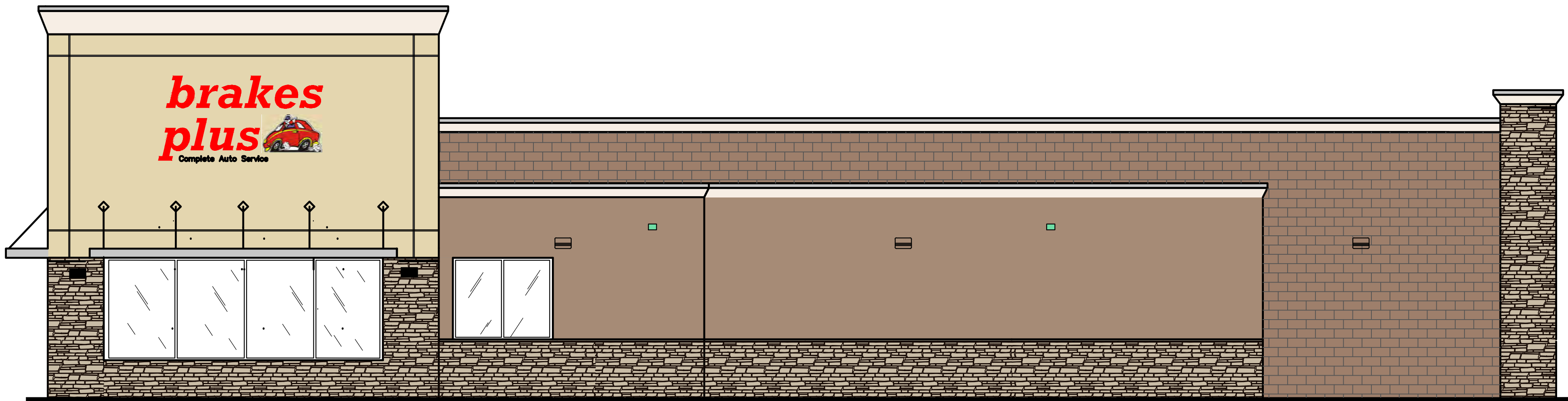


brakes plus

ADA, OKLAHOMA



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 (ARSS4-401 THROUGH 34-411), IBC CHAPTER STANDARDS AND 1990 AMERICANS WITH DISABILITIES ACT (ADA) TITLE II 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 $\frac{1}{8}$ " 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, Project #024-02476 dated MAY 2024.

PROJECT TEAM

OWNER:	EXPRESS OIL 1880 SOUTHPARK 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 601 P STREET, SUITE 200 LINCOLN, NE 68508 ATTN: RYAN KUBERT 402-474-5311

SHEET INDEX

ARCHITECTURAL

A0	COVER SHEET
A0.1	ACCESSIBLE DETAILS
A1-1	ARCHITECTURAL SITE PLAN & DETAILS
A2-1	FLOOR PLAN
A2-2	EQUIPMENT PLAN
A2-3	REFLECTED CEILING PLAN
A2-4	ROOF PLAN
A3-1	EXTERIOR BUILDING ELEVATIONS
A4-1	BUILDING SECTIONS/ENVELOPE COMCHECK
A4-2	BUILDING SECTIONS
A4-3	WALL SECTIONS / DETAILS
A4-4	WALL SECTIONS / DETAILS
A4-5	WALL SECTIONS
A4-6	DETAILS
A5-1	INTERIOR ELEVATIONS AND DETAILS
A5-2	INTERIOR ELEVATIONS AND DETAILS
A6-1	SCHEDULE / DETAILS
A6-2	FURNITURE AND FIXTURE DETAILS
A6-3	MATERIAL FINISHES

STRUCTURAL

S1-0	GENERAL NOTES
S2-0	FOUNDATION PLAN
S2-1	ROOF FRAMING PLAN
S3-0	SECTIONS AND DETAILS
S3-1	SECTIONS AND DETAILS
S3-2	SECTIONS AND DETAILS
S3-3	SECTIONS AND DETAILS

MECHANICAL

M0.1	MECH. SPECS, SCHEDULE, & LEGEND
M0.2	MECHANICAL SEQUENCE OF OPERATIONS/SPECS/SCHEDULES
M1.1	MECHANICAL PLAN
M1.2	MECHANICAL ROOF PLAN
M2.1	MECHANICAL DETAILS
M3.0	MECHANICAL COMCHECK

PLUMBING

P0.1	PLUMBING SPECS, SCHEDULES AND LEGEND
P1.0	UNDERGROUND PLUMBING PLAN
P1.1	PLUMBING PLAN
P2.1	PLUMBING ROOF PLAN
P3.1	PLUMBING DETAILS
P4.0	PLUMBING ISOMETRICS

ELECTRICAL

E0.1	ELECTRICAL GENERAL NOTES AND ELECTRICAL LEGEND
E0.1.1	ELECTRICAL SITE PLAN AND SITE LIGHTING
E1.1	ELECTRICAL LIGHTING PLAN
E2.1	ELECTRICAL POWER PLAN
E3.1	ELECTRICAL ROOF PLAN
E4.1	ELECTRICAL ONE LINE DIAGRAM, SCHEDULES AND CALCULATIONS
E5.1	LIGHTING COM CHECK

LOCATION-LEGAL DESCRIPTION

1201 LONNIE ABBOT BLVD., ADA, OKLAHOMA

CODE INFORMATION

APPLICABLE CODES

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL PLUMBING CODE
2018 NATIONAL MECHANICAL CODE
2020 NATIONAL ELECTRICAL CODE
2018 IBC

TYPE OF CONSTRUCTION

TYPE V-B

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 1269
ROOF INSULATION PROVIDED: MEETS ASTM C 1269

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

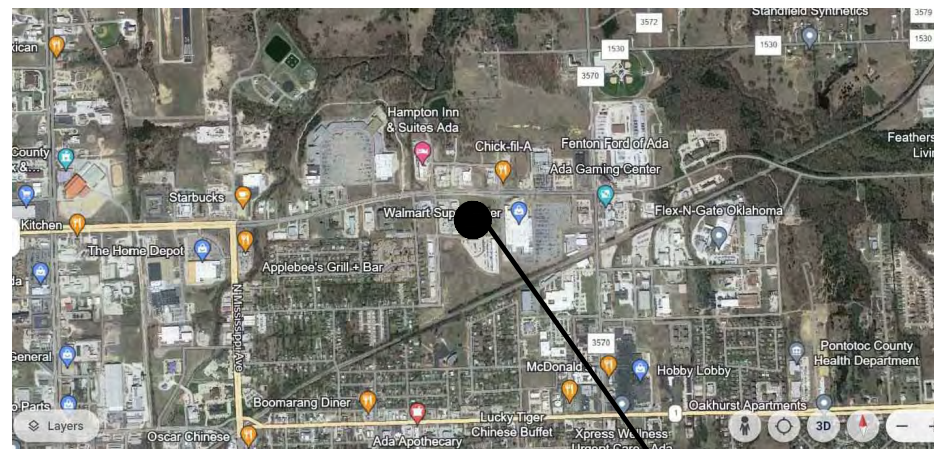
NUMBER OF EXITS

2 REQ.
2 PROVIDED

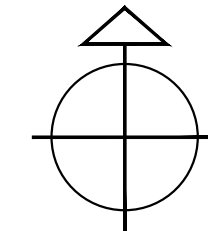
EXIT WIDTH

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

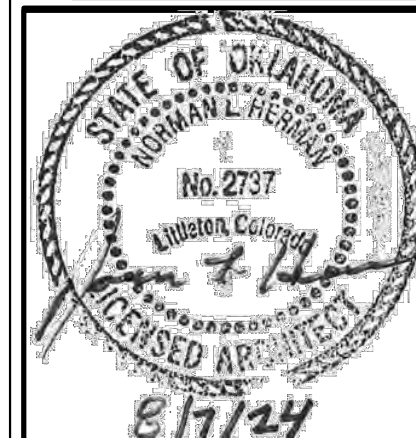
PARAPET REQUIREMENTS - PARAPETS MEET REQUIREMENTS. THEY EXCEED 30" IN HEIGHT HAD HAVE NO REQUIREMENT FOR FIRE RESISTANCE (SEE EXT. WALLS ABOVE)

REQUIRED PLUMBING FIXTURES:
- 2 RESTROOMS REQUIRED AND TWO PROVIDED
- 2 WATER CLOSETS REQUIRED AND TWO PROVIDED
- 1 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

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
1	08/07/2024	FOR SUBMITTAL TO BLDG. DEPT. RESPONSE TO BLDG. DEPT. COMMENTS

ARCODEV JOB # :
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CHECKED BY : NLH
DATE OF ISSUE: 06.26.24

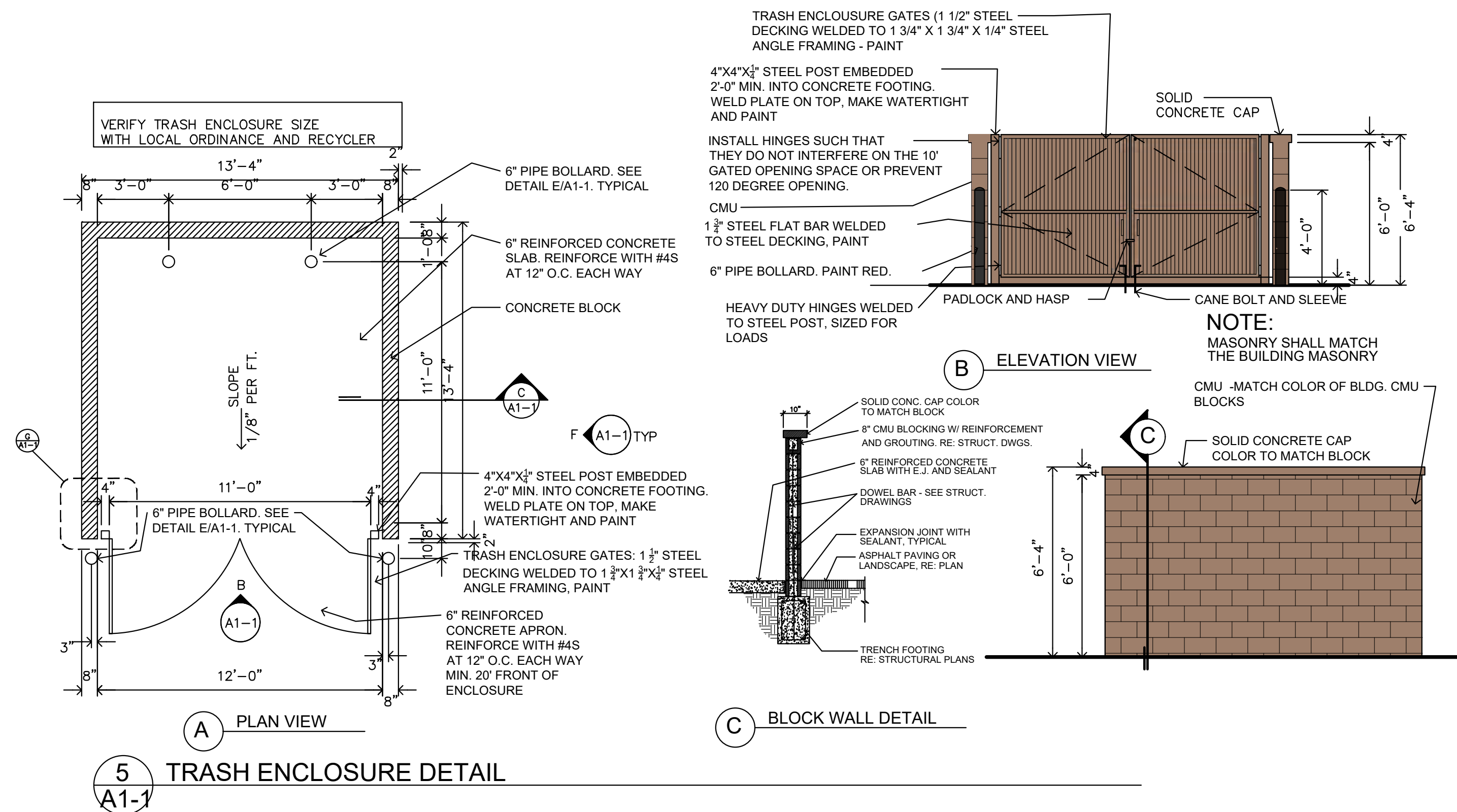
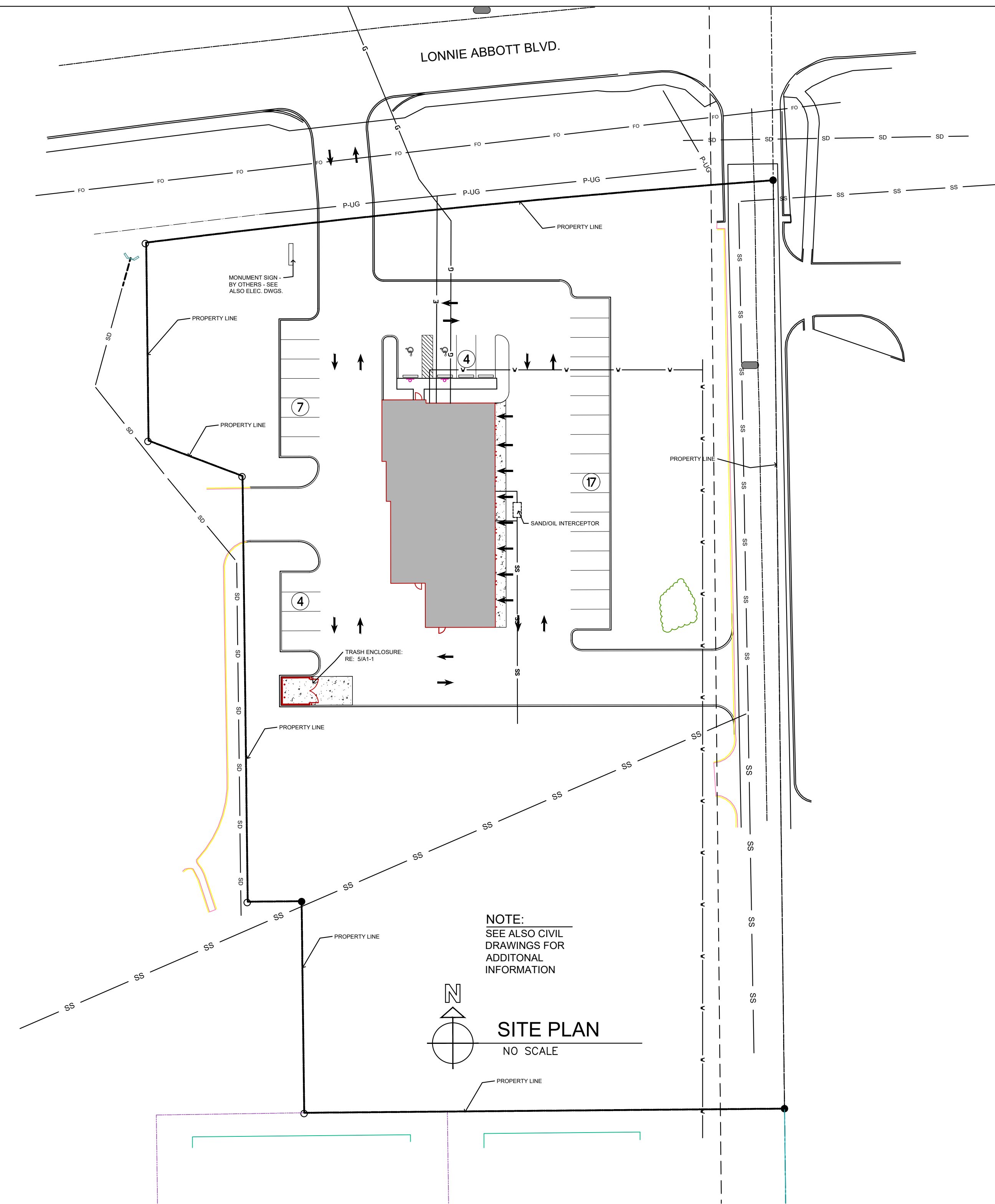


45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.881-8923
NORMHERMAN@ARCODEV.COM

SHEET

A0

COVER SHEET



BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA

STATE OF OKLAHOMA
NORMAN L. HERMAN
No. 2737
EXPIRATION DATE 8/1/24
ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
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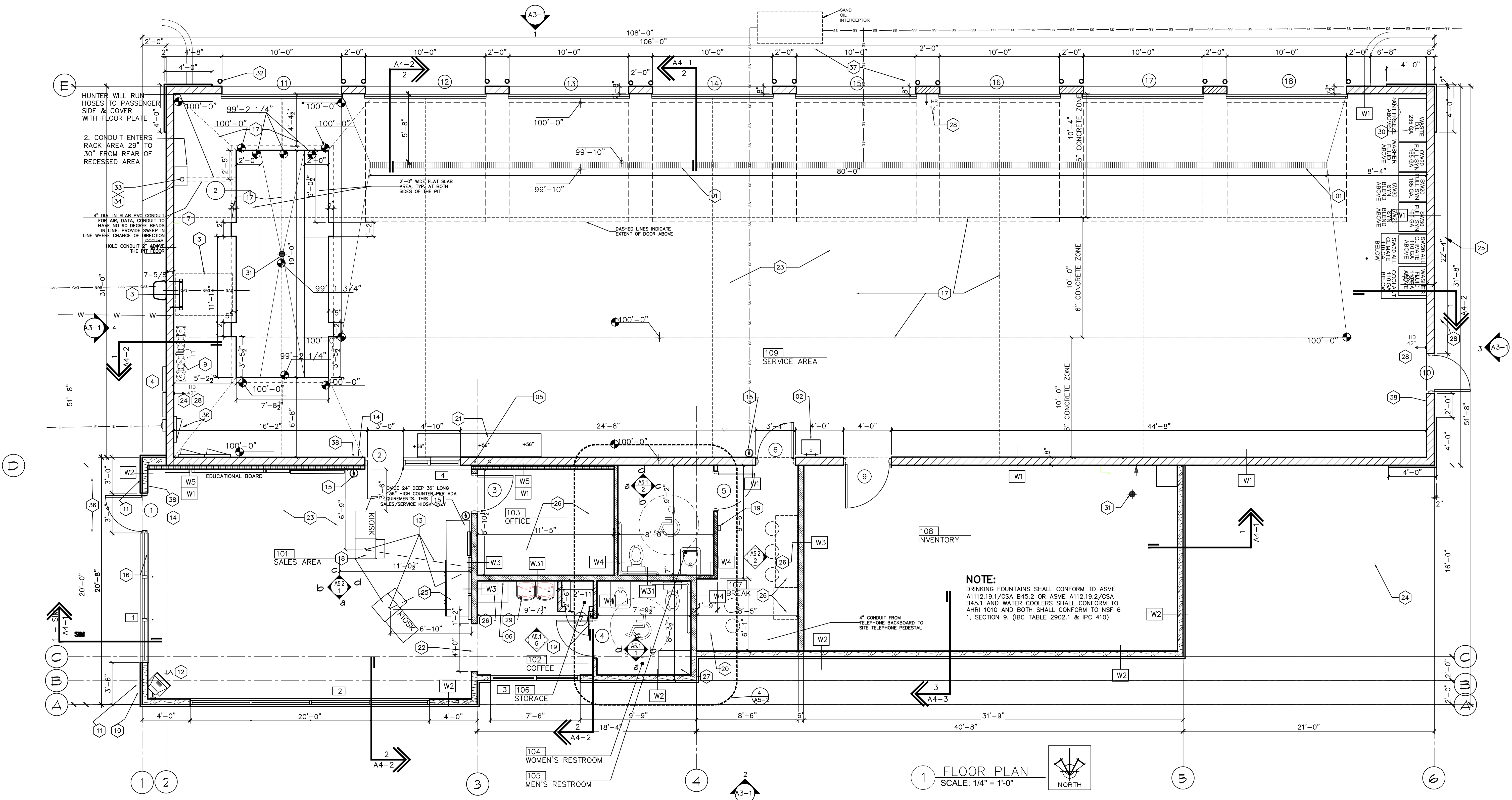
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45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.881-8925
NORMANHERMANARCODEV.COM

SHEET

A1-1

SITE PLAN AND DETAILS



NOTE:
DRINKING FOUNTAINS SHALL CONFORM TO ASME A112.19.1/CSA B45.2 OR ASME A112.19.2/CSA B45.1 AND WATER COOLERS SHALL CONFORM TO AHR 1010 AND BOTH SHALL CONFORM TO NSF 6.1, SECTION 9. (IBC TABLE 2902.1 & IPC 410)

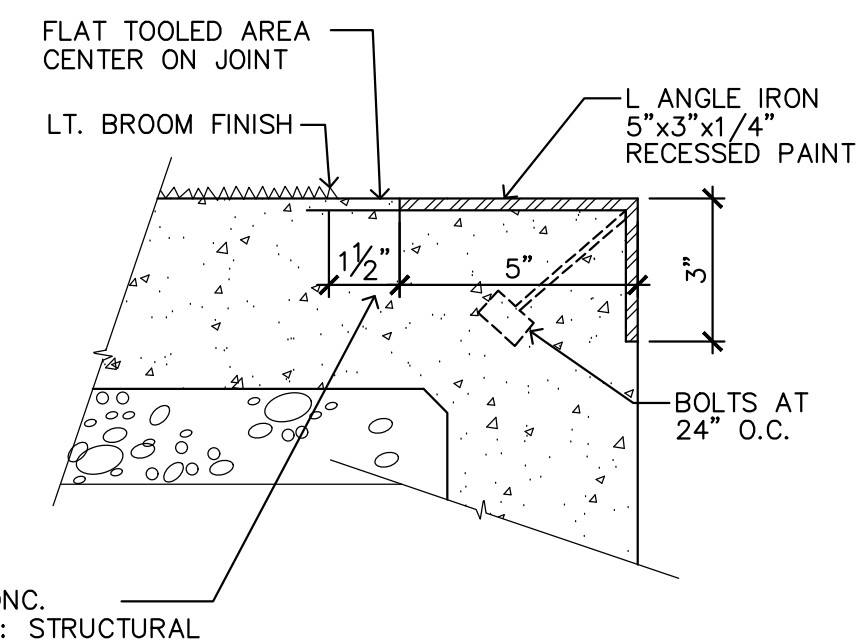
1 FLOOR PLAN
SCALE: 1/4" = 1'-0"

FLOOR PLAN KEYNOTES:

- 6" WIDE CONTINUOUS PRE-FORMED TRENCH DRAIN. MAX OPENING = 3/4". SEE PLUMBING DRAWINGS AND DRAIN SPEC.
- DEEP-BASIN SERVICE SINK. RE: MECHANICAL DRAWINGS. PROVIDE 48" HIGH x 36" WIDE STAINLESS STEEL PANEL ON WALL BEHIND SINK.
- ROOF LADDER (HATCH ABOVE) - RE: 2/A2-4 - COORDINATE EXACT LOCATION WITH BAR JOIST LOCATIONS.
- ELECTRICAL ENTRY EQUIPMENT. REFER TO ELECTRICAL DRAWINGS.
- PROVIDE ELECTRICAL CONDUIT FROM 15" AFF TO ABOVE CEILING AND PENETRATE THROUGH MASONRY WALL TO OFFICE.
- COLD WATER LINE FOR COFFEE MACHINE. RE: PLUMBING DRAWINGS.
- PROVIDE DISCONNECT FOR A LIFT AT THIS LOCATION.
- NOT USED.
- BACK FLOW PREVENTER. SEE CIVIL DRAWINGS. REFER TO PLUMBING DRAWINGS.
- PROVIDE KEY DROP BOX. MODEL NO. DSP2014K AS MANUFACTURED BY AMSC. INSTALLED BY CONTRACTOR.
- KNOX BOX. OBTAINED FROM LOCAL FIRE DEPARTMENT AND INSTALLED BY CONTRACTOR. VERIFY LOCATION WITH FIRE DEPARTMENT PRIOR TO INSTALLATION.
- PROVIDE BACKING AS REQUIRED TO SUPPORT TV MOUNTING BRACKET. COORDINATE WITH OWNER.
- TWO 1" ELECTRICAL CONDUITS FROM WALL TO EACH KIOSK & SERVICE COUNTER. CONDUIT #1 SHALL BE 7" FROM REAR WALL & 2'-6" FROM CENTERLINE OF FRONT DOOR (UP TO ABOVE CEILING). CONDUIT #2 WILL BE TO THE OUTSIDE OF #1 AND SLIGHTLY BACK TO ALLOW FOR ANGLE MOUNTING OF KIOSK.
- PROVIDE SIGN AT EXIT "MAXIMUM NUMBER OF OCCUPANTS"
- PROVIDE FIRE EXTINGUISHER AS DIRECTED BY LOCAL FIRE DEPARTMENT
- NOT USED.
- CONTROL JOINTS TYP.
- KIOSK AND PRINTER CABINET PROVIDED AND INSTALLED BY G.C.
- PROVIDE ACCESSIBLE SIGNAGE AT RESTROOM AS REQUIRED PER CODE
- LOCKERS PROVIDED AND INSTALLED BY OWNER
- SERVICE COUNTER PROVIDED AND INSTALLED BY G.C.
- 4'-0" W x 7'-4" H OPENING
- CONCRETE SLAB - RE: STRUCTURAL DRAWINGS.
- WATER-COOLER. (DEEP-ROCK WATER 303 292 2020; OR EQUAL).
- GAS METER.
- MILLWORK PROVIDED AND INSTALLED BY G.C.
- NOT USED.
- ACCESSIBLE ENTRY SIDEWALK.
- PROVIDE 10" WIDE CONC. APRON IN FRONT OF OVERHEAD DOORS (6" DEEP WITH #3'S 16" O.C. EACH WAY IN CENTER OF SLAB)
- PROVIDE EXIT SIGN AS SHOWN ON DETAIL 10 ON SHEET A4-5 INCLUDING TACTILE REQUIREMENTS.

GENERAL NOTES:

- PAIN EXPOSED UNFINISHED METALS PER SPECIFICATIONS. COLOR TO MATCH ADJACENT SURFACE IF NOT SPECIFIED.
- MAKE SURE TO HAVE A MINIMUM OF 6" CONCRETE UNDER HEAVY EQUIPMENT
- KEEP ALL EXPOSED PLUMBING AND CONDUIT LINES AT LEAST 6" ABOVE F.F.
- PROVIDE ANCHORS, BOLT AND OTHER NECESSARY FASTENERS AND BLOCKING AS REQUIRED AND ATTACH ACCESSORIES SECURELY TO WALLS AND PARTITIONS IN LOCATIONS AS SHOWN AS REQUIRED
- PROVIDE FIRE EXTINGUISHERS AS REQUIRED BY LOCAL FIRE MARSHALL. CONTRACTOR IS REQUIRED TO CONTACT FIRE DEPARTMENT FOR FIRE EXTINGUISHER TYPE AND EXACT MOUNTING LOCATIONS.
- ALL ELECTRICAL DEVICES SHALL BE EXPOSED SURFACE MOUNTED IN INSTALLATION BAYS. ALL DEVICES IN PUBLIC AREAS SHALL BE CONCEALED IN WALLS.
- CONVENIENCE POWER IS INDICATED ON THIS DRAWING FOR REFERENCE. PROVIDE POWER PER EQUIPMENT AND ALL ASSEMBLIES NOTED AS WELL.
- FOLLOW ALL RECOMMENDATIONS OF THE SOILS REPORT BY OLSSON, PROJECT #024-024-76 DATED MAY 2024.
- N/A
- ALL DIMENSIONS OF FACE OF STUDS AND FACE OF CMU BLOCKS



2 "L" MTL. AT RECESSED SLAB TYP.
SCALE: 1/4" = 1'-0"

WALLS ASSEMBLIES:				
ID	WALL TYPE / SYMBOL	DESCRIPTION	FIRE RATING	UL LISTING
W1	8" NOM. CONCRETE BLOCK FULL HEIGHT / DECK	NOMINAL (see PLAN) 16x8 LIGHT WEIGHT CONCRETE BLOCK. PROVIDE INSULATION IN OPEN CELLS WHERE EXTERIOR. GROUT CELLS SOLID AS THE STRUCTURAL DRAWINGS. MIN R VALUE OF 8.	LOOSE FILL SPECIFIED BY	-
W2	NEW WOOD STUD WALL	3/4" GYP BD EACH SIDE OVER 2X6 WOOD STUDS @ 16" O.C. TO 10' ELEVATION NOTED ON DRAWINGS. PROVIDE MOISTURE RESISTANT GYP BD AT WET LOCATIONS IN RESTROOM. USE EXTERIOR SHEATHING SURFACES. PROVIDE MIN. FULL BATT R-19 INSULATION W/ VAPOR BARRIER (450 KRAFFT PAPER OF EQUAL CLASS III VAPOR BARRIER). PROVIDE WATER BARRIER GREENGUARD MAX BUILDING WRAP. PROVIDE DRAINAGE PER IBC SETICON 1404.2 & INSTALLED PER 1405.	-	-
W3		3/4" GYP BD EACH SIDE OVER 2X6 WOOD STUDS @ 16" O.C. TO UNDERSIDE OF STRUCTURE ABOVE.	-	-
W31		3/4" GYP. BD. EACH SIDE OVER 2X6 WOOD STUDS @ 16" O.C. TO 12'-0" AFF. PROVIDE MOISTURE RESISTANT GYP BD AT WET LOCATIONS IN RESTROOM. PROVIDE FULL BATT SOUND INSULATION.	-	-
W4	NEW WOOD STUD WALL	3/4" GYP BD EACH SIDE OVER 2X4 WOOD STUDS @ O.C. @ 12'-0" AFF PROVIDE FULL BATT SOUND INSULATION.	-	-
W5	NEW FURRING	3/4" GYP BD OVER 2X2 WOOD FURRING STUDS @ 16" O.C. TO 6" ABOVE CEILING. PROVIDE FULL BATT INSULATION IN FURRED CAVITY	-	-
W6	NOT USED	NOT USED	-	-
GENERAL WALL CONSTRUCTION NOTES:				
PROVIDE SLIP TRACK HEAD RECEPTOR WHERE REQUIRED. ALL WALLS AROUND RESTROOMS TO RECEIVE R-19 BATT INSULATION. ALL RESTROOM CEILINGS TO RECEIVE R-19 BATT INSULATION.				

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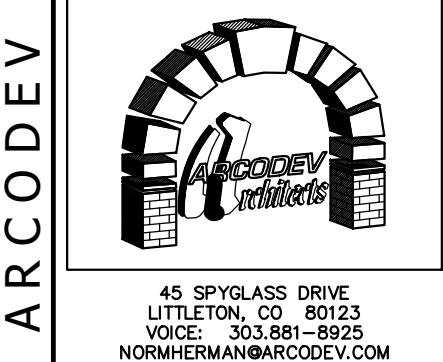
1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



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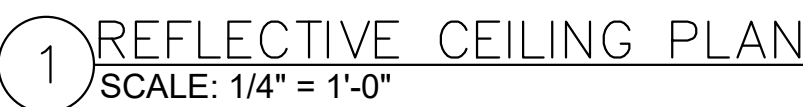
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SHEET

A2-1

FLOOR PLAN



ALL FIXTURES FURNISHED AND INSTALLED BY GENERAL CONTRACTOR

 CEILING PLAN KEYNOTES:

1. 2x4 ACOUSTICAL TILE CEILING GRID WITH ARMSTRONG "TUNE - FINE FIBURED SECOND LOOK" CEILING TILES. RE: ROOM FINISH SCHEDULE.
2. GYP BD CEILING OVER WOOD STUD FRAMING. PAINT: RE: ROOM FINISH SCHEDULE.
3. 1/2" GYP TO STRUCTURE ABOVE. PAINT: RE: ROOM FINISH SCHEDULE.
4. ROOF LADDER AND HATCH ABOVE-- COORDINATE EXACT LOCATION WITH ROOF FRAMING.
5. UNIT HEATER @ 11'-1" AFF TO BOTTOM OF ROOF. RE: MECH. DWGS.
6. JUNCTION BOX FOR EXTERIOR WALL SIGNS.
7. NOT USED
8. LINE OF METAL AWNING
9. CENTER LIGHT FIXTURE IN ROOM
10. NA.
11. NA.
12. CENTER LIGHT FIXTURES BETWEEN OVERHEAD DOOR. MOUNT BOTTOM OF FIXTURE 2" BELOW BOTTOM OF OVERHEAD DOOR TRACK. TYPICAL
13. LINE OF OVERHEAD DOOR
14. MOUNT FIXTURES TIGHT TO STRUCTURE ABOVE. TYPICAL
15. CENTER FIXTURE OVER SERVICE DESK BELOW
16. DECK MOUNTED WATER HEATER. RE: PLUMBING DRAWINGS.

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



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	08.07.2024	FOR SUBMITTAL TO BLDG. DEPT.
1	10.10.23	RESPOND TO BLDG. DEPT COMMENTS

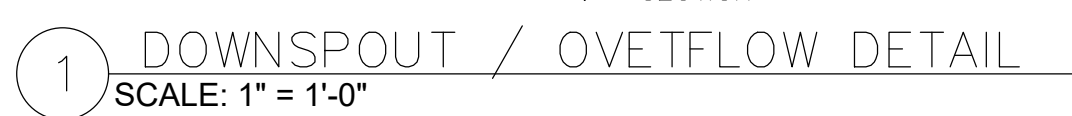
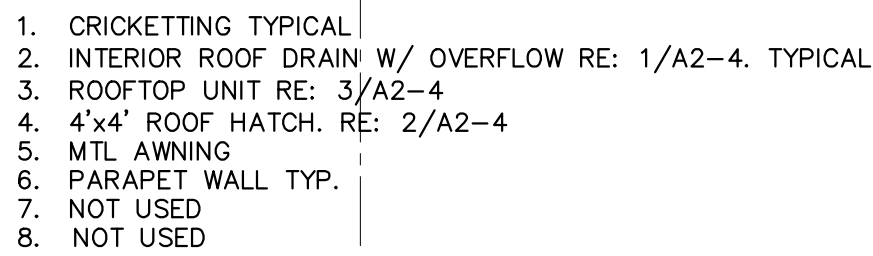
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CHECKED BY:	NL
DATE OF ISSUE:	06.26.2



SHEET

A2-3

CEILING PLAN



KEYNOTES

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

2. EIFS - INTEGRAL COLOR TO MATCH SHERWIN WILLIAMS #2835
CRAFTSMAN BROWN

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

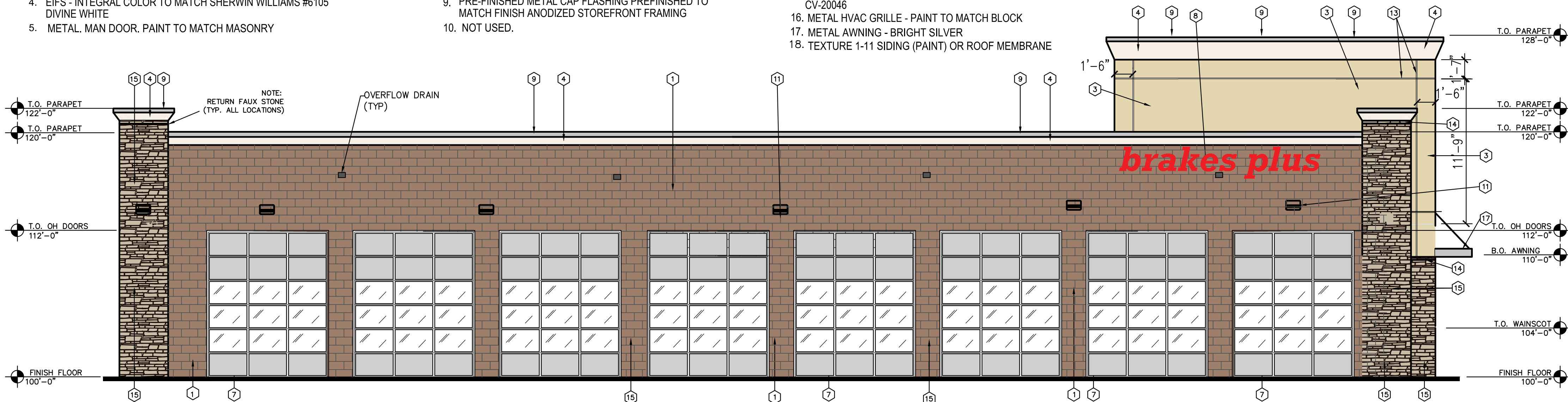
14. WATER SILL - FAUX STONE - CULTURED STONE - WHITE OAK COUNTRY
LEDGESTONE CV-20046

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

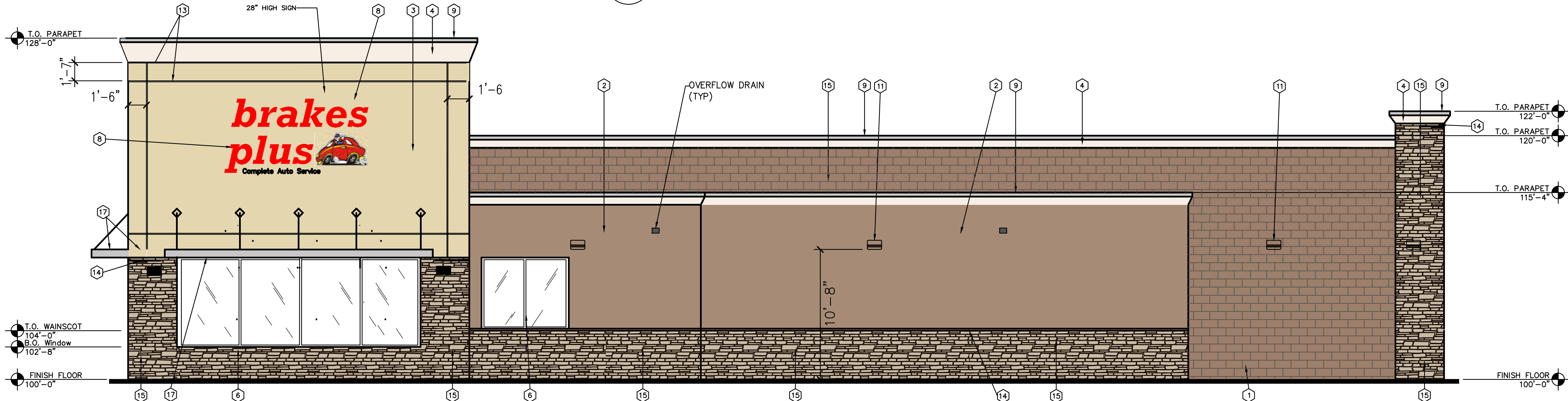
16. METAL HVAC GRILLE - PAINT TO MATCH BLOCK

17. METAL AWNING - BRIGHT SILVER

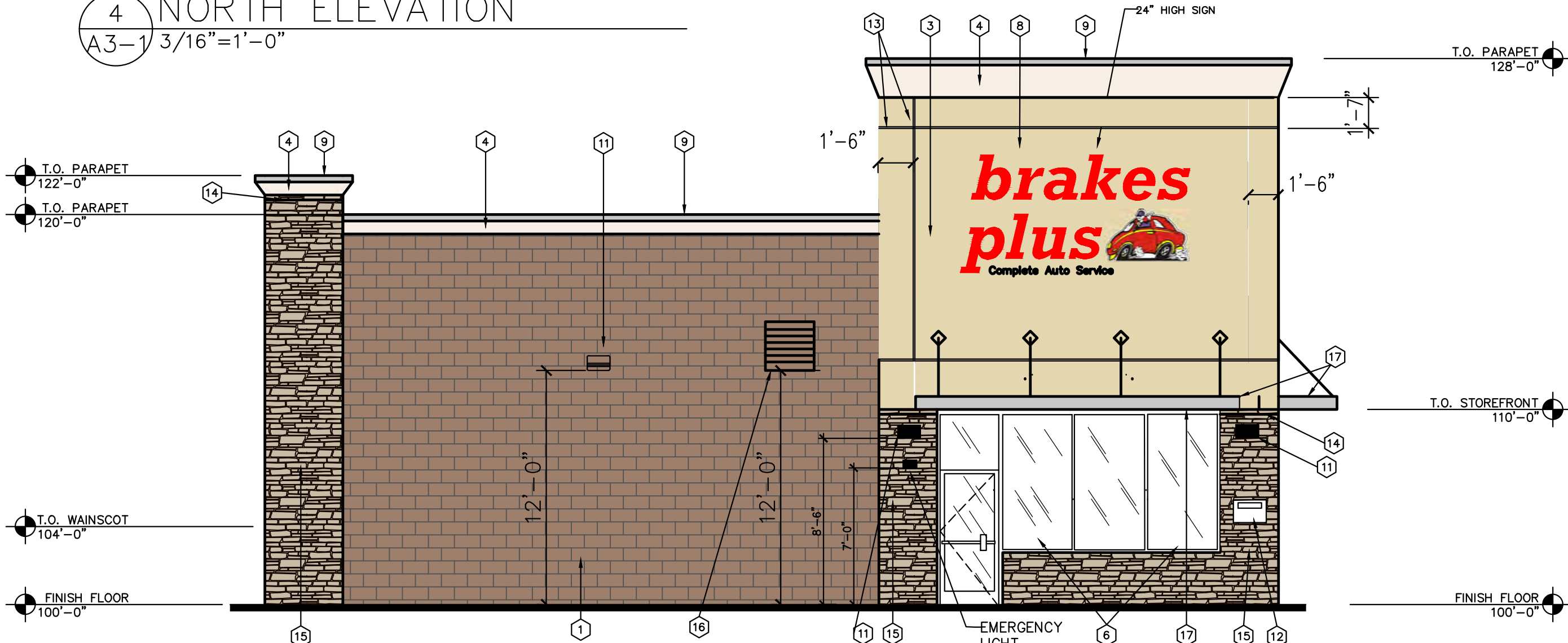
18. TEXTURE 1-11 SIDING (PAINT) OR ROOF MEMBRANE



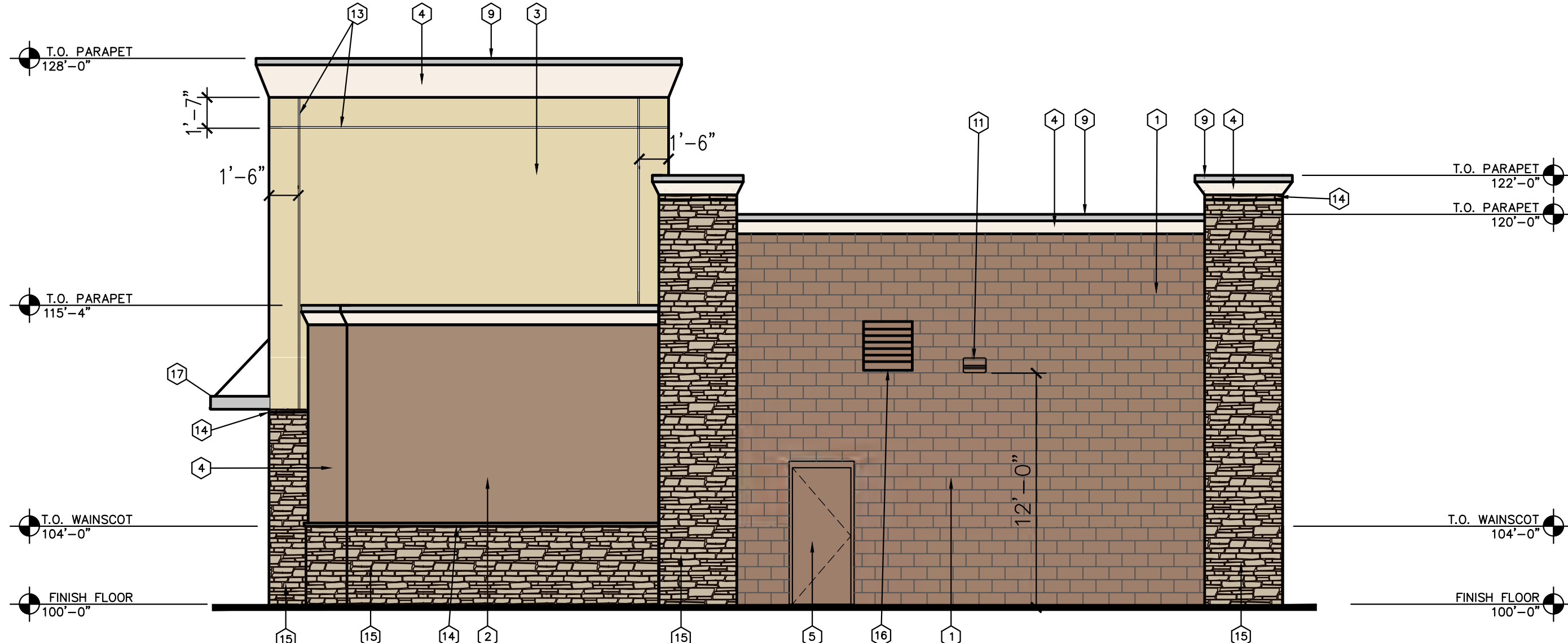
1 SOUTH ELEVATION
A3-1 3/16"=1'-0"



4 NORTH ELEVATION
A3-1 3/16"=1'-0"



2 EAST ELEVATION
A3-1 3/16"=1'-0"



3 WEST ELEVATION
A3-1 3/16"=1'-0"

BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
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ARCODEV JOB #:
CLIENT JOB #:
DRAWN BY:
CHECKED BY: NLH
DATE OF ISSUE: 06.26.24

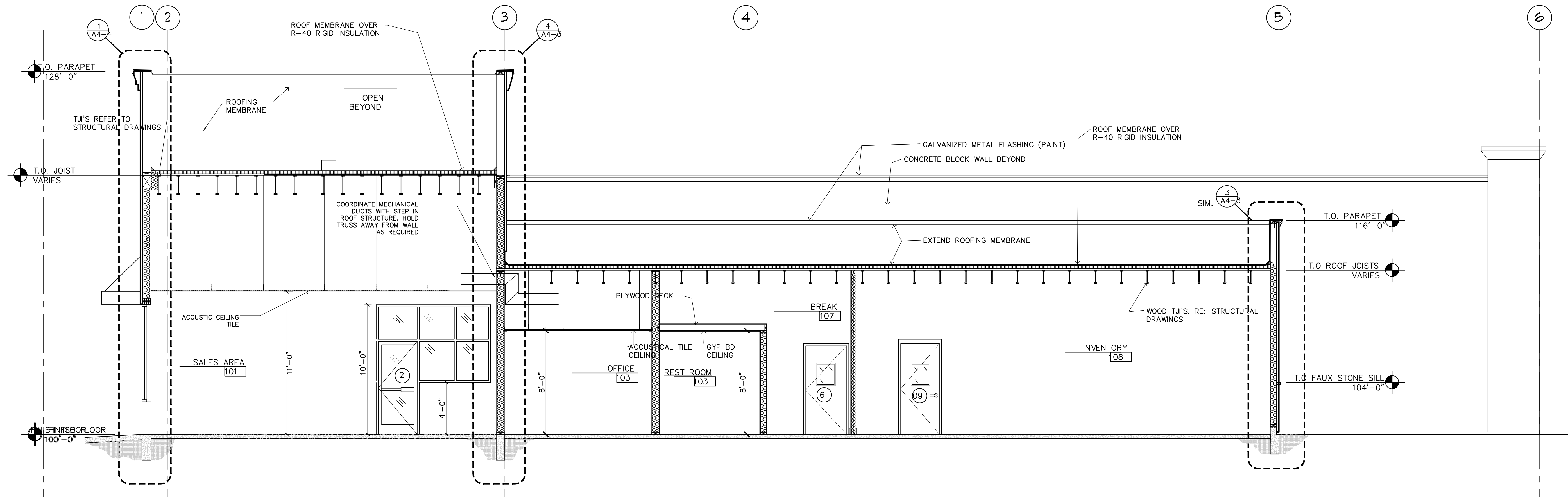


45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.981-8923
NORMAN@ARCODEV.COM

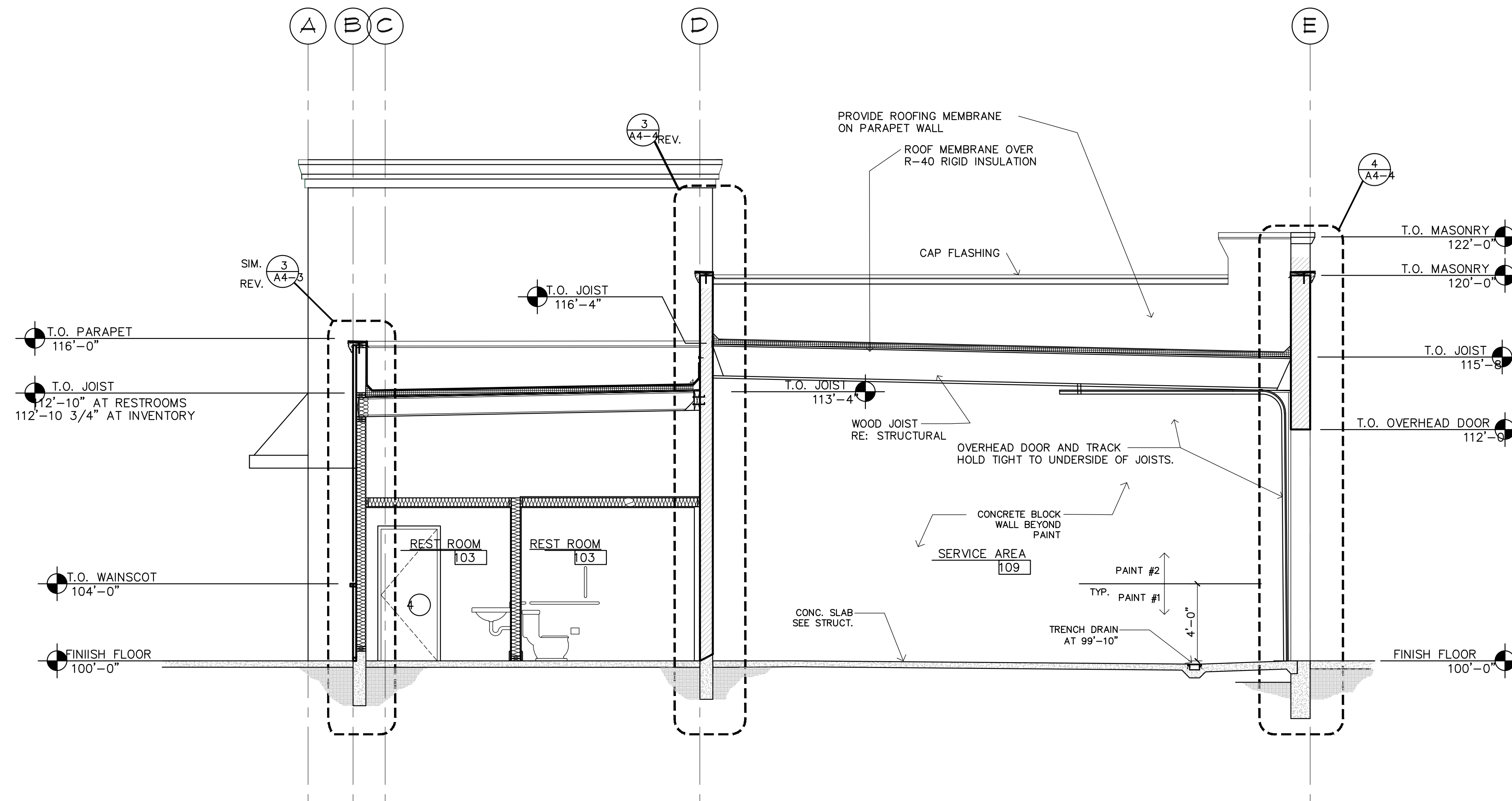
SHEET

A3-1

EXTERIOR ELEVATIONS



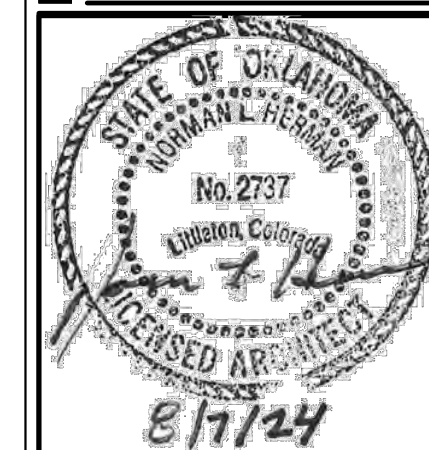
1 BUILDING SECTION
SCALE: 1/4" = 1'-0"



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

BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	08.07.2024	FOR SUBMITTAL TO BLDG. DEPT.

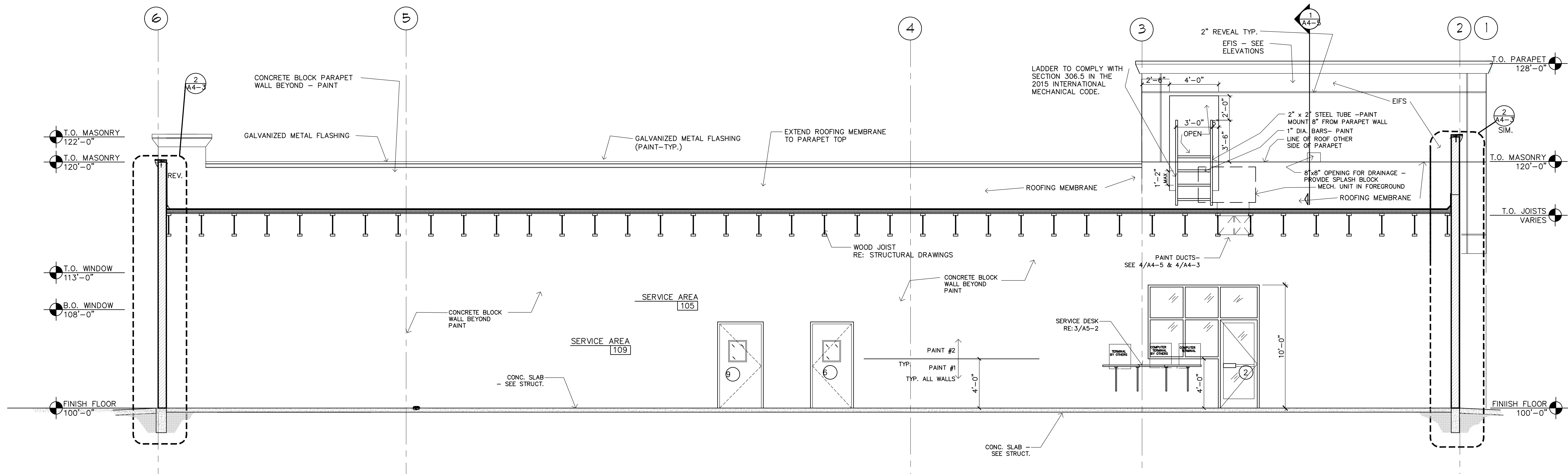
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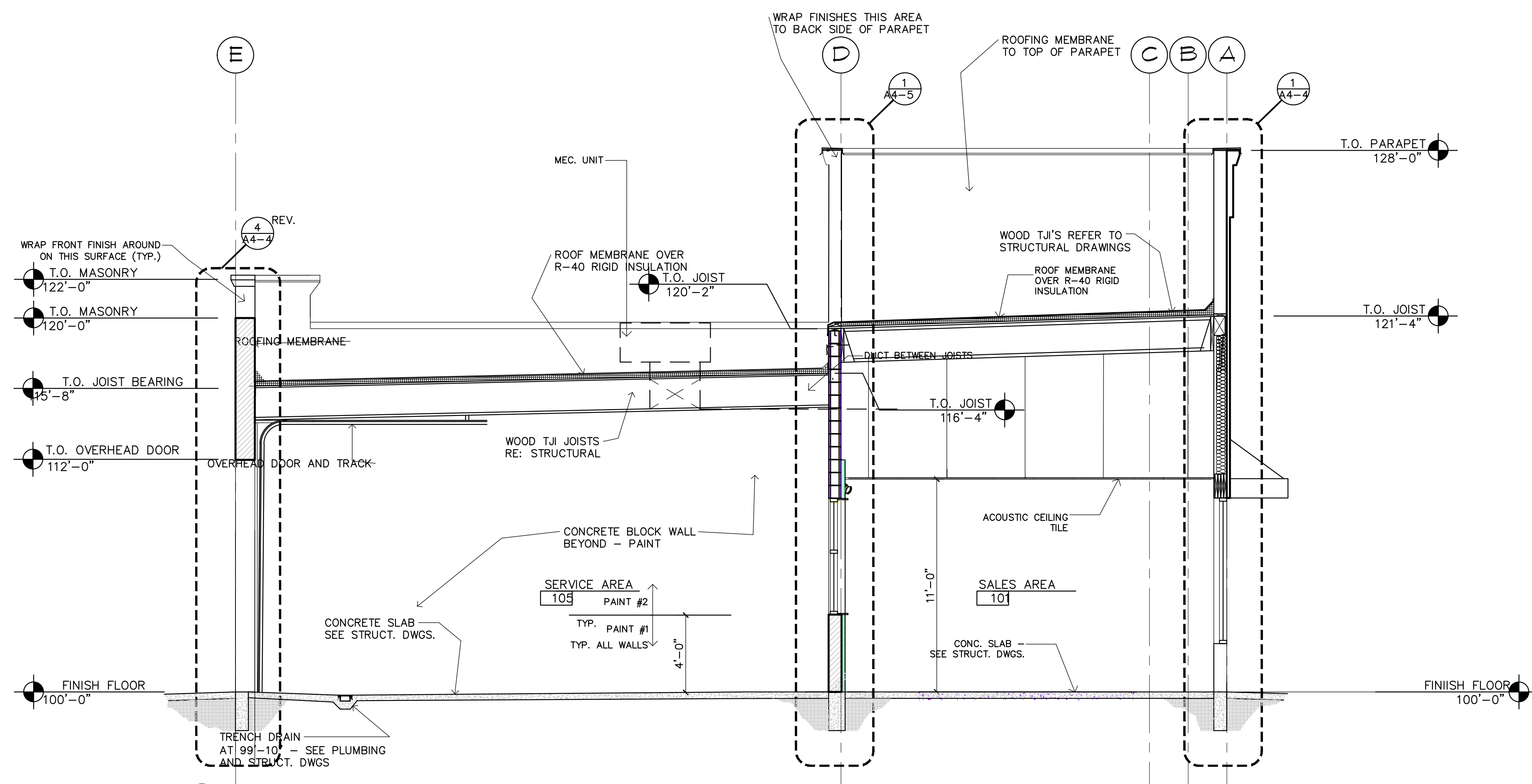
SHEET

A4-1

BUILDING SECTIONS



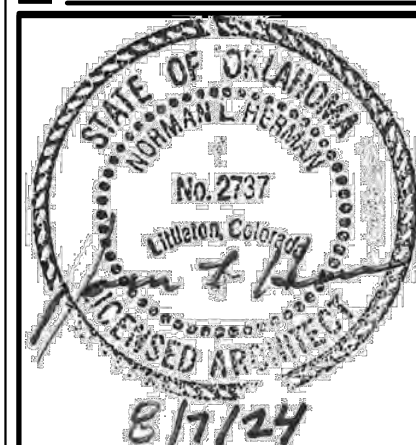
1 BUILDING SECTION
SCALE: 1/4" = 1'-0"



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

BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

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	08.07.2024	FOR SUBMITTAL TO BLDG. DEPT.

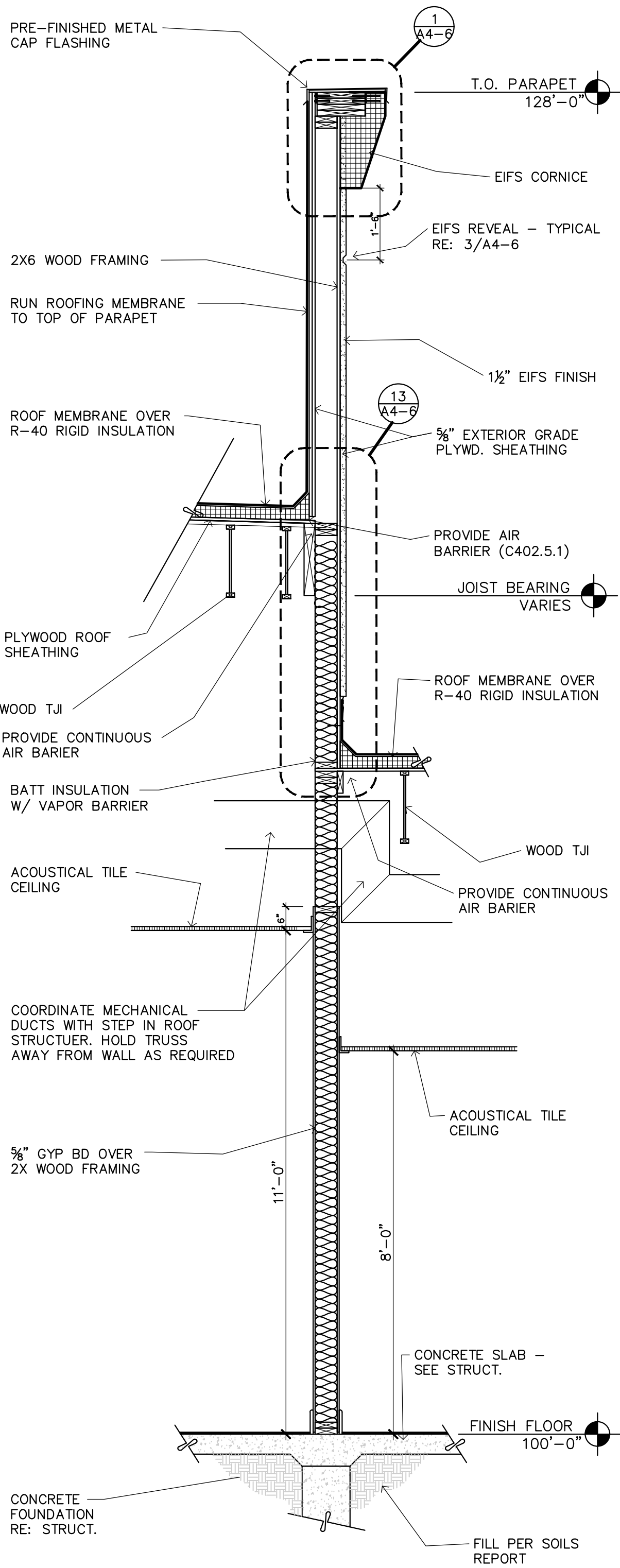
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CLIENT JOB #:
DRAWN BY:
CHECKED BY: NLH
DATE OF ISSUE: 06.26.24



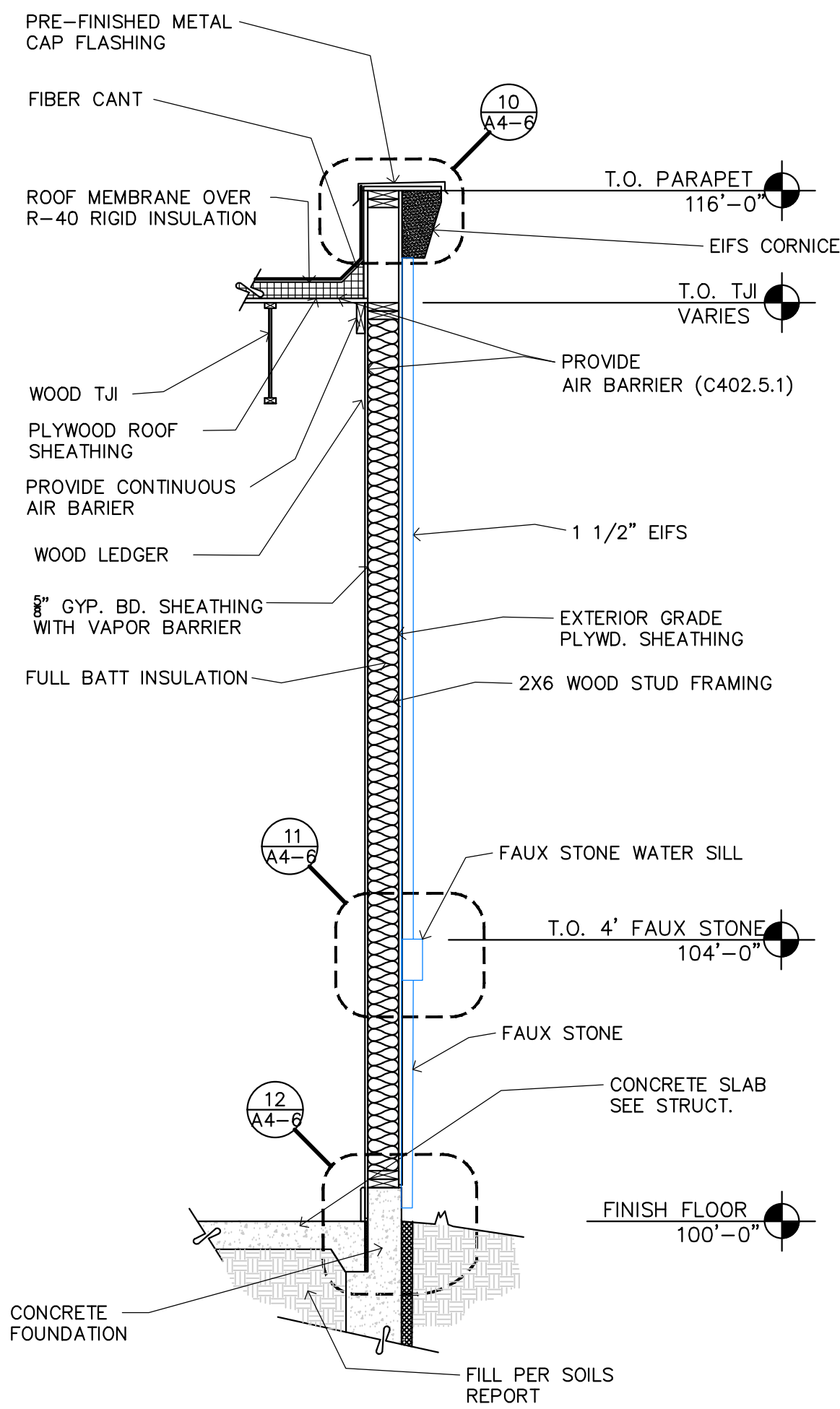
SHEET

A4-2

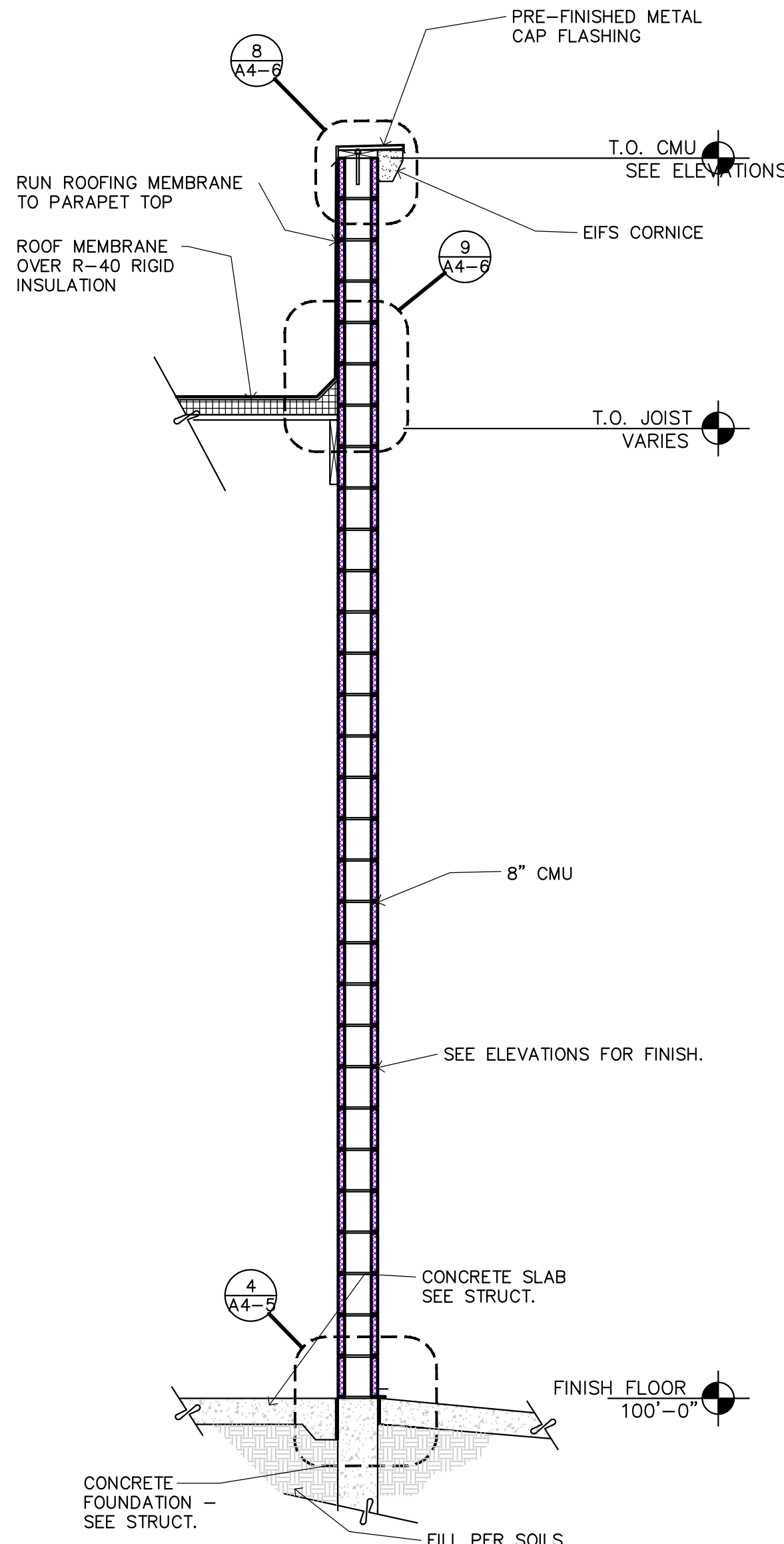
BUILDING SECTIONS



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

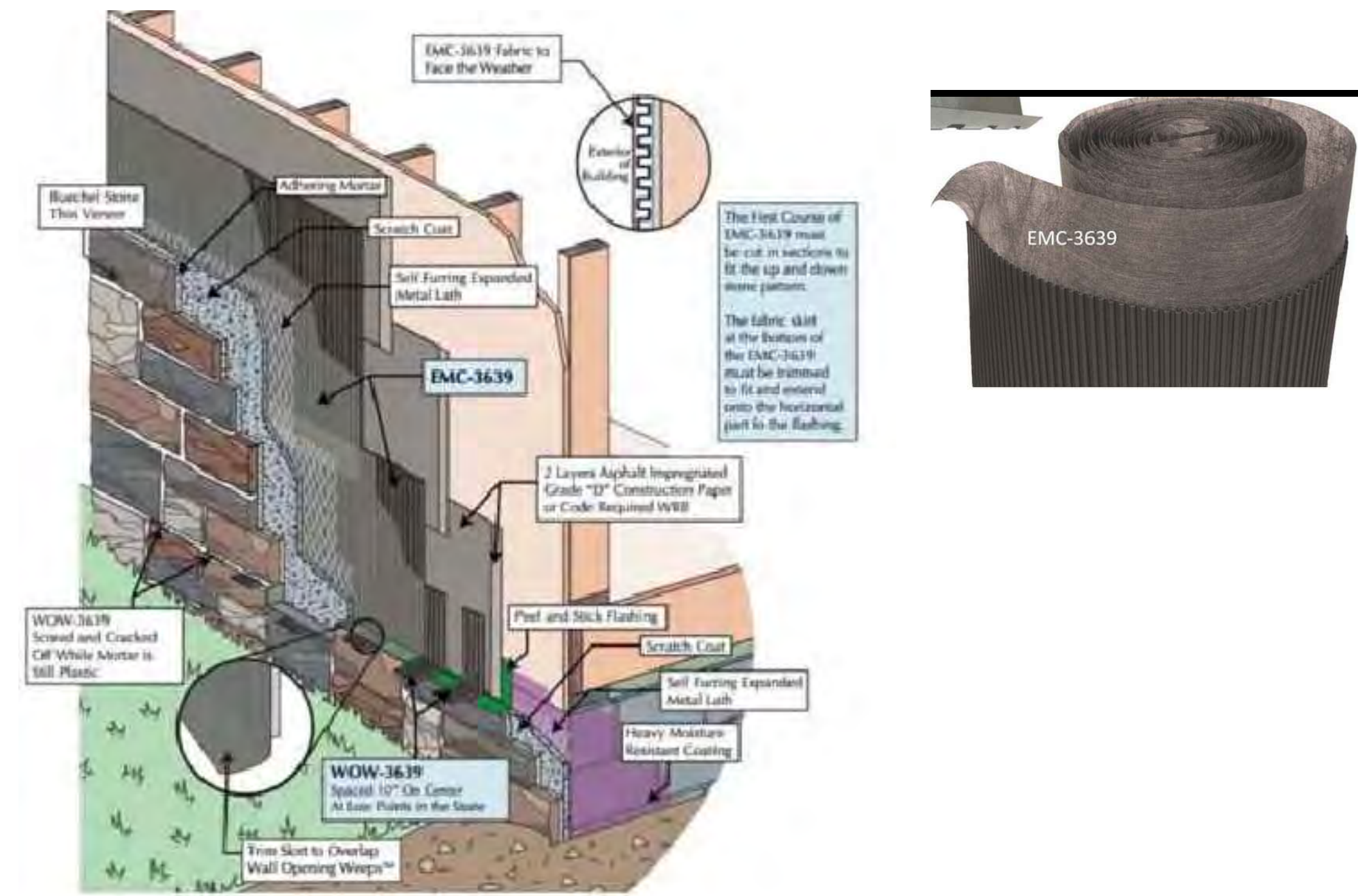


3 WALL SECTION
A4-3 1/2"=1'-0"



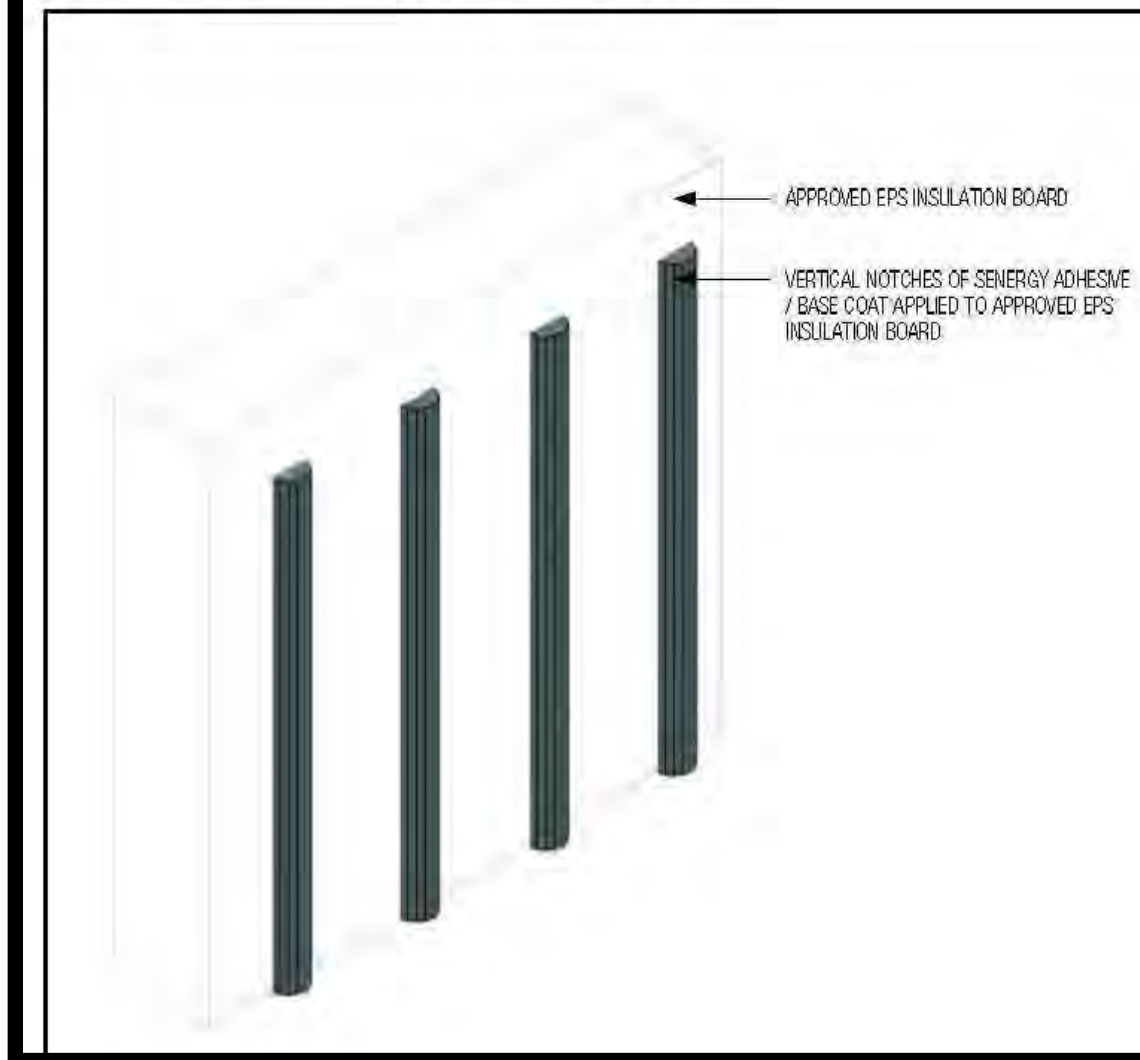
2 WALL SECTION
A4-3 1/2"=1'-0"

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



Channeled Adhesive CI Design

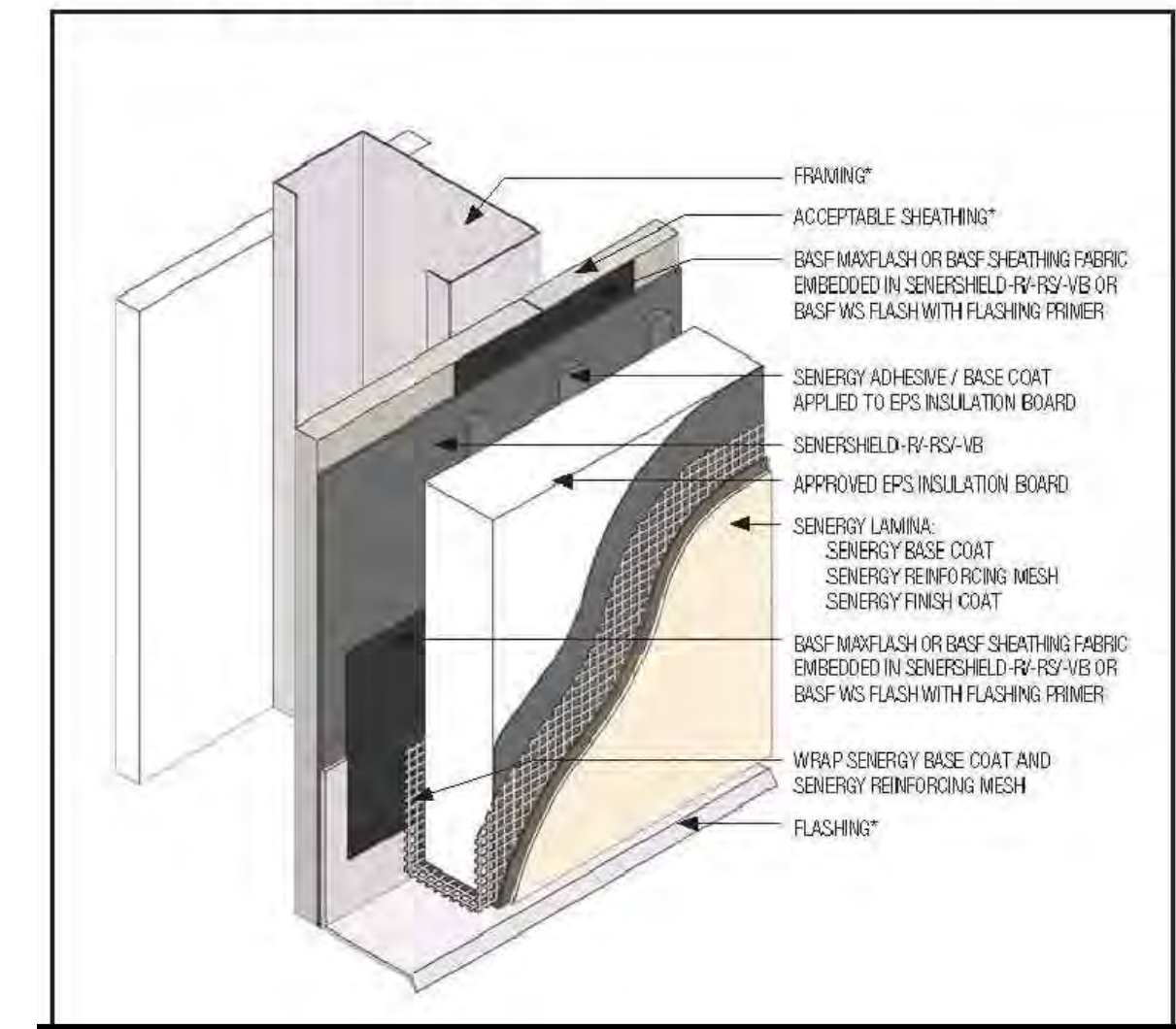
TYPICAL CHANNELED ADHESIVE



- 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

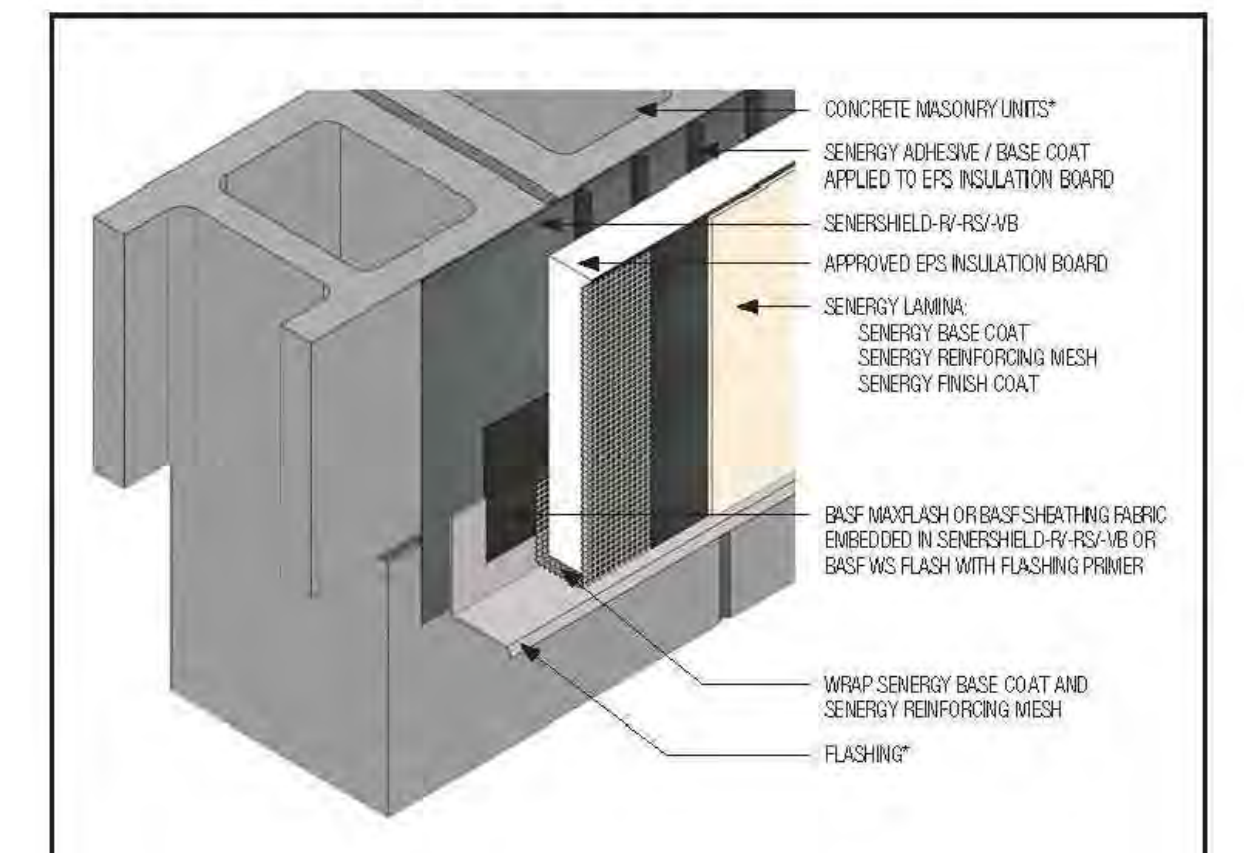
TYPICAL APPLICATION



- 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

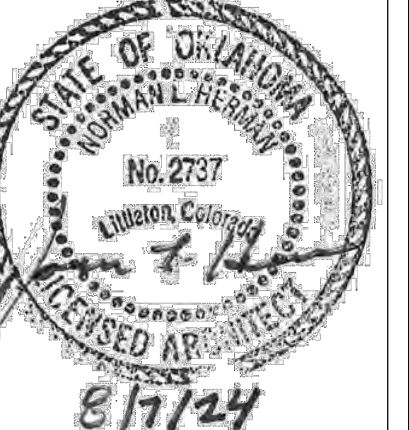


- Install BASF materials in accordance with current installation instructions.
- Unsatisfactory conditions shall be reported to the General Contractor and corrected before the application of BASF products.
- Verify all materials are installed in accordance with current installation instructions.
- All 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

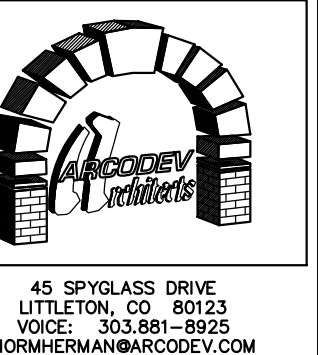
1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

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	06.07.2024	FOR SUBMITTAL TO BLDG. DEPT.

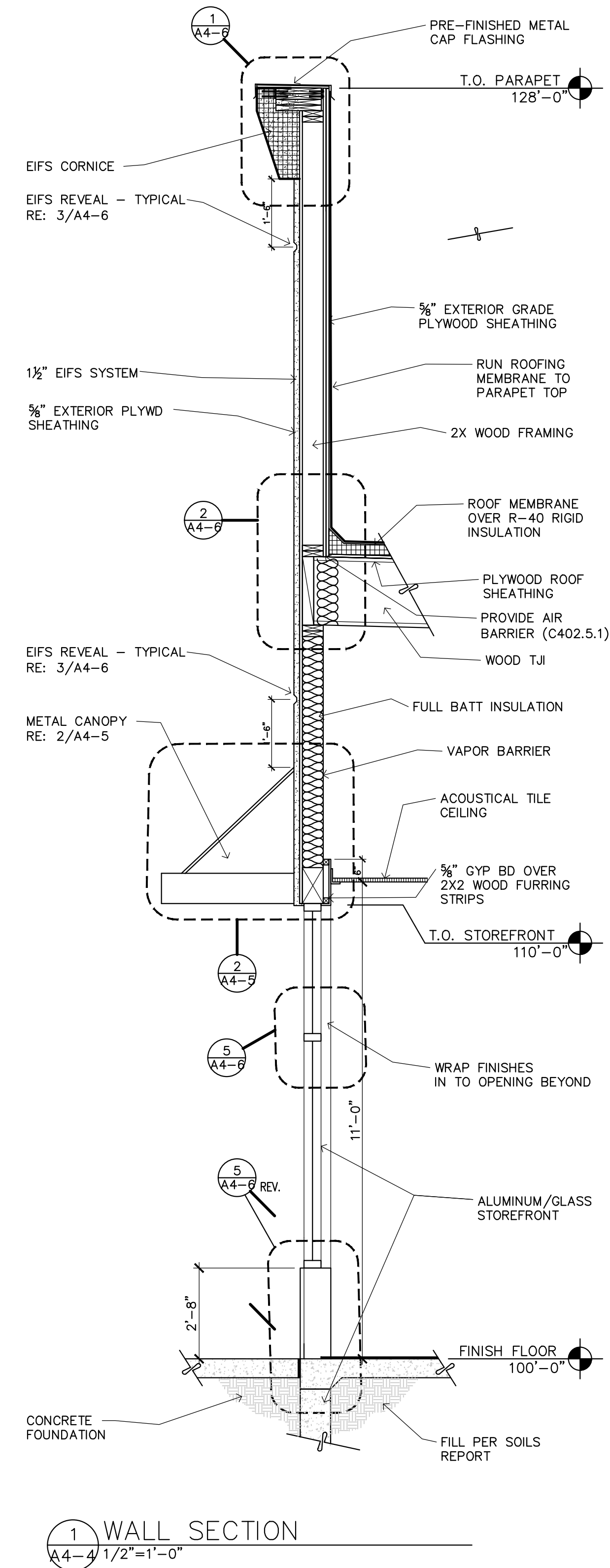
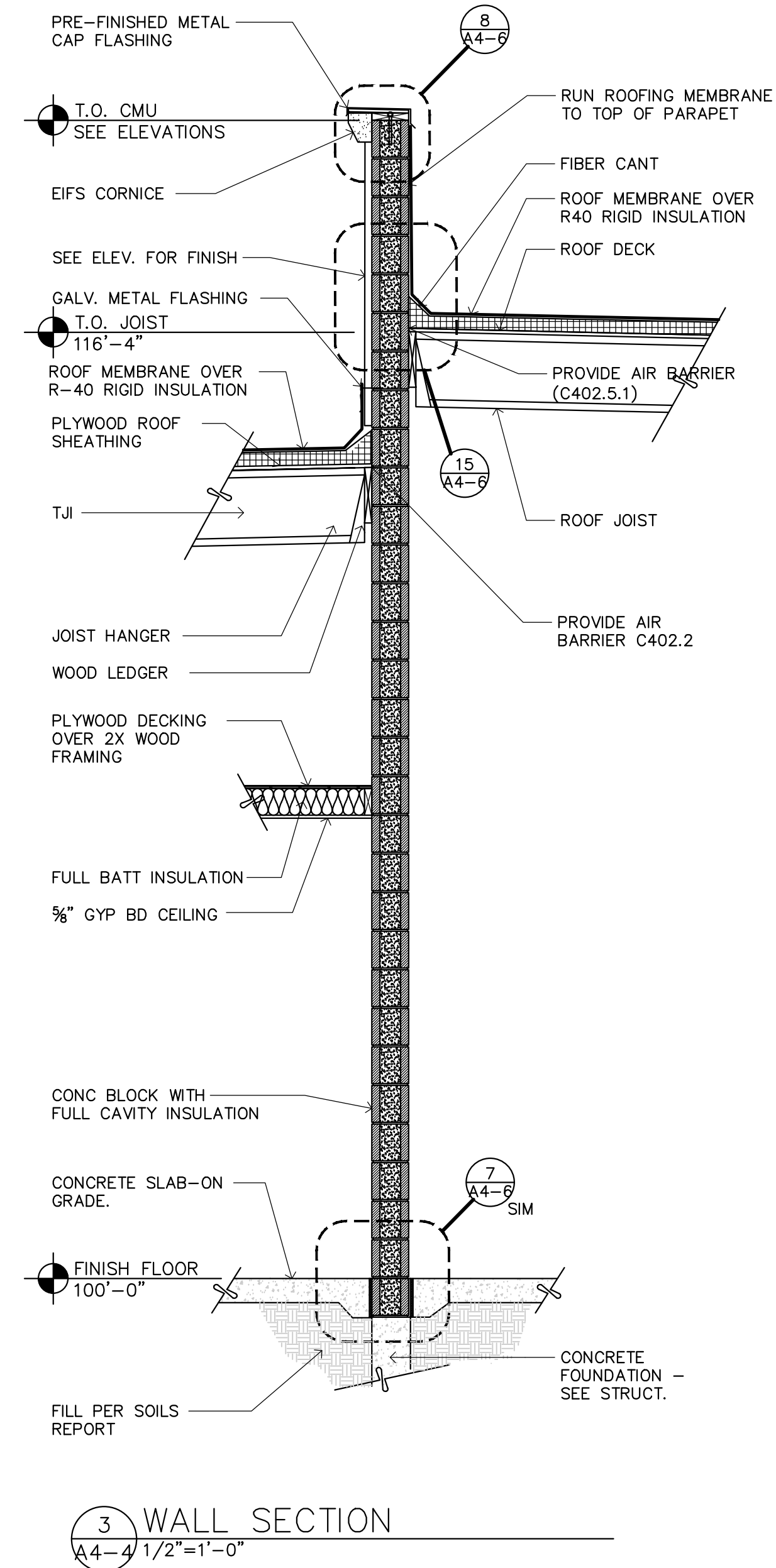
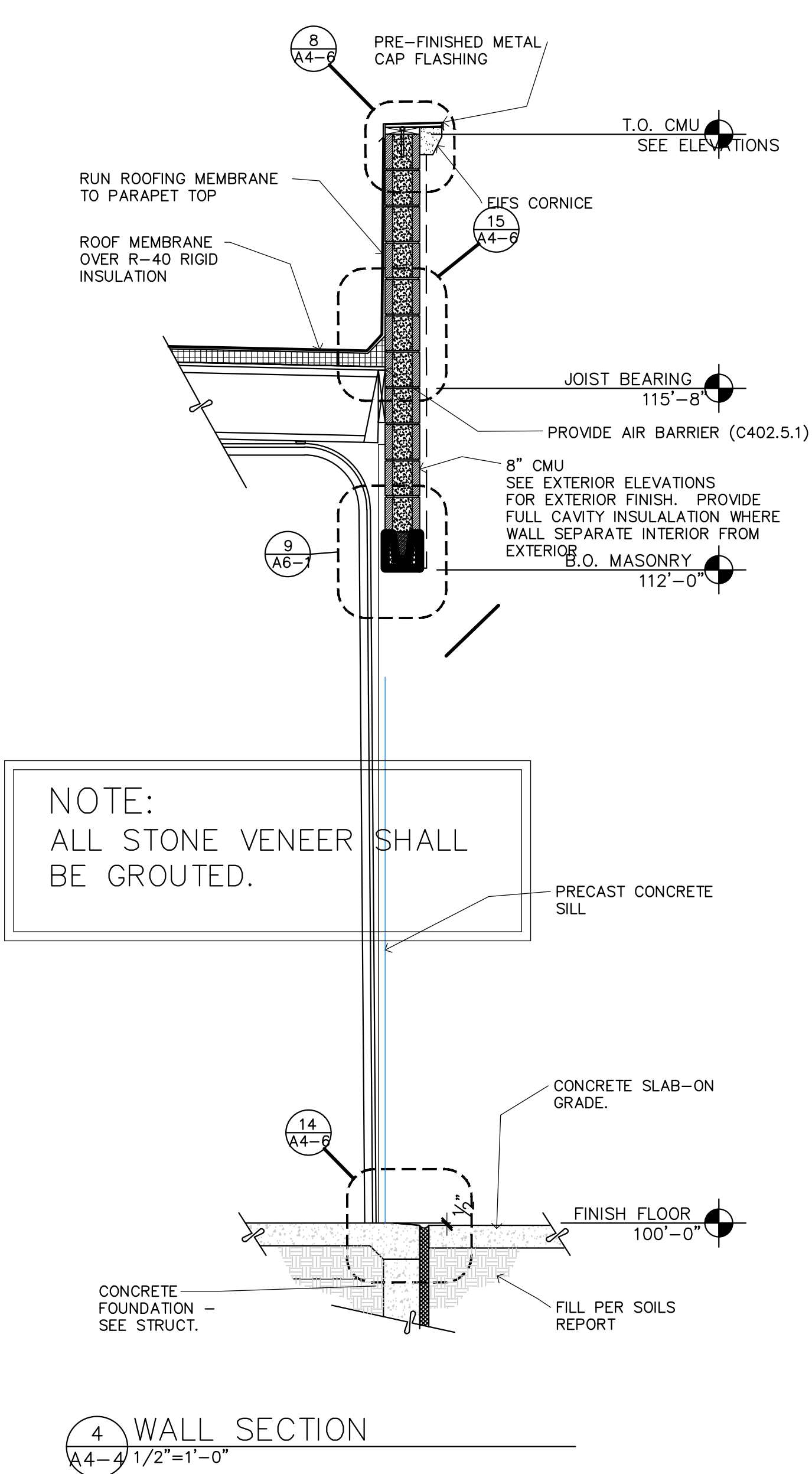
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CLIENTJOB #:
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DATE OF ISSUE: 06.26.24



SHEET

A4-3

WALL SECTIONS



BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA

STATE OF OKLAHOMA
NORMAN L. HERRMAN
No. 2737
Littletton, Colorado
LICENSED ARCHITECT
8/7/24

ARCHITECT OF RECORD

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CLIENT JOB #:

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DATE OF ISSUE: 06.26.24

ARCODEV architects

45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.981-8923
NORMHERMAN@ARCODEV.COM

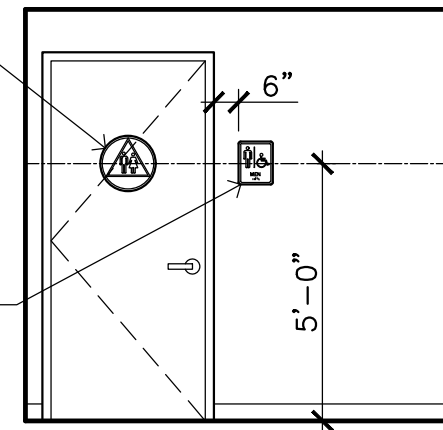
SHEET

A4-4

WALL SECTIONS

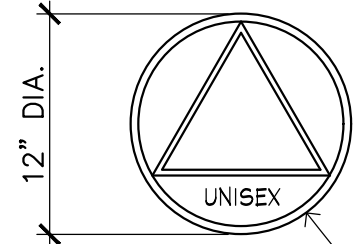
DOOR-MOUNTED SIGNAGE
APPROPRIATE TO ROOM
USE PER CBC 1115B.6.1,
1115B.6.2 AND 1115B.6.2

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

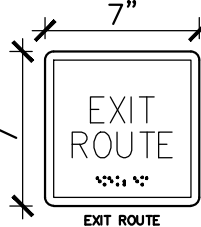
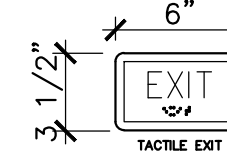


1/4" THICK (TYP)

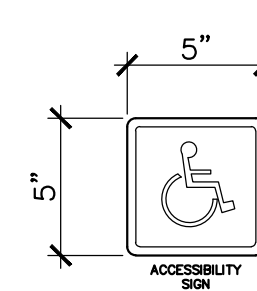
NOTES:

- 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 SHALL 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

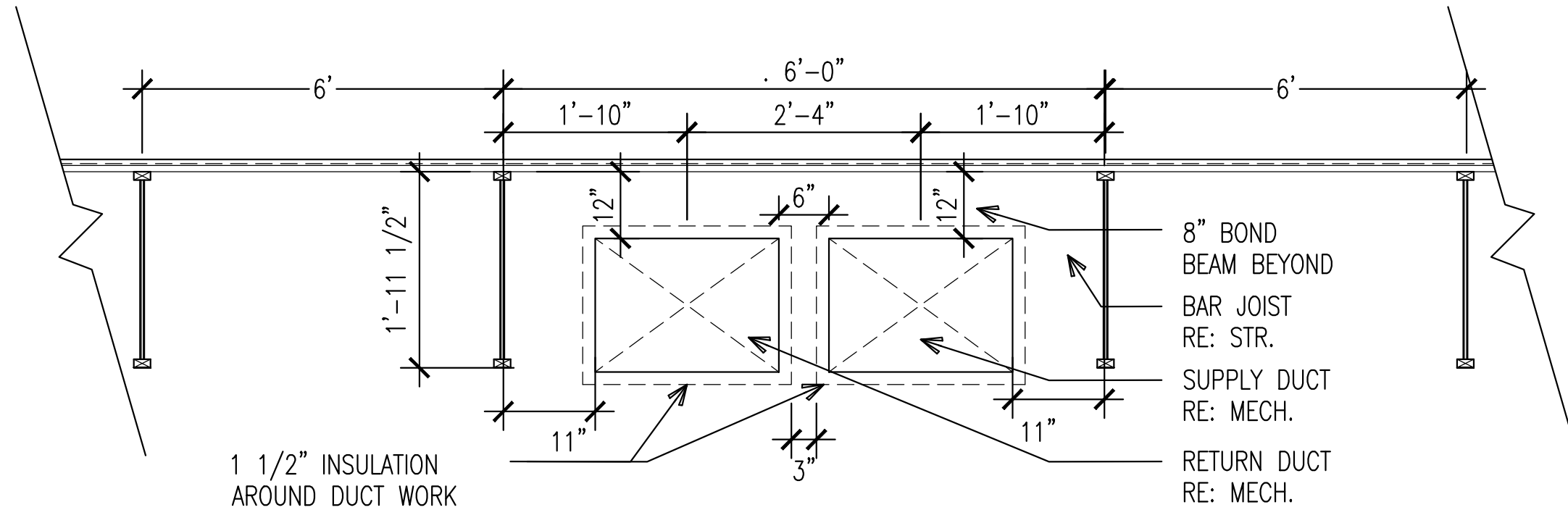


WHITE SYMBOLS AND
LETTERS ON A BLUE
BACKGROUND, TYPICAL
CORRESPONDING, GRADE II
BRAILLE

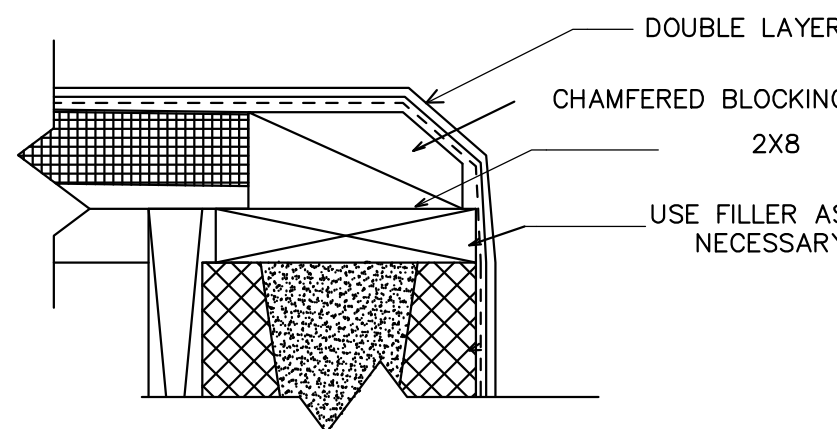
NOTES:

- 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 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
- CHARACTERS ON SIGNS REQUIRED TO BE ACCESSIBLE SHALL BE
SIZED ACCORDING TO THE "VISUAL CHARACTER 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 SHALL BE A MINIMUM OF 1/8" AND A MAXIMUM
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
MINIMUM OF 6" IN HEIGHT.
- BRAILLE SHALL BE PLACED A MINIMUM OF 1/8" AND A MAXIMUM OF
1/2" DIRECTLY BELOW THE TACTILE CHARACTERS, FLUSH LEFT OR
CENTERED.

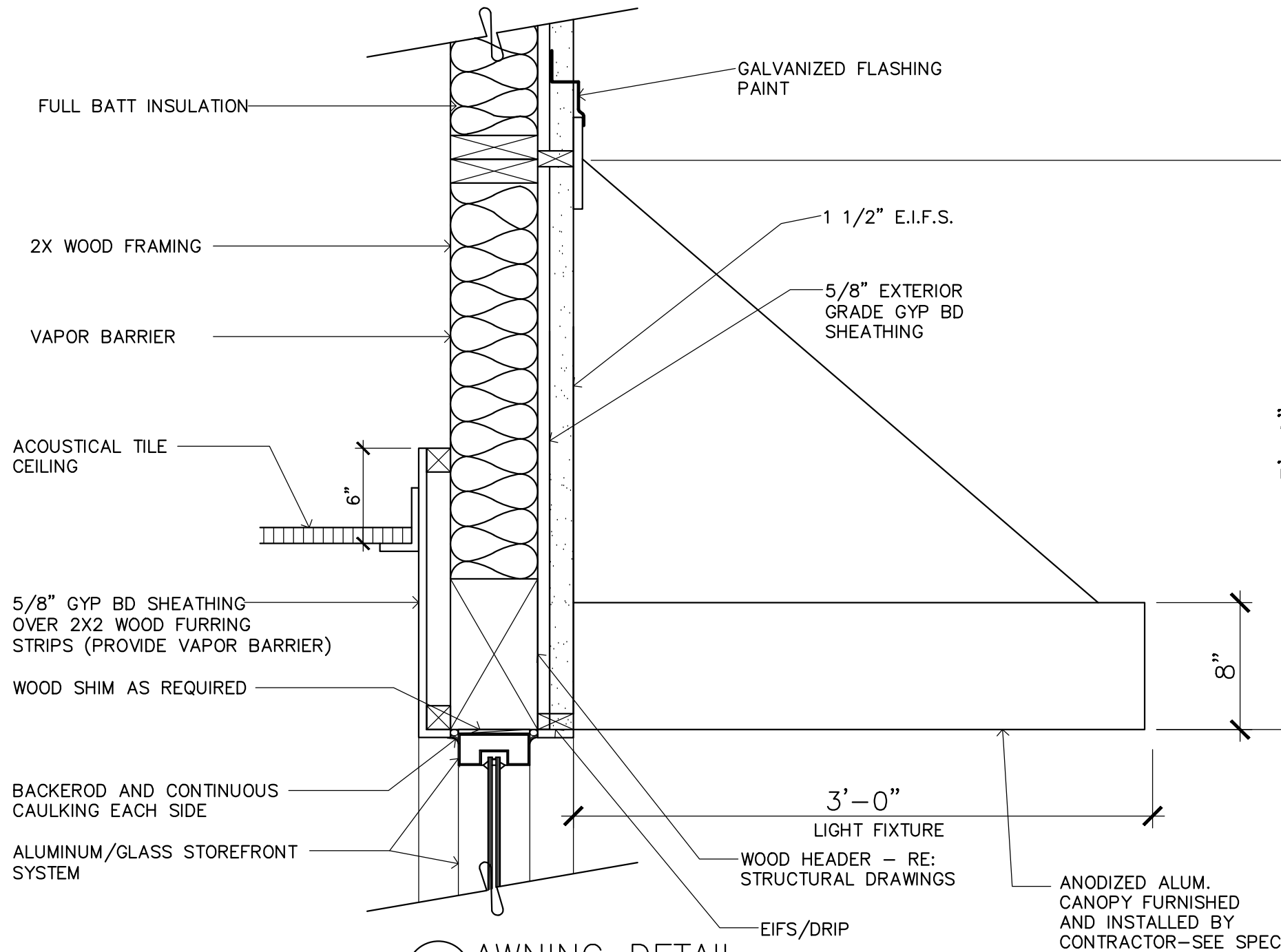
10 INTERIOR SIGNAGE INFORMATION
NO SCALE



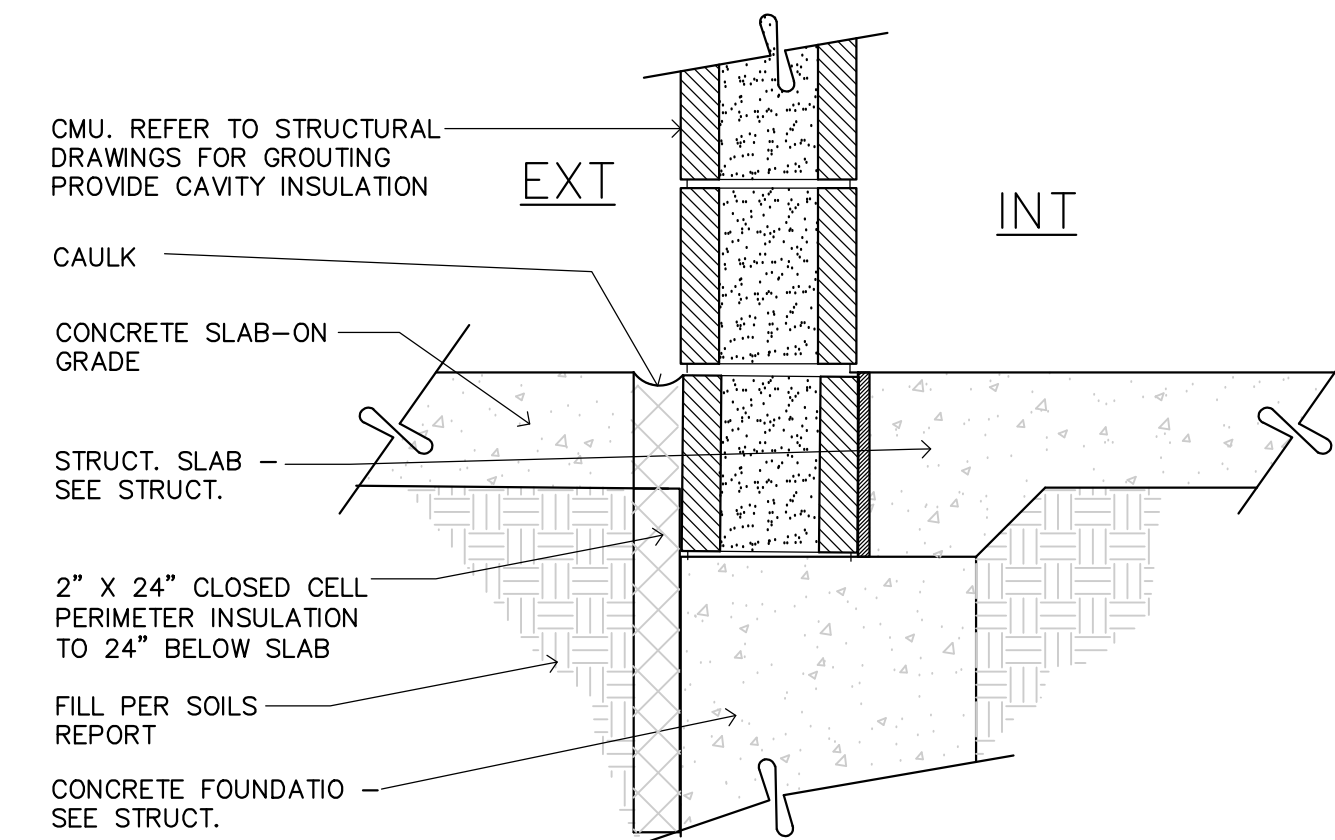
4 RTU DUCT-WORK DETAIL
SCALE: 3/4" = 1'-0"



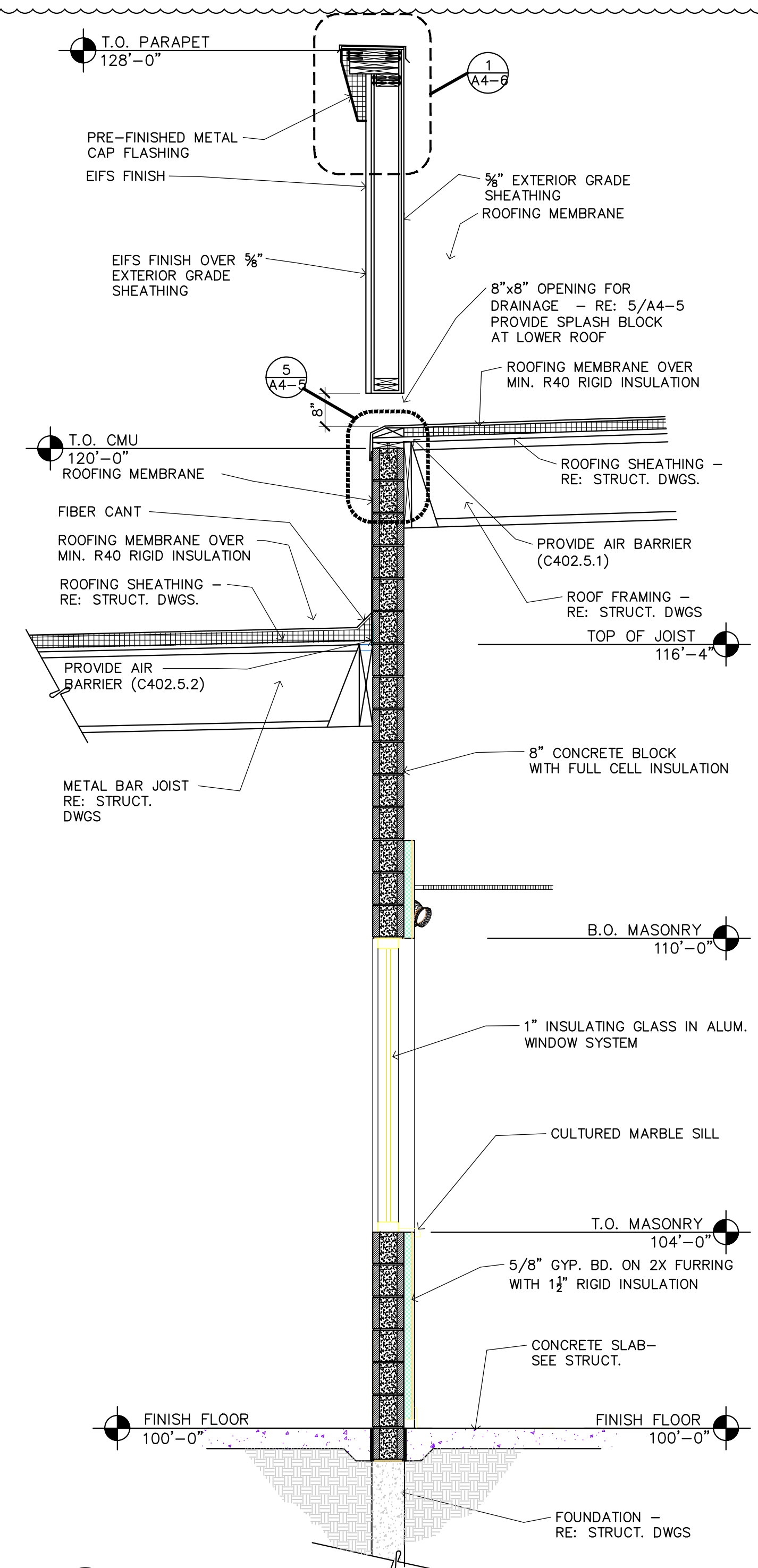
5 ROOF CORNER DETAIL
SCALE: 3" = 1'-0"



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



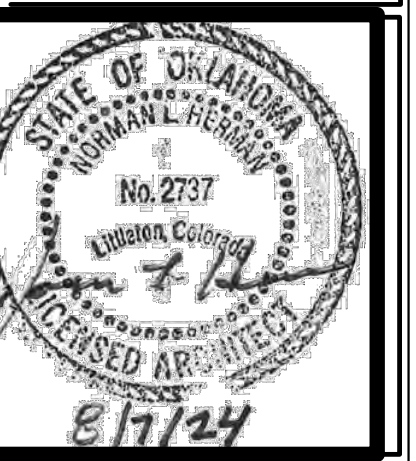
3 CMU FOUNDATION DETAIL
SCALE: 1/2" = 1'-0"



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

BRAKES PLUS

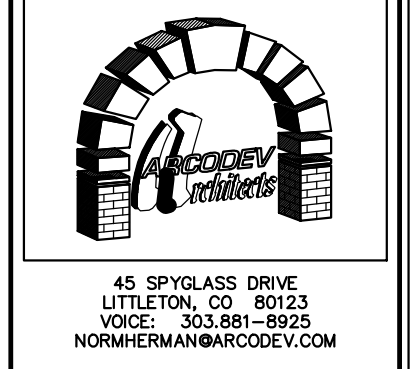
1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

COMMENTS
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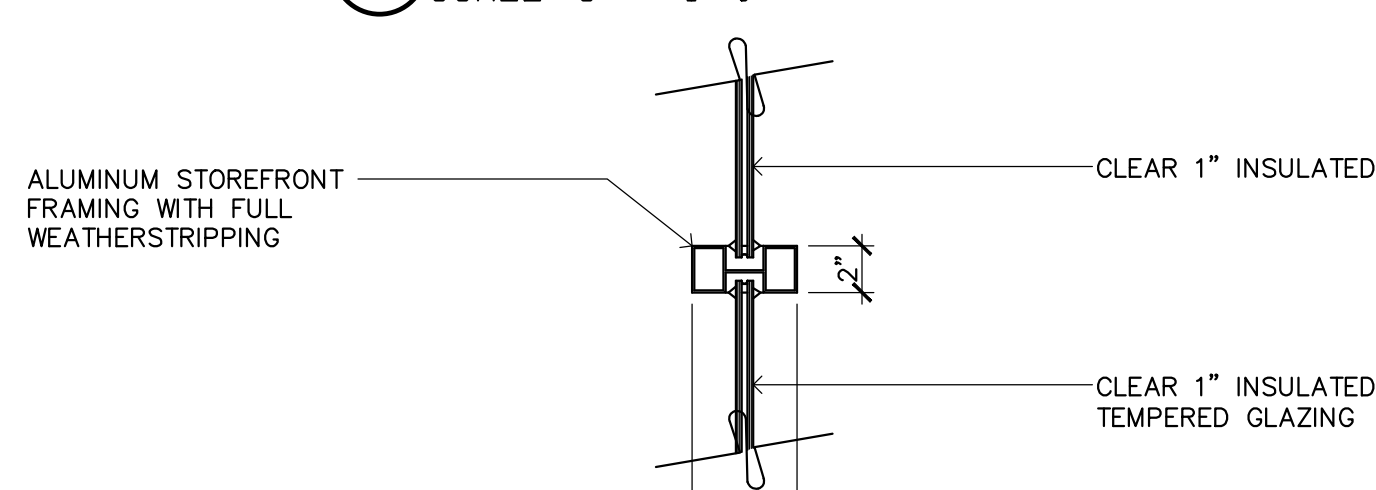
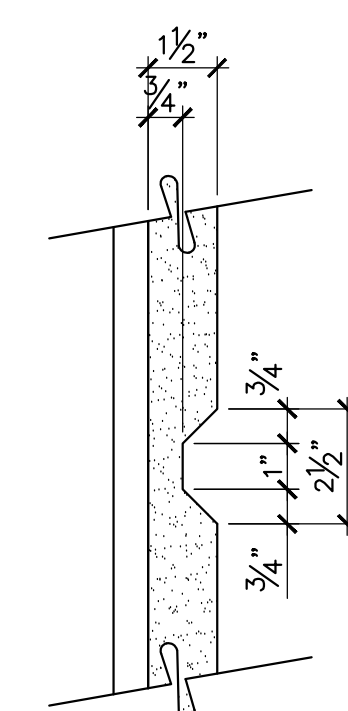
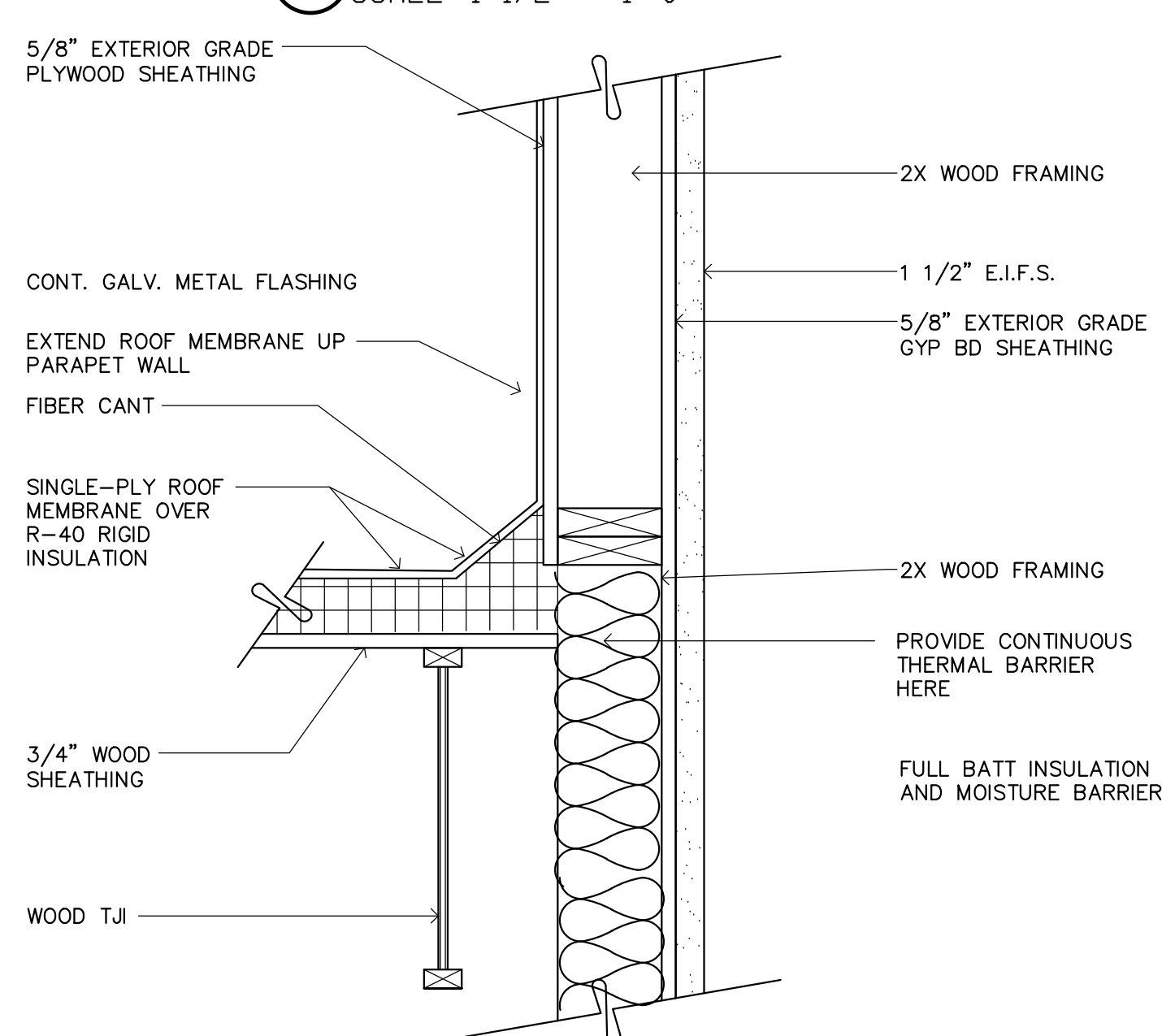
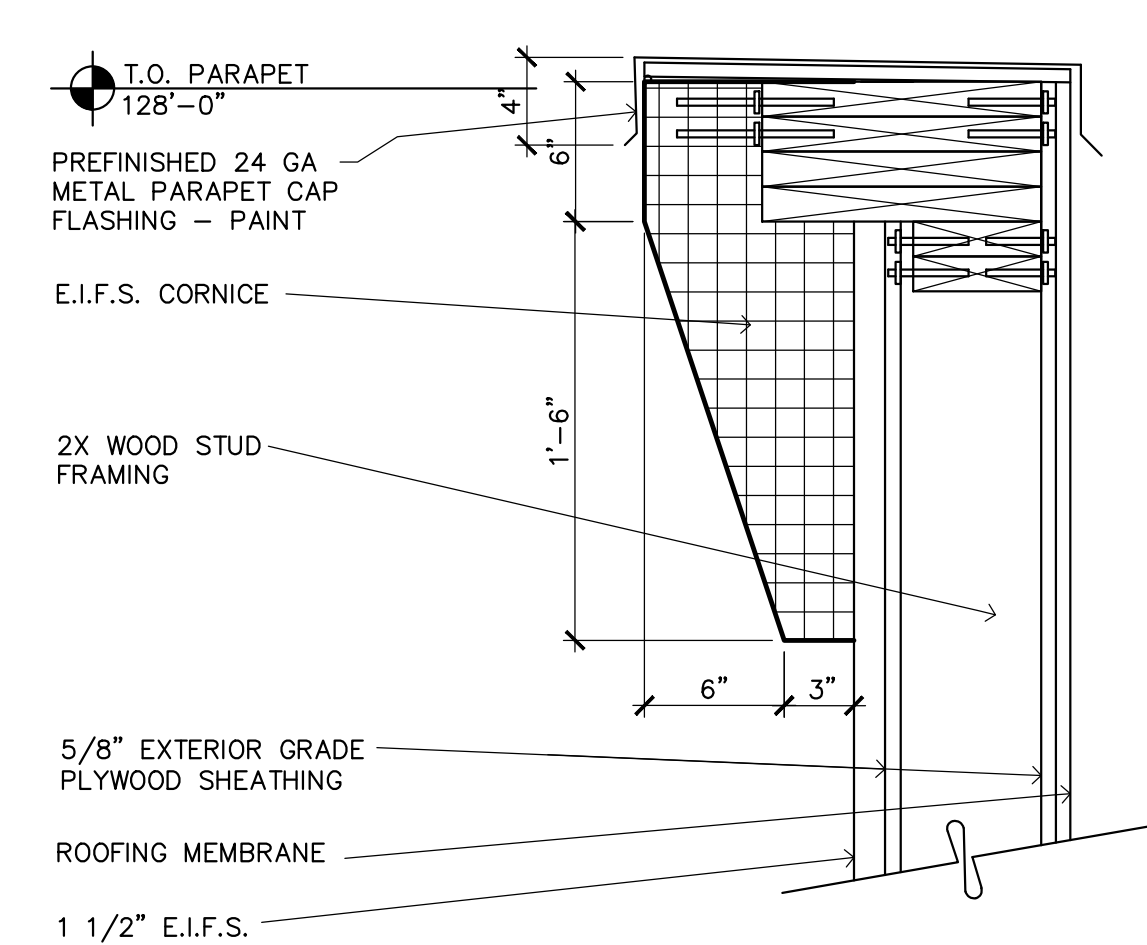
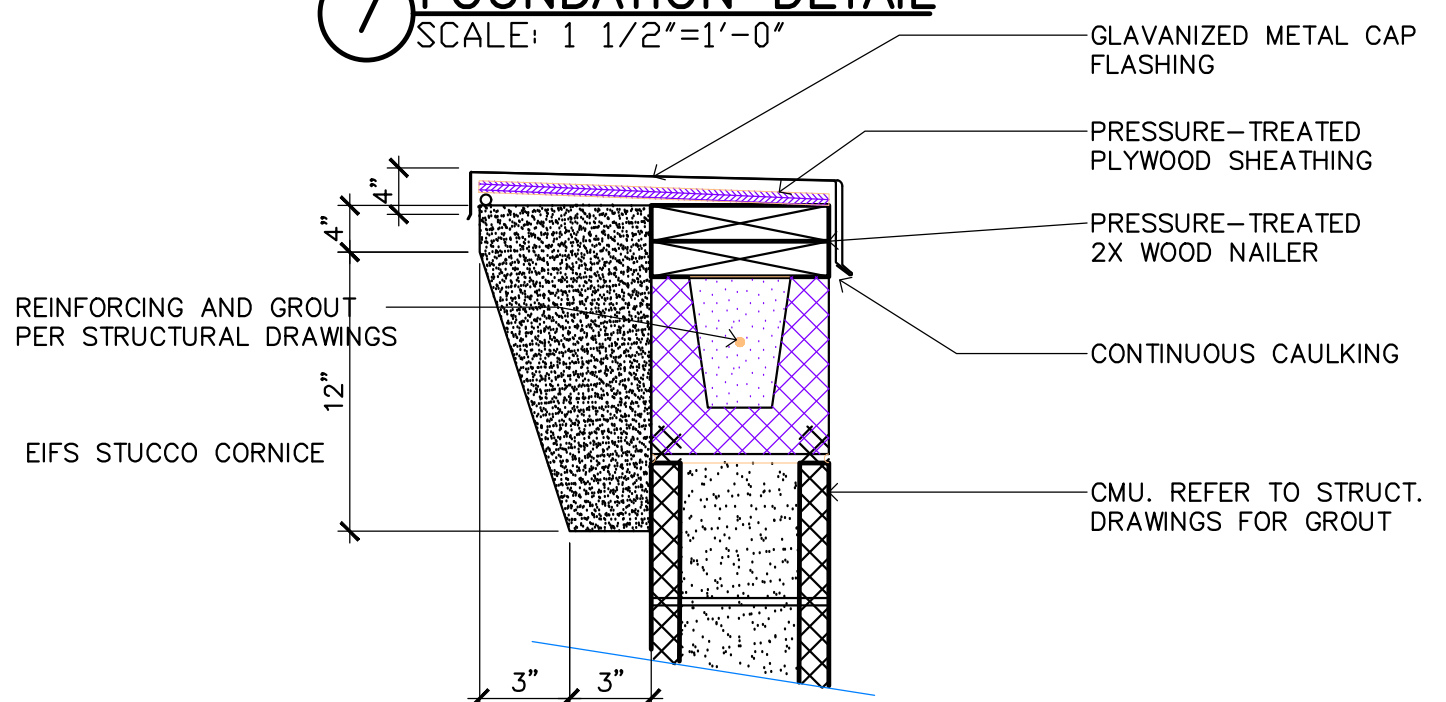
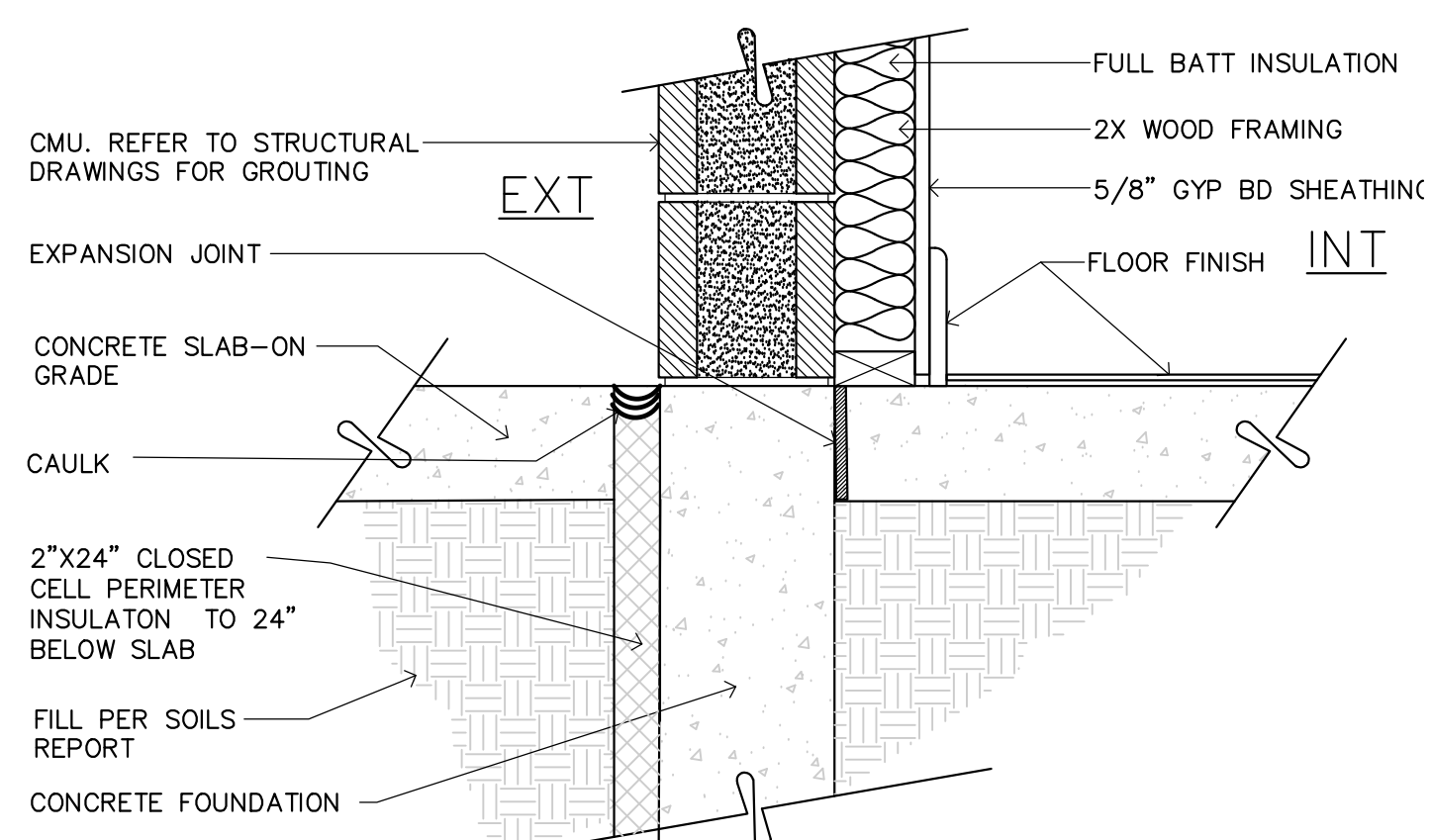
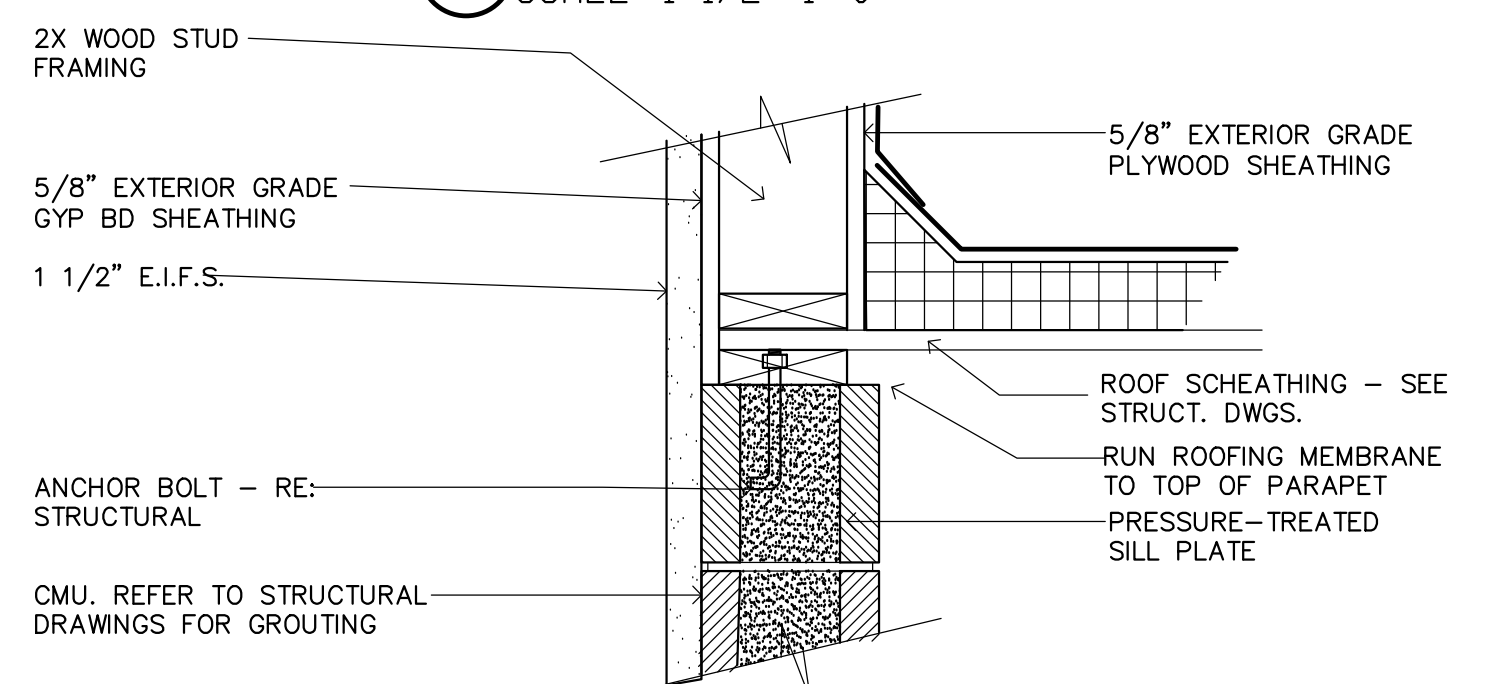
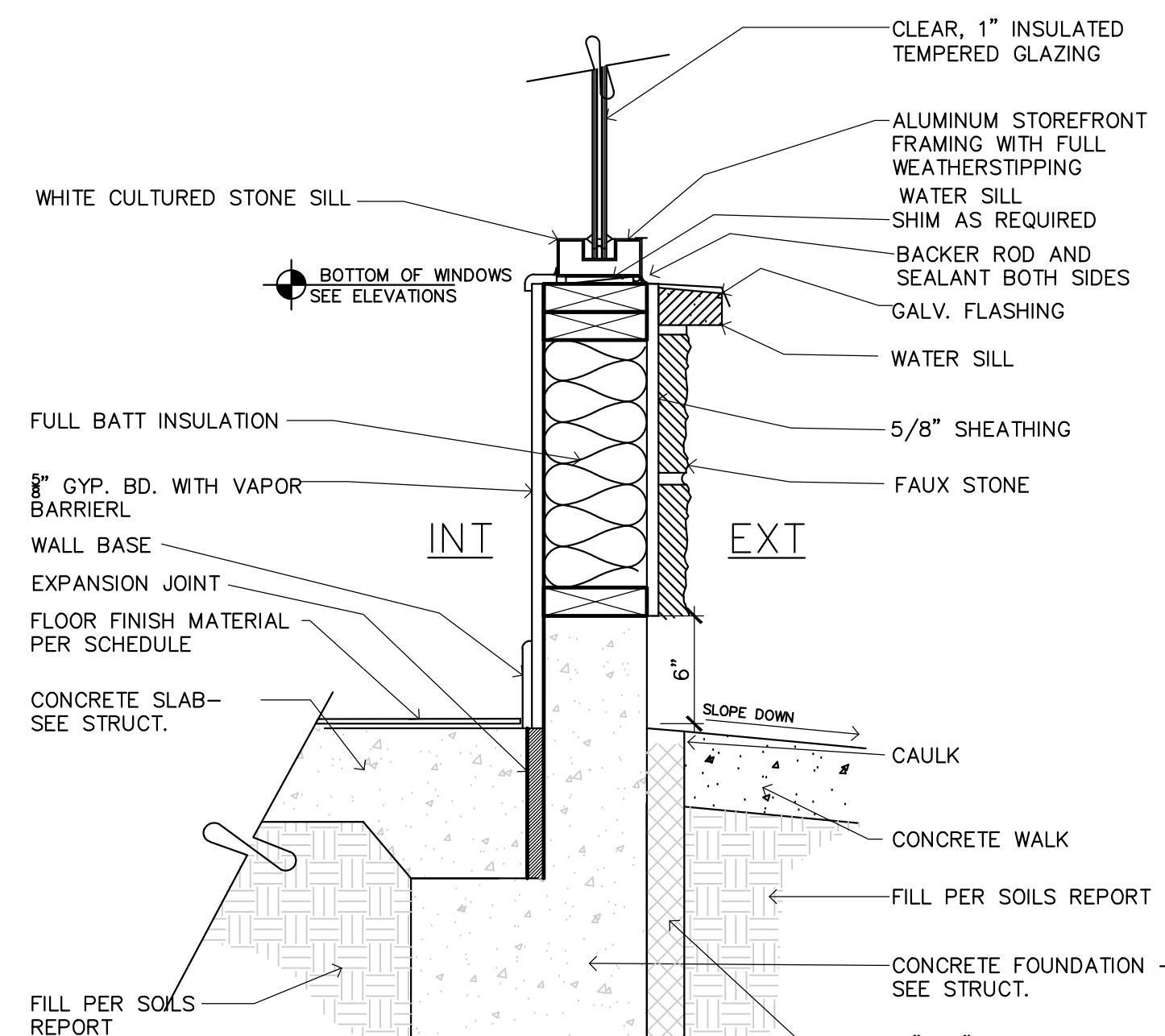
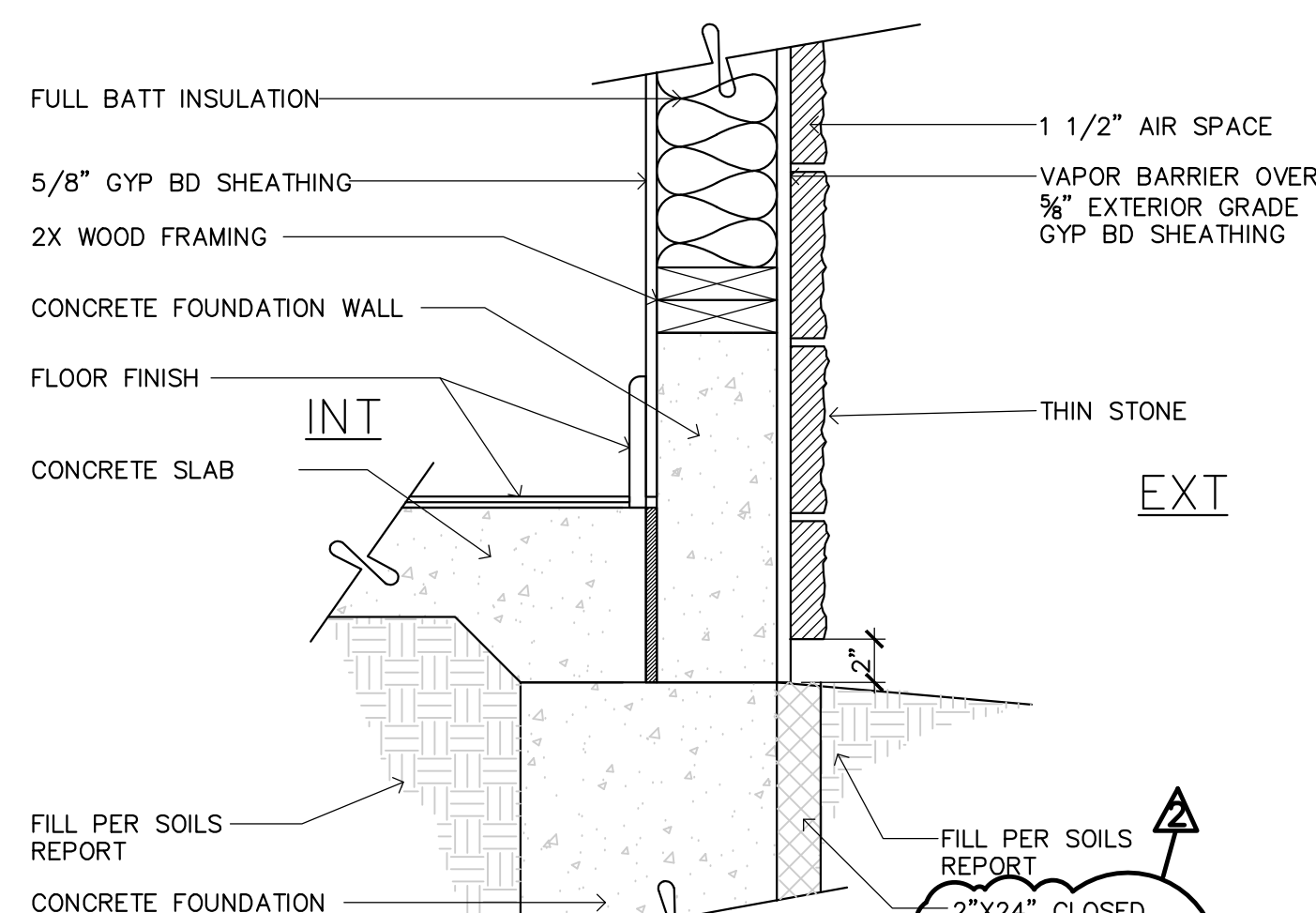
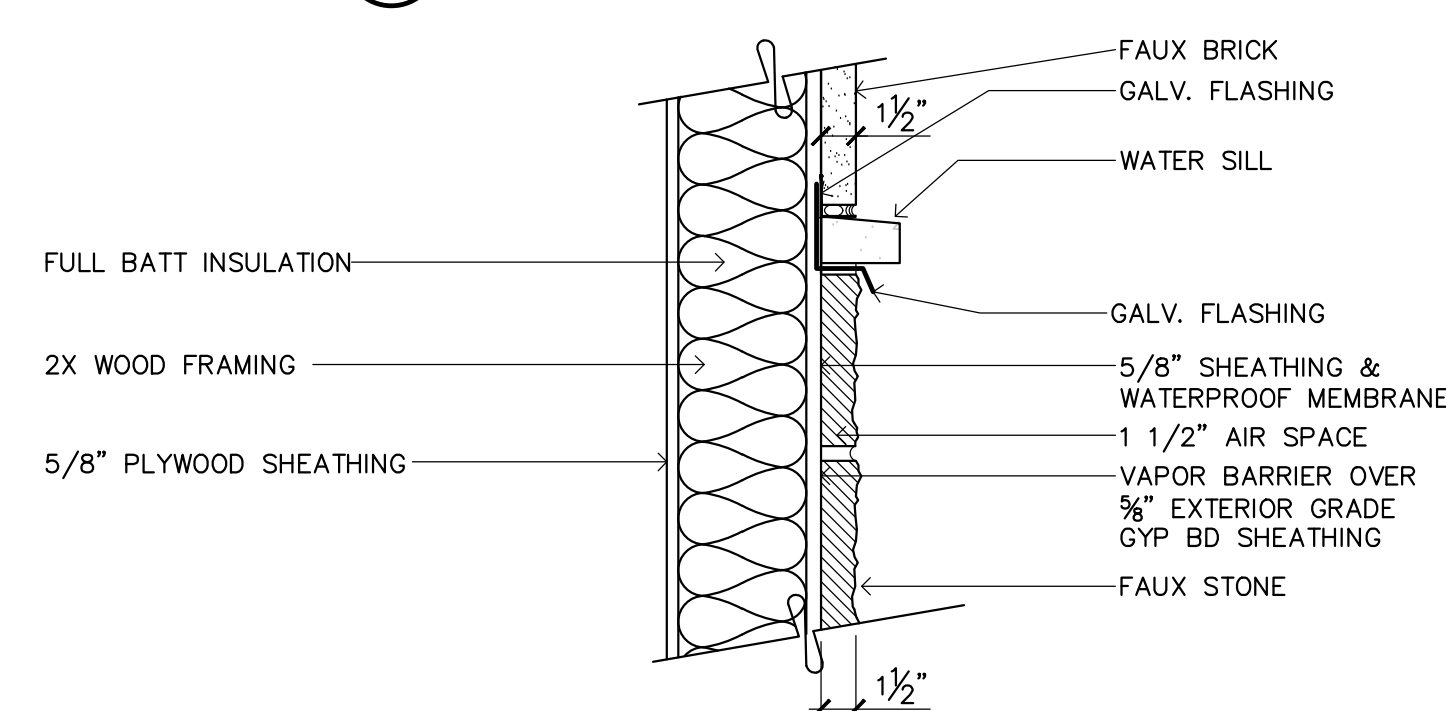
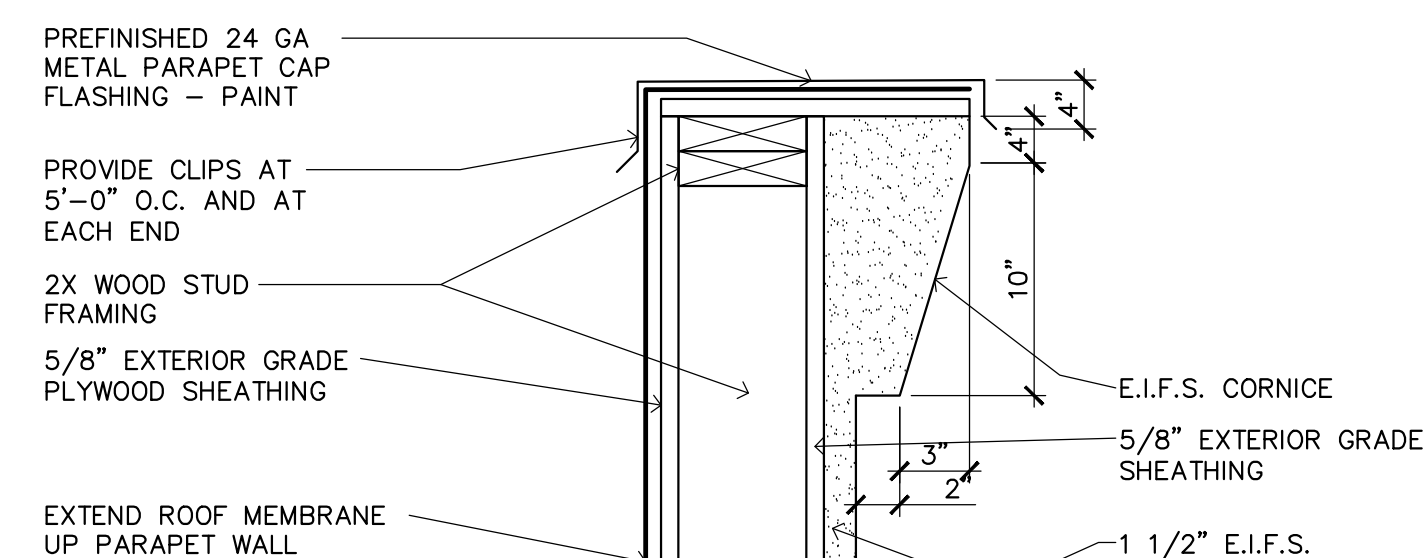
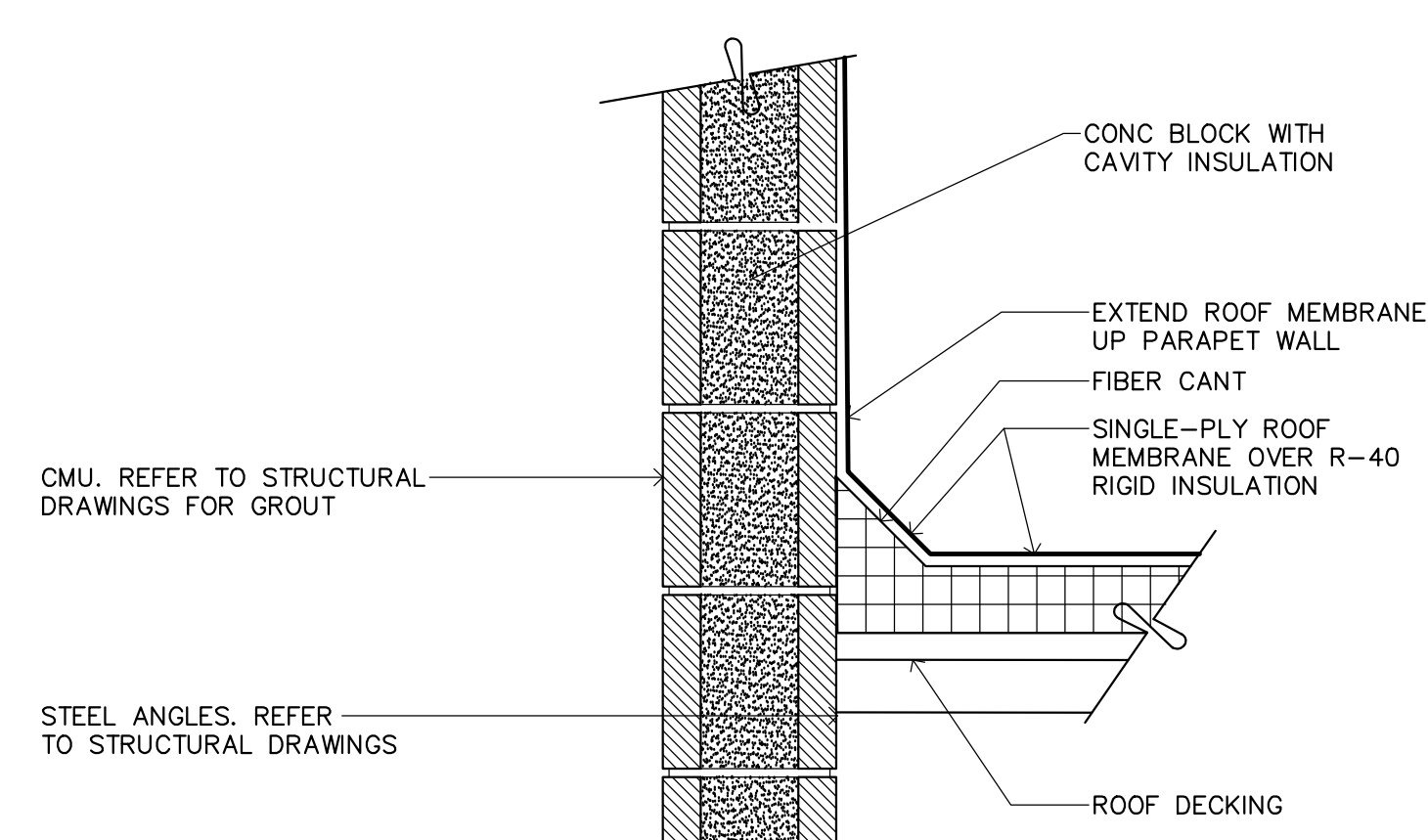
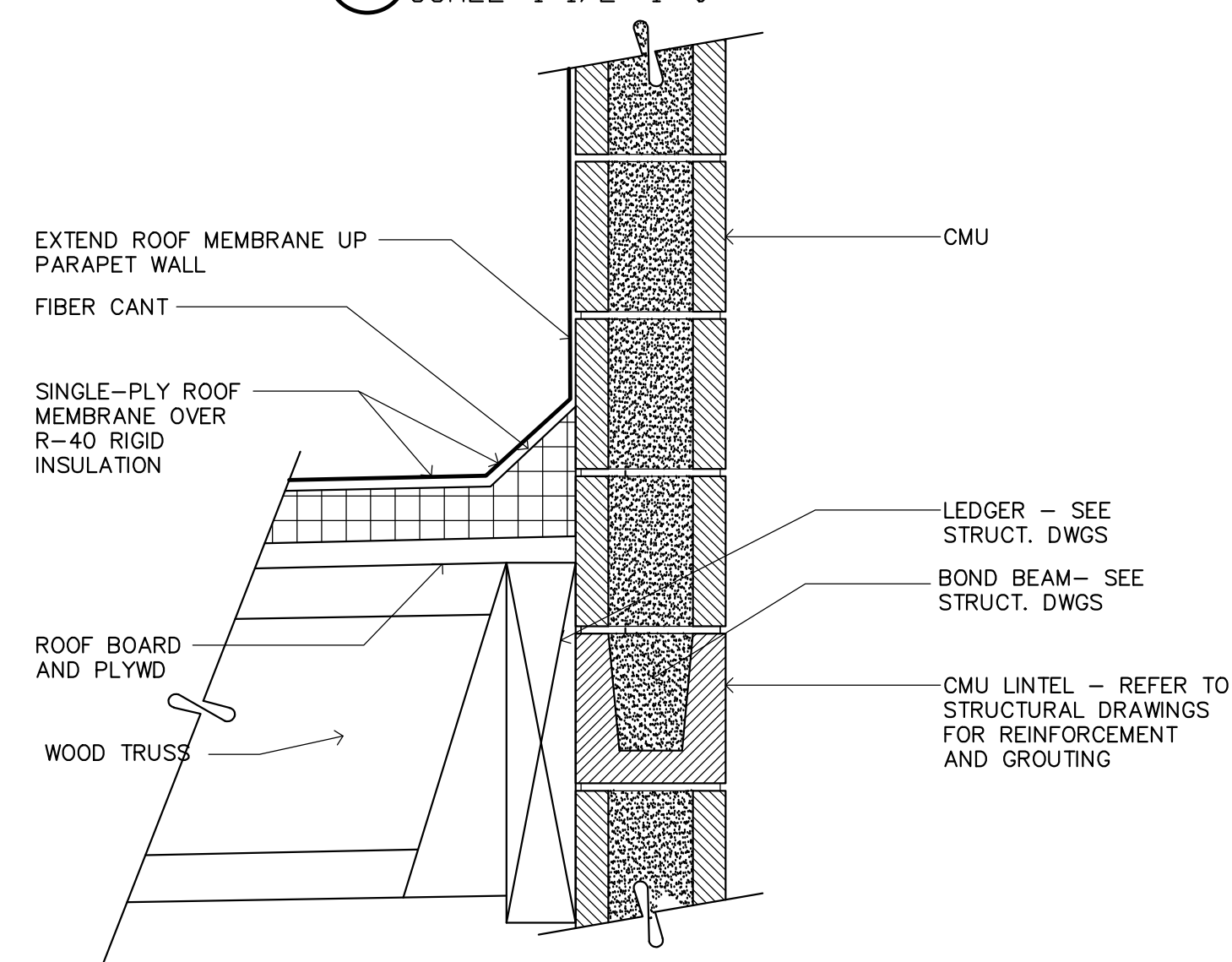
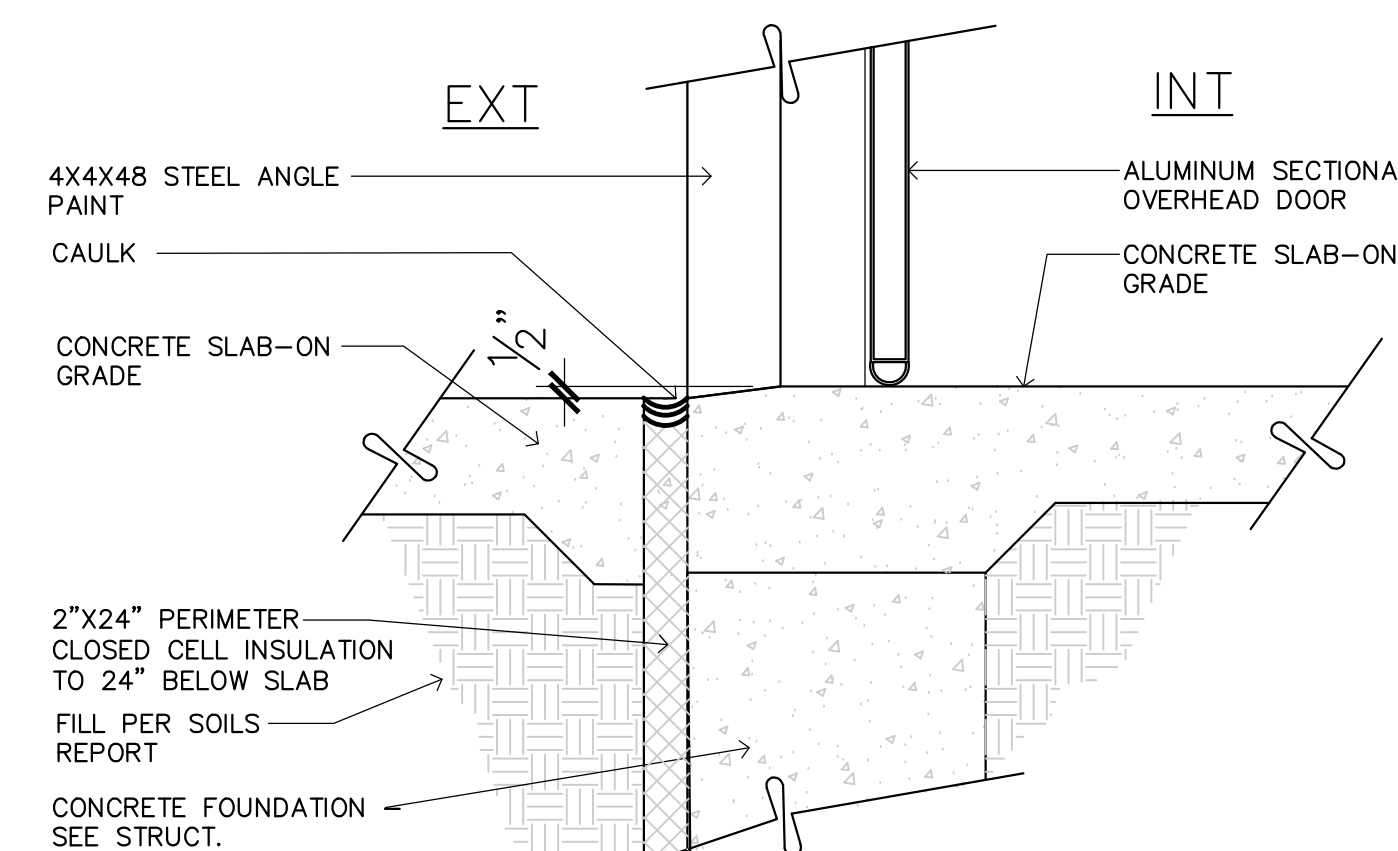
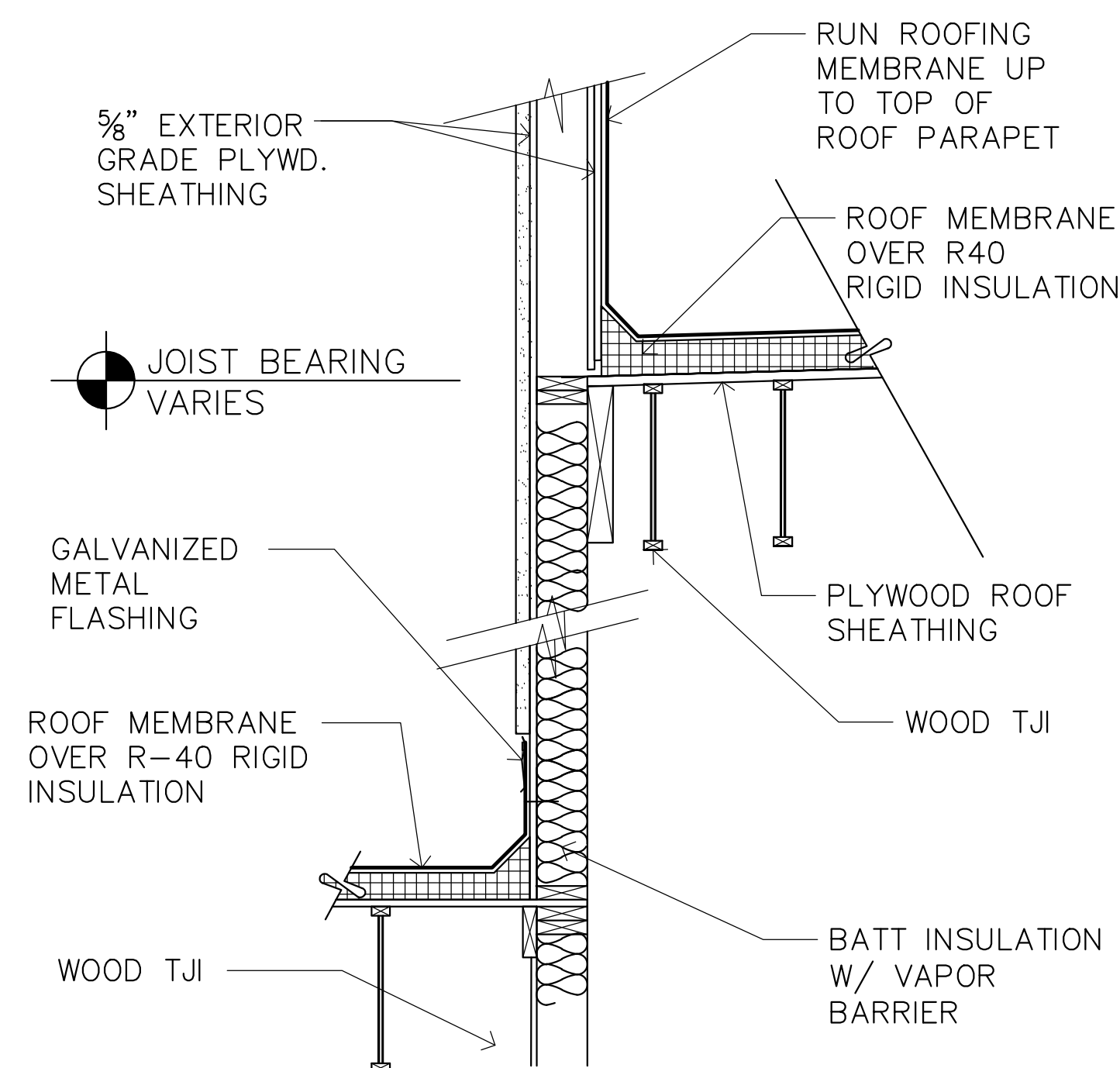
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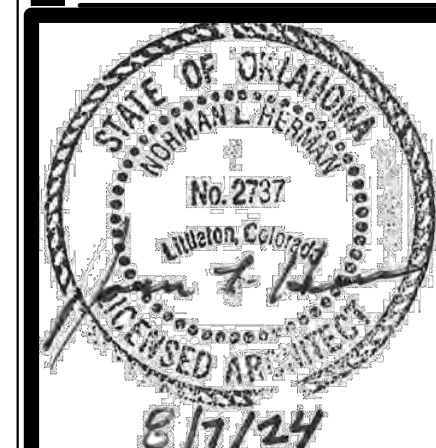
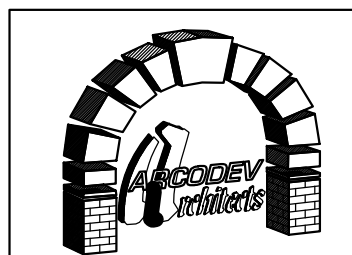
SHEET

A4-5

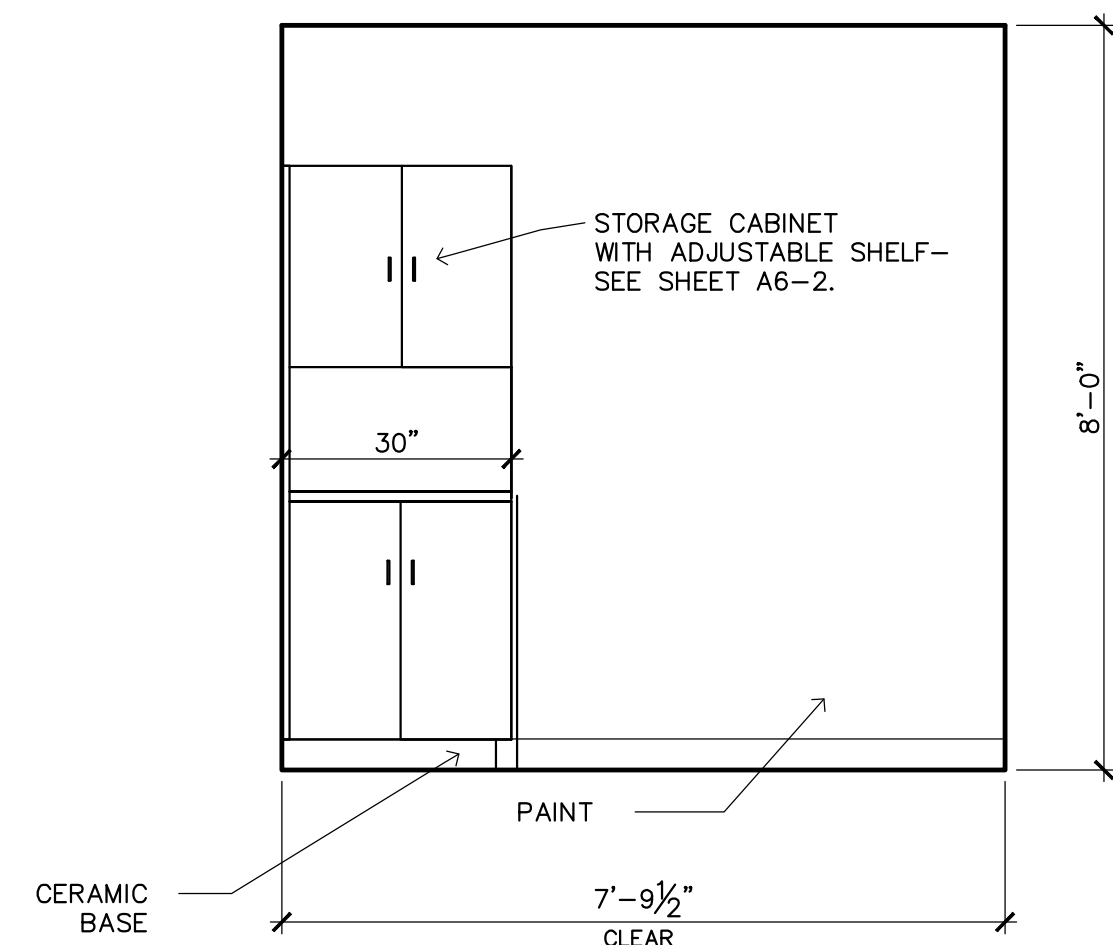
WALL SECTIONS & DET.



BRAKES PLUS

[illegible]

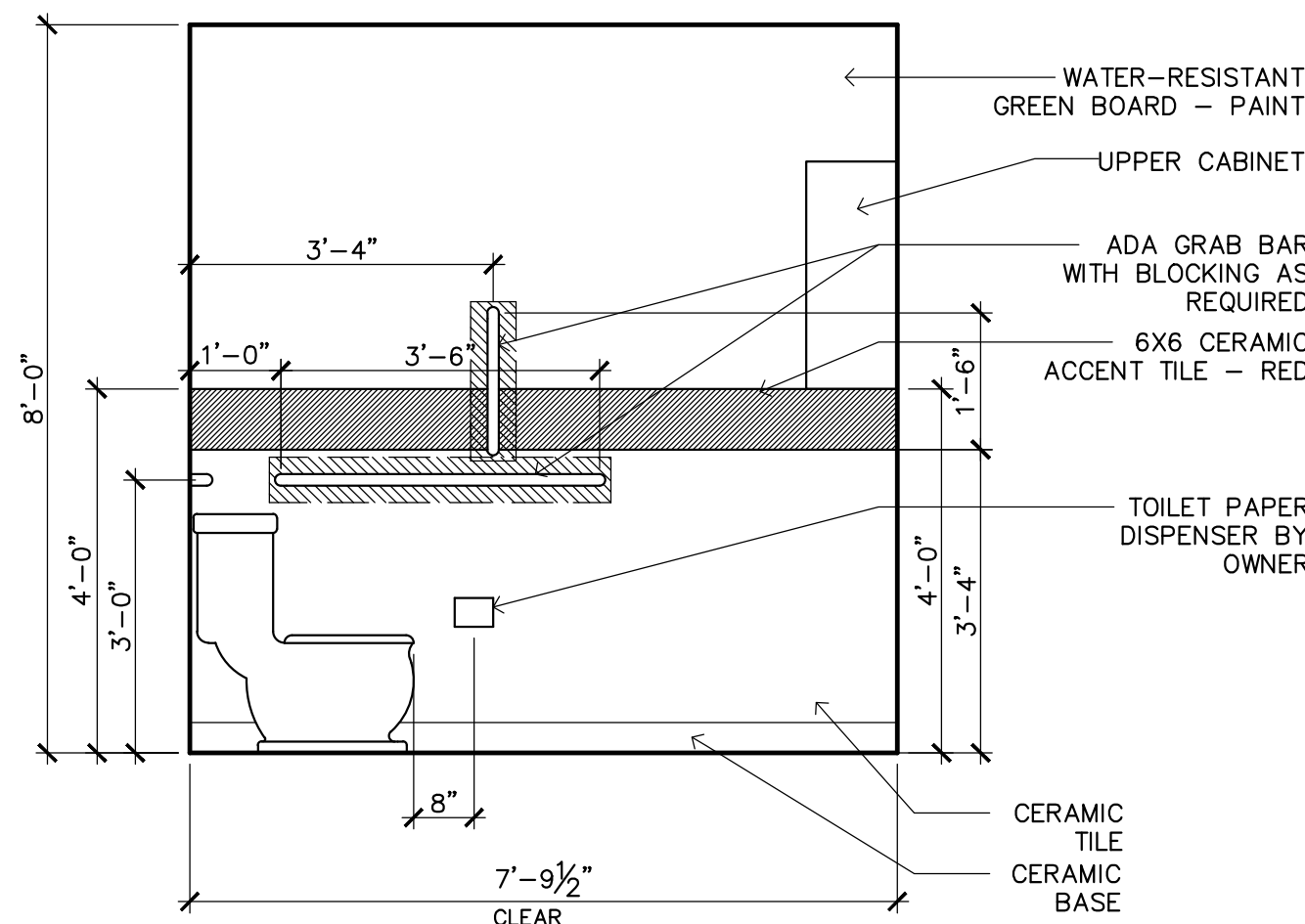
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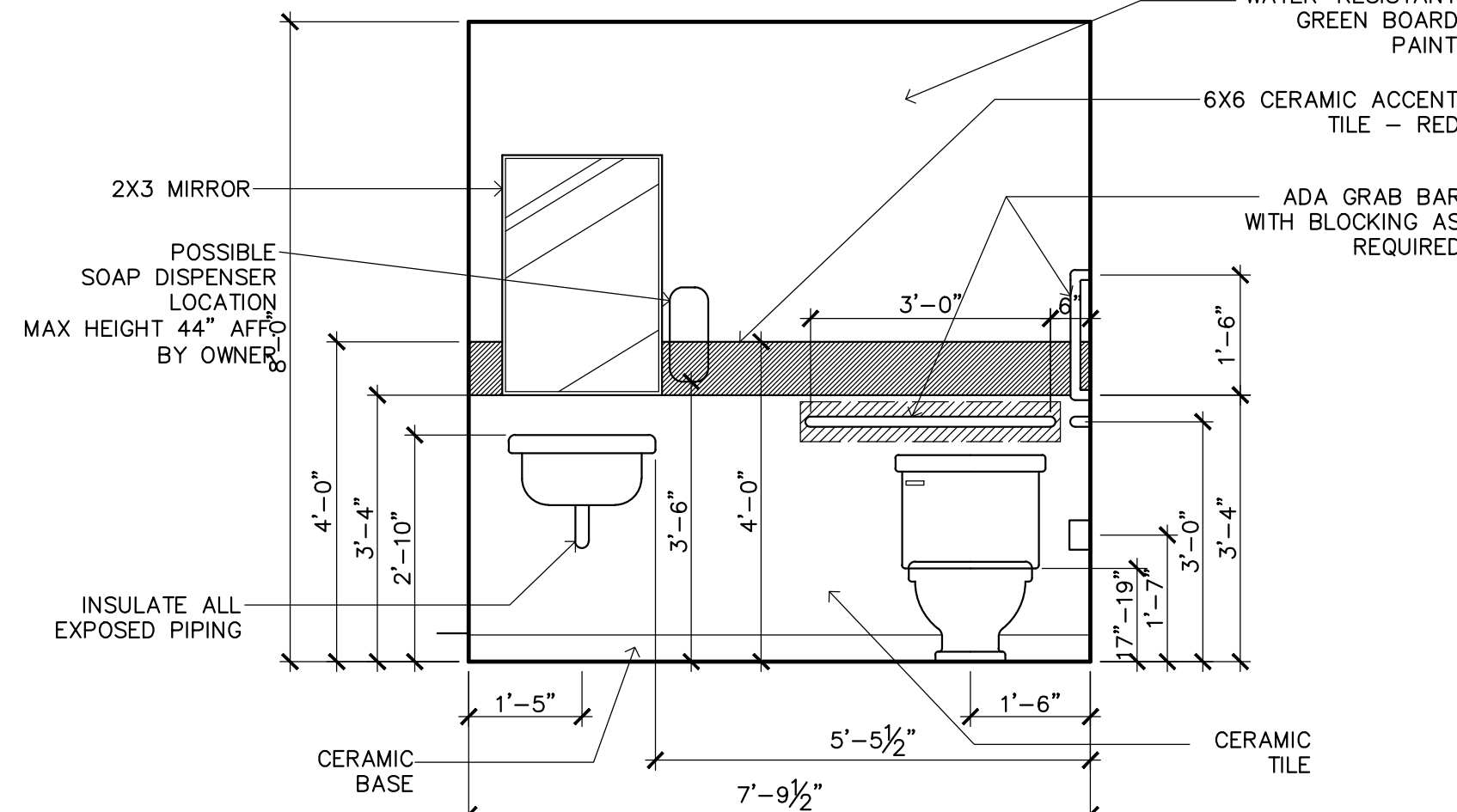
d

1 WOMEN'S RESTROOM ELEVATION

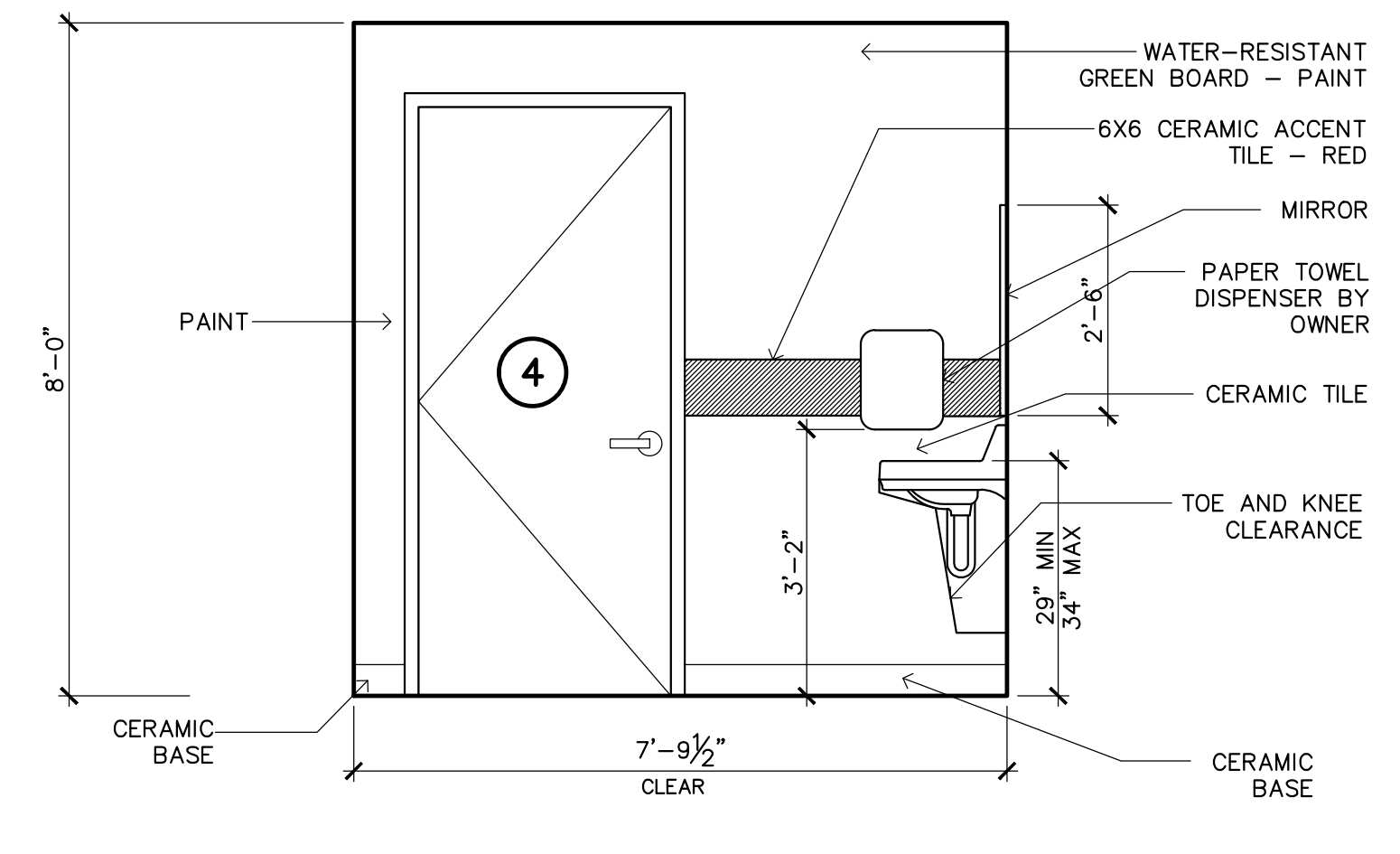
SCALE: 1/2" = 1'-0"



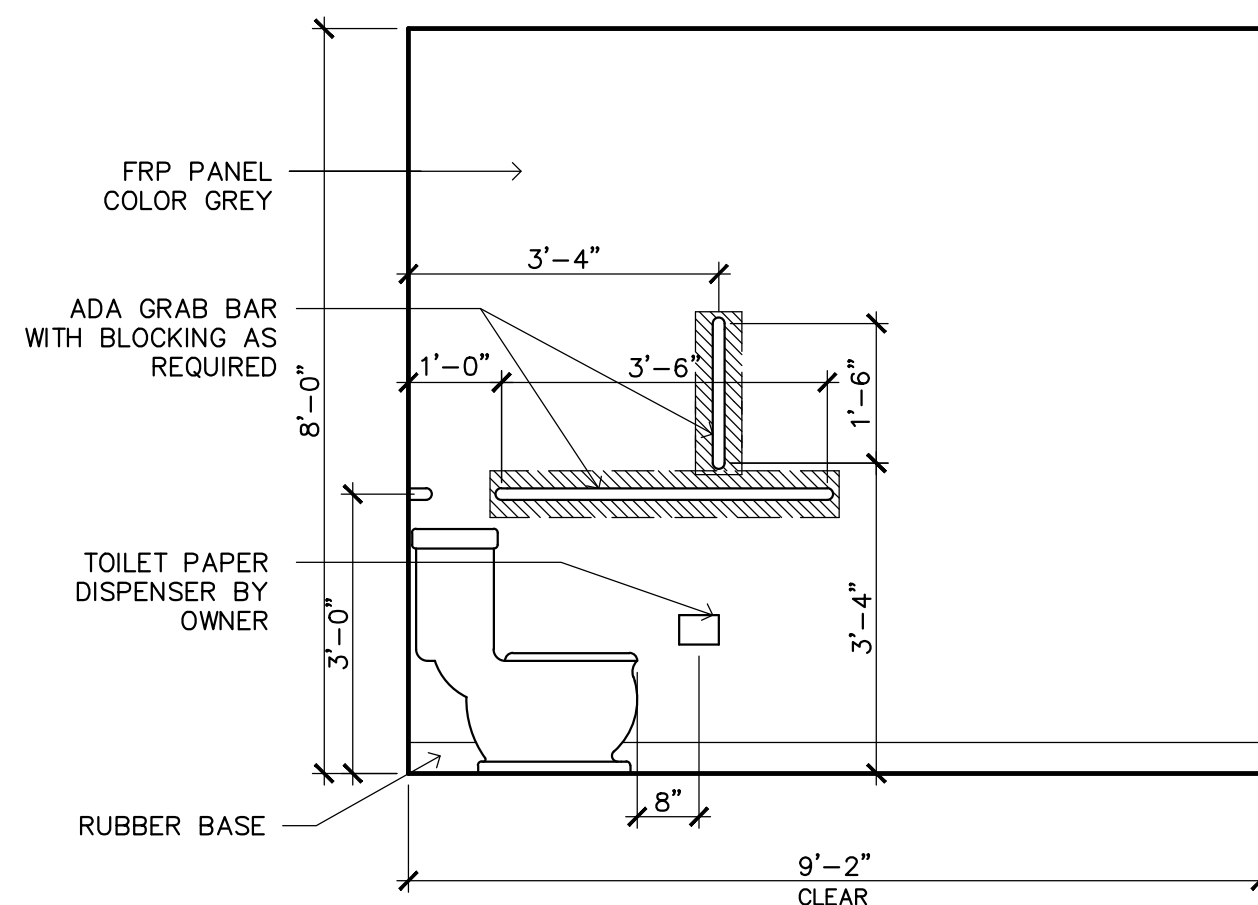
a



b



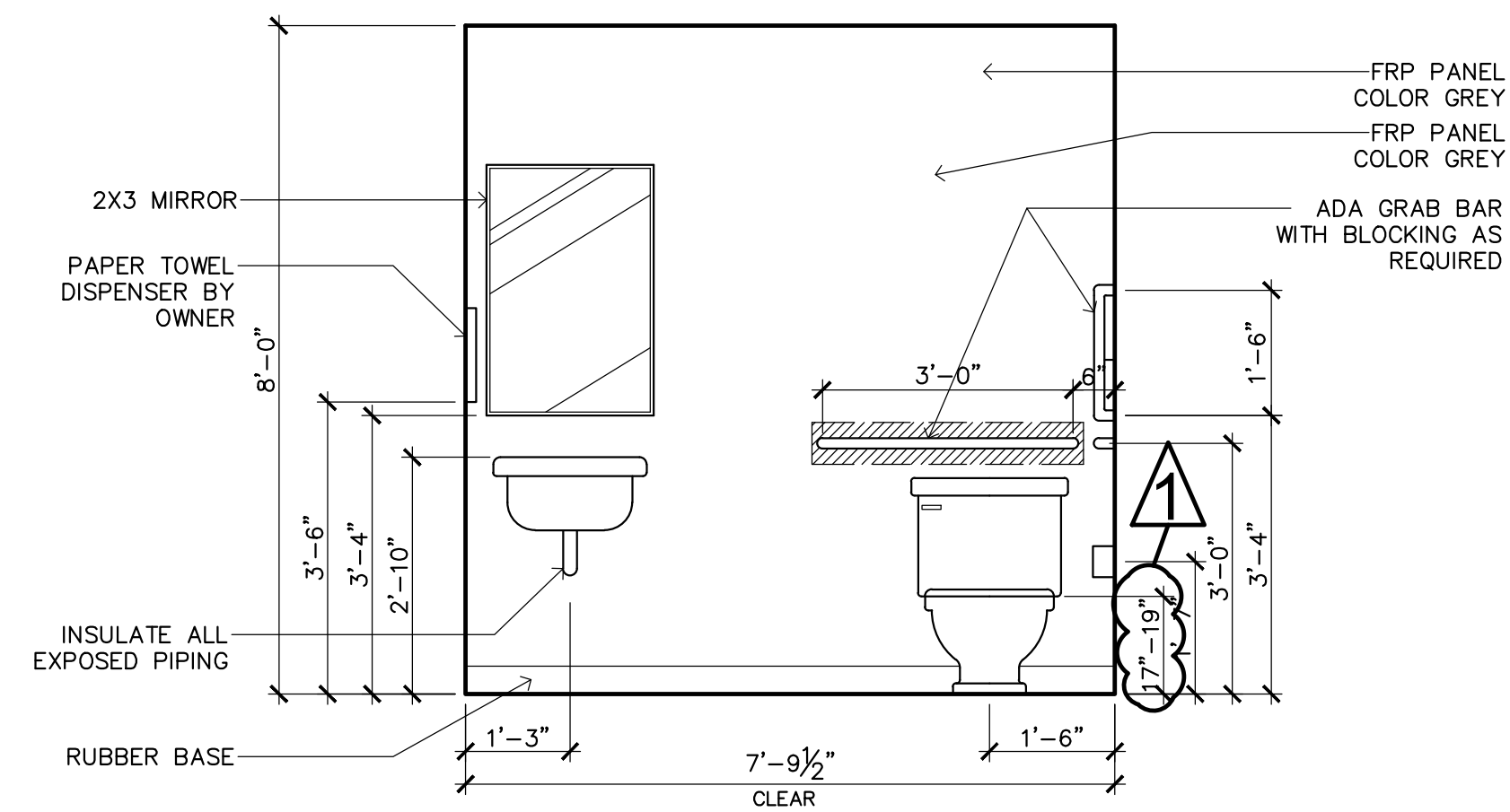
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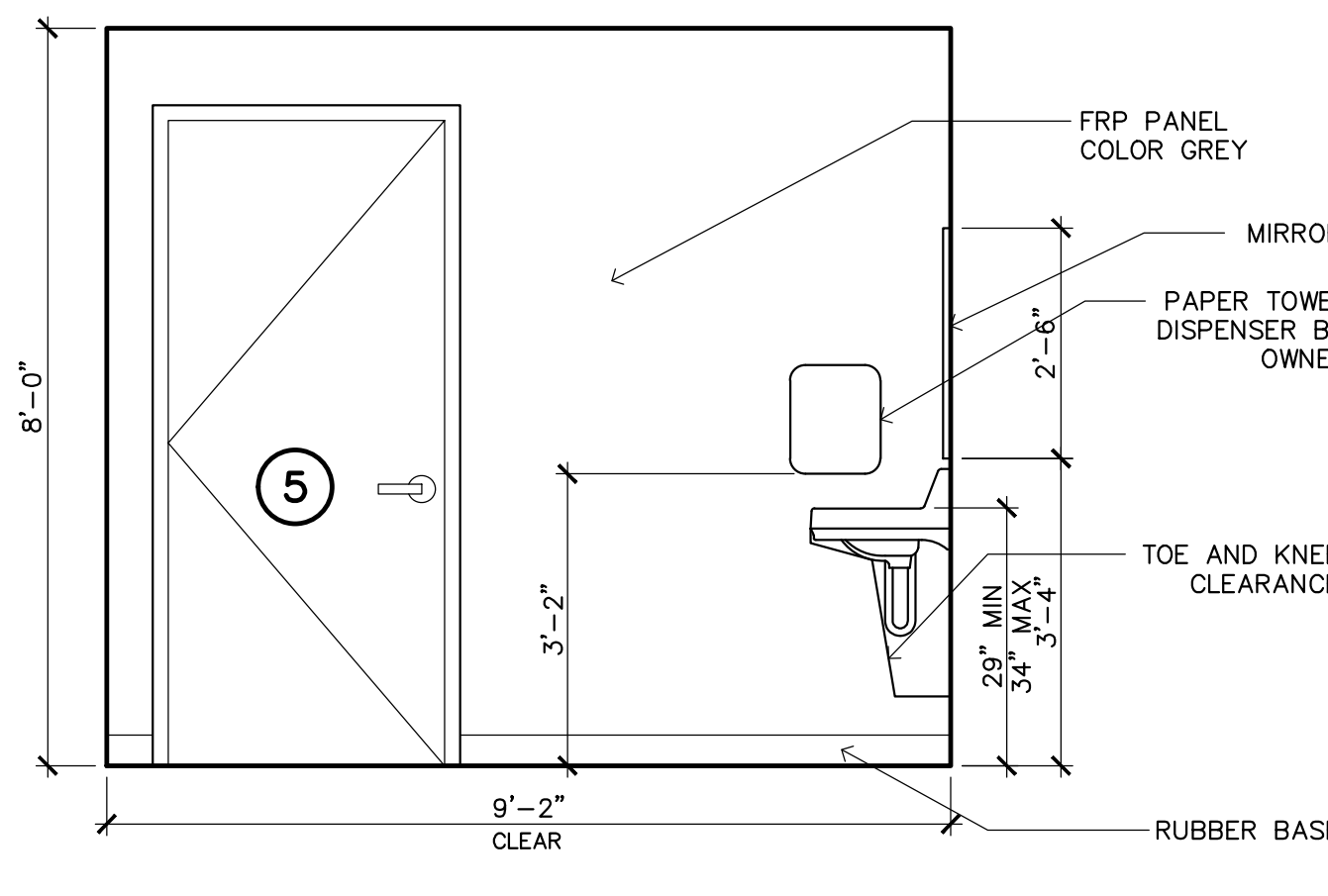
b

2 MEN'S RESTROOM ELEVATION

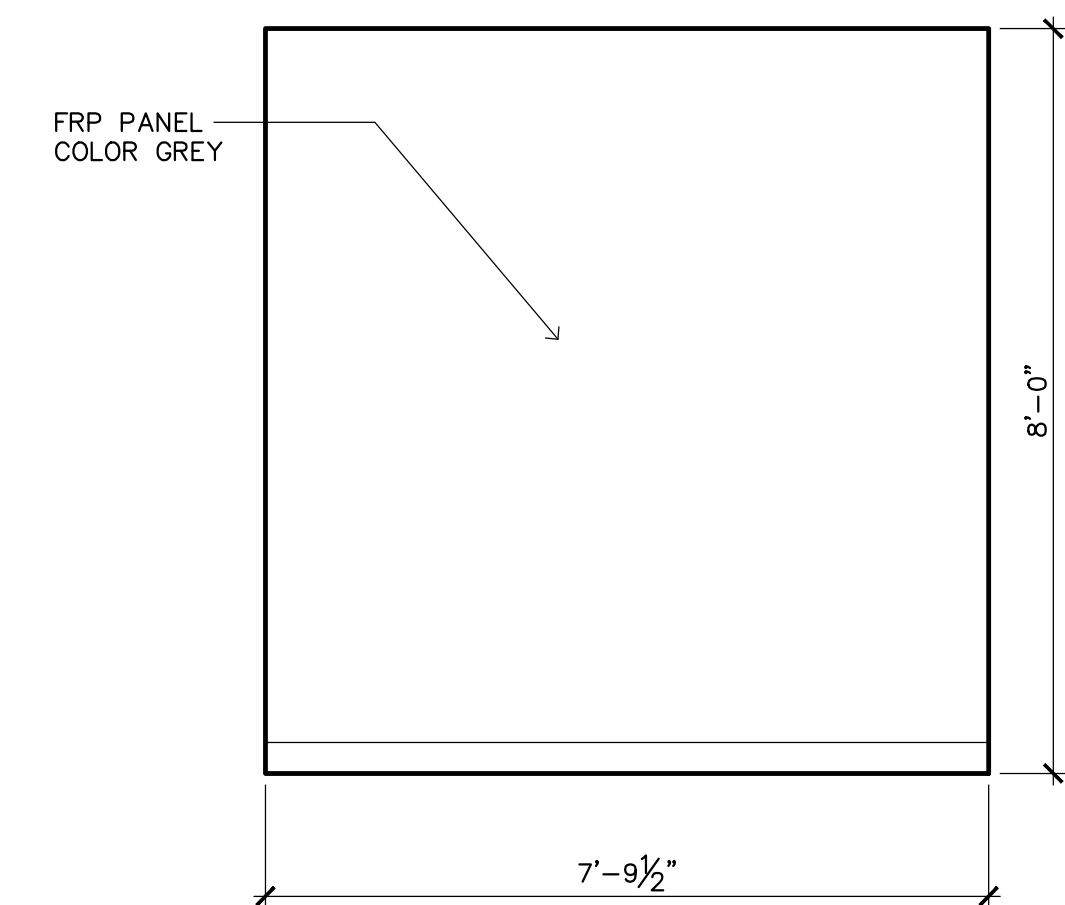
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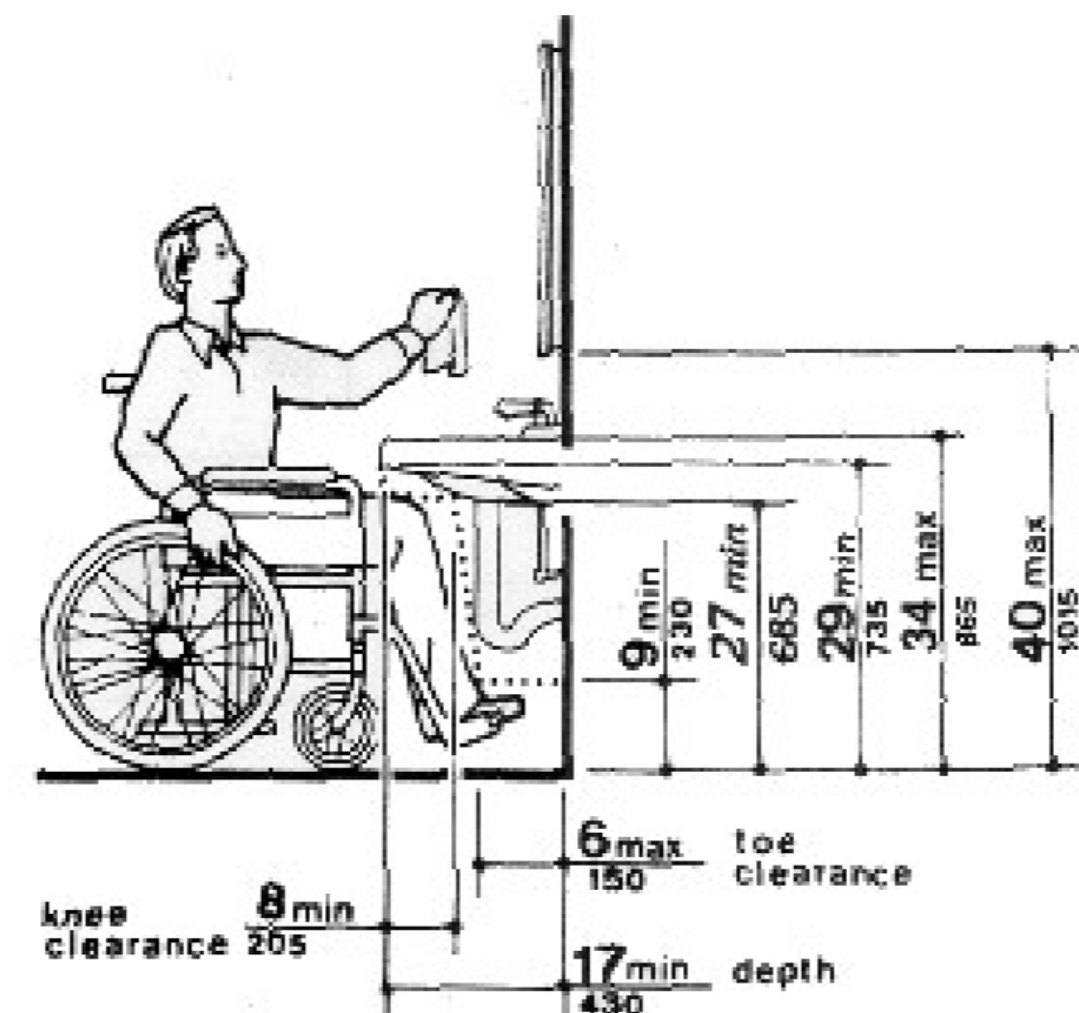
c



d

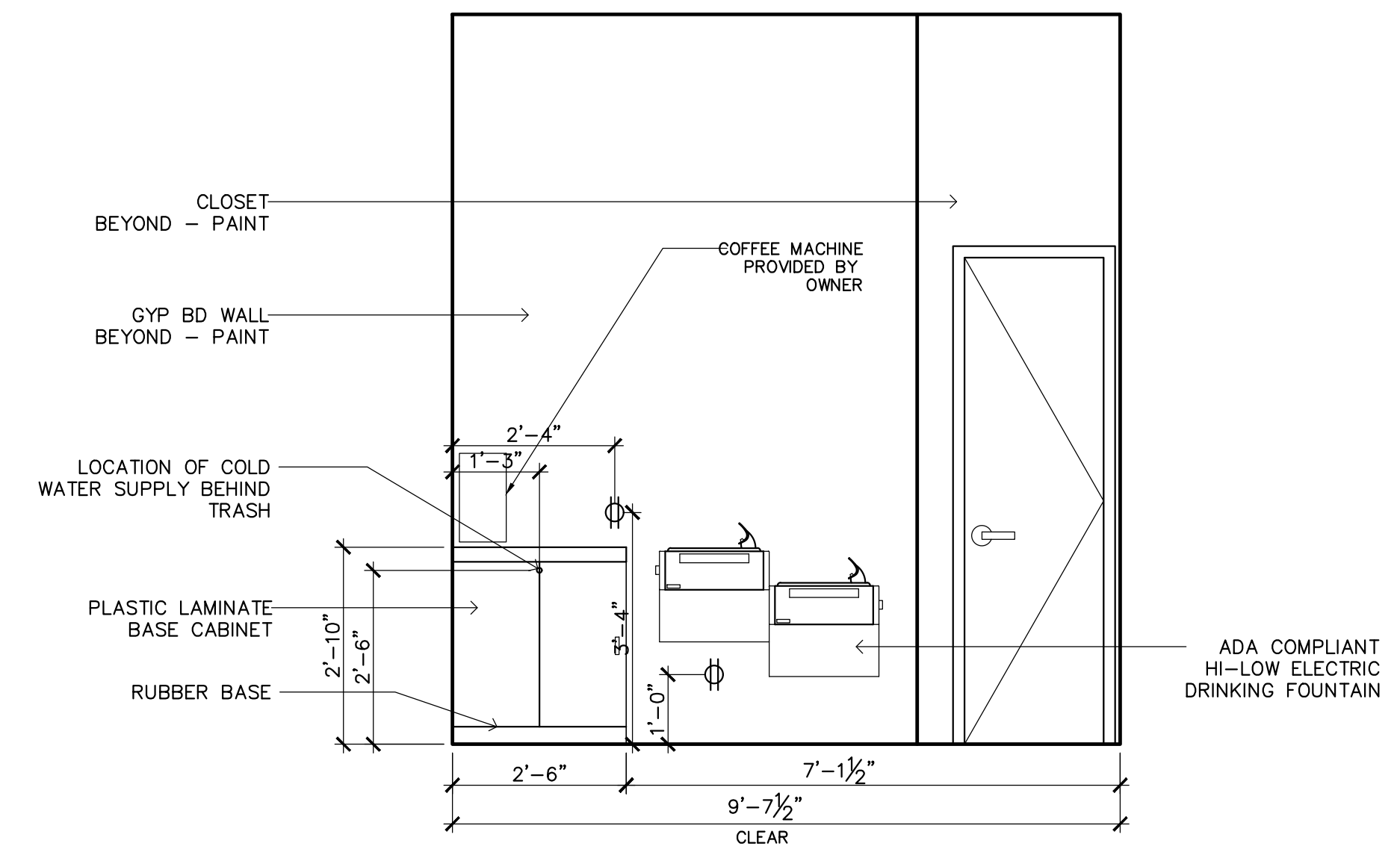


a



8 ADA FIXTURE PLACEMENT

NO SCALE



5 COFFEE ROOM ELEVATION

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

BRAKES PLUS

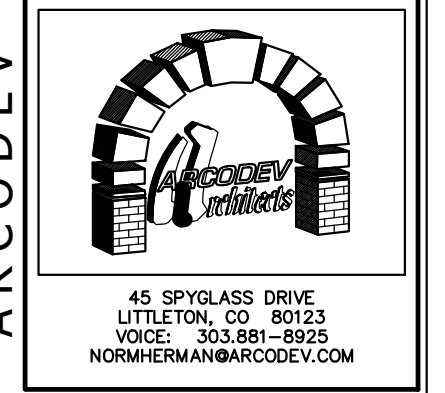
1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



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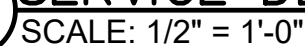
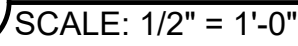
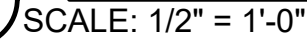
SHEET
A5-1
INTERIOR ELEVATIONS
AND DETAILS



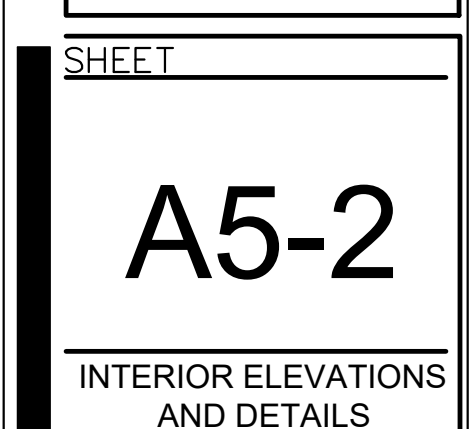
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SCALE: 1/2" = 1'-0"



SINK: 30"X48"



BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA

STATE OF OKLAHOMA
NORMAN L. HERMAN
No. 2737
Linton, Colorado
J. R. [Signature]
LICENSED ARCHITECT
8/17/24

ARCHITECT OF RECORD

REVISION	DATE	COMMENTS FOR SUBMITTAL TO BLDG. DEPT.
	08.07.2024	

ARCODEV JOB #:	—
CLIENT JOB #:	—
DRAWN BY:	—
CHECKED BY:	NLH
DATE OF ISSUE:	06.26.24

ARCODEV



45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.881-8925
NORMHERMAN@ARCODEV.COM

SHEET

A5-2

INTERIOR ELEVATIONS
AND DETAILS

NOTE:

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 EQUIPED WITH SINGLE-EFFORT, NON-GRASP HARDWARE CENTERED BETWEEN 34" AND 48" ABOVE THE FLOOR.

NOTES:
1. PROVIDE MOISTURE-RESISTANT GYPSUM BOARD.

* ALL DOOR HARDWARE SHALL BE LEVER TYPE

DOOR AND FRAME MATERIAL

DOOR AND FRAME FINISHES

FINISH MATERIALS

CMU	CONCRETE MASONRY UNIT
RB	RUBBER BASE
GB	GYPSUM BOARD
FRP	FIBERGLASS REINFORCED PL

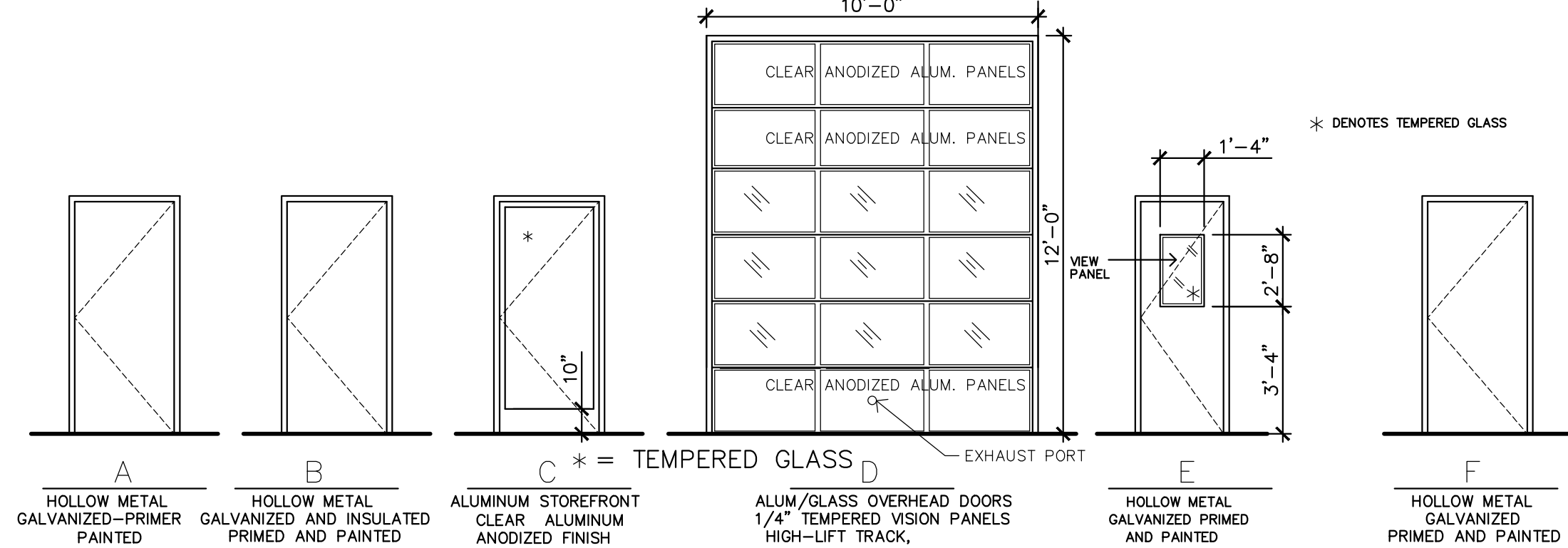
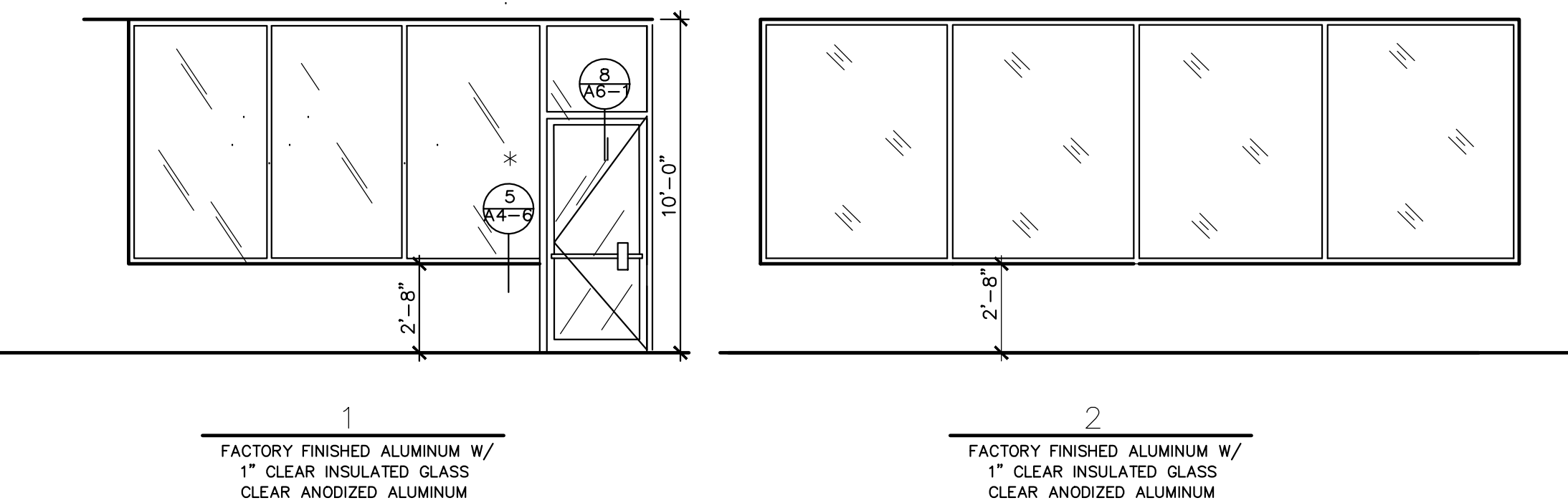
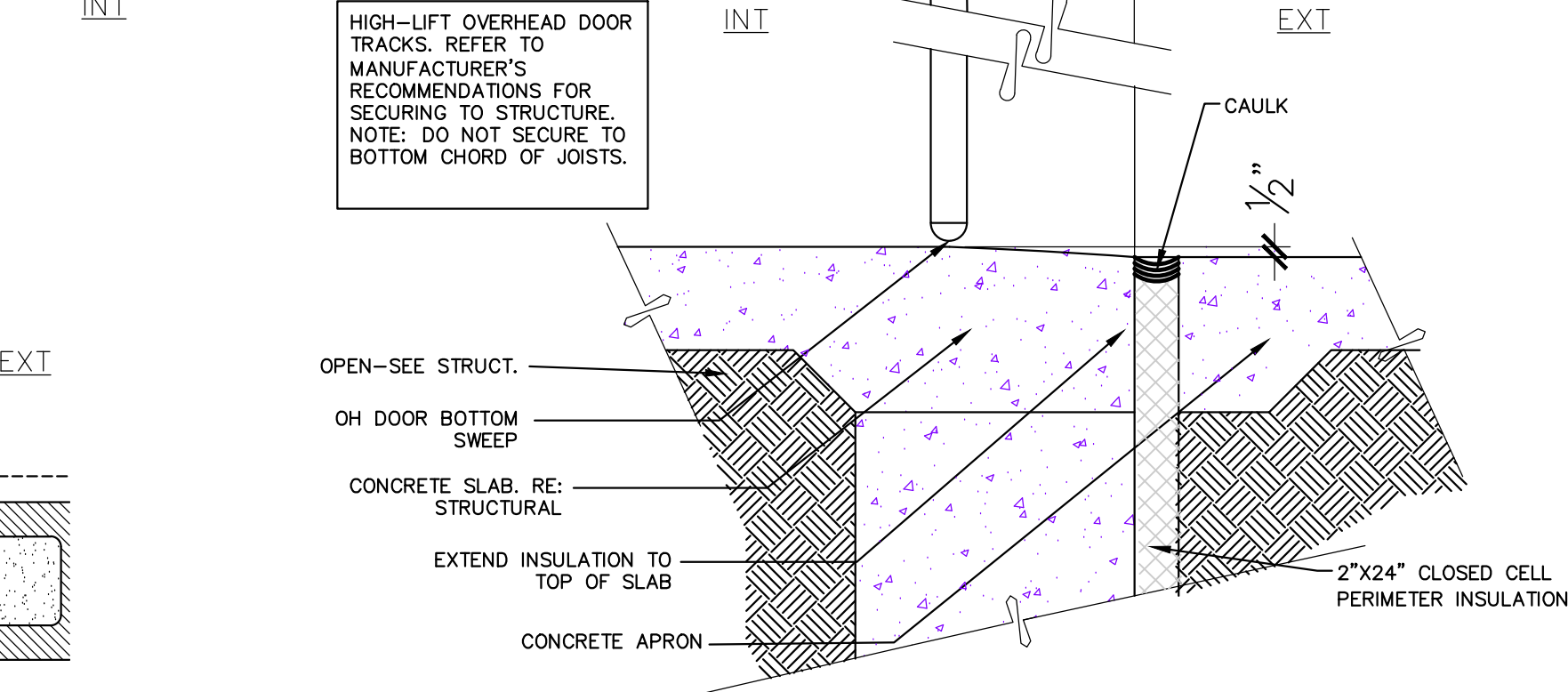
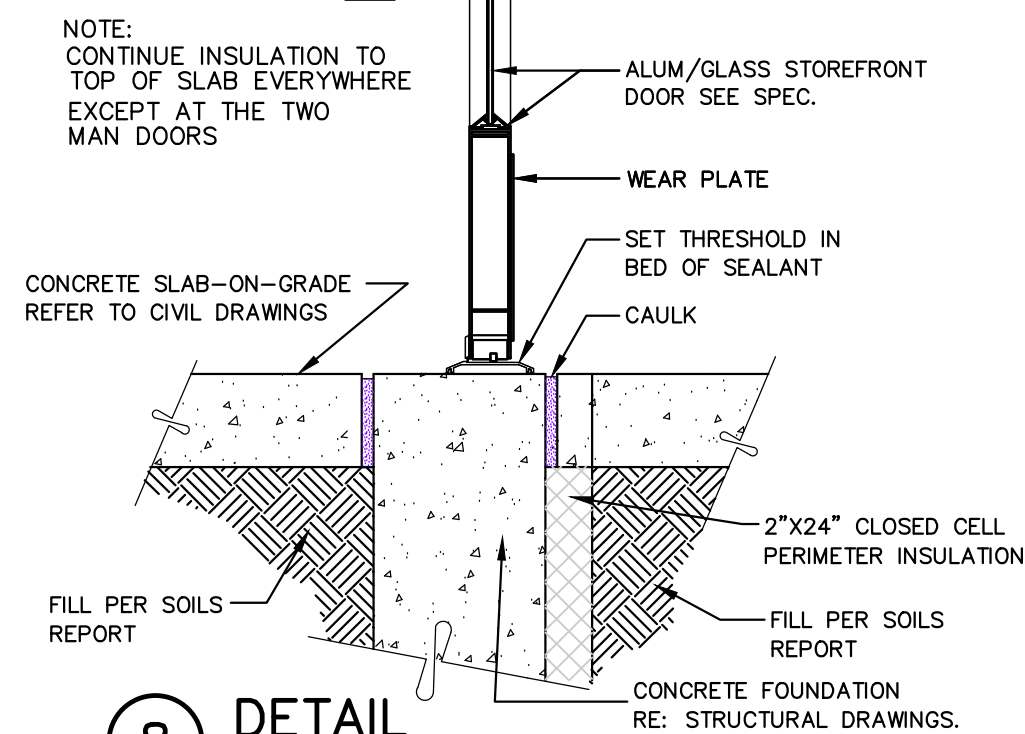
CPT FINISHES	CARPET
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F1	NONE
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F2	HARDENER AND SEALER
F3	2 COATS ENAMEL
F4	2 COATS ENAMEL

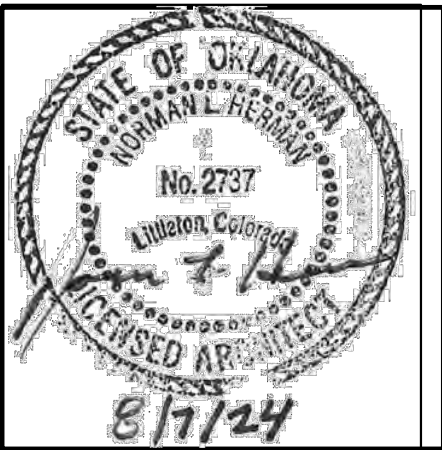
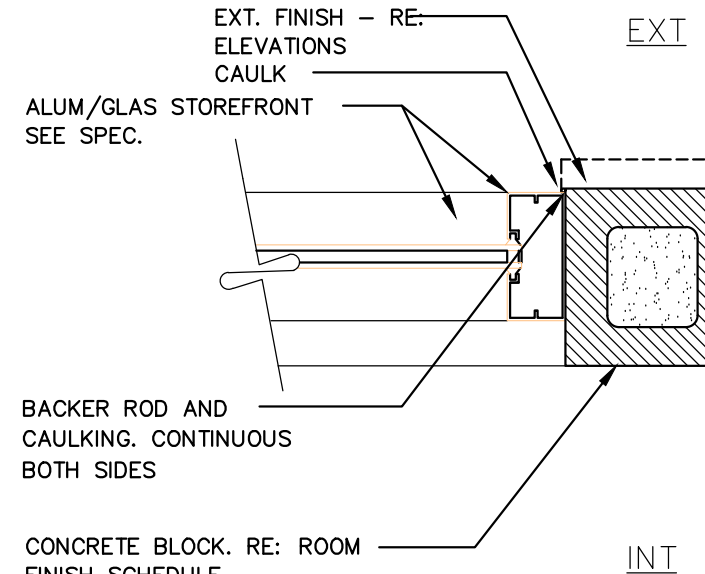
F4	2 COATS ENAMEL
F5	1 COAT BLOCK FILLER - 2

F6	10 4-6 AFF - 1 COATS F 2 COATS SEMI-GLOSS ENAM
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NOTE:

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



ARCHITECT OF RECORD

[illegible]

ARCODEV JOB #: _____

CLIENTJOB #:

DRAWN BY: _____

CHECKED BY: _____ NLH

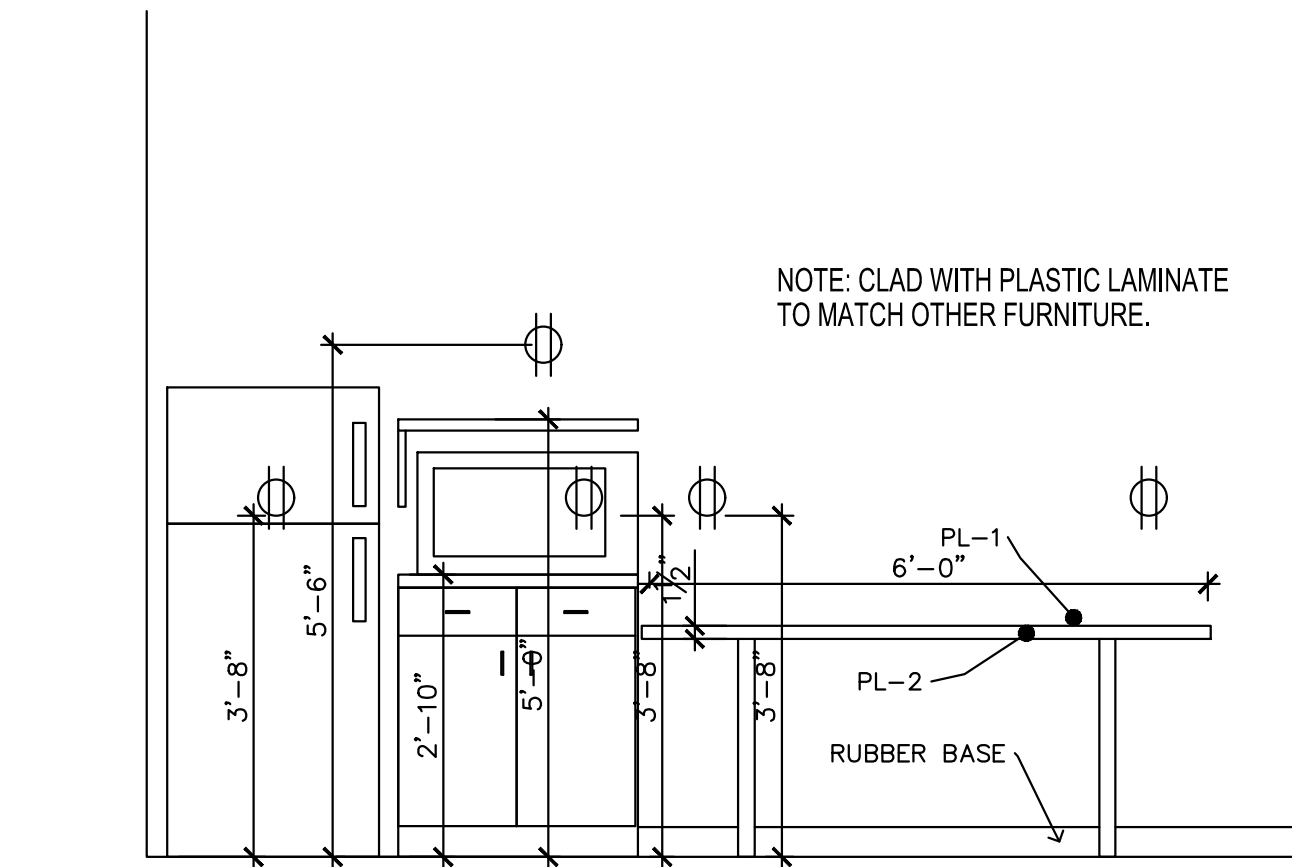
DATE OF ISSUE: 06.26.24



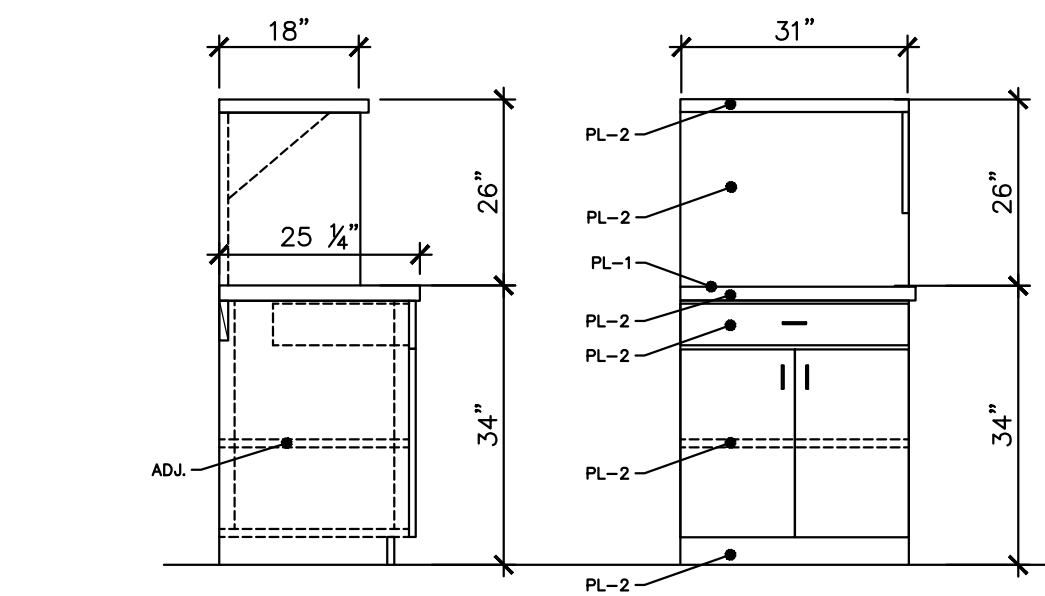
SHEET

A6-1

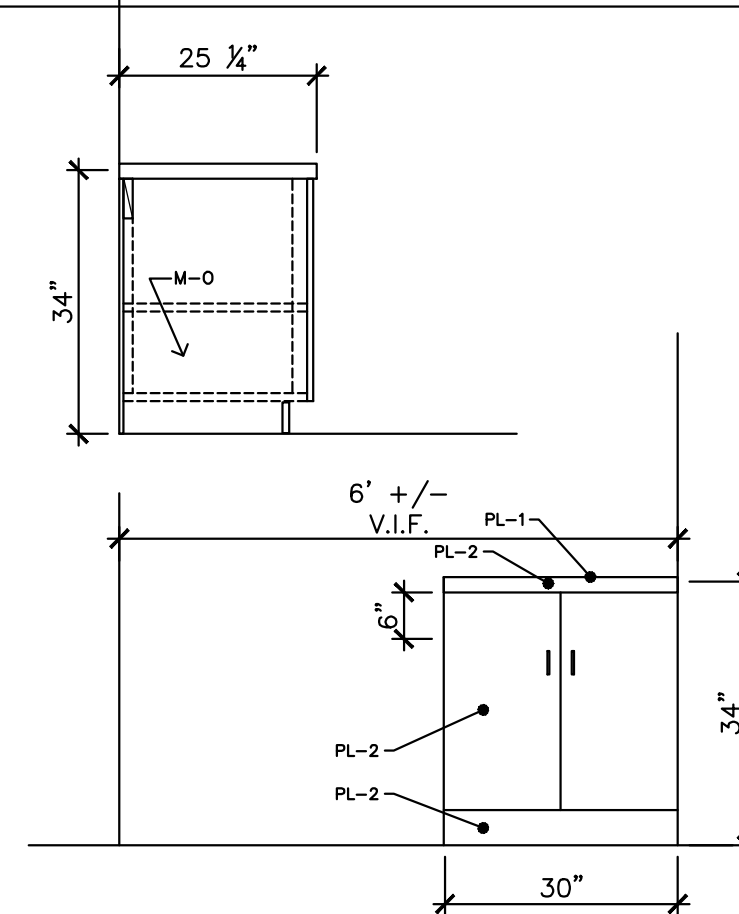
SCHEDULES



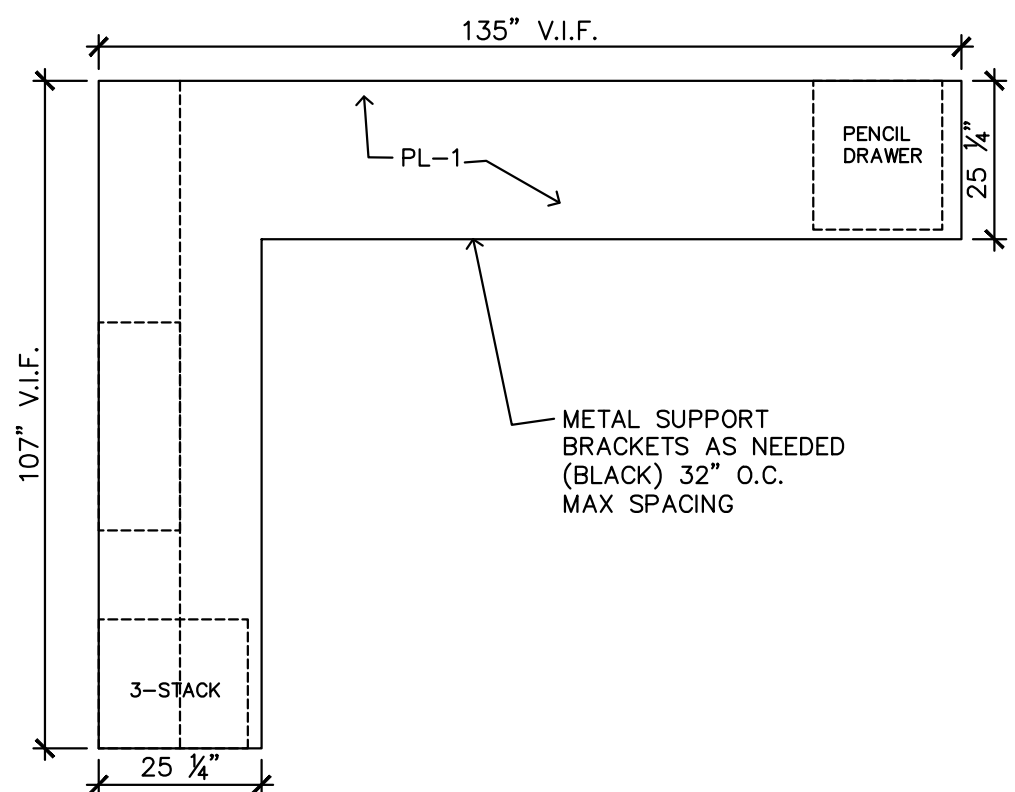
13 DETAIL — BREAK ROOM ELEVATION
SCALE: 1/2" = 1'-0"



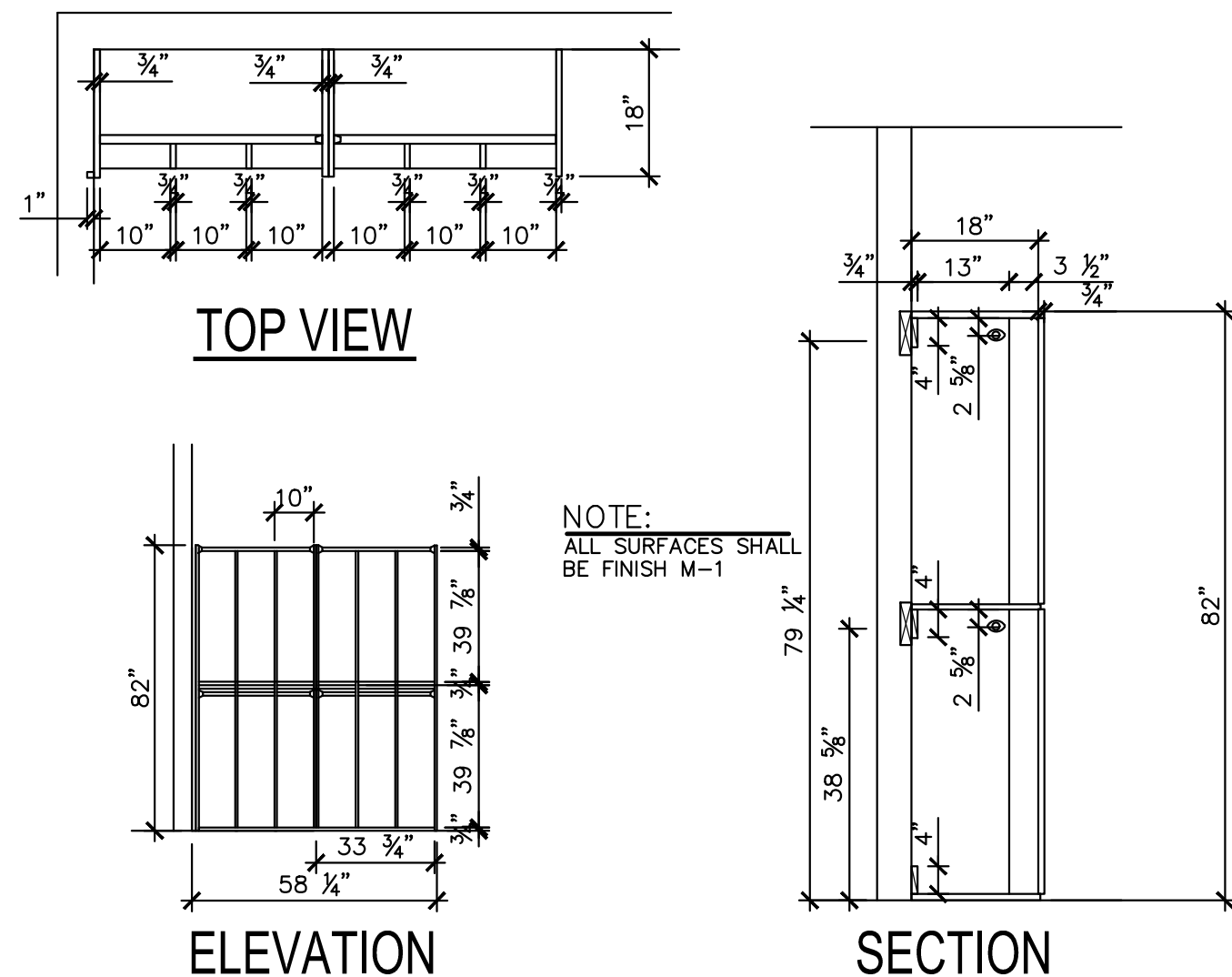
9 DETAIL — MICROWAVE STAND
SCALE: 1/2" = 1'-0"



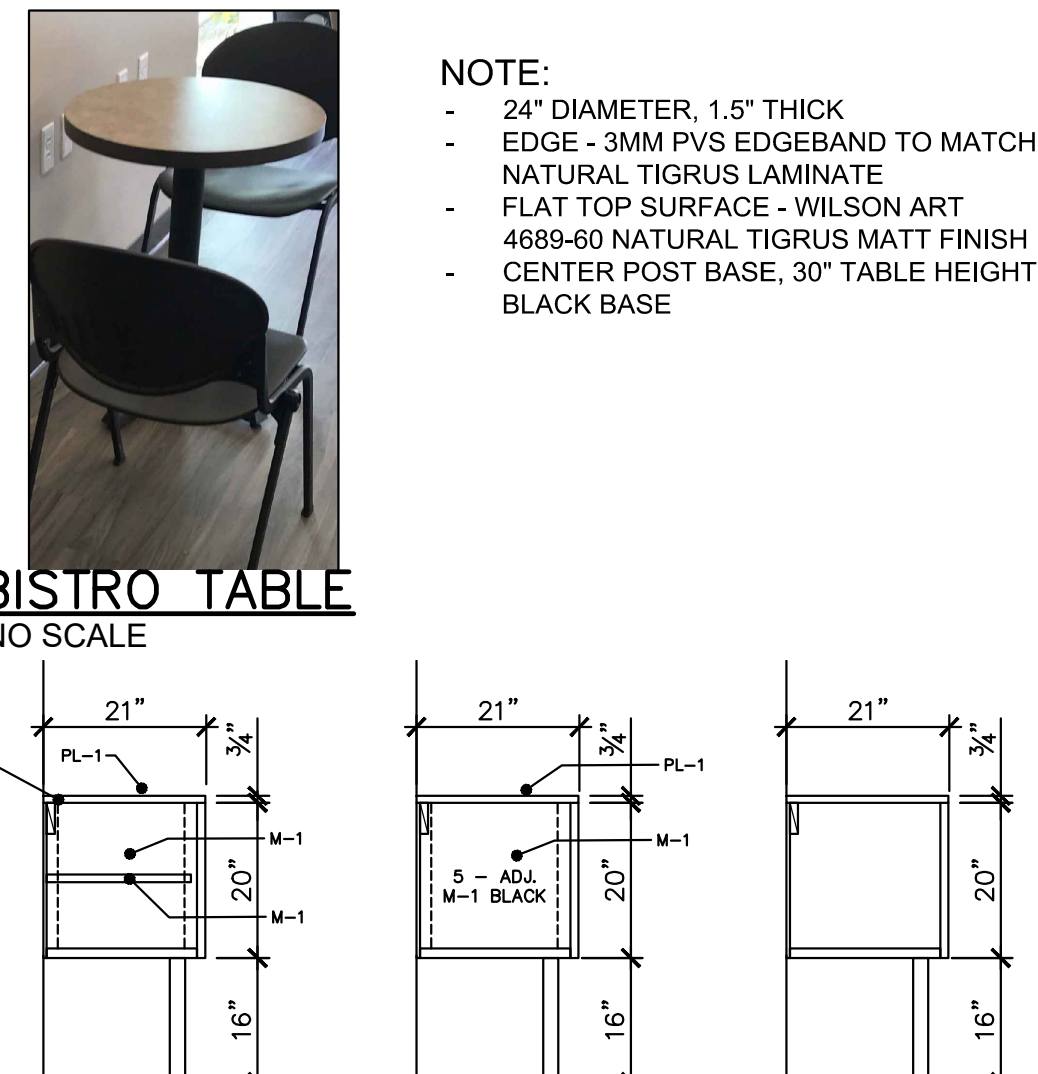
5 DETAIL — COFFEE ROOM 102
SCALE: 1/2" = 1'-0"



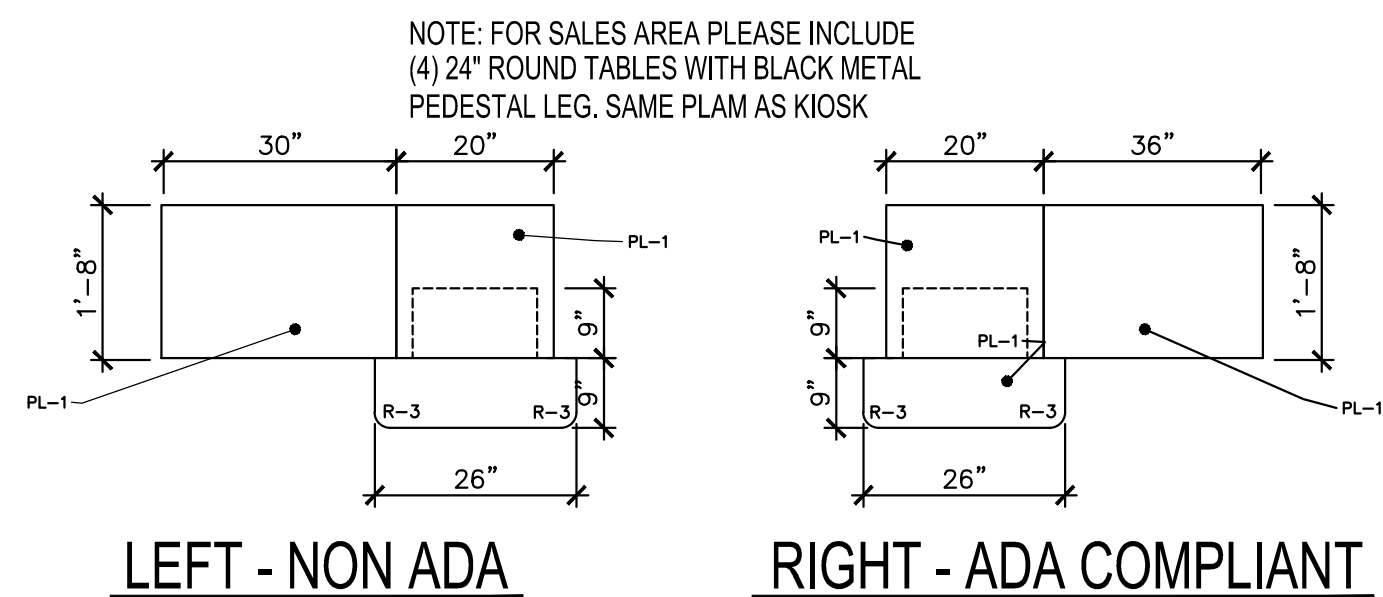
14 DETAIL — OFFICE 103 FURNITURE
SCALE: 1/2" = 1'-0"



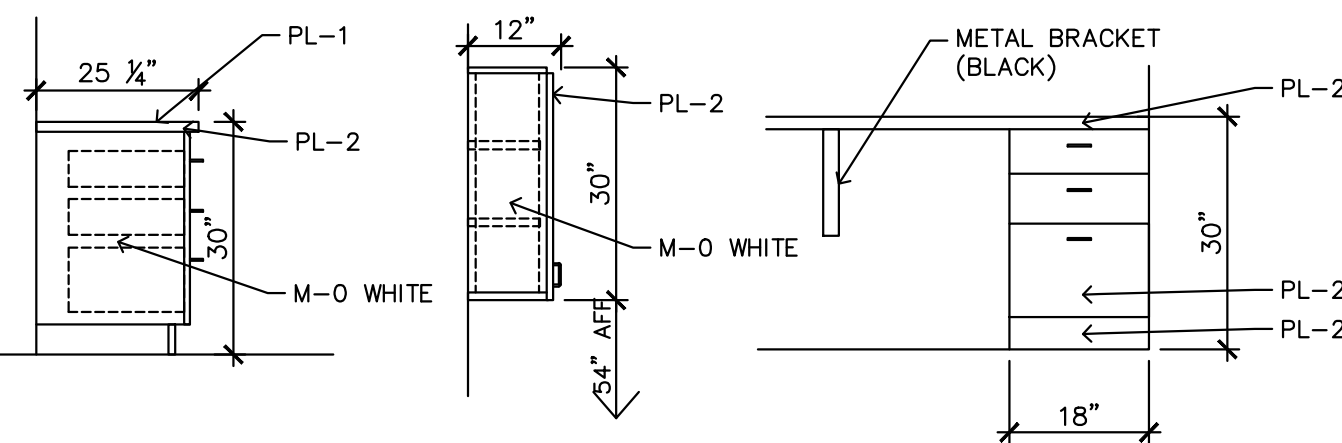
10 DETAIL — UNIFORM LOCKERS
SCALE: N/A



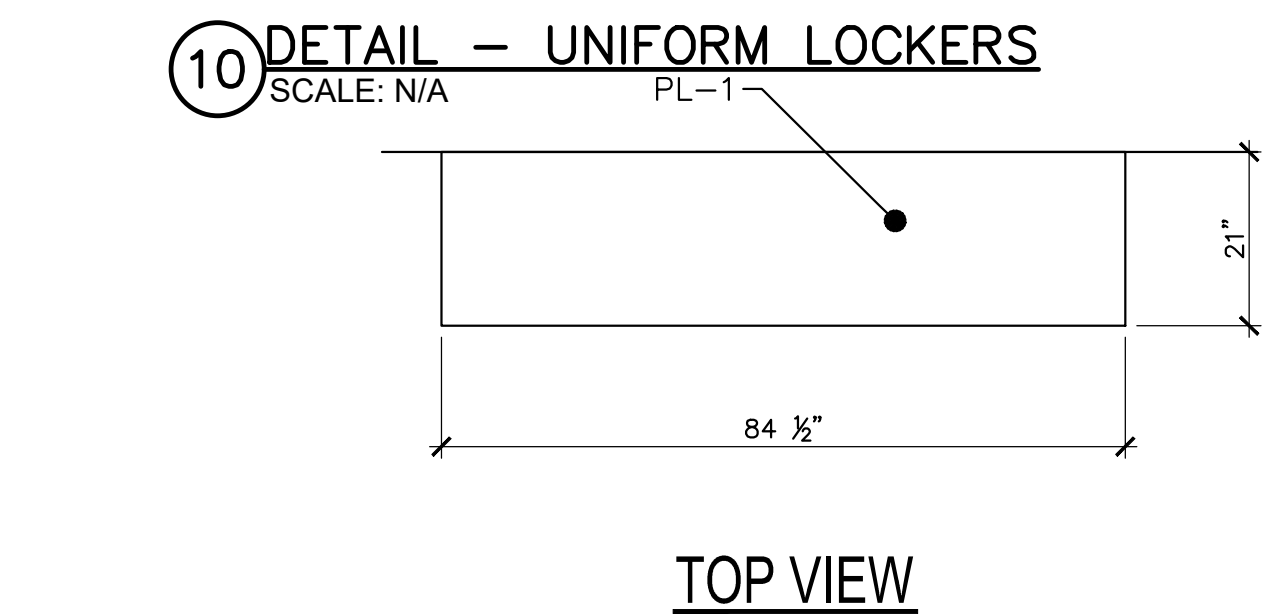
5B BISTRO TABLE
NO SCALE



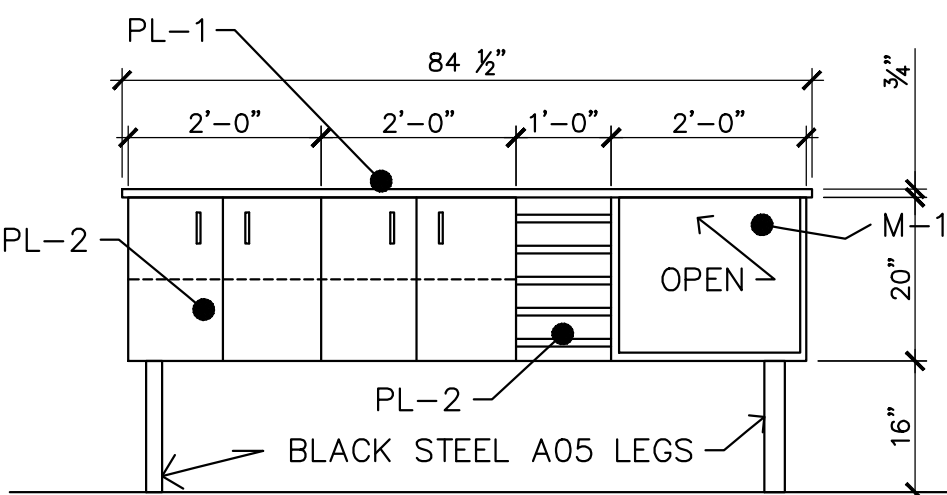
2 DETAIL — SALES AREA KIOSKS
SCALE: 1/2" = 1'-0"



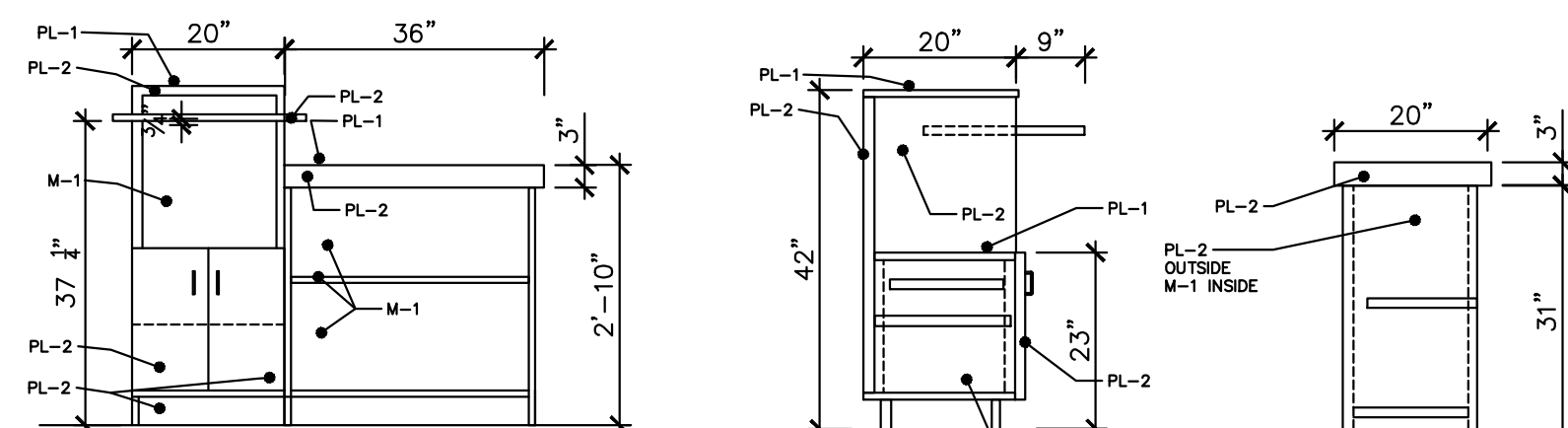
15 DETAIL — OFFICE 103 FURNITURE
SCALE: 1/2" = 1'-0"



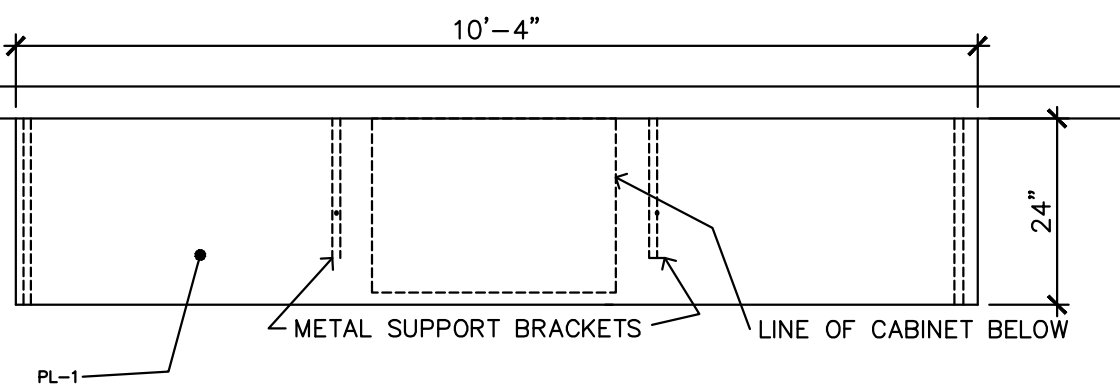
11 DETAIL — SALES AREA — PRINTER CABINETS
SCALE: 1" = 1'-0"



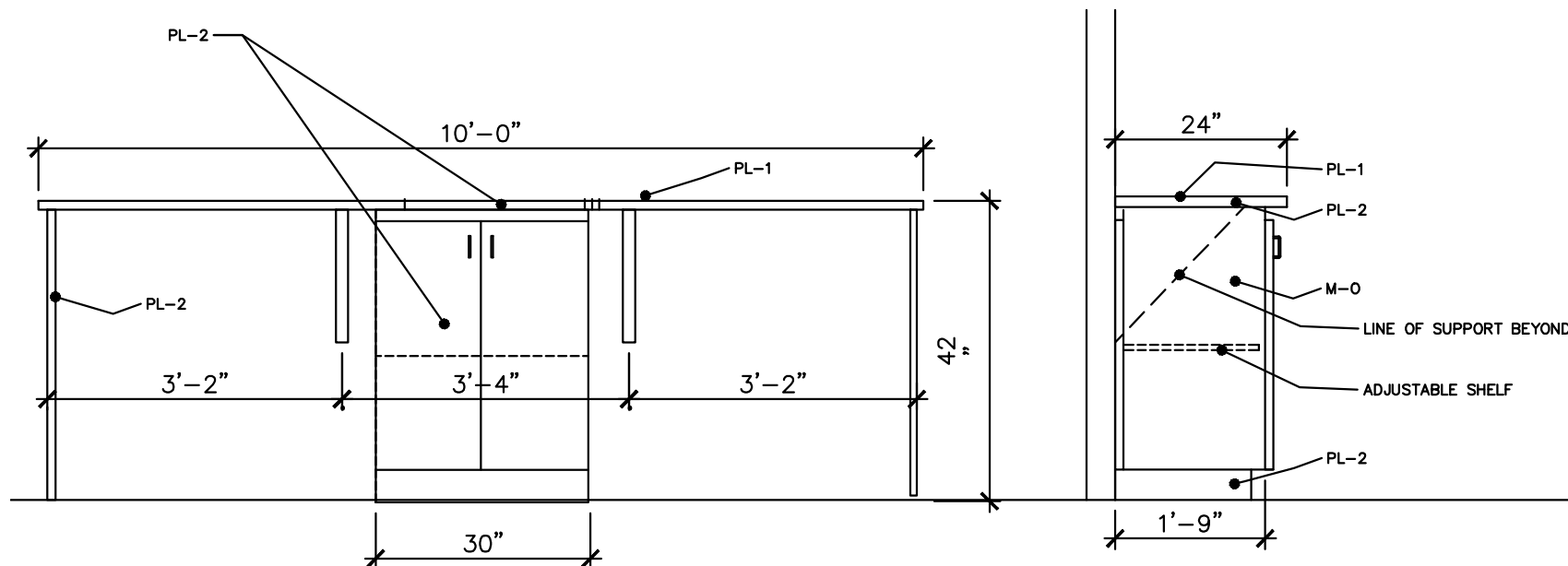
7 DETAIL — SALES AREA — PRINTER CABINETS
SCALE: 1" = 1'-0"



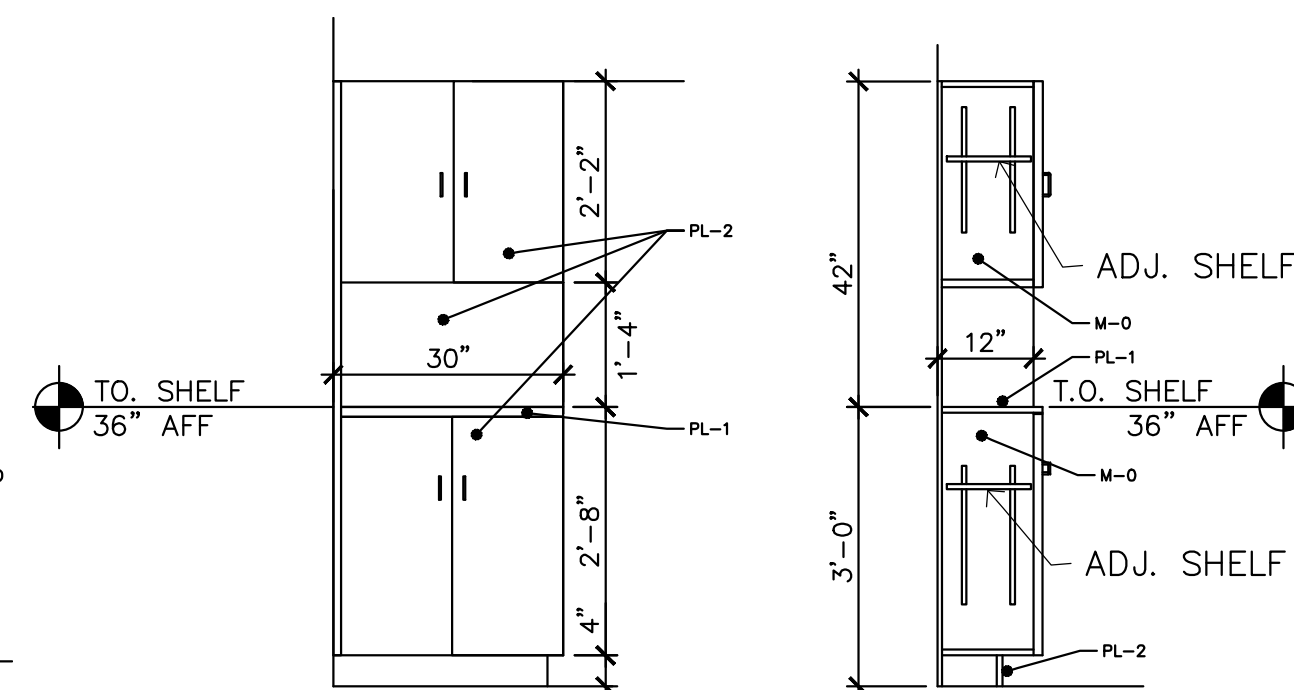
3 DETAIL — KIOSK 2 — ADA COMPLIANT
SCALE: 1/2" = 1'-0"



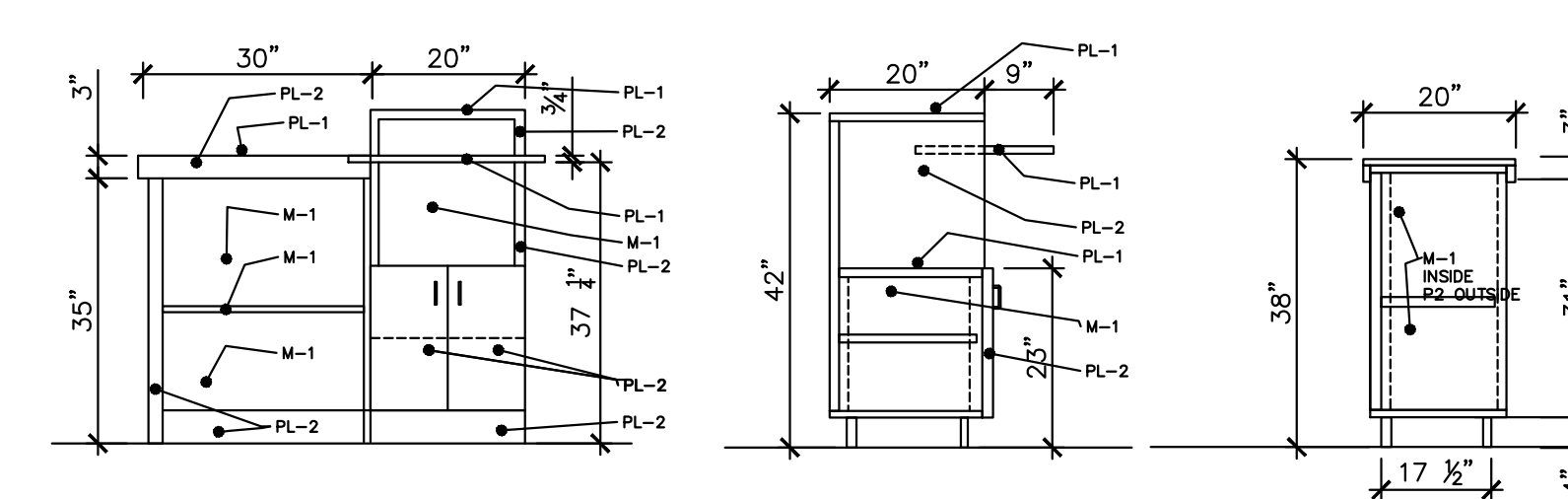
16 DETAIL — SERVICE ADVISORS DESK
SCALE: 1/2" = 1'-0"



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



8 DETAIL — RESTROOM CABINETS
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

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA

STATE OF OKLAHOMA
NORMAN, OKLAHOMA
No. 2737
Landon Colwell
LICENSED ARCHITECT
8/17/24

ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	08.07.2024	FOR SUBMITTAL TO BLDG. DEPT.

ARCOCODE JOB #:

CLIENT JOB #:

DRAWN BY:

CHECKED BY: NLH

DATE OF ISSUE: 06.26.24

ARCOCODE

48 SPYGLASS DRIVE
LITTLETON, CO 80223
VOICE: 303.881-8925
NORTHERRMAN@ARCOCODEV.COM

SHEET

A6-2

FURNITURE AND
FIXTURE DETAILS

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.

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

4 RESTROOM FINISHES
SCALE: N.T.S.

GENERAL NOTES:

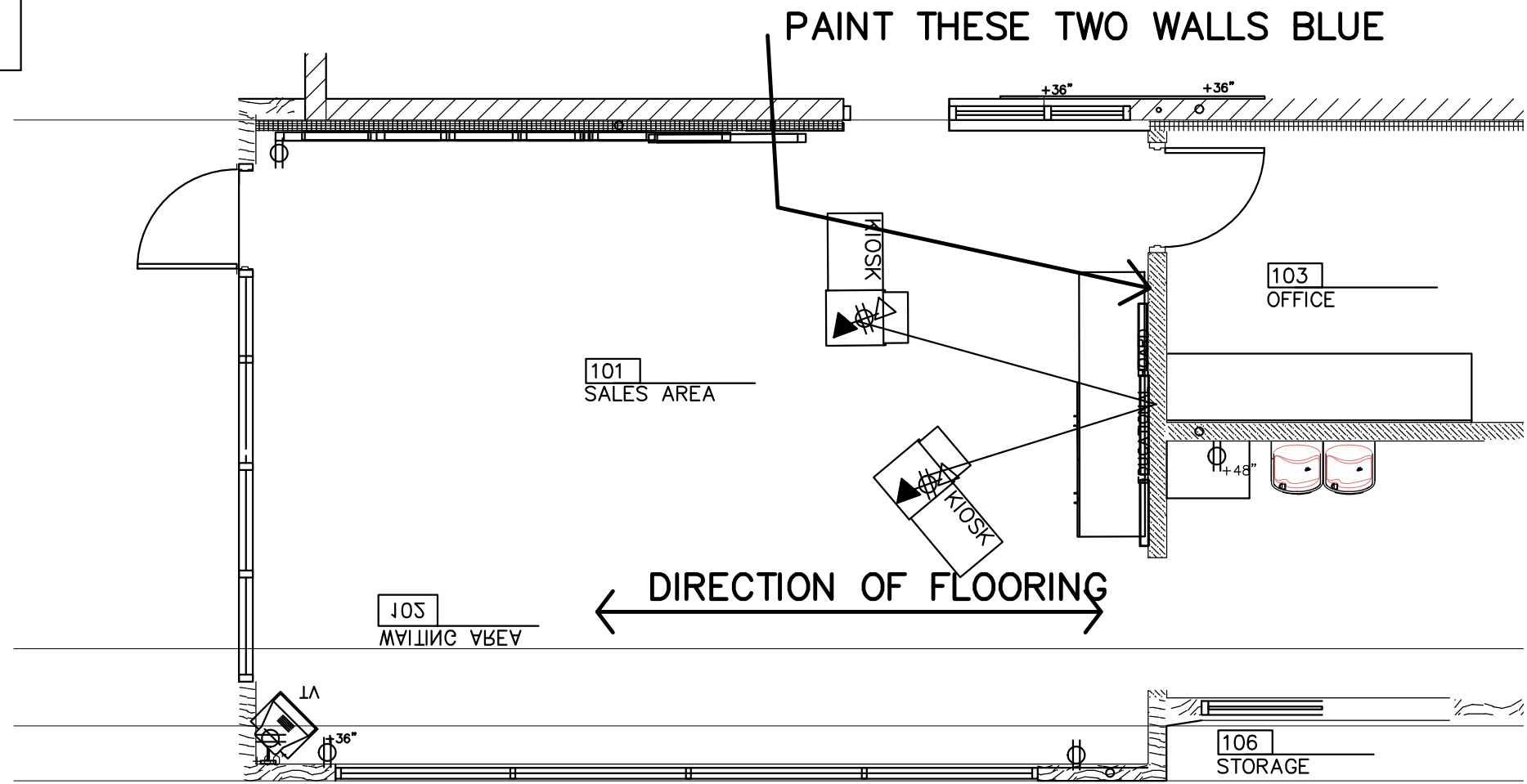
- APPLY THE WALK OFF CARPET (4'X6' DIRECTLY TO THE CONCRETE SLAB DO NOT APPLY IT OVER THE FLOORING. PROVIDE JOHNSONITE REDUCER AROUND ALL EDGES (STYLE: CTA-09-A1, COLOR: BURNT UMBER)
- ALL FLOORING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR
- PROVIDE 1 EXTRA BOX (32 S.F.) OF ALL FLOORING PRODUCTS 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

	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
<div></div>		
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
<div>CONTACT PRICING AND QUESTIONS (ALL LOCATIONS, NATIONWIDE) TARA KALVA BOLYUEF CONTRACT 720-466-6944 TARA.KALVA@EFCOCONTRACTFLOORING.COM</div>		

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



1 DETAIL — INTERIOR PAINT DETAILS
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 B31W2253 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

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA

STATE OF OKLAHOMA
COMMONS & SENATE
No. 2737
Lynch, Kimberly
REVISED AGREEMENT
8/17/24

ARCHITECT OF RECORD

REVISION

DATE

COMMENTS

FOR SUBMITTAL TO BLDG. DEPT.

ARCODEV JOB #:

CLIENT JOB #:

DRAWN BY:

CHECKED BY: NLH

DATE OF ISSUE: 06.26.24

ARCODEV Architects

45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.881-8925
NORTHHERMAN@ARCODEV.COM

SHEET

A6-3

MATERIAL FINISHES

GENERAL STRUCTURAL NOTES:

A. DESIGN DATA:

DESIGN CODE:	2018 INTERNATIONAL BUILDING CODE
CONCRETE 28-DAY STRENGTH:	FC = 4,500 PSI
MISCELLANEOUS ROLLED SECTIONS AND PLATES (ANGLES, CHANNELS, PLATES, ETC.)	ASTM A36 (UNLESS NOTED OTHERWISE)
PLAIN BOLTS AND ANCHORS	ASTM A307
REINFORCING STEEL	ASTM A615 Fy = 60,000 PSI
WELDED WIRE FABRIC	ASTM A185

MORTAR TYPE S & GROUT 28-DAY COMPRESSIVE STRENGTH = 2,000 PSI (MASONRY CEMENT IS NOT ACCEPTABLE)ASTM C1019

CONCRETE MASONRY UNITS (LIGHTWEIGHT) ASTM C652
NET COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS = 2,800 PSI
NET AREA COMPRESSIVE STRENGTH OF MASONRY FM = 2,000 PSI

ALLOWABLE SOIL BEARING CAPACITY: 2,300 PSF (PER SOIL REPORT)

DESIGN LOADS
ROOFS D = 20 PSF
Lr = 20 PSF
S = 10 PSF (GROUND & ROOF SNOW LOAD)

WIND LOADING CRITERIA (2018 IBC & ASCE 7-16)
110 MPH, EXPOSURE C

SEISMIC LOADING CRITERIA (2018 IBC & ASCE 7-16)
IMPORTANCE FACTOR = 1.0
MAPPED SPECTRAL RESPONSE Ss = 0.289g, S1 = 0.082g
SITE CLASS = D, Fa = 1.569, Fv = 2.4
SPECTRAL RESPONSE COEFFICIENTS: SDS = 0.302g, SD1 = 0.132g
SEISMIC DESIGN CATEGORY = B
SEISMIC FORCE RESISTANT SYSTEM = ORDINARY REINFORCED MASONRY SHEAR WALLS & LIGHT FRAMED SHEAR WALLS
RESPONSE MODIFICATION FACTOR (R) = 2.0

B. FOUNDATION WORK:

- THE GEOTECHNICAL REPORT PREPARED BY OLSSON (PROJECT NO. 024-02476) DATED MAY 31, 2024 IS AVAILABLE AND SHALL BE REVIEWED BY THE CONTRACTOR. SEE SPECIFICATIONS AND GEOTECHNICAL REPORT FOR OVEREXCAVATION RECOMPACTION.
- CONTRACTOR SHALL COORDINATE FOOTING ELEVATIONS WITH FINAL GRADING PLAN TO PROVIDE A MINIMUM OF 2'-0" OF GRADE ABOVE THE BOTTOM OF ALL FOOTINGS.
- SUBSOILS SUPPORTING OR IN DIRECT CONTACT WITH FOOTINGS, SLABS/ON GRADE, OR OTHER FOUNDATION ELEMENTS SHALL BE PROTECTED AGAINST FREEZING CONDITIONS THAT COULD CAUSE MOVEMENT OR OTHER DETRIMENTAL EFFECT TO THE STRUCTURE AS A WHOLE OR TO ANY OF ITS COMPONENT PARTS.
- WHEN WORKING NEAR EXISTING AND/OR NEW CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION SO AS NOT TO UNDERMINE, DISTURB, DAMAGE OR, IN ANY WAY, CAUSE UNDESIRABLE MOVEMENT, CRACKING, AND/OR SETTLEMENT OF THE ADJACENT CONSTRUCTION.
- SLABS ON GRADE SHALL BE SUPPORTED ON SUBGRADE THAT HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE SECTION 4.3 "SLAB-ON-GRADE FLOORS" IN THE GEOTECHNICAL REPORT. ANY UNACCEPTABLE UNDISTURBED VIRGIN SOIL OR BACKFILL/GRANULAR FILL, AS DETERMINED BY THE OWNER'S GEOTECHNICAL ENGINEER, SHALL BE REMOVED AND REPLACED AS REQUIRED BY THE GEOTECHNICAL ENGINEER.

C. CONCRETE:

- FOR REINFORCEMENT DEVELOPMENT LENGTH AND SPLICE LENGTH SEE TYPICAL REINFORCEMENT TABLE ON THIS SHEET.
- PROVIDE CORNER BARS IN WALLS AND FOOTINGS THE SAME SIZE AND NUMBER AS THE CONTINUOUS REINFORCING.
- REINFORCING IN FOOTINGS SHALL BE ACCURATELY PLACED BEFORE PLACING CONCRETE. DO NOT FLOAT REINFORCING INTO FOOTINGS.
- CONCRETE SHALL BE REGULAR WEIGHT (144 PCF) WITH TYPE III CEMENT, 3/4" MAXIMUM AGGREGATE SIZE WITH POTABLE WATER. CONCRETE SHALL CONFORM TO ACI 301. THE MAXIMUM WATER-CEMENT RATIO FOR FOOTINGS, WALLS & SLABS SHALL BE 0.45. PROVIDE 6% AIR ENTRAINMENT IN CONCRETE USED IN FOOTINGS & WALLS. INTERIOR SLABS SHALL HAVE NATURAL ENTRAPPED AIR (3% MAXIMUM).
- MECHANICALLY VIBRATE CONCRETE, EXCEPT THAT SLABS ON GRADE NEED TO BE VIBRATED ONLY AROUND UNDERFLOOR DUCTS AND OTHER ITEMS EMBEDDED IN THE SLAB. EMBEDDED ITEMS INCLUDE ELECTRICAL CONDUITS, MECHANICAL PIPING, AND STEEL ANGLES OR CHANNELS. EMBEDDED ITEMS DOES NOT IMPLY REINFORCING STEEL. ALL OTHER CONCRETE PLACEMENT SHALL BE VIBRATED. CONCRETE SHALL BE VIBRATED IN CONFORMANCE WITH ACI 309. VIBRATE CONCRETE ONLY UNTIL THE CONCRETE IS THOROUGHLY CONSOLIDATED AND THE VOIDS FILLED. INSERT INTERNAL VIBRATORS VERTICALLY TO THE FULL DEPTH OF THE LAYER BEING PLACED AND INTO THE PREVIOUS LAYER IF APPLICABLE. DO NOT DRAG VIBRATORS THROUGH THE CONCRETE. DO NOT FLOW CONCRETE FROM ONE LOCATION TO ANOTHER BY USE OF VIBRATOR.
- DO NOT PLACE PIPES, DUCTS, OR CHASES IN STRUCTURAL CONCRETE WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER. SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR LOCATIONS.
- FLOOR SURFACE TOLERANCE CLASS "B". SEE ACI 301 FOR PROCEDURE OF MEASUREMENT AND CORRECTION.
- CONTROL JOINTS SHALL BE PLACED AT COLUMN-LINE INTERSECTIONS AT A MAXIMUM SPACING INDICATED BELOW AND HAVE A MAXIMUM ASPECT RATIO OF 1.5 TO 1.0 UNLESS OTHERWISE INDICATED. SEE DETAIL - ON DRAWING - FOR CONTROL JOINT REQUIREMENTS.

- | SLAB THICKNESS | MAX. CONTROL JOINT SPACING |
|----------------|----------------------------|
| 4" | 12'-0" |
| 5" | 15'-0" |
- ALL CONSTRUCTION JOINTS IN CONCRETE WALLS SHALL HAVE A 2" X 4" CONTINUOUS KEYWAY. ALL CONSTRUCTION JOINTS, EXCEPT THOSE DETAILED, SHALL HAVE ARCHITECT/ENGINEER APPROVAL. SEE SPECIFICATIONS FOR OTHER CONSTRUCTION JOINT REQUIREMENTS.
 - ALL REINFORCING STEEL SHALL BE DEFORMED NEW BILLETS BARS (A615, GRADE 60), BENT COLD, AND DETAILED, FABRICATED, AND HELD IN PLACE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315 - LATEST EDITION) EXCEPT AS OTHERWISE DETAILED OR SPECIFIED.

11. UNLESS NOTED OTHERWISE ON PLAN SHEETS SLABS ON GRADE SHALL BE:

SLAB THICKNESS	SLAB REINFORCEMENT	SUBBASE
4"	6x6-W1.4xW1.4 WWF	SEE GEOTECHNICAL REPORT
5"	6x6-W2.9xW2.9 WWF	SEE GEOTECHNICAL REPORT

12. ALL REINFORCING IN SLABS AND WALLS SHALL BE CONTINUOUS UNLESS DETAILED OTHERWISE AND LAP SPLICED ONLY IN REGIONS OF LOW STRESS. ALL BARS SHALL HAVE A STANDARD HOOK WHERE A HOOK IS SHOWN, UNLESS DETAILED OTHERWISE.

13. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING, UNLESS NOTED OTHERWISE:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
CONCRETE EXPOSED TO EARTH OR WEATHER: 2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: SLABS AND WALLS: 1"

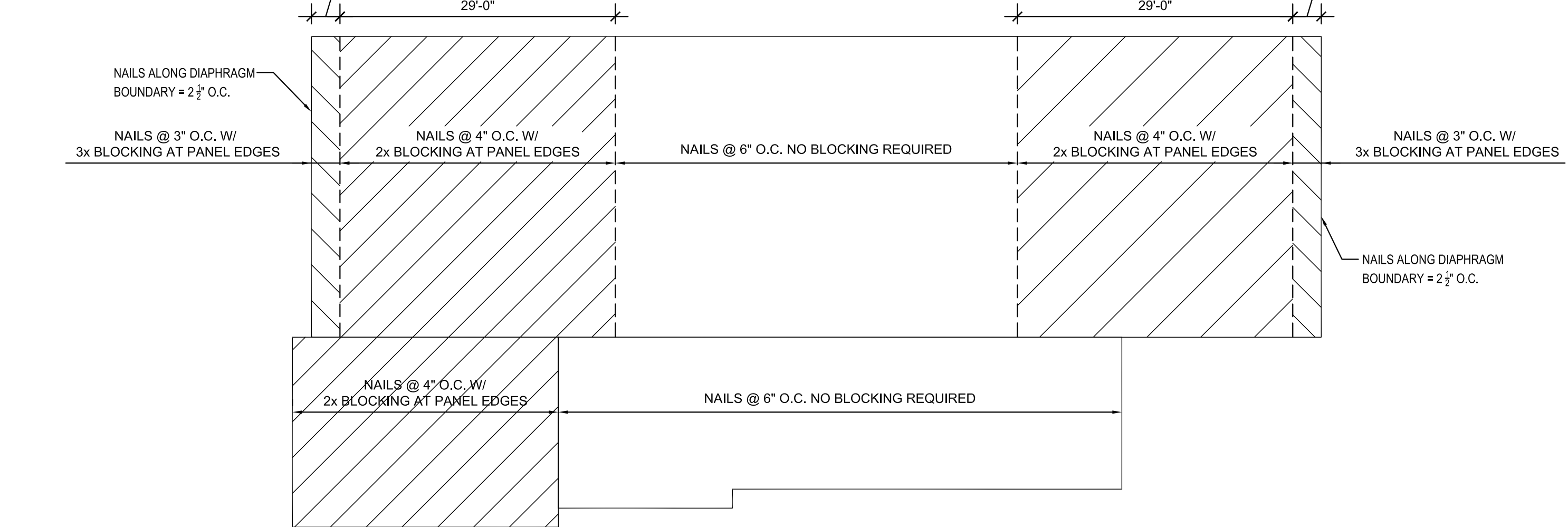
D. MASONRY:

- FURNISH AND CONSTRUCT MASONRY IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR MASONRY CONSTRUCTION (ACI 530.1-11/ASCE 6-11/TMS 602-11.)
- LAY MASONRY UNITS IN RUNNING BOND.
- MAXIMUM GROUT LIFT WITHOUT CLEANOUTS 4'-0" IN BLOCK WALLS AND 8" IN GROUTED TWO-WYTHE WALLS.
- IN 8" WALLS, PROVIDE CONTINUOUS FULL HEIGHT VERTICAL REINFORCING IN CENTER OF GROUT AT CENTER OF WALL. TYPICAL REINFORCING SHALL BE 1-#6 AT 2'-0" ON CENTER AND 2-#6 AT CORNERS, INTERSECTIONS, WALL ENDS, DOOR AND WINDOW JAMBS, AND SIDE OF EXPANSION OR CONTROL JOINTS UNLESS NOTED OTHERWISE.
- GROUT CELLS FULL AT ALL ANCHOR AND EMBED LOCATIONS.
- PROVIDE LADDER TYPE #9 JOINT REINFORCING AT 16" ON CENTER VERTICAL SPACING IN ALL CLAY MASONRY AND UNLESS NOTED OTHERWISE.
- SPLICE MASONRY WALL REINFORCING AS SCHEDULED ON 3/5-3.
- PLACE BOND BEAM REINFORCING CONTINUOUS THROUGH EXPANSION CONTROL JOINTS, WRAPPING BARS WITH 1/8 INCH THICK BOND BREAKING TAPE 2'-0" BOTH SIDES OF JOINT. DO NOT SPLICE BOND BEAM REINFORCING WITHIN 6'-0" OF AN EXPANSION OR CONTROL JOINT.
- PROVIDE CONTINUOUS BOND BEAMS AT ALL BEAM BEARING AND TRUSS BEARING ELEVATIONS, AND AT THE TOP OF ALL WALLS.
- SPLICE BOND BEAM REINFORCING AT MASONRY CONTROL/EXPANSION JOINTS AS SHOWN ON MASONRY JOINT DETAIL ON 4/5-3.

- PROVIDE CONTINUOUS WIRE LATH GROUT BARRIERS BELOW BOND BEAMS.
- PROVIDE LINTELS OVER ALL OPENINGS AND RECESSES IN MASONRY WALLS.
- ALL LINTELS SHALL HAVE A MINIMUM BEARING OF 8 INCHES EACH END.
- FOR ALL OPENINGS NOT OTHERWISE DETAILED OR SCHEDULED, MINIMUM LINTELS SHALL BE FOR EACH 4 INCH OF MASONRY WIDTH 1-L 3-1/2 X 3-1/2 X 1/4 FOR SPANS UP TO 4'-0", 1-L 4 X 3-1/2 X 1/4 FOR SPANS UP TO 6'-0" AND 1-L 5 X 3-1/2 X 1/4 FOR SPANS UP TO 8'-0". FOR SPANS LESS THAN 2'-0" PROVIDE A 5/16" PLATE.
- MASONRY CONTROL JOINT SPACING SHALL NOT EXCEED 24'-0".
- ALL MASONRY CONSTRUCTION SHALL HAVE SPECIAL INSPECTION PER IBC SECTION 1705.4 AND HAVE LEVEL 2 QUALITY ASSURANCE IN ACCORD WITH ACI 930-11 SECTION 1.14. PERIODIC INSPECTION SHALL BE INTERPRETED AS TWO TIMES PER WEEK.

E. WOOD:

- WOOD SHALL COMPLY WITH THE LATEST EDITION OF THE GRADING RULES OF THE WESTERN WOOD PRODUCTS ASSOCIATION OR THE WEST COAST LUMBER INSPECTION BUREAU.
 - ALL SAWN LUMBER SHALL BE STAMPED WITH THE GRADE MARK OF AN APPROVED GRADING AGENCY.
 - SAWN LUMBER SHALL HAVE THE FOLLOWING MINIMUM GRADE UNLESS NOTED OTHERWISE:
- | TYPE OF USE | MATERIAL AND GRADE |
|-----------------------------------|--------------------|
| TOP PLATES, ALL OTHER SAWN LUMBER | DOUGLAS FIR NO. 2 |
| POSTS AND BEAMS | DOUGLAS FIR NO. 1 |
- ALL 2x BEARING WALLS SHALL BE BLOCKED HORIZONTALLY AT 4'-0" O.C. VERT. SPACING FOR ALL WALLS GREATER THAN 9'-0" IN HEIGHT.
 - ALL PLYWOOD SHALL BE C-D OR C-C SHEATHING EXTERIOR GRADE CONFORMING TO STANDARD PS0.019.
 - PLYWOOD SHALL BE PLACED WITH FACE GRAIN PERPENDICULAR TO SUPPORTS USING A MINIMUM 5-PLY PLYWOOD. PLYWOOD JOINTS SHALL BE STAGGERED.
 - PLYWOOD ATTACHMENT SHALL BE DONE USING COMMON NAILS. NAILING SHALL BE AS NOTED ON ROOF FRAMING PLAN.
 - ALL SILL PLATES IN CONTACT WITH CONCRETE OR MASONRY SHALL BE TREATED DOUGLAS FIR OR FOUNDATION GRADE REDWOOD.
 - BRACE WOOD TRUSSES LATEROALLY AT BEARING POINTS AND INTERMEDIATE LOCATIONS AS REQUIRED BY MANUFACTURER.
 - SEE 3/5-1-0 FOR ULTIMATE WIND UPLIFT.



2 S1-0 ROOF DIAPHRAGM NAILING PATTERN 3/4"=1'-0"

F. SPECIAL INSPECTION

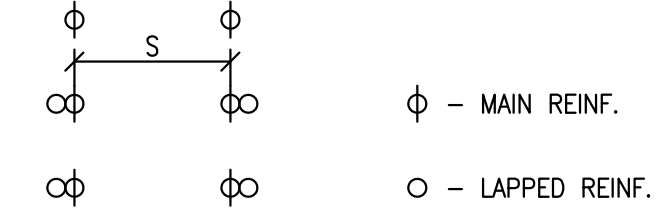
- IN ACCORD WITH 2018 IBC SECTIONS 1704 & 1705, AS NOTED BELOW, TESTING AND INSPECTION SHALL BE BY AN INDEPENDENT TESTING/INSPECTION FIRM UNDER THE SUPERVISION OF A LICENSED ENGINEER EMPLOYED BY THAT FIRM. THIS ENGINEER SHALL BE DEEMED THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS PERFORMED BY HIS FIRM OR HIS CONSULTANTS. INSPECTORS SHALL BE ICBO CERTIFIED AND APPROVED BY THE BUILDING OFFICIAL.
- THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS SHALL BE RESPONSIBLE FOR DEFINING THE ACTIVITIES OF THE INSPECTORS, FOR CERTIFYING THE QUALIFICATIONS OF THE INSPECTORS WITH THE BUILDING OFFICIAL AND TO ATTEND THE PRE-CONSTRUCTION MEETING TO DEFINE THEIR SCOPE OF SERVICES AND THE TESTING OR TEST PROCEDURES THAT ARE REQUIRED AS OUTLINED IN THE INTERNATIONAL BUILDING CODE.
- SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION THE INSPECTIONS CONDUCTED BY THE LOCAL DEPARTMENT OF BUILDING SAFETY AND SHALL NOT BE CONSTRUED TO RELIEVE THE OWNER OR HIS AUTHORIZED AGENT FROM REQUESTING THE PERIODIC AND CALLED INSPECTIONS REQUIRED BY SECTION 108.5 AND 108.7 OF THE INTERNATIONAL BUILDING CODE.
- CONCRETE PER SECTION 1705.3 AND TABLE 1705.3.
- ANCHOR RODS INSTALLED IN CONCRETE: PER TABLE 1705.3.
- REINFORCING PER TABLE 1705.3.
- STRUCTURAL MASONRY: PER SECTION 1705.4.
- GRADING, EXCAVATION AND FILLING: PER SECTION 1705.6. SEE GEOTECHNICAL REPORT.
- EXPANSION BOLT, SCREW ANCHOR AND ADHESIVE ANCHOR INSTALLATION TO VERIFY INSTALLATION IN ACCORD WITH ICBO REPORTS NOTED PREVIOUSLY OR APPROVED EQUAL.
- THE INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO BE CERTAIN IT CONFORMS TO THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.
- THE INSPECTOR SHALL FURNISH DAILY INSPECTION REPORTS ON THE WORK TO THE BUILDING OFFICIAL AND TO THE ENGINEER. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND, IF UNCORRECTED, TO THE ENGINEER AND THE BUILDING OFFICIAL.
- THE TESTING/ INSPECTION FIRMS ENGINEER SHALL COMPLETE, SIGN AND SEAL, A FINAL REPORT CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
- THE SPECIAL INSPECTOR SHALL BE SELECTED AND CREDENTIALS SHALL BE SUBMITTED TO THE CITY PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.

G. OTHER:

- UNLESS NOTED OTHERWISE, EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT II EXPANSION ANCHORS OR APPROVED EQUAL. ADHESIVE ANCHORS SHALL BE HILTI STANDARD HAS RODS WITH THE HVA ADHESIVE SYSTEM, THE SIMPSON SET SYSTEM, OR APPROVED EQUAL.
- VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK. NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.
- VERIFY IN FIELD ALL EXISTING CONDITIONS SHOWN ON DRAWINGS.
- ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL, AND PLUMBING WITH APPROPRIATE TRADES. PROVIDE ALL TEMPORARY BRACING, SHORING, GUYING, OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.
- ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE STAMP (AND SIGNATURE) OF AN ENGINEER REGISTERED IN OKLAHOMA.

TYPICAL REINFORCING NOTES

- REINFORCING BAR DEVELOPMENT AND LAP SPLICE LENGTH SHALL BE AS SHOWN IN THIS TABLES UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- THE LENGTHS SHOWN IN THE TABLES ARE BASED ON THE FOLLOWING CONCRETE COVERAGE AND REINFORCING C-C SPACING:
BEAMS OR COLUMNS:
COVER (EQUAL OR MORE) 1.0bd (BAR DIAMETER)
CENTER TO CENTER (C-C) SPACING (EQUAL OR MORE) 2.0bd.
ALL OTHERS:
COVER (EQUAL OR MORE) 1.0bd
CENTER TO CENTER SPACING (EQUAL OR MORE) 3.0bd.
- TOP BARS ARE DEFINED AS HORIZONTAL REINFORCEMENT SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
- DEVELOPMENT AND SPLICE LENGTH SHOWN SHALL NOT APPLY IF ANY OF THE FOLLOWING CONDITIONS OCCUR:
A) fc < 2,500 PSI
B) fy > 60,000 PSI
C) THE COVER OR C-C BAR SPACING IS NOT AS LISTED ABOVE
D) THE REINFORCING STEEL IS EPOXY COATED
E) LIGHT WEIGHT CONCRETE IS USED.
- CENTER ON CENTER SPACING (S) IS DEFINED AS BELOW:

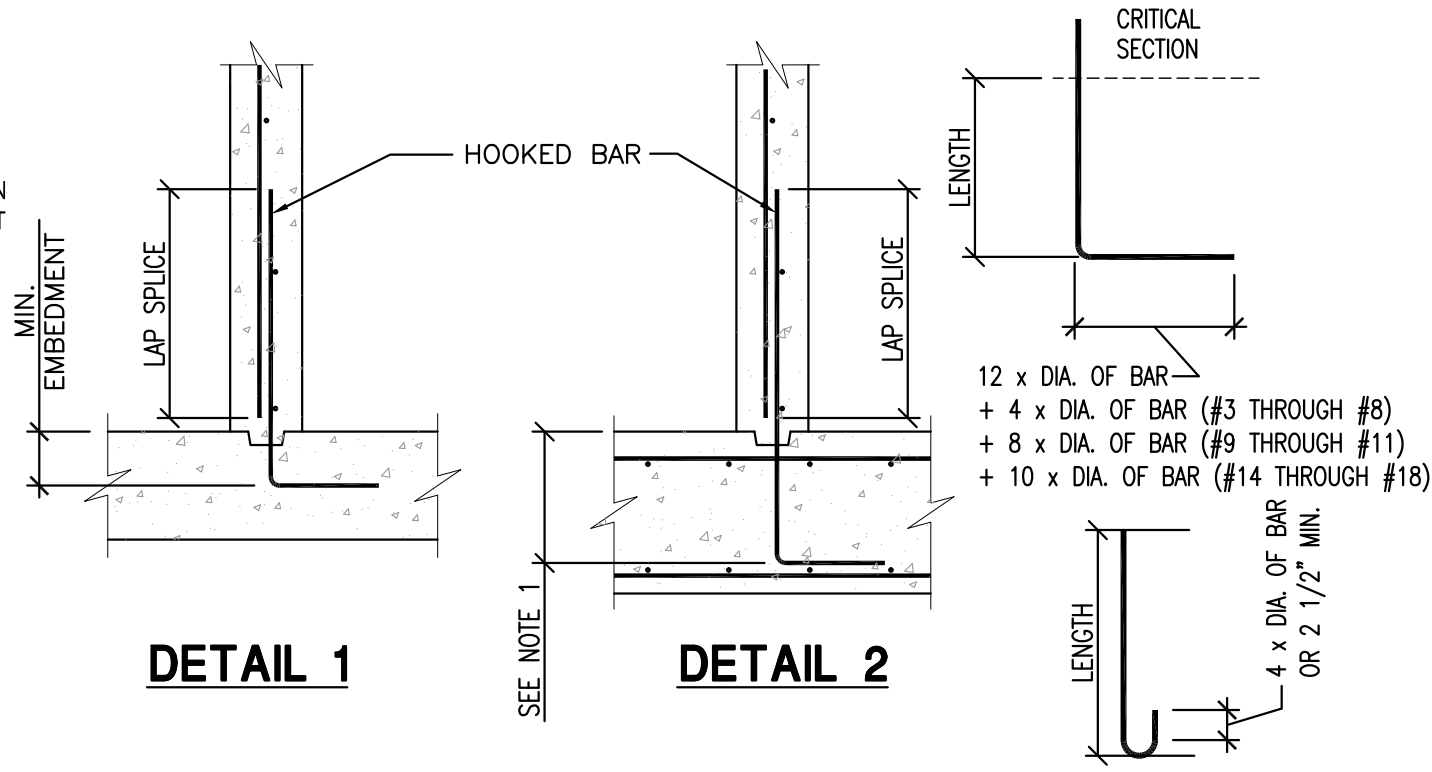


REINFORCING DEVELOPMENT AND SPLICES f'c = 4,000 PSI				
BAR SIZE	DEVELOPMENT LENGTH		SPLICE LENGTH	
	TOP	OTHER	TOP	OTHER
#3	1'-7"	1'-3"	2'-0"	1'-7"
#4	2'-1"	1'-7"	2'-8"	2'-1"
#5	2'-7"	2'-0"	3'-4"	2'-7"
#6	3'-1"	2'-5"	4'-0"	3'-1"
#7	4'-6"	3'-6"	5'-10"	4'-6"
#8	5'-2"	4'-0"	6'-8"	5'-2"
#9	5'-10"	4'-6"	7'-7"	5'-10"
#10	6'-7"	5'-1"	8'-6"	6'-7"
#11	7'-3"	5'-7"	9'-5"	7'-3"

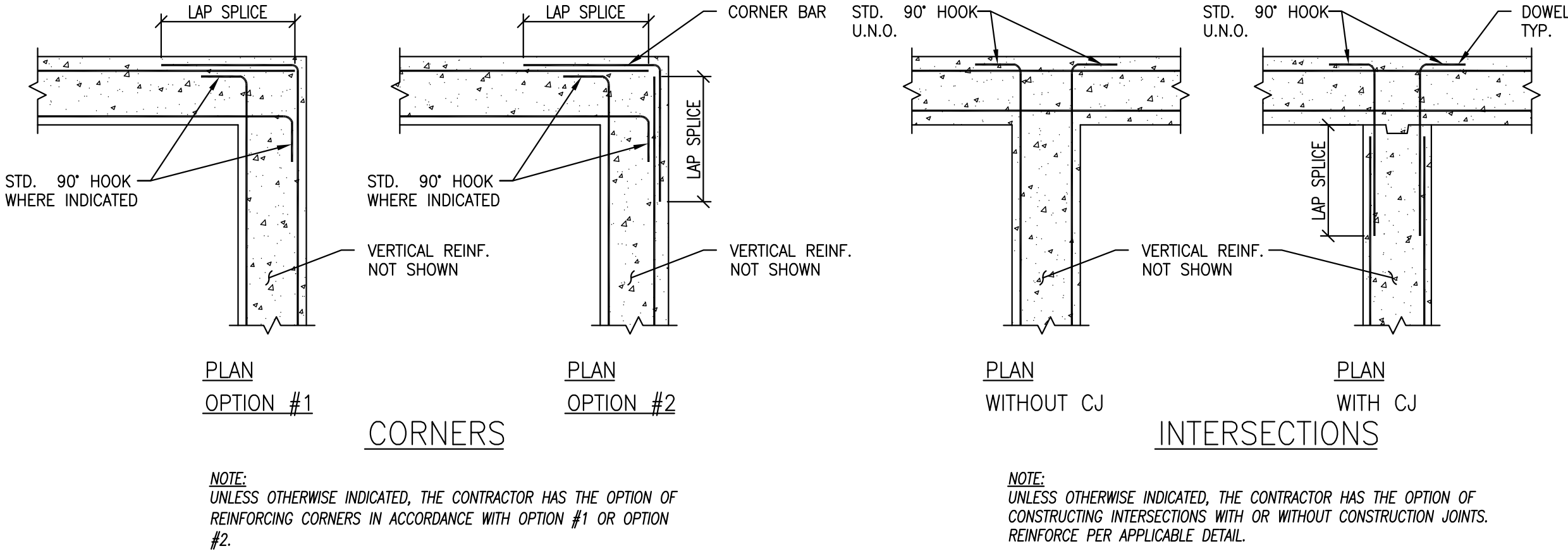
BAR SIZE	LENGTH OR MIN. EMBEDMENT
#3	8"
#4	10"
#5	1'-0"
#6	1'-3"
#7	1'-5"
#8	1'-7"
#9	1'-10"
#10	2'-0"
#11	2'-3"

DEVELOPMENT LENGTH NOTES

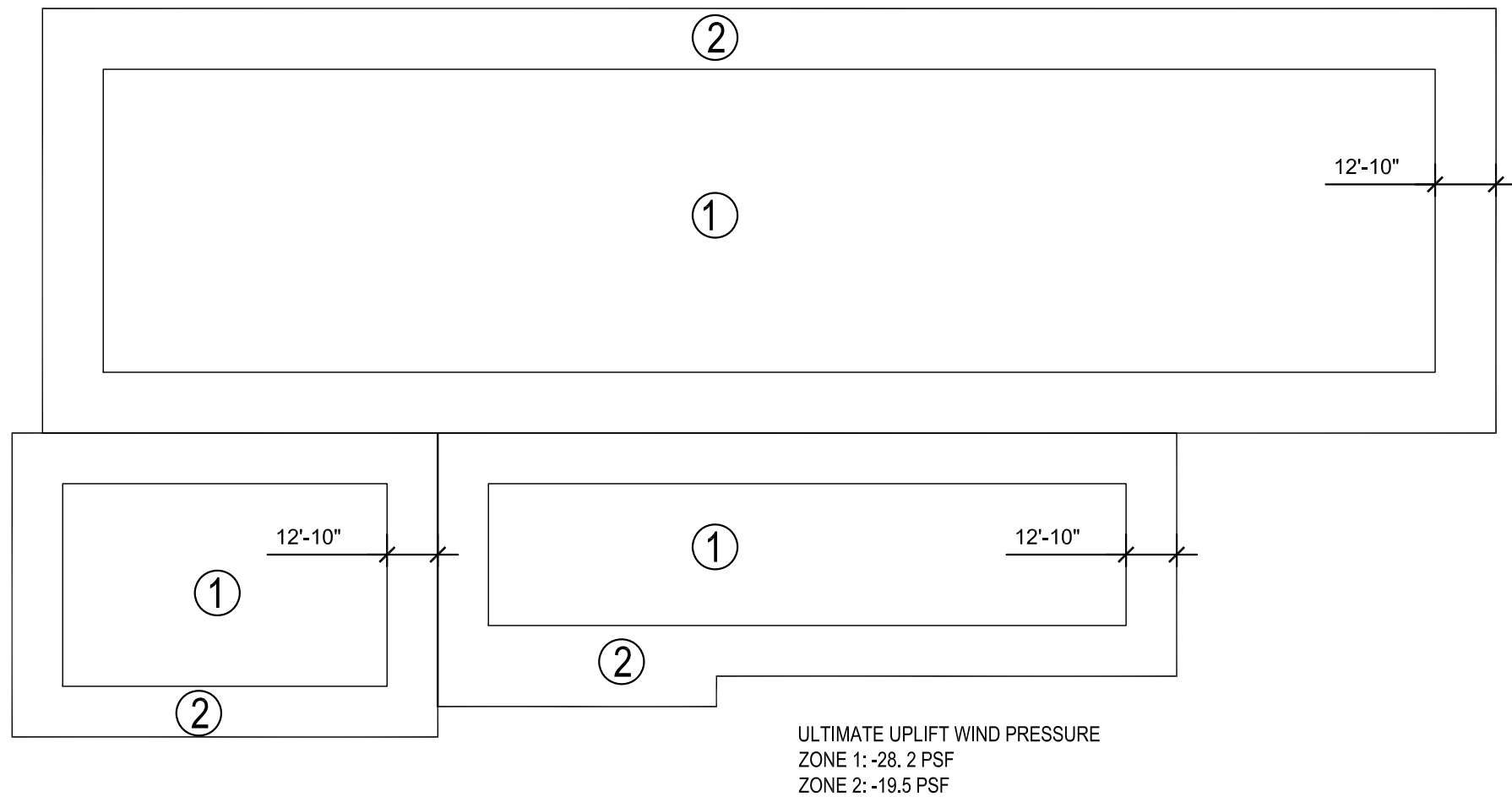
- WHERE DRAWINGS ARE DETAILED SIMILAR TO DETAIL 2, EXTEND THE EMBEDMENT LENGTH SUCH THAT THE HOOKED BAR CONTACTS THE LAYER OF MAIN REINFORCING SHOWN.
- EMBEDMENT LENGTHS IN CHART ARE TYPICAL EXCEPT AS NOTED IN DETAIL 2, OR AS INDICATED ON DRAWINGS.



CONCRETE REINFORCEMENT COVER			
CONCRETE EXPOSURE	MEMBER	REINFORCEMENT	SPECIFIED COVER
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	ALL	ALL	3"
	ALL	#6 TO #18	2"
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	ALL	#5 AND SMALLER	1 1/2"
	ALL	#14 & #18	1 1/2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	SLABS, JOISTS, & WALLS	#14 & SMALLER	3/4"
	BEAMS, COLUMNS, PEDASTALS, AND TENSION TIES	PRIMARY REINFORCEMENT STIRRUPS, TIES, SPIRALS, AND HOOPS	1 1/2"



1 S1-0 HORIZONTAL WALL REINFORCEMENT DETAILS 3/4"=1'-0"



3 S1-0 ROOF WIND UPLIFT LOADING 3/4"=1'-0"

PERFORMANCE Engineering

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NE-C04265

PE # 240701

BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA

Robert A. Whorley
21026
OKLAHOMA

07/10/24

ENGINEER OF RECORD

REVISION	DATE	COMMENTS

ARCOCODE JOB #:
CLIENT/JOB #:
DRAWN BY: SLW
CHECKED BY: TAS
DATE OF ISSUE: 07.10.24

ARCOCODE

45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.881-8925
NORTHMERMAN@ARCOCODE.COM

SHEET

S1-0

GENERAL STRUCTURAL NOTES AND DETAILS

STATEMENT OF SPECIAL INSPECTIONS

2018 IBC SECTION 1705

Project Brakes Plus - Ada, OKDesign Professional Robert WhorleyLicense No. 21026

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y/N	Reference Standard or Compliance Document	IBC Reference	Special Inspector
1704.2.4 Report Requirement							
Rep.	1	Special Inspector to keep record of special inspections and furnish inspection reports to the building official and to the Registered design professional at responsible charge.	-	Y		1704.2.4	
1704.2.5 Inspection of Fabricated Items							
Fab.	1	Work done in fabricator shop requires Inspector unless the fabricator is registered and approved according to IRC 1704.2.5.1. If none fabricator is approved, provide fabricator certification document.	-	Y		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.	-	Y		1704.2.5.1 Document Required	
1705.2.1 Steel Construction Inspection							
Stl.	1	Structural Steel shall be in accordance with the quality assurance inspection requirements of ABC 380	-	Y	ABC 380	1705.2.1	
1705.2.2 to 1705.2.4 Steel Construction other than Structural Steel inspection							
Stl.	1	Material verification of high-strength bolts, nuts and washers.	-	Y	AISC Standards	1705.2	
Stl.	1a	Identification markings to conform to ASTM standards specified in the approved construction documents	-	Y	ABC 380, Section A3.3 and applicable ASTM material standards	1705.2	
Stl.	1b	Manufacturer's certificate test reports	-	Y		1705.2	
Stl.	2	Inspection of welding		Y			
2a.		Cold-formed steel deck		N			
Stl.	2a (1)	Floor and roof deck welds	-	N	AWSD D1.3	1705.2	

Page 1

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

Page 4

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y/N	Reference Standard or Compliance Document	IBC Reference	Agent
	2b	Reinforcing steel	-	Y		1705.2	
Stl.	2b (1)	Verification of weldability of reinforcing steel other than ASTM A 705	-	N	AWSD D1.4 ACI 308.3.5.2	1705.2	
Stl.	2b (2)	Reinforcing steel-welding thermal and axial forces	-	N	AWSD D1.4 ACI 308.3.5.2	1705.2	
Stl.	2b (3)	Stress reinforcement	-	N	AWSD D1.4 ACI 308.3.5.2	1705.2	
Stl.	2b (4)	Other reinforcing steel	-	N	AWSD D1.4 ACI 308.3.5.2	1705.2	
1705.2.3 Inspection of Open-web Steel Joist and Joist Girders							
Stl.	1	Installation of open-web steel joist and joist girders	-	N	SJI specification listed in Section 2207.1	Table 1705.2.3	
Stl.	1a	End connections - welding or bolting	-	N		Table 1705.2.3	
Stl.	1b	Bridging - horizontal or diagonal	-	N	SJI specification listed in Section 2207.1	Table 1705.2.3	
Stl.	1b (1)	Standard bridging	-	N		Table 1705.2.3	
Stl.	1b (2)	Bridging that differs from the SJI specifications listed in Section 2207.1	-	N		Table 1705.2.3	
1705.3 Concrete Construction							
Concr.	1	Inspection of reinforcing steel including prestressing tendons, and placement	-	Y	ACI 318 Ch. 20, 25.2, 25.3, 26.5, 1.26.5.3, 30 and IBC 1905	1705.3	
Concr.	2	Reinforcing bar welding	-	N		Table 1705.3	
Concr.	2a	Verify weldability of reinforcing bars other than ASTM A 705	-	N		Table 1705.3	
Concr.	2b	Inspect single-pass welds, maximum 20°F	-	Y	IBC 1905 AWS D1.4 ACI 308.26.4	Table 1705.3	
Concr.	2c	Inspect all other welds	-	Y		Table 1705.3	
Concr.	3	Inspection of anchors cast in concrete	-	Y	IBC 1905 ACI 308.17.8.2	Table 1705.3	
Concr.	4	Inspection of overhead post installed in hardened concrete members	-	Y			
Concr.	4a	Adhesive anchors installed in horizontally or vertically drilled	-	Y	ACI 308.17.8.2.4	Table 1705.3	
Concr.	4b	Mechanical anchors and adhesive anchors cast-in-place	-	Y	ACI 308.17.8.2	Table 1705.3	
Concr.	5	Verifying use of required design mix	-	Y	ACI 318 Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1905.1, 1905.3, Table 1705.3	

Page 2

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y/N	Reference Standard or Compliance Document	IBC Reference	Agent
Wood	3	Wood-roofing components: 1. Roof covering, roof deck and roof framing connections 2. Exterior wall covering and wall connections to roof and floor diaphragms and framing	-	N		1705.11.3	
1705.12 Special Inspection for Seismic Resistance							
Seis	1	Structural Steel seismic resistance shall be in accordance with Section 1705.12.1 or 1705.12.2 as applicable	-	N	Section 1705.12.1.1 Section 1705.12.2	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 D, E, or F shall be performed in accordance with the quality assurance of requirements of ASCE 341	-	N	ASCE 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 slabs, collectors, chords and foundation elements, shall be performed in accordance with the quality assurance requirements of ASCE 341	-	N	Section 1705.12.1.1 ASCE 341	1705.12.1.2	
Seis	2	Structural steel for the seismic force-resisting systems of structures assigned to Seismic Design Category C, D, E or F	-	N		1705.12.2	
Seis	2a	Structural wood framing systems operations of elements of seismic force-resisting system	-	N		1705.12.2	
Seis	2b	Structural wood framing for roofing, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including wood shear walls, wood diaphragms, shear studs, bracing, shear panels and hold-downs	-	N		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	-	N		1705.12.3	
Seis	3a	For welding operations of elements of the seismic force-resisting system	-	N		1705.12.3	
Seis	3b	For screw attachment, bolting, anchoring and other fastening of elements of the seismic force-resisting system, including shear walls, bracing, diaphragms, collectors (slab chords) and hold-downs	-	N		1705.12.3	
Seis	4	Disaggregated seismic system verification 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 conforms to the certificate of compliance	-	N	Section 13.2.2 ASCE 7	1705.12.4	

Page 5

Category	Item #	Verification & Inspection	Continuous Periodic	Req Y/N	Reference Standard or Compliance Document	IBC Reference	Agent
Concr.	6	Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete	-	Y	ASTM C172 ASTM C31 ACI 318.26.4.5, 26.12	1905.10 & Table 1705.3	
Concr.	7	Inspection of concrete and structural elements for proper application techniques	-	Y	ACI 318.26.4.5	1905.6, 1905.7, 1905.8, Table 1705.3	
Concr.	8	Verify effectiveness of specified curing temperature and techniques	-	Y	ACI 318.26.4.7 - 26.4.9	1905.9 & Table 1705.3	
Concr.	9	Inspection of pre-stressed concrete	-	N			
Concr.	9a	Application of pre-tensioning forces	-	N		Table 1705.3	
Concr.	9b	Curing of bonded pre-tensioning tendons	-	N	ACI 318.26.9.2.1 ACI 318.26.9.2.3	Table 1705.3	
Concr.	10	Inspect erection of precast concrete members	-	N	ACI 318 Ch. 26.8	Table 1705.3	
Concr.	11	Verification of in-situ concrete strength, prior to placement of tendons in post-tensioned concrete and prior to removal of forms and forms from beams and structural slabs	-	N	ACI 318.26.10.2	Table 1705.3	
Concr.	12	Inspect formwork for shape, location and dimensions of the concrete member being formed	-	Y	ACI 318.26.10.1(b)	Table 1705.3	
1705.4 Masonry Construction							
Mns.		Masonry construction shall be inspected and verified per standards	-	Y	TMS 402/ACI 530/ASCE 5 and TMS 602/ACI 530.10/ASCE 6	1705.4	
Mns.	1	Emphasize design masonry, glass masonry and masonry masonry in Risk Category IV	-	N	Section 1705.4.1 or Chapter 14, Section 1904.5, shall comply with TMS 602/ACI 530/ASCE 5 Level B Quality Assurance	1705.4.1	
Mns.	2	Worked masonry foundation elements	-	N	IBC Section 1705.4	1705.4.2	
1705.5 Wood Construction							
Wd	1	High Load Diaphragms	-	N	IBC Sec. 2308.2, Sec. 1704.2, approved construction drawings	1705.5.1	
Wd	2	Metal plate-connected wood frames	-	Y	Approved tests submitted (per ASCE 7.10.2 or greater)	1705.5.2	
1705.6 Soils							
Soil	1	Verify materials below shallow foundations are adequate to achieve the design bearing capacity	-	Y		Table 1705.6	
Soil	2	Verify foundations are evaluated to proper depth and have reached proper material	-	Y		Table 1705.6	
Soil	3	Perform classification and testing of compacted fill materials	-	Y		Table 1705.6	
Soil	4	Verify use of proper materials, densities and thicknesses during placement and compaction of compacted fill	-	Y		Table 1705.6	

Page 3

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	-	N	D, E, F	1705.12.5	
Seis	6.1	Access Floors in D, E, or F	-	N	D, E, F	1705.12.5.1	
Seis	6	Piping, Mechanical and Electrical Components	-	N		1705.12.6	
Seis	6a	Anchorage of electrical equipment for emergency or standby power systems, in C, D, E or F	-	N		1705.12.6	
Seis	6b	Anchorage of other electrical equipment in E or F	-	N		1705.12.6	
Seis	6c	Installation and anchoring of piping systems designed to carry hazardous materials and associated mechanical loads in C, D, E or F	-	N		1705.12.6	
Seis	6d	Installation of FM200 ductwork that will carry hazardous materials in C, D, E or F	-	N		1705.12.6	
Seis	6e	Installation of vibration isolation systems with clearance less than 0.25 inches between equipment support frame and isolation tables indicated on construction documents in C, D, E or F	-	N		1705.12.6	
Seis	7	Storage tanks during unloading storage tanks in E or greater in height in D, E or F	-	N		1705.12.7	
Seis	8	Seismic Isolation Systems	-	N		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	-	N		1705.12.9	
1705.13 Testing for Seismic Resistance							
Test	1	Structural Steel	-	N	Section 1705.13.1.1 Section 1705.13.1.2	1705.13.1	
Test	2	Seismic force-resisting systems	-	N	ASCE 341	1705.13.1.1	
Test	3	Structural steel elements	-	N	ASCE 341	1705.13.1.2	
Test	4	Seismic verification of nonstructural components and designated seismic systems	-	N	Per the registered design professional requirements on the construction documents, Sec. 13.2 of ASCE 7	1705.13.2 and 1705.13.3	
Test	5	Seismically isolated structures	-	N	Sec. 17.6 of ASCE 7	1705.13.4	

Page 6

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PE # 240701

BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA

07/10/24

ENGINEER OF RECORD

REVISION DATE COMMENTS

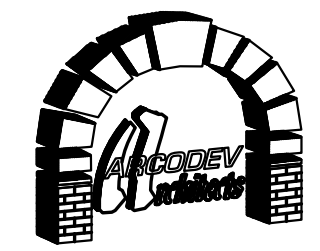
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CLIENT JOB #:

DRAWN BY: SLW

CHECKED BY: TAS

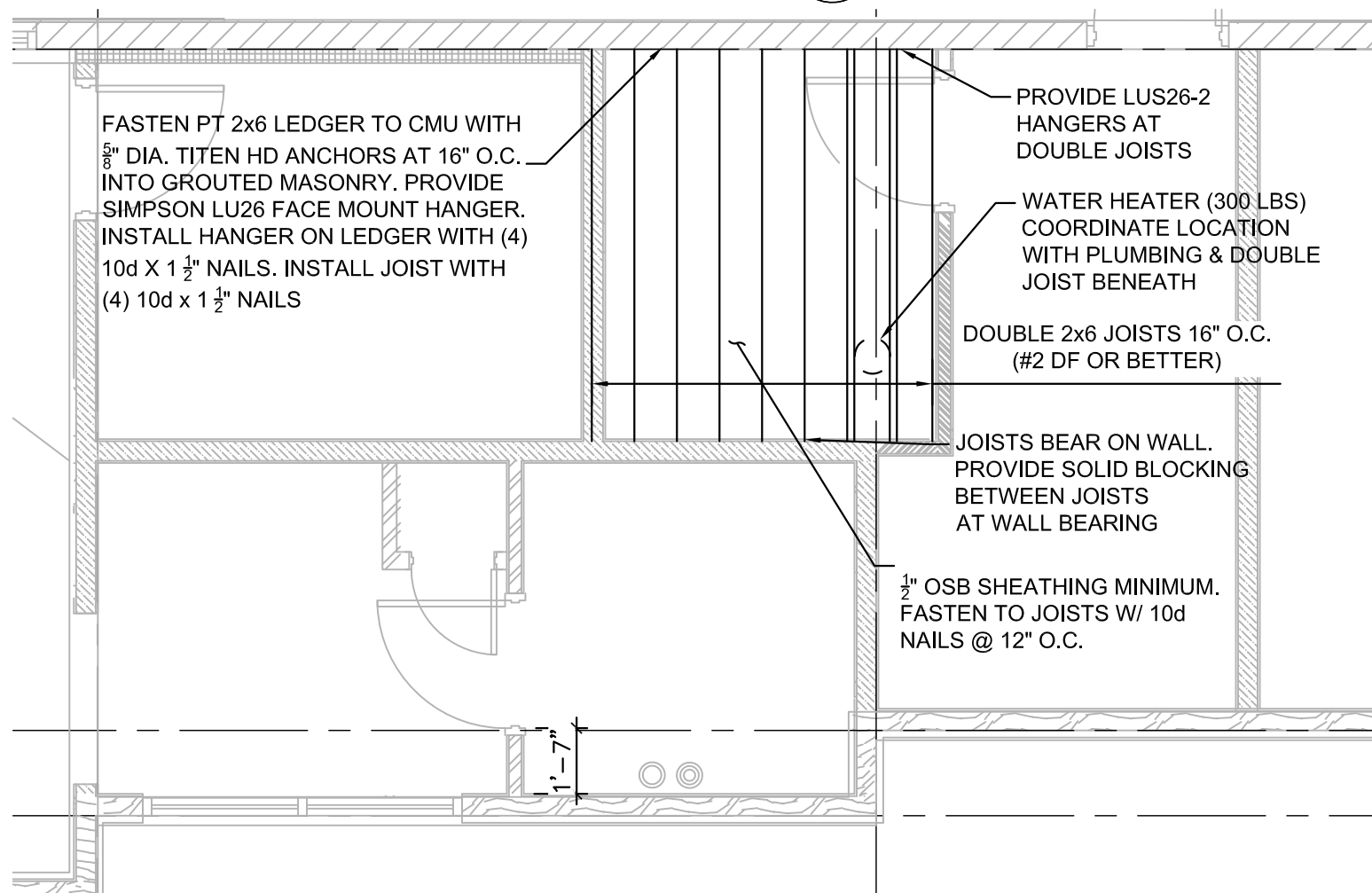
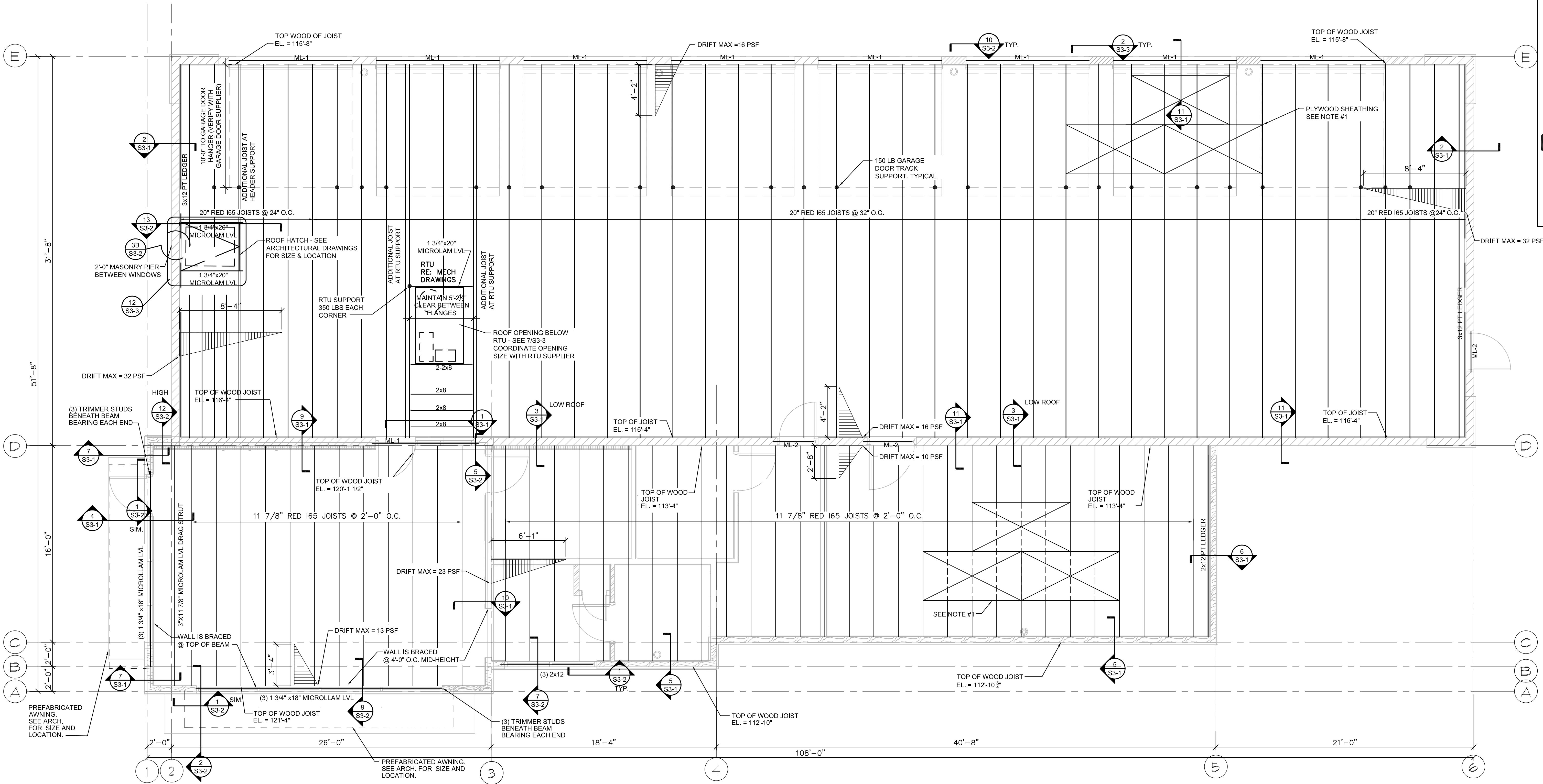
DATE OF ISSUE: 07.10.24

45 SPYGLASS DRIVE
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NORM@ARCODEV.COM

SHEET

S1-1

STATEMENT OF
SPECIAL INSPECTIONS



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



SHEET NOTES:

- DIAPHRAGM SHALL BE A MINIMUM OF 3/4" PLYWOOD SHEATHING WITH A SPAN RATING OF 48/24, EXTERIOR GRADE AND SHALL BE FASTENED TO STRUCTURE AS FOLLOWS:
a) 10d (0.148" DIA.) NAILS WITH A MINIMUM OF 1 3/4" PENETRATION INTO FRAMING MEMBER
b) SEE 2/S1-0 FOR NAILING PATTERNS
c) FIELD NAILING = 12" O.C.
- ML-# INDICATES MASONRY LINTEL TYPE. SEE DETAIL 11/S3-2.
- UNLESS OTHERWISE DETAILED, CONNECTIONS FOR ITEMS HUNG FROM JOISTS (FANS, HEATERS, GARAGE DOORS, ETC.) SHALL BE DESIGNED AND INSTALLED BY THE GENERAL CONTRACTOR AND THEIR RESPECTIVE TRADES. THIS LOAD SHALL NOT EXCEED 250 LBS PER JOIST.
- ATTACH 2x12 LEDGER PIECES TO CMU WALL W/ (2) 3/4" DIA. ANCHORS @ 24" O.C., EMBED 6" MIN. FASTENERS SUCH AS NAILS, SCREWS, AND ANCHORS SHALL BE HOT DIPPED GALVANIZED WHEN CONNECTING TO OR ANCHORING PRESSURE TREATED LUMBER.
- HARDWARE & FASTENERS SUCH AS HANGERS, NAILS, SCREWS, AND ANCHORS SHALL BE HOT DIPPED GALVANIZED WHEN CONNECTING TO OR ANCHORING PRESSURE TREATED LUMBER.
- SEE DETAIL 7/S3-3 FOR ROOF OPENINGS & PENETRATIONS.
- WOOD WALLS SHALL BE 2x6 DOUGLAS FIR NO. 2 STUD. STUD SPACING SHALL BE 16" O.C. UNLESS NOTED OTHERWISE.

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



ENGINEER OF RECORD

REVISION

DATE

COMMENTS

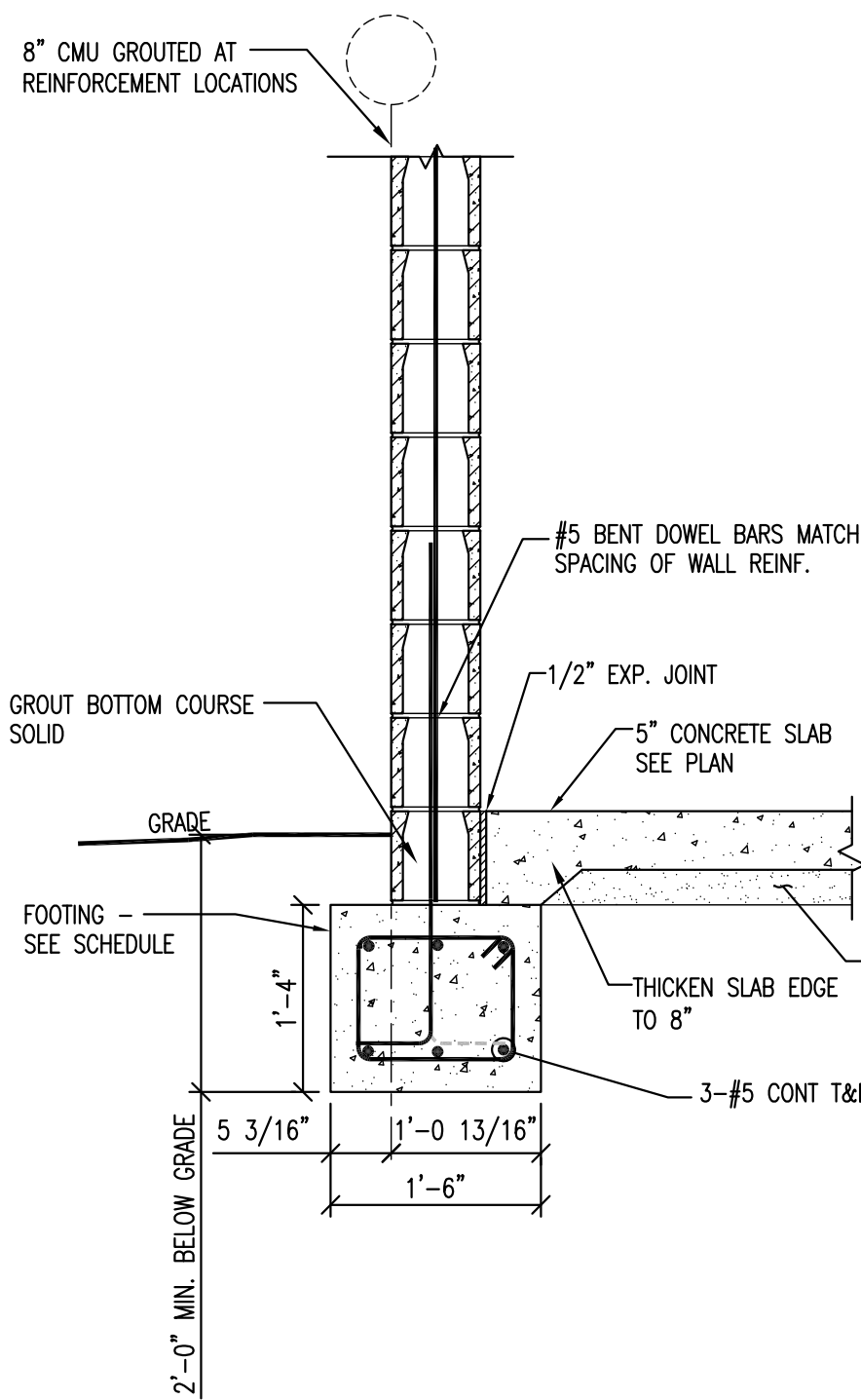
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CLIENT JOB #:
DRAWN BY: SLW
CHECKED BY: TAS
DATE OF ISSUE: 07.10.24



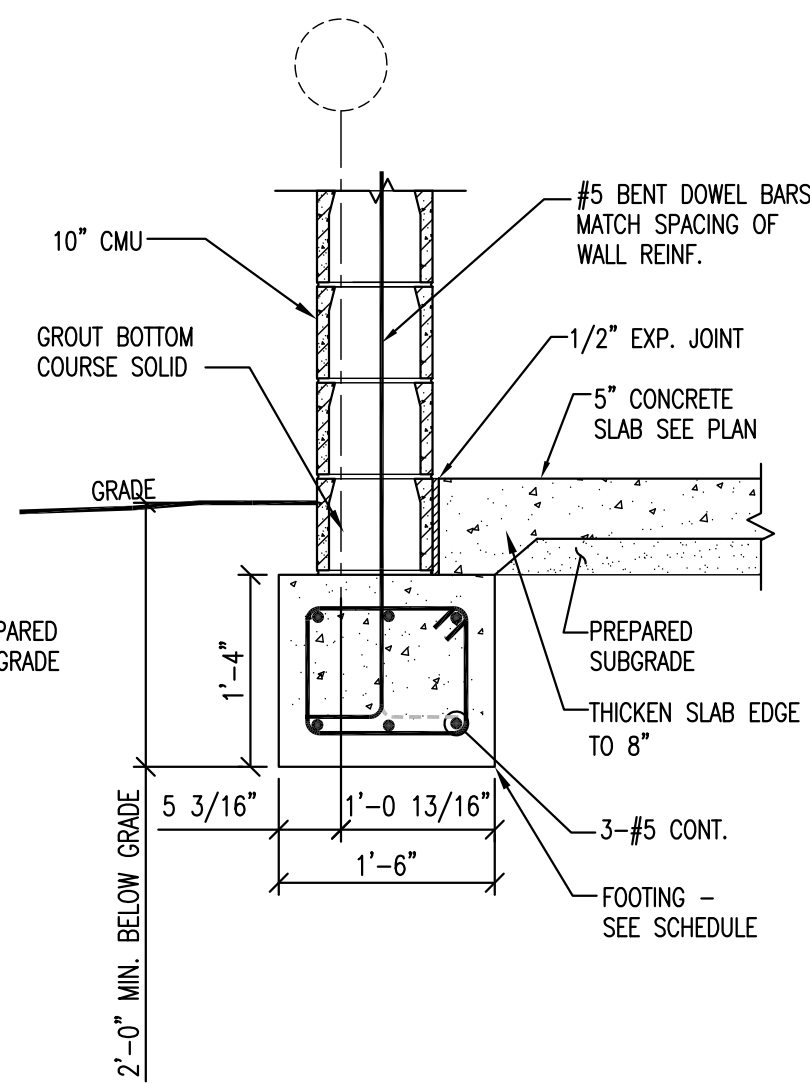
SHEET

S2-1

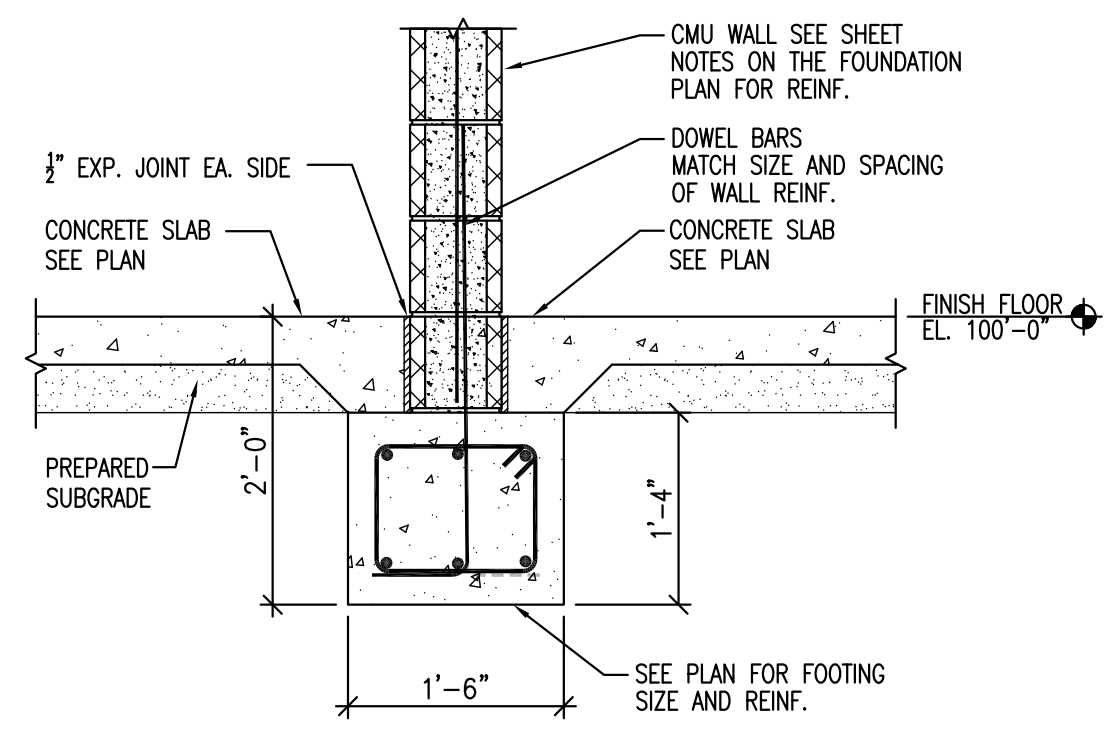
ROOF FRAMING PLAN



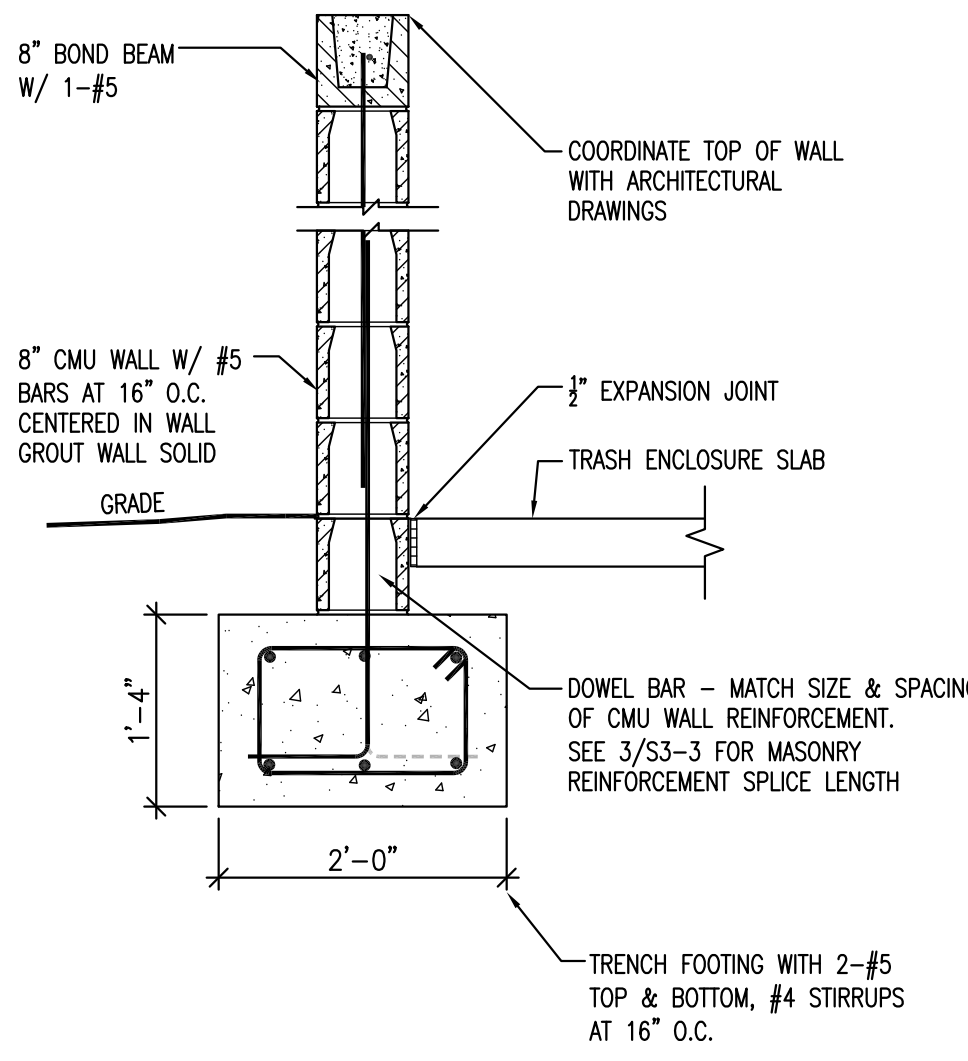
1
S3-0
TRENCH FOOTING @ WALL
3/4"=1'-0"



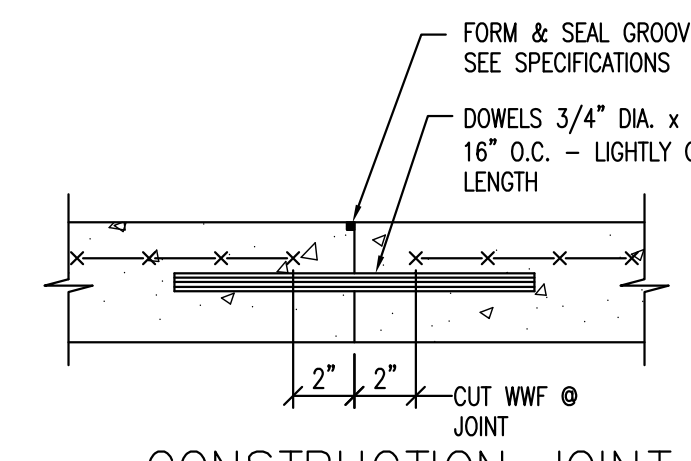
1B
S3-0
FOOTING @ 10" CMU
3/4"=1'-0"



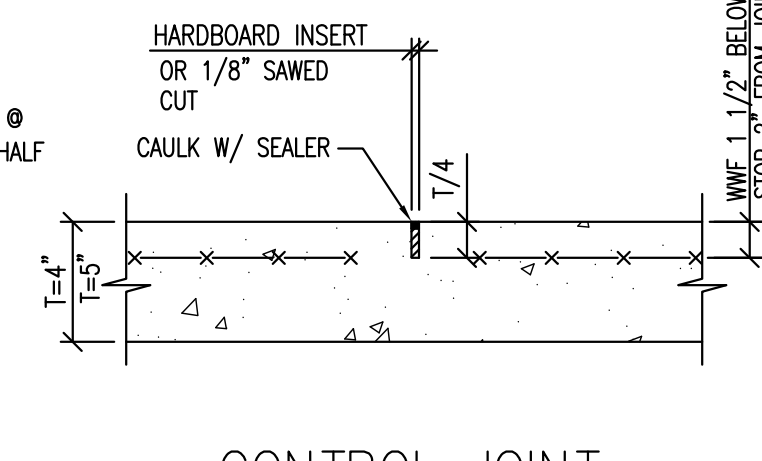
2
S3-0
FOOTING
3/4"=1'-0"



3
S3-0
TRASH ENCLOSURE WALL SECTION
3/4"=1'-0"



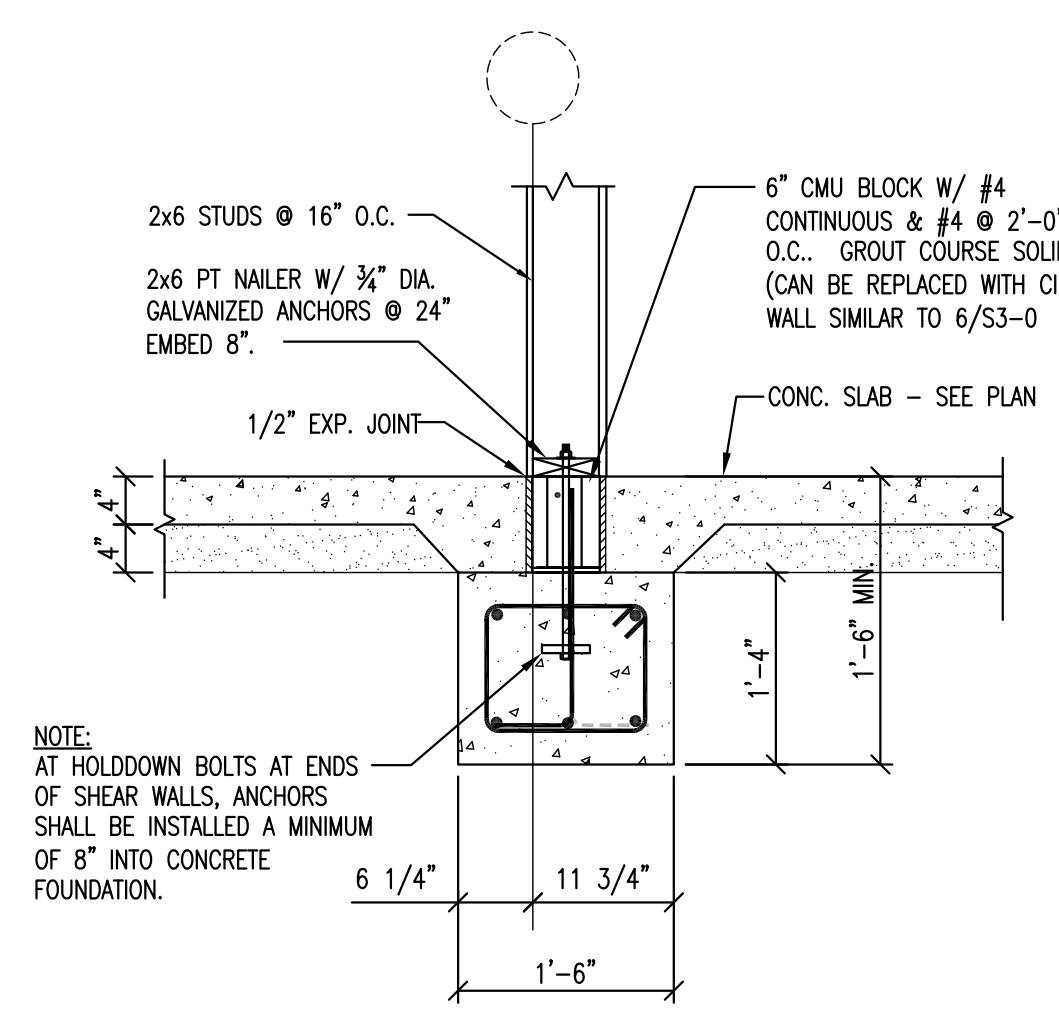
CONSTRUCTION JOINT



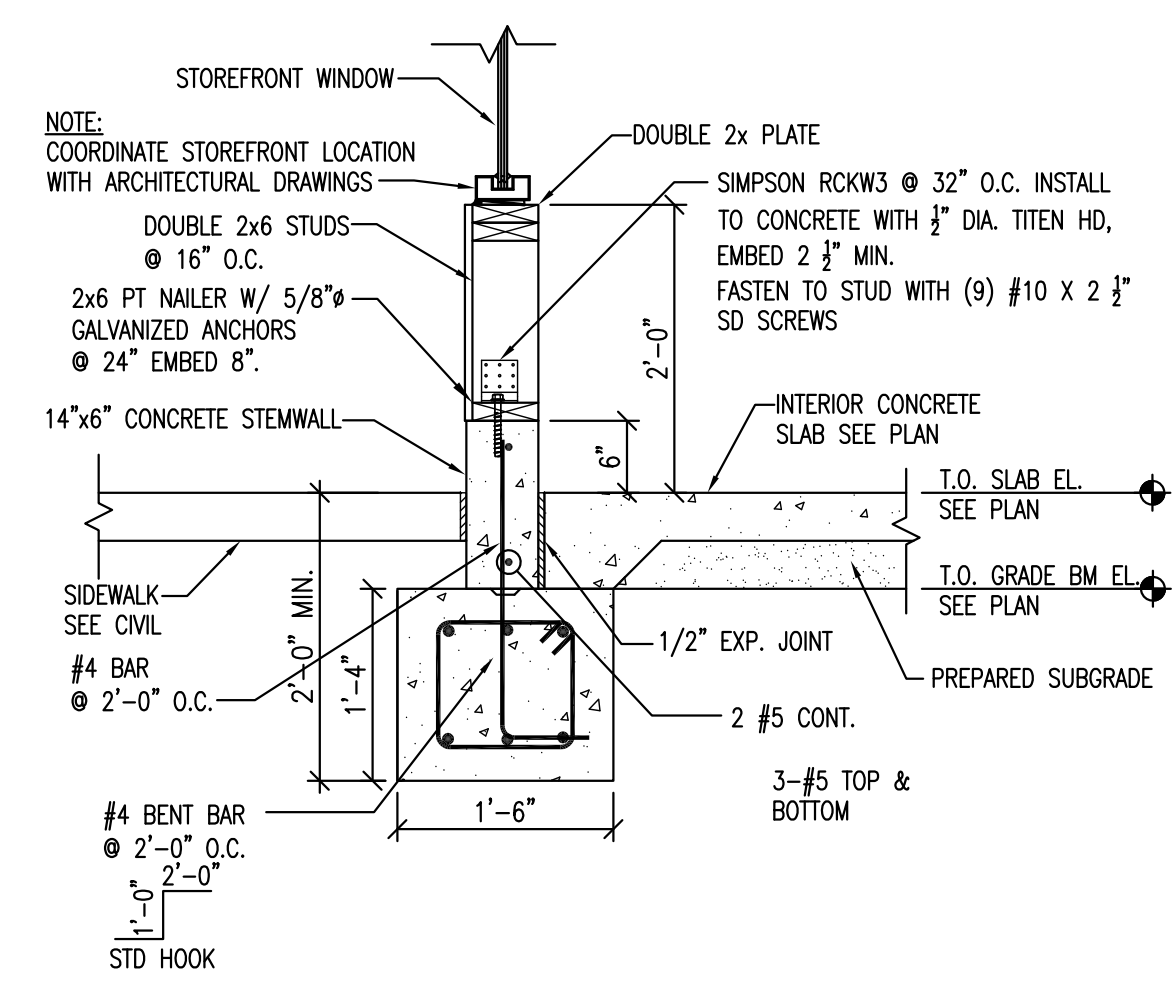
CONTROL JOINT

- NOTES:
1. EPOXY JOINT FILLER TO BE SIKADUR 51 BY SIKA CORPORATION OR APPROVED EQUAL. MINIMUM AGE OF CONCRETE TO BE 28 DAYS WHEN FILLED.
 2. SAW JOINT AS SOON AS SURFACE IS FIRM ENOUGH TO BE TORN OR DAMAGED BY THE BLADE (USUALLY 4 TO 12 HOURS AFTER CONCRETE HARDENS).

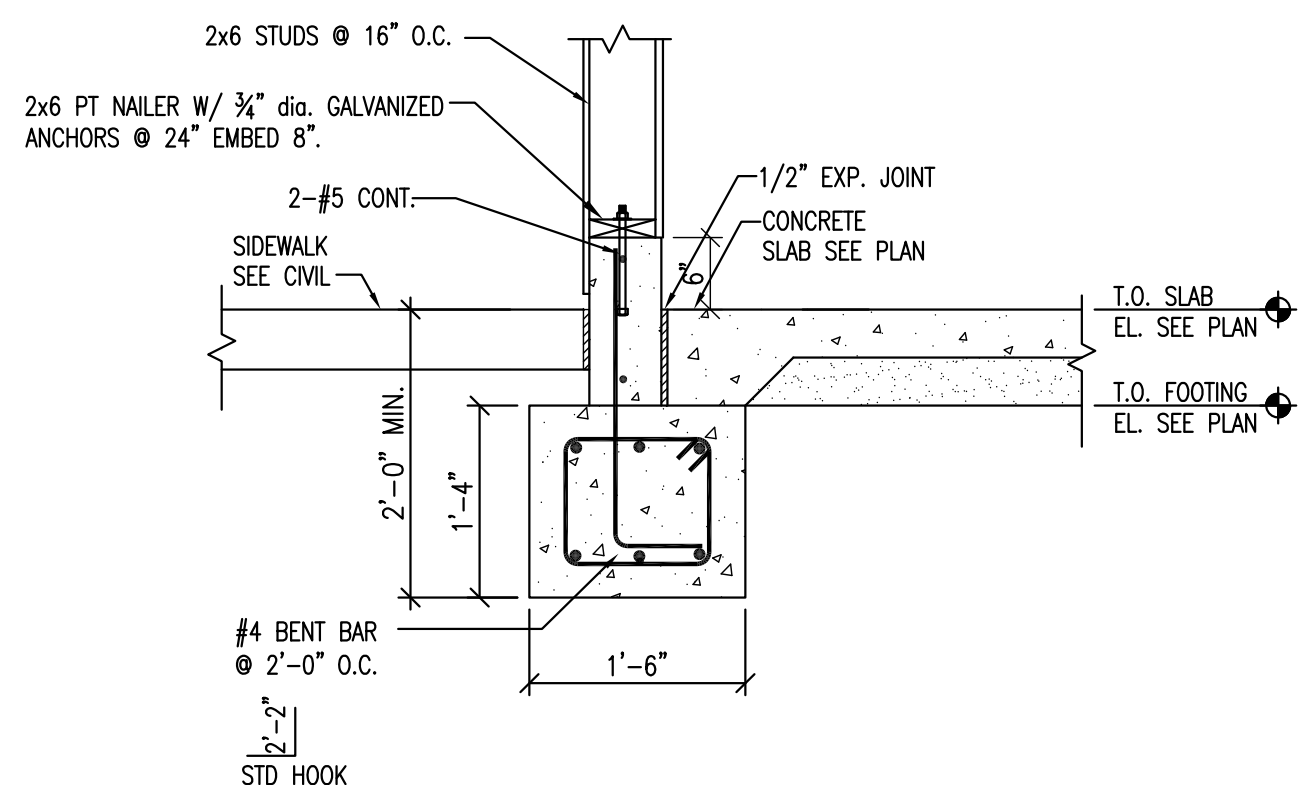
4
S3-0
4" & 5" CONCRETE SLAB (C.J.) DETAILS
N.T.S.



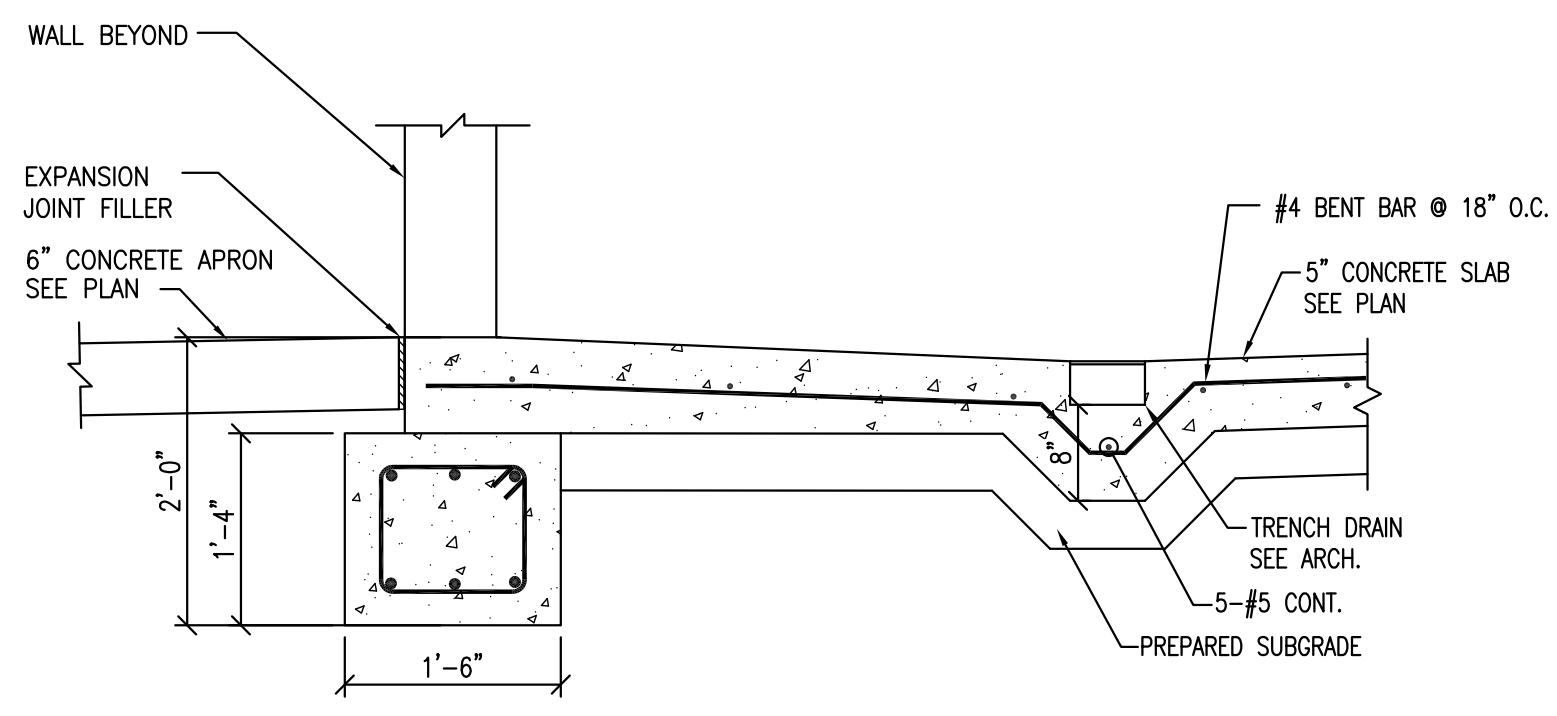
5
S3-0
FOUNDATION SECTION
3/4"=1'-0"



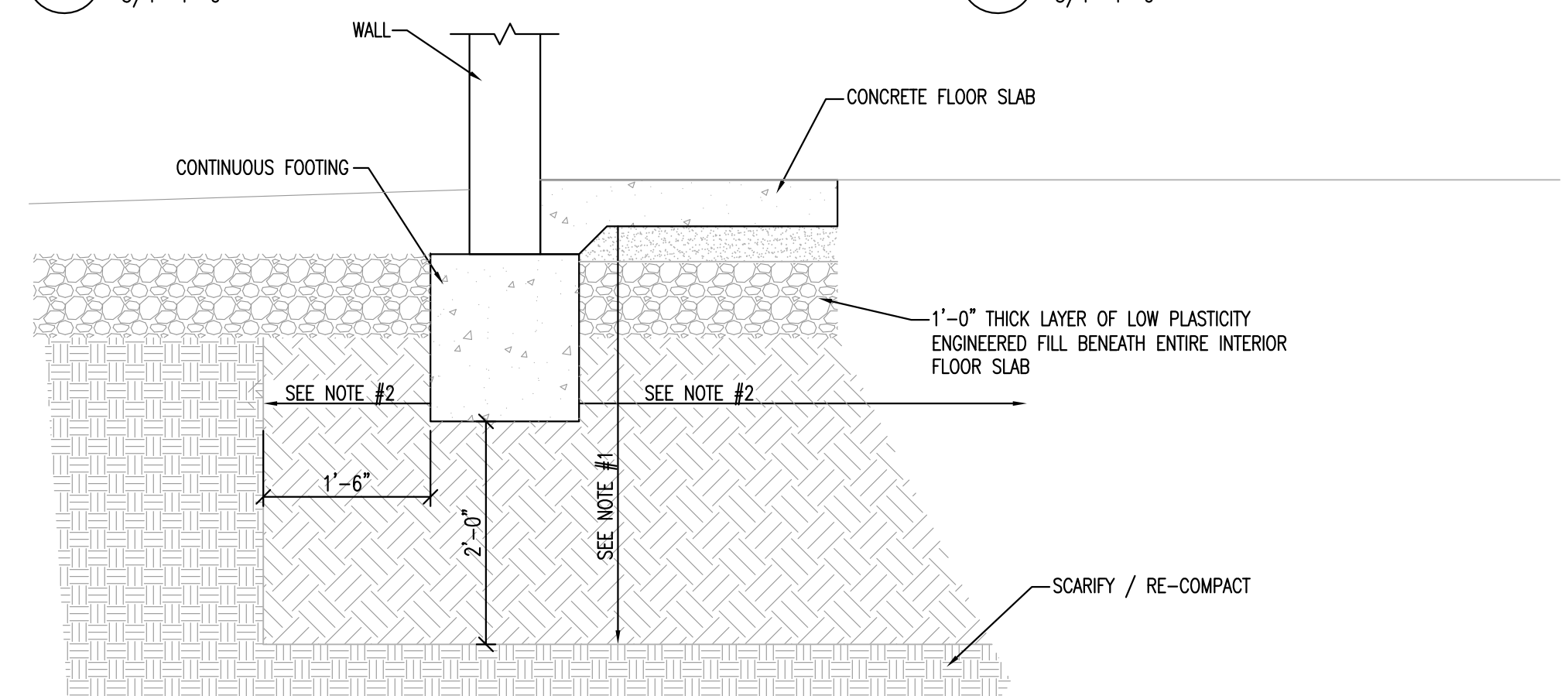
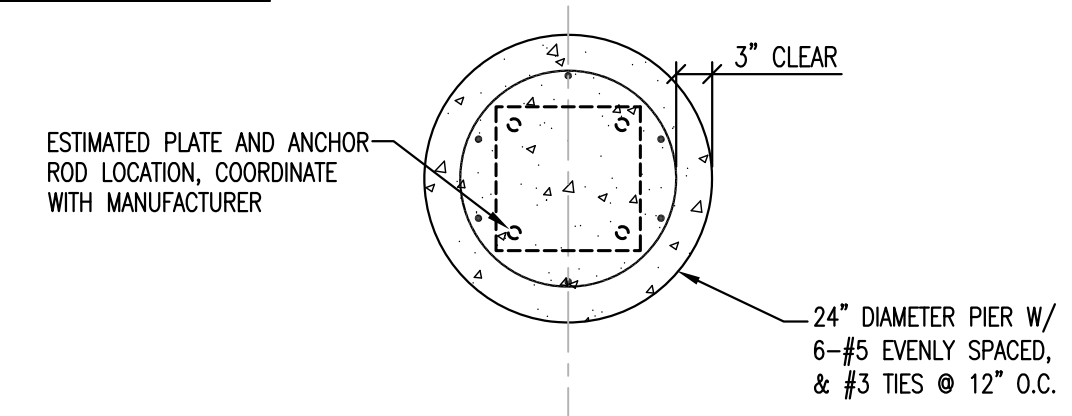
6
S3-0
FOOTING @ STOREFRONT
3/4"=1'-0"



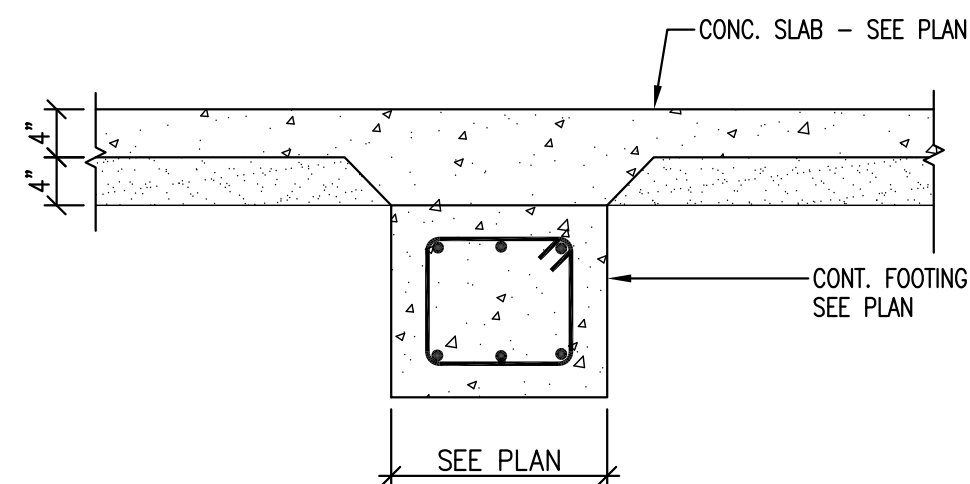
7
S3-0
FOOTING @ WOOD WALL
3/4"=1'-0"



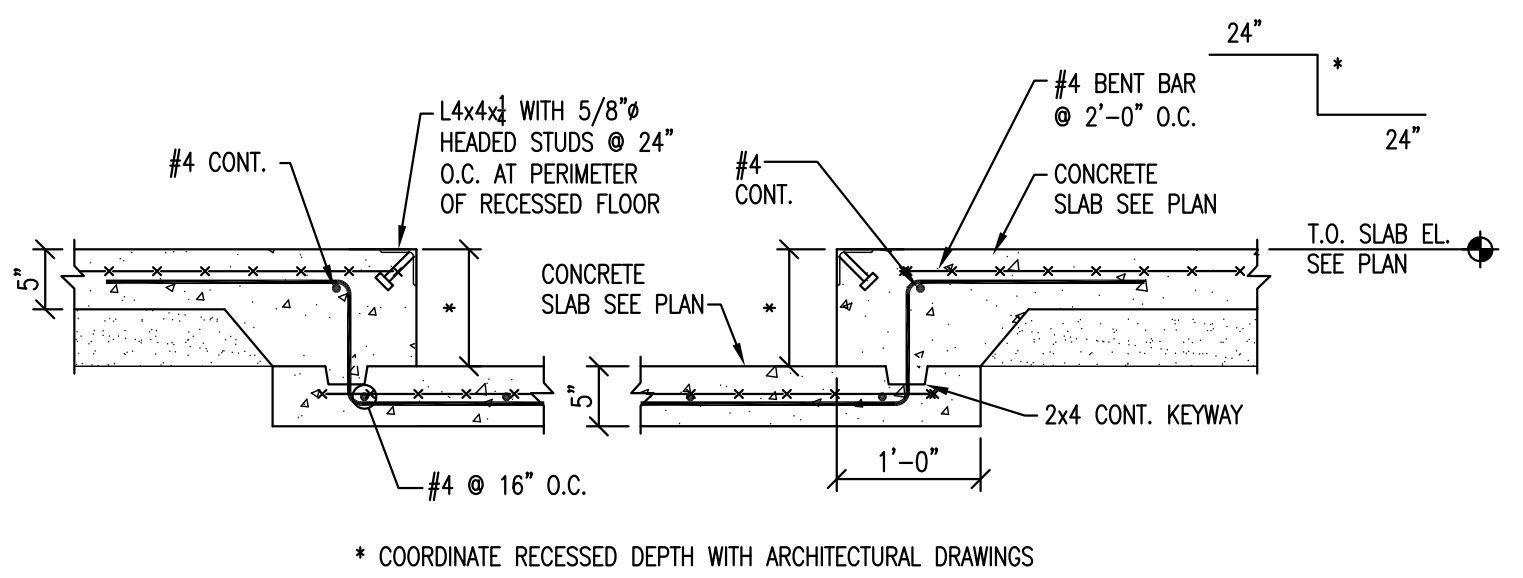
8
S3-0
FOOTING & TRENCH DRAIN
3/4"=1'-0"



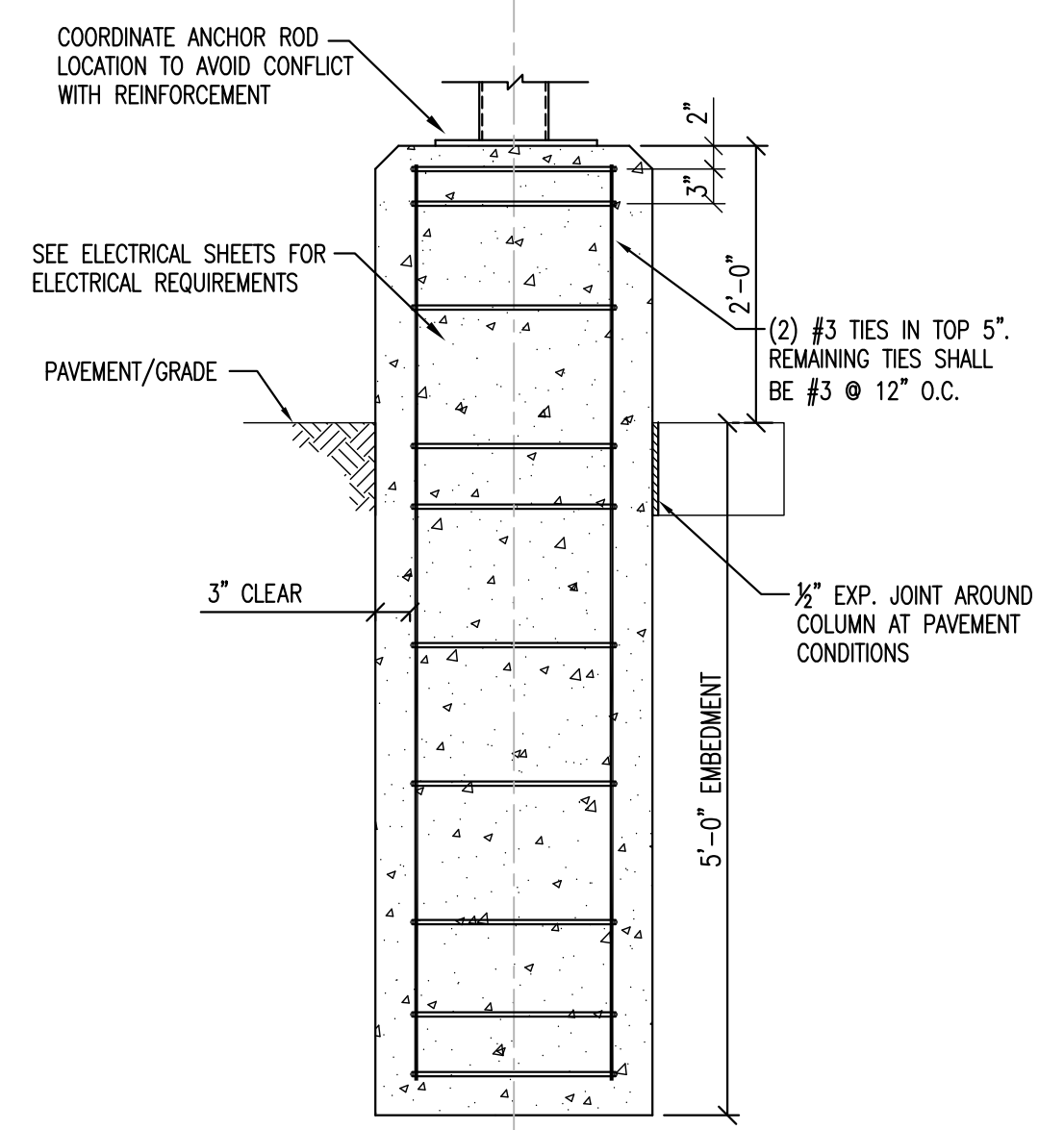
9
S3-0
SUBGRADE PREPARATION
3/4"=1'-0"



10
S3-0
FOOTING SECTION
3/4"=1'-0"



11
S3-0
DEPRESSED SLAB DETAIL
3/4"=1'-0"



12
S3-0
LIGHT POLE FOUNDATION
3/4"=1'-0"

- SUBGRADE PREPARATION NOTES:
- #1 SUBGRADE IMPROVEMENTS SHALL CONSIST OF A MINIMUM OF 2'-0" OF ENGINEERED FILL & 1'-0" THICK LAYER OF NON-EXPANSIVE FILL.
 - #2 THE OVEREXCAVATION SHALL EXTEND BELOW THE ENTIRE STRUCTURE AND BEYOND THE OUTSIDE EDGES OF THE PROPOSED BUILDING FOOTPRINT A MINIMUM DISTANCE OF 5'-0".
 - #3 REFER TO THE SOIL REPORT FOR ALL MATERIAL TYPE, COMPACTION, AND MOISTURE REQUIREMENTS FOR THE IMPROVED SUBGRADE ZONE & THE NON-EXPANSIVE FILL LAYER BELOW THE FLOOR SLAB.
 - #4 PROVIDE 4" GRANULAR LEVELING AND DRAINAGE LAYER DIRECTLY UNDER THE SLAB.

PERFORMANCE Engineering
11811 Fort Street, Suite 104 - Omaha, NE 68164
(402) 343-3960 Fax: (402) 343-3961
NE-C04265
PE # 240701

BRAKES PLUS
1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA

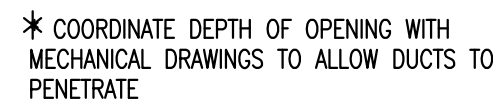
ENGINEER OF RECORD
Robert A. Whorley
21026
OKLAHOMA
07/10/24

REVISION	DATE	COMMENTS

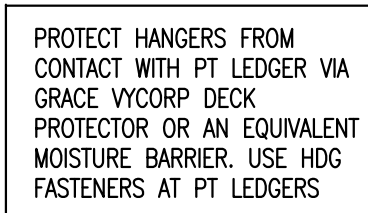
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CLIENT JOB #:
DRAWN BY: SLW
CHECKED BY: TAS
DATE OF ISSUE: 07.10.24

ARCOCODE
45 SPYGLASS DRIVE
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SHEET
S3-0
SECTIONS AND DETAILS



S3-1 $3/4" = 1'-0"$



S3-1 $3/4" = 1'-0"$



(S3-1) $3/4" = 1' - 0"$



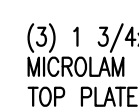
S3-1 $3^n = 1' - 0^n$



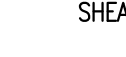
(S3-1) $3/4'' = 1' - 0''$



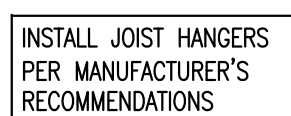
(S3-1) $3/4'' = 1' - 0''$



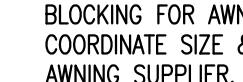
g	1' 7" \ 1' 7" \ 1' 7" \ 1' 7"
S3-1	3/4" = 1' - 0"



10	WALL 3
S3-1	3/4" = 1'-0"



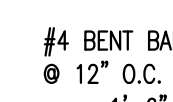
S3-1 3/4"=1'-0'



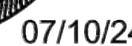
4	STOK
S3-1	$3/4'' = 1' - 0''$



(S3-1) $3'' = 1' - 0''$



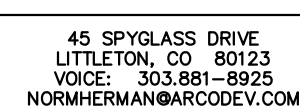
S3-1 $3/4'' = 1'-0''$

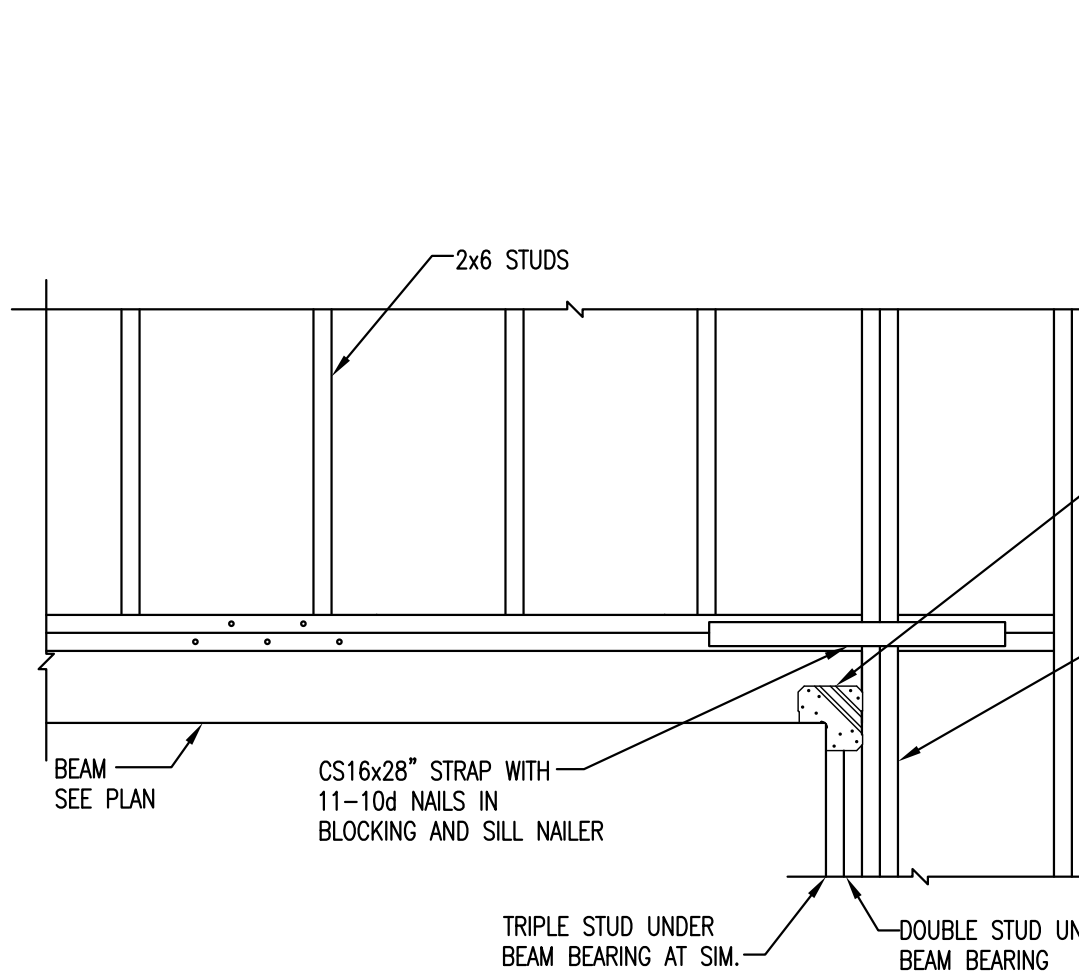


REVISION	DATE	COMMENTS
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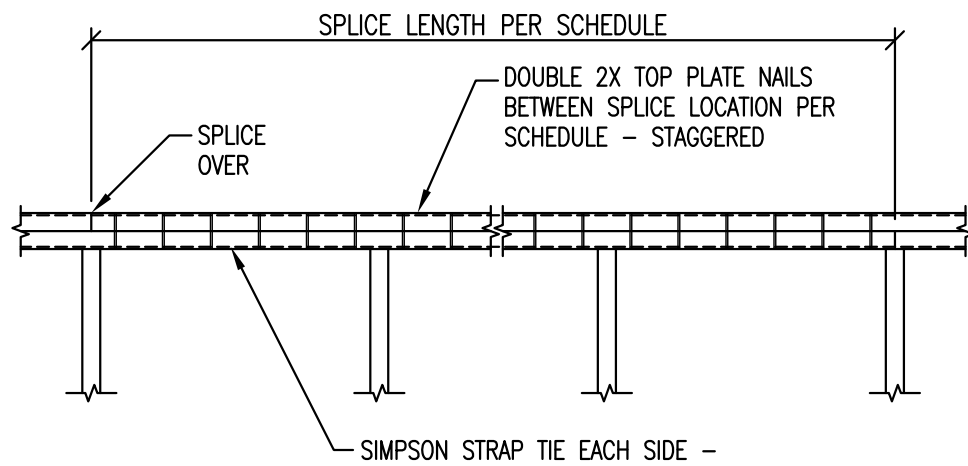
CLIENTJOB #:

CHECKED BY: _____ TAX _____





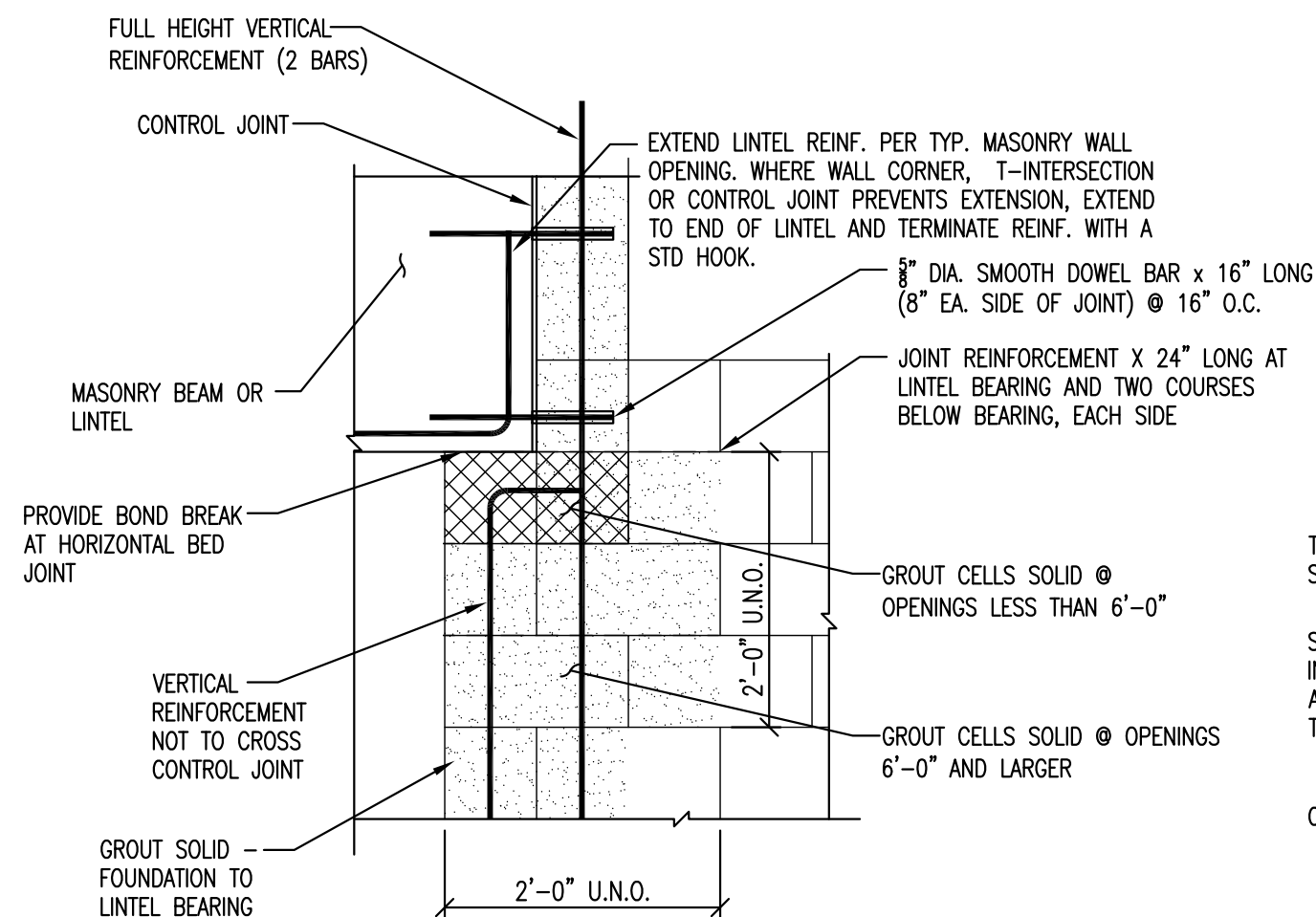
1 BEAM BEARING DETAIL
S3-2 3/4"=1'-0"



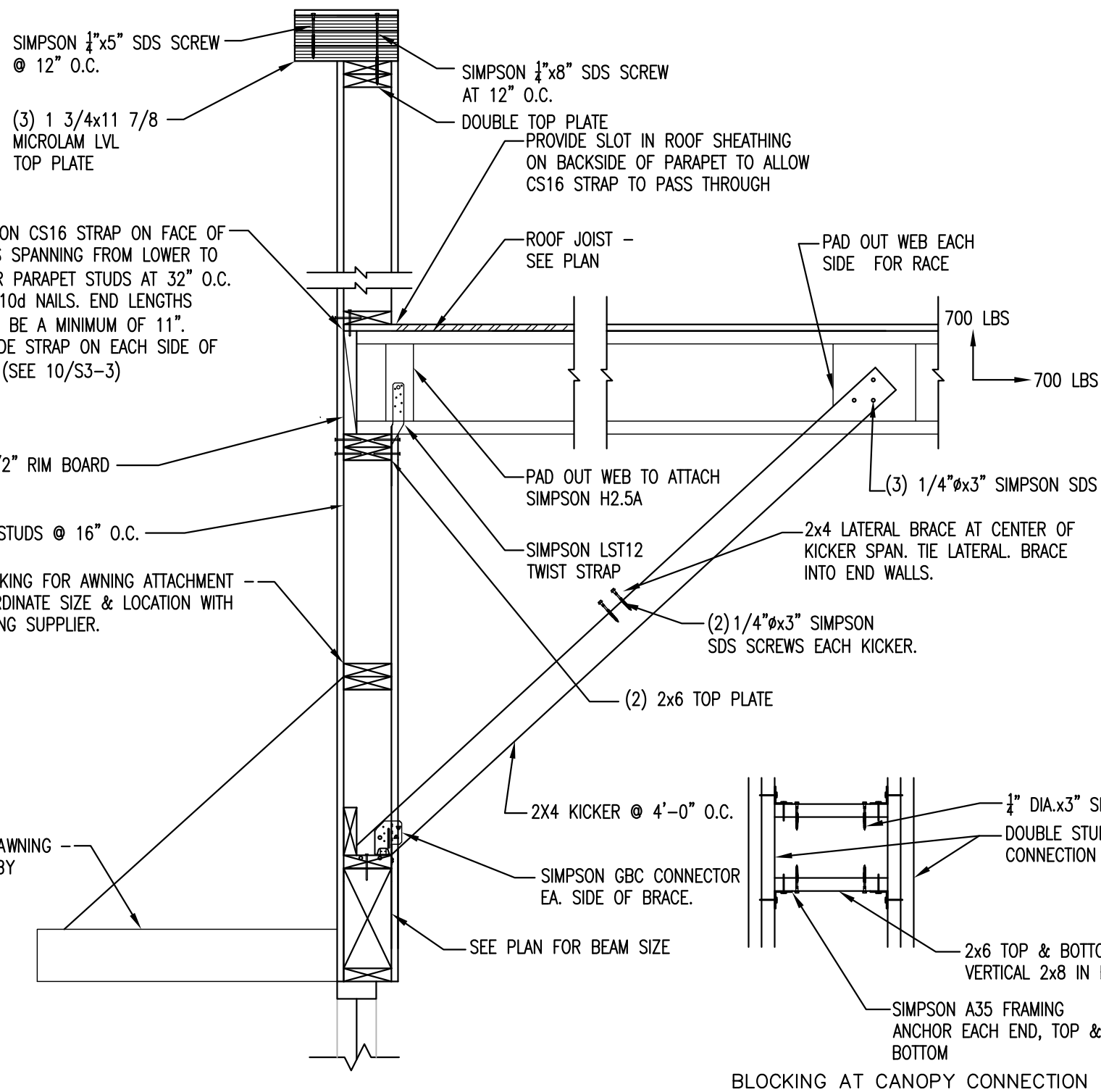
LENGTH OF WALL (BETWEEN CORNERS)	SPLICE LENGTH (MINIMUM)	NAILS ALONG SPLICE LENGTH
OVER 30'	4'-0"	18-16d
OVER 20'	2'-8"	10-16d
OVER 10'	1'-4"	6-16d
LESS THAN 10'	1'-4"	4-16d

NOTE:
1. DO NOT SPLICE TOP PLATES WITHIN 6'-0" OF ENDS OF WOOD STRUCTURAL PANEL SHEAR WALLS.
2. THIS DETAIL APPLIES TO ALL EXTERIOR WALLS AND INTERIOR WALLS. SIMPSON STRAP TIE NEED NOT BE APPLIED TO INTERIOR WALLS.
3. PROVIDE SIMPSON CMST 14 ON EACH SIDE OF TOP PLATE AT SPLICE LOCATION. EXTEND STRAP 34" BEYOND END OF PLATE SPLICE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

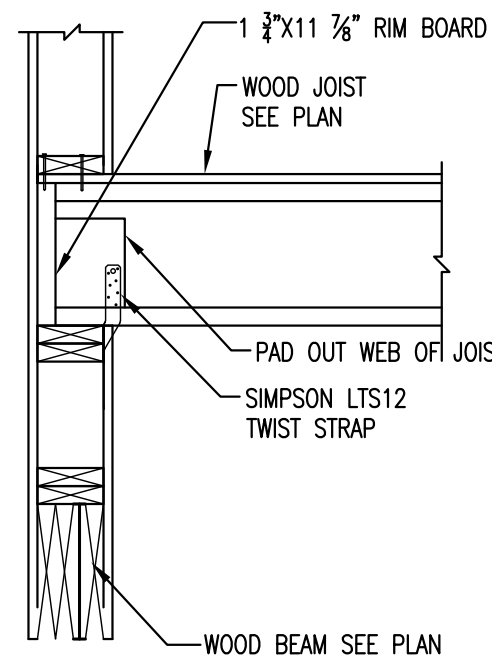
6 CHORD SPLICE
S3-2 3/4"=1'-0"



10 TYP. MASONRY BM/ LINTEL BEARING
S3-2 3/4"=1'-0"



2 HIGH PARAPET
S3-2 3/4"=1'-0"

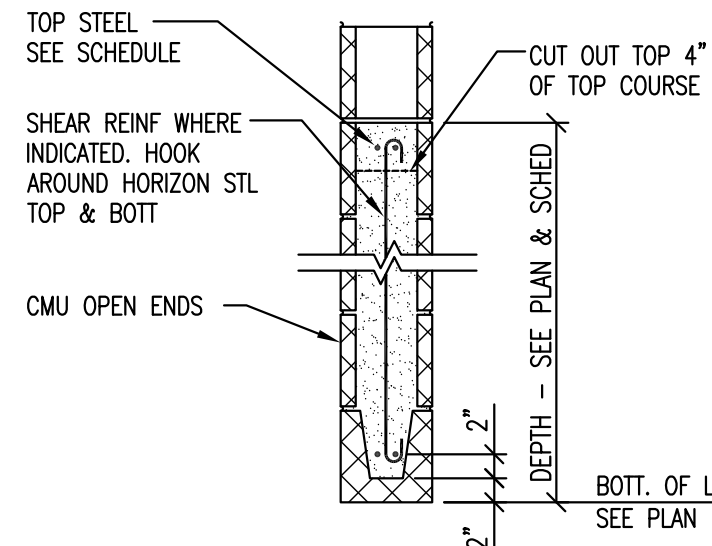


7 FRAMING SECTION
S3-2 3/4"=1'-0"

MASONRY LINTEL SCHEDULE				
MARK	DEPTH	BOND BM REINF	SHEAR REINF	REMARKS
ML-1	2'-8"	2-#5 TOP & BOT	-	8" CMU
ML-2	1'-4"	2-#5 TOP & BOT	-	8" CMU

NOTE:

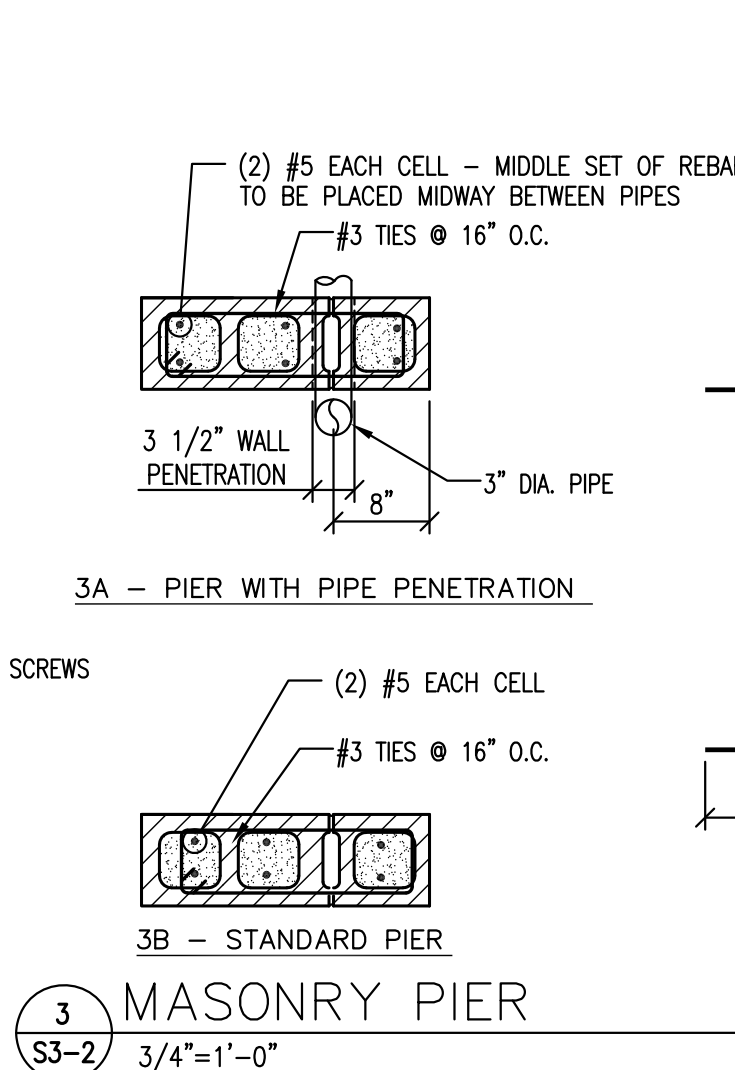
1. USE LINTEL ML-2 AT ALL OPENINGS LESS THAN 4'-0" WIDE UNLESS NOTED OTHERWISE.
2. BOND BEAM REINFORCEING SHALL BE CONTINUOUS WITHOUT SPLICES.
3. MASONRY LINTELS SHALL BE GROUTED SOLID.



NOTES:

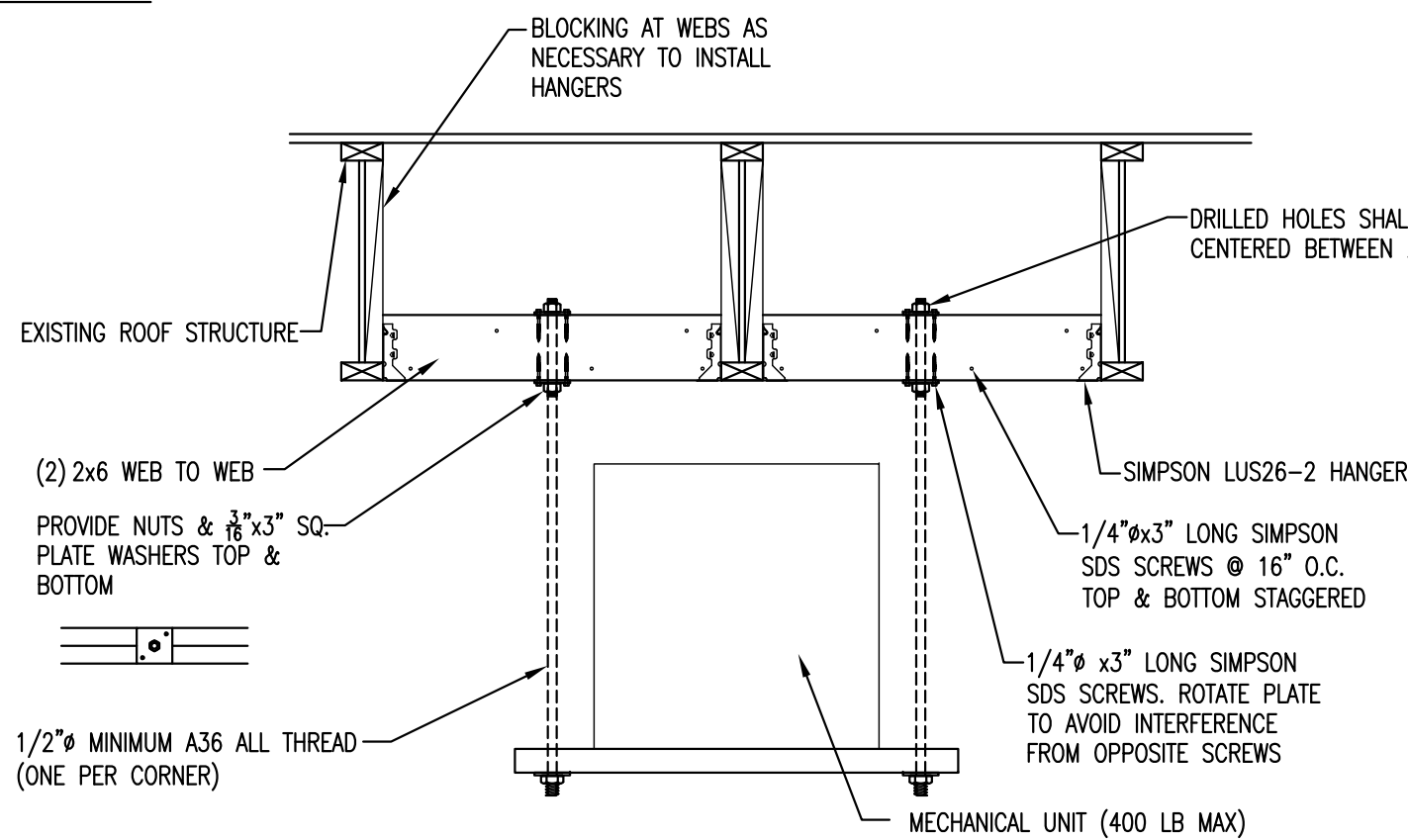
1. PROVIDE SHORING UNDER BEAM FOR A MIN. OF 7 DAYS AFTER GROUTING.
2. MONOLITHICALLY GROUT BOND BEAM AND ALL CELLS SOLID. GROUTING SHALL HAVE NO VERTICAL OR HORIZONTAL COLD JOINTS FULL HEIGHT AND LENGTH OF LINTEL INCLUDING END BEARINGS.
3. MECHANICALLY VIBRATE GROUT.
4. SEE TYPICAL MASONRY BEAM/LINTEL BEARING DETAIL FOR BEARING.
5. HORIZONTAL REINFORCEMENT SHALL NOT BE SPLICED.

11 TYP. MASONRY BEAM/ LINTEL
S3-2 3/4"=1'-0"

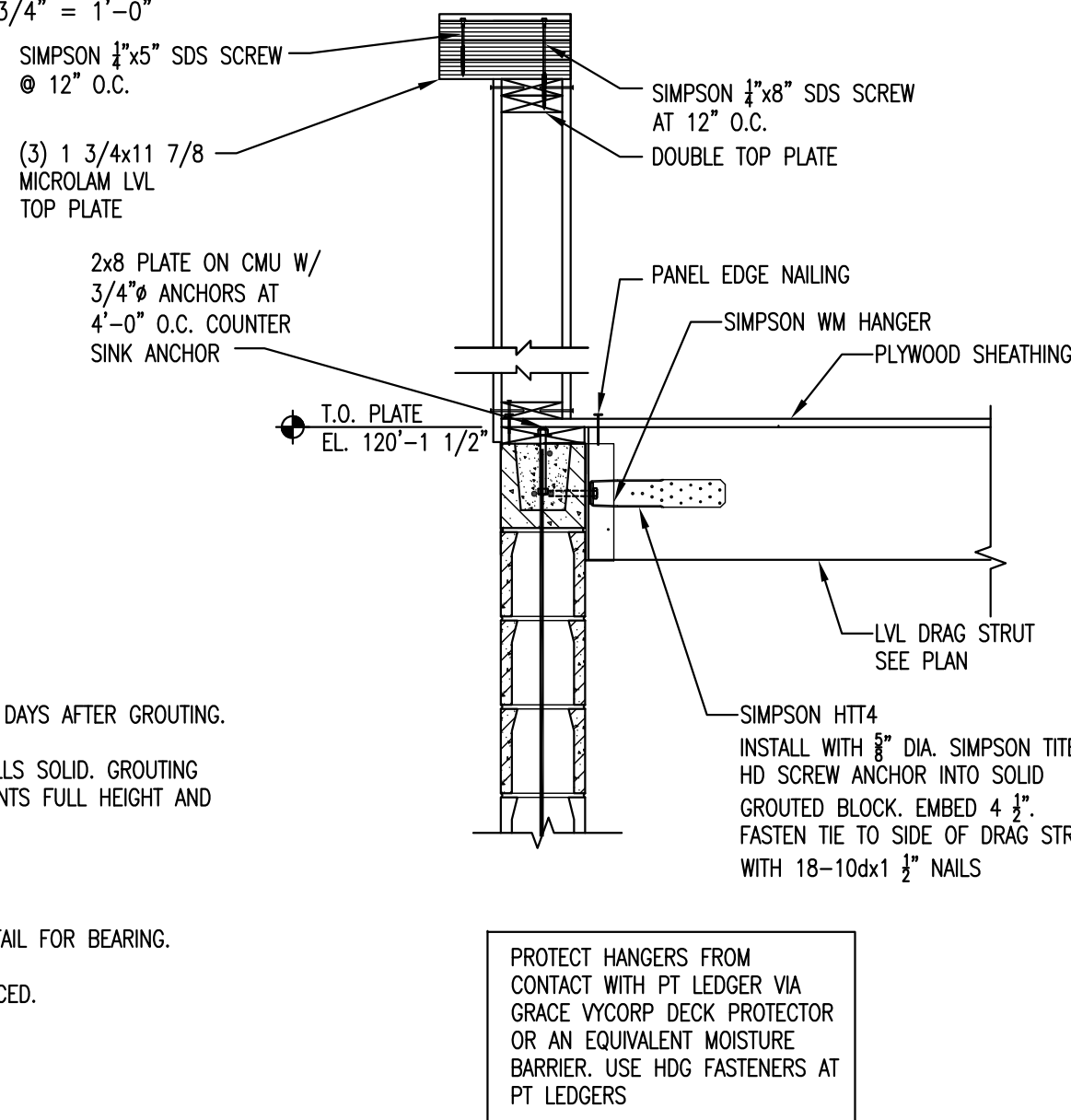


3 MASONRY PIER
S3-2 3/4"=1'-0"

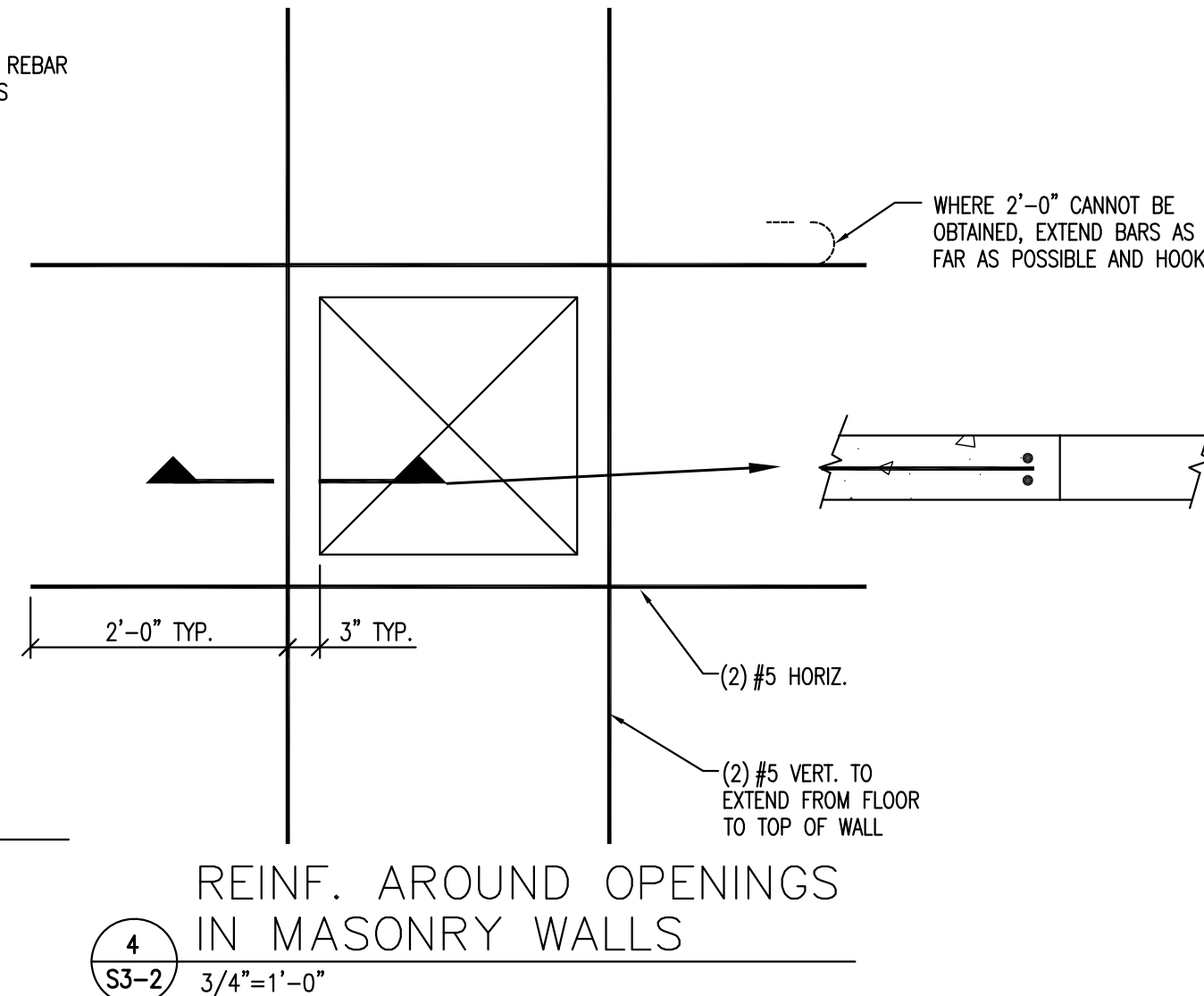
BLOCKING AT CANOPY CONNECTION



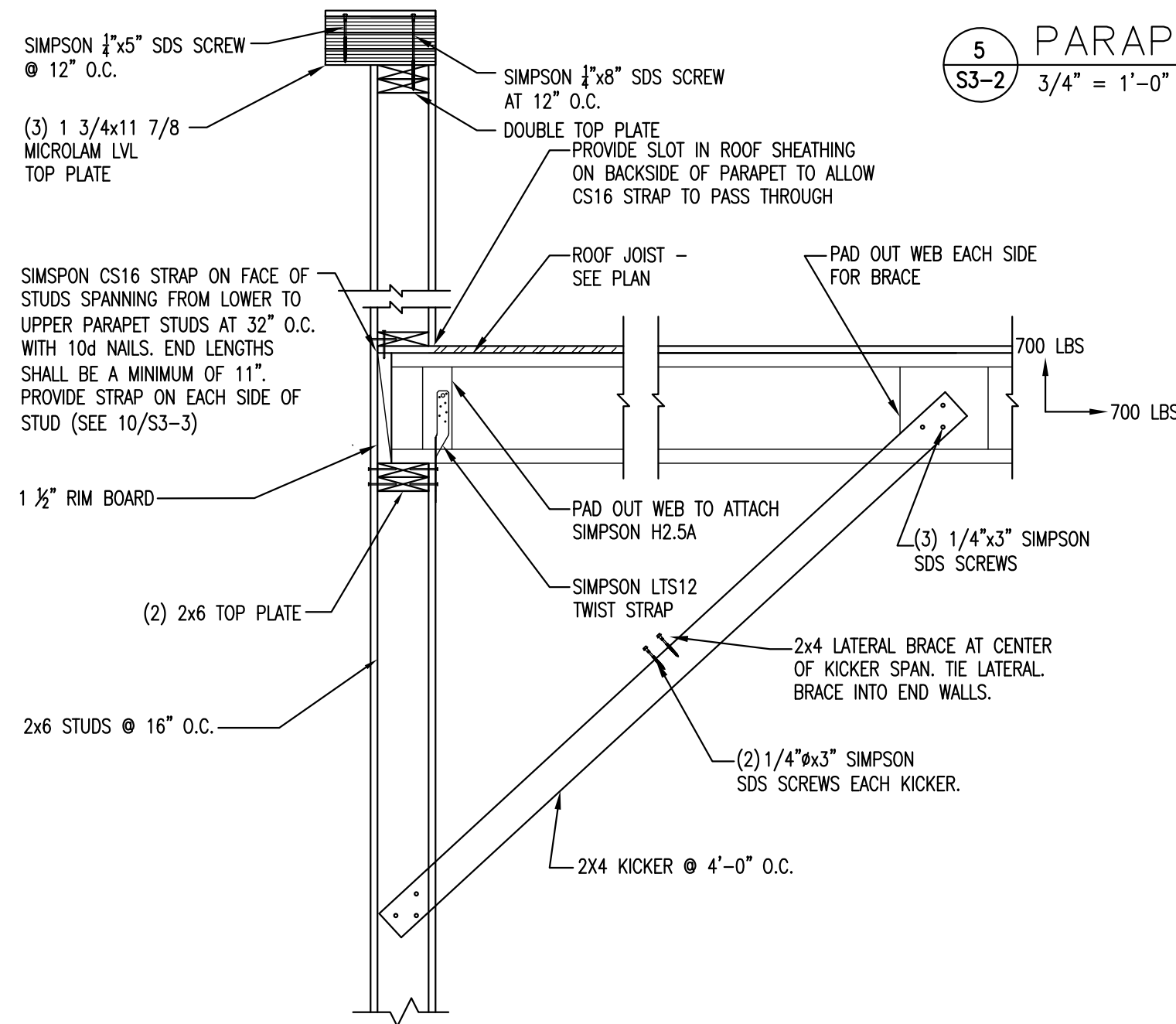
8 FRAMING SECTION
S3-2 3/4"=1'-0"



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

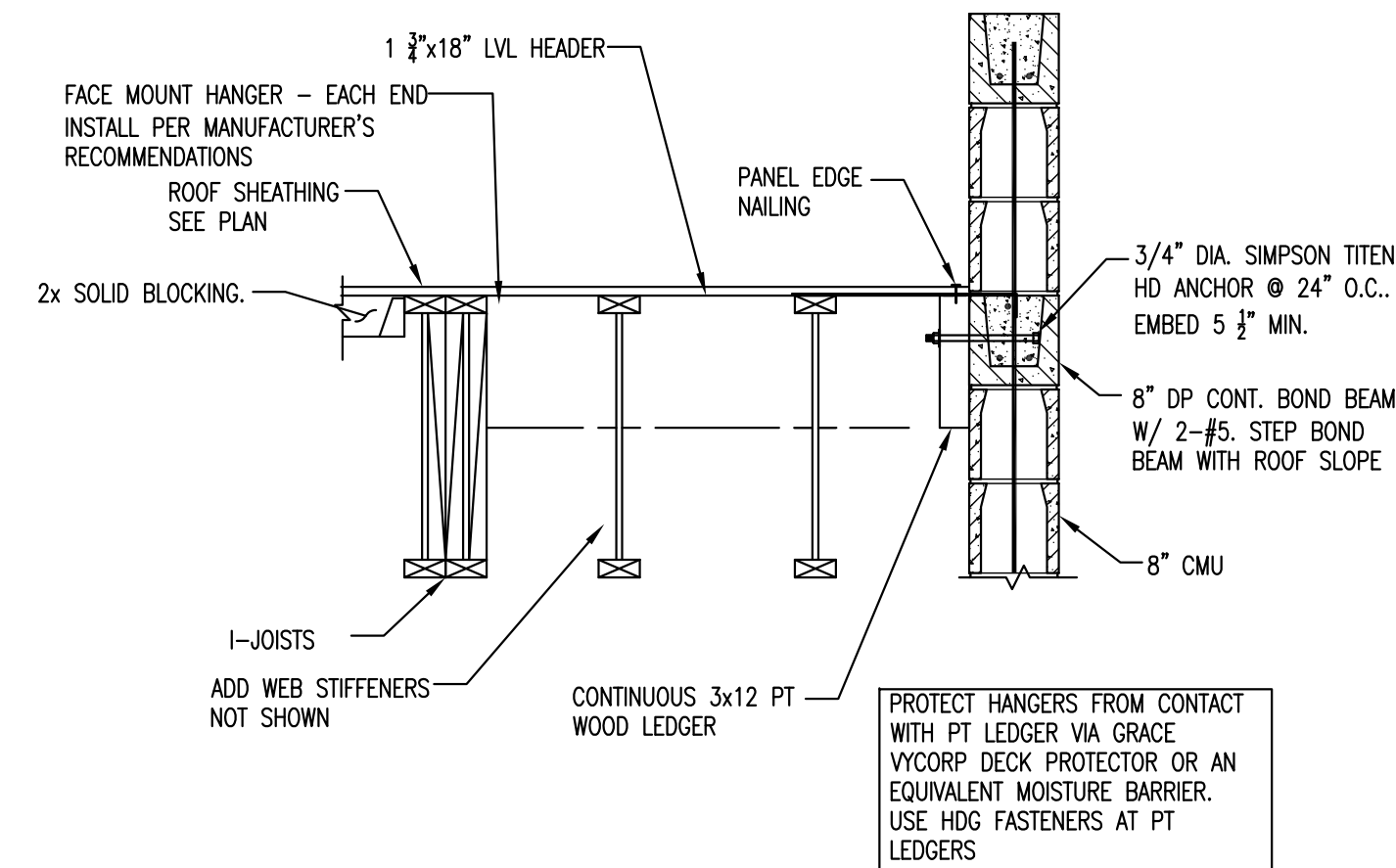


4 REINF. AROUND OPENINGS IN MASONRY WALLS
S3-2 3/4"=1'-0"

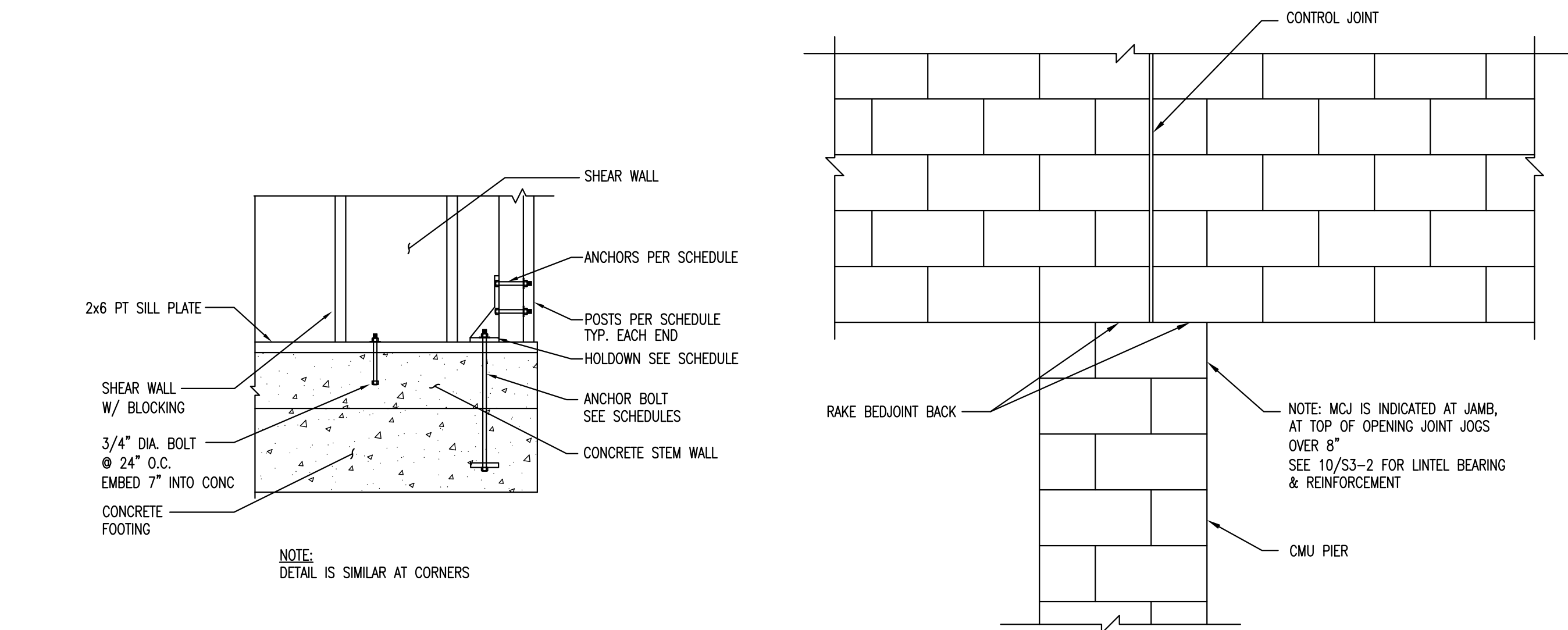


5 PARAPET WALL
S3-2 3/4"=1'-0"

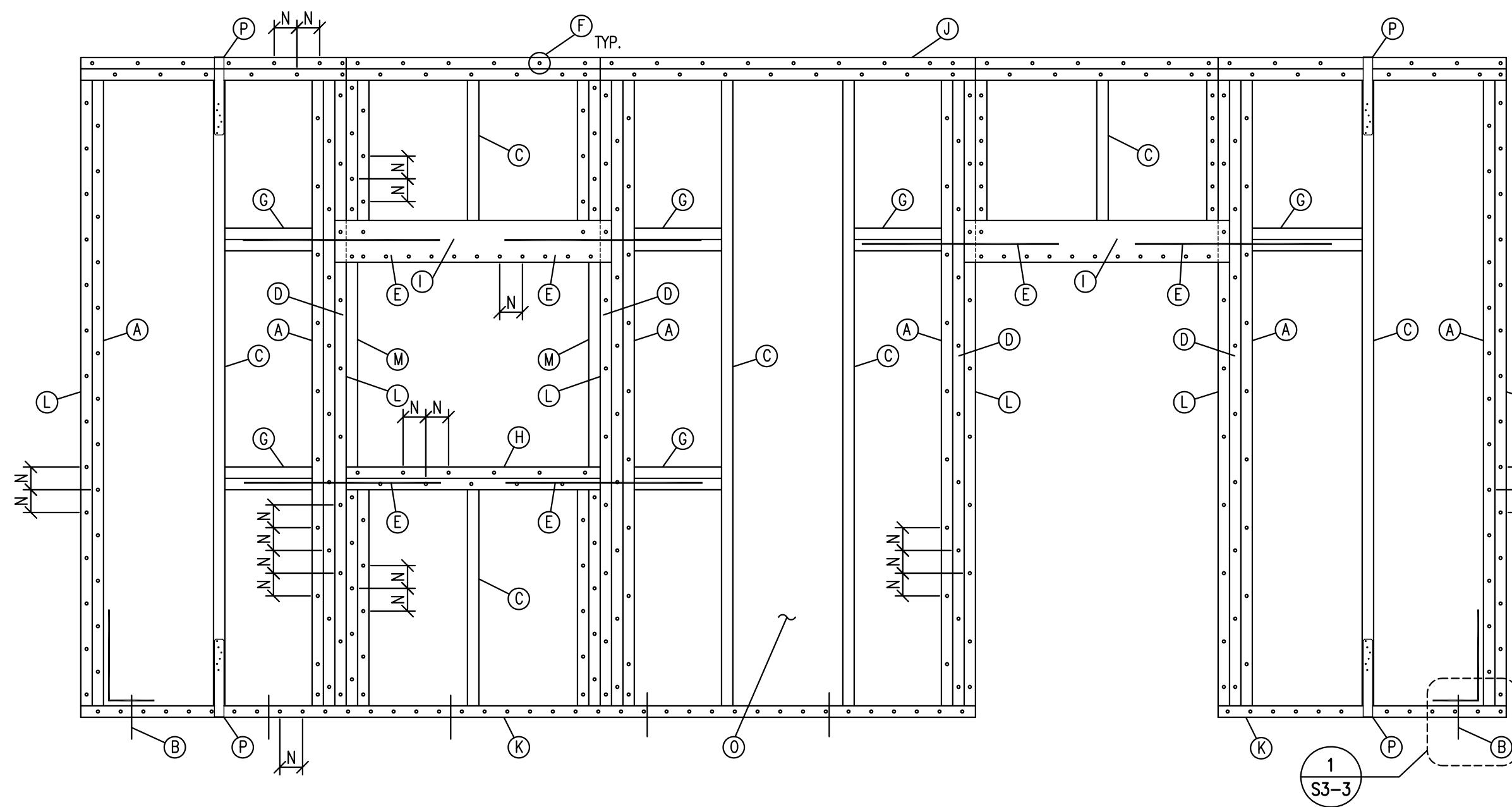
9 WALL SECTION
S3-2 3/4"=1'-0"



13 ROOF OPENING DETAIL
S3-2 3/4"=1'-0"



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

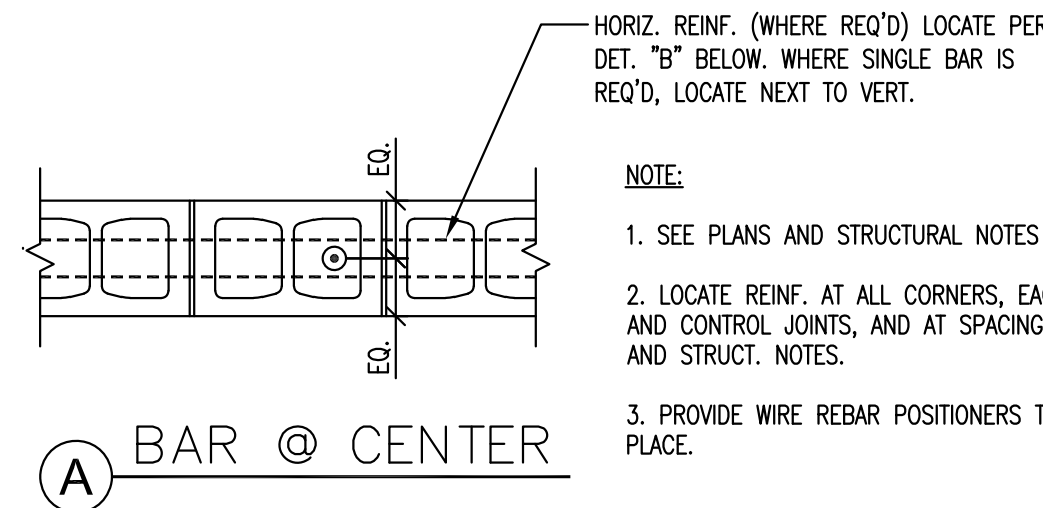


2 CONTROL JOINT @ PIER
S3-3 3/4"=1'-0"

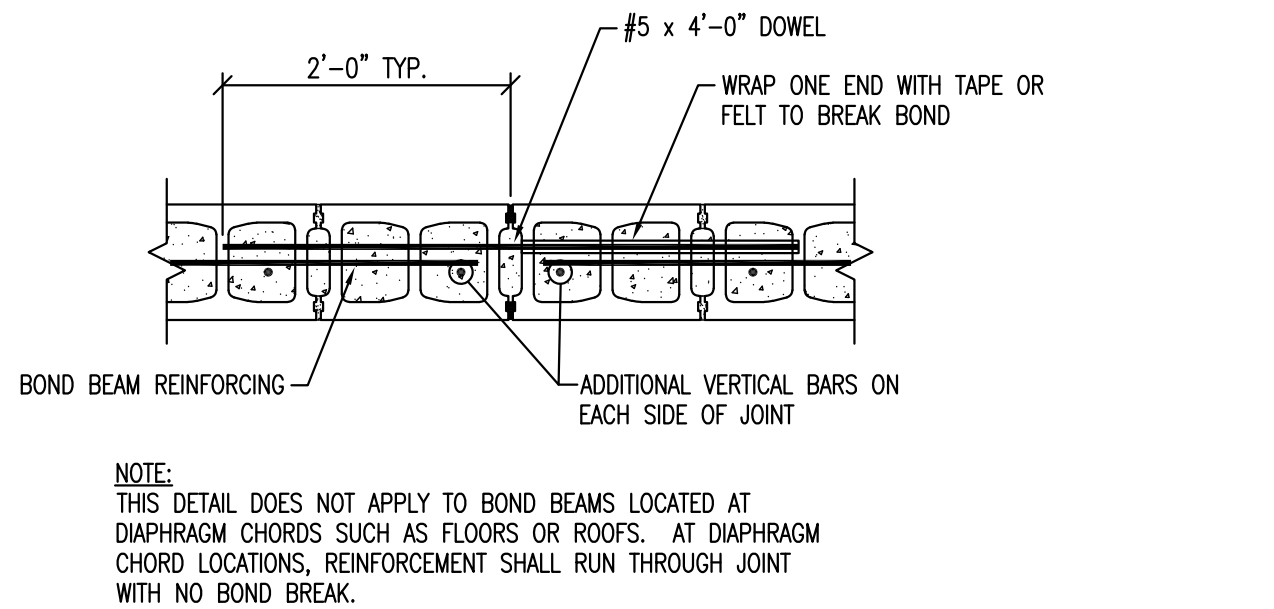
MASONRY REINF. SPLICE TABLE									
BAR SIZE	6" BLOCK		8" BLOCK		10" BLOCK		12" BLOCK		REMARKS
	BAR @ CL	BAR @ CL	BAR @ EDGE	BAR @ CL	BAR @ EDGE	BAR @ CL	BAR @ EDGE		
#4	2'-1"	1'-9"	2'-7"	2'-1"	2'-5"	2'-1"	2'-4"	-	
#5	3'-3"	2'-2"	4'-0"	2'-7"	3'-10"	2'-7"	3'-7"	-	
#6	-	3'-6"	8'-2"	4'-4"	7'-8"	4'-4"	7'-3"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

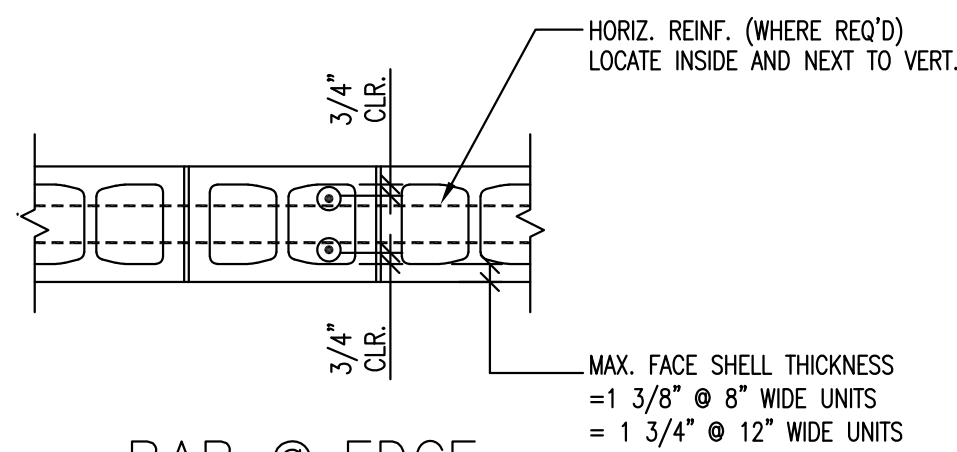
3 MASONRY REINFORCEMENT SPLICE & DEVELOPMENT LENGTH
S3-3 3/4"=1'-0"



A BAR @ CENTER

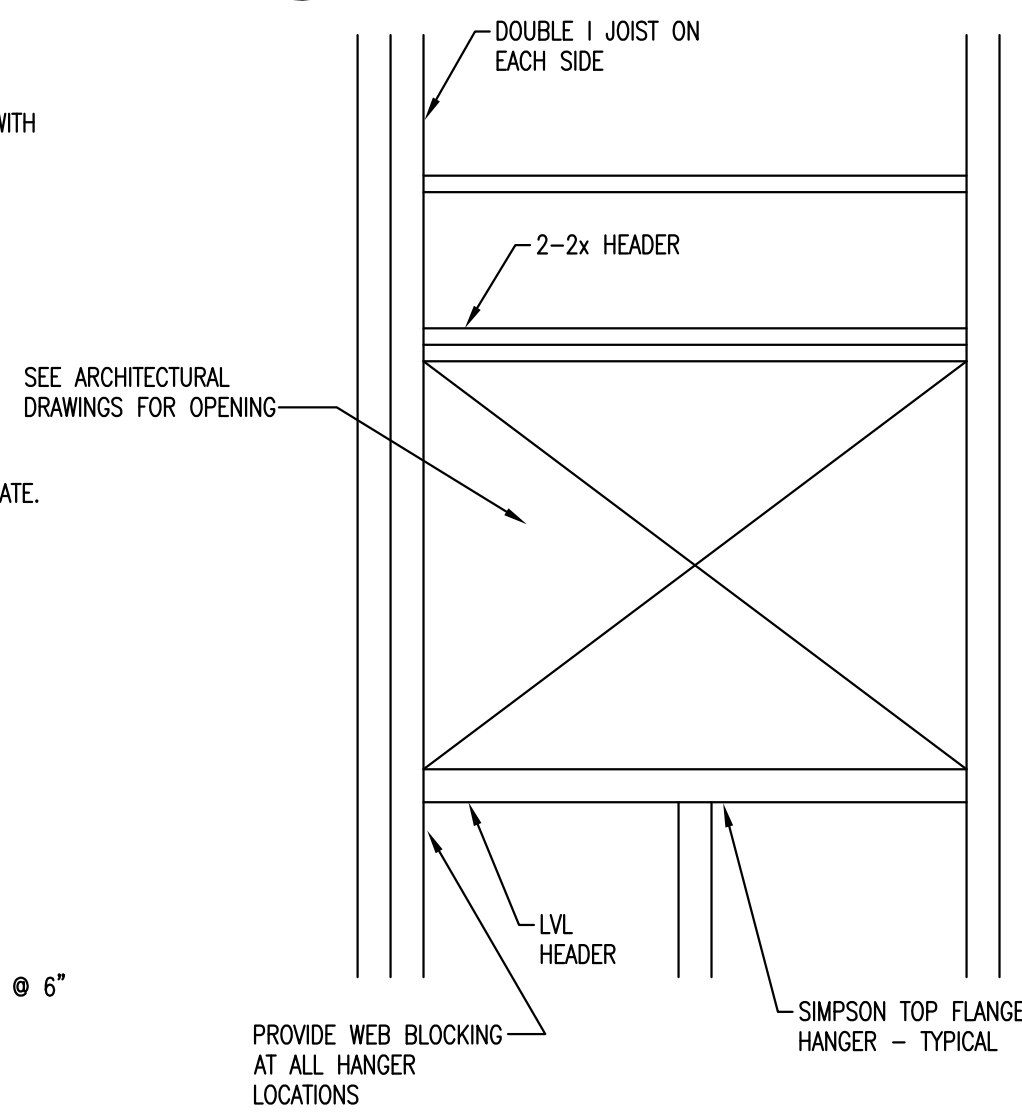


4 MASONRY CONTROL JOINT
S3-3 3/4"=1'-0"

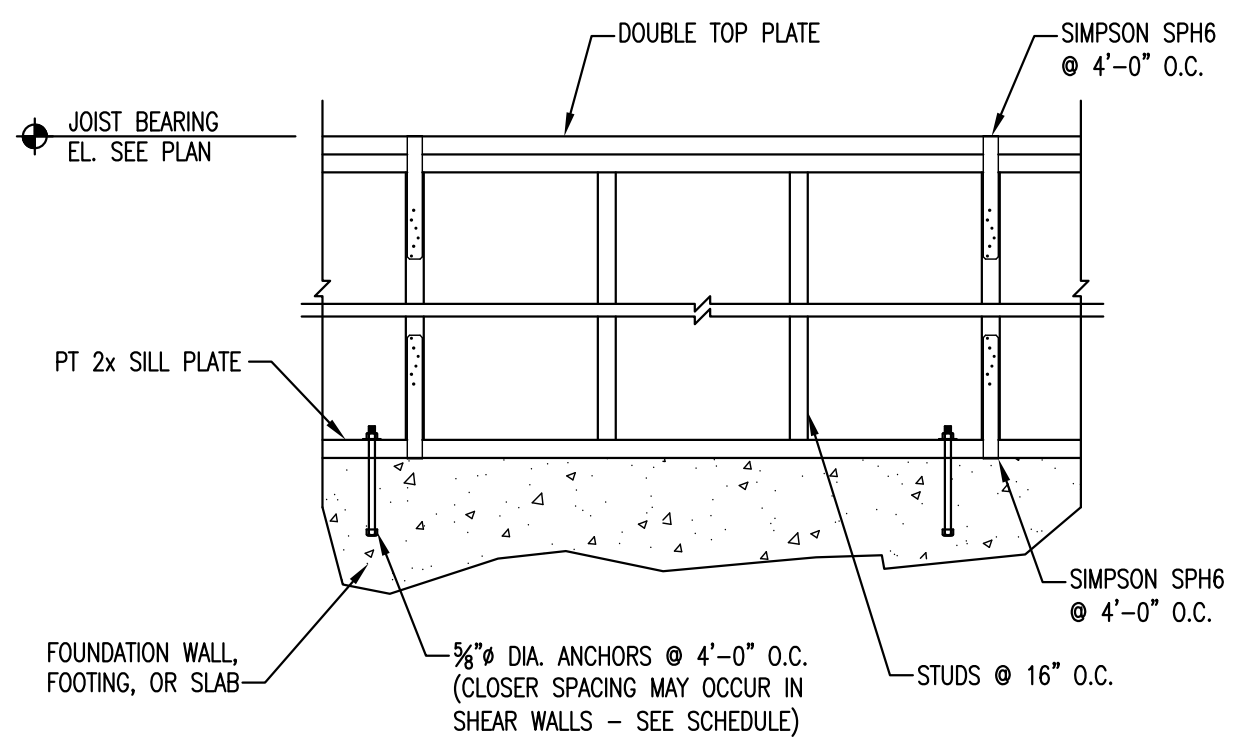


B BAR @ EDGE

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

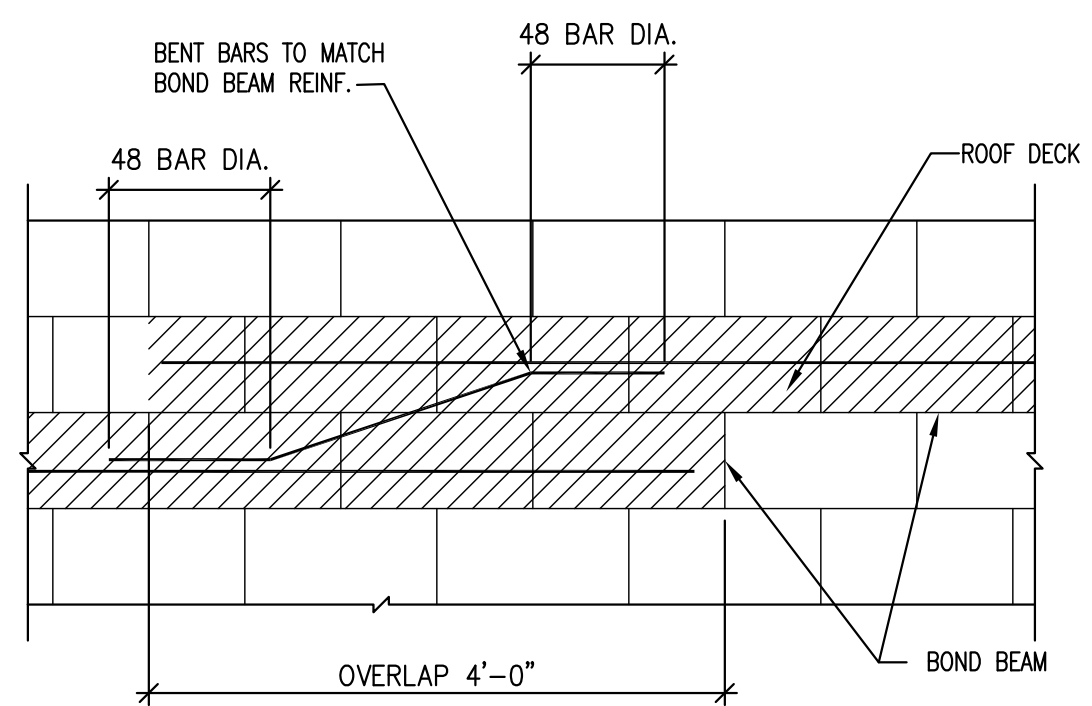


7 WOOD ROOF OPENING PLAN
S3-3 3/4" = 1'-0"

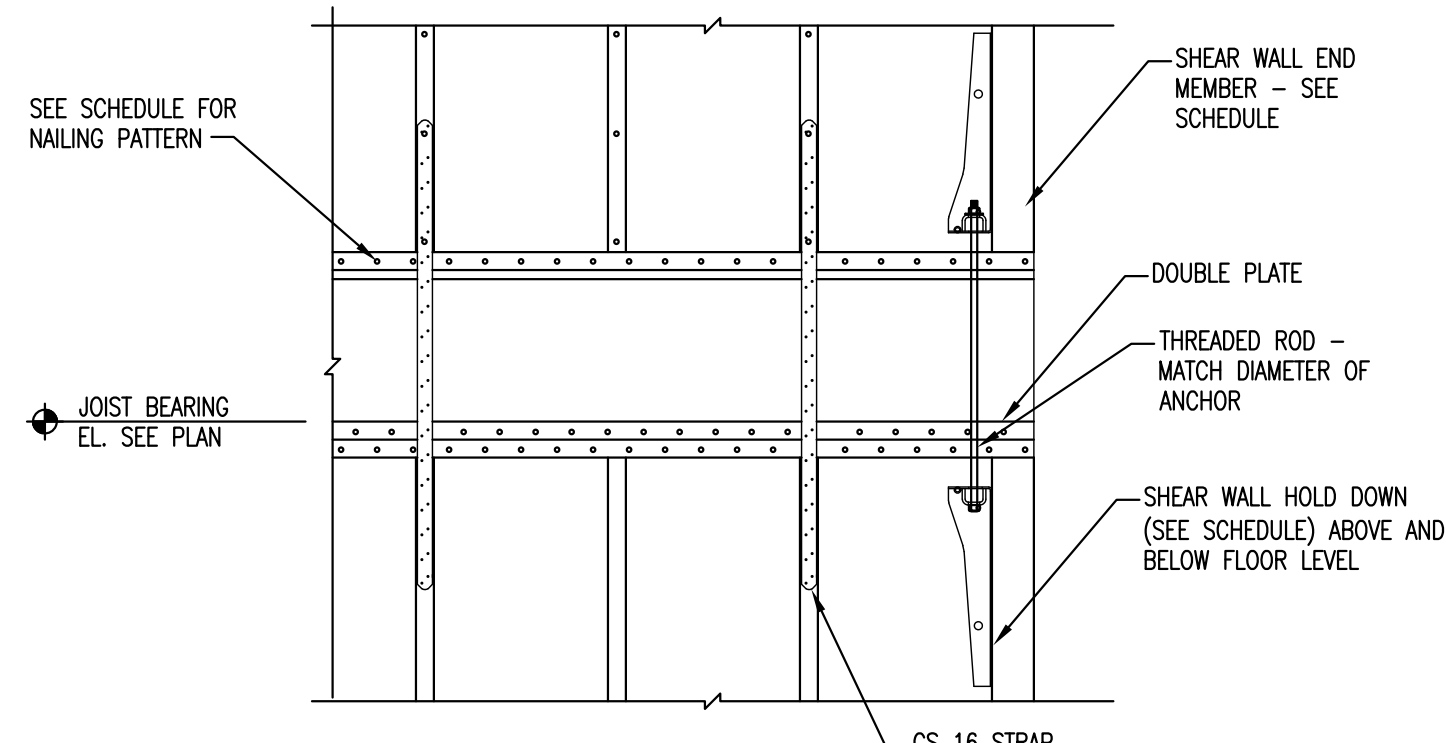


8 TYPICAL WALL FRAMING
S3-3 3/4"=1'-0"

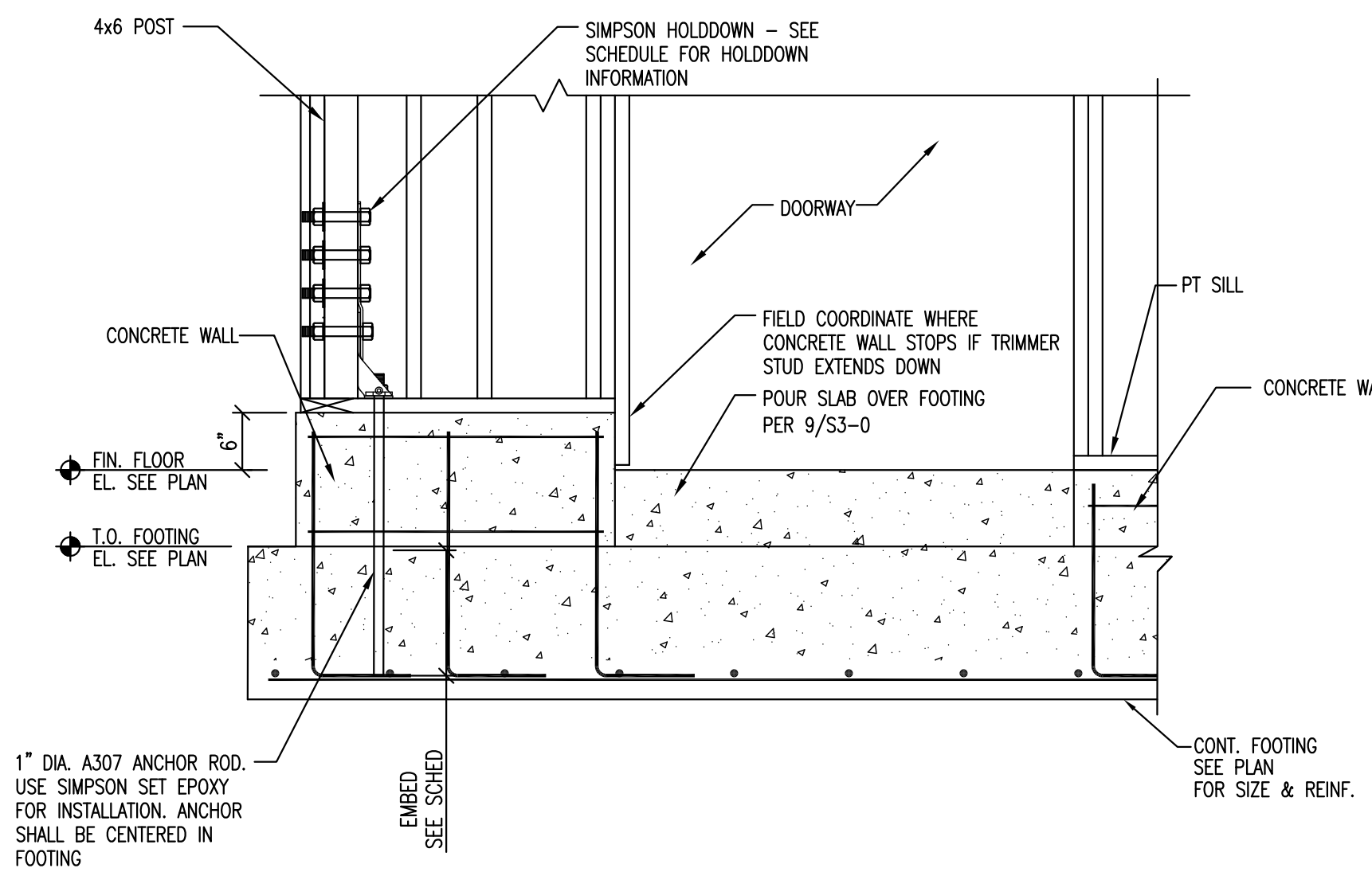
5 SHEAR WALL CONSTRUCTION
S3-3 3/4"=1'-0"



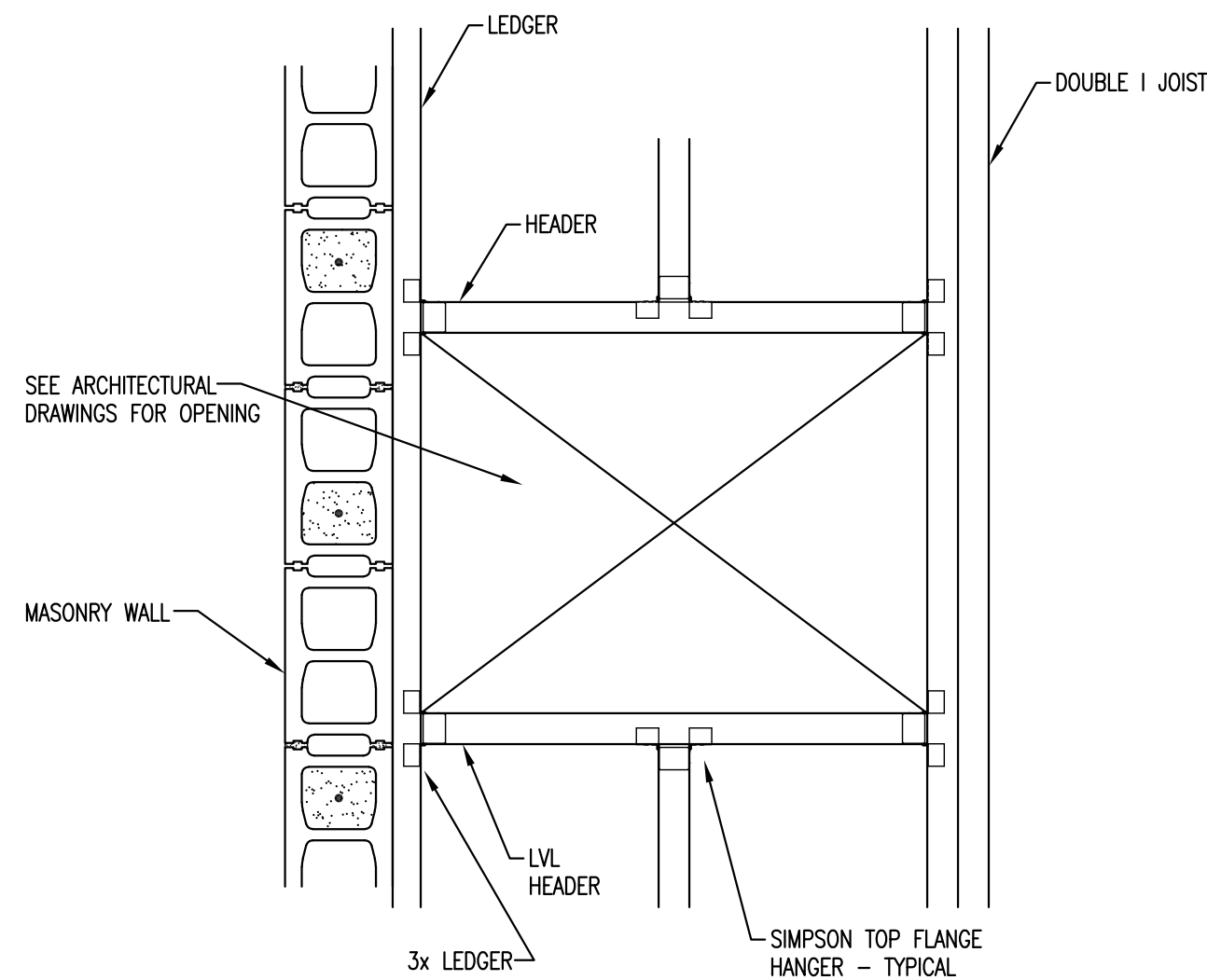
9 BOND BEAM STEP AT SLOPING ROOF
S3-3 3/4"=1'-0"



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



11 FOOTING SECTION
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 INTERPRET REASONABLE INFORMATION BASED ON EXPERIENCE COMMON IN THE INDUSTRY AND TRADES. QUALITY CONTROL WORK REQUIRED TO VERIFY THE 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 THE CONSTRUCTION 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>BASIC REQUIREMENTS: MECHANICAL DESIGN SHALL CONFORM TO THE CURRENT ADOPTED INTERNATIONAL MECHANICAL CODE. PROJECT SHALL BE COORDINATED WITH THE EXISTING BUILDING SERVICES AND SHALL INCLUDE ALL ITEMS NECESSARY FOR COMPLETE AND FULL 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 MECHANICS 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 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 ALLOWED 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 EXACT WORKING SYSTEM. PROVIDE ALL MATERIALS AND LABOR FOR COMPLETELY FINISHED AND OPERATIONAL SYSTEMS. REFER TO LATEST ARCHITECTURAL DRAWINGS</p>		
<p>FOR: EXACT WALL LOCATIONS, DIMENSIONS, AND PLUMBING FIXTURE LOCATIONS AND REQUIREMENTS.</p> <p>SUB-CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY ALTERATIONS REQUIRED BY THE OWNER, ARCHITECT, OR FIELD CONDITIONS.</p> <p>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.</p> <p>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.</p> <p>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 CONSERVATION STANDARDS AND THE LATEST EDITION INTERNATIONAL MECHANICAL CODE.</p> <p>ALL DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS. INCREASE LISTED DUCT SIZE TO ACCOMMODATE LINER.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>ALL FURNACES OR ROOFTOP UNITS SUPPLYING MORE THAN 2000 CFM OF AIR SHALL BE EQUIPPED WITH A SMOKE DETECTOR. IN THE MAIN FURNACE AIR DUCT WHICH WILL SHUT THE POWER OFF TO THE UNIT WHEN SMOKE 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.</p> <p>MECHANICAL CONTRACTOR IS RESPONSIBLE TO HAVE ROOFTOP UNIT MANUFACTURERS TECHNICIAN START ALL ROOFTOP UNITS. PROVIDE WRITTEN REPORT FROM MANUFACTURER FOR START-UP COMMISSIONING.</p>		
<p>DUCTWORK</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 ALL 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 ROOF 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 TERMINALS MUST BE 4'-0" AWAY IN ELEVATION HORIZONTALLY OR BELOW AND AT LEAST 1'-0" ABOVE ANY OPERABLE PORTION OF A WINDOW OR DOOR. MC TO OFFSET AS REQUIRED.</p>		
<p>INSULATION</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 DUCT 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 AIR 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>AIR INLETS AND OUTLETS</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>EXHAUST FANS</p> <p>A. FURNISH AND INSTALL CENTRIFUGAL EXHAUST FANS AS SCHEDULED ON THE PLANS.</p> <p>B. FURNISH AND INSTALL ROOF CURBS AND BACKRAFT DAMPERS.</p> <p>C. FURNISH AND INSTALL UNITS COMPLETE WITH ALL OPERATIONAL AND SAFETY CONTROL NECESSARY FOR PROPER OPERATION.</p>		
<p>ROOFTOP HVAC UNITS</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 MODEL.</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 VARY 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>RADIANT HEATING UNITS</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) Rs	ZONE OCCUPANT DENSITY (PP/L1000 SQ.FT.) Vp	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	7.5	0.12	15	8	134	1	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	5	0.06	5	1	12	0.8	15
	INVENTORY 108	500		.12 CFM/SQ.FT.					60
								TOTAL OUTSIDE AIR REQUIRED	240
							TOTAL OUTSIDE AIR PROVIDED	300	

PLAN MARK	MFR	MODEL NO.	LOCATION	STYLE	CFM	ESP (IN)	SONES	WEIGHT LBS	SPD	ELECTRICAL DATA				REMARKS
										VOLT	PH	HP	WATTS	
EF-1	ACME	VQ0150	TOILET	CEILING	75	0.25	1.1	25	1	115	1	-	100	1, 2
EF-2	ACME	VQ0150	TOILET	CEILING	75	0.25	1.1	25	1	115	1	-	100	1, 2
EF-3	GREENHECK	SBE-2HD-5	SIDEWALL-SERVICE AREA	WALL	3200	.35	23	150	1	115	1	1/2	9.8 AMPS	1, 3 - 7
1. SELECTION BASED AT ALTITUDE					6 CO SENSOR ALARM PER PLANS									
2. INTERLOCK WITH LIGHT SWITCH					DAMPERS OPEN AT 50 PPM & FAN ENRGIZES									
3. PROVIDE WALL MOUNTED SENSOR CONNECTED BY E.C.					SHUTDOWN OPERATION - REVERSE SEQUENCE									
4. PROVIDE VIBRATION ISOLATORS					7 PROVIDE STARTER SET BY MC, USED FOR DAMPER MOTOR, THERMOSTAT AND CO SENSOR CONTROL.									
5. FURNISH WITH WALL COLLAR (# C-20), MOTORIZED DAMPER & WEATHERHOOD														

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.	FUEL	INPUT MBTUH	OUTPUT MBTUH	CFM	HP	VOLT	PH	FLUE SIZE (IN)	REMARKS
GUH-1	MODINE	PDP175	NG	175	143	2725	1/2	115	1	5	1, 2

1. REFERS TO MODINE. PERFORMANCE REFERS TO LOCAL ALTITUDE. 82% EFFICIENCY GAS HEATING UNIT.

2. PROVIDE REMOTE TSTAT WITH SUMMER/WINTER SWITCH.

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	48GCCFM06K1A3	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 ECONOMICIZER 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)	DEMO
(E)	EXISTING
(N)	NEW
AAV	AIR ADMITTANCE VALVE
ADF	AREA DRAIN
AD	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
BB	BOILER
BB	BASEBOARD
BF	BOOSTER FAN
BFP	BACKFLOW PREVENTER
BT	BATH TUB
BV	BALL VALVE
CD	CONDENSATE DRAIN
CFM	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
ECC	ELECTRICAL CONTRACTOR
ECO	END OF LINE CLEANOUT
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FURN	FURNACE
FCU	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
F	FLOOR SINK
GS	GAS
GC	GENERAL CONTRACTOR
GM	GALLON METER
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GUH	GAS UNIT HEATER
GW	GREASE WASTE
GWH	GAS WATER HEATER
HB	HOSE BIB
HP	HEAT PUMP
HX	HEAT EXCHANGER
IM	ICE MAKER BOX
LV	LAVATORY
LS	LAUNDRY SINK
MAU	MAKE-UP AIR UNIT
MC	MECHANICAL CONTRACTOR
MF	MEASURE FLOW
NC	NOT IN CONTRACT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NT	NOT TO SCALE
OA	OUTSIDE AIR
ORD	OVER FLOW ROOF DRAIN
PC	PUMP
PL	PLUMBING CONTRACTOR
PR	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RAR	RETURN AIR REGISTER
RD	ROOF DRAIN
RTU	RADIANT HEATER
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SAR	SUPPLY AIR REGISTER
SF	SUPPLY FAN
SFT	SERIES FAN TERMINAL
SH	SHOWER
SK	SINK
SKI	SINK/ULTRAVIOLET INTERCEPTOR
SS	SERVICE SINK
T&P	TEMPERATURE & PRESSURE
TD	TRENCH DRAIN
TY	TYPICAL
UR	URINAL
VAV	VARIABLE AIR VOLUME
VTT	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		FIRE DAMPER
	SUPPLY DOWN		SMOKE DAMPER
	RETURN UP		FIRE SMOKE DAMPER
	RETURN DOWN		EQUIPMENT TAG
	EXHAUST UP		(POC) POINT OF CONNECTION
	EXHAUST DN		ROOFTOP UNIT
	FLEXIBLE DUCT		FURNACE
	DEMO		CONDENSING UNIT
	MANUAL VOLUME DAMPER		PARALLEL FAN POWERED VAV BOX
	CEILING SUPPLY DIFFUSERS SEE SCHEDULES		VAV/WT BOX
	CEILING RETURN AIR REGISTER SEE SCHEDULES		
	SIDEWALL SUPPLY/RETURN REGISTER, SEE SCHEDULES		

JURISDICTION:	ADA, OK
MECHANICAL CODE:	2018 IMC
ENERGY CODE:	2018 IECC
LOCAL ADDENDUMS:	YES
WINTER DESIGN DB:	9 F
SUMMER DESIGN TEMP DB / WB	99/74 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 FLOW 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.

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

ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
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ARCODEV JOB #:

CLIENTJOB #:

DRAWN BY: J

CHECKED BY: L

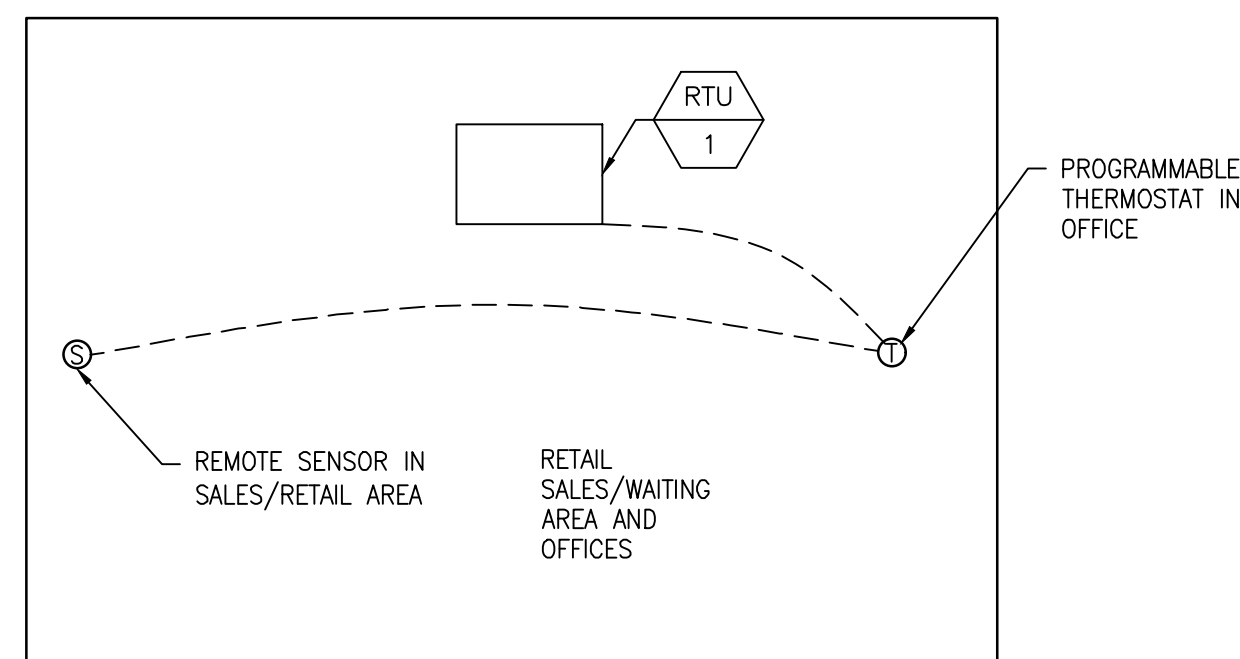
DATE OF ISSUE: 09/20/2015



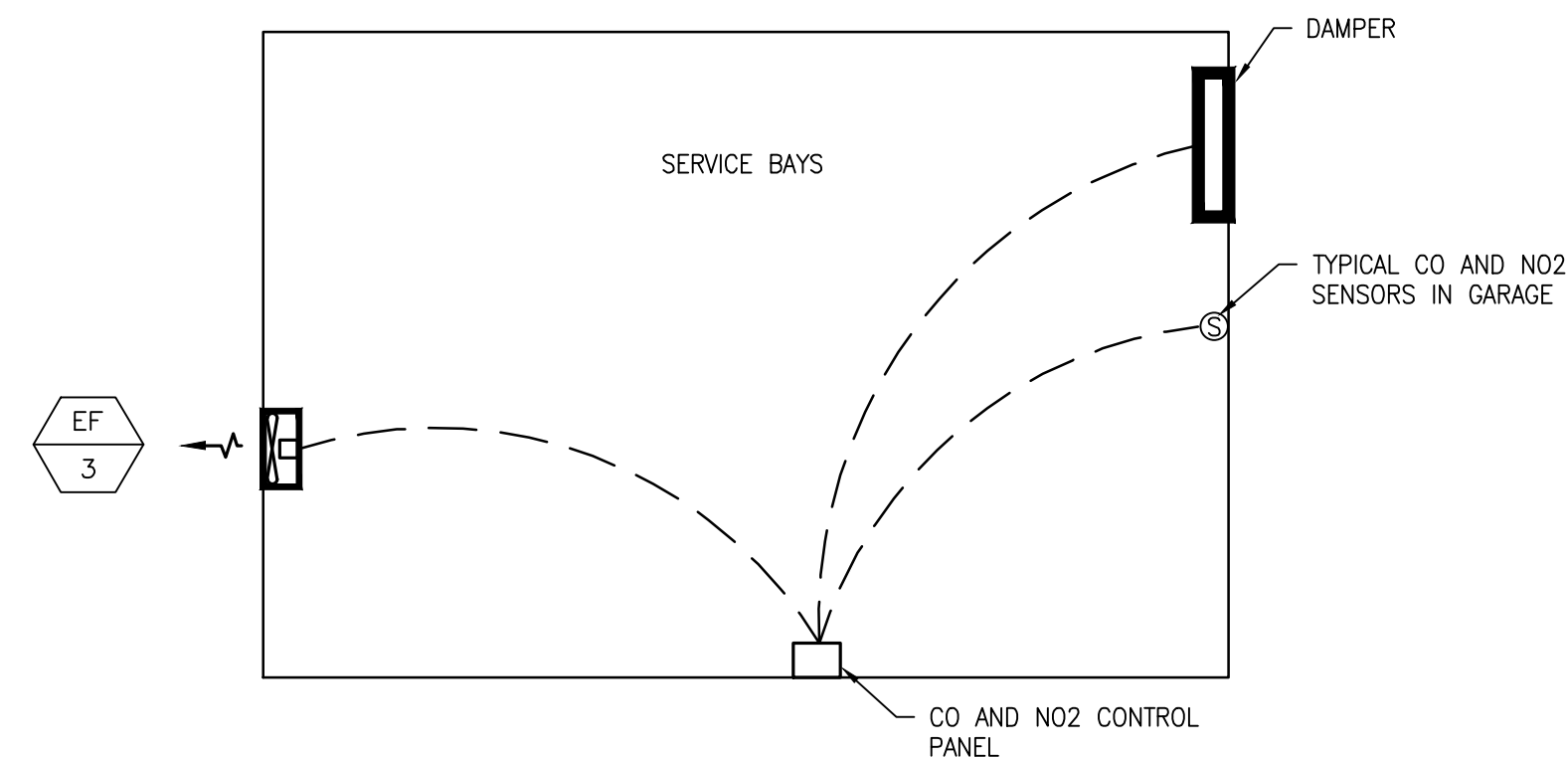
SHEET

MO.1

MECHANICAL SPECS,
SCHEDULES AND LEGEND



OFFICE/RETAIL SALES ROOFTOP UNIT



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 GUARD
- EACH 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/SOFT 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 20 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

BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	08/06/24	FOR BLDG. DEPT. SUBMITTAL
△	08/06/24	COMMENTS

ARCODEV JOB #:

CLIENTJOB #: _____

DRAWN BY: _____ JH

CHECKED BY: _____

DATE OF ISSUE: 09/20/2017



45 SPYGLASS DRIVE
LITTLETON, CO 8012
VOICE: 303.881-892

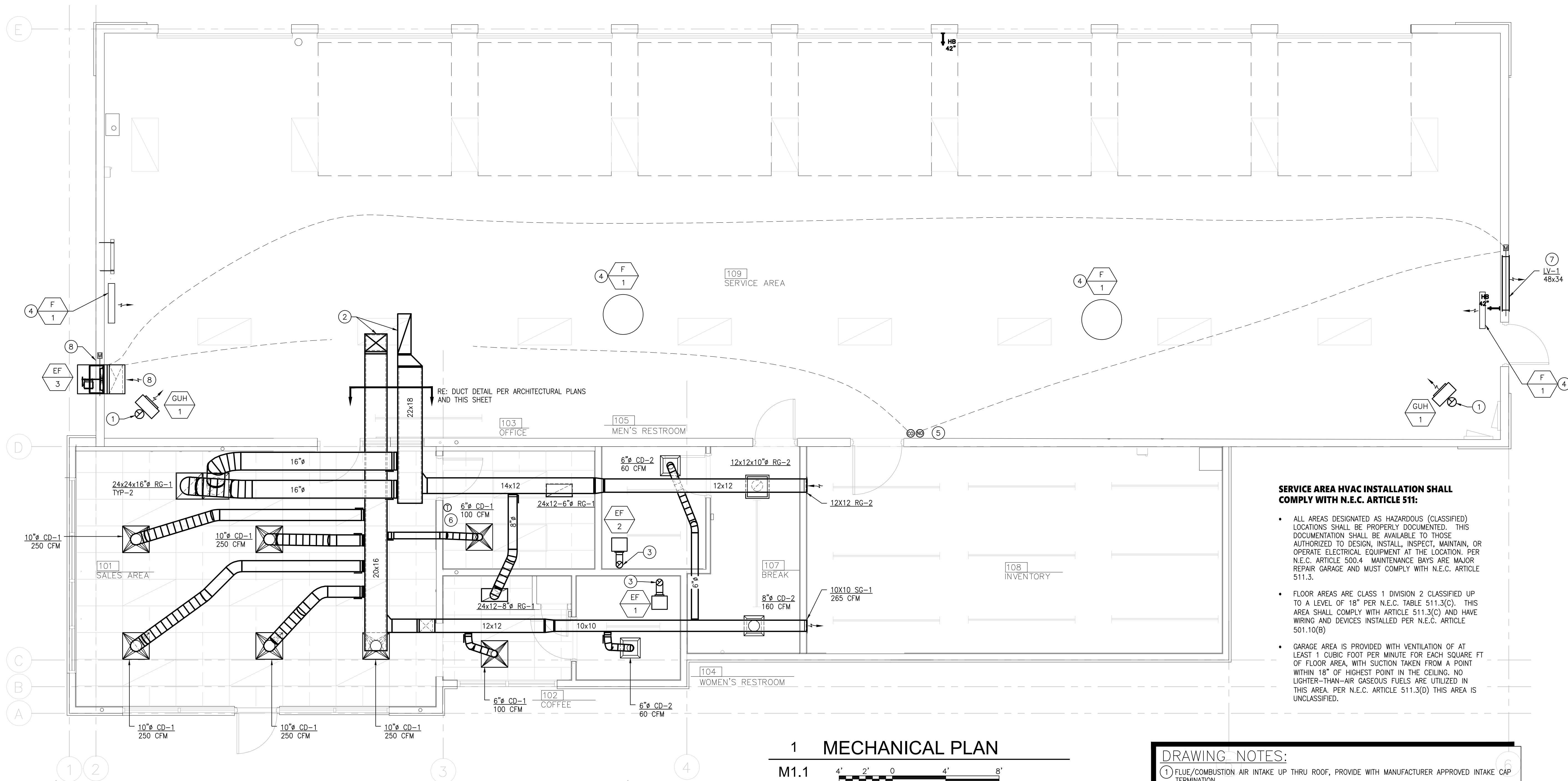
SHEET

MO.2

MECHANICAL SEQUENCE OF OPERATIONS

PROJ #241412

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



1 MECHANICAL PLAN

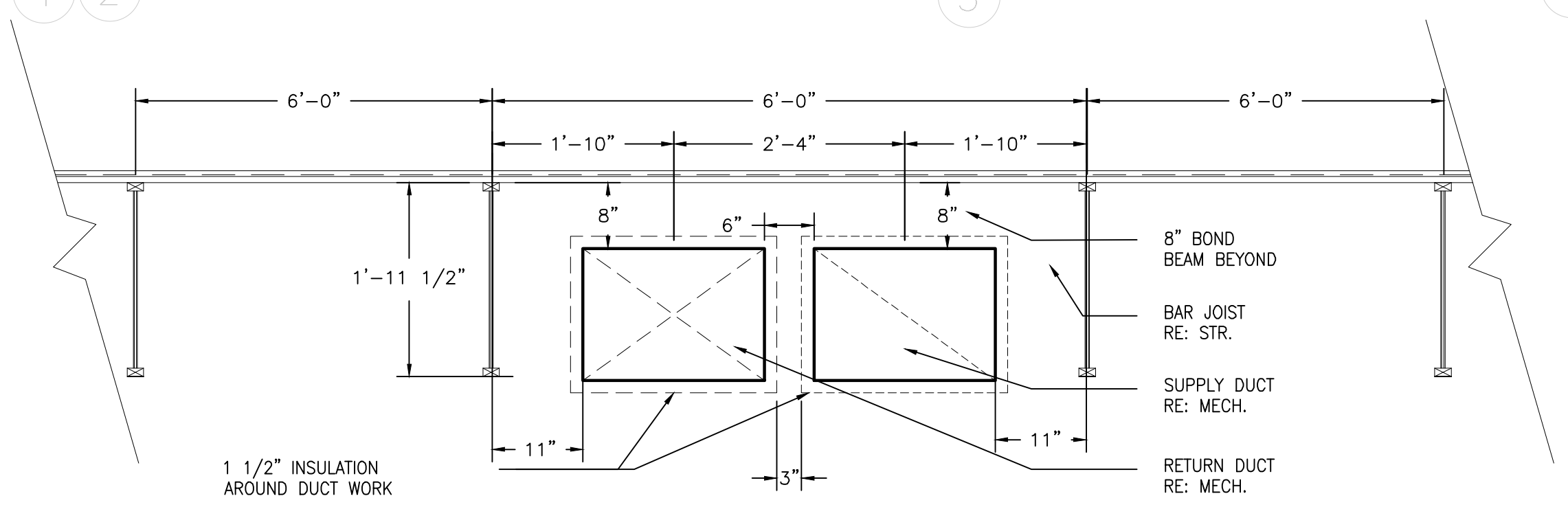
M1.1 1/4"=1'-0"

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.



2 DUCTWORK DETAIL

M1.1 3/4"=1'-0"

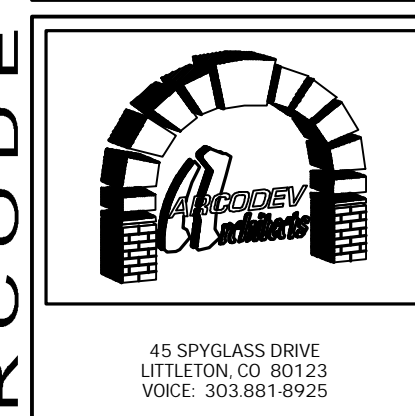
BRAKES PLUS
1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
1	08/06/24	FOR BLDG. DEPT. SUBMITAL
2	08/06/24	COMMENTS

ARCODEV JOB #:
CLIENT JOB #:
DRAWN BY: JRC
CHECKED BY: LRP
DATE OF ISSUE: 08/23/24

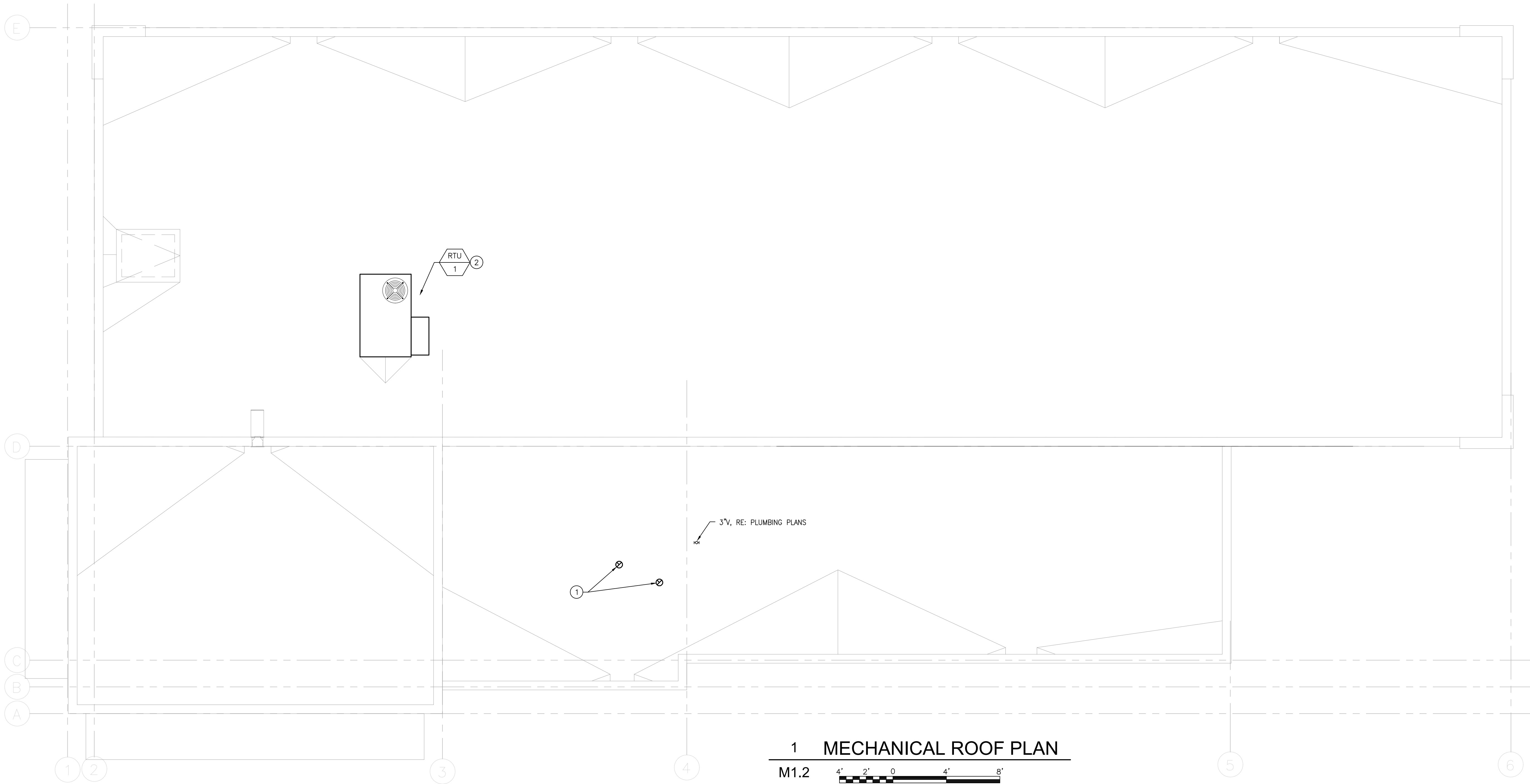


45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.881.1825

PROJ #241412

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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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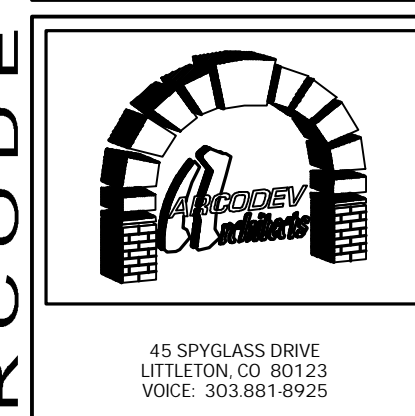
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REVISION	DATE	COMMENTS	
		FOR BLDG. DEPT.	SUBMITAL
1	08/06/24		
2	08/06/24		
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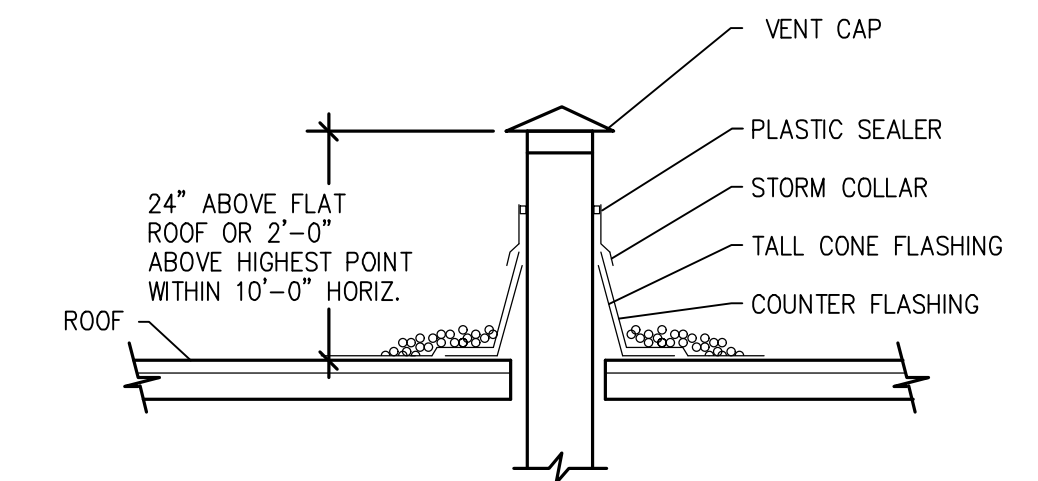
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CLIENT JOB #:
DRAWN BY: JRC
CHECKED BY: LRP
DATE OF ISSUE: 08/25/24



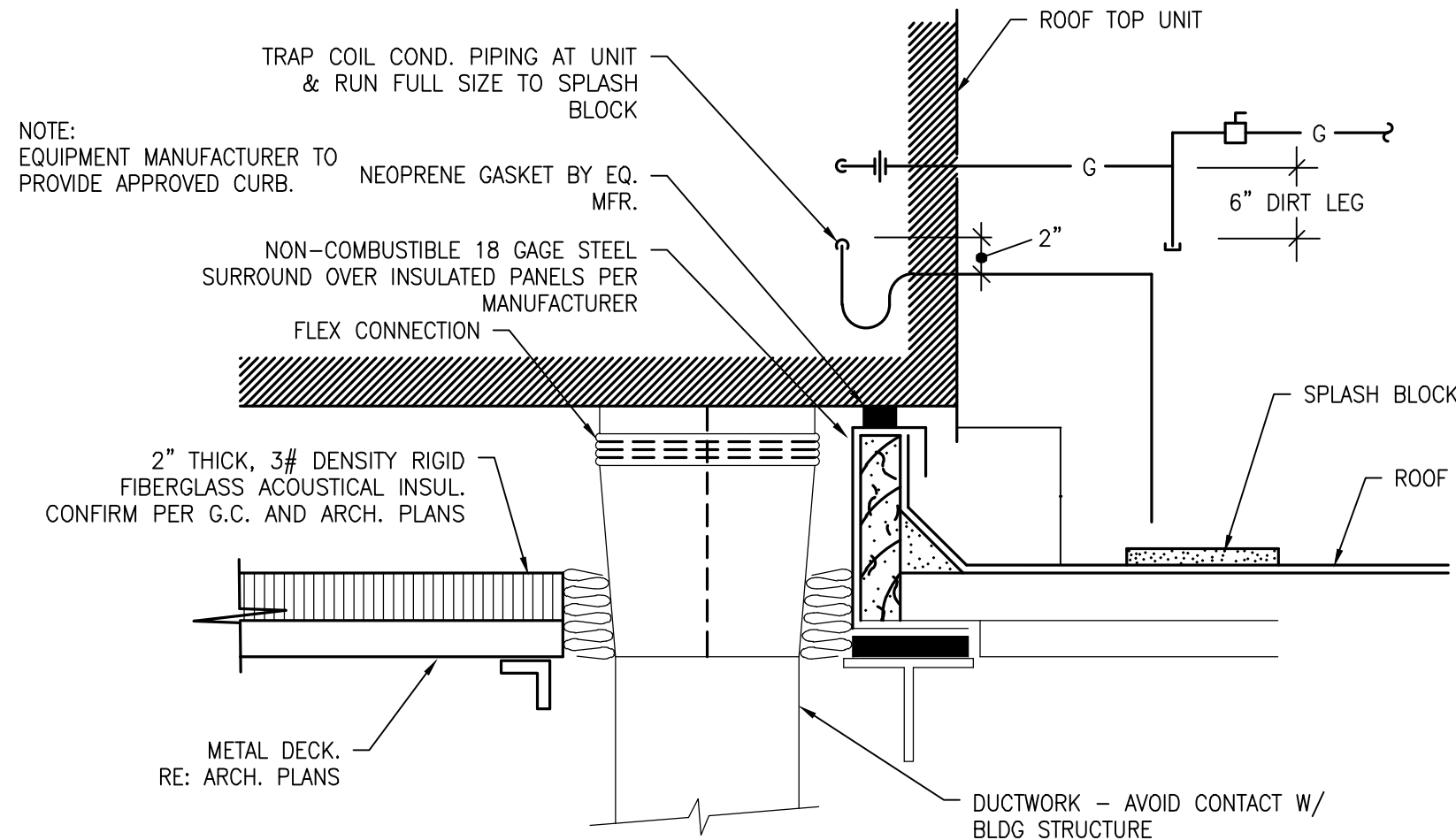
45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.881.8925

SHEET

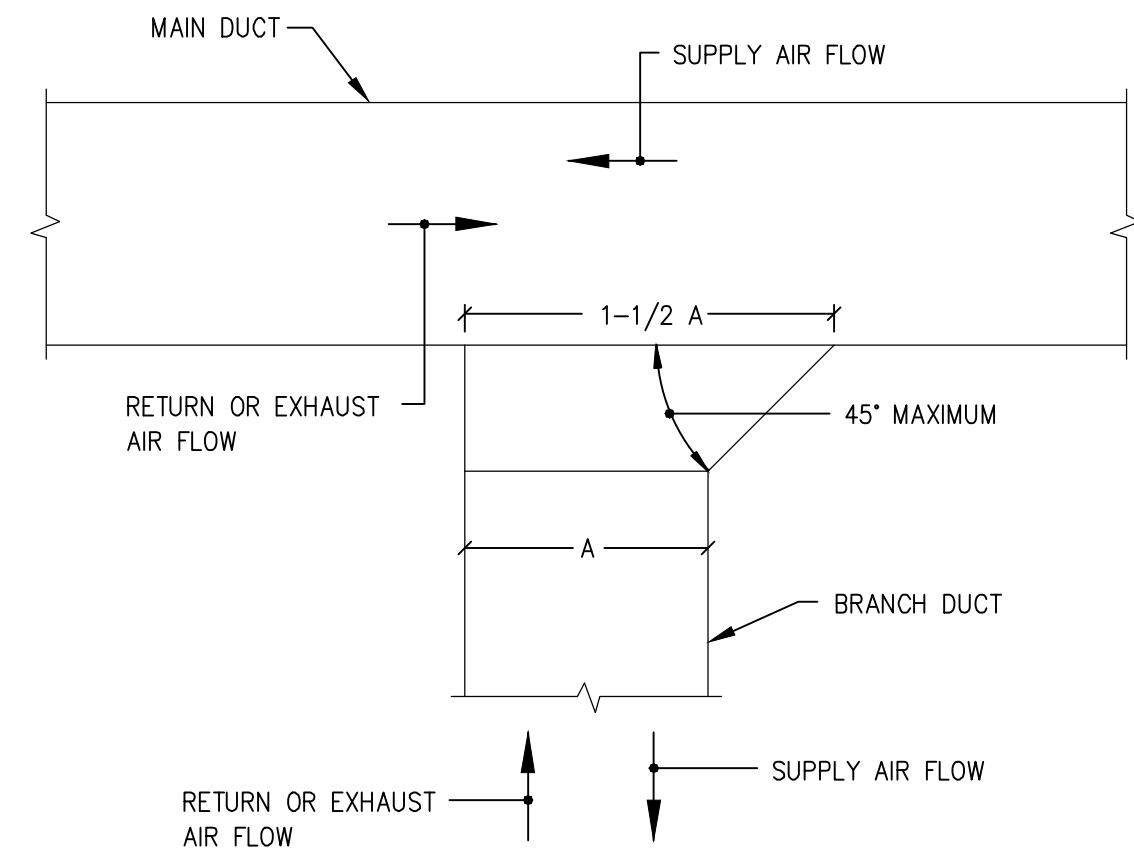
M1.2
MECHANICAL ROOF PLAN



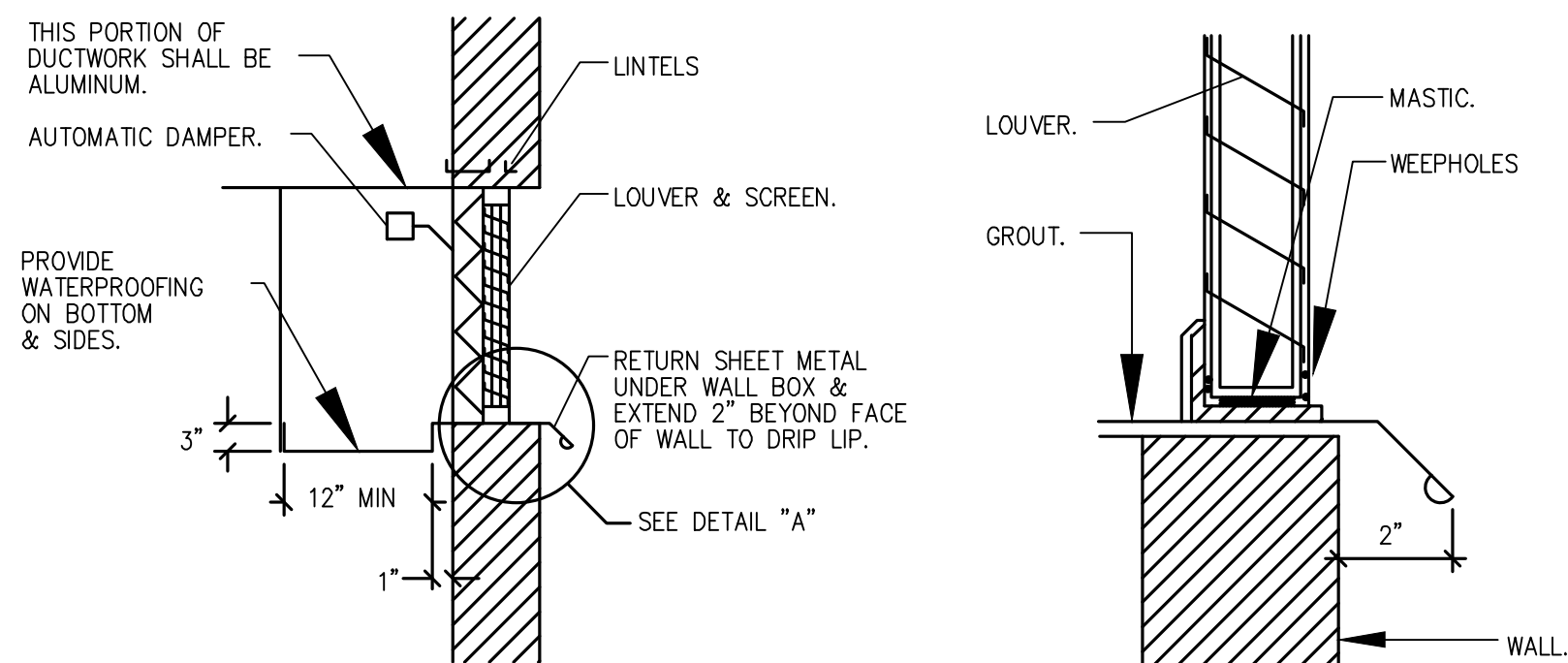
EXHAUST FAN DUCT THRU ROOF DETAIL
NOT TO SCALE



ROOFTOP UNIT INSTALLATION DETAIL
NOT TO SCALE



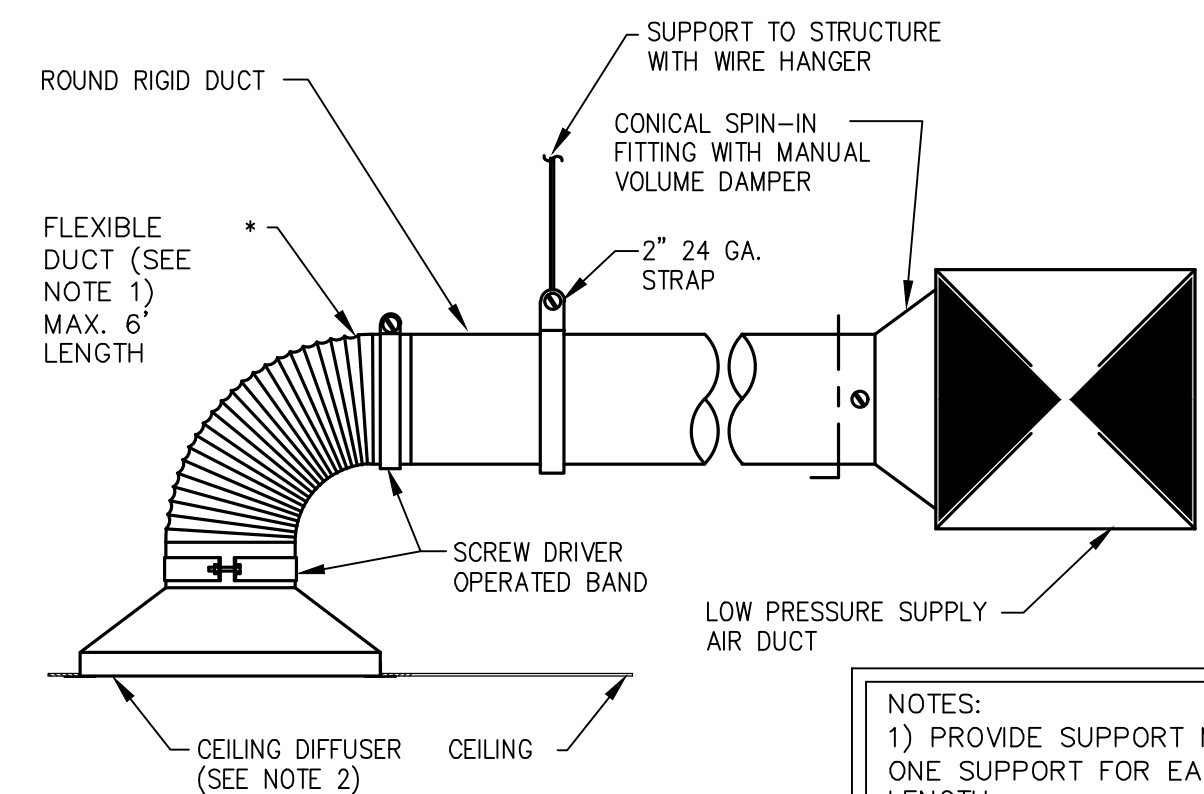
DUCT TAKE-OFF DETAIL
NOT TO SCALE



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

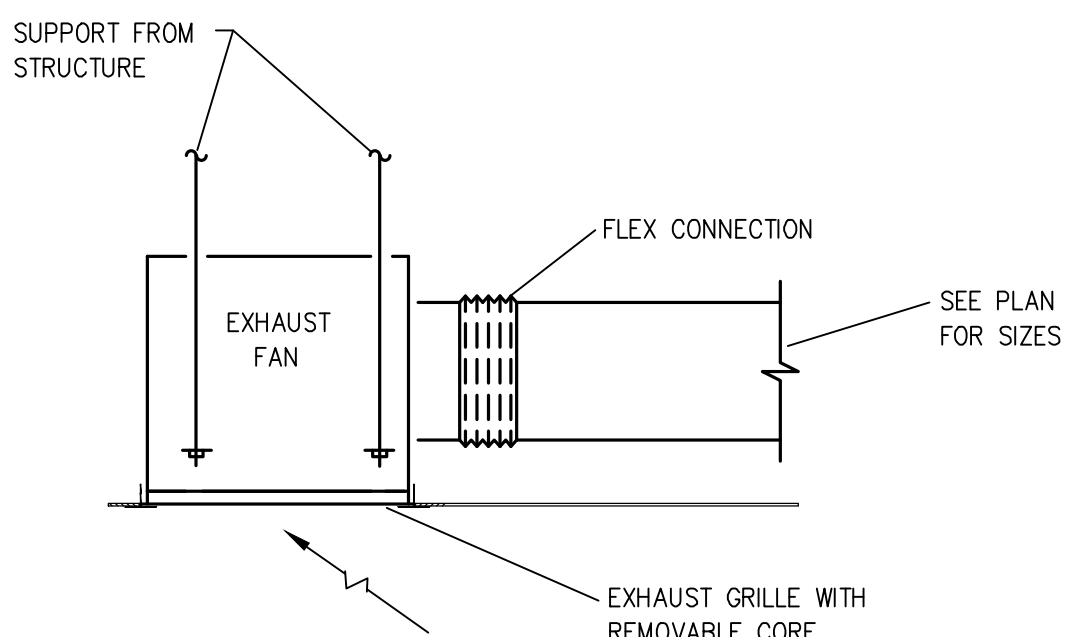
DETAIL A
NOT TO SCALE

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

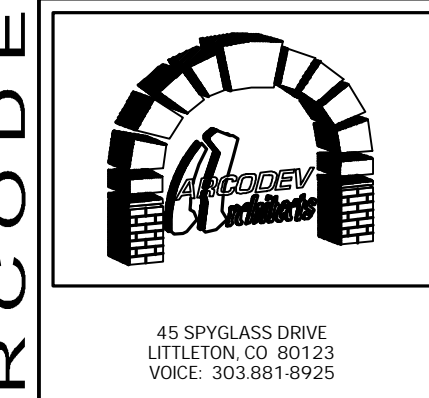
BRAKES PLUS
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ADA, OKLAHOMA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS	
		FOR BLDG. DEPT.	SUBMITAL
	08/06/24		
	08/06/24		

ARCODEV JOB #:
CLIENT JOB #:
DRAWN BY: JRC
CHECKED BY: LRP
DATE OF ISSUE: 08/25/24



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PROJ #241412
ADAM A. POWELL, P.E.
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Albuquerque, NM 87123
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M2.1
MECHANICAL DETAILS

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.12.2 [F09]	Snow/ice melting system and freeze protection systems have sensors and controls configured to limit service for pavement temperature and outdoor temperature. future connection to controls.	<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: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engfile\Mech calcs\BRAKES - ADA OK.cck Page 3 of 12

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41]	Thermally ineffective panel surfaces of sensible heating panels have insulation \geq R-5.5.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.11.3 [ME61]	HVAC piping insulation insulated in accordance with Table C403.11.3. Insulation exposed to weather is protected from damage and is provided with shielding from solar radiation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.8.4 [ME142]	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.8.4 [ME142]	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.8.5 [ME143]	Each DX cooling system $>$ 65 kbtu and chiller water/evaporative cooling system with fans \geq 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.8.5 [ME143]	Each DX cooling system $>$ 65 kbtu and chiller water/evaporative cooling system with fans \geq 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.12.1 [ME71]	Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.3 [ME55]	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.
C403.5.5 [ME113]	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	
C403.2.2 [ME39]	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.7.1 [ME59]	Demand control ventilation provided for spaces \geq 500 ft ² and \geq 25 people/1000 ft ² occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow \geq 3,000 cfm.	<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: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engfile\Mech calcs\BRAKES - ADA OK.cck Page 6 of 12

COMcheck Software Version 4.1.5.5 Inspection Checklist

Energy Code: 2018 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 [PR3]	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]	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]	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: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engfile\Mech calcs\BRAKES - ADA OK.cck Page 2 of 12

COMcheck Software Version 4.1.5.5 Mechanical Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Brakes Plus
Location: Ada, Oklahoma
Climate Zone: 3a
Project Type: New Construction

Construction Site: ADA, OK
Owner/Agent: Brakes Plus

Designer/Contractor:
Loren Priest
EE LLC Engineering
12005 Antelope Trail
Parker, CO 80138
303.748.1189
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
1	RTU-1 (Single Zone) Heating: 1 each - Duct Furnace, Gas, Capacity = 130 kBTuh Proposed Efficiency = 80.00% Ee, Required Efficiency: 80.00 % Ee Cooling: 1 each - Single Package DX Unit, Capacity = 90 kBTuh, 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
2	GUH-1 (Single Zone) Heating: 1 each - Unit Heater, Gas, Capacity = 175 kBTuh Proposed Efficiency = 80.00% Ee, Required Efficiency: 80.00 % Ee Fan System: GUH-1 - Compliance (Motor nameplate HP method) - Passes Fans: GUH1 Supply, Constant Volume, 2575 CFM, 0.5 motor nameplate hp, 0.0 fan efficiency grade
1	EVH-1 Electric Storage Water Heater, Capacity: 30 gallons w/ Circulation Pump Proposed Efficiency: 1.20 SL, %h (# > 12 kW), Required Efficiency: 1.20 SL, %h (# > 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 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Mechanical Designer: John R. Carter 9/25/24
Name - Title Signature Date

Project Title: Brakes Plus Report date: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engfile\Mech calcs\BRAKES - ADA OK.cck Page 1 of 12

BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6]	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]	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]	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]	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]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to \leq 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]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to \leq 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]	Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to \leq 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]	Demand recirculation water systems 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]	Demand recirculation water systems 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]	Demand recirculation water systems 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	

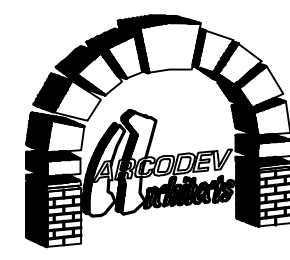
Additional Comments/Assumptions:

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

Project Title: Brakes Plus Report date: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engfile\Mech calcs\BRAKES - ADA OK.cck Page 4 of 12

REVISION	DATE	COMMENTS
	08/06/24	FOR BLDG. DEPT. SUBMITAL
	08/06/24	COMMENTS

ARCODEV JOB #:
CLIENT JOB #:
DRAWN BY: JRC
CHECKED BY: LRP
DATE OF ISSUE: 09/25/24



45 SPYGLASS DRIVE
LITTLETON, CO 80123
VOICE: 303.881.8925

ARCHITECT

SHEET

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

M3.0
MECHANICAL COMCHECK

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL26]²	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.7 [EL27]²	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.8.2, C405.8.2.1 [EL28]²	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.9 [EL29]²	Total voltage drop across the combination of feeders and branch circuits <= 5%.	<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: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engrfile\Mech calcs\BRAKES - ADA OK.cck Page 9 of 12

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.3.3 [ME35]¹	Hot gas bypass limited to: <=240 kbtu/h - 50% >240 kbtu/h - 25%	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
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, 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 C403.5.1 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	

Additional Comments/Assumptions:

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

Project Title: Brakes Plus Report date: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engrfile\Mech calcs\BRAKES - ADA OK.cck Page 8 of 12

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.7.2 [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	
C403.7.6 [ME141]¹	HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.7.4 [ME57]¹	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.7.5 [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	
C403.11.1 [ME60]²	HVAC ducts and plenums insulated in accordance with C403.11.1 and constructed in accordance with C403.11.2, 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	
C403.5, C403.5.1, C403.5.2 [ME92]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	
C403.5.3, [ME124]¹	Air economizers automatically reduce outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will not reduce cooling energy usage. See Table C403.5.3.3 for applicable device types and climate zones.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.5.3, [ME125]¹	System capable of relieving excess outdoor air during air economizer operation to prevent overpressurizing the building. The relief air outlet located to avoid recirculation into the building.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.5.3, [ME126]¹	Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference section C403.7.7 for details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.4.1, [ME63]²	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45°F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60°F and cooling setpoint >= 80°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: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engrfile\Mech calcs\BRAKES - ADA OK.cck Page 7 of 12

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C404.6.1 [F112]²	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	
C408.1.1 [F157]²	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
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, [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, [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, [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, [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, [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, [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	

Additional Comments/Assumptions:

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

Project Title: Brakes Plus Report date: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engrfile\Mech calcs\BRAKES - ADA OK.cck Page 11 of 12

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5, [F18]²	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]²	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, [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, [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	
C403.4.1, [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, [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, [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, [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, [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	
C403.2.4, [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]²	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]²	All piping insulated in accordance with section details and Table C403.11.3.	<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: 09/25/24
Data filename: G:\241412 - Brakes Plus - ADA, OK - Norm Herman-LL GUH\Engrfile\Mech calcs\BRAKES - ADA OK.cck Page 10 of 12

BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	08/06/24	FOR BLDG. DEPT. SUBMITAL
	08/06/24	COMMENTS

ARCHCODEV JOB #:
CLIENT JOB #:
DRAWN BY: JRC
CHECKED BY: LRP
DATE OF ISSUE: 09/25/24



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M3.1

MECHANICAL COMCHECK

PLUMBING GENERAL NOTES AND SPECIFICATIONS									
<div>GENERAL CONSTRUCTION NOTES:</div> <div>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.</div> <div>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.</div> <div>BASIC REQUIREMENTS:</div> <div>PLUMBING DESIGN SHALL CONFORM TO THE CURRENT 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.</div> <div>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.</div> <div>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 ALL DISTANCES AND QUANTITIES RELATED TO THE PROJECT. REFER TO ARCHITECTURAL OR CIVIL DRAWINGS BY OTHERS AND VERIFY EXISTING CONDITIONS ON SITE FOR ALL ESTIMATING PURPOSES.</div> <div>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.</div> <div>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.</div> <div>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.</div> <div>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 SPECIFIED SHALL BE EQUAL TO THAT SCHEDULED IN CONTROLS, ACCESSORIES, AND PERFORMANCE REGARDLESS OF MANUFACTURER.</div> <div>FIELD LABEL ALL PLUMBING EQUIPMENT AND PIPING AS INDICATED ON THE PLANS PER PLUMBING AND LOCAL CODE REQUIREMENTS. INDICATE DIRECTION OF FLOW ON PIPING.</div> <div>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.</div>									
<div>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.</div> <div>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.</div> <div>BASIC MATERIALS</div> <div>PLUMBING CONTRACTOR TO PROVIDE PLUMBING SYSTEM CONTROLS, CONTROLLERS, CONTROL TRANSFORMER, DISCONNECT, SWITCHES, CONTROL BOX, ASSOCIATE 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.</div> <div>SUBVIDE SUPPLEMENTAL STEEL AND SUPPORTS AS REQUIRED FOR INSTALLATION OF PLUMBING MATERIALS, EQUIPMENT, AND APPARATUS.</div> <div>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.</div> <div>PROVIDE PRESSURE REDUCING VALVE ASSEMBLY AT BUILDING WATER SERVICE ENTRY WHERE PRESSURE EXCEEDS 65 PSI. PRESSURE REDUCING VALVE TO BE SET TO 65 PSI.</div> <div>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.</div> <div>PIPING</div> <div>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 MEET 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.</div> <div>2. 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 1866. 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 COMPLY 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 1868. SOLVENT CEMENT JOINTS SHALL BE MADE IN A TWO STEP PROCESS WITH PRIMER CONFORMING TO ASTM F 656 AND SOLVENT CEMENT CONFORMING TO ASTM D 2564. THE SYSTEM SHALL BE PROTECTED FROM CHEMICAL AGENTS, FIRE STOPPING MATERIALS, THREAD SEALANT, PLASTICIZED VINYL PRODUCTS, OR OTHER AGGRESSIVE CHEMICAL AGENTS NOT COMPATIBLE WITH PVC COMPOUNDS. SYSTEMS SHALL BE HYDROSTATICALLY TESTED AFTER INSTALLATION.</div> <div>3. DOMESTIC WATER PIPING ABOVE GRADE: ASTM B 88, TYPE L COPPER WITH SOLDERED OR MECHANICALLY CRIMPED JOINTS (PRO PRESS)</div> <div>4. DOMESTIC WATER PIPING ABOVE GRADE: SOCKET WELDED CPVC TUBE AND FITTINGS PER ASTM D 2846.</div> <div>5. DOMESTIC WATER PIPING ABOVE GRADE: UPONOR AQUAPEX PIPING WITH PROPEX FITTINGS FOR ALL BRANCH CONNECTIONS AND TERMINATIONS (OR REHAU EQUIVALENT). DCW TO BE BLUE PIPE, DHW TO BE RED PIPE, AND DHWR TO BE CLEAR PIPE.</div> <div>6. DOMESTIC WATER PIPING BELOW GRADE SHALL BE TYPE K COPPER WITH SILVER SOLDERED JOINTS.</div> <div>7. CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER WITH SOLDERED JOINTS, OR CPVC IF ALLOWED BY LOCAL AUTHORITY HAVING JURISDICTION.</div>									
<div>8. 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 NO MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.</div> <div>9. 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.</div> <div>10. 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.</div> <div>11. 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.</div> <div>12. 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.</div> <div>13. COMPRESSED AIR DRAIN PIPING SHALL BE TYPE M (TYPE C) COPPER TUBE; WROUGHT-COPPER FITTINGS, AND BRAZED OR SOLDERED JOINTS.</div>									
<div>INSULATION</div> <div>1. WATER PIPING IN UNCONDITIONED SPACE AND EXTERIOR WALLS SHALL BE 2" FIBERGLASS INSULATION.</div> <div>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.</div> <div>3. STORM DRAIN PIPING ABOVE GRADE SHALL BE 1/2-INCH THICK FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET.</div> <div>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.</div> <div>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.</div> <div>6. CONDENSATE DRAIN PIPING SHALL BE 1/2-INCH THICK INSULATION WITH AN ALL-SERVICE JACKET.</div> <div>7. COLD WATER DISTRIBUTION PIPING SHALL NOT BE INSULATED UNLESS OTHERWISE NOTED.</div> <div>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.</div> <div>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.</div>									
<div>PLUMBING EQUIPMENT/FIXTURES</div> <div>• FURNISH AND INSTALL PLUMBING FIXTURES AS SCHEDULED ON THE PLANS.</div> <div>• PROVIDE CHROME PLATED ANGLE STOPS AND ESCUTCHEON PLATES ON ALL EXPOSED FIXTURE RUNOUTS.</div> <div>• PROVIDE INSULATION AND ROUGH IN AS REQUIRED FOR COMPLIANCE WITH ADA REQUIREMENTS.</div> <div>• PROVIDE ALL ACCESSORIES AND SPECIALTY ITEMS AS REQUIRED FOR A COMPLETE FIXTURE INSTALLATION.</div> <div>REDUCED PRESSURE BACKFLOW PREVENTER</div> <div>FURNISH AND INSTALL LEADFREE REDUCED PRESSURE BACKFLOW PREVENTER FOR THE PRIMARY DOMESTIC COLD WATER SERVICE IN ACCORDANCE WITH STATE, LOCAL, AND JURISDICTIONAL WATER DISTRICT REQUIREMENTS.</div> <div>FURNISH AND INSTALL REDUCED PRESSURE BACKFLOW PREVENTER FOR MECHANICAL EQUIPMENT REQUIRED OF THIS OR OTHER SECTIONS OF THESE SPECIFICATIONS.</div> <div>ELECTRIC WATER HEATERS</div> <div>FURNISH AND INSTALL A GLASS LINED ELECTRIC WATER HEATER AS SCHEDULED ON THE PLANS.</div> <div>FURNISH HEATER WHICH ARE UL LABELED AND MEET THE REQUIREMENTS OF LOCAL MUNICIPALITIES.</div> <div>WATER HEATER LOCATED IN CEILING SHALL BE PROVIDED WITH 2 1/2" DRAIN PAN. TERMINATE DRAIN TO NEAREST FLOOR DRAIN, FLOOR SINK OR LAV TRAP.</div>									

ABBREVIATIONS		PLUMBING LEGEND	
(D)	DEMO	—CND—	CONDENSATE
(E)	EXISTING	-----DCW-----	DOMESTIC COLD WATER
(N)	NEW	-----120"-----	DOMESTIC HOT WATER
A&V	AIR ADMITTANCE VALVE	-----120TR-----	DOMESTIC HOT WATER RECIRC
AD	AREA DRAIN	-----GW-----	GREASE WASTE
AF	ABOVE FINISH FLOOR	-----GAS-----	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	BATH TUB PREVENTER	-----V-----	VENT
BT	BALL VALVE	------(A)XX-----	TYPICAL PIPE ABOVE/ON ROOF
BV	BALL VALVE	------(B)XX-----	TYPICAL PIPE BELOW/UNDERGROUND
CD	CONDENSATE DRAIN	------(E)XX-----	TYPICAL PIPE EXISTING
CFM	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		
DH	DOMESTIC HOT WATER		
DSN	DOWN SPOUT NOZZLE		
EC	ELECTRICAL CONTRACTOR		
ECO	END OF LINE CLEANOUT		
EDH	ELECTRIC DUCT HEATER		
EF	EXHAUST FAN		
EW	ELECTRIC WATER COOLER		
EWV	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		
GWV	GAS WATER HEATER		
HB	HOSE BIB		
HP	HEAT PUMP		
HX	HEAT EXCHANGER		
IM	ICE MAKER BOX		
LAV	LAVATORY		
LS	LAUNDRY SINK		
MA	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		
PSI	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		
TD	TYPICAL		
UR	URINAL		
VAV	VARIABLE AIR VOLUME		
VVT	VARI TRAC		
WB	WASHER BOX		
WCO	WALL CLEANOUT		
WH	WALL HYDRANT		

VALVES		FIXTURES	
⊘	BALL VALVE		WALL CLEAN OUT
⊗	GATE VALVE	⊙	FLOOR CLEANOUT
⊢	CHECK VALVE	⊖	AREA DRAIN
⊢	PRESSURE REDUCING VALVE (PRV)	⊖	FLOOR DRAIN
⊢	MEASURE FLOW	⊖	FLOOR SINK FULL COVER
⊢	TEE UP	⊖	GAS METER
⊢	TEE DOWN	⊖	HOSE BIB
⊢	ELBOW UP	⊖	BATH TUB/MOP SINK
⊢	ELBOW DOWN	⊖	SINK
		⊖	2-COMPARTMENT SINK
		⊖	DRINKING FOUNTAIN/URINAL
MISC.			
⊙	POINT OF CONNECTION (POC)	⊖	WASHER BOX
⊖	DEMO	⊖	ICE BOX
		⊖	WATER CLOSET STACK
		⊖	WATER CLOSET

GENERAL NOTES

1. ALL ITEMS CONNECTING TO POTABLE WATER SHALL MEET THE LEAD FREE STANDARD OF .25% OR LESS LEAD.
2. PLUMBING PLANS REFERENCE FINISHED FLOOR TO FINISHED FLOOR ABOVE. SANITARY SHOWN IS FOR FIXTURES ABOVE UNLESS NOTED OTHERWISE.
3. FIELD VERIFY ALL ROUTING OF PLUMBING LINES WITH OTHER TRADES. FIELD ADJUST ROUTING ACCORDINGLY TO MAKE SYSTEM WORK WITH OTHER TRADES.
4. PROVIDE WATTS MMV ASSEI070 MIXING VALVE AT ALL PUBLIC FIXTURES AS REQUIRED PER LOCAL CODE.
5. PC TO PROVIDE VACUUM BREAKERS AT LOCATIONS WHERE HOSES AND NOZZLES ARE USE, I.E. JANITOR SINKS, BEAUTY SINKS, KITCHEN SPRAYERS, DISHWASHERS, AND BATHS.
6. ALL DRAINAGE LINES 2-1/2" AND UNDER TO BE SLOPED AT MINIMUM 1/4" PER FOOT, AND 3" AND OVER TO BE SLOPED AT MINIMUM 1/8" PER FOOT UNLESS NOTED OTHERWISE.
7. START TRENCHING FOR NEW SANITARY LINE AT FURTHEST FIXTURE (HIGHEST POINT IN SYSTEM) FROM CIVIL CONNECTION POINT TO BUILDING.
8. FIELD ROUTE ALL CONDENSATE LINES, T&P VALVES, AND DRAIN VALVES FROM MECHANICAL AND PLUMBING EQUIPMENT TO SANITARY SEWER RECEPTOR OR STORM/GRADE PER LOCAL CODE AND JURISDICTION.

PIPE INSULATION (TABLE C403.11.3 2018 IECC)

MINIMUM PIPE INSULATION THICKNESS (in inches) a, c								
FLUID OPERATING TEMPERATURE RANGE AND USAGE (F)	INSULATION CONDUCTIVITY		MEAN RATING TEMPERATURE °F	NOMINAL PIPE OR TUBE SIZE (inches)				
	CONDUCTIVITY Btu · in/(h · ft² · °F)b	TEMPERATURE °F		<1	1 to <1-1/2	1-1/2 to < 4	4 to < 8	≥ 8
> 350	0.32 - 0.34	250	4.5	5.0	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	4.5
201 - 250	0.27 - 0.30	150	2.5	2.5	2.5	3.0	3.0	3.0
141 - 200	0.25 - 0.29	125	1.5	1.5	2.0	2.0	2.0	2.0
105 - 140	0.21 - 0.28	100	1.0	1.0	1.5	1.5	1.5	1.5
40 - 60	0.21 - 0.27	75	0.5	0.5	1.0	1.0	1.0	1.0
< 40	0.20 - 0.26	50	0.5	1.0	1.0	1.0	1.0	1.5

For SI: 1 inch = 25.4 mm, °C = [(°F - 32)/1.8].

a. For piping smaller than 1-1/2" and located in partitions within conditioned spaces, reduction of these thicknesses by 1" shall be permitted (before thickness adjustment required in footnote b) but not to a thickness less than 1 inch.

b. For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows:

T = r[(1 + v)/K]k - 1

where:

r = minimum insulation thickness

r = actual outside radius of pipe.

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

K = conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature (Btu · in/h · ft² · °F) and

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).

PLUMBING SHEET LIST

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

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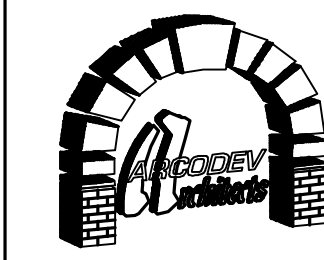
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SHEET

ELECTRIC WATER HEATER SCHEDULE

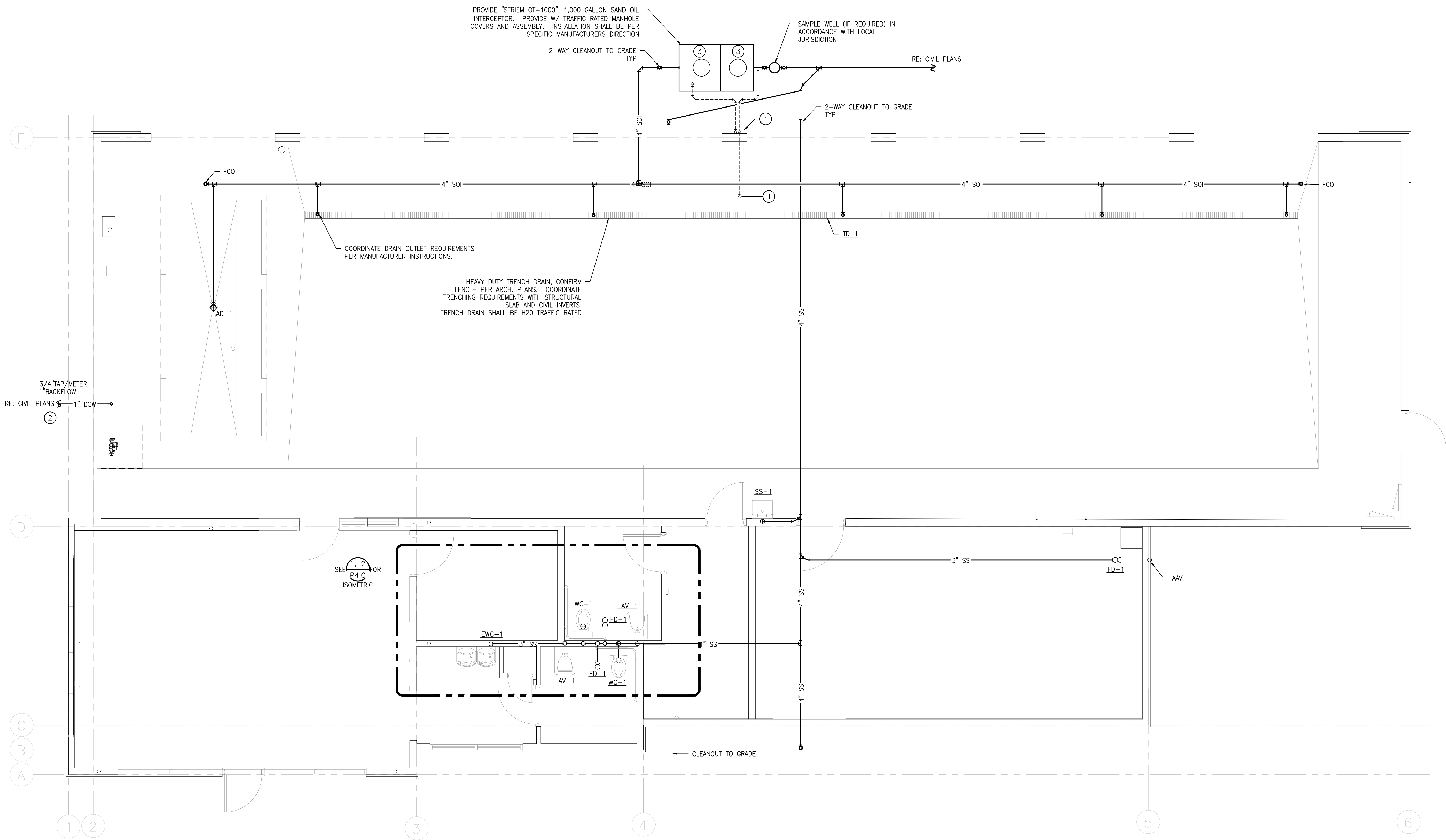
PLAN MARK	MANUFACTURER	MODEL NO.	TANK GALLONS	ELECTRICAL VOLT [PH KW RISE (°F)]	GPH RISE (°F)	REMARKS
EW-H-1	STATE	PCE-30-10MSA	30	120 1 1.5	8 70	1

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

PUMP SCHEDULE

PLAN MARK	MANUFACTURER	MODEL NO.	GPM	HEAD (FT)	RPM	HP	ELECTRICAL VOLT PHASE	REMARKS
CP-1	TACO	008	10	10	3250	1/25	120 1	1

1. CONNECT TO RETURN LINE TEMPERATURE SENSOR.



1 UNDERGROUND PLUMBING PLAN

P1.0

4' 2' 0 4' 8'

1/4"=1'-0"

- GENERAL NOTES:**
- BUILDING SEWERS SHALL BE PROVIDED WITH CLEANOUTS LOCATED NOT MORE THAT 100'-0" APART, IPC SECTION 708.3.2
 - CLEANOUTS SHALL BE INSTALLED AT EACH CHANGE OF DIRECTION GREATER THAN 45 DEGREES FOR BUILDING SEWER. FOR BUILDING DRAINS WHERE MORE THAN ONE CHANGE OF DIRECTION OCCURS IN A RUN OF PIPING, ONLY ONE CLEANOUT SHALL BE REQUIRED FOR EACH 40 FEET OF DEVELOPED LENGTH OF THE DRAINAGE PIPING, IPC SECTION 708.3.3
 - REFER AND COORDINATE W/ CIVIL PLANS FOR SANITARY, GAS AND WATER EXIT/ENTRY LOCATIONS.
 - PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS, RE: DETAIL ON SHEET ####

- DRAWING NOTES:**
- (2). 2" VENT UP THROUGH SLAB, COMBINE INTO (1) 3" V, ROUTE AS INDICATED. TERMINATE 3" V TO 3" VTR.
 - 1" DOMESTIC WATER TAP/METER ON SITE UPSIZE TO A 1" DCW AFTER METER, TO A 1" BACKFLOW IN BUILDING. COORDINATE PER CIVIL PLANS.
 - H2O TRAFFIC RATED MANHOLE ASSEMBLY, ACCESS COVERS, MANHOLE RING EXTENTIONS AS REQUIRED FOR DEPTH OF INTERCEPTOR.

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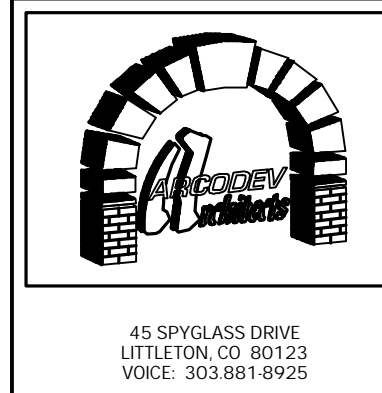
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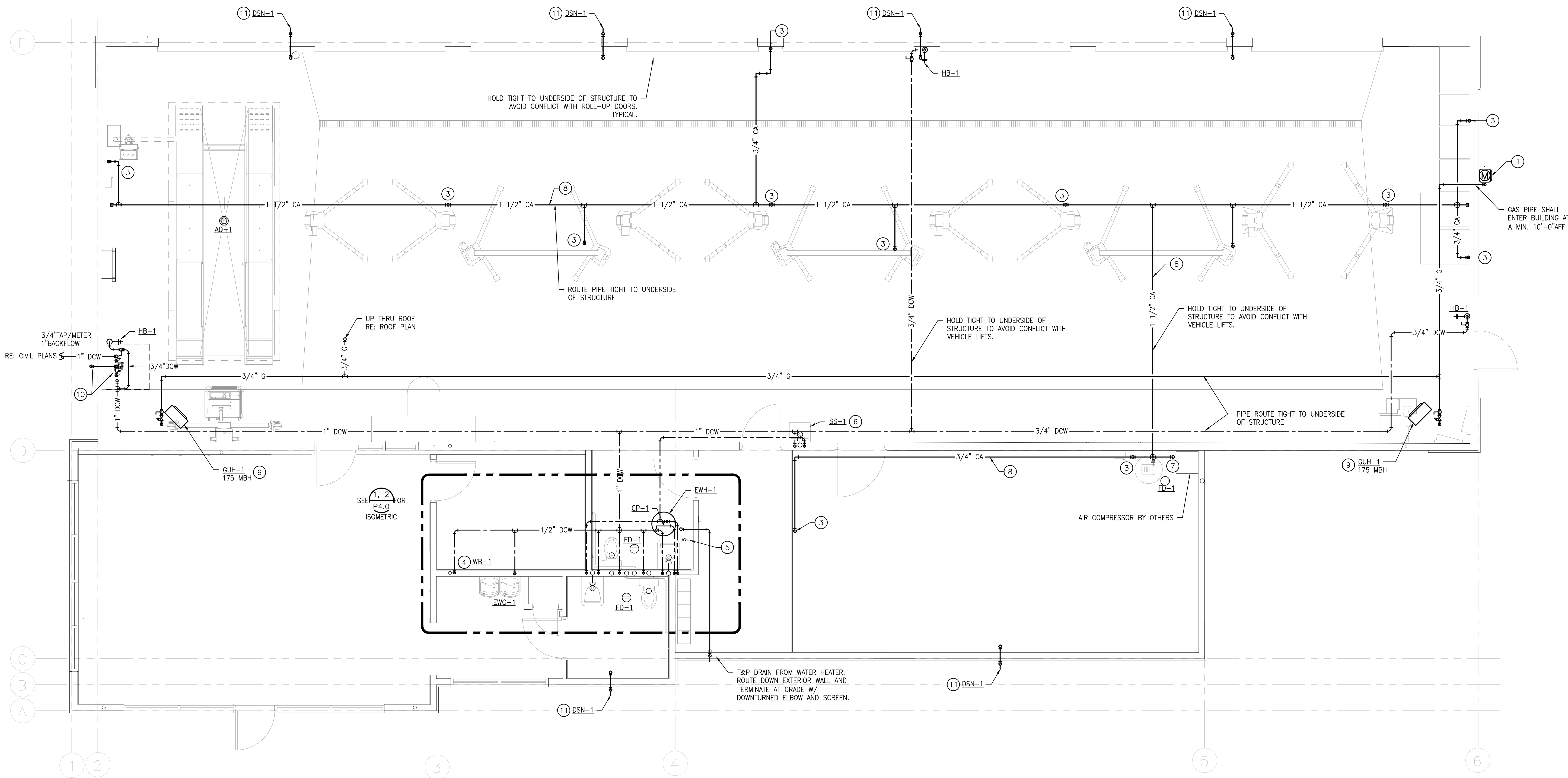
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P1.0

UNDERGROUND PLUMBING PLAN



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 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.

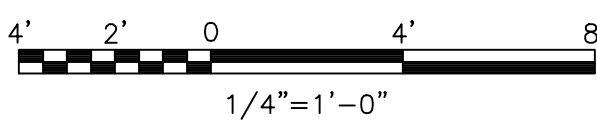
- 8 SLOPE COMPRESSED AIR DOWN IN DIRECTION OF SLOPE AT 1/8" PER FOOT, TYPICAL.
- 9 TERMINATE W/ SHUT-OFF VALVE, PRV AND DIRT LEG. PRV SHALL BE CAPABLE OF REDUCING FROM 2 PSI GAS TO 6"W.C. AT MBH AS INDICATED. PROVIDE VENTLESS REGULATOR IS LOCAL AHJ ALLOWS. IF NOT, VENT SHALL EXIT TO ATMOSPHERE, FULL 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/ORD FROM ABOVE TO NEAREST PILASTER AND DOWN. EXTEND TO EXTERIOR WALL, TERMINATE W/ DSN-1 AT MIN 12'AFG.

GENERAL NOTES:

1. PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS, RE: DETAIL ON SHEET P3.1
2. PAINT ALL EXPOSED GAS PIPING TO MATCH, PER ARCH. PLANS.

1 PLUMBING PLAN

P1.1



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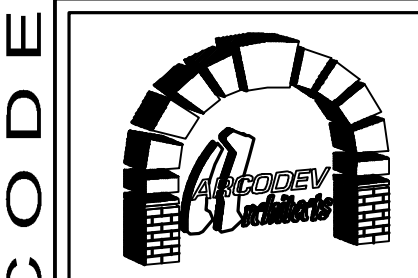
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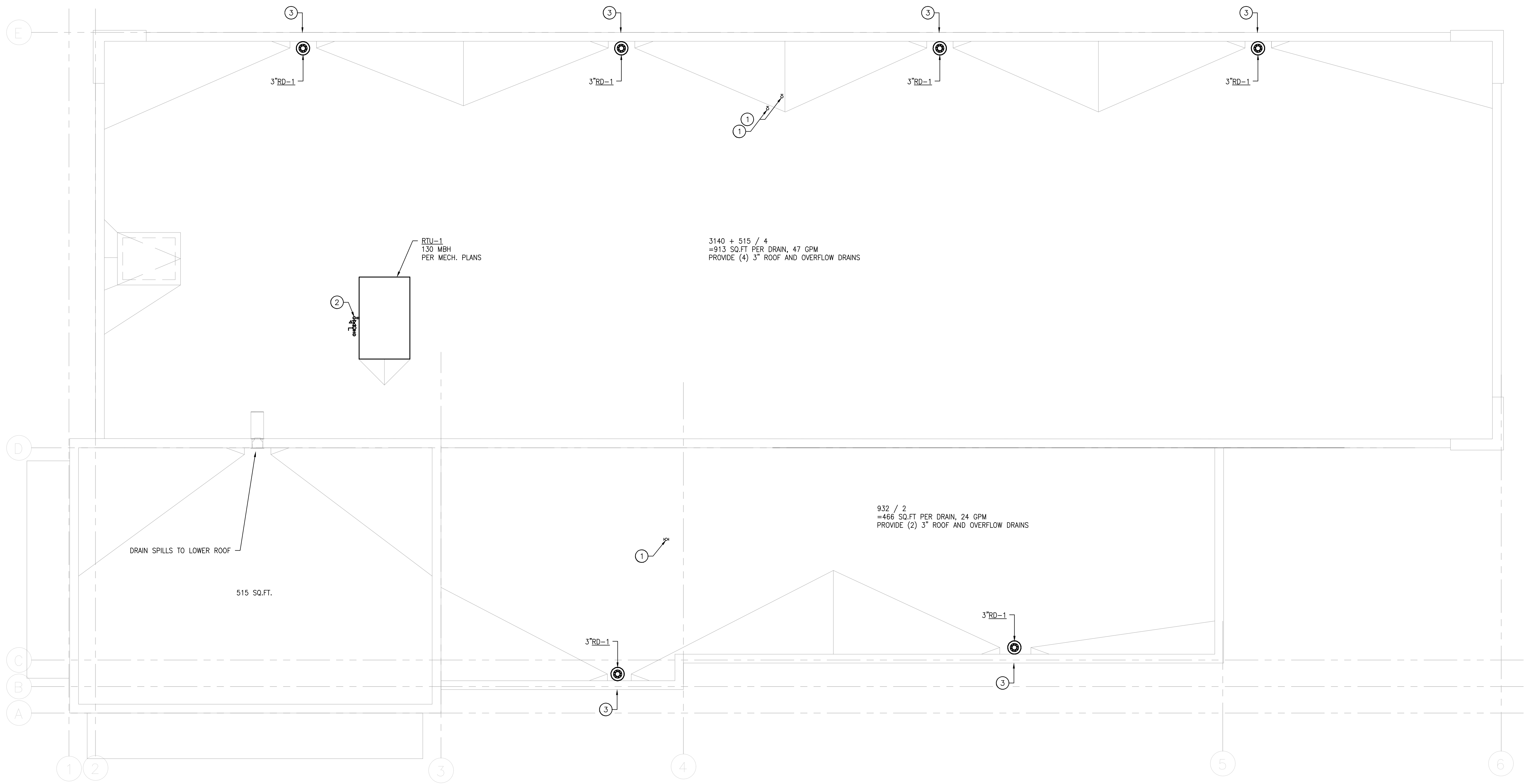


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P1.1

PLUMBING PLAN



1 PLUMBING ROOF PLAN
P2.1

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

- DRAWING NOTES:**
- ① 3" PLUMBING VENT UP THRU ROOF FROM BELOW, RE: PLUMBING PLANS.
 - ② 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"W.W. AT MBH AS INDICATED.
 - ③ OVERFLOW SCUPPER, SIZE PER ARCHITECTURAL PLANS.

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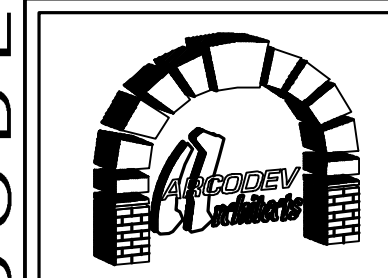
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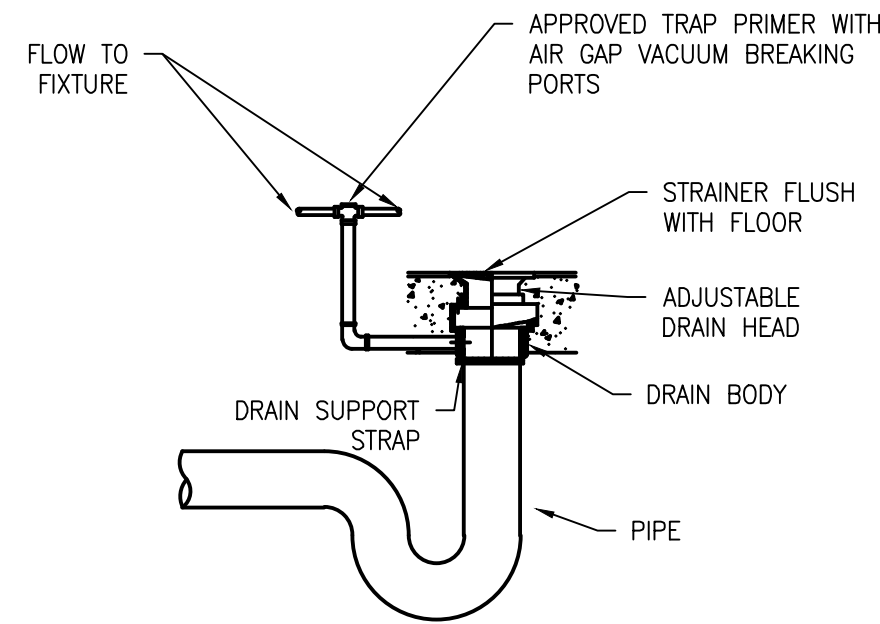


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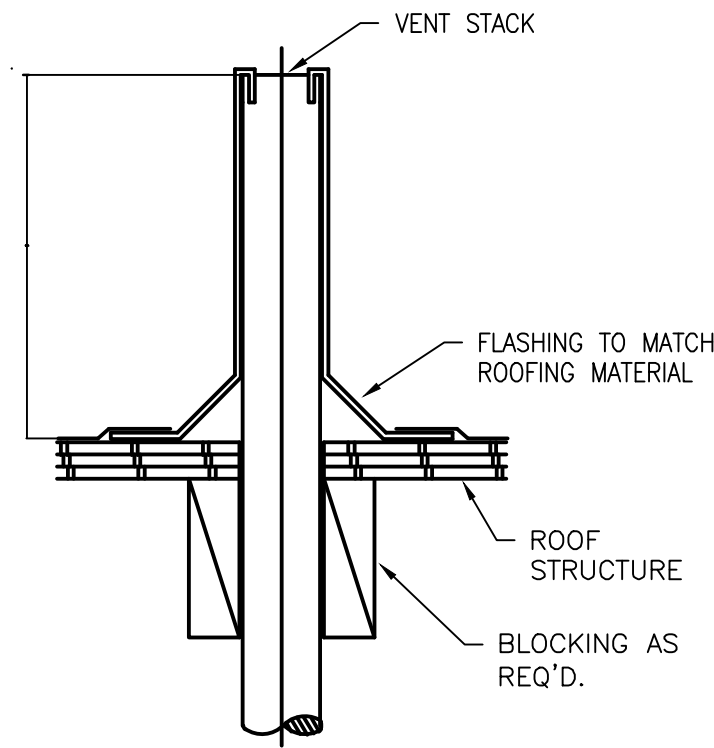
P2.1

PLUMBING ROOF PLAN



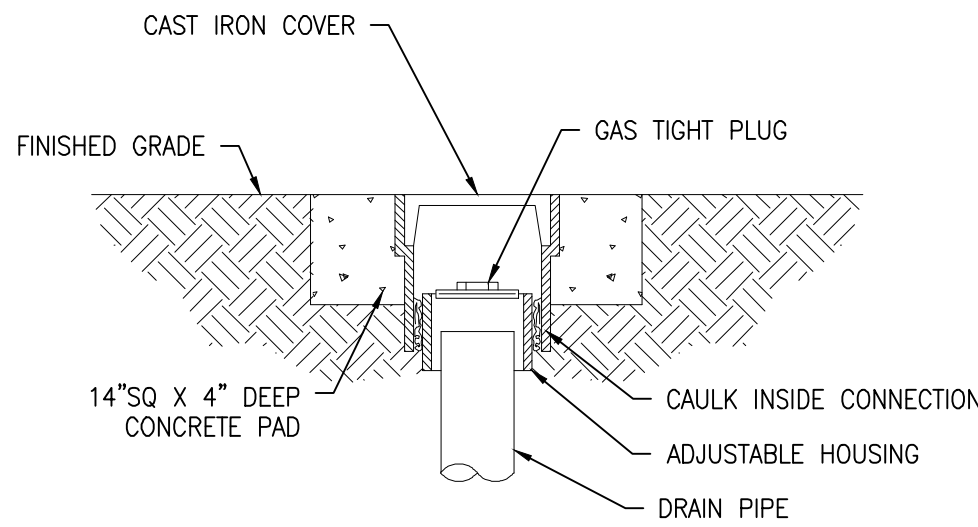
FLOOR DRAIN W/
TRAP PRIMER DETAIL

NOT TO SCALE



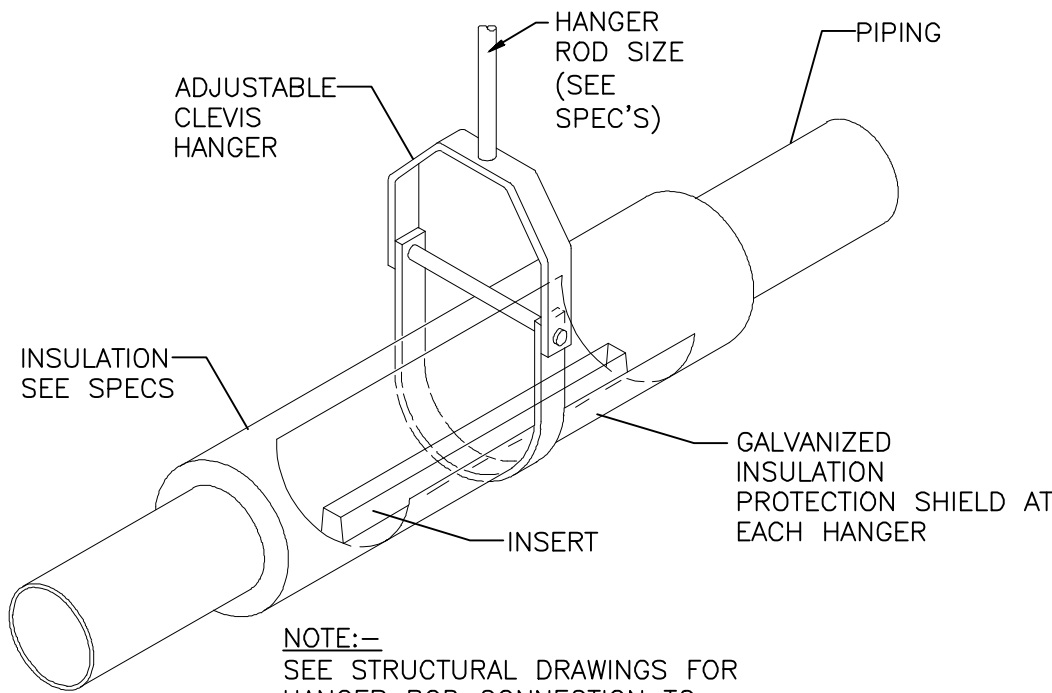
PIPE THRU ROOF DETAIL

NOT TO SCALE



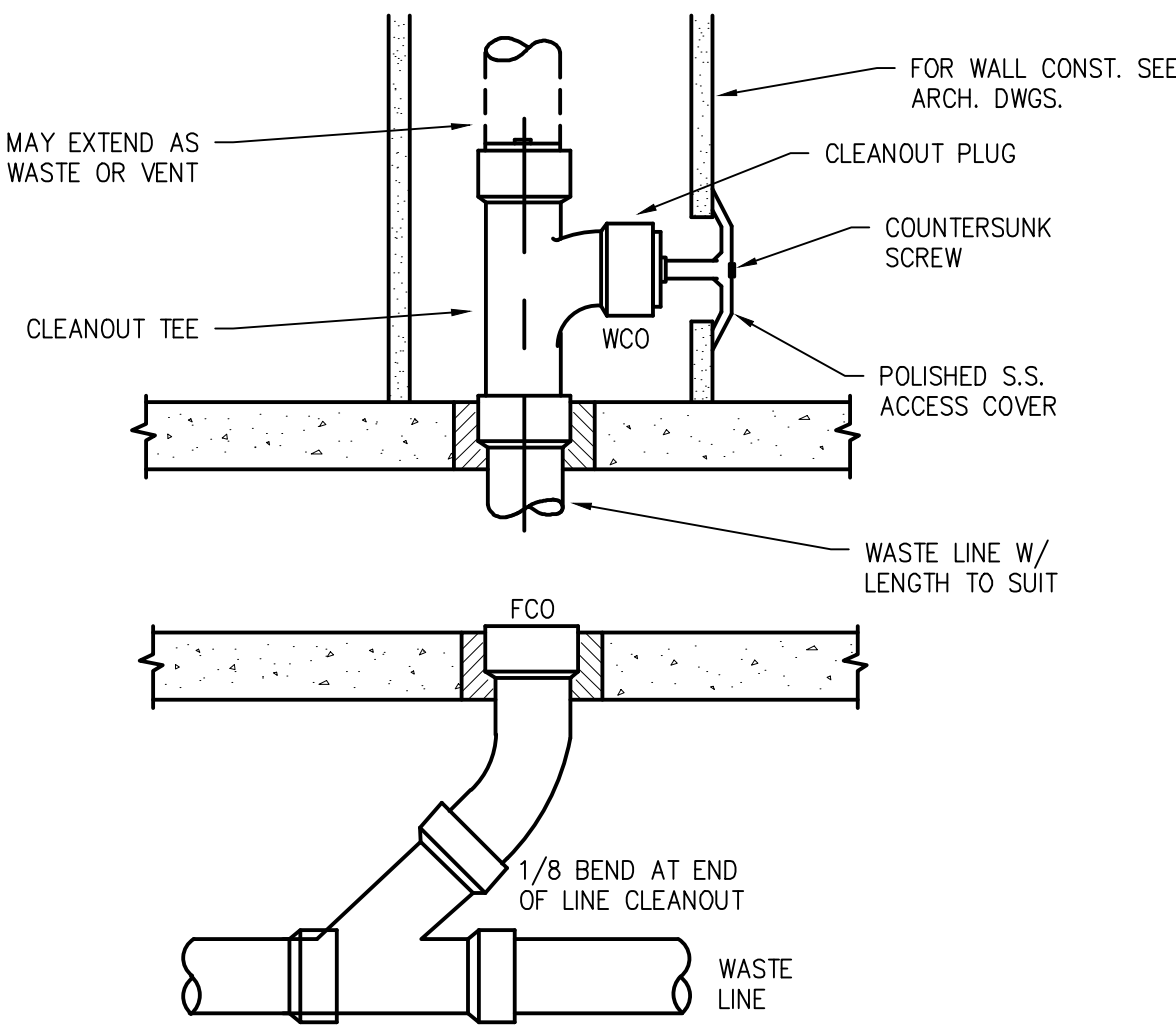
OUTSIDE CLEANOUT TO GRADE

NOT TO SCALE



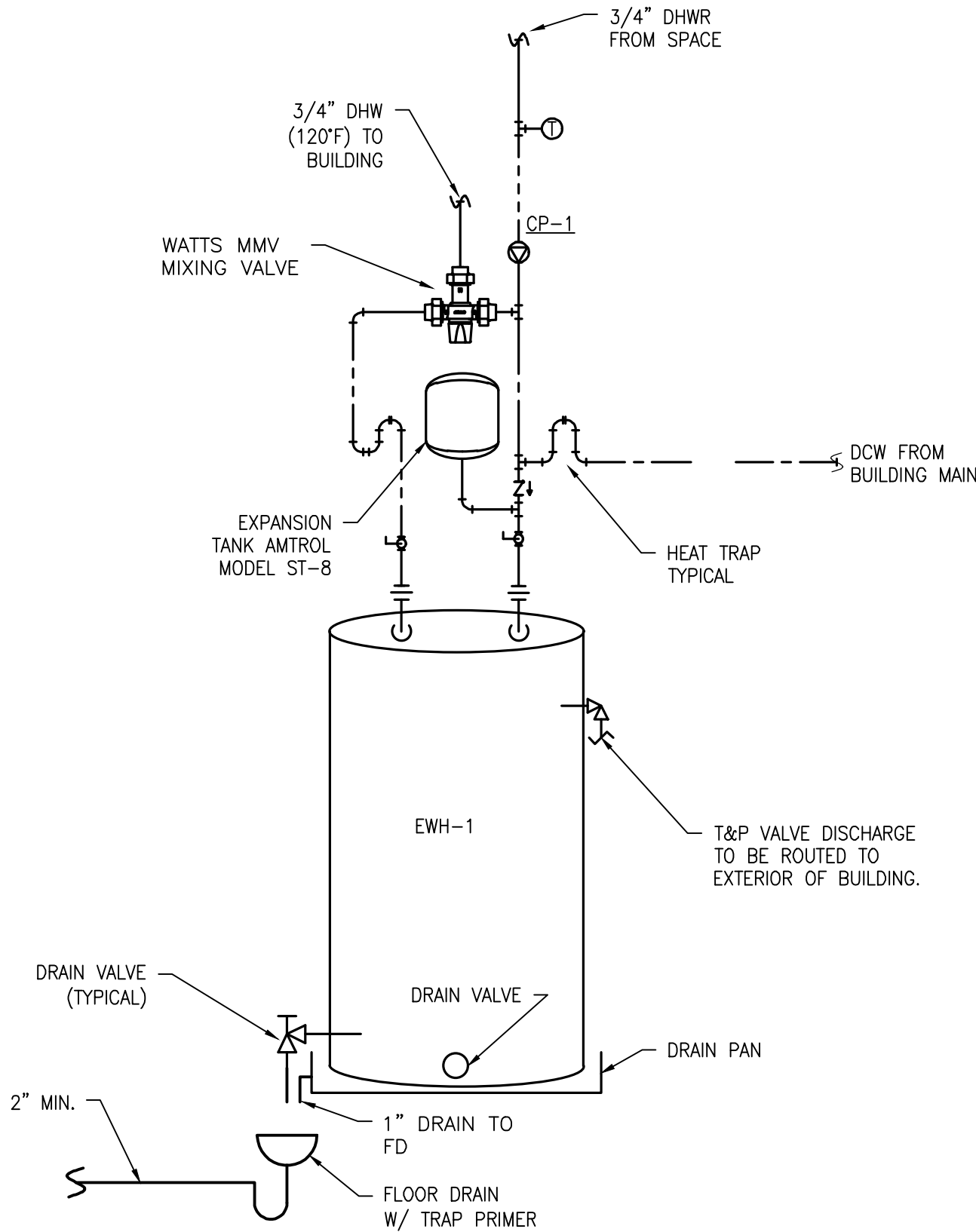
PIPE HANGER AND INSULATION DETAIL

NOT TO SCALE



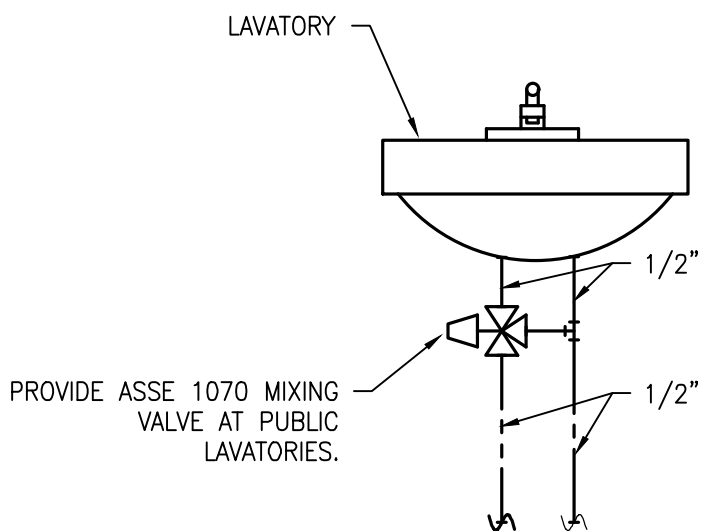
CLEANOUT DETAILS

NOT TO SCALE



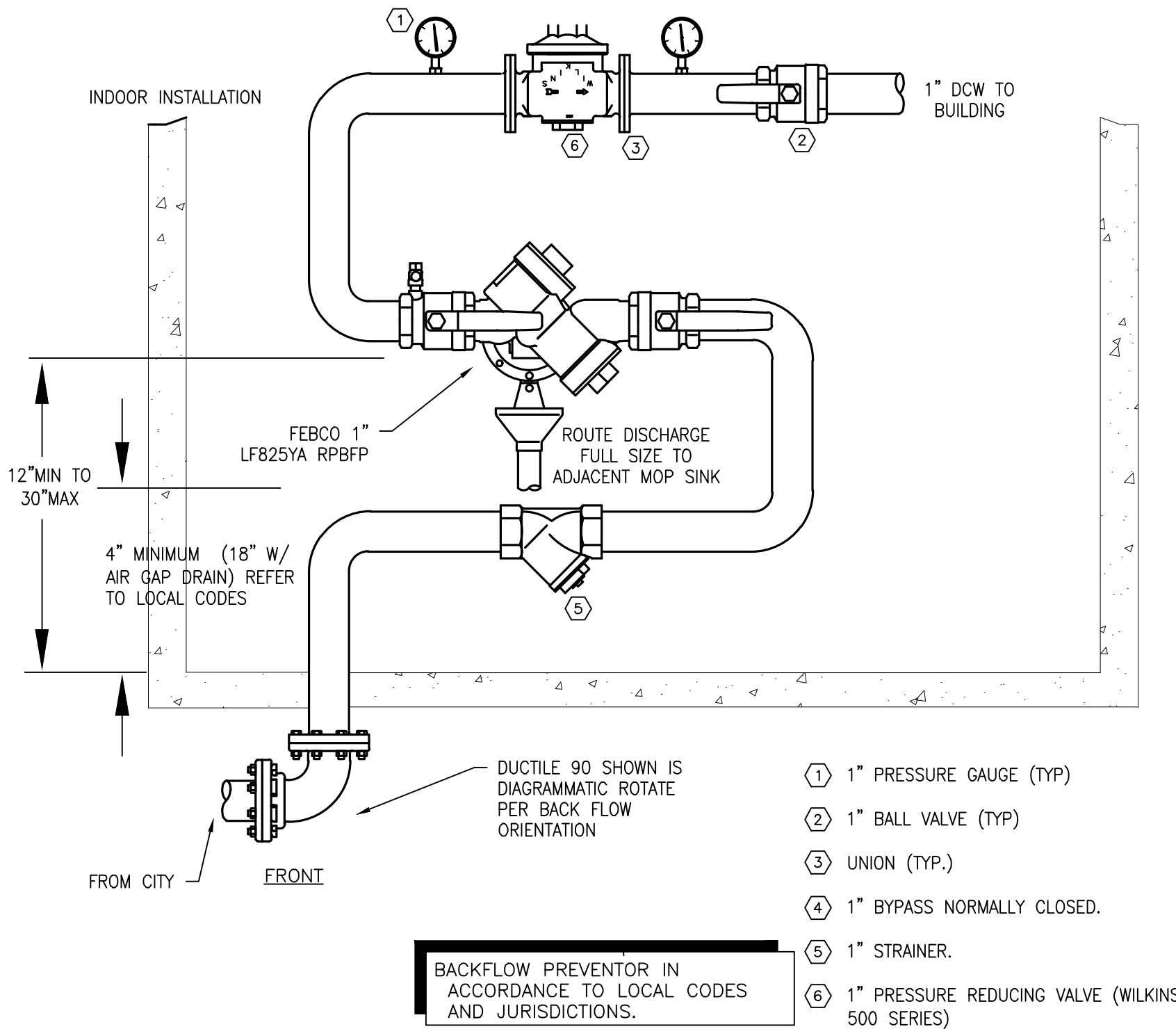
ELECTRIC WATER HEATER DETAIL

NOT TO SCALE



THERMOSTATIC MIXING VALVE DETAIL

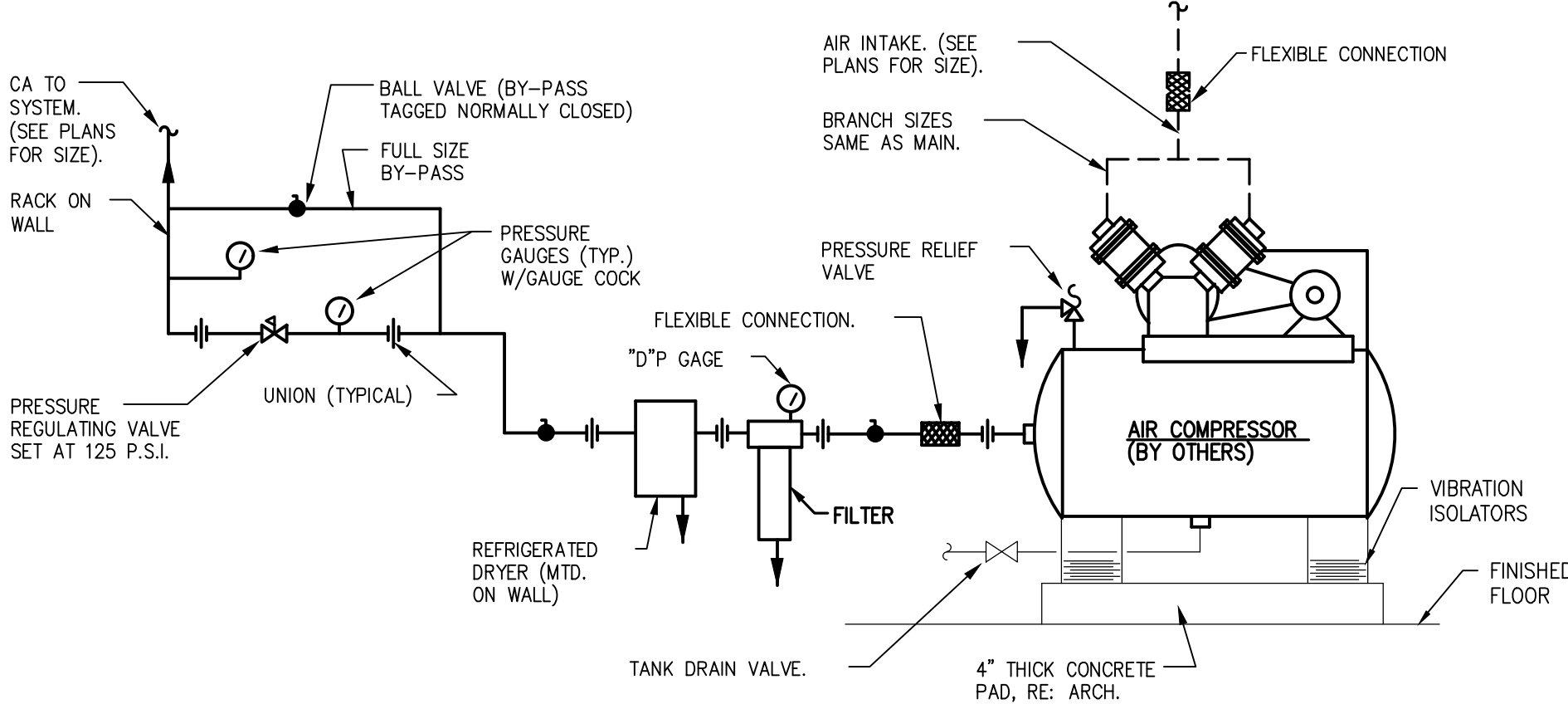
NOT TO SCALE



DOMESTIC WATER ENTRY
BACKFLOW DETAIL

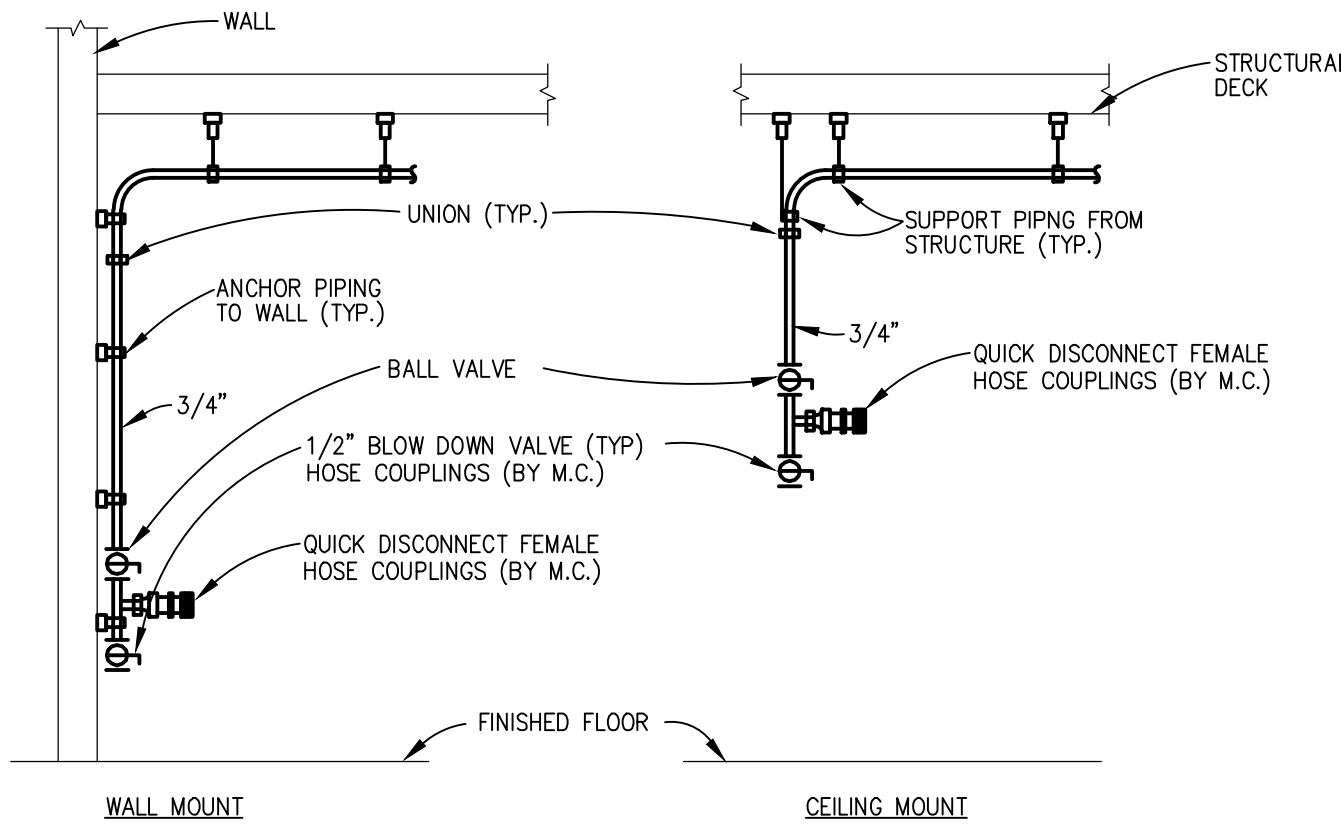
NOT TO SCALE

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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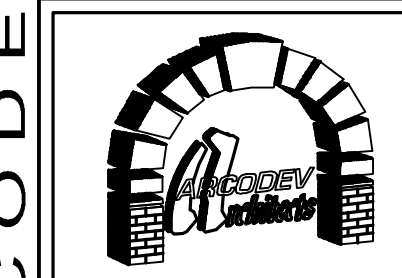
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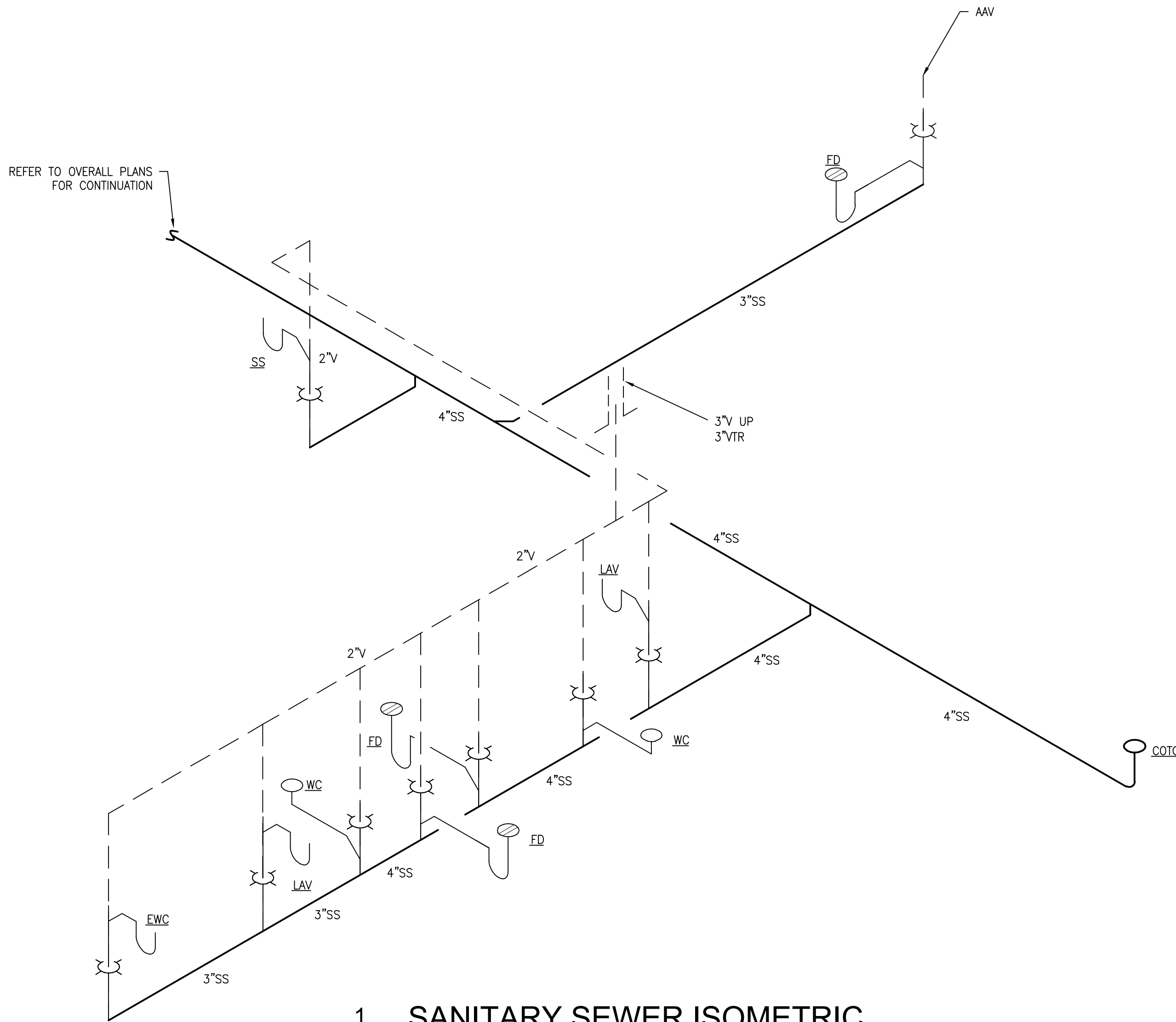


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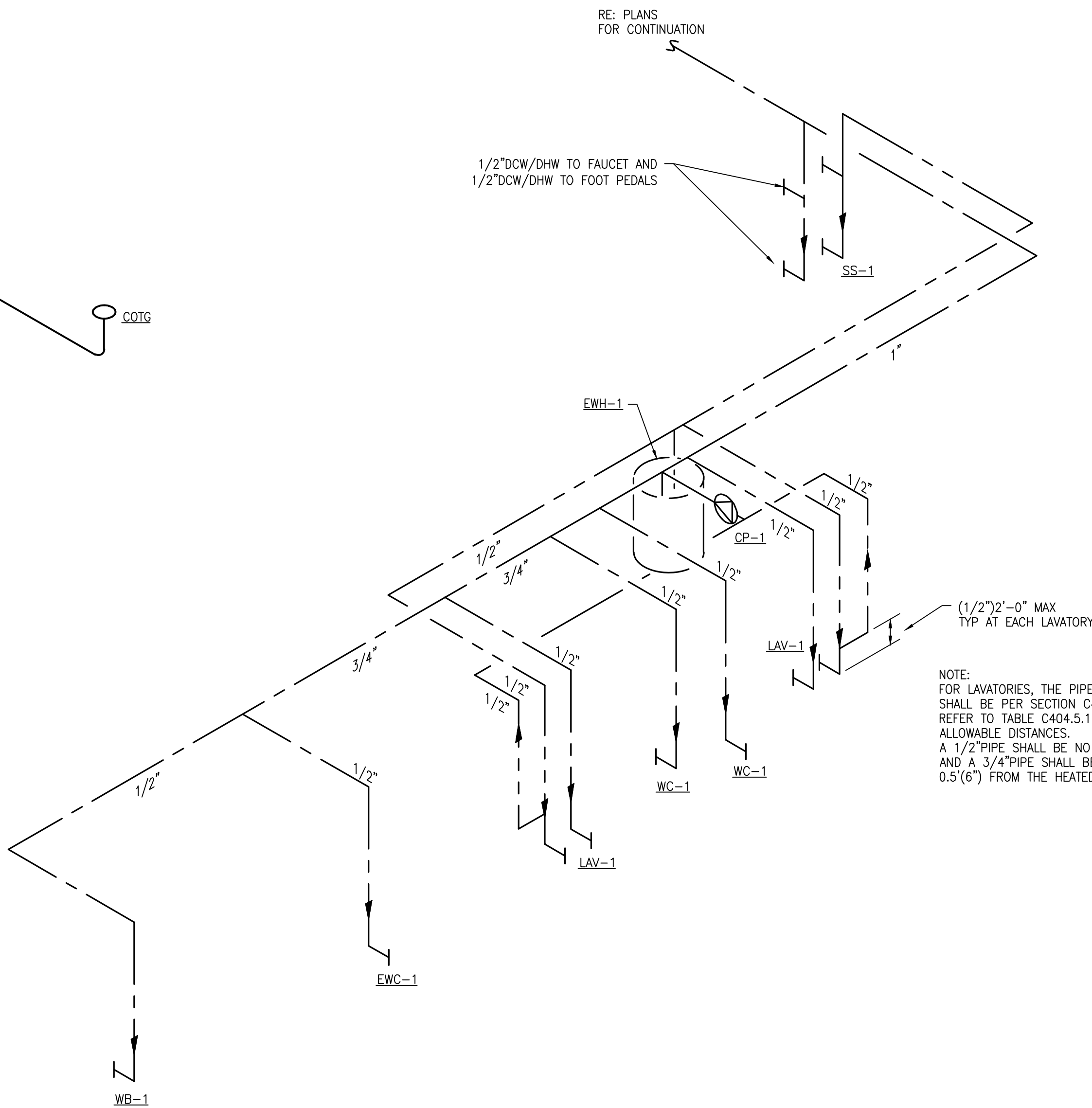
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P3.1

PLUMBING DETAILS



1 **SANITARY SEWER ISOMETRIC**
P4.0 N.T.S.



2 **DOMESTIC HOT WATER PIPING DIAGRAM**
P4.0 N.T.S.

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P4.0

PLUMBING ISOMETRICS

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 EQUIPPED WITH CLASS "R" FUSES.

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

ELECTRICAL SHEET INDEX									
								8-6-24 PERMIT	
								SHEET NO.	SHEET DESCRIPTION
								●	E0.1 ELECTRICAL COVER SHEET
								●	ES1.1 ELECTRICAL SITE PLAN
								●	E1.1 ELECTRICAL LIGHTING PLAN
								●	E2.1 ELECTRICAL POWER PLAN
								●	E3.1 ELECTRICAL ROOF PLAN
								●	E4.1 ELECTRICAL ONE LINE DIAGRAM
								●	E5.1 LIGHTING COMPLIANCE CERTIFICATES

	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

<i>FIRE ALARM LEGEND</i>	
	MINI HORN/STROBE +90" A.F.F.
	MANUAL FIRE ALARM PULL STATION +48" A.F.F.

PROJ #24-----

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BRAKES PLUS

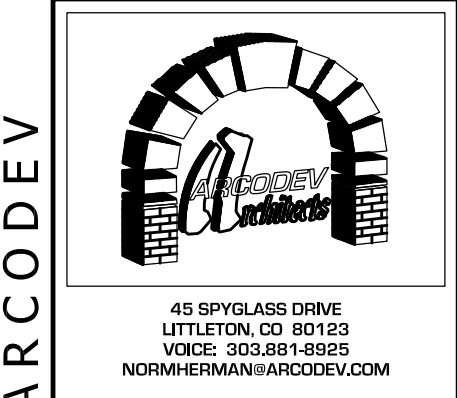
1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



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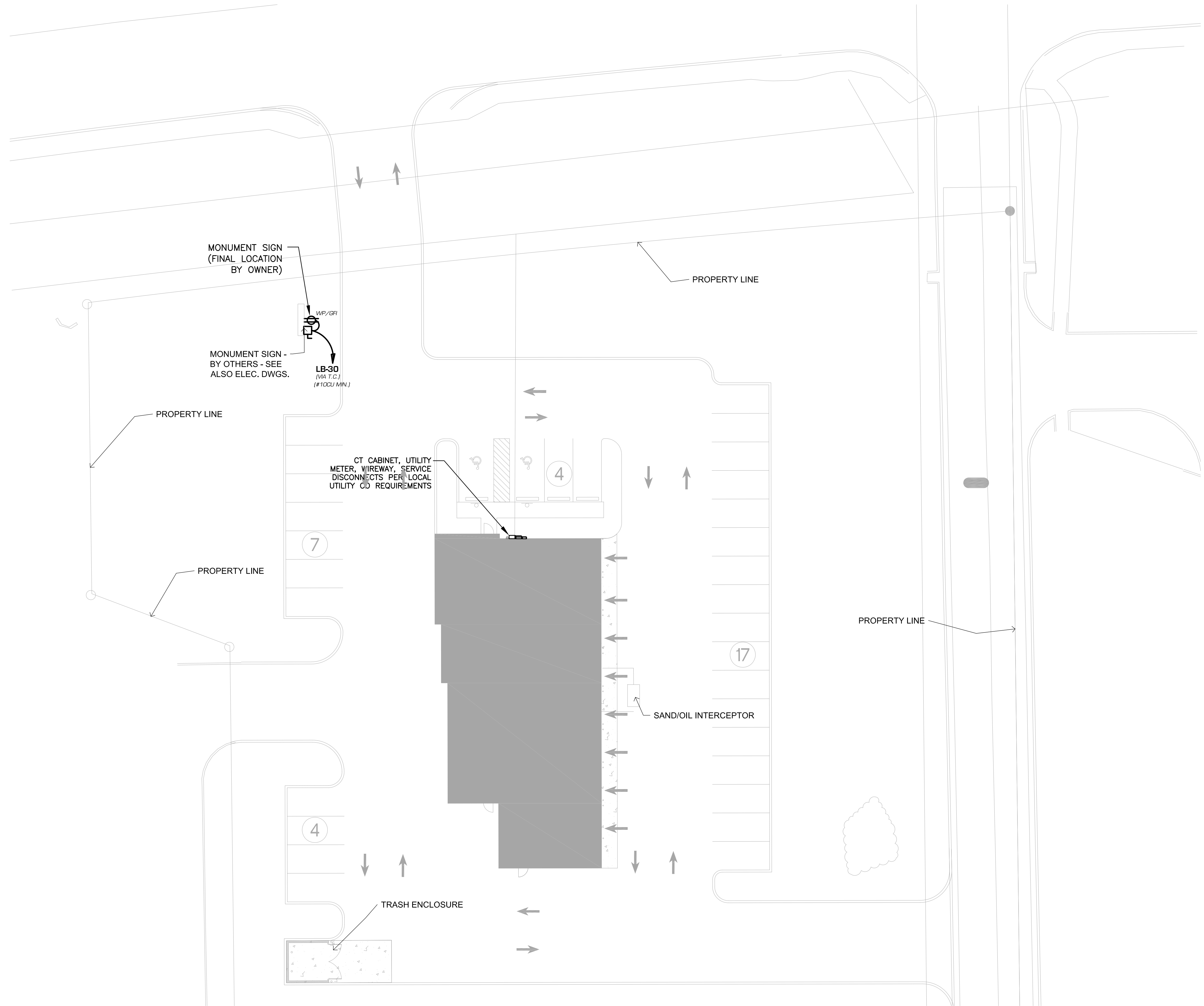
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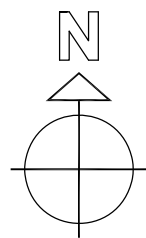
SHEET

EO.1

ELECTRICAL COVER SHEET



1 ELECTRICAL SITE PLAN
SCALE: 1" = 20'-0"



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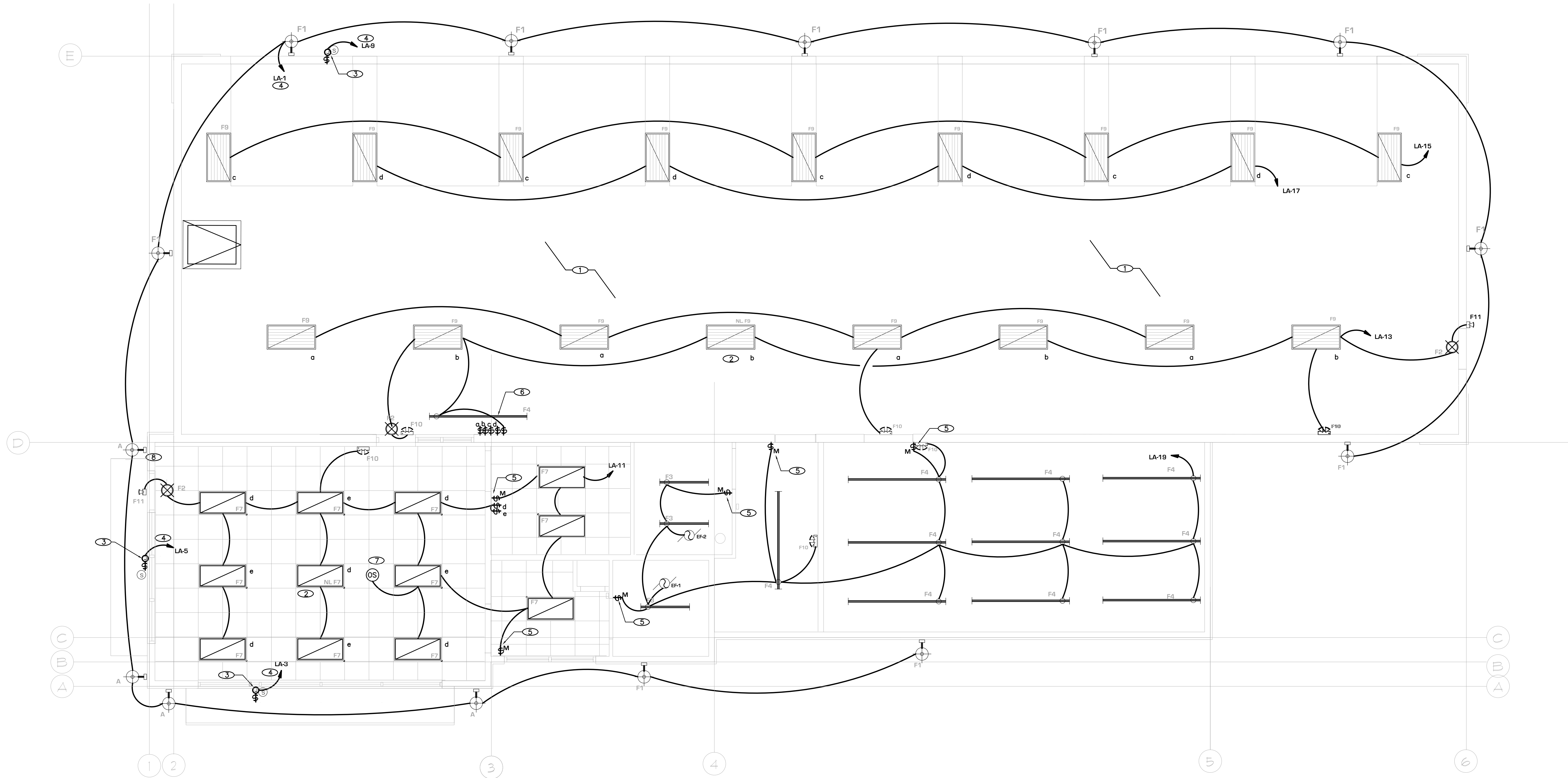
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ARCODEV

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 MULTIWIRED 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 2018 IECC.

LIGHTING DETAIL NOTES

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

7. DASHED LINE INDICATES DAYLIGHT ZONE.
8. CIRCUIT SWITCHED VIA DAYLIGHT PHOTOCCELL SENSORS (DAYLIGHT RESPONSIVE CONTROLS) CONFIGURED TO COMPLETELY SHUT OFF ALL CONTROLLED LIGHT FIXTURES, IN ACCORDANCE WITH SECTION C405.2.3 OF THE 2018 IECC.
9. PROVIDED BI-LEVEL SWITCHING LIGHT-REDUCTION CONTROLS, IN ACCORDANCE WITH SECTION C405.2.3.1 OF THE 2018 IECC.

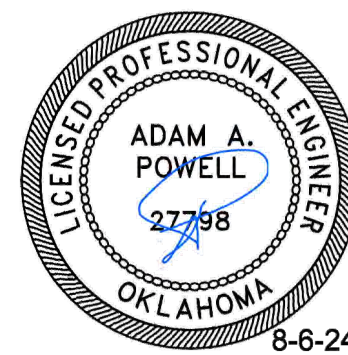
1 ELECTRICAL LIGHTING PLAN

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

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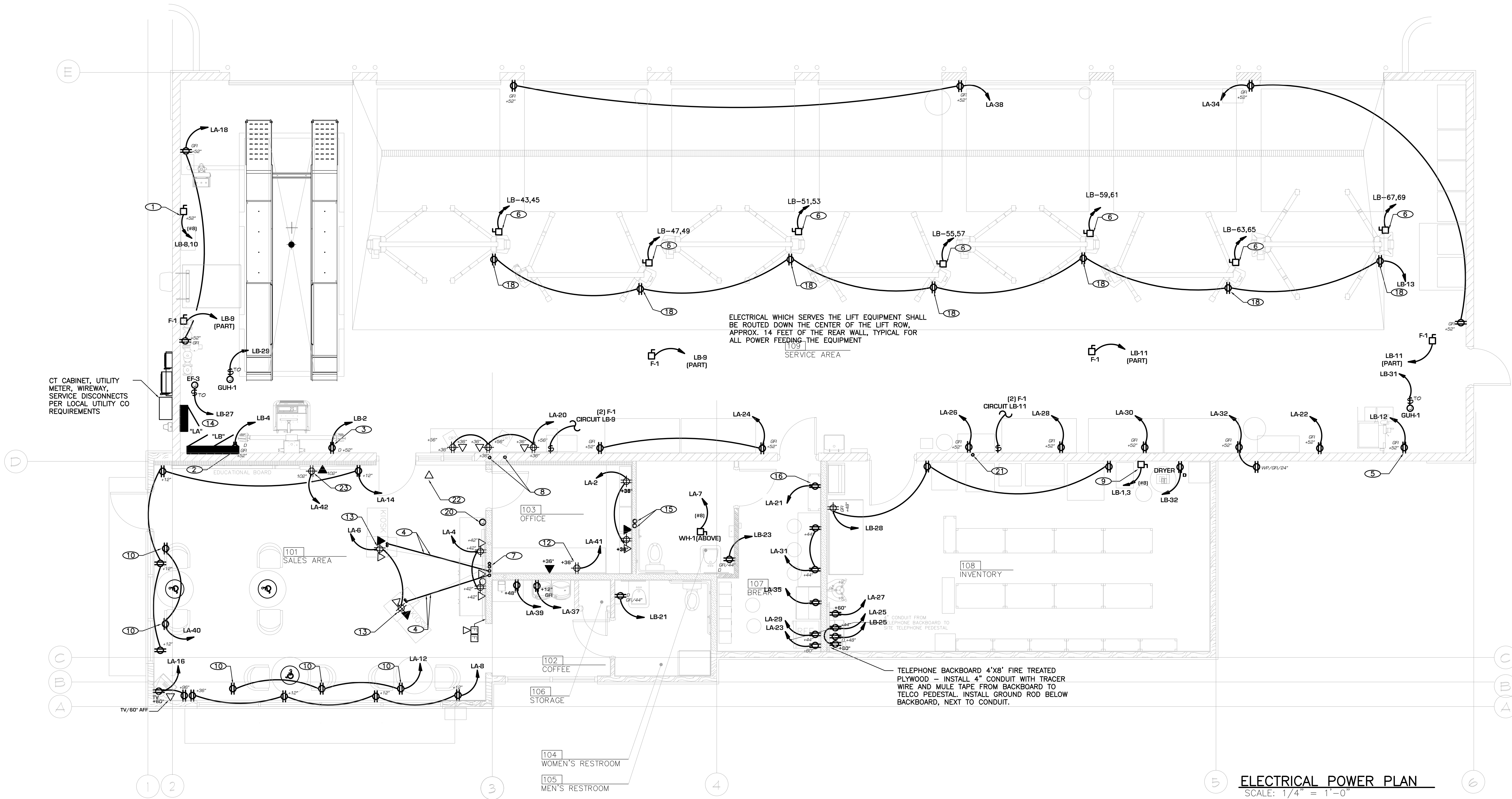
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SHEET

E1.1

ELECTRICAL
LIGHTING PLAN



POWER GENERAL NOTES

1. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT AND/OR LOCATION OF DEVICES PRIOR TO ROUGH-IN.
2. COORDINATE REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
3. MAKE ALL FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT.
4. ALL CONDUIT SHALL BE INSTALLED CONCEALED IN FINISHED AREAS UNLESS OTHERWISE NOTED.
5. EACH MULTIWIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT.
6. COORDINATE REQUIREMENTS AND LOCATIONS OF OWNER SUPPLIED EQUIPMENT WITH OWNER AND EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
7. PROVIDE GFCI PROTECTION FOR ALL 125V, 15-20A RECEPTACLES INSTALLED IN THE SERVICE BAY AREAS WHERE DIAGNOSTIC EQUIPMENT, POWER TOOLS, OR LIGHTING EQUIPMENT IS USED PER N.E.C. ARTICLE 511.12.

8. ELECTRICAL 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.

POWER DETAIL NOTES

- ① ALIGNMENT RACK. PROVIDE 40A/2P DISCONNECT SWITCH AS REQUIRED FOR CONNECTION TO EQUIPMENT. CONNECT TO BRANCH BREAKER AS INDICATED VIA 2#8, 1#10G - 1" C.
- ② ALIGNMENT MACHINE. PROVIDE 20 AMP, 120 VOLT GFI DUPLEX RECEPTACLE AS REQUIRED FOR CONNECTION TO EQUIPMENT. CONNECT TO BRANCH BREAKER AS INDICATED VIA 2#12, 1#12G - 1/2" C.
- ③ ALIGNMENT SENSORS. PROVIDE 20 AMP, 120 VOLT GFI DUPLEX RECEPTACLE AS REQUIRED FOR CONNECTION TO EQUIPMENT. CONNECT TO BRANCH BREAKER AS INDICATED VIA 2#12, 1#12G - 1/2" C.
- ④ PROVIDE (2) 1" ELECTRICAL CONDUITS FROM JUST ABOVE CEILING, THROUGH THE WALL, AND UNDER FLOOR SLAB TO EACH KIOSK. CONDUIT #1 (FOR POWER) SHALL BE 7"-0" FROM REAR WALL AND 2'-6" FROM CENTERLINE OF FRONT DOOR. CONDUIT #2 (FOR DATA) WILL BE JUST TO THE OUTSIDE OF CONDUIT #1 AND SLIGHTLY BACK TO ALLOW FOR ANGLE MOUNTING OF KIOSK.
- ⑤ BRAKE LATHE. PROVIDE 20 AMP, 120 VOLT GFI DUPLEX RECEPTACLE AS REQUIRED FOR CONNECTION TO EQUIPMENT. CONNECT TO BRANCH BREAKER AS INDICATED VIA 2#12, 1#12G - 1/2" C.
- ⑥ PROVIDE POWER FOR LIFTS, 208V, 1PH, 25A CIRCUIT, 17FLA. VERIFY EXACT LOCATION AND REQUIREMENTS PRIOR TO ROUGH-IN AND INSTALLATION.
- ⑦ PROVIDE TWO 1" EMPTY CONDUITS WITH PULL STRINGS FROM THE PRINTER DESK WALL BOX TO THE CEILING PLENUM.
- ⑧ PROVIDE TWO 1" EMPTY CONDUITS WITH PULL STRINGS AT THE SERVICE MANAGER'S DESK FROM THE WALL BOX UP TO THE CEILING PLENUM.
- ⑨ AIR COMPRESSOR. PROVIDE (1) 60A/2P DISCONNECT SWITCH AS REQUIRED FOR CONNECTION TO EACH MOTOR. CONNECT TO BRANCH BREAKER AS INDICATED VIA 2#8, 1#10G - 3/4" C.
- ⑩ PROVIDE FLUSH MOUNTED DUPLEX RECEPTACLE LOCATED IN CEILING FOR SHOW WINDOW RECEPTACLES.
- ⑪ INTERLOCK EF-3 WITH LV-1
- ⑫ PROVIDE FOUR-PLEX RECEPTACLE FOR CONNECTION TO OWNER SUPPLIED COMPUTER SERVER. COORDINATE LOCATION AND MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
- ⑬ COORDINATE LOCATION OF DUPLEX RECEPTACLE AND DATA OUTLET IN MILLWORK PRIOR TO ROUGH-IN.
- ⑭ MAINTAIN NEC REQUIRED CLEARANCES AT PANELS.
- ⑮ PROVIDE 1" EMPTY CONDUIT WITH PULL STRING IN MANAGER'S OFFICE AT EACH WORK STATION FROM THE WALL BOX TO THE CEILING PLENUM.
- ⑯ PROVIDE DUPLEX RECEPTACLE FOR CONNECTION TO IRRIGATION CONTROLLER. COORDINATE EXACT LOCATION WITH LANDSCAPE CONTRACTOR.
- ⑰ WEATHERPROOF RECEPTACLE PROVIDED WITH ROOF TOP UNIT, E.C. TO INSTALL.
- ⑱ GFI DUPLEX RECEPTACLE PROVIDED WITH LIFT. CONNECT 120 VOLT RECEPTACLE TO BRANCH CIRCUIT SERVING LIFT.
- ⑲ PROVIDE 1" EMPTY CONDUIT WITH PULL STRING FROM COMPUTER STATION LOCATION WALL BOX TO THE CEILING PLENUM.
- ⑳ ALARM PAD - PROVIDE 3/4" EMPTY CONDUIT STUBBED ABOVE CEILING. VERIFY EXACT LOCATION AND REQUIREMENTS PRIOR TO ROUGH-IN AND INSTALLATION.
- ㉑ PROVIDE 1" EMPTY CONDUIT WITH PULL STRING FROM TECH PERSON COMPUTER LOCATION WALL BOX TO THE CEILING PLENUM.
- ㉒ DATA OUTLET ABOVE CEILING FOR WIRELESS ROUTER. VERIFY EXACT LOCATION AND REQUIREMENTS PRIOR TO ROUGH-IN AND INSTALLATION.
- ㉓ DUPLEX RECEPTACLE AND DATA OUTLET FOR MENU TV. VERIFY EXACT LOCATION AND REQUIREMENTS PRIOR TO ROUGH-IN AND INSTALLATION.

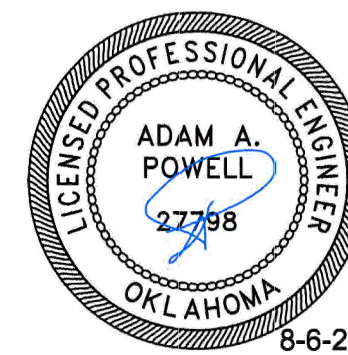
ELECTRICAL POWER PLAN

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

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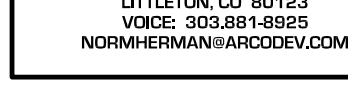
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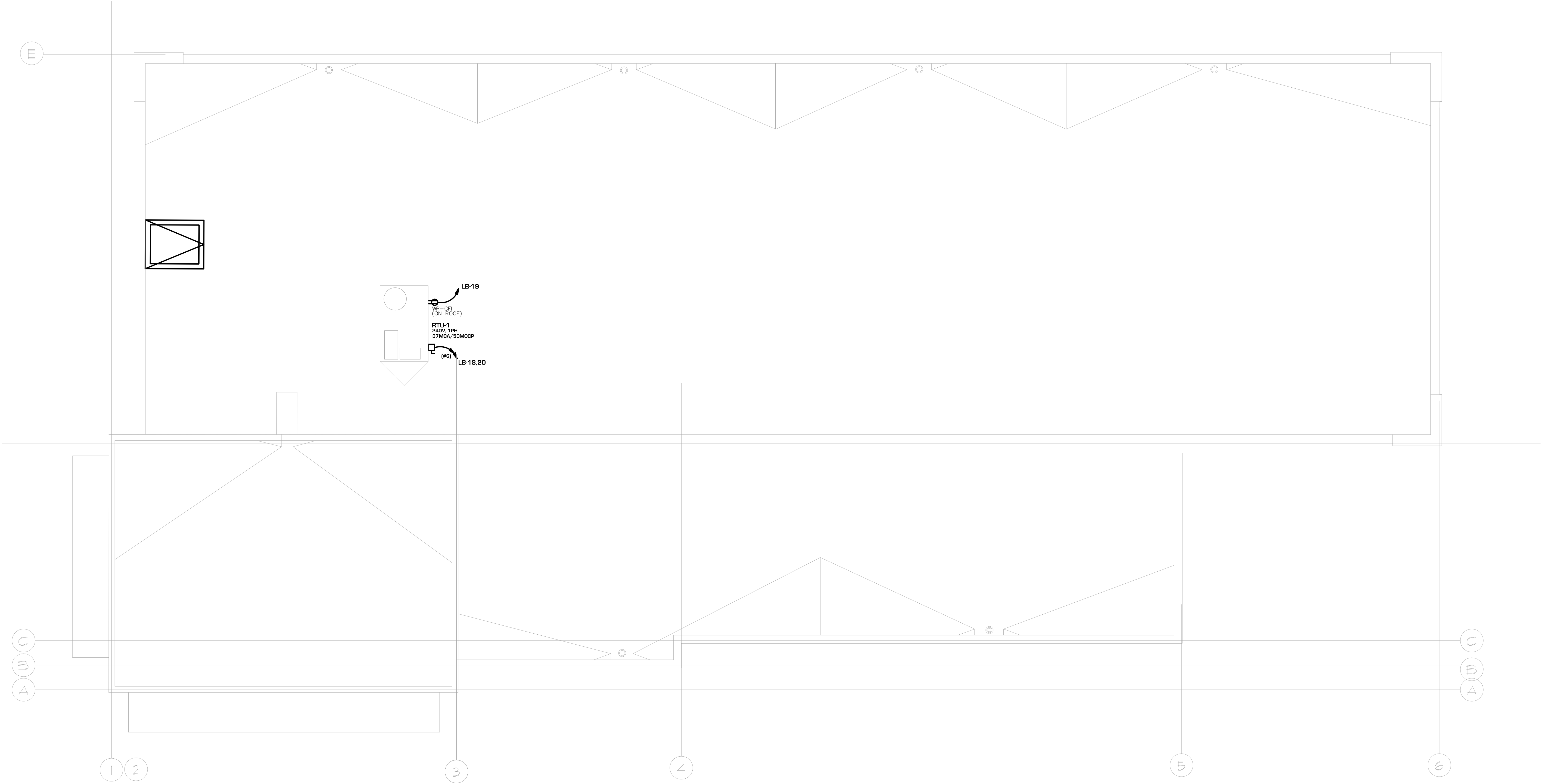


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SHEET

E2.1

ELECTRICAL
POWER PLAN



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

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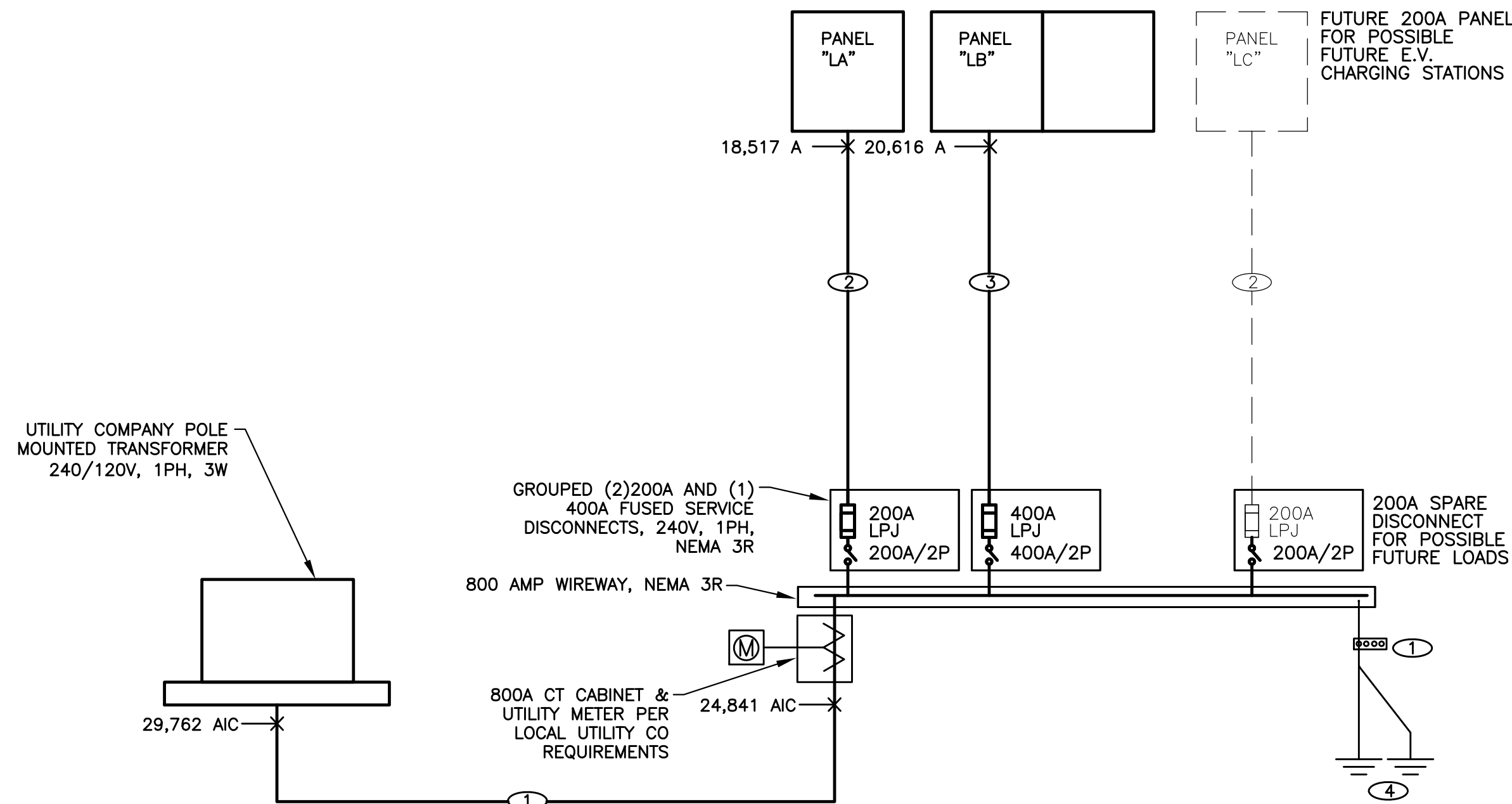
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ARCDEV
SHEET
E3.1
ELECTRICAL
ROOF PLAN

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)	
GUH-1	GAS UNIT HEATER	1/2				120	1	SMT0	-	(2#12, 1#12G, 3/4"C)	
EWH-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	9.6	⊗ 125%	=	12.0 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			=	93.6 kVA	(390 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.

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

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

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

SHORT CIRCUIT CURRENT AT CT/MAIN = $M \times \text{AVAILABLE S.C. CURRENT}$

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

LENGTH IN FEET = 20 $f = \frac{2.0 \times 20 \times 24,841}{1 \times 12,122 \times 240} = 0.342$

FACTOR $F = 0.342$

FACTOR $M = 0.7454$

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

LENGTH IN FEET = 24 $f = \frac{2.0 \times 24 \times 24,841}{2 \times 12,122 \times 240} = 0.205$

FACTOR $F = 0.205$

FACTOR $M = 0.835$

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

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

MFG.	AS APPROVED					LIGHT.	<u>1.9</u>	KVA @ 125% =	<u>9.0</u>	KVA
TYPE	PANELBOARD					RECEPT.	<u>11.7</u>	KVA @ 100% =	<u>11.7</u>	KVA
LOG LOC.	TOP					MECH.		KVA @ 100% =	<u>1.0</u>	KVA
AMP.	200A, MLO					25% LARGEST MOTOR				KVA
VOLTAGE	120/240V, 1ph, 3W					SPEED	<u>6.3</u>	KVA @ 100% =	<u>6.3</u>	KVA
MOUNTING	SURFACE					SPARE				KVA
BRACING	22,000 A.I.C.					TOTAL			<u>27.0</u>	KVA
(116A)										
EXTERIOR LIGHTING		404	1		2	720	OFFICE RECEPITS			
EXTERIOR SIGN		1200	3		4	800	SALES AREA COUNTER RECEPITS			
EXTERIOR SIGN		1200	5		6	1000	KIOSK RECEPITS			
EWH-1		1500	7		8	360	SALES AREA RECEPITS			
EXTERIOR SIGN		1200	9		10		SPARE			
SALES, COFFEE, OFFICE LIGHTING		528	11		12	1800	SHOW WINDOW RECEPITS			
SERVICE AREA LIGHTING		1144	13		14	360	SALES AREA RECEPITS			
SERVICE AREA LIGHTING		660	15		16	500	TELEVISION			
SERVICE AREA LIGHTING		528	17		18	360	SERVICE AREA RECEPITS			
INVENTORY, BREAK, RESTROOM LTG		1012	19		20	500	GARAGE A/C RECEPITS			
IRRIGATION CONTROLS		500	21		22	540	GARAGE RECEPIT			
BREAK RM		180	23		24	360	GARAGE RECEPIT			
BURGLER ALARM		400	25		26	200	COMPUTER			
TELEPHONE SYSTEM		900	27		28	500	BENCH RECEPIT			
MICROWAVE		900	29		30	180	GARAGE RECEPIT			
BREAK RECEPITS		360	31		32	360	GARAGE RECEPIT			
SPARE			33		34	500	SERVICE AREA RECEPITS			
REFRIGERATOR		1200	35		36	360	SPARE			
RECEPIT WATER FOUNTAIN		370	37		38	360	GARAGE RECEPIT			
COFFEE UNIT		1000	39		40	1200	SHOW WINDOW RECEPITS			
OFFICE RECEPITS		360	41		42	300	MENU TV			
A phase =		11,526 VA	B phase =		14,420 VA	Total =		25,946 VA		

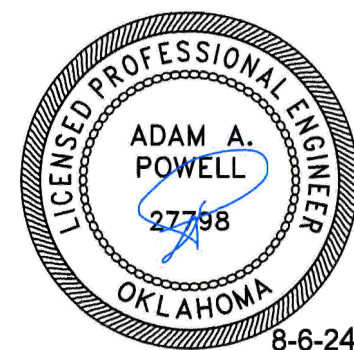
MFG.	AS APPROVED					LIGHT	1.7	KVA @ 125% =	2.1	KVA
TYPE	PANELBOARD 2-STATION					RECEPT.	1.4	KVA @ 100% =	1.4	KVA
LUG LOC.	TOP					MECH.	12.4	KVA @ 100% =	12.4	KVA
AMPS.	400A. MLO								1.9	KVA
VOLTAGE	120/240V. 1ph. 3W					25% LARGEST MOTOR				
MOUNTING	SURFACE					SPECIAL	44.4	KVA @ 100% =	44.4	KVA
BRACING	22,000 A.I.C.					SPARE				
						TOTAL			66.9	KVA
(279A)										
AIR COMPRESSOR	3360	1	1	1	1	1800	ALIGNMENT SENSORS			
	3360	3	1	1	1	1800	ALIGNMENT MACHINE			
SPARE		5	1	1	1		SPARE			
SPARE		7	1	1	1	3120	ALIGNMENT RACK			
AIR CIRCULATION FANS	1392	9	1	1	1	3120	---			
AIR CIRCULATION FANS	1392	11	1	1	1	1800	BRAKE LATHE			
SHIP EQUIPMENT RECEP.TS	1440	13	1	1	1		SPARE			
SPARE		15	1	1	1		SPARE			
SPARE		17	1	1	1	3755	RTU-1			
ROOF RECEP.T	180	19	1	1	1	3755	---			
RECEP.T = RESTROOM	180	21	1	1	1		SPARE			
RECEP.T = RESTROOM	180	23	1	1	1	453	SITE LIGHTING			
RECEP.T = INVENTORY	180	25	1	1	1					
FF-1	1130	27	1	1	1	720	INVENTORY RECEP.TS			
GUH-1	500	29	1	1	1	1200	MONUMENT SIGN			
GUH-1	500	31	1	1	1	1000	DRYER			
SPARE		33	1	1	1		SPARE			
SPARE		35	1	1	1		SPARE			
SPARE		37	1	1	1		SPARE			
SPARE		39	1	1	1		SPARE			
		41	1	1	1		SPARE			
SECTION TWO										
LIFT	2040	43	1	1	1		SPACE			
---	2040	45	1	1	1		SPACE			
LIFT	2040	47	1	1	1		SPACE			
---	2040	49	1	1	1		SPACE			
LIFT	2040	51	1	1	1		SPACE			
---	2040	53	1	1	1		SPACE			
LIFT	2040	55	1	1	1		SPACE			
---	2040	57	1	1	1		SPACE			
LIFT	2040	59	1	1	1		SPACE			
---	2040	61	1	1	1		SPACE			
LIFT	2040	63	1	1	1		SPACE			
---	2040	65	1	1	1		SPACE			
LIFT	2040	67	1	1	1		SPACE			
---	2040	69	1	1	1		SPACE			
SPARE		71	1	1	1		SPACE			
SPARE		73	1	1	1		SPACE			
SPARE		75	1	1	1		SPACE			
SPARE		77	1	1	1		SPACE			
SPARE		79	1	1	1		SPACE			
SPARE		81	1	1	1		SPACE			
SPARE		83	1	1	1		SPACE			
A phase =	31207 VA	B phase =	33670 VA	Total =	64877 VA					

PROJ #24-----

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BRAKES PLUS

1201 LONNIE ABBOTT BLVD.
ADA, OKLAHOMA



ARCHITECT OF RECORD

COMMENTS	FOR BLDG. DEPT. SUBMITTAL

DATE 08.06.20

REVISION

ARCODEV JOB #:

CLIENTJOB #:

DRAWN BY:

CHECKED BY:

DATE OF ISSUE: 08.06.24



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SHEET

E4.1

ELECTRICAL ONE

COMcheck Software Version 4.1.5.5
Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Brakes Plus
Project Type: New Construction

Construction Site: 1201 Lonnie Abbott Blvd Ada, OK
Owner/Agent:
Designer/Contractor: Loren Priest EE, LLC 12005 Antelope Trail Parker, CO 80138 303.748.1189 loren@eeparker.com

Additional Efficiency Package(s)

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

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Sales Area (Retail Sales Area)	990	1.10	1089
2-Service/Repair (Automotive/Vehicular Maintenance Area)	3686	0.50	1843
Total Allowed Watts = 2932			

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: LED 8: F4: 8' LED Strip: LED Linear 22W: LED 7 copy 1: F7: 2x4 LED Troffer: LED Panel 19W:	2 4 1	3 1 12	38 61 39	114 61 468
2-Service/Repair (Automotive/Vehicular Maintenance Area) LED 8 copy 2: F9: 4' LED Highbay: LED Panel 60W: LED 8 copy 1: F4: 8' LED Strip: LED Linear 22W:	1 4	17 10	87 61	1479 610
Total Proposed Watts = 2732				

Interior Lighting PASSES: Design 7% 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 2018 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 8-2-24

Project Title: Brakes Plus
Data filename: C:\COMCHECK\BRAKES PLUS\BRAKES PLUS- ADA OK.cck
Report date: 08/01/24
Page 1 of 8

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.1, C405.2.2.2 [EL22]²	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces. C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.4 [EL26]¹	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 [EL27]¹	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 [EL28]¹⁴⁵	Manual controls required by the energy code are in a location with ready access to occupants and located where the controlled lights are visible, or identify the area served and their status.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.6 [EL30]¹⁴⁵	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]¹	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	
C405.6 [EL26]¹	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.7 [EL27]¹	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.8.2.1, C405.8.2.2 [EL28]²	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.9 [EL29]²	Total voltage drop across the combination of feeders and branch circuits <= 3%.	<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- ADA OK.cck
Report date: 08/01/24
Page 5 of 8

COMcheck Software Version 4.1.5.5
Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Brakes Plus
Project Type: New Construction
Exterior Lighting Zone: 4 (High activity metropolitan commercial district (L24))

Construction Site: 1201 Lonnie Abbott Blvd Ada, OK
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 ft2	0.15	No	450
Total Tradable Watts (a) =				0
Total Allowed Watts =				450
Total Allowed Supplemental Watts (b) =				900

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 900 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 ft2): Non-tradable Wattage LED 1: F1: LED Wall pack: LED A Lamp 29W: LED 4: A: LED Decorative Wall Lt: LED A Lamp 25W:	1	10	30	300
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 2018 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 8-2-24

Project Title: Brakes Plus
Data filename: C:\COMCHECK\BRAKES PLUS\BRAKES PLUS- ADA OK.cck
Report date: 08/01/24
Page 2 of 8

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- ADA OK.cck
Report date: 08/01/24
Page 6 of 8

COMcheck Software Version 4.1.5.5
Inspection Checklist

Energy Code: 2018 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]¹	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]¹	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]¹	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- ADA OK.cck
Report date: 08/01/24
Page 3 of 8

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [F117]²	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.4.1 [F118]¹	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Interior Lighting fixture schedule for values.
C405.5.1 [F119]¹	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Exterior Lighting fixture schedule for values.
C408.1.1 [F15]¹	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C408.2.5.1 [F116]²	Furnished as-built drawings for electric power 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	
C408.3 [F15]¹	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	<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- ADA OK.cck
Report date: 08/01/24
Page 7 of 8

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22]²	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1, C405.2.1.1 [EL18]²	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1, C405.2.1.1 [EL19]²	Occupancy sensors control function in warehouses: In warehouses, the lighting in aislesways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.1.3 [EL20]²	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space. 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space. 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C405.2.2, C405.2.2.1, C405.2.2.2 [EL21]²	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

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Report date: 08/01/24
Page 4 of 8

BRACKES PLUS
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ADA, OKLAHOMA

LICENSED PROFESSIONAL ENGINEER
ADAM A. POWELL
27768
OKLAHOMA
8-6-24

ARCHITECT OF RECORD

REVISION	DATE	COMMENTS
	08.06.24	FOR BLDG. DEPT. SUBMITTAL

ARCODEV JOB #: -
CLIENT JOB #: -
DRAWN BY: SB
CHECKED BY: LRP
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E5.1

LIGHTING COMPLIANCE
CERTIFICATES