

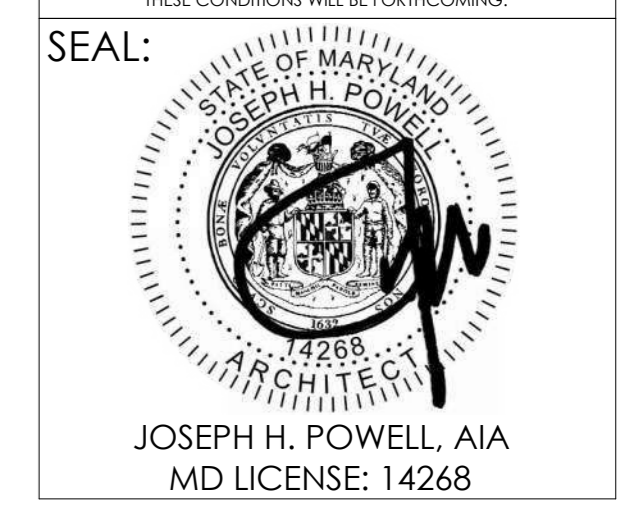


**PROJECT TEAM:**  
**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
**CIVIL ENGINEER:**  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423  
**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544  
**STRUCTURAL ENGINEER:**  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950  
**MEP ENGINEER:**  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

**CLIENT:**  
**MARYLAND ZOO**  
 THE MARYLAND ZOO IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

**RED PANDA**  
 THE MARYLAND ZOO  
 IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

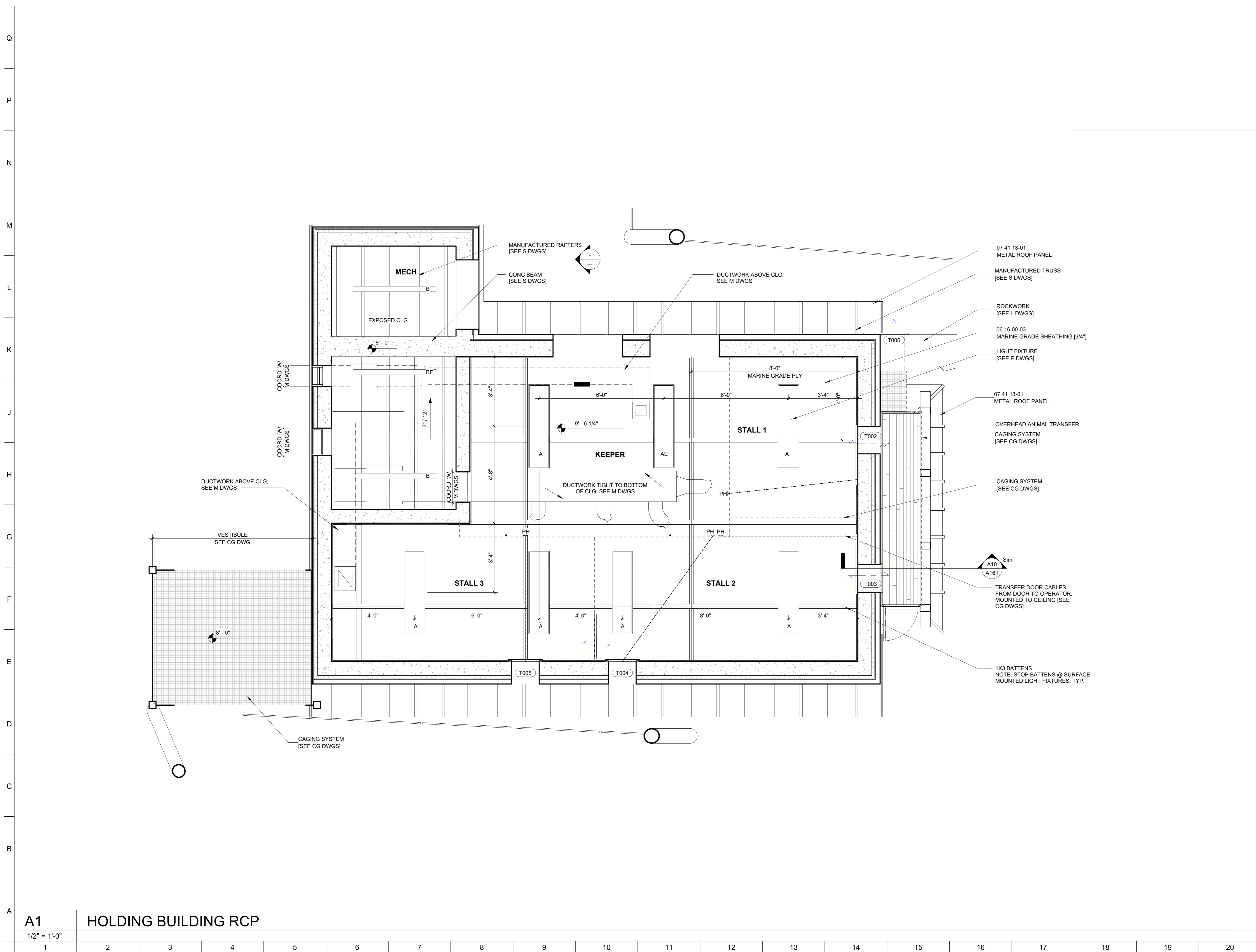
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SUBMISSION DATE	PERMIT SET: 11/22/2024
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**DRAWING TITLE:**  
 HOLDING BUILDING  
 RCP

**DRAWING NO:**  
**A111**



**A1** HOLDING BUILDING RCP  
 1/2" = 1'-0"



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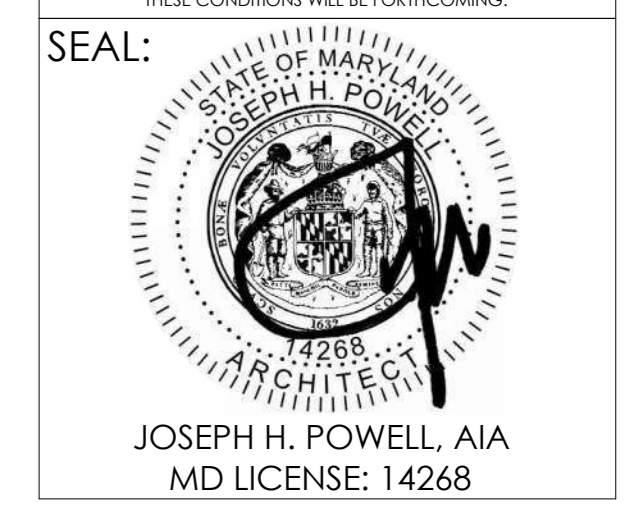
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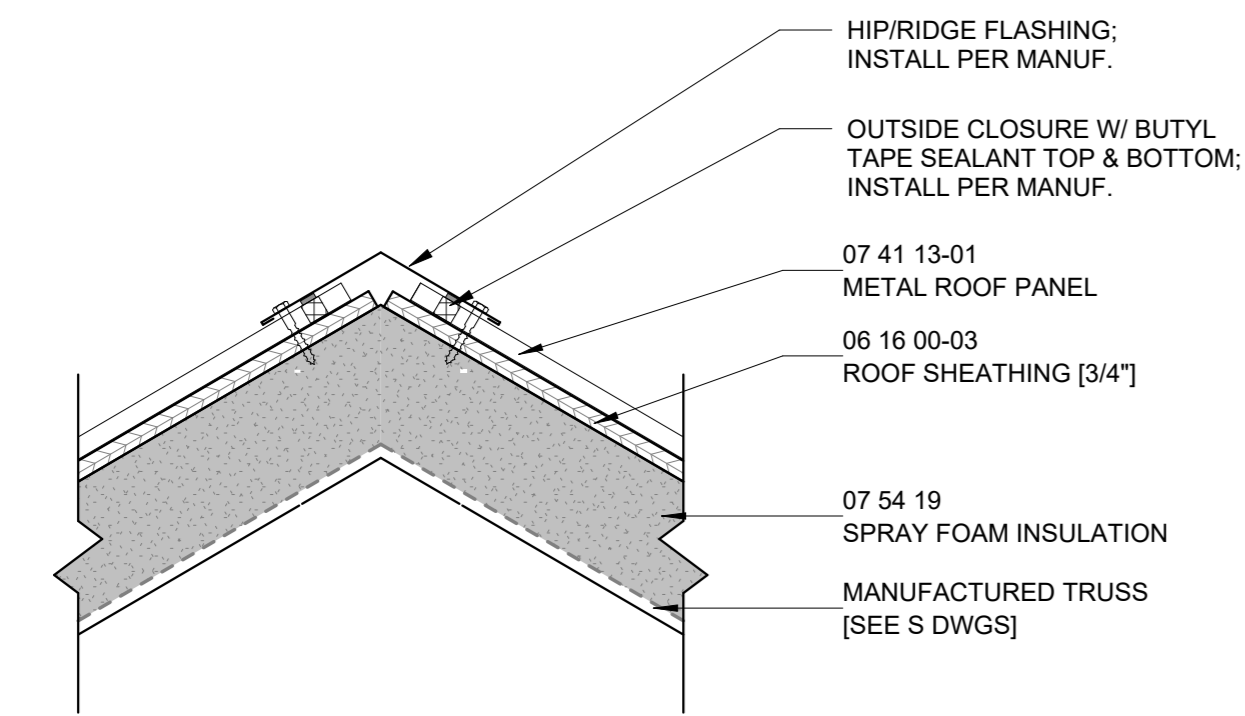
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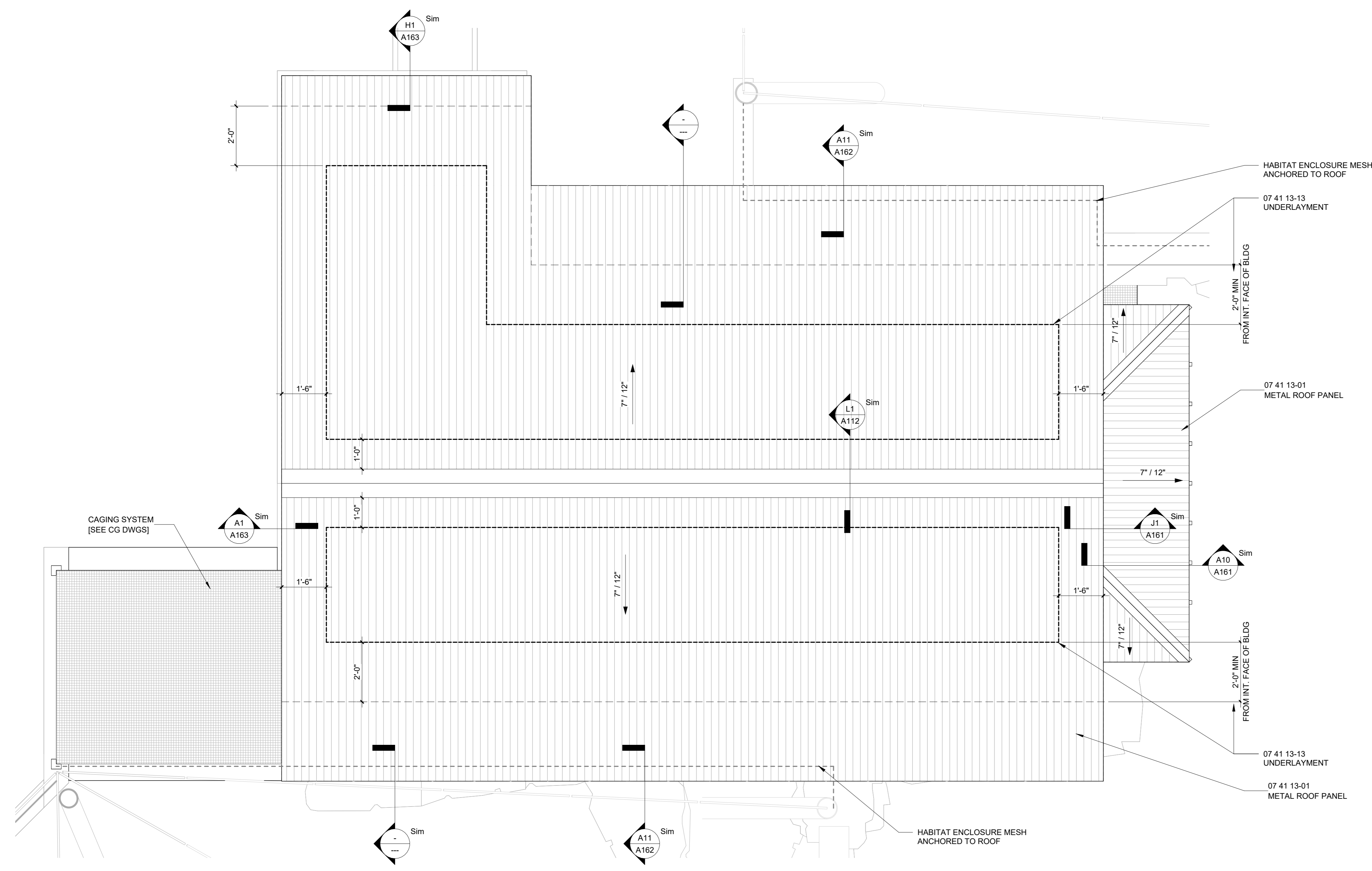
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**DRAWING TITLE:**  
 HOLDING BUILDING  
 ROOF PLAN

**DRAWING NO:**  
**A112**



**L1 RIDGE DTL**  
 1/2" = 1'-0"



**A1 ROOF PLAN**  
 1/2" = 1'-0"

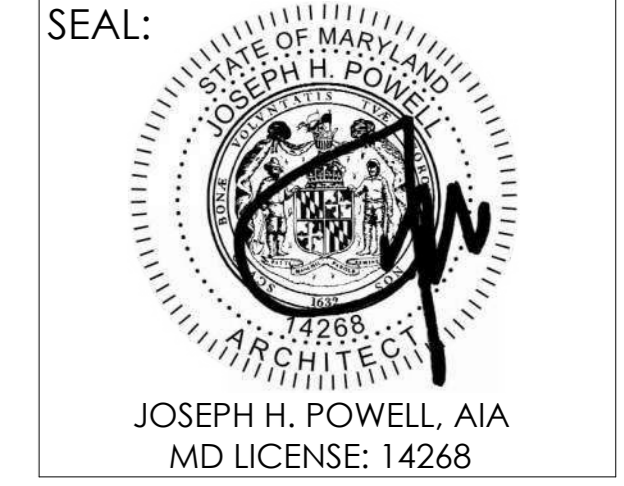
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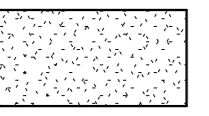
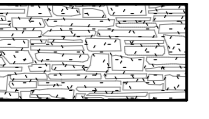


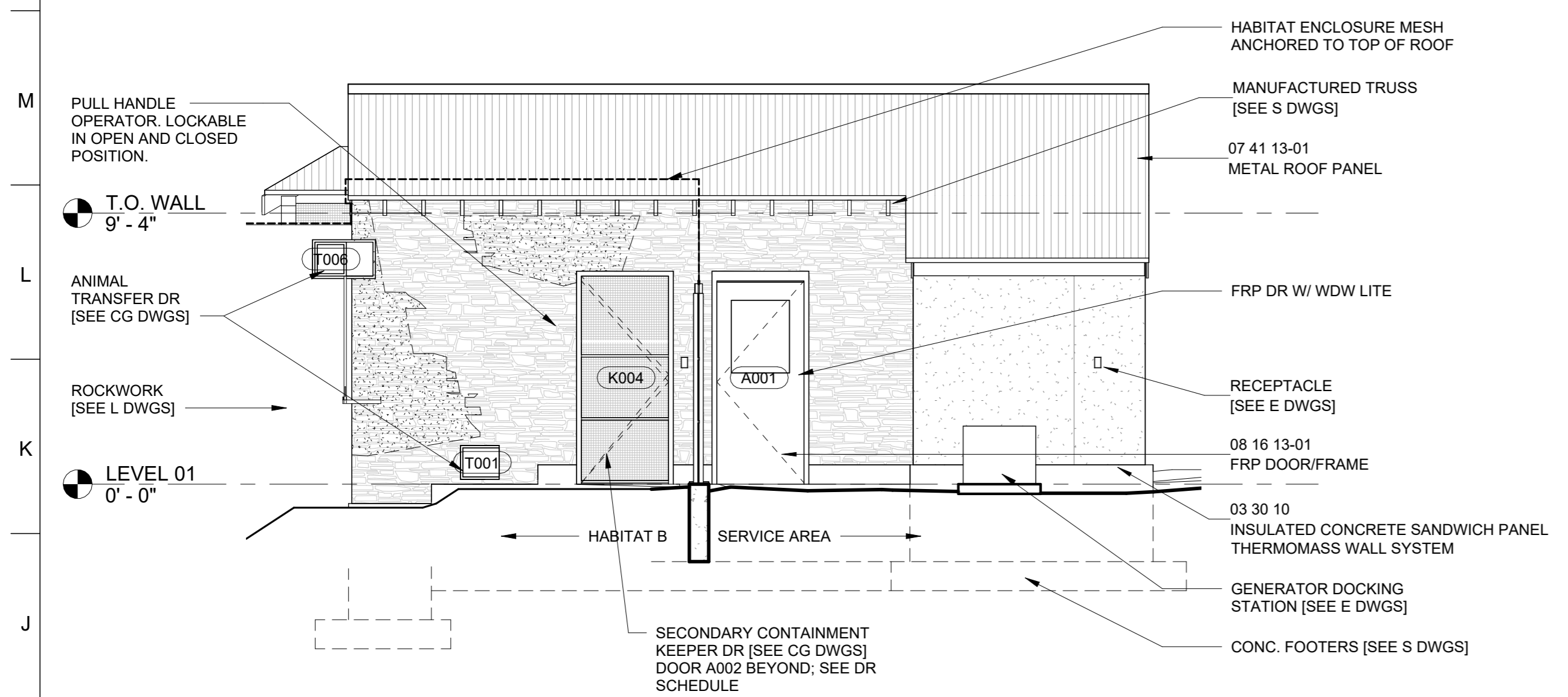
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**DRAWING TITLE:**  
 BUILDING ELEVATIONS

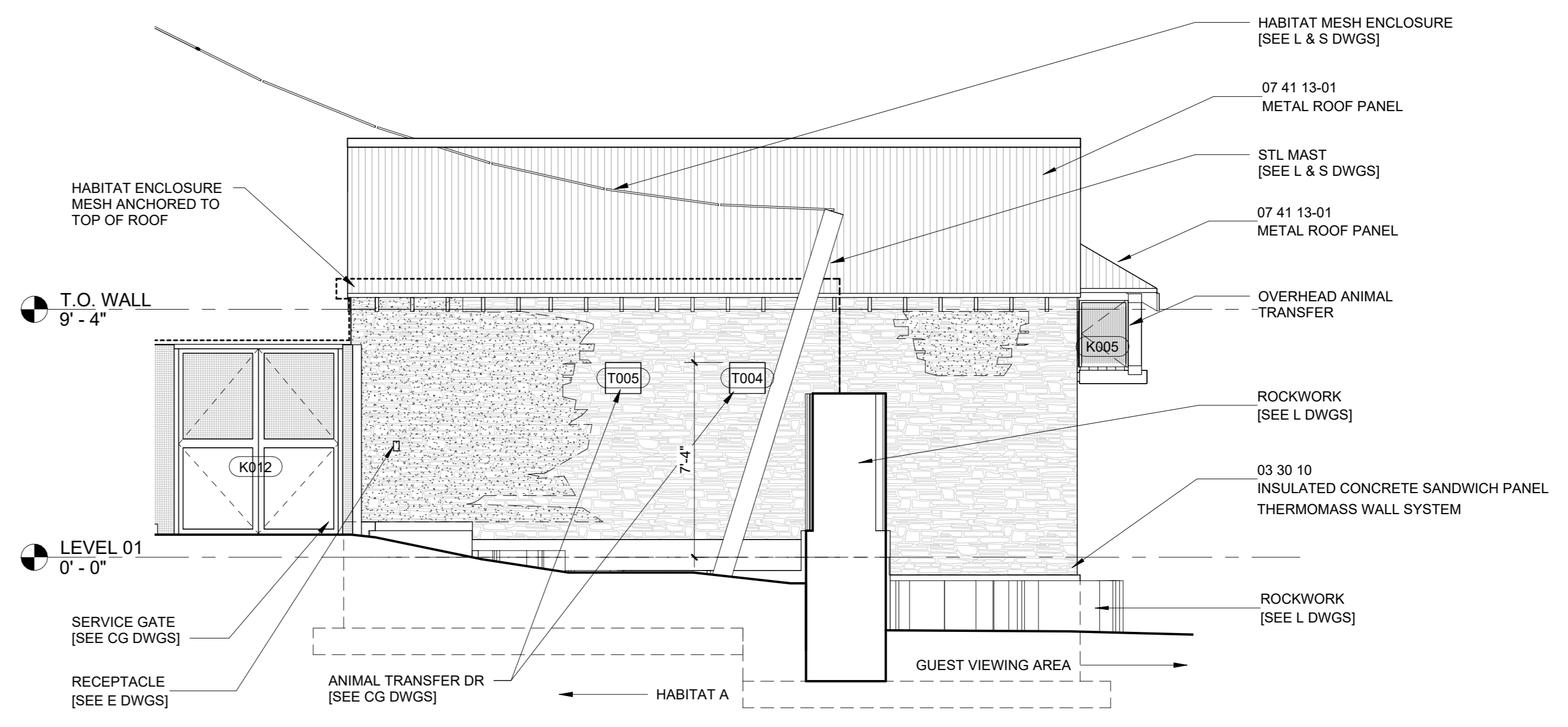
**DRAWING NO:**  
**A120**

**ELEVATION MATERIAL LEGEND**

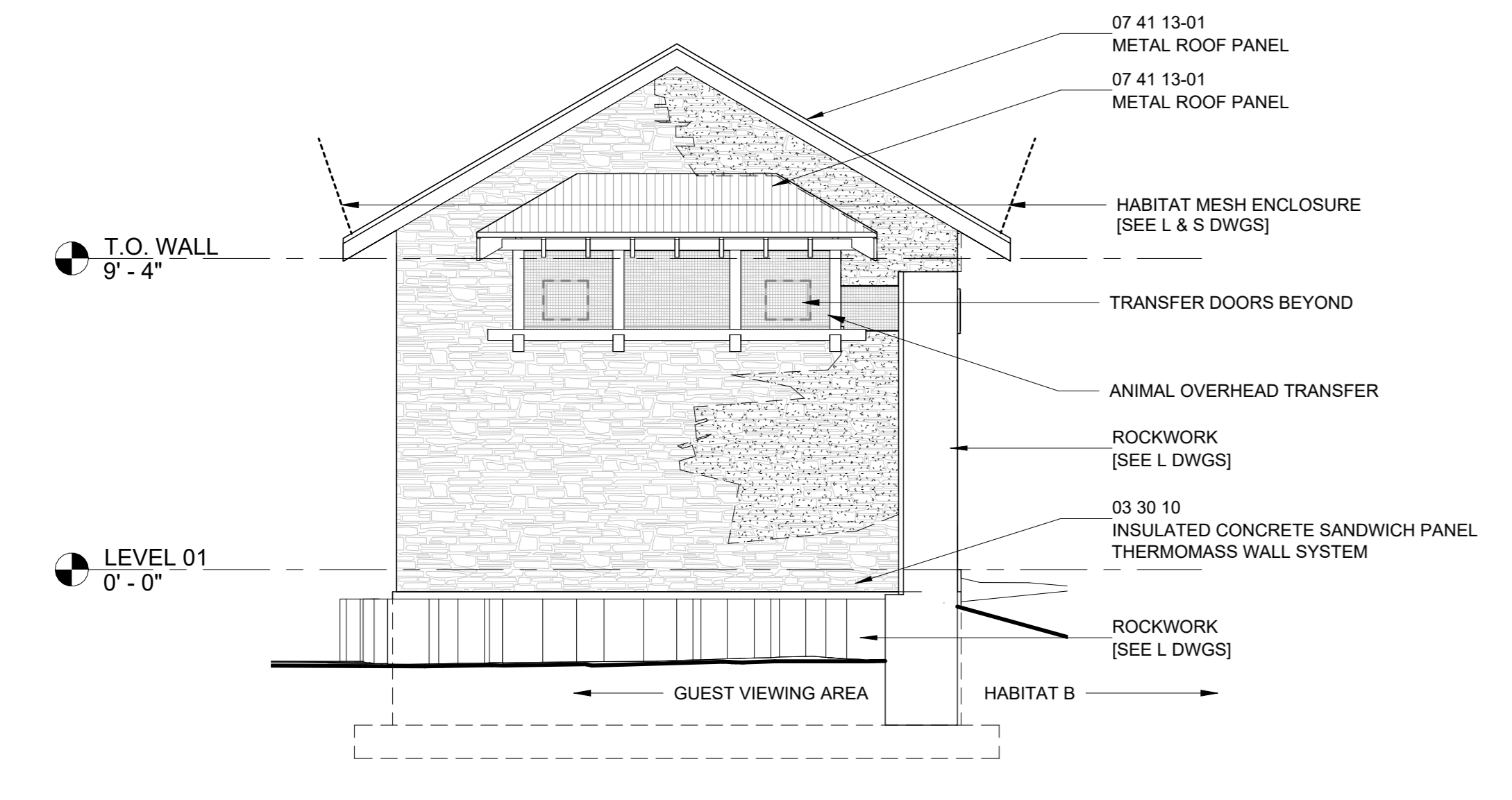
-  ADHERED STONE WALL SYSTEM
-  STUCCO WALL SYSTEM
-  THEMED STUCCO ON ADHERED STONE



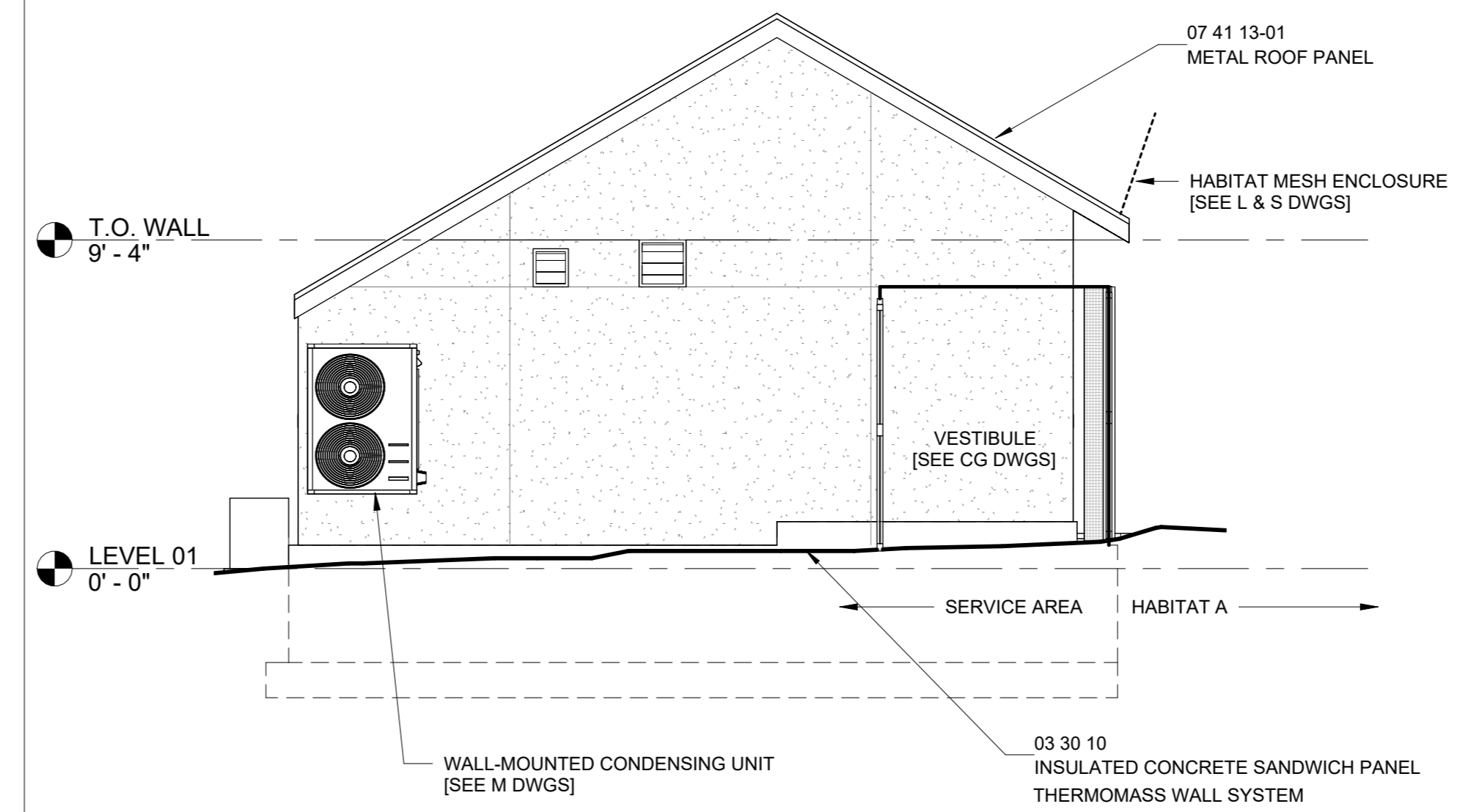
**H1 PLAN NORTH ELEV**  
 1/4" = 1'-0"



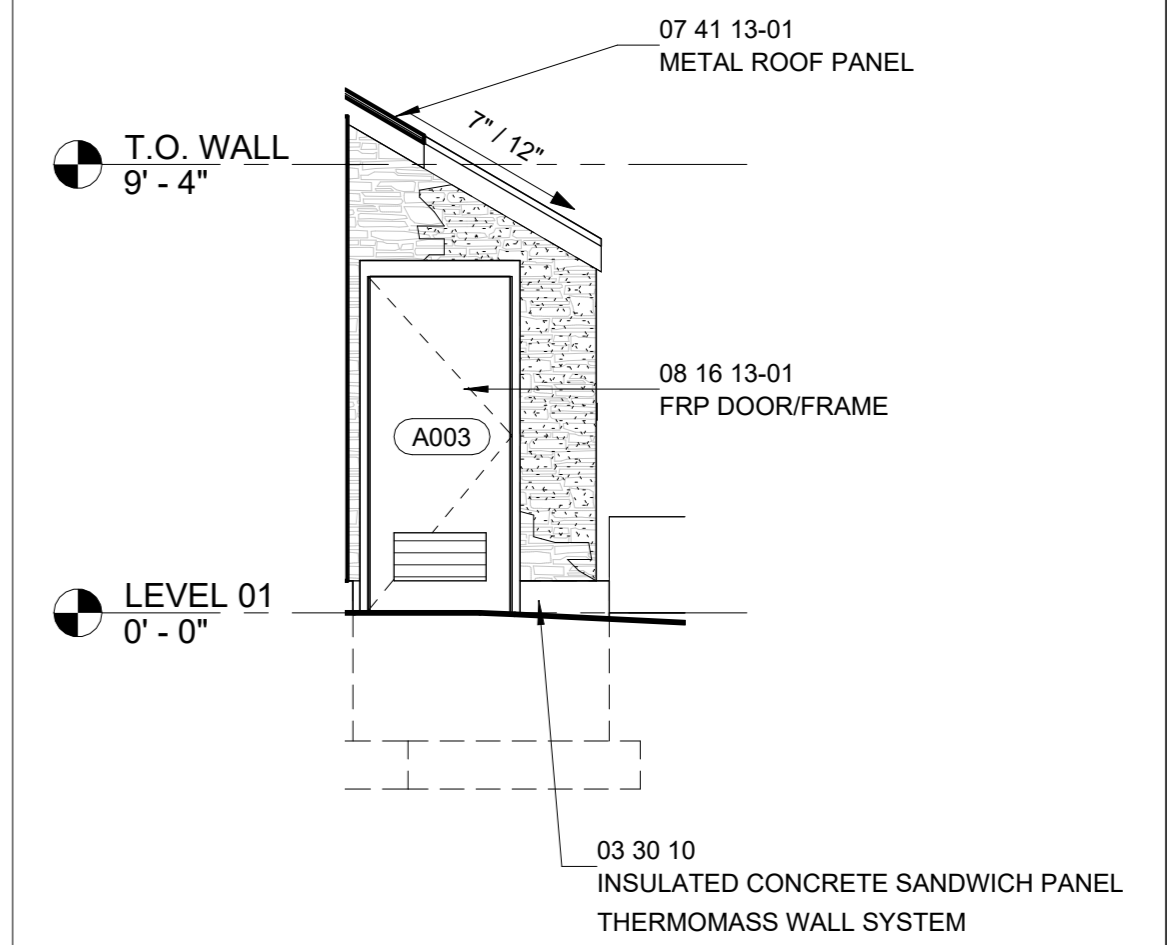
**H10 PLAN SOUTH ELEV**  
 1/4" = 1'-0"



**A1 PLAN EAST ELEV**  
 1/4" = 1'-0"



**A10 PLAN WEST ELEV**  
 1/4" = 1'-0"



**A17 MECH RM DR ELEV**  
 1/4" = 1'-0"

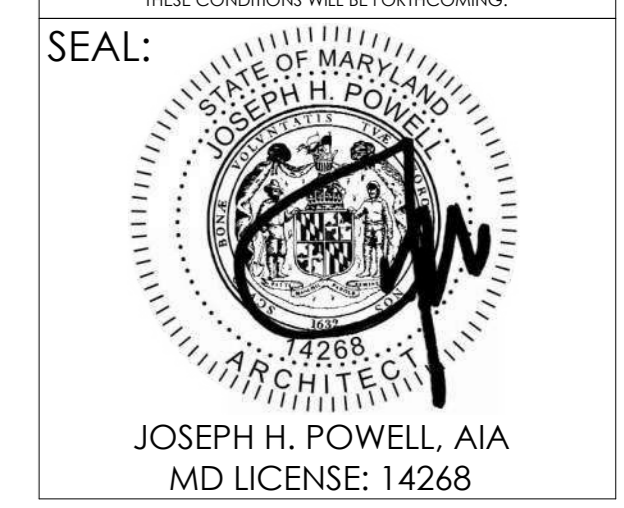


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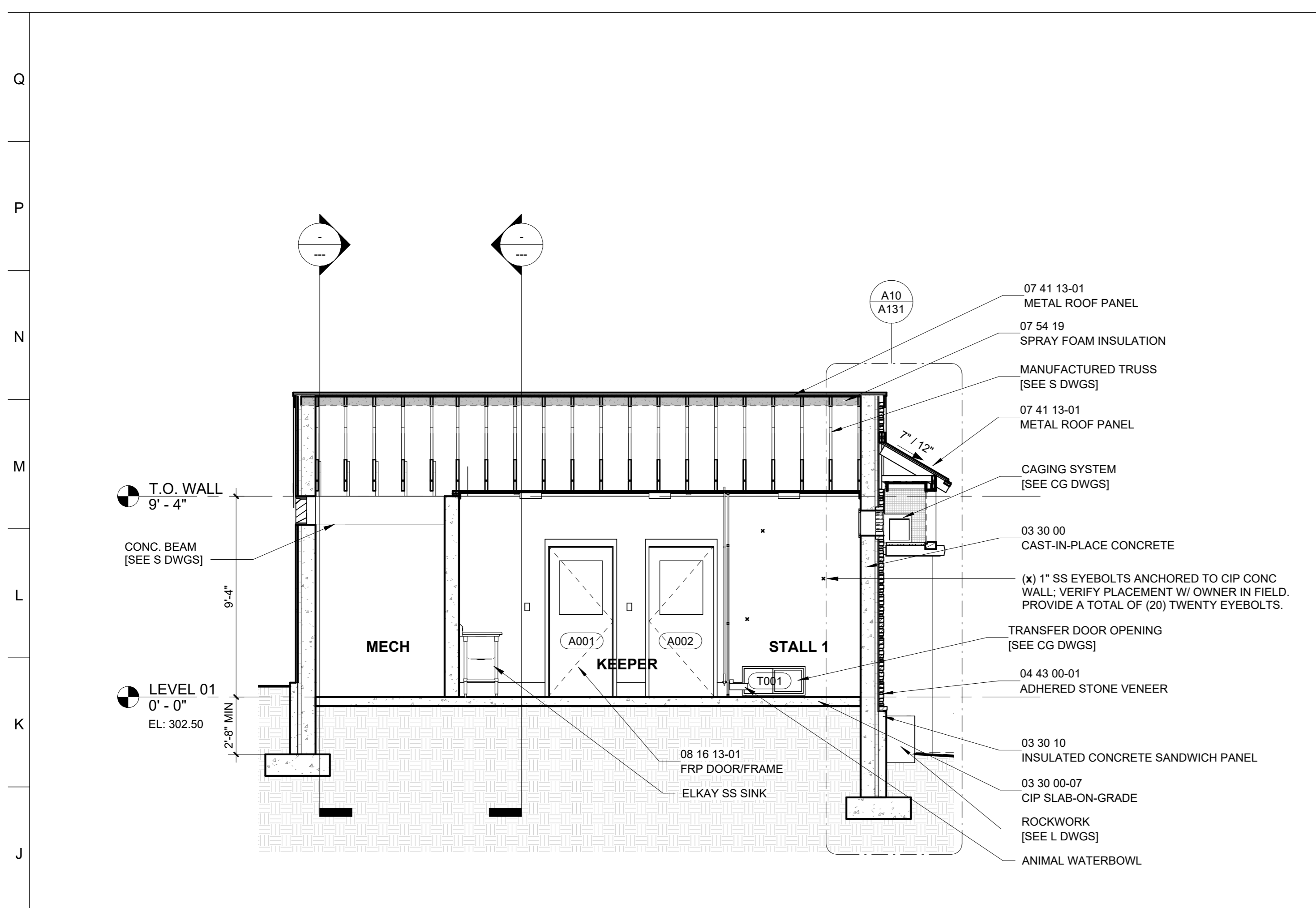
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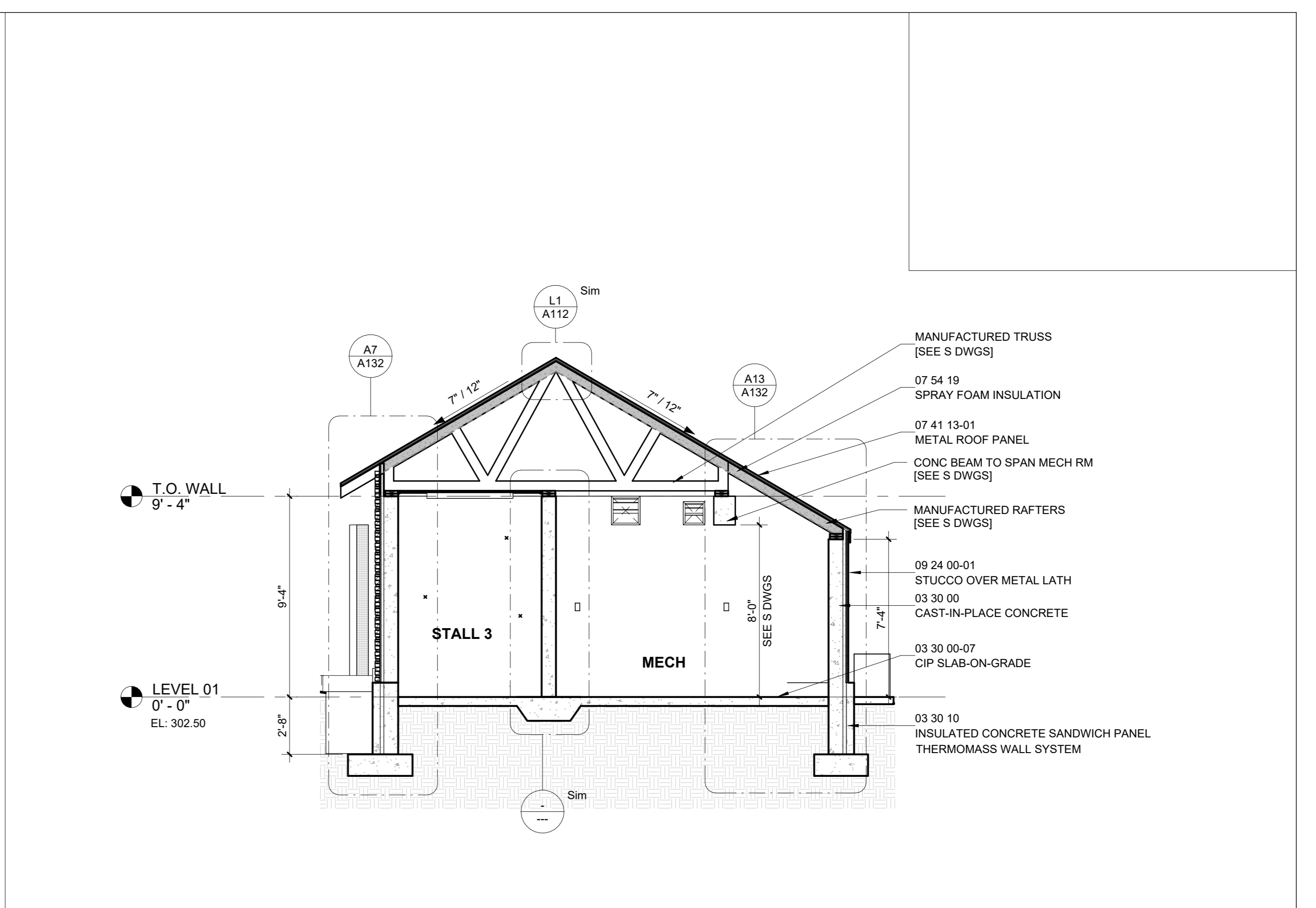
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**DRAWING TITLE:**  
 HOLDING BUILDING SECTIONS

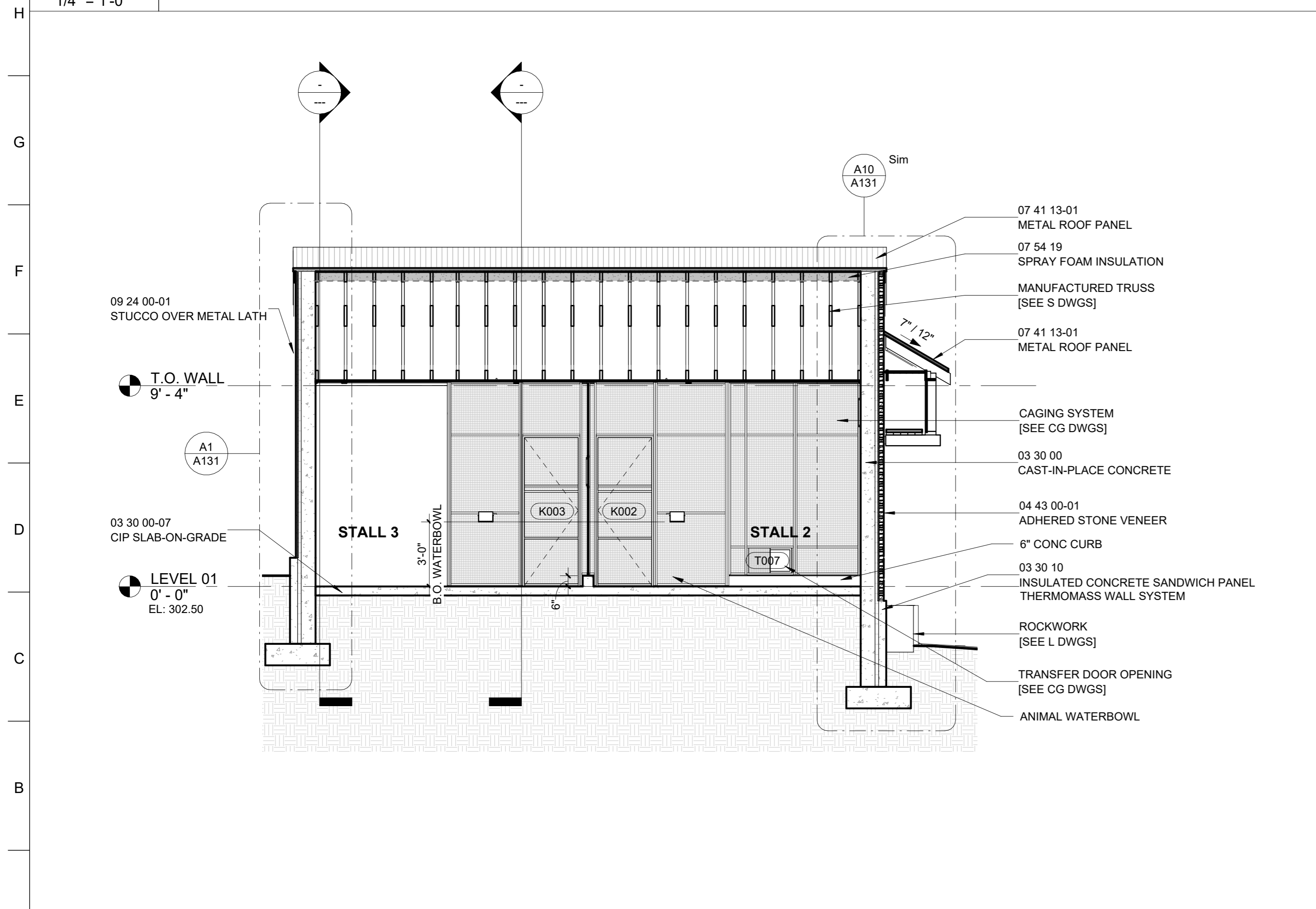
**DRAWING NO:**  
**A130**



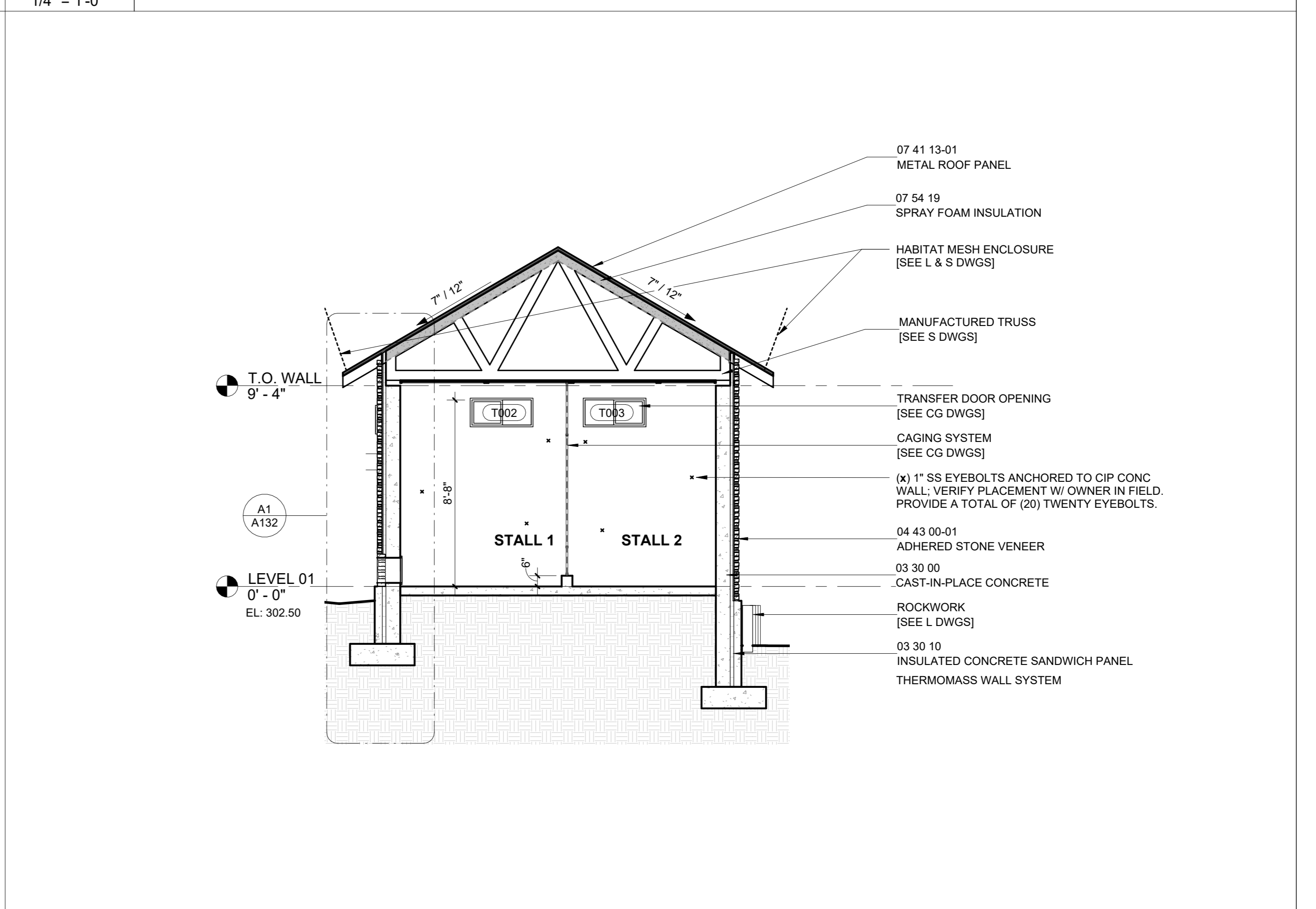
**H1** LONG SECTION THRU KEEPER CORRIDOR  
 1/4" = 1'-0"



**H10** CROSS-SECTION THRU MECH  
 1/4" = 1'-0"



**A1** LONG SECTION THRU HOLDING  
 1/4" = 1'-0"



**A10** CROSS-SECTION THRU STALLS  
 1/4" = 1'-0"

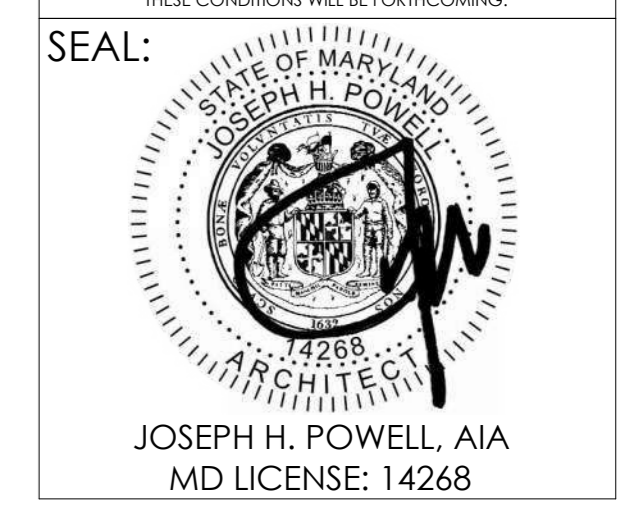


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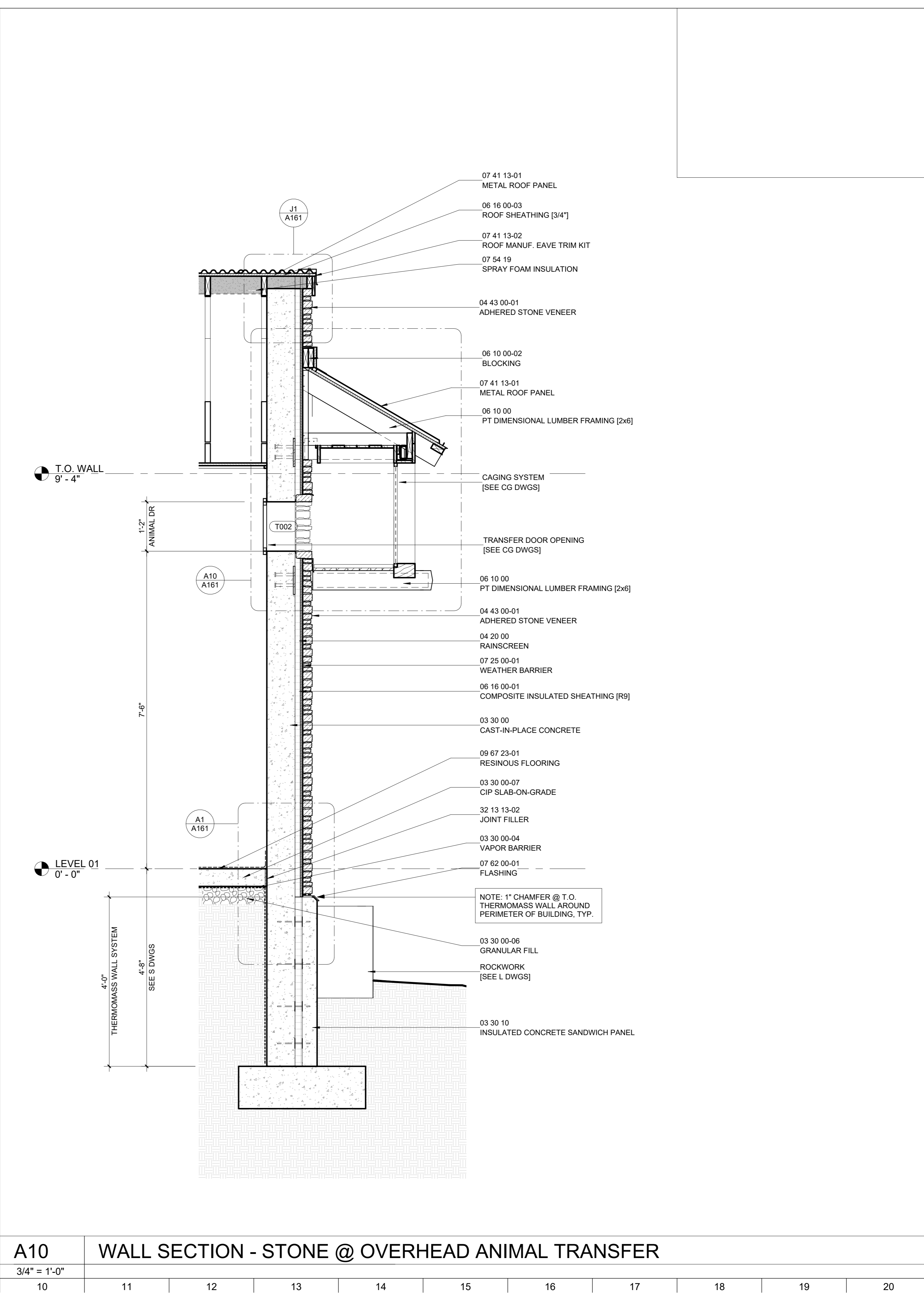
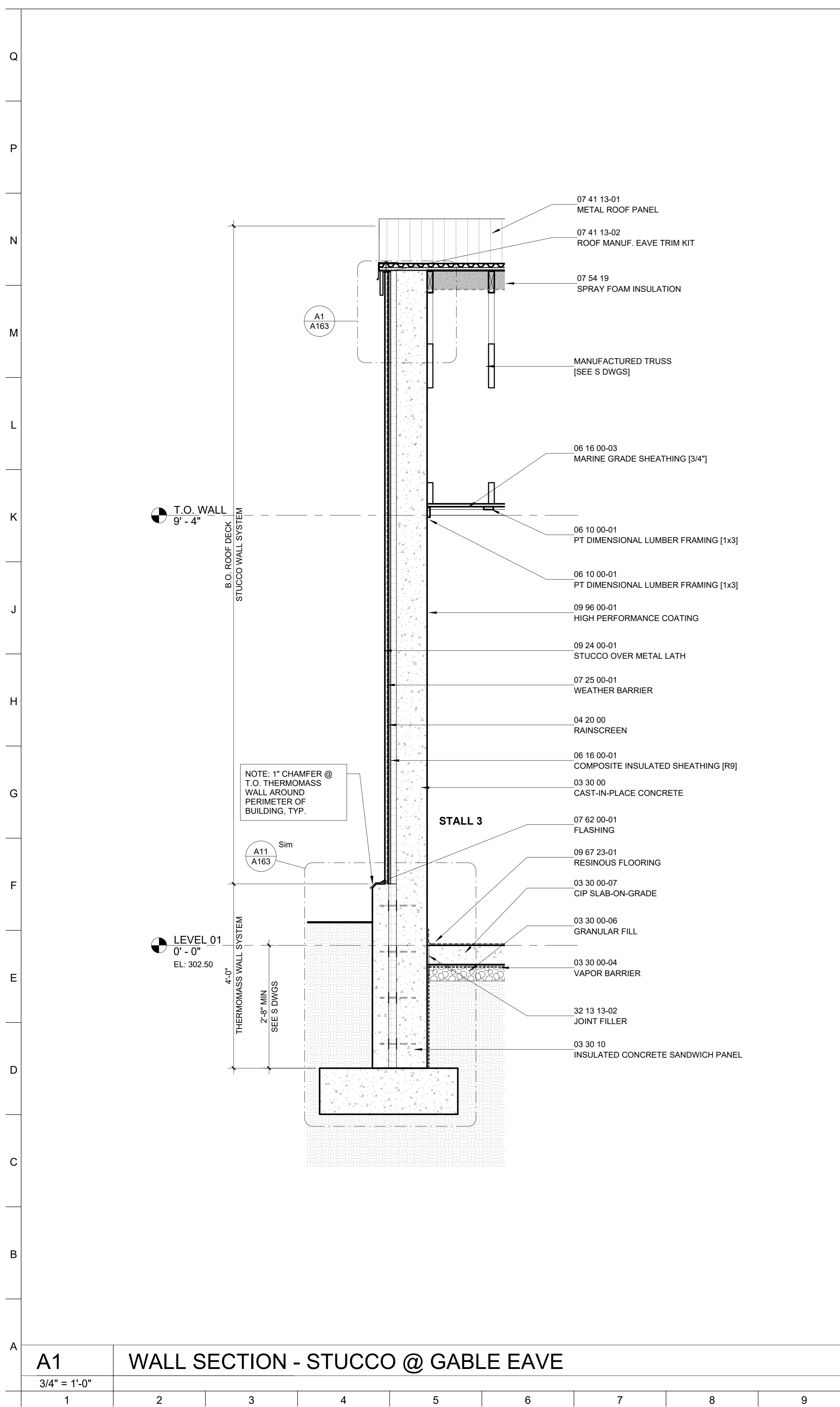
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**DRAWING TITLE:**  
 HOLDING BUILDING  
 PLAN WALL SECTIONS

**DRAWING NO:**  
**A131**



**A1** WALL SECTION - STUCCO @ GABLE EAVE  
 3/4" = 1'-0"

**A10** WALL SECTION - STONE @ OVERHEAD ANIMAL TRANSFER  
 3/4" = 1'-0"

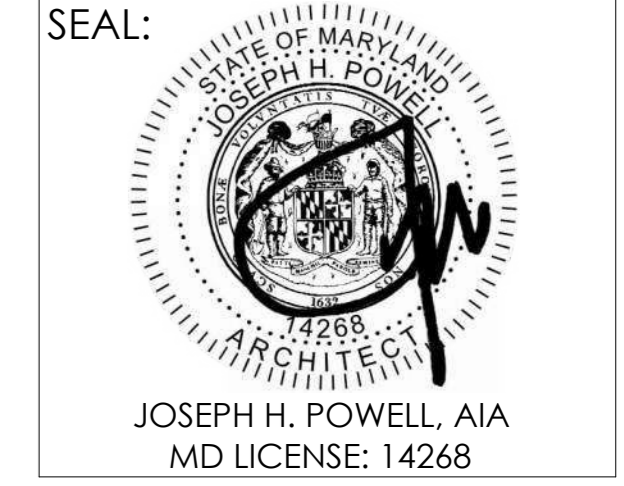


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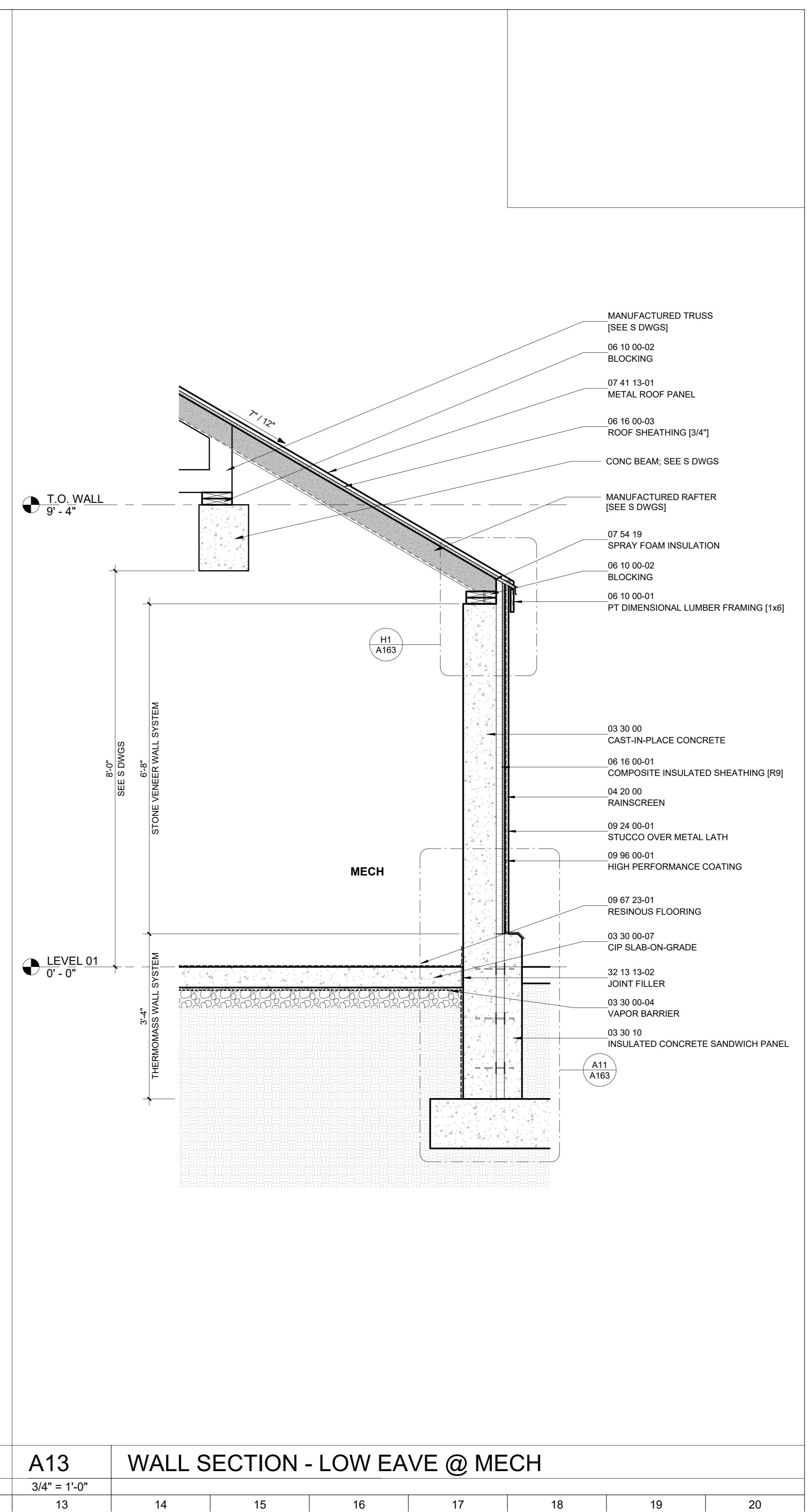
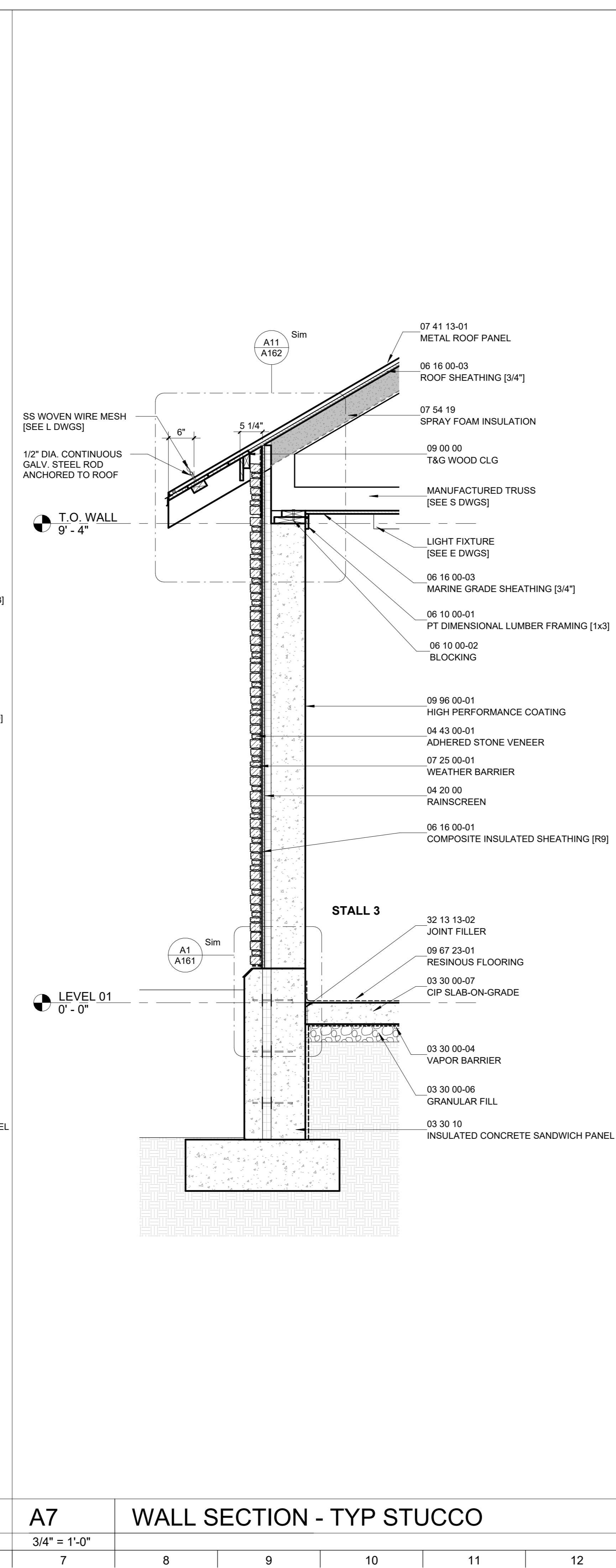
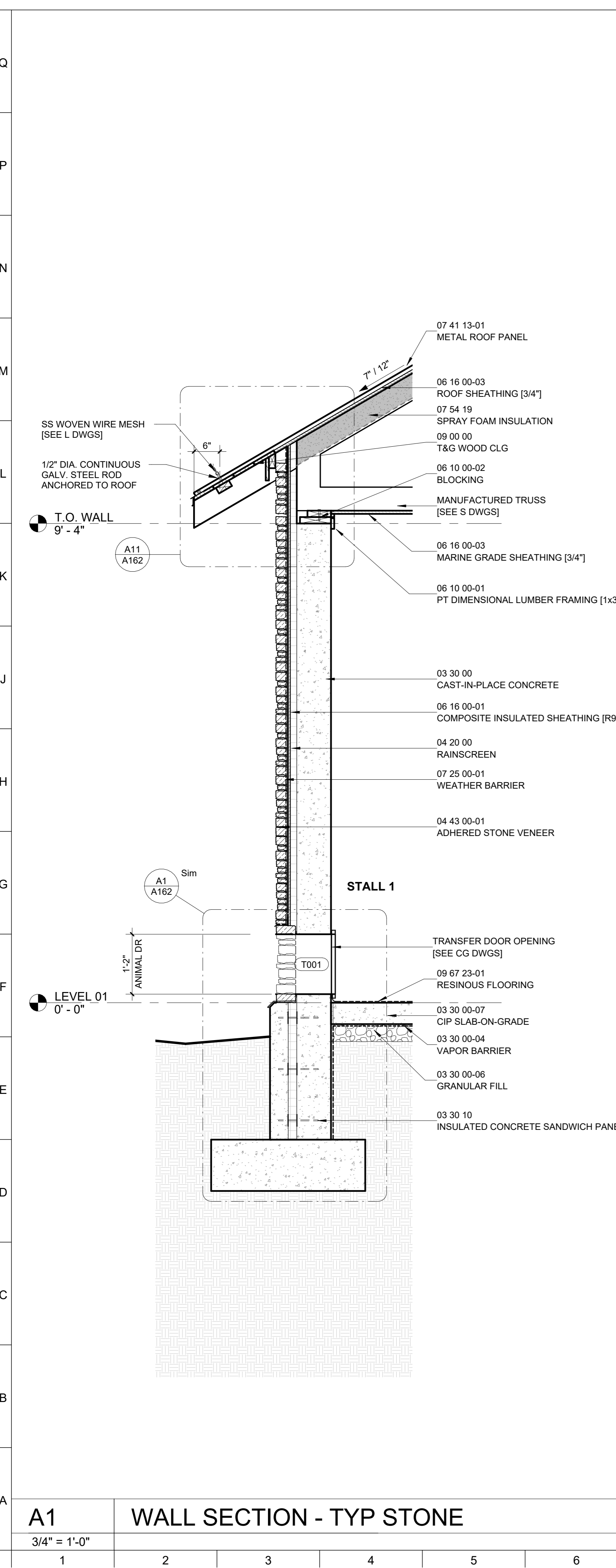
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**DRAWING TITLE:**  
 HOLDING BUILDING  
 PLAN WALL SECTIONS

**DRAWING NO:**  
**A132**



A1	WALL SECTION - TYP STONE	A7	WALL SECTION - TYP STUCCO	A13	WALL SECTION - LOW EAVE @ MECH														
3/4" = 1'-0"		3/4" = 1'-0"		3/4" = 1'-0"															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20



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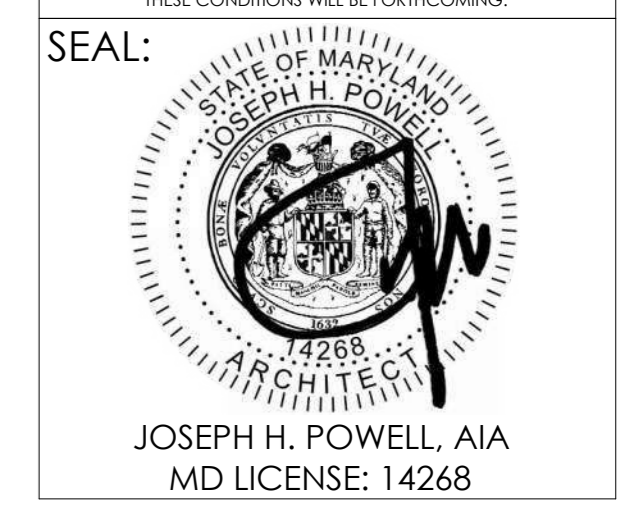
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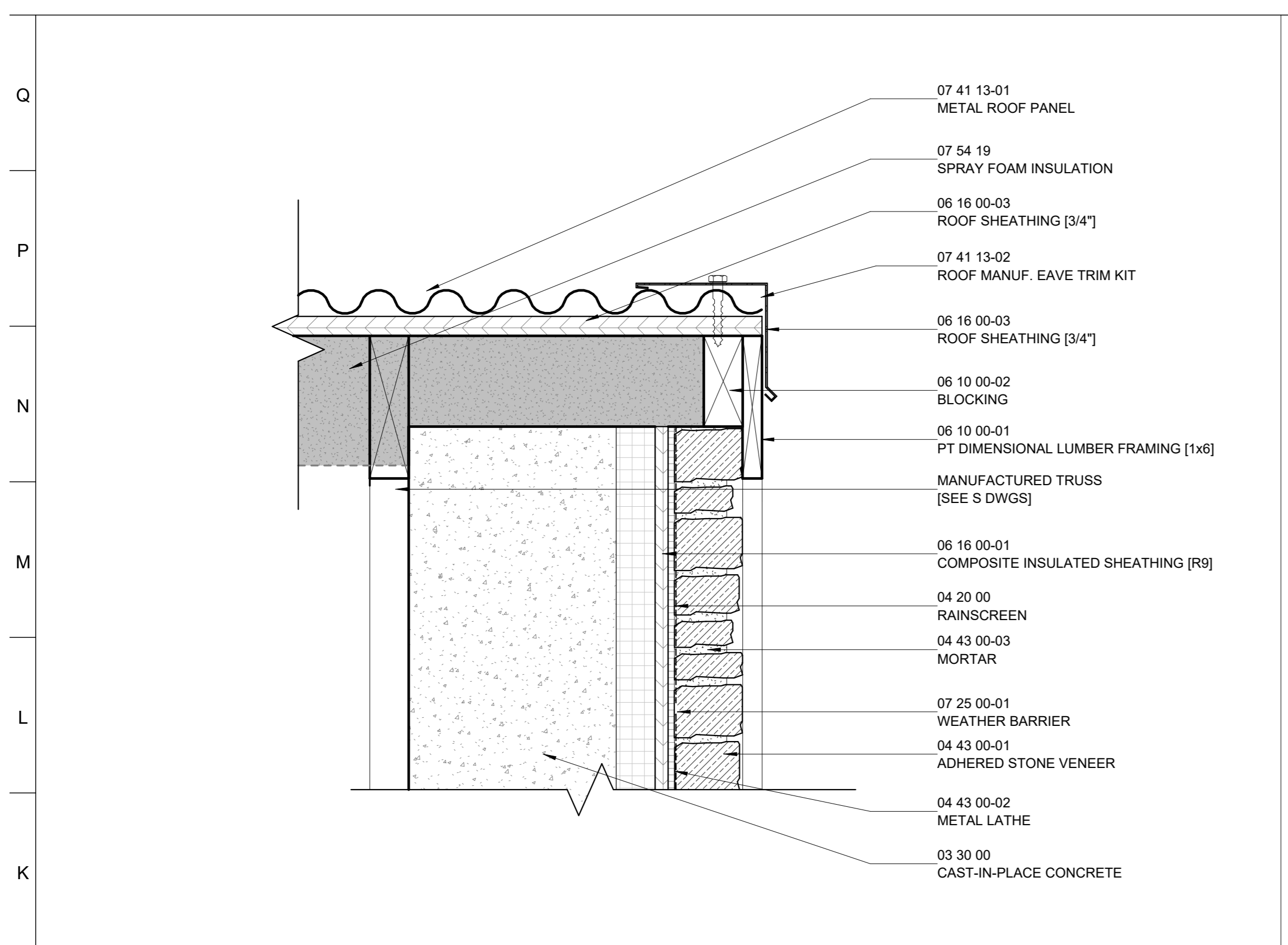
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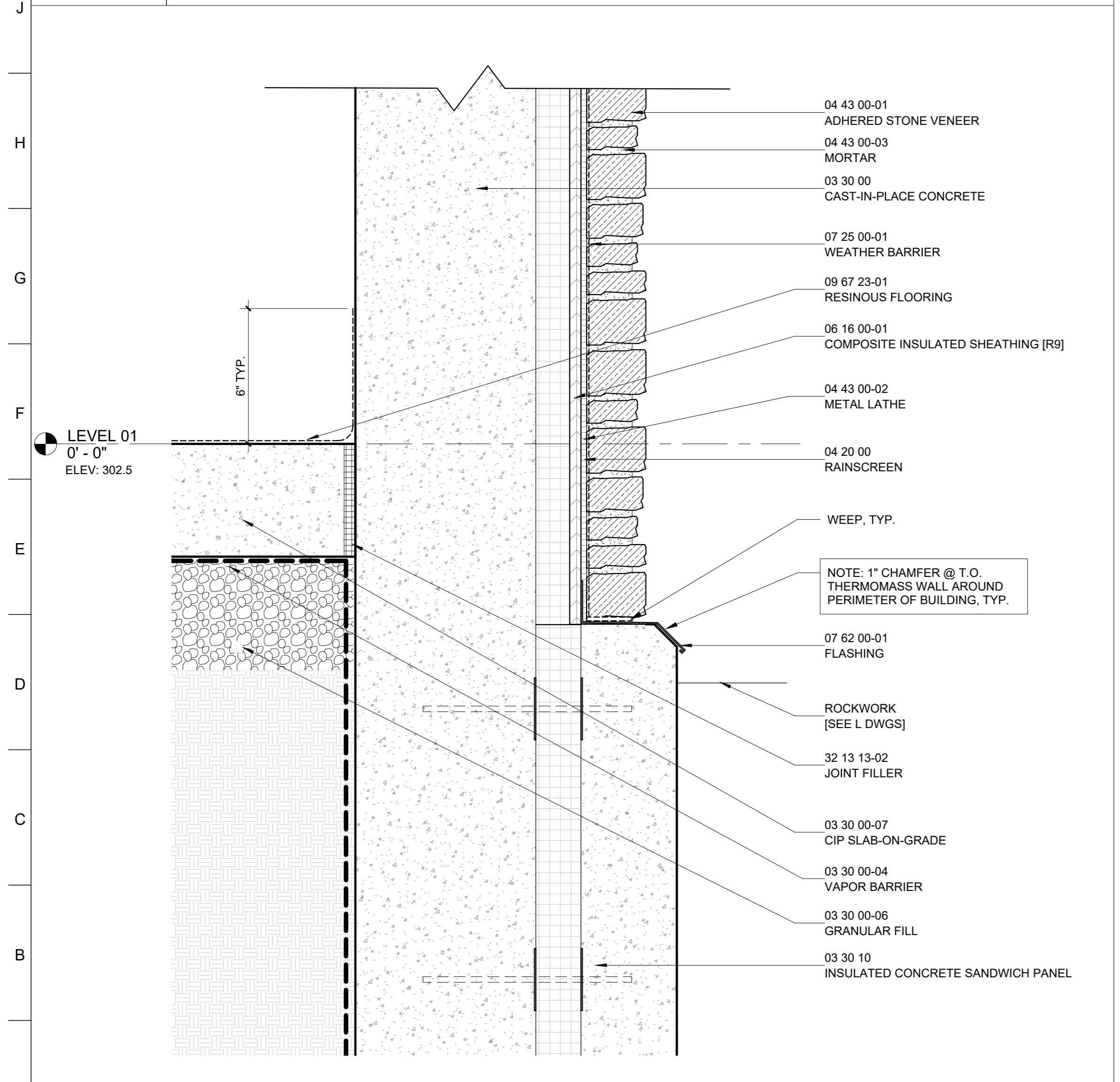
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**DRAWING TITLE:**  
 CONSTRUCTION  
 DETAILS

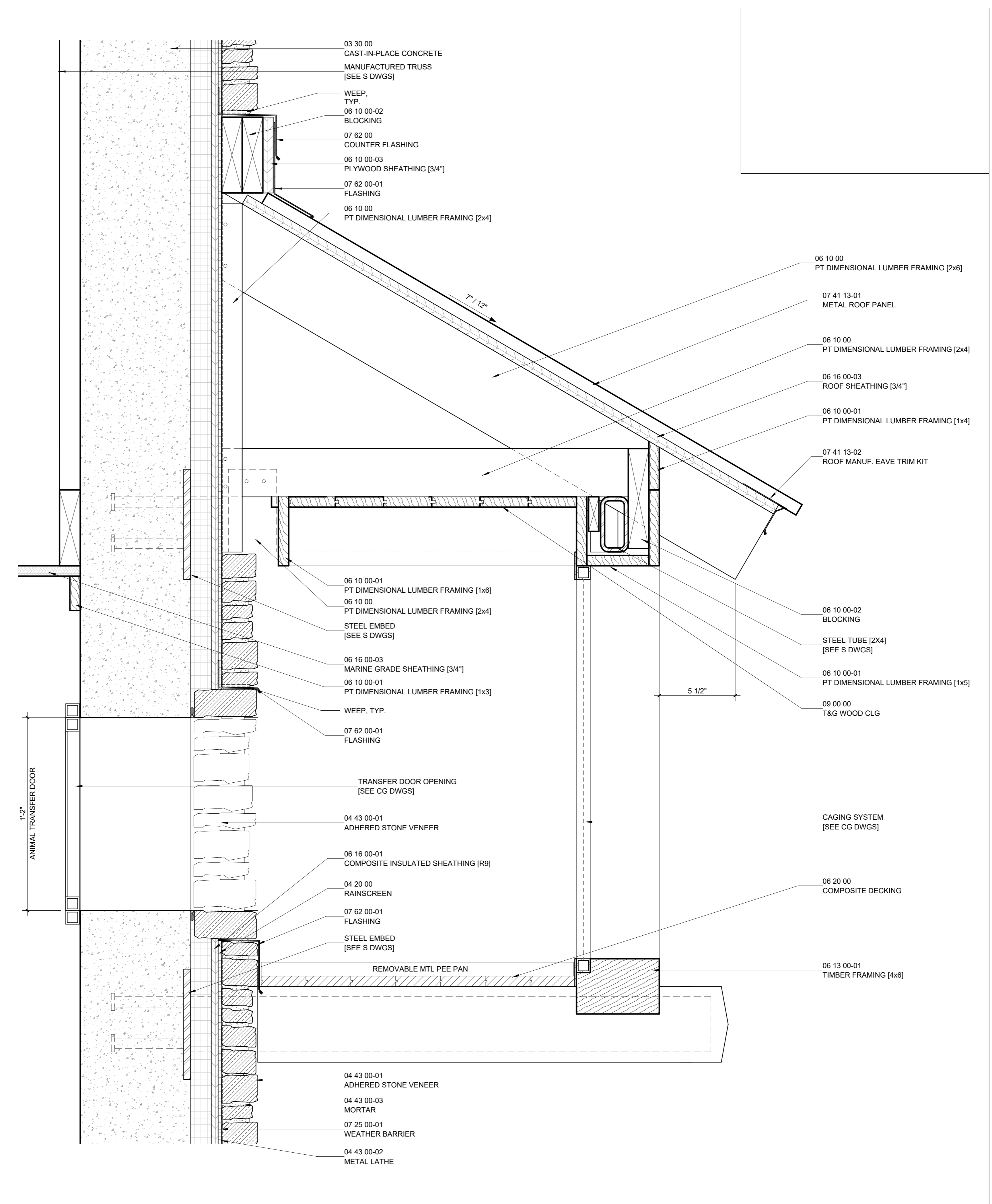
**DRAWING NO:**  
**A161**



**J1 GABLE EAVE DETAIL @ STONE**  
 3" = 1'-0"



**A1 TYP. ADHERED STONE WALL**  
 3" = 1'-0"



**A10 SECTION THROUGH ANIMAL TRANSFER**  
 3" = 1'-0"

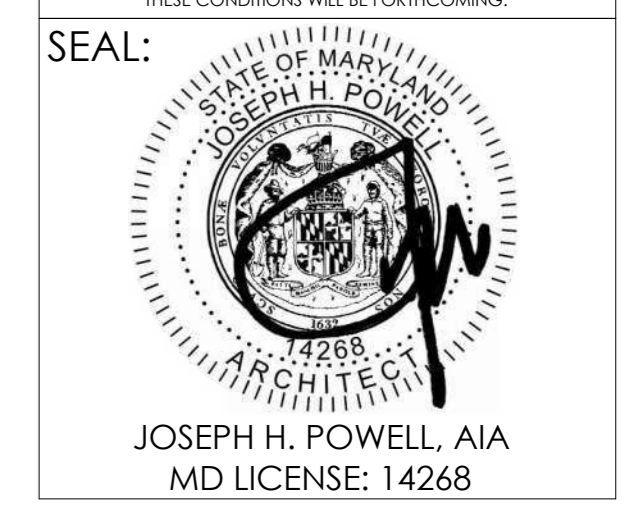


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 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423  
**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544  
**STRUCTURAL ENGINEER:**  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950  
**MEP ENGINEER:**  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

**CLIENT:**  
**MARYLAND ZOO**  
 THE MARYLAND ZOO IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

**RED PANDA**  
 THE MARYLAND ZOO  
 IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

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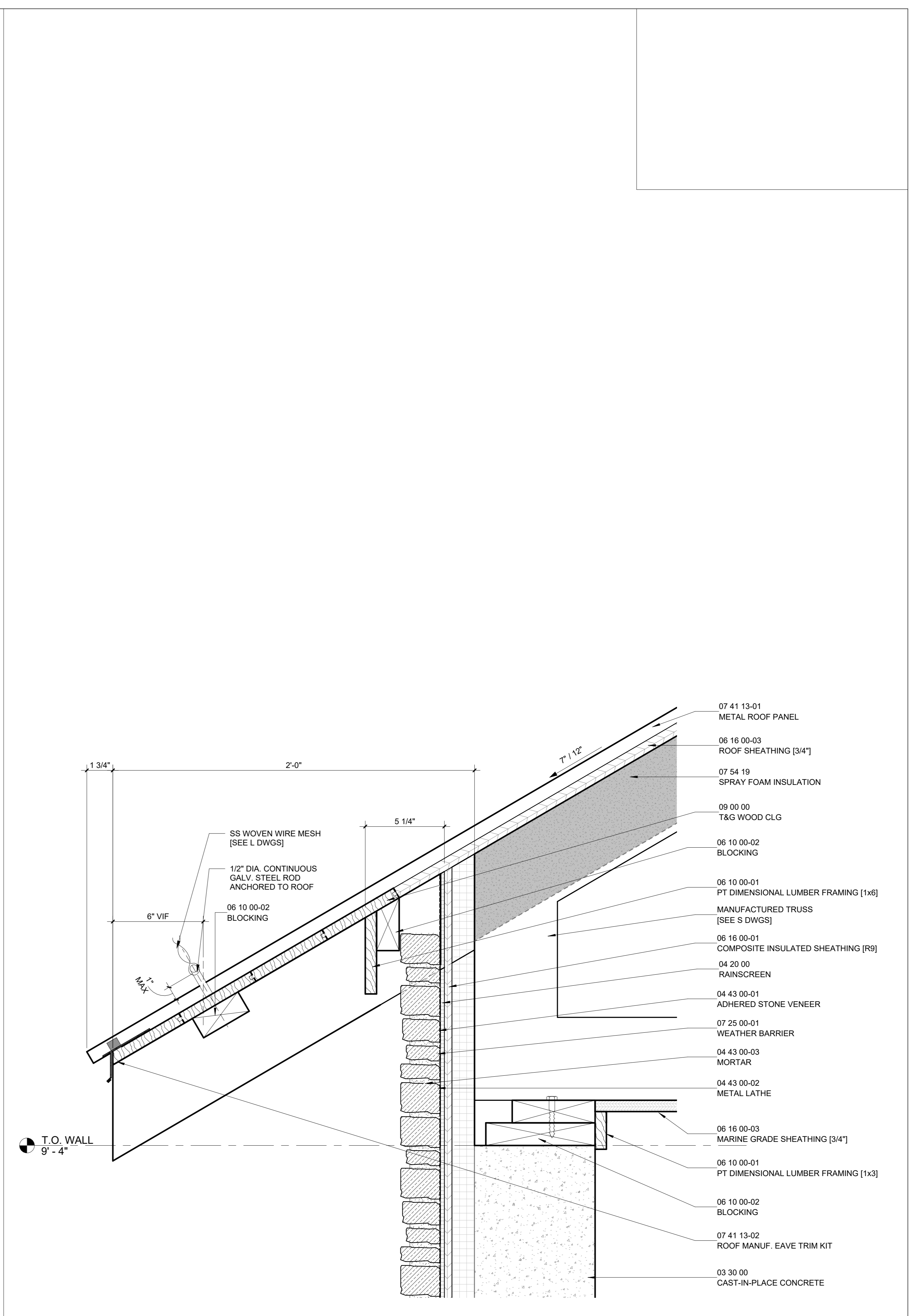
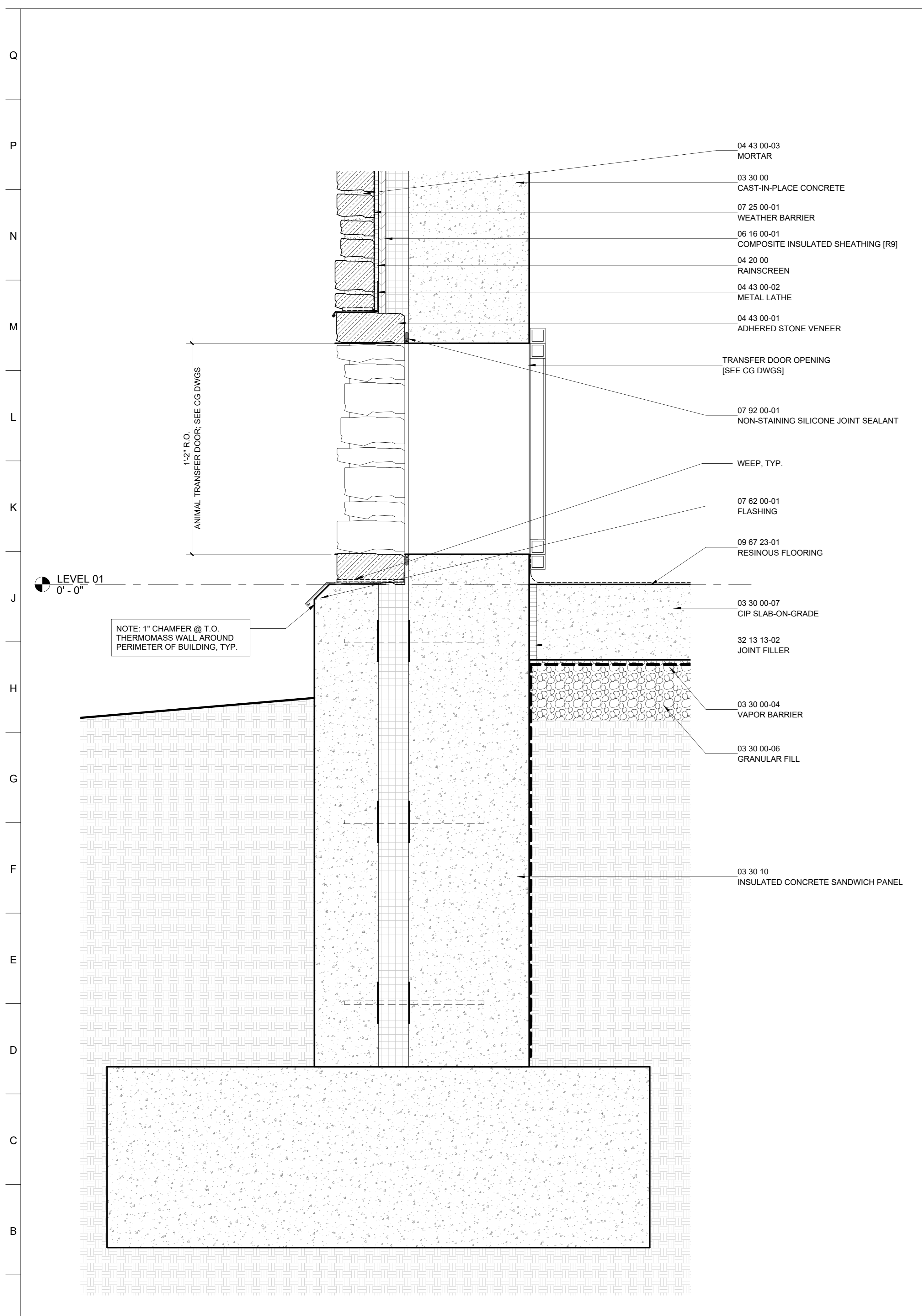


DATE: NOVEMBER 22, 2024  
 PROJECT NO: 2023-10.04  
 DRAWN BY: CC  
 CHECKED BY: JS  
 SUBMISSION: DATE  
 PERMIT SET: 11/22/2024

REVISION	DATE

**DRAWING TITLE:**  
 CONSTRUCTION  
 DETAILS

**DRAWING NO:**  
**A162**



**A1 SECTION @ ANIMAL TRANSFER DOOR**  
 3" = 1'-0"

**A11 TYP. EAVE @ STONE**  
 3" = 1'-0"

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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PROJECT TEAM:

ARCHITECT:  
BUELL KRATZER POWELL, P.C.  
1525 LOCUST STREET  
PHILADELPHIA, PA 19102  
T: 215.557.6509

CIVIL ENGINEER:  
CARROLL ENGINEERING, INC  
215 SCHILLING CIRCLE, STE 102  
HUNT VALLEY, MD 21031  
T: 410.785.7423

LANDSCAPE ARCHITECT:  
ROBINSON ANDERSON SUMMERS  
28 WEST STATE STREET  
MEDIA, PA 19063  
T: 302.888.1544

STRUCTURAL ENGINEER:  
STRUCTURAL DESIGN STUDIO, INC  
2225 EAST MURRAY HOLLADAY RD  
SALT LAKE CITY, UT 84117  
T: 801.274.3950

MEP ENGINEER:  
KOVACS, WHITNEY & ASSOCIATES  
190 WEST OSTEND ST, STE 300  
BALTIMORE, MD 21230  
T: 410.244.7191

CLIENT:

**MARYLAND ZOO**  
THE MARYLAND ZOO IN BALTIMORE  
1 SAFARI PLACE  
BALTIMORE, MD 21217

**RED PANDA**  
THE MARYLAND ZOO  
IN BALTIMORE  
1 SAFARI PLACE  
BALTIMORE, MD 21217

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SEAL:



JOSEPH H. POWELL, AIA  
MD LICENSE: 14268

DATE: NOVEMBER 22, 2024

PROJECT NO: 2023-10.04

DRAWN BY CC

CHECKED BY JS

SUBMISSION DATE

PERMIT SET 11/22/2024

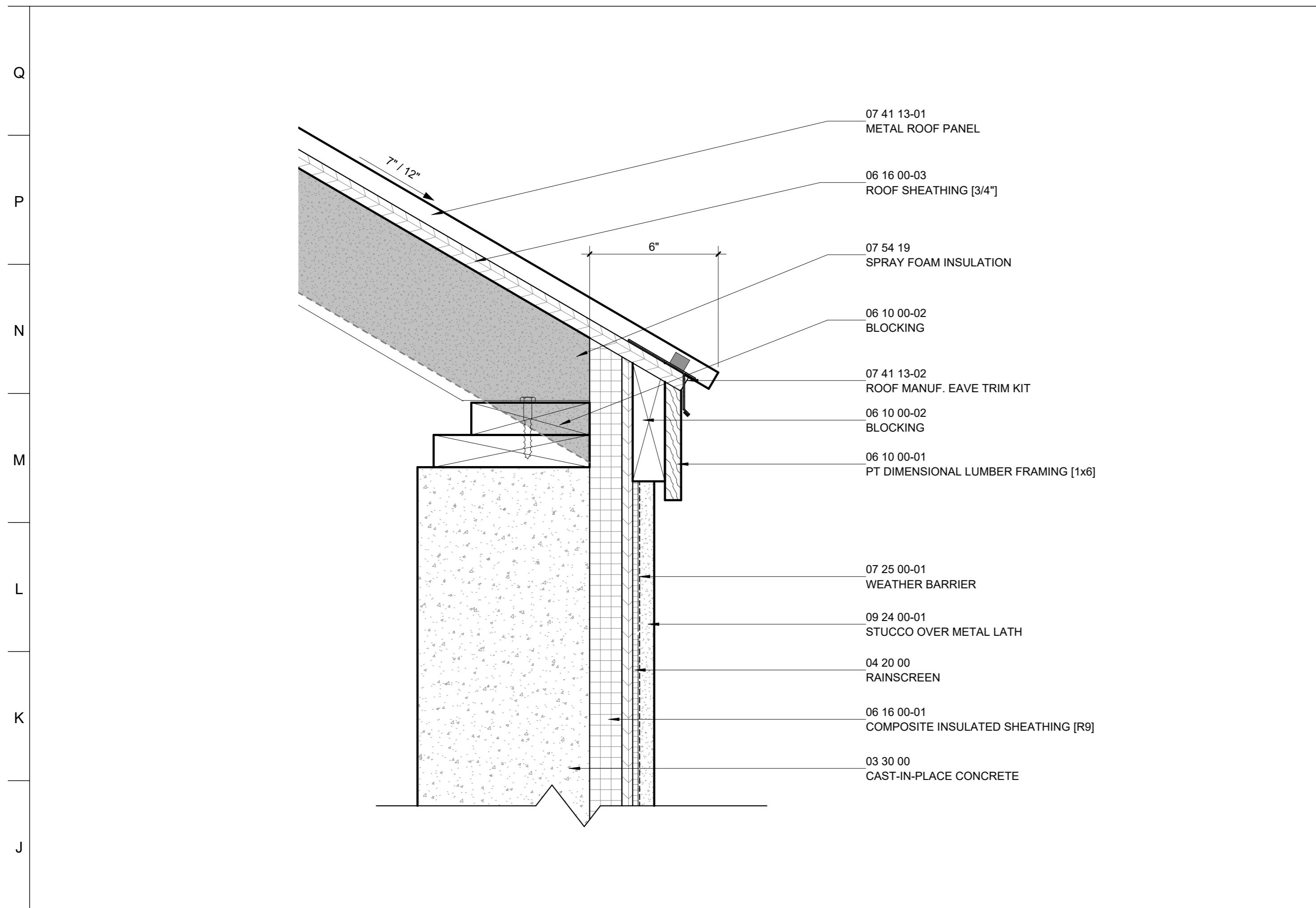
REVISION DATE

DRAWING TITLE:

CONSTRUCTION  
DETAILS

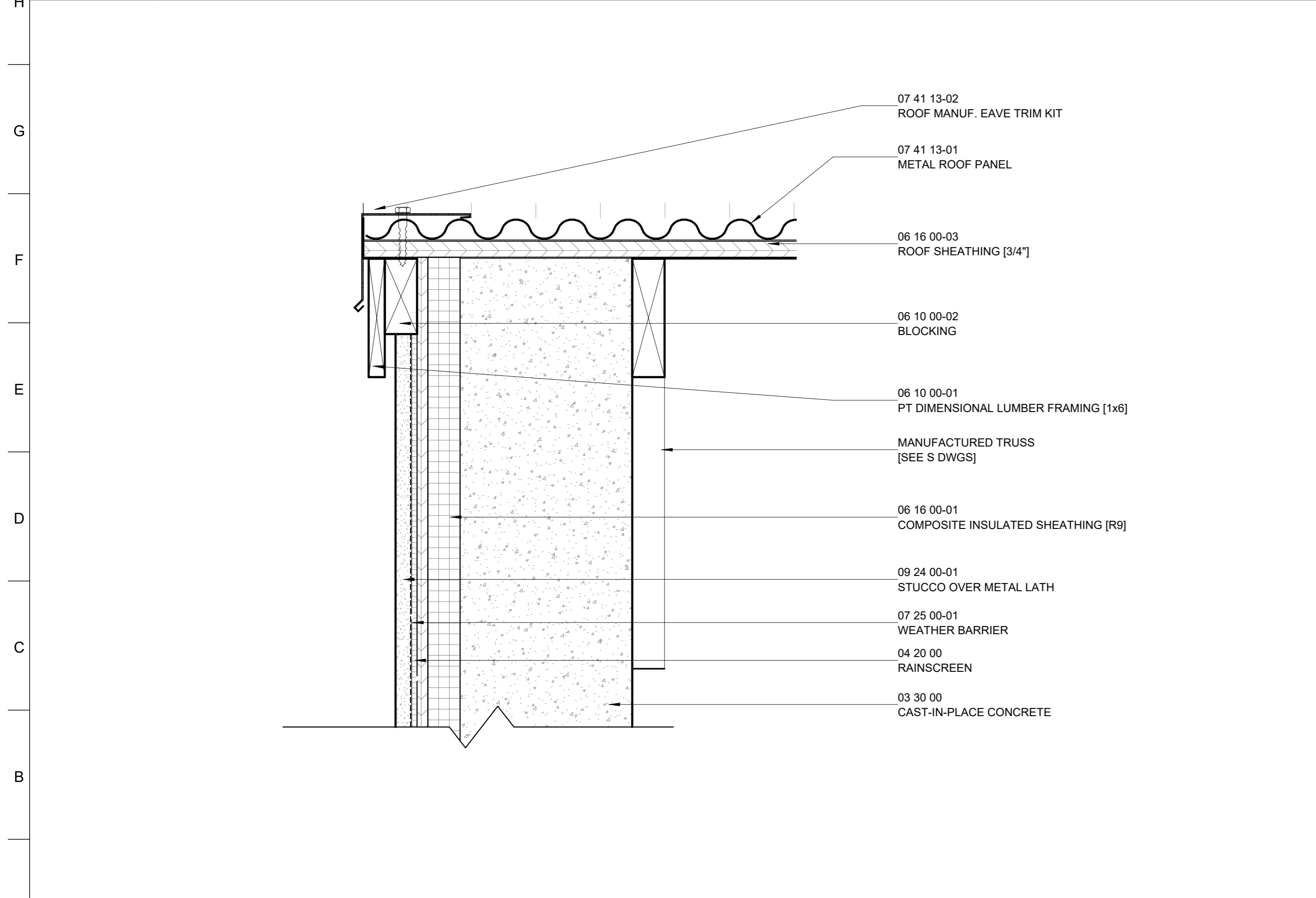
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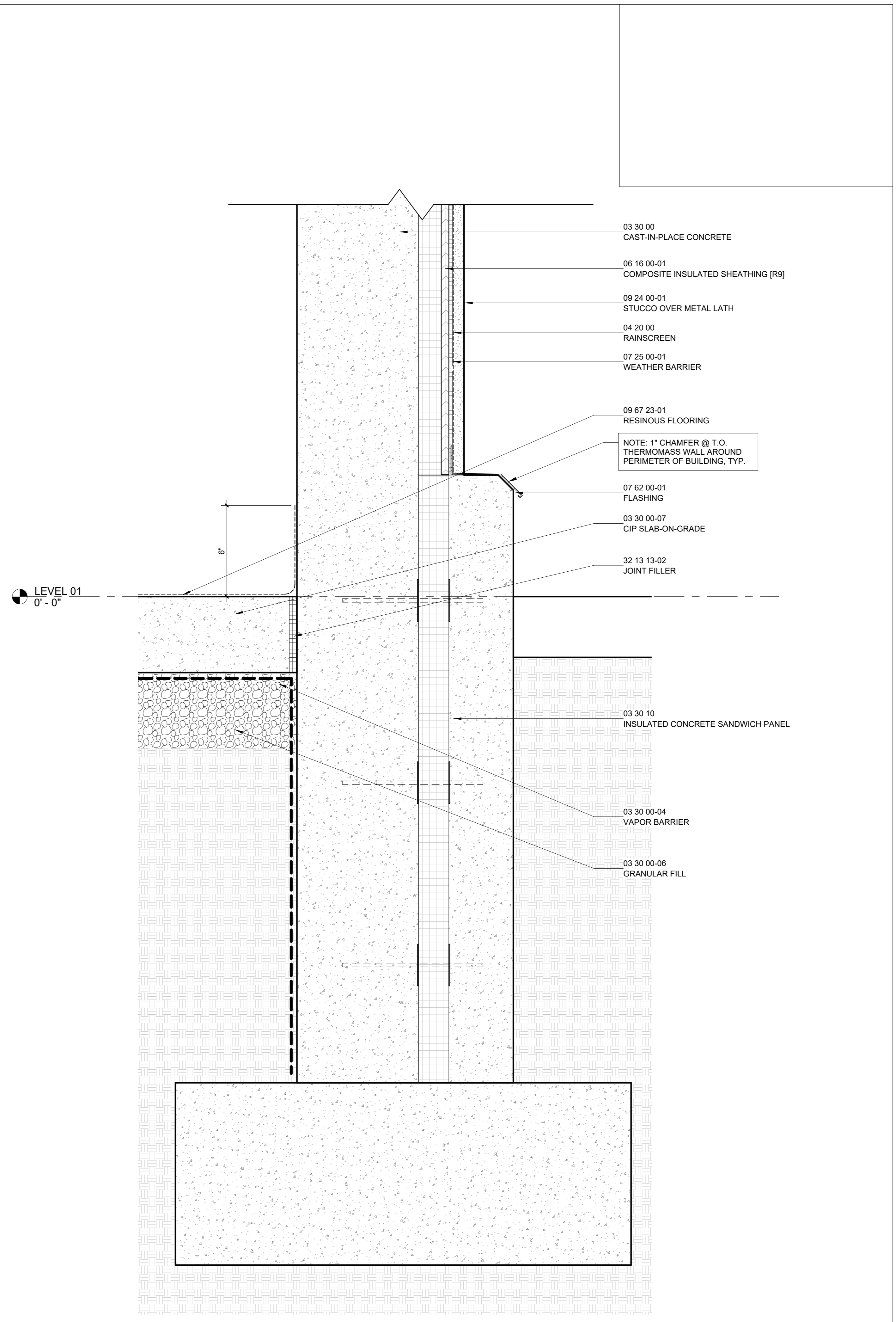
H1 EAVE @ STUCCO

3" = 1'-0"



A1 GABLE EAVE DETAIL @ STUCCO

3" = 1'-0"



A11 TYP. STUCCO WALL

3" = 1'-0"



**PROJECT TEAM:**  
**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
**CIVIL ENGINEER:**  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423  
**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544  
**STRUCTURAL ENGINEER:**  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950  
**MEP ENGINEER:**  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
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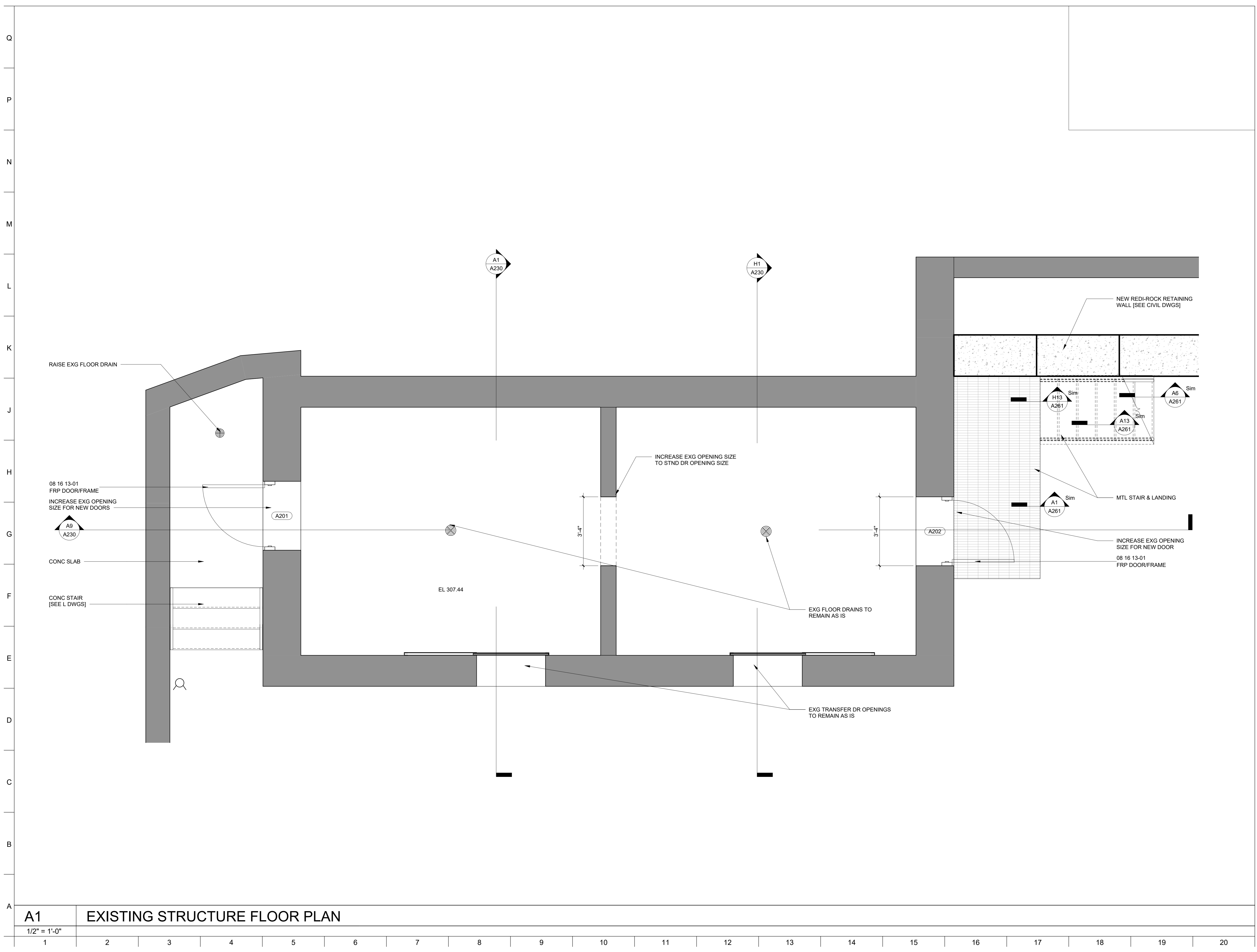
**SEAL:**  
  
 JOSEPH H. POWELL, AIA  
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DATE: NOVEMBER 22, 2024  
 PROJECT NO: 2023-10.04  
 DRAWN BY: CC  
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REVISION	DATE

**DRAWING TITLE:**  
 EXISTING STRUCTURE FLOOR PLAN

**DRAWING NO:**  
**A210**



**A1** EXISTING STRUCTURE FLOOR PLAN

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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**PROJECT TEAM:**  
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 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
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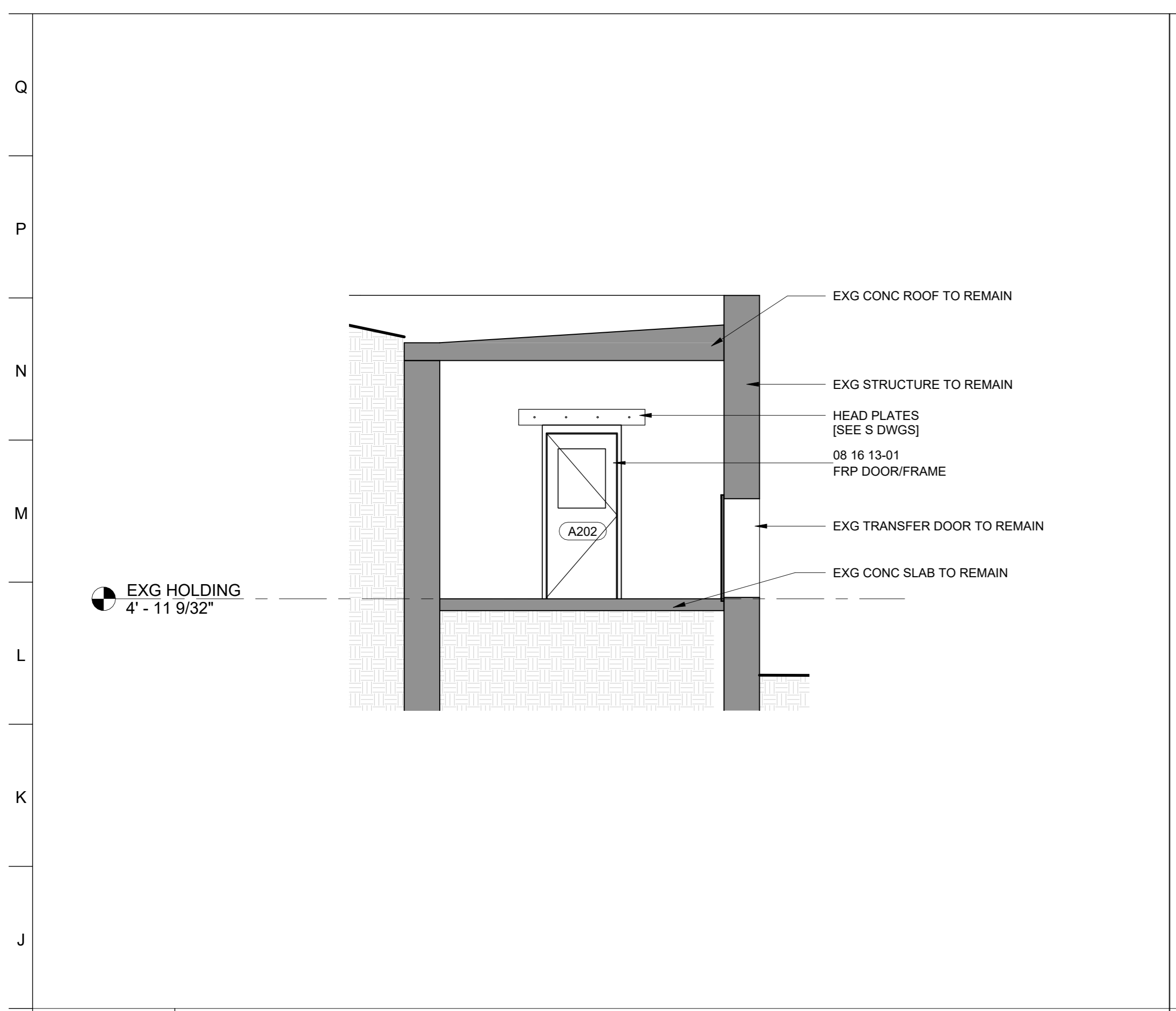
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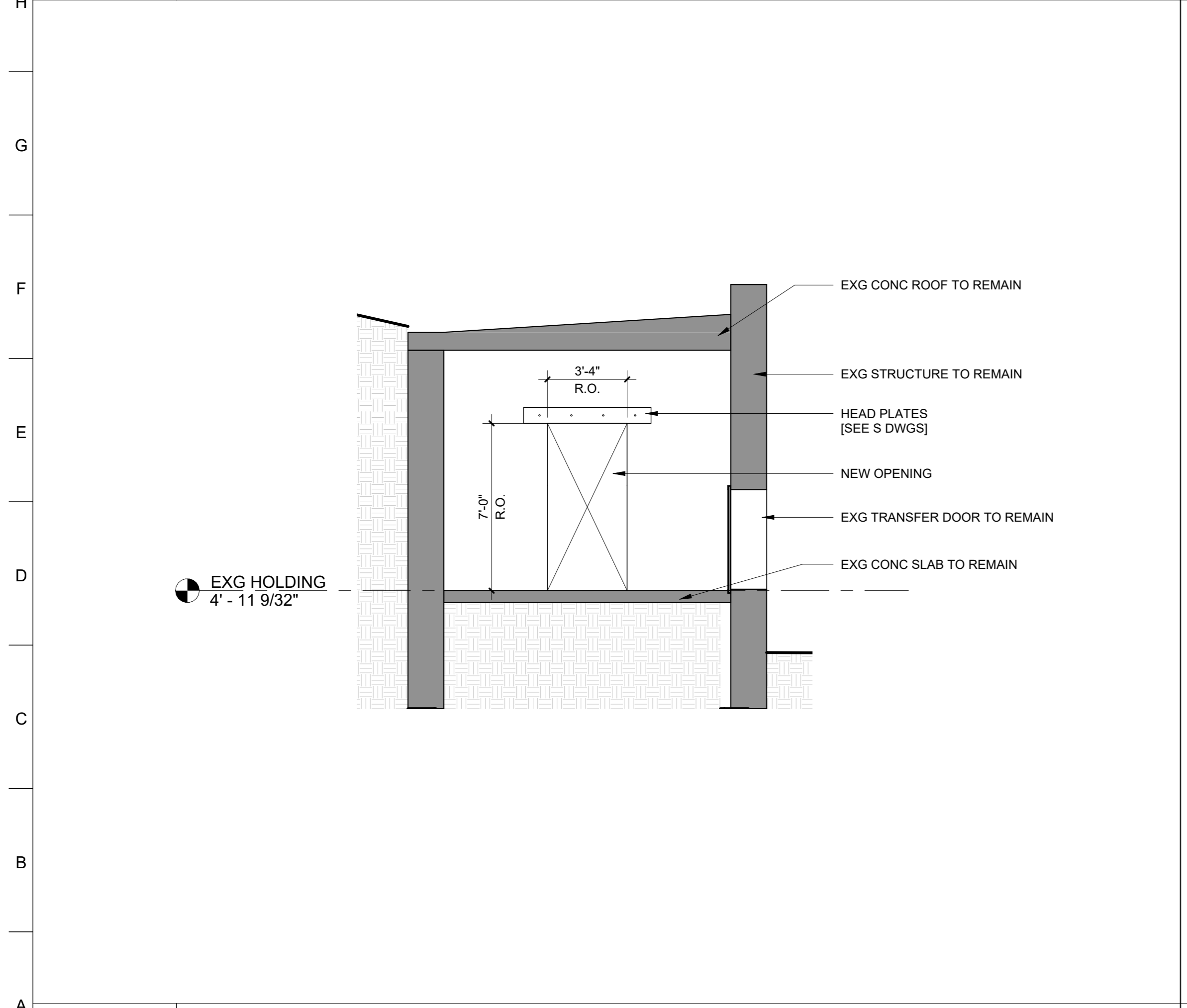
DATE: NOVEMBER 22, 2024	
PROJECT NO: 2023-10.04	
DRAWN BY	CC
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SUBMISSION	DATE
PERMIT SET	11/22/2024
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**DRAWING TITLE:**  
 EXISTING STRUCTURE  
 BUILDING SECTIONS

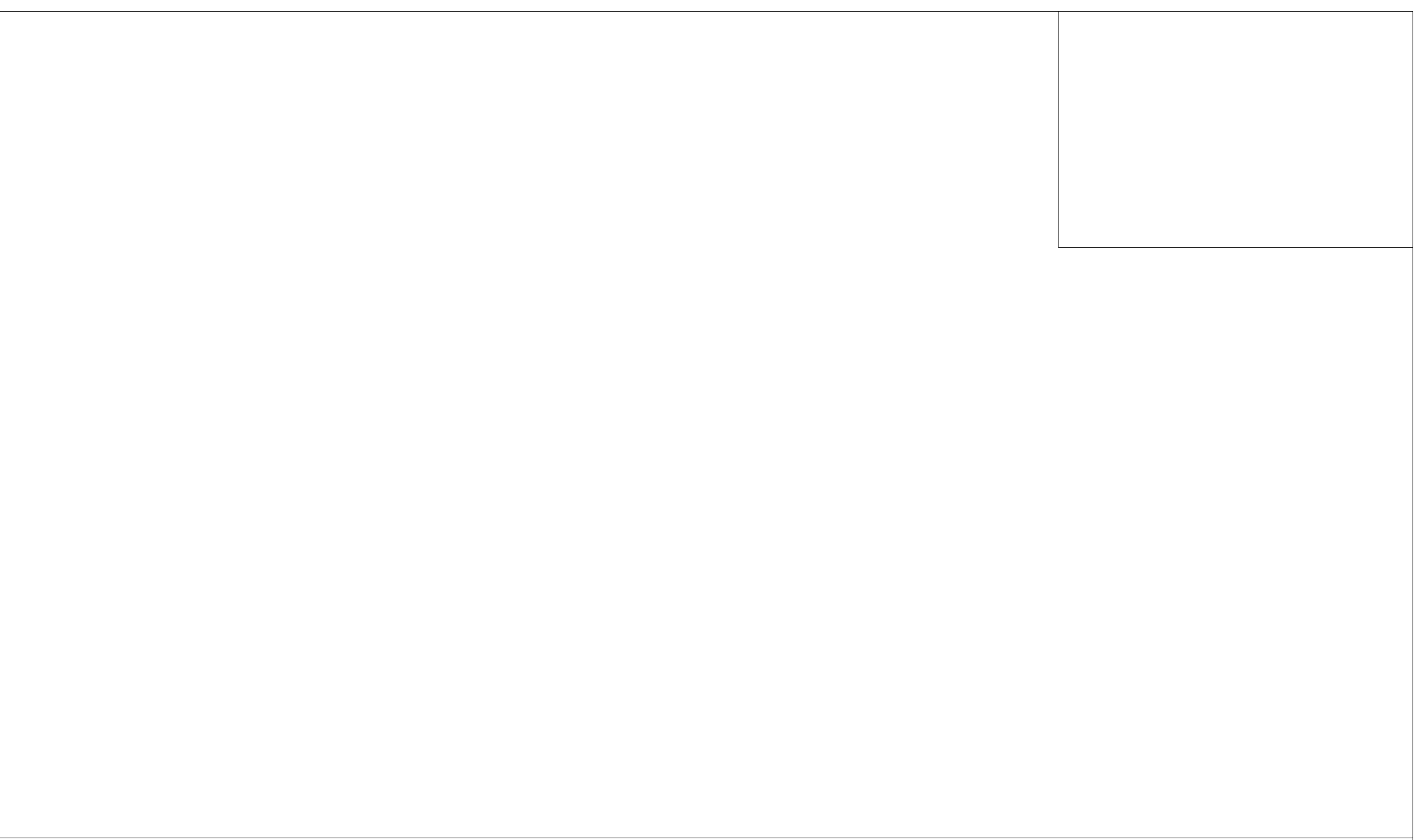
**DRAWING NO:**  
**A230**



**H1** Section 20  
 1/4" = 1'-0"



**A1** Section 22  
 1/4" = 1'-0"



**A9** Section 18  
 1/4" = 1'-0"

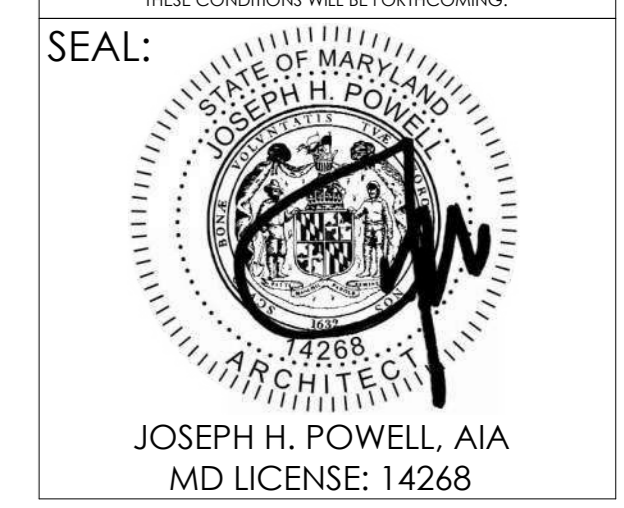


**PROJECT TEAM:**  
**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
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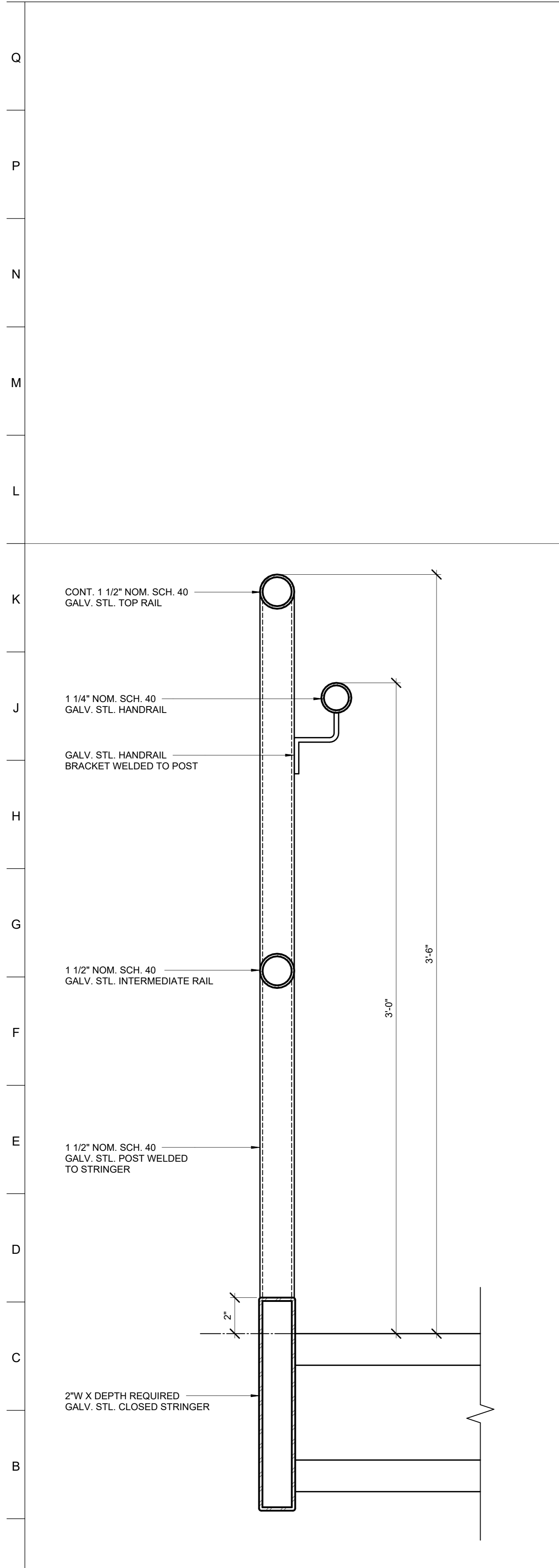
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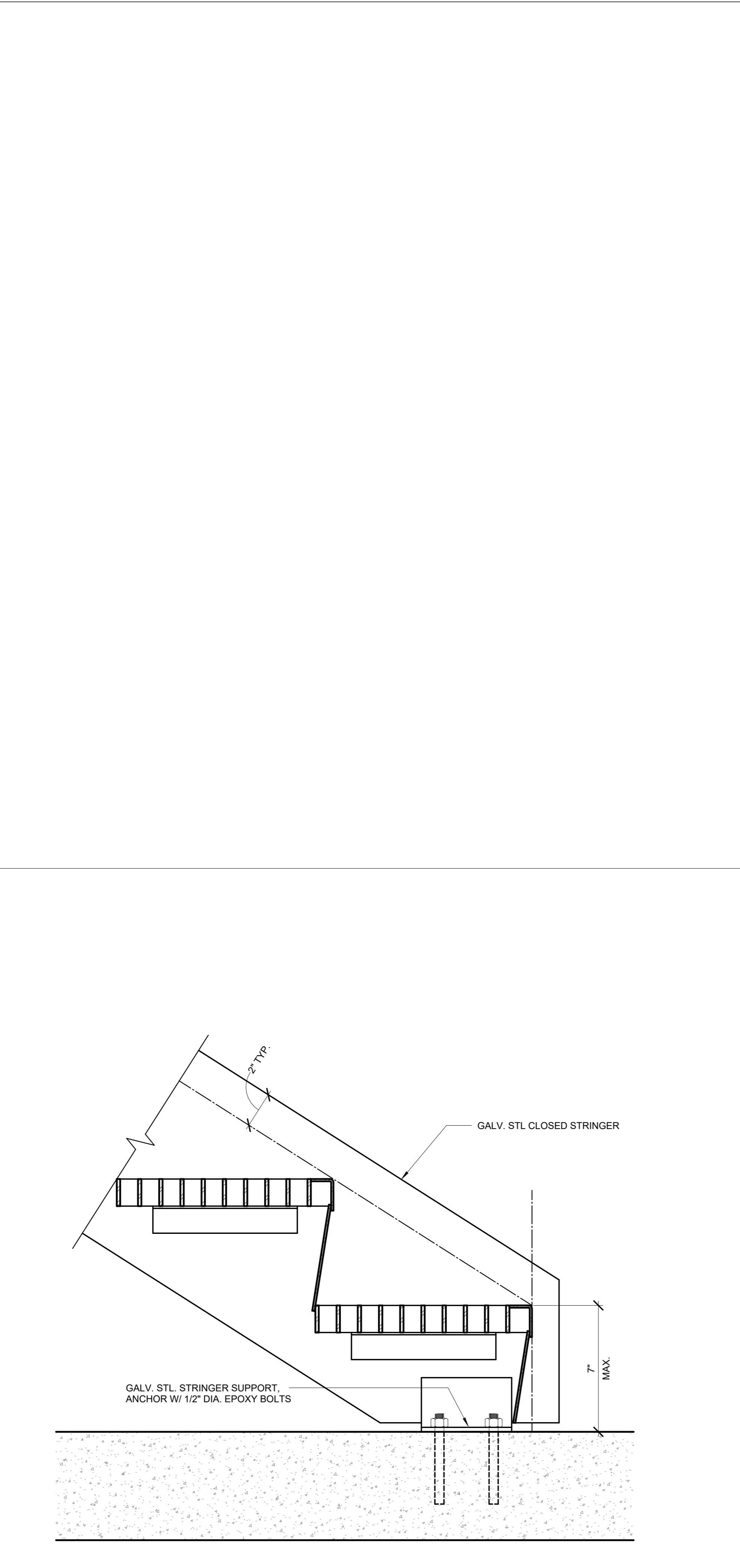
DATE:	NOVEMBER 22, 2024
PROJECT NO:	2023-10.04
DRAWN BY:	CC
CHECKED BY:	JP
SUBMISSION:	DATE
PERMIT SET:	11/22/2024
REVISION:	DATE

**DRAWING TITLE:**  
 METAL STAIR DETAILS

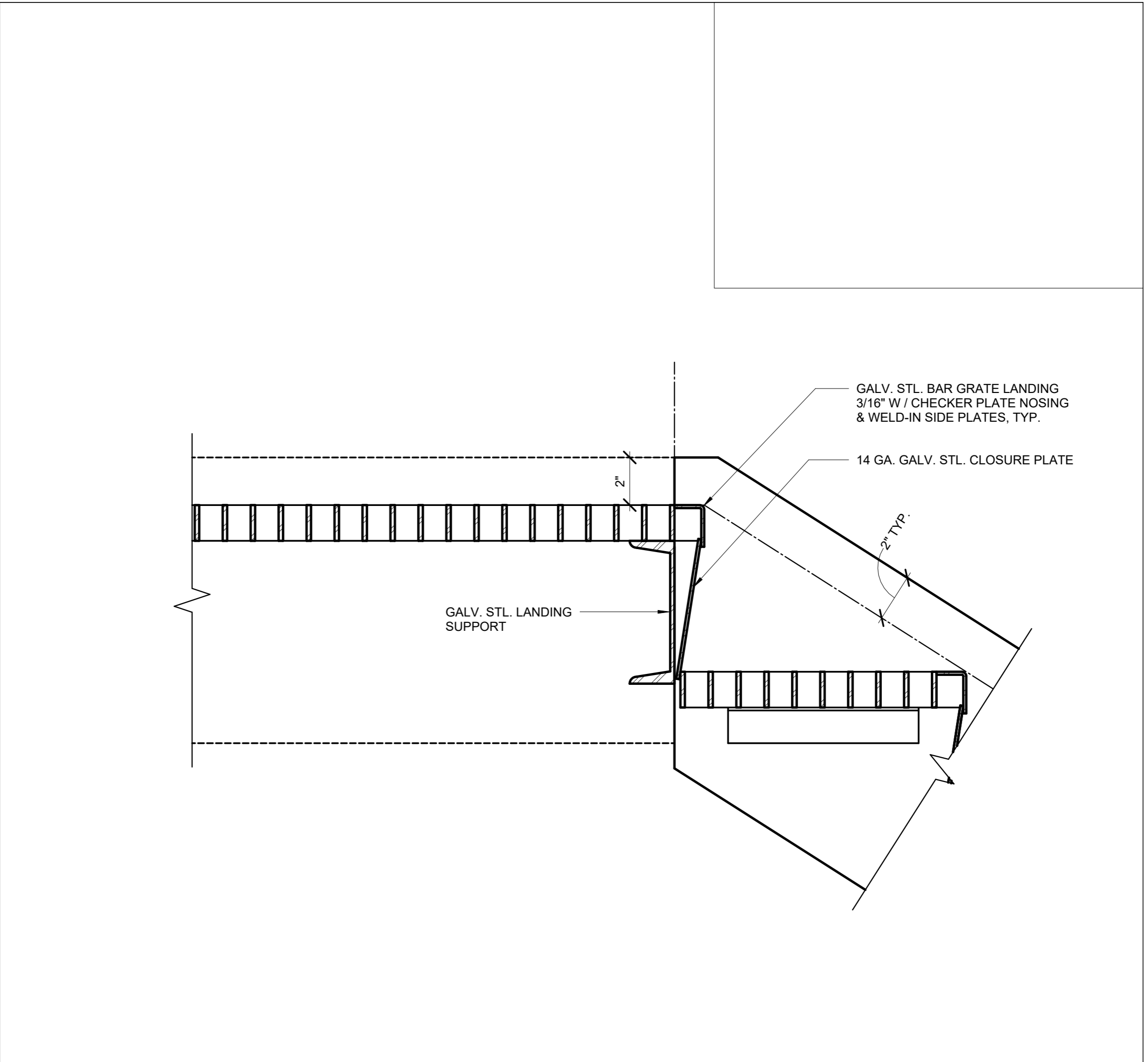
**DRAWING NO:**  
**A261**



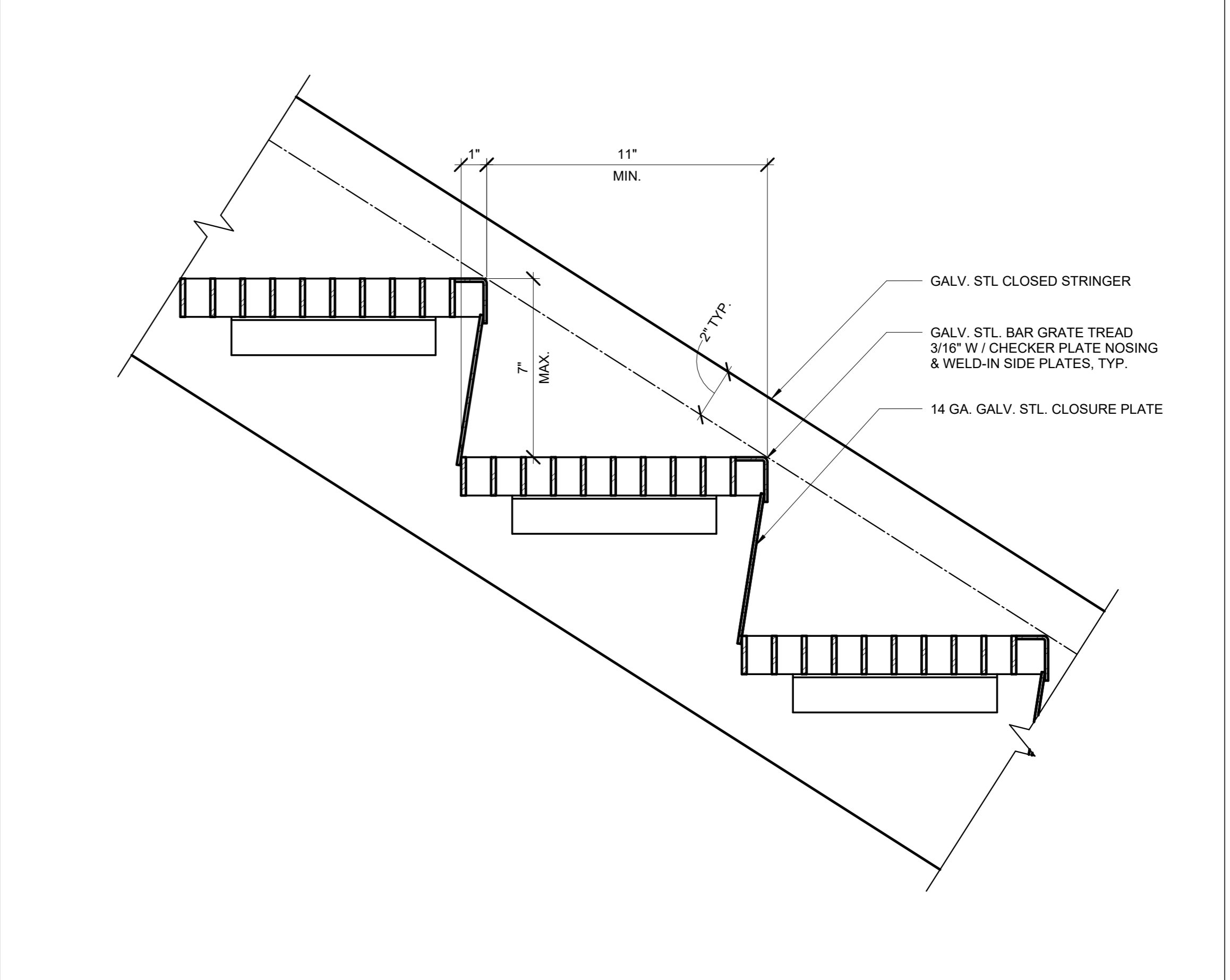
**A1** TYP. GUARDRAIL DTL  
 3" = 1'-0"



**A6** TYP. LANDING STAIR DTL @ SLAB  
 3" = 1'-0"



**H13** T.O. STAIR DETAIL  
 3" = 1'-0"

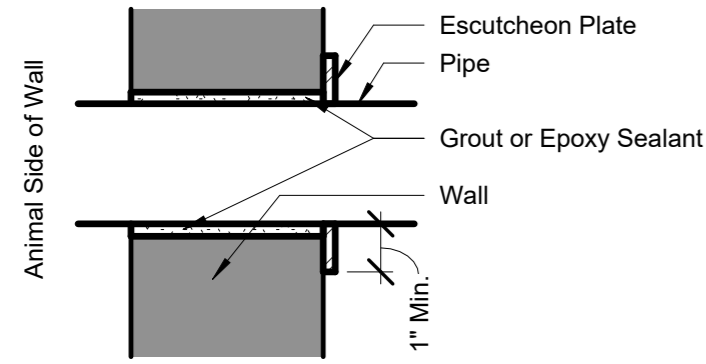


**A13** TYP. STAIR DETAIL  
 3" = 1'-0"

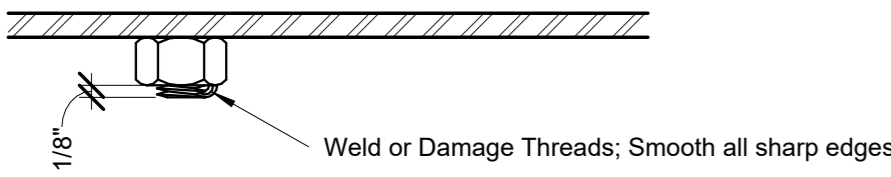
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**Animal Management Requirements of Construction**

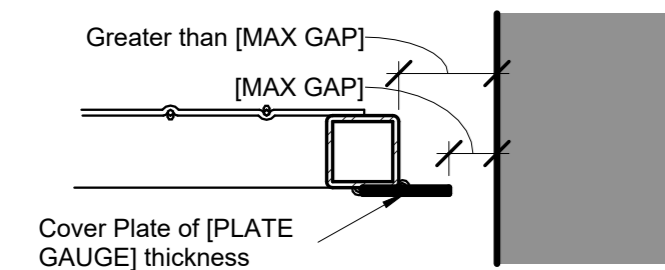
- General** - All items on this sheet shall be installed and/or performed as part of the base scope of work whether or not specifically detailed or noted elsewhere.
  - Animal Management Requirements of Construction apply to all:
    - Holding Buildings & Facilities.
    - Indoor & outdoor transfer areas/chutes.
  - Animal habitats, both on and off exhibit.
- Sharp Edges** - No construction materials are permitted to have sharp edges within an animal zone or animal reach zone.
  - All exposed flashing must have crimped edge.
  - All exposed hardware, fasteners, & similar items must be clipped, ground smooth, or otherwise treated to eliminate all sharp edges.
- Vermin Control** - Minimize potential for vermin infestation by:
  - Seal all gaps occurring in adjoining construction with epoxy sealant as specified or approved by Architect.
  - Cap all tubes at all exposed ends.
  - Seal all tube steel vent holes with epoxy sealant as specified or approved by Architect.
- Caging Penetrations** - All required penetrations in caging systems shall be coordinated and installed so that they are kept to an absolute minimum. Wherever possible, group penetrating elements together and "gang install" to create a single penetration. Any gaps remaining between penetrating elements must be less than 1".
- Wall Penetrations** - All pipe, duct, or other penetration between animal space and any other space shall be sealed completely (no voids, cracks, or holes allowed) with non-shrink cementitious grout or epoxy sealant as specified or approved by the Architect. Provide stainless steel escutcheon plate on all pipe penetrations for plumbing lines, drain leaders, sprinkler lines, or other pipes. Escutcheon plate shall be installed on non-animal side of wall only.



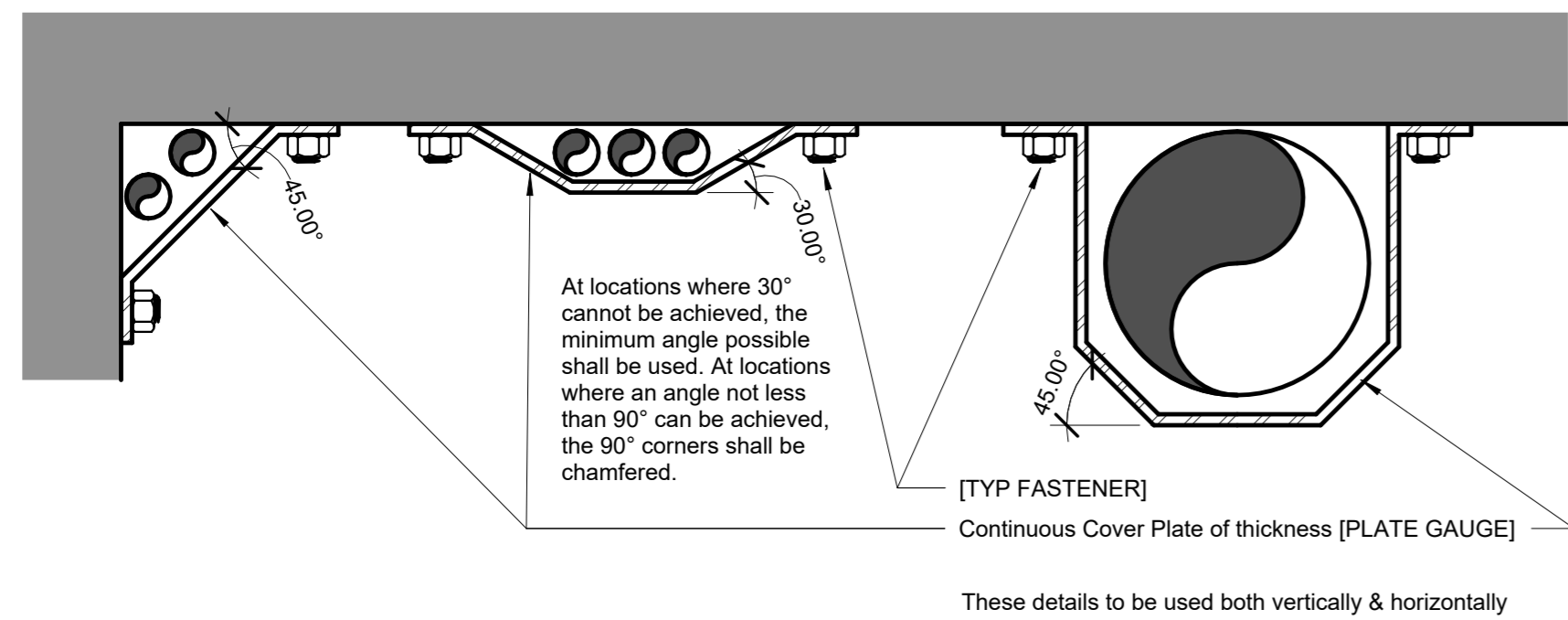
- Fixed Fasteners** - Bolts & fasteners shall have a maximum projection of 1/8". All exposed fasteners within an animal space or Animal Reach Zone shall be fixed in place per the following instructions:
  - Weld - spot weld all exposed fasteners (bolt heads, nuts, etc.). Minimize welding to galvanized surfaces. All sharp edges of welds shall be made smooth.
  - Damage Threads - Exposed threads of bolts or anchors shall be damaged to prevent the nut from backing off. Sharp edges shall be made smooth. Contractor to verify that nuts cannot be removed.



- Maximum Gaps** - All gaps larger than 1/2" between installed items, or between installed items and existing construction shall have a continuous section of cover plate welded to the construction to reduce the gap to the maximum allowable dimension or less. Cover plate shall be of the same material and finish as the surrounding caging and have a thickness of 1/16". This section does not apply to any gap that is specifically dimensioned or noted in the drawings.



- Building Service Cover Plates** - Cover plate shall be installed wherever exposed conduit, cables, chains, plumbing lines, electric lines, hydraulic lines, or other building service elements occur within an Animal Reach Zone. Cover plate shall be of the same material and finish as the surrounding caging and have a thickness of 1/16". Cover plate shall be fixed to new or existing construction with SS anchor or weld, UNO. Where solid plates are not acceptable (ex. lights & sprinkler heads) provide typical caging (mesh panels) protection. If access is required to covered element, provide hinged assembly and clearance for full extent of swing.



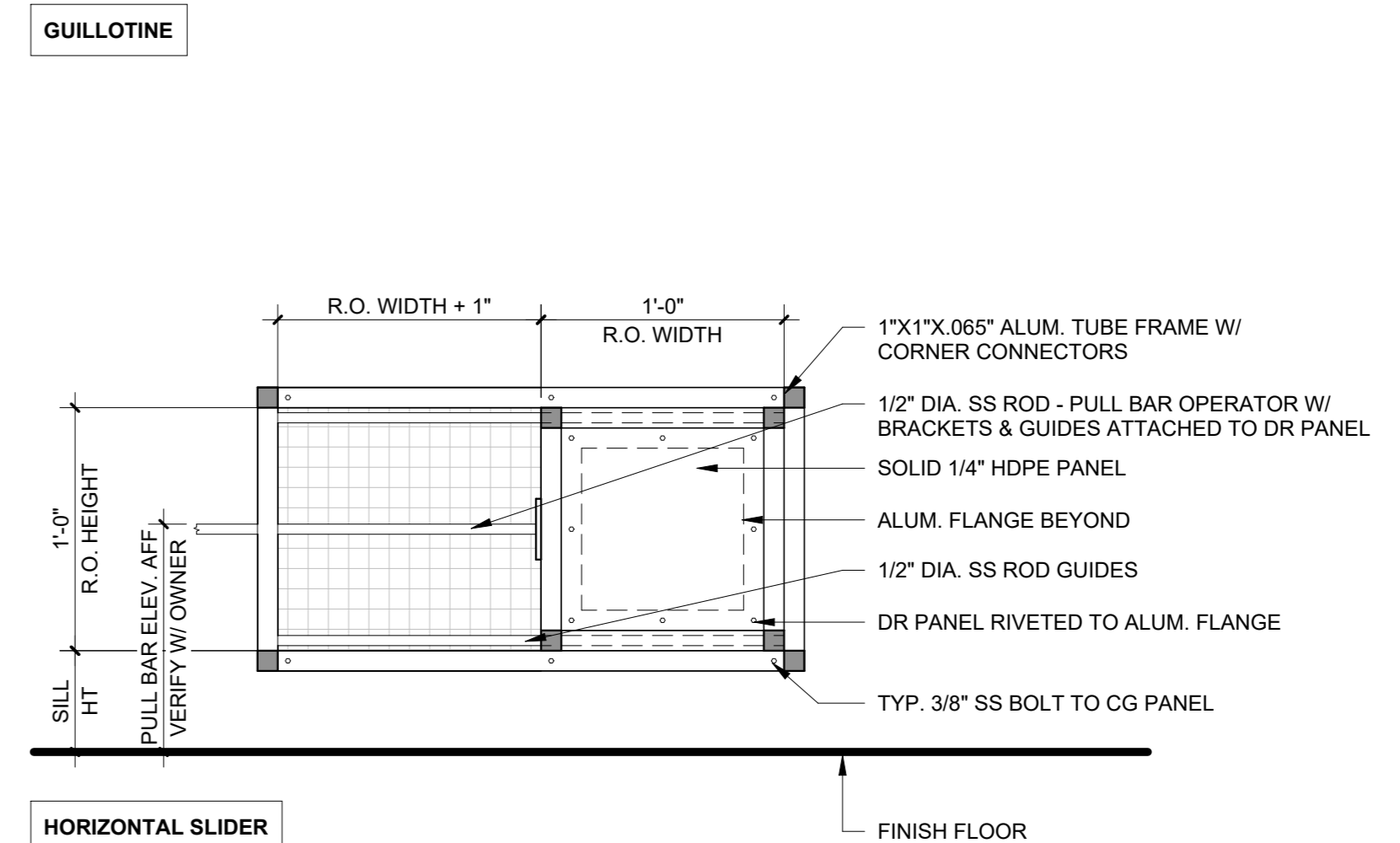
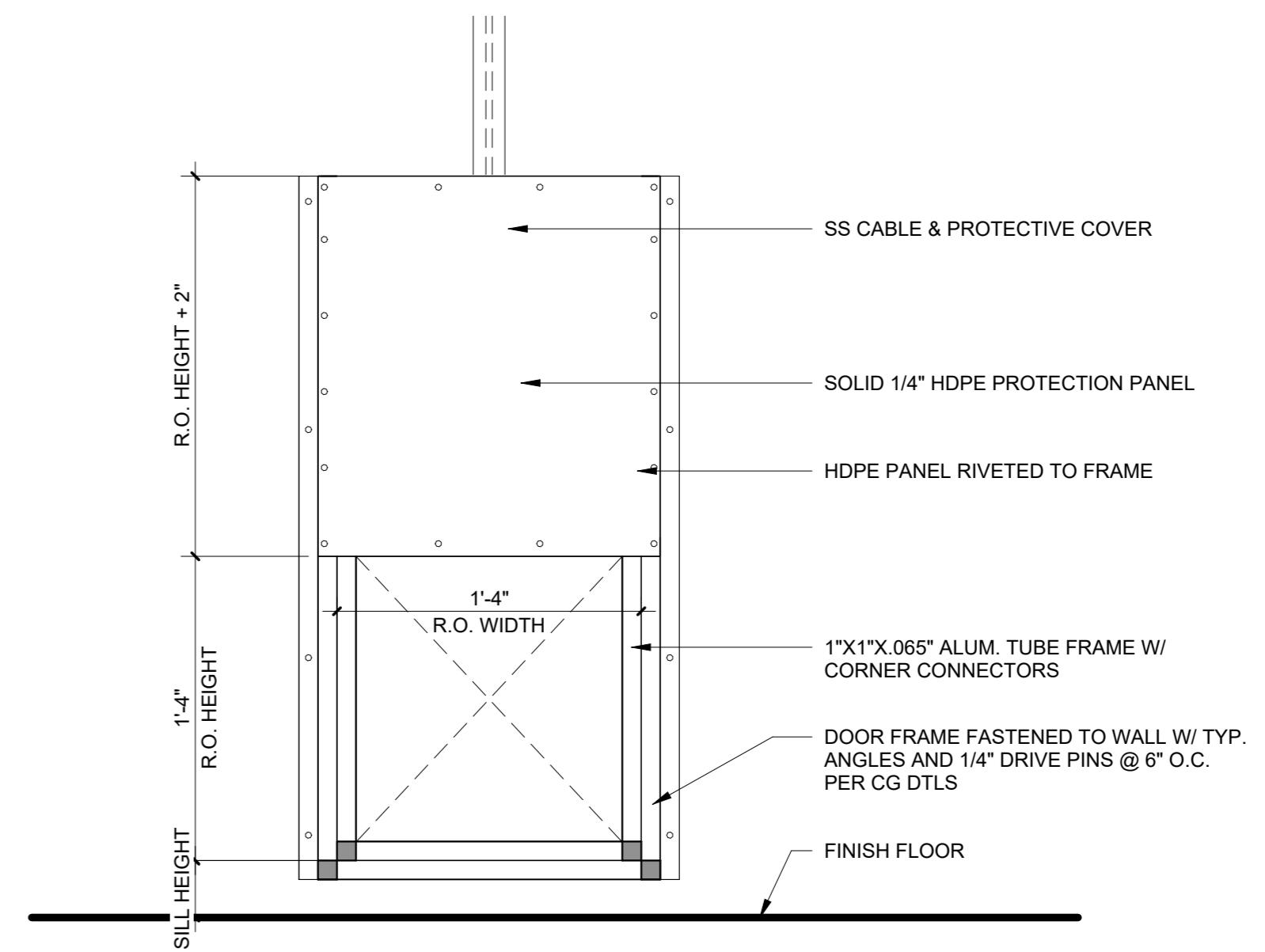
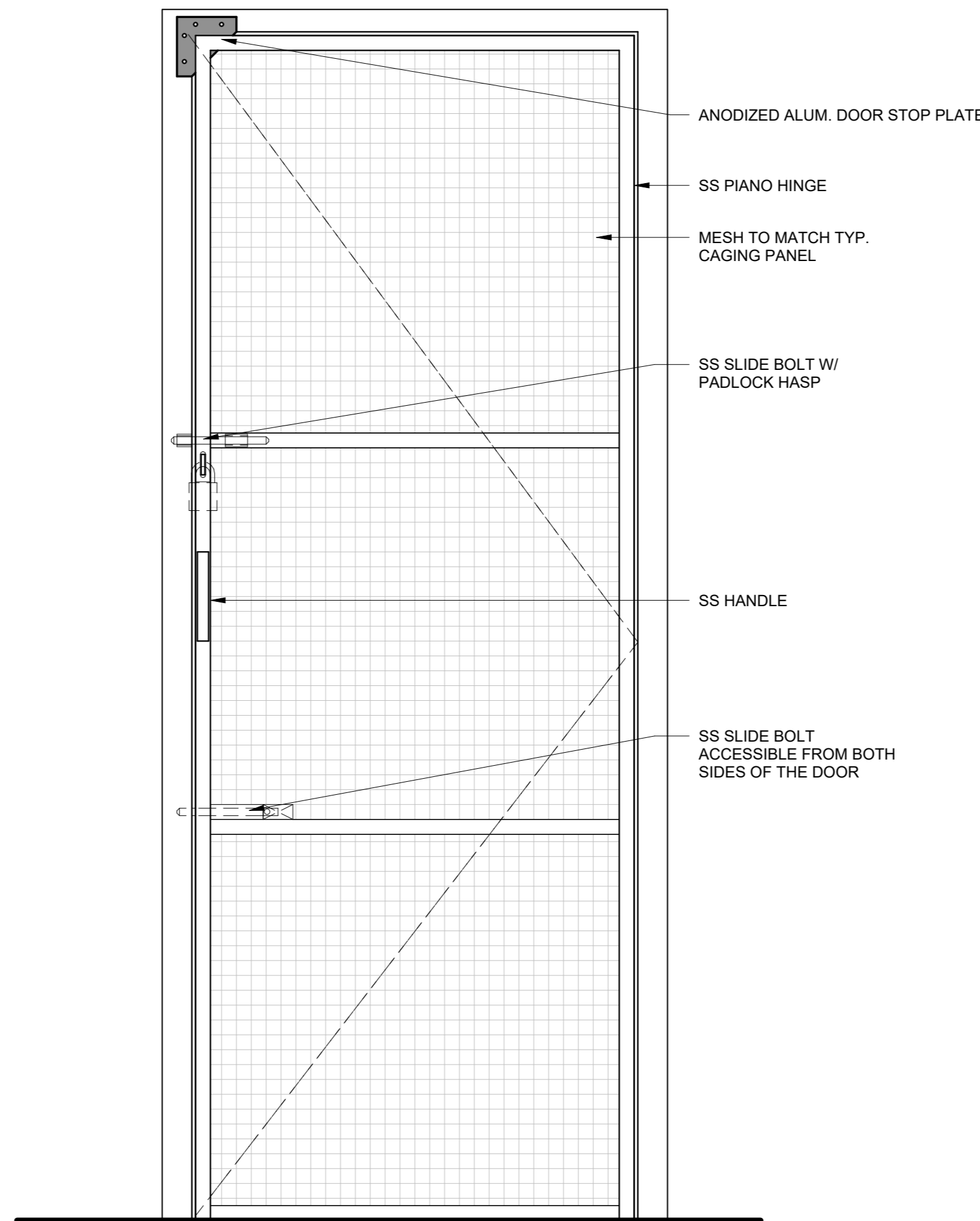
- Transfer Door Operators** - Transfer door operators and other animal management devices mounted to the face of a caging system may require additional framing beyond what is shown in the drawings to accommodate mounting and/or locking. Framing shall be of the same material and finish as the surrounding caging.
- Locking Systems** - Coordinate all locking systems with specified padlocks. If no padlocks are specified, confirm padlock information with Owner and coordinate with locking systems. Verify that proper clearances are provided for specified or Owner provided padlocks.
- Repeat steps above for each room.

**BASIS OF DESIGN:**  
 CORNERS LIMITED  
 CUSTOM CAGING SPECIALISTS  
 841 GIBSON STREET, KALAMAZOO, MI 49001  
 P: 800.456.6780

**NOTE:** THE CAGING SYSTEM DOCUMENTED IN THIS SET IS TO BE MANUFACTURED AND INSTALLED AS RECOMMENDED PER THE BASIS OF DESIGN. THIS INCLUDES CAGING PANELS, MOUNTING HARDWARE, KEEPER AND ANIMAL DOORS, DOOR COMPONENTS, AND CAGING ACCESSORIES.

KEEPER DOOR SCHEDULE			
DOOR NO.	R.O. WIDTH	R.O. HEIGHT	COMMENTS
K001	2' - 8"	7' - 0"	
K002	2' - 8"	7' - 0"	
K003	2' - 8"	7' - 0"	
K004	3' - 4"	7' - 4"	SECONDARY CONTAINMENT SEE J11/CG123
K005	1' - 10"	2' - 6"	ANIMAL TRANSFER CHUTE ACCESS
K010	6' - 8"	7' - 0"	SERVICE GATE
K011	6' - 4"	7' - 2"	SERVICE GATE
K012	6' - 4"	7' - 2"	SERVICE GATE

TRANSFER DOOR SCHEDULE								
DOOR NO.	DOOR TYPE	R.O. WIDTH	R.O. HEIGHT	SILL HEIGHT (ABOVE FFE 302.5)	DOOR PANEL MATERIAL	MOUNTING CONDITION	OPERATOR TYPE	COMMENTS
EX-T21		3' - 4"	4' - 2"	5' - 0"		CONC		LOCATED IN STORAGE BLDG. EXG TO REMAIN. NOT IN USE.
EX-T22		3' - 4"	4' - 2"	5' - 0"		CONC		LOCATED IN STORAGE BLDG. EXG TO REMAIN. NOT IN USE.
T001	HORIZONTAL SLIDER	1' - 4"	1' - 2"	0' - 2"	ALUM/ HDPE	CONC	PULL BAR	
T002	HORIZONTAL SLIDER	1' - 4"	1' - 2"	7' - 6"	ALUM/ HDPE	CONC	PULL HANDLE	
T003	HORIZONTAL SLIDER	1' - 4"	1' - 2"	7' - 6"	ALUM/ HDPE	CONC	PULL HANDLE	
T004	GUILLOTINE	1' - 4"	1' - 2"	6' - 2"	ALUM/ HDPE	CONC	PULL HANDLE	
T005	GUILLOTINE	1' - 4"	1' - 2"	6' - 2"	ALUM/ HDPE	CONC	PULL HANDLE	
T006	HORIZONTAL SLIDER	1' - 0"	1' - 2"	7' - 2"	HDPE	ROCKWORK	PULL BAR	TRANSFER TO HABITAT B. DOOR TO BE LOCKABLE IN OPEN & CLOSED POSITION. SEE J1/CG121
T007	HORIZONTAL SLIDER	1' - 0"	1' - 2"	0' - 7 1/2"	MESH	CAGING PANEL	PULL BAR	
T008	HORIZONTAL SLIDER	1' - 0"	1' - 2"	6' - 2"	MESH	CAGING PANEL	PULL BAR	
T009	HORIZONTAL SLIDER	1' - 0"	1' - 2"	4' - 9"	MESH	CAGING PANEL	PULL BAR	



KEEPER DOOR TYPE

ANIMAL TRANSFER DOOR TYPE

1 1/2" = 1'-0"

1 1/2" = 1'-0"

**BKP**

**PROJECT TEAM:**

**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509

**CIVIL ENGINEER:**  
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**LANDSCAPE ARCHITECT:**  
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 1 SAFARI PLACE  
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**SEAL:**

JOSEPH H. POWELL, AIA  
 MD LICENSE: 14268

DATE: NOVEMBER 22, 2024	
PROJECT NO: 2023-10.04	
DRAWN BY	CC
CHECKED BY	JS
SUBMISSION	DATE
PERMIT SET	11/22/2024
REVISION	DATE

**DRAWING TITLE:**  
 CAGING GENERAL REQUIREMENTS

**DRAWING NO:**  
 CG001

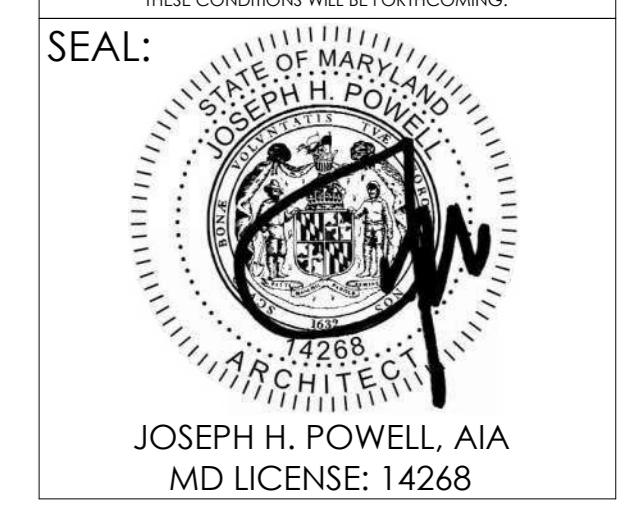


**PROJECT TEAM:**  
**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
**CIVIL ENGINEER:**  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423  
**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544  
**STRUCTURAL ENGINEER:**  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950  
**MEP ENGINEER:**  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

**CLIENT:**  
**MARYLAND ZOO**  
 THE MARYLAND ZOO IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

**RED PANDA**  
 THE MARYLAND ZOO  
 IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

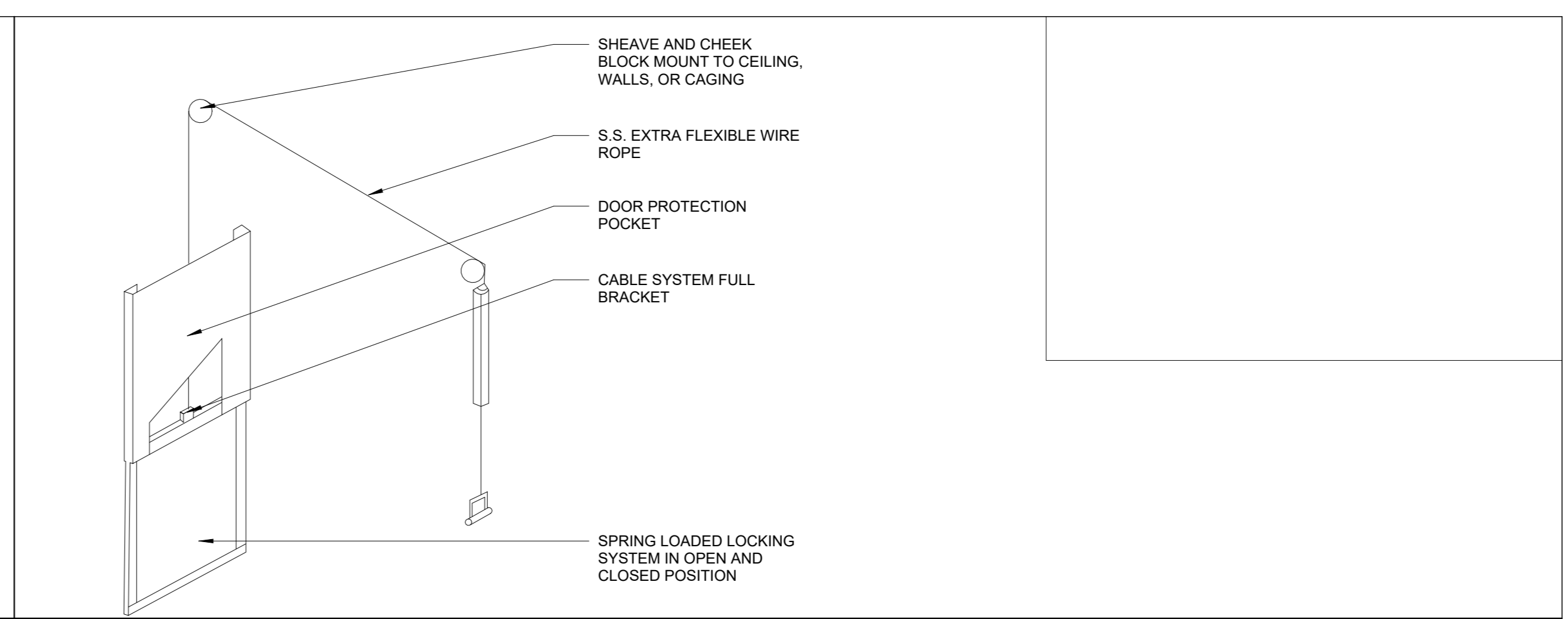
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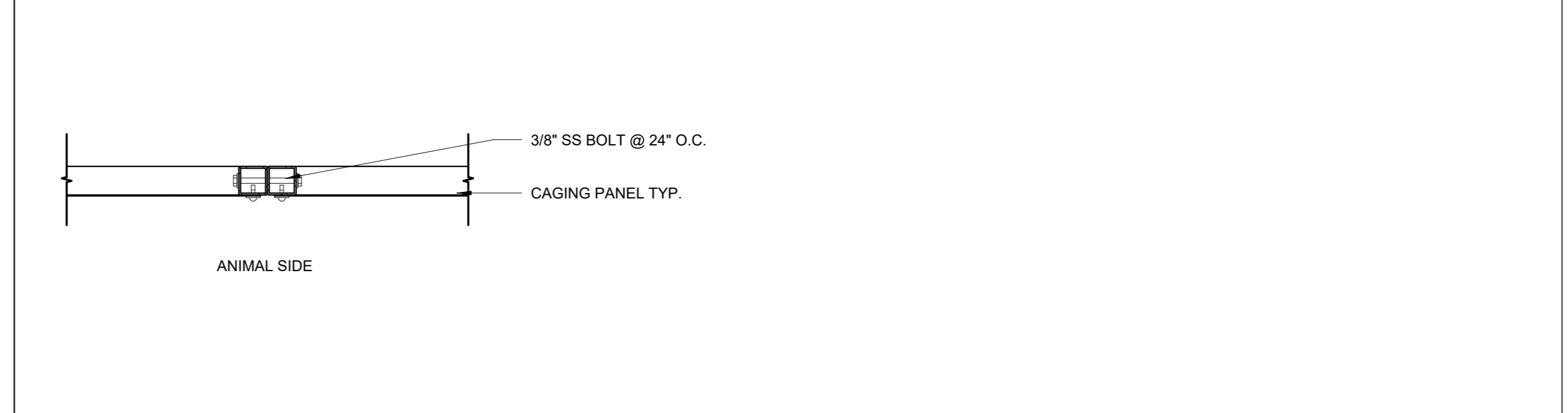
DATE: NOVEMBER 22, 2024	
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DRAWN BY	CC
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SUBMISSION	DATE
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**DRAWING TITLE:**  
 CAGING DETAILS

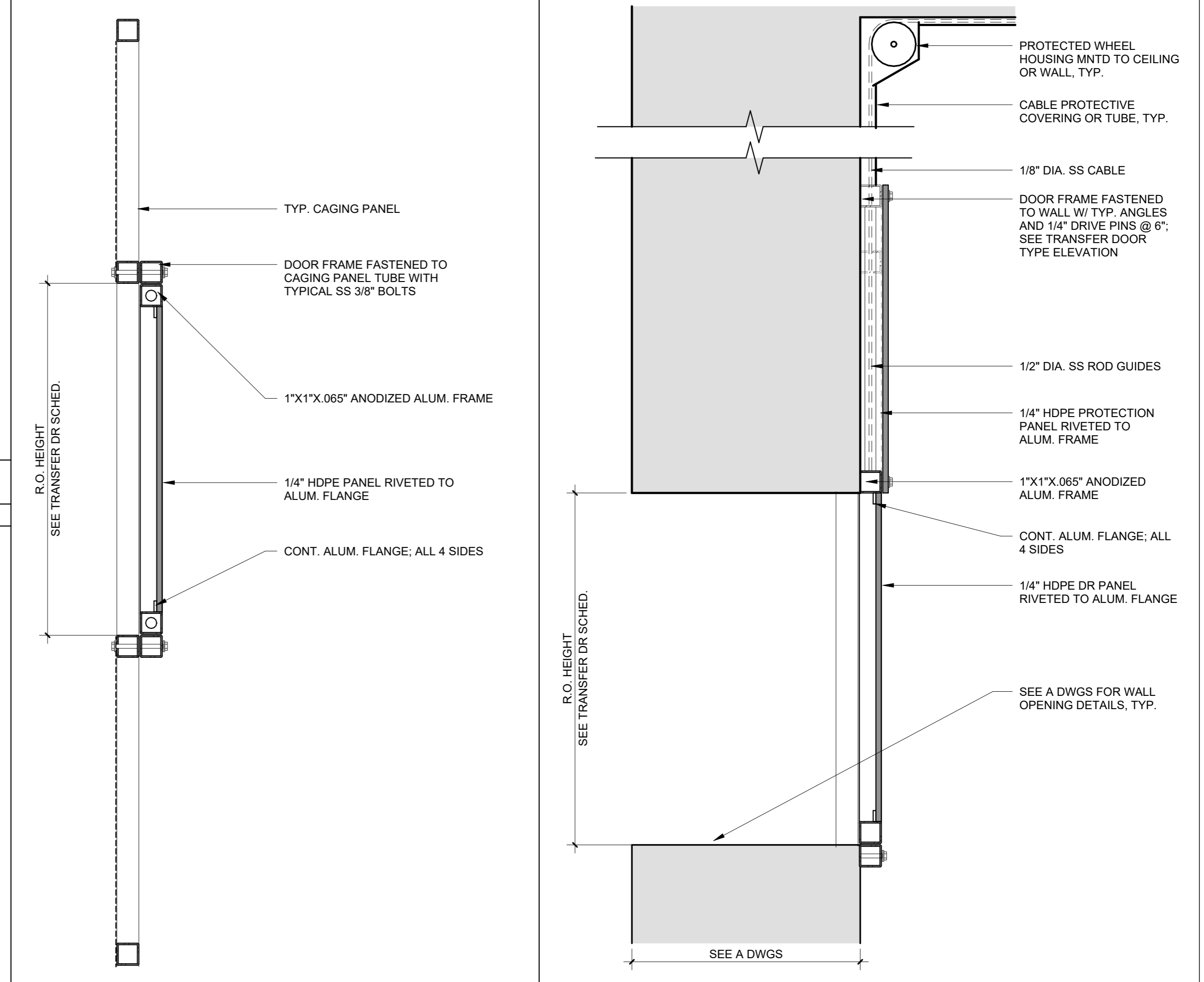
**DRAWING NO:**  
**CG002**



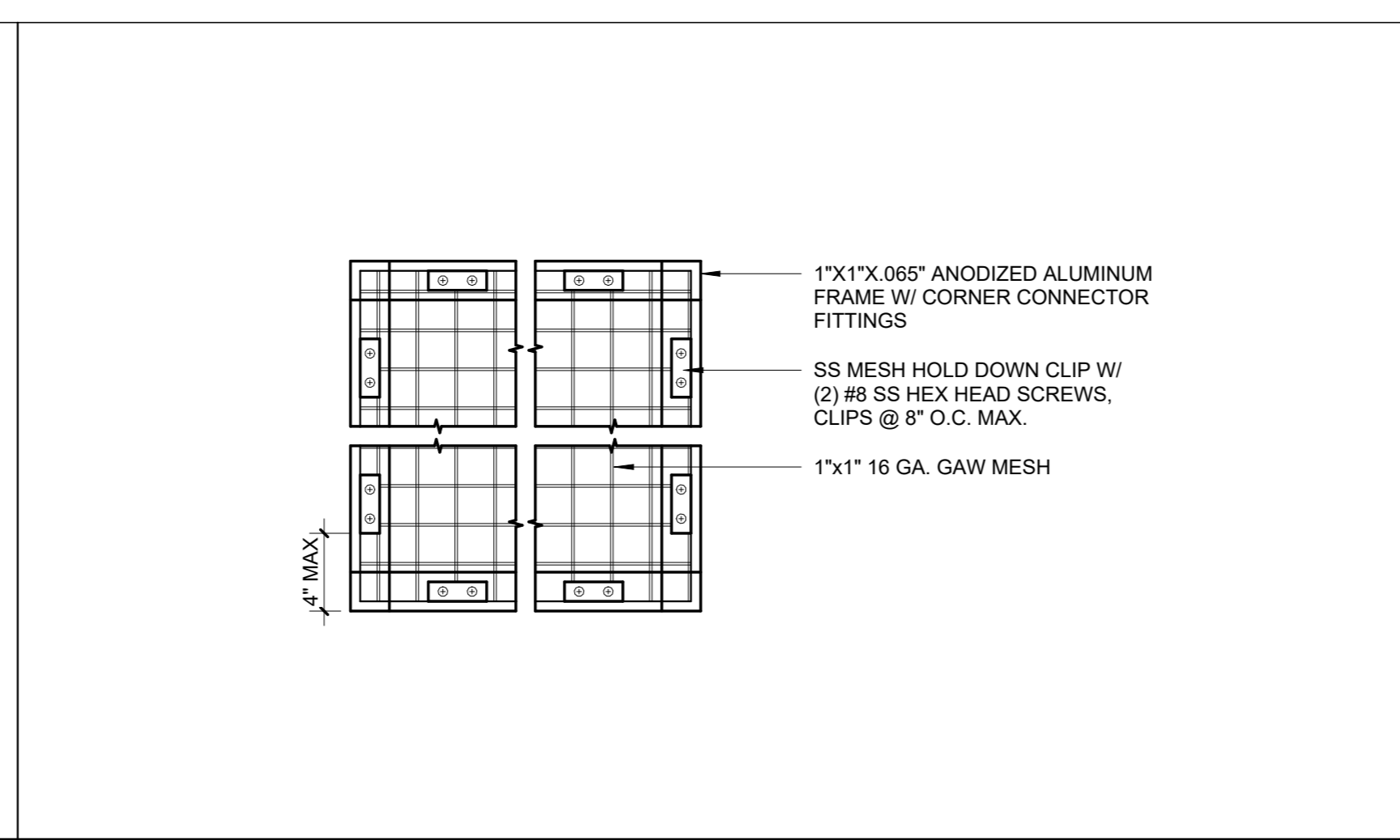
**M12 GUILLOTINE OP. DIAGRAM**  
 1" = 1'-0"



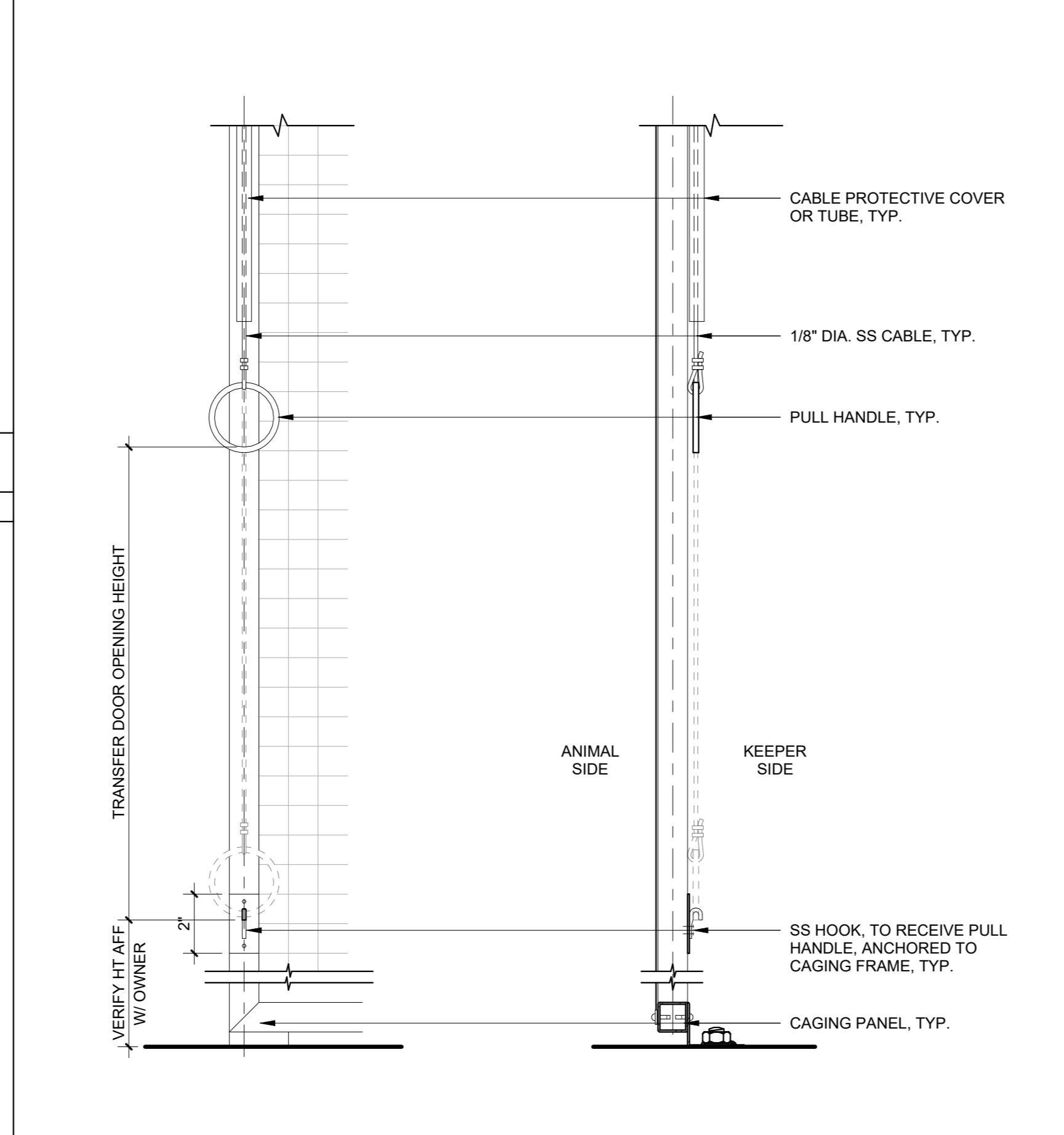
**J12 PANEL TO PANEL**  
 3" = 1'-0"



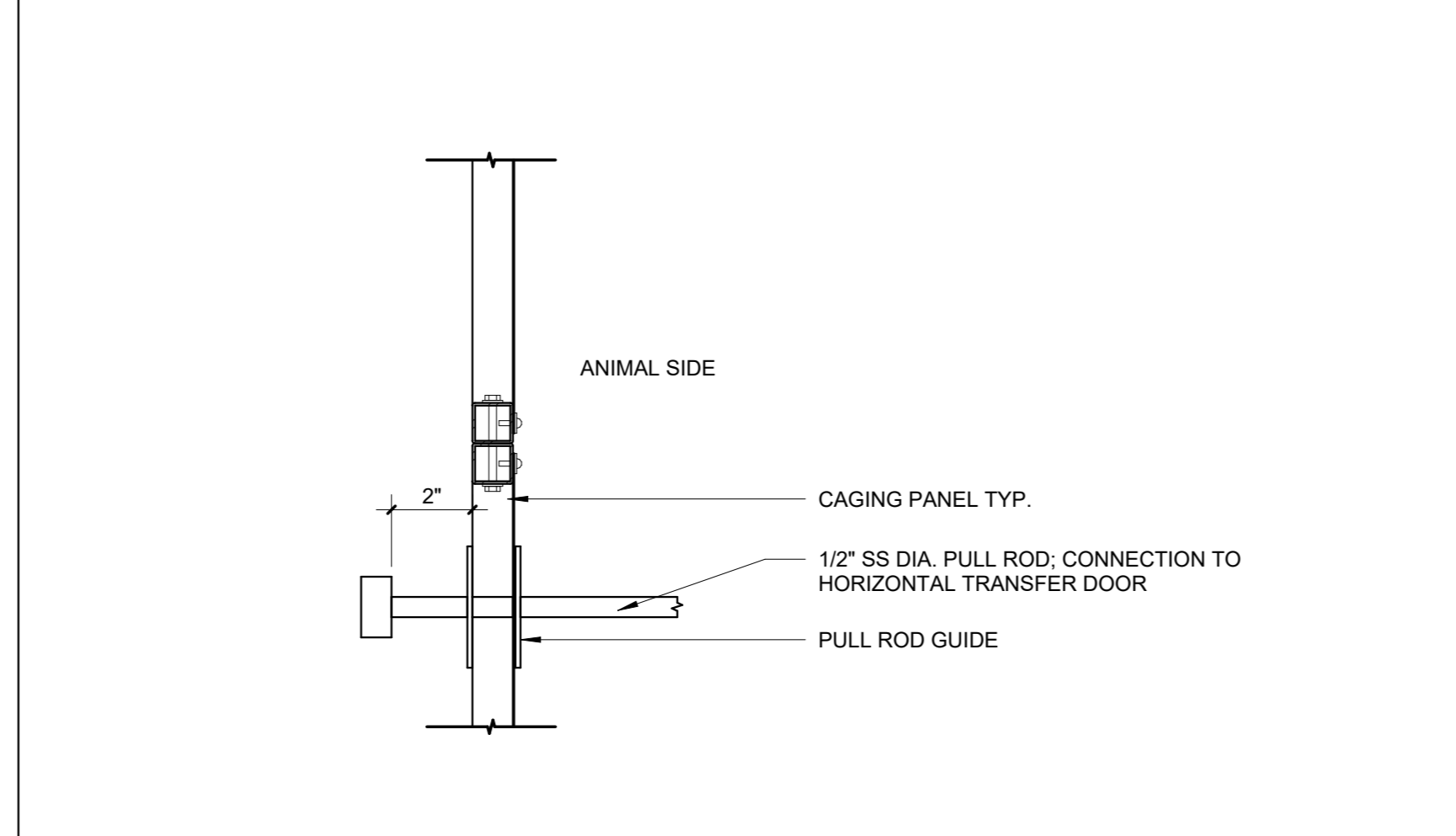
**A12 TRANSFER DR @ CG**      **A16 TRANSFER DR @ EXT WALL**  
 3" = 1'-0"      3" = 1'-0"



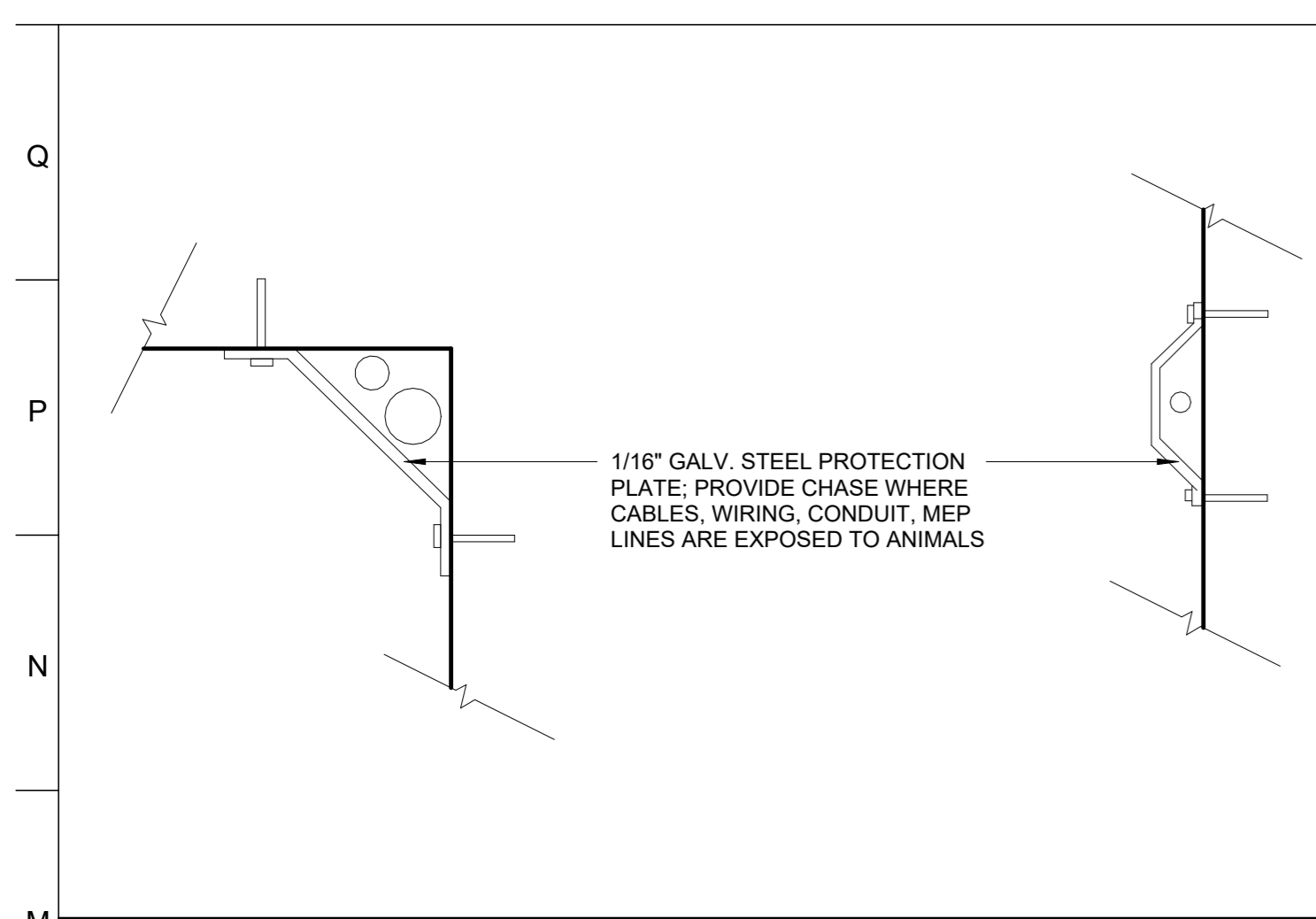
**M6 CAGING PANEL TYP**  
 3" = 1'-0"



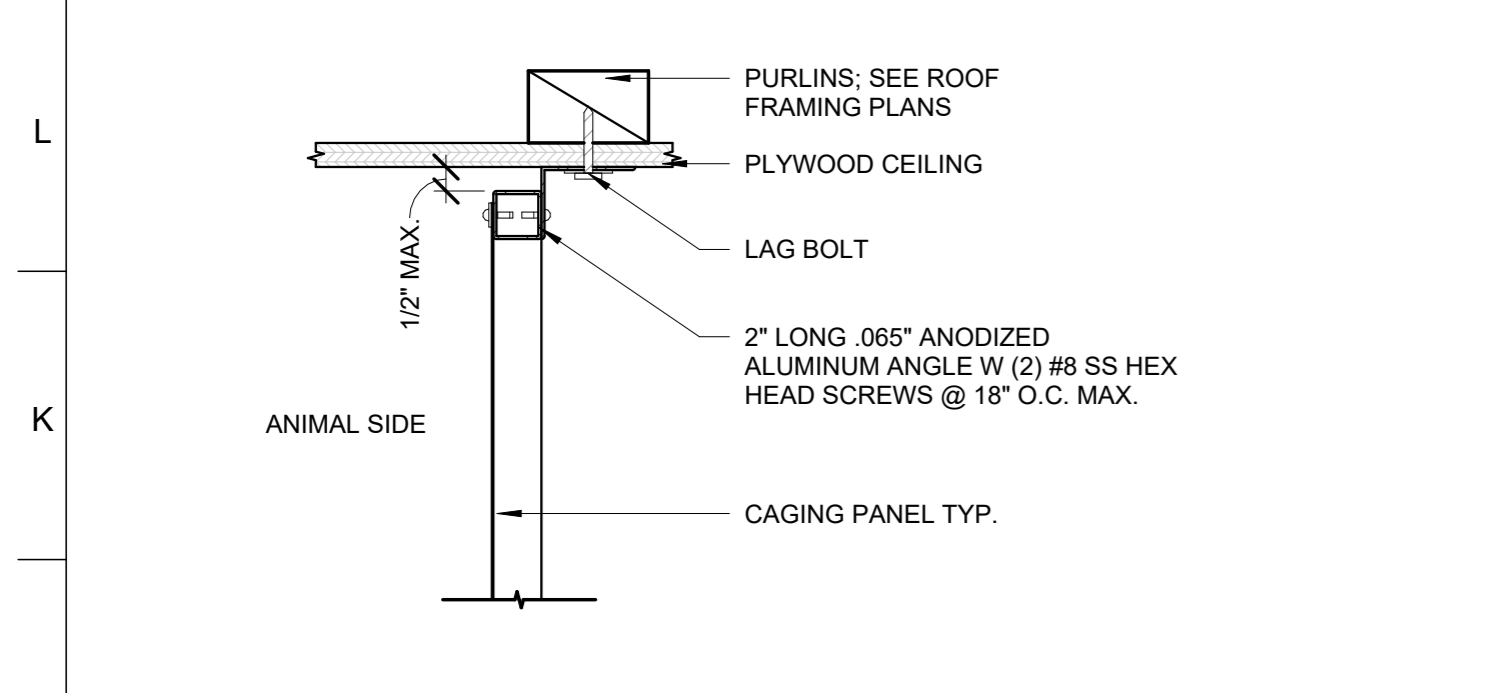
**E6 PULL HANDLE ELEV. & SECTION DTL**  
 3" = 1'-0"



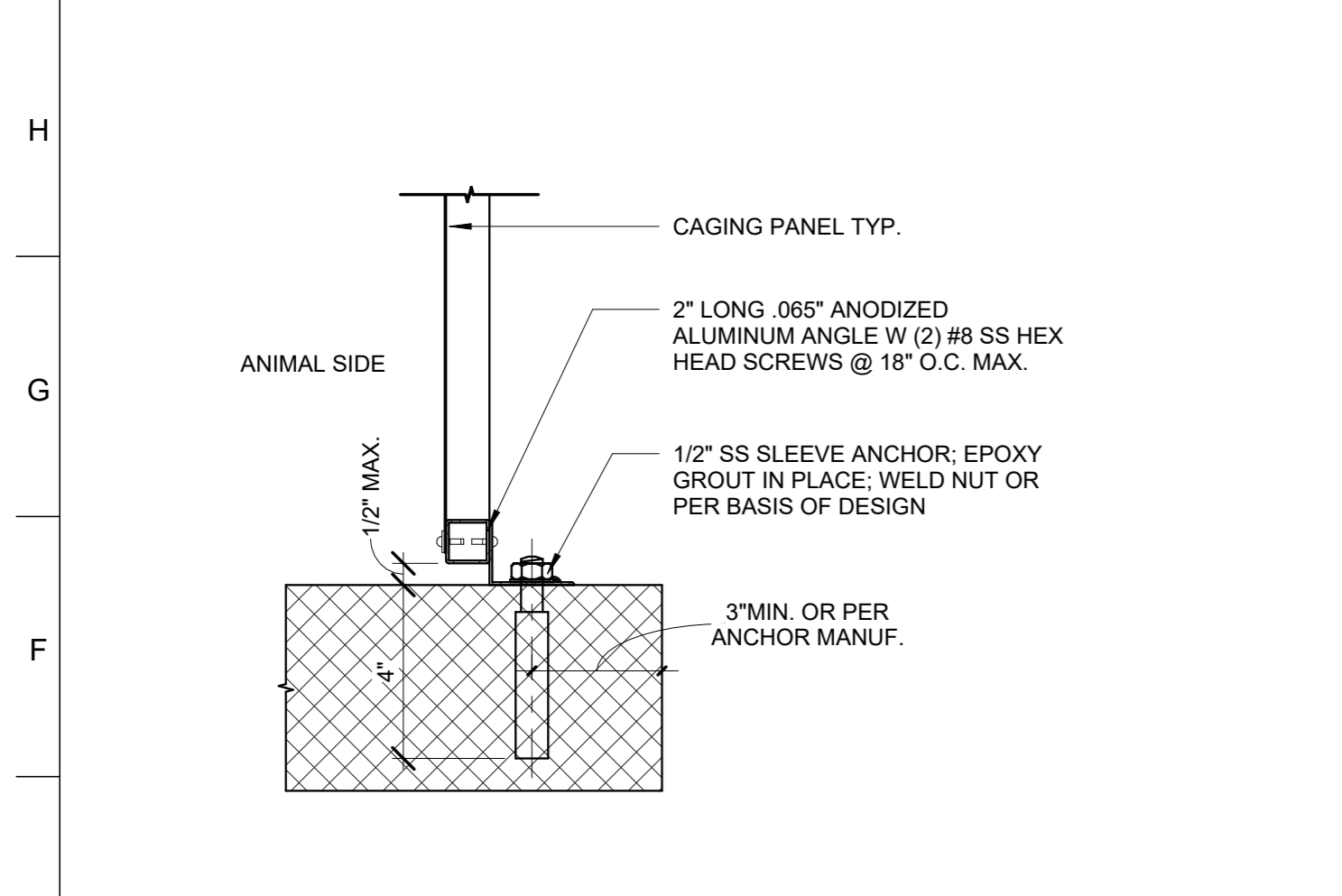
**A6 PULL BAR OPERATOR**  
 3" = 1'-0"



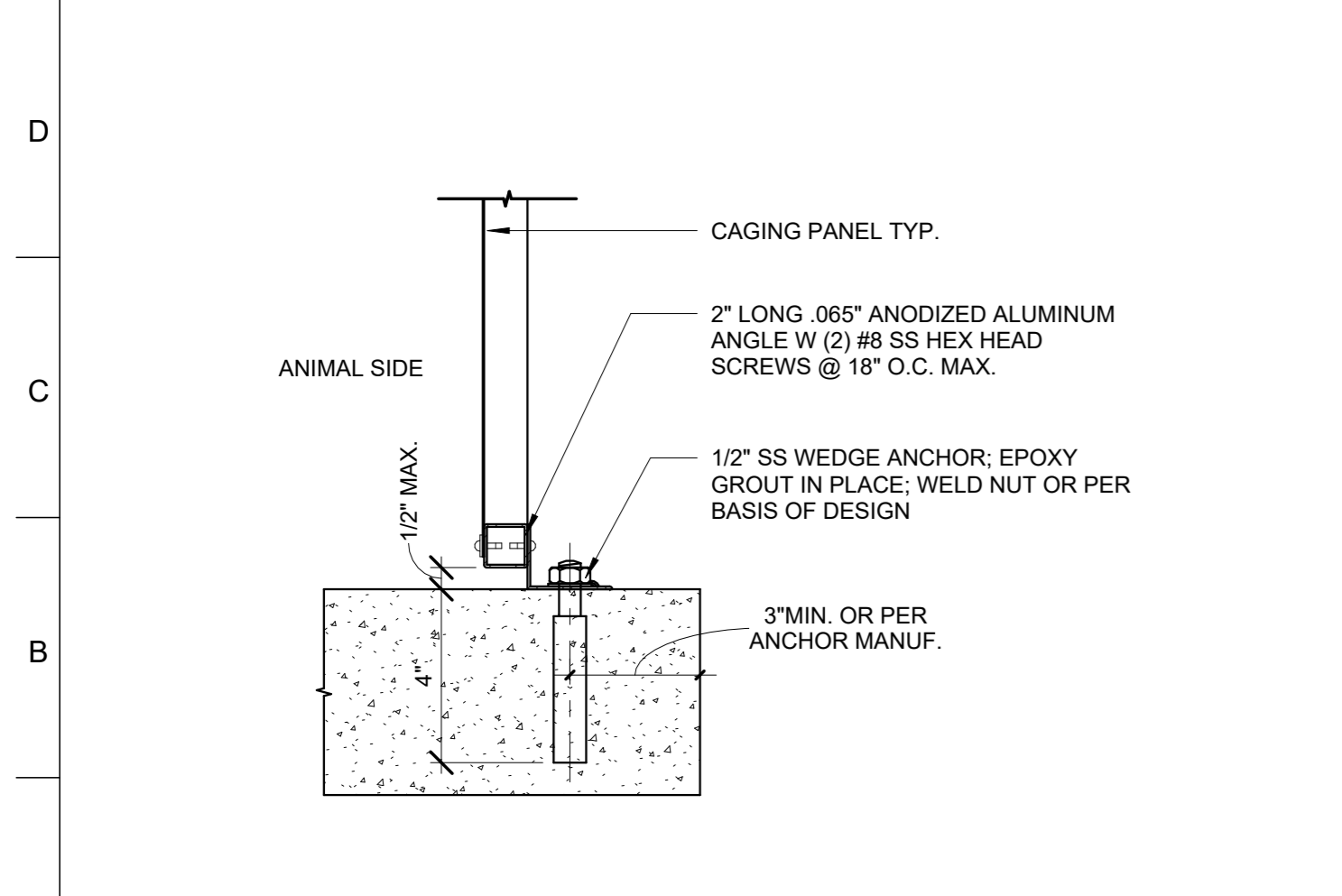
**M1 CABLE COVER**  
 3" = 1'-0"



**J1 CG CONNECTION TO PLY**  
 3" = 1'-0"



**E1 CG CONNECTION TO MASONRY**  
 3" = 1'-0"



**A1 CG CONNECTION TO CONC**  
 3" = 1'-0"

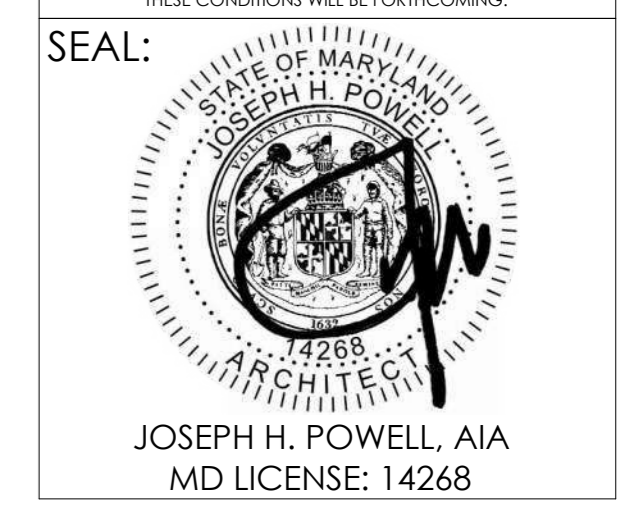


**PROJECT TEAM:**  
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 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
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 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
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**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
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 T: 302.888.1544  
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 SALT LAKE CITY, UT 84117  
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**MEP ENGINEER:**  
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 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

**CLIENT:**  
**MARYLAND ZOO**  
 THE MARYLAND ZOO IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

**RED PANDA**  
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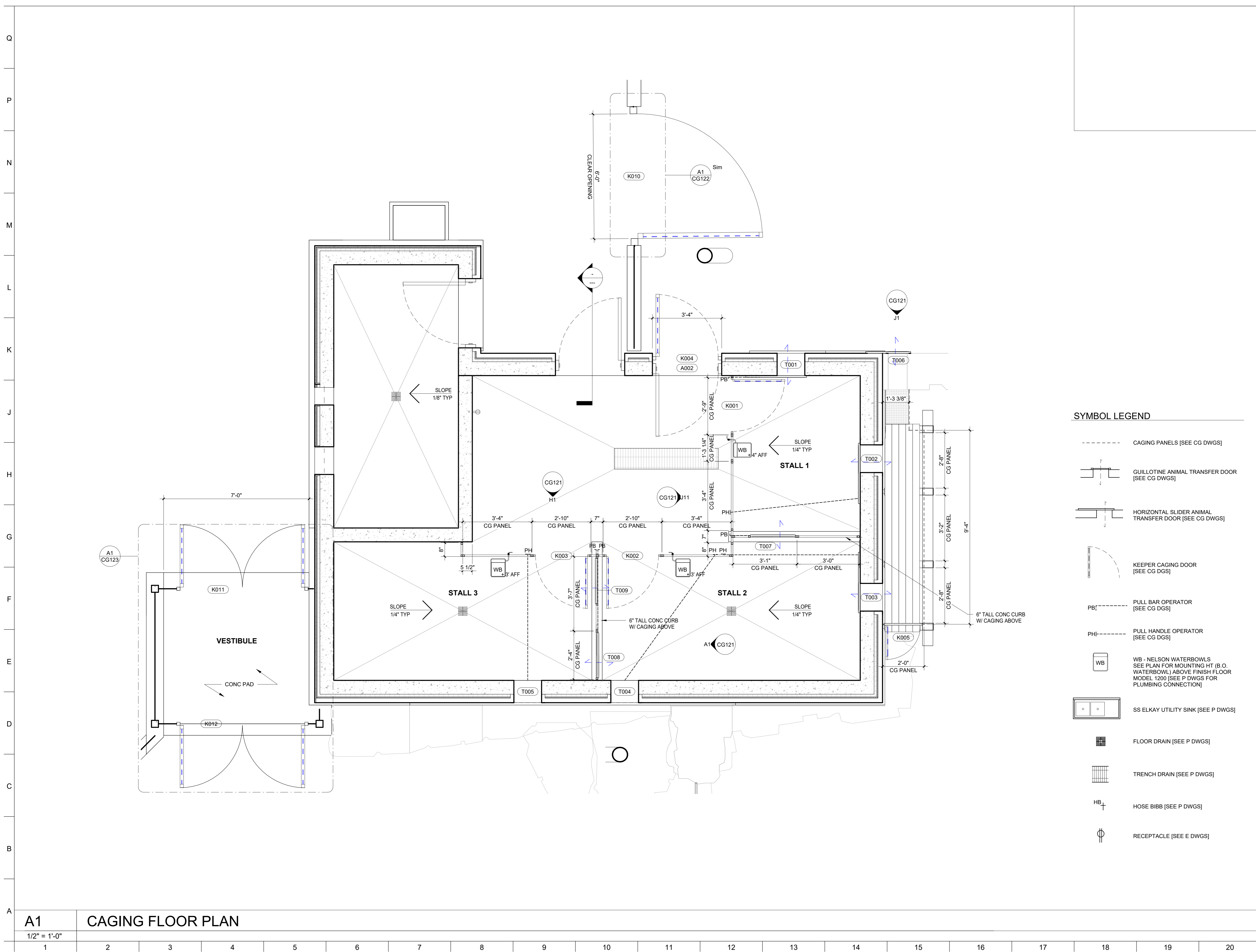
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**DRAWING TITLE:**  
 CAGING PLAN

**DRAWING NO:**  
**CG110**



**SYMBOL LEGEND**

- CAGING PANELS [SEE CG DWGS]
- GUILLOTINE ANIMAL TRANSFER DOOR [SEE CG DWGS]
- HORIZONTAL SLIDER ANIMAL TRANSFER DOOR [SEE CG DWGS]
- KEEPER CAGING DOOR [SEE CG DGS]
- PB: PULL BAR OPERATOR [SEE CG DGS]
- PH: PULL HANDLE OPERATOR [SEE CG DGS]
- WB - NELSON WATERBOWLS SEE PLAN FOR MOUNTING HT (B.O. WATERBOWL) ABOVE FINISH FLOOR MODEL 1200 [SEE P DWGS FOR PLUMBING CONNECTION]
- SS ELKAY UTILITY SINK [SEE P DWGS]
- FLOOR DRAIN [SEE P DWGS]
- TRENCH DRAIN [SEE P DWGS]
- HB: HOSE BIBB [SEE P DWGS]
- RECEPTACLE [SEE E DWGS]

**A1 CAGING FLOOR PLAN**  
 1/2" = 1'-0"



**PROJECT TEAM:**  
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 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
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 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423  
**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544  
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 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
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**MEP ENGINEER:**  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

**CLIENT:**  
**MARYLAND ZOO**  
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 1 SAFARI PLACE  
 BALTIMORE, MD 21217

**RED PANDA**  
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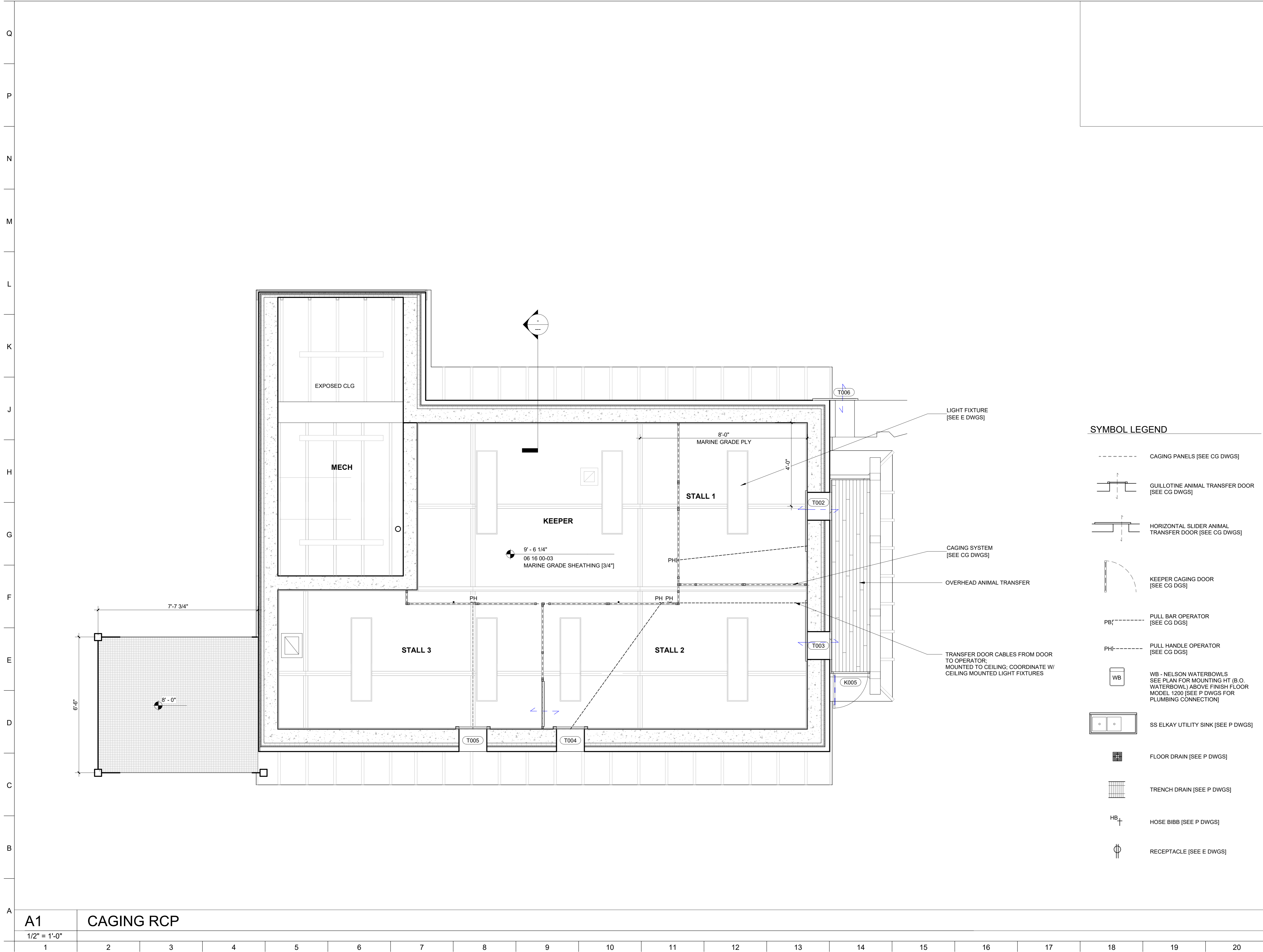
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**SEAL:**  
 STATE OF MARYLAND  
 JOSEPH H. POWELL  
 ARCHITECT  
 14268  
 JOSEPH H. POWELL, AIA  
 MD LICENSE: 14268

DATE: NOVEMBER 22, 2024	PROJECT NO: 2023-10.04
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**DRAWING TITLE:**  
 CAGING PLAN RCP

**DRAWING NO:**  
 CG111



**SYMBOL LEGEND**

- CAGING PANELS [SEE CG DWGS]
- GUILLOTINE ANIMAL TRANSFER DOOR [SEE CG DWGS]
- HORIZONTAL SLIDER ANIMAL TRANSFER DOOR [SEE CG DWGS]
- KEEPER CAGING DOOR [SEE CG DGS]
- PB --- PULL BAR OPERATOR [SEE CG DGS]
- PH --- PULL HANDLE OPERATOR [SEE CG DGS]
- WB --- WB - NELSON WATERBOWLS [SEE PLAN FOR MOUNTING HT (B.O. WATERBOWL) ABOVE FINISH FLOOR MODEL 1200 [SEE P DWGS FOR PLUMBING CONNECTION]]
- SS ELKAY UTILITY SINK [SEE P DWGS]
- FLOOR DRAIN [SEE P DWGS]
- TRENCH DRAIN [SEE P DWGS]
- HB --- HOSE BIBB [SEE P DWGS]
- RECEPTACLE [SEE E DWGS]

A1  
 1/2" = 1'-0"

<b>CAGING RCP</b>																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20



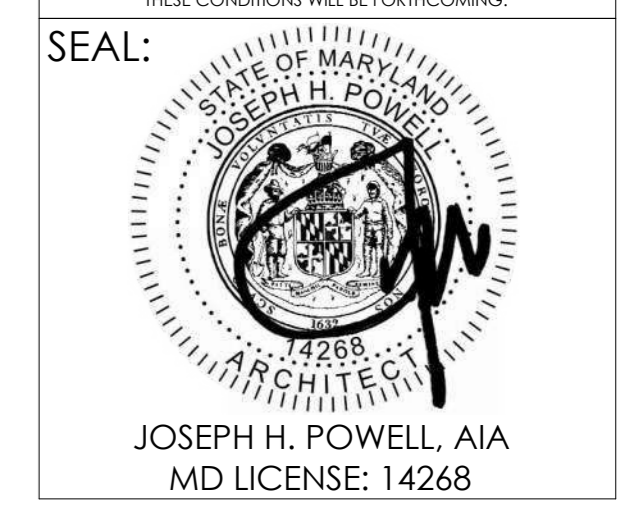


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**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
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 MEDIA, PA 19063  
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 STRUCTURAL DESIGN STUDIO, INC  
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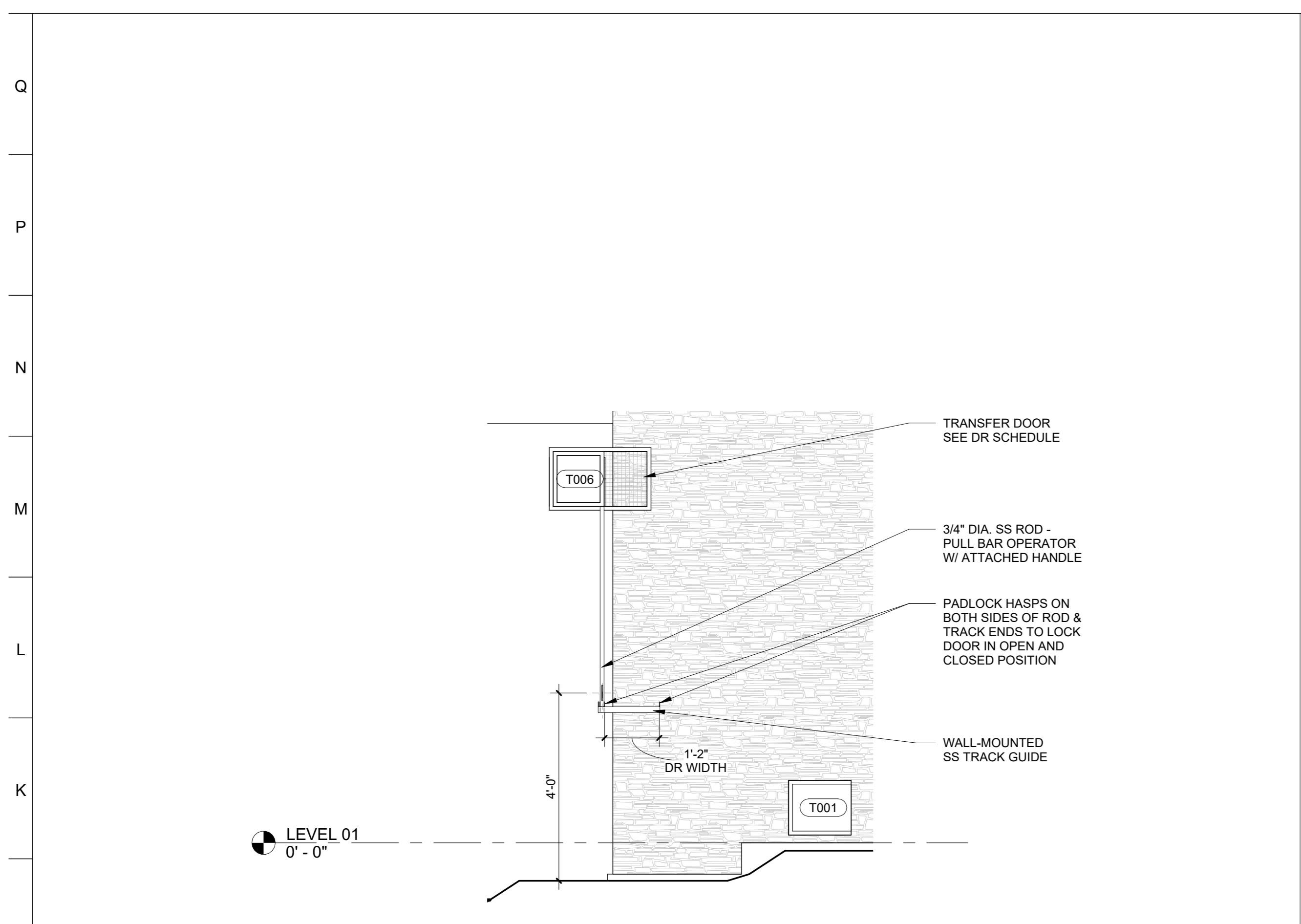
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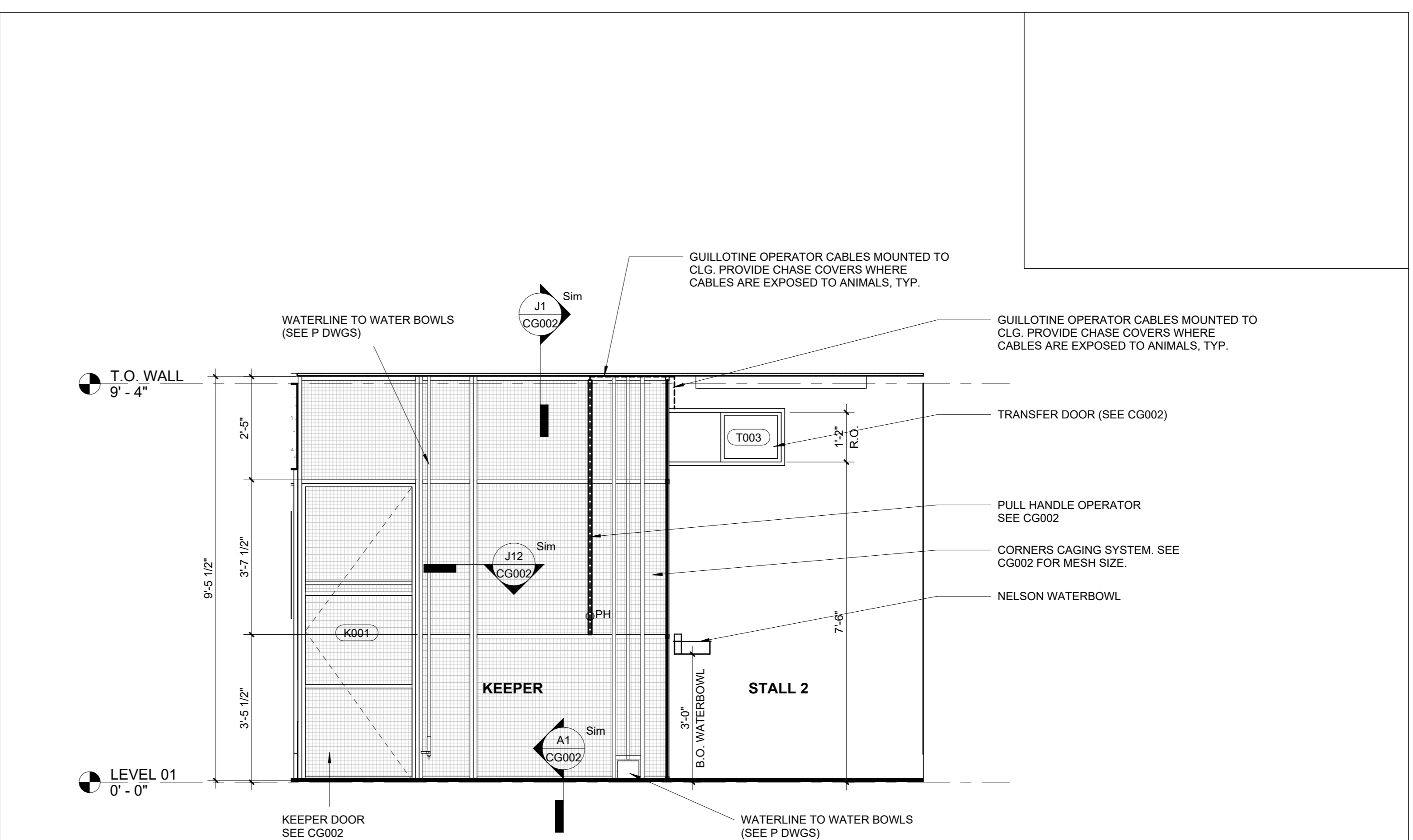
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**DRAWING TITLE:**  
 CAGING ELEVATIONS

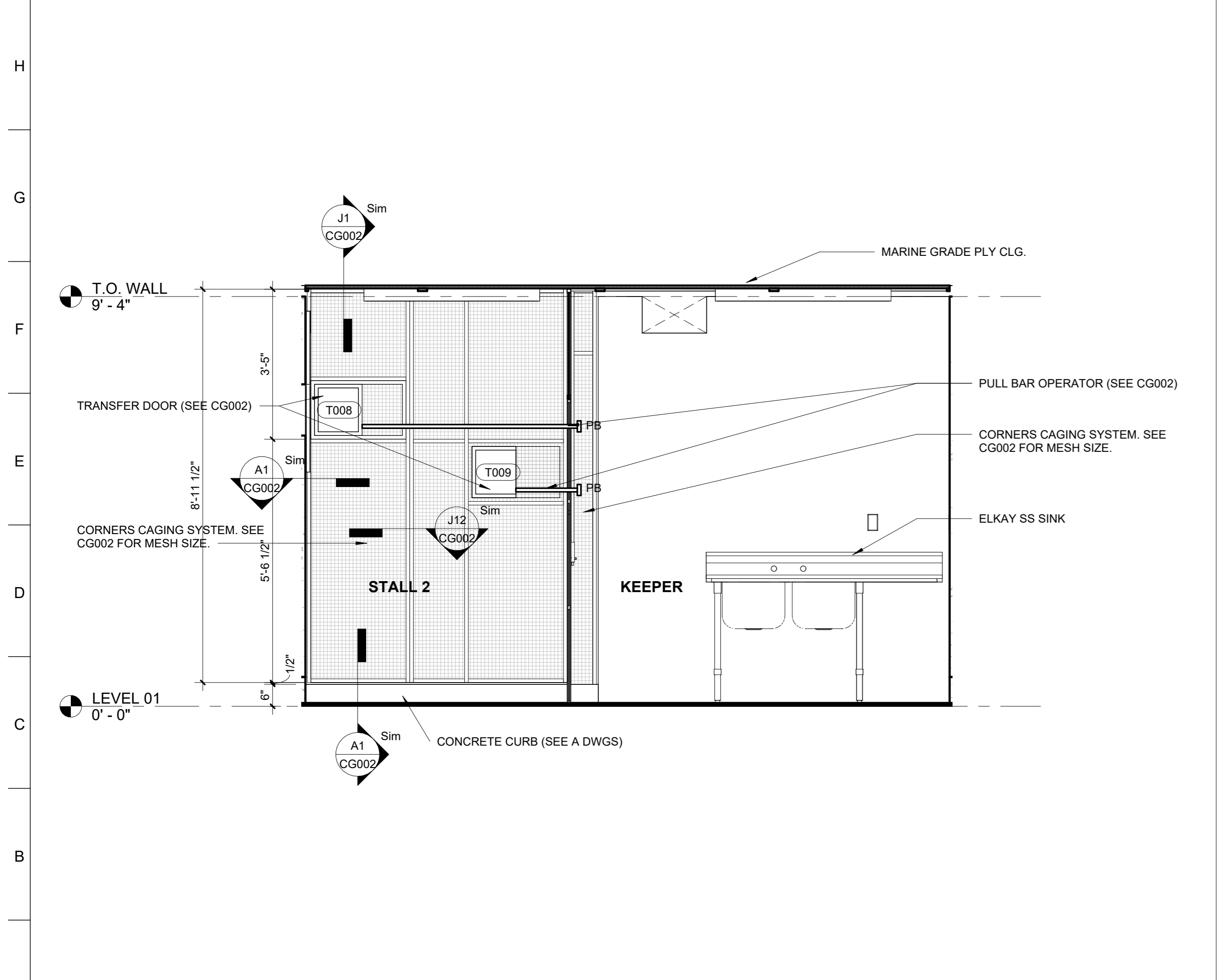
**DRAWING NO.:**  
**CG121**



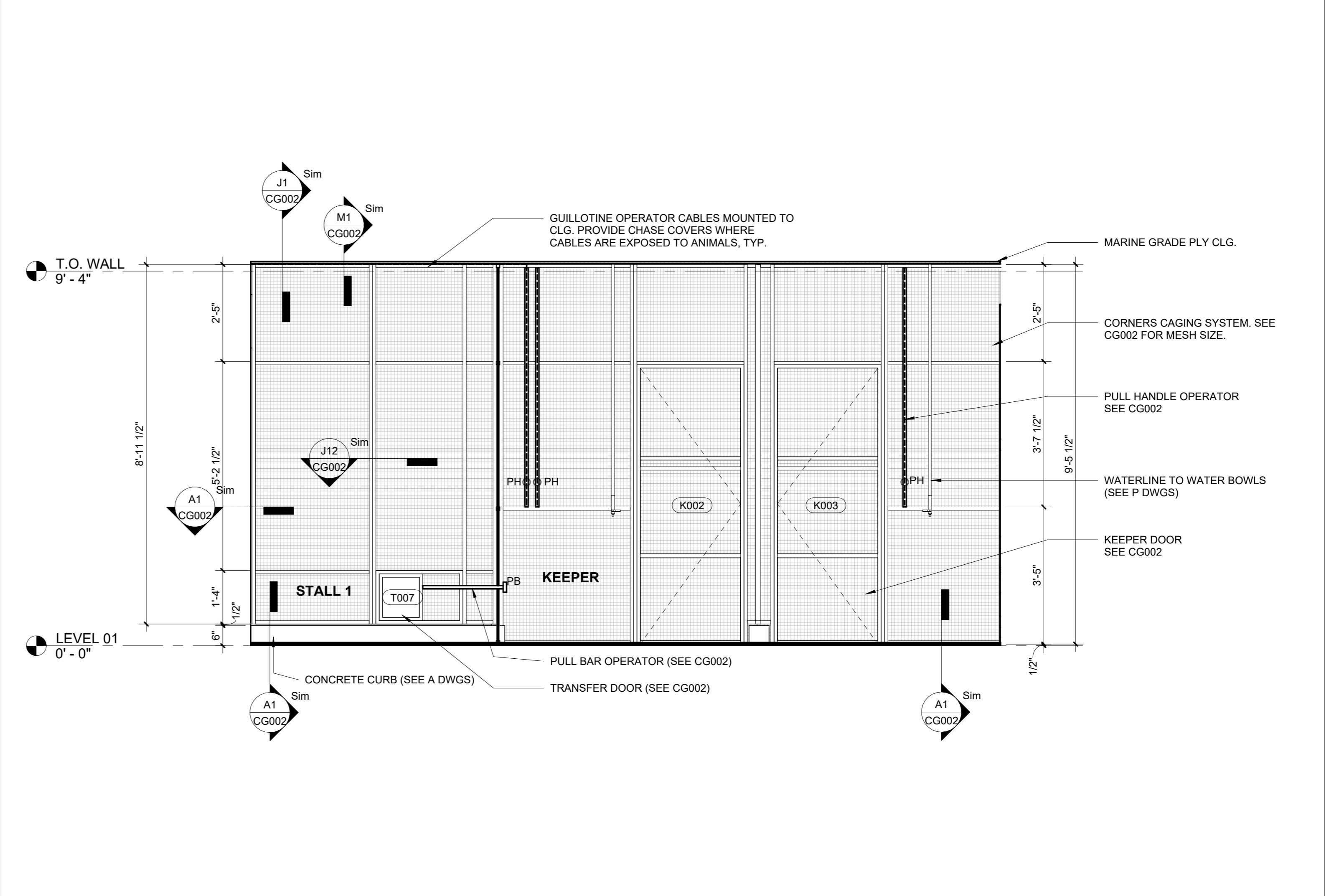
**J1 OPERATOR AT EXT TRANSFER DR T006**  
 1/2" = 1'-0"



**J11 CAGING ELEVATION**  
 1/2" = 1'-0"



**A1 CAGING ELEVATION**  
 1/2" = 1'-0"



**H1 LONG-SECTION CAGING ELEVATION**  
 1/2" = 1'-0"

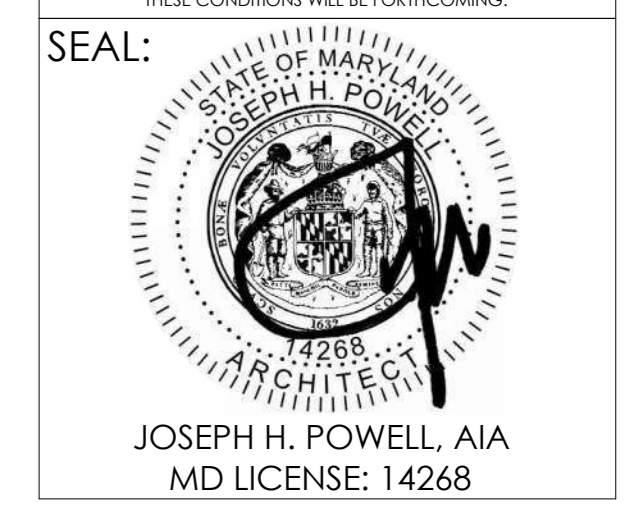


**PROJECT TEAM:**  
**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
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 HUNT VALLEY, MD 21031  
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**LANDSCAPE ARCHITECT:**  
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 28 WEST STATE STREET  
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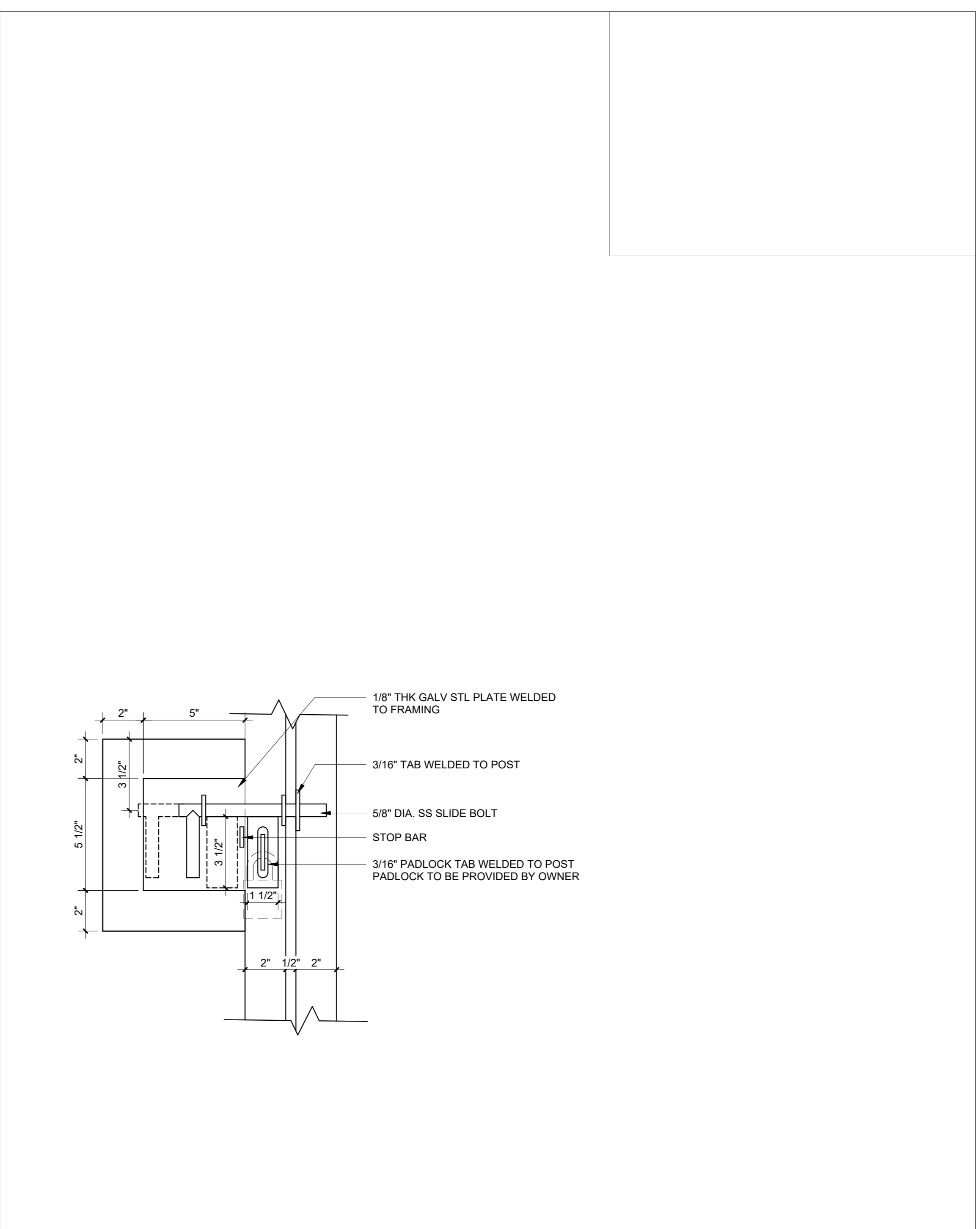
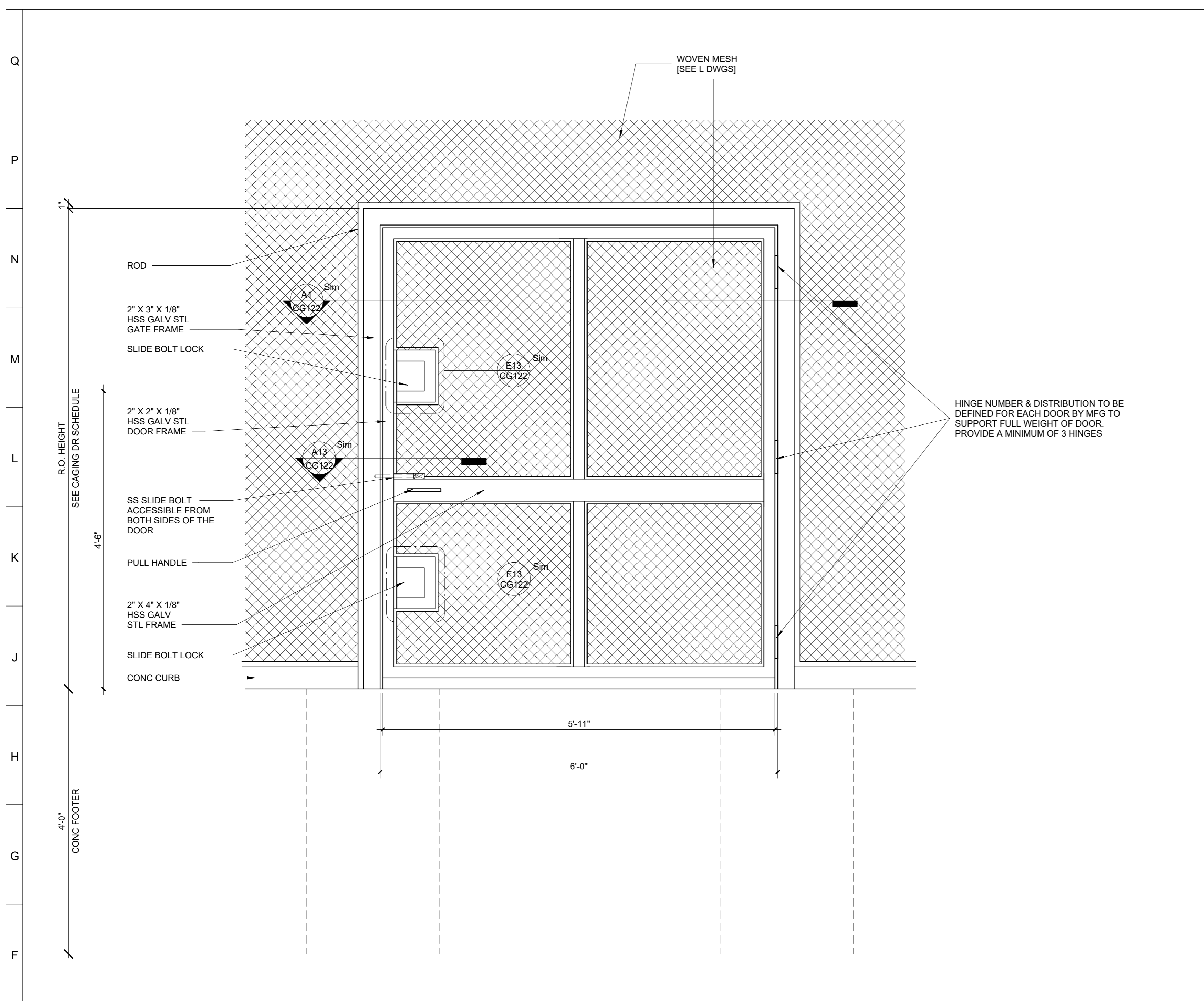
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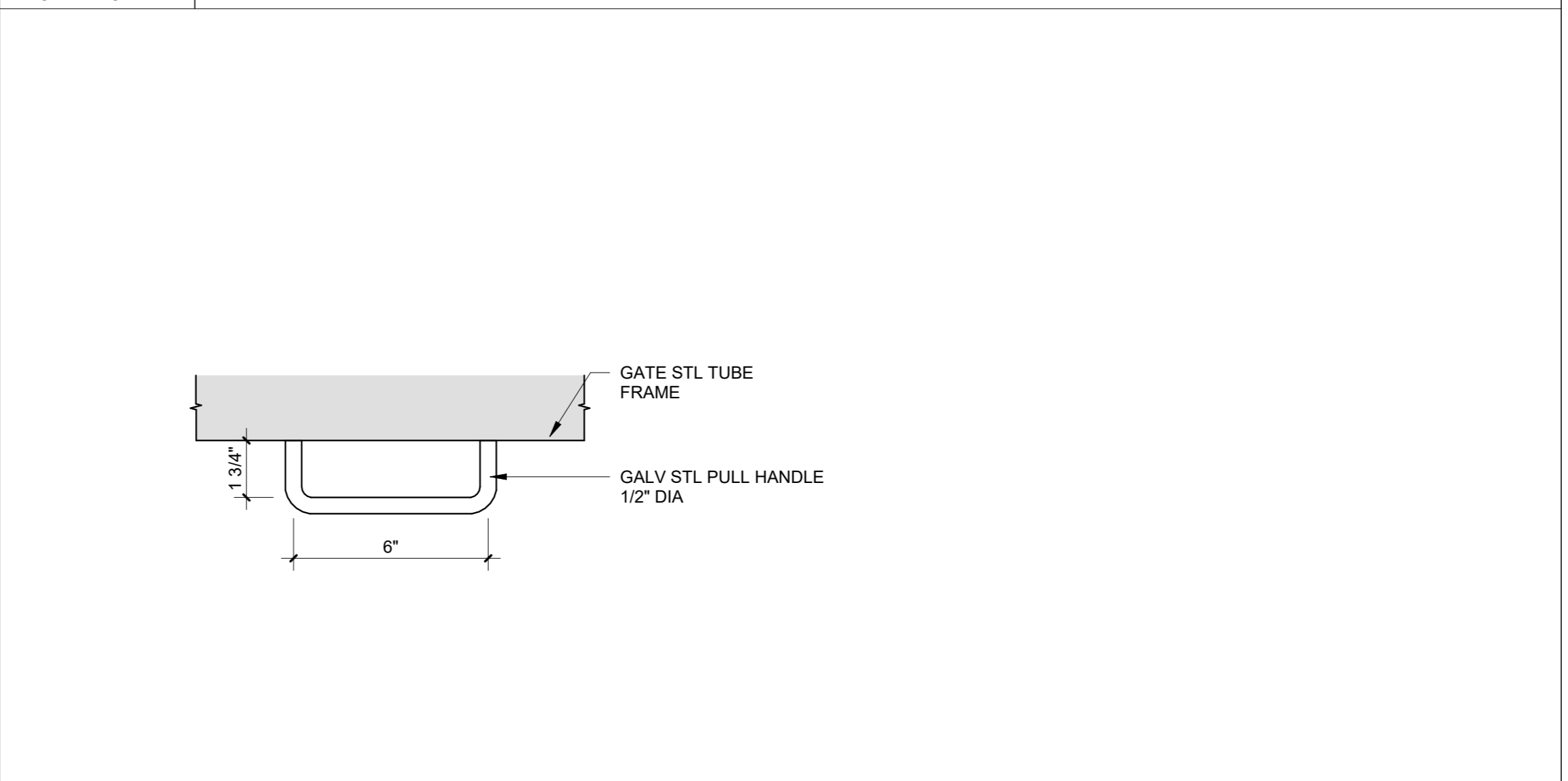
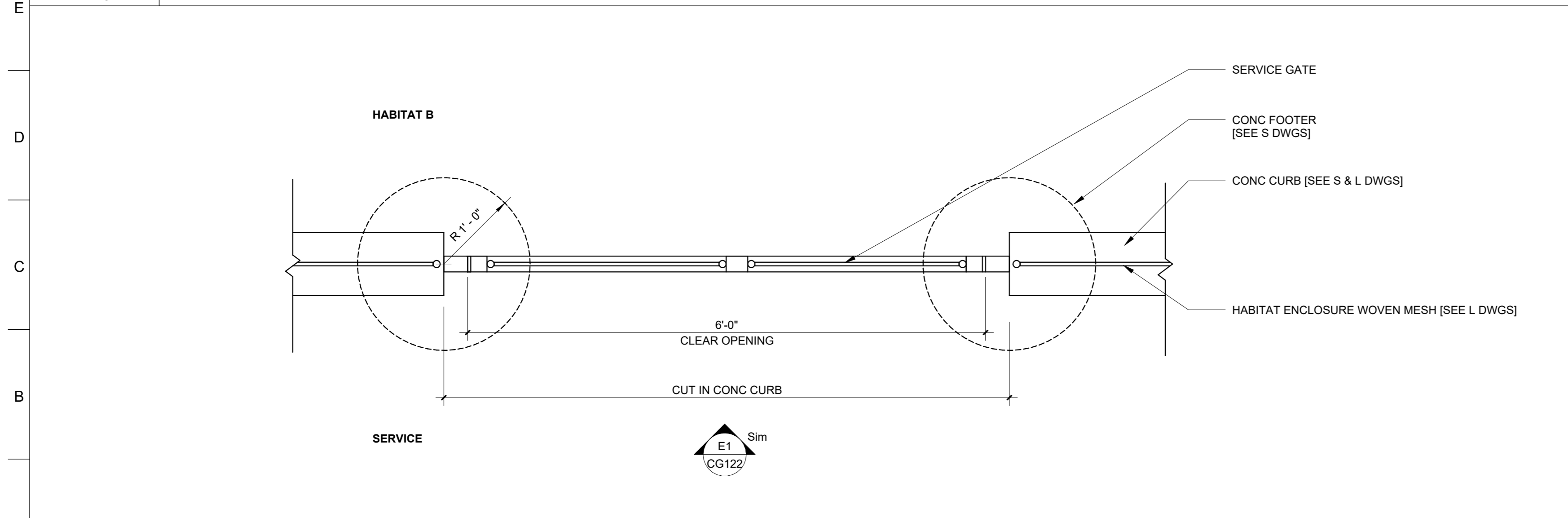
**DRAWING TITLE:**  
 SINGLE SERVICE GATE

**DRAWING NO:**  
**CG122**



**E1 SERVICE GATE ELEVATION**  
 1" = 1'-0"

**E13 SERVICE GATE SLIDE BOLT LOCK**  
 3" = 1'-0"



**A1 SERVICE GATE PLAN**  
 1" = 1'-0"

**A13 SERVICE GATE PULL HANDLE**  
 3" = 1'-0"



**PROJECT TEAM:**  
**ARCHITECT:**  
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 1525 LOCUST STREET  
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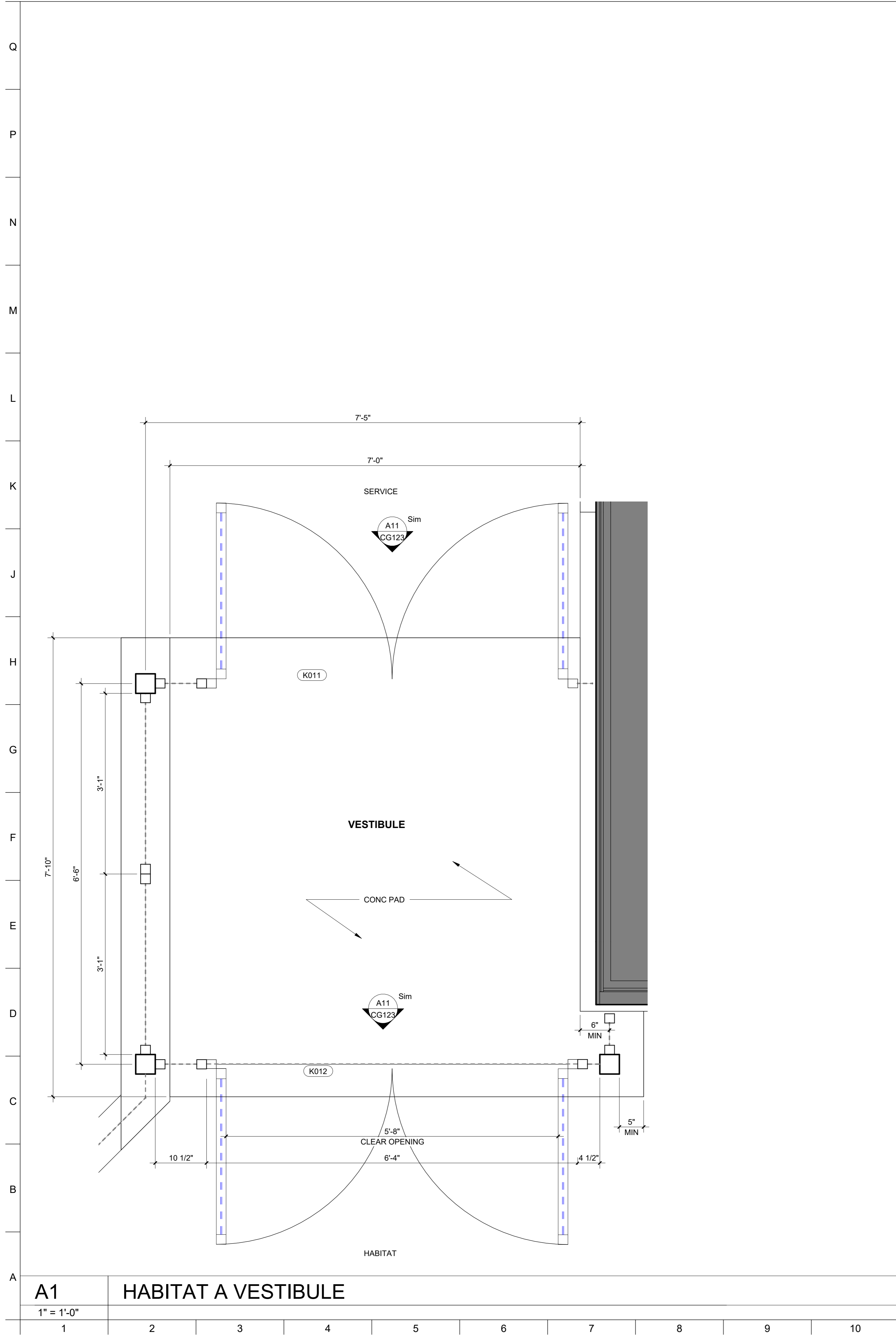
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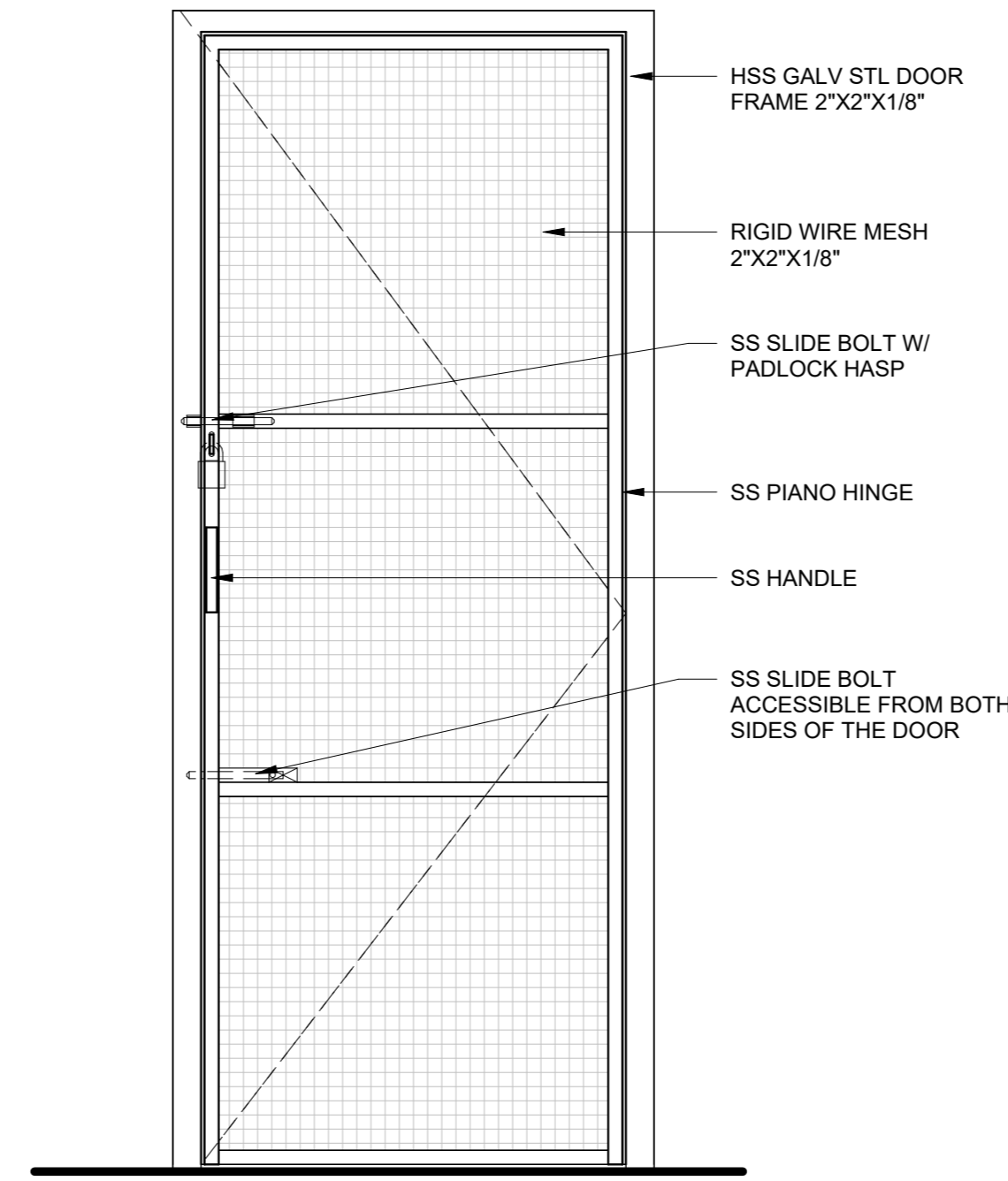
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**DRAWING TITLE:**  
 VESTIBULE DOUBLE SERVICE GATES

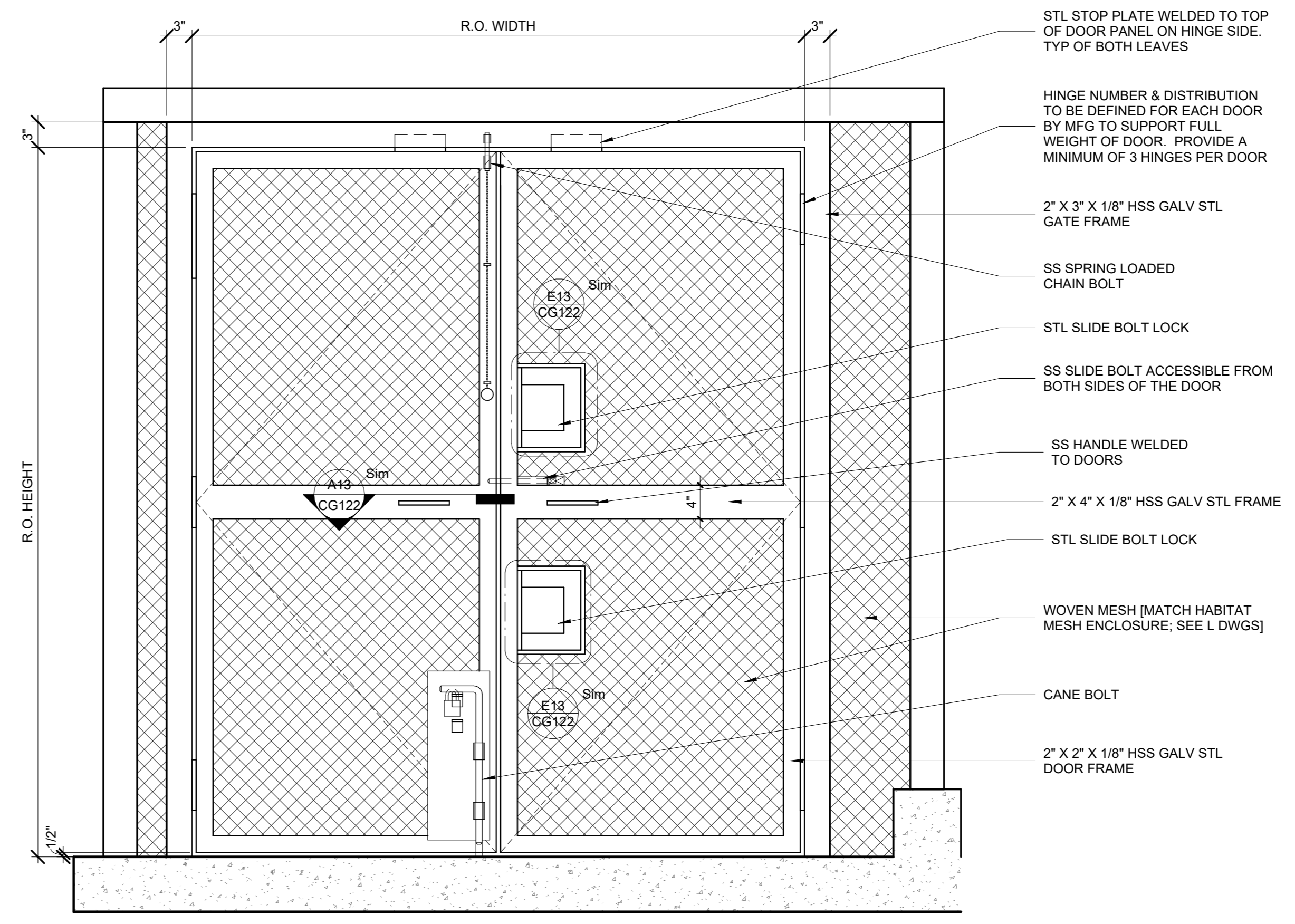
**DRAWING NO:**  
**CG123**



**A1** HABITAT A VESTIBULE  
 1" = 1'-0"



**J11** K004 SECONDARY CONTAINMENT KEEPER DOOR  
 1" = 1'-0"



**A11** KEEPER DOOR - TYPE K-C  
 1" = 1'-0"

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----

Q  
P  
N  
M  
L  
K  
J  
H  
G  
F  
E  
D  
C  
B  
A

PLUMBING FIXTURE SCHEDULE								
DESIGN	DESCRIPTION	SAN	TRAP	VENT	CW	HW	TW	REMARKS
P-1	TWO-COMPARTMENT SINK (2)	-	-	-	1/2"	1/2"	-	(1)

NOTES:  
 (1) DRAIN SINK INTO 3" FLOOR SINK. REFER TO DRAWINGS FOR FLOOR SINK LOCATION. PROVIDE DRAIN PIPING FROM EACH COMPARTMENT AND DISCHARGE INTO FLOOR SINK.  
 (2) TWO COMPARTMENT SINK WITH 18"x18"x12" BOWLS, 10" HIGH BACK SPLASH, 24" RIGHT SIDE DRAINBOARD AND STAINLESS STEEL LEGS. ELKAY MODEL #ZC18X18-R-24X. FAUCET: CHICAGO FAUCETS NO. 510-0V8613L12XK0AB. REFER TO SPECIFICATIONS SECTION 224000.

EQUIPMENT NOTES:

- FLOOR DRAINS - LACQUERED CAST IRON BODY WITH BOTTOM OUTLET ZURN MODEL #ZN-415B.
- FLOOR SINK - 12x12x8" DEEP CAST IRON BODY AND SQUARE LIGHT-DUTY GRATE WITH 1/2" SLOTTED OPENINGS WHITE ACID RESISTING PORCELAIN ENAMEL INTERIOR AND TOP ZURN MODEL #ZN-1901-KC.
- TRENCH DRAIN - MODULAR CHANNEL MADE OF 0% WATER ABSORBENT HDPE CHANNELS CUT TO LENGTH AS INDICATED ON DRAWINGS FIBERGLASS GRATE ZURN MODEL #Z882.  
REFER TO SPECIFICATION SECTION 221319.

WATER HEATER SCHEDULE							
DESIG.	LOCATION	TYPE	CAPACITY (GAL.)	KW INPUT	VOLTS/PHASE	A.O. SMITH MODEL	REMARKS
WH-1	MECH ROOM	ELECTRIC	55	3	240	DEV-52	ALL

NOTES:  
 (1) DUEL HEATING ELEMENT WITH NON-SIMULTANEOUS OPERATION.  
 (2) PROVIDE WITH MANUFACTURER'S RELIEF VALVE.  
 (3) SET WATER HEATER TEMPERATURE TO 130F. SET MIXING VALVE LEAVING TEMPERATURE TO 120F.

PUMP SCHEDULE												
DESIGN.	SERVICE	MODEL	GPM	HEAD (FEET)	RPM	IMPELLER (IN.)	MOTOR				LITTLE GIANT PUMP MODEL (1)	REMARKS
							WATTS	AMPS	VOLTS	PHASE		
P-1	HABITAT A WATER FEATURE	FP2	20	10	-	-	167	1.45	120	1	FP SERIES	-
P-2	HABITAT B WATER FEATURE	FP2	20	10	-	-	167	1.45	120	1	FP SERIES	-

NOTES:  
 (1) LITTLE GIANT FP SERIES MODEL FP2 OR APPROVED EQUAL. WET ROTOR PUMP, CLOG RESISTANT AND CAPABLE OF PASSING 1/8" SOLIDS. RATED FOR CONTINUOUS DUTY. 26 FT LONG CORD.

EXPANSION TANK SCHEDULE								
DESIGN	LOCATION	SERVICE	TYPE	TOTAL VOL. MIN. GAL.	ACCEPT VOL. MIN. GAL.	DIAMETER X LENGTH	WATTS MODEL NUMBER	REMARKS
ET-1	MECH ROOM	DOMESTIC WATER	DIAPHRAGM	3.5	2.3	10"x14"L	DETA-5	



PROJECT TEAM:

ARCHITECT:  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509

CIVIL ENGINEER:  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423

LANDSCAPE ARCHITECT:  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544

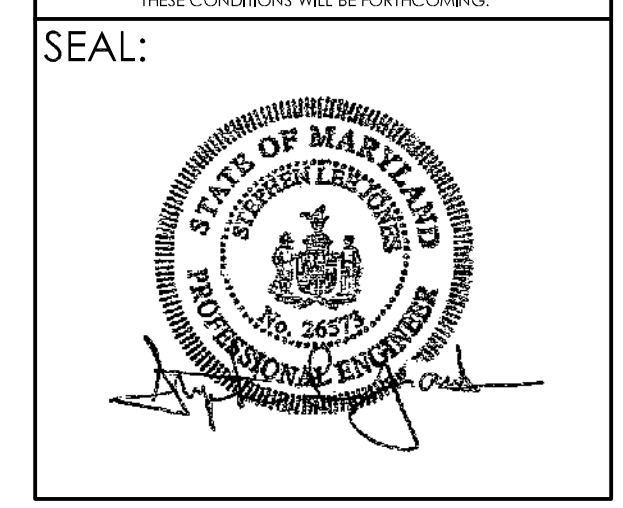
STRUCTURAL ENGINEER:  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950

MEP ENGINEER:  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

CLIENT:  
**MARYLAND ZOO**  
 THE MARYLAND ZOO IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

**RED PANDA**  
 THE MARYLAND ZOO  
 IN BALTIMORE  
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DRAWING TITLE:  
 PLUMBING SCHEDULES

DRAWING NO:  
**P-001**

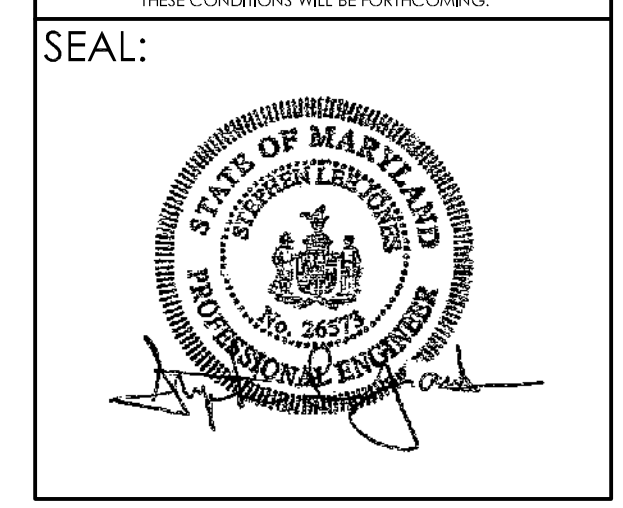


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 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
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 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
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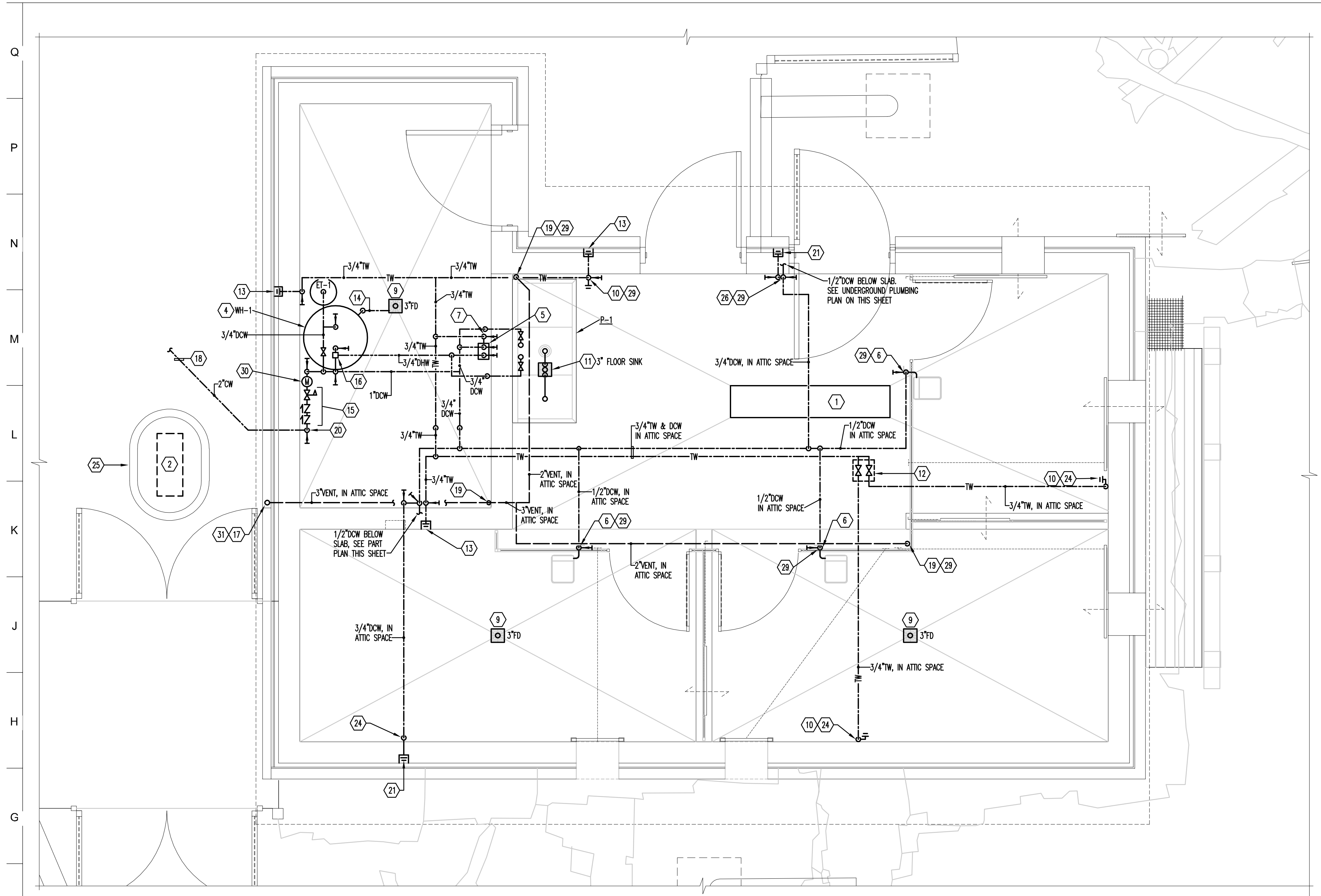


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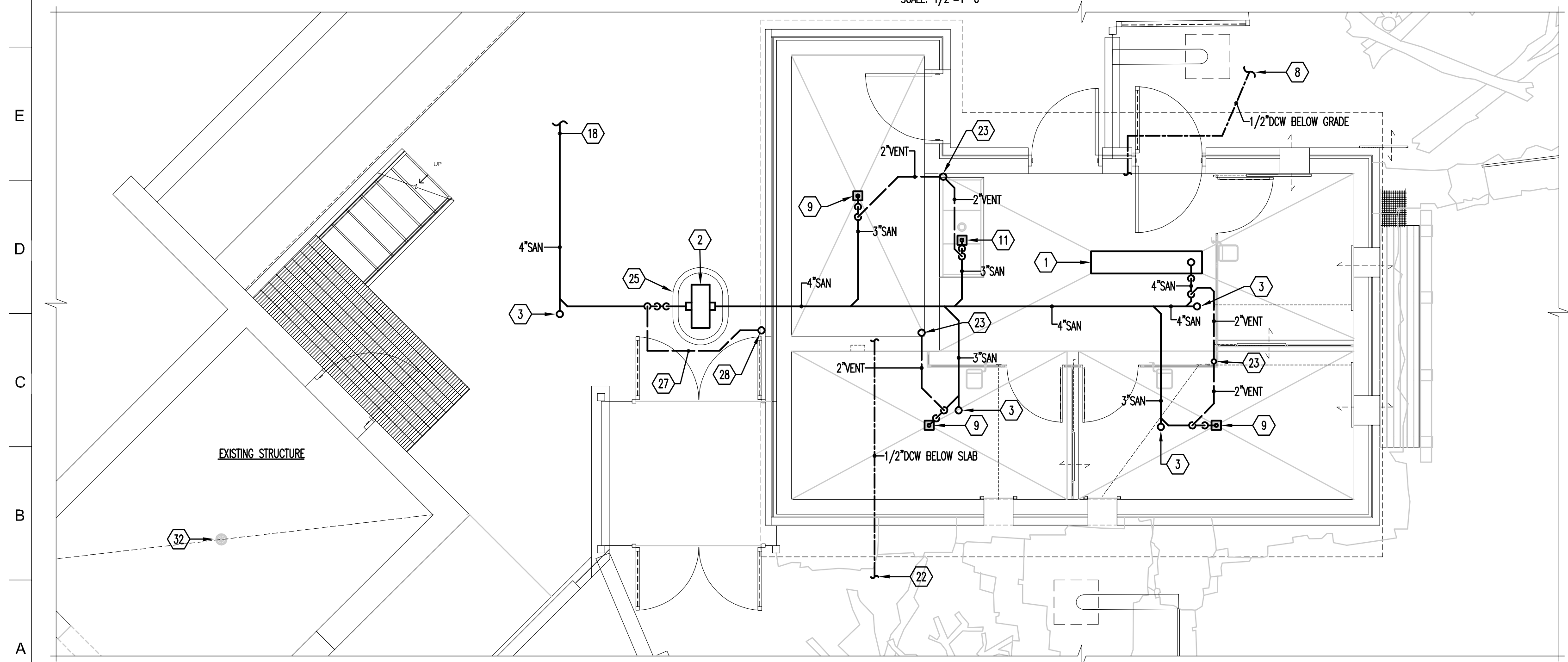
**DRAWING TITLE:**  
 HOLDING BUILDING -  
 PLUMBING - NEW WORK

**DRAWING NO:**  
**P-101**

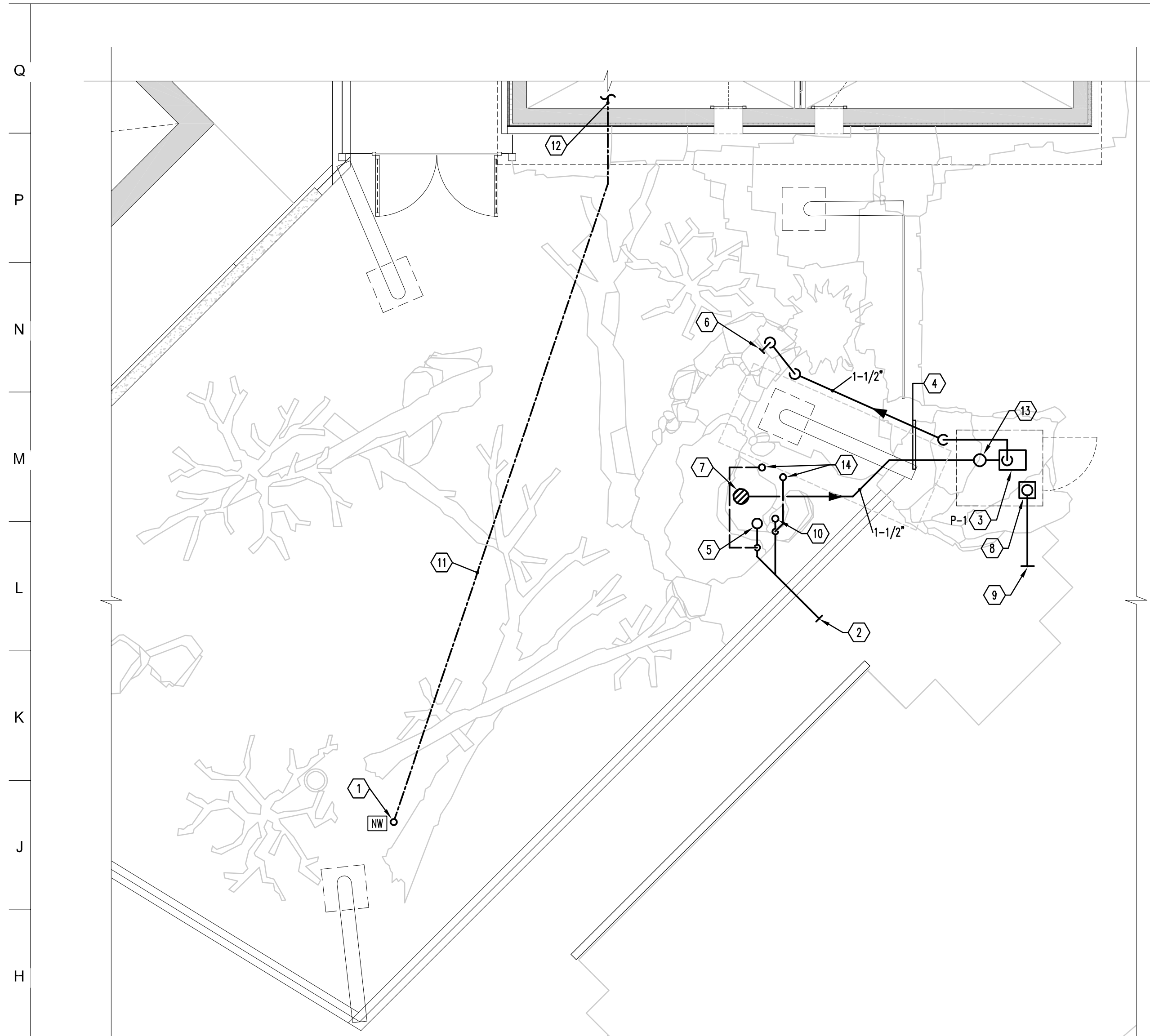
- DRAWING NOTES:**
- 1 PROVIDE NEW 12" WIDE AND 60" LONG TRENCH DRAIN.
  - 2 PROVIDE SOLIDS INTERCEPTOR BELOW GRADE IN CONCRETE VAULT. REFER TO SOLIDS INTERCEPTOR DETAIL ON SHEET P-501.
  - 3 SANITARY PIPE UP TO CLEANOUT AT FLOOR ABOVE.
  - 4 PROVIDE WATER HEATER. MOUNT TO 4" HIGH HOUSEKEEPING PAD. REFER TO WATER HEATER DETAIL ON SHEET P-501. REFER TO WATER HEATER SCHEDULE ON SHEET P-001.
  - 5 PROVIDE MIXING STATION WITH ADJUSTABLE BALL VALVES AND TEMPERATURE GAUGE. REFER TO MIXING STATION DETAIL ON SHEET P-501.
  - 6 1/2"DCW DOWN TO WATER BOWL. SECURE PIPE TO CAGING. REFER TO WATER BOWL CONNECTION DETAIL ON SHEET P-501.
  - 7 3/4" TEMPERED WATER FROM MIXING VALVE TO HOSE BIBBS.
  - 8 1/2"DCW BELOW GRADE TO WATER BOWL IN HABITAT. REFER TO HABITAT B PLAN ON SHEET P-102 FOR CONTINUATION.
  - 9 PROVIDE FLOOR DRAIN WITH TRAP AND 3"SAN CONNECTION.
  - 10 PROVIDE TEMPERED WATER DOWN ALONG WALL TO HOSE BIBB. ANCHOR PIPE TO WALL AT HOSE BIBB AT EVERY 48" ALONG WALL.
  - 11 PROVIDE FLOOR SINK BELOW COMPARTMENT SINK. DRAIN COMPARTMENT SINK TO FLOOR SINK WITH AIR GAP. PROVIDE FLOOR SINK WITH TRAP AND 3"SAN CONNECTION.
  - 12 PROVIDE 8"x8" ACCESS DOOR IN CEILING FOR HOSE BIBB ISOLATION BALL VALVES.
  - 13 PROVIDE RECESSED WALL HYDRANT CONNECTED TO TEMPERED WATER. HYDRANTS EXPOSED TO THE EXTERIOR SHALL BE FREEZE-PROOF TYPE.
  - 14 RELIEF FITTING FROM HOT WATER HEATER ALONG FLOOR TO FLOOR DRAIN.
  - 15 BACKFLOW PREVENTER AND PRESSURE REDUCING VALVE ON INCOMING DOW LINE. REFER TO COLD WATER INLET DETAIL ON SHEET P-501.
  - 16 MIXING VALVE FOR DOMESTIC WATER HEATER. REFER TO DOMESTIC HOT WATER MIXING VALVE DETAIL ON SHEET P-501.
  - 17 PROVIDE 3" VENT THROUGH WALL AND UP TO ATMOSPHERE. TERMINATE VENT AT LEAST 60" ABOVE OA INTAKE LOUVER.
  - 18 COORDINATE WITH CIVL DIVISION TO CONNECT 4"SAN AND 2"CW FOR NEW HOLDING BUILDING TO 8"SAN AND 2"CW. CONNECTIONS PROVIDED BY CIVL DIVISION.
  - 19 2" VENT DOWN THROUGH FLOOR.
  - 20 PROVIDE 2"CW UP THROUGH SLAB THEN REDUCE TO 1-1/4"CW PRIOR TO FITTINGS.
  - 21 PROVIDE RECESSED WALL HYDRANT CONNECTED TO DOMESTIC COLD WATER. HYDRANTS EXPOSED TO THE EXTERIOR SHALL BE FREEZE-PROOF TYPE.
  - 22 1/2"CW BELOW GRADE TO WATER BOWL IN HABITAT. REFER TO HABITAT A PLAN ON SHEET P-102 FOR CONTINUATION.
  - 23 2" VENT UP TO ATTIC SPACE.
  - 24 PROVIDE COVER PLATE OVER PIPING IN ANIMAL STALL. REFER TO CG001 FOR DETAILS AND NOTES. WHERE ACCESS TO HOSE BIBBS IS REQUIRED, PROVIDE HINGED ASSEMBLY WITH QUARTER TURN LATCH FOR COVER PLATES.
  - 25 CONCRETE VAULT. REFER TO CIVL DRAWINGS FOR DETAIL.
  - 26 DROP DOW DOWN ALONG WALL. PROVIDE BALL VALVE TO ISOLATE HOSE BIBB AND HABITAT WATER BOWL.
  - 27 2"VP UNDERGROUND.
  - 28 2"VP UP ALONG EXTERIOR OF BUILDING.
  - 29 INSTALL PIPE ESCUTCHEON AT PIPE PENETRATION THROUGH CEILING.
  - 30 PROVIDE METRON-FARNER SPECTRUM SINGLE JET WATER METER. PROVIDE METER WITH WN-LITE REGISTER THAT WILL ALLOW COMMUNICATION WITH WATERSCOPE DASHBOARD. CONTRACTOR TO COORDINATE INSTALLATION WITH MIMIR WATER.  
CONTACT: ANNICK CHAMBERLAIN  
PHONE: 929-910-0149  
EMAIL: annik@mimirwater.com
  - 31 DROP 2"VP DOWN BELOW GRADE.
  - 32 CONFIRM THAT DRAINAGE FROM EXISTING FLOOR DRAIN FLOWS UNOBSTRUCTED. CLEAR BLOCKAGE IF DOES NOT. TYPICAL AT TWO LOCATIONS IN EXISTING STRUCTURE.



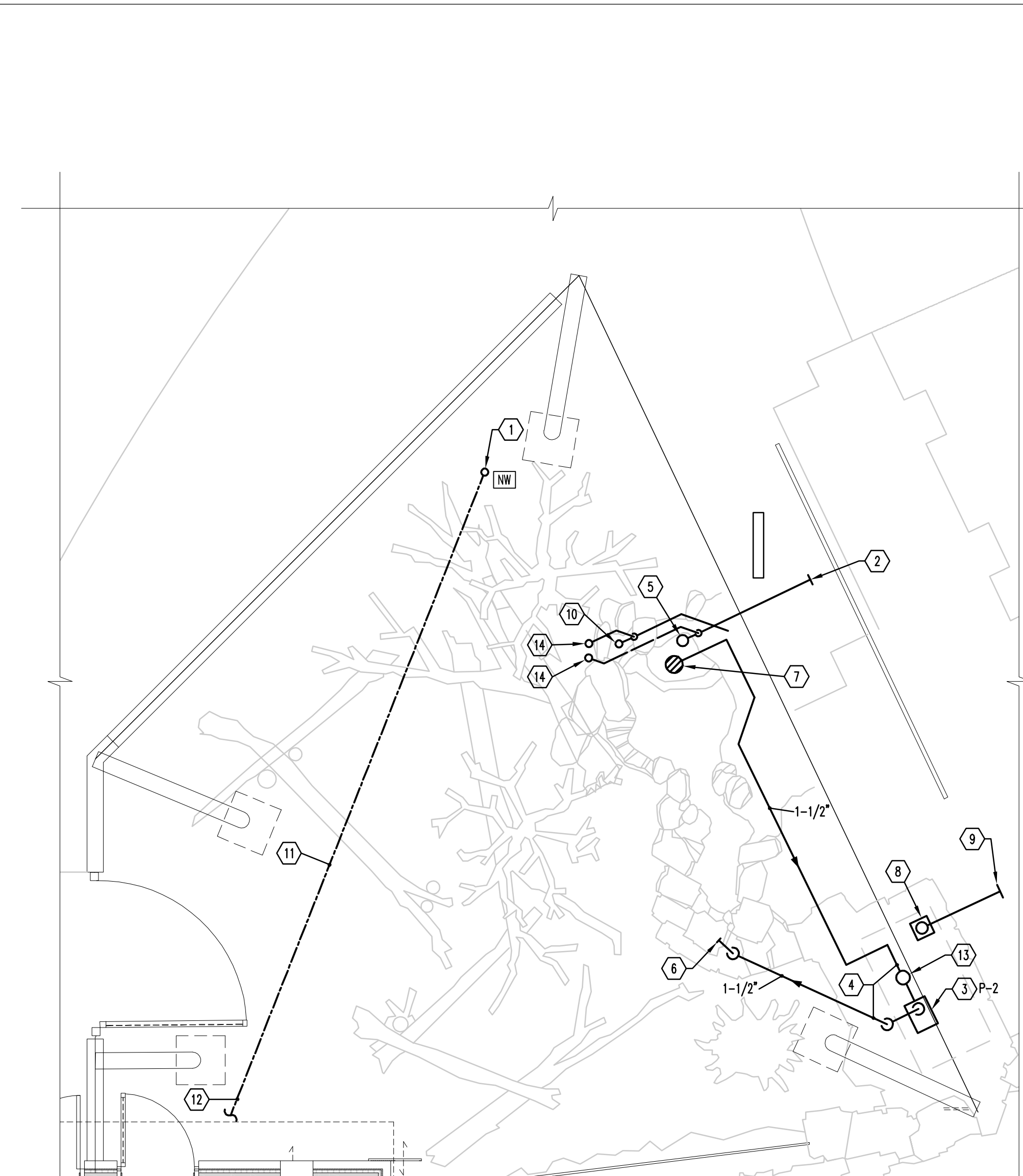
**HOLDING BUILDING - PLUMBING - NEW WORK**  
 SCALE: 1/2"=1'-0"



**HOLDING BUILDING - UNDERGROUND PLUMBING - NEW WORK**  
 SCALE: 1/4"=1'-0"



HABITAT A - PLUMBING - NEW WORK  
SCALE: 1/4"=1'-0"



HABITAT B - PLUMBING - NEW WORK  
SCALE: 1/4"=1'-0"

**DRAWING NOTES:**

- 1 ANIMAL WATERER IN HABITAT. PROVIDE 1/2" CW TO THIS POINT AND INSTALL WATERER PER MANUFACTURER'S RECOMMENDATIONS. REFER TO DETAIL. COORDINATE WITH ELECTRICAL DIVISION TO PROVIDE POWER TO HEATER.
- 2 NEW SANITARY FROM HABITAT POND BOTTOM DRAIN AND OVERFLOW. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
- 3 PROVIDE RECIRCULATING PUMP FOR POND IN ACCESS CAVITY IN FAUX ROCKS. REFER TO HABITAT POND PUMP DETAIL ON SHEET P-501.
- 4 PROVIDE 1-1/2" PVC BELOW GRADE FOR POND RECIRCULATION SUPPLY AND RETURN.
- 5 PROVIDE 3" FITTING CLEANOUT ADAPTER FOR DRAINING HABITAT POND. PROVIDE 3" CLEANOUT PLUG WITH O-RING. COORDINATE WITH CIVIL DIVISION FOR CONNECTION TO SANITARY MAIN.
- 6 CONNECT 1-1/2" POND PUMP SUPPLY TO STILLING BOX.
- 7 PROVIDE VGBA TESTED AND CERTIFIED POOL DRAIN WITH SUMP. CMP GALAXY POOL DRAIN OR EQUAL. COLOR BLACK.
- 8 PROVIDE 3" FLOOR DRAIN.
- 9 NEW 3" STORM WATER FROM FLOOR DRAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
- 10 2" HABITAT POND OVERFLOW STUBBED UP AT THIS LOCATION.
- 11 1/2" CW UNDERGROUND TO HABITAT WATERER LOCATION.
- 12 REFER TO HOLDING BUILDING PLUMBING PLAN ON SHEET P-101 FOR CONTINUATION.
- 13 BASKET STRAINER.
- 14 STUB 1-1/2" VENT PIPE 12" ABOVE GRADE. COVER VENT OPENING WITH STAINLESS STEEL BIRD SCREEN.

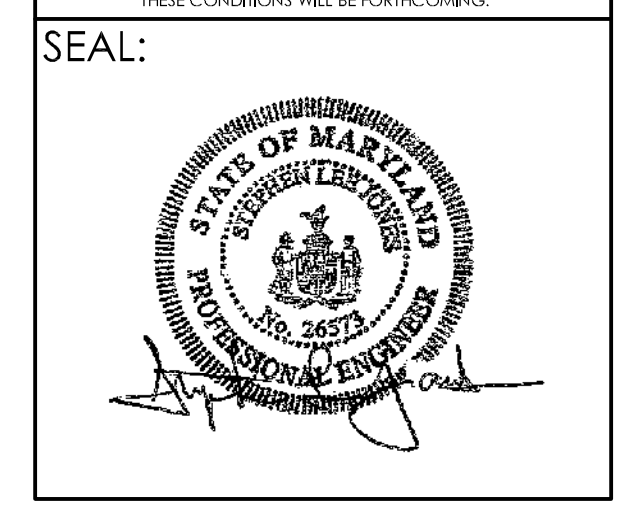


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**ARCHITECT:**  
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 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
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 215 SCHILLING CIRCLE, STE 102  
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 T: 410.785.7423  
**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
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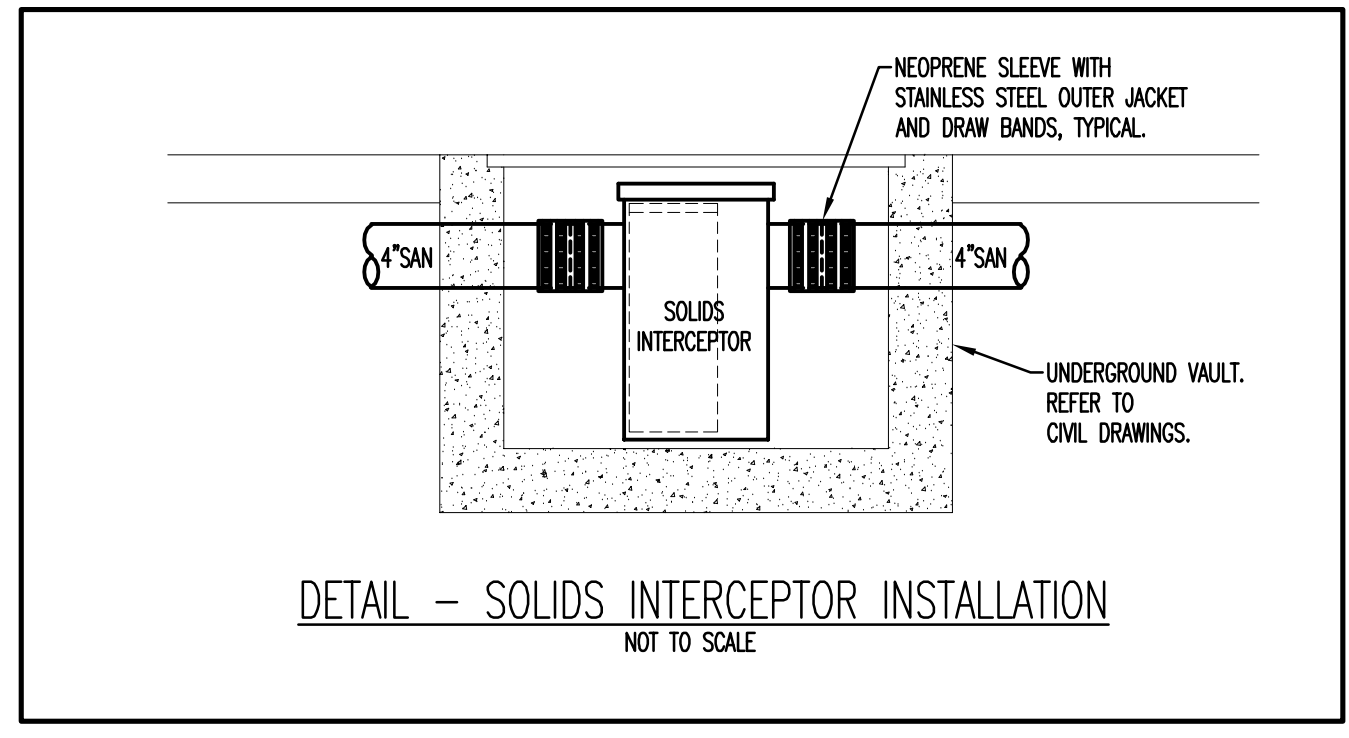
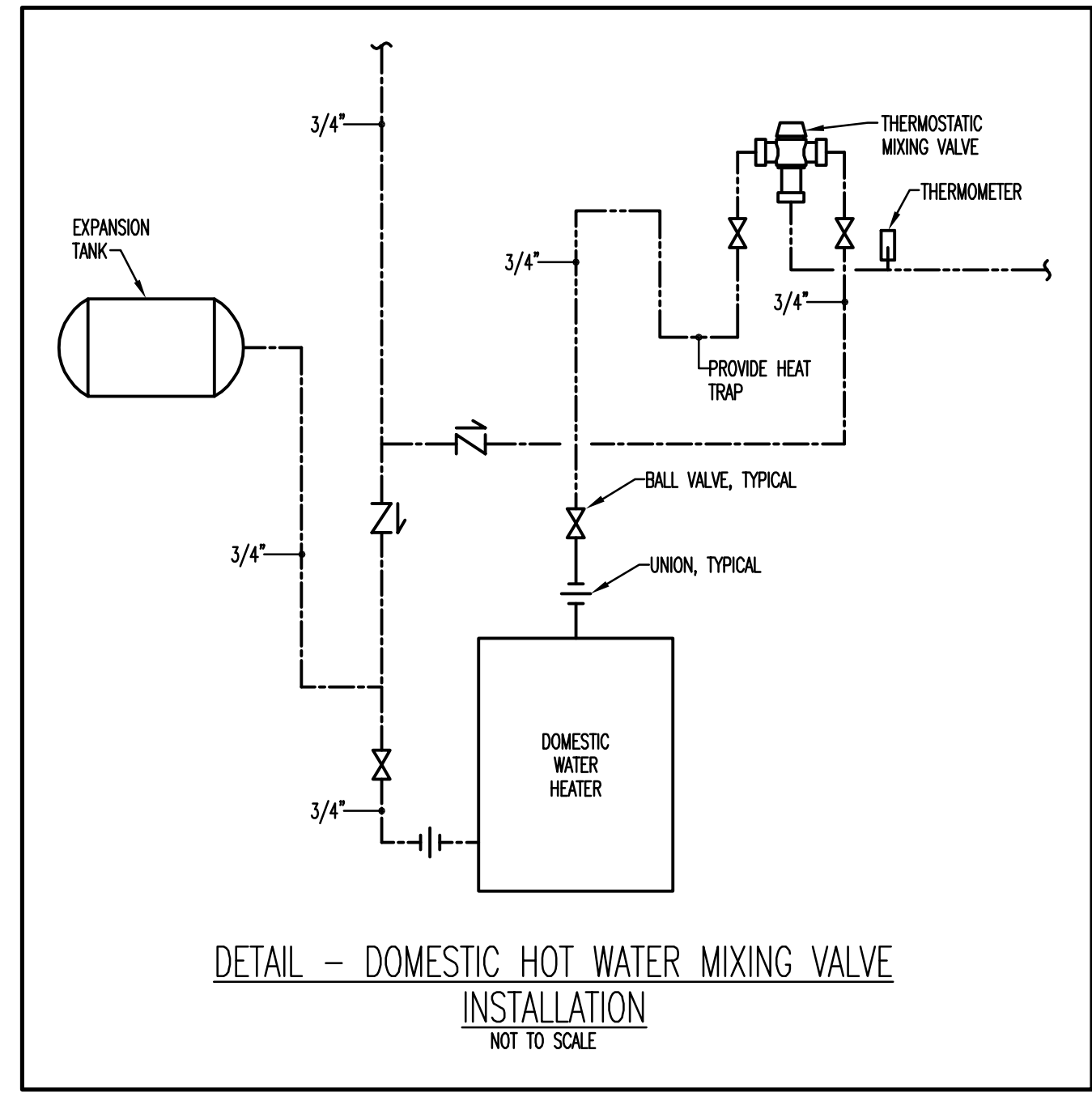
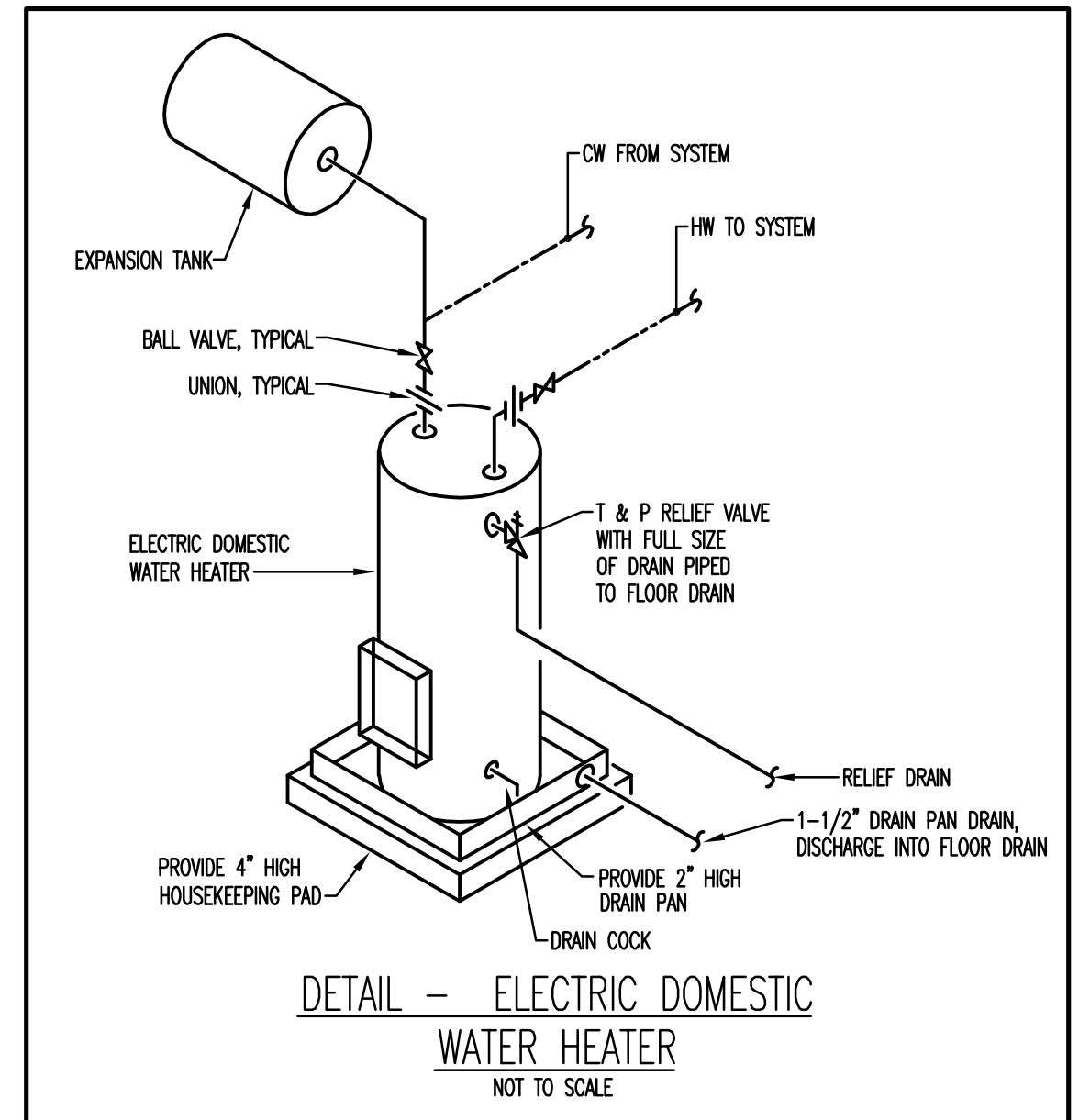
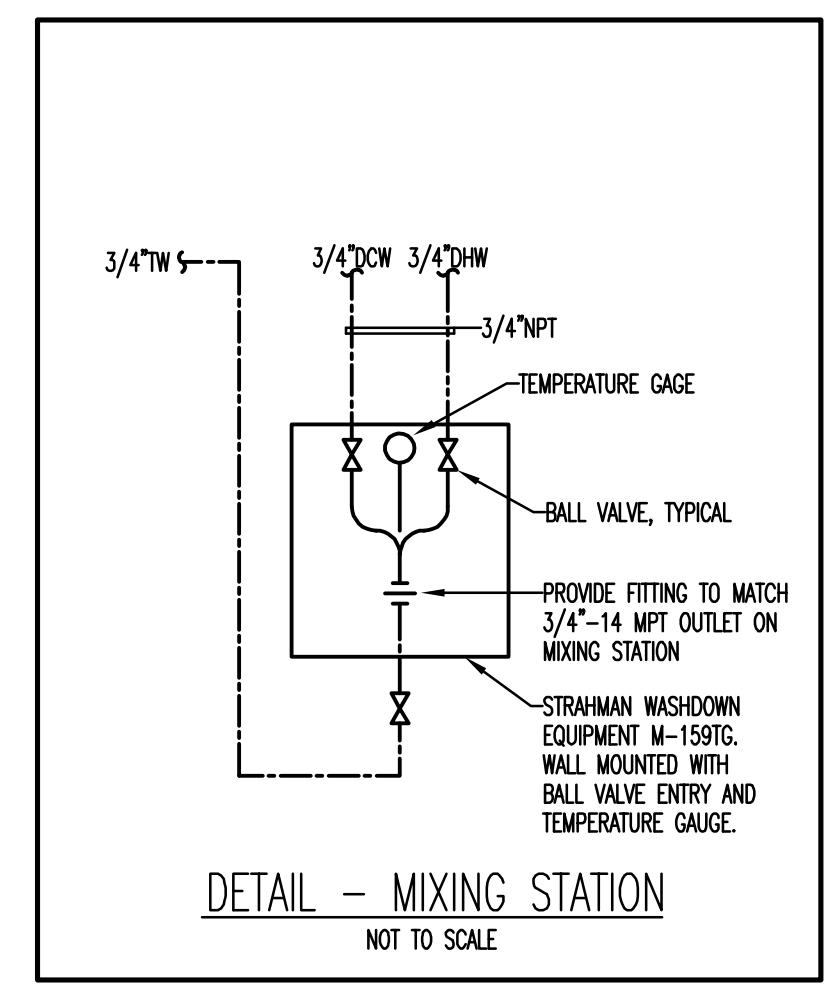
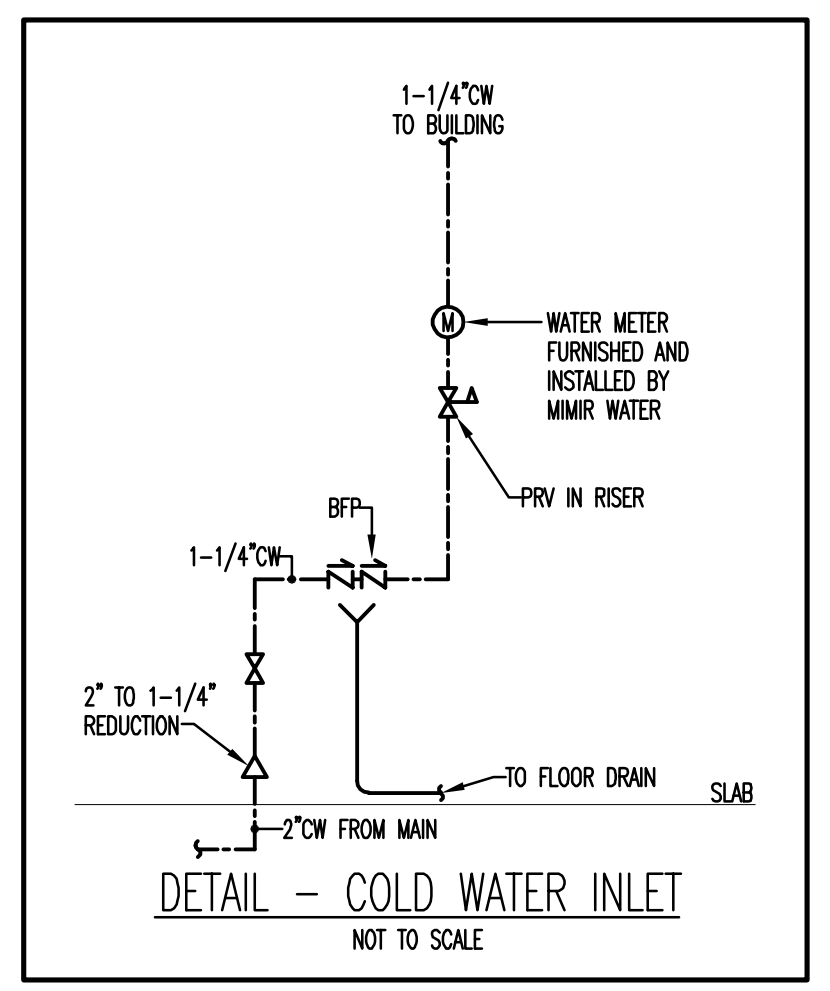
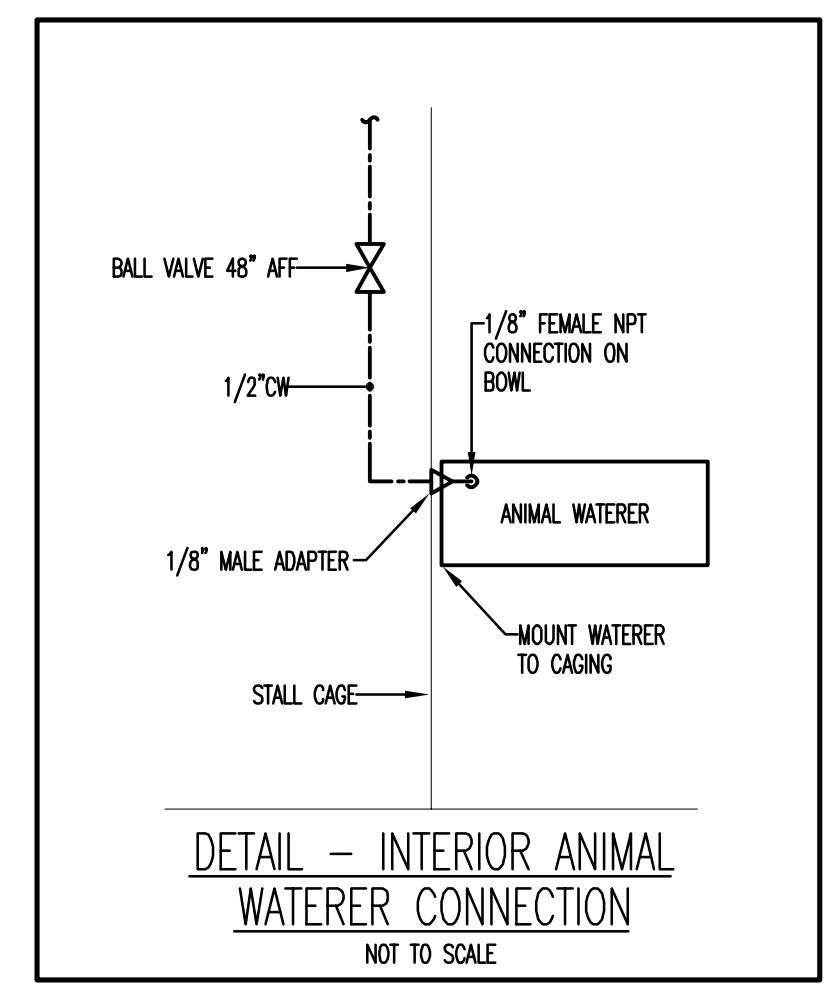
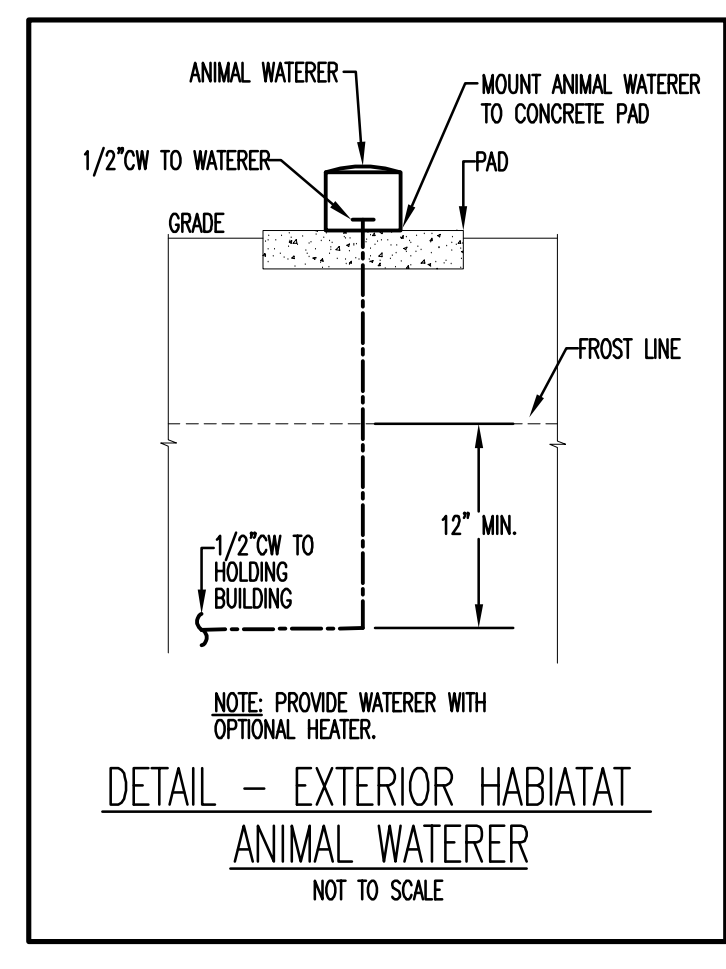
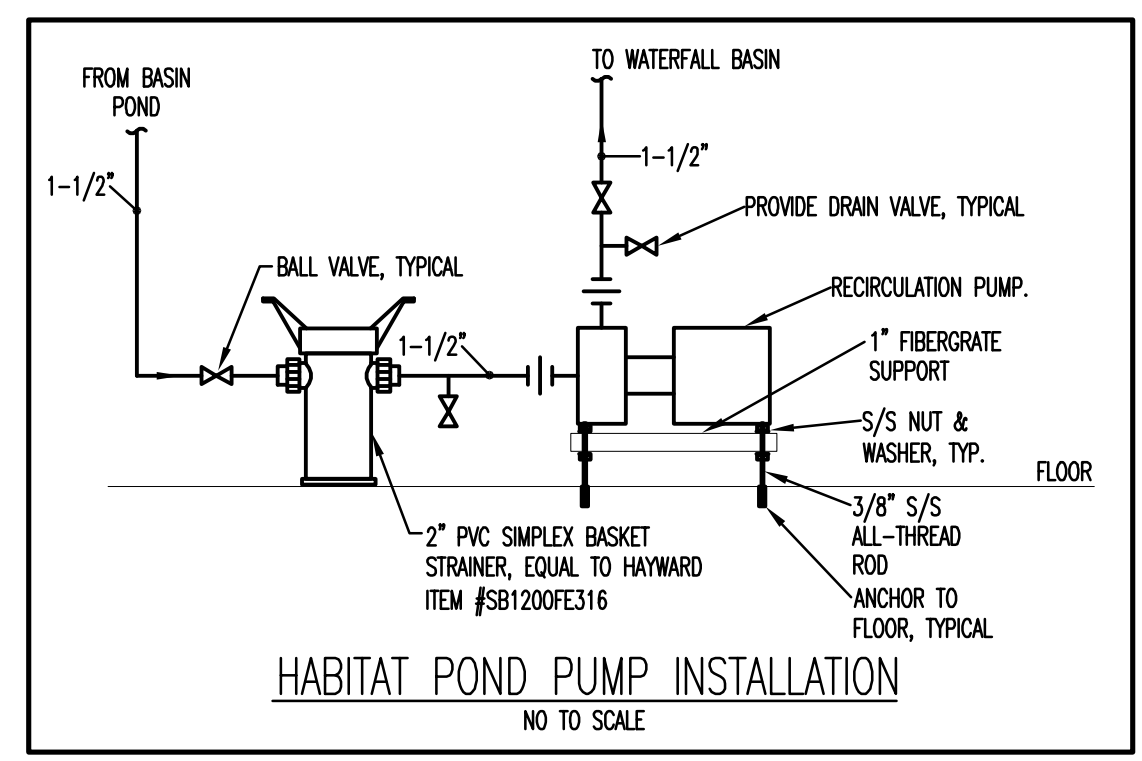
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**DRAWING TITLE:**  
 SITE PLAN -  
 PLUMBING - NEW  
 WORK

**DRAWING NO.:**  
**P-102**

10877 - RED PANDA

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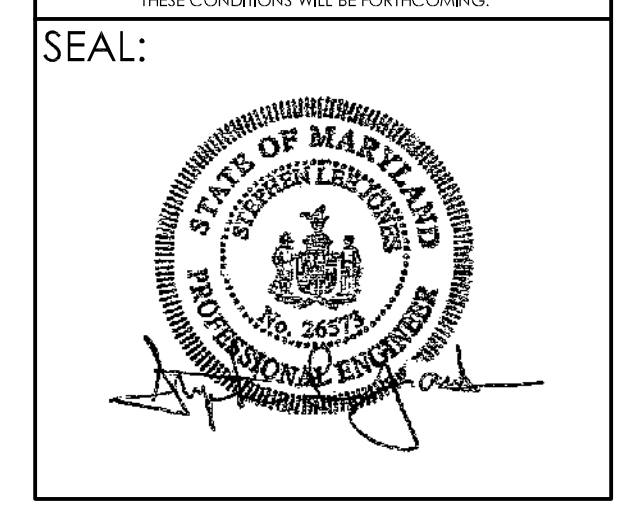


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**ARCHITECT:**  
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 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
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 HUNT VALLEY, MD 21031  
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 28 WEST STATE STREET  
 MEDIA, PA 19063  
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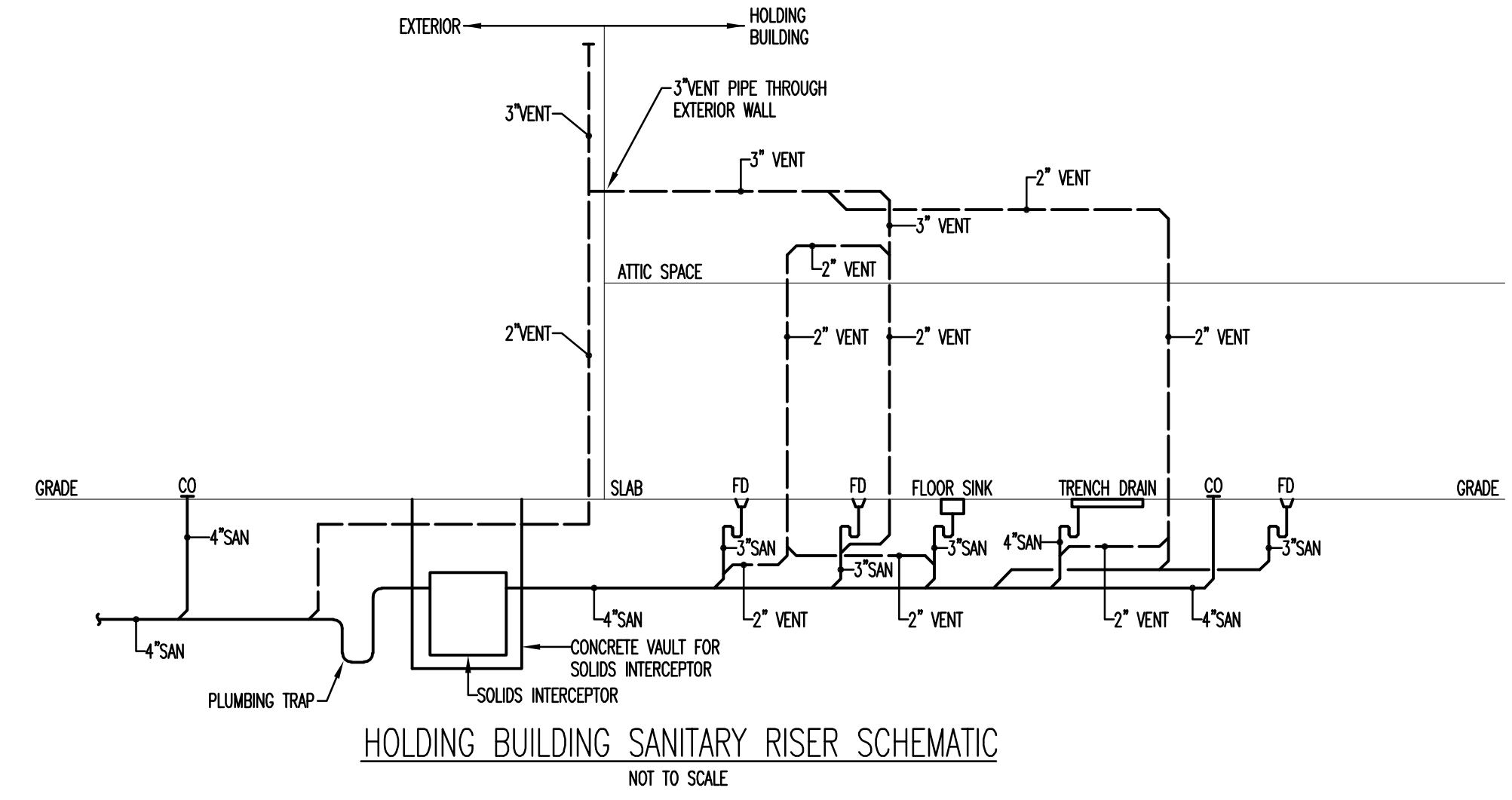
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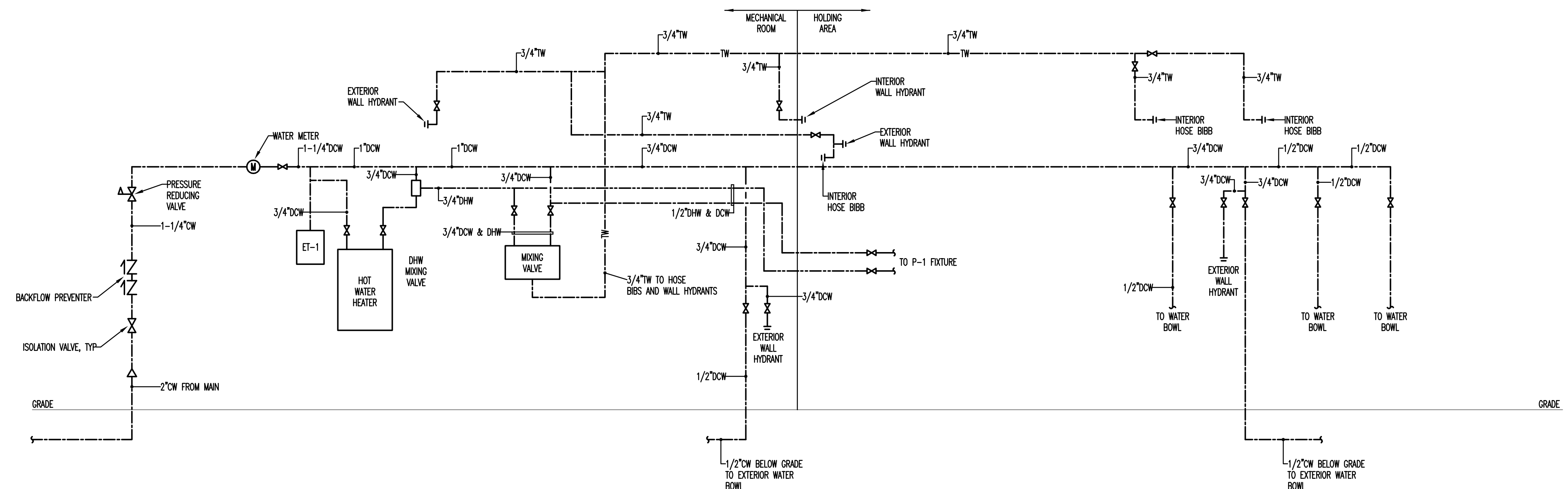
**DRAWING TITLE:**  
 PLUMBING DETAILS

**DRAWING NO:**  
**P-501**

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HOLDING BUILDING SANITARY RISER SCHEMATIC  
NOT TO SCALE



HOLDING BUILDING DOMESTIC WATER SCHEMATIC  
NOT TO SCALE

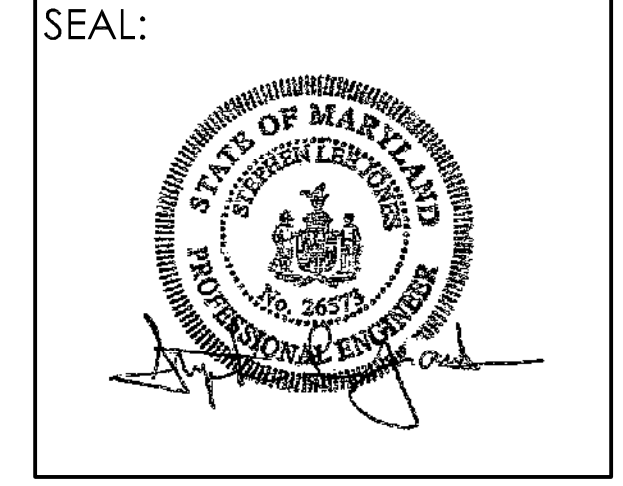


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**DRAWING TITLE:**  
 PIPING SCHEMATICS

**DRAWING NO.:**  
**P-601**





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 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509

**CIVIL ENGINEER:**  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423

**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544

**STRUCTURAL ENGINEER:**  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950

**MEP ENGINEER:**  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

**CLIENT:**  
**MARYLAND ZOO**  
 THE MARYLAND ZOO IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

**RED PANDA**  
 THE MARYLAND ZOO  
 IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

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**SEAL:**

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DRAWN BY: KWA	
CHECKED BY: KWA	
SUBMISSION DATE: DATE	
PERMIT SET: 11/22/2024	
REVISION	DATE

**DRAWING TITLE:**  
 LEGEND

**DRAWING NO:**  
**E-001**

10877 - RED PANDA

**ELECTRICAL LEGEND**

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	1'x4' SURFACE TROFFER		ACCESS CARD READER; MH=36" AFF
	1'x4' SURFACE TROFFER WITH EMERGENCY BATTERY PACK		SECURITY KEYPAD; MH=48" AFF
	STRIP FIXTURE		SECURITY CAMERA; CEILING MOUNT
	STRIP FIXTURE WITH EMERGENCY BATTERY PACK		CCTV CAMERA; CEILING/WALL MOUNT
	LED STRING LIGHTS		FIRE ALARM SMOKE DETECTOR
	DECORATIVE CEILING FIXTURE		FIRE ALARM HEAT DETECTOR
	RECESSED DOWNLIGHT		FIRE ALARM DUCT SMOKE DETECTOR
	EXIT LIGHT WITH DIRECTIONAL ARROWS AS INDICATED; CEILING/ WALL MTD; SHADED PORTION DENOTES LIGHTED FACE		FIRE ALARM FLAME DETECTOR
	EXTERIOR WALL LIGHT WITH EMERGENCY BATTERY PACK, FURNISHED BY OTHERS INSTALLED BY EC		FIRE ALARM MANUAL PULLSTATION; MH=48" AFF
	SINGLE POLE SWITCH; SUBSCRIPT DENOTES SWITCHING SCHEME; MH=48" AFF		FIRE ALARM STROBE; MH=80" AFF
	THREE-WAY SWITCH; MH=48" FF		FIRE ALARM STROBE; CEILING MOUNT
	0-10VDC DIMMER SWITCH; MH=48" AFF		FIRE ALARM AUDIO/VISUAL DEVICE; MH=80" AFF
	SWITCH WITH PILOT LIGHT; MH=48" FF		FIRE ALARM AUDIO/VISUAL DEVICE; CEILING MOUNT
	WALL SENSOR SWITCH; MH=48" AFF		FIRE ALARM DUCT SMOKE DETECTOR REMOTE TEST SWITCH
	TIMER SWITCH; MH=48" FF		FIRE ALARM REMOTE INDICATOR LIGHT
	TIMER SWITCH WITH 0-10VDC DIMMING CAPABILITY; MH=48" FF		FIRE ALARM ANNUNCIATOR
	OCCUPANCY SENSOR, LOWER CASE LETTERING TO DENOTE CONTROLLED FIXTURES; CEILING MOUNTED		FIRE ALARM CONTROL PANEL
	PHOTOCELL SENSOR; CEILING MOUNTED		FIRE ALARM WIRING IN CONDUIT
	TIME CLOCK		WIRE IN CONDUIT; HATCH MARKS DENOTE QUANTITY OF #12 CONDUCTORS IN 3/4" C; UNLESS INDICATED OTHERWISE; ARROW DENOTES HOME RUN TO PANEL INDICATED
	BLUE FAN, FURNISHED BY OTHERS, INSTALLED BY EC PATTERSON 14" HIGH VELOCITY, 120V, 2.8A, 1HP		0-10VDC WIRING
	DUPLEX RECEPTACLE; MH=18" AFF; UNO		UNDERGROUND CONDUIT
	DOUBLE DUPLEX RECEPTACLE; MH=18" AFF		NEW WORK
	JUNCTION BOX; CEILING/WALL MOUNTED		EXISTING WORK TO REMAIN
	EXISTING ELECTRIC PANELBOARD		REMOVE EXISTING WORK
	NEW ELECTRIC PANELBOARD		NEW UNDERGROUND FIBER OPTIC CABLE
	DISCONNECT SWITCH		EXPOSED HVAC DUCT BELOW CEILING SHOWN FOR COORDINATION
	COMBINATION STARTER		
	MANUAL MOTOR STARTER SWITCH		
	VARIABLE FREQUENCY DRIVE		
	MOTOR		
	TRANSFORMER		
	RELAY IN NEMA 1 ENCLOSURE		
	AIR TERMINAL: 1/2"x12" GENTLY TAPERED SOLID COPPER AIR TERMINAL WITH COPPER SADDLE BASE MOUNTED HORIZONTALLY		
	THRU ROOF CONNECTION		
	CLASS II COPPER DOWNLEAD RUN EXPOSED AND IN CONDUIT THAT IS CONCEALED: 3/4"x10" COPPER CLAD GROUND		
	GROUND BAR		
	GROUND ROD		
	CORD REEL		

LIGHTING FIXTURE SCHEDULE					
TYPE	DESCRIPTION	MANUFACTURER	LAMPS	VOLTS	REMARKS
A	12" W X 48" L X 3-1/2"D, SLOPED SIDES, VANDAL RESISTANT, CONFINEMENT/ CORRECTIONAL SURFACE, FLUSH LENS	COOPER LIGHTING SOLUTIONS #FUSL-12-4-LD4-2L0-35-UNV-80-84-EDD	LED 5300L 47W	120	
AE	SAME AS FIXTURE 'A' BUT CONNECTED TO EMERGENCY BATTERY PACK	COOPER LIGHTING SOLUTIONS #FUSL-12-4-LD4-2L0-35-UNV-80-84-EDD	LED 5300L 47W	120	PROVIDE BATTERY PACK AND SELF-DIAGNOSTIC FIXTURES
B	48" LONG SUSPENDED LED LINEAR STRIP FIXTURE, STEEL HOUSING, NO DIFFUSER, WHITE FINISH	COOPER LIGHTING SOLUTIONS #4SNX-33SL-LW-UNV-L835-CD #ATC-CHAM/SET-U, #WG-SNX/SN-4FT-B	LED 3300L 21W	120	PROVIDE WIREGUARD
BE	SAME AS FIXTURE 'B' BUT CONNECTED TO EMERGENCY BATTERY PACK	COOPER LIGHTING SOLUTIONS #4SNX-33SL-LW-UNV-L835-CD #ATC-CHAM/SET-U, #WG-SNX/SN-4FT-B	LED 3300L 21W	120	PROVIDE BATTERY PACK AND SELF-DIAGNOSTIC FIXTURES
B1	48" LONG SURFACE MOUNTED LED LINEAR STRIP FIXTURE, STEEL HOUSING, NO DIFFUSER, WHITE FINISH, WITH INTEGRAL OCCUPANCY SENSOR	COOPER LIGHTING SOLUTIONS #4SNX-48SL-LW-UNV-L835-CD #WLS	LED 4800L 32W	120	
B1E	SAME AS FIXTURE 'B1' BUT CONNECTED TO EMERGENCY BATTERY PACK	COOPER LIGHTING SOLUTIONS #4SNX-48SL-LW-UNV-L835-CD #WLS	LED 4800L 32W	120	
B2	24" LONG SUSPENDED LED LINEAR STRIP FIXTURE, STEEL HOUSING, NO DIFFUSER, WHITE FINISH	COOPER LIGHTING SOLUTIONS #2SNX-19SL-LW-UNV-L835-CD #ATC-CHAM/SET-U, #WG-SNX/SN-2FT-B	LED 1900L 12W	120	
C	WALL MOUNTED SEALED AND GASKETED ARCHITECTURAL FIXTURE, REGRESSED DIFFUSED LENS, ALUMINUM HOUSING, BLACK FINISH	LITHONIA #ARC2LED-P4-30K-MVOLT-DBLXD	LED 4000L 30W	120	SELECTED BY ARCHITECT
CE	SAME AS FIXTURE 'C' BUT CONNECTED TO EMERGENCY BATTERY PACK	LITHONIA #ARC2LED-P4-30K-MVOLT-E4WH-DBLXD	LED 4000L 30W	120	SELECTED BY ARCHITECT COORDINATE TO PROVIDE EM BATTERY BACKUP
D	POLE MOUNTED, EXTERIOR 18" LED SHADE FIXTURE, BLACK FINISH, GOOSENECK MOUNTING OPTION	HI-LITE #H-1511B-91/HL-E-91/WGR-91/ 6LED435WBCM-PHCL/BCM	LED 850L 6W	120	PROVIDE DRIVER AND MOTION SENSOR TO REDUCE LIGHT 50% WHEN NO MOTION IS DETECTED. WIRE VIA TIMELOCK WITH OVERRIDE SWITCH. COORDINATE WITH MANUFACTURER 14" POLES.
F	VICTORIAN LED POST TOP FIXTURE, SYMMETRIC DISTRIBUTION, DECORATIVE ALUMINUM POLE WITH RECEPTACLE, CONTROLLED BY TIMELOCK	HADCO #MV-G-CA-G1-350-5-730-A-SRD-R-N -SP1-BKS #2063-14-A-Z-D-M-N	LED - 42W	120	SELECTED BY ARCHITECT COORDINATE POLE AND FIXTURE WITH MANUFACTURER
G	LED STRING LIGHTS	TBD	TBD	TBD	COORDINATE WITH ARCHITECT. MINIMUM SAG AT 12' ABOVE GRADE.
H	FLOOD LIGHT	ABOVE ALL #SMFL-50-1-PC-KN	LED 50W	120	CONFIRM WITH ARCHITECT
X	EXIT SIGN, SINGLE SIDED, ALUMINUM HOUSING, GREEN LETTERING, UNIVERSAL	EMERGI-LITE #BA-P-2-G	LED 2W	120	PROVIDE BATTERY PACK AND SELF-DIAGNOSTIC FIXTURES

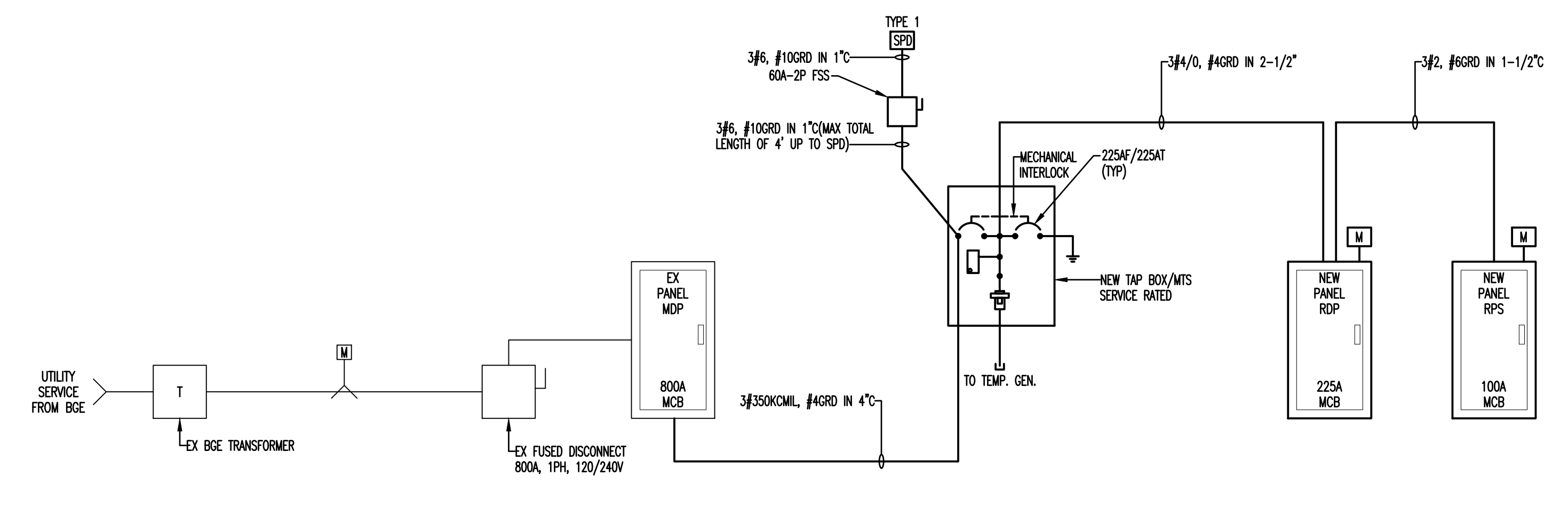
**VOLTAGE DROP CALCULATIONS**

1. PARAMETERS  
 A. COMMERCIAL 75 DEGREES C  
 B. POWER FACTOR 0.85  
 C. SINGLE PHASE  
 D. 240V  
 E. COPPER CONDUCTOR  
 F. CONDUIT (NON STEEL)  
 G. LENGTH OF RUN 343'

2. VOLTAGE DROP = 2.8% IF FEEDER IS 400KCMIL SINGLE SET

**LIGHTING POWER DENSITY CALCULATIONS**

1. STORAGE ROOM - 0.26 W/FT<sup>2</sup>  
 2. KEEPING ROOM - 1.0 W/FT<sup>2</sup>  
 3. MECHANICAL ROOM - .89 W/FT<sup>2</sup>  
 4. EXTERIOR RED PANDA BUILDING WALK WAY - 0.01W/FT<sup>2</sup>  
 5. EXTERIOR PARK WALK WAY - 0.03W/FT<sup>2</sup>



**RED PANDA - ELECTRICAL RISER DIAGRAM**  
 NOT TO SCALE

- GENERAL NOTES:**
- USE MINIMUM OF 3/4" DIAMETER EMT FOR POWER CIRCUIT.
  - REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF LUMINAIRES.
  - ARC FLASH STUDY IS INCLUDED IN THIS PROJECT, AS REQUIRED BY CODE.
  - EMERGENCY AND EXIT LIGHTS SHALL BE PROVIDED WITH EMERGENCY BATTERY PACKS.
  - LUMINAIRES WITH "E" NEXT TO FIXTURE TYPE PER SCHEDULE ARE DESIGNATED AS EMERGENCY.
  - ALL LUMINAIRES SHALL BE ACCREDITED BY DESIGN LIGHTS CONSORTIUM.
  - PROVIDE DIVIDERS BETWEEN 120V AND TELECOM CABLES IN WIREMOLD.
  - EXIT LIGHTS SHALL BE WIRED AHEAD OF SWITCHING.
  - PROVIDE DIVIDERS BETWEEN NORMAL AND EMERGENCY CIRCUITS WITHIN PULLBOXES CONTAINING BOTH SYSTEMS.
  - FIRE ALARM VENDOR SHALL SUBMIT DETAILED NOTIFICATION DEVICE LOCATIONS FOR APPROVAL. SEPARATE PERMIT REQUIRED FOR ALTERATION OF FIRE ALARM SYSTEM. A SEPARATE SHOP DRAWING SUBMITTAL, REVIEW AND PERMIT IS REQUIRED FOR FIRE ALARM SYSTEM.

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 PHILADELPHIA, PA 19102  
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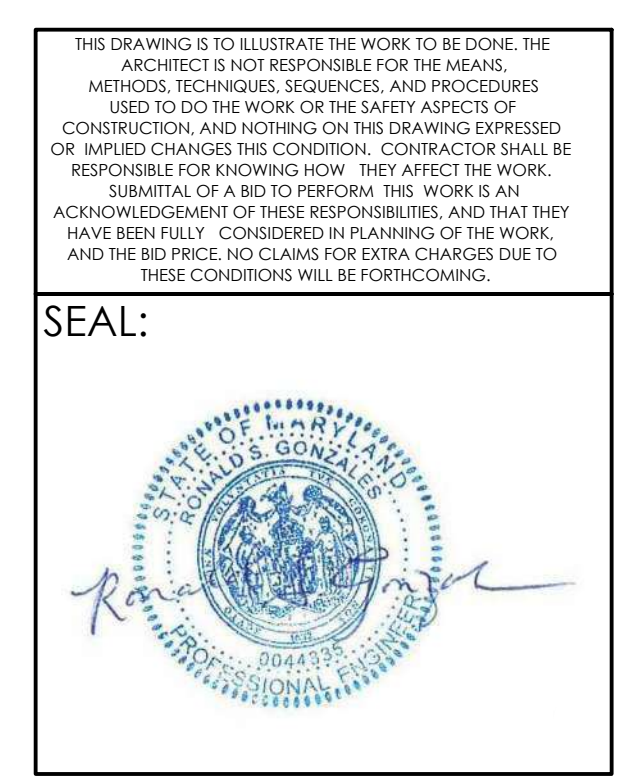
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 ROBINSON ANDERSON SUMMERS  
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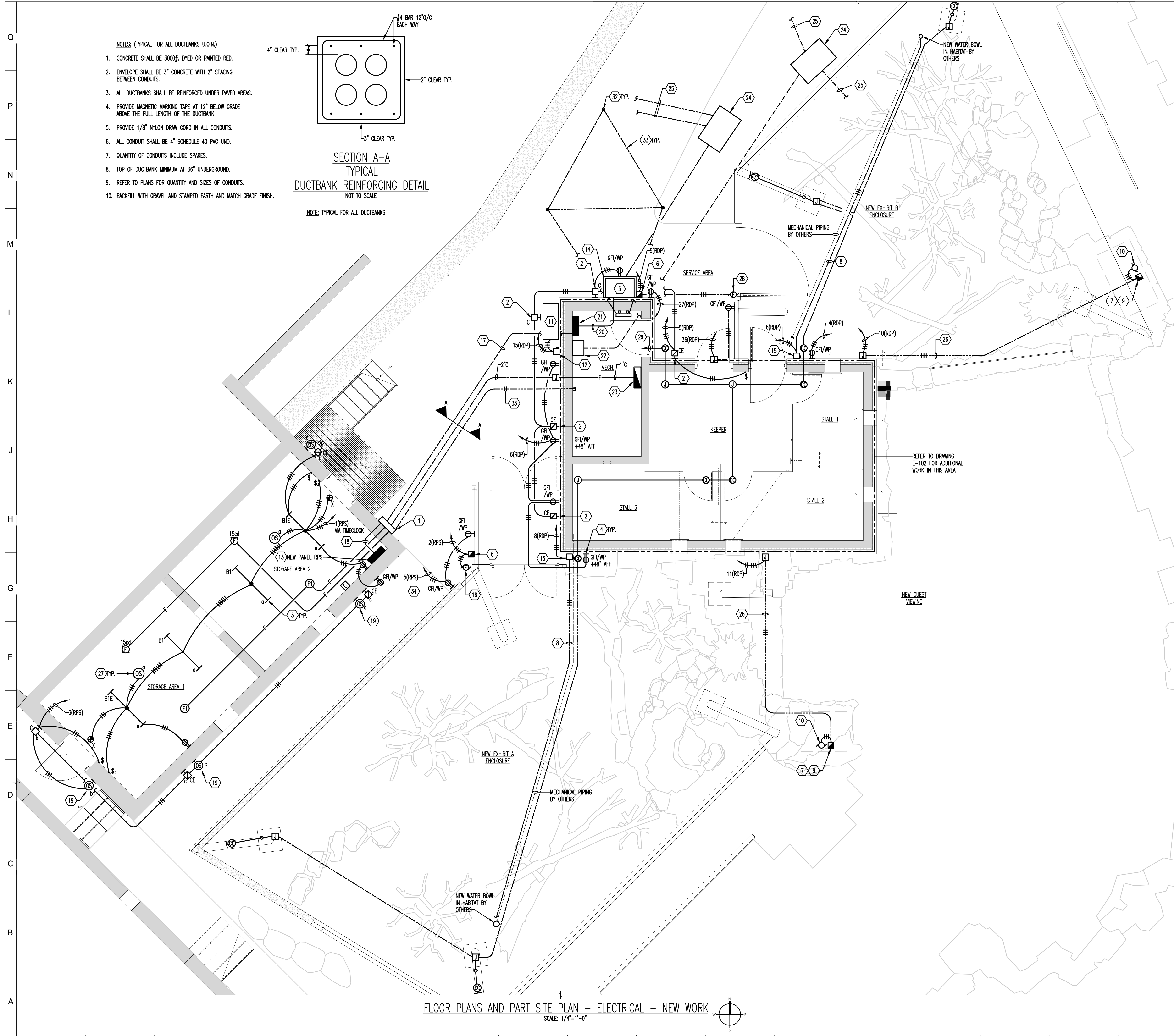
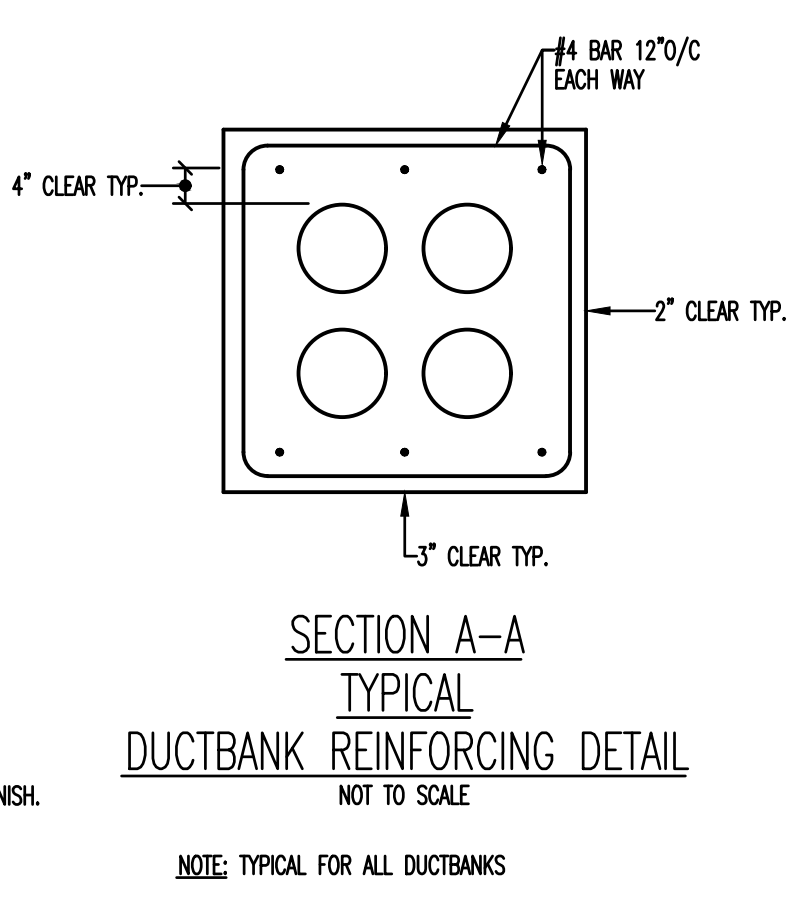
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**DRAWING TITLE:**  
 PART SITE PLAN -  
 ELECTRICAL - NEW  
 WORK

**DRAWING NO:**  
**E-101**

10877 - RED PANDA

- NOTES: (TYPICAL FOR ALL DUCTBANKS U.O.N.)**
- CONCRETE SHALL BE 3000#, DYED OR PAINTED RED.
  - ENVELOPE SHALL BE 3" CONCRETE WITH 2" SPACING BETWEEN CONDUITS.
  - ALL DUCTBANKS SHALL BE REINFORCED UNDER PAVED AREAS.
  - PROVIDE MAGNETIC MARKING TAPE AT 12" BELOW GRADE ABOVE THE FULL LENGTH OF THE DUCTBANK.
  - PROVIDE 1/8" NYLON DRAW CORD IN ALL CONDUITS.
  - ALL CONDUIT SHALL BE 4" SCHEDULE 40 PVC UNO.
  - QUANTITY OF CONDUITS INCLUDE SPARES.
  - TOP OF DUCTBANK MINIMUM AT 36" UNDERGROUND.
  - REFER TO PLANS FOR QUANTITY AND SIZES OF CONDUITS.
  - BACKFILL WITH GRAVEL AND STAMPED EARTH AND MATCH GRADE FINISH.



- DRAWING NOTES:**
- PROVIDE NEW PULLBOX WITH DIVIDER FOR POWER, FIRE ALARM WIRING AND LOW VOLTAGE WIRING. SIZE PER NEC STANDARDS.
  - FIXTURE TO BE ON WALL MOUNTED 6'-6" ABOVE GRADE.
  - PROVIDE NEW LINEAR STRIP FIXTURE. NEW FIXTURE TO BE SURFACE MOUNTED TO CEILING.
  - PROVIDE WEATHERPROOF ENCLOSURE FOR NEW DUPLEX RECEPTACLE.
  - PROVIDE 225A/225AF SQUARE D OR EQUIVALENT DOCKING STATION FOR PORTABLE GENERATOR.
  - PROVIDE NEMA SIZE 1 COMBINATION CONTROLLER IN NEMA 4SS ENCLOSURE FOR BLUE FAN. COORDINATE WITH MANUFACTURER FOR FUSE SIZING.
  - PROVIDE NEMA SIZE 1 COMBINATION CONTROLLER IN NEMA 4SS ENCLOSURE FOR RECIRCULATING PUMPS. COORDINATE WITH MANUFACTURER FUSE SIZING.
  - PROVIDE POWER TO WATER BOWL. ROUTE 1" PVC DIRECT BURIED MIN OF 30" BELOW GRADE WITH MECHANICAL PIPING. COORDINATE TRACER WIRE.
  - DISCONNECT SWITCH TO BE MOUNTED ON WALL OF ACCESS CAVITY.
  - CIRCULATING PUMP TO BE PROVIDED BY MECHANICAL DIVISION. PROVIDE POWER. COORDINATE.
  - HP-1 UNIT TO BE FURNISHED BY MECHANICAL DIVISION. PROVIDE POWER.
  - PROVIDE NEMA SIZE 1 COMBINATION CONTROLLER IN NEMA 4SS ENCLOSURE FOR HP-1 UNIT. COORDINATE WITH MANUFACTURER FUSE SIZING.
  - PROVIDE NEW 1PH, 3W 50A 120/240V PANEL. PANEL TO BE CALLED "RED PANDA STORAGE" OR "RPS".
  - EQUIPMENT PAD TO BE PROVIDED BY OTHERS.
  - PROVIDE 1P-30A DISCONNECT SWITCH FUSED @20A IN NEMA 4 ENCLOSURE FOR WATER BOWL IN EXHIBIT.
  - BLUE FAN FURNISHED BY OTHERS, INSTALLED BY ELECTRICAL TO BE MOUNTED ABOVE AND OUTSIDE OF VESTIBULE BLOWING INTO HABITAT. COORDINATE ACTUAL REQUIREMENTS AND LOCATION.
  - ROUTE FEEDER BELOW GRADE. EXTEND 3/2, #6GRD IN 2" PVC SCH 40.
  - EXTEND 3/2, #6GRD IN 1-1/2".
  - PROVIDE LINE VOLTAGE OCCUPANCY SENSOR. OCCUPANCY SENSOR TO BE WEATHER PROOF AND MOUNTED ON WALL 6'-6" ABOVE GRADE. REFER TO SINGLE RELAY OCCUPANCY SENSOR WIRING DIAGRAM DETAIL ON SHEET E-401.
  - EXTEND 3/4/0, #4GRD IN 2-1/2".
  - NEW PANEL RDP. REFER TO SHEET E-102 FOR MORE INFORMATION.
  - NEW WALL MOUNTED DATA RACK. REFER TO SHEET E-102 FOR MORE INFORMATION.
  - NEW FIRE ALARM CONTROL PANEL.
  - LOCATION OF NEW ELECTRICAL HAND HOLE. REFER TO SHEET E-103 FOR MORE INFORMATION.
  - FOR CONTINUATION OF RUN REFER TO SHEET E-103.
  - ROUTE BRANCH CIRCUIT WIRING IN 1" PVC BELOW GRADE.
  - PROVIDE LINE VOLTAGE OCCUPANCY SENSOR. REFER TO SINGLE RELAY OCCUPANCY SENSOR WIRING DIAGRAM DETAIL ON SHEET E-401.
  - FAN MOUNTED TO FRAME OF DOOR OUTSIDE OF EXHIBIT FURNISHED BY OTHERS INSTALLED BY ELECTRICAL. COORDINATE WITH ARCHITECT.
  - TERMINATE CONDUIT WITH PULLSTRINGS ABOVE TELECOM RACK.
  - FIXTURE TO BE ON WALL MOUNTED 6'-6" ABOVE GRADE.
  - PROVIDE GROUND ROD AND MONITORING WELL.
  - PROVIDE GROUNDING ELECTRODE CONDUCTORS.
  - PROVIDE (2) 2" 2" WITH PULLSTRINGS (1) FOR LOW VOLTAGE WIRING AND (1) SPARE.
  - SEE SECTION A-A ON THIS DRAWING.

**FLOOR PLANS AND PART SITE PLAN - ELECTRICAL - NEW WORK**  
 SCALE: 1/4"=1'-0"





PROJECT TEAM:

ARCHITECT:  
BUELL KRATZER POWELL, P.C.  
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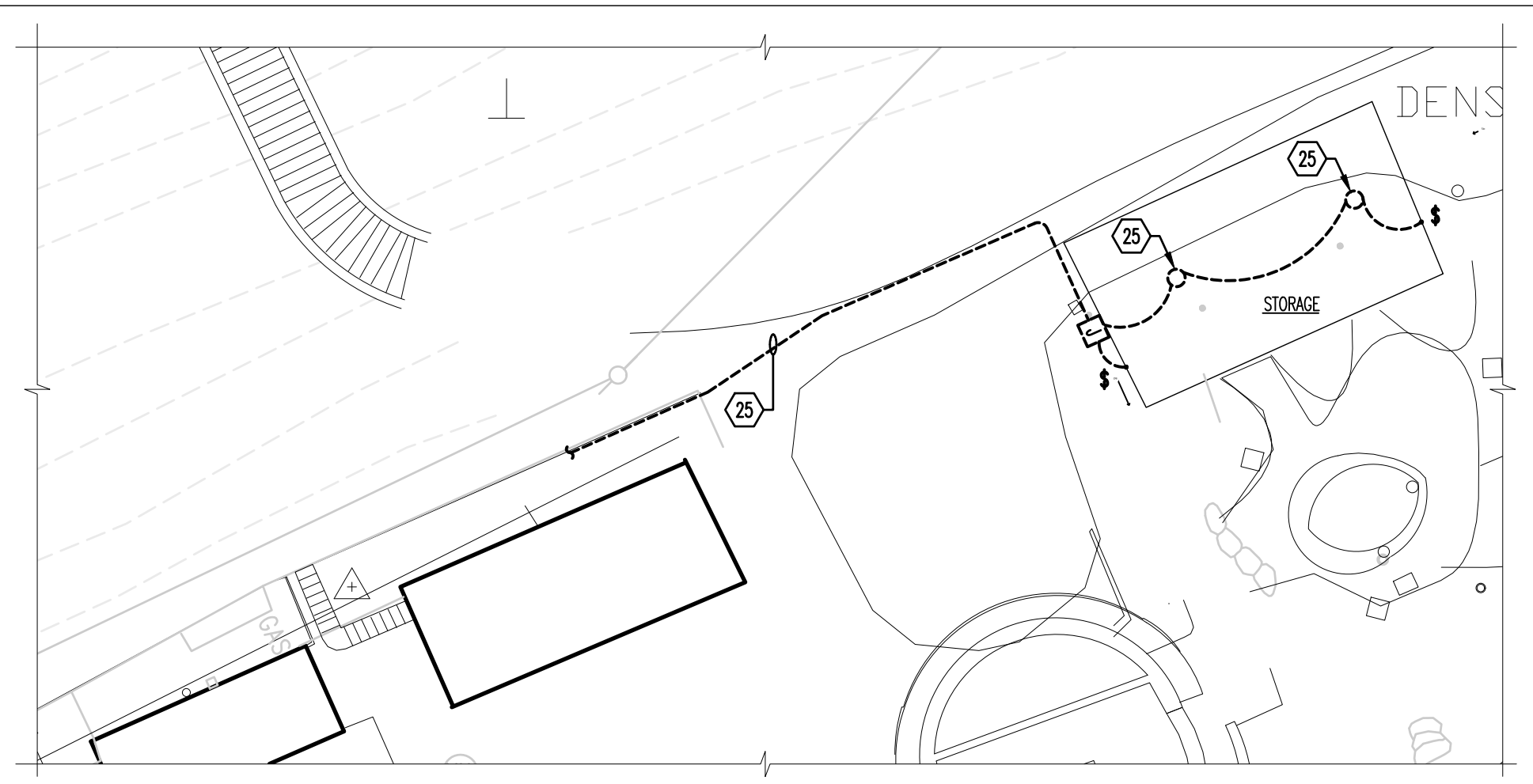
REVISION: DATE

DRAWING TITLE:  
PART FLOOR PLAN -  
LIGHTING & POWER  
DEMOLITION & NEW  
WORK

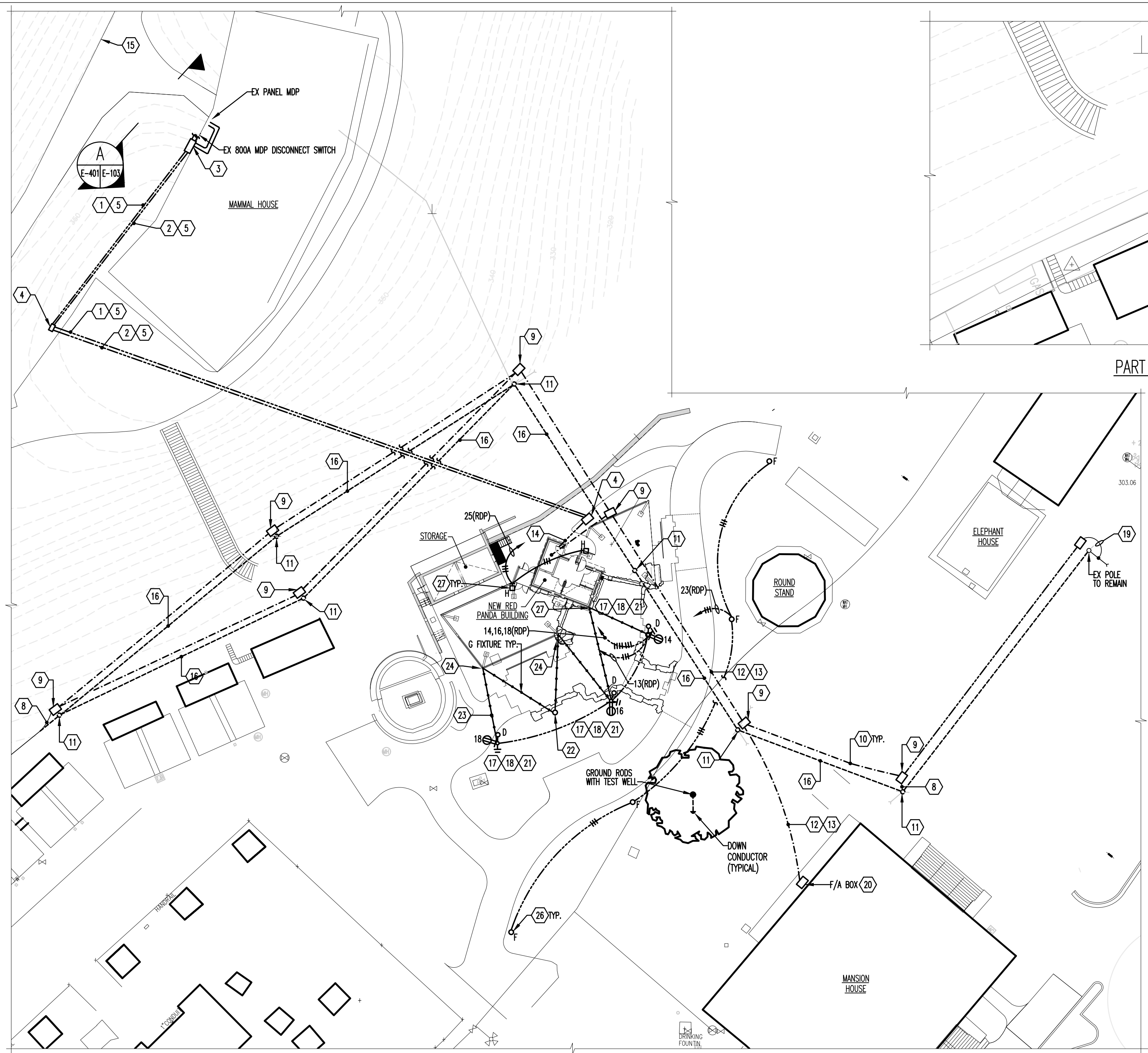
DRAWING NO:

**E-103**

10877 - RED PANDA



PART SITE PLAN - LIGHTING - DEMOLITION  
SCALE: 1"=16'-0"



PART SITE PLAN - ELECTRICAL - DEMOLITION & NEW WORK  
SCALE: 1"=30'-0"

DRAWING NOTES:

- 1) 3/4"ØKCMIL, #4GRD IN 4"
- 2) PROVIDE SPARE EMPTY 4" CONDUIT WITH PULLSTRINGS FOR FUTURE USE.
- 3) PROVIDE NEW PULLBOX MOUNTED TO WALL. SIZE PER NEC STANDARDS.
- 4) PROVIDE NEW UNDERGROUND PULLBOX. SIZE PER NEC STANDARDS.
- 5) CONTRACTOR TO DIRECT BORE NEW UNDERGROUND CONDUIT PATH.
- 6) PROVIDE 3P-60A, F850A, 600VAC DISCONNECT SWITCH IN NEMA 4SS ENCLOSURE.
- 7) PROVIDE 3P-400A, F8225A, 600VAC DISCONNECT SWITCH IN NEMA 4SS ENCLOSURE.
- 8) PROVIDE SPLICE POINTS FOR EXISTING TELECOM WIRING TO NEW HANDHOLE BOX.
- 9) PROVIDE ELECTRIC TELECOMMUNICATIONS HANDBOX.
- 10) PROVIDE NEW SINGLE MODE FIBER OPTIC CABLING. NEW PATHWAY TO BE DIRECT BORED MINIMUM 6'-0" DEEP. COORDINATE WITH TELECOM CONTRACTOR, TYPICAL.
- 11) REMOVE EXISTING TELECOM POLE ONCE NEW UNDERGROUND TELECOM INSTALLATION IS OPERATIONAL. COORDINATE WITH TELECOM PROVIDER. PATCH HOLE TO MATCH FINISH. COORDINATE.
- 12) PROVIDE 24 STRANDS OF SINGLE MODE FIBER OPTIC CABLING FOR FIRE ALARM. NEW CABLING TO BE DIRECT BORED APPROXIMATELY MINIMUM OF 6'-0" DEEP.
- 13) PROVIDE 48 STRANDS OF SINGLE MODE FIBER OPTIC CABLING FOR SPECIAL SYSTEMS. NEW CABLING TO BE DIRECT BORED.
- 14) EXTEND TO NEW RED PANDA BUILDING.
- 15) EX BGE TRANSFORMER.
- 16) REMOVE EXISTING OVERHEAD TELECOM CABLES AND ACCESSORIES.
- 17) INSTALL POLE MOUNTED LUMINAIRE. WOODEN POLE TO BE PROVIDED BY OTHERS, COORDINATE.
- 18) PROVIDE POLE MOUNTED GF1 OUTLET WITH LISTED IN-USE COVER, 24" AFF.
- 19) EX TELECOM WIRING TO REMAIN. INTERCEPT EX TELECOM WIRING TO NEW ELECTRIC HAND BOX. COORDINATE WITH TELECOM CONTRACTOR.
- 20) PROVIDE NEW PULLBOX AND PENETRATION TO MANSION HOUSE. FIRE PROOF. COORDINATE ACTUAL REQUIREMENTS AND LOCATION TERMINATIONS.
- 21) PROVIDE BARE COPPER GROUND WIRE FOR GROUNDING. PROVIDE GROUND ROD.
- 22) WOOD POST TO ANCHOR STRING LIGHTS. TO BE PROVIDED BY OTHERS. SHOWN FOR COORDINATION PURPOSES ONLY.
- 23) STRING LIGHTS TO BE PROVIDED BY OTHERS. ELECTRICAL CONTRACTOR TO PROVIDE STAINLESS STEEL ROPE ANCHORED TO WOODEN POSTS AND LIGHT POSTS. MOUNT STRING LIGHTS TO STAINLESS STEEL ROPE NOT TO SAG MORE THAN 12" ABOVE GRADE. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS.
- 24) STRING LIGHTS AND STAINLESS STEEL ROPE TO BE MOUNTED TO MASTS OF EXHIBIT A.
- 25) RX CONDUIT AND BRANCH CIRCUIT WIRING BACK TO CLOSEST JUNCTION BOX ALONG WALL AND CAP WIRING.
- 26) COORDINATE WITH ARCHITECT FOR FINAL LOCATION OF POLE LIGHT FIXTURE.
- 27) EXTEND BRANCH CIRCUIT WIRING FROM CIRCUIT 13(RDP) FOR STRING LIGHTS.
- 28) PROVIDE EXTERNAL OCCUPANCY SENSOR FOR POLE LIGHT FIXTURES.
- 29) MOUNT ABOVE SERVICE DOOR WITH BLUE FAN. COORDINATE WITH ARCHITECT COORDNET VIA TIMECLOCK WITH OVERRIDE SWITCH.

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PROJECT TEAM:

ARCHITECT:  
BUELL KRATZER POWELL, P.C.  
1525 LOCUST STREET  
PHILADELPHIA, PA 19102  
T: 215.557.6509

CIVIL ENGINEER:  
CARROLL ENGINEERING, INC  
215 SCHILLING CIRCLE, STE 102  
HUNT VALLEY, MD 21031  
T: 410.785.7423

LANDSCAPE ARCHITECT:  
ROBINSON ANDERSON SUMMERS  
28 WEST STATE STREET  
MEDIA, PA 19063  
T: 302.888.1544

STRUCTURAL ENGINEER:  
STRUCTURAL DESIGN STUDIO, INC  
2225 EAST MURRAY HOLLADAY RD  
SALT LAKE CITY, UT 84117  
T: 801.274.3950

MEP ENGINEER:  
KOVACS, WHITNEY & ASSOCIATES  
190 WEST OSTEND ST, STE 300  
BALTIMORE, MD 21230  
T: 410.244.7191

CLIENT:

**MARYLAND ZOO**

THE MARYLAND ZOO IN BALTIMORE  
1 SAFARI PLACE  
BALTIMORE, MD 21217

**RED PANDA**  
THE MARYLAND ZOO  
IN BALTIMORE  
1 SAFARI PLACE  
BALTIMORE, MD 21217

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SEAL:



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PROJECT NO.:	2023-10.04
DRAWN BY:	KWA
CHECKED BY:	KWA
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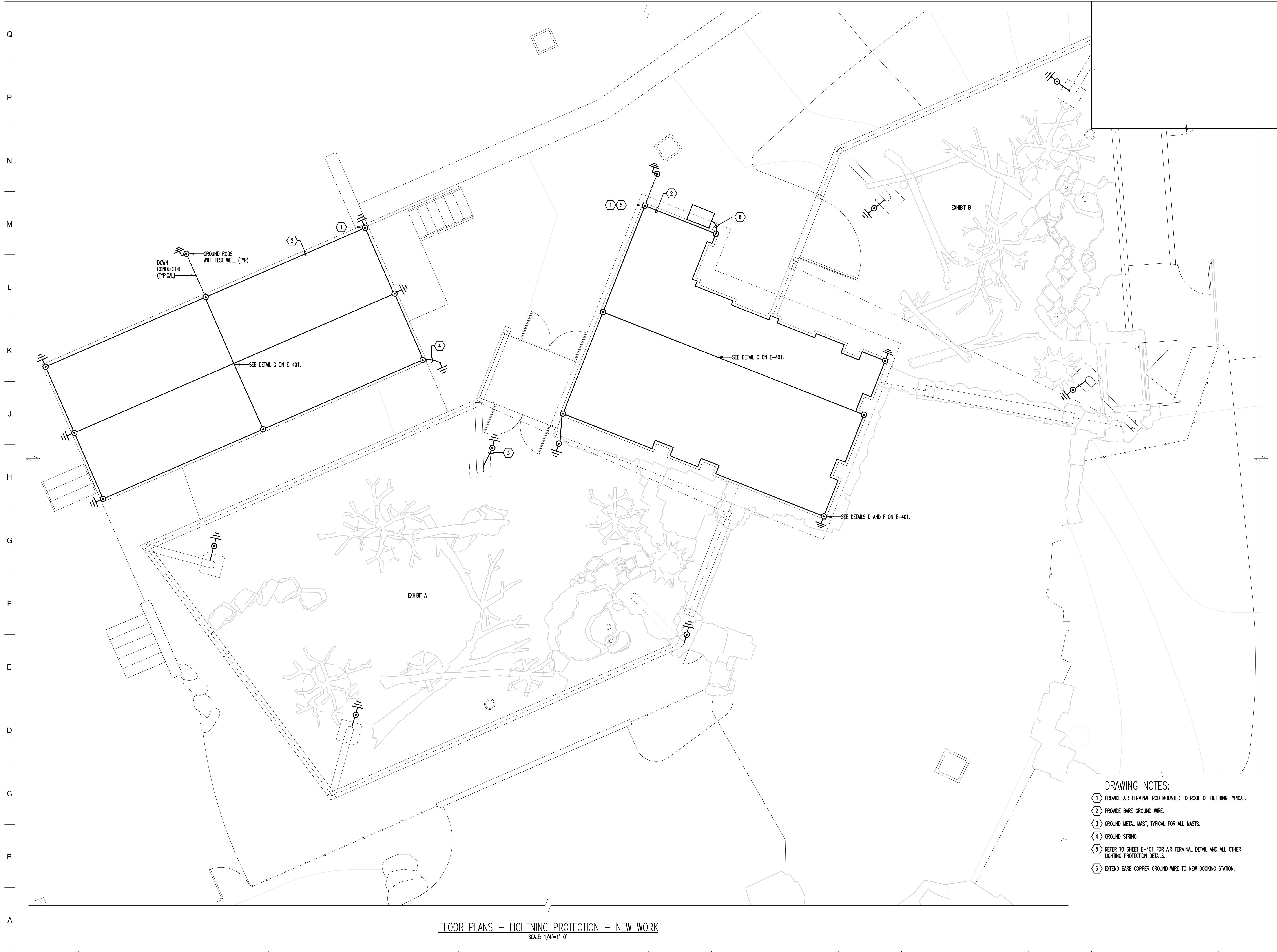
REVISION	DATE

DRAWING TITLE:  
FLOOR PLANS - LIGHTNING  
PROTECTION - NEW WORK

DRAWING NO.:

**E-104**

10877 - RED PANDA



- DRAWING NOTES:**
- 1 PROVIDE AIR TERMINAL ROD MOUNTED TO ROOF OF BUILDING TYPICAL.
  - 2 PROVIDE BARE GROUND WIRE.
  - 3 GROUND METAL MAST, TYPICAL FOR ALL MASTS.
  - 4 GROUND STRING.
  - 5 REFER TO SHEET E-401 FOR AIR TERMINAL DETAIL AND ALL OTHER LIGHTNING PROTECTION DETAILS.
  - 6 EXTEND BARE COPPER GROUND WIRE TO NEW DOCKING STATION.

FLOOR PLANS - LIGHTNING PROTECTION - NEW WORK  
SCALE: 1/4"=1'-0"



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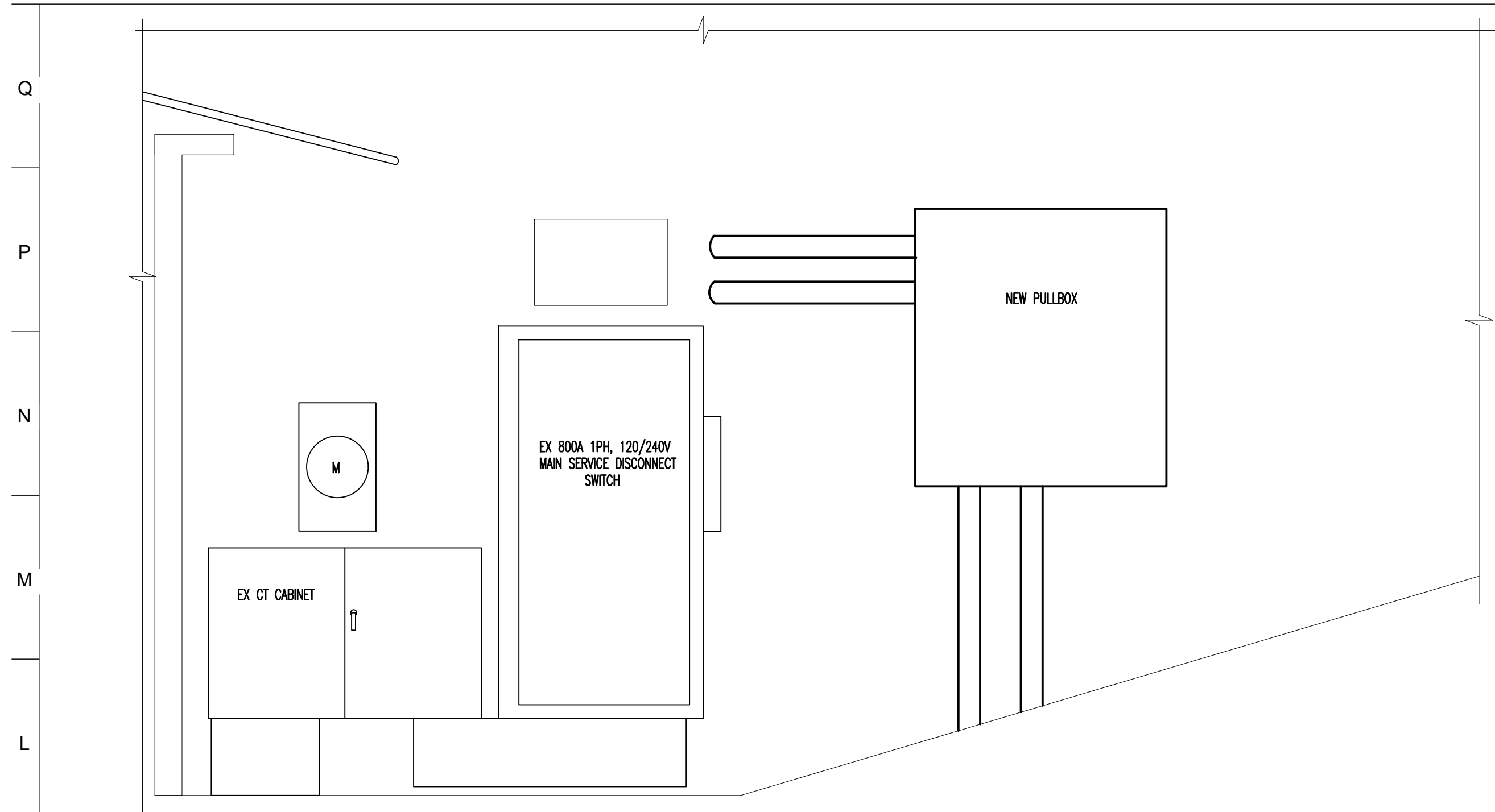
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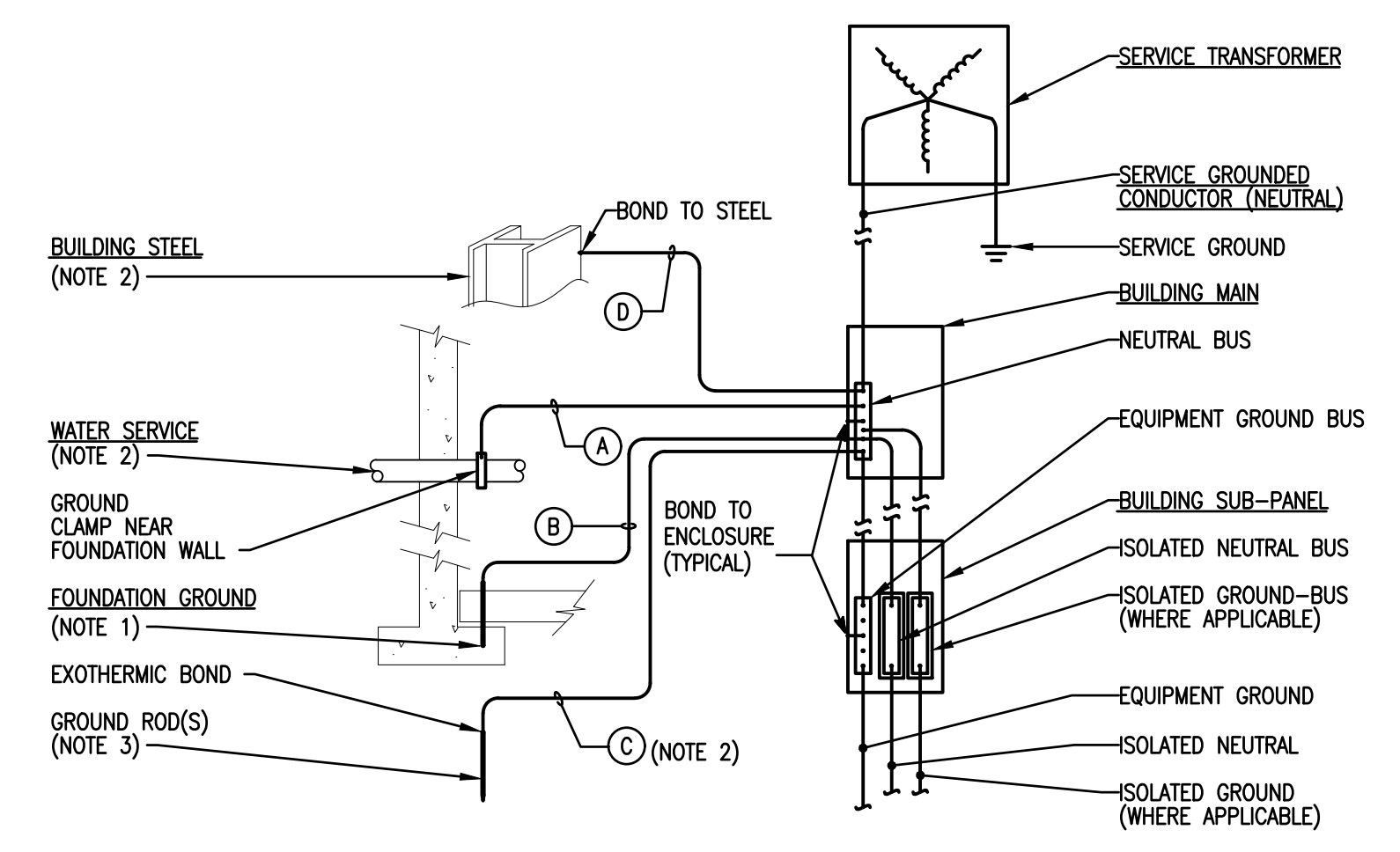
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**DRAWING TITLE:**  
 DETAILS

**DRAWING NO:**  
**E-401**



**A SECTION**  
 E401/E103 NOT TO SCALE



**MAIN GROUNDING ELECTRODE DETAIL**  
 NO SCALE

- GROUNDING NOTES:**
- CONCRETE ENCASED ELECTRODE (SEE DETAIL).
  - IF CONTINUOUS METALLIC WATER PIPE OR BUILDING STEEL IS NOT AVAILABLE THEN GROUND ROD ELECTRODE SHALL BE FULL SIZE.
  - ADDITIONAL RODS SHALL BE ADDED AS NEEDED FOR TOTAL RESISTANCE OF 25 OHMS OR LESS. PROVIDE GROUND WELL.

SERVICE SIZE	A	B	C	D
225	#1/0	#4	#6	#1/0

**NOTES:**  
 1. THE ABOVE CHART GIVES MINIMUM COPPER GROUND SIZES.

MARK	LOAD DESCRIPTION	CIRCUITS CONTROLLED	POLES	RATING	CONTACTOR LOCATION	CONTROL	REMARKS
C1	VICTORIAN ACORN POLE LTS	23(RDP)	2	30A	NEXT TO PANEL RDP		
C2	FLOOD LIGHTS	25(RDP)	6	30A	NEXT TO PANEL RDP		
C3	POLE & STRING LTS	13(RDP)	6	30A	NEXT TO PANEL RDP		
C4	INTERIOR LIGHTS	1(RDP)	2	30A	NEXT TO PANEL RDP		
C5	STORAGE 1 AND 2	1(RPS)	2	30A	NEXT TO PANEL RPS		
C6	SPARE						

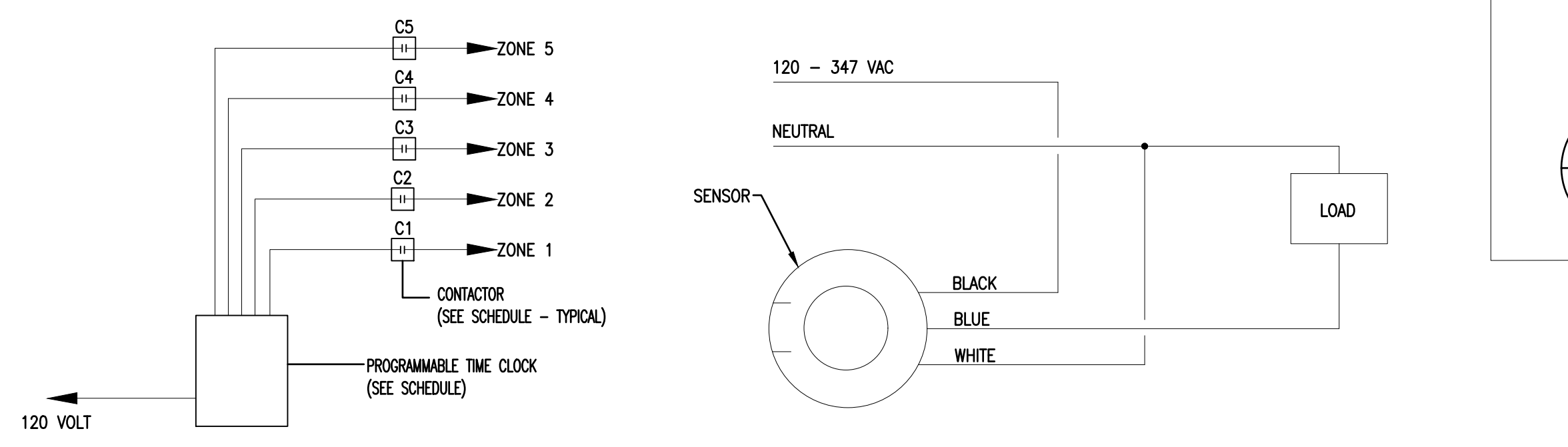
**NOTES:**

- CONTACTORS TO BE MECHANICALLY HELD TYPE ASCO #917 SERIES WITH PULSE MODULE OR APPROVED EQUIVALENT.
- CONTACTORS TO BE HOUSED IN NEMA 1 WALL MOUNTED CABINET WITH HINGED LOUVERED DOOR. LOCATE CABINET ADJACENT TO LIGHTING PANEL.
- PROVIDE 277 VOLT COIL POWER.
- PROVIDE PROGRAMMABLE TIME CLOCK CONTROLLER (SEE DIAGRAM).

ZONE	DESCRIPTION	CONTROL
1	VICTORIAN ACORN POLE LTS	TIME CLOCK ON/OFF
2	FLOOD LIGHTS	TIME CLOCK ON/OFF
3	POLE & STRING LTS	TIME CLOCK ON/OFF
4	INTERIOR LIGHTS	TIME CLOCK ON/OFF
5	STORAGE 1 AND 2	TIME CLOCK ON/OFF
6	SPARE	

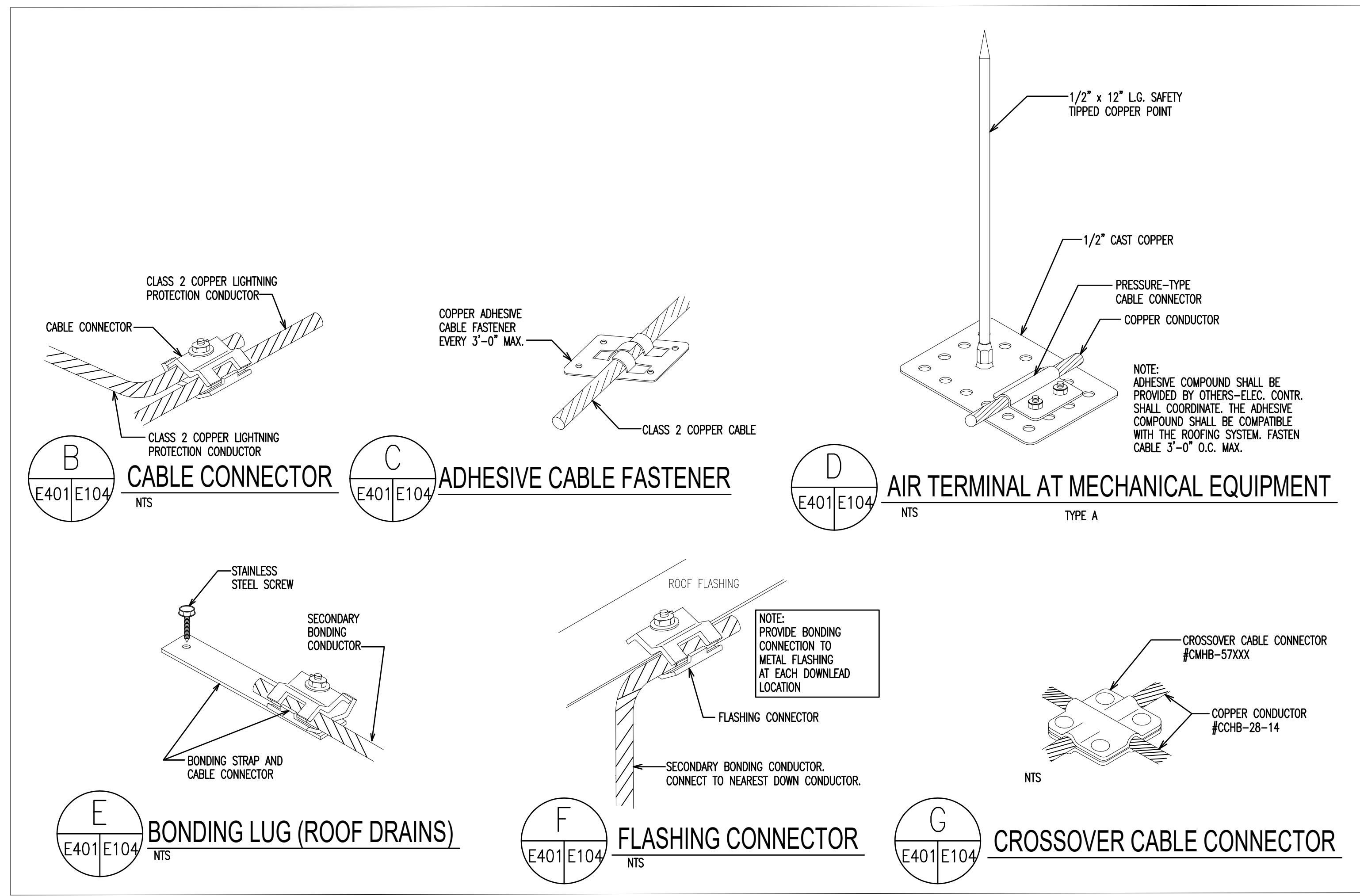
**NOTES:**

- THE CLOCK SHALL HAVE THE FOLLOWING FEATURES: MEMORY BATTERY BACK-UP, 4 INDEPENDENT ON/OFF CHANNEL CONTROLS (ZONES), TIME OF DAY/365 DAY CALENDAR #/HOLIDAY PROGRAMMING, AUTOMATIC LEAP YEAR CORRECTION, AND PHOTOCELL INPUT FOR DUSK ON/DAWN OFF SIGNAL.
- THE CONTRACTOR SHALL COORDINATE AND SET INITIAL CHANNEL CONTROL SETTINGS AS DIRECTED BY THE OWNER.



**LIGHTING CONTROL DIAGRAM FOR NEW LIGHTING**  
 NO SCALE

**SINGLE RELAY OCCUPANCY SENSOR WIRING DIAGRAM DETAIL**  
 NO SCALE



**LIGHTNING PROTECTION DETAILS**

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

10877 - RED PANDA

EX PANEL MDP SCHEDULE														
VOLTAGE:		120 / 240		BUS: 800		MOUNTING: SURFACE				MANUF: SQUARE D				
PHASE:		1		MAIN: MLO		LOCATION: MAMMAL BUILDING								
WIRE:		3		FEED FROM: INCOMING SERVICE (3P-800A D SWITCH)				TYPE: HCM						
AIC:		65,000												
CKT	DESCRIPTION	BREAKER			LOAD	NOTES	LOAD			BREAKER			DESCRIPTION	CKT
		POLE	TRIP	KVA			PHASE	PHASE	KVA	TRIP	POLE	PHASE		
1	EX CIRCUIT	2	50	EX	A		A	EX	60	2		EX PANEL	2	
3					B		B						4	
5	EX CIRCUIT	2	50	EX	C		C	EX	40	2		PANEL ALARM	6	
7					A		A						8	
9	EX CIRCUIT	2	50	EX	B	1	B				1	EQUIPPED SPACE	10	
11					C		C				1	EQUIPPED SPACE	12	
13	EQUIPPED SPACE	1			A		A				1	EQUIPPED SPACE	14	
15	EQUIPPED SPACE	1			B		B				1	EQUIPPED SPACE	16	
17	EQUIPPED SPACE	1			C		C				1	EQUIPPED SPACE	18	
19	EQUIPPED SPACE	1			A		A				1	EQUIPPED SPACE	20	
21	EQUIPPED SPACE	1			B		B				1	EQUIPPED SPACE	22	
23	EQUIPPED SPACE	1			C		C				1	EQUIPPED SPACE	24	
25	EQUIPPED SPACE	1			A		A				1	EQUIPPED SPACE	26	
27	EQUIPPED SPACE	1			B		B	0	100	2		SPARE	28	
29	EQUIPPED SPACE	1			C		C						30	
31	EQUIPPED SPACE	1			A		A	EX	100	2		BOILER ROOM PANEL	32	
33	EQUIPPED SPACE	1			B		B						34	
35	EQUIPPED SPACE	1			C		C	0	100	2		SPARE	36	
37	EQUIPPED SPACE	1			A		A						38	
39	EX CIRCUIT	2	40	EX	B		B	0	225	2		EX UPPER PANEL	40	
41					C		C						42	

REVISED PANEL MDP SCHEDULE														
VOLTAGE:		120 / 240		BUS: 800		MOUNTING: SURFACE				MANUF: SQUARE D				
PHASE:		1		MAIN: MLO		LOCATION: MAMMAL BUILDING								
WIRE:		3		FEED FROM: INCOMING SERVICE (3P-800A D SWITCH)				TYPE: HCM						
AIC:		65,000												
CKT	DESCRIPTION	BREAKER			LOAD	NOTES	LOAD			BREAKER			DESCRIPTION	CKT
		POLE	TRIP	KVA			PHASE	PHASE	KVA	TRIP	POLE	PHASE		
1	EX CIRCUIT	2	50	EX	A		A	EX	60	2		EX PANEL	2	
3					B		B						4	
5	EX CIRCUIT	2	50	EX	C		C	EX	40	2		PANEL ALARM	6	
7					A		A						8	
9	EX CIRCUIT	2	50	EX	B		B		225	2		RED PANDA PANEL	10	
11					C		C						12	
13	EQUIPPED SPACE	1			A		A				1	EQUIPPED SPACE	14	
15	EQUIPPED SPACE	1			B		B				1	EQUIPPED SPACE	16	
17	EQUIPPED SPACE	1			C		C				1	EQUIPPED SPACE	18	
19	EQUIPPED SPACE	1			A		A				1	EQUIPPED SPACE	20	
21	EQUIPPED SPACE	1			B		B				1	EQUIPPED SPACE	22	
23	EQUIPPED SPACE	1			C		C				1	EQUIPPED SPACE	24	
25	EQUIPPED SPACE	1			A		A				1	EQUIPPED SPACE	26	
27	EQUIPPED SPACE	1			B		B	0	100	2		SPARE	28	
29	EQUIPPED SPACE	1			C		C						30	
31	EQUIPPED SPACE	1			A		A	EX	100	2		BOILER ROOM PANEL	32	
33	EQUIPPED SPACE	1			B		B						34	
35	EQUIPPED SPACE	1			C		C	0	100	2		SPARE	36	
37	EQUIPPED SPACE	1			A		A						38	
39	EX CIRCUIT	2	40	EX	B		B	0	225	2		EX UPPER PANEL	40	
41					C		C						42	

NEW RDP PANEL SCHEDULE														
VOLTAGE:		120 / 240		BUS: 225		MOUNTING: SURFACE				MANUF: SQUARE D				
PHASE:		1		MAIN: MCB 2P-225A		LOCATION: MECHANICAL ROOM								
WIRE:		3		FEED FROM: MDP (MAMMAL HOUSE)				TYPE: NQO						
AIC:		22,000												
CKT	DESCRIPTION	BREAKER			LOAD	NOTES	LOAD			BREAKER			DESCRIPTION	CKT
		POLE	TRIP	KVA			PHASE	PHASE	KVA	TRIP	POLE	PHASE		
1	MECH RM LTS & RED PANDA LTS	1	20	0.6	A		A	0.18	20	1		RED PANDA RECEIPT	2	
3	RED PANDA CEILING RECEIPT	1	20	0.36	B		B	0.36	20	1		GRI RECEIPT EXHIBIT B	4	
5	EXTERIOR RED PANDA LTS	1	20	0.2	C		C	0.18	20	1		GFI RECEIPT EXHIBIT A	6	
7	BLUE FAN EXHIBIT A	1	20	0.3	A		A	0.2	20	1		WATER DRINKER EXHIBIT A	8	
9	WATER DRINKER EXHIBIT B	1	20	0.2	B		B	0.8	20	1		CIRCULATING PUMP EXHIBIT B	10	
11	CIRCULATING PUMP EXHIBIT A	1	20	0.8	C		C	0.1	20	1		TIME CLOCK	12	
13	EXTR RP STRING & POLE LTS	1	20	0.3	A		A	0.3	20	1		EXTERIOR POLE LTS/REC CKT 1	14	
15	OUTSIDE HP-1 UNIT	2	50	3.4	B		B	0.3	20	1		EXTERIOR POLE LTS/REC CKT 2	16	
17					C		C	0.3	20	1		EXTERIOR POLE LTS/REC CKT 3	18	
19	MECH RM RECEIPT FOR UV LTS	1	20	0.2	A		A	3	20	2		WATER HEATER RPB	20	
21	EF-1 SERVING RED PANDA BLD	1	20	0.5	B		B						22	
23	EXTERIOR ACORN LTS	1	20	0.1	C		C	1.5	35	2		FCU-1 RPB	24	
25	FLOOD LIGHT EXHIBIT A	1	20	0.1	A		A						26	
27	RECEPTACLES-EXTERIOR	1	20	0.2	B		B	3	20	2		UNIT HEATER MECH RM RPB	28	
29	SPARE	1	20	0	C		C						30	
31	SPARE	1	20	0	A		A	2.18	100	2		PANEL RPS	32	
33	SPARE	1	20	0	B		B						34	
35	SPARE	1	20	0	C		C	0.18	20	1		EXHIBIT B BLUE FAN RECEIPT	36	
37	SPARE	1	20	0	A		A	0	20	1		SPARE	38	
39	EQUIPPED SPACE	1			B		B				1	EQUIPPED SPACE	40	
41	EQUIPPED SPACE	1			C		C				1	EQUIPPED SPACE	42	

NEW RPS PANEL SCHEDULE														
VOLTAGE:		120 / 240		BUS: 100A		MOUNTING: SURFACE				MANUF: SQUARE D				
PHASE:		1		MAIN: MCB 2P-100A		LOCATION: RED PANDA STORAGE								
WIRE:		3		FEED FROM: PANEL RDP				TYPE: NQO						
AIC:		22,000												
CKT	DESCRIPTION	BREAKER			LOAD	NOTES	LOAD			BREAKER			DESCRIPTION	CKT
		POLE	TRIP	KVA			PHASE	PHASE	KVA	TRIP	POLE	PHASE		
1	STORAGE LTS	1	20	0.3	A		A	0.3	20	1		BLUE FAN	2	
3	EXTERIOR LTS	1	20	0.1	B		B	0	20	1		SPARE	4	
5	EXHIBIT A BLUE FAN RECEIPT	1	20	0.18	C		C	0	20	1		SPARE	6	
7	SPARE	1	20	0	A		A	0	20	1		SPARE	8	
9	SPARE	1	20	0	B		B	0	20	1		SPARE	10	
11	SPARE	1	20	0	C		C	0	20	1		SPARE	12	
13	SPARE	1	20	0	A		A	0	20	1		SPARE	14	
15	EQUIPPED SPACE	1	20		B		B		20	1		EQUIPPED SPACE	16	
17	EQUIPPED SPACE	1	20		C		C		20	1		EQUIPPED SPACE	18	
19	EQUIPPED SPACE	1	20		A		A		20	1		EQUIPPED SPACE	20	
21	EQUIPPED SPACE	1	20		B		B		20	1		EQUIPPED SPACE	22	
23	EQUIPPED SPACE	1	20		C		C		20	1		EQUIPPED SPACE	24	
25	EQUIPPED SPACE	1	20		A		A		20	1		EQUIPPED SPACE	26	
27	EQUIPPED SPACE	1	20		B		B		20	1		EQUIPPED SPACE	28	
29	EQUIPPED SPACE	1	20		C		C		20	1		EQUIPPED SPACE	30	

**PANEL SCHEDULE NOTES:**

1. PROVIDE NEW CIRCUIT BREAKER.
2. TRACE AND LABEL.



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**DRAWING TITLE:**  
 PANEL SCHEDULES

**DRAWING NO:**  
**E-601**

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FAN COIL UNIT SCHEDULE																						
DESIGN	LOCATION	SA CFM	OA CFM	ESP IN	COOLING COIL			HEAT PUMP		ELECTRIC HEATING COIL				FAN MOTOR				MANUF.	MODEL NUMBER	REMARKS		
					TOTAL MBH	SENS MBH	EATdb\wb	MBH	EAT	MBH	KW	EAT	VOLTS	PHASE	HP	FLA	MCA				VOLTS	PHASE
FCU-1	MECH ROOM	1,050	210	0.7"	35.2	-	83.0\71.4'	35.0	54'	27.3	5.0	54'	230	1	1/2	4.3	5.4	230	1	CARRIER	FV4CNB003L	①②

CONDENSING UNIT SCHEDULE											
DESIGN	LOCATION	COOL MBH	HEAT MBH	OA TEMP	ELECTRICAL				MANUF.	MODEL NUMBER	REMARKS
					MCA	AMPS	VOLTS	PHASE			
HP-1	EXTERIOR	35.2	35.0	②	30	14.8	230	1	CARRIER	38MURAQ36AB3	

EXHAUST FAN SCHEDULE												
DESIG.	LOCATION	TYPE	CFM	FAN RPM	TOTAL S.P. IN WG	BHP	MOTOR HP	MOTOR RPM	BELT/DIRECT	VOLTS/PHASE	COOK MODEL NUMBER	REMARKS
EF-1	MECH ROOM	IN-LINE BLOWER	400	1720	0.5	118 WATTS	1/6	1302	DIRECT	115/1	90SQN17DEC	①

SCHEDULE OF AIR DEVICES							
DESIGN	MAX AIRFLOW (CFM)	FACE SIZE	NECK SIZE	AIR SERVICE	TYPE	TITUS MODEL	REMARKS
①	110	-	8	SA	NOZZLE	TND-AA	①
②	660	-	30x6	SA	SUPPLY GRILLE	300R	①
③	400	-	12x10	EA	EXHAUST GRILLE	350RL	②
④	1050	-	18x14	RA	RETURN GRILLE	350RL	②

UNIT HEATER SCHEDULE											
DESIGN	LOCATION	CFM	HEATING CAP. BTUH	ELECTRIC HEATING COIL			VOLTS	PHASE	AMP	OMARK MODEL NUMBER	REMARKS
				KW	LATdb	EATdb					
UH-1	MECH ROOM	350	10,200	3	87	60	240	1	12.5	MUH03-21	①

MECHANICAL / PLUMBING LEGEND		
SYMBOL	ABBREV	DESCRIPTION
---		NEW WORK
---	CX	CONNECT NEW WORK TO EXISTING
---	EX	EXISTING WORK TO REMAIN
---	RX	REMOVE EXISTING WORK
---		RELOCATED WORK
---	RL	REFRIGERANT LIQUID
---	RS	REFRIGERANT SUCTION
---	CD	CONDENSATE DRAIN
---	SAN	SANITARY LINE
---	VP	VENT PIPE
---	CW	COLD WATER
---	HW	HOT WATER
---	HWR	HOT WATER RECIRCULATING
---	TW	TEMPERED WATER
---	G	GAS
---		SHUT OFF VALVE IN RISER
---		GATE VALVE, GLOBE VALVE
---		CHECK VALVE
---		STATIONARY FLOW METER, PORTABLE FLOW METER, GPM
---	BFP	BACK FLOW PREVENTER
---		BALANCING VALVE
---		TEMPERATURE CONTROL VALVE(2 WAY, 3 WAY)
---		PRESSURE REDUCING VALVE
---		RELIEF OR SAFETY VALVES
---		BUTTERFLY VALVE
---		MANUAL AIR VENT
---		AUTOMATIC AIR VENT
---		STRAINER
---		UNION
---	T'STAT	THERMOSTAT
---		THERMOMETER
---		PRESSURE GAUGE
---		PIPE TURNED UP, PIPE TURNED DOWN
---	FD	FLOOR DRAIN
---	FC	FLEXIBLE CONNECTION
---	FD	FIRE DAMPER
---	VD	VOLUME DAMPER
---	MOD	MOTOR OPERATED DAMPER
---	SD	SMOKE DAMPER
---	F3	SMOKE DUCT DETECTOR
---		SUPPLY DUCT TURNED UP, TURNED DOWN
---		RETURN DUCT TURNED UP, TURNED DOWN
---		DIRECTION OF RISE IN DUCT
---		SQUARE TO ROUND TRANSITION
---	①	REFER TO NOTE 1 ON THIS SHEET
---	AFF	ABOVE FINISHED FLOOR
---	AHU	AIR HANDLING UNIT
---	FCU	FAN COIL UNIT
---	DSD	DUCT SMOKE DETECTOR
---	CLG	CEILING
---	CFM	CUBIC FEET PER MINUTE
---	DN	DOWN
---	EF	EXHAUST FAN
---	EXH	EXHAUST
---	OA	OUTSIDE AIR
---	SA	SUPPLY AIR
---	TYP	TYPICAL
---	CU	CONDENSING UNIT
---	HP	HEAT PUMP

**BKP**

PROJECT TEAM:

ARCHITECT:  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509

CIVIL ENGINEER:  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423

LANDSCAPE ARCHITECT:  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544

STRUCTURAL ENGINEER:  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950

MEP ENGINEER:  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

CLIENT:

**MARYLAND ZOO**

THE MARYLAND ZOO IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

**RED PANDA**  
 THE MARYLAND ZOO  
 IN BALTIMORE  
 1 SAFARI PLACE  
 BALTIMORE, MD 21217

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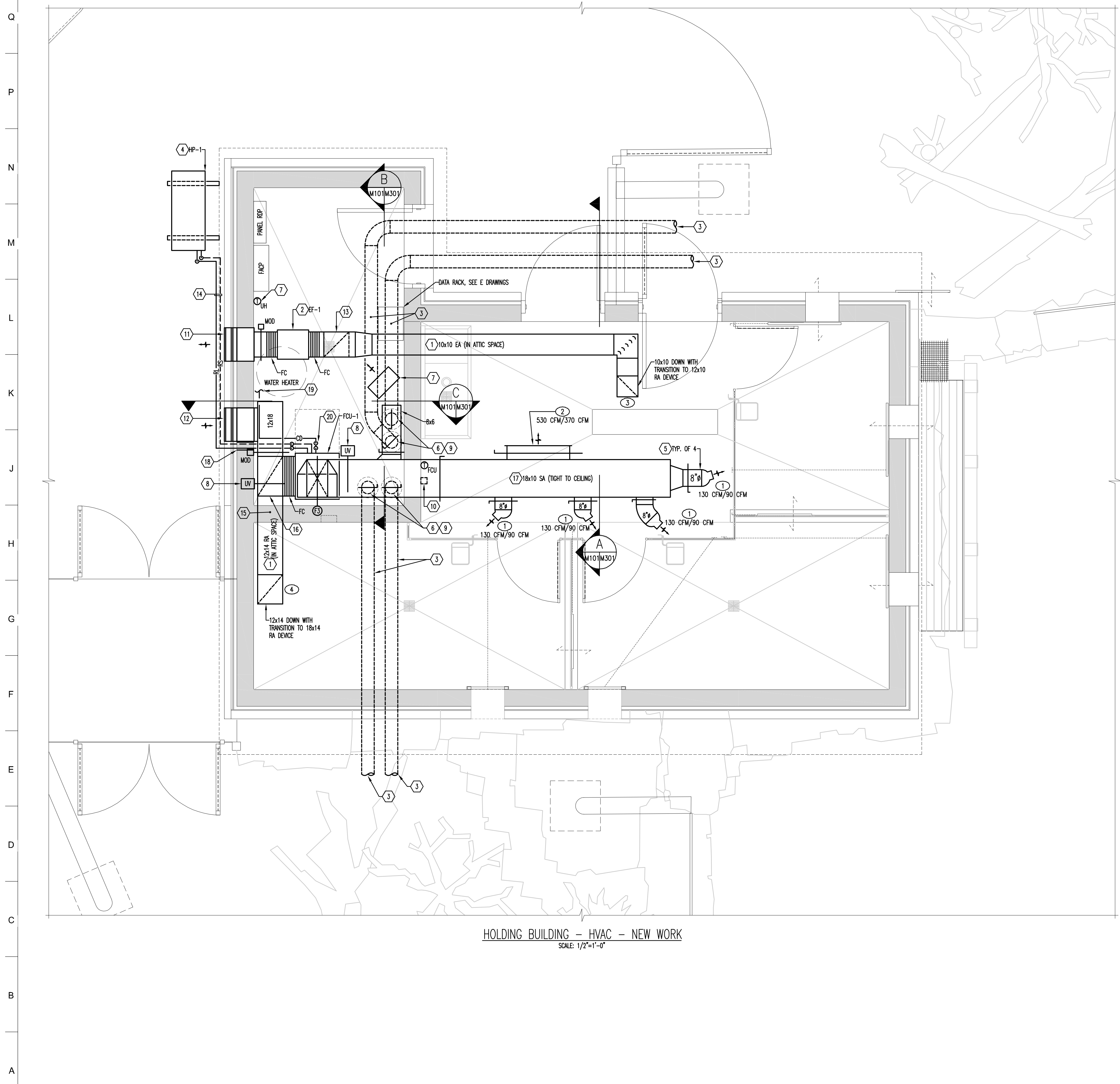
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DATE: NOVEMBER 22, 2024
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DRAWING TITLE:  
 MECHANICAL SCHEDULES  
 AND LEGEND

DRAWING NO:  
**M-001**





HOLDING BUILDING - HVAC - NEW WORK  
SCALE: 1/2"=1'-0"

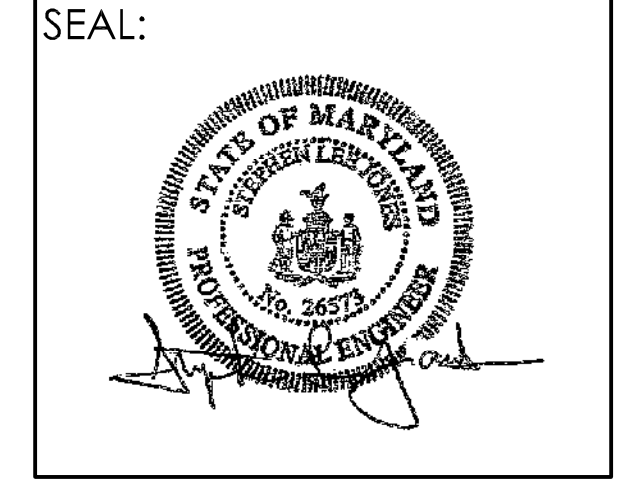


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**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
**CIVIL ENGINEER:**  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
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 T: 410.785.7423  
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- DRAWING NOTES:**
- 1 PROVIDE DUCTWORK ABOVE CEILING IN ATTIC SPACE.
  - 2 PROVIDE EXHAUST FAN SUSPENDED FROM STRUCTURE. REFER TO EXHAUST FAN INSTALLATION DETAIL ON SHEET M-501.
  - 3 6" PVC SA DUCTWORK BELOW GRADE TO HABITAT FEATURES. REFER TO SITE PLANS ON SHEET M-102 FOR CONTINUATION.
  - 4 PROVIDE HEAT PUMP MOUNTED TO WALL, 24" ABOVE GRADE. PROVIDE MANUFACTURER'S WALL MOUNT KIT AND INSTALL RECOMMENDED CLEARANCE AWAY FROM BUILDING WALL.
  - 5 NOZZLE-TYPE AIR DEVICE. DIRECT AIR INTO STALLS AND AWAY FROM EXTERIOR WALL OPENINGS.
  - 6 PROVIDE TWO MANUAL VOLUME DAMPERS FOR EACH 6" SA DUCT. ONE DAMPER NEAR THE TAKE OFF SHALL BE USED FOR BALANCING THE SYSTEM. THE OTHER DAMPER SHALL BE APPROX. 48" AFF. HAVE ITS "OPEN" AND "CLOSE" POSITIONS LABELED FOR MANUAL CONTROL AND BE ACCESSIBLE TO 200 PERSONNEL. BALANCE EACH 6" TAKEOFF TO 80 CFM.
  - 7 PROVIDE UNIT HEATER SUSPENDED FROM STRUCTURE ABOVE. PROVIDE WALL MOUNTED THERMOSTAT FOR THE UNIT HEATER. REFER TO UNIT HEATER INSTALLATION DETAIL ON SHEET M-501.
  - 8 PROVIDE (2) UV LAMPS WITH POWER SOURCE FOR FCU. MOUNT POWER SOURCE TO WALL UNDER OA LOUVER. INSTALL PER MANUFACTURER'S RECOMMENDATION. PROVIDE (1) LAMP IN THE RETURN PLENUM AND (1) LAMP IN THE SUPPLY PLENUM.
  - 9 DROP (2) 6" SHEETMETAL SA DUCTS DOWN ALONG WALL TO FLOOR AND TRANSITION TO 6" PVC DUCT APPROX. 6" AFF. BEFORE PENETRATING FLOOR SLAB.
  - 10 PROVIDE FCU/EF SWITCH. REFER TO ATC.
  - 11 PROVIDE BOX STYLE 16x16 EXHAUST DISCHARGE LOUVER. REFER TO DETAIL ON SHEET M-501.
  - 12 PROVIDE BOX STYLE 16x16 OA INTAKE LOUVER. REFER TO DETAIL ON SHEET M-501.
  - 13 12x12 EXHAUST DUCT UP INTO ATTIC SPACE.
  - 14 PROVIDE 1/2" RL & 7/8" RS RACKED ALONG EXTERIOR WALL BETWEEN FCU-1 AND HP-1. CONFIRM PIPE SIZING WITH MANUFACTURER.
  - 15 12x14 RA DUCT. CONNECT RA PLENUM EXTENDED ABOVE MECHANICAL ROOM INTO ATTIC SPACE.
  - 16 20x12 RETURN AIR PLENUM DOWN.
  - 17 SUSPEND DUCT BELOW AND TIGHT TO CEILING. REFER TO SECTION ON M-501.
  - 18 PROVIDE SLEEVES FOR REFRIGERANT PIPE PENETRATIONS IN WALL. MAKE PENETRATIONS WEATHER TIGHT. REFER TO DETAIL ON SHEET M-501.
  - 19 EXTEND 1" CD TO FLOOR DRAIN.
  - 20 PROVIDE CONDENSATE DRAIN TRAP. REFER TO DETAIL ON SHEET M-501.

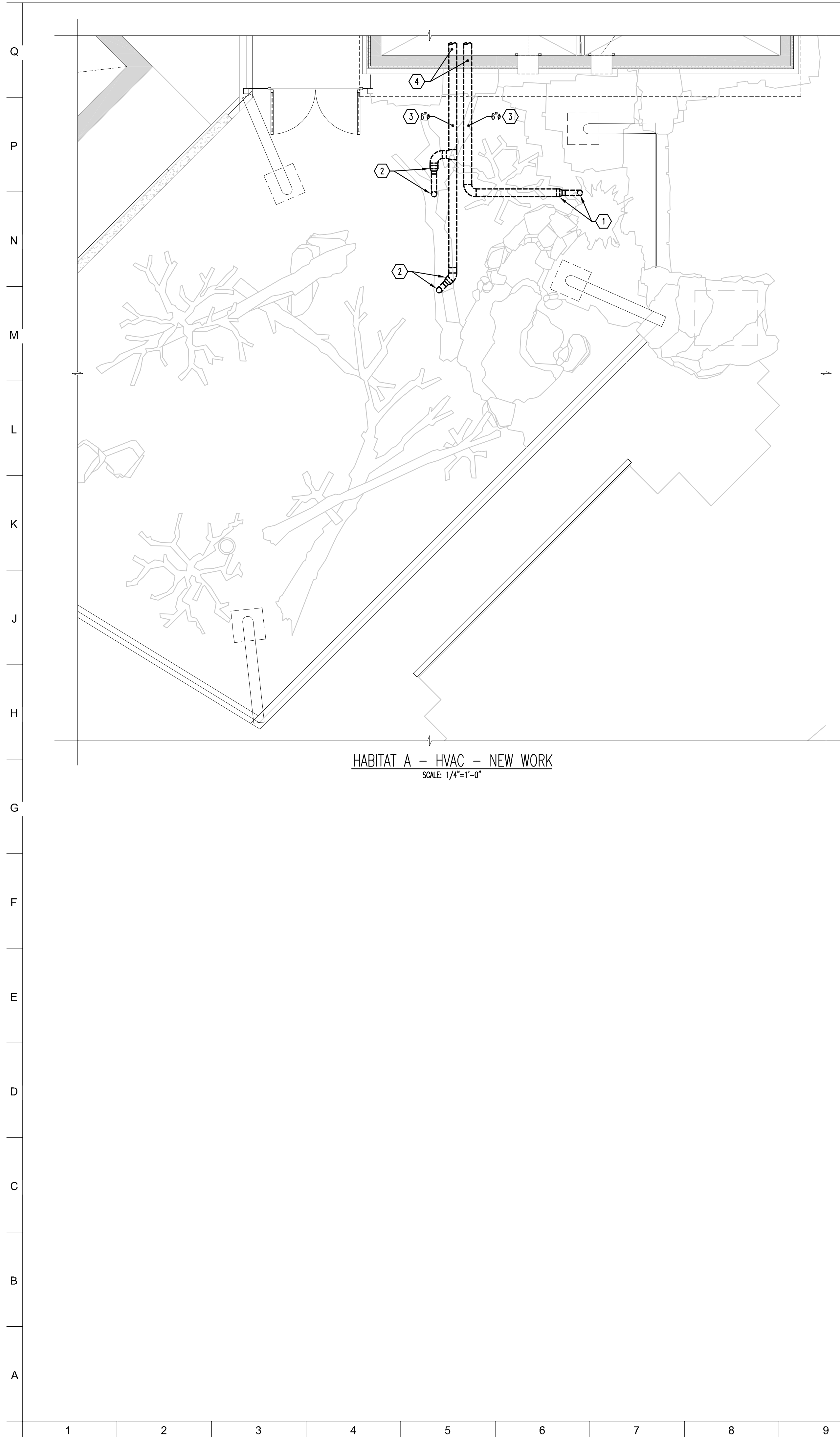
- BALANCE NOTES:**
1. BALANCE FCU-1 TO 1050 CFM.
  2. BALANCE SUPPLY AIR DEVICES TO CFM NOTED ON PLAN AND BALANCE 6" DUCT DROPS TO CFM NOTED IN DRAWING NOTE 6, THIS SHEET. SECONDARY MANUAL CONTROL DAMPERS IN 6" SA DUCTS SHALL BE FULLY OPEN.
  3. PROVIDE ADDITIONAL CFM READINGS AT EACH SA DEVICE WHILE SECONDARY MANUAL CONTROL DAMPERS IN 6" SA DUCTS ARE FULLY CLOSED.

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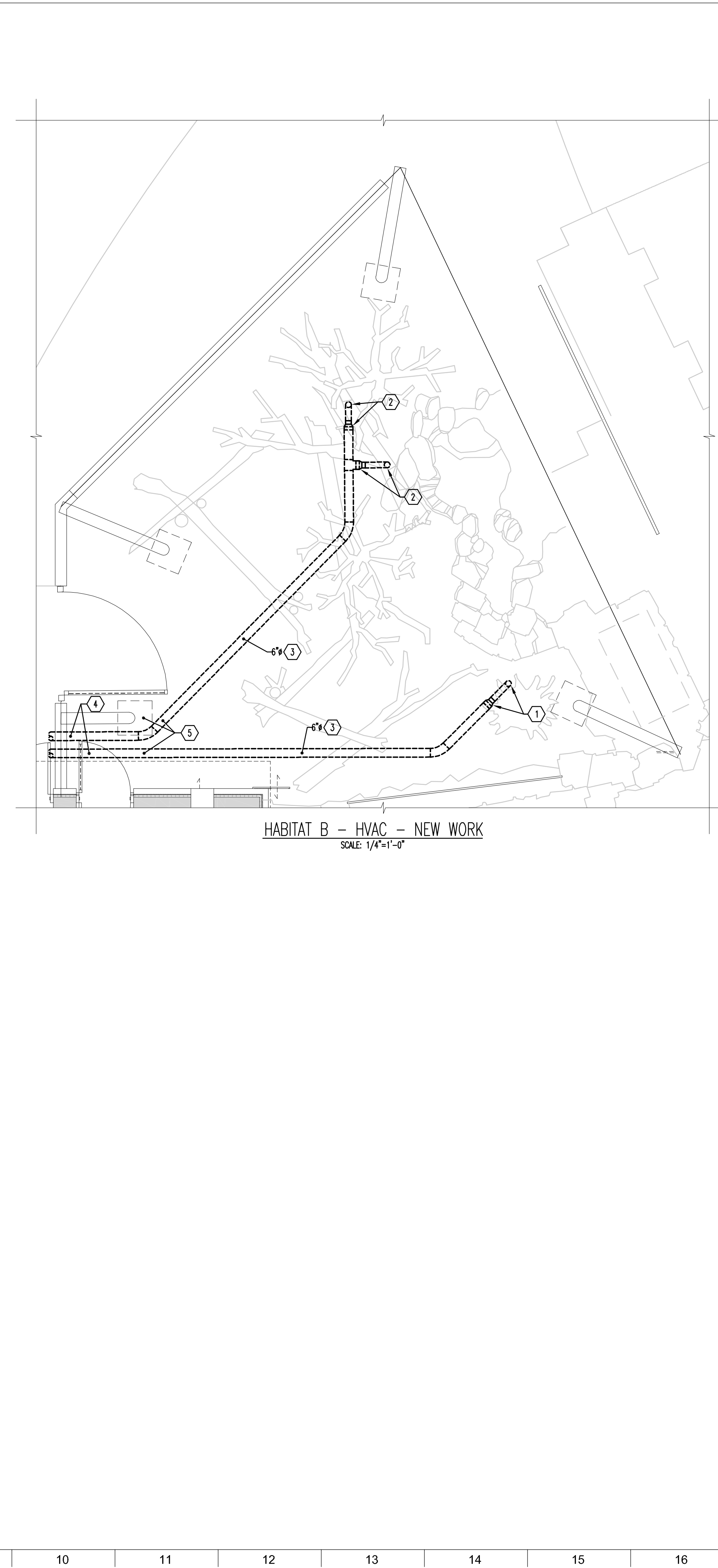
**DRAWING TITLE:**  
 HOLDING BUILDING - HVAC  
 - NEW WORK

**DRAWING NO.:**  
**M-101**

10877 - RED PANDA



HABITAT A - HVAC - NEW WORK  
SCALE: 1/4"=1'-0"



HABITAT B - HVAC - NEW WORK  
SCALE: 1/4"=1'-0"

- DRAWING NOTES:**
- 1 6" (PVC) SA DUCT TO HABITAT FEATURE. TRANSITION 6" SA DUCT TO 4" DUCT AT FAUX TREE STUMP. THEN UP WITHIN FAUX STUMP TO SA OUTLET. COVER OPENING WITH 1/4" STAINLESS STEEL SCREEN. REFER TO SHEET L-410 FOR ADDITIONAL DETAILS.
  - 2 6" (PVC) SA DUCT TO HABITAT FEATURE. TRANSITION 6" SA DUCT TO 4" DUCT AT FAUX FALLEN TREE. THEN RISE UP WITHIN FAUX TREE TO SA OUTLET. COVER OPENING WITH 1/4" STAINLESS STEEL SCREEN. REFER TO SHEET L-410 FOR ADDITIONAL DETAILS.
  - 3 6" (PVC) DUCT BELOW GRADE.
  - 4 REFER TO FLOOR PLAN ON SHEET M-101 FOR CONTINUATION.
  - 5 COORDINATE INSTALLATION OF DUCT WITH MAST FOOTERS. DUCT SHALL BE ABOVE FOOTER.



**PROJECT TEAM:**

**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509

**CIVIL ENGINEER:**  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423

**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
 MEDIA, PA 19063  
 T: 302.888.1544

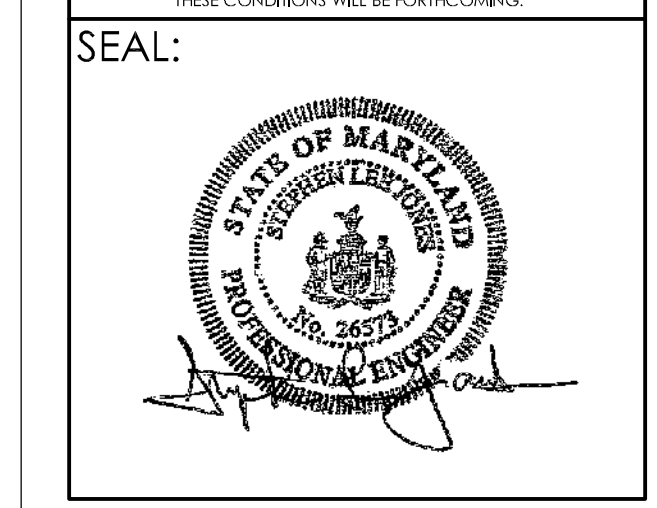
**STRUCTURAL ENGINEER:**  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950

**MEP ENGINEER:**  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
 T: 410.244.7191

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**DRAWING TITLE:**  
 SITE PLAN - HVAC - NEW WORK

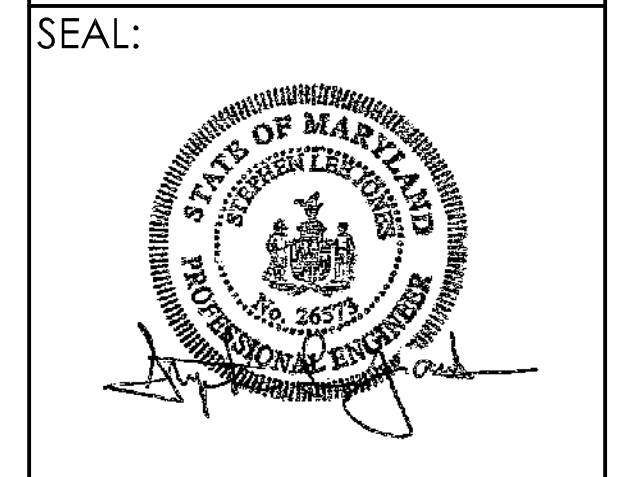
**DRAWING NO:**  
**M-102**

PROJECT TEAM:  
 ARCHITECT:  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509  
 CIVIL ENGINEER:  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
 T: 410.785.7423  
 LANDSCAPE ARCHITECT:  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
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 T: 302.888.1544  
 STRUCTURAL ENGINEER:  
 STRUCTURAL DESIGN STUDIO, INC  
 2225 EAST MURRAY HOLLADAY RD  
 SALT LAKE CITY, UT 84117  
 T: 801.274.3950  
 MEP ENGINEER:  
 KOVACS, WHITNEY & ASSOCIATES  
 190 WEST OSTEND ST, STE 300  
 BALTIMORE, MD 21230  
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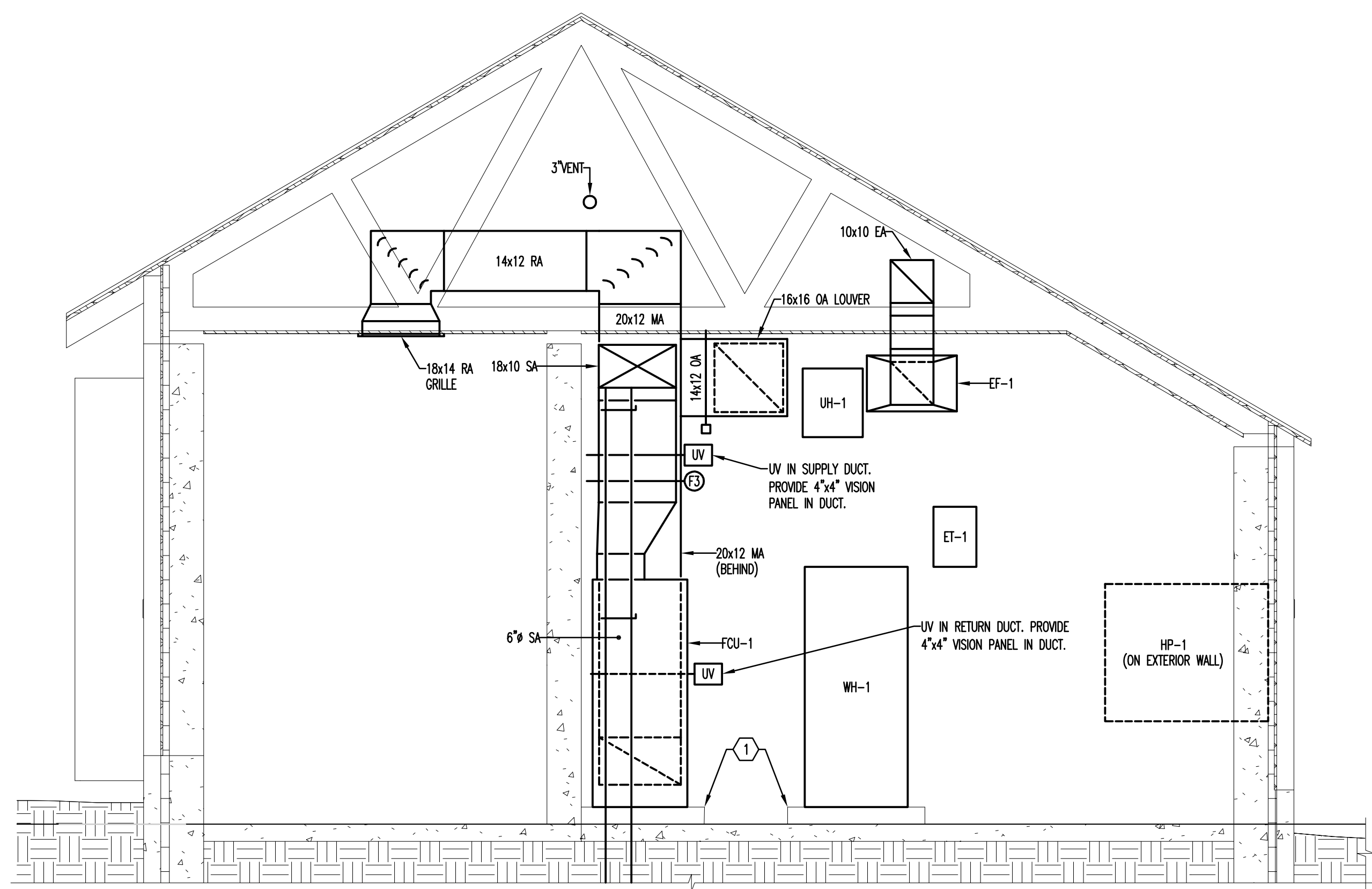
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DRAWING TITLE:  
 SECTIONS

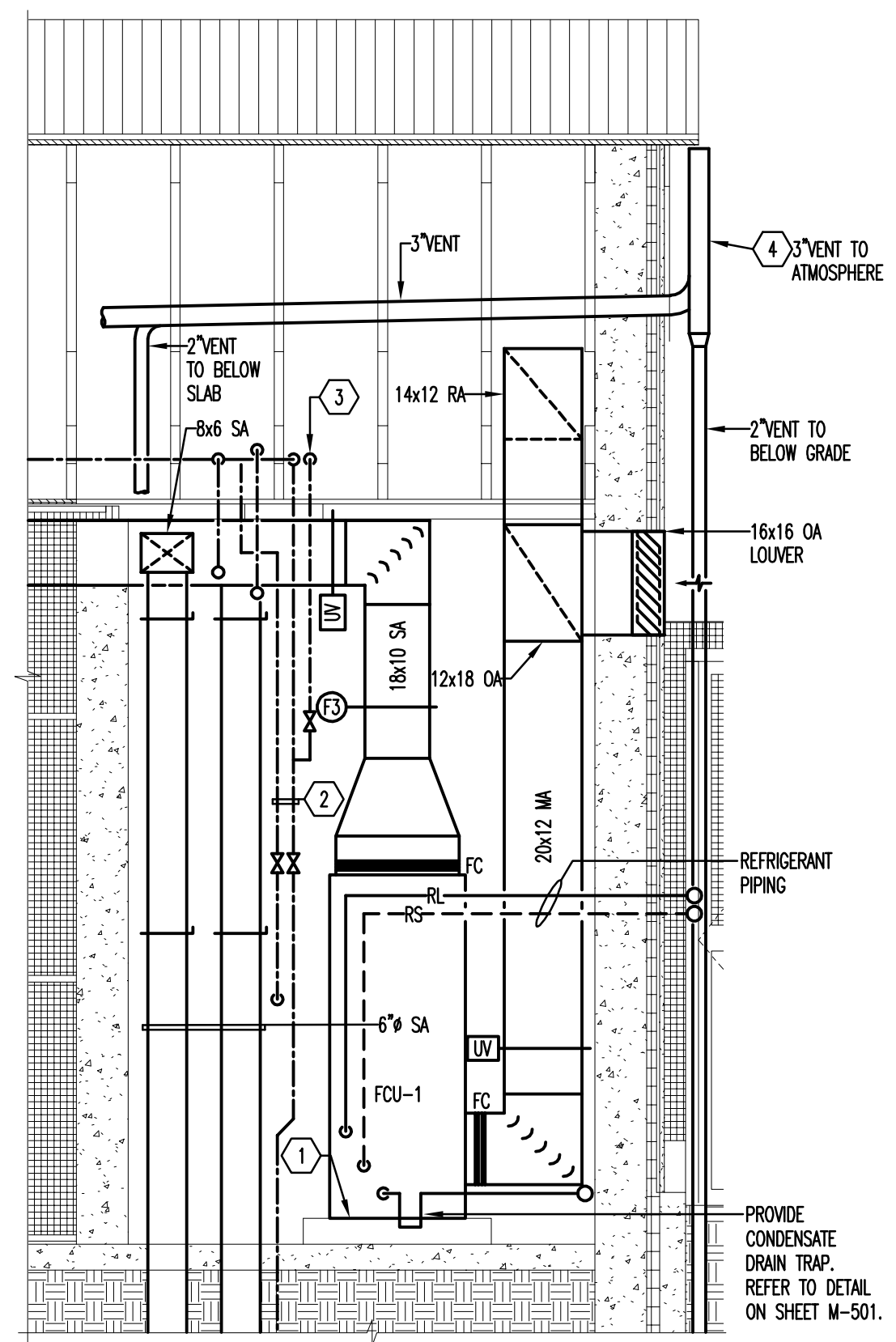
DRAWING NO:  
**M-301**

10877 - RED PANDA

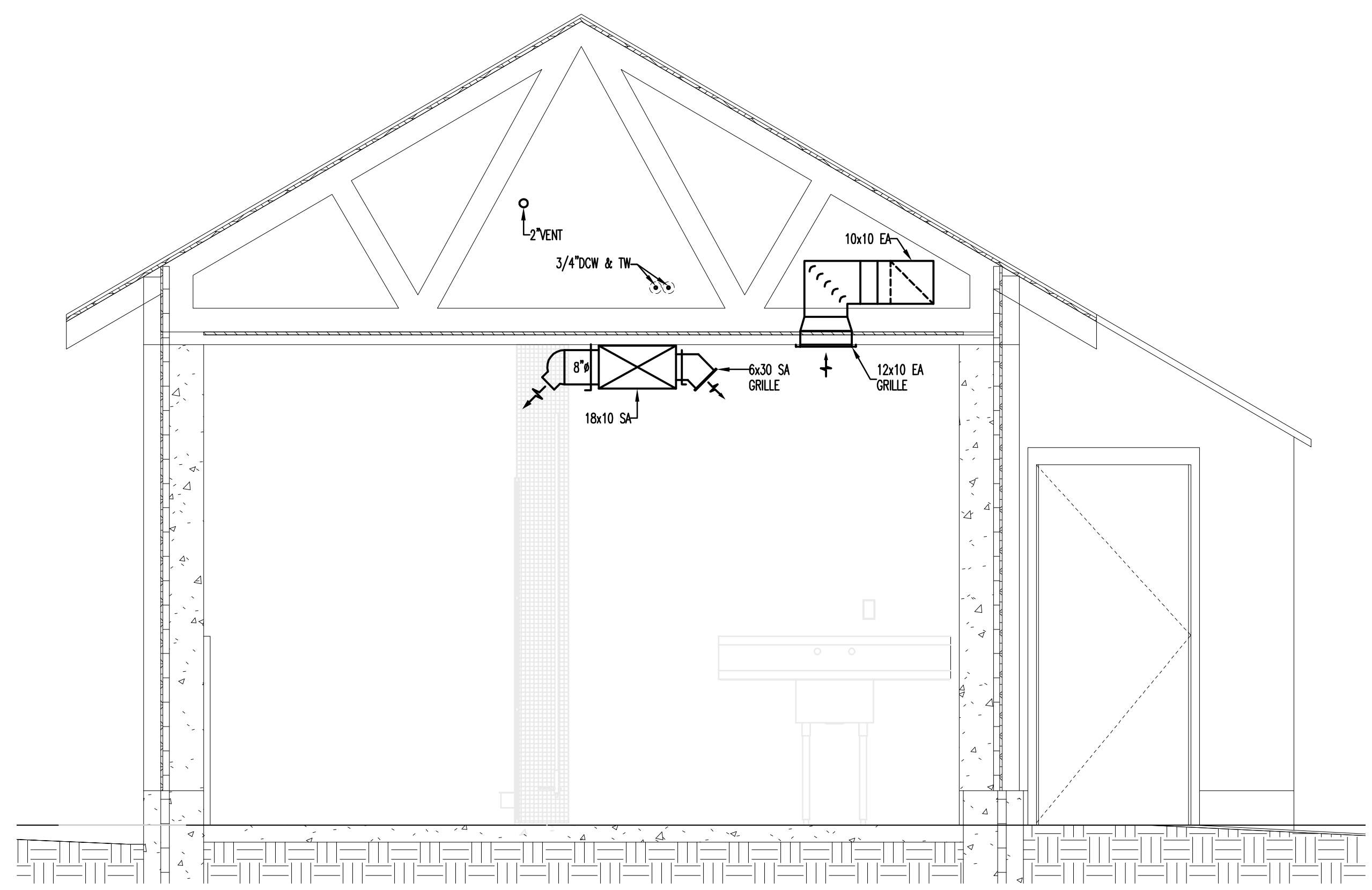
- DRAWING NOTES:**
- ① PROVIDE HOUSEKEEPING PAD. REFER TO S501 DETAIL M17.
  - ② 3/4"TW DOWN ALONG WALL AND THROUGH WALL. 1/2"DCW ALONG WALL AND THROUGH SLAB.
  - ③ 3/4"DCW IN ATTIC SPACE.
  - ④ TERMINATE VENT AT LEAST 60" ABOVE THE TOP OF 16x16 OA LOUVER.



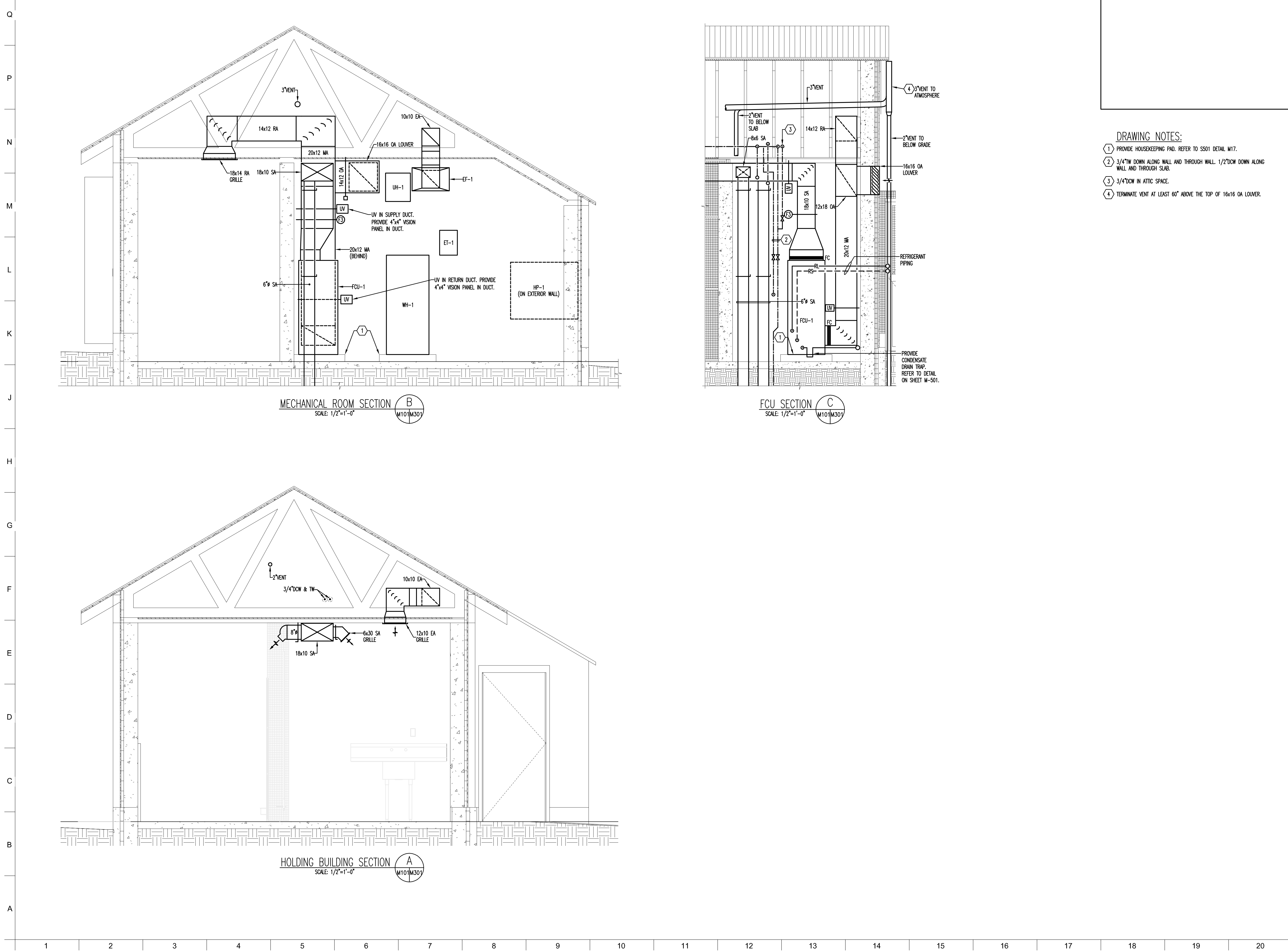
MECHANICAL ROOM SECTION **B**  
 SCALE: 1/2"=1'-0"  
 W101/M301



FCU SECTION **C**  
 SCALE: 1/2"=1'-0"  
 W101/M301



HOLDING BUILDING SECTION **A**  
 SCALE: 1/2"=1'-0"  
 W101/M301





**PROJECT TEAM:**

**ARCHITECT:**  
 BUELL KRATZER POWELL, P.C.  
 1525 LOCUST STREET  
 PHILADELPHIA, PA 19102  
 T: 215.557.6509

**CIVIL ENGINEER:**  
 CARROLL ENGINEERING, INC  
 215 SCHILLING CIRCLE, STE 102  
 HUNT VALLEY, MD 21031  
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**LANDSCAPE ARCHITECT:**  
 ROBINSON ANDERSON SUMMERS  
 28 WEST STATE STREET  
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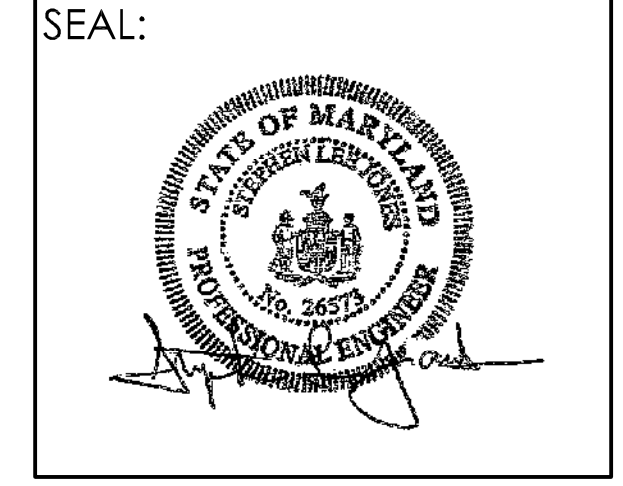
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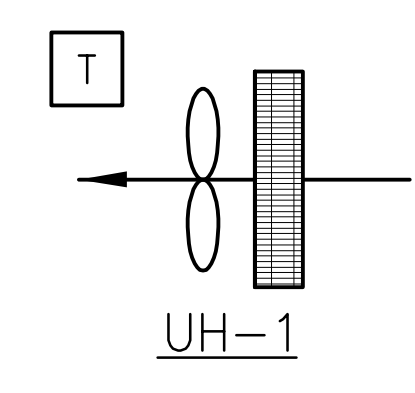
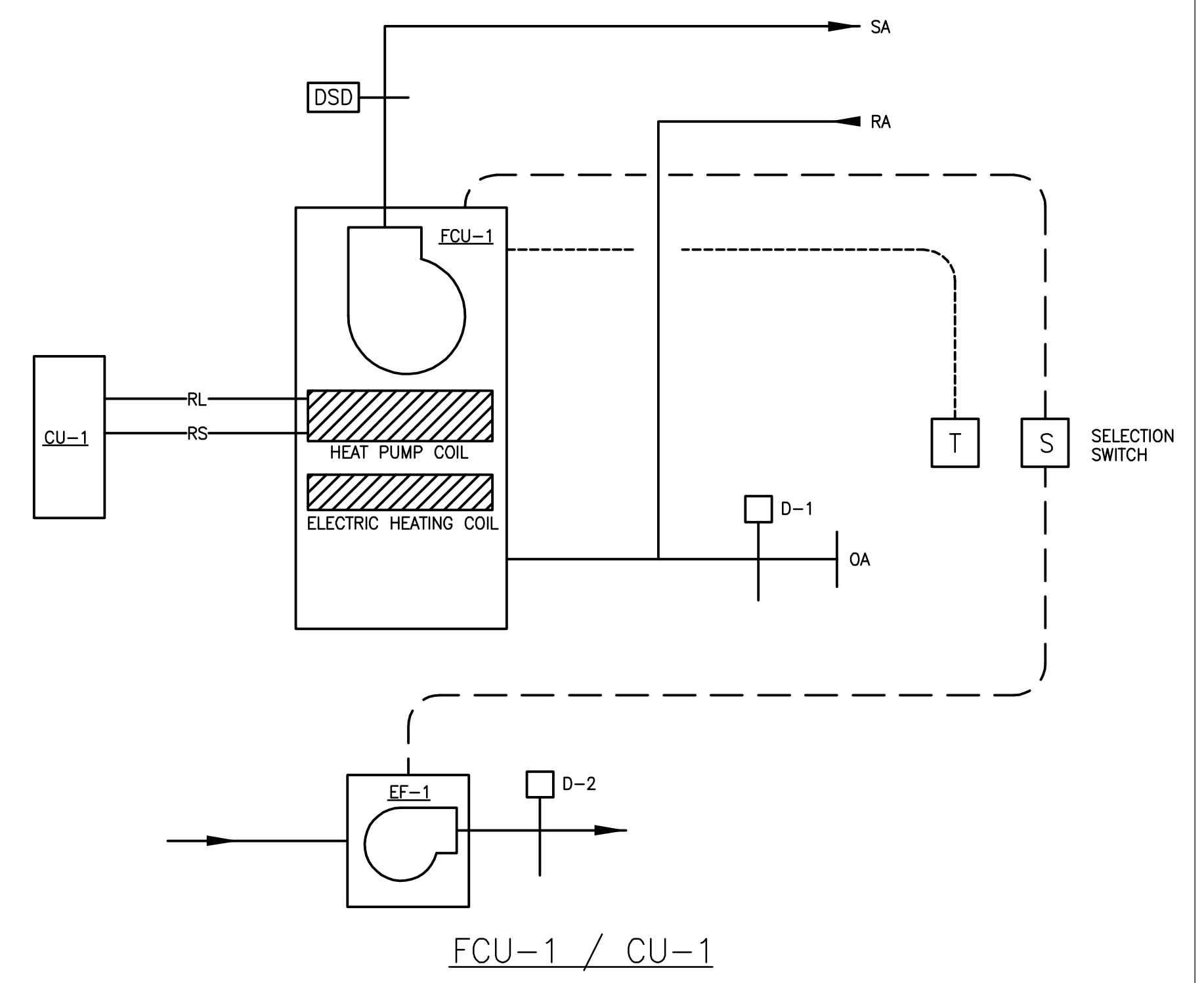
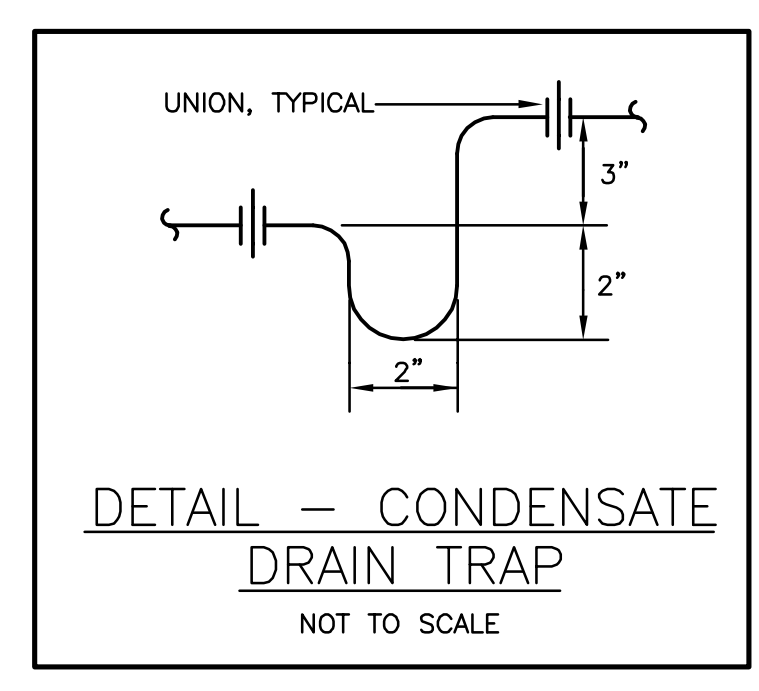
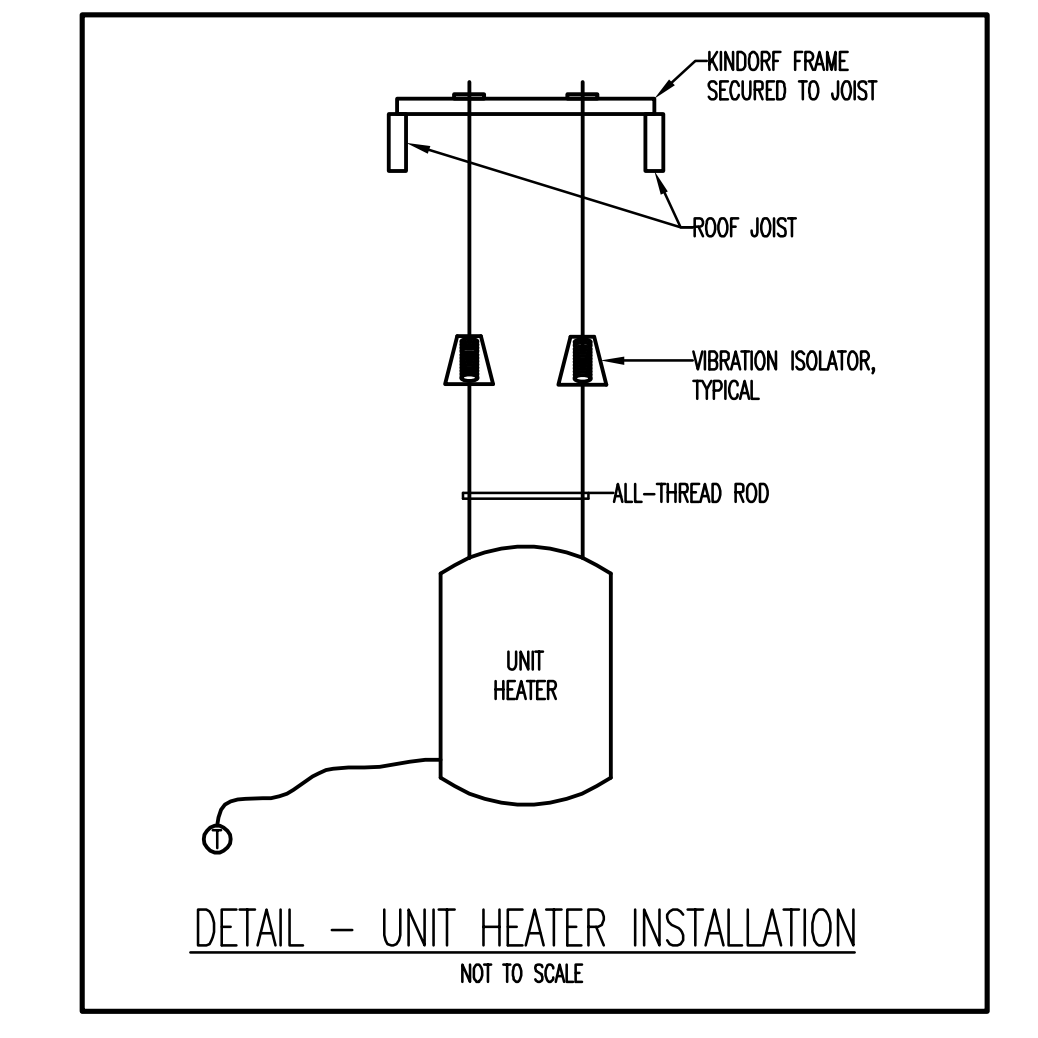
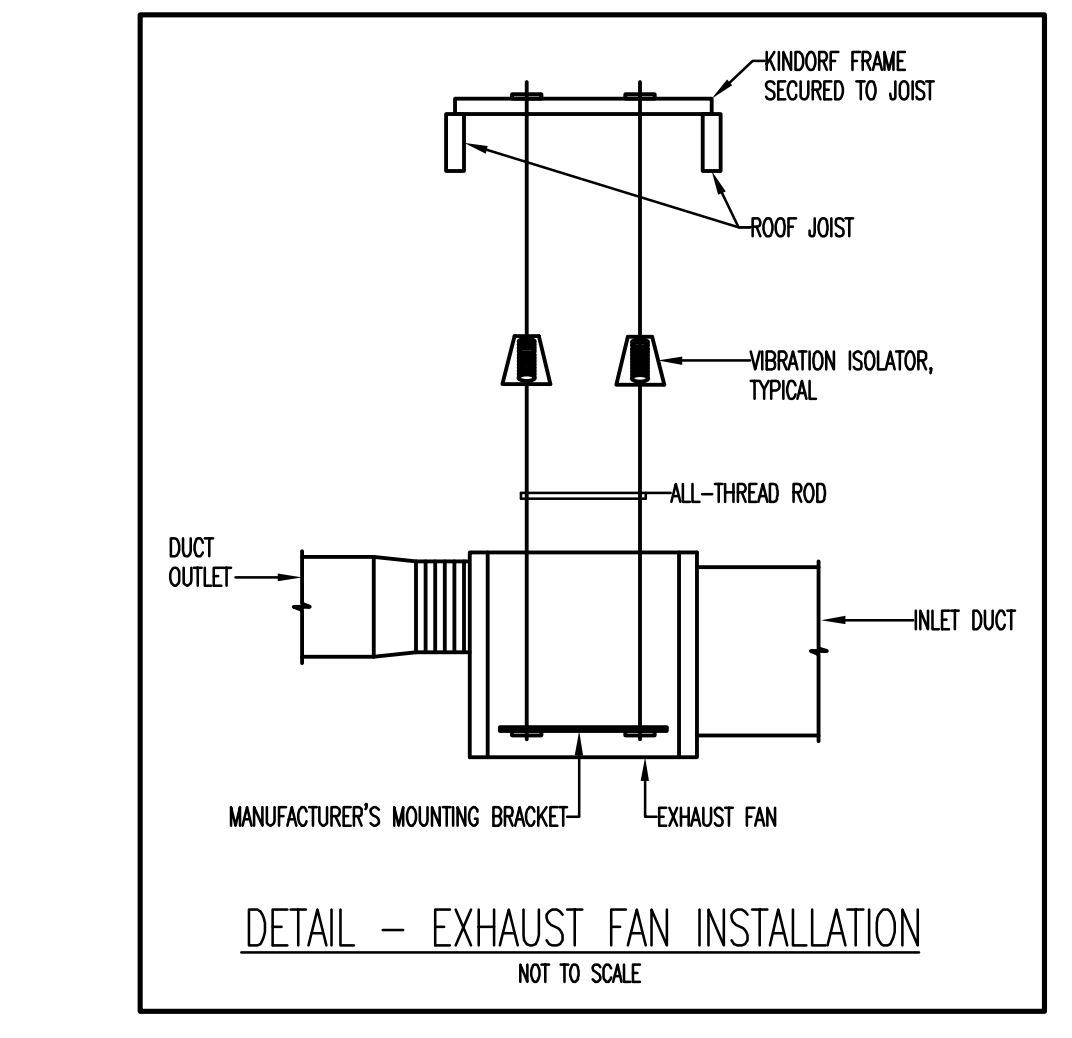
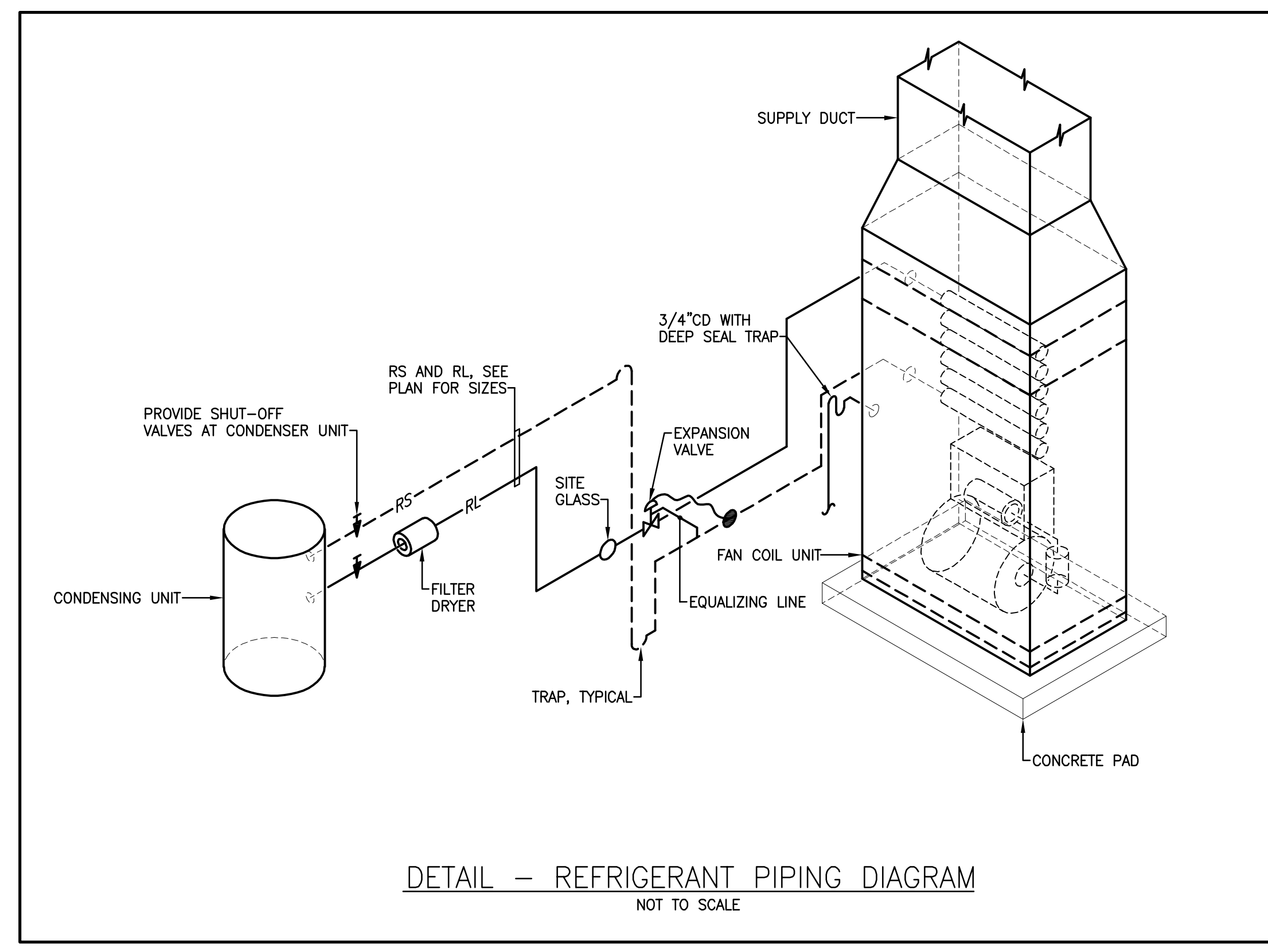
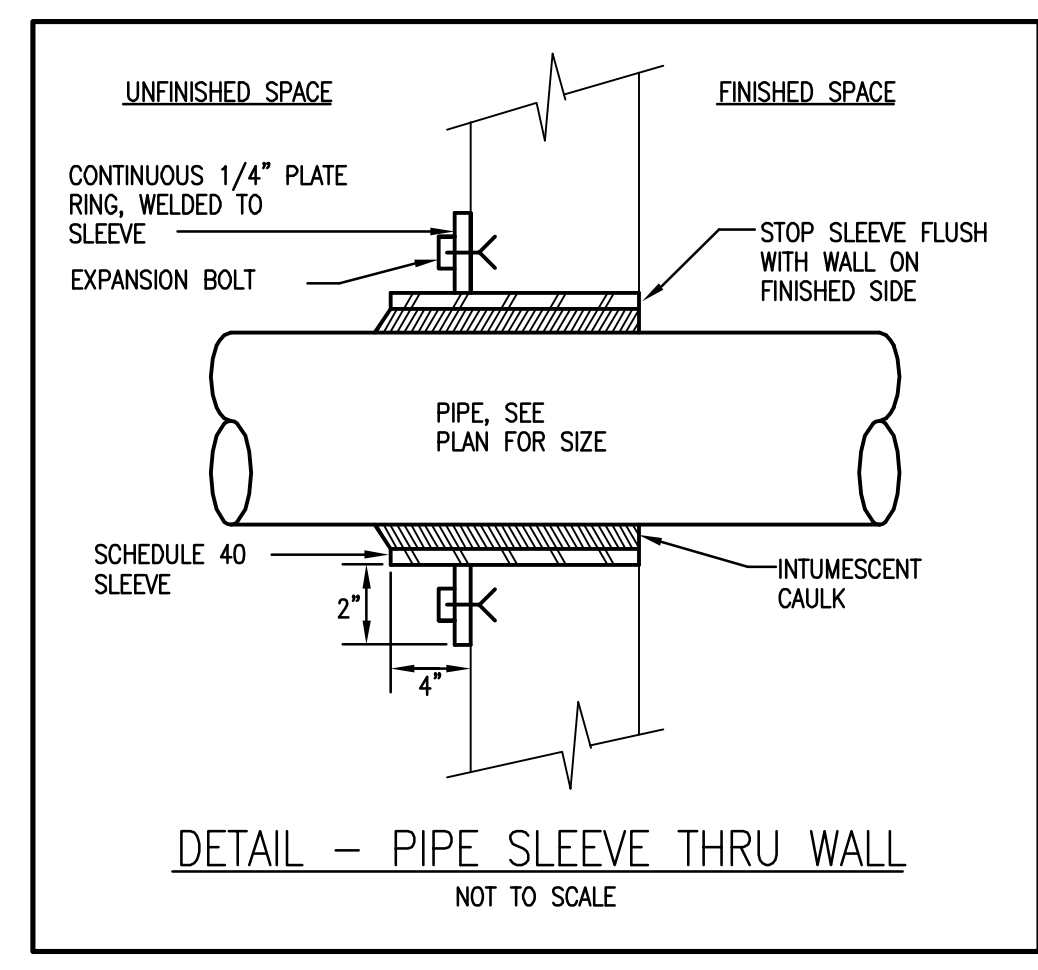
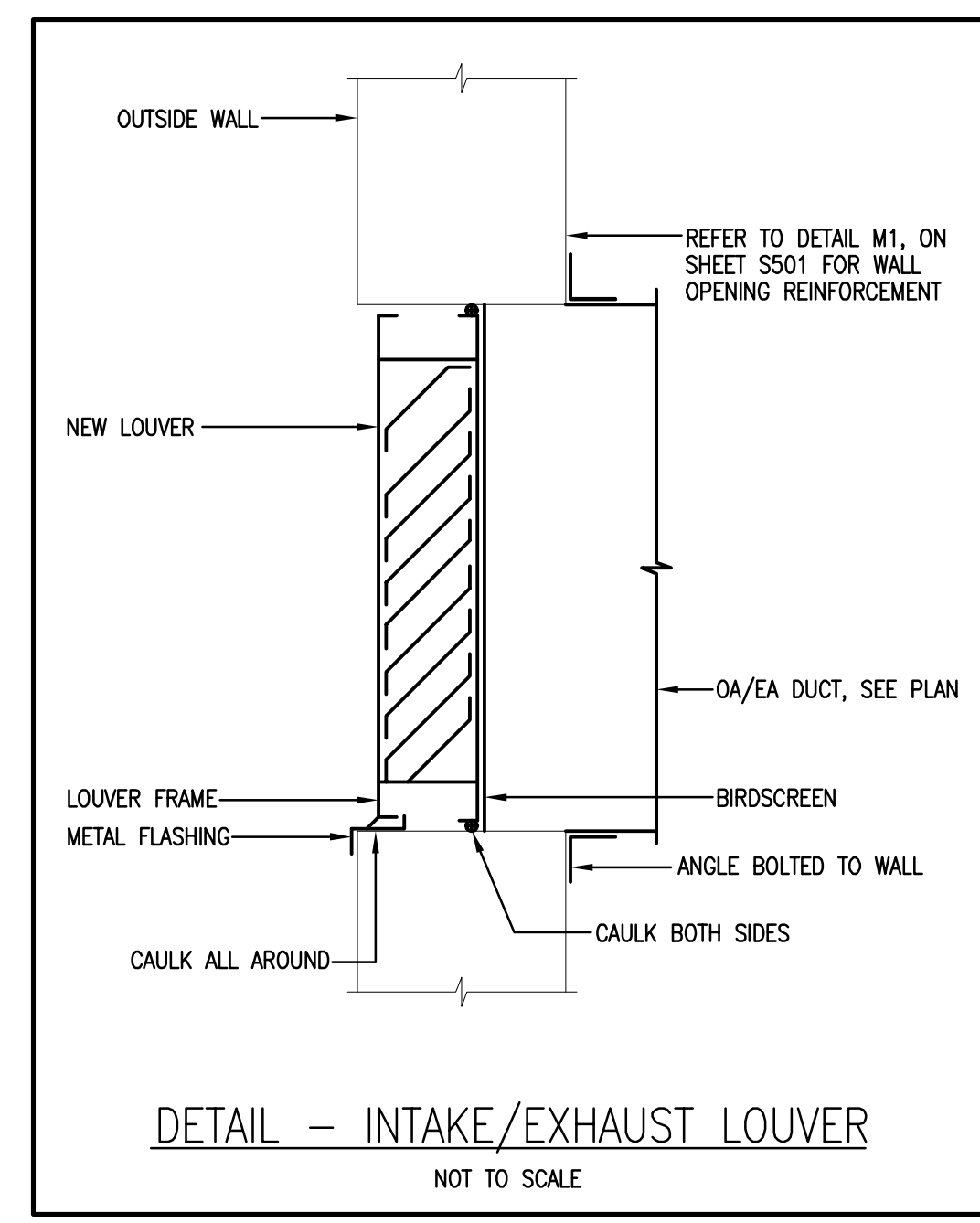


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**DRAWING TITLE:**  
 DETAILS AND ATC

**DRAWING NO.:**  
**M-501**

10877 - RED PANDA



**UNIT HEATER SEQUENCE OF AUTOMATIC CONTROL**

- IF TEMPERATURE AS SENSED BY SPACE THERMOSTAT T-1 FALLS BELOW 60°F, THEN ELECTRIC HEATER UNIT HEATER SHALL BE ENERGIZED. ON A RISE IN TEMPERATURE ABOVE SETPOINT AS SENSED BY T-1, UNIT HEATER SHALL BE DE-ENERGIZED.

**FAN COIL UNIT / EXHAUST FAN SEQUENCE OF AUTOMATIC CONTROL**

- ATC CONTRACTOR TO PROVIDE SYSTEM SELECTION SWITCH THAT WILL ALLOW ZOO PERSONNEL TO HAVE THREE OPTIONS.  
 OPTION 1 SELECTION - ENERGIZE AC/HEAT PUMP SYSTEM  
 OPTION 2 SELECTION - ENERGIZE EXHAUST FAN  
 OPTION 3 SELECTION - BOTH SYSTEMS OFF.
- PROVIDE PROGRAMMABLE AUTOMATIC CHANGE-OVER THERMOSTAT WITH OFF-FAN-ON-AUTO SUBBASE AND 7-DAY TIME CLOCK. PROGRAM AC/HEAT PUMP SYSTEM SCHEDULES AND TEMPERATURES AS DIRECTED BY THE ZOO PERSONNEL.
- WHEN SELECTION SWITCH IS IN THE AC/HEAT PUMP SYSTEM POSITION, THE THERMOSTAT SHALL ENERGIZE COOLING OR HEATING TO SATISFY THE SPACE TEMPERATURE SETTINGS. MOTOR OPERATED DAMPER D-1 SHALL OPEN WHEN UNIT IS ENERGIZED AND CLOSED WHEN UNIT IS DE-ENERGIZED. UPON SWITCH SELECTING EITHER OFF POSITION OR EXHAUST FAN POSITION, AC/HEAT PUMP SYSTEM SHALL BE DE-ENERGIZED AND DAMPER D-1 SHALL CLOSE.
- WHEN SELECTION SWITCH IS IN THE EXHAUST FAN POSITION, DAMPER D-2 SHALL OPEN UPON DAMPER D-2 OPENING TO 75%. END SWITCH SHALL ENERGIZE EF-1. UPON SWITCH SELECTING EITHER OFF POSITION OR AC/HEAT PUMP POSITION, EF-1 SHALL BE DE-ENERGIZED AND DAMPER D-2 SHALL CLOSE.
- DUCT SMOKE DETECTOR UPON SENSING PRODUCTS OF COMBUSTION SHALL DE-ENERGIZE THE AC/HEAT PUMP SYSTEM.

Q  
P  
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M  
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20