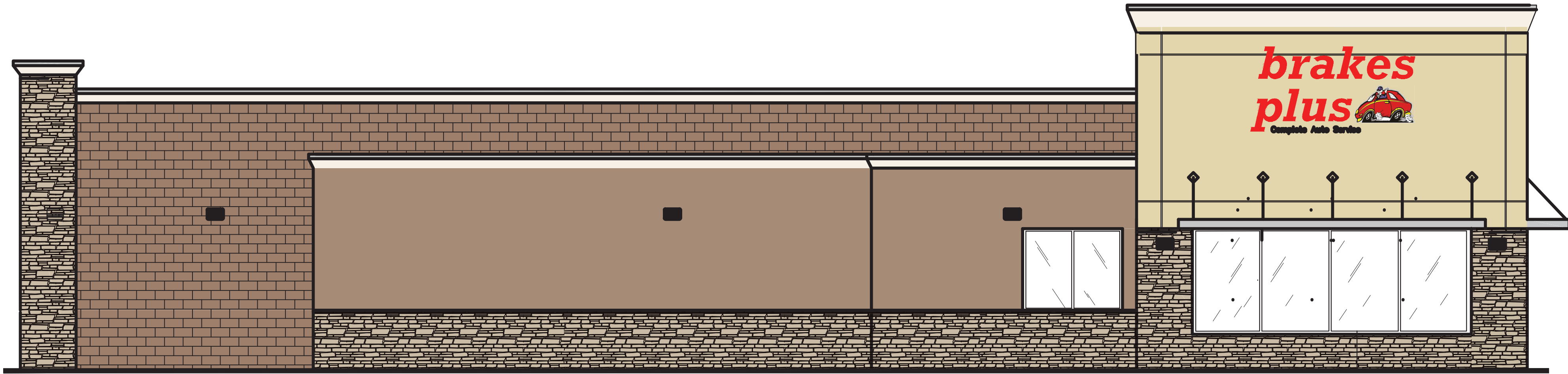


# brakes plus

LINCOLN NEBRASKA



## GENERAL NOTES

- WE CERTIFY THAT TO THE BEST OF OUR KNOWLEDGE AND INFORMATION, AND IN ACCORDANCE WITH ACCEPTED PROFESSIONAL STANDARDS, WE HAVE COMPLIED WITH APPLICABLE PORTIONS OF ANSI A117.1 2003 EDITION PERTAINING TO BUILDING ACCESSIBILITY FOR THE PHYSICALLY HANDICAPPED (AR34-401 THROUGH 34-411), IBC CHAPTER STANDARDS AND 1990 AMERICANS WITH DISABILITIES ACT (ADA) TITLE III ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES.
- ALL DIMENSIONS ARE TO THE FACE OF STUD AT FRAME WALLS AND TO THE FACE OF MASONRY WALLS AS SHOWN, UNLESS NOTED OTHERWISE.
- INSTALL SEALANT AT ALL INTERIOR AND EXTERIOR JOINTS, SEAMS, CONNECTIONS OF OPENINGS WHICH WOULD ALLOW WATER OR AIR INFILTRATION EXCEPT AS NOTED OTHERWISE. SEALANT COLOR TO MATCH ADJACENT SURFACE. COLOR REQUIRES ARCHITECTS APPROVAL.
- DOOR OPENINGS IN FRAME CONSTRUCTION WHICH ARE NOT DIMENSIONED ARE EITHER CENTERED IN THE WALL OR LOCATED 5" FROM THE FACE OF STUD TO FINISH JAMB
- ALL HANDICAPPED FACILITIES SHALL BE IDENTIFIED WITH APPROVED SIGNAGE.
- THE CONTRACTOR IS RESPONSIBLE FOR PRODUCING A WEATHER TIGHT BUILDING -- DETAILS AND OMISSIONS TO DRAWINGS NOTWITHSTANDING. ALL DRAWING CONFLICTS WHICH MAY NOT ALLOW THIS ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF TH ARCHITECT.
- DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND PLANS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT.
- ALL FLOORS WITH DRAINS ARE SLOPED MINIMUM 1/4" PER FOOT TO DRAIN UNLESS NOTED OTHERWISE.
- LOCATION OF EXISTING UTILITIES ARE SHOWN TO THE BEST OF OUR KNOWLEDGE. CONTRACTOR SHALL HAVE THE RESPONSIBILITY OF VERIFYING IN THE FIELD BEFORE CONSTRUCTION STARTS, AND COORDINATING ALL NEW UTILITY LOCATIONS, CONNECTIONS, AND PENETRATIONS W/ CIVIL ENGINEER.
- ALL REQUIRED EXITS SHALL BE OPERABLE FROM THE INSIDE WITHOUT SPECIAL KNOWLEDGE OR THE USE OF A KEY.
- PROVIDE FULL 2X6 WOOD BLOCKING AS REQUIRED TO SECURELY ANCHOR ALL WALL MOUNTED EQUIPMENT(E.G., CABINETS, TOILET ROOM, ACCESSORIES, HARDWARE, ETC.). BLOCKING SHALL PROVIDED A RIGID CONNECTION CAPABLE OF SUPPORTING LOADS AS DETERMINED BY MANUFACTURER. PROVIDE SOLID 2X6 WOOD BLOCKING SECURED TO 2 MAIN WALL STUDS TO SECURELY SUPPORT ALL WALL STOPS (DOOR BUMPER).
- THE GENERAL CONTRACTOR SHALL VERIFY AND COORDINATE WITH ALL TRADES, SIZES AND LOCATIONS OF ALL OPENINGS OF MECHANICAL AND ELECTRICAL EQUIPMENT, EQUIPMENT PADS, AS WELL AS POWER, WATER, AND DRAIN INSTALLATIONS. BEFORE PROCEEDING WITH WORK, ANY CONCERNS OF STRUCTURAL CONFLICTS, SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. A REASONABLE RESPONSE TIME SHALL BE ALLOWED.
- ALL FLOOR OR WALL OPENINGS REQUIRED FOR PIPES, DUCTS,CONDUITS, ETC. SHALL BE SEALED IN A MANNER APPROVED BY THE ARCHITECT.
- ROOMS ENCLOSED WITH 1-HOUR RATED WALLS REQUIRE RATED DOORS, 1-HOUR PARTITIONS PENETRATING THROUGH AND ABOVE ROOF SURFACE AND STRUCTURE ABOVE. ANY DUCTS PASSING THROUGH WALLS REQUIRE FIRE DAMPERS. ANY CONDUIT OF PIPING REQUIRES RATED SEALANT.
- STRUCTURAL NOTES SHALL GOVERN TYPICAL CONDITIONS WHETHER OR NOT SPECIFICALLY DETAILED OR NOTED.
- CONTROL JOINTS SHALL BE PROVIDED IN CONCRETE FLOOR SLABS AND MASONRY WALLS WHETHER OF NOT SPECIFICALLY REFERENCED ON PLANS. THE MAXIMUM AREA PERMITTED BETWEEN JOINTS SHALL BE 650 SQUARE FEET FOR REINFORCED CONCRETE SLABS, 250 SQUARE FEET FOR NON-REINFORCED SLABS AND 400 SQUARE FEET FOR MASONRY UNLESS SHOWN OTHERWISE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY ELECTRIC CONNECTIONS, METERS, TRANSFORMERS AND GENERATORS.
- IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ELECTRICAL RECEPTACLES AND SWITCHES TO AVOID CASEWORK, DOORS, ETC.
- CAULK ALL INTERIOR AND EXTERIOR JOINTS.
- FOLLOW ALL RECOMMENDATIONS OF THE SOILS REPORT BY OLSSON (402-630-6790) POJECT #024-05713, DATED DEC. 2024.

## PROJECT TEAM

OWNER:	EXPRESS OIL 1880 SOUTH PARK DRIVE BIRMINGHAM, AL 35244 ANDY GOLDEN 205943-5770
ARCHITECT:	NORMAN L. HERMAN 5265 RIO GRANDE # 202 LITTLETON, COLORADO 80120 (303)385-1203 ATTN: NORMHERMAN@ARCODEV.COM
STRUCTURAL ENGINEER:	PERFORMANCE ENGINEERING 7400 EAST ORCHARD ROAD, # 240 ENGLEWOOD, COLORADO 80111 (303)721-3322 ATTN: TOM SCHOTT
MECHANICAL PLUMBING ELECTRICAL ENGINEER	LOREN PRIEST 12005 ANTELOPE TRAIL, PARKER, COLORADO 80138 (303)748-1189 ATTN: LOREN@EEPARKER.COM
CIVIL ENGINEER	OLSSON ENGINEERING 1719 INGERSOLL AVE. #111 DES MOINES, IA 50309 ATTN: COREY MAYO 5-5-867-2751

## SHEET INDEX

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A2-1b	EGRESS PLAN
A2-2	EQUIPMENT PLAN
A2-3	REFLECTED CEILING PLAN
A2-4	ROOF PLAN
A3-1	EXTERIOR BUILDING ELEVATIONS
A4-1	BUILDING SECTIONS
A4-2	BUILDING SECTIONS
A4-3	WALL SECTIONS / DETAILS
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A4-5	WALL SECTIONS
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M0.2	MECHANICAL SEQUENCE OF OPERATIONS/SPECS/SCHEDULES
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## ELECTRICAL

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E5.1	LIGHTING COM CHECK

## LOCATION-LEGAL DESCRIPTION

LINCOLN NEBRASKA

## CODE INFORMATION

### APPLICABLE CODES

2018 INTERNATIONAL BUILDING CODE  
2018 INTERNATIONAL PLUMBING CODE  
2018 NATIONAL MECHANICAL CODE  
2017 NATIONAL ELECTRICAL CODE  
2018 IECC

### TYPE OF CONSTRUCTION

TYPE V-8

### MAXIMUM BUILDING HEIGHT

1 STORY

### ALLOWABLE BUILDING AREA

9,000 S.F.

### ACTUAL BUILDING AREA

4,897 S.F.

### OCCUPANCY

M AND S-1  
(MOTOR VEHICLE REPAIR GARAGE) NON-SEPARATED USES

### OCCUPANT LOAD COUNT

SALES / WAITING AREA - 607 SF/ 60 OLF = 11 OCCUPANTS  
BREAK ROOM - 125 SF/15 = 9 OCCUPANTS  
ADMIN / OFFICE - 116 SF / 100 OLF = 2 OCCUPANTS  
INVENTORY - 504 SF / 300 OLF = 2 OCCUPANTS  
SERVICE BAYS - 3,221 SF / 200 = 16 OCCUPANTS  
RESTROOMS - 148F /100 2 OCCUPANTS

TOTAL OCCUPANT LOAD = 42 OCCUPANTS

### FIRE PROTECTION

BUILDING IS NON SPRINKLED

### ROOFING MATERIALS

REQUIRED: CLASS "C" (CAN BE CLASS A OR B PER CODE)  
PROVIDED: CLASS "A" ROOF

ROOF INSULATION REQUIREMENT: MEETS ASTM C 1289  
ROOF INSULATION PROVIDED: MEETS ASTM C 1289

NUMBER OF EXITS REQUIRED:  
2 REQUIRED.....2 PROVIDED

FIRE RESISTANCE OF EXTERIOR WALLS :  
NONE REQUIRED.....DISTANCE GREATER THAN 30 FEET AND TYPE 5 CONSTRUCTION HAS NO REQUIREMENTS

FIRE RESISTANCE OF ELEMENTS :  
TYPE 5B CONSTRUCTION HAS NO REQUIREMENTS

OPENING PROTECTION REQUIREMENTS:  
NO REQUIREMENTS - FIRE SEPARATION DISTANCE EXCEEDS 30 FEET

### PLUMBING FIXTURES

2 RR. REQ.  
2 RR. PROVIDED

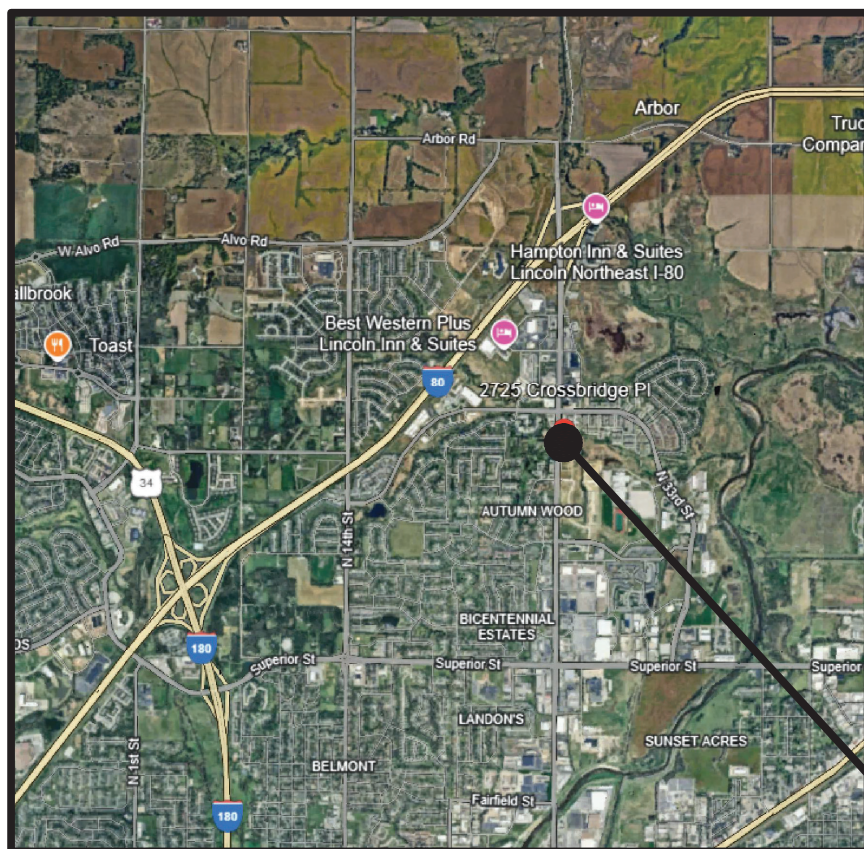
### NUMBER OF EXITS

2 REQ.  
2 PROVIDED

### EXIT WIDTH

42 x 0.2 = 9" REQ.  
36" PROVIDED

## VICINITY MAP



BRAKES PLUS  
LOCATION

## VICINITY PLAN

HAZARDOUS GLAZING REQUIREMENTS:  
THESE REQUIREMENTS HAVE BEEN MET...SEE SHEET A6-1

PARAPET REQUIREMENTS - PARAPETS MEET REQUIREMENTS. THEY EXCEED 30" IN HEIGHT HAD HAVE NO REQUIREMENT FOR FIRE RESISTANCE (SEE EXT. WALLS ABOVE)

REQUIRED PLUMBING FIXTURES:

- 2 RESTROOMS REQUIRED AND TWO PROVIDED
- 2 WATER CLOSETS REQUIRED AND TWO PROVIDED
- 2 LAVATORIES REQUIRED AND TWO PROVIDED
- HANDICAP WATER FOUNTAIN REQUIRED AND 1 PROVIDED
- 1 SERVICE SINK REQUIRED AND ONE PROVIDED.

ROOF DRAINAGE REQUIREMENTS:  
ROOF DRAINAGE HAS BEEN PROVIDED PER #1503. SEE SUBMITTAL DWG A2-4 AND PLUMBING DRAWINGS

BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	02.14.25	SUBMITTED TO BLDG. DEPT.

ARCODEV JOB #:  
CLIENT/JOB #:  
DRAWN BY: NLH  
CHECKED BY: NLH  
DATE OF ISSUE: 012125



45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.681-8925

SHEET

A0

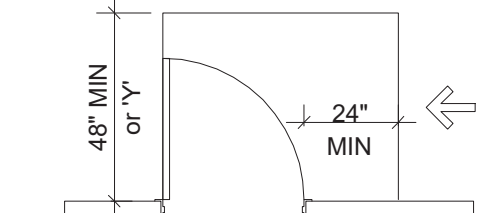
COVER SHEET



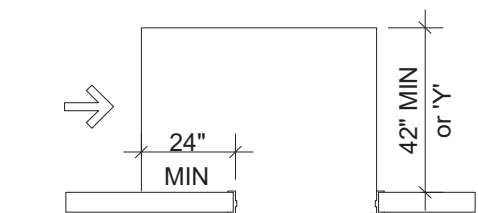
ICC A117.1-2017 : ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

DOORS

1. Doors, doorways, and gates that are part of an accessible route shall comply with 404.
2. Door openings shall provide a clear width of 32 inches, unless the opening is more than 24 inches deep, in which case the clear width of the opening shall be 36 inches. For swinging doors, the clear width shall be measured between the face of the door and the stop, with the door open 90 degrees.
3. There shall be no projections into the clear opening lower than 34 inches. Projections into the clear opening between 34 inches and 80 inches shall not exceed 4 inches.
4. In accordance with 404.2.3 exception 2, door closers and stops shall be permitted to be a minimum of 78 inches above the floor or ground.
5. Minimum maneuvering clearances at swinging doors shall comply with ICC A117.1-2017 Section 404.2.3, Table 404.2.3.2 and Figure 404.2.3.2.
6. Fire doors shall have a minimum opening force allowable by the appropriate administrative authority.
7. Hinged doors other than fire doors shall have an opening force of 5 pounds maximum.
8. Sliding doors shall have an opening force of 5 pounds maximum.
9. Door and gate surfaces shall comply with 404.2.10.
10. Doors shall be permitted to swing into turning spaces, per 304.4.
11. Two doors in a series shall comply with ICC A117.1-2017 Section 404.2.5 and Figure 404.2.5.

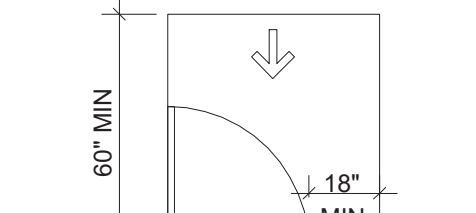


NOTE: Y = 54" MIN.  
if door has a closer

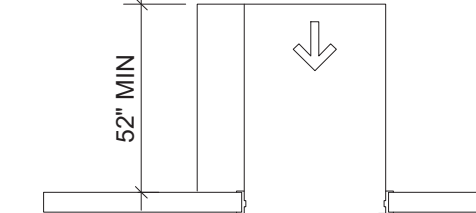


NOTE: Y = 48" MIN.  
if door has a closer

Latch-Side Approaches - Swinging Doors

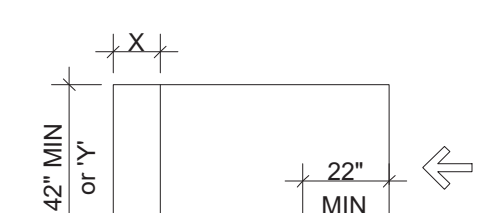


NOTE: X = 12" MIN.  
if door has both a  
closer and a latch

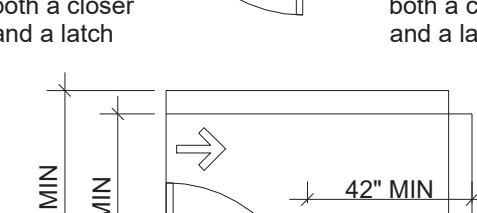


NOTE: X = 12" MIN.  
if door has both a  
closer and a latch

Front Approaches - Swinging Doors

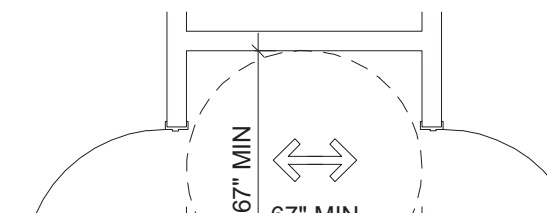


NOTE:  
Y = 52" MIN.  
if door has  
both a closer  
and a latch



NOTE: X = 12" MIN.  
if door has  
both a closer  
and a latch

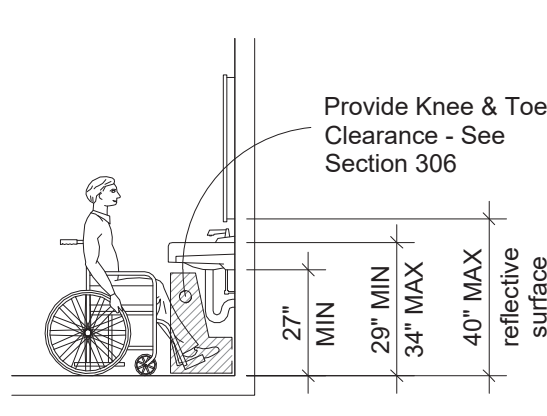
Hinge-Side Approaches - Swinging Doors



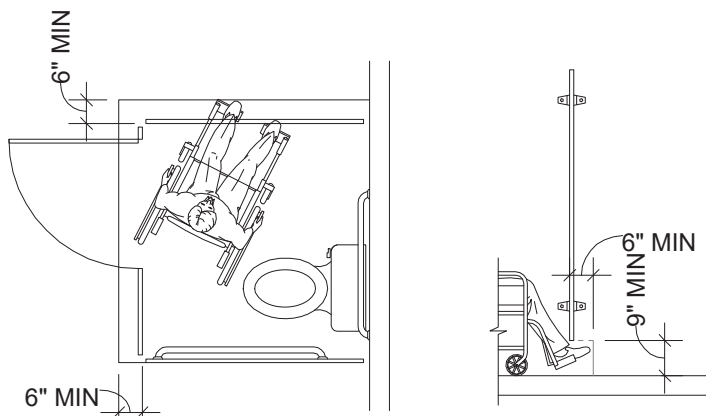
Doors in Series and Gates in Series

RESTROOMS & DRINKING FOUNTAINS

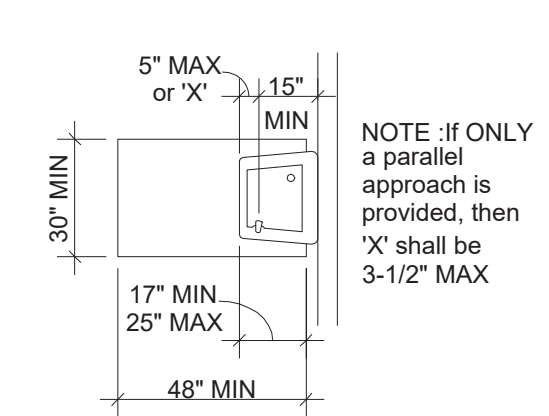
1. Where toilet rooms are provided, each toilet room shall comply with 603.
2. Where toilet compartments are provided, at least one toilet compartment shall comply with 604.8.1. In addition to the compartment required to comply with 604.8.1, at least one compartment shall comply with 604.8.2 where six or more toilet compartments are provided, or where the combination of urinals and water closets totals six or more fixtures.
3. Mirrors located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 40 inches maximum above finish floor or ground. Mirrors not located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 35 inches maximum above the finish floor or ground.
4. Coat hooks shall be located within one of the reach ranges specified in 308. Shelves shall be located 40 inches minimum and 48 inches maximum above the finish floor.
5. Water closets shall comply with 604.2 through 604.8.
6. Toilet paper dispensers shall comply with ICC A117.1-2017, Chapter 6, Section 604.7 and shall not be located behind grab bars. Dispensers shall not be of a type that controls delivery or that does not allow continuous paper flow.
7. Grab bars shall be provided at water closets and shall comply with ICC A117.1-2017, Chapter 6, Figure 604.5.
8. Urinals shall comply with 605 and shall be either wall-hung or stall type urinals.
9. Lavatories shall comply with 606. Faucets for lavatories shall comply with 606.4. Exposed pipes under lavatories shall be insulated or otherwise protected to prevent against contact.
10. Drinking Fountains shall comply with ICC A117.1-2017, Chapter 6, Section 602.2.
11. Toilet paper dispensers shall comply with ICC A117.1-2017, Chapter 6, Figure 604.9.2.
12. Fixed side wall grab bars shall comply with ICC A117.1-2017, Chapter 6, Section 604.5.1.



Clearances & Heights at Lavatory



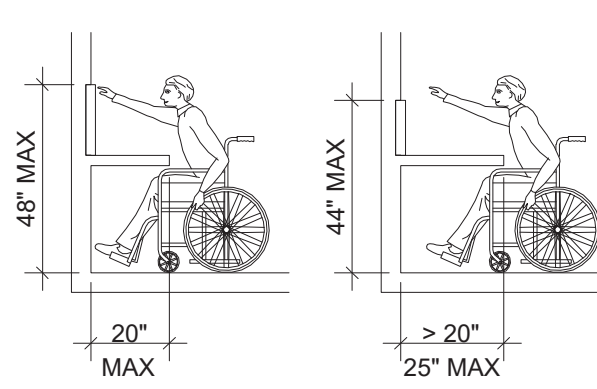
Stall Compartment Toe Clearance



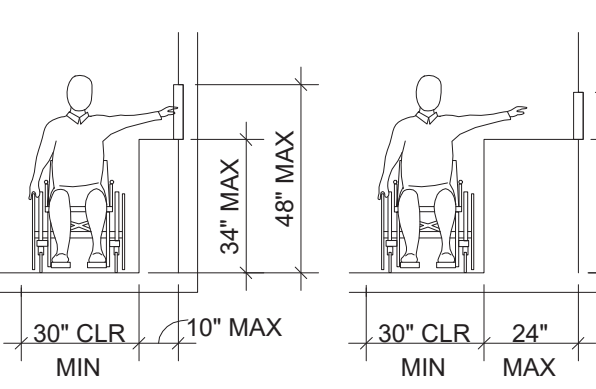
Drinking Fountain Clearance and Spout Location

REACH RANGES, CONTROLS & OPERATING MECHANISMS

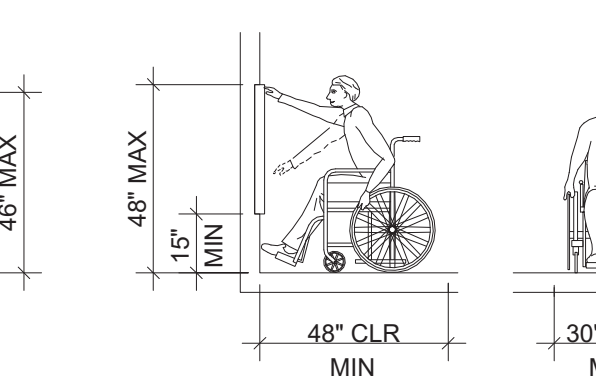
1. Reach ranges shall comply with 308.
2. Operable parts shall comply with 309 and shall be placed within one or more of the reach ranges specified in 308.
3. In accordance with 309.4, operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds maximum.



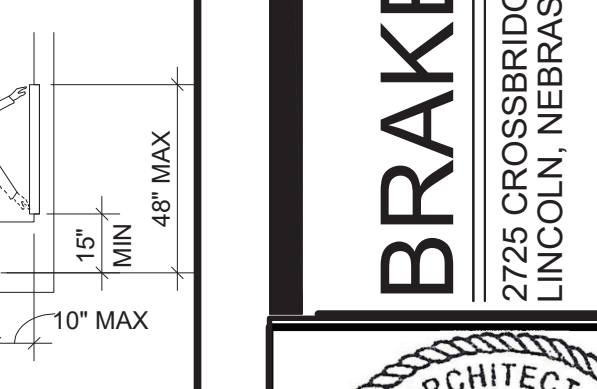
Obstructed Forward Reach



Obstructed Side Reach



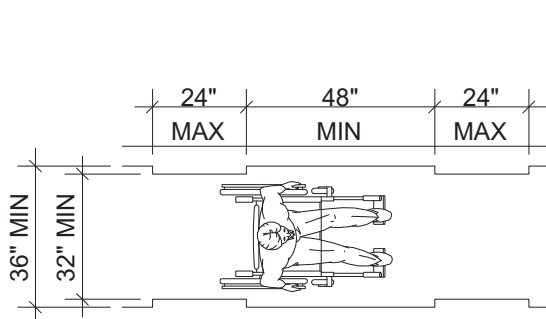
Unobstructed Forward Reach



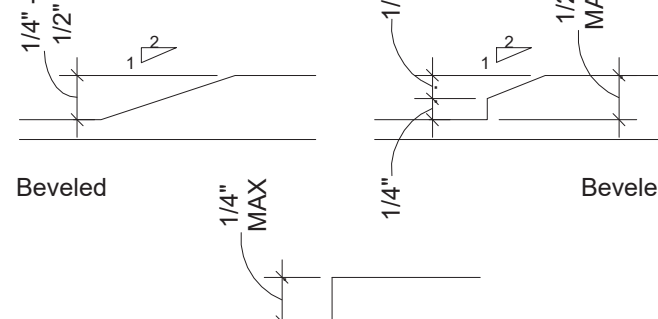
Unobstructed Side Reach

PATH OF TRAVEL

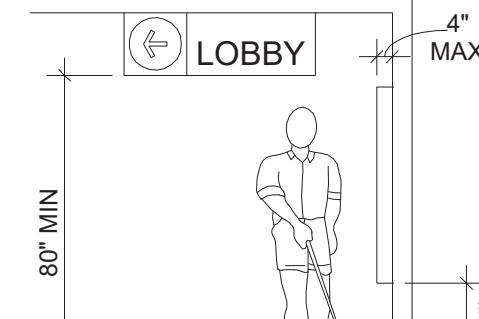
1. The running slopes of walking surfaces that are part of an accessible route shall not be steeper than 1:20 with a cross slope that is not steeper than 1:48.
2. Changes in level shall comply with ICC A117.1-2017 Section 303.
3. The clear width of walking surfaces on an accessible route shall comply with 403.5.1.
4. The clear width at turns along an accessible route shall comply with 403.5.2.
5. In accordance with 403.5.3, an accessible route with a clear width of less than 60 inches shall provide passing spaces at intervals of 200 feet.



Clear Width of an Accessible Route



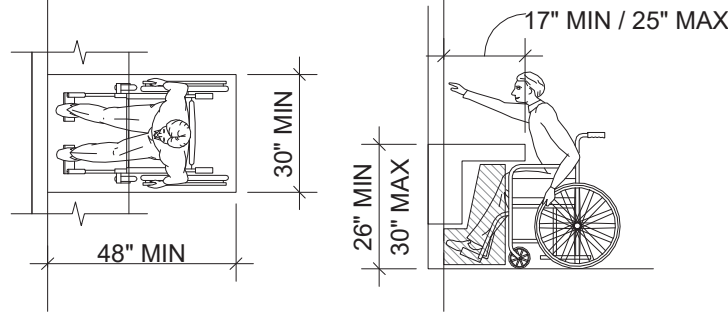
Changes in Level



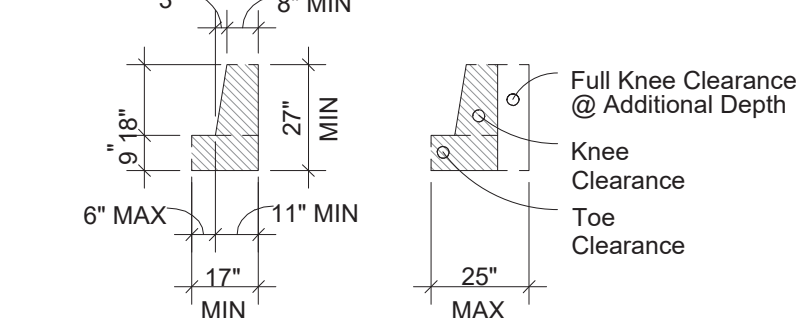
Walking Parallel To A Wall

SEATING AT TABLES & COUNTERS

1. Where dining surfaces are provided for the consumption of food and drink, at least 5 percent of the seating spaces and standing spaces at the dining surfaces shall comply with 902. In addition, where work surfaces are provided for use by other than employees, at least 5 percent shall comply with 902.
2. Confirm actual seat counts with Table 221.2.1.
3. Dining surfaces and work surfaces required to comply with 902 shall be dispersed throughout the space or facility containing dining surfaces and work surfaces.
4. Dining surfaces and work surfaces shall comply with 902.2 and 903.3.



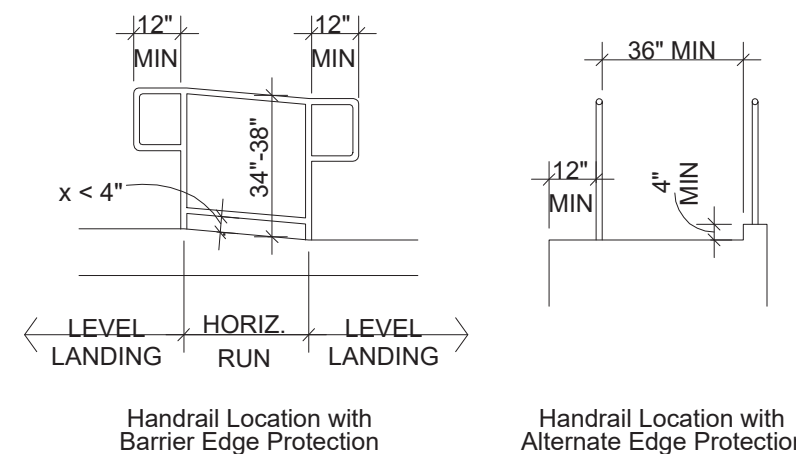
Toe and Knee Clearances



Full Knee Clearance @ Additional Depth

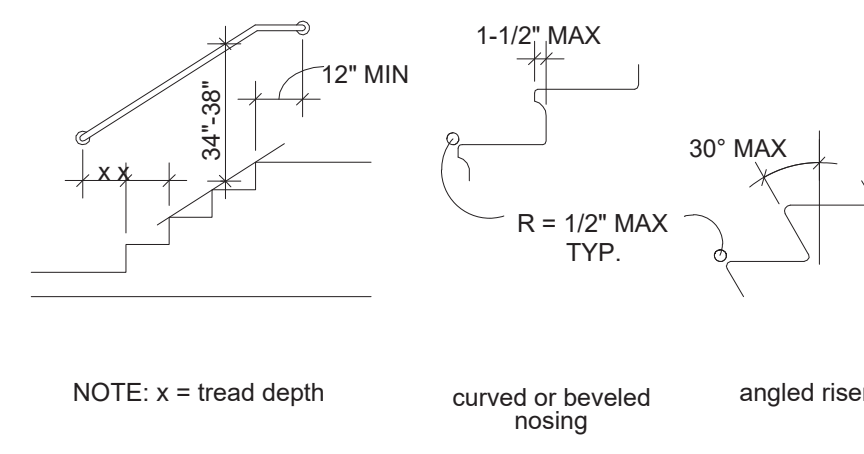
STAIRS AND RAMPS

1. Ramps on accessible routes shall comply with 405.
2. Ramp runs shall have a running slope not steeper than 1:12 with a cross slope not steeper than 1:48.
3. The clear width of a ramp run or (where handrails are provided) the clear width between handrails shall be 36 inches minimum.
4. The rise for any ramp run shall be 30 inches maximum.
5. Ramps shall have landings at the top and the bottom of each ramp run complying with 405.7.
6. Ramps with a rise greater than 6 inches shall have handrails complying with 505.
7. Edge protection complying with 405.9.1 or 405.9.2 shall be provided on each side of ramp runs and each side of ramp landings.
8. Stairs that are part of a means of egress shall comply with 504.
9. All steps on a flight of accessible stairs shall have uniform riser heights and uniform tread depths. Risers shall be between 4 inches and 7 inches in height. Treads shall be 11 inches deep minimum.
10. Open risers are not permitted.
11. Nosings in steps shall comply with 504.5.
12. Stairway handrails shall comply with 505.

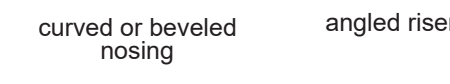


SLOPE	MAX. RISE
1:12 MIN.	30"
1:12 to 1:10	6"
1:10 to 1:08 MAX.	3"

\*Only for Existing Sites, Buildings and Facilities



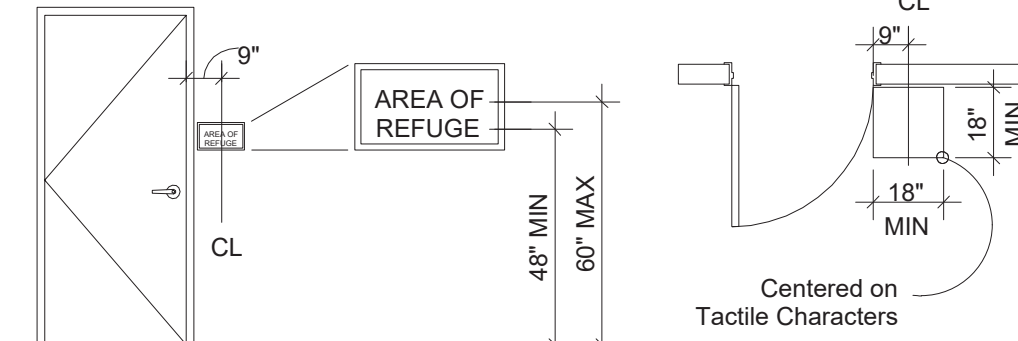
Handrail Location



Stair Nosings

SIGNAGE

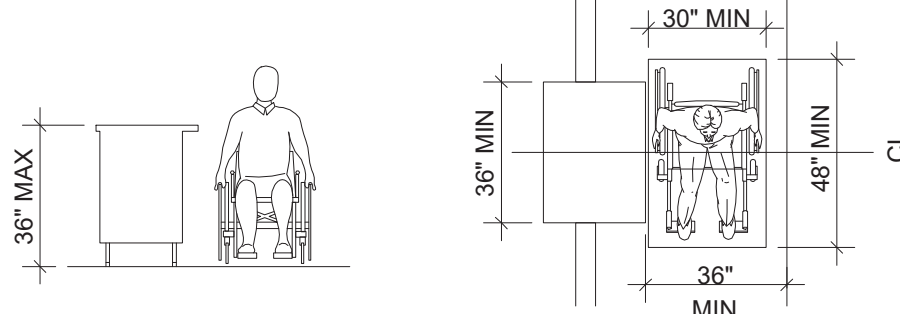
1. Signs shall comply with 703.
2. Signs identifying permanent rooms and spaces shall comply with 703.1, 703.2, and 703.5. Where pictograms are provided as designations of permanent rooms and spaces, the pictograms shall comply with 703.6 and shall have text descriptors complying with 703.2 and 703.5.
3. Signs that provide direction to or information about spaces and facilities shall comply with 703.5.
4. Where more than one check-out aisle is provided, check-out aisles complying with 904.3 shall be identified by the International Symbol of Accessibility complying with 703.7.2.1. Where check-out aisles are identified by numbers, letters, or functions, signs identifying check-out aisles complying with 904.3 shall be located in the same location as the check-out aisle identification.



Centered on Tactile Characters

FOODSERVICE LINES, TABLEWARE AREAS & CHECKOUT AISLES

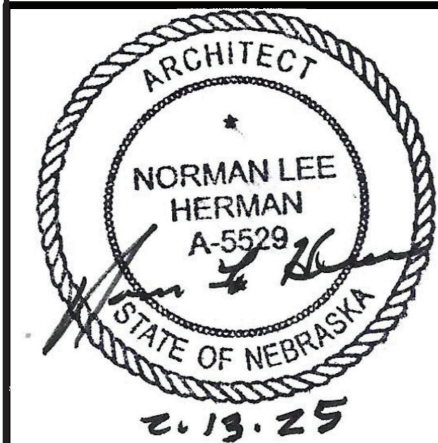
1. Where check-out aisles are provided, check-out aisles shall comply with 904.3 and be dispersed.
2. Where provided, at least one of each type of sales counter and service counter shall comply with 904.4. Where counters are dispersed throughout the building or facility, counters complying with 904.4 also shall be dispersed.
3. Food service lines shall comply with 904.5. Where self-service shelves are provided, at least 50 percent, but no fewer than one, of each type provided shall comply with 308.
4. Queues and waiting lines servicing counters or check-out aisles required to comply with 904.3 or 904.4 shall comply with 403.
5. Check-out aisles and sales and service counters shall comply with the applicable requirements of 904.
6. All points of counters required to comply with 904 shall be located adjacent to a walking surface complying with 403.



Parallel Approach at Sales & Service Counters

BRAKES PLUS

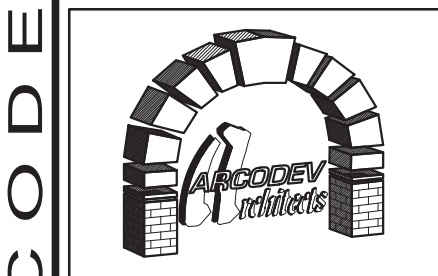
2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	02.14.25	SUBMITTED TO BLDG. DEPT.

ARCODEV JOB #:  
CLIENT/JOB #:  
DRAWN BY: NLH  
CHECKED BY: NLH  
DATE OF ISSUE: 012125



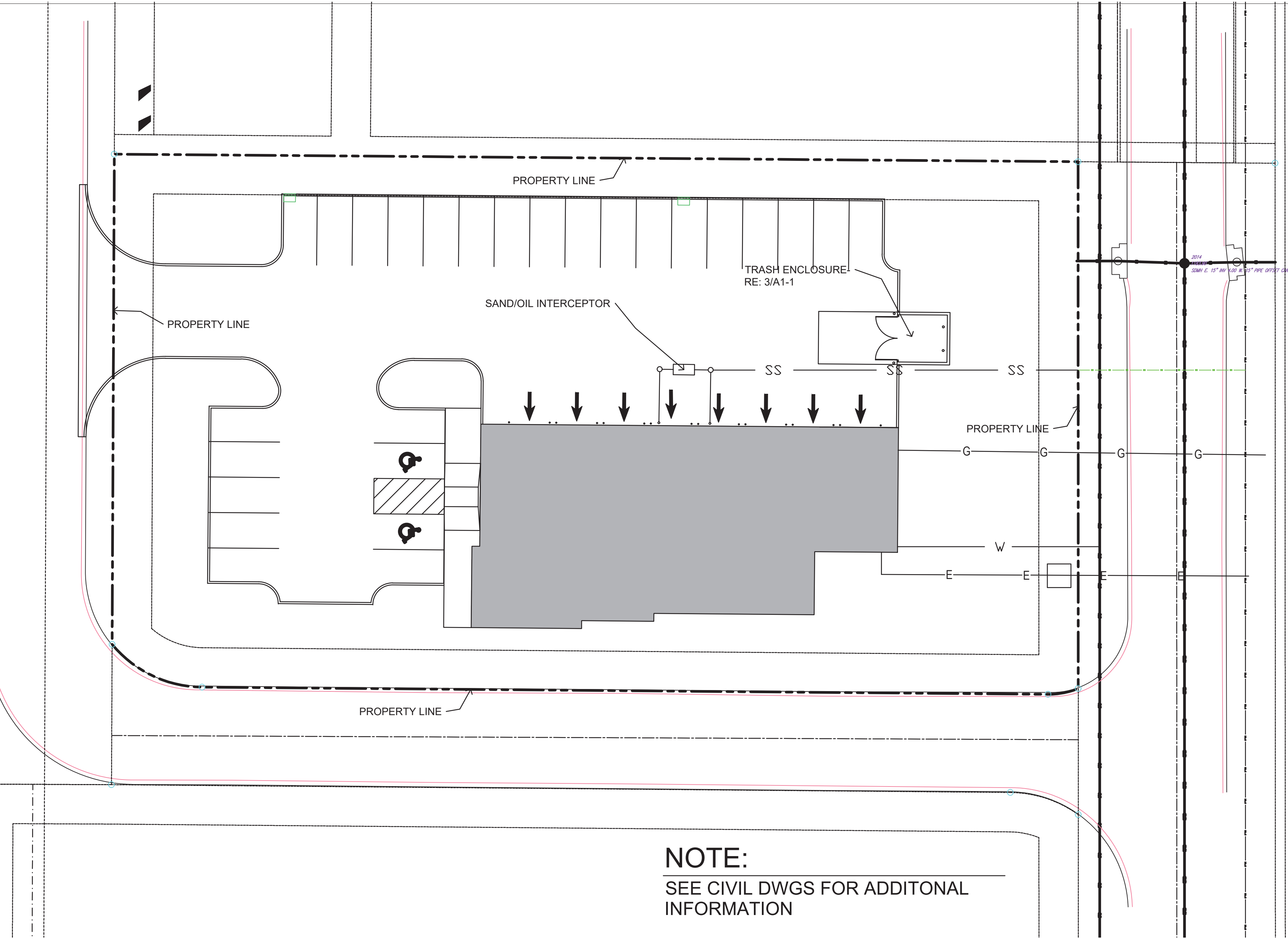
45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8925

A0.1

ACCESSIBLE DETAILS



NORTH 27TH STREET

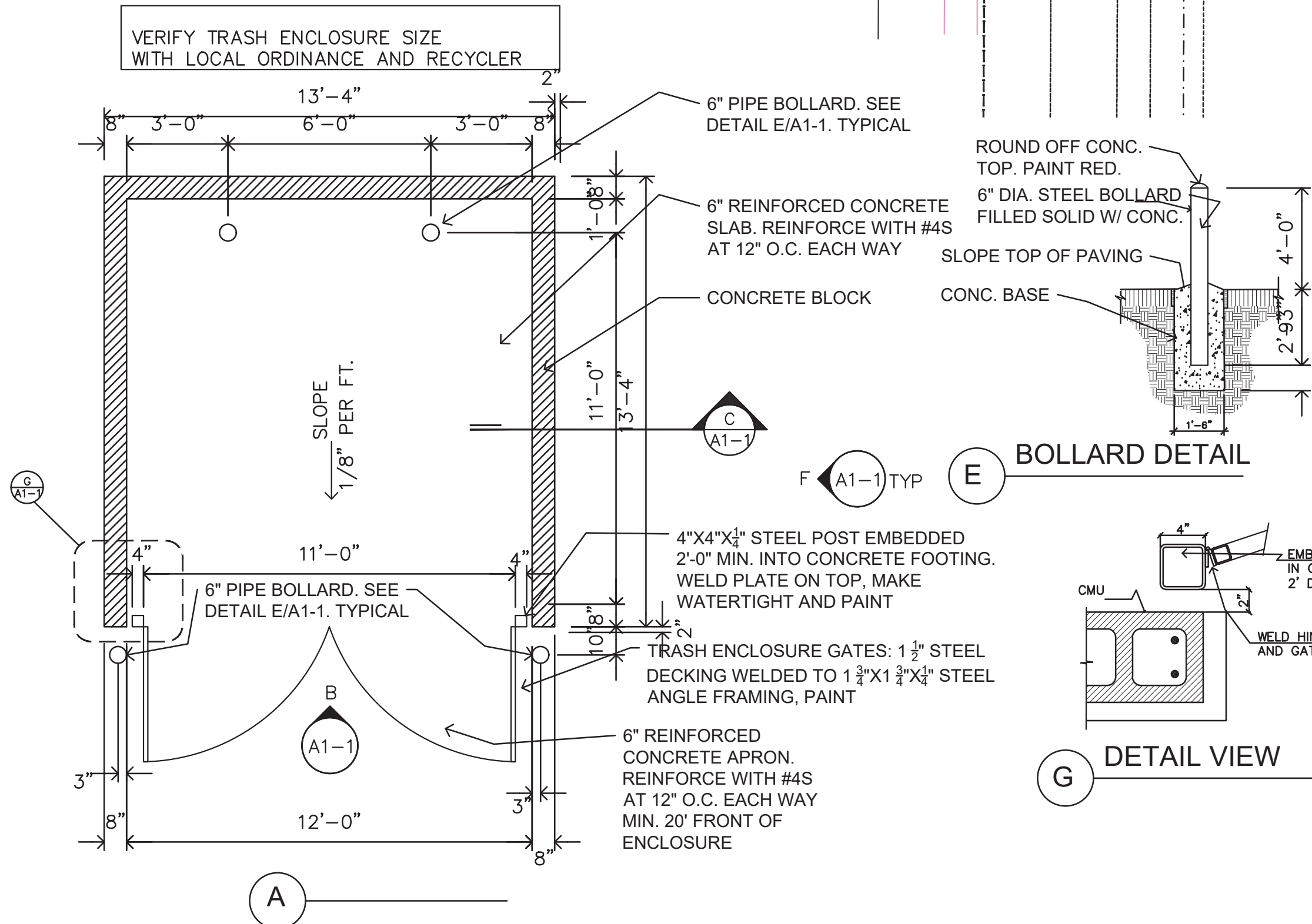


NOTE:  
SEE CIVIL DWGS FOR ADDITIONAL  
INFORMATION

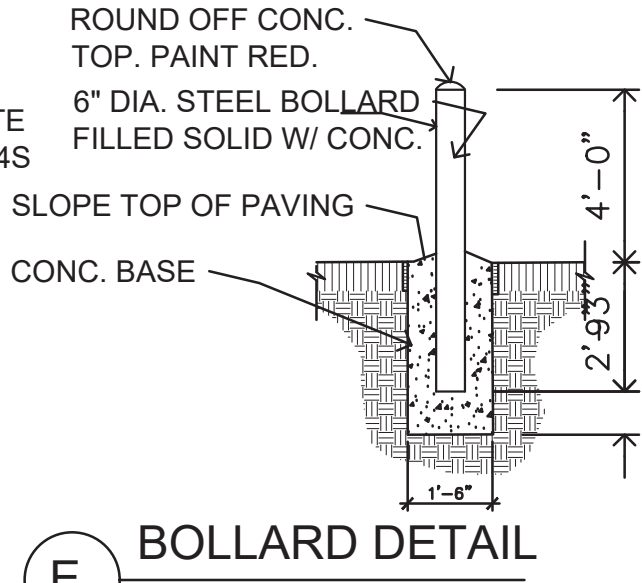


SITE PLAN

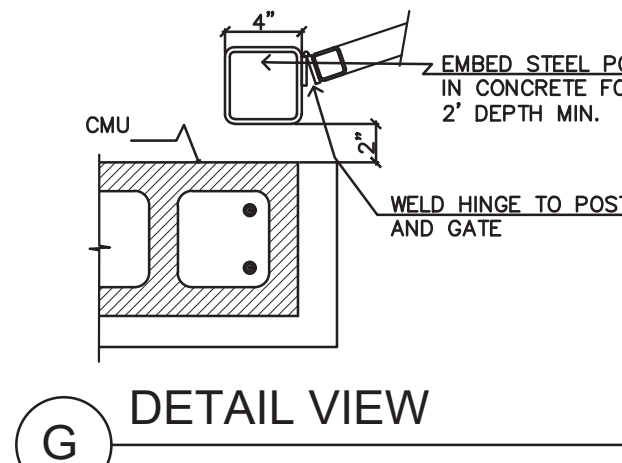
NO SCALE



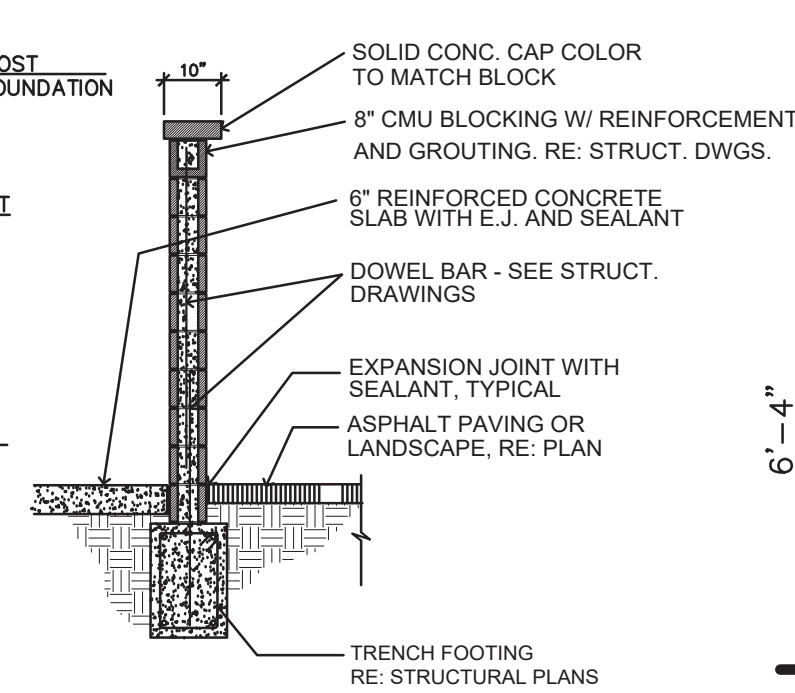
3 TRASH ENCLOSURE DETAIL  
NO SCALE



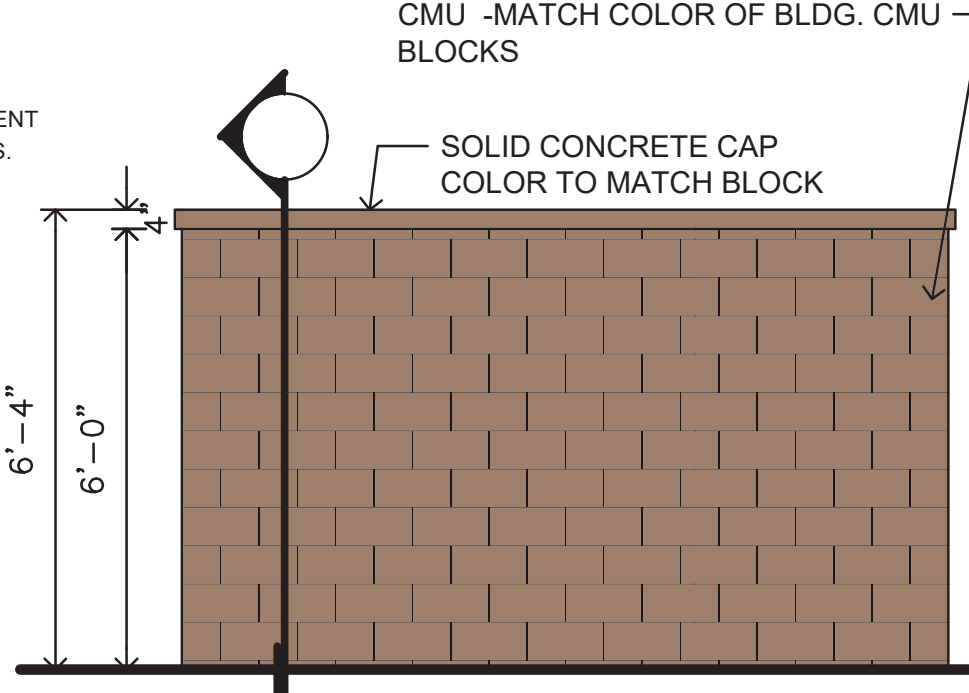
E BOLLARD DETAIL



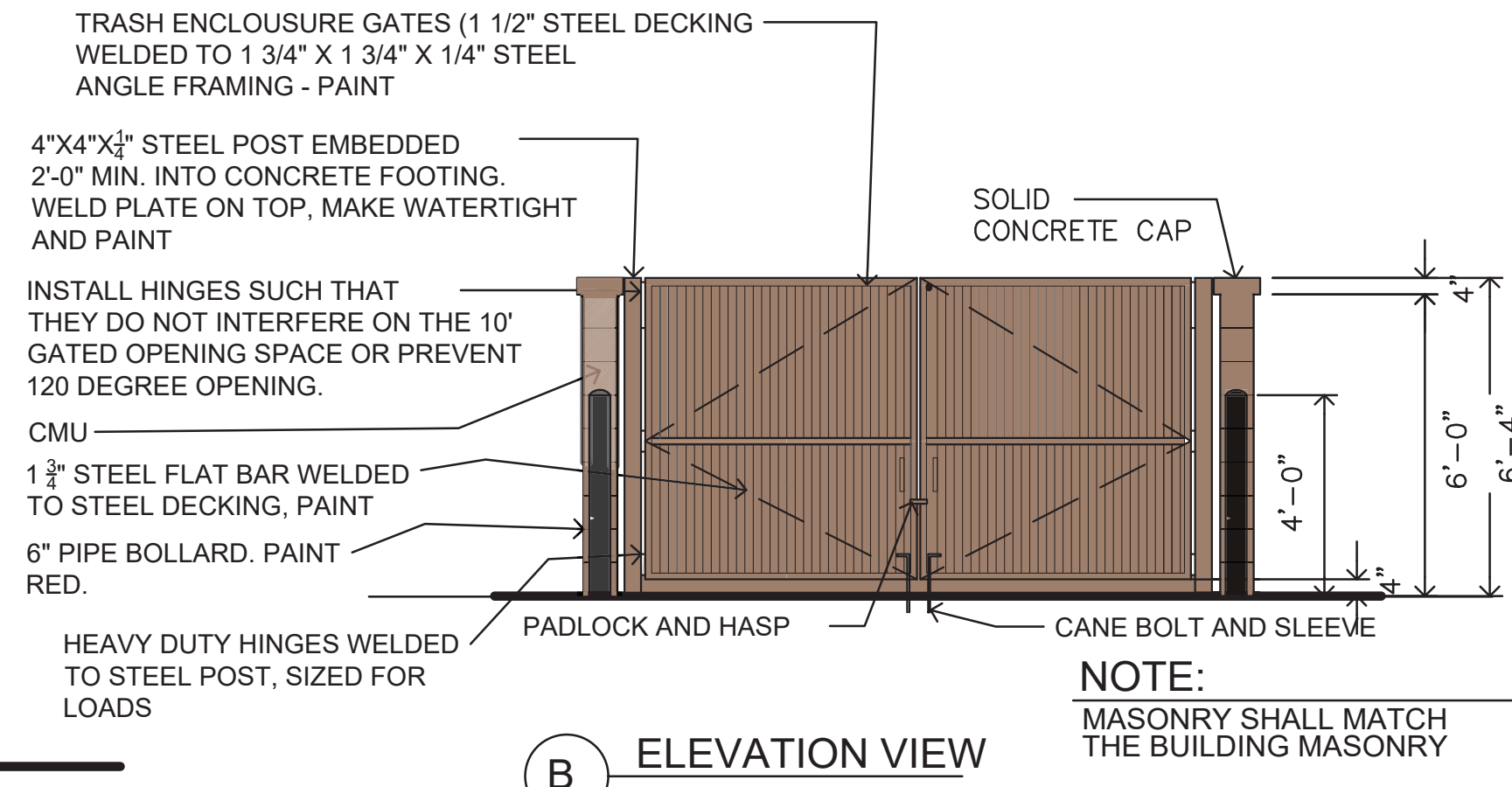
G DETAIL VIEW



C BLOCK WALL DETAIL



F WALL ELEVATION



B ELEVATION VIEW

BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
1	02.14.25	SUBMITTED TO BLDG. DEPT.

ARCODEV JOB #:  
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CHECKED BY: NLH  
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45 SPIYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.981-9925

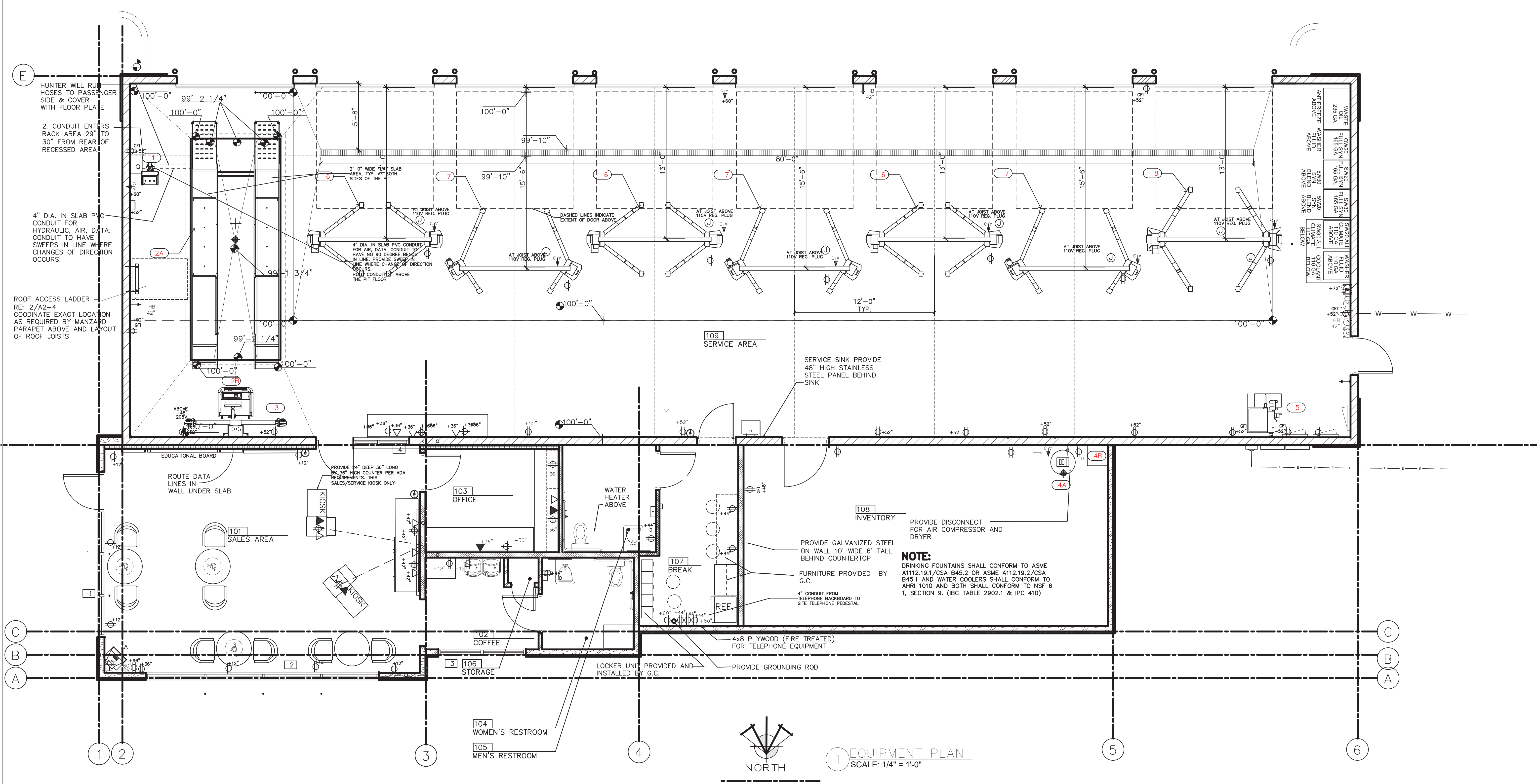
SHEET

A1-1  
SITE PLAN AND DETAILS









EQUIPMENT SCHEDULE A											
ID	DESCRIPTION	MANUFACTURER	MODEL NUMBER	LENGTH	DEPTH	HEIGHT	HP	VOLTAGE	AMPS	PHASE	NOTES
1	ALIGNMENT RACK - CONTROL BOX	HUNTER	RY10LFT-IS	19"	7'-4 1/2"	8"	-	208-230	26A	1	DEDICATED CIRCUIT
2	ALIGNMENT MACHINE	HUNTER	WA443	36"	2'-6"	5'-8"	-	115	15A	1	DEDICATED CIRCUIT
3	ALIGNMENT SENSORS	HUNTER	HE421	8'-9"	1'-3"	10'-3"	-	120	15A	1	DEDICATED CIRCUIT
4A	AIR COMPRESSOR	CHAMPION	HR50-12	5'-10"	2'-4"	4'-8"	5	208	30A	3	DEDICATED CIRCUIT 30 AMP, WITH DISCONNECT
4B	AIR COMPRESSOR - DRYER	CHAMPION									
5	BRAKE LATHE	HUNTER	BL500	44 1/2"	35 1/2"	-	1.5	115	15A	1	DEDICATED CIRCUIT (115V, 15 AMP)
6	ABOVE-GROUND 10K TWIN POST LIFT	ROTARY	SPO10	11'-6"	-	12'-5"	5	110	-	1	WITH SHOCKWAVE, NON-DEDICATED CIRCUIT
7	ABOVE-GROUND 10K A-TWIN POST LIFT	ROTARY	SPOA10	11'-6"	-	12'-5"	5	110	-	1	WITH SHOCKWAVE, NON-DEDICATED CIRCUIT
8	ABOVE-GROUND 12K TWIN POST LIFT	ROTARY	SPOA12RA	11'-6"	-	13'-8"	5	110	-	1	WITH SHOCKWAVE, NON-DEDICATED CIRCUIT
9	NEW OIL TANK	VALVOLINE		-	-	-	-	-	-	-	-
10	USED OIL TANK	-	-	3'	4'	-	-	-	-	-	STACKABLE
11	WASHER/COOLANT TANK	-	-	3'	3'	5'-1"	-	-	-	-	DBL WALL, UL LISTED
12	OIL DISPENSER	EP16		-	-	-	-	-	-	-	-
13											
14											
15											
16											
17											
18											
19											

**ELECTRICAL LEGEND:**

- DUPLEX OUTLET
- DEDICATED DUPLEX OUTLET
- AUTOCALVE RECEPTACLE
- FOUR-PLEX OUTLET
- 220-VOLT OUTLET
- FLOOR OUTLET
- TELEPHONE JACK
- TELEPHONE JACK +60"
- DATA JACK
- PLUGMODE
- AC ABOVE COUNTER

- LIGHT SWITCH 6" AFF
- THREE-WAY LIGHT SWITCH 6" AFF
- TELEPHONE BACKBOARD W/ OUTLET
- ELECTRICAL PANEL
- TIME CLOCK
- SIGN OUTLET
- JUNCTION BOX
- THERMOSTAT

**GENERAL NOTES:**

- VERIFY ALL EQUIPMENT LOCATIONS WITH OWNER PRIOR TO INSTALLATION.
- COORDINATE INSTALLATION OF EQUIPMENT ITEMS SUPPLIED BY OWNER.
- TELEPHONE SYSTEM PROVIDED BY VENDORS. COORDINATE SCHEDULE WITH GENERAL CONTRACTOR.
- COMPRESSED AIR LINE DROPS TO 48" AFF UNLESS NOTED OTHERWISE REFER TO PLUMBING PLAN FOR COMPRESSED AIR LINE SIZES.

**BRAKES PLUS**

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA

ARCHITECT

NORMAN LEE HERMAN  
A-5529

STATE OF NEBRASKA

2.13.25

ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	02.14.25	SUBMITTED TO BLDG. DEPT.

ARCODEV

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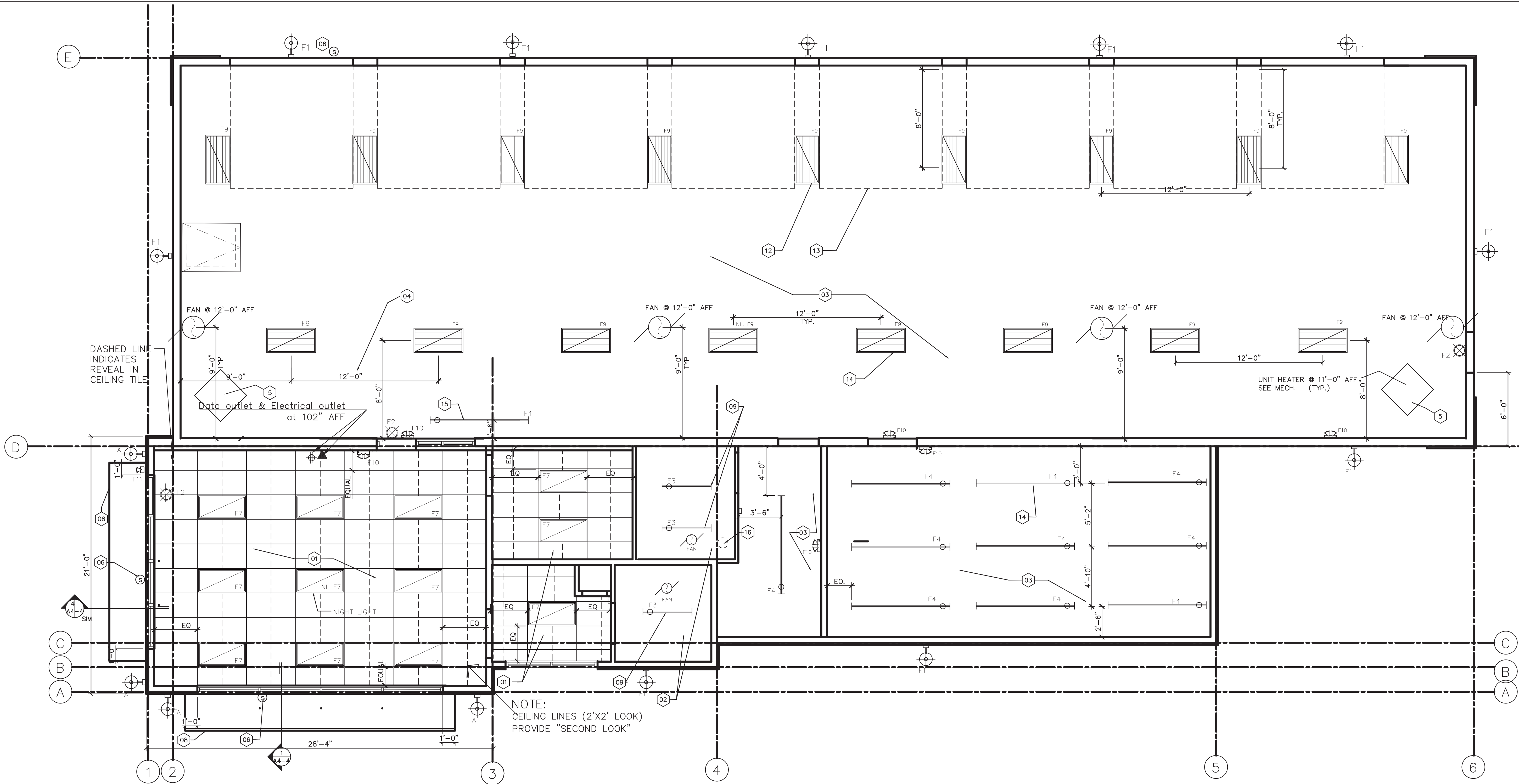
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LITTLETON, CO 80123  
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A2-2

EQUIPMENT PLAN





1 REFLECTIVE CEILING PLAN  
SCALE: 1/4" = 1'-0"

CEILING PLAN KEYNOTES:

- 2x4 ACOUSTICAL TILE CEILING GRID WITH ARMSTRONG "DUNE" - FINE FISURED SECOND LOOK "I" CEILING TILES. RE: ROOM FINISH SCHEDULE.
- GYP BD CEILING OVER WOOD STUD FRAMING. PAINT. RE: ROOM FINISH SCHEDULE.
- OPEN TO STRUCTURE ABOVE. PAINT. RE: ROOM FINISH SCHEDULE.
- ROOF LADDER AND HATCH ABOVE - COORDINATE EXACT LOCATION WITH ROOF FRAMING.
- UNIT HEATER @ 11'-0" AFF TO BOTTOM - RE: MECH. DWGS.
- JUNCTION BOX FOR EXTERIOR WALL SIGNS
- NOT USED
- LINE OF METAL AWNING
- CENTER LIGHT FIXTURE IN ROOM
- NA.
- NA.
- CENTER LIGHT FIXTURES BETWEEN OVERHEAD DOOR. MOUNT BOTTOM OF FIXTURE 2" BELOW BOTTOM OF OVERHEAD DOOR TRACK. TYPICAL.
- LINE OF OVERHEAD DOOR
- MOUNT FIXTURES TIGHT TO STRUCTURE ABOVE. TYPICAL.
- CENTER FIXTURE OVER SERVICE DESK BELOW
- DECK MOUNTED WATER HEATER. RE: PLUMBING DRAWINGS.

LIGHT FIXTURE SCHEDULE

ALL FIXTURES FURNISHED AND INSTALLED BY GENERAL CONTRACTOR

SYMBOL	MARK	QUANTITY	DESCRIPTION	MANUF.	CAT. NO.	LAMP	MOUNTING	VOLTAGE	REMARKS
	A	4	EXTERIOR DECORATIVE LIGHT FIXTURE	COOPER LIGHTING	303-W1-LED82-3000-UNV-T4-DIM10	16W LED	WALL	120	REFER TO ELEVATIONS FOR MOUNTING LOCATIONS
	F1	8	EXTERIOR DECORATIVE LIGHT FIXTURE	MCGRAW EDISON	IST-SA1F-730-U-T4FT	25W LED	WALL	120	
	F2	3	EXIT SIGN	COOPER LIGHTING	APC7 G	LED	WALL/CENTER ON DOOR	120	PROVIDE EMERGENCY BATTERY PACK (90 MINUTE MIN.)
	F3	3	4'-0" STRIP LED	COOPER LIGHTING	4SNLED LD5 UNV	LED	UNIVERSAL	120	MOUNT AT 12'-0" AFF
	F4	11	8'-0" STRIP LED	COOPER LIGHTING	8TSNLED LD5 UNV	LED	UNIVERSAL	120	MOUNT AT 12'-0" AFF
	F7	12	2x4 RECESSED LED TROFFER	COOPER LIGHTING	24CGT 4540C	LED	GRID MOUNT	120	
	F9	17	4' - LED HIGHBAY	COOPER LIGHTING	LHB 18 UNV	LED	HUNG FROM STRUCT.	120	
	F10	6	EMERGENCY LIGHT W/ BATTERY BACKUP	COOPER LIGHTING	SEL 25	LED	WALL MOUNTED	120	PROVIDE EMERGENCY BATTERY PACK (90 MINUTE MIN.) AND TIME DELAY RELAY
	F11	2	EMERGENCY EGRESS LIGHT - EXTERIOR	COOPER LIGHTING	AEL 246	LED	SURFACE	120	PROVIDE EMERGENCY BATTERY PACK (90 MINUTE MIN.)

BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA

ARCHITECT

NORMAN LEE  
HERMAN  
A-5528

STATE OF NEBRASKA

2.13.25

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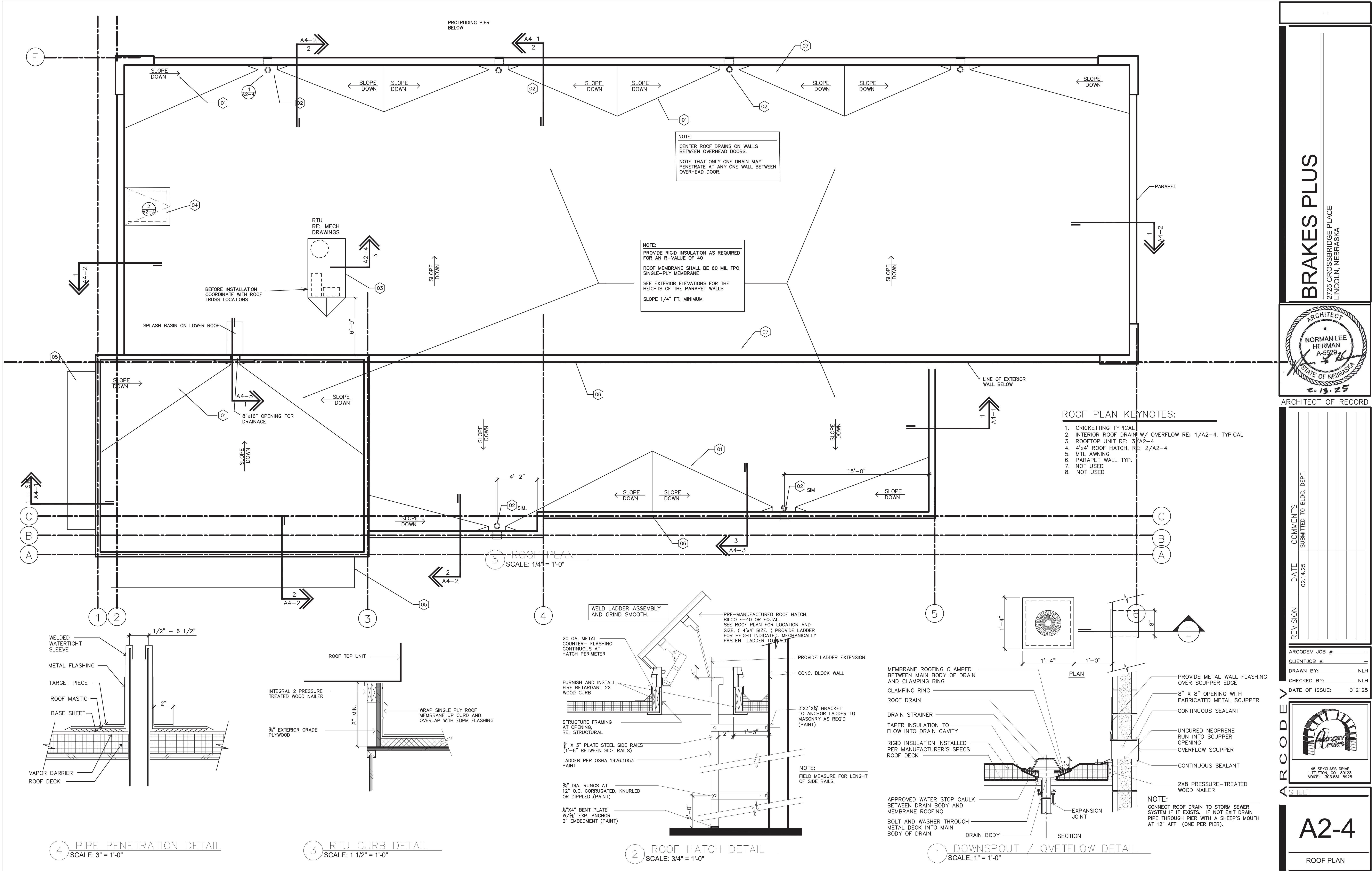
45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8925

SHEET

A2-3

CEILING PLAN







KEYNOTES

1. SMOOTH FACE CONCRETE BLOCK BY BEST BLOCK  
COLOR: 739 MEDIUM BROWN

2. NOT USED.

3. EIFS - INTEGRAL COLOR TO MATCH SHERWIN WILLIAMS #2834  
BIRDEYE MAPLE

4. EIFS - INTEGRAL COLOR TO MATCH SHERWIN WILLIAMS #6105  
DIVINE WHITE

5. METAL. MAN DOOR. PAINT TO MATCH MASONRY
6. ALUMINUM/GLASS STOREFRONT  
CLEAR ANODIZED ALUMINUM

7. ALUMINUM SECTIONAL OVERHEAD DOORS  
CLEAR ANODIZED ALUMINUM

8. ILLUMINATED SIGNAGE (UNDER SEPARATE PERMIT)

9. PRE-FINISHED METAL CAP FLASHING PREFINISHED TO  
MATCH FINISH ANODIZED STOREFRONT FRAMING

10. NOT USED.
11. DECORATIVE LIGHT FIXTURE.

12. KEY DROP BOX

13. 1 1/2" X 3/4" REVEAL

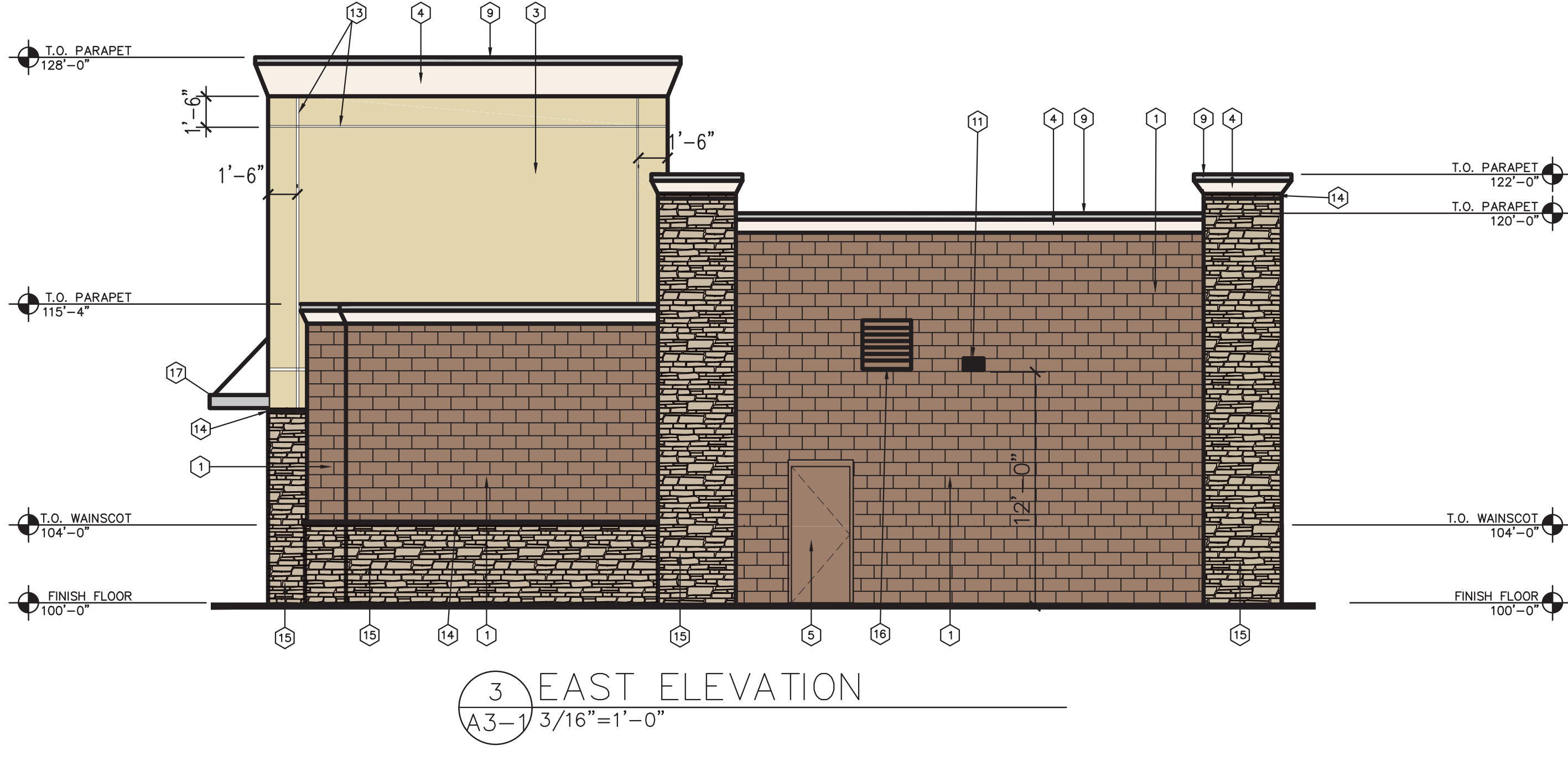
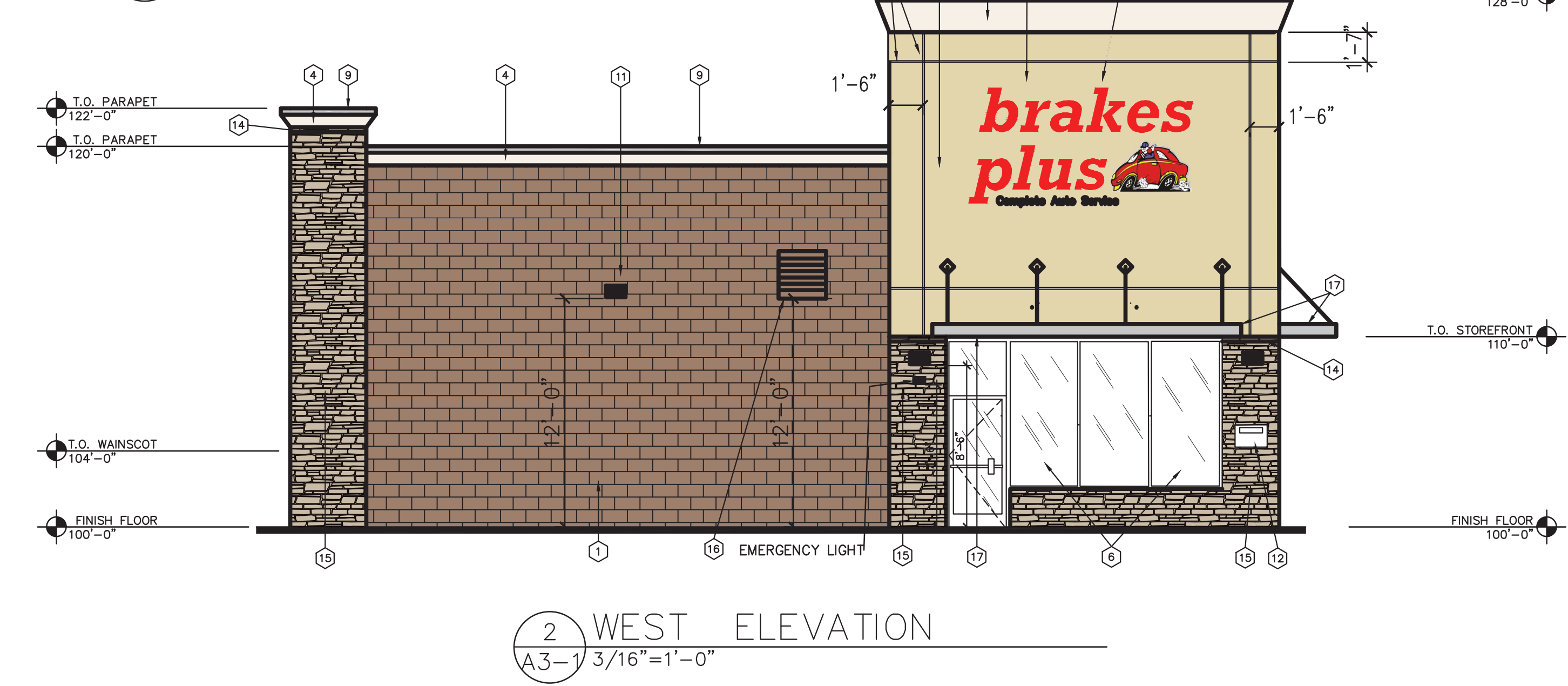
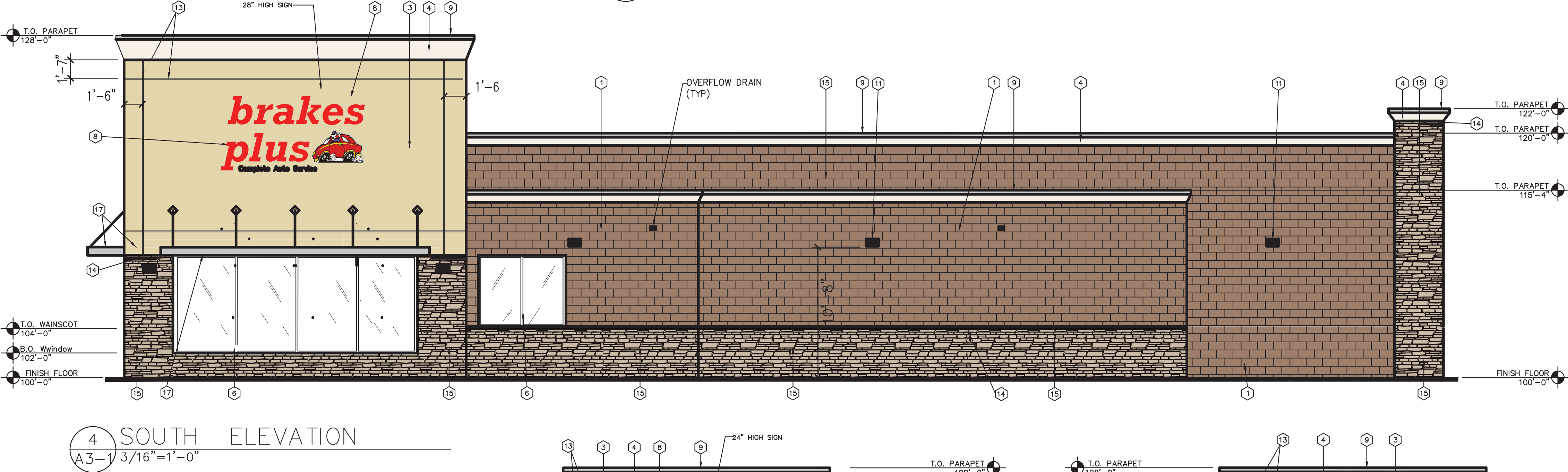
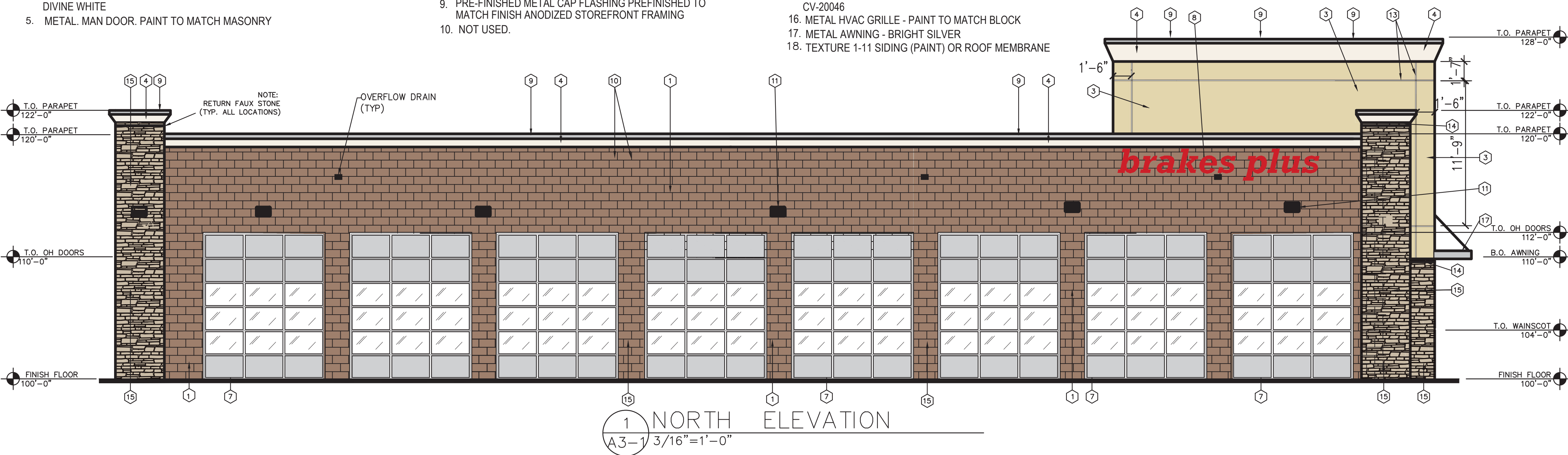
14. WATER SILL - FAUX STONE - CULTURED STONE - WHITE OAK COUNTRY  
LEDGESTONE CV-20046

15. FAUX STONE - CULTURED STONE - WHITE OAK COUNTRY LEDGESTONE  
CV-20046

16. METAL HVAC GRILLE - PAINT TO MATCH BLOCK

17. METAL AWNING - BRIGHT SILVER

18. TEXTURE 1-11 SIDING (PAINT) OR ROOF MEMBRANE



BRACKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA

ARCHITECT

NORMAN LEE  
HERMAN  
A-5529  
STATE OF NEBRASKA

2.19.25

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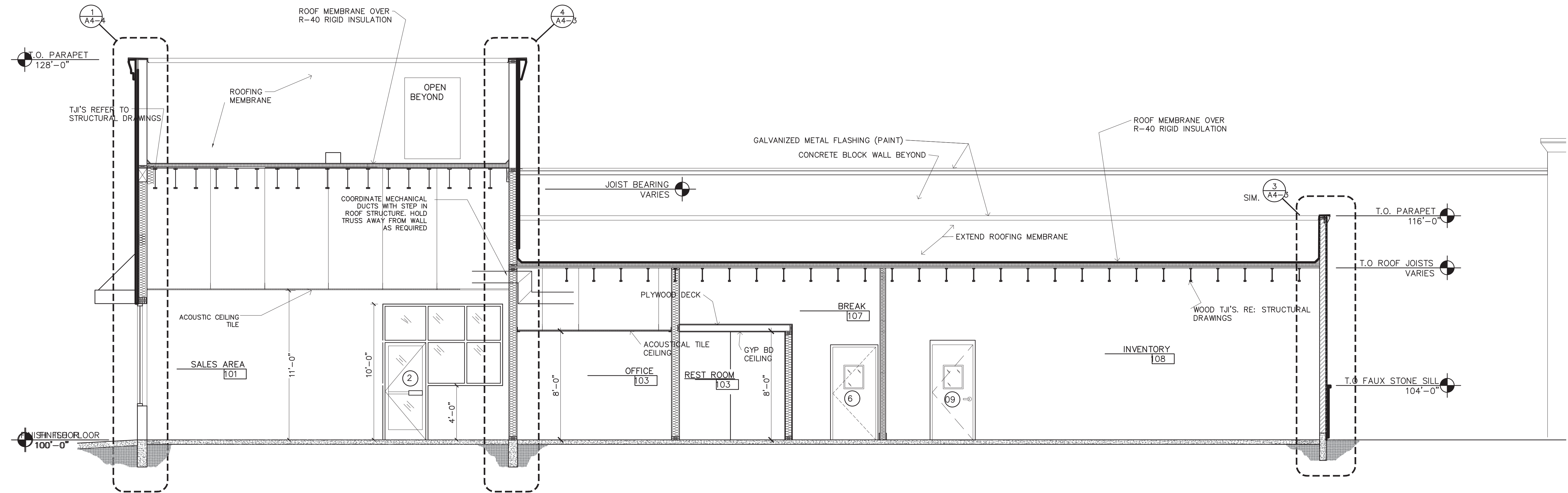
ARCODEV

45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8925

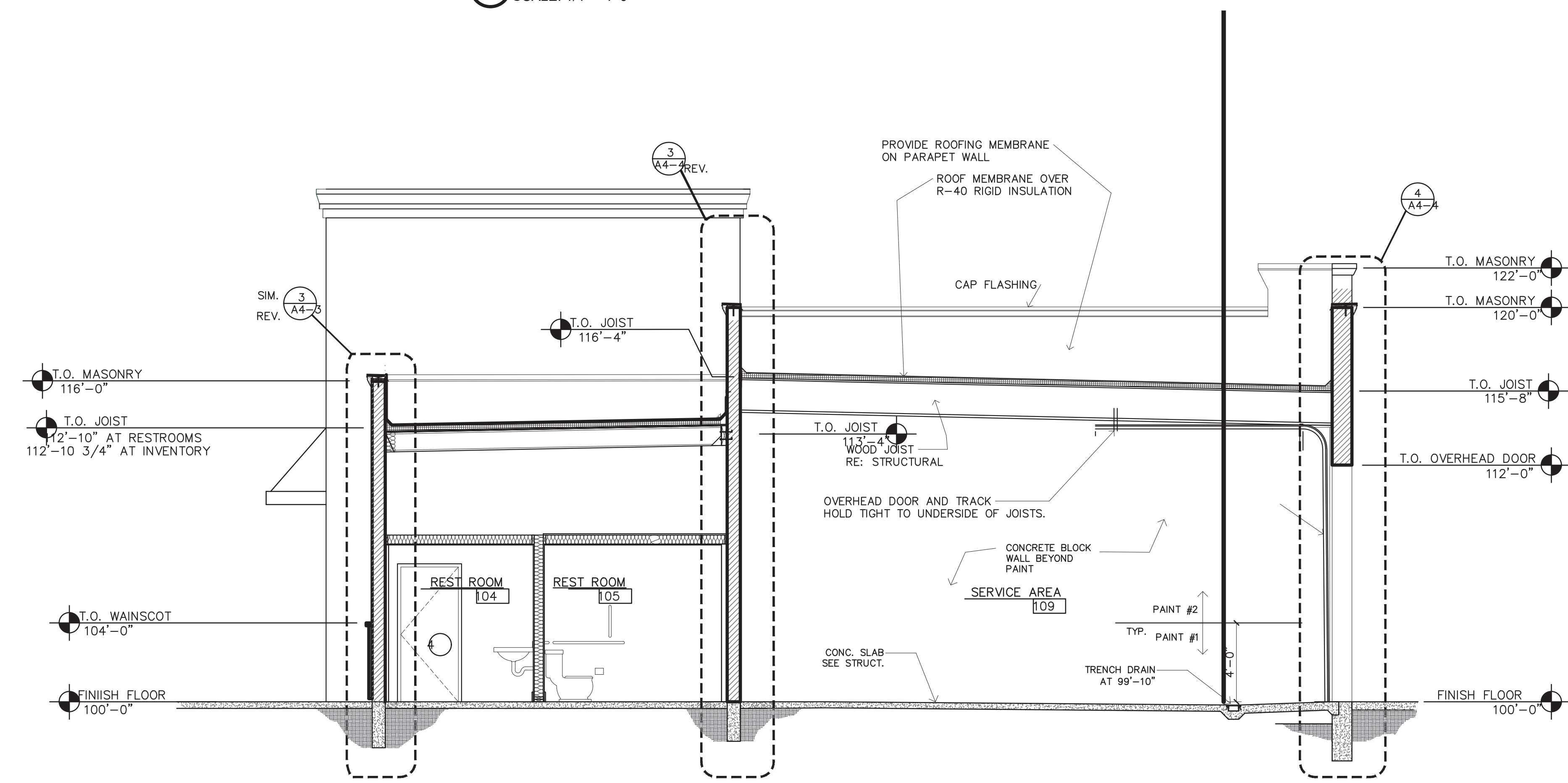
A3-1

EXTERIOR ELEVATIONS





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



2 BUILDING SECTION  
SCALE: 1/4" = 1'-0"

BRAKES PLUS  
2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



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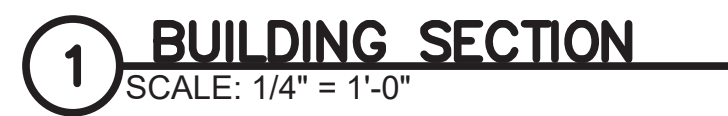
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SHEET

A4-1  
BUILDING SECTIONS

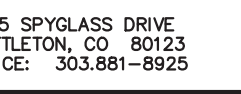




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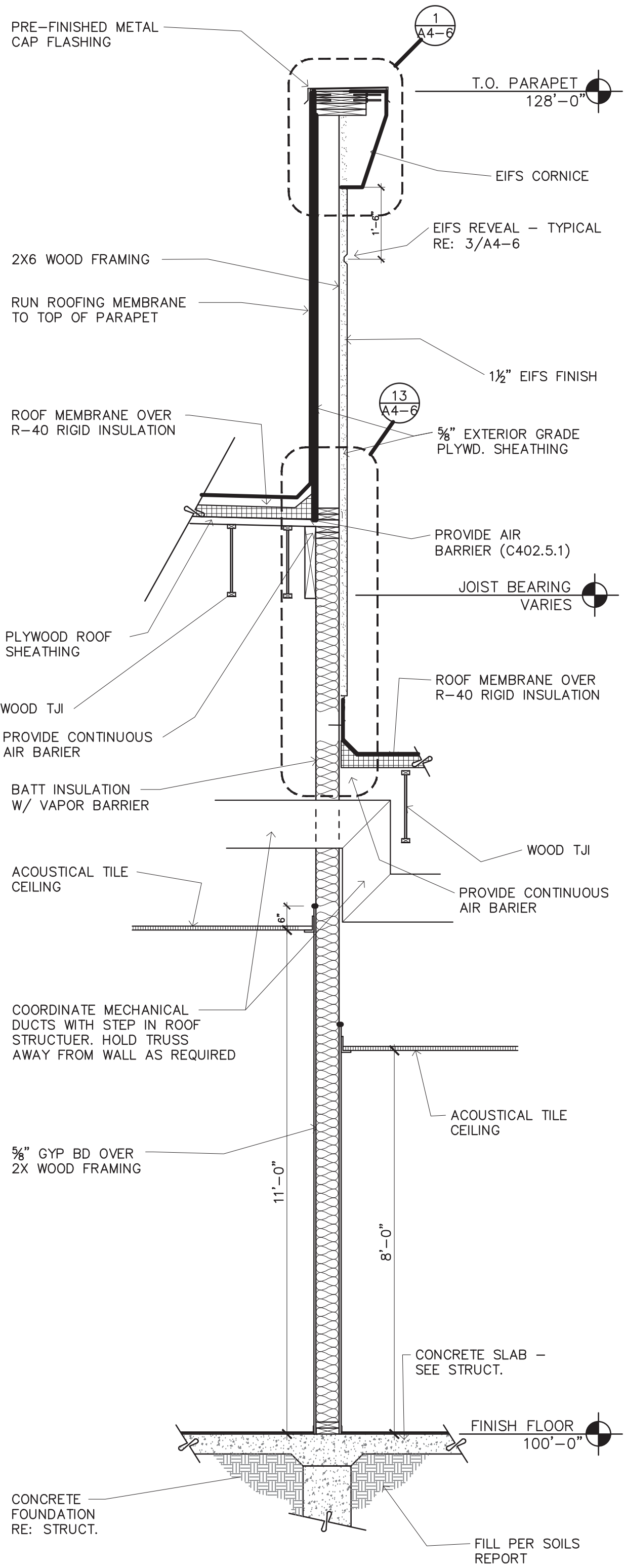


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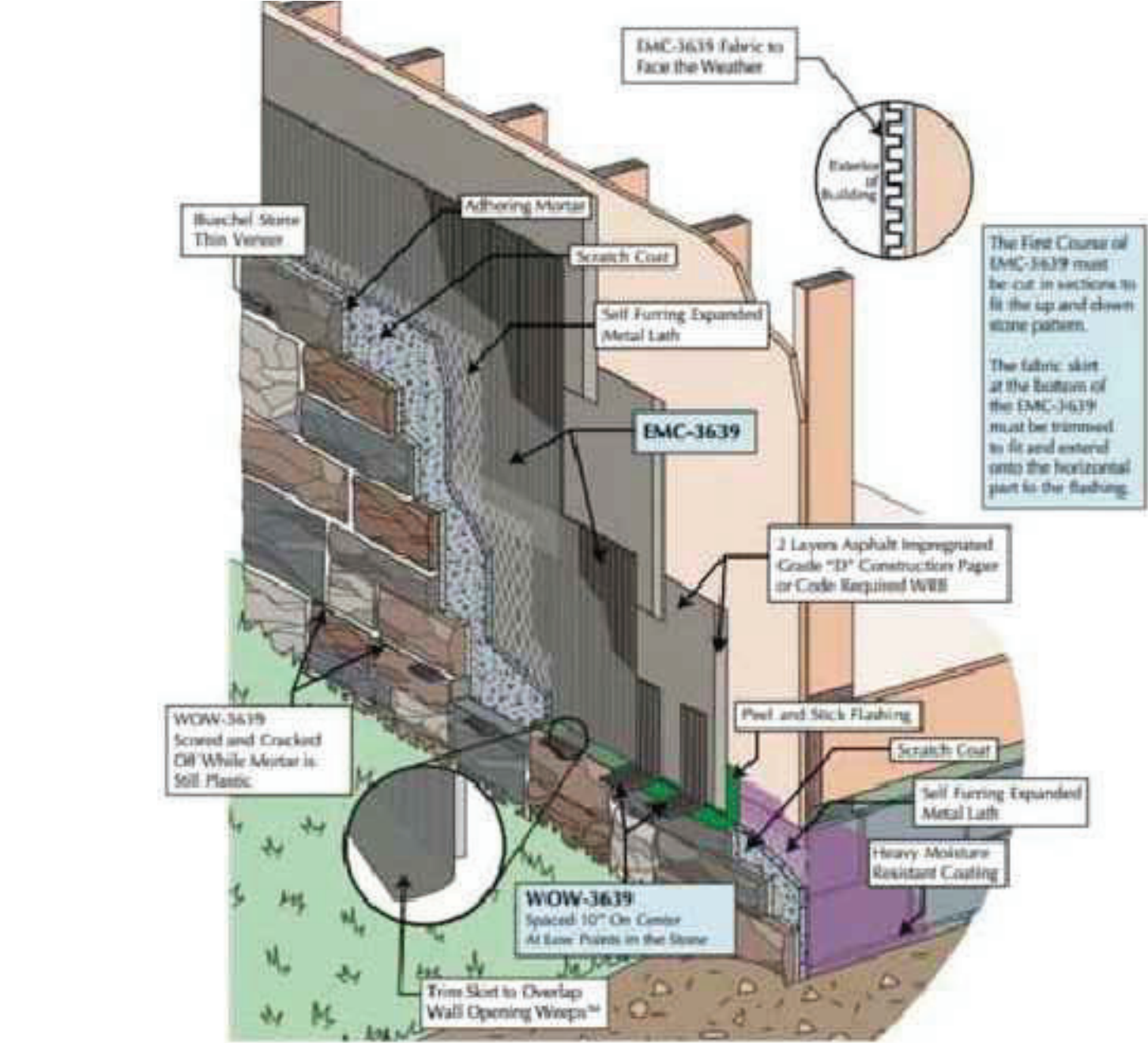
A4-2

## BUILDING SECTIONS

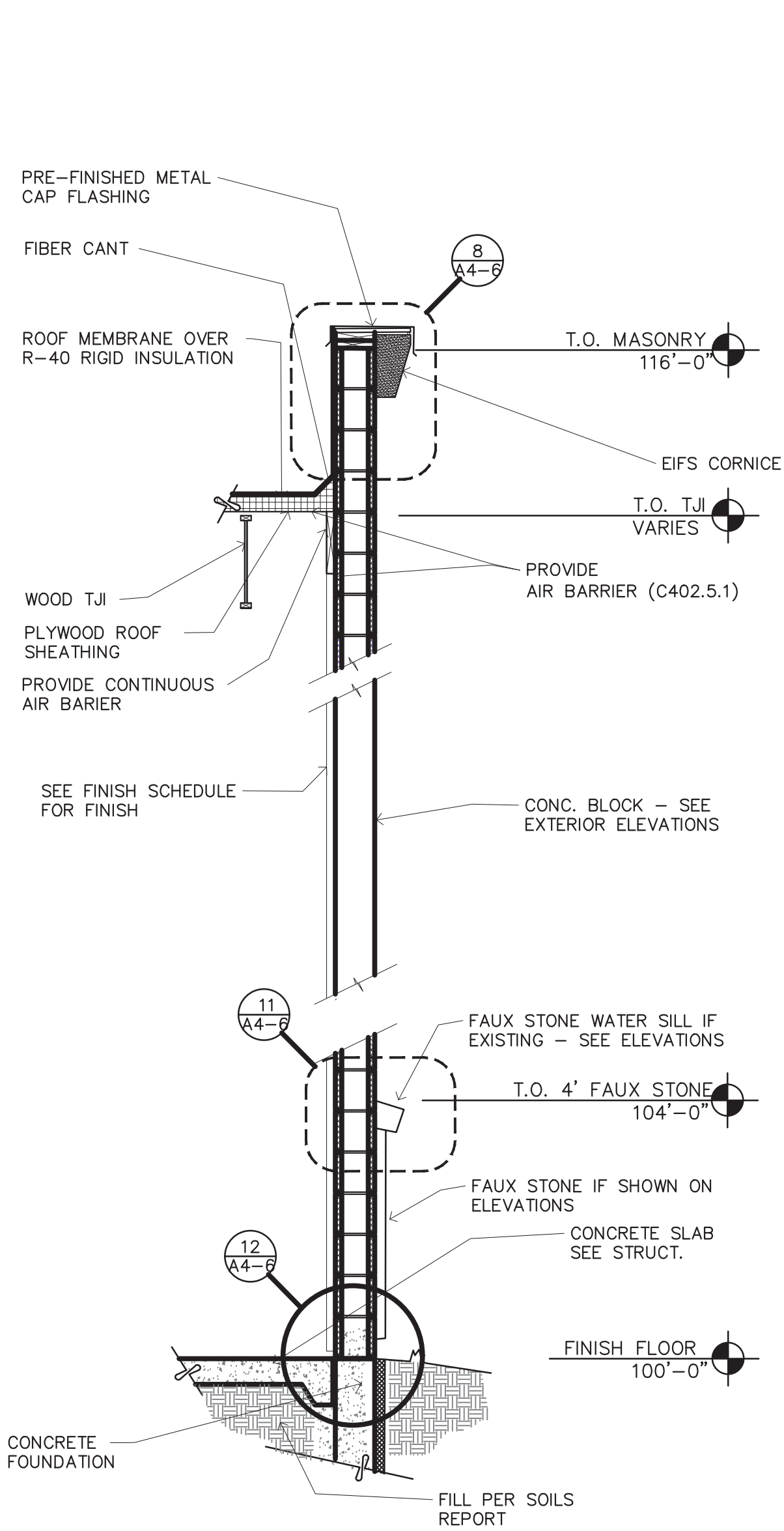




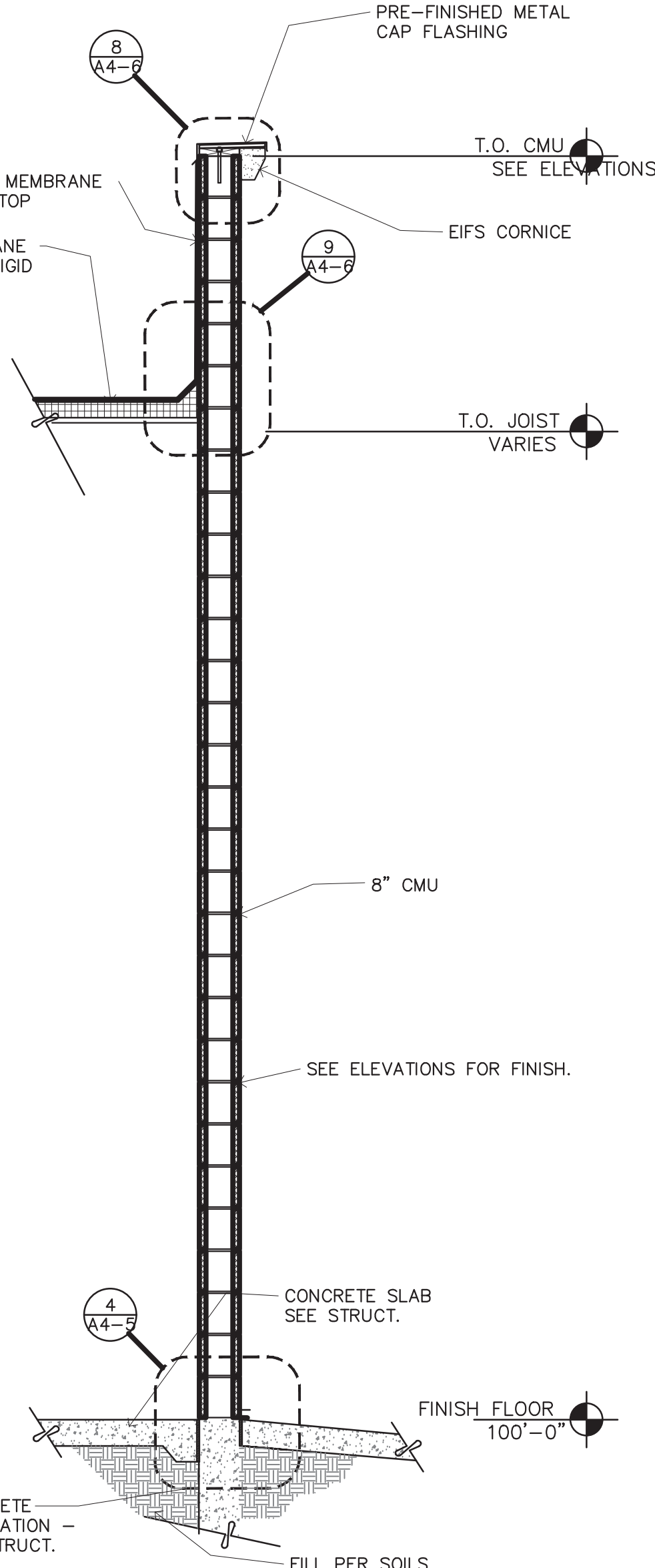
4 WALL SECTION  
A4-3 1/2"=1'-0"



5 FAUX STONE WATER DRAINAGE DETAILS.  
A4-3 NO SCALE



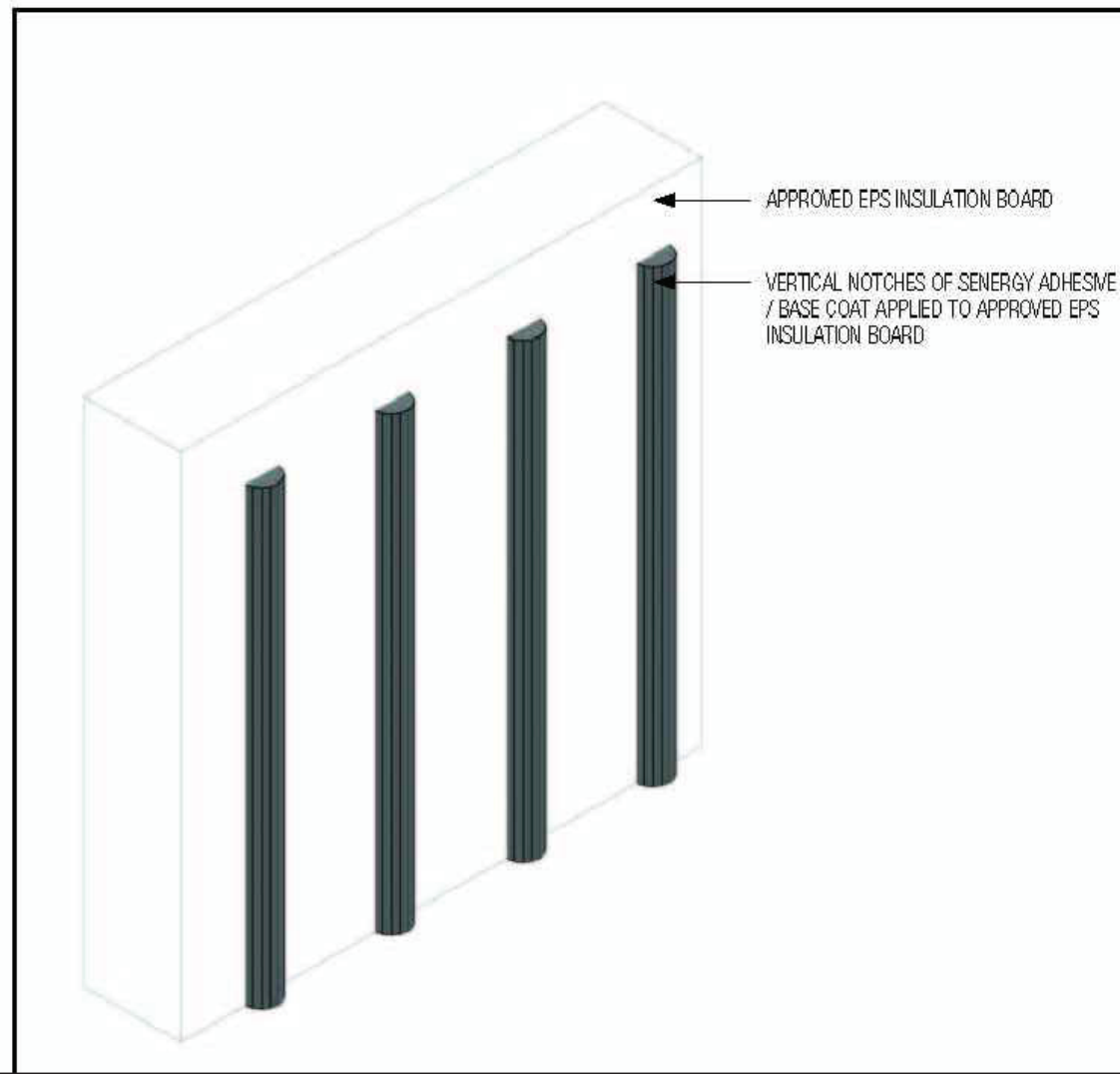
3 WALL SECTION  
A4-3 1/2"=1'-0"



2 WALL SECTION  
A4-3 1/2"=1'-0"

## Channeled Adhesive CI Design

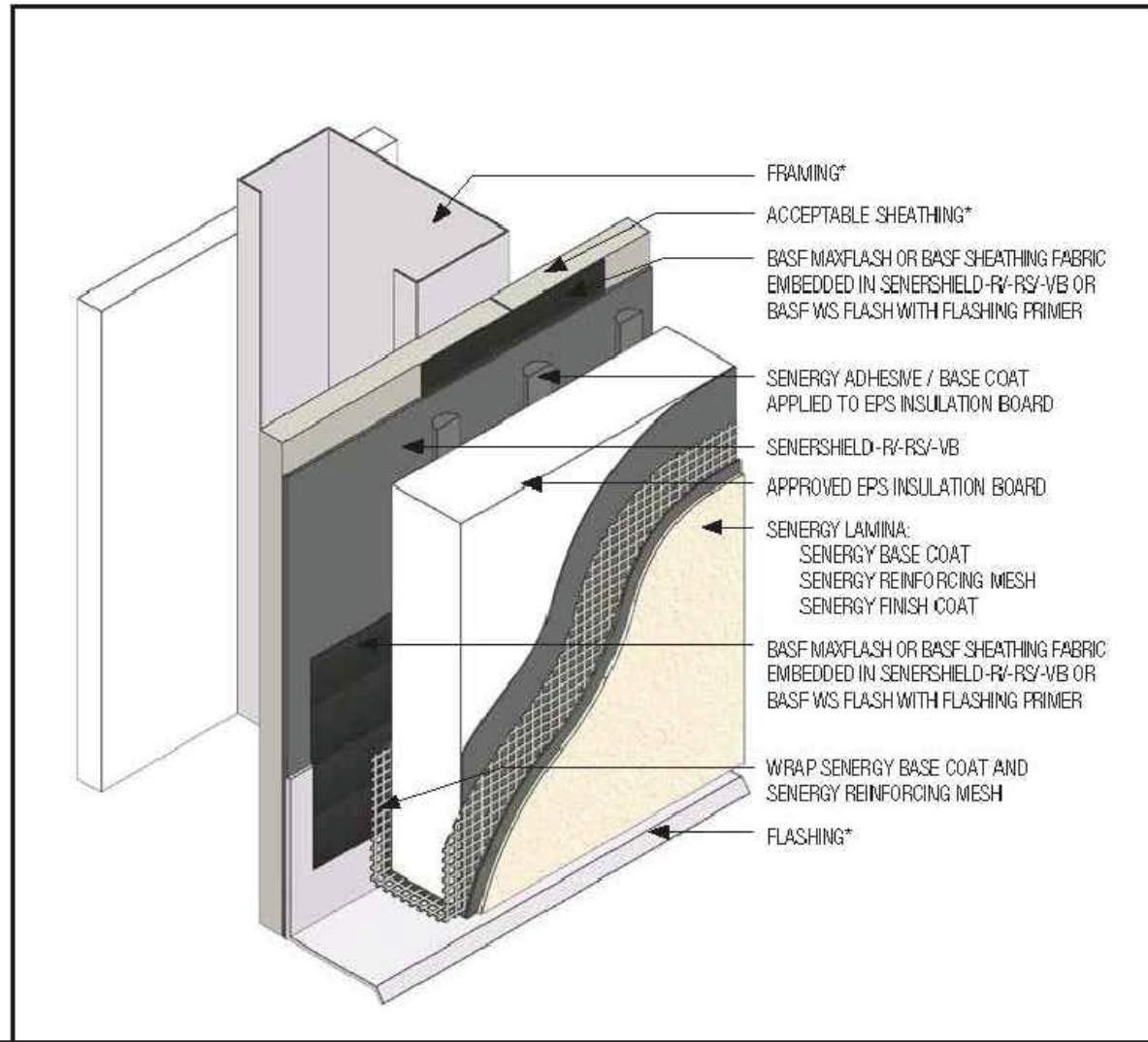
### TYPICAL CHanneled ADHESIVE



- Install BASF materials in accordance with current installation instructions.
- Unsatisfactory conditions shall be reported to the General Contractor and corrected before the application of BASF products.
- Verify all materials are installed in accordance with current installation instructions.
- Apply mixed base coat to entire surface of insulation board using a stainless steel trowel with 1/2" x 1/2" (13 mm x 13 mm) notches spaced 2" (50 mm) apart. Ribbons of adhesive must be applied parallel to the 2' (610 mm) dimension of the EPS insulation board to ensure they are vertical when the EPS insulation board is applied to the substrate.
- Set EPS insulation board into place and apply pressure over entire surface of board to ensure positive uniform contact and high initial grab. Do not slide board into place.

## Channeled Adhesive CI Design

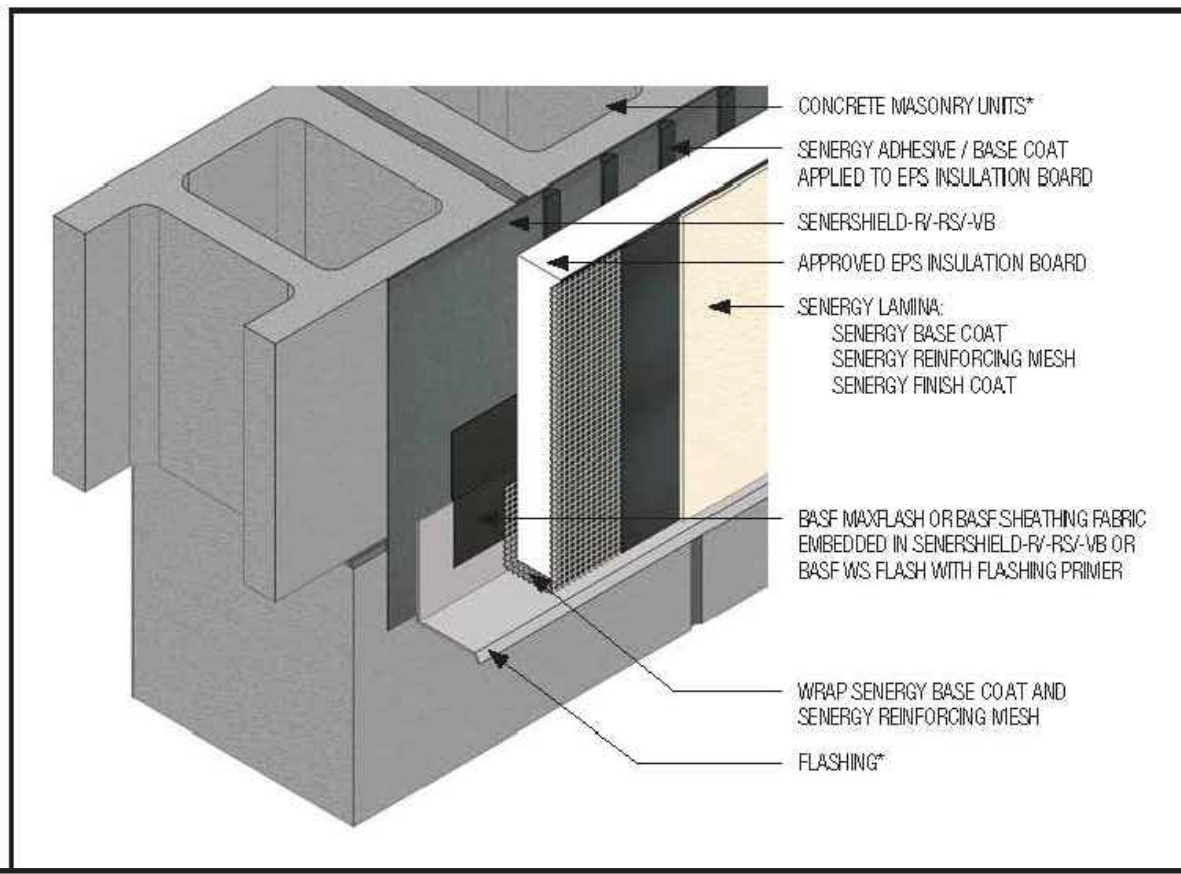
### TYPICAL APPLICATION



- Install BASF materials in accordance with current installation instructions.
- Unsatisfactory conditions shall be reported to the General Contractor and corrected before the application of BASF products.
- Verify all materials are installed in accordance with current installation instructions.
- All terminations must be fully encapsulated with mesh reinforced base coat.
- Ensure a means for drainage is provided at system termination.

## Channeled Adhesive CI Design

### TYPICAL APPLICATION OVER CMU



- Install BASF materials in accordance with current installation instructions.
- Unsatisfactory conditions shall be reported to the General Contractor and corrected before the application of BASF products.
- Verify all materials are installed in accordance with current installation instructions.
- All terminations must be fully encapsulated with mesh reinforced base coat.
- Ensure a means for drainage is provided at system termination.

1 EIFS WATER DRAINAGE DETAILS.  
A4-3 NO SCALE

BRAKES PLUS

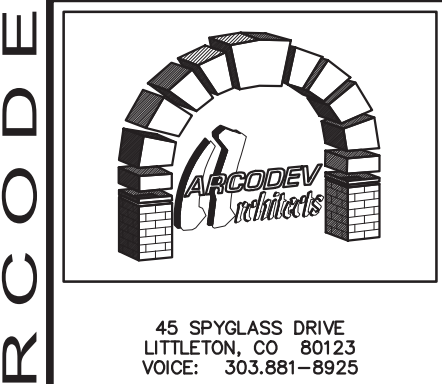
2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



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REVISION	DATE	COMMENTS
1	02.14.25	SUBMITTED TO BLDG. DEPT.
	07.23.24	ADDENDUM 1

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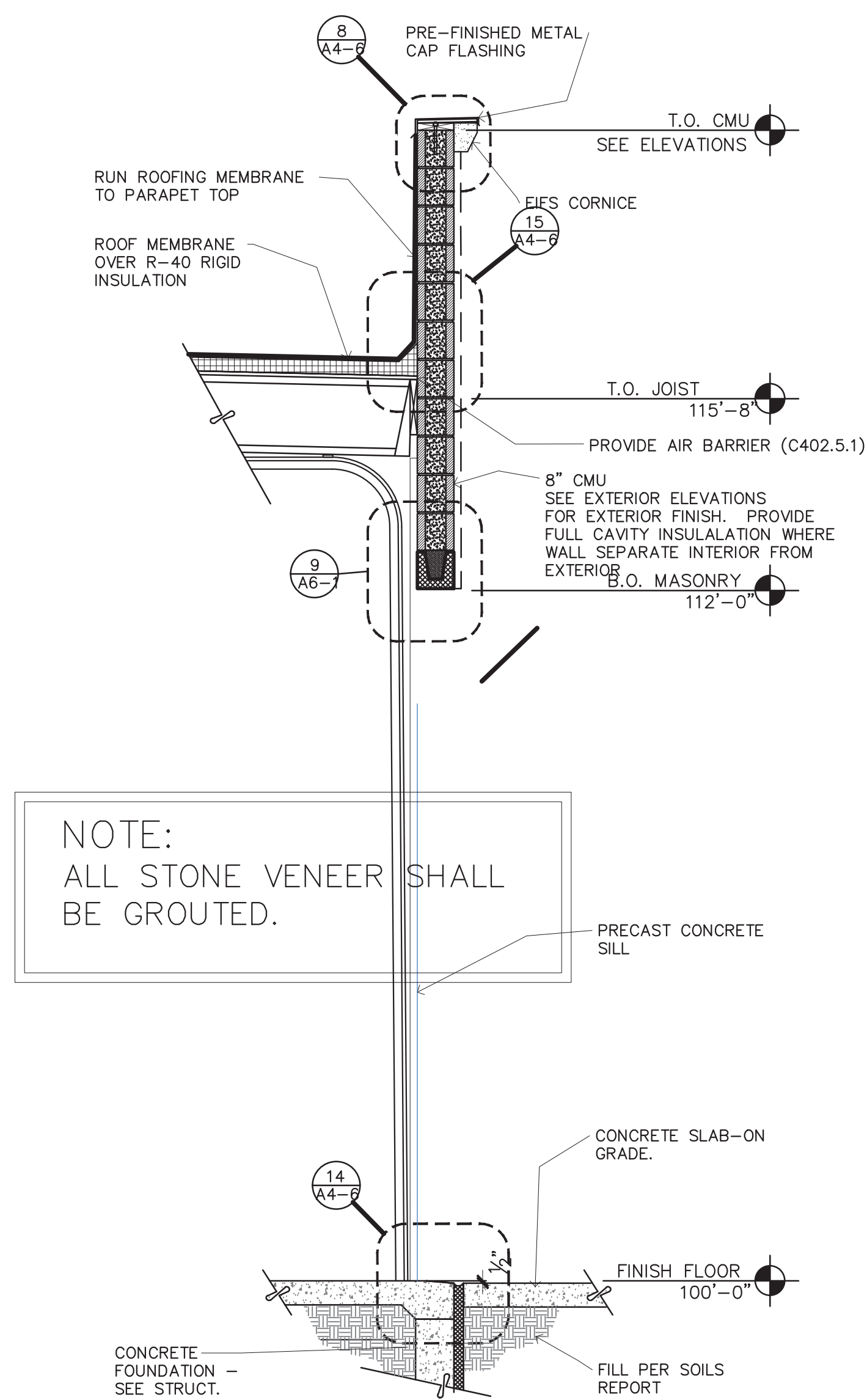


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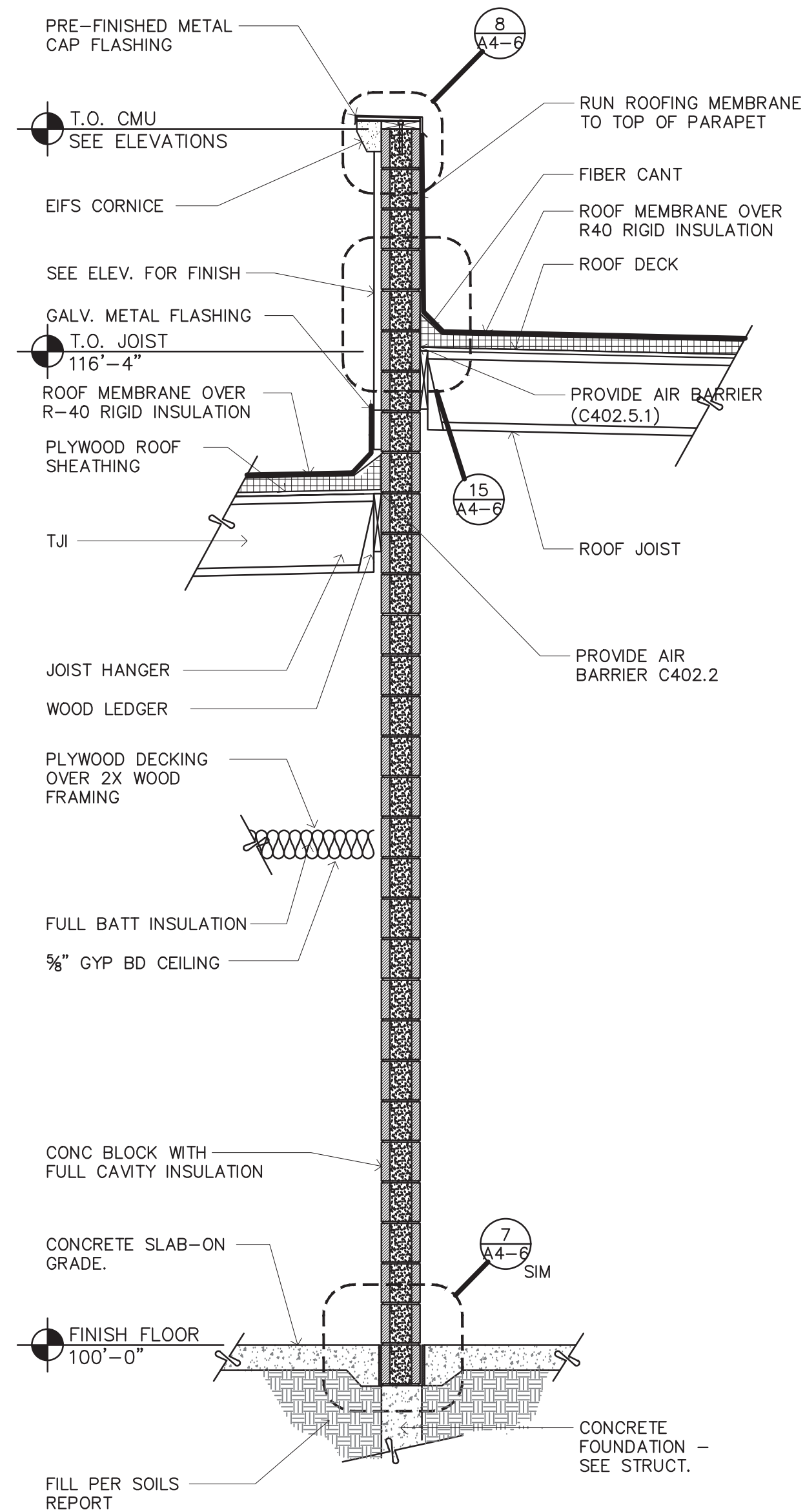
A4-3

WALL SECTIONS

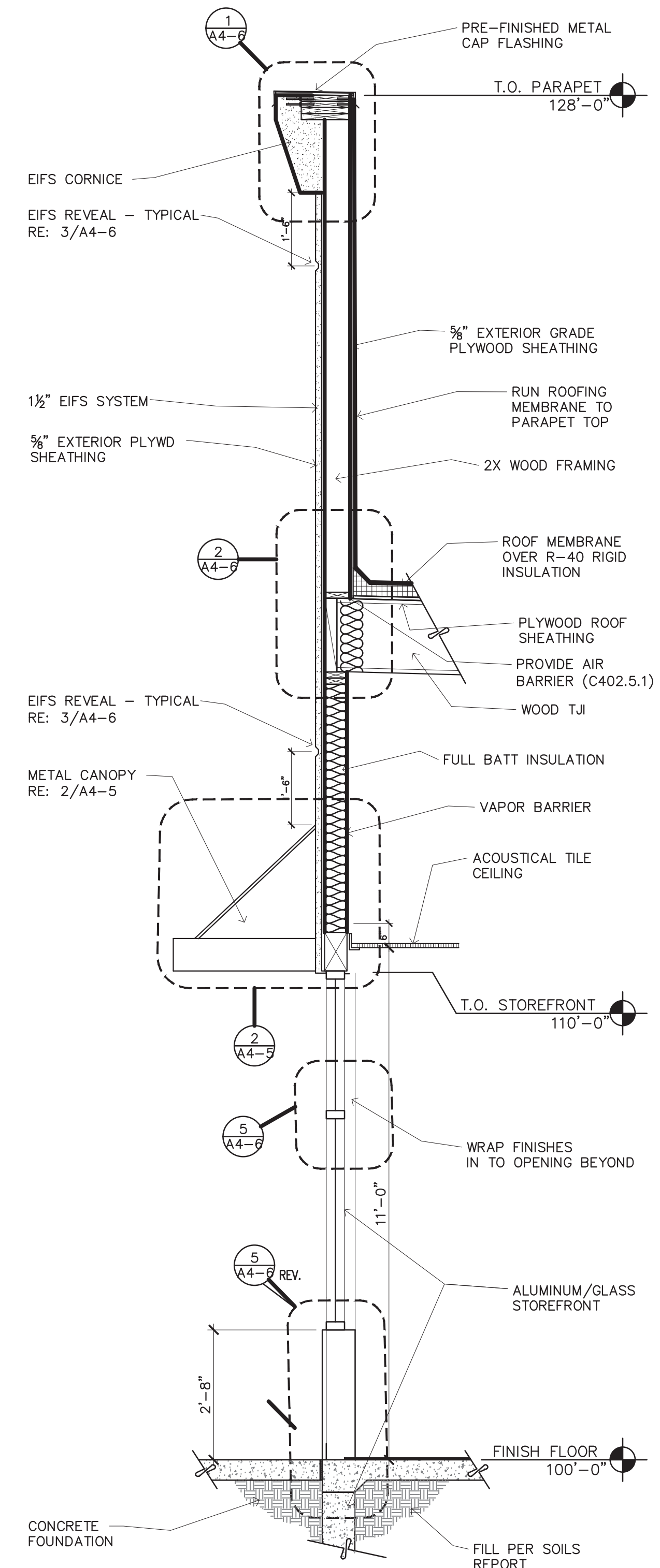




4 WALL SECTION  
A4-4 1/2"=1'-0"



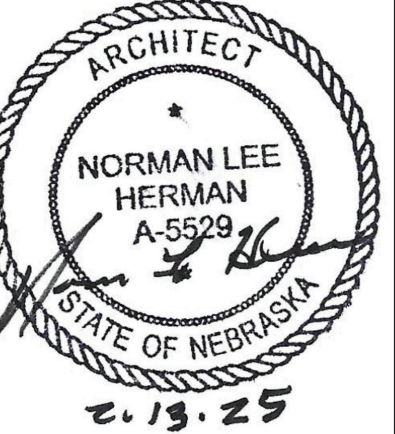
3 WALL SECTION  
A4-4 1/2"=1'-0"



1 WALL SECTION  
A4-4 1/2"=1'-0"

BRAKES PLUS

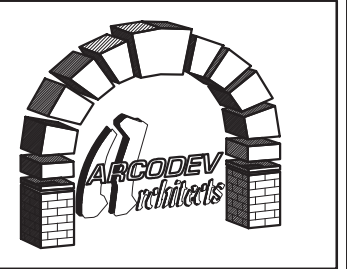
2725 CROSSBRIDGE PLACE  
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LITTLETON, CO 80123  
VOICE: 303.881-8925

A4-4 SHEET

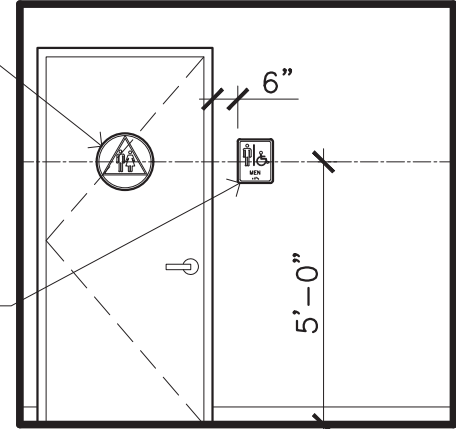
A4-4

WALL SECTIONS



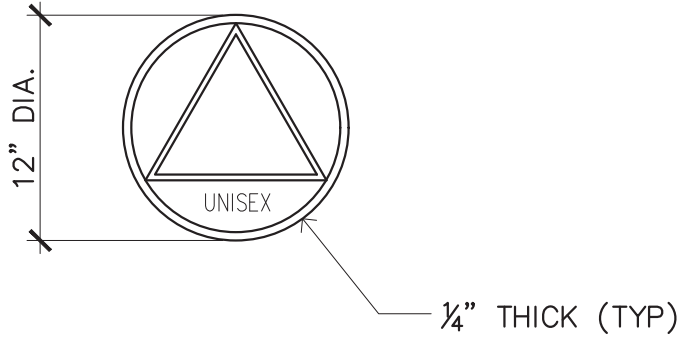
DOOR-MOUNTED SIGNAGE  
APPROPRIATE TO ROOM  
USE PER CBC 1115B.6.1,  
1115B.6.2 AND 1115B.6.2

WALL MOUNTED SIGNAGE TO  
BE LOCATED ON LATCH SIDE OF  
DOOR SWING. MOUNT AT  
60" TO CENTERLINE OF SIGN  
FROM FLOOR



NOTES:

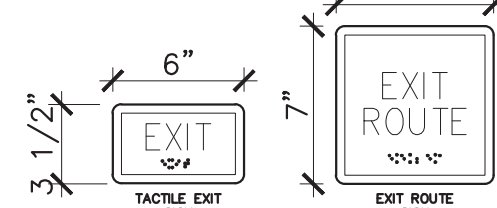
- ON DOORWAYS LEADING TO  
SANITARY FACILITIES, THE  
SYMBOLS TO BE PROVIDED ARE  
12" EQUILATERAL TRIANGLE FOR  
MEN, OR 12" DIAMETER CIRCLE  
FOR WOMEN, 1/4" THICK CENTERED  
ON DOOR 60" ABOVE FLOOR,  
CONTRASTING COLOR WITH DOOR.  
PER CBC 1115B.6



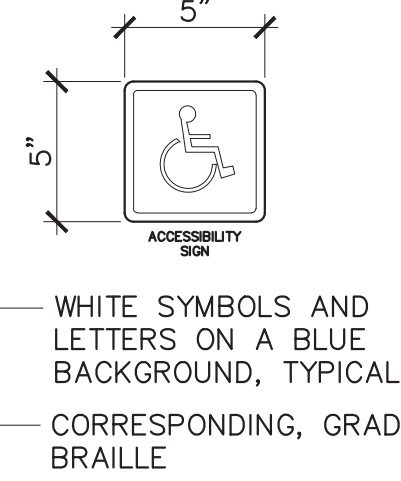
NOTES:

- H.C. SIGNS PER ADA
- ALL LETTERS AND SYMBOLS SHALL BE RAISED 1/32"
- 12" DIAMETER CIRCLE, 1/4" THICK WITH THE COLOR AND CONTRAST  
BEING DISTINCTLY DIFFERENT FROM THE COLOR OF THE DOOR
- INTERNATIONAL SIGN OF ACCESSIBILITY, WHITE FIGURE ON BLUE  
(#15090 FEDERAL STANDARD 595A) BACKGROUND
- SIGN SHALL BE DISPLAYED AT 60" A.F.F., CENTERED ON THE DOOR,  
COLOR AND CONTRAST SHALL BE DISTINCTLY DIFFERENT FROM  
COLOR AND CONTRAST OF THE DOOR TYP. FOR MEN'S AND WOMEN'S  
SIGNS
- EDGES OF SIGNS SHALL BE ROUNDED, CHAMFERED OR EASED AND  
CORNERS OF SIGNS SHSALL HAVE A MINIMUM RADIUS OF 1/8"
- 12" EQUILATERAL TRIANGLE, 1/4" THICK WITH THE VERTEX POINTING  
UPWARD AND THE COLOR AND CONTRAST BEING DISTINCTLY  
DIFFERENT FROM THE COLOR OF THE DOOR
- LETTERS AND NUMERALS ON SIGNS ARE RAISED 1/32", SANS SERIF  
UPPERCASE CHARACTERS TO BE ACCOMPANIED BY GRADE 2  
BRAILLE.
- BRAILLE DOTS ARE 1/10" ON CENTER IN EACH CELL WITH 2/10"  
SPACE BETWEEN CELLS
- BRAILLE DOTS ARE RAISED A MINIMUM OF 1/40" ABOVE THE  
BACKGROUND
- MOUNTING HEIGHT IS 60" FROM FINISH FLOOR TO THE CENTERLINE  
OF THE SIGN

LETTERING RAISED 1/32"  
UPPER-CASE  
CHARACTERS



NOTE  
PROVIDE SIGNAGE AT RESTROOMS  
AND EXITS

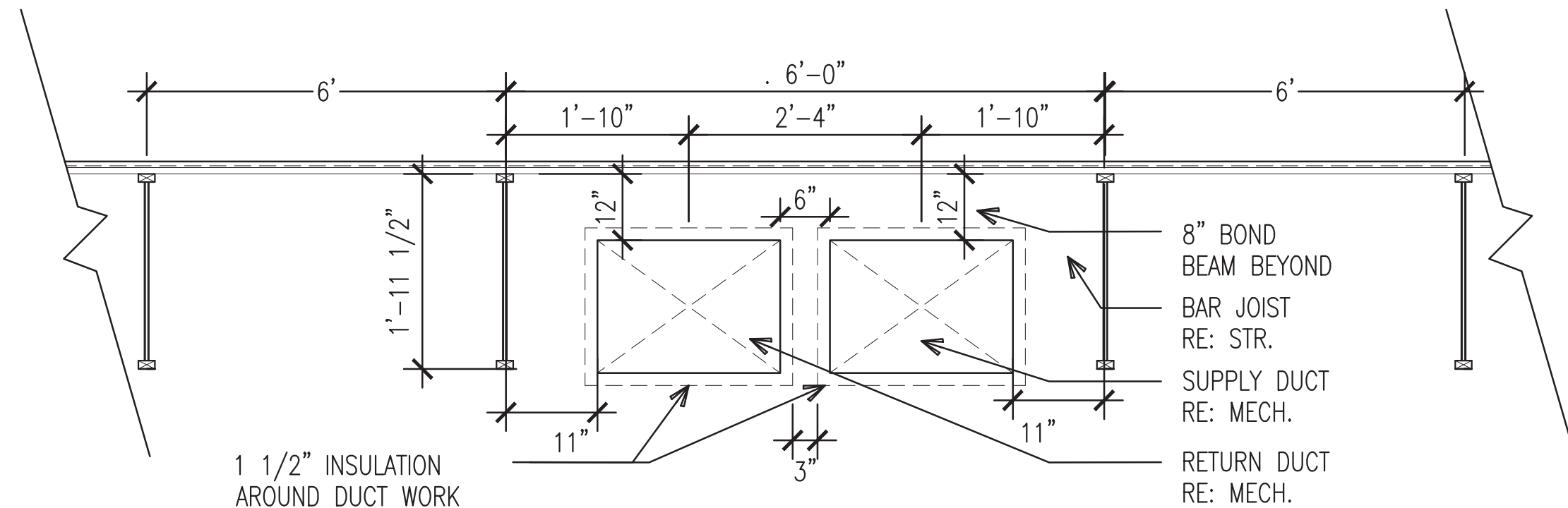


NOTES:

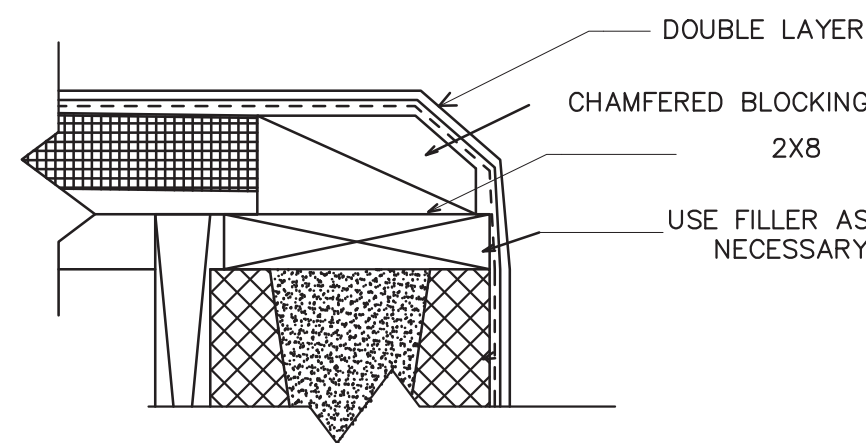
- CHARACTERS, SYMBOLS AND THEIR BACKGROUND SHALL HAVE A  
NONGLARE FINISH
- CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR  
BACKGROUND, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON  
A LIGHT BACKGROUND
- VISUAL CHARACTERS ON SIGNS SHALL BE SELECTED FROM FONTS  
WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60% MINIMUM  
AND 110% MAXIMUM OF HTE HEIGHT OF THE UPPERCASE LETTER "I,"  
STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 10%  
MINIMUM AND 20% MAXIMUM OF THE HEIGHT OF THE CHARACTER  
CHARACTERS ON SIGNS REQUIRED TO BE ACCESSIBLE SHALL BE  
SIZED ACCORDING TO THE "VISUAL CHARATER HEIGHT" TABLE, THE  
MINIMUM HEIGHT IS MEASURED USING AN UPPERCASE LETTER "I".
- RAISED CHARACTERS ON SIGNS SHALL BE RAISED 1/32" MINIMUM AND  
SHALL BE SANS SERIF UPPERCASE CHARACTERS ACCOMPANIED BY  
CONTRACTED (GRADE 2) BRAILLE.
- RAISED CHARACTERS HSALL BE A MINIMUM OF 3/8" AND A MAXIUM  
OF 2" HIGH.
- PICTORIAL SYMBOL SIGNS (PICTOGRAMS) SHALL BE ACCOMPANIED BY  
THE VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTOGRAM.  
THE OUTSIDE DIMENSION OF THE PICTOGRAM FIELD SHALL BE A  
MINIUM OF 6" IN HEIGHT.
- BRAILLE SHALL BE PLACED A MINIMUM OF 3/8" AND A MAXIMUM OF  
1/2" DIRECTLY BELOW THE TACTILE CHARACTERS, FLUSH LEFT OR  
CENTERED.

- RAISED CHARACTERS ON SIGNS SHALL BE SELECTED FROM FONTS  
WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60% MINIMUM  
AND 110% MAXIMUM OF THE HEIGHT OF THE UPPERCASE LETTER "I,"  
STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 10%  
MINIMUM AND 20% MAXIMUM OF THE HEIGHT OF THE CHARACTER.  
CONTRACTED (GRADE 2) BRAILLE SHALL BE USED.
- MOUNTING HEIGHT SHALL BE 48" MINIMUM, MEASURED FROM THE  
BASELINE OF THE LOWEST LINE OF BRAILLE, AND 60" MAXIMUM,  
MEASURED FROM THE BASELINE OF THE HIGHEST RAISED  
CHARACTERS, ABOVE THE FINISH FLOOR OR GROUND SURFACE.

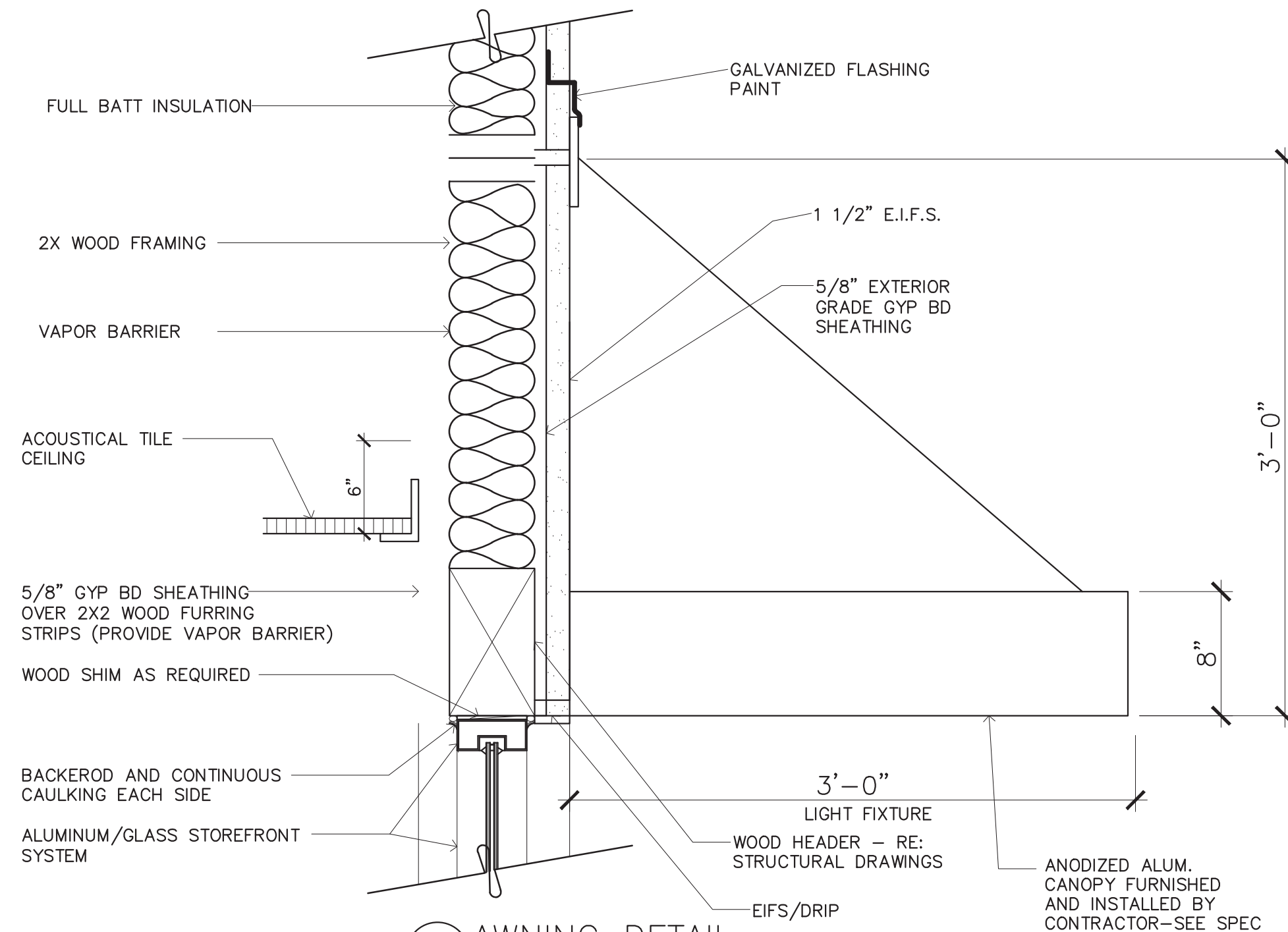
10 INTERIOR SIGNAGE INFORMATION  
NO SCALE



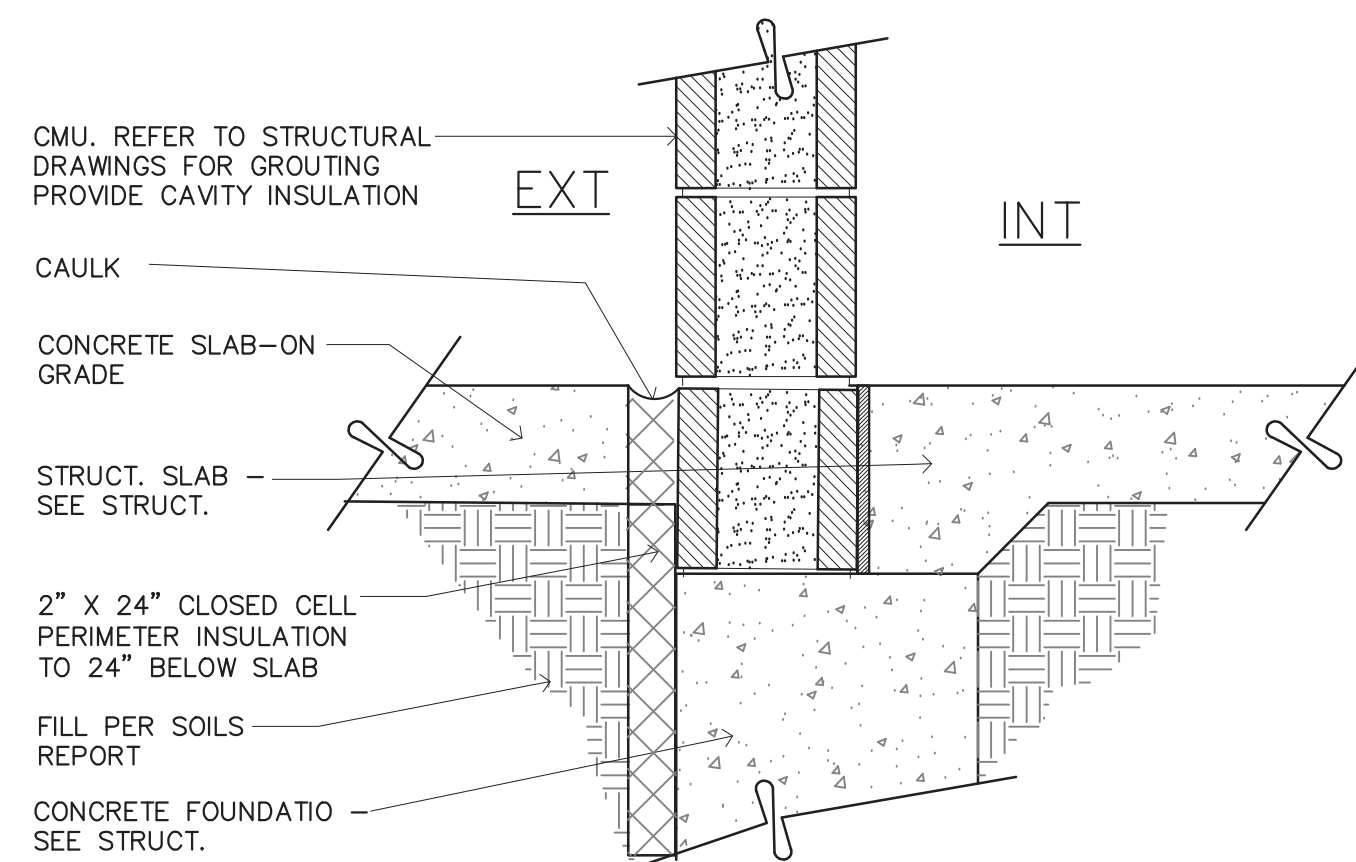
4 RTU DUCT-WORK DETAIL  
SCALE: 3/4" = 1'-0"



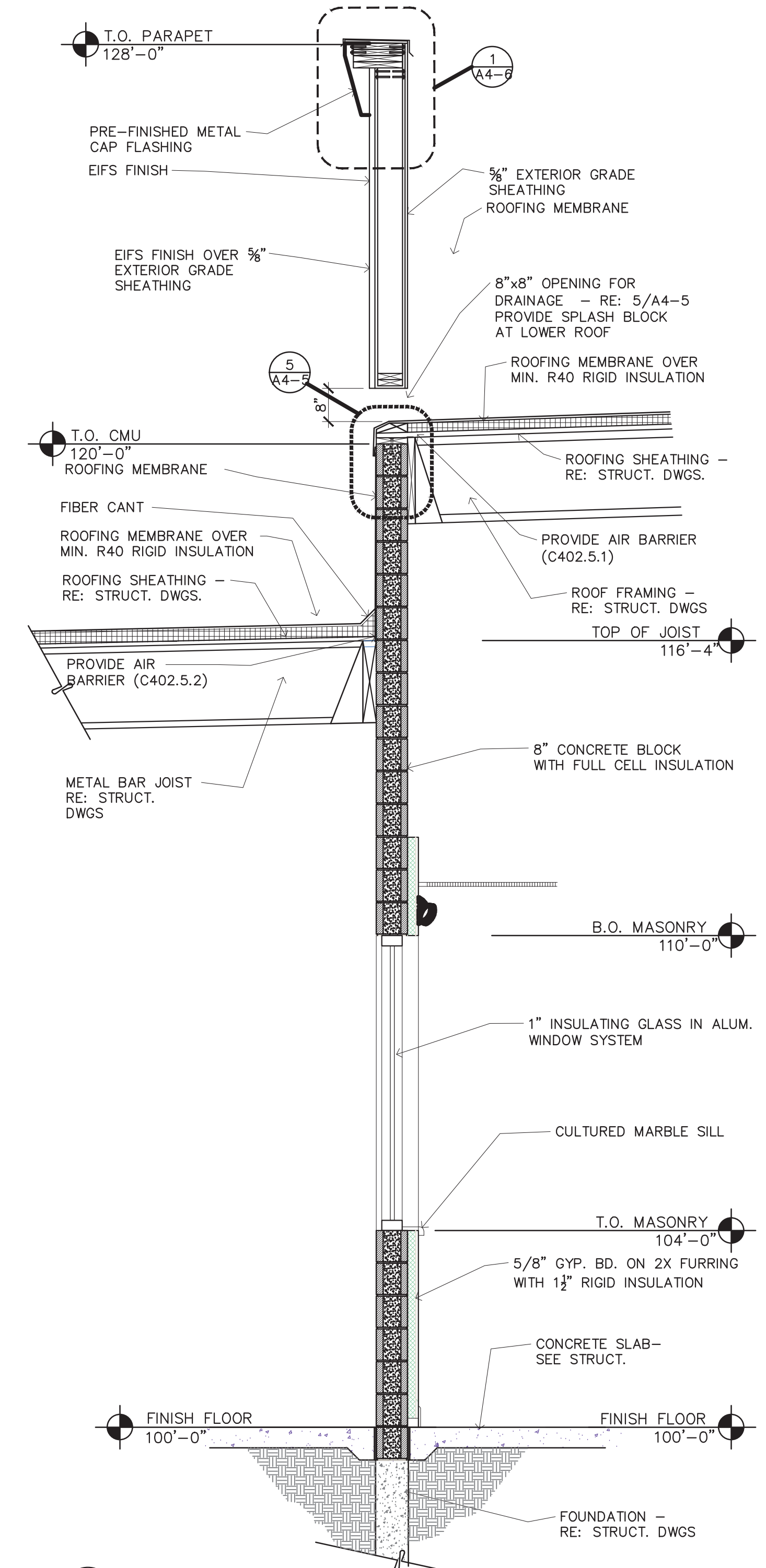
5 ROOF CORNER DETAIL  
SCALE: 3" = 1'-0"



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



3 CMU FOUNDATION DETAIL  
SCALE: 1/2" = 1'-0"



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

BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

COMMENTS  
SUBMITTED TO BLDG. DEPT.

DATE  
02/14/25

REVISION

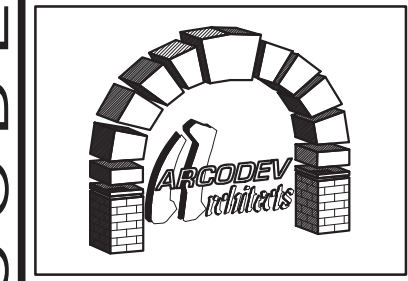
ARCODEV JOB #:

CLIENTJOB #:

DRAWN BY: NLH

CHECKED BY: NLH

DATE OF ISSUE: 012125



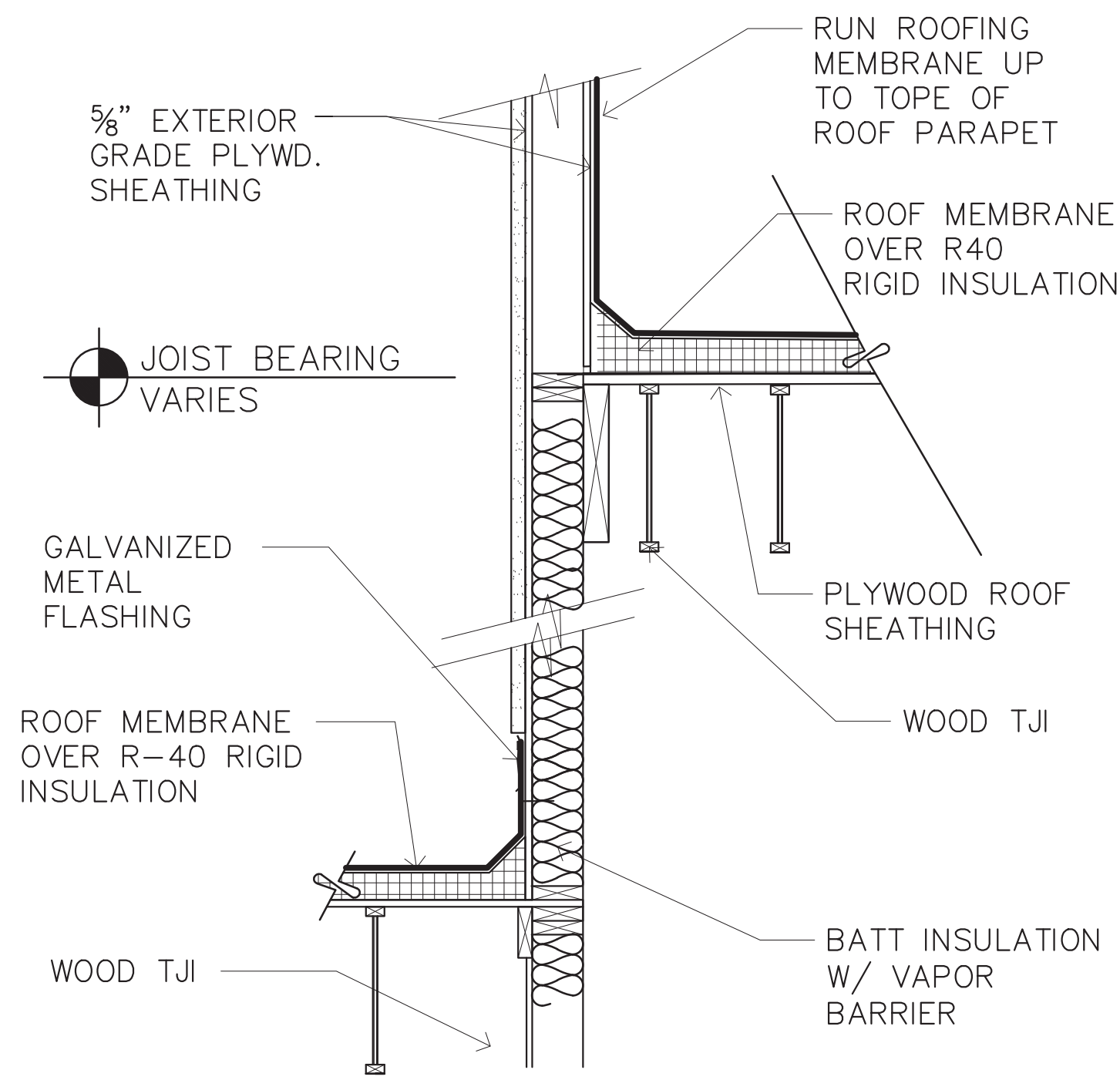
45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8925

A SHEET

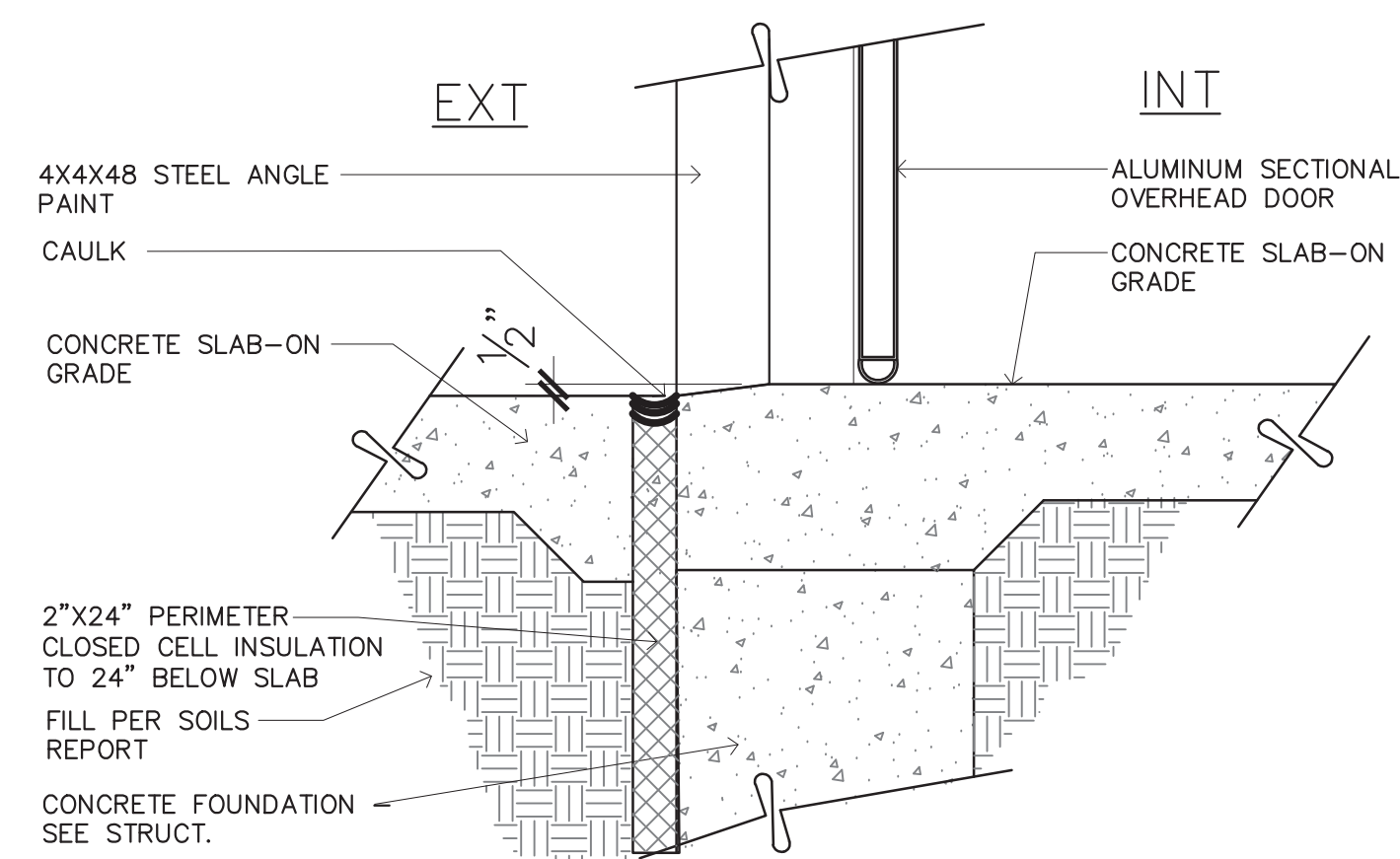
A4-5

WALL SECTIONS & DET.

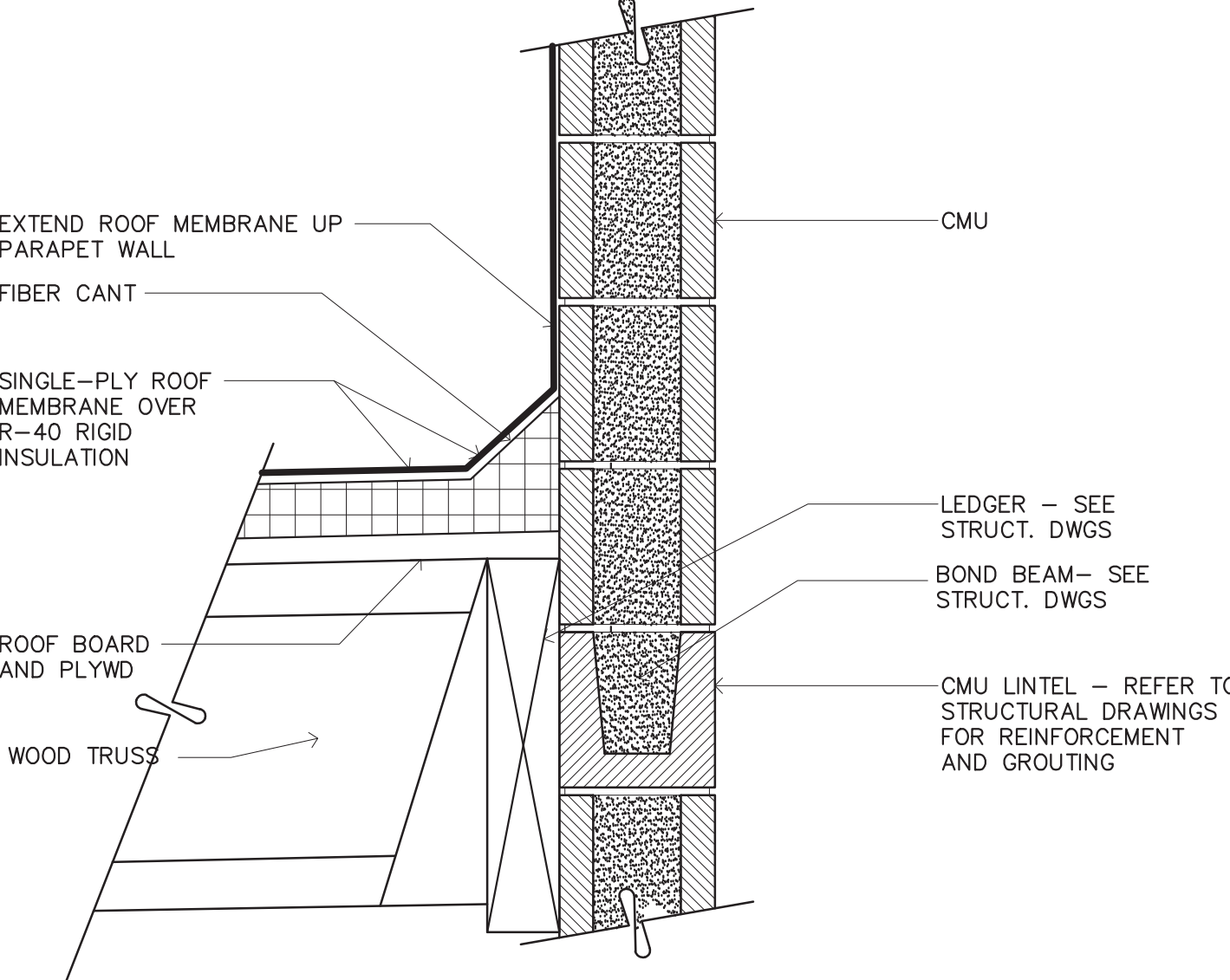




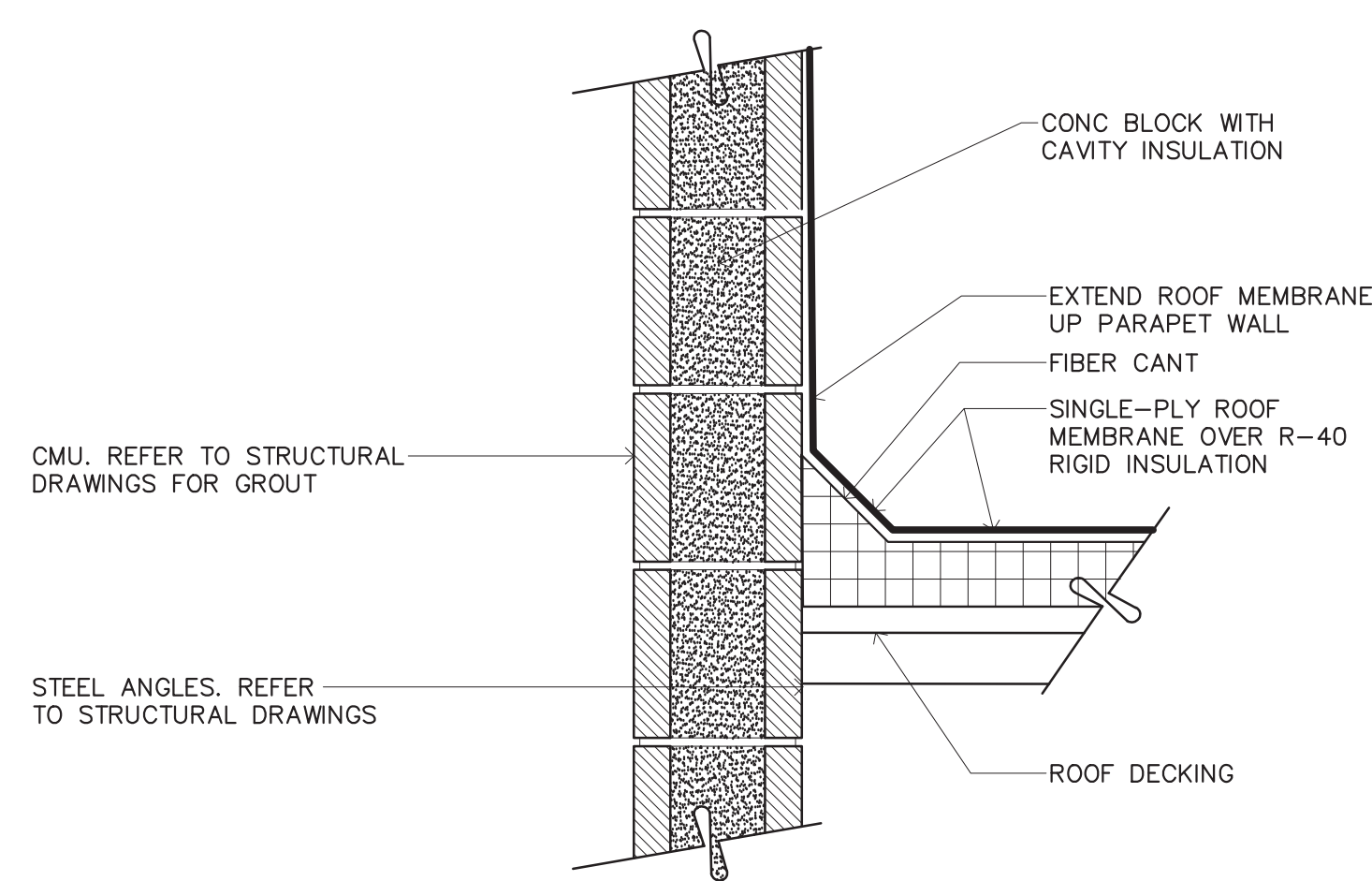
**13 ROOF DETAIL**  
NO SCALE



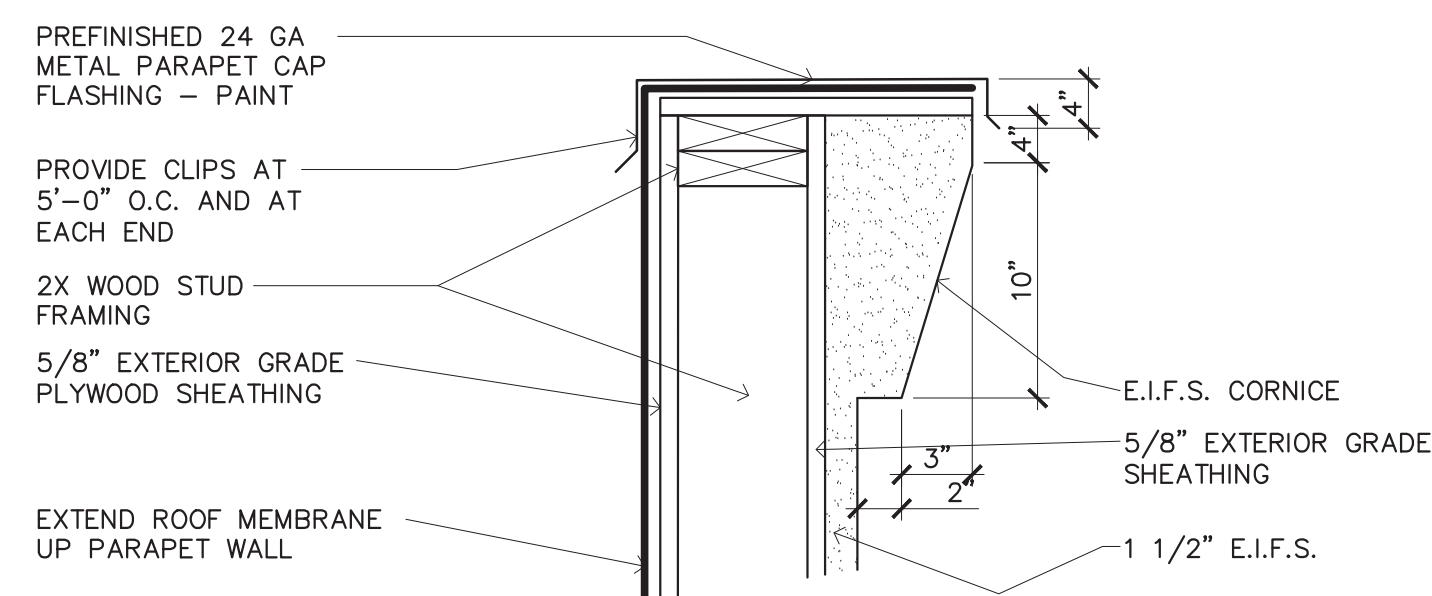
**14 FOUNDATION DETAIL**  
SCALE: 1 1/2"=1'-0"



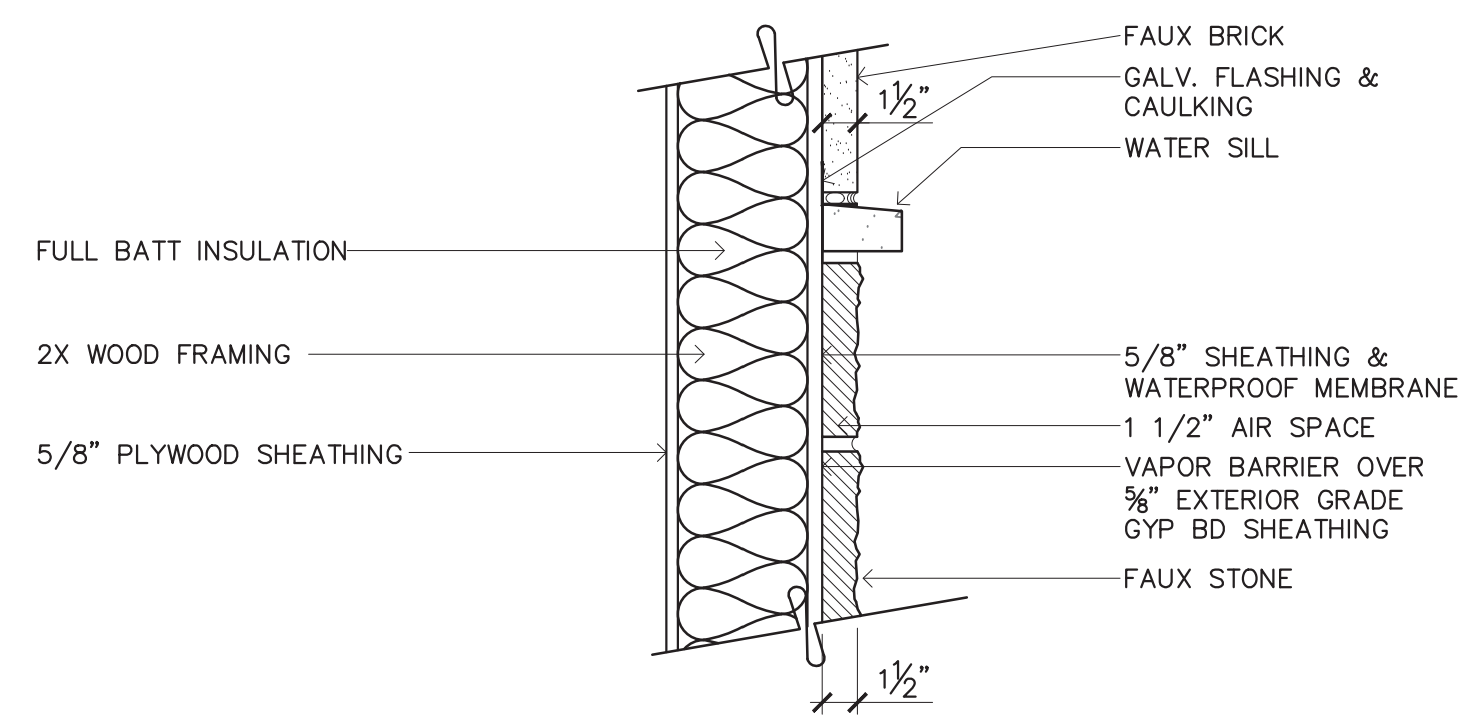
**15 ROOF AT CMU DETAIL**  
SCALE: 1 1/2"=1'-0"



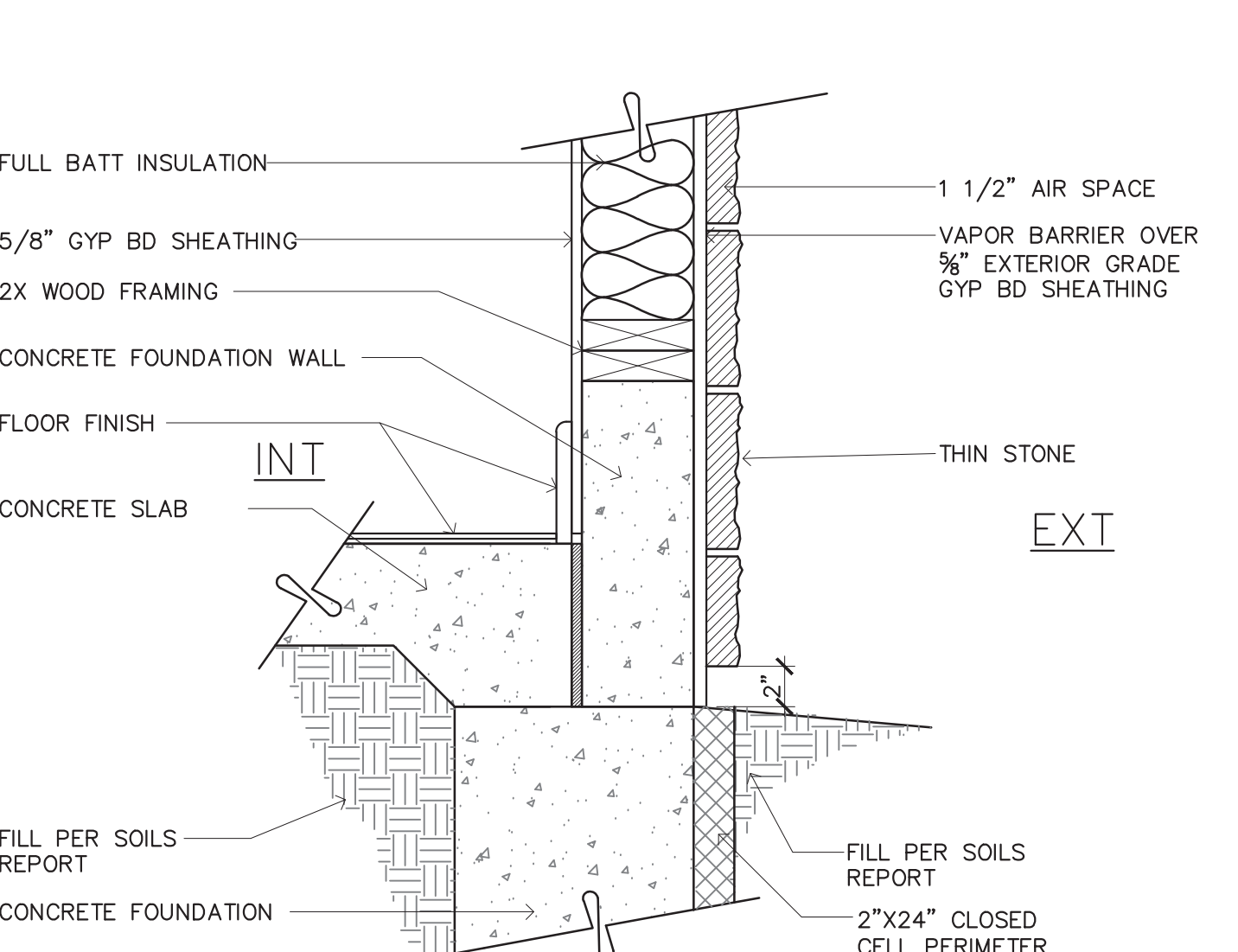
**9 DECK AT CMU DETAIL**  
SCALE: 1 1/2"=1'-0"



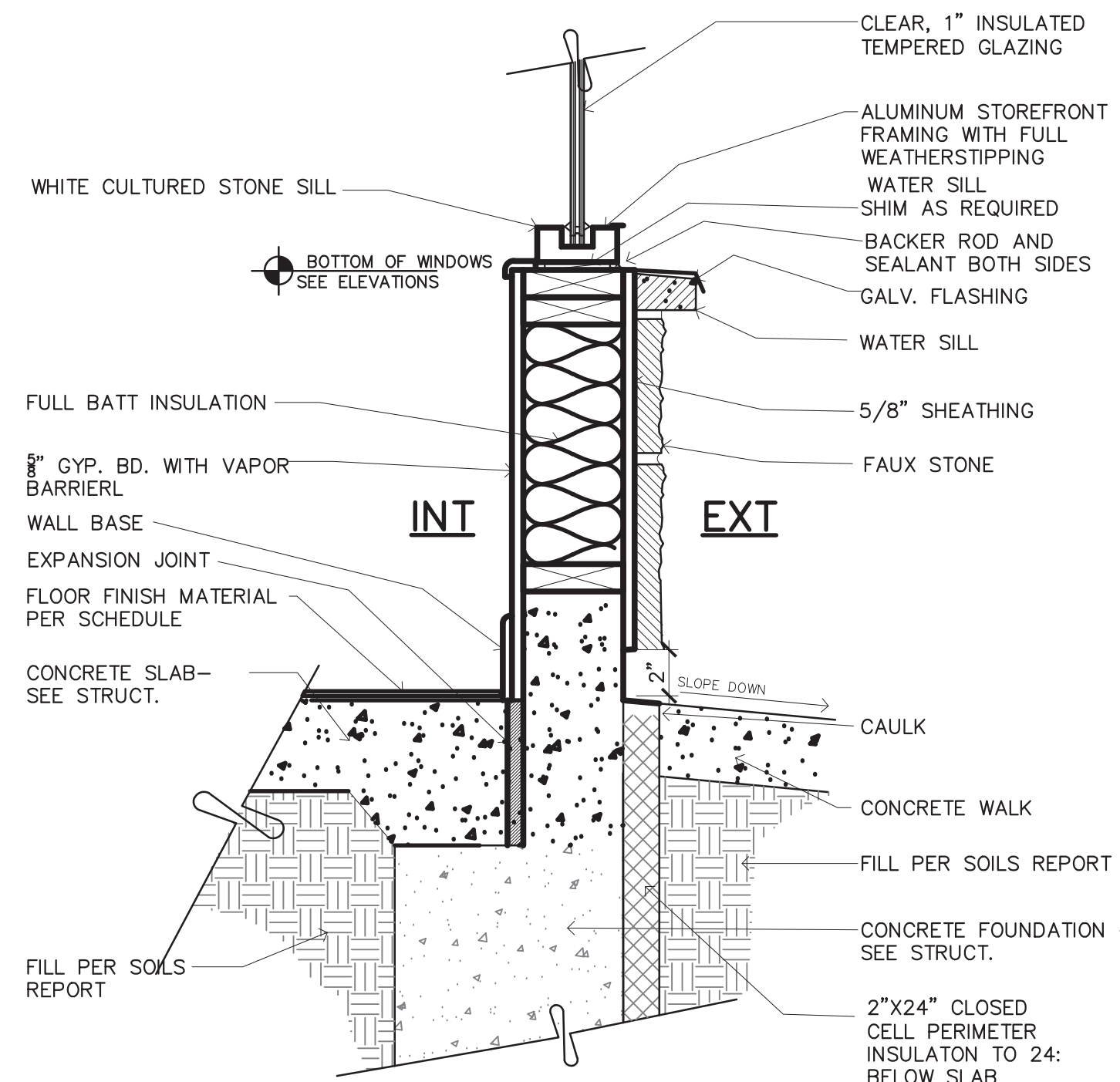
**10 CORNICE AT STUD WALL DETAIL**  
SCALE: 1 1/2"=1'-0"



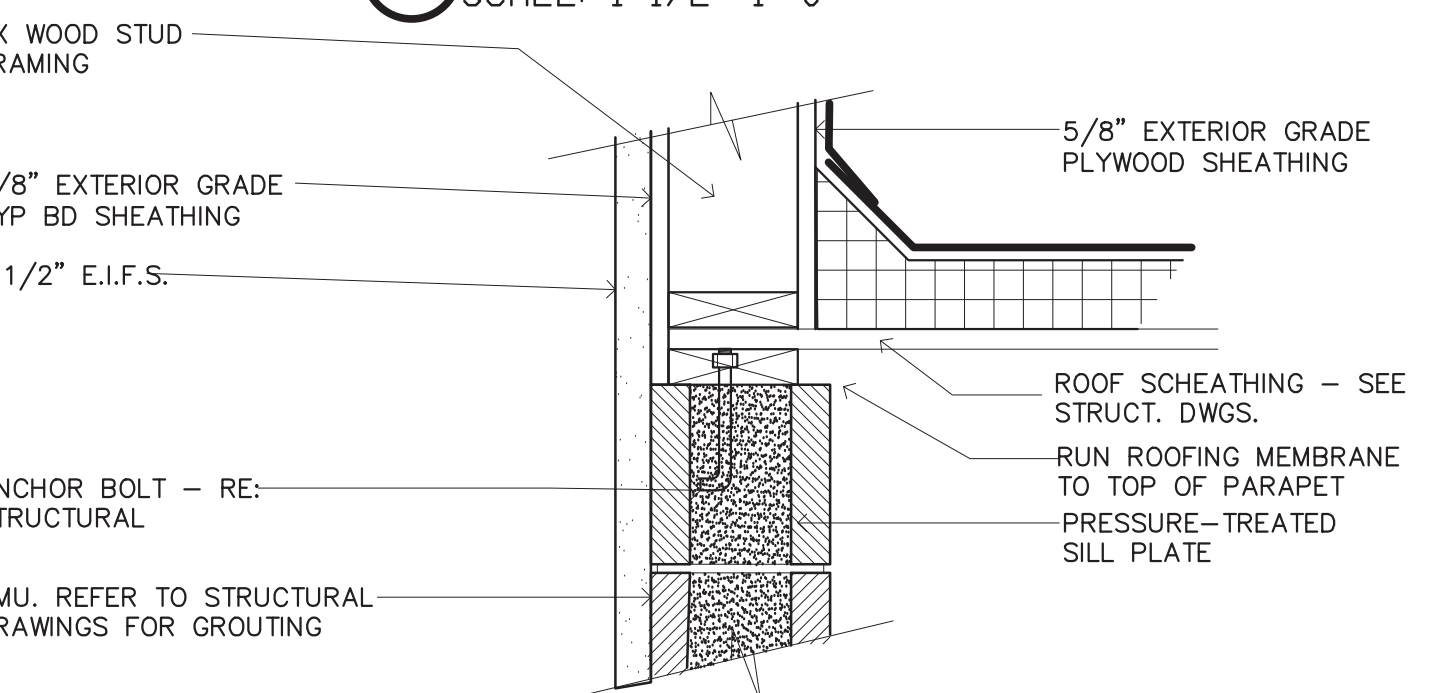
**11 WAINSCOT DETAIL**  
SCALE: 1 1/2"=1'-0"



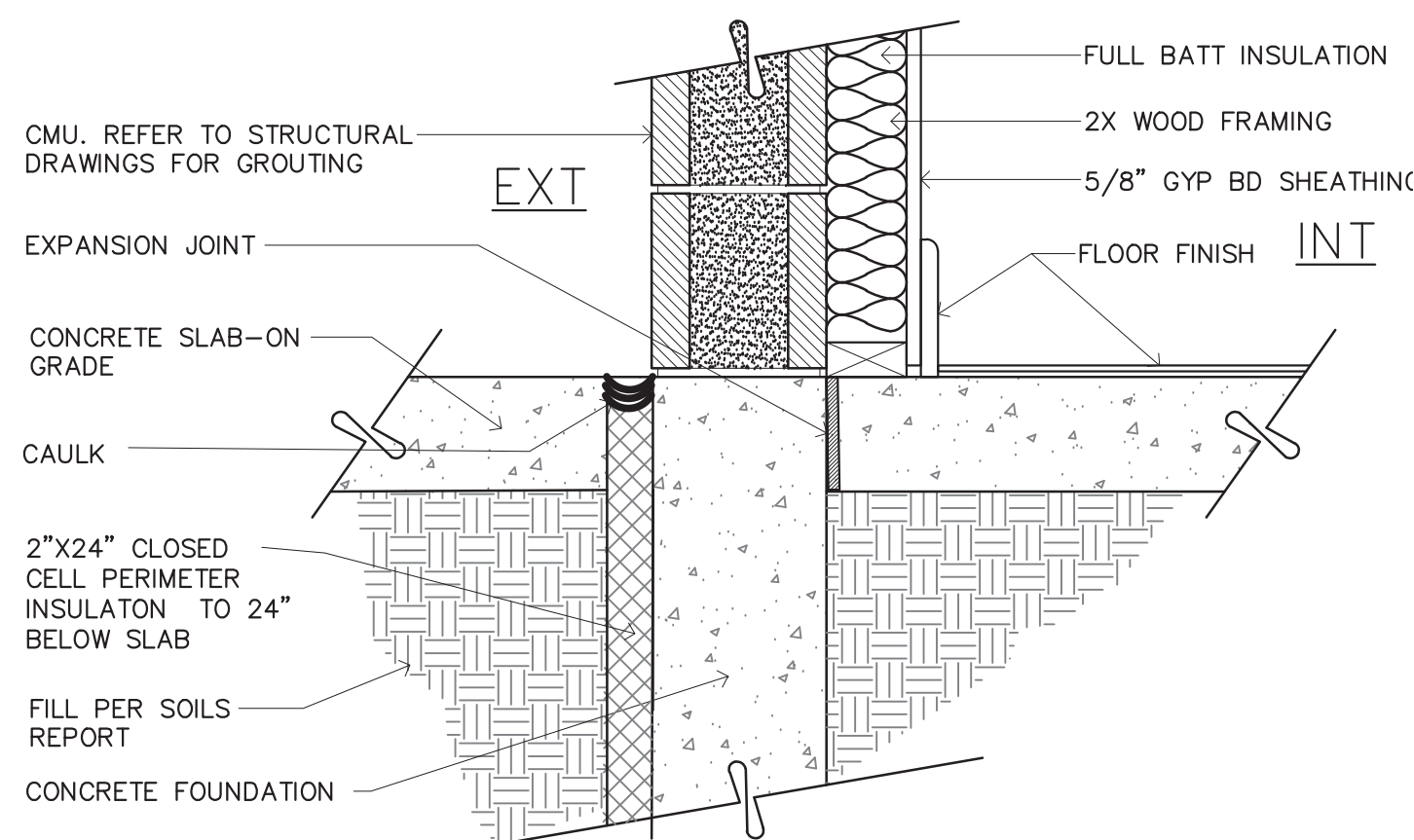
**12 FOUNDATION DETAIL**  
SCALE: 1 1/2"=1'-0"



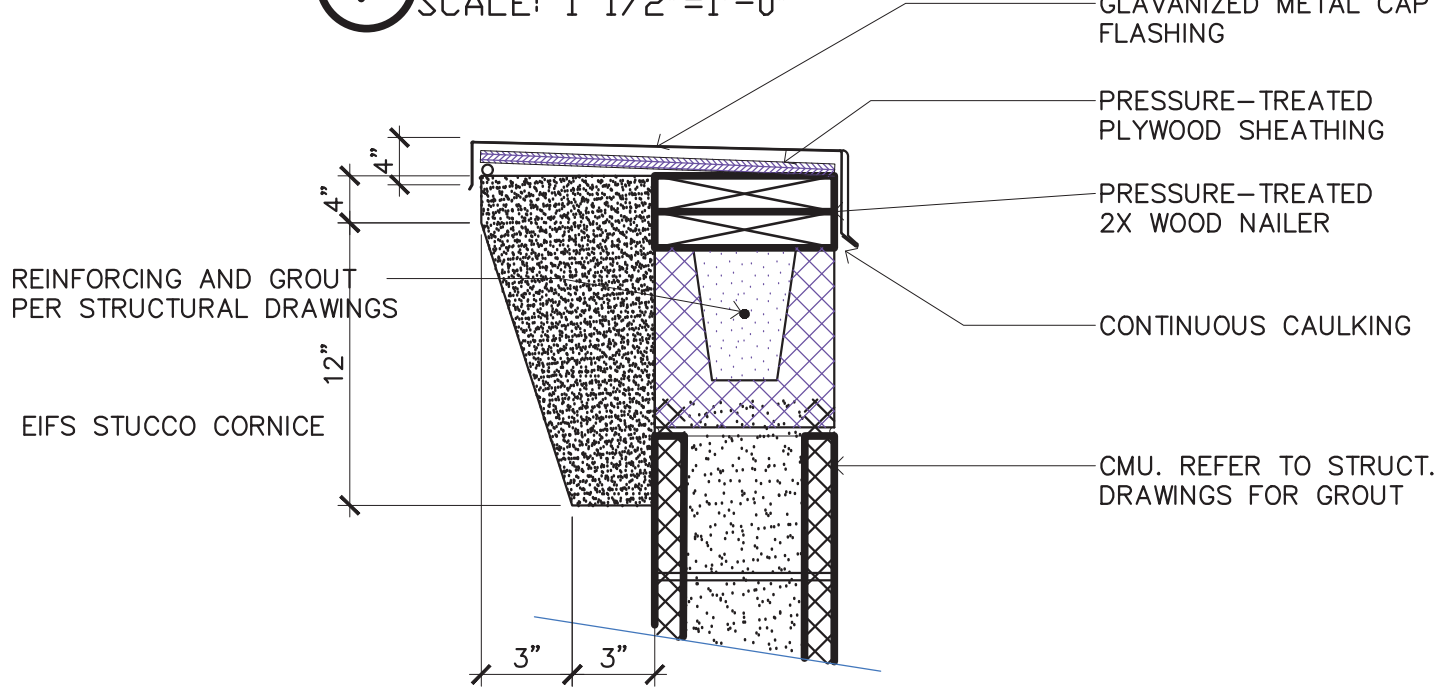
**5 FOUNDATION DETAIL**  
SCALE: 1 1/2"=1'-0"



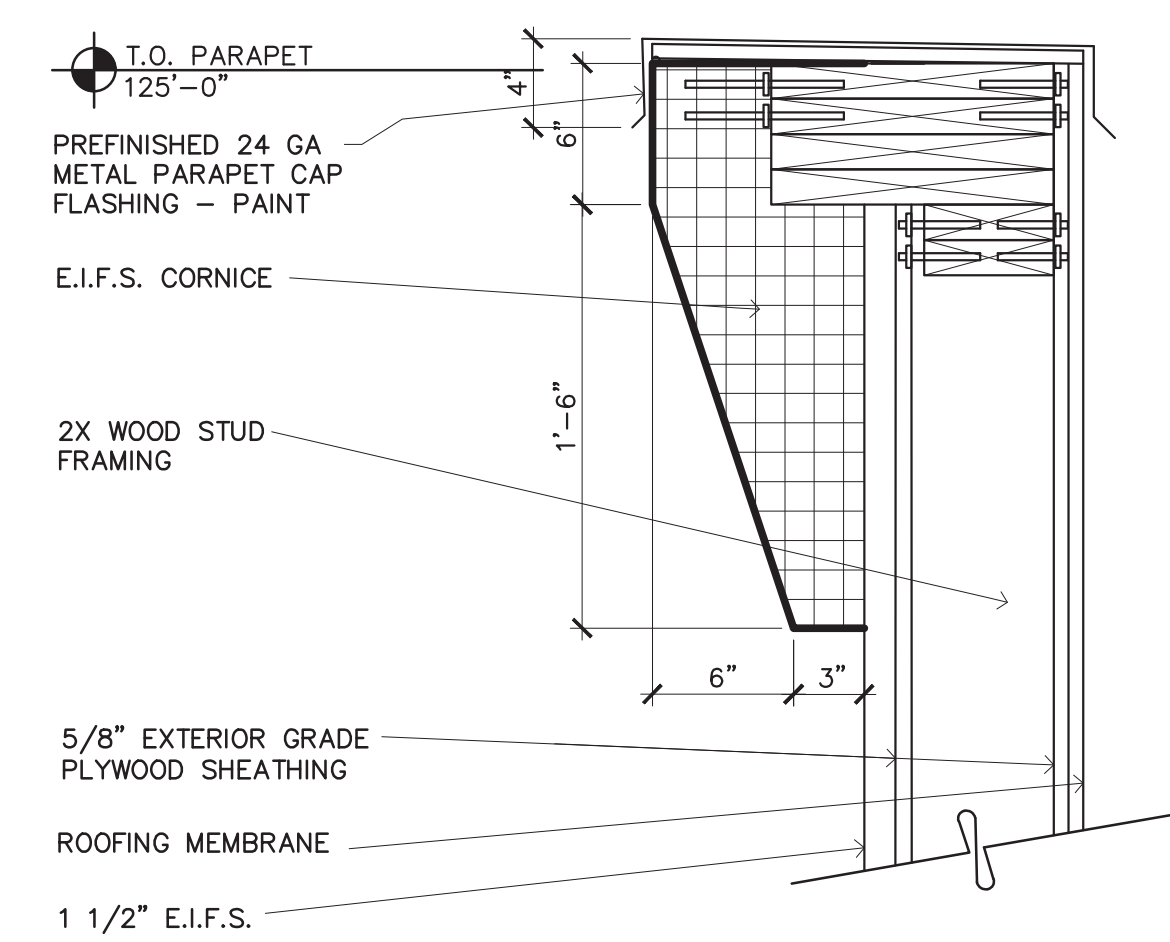
**6 CMU AT STUD WALL DETAIL**  
SCALE: 1 1/2"=1'-0"



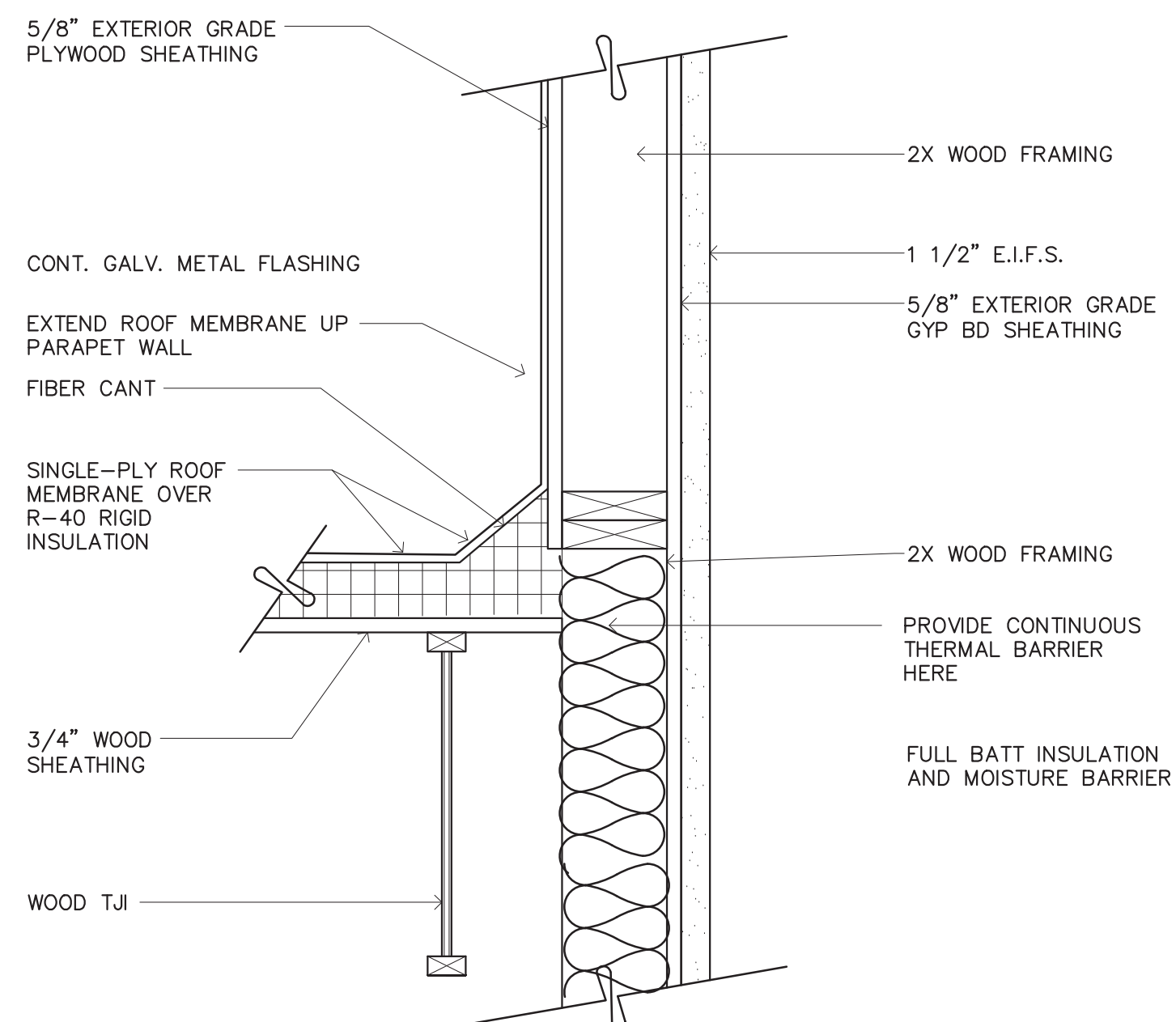
**7 FOUNDATION DETAIL**  
SCALE: 1 1/2"=1'-0"



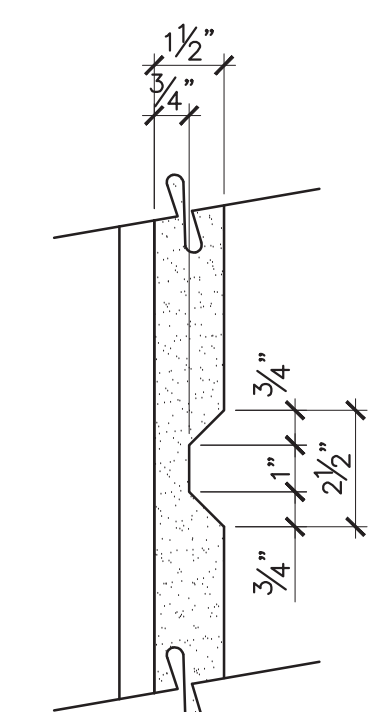
**8 CORNICE AT CMU DETAIL**  
SCALE: 1 1/2"=1'-0"



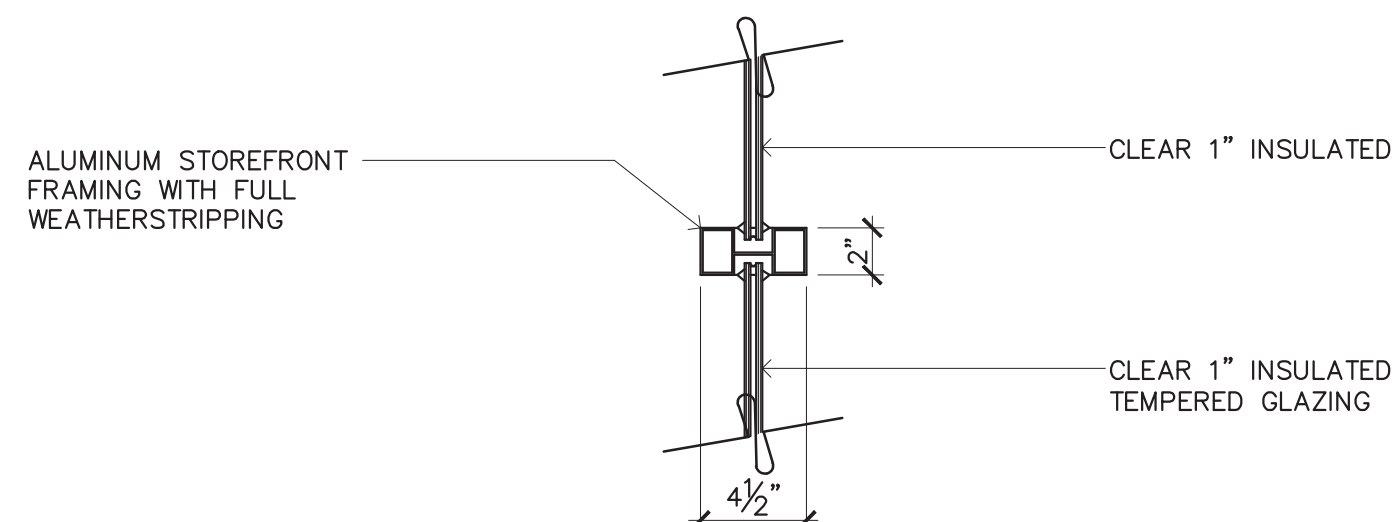
**1 CORNICE AT STUD WALL DETAIL**  
SCALE: 1 1/2" = 1'-0"



**2 DECK AT STUD WALL DETAIL**  
SCALE: 1 1/2" = 1'-0"

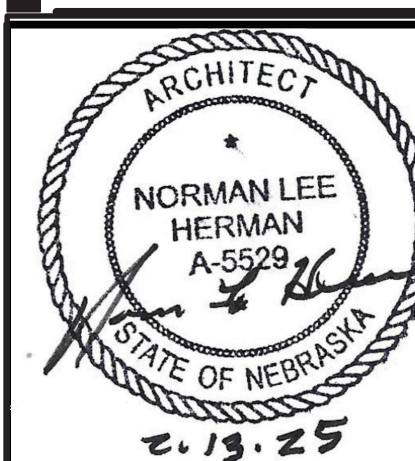


**3 REVEAL DETAIL**  
SCALE: 3" = 1'-0"



**4 STOREFRONT WINDOW DETAIL**  
SCALE: 1 1/2"=1'-0"

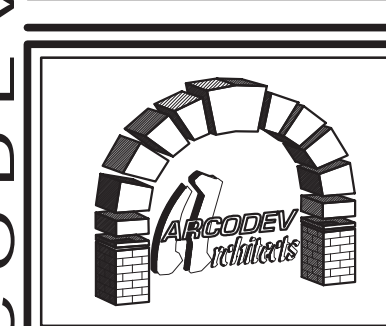
**BRAKES PLUS**  
2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	02/14/25	SUBMITTED TO BLDG. DEPT.

ARCODEV JOB #: -  
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DATE OF ISSUE: 012125



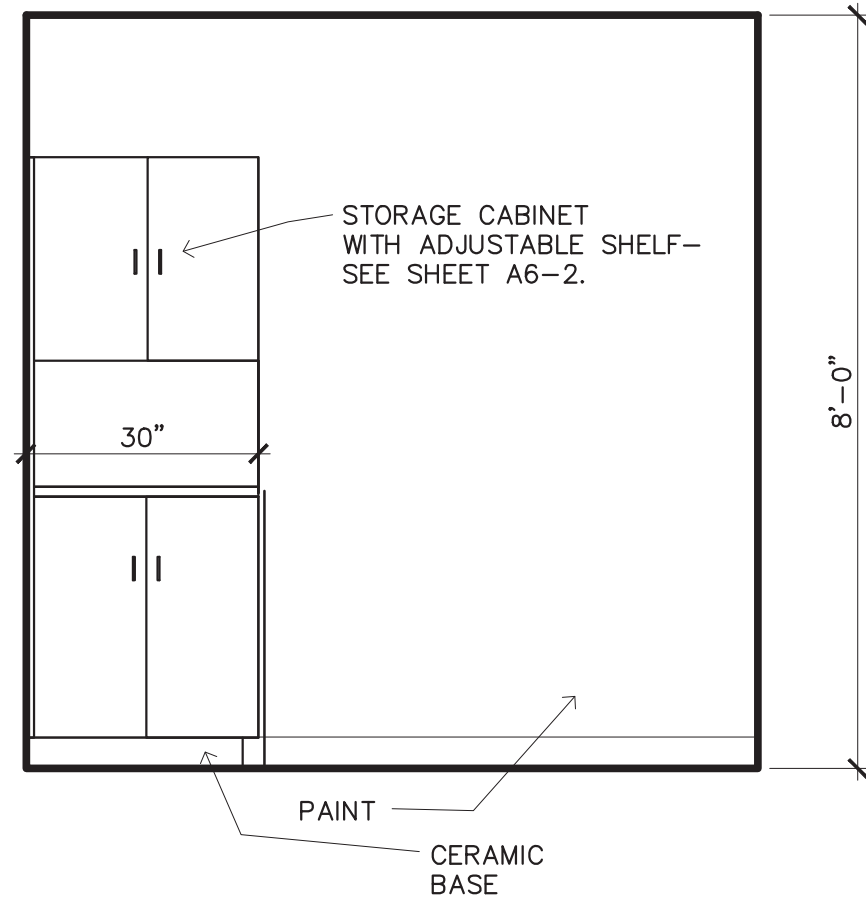
45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8925

A SHEET

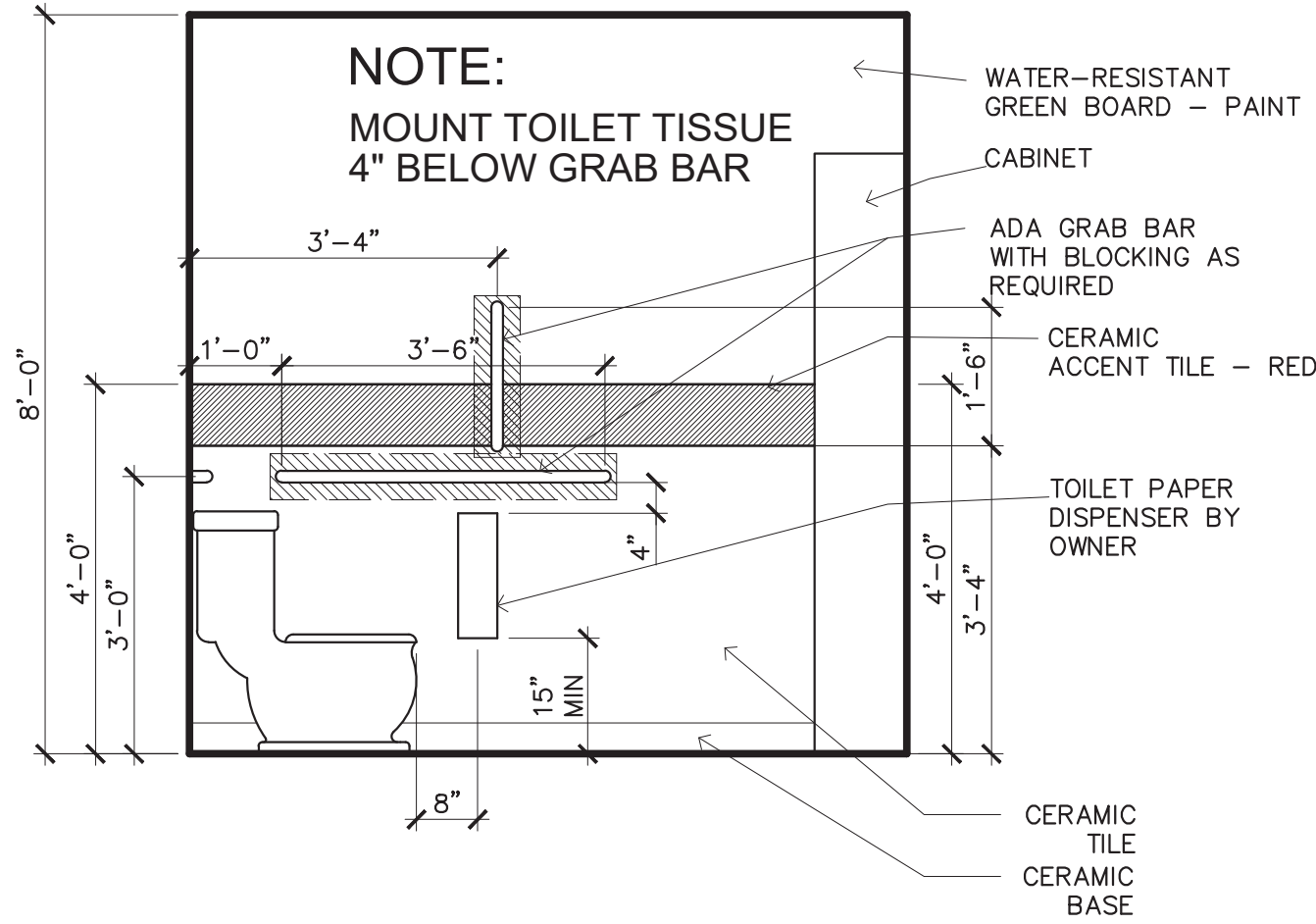
**A4-6**

DETAILS

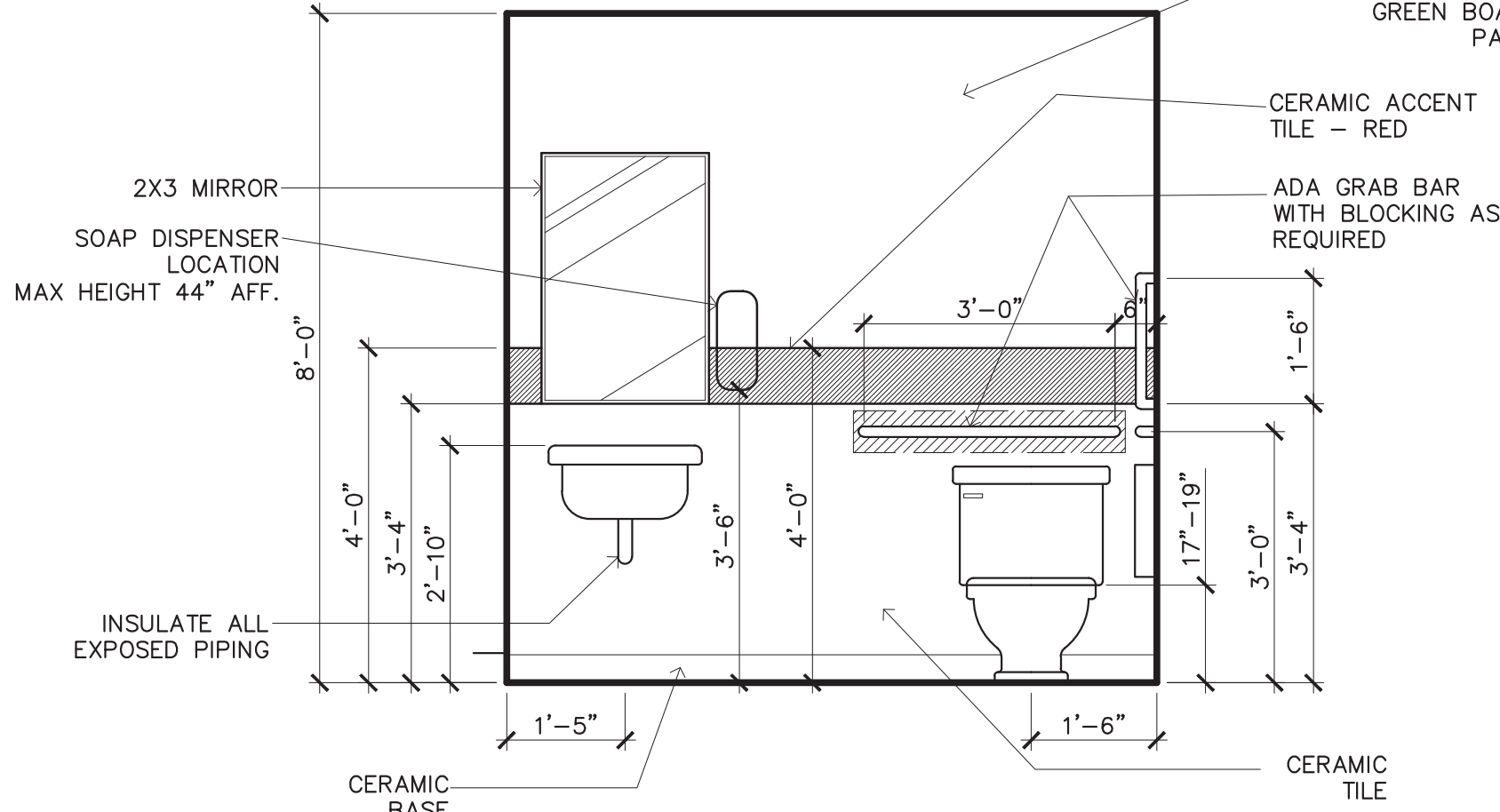




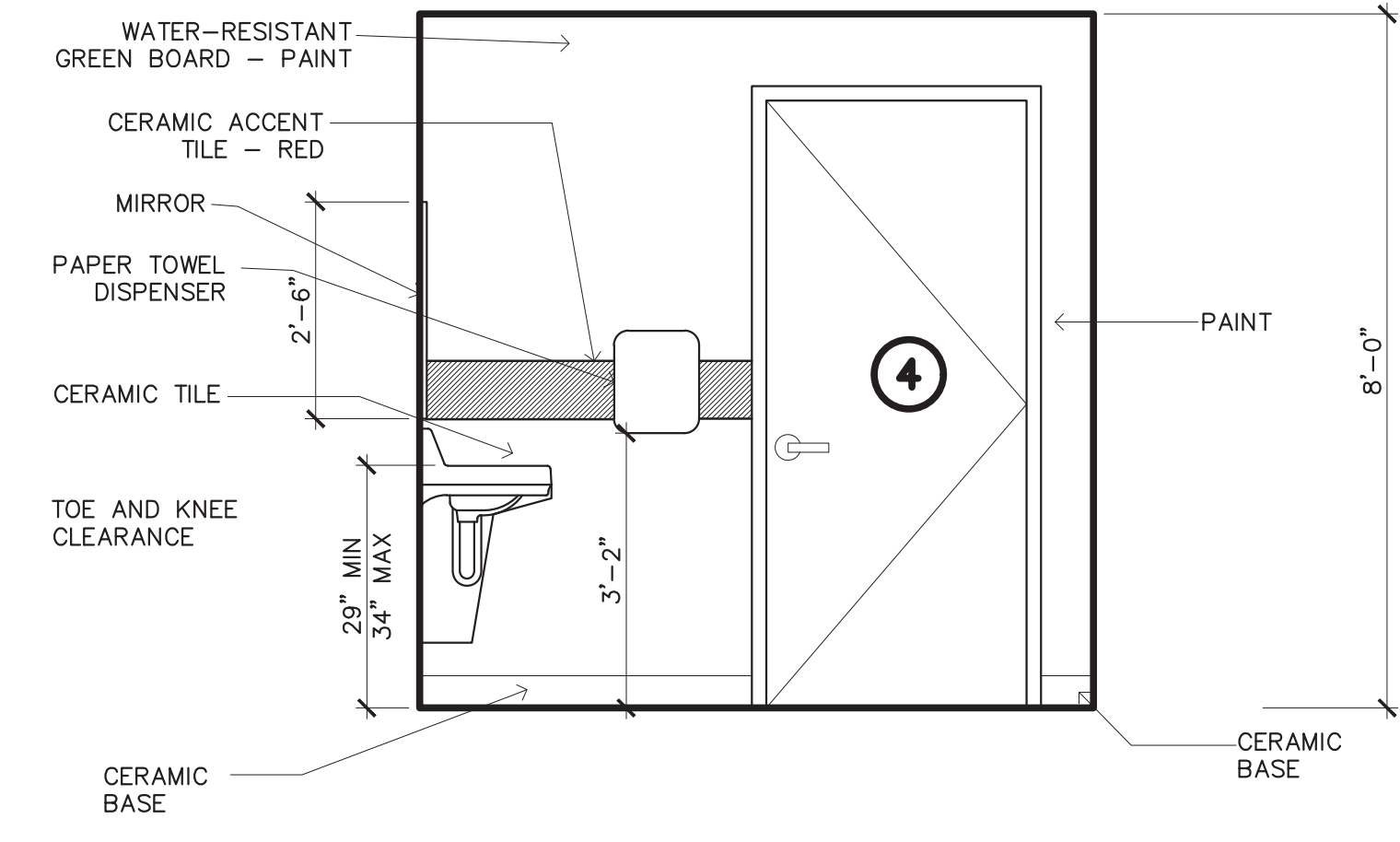
(d)



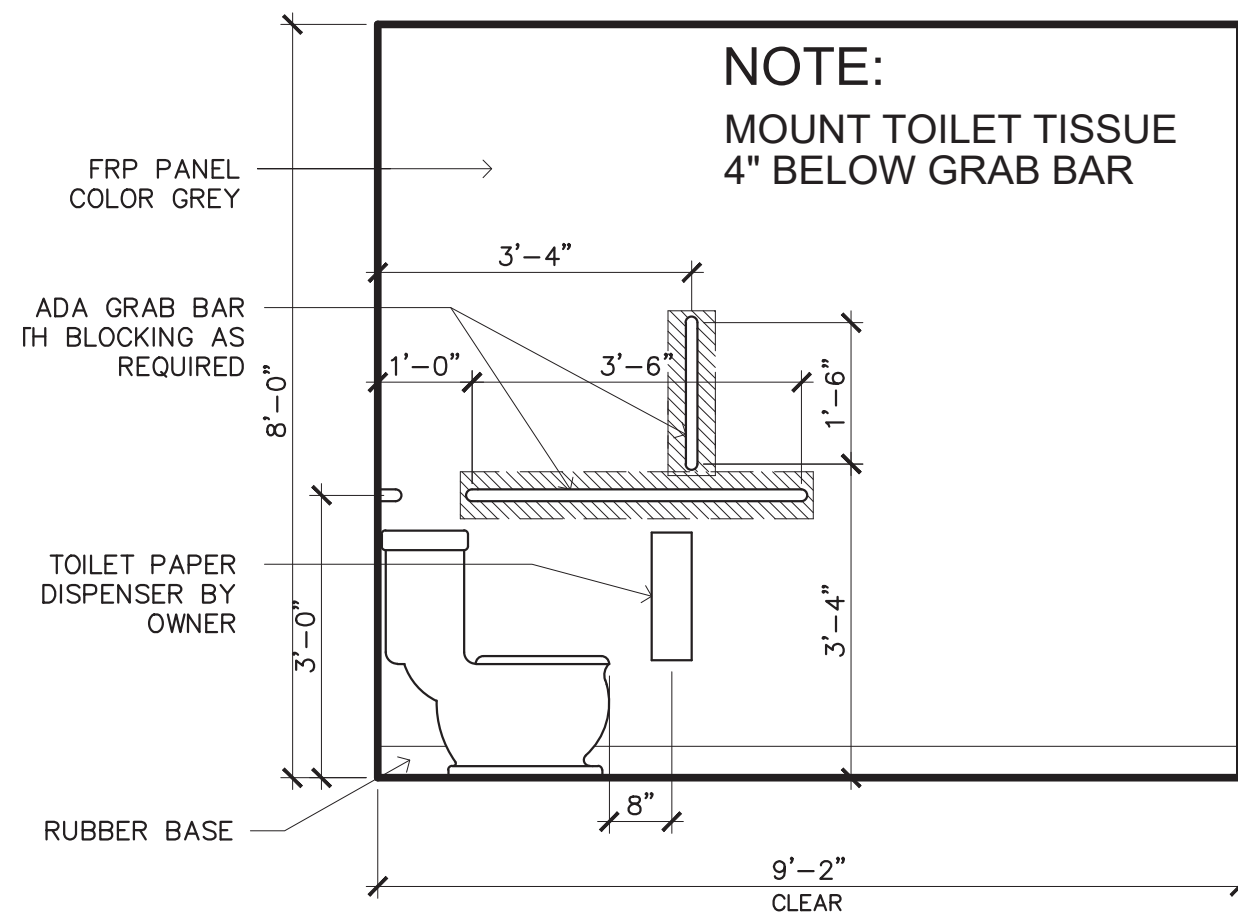
(a)



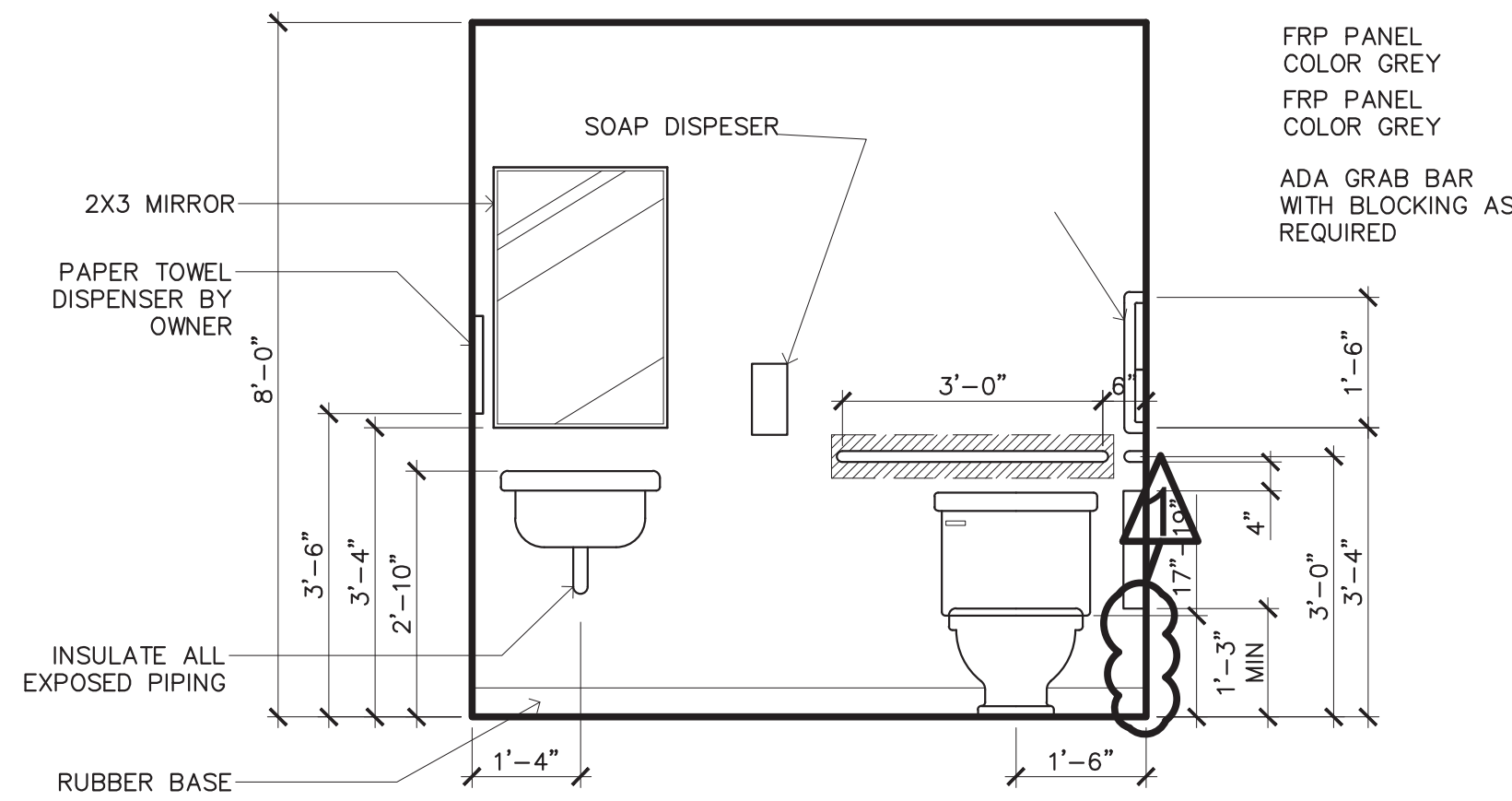
(b)



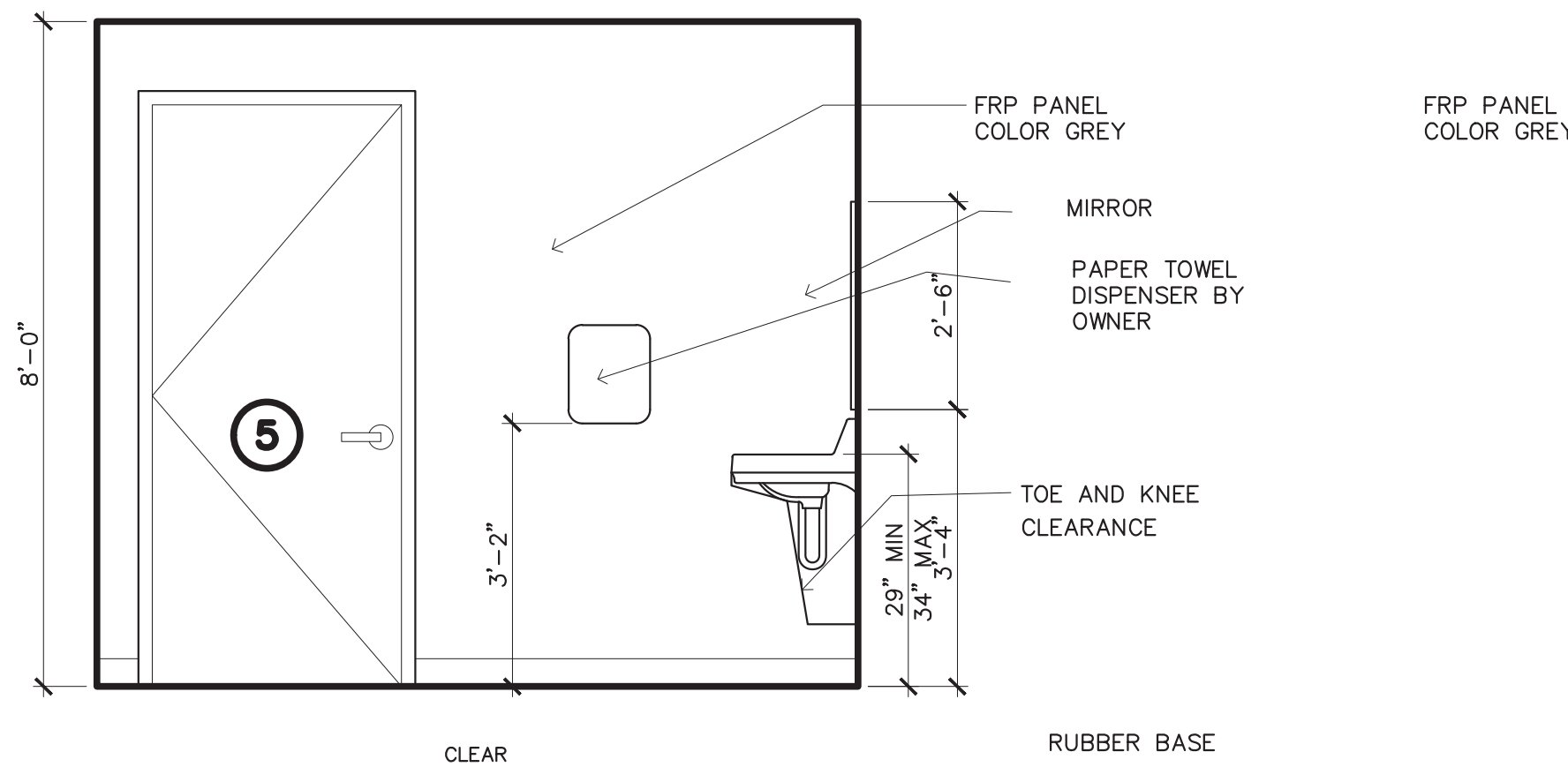
(c)



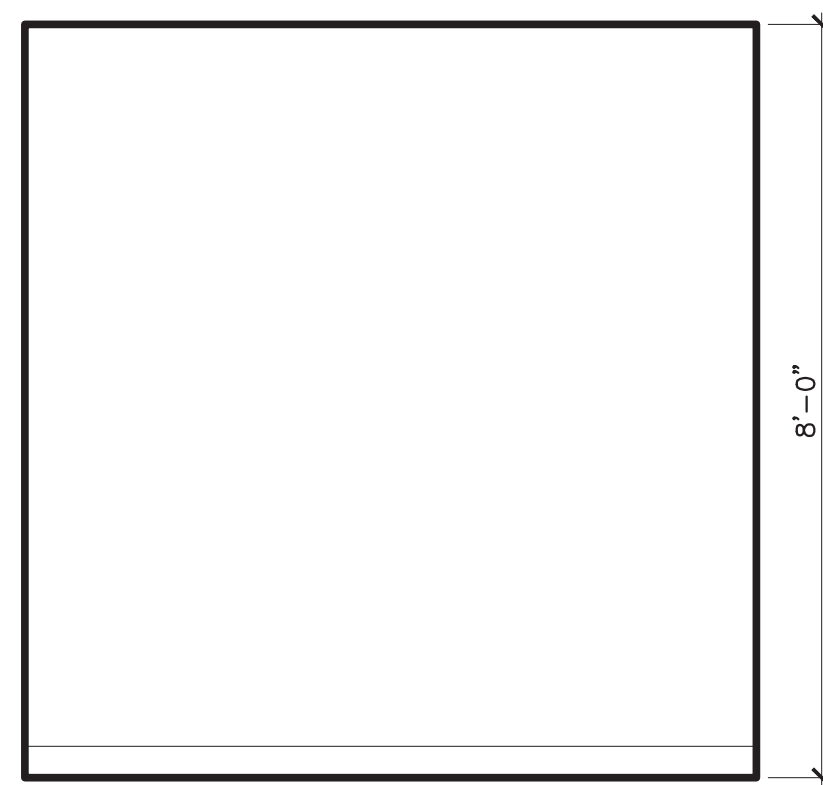
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(c)



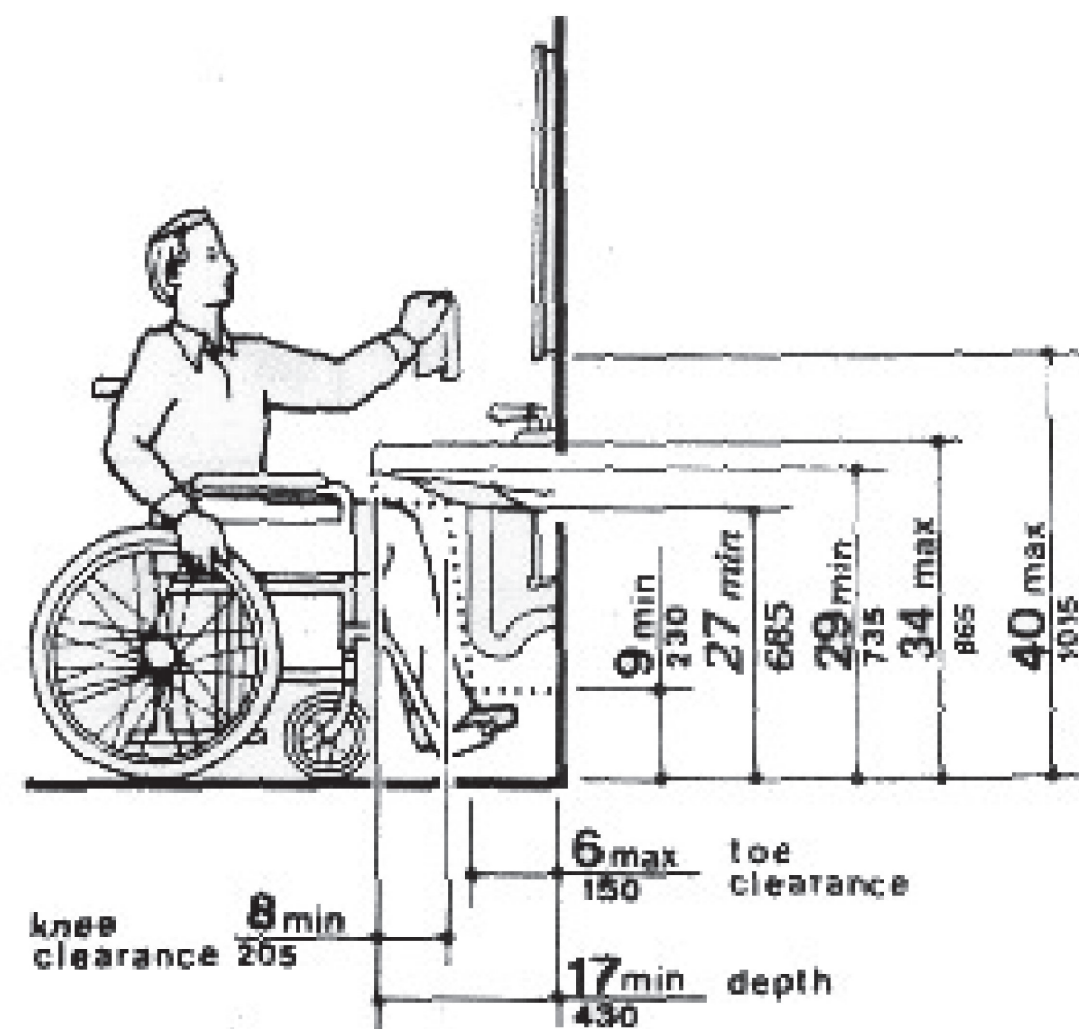
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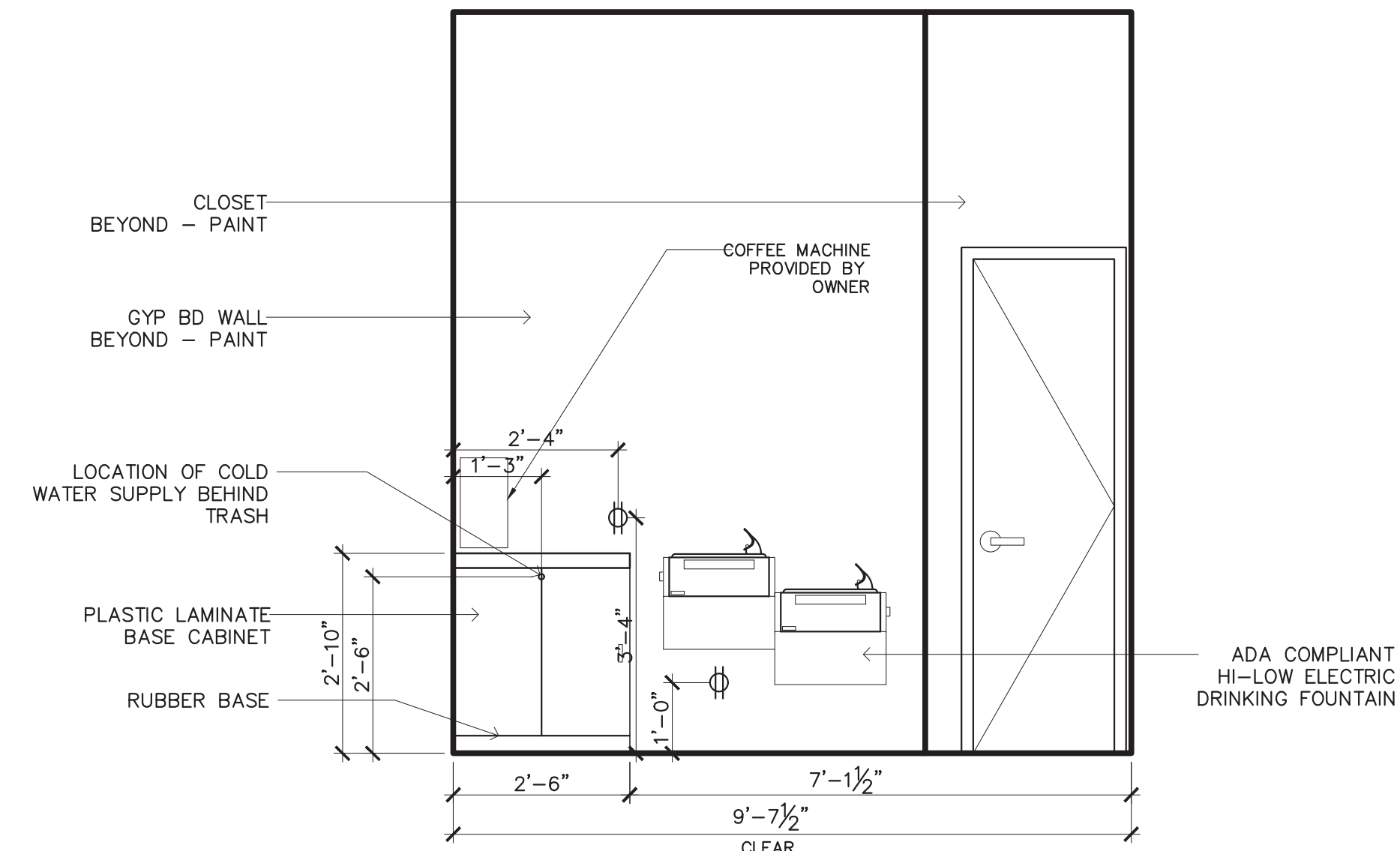
## 2 MEN'S RESTROOM ELEVATION

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



## 8 ADA FIXTURE PLACEMENT

NO SCALE

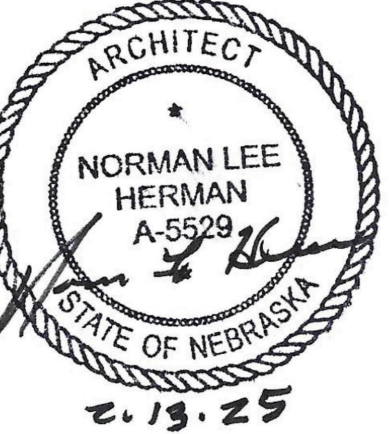


## 5 COFFEE ROOM ELEVATION

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

BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

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DATE OF ISSUE:	012125

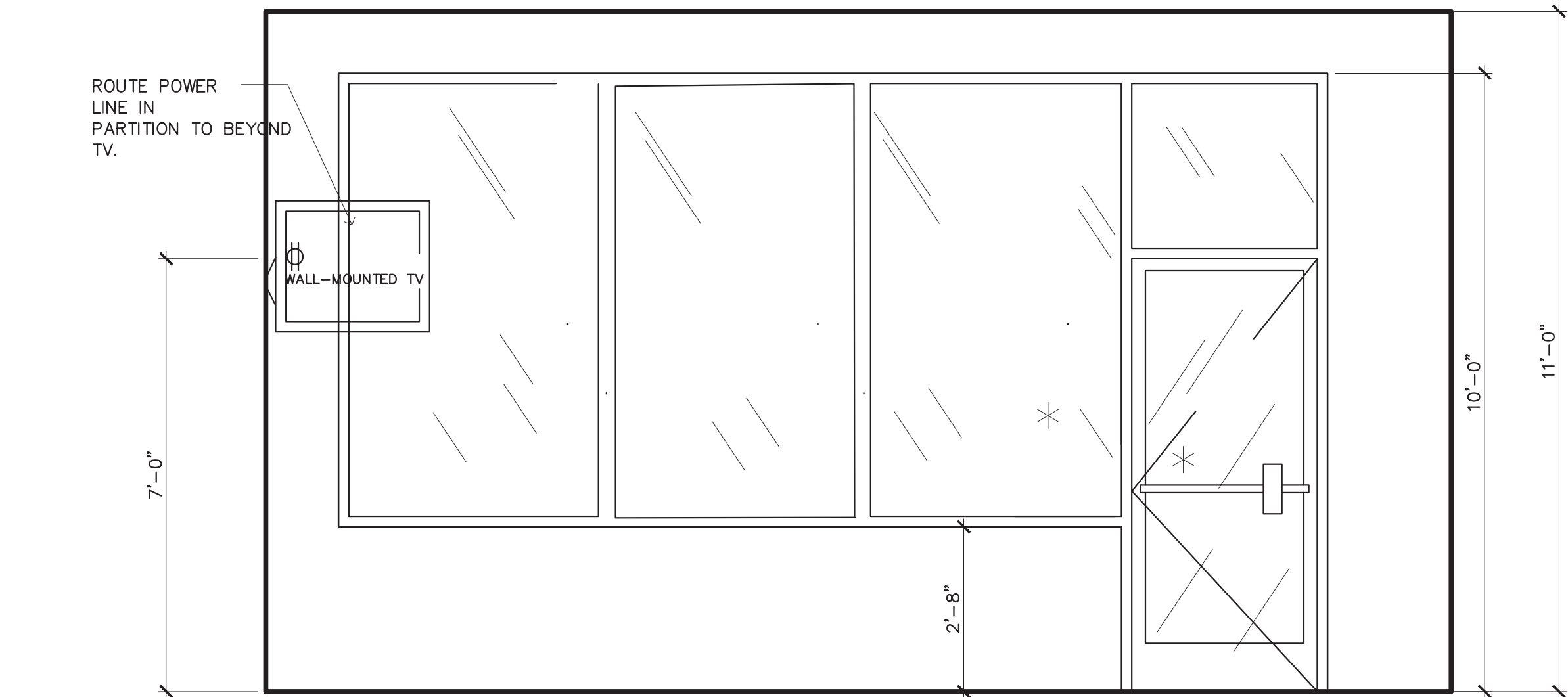


45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8925

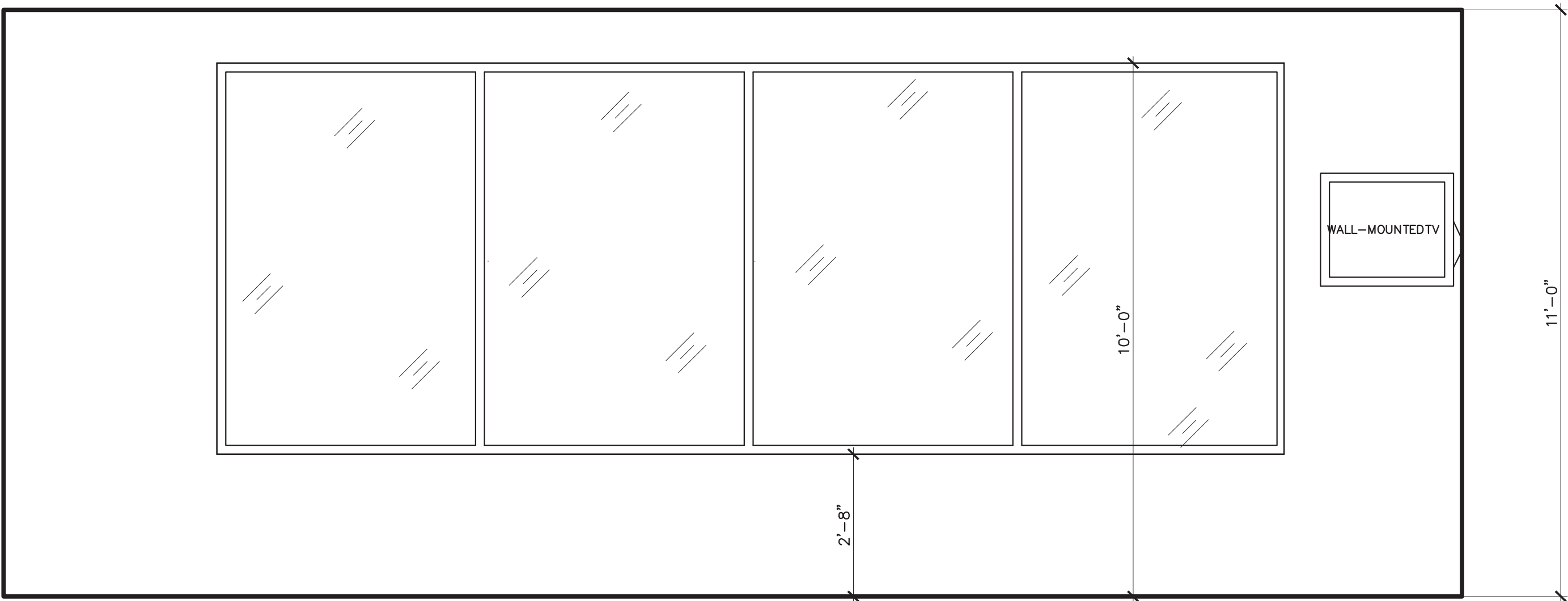
A5-1

INTERIOR ELEVATIONS  
AND DETAILS

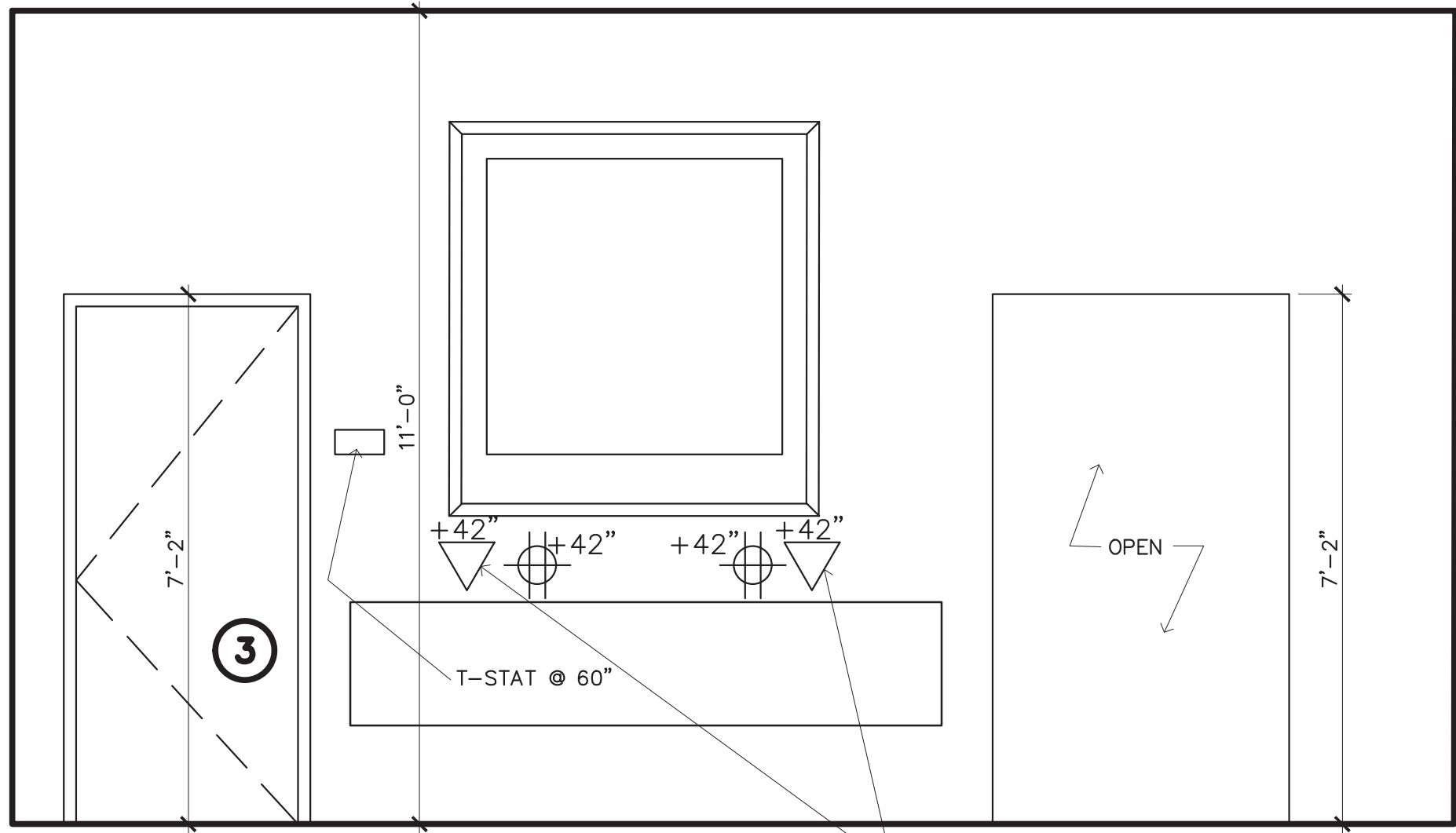




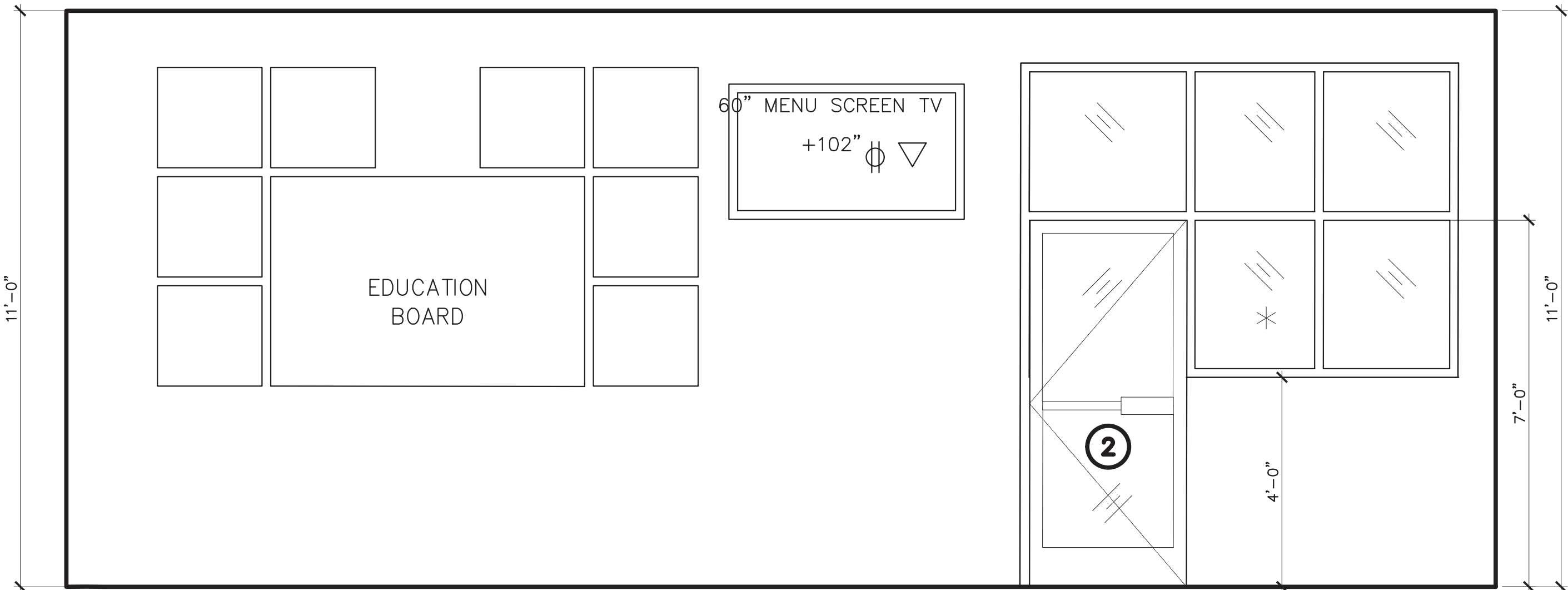
(b)



(a)



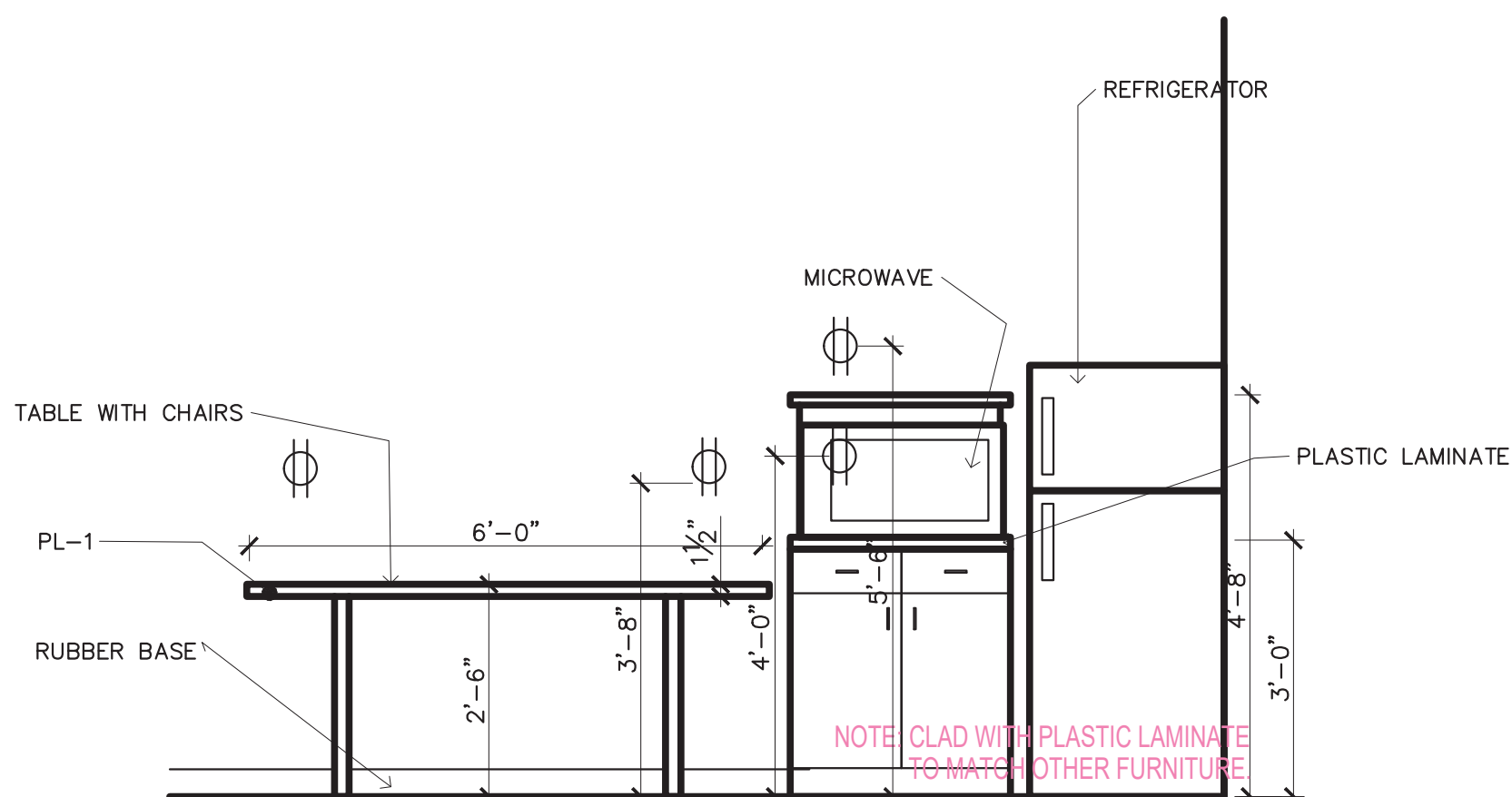
ROUTE DATA LINES IN PARTITION TO ABOVE CEILING



(c)

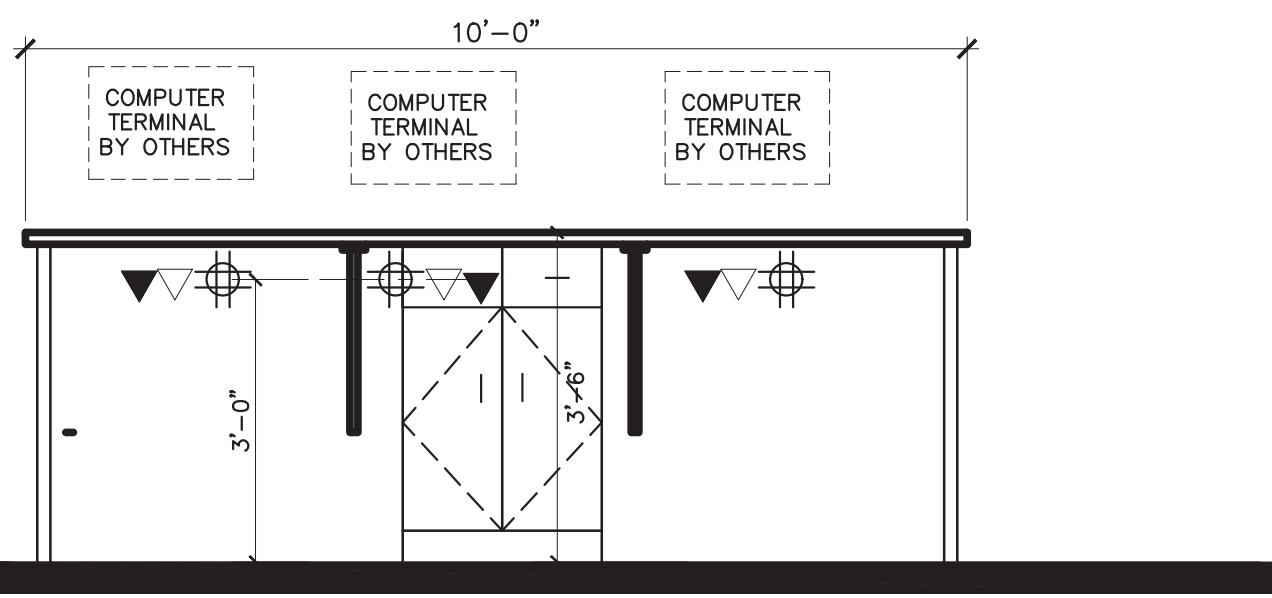
1 SALES AREA ELEVATIONS

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



2 BREAK ROOM ELEVATION

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



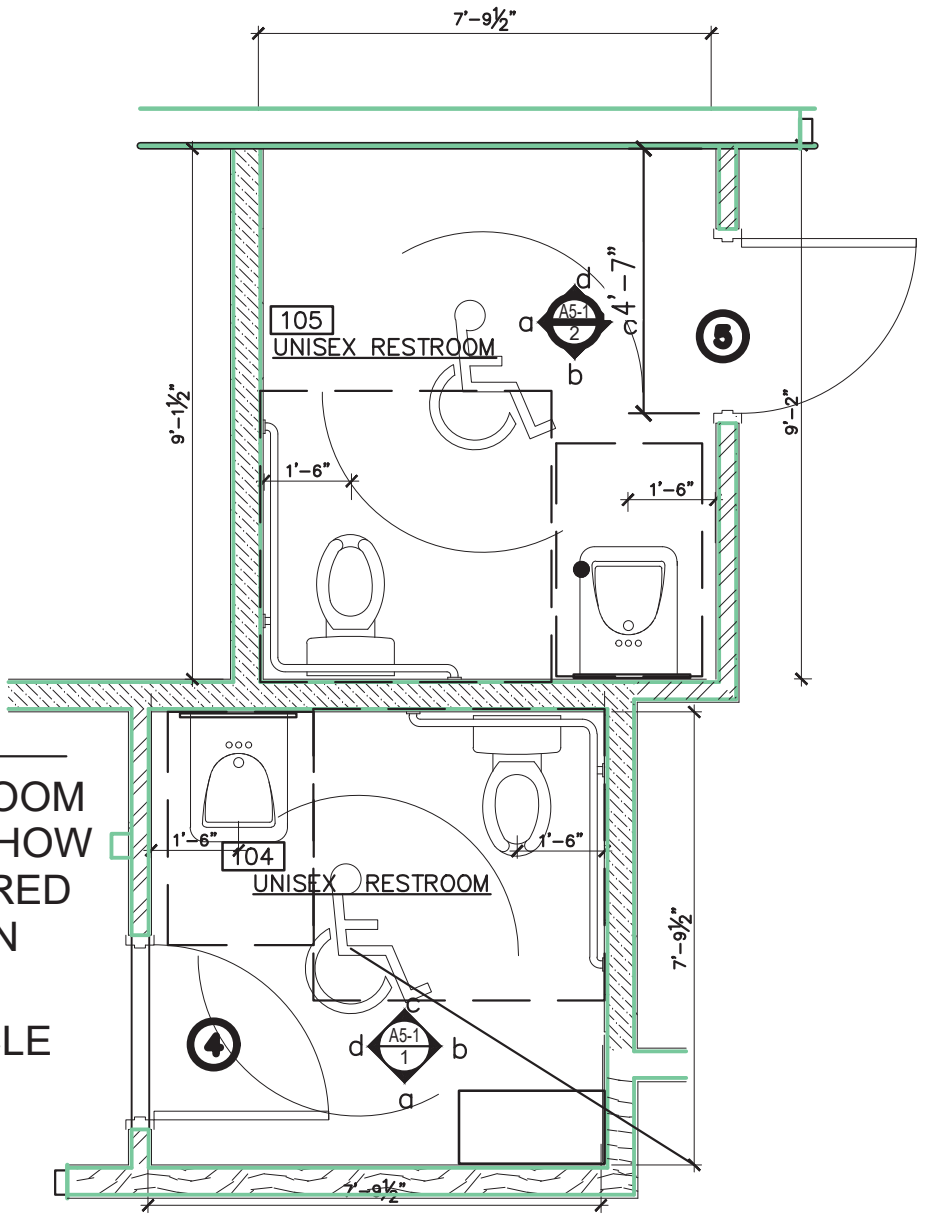
3 SERVICE DESK COMP. TERMINAL STATION

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

NOTE:

DASHED LINES ON RESTROOM FLOOR PLANS AT RIGHT SHOW THE CLEAR SPACE REQUIRED AT FIXTURES AND AT OPEN AREA:

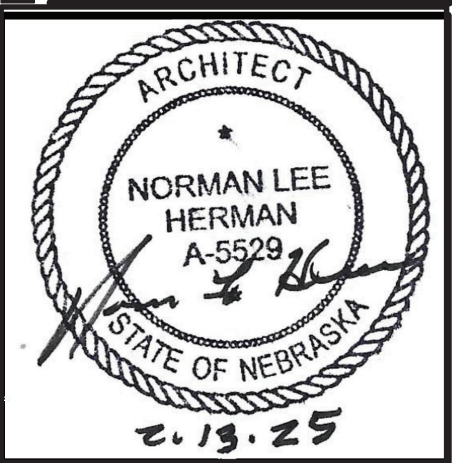
OPEN AREA: 60" DIA. CIRCLE  
TOILET: 5'-0" X 5'-0"  
SINK: 30"X48"



4 ENLARGED RESTROOMS PLAN

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

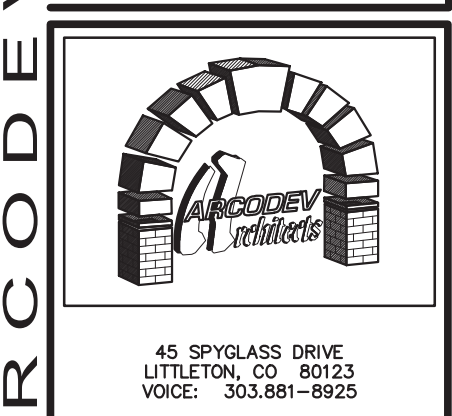
BRAKES PLUS  
2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
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ARCODEV JOB #:  
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DRAWN BY: NLH  
CHECKED BY: NLH  
DATE OF ISSUE: 012125



SHEET

A5-2  
INTERIOR ELEVATIONS  
AND DETAILS



DOOR NO.	DOOR SIZE	DOOR				FRAME		DETAILS			HDWR GROUP	FIRE RATING	REMARKS
		TYPE	MAT'L	FINISH IN	OUT	MAT'L	FINISH	HEAD	JAMB	SILL			
1	3'-0" x 7'-0"	C	ALUM./GL	M1	M1	ALUM.	M1	8/A6-1	7/A6-1	8/A6-1	6	-	SIGN THIS DOOR SHALL REMAIN UNLOCKED DURING BUSINESS HOURS NO PANIC BAR REQUIRED.
2	3'-0" x 7'-0"	C	ALUM./GL	M1	M1	ALUM.	M1	8/A6-1	7/A6-1	8/A6-1	6	-	
3	3'-0" x 7'-0"	B	H.M.	P2	P2	H.M.	P2	3/A6-1	3/A6-1	-	2	-	-
4	3'-0" x 7'-0"	B	H.M.	P2	P2	H.M.	P2	3/A6-1	3/A6-1	-	1	-	PROVIDE ACCESSIBLE RESTROOM SIGNAGE.
5	3'-0" x 7'-0"	F	H.M.	P2	P2	H.M.	P2	3/A6-1	3/A6-1	-	1	-	PROVIDE ACCESSIBLE RESTROOM SIGNAGE.
6	3'-0" x 7'-0"	E	H.M.	P2	P2	H.M.	P2	2/A6-1 SIM	4/A6-1 SIM	2/A6-1 SIM	4	-	PROVIDE 16"x30" VIEW PANEL.
7	2'-0"x 7'-0"	A	H.M.	-	-	-	-	-	-	-	-	-	-
8	NOT USED	-	-	-	-	-	-	1,2/A6-1	4/A6-1	1,2/A6-1	3	-	INSULATED DOOR
9	3'-8" x 7'-0"	E	H.M.	P2	P2	H.M.	P2	1/A6-1	4/A6-1	-	1	-	PROVIDE 16"x30" VIEW PANEL.
10	3'-0" x 7'-0"	B	H.M.	-	-	-	-	1,2/A6-1	4/A6-1	1,2/A6-1	3	-	INSULATED DOOR
11	10'-0" x 12'-0"	D	ALUM./GL	-	-	-	-	9/A6-1	6/A6-1	9/A6-1	-	-	PADLOCK
12	10'-0" x 12'-0"	D	ALUM./GL	-	-	-	-	9/A6-1	6/A6-1	9/A6-1	-	-	PADLOCK
13	10'-0" x 12'-0"	D	ALUM./GL	-	-	-	-	9/A6-1	6/A6-1	9/A6-1	-	-	PADLOCK
14	10'-0" x 12'-0"	D	ALUM./GL	-	-	-	-	9/A6-1	6/A6-1	9/A6-1	-	-	PADLOCK
15	10'-0" x 12'-0"	D	ALUM./GL	-	-	-	-	9/A6-1	6/A6-1	9/A6-1	-	-	PADLOCK
16	10'-0" x 12'-0"	D	ALUM./GL	-	-	-	-	9/A6-1	6/A6-1	9/A6-1	-	-	PADLOCK
17	10'-0" x 12'-0"	D	ALUM./GL	-	-	-	-	9/A6-1	6/A6-1	9/A6-1	-	-	PADLOCK
18	10'-0" x 12'-0"	D	ALUM./GL	-	-	-	-	9/A6-1	6/A6-1	9/A6-1	-	-	PADLOCK

1. THRESHOLD SHALL BE MAXIMUM 1/2" HIGH ABOVE FLOOR AND LANDING ON BOTH SIDES AT BUILDING ENTRANCES.
2. MAXIMUM DOOR OPENING EFFORT SHALL BE 5 LBS AT EXTERIOR AND INTERIOR DOORS PER ANSI 404.2.9.
3. ALL DOORS SHALL BE EQUIPPED WITH SINGLE-EFFORT, NON-GRASP HARDWARE CENTERED BETWEEN 34" AND 48" ABOVE THE FLOOR.

[illegible]

1. PROVIDE MOISTURE-RESISTANT GYPSUM BOARD.

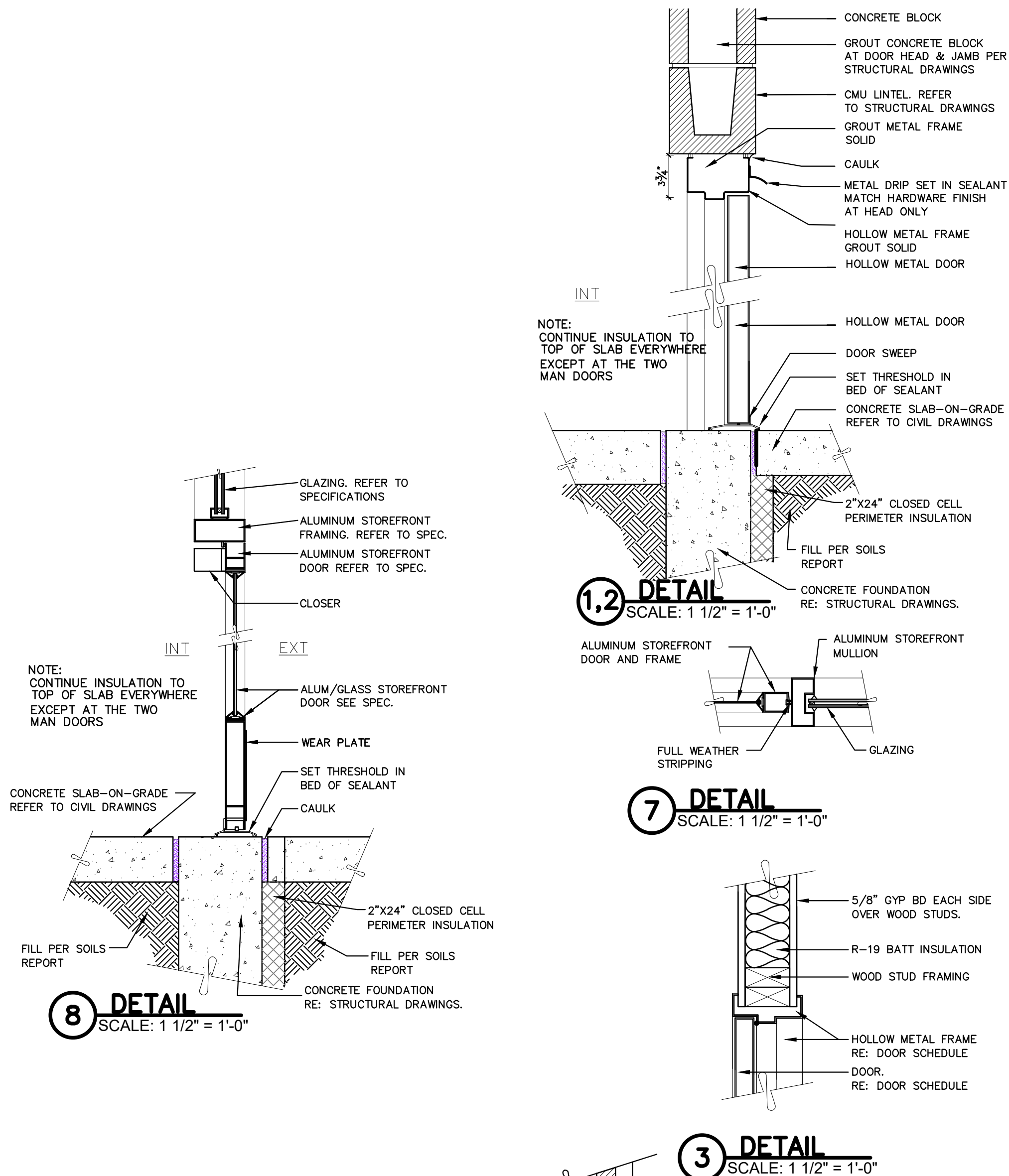
GROUP	QTY.	DESCRIPTION
1	1 EACH 1 EACH 1 EACH 1 EACH 1 EACH	FRAME - ME416 3070 X 5 3/4" HMF DOOR - 3070 X 1 3/4" H.M. HINGE - STANLEY FBB179 4.5 X 4.5 X 626 LOCKSET - SCHLAGE AL40S SAT X 626 (PRIVACY) FLOOR STOP - MM FS13 X US26D
2	1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH	FRAME - ME416 3070 X 5 3/4" HMF LH CR CSA DOOR - 3070 X 1 3/4" H.M. HINGE - STANLEY FBB179 4.5 X 4.5 X 626 LOCKSET - SCHLAGE ALS3PD SAT X 626 (ENTRY) CLOSER - LCN 1461 REG/PA TBWS X ALU FLOOR STOP - MM FS13 X US26D
3	1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH	FRAME - ME416 3070 X 5 3/4" 4" HD HMF RH CR BJPR DOOR - 3070 X 1 3/4" HMF BLANK MOLCR HINGE - STANLEY FBB179 NRP 4.5 X 4.5 X 626 EXIT DEVICE - VON DUPPIN 22NL 3" X SP28 RIM CYLINDER - SCH 3" X US26D CLOSER - LCN 4041 CUSH TBWS X ALU LATCH/DOOR - 4041 CUSH TBWS X ALU THRESHOLD - PEMKO 179AV X 36" SWEEP - PEMKO 18137P X 36" SMOKE SEAL - PEMKO S88C 17'
4	1 EACH 1 EACH 1 EACH 1 EACH 1 EACH	FRAME - ME416 3070 X 5 3/4" HMF LH CR CSA DOOR - 3070 X 1 3/4" H.M. HINGE - STANLEY FBB179 4.5 X 4.5 X 626 LOCKSET - SCHLAGE ALS3PD SAT X 626 (ENTRY) CLOSER & STOP - MM FS13 X US26D
5	1 EACH 1 EACH 1 EACH 1 EACH 1 EACH	FRAME - ME416 3070 X 5 3/4" HMF DOOR - 3070 X 1 3/4" H.M. HINGE - STANLEY FBB179 4.5 X 4.5 X 626 LOCKSET - SCHLAGE AL10S SAT X 626 (PASSAGE) FLOOR & STOP - MM FS13 X US26D
6	2 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH 1 EACH	HINGE - KAWNEER OFFSET PIVOT CLOSER - LCN 4041 CUSH TBWS X ALU PUSH/PULL - KAWNEER, STYLE F-2 DEADLOCK - KAWNEER ADAMS RITE MS-1850A-505 W/ STANDARD LOCK CYLINDERS WITH HEAD & SILL BOLTS EXIT INDICATOR - KAWNEER ADAMS RITE 4089 THRESHOLD SWEEP WEATHERSTRIPPING NOTE: HEAD AND SILL BOLTS MUST BE OPERATED BY THE DEAD BOLT MECHANISM

## FINISHES

SCW	SOLID CORE WOOD
HM	HOLLOW METAL
ALUM	ALUMINIUM

P1	NOT USED
P2	PRIMED AND PAINTED
P3	FACTORY PRIMED, STANDARD WHITE/LIGHT GRAY
M1	CLEAR ANODIZED ALUMINIUM, MILL FINISH

ACT	ACOUSTICAL CEILING TILES
CST	CERAM TILE
CMU	CONCRETE MASONRY UNIT
RB	RUBBER BASE
GB	Gypsum BOARD
FRP	FIBERGLASS REINFORCED PLASTIC
QPT	CARPET
<b>FINISHES</b>	
F1	NONE
F2	HARDENER AND SEALER
F3	2 COATS ENAMEL
F4	2 COATS ENAMEL
F5	1 COAT BLOCK FILLER - 2 COAT HIGH GLOSS ENAMEL
F6	1 COAT "0" AFF - 1 COATS HIGH GLOSS ENAMEL
F6	2 COATS SEMI-GLOSS ENAMEL



1

FACTORY FINISHED ALUMINUM W/  
1" CLEAR INSULATED GLASS  
CLEAR ANODIZED ALUMINUM

2

FACTORY FINISHED ALUMINUM W/  
1" CLEAR INSULATED GLASS  
CLEAR ANODIZED ALUMINUM

3

FACTORY FINISHED ALUMINUM W/  
1" CLEAR INSULATED GLASS  
CLEAR ANODIZED ALUMINUM

4

FACTORY FINISHED ALUMINUM W/  
1" CLEAR INSULATED GLASS  
CLEAR ANODIZED ALUMINUM

\* = TEMPERED GLASS

**A**  
HOLLOW METAL  
GALVANIZED-PRIMER  
PAINTED

**B**  
HOLLOW METAL  
GALVANIZED AND INSULATED  
PRIMED AND PAINTED

**C** \* =  
ALUMINUM STOREFRONT  
CLEAR ALUMINUM  
ANODIZED FINISH

**D** \* = TEMPERED GLASS  
ALUM/GLASS OVERHEAD DOORS  
1/4" TEMPERED VISION PANELS  
HIGH-LIFT TRACK,  
50,000 CYCLES

**E**  
HOLLOW METAL  
GALVANIZED PRIMER  
AND PAINTED

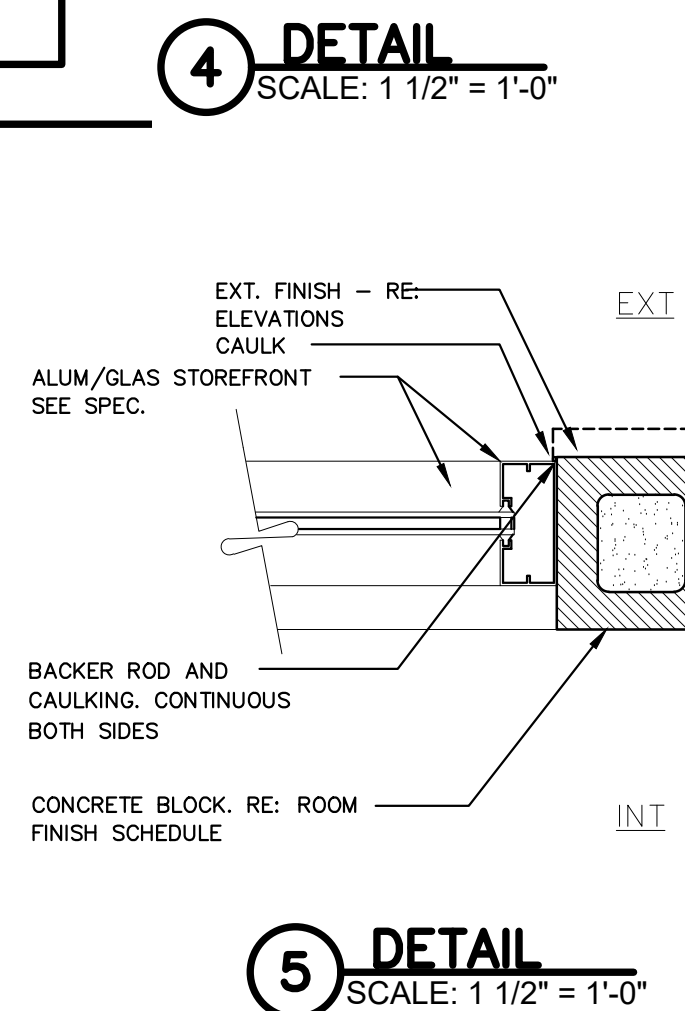
**F**  
HOLLOW METAL  
GALVANIZED  
PRIMED AND PAINTED

\* DENOTES TEMPERED GLASS

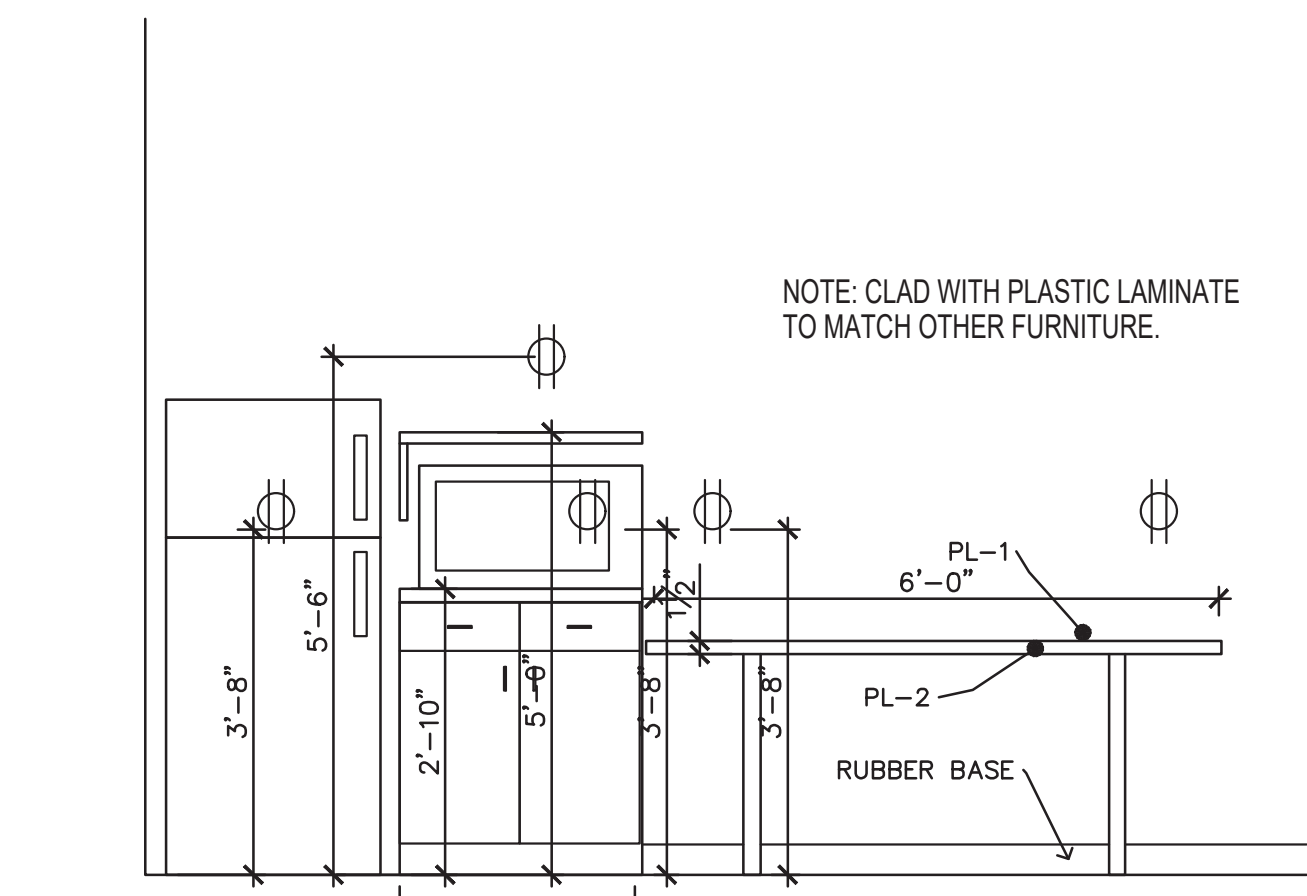
10'-0"  
12'-0"  
1'-4"  
2'-8"  
3'-4"  
10"  
NEW PANEL  
EXHAUST PORT

DOOR HANDLES, PULLS, LATCHES, AND OTHER OPERATING DEVICES ON DOORS REQUIRED TO BE ACCESSIBLE BY CHAPTER 11 SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE.

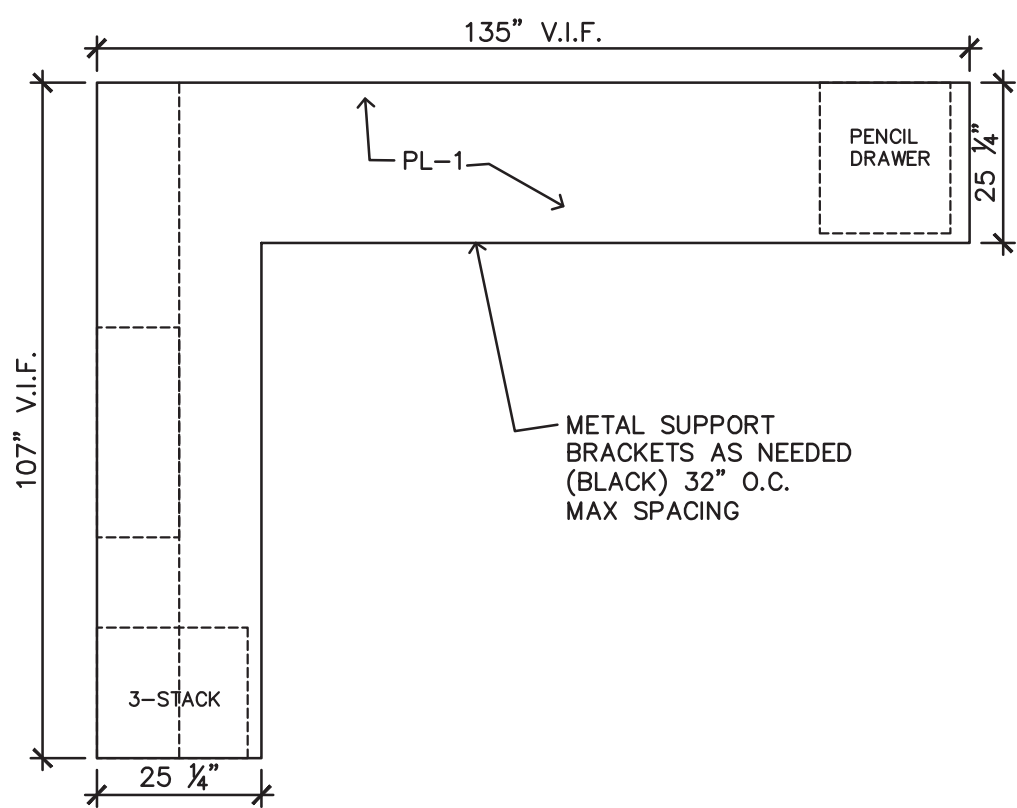
EGRESS DOORS SHALL BE READILY  
OPENABLE FROM THE EGRESS SIDE WITHOUT  
THE USE OF A KEY OR SPECIAL KNOWLEDGE  
OR EFFORT

[illegible]

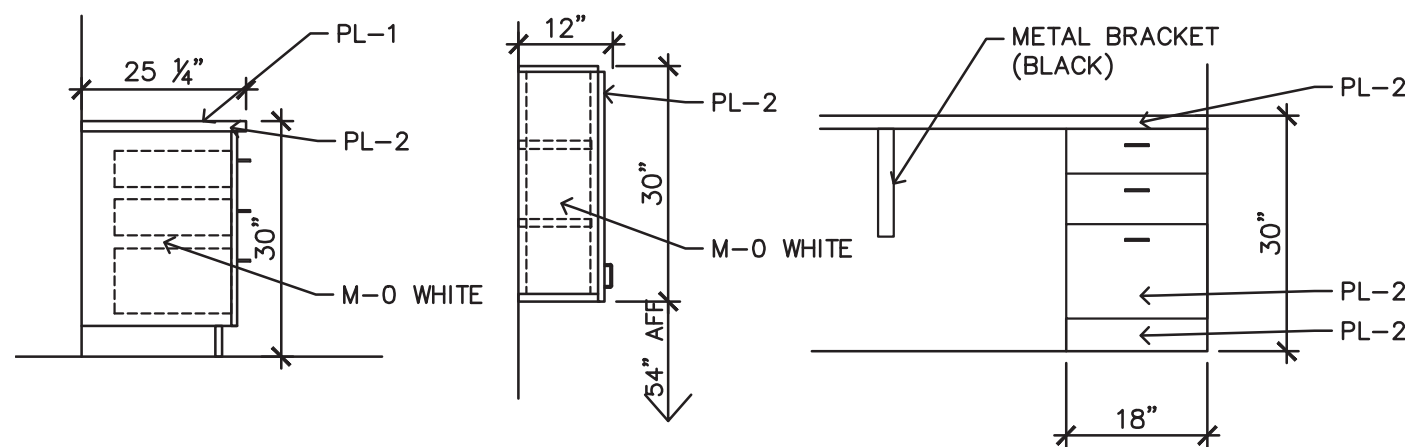




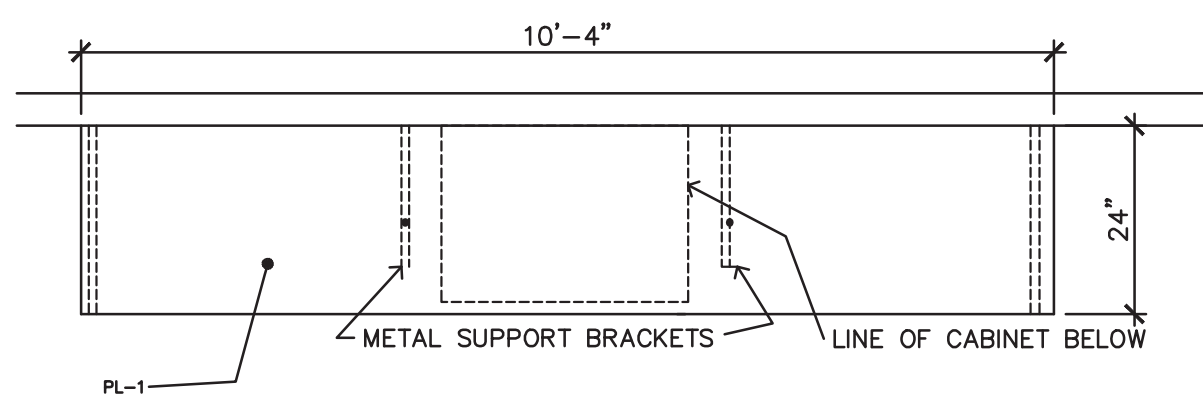
13 DETAIL — BREAK ROOM ELEVATION  
SCALE: 1/2" = 1'-0"



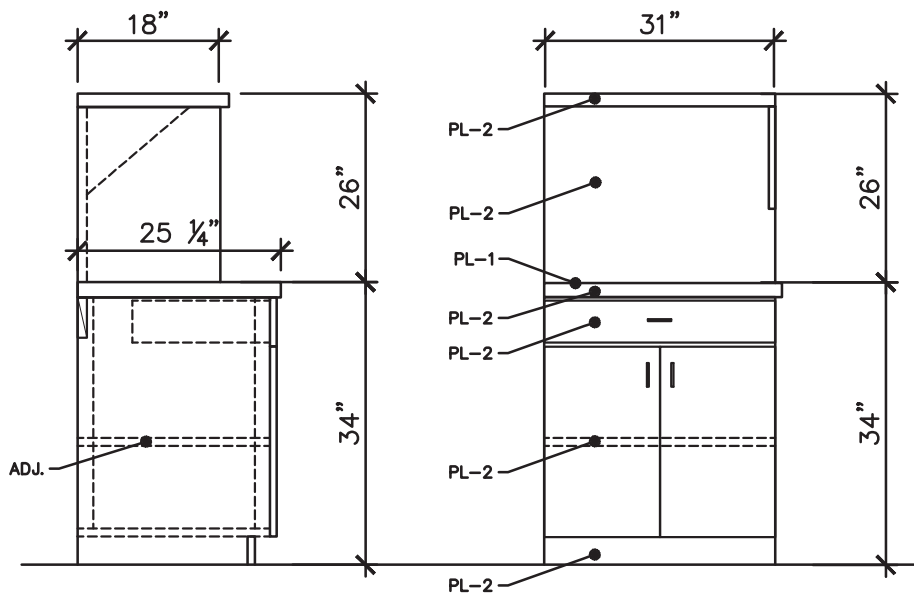
14 DETAIL — OFFICE 103 FURNITURE  
SCALE: 1/2" = 1'-0"



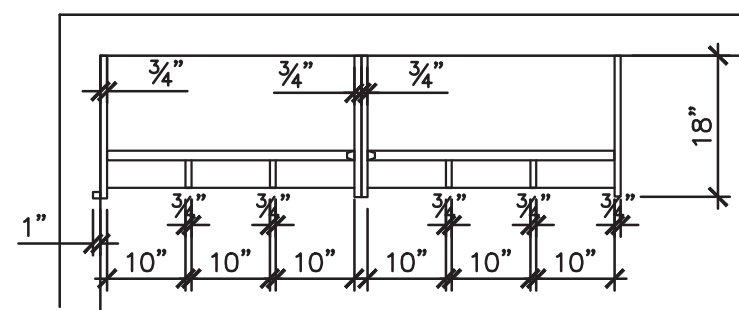
15 DETAIL — OFFICE 103 FURNITURE  
SCALE: 1/2" = 1'-0"



16 DETAIL — SERVICE ADVISORS DESK  
SCALE: 1/2" = 1'-0"

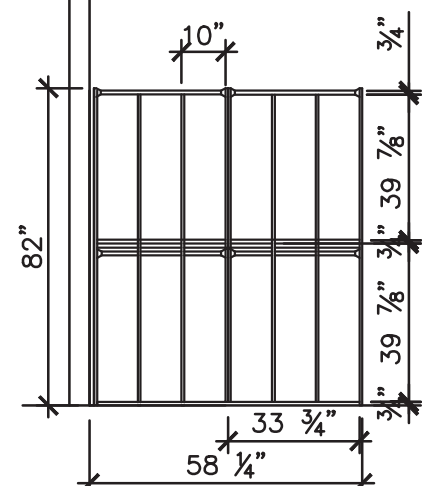


9 DETAIL — MICROWAVE STAND  
SCALE: 1/2" = 1'-0"



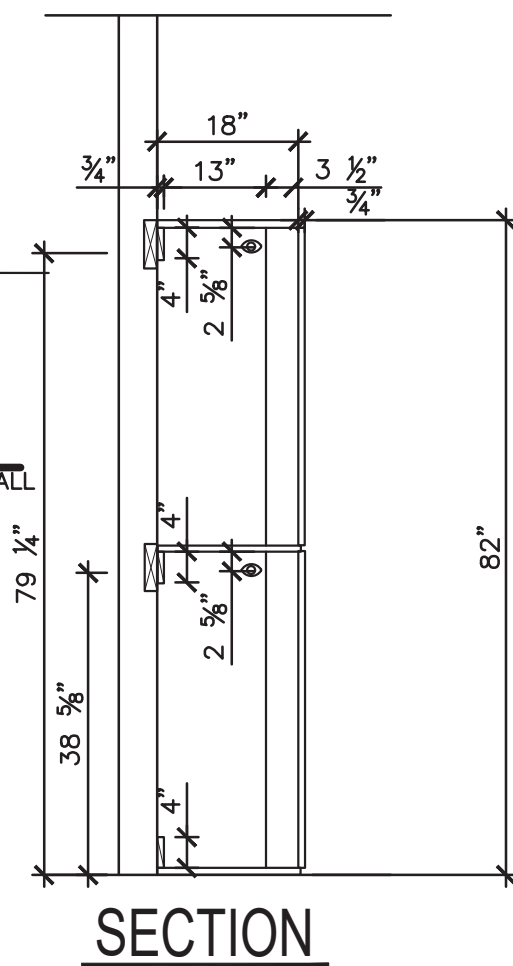
TOP VIEW

NOTE:  
LOCKERS SHALL BE FURNISHED AND  
INSTALLED BY GENERAL CONTACTOR



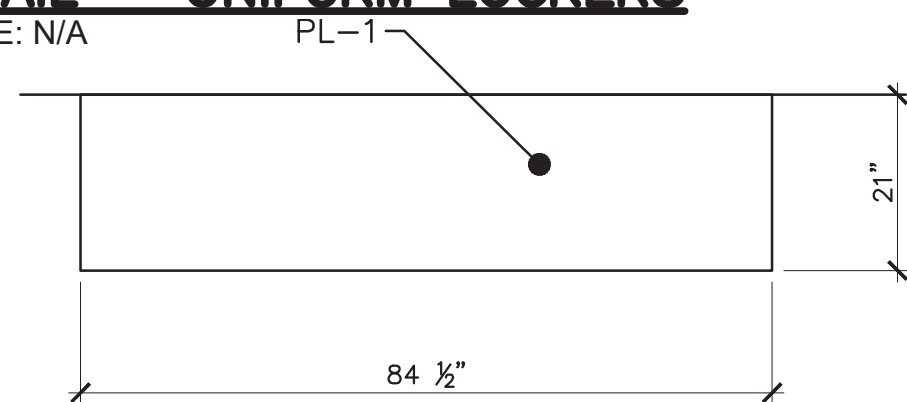
ELEVATION

NOTE:  
ALL SURFACES SHALL  
BE FINISH M-1



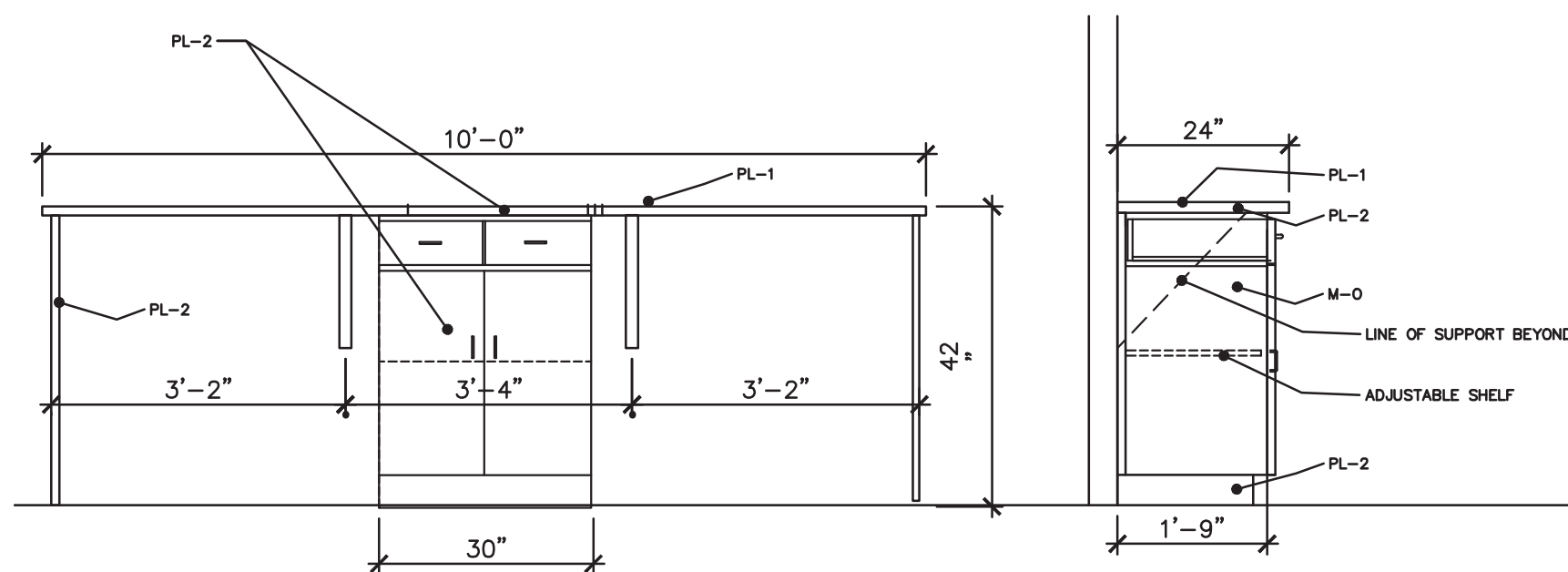
SECTION

10 DETAIL — UNIFORM LOCKERS  
SCALE: N/A

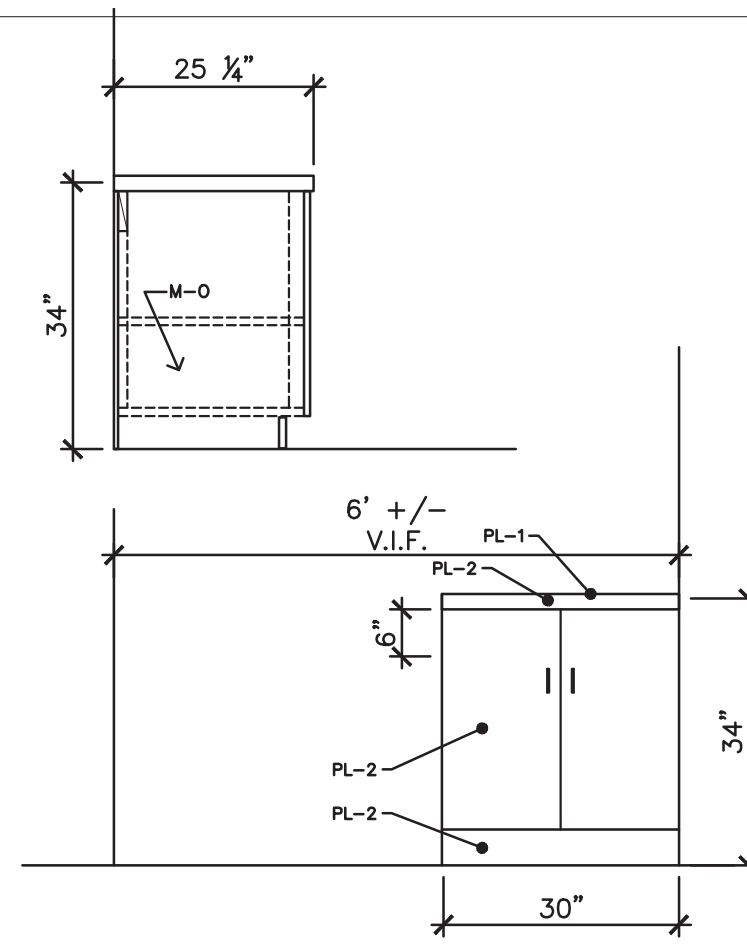


TOP VIEW

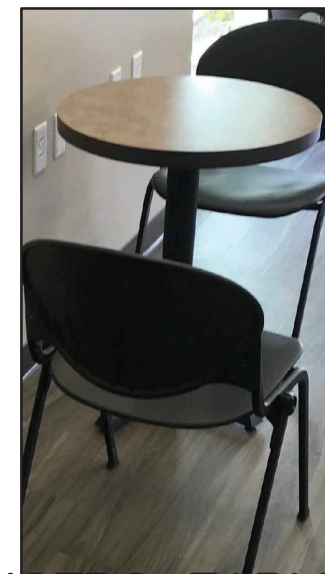
11 DETAIL — SALES AREA — PRINTER CABINETS  
SCALE: 1" = 1'-0"



12 DETAIL — SERVICE ADVISORS DESK  
SCALE: 1/2" = 1'-0"

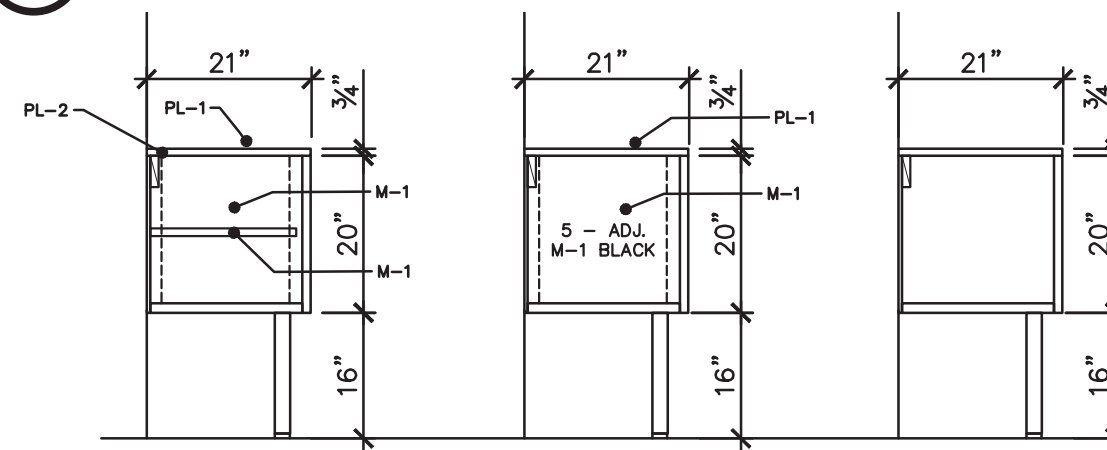


5 DETAIL — COFFEE ROOM 102  
SCALE: 1/2" = 1'-0"

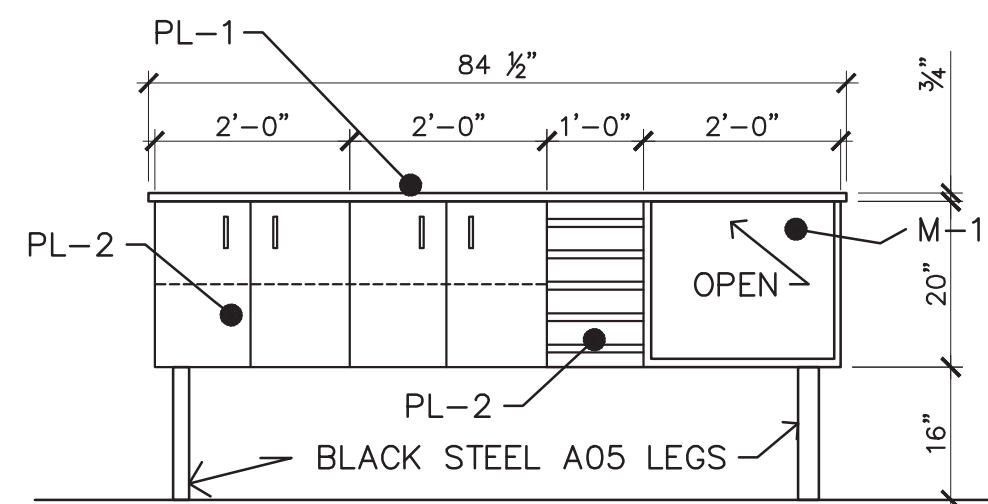


NOTE:  
- 24" DIAMETER, 1.5" THICK  
- EDGE - 3MM PVS EDGEBAND TO MATCH  
NATURAL TIGRUS LAMINATE  
- FLAT TOP SURFACE - WILSON ART  
4689-60 NATURAL TIGRUS MATT FINISH  
- CENTER POST BASE, 30" TABLE HEIGHT,  
BLACK BASE

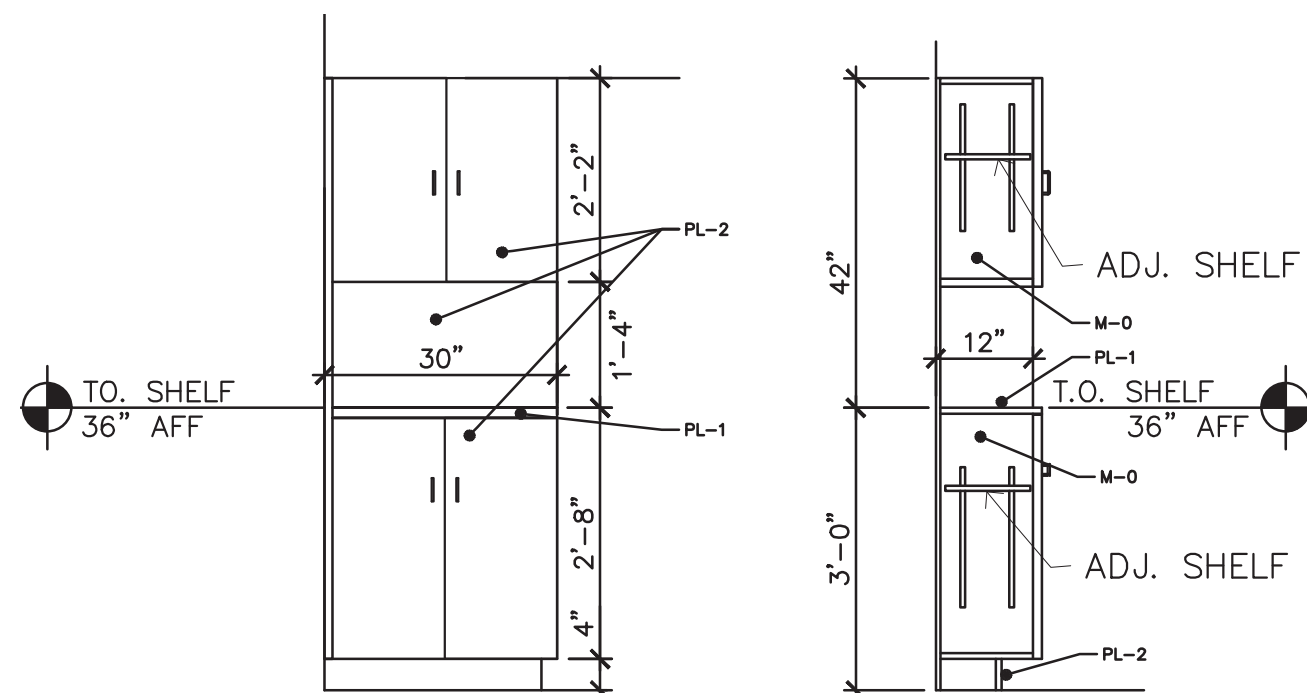
5B BISTRO TABLE  
NO SCALE



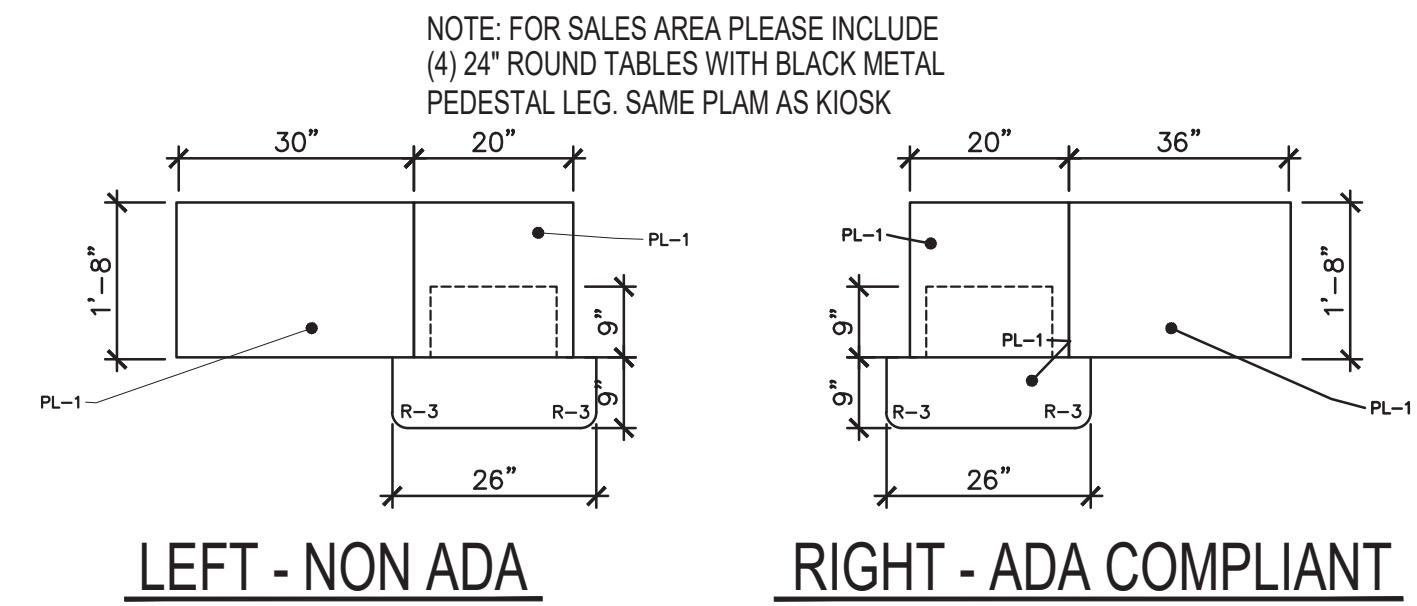
6 DETAIL — SALES AREA — PRINTER CABINETS  
SCALE: 1/2" = 1'-0"



7 DETAIL — SALES AREA — PRINTER CABINETS  
SCALE: 1" = 1'-0"



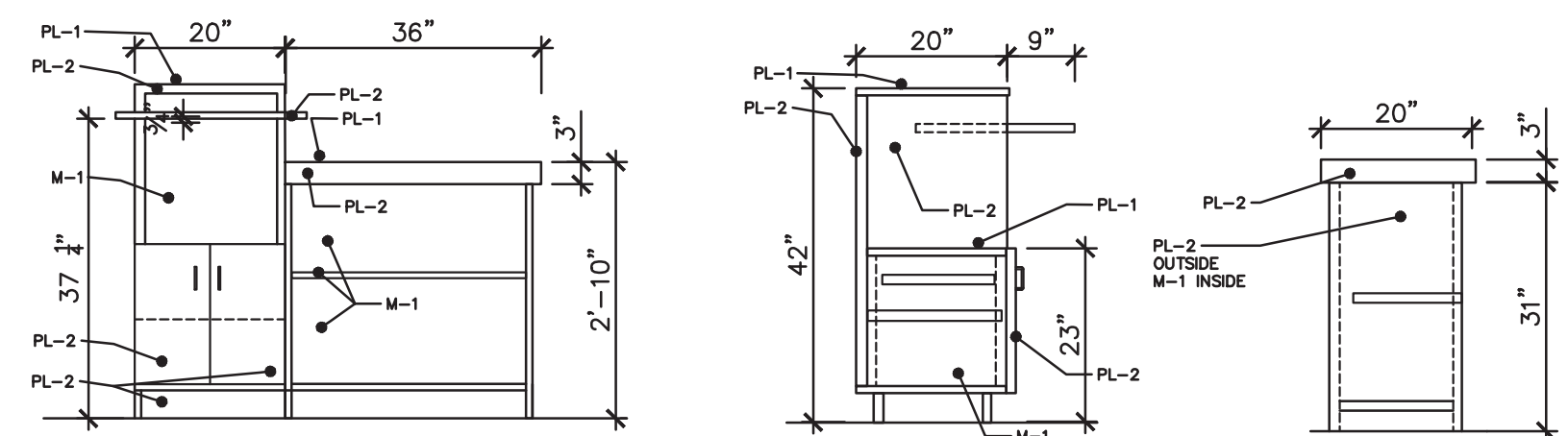
8 DETAIL — RESTROOM CABINETS  
SCALE: 1/2" = 1'-0"



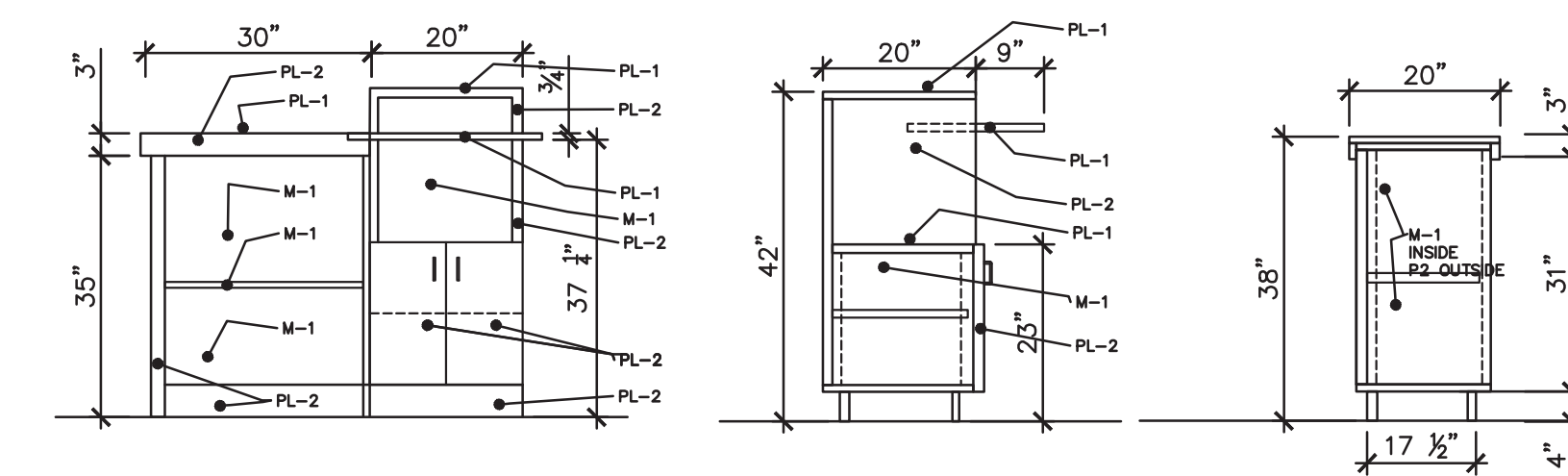
LEFT - NON ADA

RIGHT - ADA COMPLIANT

2 DETAIL — SALES AREA KIOSKS  
SCALE: 1/2" = 1'-0"



3 DETAIL — KIOSK 2 — ADA COMPLIANT  
SCALE: 1/2" = 1'-0"

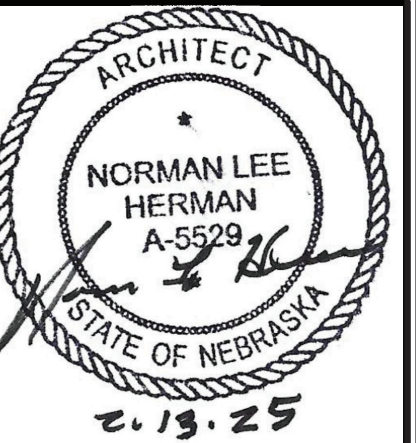


4 DETAIL — KIOSK 1 — NON ADA  
SCALE: 1/2" = 1'-0"

PLAM COLORS LEGEND:  
PLAM COLORS - WILSON ART:  
PL-1 = #4689 NATURAL TIGRUS  
PL-2 = #4623 GRAPHITE NEBULA  
M-0 = WHITE MELAMINE  
M-1 = BLACK MELAMINE

NOTE:  
SELECTED CONTRACTOR WILL PROVIDE  
COMPLETE NEW DRAWINGS FOR APPROVAL.

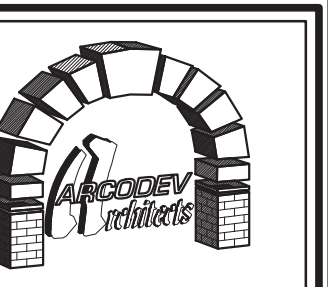
BRAKES PLUS  
2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	02.14.25	SUBMITTED TO BLDG. DEPT.

ARCODEV	JOB #:	
	CLIENTJOB #:	
	DRAWN BY:	NLH
	CHECKED BY:	NLH
	DATE OF ISSUE:	012125



45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.681-8925

SHEET

A6-2

FURNITURE AND  
FIXTURE DETAILS



RESTROOM WAINSCOT FINISHES	
MAIN COLOR	TWO TOP ROWS
DALTILE (SEMI-GLOSS)	DALTILE (SEMI-GLOSS)
PRICE GROUP 2	PRICE GROUP 3
#0132	#DM-1
URBAN PUTTY #0161	CURRENT
SEMI-GLOSS	SEMI-GLOSS
4 1/4" X 4 1/4"	4 1/4" X 4 1/4"
GROUT: MAYEI BLANCO	GROUT: MAYEI BLANCO
PROVIDE CERAMIC BASE TO MATCH MAIN COLOR TILE	

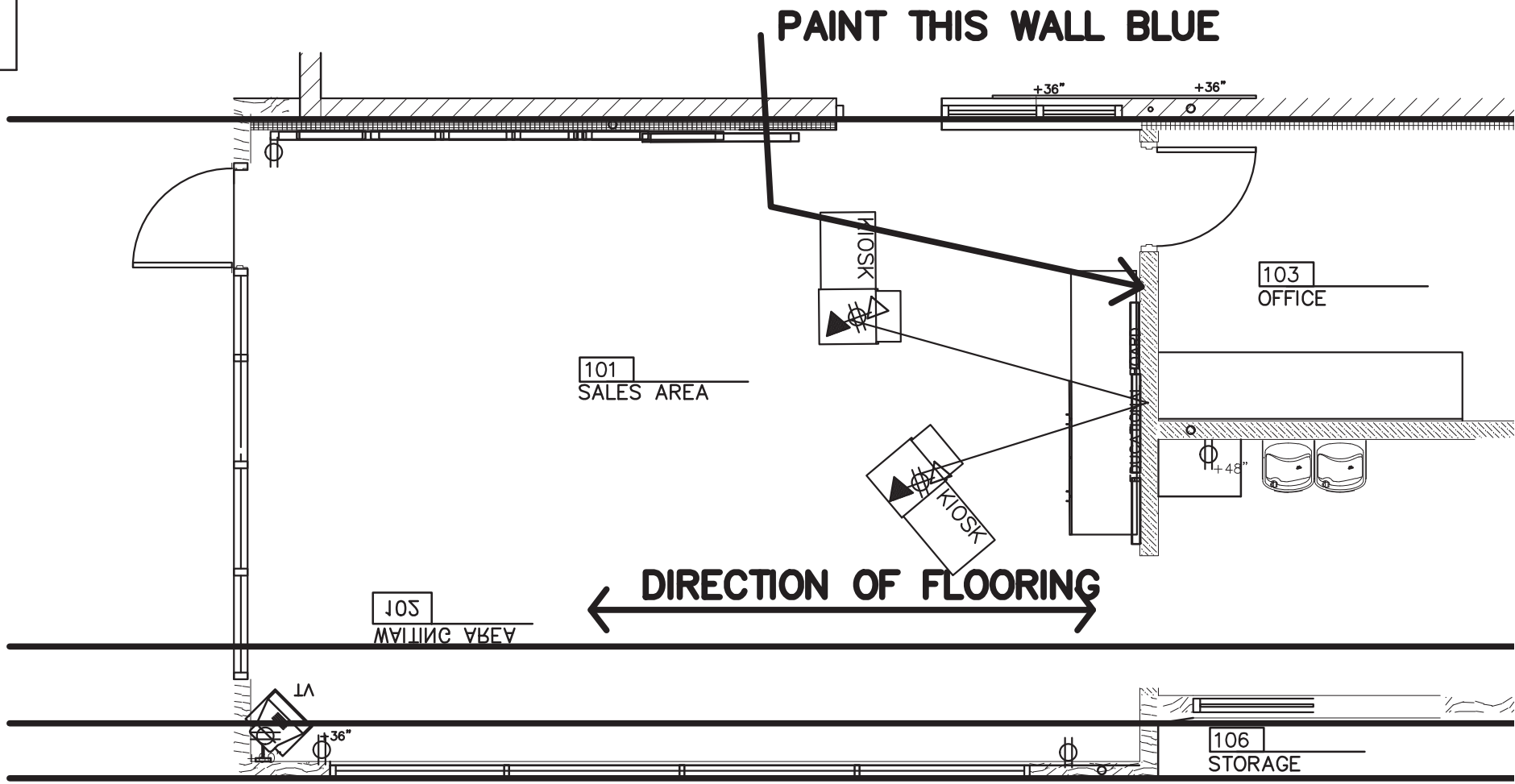
4 RESTROOM FINISHES  
SCALE: N.T.S.

GENERAL NOTES:

- APPLY THE WALK OFF CARPET (4'X6' DIRECTLY TO THE CONCRETE SLAB DO NOT APPLY IT OVER THE FLOORING. PROVIDE JOHNSONITE REDUCER AROUND ALL EDGES (STYLE: CTA-09-A1, COLOR: BURNT UMBER)
- ALL FLOORING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR
- PROVIDE 1 EXTRA BOX (32 S.F.) OF ALL FLOORING PRODUCTS FOR ATTIC STOCK
- ALL FLOORING MATERIALS MAY BE PURCHASED FROM EF CONTRACT FLOORING EXCEPT ADHESIVE AND THE TRANSITION STRIPS.....CONTACT KIMBERLY LYNCH AT THE CONTACT INFORMATION SHOWN BELOW.
- RUBBER TRANSITION STRIP HAS A 1-3 WEEK LEAD TIME

NOTE:

ALL INTERIOR FINISHES SHALL COMPLY WITH THE REQUIREMENTS CONTAINED IN TE 2018 IBC CHAPTER 18



1 DETAIL - INTERIOR PAINT DETAILS  
SCALE: N.T.S.

	Floor	Supplied by:
Manufacturer (1)	Bolyu/EF Contract Flooring	Bolyu/EF Contract Flooring
Number (1)	Main Floor LVT Style: Woodlands, Color Ironwood LVT direction - Run lengthwise in the wide direction of the room. Regardless of entry location /showroom design	Bolyu/EF Contract Flooring
Color (1)	Ironwood - Item # EFCWL001	Bolyu/EF Contract Flooring
Finish	N/A	
Size (1)	7" x 48" (42 sq ft per box)	Bolyu/EF Contract Flooring
Note (1)	LVT - with Hardwood Plank Pattern Attic Stock - Provide 1 extra Box (32 sq. ft) extra for Attic Stock	
Adhesive (1a)	LVT Adhesive The LVT adhesive, Taylor, RESOLUTE (MS-PLUS® RESILIENT™) Adhesive	Supplied by installer
Transition	Johnsonite - Rubber Reducer - Style: CTA-09-A1, Color: #63 Burt Umber	Supplied by Installer - Lead Time 1 - 3 weeks
Size (2)	24" x 24", (6.22 sq yds per box)	Bolyu/EF Contract Flooring
Note (2)	Install Quarter Turn	
Adhesive (2a)	Nexus, multipurpose carpet tile adhesive	Bolyu/EF Contract Flooring
CONTACT PRICING AND QUESTIONS (ALL LOCATIONS, NATIONWIDE) TARA KALVA BOLYUEF CONTRACT 720-404-0644 TARA.KALVA@EFCONTRACTFLOORING.COM		

3 DETAIL - FLOORING SPECIFICATIONS  
SCALE: N.T.S.

Brakes Plus Interior Paint Specifications						
Location	Worldly Gray	Intellectual Gray	Virtual Taupe	Balanced Beige	Safety Red	Brakes Plus Blue
Shop	All walls above red base	Ceiling & Joists	Metal Doors & Frames (Interior of Building)		Lower 4' of walls This area to receive block filler & gloss paint	
Office			Painted Wood Doors and Frames	Walls		
Showroom			Half Wall Drywall Painted Wood Doors and Frames (to office and bathroom and Closet)	Walls		See attached Drawing
Parts Room	Walls	Ceiling & Joists	Metal Door and Frame			
Employee Bath	Walls & Ceiling		Metal Doors & Frames			
Customer Bath			Painted Wood Doors and Frames	Walls & Ceiling		Formula: Promar 200 Deep Base 531W2253 1 Gallon Formula W1 2Y 23+11 B1 1+01 L1 2Y 21+11 R3 55+01
Break Room	Walls	Ceiling				
* Use block fill on all cinder block walls prior to painting (See Finish Schedule Section 3.05)						
Brand	Sherwin-Williams	Sherwin-Williams	Sherwin-Williams	Sherwin-Williams	Sherwin-Williams	Sherwin-Williams
Color	Worldly Gray	Intellectual Gray	Virtual Taupe	Balanced Beige	Safety Red	Blue
Number	SW7043	SW7045	SW7039	SW7037		Brakes Plus Custom Color
Product						
Finish	See Finish Schedule Section 3.05	Dry Fall	See Finish Schedule Section 3.05	See Finish Schedule Section 3.05	See Finish Schedule Section 3.05	

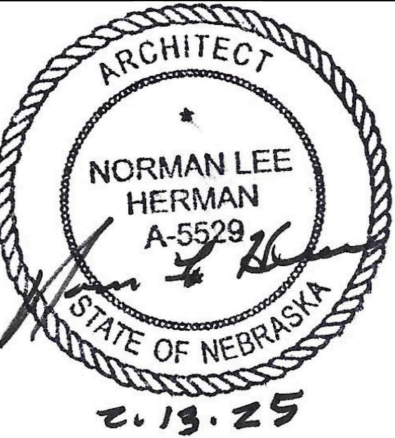
2 DETAIL - INTERIOR PAINT SPECIFICATIONS  
SCALE: N.T.S.

Brakes Plus Exterior Paint Specifications					
Location	Brand	Color	Number	Finish	Special Instructions
Corner-guards	Sherwin Williams	Artisan Tan	SW 7540		
Doors	Sherwin Williams	Artisan Tan	SW 7540		
Trash Enclosure Doors	Sherwin Williams	Artisan Tan	SW 7540		

5 DETAIL - EXTERIOR PAINT SPECIFICATIONS  
SCALE: N.T.S.

BRAKES PLUS

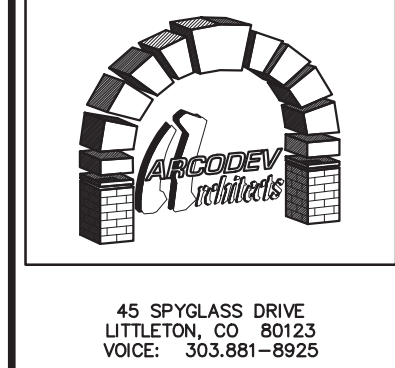
2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

REVISION  
DATE  
COMMENTS  
SUBMITTED TO BLDG. DEPT.

ARCODEV JOB #:  
CLIENT JOB #:  
DRAWN BY: NLH  
CHECKED BY: NLH  
DATE OF ISSUE: 012125



SHEET

A6-3

MATERIAL FINISHES







## STATEMENT OF SPECIAL INSPECTIONS

2018 IBC SECTION 1705

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y / N	Reference Standard or Compliance Document	IBC Reference	Special Inspector
<b>1704.2.4 Report Requirement</b>							
Rep.	1	Special Inspector to keep record of special inspections and furnish inspection reports to the building official and to the Registered design professional in responsible charge.	•	–	<b>Y</b>	1704.2.4	
<b>1704.2.5 Inspection of Fabricated Items</b>							
Fab.	1	Work done in fabricator shop require inspector unless the fabricator is registered and approved according to IRC 1704.2.5.1. Where fabricator is approved, provide fabricator certification document.	–	•	<b>Y</b>	1704.2.5 Document Required	
Fab.	2	At completion of fabrication, submit certificate of compliance to building official stating the work was performed in accordance with the approved construction documents.	–	•	<b>Y</b>	1704.2.5.1 Document Required	
<b>1705.2.1 Steel Construction Inspection</b>							
St.	1	Structural Steel shall be in accordance with the quality assurance inspection requirements of AISI 360	–	•	<b>Y</b>	AISI 360	1705.2.1
<b>1705.2.2 to 1705.2.4 Steel Construction other than Structural Steel Inspection</b>							
St.	1	Material verification of high-strength bolts, nuts and washers.	•	•	<b>Y</b>	ASTM Standards	1705.2
St.	1a	Identification markings to conform to ASTM standards specified in the approved construction documents.	–	•	<b>Y</b>	AISC 360, Section A3.3 and applicable ASTM material standards	1705.2
St.	1b	Manufacturer's certificate test reports.	–	•	<b>Y</b>		1705.2
St.	2	Inspection of welding.	–	•	<b>Y</b>		
2a.		Cold-formed steel deck.	–	•	<b>N</b>		
St.	2a (1)	Floor and roof deck welds.	–	•	<b>N</b>	AWS D1.3	1705.2

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y / N	Reference Standard or Compliance Document	IBC Reference	Agent
	2b	Reinforcing steel	–	•	<b>Y</b>		1705.2
St.	2b (1)	Verification of weldability of reinforcing steel other than ASTM A 705	•	–	<b>N</b>	AWSD D1.4 ACI 318: 3.5.2	1705.2
St.	2b (2)	Reinforcing steel-resisting flexural and axial forces	•	–	<b>N</b>	AWSD D1.4 ACI 318: 3.5.2	1705.2
St.	2b (3)	Shear reinforcement	•	–	<b>N</b>	AWSD D1.4 ACI 318: 3.5.2	1705.2
St.	2b (4)	Other reinforcing steel	–	•	<b>N</b>	AWSD D1.4 ACI 318: 3.5.2	1705.2
<b>1705.2.3 Inspection of Open-web Steel Joist and Joist Girders</b>							
St.	1	Installation of open-web steel joist and joist girders	–	•	<b>N</b>	SJI specification listed in Section 2207.1	Table 1705.2.3
St.	1a	End connections – welded or bolted	–	•	<b>N</b>		Table 1705.2.3
St.	1b	Bridging – horizontal or diagonal	–	•	<b>N</b>	SJI specification listed in Section 2207.1	Table 1705.2.3
St.	1b (1)	Standard bridging	–	•	<b>N</b>		Table 1705.2.3
St.	1b (2)	Bridging that differs from the SJI specifications listed in Section 2207.1	–	•	<b>N</b>		Table 1705.2.3
<b>1705.3 Concrete Construction</b>							
Conc.	1	Inspection of reinforcing steel including prestressing tendons, and placement	–	•	<b>Y</b>	ACI 318 Ch. 20, 25.2, 25.3, 26.5.1-26.5.3, 35 and IBC 1905	1705.3
Conc.	2	Reinforcing bar welding	–	•	<b>N</b>		Table 1705.3
Conc.	2a	Verify weldability of reinforcing bars other than ASTM A 705	–	•	<b>N</b>		Table 1705.3
Conc.	2b	Inspect single-pass welds, maximum 5/16"	–	•	<b>Y</b>	IBC 1905 AWS D1.4 ACI 318: 26.5.4	Table 1705.3
Conc.	2c	Inspect all other welds	•	–	<b>Y</b>		Table 1705.3
Conc.	3	Inspection of anchors cast in concrete	–	•	<b>Y</b>	IBC 1905 ACI 318: 17.8.2	Table 1705.3
Conc.	4	Inspection of anchors post-installed in hardened concrete members	–	•	<b>Y</b>		
Conc.	4a	Adhesive anchors installed in horizontally or upwardly inclined	•	–	<b>Y</b>	ACI 318: 17.8.2.4	Table 1705.3
Conc.	4b	Mechanical anchors and adhesive anchors not defined in 4a	–	•	<b>Y</b>	ACI 381: 17.8.2	Table 1705.3
Conc.	5	Verifying use of required design mix	–	•	<b>Y</b>	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3, Table 1705.3

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y / N	Reference Standard or Compliance Document	IBC Reference	Agent
Conc.	6	Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	•	–	<b>Y</b>	ASTM C117 ASTM C31 ACI 318: 26.4.5, 26.12	1908.1E & Table 1705.3
Conc.	7	Inspection of concrete and shotcrete placement for proper application techniques	–	•	<b>Y</b>	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8, Table 1705.3
Conc.	8	Verify maintenance of specified curing temperature and techniques	–	•	<b>Y</b>	ACI 318: 26.4.7 – 26.4.9	1908.9 & Table 1705.3
Conc.	9	Inspection of pre-stressed concrete	–	•	<b>N</b>		
Conc.	9a	Application of pre-stressing forces	–	•	<b>N</b>		Table 1705.3
Conc.	9b	Grouting of bonded pre-stressing tendon	–	•	<b>N</b>	ACI 318: 26.9.2.1 ACI 318: 26.9.2.3	Table 1705.3
Conc.	10	Inspect erection of precast concrete members	–	•	<b>N</b>	ACI 318: Ch. 26.8	Table 1705.3
Conc.	11	Verification of in-situ concrete strength, prior to stressing of tendons in posttensioned concrete and prior to removal of shores and forms from beams and structural slabs	–	•	<b>N</b>	ACI 318: 26.10.2	Table 1705.3
Conc.	12	Inspect formwork for shape, location and dimensions of the concrete member being formed	–	•	<b>Y</b>	ACI 318: 26.10.10	Table 1705.3
<b>1705.4 Masonry Construction</b>							
Mas.		Masonry construction shall be inspected and verified per standards	–	•	<b>Y</b>	TMS 402/ACI 530/ASCE 5 and TMS 602/ACI 530.1/ASCE 5	1705.4
Mas.	1	Empirically design masonry, glass unit masonry and masonry veneer in Risk Category IV	–	•	<b>N</b>	Section 2109, 2110 or Chapter 14, Section 1604.5, shall comply with TMS 402/ACI 530 ASCE 5 Level B Quality Assurance	1705.4.1
Mas.	2	Vertical masonry foundation elements	–	•	<b>N</b>	IBC Section 1705.4	1705.4.2
<b>1705.5 Wood Construction</b>							
Wd	1	High-Load Diaphragms	–	•	<b>N</b>	IBC Sec. 2306.2, Sec 1704.2, approved construction drawings	1705.5.1
Wd	2	Metal-plate-connected wood trusses spanning 80 feet or greater	–	•	<b>N</b>	Approved truss submittal package (bracing)	1705.5.2
<b>1705.6 Soils</b>							
Soil	1	Verify materials below shallow foundations are adequate to achieve the design bearing capacity	–	•	<b>Y</b>		Table 1705.6
Soil	2	Verify excavations are extended to proper depth and have reached proper material	–	•	<b>Y</b>		Table 1705.6
Soil	3	Perform classification and testing of compacted fill materials	–	•	<b>Y</b>		Table 1705.6
Soil	4	Verify use of proper materials, densities and 98 thicknesses during placement and compaction of compacted fill	•	–	<b>Y</b>		Table 1705.6

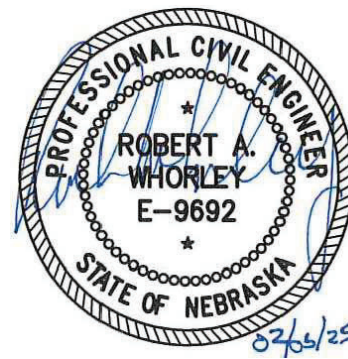
Category	Item #	Verification & Inspection	Continuous Periodic	Req Y / N	Reference Standard or Compliance Document	IBC Reference	Agent
Soil	5	Prior to placement of compacted fill, observe sub-grade and verify that site has been prepared properly	–	•	<b>Y</b>		Table 1705.6
<b>1705.7 Driven Deep Foundation</b>							
Drv	1	Verify element materials, sizes and lengths comply with the requirements	–	•	<b>N</b>		Table 1705.7
Drv	2	Determine capacities of test elements and conduct additional load tests, as required	–	•	<b>N</b>		Table 1705.7
Drv	3	Inspect driving operations and maintain complete and accurate records for each element	–	•	<b>N</b>		Table 1705.7
Drv	4	Verify placement locations and plumbness; confirm type and size of hammer; record number of blows per foot of penetration; determine required penetrations to achieve design capacity; record by and built elevations and document any damage to foundation element.	–	•	<b>N</b>		Table 1705.7
Drv	5	For steel elements, perform additional inspections in accordance with Section 1705.2	–	•	<b>N</b>	Sec. 1705.7 & Table 1705.7	
Drv	6	For concrete elements, and concrete filled elements, perform additional inspections in accordance with Section 1705.2	–	•	<b>N</b>	Sec. 1705.7 & Table 1705.7	
Drv	7	For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge	–	•	<b>N</b>	Table 1705.7	
<b>1705.8 Cast-In-Place Deep Foundation</b>							
CIP	1	Inspect drilling operations and maintain complete and accurate records for each element	–	•	<b>N</b>		Table 1705.8
CIP	2	Verify placement locations and plumbness; confirm element diameters; test diameters (if applicable); lengths; embedment into bedrock (if applicable); and adequate and bearing strata capacity. Record concrete or grout volume	–	•	<b>N</b>		Table 1705.8
CIP	3	For concrete elements, perform additional inspections in accordance with Section 1705.3	–	•	<b>N</b>	Sec. 1705.3 & Table 1705.8	
<b>1705.9 Helical Pile Foundations</b>							
HPF	1	Installation of helical pile foundations	–	•	<b>N</b>	Approved Geotechnical report and registered design professional	1705.9
<b>1705.10 Special Inspections for Fabricated Items</b>							
Fab.		Special inspections of fabricated items shall be performed in accordance with Section 1704.2.5	•	•	<b>N</b>		1705.10
<b>1705.11 Special Inspections for Wind Resistance</b>							
Wind		Wind Requirements for buildings and structures per 1705.11	–	•	<b>N</b>		1705.11
Wind	1	Structural Wood	–	•	<b>N</b>		1705.11.1
Wind	2	Cold-formed steel light-frame construction	–	•	<b>N</b>		1705.11.2

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y / N	Reference Standard or Compliance Document	IBC Reference	Agent
Wind	3	Wind-resisting components: 1. Roof covering, roof deck and roof framing connections 2. Exterior wall covering and wall connections to roof and floor diaphragms and framing	–	•	<b>N</b>		1705.11.3
<b>1705.12 Special Inspection for Seismic Resistance</b>							
Seis	1	Structural Steel seismic resistance shall be in accordance with Section 1705.12.1.1 or 1705.12.1.2 as applicable	–	•	<b>N</b>	Section 1705.12.1.1 Section 1705.12.1.2	1705.12.1
Seis	1a	Seismic force-resisting systems of structural steel in the seismic force-resisting systems of buildings and structures assigned to Seismic Design Category B, C, D, E or F shall be performed in accordance with the quality assurance requirements of AISI 341	–	•	<b>N</b>	AISC 341	1705.12.1.1
Seis	1b	Structural steel elements in the seismic force-resisting systems of buildings and structures assigned to Seismic Design Category B, C, D, E or F other than those covered in Section 1705.12.1.1, including girders, collectors, chords and foundation elements, shall be performed in accordance with the quality assurance requirements of AISI 341	–	•	<b>N</b>	Section 1705.12.1.1 AISC 341	1705.12.1.2
Seis	2	Structural wood for the seismic force-resisting systems of structures assigned to Seismic Design Category C, D, E or F	–	•	<b>N</b>		1705.12.2
Seis	2a	Structural wood field gluing operations of elements of seismic force-resisting system	–	•	<b>N</b>		1705.12.2
Seis	2b	Structural wood fastening for nailing, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including wood shear walls, wood diaphragms, drag struts, braced, shear panels and hold-downs	–	•	<b>N</b>		1705.12.2
Seis	3	Cold-formed steel light-frame construction for seismic force-resisting systems of structures assigned to Seismic Design Category C, D, E or F	–	•	<b>N</b>		1705.12.3
Seis	3a	For welding operations of elements of the seismic force-resisting system	–	•	<b>N</b>		1705.12.3
Seis	3b	For screw attachment, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including shear walls, braced, diaphragms, collectors (drag struts) and hold-downs	–	•	<b>N</b>		1705.12.3
Seis	4	Designated seismic system verifications for structures assigned to Seismic Design Category C, D, E or F, the special inspector shall examine designated seismic systems requiring seismic qualification in accordance with Section 13.2.2 of ASCE 7 and verify that the label, anchorage and nailing conform to the certificate of compliance	–	•	<b>N</b>	Section 13.2.2 ASCE 7	1705.12.4

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y / N	Reference Standard or Compliance Document	IBC Reference	Agent
Seis	5	Architectural Components in D, E, or F	–	•	<b>N</b>	D, E, F	1705.12.5
Seis	5.1	Access Floors in D, E, or F	–	•	<b>N</b>	D, E, F	1705.12.5.1
Seis	6	Plumbing, Mechanical and Electrical Components	–	•	<b>N</b>		1705.12.6
Seis	6a	Anchorages of electrical equipment for emergency or standby power systems, in C, D, E or F	–	•	<b>N</b>		1705.12.6
Seis	6b	Anchorages of other electrical equipment in E or F	–	•	<b>N</b>		1705.12.6
Seis	6c	Installation and anchoring of piping systems designed to carry hazardous materials and associated mechanical units in C, D, E or F	–	•	<b>N</b>		1705.12.6
Seis	6d	Installation of HVAC ductwork that will carry hazardous materials in C, D, E or F	–	•	<b>N</b>		1705.12.6
Seis	6e	Installation of vibration isolation systems with clearance less than 0.25 inches between equipment support frame and restraint where indicated on construction documents in C, D, E or F	–	•	<b>N</b>		1705.12.6
Seis	7	Storage Rack during anchoring storage racks 8 feet or greater in height in D, E or F	–	•	<b>N</b>		1705.12.7
Seis	8	Seismic Isolation System	–	•	<b>N</b>		1705.12.8
Seis	9	Cold-formed steel special bolted moment frames in the seismic force-resisting systems of structures assigned to seismic Design Category D, E or F	–	•	<b>N</b>		1705.12.9
<b>1705.13 Testing for Seismic Resistance</b>							
Test	1	Structural Steel	–	•	<b>N</b>	Section 1705.13.1.1 Section 1705.13.1.2	1705.13.1
Test	2	Seismic force-resisting systems	–	•	<b>N</b>	AISC 341	1706.13.1.1
Test	3	Structural steel elements	–	•	<b>N</b>	AISC 341	1705.13.1.2
Test	4	Seismic certification of nonstructural components and designated seismic systems	–	•	<b>N</b>	For the registered design professionals requirements on the construction documents, Sec. 13.2 of ASCE 7	1705.13.2 and 1705.13.3
Test	5	Seismically isolated structures	–	•	<b>N</b>	Sec. 17.8 of ASCE 7	1705.13.4

**PERFORMANCE**  
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NE-C4245

PE # 250123

**BRAKES PLUS**2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA

ENGINEER OF RECORD

REVISION	DATE	COMMENTS

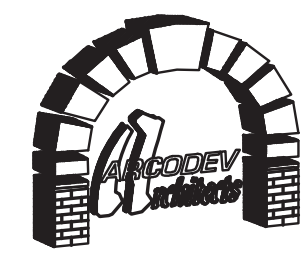
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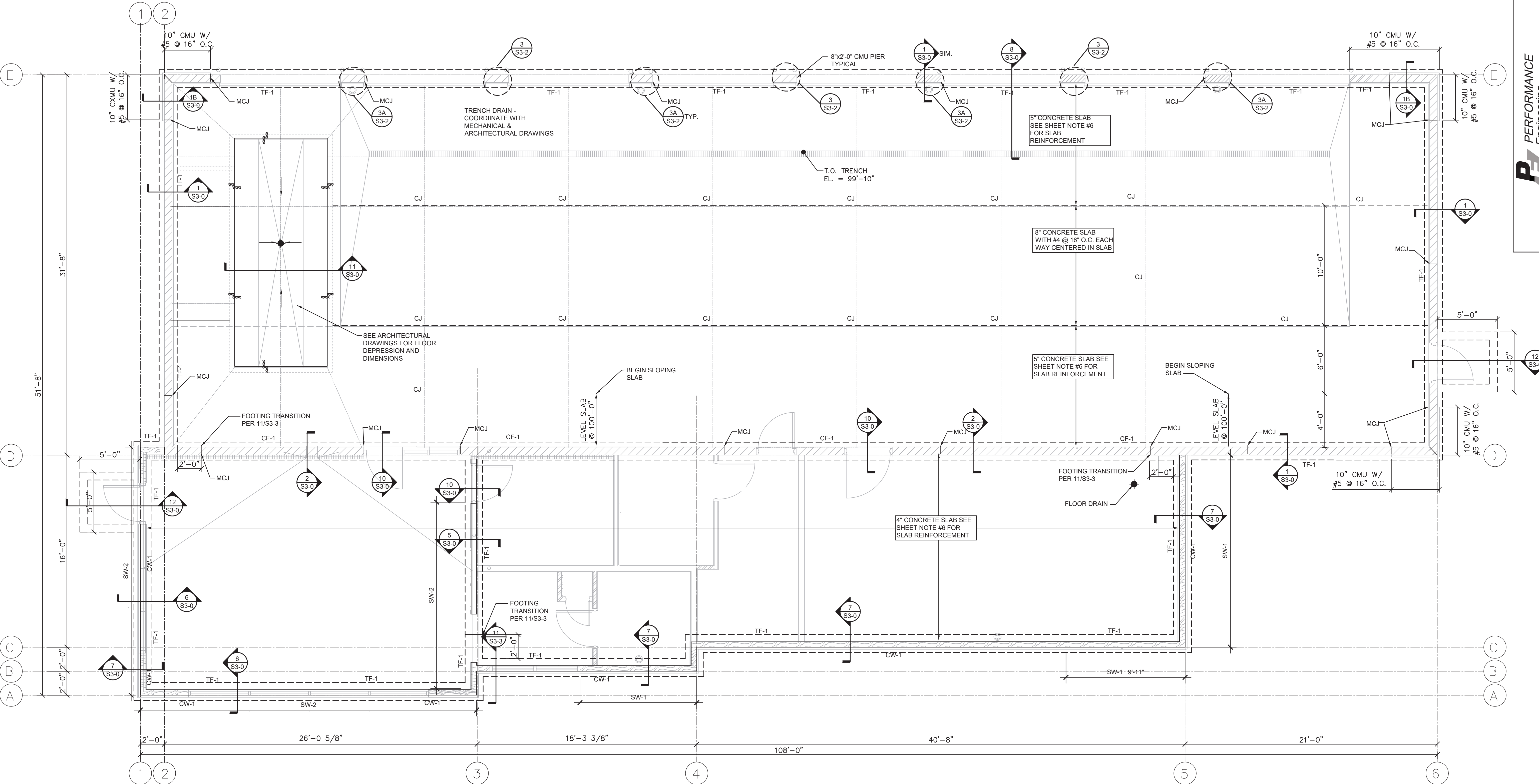
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LITTLETON, CO 80123  
VOICE: 303.881-8925

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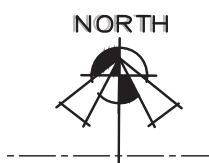
**S1-1**

SPECIAL INSPECTIONS





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

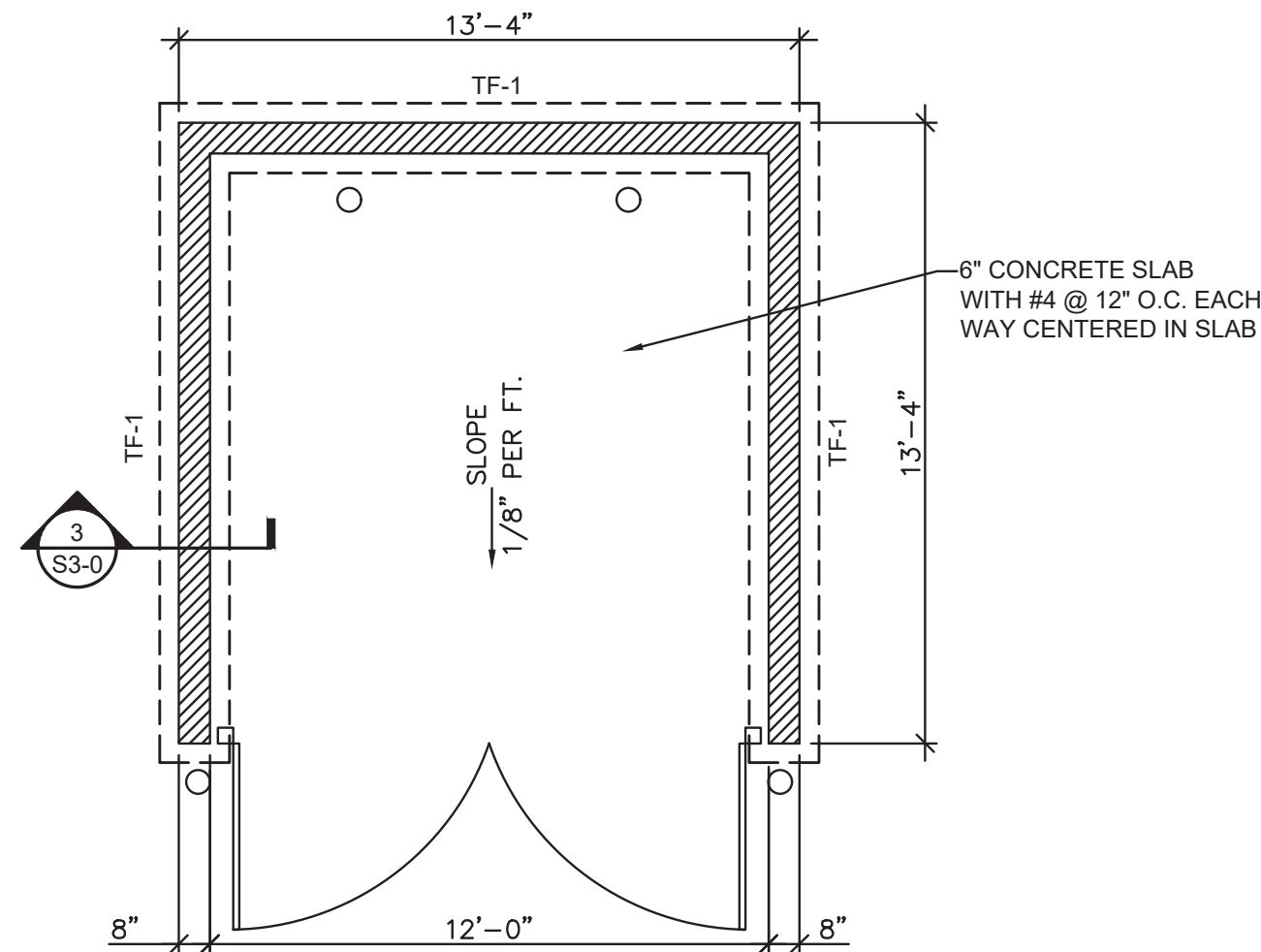


SHEAR WALL SCHEDULE										
MARK	WALL SHEATHING	NAILS, PENETRATION	PANEL EDGE NAILING	FIELD NAILING	SILL BOLTS	STUDS, SILLS & PLATES	ALLOWABLE SHEAR (PLF)	HOLDOWNS	FOUNDATION ANCHOR	END MEMBERS
SW-1	1/2" NOMINAL STRUCTURAL I SHEATHING, ONE SIDE, BLOCKED	10d x 3" 1 1/2" PEN.	6" O.C.	6" O.C.	3/4" DIA. @ 24" O.C.	2x STUDS, 2x SILL, 2x PL	340	HDU8-SDS2.5	7/8" DIA. EMBED 9"	4x OR (3) 2x
SW-2	1/2" NOMINAL STRUCTURAL I SHEATHING, TWO SIDES, BLOCKED	10d x 3" 1 1/2" PEN.	6" O.C.	6" O.C.	3/4" DIA. @ 24" O.C.	2x STUDS, 2x SILL, 2x PL	680	HDU11-SDS2.5	1" DIA. EMBED 12"	6x OR (4) 2X

- NOTE:
- ALL WOOD MEMBERS IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED.
  - NAILING & HARDWARE IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE HOT DIPPED GALVANIZED.
  - WHERE PANELS ARE APPLIED ON BOTH FACES OF WALL AND NAIL SPACING IS LESS THAN 6" O.C. ON EITHER SIDE PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS. STAGGER NAILING AT EACH SIDE OF JOINT.
  - INSTALL HARDWARE IN ACCORD WITH MANUFACTURER'S RECOMMENDATIONS.
  - ALL BOLT HOLES SHALL BE 1/8" (MAX) OVERSIZED AT THE CONNECTION OF HOLD DOWNS TO POSTS. INSPECTOR SHALL VERIFY.
  - SEE DETAIL 5/S3-4 FOR TYPICAL SHEAR WALL FRAMING.

FOUNDATION SCHEDULE		
MARK	SIZE	REINFORCING
TF-1	1'-8" WIDE x 3'-6" DEEP	3 - #5 CONT. TOP & BOTT W/ #4 STIRRUPS @ 16" O.C.
CF-1	1'-8" WIDE x 1'-0" DEEP	3 - #5 CONT. TOP & #5 BARS @ 12" O.C. BOTT

FOUNDATION WALL SCHEDULE	
MARK	REINFORCING
CW-1	6" WIDE x 1'-2" HIGH
	2 - #5 CONT. & #4 DOWELS AT 24" O.C.



2 TRASH ENCLOSURE  
SCALE: 1/4" = 1'-0"

- SHEET NOTES:**
- INDICATES CMU WALLS WITH #5 VERTICAL BARS @ 2'-8" O.C. CENTERED IN MASONRY WALLS (UNLESS NOTED OTHERWISE). SEE 6/S3-3 FOR MASONRY CONSTRUCTION.
  - SOIL PREPARATION BENEATH BUILDING AND FOUNDATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT FOR SHALLOW FOUNDATION SYSTEM AND SLAB ON GRADE CONSTRUCTION. THIS ACTION SHALL BE OBSERVED BY A REPRESENTATIVE OF THE GEOTECHNICAL FIRM ON A CONTINUOUS BASIS TO ENSURE THAT SOIL PROPERTIES MEET THE REQUIREMENTS IN THE GEOTECHNICAL REPORT; IF UTILIZED, THE GRANULAR CUSHION BELOW THE FLOOR SLAB SHOULD BE FREE-DRAINING, WELL-GRADED, AND COMPACTED. THE UPPER 12 INCHES OF SUBGRADE SOIL BELOW THE GRANULAR CUSHION LAYER SHALL BE SCARIFIED, MOISTURE CONDITIONED, AND COMPACTED PER THE RECOMMENDATIONS IN TABLE 2 OF THE GEOTECH REPORT.
  - CONTRACTOR SHALL COORDINATE SIZE AND LOCATION OF FLOOR AND WALL PENETRATIONS AND BLOCK OUT ACCORDINGLY.
  - TOP OF FOOTING ELEVATION SHALL BE 99'-4" UNLESS NOTED OTHERWISE.
  - "MCJ" INDICATES MASONRY CONTROL JOINT LOCATION FOR CONCRETE MASONRY UNITS. SEE 2/S3-3 & 4/S3-3 FOR DETAILS. SEE ARCHITECTURAL DRAWINGS FOR BRICK CONTROL JOINTS.
  - SEE PLAN FOR SHOP AREA SLAB ON GRADE THICKNESS. REINFORCE CONCRETE SLAB WITH 4 LBS PER CUBIC YARD OF "GRACE STRUX 9040" MACRO FIBER REINFORCEMENT ON PREPARED SUBGRADE. OFFICE & CUSTOMER SERVICE AREA SLAB SHALL BE A 4" CONCRETE SLAB ON PREPARED SUBGRADE AND REINFORCED IN THE SAME MANNER. REINFORCEMENT SHOWN ON THE PLANS IS IN ADDITION TO THE MACRO FIBER REINFORCEMENT. TOP OF SLAB SHALL BE 100'-0" UNLESS NOTED OTHERWISE.
  - SW-# INDICATES SHEAR WALL TYPE. SEE SCHEDULE.

**PERFORMANCE Engineering**

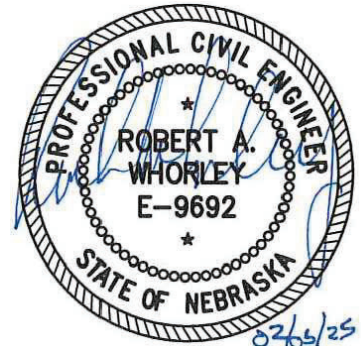
11811 Fort Street, Suite 104 - Omaha, NE 68164  
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399 Perry St., Suite 204A - Castle Rock, CO 80104  
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PE # 250123

**BRAKES PLUS**

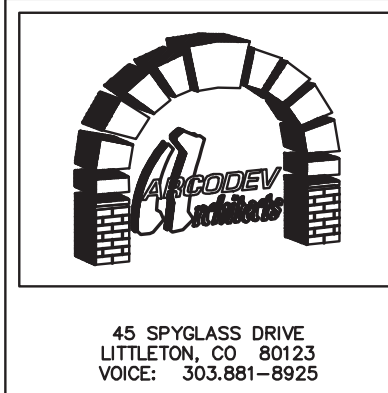
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ENGINEER OF RECORD

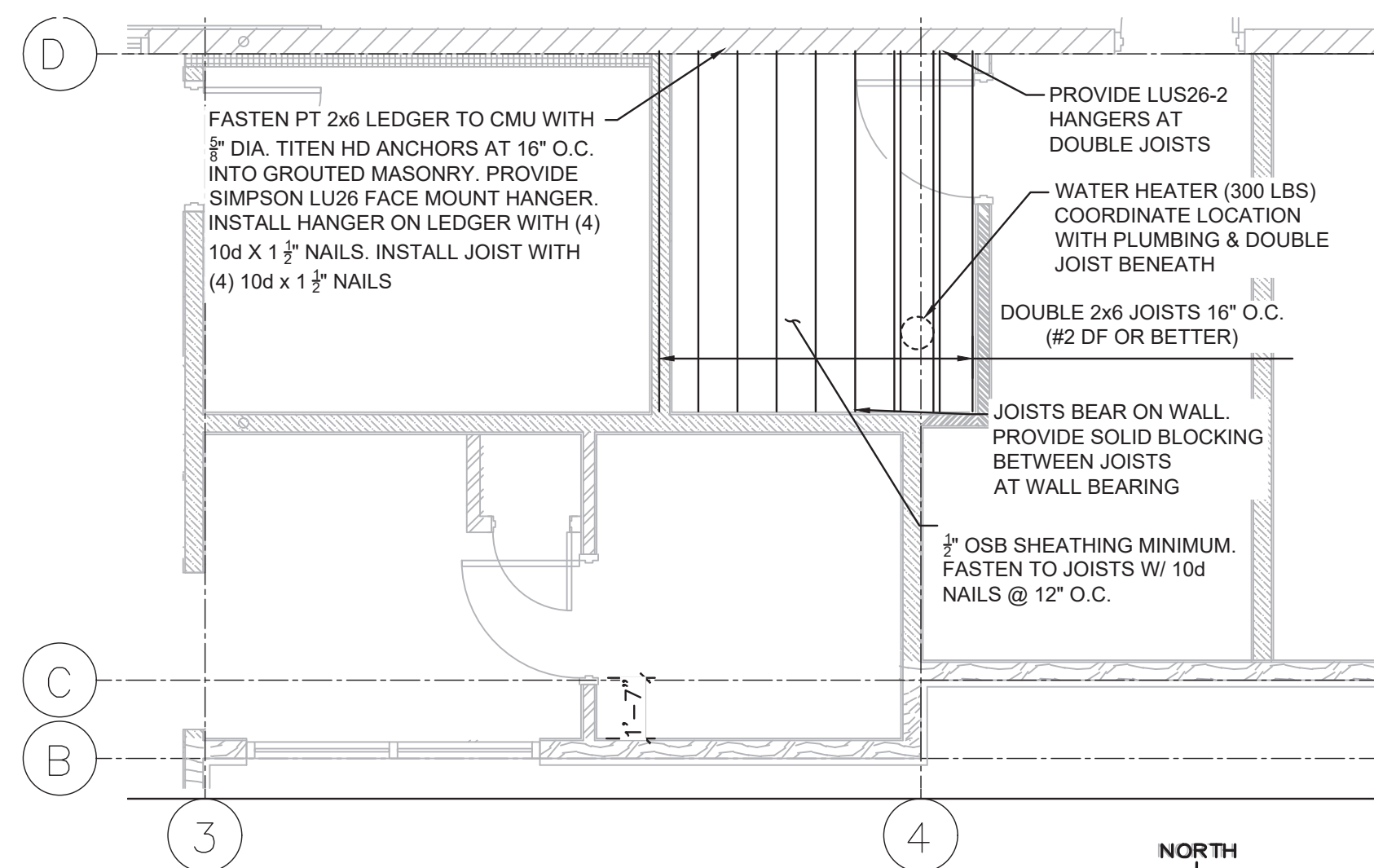
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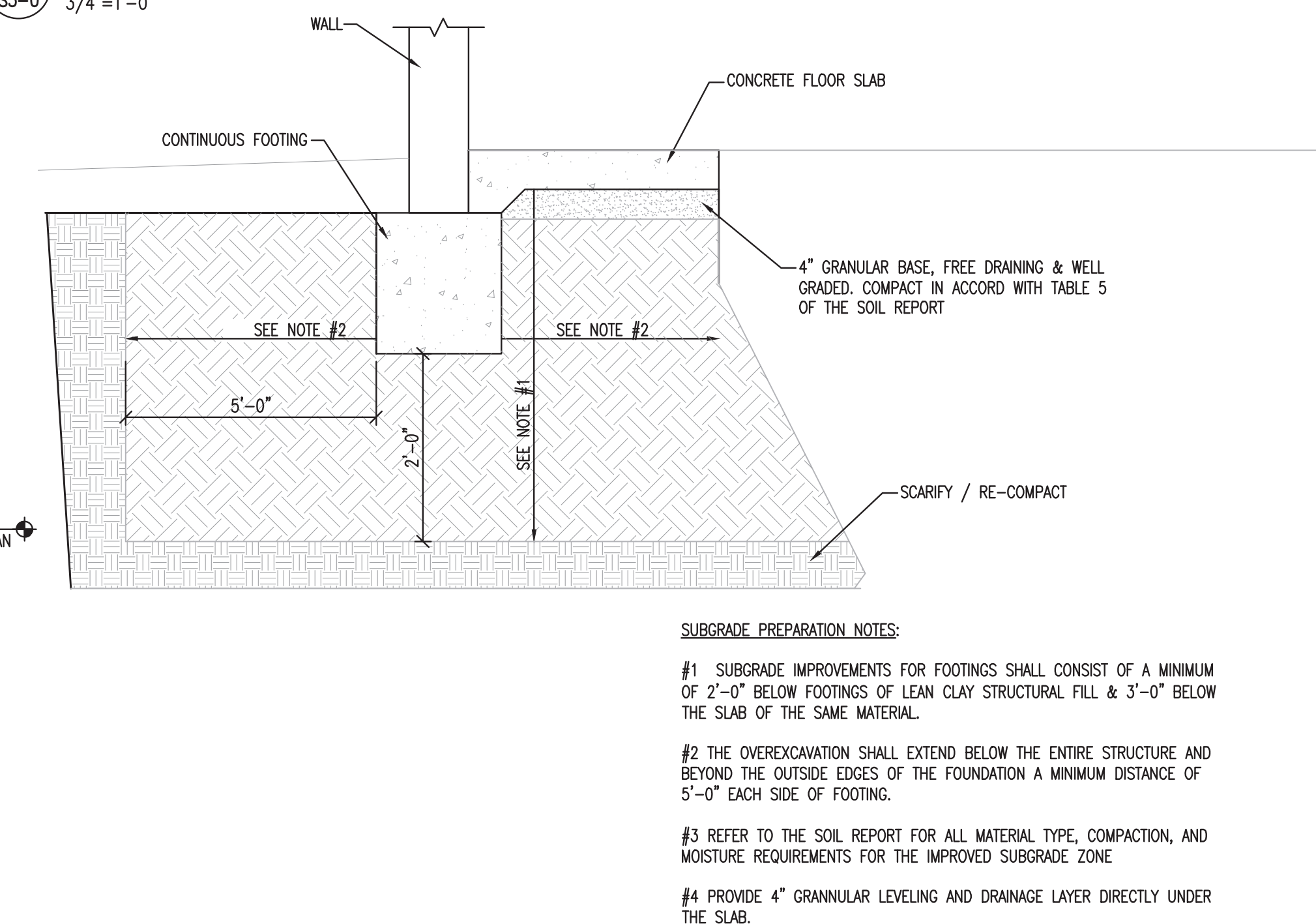
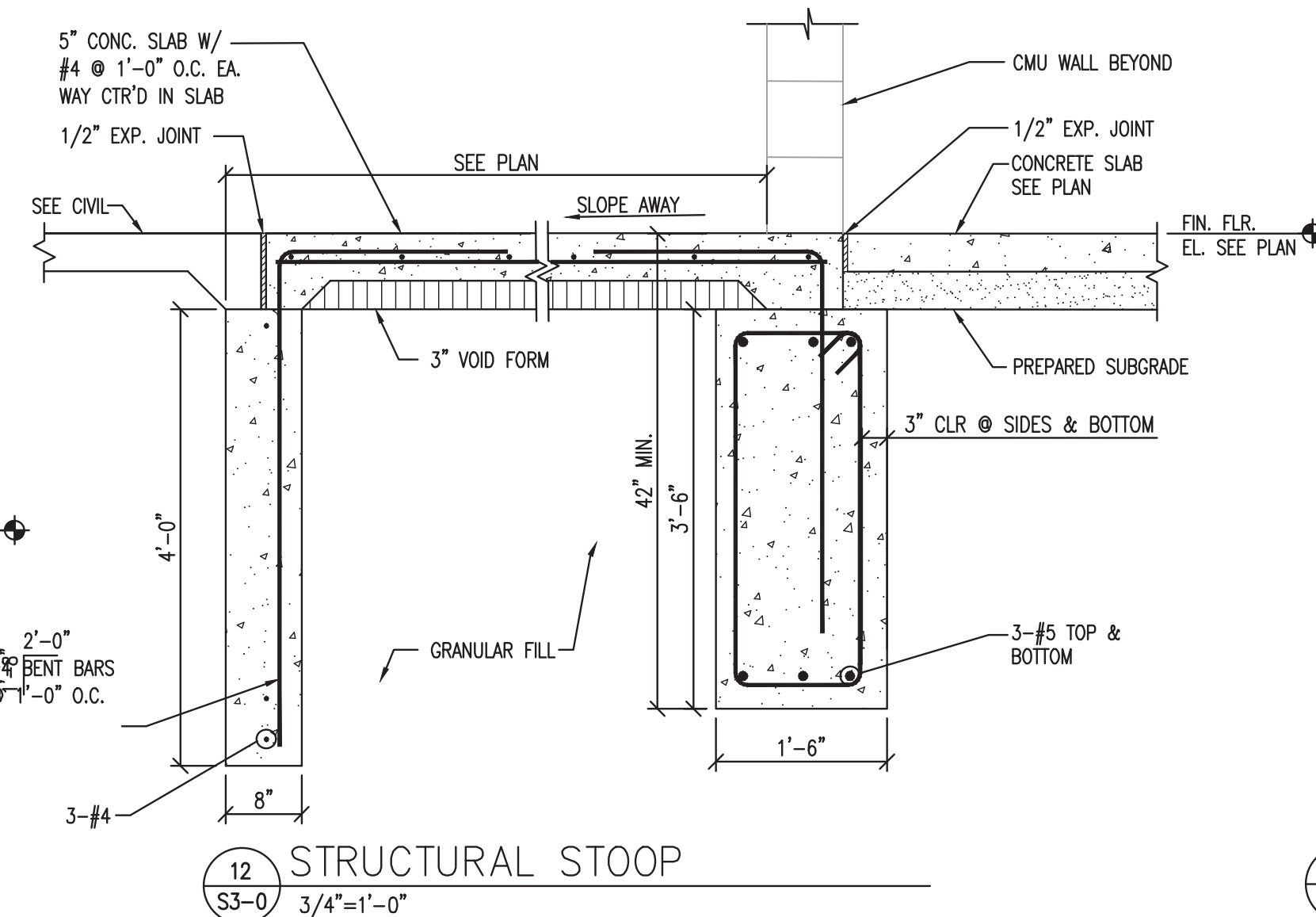
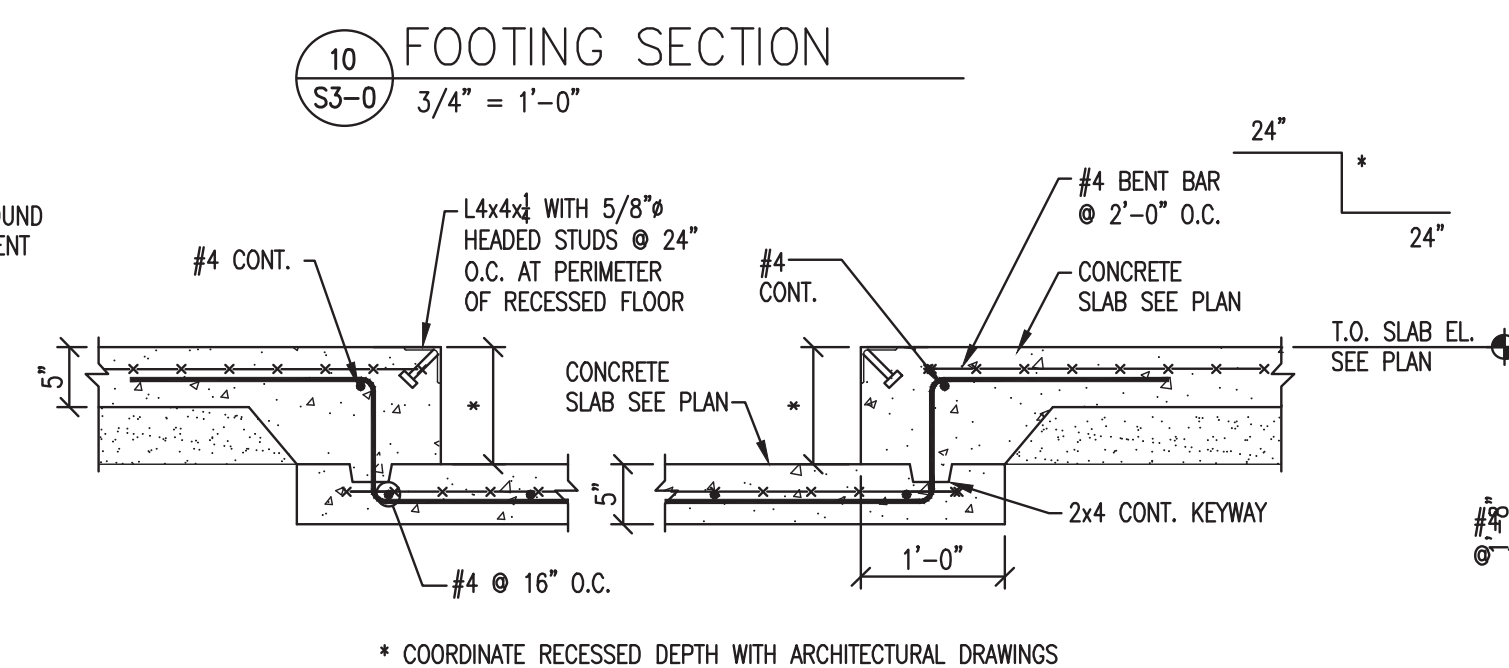
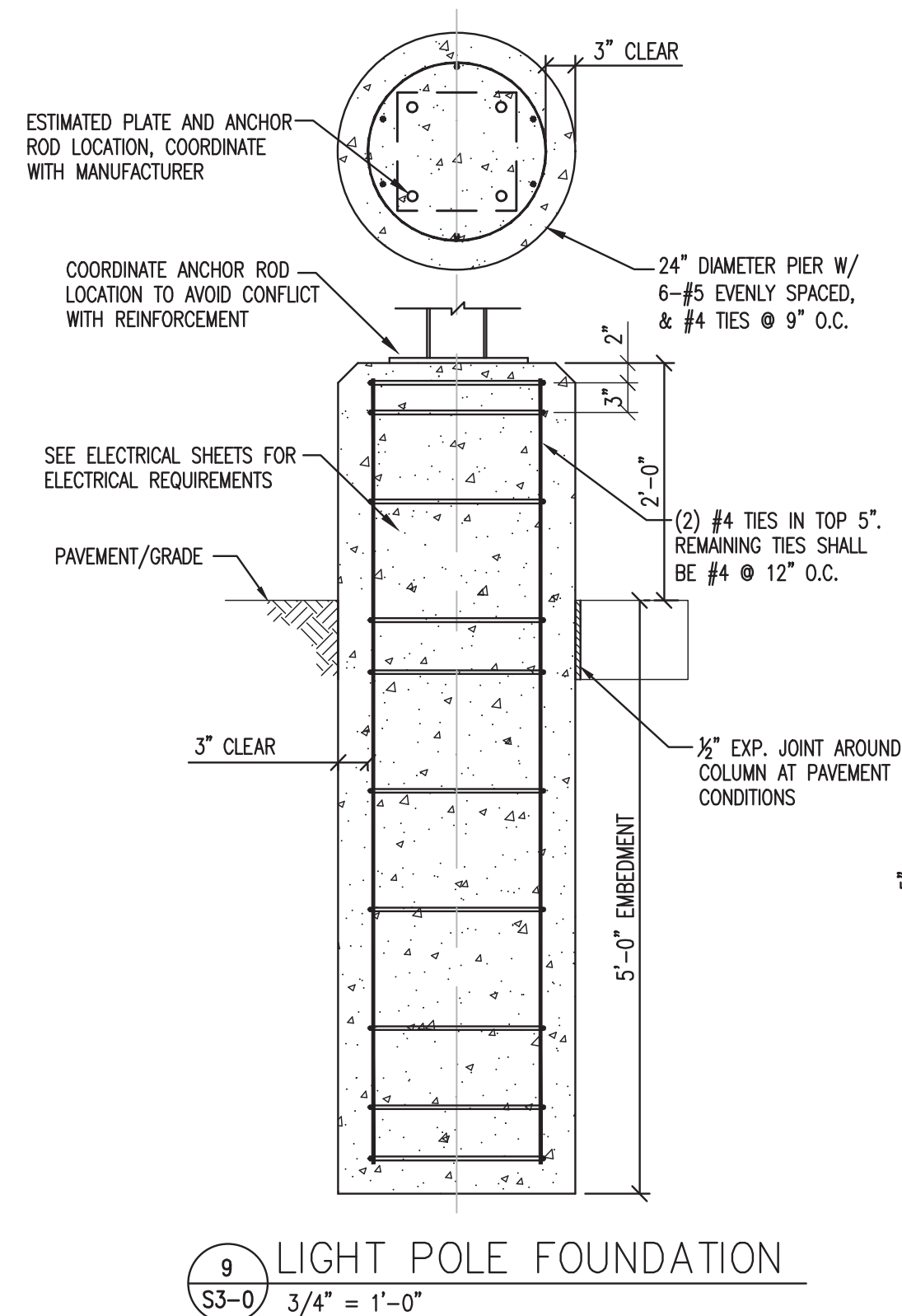
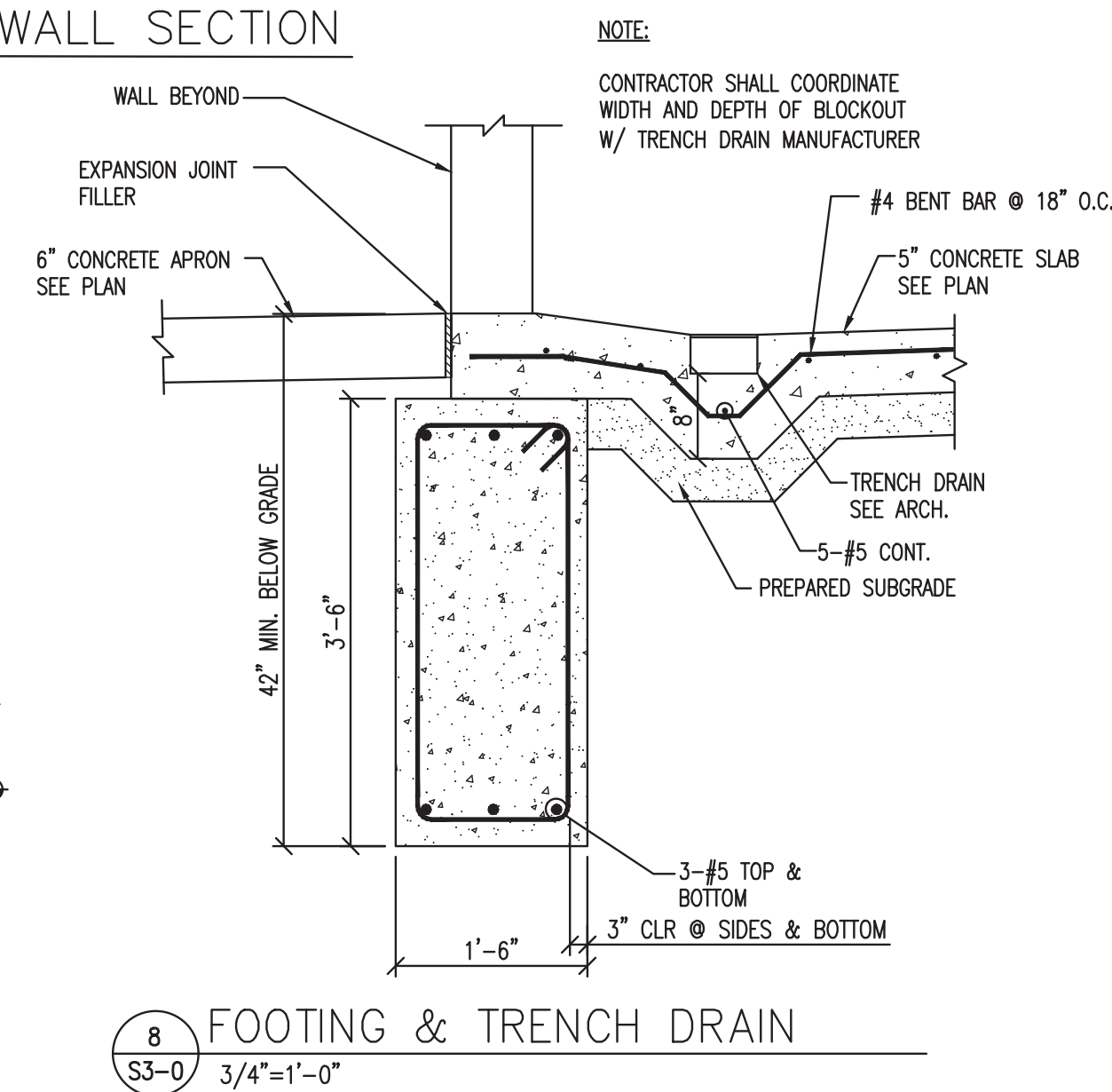
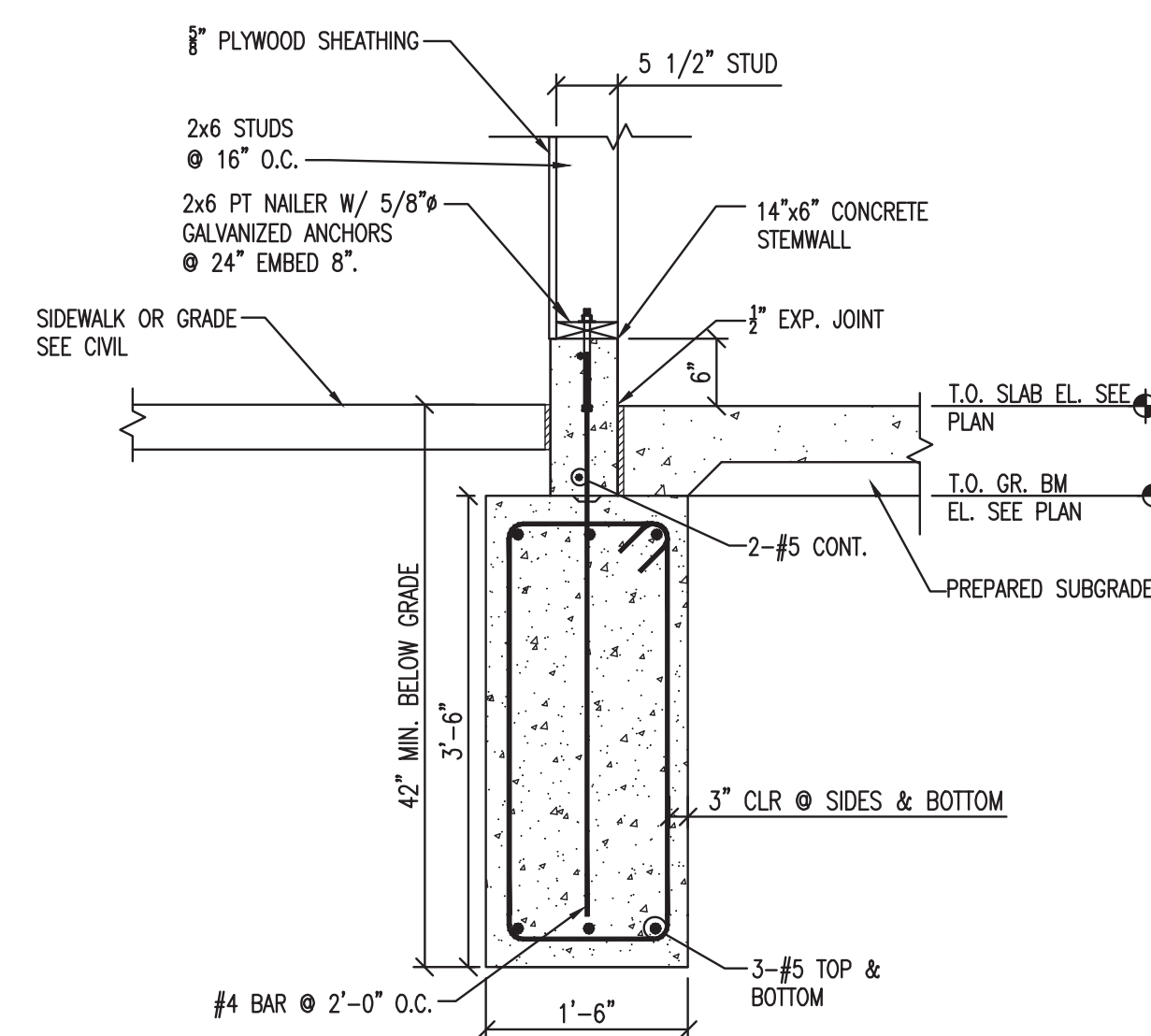
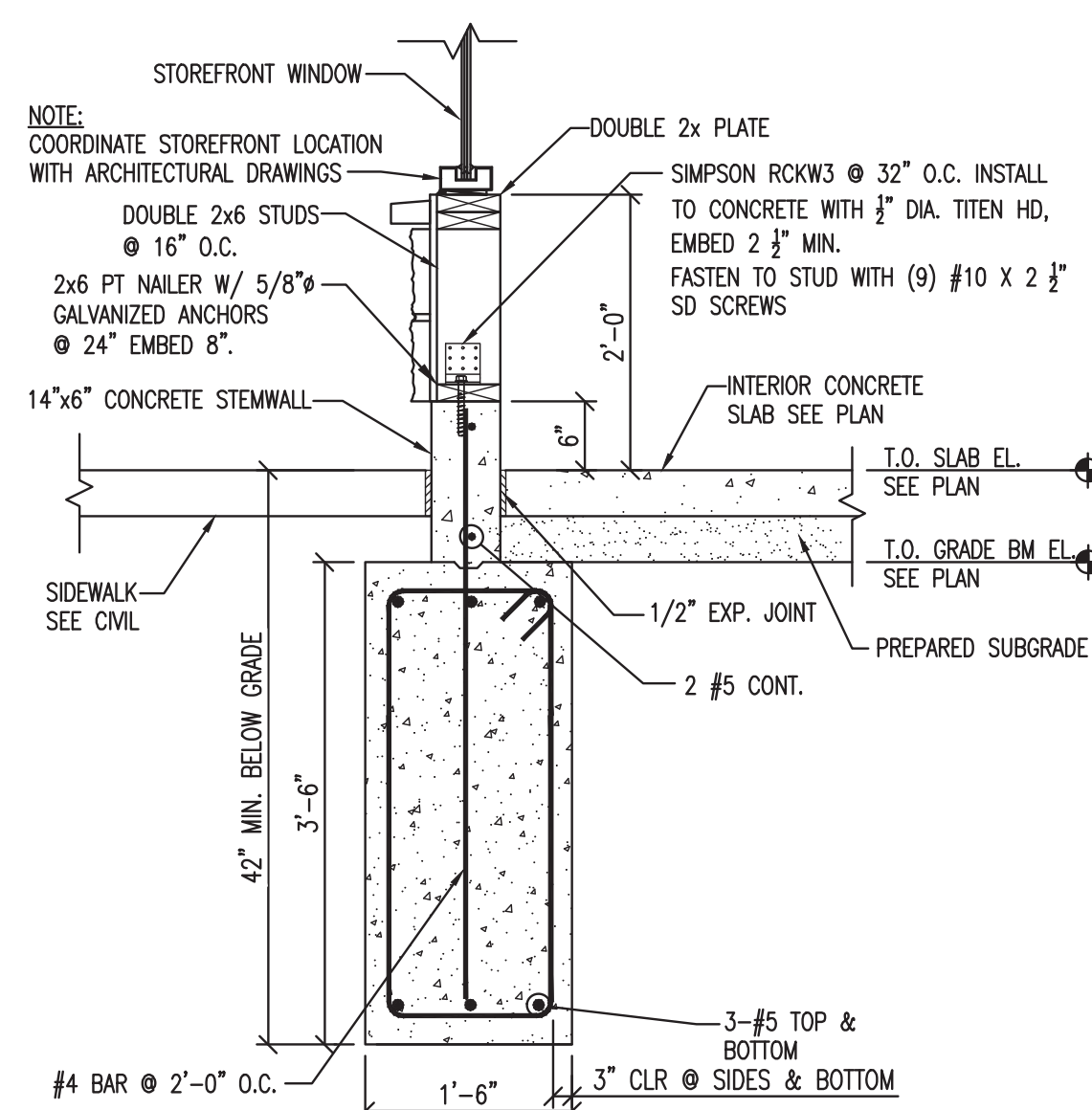
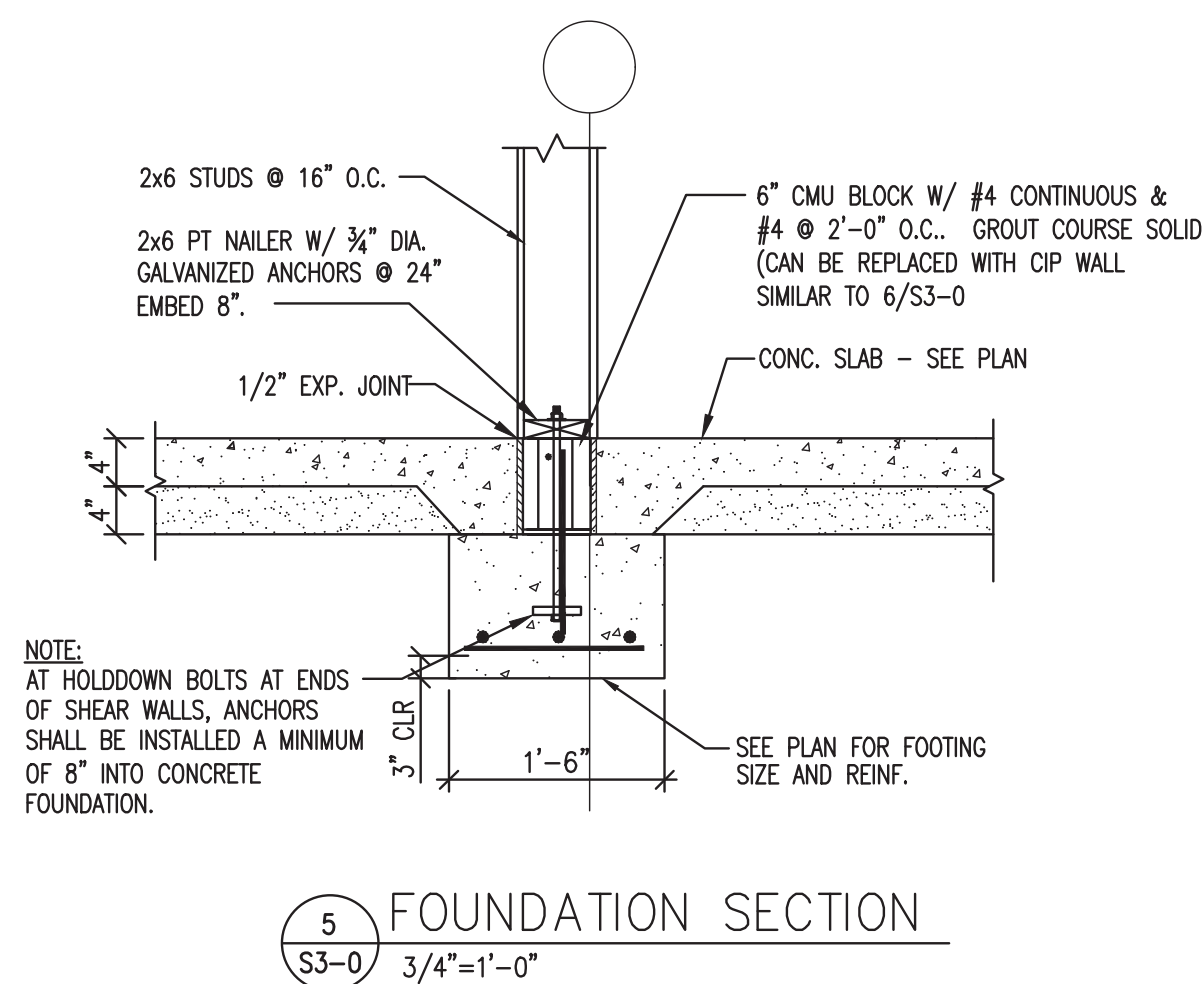
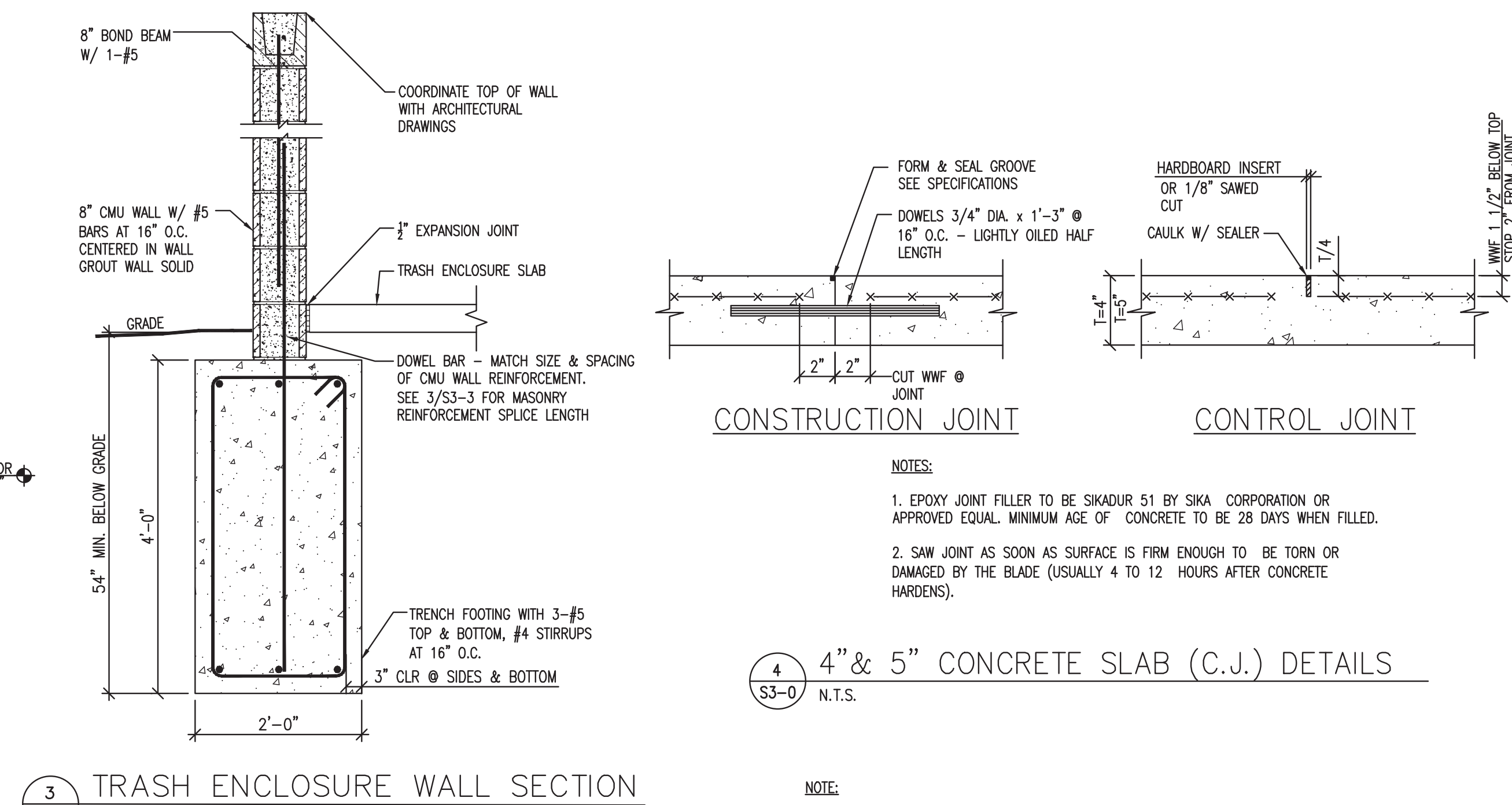
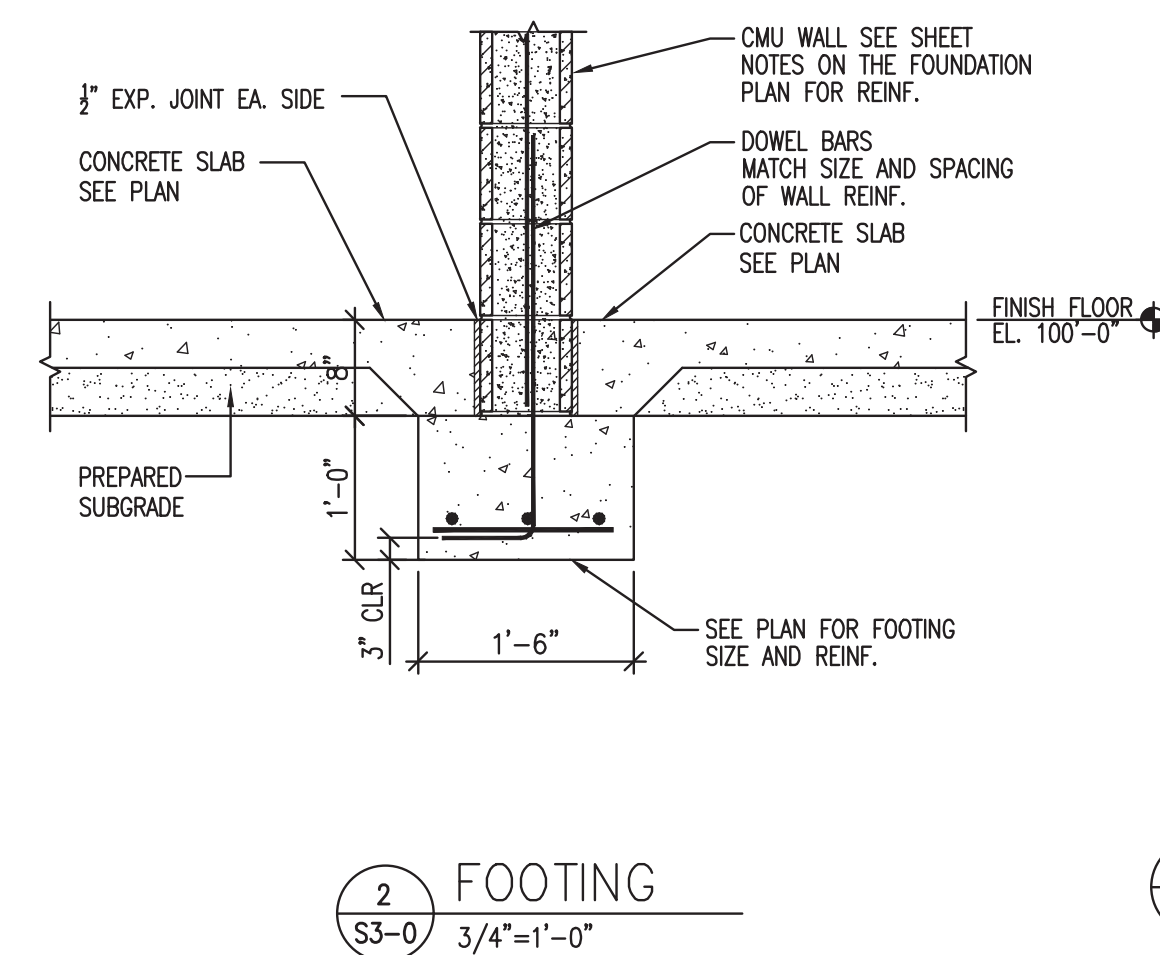
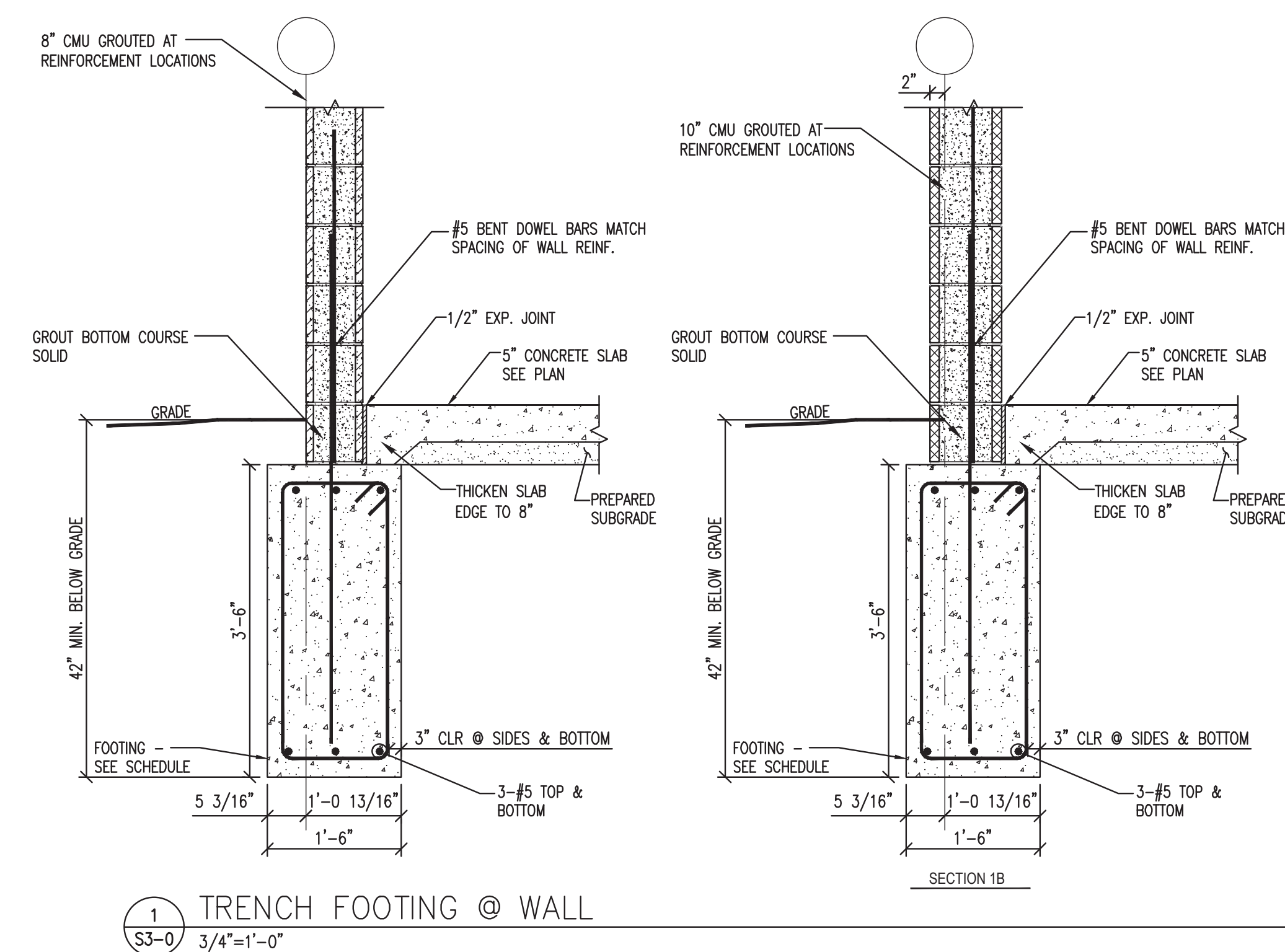
SHEET  
**S2-0**  
FOUNDATION PLAN





7. WOOD WALLS SHALL BE 2x6 DOUGLAS FIR NO. 2 STUD. STUD SPACING SHALL BE 16" O.C. UNLESS NOTED OTHERWISE.





### SUBGRADE PREPARATION NOTES

#1 SUBGRADE IMPROVEMENTS FOR FOOTINGS SHALL CONSIST OF A MINIMUM OF 2'-0" BELOW FOOTINGS OF LEAN CLAY STRUCTURAL FILL & 3'-0" BELOW THE SLAB OF THE SAME MATERIAL.

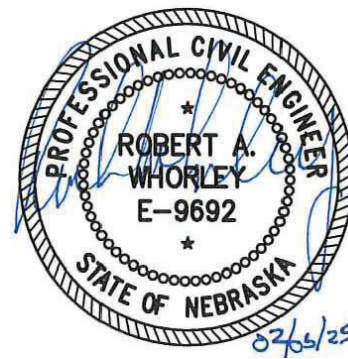
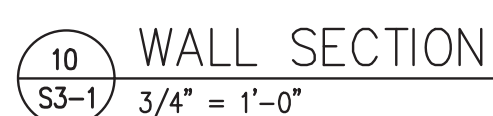
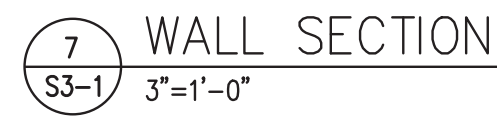
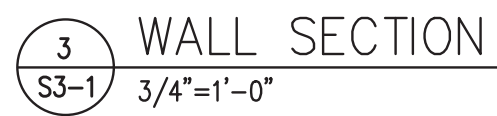
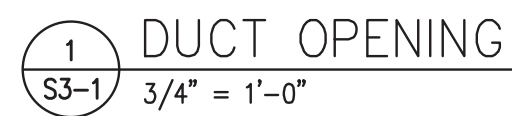
#2 THE OVEREXCAVATION SHALL EXTEND BELOW THE ENTIRE STRUCTURE AND BEYOND THE OUTSIDE EDGES OF THE FOUNDATION A MINIMUM DISTANCE OF 5'-0" EACH SIDE OF FOOTING.

#3 REFER TO THE SOIL REPORT FOR ALL MATERIAL TYPE, COMPACTION, AND MOISTURE REQUIREMENTS FOR THE IMPROVED SUBGRADE ZONE

#4 PROVIDE 4" GRANNULAR LEVELING AND DRAINAGE LAYER DIRECTLY UNDER THE SLAB.

[illegible]



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CLIENTJOB #:

DRAWN BY: \_\_\_\_\_ SLM

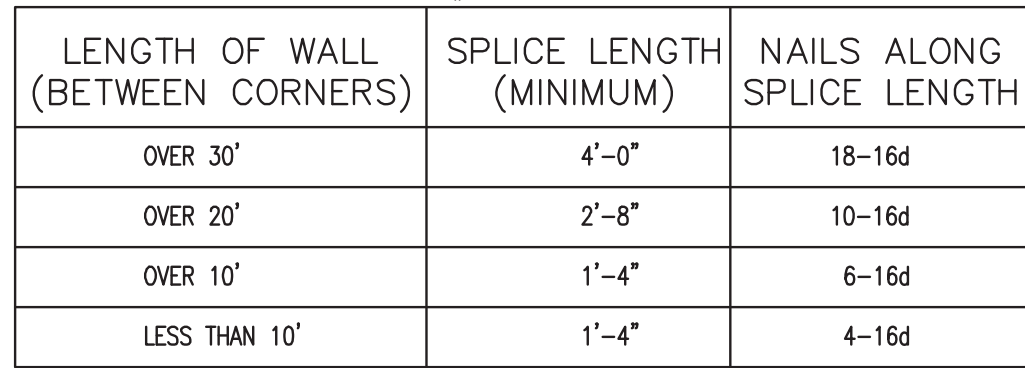
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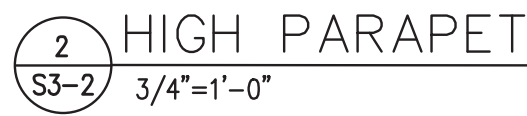


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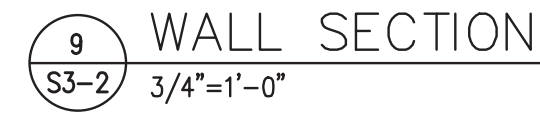
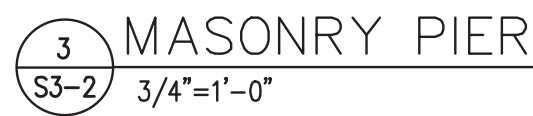


6 CHORD SPLICE  
S3-2  $3/4"=1'-0"$



11  
S3-2

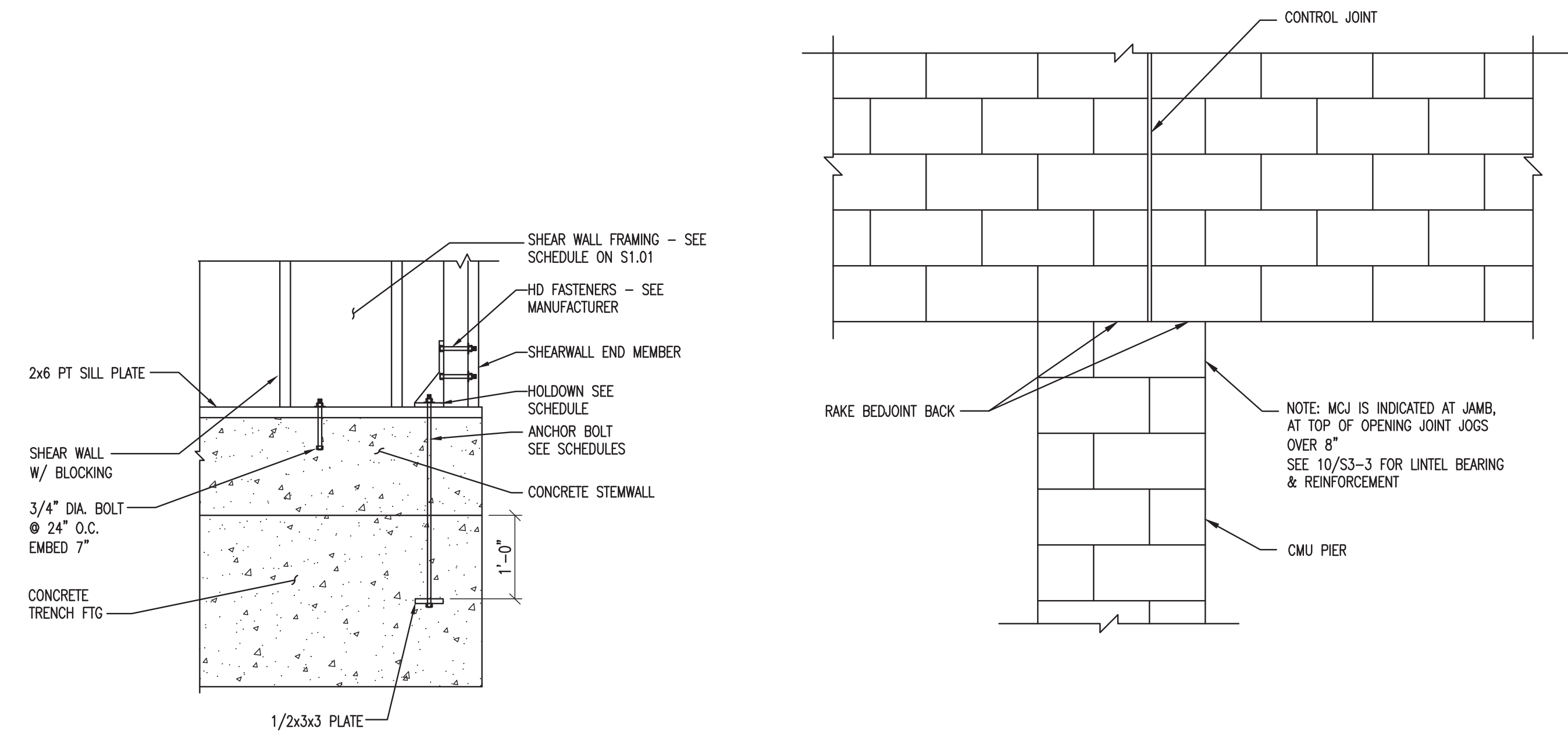
TYP. MASONRY BEAM/ LINTEL  
3/4"=1'-0"



12 PARAPET WALL SECTION  
S3-2 3/4"=1'-0"

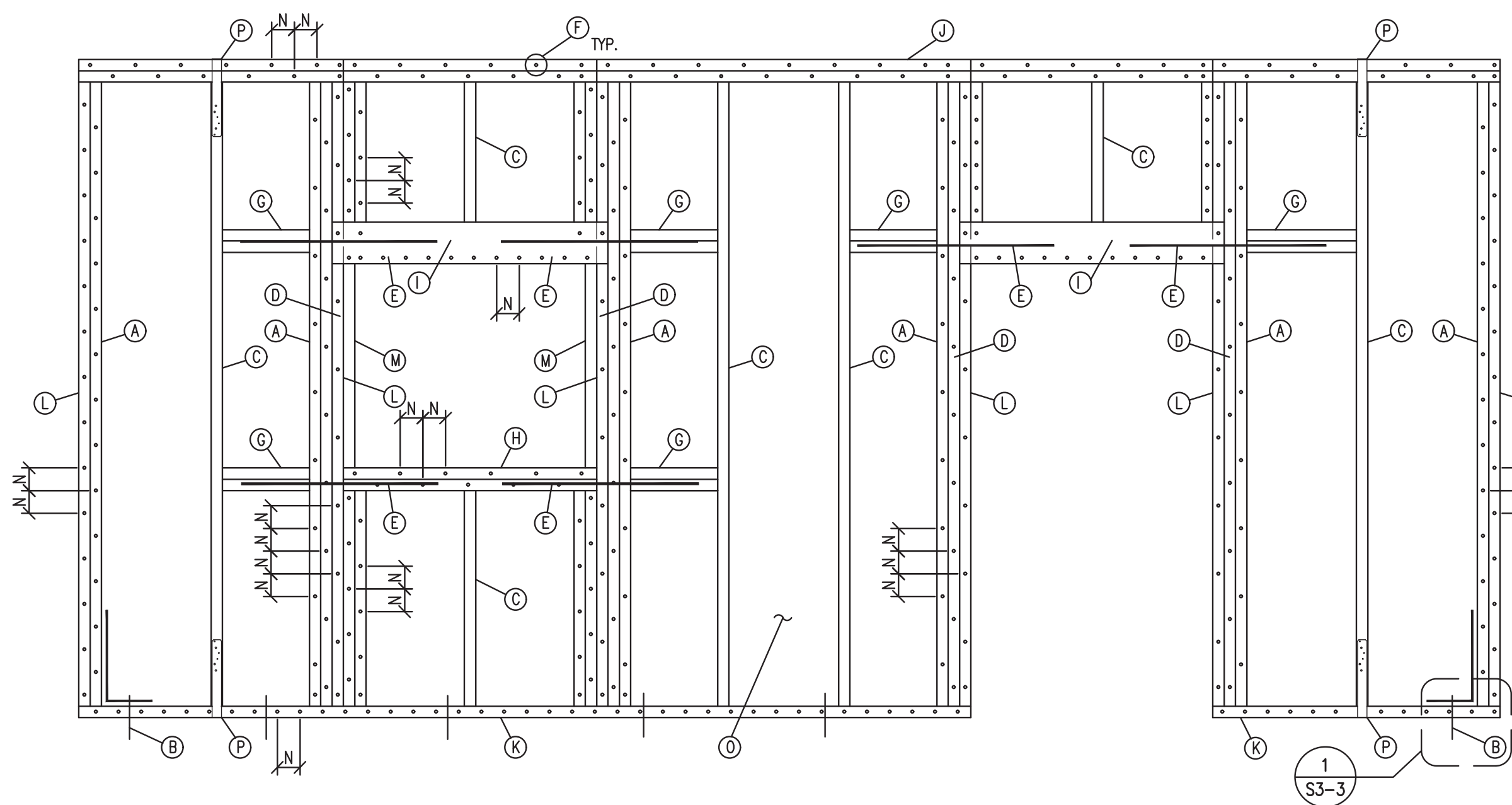






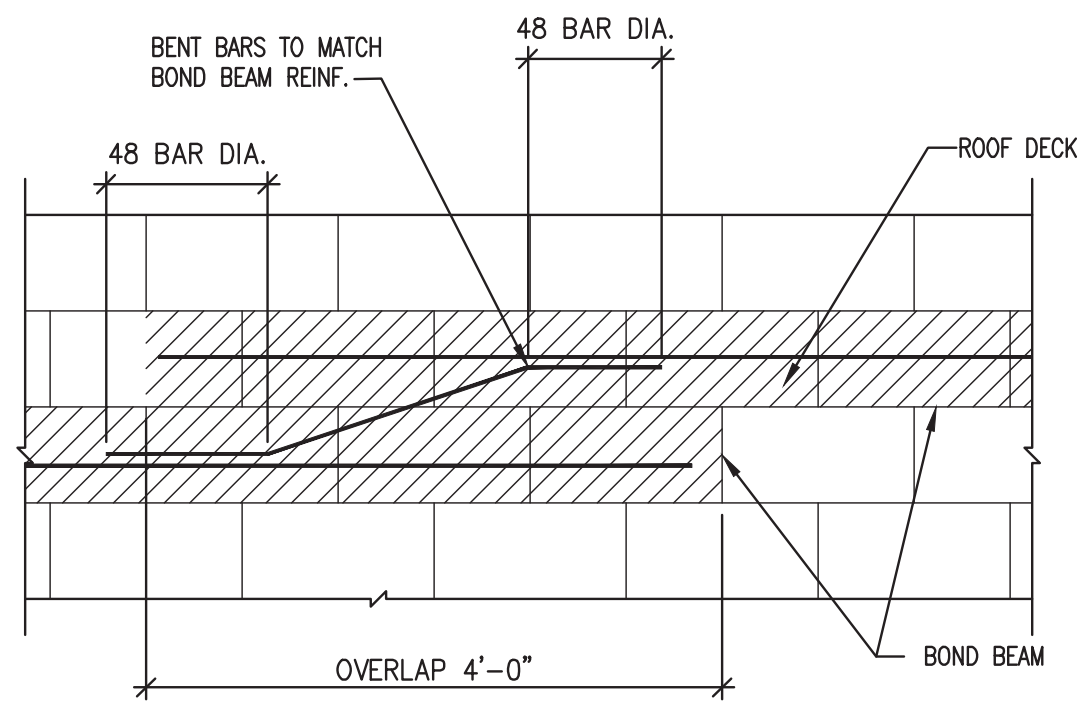
1 FOOTING @ COLUMN  
S3-3 3/4"=1'-0"

2 CONTROL JOINT @ PIER  
S3-3 3/4"=1'-0"

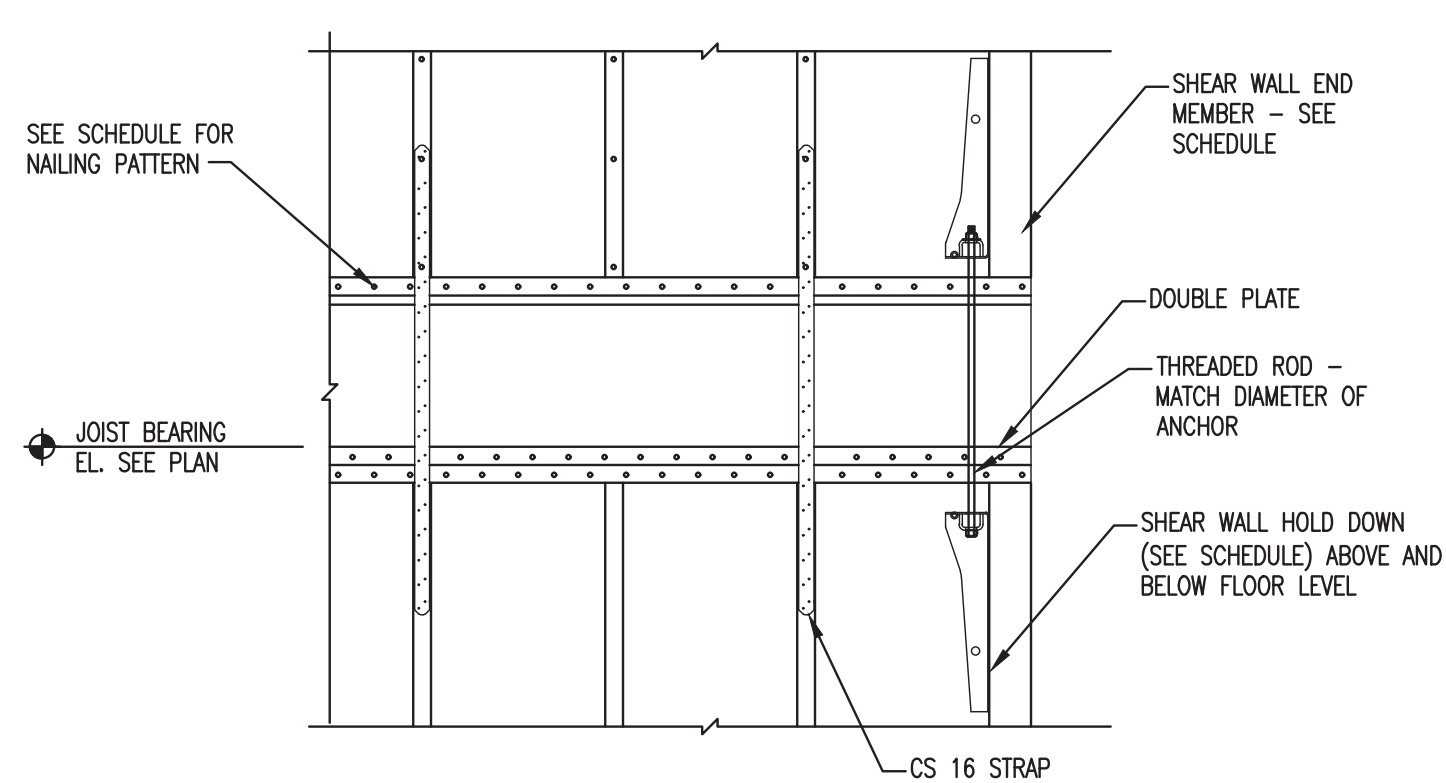


- A SHEARWALL END STUDS (KING STUDS @ OPENINGS). NAIL THESE STUDS TOGETHER WITH SHEARWALL BOTTOM PLATE NAILING (2 STUDS MIN.) EDGE NAIL WOOD STRUCTURAL PANEL SHEARWALL TO THESE STUDS.
- B SHEARWALL ANCHORS OR STRAPS.
- C TYPICAL STUDS (OR JACK STUDS) @ 16" O.C. MAX. SPACING. FIELD NAIL WOOD STRUCTURAL PANEL SHEARWALLS TO STUDS. EDGE NAIL AT PANEL EDGES.
- D TRIMMER STUDS, CONTINUE EDGE NAILING FROM KING STUDS AND NAIL STUDS TOGETHER WITH SHEARWALL BOTTOM PLATE NAILING.
- E CS16 x 28" STRAP WITH 11-10d NAILS IN BLOCKING AND HEADER OR WINDOW PLATE.
- F SHEAR EDGE NAILING.
- G 2-2X BLOCKING (WIDTH TO MATCH STUDS).
- H WINDOW PLATE (2-2X MIN., WIDTH TO MATCH STUD).
- I HEADER (2-2x6 MIN.) WITH SHEARWALL EDGE NAILING.
- J DOUBLE TOP PLATE WITH SHEARWALL EDGE NAILING.
- K BOTTOM PLATE WITH SHEARWALL EDGE NAILING AND BOLTED OR NAILED TO BELOW.
- L WOOD STRUCTURAL PANEL EDGE.
- M 2X BLOCK BETWEEN HEADER AND WINDOW PLATE. NAIL TO TRIMMER WITH 16d NAILS @ 6" O.C.
- N SHEARWALL EDGE NAILING SPACING.
- O SHEARWALL PANEL.
- P STUD PLATE TIE - SEE TYPICAL WALL FRAMING DETAIL 8/S3-3.

5 SHEAR WALL CONSTRUCTION  
S3-3 3/4"=1'-0"



9 BOND BEAM STEP AT SLOPING ROOF  
S3.3 3/4"=1'-0"

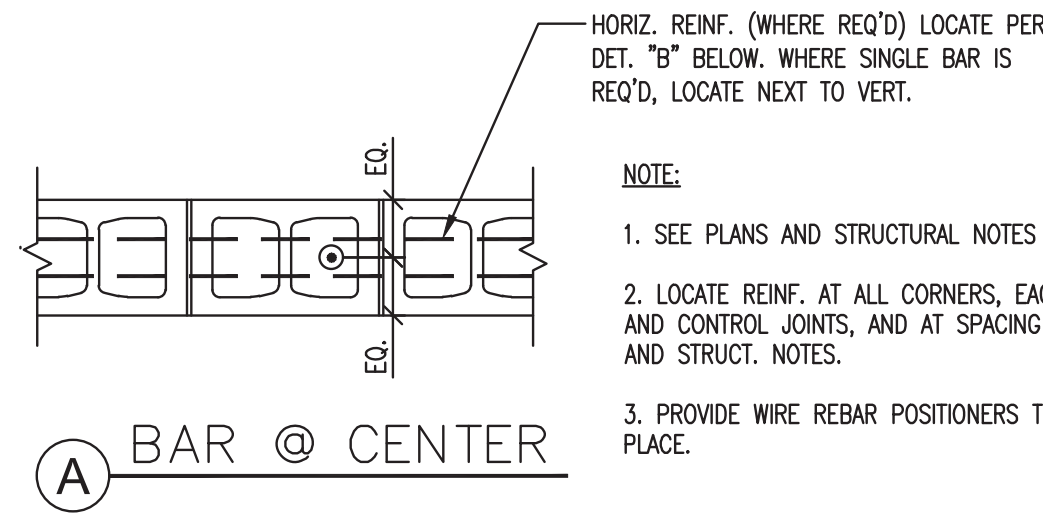


10 TWO LEVEL SHEAR WALL CONNECTION  
S3-3 3/4" = 1'-0"

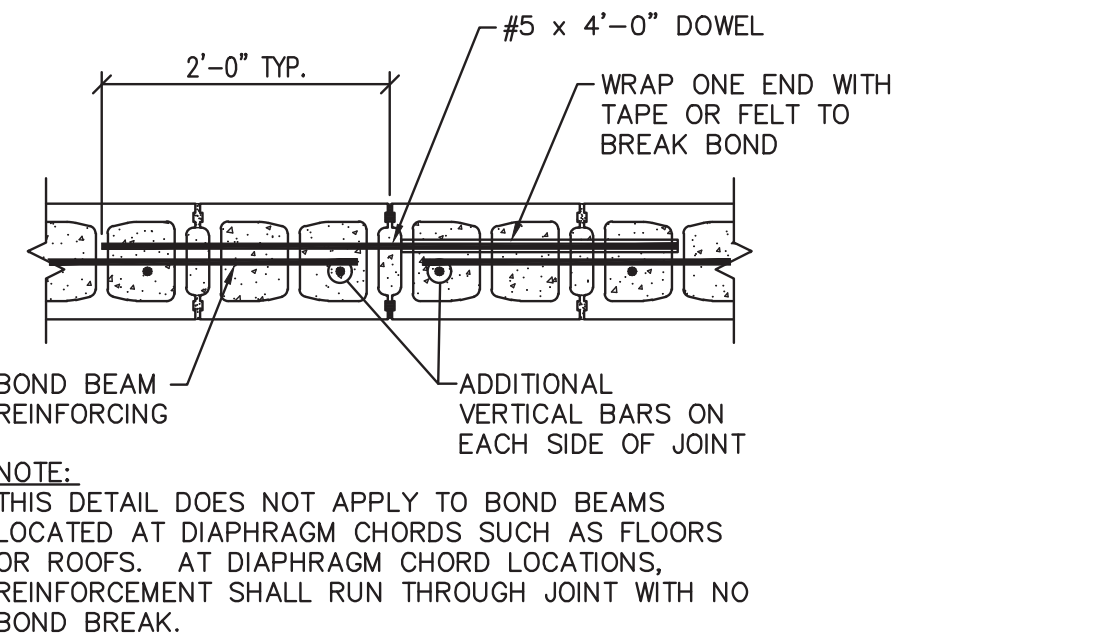
BAR SIZE	MASONRY REINF. SPLICE TABLE							REMARKS
	6" BLOCK BAR @ CL	8" BLOCK BAR @ CL	8" BLOCK BAR @ EDGE	10" BLOCK BAR @ CL	10" BLOCK BAR @ EDGE	12" BLOCK BAR @ CL	12" BLOCK BAR @ EDGE	
#4	2'-1"	1'-9"	2'-7"	2'-1"	2'-5"	2'-1"	2'-4"	-
#5	3'-3"	2'-2"	4'-0"	2'-7"	3'-10"	2'-7"	3'-7"	-
#6	-	3'-6"	8'-2"	4'-4"	7'-8"	4'-4"	7'-3"	-
#7	-	5'-0"	-	5'-1"	10'-5"	5'-1"	9'-10"	-

NOTE: WHEN REQUIRED SPLICE LENGTH EXCEEDS 4'-0" USE HIGH LIFT GROUTING WITH NO SPLICES OR USE MECHANICAL TENSION SPLICES WITH LOW LIFT GROUTING.

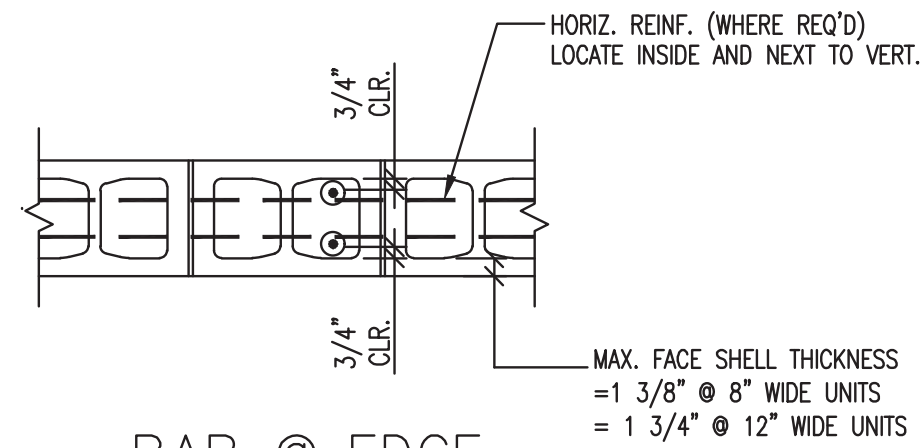
3 MASONRY REINFORCEMENT SPLICE & DEVELOPMENT LENGTH  
S3-3 3/4"=1'-0"



A BAR @ CENTER

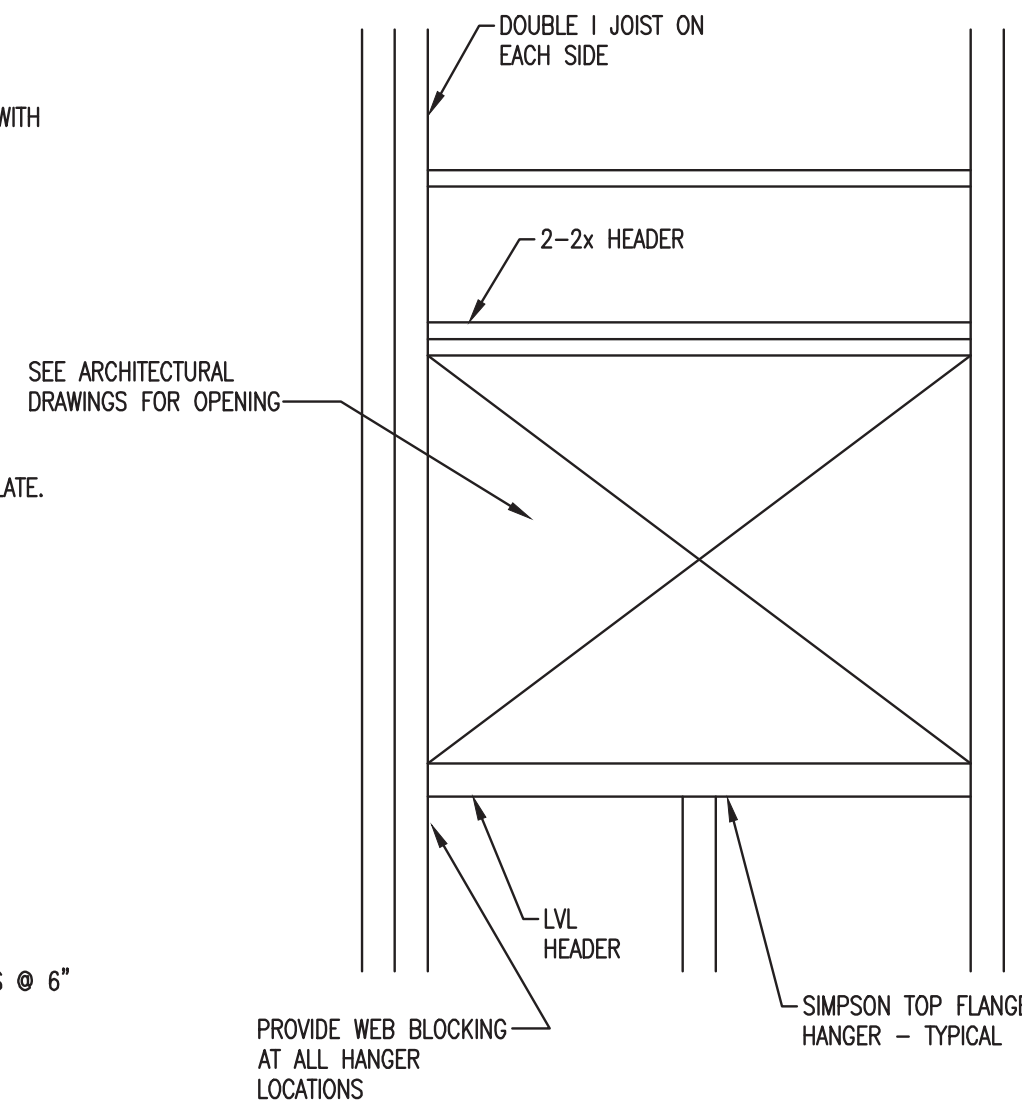


4 MASONRY CONTROL JOINT  
S3-3 3/4"=1'-0"

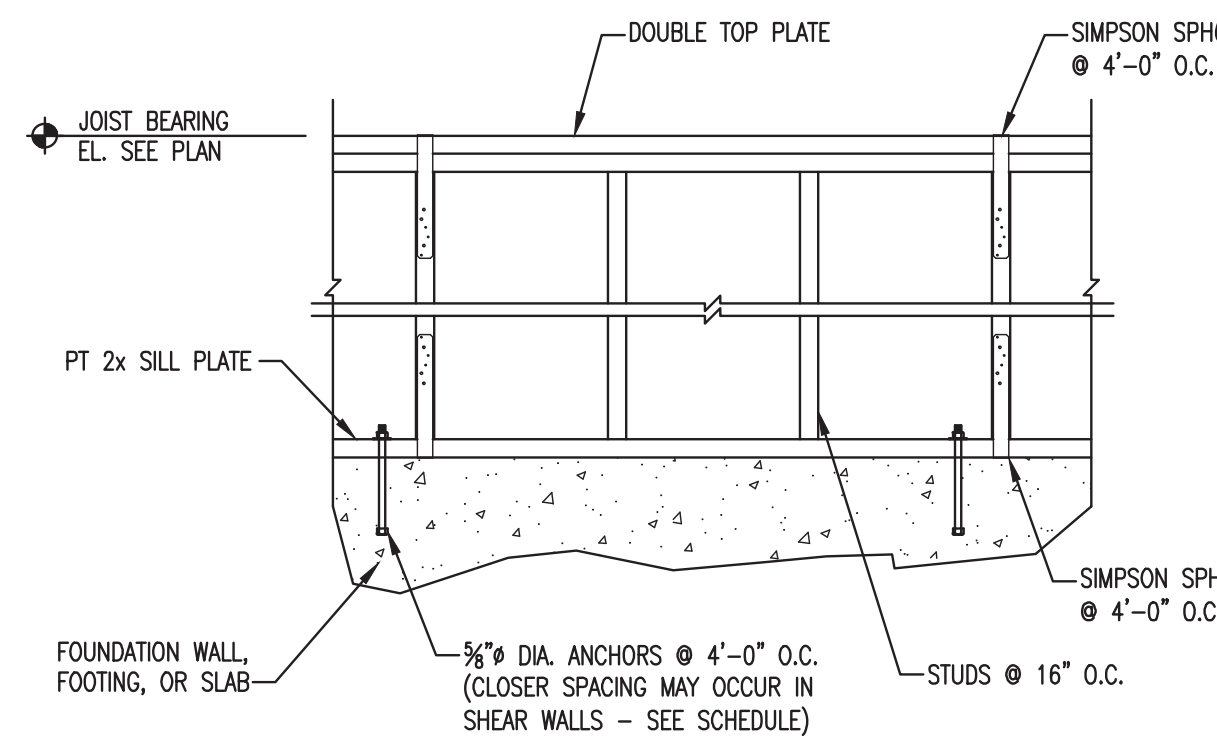


B BAR @ EDGE

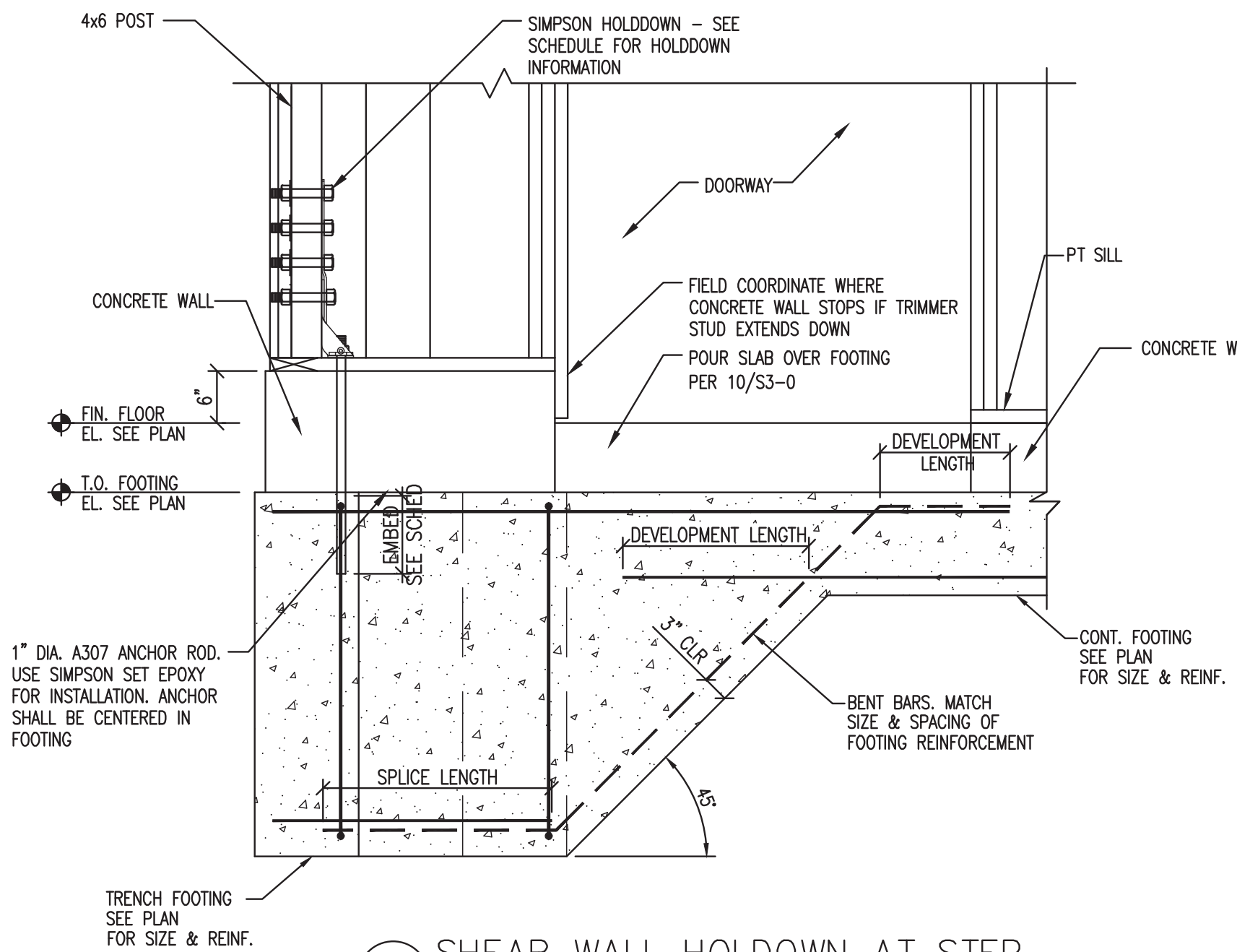
6 TYP. MASONRY WALL REINF. PLACEMENT  
S3-3 3/4"=1'-0"



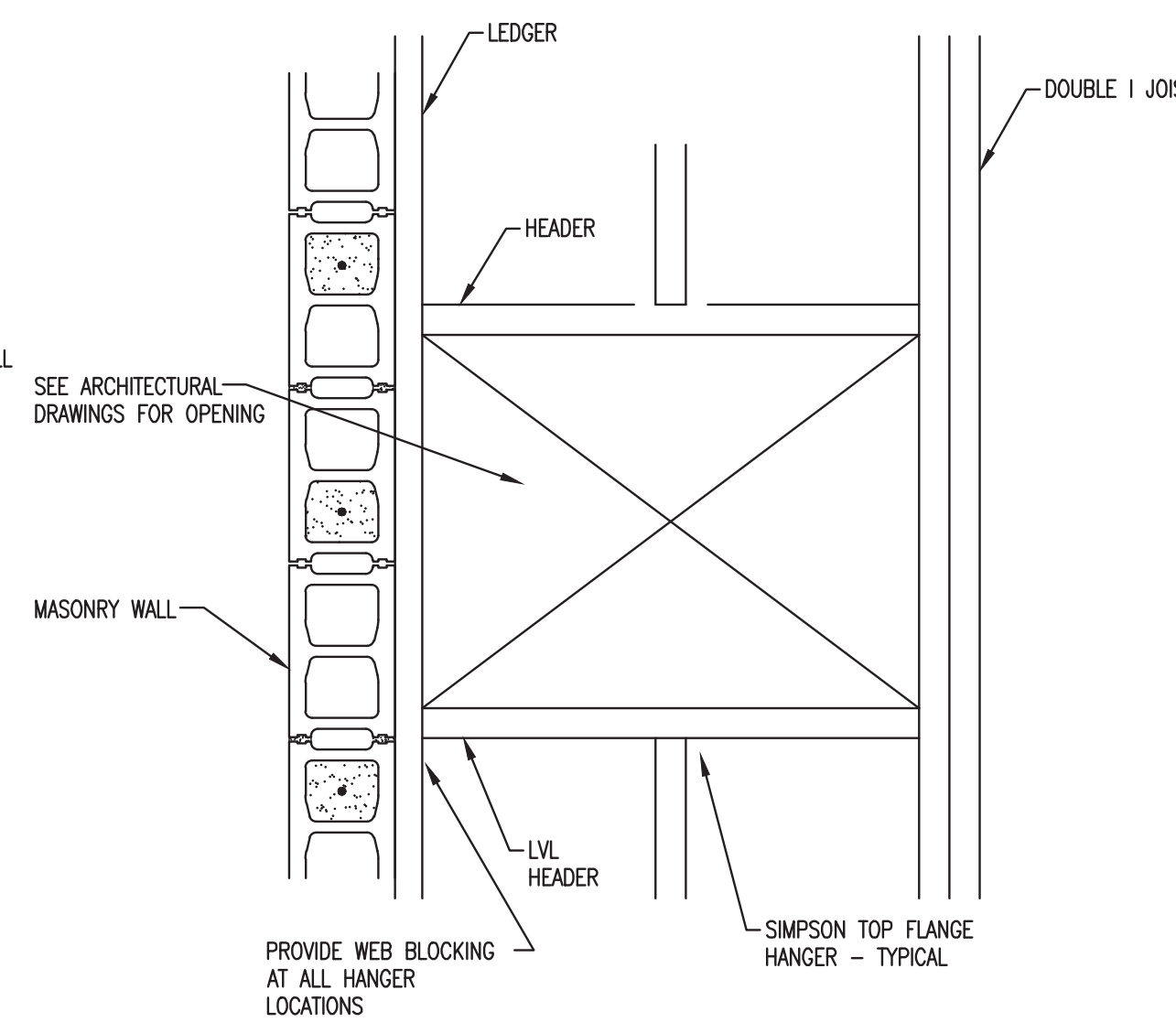
7 WOOD ROOF OPENING PLAN  
S3-3 3/4" = 1'-0"



8 TYPICAL WALL FRAMING  
S3-3 3/4"=1'-0"



11 SHEAR WALL HOLDDOWN AT STEP  
S3-3 NTS



12 ROOF ACCESS OPENING  
S3-3 3/4" = 1'-0"



MECHANICAL GENERAL NOTES AND SPECIFICATIONS		
GENERAL CONSTRUCTION NOTES:		
<p>1. DRAWINGS ARE MEANT TO SHOW INTENT ONLY, NOT EXACT DETAIL. THESE DRAWINGS ARE A "BUILDERS SET" AND INTENDED FOR THE USE ON AN EXPERIENCED AND WELL QUALIFIED CONTRACTOR WHO MAY INTER REASONABLE INFORMATION BASED ON EXPERIENCE COMMON IN THE INDUSTRY AND TRADES. QUALITY OF A REQUIRED STANDARD. DO NOT OBTAIN FIELD VERIFY IF ANY QUALIFICATIONS OF WORK AND REPORT ANY DISCREPANCIES TO THE ARCHITECT/ENGINEER FOR CLARIFICATIONS BEFORE STARTING ANY WORK. CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL ERRORS IN HIS WORK, INCLUDING THE LACK OF FIELD VERIFICATION OF EXISTING CONDITIONS.</p> <p>2. THE ARCHITECT AND PROFESSIONAL CONSULTANTS WILL NOT HAVE CONTROL OF AND WILL NOT BE RESPONSIBLE FOR CONSTRUCTION METHODS, SEQUENCES, TECHNIQUES, PROCEDURES, OR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK ON THIS PROJECT OR FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK ON THIS SITE, NOR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE INTENT OF THE CONTRACT AND OR THESE CONSTRUCTION DOCUMENTS.</p>		
<p><b>BASIC REQUIREMENTS:</b></p> <p>MECHANICAL DESIGN SHALL CONFORM TO THE 2018 INTERNATIONAL MECHANICAL CODE. PROJECT SHALL BE COORDINATED WITH THE EXISTING BUILDING SERVICES AND SHALL INCLUDE ALL ITEMS NECESSARY FOR COMPLETE AND FULLY OPERATIONAL TENANT MECHANICAL SYSTEMS. MAKE CONNECTIONS TO AND EXTEND SYSTEMS INSTALLED BY OTHERS AND/OR FURNISHED BY OTHERS. PROVIDE ACCESSORIES AND INCIDENTAL ITEMS AS REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM WHETHER OR NOT SPECIFICALLY SPECIFIED AND/OR SHOWN ON THE PLANS.</p> <p>COORDINATE WITH OTHER TRADES FOR A COORDINATED INSTALLATION WITHIN THE AVAILABLE SPACE. WHERE CROWDED CONDITIONS EXIST, PREPARE COORDINATION DRAWINGS SHOWING ALL TRADE CONFLICTS AND SUBMIT TO ARCHITECT FOR APPROVAL AND DIRECTION PRIOR TO ROUGH-IN AND/OR INSTALLATION.</p> <p>RELOCATION OF OUTLETS AND/OR DEVICES MADE PRIOR TO ROUGH-IN SHALL BE DONE AT NO ADDITIONAL COST.</p> <p>ALL WORK SHALL BE PERFORMED BY PROPERLY LICENSED MECHANICALS OR UNDER THEIR DIRECT SUPERVISION. ALL MATERIALS AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE STANDARDS OF UL AND SHALL BEAR THE UL LABEL AS EVIDENCE THAT THE MATERIAL AND/OR EQUIPMENT MEETS THIS REQUIREMENT.</p> <p>INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS AND DETAILS UNLESS OTHERWISE NOTED IN THESE PLANS. IF DISCREPANCIES EXIST CONTACT THE ENGINEER PRIOR TO ORDERING EQUIPMENT AND ROUGH-IN.</p> <p>ALL EQUIPMENT START UP AND TESTING SHALL BE PERFORMED BY THE EQUIPMENT MANUFACTURER TRAINED SERVICE TECHNICIAN.</p> <p>THE SUB-CONTRACTOR SHALL VISIT THE JOB SITE AND BECOME FAMILIARIZED WITH ALL REQUIREMENTS OF THE CONTRACT PRIOR TO SUBMISSION OF BID. THE SUB-CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY CONFLICTS PRIOR TO BID OR START OF INSTALLATION.</p> <p>THE SUB-CONTRACTOR SHALL ARRANGE FOR ALL INSPECTIONS WHEN THEY BECOME DUE, AND SHALL NOT COVER ANY WORK UNTIL APPROVED BY THE INSPECTION AUTHORITY. ANY AND ALL FEES ASSOCIATED WITH THE MECHANICAL INSPECTIONS AND INSPECTIONS SHALL BE PAID FOR BY THE SUB-CONTRACTOR IN ORDER TO DELIVER A COMPLETE AND FINISHED BUILDING, READY FOR OCCUPANCY AND 100% USAGE. THE SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT THE SUB-CONTRACTOR HAS FAMILIARIZED HIMSELF/HERSELF WITH THE PLANS AND BUILDING SITE. CLAIMS MADE SUBSEQUENT TO THE PROPOSAL FOR MATERIALS AND LABOR BECAUSE OF DIFFICULTIES ENCOUNTERED, WILL NOT BE RECOGNIZED IF THEY COULD HAVE BEEN FORESEEN HAD PROPER EXAMINATION BEEN MADE. ANY COSTS DUE TO THE LACK OF COOPERATION AMONG TRADES SHALL BE BORNE BY THE SUB-CONTRACTOR.</p> <p>THE INFORMATION PRESENTED ON THESE DRAWINGS IS DIAGRAMMATIC IN NATURE. IT DOES NOT NECESSARILY REPRESENT THE HANDS-ON SYSTEM. PROVIDE ALL MATERIALS AND LABOR FOR COMPLETELY FINISHED AND OPERATIONAL SYSTEMS. REFER TO LATEST ARCHITECTURAL DRAWINGS</p>		
FOR: EXACT WALL LOCATIONS, DIMENSIONS, AND PLUMBING FIXTURE LOCATIONS AND REQUIREMENTS.		
SUB-CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ALTERATIONS REQUIRED BY THE OWNER, ARCHITECT, OR FIELD CONDITIONS.		
ALL EQUIPMENT SHALL BE NEW, SHALL COMPLY WITH APPLICABLE INDUSTRY STANDARDS, WITH SPECIFICATIONS ON DRAWINGS, AND ENERGY CODE COMPLIANCE CERTIFICATION AS ADOPTED BY THE STATE, AS WELL AS LOCAL JURISDICTIONAL BUILDING DEPARTMENT. SUBMIT DATA FOR APPROVAL PRIOR TO ORDERING EQUIPMENT. SUBMITTAL SHALL INCLUDE ENERGY CODE COMPLIANCE CERTIFICATION.		
SUB-CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT INCLUDING: FIXTURES SPECIFIED IN EQUIPMENT SCHEDULE ON DRAWINGS FOR REVIEW/APPROVAL (5) DAYS PRIOR TO BID. EQUIPMENT IS NOT TO BE ORDERED WITHOUT SUBMITTAL TO ARCHITECT/OWNER/ENGINEER.		
ALL SPACE HEATING SUPPLY AIR DUCTS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST S.M.A.C.N.A. DUCT CONSTRUCTION STANDARDS AND BE INSULATED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL JURISDICTIONAL ENERGY CONSER- VATION STANDARDS AND THE LATEST EDITION INTERNATIONAL MECHANICAL CODE.		
ALL DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS. INCREASE LISTED DUCT SIZE TO ACCOMMODATE LINER.		
FLEX SHALL NOT EXCEED 8 FT. IN LENGTH AND SHALL BE TYPE "1" FACTORY DUCT. PROVIDE WITH 1 IN. EXTERNAL INSULATION IF MAIN SUPPLY DUCT IS INSULATED.		
ALL SUPPLY RUN-OUTS TO HAVE MANUALLY ADJUSTABLE VOLUME DAMPERS WITH ABILITY TO LOCK IN PLACE. THIS SUB-CONTRACTOR SHALL INCLUDE IN HIS/HER BID THE COMPLETE COST FOR THE ELECTRICAL CONTRACTOR TO INTERLOCK EXHAUST FANS AS REQUIRED BY EQUIPMENT SCHEDULE. THIS SUB-CONTRACTOR SHALL FIELD VERIFY 10 FT. MINIMUM CLEARANCE BETWEEN FRESH AIR INTAKE AND ALL VENTS OR EXHAUST OUTLETS.		
WALL THERMOSTATS FOR HEATING/COOLING UNITS TO BE AUTOMATIC CHANGEOVER TYPE AND INSTALLED 48 IN. ABOVE FINISHED FLOOR. HEATING/COOLING UNITS SHALL MAINTAIN MINIMUM OUTSIDE AIR AS SHOWN ON SCHEDULE OR SHOWN IN FRESH AIR CALCULATIONS.		
ALL FURNACES OR ROOTOPT UNITS SUPPLYING MORE THAN 2000 CFM OF AIR SHALL BE EQUIPPED WITH A SMOKE DETECTOR WHICH WILL SHUT THE POWER OFF TO THE UNIT WHEN A SMOKE DETECTOR IS DETECTED. THIS SMOKE DETECTOR SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR AND WIRED BY THE MECHANICAL CONTRACTOR. IN BUILDINGS WHERE FIRE DETECTION OR ALARM SYSTEMS ARE PROVIDED, THE SMOKE DETECTOR SHALL BE WIRED BY THE ELECTRICAL CONTRACTOR AND SHALL BE SUPERVISED BY FIRE ALARM SYSTEM. SEE LATEST EDITION INTERNATIONAL MECHANICAL CODE FOR ADDITIONAL REQUIREMENTS. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL REMOTE TEST SWITCH AND INDICATING LIGHT AT CEILING LOCATION NEAR FURNACE/ROOFTOP LOCATION.		
MECHANICAL CONTRACTOR IS RESPONSIBLE TO HAVE ROOFTOP UNIT MANUFACTURERS TECHNICIAN START ALL ROOFTOP UNITS. PROVIDE WRITTEN REPORT FROM MANUFACTURER FOR START-UP COMMISSIONING.		
<p><b>DUCTWORK</b></p> <p>A. DUCTWORK SHALL BE GALVANIZED SHEET METAL INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. INSTALL TURNING VANES IN ALL ELBOWS. ALL SPIN-IN FITTINGS AND RUNOUTS TO ANY REGISTERS, RETURN, OR EXHAUST TERMINAL SHALL BE PROVIDED WITH MANUAL VOLUME DAMPERS.</p> <p>B. ALL DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA STANDARDS. THE DUCT PRESSURE CLASS SHALL BE AS NOTED ON PLANS OR CORRESPONDING TO THE MAXIMUM EQUIPMENT ESP ON EACH SYSTEM. THE DUCTWORK SHALL BE SEALED TIGHT. LEAKAGE MAY NOT EXCEED 10% OF DESIGN AIRFLOW AT DESIGN PRESSURE. FOR SMOKE CONTROL SYSTEMS THE DUCT MUST BE TESTED AT 1.5 TIMES ITS DESIGN PRESSURE AND LEAKAGE MAY NOT EXCEED 5% OF DESIGN AIRFLOW.</p> <p>C. ALL EXPOSED ROUND DUCTWORK SHALL BE SPIRAL DUCT. NO JOISTS OR CONNECTIONS SHALL HAVE</p>		
<p>ANY VISIBLE SEALANT FROM THE EXTERIOR SO THE DUCTWORK HAS A CLEAN AND WORKMAN LIKE APPEARANCE.</p> <p>D. DUCT SIZES GIVEN ARE NET INSIDE FREE AREA.</p> <p>E. EQUIPMENT FLEXIBLE DUCTWORK CONNECTION NOT TO EXCEED 10 INCHES IN LENGTH WITH A MAX. 25 FLARE/50 SMOKE INDEX.</p> <p>F. FLEXIBLE DUCTWORK TO AIR DEVICES SHALL HAVE A MAXIMUM STRETCHED LENGTH OF 6 FEET. SUITABLE FOR RETURN AIR PLENUM.</p> <p>G. ALL EXHAUST TERMINALS MUST BE 3'-0" AWAY FROM IN ELEVATION FROM OPERABLE PORTION OF WINDOW AND DOORS. MC TO OFFSET AS REQUIRED.</p> <p>H. ALL DIRECT VENT VENT TERMINALS MUST BE 4'-0" AWAY IN ELEVATION HORIZONTALLY OR BELOW AND ATLEAST 1'-0" ABOVE ANY OPERABLE PORTION OF A WINDOW OR DOOR. MC TO OFFSET AS REQUIRED.</p>		
<p><b>INSULATION</b></p> <p>A. ALL INSULATING VALUES ARE TO CONFORM TO THE LATEST VERSION OF THE INTERNATIONAL ENERGY CODE.</p> <p>B. ALL ROUND CONCEALED RIGID SUPPLY DUCTWORK SHALL BE EXTERNALLY WRAPPED WITH NOMINAL 1-1/2" THICK (MINIMUM R-6.0) FIBER GLASS INSULATION WITH FIRE RETARDANT VAPOR BARRIER.</p> <p>C. OUTDOOR AIR INTAKE DUCTS SHALL BE EXTERNALLY WRAPPED WITH NOMINAL 1-1/2" THICK (MINIMUM R-12.0) FIBER GLASS INSULATION WITH FIRE RETARDANT VAPOR BARRIER.</p> <p>D. WHEN LOCATED IN UNCONDITIONED SPACES ALL RECTANGULAR DUCTWORK SHALL BE LINED WITH 1" THICK 2 POUND DENSITY MINIMUM R-6.0 FIBER GLASS ACOUSTIC DUCT LINER. ALL DUCTWORK EXPOSED TO OUTDOOR AMBIENT TYPE CONDITIONS (UNCONDITIONED ATTICS, OUTSIDE AIR DUCTS, ETC) SHALL BE EXTERNALLY WRAPPED OR INTERNALLY LINED IN 2 - 2.5" NOMINAL INSULATION (MINIMUM R-12.0). ALL OUTDOOR DUCTWORK SHALL HAVE 2 - 2.5" DUCTLINER (MINIMUM R-12.0) AND THE DUCT BE SEALED WEATHERPROOF PER SMACNA GUIDELINES. RECTANGULAR DUCT WORK IN RETURN AIR PLENUM SHALL BE LINED WITH 1/2" THICK 2 POUND DENSITY (MINIMUM R2.1) MAT-LACED ACOUSTIC DUCT LINER.</p>		
<p><b>AIR INLETS AND OUTLETS</b></p> <p>A. FURNISH AND INSTALL ALL AIR INLETS AND OUTLETS AS SCHEDULED ON THE PLANS.</p> <p>B. OUTLETS SHALL HAVE A WHITE BAKED ENAMEL FINISH TO MATCH CEILING OR WALL.</p>		
<p><b>EXHAUST FANS</b></p> <p>A. FURNISH AND INSTALL CENTRIFUGAL EXHAUST FANS AS SCHEDULED ON THE PLANS.</p> <p>B. FURNISH AND INSTALL ROOF CURBS AND BACKDRAFT DAMPERS.</p> <p>C. FURNISH AND INSTALL UNITS COMPLETE WITH ALL OPERATIONAL AND SAFETY CONTROL NECESSARY FOR PROPER OPERATION.</p>		
<p><b>ROOFTOP HVAC UNITS</b></p> <p>A. FURNISH AND INSTALL ROOF TOP PACKAGED ELECTRIC A/C UNITS WITH NATURAL GAS HEATING SECTIONS AS SCHEDULED ON THE PLANS. ACCEPTABLE MANUFACTURERS ARE TRANE, CARRIER, CARRIER, OR YORK. ANY SUBSTITUTED MODELS MUST BE EQUAL IN CONTROLS, ACCESSORIES, AND PERFORMANCE TO SCHEDULED MODELS.</p> <p>B. FURNISH AND INSTALL UNITS COMPLETE WITH ALL OPERATIONAL AND SAFETY CONTROLS FOR SATISFACTORY OPERATION. PROVIDE PHASE REVERSAL PROTECTION ON ANY UNITS WITH SCROLL COMPRESSORS.</p> <p>C. FURNISH PROGRAMMABLE SPACE THERMOSTAT WITH NIGHT SETBACK OPERATION OR DIGITAL CONTROL SYSTEM FOR VAV APPLICATIONS AS APPLICABLE. MOUNT AT 42+INCHES AFF.</p> <p>D. FURNISH ALL UNITS WITH 100% OUTDOOR AIR ECONOMIZER PACKAGE UNLESS OTHERWISE NOTED.</p> <p>E. FURNISH ALL UNITS WITH 14-INCH ROOF CURBS.</p>		
<p><b>RADIANT HEATING UNITS</b></p> <p>A. FURNISH AND INSTALL NATURAL GAS FIRED RADIANT HEATING UNITS AND ASSOCIATED ACCESSORIES AS SCHEDULED ON THE PLANS.</p> <p>B. UNITS SHALL BE COMPLETE WITH PLUGS FOR ELECTRICAL CONNECTION, SPACE THERMOSTATS, TUBE EXTENSIONS, FLUES, AND ROOF CAPS AS REQUIRED. UNITS SHALL BE UL AND ASA RATED.</p>		

SYSTEM OR UNIT #	ROOM NAME	ZONE FLOOR AREA (SQ.FT.) Az	OUTDOOR AIRFLOW REQUIRED PER PERSON (CFM/PERSON) Rp	OUTDOOR AIRFLOW REQUIRED PER PERSON (CFM/ PERSON) Ra	ZONE OCCUPANT DENSITY (PP/L1000 SQ.FT.) Pz	ZONE POPULATION (PEOPLE) Pz	BREATING OUTDOOR AIR FLOW (CFM) Vbz	ZONE AIR DISTRIBUTION EFFECTIVENESS Ez	REQUIRED ZONE OUTDOOR AIR FLOW (CFM) Voz (CFM)
RTU-1	SALES 101	530	0.12	5	15	8	134	0.9	155
	COFFEE 102	75	5	0.06	5	0	5	0.8	5
	OFFICE 103	100	5	0.06	5	1	11	0.8	14
	BREAK 107	114	0.06	5	0.8	1	12	0.8	15
	INVENTORY 108	500		.12 CFM/SQ.FT.					60
								TOTAL OUTSIDE AIR REQUIRED	240
							TOTAL OUTSIDE AIR PROVIDED	300	

[illegible]

PLAN MARK	MFR	MODEL NO.	LOCATION	STYLE	CFM	ESP (IN)	SPD	ELECTRICAL DATA				REMARKS
								VOLT	PH	HP	WATTS	
F-1	DAYTON	2RD29	CEILING/WALL	PROP	7450/3450	.25	1	115	1	1/4	-	1 - 5
1. SELECTION BASED AT ALTITUDE												
2. PROVIDE SOFT START												
3. OSCILLATING FAN												
4. STRUCTURAL AND MOUNTING EQ. PER MANUFACTURER												
5. OSCILLATING FAN: MEANT FOR AIR MOVEMENT ONLY												

PLAN MARK	MFR	MODEL NO.	TOTAL TUBE LENGTH (FT)	ELEC V/PH	ELEC AMP	FUEL	INPUT MBH (ALT)	OUTPUT MBH (ALT)	COM. INLET (IN)	FLUE CONNECTION SIZE (IN)
IR-1	REVERBERAY	HL3-40-175	41'-1"	120/1	5	NG	175	145	4	1-3

1. PERFORMANCE BASED ON LOCAL ALTITUDE.

2. PROVIDE FLUE SIZES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS TO MEET TOTAL LENGTH AND NUMBER OF ELBOW REQUIREMENTS FOR THE INSTALLED LENGTHS.

3. PROVIDE WALL MOUNTED 2 STAGE THERMOSTAT.

PLAN MARK	MFR	MODEL NO.	CFM	MIN OA CFM	BLWR HP	ESP (IN)	GAS NAT/PROP	HEATING CAPACITY				NET COOLING CAPACITY						REFRIG (R410A / R22)	EFFICIENCY (STD / HI)	SEER/EER RATING	WEIGHT LBS	ELECTRICAL DATA		FLA (LG MTR)	MCA	MOCP	REMARKS		
								INPUT MBH (SL)	OUTPUT MBH (ALT)	EAT (F)	LAT (F)	EFF	STG	TOTAL MBH	SENS MBH	EADB (F)	EAWB (F)					LADB (F)	LAWB (F)					VOLT	PH
RTU-1	CARRIER	48GCFM06K1A3	1990	300	2	0.40	NG	130	106	63.3	113.4	81%	2	60.53	46.61	79.3	65.6	57.2	55.7	R-410A	STD	16 SEER	900	208	1	31.3	37	50	1 - 5

1. REFERS TO COOLING CAPACITIES BASED ON 95F OADB, 80F EADB, 61F EAWB @ ELEV, AND 100F CONDENSING TEMPERATURE  
 2. PROVIDE 14" ROOF CURB, BELT DRIVE, HAIL GUARDS, MICROPROCESSOR CONTROL, OPTIONAL ECONOMIZER W/ BARO RELIEF.  
 3. PROVIDE OPTIONAL CONVENIENCE OUTLET  
 4. SEER AND EER RATING ARE RATED AT ARI CONDITIONS AND IN ACCORDANCE WITH DOE TEST PROCEDURES.  
 5. PROVIDE 7-DAY, 24 HOUR PROGRAMMABLE THERMOSTAT.  
 6. PROVIDE DUCT SMOKE DETECTOR AS REQUIRED.

(D)	DEW
(E)	EXISTING
(N)	NEW
AAV	AIR ADMITTANCE VALVE
AD	AREA
AF	ABOVE FINISH FLOOR
AHFU	AIR HANDLING UNIT
B	BOILER
BB	BASEBOARD
BF	BOOSTER FAN
BFP	BACKFLOW PREVENTER
BT	BATH TUB
BD	BALL VALVE
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CO	CLEANOUT
COTG	CLEANOUT TO GRADE
CU	CONDENSING UNIT
CHV	CHECK VALVE
DCW	CABINET UNIT HEATER
DF	DOMESTIC COLD WATER
DH	DRINKING FOUNTAIN
DSH	DOMESTIC HOT WATER
DN	DOWN SPOUT NOZZLE
EC	ELECTRIC CONTRACTOR
EDH	END OF LINE CLEANOUT
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EW	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FURN	FURNACE
FC	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FS	FLOOR SINK
G	GAS
GC	GENERAL CONTRACTOR
GM	GAS METER
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GUM	GAS UNIT HEATER
GW	GREASE WASTE
GWH	GAS WATER HEATER
HB	HOSE BIB
H	HEAT PUMP
HP	HEAT EXCHANGER
IM	ICE MAKER BOX
LA	LAVATORY
LS	LAUNDRY SINK
MAU	MAKE-UP AIR UNIT
MC	MECHANICAL CONTRACTOR
MC	MEASURE FLOW
NC	NOT IN CONTRACT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
ORD	OVER FLOW ROOF DRAIN
P	PUMP
PC	PLUMBING CONTRACTOR
PRV	PRESSURE REDUCING VALVE
RA	RAIN PER SQUARE IN
RAR	RETURN AIR
RA	RETURN AIR REGISTER
RTU	ROOF DRAIN
RTU	RADIANT HEATER
RU	ROOF TOP UNIT
SA	SUPPLY AIR
SA	SUPPLY AIR REGISTER
SF	SUPPLY FAN
SH	SERIES FAN TERMINAL
SH	SHOWER
SK	SINK
SI	SUPPLY AIR INTERCEPTOR
SS	SERVICE SINK
T&P	TEMPERATURE & PRESSURE
TD	TRENCH DRAIN
TY	TYPICAL
UR	URINAL
VAV	VARIABLE AIR VOLUME
VNT	VARI TRAC
WB	WASHER BOX
WCO	WALL CLEANOUT
WH	WALL HYDRANT

	PROVIDE TURNING VANES AT ALL CORNER BENDS IN ACCORDANCE WITH S.M.A.C.N.A. LOW VELOCITY DUCT MANUAL.
	TYPICAL DUCT TAKE-OFF WITH MANUAL VOLUME DAMPER. MARK DAMPER POSITION AFTER AIR BALANCE.
	THERMOSTAT SHALL BE MOUNTED PER OWNER'S DIRECTION. DO NOT MOUNT IN DIRECT SUNLIGHT. THERMOSTAT SHALL BE MOUNTED NEAR RETURN AIR DUCT AT 48" AFF.
	MANUAL BALANCING DAMPER - PROVIDE WHERE SHOWN, AT ALL RUN-OUTS TO AIR OUTLETS, AND AT ALL MAIN DUCT SPLITS. DAMPERS SHALL BE "YOUNG REGULATOR CO" MODEL 820 OR EQUAL.
	POINT OF CONNECTION - NEW TO EXISTING
	INDICATES UNDERCUT DOOR FOR RETURN AIR
	SUPPLY UP
	SUPPLY DOWN
	RETURN UP
	RETURN DOWN
	EXHAUST UP
	EXHAUST DN
	FLEXIBLE DUCT
	DEMO
	MANUAL VOLUME DAMPER
	CEILING SUPPLY DIFFUSERS SEE SCHEDULES
	CEILING RETURN AIR REGISTER SEE SCHEDULES
	SIDEWALL SUPPLY/RETURN REGISTER, SEE SCHEDULES
	FIRE DAMPER
	SMOKE DAMPER
	FIRE SMOKE DAMPER
	EQUIPMENT TAG
	(POC) POINT OF CONNECTION
	ROOFTOP UNIT
	FURNACE
	CONDENSING UNIT
	PARALLEL FAN POWERED VAV BOX
	VAV/WT BOX

JURISDICTION:	LINCOLN, NE
MECHANICAL CODE:	2018 IMC
ENERGY CODE:	2015 IECC
LOCAL ADDENDUMS:	YES
WINTER DESIGN DB:	-8 F
SUMMER DESIGN TEMP DB / WB	94/75 F
INDOOR HEATING SET POINT:	72 F
INDOOR COOLING SET POINT:	75 F
ROOF R-VALUE:	R40 (VERIFY)
WALL R-VALUE:	R19
ELEVATION:	597 FT
BUILDING TOTAL AREA:	4897 SQ.FT.

SHEET #	SHEET TITLE
M0.1	MECHANICAL SPECS, SCHEDULES AND LEGEND
M0.2	SEQUENCE OF OPERATION
M1.1	MECHANICAL PLAN
M1.2	MECHANICAL ROOF PLAN
M2.1	MECHANICAL DETAILS
M3.0	MECHANICAL COMCHECK
M3.1	MECHANICAL COMCHECK

THE MECHANICAL CONTRACTOR SHALL EMPLOY THE SERVICES OF AN INDEPENDENT TEST AND BALANCE CONTRACTOR TO BALANCE THE HVAC SYSTEMS IN ACCORDANCE WITH THE DRAWINGS.

HVAC SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH THE LATEST NEBB PROCEDURAL STANDARDS. THE BALANCING CONTRACTOR SHALL HAVE AT LEAST (3) THREE YEARS OF EXPERIENCE IN TESTING AND BALANCING.

THE BALANCING CONTRACTOR SHALL CONTAIN ALL INFORMATION REQUIRED BY NEBB PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING. THE REPORT SHALL INCLUDE, BUT MAY NOT BE LIMITED TO THE FOLLOWING:

A COMPLETE LIST OF BALANCING INSTRUMENTS AND THEIR LATEST CALIBRATION DATES IS TO BE INCLUDED IN THE FINAL REPORT

BLOWER: MOTOR HP, VOLTAGE, AMPERAGE (NAMEPLATE AND ACTUAL) RPM, BELT MAKE/MODEL, SHEAVE MAKE/MODEL.

UNIT: MAKE/MODEL/SERIAL NUMBER, FILTER TYPE/SIZE/QUANTITY, FINAL BALANCED DAMPER POSITIONS.

AIR INLETS AND OUTLETS: DESIGN/PRELIMINARY/FINAL CFM'S (EXCLUDES RETURN GRILLES).

ALL MANUAL SINGLE BLADE DAMPERS SHALL BE SECURED IN THEIR FINAL BALANCED POSITIONS WITH A SHEET METAL SCREW THRU THE DAMPER HANDLE.

ALL COMPONENTS SHALL BE BALANCED TO WITHIN  $\pm 10\%$  OF DESIGN CFM REQUIREMENTS.

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LINCOLN, NEBRASKA



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REVIEW

ARCODEV JOB #:

DRAWN BY: JF

DATE OF ISSUE: 02/08/2018

11/11/2016

THE **ALCOVE** **WEEKLY**

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VOICE: 303.881-8925

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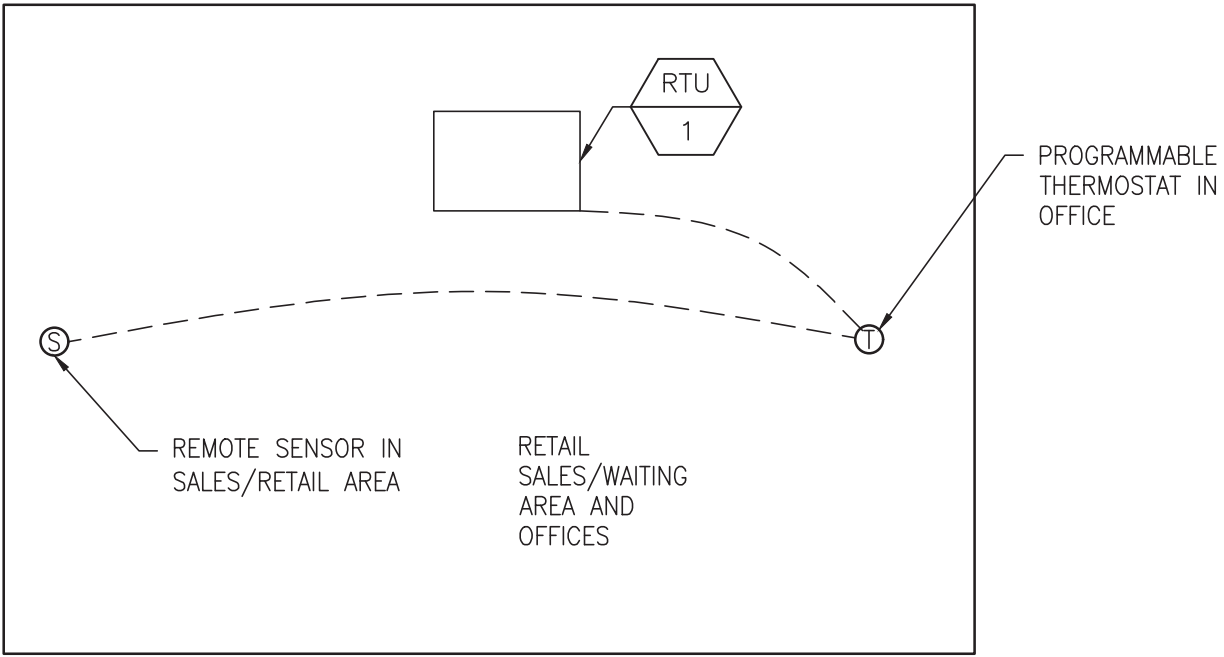
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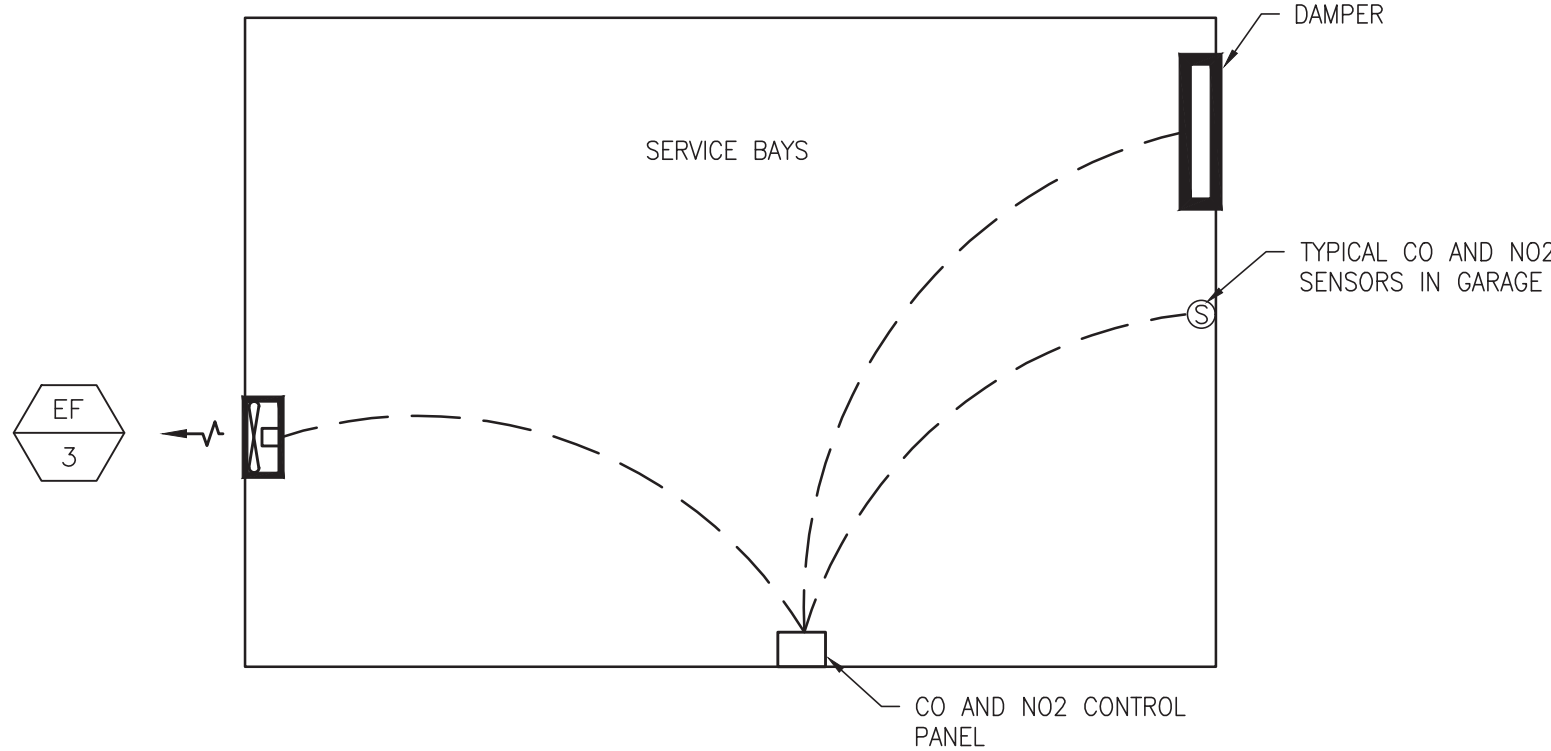
MECHANICAL SPECS

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OFFICE/RETAIL SALES ROOFTOP UNIT  
NOT TO SCALE



SEQUENCE OF OPERATION FOR SERVICE BAYS:

EF--3 SHALL REMAIN OFF AND L--1 SHALL REMAIN CLOSED UNLESS A CALL FOR CARBON MONOXIDE OR NITROGEN DIOXIDE VENTING IS INITIATED.

VENTILATION SHALL BE INITIATED ACCORDING TO THE FOLLOWING SCHEDULE:

STAGE 1: LOW ALARM (25 PPM CO) (0.5 PPM NO2), MOTORIZED DAMPER FOR INTAKE LOUVER SHALL OPEN.

STAGE 2: MEDIUM ALARM (75 PPM CO) (1 PPM NO2), MOTORIZED DAMPER SHALL BE FULLY OPEN AND EXHAUST FAN SHALL BE ENERGIZED.

THE FAN SHALL OPERATE WHEN CARBON MONOXIDE LEVELS FALL BELOW 25 PPM OR NITROGEN DIOXIDE LEVELS FALL BELOW 0.5 PPM. EF SHALL TIME OFF AND L--1 SHALL CLOSE.

GARAGE TRANSFER FANS SHALL REMAIN ON CONSTANT DUTY.

- GARAGE GAS DETECTION SPECIFICATIONS
- A. THE GARAGE GAS DETECTION SYSTEM SHALL HAVE A DEDICATED MICROPROCESSOR-BASED CONTROLLER THAT SHALL MONITOR AND CONTROL THE GARAGE GAS DETECTION SYSTEM IN A STAND-ALONE MODE OR AS A PART OF THE BUILDING AUTOMATION SYSTEM. THE CONTROLLER SHALL HAVE A LOCAL DISPLAY.
  - B. THE SYSTEM SHALL CONSIST OF EXHAUST FANS, NATURAL MAKEUP AIR AND MULTIPLE GAS DETECTION SENSORS LOCATED PER SUPPLIER REQUIREMENTS AND RECOMMENDATIONS. THE PLANS ARE ONLY A GUIDE, ALL REQUIRED SENSOR LOCATIONS SHALL BE INCLUDED IN THE BID.
  - C. THE SENSORS SHALL BE ONE OF THE FOLLOWING TYPES:
    - 1. MACURCO CM21A
    - 2. VULCAIN Q2
    - 3. VERIS G SERIES
    - 4. MSA Z GUARDEACH SENSOR SHALL HAVE AN INTEGRAL ALARM LIGHT FOR 25, 50 AND 200 PPM CO AS A MINIMUM. AS AN ALTERNATE, A SERIES OF LIGHTS SHALL BE MOUNTED AT EACH SENSOR FOR THIS PURPOSE.
  - D. THE CONTROLLER SHALL MONITOR THE FAN STATUS AND IF THE FAN FAILS TO START AN AUDIBLE ALARM SHALL BE SOUNDED IN THE GARAGE TO ANNUNCIATE THE FAILURE. THE FAILURE SHALL AUTOMATICALLY RESET WHEN FAN STATUS IS ESTABLISHED.
  - E. THE SYSTEM SHALL MONITOR ALL OF THE GAS DETECTION SENSORS IN THE GARAGE AND DETERMINE THE MAXIMUM VALUE OF ALL OF THE SENSORS. IF THE MAXIMUM VALUE EXCEEDS THE MINIMUM SETPOINT (THRESHOLD 1) (ADJ.) THE EXHAUST FANS SHALL OPERATE. WHEN THE MAXIMUM VALUE DROPS BELOW 80% OF MINIMUM SETPOINT (THRESHOLD 1) (ADJ.) THE FAN SHALL BE DISABLED. SYSTEM TO EXHAUST A MINIMUM OF 0.75 CFM/SQFT AT HIGH SPEED.
  - F. IF ANY SENSOR FAILS THE FAN SHALL OPERATE CONTINUOUSLY AND THE AUDIBLE ALARM SHALL BE SOUNDED. IF ANY SENSOR READING RISES ABOVE 200 PPM CO OR 2.0 PPM NO2, THE AUDIBLE ALARM SHALL BE SOUNDED.
  - G. POINTS LIST:
    - 1. AIP CARBON MONOXIDE SENSORS (AS REQUIRED)
    - 2. AIP NITROGEN DIOXIDE SENSORS (AS REQUIRED)
    - 3. AOP FAN ANALOG SPEED REQUEST
    - 4. BIP FAN STATUS
    - 5. BOP ALARM LIGHT, HORN WITH SILENCE BUTTON
    - 6. ALM FAN FAILURE
    - 7. STPT FAN ENABLE LEVEL
    - 8. STPT FAN DISABLE LEVEL
- END

SERVICE BAY EXHAUST FAN / INTAKE LOUVER  
NOT TO SCALE

PROJ # 251083

ADAM A. POWELL , P.E.  
PEC Enterprises, Inc.  
14412 Alene Ct. NE  
Albuquerque, NM 87123  
Telephone 720-409-2454

BRAKES PLUS  
LINCOLN, NEBRASKA

02/08/25

ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	02/08/25	PERMIT

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CLIENT JOB #:  
DRAWN BY: JRC  
CHECKED BY: LRP  
DATE OF ISSUE: 02/08/25

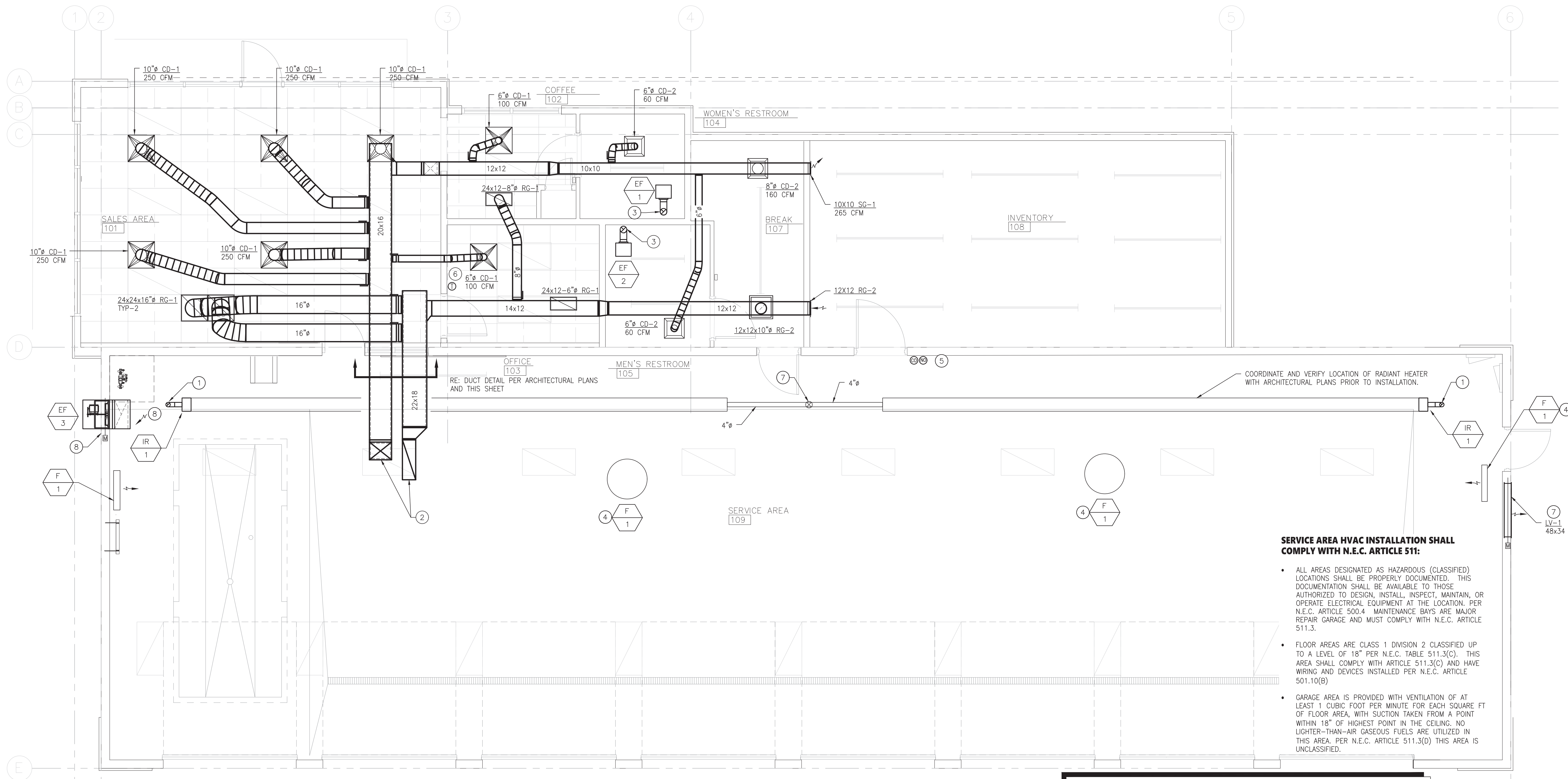
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LITTLETON, CO 80123  
VOICE: 303.881.8925

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MO.2

MECHANICAL SEQUENCE  
OF OPERATIONS





**SERVICE AREA HVAC INSTALLATION SHALL COMPLY WITH N.E.C. ARTICLE 511:**

- ALL AREAS DESIGNATED AS HAZARDOUS (CLASSIFIED) LOCATIONS SHALL BE PROPERLY DOCUMENTED. THIS DOCUMENTATION SHALL BE AVAILABLE TO THOSE AUTHORIZED TO DESIGN, INSTALL, INSPECT, MAINTAIN, OR OPERATE ELECTRICAL EQUIPMENT AT THE LOCATION. PER N.E.C. ARTICLE 500.4 MAINTENANCE BAYS ARE MAJOR REPAIR GARAGE AND MUST COMPLY WITH N.E.C. ARTICLE 511.3.
- FLOOR AREAS ARE CLASS 1 DIVISION 2 CLASSIFIED UP TO A LEVEL OF 18" PER N.E.C. TABLE 511.3(C). THIS AREA SHALL COMPLY WITH ARTICLE 511.3(C) AND HAVE WIRING AND DEVICES INSTALLED PER N.E.C. ARTICLE 501.10(B).
- GARAGE AREA IS PROVIDED WITH VENTILATION OF AT LEAST 1 CUBIC FOOT PER MINUTE FOR EACH SQUARE FT OF FLOOR AREA, WITH SUCTION TAKEN FROM A POINT WITHIN 18" OF HIGHEST POINT IN THE CEILING. NO LIGHTER-THAN-AIR GASEOUS FUELS ARE UTILIZED IN THIS AREA. PER N.E.C. ARTICLE 511.3(D) THIS AREA IS UNCLASSIFIED.

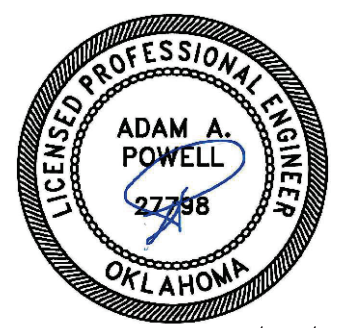
#### DRAWING NOTES:

- FLUE/COMBUSTION AIR INTAKE UP THRU ROOF, PROVIDE WITH MANUFACTURER APPROVED INTAKE CAP TERMINATION.
- FULL SIZE SA/RA DUCT DOWN FROM RTU. PROVIDE TRANSITIONS AS REQUIRED TO ACCOMMODATE DUCT SIZE AS INDICATED. PROVIDE FLEXIBLE CONNECTIONS AS REQUIRED.
- EXHAUST DUCT UP THRU ROOF TO APPROVED CAP OR GOOSENECK TERMINATION. SIZE AS INDICATED
- FANS SHALL BE EITHER WALL OR CEILING MOUNTED AT 10'-0" AFF. REFERENCE ARCHITECTURAL PLANS FOR FINAL LOCATION. COORDINATE WITH OTHER HVAC/SHOP EQUIPMENT. SEE OWNER FOR EXACT LOCATION.
- CONTROL WIRE FROM CO/NOX SENSORS BACK TO DETECTION SYSTEMS CONTROL PANEL. LOCATE AND INSTALL THE SENSORS BASED ON MANUFACTURERS INSTALLATION INSTRUCTIONS. COORDINATE FINAL LOCATION FOR CONTROL PANEL(S). PROVIDE 7-DAY, 24 HOUR PROGRAMMABLE THERMOSTAT WITH SPACE SENSOR. THERMOSTAT AND SENSOR LOCATIONS ON WALL TO BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.
- PROVIDE 7-DAY PROGRAMMABLE T-STAT WITH SPACE SENSOR. BOTH SENSOR AND THERMOSTAT LOCATION SHALL BE COORDINATED WITH BUILDING OWNER.
- COORDINATE EXTERIOR WALL LOUVER AND EXHAUST FAN WALL OPENING SIZES AND LOCATIONS PER ARCHITECTURAL PLANS FOR EXACT LOCATION AND ELEVATION.
- PROVIDE 30x12 EXHAUST DUCT FROM EF-3, ROUTE UP INTERIOR WALL TO MIN. 18" BELOW STRUCTURE. PROVIDE HARDWARE MESH SCREEN AT OPENING. COORDINATE OPENINGS W/ ARCH PLANS AND OWNER.
- GAS METER. SIZING BASED ON 150'-0" AT 2 PSI GAS PRESSURE. TOTAL CONNECTED GAS LOAD = 480 MBH. CONFIRM GAS PRESSURE WITH LOCAL GAS COMPANY SERVICE.
- 3/4"G UP THRU ROOF FOR RTU-1, 150 MBH
- TERMINATE W/ SHUT-OFF VALVE, PRV AND DIRT LEG. PRV SHALL BE CAPABLE OF REDUCING FROM 2 PSI GAS TO 6"W.C. AT MBH AS INDICATED. PROVIDE VENTLESS REGULATOR IS LOCAL AHJ ALLOWS. IF NOT, VENT SHALL EXIT TO ATMOSPHERE.

PROJ # 251083

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Albuquerque, NM 87123  
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**BRAKES PLUS**  
LINCOLN, NEBRASKA



02/08/25

ARCHITECT OF RECORD

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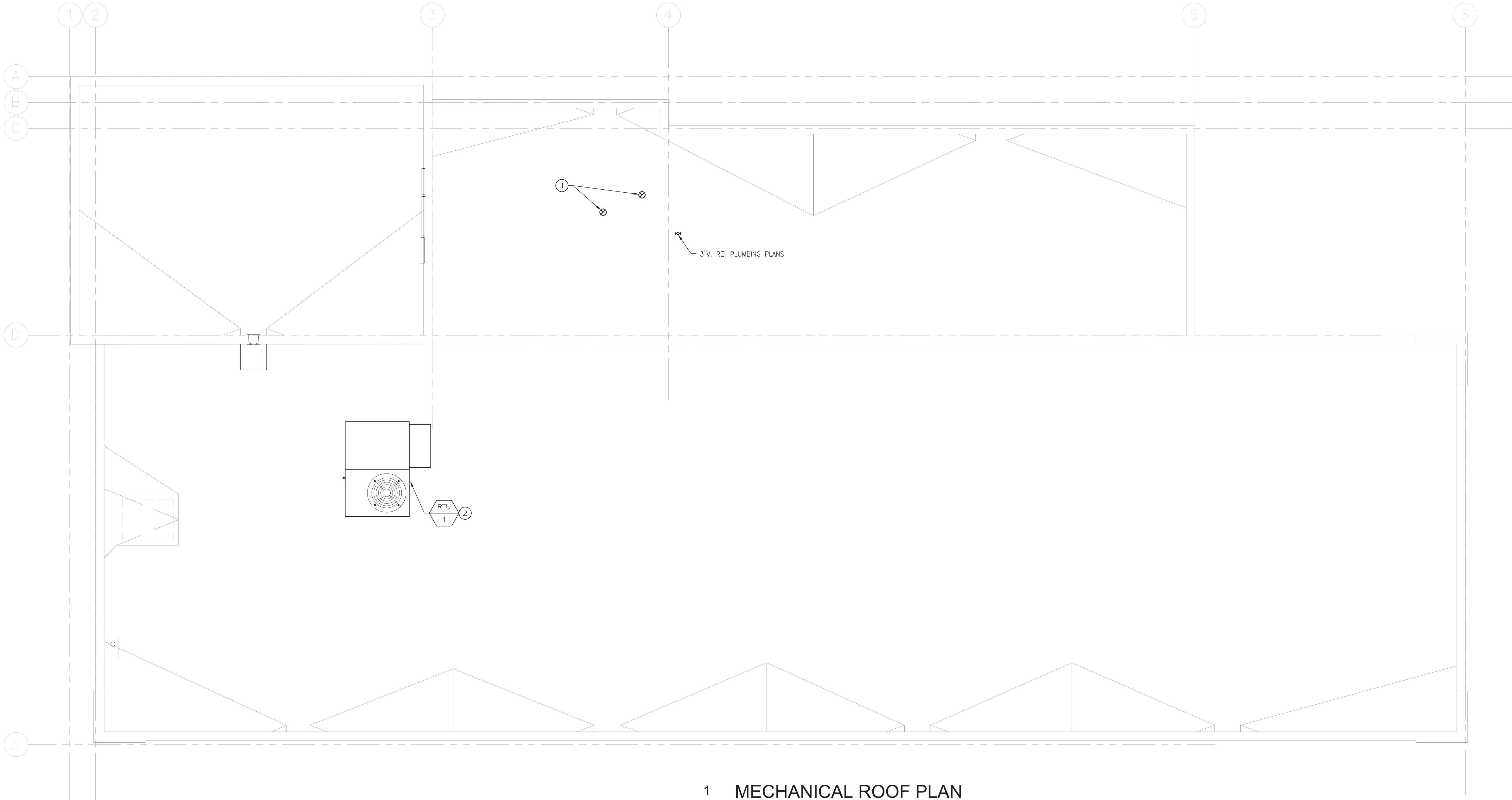
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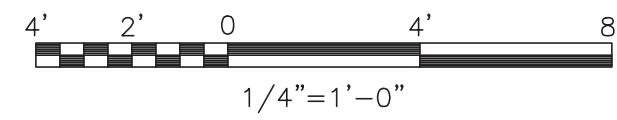
**M1.1**  
MECHANICAL PLAN





1 MECHANICAL ROOF PLAN

M1.2



DRAWING NOTES:

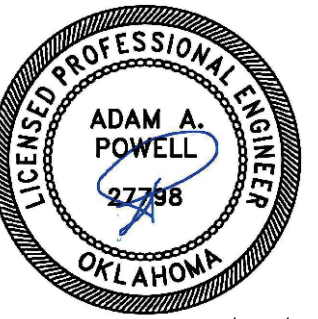
- ① EXHAUST DUCT FROM RESTROOM BELOW. TERMINATE WITH APPROVED CAP.  
② NEW ROOFTOP UNIT: MAINTAIN 10'-0" FROM OUTSIDE AIR INTAKE.

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BRAKES PLUS

LINCOLN, NEBRASKA



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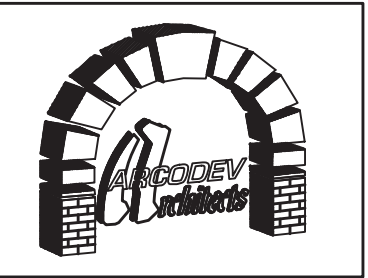
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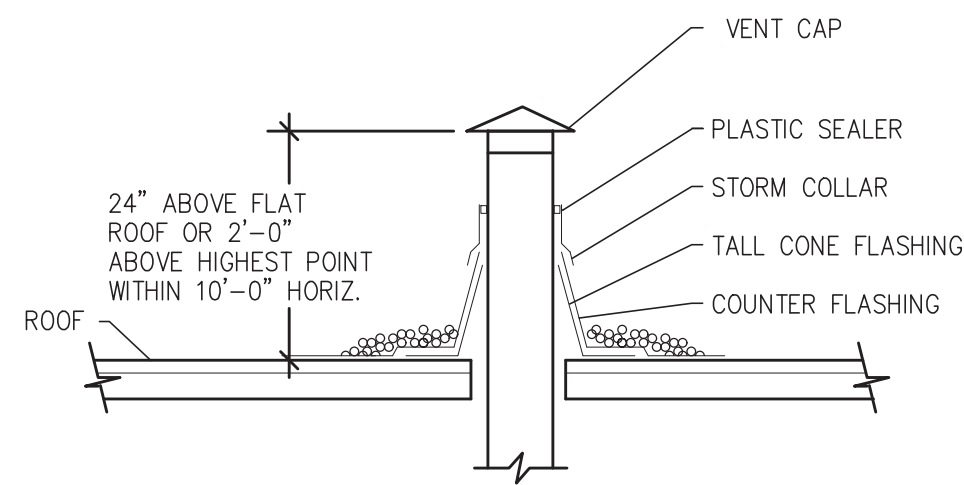
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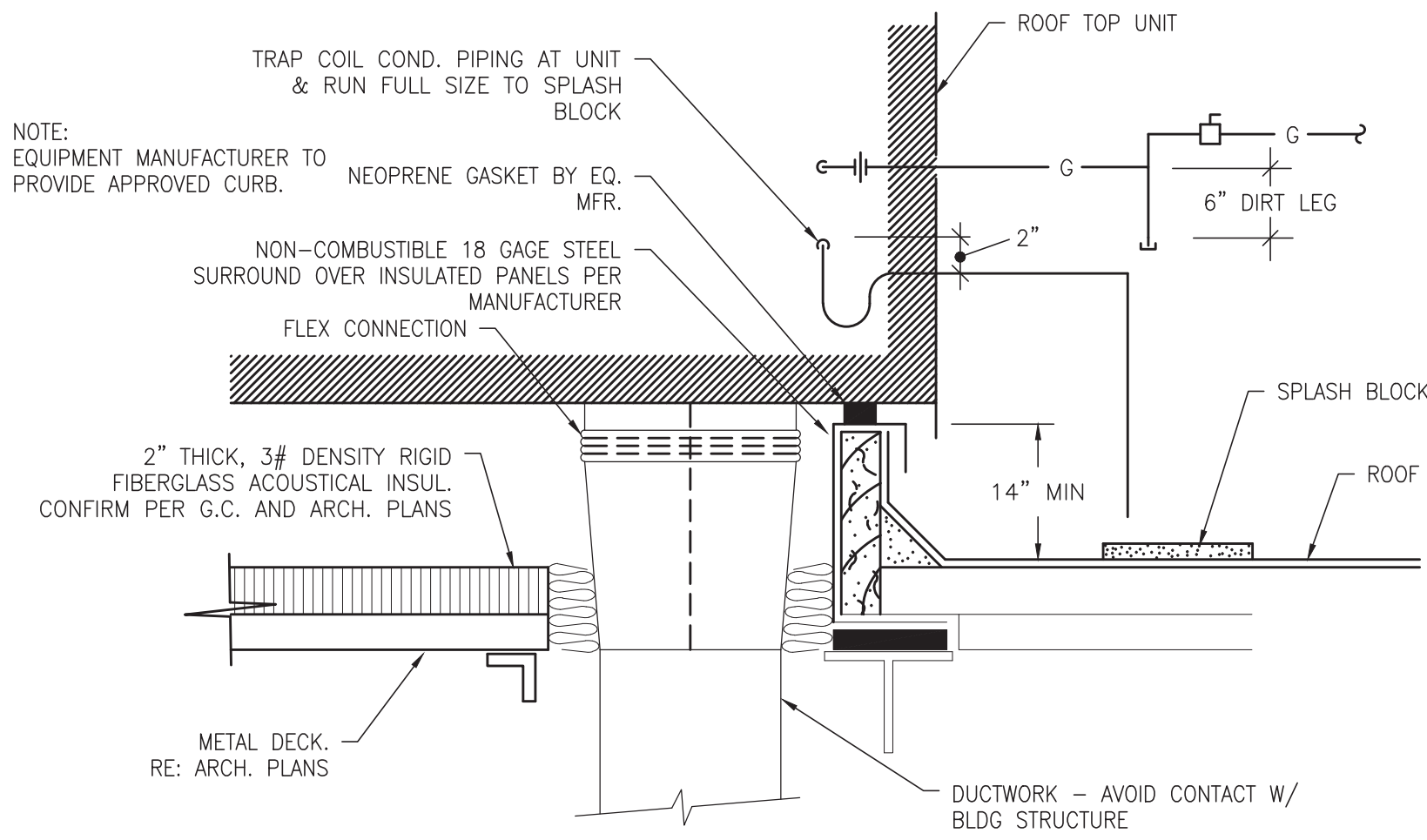
M1.2

MECHANICAL ROOF PLAN

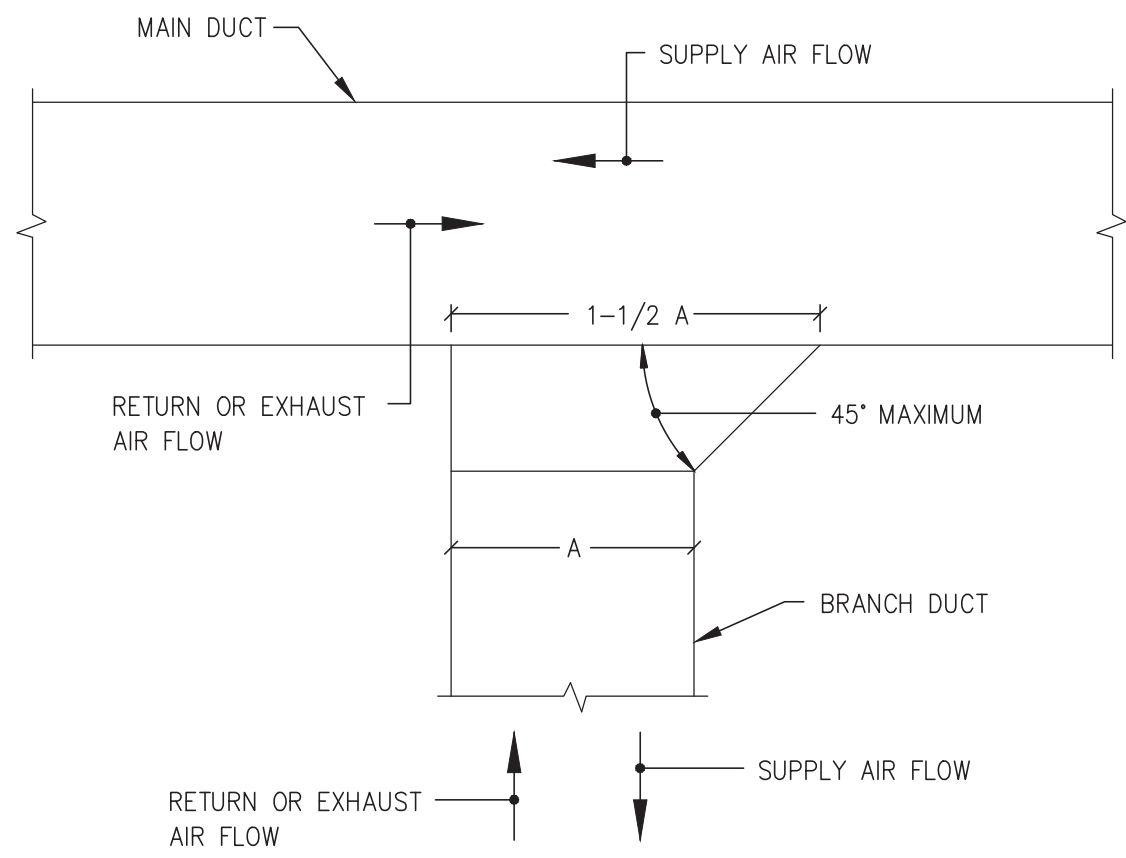




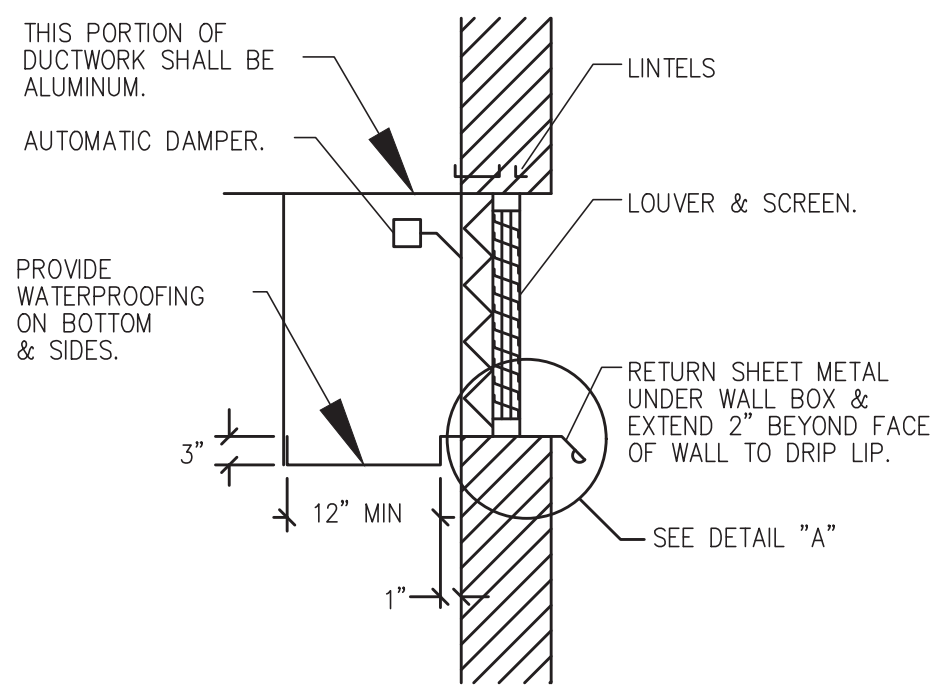
EXHAUST FAN DUCT THRU ROOF DETAIL  
NOT TO SCALE



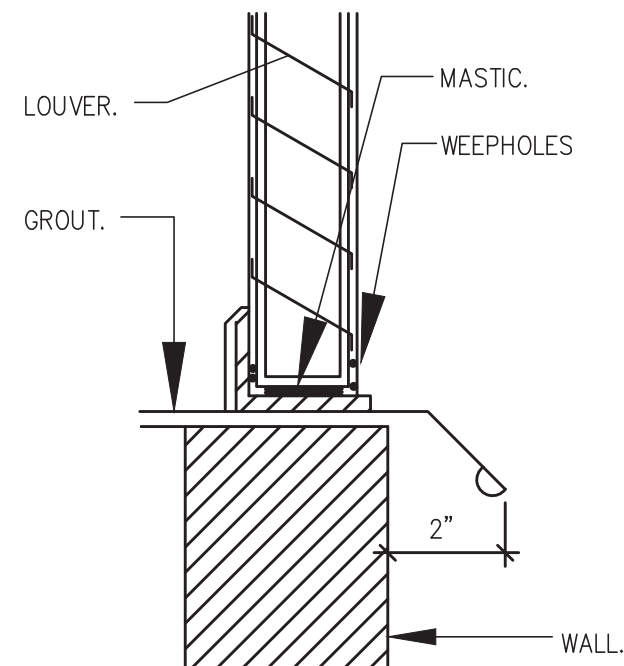
ROOFTOP UNIT INSTALLATION DETAIL  
NOT TO SCALE



DUCT TAKE-OFF DETAIL  
NOT TO SCALE

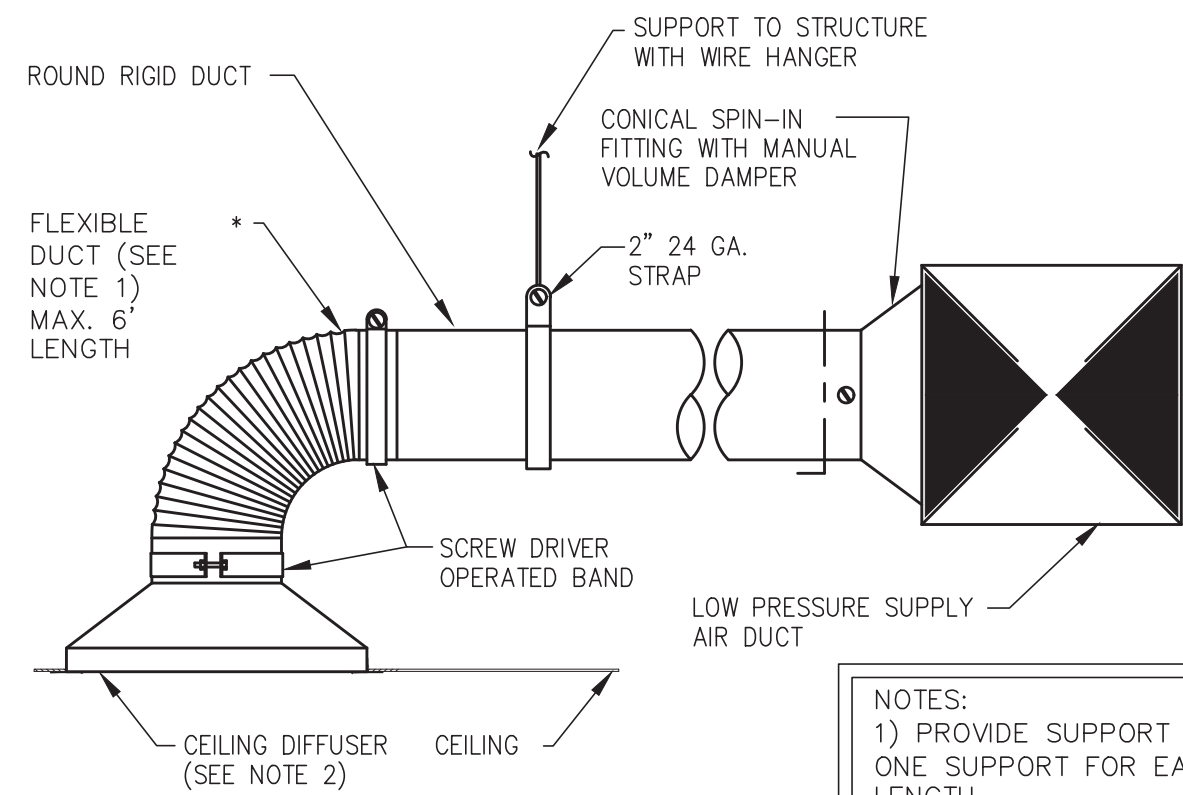


NOTE:  
REFER TO MFR'S INSTURCTIONS  
FOR SPECIFIC MOUNTING DETAILS.  
COORDINATE WITH  
ARCHITECTURAL REQUIREMENTS.



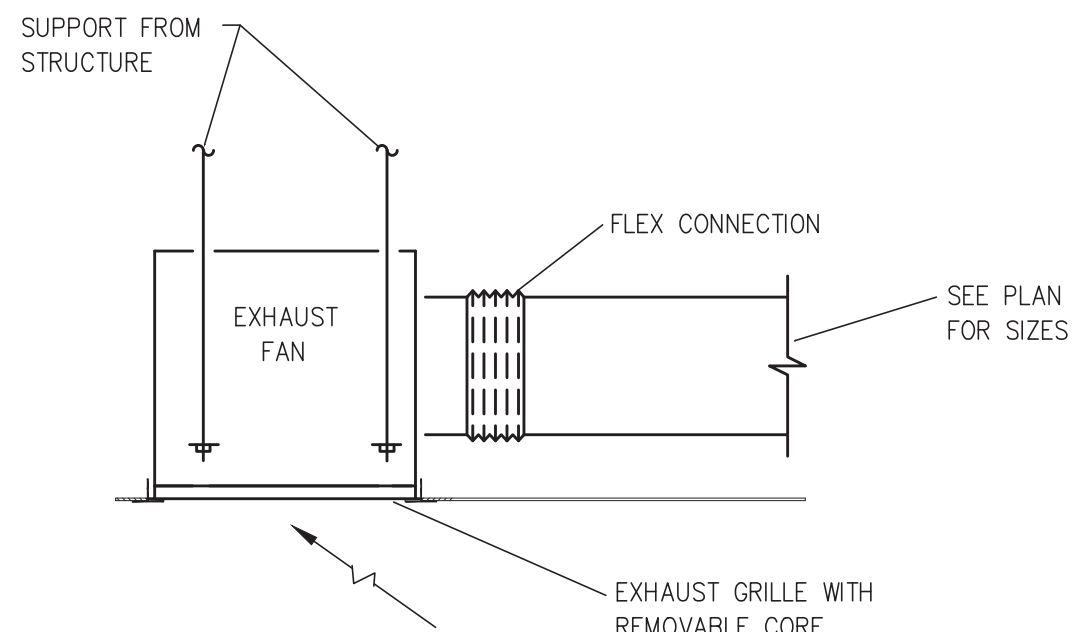
DETAIL A  
NOT TO SCALE

WATERTIGHT LOUVER CONNECTION DETAIL  
NOT TO SCALE



NOTES:  
1) PROVIDE SUPPORT MINIMUM OF  
ONE SUPPORT FOR EACH 3'-0" OF  
LENGTH  
2) SUPPORT DIFFUSER  
INDEPENDENT FROM DUCTWORK  
WITH WIRE HANGERS WHEN  
REQUIRED BY LOCAL CODE.

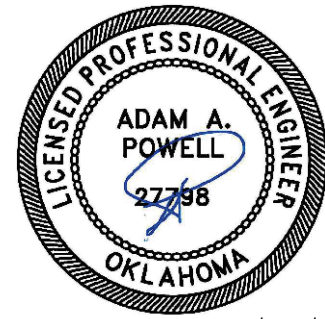
AIR DEVICE DETAIL  
NOT TO SCALE



CEILING EXHAUST FAN DETAIL  
NOT TO SCALE

BRAKES PLUS

LINCOLN, NEBRASKA



02/08/25

ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	02/08/25	PERMIT

ARCODEV JOB #:

CLIENT JOB #:

DRAWN BY: JRC

CHECKED BY: LRP

DATE OF ISSUE: 02/08/25



45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881.1825

SHEET

M2.1

MECHANICAL DETAILS

PROJ # 251083

ADAM A. POWELL, P.E.  
PEC Enterprises, Inc.  
14412 Alene Ct. NE  
Albuquerque, NM 87123  
Telephone 720-409-2454



Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C402.2.6 [FO12] <sup>1</sup>	Radiant heating systems panels insulated to >=R-3.5 on face opposite space being heated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C403.2.4.5, C403.2.4.6 [FO9] <sup>1</sup>	Snow/ice melting system sensors for future connection to controls. Freeze protection systems have automatic controls installed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Brakes Plus Report date: 02/08/25  
Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engrfile\Mech calcs\BRAKES - lincoln ne.cck Page 3 of 10

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.7 [PL8] <sup>1</sup>	Water distribution system that pumps water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe is a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Brakes Plus Report date: 02/08/25  
Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engrfile\Mech calcs\BRAKES - lincoln ne.cck Page 5 of 10



COMcheck Software Version 4.1.5.5

## Inspection Checklist

Energy Code: 2015 IECC

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C103.2 [PR3] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C406 [PR9] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Brakes Plus Report date: 02/08/25  
Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engrfile\Mech calcs\BRAKES - lincoln ne.cck Page 2 of 10

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6] <sup>1</sup>	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.5, C404.5.1, C404.5.2 [PL6] <sup>1</sup>	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.5, C404.5.1, C404.5.2 [PL6] <sup>1</sup>	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.6.1, C404.6.2 [PL3] <sup>1</sup>	Automatic time switches installed to automatically switch off the recirculating hot-water system or heat trace.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.6.3 [PL7] <sup>1</sup>	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.6.3 [PL7] <sup>1</sup>	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.6.3 [PL7] <sup>1</sup>	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.7 [PL8] <sup>1</sup>	Water distribution system that pumps water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe is a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.7 [PL8] <sup>1</sup>	Water distribution system that pumps water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe is a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Brakes Plus Report date: 02/08/25  
Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engrfile\Mech calcs\BRAKES - lincoln ne.cck Page 4 of 10



COMcheck Software Version 4.1.5.5

## Mechanical Compliance Certificate

### Project Information

Energy Code: 2015 IECC  
Project Title: Brakes Plus  
Location: Lincoln, Nebraska  
Climate Zone: 5a  
Project Type: New Construction

Construction Site: LINCOLN, NE  
Owner/Agent: Brakes Plus

Designer/Contractor:  
Loren Priest  
EE LLC Engineering  
12005 Antelope Trail  
Parker, CO 80138  
3037481189  
loren@eeparker.com

### Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed  
Reduced Lighting Power, 1.0 credit

### Mechanical Systems List

#### Quantity System Type & Description

- RTU-1 (Single Zone):  
Heating: 1 each - Duct Furnace, Gas, Capacity = 130 kBtu/h  
Proposed Efficiency = 80.00% Eo, Required Efficiency: 80.00 % Eo  
Cooling: 1 each - Single Package DX Unit, Capacity = 90 kBtu/h, Air-Cooled Condenser, Air Economizer  
Proposed Efficiency = 14.00 EER, Required Efficiency: 11.00 EER + 12.6 IEER  
Fan System: RTU-1 -- Compliance (Motor nameplate HP method): Passes  
  
Fans:  
RTU1 Supply, Constant Volume, 1990 CFM, 2.0 motor nameplate hp, 0.0 fan efficiency grade
- IRH-1 (Single Zone):  
Heating: 1 each - Radiant Heater, Gas, Capacity = 175 kBtu/h  
No minimum efficiency requirement applies  
Fan System: None
- EWH-1:  
Electric Storage Water Heater, Capacity: 30 gallons w/ Circulation Pump  
Proposed Efficiency: 1.20 SL, %/h (if > 12 kW), Required Efficiency: 1.20 SL, %/h (if > 12 kW)

### Mechanical Compliance Statement

**Compliance Statement:** The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

Project Title: Brakes Plus Report date: 02/08/25  
Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engrfile\Mech calcs\BRAKES - lincoln ne.cck Page 1 of 10

BRAKES PLUS

LINCOLN, NEBRASKA



02/08/25

ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	02/08/25	PERMIT

ARCODEV JOB #: \_\_\_\_\_

CLIENT JOB #: \_\_\_\_\_

DRAWN BY: JRC

CHECKED BY: LRP

DATE OF ISSUE: 02/08/25



45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881.1825

SHEET

M3.0

MECHANICAL COMCHECK

PROJ # 251083

ADAM A. POWELL, P.E.

PEC Enterprises, Inc.  
14412 Alene Ct. NE  
Albuquerque, NM 87123  
Telephone 720-409-2454



Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [F18]¹	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.2 [F127]¹	HVAC systems and equipment capacity does not exceed calculated loads.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.4.1 [F147]¹	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.4.1 [F147]¹	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.4.1.2 [F138]¹	Thermostatic controls have a 5 °F deadband.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.4.1.3 [F120]¹	Temperature controls have setpoint overlap restrictions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.4.2 [F139]¹	Each zone equipped with setback controls using automatic time clock or programmable control system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.4.2.1, C403.2.4.2.2 [F140]¹	Automatic Controls: Setback to 55°F (heat) and 85°F (cool), 7-day clock, 2-hour occupant override, 10-hour backup	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.4.2.3 [F141]¹	Systems include optimum start controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.3 [F111]¹	Heat traps installed on supply and discharge piping of non-circulating systems.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.4 [F125]¹	All piping insulated in accordance with section details and Table C403.2.10.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C404.6.1 [F112]¹	Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank. System return pipe is a dedicated return pipe or a cold water supply pipe.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

1 | High Impact (Tier 1)

2 | Medium impact (Tier 2)

3 | Low impact (Tier 3)

Project Title: Brakes PlusReport date: 02/08/25Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engnfile\Mech calcs\BRAKES - lincoln ne.ckkPage 8 of 10

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.9.1.3 [ME11]¹	Ductwork operating >3 in. water column requires air leakage testing.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.9.1.3 [ME11]¹	Ductwork operating >3 in. water column requires air leakage testing.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.3 [ME62]¹	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.4.4.6 [ME110]¹	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
C403.4.4.6 [ME110]¹	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
C408.2.2.1 [ME53]¹	Air outlets and zone terminal devices have means for air balancing.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.5.1, C403.5.2 [ME123]¹	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.3.1 and refrigeration compressor systems that comply with C403.5.2..	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

1 | High Impact (Tier 1)

2 | Medium impact (Tier 2)

3 | Low Impact (Tier 3)

Project Title: Brakes PlusReport date: 02/08/25Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engnfile\Mech calcs\BRAKES - lincoln ne.ckkPage 7 of 10

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41]¹	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.12.1 [ME65]¹	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
C403.2.12.3 [ME117]¹	Fans have efficiency grade (FEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of the fan.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.13 [ME71]¹	Unenclosed spaces that are heated use only radiant heat.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.3 [ME55]¹	HVAC equipment efficiency verified.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
C403.2.4 [ME113]¹	Fault detection and diagnostics installed with air-cooled unitary DX units having economizers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.6.1 [ME59]¹	Demand control ventilation provided for spaces >500 ft2 and >25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.6.2 [ME115]¹	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.7 [ME57]¹	Exhaust air energy recovery on systems meeting Table C403.2.7(1) and C403.2.7(2).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.8 [ME116]¹	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.9 [ME60]¹	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation inspection.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.9 [ME10]¹	Ducts and plenums sealed based on static pressure and location.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

1 | High Impact (Tier 1)

2 | Medium Impact (Tier 2)

3 | Low Impact (Tier 3)

Project Title: Brakes PlusReport date: 02/08/25Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engnfile\Mech calcs\BRAKES - lincoln ne.ckkPage 6 of 10

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.1 [F128]¹	Commissioning plan developed by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.3.1 [F131]¹	HVAC equipment has been tested to ensure proper operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.3.2 [F110]¹	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.3.3 [F132]¹	Economizers have been tested to ensure proper operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.4 [F129]¹	Preliminary commissioning report completed and certified by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.5.1 [F17]¹	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.5.3 [F143]¹	An air and/or hydronic system balancing report is provided for HVAC systems.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.5.4 [F130]¹	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

1 | High Impact (Tier 1)

2 | Medium impact (Tier 2)

3 | Low Impact (Tier 3)

Project Title: Brakes PlusReport date: 02/08/25Data filename: G:\251083 - Brakes - Lincoln, NE-UL-IRH\Engnfile\Mech calcs\BRAKES - lincoln ne.ckkPage 9 of 10

PROJ # 251083

ADAM A. POWELL , P.E.  
PEC Enterprises, Inc.  
14412 Alene Ct. NE  
Albuquerque, NM 87123  
Telephone 720-409-2454

REVISION

DATE

COMMENTS

PERMIT


ARCODEV JOB #:

CLIENT JOB #:

DRAWN BY: JRC

CHECKED BY: LRP

DATE OF ISSUE: 02/08/25



45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881.1825

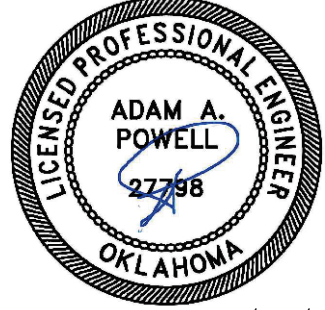
SHEET

M3.1

MECHANICAL COMCHECK

BRAKES PLUS

LINCOLN, NEBRASKA



02/08/25

ARCHITECT OF RECORD

ARCODEV



PLUMBING GENERAL NOTES AND SPECIFICATIONS		
<p><b>GENERAL CONSTRUCTION NOTES:</b></p> <p>1. DRAWINGS ARE MEANT TO SHOW INTENT ONLY, NOT EXACT DETAIL. THESE DRAWINGS ARE A "BUILDERS SET" AND INTENDED FOR THE USE ON AN EXPERIENCED AND WELL QUALIFIED CONTRACTOR WHO MAY INFER REASONABLE INFORMATION BASED ON EXPERIENCE COMMON IN THE INDUSTRY AND TRADES. QUALITY LEVEL IS A REQUIRED STANDARD. DO NOT SCALE DRAWINGS. FIELD VERIFY ALL CONDITIONS OF WORK AND REPORT ANY DISCREPANCIES TO THE ARCHITECT/ENGINEER FOR CLARIFICATIONS BEFORE STARTING ANY WORK. CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL ERRORS IN HIS WORK, INCLUDING THE LACK OF FIELD VERIFICATION OF EXISTING CONDITIONS.</p> <p>2. THE ARCHITECT AND PROFESSIONAL CONSULTANTS WILL NOT HAVE CONTROL OF AND WILL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, OR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK ON THIS PROJECT OR FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK ON THIS SITE, NOR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE INTENT OF THE CONTRACT AND OR THESE CONSTRUCTION DOCUMENTS.</p> <p><b>BASIC REQUIREMENTS:</b></p> <p>PLUMBING DESIGN SHALL CONFORM TO THE 2018 INTERNATIONAL PLUMBING CODE. PROJECT SHALL BE COORDINATED WITH THE EXISTING BUILDING SERVICES AND SHALL INCLUDE ALL ITEMS NECESSARY FOR COMPLETE AND FULLY OPERATIONAL TENANT PLUMBING SYSTEMS. MAKE CONNECTIONS TO AND EXTEND SYSTEMS INSTALLED BY OTHERS AND/OR FURNISHED BY OTHERS. PROVIDE ACCESSORIES AND INCIDENTAL ITEMS AS REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM WHETHER OR NOT SPECIFICALLY SPECIFIED AND/OR SHOWN ON THE PLANS.</p> <p>DO NOT SCALE FROM THESE DRAWINGS. REFER TO ARCHITECTURAL OR CIVIL DRAWINGS BY OTHERS FOR DIMENSIONS AND FOR ESTIMATING DISTANCES. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS RELATING TO THE JOB WHETHER OR NOT INDICATED ON THESE DRAWINGS.</p> <p>ANY SCALE, DIMENSION OR QUANTITIES SHOWN ON THE DRAWINGS ARE FOR ENGINEERING CALCULATION PURPOSES ONLY. THE PLUMBING CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTIMATING AND DETERMINING THE DIMENSIONS AND QUANTITIES RELATED TO THE PROJECT. REFER TO ARCHITECTURAL OR CIVIL DRAWINGS BY OTHERS AND VERIFY EXISTING CONDITIONS ON SITE FOR ALL ESTIMATING PURPOSES.</p> <p>COORDINATE WITH OTHER TRADES FOR A COORDINATED INSTALLATION WITHIN THE AVAILABLE SPACE. WHERE CROWDED CONDITIONS EXIST, PREPARE COORDINATION DRAWINGS SHOWING ALL TRADE CONFLICTS AND SUBMIT TO ARCHITECT FOR APPROVAL AND DIRECTION PRIOR TO ROUGH-IN AND/OR INSTALLATION. RELOCATION OF OUTLETS AND/OR DEVICES MADE PRIOR TO ROUGH-IN SHALL BE DONE AT NO ADDITIONAL COST.</p> <p>ALL WORK SHALL BE PERFORMED BY PROPERLY LICENSED PLUMBERS OR UNDER THEIR DIRECT SUPERVISION. ALL MATERIALS AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE STANDARDS OF UL AND SHALL BEAR THE UL LABEL AS EVIDENCE THAT THE MATERIAL AND/OR EQUIPMENT MEETS THIS REQUIREMENT.</p> <p>INSTALL ALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS AND DETAILS UNLESS OTHERWISE NOTED IN THESE PLANS. IF ANY DISCREPANCIES EXIST CONTACT THE ENGINEER PRIOR TO ORDERING EQUIPMENT AND ROUGH-IN.</p> <p>ALL EQUIPMENT START UP AND TESTING SHALL BE PERFORMED BY THE EQUIPMENT MANUFACTURER TRAINED SERVICE TECHNICIAN. SUBMIT MANUFACTURER'S LITERATURE (SHOP DRAWINGS) FOR MATERIALS AND EQUIPMENT. SUBMITTAL SHALL INCLUDE EQUIPMENT PERFORMANCE DATA AT ELEVATION AND/OR LOCAL CONDITIONS. EQUIPMENT CUTSHEETS OR CATALOG COPIES ARE NOT ACCEPTABLE. SUBMITTAL SHALL BEAR THE APPROVAL OF THE GENERAL CONTRACTOR FOR COMPLIANCE WITH COORDINATION AND THESE SPECIFICATIONS PRIOR TO SUBMITTAL TO ARCHITECT AND/OR HIS AGENCIES. ANY EQUIPMENT SUBSTITUTED FOR WHAT IS SCHEDULED SHALL BE EQUAL TO THAT SCHEDULED IN CONTROLS, ACCESSORIES, AND PERFORMANCE REGARDLESS OF MANUFACTURER.</p> <p>FIELD LABEL ALL PLUMBING EQUIPMENT AND PIPING AS INDICATED ON THE PLANS PER PLUMBING AND LOCAL CODE REQUIREMENTS. INDICATE DIRECTION OF FLOW ON PIPING.</p> <p>TAG ALL VALVES WITH CONSECUTIVE NUMBERING ON PERMANENT HARD PLASTIC OR METAL TAB AND PROVIDE SCHEDULE LISTING ITEMS, AREA SERVED, SIZE AND VALVE TYPE. SUBMIT FINAL VALVE SCHEDULE FOR REVIEW.</p>		
	<p>PROVIDE EXPANSION LOOPS, SWING JOINTS, OR MECHANICAL EXPANSION COMPENSATING DEVICES AS REQUIRED TO ACCOUNT FOR THERMAL EXPANSION OF ALL PIPING SYSTEMS. EXPANSION SYSTEM SIZING SHALL BE IN ACCORDANCE WITH MATERIALS DATA SHEETS AND MANUFACTURER RECOMMENDATIONS.</p> <p>INSTALL ALL EQUIPMENT PER MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS. IF PLAN DIFFERS FROM THESE INSTRUCTIONS THEN NOTIFY ENGINEER PRIOR TO ROUGH-IN. MANUFACTURERS INSTRUCTIONS SHALL PREVAIL. SPECIAL ATTENTION MUST BE PAID TO GAS FIRED EQUIPMENT FLUE/GA LENGTHS, SIZES, AND MATERIAL.</p> <p><b>BASIC MATERIALS</b></p> <p>PLUMBING CONTRACTOR TO PROVIDE PLUMBING SYSTEM CONTROLS, CONTROLLERS, CONTROL TRANSFORMER, DISCONNECTS, STARTERS, CONTROL WIRING, ASSOCIATED CONTROL POWER WIRING, AND ALL WORK NECESSARY FOR A COMPLETE AND OPERATIONAL PLUMBING SYSTEM. ALL ELECTRICAL ITEMS SHALL BE COORDINATED WITH ELECTRICAL DRAWINGS AND ELECTRICAL SUB-CONTRACTOR FOR INSTALLATION.</p> <p>PROVIDE SUPPLEMENTAL STEEL AND SUPPORTS AS REQUIRED FOR INSTALLATION OF PLUMBING MATERIALS, EQUIPMENT, AND APPARATUS.</p> <p>ALL WORK IN FINISHED AREAS SHALL BE CONCEALED UNLESS SPECIFICALLY NOTED AS EXPOSED ON THE PLANS. PRIOR TO THE INSTALLATION OF ANY EXPOSED WORK THIS CONTRACTOR SHALL VERIFY AND OBTAIN ARCHITECTURAL APPROVAL OF LOCATION AND EXTENT.</p> <p>PROVIDE PRESSURE REDUCING VALVE ASSEMBLY AT BUILDING WATER SERVICE ENTRY WHERE PRESSURE EXCEEDS 65 PSI. PRESSURE REDUCING VALVE TO BE SET TO 65 PSI.</p> <p>PROVIDE SANITARY SEWER SYSTEM CLEANOUTS AS REQUIRED BY LOCAL CODES. PROVIDE BRANCH SHUT-OFF VALVES ON ALL WATER LINES EXTENDING FROM MAINS. THE CONTRACTOR SHALL LOCATE AND FURNISH FOR INSTALLATION BY OTHERS, ALL ACCESS PANELS AS REQUIRED FOR ACCESS TO VALVES, MOTORS, ETC. AND THE PROPER SERVICING OF EQUIPMENT AND LINES INSTALLED UNDER THIS CONTRACT.</p> <p><b>PIPING</b></p> <p>1. SANITARY, VENT, AND STORM PIPING ABOVE GRADE SHALL BE CAST IRON NO-HUB PIPE AND FITTINGS, MANUFACTURED TO CISPI 310 BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE AND BE LISTED BY NSF INTERNATIONAL. COUPLINGS FOR JOINING CAST IRON NO-HUB PIPE SHALL COMPLY WITH THE REQUIREMENTS OF CISPI 310 AND LISTED BY NSF INTERNATIONAL TO THE CISPI 310 STANDARD. IF HEAVY DUTY COUPLINGS ARE REQUIRED: HUSKY 2000, CLAMP ALL 80, OR MISSION 80 COUPLINGS WITH CONSIDERATION TO USE: HUSKY 4000 OR CLAMP ALL 125. INSTALLATION IN COMPLIANCE TO CISPI HANDBOOK.</p>	<p>8. CPVC IF ALLOWED BY LOCAL AUTHORITY HAVING JURISDICTION.</p> <p>9. ANY PIPING SYSTEM LOCATED IN A RETURN AIR PLENUM SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NO MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.</p> <p>10. FIRE STOP ALL PIPING MATERIALS PASSING THROUGH FIRE RATED STRUCTURES OR FIRE RATED ASSEMBLIES IN ACCORDANCE WITH THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. USE CURRENTLY LISTED U.L. CLASSIFIED PRODUCTS, TESTED BY ASTM E814. USE FOR ALL APPLICABLE PIPE PENETRATIONS THROUGH FIRE RATED FLOORS, WALLS, OR FLOOR CEILING ASSEMBLIES IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.</p> <p>11. COMPRESSED AIR PIPING: 1" AND SMALLER: TYPE K OR L (TYPE A OR B), COPPER TUBE; WROUGHT-COPPER FITTINGS; COPPER PRESSURE-SEAL-JOINT FITTINGS; COPPER-PUSH FITTINGS; AND BRAZED JOINTS.</p> <p>12. COMPRESSED AIR PIPING: 2" DOWN TO 1-1/4" SHALL BE : TYPE K OR L (TYPE A OR B), COPPER TUBE; WROUGHT-COPPER FITTINGS; COPPER PRESSURE-SEAL-JOINT FITTINGS; AND BRAZED JOINTS.</p> <p>13. COMPRESSED AIR PIPING: 2-1/2" TO 4" SHALL BE TYPE K OR L (TYPE A OR B), COPPER TUBE; WROUGHT-COPPER FITTINGS; COPPER PRESSURE-SEAL-JOINT FITTINGS; AND BRAZED JOINTS.</p> <p>14. COMPRESSED AIR PIPING: 4" AND LARGER: TYPE K OR L (TYPE A OR B), COPPER TUBE; WROUGHT-COPPER FITTINGS; COPPER PRESSURE-SEAL-JOINT FITTINGS; AND BRAZED JOINTS.</p>
	<p>1. WATER PIPING IN UNCONDITIONED SPACE AND EXTERIOR WALLS SHALL BE 2" FIBERGLASS INSULATION.</p> <p>2. HOT WATER PIPING 2" OR LESS SHALL BE 1-INCH FIBERGLASS INSULATION. HOT WATER PIPING GREATER THAN 2-INCHES SHALL BE 1 1/2" FIBERGLASS INSULATION. RUNOUTS, NOT EXCEEDING 12 FEET, UP TO 2-INCHES SHALL BE 1/2-INCH THICK FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET.</p> <p>3. STORM DRAIN PIPING SHALL BE 1/2-INCH THICK FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET.</p> <p>4. HORIZONTAL SANITARY AND STORM PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING COVERED PARKING AND CRAWL SPACES SHALL BE HEAT-TRACED AND INSULATED WITH 1-INCH FIBERGLASS INSULATION.</p> <p>5. VERTICAL SANITARY AND STORM PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING COVERED PARKING AND CRAWL SPACES SHALL BE INSULATED WITH 1-INCH FIBERGLASS INSULATION.</p> <p>6. CONDENSATE DRAIN PIPING SHALL BE 1/2-INCH THICK INSULATION WITH AN ALL-SERVICE JACKET.</p> <p>7. COLD WATER DISTRIBUTION PIPING SHALL NOT BE INSULATED UNLESS OTHERWISE NOTED.</p> <p>8. COLD OR HOT WATER PIPING IN A WALL, CEILING, OR FLOOR THAT IS ADJACENT TO AN UNCONDITIONED SPACE SHALL HAVE 1-INCH THICK INSULATION. THE PIPING SHALL ALSO BE INSTALLED TO THE WARM SIDE OF THE BUILDING INSULATION.</p> <p>9. HOT WATER PIPING LESS THAN 1-1/2" SHALL BE 1-INCH FIBERGLASS INSULATION. HOT WATER PIPING 1-1/2 TO 4" SHALL BE 1 1/2" FIBERGLASS INSULATION.</p>	<p><b>INSULATION</b></p> <p>1. WATER PIPING IN UNCONDITIONED SPACE AND EXTERIOR WALLS SHALL BE 2" FIBERGLASS INSULATION.</p> <p>2. HOT WATER PIPING 2" OR LESS SHALL BE 1-INCH FIBERGLASS INSULATION. HOT WATER PIPING GREATER THAN 2-INCHES SHALL BE 1 1/2" FIBERGLASS INSULATION. RUNOUTS, NOT EXCEEDING 12 FEET, UP TO 2-INCHES SHALL BE 1/2-INCH THICK FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET.</p> <p>3. STORM DRAIN PIPING SHALL BE 1/2-INCH THICK FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET.</p> <p>4. HORIZONTAL SANITARY AND STORM PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING COVERED PARKING AND CRAWL SPACES SHALL BE HEAT-TRACED AND INSULATED WITH 1-INCH FIBERGLASS INSULATION.</p> <p>5. VERTICAL SANITARY AND STORM PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING COVERED PARKING AND CRAWL SPACES SHALL BE INSULATED WITH 1-INCH FIBERGLASS INSULATION.</p> <p>6. CONDENSATE DRAIN PIPING SHALL BE 1/2-INCH THICK INSULATION WITH AN ALL-SERVICE JACKET.</p> <p>7. COLD WATER DISTRIBUTION PIPING SHALL NOT BE INSULATED UNLESS OTHERWISE NOTED.</p> <p>8. COLD OR HOT WATER PIPING IN A WALL, CEILING, OR FLOOR THAT IS ADJACENT TO AN UNCONDITIONED SPACE SHALL HAVE 1-INCH THICK INSULATION. THE PIPING SHALL ALSO BE INSTALLED TO THE WARM SIDE OF THE BUILDING INSULATION.</p> <p>9. HOT WATER PIPING LESS THAN 1-1/2" SHALL BE 1-INCH FIBERGLASS INSULATION. HOT WATER PIPING 1-1/2 TO 4" SHALL BE 1 1/2" FIBERGLASS INSULATION.</p>
	<p>1. SANITARY, VENT, AND STORM PIPING ABOVE AND BELOW GRADE SHALL BE SOLID CORE PVC SCHEDULE 40 OR 80 PIPE AND SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1785 AND ASTM D 2665. INJECTION MOLDED PVC DWV FITTINGS SHALL CONFORM TO ASTM D 2665. FABRICATED PVC DWV FITTINGS SHALL CONFORM TO ASTM F 1862. PIPE AND FITTINGS SHALL BE MANUFACTURED AS A SYSTEM AND BE THE PRODUCT OF ONE MANUFACTURER. ALL PIPE AND FITTINGS SHALL BE MANUFACTURED IN THE UNITED STATES. ALL SYSTEMS SHALL UTILIZE A SEPARATE WASTE AND VENT SYSTEM. PIPE AND FITTINGS SHALL CONFORM TO NSF INTERNATIONAL STANDARD 14. INSTALLATION SHALL CONFORM WITH THE LATEST INSTALLATION INSTRUCTIONS PUBLISHED BY MANUFACTURER AND SHALL CONFORM TO ALL APPLICABLE PLUMBING, BUILDING, AND FIRE CODE REQUIREMENTS. BURIED PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D 2321 AND ASTM F 1668. SLOVENT CEMENT JOINTS SHALL BE MADE IN A TWO STEP PROCESS WITH PRIMER CONFORMING TO ASTM F 1668 AND SOLVENT CEMENT CONFORMING TO ASTM D 2564. THE SYSTEM SHALL BE PROTECTED FROM CHEMICAL AGENTS, FIRE STOPPING MATERIALS, THREAT SEALANT, PLASTICIZED VINYL PRODUCTS, OR OTHER AGGRESSIVE CHEMICAL AGENTS NOT COMPATIBLE WITH PVC COMPOUNDS. SYSTEMS SHALL BE HYDROSTATICALLY TESTED AFTER INSTALLATION.</p> <p>2. DOMESTIC WATER PIPING ABOVE GRADE: ASTM B 88, TYPE L COPPER WITH SOLDERED OR MECHANICALLY CRIMPED JOINTS (POK PRESS)</p> <p>3. DOMESTIC WATER PIPING ABOVE GRADE: SOCKET WELDED CPVC TUBE AND FITTINGS PER ASTM D 2846.</p> <p>4. DOMESTIC WATER PIPING ABOVE GRADE: UPONOR AQUAREX PIPING WITH PROPEX FITTINGS FOR ALL BRANCH CONNECTIONS AND TERMINATIONS (OR REHAU EQUIVALENT). DOW TO BE BLUE PIPE, DHW TO BE RED PIPE, AND DHWR TO BE CLEAR PIPE.</p> <p>5. DOMESTIC WATER PIPING BELOW GRADE SHALL BE TYPE K COPPER WITH SILVER SOLDERED JOINTS.</p> <p>6. CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER WITH SOLDERED JOINTS,</p>	

ABBREVIATIONS		PLUMBING LEGEND	
(D)	DEMO	—CND—	CONDENSATE
(E)	EXISTING	—DCW—	DOMESTIC COLD WATER
(N)	NEW	—120°—	DOMESTIC HOT WATER
AAV	AIR ADMITTANCE VALVE	—120°R—	DOMESTIC HOT WATER RECIRC
AD	AREA DRAIN	—GW—	GREASE WASTE
AFF	ABOVE FINISH FLOOR	—G—	GAS
AHU	AIR HANDLING UNIT	—RD—	ROOF DRAIN
B	BOILER	—ORD—	OVERFLOW ROOF DRAIN
BB	BASEBOARD	—SOI—	SAND OIL
BF	BOOSTER FAN	—SS—	SANITARY SEWER
BFP	BACKFLOW PREVENTER	—V—	VENT
BT	BATH TUB	—(A)XX—	TYPICAL PIPE ABOVE/ON ROOF
BV	BALL VALVE	—(B)XX—	TYPICAL PIPE BELOW/UNDERGROUND
CD	CONDENSATE DRAIN	—(E)XX—	TYPICAL PIPE EXISTING
CM	CUBIC FEET PER MINUTE		
CH	CHILLER		
CO	CLEANOUT		
COTG	CLEANOUT TO GRADE		
CU	CONDENSING UNIT		
CV	CHECK VALVE		
CUH	CABINET UNIT HEATER		
DCW	DOMESTIC COLD WATER		
DF	DRINKING FOUNTAIN		
DHW	DOMESTIC HOT WATER		
DSN	DOWN SPOUT NOZZLE		
EC	ELECTRICAL CONTRACTOR		
ECC	END OF LINE CLEANOUT		
EDH	ELECTRIC DUCT HEATER		
EF	EXHAUST FAN		
EWC	ELECTRIC WATER COOLER		
EWI	ELECTRIC WATER HEATER		
FURN	FURNACE		
FCO	FLOOR CLEANOUT		
FCU	FAN COIL UNIT		
FD	FLOOR DRAIN		
FS	FLOOR SINK		
G	GAS		
GC	GENERAL CONTRACTOR		
GM	GAS METER		
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE		
GUH	GAS UNIT HEATER		
GW	GREASE WASTE		
GW	GAS WATER HEATER		
HP	HOSE BIB		
HP	HEAT PUMP		
HX	HEAT EXCHANGER		
IM	ICE MAKER BOX		
LAV	LAVATORY		
LS	LAUNDRY SINK		
MAU	MAKE-UP AIR UNIT		
MC	MECHANICAL CONTRACTOR		
MF	MEASURE FLOW		
NIC	NOT IN CONTRACT		
NC	NORMALLY CLOSED		
NO	NORMALLY OPEN		
NTS	NOT TO SCALE		
OA	OUTSIDE AIR		
ORD	OVER FLOW ROOF DRAIN		
P	PUMP		
PC	PLUMBING CONTRACTOR		
PRV	PRESSURE REDUCING VALVE		
RA	POUNDS PER SQUARE INCH		
RA	RETURN AIR		
RAR	RETURN AIR REGISTER		
RD	ROOF DRAIN		
RH	RADIANT HEATER		
RTU	ROOF TOP UNIT		
SA	SUPPLY AIR		
SAR	SUPPLY AIR REGISTER		
SF	SUPPLY FAN		
SFT	SERIES FAN TERMINAL		
SH	SHOWER		
SK	SINK		
SOI	SAND/OIL INTERCEPTOR		
SS	SERVICE SINK		
T&P	TEMPERATURE & PRESSURE		
TD	TRENCH DRAIN		
TYP	TYPICAL		
UR	URINAL		
VAV	VARIABLE AIR VOLUME		
VAV	VARI TRAC		
WB	WASHER BOX		
WCO	WALL CLEANOUT		
WH	WALL HYDRANT		

TAG	ADA	DESCRIPTION	CONNECTIONS				FITURE				FLOW RATE	DIMENSIONS	MOUNTING	RIM HEIGHT	FINISH	MISC.	REMARKS
			DCW	DHW	WASTE	VENT	MANUFACTURER	MODEL NAME	MODEL #								
WC-1	YES	WATER CLOSET-TANK	1/2"		3"	2"	AMER. STND.	CADET PRO	21AA-104	1.28 GPF	12" R.1/2-18" TRAP	FLOOR	16-1/2"	VITREOUS CHINA	ELONGATED		
LV-1	YES	OPEN FRONT LESS COVER					AMER. STND.	HEAVY DUTY	5901-110		ELONGATED			PLASTIC	STAINLESS HINGES		
WALL-1	YES	WALL HUNG FAUCET	1/2"	1/2"	1-1/2"	2"	AMER. STND.	LUCERNE	0355.XXX		20-1/2"x18-1/4"	WALL HANGER	31" TO 34" TO RIM	VITREOUS CHINA	FRONT OVERFLOW SINGLE HOLE, 4" CENTERS		6W, WB
SAS-1	NO	SERVICE SINK FAUCET			3"	2"	MOEN	CHATEAU	LS4521	0.5 GPM	DECK MOUNT	4" CENTERS		POLISHED CHROME	-		PS
	YES						ELKAY	SERVICE SINK	14-1C22X22-OX	2.0 GPM	22"x22"x14"	FLOOR/WALL	36"	STAINLESS STEEL	-		
							CHICAGO FAUCET	MECHANICAL	540-LDL12ABCP	2.2 GPM	DECK MOUNT	8" CENTERS		CHROME PLATES	ADJ. ARM, HOT/COLD PADDLE		
							ZURN	FOOT VALVE	Z85500-XL			FLOOR	-	CHROME	-		**
TD-1	-	MANUAL FOOT PEDAL VALVE	1/2"	1/2"			ZURN				80-4" LENGTH	FLOOR	-	W/ DGE (TRAFFIC RATED) GRATES	-		
WB-1	-	TRENCH DRAIN	1/2"	-	4"	-	ZURN		Z896	-	96-4" FRAME	FLOOR	-	-	RECESSED WALL BOX	W/ WATER HAMMER ARRESTOR	
HB-1	N	WALL BOX	-	-	-	-	SIOUX CHIEF		696	-		WALL	-	-	-	-	
W-1	N	INTERIOR WALL HYDRANT	3/4"	-	-	-	WOODFORD	ANTI-SIPHON	MODEL 101	-	VARIES W/ WALL DEPTH	INTERIOR ONLY	24"AFG	INTERIOR USE ONLY	W/ BACKFLOW PROTECTION		
EW-1	Y	BI-LEVEL	1/2"	-	2"	2"	ELKAY	EZH20	EZSTL8WSK	36" WIDE	WALL	ADA	STAINLESS STEEL	BARRIER FREE	W/ BOTTLE FILLER	6W, 7	
		WALL HANGER					ZURN	SINGLE	Z1222		WALL	FLOOR	DURA COATED	CARRIER ONLY	-	IF REQUIRED	
RD-1	-	ROOF DRAIN	-	-	-	-	ZURN		Z100	15" DIA	ROOF/EXTERIOR	-	DURA COATED CAST IRON	FLASH CLAMP/GRAVEL GUARD			
RD-1	-	OVERFLOW ROOF DRAIN	-	-	-	-	ZURN		Z100	15" DIA	ROOF/EXTERIOR	-	DURA COATED CAST IRON	FLASH CLAMP/GRAVEL GUARD			
DSN-1	-	DOWNSPOUT NOZZLE	-	-	-	-	ZURN		Z199			EXTERIOR		NICKEL BRONZE	-		
AD-1	-	AREA DRAIN	-	-	-	-	ZURN	MEDIUM DUTY	Z-507-P	-	7" ROUND	FLOOR		CAST IRON BODY	-		
FD-1	-	FLOOR DRAIN	-	-	-	-	ZURN		Z-550-P	-	5-1/2" ROUND	FLOOR		NICKEL BRONZE FINISH, STAINLESS STRAINER	W/ TRAP PRIMER CONNECTION		

**\*\*NOTE: PROVIDE 1/2"DCW/DHW DOWN WALL TO FOOT PEDAL CONNECTIONS AS PER MANUFACUTERS INSTRUCTIONS**

PROJECT: BRAKES PLUS - LINCOLN, NE												
BUILDING: 1			CODE: 2018 IPC				DATE: 01/25/25					
FIXTURE TOTAL	FIXTURE TYPE	OCC.	SUPPLY TYPE	WATER FIXTURE UNITS					WASTE FIXTURES UNITS		REMARKS	
				COLD WATER	COLD TOTAL	HOT WATER	HOT TOTAL	COLD & HOT	COMBINED TOTAL	FIXTURE VALUES		TOTAL VALUES
2	HOSE BIBBS	PRIVATE	1/2" VALVE	1.00	2.0	0.0	1.00	2.0	0.0			
1	DRINKING FOUNTAIN	OFFICES	3/8" VALVE	0.25	0.3	0.0	0.25	0.3	0.50	0.0		
2	LAVATORY	PUBLIC	FAUCET	1.50	3.0	1.50	3.0	2.00	4.0	1.00	0.5	
1	SERVICE SINK	OFFICES	FAUCET	2.25	2.3	2.25	2.3	3.00	3.0	2.00	2.0	
2	WATER CLOSET	PUBLIC	FLUSH TANK	5.00	10.0		0.0	5.00	10.0	4.00	8.0	
TOTAL FIXT. UNITS					17.50		5.25		19.25		12.50	TOTAL FIXTURE UNITS
			GPM						20		4"	BUILDING MAIN SIZE
			PIPE SIZE						1"		1/8"	BUILDING MAIN SLOPE
	WATER SERVICE LINE SIZE	FT/SEC	PSI/100FT	NOTES								
TAP & METER	1"											
BFP & BLDG MAIN	1"	6.00	9.00									

1. PROVIDE 2 1/2" DEEP DRAIN PAN. ROUTE 3/4" DRAIN TO LAV TRAP OR FLOOR DRAIN.

### 1. CONNECT TO RETURN LINE TEMPERATURE SENSOR

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)	REMARKS
ABS	4	10	B
PVC	4	10	B
COPPER OR COPPER ALLOY	12	10	
COPPER 1-1/4" AND SMALLER	6	10	
COPPER 1-1/2" AND LARGER	10	10	
CROSS LINK PE (PEX)	2.67" (32")	10	B
CAST IRON	5	15	A
STAINLESS STEEL	10	10	B

MINIMUM PIPE INSULATION THICKNESS (in inches) a, c							
FLUID OPERATING TEMPERATURE RANGE AND USAGE (F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (inches)				
	CONDUCTIVITY	MEAN RATING	<1	1 to <1/2	1/2 to <4	4 to <8	≥ 8
> 350	0.32 - 0.34	250	4.5	5.0	5.0	5.0	5.0
251 - 350	0.29 - 0.32	200	3.0	4.0	4.5	4.5	4.5
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0
105 - 140	0.21 - 0.28	100	1.0	1.0	1.5	1.5	1.5
40 - 60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 - 0.26	50	0.5	1.0	1.0	1.0	1.5

T = minimum insulation thickness

t = insulation thickness listed in the table for applicable fluid temperature and pipe size.

**k** = the upper value of the conductivity range listed in the table for the applicable fluid temperature.

c. For direct buried heating and hot water system piping, reduction of these thickness by 1-1/2" (38mm) shall be permitted (before thickness adjustment required in footnote b but not to thicknesses less than 1 inch (25 mm)).

SHEET #	SHEET TITLE
P0.1	PLUMBING SPECS, SCHEDULES & LEGEND
P1.0	UNDERGROUND PLUMBING PLAN
P1.1	PIPING PLAN
P2.1	PLUMBING ROOF PLAN
P3.1	PLUMBING DETAILS
P4.0	PLUMBING ISOMETRICS

PROJ # 251083

14412 Alene Ct. NE

02/08/25

[illegible]

ARCODEV JOB #:

**CLIENTJOB #:** \_\_\_\_\_

DRAWN BY: \_\_\_\_\_ JF

CHECKED BY: \_\_\_\_\_ LF \_\_\_\_\_

**DATE OF ISSUE:** 02/08/2019



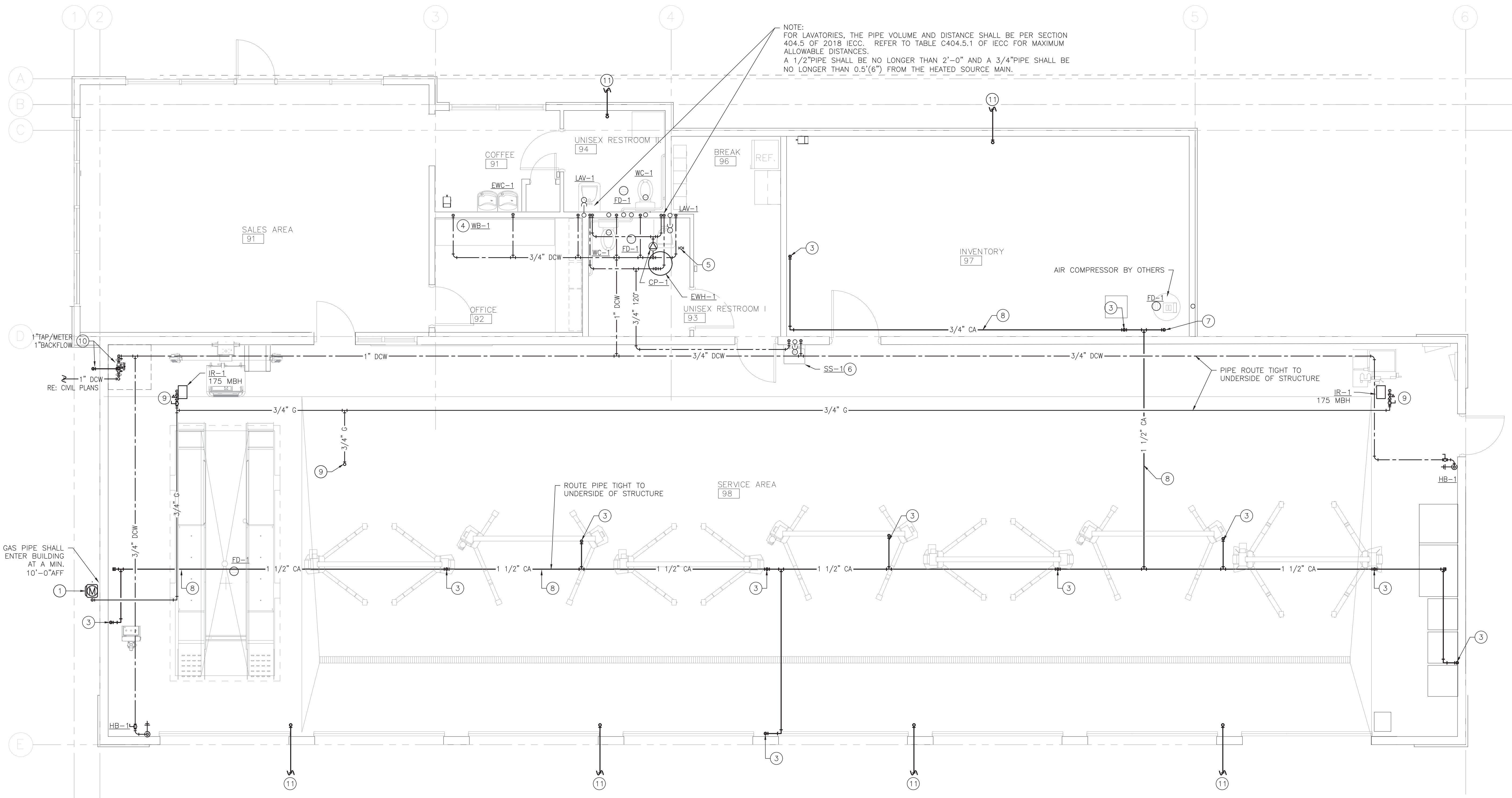
SHEET

## PLUMBING SPECS, SCHEDULES AND LEGEND









NOTE:  
FOR LAVATORIES, THE PIPE VOLUME AND DISTANCE SHALL BE PER SECTION 404.5 OF 2018 IECC. REFER TO TABLE C404.5.1 OF IECC FOR MAXIMUM ALLOWABLE DISTANCES.  
A 1/2\"/>

- DRAWING NOTES:
- 1

GAS METER: SIZING BASED ON 175'-0" AT 2 PSI GAS PRESSURE. TOTAL CONNECTED GAS LOAD = 480 MBH. CONFIRM GAS PRESSURE WITH LOCAL GAS COMPANY SERVICE.
- 2

3/4"G UP THRU ROOF FOR RTU-1, 130 MBH
- 3

3/4"CA DROP, TERMINATE PER DETAIL. CONFIRM HEIGHT REQUIREMENT WITH EQUIPMENT SERVED. CONTRACTOR TO VERIFY SIZE IS ADEQUATE FOR EQUIPMENT USE.
- 4

1/2"DCW DN IN WALL TO RECESSED WALL OUTLET VALVE BOX, PROVIDE W/ INLINE BACKFLOW PREVENTER. ROUGH-IN FOR COFFEE MAKER.
- 5

3"V UP TO 3"VTR.
- 6

3/4"DCW/DHW DN AT WALL, OFFSET 1/2"DCW/DHW TO FAUCET AND 1/2"DCW/DHW TO FOOT PEDALS.
- 7

COMPRESSED AIR MAIN FROM COMPRESSOR OUTLET. INSTALL PER MANUFACTURERS INSTRUCTIONS. PROVIDE ONE DISCONNECT AT AIR COMPRESSOR.
- 8

SLOPE COMPRESSED AIR DOWN IN DIRECTION OF SLOPE AT 1/8" PER FOOT, TYPICAL.
- 9

TERMINATE W/ SHUT-OFF VALVE, PRV AND DIRT LEG. PRV SHALL BE CAPABLE OF REDUCING FROM 2 PSI GAS TO 6"W.C. AT MBH AS INDICATED. PROVIDE VENTLESS REGULATOR IS LOCAL AHJ ALLOWS. IF NOT, VENT SHALL EXIT TO ATMOSPHERE, FULL SIZE.
- 10

1" LEADFREE DOMESTIC WATER BACKFLOW DEVICE, FEBCO LF825Y OR EQUAL. RELIEF DRAIN PIPING FROM AIR GAP FITTING TO TERMINATE OUTDOORS. DISCHARGE MIN 6" AFG, TURN DOWN TO FINISHED GRADE. TERMINATION SHALL INCLUDE STAINLESS STEEL INSECT SCREEN.
- 11

3"RD FROM ABOVE, ROUTE DOWN INTERIOR WALL TO UNDERGROUND AND OUT 5'-0" FROM BUILDING. REFER TO CIVIL PLANS FOR CONNECTIONS. OVERFLOW DRAIN SHALL BE PER SCUPPERS AT ROOF, RE: ARCH PLANS.

- GENERAL NOTES:
- 1

PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS, RE: DETAIL ON SHEET P3.1
- 2

PAIN

1 PLUMBING PLAN  
P1.1

4'

2'

0

4'

8'

1/4"=1'-0"

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BRAKES PLUS

LINCOLN, NEBRASKA

LICENSED PROFESSIONAL ENGINEER

ADAM A. POWELL

27258

OKLAHOMA

02/08/25

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ARCODEV

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CLIENT JOB #:

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CHECKED BY: LRP

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45 SPYGLASS DRIVE

LITTLETON, CO 80123

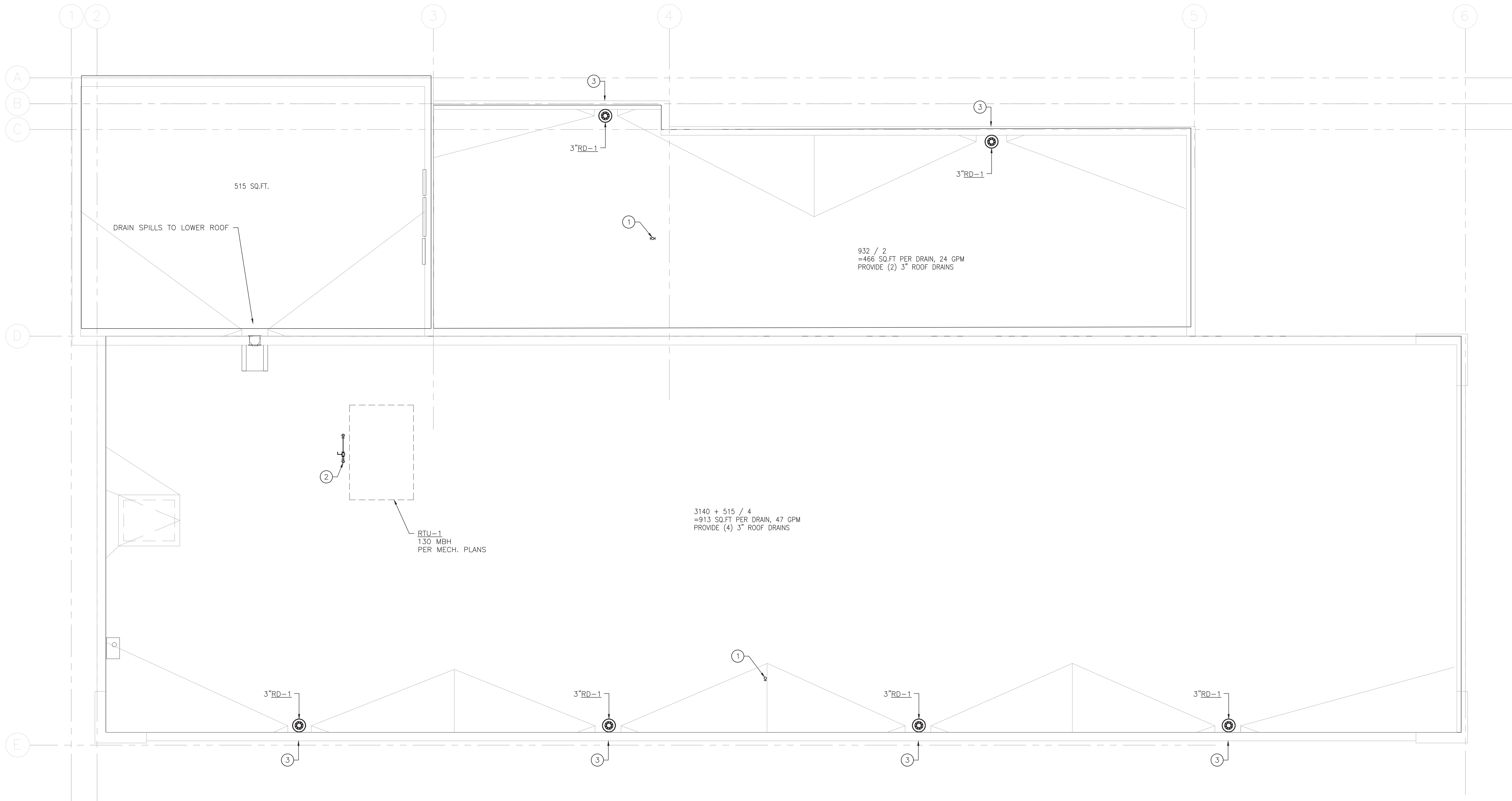
VOICE: 303.881.1825

SHEET

P1.1

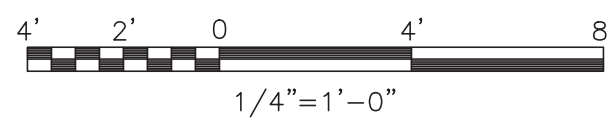
PLUMBING PLAN





1 PLUMBING ROOF PLAN

P2.1



DRAWING NOTES:

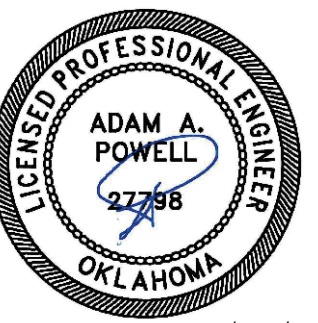
- 3" PLUMBING VENT UP THRU ROOF FROM BELOW, RE: PLUMBING PLANS.
- GAS PIPING UP FROM BELOW, ROUTE AND TERMINATE W/ SHUT-OFF VALVE, PRV AND DIRT LEG AT ROOFTOP UNIT. PRV SHALL BE CAPABLE OF REDUCING FROM 2 PSI GAS PRESSURE TO 7\"/>
- OVERFLOW SCUPPER, SIZE PER ARCHITECTURAL PLANS.

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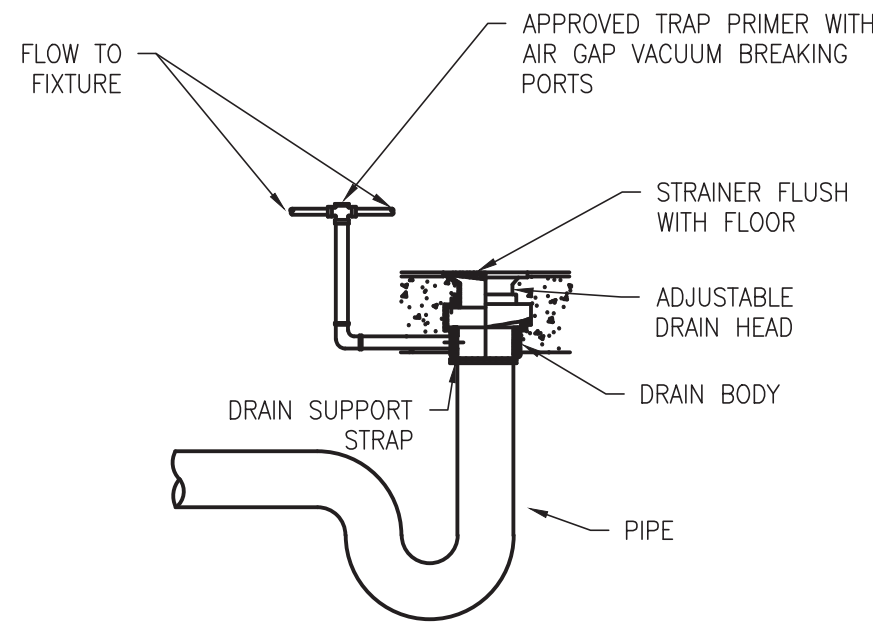
45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881.8925

ARCODEV SHEET

P2.1

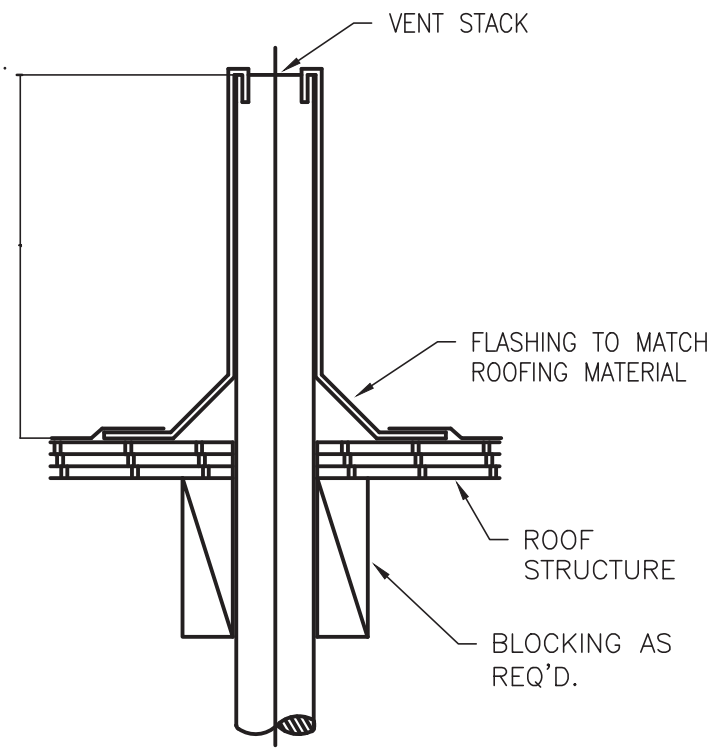
PLUMBING ROOF PLAN





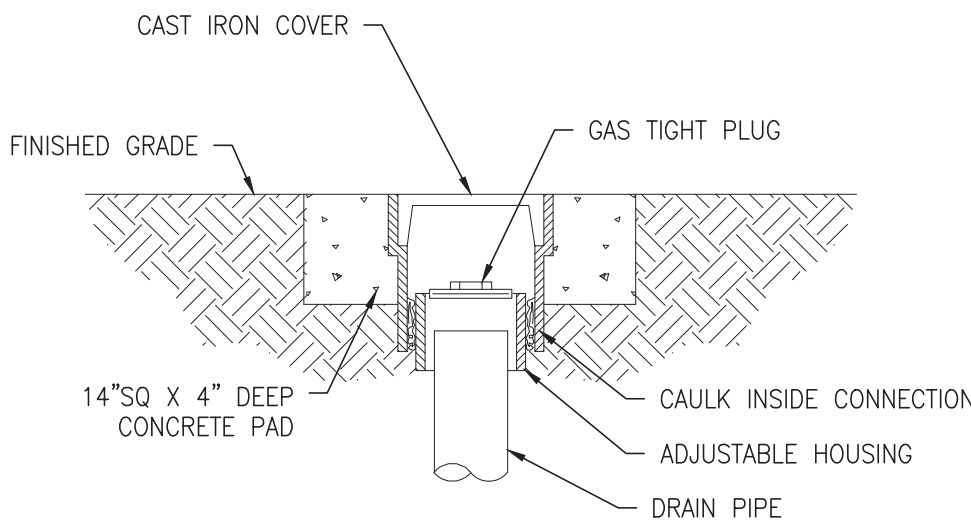
FLOOR DRAIN W/  
TRAP PRIMER DETAIL

NOT TO SCALE



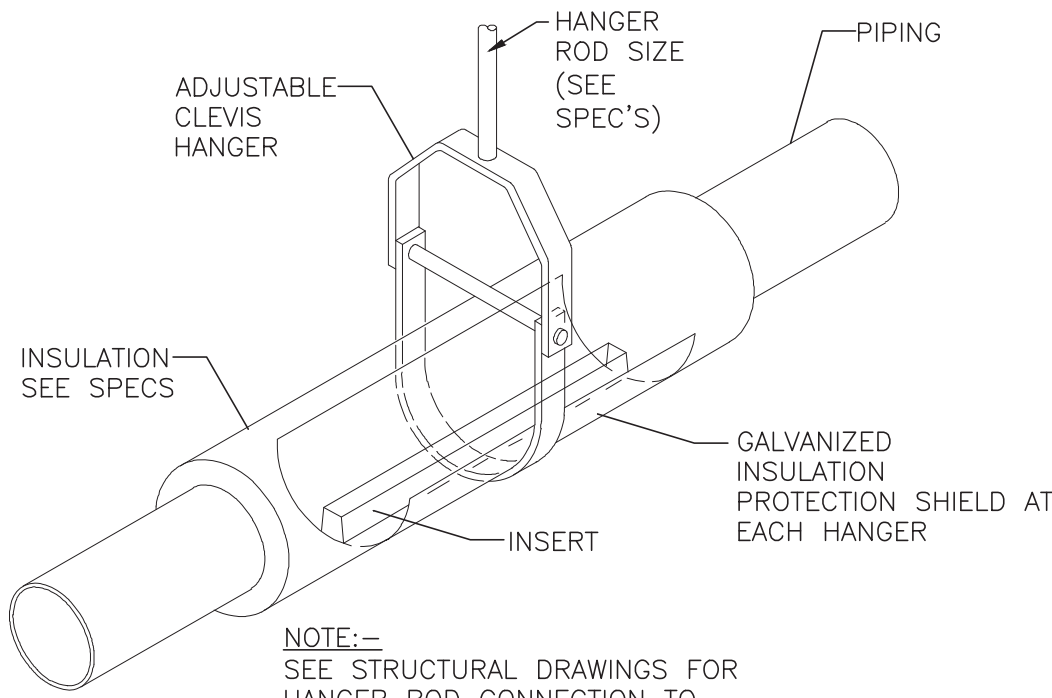
PIPE THRU ROOF DETAIL

NOT TO SCALE



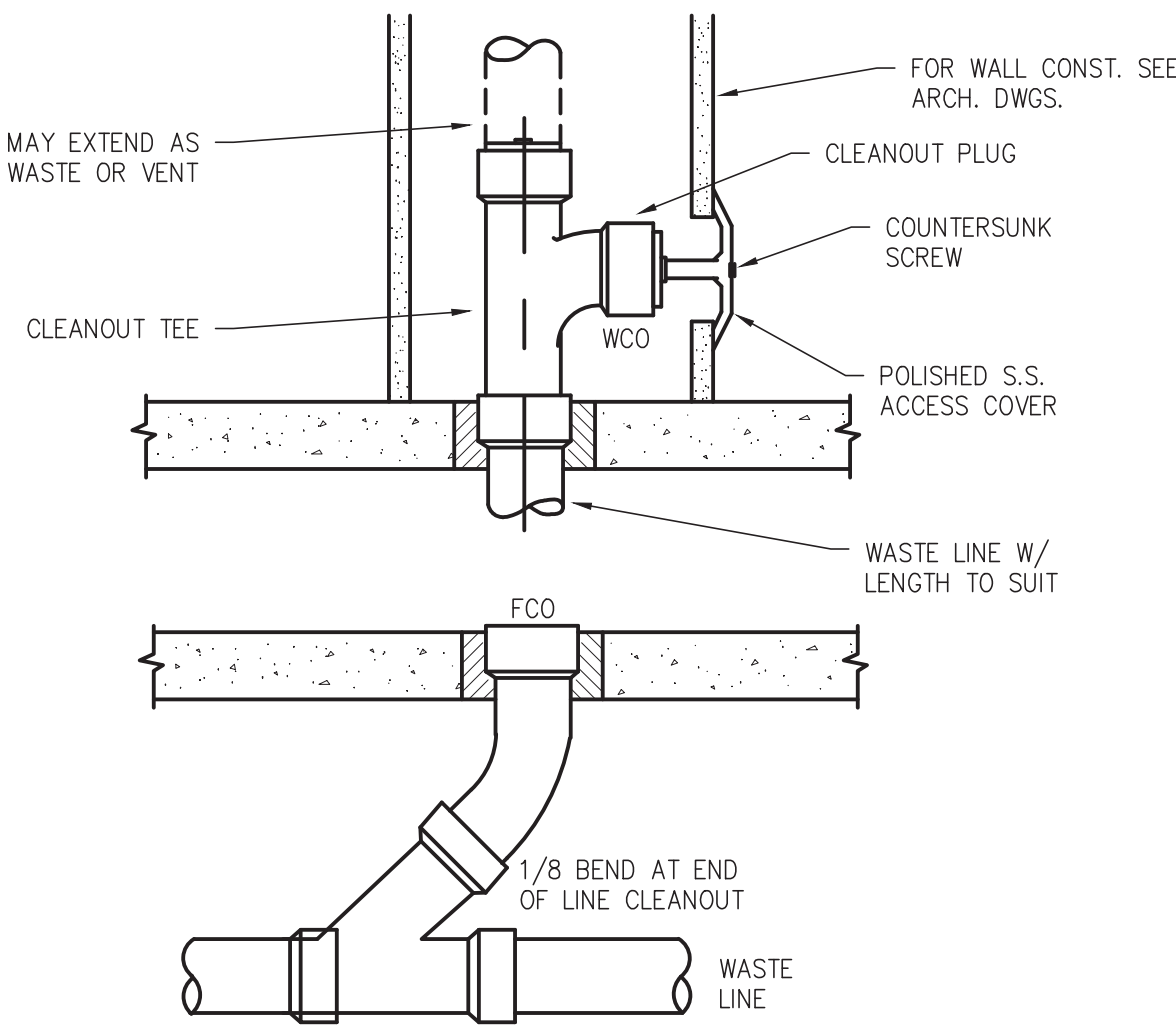
OUTSIDE CLEANOUT TO GRADE

NOT TO SCALE



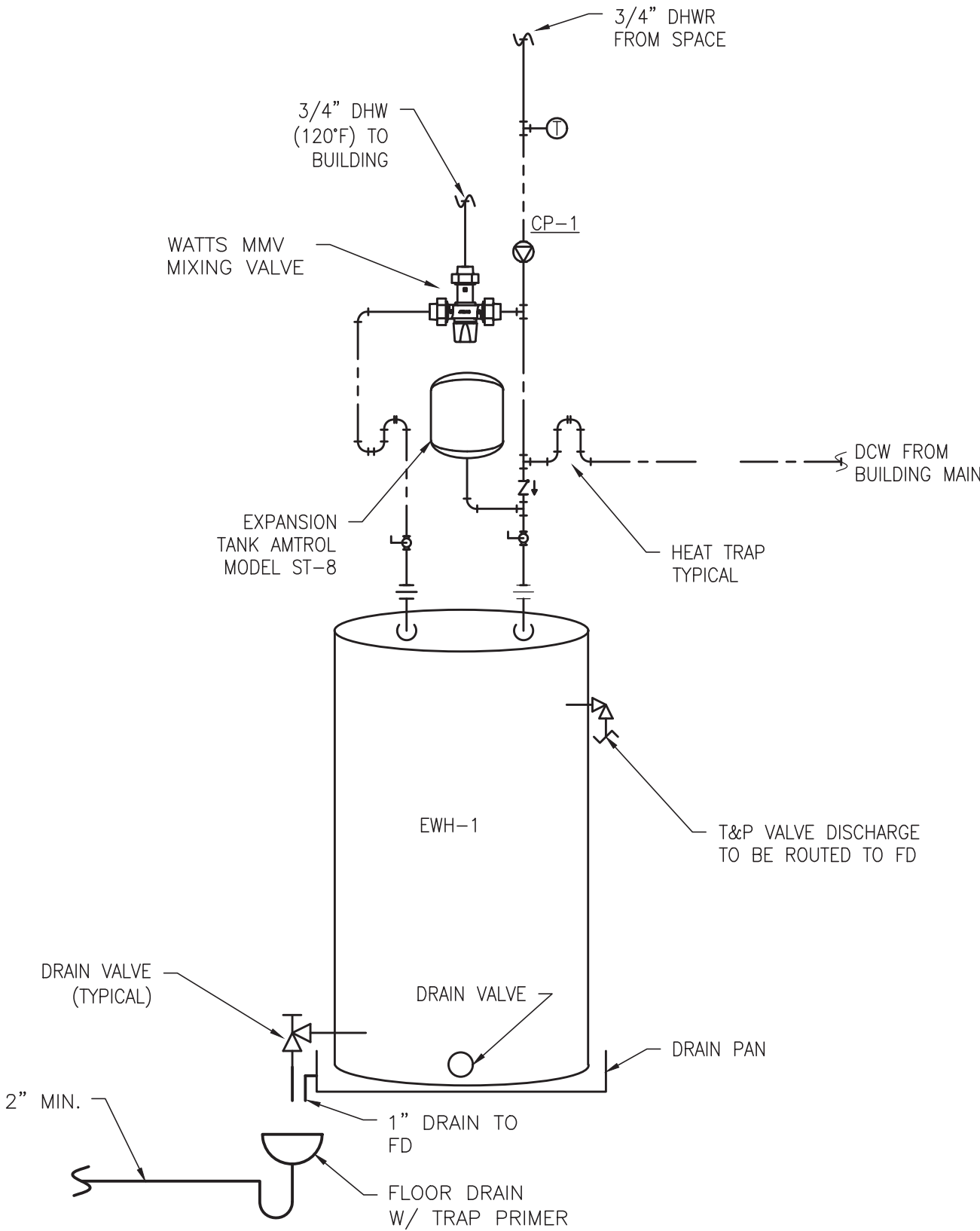
PIPE HANGER AND INSULATION DETAIL

NOT TO SCALE



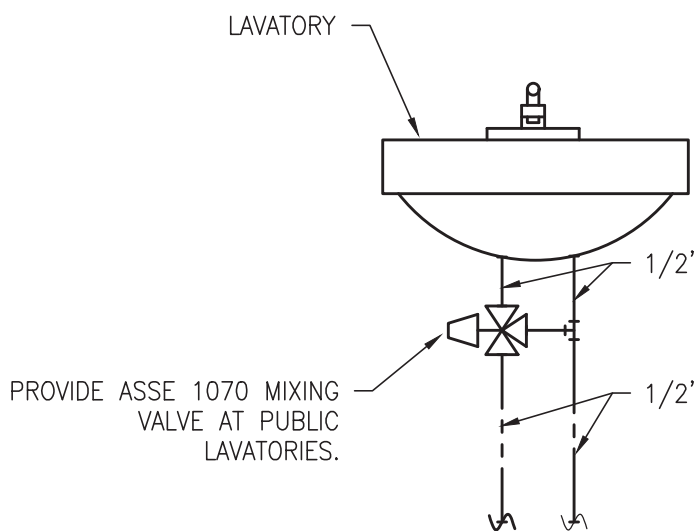
CLEANOUT DETAILS

NOT TO SCALE



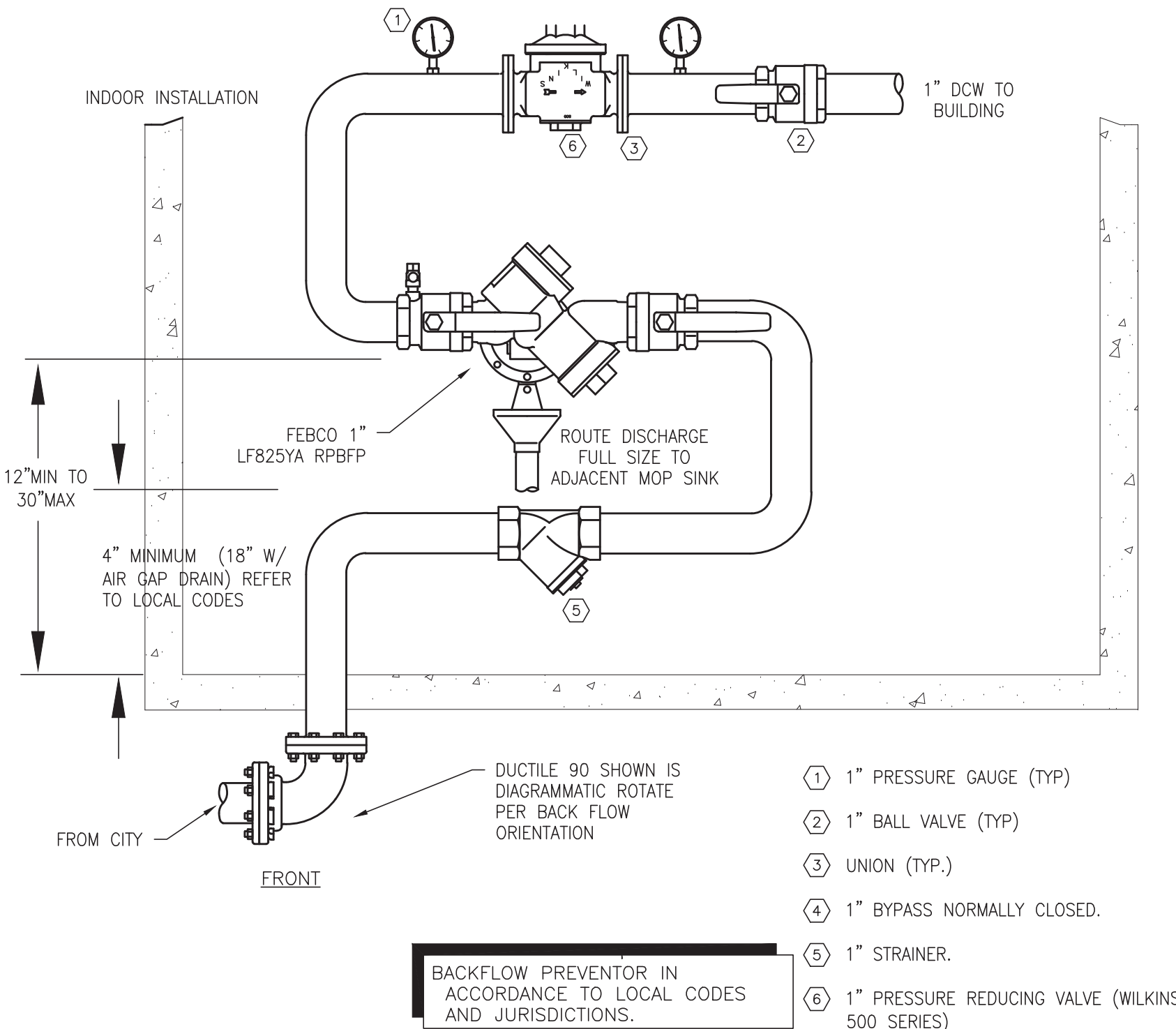
ELECTRIC WATER HEATER DETAIL

NOT TO SCALE



THERMOSTATIC MIXING VALVE DETAIL

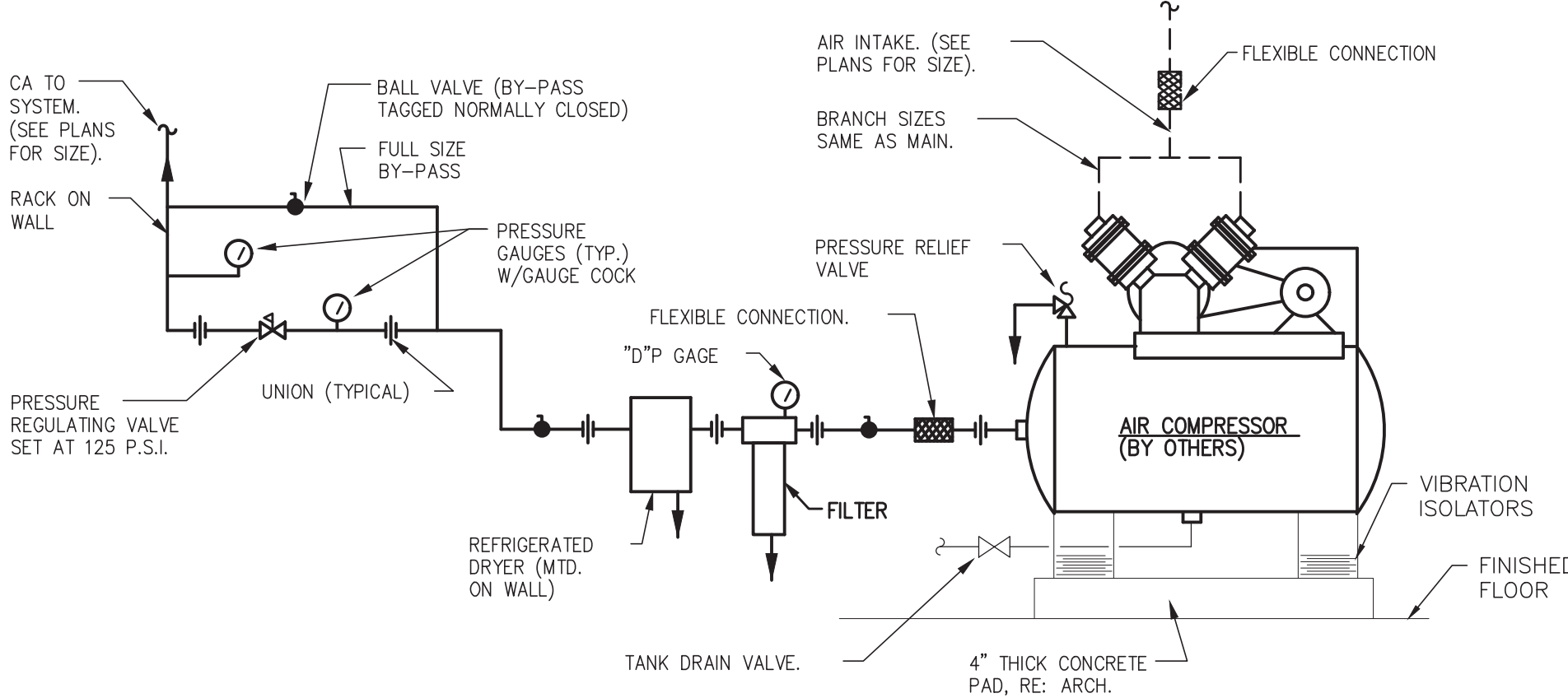
NOT TO SCALE



DOMESTIC WATER ENTRY  
BACKFLOW DETAIL

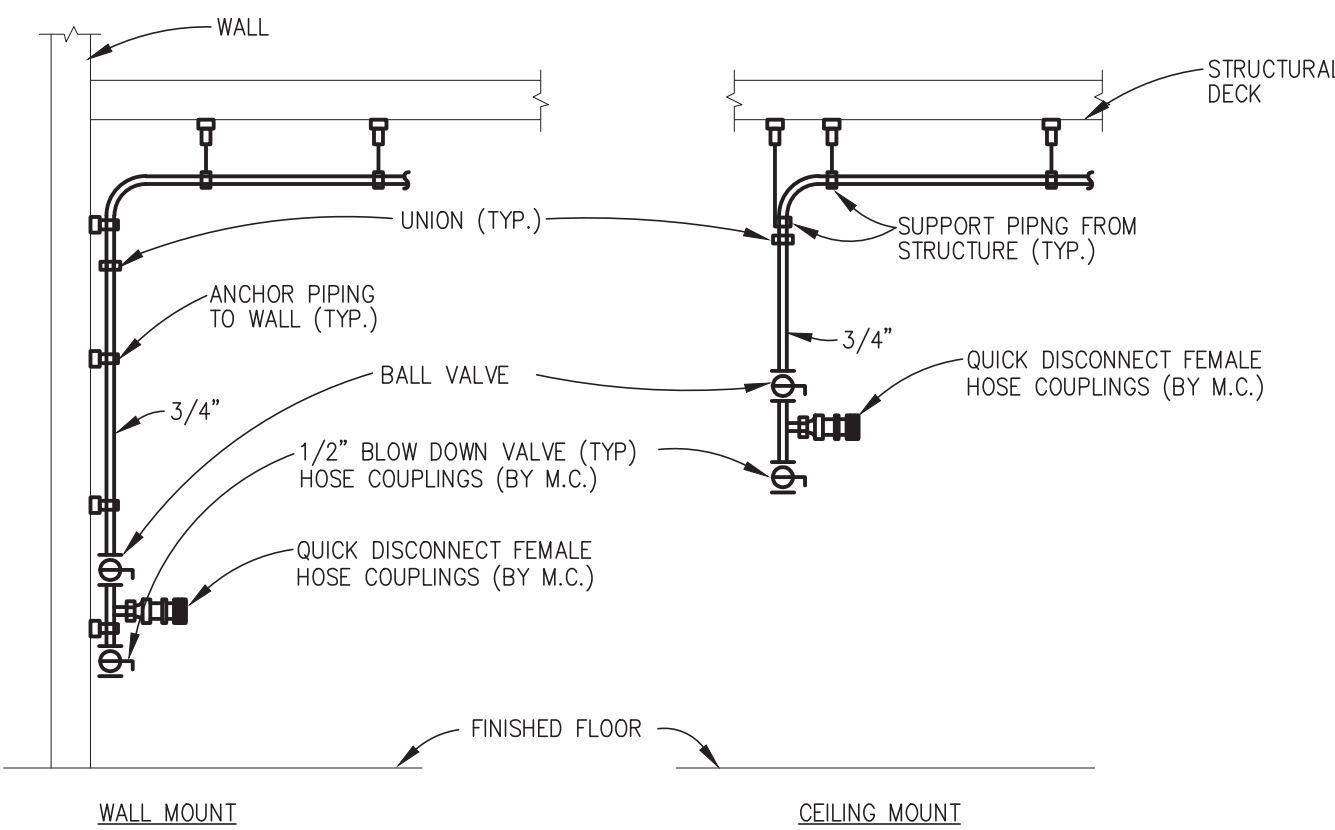
NOT TO SCALE

NOTE: EXTEND ALL DRAINS, FULL SIZE TO DISCHARGE ABOVE FLOOR SINK.



AIR COMPRESSOR PIPING DETAIL

NOT TO SCALE



COMPRESSED AIR CONNECTION DETAILS

NOT TO SCALE

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BRAKES PLUS

LINCOLN, NEBRASKA



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LITTLETON, CO 80123  
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ARCODEV

SHEET

P3.1

PLUMBING DETAILS







ELECTRICAL GENERAL NOTES

1. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK.
2. FINAL CONNECTIONS & ROUGH-IN REQUIREMENTS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
3. CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, MECHANICAL AND OTHER DRAWINGS PRIOR TO BID.
4. CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN HIS BID ALL COSTS REQUIRED TO MAKE HIS WORK MEET EXISTING CONDITIONS.
5. PROPOSED SUBSTITUTIONS OF ELECTRICAL EQUIPMENT OR REQUEST FOR "OR EQUAL" OR "APPROVED EQUAL" LISTING SHALL BE SUBMITTED TO ARCHITECT NOT LESS THAN TEN (10) WORKING DAYS PRIOR TO BID.
6. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.
7. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST ADOPTED EDITIONS OF LOCAL, STATE, AND NATIONAL CODES AND ORDINANCES.
8. PROVIDE PERMITS AND INSPECTIONS REQUIRED.
9. PROVIDE RECORD DRAWINGS TO ARCHITECT. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
10. VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
11. SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
12. WIRE SHALL BE COPPER, 75 DEGREE C RATED FOR GENERAL USE. FOR HID FIXTURES AND WIRING WITHIN 3 INCHES OF FLUORESCENT BALLASTS, WIRE SHALL BE COPPER, MINIMUM 90 DEGREE C RATED. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30 DEGREE C AMBIENT. CONDUCTOR AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
14. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS OR EQUIPMENT.
15. SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION. LIGHTS, SWITCHES, RECEPTACLES, MOTORS, ETC., SHALL BE CONNECTED AND OPERABLE.
16. VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING. PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION SUPPORTS, SERVICE FEEDERS (CONDUIT AND/OR WIRE), PULLBOXES, TRANSFORMER PADS, SAWCUTTING AND PATCHING, CONCRETE/PAVING, ETC., REQUIRED. BACKFILL TRENCHES TO 90% COMPACTION AND PATCH TO MATCH EXISTING. CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS.
17. PROVIDE MAINTENANCE RECEPTACLE WITHIN 25'-0" OF ALL MECHANICAL OR MOTORIZED EQUIPMENT.

18. SEE MECHANICAL DRAWINGS FOR LOCATION OF MECHANICAL EQUIPMENT. PROVIDE SERVICE TO AND CONNECT EQUIPMENT AS REQUIRED. PROVIDE FUSES OR HACR-TYPE CIRCUIT BREAKERS FOR ALL AIR CONDITIONING EQUIPMENT SIZED IN ACCORDANCE WITH MANUFACTURER'S NAMEPLATE.
19. PROVIDE ENGRAVED NAMEPLATES ON PANELBOARDS, DISCONNECT SWITCHES, ETC. INDICATING EQUIPMENT DESIGNATION (OR DESIGNATION OF EQUIPMENT SERVED) AND VOLTAGE. NAMEPLATES TO BE MECHANICALLY FASTENED.
20. PANEL DIRECTORIES SHALL BE TYPED AND INSTALLED UNDER CLEAR PLASTIC COVERS.
21. ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC RACEWAYS. RACEWAYS IN SLAB-ON-GRADE OR BELOW GRADE SHALL BE SCHEDULE 40 PVC. TRANSITIONS FROM BELOW TO ABOVE GRADE SHALL BE WITH RIGID STEEL ELBOWS WITH P.V.C. JACKET OR APPROVED EQUAL PROTECTION.
22. EMT, NON-METALLIC AND FLEXIBLE METAL CONDUITS SHALL HAVE A CODE SIZED COPPER GROUNDING CONDUCTOR. INCREASE CONDUIT SIZE AS REQUIRED.
23. FIRE ALARM, SOUND, TELEPHONE, COMPUTER, AND SIMILAR SYSTEMS CONDUITS LARGER THAN 1" SHALL HAVE LONG RADIUS SWEEPS (12 TIMES THE DIAMETER).
24. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L.
25. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C.
26. RECEPTACLES INSTALLED OUTSIDE, ON THE BUILDING EXTERIOR OR ROOF, WITHIN 6' OF A SINK OR WATER COOLER CONNECTION, VENDING MACHINES, AND KITCHEN AREAS SHALL BE GFCI TYPE OR PROTECTED BY GFCI CIRCUIT BREAKER PER NEC 511.12.
27. ALL NEW EQUIPMENT SUCH AS SWITCHBOARDS, DISTRIBUTION PANELS, DISCONNECT SWITCHES, TRANSFORMERS, AND PANELBOARDS SHALL BE BY THE SAME MANUFACTURER.
28. ELECTRICAL CONTRACTOR SHALL SUBMIT 5 COPIES OF ALL ELECTRICAL EQUIPMENT AND LIGHT FIXTURES TO ENGINEER VIA GENERAL CONTRACTOR FOR APPROVAL PRIOR TO ORDERING.
29. ELECTRICAL CONTRACTOR TO PROVIDE FINAL CONNECTION OF OWNER FURNISHED EQUIPMENT. VERIFY EXACT REQUIREMENTS PRIOR TO ROUGH-IN.
30. HANDLE TIES SHALL BE PROVIDED FOR ALL MULTI-WIRED BRANCH CIRCUITS UNLESS INDIVIDUAL NEUTRAL CONDUCTORS ARE PROVIDED PER NEC 210.4(B).
31. FURNISH ALL MECHANICAL EQUIPMENT WITH FUSIBLE DISCONNECTS. THESE DISCONNECTS SHALL BE EQUIPED WITH CLASS "R" FUSES.

ALL ELECTRICAL WORK SHALL COMPLY WITH N.E.C. REQUIREMENTS

ELECTRICAL SHEET INDEX



							2-5-25 PERMIT		
								SHEET NO.	SHEET DESCRIPTION
							2-5-25 PERMIT	E0.1	ELECTRICAL COVER SHEET
							2-5-25 PERMIT	ES1.1	ELECTRICAL SITE PLAN
							2-5-25 PERMIT	E1.1	ELECTRICAL LIGHTING PLAN
							2-5-25 PERMIT	E2.1	ELECTRICAL POWER PLAN
							2-5-25 PERMIT	E3.1	ELECTRICAL ROOF PLAN
							2-5-25 PERMIT	E4.1	ELECTRICAL ONE LINE DIAGRAM
							2-5-25 PERMIT	E5.1	LIGHTING COMPLIANCE CERTIFICATES

ELECTRICAL LEGEND

	DUPLEX OUTLET
	DEDICATED DUPLEX OUTLET
	AUTOCLAVE RECEPTACLE
	FOUR-PLEX OUTLET
	220-VOLT OUTLET
	FLOOR OUTLET
	TELEPHONE JACK
	TELEPHONE JACK +60"
	DATA JACK
	PLUGMODE
	ABOVE COUNTER
	LIGHT SWITCH @ 56" AFF
	THREE-WAY LIGHT SWITCH @56' AFF
	TELEPHONE BACKBOARD W/ OUTLET
	ELECTRICAL PANEL
	TIME CLOCK
	SIGN OUTLET
	JUNCTION BOX
	THERMOSTAT

VERIFY ELECTRICAL REQUIREMENTS WITH OWNER PRIOR TO INSTALLATION

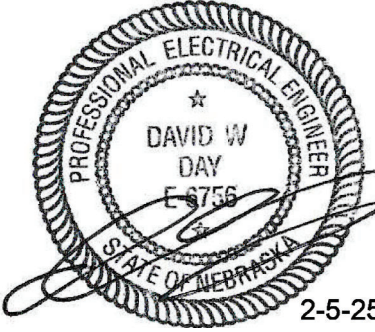
FIRE ALARM LEGEND

	MINI HORN-STROBE +90" A.F.F.
	MANUAL FIRE ALARM PULL STATION +48" A.F.F.

DAVID W DAY , P.E.  
102 Poncho St.  
P.O. Box 1640 Anahuac, TX 77514  
Telephone 713-927-4470

BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

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		DATE	COMMENTS
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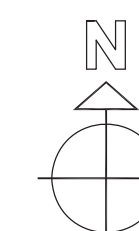
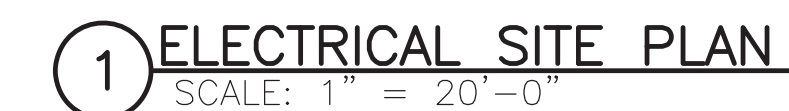
45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8825

SHEET

E0.1

ELECTRICAL  
COVER SHEET





# BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



2-5-25

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CHECKED BY: \_\_\_\_\_ LRI

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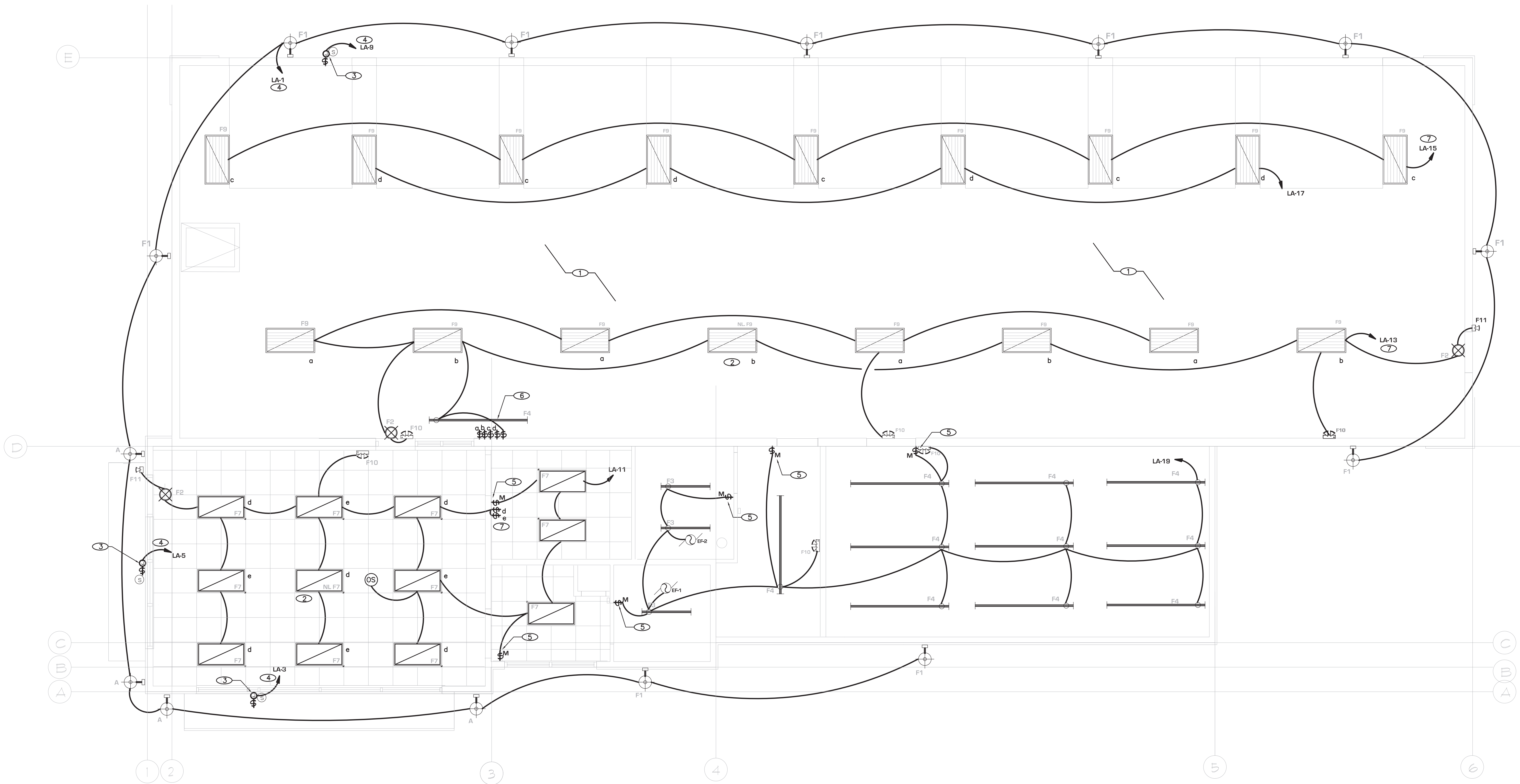
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LITTLETON, CO 80123  
VOICE- 303.881-8925

SHEET

## ES1.1

ELECTRICAL  
SITE PLAN





#### LIGHTING GENERAL NOTES

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR LUMINAIRE LOCATIONS.
2. COORDINATE LUMINAIRE LOCATION WITH MECHANICAL PIPING, DUCTWORK, ETC. TO AVOID CONFLICTS.
3. ALL CONDUIT SHALL BE INSTALLED CONCEALED IN FINISHED AREAS UNLESS OTHERWISE NOTED.
4. EACH MULTIWIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT.
5. CONNECT EXTERIOR LUMINAIRES WITH MINIMUM #10 AWG CONDUCTOR.
6. FUNCTIONAL TESTING OF THE LIGHTING SYSTEM SHALL COMPLY WITH SECTION C408.3.1 OF THE IECC

#### LIGHTING DETAIL NOTES

1. MOUNT TYPE 'F9' LUMINAIRES LOCATED IN GARAGE AREA CHAIN HUNG FROM STRUCTURE AT 12'-0" A.F.F. MOUNT TYPE 'F9' LUMINAIRES LOCATED BETWEEN OVERHEAD DOORS AT 2" BELOW OVERHEAD GRILLE GUIDES.
2. NIGHT LIGHT UNSWITCHED FIXTURE. CONNECT AHEAD OF LOCAL SWITCHING OR LIGHT CONTROLS.
3. JUNCTION BOX / DISCONNECTING MEANS FOR CONNECTION TO OWNER PROVIDED ILLUMINATED BUILDING SIGNAGE. COORDINATE EXACT LOCATION WITH SIGN CONTRACTOR PRIOR TO ROUGH-IN.
4. LUMINAIRE OR SIGN BRANCH CIRCUIT CONTROLLED THROUGH PHOTOCELL ON/TIMECLOCK OFF.
5. PROVIDED OCCUPANCY SENSOR ON/OFF SWITCH FOR CONTROL OF LIGHTING WITHIN THIS ROOM. SWITCH TO BE MANUFACTURED BY WATT STOPPER #LMPW-100.
6. CENTER FIXTURE OVER SERVICE MANAGER'S DESK.

7. PROVIDED BI-LEVEL SWITCHING LIGHT-REDUCTION CONTROLS, IN ACCORDANCE WITH THE 2009 IECC.

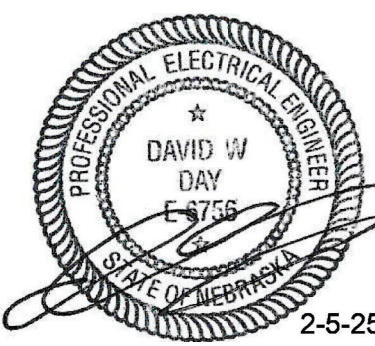
### 1 ELECTRICAL LIGHTING PLAN

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

DAVID W DAY , P.E.  
102 Poncho St.  
P.O. Box 1640 Anahuac, TX 77514  
Telephone 713-927-4470

BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



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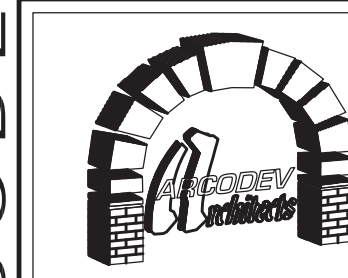
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SHEET

E1.1

ELECTRICAL  
LIGHTING PLAN





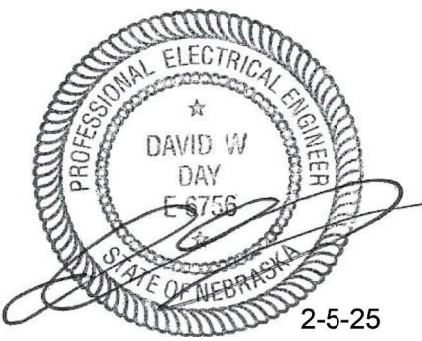




① ELECTRICAL ROOF PLAN  
SCALE: 1/4" = 1'-0"

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102 Poncho St.  
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BRAKES PLUS  
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LINCOLN, NEBRASKA



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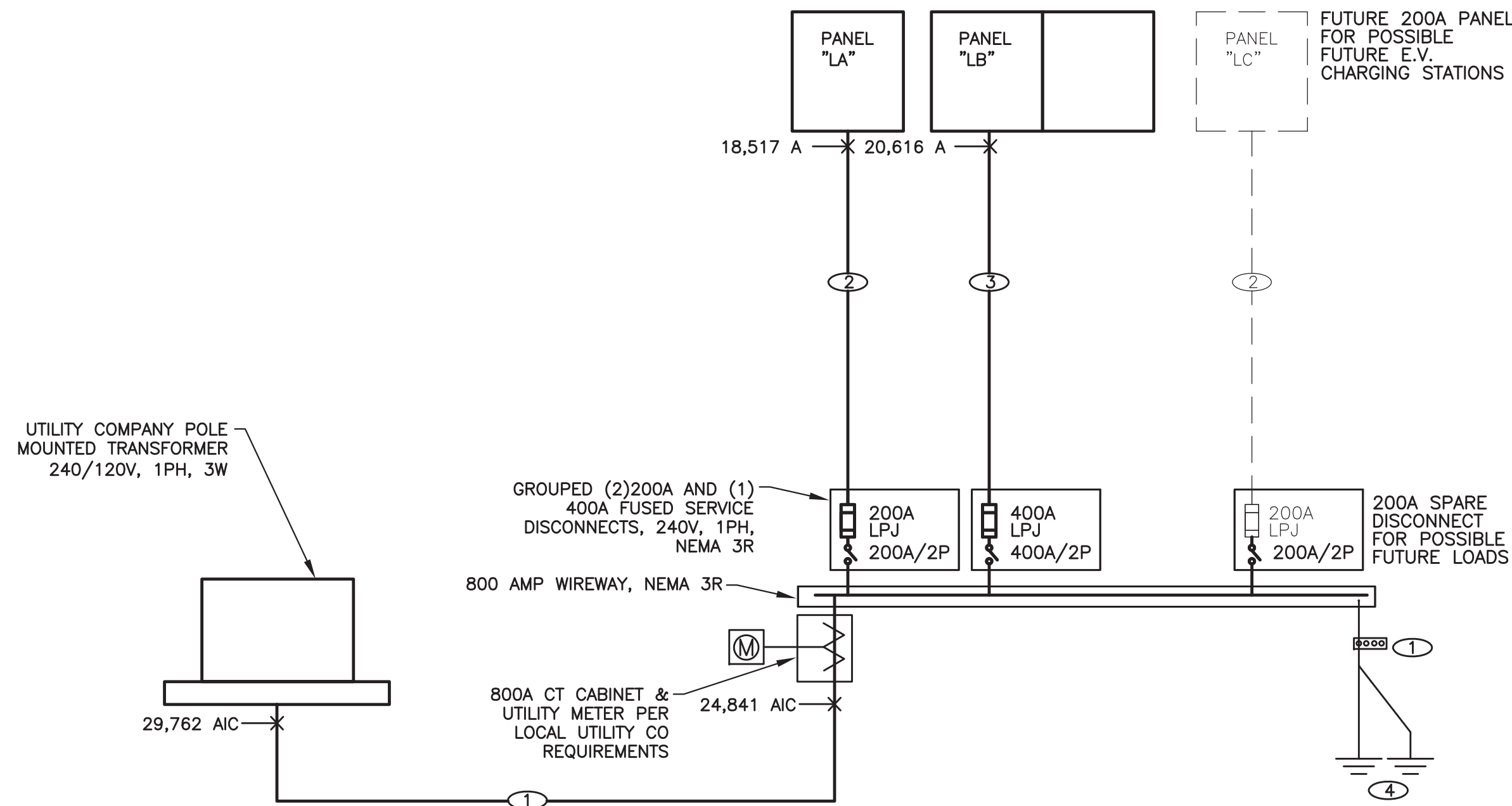
E3.1

ELECTRICAL  
ROOF PLAN



DESIGNATION	DESCRIPTION	LOAD				VOLTAGE	PHASE	DISCONNECT SIZE	FUSE SIZE	FEEDER SIZE	REMARKS
		HP	KVA	FLA	MCA						
RTU-1	ROOF TOP UNIT			31.3	37.0	240	1	60A/2P	50A FRN-R	(2#6, 1#10G, 1-1/4"C)	
EF-1	EXHAUST FAN		100W			120	1	SMT0	-	(2#12, 1#12G, 3/4"C)	
EF-2	EXHAUST FAN		100W			120	1	SMT0	-	(2#12, 1#12G, 3/4"C)	
EF-3	EXHAUST FAN	1/2	1176W	9.8		120	1	SMT0	-	(2#12, 1#12G, 3/4"C)	
F-1	AIR CIRCULATION FAN	1/4	696W	5.8		120	1	30A/1P	9A FRN-R	(2#12, 1#12G, 3/4"C)	
IR-1	GAS RADIANT TUBE HEATER			5.0		120	1	SMT0	-	(2#12, 1#12G, 3/4"C)	
EW-1	WATER HEATER		1.5KW			120	1	-	-	(2#12, 1#12G, 3/4"C)	

REMARKS  
1. UNIT FURNISHED WITH INTEGRAL DISCONNECT.  
1. PROVIDE MOTOR RATED SWITCH WITH THERMAL OVERLOAD.

[illegible]

### FEEDER SCHEDULE

- ONE-LINE DIAGRAM DETAIL NOTES

- ## LOAD CALCULATIONS

LIGHTING	9.1	⊗ 125%	=	11.4 kVA	
RECEPTACLE	10.0	⊗ 100%	=	10.0 kVA	
BALANCE	3.1	⊗ 50%	=	1.6 kVA	
MECHANICAL	12.4	⊗ 100%	=	12.4 kVA	
25% OF LARGEST			=	1.9 kVA	
SPECIAL	55.7	⊗ 100%	=	55.7 kVA	
TOTAL			=	93.0 kVA	(388 A)

POINT TO POINT METHOD FOR SHORT CIRCUIT CALCULATIONS ILLUSTRATED IN  
BUSSMAN MANUFACTURING PUBLICATION FORM SPD90.  
SERVICE: 120/240 V., 1-PHASE, 3W

AVAILABLE SHORT CIRCUIT CURRENT FROM UTILITY = 29,762 A.

$$\text{FIND FACTOR } f = \frac{2.0 \times (\text{length in feet}) \times (\text{short circuit current})}{(\text{constant from Table C}) \times (\text{line-to-line voltage})}$$

$$f = \frac{2.0 \times 100 \times 29,762}{3 \times 20,868 \times 240} = 0.198$$

$$\text{FIND FACTOR } M = \frac{1}{1 + f} \quad M = 0.8347$$

SHORT CIRCUIT CURRENT AT CT/MAIN = M x AVAILABLE S.C. CURRENT

$$I = 24,841 \text{ A.}$$

LENGTH IN FEET = 20

$$\text{FACTOR } f = \frac{0.342}{1 \times 12,122 \times 240} = 0.342$$

FACTOR M = 0.7454

SHORT CIRCUIT CURRENT AT PANEL "LA" = 18,517 A.

LENGTH IN FEET = 24

$$\text{FACTOR } f = \frac{0.205}{2 \times 12,122 \times 240} = 0.205$$

FACTOR M = 0.833

SHORT CIRCUIT CURRENT AT PANEL "LB" = 20,616 A.

NOTE:

1. ELECTRICAL CONTRACTOR TO LABEL THE SERVICE ENTRANCE WITH THE AVAILABLE FAULT CURRENT AND THE DATE IT WAS CALCULATED AS REQUIRED BY N.E.C. ARTICLE 100.24

SCHEDULE - PANEL LA			NOTE: ALL BREAKERS 20A UNLESS NOTED OTHERWISE		
TYPE: AS APPROVED			LIGHT	7.9 KVA @ 125% =	9.2 KVA
TYPE: PANELBOARD			RECEPT	11.7 KVA @ 100% =	11.7 KVA
LOG LOC: TOP			MECH	KVA @ 100% =	KVA
AMPS: 200A, MLO			25% LARGEST MOTOR	KVA	
VOLTAGE: 120/240V, 1ph, 3W			SPECIAL	6.9 KVA @ 100% =	6.9 KVA
MOUNTING: SURFACE			SPARE		
BROWSE: 22,000 A.I.C.			TOTAL		27.2 KVA (116A)
EXTERIOR LIGHTING			720	OFFICE RECEPETS	
EXTERIOR SIGN	1200	3	800	SALES AREA COUNTER RECEPETS	
EXTERIOR SIGN	1200	5	1000	KIOSK RECEPETS	
FWH-1	1500	7	360	SALES AREA RECEPETS	
EXTERIOR SIGN	1200	9	SPARE		
SALES, COFFEE, OFFICE LIGHTING	528	11	1800	SHOW WINDOW RECEPETS	
SALES AREA LIGHTING	1144	13	360	SALES AREA RECEPETS	
SERVICE AREA LIGHTING	660	15	300	TELEVISION	
SERVICE AREA LIGHTING	528	17	360	SERVICE AREA RECEPETS	
INVENTORY, BREAK, RESTROOM LTG	1012	19	500	GARAGE A/C RECEPETS	
IRRIGATION CONTROLS	500	21	540	GARAGE RECEPT	
BREAK, RESTROOM	180	23	540	GARAGE RECEPT	
BURGLAR ALARM	400	25	200	COMPUTER	
TELEPHONE SYSTEM	400	27	500	BENCH RECEPT	
MICROWAVE	900	29	180	GARAGE RECEPT	
BREAK RECEPETS	360	31	360	GARAGE RECEPT	
SPARE		33	500	SERVICE AREA RECEPETS	
RECEPTORATOR	1200	35	SPARE		
RECEPT - WATER FOUNTAIN	370	37	360	GARAGE RECEPT	
COFFEE UNIT	1000	39	1200	SHOW WINDOW RECEPETS	
OFFICE RECEPETS	360	41	300	MENU TV	
A phase =	11,526 VA		B phase =	14,420 VA	Total = 25,946 VA

(116A)

SCHEDULE - PANEL LB				NOTE: ALL BREAKERS 20A UNLESS NOTED OTHERWISE			
MFG.	AS APPROVED			LIGHT	1.2	KVA @ 125% =	1.5 KVA
TYPE	PANELBOARD 2-SECTION			RECEPT	1.4	KVA @ 100% =	1.4 KVA
LUG LOC.	TOP			MCH	12.4	KVA @ 100% =	12.4 KVA
AMPS.	400A. MLO			25% LARGEST MOTOR			1.4 KVA
VOLTAGE	120/240V. 1ph. 3W			SPECIAL	44.4	KVA @ 100% =	44.4 KVA
MOUNTING	SURFACE			SPARE			
BRACING	22,000 A.I.C.			TOTAL			66.6 KVA
AIR COMPRESSOR				1800	ALIGNMENT SENSORS		
---	---	3360	1	1800	ALIGNMENT MACHINE		
SPARE		3360	3		SPARE		
SPARE			4		SPARE		
AIR CIRCULATION FANS		1392	9	3120	ALIGNMENT RACK		
AIR CIRCULATION FANS		1392	11	3120	SPARE		
SHOP EQUIPMENT RECEP.TS		1440	13	1800	BRAKE LATHE		
SPARE			14		SPARE		
SPARE			15		SPARE		
SPARE			16		SPARE		
ROOF RECEPT		180	17	3755	RTU-1		
RECEPT - RESTROOM		180	21	3755	SPARE		
RECEPT - RESTROOM		180	23		SPARE		
RECEPT - INVENTORY		180	25		SPARE		
IR-3		1130	27	720	INVENTORY RECEP.TS		
IR-1		500	29	1200	MONUMENT SIGN		
IR-2		500	31	1000	DRYER		
SPARE			33		SPARE		
SPARE			35		SPARE		
SPARE			37		SPARE		
SPARE			39		SPARE		
SPARE			41		SPARE		

(278A)

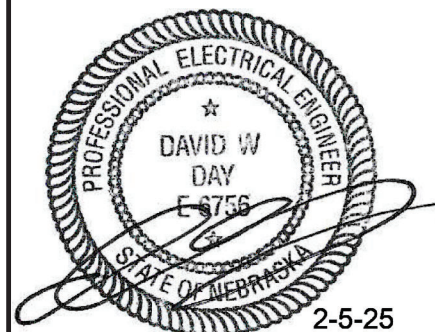
SECTION TWO			
LIST	2012	17	1

A phase =		B phase =		Total =	
LIFT	2040	44J	46	SPACE	
---	2040	46J	48	SPACE	
LIFT	2040	47J	48	SPACE	
---	2040	49J	50	SPACE	
LIFT	2040	51J	52	SPACE	
---	2040	53J	54	SPACE	
LIFT	2040	55J	56	SPACE	
---	2040	57J	58	SPACE	
LIFT	2040	59J	60	SPACE	
---	2040	61J	62	SPACE	
LIFT	2040	63J	64	SPACE	
---	2040	65J	66	SPACE	
LIFT	2040	67J	68	SPACE	
---	2040	69J	70	SPACE	
SPACE		71J	72	SPACE	
SPACE		73J	74	SPACE	
SPACE		75J	76	SPACE	
SPACE		77J	78	SPACE	
SPACE		79J	80	SPACE	
SPACE		81J	82	SPACE	
SPACE		83J	84	SPACE	
A phase =	31,207 VA	B phase =	33,519 VA	Total =	64,726 VA

DAVID W DAY , P.E.  
102 Poncho St.  
P.O. Box 1640 Anahuac, TX 77514  
Telephone 713-927-4470

# BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



ARCHITECT OF RECORD

COMMENTS

DATE 02.05.25

## REVISION

ARCODEV JOB #: -

**CLIENTJOB #:** \_\_\_\_\_ -

**DRAWN BY:** \_\_\_\_\_ **SE** \_\_\_\_\_

CHECKED BY: \_\_\_\_\_ LRF

# ARCODEV



45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8925

**SHEET**

## E4.1

## ELECTRICAL ONE LINE DIAGRAM





COMcheck Software Version 4.1.5.5

## Interior Lighting Compliance Certificate

### Project Information

Energy Code: 2015 IECC  
Project Title: Brakes Plus  
Project Type: New Construction

Construction Site: 2725 Crossbridge Place  
Lincoln, NE  
Owner/Agent:  
Designer/Contractor:  
Loren Priest  
EE, LLC  
12005 Antelope Trail  
Parker, CO 80138  
303.748.1189  
loren@eeparker.com

Credits: 1.0 Required 1.0 Proposed  
Reduced Lighting Power, 1.0 credit

### Allowed Interior Lighting Power

A Area Category	B Floor Area (ft <sup>2</sup> )	C Allowed Watts / ft <sup>2</sup>	D Allowed Watts (B X C)
1-Sales Area (Retail/Sales Area)	965	1.43	1409
2-Service/Repair (Automotive/Vehicular Maintenance Area)	3730	0.60	2238
Total Allowed Watts = 3647			

### Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Sales Area (Retail/Sales Area)				
LED 7: F3: 4' LED Strip: LED Linear 22W:	2	3	44	132
LED 8: F4: 8' LED Strip: LED Linear 22W:	4	1	88	88
LED 7 copy 1: F7: 2x4 LED Troffer: LED Panel 19W:	1	12	25	300
2-Service/Repair (Automotive/Vehicular Maintenance Area)				
LED 8 copy 2: F8: 4' LED Highway: LED Panel 80W:	1	17	120	2040
LED 8 copy 1: F4: 8' LED Strip: LED Linear 22W:	4	10	88	880
Total Proposed Watts = 3440				

Interior Lighting PASSES: Design 6% better than code

### Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Stan Bentley — Electrical Designer  
Name - Title Signature Date 2-4-25

Project Title: Brakes Plus  
Data filename: C:\COMCHECK\BRAKES PLUS\BRAKES PLUS- LINCOLN NE.cck  
Report date: 02/04/25  
Page 1 of 7



COMcheck Software Version 4.1.5.5

## Exterior Lighting Compliance Certificate

### Project Information

Energy Code: 2015 IECC  
Project Title: Brakes Plus  
Project Type: New Construction  
Exterior Lighting Zone: 4 (High activity metropolitan commercial district (LZ4))

Construction Site: 2725 Crossbridge Place  
Lincoln, NE  
Owner/Agent:  
Designer/Contractor:  
Loren Priest  
EE, LLC  
12005 Antelope Trail  
Parker, CO 80138  
303.748.1189  
loren@eeparker.com

### Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Wall area (Illuminated area of facade wall or surface)	3000 ft <sup>2</sup>	0.2	No	600
Total Tradable Watts (a) =				0
Total Allowed Watts =				600
Total Allowed Supplemental Watts (b) =				1300

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.  
(b) A supplemental allowance equal to 1300 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

### Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Wall area (Illuminated area of facade wall or surface 3000 ft <sup>2</sup> ): Non-tradable Wattage				
LED 1: F1: LED Wall pack: LED A Lamp 25W:	1	10	30	300
LED 4: A: LED Decorative Wall Lit: LED A Lamp 25W:	1	4	26	104
Total Tradable Proposed Watts =				0

Exterior Lighting PASSES: Design 0.0% better than code

### Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Stan Bentley — Electrical Designer  
Name - Title Signature Date 2-4-25

Project Title: Brakes Plus  
Data filename: C:\COMCHECK\BRAKES PLUS\BRAKES PLUS- LINCOLN NE.cck  
Report date: 02/04/25  
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COMcheck Software Version 4.1.5.5

## Inspection Checklist

Energy Code: 2015 IECC

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C103.2 [PR8] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C406 [PR9] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

### Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Brakes Plus  
Data filename: C:\COMCHECK\BRAKES PLUS\BRAKES PLUS- LINCOLN NE.cck  
Report date: 02/04/25  
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Section # & Req.ID	Rough-in Electrical Inspection	Complies?	Comments/Assumptions
C405.2.1 [EL15] <sup>1</sup>	Lighting controls installed to uniformly reduce the lighting load by at least 50%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1 [EL18] <sup>1</sup>	Occupancy sensors installed in required spaces.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1, C405.2.2, [EL23] <sup>1</sup>	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.2.1 [EL22] <sup>1</sup>	Automatic controls to shut off all building lighting installed in all buildings.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.3 [EL16] <sup>1</sup>	Daylight zones provided with individual controls that control the lights independent of general area lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.3, C405.2.3.1, C405.2.3.2 [EL20] <sup>1</sup>	Primary sidelighted areas are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.3, C405.2.3.1, C405.2.3.3 [EL21] <sup>1</sup>	Enclosed spaces with daylight area under skylights and rooftop monitors are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 [EL4] <sup>1</sup>	Separate lighting control devices for specific uses installed per approved lighting plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 [EL8] <sup>1</sup>	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.5 [EL25] <sup>1(a)</sup>	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.3 [EL6] <sup>1</sup>	Exit signs do not exceed 5 watts per face.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

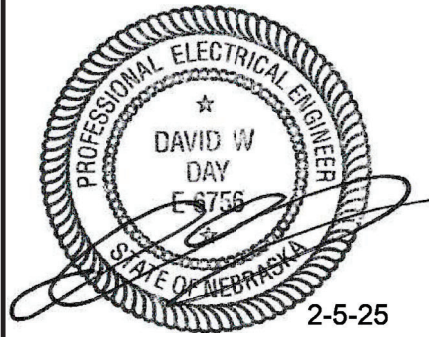
### Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Brakes Plus  
Data filename: C:\COMCHECK\BRAKES PLUS\BRAKES PLUS- LINCOLN NE.cck  
Report date: 02/04/25  
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BRAKES PLUS

2725 CROSSBRIDGE PLACE  
LINCOLN, NEBRASKA



2-5-25

ARCHITECT OF RECORD

COMMENTS  
SUBMITTED TO BLDG. DEPT.

DATE  
02.05.25

REVISION

ARCDEV JOB #: -

CLIENT JOB #: -

DRAWN BY: SB

CHECKED BY: LRP

DATE OF ISSUE: 02.05.25



45 SPYGLASS DRIVE  
LITTLETON, CO 80123  
VOICE: 303.881-8825

SHEET

DAVID W DAY , P.E.

102 Poncho St.  
P.O. Box 1640 Anahuac, TX 77514  
Telephone 713-927-4470

LIGHTING COMPLIANCE  
CERTIFICATES