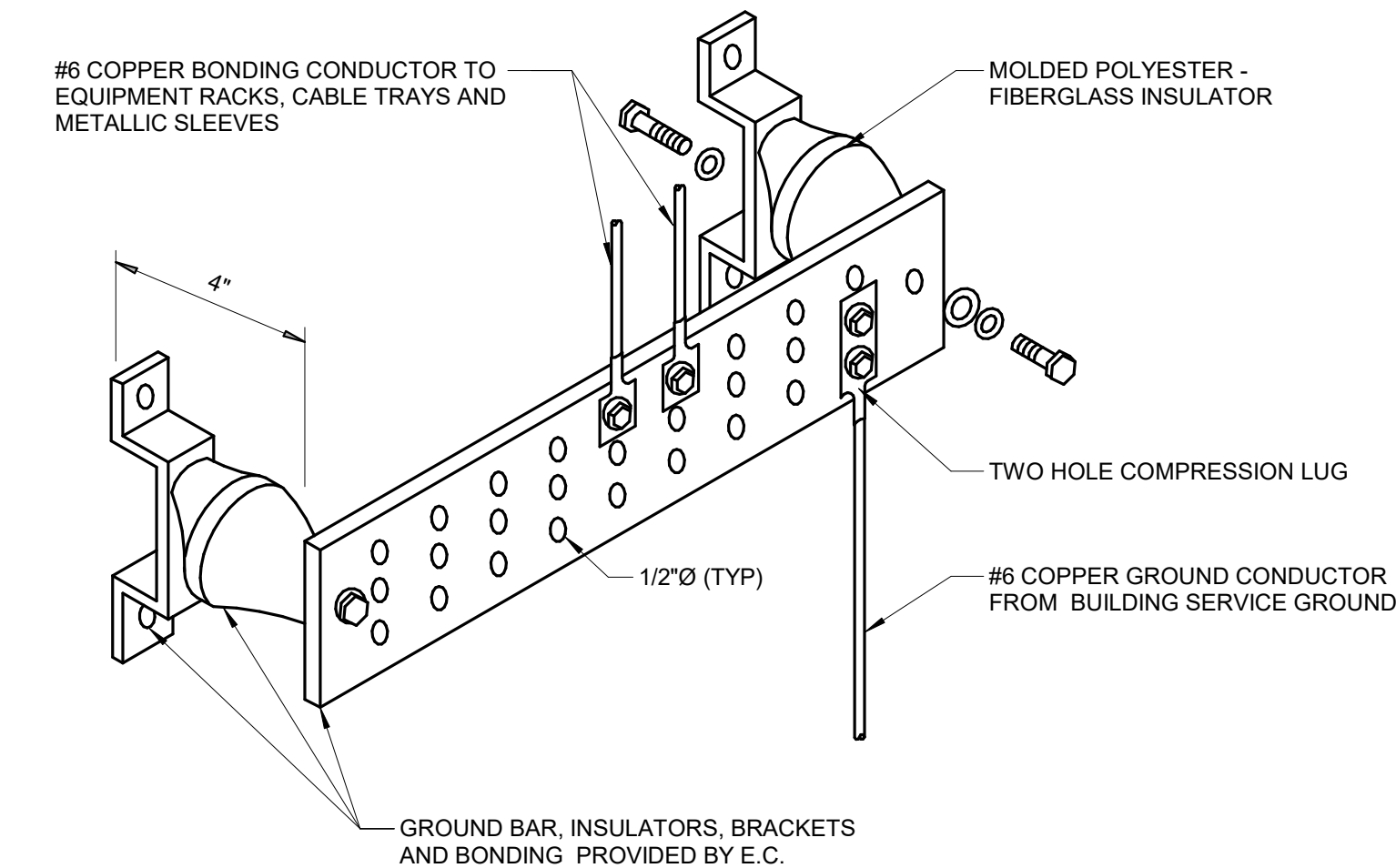
**NOTES:**

1. HORIZONTAL CONDUIT CONNECTION BETWEEN BOXES LESS THAN 2'-0" NOT PERMITTED. SEE SPECIFICATIONS AND DRAWING NOTES FOR ADDITIONAL SPACE REQUIREMENTS BETWEEN DEVICES.

**3 SIDE BY SIDE DEVICE OPENINGS**  
 NO SCALE



**6 GROUND GRID DETAIL**  
 NO SCALE

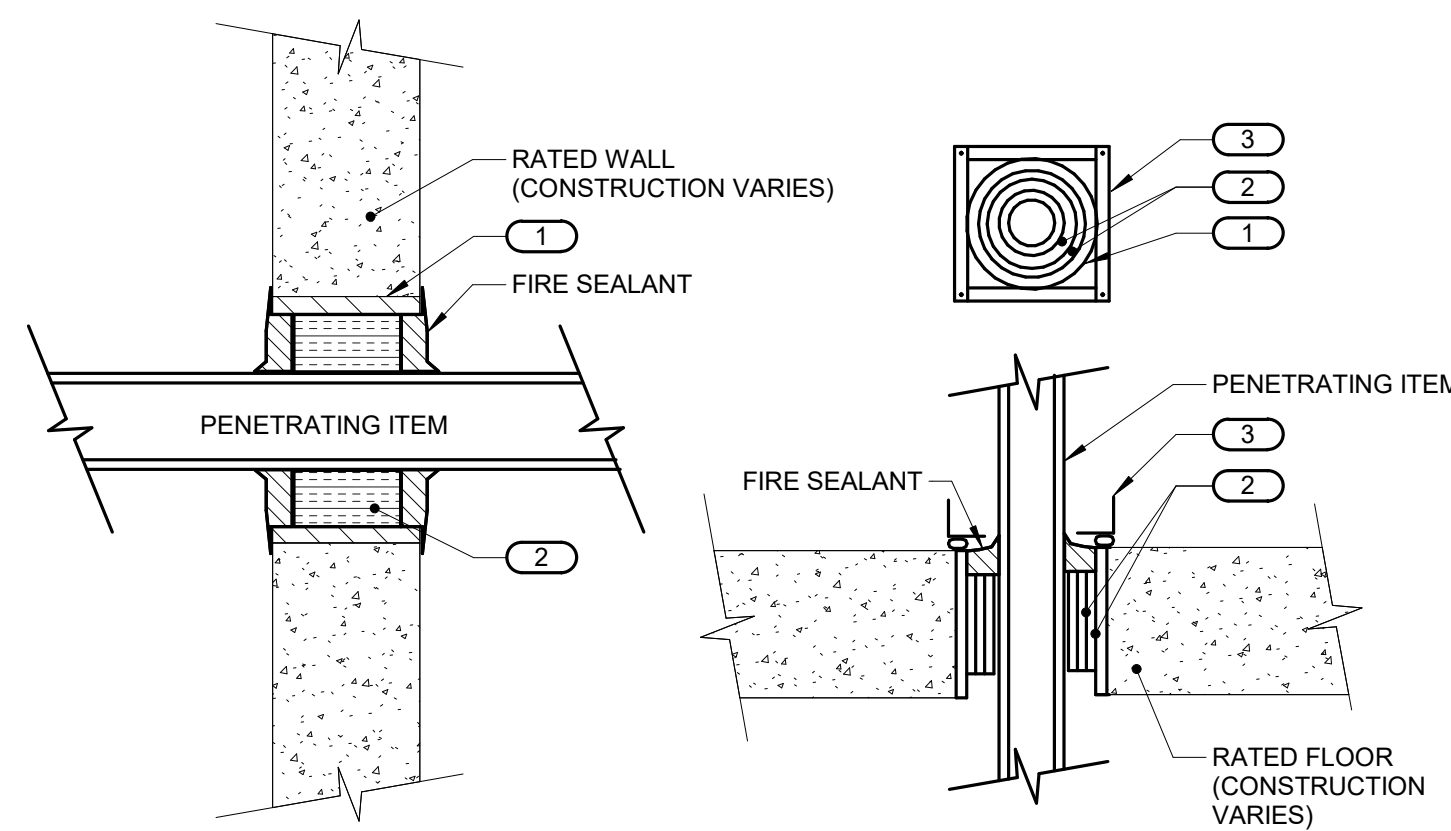


**NOTES:**

1. MOUNT BAR AT +6'-6" A.F.F.
2. STANDOFF INSULATORS MUST BE PROVIDED WHEN ZONING THE BAR.

**GROUND BAR (GB) AND INTERSYSTEM BONDING TERMINAL (IBT) DETAIL**  
 NO SCALE

**7**  
 NO SCALE



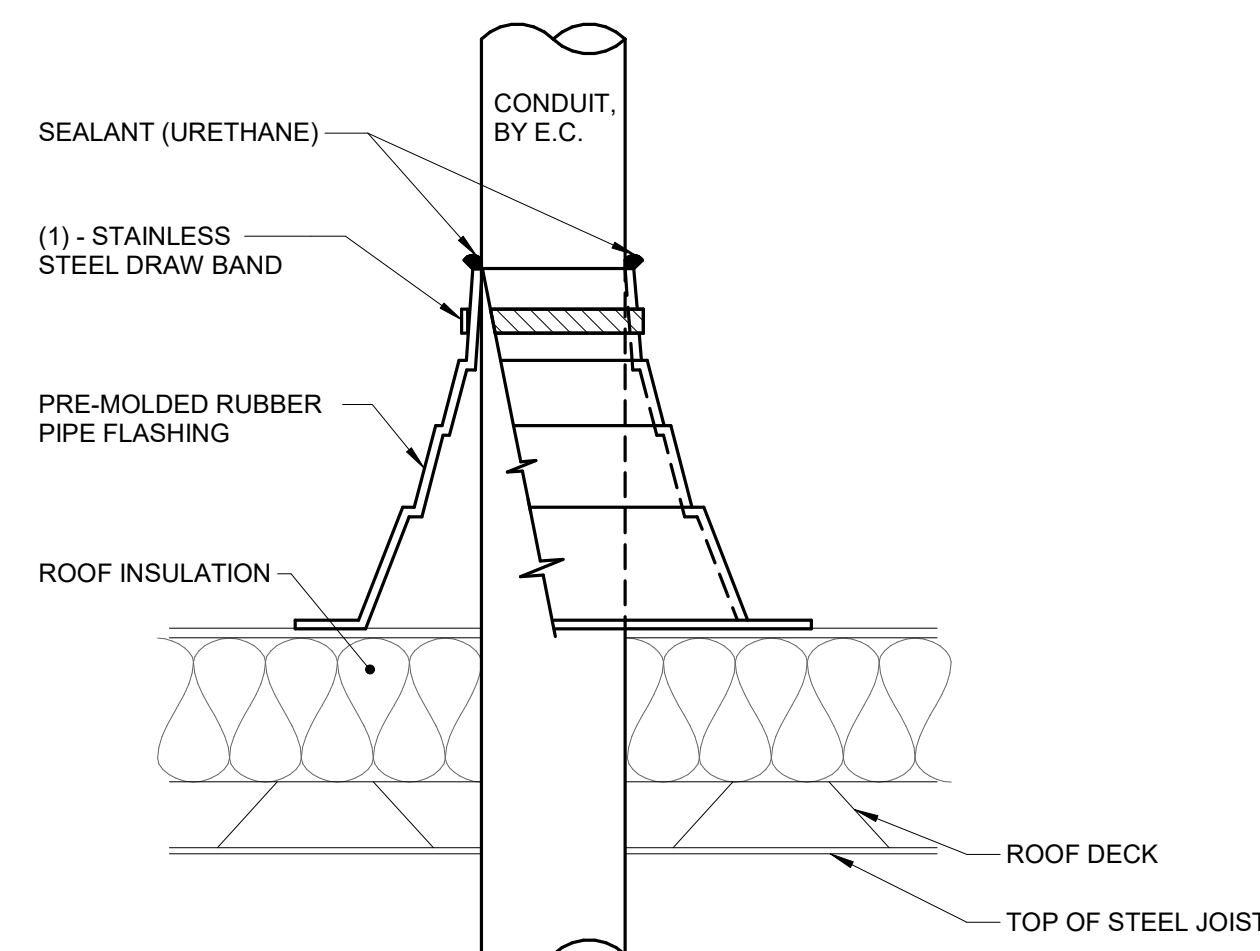
**NOTES:**

1. THIS GENERAL DETAIL APPLIES TO ALL ITEMS PENETRATING FIRE RATED WALLS OR FLOORS. THE INTENT IS TO MAINTAIN THE FIRE RATING AND TO ALLOW LONGITUDINAL MOVEMENT. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.

**KEYNOTES: #**

1. SCHEDULE 5 PIPE SLEEVE EMBEDDED IN WALL OR FLOOR, OR SMOOTH CORE DRILL. EACH CONTRACTOR FURNISHES SLEEVE TO G.C. COORDINATES SLEEVE LOCATIONS AND DEBURS SLEEVE. G.C. BUILDS SLEEVE INTO WALL OR FLOOR ALLOWING NO GAP AROUND SLEEVE. IF SLEEVE IS NOT PROVIDED WHEN WALL OR FLOOR IS BUILT, CONTRACTOR SHALL INSTALL SLEEVE. SLEEVE SIZE SHALL ALLOW ANNULAR SPACE REQUIRED BY THE SELECTED FIRE STOP SYSTEM.
2. INSTALL BACKING MATERIAL, SUCH AS MINERAL WOOL SAFING, AS REQUIRED FOR FIRE STOP SYSTEM. INSTALL IN ACCORDANCE WITH FIRE STOP SYSTEM APPLICATION LISTING. SECURE TO WALL OR FLOOR TO ALLOW LONGITUDINAL MOVEMENT OF PENETRATING ITEM WITHOUT MOVEMENT OF FIRE BARRIER.
3. WATER-TIGHT WELDED 1"x1" 20 GAUGE MINIMUM GALVANIZED SHEET METAL ANGLE FRAME, BY CONTRACTOR IN EQUIPMENT ROOMS FOR WATER STOP. PLACE A BEAD OF WATERPROOF SEALANT BETWEEN FLOOR AND BOTTOM OF ANGLE FRAME. SECURE TO FLOOR WITH MASONRY ANCHORS IN CORNERS AND ON 12" MAXIMUM CENTERS. MULTIPLE PENETRATING ITEMS MAY BE ENCLOSED IN ONE FRAME.

**4 FIRE BARRIER PENETRATION**  
 NO SCALE

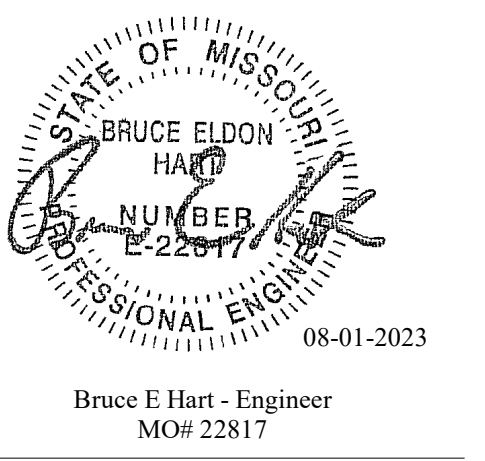


**NOTES:**

1. CONDUIT SHALL BE SUPPORTED WITHIN 24 INCHES ABOVE AND BELOW ROOF.
2. VERIFY FINAL REQUIREMENTS WITH GENERAL CONTRACTOR (G.C.) AND ROOFING INSTALLER PRIOR TO INSTALLATION.

**5 CONDUIT ROOF PENETRATION**  
 NO SCALE

**4 FIRE BARRIER PENETRATION**  
 NO SCALE



Bruce E Hart - Engineer  
MO# 22817

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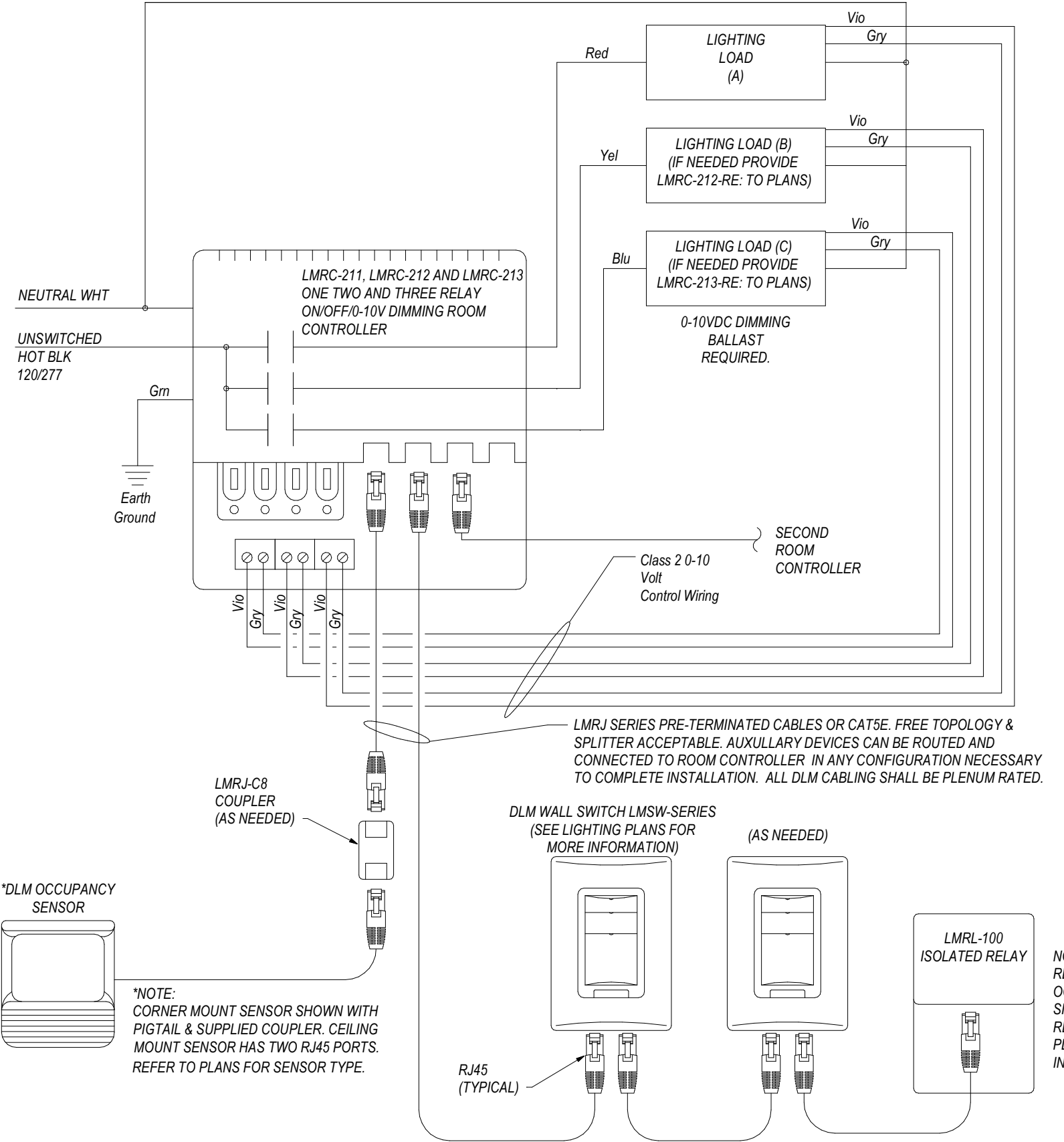
SHEET TITLE:  
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SHEET 181 OF 202

08/01/2023

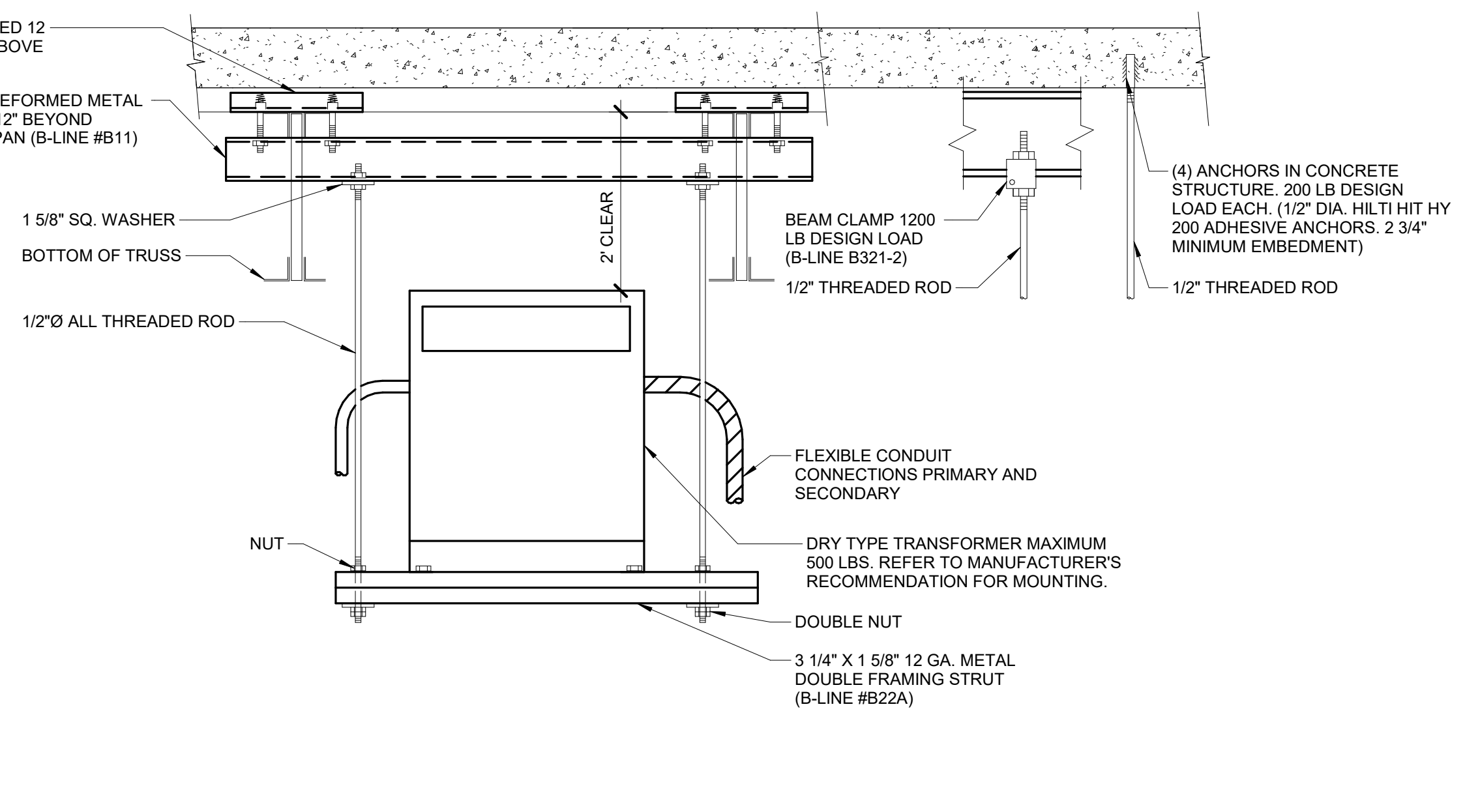
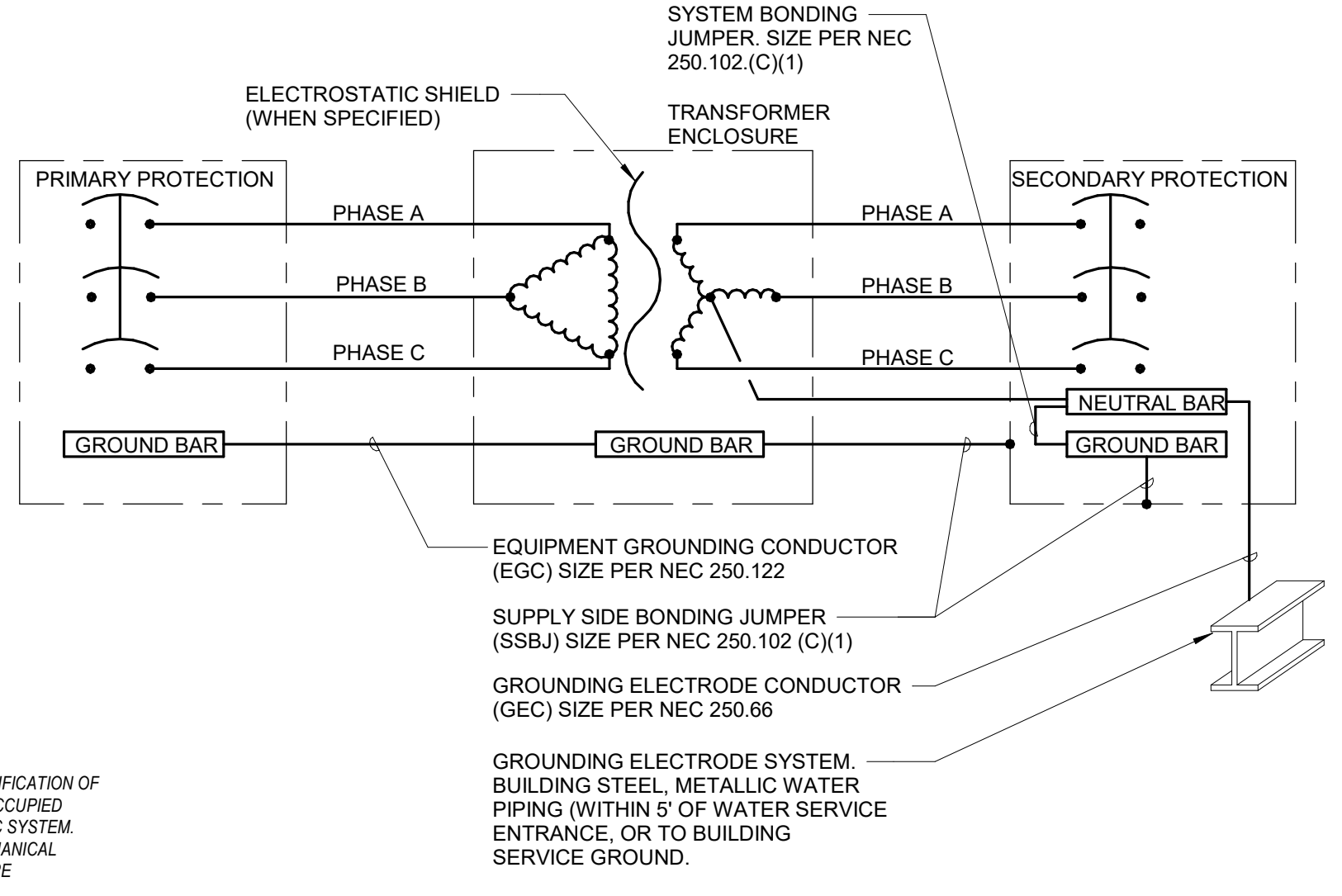


**LMRC-211**  
SEQUENCE OF OPERATION: IN THIS CONFIGURATION THE LMRC-101 DEFAULTS TO MANUAL-ON/AUTOMATIC OFF.

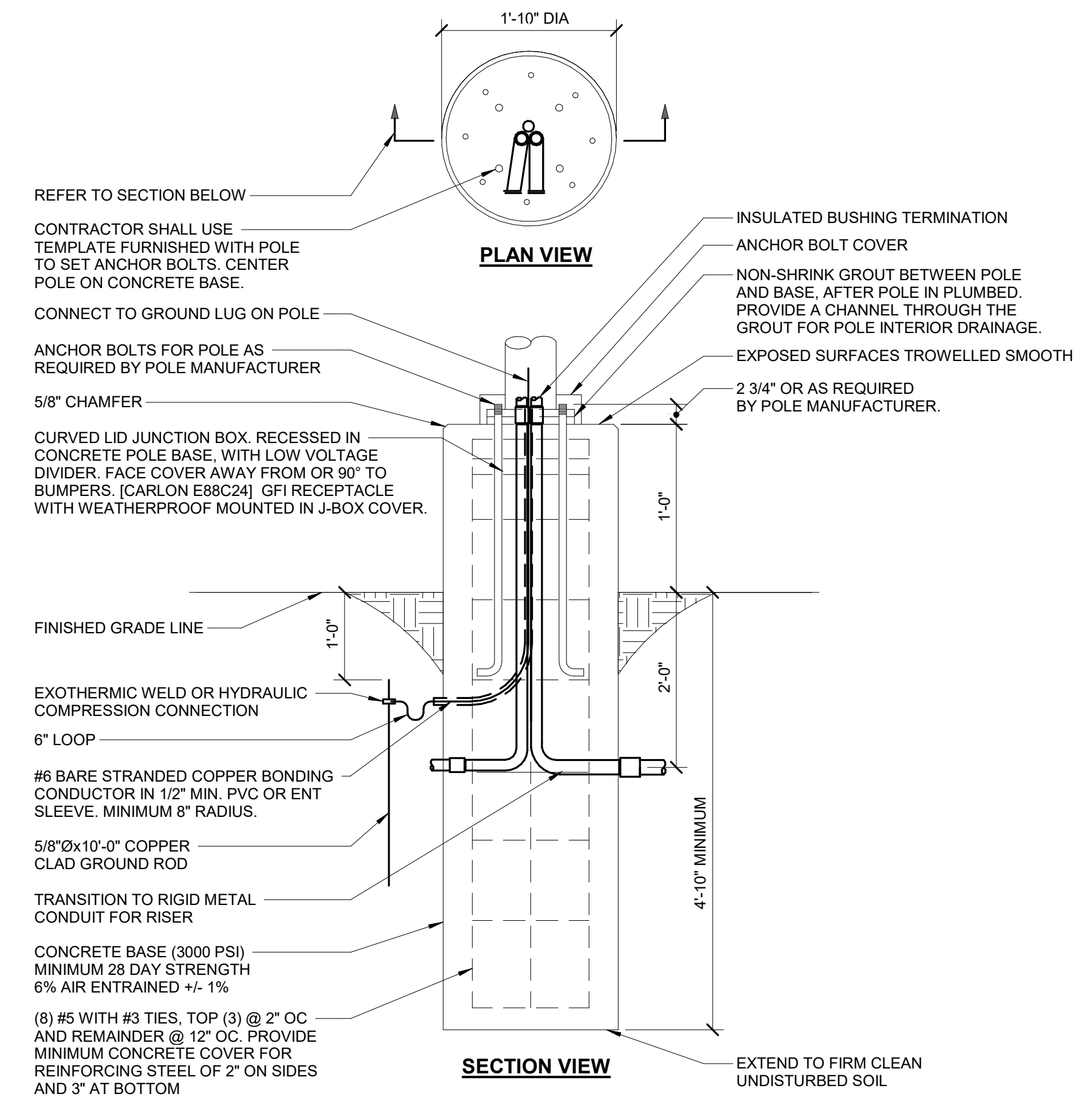
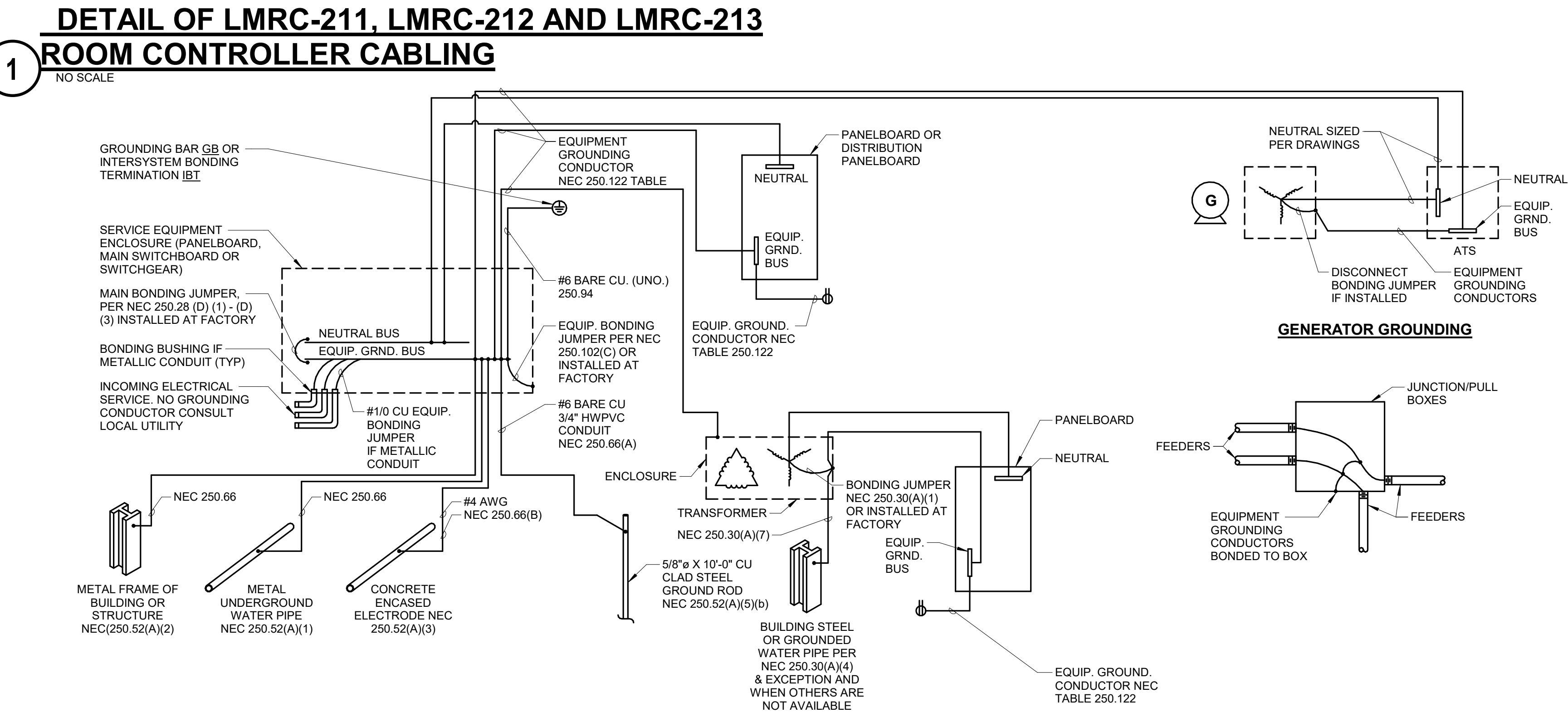
**LMRC-212**  
SEQUENCE OF OPERATION: IN THIS CONFIGURATION THE LMRC-102 DEFAULTS TO MULTI-LEVEL AUTOMATIC-ON/AUTOMATIC OFF. LOAD (A) TURNS ON AUTOMATICALLY AND LOAD (B) DEFAULTS TO MANUAL-ON CONTROL. BOTH LOADS TURN AUTOMATICALLY OFF.

**LMRC-213**  
IN THIS CONFIGURATION THE LMRC-213 SEQUENCE OF OPERATION: DEFAULTS TO MULTI-LEVEL AUTOMATIC-ON/AUTOMATIC OFF OPERATION. LOAD (A) ON THE LMRC-213 TURNS ON AUTOMATICALLY, WHILE LOAD (B) AND (C) DEFAULTS ENHANCED ROOM TO MANUAL-ON CONTROL. ALL RELAYS TURN OFF AUTOMATICALLY.

NOTE:  
-FURNISH WITH TWO (2) LMCT-100 DIGITAL WIRELESS CONFIGURATION TOOLS.  
-PROVIDE COMMISSIONING AND TRAINING FOR ALL INSTALLATIONS.  
-PROVIDE ENGRAVING FOR BUTTONS ON ALL INSTALLATIONS.  
-ALL SHIELDING FOR OCCUPANCY SENSORS SHALL BE TURNED OVER TO OWNER.

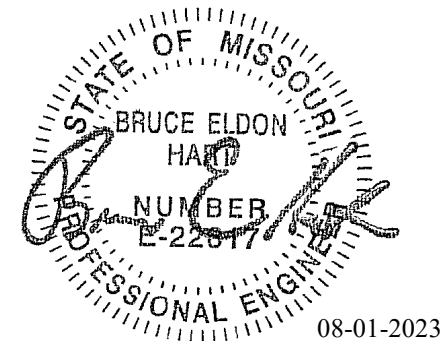


NOTES:  
1. (2) - HANGER ASSEMBLIES SHALL BE REQUIRED FOR EACH TRANSFORMER.



REFER TO SECTION BELOW  
CONTRACTOR SHALL USE TEMPLATE FURNISHED WITH POLE TO SET ANCHOR BOLTS, CENTER POLE ON CONCRETE BASE.  
CONNECT TO GROUND LUG ON POLE AS REQUIRED BY POLE MANUFACTURER  
ANCHOR BOLTS FOR POLE AS REQUIRED BY POLE MANUFACTURER  
5/8" CHAMFER  
CURVED LID JUNCTION BOX, RECESSED IN CONCRETE POLE BASE, WITH LOW VOLTAGE DIVIDER. FACE COVER AWAY FROM OR 90° TO BUMPERS. [CARLON E88C24] GFI RECEPTACLE WITH WEATHERPROOF MOUNTED IN J-BOX COVER.

INSULATED BUSHING TERMINATION  
ANCHOR BOLT COVER  
NON-SHRINK GROUT BETWEEN POLE AND BASE. AFTER POLE IS PLUMBED, PROVIDE A CHANNEL THROUGH THE GROUT FOR POLE INTERIOR DRAINAGE.  
EXPOSED SURFACES TROWELLED SMOOTH  
2 3/4" OR AS REQUIRED BY POLE MANUFACTURER.  
1-10" DIA  
PLAN VIEW  
FINISHED GRADE LINE  
EXOTHERMIC WELD OR HYDRAULIC COMPRESSION CONNECTION  
6" LOOP  
#6 BARE STRANDED COPPER BONDING CONDUCTOR IN 1/2" MIN. PVC OR ENT SLEEVE. MINIMUM 8" RADIUS.  
5/8"Øx10'-0" COPPER CLAD GROUND ROD  
TRANSITION TO RIGID METAL CONDUIT FOR RISER  
CONCRETE BASE (3000 PSI) MINIMUM 28 DAY STRENGTH 6% AIR ENTRAINED +/- 1%  
EXTEND TO FIRM CLEAN UNDISTURBED SOIL  
SECTION VIEW



Bruce E Hart - Engineer  
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Missouri Certificate of Authority: #F001325536

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Project Name:  
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1900 NE Independence Ave.  
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PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

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ISSUE DATE: 01 August 2023

CAD DWG FILE: E402.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
ELECTRICAL DETAILS

SHEET NUMBER:

**E402**

SHEET 182 OF 202

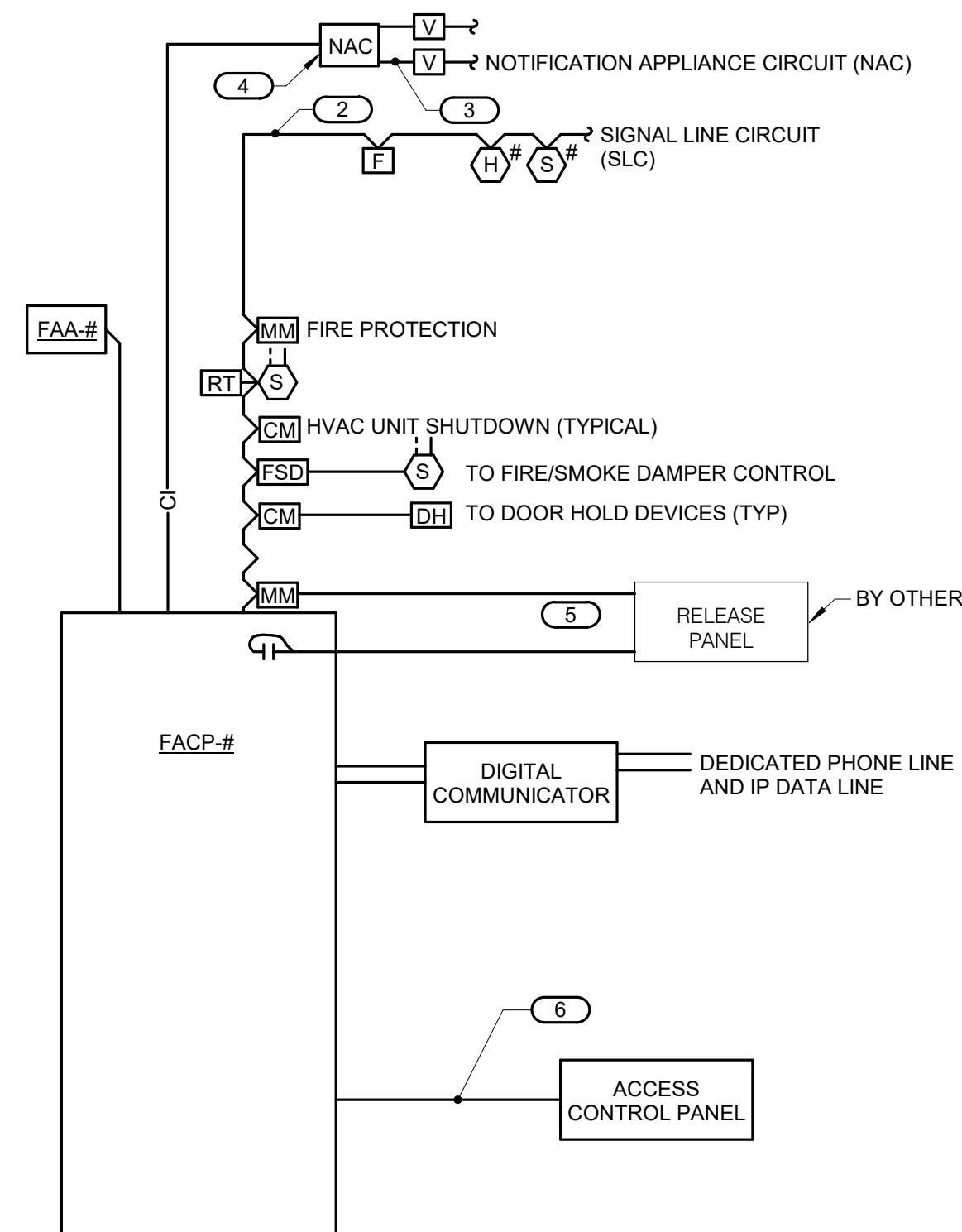
08/01/2023

SEQUENCE OF OPERATION		PANEL/ANNUNCIATOR ALARM INDICATION	PANEL/ANNUNCIATOR SUPERVISORY INDICATION	PANEL/ANNUNCIATOR TROUBLE INDICATION	AUDIBLE ALARMS SEQUENCE	VISUAL ALARMS SEQUENCE	ELECTRIC SPRINKLER BELL SEQUENCE	SPRINKLER PREACTION ACTIVATION SEQUENCE	AHU & MECHANICAL FAN SHUTDOWN SEQUENCE	DOOR HOLDER SEQUENCE	SOUND MASKING SEQUENCE
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL LOW BATTERY		X									
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL BATTERY OR CHARGER FAILURE			X								
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL ABNORMAL SWITCH OR CONTROL POSITION		X									
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL GROUND FAULT, OPEN CIRCUIT, SHORT CIRCUIT			X								
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL AC POWER LOSS OR IRREGULARITY			X								
NOTIFICATION APPLIANCE CIRCUIT OR SLC LOOP GROUND FAULT, OPEN CIRCUIT, SHORT CIRCUIT			X								
INITIATING DEVICE FAILURE OR COMMUNICATION ERROR			X								
FIRE ALARM PANEL MANUAL FIRE DRILL		X			X	X					
MANUAL PULL STATION		F	X		X	X				X	X
SMOKE DETECTOR		S#_ H#_ S#_	X		X	X				X	X
SPRINKLER SYSTEM FLOW SWITCH		MM FS	X		X	X	X	X		X	X
SPRINKLER SYSTEM MONITOR SWITCH		MM TS_PIV	X								
SPRINKLER SYSTEM CABINET MONITOR		MM TS	X								
SMOKE DETECTOR FOR HVAC CONTROL		S#_ H#_ S#_ H#_ S#_	X	X	X	X	X		X		
SMOKE DETECTOR AT DOOR		CM_DH DH	X		X	X				X	X
SMOKE DETECTOR IN COMPUTER ROOM		S#_ CR H#_ CR	X		X	X				X	X

NOTES:

- ALL SYSTEM EVENTS SHALL BE LOGGED, PRINTED, AND DISPLAYED ON THE GRAPHICAL ANNUNCIATOR INTERFACE, IF APPLICABLE. SEE SPECIFICATIONS FOR MORE INFORMATION AND DESCRIPTIONS OF SEQUENCES OF OPERATION.

**1 FIRE ALARM OPERATION MATRIX**  
NO SCALE



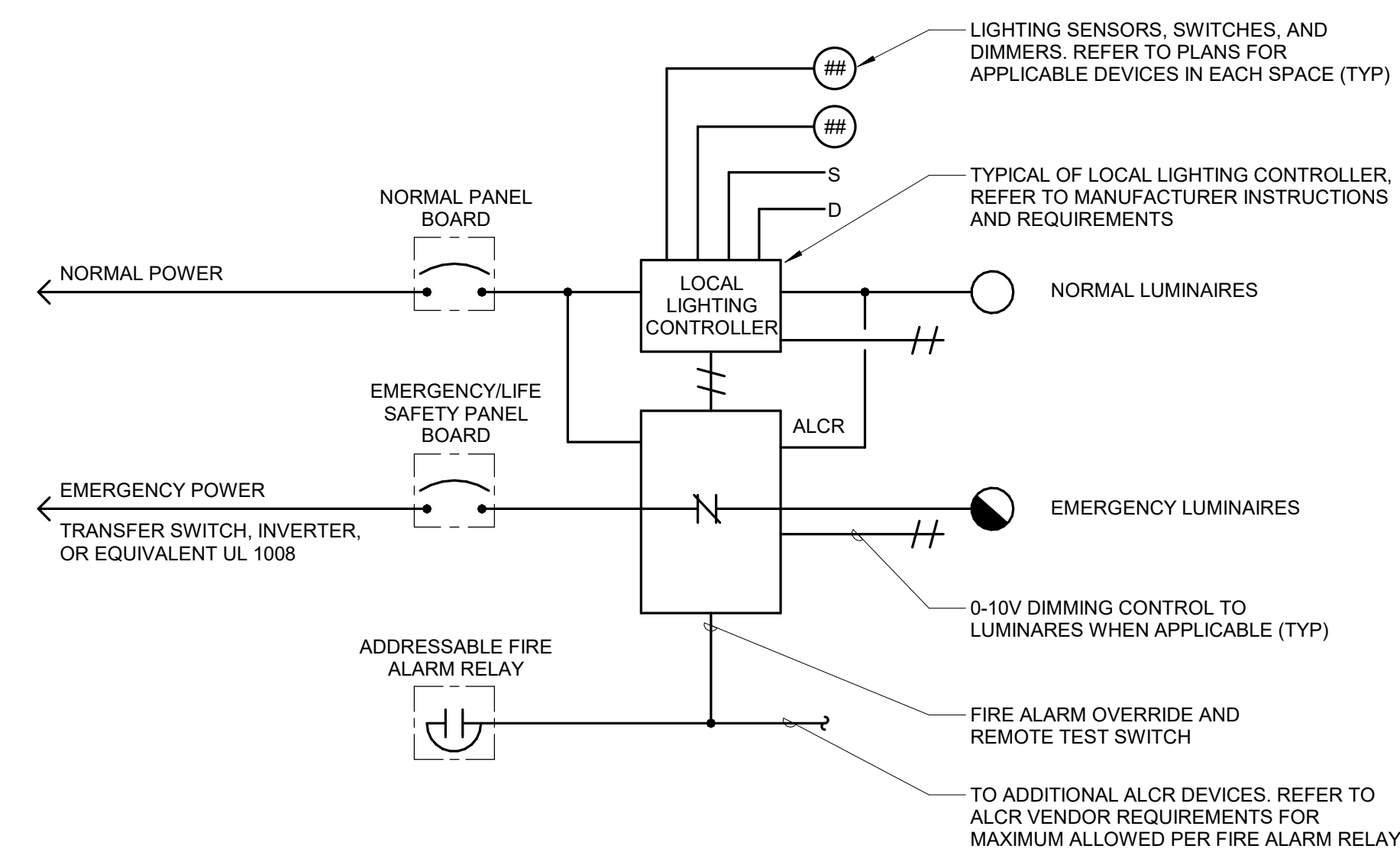
**2 FIRE ALARM RISER**  
NO SCALE

NOTES:

- THE RISER DIAGRAM IS INTENDED TO CONVEY THE TYPES OF FIRE ALARM CONNECTIONS AND SPECIFICALLY DOES NOT INDICATE QUANTITIES, NUMBER OF CIRCUITS REQUIRED OR DISTANCES.
- THE COMPLETE FIRE ALARM SYSTEM SHALL MEET ALL APPLICABLE CODES AND MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL COORDINATE ALL WIRE SIZES, TYPES AND REQUIREMENTS WITH THE VENDOR PRIOR TO BID. REFER TO SPECIFICATIONS TO DETERMINE CIRCUIT STYLES AND IF CONDUIT IS REQUIRED OR PLENUM RATED CABLE IS ACCEPTABLE.
- ALL +120VAC WIRING REQUIRED FOR OPERATION OF THE SYSTEM AS DESCRIBED IN THE CONSTRUCTION DOCUMENTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- ALL NECESSARY RELAYS MAY NOT BE SHOWN ON THIS PLAN, BUT WHERE REQUIRED FOR PROPER OPERATION OF THE SYSTEM THEY SHALL BE PROVIDED BY THE CONTRACTOR.

KEYNOTES: #

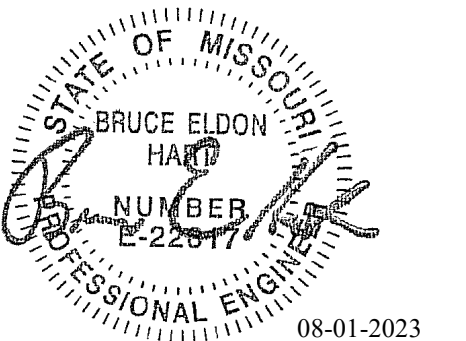
- REPRESENTATIVE OF PROGRAMMABLE I/O POINTS IN THE PANEL OR A GENERAL SYSTEM TROUBLE/ALARM CONTACT CONNECTED TO THE SYSTEM NOTED. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
- REFER TO SPECIFICATION FOR REQUIREMENTS OF EACH INITIATION LOOP AND WIRING STYLE. REFER TO FLOOR PLANS FOR DEVICES AND THEIR LOCATIONS.
- REFER TO SPECIFICATION FOR REQUIREMENTS OF EACH NOTIFICATION APPLIANCE CIRCUIT AND WIRING STYLE. REFER TO FLOOR PLANS FOR DEVICES AND THEIR LOCATIONS.
- PROVIDE NOTIFICATION APPLIANCE EXTENDER PANELS AS REQUIRED. DETERMINATION OF NEED TO BE MADE BY FIRE ALARM VENDOR. REFER TO SPECIFICATIONS FOR REQUIREMENTS AND ACCEPTABLE MOUNTING LOCATIONS.
- THE RELEASE PANEL WILL PROVIDE CONTACT CLOSURES TO BE MONITORED BY THE FIRE ALARM PANEL. THE ALARM AND AGENT RELEASE SIGNALS SHALL ACTIVATE A GENERAL ALARM. THE PRE-SIGNAL SHALL ACTIVATE A WARNING ON THE GUI ONLY.
- REPRESENTS THE EXTENSION OF PROGRAMMABLE RELAYS TO THE ACCESS CONTROL SYSTEM.



NOTES:

- THE ALCR RELAY DIAGRAM IS INTENDED TO CONVEY INTENDED OPERATION AND SPECIFICALLY DOES NOT INDICATE QUANTITIES, ALL DEVICES, WIRING, AND CONNECTIONS REQUIRED. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS AND REQUIREMENTS.
- MOUNT LOCAL LIGHTING CONTROLLERS ABOVE FINISHED CEILING NEAR ROOM ENTRANCE. IN A CORRIDOR, MOUNT NEAR ONE END OF CORRIDOR AND ADJACENT TO FIRST SENSOR OR CONTROL DEVICE.
- MOUNT ALCR ADJACENT TO LIGHTING CONTROLLER ABOVE ACCESSIBLE FINISHED CEILING.
- FIRE ALARM ADDRESSABLE RELAY SHALL OVERRIDE LOCAL LIGHTING CONTROLS UPON FIRE ALARM OR TEST.

**3 AUTOMATIC LOAD CONTROL RELAY DIAGRAM (ALCR)**  
NO SCALE



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 FACILITY # 8136018019

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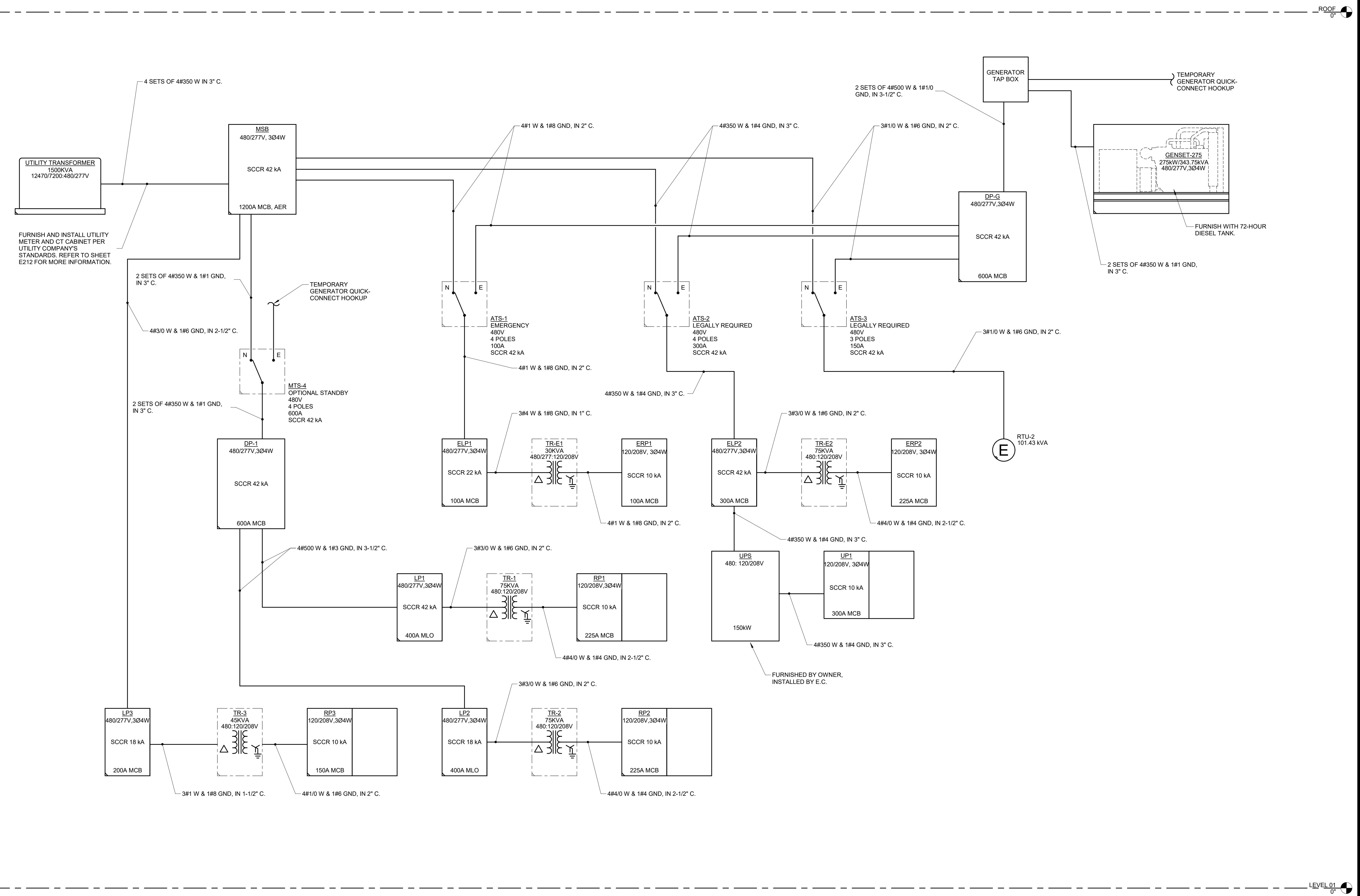
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 DRAWN BY: ZMB  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

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 ELECTRICAL RISER  
 DIAGRAM - BASE BID

SHEET NUMBER:

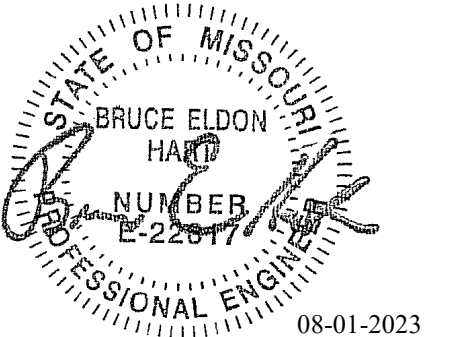
**E500**

SHEET 183 OF 202  
 08/01/2023



**1 ELECTRICAL RISER DIAGRAM**  
 NO SCALE

LEVEL 01  
 0"



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CAD DWG FILE: E501.dwg  
 DRAWN BY: JTS  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

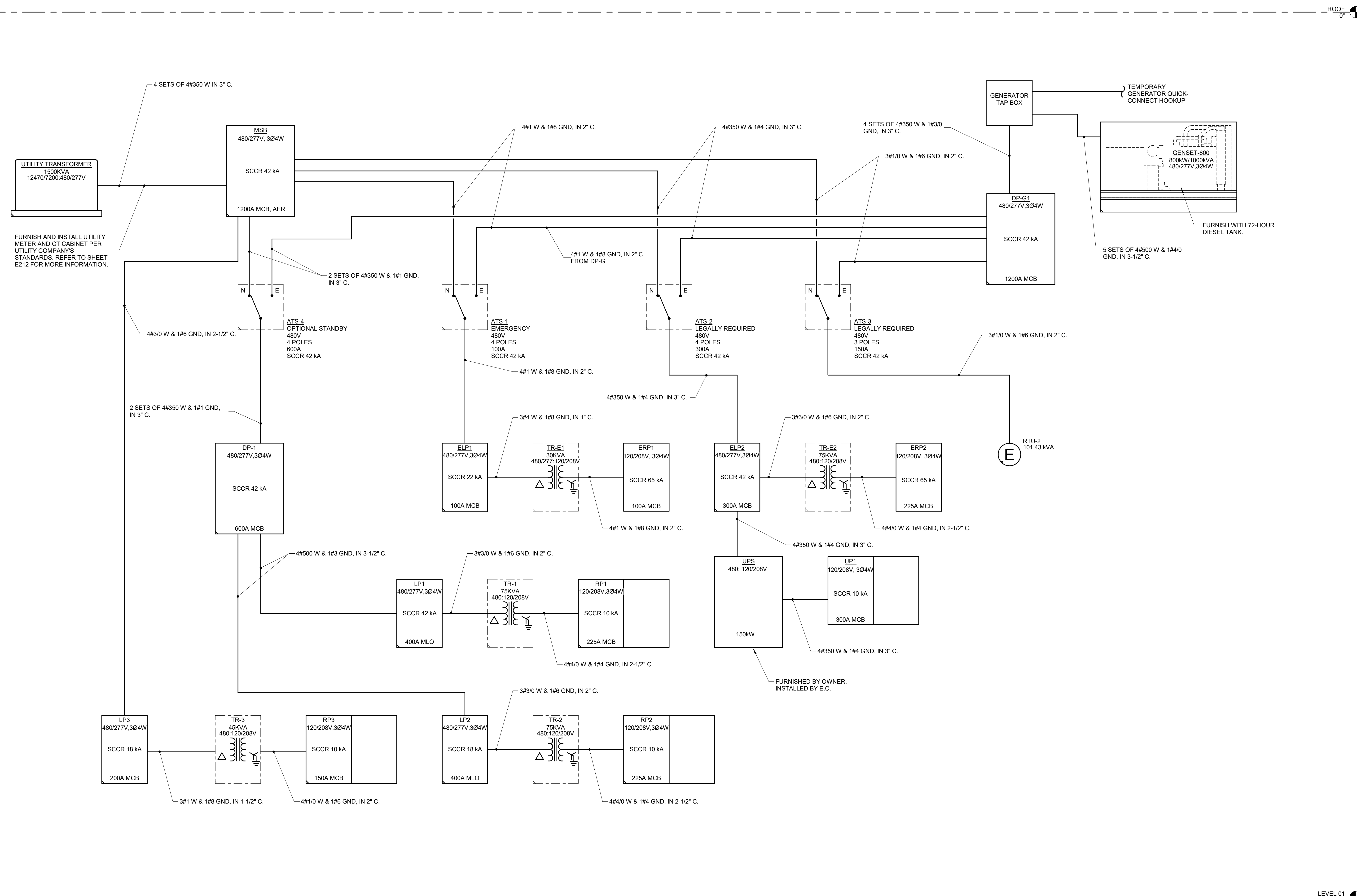
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 DIAGRAM (ALTERNATE  
 #03)

SHEET NUMBER:

**E501**

SHEET 184 OF 202

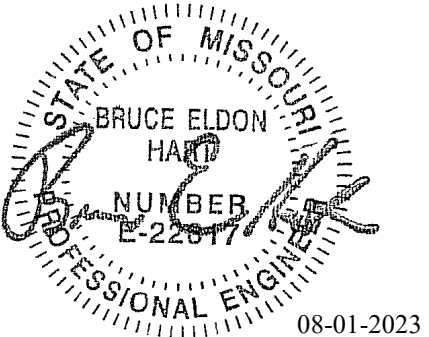
08/01/2023



**1 ELECTRICAL RISER DIAGRAM**  
 12" = 1'-0"

LEVEL 01  
 0'





Bruce E Hart - Engineer  
MO# 22817

08-01-2023

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FACILITY # 8136018019

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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E600.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:

ELECTRICAL SCHEDULES

SHEET NUMBER:

**E600**

SHEET 185 OF 202

08/01/2023

**TRANSFER SWITCH SCHEDULE**

SWITCH TYPE:		ACCESSORIES & OPTIONS	
AUTO - AUTOMATIC	EE - ENGINE EXERCISER		
B1 - AUTOMATIC WITH BYPASS ISOLATION	IM - IN-PHASE MONITOR		
MAN - MANUAL OPERATION	SH - STRIP HEATER WITH THERMOSTAT		
PGLB - PORTABLE GENERATOR & LOAD BANK CABINET	RM - REMOTE ANNUNCIATOR		
STAT - STATIC SOLID STATE	RC - REMOTE CONTROL CIRCUITS		
<b>SWITCH CONFIGURATION (CONFIG):</b>		EL - ELEVATOR EMERGENCY TO NORMAL PRESIGNAL	
CT - CLOSED TRANSITION	SP - SERIAL COMMUNICATIONS PORT		
DT - DELAYED TRANSITION - CENTER OFF	PM - POWER MONITORING METER		
30 - 30 CYCLE WITHSTAND RATING	RTC - REMOTE TRANSFER CONTROL FROM FIRE COMMAND CENTER		
SE - SERVICE ENTRANCE LISTED	RMC - REMOTE ANNUNCIATION AT FIRE COMMAND CENTER		
SN - SWITCHED NEUTRAL	TI - TRANSFER INHIBIT		
ON - OVERLAPPING SWITCHED NEUTRAL	LS - LOAD SHED (PROVIDE DELAYED TRANSITION - CENTER OFF CONFIGURATION)		
DN - SOLID NEUTRAL			

ITEM	SWITCH					ENCLOSURE	REQUIRED ACCESSORIES & OPTIONS	PRIORITY GROUP	BRANCH	COMMENTS
	TYPE AND CONFIG	VOLTAGE	POLES	AMPS	SCCR					
ATS-1	AUTO_ON	480 V	4	100 A	42 KA	NEMA 1	EE, RM, IM, RC	1	EMERGENCY	
ATS-2	AUTO_ON	480 V	4	300 A	42 KA	NEMA 1	EE, RM, IM, RC	2	LEGALLY REQUIRED	
ATS-3	AUTO_ON	480 V	3	150 A	42 KA	NEMA 1	EE, RM, IM, RC	2	LEGALLY REQUIRED	
ATS-4	AUTO_ON	480 V	4	600 A	42 KA	NEMA 3R	EE, RM, IM, RC, LS	3	OPTIONAL STANDBY	ALTERNATE BID #3 ONLY
MTS-4	MAN, ON	480 V	4	600 A	42 KA	NEMA 3R	EE, RM, IM, RC, LS	3	OPTIONAL STANDBY	BASE BID ONLY

**TRANSFORMER SCHEDULE**

TYPE:		ACCESSORIES & OPTIONS	
K1 - DOE 2016 DRY TYPE	AUT - AUTOTRANSFORMER	AL - ALUMINUM WINDINGS	
K4 - K4 RATED DRY TYPE	BB - BUCK BOOST	CU - COPPER WINDINGS	
K13 - K13 RATED DRY TYPE	LIQ - LIQUID FILLED	RS - EPOXY RESIN ENCAPSULATED	
HM - HARMONIC MITIGATING		FL - FILTERED	
PE - NEMA PREMIUM EFFICIENCY		NV - NON-VENTILATED	
		NL - 200% RATED NEUTRAL	
		EL - ELECTROSTATIC SHIELD	

ITEM	KVA RATING	TYPE	ENCLOSURE	MAX. TEMP. RISE C.	PRIMARY		SECONDARY		REQUIRED ACCESSORIES & OPTIONS	COMMENTS
					VOLTS	PH	VOLTS	PH		
TR-1	75 KVA	K-1	NEMA 1	150	480	3	120/208	3	AL	
TR-2	75 KVA	K-1	NEMA 1	150	480	3	120/208	3	AL	
TR-3	45 KVA	K-1	NEMA 1	150	480	3	120/208	3	AL	
TR-E1	30 KVA	K-1	NEMA 1	150	480	3	120/208	3	AL	
TR-E2	75 KVA	K-1	NEMA 1	150	480	3	120/208	3	AL	

**LIGHTING SEQUENCE OF OPERATION**

GENERAL REQUIREMENTS:  
1. WHEN 'SWITCH ID' IS NOT PROVIDED, THE WALL CONTROL DEVICE SHALL CONTROL ALL LIGHTS WITHIN THE ROOM.  
2. OCCUPANCY/VACANCY SENSOR SHALL BE INSTALLED INTEGRAL TO WALL CONTROL DEVICE WHERE CEILING MOUNTED SENSORS ARE NOT SHOWN ON DRAWINGS, BUT THE 'SWITCH ID' FOR THE SPACE REQUIRES OCCUPANCY/VACANCY CONTROL.  
3. WHERE EGRESS LIGHTS ARE SHOWN AS SWITCHED EMERGENCY 'SE' AND HAVE COMMON SWITCHING WITH THE OTHER LIGHTS IN THE ROOM, THEY SHALL BE PROVIDED WITH A U.L. 924 DEVICE TO TURN THE LIGHTS ON TO 100% UPON THE LOSS OF NORMAL POWER OR ACTIVATION OF THE FIRE ALARM.  
4. E.C. SHALL PROVIDE FIRE ALARM ADDRESSABLE RELAYS AND AUTOMATIC LOAD CONTROL RELAYS AS REQUIRED TO ALLOW FOR ALL LIGHTING CIRCUITS (NORMAL, CRITICAL, AND LIFE SAFETY) IN THE CORRIDOR AND PATH OF EGRESS TO TURN ON TO 100% OUTPUT DURING A FIRE ALARM EVENT.  
5. WHERE MULTIPLE SWITCH IDS ARE PROVIDED FOR A SINGLE SWITCH LOCATION THAT LOCATION SHALL CONTROL ALL ZONES AS INDICATED. PROVIDE MULTIPLE SWITCHES OR MULTI-BUTTON SWITCHES AS REQUIRED TO PROVIDE CONTROL OF EACH ZONE AS REQUIRED PER THE LIGHTING SEQUENCE OF OPERATIONS FOR THAT ZONE.

PLAN ID	LIGHTING SWITCHED
{LD2}	Sequence: Dimmed lights are controlled in this space. ON: The lights shall turn on manually via lighting control station. ADJUST: The dimming luminaires are raised/lowered using a push button wall controller(s). OFF: The lights turn off manually via lighting control station, or automatically shut off, via occupancy sensor, once the space has been unoccupied for 20 minutes.
{LD3}	Sequence: Dimmed lights are controlled in this space. ON: The lights shall turn on manually via lighting control station. ADJUST: The dimming luminaires are raised/lowered using a push button wall controller(s). OFF: The lights turn off manually via lighting control station, or automatically shut off, via occupancy sensor, once the space has been unoccupied for 20 minutes. ADDITIONAL CONTROL: Dimmable luminaires within the space that are within the daylight zone, portion of dimmable luminaire within the daylight zone or required by the energy code shall continuously adjust to the presence of daylight to maintain a minimum of 30 foot candles. After the space reaches 45 foot candles, the luminaires shall completely shut off. The daylight sensor shall not increase the light output above 20% unless the space is occupied.
{LD4}	Sequence: Dimmed lights are controlled in this space. ON: The lights shall turn on automatically no greater than 50% illumination or 100% via lighting control station. OFF: The lights shall reduce output to 50% when unoccupied for 20 minutes and they shall turn off completely, via occupancy sensor, once the space has been unoccupied for 30 minutes or turn off manually via lighting control station.
{LS2}	Sequence: Switched lights are controlled in this space. ON: The lights shall turn on manually via lighting control station or automatically via occupancy sensor. OFF: After the space has been vacant for 20 minutes, the lights will automatically turn off.
{LS3}	Sequence: Switched lights are controlled in this space. ON: The lights turn on manually via lighting control switch. OFF: The lights turn off manually via lighting control switch.
{LX1}	Sequence: Exterior lights are controlled in this space. ON: The lights shall turn on automatically via time clock zone controller at 6pm each day of the week. Coordinate exact time with owner. OFF: The lights turn off automatically via time clock zone controller at 6am each day of the week. Coordinate exact time with owner.

**LED LUMINAIRE SCHEDULE**

(DESC) DOOR:	DISTRIBUTION:	BEAMWIDTH:	(L/L) LENS/LOUVER:	K19 - KSH19 .156" ACRYLIC M - MATTE DIFFUSE CLEAR N - NONE P - POLYCARBONATE R - HIGH IMPACT DR ACRYLIC SS - SEMI-SPECULAR CLEAR O - OTHER (SEE DESCRIPTION) [DESIGN SPECIFIC BLANKS]
(MTG) MOUNTING:	(WATT) PER:	(TYPE) LED		
RE - RECESSED CL - CEILING SURFACE CV - COVE FR - FLANGED RECESSED P - PERIMETER PL - POLE	FIX - FIXTURE, FT - FOOT, LAMP	RGB - COLOR CHANGING LED RGBW - COLOR CHANGING + WHITE RGBA - COLOR CHANGING + AMBER RLED - RETROFIT LED WLED - WARM DIM LED		
(TYPE) DRIVER:				
DIM10 - 0-10V DIMMING DALI - DIGITAL ADDRESSABLE DMX - DIGITAL MULTIPLEX	EB - ELECTRONIC ELV - ELECTRONIC LOW VOLTAGE EM - EMERGENCY BATTERY	HL - HIGH/LOW (100%/50%) STEP DIM LINE - LINE VOLTAGE DIMMING ML - MULTILEVEL SWITCHING	MV - MULTI-VOLTAGE ELECTRONIC REM - REMOTE O - OTHER (SEE DESCRIPTION)	

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

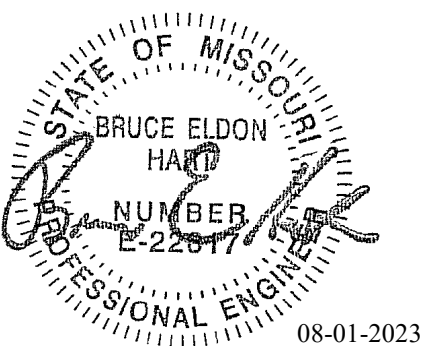
VERIFY AND COORDINATE ALL CEILING TYPES WITH LUMINAIRE MOUNTING AND TRIM REQUIREMENTS PRIOR TO THE RELEASE OF THE LUMINAIRE ORDER.  
CONFIRM ALL COLORS AND FINISHES OF ALL LUMINAIRE COMPONENTS WITH ARCHITECT AND INTERIOR DESIGNER PRIOR TO THE RELEASE OF THE LUMINAIRE ORDER.  
UNLESS INDICATED ON LIGHTING PLANS OR BELOW, REFER TO ARCHITECTURAL AND INTERIOR DESIGN ELEVATIONS, SECTIONS AND DETAILS FOR ALL SUSPENDED AND WALL MOUNTED LUMINAIRE MOUNTING HEIGHTS.

REFER TO SPECIFICATION SECTIONS LED LIGHTING 26.51.19 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.  
INTERIOR CORRELATED COLOR TEMPERATURE 3500K, COLOR RENDERING INDEX (CRI) AT OR ABOVE 80, UNLESS NOTED OTHERWISE.  
EXTERIOR CORRELATED COLOR TEMPERATURE 4000K, COLOR RENDERING INDEX (CRI) AT OR ABOVE 80, UNLESS NOTED OTHERWISE.  
ALTERNATE MANUFACTURERS EQUAL TO THOSE LISTED WILL BE ACCEPTED.

ITEM	DESCRIPTION	L/L	MTG	DIMENSIONS				WATT		LED		DRIVER		MANUFACTURER AND MODEL	
				L	W	H	DIA.	ANSI WATTS	PER	TYPE	QTY	DELIVERED LUMENS (MIN)	VOLTS		TYPE
F1	2X2 CLASS R2X RECESSED LED WITH OPAL ACRYLIC LENS, LED 5.0.	K	RE	2'-0"	2'-0"	2' 7/8"		27 W	FIX	LED	1	3159	277 V	DIM10	COOPER LIGHTING - CORELITE R2X-WO-3L35-LD5-UNV-22
F1A	2X2 CLASS R2X RECESSED LED WITH OPAL ACRYLIC LENS, LED 5.0.	K	RE	2'-0"	2'-0"	2' 7/8"		17 W	FIX	LED	1	2134	277 V	DIM10	COOPER LIGHTING - CORELITE R2X-WO-1L35-LD5-UNV-22
F2	48" LOW-PROFILE COVE LIGHT FOR LED SOURCE. POLYCARBONATE LENS. ALUMINUM HOUSING WITH MOLDED CAP ENDS ASYMMETRIC DISTRIBUTION TO ACCENT CEILING. COORDINATE FINISH WITH ARCHITECT.	O	SU	4'-0"	2"	3"		14 W	FIX	LED	1	1600	277 V	DIM 10	INSIGHT LIGHTING PILOT PCM PCM_3_5W_40K_ASY_48
F3	6" APERTURE RECESSED OPEN LED DOWNLIGHT, WIDE DISTRIBUTION, SEMI-SPECULAR, WHITE PAINTED FLANGE.	O	RE			3' 179/256"	6"	10 W	FIX	LED	1	1000	277 V	DIM10	COOPER LIGHTING - HALO COMMERCIAL HC610D010-HM60525835-61WDH
F3A	6" APERTURE RECESSED OPEN LED DOWNLIGHT, WIDE DISTRIBUTION, SEMI-SPECULAR, WHITE PAINTED FLANGE, WET LISTED.	O	RE			3' 179/256"	6"	11 W	FIX	LED	1	1500	277 V	DIM10	COOPER LIGHTING - HALO COMMERCIAL HC615D010-HM60525835-61WDH
F4	4' LED NARROW STRIP. PENDANT MOUNT FIXTURES AT 9' ABOVE THE FINISHED FLOOR USING THREADED RODS.	O	RE	4'-0"	2' 3/4"	2"		33 W	FIX	LED	1	5000	277 V	EB	WILLIAMS INDOOR 75S-4-L50-835-DIM-UNV
F4A	4' LED NARROW STRIP. PENDANT MOUNT FIXTURES AT 9' ABOVE THE FINISHED FLOOR USING THREADED RODS.	O	RE	4'-0"	2' 3/4"	2"		20 W	FIX	LED	1	3000	277 V	EB	WILLIAMS INDOOR 75S-4-L30-835-DIM-UNV
F5	DIRECT/INDIRECT LINEAR PENDANT FIXTURE WITH FROSTED CONTINUOUS ROLL LENS. 65% UP / 35% DOWN DISTRIBUTION, CONTINUOUS RUNS. COORDINATE MOUNTING, DIMENSIONS AND EXACT LENGTH OF THE LUMINAIRE WITH FLOOR PLANS.	O	SP	<varies >	5 205/25 6"	2' 51/128"		6 W	FT	LED	1	725	277 V	DIM10	FLUXWERX ILLUMINATION INC PF1xFB35
F6	RECESSED DIRECT LINEAR FIXTURE WITH FROSTED CONTINUOUS ROLL LENS. CONTINUOUS RUNS. COORDINATE MOUNTING, DIMENSIONS AND EXACT LENGTH OF THE LUMINAIRE WITH FLOOR PLANS.	O	RE	28'-0"	4"	4"		6 W	FT	LED	1	630	277 V	DIM10	FLUXWERX ILLUMINATION INC NF1-xBB35-28"
F7	2X4 CLASS R2X RECESSED LED WITH OPAL ACRYLIC LENS, LED 5.0.	K	RE	4'-0"	2'-0"	2' 7/8"		45 W	FIX	LED	1	5463	277 V	DIM10	COOPER LIGHTING - CORELITE R2X-WO-3L35-LD5-UNV-24
F8	SUSPENDED LINEAR LED LOW BAY FIXTURE. SYMMETRIC FROSTED OPTIC. CONTINUOUS RUNS. COORDINATE MOUNTING, DIMENSIONS AND EXACT LENGTH OF THE LUMINAIRE WITH FLOOR PLANS.	O	SP	<varies >	3"	4"		8 W	FT	LED	1	1125	277 V	DIM10	COOPER LIGHTING - METALUX 8LBLE-LD4-9-SYMF-UNV-L835-CD 14J
F9	4" WIDE RECESSED LINEAR FIXTURE FOR LED SOURCE. FLUSH SATIN LENS. MATTE WHITE HOUSING. REFER TO PLANS FOR EXACT LENGTHS OF FIXTURE.	O	RE	<varies >	4"	5"		4 W	FT	LED	1	375	277 V	DIM10	FOCAL POINT SEEM 4 F5M4L-FL-375LF
F10	HALO POWER TRAC AND LAZER TRACK, 25 DEGREE OPTIC, BLACK FINISH. PROVIDE LIGHT HEADS AS SHOWN ON THE FLOOR PLANS. FURNISH WITH 34-FOOT TRACK LENGTH. MEDIUM NARROW FLOOD DISTRIBUTION. (ALTERNATE #04)	O	SU	0"	0"	0"		25 W	FIX	LED	1	2200	277 V	DIM10	COOPER LIGHTING - HALO L815MED20NF935MB
F11	EXTERIOR LED WALL PACK, WITH WIDESPREAD DISTRIBUTION, 4000°K COLOR TEMPERATURE. VERIFY FINISH WITH ARCHITECT. MOUNT LUMINAIRE AT 10' AFF, UNLESS NOTED OTHERWISE.	O	WL	10 3/4"	6"	6"		14 W	FIX	LED	1	1806	277 V	DIM10	COOPER LIGHTING - LUMARK AXCS1A
F11E	EXTERIOR LED WALL PACK, WITH WIDESPREAD DISTRIBUTION, 4000°K COLOR TEMPERATURE. VERIFY FINISH WITH ARCHITECT. MOUNT LUMINAIRE AT 10' AFF, UNLESS NOTED OTHERWISE. PROVIDE WITH EMERGENCY BATTERY PACK.	O	WL	10 3/4"	6"	6"		14 W	FIX	LED	1	1806	277 V	EM	COOPER LIGHTING - LUMARK AXCS1A
F12	1" WIDE LED TAPELIGHT WITH STANDARD BRIGHTNESS, 90 CRI, 3500K. PROVIDE NON-CONTINUOUS LENGTH AT INTERVAL LENGTHS FROM 5FT TO 8FT AS NEEDED. COMPLETE ILLUMINATED COVERAGE. PROVIDE EXTRUDED MOUNTING CHANNEL WITH FROSTED ACRYLIC FLAT LENS AND MOUNTING HARDWARE PER MANUFACTURER INSTRUCTIONS. REFER TO ARCHITECTURAL PLAN AND INTERIOR ELEVATIONS FOR EXACT LOCATION, LENGTH, MOUNTING HEIGHT AND ROUTING.	O	SU	16'-6"	1"	1"		3 W	FT	LED	1	340	277 V	DIM10	KELVIK - DIRECT VIEW - DK SERIES, WITH CH-011 HOUSING
S1	LED SITE SINGLE HEAD LUMINAIRE, DIE-CAST ALUMINUM HOUSING WITH INTEGRAL HEAT SINK WITH THERMOSET POWDER COATED FINISH, TYPE IV FORWARD THROW, IP 65 LISTED. FINISH TO BE SELECTED BY THE ARCHITECT. THE LOWEST DRIVER CURRENT SHALL BE USED TO OBTAIN THE REQUIRED LUMEN OUTPUT. FURNISH WITH 25 FT SQUARE NON-TAPERED STEEL POLE WITH VIBRATION DAMPENERS.	O	PL	3'-4"	1'-3"	7' 1/4"		146 W	FIX	LED	1	13622	277 V	DIM10 MV	COOPER LIGHTING - MCGRAW-EDISON GALN-SA3A-740-U-T4FT
S3	NIGHT FALCON LED FLOODLIGHT, NEMA 3H SPOT DISTRIBUTION, CLEAR THICK TEMPERED GLASS LENS. FINISH AND MOUNTING TO BE SELECTED BY THE ARCHITECT. IP 67 LISTED. MOUNT FIXTURE 4' 0" AWAY FROM THE CENTER OF FLAGPOLE.	O	SU	8' 7/16"	1'-3 15/16"	1'-0 11/16"		93 W	FIX	LED	1	10,500	277 V	DIM10 MV	COOPER LIGHTING - LUMARK NFFLD-C25-D-UNV-33-XX
S5	GROUND MOUNTED, OUTDOOR LED FLOOD LIGHT, MEDIUM FLOOD (NEMA 4x4) DISTRIBUTION. COORDINATE FINISH WITH ARCHITECT.	O	SU	8' 7/16"	2' 3/4"	10' 15/32"		42 W	FIX	LED	1	3892	277 V	DIM10 1057	VISTA PROFESSIONAL - MODEL 1057
X1	SINGLE FACED EXIT SIGN. RED LETTERING ON WHITE PANEL. VERIFY RECESSED END, BACK OR CEILING MOUNTING AND ARROWS WITH PLANS.	O	CL	1'-1"	2"	9"		3 W	FIX	LED	1	L.E.D.	277 V	EB	SURELITE LPX70RWH
X2	DOUBLE FACED EXIT SIGN. RED LETTERING ON WHITE PANEL. VERIFY RECESSED END, BACK OR CEILING MOUNTING AND ARROWS WITH PLANS.	O	CL	1'-1"	2"	9"		3 W	FIX	LED	1	L.E.D.	277 V	EB	SURELITE LPX70RWH

**NOTES:**

- LIGHT FIXTURES ON SHEET E203 SHOWN AS HALF-SHADED, INDICATED WITH 'NL', OR 'SE' AND EXIT SIGNS SHALL HAVE AN INTEGRAL EMERGENCY BATTERY PACK. PROVIDE A BATTERY INVERTER AS NEEDED.



Bruce E Hart - Engineer  
MO# 22817

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Project Number: 2022.15.2

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E700.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
ELECTRICAL PANEL  
SCHEDULES

SHEET NUMBER:

**E700**

SHEET 186 OF 202

08/01/2023

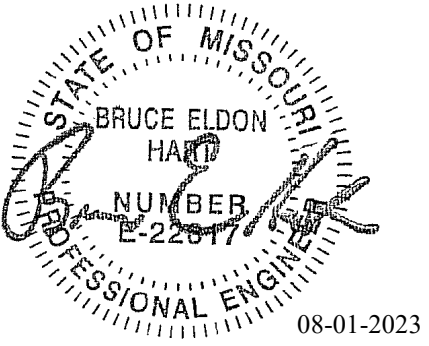
SWITCHBOARD MSB									
ENCLOSURE: NEMA 1 FED FROM: 1,200 A/3P @ UTILITY TRANSFORMER LOCATION: Elec. 158			SOLID NEUTRAL GROUND BUS			MAIN: 1,200 A MCCB VOLTS: 480/277 Wye PHASE: 3 WIRE: 4 SCCR: 42 kA ISC UNKNOWN 0 A			
NOTES: PROVIDE LSI SETTINGS AND GROUND FAULT SETTINGS ON 1200 AMP MAIN CIRCUIT BREAKER.									
CKT	LOAD DESCRIPTION	LOAD	POLES	FRAME	TRIP	TYPE	ACC.	WIRE AND RACEWAY	CIRCUIT KEY
1	ATS-1: ELEC. 158	13.26 kVA	3	125 A	100 A	CB	LSI	4#1 W & 1#6 GND IN 2" C.	
2	ATS-2: ELEC. 158	205.6 kVA	3	400 A	300 A	CB	LSI	4#350 W & 1#4 GND IN 3" C.	
3	ATS-3: ELEC. 158	101.43 kVA	3	200 A	150 A	CB	LSI	4#110 W & 1#6 GND IN 2" C.	
4	PANEL LP3: FIRING RANGE ELEC. RM	133.91 kVA	3	250 A	200 A	CB	LSI	4#310 & 1#6 EGC IN 2 1/2" C.	A
5	DP-1 via MTS-4 OR ATS-4	271.19 kVA	3	800 A	600 A	CB	LSI	2 SETS OF 4#350 W & 1#1 GND IN 3" C.	
6	SPARE	0 kVA	3	400 A	400 A	--	--		--
7	SPARE	0 kVA	3	400 A	200 A	--	--		--
8									
LOAD SUMMARY (INCLUDES ALL TUBS IN THIS PANEL)									
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		TOTALS*			
HVAC		261.941 kVA	100.00%	261.941 kVA		TOTAL CONNECTED LOAD:		725.38 kVA	
Lighting		17.548 kVA	100.00%	17.548 kVA		TOTAL ESTIMATED DEMAND LOAD:		676.881 kVA	
Other		0 kVA	0.00%	0 kVA		TOTAL CONNECTED AMPS:		872.50 A	
Power		338.889 kVA	100.00%	338.889 kVA		TOTAL ESTIMATED DEMAND AMPS:		814.2 A	
Receptacles		107.006 kVA	54.67%	58.503 kVA					
*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.									
CIRCUIT KEY NOTES: A - CIRCUIT BREAKER AND CIRCUIT ARE A PART OF ALTERNATE #04.									

DISTRIBUTION PANEL DP-1									
ENCLOSURE: NEMA PB 1 FED FROM: 600 A/3P CB @ MSB LOCATION: Elec. 158			SOLID NEUTRAL GROUND BUS			MAIN: 600 A MCB VOLTS: 480/277 Wye PHASE: 3 WIRE: 4 SCCR: 42 kA ISC UNKNOWN 0 A			
NOTES:									
CKT	LOAD DESCRIPTION	LOAD	POLES	FRAME	TRIP	TYPE	ACC.	WIRE AND RACEWAY	CIRCUIT KEY
1	PANEL LP1: ELEC. 158	56.19 kVA	3	400 A	400 A	CB		4#500 & 1#3 GND IN 3-1/2" C....	
2	PANEL LP2: ELEC. 120	54.55 kVA	3	400 A	400 A	CB		4#500 & 1#3 GND IN 3-1/2" C.	
3	RTU-1: WEST ROOF	160.45 kVA	3	400 A	400 A	CB		3#500 & 1#3 GND IN 3-1/2" C.	
4	SPARE	0 kVA	3	400 A	400 A	--	--		--
5	SPARE	0 kVA	3	250 A	200 A	--	--		--
6	SPARE	0 kVA	3	150 A	100 A	--	--		--
7									
8									
9									
10									
11									
12									
LOAD SUMMARY (INCLUDES ALL TUBS IN THIS PANEL)									
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		TOTALS*			
HVAC		160.515 kVA	100.00%	160.515 kVA		TOTAL CONNECTED LOAD:		271.19 kVA	
Lighting		11.746 kVA	100.00%	11.746 kVA		TOTAL ESTIMATED DEMAND LOAD:		242.815 kVA	
Power		32.181 kVA	100.00%	32.181 kVA		TOTAL CONNECTED AMPS:		326.19 A	
Receptacles		66.746 kVA	57.49%	38.373 kVA		TOTAL ESTIMATED DEMAND AMPS:		292.1 A	
*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.									
CIRCUIT KEY NOTES:									

DISTRIBUTION PANEL DP-G									
ENCLOSURE: NEMA 3R FED FROM: 0 A/0P @ LOCATION:			SOLID NEUTRAL GROUND BUS			MAIN: 600 A MCB VOLTS: 480/277 Wye PHASE: 3 WIRE: 4 SCCR: 42 kA ISC UNKNOWN 0 A			
NOTES: THIS DIST. PANEL IS A PART OF BASE BID.									
CKT	LOAD DESCRIPTION	LOAD	POLES	FRAME	TRIP	TYPE	ACC.	WIRE AND RACEWAY	CIRCUIT KEY
1	ATS-1	13.26 kVA	3	150 A	100 A	CB		4#1 W & 1#6 GND, IN 2" C.	
2	ATS-2	205.6 kVA	3	400 A	300 A	CB		4#350 W & 1#4 GND, IN 3" C.	
3	ATS-3	101.43 kVA	3	200 A	150 A	CB		3#110 W & 1#6 GND, IN 2" C.	
4	SPARE	0 kVA	3	400 A	400 A	--	--		--
5									
LOAD SUMMARY (INCLUDES ALL TUBS IN THIS PANEL)									
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		TOTALS*			
HVAC		101.426 kVA	100.00%	101.426 kVA		TOTAL CONNECTED LOAD:		320.28 kVA	
Lighting		3.551 kVA	100.00%	3.551 kVA		TOTAL ESTIMATED DEMAND LOAD:		309.452 kVA	
Power		183.645 kVA	100.00%	183.645 kVA		TOTAL CONNECTED AMPS:		385.24 A	
Receptacles		31.66 kVA	65.79%	20.83 kVA		TOTAL ESTIMATED DEMAND AMPS:		372.2 A	
*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.									
CIRCUIT KEY NOTES:									

DISTRIBUTION PANEL DP-G1									
ENCLOSURE: NEMA 3R FED FROM: 0 A/0P @ LOCATION:			SOLID NEUTRAL GROUND BUS			MAIN: 1,200 A MCB VOLTS: 480/277 Wye PHASE: 3 WIRE: 4 SCCR: 42 kA ISC UNKNOWN 0 A			
NOTES: THIS DIST. PANEL IS A PART OF ALTERNATE #3 WITH THE 800KW GENERATOR.									
CKT	LOAD DESCRIPTION	LOAD	POLES	FRAME	TRIP	TYPE	ACC.	WIRE AND RACEWAY	CIRCUIT KEY
1	ATS-1	13.26 kVA	3	150 A	100 A	CB	--	4#1 W & 1#6 GND IN 2" C.	--
2	ATS-2	205.2 kVA	3	400 A	300 A	CB	--	4#350 W & 1#3 GND IN 3" C.	--
3	ATS-3	101.43 kVA	3	200 A	150 A	CB	--	4#110 W & 1#6 GND IN 2" C.	--
4	ATS-4	271.19 kVA	3	800 A	600 A	CB	--	2 SETS OF 4#500 W & 1#110 GND IN 3-1/2" C.	--
5	SPARE	0 kVA	3	400 A	400 A	--	--		--
LOAD SUMMARY (INCLUDES ALL TUBS IN THIS PANEL)									
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND		TOTALS*			
HVAC		261.941 kVA	100.00%	261.941 kVA		TOTAL CONNECTED LOAD:		592.07 kVA	
Lighting		15.297 kVA	100.00%	15.297 kVA		TOTAL ESTIMATED DEMAND LOAD:		537.567 kVA	
Power		215.826 kVA	100.00%	215.826 kVA		TOTAL CONNECTED AMPS:		712.17 A	
Receptacles		99.006 kVA	44.95%	44.503 kVA		TOTAL ESTIMATED DEMAND AMPS:		646.61 A	
*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.									
CIRCUIT KEY NOTES:									





Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**  
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Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E702.dwg  
DRAWN BY: ZMB  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
ELECTRICAL PANEL  
SCHEDULES

SHEET NUMBER:

**E702**

SHEET 188 OF 202

08/01/2023

**PANEL LP3  
(ALTERNATE #04)**  
SOLID NEUTRAL  
GROUND BUS

MOUNTING: SURFACE  
ENCLOSURE: NEMA PB 1  
FED FROM: 200 A/3P CB @ MSB  
LOCATION: Storage 203

MAIN: 200 A MCB  
VOLTS: 480/277 Wye  
PHASE: 3  
WIRE: 4  
SCCR: 18 kA  
ISC UNKNOWN 0.00 kA

NOTES:

KEY	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H N G	A	B	C	WIRE SIZE G N H P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	KEY
	1	TR-3: FIRING RANGE	100 A	3	1 12 12 12	5.66	2.25		12 12 12 12	20 A	LTS: FIRING RANGE LTS	2	
	3						5.78	3.1			RTU-FR-1: FIRING RANGE ROOF	4	
	5							7.72	3.1			6	
	7	EF-FR-1: FIRING RANGE ROOF	20 A	3	12 12 12	2.03	3.1				FR-DOAU-1: OUTSIDE FIRING...	10	
	9						2.03	32.37		6 1 1 3	125 A		
	11							2.03	32.37				
	13	SPARE	20 A	1	1 12 12 12	0	32.37				SPARE	14	
	15	SPARE	20 A	1	1 12 12 12	0	0			1 20 A	SPARE	16	
	17	SPARE	20 A	1	1 12 12 12	0	0			1 20 A	SPARE	18	
	19	SPARE	20 A	1	1 12 12 12	0	0			1 20 A	SPARE	20	
	21	SPARE	20 A	1	1 12 12 12	0	0			1 20 A	SPARE	22	
	23	SPARE	20 A	1	1 12 12 12	0	0			1 20 A	SPARE	24	
	25	SPARE	20 A	1	1 12 12 12	0	0			1 20 A	SPARE	26	
	27	SPARE	20 A	1	1 12 12 12	0	0			1 20 A	SPARE	28	
	29	SPACE									SPACE	30	
	31	SPACE									SPACE	32	
	33	SPACE									SPACE	34	
	35	SPACE									SPACE	36	
	37	SPACE									SPACE	38	
	39	SPACE									SPACE	40	
	41	SPACE									SPACE	42	
		<b>Total Load:</b>				45.41 kVA	43.28 kVA	45.22 kVA					
		<b>Total Amps:</b>				165.02	156.26	164.33					

LOAD SUMMARY				
LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*
Lighting	2.251 kVA	100.00%	2.251 kVA	
Other	0 kVA	0.00%	0 kVA	
Power	123.063 kVA	100.00%	123.063 kVA	<b>TOTAL CONNECTED LOAD:</b> 133.914 kVA
Receptacles	8.6 kVA	100.00%	8.6 kVA	<b>TOTAL CONNECTED AMPS:</b> 161.07 A
				<b>TOTAL ESTIMATED DEMAND AMPS:</b> 161.1 A

\*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES:

**PANEL RP3  
(ALTERNATE #04)**  
SOLID NEUTRAL

MOUNTING: SURFACE  
ENCLOSURE: NEMA PB 1  
FED FROM: 150 A/3P @ TR-3  
LOCATION: Storage 203

MAIN: 150 A  
VOLTS: 120/208 Wye  
PHASE: 3  
WIRE: 4  
SCCR: 18 kA  
ISC UNKNOWN

NOTES:

KEY	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H N G	A	B	C	WIRE SIZE G N H P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	KEY	
	1	REC: ELEC. RR. CONTROL	20 A	1	12 12 12	1.08	0.9		12 12 12 12	20 A	REC: OUTDOOR & ROOF	2		
	3	REC: WORKROOM	20 A	1	12 12 12		0.72	0.5			WH-2: FIRING RANGE	4		
	5	REC: OFFICE & CORRIDOR	20 A	1	12 12 12			0.72	0.5		WH-2: FIRING RANGE	6		
	7	REC: FIRING RANGE PLAN	20 A	1	12 12 12	0.18	0.5				WH-2: FIRING RANGE	8		
	9	REC: FIRING RANGE PLAN	20 A	1	12 12 12		1	0.06			CEF-FR-1: FIRING RANGE	10		
	11	REC: FIRING RANGE PLAN	20 A	1	12 12 12			1	2		SERVICE REC: FIRING RANGE PLAN	12		
	13	REC: FIRING RANGE PLAN	20 A	1	12 12 12	1	2					14		
	15	REC: FIRING RANGE PLAN	20 A	1	12 12 12		1	2.5		10 10 10 2	30 A	CEH-3: FIRING RANGE	16	
	17	REC: FIRING RANGE PLAN	20 A	1	12 12 12			1	2.5				18	
	19	SPARE	20 A	1	1 12 12 12	0	0				SPARE	20		
	21	SPARE	20 A	1	1 12 12 12	0	0				SPARE	22		
	23	SPARE	20 A	1	1 12 12 12	0	0			0 0	SPARE	24		
	25	SPARE	20 A	1	1 12 12 12	0	0				SPARE	26		
	27	SPARE	20 A	1	1 12 12 12	0	0			0 0	SPARE	28		
	29	SPARE	20 A	1	1 12 12 12	0	0			0 0	SPARE	30		
	31	SPARE	20 A	1	1 12 12 12	0	0				SPARE	32		
	33	SPARE	20 A	1	1 12 12 12	0	0				SPARE	34		
	35	SPARE	20 A	1	1 12 12 12	0	0			0 0	SPARE	36		
	37	SPARE	20 A	1	1 12 12 12	0	0				SPARE	38		
	39	SPARE	20 A	1	1 12 12 12	0	0			0 0	SPARE	40		
	41	SPARE	20 A	1	1 12 12 12	0	0				SPARE	42		
		<b>Total Load:</b>				5.66 kVA	5.78 kVA	7.72 kVA						
		<b>Total Amps:</b>				47.17	48.35	64.49						

LOAD SUMMARY				
LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*
Power	10.563 kVA	100.00%	10.563 kVA	
Receptacles	8.6 kVA	100.00%	8.6 kVA	<b>TOTAL CONNECTED LOAD:</b> 19.16 kVA
				<b>TOTAL ESTIMATED DEMAND LOAD:</b> 19.163 kVA
				<b>TOTAL CONNECTED AMPS:</b> 53.19 A
				<b>TOTAL ESTIMATED DEMAND AMPS:</b> 53.2 A

\*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES:

**PANEL ERP1**  
SOLID NEUTRAL

MOUNTING: SURFACE  
ENCLOSURE: NEMA PB 1  
FED FROM: 100 A/3P @ TR-E1  
LOCATION: Elec. 158

MAIN: 100 A MCB  
VOLTS: 120/208 Wye  
PHASE: 3  
WIRE: 4  
SCCR: 10 kA  
ISC UNKNOWN

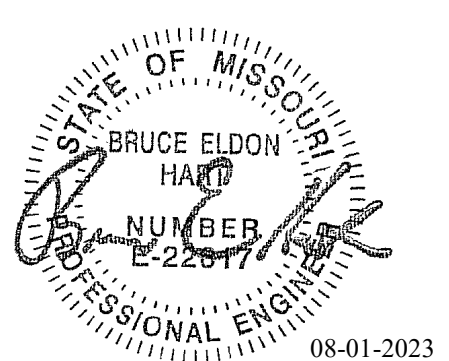
NOTES: FURNISH AND INSTALL INTERNAL SPD IN THIS PANEL.

KEY	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H N G	A	B	C	WIRE SIZE G N H P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	KEY
	1	AUTODOOR: VESTIBULE 145	20 A	1	12 12 12	1	0.3		12 12 12 12	20 A	DIP PANEL: FIRE RISER 170	2	
	3	SPD	30 A	3			0	0.51			AIR COMP: FIRE RISER 170	4	
	5							0	0.2		DRY PIPE VALVE: FIRE RISER 170	6	
	7					0	0.3				FIRE ALARM PANEL: ELEC RM 158	8	
	9	GEN BATTERY HEATER: UTILITY YARD	20 A	1	12 12 12		0.5	0.3			FIRE ALARM EXT. PANEL: ELEC RM 125	10	
	11	GEN HEATER: UTILITY YARD	20 A	2	12 12 12			0.5	0.3		FIRE ALARM EXT. PANEL: FR ELEC RM	12	
	13					0.5	0.5				GEN BATTERY CHRGR: UTILITY YARD	14	
	15	GEN BLOCK HEATER: UTILITY YARD	35 A	2	8 8 10		2.5	0			SPARE	16	
	17							2.5	0		SPARE	18	
	19	SPARE	20 A	1	1 12 12 12	0	0				SPARE	20	
	21	SPARE	20 A	1	1 12 12 12	0	0				SPARE	22	
	23	SPARE	20 A	1	1 12 12 12	0	0				SPARE	24	
	25	SPARE	20 A	1	1 12 12 12	0	0				SPARE	26	
	27	SPARE	20 A	1	1 12 12 12	0	0				SPARE	28	
	29	SPACE						0	0		SPACE	30	
	31	SPACE				0	0				SPACE	32	
	33	SPACE				0	0				SPACE	34	
	35	SPACE				0	0				SPACE	36	
	37	SPACE				0	0				SPACE	38	
	39	SPACE				0	0				SPACE	40	
	41	SPACE				0	0				SPACE	42	
	43	SPACE									SPACE	44	
	45	SPACE									SPACE	46	
	47	SPACE									SPACE	48	
	49	SPACE									SPACE	50	
	51	SPACE									SPACE	52	
	53	SPACE									SPACE	54	
	55	SPACE									SPACE	56	
	57	SPACE									SPACE	58	
	59	SPACE									SPACE	60	
	61	SPACE									SPACE	62	
	63	SPACE									SPACE	64	
	65	SPACE									SPACE	66	
	67	SPACE									SPACE	68	
	69	SPACE									SPACE	70	
	71	SPACE									SPACE	72	
	73	SPACE									SPACE	74	
	75	SPACE									SPACE	76	
	77	SPACE									SPACE	78	
	79	SPACE									SPACE	80	
	81	SPACE									SPACE	82	
	83	SPACE									SPACE	84	
		<b>Total Load:</b>				2.60 kVA	3.81 kVA	3.50 kVA					
		<b>Total Amps:</b>				21.67	32.90	30.32					

LOAD SUMMARY				
LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*
Power	9.91 kVA	100.00%	9.91 kVA	
				<b>TOTAL CONNECTED LOAD:</b> 9.91 kVA
				<b>TOTAL ESTIMATED DEMAND LOAD:</b> 9.91 kVA
				<b>TOTAL CONNECTED AMPS:</b> 27.51 A
				<b>TOTAL ESTIMATED DEMAND AMPS:</b> 27.5 A

\*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES:



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**  
Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.9200 gastingerwalker.com  
Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E703.dwg  
DRAWN BY: ZMB  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
**ELECTRICAL PANEL  
SCHEDULES**

SHEET NUMBER:

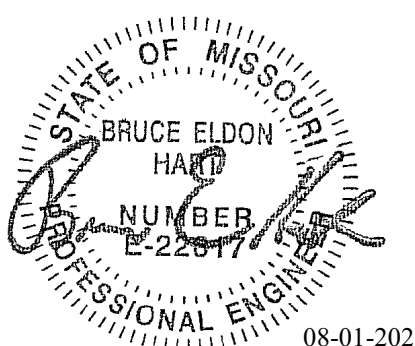
**E703**

SHEET 189 OF 202

08/01/2023

PANEL ERP2																			
MOUNTING: SURFACE ENCLOSURE: NEMA PB 1 FED FROM: 225 A/3P @ TR-E2 LOCATION: Elec. 158										SOLID NEUTRAL					MAIN: 225 A MCB VOLTS: 120/208 Wye PHASE: 3 WIRE: 4 SCCR: 10 kA ISC UNKNOWN				
NOTES: FURNISH AND INSTALL INTERNAL SPD IN THIS PANEL.																			
K E Y	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H N G	A	B	C	WIRE SIZE G N H	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	K E Y					
	1	FRIDGE: EVIDENCE OFFICE 153	20 A	1	12 12 12	1.5	1.22		12 12 12	1	20 A	FB, REC:TROOP MEETING RM 104	2						
	3	FRIDGE: EVIDENCE OFFICE 173	20 A	1	12 12 12				12 12 12	1	20 A	FB, TV, REC:TROOP MEETING RM...	4						
	5	FRIDGE: EVIDENCE STORAGE 176	20 A	1	12 12 12				12 12 12	1	20 A	REC: CORRIDOR	6						
	7	FREEZER: EVIDENCE STORAGE 176	20 A	1	12 12 12	1.5	1.54		12 12 12	1	20 A	FB, TV, REC:TROOP MEETING RM...	8						
	9	OVERHEAD DOOR: SPLY/STOR. 168	20 A	1	12 12 12			1.18	0.06		12 12 12	1	20 A	CEF-5: TOILET 156	10				
	11	OVERHEAD DOOR: AUTOMOBILE...	20 A	1	12 12 12						12 12 12	1	20 A	TCP: MECH 171	12				
	13	LIFT: RADIO BAY 165	20 A	2	12 12 12	0.75	1.4				12 12 12	2	20 A	BLR-1: MECHANICAL 171	14				
--	15	--	--	--	--	--	--				--	--	--	16	--				
	17	REC: RADIO BAY 165	20 A	1	12 12 12			0.72	1.4		12 12 12	2	20 A	BLR-2: MECHANICAL 171	18				
	19	CU-ER-2: EAST ROOF PLAN	25 A	2	10 10 10	1.58	1.4				--	--	--	20	--				
--	21	--	--	--	--	--	--				12 12 12	1	20 A	REC: SWAT 169, FIRE 170	22				
	23	CU-ER-3: EAST ROOF PLAN	25 A	2	10 10 10			1.58	1.58	10 10 10	2	25 A	CU-ER-1: WEST ROOF PLAN	24					
--	25	--	--	--	--	1.58	1.58				--	--	--	26	--				
	27	RTU-2 LTS: EAST ROOF	20 A	1	--	--	--	0.2	0.67		12 12 12	1	20 A	EF-3: WEST ROOF PLAN	28				
	29	FB: CONFER. 104	20 A	1	12 12 12			0.54	0.06	12 12 12	1	20 A	PRV-DR-1: WEST ROOF PLAN	30					
	31	PROJECTORS: TROOP MEETING R...	20 A	1	--	--	--	0.6	0		--	--	3	30 A	SPD	32			
	33	REC, TV: CONFERENCE 104	20 A	1	12 12 12			1.72	0		--	--	--	34	--				
	35	REC: EAST ROOF	20 A	1	8 8 8			0.72	0		--	--	--	36	--				
	37	TCP: ELEC 120	20 A	1	12 12 12	0.3	0				--	--	1	20 A	SPARE	38			
	39	HWCP-1: MECHANICAL 171	20 A	2	12 12 12			1.4	0		--	--	1	20 A	SPARE	40			
--	41	--	--	--	--	--	--				--	--	1	20 A	SPARE	42			
	43	HWCP-2: MECHANICAL 171	20 A	2	12 12 12	1.4	0				--	--	1	20 A	SPARE	44			
--	45	--	--	--	--	--	--				--	--	1	20 A	SPARE	46			
--	47	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	48			
--	49	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	50			
--	51	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	52			
--	53	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	54			
--	55	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	56			
--	57	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	58			
--	59	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	60			
--	61	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	62			
--	63	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	64			
--	65	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	66			
--	67	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	68			
--	69	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	70			
--	71	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	72			
--	73	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	74			
--	75	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	76			
--	77	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	78			
--	79	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	80			
--	81	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	82			
--	83	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	84			
<b>Total Load:</b>						16.35 kVA	14.26 kVA	14.04 kVA											
<b>Total Amps:</b>						136.54	119.14	117.03											
LOAD SUMMARY																			
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*														
Lighting		0.2 kVA	100.00%	0.2 kVA	TOTAL CONNECTED LOAD:		44.66 kVA												
Power		26.539 kVA	100.00%	26.539 kVA	TOTAL ESTIMATED DEMAND LOAD:		40.699 kVA												
Receptacles		17.92 kVA	77.90%	13.96 kVA	TOTAL CONNECTED AMPS:		123.96 A												
					TOTAL ESTIMATED DEMAND AMPS:		113 A												
*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.																			
CIRCUIT KEY NOTES:																			

PANEL RP1																			
MOUNTING: SURFACE ENCLOSURE: NEMA PB 1 FED FROM: 225 A/3P @ TR-1 LOCATION: Elec. 158										SOLID NEUTRAL					MAIN: 225 A VOLTS: 120/208 Wye PHASE: 3 WIRE: 4 SCCR: 10 kA ISC UNKNOWN				
NOTES:																			
K E Y	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H N G	A	B	C	WIRE SIZE G N H	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	K E Y					
	1	REC: OBS. & INTERVIEW	20 A	1	12 12 12	1.08	0.9				12 12 12	1	20 A	REC: EXTERIOR WEST	2				
	3	REC: SHOWERS, CORRIDOR, ELEC.	20 A	1	12 12 12			0.72	1.08		12 12 12	1	20 A	REC: E STORAGE, C. STORAGE...	4				
	5	PRINTER: INTAKE 155	20 A	1	12 12 12					1.5	0.9	12 12 12	1	20 A	REC: EVIDENCE STORAGE	6			
	7	REC: INTAKE & TOILET	20 A	1	12 12 12	1.08	0.9				12 12 12	1	20 A	REC: EVI. OFFICE, L.F. STORAGE...	8				
	9	REC, TV: OFFICES 153 & 172	20 A	1	12 12 12			1.4	1.5		12 12 12	1	20 A	PRINTER: EVIDENCE OFFICE 173	10				
	11	REC, TV: SRGNT 150 & DDCC 151	20 A	1	12 12 12					1.58	1.18	12 12 12	1	20 A	OVERHEAD DOOR: SPLY/STOR. 168	12			
	13	PRINTER: DDCC 151	20 A	1	12 12 12	1.5	0.9				12 12 12	1	20 A	REC: RM 168, 171, 174	14				
	15	REC: SRGNT & CORP.	20 A	1	12 12 12			1.08	1.5		12 12 12	1	20 A	PRINTER: SUPPLY/STOR. 168	16				
*G	17	REC: DISHWASHER: KITCHEN	20 A	1	12 12 12					0.18	1.26	12 12 12	1	20 A	REC: RM 165, 167	18			
	19	REC: FRIDGE: KITCHEN	20 A	1	12 12 12	0.8	1.42				12 12 12	1	20 A	BRAKE MACH: SUPPLY/STOR. 168	20				
	21	REC: KITCHEN	20 A	1	12 12 12			0.9	1.5		12 12 12	1	20 A	PRINTER: OFFICE 166	22				
	23	RANGE: KITCHEN 147	20 A	2	12 12 12					1	1.26	12 12 12	1	20 A	REC: RADIO 165, OFFICE 166	24			
--	25	--	--	--	--	1	0.51				12 12 12	1	20 A	WH-1: MECHANICAL 171	26				
	27	REC: VENDING	20 A	1	12 12 12			1.5	0.51		12 12 12	1	20 A	WH-1: MECHANICAL 171	28				
	29	REC: VENDING	20 A	1	12 12 12					1.5	0.03	12 12 12	1	20 A	UH-1: MECHANICAL 171	30			
*G	31	EW-C-1: VENDING 182	20 A	1	12 12 12	1	1				12 12 12	1	20 A	REC: MICROWAVE GARAGE AREA	32				
	33	REC: CORR, WOMEN, CAFE, LOBBY	20 A	1	12 12 12			1.44	0.75		12 12 12	1	20 A	REC: UC FRIDGE GARAGE AREA	34				
	35	LIFT: RADIO BAY 165	20 A	2	12 12 12					0.75	1.18	12 12 12	1	20 A	OVERHEAD DOOR: AUTOMOBILE...	36			
--	37	--	--	--	--	0.75	1.18				12 12 12	1	20 A	OVERHEAD DOOR: AUTOMOBILE...	38				
	39	KEF-1: KITCHEN 147	20 A	1	12 12 12			0.06	0.2		12 12 12	1	20 A	RTU-1 LTS: WEST ROOF	40				
	41	CEF-4: TOILET 178	20 A	1	12 12 12					0.06	0.67	12 12 12	1	20 A	EF-4: WEST ROOF PLAN	42			
	43	WASTE OIL HEATER: RADIO REPAI...	30 A	1	10 10 10	1.6	0				12 12 12	1	20 A	PUMP: RADIO BAY 165	44				
	45	REC: WEST ROOF	20 A	1	10 10 10			0.72	0		--	--	1	20 A	SPARE	46			
	47	REC: GARB. DISP. KITCHEN 147	20 A	1	12 12 12					0.2	0	--	--	1	20 A	SPARE	48		
--	49	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	50			
--	51	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	52			
--	53	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	54			
--	55	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	56			
--	57	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	58			
--	59	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	60			
--	61	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	62			
--	63	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	64			
--	65	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	66			
--	67	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	68			
--	69	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	70			
--	71	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	72			
--	73	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	74			
--	75	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	76			
--	77	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	78			
--	79	SPARE	20 A	1	--	--	--	0	0		--	--	1	20 A	SPARE	80			
--	81	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	82			
--	83	SPARE	20 A	1	--	--	--				--	--	1	20 A	SPARE	84			
<b>Total Load:</b>						15.62 kVA	14.86 kVA	13.26 kVA											
<b>Total Amps:</b>						132.19	125.92	110.47											
LOAD SUMMARY																			
LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*														



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**  
Architects | Interior Designers | Construction Managers  
817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
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REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: E704.dwg  
DRAWN BY: JTS  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
**ELECTRICAL PANEL  
SCHEDULES**

SHEET NUMBER:

**E704**

SHEET 190 OF 202

08/01/2023

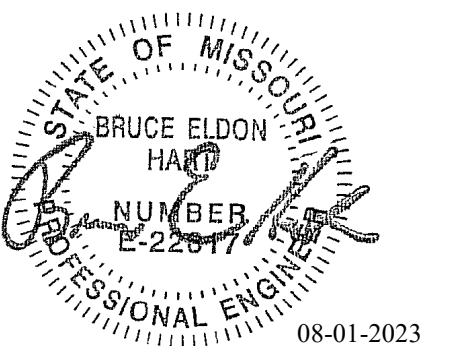
RP2																				
MOUNTING: SURFACE ENCLOSURE: NEMA PB 1 FED FROM: 225 A/3P @ TR-2 LOCATION: Elec. 120																				
SOLID NEUTRAL																				
MAIN: 225 A VOLTS: 120/208 Wye PHASE: 3 WIRE: 4 SCCR: ISC UNKNOWN																				
NOTES:																				
KEY	CKT NO.	LOAD DESCRIPTION	OCDP AMPS	P	H	N	G	A	B	C	WIRE SIZE G N H	WIRE SIZE P	OCDP AMPS	LOAD DESCRIPTION	CKT NO.	KEY				
	1	REC: CLERK & CHIEF	20 A	1	12	12	12	1.08	1.5		12	12	12	1	20 A	PRINTER: WORKSPACE 142	2			
	3	COPIER: CHIEF COMM.	20 A	1	12	12	12		1.8	1.34		12	12	12	1	20 A	VFP-1&2: OPEN WORKSPACE 142	4		
	5	REC: OPEN OFFICE, LT 136 & 137	20 A	1	12	12	12			1.08	1.44					FB-1 POWER FURN: OPEN WORK...	6			
	7	REC. TV: LT. 360, CAPTAIN ASST. &...	20 A	1	12	12	12	1.9	1.44									8	--	
	9	PRINTER: CAPTAIN ASST. 135	20 A	1	12	12	12		1.5	1.44								10	--	
	11	FAX: CAPTAIN ASST. 135	20 A	1	12	12	12			0.18	1.5					PRINTER: OPEN WORKSPACE 142	12			
	13	CAPTAIN & LT. 112	20 A	1	12	12	12	1.58	1.08							REC: CC AND ASST. ENGR	14			
	15	REC. TV: LT. 111 & 112	20 A	1	12	12	12		1.9	0.72						REC: MEN/WOMEN RECEP.	16			
	17	REC: LT 109 & CLERK	20 A	1	12	12	12			1.26	1.26					REC: 2 ZONE OFFICE	18			
	19	REC. TV: LT 108 & 109	20 A	1	12	12	12	1.9	1.08							REC: SRGNT & 2 ZONE SRGNT	20			
	21	REC: RECRUIT & SRGNT/ CLERK III	20 A	1	12	12	12		0.54	0.18						FRIDGE: BRK ROOM	22	*G		
	23	REC: TRNG. OFFICER & CHIEF...	20 A	1	12	12	12			1.08	1.4					MICROWAVE: BREAK RM 121	24			
	25	REC: POLICE SUPPLY & SRGNT...	20 A	1	12	12	12	1.08	1.4							COFFEE: BREAK RM 121	26			
	27	REC: MAIL 130	20 A	1	12	12	12		0.9	0.9						REC: ELEC. MEN, WOMEN, BRK...	28			
	29	FAX: MAIL 130	20 A	1	12	12	12			0.18	0.9					REC: CAFETERIA & LOBBY	30			
	31	PRINTER: MAIL 130	20 A	1	12	12	12	1.5	0.72							REC: EXTERIOR EAST	32			
	33	WH-2: TOILET 134	20 A	1	12	12	12		0.5	0.06						CUH-1: VESTIBULE 100	34			
	35	WH-3: BREAK RM 121	20 A	1	12	12	12			0.5	0.6					FB: LT 136 & 137	36			
	37	WH-4: JAN 116	20 A	1	12	12	12	0.5	0.06							CEF-1: TOILET 134	38			
	39	CP-4: JAN 116	20 A	1	12	12	12		0.51	0.51						CP-3: BREAK ROOM 121	40			
	41	CUH-2: VESTIBULE 145	20 A	1	12	12	12			0.06	0.06					CEF-3: MEN 122	42			
*G	43	EW-1: CORRIDOR 114	20 A	1	12	12	12	1	0.67							EF-1: EAST ROOF PLAN	44			
	45	CEF-2: WOMEN 123	20 A	1	12	12	12		0.06	0.67						EF-2: EAST ROOF PLAN	46			
	47	REC: GARB. DISP. BRK RM 121	20 A	1	12	12	12			0.2	1.44					FB-1 POWER FURN: OPEN WORK...	48			
	49	FB: LT 108 & 109	20 A	1	12	12	12	0.6	1.44									50	--	
	51	FB: LT 111 & 112	20 A	1	12	12	12		0.6	1.44								52	--	
	53	FB: CAPTAIN 133	20 A	1	12	12	12			0.6	0					SPARE		54	--	
--	55	SPARE	20 A	1	--	--	--	0	0							SPARE		56	--	
--	57	SPARE	20 A	1	--	--	--	0	0							SPARE		58	--	
--	59	SPARE	20 A	1	--	--	--			0	0					SPARE		60	--	
--	61	SPARE	20 A	1	--	--	--	0	0							SPARE		62	--	
--	63	SPARE	20 A	1	--	--	--			0	0					SPARE		64	--	
--	65	SPARE	20 A	1	--	--	--			0	0					SPARE		66	--	
--	67	SPARE	20 A	1	--	--	--	0	0							SPARE		68	--	
--	69	SPARE	20 A	1	--	--	--			0	0					SPARE		70	--	
--	71	SPARE	20 A	1	--	--	--			0	0					SPARE		72	--	
--	73	SPARE	20 A	1	--	--	--	0	0							SPARE		74	--	
--	75	SPARE	20 A	1	--	--	--			0	0					SPARE		76	--	
--	77	SPARE	20 A	1	--	--	--			0	0					SPARE		78	--	
--	79	SPARE	20 A	1	--	--	--	0	0							SPARE		80	--	
--	81	SPARE	20 A	1	--	--	--			0	0					SPARE		82	--	
--	83	SPARE	20 A	1	--	--	--			0	0					SPARE		84	--	
		<b>Total Load:</b>						20.53 kVA	15.58 kVA	13.75 kVA										
		<b>Total Amps:</b>						173.45	132.15	114.55										

LOAD SUMMARY				
LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*
HVAC	0.063 kVA	100.00%	0.063 kVA	
Power	15.092 kVA	100.00%	15.092 kVA	<b>TOTAL CONNECTED LOAD:</b> 49.86 kVA
Receptacles	34.7 kVA	64.41%	22.35 kVA	<b>TOTAL ESTIMATED DEMAND LOAD:</b> 37.505 kVA
				<b>TOTAL CONNECTED AMPS:</b> 138.38 A
				<b>TOTAL ESTIMATED DEMAND AMPS:</b> 104.1 A

\*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES: \*G=GFCI BREAKER

PANEL UP1																		
MOUNTING: SURFACE ENCLOSURE: NEMA PB 1 FED FROM: 20 A/3P @ UPS XFMR LOCATION: Elec. 125																		
SOLID NEUTRAL																		
MAIN: 300 A MCB VOLTS: 120/208 Wye PHASE: 3 WIRE: 4 SCCR: 10 kA ISC UNKNOWN																		
NOTES:																		
KEY	CKT NO.	LOAD DESCRIPTION	OCDP AMPS	P	H	N	G	A	B	C	WIRE SIZE G N H	WIRE SIZE P	OCDP AMPS	LOAD DESCRIPTION	CKT NO.	KEY		
	1	REC: RADIO ROOM 119	20 A	1	12	12	12	0.72	1.2		12	12	12	1	20 A	FB-1: RADIO ROOM 119	2	
	3	PRINTER: RADIO ROOM 119	20 A	1	12	12	12		1.5	1.2						FB-1: RADIO ROOM 119	4	
	5	REC: RADIO EQUIP. 118	20 A	1	12	12	12			1.08	1.2					FB-1: RADIO ROOM 119	6	
	7	REC: RECEPTION 102	20 A	1	12	12	12	0.72	1.2							FB-1: RADIO ROOM 119	8	
	9	REC: RECEPTION 102	20 A	1	12	12	12		0.72	1.2						FB-1: RADIO ROOM 119	10	
	11	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.2					FB-1: RADIO ROOM 119	12	
--	13	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	14	
--	15	--	--	--	--	--	--	1.33	1.33							--	16	--
--	17	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	18	--
--	19	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	20	--
--	21	--	--	--	--	--	--	1.33	1.33							--	22	--
--	23	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	24	--
--	25	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	26	--
--	27	--	--	--	--	--	--	1.33	1.33							--	28	--
--	29	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	30	--
--	31	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	32	--
--	33	--	--	--	--	--	--	1.33	1.33							--	34	--
--	35	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	36	--
--	37	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	38	--
--	39	--	--	--	--	--	--	1.33	1.33							--	40	--
--	41	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	42	--
--	43	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	44	--
--	45	--	--	--	--	--	--	1.33	1.33							--	46	--
--	47	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	48	--
--	49	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	50	--
--	51	--	--	--	--	--	--	1.33	1.33							--	52	--
--	53	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	54	--
--	55	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	56	--
--	57	--	--	--	--	--	--	1.33	1.33							--	58	--
--	59	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	60	--
--	61	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	62	--
--	63	--	--	--	--	--	--	1.33	1.33							--	64	--
--	65	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	66	--
--	67	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	68	--
--	69	--	--	--	--	--	--	1.33	1.33							--	70	--
--	71	IT RACK: RADIO EQUIP 118	30 A	3	10	10	10			1.33	1.33					--	72	--
--	73	--	--	--	--	--	--	1.33	1.33							IT RACK: RADIO EQUIP 118	74	--
--	75	--	--	--	--	--	--	1.33	1.33							--	76	--
--	77	SPD	30 A	3	--	--	--	0	1.									



Bruce E Hart - Engineer  
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 Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: T000.dwg  
DRAWN BY: NJW  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
**TECHNOLOGY  
COVERSHEET**

SHEET NUMBER:

**T000**

SHEET 191 OF 202

08/01/2023

### VIEW KEY

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

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

INDICATES DIRECTION OF TRUE NORTH

PLAN OR DETAIL NUMBER

PLAN OR DETAIL NAME

**VIEW NAME**

1/8" = 1'-0"

PLAN OR DETAIL SCALE

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS

DETAIL REFERRED TO BY SECTION CUT

M101 → SHEET DETAIL IS LOCATED ON

**LINE TYPE AND TAG KEY:**

NEW WORK BY THIS CONTRACTOR (WIDE LINE)

NEW

EXISTING TO BE REMOVED (SHORT DASHED PATTERN)

NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)

EXISTING

EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)

EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE.

TAG-E TAGS WITH DASH 'E' INDICATES THE REFERENCED OBJECT IS EXISTING

TAG UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

### CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
S.C.	SECURITY CONTRACTOR

### TECHNOLOGY ABBREVIATION KEY

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFC	BELOW FINISHED CEILING
C	CONDUIT
DE	DELAYED EGRESS
DPDT	DOUBLE POLE DOUBLE THROW
FOV	FIELD OF VIEW
J-BOX	JUNCTION BOX
POE	POWER OVER ETHERNET
PTZ	PAN TILT ZOOM
SIM	SIMILAR
TYF	TYPICAL
UON	UNLESS OTHERWISE NOTED
+#	MOUNTING HEIGHT ABOVE FINISHED FLOOR
MTR	MAIN TELECOMMUNICATIONS ROOM
TR-#	TELECOMMUNICATIONS ROOM

### TECHNOLOGY SYMBOL LIST

SYMBOL:	EQUIPMENT LIST ABBREV.:	DESCRIPTION:	NOTE:
	SC-IO-E	INFORMATION OUTLET IN FLOOR BOX/POKE THROUGH	4
	SC-IO-W	INFORMATION OUTLET (WALL)	1.
	SC-IO-W	INFORMATION OUTLET WALL PHONE (WALL)	1.
	SC-IO-C	INFORMATION OUTLET (CEILING)	1.
	N/A	CONTROLLED SECURITY SCHEME SCHEDULE IDENTIFIER, ROUGH IN ONLY	2
	AC-CR1-W	SECURITY CREDENTIAL READER (WALL) TYPE 1, ROUGH IN ONLY	2
	VS-CM-#	VIDEO SURVEILLANCE CAMERA 360° FOV (WALL/VERTICAL SURFACE)	3
	VS-CM-#	VIDEO SURVEILLANCE CAMERA SINGLE LENS FOV (CEILING/HORIZONTAL SURFACE)	3
	IC-IM1-W	INTERCOM MASTER STATION (WALL) TYPE 1	.
	IC-IS1-W	INTERCOM DOOR STATION (WALL) TYPE 1	.
		CABLE TRAY, CHANNEL TRAY, BASKET TRAY	
		LADDER RACK	
		CONDUIT	
		CONDUIT DOWN	
		CONDUIT UP OR UP/DOWN	
		CONDUIT SLEEVE	
		CONTINUATION	

**GENERAL NOTES:**

- ALL SYMBOLS AND ABBREVIATIONS LISTED MAY NOT BE APPLICABLE TO THIS PROJECT. REFER TO THE TECHNOLOGY EQUIPMENT SCHEDULE FOR MORE COMPLETE DESCRIPTION AND ITEMS.
- ALL SYMBOLS AND ABBREVIATIONS REFER TO TECHNOLOGY SHEETS ONLY AS DEFINED ON THE SHEET INDEX. REFER TO THE GENERAL TECHNOLOGY NOTES FOR ADDITIONAL INFORMATION.
- ALL SYMBOLS LISTED ABOVE ARE FOR REFERENCE ONLY. REFER TO PLANS AND LINE TYPE KEY FOR NEW, EXISTING TO REMAIN AND TO BE REMOVED ITEMS FOR ADDITIONAL INFORMATION.
- REFER TO RISERS ON SHEET: T500.

**TECHNOLOGY SYMBOL NOTES:**

- "C#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION. REFER TO INFORMATION OUTLET SCHEDULE ON T800 FOR ADDITIONAL INFORMATION.
- REFER TO CONTROLLED SECURITY SCHEME (CSS) TYPE SCHEDULE ON SHEET T600.
- "CM-#" ON PLANS INDICATES CAMERA TYPE AND IS ASSOCIATED WITH THE CORRESPONDING "VS-CM-#" EQUIPMENT SCHEDULE ABBREVIATION.
- INFORMATION OUTLET INSTALLED IN E.C. PROVIDED FLOOR BOX. "C#" INDICATES INFORMATION OUTLET FACEPLATE CONFIGURATION. REFER TO INFORMATION OUTLET SCHEDULE ON T800 FOR ADDITIONAL INFORMATION. REFER TO THE ELECTRICAL FLOOR PLANS FOR ADDITIONAL INFORMATION.

### SUGGESTED MATRIX OF RESPONSIBILITY

ITEM:	SHOWN ON:	FURNISHED BY:	INSTALLED BY:	NOTES:
TECHNOLOGY ROUGH-IN, REFER TO TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR DEFINITION	T-SERIES	E.C.	E.C.	3. 4.
INFORMATION OUTLET FACEPLATES, JACKS, AND TERMINATIONS	T-SERIES	T.C.	T.C.	
CONDUIT SLEEVES (WHEN SHOWN ON DRAWINGS)	T-SERIES	E.C.	E.C.	
CONDUIT SLEEVES (NOT SHOWN BUT REQUIRED FOR PROPER INSTALLATION OF SYSTEM)	N/A	T.C.	T.C.	2. 4.
TELECOMMUNICATION SYSTEMS ROUGH-IN	T-SERIES	E.C.	E.C.	1.
TELECOMMUNICATION EQUIPMENT, CABLING, AND TERMINATIONS	T-SERIES	T.C.	T.C.	
CABLE TRAY (INCLUDING WIRE BASKET TRAY) REFER TO SPECIFICATION SECTION 27 05 28 FOR DEFINITION	T-SERIES	E.C.	E.C.	
LADDER RACK	T-SERIES	T.C.	T.C.	5.
GROUNDING LUGS ON TECHNOLOGY EQUIPMENT	T-SERIES	T.C.	E.C.	6.
BONDING SYSTEM FOR TECHNOLOGY SYSTEM, REFER TO SPECIFICATION SECTION 27 05 26 FOR DEFINITION	T-SERIES	E.C.	E.C.	7. 8.
CONNECTION OF TECHNOLOGY BONDING SYSTEM TO THE ELECTRICAL GROUND SYSTEM	T-SERIES	E.C.	E.C.	
LINE VOLTAGE POWER (+120V OR GREATER)	E-SERIES	E.C.	E.C.	
LINE VOLTAGE POWER (NOT SHOWN BUT REQUIRED FOR PROPER INSTALLATION OF SYSTEM)	N/A	T.C.	E.C.	2. 4.
LINE VOLTAGE POWER FOR DOOR HARDWARE POWER SUPPLIES	ARCH SPEC	E.C.	E.C.	
LOW VOLTAGE CABLING FOR TECHNOLOGY SYSTEMS	T-SERIES	T.C.	T.C.	
CABLE HANGERS AND SUPPORTS OR OTHER CABLE ROUTING METHODS (OTHER THAN CONDUIT AND CABLE TRAY)	T-SERIES	T.C.	T.C.	5.
TECHNOLOGY SERVICE ENTRANCE CONDUITS, HANDHOLES, AND MANHOLES	T-SERIES	E.C.	E.C.	
ACCESS CONTROL CABLING	T-SERIES	T.C.	T.C.	
INTERCOM SYSTEM CABLING	T-SERIES	T.C.	T.C.	
AV ROUGH-IN	T-SERIES	E.C.	E.C.	
AV CABLING	T-SERIES	T.C.	T.C.	

### SUGGESTED MATRIX OF RESPONSIBILITY NOTES

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

### TELECOM ROOM REFERENCES

TELECOM ROOM	DETAIL / SHEET REFERENCE	FLOOR PLAN REFERENCE	ARCH ROOM NUMBER
MTR	1/T300	1/T201	RADIO EQUIP. 118
TR-1	4/T300	1/T202	ELEC. 158
TR-2	2/T203	1/T203	STORAGE 203

### TECHNOLOGY GENERAL NOTES:

- ###-###-# INDICATES TECHNOLOGY EQUIPMENT SCHEDULE ITEM LABELED AS "EQUIPMENT LIST ABBREVIATION"
- REFER TO TECHNOLOGY EQUIPMENT SCHEDULE AND SPECIFICATIONS FOR FULL DESCRIPTIONS AND MANUFACTURERS OF ALL DEVICES.

TECHNOLOGY MOUNTING SUBSCRIPT KEY:

A MOUNT AT +6" TO CENTERLINE ABOVE COUNTER OR BACKSPASH  
 H MOUNT ORIENTED HORIZONTALLY  
 L MOUNT IN CASEWORK  
 M MOUNT IN MODULAR FURNITURE  
 S MOUNT IN SURFACE RACEWAY

A SLASH IS USED BETWEEN TWO SUBSCRIPTS, E.G., AH.

### TECHNOLOGY INSTALLATION NOTES:

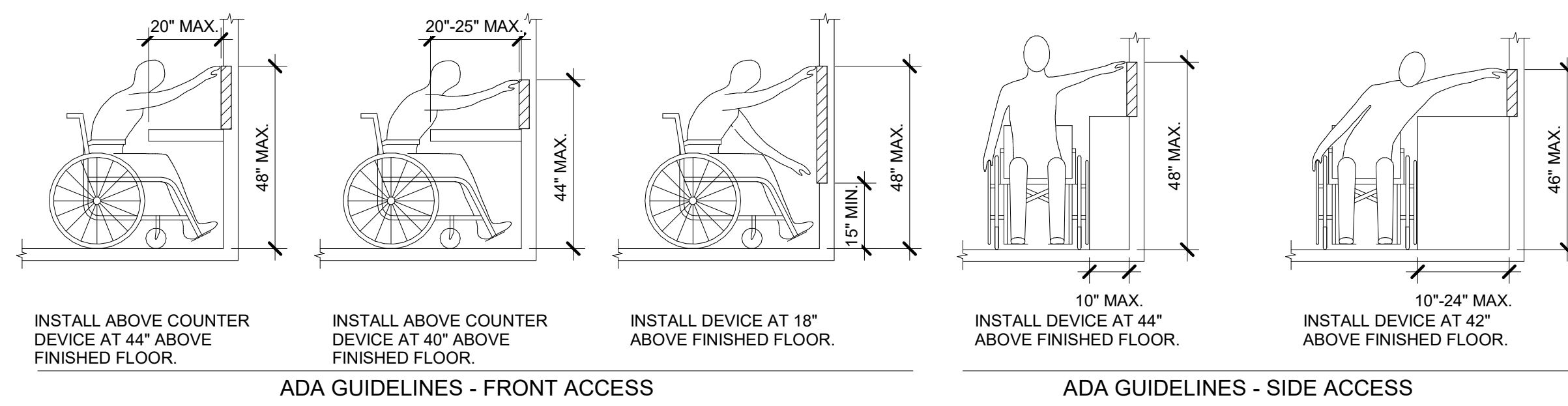
- THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN.
- CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, ABOVE CEILING, IN FLOOR SLAB, ETC. UNLESS OTHERWISE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS. CONDUIT IN MECHANICAL ROOMS AND STORAGE ROOMS WITHOUT CEILINGS MAY BE EXPOSED ON BUILDING STRUCTURE.
- BOXES LOCATED ON OPPOSITE SIDES OF NON-RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. BOXES ON OPPOSITE SIDES OF FIRE RATED WALLS SHALL BE OFFSET A MINIMUM OF 24" HORIZONTALLY. "THRU-THE-WALL" BOXES SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
- VERIFY ALL FURNITURE, MODULAR FURNITURE, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL PLANS, ELEVATIONS, AND REVIEWED SHOP DRAWINGS. PRIOR TO MAKING THE ACTUAL TELECOMMUNICATIONS INSTALLATION, ADJUST OUTLETS OR CONNECTION LOCATIONS TO ACCOMMODATE FURNITURE AND/OR EQUIPMENT.
- TELECOMMUNICATIONS EQUIPMENT SHALL BE MOUNTED TO ALLOW ACCESS TO ELECTRICAL AND MECHANICAL EQUIPMENT. ALL MOUNTING OF TELECOMMUNICATION DEVICES ON EQUIPMENT SUPPLIED BY ANOTHER CONTRACTOR SHALL BE APPROVED IN ADVANCE BY THE OTHER CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
- ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO 27 05 03 FOR ADDITIONAL INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
- ALL LADDER RACK AND CABLE TRAY SIZES ARE AS DEFINED ON THE DRAWINGS. REFER TO SPECIFICATION SECTIONS 27 05 28 AND 27 11 00 FOR APPROVED MANUFACTURERS AND INSTALLATION REQUIREMENTS.
- EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO THE WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.

### TECHNOLOGY OUTSIDE PLANT NOTES

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

### TECHNOLOGY SHEET INDEX

T000	TECHNOLOGY COVERSHEET
T011	SITE PLAN - TECHNOLOGY
T012	SITE PLAN - TECHNOLOGY (ALTERNATE #04)
T201	FLOOR PLAN - TECHNOLOGY - EAST
T202	FLOOR PLAN - TECHNOLOGY - WEST
T203	FLOOR PLAN - TECHNOLOGY - FIRING RANGE
T300	TECHNOLOGY ROOM ENLARGEMENTS
T400	TECHNOLOGY DETAILS
T401	TECHNOLOGY DETAILS
T402	TECHNOLOGY DETAILS
T500	TECHNOLOGY DIAGRAMS
T600	TECHNOLOGY SCHEDULES
GRAND TOTAL:	12

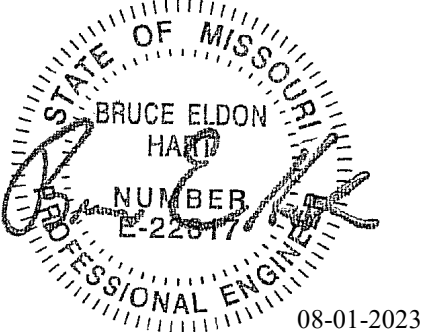


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 Missouri Certificate of Authority #F001325536

REF. SCALE IN INCHES PROJECT #22003285.00



Bruce E Hart - Engineer  
MO# 22817

# Gastinger Walker &

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Project Number: 2022.152

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## OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

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SITE # 6018  
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CAD DWG FILE: T011.dwg  
DRAWN BY: NJW  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
**SITE PLAN -  
TECHNOLOGY**

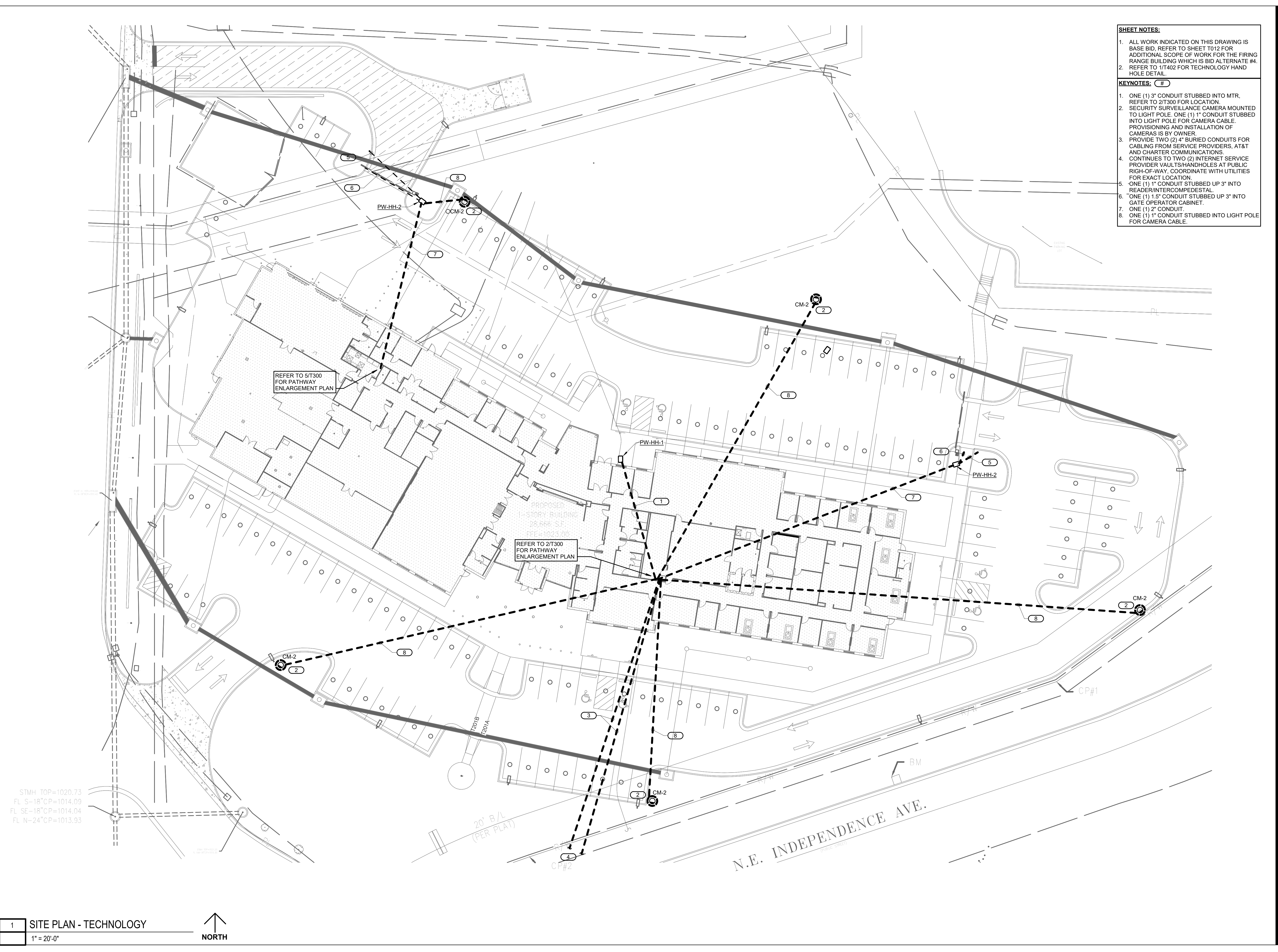
SHEET NUMBER:

# T011

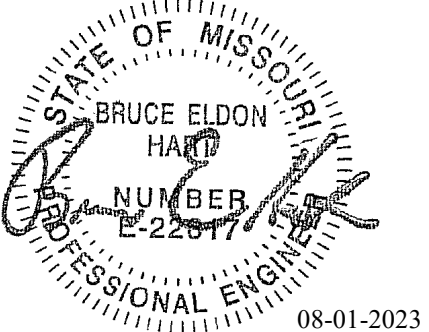
SHEET 192 OF 202

08/01/2023

- SHEET NOTES:**
- ALL WORK INDICATED ON THIS DRAWING IS BASE BID. REFER TO SHEET T012 FOR ADDITIONAL SCOPE OF WORK FOR THE FIRING RANGE BUILDINGS WHICH IS BID ALTERNATE #4.
  - REFER TO 1/T402 FOR TECHNOLOGY HAND HOLE DETAIL.
- KEYNOTES: #**
- ONE (1) 3" CONDUIT STUBBED INTO MTR. REFER TO 2/T300 FOR LOCATION.
  - SECURITY SURVEILLANCE CAMERA MOUNTED TO LIGHT POLE. ONE (1) 1" CONDUIT STUBBED INTO LIGHT POLE FOR CAMERA CABLE. PROVISIONING AND INSTALLATION OF CAMERAS IS BY OWNER.
  - PROVIDE TWO (2) 4" BURIED CONDUITS FOR CABLING FROM SERVICE PROVIDERS, AT&T AND CHARTER COMMUNICATIONS.
  - CONTINUES TO TWO (2) INTERNET SERVICE PROVIDER VAULTS/HANDHOLES AT PUBLIC RIGHT-OF-WAY. COORDINATE WITH UTILITIES FOR EXACT LOCATION.
  - ONE (1) 1" CONDUIT STUBBED UP 3" INTO READER/INTERCOMPEDESTAL.
  - ONE (1) 1.5" CONDUIT STUBBED UP 3" INTO GATE OPERATOR CABINET.
  - ONE (1) 2" CONDUIT.
  - ONE (1) 1" CONDUIT STUBBED INTO LIGHT POLE FOR CAMERA CABLE.







Bruce E Hart - Engineer  
MO# 22817

- SHEET NOTES:**
- ALL WORK SHOWN ON THIS DRAWING SHALL BE BID ALTERNATE #4. REFER TO SHEET T011 FOR BASE BID SCOPE OF WORK.
  - REFER TO 1/17402 FOR TECHNOLOGY HAND HOLE DETAIL.
- KEYNOTES:** #
- PROVIDE ONE (1) 3" SCHEDULE 40 PVC CONDUIT, BELOW GRADE, FOR LOW VOLTAGE CABLING SERVING THE FIRING RANGE BUILDING. REFER TO SHEETS T202 AND T203 FOR STUB UP LOCATIONS.
  - HAND HOLE PART OF BASE BID, SHOWN FOR REFERENCE ONLY.



STMH TOP=1020.73  
FL S-18"CP=1014.09  
FL SE-18"CP=1014.04  
FL N-24"CP=1013.93

1  
SITE PLAN - TECHNOLOGY WITH FIRING RANGE  
(ALTERNATE #04)  
1" = 20'-0"



**Gastinger Walker &**  
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Project Number: 2022.15.2

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Missouri Certificate of Authority: #F001325536

OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: T012.dwg  
DRAWN BY: NJW  
CHECKED BY: PIP  
DESIGNED BY: GW&

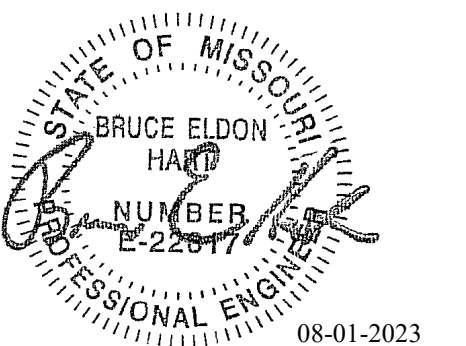
SHEET TITLE:  
SITE PLAN -  
TECHNOLOGY WITH  
FIRING RANGE  
(ALTERNATE #04)

SHEET NUMBER:

**T012**

SHEET 193 OF 202

08/01/23



Bruce E Hart - Engineer  
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Architects | Interior Designers | Construction Managers  
 817 Wyandotte Kansas City Missouri 64105 816.421.8200 gastingerwalker.com  
 Project Number: 2022.152

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## OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, DESIGN AND CONSTRUCTION

Project Name:  
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 MSHP

1900 NE Independence Ave.  
 Lee's Summit, MO 64086

PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: T201.dwg  
 DRAWN BY: NJW  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

SHEET TITLE:  
**FLOOR PLAN -  
 TECHNOLOGY - EAST**

SHEET NUMBER:

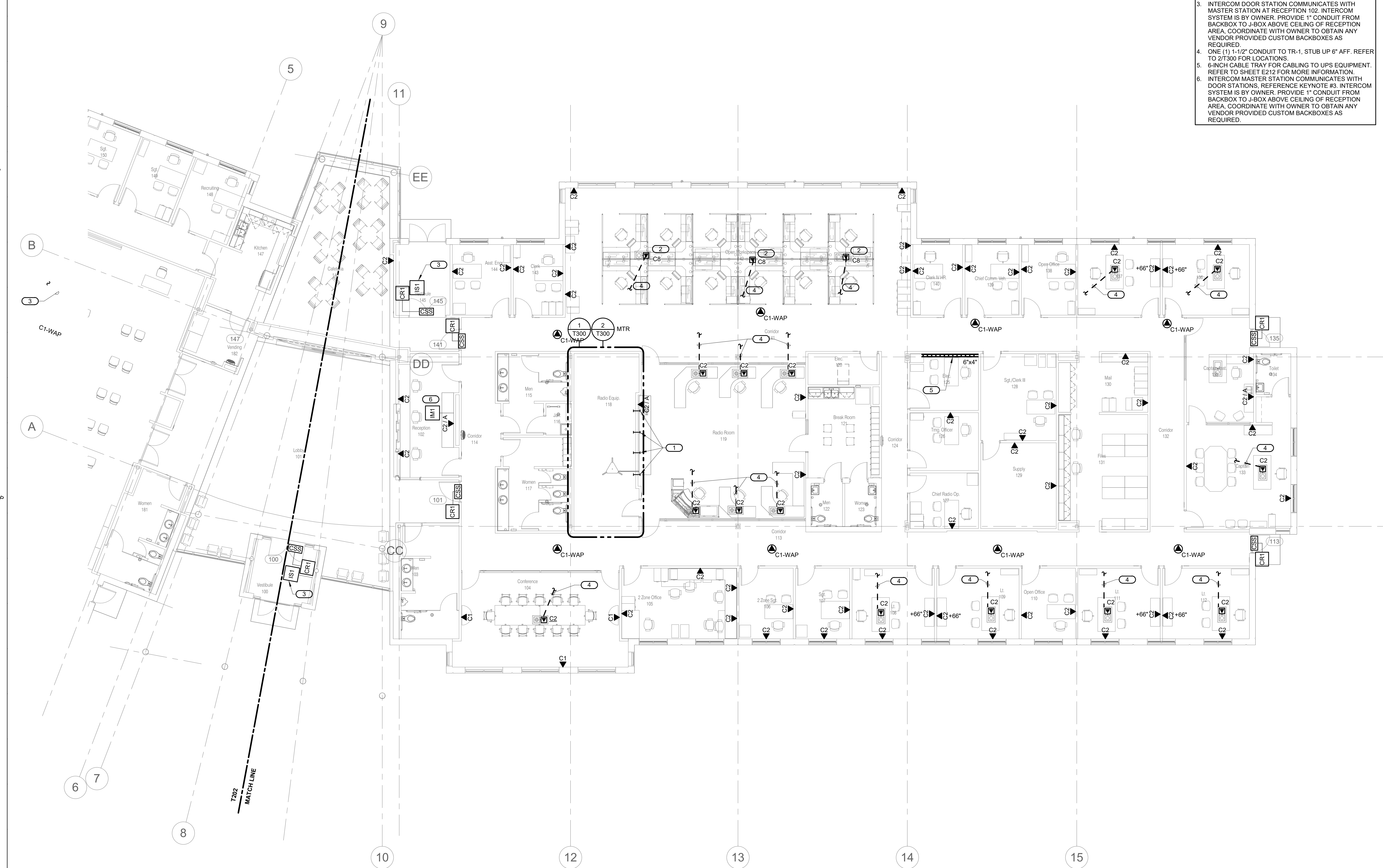
# T201

SHEET 194 OF 202

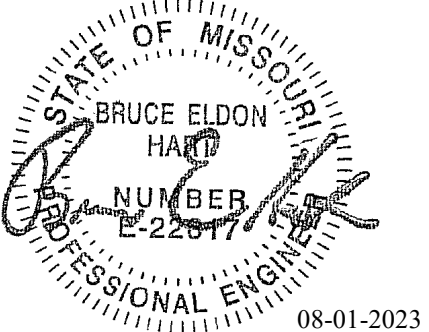
08/01/2023

- SHEET NOTES:**
- REFER TO 1/T400 FOR TECHNOLOGY ROUGH IN DETAIL.
  - REFER TO 1/T500 FOR FIBER AND COPPER RISER DIAGRAM.
  - REFER TO 1/T401 FOR CONTROLLED SECURITY SCHEME DOOR ROUGH-IN DETAIL.
  - ALL TECHNOLOGY WIRING ON THIS SHEET SHALL ROUTE TO AND TERMINATE IN MTR.

- KEYNOTES: ( # )**
- PROVIDE CONDUIT SLEEVE, WITH BUSHINGS, THROUGH DRYWALL FOR CONNECTION TO MONITORS. ALIGN SLEEVES WITH OVERHEAD RUNWAY IN MTR. MONITORS AND MOUNTS ARE BY OWNER.
  - COORDINATE WITH SYSTEMS FURNITURE CONTRACTOR FOR TERMINATION OF NETWORK CABLING. VERIFY EXACT QUANTITY OF INFORMATION OUTLETS IN SYSTEMS FURNITURE AND PROVIDE CABLES AS REQUIRED.
  - INTERCOM DOOR STATION COMMUNICATES WITH MASTER STATION AT RECEPTION 102. INTERCOM SYSTEM IS BY OWNER. PROVIDE 1" CONDUIT FROM BACKBOX TO J-BOX ABOVE CEILING OF RECEPTION AREA. COORDINATE WITH OWNER TO OBTAIN ANY VENDOR PROVIDED CUSTOM BACKBOXES AS REQUIRED.
  - ONE (1) 1-1/2" CONDUIT TO TR-1, STUB UP 6" AFF. REFER TO 2/T300 FOR LOCATIONS.
  - 6-INCH CABLE TRAY FOR CABLING TO UPS EQUIPMENT. REFER TO SHEET E212 FOR MORE INFORMATION.
  - INTERCOM MASTER STATION COMMUNICATES WITH DOOR STATIONS. REFERENCE KEYNOTE #3. INTERCOM SYSTEM IS BY OWNER. PROVIDE 1" CONDUIT FROM BACKBOX TO J-BOX ABOVE CEILING OF RECEPTION AREA. COORDINATE WITH OWNER TO OBTAIN ANY VENDOR PROVIDED CUSTOM BACKBOXES AS REQUIRED.



**1 FLOOR PLAN - TECHNOLOGY - EAST**  
 1/8" = 1'-0"  
 0 4' 8' 16'  
 NORTH



Bruce E Hart - Engineer  
 MO# 22817

- SHEET NOTES:**
1. REFER TO 1/T400 FOR TECHNOLOGY ROUGH IN DETAIL.
  2. REFER TO 1/T500 FOR FIBER AND COPPER RISER DIAGRAM.
  3. REFER TO 1/T401 FOR CONTROLLED SECURITY SCHEME DOOR ROUGH-IN DETAIL.
  4. ROUTE ALL TECHNOLOGY LOW VOLTAGE CABLING TO TR-1 (ELEC ROOM 158). TERMINATE UTP DATA CABLING IN EQUIPMENT CABINET.

- KEYNOTES:**
1. 4" CONDUIT TO MTR. REFER TO 2/T300 AND 5/T300 FOR STUB-UP LOCATIONS.
  2. 2" CONDUIT TO HANDHOLE, REFER TO SHEET T011 FOR LOCATION.
  3. ONE (1) 1" CONDUIT TO TR-1, STUB UP 6" AFF.



**1 FLOOR PLAN - TECHNOLOGY - WEST**  
 1/8" = 1'-0" NORTH

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Project Name:  
 Troop A Headquarters,  
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PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: T202.dwg  
 DRAWN BY: NJW  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

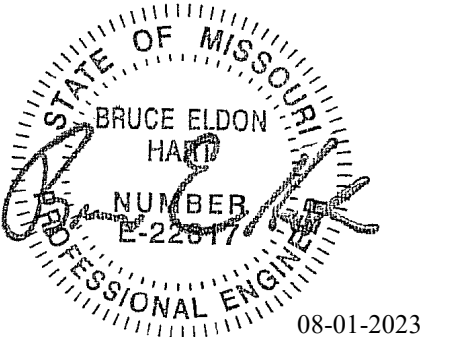
SHEET TITLE:  
**FLOOR PLAN -  
 TECHNOLOGY - WEST**

SHEET NUMBER:

**T202**

SHEET 195 OF 202  
 08/01/2023

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 Project Number: 2022.152



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MO# 22817

**Gastinger Walker &**

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Project Number: 2022.152

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Missouri Certificate of Authority: #F001325536

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CONSTRUCTION

Project Name:  
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PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: T203.dwg  
DRAWN BY: NJW  
CHECKED BY: PIP  
DESIGNED BY: GW&

SHEET TITLE:  
FLOOR PLAN -  
TECHNOLOGY - FIRING  
RANGE (ALTERNATE #04)

SHEET NUMBER:

**T203**

SHEET 196 OF 202

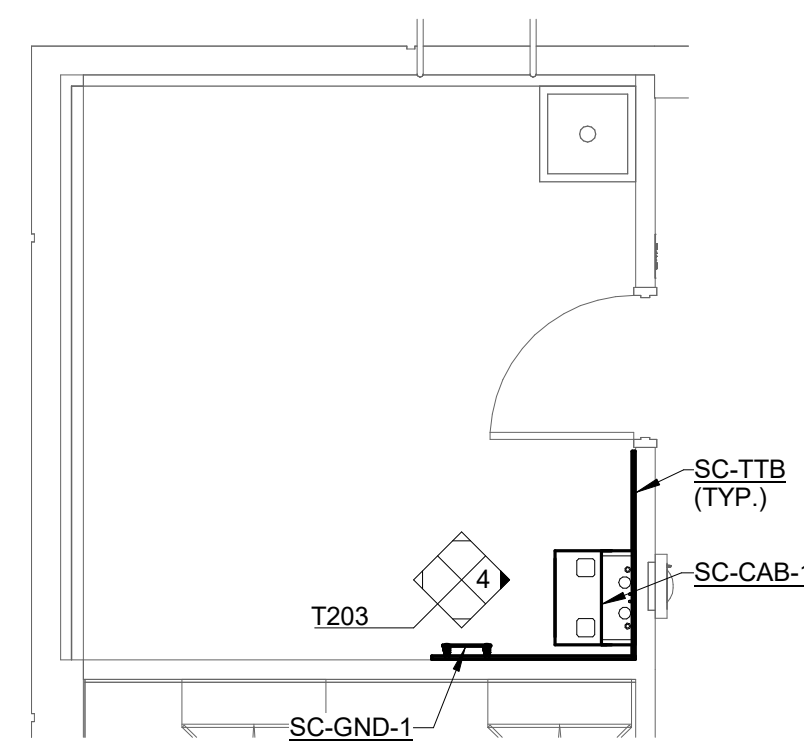
08/01/2023

**SHEET NOTES:**

- ALL SCOPE OF WORK ON THIS SHEET SHALL BE BID AS ALTERNATE #4.
- REFER TO 1/7400 FOR TECHNOLOGY ROUGH IN DETAIL.
- REFER TO 1/7500 FOR FIBER AND COPPER RISER DIAGRAM.
- REFER TO 1/7401 FOR CONTROLLED SECURITY SCHEME DOOR ROUGH-IN DETAIL.

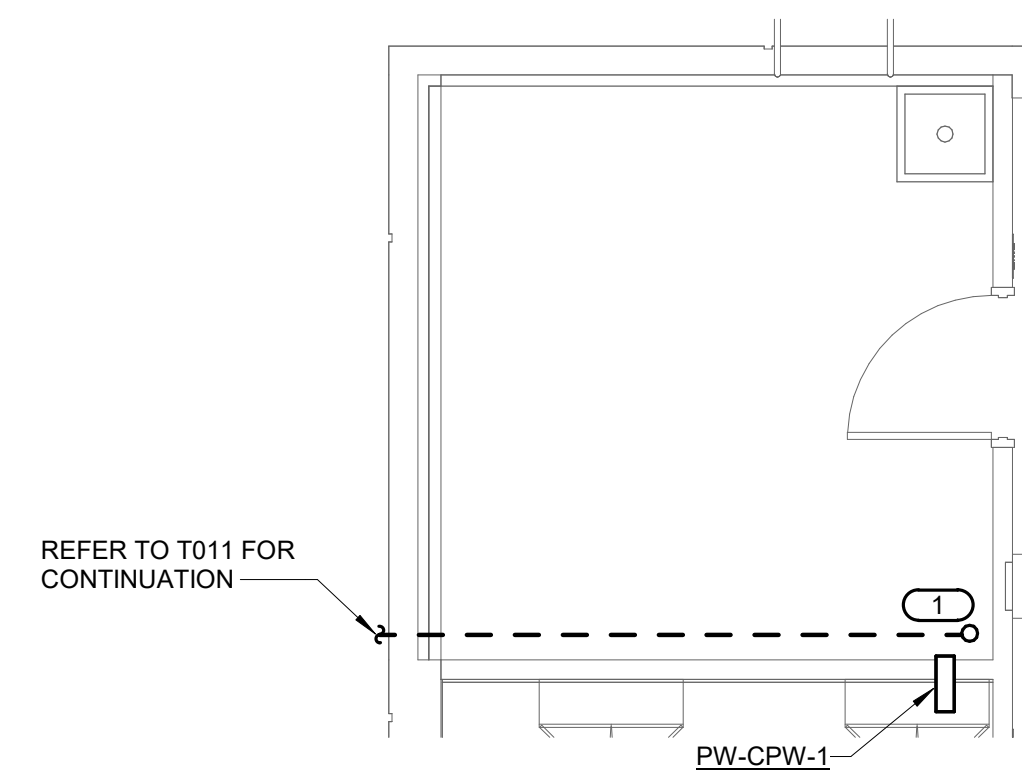
**KEYNOTES:** #

- ALL TECHNOLOGY CABLING IN THIS BUILDING SHALL ROUTE TO THIS LOCATION, REFER TO ROOM ENLARGEMENT DRAWING T300 FOR ADDITIONAL INFORMATION.



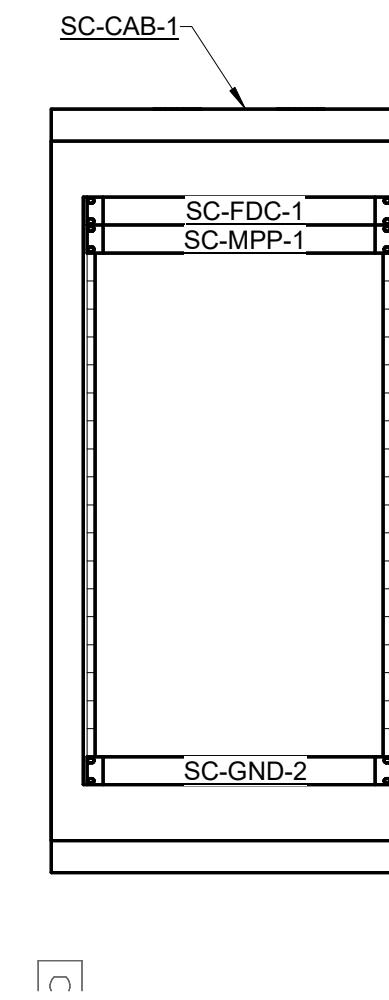
**2 TECHNOLOGY ROOM LAYOUT - TR-2**

- 1/4" = 1'-0"  
**NOTES:**
- THIS DETAIL AND ALL ASSOCIATED SCOPE OF WORK IS BID ALTERNATE #4.
  - REFER TO 2/7402 FOR BONDING BUSBAR DETAIL.
  - REFER TO T500 FOR BONDING RISER DIAGRAMS.



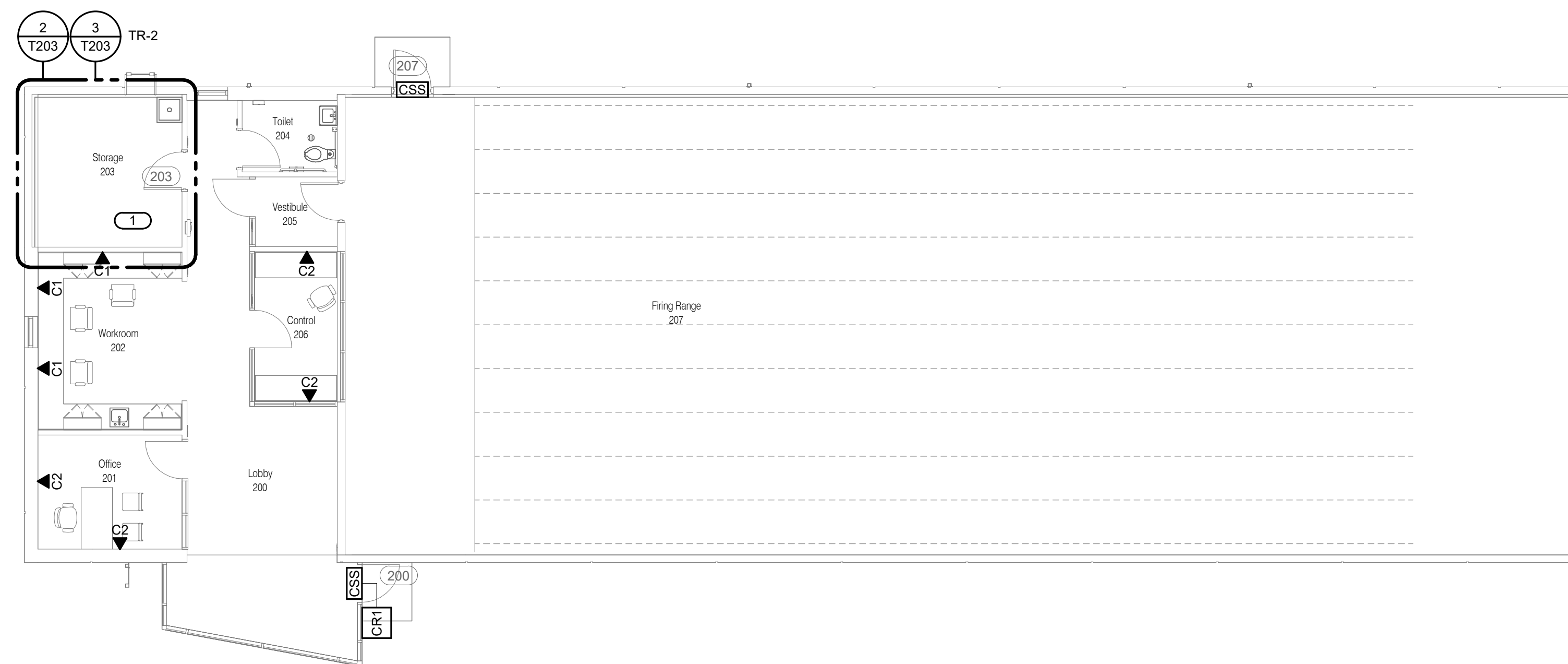
**3 TECHNOLOGY ROOM PATHWAY - TR-2**

- 1/4" = 1'-0"  
**NOTES:**
- THIS DETAIL AND ALL ASSOCIATED SCOPE OF WORK IS BID ALTERNATE #4.
- KEYED NOTES:** #
- ONE (1) 3" SCHEDULE 40 PVC CONDUIT ROUTED BELOW GRADE TO HAND HOLE. REFER TO SHEET T011 FOR ROUTING. CONDUIT SHALL STUB UP 6" ABOVE FLOOR SLAB.



**4 EQUIPMENT RACK ELEVATION-TR-2**

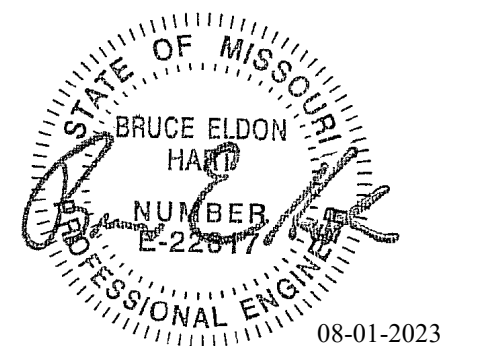
- NO SCALE  
**NOTES:**
- THIS DETAIL AND ALL ASSOCIATED SCOPE OF WORK IS BID ALTERNATE #4.
  - MOUNTING HEIGHT SHALL BE 30" AFF TO BOTTOM OF CABINET.



**1 FLOOR PLAN - TECHNOLOGY - FIRING RANGE (ALTERNATE #04)**  
1/8" = 1'-0"

0 4' 8' 16'





Bruce E Hart - Engineer  
MO# 22817

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Project Number: 2022.152

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Missouri Certificate of Authority: #F001325536

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Project Name:  
Troop A Headquarters,  
MSHP

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PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
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REVISION:  
DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: T300.dwg  
DRAWN BY: NJW  
CHECKED BY: PIP  
DESIGNED BY: GW&

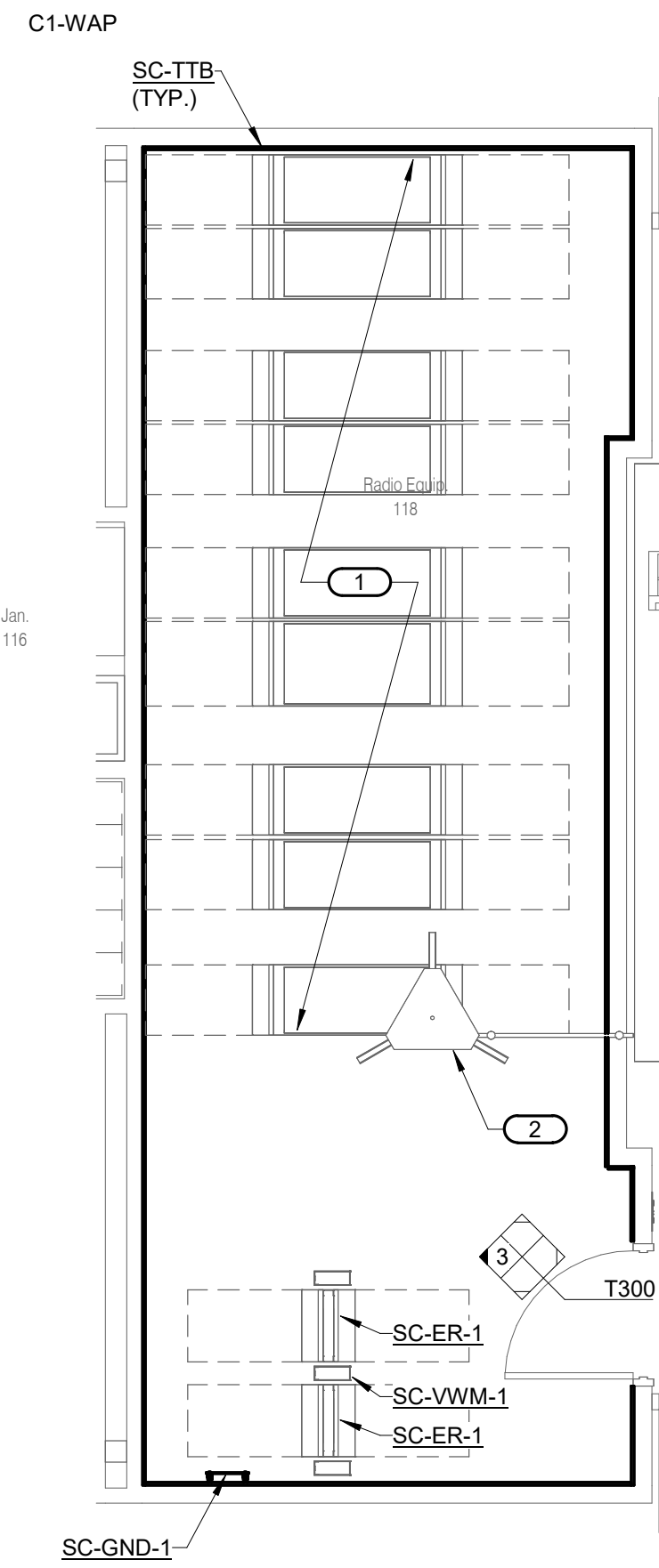
SHEET TITLE:  
TECHNOLOGY ROOM  
ENLARGEMENTS

SHEET NUMBER:

**T300**

SHEET 197 OF 202

08/01/2023



**1 TECHNOLOGY ROOM LAYOUT - MTR**

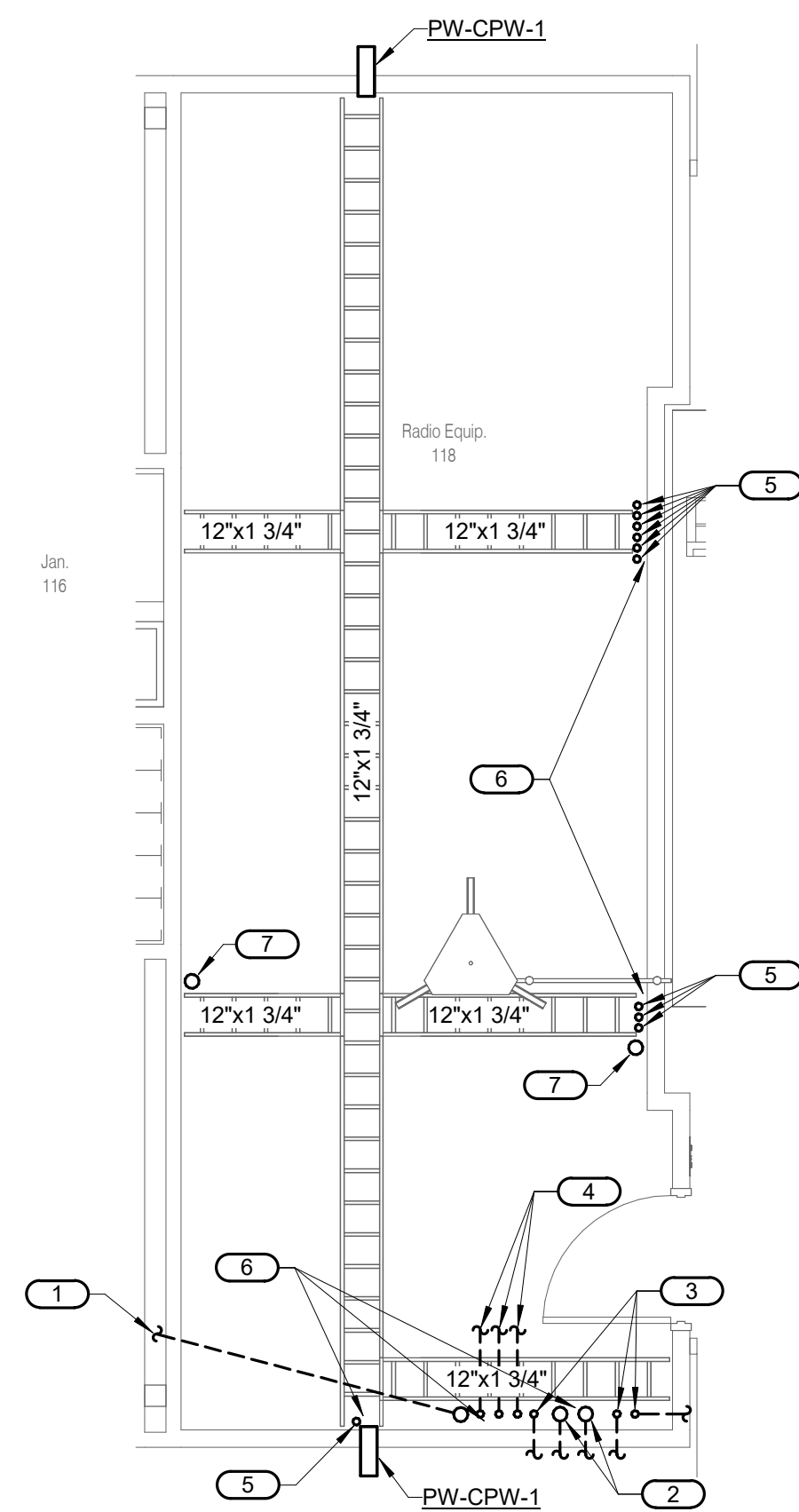
1/4" = 1'-0"

NOTES:

- REFER TO 2/T402 FOR BONDING BUSBAR DETAIL.
- REFER TO T500 FOR BONDING RISER DIAGRAMS.

KEYED NOTES: (#)

- PRE-ENGINEERED LINEUP OF MODULAR EQUIPMENT CABINETS WITH INTEGRAL IN-ROW COOLING BY OTHER, SHOWN FOR REFERENCE ONLY.
- OUTLINE OF RADIO ANTENNA TOWER ON ROOF.



**2 TECHNOLOGY ROOM PATHWAY - MTR**

1/4" = 1'-0"

NOTES:

- ALL OVERHEAD LADDER RUNWAY IS BY OWNER.

KEYED NOTES: (#)

- ONE (1) 4" SCHEDULE 40 PVC CONDUIT ROUTED BELOW SLAB TO ELEC ROOM 158. REFER TO SHEET T202 FOR LOCATION. CONDUIT SHALL STUB UP 6" ABOVE FLOOR SLAB.
- TWO (2) 4" SCHEDULE 40 PVC CONDUITS ROUTED BELOW GRADE TO PUBLIC RIGHT-OF-WAY FOR SERVICE PROVIDERS. REFER TO SHEET T011 FOR ROUTING. CONDUITS SHALL STUB UP 6" ABOVE FLOOR SLAB.
- THREE (3) 2" SCHEDULE 40 PVC CONDUITS ROUTED BELOW GRADE TO SITE CAMERAS ON LIGHTING POLES. REFER TO SHEET T011 FOR ROUTING. CONDUITS SHALL STUB UP 6" ABOVE FLOOR SLAB.
- THREE (3) 2" SCHEDULE 40 PVC CONDUITS ROUTED BELOW GRADE TO HAND HOLES. REFER TO SHEET T011 FOR ROUTING. CONDUITS SHALL STUB UP 6" ABOVE FLOOR SLAB.
- CONDUITS FROM FLOOR BOXES. REFER TO KEYNOTE #7 ON SHEET T201.
- PROVIDE VERTICAL SECTION OF LADDER RUNWAY MOUNTED TO WALL ON STAND-OFF BRACKETS. LASH CABLING TO LADDER RUNG WITH VELCRO STRAPS SPACED 24" O.C. MAXIMUM.
- CONDUIT SLEEVE THROUGH TO ROOF FOR ANTENNA CABLING. PROVIDE WEATHER HEADS ON TOP OF CONDUIT AND GROUNDING BUSHINGS AT BOTTOM. BOND TO BUS BAR IN ROOM WITH MINIMUM #4 AWG GROUNDING CONDUCTORS. SEAL PENETRATION IN A MANNER COMPLIANT WITH ROOFING SYSTEM. COORDINATE WITH ROOFING CONTRACTOR.

**3 EQUIPMENT RACK ELEVATION - MTR - ROW B**

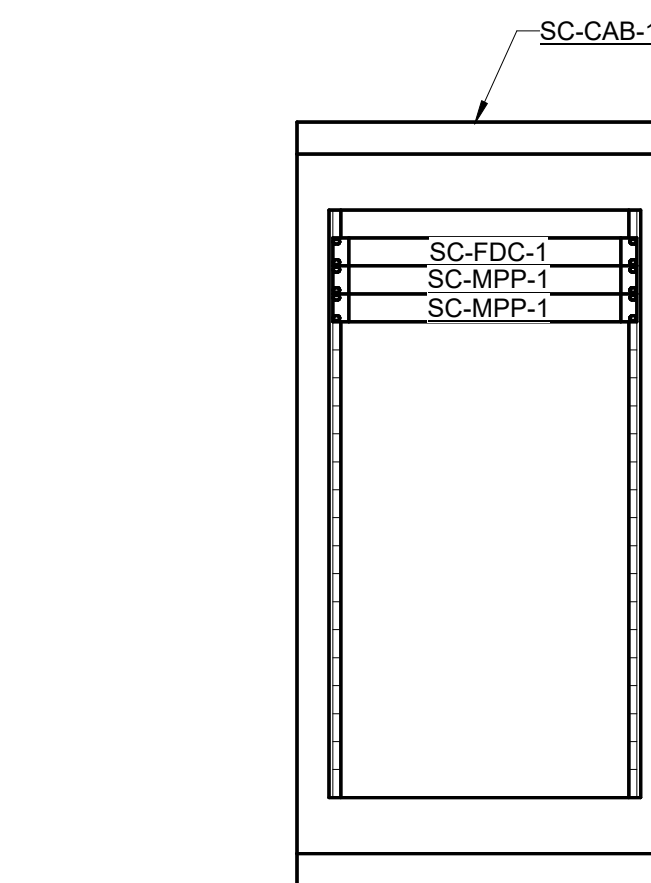
NO SCALE

NOTES:

- REFER TO T500 FOR BONDING RISER DIAGRAMS.

KEYED NOTES: (#)

- SPACE FOR OWNER FURNISHED EQUIPMENT.

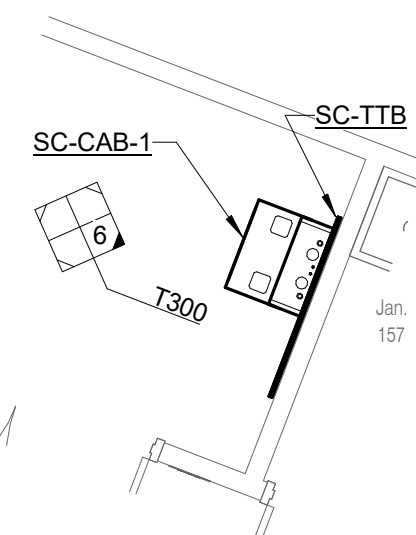


**6 EQUIPMENT RACK ELEVATION-TR-1**

NO SCALE

NOTES:

- MOUNTING HEIGHT SHALL BE 30" AFF TO BOTTOM OF CABINET.

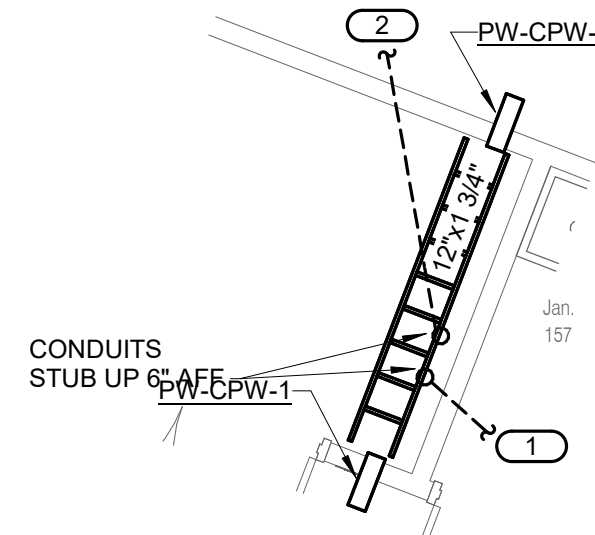


**4 TECHNOLOGY ROOM LAYOUT - TR-1**

1/4" = 1'-0"

NOTES:

- REFER TO 2/T402 FOR BONDING BUSBAR DETAIL.
- REFER TO T500 FOR BONDING RISER DIAGRAMS.



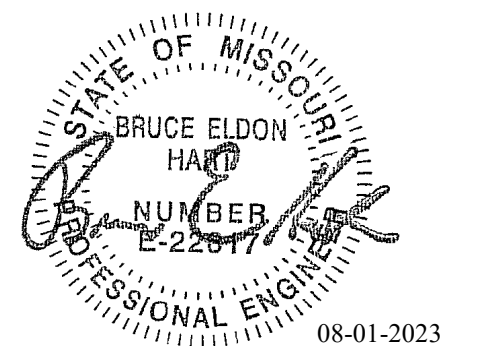
**5 TECHNOLOGY ROOM PATHWAY - TR-1**

1/4" = 1'-0"

NOTES:

KEYED NOTES: (#)

- ONE (1) 4" SCHEDULE 40 PVC CONDUIT ROUTED BELOW SLAB TO MTR. REFER TO 2/T300.
- ONE (1) 2" SCHEDULE 40 PVC CONDUIT ROUTED BELOW GRADE TO HAND HOLE. REFER TO SHEET T011 FOR ROUTING. CONDUIT SHALL STUB UP 6" ABOVE FLOOR SLAB.



Bruce E Hart - Engineer  
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 Project Number: 2022.1.52

IMEG, CORP.  
 Missouri Certificate of Authority: #F001325536

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 MANAGEMENT,  
 DESIGN AND  
 CONSTRUCTION

Project Name:  
 Troop A Headquarters,  
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1900 NE Independence Ave.  
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PROJECT # R2219-01  
 SITE # 6018  
 FACILITY # 8136018019

REVISION:  
 DATE:  
 REVISION:  
 DATE:  
 REVISION:  
 DATE: Bid Documents  
 ISSUE DATE: 01 August 2023

CAD DWG FILE: T400.dwg  
 DRAWN BY: NJW  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

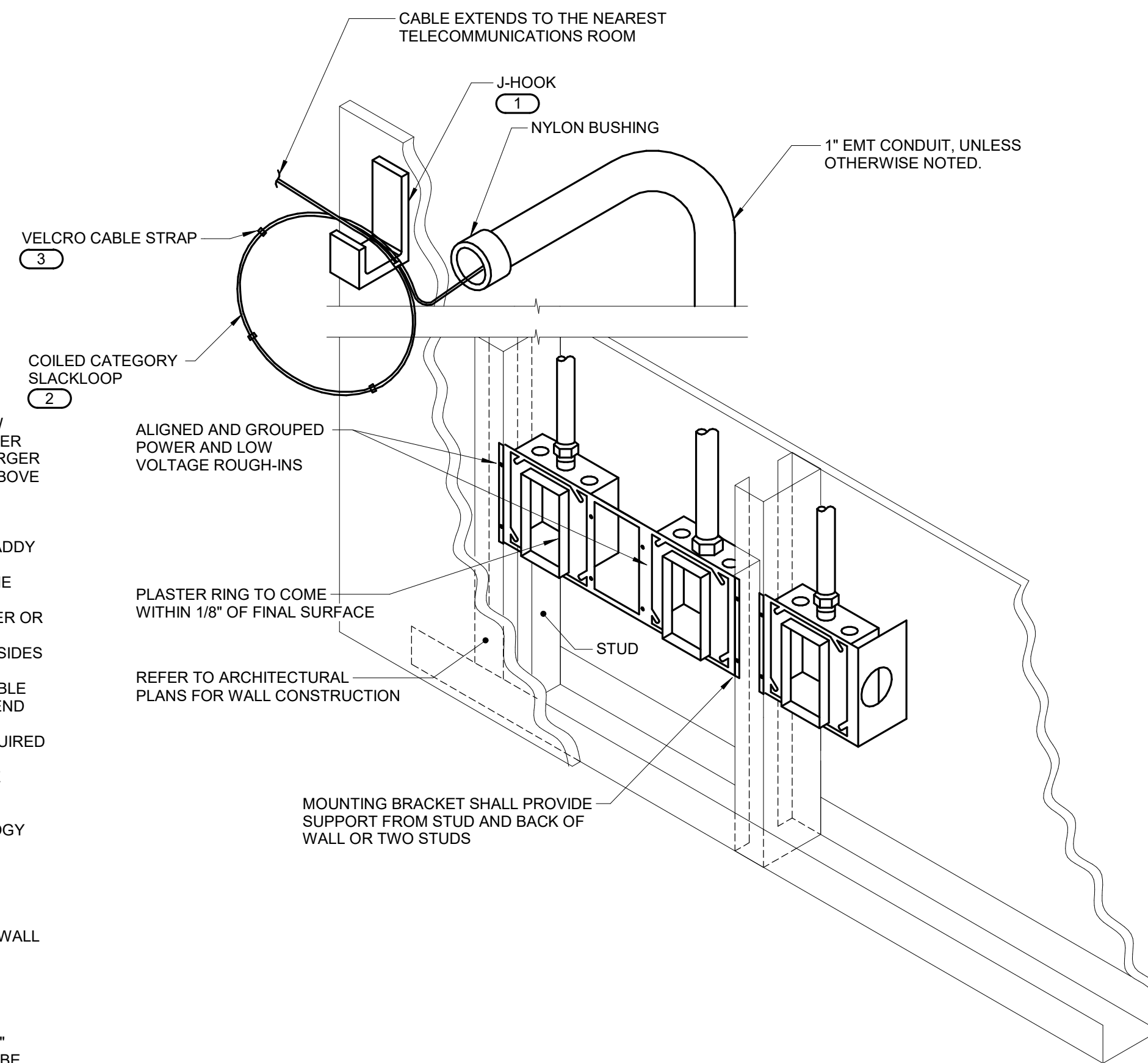
SHEET TITLE:  
**TECHNOLOGY DETAILS**

SHEET NUMBER:

**T400**

SHEET 198 OF 202

08/01/2023



**NOTES:**

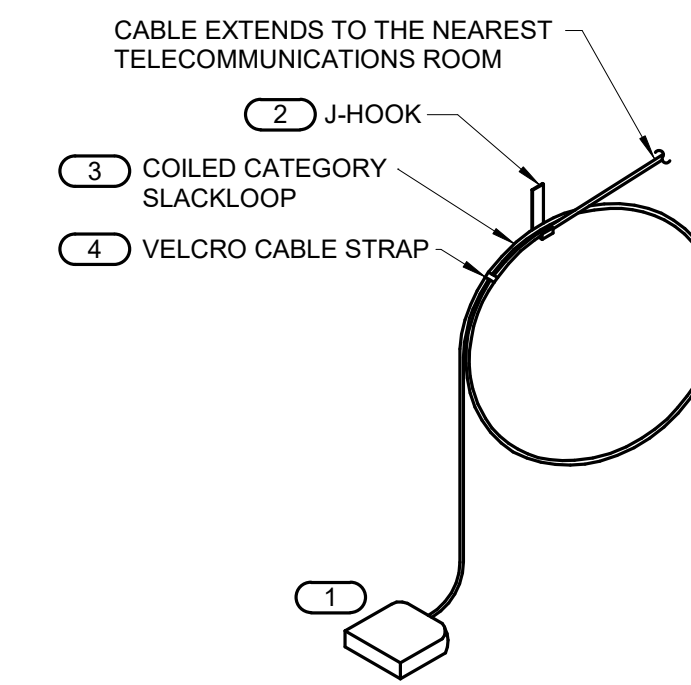
1. THE INTENT OF THE DETAIL IS TO ALIGN AND GROUP DEVICE ROUGH-INS FOR POWER AND LOW VOLTAGE TECHNOLOGY SYSTEMS. SOLIDLY MOUNTED AND THE SURFACE OF THE TRIM IS EITHER FLUSH WITH THE WALL SURFACE OR WITHIN 1/8" OF THE WALL SURFACE. JUNCTION BOXES LARGER THAN 4" SQUARE SHALL BE MOUNTED IN A MANNER THAT IS SIMILAR TO THE SYSTEM NOTED ABOVE OR ACHIEVES THE SAME RESULTS.
2. PLASTER RINGS DEPTH SHALL BE 1/8" DEEPER THAN THE GYP BOARD APPLIED TO THE WALL. PLASTER RING SHALL BE 3/4" FOR USE WITH 5/8" GYP BOARD.
3. METAL STUD-TO-STUD MOUNTING BRACKETS FOR MULTIPLE BOXES BETWEEN STUD. ERICO CADDY RBS# SERIES, EATON B-LINE BB SERIES, OR EQUAL.
4. MOUNTING SUPPORT BRACKETS SIZES FOR SINGLE BOXES IN A STUD CAVITY SHALL MATCH THE STUD DEPTH. ERICO CADDY H# SERIES, EATON B-LINE BB# SERIES, OR EQUAL.
5. WHERE RECEPTACLE AND TECHNOLOGY DEVICES ARE SHOWN SERVING A COMMON COMPUTER OR EQUIPMENT, OR SHOWN IN SIMILAR LOCATIONS ON THE DRAWINGS THE DEVICES SHALL BE INSTALLED IN THE SAME STUD CAVITY WITH MOUNTING BRACKETS OR ALIGNED ON OPPOSITE SIDES OF A COMMON STUD WITH SEPARATE SUPPORT.
6. TERMINATE CONDUIT STUB ORIENTED HORIZONTALLY AT THE HEIGHT OF THE ASSOCIATED CABLE TRAY OR J-HOOK ROUTE. CONDUIT RUN SHALL NOT CONTAIN MORE THAN 180 DEGREES OF BEND BETWEEN ACCESSIBLE JUNCTION BOXES OR BETWEEN JUNCTION BOX AND END OF CONDUIT.
7. WHERE CONDUIT STUB IS LOCATED IN A ROOM WITH AN ACCESSIBLE CEILING AND IS NOT REQUIRED TO RUN TO CABLE ROUTE LOCATED OUTSIDE THE ROOM, STUB MUST TERMINATE ABOVE THE ACCESSIBLE CEILING WITH A 90-DEGREE BEND AT THE TOP ORIENTED IN TO THE ROOM AT THE HEIGHT OF THE ASSOCIATED CABLE TRAY OR J-HOOK ROUTE IN THE ROOM.
8. ALL STUBS MUST BE FITTED WITH A NYLON BUSHING ON EACH END OF THE CONDUIT.
9. INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR TECHNOLOGY ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR FIRESTOP REQUIREMENTS.

**KEYNOTES: (#)**

1. MOUNT A DEDICATED J-HOOK TO THE NEAREST CEILING SUBSTRUCTURE, COLUMN, JOIST, OR WALL ABOVE THE CEILING AS SHOWN ON THE DRAWINGS. PROVIDE THE PROPER SUPPORT WHEN HANGING FROM THE CEILING SUBSTRUCTURE OR COLUMN WALL OR JOIST. REFER TO SPECIFICATION SECTION 27 05 28 FOR ADDITIONAL REQUIREMENTS.
2. REFER TO SECTION 27 15 00 FOR SLACKLOOP LENGTH. MAINTAIN THE MANUFACTURERS BEND RADIUS FOR SLACKLOOP SIZE.
3. PROVIDE AND INSTALL A VELCRO CABLE STRAP ON THE SLACKLOOP APPROXIMATELY EVERY 6" ALONG THE SLACKLOOP. FOR SLACKLOOPS GREATER THAN 3' A MINIMUM OF (4) STRAPS WILL BE INSTALLED.

**1 TECHNOLOGY ROUGH-IN TO J-HOOK DETAIL**

NO SCALE



**2 ABOVE CEILING INFORMATION OUTLET DETAIL**

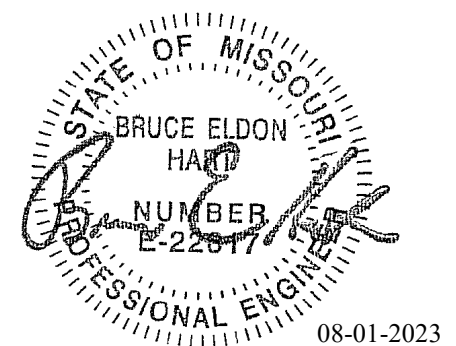
NO SCALE

**NOTES:**

1. THIS DIAGRAM MAY NOT REPRESENT THE QUANTITY OF CABLES TO EACH INFORMATION OUTLET JUNCTION BOX. REFER TO THE DRAWINGS AND THE INFORMATION OUTLET SCHEDULE FOR ADDITIONAL INFORMATION.
2. ALL DEVICES ARE INSTALLED ABOVE THE CEILING UNLESS OTHERWISE NOTED.

**KEYNOTES: (#)**

1. 2-PORT PLENUM RATED SURFACE MOUNTED BOX. SUPPORT FROM J-HOOK. REFER TO THE INFORMATION OUTLET SCHEDULE AND TECHNOLOGY EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
2. MOUNT A DEDICATED J-HOOK TO THE NEAREST CEILING SUBSTRUCTURE, COLUMN, JOIST, OR WALL ABOVE THE CEILING AS SHOWN ON THE DRAWINGS. PROVIDE THE PROPER SUPPORT WHEN HANGING FROM THE CEILING SUBSTRUCTURE OR COLUMN WALL OR JOIST. REFER TO SPECIFICATION SECTION 27 05 28 FOR ADDITIONAL REQUIREMENTS.
3. REFER TO SECTION 27 15 00 FOR SLACKLOOP LENGTH. MAINTAIN THE MANUFACTURERS BEND RADIUS FOR SLACKLOOP SIZE.
4. PROVIDE AND INSTALL A VELCRO CABLE STRAP ON THE SLACKLOOP APPROXIMATELY EVERY 6" ALONG THE SLACKLOOP. FOR SLACKLOOPS GREATER THAN 3' A MINIMUM OF (4) STRAPS WILL BE INSTALLED.



Bruce E Hart - Engineer  
MO# 22817

**Gastinger Walker &**

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Project Number: 2022.152

IMEG, CORP.  
Missouri Certificate of Authority: #F001325536

**OFFICE OF  
ADMINISTRATION  
DIVISION OF FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION**

Project Name:  
Troop A Headquarters,  
MSHP

1900 NE Independence Ave.  
Lee's Summit, MO 64086

PROJECT # R2219-01  
SITE # 6018  
FACILITY # 8136018019

REVISION:  
DATE:  
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DATE: Bid Documents  
ISSUE DATE: 01 August 2023

CAD DWG FILE: T401.dwg  
DRAWN BY: NJW  
CHECKED BY: PIP  
DESIGNED BY: GW&

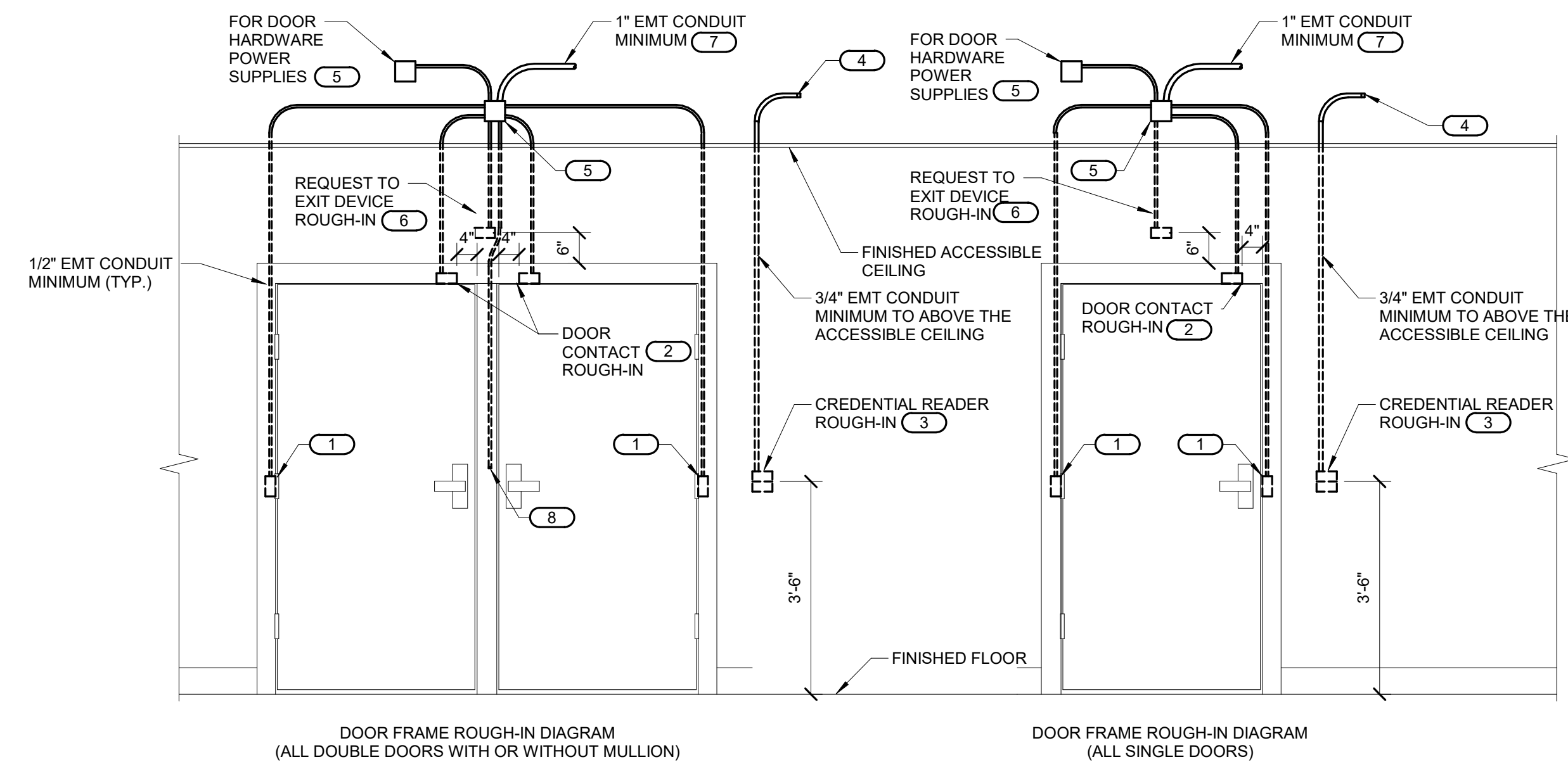
SHEET TITLE:  
**TECHNOLOGY DETAILS**

SHEET NUMBER:

**T401**

SHEET 199 OF 202

08/01/2023



DOOR FRAME ROUGH-IN DIAGRAM  
(ALL DOUBLE DOORS WITH OR WITHOUT MULLION)

DOOR FRAME ROUGH-IN DIAGRAM  
(ALL SINGLE DOORS)

**1 CONTROLLED SECURITY SCHEME DOOR ROUGH-IN DETAIL**

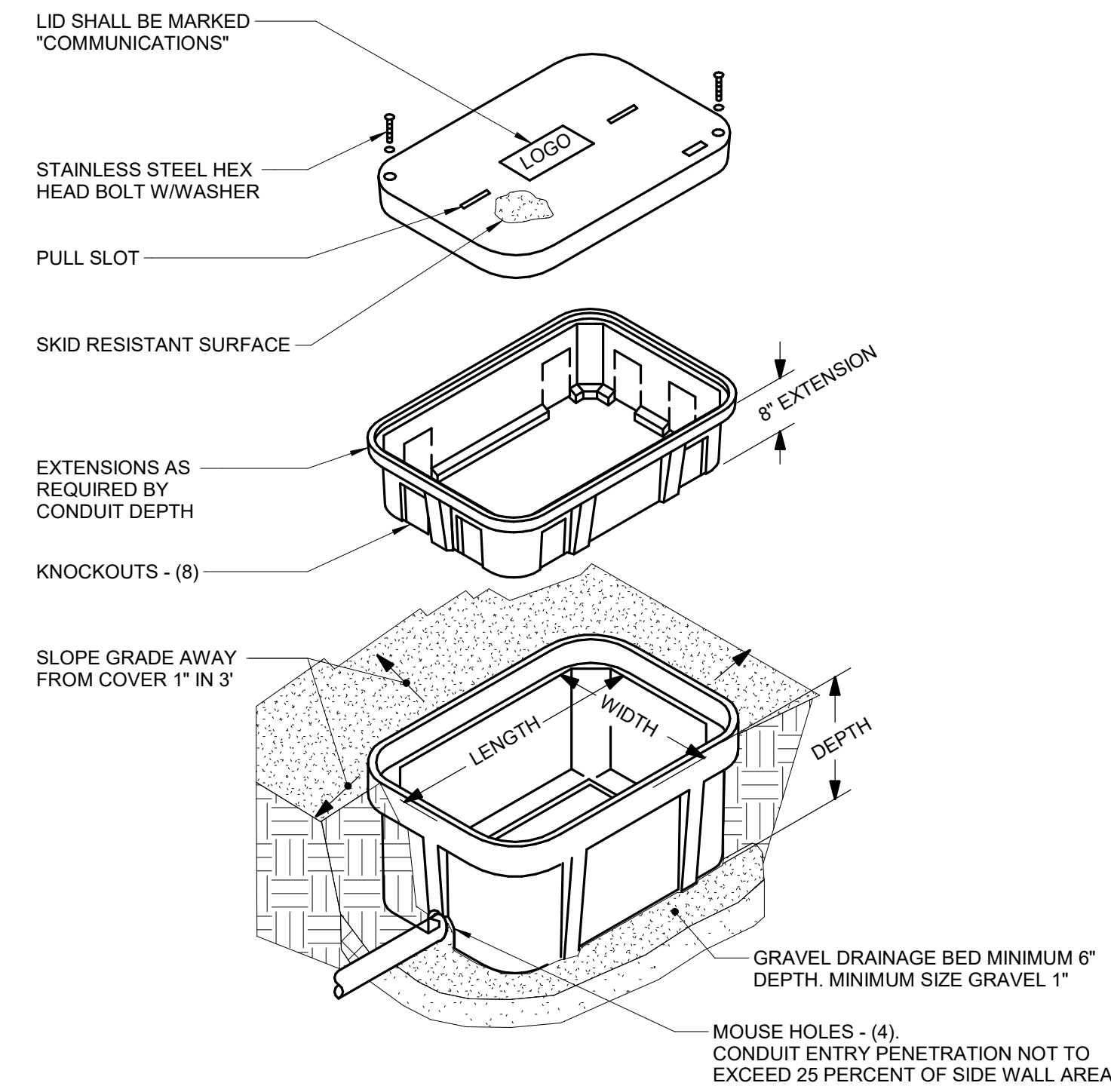
NO SCALE

**NOTES:**

- CONFIGURATIONS SHOWN IN THE DETAIL ABOVE ARE DIAGRAMMATIC. INTENDED TO DESCRIBE THE CONTROLLED SECURITY SCHEME ROUGH-IN REQUIREMENTS OF THE DOORS. DETAILS ABOVE MAY NOT ACCURATELY REPRESENT DOOR SIZE, DOOR SWING, DOOR HARDWARE, OR DOOR FUNCTIONALITY. REFER TO ARCHITECTURAL DOOR HARDWARE SCHEDULE, DOOR HARDWARE GROUPS AND DOOR HARDWARE SPECIFICATIONS FOR COMPLETE INFORMATION. MIRROR THE DETAIL AS REQUIRED.
- ROUGH IN SHOWN IN THE DETAIL ABOVE REPRESENTS THE MINIMUM REQUIREMENTS FOR ALL CONTROLLED SECURITY SYSTEM DEVICES AND CABLING UNLESS OTHERWISE NOTED. COORDINATE EXACT REQUIREMENTS WITH SELECTED DOOR MATERIALS, DOOR HARDWARE, AND CONTROLLED SECURITY DEVICES AND CABLING PRIOR TO INSTALLATION.
- ALL CABLING IN WALLS AND WHERE EXPOSED ON VERTICAL SURFACES SHALL BE INSTALLED IN EMT CONDUIT OR SURFACE MOUNT RACEWAY. CABLING ROUTED HORIZONTALLY ABOVE THE ACCESSIBLE CEILING MAY BE INSTALLED FREE-AIR CABLING PROPERLY RATED FOR THE CEILING ENVIRONMENT.
- THE ELECTRICAL OR SECURITY CONTRACTOR SHALL NOT MODIFY ANY FIRE RATED DOOR AND/OR DOOR FRAME. REFER TO THE ARCHITECTURAL DOOR SCHEDULE, DOOR HARDWARE SCHEDULE, AND DOOR HARDWARE SPECIFICATION FOR ADDITIONAL INFORMATION. MODIFICATION TO ANY FIRE RATED DOOR AND/OR FRAME WILL REQUIRE A RE-CERTIFICATION OF THE DOOR AND FRAME WITH THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
- INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR ALL CONTROLLED SECURITY SCHEME ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- REFER TO THE CONTROLLED SECURITY SCHEME SCHEDULE ON T600 FOR ADDITIONAL INFORMATION.
- INSTALLATION SHALL INCLUDE ALL POWER REQUIRED FOR SYSTEM OPERATION INCLUDING +120VAC. REFER TO THE SUGGESTED MATRIX OF SCOPE RESPONSIBILITY FOR ADDITIONAL INFORMATION.

**KEYNOTES:**

- PROVIDE JUNCTION BOXES IN THE DOOR FRAME WHERE SHOWN ON THIS DETAIL. ROUGH-IN SHALL BE PROVIDED WHETHER THE CURRENT SECURITY SCHEME UTILIZES THEM OR NOT. ALL CONDUITS SHALL BE EMT CONDUIT UNLESS OTHERWISE NOTED. FLEXIBLE CONDUIT OF ANY TYPE WILL NOT BE ACCEPTED. COORDINATE INSTALLATION WITH ON-SITE DOOR FRAME INSTALLATION CONTRACTOR.
- ALL DOOR POSITION SWITCHES ARE REQUIRED TO BE RECESSED UNLESS OTHERWISE NOTED. ELECTRIC HINGE MONITORS ARE NOT AN ACCEPTABLE REPLACEMENT FOR THE RECESSED DOOR POSITION SWITCH.
- 4" SQUARE BACKBOX WITH SINGLE GANG PLASTER RING. PROVIDE 2 1/2" DEEP MASONRY BOX WHERE APPLICABLE. REFER TO FLOOR PLAN(S) FOR ACTUAL CREDENTIAL READER TYPE AND ROUGH-IN LOCATIONS.
- CONDUIT SHALL ROUTE FROM THE CREDENTIAL READER TO THE SECURE SIDE OF THE DOOR. CONDUIT SHALL ROUTE A MINIMUM OF 12" FROM THE JUNCTION BOX. PROVIDE A NYLON BUSHING ON CONDUIT END.
- MOUNT A MINIMUM 4" SQUARE 2-1/8" DEEP JUNCTION BOX WITH BLANK COVER PLATE ON THE SECURE SIDE OF THE DOOR ABOVE ACCESSIBLE CEILING. INSTALLING CONTRACTOR SHALL SIZE THE JUNCTION BOXES PER SYSTEM INSTALLATION REQUIREMENTS AND APPLICABLE CODES. MAINTAIN ACCESS TO THE JUNCTION BOX.
- PROVIDE A HORIZONTALLY MOUNTED SINGLE GANG BACKBOX FOR THE REQUEST TO EXIT SENSOR. REFER TO THE CONTROLLED SECURITY SCHEME SCHEDULE ON T600 FOR DOORS THAT REQUIRE THIS ROUGH-IN.
- CONDUIT SHALL ROUTE A MINIMUM OF 12" FROM THE JUNCTION BOX. PROVIDE A NYLON BUSHING ON CONDUIT END.
- CONDUIT INSTALLED IN PERMANENT MULLIONS ONLY. REFER TO THE ARCHITECTURAL DOOR SCHEDULE AND DOOR HARDWARE GROUPS FOR LOCATIONS THAT REQUIRE THIS ROUGH-IN. PROVIDE A NYLON BUSHING ON THE CONDUIT END.

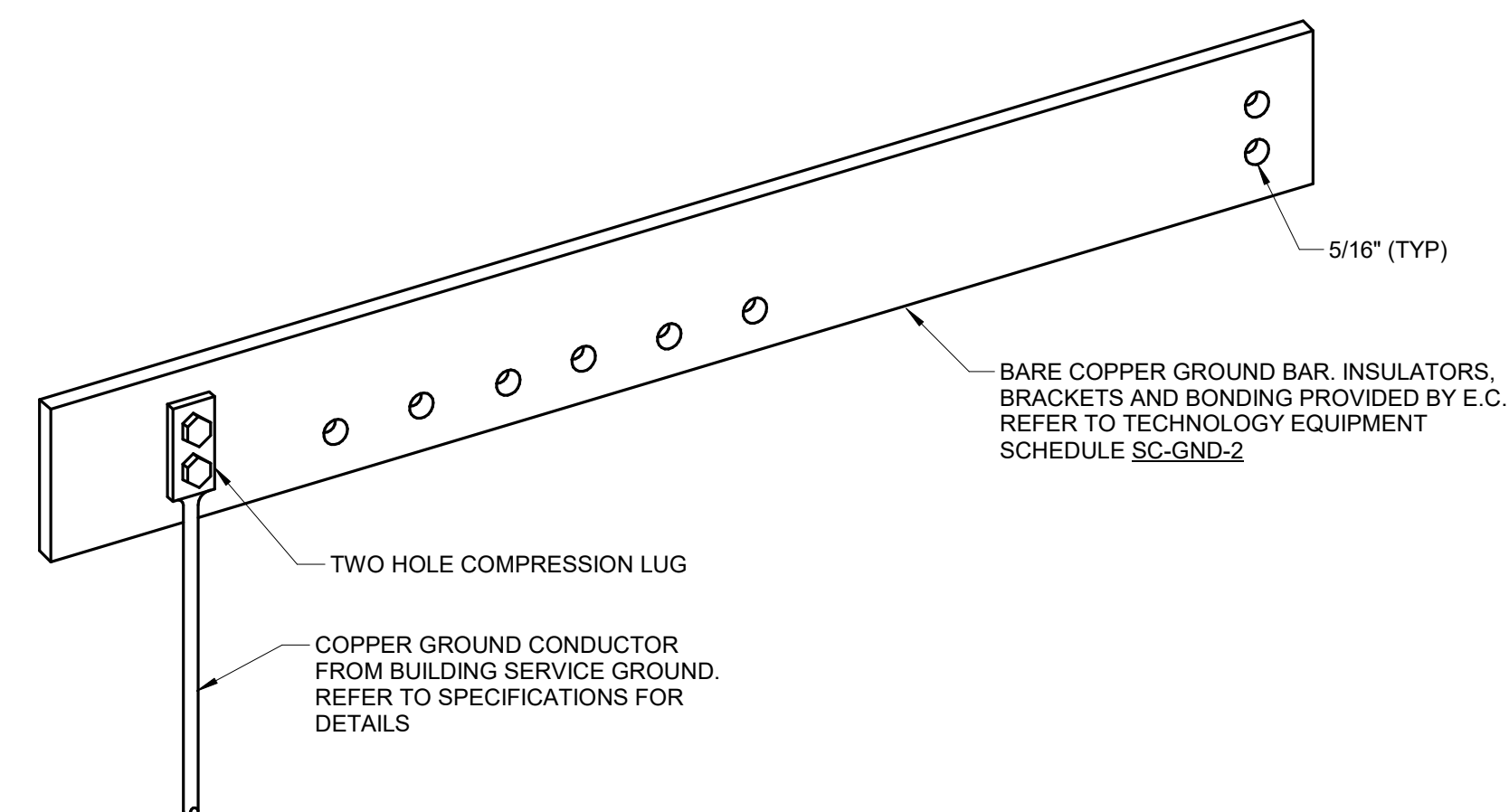


**1 EXTERIOR HAND HOLE DETAIL**

NO SCALE

NOTES:

1. ALL DIMENSIONS ARE NOMINAL INSIDE CLEARANCES.
2. ANY SPLICES OR DEVICES IN HANDHOLE SHALL BE SUBMERSIBLE.

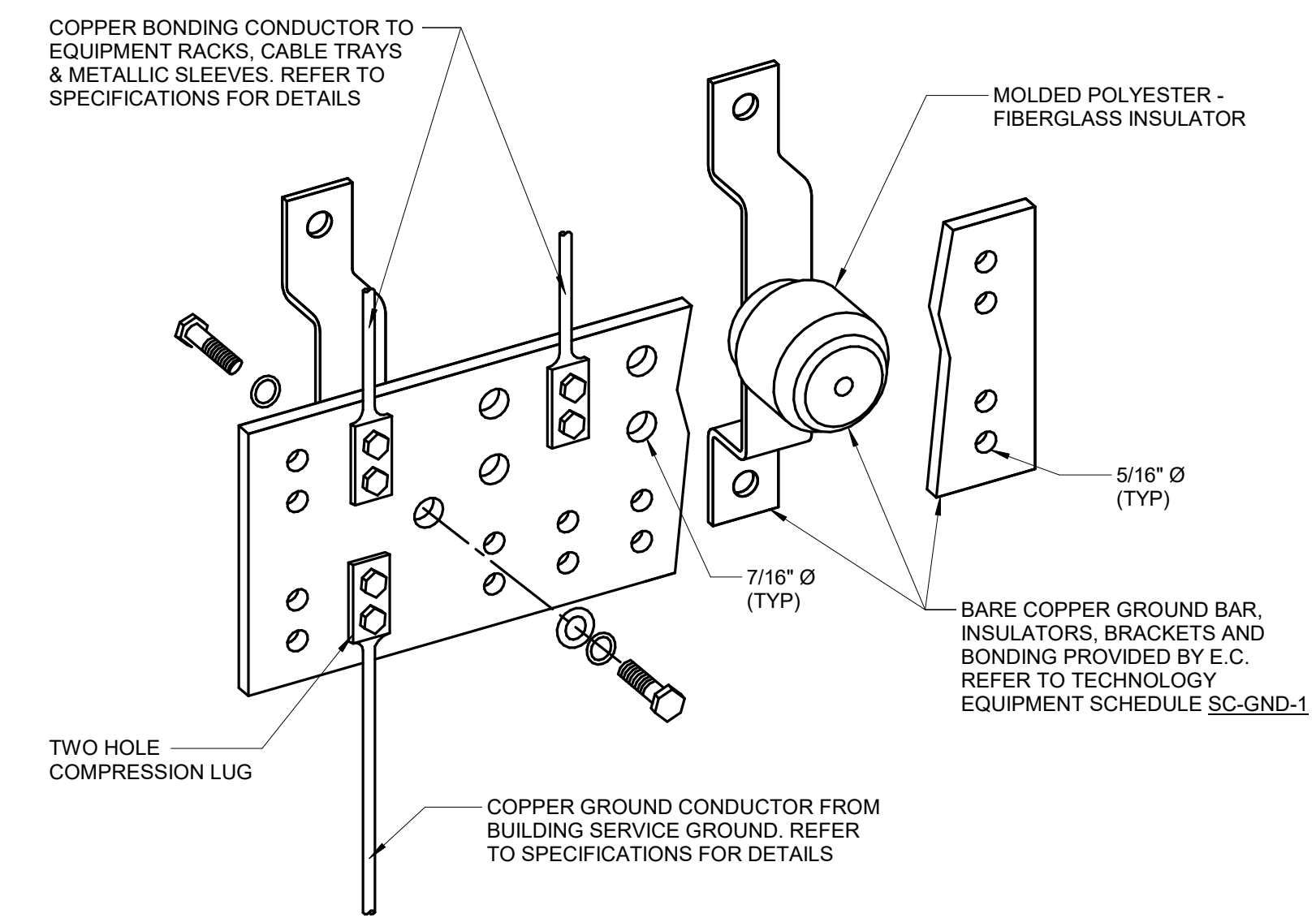


**3 RACK MOUNT BONDING BUS BAR DETAIL**

NO SCALE

NOTES:

1. REFER TO TECHNOLOGY EQUIPMENT SCHEDULE SC-GND-2 FOR WIDTH REQUIREMENTS.

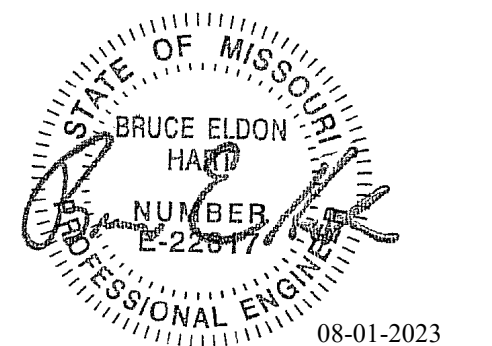


**2 BONDING BUS BAR DETAIL**

NO SCALE

NOTES:

1. REFER TO TECHNOLOGY EQUIPMENT SCHEDULE SC-GND-1 FOR WIDTH REQUIREMENTS.
2. REFER TO T500 FOR TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.



Bruce E Hart - Engineer  
MO# 22817

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ISSUE DATE: 01 August 2023

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DRAWN BY: NJW  
CHECKED BY: PIP  
DESIGNED BY: GW&

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TECHNOLOGY DETAILS

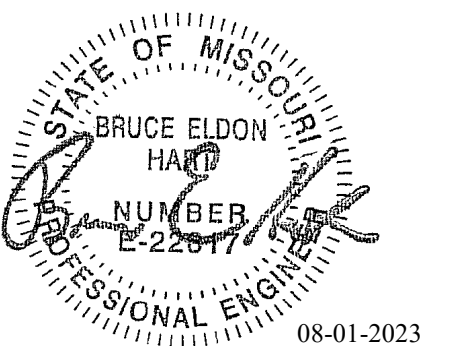
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**T402**

SHEET 200 OF 202

08/01/2023





Bruce E Hart - Engineer  
 MO# 22817

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 Project Number: 2022.15.2

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 DRAWN BY: NJW  
 CHECKED BY: PIP  
 DESIGNED BY: GW&

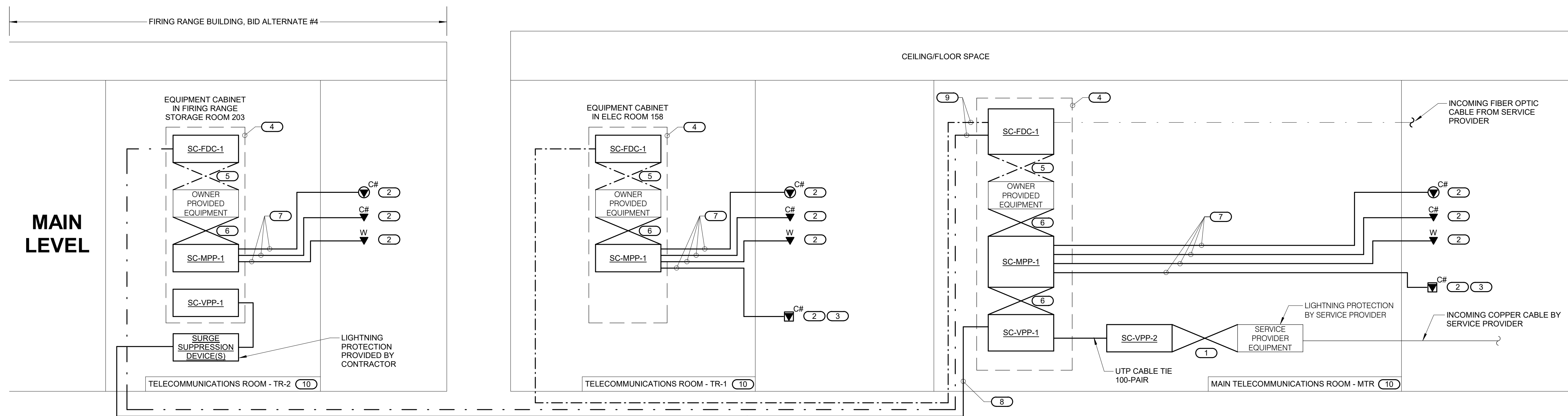
SHEET TITLE:  
**TECHNOLOGY  
 DIAGRAMS**

SHEET NUMBER:

**T500**

SHEET 201 OF 202

08/01/2023



**1 FIBER AND COPPER RISER DIAGRAM**

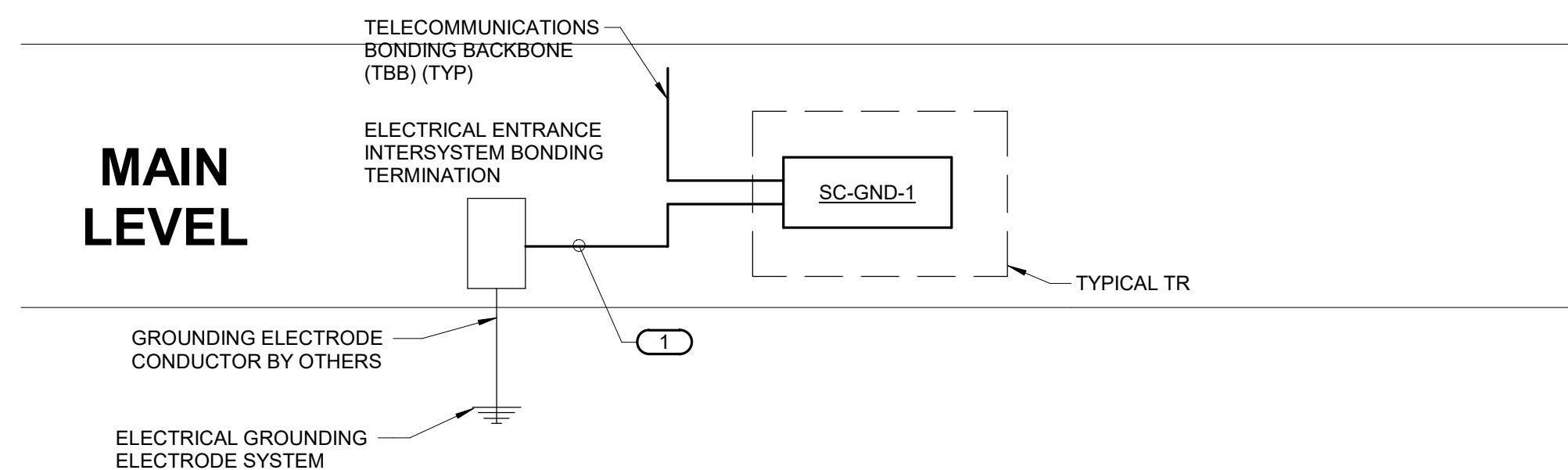
NO SCALE

NOTES:

1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS SHOWN. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION(S), LOCATIONS AND CABLE TYPE. ALL INFORMATION OUTLETS ARE TYPICAL OF THE OUTLETS IN THE AREA SHOWN. REFER TO FLOOR PLANS FOR MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO FLOOR PLANS FOR QUANTITY OF CABLES AND JACKS TO BE INSTALLED AT EACH INFORMATION OUTLET.

KEYNOTES: ( # )

1. CROSS-CONNECT 100-PAIR PER BACKBONE RISER CABLE TO THE INCOMING SERVICE PROVIDER CABLE.
2. C# INDICATES VOICE/DATA FACEPLATE CONFIGURATION. REFER TO THE INFORMATION OUTLET SCHEDULE ON T600 FOR ADDITIONAL INFORMATION. REFER TO SPECIFICATIONS SECTION 27 15 00 FOR ADDITIONAL INFORMATION.
3. INFORMATION OUTLET INSTALLED IN E.C. PROVIDED AND INSTALLED FLOOR BOX.
4. RACK OR CABINET AS DEFINED ON THE TELECOM ROOM LAYOUT. REFER TO THE TELECOM ROOM REFERENCES MATRIX ON THE COVERPAGE FOR LOCATION.
5. OPTICAL FIBER PATCH CABLES. REFER TO SPECIFICATIONS FOR REQUIREMENTS.
6. RJ-45 TO RJ45 CATEGORY 6 UTP PATCH CORDS, REFER TO SPECIFICATIONS.
7. 4-PAIR, CATEGORY 6, UNSHIELDED TWISTED PAIR CABLE, REFER TO SPECIFICATIONS.
8. 50-PAIR COPPER, CAT-5E, OUTSIDE PLANT RATED, TERMINATE ON CAT-5E RATED 110 TYPE BLOCKS.
9. 12 STRANDS OM4, 12 STRANDS OS1 FIBER OPTIC CABLE, INDOOR/OUTDOOR RATED.
10. REFER TO FLOOR PLANS FOR TELECOMMUNICATIONS ROOM LOCATIONS.



**2 TECHNOLOGY BONDING RISER DIAGRAM**

NO SCALE

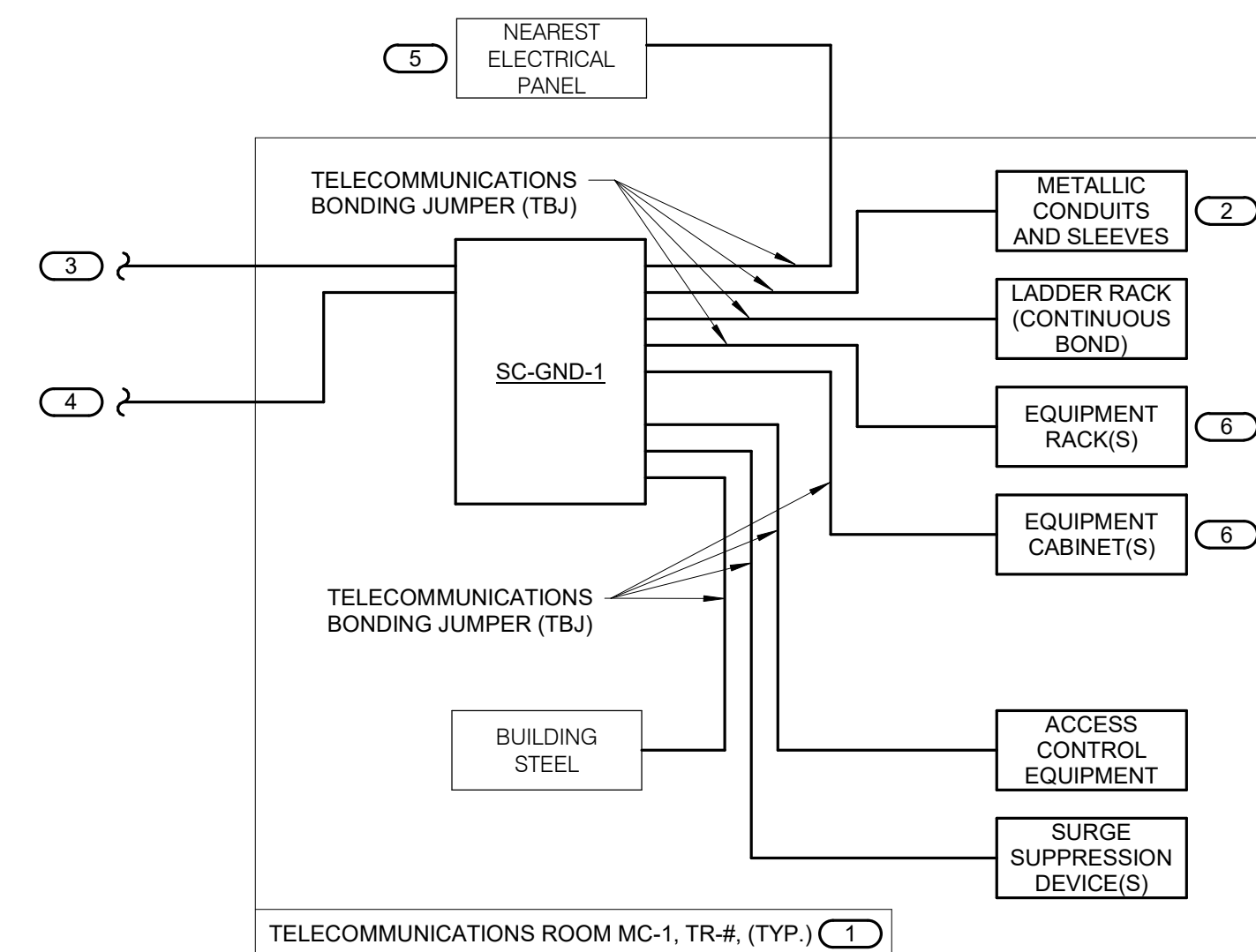
NOTES:

1. THIS RISER IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS RISER IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CONDUCTOR TYPE. ALL CONNECTIONS AND SYSTEM DEVICES SHOWN ARE TYPICAL AND NOT REPRESENTATIVE OF ACTUAL PROJECT QUANTITIES. REFER TO FLOOR PLANS AND ENLARGED FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. ALL CONDUCTORS IN THE TECHNOLOGY BONDING SYSTEM SHALL BE MINIMUM SIZE OF 3/0 AWG PLENUM RATED COPPER (GREEN OR MARKED WITH A DISTINCTIVE GREEN COLOR) UNLESS CONDUCTOR LENGTH IS LESS THAN 66 FEET. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING CRITERIA FOR CONDUCTORS LESS THAN 66 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. ALL BONDING CONDUCTORS AND BONDING JUMPERS SHALL BE CONNECTED BY COMPRESSION LUGS, EXOTHERMIC WELDING, OR IRREVERSIBLE COMPRESSION CONNECTORS. SOLDER IS NOT AN ACCEPTABLE MEANS OF CONNECTION. SHEET METAL SCREWS SHALL NOT BE USED TO CONNECT COMMUNICATIONS BONDING CONDUCTORS TO EQUIPMENT. WHERE NECESSARY, REMOVE PAINT AND/OR USE PAINT-PIERCING WASHERS TO PROVIDE PROPER ELECTRICAL BOND AT ALL CONNECTIONS.
4. REFER TO T500 FOR TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM.
5. REFER TO TELECOM ROOM REFERENCES SCHEDULE ON DRAWING T000 FOR TELECOMMUNICATIONS ROOM NUMBER AND LOCATION INFORMATION.

KEYNOTES:

1. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT), BCT SHALL BE THE SAME SIZE AS THE TBB OR LARGER. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING REQUIREMENTS. THIS CONNECTION OCCURS IN MTR ONLY.

BONDING CONDUCTOR SIZING SCHEDULE	
CONDUCTOR LENGTH IN FEET	MINIMUM ACCEPTABLE SIZE - AWG
LESS THAN 13'	6
14' - 20'	4
21' - 26'	3
27' - 33'	2
34' - 41'	1
42' - 52'	1/0
53' - 66'	2/0
GREATER THAN 66'	3/0



**3 TYPICAL TELECOM ROOM BONDING FLOW DIAGRAM**

NO SCALE

NOTES:

1. THIS FLOW DIAGRAM IS DIAGRAMMATIC AND MAY NOT SHOW ACTUAL ROUTING OR QUANTITIES OF MATERIALS. THIS FLOW DIAGRAM IS SHOWN FOR CLARIFICATION OF CONNECTION LOCATIONS AND CONDUCTOR TYPE. ALL CONNECTIONS AND SYSTEM DEVICES SHOWN ARE TYPICAL AND NOT REPRESENTATIVE OF ACTUAL PROJECT QUANTITIES. REFER TO FLOOR PLANS AND ENLARGED FLOOR PLANS FOR ACTUAL QUANTITIES AND LOCATIONS OF DEVICES AND MORE SPECIFIC ROUTING INFORMATION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. ALL CONDUCTORS IN THE TECHNOLOGY BONDING SYSTEM SHALL BE MINIMUM SIZE OF 3/0 AWG PLENUM RATED COPPER (GREEN OR MARKED WITH A DISTINCTIVE GREEN COLOR) UNLESS CONDUCTOR LENGTH IS LESS THAN 66 FEET. REFER TO BONDING CONDUCTOR SIZING SCHEDULE FOR SIZING CRITERIA FOR CONDUCTORS LESS THAN 66 FEET IN LENGTH. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. ALL BONDING CONDUCTORS AND BONDING JUMPERS SHALL BE CONNECTED BY COMPRESSION LUGS, EXOTHERMIC WELDING, OR IRREVERSIBLE COMPRESSION CONNECTORS. SOLDER IS NOT AN ACCEPTABLE MEANS OF CONNECTION. SHEET METAL SCREWS SHALL NOT BE USED TO CONNECT COMMUNICATIONS BONDING CONDUCTORS TO EQUIPMENT. WHERE NECESSARY, REMOVE PAINT AND/OR USE PAINT-PIERCING WASHERS TO PROVIDE PROPER ELECTRICAL BOND AT ALL CONNECTIONS.
4. REFER TO T2/402 FOR BONDING BUS BAR DETAIL AND ADDITIONAL INFORMATION AND REQUIREMENTS FOR SC-GND-1.

KEYNOTES:

1. REFER TO TELECOM ROOM REFERENCES SCHEDULE ON DRAWING T000 FOR TELECOMMUNICATIONS ROOM NUMBER AND LOCATION INFORMATION.
2. INCLUDES HORIZONTAL AND VERTICAL CONDUIT SLEEVES FOR TECHNOLOGY CABLING.
3. TELECOMMUNICATIONS BONDING BACKBONE (TBB). REFER TO T500 FOR TELECOMMUNICATIONS BONDING RISER DIAGRAM.
4. BONDING CONDUCTOR FOR TELECOMMUNICATIONS (BCT), TO ELECTRICAL ENTRANCE INTERSYSTEM BONDING TERMINATION. REFER TO T500 FOR TELECOMMUNICATIONS BONDING RISER DIAGRAM FOR CONTINUATION AND ADDITIONAL INFORMATION AND REQUIREMENTS. THIS CONNECTION OCCURS IN MTR ONLY.
5. REFER TO THE ELECTRICAL DRAWINGS FOR LOCATION.
6. PROVIDE SC-GND-2 RACK MOUNT TELECOMMUNICATIONS BONDING BUSBAR AT EACH EQUIPMENT RACK AND CABINET.

