

QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

PARKER, CO

ABBREVIATIONS

CL	CENTERLINE	HR	HOUR
PL	PERPENDICULAR	HT	HEIGHT
Q	SQUARE	HVAC	HEATING VENTILATING AND AIR CONDITIONING
Ø	DIMETER	IN	INCH
#	NUMBER	I.D.	INSIDE DIAMETER
(E)	EXISTING	INSUL	INSULATION
(F)	FUTURE	INT.	INTERIOR
(N)	NEW	JAN.	JANITOR
(R)	RENOVATE OR RELOCATED	JT.	JOINT
@	AT	K.O.	KNOCKOUT
A.B.	AIR CONDITIONING	KIT	KITCHEN
A.D.A.	AMERICANS WITH DISABILITIES ACT	L.F.	LINEAL FEET OR FOOT
A.F.F.	ABOVE FINISH FLOOR	L.P.	LOW POINT
A.H.J.	AUTHORITY HAVING JURISDICTION	L.M.	LUMINATE
A.O.A.	AIRLINES OPERATION AREA	LAV.	LAVATORY
AC	AIR-CONDITIONING	LES.	LEADS
ABV.	ABOVE	M.B.	MACHINE BOLT
ACOUS	ACOUSTICAL	M.H.	MANHOLE
T	TO	M.O.	MASONRY OPENING
ADJ.	ADJUSTABLE	MAX.	MAXIMUM
AGG.	AGGREGATE	MECH.	MECHANICAL
ALT.	ALTERNATIVE	MET.	METAL
ALUM.	ALUMINUM	MFR.	MANUFACTURER
APPROX	APPROXIMATE	MIN.	MINIMUM
X	ARCHITECTURAL	MISC.	MISCELLANEOUS
ARCH.	ARCHITECTURAL	MTD	MOUNTED
AUTO.	AUTOMATIC	N	NORTH
AVE.	AVENUE	N.I.C.	NOT IN CONTRACT
B.O.	BOTTOM OF	N.S.	NEAR SIDE
B.O.C.	BASE OF CURB	N.T.S.	NOT TO SCALE
B.U.	BUILT UP	NO.	NUMBER
BD.	BOARD	NOM.	NOMINAL
BLDG.	BUILDING	O.A.	OVER ALL
BLK.	BLOCK	O.C.	ON CENTER
BM.	BEAM	O.D.	OUTSIDE DIAMETER
BOT.	BOTTOM	O.H.	OPPOSITE HAND
C.B.	CATCH BASIN	O.T.S.	OPEN TO STRUCTURE
C.C.	CENTER TO CENTER	OV.	OVER
C.I.	CAST IRON	OH	OVERHEAD
C.I.P.	CAST IN PLACE	OFF.	OFFICE
C.M.U.	CONCRETE MASONRY UNIT	OPNG.	OPENING
C.O.	CONCRETE OPENING OR CLEAN-OUT	OPP.	OPPOSITE
C.T.	CERAMIC TILE	OZ.	OUNCE
C.W.	COLD WATER	P.L.M.	PLASTIC LAMINATE
CAB.	CABINET	P.T.D.	PAPER TOWEL DISPENSER
CDM.	CASEMENT	PL	PROPERTY LINE
CFM.	CUBIC FEET/MINUTE	PART.	PARTICLE
CLG.	CEILING	PL.	PLATE
CLR.	CLEAR	PLUMB.	PLUMBING
QNTRS	COUNTERSUNK	PLYWD.	PLYWOOD
K	COLUMN	PRE-EN	PRE-ENGINEERED
COL.	COLUMN	Q	QUANTITY
CONC.	CONCRETE	PT.	POINT
CONT.	CONTINUOUS	PMT.	PAVEMENT
CORR.	CORRIDOR	QT.	QUARRY TILE
QW.	COORDINATE WITH	R.	RADIUS OR RISE
D	DEEP	R.D.	ROOF DRAIN
D.B.A	DEFORMED BAR ANCHOR	R.O.	ROUGH OPENING
D.F.	DRINKING FOUNTAIN	R.W.L.	RAIN WATER LEADER
D.S.	DOWNSPOUT	RE.	REFERENCE (DW)
D.S.P.	DRY STANDPIPE	REIN.	REINFORCED (I)
DET.	DETAIL	REQD.	REQUIRED
DL.	DIA.	RM.	ROOM
DIAG.	DIAGONAL	S.C.	SOLID CORE
DM.	DIMENSION	S.D.	SEAT DISPENSER
DN.	DOWN	S.C.D.	SEAT COVER DISPENSER
DWG.	DRAWING	S.F.	SQUARE FEET OR FOOT
E.B.	EXPANSION BOLT	S.I.D.A.	SECURITY IDENTIFICATION DISPLAY AREA
E.I.F.S.	EXTERIOR INSULATION & FINISHING SYSTEM	S.N.D.	SANITARY NAPKIN DISPENSER
E.J.	EXPANSION JOINT	S.N.R.	SANITARY NAPKIN RECEPTACLE
E.P.	ELECTRICAL PANELBOARD	S.S.	STAINLESS STEEL
E.W.C.	ELECTRIC WATER COOLER	SCHED.	SCHEDULE
EA.	EACH	SECT.	SECTION
ELEV.	ELEVATION	SHR.	SHOWER
ELEC.	ELECTRICAL	SHT.	SHEET
ELEV.	ELEVATOR	SM	SIMILAR OR SIMILAR TO
EQ.	EQUAL	SQ.	SQUARE
EQUIP.	EQUIPMENT	ST.	STREET OR STEEL
EXH.	EXHAUST	STD.	STANDARD
EXP.	EXPANSION	STRUC.	STRUCTURAL
EXT.	EXTERIOR	SUP.	SUSPENDED
F.A.	FIRE ALARM	SYM.	SYMMETRICAL
F.B.	FLAT BAR	T & G	TONGUE & GROOVE
F.D.	FLOOR DRAIN	T	TREAD
F.E.	FIRE EXTINGUISHER	T.B.	TOWEL BAR
F.E.C.	FIRE EXTINGUISHER CABINET	T.D.	TOP OF DRAIN
F.H.C.	FIRE HOSE CABINET	T.O.	TOP OF
F.O.	FACE OF	T.O.C.	TOP OF CURB/CONCRETE
F.O.C.	FACE OF CURB/CONCRETE	T.O.M.	TOP OF MASONRY
F.O.F.	FACE OF FINISH	T.O.P.	TOP OF PARAPET
F.O.M.	FACE OF MASONRY	T.O.S.	TOP OF SLAB
F.O.S.	FACE OF STUDS	T.O.W.	TOP OF WALL
F.O.T.	FACE OF TREAD	T.P.D.	TOILET PAPER DISPENSER
F.S.	FAR SIDE	TEL.	TELEPHONE
FDN.	FOUNDATION	THK.	THICKNESS
FN.	FINISH	THRES.	THRESHOLD
FL.	FLOORING	TYP.	TYPICAL
FLASH.	FLASHING	UB.C.	UNIFORM BUILDING CODE
FT.	FOOT OR FEET	U.O.N.	UNLESS OTHERWISE NOTED
FTG.	FOOTING	V.C.T.	VINYL COMPOSITION TILE
FTW.	FIRE TREATED WOOD	V.I.F.	VERIFY IN FIELD
FURR.	FURRING	VENT.	VENTILATION
G.	GAS	VERT.	VERTICAL
G.B.	GRAB BAR	VEST.	VESTIBULE
GA.	GAUGE OR GAGE	W.	WIDE
GALV.	GALVANIZED	WB.	WALL BEYOND
GYP.	GYP-SUM	W.C.	WATER CLOSET OR WALL COVERING
H	HIGH	W.G.	WIRE GLASS
H.A.S.	HEADED ANCHOR STUD	WGL.	WIRE GLASS
H.A.S.	HEADED CONCRETE ANCHOR	W.P.	WORK POINT
H.B.	HOSE BIBB	WR.	WASTE RECEPTACLE
H.C.	HANDICAPPED - A.D.A.A.G.	W.W.F.	WELDED WIRE FABRIC
H.M.	HOLLOW METAL	W.	WITH
H.P.	HIGH POINT	WO.	WITHOUT
H.W.	HOT WATER	WD.	WOOD
HORIZ.	HORIZONTAL		

GENERAL NOTES

- THE DRAWINGS INDICATE LOCATION, DIMENSIONS, REFERENCE, AND TYPICAL DETAILS OF CONSTRUCTION. THE DRAWINGS DO NOT INDICATE EVERY CONDITION - WORK NOT PARTICULARLY DETAILED SHALL BE OF CONSTRUCTION SIMILAR TO PARTS THAT ARE DETAILED.
- DO NOT SCALE DRAWINGS.
- FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALED DRAWINGS. WHERE DISCREPANCIES OCCUR, THEY SHALL BE REPORTED TO ARCHITECT FOR RESOLUTION.
- DETAILED DRAWINGS AND LARGER SCALE DRAWINGS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS.
- CONCRETE DIMENSIONS ARE GIVEN TO FACE OF CONCRETE AND TO THE FACE OF ROUGH OPENINGS.
- MASONRY DIMENSIONS ARE GIVEN TO FACE OF MASONRY AND TO THE FACE OF ROUGH OPENINGS.
- PARTITION DIMENSIONS ARE GIVEN TO THE FACE OF STUD UNLESS OTHERWISE NOTED.
- DOOR OPENING LOCATIONS ARE DIMENSIONED TO ROUGH OPENING OR CENTERLINE OF OPENING.
- WHERE NO MATERIAL NOTES OCCUR, THE GRAPHIC MATERIAL INDICATION SHALL INDICATE MATERIAL TYPES AND ITEMS. SEE MATERIALS & SYMBOL LIST ON THIS SHEET.
- FINISH FLOOR ELEVATION DATUM 100'-0" = 5811.00'
- ALL NEW CONSTRUCTION TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT AND ANSI.
- ALL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
- THE CONTRACTOR(S) SHALL KEEP ALL AREAS OF CONSTRUCTION CLEAN AND FREE OF DEBRIS. AFTER CONSTRUCTION IS COMPLETE, THE GENERAL CONTRACTOR SHALL PROVIDE FINAL CLEAN UP.
- ALL EXITS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. I.B.C. 2015, SECTION 1008.1.9.
- EXIT SIGNAGE SHALL BE EXTERNALLY OR INTERNALLY ILLUMINATED BY THE PREMISES' WIRING AND BY STORAGE BATTERIES AND BE IN COMPLIANCE WITH IBC 2015 SECTION 1011.
- EXIT WAYS SHALL BE ILLUMINATED PER IBC SECTION 1006. THE POWER SUPPLY FOR EXIT ILLUMINATION SHALL NORMALLY BE PROVIDED BY THE PREMISES' WIRING SYSTEM, IBC SECTION 1006.
- UNLESS OTHERWISE INDICATED ALL DRAWING, NOTES WHICH DO NOT READ "N.I.C.", "EXISTING", OR "EXISTING TO REMAIN", OR "BY OTHERS" SHALL INDICATE NEW WORK WHICH SHALL BE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS FOR ACCURACY PRIOR TO COMMENCING WITH THE WORK. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
- PENETRATIONS THROUGH RATED ASSEMBLIES SHALL BE FIRESTOPPED AND PROTECTED IN ACCORDANCE WITH I.B.C. SECTION 714.

PROJECT INFORMATION

PROJECT DESCRIPTION:
CONSTRUCTION OF A 5,343 SQ. FT. CAR WASH AND ASSOCIATED SITE WORK ON AN EXISTING LOT.

FOR CODE DATA, OCCUPANT LOAD CALCULATION AND OTHER CODE COMPLIANCE CALCULATIONS, SEE G1.1, CODE PLAN & DETAILS

SPECIAL INSPECTIONS

- CONCRETE
- STRUCTURAL STEEL
- MASONRY
- ADDITIONAL INSPECTIONS AS REQUIRED BY THE AHJ
- SEE SHEET S01.1

DEFERRED SUBMITTALS

- FIRE ALARM SHOP DRAWINGS
- STEEL JOIST/JOIST GIRDERS

CONTACT INFORMATION

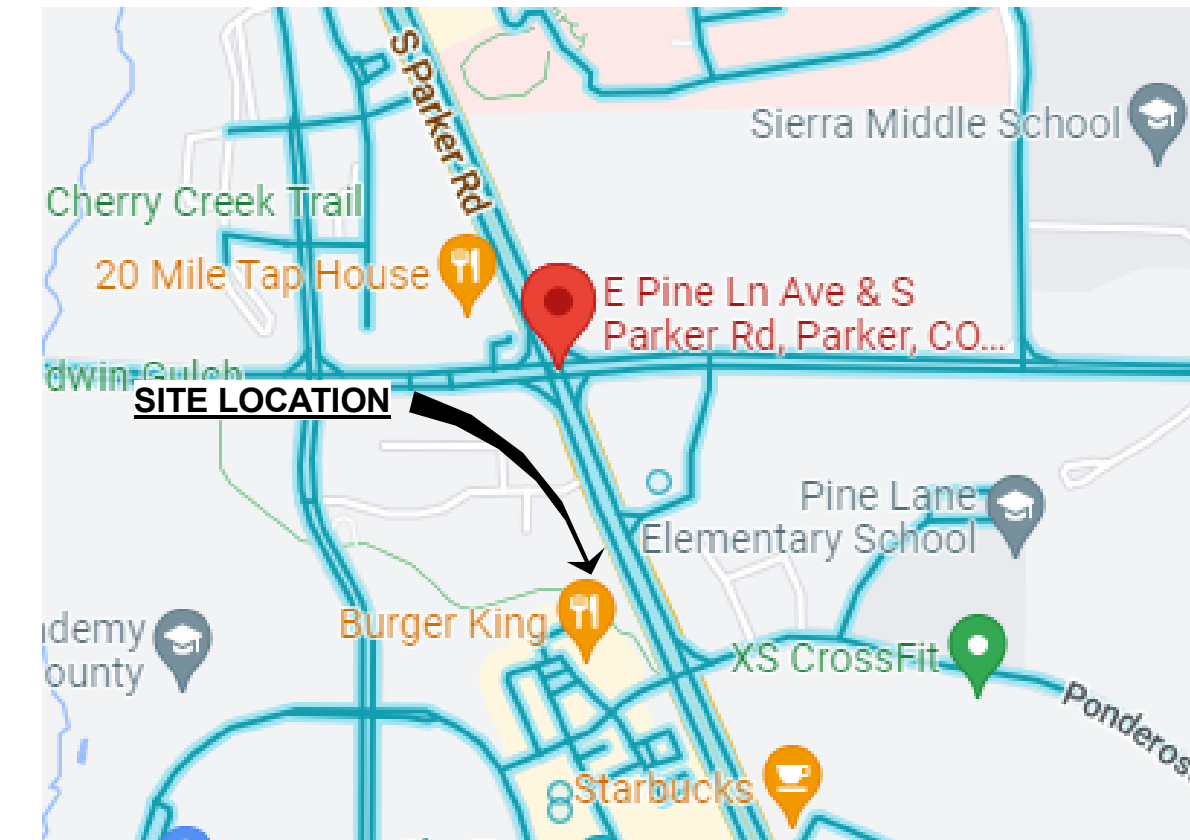
ARCHITECTURE CSHQA 2696 S COLORADO BLVD. STE 525 DENVER, CO 80222 (303) 962-9164 CONTACT: BILL STOW EMAIL: bill.stow@cshqa.com www.cshqa.com	OWNER LTH DEVELOPMENT GROUP, LLC 11811 NORTH TATUM BLVD. STE 1051 PHOENIX AZ 85028 (480) 963-4527 CONTACT: MICHAEL SCARBROUGH EMAIL: mike@3k1.us
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MATERIALS & SYMBOLS

	EARTH		NUMBER OF OCCUPANTS		ACCESSORY USE
	POROUS FILL - GRAVEL		OCCUPANCY FACTOR		AREA OF ROOM
	SAND FILL		A-1		MATERIAL FINISH, RE: A41 & A51 FINISH SCHEDULE
	CONCRETE		##		SHEET NOTE, RE: SHEET NOTES LIST ON CURRENT PAGE
	CONCRETE MASONRY UNIT (NORMAL WEIGHT)		W01 T.O.W. XXX-XX		WALL TYPE, RE: A11, FOR WALL TYPES WITH VARIABLE HEIGHT, SEE TOP OF WALL ELEVATION
	SINGLE GLAZING		1		ACCESSORY/FIXTURE TYPE, RE: A41
	INSULATED GLAZING		1		REVISION KEY RE: REVISED BOX IN TITLE BLOCK OF CURRENT PAGE
	METAL, (LARGE SCALE DRAWING)		---		PROPERTY LINE
	METAL, (SMALL SCALE DRAWING)		118'-0"		AREA DRAIN / CATCH BASIN
	FRAMING LUMBER		Z		FLUSH SURFACE MEETING
	PLYWOOD		---		STRUCTURE CENTERLINE
	PARTICLE BOARD		1 A61		ELEVATION POINT
	FINISH LUMBER		1 A61		BUILDING SECTION MARK REF. (SEE DWG. #1 @ SHT. A61)
	GYPSUM BOARD		1 A63		WALL SECTION MARK REF. (SEE DWG. #1 @ SHT. A63)
	ACOUSTIC TILE/PANEL		AXX-X		DETAIL REFERENCE (SEE DWG. #1 @ SHT. A71)
	BATT INSULATION		AXX-X		DETAIL SECTION MARK
	SEMI-RIGID INSULATION		1 A21		INTERIOR ELEVATIONS SEE DWG. #1 @ SHT. A21
	RIGID INSULATION				
	MOISTURE BARRIER				
	ASPHALT PAVING				
	WINDOW TYPE, RE: A41 WINDOW TYPES		Room name 101		ROOM NAME
	DOOR NUMBER, RE: A41 DOOR SCHEDULE				ROOM NUMBER

VICINITY MAP

NOT TO SCALE



DRAWING INDEX

SHEET NO. SHEET NAME

GENERAL
G0.0 TITLE SHEET
G1.1 OCCUPANCY & CODE PLAN

CIVIL/LANDSCAPE
SEE CIVIL DRAWINGS FOR THEIR SHEET INDEX

STRUCTURAL
S0.1 GENERAL STRUCTURAL NOTES
S0.2 TYPICAL DETAILS
S0.3 TYPICAL DETAILS
S1.1 FOUNDATION PLAN
S2.1 ROOF FRAMING PLAN
S2.2 SNOW LOAD ROOF DIAGRAM
S2.3 PIER LAYOUT
S3.1 FOUNDATION DETAILS
S4.1 FRAMING DETAILS

ARCHITECTURAL
A0.1 PIER DIAGRAM PLAN
A1.1 FLOOR PLAN
A2.1 REFLECTED CEILING PLAN
A3.1 ROOF PLAN
A4.1 ENLARGED PLANS AND SCHEDULES
A5.1 EXTERIOR ELEVATIONS
A6.1 BUILDING SECTIONS
A6.2 BUILDING SECTIONS
A7.1 DETAILS
A7.2 WINDOW/DOOR DETAILS
A7.3 DETAILS
A8.1 ROOFING DETAILS
A8.2 ROOFING DETAILS

PLUMBING
P0.1 PLUMBING COVER SHEET
P0.2 PLUMBING SCHEDULES
P1.1 PLUMBING FLOOR PLAN
P1.2 PLUMBING ROOF PLAN
P2.1 PLUMBING DETAILS
P2.2 PLUMBING ISOMETRIC

MECHANICAL
M0.1 MECHANICAL COVER SHEET
M0.2 MECHANICAL SPECIFICATIONS
M0.3 MECHANICAL SCHEDULES
M0.4 MECHANICAL SNOWMELT SPECIFICATIONS
M0.5 MECHANICAL SNOWMELT
M0.6 MECHANICAL SNOWMELT
M1.0 MECHANICAL SNOWMELT PLAN
M1.1 MECHANICAL FLOOR PLAN
M1.2 MECHANICAL ROOF PLAN
M2.1 MECHANICAL DETAILS
M2.2 MECHANICAL DETAILS

ELECTRICAL
E0.1 ELECTRICAL COVER SHEET
E0.2 ELECTRICAL LEGEND & NOTES
E1.0 ELECTRICAL SITE PLAN
E1.1 ELECTRICAL LIGHTING PLAN
E1.2 ELECTRICAL ROOF PLAN
E2.1 ELECTRICAL POWER PLAN
E3.1 ELECTRICAL ONE-LINE & SCHEDULES
E3.2 ELECTRICAL FUTURE SCHEDULES & CCK
ES1.0 PHOTOMETRIC SITE PLAN

SCOPE OF WORK

CONSTRUCTION OF A 5,343 SQ. FT. NEW CAR WASH AND ASSOCIATED SITE WORK ON AN EXISTING LOT.



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9572 TWENTY MILE ROAD

CSHQA

PROJECT
20037.000
DATE
3-15-2023
DRAWN
RJ
CHECKED
WRS

REVISED
1 AGENCY COMMENTS 3/15/2023

SHEET TITLE

TITLE SHEET

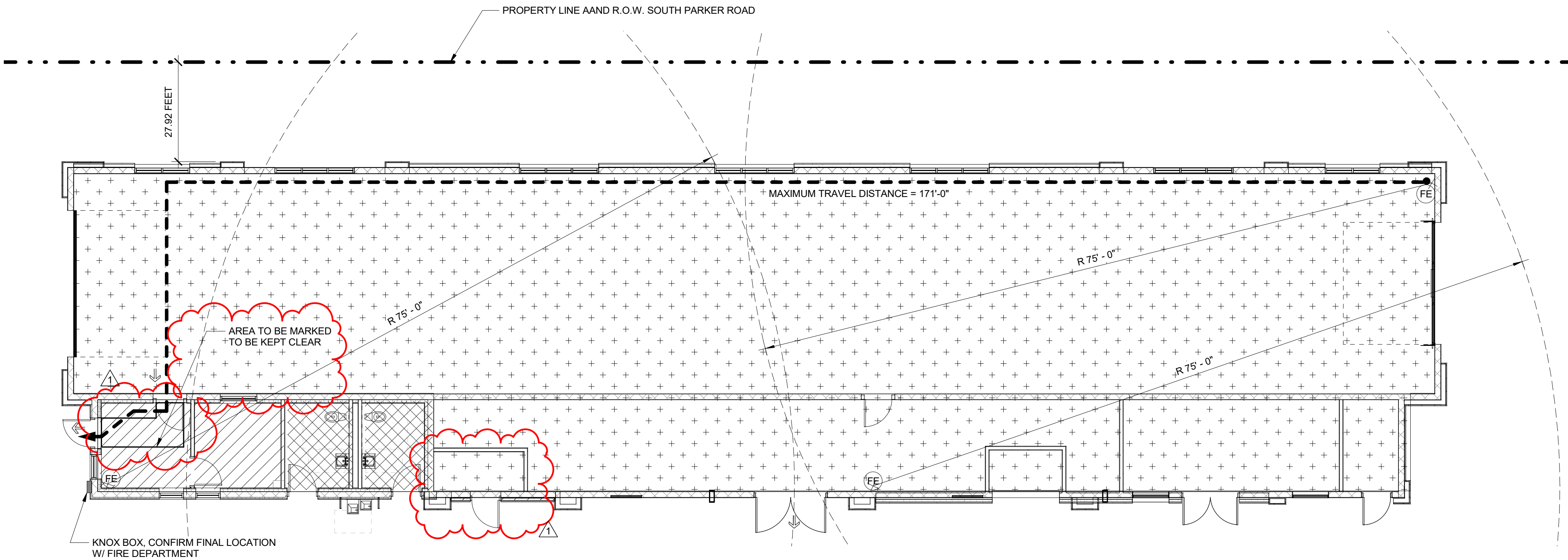
SHEET

G0.0
ORIGINAL SHEET SIZE
24" x 36"



1 EGRESS FLOOR PLAN

1/8" = 1'-0"



LEGEND:

(FE)	PORTABLE FIRE EXTINGUISHER TYPE 2A-10BC, RE: MOUNTING HEIGHTS A4.1-8	
←	EXIT	
→	PATH OF EGRESS TRAVEL TYP.	
	ACCESSORY STORAGE & MECH./EQUIP.	4,699 SF
	BUSINESS	186 SF
	NON-OCCUPIABLE AREAS: RESTROOMS AND FIRE RISER ROOM	139 SF
	TOTAL	5,024 SF

OCCUPANT LOAD

BUILDING AREA:	5,343 SF
OCCUPANT LOAD AREA:	5,024 SF
OCCUPANT LOAD CALCULATIONS (PER IBC TABLE 1004.1.2):	
ACCESSORY STORAGE AREAS, MECH., & EQUIP (4,699/300):	17
BUSINESS @ 100 S.F. PER PERSON (186/100):	2
RESTROOMS	EXEMPT
TOTAL OCCUPANTS:	19

FIXTURE ANALYSIS:

TOTAL OCCUPANT LOAD:	= 19 OCCUPANTS
FIXTURES REQUIRED: PER IBC TABLE 2902.1, CLASSIFICATION ASSEMBLY 'B'	
WATER CLOSETS = 1 UNIT /25 OCC. = 1 REQUIRED (1 PER FIRST 25 FOR FIRST 50 AND 1 PER 50 FOR THE REMAINDER EXCEEDING 50)	
LAVATORIES = 1 UNIT /40 OCC. = 1 REQUIRED (1 PER FIRST 40 FOR FIRST 80 AND 1 PER 80 FOR THE REMAINDER EXCEEDING 80)	
DRINKING FOUNTAIN	= 1 REQUIRED
SERVICE SINKS	= 1 REQUIRED
FIXTURES PROVIDED:	
UNISEX WATER CLOSETS	= 2 PROVIDED
UNISEX LAVATORIES	= 2 PROVIDED
DRINKING FOUNTAIN	= 2 PROVIDED
SERVICE SINK	= 1 PROVIDED
ACCESSIBILITY:	
THE FOLLOWING FIXTURE COUNT (AS PART OF THE TOTAL PROVIDED) ARE ACCESSIBLE PER IBC SECTION 1109.2 ACCESSIBLE LAVATORY = 2 PROVIDED ACCESSIBLE WATER CLOSET = 2 PROVIDED	

CODE DATA

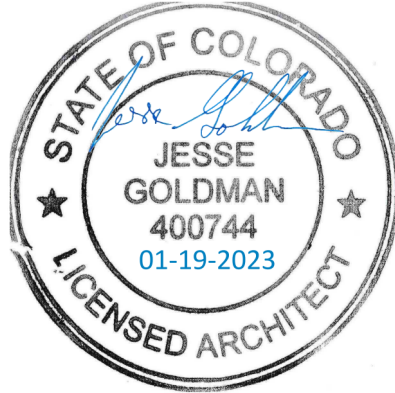
CONSTRUCTION TYPE:	VB, SPRINKLERED
OCCUPANCY GROUP:	B
2021 INTERNATIONAL BUILDING CODE (IBC) ICC A117.1-2009 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) 2021 INTERNATIONAL PLUMBING CODE (IPC) 2021 INTERNATIONAL MECHANICAL CODE (IMC) 2021 INTERNATIONAL FUEL GAS CODE (IFGC) 2021 INTERNATIONAL FIRE CODE (IFC) 2020 NATIONAL ELECTRICAL CODE (NEC)	

ENERGY COMPLIANCE

2021 IECC CLIMATE ZONE 5A COLORADO COUNTY: DOUGLAS CAR WASH TUNNEL & EQUIPMENT ROOM NOT A OCCUPIED SPACE PER PRESCRIPTIVE PATH
MASS WALL
• R VALUE REQUIRED: 11.4 ci
• R VALUE PROVIDED: 11.4 ci
ROOF INSULATION ENTIRELY ABOVE ROOF DECK
• R VALUE REQUIRED: R-30 ci
• R VALUE PROVIDED: R-38 ci
SLAB ON GRADE (UNHEATED)
• R VALUE REQUIRED: R-7.5 FOR 24" BELOW
• R VALUE PROVIDED: R-7.5 FOR 24" BELOW
SWINGING OPAQUE DOORS
• U FACTOR REQUIRED: U-0.37
• U FACTOR PROVIDED: U-0.36
WINDOWS (FIXED):
• U FACTOR REQUIRED: U-0.36
• U FACTOR PROVIDED: U-0.29
• SHGC REQUIRED (PF < 0.2): 0.38
• SHGC PROVIDED: 0.23

EXIT ANALYSIS:

EXIT AND EXIT ACCESS DOORWAYS
PER IBC, SECTION 1006 AND TABLE 1006.2.1, FOR SPACES WITH THE OCCUPANCY CLASSIFICATION 'B' HAVING AN OCCUPANT LOAD LESS THAN 50 REQUIRES ONE EXIT.
TOTAL EXITS PROVIDED FOR THIS SPACE = 1
THEREFORE THE NUMBER OF EXITS IS ADEQUATE
MAXIMUM TRAVEL DISTANCE
PER IBC TABLE 1017.2 BUSINESS OCCUPANCY WITH SPRINKLERS: 300' MAXIMUM TRAVEL DISTANCE
MAXIMUM TRAVEL DISTANCE: 186'-0"
THEREFORE EGRESS DISTANCE IS ACCEPTABLE



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CS&HQ

PROJECT 20037.000	DATE 3-15-2023
DRAWN RJ	CHECKED WRS

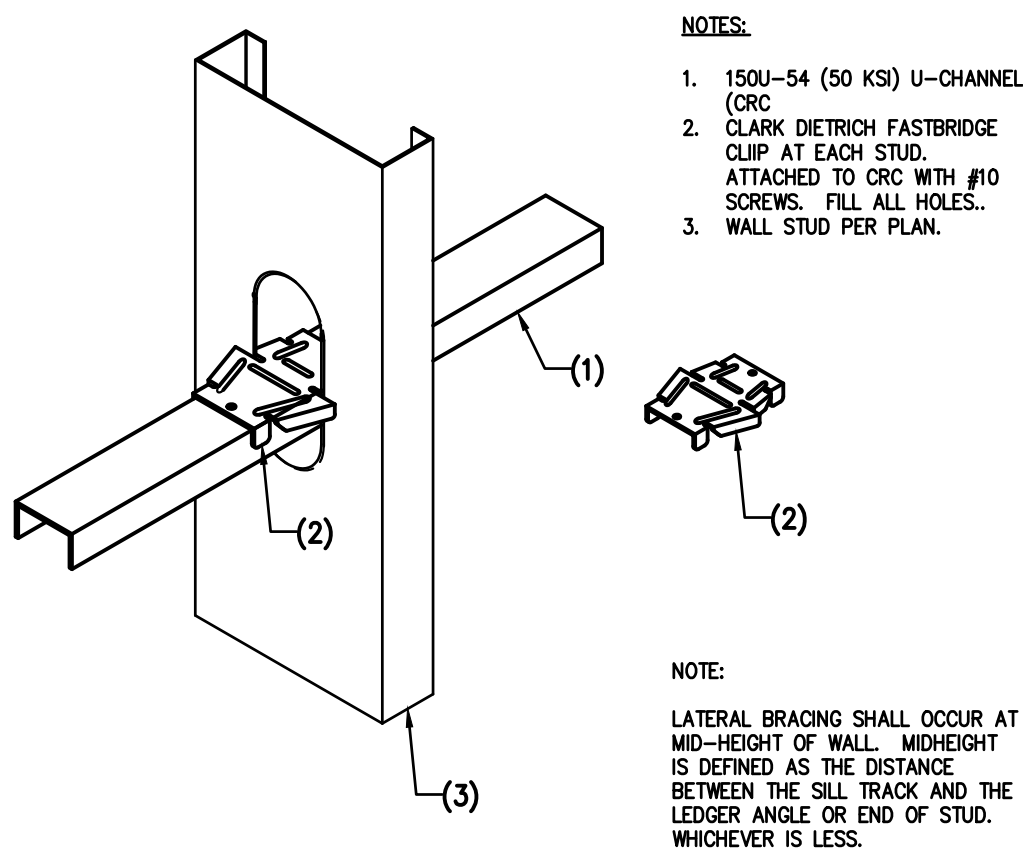
REVISED 1 AGENCY COMMENTS	3/15/2023
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SHEET TITLE

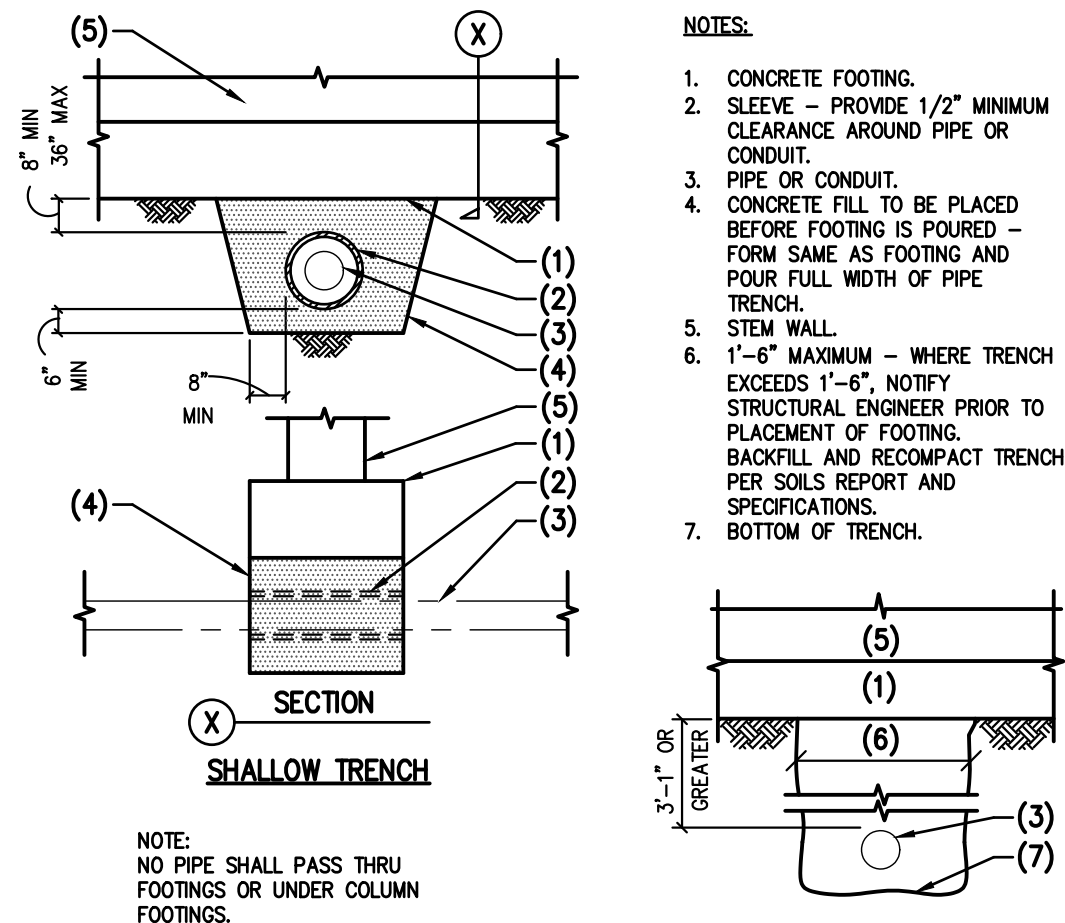
OCCUPANCY
& CODE PLAN

SHEET

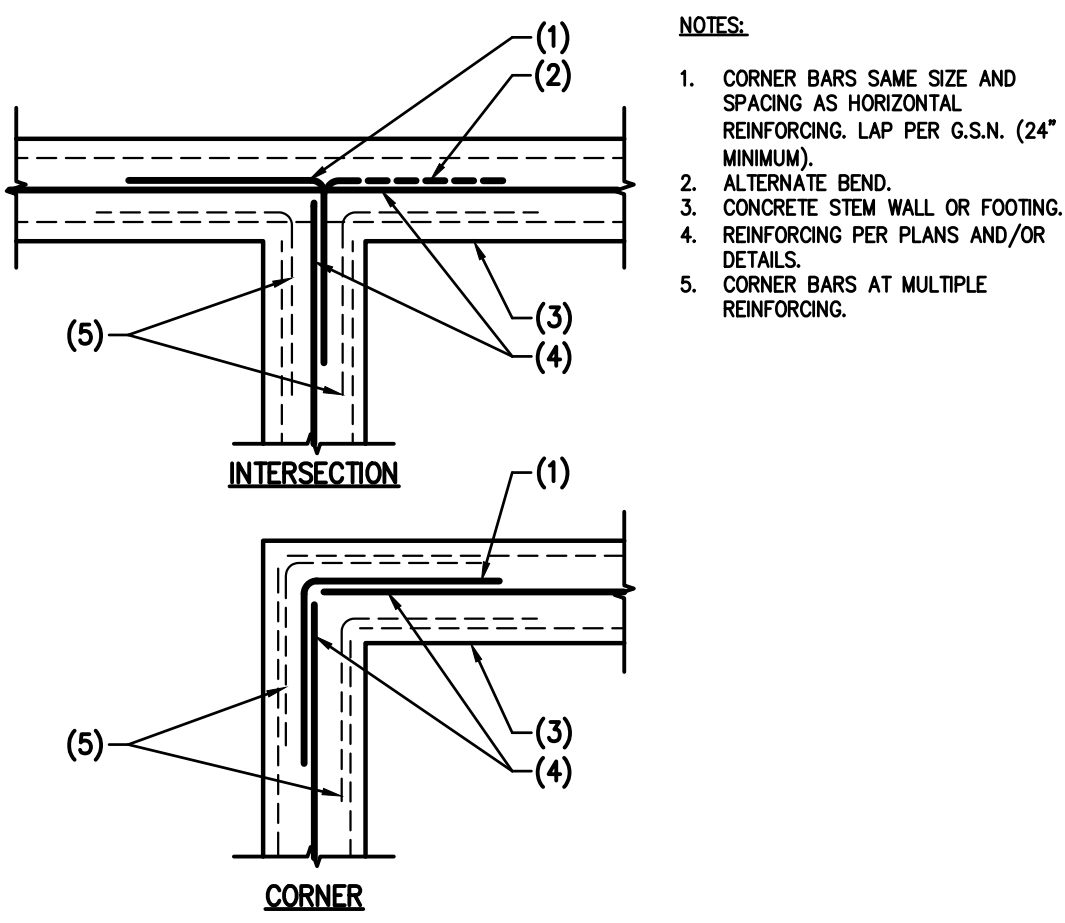
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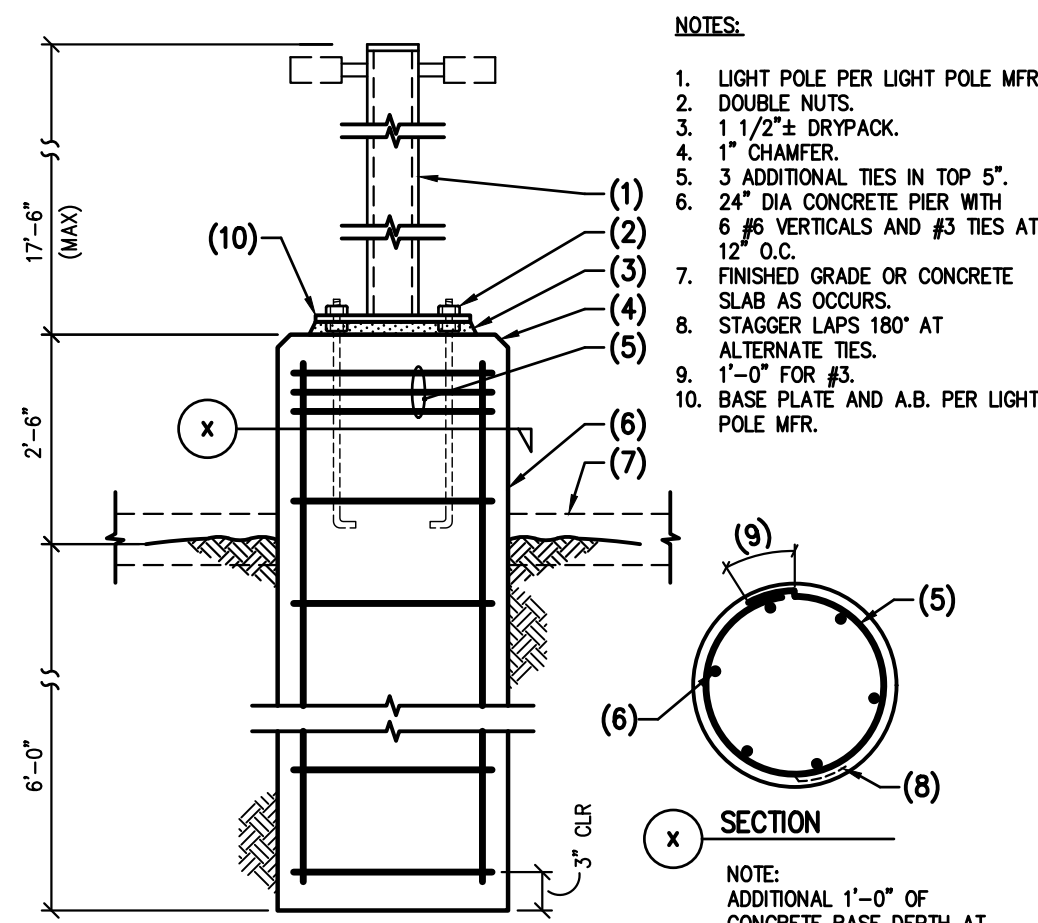
20 CLARK DETRICH FASTBRIDGE LATERAL BRACING NO SCALE



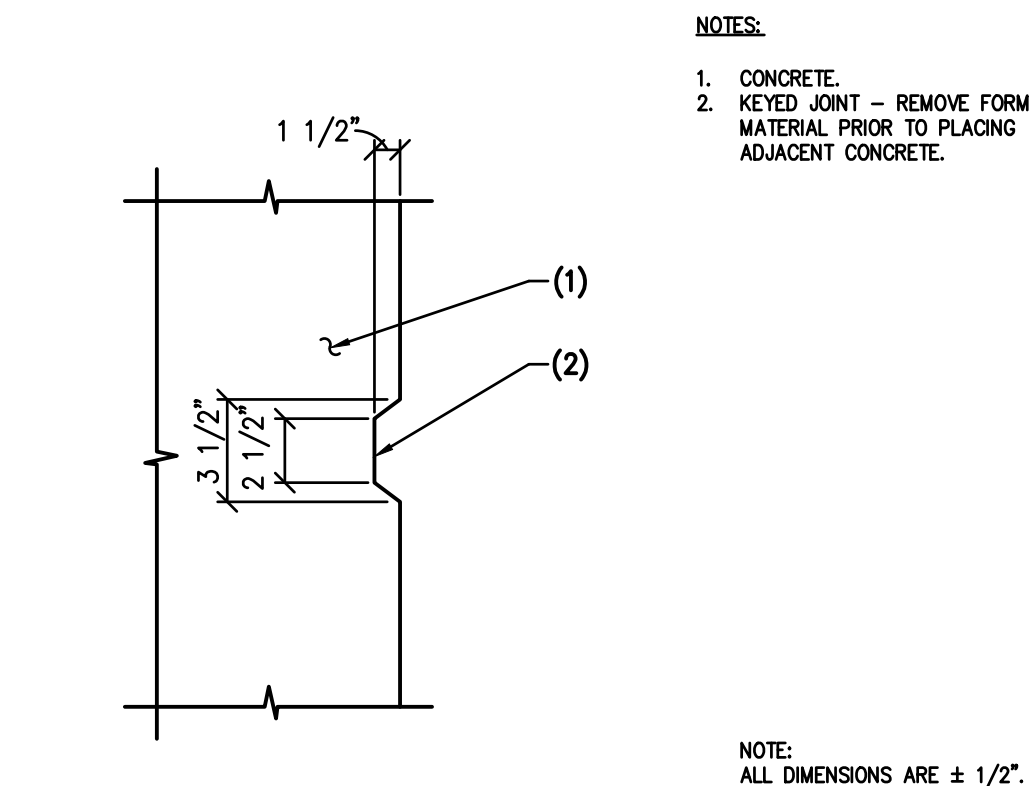
21 PIPE PASSING UNDER WALL FOOTING NO SCALE



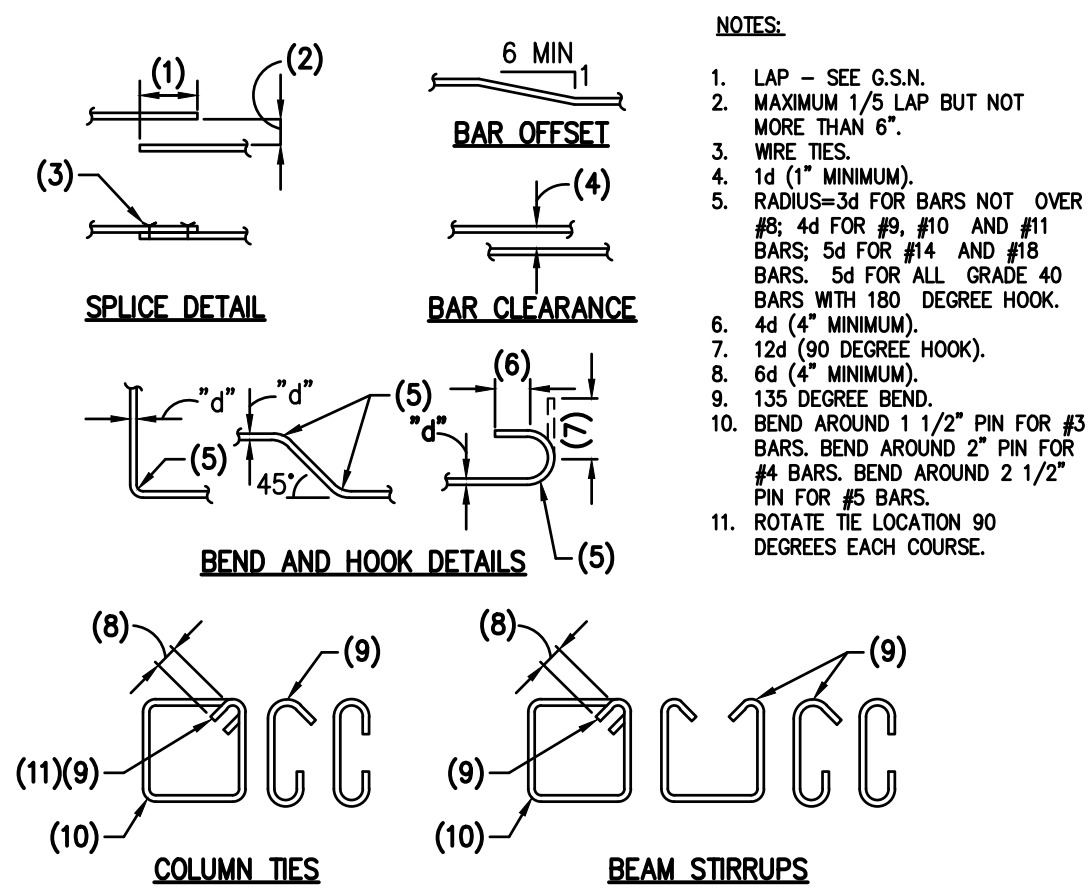
22 PLAN - CORNER REINFORCING IN CONCRETE FOOTING, STEM OR WALL NO SCALE



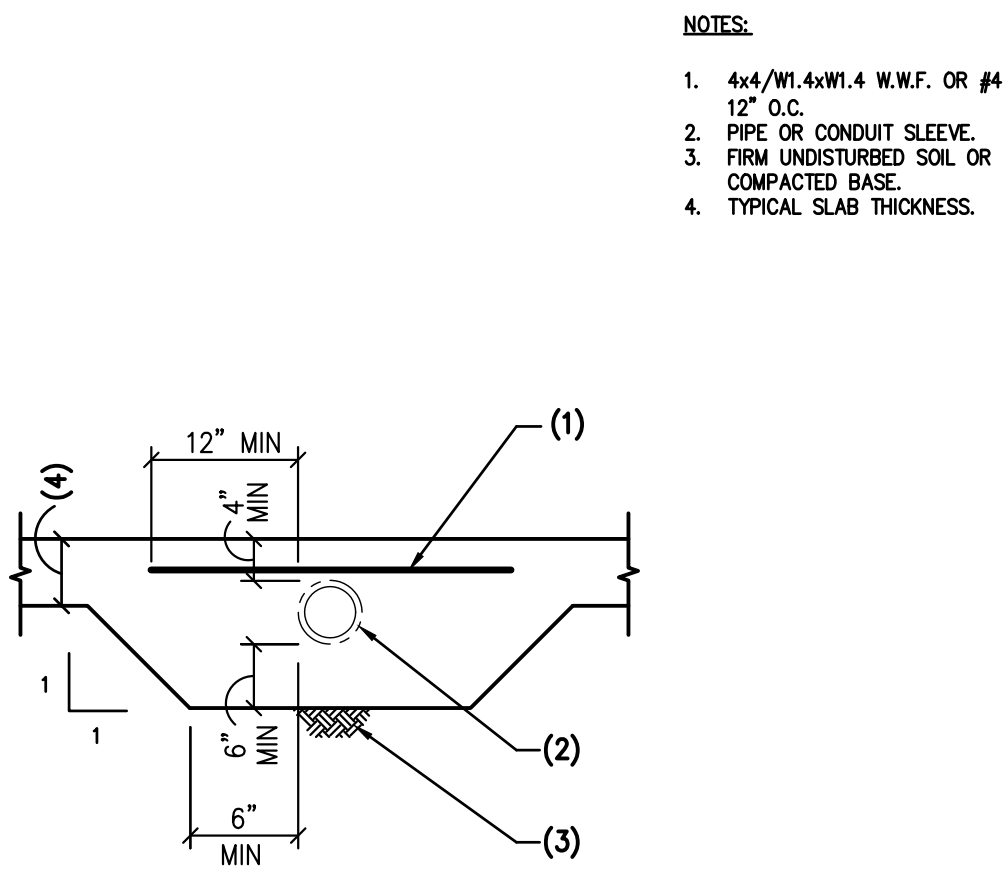
23 FOUNDATION - 20'-0" (MAX) LIGHT POLE NO SCALE



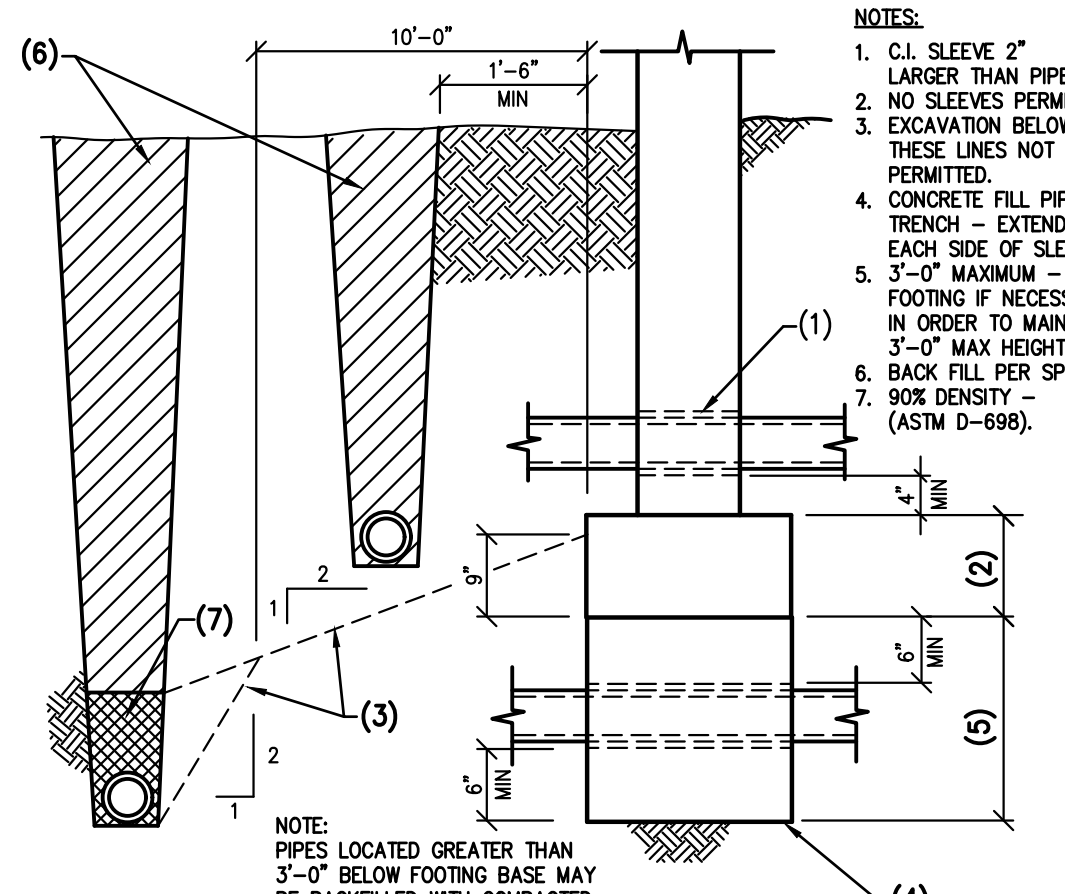
24 TYPICAL KEY IN CONCRETE NO SCALE



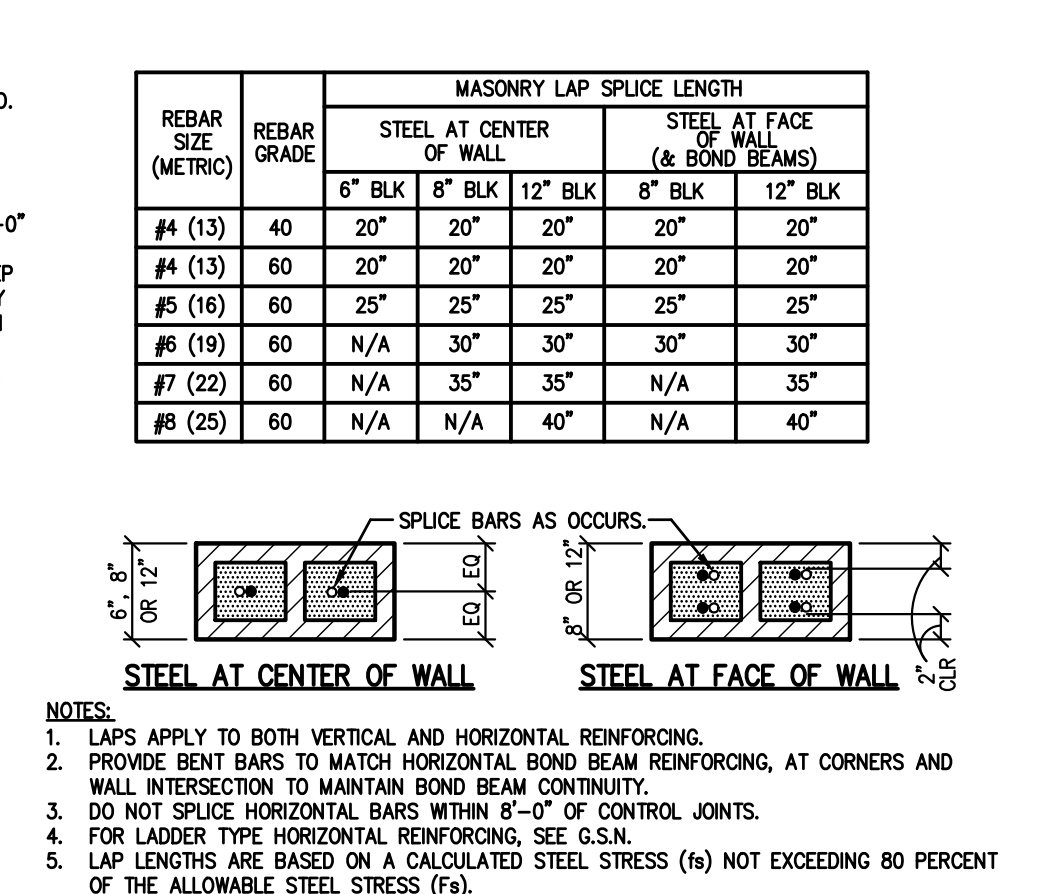
25 TYPICAL CONCRETE REINFORCING BAR DETAILS NO SCALE



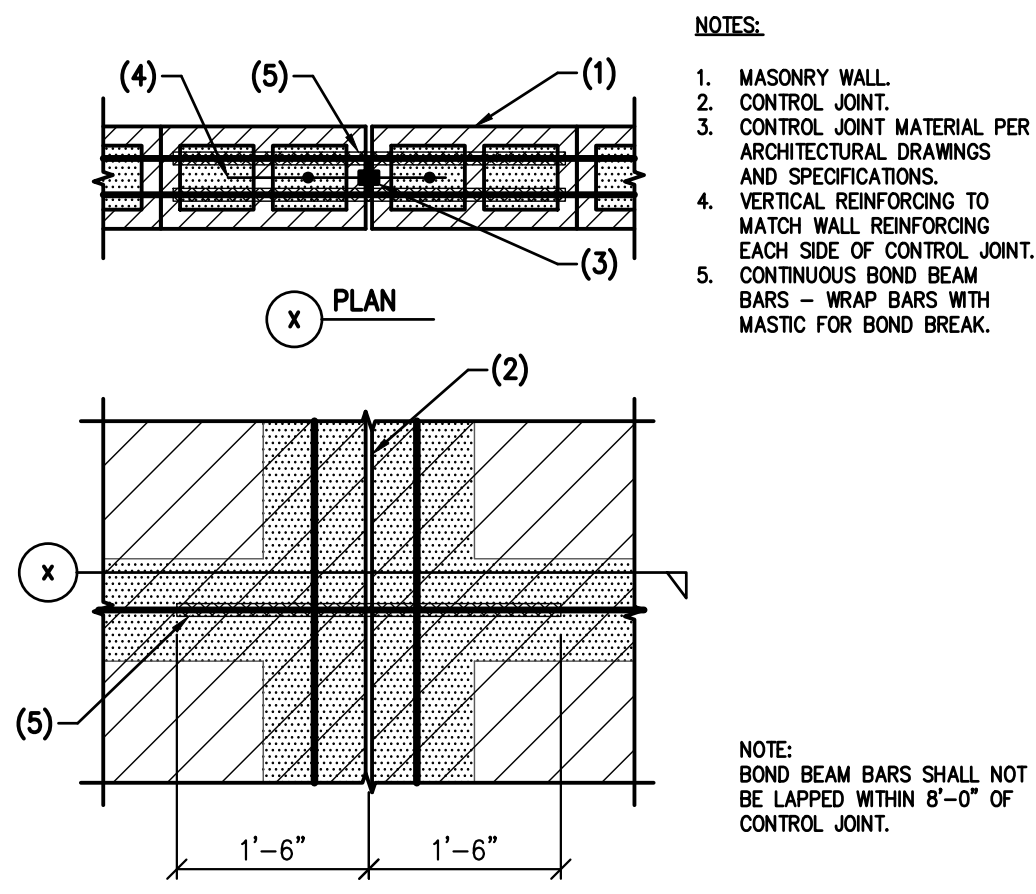
26 SLEEVE FOR PIPE AT SLAB NO SCALE



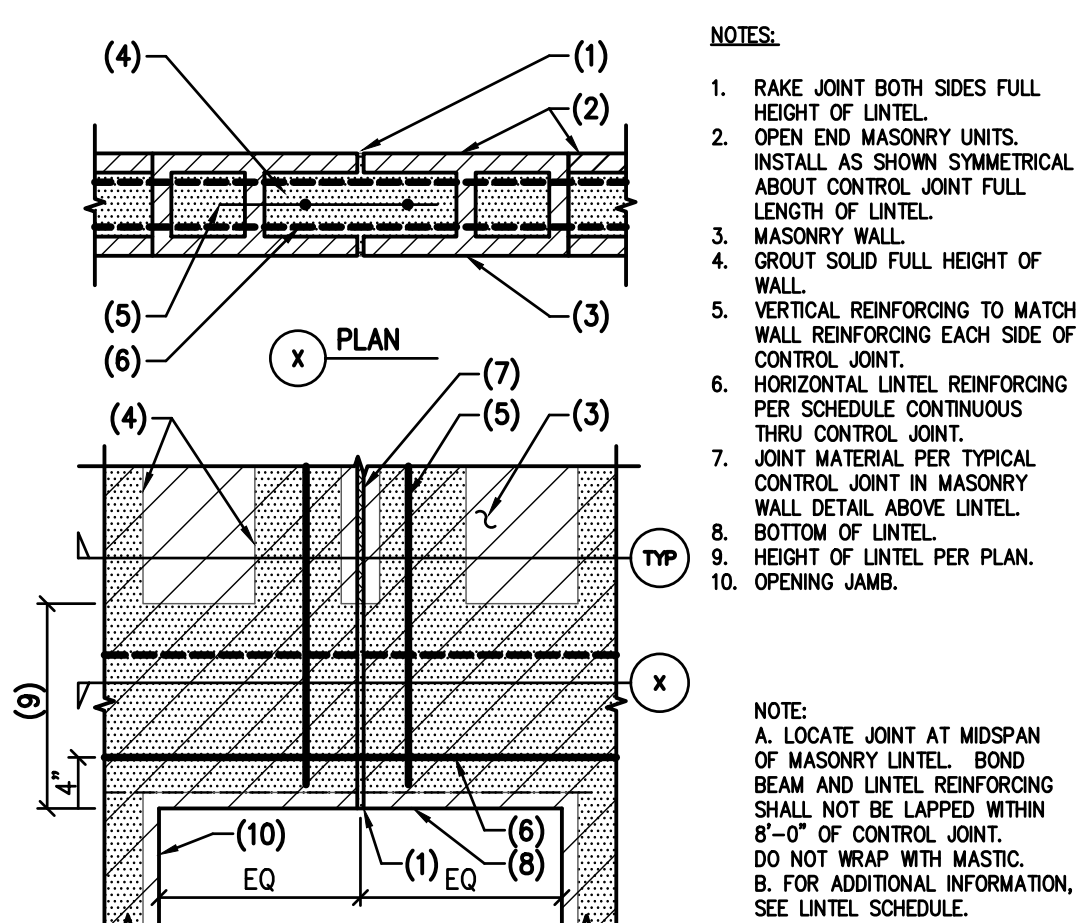
27 TYPICAL PIPE THROUGH FOOTING AND TRENCH NO SCALE



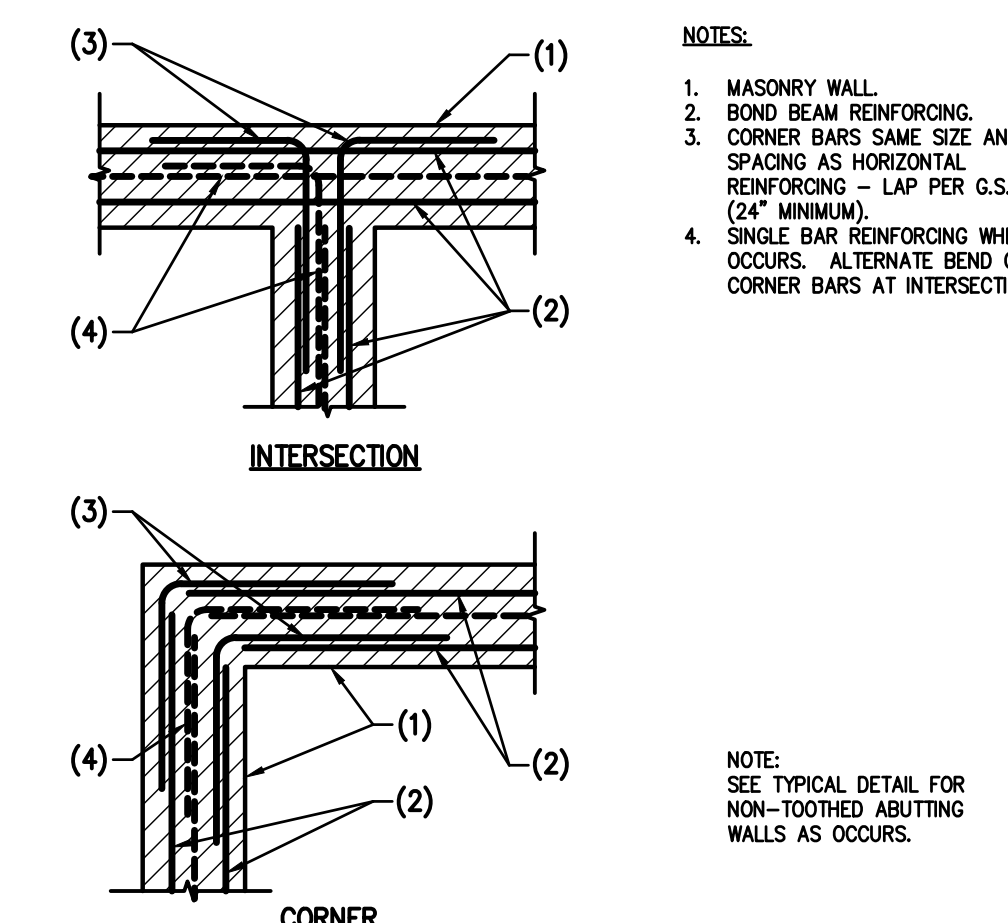
28 WORKING STRESS MASONRY LAP SPICES FOR REINFORCING STEEL NO SCALE



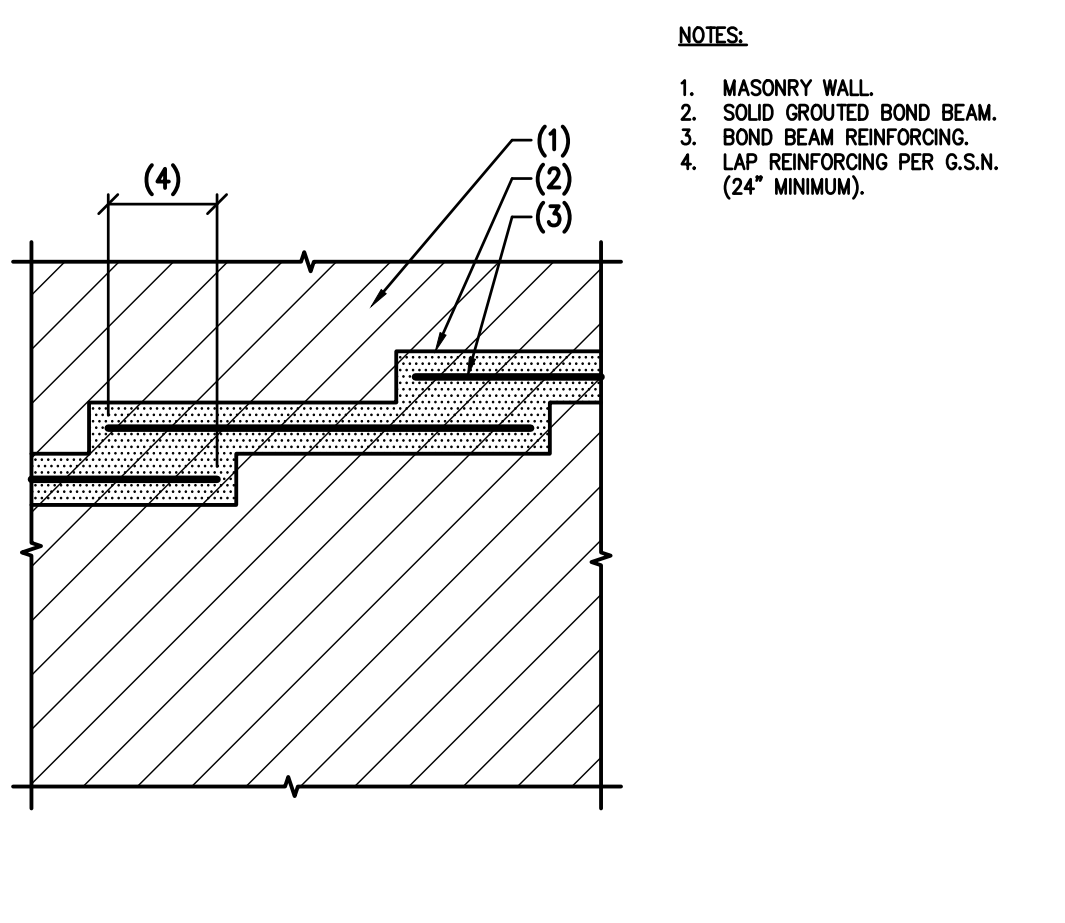
29 CONTROL JOINT IN MASONRY WALL NO SCALE



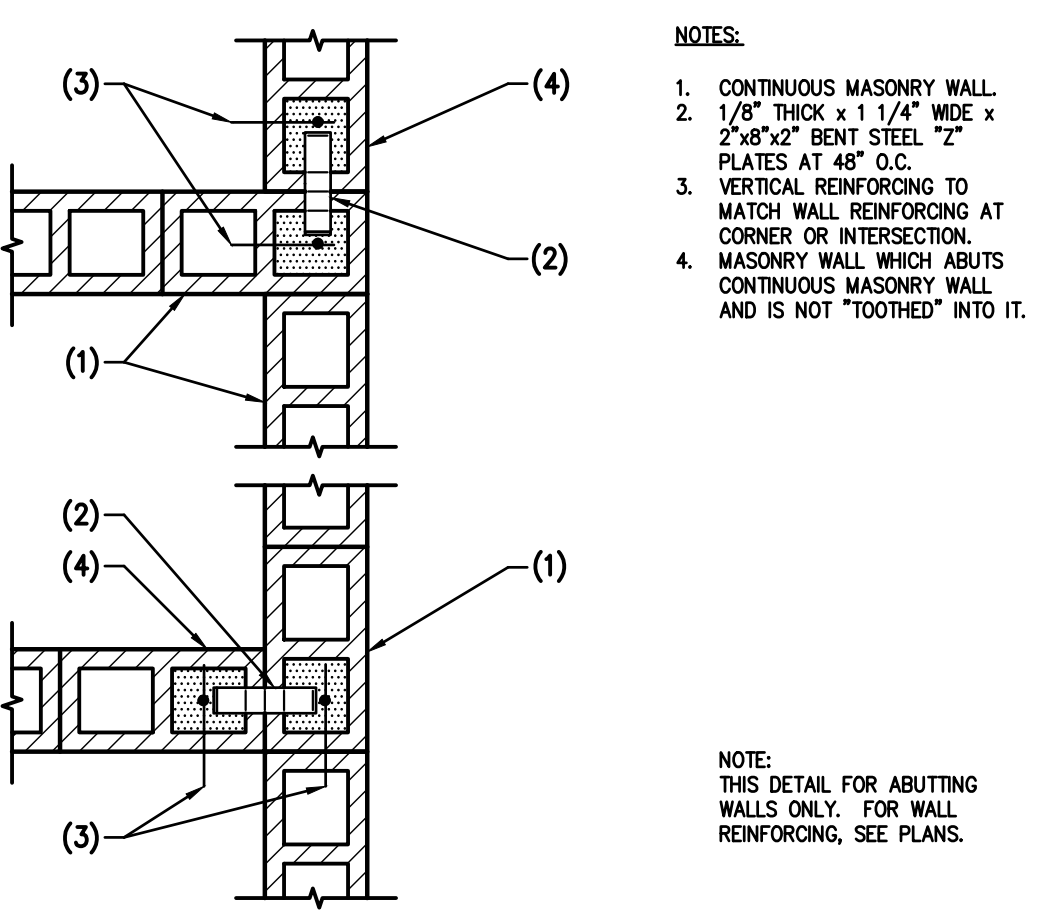
30 CONTROL JOINT IN MASONRY LINTEL NO SCALE



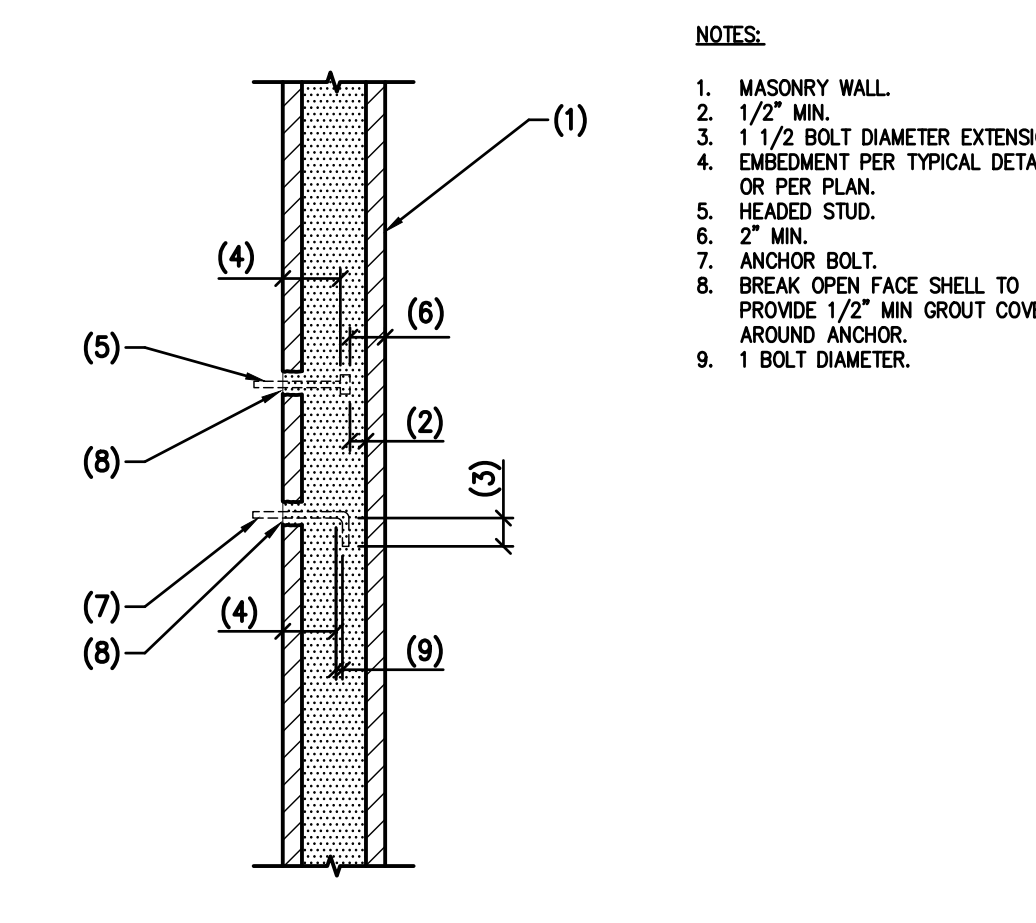
31 MASONRY BOND BEAM AT INTERSECTING WALLS NO SCALE



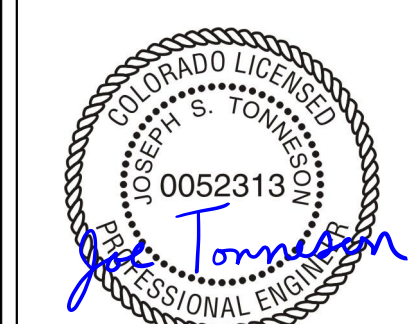
32 STEPPED MASONRY WALL BOND BEAM NO SCALE



33 PLAN - TYPICAL CONNECTION FOR NON-TOOTHED ABUTTING MASONRY WALLS NO SCALE



34 TYPICAL ANCHOR EMBEDMENT REQUIREMENTS IN MASONRY WALL NO SCALE



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PROJECT 20037.000
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REVISED

DATE 03-22-2023
CHECKED SJU

SHEET TITLE

TYPICAL DETAILS

SHEET

S0.3

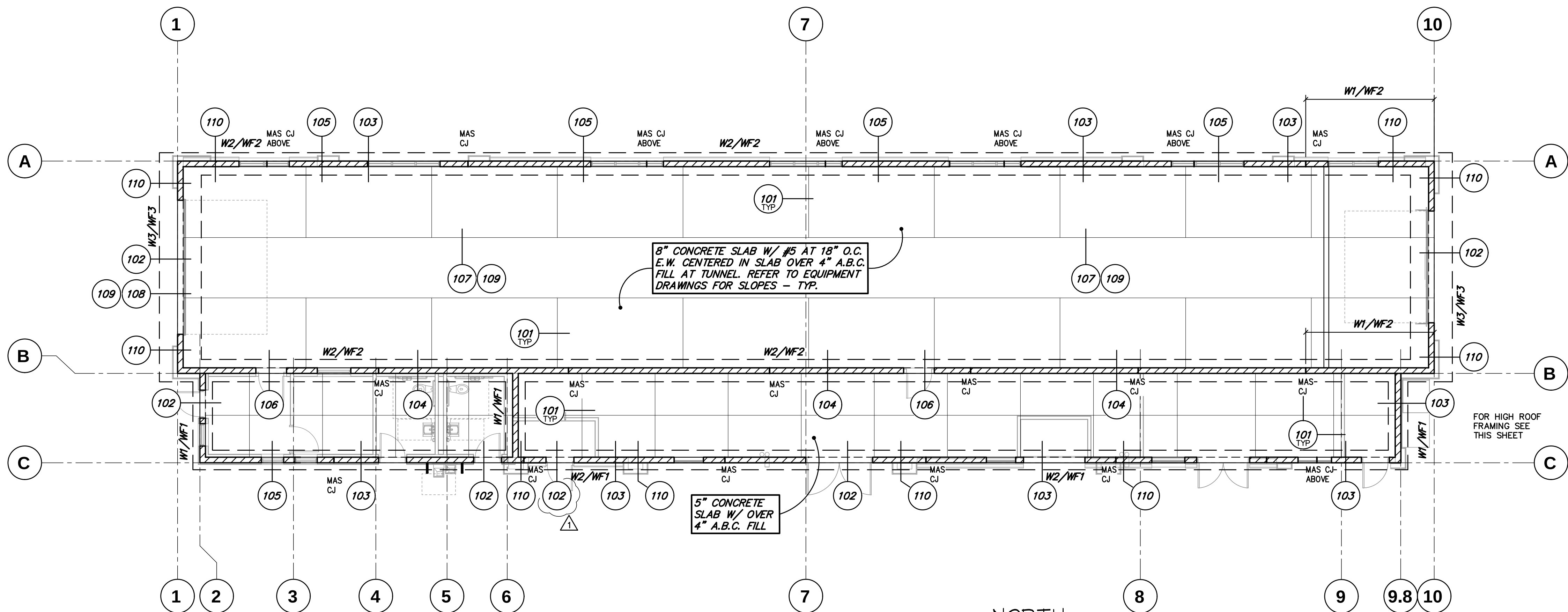
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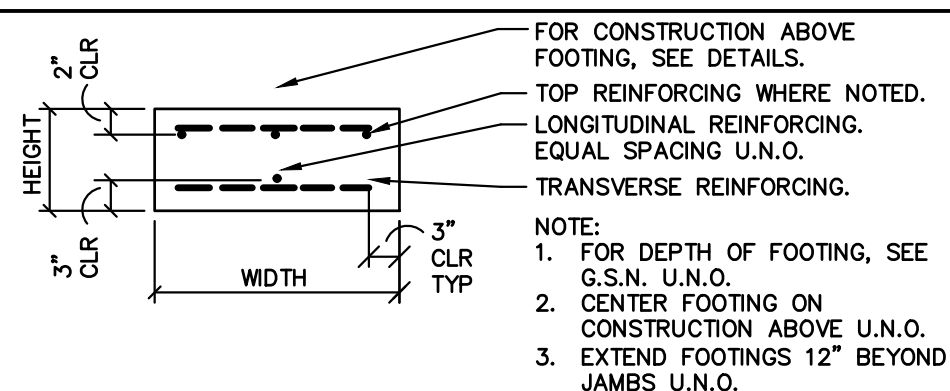
FOUNDATION PLAN
SCALE: 1/8"=1'-0"

NOTE:
GENERAL CONTRACTOR TO COORDINATE
ELEVATIONS, DIMENSIONS, LAYOUT, ETC.
WITH EQUIPMENT DRAWINGS PRIOR TO
ANY FOUNDATION CONSTRUCTION.

FOUNDATION NOTES - TYP U.N.O.:

- VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND FIELD CONDITIONS. BUILDING DIMENSIONS, WHERE SHOWN, WERE PROVIDED BY THE ARCHITECT AND SHALL BE VERIFIED WITH SAME PRIOR TO PROCEEDING WITH THE WORK. DO NOT USE CONC C.J. FOR LOCATING BUILDING ELEMENTS.
- SCHEDULED MARK DESIGNATIONS ARE TYPICAL TO THE PROJECT AND MAY NOT NECESSARILY BE FOUND ON THIS PLAN.
- DEPTH OF FOOTING DIMENSIONS INDICATED IN THE G.S.N. ARE MINIMUMS. FOUNDATION CONTRACTOR SHALL COORDINATE WITH SOILS REPORT AND OTHER TRADES TO INSURE THAT THESE MINIMUMS ARE SUFFICIENT FOR THE WORK. SEE TYPICAL DETAILS FOR ADDITIONAL REQUIREMENTS.
- AS SHOWN ON PLAN INDICATES 8" MASONRY WALL, SEE G.S.N. TYPICAL DETAILS PLANS AND DETAILS FOR ADDITIONAL INFORMATION. ALL REINFORCING SHOWN AND/OR NOTED SHALL BE FULL HEIGHT OF WALL - TYP U.N.O.
- AS SHOWN ON PLAN INDICATES ARCHITECTURAL LIGHT GAGE WALLS.
- W1, W2, ETC - AS SHOWN ON PLAN INDICATES CONT. WALL FOOTING, SEE SCHEDULE THIS SHEET.
- W1, W2, ETC - AS SHOWN ON PLAN INDICATES MASONRY WALL REINFORCING, SEE SCHEDULE THIS SHEET.
- UNLESS NOTED OTHERWISE ON PLANS AND/OR DETAILS, DEPTH OF FOOTING DIMENSIONS INDICATED IN THE G.S.N. ARE MINIMUMS. FOUNDATION CONTRACTOR SHALL COORDINATE WITH SOIL REPORT AND ALL TRADES TO INSURE THAT THESE MINIMUMS ARE SUFFICIENT FOR THE WORK. SEE TYPICAL DETAILS FOR ADDITIONAL REQUIREMENTS.
- BUILDING CONCRETE SLAB ON GRADE SHALL BE AS NOTED ON PLAN. VERIFY EXACT SIZE AND LOCATION OF DEPRESSED AND/OR RAISED SLABS WITH ARCH'L DRAWINGS. FOR SIDEWALK LOCATION, SEE ARCH'L DRAWINGS. FOR ADDITIONAL INFORMATION, SEE G.S.N. AND TYPICAL DETAILS.
- CONC C.J. - AS SHOWN ON PLAN INDICATES LOCATION OF EITHER KEYED OR SAWCUT CONTROL JOINT IN CONCRETE SLAB ON GRADE AT CONTRACTOR'S OPTION, SEE G.S.N. AND TYPICAL DETAILS.
- VERIFY EXACT SIZE AND LOCATION OF DEPRESSED AND/OR RAISED SLABS WITH ARCHITECTURAL DRAWINGS.
- FOR SIDEWALK LOCATION, SEE ARCHITECTURAL DRAWINGS.
- MAS C.J. - AS SHOWN ON PLAN INDICATES MASONRY CONTROL JOINT IN MASONRY WALL AND/OR UNTEL. SEE G.S.N. AND TYPICAL DETAILS. JOINTS ARE FULL HEIGHT OF STRUCTURE U.N.O.

CONTINUOUS FOOTING (WF) SCHEDULE



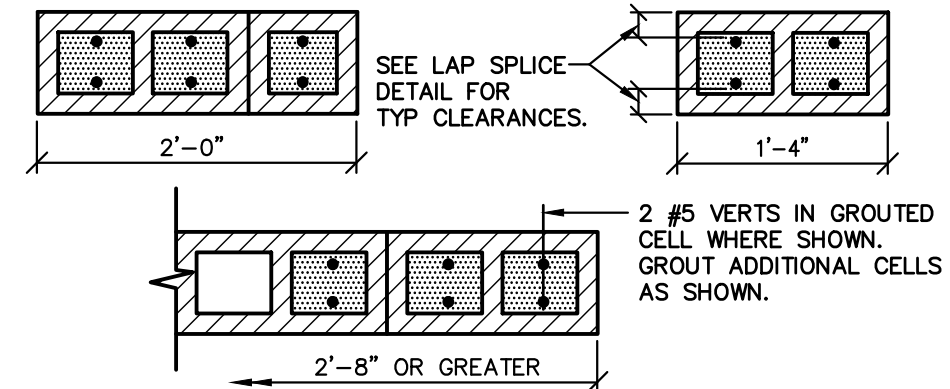
MARK	DIMENSIONS		FOOTING REINFORCING		REMARKS
	HEIGHT	WIDTH	LONGITUDINAL	TRANSVERSE	
WF1	14"	2'-0"	(3)-#5 CONT.	#5 AT 18" O.C.	---
WF2	14"	2'-8"	(4)-#5 CONT.	#5 AT 18" O.C.	---
WF3	24"	5'-0"	(6)-#5 CONT. TOP & BOTTOM	#5 AT 12" O.C. TOP & BOTTOM	---

MASONRY WALL REINFORCING (W) SCHEDULE

- NOTE:
- ALL REINFORCING SHOWN ON PLAN AND AS NOTED BELOW SHALL BE FULL HEIGHT OF WALL U.N.O.
 - FOR LAP SPLICES, SEE TYPICAL DETAIL.
 - HORIZONTAL REINFORCING PER G.S.N. U.N.O.
 - REFER TO TYPICAL DETAIL 28 FOR ADDITIONAL INFORMATION.

MARK	VERTICAL REINFORCING	REMARKS
W1	#5 AT 16" O.C.	---
W2	#5 AT 32" O.C.	---
W3	#6 AT 8" O.C. EACH FACE	---

TYPICAL JAMB REINFORCING - U.N.O.



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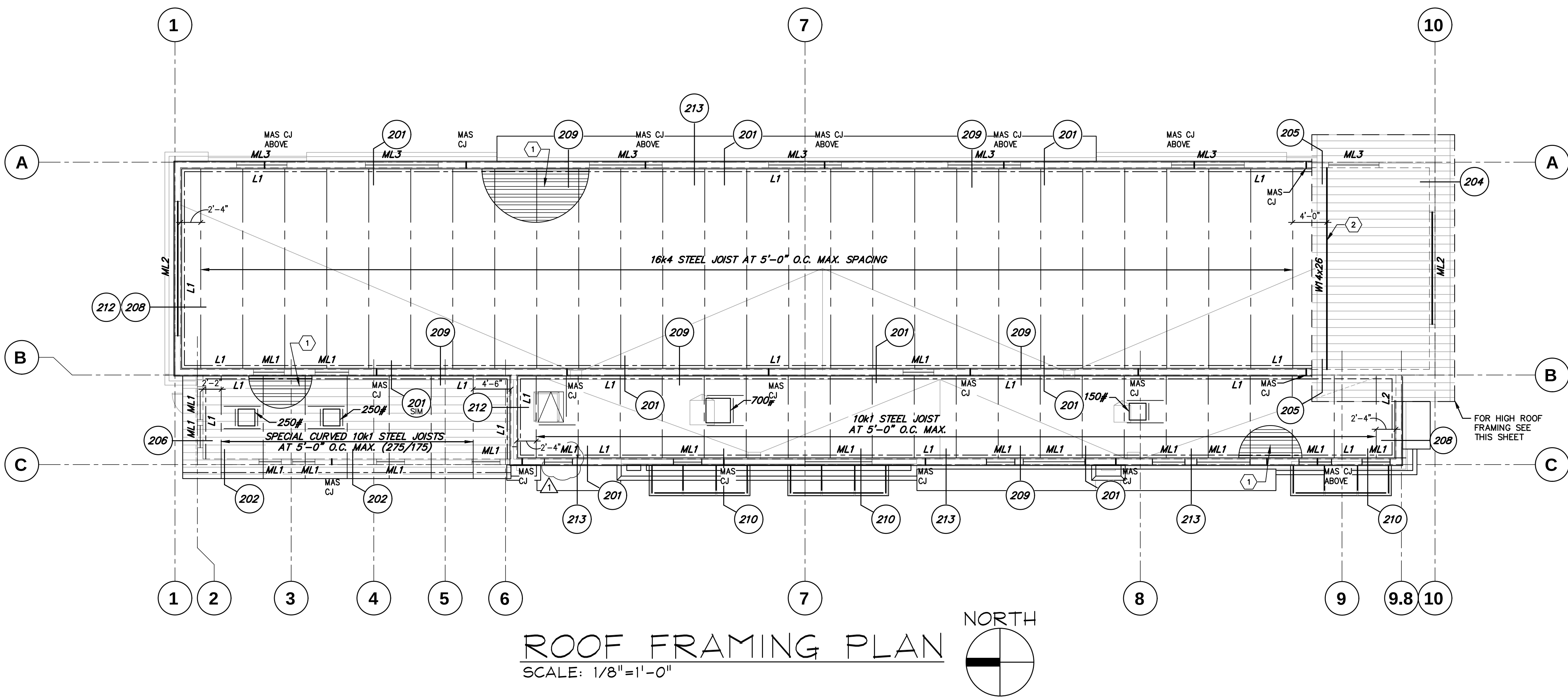
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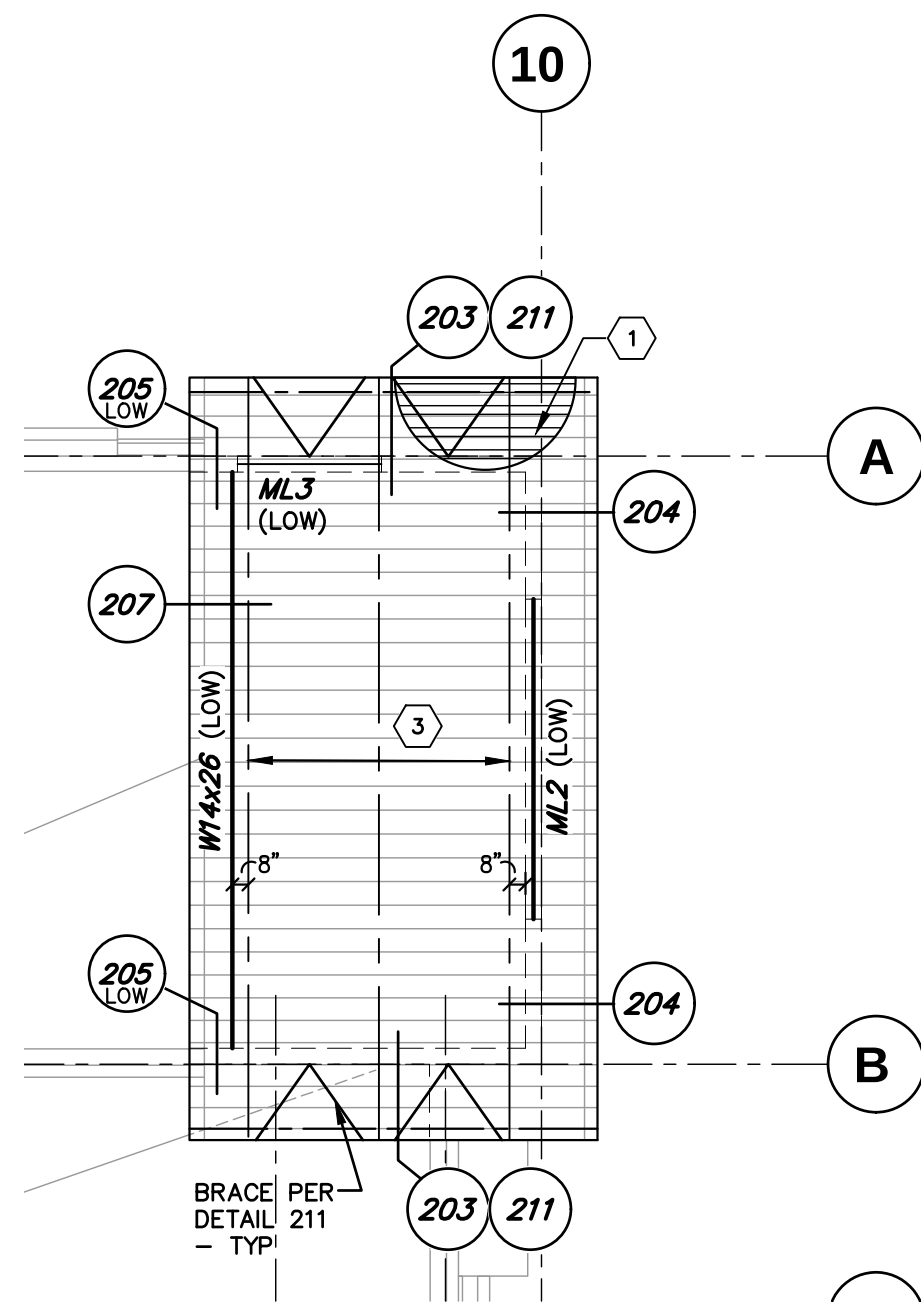
FND PLAN

SHEET

S1.1



ROOF FRAMING PLAN
SCALE: 1/8"=1'-0"

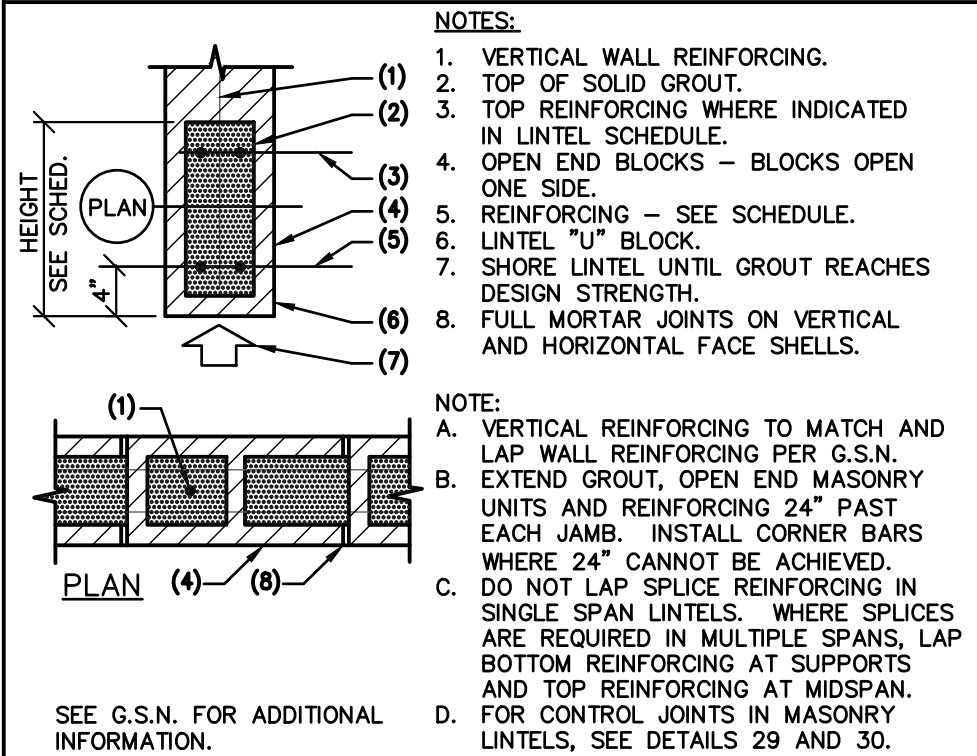


HIGH ROOF FRAMING PLAN
SCALE: 1/8"=1'-0"

ROOF FRAMING NOTES - TYP U.N.O.:

1. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND FIELD CONDITIONS. BUILDING DIMENSIONS, WHERE SHOWN, WERE PROVIDED BY THE ARCHITECT AND SHALL BE VERIFIED WITH SAME PRIOR TO PROCEEDING WITH THE WORK.
2. SCHEDULED MARK DESIGNATIONS ARE TYPICAL TO THE PROJECT AND MAY NOT NECESSARILY BE FOUND ON THIS PLAN.
3. - AS SHOWN ON PLAN INDICATES 8" MASONRY WALL, SEE G.S.N., TYPICAL DETAILS, PLANS AND DETAILS FOR ADDITIONAL INFORMATION. ALL REINFORCING SHOWN AND/OR NOTED SHALL BE FULL HEIGHT OF WALL - TYP U.N.O.
4. ML1, ML2, ETC - AS SHOWN ON PLAN INDICATES MASONRY LINTEL, SEE SCHEDULE THIS SHEET, G.S.N. AND TYPICAL DETAILS.
5. FOR MISCELLANEOUS UNITS NOT SHOWN, SEE G.S.N. AND TYPICAL DETAILS. MASONRY CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR EXACT SIZE AND LOCATION REQUIREMENTS.
6. L1, L2, ETC - AS SHOWN ON PLAN INDICATES STEEL LEDGER, SEE SCHEDULE THIS SHEET, G.S.N. AND TYPICAL DETAILS.
7. MAS C.J. - AS SHOWN ON PLAN INDICATES MASONRY CONTROL JOINT IN MASONRY WALL AND/OR UNITS, SEE G.S.N. AND TYPICAL DETAILS. JOINTS MAY BE SHOWN, BUT NOT NOTED ON THIS PLAN. SEE FOUNDATION PLAN FOR NOTED LOCATIONS.
8. FOR CLARITY, DETAILS MAY SHOW ONLY ONE SIDE OF ROOFING CONDITION.
9. VERIFY EXACT SIZE, WEIGHT AND LOCATION OF EQUIPMENT AND SUPPORTS INDICATED ON PLAN WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, SPRINKLER AND THEIR RELATED DRAWINGS. EQUIPMENT INDICATED ARE ONLY THOSE THAT EXCEED LOADS SPECIFIED IN THE G.S.N. FOR SUPPORT OF EQUIPMENT, SEE TYPICAL DETAILS AND OTHER TRADES.
10. FOR CLARITY, ALL ROOF OPENINGS MAY NOT BE SHOWN ON ROOF FRAMING PLAN. FOR EXACT SIZE, NUMBER AND LOCATION OF OPENINGS, SEE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS. FOR FRAMING AT OPENINGS, SEE TYPICAL DETAILS.

MASONRY LINTEL (ML) SCHEDULE



MARK	HEIGHT	REINFORCING	REMARKS
ML1	16"	(2)-#5 BOTTOM	---
ML2	40"	(2)-#5 TOP AND (2)-#6 BOTTOM	---
ML3	24"	(2)-#5 BOTTOM	---

STEEL LEDGER (L) SCHEDULE

LEDGER NOTES:

1. ALL LEDGERS SHALL HAVE MINIMUM OF 2 ANCHOR BOLTS PER LEDGER.
2. ANCHOR BOLTS SHALL BE LOCATED NOT LESS THAN 6" NOR MORE THAN 12" FROM END OF LEDGER OR AT LEDGER SPLICE.
3. FOR ADDITIONAL INFORMATION, SEE PLAN AND TYPICAL DETAILS, AND GENERAL STRUCTURAL NOTES.

MARK	SIZE	CONNECTION
L1	4"x4"x1/4"	WELD PLATES PER DETAIL 208 AND 209

ROOF KEY NOTES

- 1 1/2"x20 GA STEEL DECK ATTACHED PER G.S.N. - TYP.
- C.L. OF WALL = C.L. OF STEEL BEAM.
- SPECIAL CURVED STEEL JOISTS AT 5'-0" O.C. MAX. (275/175)



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Phoenix, AZ 85048-0045 602.492.6426 Joe Tonneson

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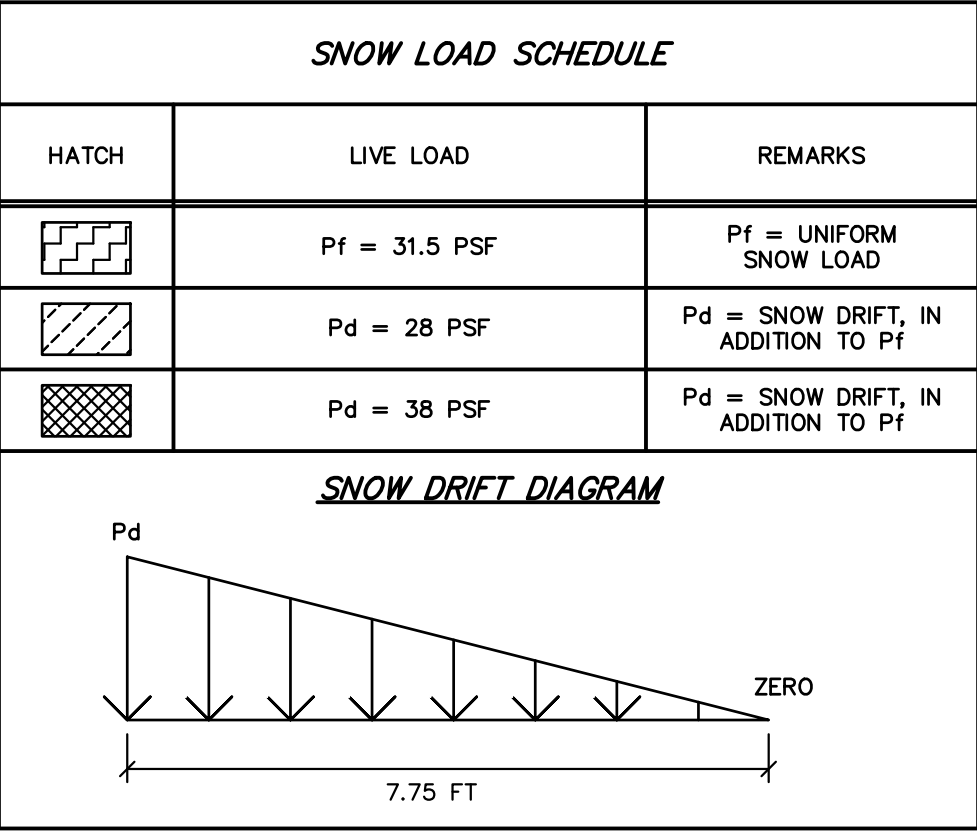
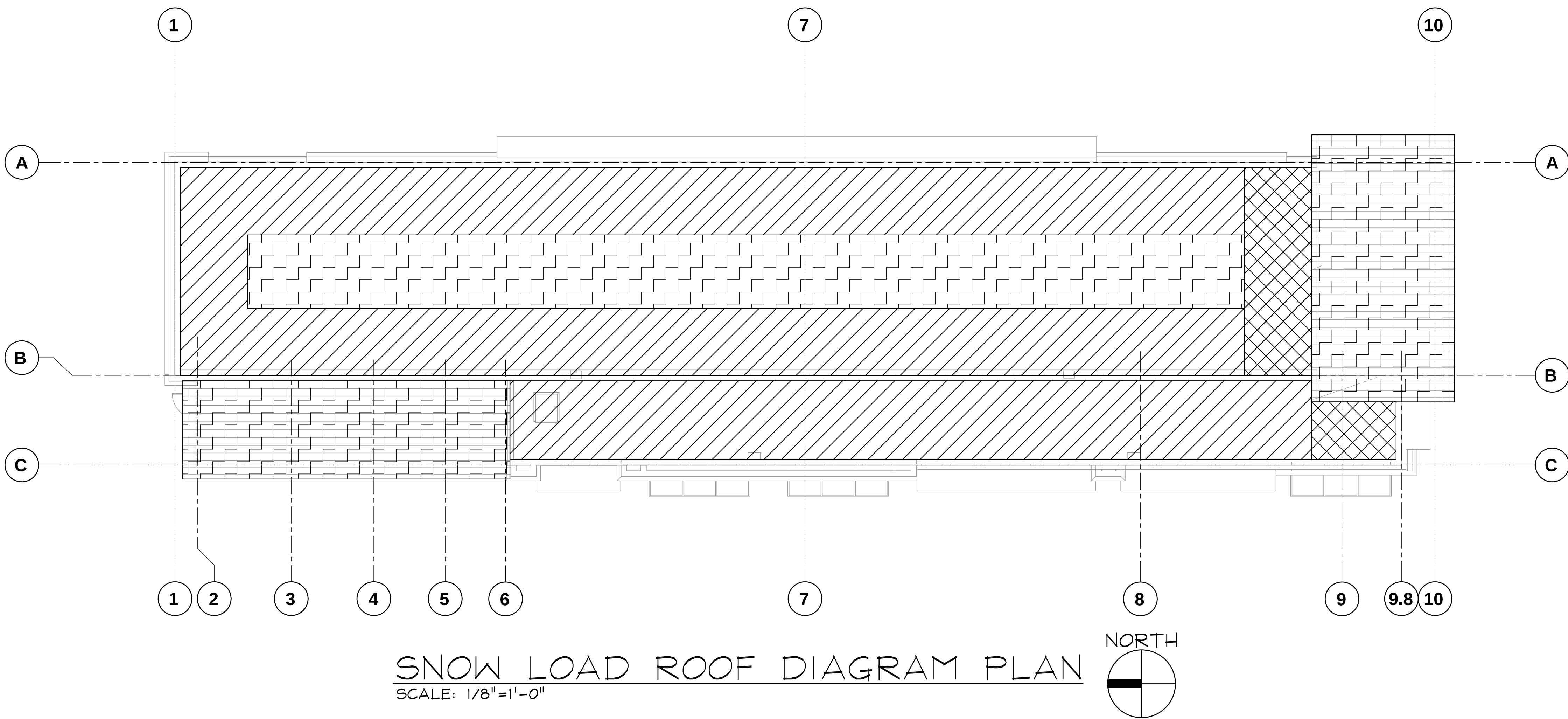
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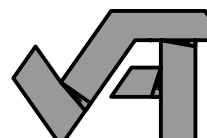
SHEET TITLE

RF FRAM
PLAN

SHEET

S2.1





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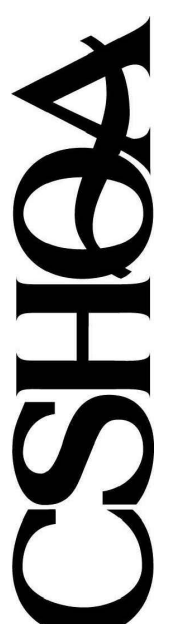


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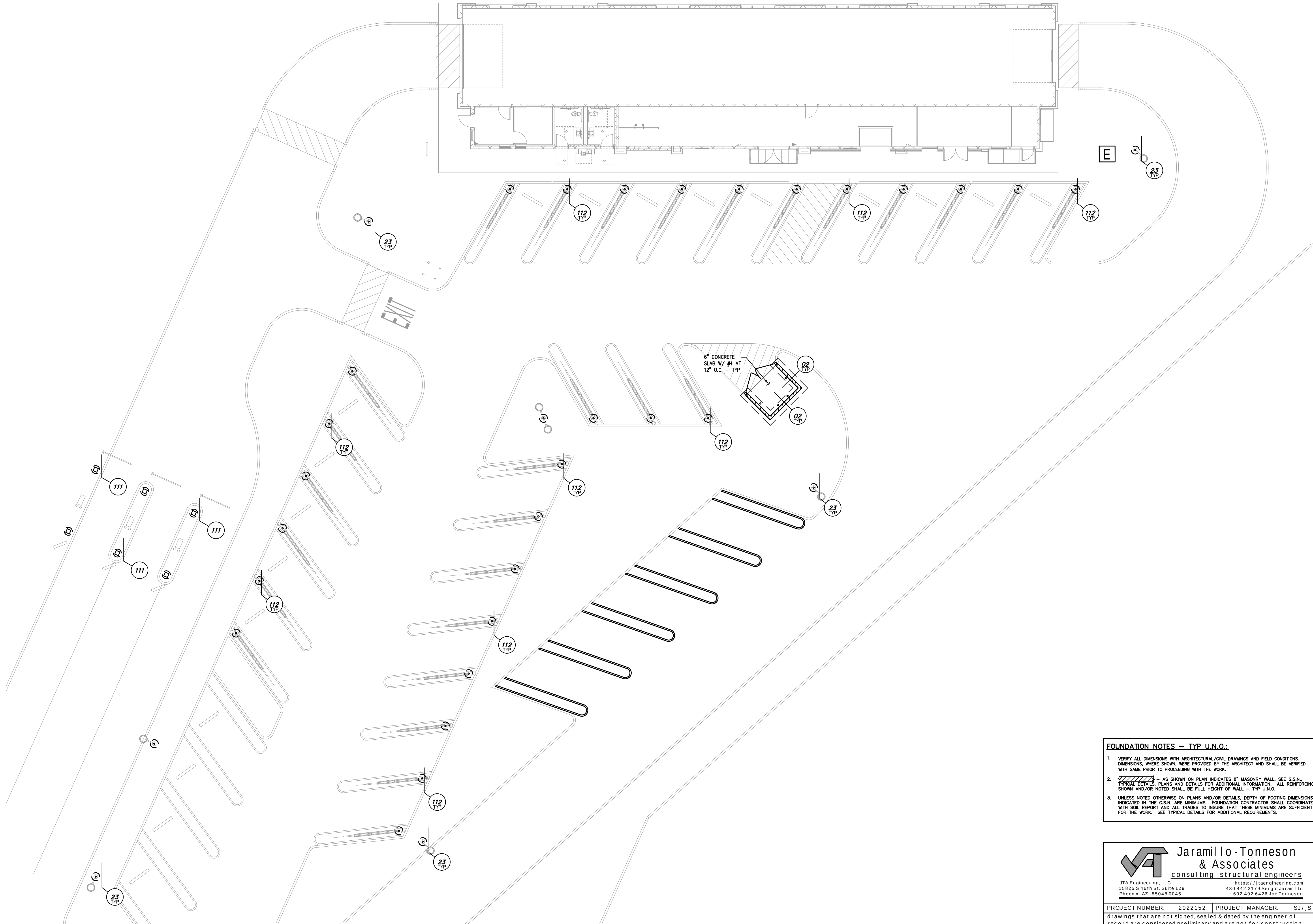


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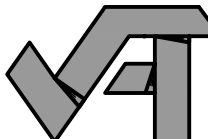
SHEET TITLE
**SNOW L. RF
DIAGRAM
PLAN**

SHEET
S2.2



CONCRETE PIER LAYOUT AT VACUUM AND PAY CANOPIES
SCALE: 3/32"=1'-0"

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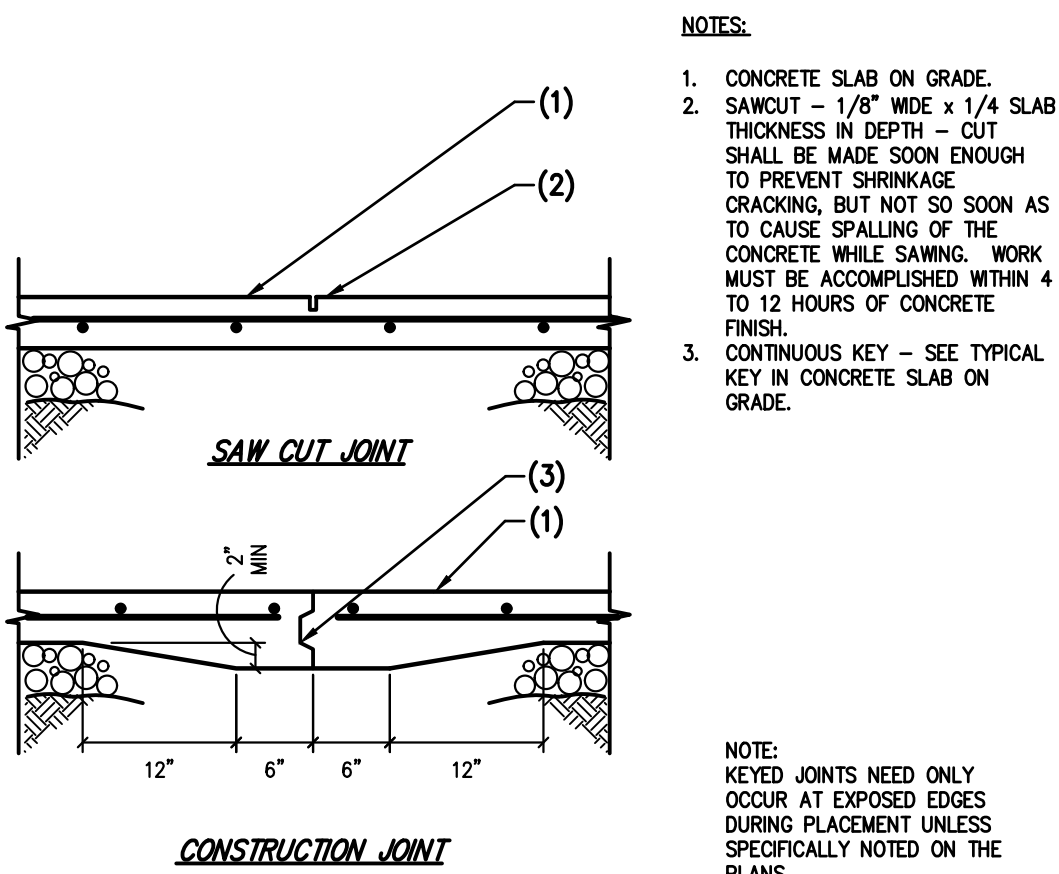


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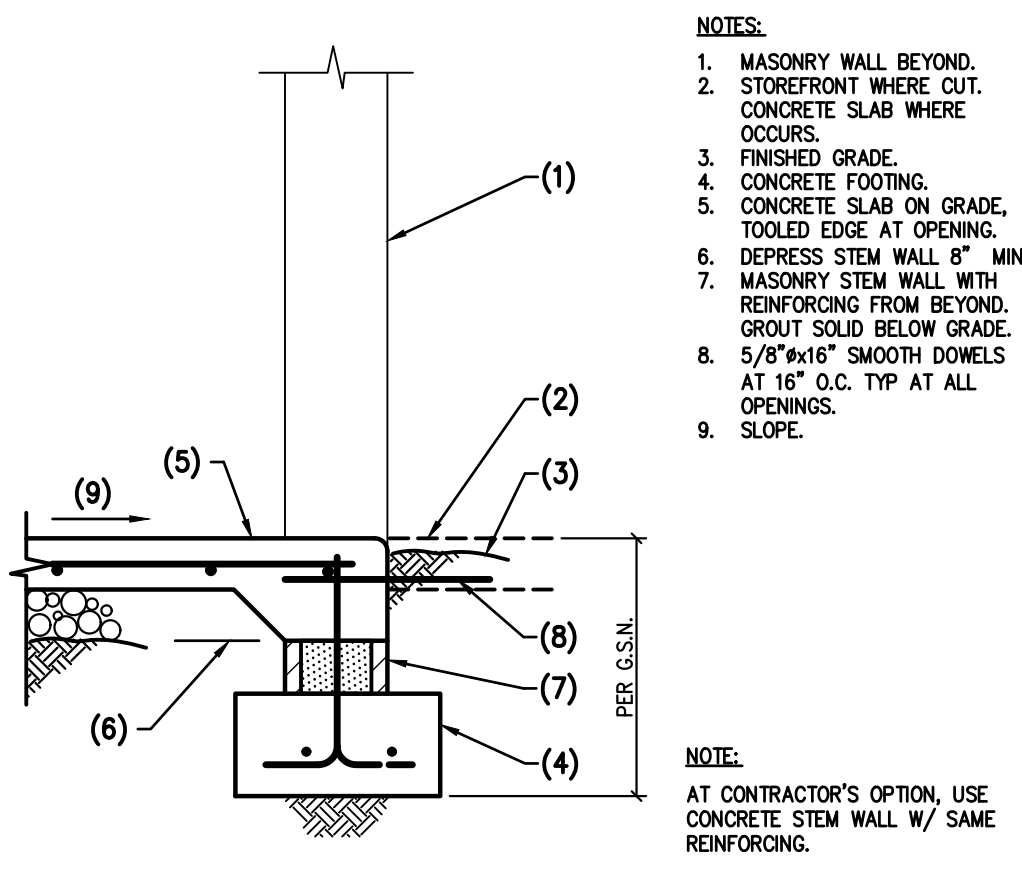
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SHEET TITLE
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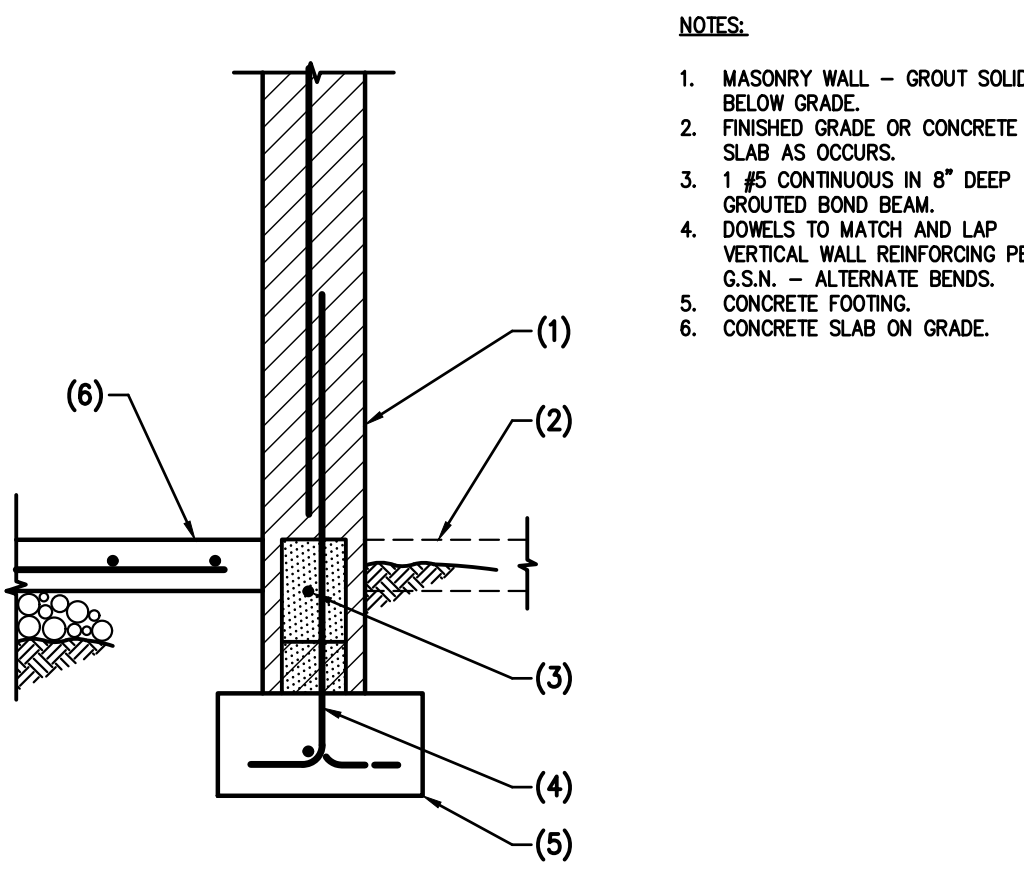
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S2.3



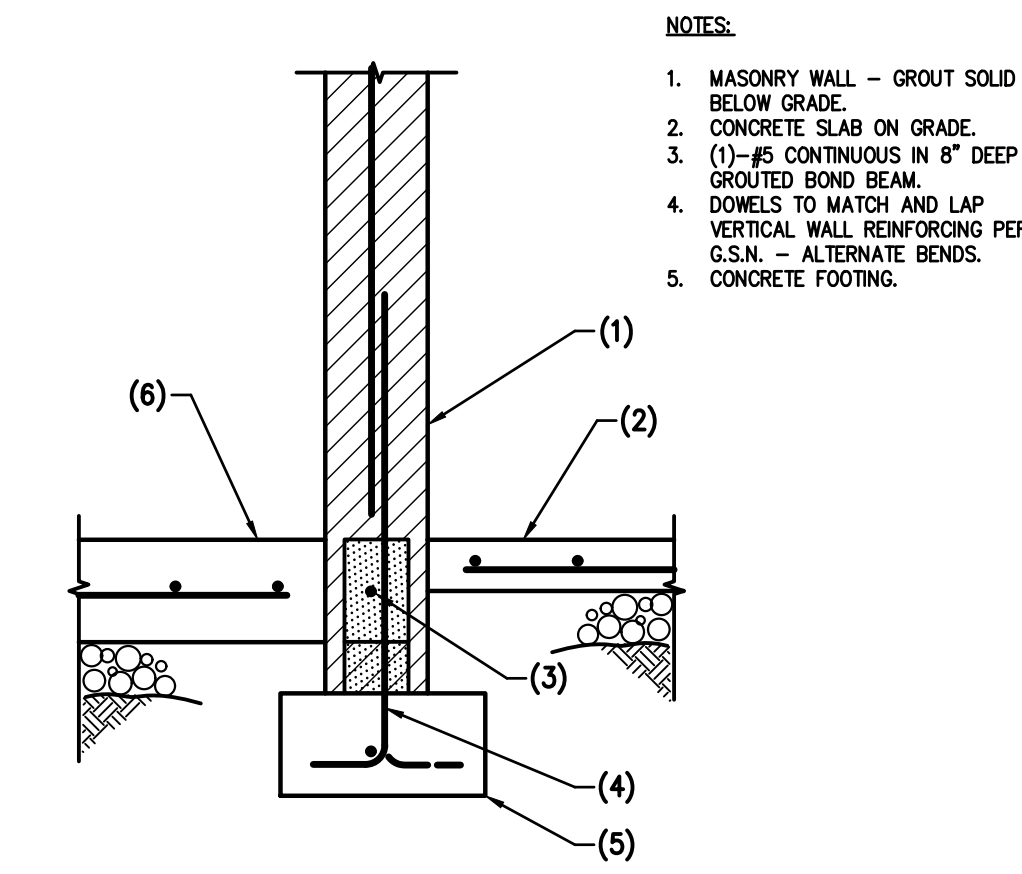
101 CONTROL JOINTS IN CONCRETE SLAB ON GRADE NO SCALE



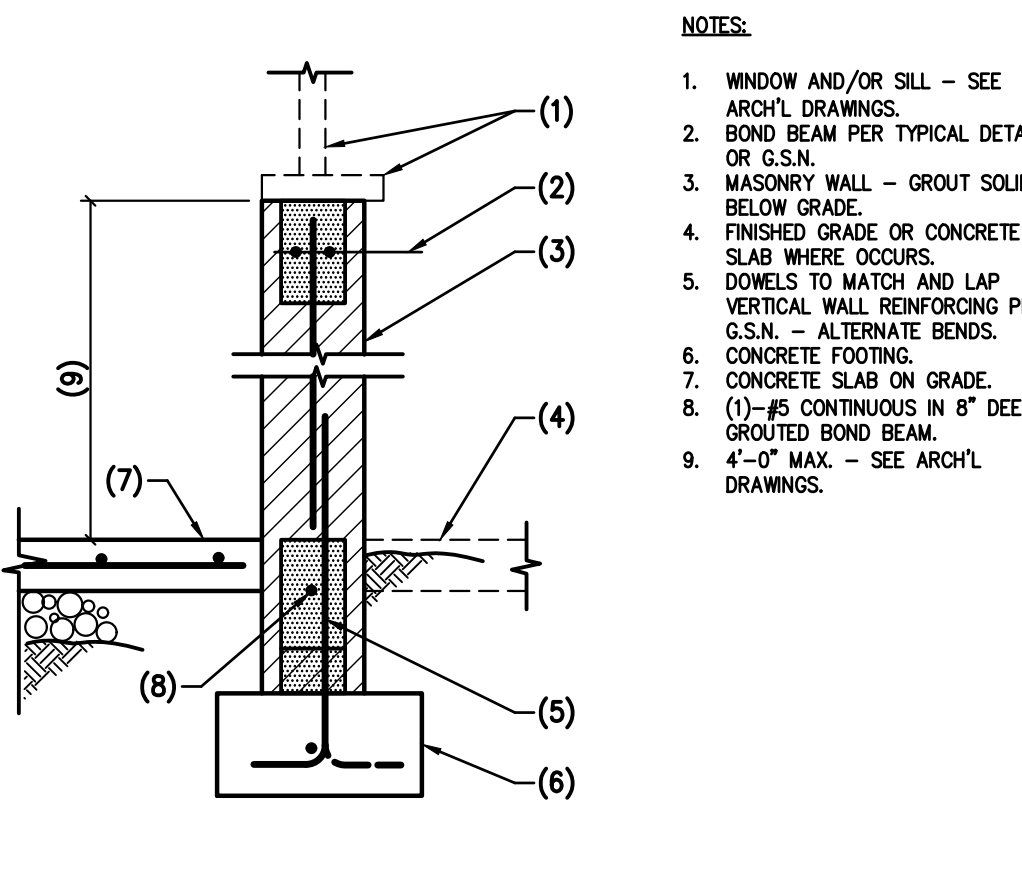
102 EXTERIOR MASONRY WALL FOOTING AT OPENING NO SCALE



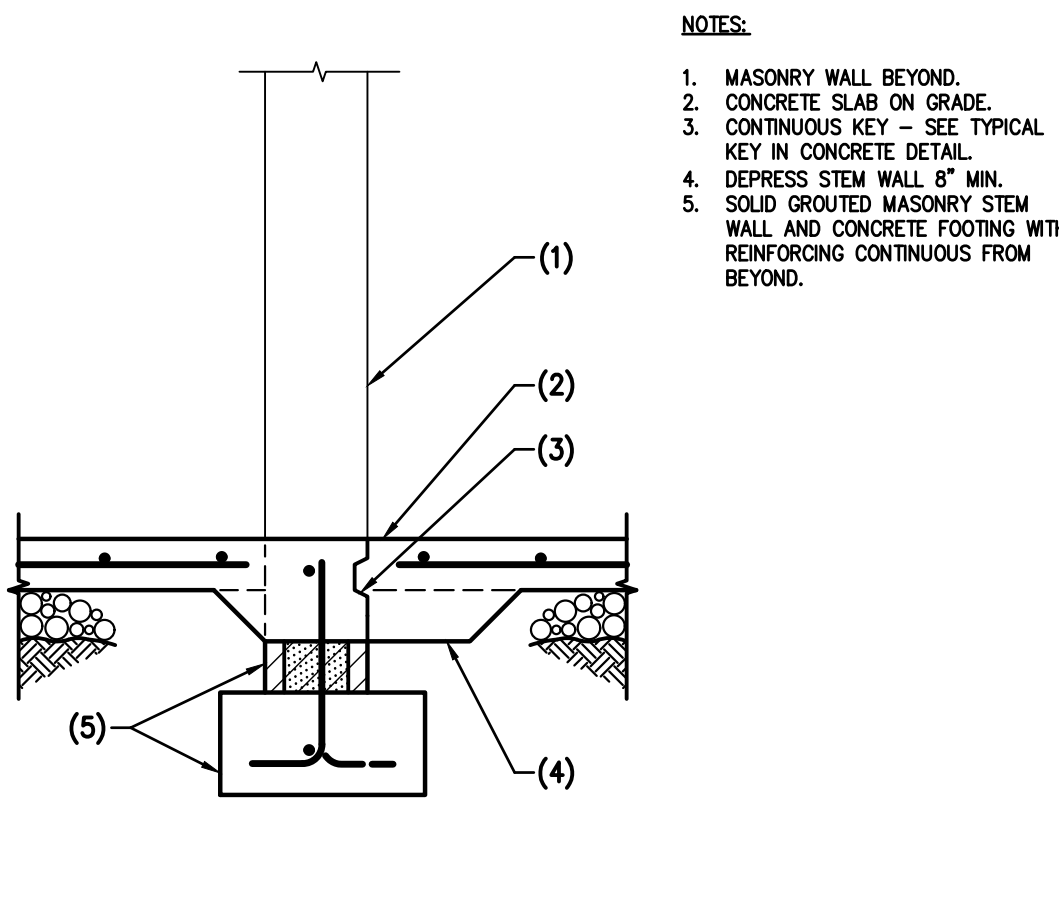
103 MASONRY WALL FOOTING NO SCALE



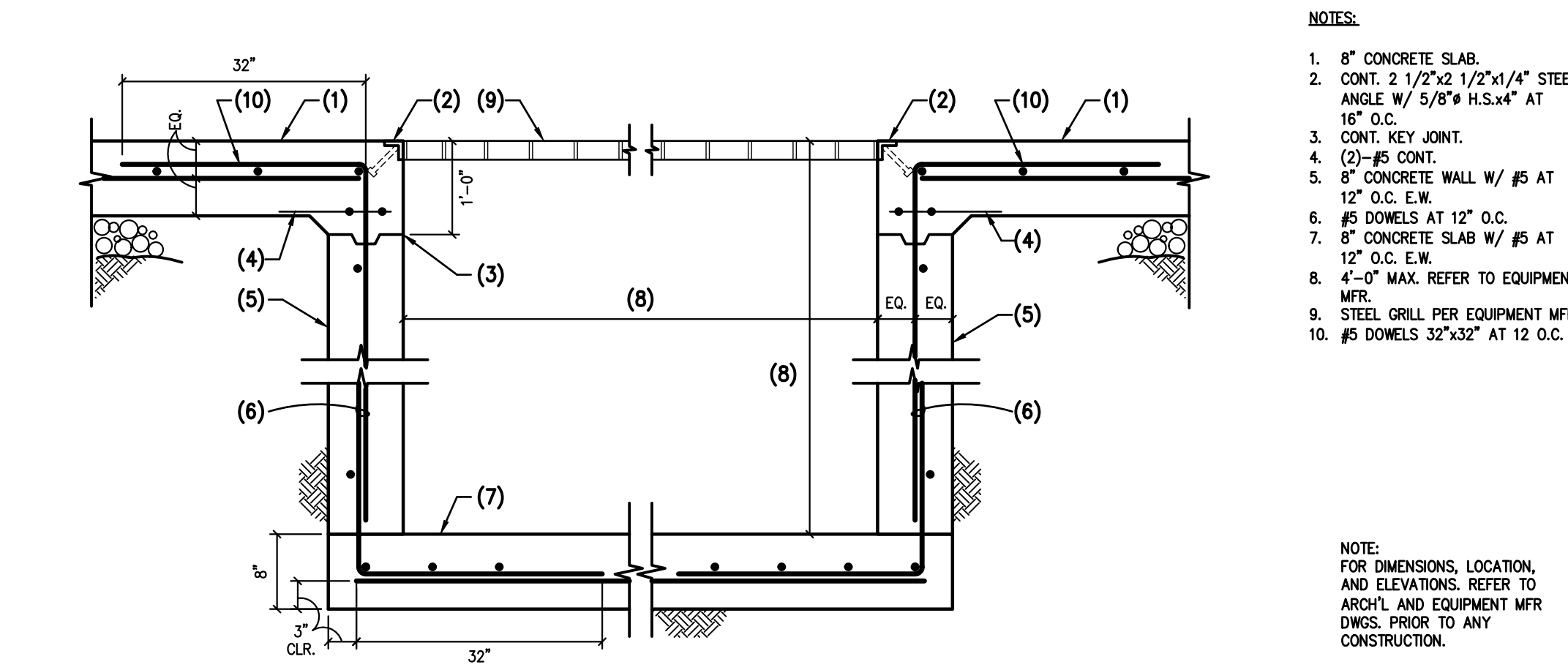
104 MASONRY WALL FOOTING NO SCALE



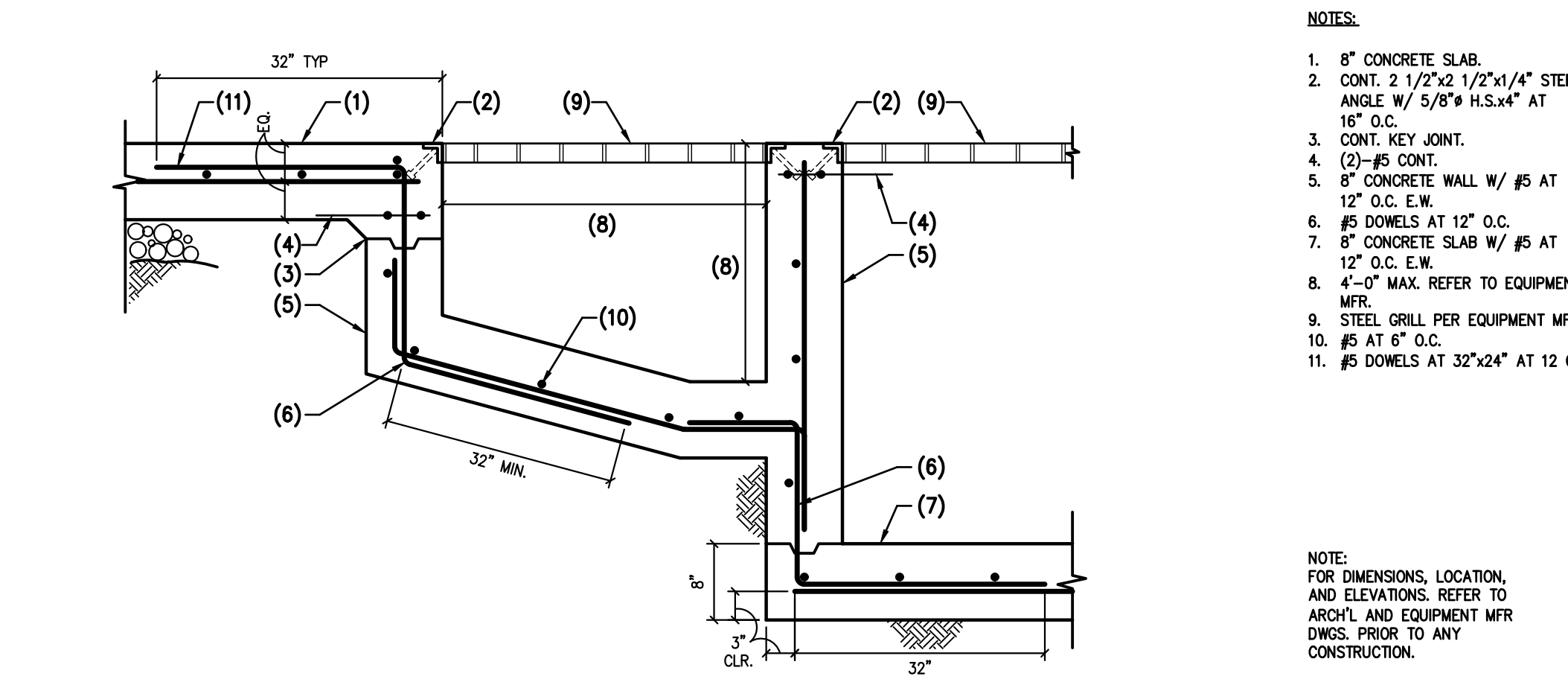
105 MASONRY WALL FOOTING AT WINDOW OPENING NO SCALE



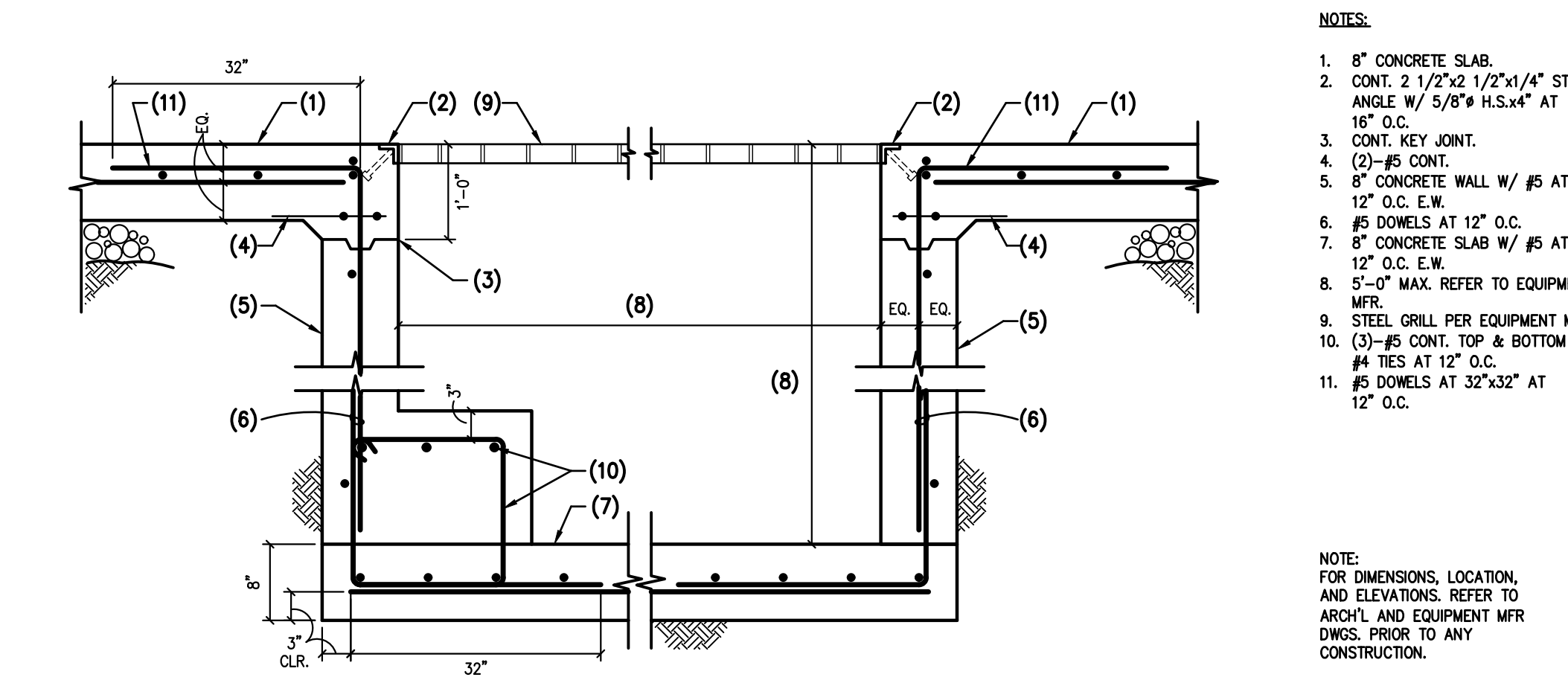
106 MASONRY WALL FOOTING AT OPENING NO SCALE



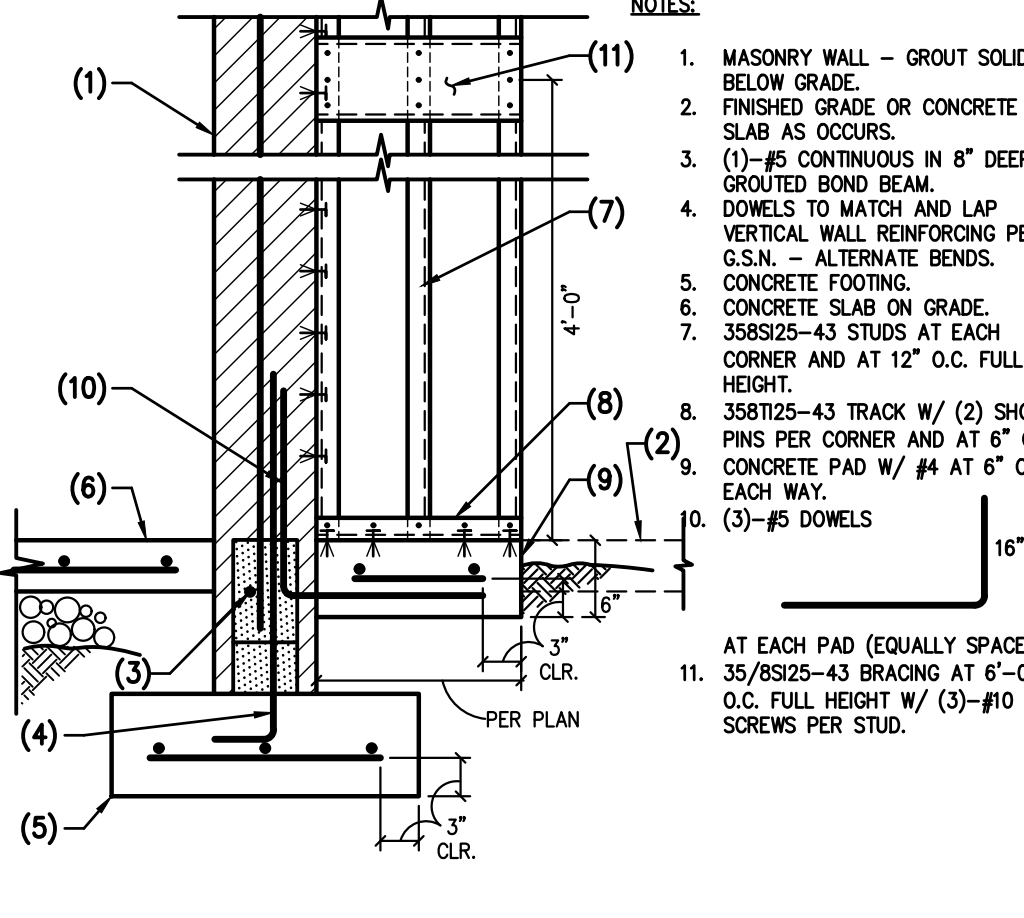
107 CONCRETE PIT NO SCALE



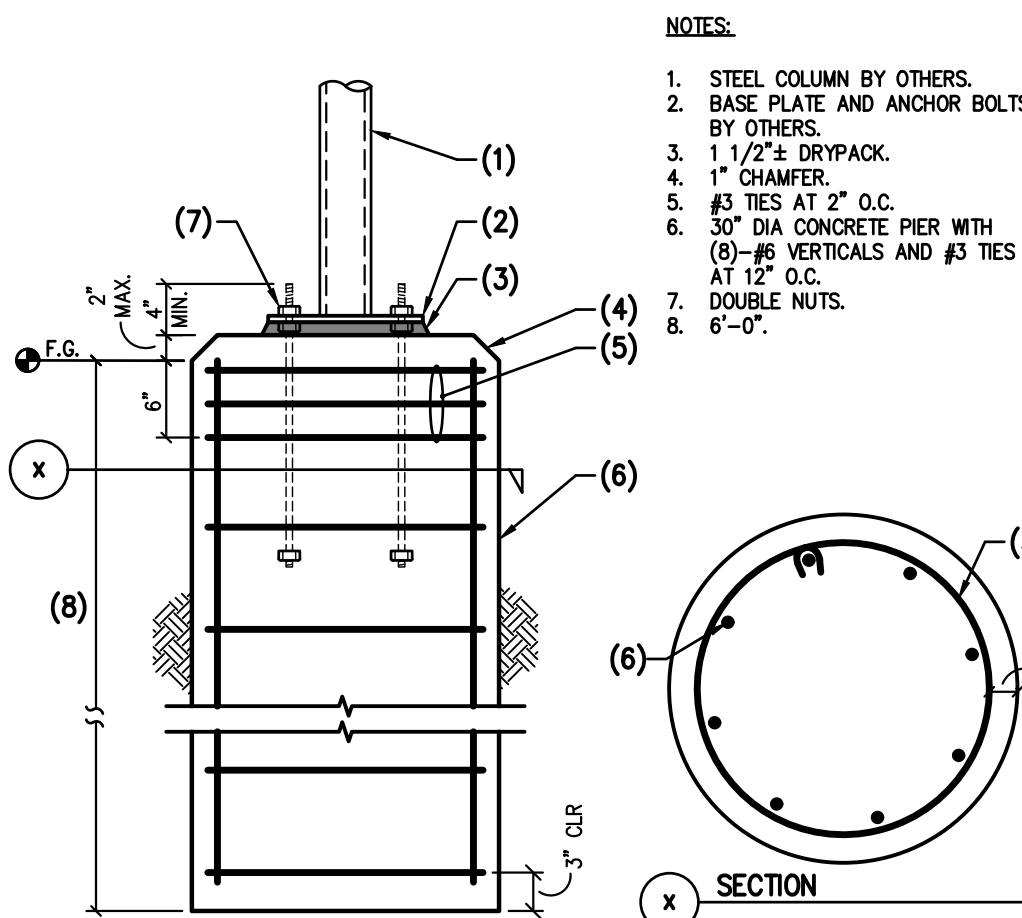
108 CONCRETE TRENCH NO SCALE



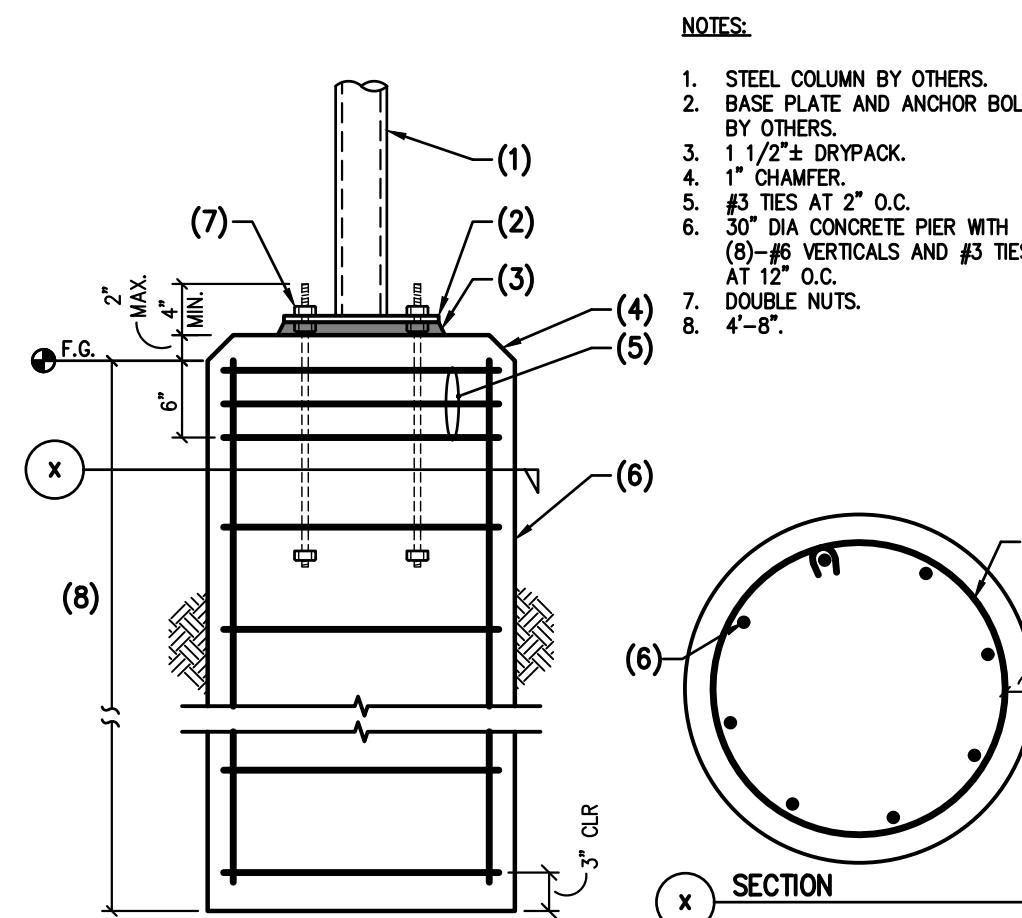
109 CONCRETE PIT NO SCALE



110 LIGHT GAGE POP OUT AT MASONRY WALL FOOTING NO SCALE



111 PAY CANOPY - 12'-8" (MAX) POLE NO SCALE



112 VACUUM CANOPY - 9'-7" (MAX) POLE NO SCALE

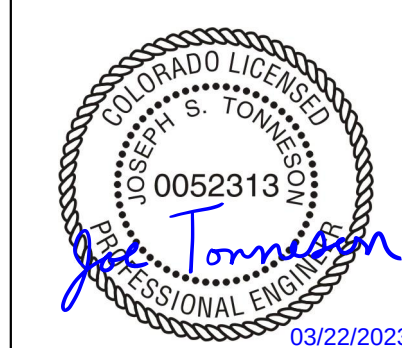
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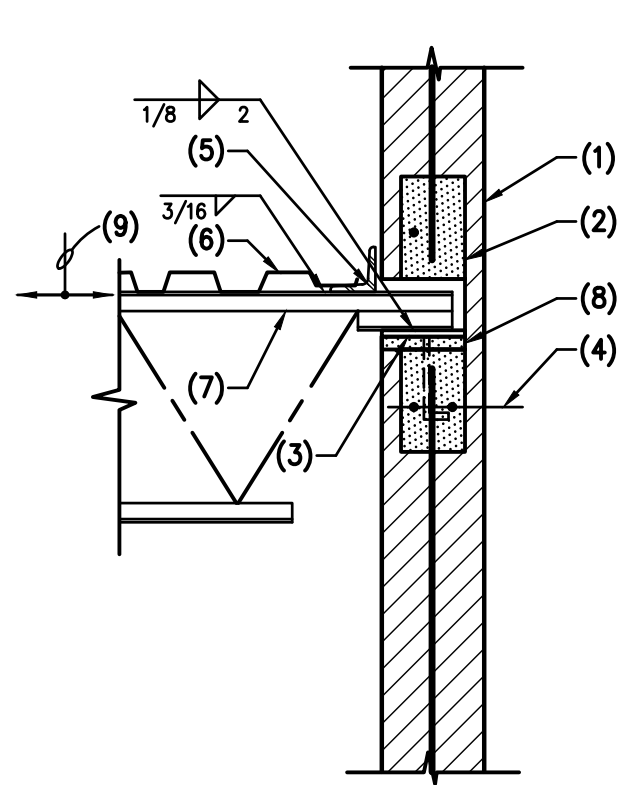
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SHEET TITLE

FDN DETAILS

SHEET

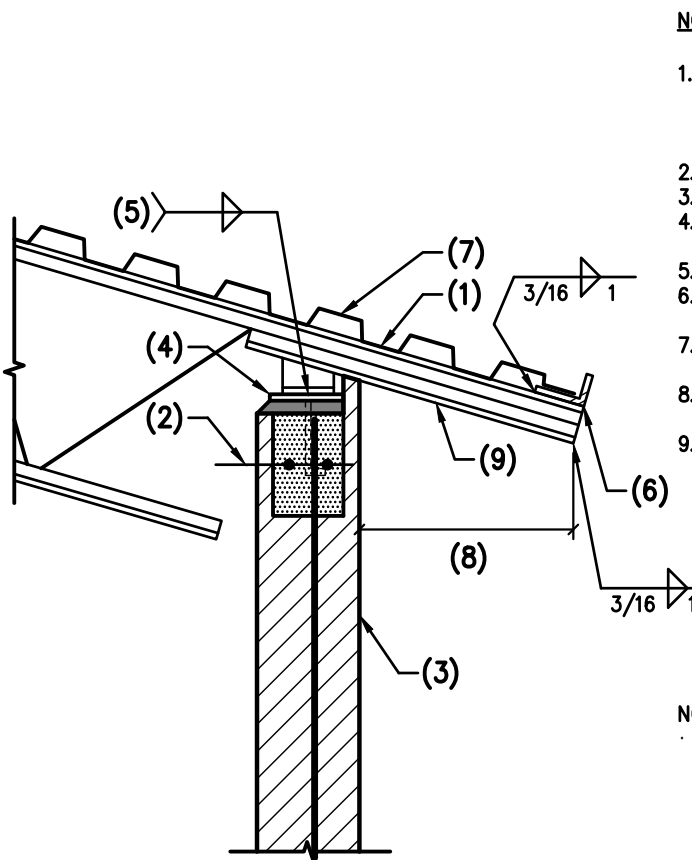
S3.1



- NOTES:
1. MASONRY WALL.
 2. GROUT SOLID.
 3. 1/2"x6"x8" STEEL BEARING PLATE WITH (2) 3/4" ANCHOR BOLTS.
 4. 16" DEEP (MIN) CONT. BOND BEAM PER G.S.N.
 5. CONTINUOUS STEEL LEDGER.
 6. STEEL DECK.
 7. STEEL JOIST.
 8. 1"x2" DRYPACK.
 9. JOIST MANUFACTURER TO DESIGN FOR AXIAL LOAD, TENSION OR COMPRESSION 2.4K WIND.
- NOTE:
AXIAL LOAD FOR JOIST IS UNFACTORED. JOIST ENGINEER MAY USE ASD OR LRFD FOR DESIGN.

201 STEEL JOIST AT MASONRY WALL

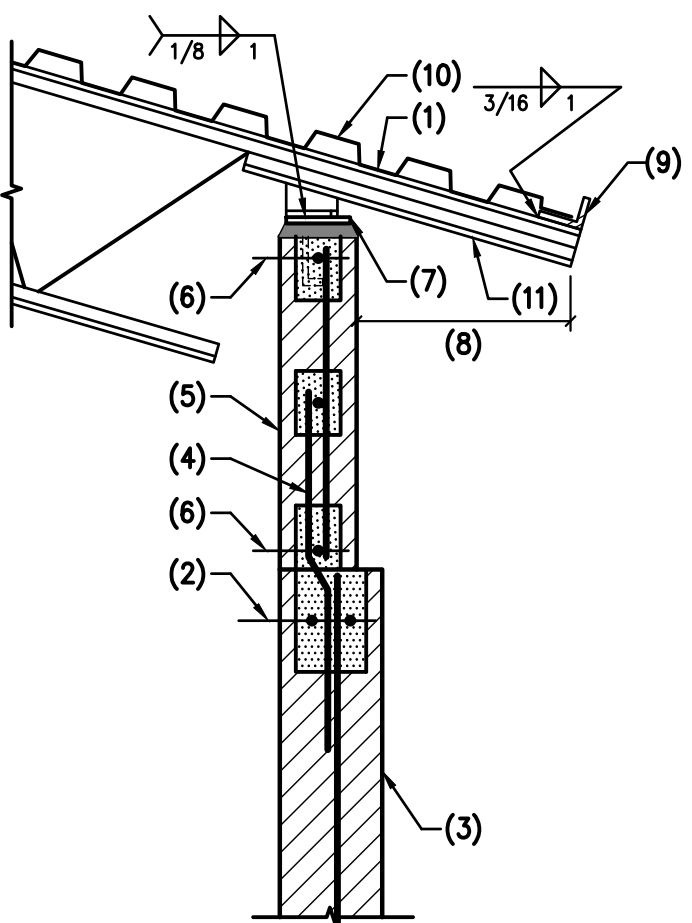
NO SCALE



- NOTES:
1. JOIST MFR TO DESIGN SPECIAL STEEL JOIST WITH TOP CHORD EXTENSION AND RADIUS (REFER TO ARCH'L).
 2. BOND BEAM PER G.S.N.
 3. MASONRY WALL.
 4. 1/2"x6"x8" STEEL BEARING PLATE OVER 1"x2" DRYPACK.
 5. 1/8" x 1" AT K JOISTS.
 6. CONT. 1.3x2x1/4 (LLH) STEEL LEDGER.
 7. METAL DECK. ATTACH PER G.S.N.
 8. 2'-0" MAX. REFER TO ARCH'L FOR EXACT DIMENSION.
 9. TOP CHORD EXTENSION.
- NOTE:
PROVIDE SPECIAL JOIST SHOE DEPTH WHERE REQUIRED TO MAINTAIN CONSTANT JOIST BEARING ELEVATION. FOR CLARITY STEEL DECK NOT SHOWN. RADIUS JOIST NOT SHOWN FOR CLARITY.

202 STEEL JOIST AT MASONRY WALL

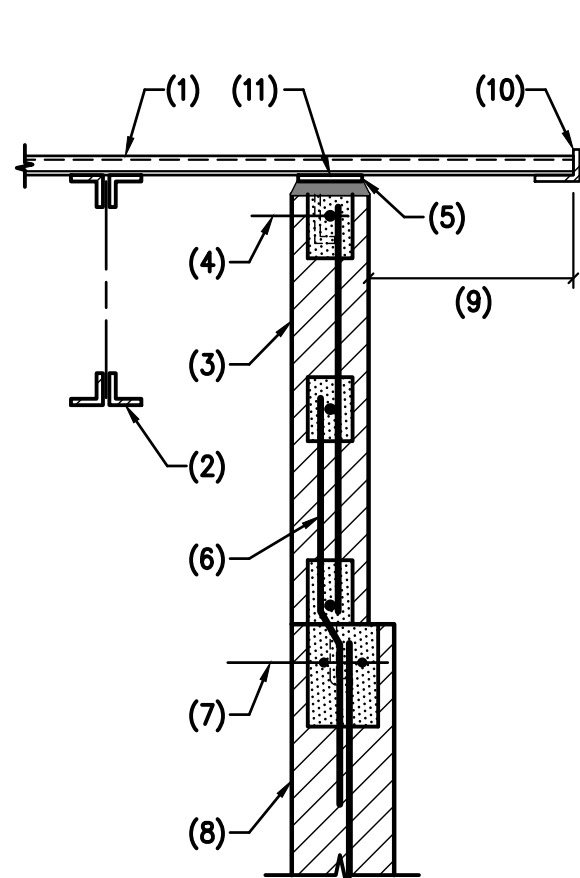
NO SCALE



- NOTES:
1. JOIST MFR TO DESIGN SPECIAL STEEL JOIST WITH TOP CHORD EXTENSION AND RADIUS (REFER TO ARCH'L).
 2. BOND BEAM PER G.S.N.
 3. MASONRY WALL.
 4. #5 BENT BARS TO MATCH VERT. REINF. (LAP PER TYPICAL DETAIL).
 5. 6" CMU W/ #5 VERT. AT 16" O.C. & (1)-#5 HORIZ. AT CMU TRANSITION & AT 16" O.C.
 6. (1)-#5 CONT.
 7. 1/2"x5"x12" STEEL BEARING PLATE W/ (2)-3/4" A.B. OVER ±1 1/2" DRYPACK.
 8. 3'-0" MAX. REFER TO ARCH'L FOR EXACT DIMENSION.
 9. 1.3x2x1/4 (LLH) CONT. STEEL LEDGER.
 10. METAL DECK. ATTACH PER G.S.N.
 11. TOP CHORD EXTENSION.

203 STEEL JOIST AT MASONRY WALL

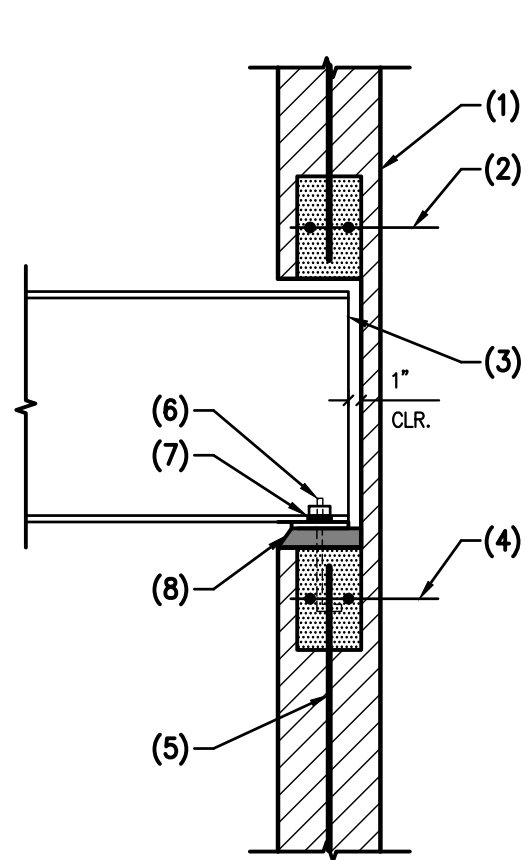
NO SCALE



- NOTES:
1. METAL DECK. ATTACH PER G.S.N.
 2. STEEL JOIST.
 3. 6" CMU W/ #5 VERT. AT 16" O.C. & (1)-#5 HORIZ. AT CMU TRANSITION & AT 16" O.C.
 4. (1)-#5 CONT.
 5. CONT. 1/2"x2"x5" BEARING PLATE W/ 3/4" A.B. AT 24" O.C.
 6. #5 BENT BARS TO MATCH VERT. REINF. (LAP PER TYPICAL DETAIL).
 7. BOND BEAM PER G.S.N.
 8. MASONRY WALL.
 9. 2'-4" MAX. REFER TO ARCH'L FOR OVERHANG.
 10. CONT. 1.3x2x1/4 (LLH) STEEL LEDGER (CURVED AS REQ'D PER ARCH'L).
 11. ATTACH METAL DECK AS PER G.S.N.

204 STEEL DECK AT MASONRY WALL

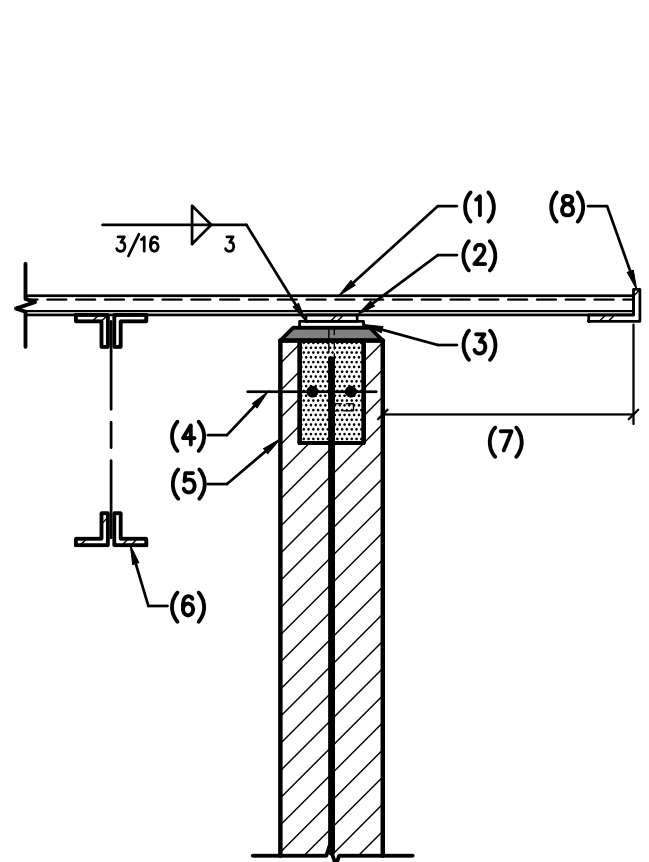
NO SCALE



- NOTES:
1. MASONRY WALL.
 2. BOND BEAM PER G.S.N.
 3. STEEL BEAM.
 4. (2)-#5 x 3'-6" LONG IN 8" DEEP x 4'-0" LONG GROUTED BOND BEAM.
 5. PROVIDE (2)-#5 FOR 3 CELLS AT BEAM BEARING.
 6. (2)-3/4" DIA. AUTOMATIC WELDED THREADED STUDS ON BEAM GAGE (TIGHTEN NUTS FINGER TIGHT).
 7. 1 1/2" LONG SLOTTED HOLES ON BEAM GAGE- TO RECEIVE STUDS.
 8. 3/4"x6"x12" STEEL BEARING PLATE WITH (2)-3/4" DIA ANCHORS OVER 1" ± DRYPACK.

205 STEEL BEAM AT MASONRY WALL

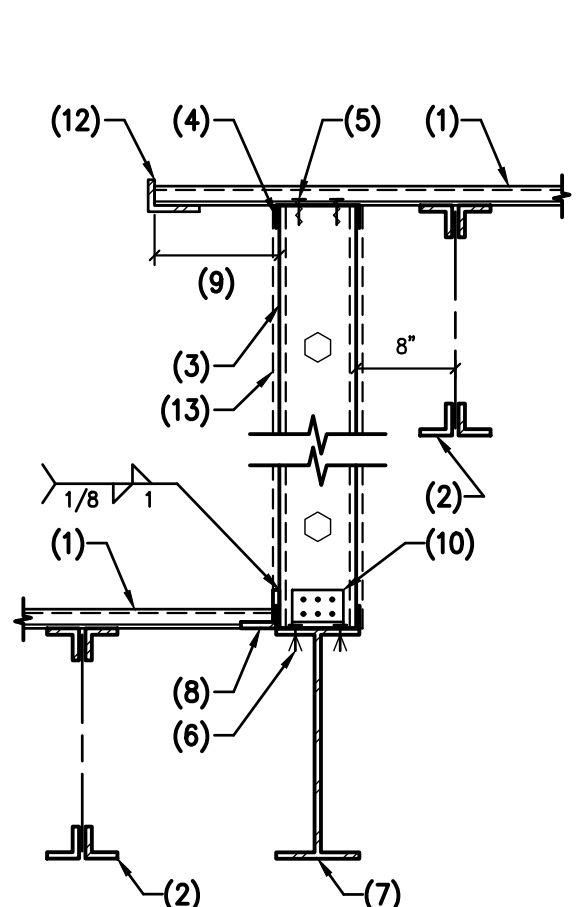
NO SCALE



- NOTES:
1. STEEL DECK - FOR DIRECTION, SEE PLAN.
 2. CONT. STEEL PLATE 1/4"x4"x4".
 3. STEEL PLATE 1/4"x6"x6" WITH (2)-3/4" DIA ANCHORS OVER 1"x2" DRYPACK - LOCATE PLATES AT 32" O.C.
 4. BOND BEAM PER G.S.N.
 5. MASONRY WALL.
 6. STEEL JOIST.
 7. 2'-4" MAX. REFER TO ARCH'L.
 8. CONT. 3x2x1/4 (LLH) STEEL LEDGER.

206 STEEL DECK AT MASONRY WALL

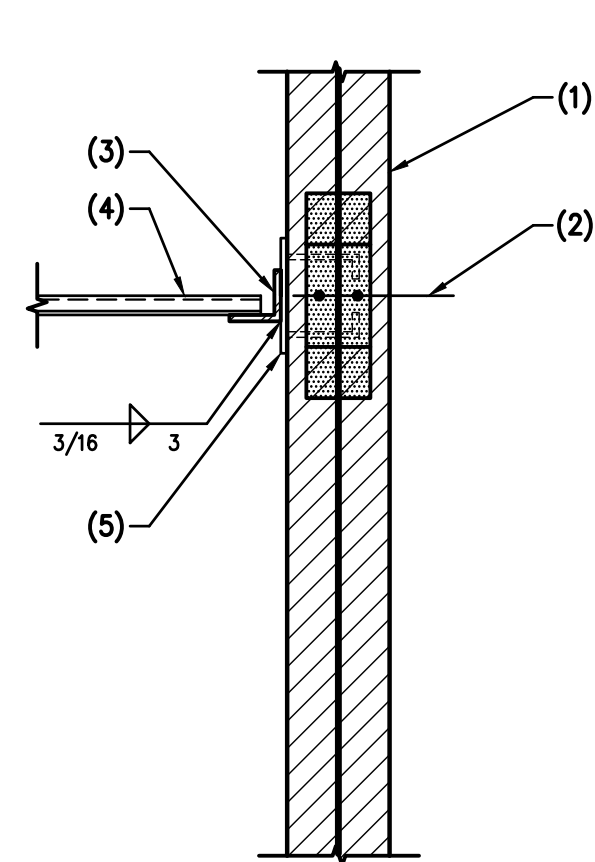
NO SCALE



- NOTES:
1. METAL DECK. ATTACH PER G.S.N.
 2. STEEL JOIST.
 3. 600S152-54 AT 12" O.C.
 4. CONT. 18 GA. TOP & BOTTOM TRACK.
 5. (2)-#10 TEK SCREWS AT 6" O.C.
 6. (2) HILTI X-U DRIVEN FASTENERS AT 6" O.C.
 7. STEEL BEAM.
 8. CONT. 3"x5"x1/4" STEEL LEDGER (LLH).
 9. 2'-4" MAX. REFER TO ARCH'L FOR DIMENSION.
 10. SIMPSON FC32 AT EACH END AND 24" O.C. W/ (6)-#10 TEK SCREWS.
 11. CONT. 3x2x1/4 LONGER (CORNER AS REQ'D PER ARCH'L).
 12. CONT. 3x2x1/4 (LLH) (CURVED AS REQ'D PER ARCH'L).
 13. 1/2" OSB SHEATHING W/ #8 TEK SCREWS AT 4" O.C. AT EDGE AND 12" O.C. AT FIELD.

207 LIGHT GAGE WALL AT STEEL BEAM

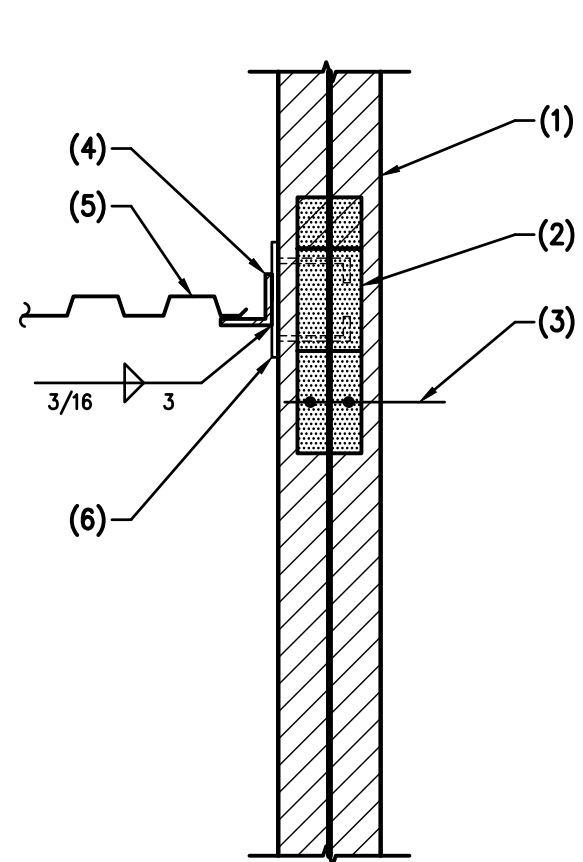
NO SCALE



- NOTES:
1. MASONRY WALL.
 2. BOND BEAM PER G.S.N.
 3. CONTINUOUS LEDGER ANGLE.
 4. STEEL DECK - FOR DIRECTION, SEE PLAN.
 5. STEEL PLATE 1/4"x4"x8" WITH (2)-3/4" DIA ANCHORS AT 6" O.C. - GROUT 4" MIN ALL AROUND ANCHORS.

208 LEDGER ANGLE AND STEEL DECK AT MASONRY WALL

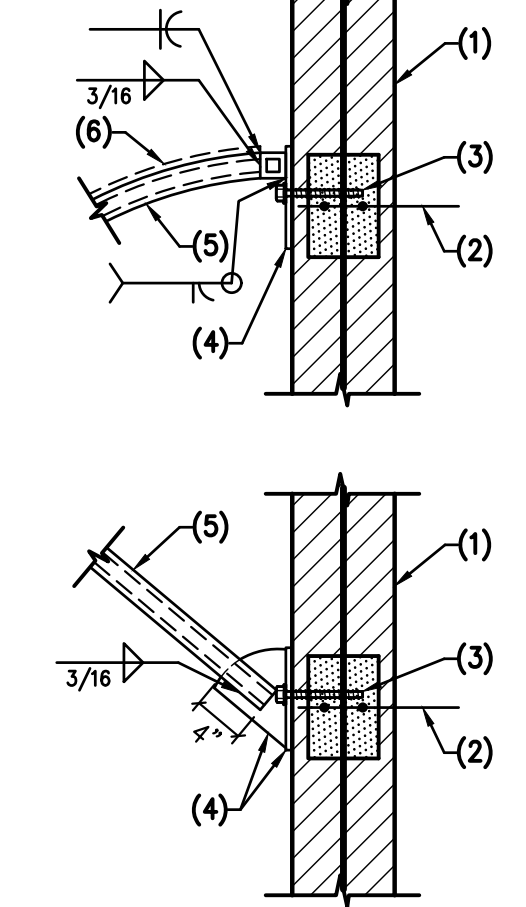
NO SCALE



- NOTES:
1. MASONRY WALL.
 2. GROUT CONTINUOUS FROM BOND BEAM TO 4" ABOVE ROOF LINE.
 3. BOND BEAM PER G.S.N.
 4. CONTINUOUS LEDGER ANGLE.
 5. STEEL DECK - FOR DIRECTION, SEE PLAN.
 6. STEEL PLATE 1/4"x4"x8" WITH (2)-3/4" DIA ANCHORS AT 6" O.C. - GROUT 4" MIN ALL AROUND ANCHORS.

209 LEDGER ANGLE AND STEEL DECK AT MASONRY WALL

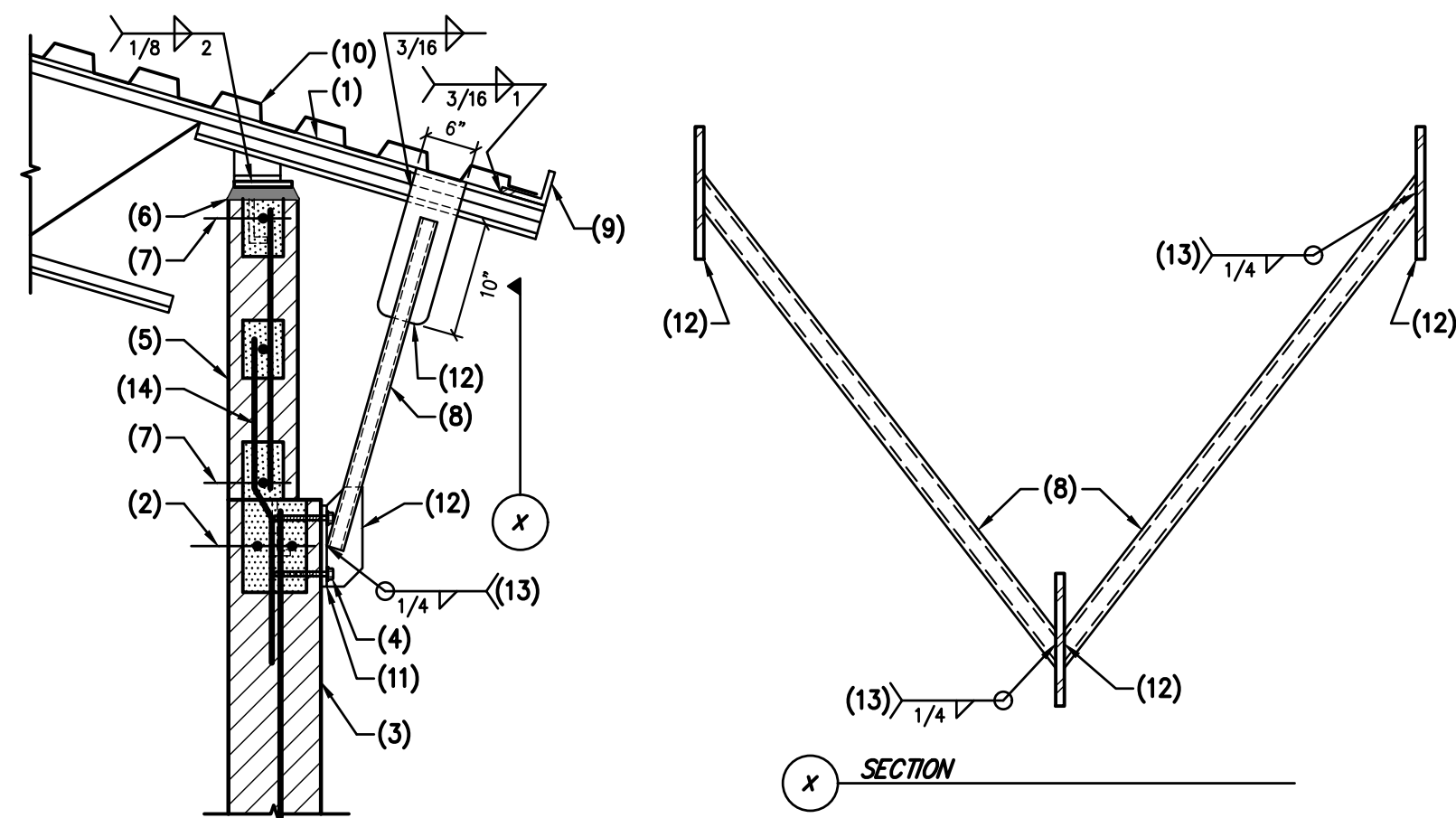
NO SCALE



- NOTES:
1. MASONRY WALL.
 2. (2)-#5 x4'-0" LONG.
 3. (2)-5/8"x6" HILTI SCREW ANCHORS (ESR-3056).
 4. 1/4" STEEL PLATE.
 5. HSS 2"x2"x1/4".
 6. METAL SHADE PER ARCH'L.
- NOTE:
FOR ALL STEEL AWNING.

210 STEEL AWNING AT MASONRY WALL

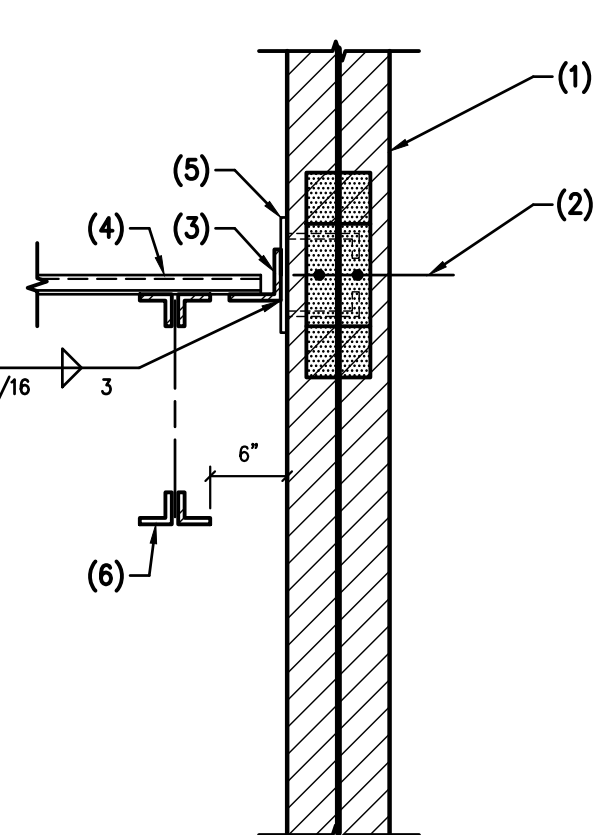
NO SCALE



- NOTES:
1. SPECIAL STEEL JOIST WITH TOP CHORD EXTENSION AND RADIUS (REFER TO ARCH'L).
 2. BOND BEAM PER G.S.N.
 3. MASONRY WALL.
 4. (2)-5/8"x6" HILTI SCREW ANCHORS (ESR-3056).
 5. 6" CMU W/ #5 VERT. AT 16" O.C. & (1)-#5 HORIZ. AT CMU TRANSITION & AT 16" O.C.
 6. 1/2"x5"x12" STEEL BEARING PLATE W/ (2)-3/4" A.B. OVER ±1 1/2" DRYPACK.
 7. (1)-#5 CONT.
 8. 2" STANDARD STEEL PIPE.
 9. 1.3x2x1/4 (LLH) CONT. STEEL LEDGER.
 10. METAL DECK. ATTACH PER G.S.N.
 11. 1/4"x6"x8" STEEL PLATE.
 12. 1/4" STEEL PLATE.
 13. WELD PLATE TO PLATE.
 14. #5 BENT BARS TO MATCH VERT. REINF. (LAP PER TYPICAL DETAIL).
- NOTE:
FOR ADD'L INFORMATION NOT SHOWN OR CALLED OUT. REFER TO DETAIL 203.
FOR PLATE DIMENSIONS AND BRACE ANGLE. REFER TO ARCH'L DRAWINGS.

211 STEEL JOIST BRACE AT MASONRY WALL

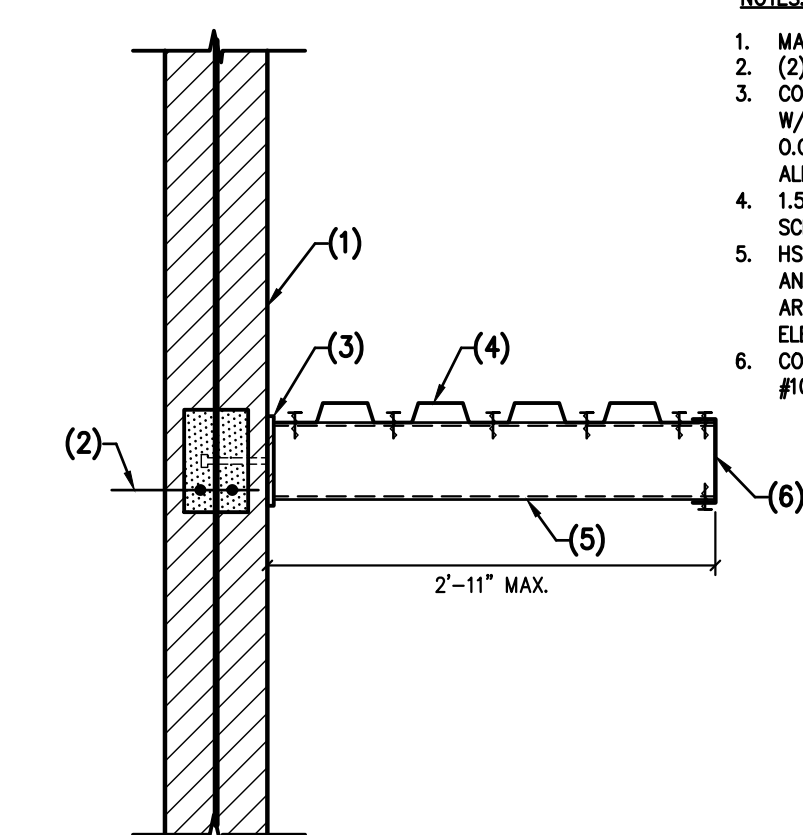
NO SCALE



- NOTES:
1. MASONRY WALL.
 2. BOND BEAM PER G.S.N.
 3. CONTINUOUS LEDGER ANGLE.
 4. STEEL DECK - FOR DIRECTION, SEE PLAN.
 5. STEEL PLATE 1/4"x4"x8" WITH (2)-3/4" DIA ANCHORS AT 6" O.C. - GROUT 4" MIN ALL AROUND ANCHORS.
 6. SPECIAL CURVED STEEL JOIST.

212 STEEL JOIST AT MASONRY WALL

NO SCALE



- NOTES:
1. MASONRY WALL.
 2. (2)-#5 CONT.
 3. CONT. 5/8"x7" STEEL PLATE W/ (2)-3/4" H.S. AT 24" O.C. AND EACH END (GROUT 4" ALL AROUND H.S.).
 4. 1.5x22 GA STEEL DECK W/ #10 SCREWS AT 6" O.C.
 5. HSS 6x2x3/16 AT 4'-0" O.C. AND EACH END (REFER TO ARCH'L FOR LOCATION AND ELEVATION -TYP).
 6. CONT. 600T250-54 FASOIA W/ #10 SCREW TOP & BOTTOM.

213 STEEL CANOPY AT MASONRY WALL

NO SCALE

Jaramillo-Tonneson & Associates
consulting structural engineers

JTA Engineering, LLC
15825 S 46th St, Suite 129
Phoenix, AZ 85048-0045

https://jtaengineering.com
480.442.2179 Sergio Jaramillo
602.492.6426 Joe Tonneson

PROJECT NUMBER: 2022152 PROJECT MANAGER: SJ/JS

drawings that are not signed, sealed & dated by the engineer of record are considered preliminary and are not for construction. any requested changes after bid documents are issued will be considered a change order and will be billed hourly to the requesting party.



STAMP

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QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

CSHQA

PROJECT 20037.000 DATE 03-22-2023
DRAWN JS CHECKED SJU

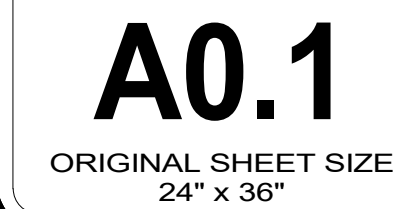
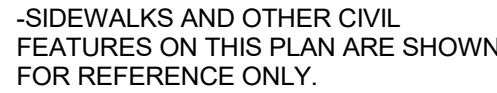
REVISED

SHEET TITLE

FRAMING DETAILS

SHEET

S4.1

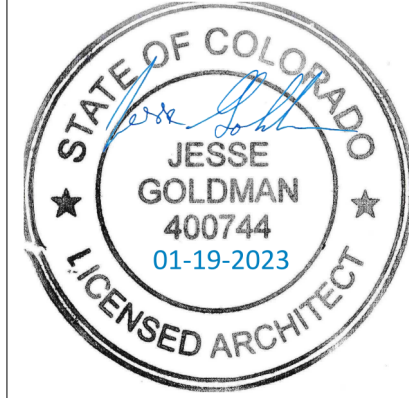


GENERAL NOTES:

- A. UNLESS OTHERWISE NOTED, HINGE SIDE OF DOOR FRAME SHALL BE MOUNTED 4" FROM ADJACENT WALL CONSTRUCTION.
- B. ALL WALL DIMENSIONS ARE TO FACE OF STUD AND/OR NOMINAL FACE OF MASONRY.
- C. DIMENSIONS SHOWN ON PLAN ARE BASED ON BEST AVAILABLE INFORMATION PROVIDED BY BUILDING OWNER. GC TO FIELD VERIFY EXACT DIMENSIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
- D. VERIFY DIMENSIONS OF ALL FIXTURES AND EQUIPMENT PROVIDED BY OWNER.
- E. MAKE ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.
- F. PROVIDE SOLID BLOCKING OR OTHER SUITABLE BACKING AT LOCATIONS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING: EDGES WHERE FINISH MATERIALS CHANGE, GRAB BARS, WALL HUNG SINKS, DOOR STOPS, SHELF BRACKETS, HANDRAILS, ELECTRIC HAND DRYERS, AND ALL MOUNTED EQUIPMENT, INCLUDING EQUIPMENT FURNISHED BY OWNER.
- G. VERIFY EGRESS REQUIREMENTS WITH AUTHORITY HAVING JURISDICTION. VERIFY FINAL LOCATIONS OF EXIT SIGNS AND EGRESS ILLUMINATION.
- H. ALL WALL FINISHES, UNLESS OTHERWISE NOTED, TO BE TAPED, SANDED SMOOTH, AND PAINT READY. COLOR TO BE SELECTED BY OWNER.
- I. MINUS AND PLUS DIMENSIONS GIVEN ON THE FLOOR PLAN WITH A (T.O.C) DESIGNATION REPRESENT THE TOP OF CONCRETE SLAB ELEVATION WITH RESPECT TO THE DATUM FINISH FLOOR ELEVATION OF 100'-0", E.G. (+6" T.O.C).

SHEET NOTES:

1. WALL, RE: WALL TYPES.
2. RESTROOM FIXTURES, RE: A4.1-1 & A4.1-8.
3. STOREFRONT SYSTEM AND GLAZING, RE: A4.1 & A7.2.
4. DOOR, RE: DOOR AND HARDWARE SCHEDULE. RE: A4.1.
5. PARTITION WALL TO 6" ABOVE CEILING, RE: WALL TYPES & A1.1-3.
6. ROOM TO RECEIVE FINISHES, RE: A4.1-9.
7. OVERHEAD DOOR, RE: A4.1.1 & A7.1 G.C. TO COORDINATE WITH OWNER FOR EXACT REQUIREMENTS.
8. VENDING MACHINE, OWNER FURNISHED, OWNER INSTALLED. G.C. TO COORDINATE WITH OWNER FOR EXACT REQUIREMENTS.
9. HIGH / LOW DRINKING FOUNTAIN, RE: PLUMBING AND ELECTRICAL DRAWINGS.
10. SERVICE SINK, RE: PLUMBING DRAWINGS.
11. NOT USED.
12. ROOF AND OVERFLOW DRAIN THROUGH WALL, RE: A8.1-15, 15 & PLUMBING.
13. CONTROL JOINT AND CHANGE IN PAINT COLOR, RE: EXTERIOR ELEVATIONS.
14. ELECTRICAL SERVICE ENTRANCE SECTION (SES)
15. MARK ON FLOOR AREA TO BE KEPT CLEAR
16. FIRE ALARM CONTROL PANEL RE: FIRE PROTECTION
17. FIRE RISER AND BACKFLOW ASSEMBLY RE: FIRE PROTECTION & MEP
18. FIRE DEPARTMENT CONNECTION RE: FIRE PROTECTION AND MEP



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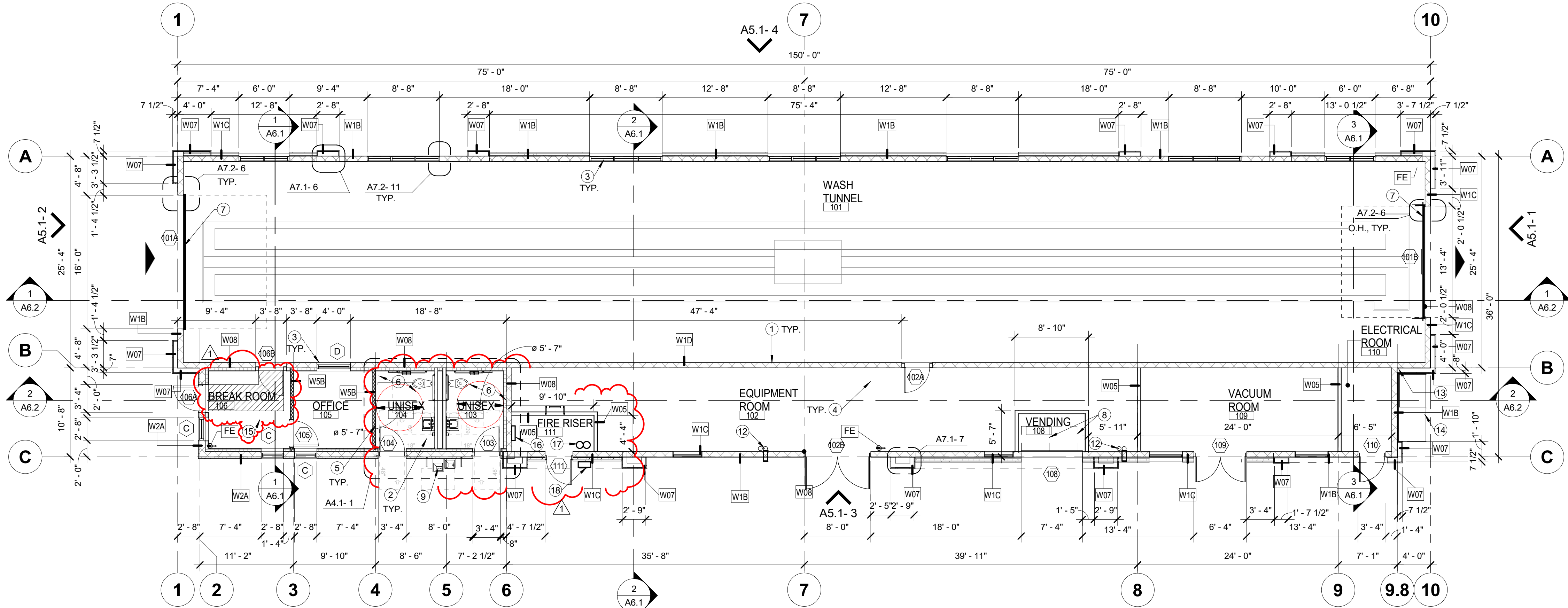
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PROJECT 20037.000
DATE 3-15-2023
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CHECKED WRS

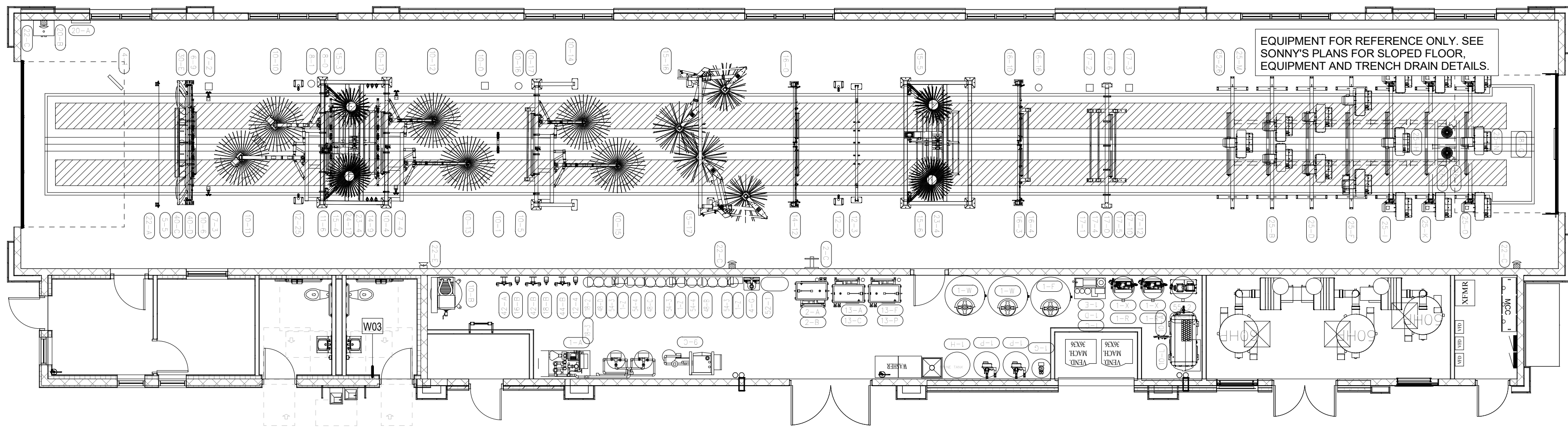
REVISED 1 AGENCY COMMENTS 3/15/2023

SHEET TITLE
FLOOR PLAN

SHEET
A1.1
ORIGINAL SHEET SIZE
24" x 36"



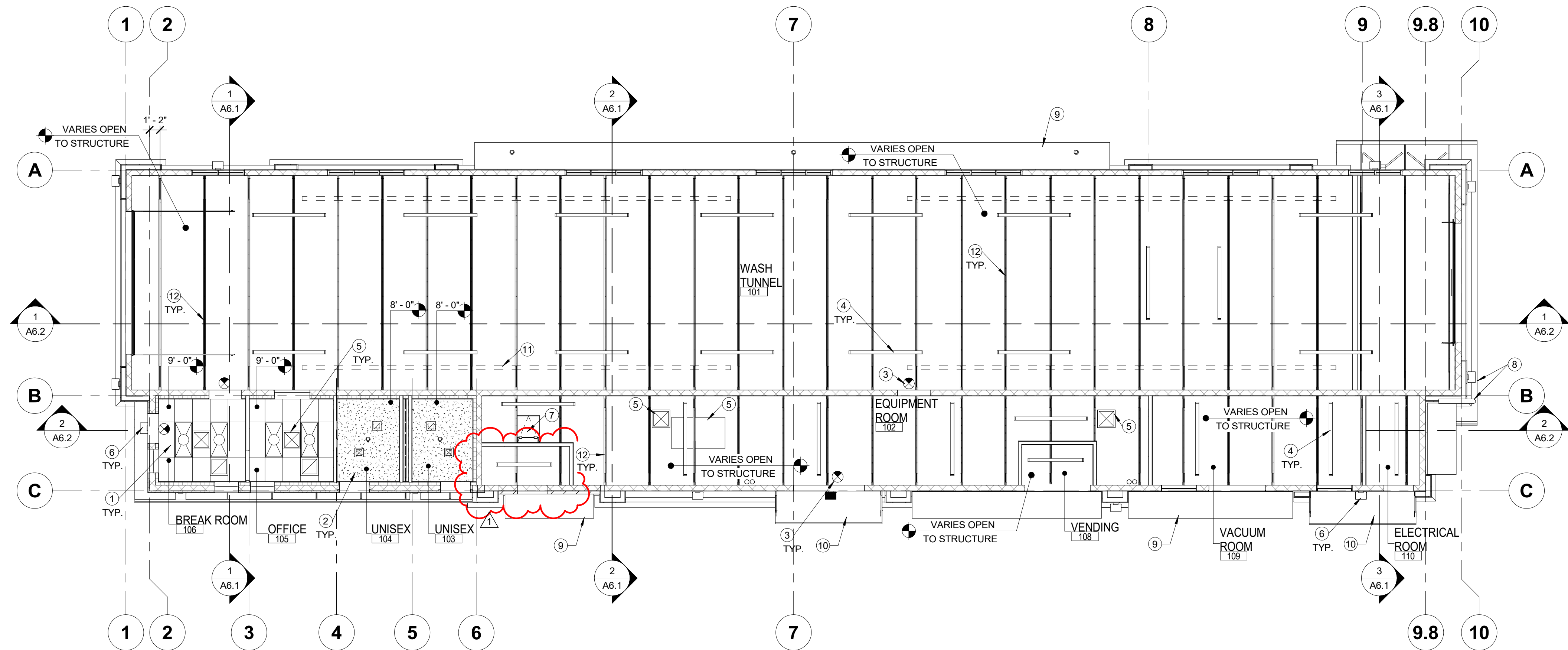
1 FLOOR PLAN
1/8" = 1'-0"



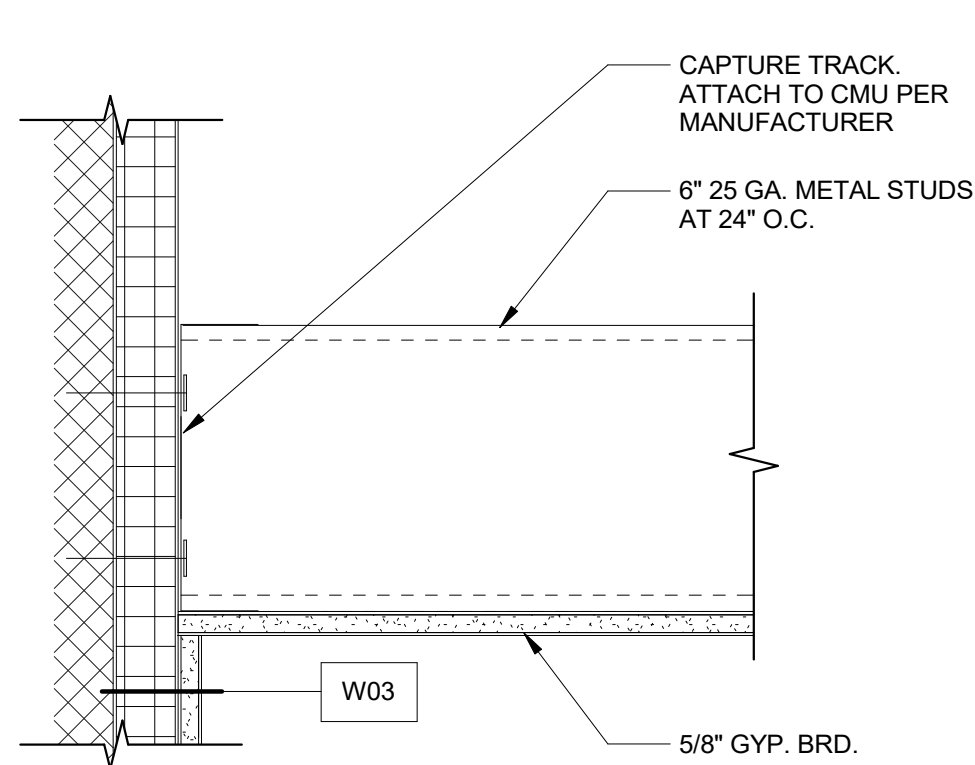
4 EQUIPMENT PLAN
1/8" = 1'-0"

3 WALL TYPES
1" = 1'-0"

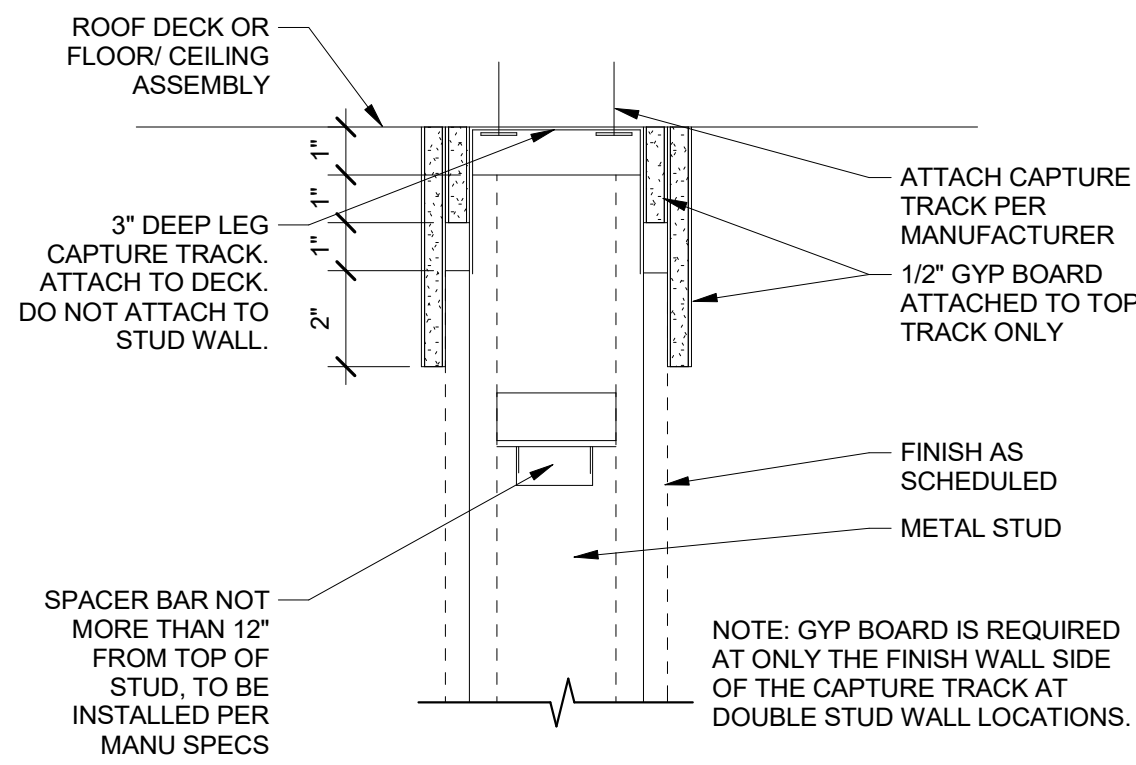
W1A, W1B, W1C EXTERIOR FINISH AS NOTED BELOW AND ON ELEVATIONS CMU, RE: STRUCTURAL NOTES: W1A: BRICK VENEER ON EXTERIOR SIDE SCORED CMU BLOCK, INSIDE W1B: HARDI SIDING FINISH ON EXTERIOR SIDE SCORED CMU BLOCK, INSIDE W1C: STONE STUCCO ON EXTERIOR SIDE, SCORED CMU BLOCK, INSIDE W1D: SCORED CMU BLOCK EXTERIOR CMU WALL	W2A, W2B 2" Z CLIPS AT 24" O.C. 1 1/2" Z CLIPS AT 24" O.C. CMU, RE: STRUCTURAL 5/8" GYP. BRD. 1 1/2" RIGID CONTINUOUS INSULATION HARDI SIDING EXTERIOR FINISH SEE ELEVATIONS NOTE: • EXTEND METAL FURRING TO CEILING • W2B: WATER RESISTANT GYPSUM BOARD TO 48" A.F.F. AT RESTROOMS INTERIOR GYP BOARD @ OFFICE	W03 CMU, RE: STRUCTURAL 5/8" GYP. BRD. FRP WAINSCOT NOTE: • WATER RESISTANT GYPSUM BOARD TO 48" A.F.F. AT RESTROOMS • EXTEND WALL TO BOTTOM OF STRUCTURE RESTROOM CMU WALL	W05, W5B WATER RESISTANT GYPSUM BOARD TO 48" A.F.F. AT RESTROOM FRP WAINSCOT AT RESTROOM 5/8" GYPSUM BOARD, TAPED & PAINT READY, COORD. WITH OWNER FOR FINISH. GYP ON ONE SIDE AT W5B 3 5/8" 16 GA METAL STUDS AT 16" O.C., 6" 16 GA METAL STUDS AT SIM. CONDITION RE: METAL WALL SCHEDULE THIS SHEET NOTE: • RE: A2.1-5 FOR BRACING CONNECTIONS • EXTEND WALL 6" ABOVE CEILING, WALLS AT EQUIPMENT ROOM TO GO TO BOTTOM OF STRUCTURE • PROVIDE SOUND ATTENUATING BATT INSULATION AT OFFICE WALLS FOR ACOUSTICAL CONTROL INTERIOR STUD WALL	W06 STUCCO: FINISH COAT OVER SCRATCH COAT OVER LATH AND PLASTER OVER BUILDING PAPER METAL STUDS, RE: STRUCT. 8" METAL STUDS ABOVE CMU WALLS 1/2" EXTERIOR GRADE PLYWOOD TYVEC BUILDING WRAP FRP SYSTEM, WITH CONTINUOUS DRIP EDGE AT BOTTOM NOTE: • INSTALL AS RECOMMENDED BY MANUFACTURER STUCCO ON METAL STUD	W07 HARDI BOARDSIDING ON 1x2 FURRING STRIPS METAL STUDS, RE: STRUCT. 1/2" EXTERIOR GRADE PLYWOOD CMU WALL NOTE: • SEE PLAN DETAILS A7.1-6, A7.1-7 EXTERIOR FURRING	W08 5/8" GYP. BRD. CMU, RE: STRUCTURAL 4" Z CLIPS AT 24" O.C. R-11.7 (MIN.) CONTINUOUS XPS INSULATION W/ 4" Z CLIPS AT 24" O.C. NOTE: • EXTEND WALL TO BOTTOM OF STRUCTURE CMU FURRING WALL	W09 NOT USED
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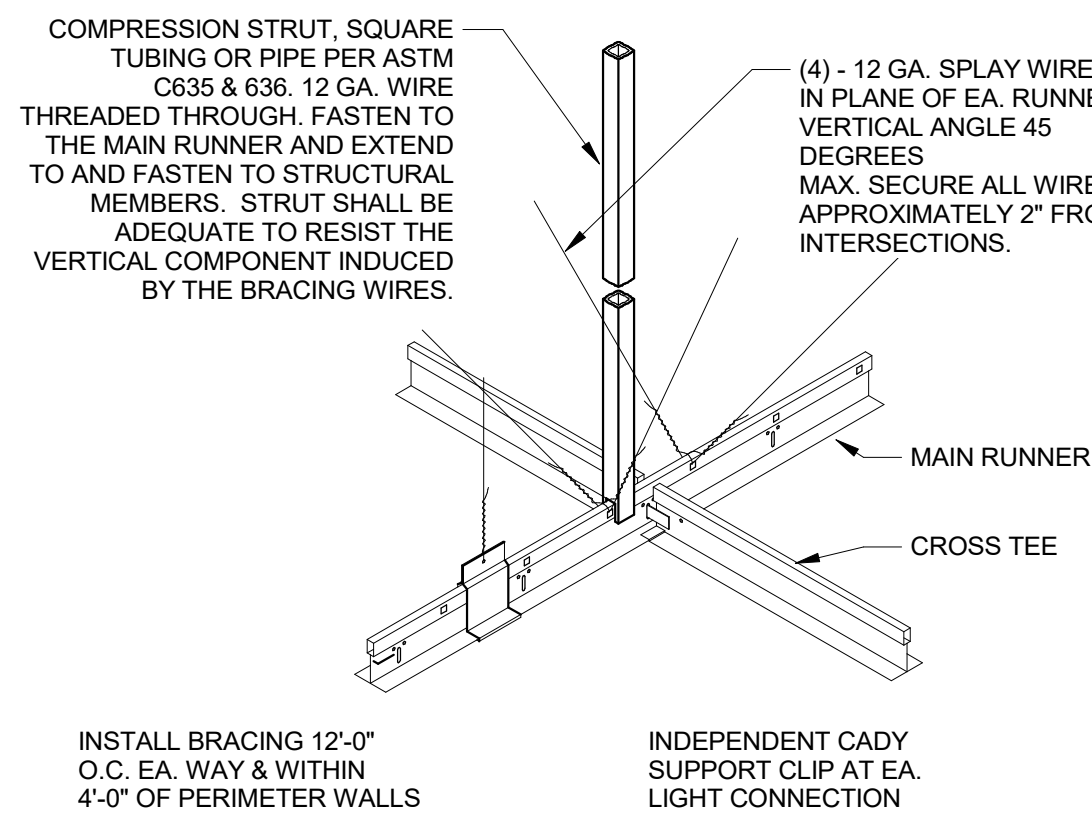
1 REFLECTED CEILING PLAN
1/8" = 1'-0"



2 GYP BOARD CEILING
3" = 1'-0"

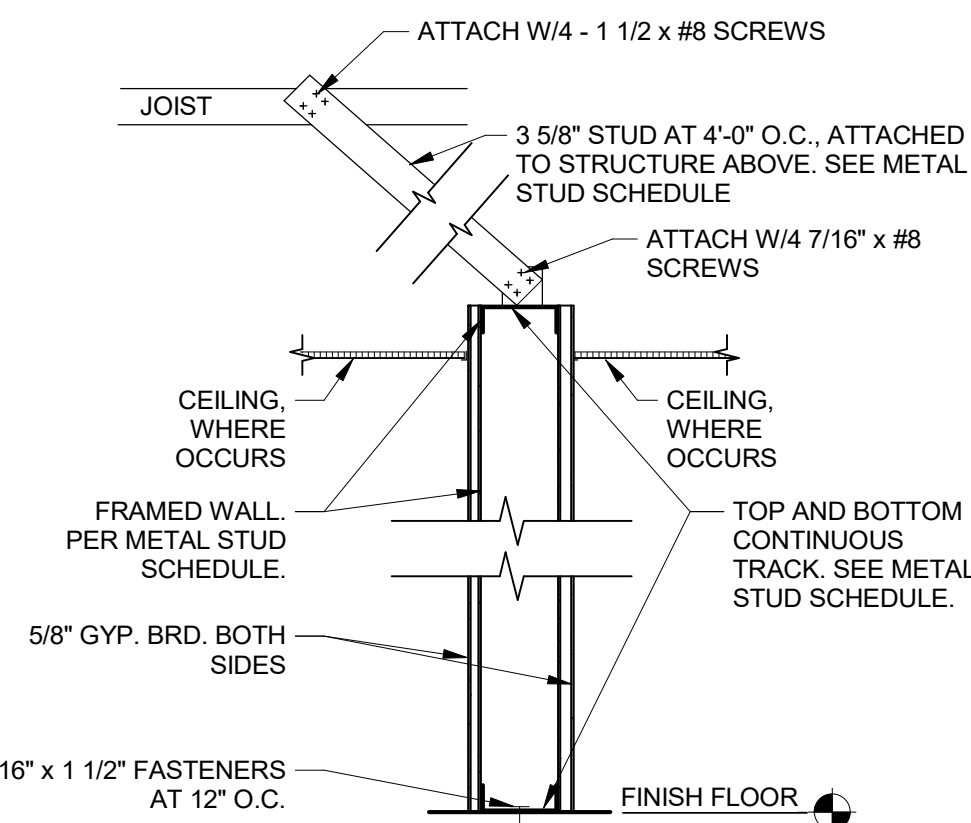


3 STUD SLIP JOINT
3" = 1'-0"



4 SUSPENDED CEILING SYSTEM
1 1/2" = 1'-0"

METAL STUD SCHEDULE					
SIZE	DESIGNATION	SPACING (INCHES)	HEIGHT (HT.)	TOP & BOT. TRACKS	DIAG. BRACE
3 5/8" x 18 GA.	362S162-43	16	20'-0"	20GA.	20GA.
4" x 18 GA.	400S162-43	16	20'-0"	18GA.	20GA.
6" x 20 GA.	600S162-33	16	20'-0"	18GA.	20GA.
6" x 16 GA.	600S162-54	16	20'-0"	18GA.	18GA.



5 PARTITION DETAIL
1/4" = 1'-0"

LEGEND:

- 2X4 RECESSED LIGHT FIXTURE
- RECESSED DOWNLIGHT FIXTURE, RE: ELECTRICAL
- MECHANICAL SYSTEMS, RE: MECHANICAL.
- 6' LED STRIP, RE: ELECTRICAL
- 8' LED STRIP, RE: ELECTRICAL
- EXIT SIGN
- EMERGENCY EGRESS LIGHT ABOVE DOOR
- LIGHT
- 2' X 4' SUSPENDED ACOUSTICAL CEILING SYSTEM: OLYMPIA MICRO CINEMAPLUS PERFORMANCE, 4411 WHITE OR EQUAL. USG DONN BRAND DXDXL ACOUSTICAL SUSPENSION SYSTEM, FLAT WHITE COLOR OR EQUAL.
- GYPSUM BOARD CEILING

GENERAL NOTES:

- ALL WALL DIMENSIONS ARE TO FACE OF STUD AND/OR NOMINAL FACE OF MASONRY.
- DIMENSIONS SHOWN ON PLAN ARE BASED ON BEST AVAILABLE INFORMATION PROVIDED BY BUILDING OWNER. GC TO FIELD VERIFY EXACT DIMENSIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
- VERIFY DIMENSIONS OF ALL FIXTURES AND EQUIPMENT PROVIDED BY OWNER.
- MAKE ALL CONNECTIONS TO EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.
- ALL LAYING CEILINGS SHALL COMPLY WITH THE CEILING AND INTERIOR SYSTEMS CONSTRUCTION ASSOCIATION (CISCA) MANUAL GUIDELINES FOR SEISMIC RESTRAINT FOR DIRECT HUNG SUSPENDED CEILING ASSEMBLIES. RE: A2.1-2.
- ALL CEILING MOUNTED EQUIPMENT SHALL BE LOCATED SQUARE AND SYMMETRICAL TO ADJACENT COMPONENTS OR CONSTRUCTION UNLESS NOTED OTHERWISE.
- WHERE ACOUSTICAL CEILINGS, ALL FIRE SPRINKLER HEADS SHALL BE CENTERED IN THE TILE UNLESS NOTED OTHERWISE.
- ALL FINISHES, UNLESS OTHERWISE NOTED, TO MATCH EXISTING BUILDING FINISH.

SHEET NOTES:

- SUSPENDED LAY IN CEILING & GRID. RE: A7.1-19
- GYP. BOARD CEILING. RE: A4.1-9.
- EXIT SIGN. RE: ELECTRICAL.
- LIGHT FIXTURES. RE: ELECTRICAL.
- MECHANICAL SYSTEM, RE: MECHANICAL.
- EXTERIOR LIGHT. RE: ELEVATIONS FOR MOUNTING HEIGHTS, RE: ELECTRICAL
- ROOF ACCESS HATCH
- GUTTER AND DOWNSPOUT, RE: ROOF PLAN
- HORIZONTAL PROJECTION RE: A7.1-1
- ARCHED CANOPY RE: A7.1-2 AND A7.1-3
- RADIANT HEATER RE: MECHANICAL
- STEEL JOISTS, TRUSSES AND COLUMNS: FACTORY PRIMED AND PAINTED IN THE FIELD WITH WHITE MARINE GRADE DTM PAINT. CONFIRM PAINT SPECS WITH OWNER.



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QUICK N CLEAN CAR WASH
9572 TWENTY MILE ROAD
CSHOA

PROJECT
20037.000
DATE
3-15-2023
DRAWN
RJ
CHECKED
WRS

REVISED
1 AGENCY COMMENTS 3/15/2023

**REFLECTED
CEILING
PLAN**

SHEET

A2.1
ORIGINAL SHEET SIZE
24" x 36"

GENERAL NOTES:

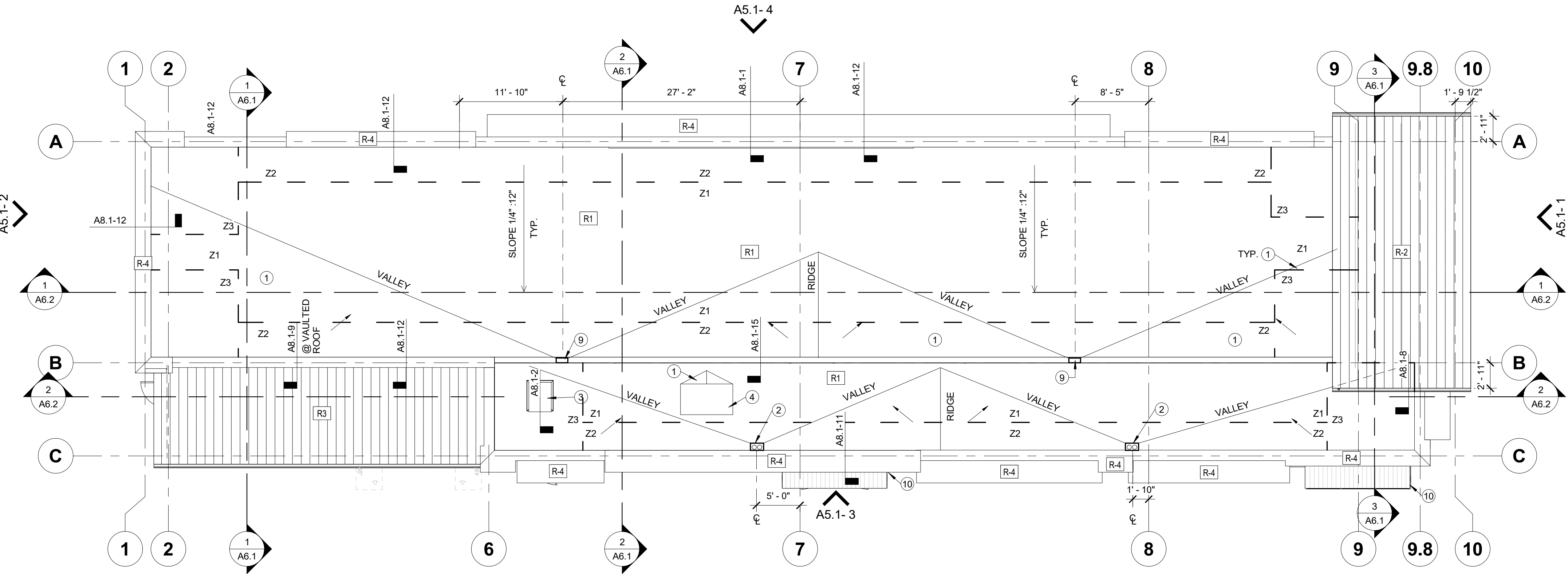
- A. COORDINATE ROOF PENETRATIONS WITH MECHANICAL AND STRUCTURAL.
- B. THE CONTRACTOR SHALL PROVIDE TAPERED RIGID INSULATION CRICKETS AROUND ANY ROOF MOUNTED HVAC EQUIPMENT, ROOF HATCHES, OR OTHER ROOF MOUNTED ITEMS WHICH MAY OBSTRUCT THE FLOW OF NORMAL WATER DRAINAGE.
- C. FLASH AROUND ALL VENT AND PIPE PENETRATIONS PER MANUFACTURER'S STANDARD DETAILS. COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS
- D. ROOFING CONTRACTOR TO PROVIDE PROTECTION PADS AT SERVICE SIDE OF ALL ROOF TOP MECHANICAL UNITS AND ROOF HATCHES.
- E. COORDINATE WITH STRUCTURAL FOR ROOF DECK AND JOIST BEARING INFORMATION.
- F. GENERAL CONTRACTOR SHALL COORDINATE ALL ROOF TOP OPENING & CURBS WITH HVAC CONTRACTOR.
- G. VERIFY ALL A/C HVAC UNIT EXHAUST FANS, VENTS, AND OTHER EQUIPMENT LOCATION W/ MECHANICAL DRAWINGS.
- H. ROOF DRAINAGE IS SHOWN FOR REFERENCE ONLY. ALL ROOF AREAS SHALL SLOPE TO FACILITATE WATER DRAINAGE TO ROOF DRAINS, SCUPPERS, OR DOWNSPOUTS.
- I. ALL SHEET METAL ON BUILDING: ROOF CURBS, FOR REFRIGERATION UNITS EXT. BY MECH. CONTRACTOR
- J. ALL PENETRATIONS AND CORRESPONDING FLASHING ASSEMBLIES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH ROOF MEMBRANE MANUFACTURER PUBLISHED RECOMMENDATIONS.
- K. ALL MECHANICAL TO BE SCREENED BY PARAPET.

SHEET NOTES:

1. TAPERED ROOF INSULATION (CRICKET)
2. ROOF AND OVERFLOW DRAINS, RE: A8.1-4 AND PLUMBING.
3. ROOF HATCH, RE: A8.1-2.
4. MECHANICAL EQUIPMENT, RE: MECHANICAL DRAWINGS.
5. MECHANICAL EQUIPMENT'S EXHAUST PIPES, RE: MECHANICAL DRAWINGS.
6. NOT USED
7. NOT USED
8. NOT USED
9. ROOF STEP, SCUPPER RE: A8.1-5
10. METAL AWNING, ROOF ASSEMBLY TYPE R4. RE: ELEVATIONS.
11. NOT USED
12. GUTTER AND DOWNSPOUT. DOWNSPOUT CONTINUES THROUGH WALL AND DAYLIGHTS ON THE LOWER ROOF.

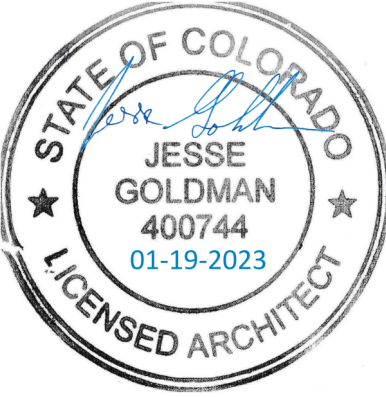
FASTENER/ADHESIVE RIBBON PATTERNS PER ZONE		
FASTENER SPACING #12 SCREW WITH 3" PLATE		ADHESIVE RIBBON SPACING
Z1	ZONE 1 (FIELD)	12 SCREWS 12" O.C.
Z2	ZONE 2 (PERIMETER) 5' WIDE	18 SCREWS 6" O.C.
Z3	ZONE 3 (CORNERS) (10'-0" x 10'-0" SQUARE)	24 SCREWS 4" O.C.

1 ROOF PLAN
1/8" = 1'-0"



2 ROOF ASSEMBLIES
3" = 1'-0"

R1	FLAT SINGLE-PLY	R2	VAULTED STANDING SEAM METAL ROOF	R3	INSULATED STANDING SEAM METAL ROOF	R4	CANOPY & PARAPET
SINGLE-PLY ROOF MEMBRANE (ADHERED). 5/8" ROOF BOARD (MECHANICALLY ATTACHED OR ADHERED), DENSDECK BY GEORGIA PACIFIC OR APPROVED EQUAL. SLOPE 1/4" PER FOOT, MINIMUM. METAL DECK, RE: STRUCTURAL STEEL JOIST, RE: STRUCTURAL		STANDING SEAM METAL ROOF, BERRIDGE ZEE- LOCK WITH SEAM AS YOU GO CONTINUOUS CLIP SEAMS OR EQUAL. RE: A5.1 ROOF UNDERLAYMENT PER ROOFING MFR'S RECOMMENDATIONS MFR'S ROOF PANEL CLIPS SPACED PER MFR'S REQUIREMENTS SLOPE PER ROOF PLAN METAL DECK, RE: STRUCTURAL STEEL JOIST, RE: STRUCTURAL		STANDING SEAM METAL ROOF, BERRIDGE ZEE- LOCK WITH SEAM AS YOU GO CONTINUOUS CLIP SEAMS OR EQUAL. RE: A5.1 ROOF UNDERLAYMENT PER ROOFING MFR'S RECOMMENDATIONS MFR'S ROOF PANEL CLIPS SPACED PER MFR'S REQUIREMENTS METAL DECK, RE: STRUCTURAL STEEL JOIST, RE: STRUCTURAL INSULATION R-38 PROVIDE COMPOSITE ASSEMBLY OF 1" POLYISO OR EPS BOARD MECHANICALLY FASTENED TO ADDRESS CURVED ROOF DECK PROFILE		SINGLE-PLY ROOF MEMBRANE (ADHERED). 5/8" ROOF BOARD (MECHANICALLY ATTACHED OR ADHERED), DENSDECK BY GEORGIA PACIFIC OR APPROVED EQUAL. SLOPE 1/4" PER FOOT, MINIMUM, BACK TO ROOF (U.O.N.) METAL DECK, RE: STRUCTURAL STEEL STUDS OR TUBE STEEL, RE: STRUCTURAL METAL PANEL WITH DARK BRONZE FINISH	



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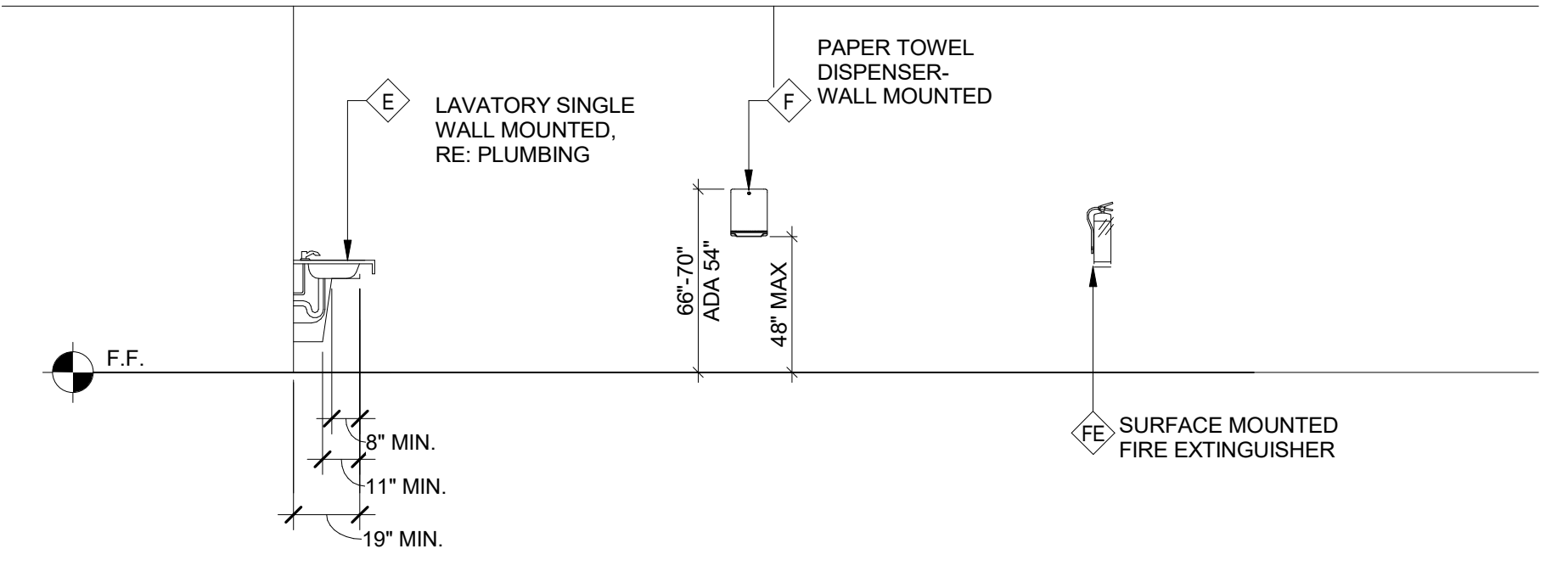
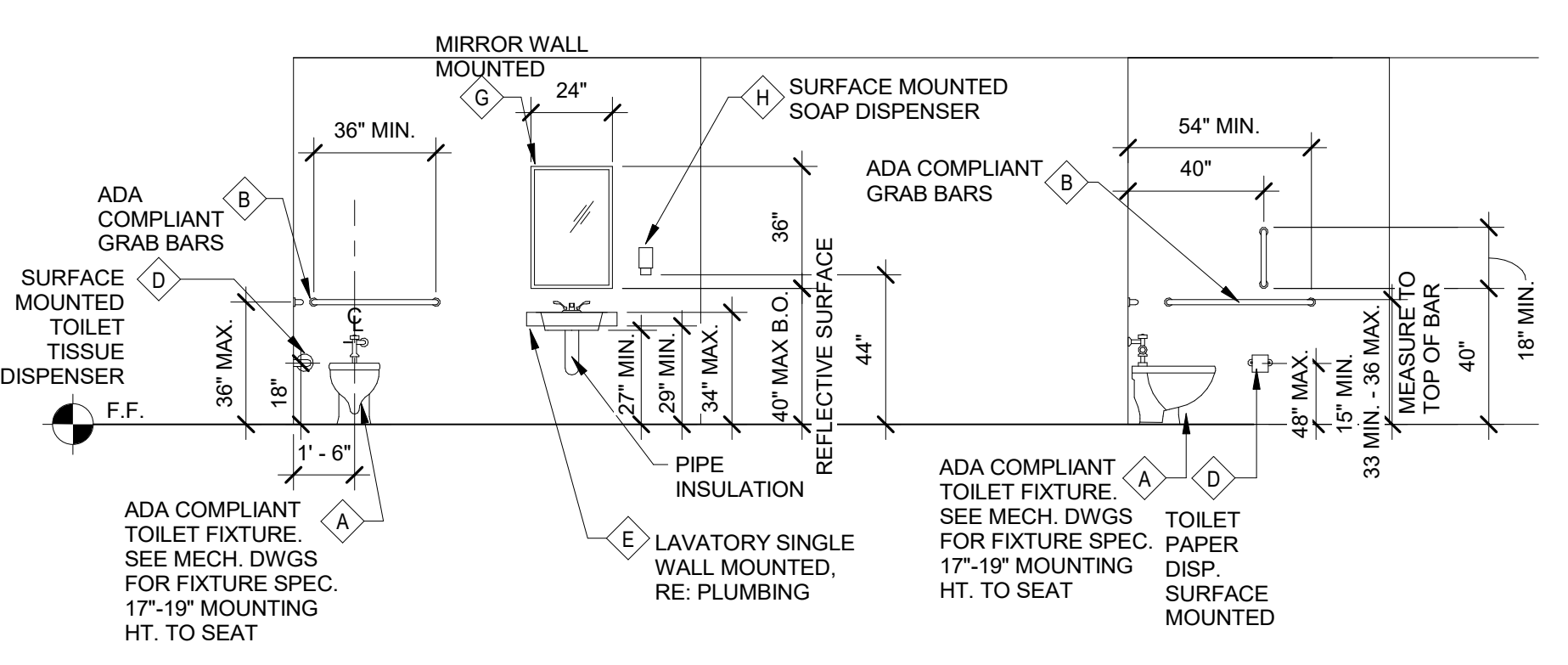
SHEET TITLE
ROOF PLAN

SHEET
A3.1
ORIGINAL SHEET SIZE
24" x 36"

9 ROOM FINISH SCHEDULE											
	ROOM NAME	FLOOR FINISH	WALLS BASE MATERIAL	NORTH	EAST	SOUTH	WEST	CEILING MATERIAL	FINISH	HEIGHT	NOTES
101	WASH TUNNEL	F-1	- CMU	*	*	*	*	-	P-1	O.T.S.	"EXTRUTECH UP TO 12" W/ WHITE EPOXY PAINT ON WALLS AND CEILING ABOVE
102	EQUIPMENT ROOM	F-1	- CMU	P-2	P-2	P-2	P-2	-	-	O.T.S.	
103	UNISEX RESTROOM	T-1	B-2 GYP.	P-2*	P-2*	P-2*	P-2*	C-2	P-2	8'-0"	"T-1 TO 48" A.F.F. RE: A2.1 WALL TYPES. SCHLUTER TRIM AT ALL EXPOSED EDGES
104	UNISEX RESTROOM	T-1	B-2 GYP.	P-2*	P-2*	P-2*	P-2*	C-2	P-2	8'-0"	
105	OFFICE	F-2	B-1 GYP.	T-1	T-1	T-1	T-1	C-1	-	9'-0"	
106	BREAK ROOM	F-2	B-1 GYP.	P-2	P-2	P-2	P-2	C-1	-	9'-0"	
107	FIRE RISER	F-1	- CMU	P-2	P-2	P-2	P-2	-	-	O.T.S.	
108	VENDING	F-1	- CMU	P-2	P-2	P-2	P-2	-	-	O.T.S.	
109	VACUUM ROOM	F-1	- CMU	P-2	P-2	P-2	P-2	-	-	O.T.S.	
110	ELECTRICAL ROOM	F-1	- CMU	P-2	P-2	P-2	P-2	-	-	O.T.S.	
111	FIRE RISER	F-1	- CMU	P-2	P-2	P-2	P-2	-	-	O.T.S.	

4 DOOR HARDWARE											
HARDWARE SET NO. 1: TUNNEL DOOR											
3 EA NON FERROUS HINGE MPB91 630 MCKINNEY											
1 EA PASSAGE SET 93K ON 15D 630 BEST											
1 EA CLOSER 1450 RW/PA 689 LCN											
1 EA WALL STOP 409 US32D 630 ROCKWOOD											
1 EA KICKPLATE K1050 10" X 2" CSK BEV 630 ROCKWOOD											
3 EA SILENCERS 608-RKW GREY ROCKWOOD											
1 EA GASKETING 409 630 ROCKWOOD											
1 EA THRESHOLD S44BL PEMKO											
HARDWARE SET NO. 2: RESTROOM											
3 EA HINGE MPB91 630 MCKINNEY											
1 EA INDICATOR PRIVACY LOCK 45HLT15VIT 630 BEST											
1 EA WALL STOP 409 630 ROCKWOOD											
3 EA SILENCERS 608-RKW GREY ROCKWOOD											
1 EA UNISEX SIGN S44BL PEMKO											
1 EA GASKETING											
1 EA THRESHOLD											
HARDWARE SET NO. 3: NOT USED											
HARDWARE SET NO. 4: STOREROOM											
3 EA HINGE MPB91 630 MCKINNEY											
1 EA STOREROOM LOCK 93K7D 630 BEST											
1 EA OVERHEAD STOP OH 900 SERIES 630 ROCKWOOD											
3 EA SILENCERS 608-RKW GREY ROCKWOOD											
1 EA KICK PLATE											
1 EA SECURITY PLATE AT LATCH											
1 EA WEATHER STRIP											
1 EA THRESHOLD											
1 EA SWEEP											
HARDWARE SET NO. 5: DBL. DOORS											
8 EA HINGE MPB91 691 MCKINNEY											
1 EA LOCKSET* 45H 7AB 15D 630BEST											
1 EA SURFACE CLOSER 4050 SCUSH 689 LCN											
1 EA OVERHEAD STOP OH 900 SERIES 630 ROCKWOOD											
2 EA WALLSTOP 409 630 ROCKWOOD											
2 EA KICKPLATE K1050 10" CSK BEV 630 ROCKWOOD											
1 EA WEATHERSTRIP 303AV 96X96X96PEMKO											
2 EA SWEEP 315CN 48 PEMKO											
1 EA THRESHOLD 271A 96 PEMKO											
1 EA ASTRAAL 357C 96 PEMKO											
1 EA SECURITY PLATE AT LATCH											
HARDWARE SET NO. 6: OFFICE											
3 EA HINGE MPB91 630 MCKINNEY											
1 EA OFFICE LOCK* 93K7AB 15D 630 BEST											
1 EA WALL STOP 409 630 ROCKWOOD											
3 EA SILENCERS 608-RKW GREY ROCKWOOD											
1 EA KICK PLATE											
1 EA SECURITY PLATE AT LATCH											
1 EA WEATHER STRIP											
1 EA THRESHOLD											
1 EA SWEEP											
NOTES:											
1. LOCKS AND LATCHES SHALL COMPLY WITH IBC SECTION 1010 AND ICC A117.1-2009 FOR GRASPABILITY REQUIREMENTS.											
2. * AT LOCKS DENOTED WITH AN *, PROVIDE SECURITY PLATE AT LATCH, ROCKWOOD 320-RKW x 630											

MATERIALS & FINISHES											
FLOORING						PAINT					
CALL OUT	MATERIAL					CALL OUT	MATERIAL				
F-1	CONCRETE, BROOM FINISH					P-1	WHITE EPOXY PAINT				
F-2	SEALED CONCRETE					P-2	SHERWIN WILLIAMS PROMAR 400 SEMI GLOSS, COLOR: 6107 NOMADIC DESERT				
TILE						CEILING					
CALL OUT	MATERIAL					CALL OUT	MATERIAL				
T-1	DAL TILE AFFINITY, COLOR: AF02 BEIGE 12x24 FLOOR TILE BRICK PATTERN @ FLOORS 12X12 STACKED PATTERN @ WALLS					C-1	2X4 CEILING GRID				
	BASE					C-2	GYP. BRD. PAINTED, COLOR PER OWNER				
CALL OUT						MATERIAL					
B-1	4" VINYL BASE, G.C. TO VERIFY COLOR WITH OWNER										
B-2	COVED CERAMIC TILE, G.C. TO VERIFY MANUFACTURER & COLOR WITH OWNER										

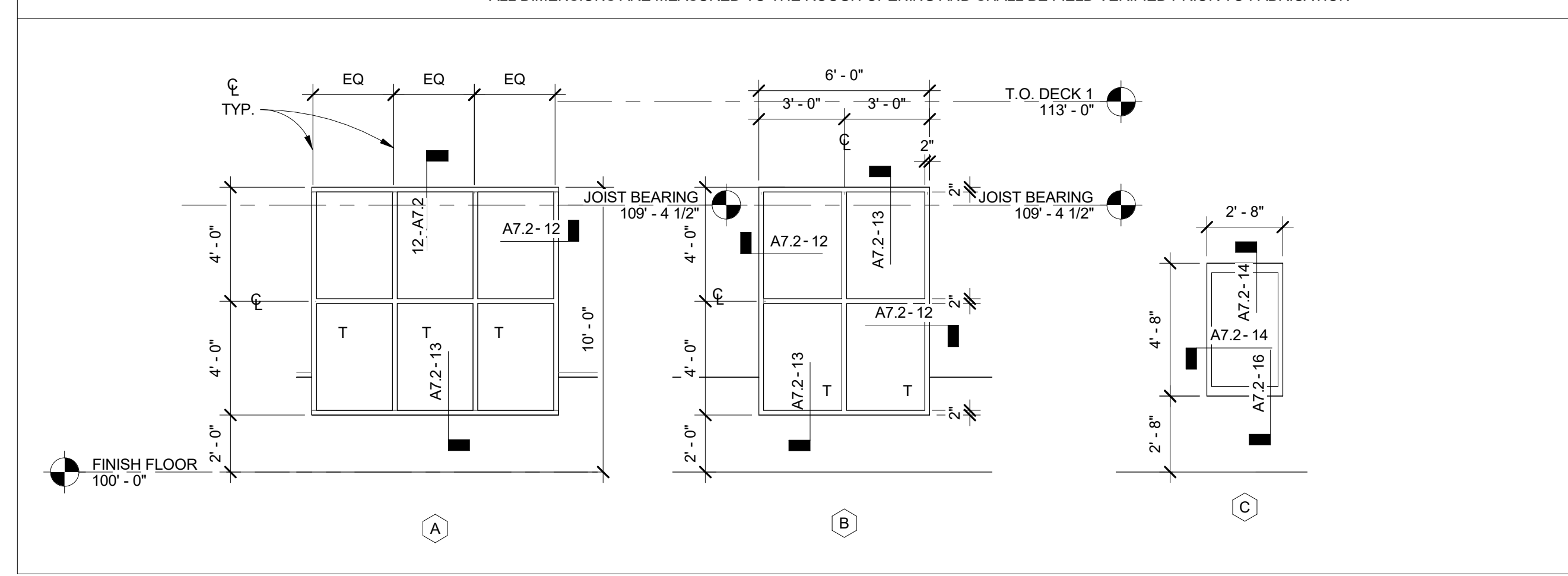


NOTE: PROVIDE SOLID BLOCKING OR OTHER SUITABLE BACKING AT LOCATIONS INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING: EDGES WHERE FINISH MATERIALS CHANGE, GRAB BARS, TOILET PARTITIONS, DOOR STOPS, SHELF BRACKETS, HANDRAILS AND ALL MOUNTED EQUIPMENT, INCLUDING EQUIPMENT FURNISHED BY OWNER. EXTEND BACKING 6" BEYOND OUTLINE OF EQUIPMENT.

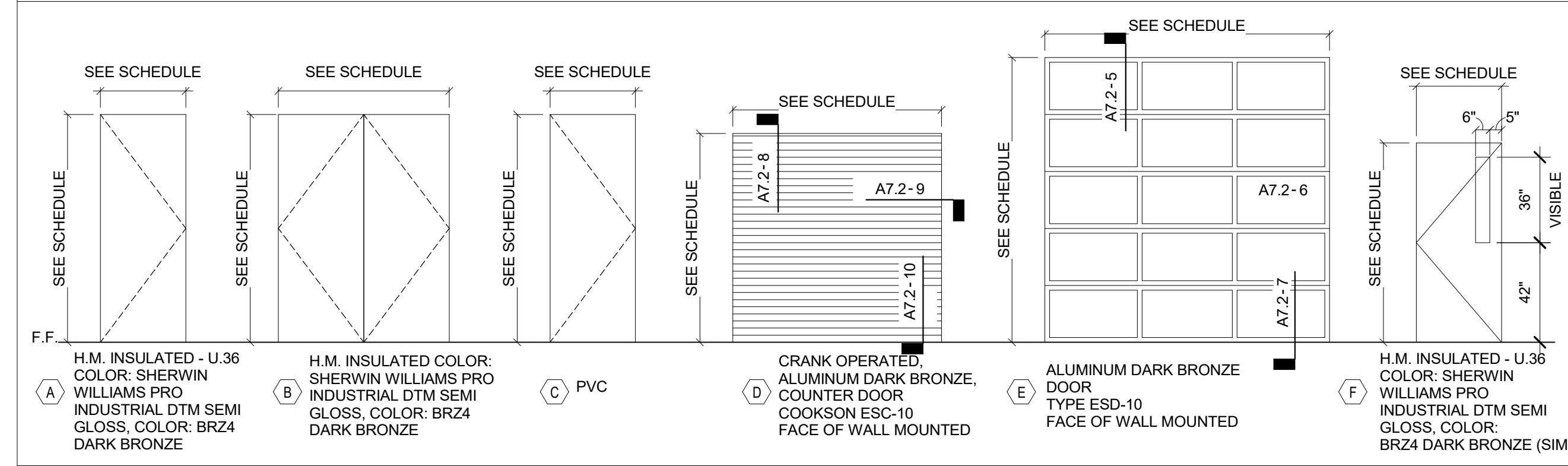
8 FIXTURE MOUNTING HEIGHTS

1/4" = 1'-0"

6 WINDOW TYPES



7 DOOR TYPES

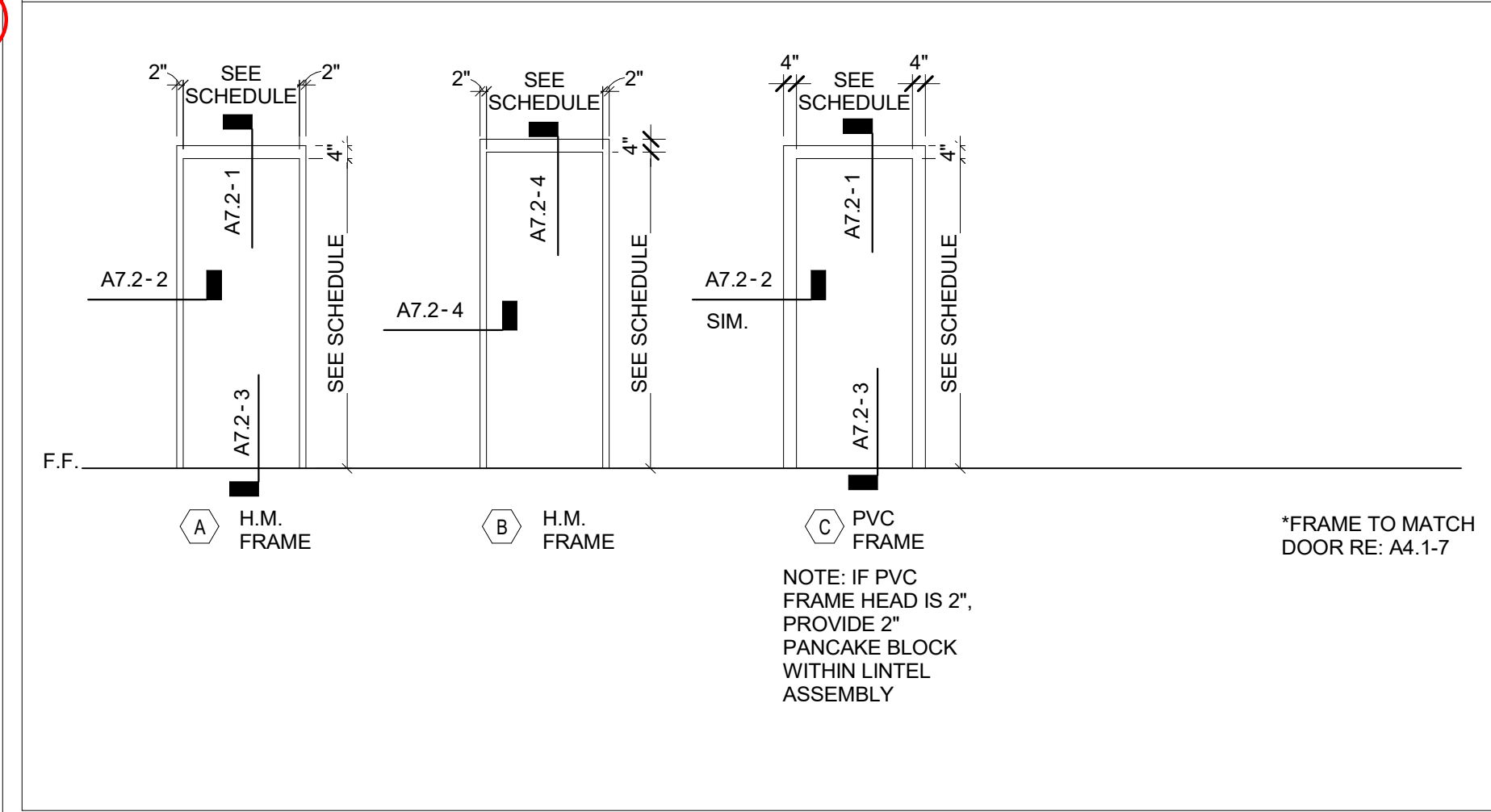


3 DOOR SCHEDULE

RE: A73 FOR HEADER AND JAMB DETAILS

	DOOR TYPE	DOOR SIZE			FRAME	DOOR HARDWARE GROUP	NOTES / REMARKS
		WIDTH	HEIGHT	THICKNESS			
101A	E	16'-0"	10'-0"	MANUF.	MANUF.	MANUF.	MOTORIZED
101B	E	12'-0"	10'-0"	MANUF.	MANUF.	MANUF.	MOTORIZED
102A	C	3'-0"	7'-0"	1-3/4"	C	1	RE: A2.1 FOR DOOR SWING
102B	B	7'-8"	7'-0"	1-3/4"	A	5	RE: A2.1 FOR DOOR SWING
103	A	3'-0"	7'-0"	1-3/4"	A	2	RE: A2.1 FOR DOOR SWING, INSULATED U.36
104	A	3'-0"	7'-0"	1-3/4"	A	2	RE: A2.1 FOR DOOR SWING, INSULATED U.36
105	F (SIM)	3'-0"	7'-0"	1-3/4"	B	6	RE: A2.1 FOR DOOR SWING, H.M. NON-INSULATED
106B	C	3'-0"	7'-0"	1-3/4"	C	1	RE: A2.1 FOR DOOR SWING
106A	A	3'-0"	7'-0"	1-3/4"	A	6	RE: A2.1 FOR DOOR SWING, INSULATED U.36
108	D	7'-4"	7'-4"	1-3/4"	MANUF.	MANUF.	-
109	A	6'-0"	7'-0"	1-3/4"	A	5	RE: A2.1 FOR DOOR SWING
110	A	3'-0"	7'-0"	1-3/4"	A	4	RE: A2.1 FOR DOOR SWING
111	A	3'-0"	7'-0"	1-3/4"	A	4	RE: A2.1 FOR DOOR SWING

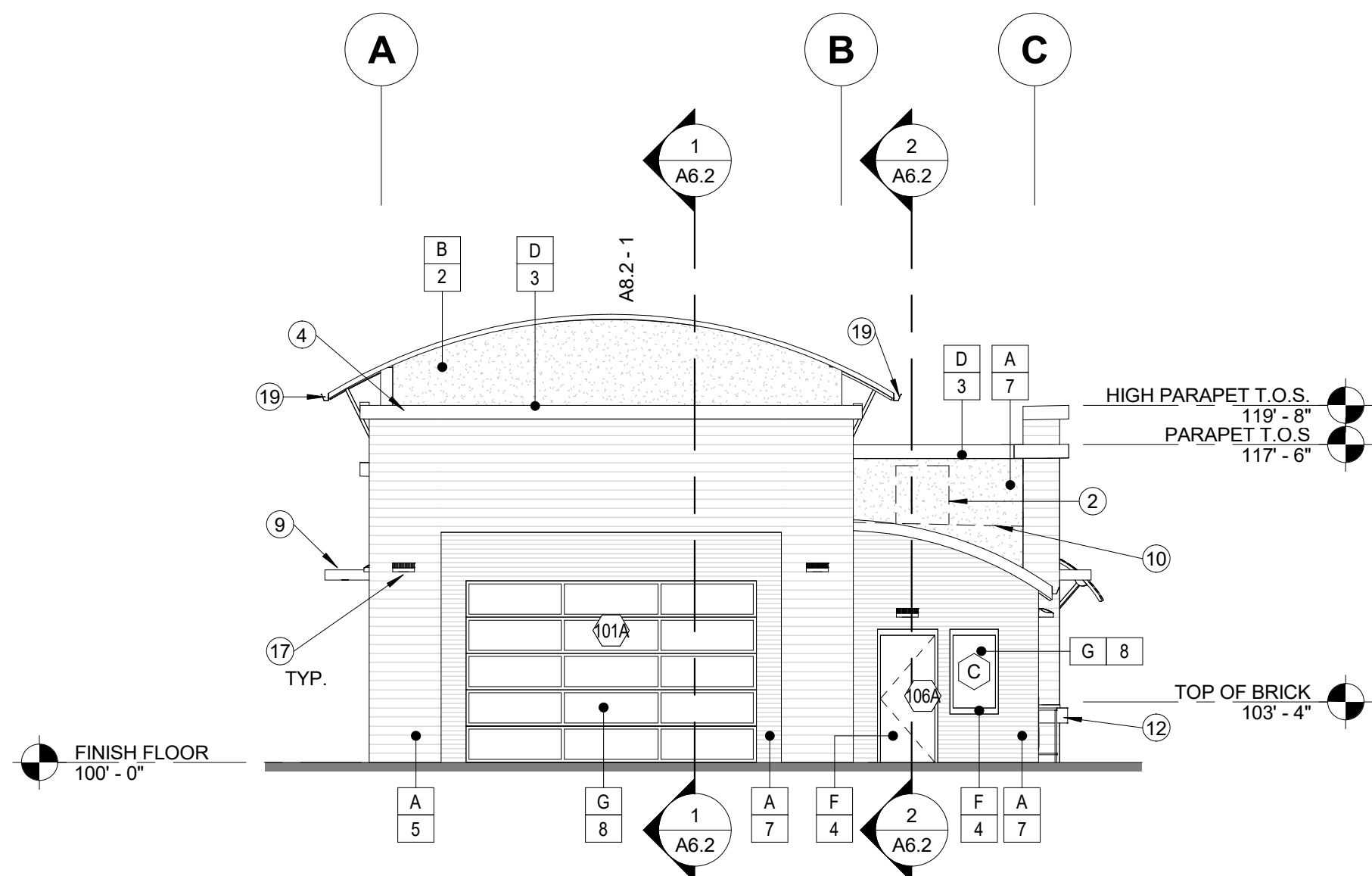
5 DOOR FRAMES



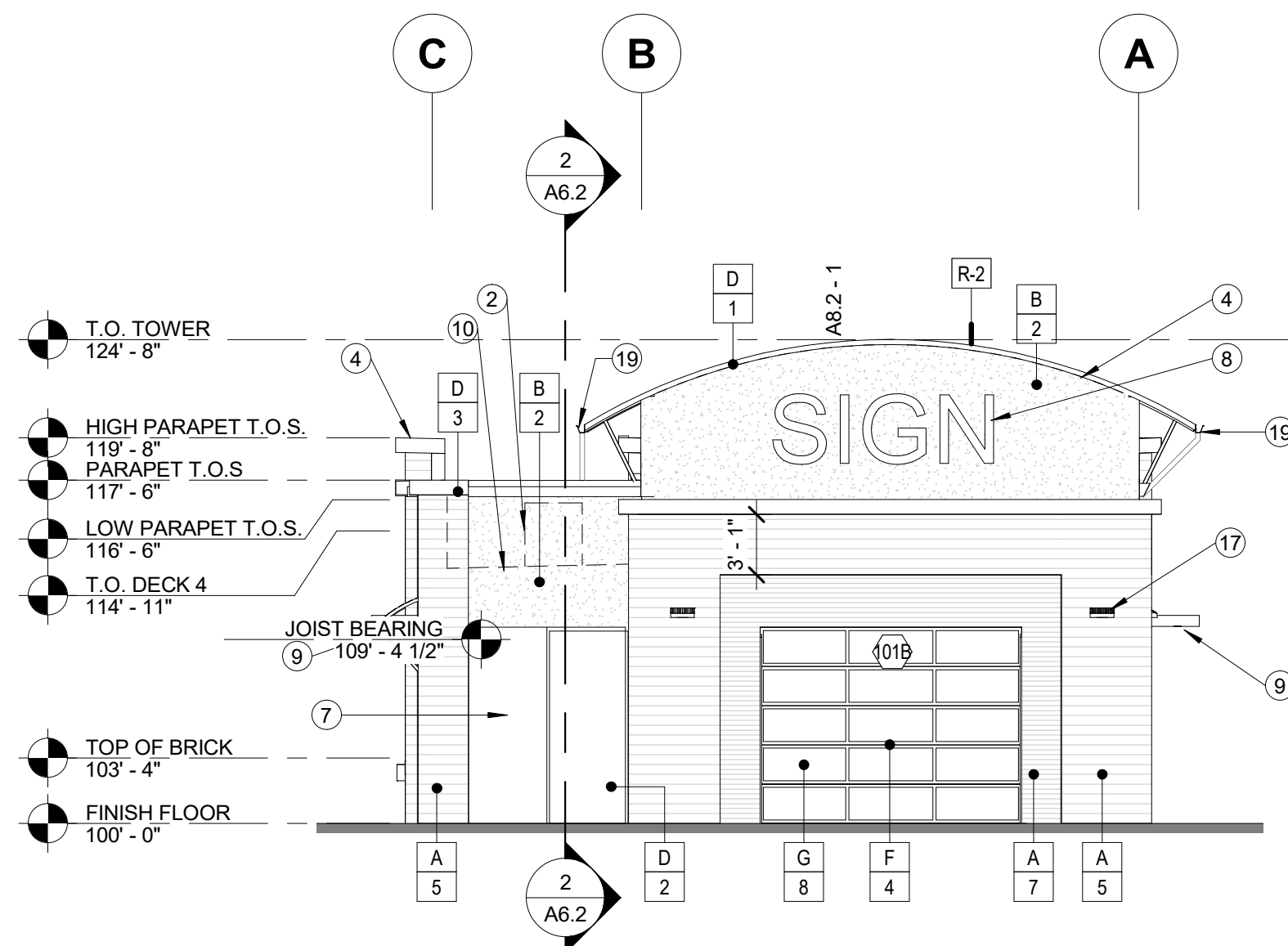
2 FIXTURE SCHEDULE

TAG	ITEM	MANUFACTURER	
A	HC ACCESSIBLE WATER CLOSET	-	RE: PLUMBING
B	STAINLESS STEEL GRAB BARS	BOBRICK	B-5806
C	-	-	-
D	TOILET PAPER DISPENSER	BOBRICK	B-2840
E	RESTROOM LAVATORY	-	RE: PLUMBING
F	PAPER TOWEL DISPENSER	BOBRICK	B-3699
G	MIRROR	BOBRICK	B-165
H	SOAP DISPENSER	BOBRICK	B-2111
I	-	-	-
J	-	-	-
FE	FIRE EXTINGUISHER	-	2A:10B:C
K	-	-	-

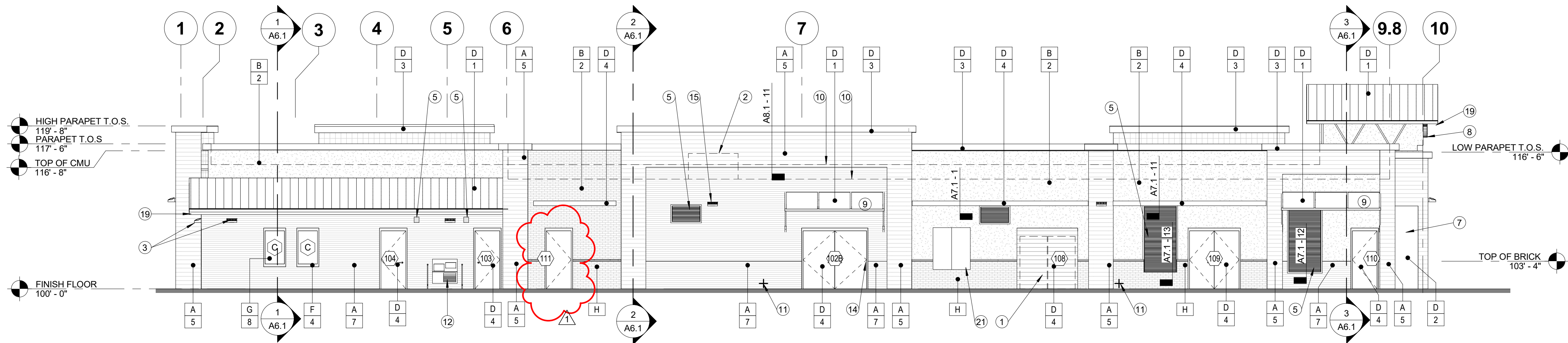
#	SHEET NOTES
1.	RESTROOM FIXTURES, RE: PLUMBING DRAWINGS
2.	PROVIDE APPROPRIATE ADA TRANSITION STRIP BETWEEN DISSIMILAR FLOORING FINISH
3.	RESTROOM SIGN, RE: A4.1-10



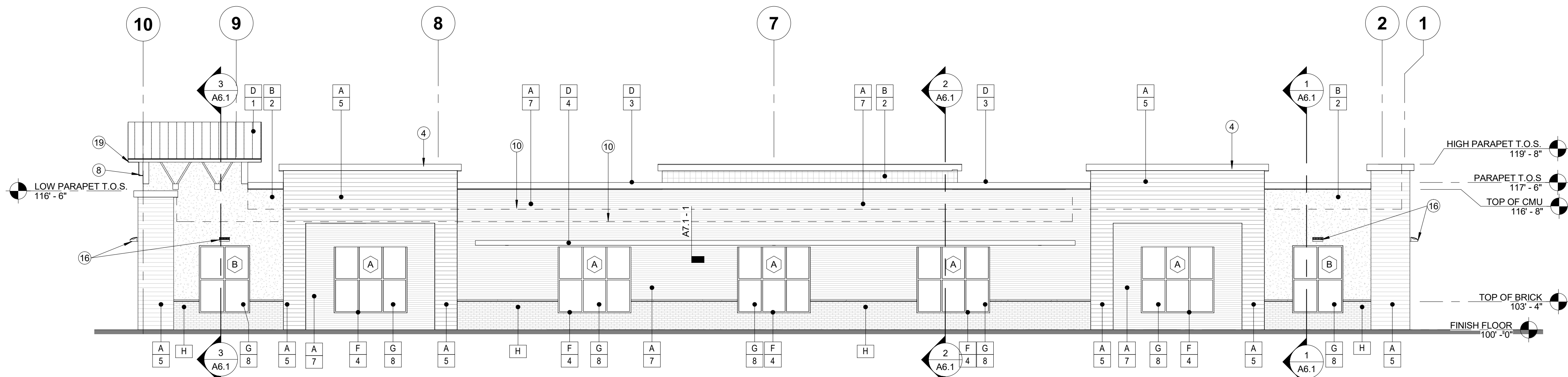
2 NORTH ELEVATION
1/8" = 1'-0"



1 SOUTH ELEVATION
1/8" = 1'-0"



3 WEST ELEVATION
1/8" = 1'-0"



4 EAST ELEVATION
1/8" = 1'-0"

GENERAL NOTES:

- THE REFERENCE ELEVATION MARKED WITH REPRESENTS VERTICAL HEIGHTS RELATIVE TO INTERIOR FLOOR DATUM ASSUMED AT 100'-0" RE: CIVIL FOR ACTUAL ELEVATION.
- ALL MATERIAL SYMBOLS ARE FOR REPRESENTATION ONLY. CONTRACTOR IS RESPONSIBLE FOR DETERMINING PROPER COURSING, ETC.
- LOCATION FOR ADDRESS SIGNAGE TO BE INSTALLED AS REQUIRED AND APPROVED BY THE CITY OF RIVERSIDE, CA.
- ALL COPING WILL EITHER MATCH A COMPLEMENTARY TRIM OR ACCENT COLOR. OR MATCH THE SURROUNDING PREDOMINATE COLOR TO BLEND. GO TO REQUEST COPY OF THE COLOR ELEVATIONS FROM ARCHITECT IF NOT PROVIDED BY OWNER.
- ALL ROOFTOP EQUIPMENT TO BE SCREENED BY WALLS OR EQUIPMENT SCREENS.
- GO TO CONFIRM EXTERIOR MATERIALS AND FINISHES WITH OWNER.

MATERIAL LEGEND:

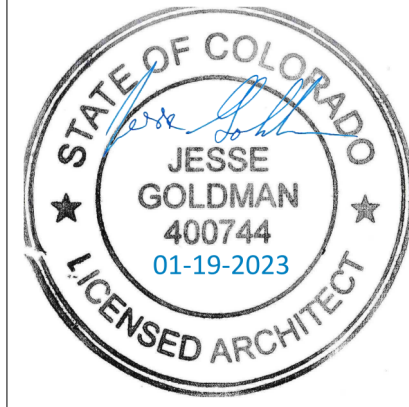
- | | |
|---|--|
| A | HARDIE BOARD SIDING |
| B | STUCCO OVER 8"x16" CMU |
| C | SINGLE-PLY MEMBRANE ROOFING WITH SURFACE APPLIED RIBBING FOR STANDING SEAM APPEARANCE. COLOR OF MEMBRANE AND RIBBING TO MATCH DARK BRONZE OR SIMILAR. VERIFY FINAL COLOR WITH OWNER. |
| D | METAL |
| E | METAL AWNING |
| F | ALUMINUM WINDOW FRAME |
| G | CLEAR GLAZING |
| H | BRICK VENEER |

COLOR LEGEND:

- | | |
|---|---|
| 1 | PAINT, BENJAMIN MOORE - RUBY RED 2001-01 |
| 2 | PAINT, SHERWIN WILLIAMS - ACCESSIBLE BEIGE 7036 |
| 3 | PAINT, SHERWIN WILLIAMS - CITY SCAPE 7067 |
| 4 | PAINT, SHERWIN WILLIAMS - CAVIAR 6990 |
| 5 | FINISH, HARDIE BOARD SIDING - KAHKI BROWN |
| 6 | FINISH, GENERAL SHALE - PEPPERMILL |
| 7 | FINISH, HARDIE BOARD SIDING - NIGHT GREY |
| 8 | FINISH, VITRO GLASS SOLARBAN 70XL - CLEAR GLASS |

SHEET NOTES:

- VENDING MACHINE BEYOND, OWNER FURNISHED AND OWNER INSTALLED. G.C. TO VERIFY SIZE OF EQUIPMENT WITH OWNER PRIOR TO CONSTRUCTING OPENING.
- SCREENED MECHANICAL EQUIPMENT, C/W MECHANICAL DRAWINGS. RE: WALL SECTION
- EXTERIOR LIGHT FIXTURE, MOUNT BOTTOM OF FIXTURE AT 8'-0" A.F.F., RE: ELECTRICAL.
- METAL FLASHING/COPING, RE: COPING DETAILS, G.C TO VERIFY FINAL PAINT COLOR WITH OWNER.
- MECHANICAL LOUVER, C/W MECHANICAL DRAWINGS. GC TO PREVIEW WITH CARWASH EQUIPMENT PROVIDER CLEARANCE IN/OVER LOUVERS. PAINT TO MATCH ADJACENT SURFACE
- SERVICE SINK, C/W PLUMBING DRAWINGS.
- ELECTRICAL SERVICE ENTRANCE SECTION (SES), PAINT.
- SIGN PACKAGE BY OTHERS AND APPROVED UNDER SEPARATE PERMIT. COORDINATE POWER REQUIREMENTS AND BLOCKING IF REQ'D.
- CANOPY, RE: DETAILS
- HIDDEN LINE OF ROOF BEYOND.
- ROOF OVERFLOW DRAIN DISCHARGE, RE: A7.3 - 11 & 12 AND PLUMBING.
- HI-LO DRINKING FOUNTAINS RE: PLUMBING AND DETAILS A7.1-16.
- PAINTED LOGO, COORDINATE SPECIFICS WITH OWNER.
- KNOX BOX - INSTALL IN LOCATION DIRECTED BY FIRE DEPARTMENT.
- CONTROL JOINT. SPACE EQUALLY WITHIN BAYS, ALIGN WITH PILASTERS, AND/OR ALIGN WITH OPENINGS.
- EXTERIOR LIGHT FIXTURE, MOUNT BOTTOM OF FIXTURE AT 10'-6" A.F.F., RE: ELECTRICAL.
- EXTERIOR LIGHT FIXTURE, MOUNT BOTTOM OF FIXTURE AT 9'-6" A.F.F., RE: ELECTRICAL.
- EXTERIOR LIGHT FIXTURE, MOUNT BOTTOM OF FIXTURE AT 7'-8" A.F.F., RE: ELECTRICAL.
- GUTTER AND DOWNSPOUT.
- BREAK METAL, RE: DETAILS. MATCH COLOR AND FINISH OF ADJACENT METAL PANEL.
- ELECTRICAL PANELS RE: ELECTRICAL



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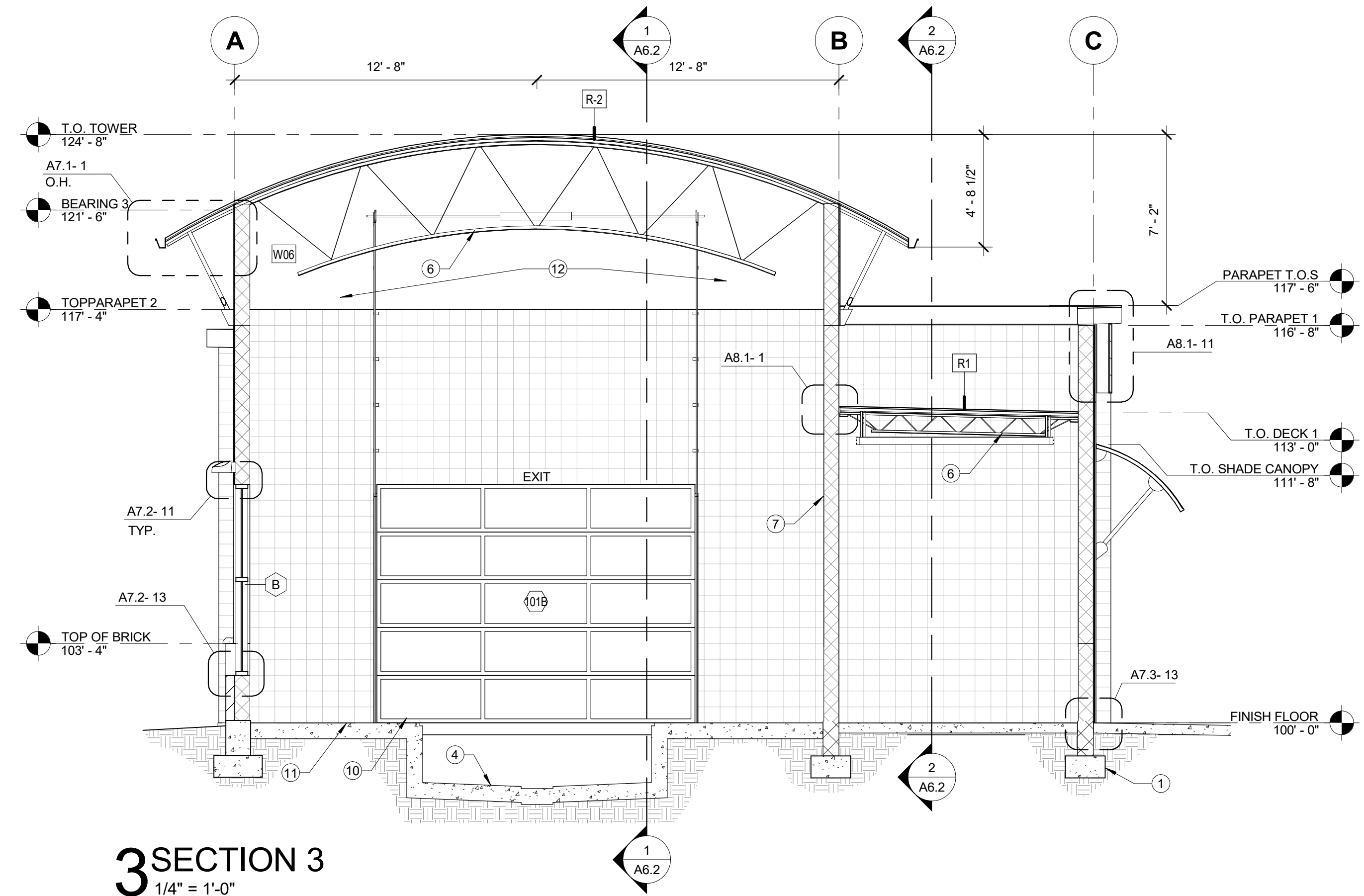
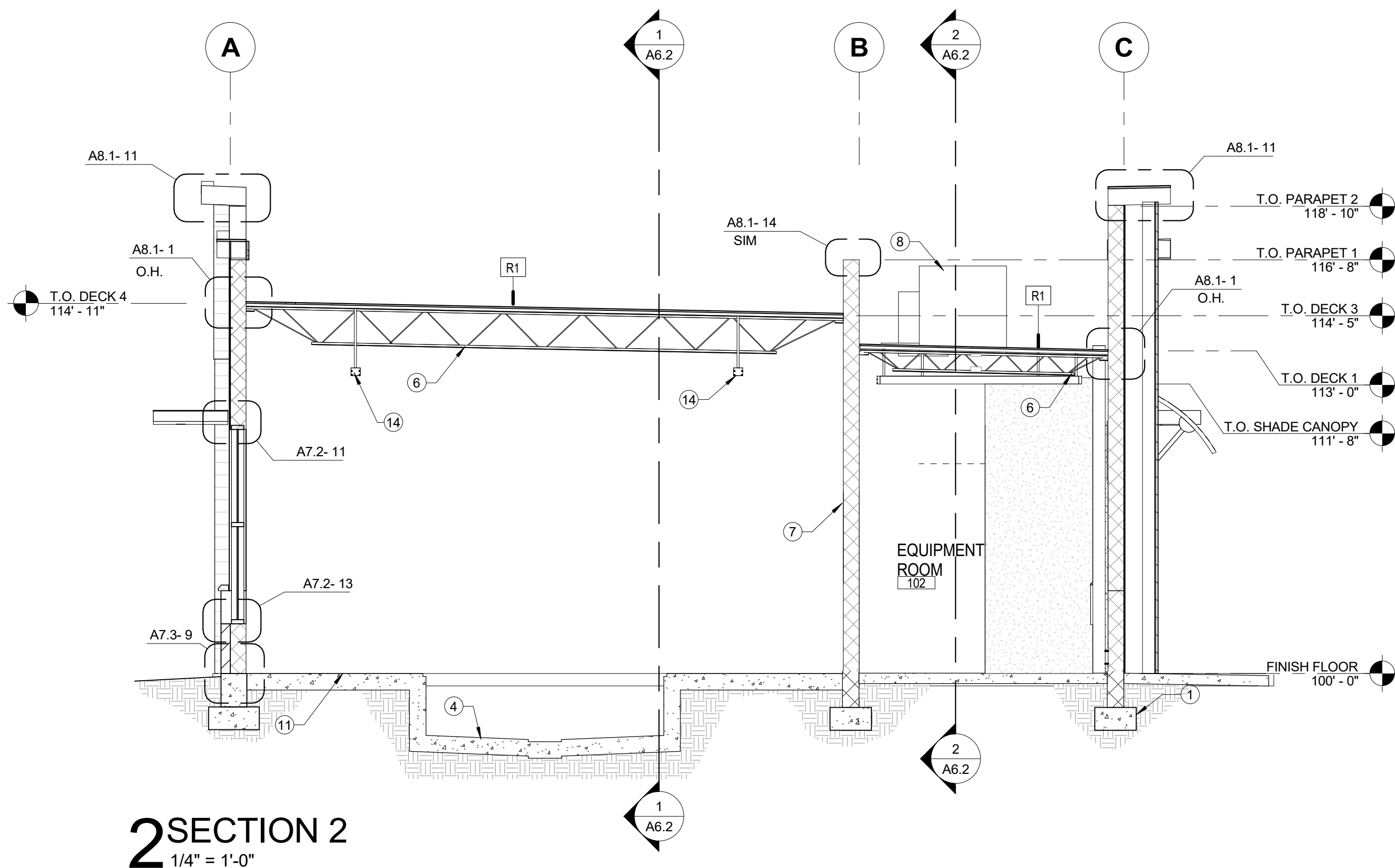
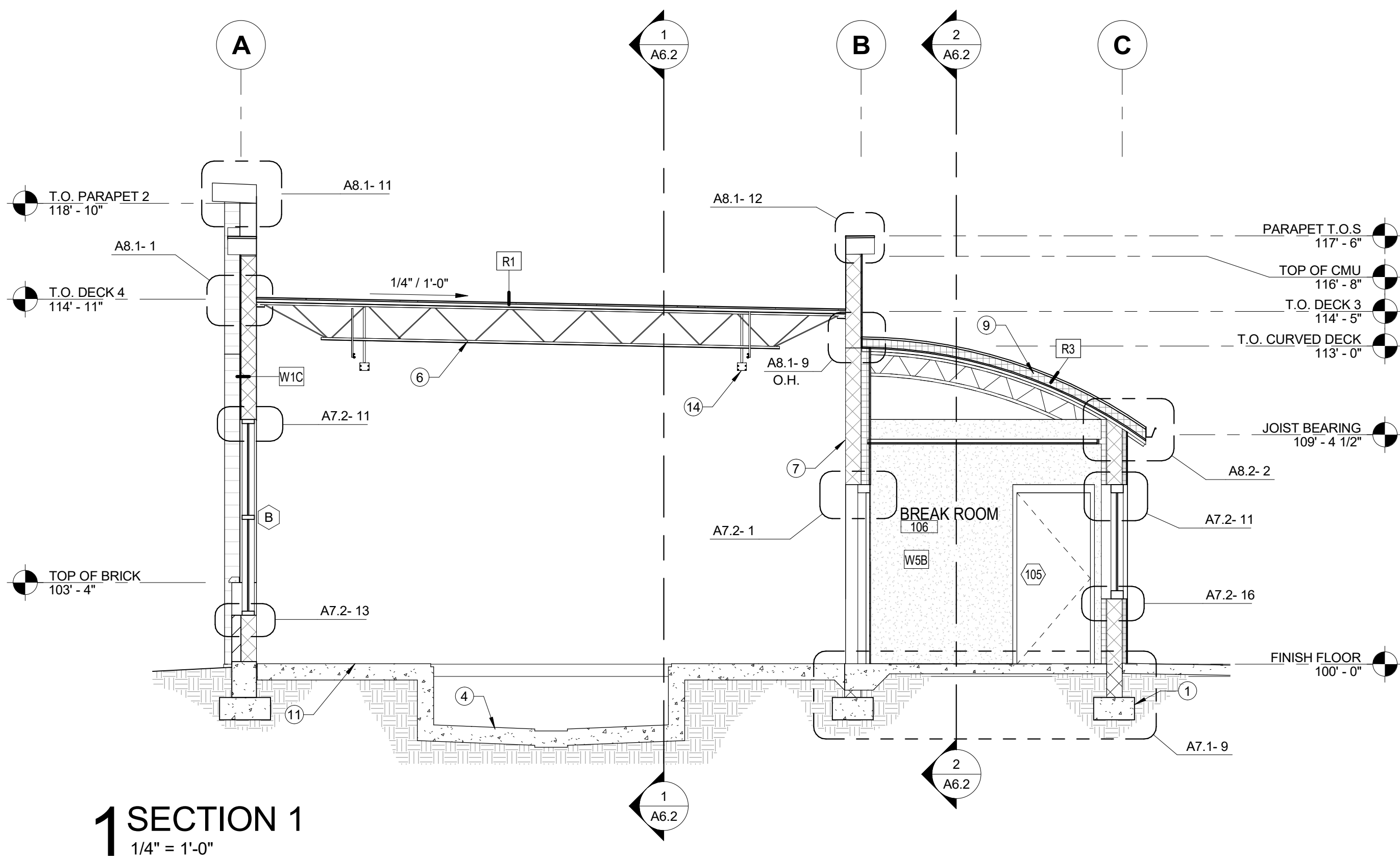
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RJ	WRS

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1 AGENCY COMMENTS	3/15/2023

SHEET TITLE
EXTERIOR ELEVATIONS

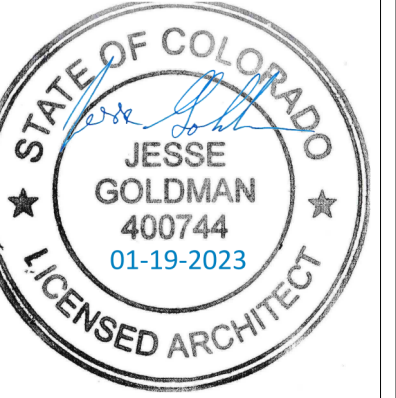
SHEET

A5.1
ORIGINAL SHEET SIZE
24" x 36"



SHEET NOTES:

- FOUNDATION, RE: STRUCTURAL DRAWINGS.
- STOREFRONT, RE: A4.1-6 AND A7.3-3
- STEEL TRUSSES, RE: STRUCTURAL DRAWINGS.
- CONCRETE CONVEYOR TRENCH, RE: STRUCT AND CARWASH EQUIPMENT PLANS.
- MECHANICAL ROOF TOP EQUIPMENT SCREENING WALL.
- STEEL JOIST OR BEAM, RE: STRUCTURAL DRAWINGS.
- CMU WALL, RE: STRUCTURAL DRAWINGS.
- MECHANICAL EQUIPMENT, RE: A8.1-8 AND MECHANICAL DRAWINGS.
- ROOF INSULATION PER ROOF ASSEMBLY TYPE.
- SECTIONAL DOOR, RE: A4.1-3 & 7.
- FINISHED FLOOR HEIGHT (T.O.C.) VARIES WITHIN WASH TUNNEL, RE: CAR WASH DRAWINGS.
- FRP OVER METAL STUDS.
- S.E.S. CABINET
- LIGHT FIXTURE, RE: ELECTRICAL DRAWINGS.



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QUICK N CLEAN CAR WASH
9572 TWENTY MILE ROAD

CSHQA

PROJECT: 20037.000
DATE: 3-15-2023
DRAWN: EAP
CHECKED: WRS

REVISED

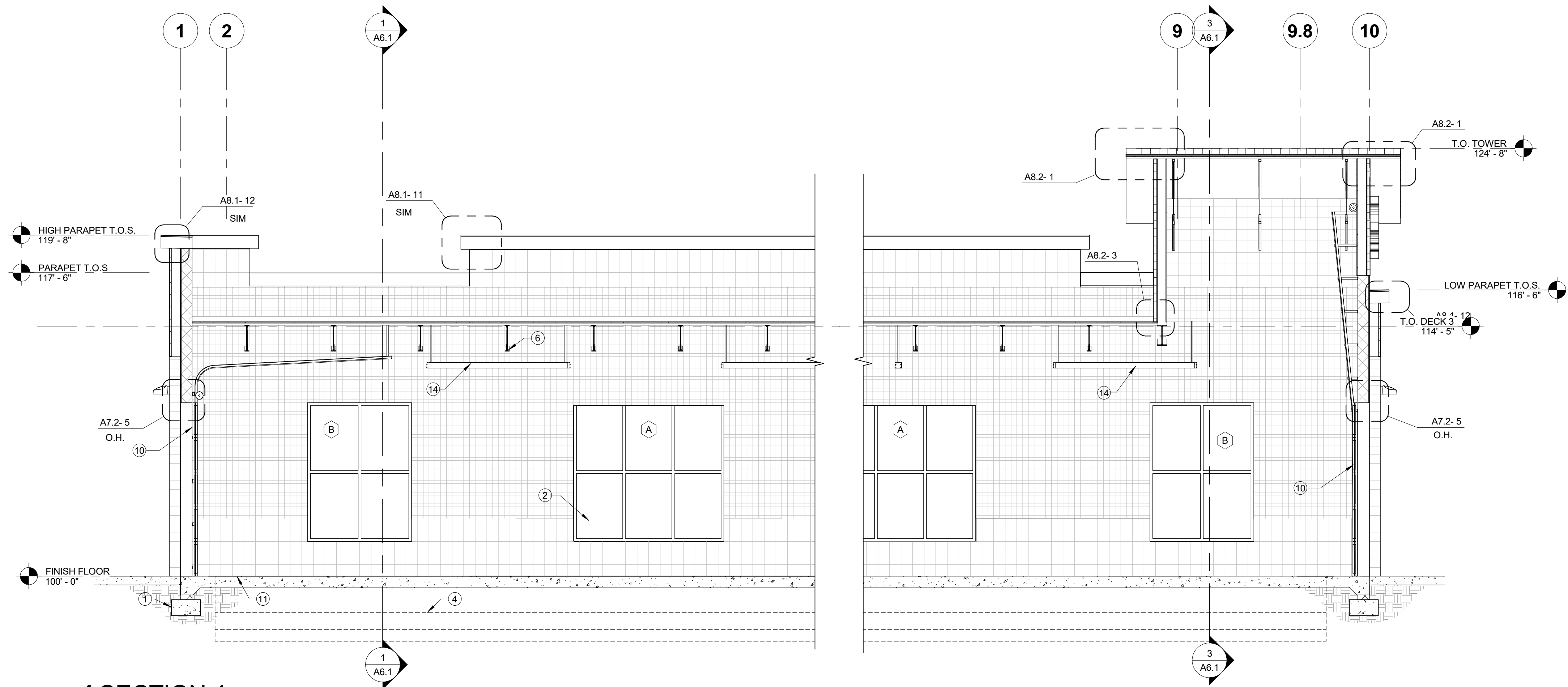
SHEET TITLE
BUILDING SECTIONS

SHEET

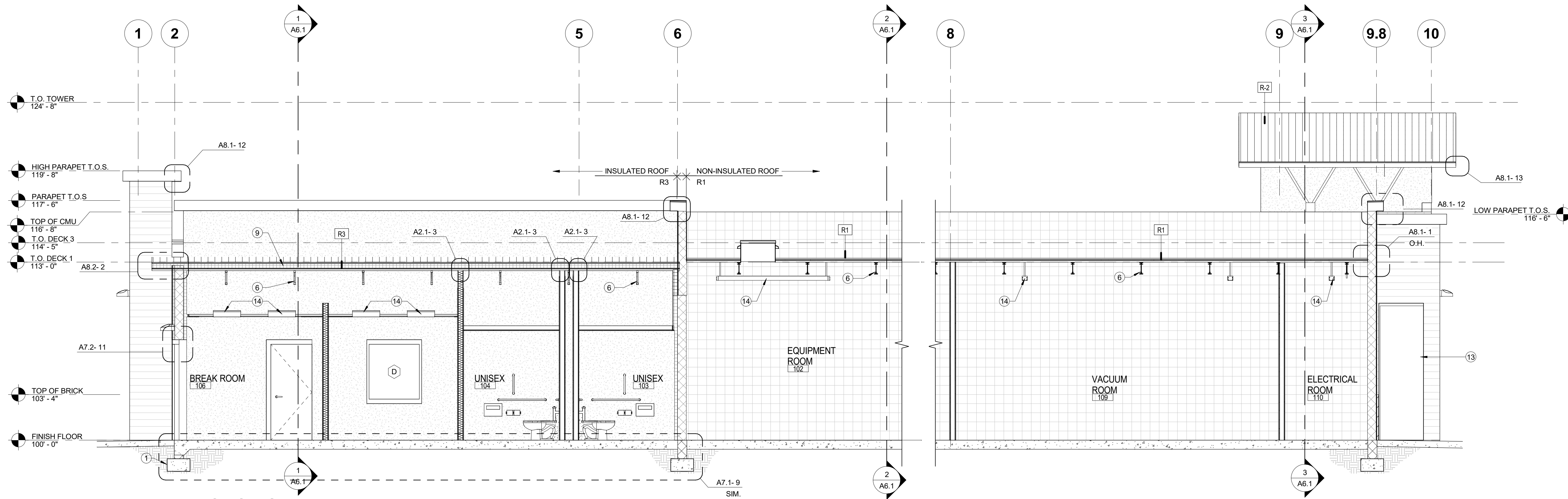
A6.1

ORIGINAL SHEET SIZE
24" x 36"

3/28/2023 2:13:47 PM



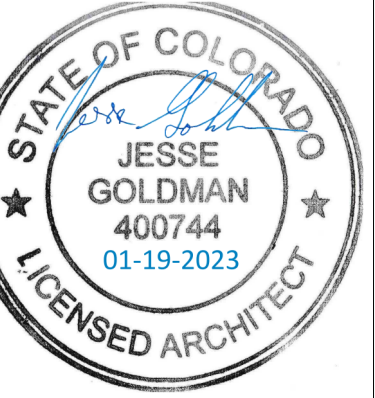
1 SECTION 4
1/4" = 1'-0"



2 SECTION 5
1/4" = 1'-0"

SHEET NOTES:

1. FOUNDATION, RE: STRUCTURAL DRAWINGS.
2. STOREFRONT, RE: A4.1-6 AND A7.3-3
3. STEEL TRUSSES, RE: STRUCTURAL DRAWINGS.
4. CONCRETE CONVEYOR TRENCH, RE: STRUCT AND CARWASH EQUIPMENT PLANS.
5. MECHANICAL ROOF TOP EQUIPMENT SCREENING WALL.
6. STEEL JOIST OR BEAM, RE: STRUCTURAL DRAWINGS.
7. CMU WALL, RE: STRUCTURAL DRAWINGS.
8. MECHANICAL EQUIPMENT, RE: A8.1-8 AND MECHANICAL DRAWINGS.
9. ROOF INSULATION PER ROOF ASSEMBLY TYPE.
10. SECTIONAL DOOR, RE: A4.1-3 & 7.
11. FINISHED FLOOR HEIGHT (T.O.C.) VARIES WITHIN WASH TUNNEL, RE: CAR WASH DRAWINGS.
12. FRP OVER METAL STUDS.
13. S.E.S. CABINET
14. LIGHT FIXTURE, RE: ELECTRICAL DRAWINGS.



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9572 TWENTY MILE ROAD

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PROJECT	DATE
20037.000	3-15-2023
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RJ	WRS

REVISED

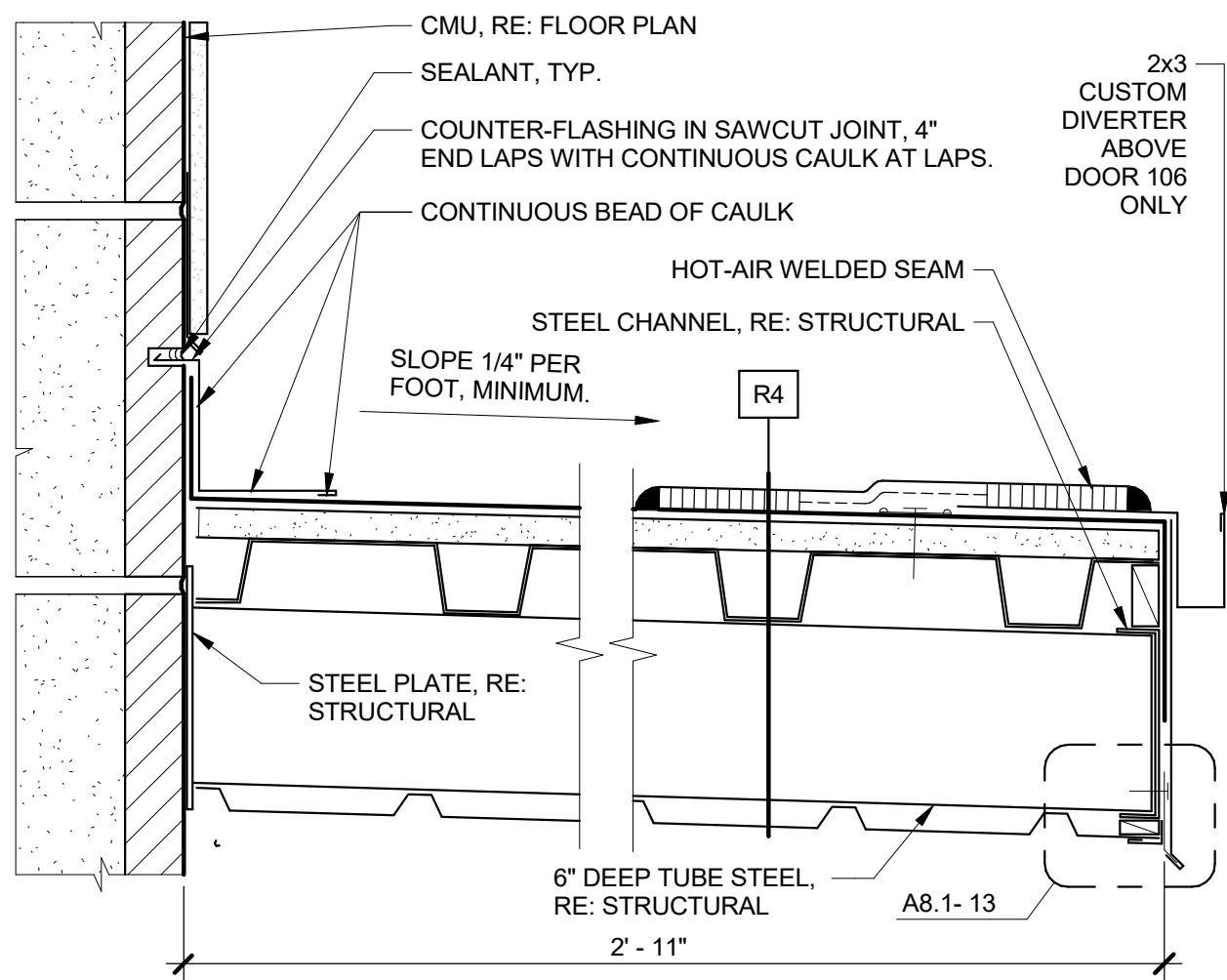
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BUILDING
SECTIONS

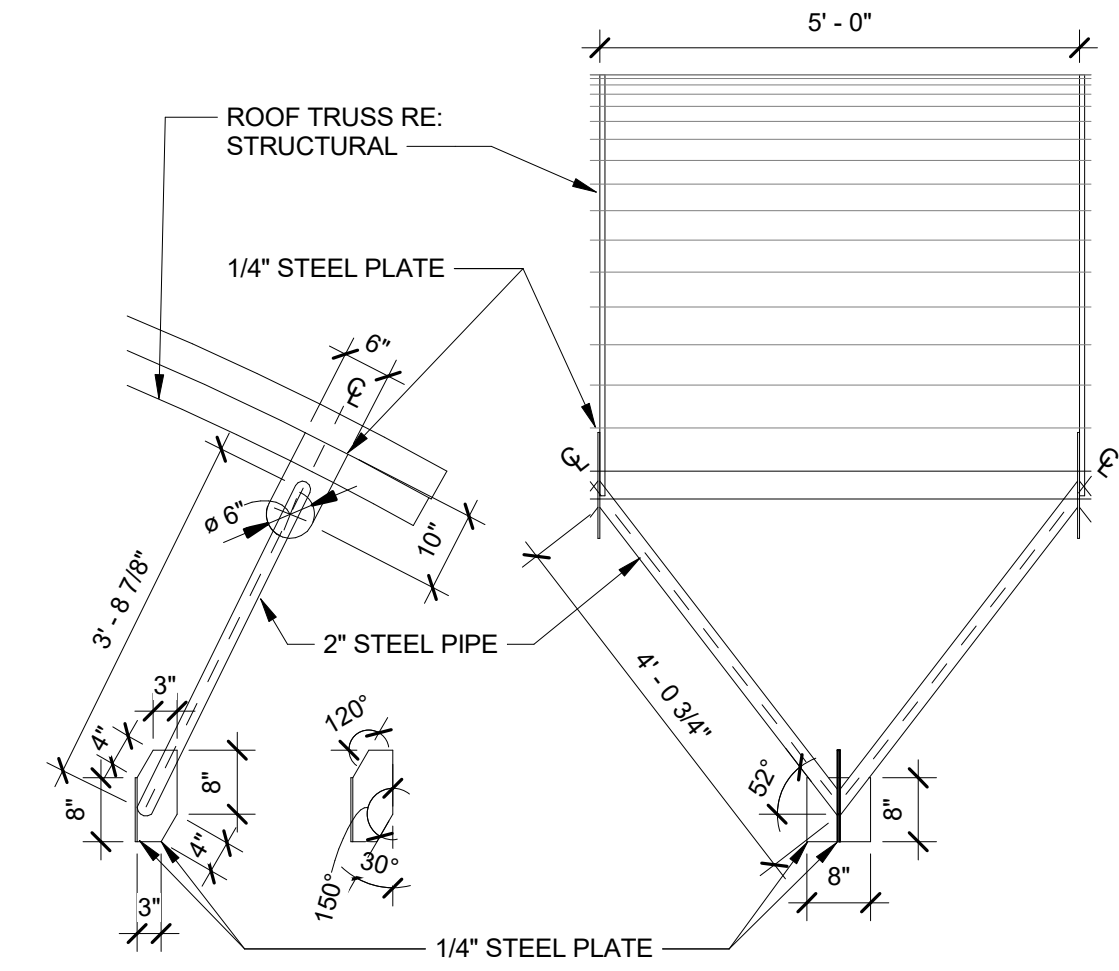
SHEET

A6.2

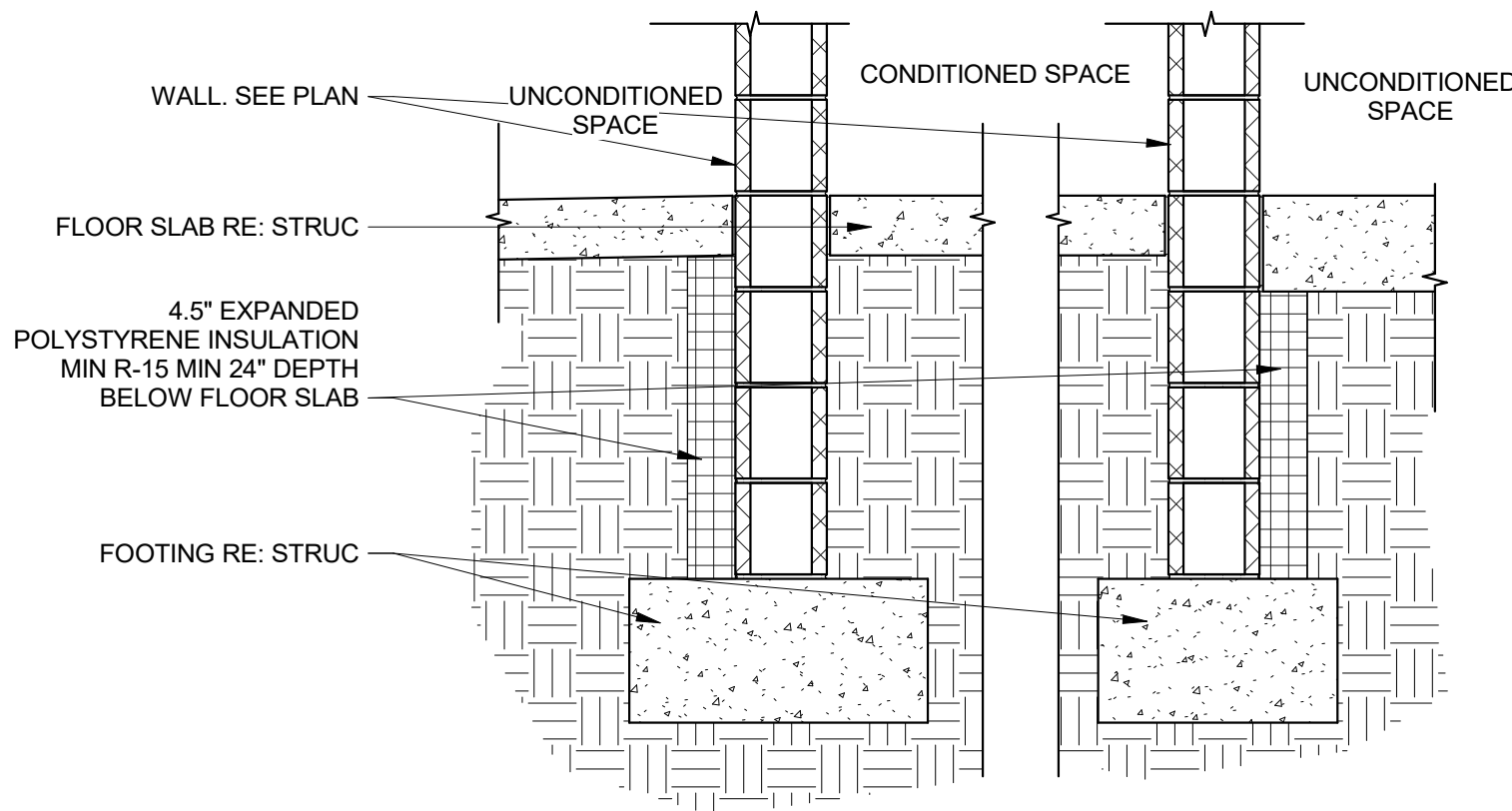
ORIGINAL SHEET SIZE
24" x 36"



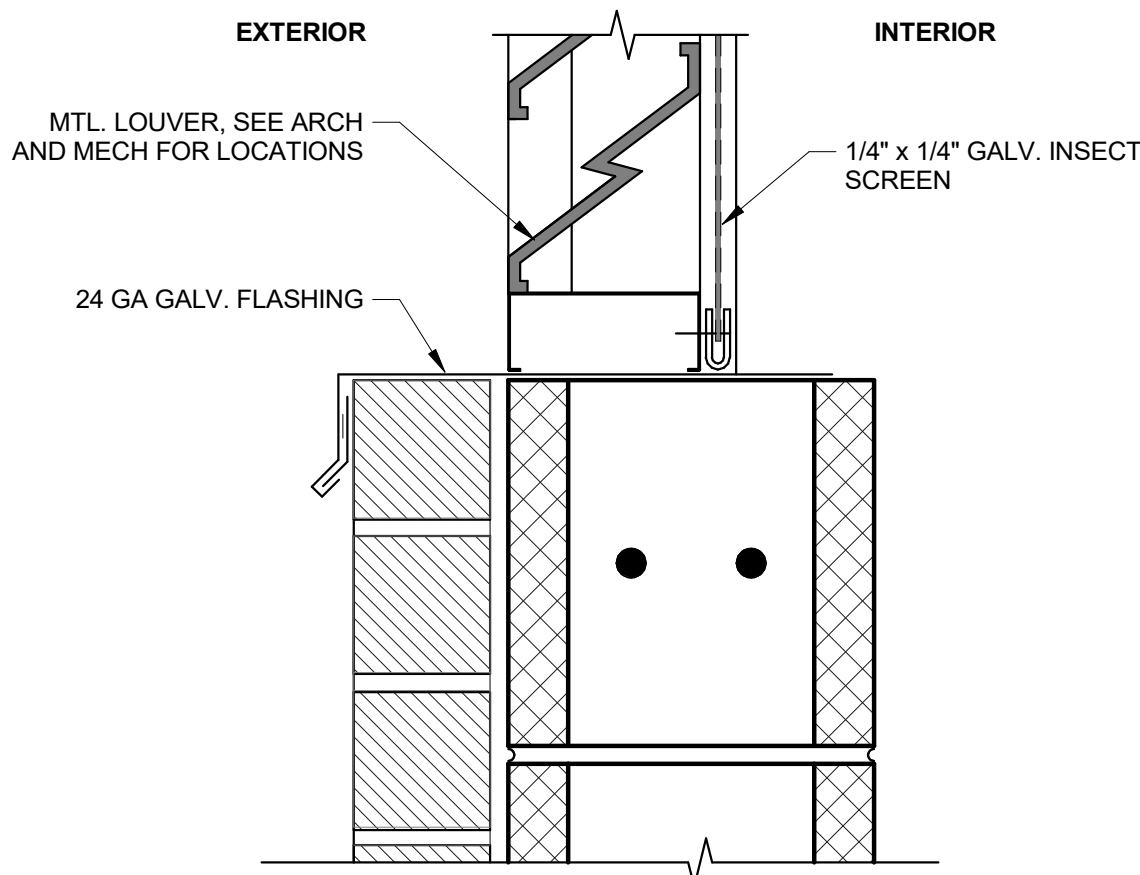
1 CANOPY
3" = 1'-0"



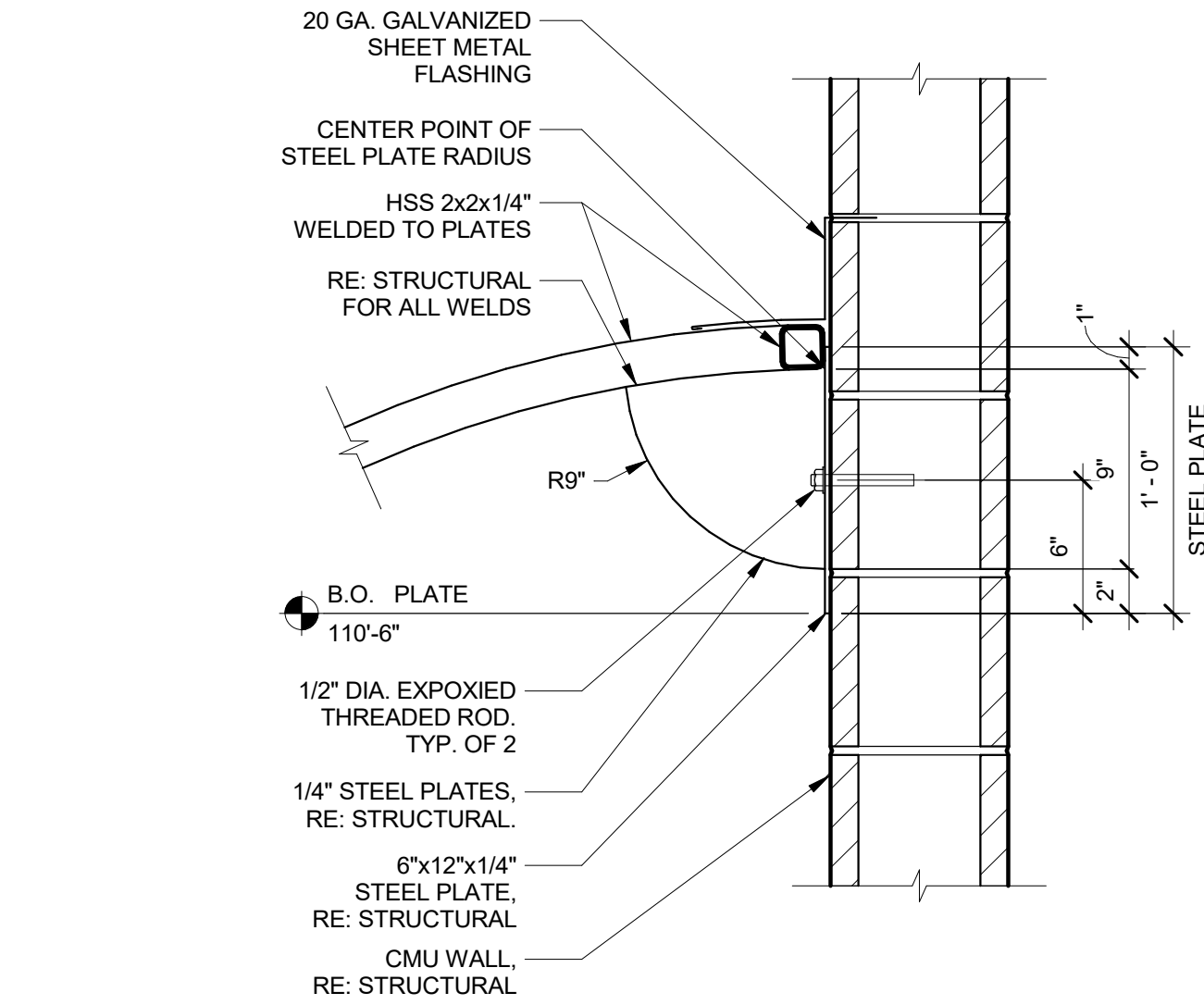
5 SUPPORT BRACKETS
1/2" = 1'-0"



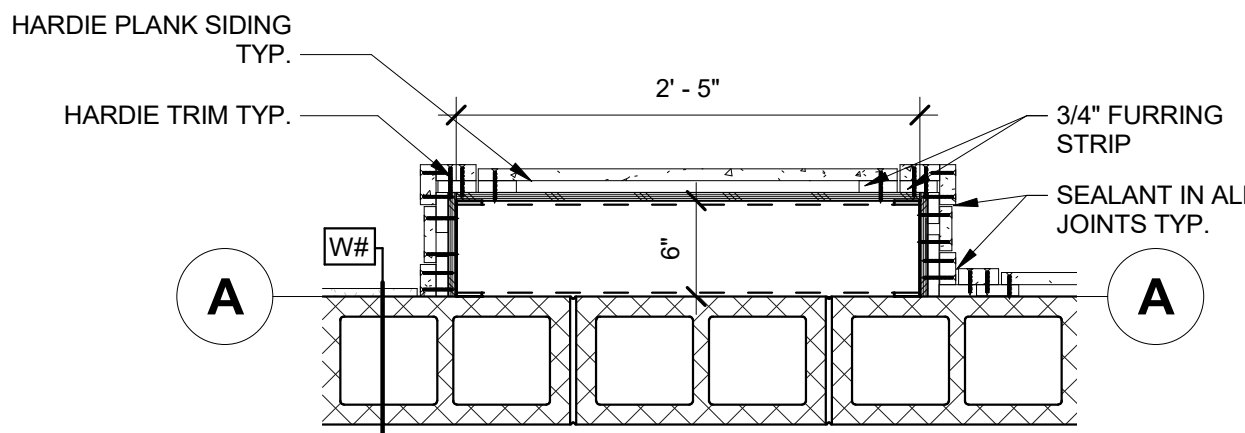
9 UNDERSLAB INSULATION
3/4" = 1'-0"



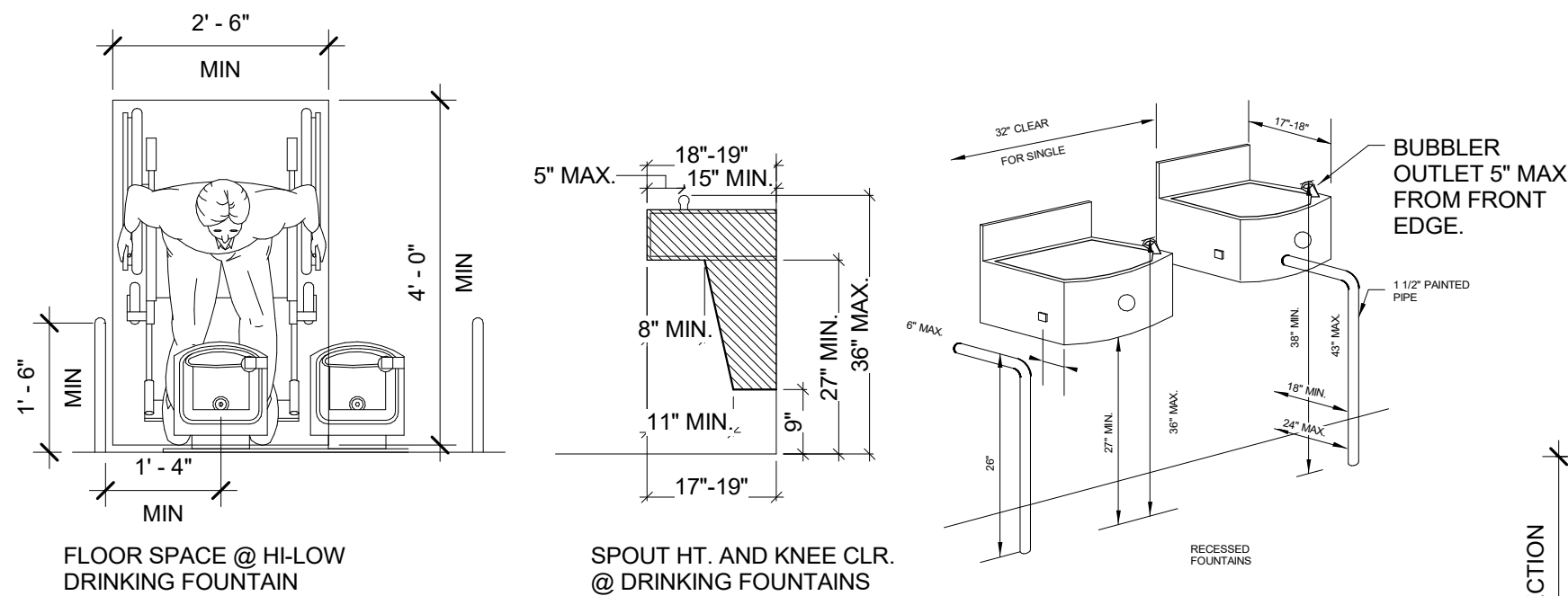
13 LOUVER SILL AT BRICK WAINSCOTT
3" = 1'-0"



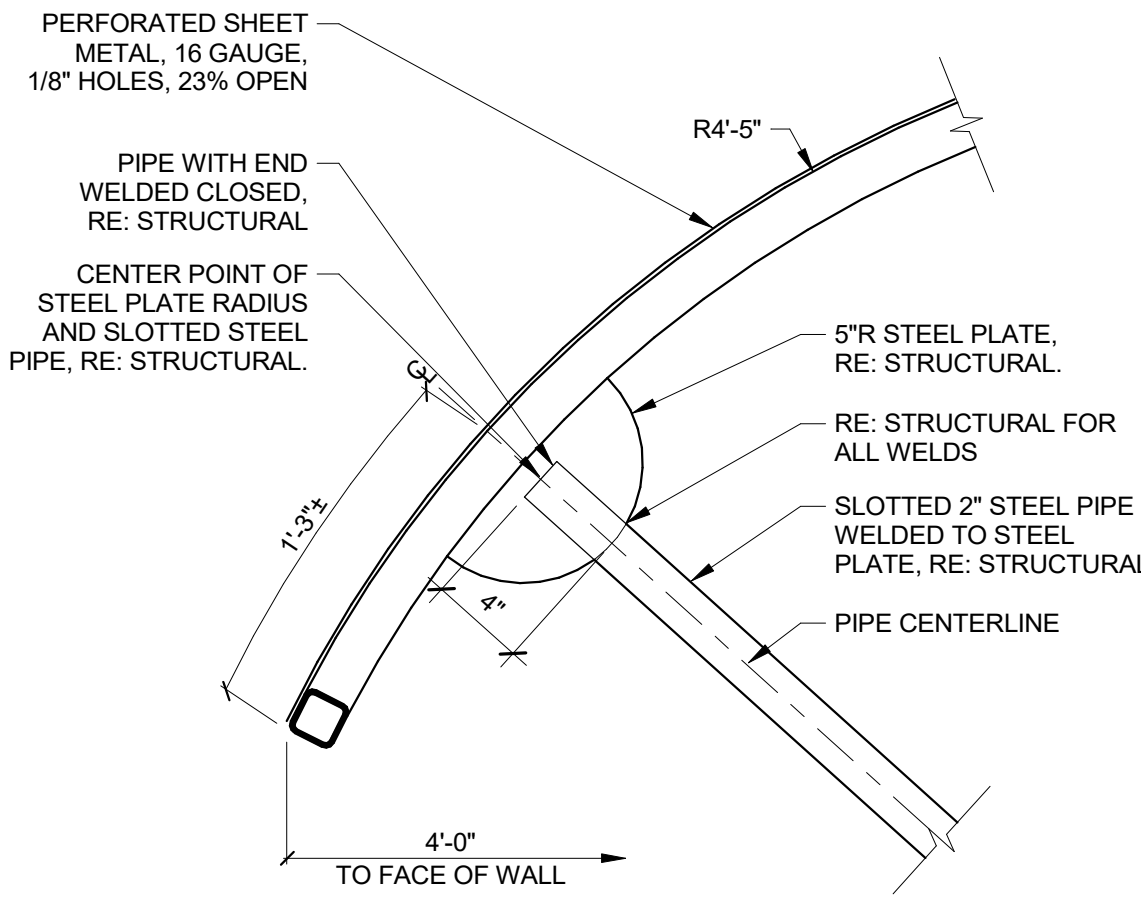
2 CANOPY UPPER BRACE
1 1/2" = 1'-0"



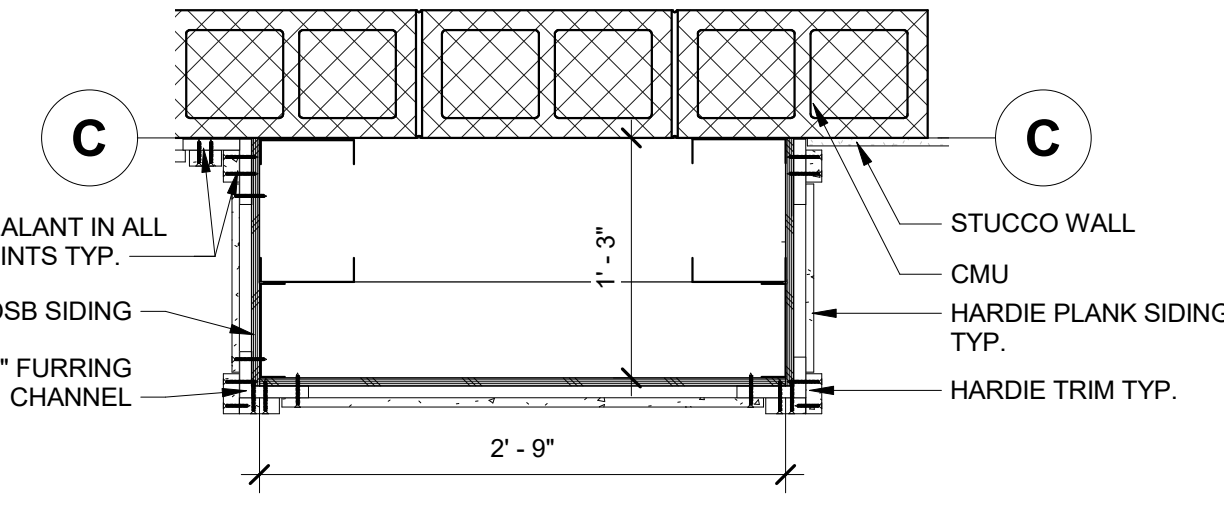
6 EXTERIOR PILLAR #1
1" = 1'-0"



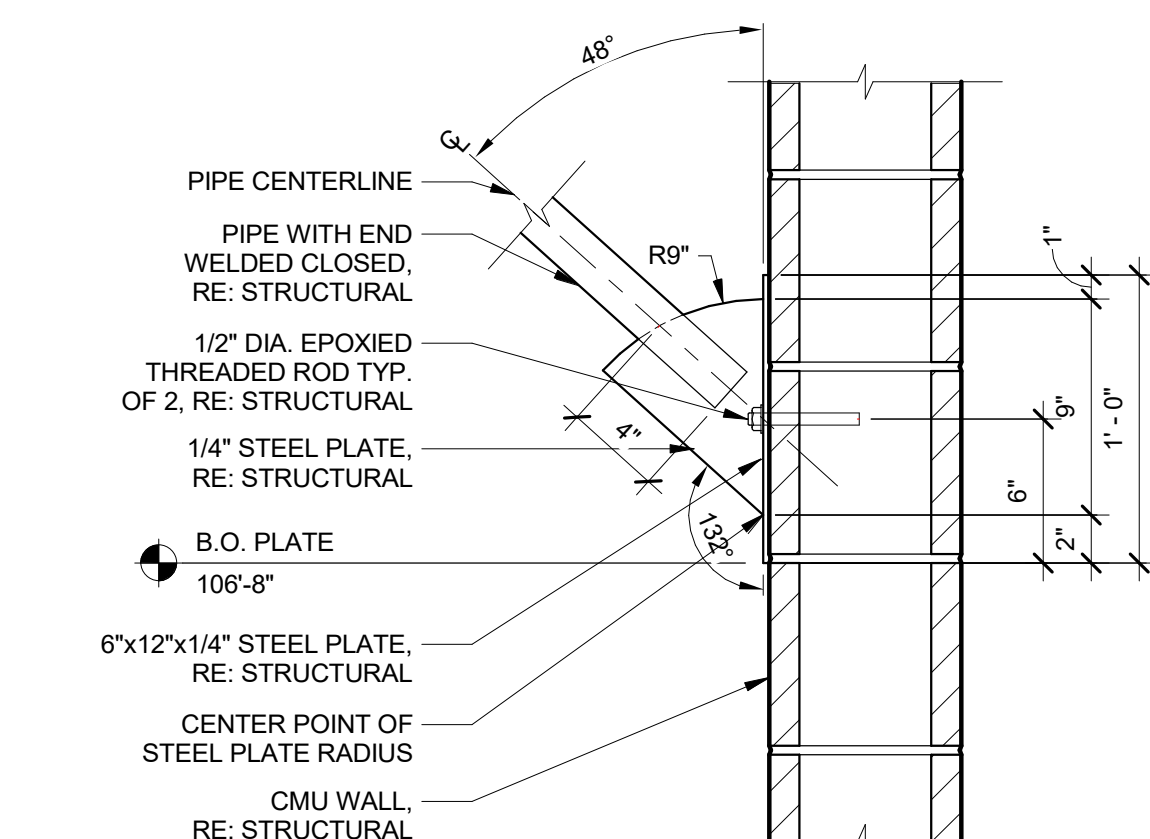
10 DRINKING FOUNTAIN DETAILS
1/2" = 1'-0"



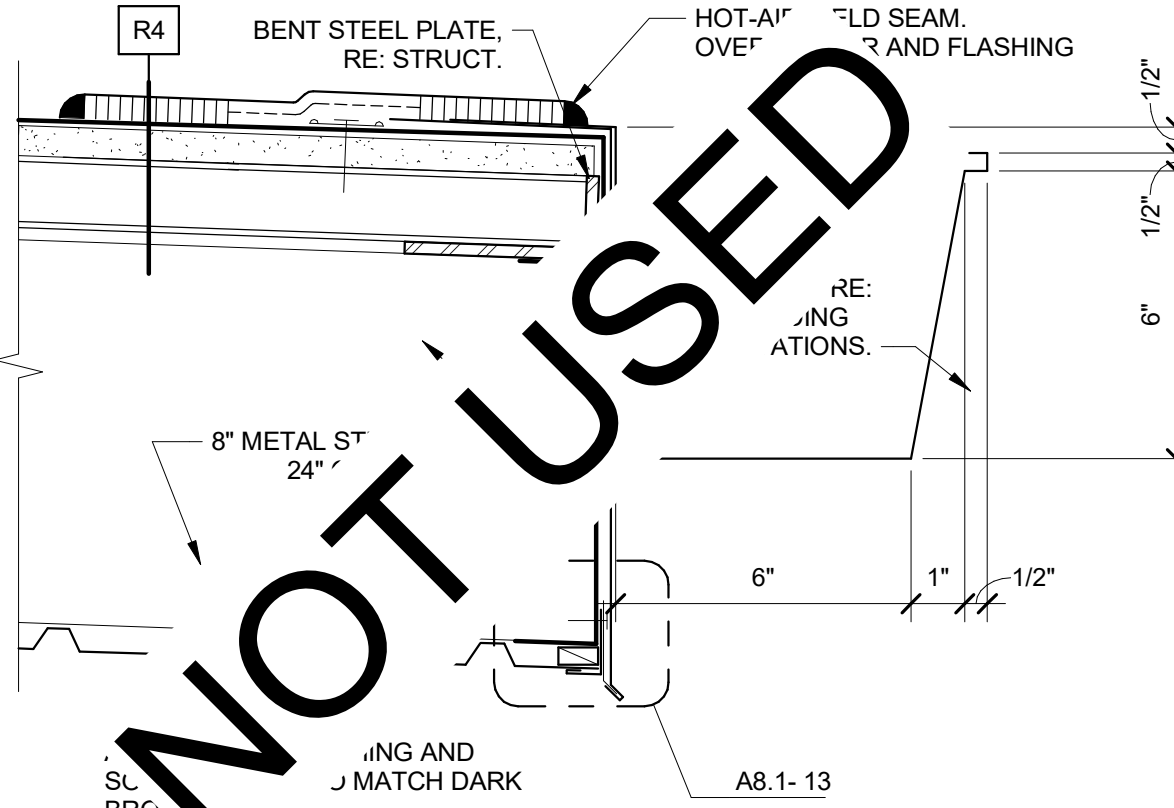
3 CANOPY
1 1/2" = 1'-0"



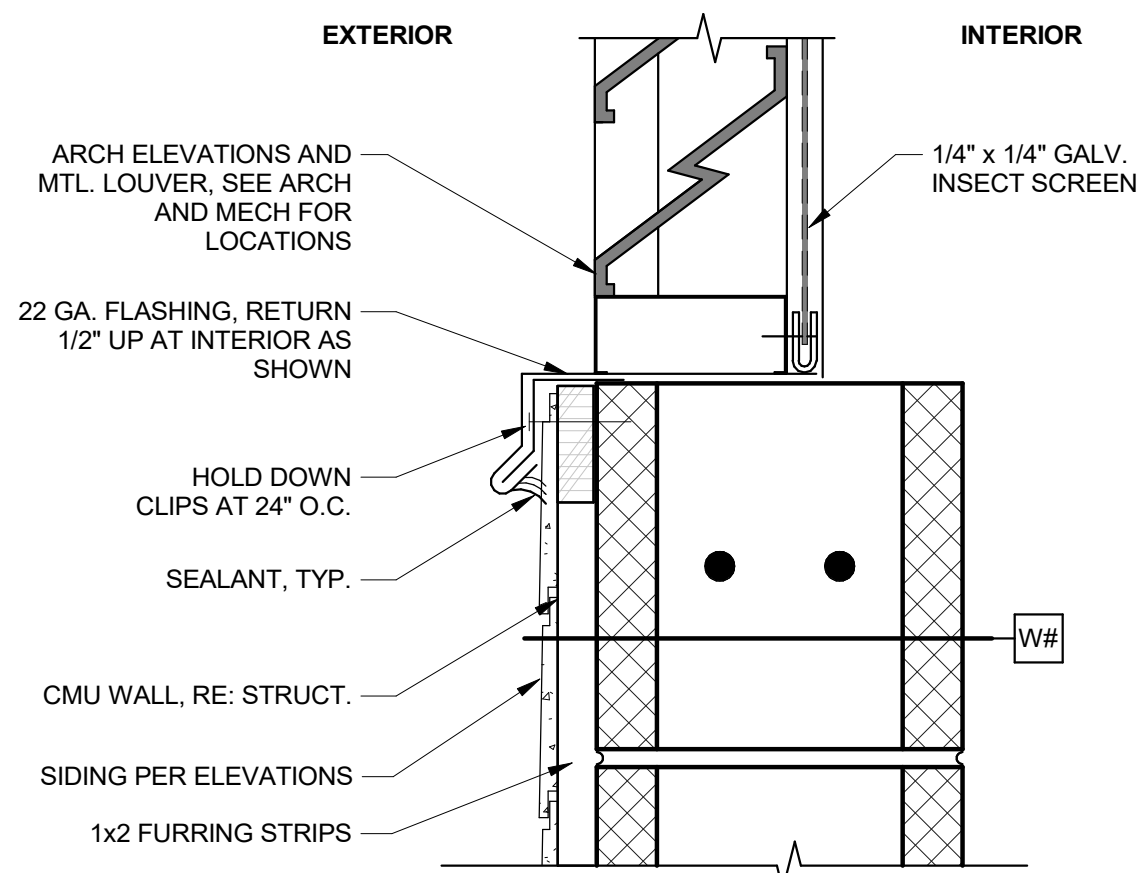
7 EXTERIOR PILLAR #2
1" = 1'-0"



4 CANOPY LOW BRACE
1 1/2" = 1'-0"

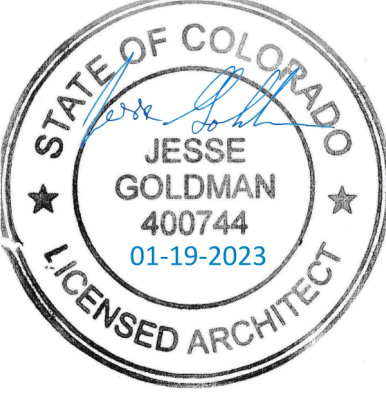
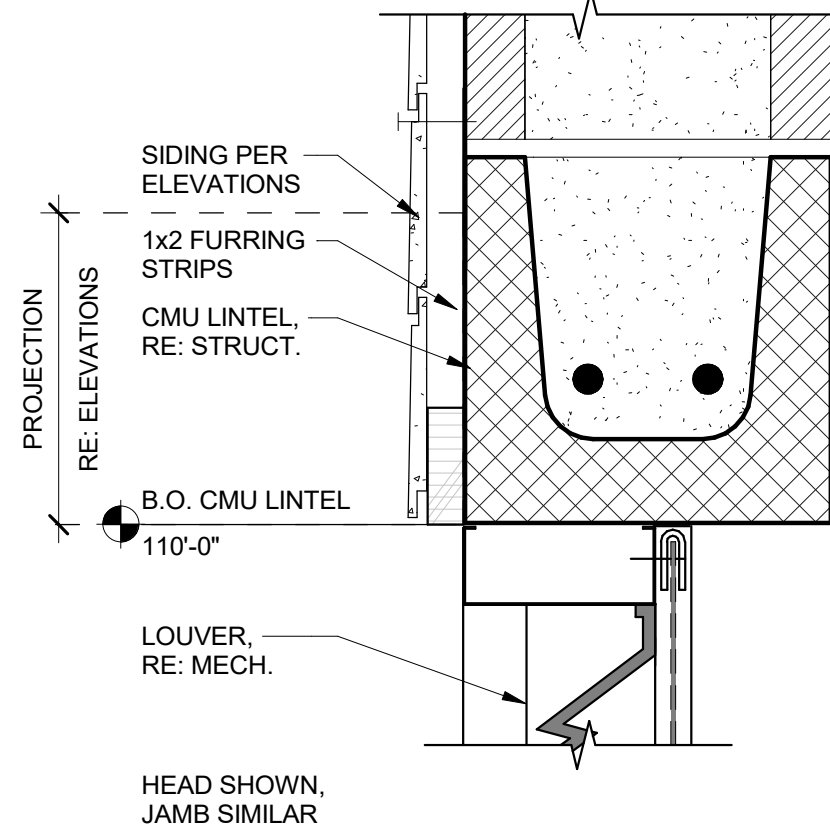


8 GUTTER
3" = 1'-0"



12 LOUVER SILL AT HARDIE SIDING
3" = 1'-0"

11 LOUVER HEAD AT HARDIE SIDING
3" = 1'-0"



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PROJECT 20037.000	DATE 3-15-2023
DRAWN Author	CHECKED Checker

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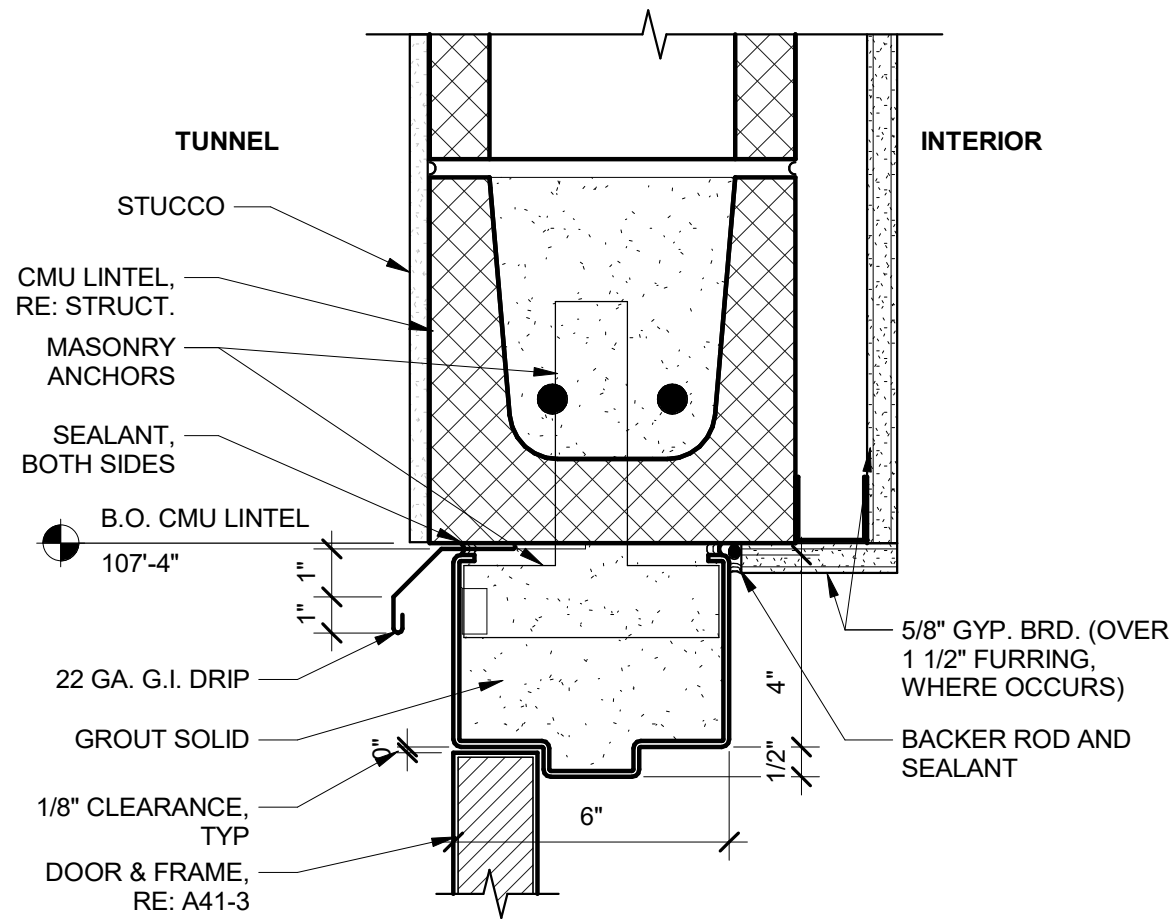
SHEET TITLE

DETAILS

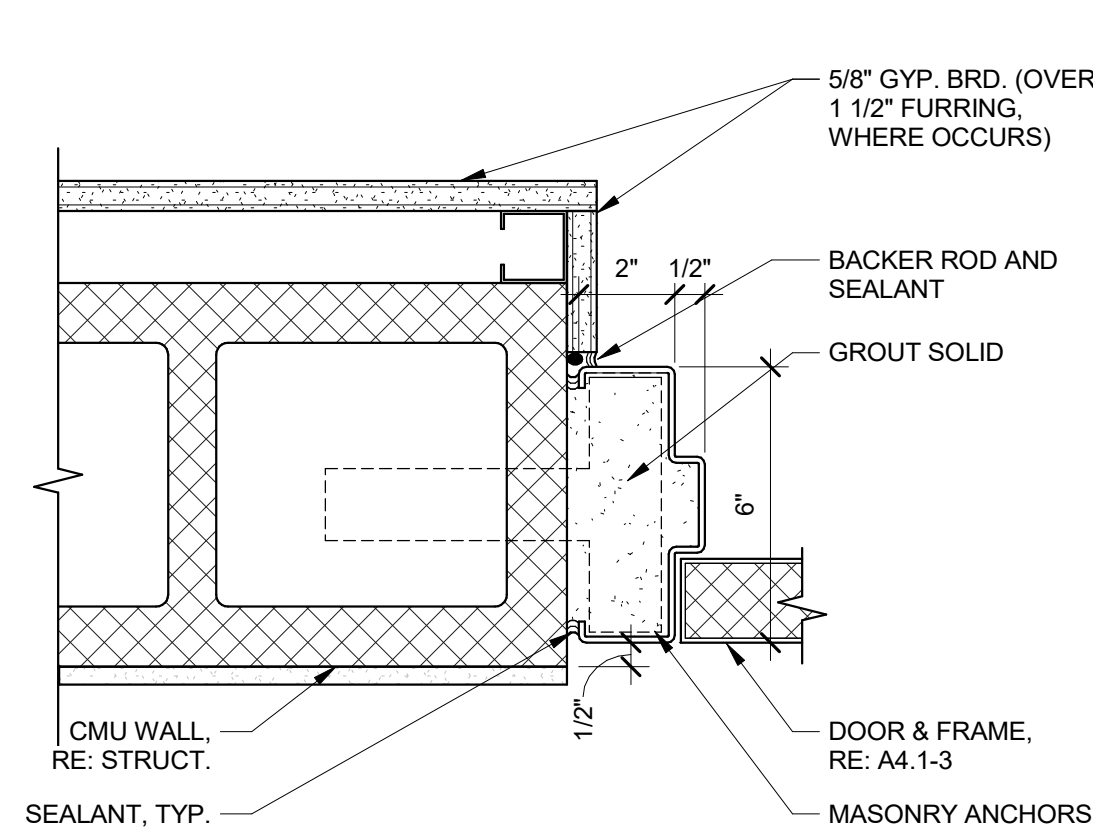
SHEET

A7.1

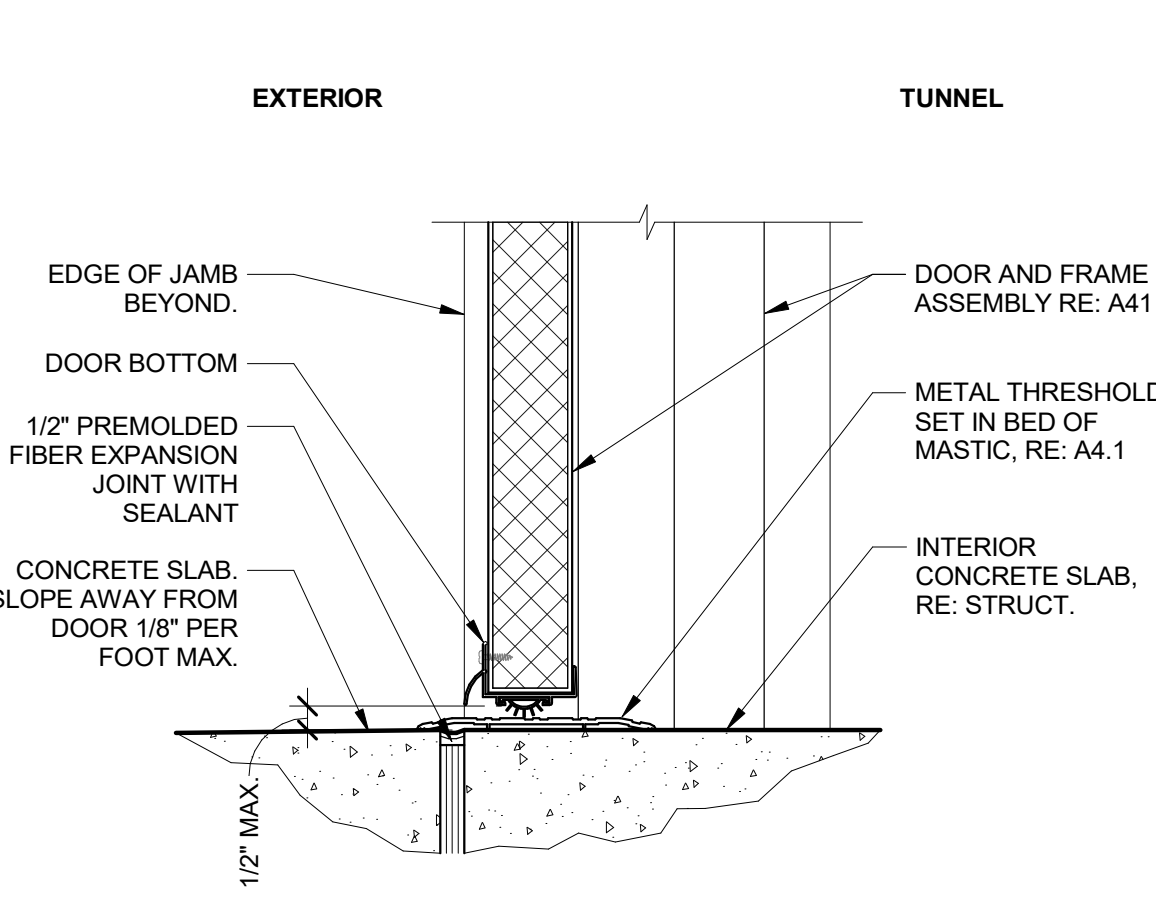
ORIGINAL SHEET SIZE
24" x 36"



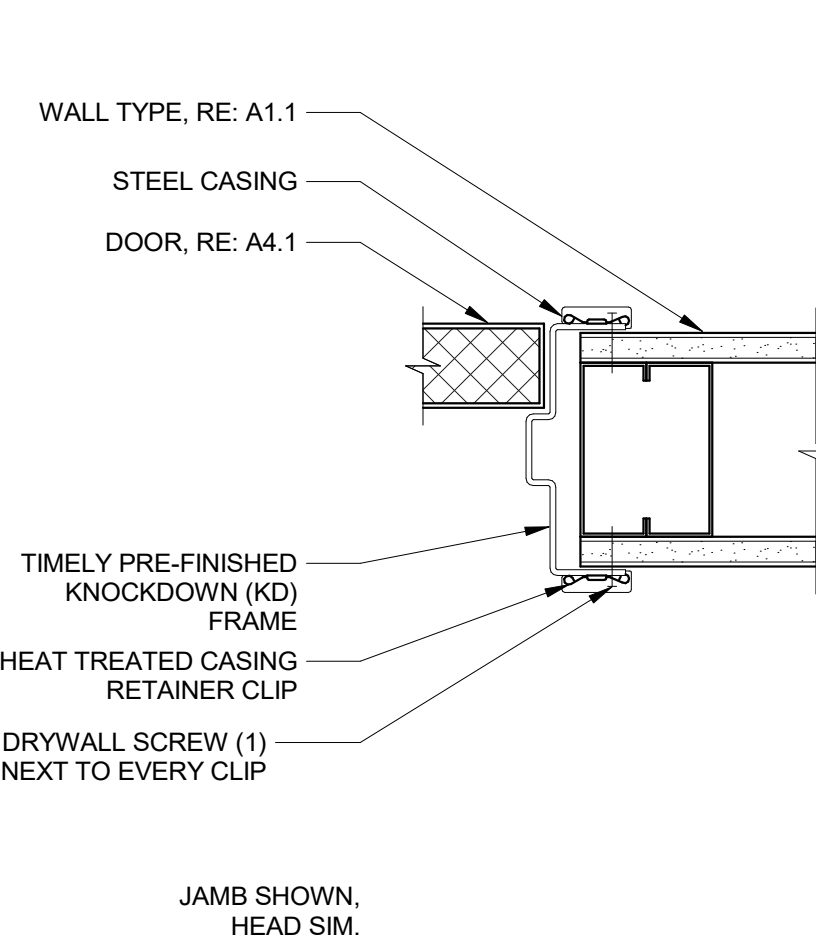
1 H.M. DOOR FRAME - CMU HEAD
3" = 1'-0"



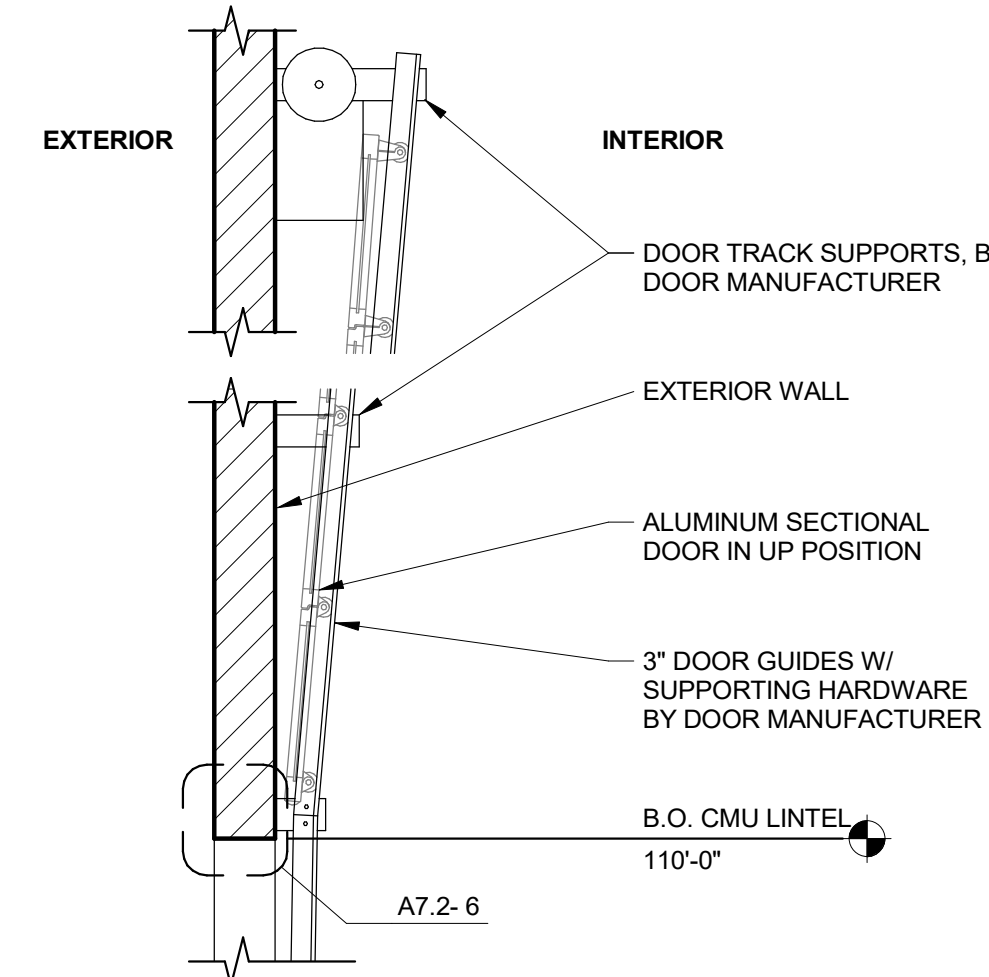
2 H.M. DOOR FRAME - CMU JAMB 1
3" = 1'-0"



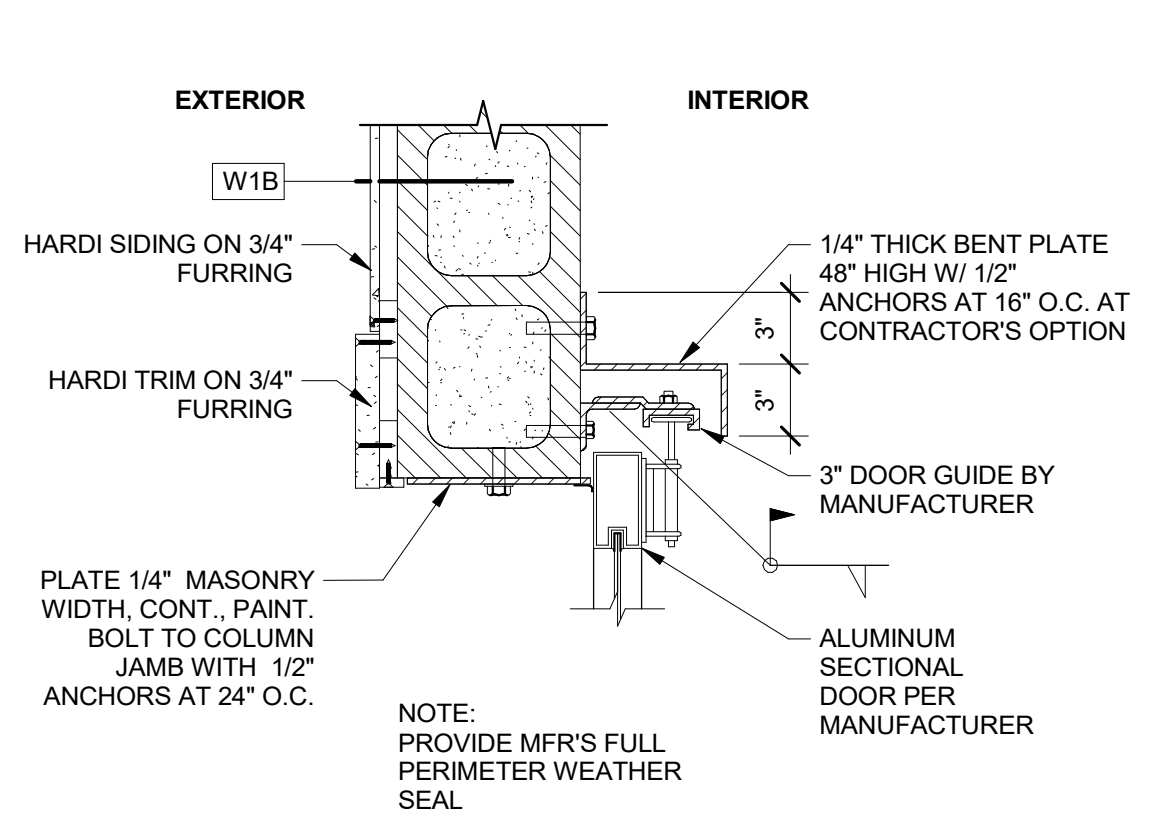
3 H.M. DOOR FRAME - SILL
3" = 1'-0"



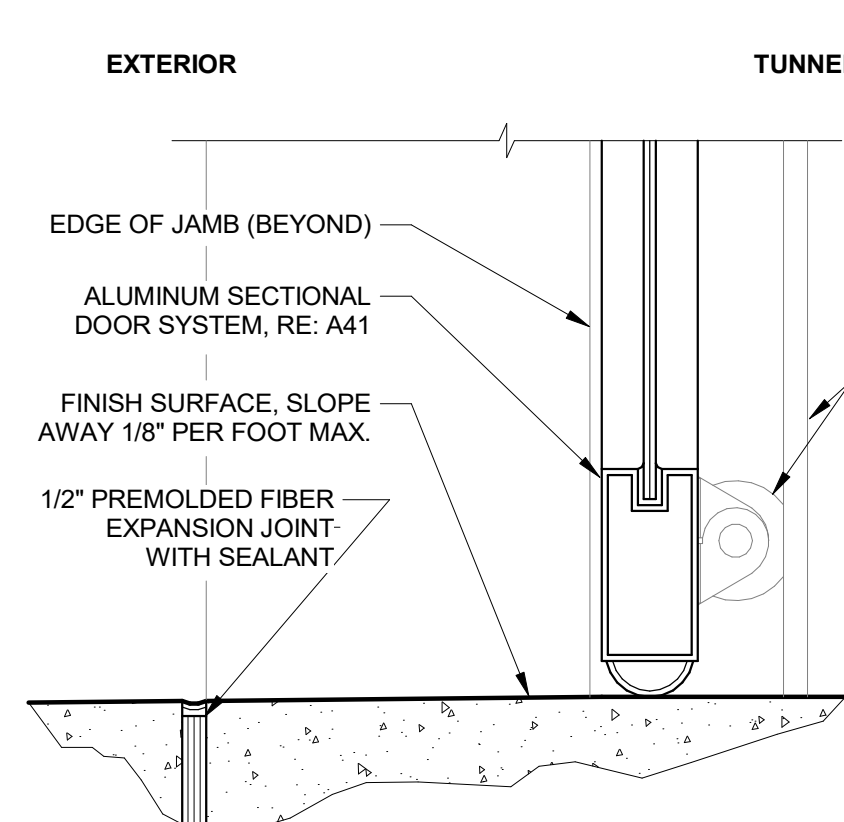
4 H.M. DOOR FRAME - STUD JAMB/HEAD
3" = 1'-0"



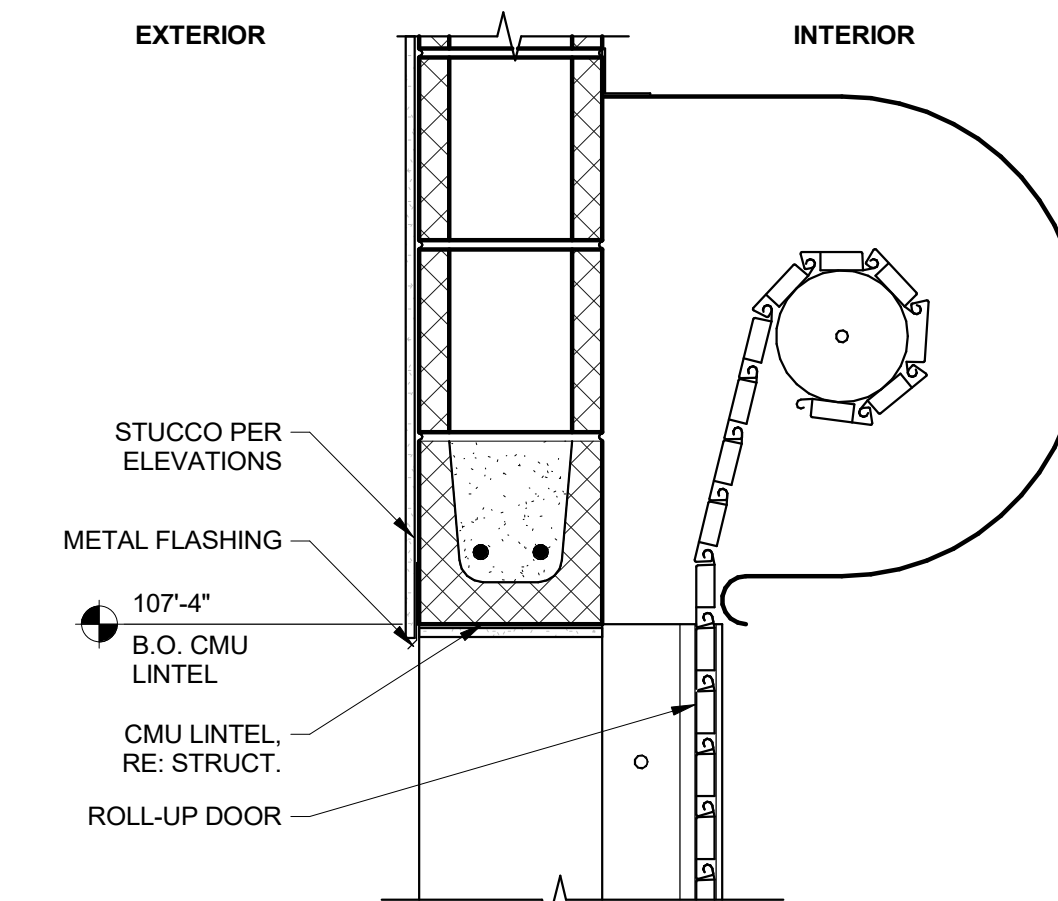
5 SECTIONAL DOOR HEAD
1/2" = 1'-0"



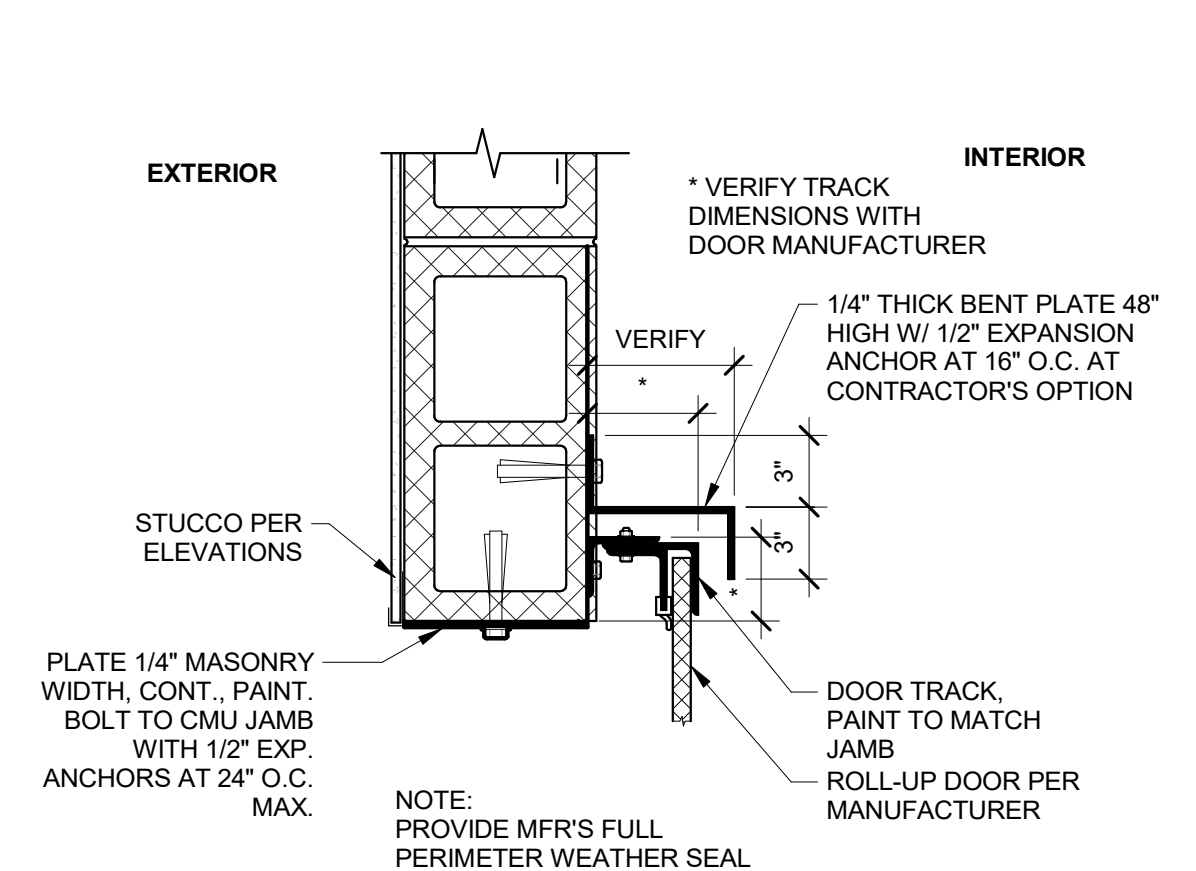
6 SECTIONAL DOOR JAMB
1 1/2" = 1'-0"



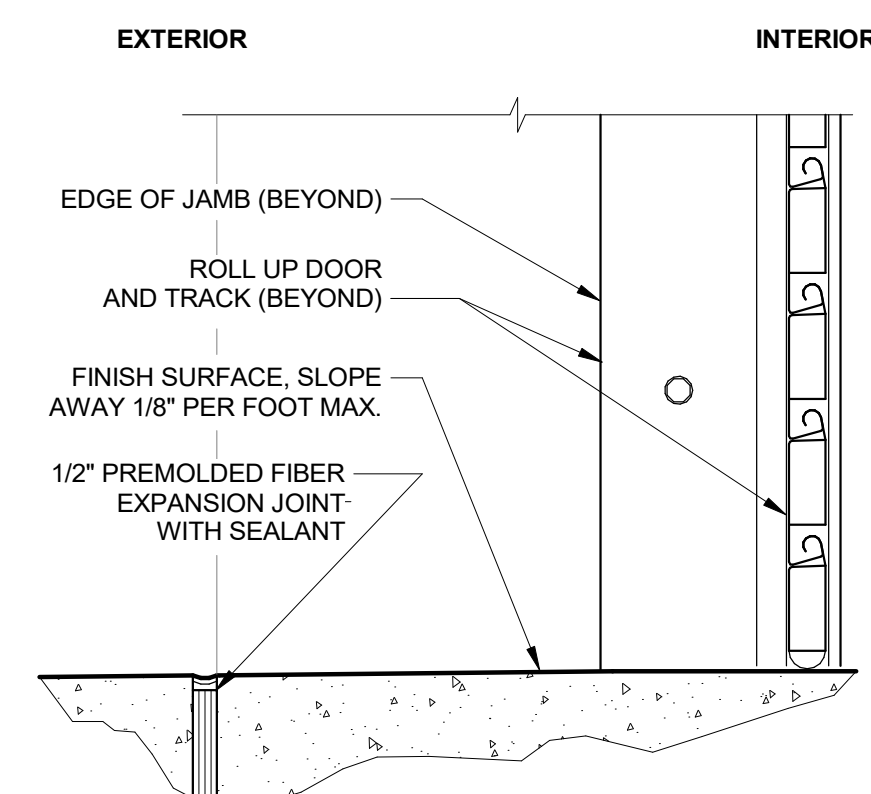
7 SECTIONAL DOOR SILL
3" = 1'-0"



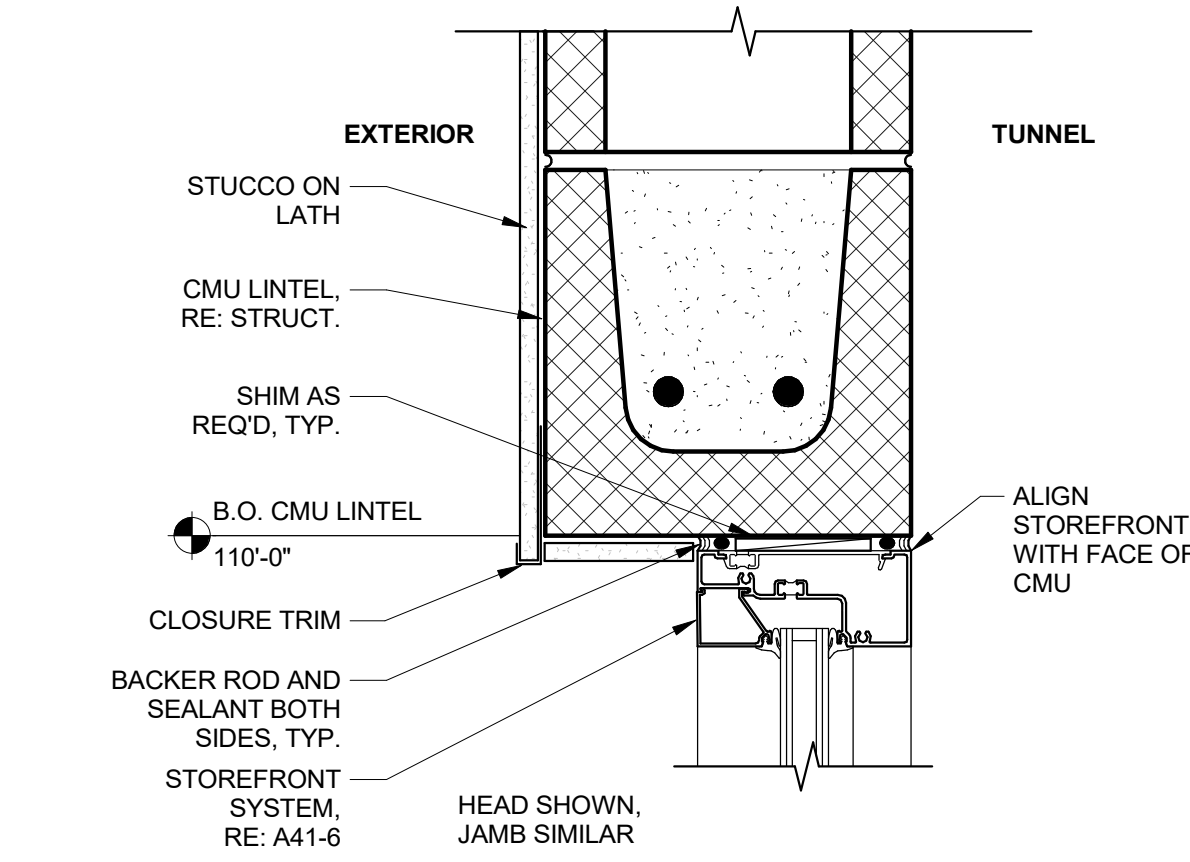
8 ROLL UP DOOR HEAD
1 1/2" = 1'-0"



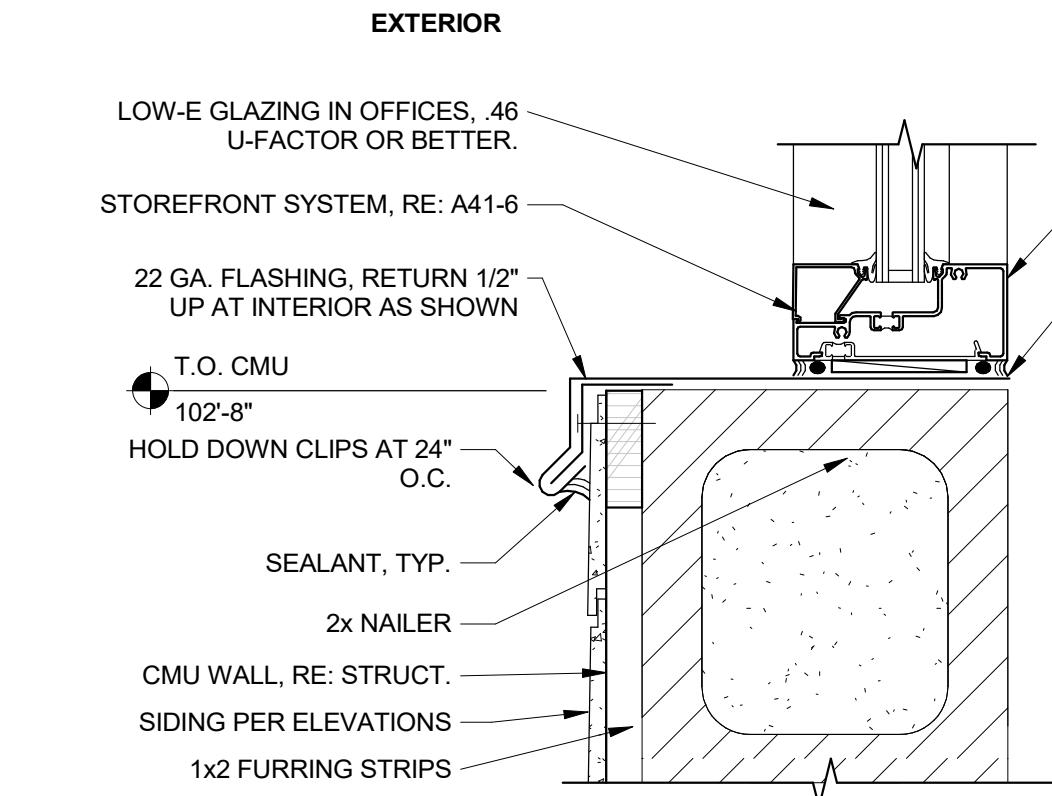
9 ROLL UP DOOR JAMB
1 1/2" = 1'-0"



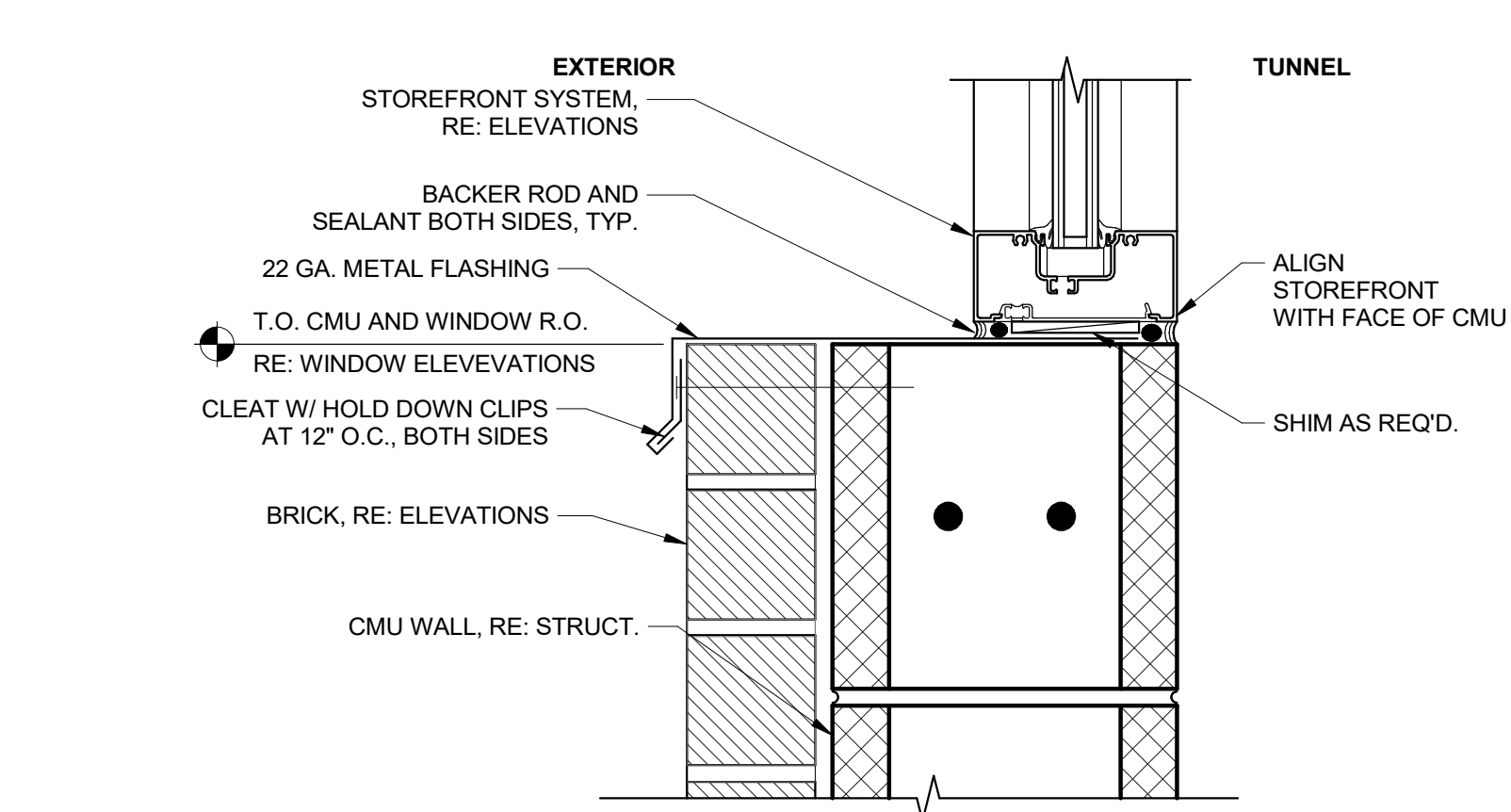
10 ROLL UP DOOR SILL
3" = 1'-0"



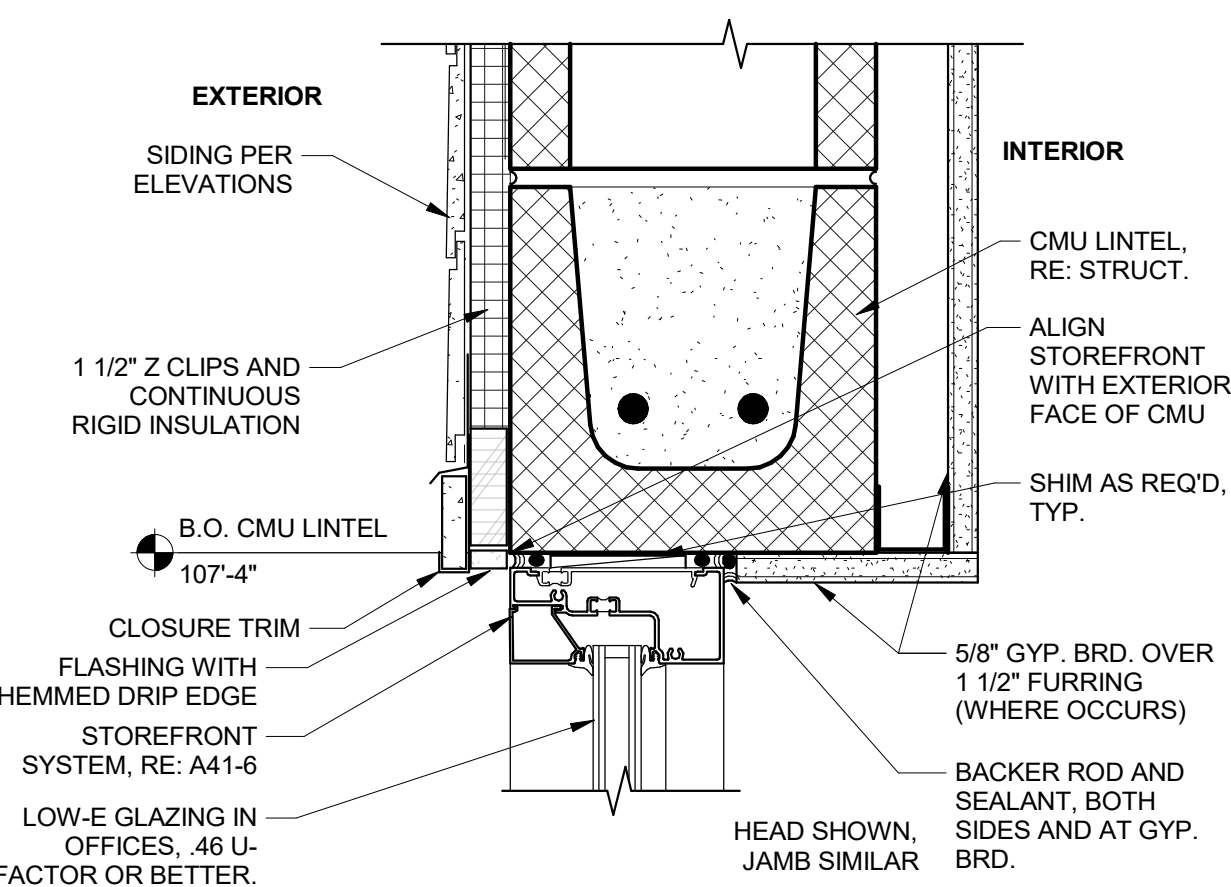
11 STOREFRONT HEAD - JAMB AT TUNNEL
3" = 1'-0"



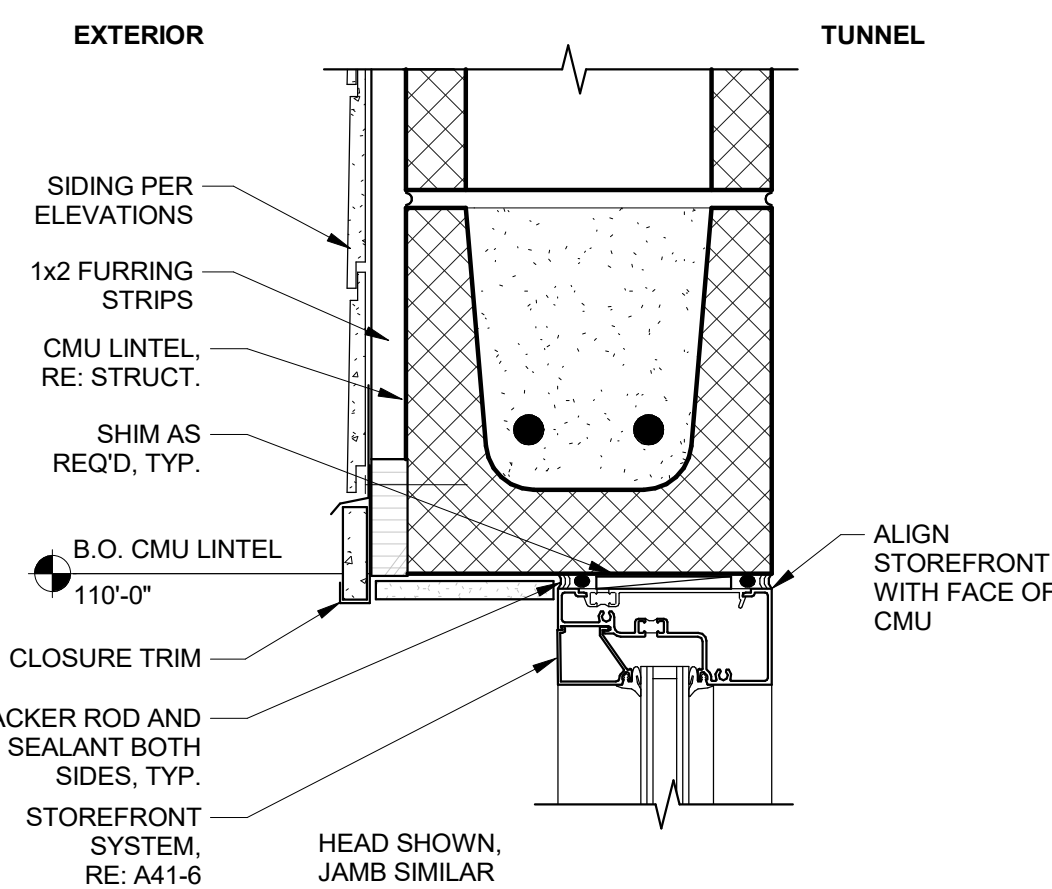
12 STOREFRONT SILL HARDISIDING AT TUNNEL
3" = 1'-0"



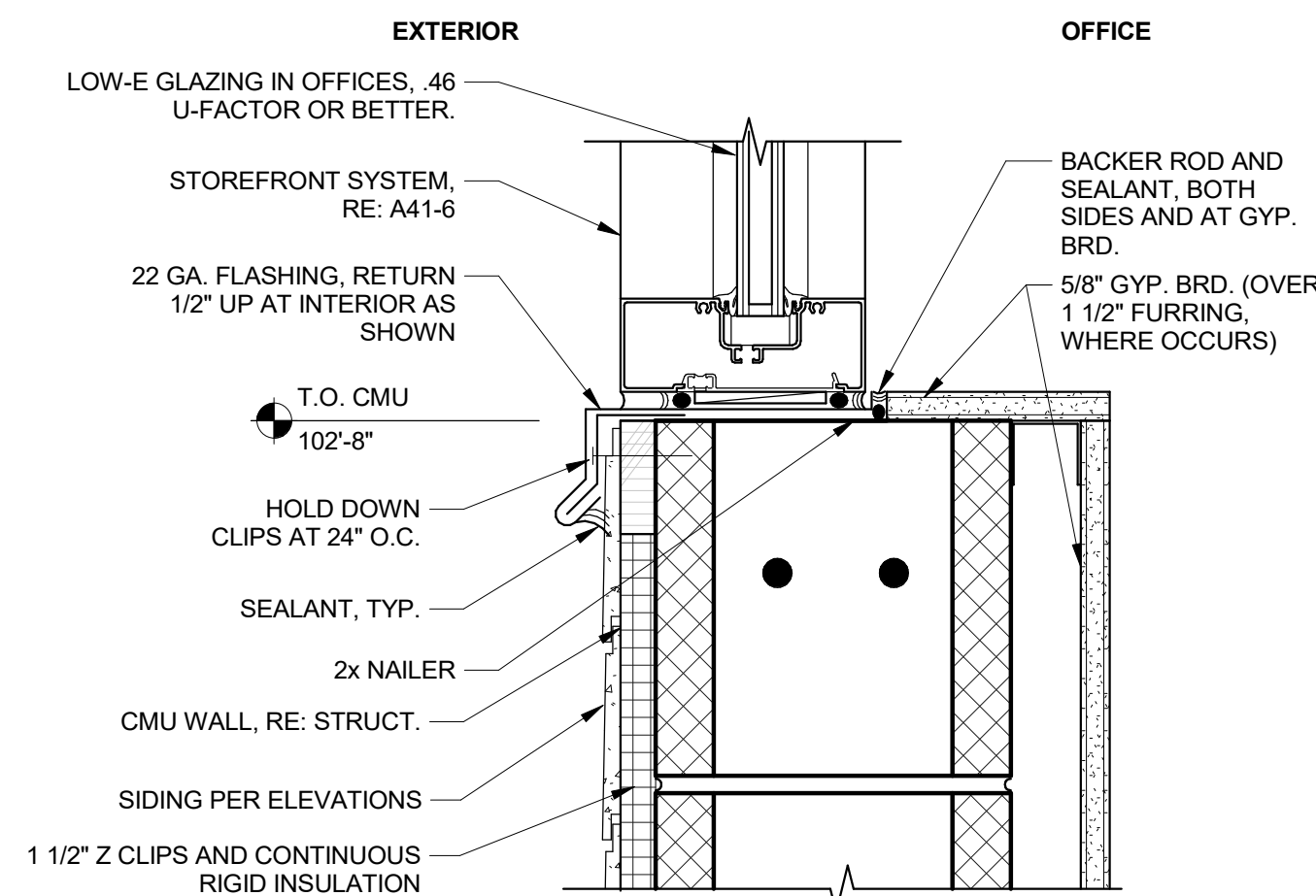
13 STOREFRONT SILL AT BRICK WAINSCOTT
3" = 1'-0"



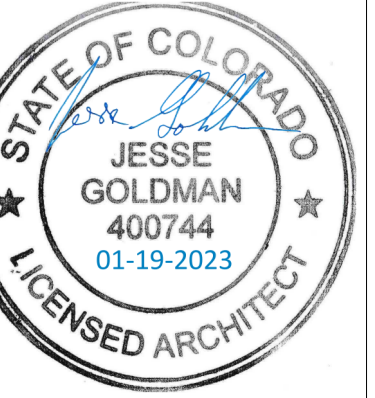
14 STOREFRONT HEAD - JAMB 2
3" = 1'-0"



15 STOREFRONT HEAD - JAMB HARDISIDING AT TUNNEL
3" = 1'-0"



16 STOREFRONT SILL - HARDISIDING
3" = 1'-0"



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QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

PROJECT
20037.000

DRAWN
RJ

REVISED

SHEET TITLE

WINDOW/DOOR
DETAILS

SHEET

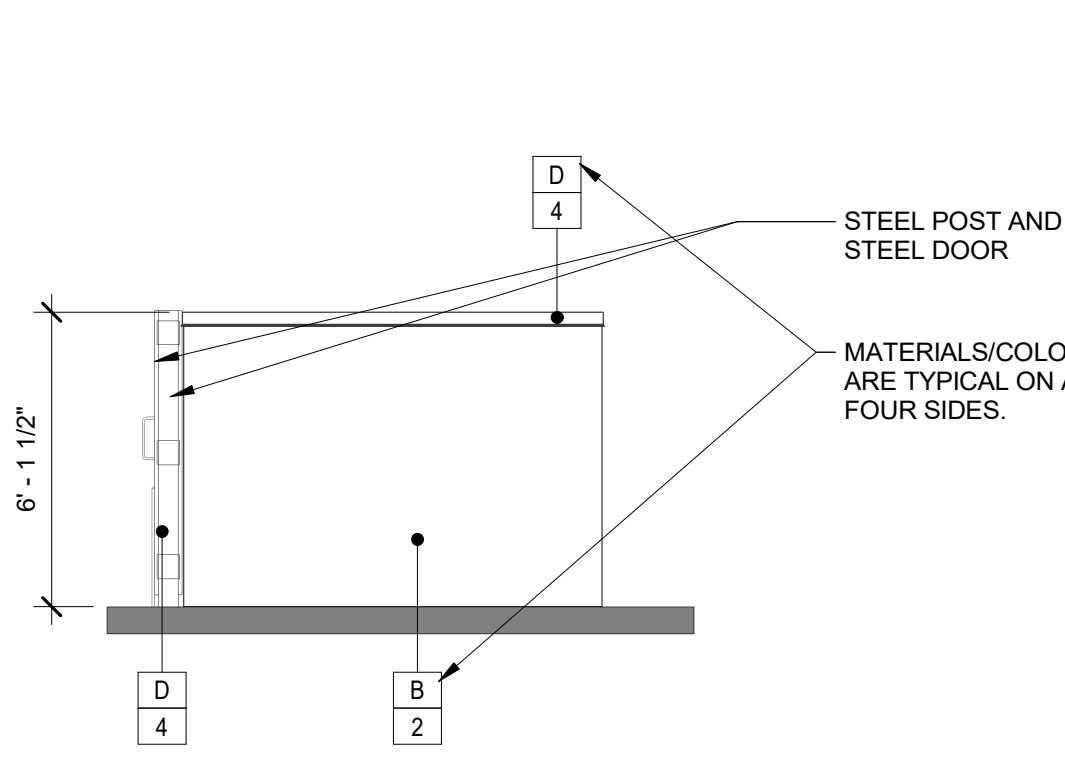
A7.2

ORIGINAL SHEET SIZE
24" x 36"

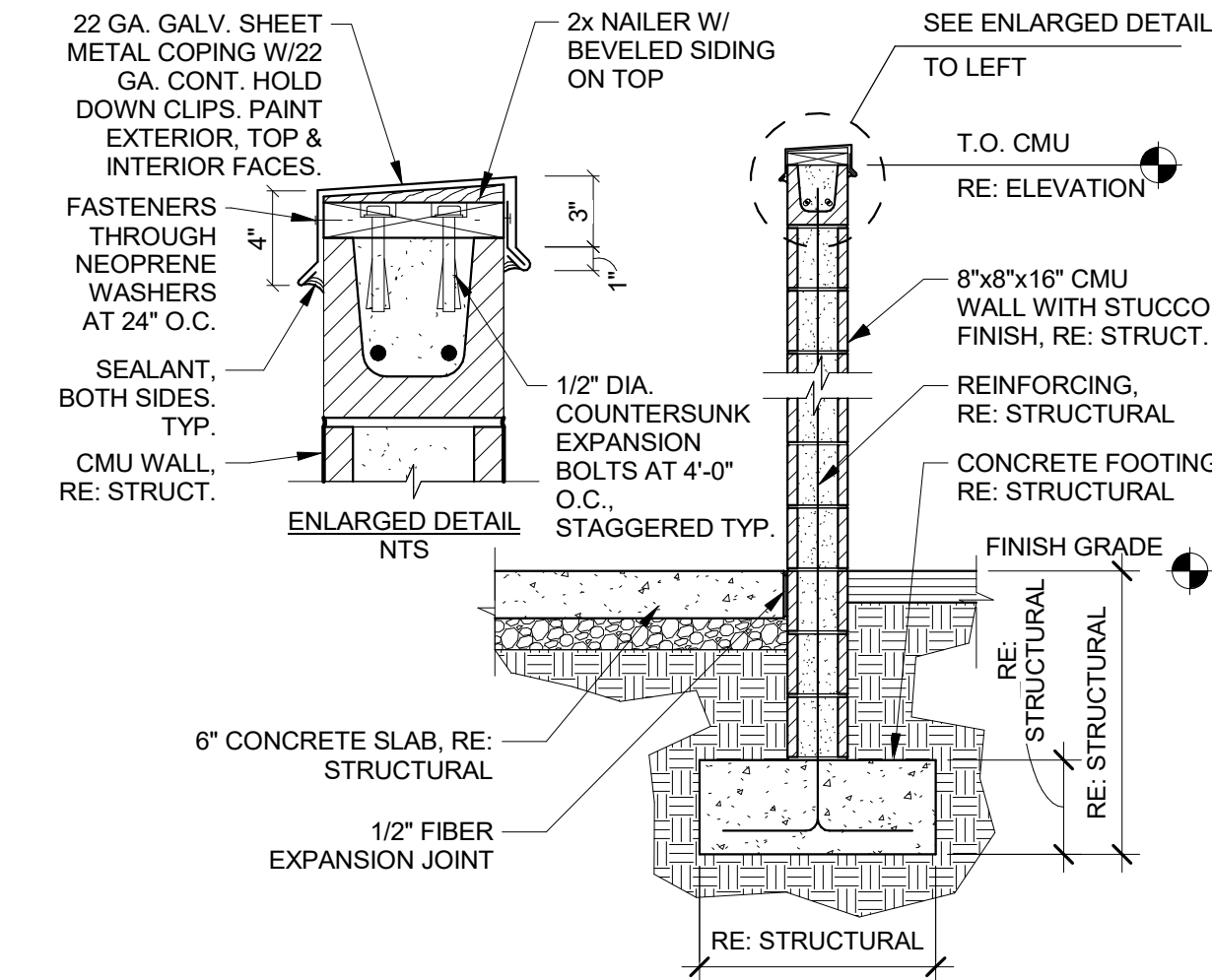
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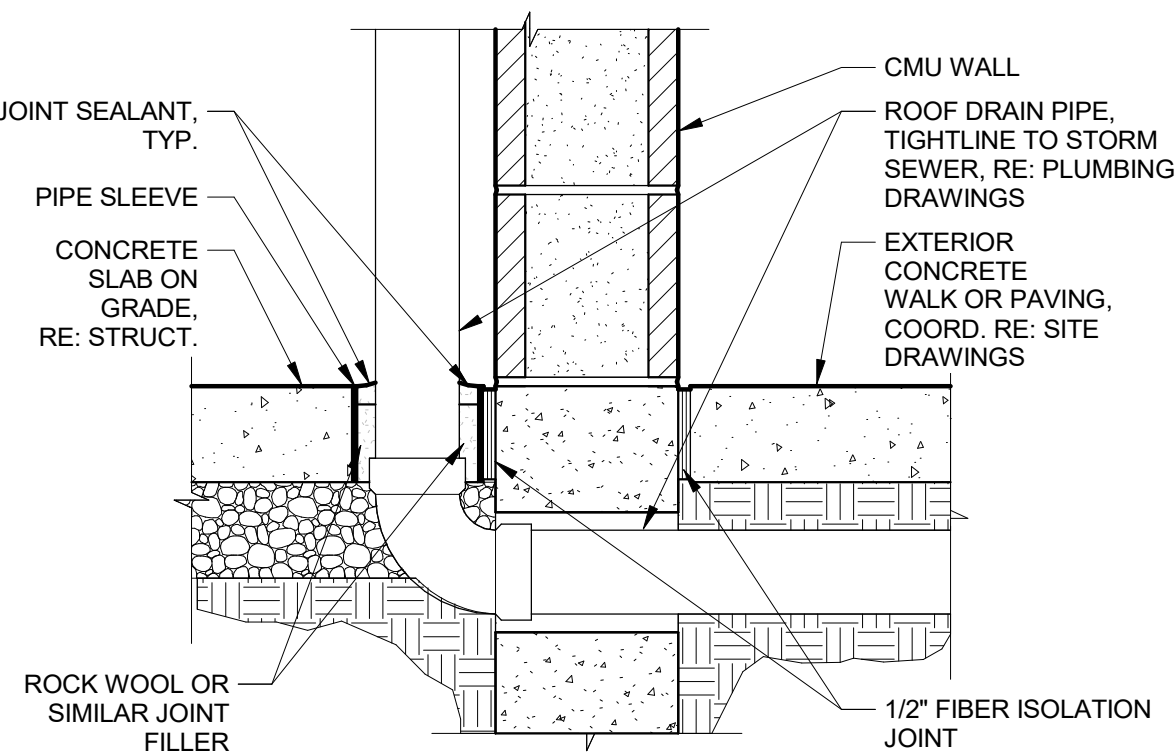
CSHQA



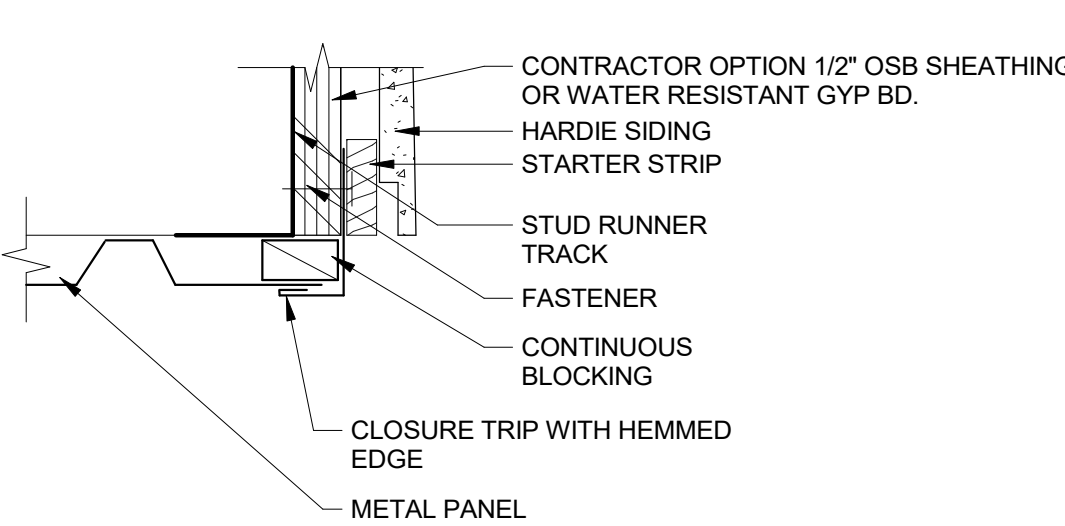
1 TRASH ENCLOSURE SIDE
1/4" = 1'-0"



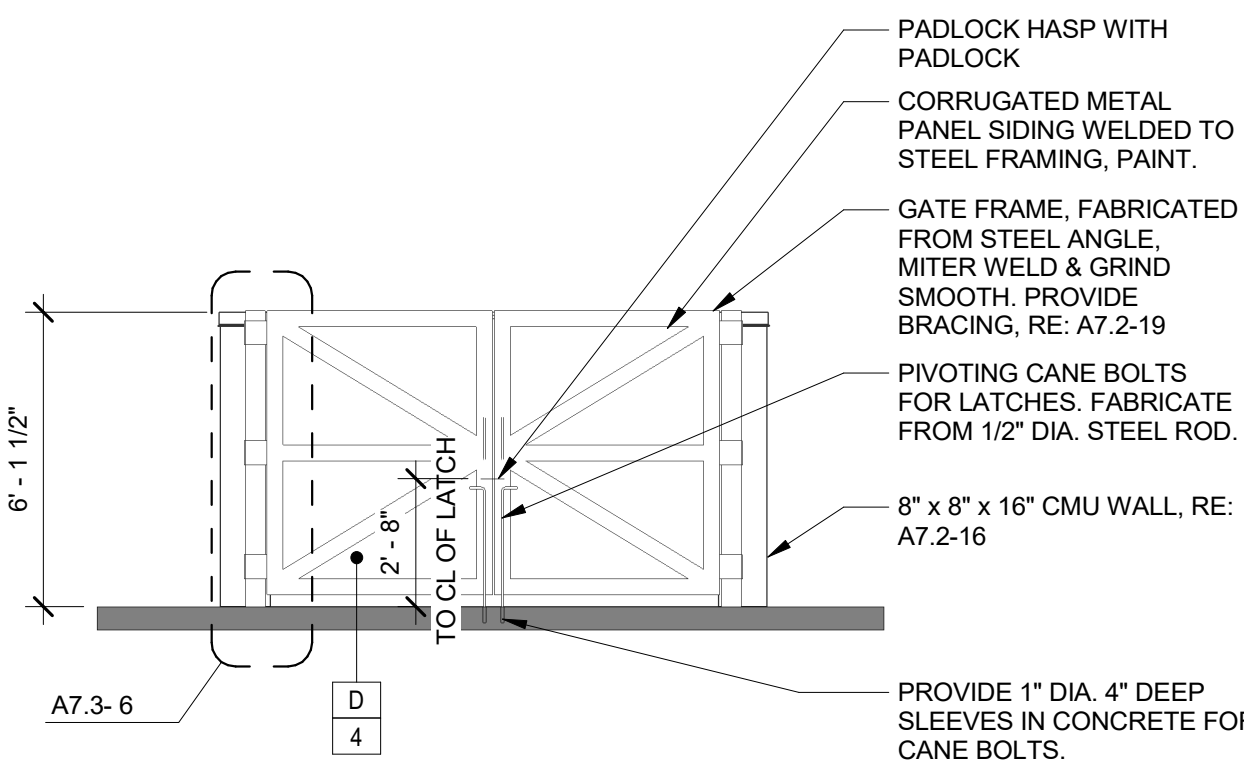
5 TRASH ENCLOSURE SECTION
1/2" = 1'-0"



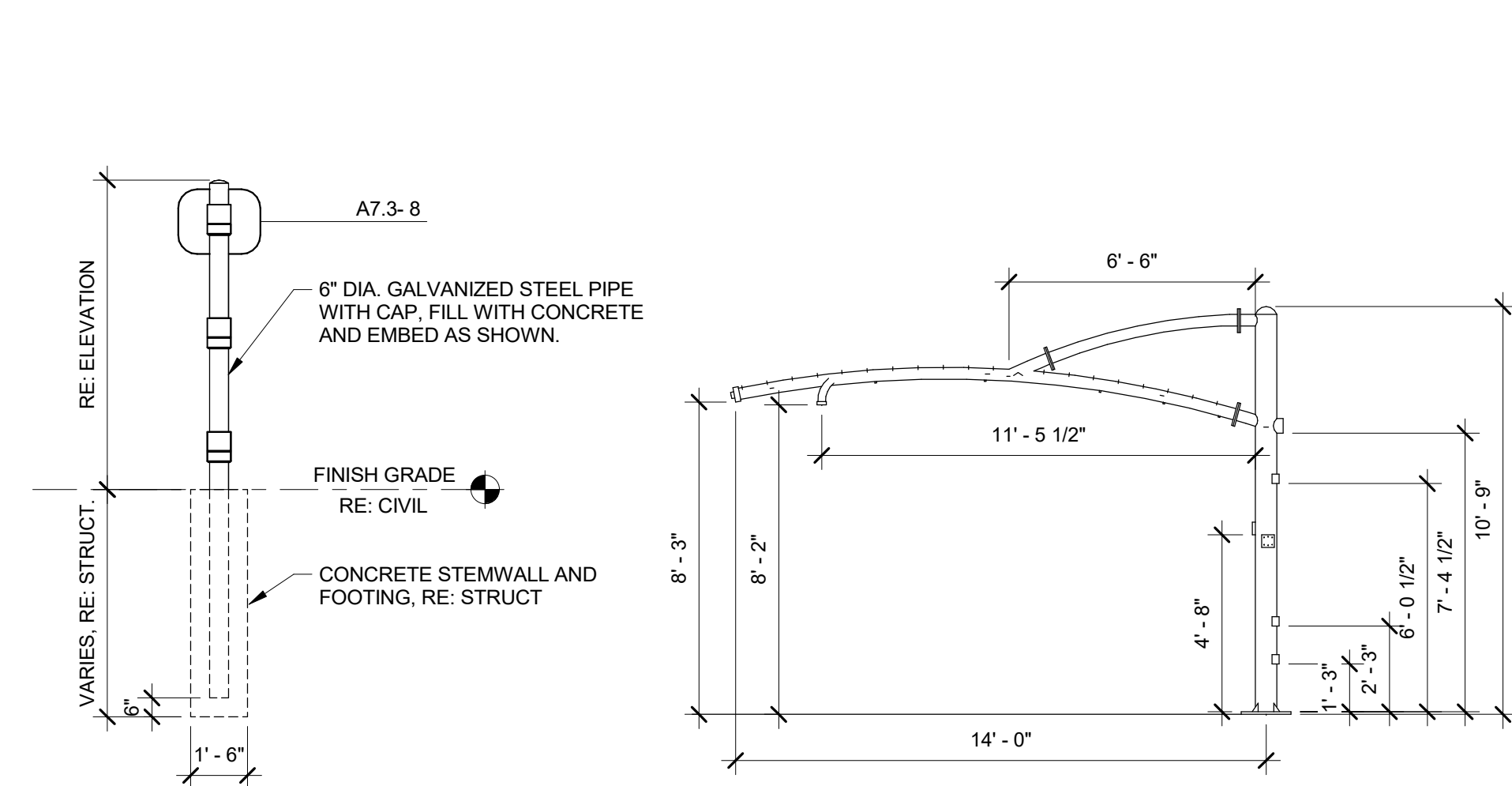
10 ROOF DRAIN
1 1/2" = 1'-0"



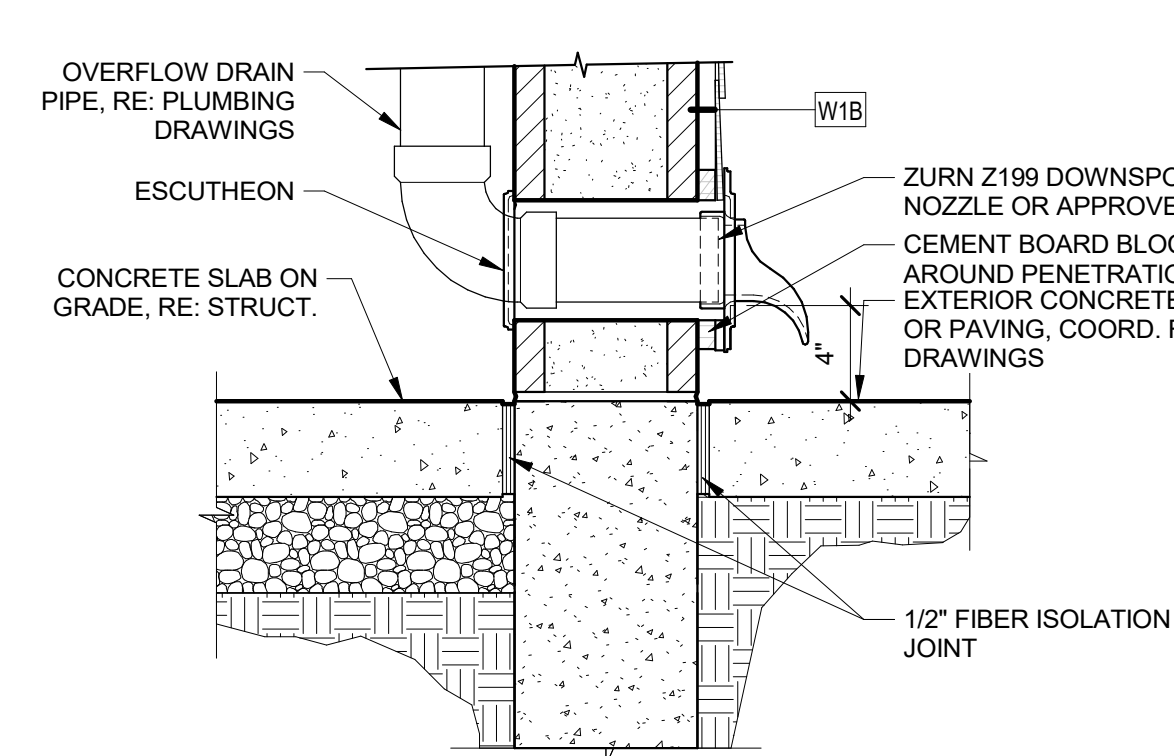
14 DRIP EDGE AT HARDIE
6" = 1'-0"



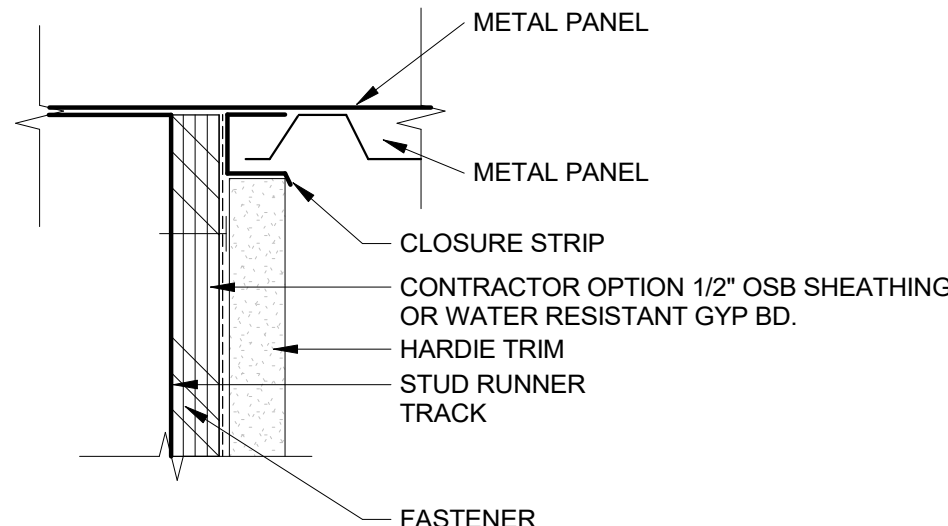
2 TRASH ENCLOSURE FRONT
1/4" = 1'-0"



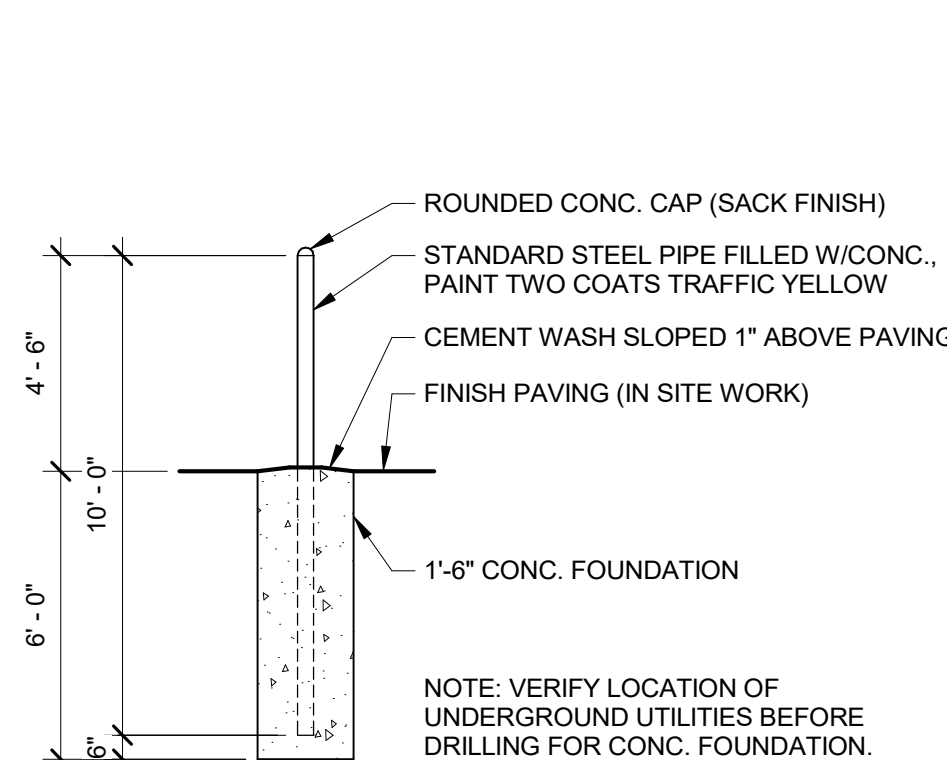
6 GATE POST
1/4" = 1'-0"



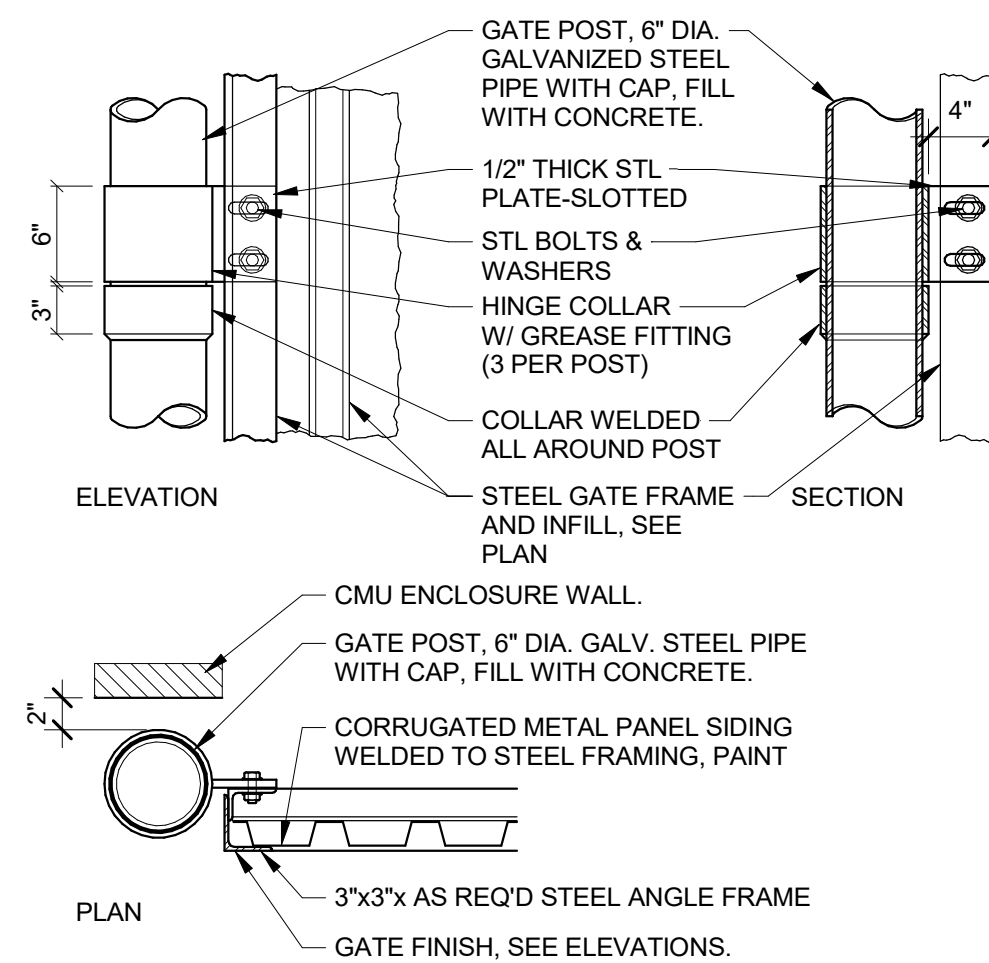
11 OVERFLOW DISCHARGE
1 1/2" = 1'-0"



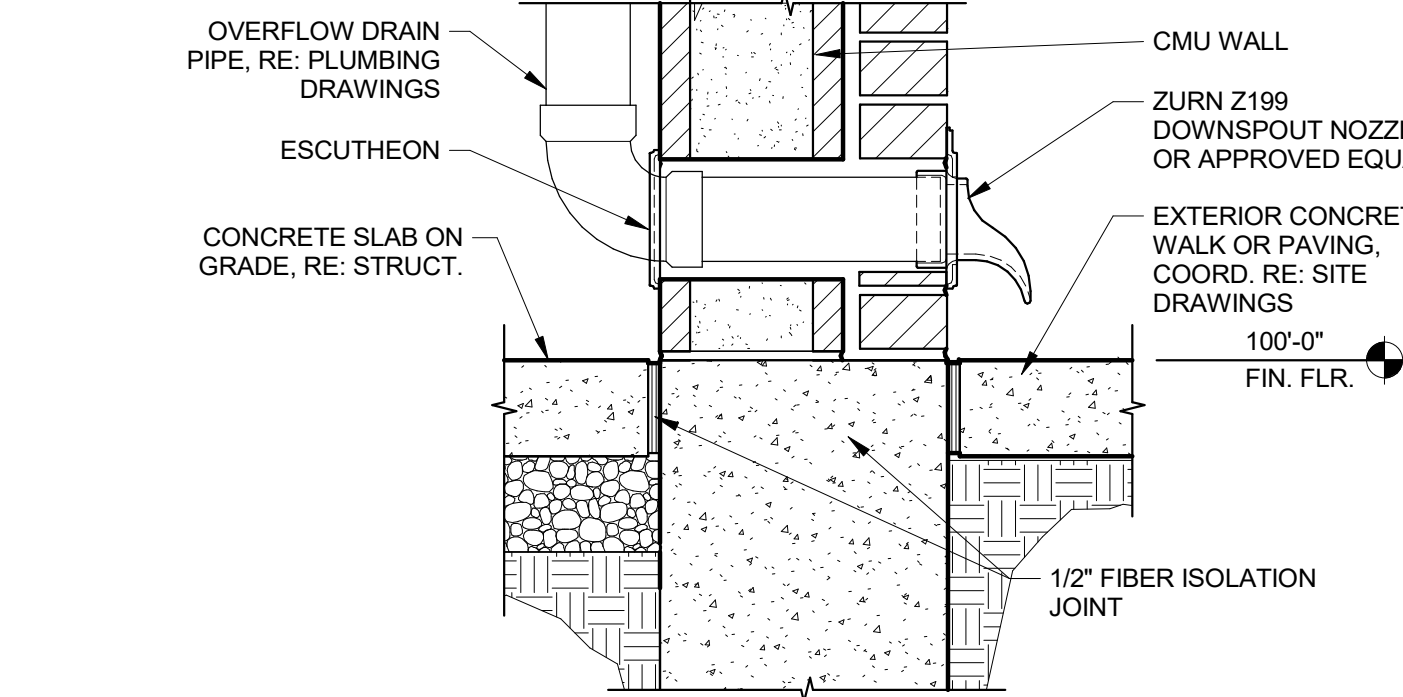
15 INSIDE CORNER
6" = 1'-0"



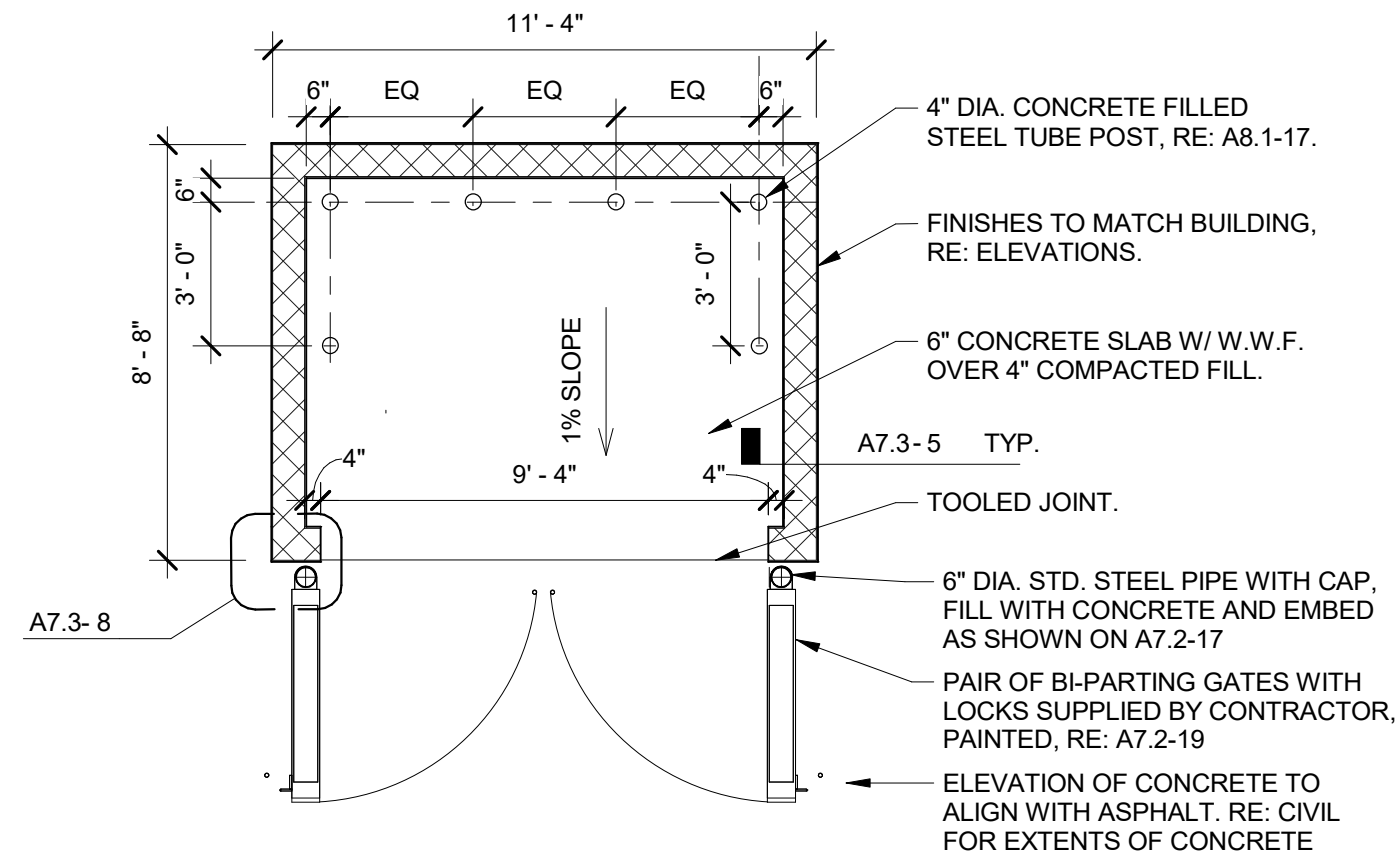
3 PIPE BUMPER
1/4" = 1'-0"



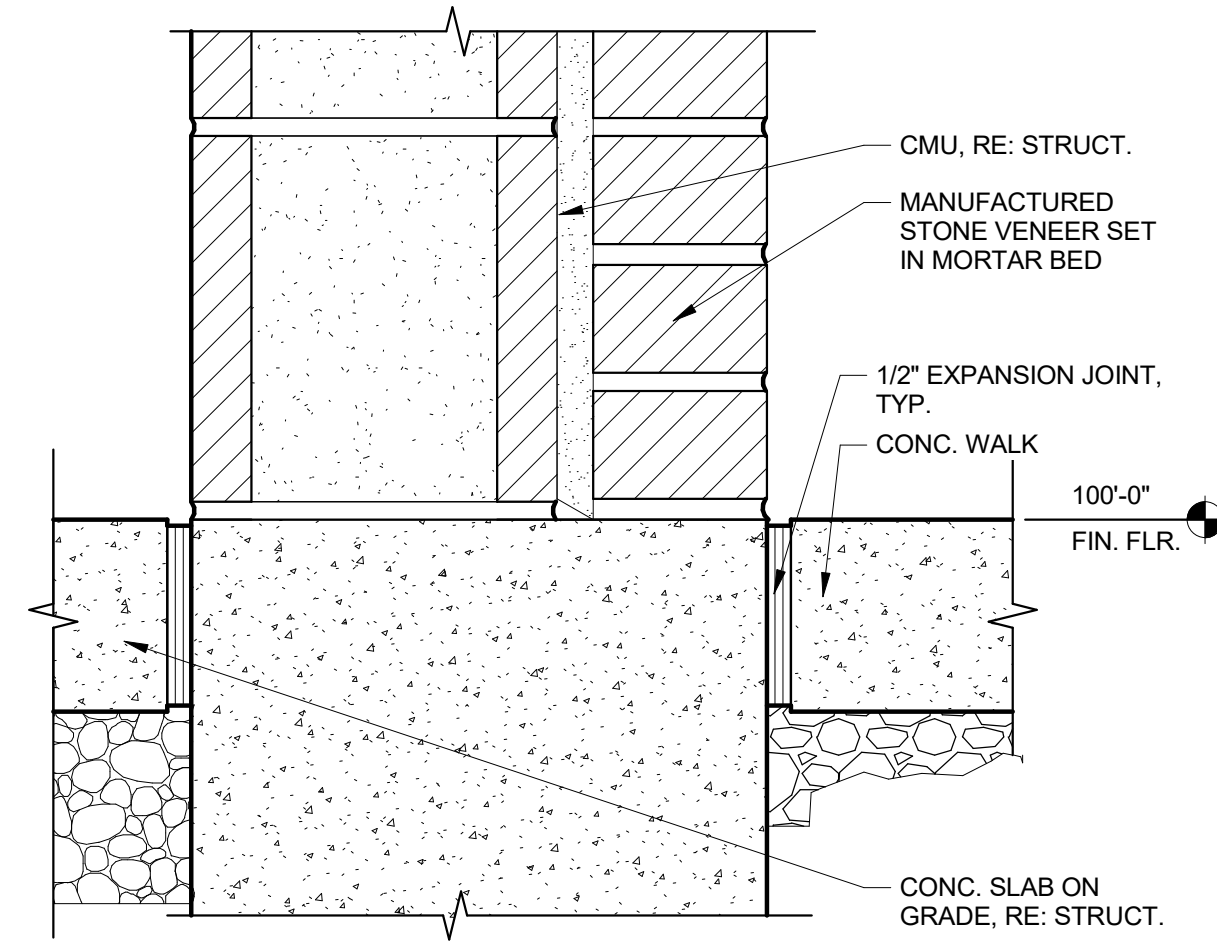
8 GATE DETAILS
1" = 1'-0"



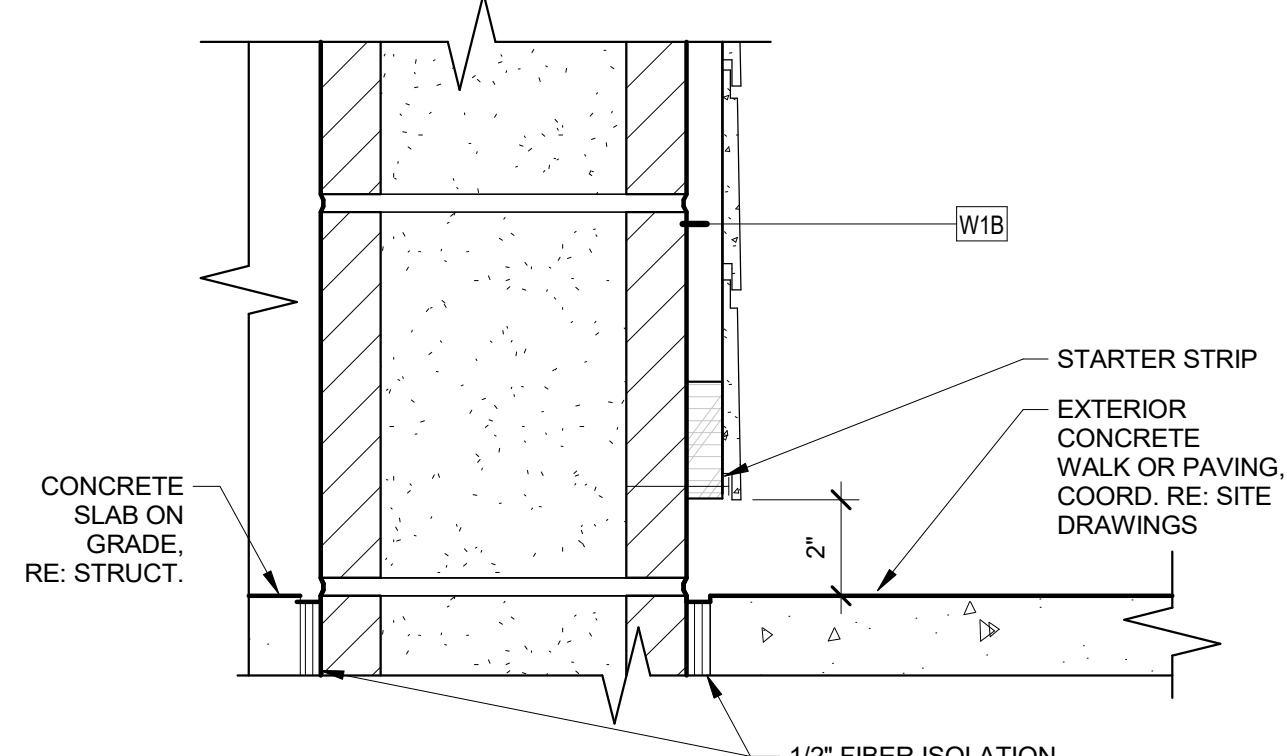
12 OVERFLOW DISCHARGE @ BRICK
1 1/2" = 1'-0"



4 TRASH ENCLOSURE PLAN
1/4" = 1'-0"



9 BRICK BASE
3" = 1'-0"



13 HARDIE PLANK AT GRADE
3" = 1'-0"



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PROJECT 20037.000	DATE 3-15-2023
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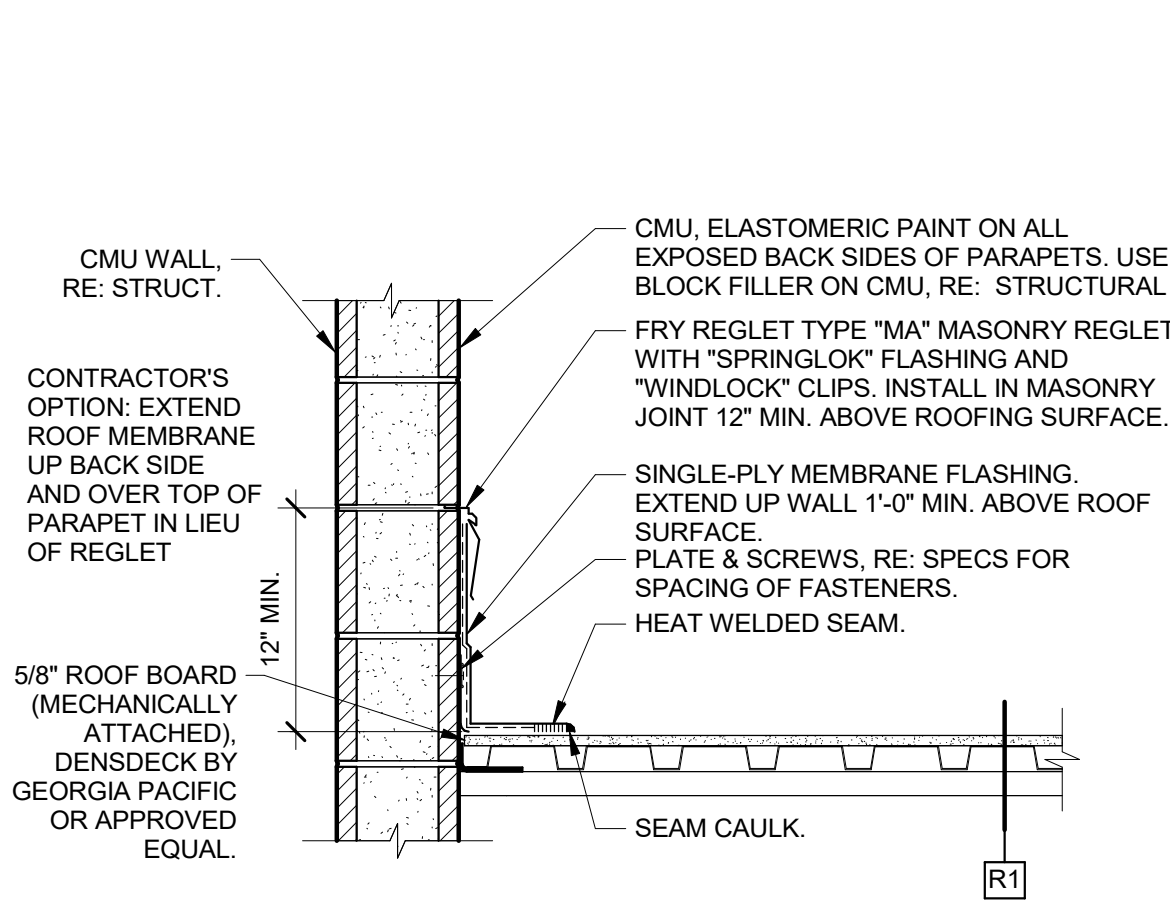
SHEET TITLE

DETAILS

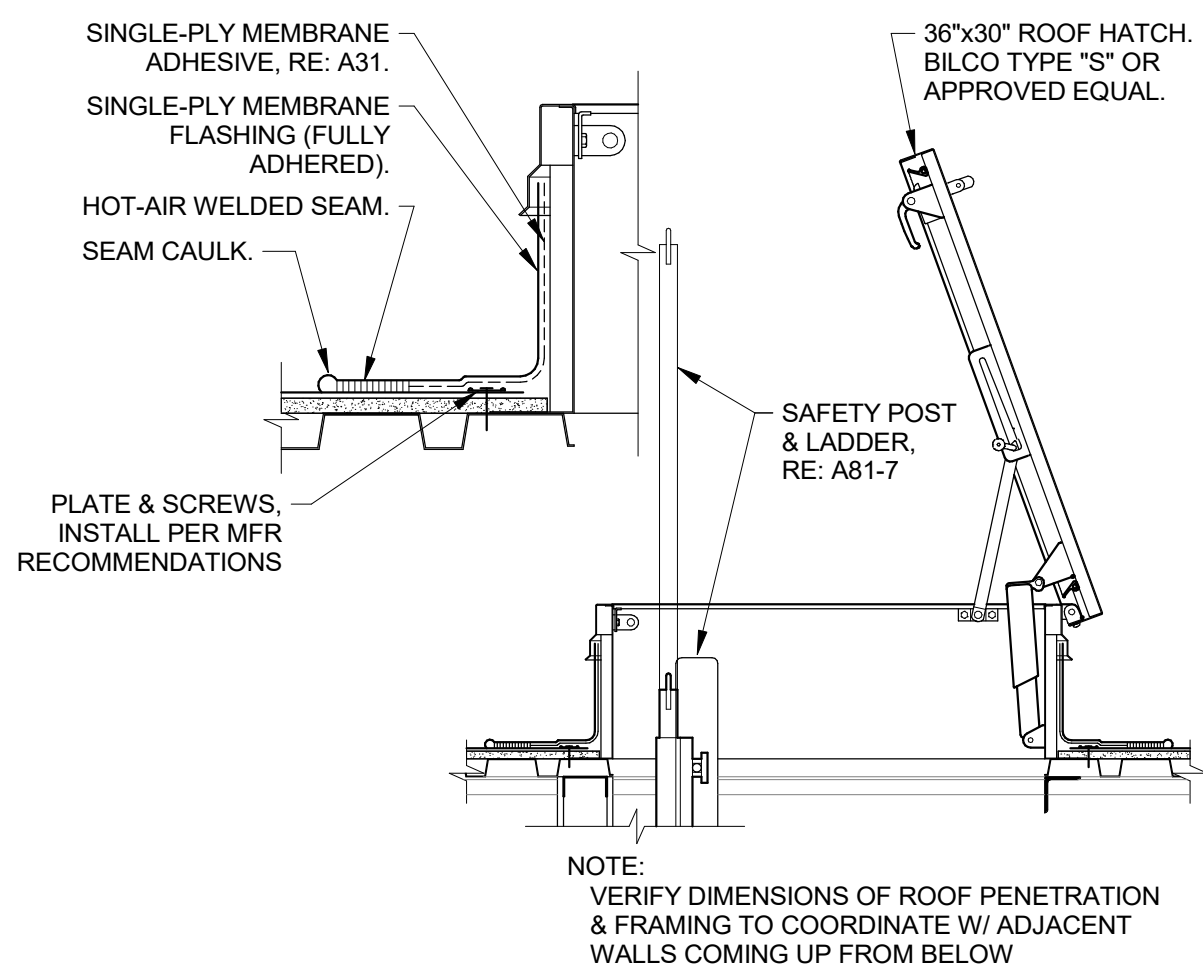
SHEET

A7.3

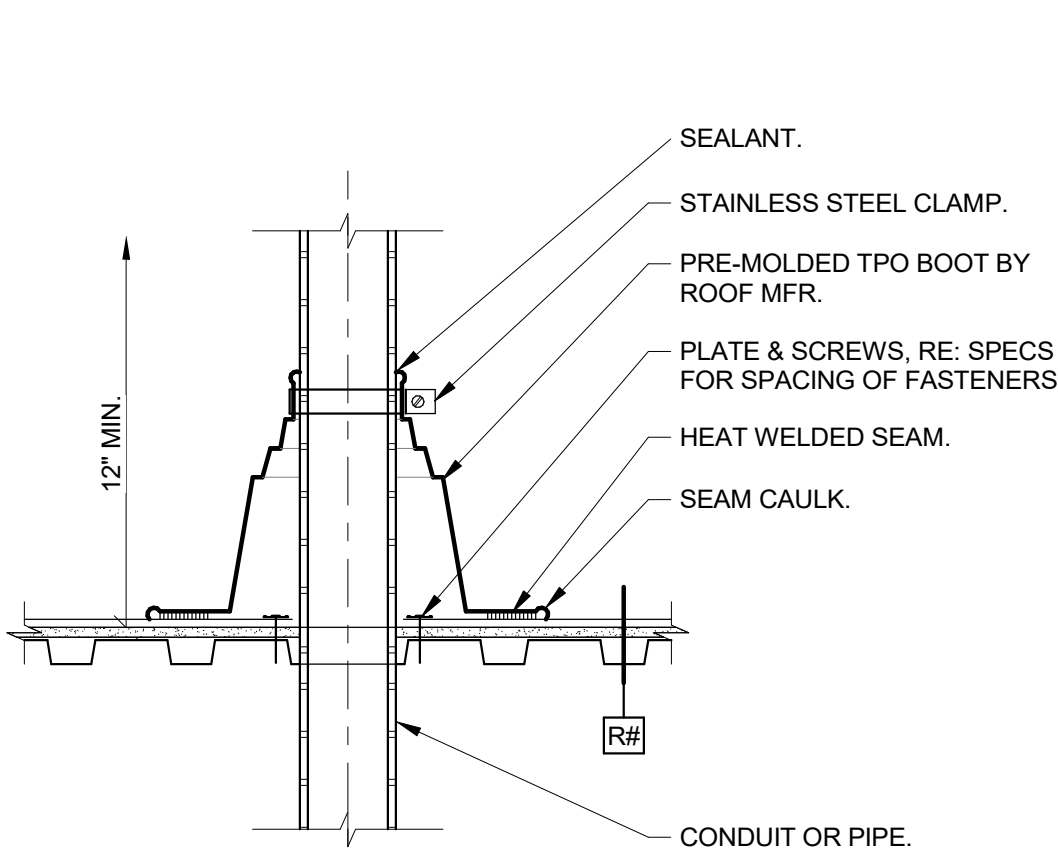
ORIGINAL SHEET SIZE
24" x 36"



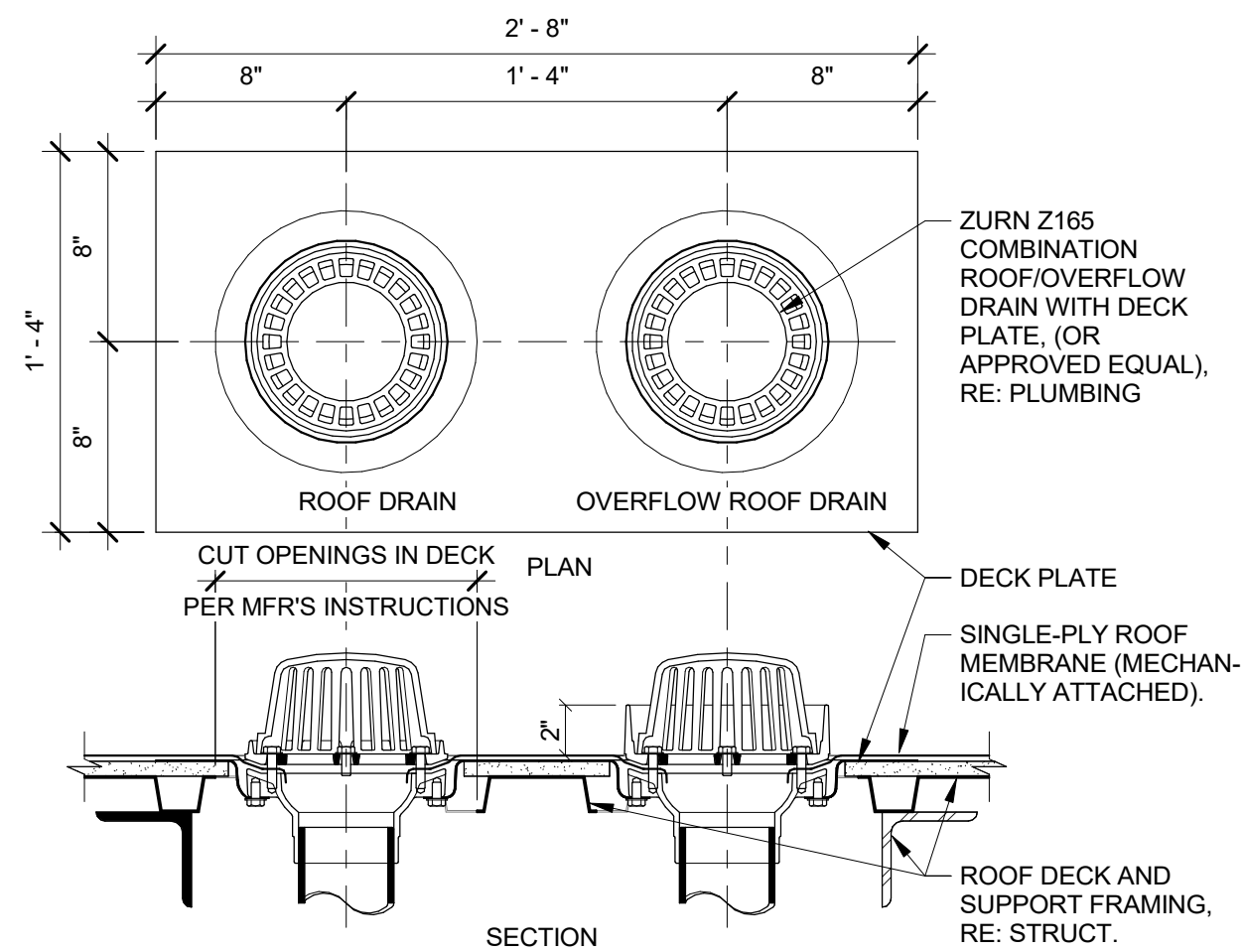
1 COPING, PARAPET & ROOFING
1" = 1'-0"



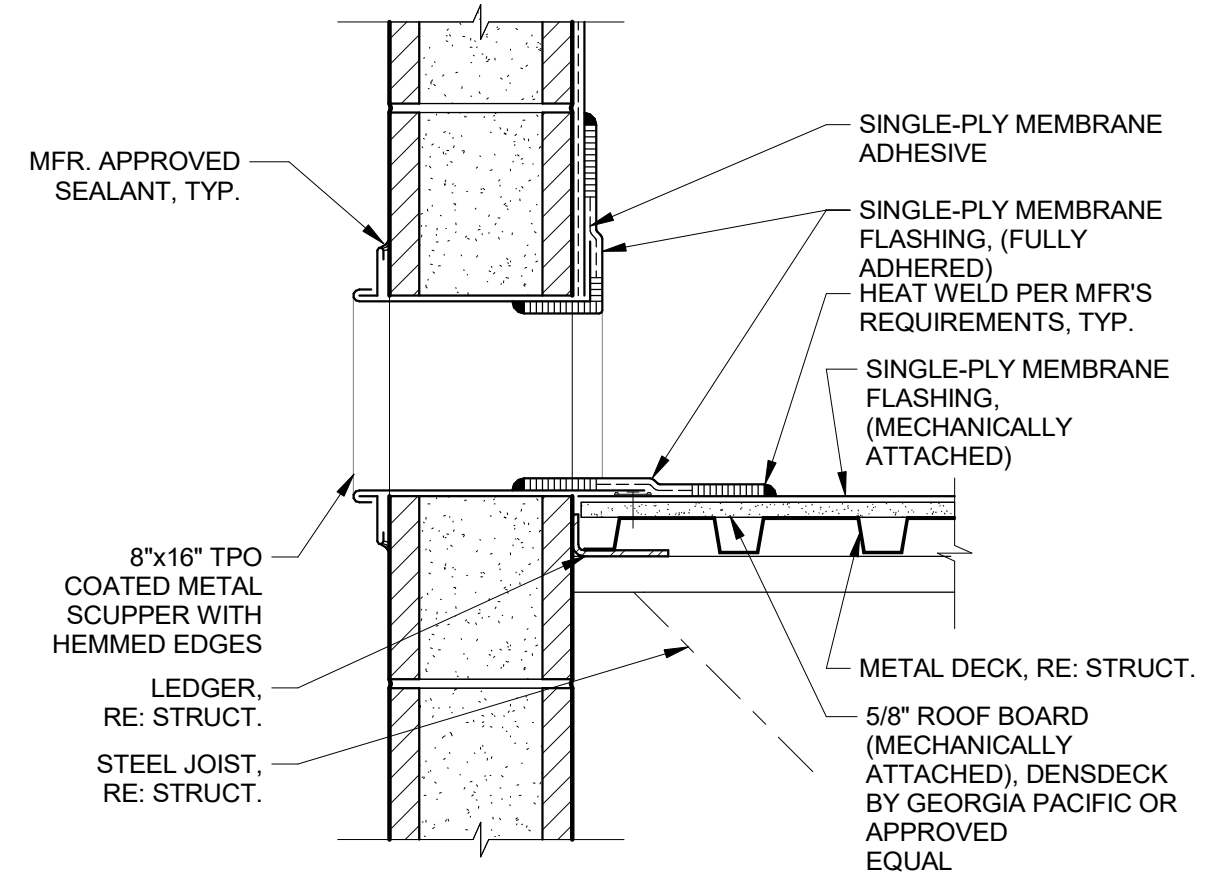
2 ROOF HATCH
3/4" = 1'-0"



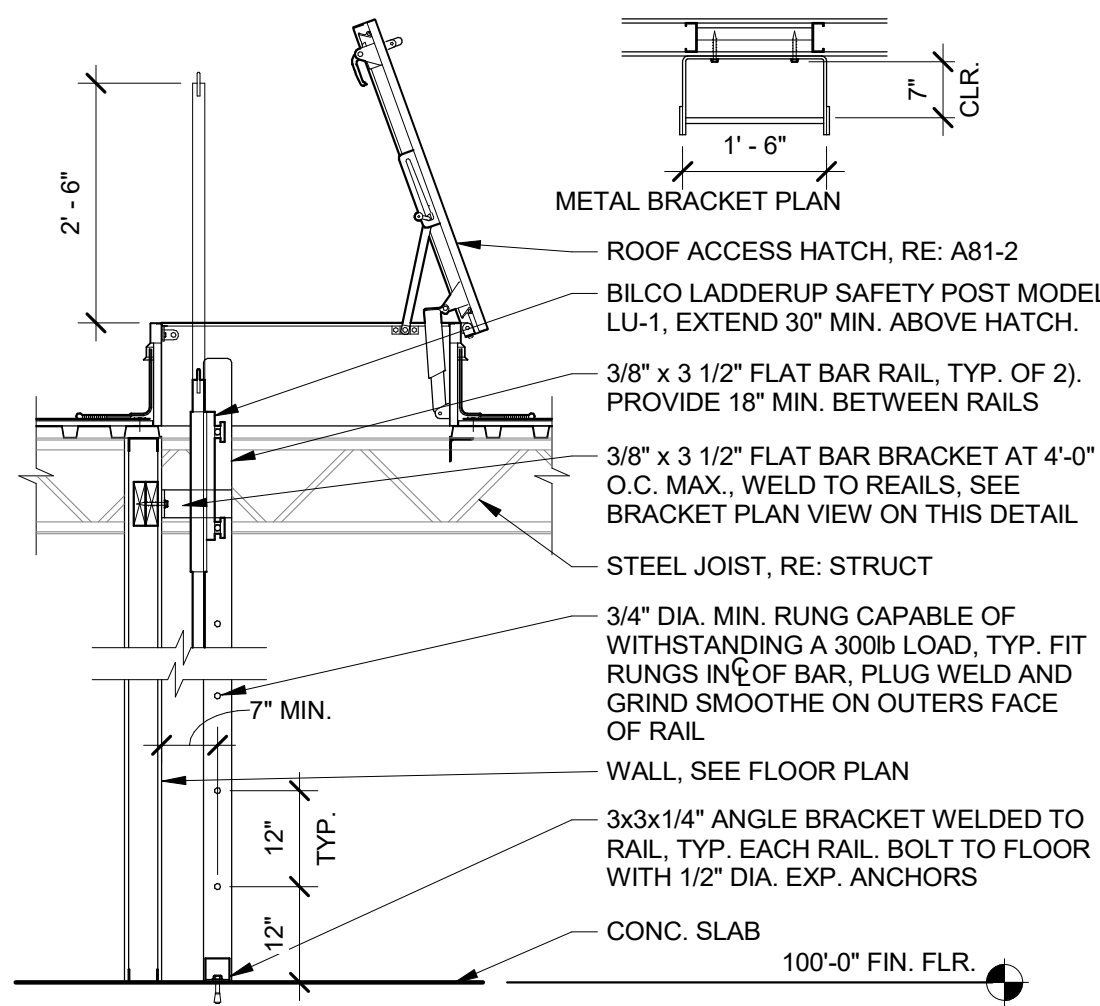
3 ROOF PENETRATION
1" = 1'-0"



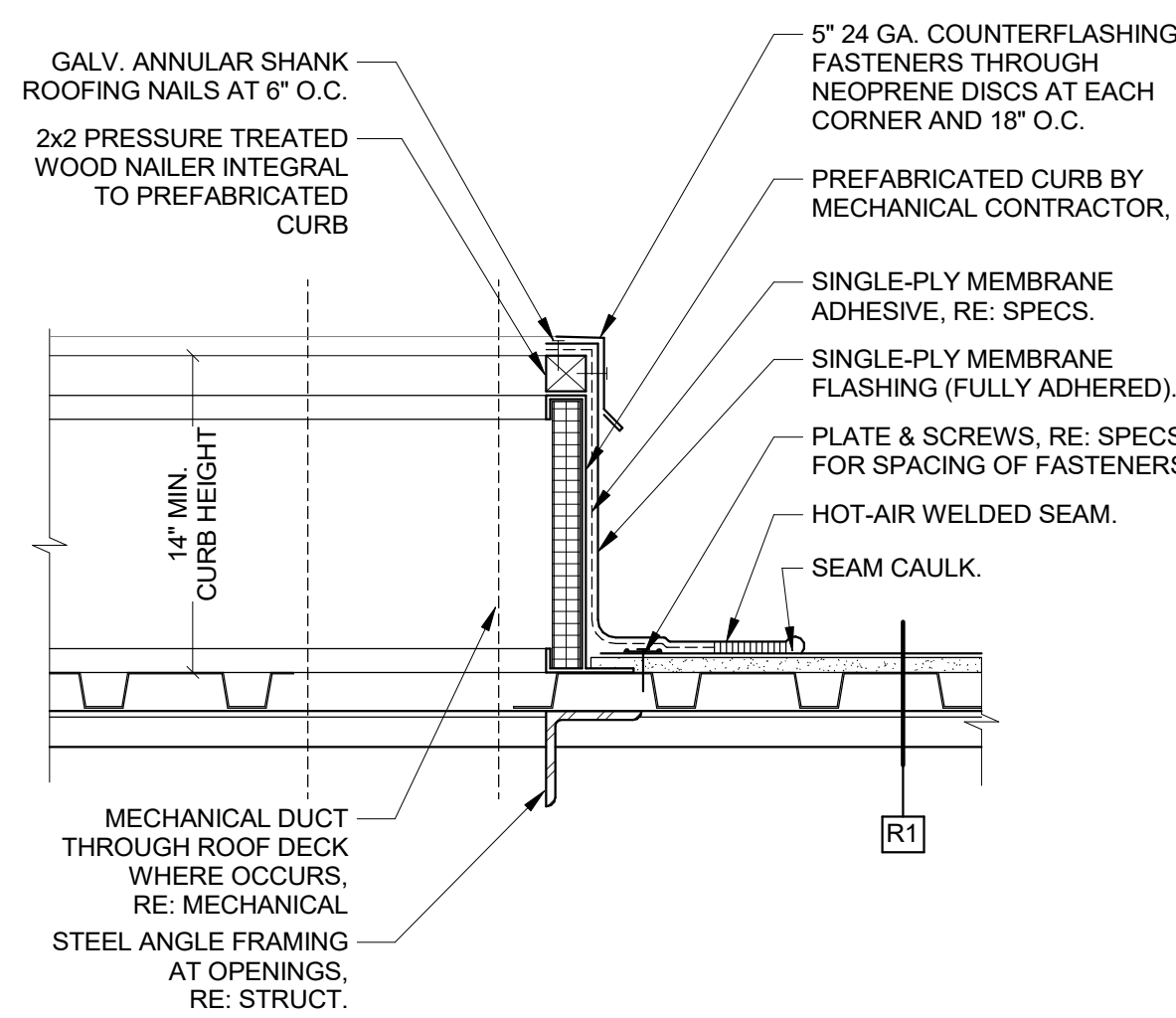
4 ROOF DRAIN / OVERFLOW 1
1 1/2" = 1'-0"



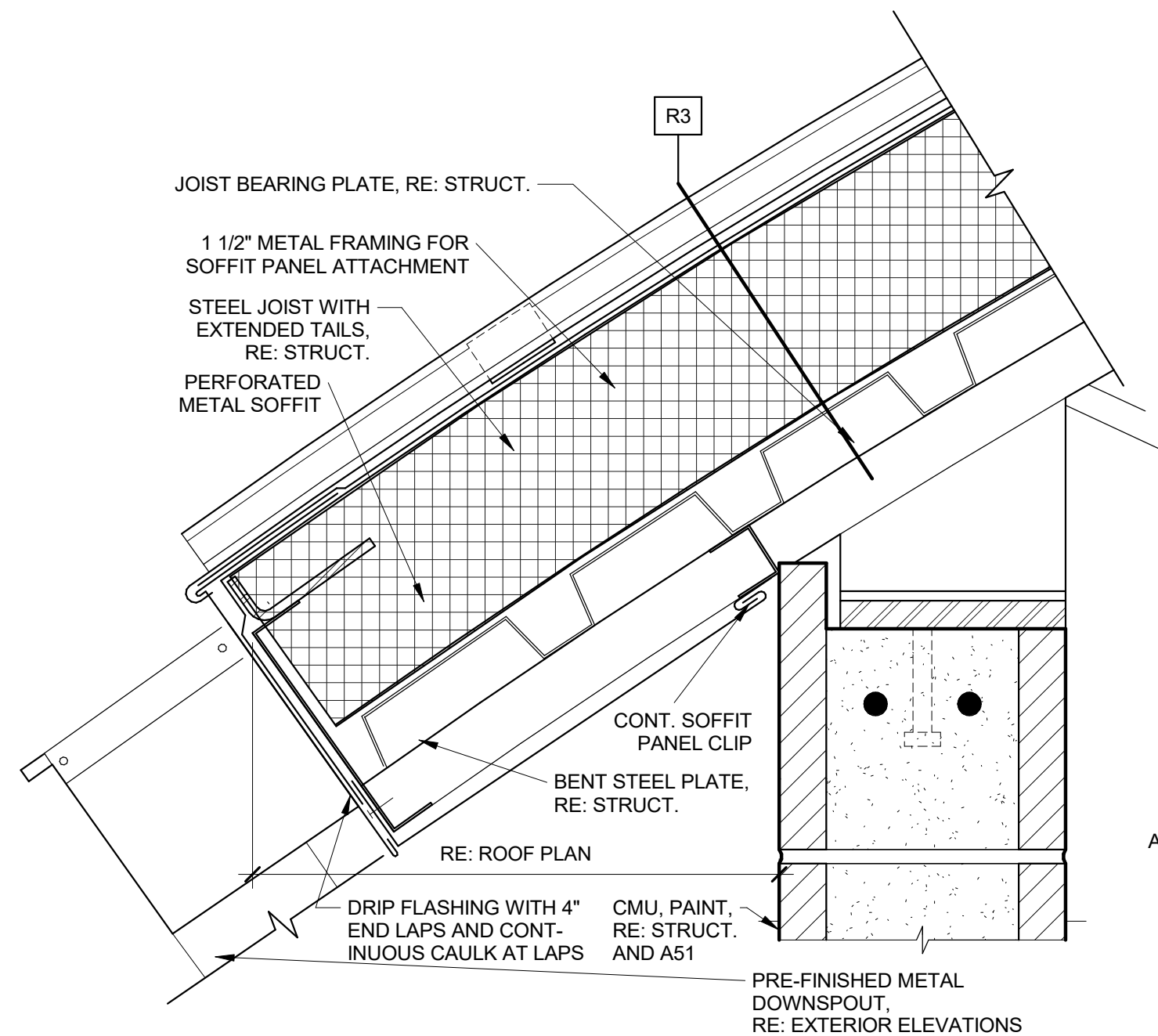
5 ROOF DRAIN / OVERFLOW 2
1 1/2" = 1'-0"



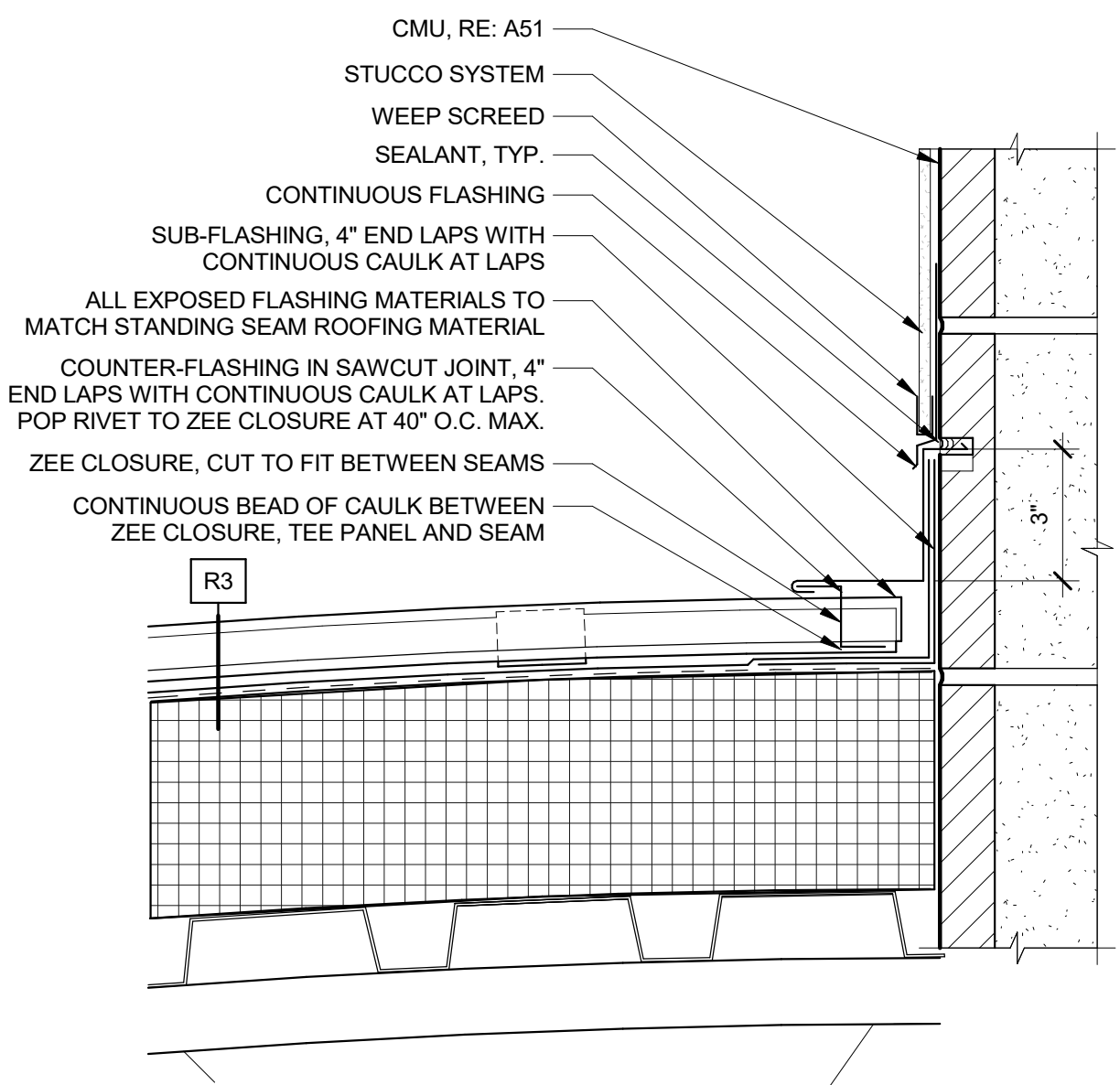
6 ROOF ACCESS LADDER
1/2" = 1'-0"



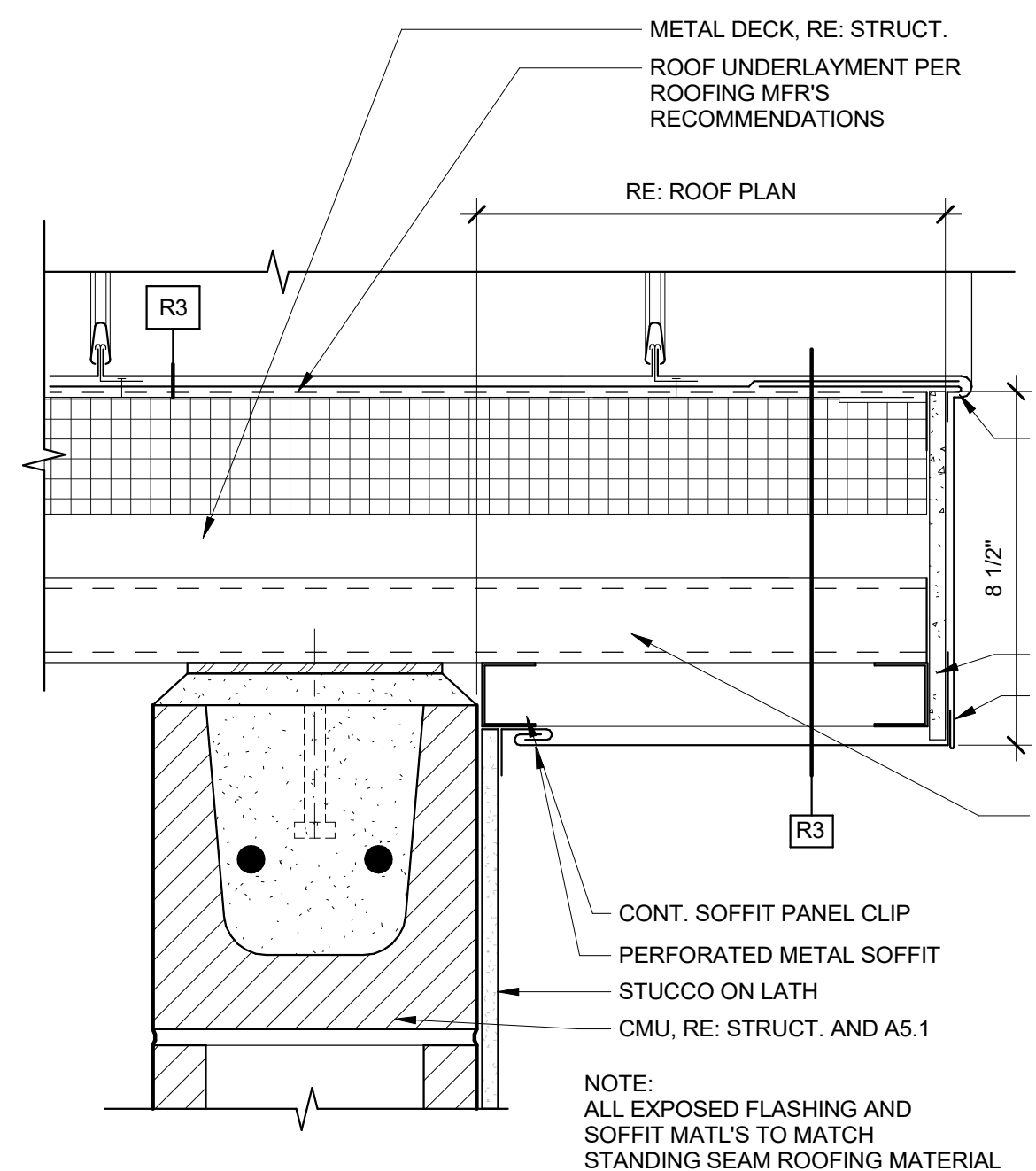
7 PREFABRICATED CURB
1 1/2" = 1'-0"



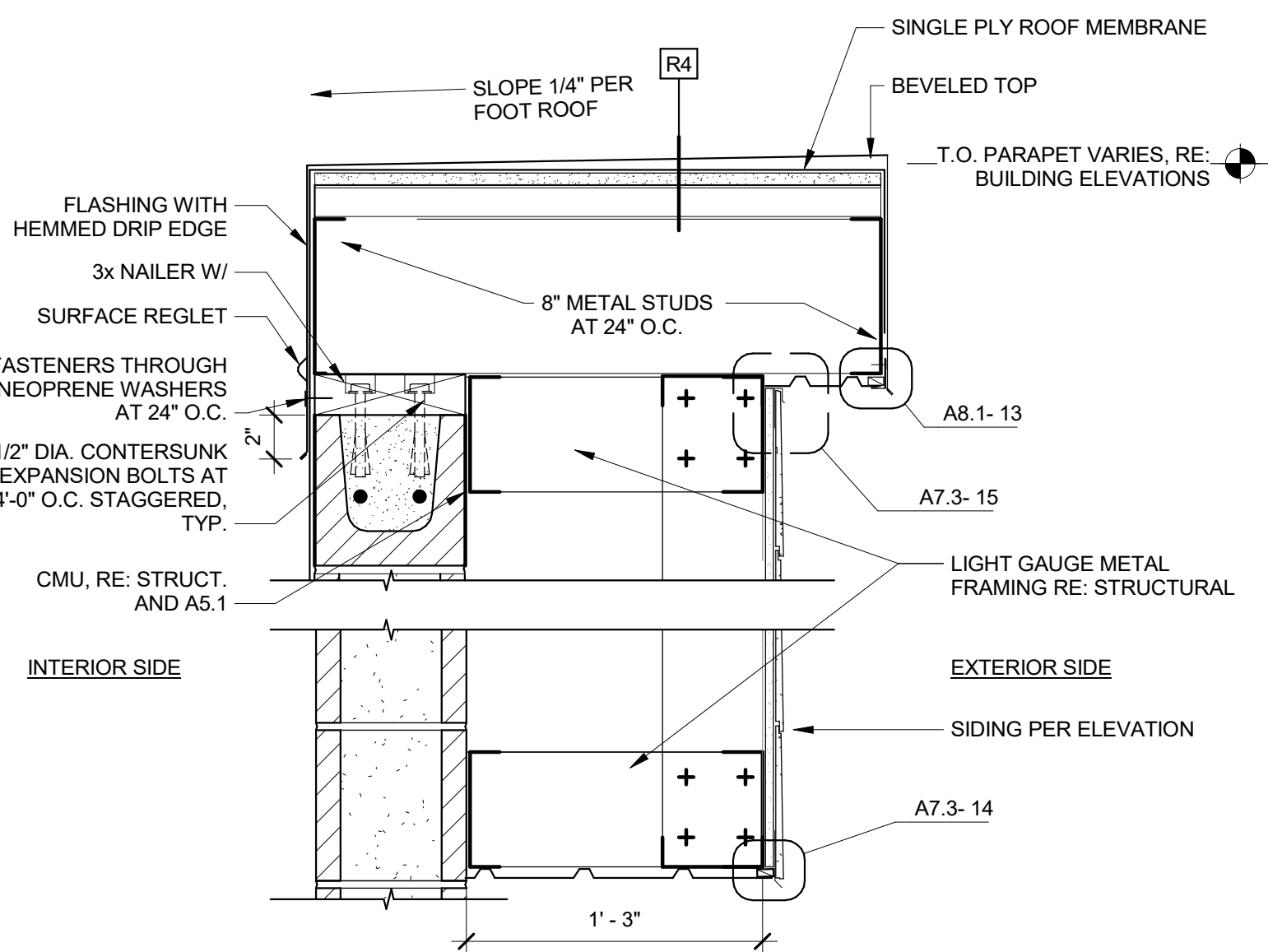
8 ROOF EDGE - INSULATED
3" = 1'-0"



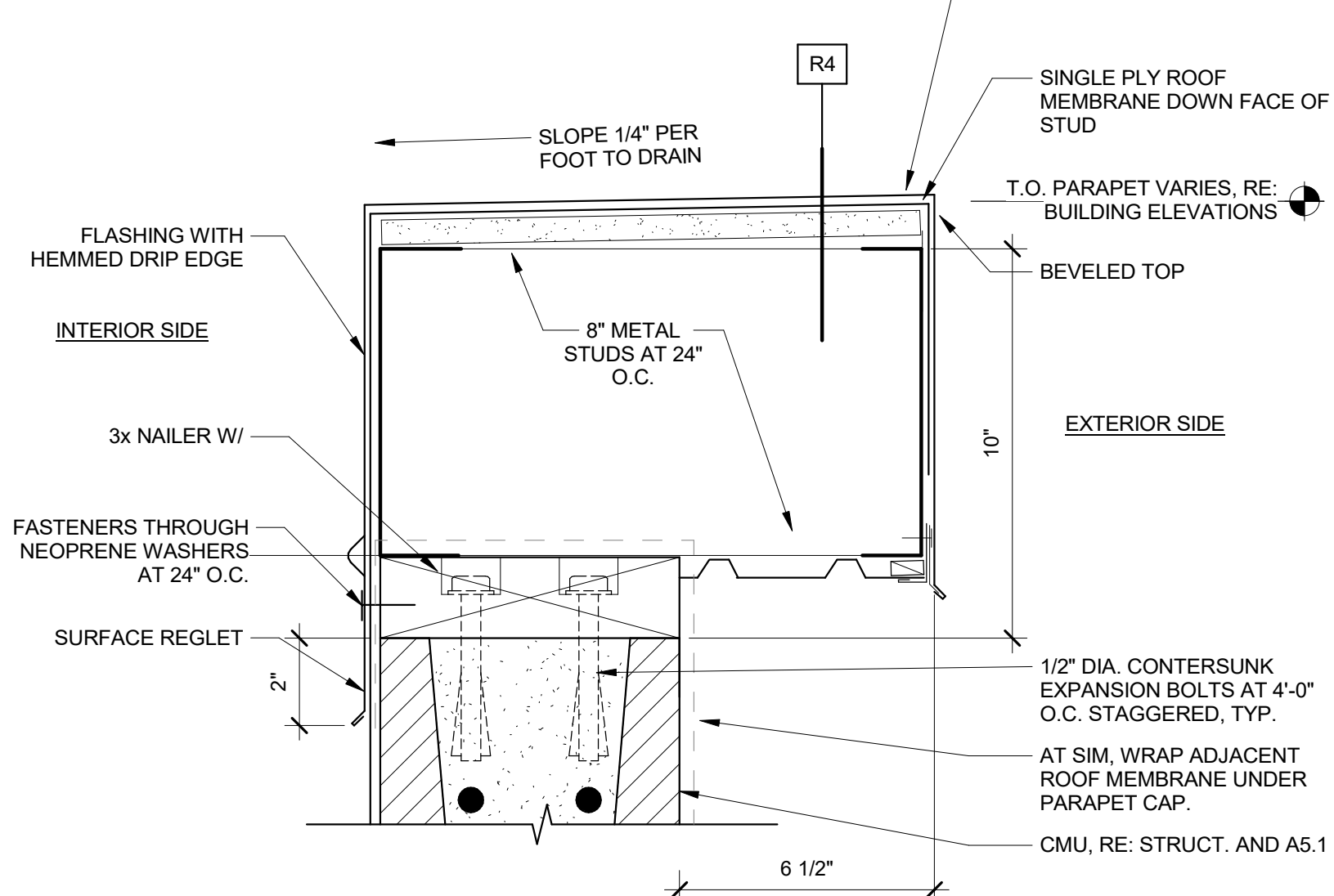
9 VAULTED ROOF TO WALL
3" = 1'-0"



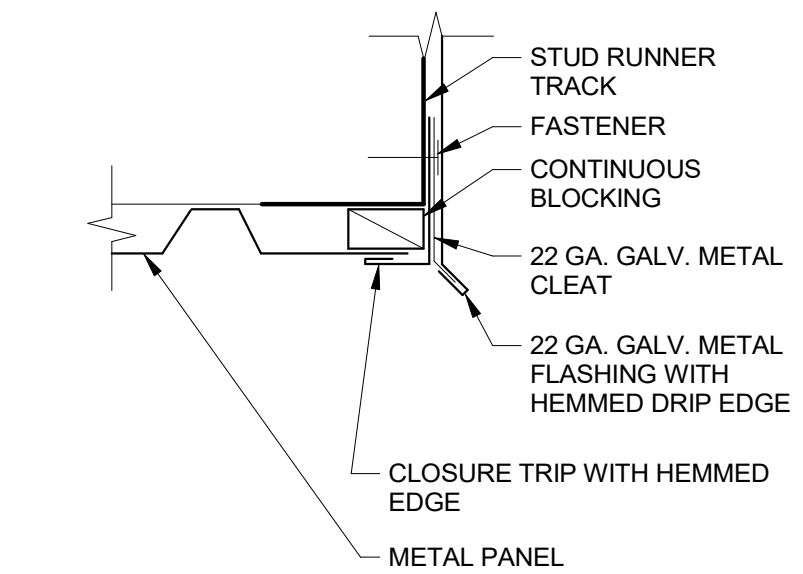
10 VAULTED ROOF RAKE
3" = 1'-0"



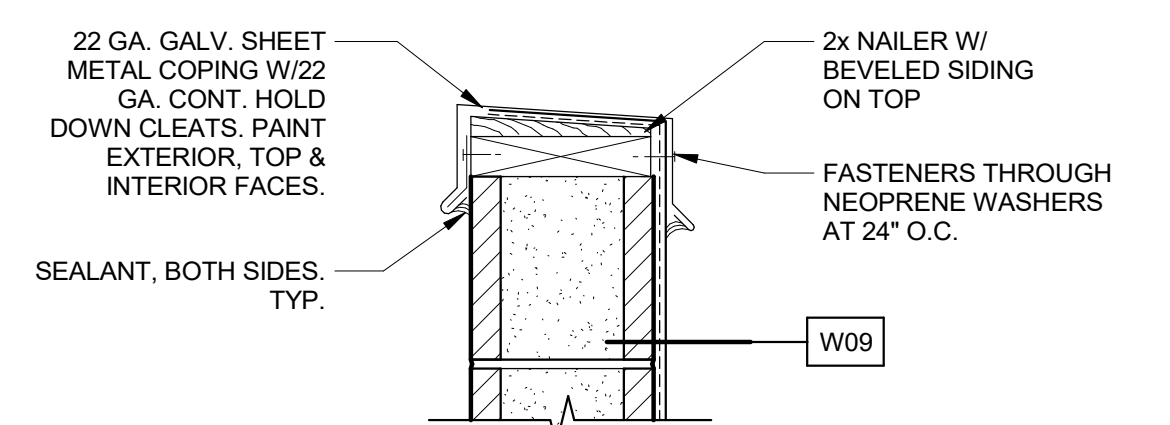
11 TALL PARAPET
1 1/2" = 1'-0"



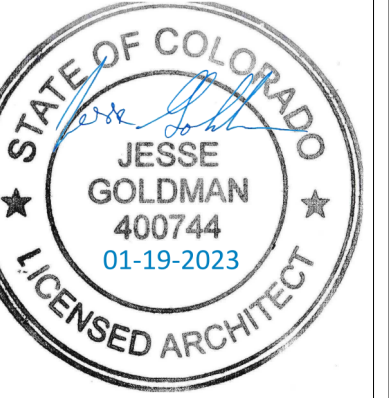
12 PARAPET
3" = 1'-0"



13 DRIP EDGE
6" = 1'-0"



14 CMU SCREEN WALL CAP
1 1/2" = 1'-0"



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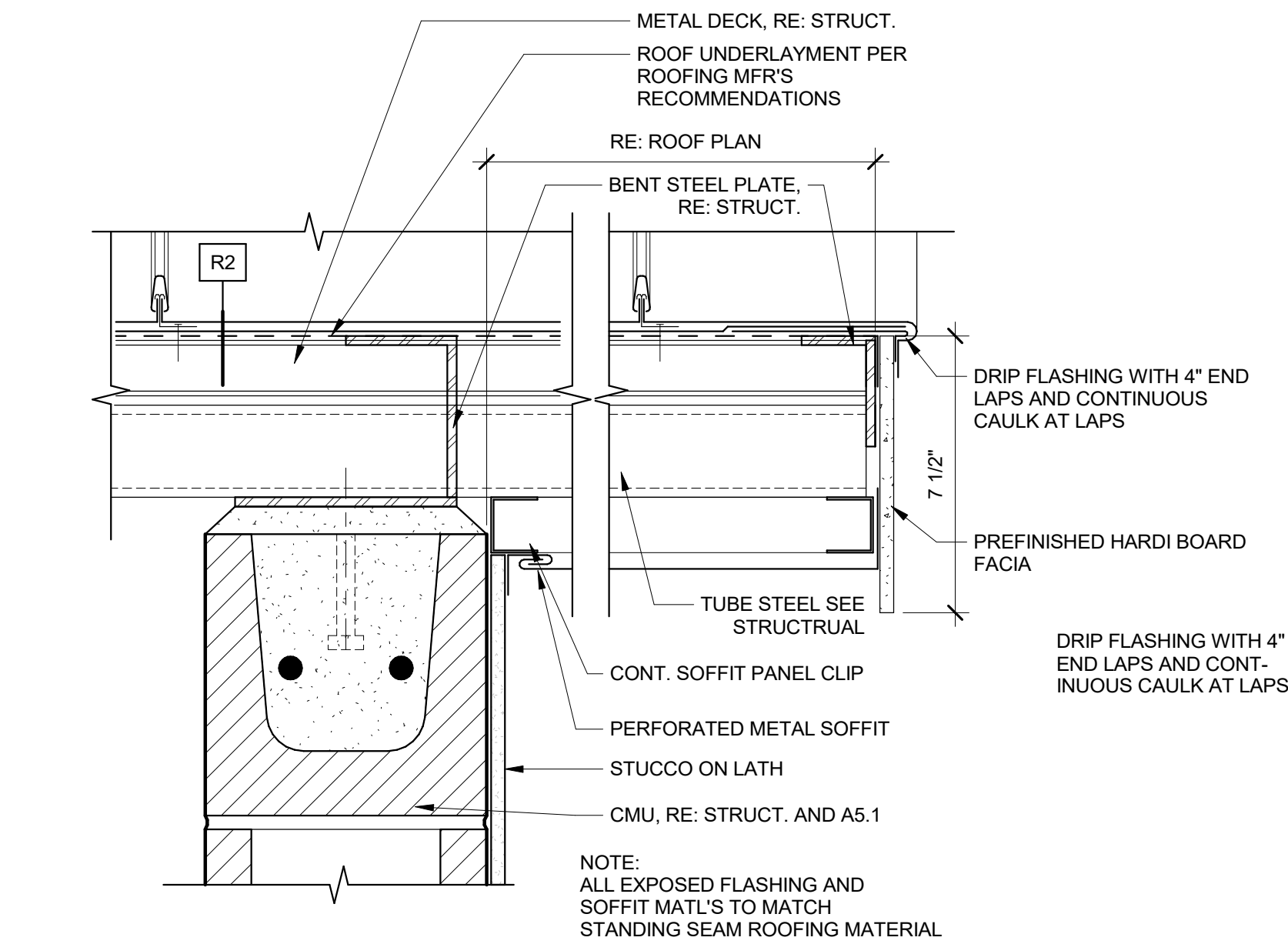
PROJECT
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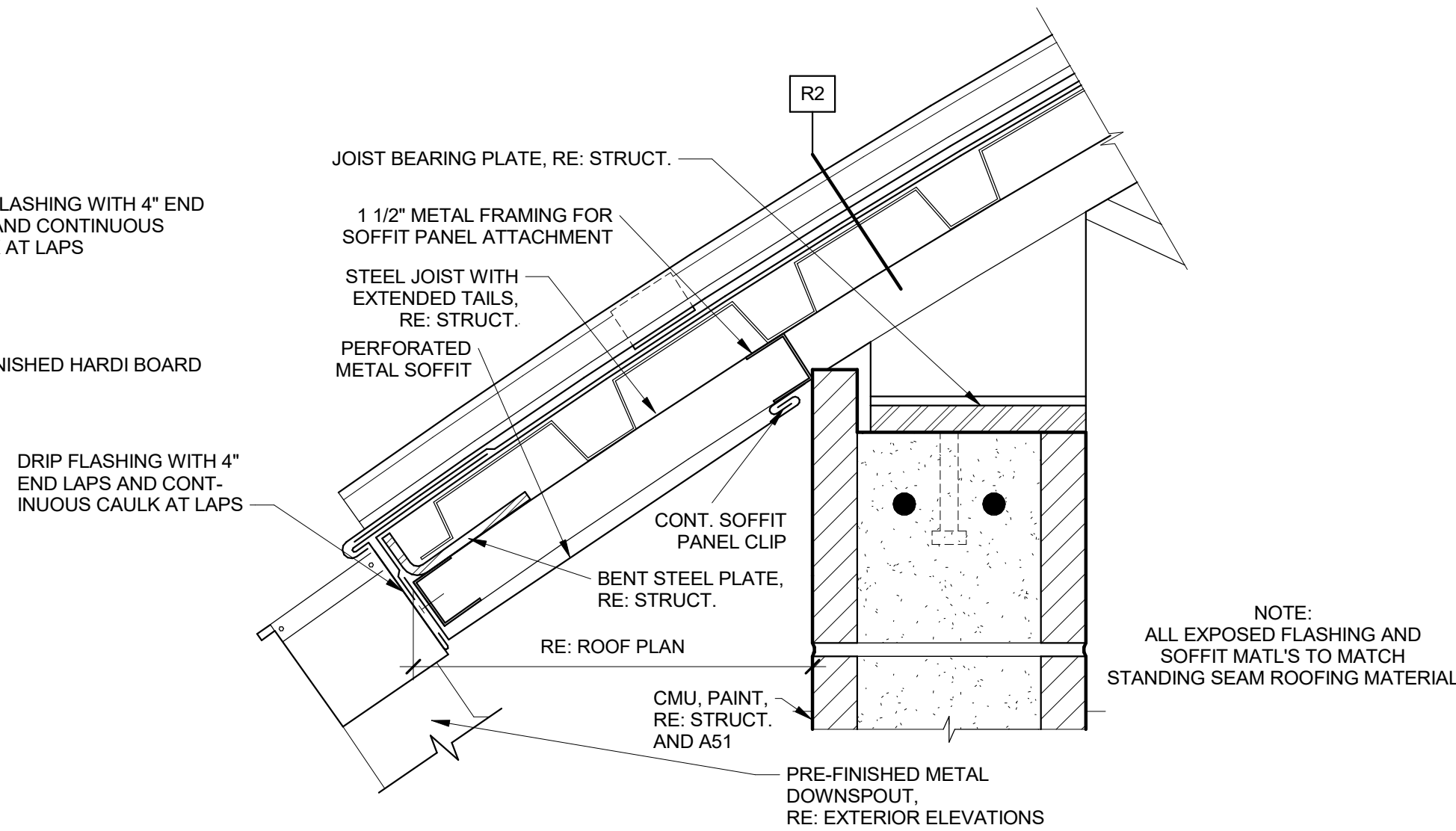
QUICK N CLEAN CAR WASH
9572 TWENTY MILE ROAD
PARKER, CO

SHEET TITLE
ROOFING
DETAILS

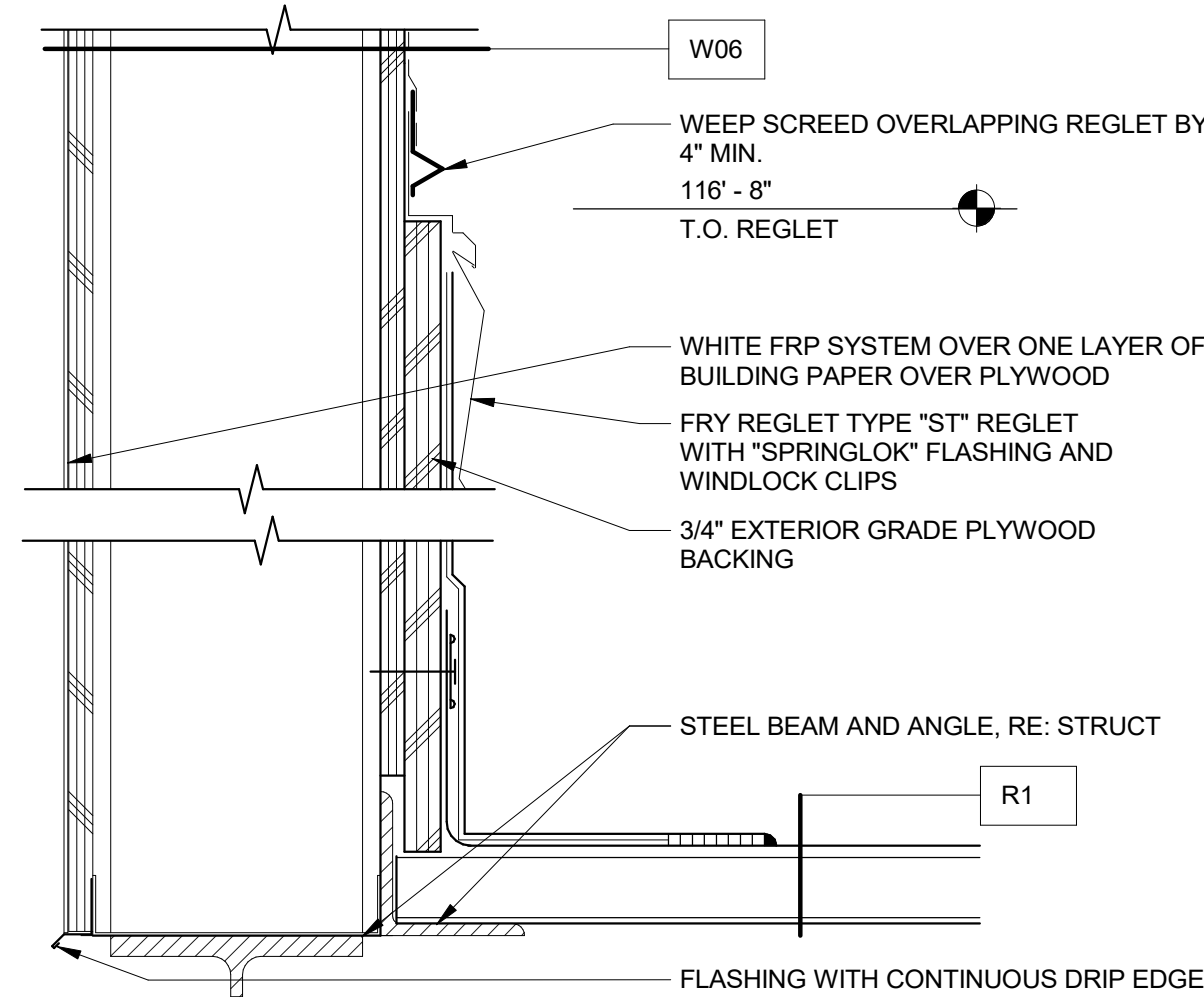
SHEET
A8.1
ORIGINAL SHEET SIZE
24" x 36"



1 VAULTED ROOF RAKE AT EXIT
3" = 1'-0"



2 ROOF EDGE
3" = 1'-0"



3 FRAME WALL FLASHING
3" = 1'-0"



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CSHQA

PROJECT 20037.000	DATE 3-15-2023
DRAWN Author	CHECKED Checker

REVISED

SHEET TITLE
**ROOFING
DETAILS**

SHEET

A8.2
ORIGINAL SHEET SIZE
24" x 36"

PLUMBING SPECIFICATIONS AND NOTES

- THE CONTRACTOR, AND HIS SUBCONTRACTORS AND SUPPLIERS, SHALL INCLUDE IN HIS BID ALL MATERIALS, LABOR, AND EQUIPMENT INVOLVED, IN ACCORDANCE WITH ALL LOCAL CUSTOMS, CODES, RULES, REGULATIONS; AND SECURE COMPLIANCE OF ALL PARTS OF THE SPECIFICATIONS AND DRAWINGS REGARDLESS OF SECTIONAL INCLUSION IN THESE SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE AND SATISFACTORY ACCOMPLISHMENT OF ALL WORK INCLUSIVE OF WHATEVER MISCELLANEOUS MATERIAL AND/OR APPURTENANCES ARE REQUIRED TO PERFECT THE INSTALLATION, AND DEMONSTRATE THAT ALL ELECTRICAL SYSTEMS WILL OPERATE SATISFACTORILY UNDER NORMAL OPERATING CONDITIONS.
 - DO NOT SCALE DRAWINGS. THE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL LOCATION AND ARRANGEMENT OF EQUIPMENT, PIPING AND RELATED ITEMS. THEY SHALL BE FOLLOWED AS CLOSELY AS ELEMENTS OF THE CONSTRUCTION WILL PERMIT. THE CONTRACTOR SHALL PROVIDE/INSTALL ALL PLUMBING SYSTEMS, AND ASSOCIATED EQUIPMENT, COMPLETE AND INCLUDE ALL NECESSARY OFFSETS, FITTINGS, AND OTHER COMPONENTS REQUIRED DUE TO INTERFERENCES, SPACE CONSTRAINTS, CODE REQUIREMENTS, ETC. AS REQUIRED TO PROVIDE A COMPLETE/FUNCTIONAL SYSTEM.
 - WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES. CONTRACTOR SHALL GUARANTEE THAT ALL LABOR, MATERIALS, AND EQUIPMENT ARE FREE FROM DEFECTS AND AGREES TO REPLACE OR REPAIR ANY PART OF THIS INSTALLATION WHICH BECOMES DEFECTIVE WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION FOLLOWING FINAL ACCEPTANCE. ACCEPTANCE DATE OF SUBSTANTIAL COMPLETION SHALL BE AS ENGINEER. DETERMINED BY THE ARCHITECT AND/OR ENGINEER.
 - SIZES, INVERTS AND POINTS OF CONNECTION OF EXISTING PLUMBING PIPING AND UTILITIES SHALL VERIFIED IN THE FIELD PRIOR TO BEGINNING WORK.
 - PROVIDE COMPLETE MAINTENANCE AND OPERATING INSTRUCTIONAL MANUALS COVERING ALL PLUMBING EQUIPMENT AND INDIVIDUAL EQUIPMENT SPECIFICATION SECTIONS.
 - ALL SHOP DRAWINGS AND EQUIPMENT SUBMITTALS SHALL BE SUBMITTED AS A COMPLETE PACKAGE, NOT PIECE MAIL. ALL SUBMITTALS SUBMITTED INDIVIDUALLY SHALL BE RETURNED UNCHECKED. EXCEPTIONS TO THIS ONLY SHALL INCLUDE LONG LEAD ITEMS.
 - INSTALL EQUIPMENT IN STRICT ACCORDANCE WITH ALL DIRECTIONS AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURER. WHERE SUCH DIRECTIONS ARE IN CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS, REPORT SUCH CONFLICTS TO THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION.
 - PROVIDE AND INSTALL SCHEDULE 40 BLACK STEEL PIPE SLEEVES, CUT TO LENGTH, WHEREVER PIPES PASS THROUGH ABOVE GRADE WALLS AND FLOORS. PROVIDE AND INSTALL GALVANIZED STEEL PIPE SLEEVES, CUT TO LENGTH, WHEREVER PIPES PASS THROUGH BELOW GRADE FOUNDATION WALLS AND SLAB ON GRADE FLOORS. SLEEVES SHALL TERMINATE FLUSH WITH WALLS IN FINISHED AREAS. ALL SLEEVES THROUGH THE FLOOR ARE TO EXTEND TWO (2) INCHES ABOVE FINISH FLOOR. PROVIDE ESCUTCHEONS AT EACH PENETRATION THROUGH WALLS, FLOORS, AND CEILINGS IN PROVIDE ADEQUATE CLEARANCE TO SEAL THE SPACE AROUND PIPES AND SLEEVES THROUGH WALLS, FLOORS AND CEILINGS. PATCH SLEEVES TO MATCH BUILDING MATERIAL IN EXPOSED AREAS. ALLOW FOR PROPER PIPE MOVEMENT AND SEALING.
 - PENETRATIONS OF FIRE RATED WALLS OR FLOORS BY PIPE SHALL BE SEALED BY A FIRESTOPPING SYSTEM UL LISTED FOR THE APPLICATION IN ACCORDANCE WITH THE WALL RATING. PENETRATION SEAL MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH PRINTED INSTRUCTIONS OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURERS INSTRUCTIONS. FIRESTOPPING SYSTEM SHALL BE EQUAL TO 3M FIRE BARRIER. FIRESTOPPING MATERIAL SHALL BE CAULK OR PUTTY TYPE.
 - PROVIDE ALL EXCAVATION, TRENCHING, TUNNELING AND BACKFILLING REQUIRED FOR THE PLUMBING WORK IN ACCORDANCE WITH ADOPTED PLUMBING CODES.
 - MAKE CONNECTIONS TO EQUIPMENT, FIXTURES AND OTHER ITEMS INCLUDED IN THE WORK IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS AND ROUGH-IN MEASUREMENTS FURNISHED BY THE MANUFACTURES OF THE PARTICULAR EQUIPMENT FURNISHED.
 - TEST DRAINAGE PIPING SYSTEMS IN ACCORDANCE WITH THEIR RESPECTIVE AND APPLICABLE GOVERNING CODES. TEST DRAINAGE AND WASTE PIPING HYDRAULICALLY BY FILLING THE SYSTEM TO ITS HIGHEST POINT OR AT A STATIC HEAD OF 10 FEET, WHICHEVER IS HIGHER.
 - PRESSURE TEST PLUMBING PIPING (DOMESTIC COLD WATER, DOMESTIC HOT WATER, ETC.) IN ACCORDANCE WITH GOVERNING AND APPLICABLE CODES. AT MINIMUM, TEST WITH WATER AT 225 PSIG – PERMISSIBLE PRESSURE DROP SHALL BE 0 PSIG OVER 2 HOUR PERIOD.
 - DOMESTIC WATER PIPING SHALL BE INSULATED IN ACCORDANCE WITH TABLE C403.11.3 OF THE IECC AND WITH GOVERNING AND APPLICABLE CODES. INSULATION SHALL HAVE A VAPOR BARRIER WITH SELF-SEALING ADHESIVE JOINTS. INSULATED PIPING EXPOSED TO VIEW SHALL BE COVERED AND FINISHED WITH A 30 MIL, 1" THICK PVC JACKET. FITTINGS, VALVES AND ACCESSORIES SHALL ALSO BE JACKETED.
- PIPING SHALL BE IDENTIFIED WITH PLASTIC PIPE MARKERS IN CLEAR VIEW AND ALIGNED WITH AXIS OF PIPING. SERVICE AND FLOW DIRECTION SHALL BE INDICATED. DISTANCE BETWEEN IDENTIFICATION LOCATIONS SHALL NOT EXCEED 20 FEET. IDENTIFICATION SHALL BE LOCATED AT EACH VALVE, RUNOUT AND ON BOTH SIDES OF AN OBSTRUCTION.
- PROVIDE EXTENDED STEMS ON VALVE TO KEEP HANDLES CLEAR OF INSULATION.
- PIPE HANGER SPACING:
- METAL PIPING:
- PIPE SIZE: 1/2 INCHES TO 1-1/4 INCHES: MAXIMUM HANGER SPACING: 6.5 FT. HANGER ROD DIAMETER: 3/8 INCHES.
- PIPE SIZE: 1-1/2 INCHES TO 2 INCHES: MAXIMUM HANGER SPACING: 10 FT. HANGER ROD DIAMETER: 3/8 INCH.
- PIPE SIZE: 2-1/2 INCHES TO 3 INCHES: MAXIMUM HANGER SPACING: 10 FT. HANGER ROD DIAMETER: 1/2 INCH.
- PIPE SIZE: 4 INCHES TO 6 INCHES: MAXIMUM HANGER SPACING: 10 FT. HANGER ROD DIAMETER: 5/8 INCH.
- PLASTIC PIPING:
- ALL SIZES: MAXIMUM HANGER SPACING: 4 FT. HANGER ROD DIAMETER: 3/8 INCH.
- VENTS TERMINATED ABOVE ROOF SHALL BE 10' MINIMUM FROM OUTSIDE AIR INTAKES AND/OR OPERABLE WINDOWS.
- FIXTURE LOCATIONS AND MOUNTING HEIGHTS SHALL BE ACCORDING TO THE ARCHITECTURAL DRAWINGS.
- INSTALL WATER HAMMER ARRESTORS COMPLETE WITH ACCESSIBLE ISOLATION VALVE ON HOT AND COLD WATER SUPPLY PIPING TO LAVATORIES, SINKS, WASHING MACHINE OUTLETS, WATER CLOSETS, URINALS, DISHWASHERS, BATHTUBS/SHOWERS, AND OTHER APPLICABLE FIXTURE LOCATIONS WITH QUICK CLOSING VALVES. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
- INSTALL ASSE 1070 LISTED "POINT OF USE" THERMOSTATIC MIXING VALVES AT ALL FIXTURES (LAVATORIES, SINKS, ETC.). PROVIDE LAV-SHIELDS UNDER ALL ACCESSIBLE LAVATORIES FOR PROTECTION AGAINST CONTACT AS REQUIRED BY CODE.

PLUMBING SHEET INDEX/CODES

JURISDICTION: PARKER, COLORADO		ISSUE			
		01/18/23	03/27/23	PERMIT SET	AGENCY COMMENTS
PLUMBING CODE: 2021 INTERNATIONAL PLUMBING CODE					
FUEL GAS CODE: 2021 INTERNATIONAL FUEL GAS CODE					
ENERGY CODE: 2021 INTERNATIONAL ENERGY CONSERVATION CODE					
SHEET NO.	SHEET DESCRIPTION				
P0.1	PLUMBING COVER SHEET	X	X		
P0.2	PLUMBING SCHEDULES	X	X		
P1.1	PLUMBING FLOOR PLAN	X	X		
P1.2	PLUMBING ROOF PLAN	X	X		
P2.1	PLUMBING DETAILS	X	X		
P2.2	PLUMBING ISOMETRIC	X	X		

PIPING	ABBR	DESCRIPTION	FIX/EQUIP	ABBR	DESCRIPTION
(E)	(E)	EXISTING PIPING	⊗	RD	ROOF DRAINS (FLOOR ABOVE)
----	----	DEMO PIPING TO BE REMOVED	⊗	RD	ROOF DRAINS (SAME FLOOR)
W	W	WASTE (ABOVE GRADE)	←	DSN	DOWNSPOUT NOZZLE
V	V	VENT	⊗		PUMP
SOD	SOD	SAND/OIL DRAIN (ABOVE GRADE)	+	HB	HOSE BIBB
SOD	SOD	SAND/OIL DRAIN (BELOW GRADE)			
SD/OSD	SD/OSD	STORM DRAIN (ABOVE GRADE)			
SD/OSD	SD/OSD	STORM DRAIN (BELOW GRADE)			
F	F	FIRE LINE PIPING	(R)		REMOVE OR RELOCATE
CW	CW	COLD WATER PIPING	(E)		EXISTING
HW	HW	HOT WATER PIPING	(N)		NEW
HWR	HWR	HOT WATER RECIRC. PIPING	(REF)		REFERENCE
T	T	TEMPERED WATER (TEMP. LISTED)	DFU		DRAINAGE FIXTURE UNIT
G	G	GAS PIPING	WSFU		WATER SUPPLY FIXTURE UNIT
MG	MG	MEDIUM PRESSURE GAS PIPING	AFF		ABOVE FINISHED FLOOR
GV	GV	GAS PRESSURE REGULATOR VENT	AFG		ABOVE FINISHED GRADE
D	D	DRAIN PIPING	BFF		BELOW FINISHED FLOOR
			BFG		BELOW FINISHED GRADE
			BTUH		BRITISH THERMAL UNIT PER HOUR
			CFH		CUBIC FEET PER HOUR
			CO		CLEANOUT
			°F		DEGREE FAHRENHEIT
			FPM		FEET PER MINUTE
			FS		FLOOR SINK
			FD		FLOOR DRAIN
			FT WC		FEET WATER COLUMN
			IN WC		INCHES WATER COLUMN
			IRR		IRRIGATION
			GAL		GALLON
			GPH		GALLONS PER HOUR
			GPM		GALLONS PER MINUTE
			KW		KILOWATTS
			MAX		MAXIMUM
			MIN		MINIMUM
			MBH		THOUSAND BTUH
			MCA		MINIMUM CIRCUIT AMPS
			MOCP		MAXIMUM OVER CURRENT PROTECTION
			NTS		NOT TO SCALE
			OSD		OVERFLOW STORM DRAIN
			ORD		OVERFLOW ROOF DRAIN
			PRESS		PRESSURE
			PSI		POUNDS PER SQUARE INCH
			PW		PUMPED WASTE
			SPECS		SPECIFICATIONS
			SP		STATIC PRESUSURE
			SD		STORM DRAIN
			TYP		TYPICAL
			W/O		WITH
			W/O		WITHOUT
VALVES	ABBR	DESCRIPTION	SYMBOLS	ABBR	DESCRIPTION
SOV	SOV	SHUT-OFF VALVE	F	F-1	DESIGNATION
CV	CV	CHECK VALVE WITH INDICATION OF FLOW DIRECTION	1		
PRV	PRV	PRESSURE REDUCING VALVE	1		SHEET KEY NOTES
SV	SV	SOLENOID VALVE	⊗	POC	POINT OF CONN. (CONN. NEW TO EXISTING)
CS,BV	CS,BV	CIRCUIT SETTER OR BALANCING VALVE	⊗	POD	POINT OF DISCONNECTION
TPR	TPR	TEMPERATURE/ PRESSURE RELIEF VALVE			
STR	STR	STRAINER W/ BLOW-OFF & CAPPED HOSE- END CONNECTION			
GV	GV	GAS VALVE/COCK			
GPR	GPR	GAS PRESSURE REGULATOR			

PLUMBING BASIS OF DESIGN

DOMESTIC WATER TAP:

PER EMAIL CONVERSATION (10/19/22) WITH THE CITY OF PARKER WATER AND SANITATION DISTRICT (303.841.4627), THE AVAILABLE WATER PRESSURE IS BETWEEN 108 AND 115 PSI. THE DESIGN WILL USE 108 PSI FOR THE DOMESTIC WATER PIPE SIZING.

THE BUILDING WILL BE SERVED BY A 1-1/2" TAP UPSIZED TO 2", FIVE- FEET AFTER THE METER VAULT. EXTEND 2" DOMESTIC WATER SUPPLY INTO THE EQUIPMENT ROOM TO A 2" BACKFLOW PREVENTER AND 2" DISTRIBUTION. SEE DETAIL A/P2.1.

DESIGN PRESSURE SHALL BE 80 PSI (MAX). PLUMBING CONTRACTOR SHALL FIELD VERIFY PRESSURE PROVIDED PRIOR TO STARTING WORK AND NOTIFY ENGINEER IF PRESSURE IS DIFFERENT. PROVIDE A PRESSURE REDUCING VALVE AS REQUIRED PER CODE TO MAINTAIN THIS MAXIMUM PRESSURE.

NATURAL GAS SYSTEM:

PER PHONE CONVERSATION (10/19/22) WITH XCEL ENERGY BUILDER'S CALL LINE (800-628-2121), THE AVAILABLE GAS PRESSURE IS A POUNDS MEDIUM SYSTEM (2 PSI OR 6" WC AVAILABLE). THE DESIGN WILL USE 2 PSI GAS PRESSURE FOR THE GAS PIPE SIZING.

CONTRACTOR TO COORDINATE ALL GAS METER AND GAS PRESSURE WORK WITH UTILITY COMPANY AS REQUIRED. NOTIFY ENGINEER IF PRESSURE IS DIFFERENT.

STORM DRAINAGE:

PER IPC APPENDIX B, THE STORM DRAINAGE SYSTEM HAS BEEN SIZED USING THE 3.0 INCHES PER HOUR RAINFALL RATE FOR COLORADO SPRINGS, COLORADO. THE DESIGN WILL USE HORIZONTAL PIPE SIZES BASED ON AN 1/4" PER FOOT SLOPE.

SAND/OIL INTERCEPTOR SIZING CALCULATION:

TOTAL TUNNEL WASH AREA (INCLUDING EQUIPMENT ROOM) = 4,631 SQUARE FEET

6 CUBIC FEET FOR FIRST 100 SQUARE FEET

1 CUBIC FOOT FOR EACH ADDITIONAL 100 SQUARE FEET

6 + 1*45.31 = 51.31 CUBIC FEET = 384 GALLONS (OWNER REQUESTS A 1,000 GALLON SAND/OIL INTERCEPTOR)

PLUMBING MATERIAL SCHEDULE

WASTE/STORM PIPING (ABOVE GRADE): ALL SIZES SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS SOLVENT WELD JOINTS.

WASTE/STORM PIPING (BELOW GRADE): ALL SIZES SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS SOLVENT WELD JOINTS.

VENT PIPING (ABOVE GRADE): ALL SIZES SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS SOLVENT WELD JOINTS.

DOMESTIC WATER (BELOW GRADE): SIZES 1/2" TO 2-1/2" SHALL BE TYPE K COPPER WITH COPPER PRESSURE-SEALED FITTINGS AND JOINTS.

DOMESTIC WATER (ABOVE GRADE): SIZES 1/2" TO 2-1/2" SHALL BE TYPE L COPPER WITH WROUGHT COPPER FITTINGS AND LEAD-FREE SOLDER JOINTS.

CONDENSATE DRAINS (ABOVE GRADE): ALL SIZES SHALL BE TYPE M COPPER WITH WROUGHT COPPER FITTINGS AND LEAD-FREE SOLDER JOINTS.

GAS PIPING (ABOVE GRADE): SIZES 1/2" TO 2" SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH BLACK MALLEABLE IRON SCREWED FITTINGS AND THREADED JOINTS.

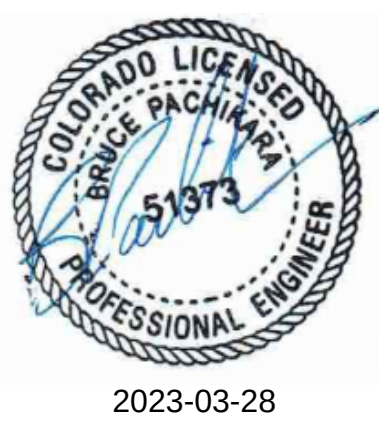
GAS PIPING (ABOVE GRADE): SIZES 2-1/2" AND GREATER OR ROUTED IN AIR PLENUMS SHALL BE BLACK FORGED STEEL SOCKET OR WELD END FITTINGS.

COMPRESSED INSTRUMENT AIR: ALL SIZES SHALL BE TYPE L COPPER WITH WROUGHT COPPER FITTINGS (ASTM B 819), MANUFACTURER CLEANED, DE-GREASED AND IDENTIFIED PRIOR TO INSTALLATION, KEPT SEALED UNTIL PREPARED FOR INSTALLATION. FITTINGS SHALL BE CLEANED FOR OXYGEN SERVICE AND JOINTS SHALL BE SOLDERED. WHERE IN CONFLICT, MANUFACTURER'S EQUIPMENT INSTALLATION INSTRUCTIONS SHALL TAKE PRECEDENCE.

AIR COMPRESSOR VENTS: ALL SIZES OF PIPE AND FITTINGS SHALL BE CAST IRON WITH A CAP AND MESH SCREEN AT WALL (OR ROOF) PENETRATION. VACUUM PIPING SHALL BE INSTALLED WITH 45 DEGREE BENDS. WHERE IN CONFLICT, MANUFACTURER'S EQUIPMENT INSTALLATION INSTRUCTIONS SHALL TAKE PRECEDENCE.

UTILITY COORDINATION

GENERAL CONTRACTOR TO GENERATE AND SUBMIT ALL UTILITY APPLICATIONS WITH LOCAL UTILITY COMPANY PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR RESPONSIBLE TO SUBMIT THIS APPLICATION UPON INITIAL AWARDDING OF PROJECT TO AVOID ANY LAG IN START AND EQUIPMENT LEAD TIMES. THE DESIGN TEAM IS NOT RESPONSIBLE FOR THIS APPLICATION PROCESS OR SUBMITTAL.



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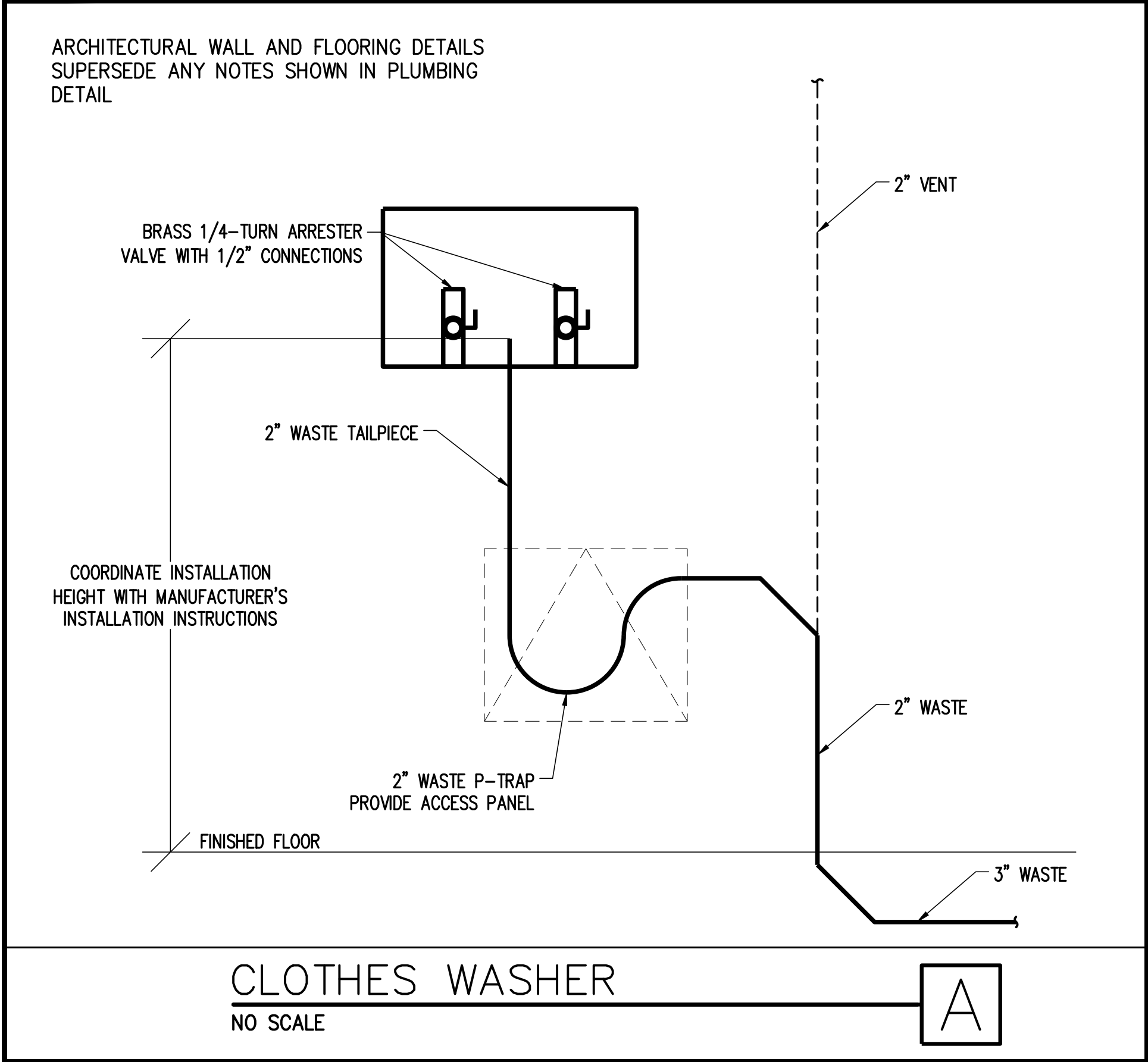
REVISED
Δ AGENCY COMMENTS 3/22/2023

SHEET TITLE
**PLUMBING
COVER
SHEET**

SHEET
P0.1
ORIGINAL SHEET SIZE
24" x 36"



PLUMBING EQUIPMENT SCHEDULE	
EQUIPMENT	DESCRIPTION
WH1	AO SMITH MODEL #BTX-80, 50 GALLON NATURAL GAS WATER HEATER, 76,000 BTUH INPUT, 63 GPH HEAT RECOVERY CAPACITY AT 100°F AND 98 GALLON FIRST HOUR DELIVERY. FURNISH WITH TEMPERATURE & PRESSURE RELIEF VALVE. PROVIDE 2-1/2" DEEP DRAIN PAN AND ROUTE 1-1/4" DRAIN LINE TO NEAREST FLOOR SINK. PROVIDE CONDENSATE NEUTRALIZATION KIT AND INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
ET1	AMTROL MODEL THERM-X-TROL ST-12C DOMESTIC HOT WATER EXPANSION TANK, INLINE MOUNTED WITH TURBULATOR, 6.4 GALLONS TANK, 0.5 GALLONS ACCEPTANCE FACTOR, 11" DIA.x14" HIGH, 3/4" INLET.
HCP1	TACO MODEL 008-BC6 CARTRIDGE CIRCULATOR LEAD-FREE BRONZE DOMESTIC WATER RECIRCULATING PUMP FOR 1.5 GPM @ 14 FT TDH, 115V/1Ø, 0.84 AMPS, 1/25 HP MOTOR @ 3250 RPM. PROVIDE AQUASTAT MODEL #563-2 AND INSTALL AS REQUIRED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
SOI1	OLDCASTLE PRECAST MODEL #SOI-STANDARD SAND/OIL INTERCEPTOR FOR 1,000 GALLON LIQUID CAPACITY. TANK DESIGN FOR H-20 TRAFFIC WHEEL LOAD WITH DRY COIL CONDITIONS. EARTH COVER OVER TANK NOT TO EXCEED 8 FEET. FURNISH WITH (2) 24" DIAMETER GASKETED H-20 TRAFFIC COVERS. PROVIDE EXTRA RISERS AS REQUIRED TO MATCH GRADE, 6" INLET & OUTLET.



GAS LOAD SCHEDULE				
ITEM	QTY	GAS LOAD (MBH)	GAS LOAD (CFH)	SUBTOTAL (CFH)
CAR WASH HEATERS (PROVIDED BY OTHERS)	2	550	661.9	1323.8
B1B2B3	3	250	300.8	902.4
RTU1	1	115	138.4	138.4
WH1	1	76	91.5	91.5
GUH1	1	60	72.2	72.2
IRH1IRH2IRH3IRH4	4	150	180.5	722.0
TOTAL GAS LOAD = 3250.3 CFH				

PLUMBING FIXTURE SCHEDULES AND NOTES							
FIXTURE	DESCRIPTION AND NOTES	MANUFACTURERS AND MODELS	PLUMBING CONNECTION SCHEDULE				
			HW/T	CW	V	TRAP	S/W
<u>WC1</u>	ADA COMPLIANT FLOOR SET, FLUSH TANK TOILET WITH LOW CONSUMPTION 1.0 GPF SIPHON JET FLUSHING ACTION, ELONGATED BOWL, GLAZED TRAPWAY. 1 2 3 4 5 6 8	MANUFACTURERS AND MODELS TOILET = KOHLER #K-5298 OR EQUAL BY TOTO, PROFLO, AMERICAN STANDARD, ZURN SEAT = KOHLER #K-4666-C OR EQUAL BY OLSONITE, BENEKE, CHURCH, BEMIS	-	3/4	2	-	4
<u>L1</u>	20"x18" VITREOUS CHINA WALL HUNG LAVATORY SINK WITH HOLE DRILLINGS TO MEET FAUCET SPECIFICATIONS. PROVIDE THERMOSTATIC MIXING VALVE. SEE DETAIL FOR SPECIFICATION. 3 4 7 8	MANUFACTURERS AND MODELS LAVATORY = AMERICAN STANDARD #0355.012 OR EQUAL BY TOTO, KOHLER, CRANE FAUCET = AMERICAN STANDARD #1480.100 OR EQUAL BY KOHLER, DELTA, CHICAGO DRAIN = DEARBORN BRASS #760W-1 OR EQUAL BY KOHLER, AMERICAN STANDARD, DELTA TRAP AND SUPPLY INSULATION = TRUEBRO #103 E-Z OR EQUAL BY BROCAR, PROFLO CARRIER = ZURN #Z1231 OR EQUAL BY JOSAM, J.R. SMITH, WADE, MIFAB	1/2	1/2	2	1-1/2	2
<u>MSB1</u>	24"x24" MOP SERVICE BASIN WITH 10" HIGH SIDES, STAINLESS STEEL WALL GUARDS, 3"IPS INTEGRAL DRAIN STAINLESS STEEL DRAIN AND REMOVABLE STRAINER. 15 16 17 18	MANUFACTURERS AND MODELS MOP SERVICE BASIN = FIAT MODEL #MSB2424 WITH #832-AA AND #889-CC OR EQUAL BY ZURN FAUCET = FIAT MODEL #830-AA	3/4	3/4	2	3	3
<u>EW1</u>	SINGLE HEIGHT WALL HUNG ADA COMPLIANT (NON-REFRIGERATED) BOTTLE FILLING STATION. SEE PLANS FOR INSTALLATION HEIGHT. 8 10 11 12 13 14	MANUFACTURERS AND MODELS ELECTRIC WATER COOLER = ELKAY #EZWSSM OR EQUAL BY OASIS, HALSEY TAYLOR WALL MOUNTING BRACKET = INCLUDED	-	1/2	1-1/2	1-1/2	1-1/2
<u>HB1</u>	ANTI-FREEZE RECESSED HOSE BIBB WITH 3/4" HOSE END WALL HYDRANT WITH LOCKABLE DOOR. 9	MANUFACTURERS AND MODELS HOSE BIBB = WOODFORD MODEL #B65	-	3/4	-	-	-
<u>CWB1</u>	RECESSED CLOTHES WASHER BOX WALL BOX WITH SHUT-OFF VALVES AND WATER HAMMER 9 ARRESTORS FOR HOT AND COLD WATER AND 2" WASTE CONNECTION.	MANUFACTURERS AND MODELS CLOTHES WASHER BOX = GUY GRAY MODEL #W4700HA	1/2	1/2	2	2	2
<u>ID1</u>	FIBERGLASS TRENCH DRAIN SYSTEM WITH STEEL ANGLE FRAME, 10' MODULAR SECTIONS, 9 19 6" WIDE TOP WITH HEAVY DUTY CAST IRON GRATES.	MANUFACTURERS AND MODELS TRENCH DRAIN = ZURN MODEL #ZF806-DGE	-	-	SEE PLANS	SEE PLANS	SEE PLANS
<u>FD1</u>	PVC FLOOR DRAIN WITH ROUND NICKEL BRONZE STRAINER, TRAP PRIMER CONNECTION 9 AND SEDIMENT BUCKET.	MANUFACTURERS AND MODELS FLOOR DRAIN = ZURN MODEL #EZ1 OR EQUAL BY JR SMITH, JOSAM	-	-	SEE PLANS	SEE PLANS	SEE PLANS
<u>FS1</u>	PVC FLOOR SINK WITH HALF GRATE, DOME STRAINER AND SEDIMENT BUCKET. 9	MANUFACTURERS AND MODELS FLOOR SINK = ZURN MODEL #FD-2370-DS-H-Y OR EQUAL BY JR SMITH, JOSAM	-	-	SEE PLANS	SEE PLANS	SEE PLANS
<u>WCO1</u>	PROVIDE PVC CLEANOUT TEE WITH CLEANOUT PLUG AND ROUND, STAINLESS STEEL WALL ACCESS COVER WITH SECURING SCREW. 9	MANUFACTURERS AND MODELS WALL CLEANOUT PLUG= ZURN MODEL #CO2490 OR EQUAL BY JR SMITH, JOSAM ACCESS COVER = ZURN MODEL #CO-2530-SS5	-	-	-	-	SEE PLANS
<u>FCO1</u>	FLOOR CLEANOUT, PVC SOLVENT WELD BODY, GAS AND WATERTIGHT ABS TAPERED PLUG AND TOP ASSEMBLY, ROUND SCORIATED COVER IN NICKEL BRONZE WITH ROUGH-IN COVER. 9	MANUFACTURERS AND MODELS FLOOR CLEANOUT = ZURN MODEL #EJC OR EQUAL BY JR SMITH, JOSAM	-	-	-	-	SEE PLANS
<u>GC01</u>	GRADE CLEANOUT WITH PVC SOLVENT WELD BODY, INTEGRATED SELF CONTAINED ROUND 9 LIGHT DUTY NICKEL BRONZE SCORIATED COVER WITH ROUGH-IN COVER.	MANUFACTURERS AND MODELS GRADE CLEANOUT = ZURN MODEL #EJC-PV4 OR EQUAL BY JR SMITH, JOSAM	-	-	-	-	SEE PLANS
<u>RD1</u> <u>ORD1</u>	CAST IRON ROOF DRAIN WITH REMOVABLE DOME. 9	MANUFACTURERS AND MODELS ROOF DRAIN/OVERFLOW ROOF DRAIN = ZURN #ZC100-C-EA-R	-	-	-	-	SEE PLANS
<u>DSN1</u>	NICKEL BRONZE DOWNSPOUT NOZZLE WITH REMOVABLE STAINLESS SCREEN. 9	MANUFACTURERS AND MODELS DOWNSPOUT NOZZLE = ZURN MODEL #Z199-ZAB-NH-SS	-	-	-	-	SEE PLANS

SCHEDULE NOTES

- BOLT DOWN LOCKING TANK LID.
- PROVIDE OPEN FRONT WHITE SEAT LESS COVER WITH CHECK HINGE.
- ALL TRIM TO BE CHROME PLATED COPPER OR BRASS.
- PROVIDE CHROME PLATED CAST BRASS ESCUTCHEON AT WALL PENETRATION.
- RIM OF TOILET TO BE INSTALLED AT 17" ABOVE FINISHED FLOOR.
- INSTALL TRIP LEVERS ON WIDE SIDE OF ADA TOILET STALL AND INSTALL SEAT PER ADA REQUIREMENTS.
- PROVIDE GRID DRAIN WITH ADA WHEELCHAIR OFFSET DRAIN WITH P-TRAP AND WASTE ARM.

- PROVIDE ANGLE STOPS WITH WHEEL HANDLES WITH FLEXIBLE SEAMLESS COPPER TUBE SUPPLIES.
- SET FLUSH AND LEVEL WITH FINISHED SURFACES. COORDINATE LOCATION WITH ARCHITECTURAL AND CARWASH DRAWINGS.
- PROVIDE P-TRAP AND WASTE ARM.
- MANUFACTURER TO CERTIFY UNIT TO BE LEAD FREE AS DEFINED BY THE SAFE DRINKING WATER ACT.
- PROVIDE IN-WALL MOUNTING PLATE CARRIER ACCESSORY.
- INSTALL FIXTURE'S SPOUT HEIGHT(S) AS REQUIRED PER ADA REQUIREMENTS.
- ELECTRICAL LOAD = 115V/1Ø, 1.0 FLA.

- INSTALL MOP SERVICE BASIN ON A MORTAR BED.
- INSTALL CHECK VALVES ON BOTH HOT AND COLD WATER LINES TO FAUCET.
- PROVIDE FAUCET MOUNTED AT 40" ABOVE FINISHED FLOOR.
- PROVIDE BUCKET HOOK AND WALL BRACE. MOUNT HOSE AND MOP HANGER OVER MOP SERVICE BASIN.
- PROVIDE COMBINATION LEVELING STRAPS/ANCHOR TABS TO BE SECURED TO TRENCH AND OVERLAPPING JOINTS.

GAS PIPE SCHEDULE (IFGC EQ 4-2)	
- PRESSURE AVAILABLE = 2 PSI - MAXIMUM ALLOWABLE PRESSURE DROP = 1.5 PSI - TOTAL EQUIVALENT LENGTH (LONGEST RUN) = 170 FT	
PIPE SIZE	PIPE CAPACITY (CFH)
1/2"	424
3/4"	886
1"	1669
1-1/4"	3427
1-1/2"	5134

DOMESTIC WATER PIPE SIZING CALCULATIONS

- PRESSURE AVAILABLE AT METER = 108 PSI
- STATIC HEAD = 12 FT. x 0.43 = 5.16 PSI
- REQUIRED FIXTURE PRESSURE = 25 PSI
- METER, PRV, BACKFLOW PREVENTER(S) LOSSES = 23 PSI
- REMAINING AVAILABLE PRESSURE FOR FRICTION LOSS CALCULATION = 55 PSI
- TOTAL EQUIVALENT LENGTH (LONGEST RUN) = 250 FT X 20% FITTING LENGTH FACTOR = 250 FT
- ALLOWABLE FRICTION LOSS/100FT.= (55 x 100)/250 = 18.33 PSI/100 FT.
- SIZING CRITERIA = 18 PSI/100 FT. (NOT TO EXCEED 8 FPS) AND FAIRLY ROUGH COPPER PIPING

Pipe Size	Max. Flow (GPM)	Flush Tank Fixture Units	Flush Valve Fixture Units	Velocity (FPS)
1/2"	3.5	1.3	-	5.3
3/4"	9.0	4.7	-	6.8
1"	19.0	18.5	-	7.8
1 1/4"	30.0	53.1	-	8.0
1 1/2"	46.0	111.1	-	8.0
2"	74.0	245.0	-	8.0



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2023-03-28

JESSE GOLDMAN, ARCHITECT

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THESE DRAWINGS AND SPECIFICATIONS, AS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, COMPLY WITH ALL CITY, STATE AND FEDERAL REQUIREMENTS, AND I AM NOT PROVIDING CONTRACT ADMINISTRATION SERVICES FOR THIS PROJECT. I AM NOT PROVIDING CONTRACT ADMINISTRATION SERVICES FOR THIS PROJECT. I AM NOT PROVIDING CONTRACT ADMINISTRATION SERVICES FOR THIS PROJECT.

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9572 TWENTY MILE ROAD
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PROJECT 20037.000	DATE 3-22-2023
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SHEET TITLE
**PLUMBING
SCHEDULES**

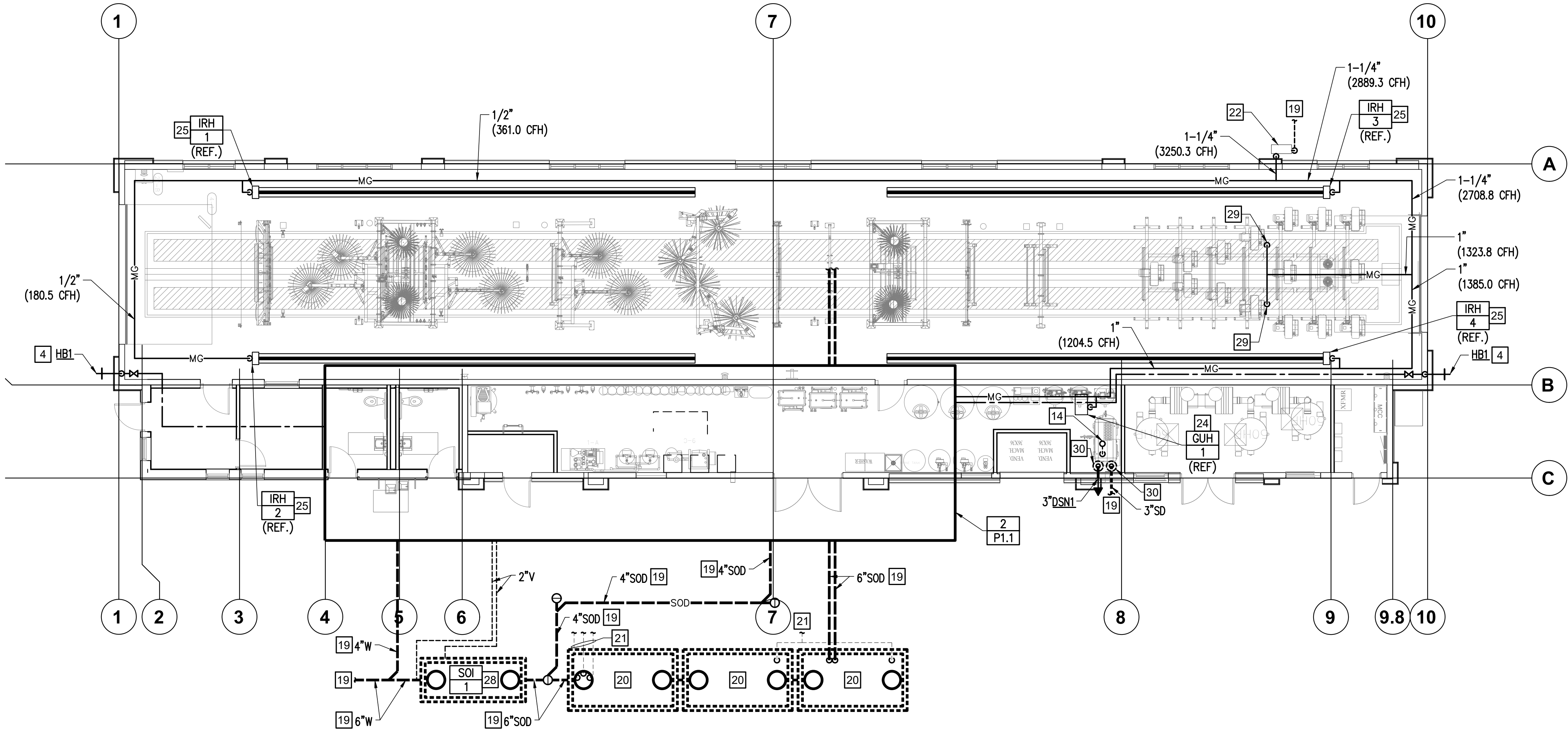
SHEET

P0.2

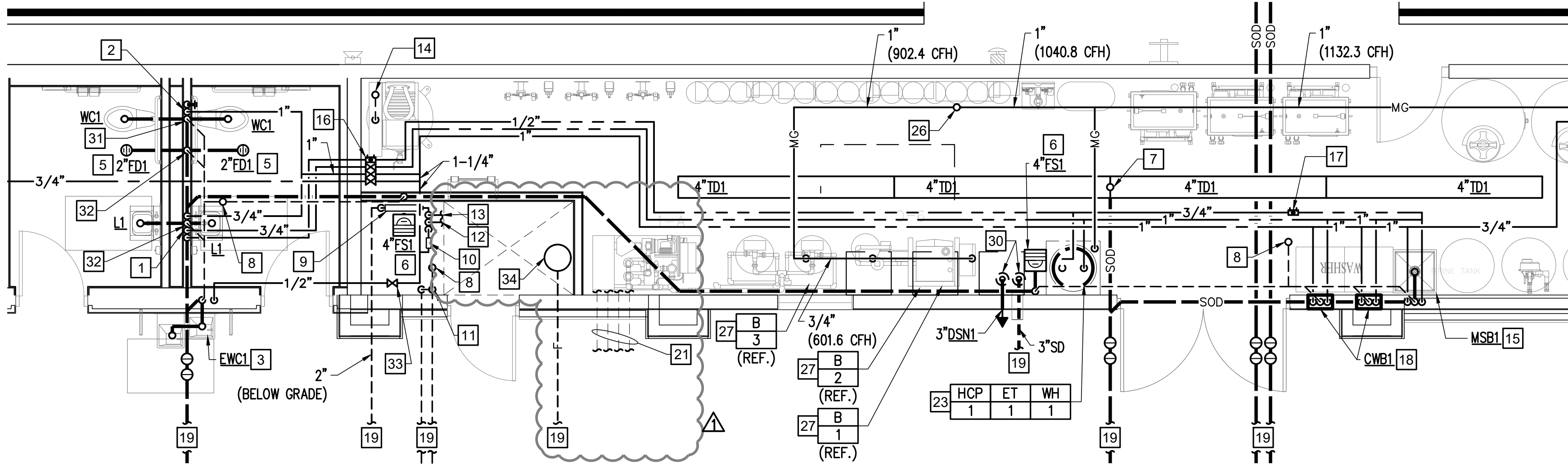
ORIGINAL SHEET SIZE
24" x 36"

PLUMBING NOTES

- 1
- 3/4" HOT AND COLD WATER DOWN IN WALL. EXTEND 1/2" HOT AND COLD WATER PIPING TO EACH LAVATORY WITH 2" WASTE DOWN AND 2" VENT UP IN WALL. CONNECT TO LAVATORY MIXING VALVE AS REQUIRED PER DETAIL B/P2.1. 1/2" HOT WATER RECIRC UP IN WALL FROM HOT WATER CONNECTION AS REQUIRED PER SECTION C404.5 OF THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE.
- 2
- 1" COLD WATER DOWN IN WALL. EXTEND 3/4" COLD WATER PIPING TO EACH WATER CLOSET WITH 4" WASTE DOWN AND 2" VENT PIPING UP IN WALL.
- 3
- 1/2" COLD WATER DOWN IN WALL TO ELECTRIC WATER COOLER WITH 2" WASTE DOWN IN WALL, 2" VENT UP.
- 4
- 3/4" COLD WATER DOWN IN WALL TO HOSE BIBB.
- 5
- 2" FLOOR DRAIN. SEE DETAIL E/P2.1.
- 6
- 4" FLOOR SINK WITH 4" WASTE DOWN, 2" VENT UP IN WALL. SEE DETAIL F/P2.1.
- 7
- 4" SAND/OIL WASTE DOWN FROM TRENCH.
- 8
- 3" VENT UP. SEE SHEET P1.2 FOR CONTINUATION.
- 9
- SEE DOMESTIC WATER ENTRY DETAIL A/P2.1.
- 10
- PROVIDE 1-1/4" LEAD-FREE WATTS MODEL #LF009-QT REDUCED PRESSURE PRINCIPLE TYPE BACKFLOW PREVENTER AND WATTS #909ACC REGULATOR AIR GAP. PROVIDE FULL SIZE DISCHARGE PIPING TO FLOOR SINK WITH AIR GAP.
- 11
- TWO (2) 2" VENTS UP FROM BELOW GRADE EACH WITH CLEANOUT IN VERTICAL. COMBINE TO (1) 3" HORIZONTAL VENT AND EXTEND TO ABOVE CEILING.
- 12
- 2" COLD WATER PIPING FOR CAR WASH SYSTEM. SEE CAR WASH DRAWINGS FOR CONTINUATION.
- 13
- EXTEND 3/4" COLD WATER FILL PIPING TO SNOWMELT SYSTEM. SEE MECHANICAL DRAWINGS FOR CONTINUATION.
- 14
- CONNECT 2" OUTSIDE AIR INTAKE TO AIR COMPRESSOR FROM OUTSIDE AIR INTAKE PIPE THROUGH ROOF WITH GOOSENECK FITTING. INSTALL PER EQUIPMENT INSTALLATION INSTRUCTIONS.
- 15
- 3/4" HOT AND COLD WATER DOWN IN WALL TO MOP SERVICE BASIN WITH 3" SAND/OIL WASTE DOWN IN WALL, 2" VENT UP.
- 16
- SET BALANCING VALVE TO 0.5 GPM.
- 17
- SET BALANCING VALVE TO 1.0 GPM.
- 18
- 3/4" HOT AND COLD WATER DOWN IN WALL TO CLOTHES WASHER BOX. EXTEND PIPING TO APPLIANCE'S (PROVIDED BY OTHERS) HOT, COLD AND WASTE CONNECTIONS AS REQUIRED PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE 2" SAND/OIL WASTE DOWN AND 2" VENT UP IN WALL. SEE CLOTHES WASHER DETAIL A/P0.2.
- 19
- SEE CIVIL FOR CONTINUATION.
- 20
- RECLAIM TANKS PROVIDED BY OTHERS (SHOWN FOR REFERENCE ONLY). COORDINATE FINAL LOCATION OF RECLAIM TANK(S) WITH ARCH, CIVIL AND CARWASH DRAWINGS.
- 21
- RECLAIM PIPING (BELOW GRADE) TO/FROM RECLAIM TANK(S) TO RECLAIM PUMP/SYSTEM. COORDINATE ROUTING AND SIZING OF PIPING WITH CARWASH VENDOR DRAWINGS. CONNECT TO EQUIPMENT AS REQUIRED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 22
- NEW GAS METER FOR NEW CONNECTED GAS LOAD (2,701,000 BTU). SET OUTLET GAS PRESSURE TO 2 PSI. COORDINATE ALL WORK WITH UTILITY COMPANY AS REQUIRED.
- 23
- 1/2" MEDIUM PRESSURE GAS PIPING CONNECTION DOWN TO WATER HEATER. PROVIDE GAS SHUT OFF VALVE, GAS PRESSURE REGULATOR, UNION AND 6" DIRT LEG, AS REQUIRED (91.5 CFH). SEE WATER HEATER DETAIL G/P2.1.
- 24
- 1/2" MEDIUM PRESSURE GAS PIPING CONNECTION DOWN TO UNIT HEATER. PROVIDE GAS SHUT OFF VALVE GAS PRESSURE REGULATOR. UNION AND 6" DIRT LEG, AS REQUIRED (72.2 CFH).
- 25
- 1/2" MEDIUM PRESSURE GAS PIPING CONNECTION DOWN TO INFRARED HEATER. PROVIDE GAS SHUT OFF VALVE, GAS PRESSURE REGULATOR, UNION AND 6" DIRT LEG, AS REQUIRED (180.5 CFH).
- 26
- 1/2" MEDIUM PRESSURE GAS PIPING UP THROUGH ROOF. SEE SHEET P1.2 FOR CONTINUATION.
- 27
- 3/4" MEDIUM PRESSURE GAS PIPING FOR SNOWMELT SYSTEM. SEE MECHANICAL DRAWINGS FOR CONTINUATION. EXTEND AND CONNECT 3/4" MG PIPING TO EACH BOILER WITH GAS SHUT OFF VALVE, GAS PRESSURE REGULATOR, UNION AND 6" DIRT LEG (300.8 CFH), AS REQUIRED. ROUTE CONDENSATE PIPING THROUGH CONDENSATE NEUTRALIZERS PRIOR TO DRAINING TO FLOOR SINK WITH AIR GAP. CONNECT PIPING TO EACH BOILER AS REQUIRED PER MANUFACTURER'S INSTALLATION INSTRUCTION.
- 28
- PROVIDE SAND/OIL INTERCEPTOR PER DETAIL C/P2.1. COORDINATE FINAL LOCATION OF SAND/OIL INTERCEPTOR WITH ARCH, CIVIL AND CARWASH DRAWINGS.
- 29
- 3/4" MEDIUM PRESSURE GAS PIPING DOWN TO CAR WASH HEATER (PROVIDED BY OTHERS). PROVIDE GAS SHUT OFF VALVE, GAS PRESSURE REGULATOR, UNION AND 6" DIRT LEG (661.9 CFH). CONNECT PIPING TO HEATER AS REQUIRED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 30
- 3" STORM/OVERFLOW STORM DRAIN PIPING DOWN THROUGH ROOF. EXTEND STORM PIPING DOWN ALONG WALL WITH CLEANOUT IN VERTICAL TO BELOW GRADE. EXTEND OVERFLOW STORM PIPING DOWN ALONG WALL WITH CLEANOUT IN VERTICAL TO DOWNSPOUT NOZZLE.
- 31
- COMMON 4" WASTE DOWN AND COMMON 2" VENT PIPING UP IN WALL.
- 32
- COMMON 2" WASTE DOWN AND COMMON 2" VENT PIPING UP IN WALL.
- 33
- PROVIDE SHUT-OFF VALVE WITH DRAIN PORT AND AIR COMPRESSOR FITTING FOR WINTERIZING. SLOPE PIPING TO DRAIN VALVE AS REQUIRED.
- 34
- FIRE SPRINKLER RISER SHOWN FOR REFERENCE ONLY. SIZING AND SPECIFICATIONS BY DESIGN BUILD SPRINKLER CONTRACTOR.



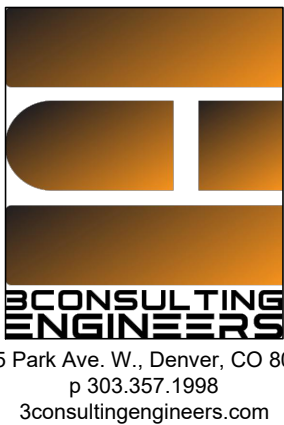
1 PLUMBING FLOOR PLAN
1/8" = 1'-0"



2 PLUMBING ENLARGED FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES

- REFER TO CAR WASH VENDOR'S DETAILS, SHOP DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION REQUIRED FOR MATERIALS, INSTALLATION OF ALL EQUIPMENT AND PIPING SYSTEMS.



2023-03-28

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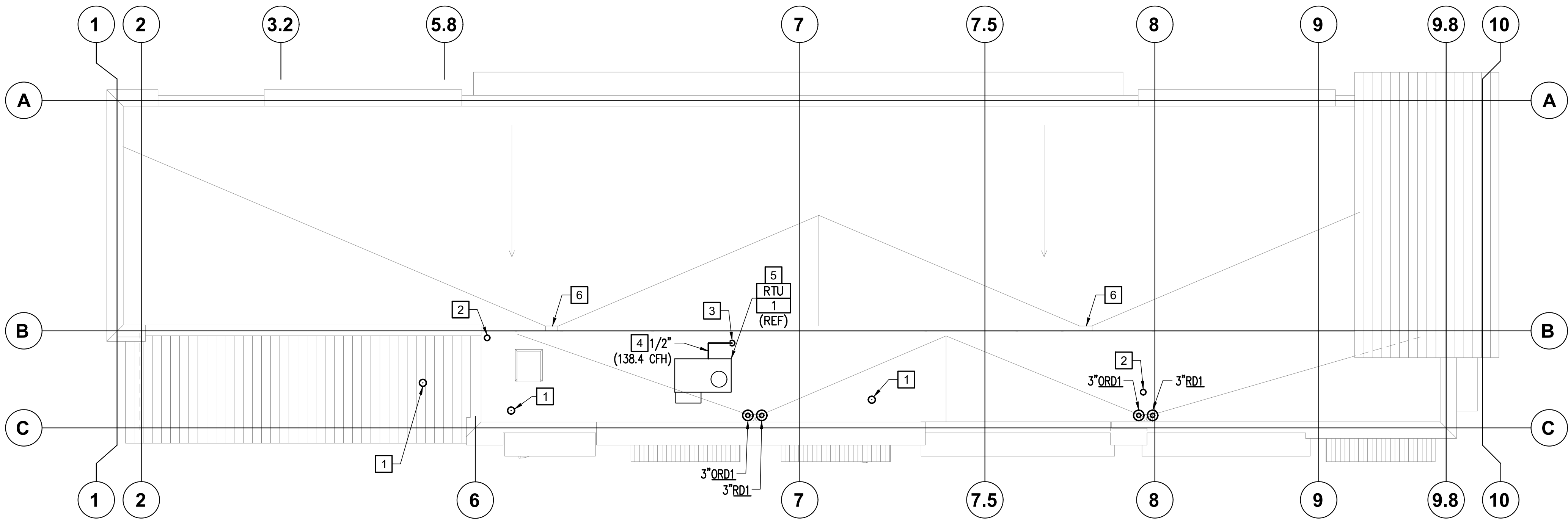
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SHEET TITLE
**PLUMBING
FLOOR
PLAN**

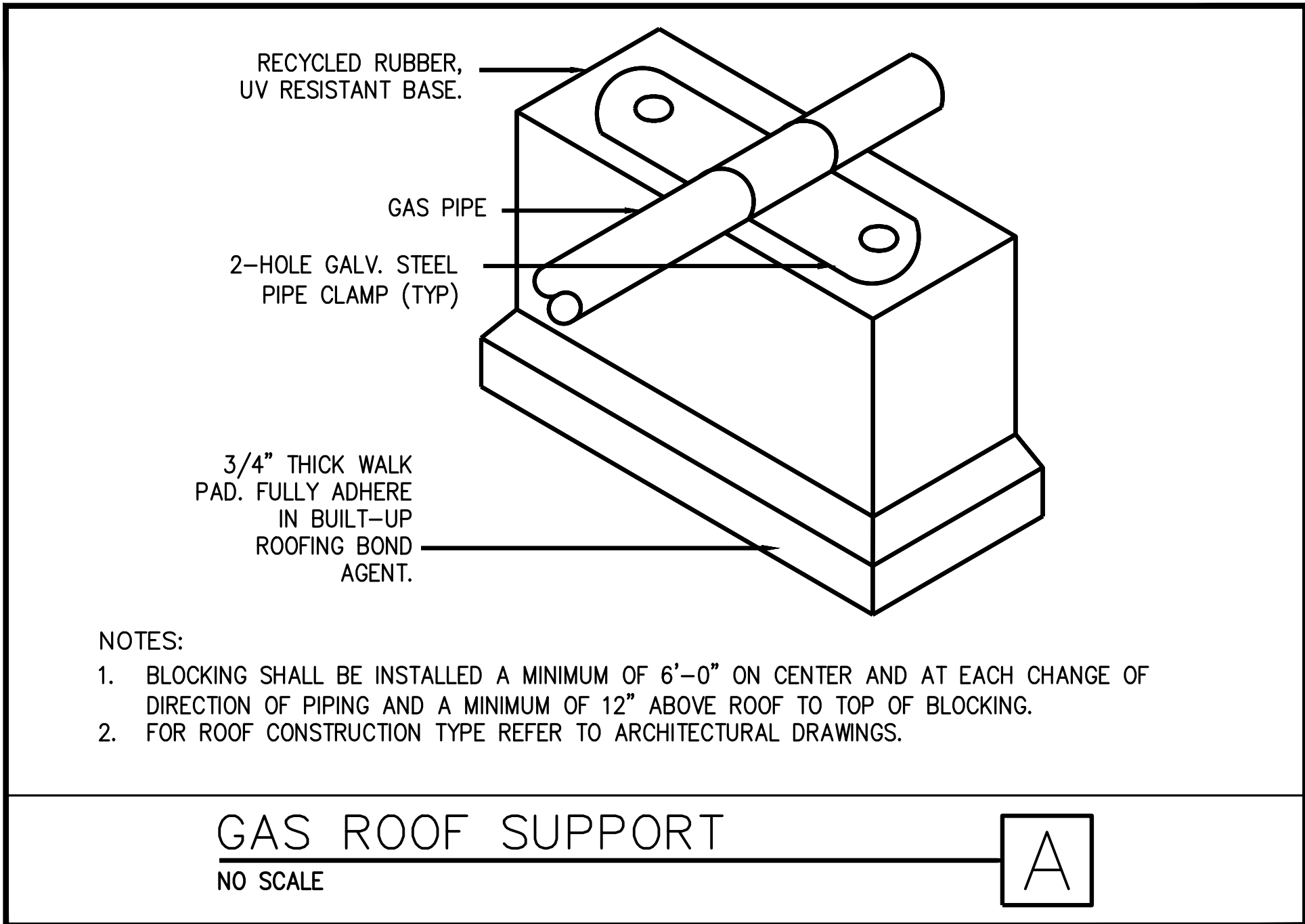
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P1.1

ORIGINAL SHEET SIZE
24" x 36"

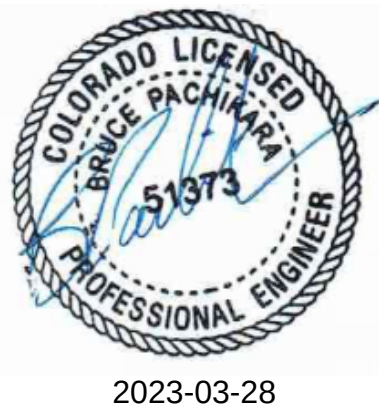


1 PLUMBING ROOF PLAN
1/8" = 1'-0"



PLUMBING NOTES

- 1 3" VTR. MAINTAIN 10' CLEAR FROM ANY BUILDING OPENINGS AND/OR OUTSIDE AIR INTAKES.
- 2 CONNECT 2" OUTSIDE AIR INTAKE TO AIR COMPRESSOR FROM OUTSIDE AIR INTAKE PIPE THROUGH ROOF WITH GOOSENECK FITTING. INSTALL PER EQUIPMENT INSTALLATION INSTRUCTIONS.
- 3 1/2" MEDIUM PRESSURE GAS PIPING UP THROUGH ROOF.
- 4 SUPPORT GAS PIPING ON ROOF PER DETAIL A THIS SHEET.
- 5 CONNECT 1/2" MEDIUM PRESSURE GAS PIPING TO ROOFTOP UNIT. PROVIDE GAS SHUT OFF VALVE, GAS PRESSURE REGULATOR, UNION AND 6" DIRT LEG, AS REQUIRED (138.4 CFH).
- 6 THROUGH SCUPPER (BY OTHERS).



QUICK N CLEAN CAR WASH

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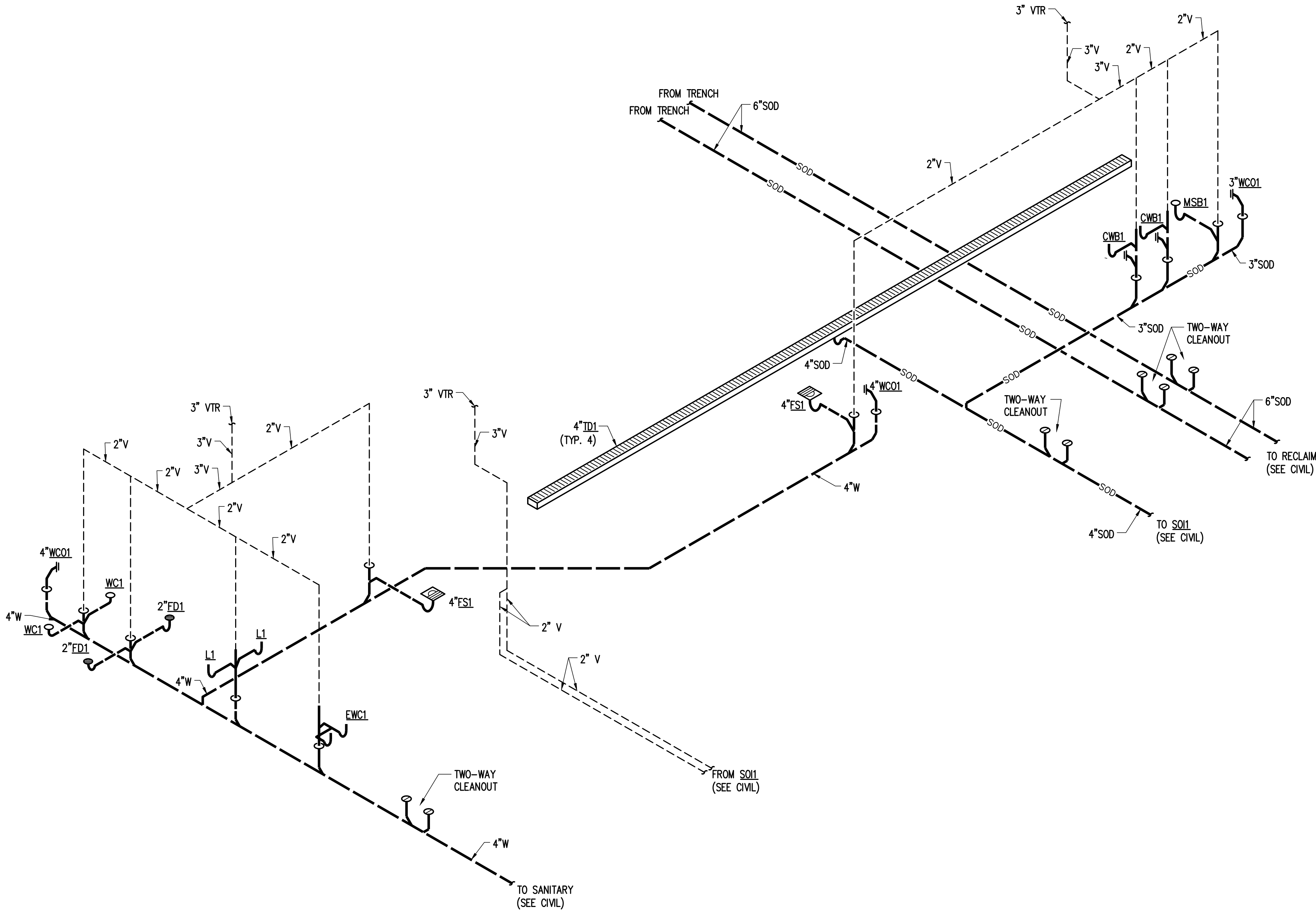
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SHEET TITLE PLUMBING ROOF PLAN	
SHEET P1.2 ORIGINAL SHEET SIZE 24" x 36"	



ORIGINAL SHEET SIZE
24" x 36"



1 PLUMBING WASTE AND VENT ISOMETRIC
NO SCALE



2023-03-28

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SHEET TITLE
**PLUMBING
ISOMETRIC**

SHEET
P2.2
ORIGINAL SHEET SIZE
24" x 36"

MECHANICAL COMCHECK

COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: MECHCCK
Location: Parker, Colorado
Climate Zone: 5B
Project Type: New Construction

Construction Site:

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Mechanical Systems List

Quantity System Type & Description

1 RTU-1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 115 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency = 80.00 % Et, or 80% AFUE
Cooling: 1 each - Single Package DX Unit, Capacity = 32 kBtu/h, Air-Cooled Condenser, Unknown Economizer
Proposed Efficiency = 15.00 SEER, Required Efficiency = 14.00 SEER
Proposed Part Load Efficiency = 0.00, Required Part Load Efficiency = 0.00

4 RH-1-4 (Single Zone w/ Perimeter System):
Heating: 1 each - Radiant Heater, Gas, Capacity = 150 kBtu/h
No minimum efficiency requirement applies

1 GUH-1 (Unknown w/ Perimeter System):
Heating: 1 each - Unit Heater, Gas, Capacity = 60 kBtu/h
Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et

1 UH-1 (Unknown w/ Perimeter System):
Heating: 1 each - Unit Heater, Electric, Capacity = 10 kBtu/h
No minimum efficiency requirement applies

2 BOILER 1 AND BOILER 2:
Heating: Hot Water Boiler, Capacity 399 kBtu/h, Gas, with Waterloop Heat Pump
Proposed Efficiency: 80.00 % Et, Required Efficiency: 80.00 % Et

1 WH-1:
Gas Storage Water Heater, Capacity: 50 gallons, Input Rating: 76 kBtu/h w/ Circulation Pump
Proposed Efficiency: 80.00 % Et, Required Efficiency: 80.00 % Et

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 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

KYLE SULESKI

Name - Title

Signature

11/18/2022

Date

COMMISSIONING

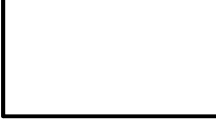
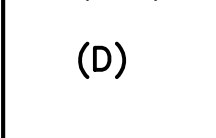
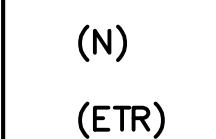
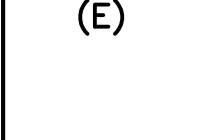
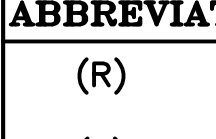
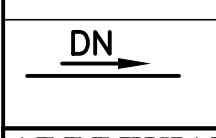
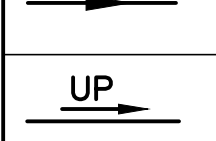
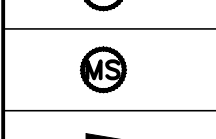
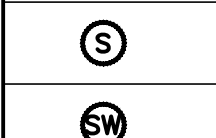
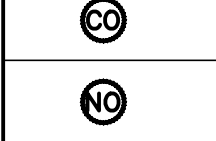
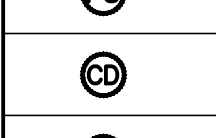
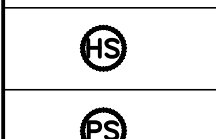
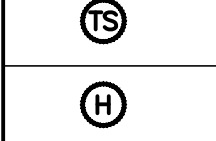
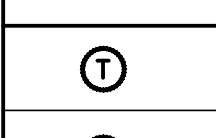
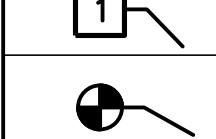
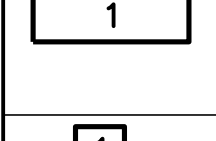
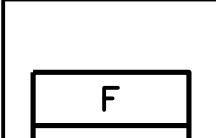
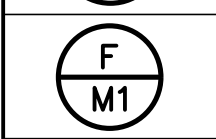
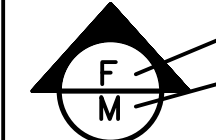
THIS BUILDING REQUIRES MECHANICAL AND SERVICE WATER HEATING SYSTEMS COMMISSIONING AND COMPLETION REQUIREMENTS PER INTERNATIONAL ENERGY CONSERVATION CODE SECTION C408. PROVIDE ALL REQUIREMENTS PER THIS SECTION AS REQUIRED BY AUTHORITY HAVING JURISDICTION.

SUBMIT PLAN, DATA COLLECTING WORKSHEETS, AND ALL OTHER REQUIRED DOCUMENTATION FOR REVIEW PRIOR TO PERFORMING WORK TO DESIGN TEAM FOR REVIEW.

MECHANICAL SYMBOLS

SYMBOL		ABBR	DESCRIPTION
DOUBLE	SINGLE		
			RETURN/EXHAUST DUCT UP
			SUPPLY DUCT UP
			OUTSIDE AIR DUCT UP
			SUPPLY DUCT DOWN
			RETURN/EXHAUST DUCT DOWN
			ROUND DUCT DOWN
			ROUND DUCT UP
			DUCT DROP
			TRANSITION-RECT. TO RECT. OR ROUND TO ROUND
			TRANSITION-RECT. TO ROUND
			VANED ELBOW
			CAPPED DUCTWORK
			EXISTING TO BE REMOVED OR RELOCATED
			DUCT W/ INTERNAL LINING 1L= 1" THICK 2L= 2" THICK
		FD	FIRE DAMPER
		FSD	FIRE SMOKE DAMPER. CONTROLLED BY DUCT SMOKE DETECTOR
		FSD (C)	FIRE SMOKE DAMPER. CONTROLLED BY CORRIDOR AREA SMOKE DETECTOR
		MD	MOTORIZED DAMPER
		MVD	MANUAL VOLUME DAMPER W/ LOCKING QUADRANT
		VD-Y	VOLUME DAMPER W/YOUNG REGULATOR
		BD	BACKDRAFT DAMPER
			CONICAL TAP
			CONICAL SPIN-IN FITTING W/ MANUAL VOLUME DAMPER
			SUPPLY DIFFUSER-4-WAY THROW
			SUPPLY DIFFUSER-3/2/1-WAY THROW
			SLOT DIFFUSER
		RA,EA,TA	RETURN, EXHAUST, TRANSFER GRILLE
			LOW PRESSURE FLEXIBLE DUCT
		AP	CEILING ACCESS PANEL
			FLEXIBLE DUCT CONNECTION

SYMBOLS:



SECTION NO.

SECTION VIEW SHEET NO.

DETAIL DESIGNATION

EQUIPMENT DESIGNATION

SHEET KEY NOTES

POINT OF CONN. (CONN. NEW TO EXISTING)

NEW THERMOSTAT

SPACE TEMPERATURE SENSOR

SPACE HUMIDISTAT

SPACE HUMIDITY SENSOR

SPACE PRESSURE SENSOR

CARBON DIOXIDE SENSOR

CARBON MONOXIDE SENSOR

NITROGEN DIOXIDE SENSOR

DUCT MOUNTED SMOKE DETECTOR

ON/OFF SWITCH SMOKE DETECTOR

MASTER SWITCH OR CONTROLLER

ARROW INDICATES DIRECTION OF FLOW

RISE IN DIRECTION OF AIRFLOW

DROP IN DIRECTION OF AIRFLOW

ABBREVIATIONS:

(R)	(R)	REMOVE AND RELOCATE
(E)	(E)	EXISTING (PAREN-THESIS AROUND ITEM INDICATES IT IS EXISTING)
(N)	(N)	NEW
(ETR)	ETR	EXISTING TO REMAIN
(D)	(D)	DEMOLISH
	NTS	NOT TO SCALE
	AFF	ABOVE FINISHED FLOOR
	BFC	BELOW FINISHED CEILING
	DDC	DIRECT DIGITAL CONTROL
	ESP	EXTERNAL STATIC PRESSURE
	FLA	FULL LOAD AMP.
	FT. W.C.	FEET WATER COLUMN
	OED	OPEN ENDED DUCT
	WMS	WIRE MESH SCREEN

MECHANICAL SHEET INDEX/CODES

JURISDICTION: PARKER, COLORADO

MECHANICAL CODE: 2021 INTERNATIONAL MECHANICAL CODE – PRESCRIPTIVE

FUEL GAS CODE: 2021 INTERNATIONAL FUEL GAS CODE

ENERGY CODE: 2021 INTERNATIONAL ENERGY CONSERVATION CODE – REDUCED LIGHTING METHOD

SHEET NO.	SHEET DESCRIPTION	ISSUE	
		01/18/23 – PERMIT SET	03/27/23 – AGENCY COMMENTS
M0.1	MECHANICAL COVER SHEET	X	X
M0.2	MECHANICAL SPECIFICATIONS	X	X
M0.3	MECHANICAL SCHEDULES	X	X
M0.4	MECHANICAL SNOWMELT SPECIFICATIONS	X	X
M0.5	MECHANICAL SNOWMELT	X	X
M0.6	MECHANICAL SNOWMELT	X	X
M1.0	MECHANICAL SNOWMELT PLAN	X	X
M1.1	MECHANICAL FLOOR PLAN	X	X
M1.2	MECHANICAL ROOF PLAN	X	X
M2.1	MECHANICAL DETAILS	X	X
M2.2	MECHANICAL DETAILS	X	X

DESIGN PARAMETERS

ELEVATION: 5827 FT ABOVE SEA LEVEL

WINTER DESIGN: 0° F.

SUMMER DESIGN TEMP DB/WB: 91.4° F/ 59.9° F

DB DESIGN FOR AIR COOLED EQUIPMENT: 101.4° F

GENERAL NOTES

1. READ ENTIRE DRAWINGS SPECIFICATIONS.
2. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR BIDDING ENTIRE SET OF CONTRACT DRAWINGS AND DOCUMENTS NOT JUST THE MECHANICAL SHEETS.
3. ALL HVAC EQUIPMENT REQUIRING POWER SHALL BE VERIFIED WITH ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT. ALL SUBSTITUTIONS OF HVAC EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE FULL RESPONSIBILITY OF MECHANICAL CONTRACTOR.
4. DUCTWORK LOCATED BELOW 7'-6" IN MECHANICAL ROOMS SHALL BE EQUIPPED W/ PADDING MATERIAL ON ALL CORNERS, EDGES & OTHER SURFACES WHICH MAY BE HAZARDOUS.
5. CONCRETE HOUSEKEEPING PADS SHALL BE LOCATED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR. THE PADS SHALL EXTEND A MINIMUM OF 6" BEYOND EACH SIDE OF THE EQUIPMENT FOOTPRINT.
6. CONTRACTOR SHALL PROVIDE TEMPORARY HEAT AS REQUIRED AND SHALL NOT USE EQUIPMENT TO HEAT OR COOL A SPACE THAT WILL REMAIN IN THE BUILDING AFTER CLOSE OUT OF CONSTRUCTION.
7. ALL TESTS ON EQUIPMENT SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
8. ALL DUCTWORK, PIPING AND TEMPERATURE CONTROL CONDUIT TO VIBRATING EQUIPMENT SHALL HAVE FLEXIBLE CONNECTORS.

VENTILATION REQUIREMENTS

SEE SHEET M2.1 FOR VENTILATION REQUIREMENTS.



2023-03-28

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QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

CSHQQA

PROJECT

20037.000

DRAWN

JCB

REVISED

A AGENCY COMMENTS 3/22/2023

SHEET TITLE

MECHANICAL
COVER
SHEET

SHEET

M0.1

ORIGINAL SHEET SIZE
24" x 36"1415 Park Ave. W., Denver, CO 80205
p 303.357.1988
3iconsultingengineers.com

GENERAL MECHANICAL REQUIREMENTS

DESCRIPTION OF WORK

THIS DIVISION INCLUDES ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, SUPERVISION, START-UP SERVICES, OWNER TRAINING, ETC., INCLUDING ALL INCIDENTAL AND RELATED ITEMS, NECESSARY TO COMPLETE INSTALLATION AND SUCCESSFULLY TEST AND START UP AND OPERATE THE MECHANICAL SYSTEMS INDICATED ON THE DRAWINGS. THE CONTRACTOR, AND HIS SUBCONTRACTORS AND SUPPLIERS, SHALL INCLUDE IN HIS BID ALL MATERIALS, LABOR, AND EQUIPMENT INVOLVED, IN ACCORDANCE WITH ALL LOCAL CUSTOMS, CODES, RULES, REGULATIONS, AND SECURE COMPLIANCE OF ALL PARTS OF THE SPECIFICATIONS AND DRAWINGS REGARDLESS OF SECTIONAL INCLUSION IN THESE SPECIFICATIONS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE COMPLETE AND SATISFACTORY ACCOMPLISHMENT OF ALL WORK INCLUSIVE OF WHATEVER MISCELLANEOUS MATERIAL AND/OR APPURTENANCES ARE REQUIRED TO PERFECT THE INSTALLATION, AND DEMONSTRATE THAT ALL ELECTRICAL SYSTEMS WILL OPERATE SATISFACTORYLY UNDER NORMAL OPERATING CONDITIONS.

DRAWINGS

THE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL LOCATION AND ARRANGEMENT OF EQUIPMENT, PIPING, DUCTWORK AND RELATED ITEMS. THEY SHALL BE FOLLOWED AS CLOSELY AS ELEMENTS OF THE CONSTRUCTION WILL PERMIT. THE CONTRACTOR SHALL PROVIDE/INSTALL ALL MECHANICAL SYSTEMS, AND ASSOCIATED EQUIPMENT, COMPLETE AND INCLUDE ALL NECESSARY OFFSETS, FITTINGS, AND OTHER COMPONENTS REQUIRED DUE TO INTERFERENCES, SPACE CONSTRAINTS, CODE REQUIREMENTS, ETC. AS REQUIRED TO PROVIDE A COMPLETE/FUNCTIONAL SYSTEM. THE GENERAL MECHANICAL REQUIREMENTS ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS OCCUR BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE STRICTEST PROVISION SHALL GOVERN. WHERE THERE ARE CONFLICTS OR DIFFERENCES BETWEEN THE DRAWINGS FOR THE VARIOUS TRADES, REPORT SUCH CONFLICTS OR DIFFERENCES TO THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION. THE CONTRACTOR SHALL EXAMINE THE DRAWINGS OF ALL OTHER TRADES IN ORDER TO VERIFY THE CONDITIONS GOVERNING THE WORK ON THE JOB SITE. ARRANGE WORK ACCORDINGLY, PROVIDING ALL DUCTWORK, PIPING, FITTINGS, TRAPS, VALVES AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS. DEVIATIONS FROM THE DRAWINGS, WITH THE EXCEPTION OF MINOR CHANGES IN ROUTING AND OTHER SUCH INCIDENTAL CHANGES THAT DO NOT AFFECT THE FUNCTIONING OR SERVICEABILITY OF THE SYSTEMS, SHALL NOT BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT AND/OR ENGINEER. THE ARCHITECTURAL AND STRUCTURAL DRAWINGS TAKE PRECEDENCE IN ALL MATTERS PERTAINING TO THE BUILDING STRUCTURE, MECHANICAL DRAWINGS IN ALL MATTERS PERTAINING TO MECHANICAL TRADES AND ELECTRICAL DRAWINGS IN ALL MATTERS PERTAINING TO ELECTRICAL TRADES. WHERE THERE ARE CONFLICTS OR DIFFERENCES BETWEEN THE DRAWINGS FOR THE VARIOUS TRADES, REPORT SUCH CONFLICTS OR DIFFERENCES TO THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION.

COORDINATION OF WORK

THE CONTRACTOR SHALL VERIFY CLEARANCE REQUIREMENTS OF ALL ELECTRICAL AND MECHANICAL EQUIPMENT/SYSTEMS PRIOR TO THE INSTALLATION OF ANY NEW WORK. MECHANICAL EQUIPMENT/DUCTWORK, SYSTEMS, ETC. SHALL NOT INTERFERE WITH MECHANICAL EQUIPMENT SPACES OR ELECTRICAL CLEARANCES. THE CONTRACTOR SHALL COORDINATE HIS WORK TO OBTAIN SYMMETRY IN CEILING LAYOUTS, SO THAT LIGHTS, GRILLS, ETC. ARE COORDINATED AND ARE INSTALLED PER THE ARCHITECTURAL REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS. THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL BE RESPONSIBLE FOR ALL TASKS APPLICABLE TO THEIR WORK IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND CODE REQUIREMENTS, AND SHALL BE RESPONSIBLE FOR COORDINATING LOCATIONS AND ARRANGEMENTS OF THEIR WORK TO GIVE BEST RESULTS WITH ALL OTHER RELEVANT TRADES. COORDINATE ALL WALL, ROOF, FLOOR PENETRATIONS, EQUIPMENT PADS, EQUIPMENT LOCATIONS, SYSTEM ROUTINGS, ETC. WITH ARCHITECTURAL AND STRUCTURAL TRADES. VERIFY REQUIREMENTS OF ALL EQUIPMENT WITH SHOP DRAWING SUBMITTALS PRIOR TO INSTALLATION – NOTIFY ARCHITECT AND/OR ENGINEER OF ANY CONFLICTS BETWEEN SHOP DRAWINGS AND PLANS. COORDINATE LOCATIONS OF MECHANICAL ITEMS THAT REQUIRE ACCESS (I.E. DAMPER ACTUATORS, EXHAUST FANS,ETC.) WITH REFLECTED CEILING PLAN. ITEMS LOCATED ABOVE HARD NON–ACCESSIBLE CEILINGS SHALL BE PROVIDED WITH ACCESS DOORS AS REQUIRED. VERIFY CLEARANCE REQUIREMENTS OF ALL ELECTRICAL AND MECHANICAL EQUIPMENT/SYSTEMS PRIOR TO THE INSTALLATION OF ANY NEW WORK. MECHANICAL EQUIPMENT/PIPING, DUCTWORK, SYSTEMS, ETC. SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT SPACES. ELECTRICAL CONDUIT AND EQUIPMENT CLEARANCES SHALL NOT INTERFERE WITH MECHANICAL EQUIPMENT SPACES.

INSPECTION OF SITE AND PROJECT DOCUMENTATION

THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE/VERIFY THE CONDITIONS UNDER WHICH THE WORK MUST BE CONDUCTED BEFORE SUBMITTING PROPOSAL. THE CONTRACTOR SHALL EXAMINE THE DRAWINGS AND SPECIFICATIONS OF ALL OTHER TRADES INCLUDING MECHANICAL, ARCHITECTURAL, STRUCTURAL AND ELECTRICAL. THE SUBMITTING OF A PROPOSAL IMPLIES THAT THE CONTRACTOR HAS VISITED THE SITE, EXAMINED ALL CONTRACT DOCUMENTS, AND UNDERSTANDS THE CONDITIONS UNDER WHICH THE WORK MUST BE CONDUCTED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND/OR ENGINEER, PRIOR TO SUBMITTING HIS BID VIA REQUEST FOR INFORMATION (RFI), OF ANY POTENTIAL PROBLEMS THAT HE HAS IDENTIFIED DURING HIS INSPECTION OF THE SITE OR FROM THE REVIEW OF PLANS/SPECIFICATIONS. RFIS MUST BE SUBMITTED AT LEAST 5 WORKING DAYS PRIOR TO BID OPENING.

GENERAL SUPPORT REQUIREMENTS

PROVIDE ALL NECESSARY ANGLE/BRAKETS, HANGERS, OR SUPPLEMENTARY SUPPORTING STEEL AS REQUIRED FOR ADEQUATE SUPPORT FOR ALL PIPING, DUCTWORK, AND EQUIPMENT. SECURE APPROVAL FORM ARCHITECT AND/OR STRUCTURAL ENGINEER, IN WRITING, BEFORE WELDING OR BOLTING TO STEEL FRAMING OR ANCHORING TO CONCRETE STRUCTURE, OR CUTTING/CORING THRU STRUCTURAL SYSTEMS. WHERE PIPING, DUCTWORK, OR EQUIPMENT IS SUPPORTED OR SUSPENDED FROM CONCRETE CONSTRUCTION, PROVIDE APPROVED CONCRETE INSERTS IN FORMWORK TO RECEIVE HANGER RODS, SUCH AS UNISTRUT OR POWERSTRUT, AND WHERE INSTALLED IN METAL DECK, USE RAMSET OR WELDS AS REQUIRED. INSTALL MECHANICAL PIPING SYSTEMS WITH ADEQUATE ANCHORS, GUIDES, EXPANSION LOOPS, ETC. AS REQUIRED TO PROVIDE FOR PIPING EXPANSION/CONTRACTION.

GUARANTEE

CONTRACTOR SHALL GUARANTEE THAT ALL LABOR, MATERIALS, AND EQUIPMENT ARE FREE FROM DEFECTS AND AGREES TO REPLACE OR REPAIR ANY PART OF THIS INSTALLATION WHICH BECOMES DEFECTIVE WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION FOLLOWING FINAL ACCEPTANCE. ACCEPTANCE DATE OF SUBSTANTIAL COMPLETION SHALL BE AS DETERMINED BY THE ARCHITECT AND/OR ENGINEER. THE CONTRACTOR SHALL FILE WITH THE OWNER AND ALL GUARANTEEES FROM THE EQUIPMENT MANUFACTURERS INCLUDING THE OPERATING CONDITIONS AND PERFORMANCE CAPACITIES THEY ARE BASED ON.

CODES, PERMITS AND FEES

REFER ENTIRE SET OF CONTRACT DOCUMENTS, GENERAL CONDITIONS AND SUPPLEMENTARY CONDITIONS. UNLESS OTHERWISE INDICATED, ALL REQUIRED PERMITS, PLAN REVIEWS, LICENSES, INSPECTIONS, APPROVALS AND FEES FOR MECHANICAL WORK SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR. ALL WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE MOST CURRENT RULES AND REGULATIONS SET FORTH IN LOCAL AND STATE CODES.

MECHANICAL AND PLUMBING SYSTEMS SHALL BE INSTALLED PER CURRENT JURISDICTIONAL CODES (MICHIGAN MECHANICAL CODE, MICHIGAN PLUMBING CODE, INTERNATIONAL FUEL GAS CODE, MICHIGAN BUILDING CODE, ETC.), CURRENT NFPA CODES (NFPA 101, NFPA 90, ETC.), AND APPLICABLE SECTIONS OF THE MICHIGAN BUILDING CODE. WHERE THE DRAWINGS AND/OR SPECIFICATIONS INDICATE MATERIALS OR CONSTRUCTION IN EXCESS OF CODE REQUIREMENTS, THE DRAWINGS AND/OR SPECIFICATIONS SHALL GOVERN. IN THE EVENT THAT THE PLANS AND SPECIFICATIONS CONFLICT WITH ANY RULES, REGULATIONS, OR CODES APPLYING, SAID RULES, REGULATIONS AND CODES SHALL GOVERN.

SUBSTITUTION ITEMS REQUIRING PRIOR APPROVAL

ALL ITEMS THAT THE CONTRACTOR PROPOSED TO USE IN THE WORK THAT ARE NOT SPECIFICALLY NAMED IN THE CONTRACT DOCUMENTS MUST BE SUBMITTED FOR REVIEW. SUCH ITEMS MUST BE SUBMITTED IN DUPLICATE TO THE ARCHITECT AND/OR ENGINEER FOR APPROVAL A MINIMUM OF TEN (10) DAYS PRIOR TO BID OPENING. REQUESTS FOR PRIOR APPROVAL MUST BE ACCOMPANIED BY COMPLETE CATALOG INFORMATION, INCLUDING BUT NOT LIMITED TO, MODEL, SIZE, ACCESSORIES, COMPLETE ELECTRICAL INFORMATION AND PERFORMANCE DATA IN THE FORM GIVEN IN THE EQUIPMENT SCHEDULE ON THE DRAWINGS AT STATED DESIGN CONDITIONS. WHERE ITEMS ARE REFERRED TO BY SYMBOLIC DESIGNATIONS ON THE DRAWINGS, ALL REQUESTS FOR PRIOR APPROVAL SHALL BEAR THE SAME DESIGNATIONS.

MATERIAL AND EQUIPMENT MANUFACTURERS

ALL ITEMS OF EQUIPMENT SHALL BE FURNISHED COMPLETE WITH ALL ACCESSORIES NORMALLY SUPPLIED WITH THE CATALOG ITEMS LISTED AND ALL OTHER ACCESSORIES NECESSARY FOR A COMPLETE AND SATISFACTORY OPERATING SYSTEM. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND SHALL BE STANDARD PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF PLUMBING, HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT AND SHALL BE THE MANUFACTURER'S LATEST DESIGN. IF AN APPROVED MANUFACTURER IS OTHER THAN THE MANUFACTURER USED AS THE BASIS FOR DESIGN, THE EQUIPMENT OF PRODUCT PROVIDED SHALL BE EQUAL IN QUALITY, DURABILITY, APPEARANCE, CAPACITY AND EFFICIENCY THROUGH ALL RANGES OF OPERATION, SHALL CONFORM WITH ARRANGEMENTS AND SPACE LIMITATIONS OF THE EQUIPMENT SHOWN ON THE PLANS AND/OR SPECIFIED, SHALL BE COMPATIBLE WITH THE OTHER COMPONENTS OF THE SYSTEM AND SHALL COMPLY WITH THE REQUIREMENTS FOR SUBSTITUTION ITEMS REQUIRING PRIOR APPROVAL SPECIFIED IN THIS SECTION OF THE SPECIFICATIONS. ALL COSTS TO MAKE THESE ITEMS OF EQUIPMENT COMPLY WITH THESE REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, PIPING, SHEET METAL, ELECTRICAL WORK, AND BUILDING ALTERATIONS SHALL BE INCLUDED IN THE ORIGINAL BID.

OPERATION AND MAINTENANCE INSTRUCTIONAL MANUALS

PROVIDE COMPLETE MAINTENANCE AND OPERATING INSTRUCTIONAL MANUALS COVERING ALL MECHANICAL EQUIPMENT AS SPECIFIED HEREIN, DIVISION 1 REQUIREMENTS, AND INDIVIDUAL EQUIPMENT SECTION. THE O&M DATA SHALL BE FOUND IN A SUITABLE NUMBER OF 3" OR 4", 3-RING, HARD COVER BINDERS. PERMANENTLY IMPRINTED ON THE COVER SHALL BE THE WORDS, "MANUFACTURER'S OPERATION AND MAINTENANCE DATA", PROJECT TITLE, LOCATION OF PROJECT, AND THE DATE. A TABLE OF CONTENTS SHALL BE PROVIDED IN THE FRONT OF EACH BINDER. MAINTENANCE AND OPERATING INSTRUCTIONAL MANUALS SHALL BE JOB SPECIFIC TO THIS PROJECT. GENERIC MANUALS ARE NOT ACCEPTABLE. EACH PIECE OF EQUIPMENT IN THE O&M MANUAL SHALL BE IDENTIFIED AS IDENTIFIED ON THE PROJECT DRAWINGS

(I.E. EXHAUST FAN EF--1, ETC.). INTERNALLY SUBDIVIDE THE BINDER CONTENTS WITH PERMANENT PAGE DIVIDERS, ORGANIZED BY MAJOR EQUIPMENT/SYSTEMS (I.E. FANS, ETC.) CONTENTS: EACH VOLUME OF O&M MANUAL SHALL HAVE THREE PARTS: PART 1: A DIRECTORY LISTING NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF ARCHITECT/ENGINEER, CONTRACTOR, SUBCONTRACTORS, AND MAJOR EQUIPMENT SUPPLIERS. PART 2: O&M DATA, ARRANGED AND SUBDIVIDED BY MAJOR EQUIPMENT/SYSTEMS. FOR EACH CATEGORY, IDENTIFY NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF SUBCONTRACTORS AND SUPPLIERS. LIST OF EQUIPMENT. COPIES OF SHOP DRAWINGS AND PRODUCT DATA, APPROVED BY ARCHITECT/ENGINEER. INSTALLATION AND OPERATIONAL PROCEDURES. ROUTINE MAINTENANCE AND MAJOR REPAIR PROCEDURES. TROUBLE SHOOTING PROCEDURES. COMPLETE PARTS LISTS BY NOMENCLATURE, MANUFACTURER'S PART NUMBER AND USE. RECOMMENDED SPARE PARTS LISTS. LUBRICATION CHART LISTING ALL TYPES OF LUBRICANTS TO BE USED FOR EACH PIECE OF EQUIPMENT AND THE RECOMMENDED FREQUENCY OF LUBRICATION. COMPLETE WIRING AND SCHEMATIC DIAGRAMS. ELEVATIONS AND/OR SECTIONS CUT THROUGH ALL OF THE MAJOR EQUIPMENT AND SUB-ASSEMBLIES. AT THE END OF EACH SECTION, A MAINTENANCE SCHEDULE SHALL BE PROVIDED FOR EACH PIECE OF EQUIPMENT. THE SCHEDULE SHALL DISPLAY THE DAILY, WEEKLY, MONTHLY, SEMI-ANNUAL, AND ANNUAL LUBRICATION AND PREVENTATIVE MAINTENANCE REQUIRED IN ORDER TO MEET WARRANTY CONDITIONS AND THE MANUFACTURER'S RECOMMENDATIONS FOR OPTIMAL PERFORMANCE AND LIFE OF THE EQUIPMENT. PHOTOS OR REPRODUCTION OF THE MANUFACTURER'S LITERATURE WILL NOT BE ACCEPTED. PART 3: PROJECT DOCUMENTS AND CERTIFICATES, INCLUDING THE FOLLOWING: WARRANTY CERTIFICATES. COPIES OF APPROVED CONSTRUCTION PERMITS. A MINIMUM OF TWO (2) COPIES OF ALL APPROVED OPERATION AND MAINTENANCE LITERATURE SHALL BE FURNISHED TO THE OWNER WITHIN 10 DAYS AFTER FINAL INSPECTION. O&M MANUALS MUST BE COMPLETED PRIOR TO START OF OWNER TRAINING AS THE MANUALS SHALL BE USED AS THE BASIS OF THE TRAINING.

SHOP DRAWINGS/SUBMITTALS

REFER TO GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS. ALL SHOP DRAWINGS SHALL BE SUBMITTED IN GROUPINGS OF SIMILAR AND/OR RELATED ITEMS. INCOMPLETE SUBMITTAL GROUPINGS WILL BE RETURNED UNCHECKED. UNLESS NOTED OTHERWISE, SUBMIT DIGITAL (.PDF FORMAT) COPIES OF COMPLETE MANUFACTURER'S SHOP DRAWINGS FOR ALL EQUIPMENT, VALVES, PLUMBING AND HEATING SPECIALTIES, REFRIGERATION SPECIALTIES, PIPE HANGERS, WIRING DIAGRAMS AND CONTROL DIAGRAMS. WHERE ITEMS ARE REFERRED TO BY SYMBOLIC DESIGNATION ON THE DRAWINGS AND SPECIFICATIONS, ALL SUBMITTALS SHALL BEAR THE SAME DESIGNATION. REFER TO OTHER SECTIONS OF THE MECHANICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

RECORD DRAWINGS

CONTRACTOR SHALL SUBMIT TO THE ARCHITECT AND/OR ENGINEER, RECORD DRAWINGS WHICH HAVE BEEN NEATLY MARKED TO REPRESENT AS-BUILT CONDITIONS FOR ALL NEW MECHANICAL WORK. THE CONTRACTOR SHALL KEEP ACCURATE NOTE OF ALL DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS AND DISCREPANCIES IN THE CONCEALED CONDITIONS AND OTHER ITEMS OF CONSTRUCTION ON FIELD DRAWINGS AS THEY OCCUR. THE MARKED UP FIELD DOCUMENTS SHALL BE AVAILABLE FOR REVIEW BY THE ARCHITECT AND/OR ENGINEER, AND OWNER AT THEIR REQUEST.

PRODUCTS AND EXECUTION

INSTALLATION OF EQUIPMENT

INSTALL EQUIPMENT IN STRICT ACCORDANCE WITH ALL DIRECTIONS AND RECOMMENDATIONS FURNISHED BY THE MANUFACTURER. WHERE SUCH DIRECTIONS ARE IN CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS, REPORT SUCH CONFLICTS TO THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION.

WORK INVOLVING OTHER TRADES

CERTAIN ITEMS OF EQUIPMENT OR MATERIALS SPECIFIED IN THE MECHANICAL DIVISION MAY HAVE TO BE INSTALLED BY OTHER TRADES DUE TO CODE REQUIREMENTS OR UNION JURISDICTIONAL REQUIREMENTS. IN SUCH INSTANCES, THE CONTRACTOR SHALL COMPLETE THE WORK THROUGH AN APPROVED, QUALIFIED SUBCONTRACTOR AND SHALL INCLUDE THE FULL COST FOR SAME IN HIS BID.

COORDINATION

INSTALL WORK TO AVOID INTERFERENCE WITH WORK OF OTHER TRADES INCLUDING, BUT NOT LIMITED TO, ARCHITECTURAL AND ELECTRICAL TRADES. REMOVE AND RELOCATE ANY WORK THAT CAUSES AN INTERFERENCE AT CONTRACTOR'S EXPENSE. DISPUTES REGARDING THE CAUSE OF AN INTERFERENCE SHALL BE RESOLVED BY THE ARCHITECT AND/OR ENGINEER.

SEALING OF MECHANICAL OPENINGS

SEAL THE SPACE AROUND PIPES IN SLEEVES AND AROUND DUCT OPENINGS THROUGH WALLS, FLOORS AND CEILINGS. PROVIDE ADEQUATE CLEARANCE TO ALLOW FOR PROPER DUCT/PIPE MOVEMENT AND SEALING. PROVIDE/INSTALL FIREPROOF WALL AND FLOOR SLEEVES AS REQUIRED BY APPLICABLE BUILDING CODES AT ALL APPLICABLE WALL, CEILING, AND FLOOR PENETRATIONS. REFER TO ARCHITECTURAL PLANS FOR WALL ASSEMBLY RATINGS.

CUTTING, CORING AND PATCHING

REFER TO GENERAL CONDITIONS. UNLESS SPECIFICALLY NOTED OTHERWISE, THE CONTRACTOR SHALL PERFORM ALL CUTTING, CORING, AND PATCHING THAT MAY BE NECESSARY FOR THE INSTALLATION OF THEIR WORK. ALL CUTTING, CORING, PATCHING AND REPAIR WORK SHALL BE PERFORMED BY THE CONTRACTOR THROUGH QUALIFIED SUBCONTRACTORS. CONTRACTOR SHALL INCLUDE FULL COST OF SAME IN HIS BID. SECURE APPROVAL FORM ARCHITECT AND/OR STRUCTURAL ENGINEER, IN WRITING, BEFORE CUTTING, WELDING/BOLTING TO, OR REMOVING FROM ANY STRUCTURAL BUILDING COMPONENTS (I.E. STRUCTURAL STEEL, LOAD BEARING WALLS, FOOTINGS/FOUNDATIONS, CONCRETE FLOORS/CEILINGS, ETC.).

EQUIPMENT CONNECTIONS

MAKE CONNECTIONS TO EQUIPMENT, FIXTURES AND OTHER ITEMS INCLUDED IN THE WORK IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS AND ROUGH-IN MEASUREMENTS FURNISHED BY THE MANUFACTURES OF THE PARTICULAR EQUIPMENT FURNISHED.

ACCESSIBILITY

ALL EQUIPMENT SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE, AND REPAIR, AS REQUIRED BY THE EQUIPMENT MANUFACTURER AND AS SUBJECT TO THE APPROVAL OF THE ENGINEER.

CLEANING

EACH TRADE SHALL BE RESPONSIBLE FOR REMOVING ALL DEBRIS DAILY AS REQUIRED TO MAINTAIN THE WORK AREA IN A NEAT, ORDERLY CONDITION.

PAINTING

ALL MECHANICAL SYSTEMS, EQUIPMENT, PIPING, DUCTWORK, ETC. EXPOSED IN FINISHED AREAS SHALL BE PAINTED TO MATCH THE SURROUNDING FINISHES. REFER TO SPECIFICATION SECTION 09900 – COORDINATE COLOR WITH ARCHITECT.

PROTECTION AND HANDLING OF EQUIPMENT AND MATERIALS

ELECTRICAL EQUIPMENT FURNISHED BY MECHANICAL TRADES AND INSTALLED BY ELECTRICAL TRADES SHALL BE TURNED OVER TO ELECTRICAL TRADES IN GOOD CONDITION. EQUIPMENT AND MATERIALS SHALL BE PROTECTED FROM THEFT, INJURY OR DAMAGE. PROTECT EQUIPMENT OUTLETS, PIPE AND DUCT OPENINGS WITH TEMPORARY PLUGS OR CAPS. PROVIDE ADEQUATE STORAGE FOR ALL EQUIPMENT AND MATERIALS DELIVERED TO THE JOB SITE. EQUIPMENT SET IN PLACE IN UNPROTECTED AREAS MUST BE PROVIDED WITH TEMPORARY PROTECTION.

GENERAL SUPPORT REQUIREMENTS

EACH MECHANICAL TRADE SHALL PROVIDE ALL REQUIRED SUPPORTING COMPONENTS TO PROPERLY SUPPORT THEIR WORK. SUPPORTING COMPONENTS/SYSTEMS SHALL BE IN ACCORDANCE WITH CODE AND AS SPECIFIED. PROVIDE ALL NECESSARY ANGLE/BRAKETS OR SUPPLEMENTARY STEEL AS REQUIRED FOR ADEQUATE SUPPORT FOR ALL PIPING, DUCTWORK, SPECIALTIES, AND EQUIPMENT. SECURE APPROVAL FORM ARCHITECT AND/OR ENGINEER, IN WRITING, BEFORE WELDING OR BOLTING TO STEEL FRAMING OR ANCHORING TO CONCRETE STRUCTURE.

DRAWINGS AND MEASUREMENTS

THESE SPECIFICATIONS AND ACCOMPANYING DRAWINGS ARE INTENDED TO DESCRIBE AND PROVIDE FOR FINISHED WORK. THEY ARE INTENDED TO BE COOPERATIVE, AND WHAT IS CALLED FOR BY EITHER THE DRAWINGS OR SPECIFICATIONS SHALL BE AS BINDING AS IF CALLED FOR BY BOTH. THE WORK HEREIN DESCRIBED SHALL BE COMPLETE IN EVERY DETAIL. THE DRAWINGS ARE NOT INTENDED TO BE SCALED FOR ROUGH-IN MEASUREMENTS, NOR TO SERVE AS SHOP DRAWINGS. FIELD MEASUREMENTS NECESSARY FOR ORDERING MATERIALS AND FITTING THE INSTALLATION TO THE BUILDING CONSTRUCTION AND ARRANGEMENT SHALL BE TAKEN BY THE CONTRACTOR. THE CONTRACTOR SHALL CHECK LATEST ARCHITECTURAL DRAWINGS TO LOCATE EQUIPMENT/FIXTURES/ETC., CHECK LATEST STRUCTURAL DRAWINGS FOR INTERFERENCES, ETC..

EXTRA WORK

FOR ANY EXTRA WORK WHICH MAY BE PROPOSED, THE CONTRACTOR SHALL FURNISH TO THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER, AN ITEMIZED BREAKDOWN OF THE ESTIMATED COST OF ALL MATERIALS AND LABOR REQUIRED TO COMPLETE THIS WORK. THE ESTIMATE COST BREAKDOWN SHALL INCLUDE UNIT PRICES (SAME PRICES FOR INCREASE/DECREASE OF WORK) FOR ALL MATERIALS (I.E. DUCT, PIPING, VALVES, EQUIPMENT, EQUIPMENT RENTAL, ETC.) AND ALL LABOR (I.E. MANHOURS, OVERTIME, ETC.) WHICH MAY BE REQUIRED FOR ANY PROPOSED EXTRA WORK. THE CONTRACTOR SHALL NOT PROCEED UNTIL RECEIVING A WRITTEN ORDER FROM THE GENERAL CONTRACTOR ESTABLISHING THE AGREED PRICE AND DESCRIBING THE WORK TO BE DONE.

TESTING AND BALANCING AIR DISTRIBUTION SYSTEMS

PROVIDE AND SUBMIT AN INDIVIDUAL REPORT FOR EACH PIPING SYSTEM. REPORTS SHALL BE SUBMITTED TO THE ARCHITECT AND SHALL INCLUDE DATA ON TESTS USING AABC FORMS. REPORTS SHALL INCLUDE FAN CURVES FOR THE FINAL SPEEDS DEVELOPED FROM THE FAN MANUFACTURER'S PERFORMANCE TEST DATA FOR ALL FANS 1 HP AND ABOVE. PROVIDE A 11x17 REDUCED SET OF DRAWINGS SHOWING ALL EQUIPMENT, FLOW DEVICES, TERMINALS MARKED THAT CORRESPONDS TO WRITTEN REPORT.

ALL PIPING SYSTEMS INSTALLED OR REVISED UNDER THIS CONTRACT SHALL BE BALANCED UNDER THIS CONTRACT. THE MECHANICAL CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT TESTING AND BALANCING AGENCY AND SHALL NOT ENGAGED IN ENGINEERING DESIGN OR A DIVISION OF THE MECHANICAL CONTRACTOR ENTITY. THE TESTING AND BALANCING AGENCY FIRM SHALL BE AABC OR NEBB CERTIFIED AND SHALL HAVE HAD EXPERIENCE ON SIMILAR SIZED PROJECTS AND INCLUDED AS PART OF THEIR QUALIFICATIONS SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL.

THE FOLLOWING WORK SHALL BE INCLUDED UNDER THIS CONTRACT:

SUPERVISE AND PERFORM THE BALANCING OF PIPING SYSTEMS TO ACHIEVE THE GPM QUANTITIES SPECIFIED FOR EACH ZONE VALVE AND LOOP VALVE.

REPORT AND ATTEMPT TO SOLVE ANY NOISE ISSUES DURING TESTING AND BALANCING WITHOUT REDUCING AIRFLOW OR INCREASING AIRFLOWS GREAT THAN PERCENT LISTED ABOVE.

A SATISFACTORY REPORT SHALL BE RECEIVED BEFORE CONSIDERING THE PROJECT SUBSTANTIALLY COMPLETE. THE TESTING AND BALANCING CONTRACTOR SHALL CORRECT ALL DEFICIENCIES WITHIN 7 BUSINESS DAYS OF RECEIVING THE ENGINEER'S REPORT. FAILURE TO COMPLY WILL RESULT IN HOLDING RETAINAGE OF THE FINAL PAYMENT UNTIL SATISFACTION OF ENGINEER.

BALANCE REPORT SHALL BE ON SITE AND ACCESSIBLE TO THE INSPECTOR AT THE TIME OF FINAL MECHANICAL INSPECTION. NO EXCEPTIONS

RADIANT FLOOR HYDRONIC PIPING

SUBMITTALS:

PRODUCT DATA: PROVIDE MANUFACTURER'S PRODUCT SUBMITTAL DATA, INCLUDING PRESSURE AND TEMPERATURE RATING, OXYGEN-BARRIER PERFORMANCE, AND FIRE-PERFORMANCE CHARACTERISTICS.

SHOP DRAWINGS: PROVIDE INSTALLATION DRAWINGS INDICATING: PIPING LAYOUT, SIZE DIMENSION BY INSTALLATION SEGMENT, VAULT LOCATIONS, SUPPORT FIXTURES AND SCHEDULES WITH ALL DETAILS REQUIRED FOR INSTALLATION OF THE SYSTEM.

SAMPLES: SUBMIT SELECTION AND VERIFICATION SAMPLES OF PIPING.

QUALITY ASSURANCE/CONTROL SUBMITTALS

- TEST REPORTS: UPON REQUEST, SUBMIT TEST REPORTS FROM RECOGNIZED TESTING LABORATORIES.
- SUBMIT THE FOLLOWING DOCUMENTATION.
 - MANUFACTURER'S CERTIFICATE STATING THAT PRODUCTS COMPLY WITH SPECIFIED REQUIREMENTS.
 - MANUFACTURER'S FLOW SCHEDULE FOR THE DISTRIBUTION SYSTEM.
 - DOCUMENTATION THAT THE INSTALLER IS TRAINED TO INSTALL THE MANUFACTURER'S PRODUCTS.

CLOSEOUT SUBMITTALS: SUBMIT THE FOLLOWING DOCUMENTS.

- WARRANTY DOCUMENTS SPECIFIED HEREIN.
- OPERATION AND MAINTENANCE DATA.
- MANUFACTURER'S FIELD REPORTS SPECIFIED HEREIN.
- FINAL AS-BUILT PIPING LAYOUT DRAWING.

QUALITY ASSURANCE

- INSTALLER QUALIFICATIONS: INSTALLER SHALL HAVE SUCCESSFULLY COMPLETED THE UPONOR COMMERCIAL PIPING SYSTEMS TRAINING COURSE (FORMERLY UPONOR AQUAPEX CERTIFICATION) AND IS ABLE TO PROVIDE PROOF/VERIFICATION. COURSE SHALL BE CONDUCTED BY THE MANUFACTURER OR A MANUFACTURER'S REPRESENTATIVE.

- REGULATORY REQUIREMENTS AND APPROVALS: ENSURE THE PIPING DISTRIBUTION SYSTEM COMPLIES WITH ALL APPLICABLE CODES AND REGULATIONS.
- CERTIFICATIONS: PROVIDE LETTERS OF CERTIFICATION INDICATING: INSTALLER USES SKILLED WORKERS HOLDING A TRADE QUALIFICATION LICENSE OR EQUIVALENT, OR APPRENTICES UNDER THE SUPERVISION OF A LICENSED TRADES PERSON.

DELIVERY, STORAGE AND HANDLING

- COMPLY WITH MANUFACTURER'S ORDERING INSTRUCTIONS AND LEAD-TIME REQUIREMENTS TO AVOID CONSTRUCTION DELAYS.
- DELIVERY: DELIVER MATERIALS IN MANUFACTURER'S ORIGINAL, UNOPENED, UNDAMAGED CONTAINERS WITH IDENTIFICATION LABELS INTACT.
- STORAGE AND PROTECTION: STORE MATERIALS PROTECTED FROM EXPOSURE TO HARMFUL ENVIRONMENTAL CONDITIONS AND AT TEMPERATURE AND HUMIDITY CONDITIONS RECOMMENDED BY THE MANUFACTURER.
 - STORE PEX TUBING IN CARTONS OR UNDER COVER TO AVOID DIRT OR FOREIGN MATERIAL FROM ENTERING THE TUBING.
 - DO NOT EXPOSE PEX TUBING TO DIRECT SUNLIGHT FOR MORE THAN 30 DAYS. IF CONSTRUCTION DELAYS ARE ENCOUNTERED, COVER THE TUBING TO PREVENT EXPOSURE TO DIRECT SUNLIGHT
 - STORE PORTABLE PRE-INSULATED PIPING COILS UNDER COVER TO PREVENT DIRT OR FOREIGN MATERIAL FROM ENTERING THE SERVICE TUBING.
 - DO NOT EXPOSE THE SERVICE PIPE TO DIRECT SUNLIGHT FOR MORE THAN 30 DAYS. IF CONSTRUCTION DELAYS ARE ENCOUNTERED, COVER PIPING THAT IS EXPOSED TO DIRECT SUNLIGHT.

WARRANTY

- MANUFACTURER'S WARRANTY FOR HYDRONIC PIPING: MANUFACTURER'S STANDARD 25 YEAR WARRANTY FOR PEX-A PIPING AND ASTM F 1960 FITTINGS.
- MANUFACTURER'S WARRANTY FOR PRE-INSULATED PIPE DISTRIBUTION SYSTEMS: SUBMIT, FOR OWNER'S ACCEPTANCE, USA MANUFACTURER'S STANDARD 5-YEAR WARRANTY DOCUMENT EXECUTED BY AUTHORIZED COMPANY OFFICIAL. MANUFACTURER'S WARRANTY IS IN ADDITION TO, AND NOT A LIMITATION OF, OTHER RIGHTS OWNER MAY HAVE UNDER CONTRACT DOCUMENTS.
 - WARRANTY COVERS THE REPAIR OR REPLACEMENT OF ANY PIPING OR FITTINGS PROVEN DEFECTIVE.
 - WARRANTY MAY TRANSFER TO SUBSEQUENT OWNERS.
 - THE MOST RESTRICTED LIMITED WARRANTY PUBLISHED BY THE MANUFACTURER TAKES PRECEDENCE AT THE TIME OF INSTALLATION.

PRODUCTS:

MANUFACTURERS

- ACCEPTABLE MANUFACTURER: UPONOR , WHICH IS LOCATED AT: 5925 148TH ST. W.; APPLE VALLEY, MN 55124; TOLL FREE TEL: 800-321-4739; TEL: 952-891-2000; FAX: 952-891-2008; EMAIL:REQUEST.INFO (DANIEL.WORM@UPONOR.COM); WEB:WWW.UPONORENGINEERING.COM.
 - REQUESTS FOR SUBSTITUTIONS WILL BE CONSIDERED. CONTRACTOR TO CONTACT DESIGN TEAM PRIOR TO ACCEPTANCE.
- 2.2 HYDRONIC PIPING AND FITTINGS (PEX-A)
- PERFORMANCE REQUIREMENTS: PEX-A PIPING AND FITTINGS SHALL MEET THE FOLLOWING PRESSURE AND TEMPERATURE RATINGS:
 - 200 DEGREES F (93 DEGREES C) AT 80 PSI (551 KPA).
 - 180 DEGREES F (82 DEGREES C) AT 100 PSI (689 KPA).
 - 73.4 DEGREES F (23 DEGREES C) AT 160 PSI (1,102 KPA).
 - PLASTIC PIPE AND FITTINGS:
 - PEX-A (ENGL-METHOD CROSSLINKED POLYETHYLENE) PIPING: UPONOR MIRS80 HEXPEX , ASTM 876 WITH OXYGEN-DIFFUSION BARRIER THAT MEETS DIN 4726.
 - PEX-A FITTINGS, ELBOWS AND TEES (1/2 INCH THROUGH 3 INCH NOMINAL PIPE SIZE): ASTM F1960 COLD-EXPANSION FITTING MANUFACTURED FROM THE FOLLOWING MATERIAL TYPES:
 - UNS NO. C69300 LEAD-FREE (LF) BRASS.
 - 20 PERCENT GLASS-FILLED POLYSULFONE AS SPECIFIED IN ASTM D6394.
 - UNREINFORCED POLYSULFONE (GROUP 01, CLASS 1, GRADE 2) AS SPECIFIED IN ASTM D6394.
 - POLYPHENYLSULFONE (GROUP 03, CLASS 1, GRADE 2) AS SPECIFIED IN ASTM D6394

- BLEND OF POLYPHENYLSULFONE (55–80%) AND UNREINFORCED POLYSULFONE (REM.) AS SPECIED IN ASTM D6394.
 - REINFORCING COLD-EXPANSION RINGS SHALL BE MANUFACTURED FROM THE SAME SOURCE AS PEX-A PIPING MANUFACTURER AND MARKED "F1960".
3. PEX-A FITTINGS (1 INCH THROUGH 4 INCH NOMINAL PIPE SIZE): SDR9 COMPRESSION TYPE FITTING CONSISTING OF A DOUBLE O-RING INSERT WITH A COMPRESSION SLEEVE TIGHTENED AROUND THE PIPE AND INSERT.
- C. PLASTIC-TO-METAL TRANSITION FITTINGS:
- MANUFACTURER: PROVIDE FITTINGS FROM THE SAME MANUFACTURER OF THE PIPING.
 - THREADED BRASS TO PEX-A TRANSITION: ONE-PIECE BRASS FITTING WITH MALE OR FEMALE THREADED ADAPTER AND F1960 COLD-EXPANSION END, WITH PEX-A REINFORCING COLD-EXPANSION RING. TYPICALLY USED FOR PEX SIZES 3 INCH AND BELOW.
 - BRASS SWEAT TO PEX-A TRANSITION: ONE-PIECE BRASS FITTING WITH SWEAT ADAPTER AND F1960 COLD-EXPANSION END, WITH PEX-A REINFORCING COLD-EXPANSION RING. TYPICALLY USED FOR PEX SIZES 3 INCH AND BELOW.
 - DEZINIFICATION-RESISTANT (DZR) BRASS TO PEX-A TRANSITION: MALE NPT THREAD AND PEX COMPRESSION FITTING. EDITOR: TYPICALLY USED FOR PEX SIZES 1 INCH THROUGH 4 INCH.
- D. PLASTIC-TO-METAL TRANSITION UNIONS:
- MANUFACTURER: PROVIDE UNIONS FROM THE SAME MANUFACTURER OF THE PIPING.
 - THREADED BRASS TO PEX-A UNION: ONE-PIECE BRASS FITTING WITH MALE OR FEMALE THREADED ADAPTER AND F1960 COLD-EXPANSION END, WITH PEX-A REINFORCING COLD-EXPANSION RING. TYPICALLY USED FOR PEX SIZES 3 INCH AND BELOW.
 - BRASS SWEAT TO PEX-A UNION: ONE-PIECE BRASS FITTING WITH SWEAT ADAPTER AND F1960 COLD-EXPANSION END, WITH PEX-A REINFORCING COLD-EXPANSION RING. TYPICALLY USED FOR PEX SIZES 3 INCH AND BELOW.
- E. PIPING APPLICATIONS:
- HOT-WATER HEATING PIPING, ABOVEGROUND (3 INCH AND BELOW) SHALL BE THE FOLLOWING: PEX-A PIPING, WITH F1960 COLD-EXPANSION FITTINGS.
 - HOT-WATER HEATING PIPING, ABOVEGROUND (3-1/2 INCH THROUGH 4 INCH) SHALL BE THE FOLLOWING: PEX-A PIPING, WITH COMPRESSION FITTINGS.

PART 3 EXECUTION

3.1 EXAMINATION

- SITE VERIFICATION OF CONDITIONS: VERIFY THAT SITE CONDITIONS ARE ACCEPTABLE FOR INSTALLATION OF THE PIPING DISTRIBUTION SYSTEM. DO NOT PROCEED WITH INSTALLATION UNTIL UNACCEPTABLE CONDITIONS ARE CORRECTED.

3.2 HYDRONIC SYSTEMS INSTALLATION

- INSTALL HYDRONIC PIPING ACCORDING TO APPROVED SHOP DRAWINGS OR COORDINATION DRAWINGS.
- COMPLY WITH MANUFACTURER'S PRODUCT DATA, INCLUDING PRODUCT TECHNICAL BULLETINS, INSTALLATION INSTRUCTIONS AND DESIGN DRAWINGS, INCLUDING THE FOLLOWING:
 - UPONOR PRE-INSULATED PIPE SYSTEMS DESIGN AND INSTALLATION MANUAL, CURRENT EDITION.
- PEX-A PIPING:
 - PEX-A PIPING HANGER SPACING: INSTALL HANGERS FOR PEX-A PIPING WITH THE FOLLOWING MAXIMUM SPACING:
 - 1 INCH AND BELOW MAXIMUM SPAN, 32 INCHES.
 - 1-1/2 INCH AND ABOVE: MAXIMUM SPAN, 48 INCHES.
 - PEX-A PIPING HANGER SPACING WITH PEX-A SUPPORT CHANNEL: INSTALL HANGERS FOR PEX-A PIPING WITH HORIZONTAL SUPPORT CHANNEL IN ACCORDANCE WITH LOCAL JURSDICTION AND MANUFACTURER'S RECOMMENDATIONS, WITH THE FOLLOWING MAXIMUM SPACING:
 - MAXIMUM SPAN, 8 FEET.
 - PEX-A RISER SUPPORTS: INSTALL CTS RISER CLAMPS AT THE BASE OF EACH FLOOR AND AT THE TOP OF EVERY OTHER FLOOR. INSTALL MID-STORY GUIDES BETWEEN EACH FLOOR.
 - PIPE JOINT CONNECTIONS: INSTALL PER MANUFACTURER'S RECOMMENDATIONS. USE MANUFACTURER-RECOMMENDED COLD-EXPANSION TOOL FOR F1960 CONNECTIONS.

3.3 FIELD QUALITY CONTROL

- SITE TESTS: TO ENSURE SYSTEM INTEGRITY, PRESSURE-TEST THE TUBING BEFORE AND DURING BACKFILLING OF THE PIPING. THE SERVICE TUBING WILL BE AIR TESTED AT 1-1/2 TIMES THE OPERATING PRESSURE FOR A MINIMUM OF 1 HOUR PRIOR TO SYSTEM BURIAL.

3.4 CLEANING

- REMOVE TEMPORARY COVERINGS AND PROTECTION OF ADJACENT WORK AREAS.
- REPAIR OR REPLACE DAMAGED INSTALLED PRODUCTS.
- CLEAN THE INSTALLED PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS PRIOR TO OWNER'S ACCEPTANCE.
- REMOVE CONSTRUCTION DEBRIS FROM PROJECT SITE AND LEGALLY DISPOSE OF DEBRIS

3.5 DEMONSTRATION

- DEMONSTRATE OPERATION OF THE PIPING DISTRIBUTION SYSTEM TO OWNER'S PERSONNEL.

3.6 PROTECTION

- PROTECT INSTALLED WORK FROM DAMAGE CAUSED BY SUBSEQUENT CONSTRUCTION ACTIVITY ON THE SITE

PIPE INSULATION

INSULATION SHALL BE CLASSIFIED AS NON-COMBUSTIBLE BY NFPA AND COVERINGS AND ADHESIVES SHALL MEET THE FLAME SPREAD AND SMOKE DEVELOPED RATINGS. ASI INSULATION JACKETS SHALL BE PROVIDED WITH FACTORY APPLIED PRESSURE SENSITIVE SELF-SEALING LAPS. INSULATE NEW AND REVISED CHILLED WATER AND HOT WATER SUPPLY AND RETURN PIPING. FITTINGS, VALVES AND UNIONS WITH FIBERGLASS INSULATION WITH WHITE ALL-SERVICE JACKETS AND VAPOR BARRIER. INSULATION THICKNESS FOR PIPING 2" DIAMETER AND SMALLER SHALL BE 1". INSULATION THICKNESS FOR PIPING 2-1/2" DIAMETER AND LARGER SHALL BE 1-1/2". THERMAL CONDUCTIVITY (K) SHALL NOT EXCEED .32 BTU/HR/SQ.FT./IN./DEGREE F. AT 250 DEGREES F. MEAN TEMPERATURE. FITTINGS SHALL BE FIBERGLASS PREMOULDED TYPE WITH JACKET COVERING. INSULATION SHALL BE AS MANUFACTURED BY OWENS-CORNING, KNAUF, CERTAINTED, OR APPROVED EQUAL.

THE PIPING INSULATION MUST MEET THE FOLLOWING CODE REQUIREMENTS:

TABLE C403.2.10 MINIMUM PIPE INSULATION THICKNESS (in inches)^{a, c}

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (inches)								
	Conductivity Btu · in/h · ft · °F	Mean Rating Temperature, °F	< 1	1 to 1 1/2	1 1/2 to 4	4 to 8	8 to 12	12 to 16	16 to 24	24 to 36	
	°F	°F									
> 350	0.32 – 0.34	250	4.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
251 – 350	0.29 – 0.32	250	> 5.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5	
201 – 250	0.27 – 0.30	250	2.5	2.5	2.5	3.0	3.0	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	2.0	2.0	
105 – 140	0.21 – 0.26	100	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	
40 – 100	0.21 – 0.27	75	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	
< 40	0.20 – 0.26	50	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.5	

PACKAGED ROOFTOP UNIT (NATURAL GAS HEATING – DX COOLING)																									
MARK	LOCATION/ AREA SERVED	MANUFACTURER MODEL NO.	NOM. TONS	VENTILATION		SUPPLY FAN			HEATING				COOLING							MCA/MOCP	VOLTS/PH/ 60 HZ	MAX. OPER. WEIGHT WITH CURB (lbs.)	OVERALL DIMENSIONS NOT INCLUDING CURB	REMARKS	
				MIN DCV OA (CFM)	MAX DCV OA (CFM)	CFM	SUPPLY ESP. (IN. WC)	FAN RPM	MIN. MOTOR HP	EAT/LAT (°F)	GAS INPUT (MBH)	GAS OUTPUT AT ALTITUDE (MBH)	STAGES	GROSS TOTAL MBH	SENSIBLE MBH	EAT DB/WB (°F)	LAT DB/WB (°F)	COND. AMBIENT TEMP (°F)	EFFICIENCY (IEER/EER)						STAGES
RTU 1	ROOF/SEE PLANS	CARRIER 48GC	3	180	180	1200	1.0	1321	1.0	50/116.3	115	70.68	2	31.28	30.0	80/62	54.2/53.3	95.0	15.0 SEER	1	21/30	208/3	700	75"L x 44"W x 34"H	1 2 3 4 5 6 7 8 9
1 PROVIDE 14" ROOF CURB AND COORDINATE WITH ROOF SLOPE. 2 24/7 PROGRAMMABLE THERMOSTAT. FAN TO RUN AT ALL TIMES DURING OCCUPIED HOURS. 3 5-YEAR COMPRESSOR WARRANTY 4 FAN MOTORS TO BE PROVIDED WITH NEMA PREMIUM EFFICIENCY MOTORS 5 PROVIDE DRY BULB ECONOMIZER WITH BAROMETRIC RELIEF TO CONTROL BUILDING PRESSURE. PROVIDE MODULATING DAMPER TO CONTROL OUTSIDE AIR. 6 PROVIDE LOUVERED HAIL GUARDS AND MERV 8 FILTERS.. 7 FACTORY START-UP 8 FUSED DISCONNECT. 9 NON-POWERED CONVENIENCE OUTLET. MC TO SUPPLY AND EC TO WIRE. ~ ACCEPTED EQUIVALENT MANUFACTURERS: LENNOX, CARRIER, TRANE																									

4

FAN MOTORS TO BE PROVIDED WITH NEMA PREMIUM EFFICIENCY MOTORS

5

6

7

FACTORY START-UP

8

9

~ ACCEPTED EQUIVALENT MANUFACTURERS: LENNOX, CARRIER, TRANE

AIR DEVICES						
MARK	MODEL	TYPE	PATTERN	ACCESSORIES	FINISH	REMARKS
CD-1	PRICE-ASCD A	CEILING SUPPLY DIFFUSER	4-WAY	O.B.D.	BY ARCH.	24x24 FACE NECK SIZE ON FLOOR PLANS
CD-2	PRICE-ASCD A	CEILING SUPPLY DIFFUSER	4-WAY	O.B.D.	BY ARCH.	12x12 FACE NECK SIZE ON FLOOR PLANS
ED-1/RD-1	PRICE-APDDR	RET/EXH DIFFUSER	FIXED	O.B.D.	BY ARCH.	NON-DUCTED RETURN PROVIDE RETURN AIR BOOT OR FLEX DUCTWORK WITH 90 DEGREE ELBOW
EG-1	AIRMATE 310 FB	SUPPLY FLOOR GRILLE	FIXED	O.B.D.	BY ARCH.	WIDTH x HEIGHT ON FLOOR PLANS
RG-1	AIRMATE 325	RETURN FLOOR GRILLE	FIXED	O.B.D.	BY ARCH.	WIDTH x HEIGHT ON FLOOR PLANS
SG-1	PRICE-SDGE AL	SPIRAL DUCT SUPPLY REGISTER	ADJ. DOUBLE DEFLECTION	AIR SCOOP	BY ARCH.	-
IL-1	GREENHECK EHH-601	INTAKE LOUVER	FIXED	1/4" WIRE MESH SCREEN	BY ARCH.	STORM RATED, PAINTABLE
EL-1	LOUVER AND DAMPERS EL-63	EXHAUST LOUVER	FIXED	1/4" WIRE MESH SCREEN	BY ARCH.	STORM RATED, PAINTABLE
1 WHERE VOLUME DAMPER ON FLOOR PLAN DRAWING IS SHOWN DO NOT PROVIDE O.B.D. VOLUME DAMPER ON DRAWING TAKES PRECEDENCE. ~EQUAL MANUFACTURER'S: GREENHECK, KRUEGER, METAL-AIRE, TITUS, NAILOR						

ELECTRIC HEATERS										
MARK	MANUFACTURER/ MODEL NO.	LOCATION/ SERVICE	CFM	HEATING CAPACITY (KW)	DELTA T (°F)	AMPS	VOLTS/ PHASE	WEIGHT (LBS.)	DIMENSIONS	REMARKS
UH 1	QMARK/ MUH-03-81	1ST LEVEL/ FIRE SPRINKLER	350	3	27	14.5	208/1	27	16"Hx14"Wx8"D	123
1 24/7 PROGRAMMABLE THERMOSTAT 2 DISCONNECT SWITCH 3 SET THERMOSTAT SETTING TO 50 DEG F. ~EQUIVALENTS(MUST BE APPROVED): BERKO, MARKEL, TRANE, CHROMALOX, SINGER										

FANS												
MARK	LOCATION/ AREA SERVED	MANUFACTURER MODEL NO.	CFM	ESP	FAN RPM	ELECTRICAL		METHOD OF CONTROL	LBS	REMARKS		
						HP	V/PH/60HZ					
EF 1	HUNG/ EQUIPMENT ROOM	GREENHECK/ SQ-140-VG	2000	0.3	1200	0.26	115/1	THERMOSTAT WHEN SPACE GETS 95 DEG OR ABOVE(ADJ.)	100	12578910		
EF 2	CEILING MOUNTED/ UNISEX BATHROOM	GREENHECK/ SP-B150	120	0.35	1050	128 W	115/1	OCCUPANCY SENSOR WITH 5 MINUTE TIME DELAY (ADJ.)	30	12346		
1 PROVIDE FACTORY CONTROLLED DISCONNECT SWITCH 2 BAROMETRIC DAMPER 3 HUNG VIA SPRING ISOLATORS 4 ECM MOTOR 5 WIRING PIGTAIL 6 SPEED CONTROLLER 7 BIRD SCREEN 8 NEMA-4 DISCONNECT SWITCH 9 INTERLOCK WITH MOTORIZED DAMPER AT INTAKE LOUVER. DAMPER FULLY OPEN PRIOR TO ENERGIZING FAN. 10 FAN INLET GUARD ~OR APPROVED EQUAL												

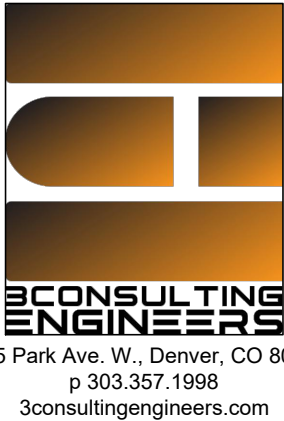
~OR APPROVED EQUAL

INFRARED HEATERS (NATURAL GAS)																										
MARK				MANUFACTURER/ MODEL NUMBER	LOCATION/SERVICE	STAGES	INPUT AT SEA LEVEL (MBH)	OUTPUT AT ALTITUDE (MBH)	ELECTRICAL DATA		OPERATING WEIGHT (lbs)	DIMENSIONAL DATA	REMARKS													
									CURRENT (AMPS)	VOLTAGE/ PHASE																
<table><tr><td>IRH</td><td>IRH</td><td>IRH</td><td>IRH</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr></table>	IRH	IRH	IRH	IRH	1	2	3	4	ROBERTS GORDON HE--150	HUNG/ SEE DRAWINGS	1	150	~	4.8	120/1	305	51"Lx14"Wx10"H	<table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>	1	2	3	4	5	6	7	8
IRH	IRH	IRH	IRH																							
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GAS HEATERS													
MARK	MANUFACTURER/ MODEL	LOCATION/SERVICE	INPUT AT SEA LEVEL (MBH)	OUTPUT AT ALTITUDE (MBH)	CFM	ELECTRICAL			OPERATING WEIGHT (lbs)	OVERALL DIMENSIONS	REMARKS		
						HP	FLA	VOLTAGE/ PHASE					
GUH 1	REZNOR/ UBZ-060	HUNG/ EQUIPMENT ROOM	60	40	1012	1/3	7.1	115/1	100	26"Wx41"Dx17"H	1 2 3 4 5 6 7 8		
1 IGNITION CONTROLLER		4 PRESSURE SWITCH			7 DISCONNECT SWITCH								
2 TIME DELAY RELAY		5 4 POINT SUSPENSION KIT			8 SIZE AND INSTALL TAIL PIPE EXHAUST FLUE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONCENTRIC VENT IS ACCEPTABLE								
3 HIGH LIMIT SWITCH		6 24/7 PROGRAMMABLE THERMOSTAT											
											~EQUIVALENTS: TRANE, MODINE, STERLING		

~EQUIVALENTS: TRANE, MODINE, STERLING



2023-03-28

JESSE GOLDMAN, ARCHITECT

2886 S COLORADO BLVD, SUITE 525
DENVER, CO 80222
(303) 962-9164

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QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

PARKER, CO



2886 S COLORADO BLVD, SUITE 525
DENVER, CO 80222
(303) 962-9164
www.cshqa.com

PROJECT

20037.000

DRAWN

JCB

DATE

3-22-2023

CHECKED

JCB

REVISED

AGENCY COMMENTS 3/22/2023

SHEET TITLE

MECHANICAL SCHEDULES

SHEET

M0.3

ORIGINAL SHEET SIZE
24" x 36"

ESSE GOLDMAN, ARCHITECT
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QUICK N CLEAN CAR WASH
9572 TWENTY MILE ROAD
P
2896 S COLORADO BLVD
DEN

1

REVISED
 ⚠ AGENCY COMMENTS 3/22/202

SHEET

M0.4

ORIGINAL SHEET SIZE
24" x 36"

[illegible]

Manifold 3.A (148 °F, TruFLOW Classic, 4 Circuits)

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 2	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 3	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 4	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Total	-	972	-	669	-	9.80	12.0	-	108,450	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 3.B (148 °F, TruFLOW Classic, 4 Circuits)

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 2	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 3	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 4	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Total	-	972	-	669	-	9.80	12.0	-	108,450	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 3.C (148 °F, TruFLOW Classic, 3 Circuits)

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 2	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 3	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Total	-	729	-	502	-	7.35	12.0	-	81,338	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Project Information

Project #:	AM20221024-001	Notes:
Name:	Quick N Clean Car Wash (Parker) Snowmelt	
Location:	Parker, CO	

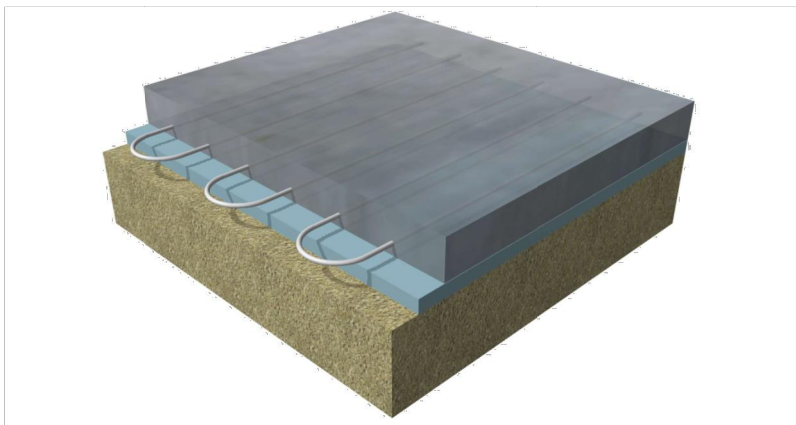
Design Conditions and Summary

Method	Uponor Load Method	Total Snow Melt Load:	574,919 Btu/hr
Climate Location	DENVER INTL, Colorado		
Design Outdoor Temp	0 °F		
Design Wind Speed	10 mph		
Fluid Type:	50% Propylene Glycol		
Total Flowrate:	51.93 USGPM		
Max. Head Loss:	20.0 ft water		
Design Temp. Drop:	25.0 °F		
Total Area:	3,547 ft²		

Radiant Panel Details

Panel Type #1 - Snow Melt - Concrete

Tubing Layer Thickness:	6.0 in
Tube Depth (Embedded Layer):	4.0 in
Tubing Layer R per Inch:	0.15 °F·ft²·hr/(Btu·in)
Insulation Rv:	10.0 hr·ft²·°F/btu
Spacing:	9 in
Fastener:	Wire Ties
Floorplans:	
Snow Melt	3,547 ft²



SNOWMELT INSTALLATION REQUIREMENTS

- FURNISH AND INSTALL, AS SHOWN ON PLAN AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, A COMPLETE RADIANT FLOOR HEATING SYSTEM. EQUIPMENT SHALL BE PROVIDED BY ONE MANUFACTURER INCLUDING TUBING, MANIFOLDS, OR DISTRIBUTION STATIONS, POWERHEADS FOR ZONE CONTROL, SENSORS, CONTROL VALVES, WIRING, AND PIPE BEND SUPPORTS.
- A 8" TALL X 16" WIDE KNOCKOUT IS NEEDED IN THE CORNER OF THE EQUIPMENT ROOM ABOUT 12" BELOW TOP OF CONCRETE.
- ALL FORMS FOR ENTIRE HEATED SLAB MUST BE IN PLACE BEFORE FLOORHEAT IS INSTALLED.
- 6" X 6" WIRE MESH IS REQUIRED THROUGHOUT ENTIRE HEATED SLAB BEFORE FLOORHEAT IS INSTALLED.
- TRENCH DRAINS MUST BE INSTALLED BEFORE FLOOR HEAT IS INSTALLED.
- THERE MUST BE A GAP AROUND EACH OF THE TRENCH DRAINS TO LAY FLOOR HEAT TUBE AROUND THE TRENCH DRAIN INSTEAD OF UNDER.
- FLOOR HEAT TUBES MAY NOT CROSS BETWEEN TWO SEPARATE POURS.
- ALL CONDUIT, GAS LINES, DRAINS, PLUMBING MUST BE IN PLACE BEFORE FLOOR HEAT IS INSTALLED.
- ANY BALLARDS MUST BE LOCATED BEFORE FLOOR HEAT IS INSTALLED.
- ALL STANDPIPES MUST BE 2" AWAY FROM SIDEWALLS.
- USE ZIP TIES OR WIRE TIES TO HOLD DOWN TUBING TO THE MESH.
- SEE SHEET M0.3 FOR SPECIFICATIONS
- PROVIDE CIRCULATION LOOP SENSOR ON THE RETURN PIPING TO THE MIXING BANK.
- THE BOILER CIRCULATION LOOP SENSOR SHALL BE LOCATED ON THE SUPPLY PIPING TO THE MIXING BANK.
- THE AMBIENT TEMPERATURE SENSOR SHALL BE LOCATED IN AN AREA THAT DOES NOT RECEIVE DIRECT SUNLIGHT.
- PROVIDE R-10 XBOARD OR BARRIER X5 RIGID INSULATION UNDER SLAB OF SNOWMELT ZONE.

Manifold 2.A

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Circuit 2	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Circuit 3	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Circuit 4	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Total	-	995	-	686	-	10.05	12.8	-	111,256	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 2.B

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Total	-	249	-	172	-	2.51	12.8	-	27,814	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 3.A

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 2	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 3	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 4	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Total	-	972	-	669	-	9.80	12.0	-	108,450	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 3.B

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 2	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 3	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 4	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Total	-	972	-	669	-	9.80	12.0	-	108,450	-

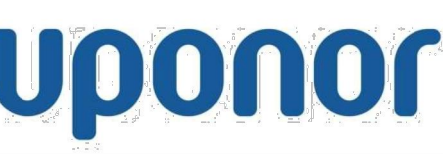
(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 3.C

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 2	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Circuit 3	Snowmelt Zone #3	243	9	167	hePEX 3/4"	2.45	12.0	25	27,113	4.2
Total	-	729	-	502	-	7.35	12.0	-	81,338	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Disclaimers



Water Supply Summary

Project Information

Project #:	AM20221024-001	Notes:
Name:	Quick N Clean Car Wash (Parker) Snowmelt	
Location:	Parker, CO	

Supply Summary

Name	Temp	Total Fluid Vol	Total Flow	Head Loss¹	Load²	# Circuits
Water Temp 1	148	94.59	51.93	20.0	574,919	21

(1) Head loss includes manifolds, circuits, and supply/return piping if specified, may also contain control valve losses. (2) Load includes all panel back losses.

Manifold Summary

Manifold Name	Circuits	Flowrate	Required Temp.	Supplied Temp.	Manifold Type	S/R Length¹	S/R Pipe	Manifold Head Loss	Circuit Head Loss	S/R Head Loss	Total Head Loss²
Manifold 1.A	4	9.94	148	148	TruFLOW Classic	-	-	7.1	12.4	0.0	19.5
Manifold 1.B	1	2.49	148	148	TruFLOW Classic	-	-	4.1	12.4	0.0	16.6
Manifold 2.A	4	10.05	148	148	TruFLOW Classic	-	-	7.2	12.8	0.0	20.0
Manifold 2.B	1	2.51	148	148	TruFLOW Classic	-	-	4.2	12.8	0.0	17.0
Manifold 3.A	4	9.80	148	148	TruFLOW Classic	-	-	6.9	12.0	0.0	18.9
Manifold 3.B	4	9.80	148	148	TruFLOW Classic	-	-	6.9	12.0	0.0	18.9
Manifold 3.C	3	7.35	148	148	TruFLOW Classic	-	-	5.9	12.0	0.0	17.9
Total	21	51.93	-	-	-	-	-	7.2	12.8	0.0	20.0

(1) S/R Length = one way. (2) Total Head loss includes manifold, circuits and supply/return piping if specified.

Water Temp 1 (148 °F)

Manifold 1.A (148 °F, TruFLOW Classic, 4 Circuits)

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #1	246	9	170	hePEX 3/4"	2.49	12.4	25	27,522	4.2
Circuit 2	Snowmelt Zone #1	246	9	170	hePEX 3/4"	2.49	12.4	25	27,522	4.2
Circuit 3	Snowmelt Zone #1	246	9	170	hePEX 3/4"	2.49	12.4	25	27,522	4.2
Circuit 4	Snowmelt Zone #1	246	9	170	hePEX 3/4"	2.49	12.4	25	27,522	4.2
Total	-	986	-	679	-	9.94	12.4	-	110,089	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 1.B (148 °F, TruFLOW Classic, 1 Circuits)

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #1	246	9	170	hePEX 3/4"	2.49	12.4	25	27,522	4.2
Total	-	246	-	170	-	2.49	12.4	-	27,522	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 2.A (148 °F, TruFLOW Classic, 4 Circuits)

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Circuit 2	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Circuit 3	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Circuit 4	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Total	-	995	-	686	-	10.05	12.8	-	111,256	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.

Manifold 2.B (148 °F, TruFLOW Classic, 1 Circuits)

Circuit	Areas Served	Total Length	Tube Spacing	Area Covered	Tubing	Flowrate	Head Loss¹	Temp Drop²	Load³	Valve Setting
Circuit 1	Snowmelt Zone #2	249	9	172	hePEX 3/4"	2.51	12.8	25	27,814	4.2
Total	-	249	-	172	-	2.51	12.8	-	27,814	-

(1) Head loss for circuit tubing only. (2) Design Temp Drop (Estimated Actual Drop). (3) Required load. Includes panel back losses. Does not reflect maximum capacity of the circuit.



Snow Melt System Design Report

Project Information

Project #:	AM20221024-001	Notes:
Name:	Quick N Clean Car Wash (Parker) Snowmelt	
Location:	Parker, CO	

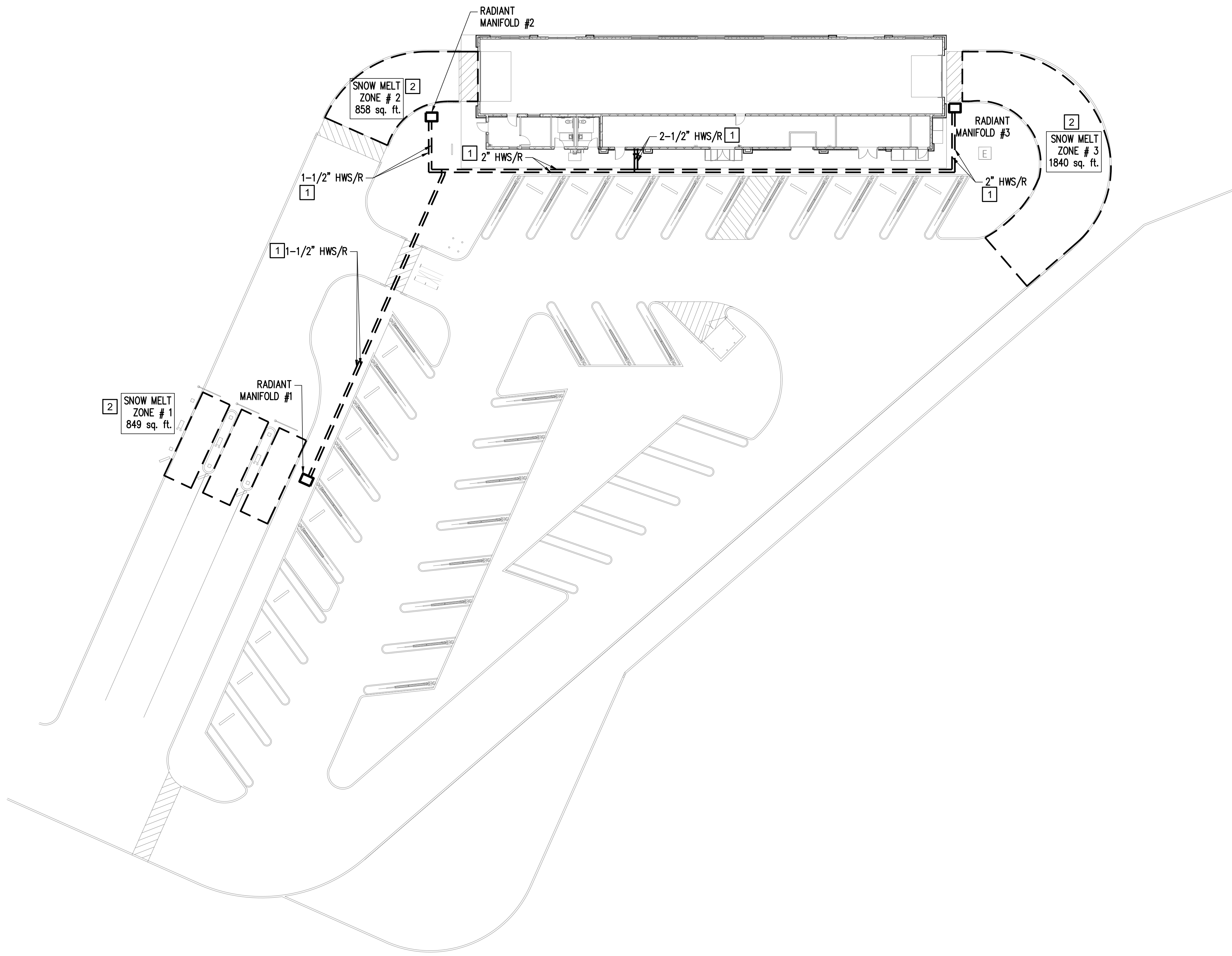
Design Conditions and Summary

Method	Uponor Load Method	Total Circuit Lengths:	5,149 ft	Total Snow Melt Load:	574,919 Btu/hr
Climate Location	DENVER INTL, Colorado	hePEX 3/4"			
Design Outdoor Temp	0 °F				
Design Wind Speed	10 mph	Total Circuits:	21		
		Total Manifolds:	7		
Fluid Type:	50% Propylene Glycol				
Total Flowrate:	51.93 USGPM	Total Tubing Volume:	94.59 USG		
Max. Head Loss:	20.0 ft water	Glycol Volume:	47.30 USG		
Design Temp. Drop:	25.0 °F				
Total Area:	3,547 ft²				

Snow Melt System Design

Snowmelt Zone #1

Total Area:	849 ft²	Tubing:	hePEX 3/4"	Design Load:	126,501 Btu/hr
Heated Area:	849 ft²	Total Circuits:	5	Downward Loss:	11,110 Btu/hr
Construction:	Snow Melt - Concrete	Avg. Circuit Length:	246 ft	Total Heat Load:	137,611 Btu/hr
Slab Depth:	6.0 in	Total Length in panel:	1,132 ft		
Insulation Rv:	10.0 hr·ft²·°F/btu	Avg. Tube Spacing:	9 in		
		Min Supply Temp:	148 °F		
Design Surface Temp:	39 °F				



1 MECHANICAL SNOWMELT ZONE MAP
1" = 20'-0"

HVAC NOTES

- 1 DETERMINE BEST ROUTING OF SNOWMELT MAINS BASED ON FIELD CONDITIONS.
- 2 FOLLOW ALL SPECIFICATIONS AND SNOWMELT DESIGN CONDITIONS/CALCULATIONS ON SHEETS M0.3 AND M0.5 FOR # OF LOOPS, LOOP SPACING, AND LOOP PIPE SIZING AS WELL AS MATERIALS AND INSTALLATIONS.



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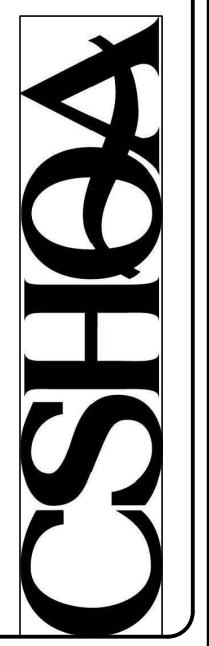
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QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

PARKER, CO

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www.cshqa.com



PROJECT 20037.000	DATE 3-22-2023
DRAWN JCB	CHECKED JCB

REVISED
A AGENCY COMMENTS 3/22/2023

SHEET TITLE
MECHANICAL
SNOWMELT
PLAN

SHEET

M1.0

ORIGINAL SHEET SIZE
24" x 36"



1415 Park Ave. W., Denver, CO 80205
p 303.357.1988
3consultingengineers.com

SHEET NOTES

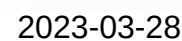
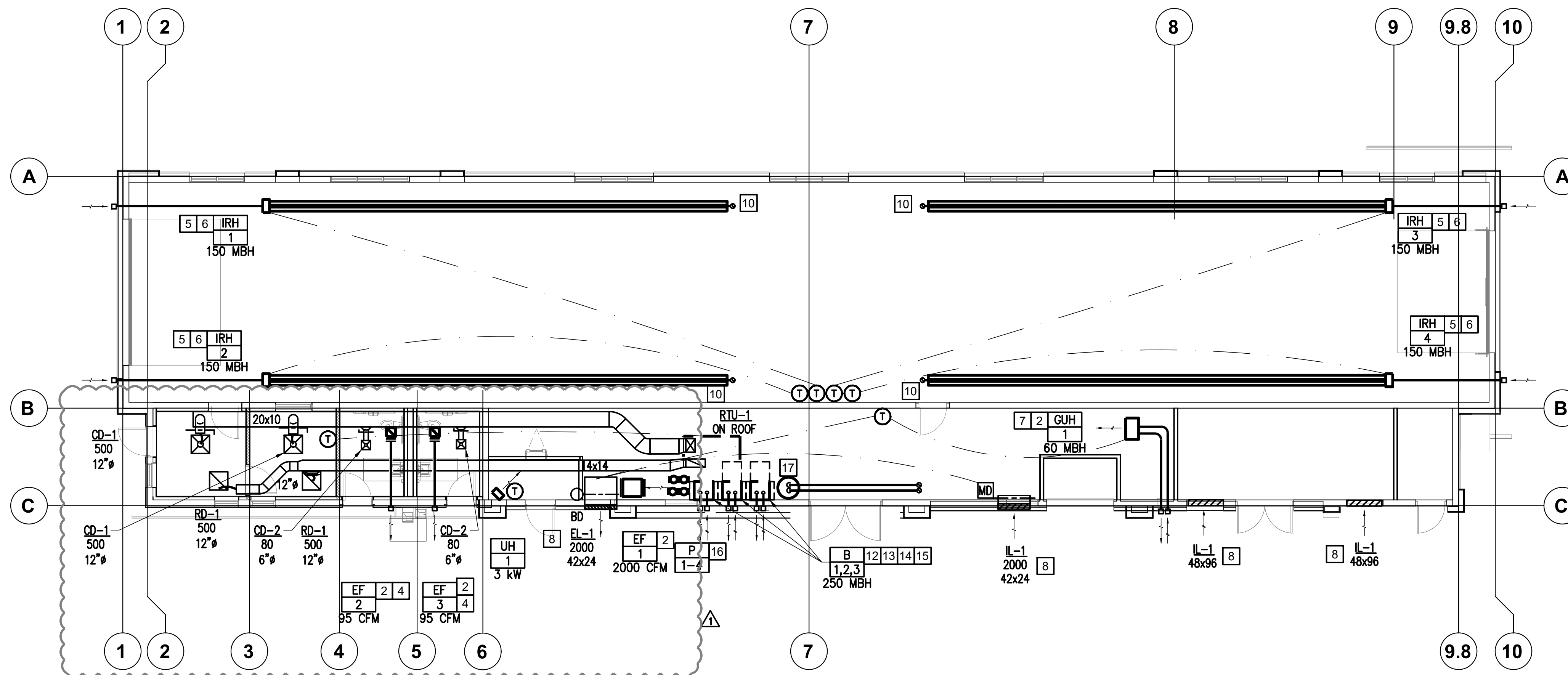
1. GC TO PROVIDE 1" DOOR UNDERCUT ON ALL BATHROOM DOORS WHERE TRANSFER DUCTS ARE NOT INCLUDED.
2. VERIFY ALL T-STAT LOCATIONS WITH OWNER PRIOR TO INSTALLATION. TYPICAL.
3. READ AND FOLLOW ALL NOTES AND SPECIFICATIONS ON SHEETS MO-1 AND MO-2.
4. ALL DUCTWORK SHALL BE INSTALLED AND INSULATED PER SPECIFICATIONS AND DETAILS.
5. ALL EXPOSED DUCTWORK SHALL BE GALVANIZED SPIRAL DUCT. REFER TO ARCHITECTURAL DRAWINGS FOR PAINTING REQUIREMENTS.
6. PAINT INSIDE OF ALL GRD'S WHERE INSIDE IS VISIBLE FLAT BLACK.
7. PROVIDE A MAXIMUM OF 5' OF FLEX DUCT WHEN CONNECTING TO GRD'S (EXCEPT FOR TRANSFERS) PER SPECIFICATIONS. SEE DETAILS.
8. PROVIDE DUCT FITTINGS PER SMACNA STANDARDS FOR ALL DUCT FITTINGS. TYPICAL-ALL..
9. ALL EXPOSED DIFFUSERS (NOT IN CEILING) SHALL BE HUNG AT SAME HEIGHT AS THE LIGHTS FIXTURES UNLESS NOTED OTHERWISE.
10. ALL DUCTWORK SHALL BE INSTALLED AND INSULATED PER SPECIFICATIONS. INSTALL 1-1/2" ACOUSTICALLY LINER IN ALL EXPOSED DUCTWORK.
11. ALL VOLUME DAMPERS SHALL BE INSTALLED IN LOCATIONS THAT DO NOT REQUIRE ACCESS PANELS AND ARE ACCESSIBLE.
12. HANG ALL DUCTWORK TIGHT TO STRUCTURE.
13. COORDINATE ALL DUCTS WITH STRUCTURE AND CEILINGS BELOW PRIOR TO PURCHASING. CONTACT ARCHITECT/DESIGN TEAM FOR ANY CONFLICTS.
14. CONTRACTOR SHALL FOLLOW ALL DETAILS AS APPLICABLE TO APPLICATION UNLESS NOTED OTHERWISE.

1. GC TO PROVIDE 1" DOOR UNDERCUT ON ALL BATHROOM DOORS WHERE TRANSFER DUCTS ARE NOT INCLUDED.
2. VERIFY ALL T-STAT LOCATIONS WITH OWNER PRIOR TO INSTALLATION. TYPICAL.
3. READ AND FOLLOW ALL NOTES AND SPECIFICATIONS ON SHEETS M0-1 AND M0-2.
4. ALL DUCTWORK SHALL BE INSTALLED AND INSULATED PER SPECIFICATIONS AND DETAILS.
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14. CONTRACTOR SHALL FOLLOW ALL DETAILS AS APPLICABLE TO APPLICATION UNLESS NOTED OTHERWISE.

HVAC NOTES

- [1] SEE DETAILS ON SHEET M2.2 FOR AIR BRANCHES AND DIFFUSER INSTALLATION DETAIL. TYPICAL.
- [2] HANG VIA VIBRATION ISOLATORS.
- [3] EXHAUST FLUE MUST BE INSTALLED ABOVE WINDOWS AND MEET ALL CLEARANCES REQUIRED FOR COMBUSTIBLES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. DO NOT INSTALL DIRECTLY OVER ANY ELECTRICAL GEAR. EXHAUST SHALL BE A MINIMUM OF 4'-0" FROM OPERABLE OPENINGS.
- [4] CONNECT EXHAUST ROUND DUCT TO FAN AND TERMINATE THROUGH WALL WITH GREENHECK MODEL EXHAUST WALL CAP WC (PAINTABLE) AS HIGH AS POSSIBLE. ALL ENVIRONMENTAL EXHAUST SHALL BE A MINIMUM OF 3'-0" FROM OPERABLE OPENINGS AND 10'-0" FROM ALL OUTSIDE AIR INTAKES.
- [5] SIZE AND INSTALL INTAKE AND EXHAUST FLUES FOR INFRARED HEATERS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PER IFGC 503.8.
- [6] HANG AND INSTALL INFRARED HEATERS PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALL IN LOCATION WHERE INFRARED HEATERS MEET ALL MANUFACTURER'S CLEARANCES TO COMBUSTIBLES.
- [7] SIZE AND INSTALL DIRECT VENT COMBUSTION AIR AND FLUE THROUGH WALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR GAS UNIT HEATER.
- [8] HANG EXHAUST FAN AND LOUVER AS HIGH AS POSSIBLE. INTAKE AND EXHAUST LOUVER SHALL BE INSTALLED AT SAME HEIGHT.
- [9] SIZE AND INSTALL INTAKE AND EXHAUST FLUES FOR INFRARED HEATERS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALL ALL VENTS ABOVE WINDOWS AND OTHER OBSTRUCTIONS.
- [10] PROVIDE EXHAUST FLUE UP THROUGH ROOF WITH VENT CAP. INSTALL AND SIZE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- [11] SIZE AND INSTALL DIRECT VENT COMBUSTION AIR AND FLUE THROUGH WALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR SNOWMELT BOILER (BY OTHERS). COORDINATE FINAL LOCATION OF SNOWMELT BOILER IN FIELD.
- [12] PROVIDE 3" POLYPROPYLENE VENT FOR BOTH THE COMBUSTION AIR VENT AND THE GAS VENT FOR HYDRONIC BOILER. COMBUSTION AIR INTAKE SHALL BE SIDEWALL AND GAS VENT SHALL BE THROUGH THE ROOF. INSTALL AND SIZE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- [13] SEE PIPING DIAGRAM FOR BOILER, PUMP, PIPE SIZES, VALVING, CONDENSATE NEUTRALIZATION KIT, EXPANSION TANK, AND SYSTEM FEEDER.
- [14] PROVIDE COMPLETE RADIANT FLOOR HEATING SYSTEM PER SPECIFICATIONS AND SCHEDULES AND SYSTEM DESIGN.
- [15] PIPE BOILERS PER PIPING DIAGRAM, DETAIL A, ON SHEET M2.1 AND FOLLOW INSTALLATION INSTRUCTIONS BY MANUFACTURER.
- [16] SEE DETAILS FOR PUMP PIPING DIAGRAM ON SHEET M2.1.
- [17] PROVIDE 6" SINGLE OPENING OUTSIDE AIR DUCT AND TERMINATE 6" BELOW CEILING AND ABOVE ROOF WITH GOOSENECK OR INTAKE VENT FOR WATER HEATER. SIZE AND INSTALL EXHAUST VENT FOR WATER HEATER THROUGH ROOF PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

- 1 SEE DETAILS ON SHEET M2.2 FOR AIR BRANCHES AND DIFFUSER INSTALLATION. TYPICAL.
- 2 HANG VIA VIBRATION ISOLATORS.
- 3 EXHAUST FLUE MUST BE INSTALLED ABOVE WINDOWS AND MEET ALL CLEARANCES REQUIRED FOR COMBUSTIBLES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. DO NOT INSTALL DIRECTLY OVER ANY ELECTRICAL GEAR. EXHAUST SHALL BE A MINIMUM OF 4'-0" FROM OPERABLE OPENINGS.
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PROJECT 20037.000	DATE 3-22-2023
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SHEET TITLE

**MECHANICAL
FLOOR
PLAN**

SHEET

M1.1

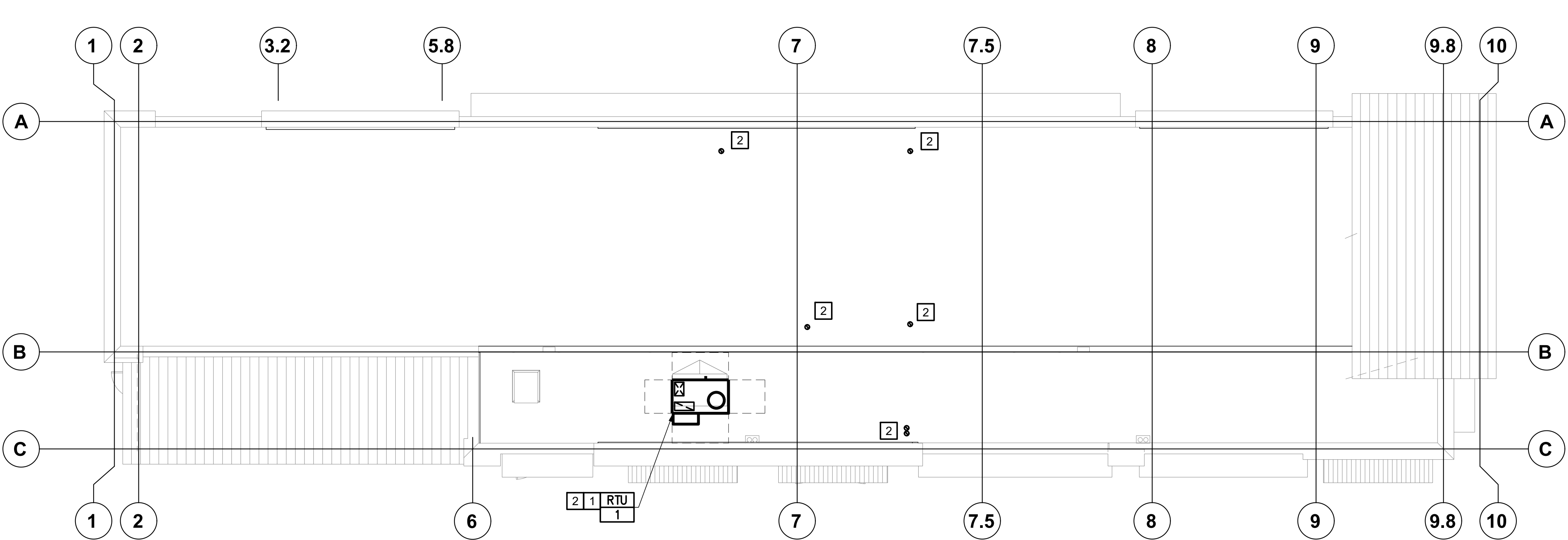
ORIGINAL SHEET SIZE
24" x 36"

HVAC NOTES

- 1

CONFIRM LOCATION OF EQUIPMENT WITH STRUCTURAL PRIOR TO INSTALLATION.
- 2

KEEP ALL FLUES, EXHAUST AIR, AND PLUMBING VENTS A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.



1 MECHANICAL ROOF PLAN
1/8" = 1'-0"



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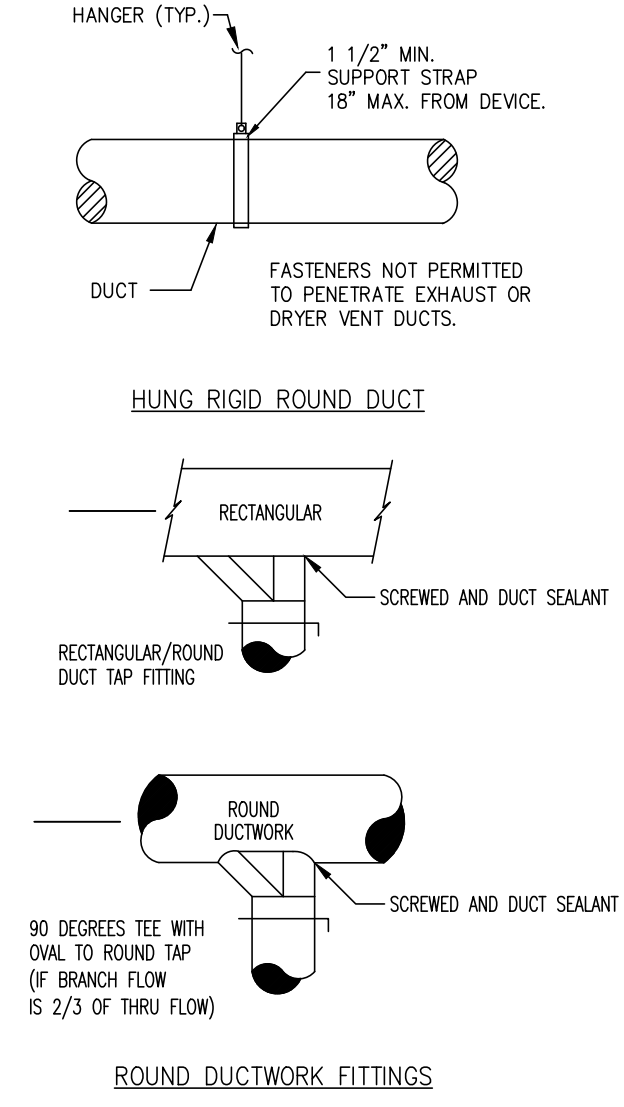


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SHEET TITLE
MECHANICAL
ROOF
PLAN

SHEET
M1.2
ORIGINAL SHEET SIZE
24" x 36"



HANGER (TYP.)

1 1/2" MIN. SUPPORT STRAP 18" MAX. FROM DEVICE.

DUCT

FASTENERS NOT PERMITTED TO PENETRATE EXHAUST OR DRYER VENT DUCTS.

HUNG RIGID ROUND DUCT

RECTANGULAR

SCREWED AND DUCT SEALANT

RECTANGULAR/ROUND DUCT TAP FITTING

ROUND DUCTWORK

SCREWED AND DUCT SEALANT

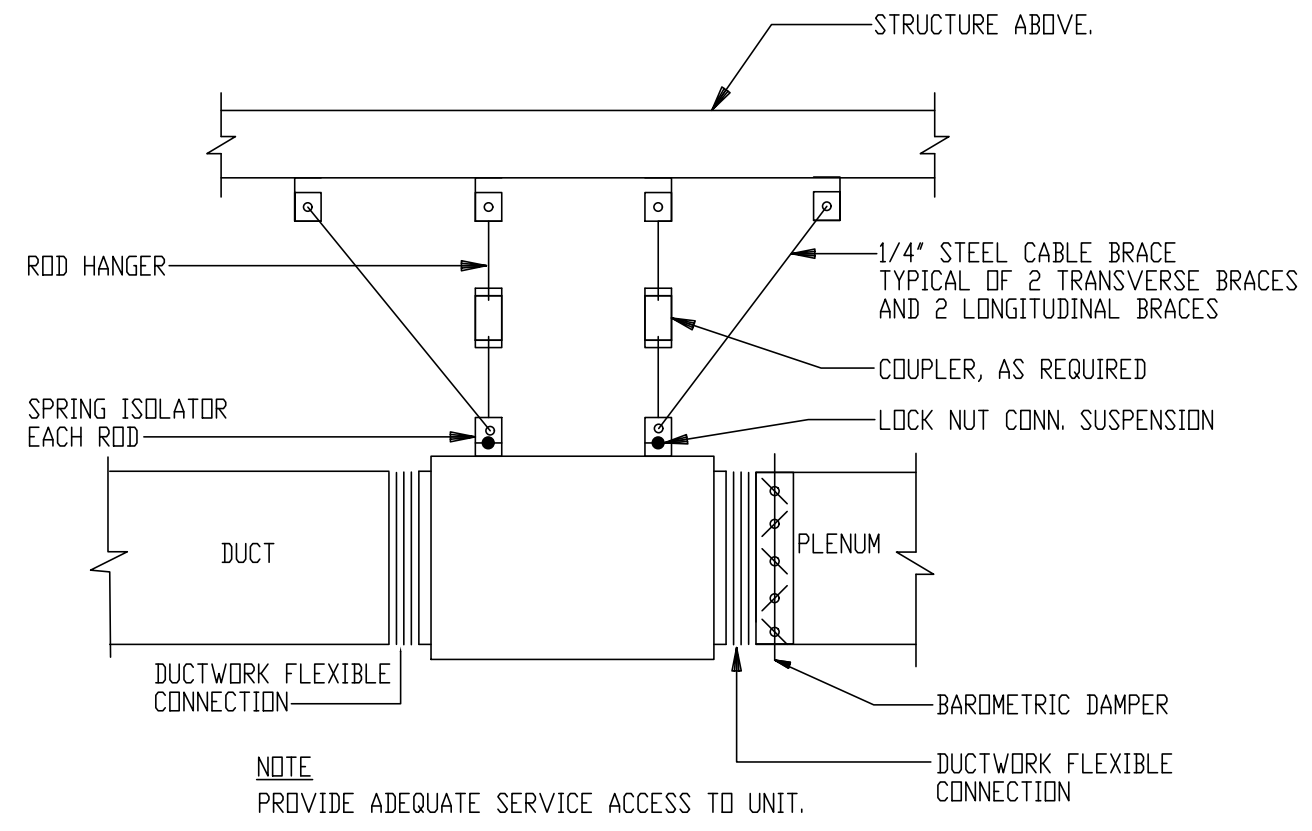
90 DEGREE TEE WITH DUAL TO ROUND TAP (F BRANCH FLOW IS 2/3 OF THRU FLOW)

ROUND DUCTWORK FITTINGS

ROUND DUCT BRANCHES

NO SCALE

E



STRUCTURE ABOVE.

ROD HANGER

1/4" STEEL CABLE BRACE TYPICAL OF 2 TRANSVERSE BRACES AND 2 LONGITUDINAL BRACES

COUPLER, AS REQUIRED

LOCK NUT CONN. SUSPENSION

SPRING ISOLATOR EACH ROD

DUCT

PLENUM

DUCTWORK FLEXIBLE CONNECTION

BAROMETRIC DAMPER

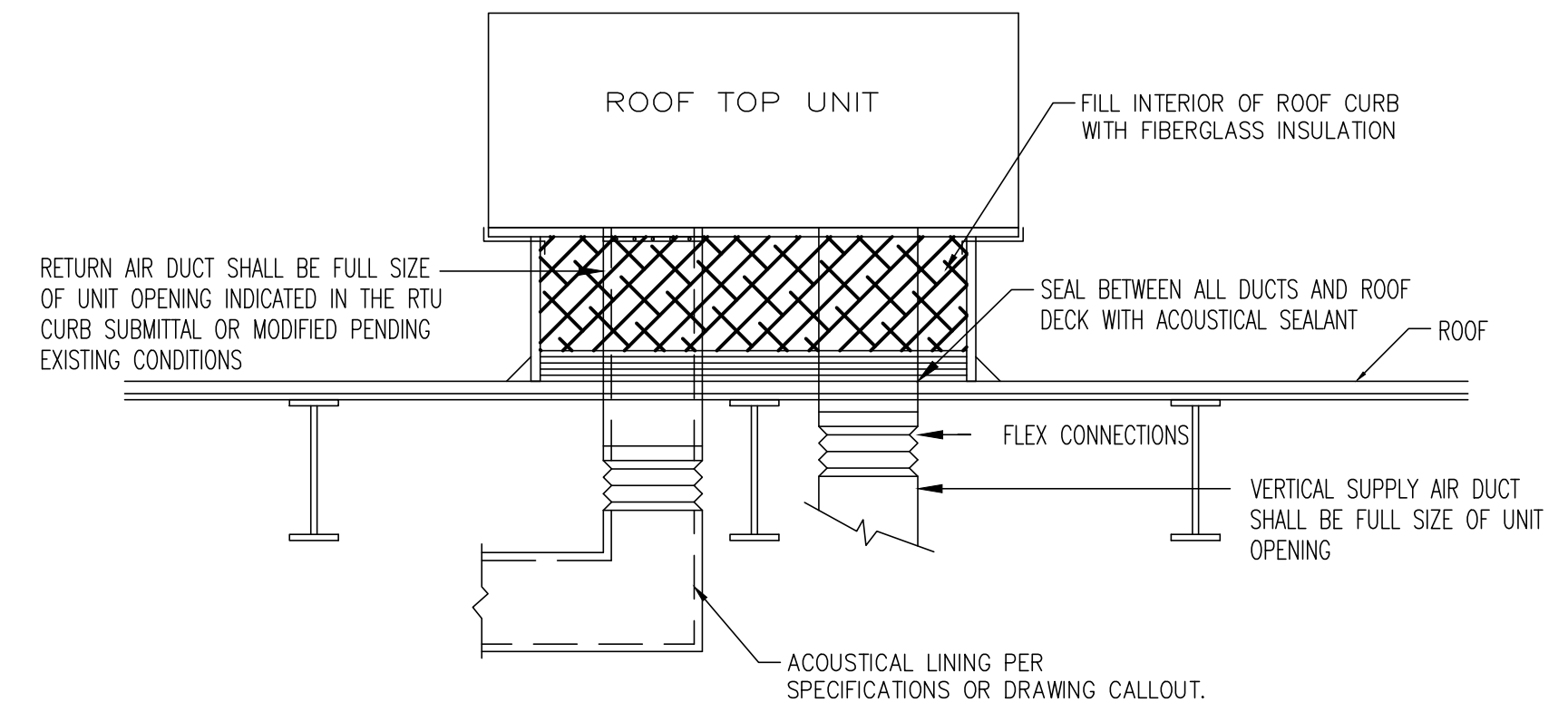
DUCTWORK FLEXIBLE CONNECTION

NOTE: PROVIDE ADEQUATE SERVICE ACCESS TO UNIT.

INLINE FAN

NO SCALE

D



ROOF TOP UNIT

FILL INTERIOR OF ROOF CURB WITH FIBERGLASS INSULATION

SEAL BETWEEN ALL DUCTS AND ROOF DECK WITH ACOUSTICAL SEALANT

ROOF

FLEX CONNECTIONS

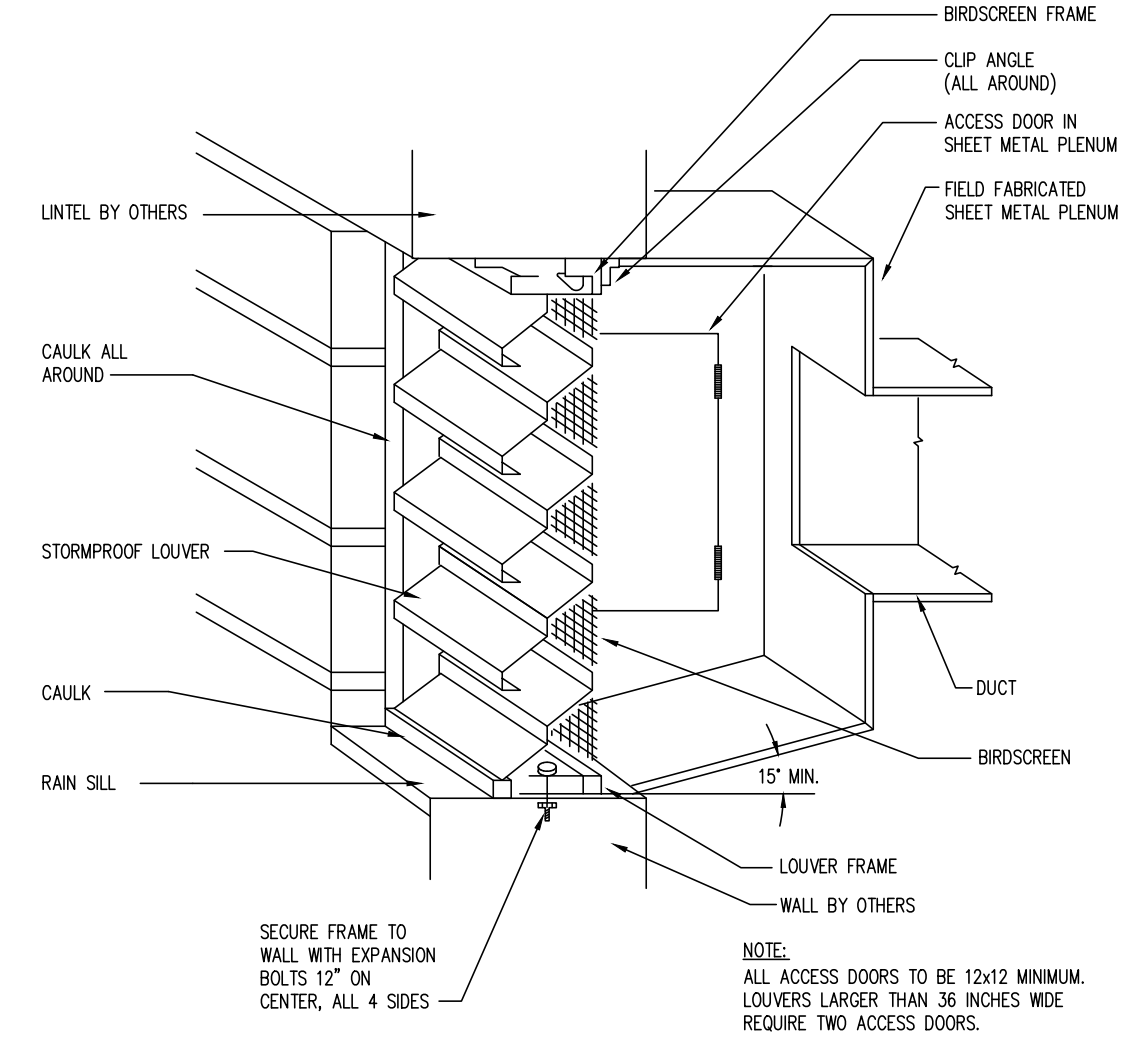
VERTICAL SUPPLY AIR DUCT SHALL BE FULL SIZE OF UNIT OPENING

ACOUSTICAL LINING PER SPECIFICATIONS OR DRAWING CALLOUT.

GENERAL NOTES

1. REFER TO FLOOR PLAN FOR SUPPLY AIR DUCT ROUTING AND SIZING.

A



LINTEL BY OTHERS

CAULK ALL AROUND

STORMPROOF LOUVER

CAULK

RAIN SILL

DUCT

BRODSCREEN

LOUVER FRAME

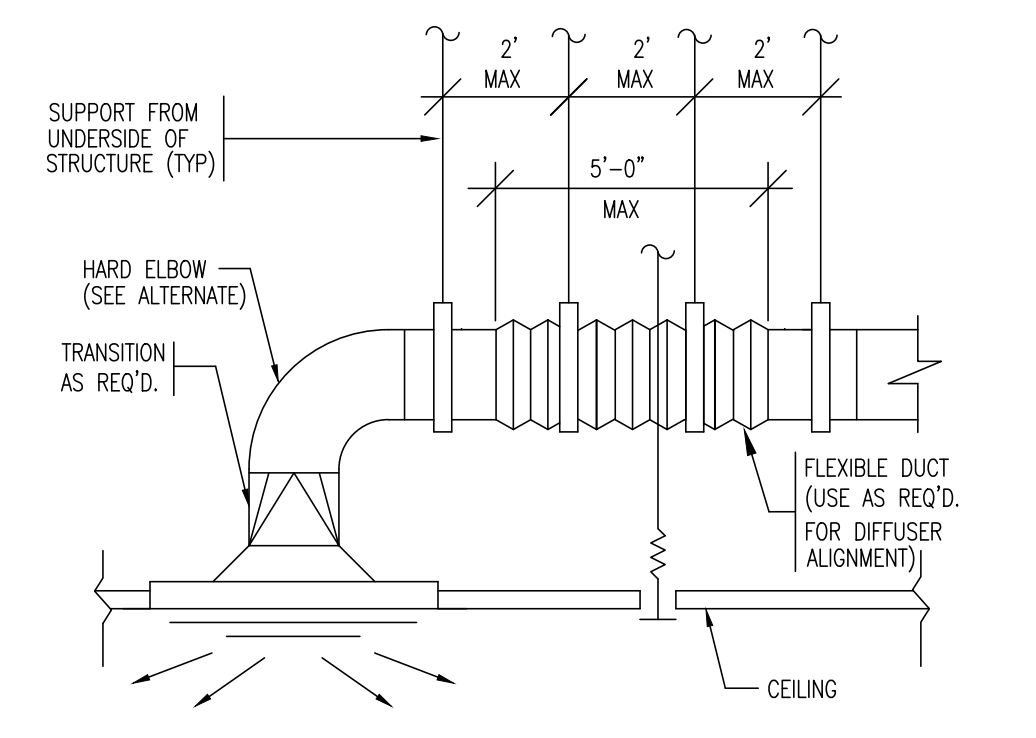
WALL BY OTHERS

NOTE: ALL ACCESS DOORS TO BE 12x12 MINIMUM. LOUVERS LARGER THAN 36 INCHES WIDE REQUIRE TWO ACCESS DOORS.

LOUVER

NO SCALE

F



SUPPORT FROM UNDERSIDE OF STRUCTURE (TYP.)

HARD ELBOW (SEE ALTERNATE)

TRANSITION AS REQ'D.

FLEXIBLE DUCT (USE AS REQ'D. FOR DIFFUSER ALIGNMENT)

CEILING

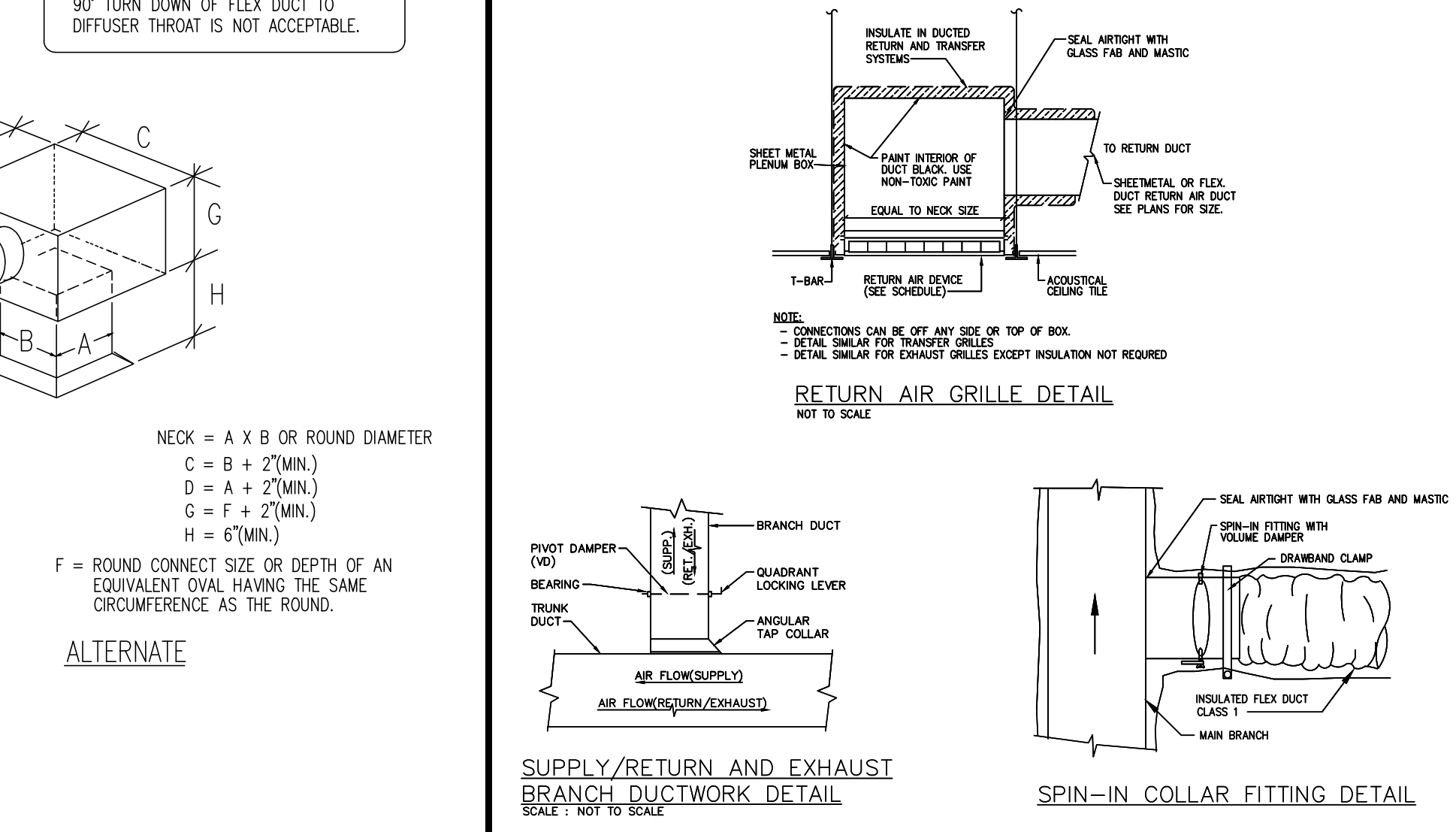
NOTES:

① MAXIMUM SAG 1/2" PER FOOT.

DIFFUSER BRANCH DUCTS W/FLEX CONNECTION

NO SCALE

C



90° TURN DOWN OF FLEX DUCT TO DIFFUSER THROAT IS NOT ACCEPTABLE.

NECK = A X B OR ROUND DIAMETER

C = B + 2"(MIN.)

D = A + 2"(MIN.)

G = F + 2"(MIN.)

H = 6"(MIN.)

F = ROUND CONNECT SIZE OR DEPTH OF AN EQUIVALENT OVAL HAVING THE SAME CIRCUMFERENCE AS THE ROUND.

ALTERNATE

RETURN AIR GRILLE DETAIL

NOT TO SCALE

SUPPLY/RETURN AND EXHAUST BRANCH DUCTWORK DETAIL

SCALE: NOT TO SCALE

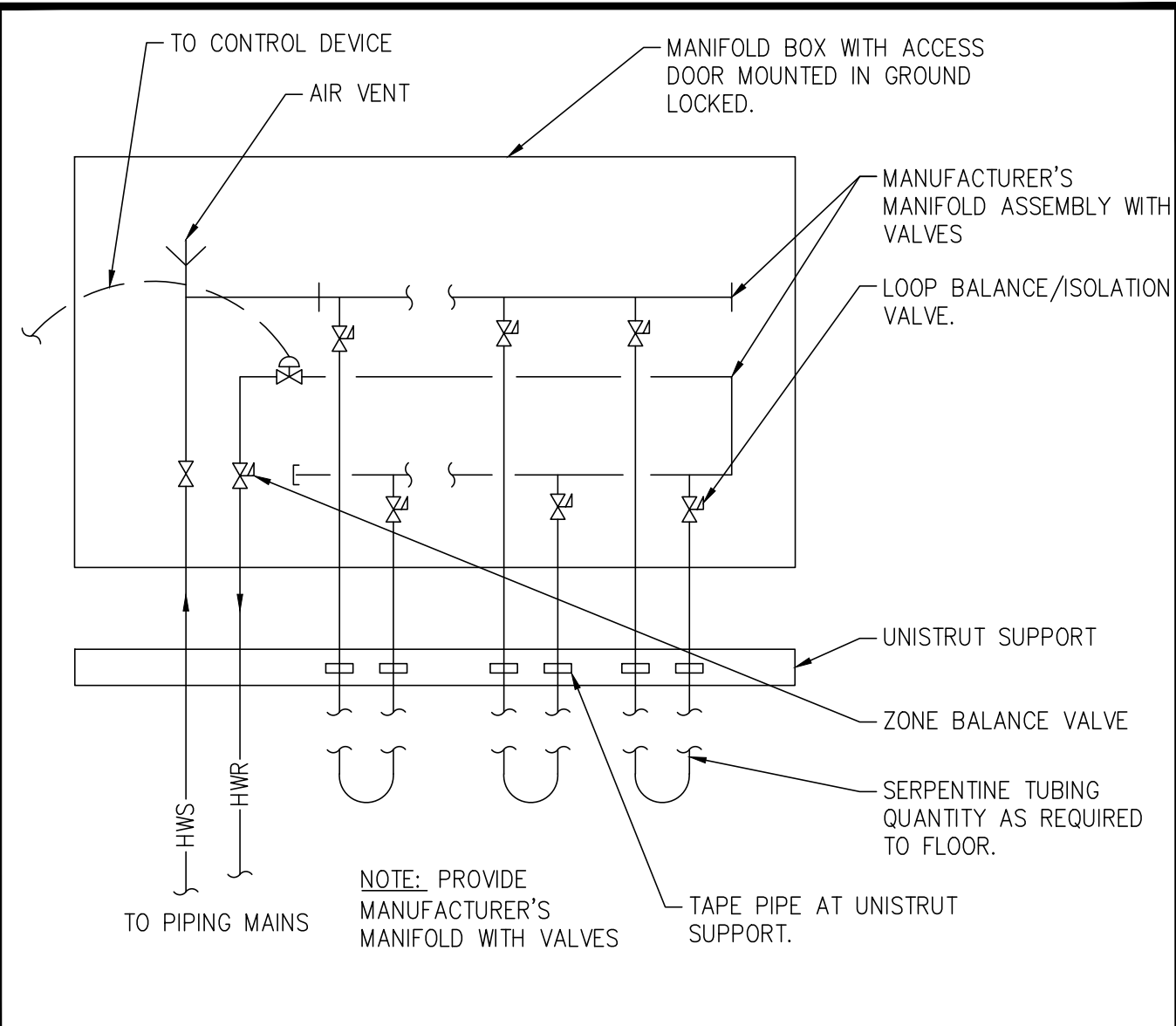
SPIN-IN COLLAR FITTING DETAIL

AIR BRANCHES & DIFFUSERS

NO SCALE

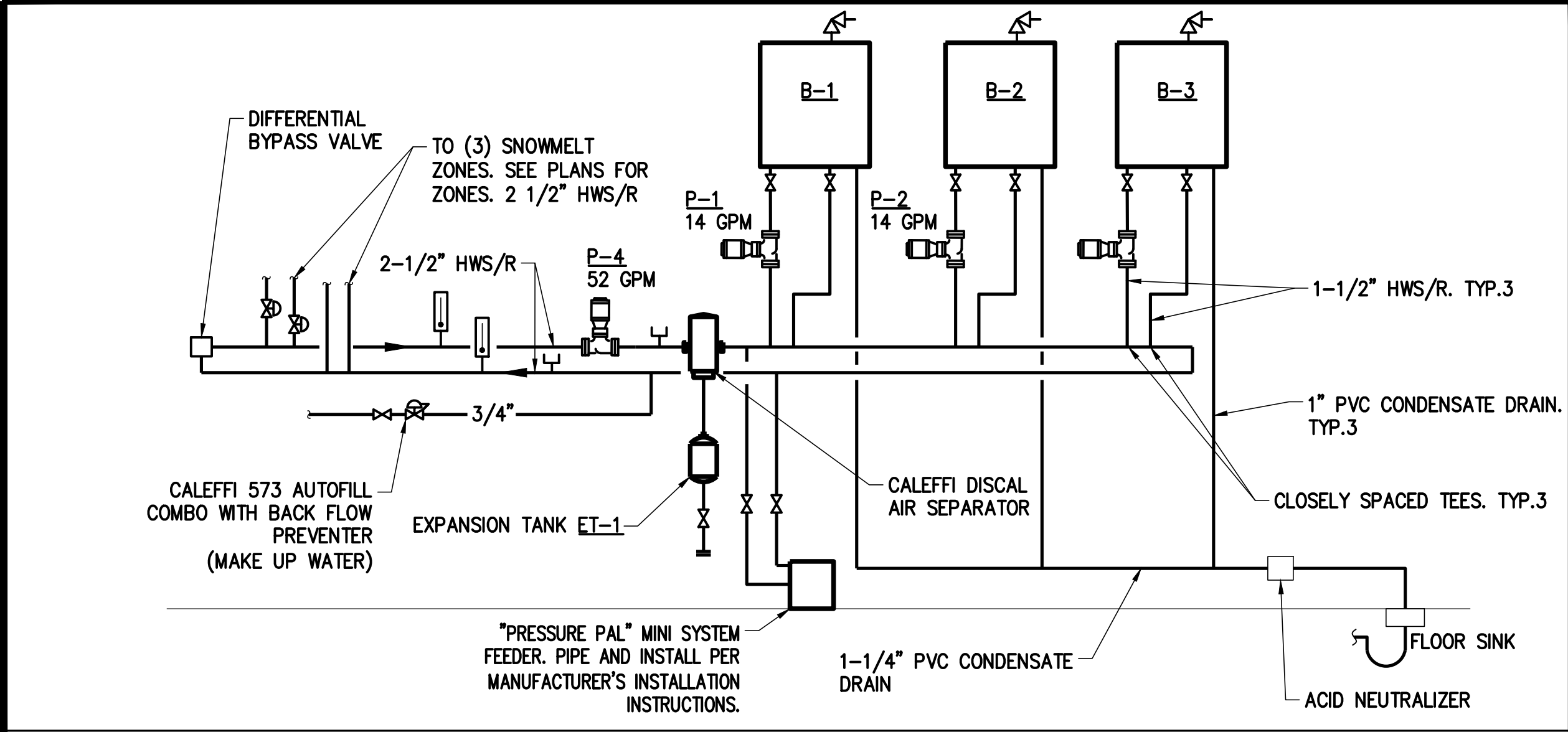
B

VENTILATION REQUIREMENTS													
RTU-1: OUTDOOR AIR VENTILATION CALCULATION CONSTANT VOLUME SYSTEM													
ROOM NAME	OCCUPANCY CLASSIFICATION	A _z	R _a	OCCUPANT DENSITY (#/1000 FT ²)	P _z	R _p	E _z	CODE: TOTAL EXHAUST (CFM)	EXHAUST SPECIFIED ON PLANS (CFM)	V _{oz} = (R _p *P _z +R _a *A _z) / E _z MINIMUM OUTSIDE AIR REQUIRED (CFM)	MINIMUM CFM REQUIRED BY CODE	CFM SHOWN ON PLANS	% OUTSIDE AIR REQUIRED IN ROOM
		FT ²	CFM/FT ²		# People	CFM/PERSON	ZONE AIR DISTANCE EFFECTIVENESS						
106 Office	Office	95	0.06	5	0.475	5	0.8	0	0	10.09375	67.29166667	500	2.02%
105 Office	Office	93	0.06	5	0.465	5	0.8	0	0	9.88125	65.875	500	1.98%
									TOTAL OUTSIDE AIR REQUIRED (CFM) :	24.225	% OUTSIDE AIR OF EQUIPMENT	15.00%	
									TOTAL OUTSIDE AIR SPECIFIED (CFM) :	180	EQUIPMENT TOTAL SUPPLY (CFM) :	1200	



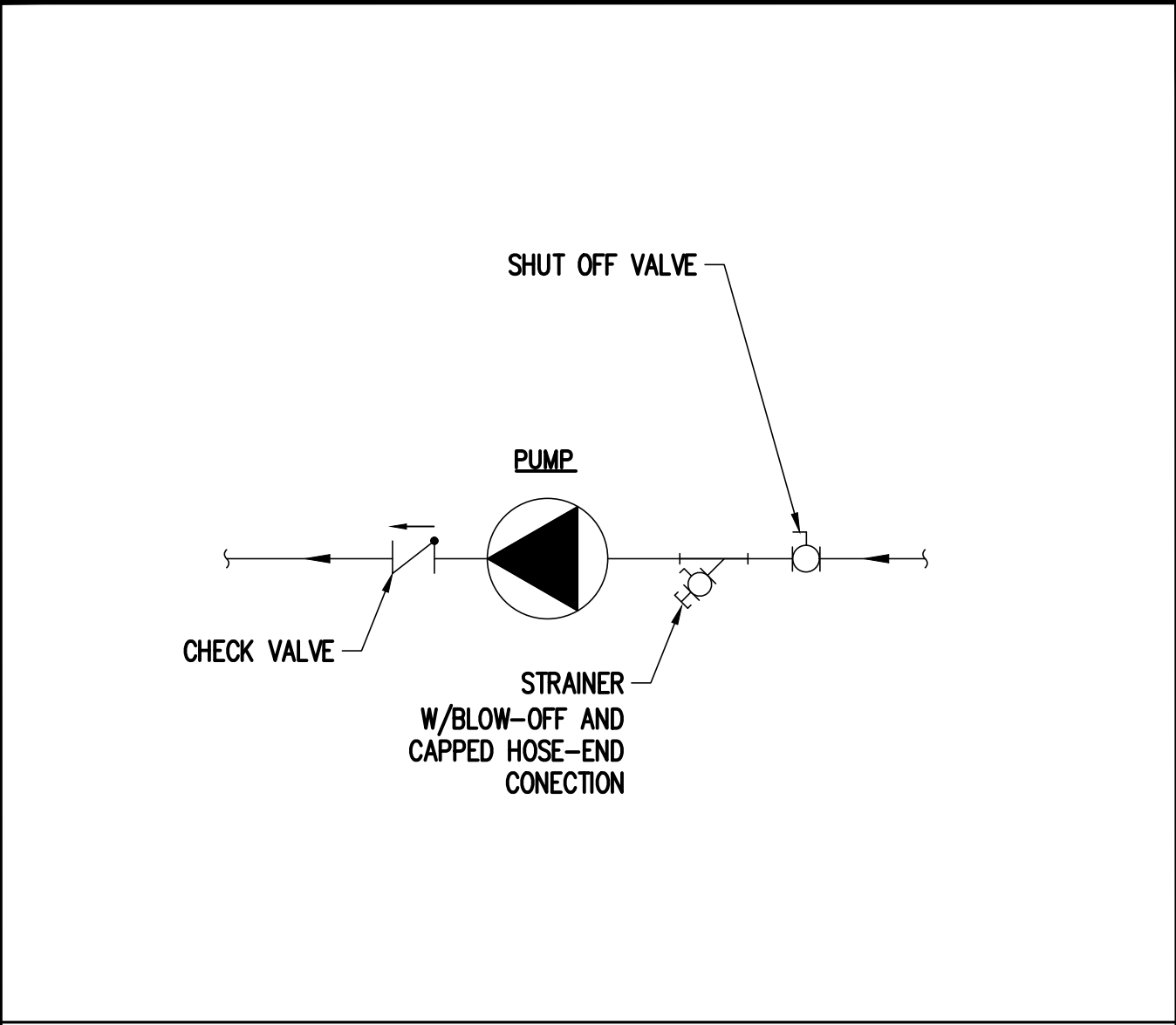
MANIFOLD
NO SCALE

J



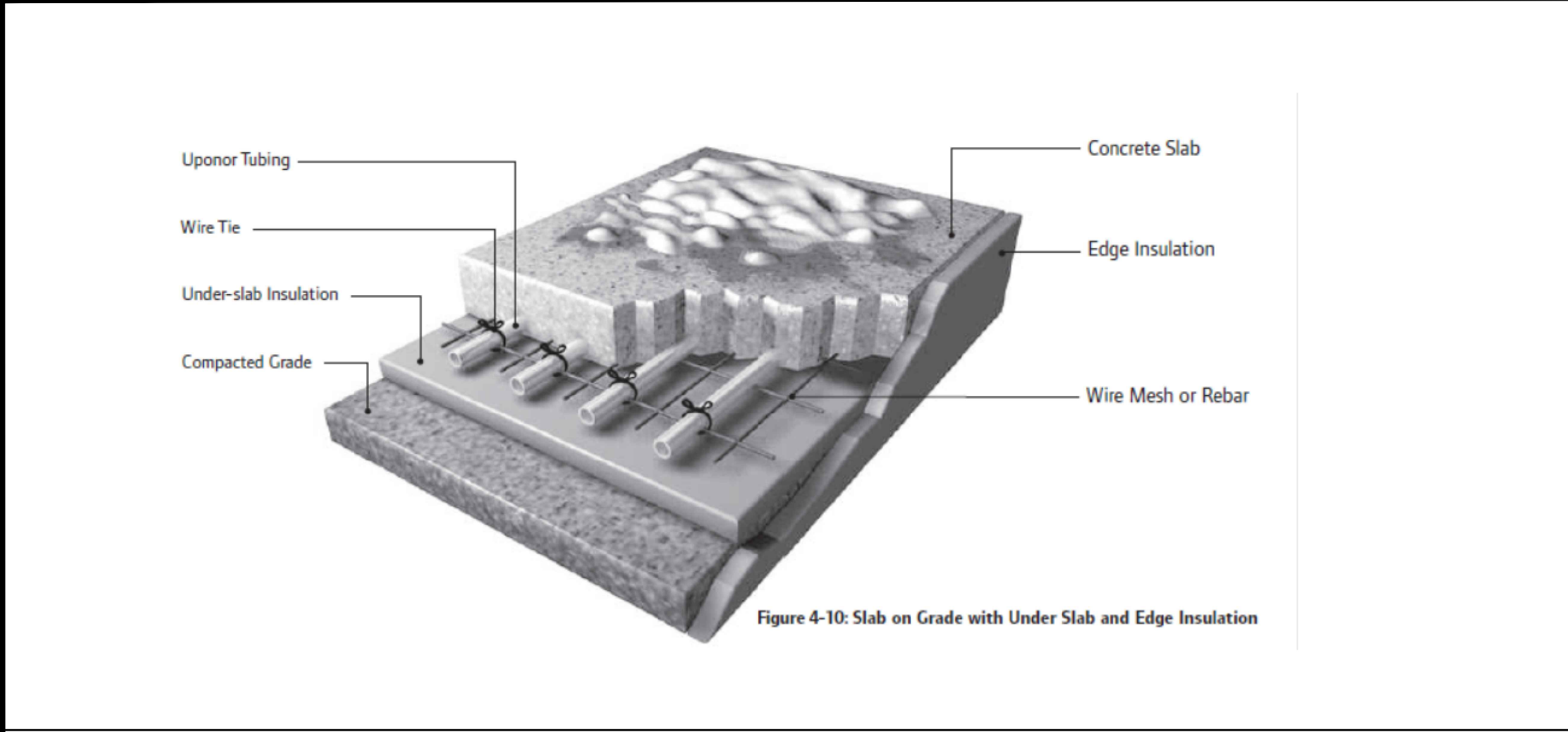
BOILER PLANT
NO SCALE

G



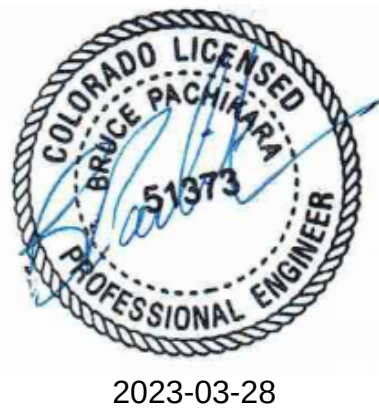
INLINE PUMP DETAIL
NO SCALE

K



SNOWMELT INSTALLATION DETAIL
NO SCALE

H



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QUICK N CLEAN CAR WASH

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SHEET TITLE
**MECHANICAL
DETAILS**

SHEET

M2.2

ORIGINAL SHEET SIZE
24" x 36"

ELECTRICAL SPECIFICATION	BUILDING WIRE AND CABLE	DRY TYPE TRANSFORMERS
BASIC ELECTRICAL REQUIREMENTS	A. MINIMUM WIRE SIZE FOR BRANCH CIRCUITS NO. 12 AWG. EXCEPT FOR CONTROL CIRCUITS, WHICH MAY BE NO. 14 AWG. SIGNAL CIRCUITS WIRE SIZE SHALL BE AS INDICATED ON THE DRAWINGS. ALL WIRING SHALL BE ROUTED WITHIN RACEWAYS.	A. 75 KVA 480V-208V WYE TO WYE.
GENERAL REQUIREMENTS	B. CONDUCTOR INSULATION SHALL BE OF TYPE RECOGNIZED BY THE NATIONAL ELECTRIC CODE AS APPROVED FOR ITS PARTICULAR APPLICATION.	PANELBOARDS
A. SEE GENERAL CONDITIONS AND ALL OTHER REQUIREMENTS RELATING TO ELECTRICAL SYSTEMS FOR THIS PROJECT.	1. ALL WIRES REGARDLESS OF SIZE, TYPE THWN AND THHN EXCEPT AS NOTED.	A. DEAD-FRONT, CIRCUIT BREAKER TYPE, KEY LOCK, AND TYPED DIRECTORY CARDS. PANELS SHALL BE "DOOR-IN-DOOR" CONSTRUCTION.
B. PROVIDE ALL ITEMS FOR COMPLETE AND SUCCESSFUL OPERATION OF ALL ELECTRICAL SYSTEMS.	2. ALL WIRING IN METAL ROOF DECKS, IN OR NEAR ROOF INSULATION, OR EXPOSED TO SUN, TYPE THW.	B. THERMAL MAGNETIC CIRCUIT BREAKERS, COMPLETELY INTERCHANGEABLE, BOLTED TO THE BUS. MULTI-POLE BREAKERS SHALL HAVE COMMON, INTERNAL TRIP.
C. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC ONLY. ELECTRICAL SUBCONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ALL WORK ACCORDING TO ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AS WELL AS LONG AS PROPER COORDINATION HAS BEEN PRESENT.	C. THE USE OF MC CABLE IS ONLY PERMITTED IN CONCEALED AREAS. THE OPEN AREA SHALL BE HARD-PIPED.	C. MINIMUM INTEGRATED SHORT CIRCUIT RATING: 10,000 AMPERES RMS SYMMETRICAL FOR 250 VOLT PANELBOARDS;
D. WORD "PROVIDE" SHALL MEAN "THIS CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT".	D. SPLICES FOR NO. 8 AND SMALLER WIRE, WIRE OR WING NUTS.	D. EXCEPT SPECIFIED OTHERWISE, PANELBOARDS TYPE SHALL BE AS FOLLOWS:
E. VISIT SITE AND INCLUDE ALLOWANCE IN BID FOR ALL COSTS RELATED TO THE ELECTRICAL INSTALLATION.	E. ALL WIRE SHALL BE COPPER OR ALUMINUM, INSULATED FOR 600 VOLTS.	MANUFACTURER 208/120V SIEMENS 10K AIC
F. DEMONSTRATE THE OPERATION OF ALL ELECTRICAL SYSTEMS FOR THE OWNER AT A TIME AS DIRECTED BY ARCHITECT.	F. ALL WIRES SHALL BE COLOR CODED. WIRES NO. 8 AWG AND SMALLER SHALL BE FACTORY COLOR-CODED. WIRE NO. 6 AWG AND LARGER MAY BE COLOR-CODED BY FIELD PAINTING OR COLOR TAPING OF 6 INCH LENGTH OF EXPOSED ENDS.	E. PANEL BUSES SHALL BE COPPER.
G. LAY OUT ALL WORK IN ADVANCE. DO NOT DEFACE WORK OF OTHER TRADES. INSTALL ALL SLEEVES AND BLOCKOUTS; WATERPROOF AS REQUIRED.	1. 120/208V SYSTEM: PHASE A = BLACK, B = RED, C = BLUE, NEUTRAL = WHITE, GROUND = GREEN	F. LOADCENTERS ARE NOT PERMITTED.
H. ALL OUTGAGES ON THE ENTIRE OR ON PORTIONS OF EXISTING OR NEW ELECTRICAL SYSTEM SHALL BE MINIMIZED AND SHALL BE COORDINATED WITH THE OWNER AND UTILITY COMPANY. OUTAGE DURATION SHALL BE AS ACCEPTED BY THE OWNER AND SHALL BE SCHEDULED THREE (3) DAYS IN ADVANCE. INCLUDE AN OVERTIME ALLOWANCE IN THE BID FOR PERFORMANCE OF WORK REQUIRING OUTAGES AT SUCH A TIME AS IS APPROVED BY THE OWNER.	2. 277/480V SYSTEM: PHASE A = BROWN, B = ORANGE, C = YELLOW NEUTRAL = GRAY, GROUND = GREEN W/YELLOW	ENCLOSED MOTOR CONTROLLERS
I. FIELD CHECK ALL EXISTING CONDITIONS AND INCLUDE AN ALLOWANCE IN THE BID FOR THE REMOVAL AND/OR RELOCATION OF EXISTING CONDUITS, WIRES, DEVICES, FIXTURES, ETC., AS INDICATED ON THE PLANS OR AS REQUIRED TO COORDINATE AND ADAPT NEW AND EXISTING ELECTRICAL SYSTEMS TO ALL OTHER WORK.	BOXES	A. EXCEPT SPECIFIED OTHERWISE, MOTOR CONTROLLER TYPE SHALL BE AS MANUFACTURED BY: ALLEN-BRADLEY, CUTLER-HAMMER, GENERAL ELECTRIC, AND SQUARE-D.
J. FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AND PROVIDE ALL LABOR REQUIRED TO COMPLETE THE WORK SHOWN ON THE DRAWINGS. ALL OTHER WORK AND MISCELLANEOUS ITEMS NOT SPECIFICALLY MENTIONED BUT REQUIRED FOR TESTING THE SYSTEM SHALL BE PROVIDED. IT IS THE INTENT OF DRAWINGS AND SPECIFICATIONS THAT ALL SYSTEMS BE COMPLETE AND OPERABLE.	A. FOUR-INCH (4") SQUARE OR OCTAGONAL, ZINC-COATED SHEET STEEL BOXES.	B. MANUAL MOTOR CONTROLLER: FULL-VOLTAGE STARTING, NEMA IS 2, AC, HEAVY-DUTY CLASS, MANUALLY OPERATED. CONTROLLER WITH: 1) TOGGLE OPERATOR AND THERMAL OVERLOAD ELEMENT FOR FRACTIONAL HORSEPOWER INDUCTION MOTORS; OR: 2) OVERLOAD ELEMENT, RED PILOT LIGHT, 2 NO/NC FIELD INTERCHANGEABLE AUXILIARY CONTACTS AND PUSH BUTTON OPERATOR FOR INDUCTION MOTORS 1/2 HP AND LARGER.
STANDARDS	B. PROVIDE THREE-EIGHTHS INCH (3/8") NO BOLT FIXTURE STUDS FOR FIXTURE OUTLETS.	C. AUTOMATIC MAGNETIC MOTOR CONTROLLERS: FULL VOLTAGE STARTING, NEMA IS 2, AC, HEAVY-DUTY CLASS, MAGNETIC CONTROLLER RATED IN HORSEPOWER. CONTROLLER SHALL BE PROVIDED WITH: 1) TWO (2) NO/NC FIELD CONVERTIBLE AUXILIARY CONTACTS IN ADDITION TO FACTORY SUPPLIED SEAL-IN CONTACTS; 2) COVER MOUNTED INCANDESCENT RED AND GREEN PILOT LIGHTS AND PUSHBUTTON OPERATOR; 3) ROTARY TYPE SELECTOR SWITCH; 4) CONTROL POWER TRANSFORMER WITH 120 VOLT SECONDARY VOLTAGE AND VA RATING AS REQUIRED BY THE LOAD SERVED. CONTROL TRANSFORMER SHALL BE FUSE PROTECTED ON BOTH, PRIMARY AND SECONDARY WINDINGS.
A. ALL ELECTRICAL MATERIALS SHALL BE NEW (EXCEPT IF INDICATED OR SPECIFIED OTHERWISE), IN FIRST-CLASS CONDITION, UNDERWRITERS' LABORATORIES, INC. (UL) APPROVED, AND SHALL COMPLY WITH APPLICABLE NEMA STANDARDS.	C. PROVIDE COVERS SET TO COME FLUSH WITH FINISHED WALLS.	D. INSTALL ENCLOSED CONTROLLERS WHERE INDICATED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. HEIGHT OF THE OPERATING HANDLE NOT OVER 5 FT TO FINISHED FLOOR.
B. COMPLY WITH ALL APPLICABLE LOCAL AND STATE ORDINANCES AND LATEST EDITION OF: IBC - INTERNATIONAL BUILDING CODE, 2020 NEC NATIONAL ELECTRICAL CODE, NFPA CODES, AND WITH THE REQUIREMENTS OF UTILITY AND TELEPHONE COMPANIES FURNISHING SERVICE.	D. UTILITY OR SECTIONAL SWITCH BOXES ONLY WHERE PERMITTED.	E. SELECT AND INSTALL OVERLOAD HEATER ELEMENTS IN MOTOR CONTROLLERS TO MATCH INSTALLED MOTOR CHARACTERISTICS.
C. PROCURE AND PAY FOR ALL PERMITS, LICENSES AND LIABILITY INSURANCE, ETC. FURNISH CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM LOCAL INSPECTOR.	E. VERIFY MOUNTING HEIGHTS OF ALL OUTLETS PRIOR TO INSTALLATION. LOCATE OUTLETS TO CLEAR WORKBENCHES, BENCHES, BASEBOARDS OR FINITURE HEATERS, ETC. OR AS REQUIRED TO SERVICE EQUIPMENT.	F. MECHANICAL EQUIPMENT MOTORS AND MOTOR STARTERS FURNISHED BY MECHANICAL CONTRACTOR.
D. MATERIAL SHALL BE AS SPECIFIED UNLESS PRIOR ACCEPTANCE HAS BEEN OBTAINED FROM ARCHITECT SEVEN (7) DAYS BEFORE BID OPENING.	F. SUPPORT: OUTLET, DEVICE, PULL AND JUNCTION BOXES RIGIDLY FROM THE STRUCTURE EITHER DIRECTLY OR BY USING A RIGID SUPPORT, IN ACCORDANCE WITH REQUIREMENTS OF ART. 370-23 OF THE NEC.	G. PROVIDE FEEDER CIRCUITS TO MECHANICAL EQUIPMENT AND MOTOR STARTERS AND MAKE ALL CONNECTIONS.
GUARANTEE	WIRING DEVICES	H. PROVIDE NORMAL DUTY, HP RATED, QUICK-MAKE, QUICK-BREAK, FUSIBLE OR NON-FUSIBLE DISCONNECT SWITCHES AS REQUIRED BY NEC.
A. REPLACE ANY WORK OR MATERIAL INSTALLED OR FURNISHED UNDER THIS CONTRACT WHICH DEVELOPS DEFECTS, EXCEPT FROM NORMAL WEAR, WITHIN ONE (1) YEAR AFTER COMPLETION.	A. DEVICES SHALL BE AS FOLLOWS:	LIGHTING FIXTURES
COORDINATION	1. SPECIFICATION GRADE RECEPTACLES: HUBBELL 5362 SERIES OR AS ACCEPTED; GROUND FAULT INTERRUPTERS: HUBBELL GF362, OR AS ACCEPTED. MOUNTING HEIGHT +18 INCH A.F.F. TO CENTER OR AS NOTED.	A. PROVIDE ALL NEW LIGHTING FIXTURES COMPLETE WITH LAMPS, BALLASTS, REFLECTORS, PLASTER FRAMES, FLANGES, LOUVERS, STEM HANGERS, ETC., ASSEMBLED AND READY FOR OPERATION AND AS DESCRIBED ON THE DRAWINGS. (VERIFY CEILING TYPES.)
A. PRIOR TO FABRICATION OR INSTALLATION OF ANY ELECTRICAL WORK, PARTICIPATE IN DETAILED COORDINATION PLANNING MEETINGS WITH ALL OTHER CONSTRUCTION TRADES, UNDER THE DIRECTION OF THE GENERAL CONTRACTOR, SO AS TO COMPLETELY ESTABLISH ROUTINGS, ELEVATIONS, SPACE REQUIREMENTS, AND COORDINATION OF ACCESS, LAYOUT, AND SUSPENSION REQUIREMENTS IN RELATIONSHIP TO THE BUILDING STRUCTURE AND THE WORK OF ALL OTHER TRADES.	2. WEATHERPROOF OUTLET COVER, HUBBELL 5200 SERIES, OR AS ACCEPTED.	B. MOUNT ALL FIXTURES AT POSITION AND HEIGHT TO CLEAR DUCTS, ETC.
B. THIS CONTRACTOR SHALL COORDINATE DIVISION 16 WORK WITH THE INSTALLER OF DIVISION 15 AND OTHER WORK TO ENSURE THAT CODE REQUIRED CLEARANCES RELATING TO SPACE REQUIRED FOR ACCESS TO ELECTRICAL EQUIPMENT, ALONG WITH LIMITATIONS RELATING TO INSTALLATION OF MECHANICAL PIPING, DUCTWORK, OR EQUIPMENT ABOVE, OR ADJACENT TO, ELECTRICAL APPARATUS, ARE PROPERLY MAINTAINED.	3. AC QUIET-OPERATING TYPE SWITCHES: HUBBELL HBL1221 SERIES, OR AS ACCEPTED. MOUNTING HEIGHT +42 INCH A.F.F. TO CENTER OR AS NOTED.	C. PROVIDE TWO NO. 12 GAUGE HANGERS CONNECTED FROM THE FIXTURE HOUSING TO THE STRUCTURE, IN ADDITION TO THE FIXTURE REQUIRED ATTACHMENT TO THE CEILING SUSPENSION SYSTEM. FIXTURE SUPPORT SHALL MEET THE REQUIREMENTS OF STANDARD 25-2 OF THE IBC.
C. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF DEVICES. FINAL LOCATION OF ALL DEVICES TO BE DETERMINED BY THE ARCHITECT.	4. DIMMER SWITCH, "SLIDE TO OFF" TYPE, WITH A VA (W) RATING SUITABLE FOR THE LOAD SERVED: LUTRON NOVA SERIES, OR AS ACCEPTED. MOUNTING HEIGHT +42 INCH A.F.F. TO CENTER OR AS NOTED.	VOICE AND DATA CONDUIT SYSTEM
D. PRIOR TO COMMENCING CONSTRUCTION, NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN ELECTRICAL DRAWINGS AND ANY OTHER PROJECT DRAWINGS (I.E., ARCHITECTURAL, FURNITURE SYSTEM, MECHANICAL, STRUCTURAL, ETC.) AS WELL AS DISCREPANCIES BETWEEN DRAWINGS AND EXISTING FIELD CONDITIONS.	B. DEVICE PLATES SHALL BE: NYLON, EXCEPT AS DIRECTED BY ARCHITECT.	A. PROVIDE OUTLETS WHERE INDICATED ON THE DRAWINGS. PROVIDE 3/4 INCH CONDUIT WITH PULL WIRE FROM EACH OUTLET TO 6 INCH ABOVE ACCESSIBLE CEILING. BEND CONDUIT 90 DEGREES AND INSTALL CONDUIT BUSHINGS AT CONDUIT ENDS.
E. ALL OPENINGS MADE IN FIRE-RATED WALLS, FLOORS OR CEILINGS, SHALL BE PATCHED AND MADE TIGHT IN A MANNER TO CONFORM TO THE FIRE RATING FOR THE SURFACE PENETRATED.	C. SPECIAL PURPOSE RECEPTACLES OR OTHER DEVICES SHALL BE WHITE AS INDICATED ON THE DRAWINGS. CONFIRM COLOR WITH ARCHITECT.	B. OUTLETS SHALL CONSIST OF FOUR-INCH (4") SQUARE BY 2-1/2 INCH DEEP BOX WITH SINGLE GANG COVER. OUTLET PLATES COLOR AND FINISH SHALL MATCH OTHER DEVICE PLATES.
CONDUIT SYSTEMS	D. WIRING DEVICES AND DEVICE PLATES COLOR SHALL BE AS DIRECTED BY THE ARCHITECT AND OWNER.	C. PROVIDE TELEPHONE TERMINALS BOARDS AS SHOWN ON DRAWINGS.
A. RIGID CONDUIT, INTERMEDIATE METALLIC CONDUIT, AND/OR ELECTRICAL METALLIC TUBING AS PERMITTED BY NEC.	GROUNDING	D. ALL COMMUNICATIONS CABLES ABOVE CEILING SHALL BE PLENUM RATED. SUPPORT CABLES FROM THE STRUCTURE. DO NOT LAY CABLES ON TOP OF THE CEILING SYSTEM.
B. SCHEDULE 40, RIGID PVC PLASTIC CONDUIT FOR ALL LOCATIONS DIRECTLY IN EARTH, GRAVEL, ETC. OR DIRECTLY BELOW OR IN CONCRETE SLAB-ON-GRADE.	A. ALL SERVICE EQUIPMENT, CONDUIT SYSTEMS, SUPPORTS, CABINETS, LIGHTING STANDARDS, POLES, EQUIPMENT, FIXTURES, ETC. AND THE GROUNDING CIRCUIT CONDUCTOR OR GROUNDING BUSHINGS, CLAMPS, ETC. FOR COMPLETE GROUNDING.	E. SUPPORT AND INSTALL VOICE AND DATA RACEWAY SYSTEM AND CABLES FOLLOWING EIA/TIA STANDARDS.
C. PROVIDE FLEXIBLE METAL CONDUIT WHERE WIRING MUST BE FISHED OR FOR EQUIPMENT, MOTORS, LIGHTING FIXTURE OR TRANSFORMER CONNECTIONS.	1. PROVIDE A SEPARATE GROUNDING CONDUCTOR, SECURELY GROUND ON EACH SIDE OF ALL RACEWAYS CONTAINING SECTIONS OF PLASTIC, FIBER, ASBESTOS CEMENT, OR FLEXIBLE RACEWAYS. SIZE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.	FIRE ALARM SYSTEM
D. ALL EMT CONNECTORS AND COUPLINGS SHALL BE STEEL, COMPRESSION GLAND OR SETSCREW TYPE. CONNECTORS AND COUPLINGS MADE OF MALLEABLE IRON OR OTHER MATERIALS ARE NOT ACCEPTABLE.	2. PROVIDE A GREEN GROUNDING JUMPER FROM THE GROUND SCREW TO A BOX GROUNDING SCREW OR CLIP FOR ALL GROUNDING TYPE DEVICES. USE INSULATED WIRE.	A. DESIGN-BUILD PROVIDE FIRE ALARM PLANS TO THE DENVER FIRE DEPARTMENT IF NECESSARY.
E. INSTALL RACEWAYS CONCEALED. SURFACE MOUNT CONDUITS IN ELECTRICAL AND MECHANICAL ROOMS OR WHERE APPROVED BY THE ARCHITECT.	3. PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN EVERY FEEDER AND BRANCH CIRCUITS,	

		ISSUE				
		01/18/23 – PERMIT SET	03/27/23 – AGENCY COMMENTS			
<u>JURISDICTION:</u>	PARKER, COLORADO					
<u>ELECTRICAL CODE:</u>	2020 NATIONAL ELECTRICAL CODE					
<u>ENERGY CODE:</u>	2021 INTERNATIONAL ENERGY CONSERVATION CODE					
SHEET NO.	SHEET DESCRIPTION					
E0.1	ELECTRICAL COVER SHEET	X	X			
E0.2	ELECTRICAL LEGEND & NOTES	X	X			
E1.0	ELECTRICAL SITE PLAN	X	X			
E1.1	ELECTRICAL LIGHTING PLAN	X	X			
E1.2	ELECTRICAL ROOF PLAN	X	X			
E2.1	ELECTRICAL POWER PLAN	X	X			
E3.1	ELECTRICAL ONE-LINE & SCH.	X	X			
E3.2	ELECTRICAL FIXTURE SCH. & COMCHECK	X	X			



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9572 TWENTY MILE ROAD

CSHQ

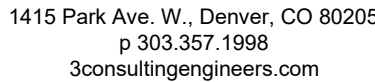
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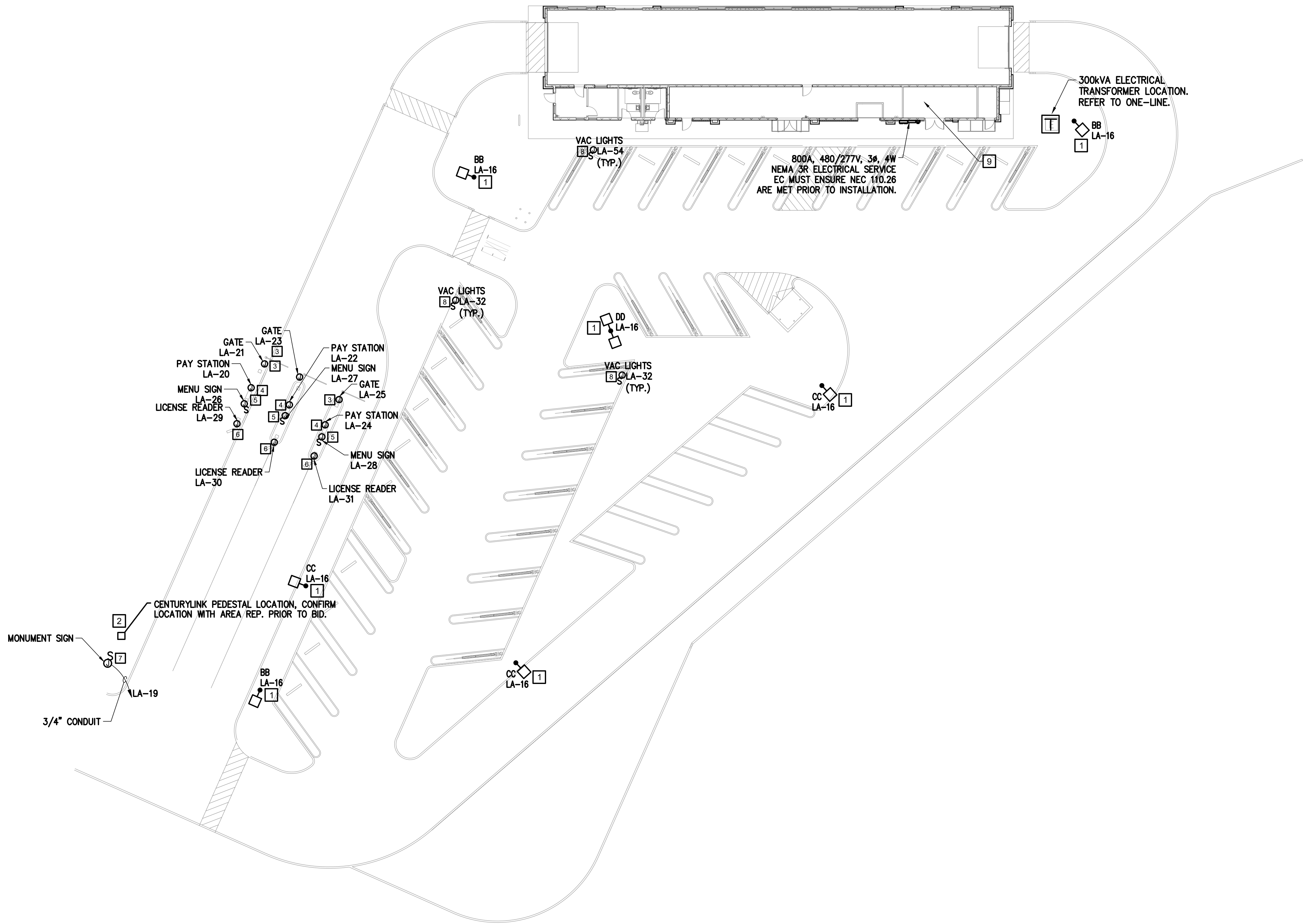
 AGENCY COMMENTS 3/22/2023

ELECTRICAL COVER SHEET

E0.1

ORIGINAL SHEET SIZE
24" x 36"





1 ELECTRICAL SITE PLAN

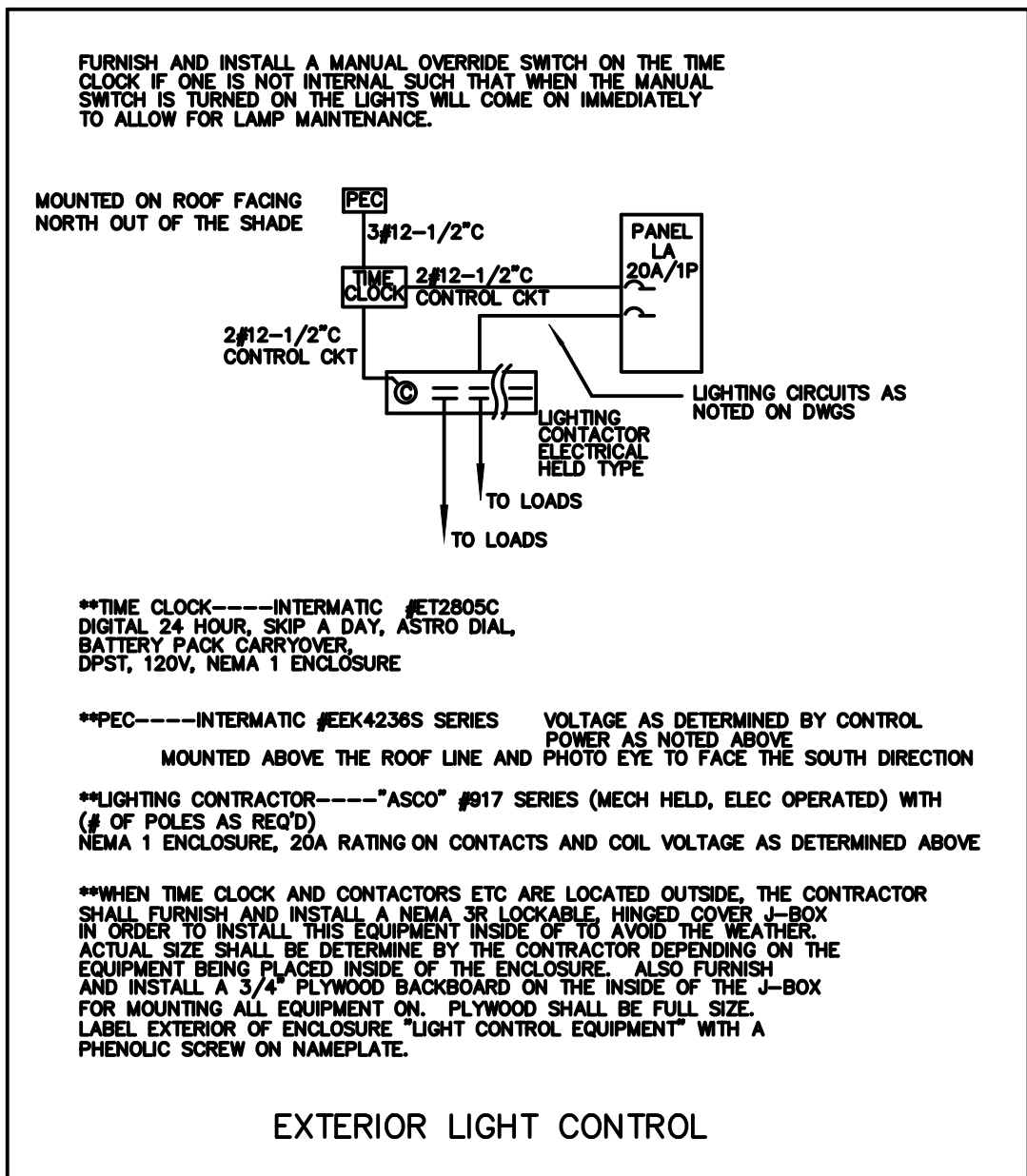
1" = 20'-0"

NOTES

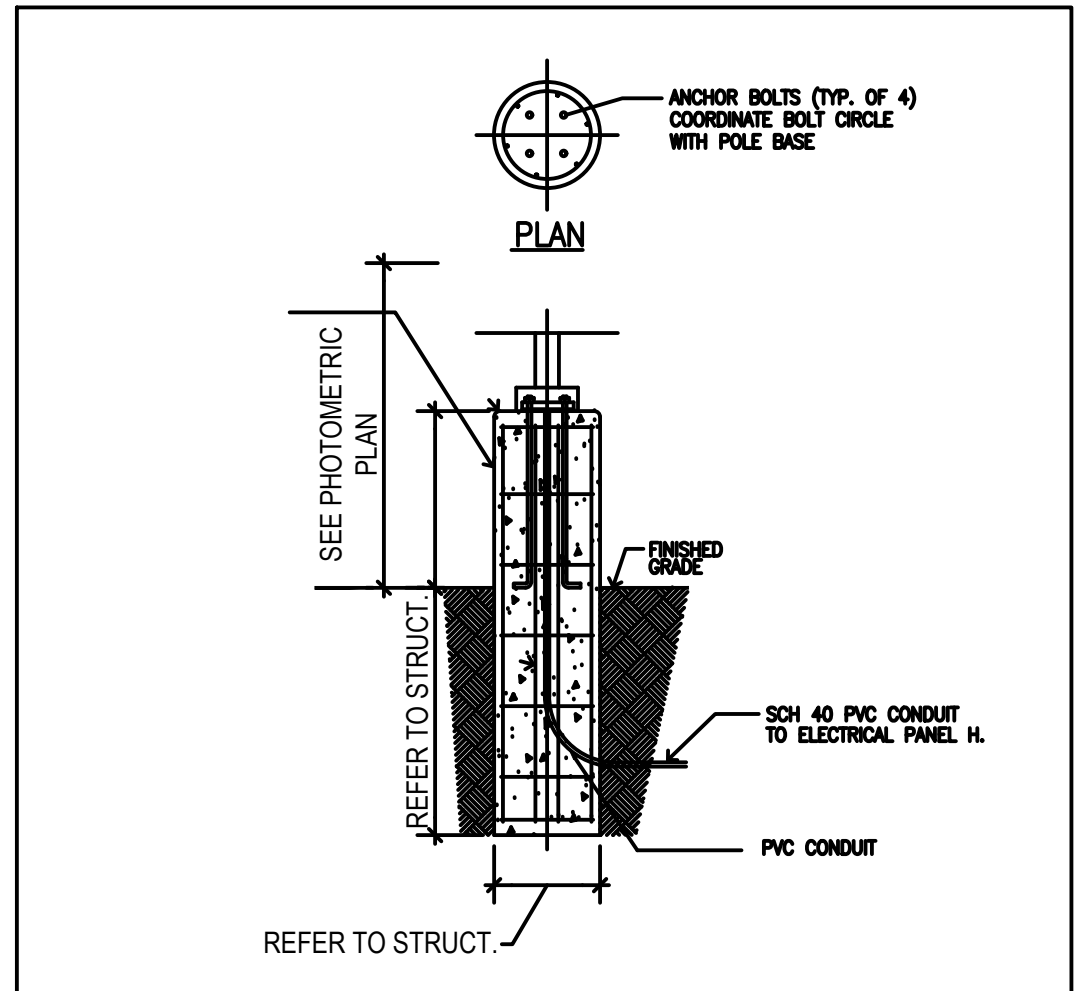
1. FIXTURES TO BE CONTROLLED THROUGH TIME-CLOCK WITH A PHOTOCELL OVERRIDE.
2. EC TO PROVIDE (1) 4" PVC CONDUIT TO TELE-COM PEDESTAL FROM TBB. PROVIDE WITH RADIUS SWEEPS AND PULL-STRING. FIELD VERIFY LOCATION WITH LOCAL REP. PRIOR TO BID.
3. REFER TO P.O.S. GATE CONTROL DRAWINGS FOR ADDITIONAL UNDERGROUND CAR WASH CONDUIT ROUTING. EC IS RESPONSIBLE FOR LINE & LOW VOLTAGE UNDERGROUND.
4. P.S. #1, #2, AND #3- REFER TO MACNEIL & P.O.S. DRAWINGS FOR ADDITIONAL UNDERGROUND CAR WASH CONDUIT ROUTING. EC IS RESPONSIBLE FOR LINE & LOW VOLTAGE UNDERGROUND. (SEE MACNEIL DRAWINGS FOR FURTHER DETAIL)
5. PROVIDE SIGN LIGHTS AT P.S.#1, #2 & #3, SEE MACNEIL DRAWINGS FOR CONTROL DETAIL AND CONDUIT ROUTING.
6. LICENSE PLATE READERS - EC IS RESPONSIBLE FOR LINE VOLTAGE POWER & LOW VOLTAGE CONDUIT UNDERGROUND. VERIFY LOCATIONS WITH OWNER AND EQUIPMENT SUPPLIER.
7. PROVIDE 2#10,#10G IN 3/4"CONDUIT TO FOR MONUMENT SIGN. FIELD VERIFY LOCATION WITH THE OWNER PRIOR TO ROUGH-IN & INSTALLATION.
8. EC TO PROVIDE FUTURE DAISY CHAINED 3/4" CONDUITS FOR THE VACUUM LIGHTS.
9. CONFIRM VACUUM SYSTEM REQUIREMENTS PRIOR TO INSTALLATION. CONTRACTOR TO PROVIDE ALL UNDERGROUND WIRING TO CONTROL PANEL AND MOTOR. VERIFY VACUUM HP AND OCPD SIZE AT THIS LOCATION PRIOR TO GEAR ORDER.

NOTICE

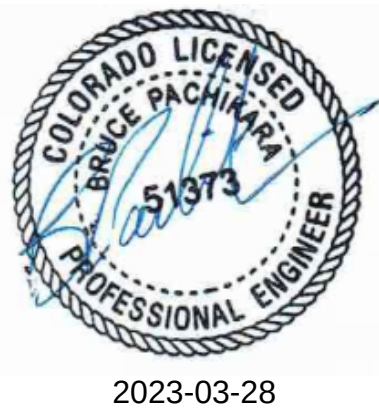
1. EC TO REFER TO ALL CAR WASH DRAWINGS AND P.O.S. FOR ADDITIONAL UNDERGROUND CAR WASH CONDUIT ROUTING. EC IS RESPONSIBLE FOR LINE & LOW VOLTAGE UNDERGROUND. EC TO INCLUDE ALL UNDERGROUND IN PROPOSAL. EC IS RESPONSIBLE FOR ALL WORK ON THE MACNEIL CAR WASH DRAWINGS.
2. EC TO CONFIRM OCPD AND AMPERAGE FOR VACUUM SYSTEMS PRIOR TO INSTALLATION.



A EXTERIOR LIGHT CONTROL
N.T.S.



B LIGHT POLE BASE DETAIL TYPE: 'BB' 'CC' 'DD'
N.T.S.



QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

CSHQA

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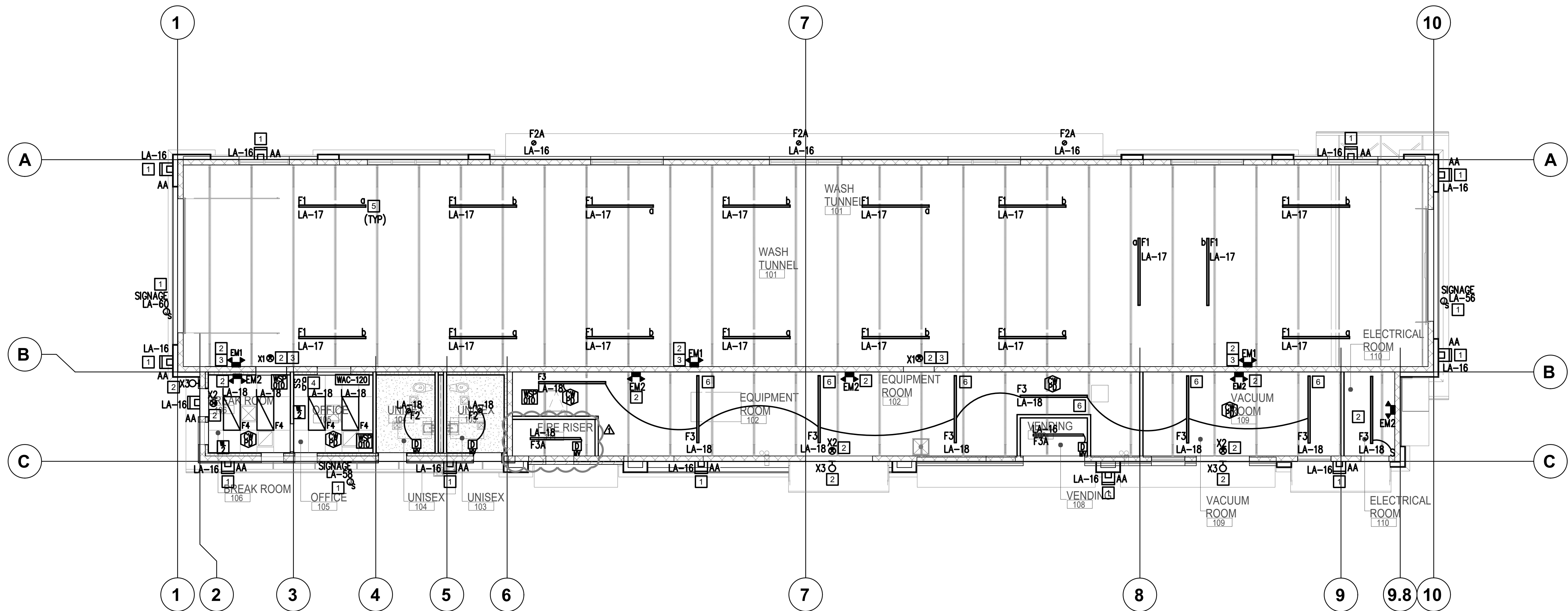
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PROJECT	DATE
20037.000	3-22-2023
DRAWN	CHECKED
JCB	JCB

REVISED
Δ AGENCY COMMENTS 3/22/2023

SHEET TITLE
**ELECTRICAL
SITE PLAN**

SHEET
E1.0
ORIGINAL SHEET SIZE
24" x 36"



1 ELECTRICAL LIGHTING PLAN

1/8" = 1'-0"

ELECTRICAL GENERAL NOTES:

- 1.) SEE COVER SHEET FOR GENERAL NOTES AND LEGEND.
- 2.) ALL EXPOSED CONDUIT AND CABLE SHALL BE RAN PARALLEL & PERPENDICULAR TO THE BUILDING LINES; THERE SHALL BE NO EXPOSED CONDUIT IN THE TUNNEL.
- 3.) PAINT CONDUIT TO MATCH CEILINGS.
- 4.) COORDINATE THE EXACT LOCATIONS OF ALL EQUIPMENT WITH THE OWNERS PROJECT MANAGER AND INSTALL PER THE REQUIREMENTS OF THE RESPECTIVE EQUIPMENT SUPPLIER/INSTALLER
- 5.) EC TO INCORPORATE ALL CAR-WASH DRAWINGS INTO PROPOSAL. EC IS RESPONSIBLE FOR ALL COORDINATION OF ALL MACNEIL & P.O.S. DRAWINGS. THIS INCLUDES CONTROL WIRING.
- 6.) ALL WIRING IN THE TUNNEL SHALL BE WEATHERPROOF AND MEET 2020 NEC WIRING METHODS FOR THE APPLICATION.

ELECTRICAL PROJECT NOTES:

- 1.) THE WORK DEPICTED ON THE DRAWINGS IS DIAGRAMMATIC. COORDINATE WORK WITH OTHER TRADES SO INTERFERENCE AMONG CONDUITS, EQUIPMENT, DUCTS, PIPING, ARCHITECTURAL AND STRUCTURAL WORK WILL BE AVOIDED.
- 2.) UNLESS OTHERWISE NOTED, BRANCH CIRCUITS ARE #12 A.W.G.
- 3.) PROVIDE A #9 GA. GALVANIZED PULLWIRE OR PULL ROPE/CORD HAVING 200# TEST STRENGTH IN EACH EMPTY RACEWAY OVER 25 FEET LONG.
- 4.) PROVIDE GROUNDING IN ACCORDANCE WITH THE 2020 NATIONAL ELECTRICAL CODE NEC ART. 250.
- 5.) GENERAL BUILDING CONTRACTOR AND/OR HIS ELECTRICAL SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL FIRE ALARM SYSTEMS, SECURITY ALARM SYSTEMS, AND ENERGY MANAGEMENT SYSTEMS. THE ASSOCIATED CONTROL PANELS AND ESTABLISHMENT OF ALL MONITORING FOR THESE SYSTEMS MUST BE IN COMPLETE WORKING ORDER. ADVANCE TESTING, ADJUSTMENTS AND SECURING OF ALL APPROVALS BY LOCAL AND STATE BUILDING OFFICIALS AND FIRE MARSHALS MUST BE COMPLETED ONE (1) WEEK AFTER THE PROJECT HAS BEEN AWARDED.
- 6.) PROVIDE ALL BRANCH CIRCUIT WIRING RACEWAYS TO ALL FIXTURES, DEVICES AND EQUIPMENT TO CONNECT THEM TO THE CIRCUITS INDICATED.

ELECTRICAL KEYNOTES

- 1] EXTERIOR LIGHT FIXTURE TO BE CONTROLLED THROUGH TIME-CLOCK WITH A PHOTOCELL OVERRIDE.
- 2] CONNECT EGRESS LIGHT AHEAD OF LOCAL SWITCHING.
- 3] EC TO PROVIDE WEATHERPROOF EMERGENCY LIGHT FIXTURES IN THE WASH-BAY.
- 4] FIELD COORDINATE NEW SWITCHBANK & NEW SWITCHING PATTERN WITH THE OWNER.
- 5] EC TO CONCEAL ALL CONDUIT FOR THE F1 FIXTURES IN THE TUNNEL. (TYPICAL)
- 6] EC TO CONCEAL ALL CONDUIT FOR THE F3 FIXTURES IN THE EQUIPMENT ROOM. (TYPICAL)

LIGHTING CONTROL LEGEND:

- [D] QNW-D-1001-MV - LINE VOLTAGE DUAL TECHNOLOGY WALL SWITCH SENSOR, 1000 SQFT, GROUND REQUIRED.
- [CWP] CWPD-1500 - WIRELESS, PASSIVE INFRARED TECHNOLOGY, 360 DEGREE CEILING SENSOR, 1500 SQFT.
- [WAC-120] WAC-120 - WIRELESS AREA CONTROLLER. REQUIRES 120V CONNECTION.
- [WSP-010] WSP-MV-010 - WIRELESS RELAY SWITCHPACK, 20A, 0-10V DIMMING.
- [W2] W2L - WAVELINX WALL STATION, 120V, 2-LARGE BUTTONS.



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QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

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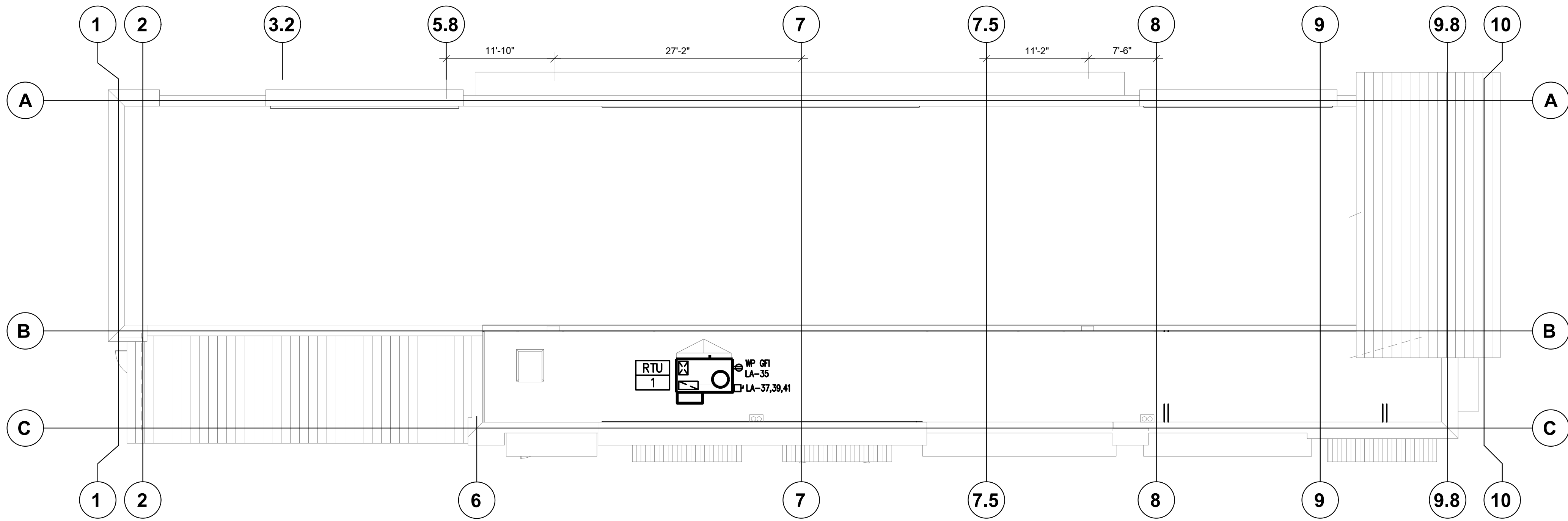
9572 TWENTY MILE ROAD

PROJECT	DATE
20037.000	3-22-2023
DRAWN	CHECKED
JCB	JCB

REVISED
Δ AGENCY COMMENTS 3/22/2023

SHEET TITLE
ELECTRICAL LIGHTING PLAN

SHEET
E1.1
ORIGINAL SHEET SIZE
24" x 36"



 **1** ELECTRICAL ROOF PLAN
1/8" = 1'-0"



- 1 REFER TO CAR WASH EQUIPMENT DRAWINGS FOR POWER IN THIS AREA.
- 2 VERIFY RECEPTACLE/DATA PORT LOCATIONS WITH OWNER/ARCHITECT BASED ON FURNITURE LAYOUT PRIOR TO INSTALLATION.
- 3 IRRIGATION CONTROLLER, FIELD VERIFY LOCATION PRIOR TO INSTALLATION.
- 4 EC TO VERIFY GARAGE DOOR AMPERAGE & VOLTAGE PRIOR TO ROUGH-IN & INSTALLATION.

1. ALL WIRING TO BE 2#12CU, #12CU GND- $\frac{1}{2}$ "C UNLESS OTHERWISE NOTED
2. REFER TO MACNEIL CAR WASH DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT.
3. REFER TO ELECTRICAL-MECHANICAL SCHEDULE FOR WIRE SIZING OF EQUIPMENT.
4. ALL BRANCH CIRCUITING LOCATED IN WASH BAY SHALL BE IN ACCORDANCE WITH THE 2020 NATIONAL ELECTRICAL CODE. (NON-FERROUS)
5. ALL LOW VOLTAGE CONDUIT & WIRING IS THE RESPONSIBILITY OF THE EC. SEE MACNEIL & P.O.S. EQUIPMENT DRAWINGS FOR FURTHER DETAIL & ROUTING.



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PROJECT 20037.000	DATE 3-22-2023
DRAWN JCB	CHECKED JCB

REVISÉ
 A AGENCY COMMENTS 3/22/2023

SHEET TITLE

**ELECTRICAL
POWER
PLAN**

SHEET

E2.1

ORIGINAL SHEET SIZE
24" x 36"



1. ALL SWITCHBOARDS AND PANELBOARDS SUPPLIED BY A FEEDER IN OTHER THAN ONE OR TWO FAMILY DWELLINGS SHALL BE MARKED TO INDICATE THE
2. PROVIDE ADEQUATE GUARDING OF ALL LIVE PARTS IN EXTERIOR YARD, SUCH AS A SUITABLE ENCLOSURE SO THAT ONLY QUALIFIED PERSONS HAVE ACCESS.
3. ELECTRICAL SWITCHBOARDS TO BE LABELED WITH REQUIRED ARC-FLASH HAZARD WARNING LABELS.
4. CONFIRM LOCAL UTILITY METERING STANDARD PRIOR TO BID & GEAR ORDER.
5. 240.87 ARC ENERGY REDUCTION. WHERE THE HIGHEST CONTINUOUS CURRENT TRIP SETTING FOR WHICH THE ACTUAL OVERCURRENT DEVICE INSTALLED IN A CIRCUIT BREAKER IS RATED OR CAN BE ADJUSTED IS 1200A OR HIGHER, 240.87(A) AND (B) SHALL APPLY.

VOLTAGE L-L: 480 VOLTAGE L-G: 277 TYPE: 3PH/4W MOUNTING: SURFACE NOTES:			PANEL 'HA' LOCATION: ELECTRICAL ROOM BUS RATING: 400 AMP MAIN CB: M.L.O. S.C. RATING: 25K AIC FULLY RATED FED FROM: MDP									
CIR. NO	CCT TYPE	LOAD VA	LOAD DESCRIPTION	CIRCUIT POLE	BRKR TRIP	BUS A	CIRCUIT TRIP	BRKR POLE	LOAD DESCRIPTION	LOAD VA	CCT TYPE	CIR. NO
1	E	2105	(1-A) RECLAIM SYS	3	20	A	20	3	(1-D) R.O. FILTRATION SYS	942	E	2
3	E	2105	----			B			----	942	E	4
5	E	2105	----			C			----	942	E	6
7	M	942	(1-E) R.O. REPRESS. PUM	3	20	A	20	3	(1-E) R.O. REPRESS. PUM	942	M	8
9	M	942	----			B			----	942	M	10
11	M	942	----			C			----	942	M	12
13	M	1330	(55-1) FRESH WATER PUM	3	20	A	20	3	(1-X) R.O.R. BOOSTER PUM	831	M	14
15	M	1330	----			B			----	831	M	16
17	M	1330	----			C			----	831	M	18
19	E	6842	(10-A) 20HP COMPRESSOR	3	40	A	20	3	(10-B) 10HP COMPRESSOR	3878	E	20
21	E	6842	----			B			----	3878	E	22
23	E	6842	----			C			----	3878	E	24
25			SPARE	3	20	A	60	3	(60-1) CONVEYOR	12188	M	26
27			----			B			----	12188	M	28
29			----			C			----	12188	M	30
31			SPARE	3	20	A	20	1	SPARE			32
33			----			B	20	1	SPARE			34
35			----			C	20	1	SPARE			36
37			SPARE	3	20	A	100	3	PANEL 'LA'	18372	S	38
39			----			B			----	20167	S	40
41			----			C			----	15908	S	42
CCT TYPE: L=LIGHTING, R=RECEPTACLE, M=MOTOR, LM=LARGEST MOTOR, E=EQUIPMENT, KE=KITCH EQUIP., S=SUBFEED PANEL												
CCT TYPE:		LOAD	MULT	DEMANDED LOAD		TOTAL CONNECTED LOADS						
LIGHTING:		0	1.25	0 VA		A		B		C		
RECEPTACLE:		0	1.0	0 VA		VA		48372		50167		
OVER 10K:		0	0.5	0 VA		TOTAL DEMANDED LOADS		A		B		
MOTOR:		48699	1.0	48699 VA		VA		48372		50167		
LGST MOTOR:		0	1.25	0 VA		AMPS		175		181		
EQUIPMENT:		41301	1.0	41301 VA		TOTAL ON PANEL:		144 KVA		174 AMPS		
KITCH EQUIP:		0	0	0 VA								
SUBFEED PNL:		54447	1.0	54447 VA								
NOTES: INSTALL BREAKERS TO MATCH SCHEDULE. PANEL SHALL BE RATED FOR A CORROSIVE ENVIRONMENT												

INTERIOR LIGHTING COMCHECK

COMcheck Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC

Project Title: Cobblestone Car Wash

Project Type: New Construction

Construction Site:

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Allowed Interior Lighting Power

A	B	C	D
Area Category	Floor Area (ft2)	Allowed Watts / ft2	Allowed Watts
1.Automotive Facility	5343	0.75	4007
Total Allowed Watts = 4007			

Proposed Interior Lighting Power

A	B	C	D	E
Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	Lamps/ Fixture	# of Fixture	Fixture (C X D)	Watt.
1.Automotive Facility				
LED: F1: Other:	1	16	67	1072
LED: F2: LED Panel 19W:	1	2	21	42
LED: F3: LED Panel 80W:	1	8	94	752
LED: F3A: LED Panel 55W:	1	2	30	60
LED: F4: LED Panel 33W:	1	4	29	116
Total Proposed Watts =				2042

Interior Lighting PASSES: Design 49% 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 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

CHAD SMITH, PRINCIPAL

CHAD SMITH

Signature

1/12/2023

Date

Project Title: Cobblestone Car Wash

Report date: 01/12/23

Data filename:

Page 2 of 8

EXTERIOR LIGHTING COMCHECK

COMcheck Software Version COMcheckWeb

Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC

Project Title: Cobblestone Car Wash

Project Type: New Construction

Exterior Lighting Zone

4 (High activity metropolitan commercial district (LZ4))

Construction Site:

Owner/Agent:

Designer/Contractor:

Allowed Exterior Lighting Power

A	B	C	D	E
Area/Surface Category	Quantity	Allowed Watts /	Tradable Wattage	Allowed Watts (B X C)
Parking area	28544 ft2	0.08	Yes	2284
Total Tradable Watts (a) =				2284
Total Allowed Watts =				2284
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	B	C	D	E
Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	Lamps/ Fixture	# of Fixture	Fixture (C X D)	Watt.
Parking area (28544 ft2): Tradable Wattage				
LED: AA: LED Panel 19W:	1	12	25	305
LED: BB: LED Panel 55W:	1	3	59	177
LED: CC: LED Panel 55W:	1	3	59	177
LED: DD: LED Panel 60W:	1	1	118	118
LED: F2A: LED Panel 19W:	1	3	21	64
Total Tradable Proposed Watts =				840

Exterior Lighting PASSES: Design 74% 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 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

CHAD SMITH, PRINCIPAL

CHAD SMITH

Signature

1/12/2023

Date

Project Title: Cobblestone Car Wash

Report date: 01/12/23

Data filename:

Page 3 of 8

LUMINAIRE SCHEDULE										
DESIGNATION	DESCRIPTION	LAMPS		VOLTAGE	TOTAL VA	MANUFACTURER		MOUNTING		REMARKS
		QTY.	TYPE			DESIGN BASIS				
						NAME	CATALOG SERIES	OTHERS	TYPE	DEPTH
F1	6' WET RATED LED STRIP LIGHT		LED	120	67	LUMENWERX	VIAWETS TMO HLO LED 80 750 35 6 UNV D1 1 GSM EF W			
F2	LED RECESSED DOWNLIGHT		LED	UNV	21.2	PORTFOLIO	LD8B-20-D010-EU8B-1020-80-35-6LB-W-0-LJ			
F2A	LED ENCLOSED RECESSED DOWNLIGHT		LED	UNV	21.2	METEOR	DOT 3.5 25 408 UNV STV 55 BLK BLK SUM			
F3	8' LED STRIP LIGHT		LED	UNV	94	LUMENWERX	VIA2S HLO FH LED 80 500 35 6 120 D1 DRC XX			
F3A	6' LED STRIP LIGHT		LED	UNV	30	LUMENWERX	VIA2S HLO FH LED 80 500 35 6 120 D1 DRC XX			
F4	2'X4' LENSED LED TROFFER		LED	120	29	METALUX	24GRLED1324X2RT			
X1	WP EXIT SIGN		LED	UNV	3.0	SURE-LITES	APX7G			WEATHERPROOF ENCLOSURE
X2	EXIT SIGN		LED	UNV	3.0	SURE-LITES	APX7G			
X3	EXTERIOR EM LIGHT		LED	UNV	3.0	SURE-LITES	SEL 25			
EM1	WP EMERGENCY LIGHT		LED	UNV	3.2	SURE-LITES	APEL			WEATHERPROOF ENCLOSURE
EM2	EMERGENCY LIGHT		LED	UNV	3.2	SURE-LITES	APEL			
AA	EXTERIOR WALL PACK		LED	UNV	25.4	MCGRAW-EDISON	IST-SA1B-740-U-T4FT			
BB	EXTERIOR POLE LIGHT		LED	UNV	59.0	MCGRAW-EDISON	GLEON-SA1C-740-U-T3			
CC	EXTERIOR POLE LIGHT		LED	UNV	59.0	MCGRAW-EDISON	GLEON-SA1C-740-U-T2			
DD	DOUBLE HEAD EXTERIOR POLE LIGHT		LED	UNV	118	MCGRAW-EDISON	GLEON-SA1C-740-U-T4FT (DOUBLE-HEAD)			

3CONSULTING ENGINEERS

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BRUCE PACHA
51373
PROFESSIONAL ENGINEER

2023-03-28

QUICK N CLEAN CAR WASH

9572 TWENTY MILE ROAD

CSHQA

JESSE GOLDMAN, ARCHITECT

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PROJECT
20037.000

DATE
3-22-2023

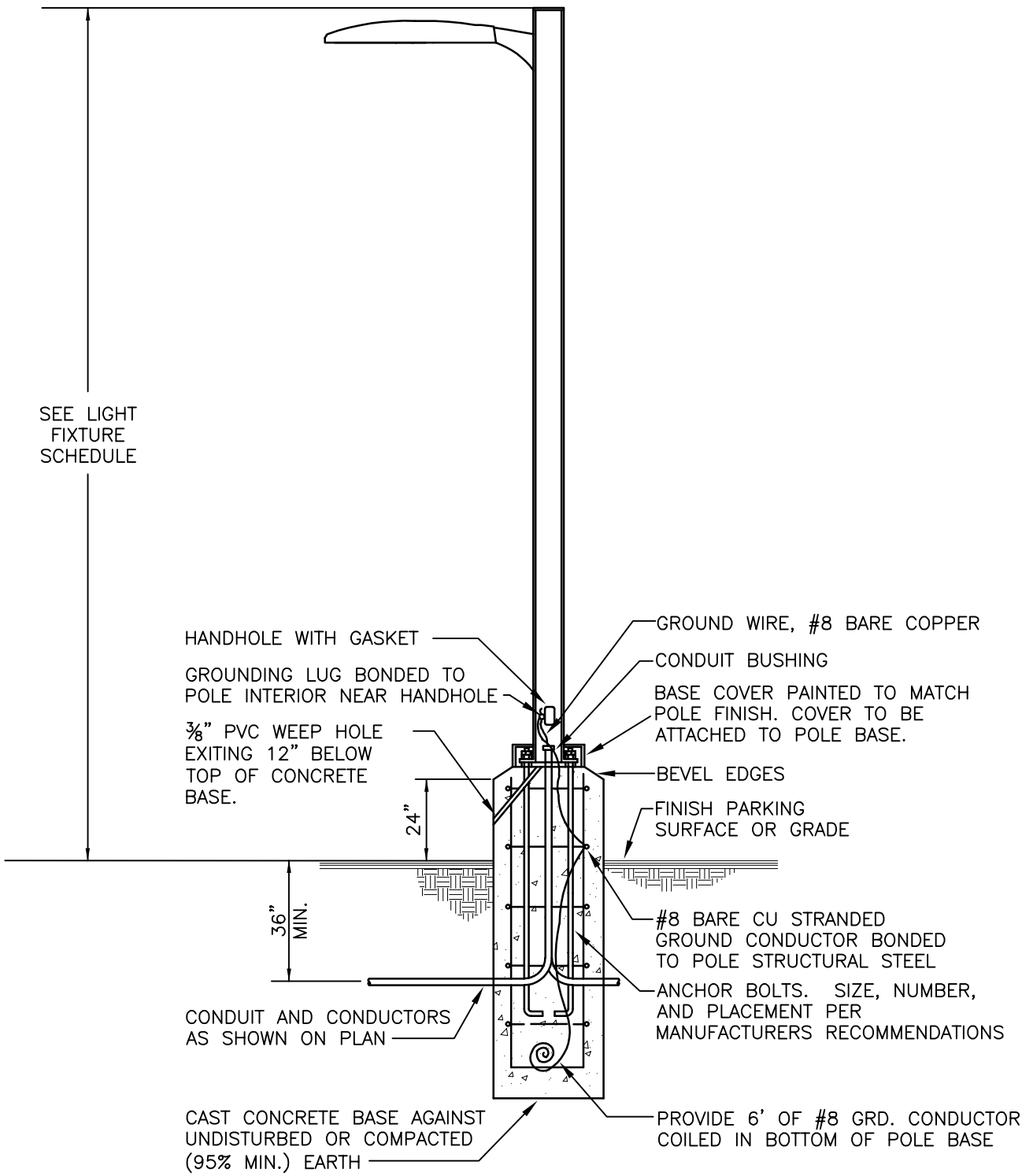
DRAWN
JCB

CHECKED
JCB

REVISED
▲ AGENCY COMMENTS 3/22/2023

SHEET TITLE
ELECTRICAL
FIXTURE SCH.
& CCK

SHEET
E3.2
ORIGINAL SHEET SIZE
24" x 36"

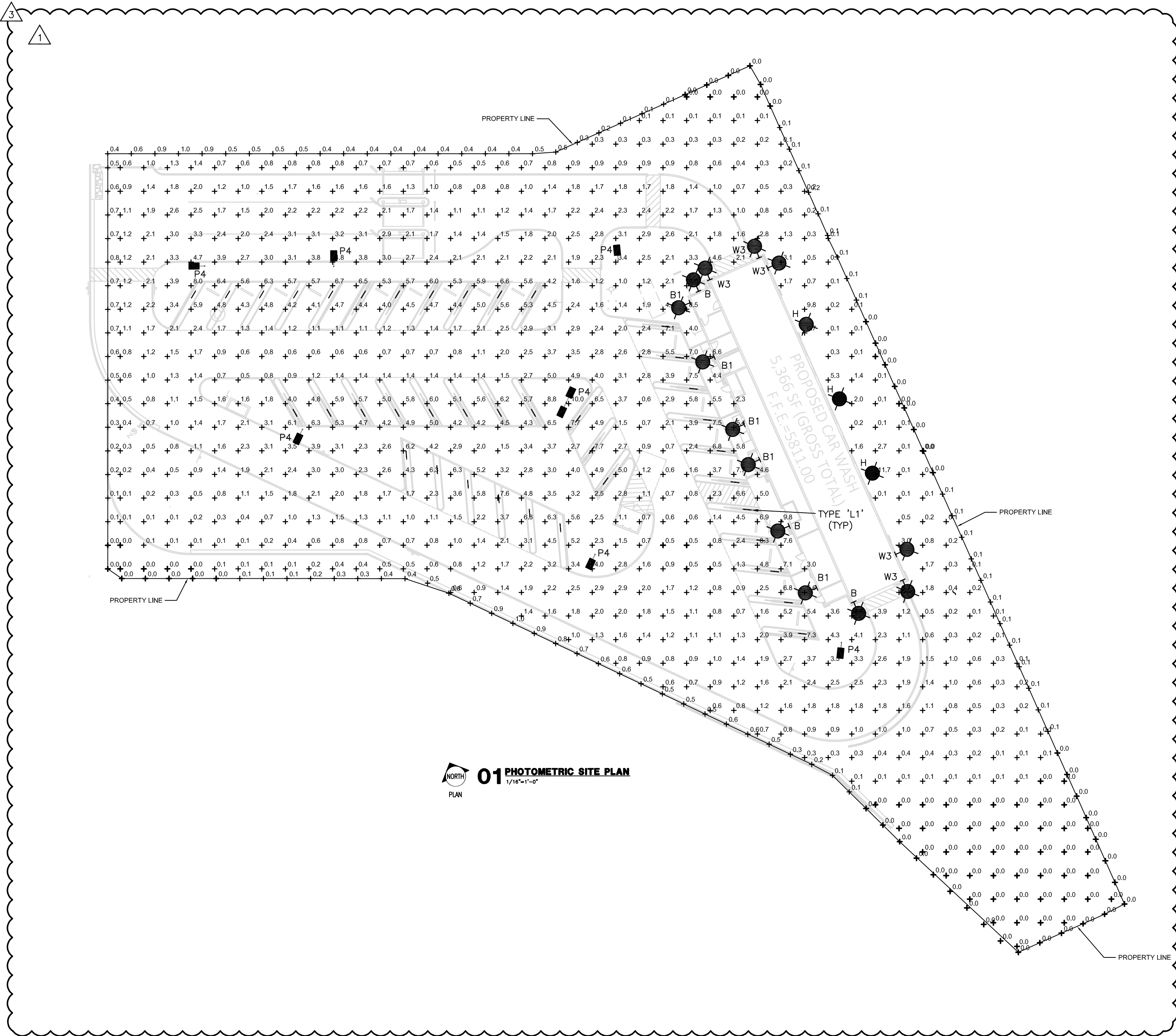


02 POLE BASE DETAIL

NTS

LIGHTING CALCULATION SUMMARY					
AREA	AVERAGE	MAX	MIN	AVG/MIN	MAX/MIN
PARKING LOT	1.7	3.9	0.5	3.4:1	7.8:1
PROPERTY LINE	0.3	1	0.0	NA	NA
SITE	2.0	11.7	0.0	NA	NA

LIGHTING FIXTURE SCHEDULE							
TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	LAMPS & BALLAST	MOUNTING	VOLTS	WATTS	REMARKS
P4	SITE POLE	DSXO LED P4 40K T3M MVOLT / SSS 20" W/2" BASE	LED 10256 LUMENS	POLE MOUNT	277	92	
B	EXTERIOR DECORATIVE WALL MOUNT	ANP LIGHTING W520 M021LD D W 40K	LED 750 LUMENS	WALL MOUNT	277	41	
B1	EXTERIOR DECORATIVE WALL MOUNT	ANP LIGHTING W520 M009LD D W 40K	LED 850 LUMENS	WALL MOUNT	277	10	
W3	WIDE DISTRIBUTION WALL LIGHT	LITHONIA DSXW1-LED-10C-350-40K-T2S	LED 1520 LUMENS	SURFACE	277	13.3	
L1	WET LOCATION LED STRIP	G&G LED: WPX2-SO-40K	LED 1900 LUMENS	SURFACE	277	15	
H	6" DOWNLIGHT	HUBBELL: LC6SL-6LCSL-18L-40K-8	LED 1800 LUMENS	RECESSED	277	23	



01 PHOTOMETRIC SITE PLAN

PLAN

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QNC CAR WASH
9572 TWENTY MILE ROAD

REVIEW SET
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CONSTRUCTION

PROJECT 20037	DATE 08-19-2020
DRAWN AAD	CHECKED EKZ

REVISED
1-CITY COMMENTS 05/13/21
2-OWNER UPDATE 05/02/22
3-CITY COMMENTS 10/20/22

SHEET TITLE
PHOTOMETRIC
SITE PLAN

SHEET
ES1.0
ORIGINAL SHEET SIZE
24" x 36"