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STRUCTURAL ABBREVIATIONS

#	POUND(S), NUMBER	HORIZ	HORIZONTAL
&	AND	HSS	HOLLOW STRUCTURAL SECTION
(E)	EXISTING		
@	AT	INT	INTERIOR
AB	ANCHOR BOLT	JBRG	JOIST BEARING
ADDL	ADDITIONAL	JG	JOIST GIRDER
ALT	ALTERNATE	JG/BRG	JOIST GIRDER BEARING
APPROX	APPROXIMATE(LY)	JT	JOIST
ARCH	ARCHITECT(URAL)	JO	JOINT
B/FTG	BOTTOM OF FOOTING	k/p	1,000 POUNDS
BLDG	BUILDING	ksi	kips PER SQUARE INCH
BLKG	BLOCKING	LB	POUND
BM	BEAM	LLH	LONG LEG HORIZONTAL
BMD	BOTTOM OF METAL DECK	LLV	LONG LEG VERTICAL
BN	BOUNDARY NAIL	MAX	MAXIMUM
BOT	BOTTOM	MECH	MECHANICAL
BP	BASE PLATE	MEZZ	MEZZANINE
BRG	BEARING	MFR	MANUFACTURER
BS	BOUNDARY SCREW	MIN	MINIMUM
BTWN	BETWEEN	MISC	MISCELLANEOUS
C-C	CENTER TO CENTER	MTL	METAL
CANT	CANTILEVER(ED)	NTS	NOT TO SCALE
CFS	COLD-FORMED STEEL	oc	ON CENTER
CIP	CAST-IN-PLACE	OPNG	OPENING
CJ	CONTROL OR CONST JOINT	PAF	POWER-ACTUATED FASTENER
CL	CENTER LINE		
CLR	CLEAR	PARA	PARAPET
CMU	CONCRETE MASONRY UNIT	PEMB	PRE-ENGINEERED METAL BUILDING (MANUFACTURER)
COL	COLUMN	PIL	PILASTER
CONC	CONCRETE	PL	PLATE
CONN	CONNECTION	PLYWD	PLYWOOD
CONST	CONSTRUCTION	psf	POUNDS PER SQUARE FOOT
CONT	CONTINUOUS	PTDF(L)	PRESSURE TREATED DOUGLAS FIR (LARCH)
CTR	CENTER	PTSPF	PRESSURE TREATED SPRUCE PINE FIR
DBL	DOUBLE		
DC	DEMAND CRITICAL (WELD)	PTSTYP	PRESSURE TREATED SOUTHERN YELLOW PINE
deg	DEGREE		
DF (L)	DOUGLAS FIR (LARCH)	REINF	REINFORCED, REINFORCING
dia	DIAMETER	REQD	REQUIRED
dim	DIMENSION	SCHED	SCHEDULE
d/ DO	DITTO	SHTG	SHEATHING
DWG	DRAWING	SIM	SIMILAR
DWL	DOWEL	SPE	SPRUCE PINE FIR
EA	EACH	STD	STANDARD
EF	EACH FACE	STL	STEEL
EL	ELEVATION	STRUC	STRUCTURAL
ELEV	ELEVATOR	SYP	SOUTHERN YELLOW PINE
EMB	EMBEDMENT	T&B	TOP AND BOTTOM
EN	EDGE NAIL	T&G	TONGUE AND GROOVE
EQ	EQUAL	T/BRG	TRUSS BEARING
ETC	ET CETERA	T/CONC	TOP OF CONCRETE
EW	EACH WAY	T/FTG	TOP OF FOOTING
EXP	EXPANSION	T/PAN	TOP OF PANEL
EXT	EXTERIOR	T/PARA	TOP OF PARAPET
FDN	FOUNDATION	T/PIL	TOP OF PILASTER
FF	FINISH FLOOR	T/S	TOP OF SLAB
FIN	FINISH	T/STL	TOP OF STEEL
FLR	FLOOR	TYP	TYPICAL
FRMG	FRAMING	UNO	UNLESS NOTED OTHERWISE
FTG	FOOTING	USGS	US GEOLOGICAL SURVEY
FV	FIELD VERIFY	VAR	VARIES
ga	GAUGE	VERT	VERTICAL
GALV	GALVANIZE(D)	w/	WITH
GLB	GLUE-LAMINATED BEAM	WHS	WELDED HEADED STUD(S)
HGR	HANGER	WP	WORK POINT
HK	HOOK	WWR	WELDED WIRE REINFORCEMENT

BUILDING CODES AND STANDARDS USED FOR DESIGN

1. INTERNATIONAL BUILDING CODE 2009 EDITION
OCCUPANCY CATEGORY: II

DESIGN LOADS

1. DESIGN LOADS

ROOF LIVE LOAD: 20 psf

ROOF DEAD LOAD: 20 psf

2. SNOW LOAD DESIGN CRITERIA

SNOW LOAD IMPORTANCE FACTOR, I: 1.0

GROUND SNOW LOAD, Pg: 20 psf

FLAT ROOF SNOW LOAD, Pf: 13 psf

THERMAL FACTOR, Ct: 1.0

EXPOSURE FACTOR, Ce: 0.9

MINIMUM FROST DEPTH: 2'-6"

3. WIND LOAD DESIGN CRITERIA

WIND IMPORTANCE FACTOR, I: 1.0

BASIC WIND SPEED: 90 MPH (3 SEC GUST)

WIND EXPOSURE CATEGORY: C

WIND ENCLOSURE CLASSIFICATION Gc01:

ENCLOSED

POSITIVE WIND ROOF PRESSURES (ASD VALUES):

- ZONE 1 10 psf

- ZONE 2 & 3 10 psf

NET UPLIFT VALUES (ASD VALUES):

- ZONE 1 -17.5 psf

- ZONE 2 -20.8 psf

- ZONE 3 -20.8 psf

- 'g' DIMENSION 8 ft

4. SEISMIC LOAD DESIGN CRITERIA

SEISMIC IMPORTANCE FACTOR, I: 1.0

SITE CLASS: C

SPECTRAL RESPONSE ACCELERATION: Ss=0.488g, S1=0.18g

SPECTRAL RESPONSE COEFFICIENTS: Sds=0.39g, Sd1=0.194g

SEISMIC DESIGN CATEGORY: C

BASIC SEISMIC-FORCE RESISTING SYSTEM: ORDINARY REINF. MASONRY SHEAR WALLS

RESPONSE MODIFICATION FACTOR, R: 2

SYSTEM OVER-STRENGTH FACTOR, OMEGAo: 2

DEFLECTION AMPLIFICATION FACTOR, Cd: 1.75

SEISMIC RESPONSE COEFFICIENT, Cs: 0.195

ANALYSIS PROCEDURE USED: EQUIVALENT LATERAL FORCE

SHOP DRAWING AND SUBMITTAL NOTES

1. SHOP DRAWINGS AND/OR SUBMITTALS SHALL BE FURNISHED FOR ALL STRUCTURAL COMPONENTS, UNLESS OTHERWISE NOTED. THESE SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION IN ACCORDANCE WITH THESE CONTRACT DRAWINGS, AND PROJECT SPECIFICATIONS (IF APPLICABLE). CONTRACTOR SHALL ALLOW A MINIMUM OF 2 WEEKS FROM RECEIPT OF SHOP DRAWINGS FOR CASE ENGINEERING INC. TO PROVIDE RESPONSE.

2. PRIOR TO SUBMITTAL TO THE ENGINEER, THE CONTRACTOR AND ARCHITECT SHALL HAVE REVIEWED THE SHOP DRAWINGS AND MADE ANY CORRECTIONS REQUIRED. THE CONTRACTOR AND ARCHITECT SHALL STAMP AND SIGN THE DRAWINGS, INDICATING THE SUBMITTAL HAS BEEN REVIEWED.

3. STRUCTURAL DRAWINGS ARE THE SOLE PROPERTY OF CASE ENGINEERING. REPRODUCTION OF STRUCTURAL DRAWINGS FOR USE IN SHOP DRAWING SUBMITTALS IS NOT ACCEPTABLE WITHOUT OUR WRITTEN AGREEMENT.

STRUCTURAL ABBREVIATIONS

HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
INT	INTERIOR
JBRG	JOIST BEARING
JG	JOIST GIRDER
JG/BRG	JOIST GIRDER BEARING
JO	JOIST
JO	JOINT
k/p	1,000 POUNDS
ksi	kips PER SQUARE INCH
LB	POUND
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
NTS	NOT TO SCALE
oc	ON CENTER
OPNG	OPENING
PAF	POWER-ACTUATED FASTENER
PARA	PARAPET
PEMB	PRE-ENGINEERED METAL BUILDING (MANUFACTURER)
PIL	PILASTER
PL	PLATE
PLYWD	PLYWOOD
psf	POUNDS PER SQUARE FOOT
PTDF(L)	PRESSURE TREATED DOUGLAS FIR (LARCH)
PTSPF	PRESSURE TREATED SPRUCE PINE FIR
PTSTYP	PRESSURE TREATED SOUTHERN YELLOW PINE
REINF	REINFORCED, REINFORCING
REQD	REQUIRED
SCHED	SCHEDULE
SHTG	SHEATHING
SIM	SIMILAR
SPE	SPRUCE PINE FIR
STD	STANDARD
STL	STEEL
STRUC	STRUCTURAL
SYP	SOUTHERN YELLOW PINE
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
T/BRG	TRUSS BEARING
T/CONC	TOP OF CONCRETE
T/FTG	TOP OF FOOTING
T/PAN	TOP OF PANEL
T/PARA	TOP OF PARAPET
T/PIL	TOP OF PILASTER
T/S	TOP OF SLAB
T/STL	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
USGS	US GEOLOGICAL SURVEY
VAR	VARIES
VERT	VERTICAL
w/	WITH
WHS	WELDED HEADED STUD(S)
WP	WORK POINT
WWR	WELDED WIRE REINFORCEMENT

GENERAL STRUCTURAL NOTES

1. THIS DRAWING SET IS TO BE VIEWED AS A WHOLE AND COORDINATED WITH ARCHITECTURAL, MECHANICAL, CIVIL, AND OTHER DISCIPLINES. ALL WORK PERTAINING TO A SPECIFIC CONTRACTOR MAY OR MAY NOT BE SHOWN ON SPECIFIC OR GENERAL NOTES. IT IS EACH SUBCONTRACTOR'S RESPONSIBILITY TO PREPARE HIS BID FROM A COMPLETE SET OF PLANS.

2. THE CONTRACTOR SHALL FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE DRAWINGS. DIMENSIONS NOT SHOWN ON PLAN TO BE COORDINATED WITH ARCHITECTURAL PLANS.

3. ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY AT ANY SIMILAR SITUATION ELSEWHERE ON THE JOB, EXCEPT WHERE A DIFFERENT DETAIL OR SECTION IS SHOWN.

4. THE STRUCTURE SHALL BE ADEQUATELY BRACED AND SHORED DURING ERECTION AGAINST WIND AND ERECTION LOADS. STRUCTURAL MEMBERS ARE DESIGNED FOR "IN-PLACE" LOADS ONLY.

5. THE GENERAL CONTRACTOR SHALL VERIFY ALL OPENING SIZES, PAD SIZES, AND LOCATIONS WITH THE RESPECTIVE CONTRACTORS.

6. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN CONSTRUCTION DOCUMENTS AND ACTUAL FIELD CONDITIONS.

7. THE VARIOUS SUBCONTRACTORS ARE RESPONSIBLE FOR PLACING SLEEVES, OUTLET BOXES, ANCHORS, VENT OPENINGS, ETC. THAT MAY BE REQUIRED IN FOUNDATION WALLS. CONSTRUCTION MANAGER SHALL COORDINATE ALL PLACEMENT OF ITEMS IN FOUNDATION WALLS.

8. SEE ARCHITECTURAL PLANS FOR ADDITIONAL DETAILS AND INFORMATION.

9. ALL ELEVATIONS GIVEN ARE REFERENCED TO FINISHED FLOOR ELEVATIONS AT 100'-0", UNLESS SHOWN AS USGS ELEVATIONS.

10. WHERE GENERAL NOTES OR TYPICAL DETAILS CONTRADICT INFORMATION PROVIDED IN BUILDING SECTIONS, THE BUILDING SECTIONS TAKE PRECEDENCE.

11. ALL HOLES, CORE DRILLING, OR SAWCUT.

12. WHERE INFORMATION PROVIDED IN THESE STRUCTURAL DRAWINGS CONTRADICTS INFORMATION PROVIDED IN PROJECT SPECIFICATIONS, THE SPECIFICATIONS SHALL TAKE PRECEDENCE.

13. FOR ARCHITECTURAL, MEP, & STRUCTURAL COORDINATION: MODELED ELEMENTS SHOWN ON STRUCTURAL DRAWINGS SUCH AS TRUSSES, OPEN-WEB JOISTS, AND JOIST GIRDERS, ARE NOT THE FINAL CONFIGURATION. ALL COORDINATION SHALL BE PERFORMED BETWEEN THE VARIOUS TRADES AND THE SUPPLIERS OF THESE ELEMENTS ON THE STRUCTURE, NOT WITH THE STRUCTURAL MODEL. THIS DRAWING SET IS TO BE VIEWED AS A WHOLE. ALL TYPICAL DETAILS AND GENERAL NOTES SHOWN IN THESE DRAWINGS ARE APPLICABLE TO THE PROJECT EVEN IF THEY ARE NOT SHOWN ON PLANS OR SECTIONS.

DEFERRED SUBMITTALS

THE FOLLOWING DESIGN ELEMENTS MUST BE SIGNED & SEALED BY A PROFESSIONAL ENGINEER (PE/SE) REGISTERED IN THE STATE WHERE THIS PROJECT IS LOCATED, AND SUBMITTED TO THE ENGINEER OF RECORD. DESIGNED DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED FOR REVIEW AND RECORD.

1. STRUCTURAL STEEL CONNECTION CALCULATIONS AND SHOP FABRICATION DRAWINGS FOR CONNECTIONS.

2. STEEL JOIST CALCULATIONS AND FABRICATION DRAWINGS (INCLUDING ACCESSORIES).

SPECIAL INSPECTIONS

1. REFER TO THE SPECIAL INSPECTION TABLES FOR THE LIST OF ELEMENTS OF CONSTRUCTION THAT SHALL REQUIRE SPECIAL INSPECTION. THIS SHALL BE CONSIDERED A GUIDE, AND THE CONTRACTOR AND INSPECTOR SHALL REFER TO THE IBC FOR COMPLETE REQUIREMENTS, QUALIFICATIONS, EXCEPTIONS, AND SUBMITTALS. REFER TO IBC SECTION 1704 FOR 2003-2009 CODES, AND SECTION 1705 FOR 2012-2015 CODES. THE OWNER SHALL BE RESPONSIBLE FOR EMPLOYING THE SPECIAL INSPECTION AGENCY. ANY "OBSERVATIONS" BY THE EOR WILL NOT BE TO PERFORM SPECIAL INSPECTIONS AND SHALL NOT BE INTERPRETED AS SUCH.

2. COPIES OF ALL INSPECTION REPORTS THAT REPORT COMPLIANCE SHALL BE SUBMITTED TO THE ARCHITECT OF RECORD, STRUCTURAL ENGINEER OF RECORD, AND BUILDING INSPECTOR WITHIN 7 CALENDAR DAYS OF COMPLETION OF THAT PORTION OF WORK. A MINIMUM OF ONE (1) PROGRESS REPORT PER MONTH FOR EACH TYPE OF CONSTRUCTION REQUIRING SPECIAL INSPECTION SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD.

3. SPECIAL INSPECTOR SHALL INFORM ENGINEER OF RECORD IMMEDIATELY OF NON-COMPLIANCE WITH CONSTRUCTION DOCUMENTS OR APPROVED SUBMITTALS. CONTACT ENGINEER OF RECORD THE SAME DAY NON-COMPLIANCE IS DISCOVERED AND FOLLOW UP WITH AN OFFICIAL REPORT WITHIN 2 BUSINESS DAYS. THE SPECIAL INSPECTIONS IDENTIFIED ON THE PLANS ARE IN ADDITION TO, AND NOT A SUBSTITUTE FOR, THOSE INSPECTIONS REQUIRED TO BE PERFORMED BY A BUILDING INSPECTOR.

5. SPECIAL INSPECTIONS ARE NOTED AS EITHER "CONTINUOUS" OR "PERIODIC". A "CONTINUOUS" INSPECTION REQUIRES THE PRESENCE OF A QUALIFIED INSPECTOR IN THE VICINITY OF THE WORK BEING PERFORMED FOR 100% OF THAT WORK. A "PERIODIC" INSPECTION REQUIRES PART-TIME OBSERVATION OF THE WORK BEING PERFORMED. THE INSPECTOR SHALL ALSO OBSERVE THE FINAL CONDITION OF THE WORK BEFORE IT IS CLOSED FROM VIEW.

6. WHEN WORK IN MORE THAN ONE CATEGORY OF WORK REQUIRING SPECIAL INSPECTION IS TO BE PERFORMED SIMULTANEOUSLY, OR THE GEOGRAPHIC LOCATION OF THE WORK IS SUCH THAT IT CANNOT BE CONTINUOUSLY OBSERVED, IT SHALL BE THE RESPONSIBILITY OF THE AGENT TO EMPLOY A SUFFICIENT NUMBER OF SPECIAL INSPECTORS TO ASSURE THAT ALL WORK IS CONTINUOUSLY INSPECTED IN ACCORDANCE WITH THOSE PROVISIONS.

EXCAVATION AND EARTHWORK NOTES

1. THE BEARING VALUE AND LATERAL EARTH PRESSURES OF THE SOILS IS PER REPORT BY: TERRACON, DATED JULY 23, 2020. THE FOUNDATION DESIGN IS BASED ON THE FOLLOWING NET ALLOWABLE BEARING AND LATERAL EARTH PRESSURES:

•

SPREAD FOOTINGS

2,500 psf

•

CONT. WALL FOOTINGS

2,500 psf

•

PASSIVE PRESSURE

250psf/ft

•

FRICTION COEFFICIENT

0.3

2. WATER LEVELS INDICATED ON THE BORING LOGS MAY BE SUBJECT TO SEASONAL AND/OR ANNUAL VARIATIONS. A DEWATERING SYSTEM OF SUFFICIENT CAPACITY SHALL BE INSTALLED AND OPERATED TO MAINTAIN THE CONSTRUCTION AREA FREE OF WATER AT ALL TIMES.

3. ALL FOOTING EXCAVATIONS SHALL BE INSPECTED, PRIOR TO CONCRETE PLACEMENT, BY A SOILS ENGINEER TO VERIFY SUITABLE BEARING MATERIAL OF CAPACITY AS SPECIFIED.

4. NOTIFY THE OWNER'S REPRESENTATIVE WHEN ADDITIONAL EXCAVATION IS REQUIRED TO REACH SUITABLE BEARING MATERIAL.

5. THE SOILS ENGINEER SHALL CERTIFY IN WRITING THAT ALL FOUNDATIONS WERE PLACED ON SOIL WITH THE BEARING VALUE AS SPECIFIED.

6. WITHIN THE EXCAVATION AREA OF FOUNDATIONS, ALL VEGETATION, TOPSOIL, PREVIOUSLY PLACED FILL AND UNSUITABLE SOILS SHALL BE REMOVED. ALL FOOTINGS TO BEAR ON VIRGIN SOIL OR PROPERLY PLACED AND COMPACTED ENGINEERED FILL.

7. FOUNDATION DESIGN DOES NOT ACCOUNT FOR WINTER CONSTRUCTION. ANY UNENCLOSED / UNHEATED SPACES SHALL BE ADEQUATELY PROTECTED AGAINST FROST DURING WINTER CONSTRUCTION BY THE CONTRACTOR.

8. IF ANY SOFT SPOTS, OR AREAS QUESTIONABLE FOR ANY REASONS ARE ENCOUNTERED BY THE CONTRACTOR, ARCHITECT/ENGINEER SHALL BE NOTIFIED IMMEDIATELY SO THAT ANY REQUIRED ACTION MAY BE TAKEN PRIOR TO CONTINUATION OF CONSTRUCTION IN THAT AREA.

REINFORCING STEEL NOTES

1. NON-WELDED STEEL BAR REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60. WELDED STEEL BAR REINFORCING SHALL CONFORM TO ASTM A706.

2. WELDING OF REINFORCING STEEL SHALL BE PERFORMED BY AWS QUALIFIED WELDERS IN CONFORMANCE WITH AWS D1.1 USING E90 ELECTRODES FOR ASTM A615 REBAR, AND E80 ELECTRODES FOR ASTM A706 REBAR UNLESS OTHERWISE NOTED ON THE DRAWINGS.

3. WELDED WIRE REINFORCEMENT (WWR) SHALL BE SMOOTH WIRE PER ASTM A185 WITH MINIMUM YIELD STRENGTH, fy = 65 ksi, OR DEFORMED WIRE PER ASTM A497 WITH MINIMUM YIELD STRENGTH, fy = 70 ksi, UNLESS NOTED OTHERWISE.

4. MINIMUM CONCRETE COVER FOR REINFORCING STEEL IN CAST-IN-PLACE (NON-PRESTRESSED) CONCRETE SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON THE DRAWINGS:

A. CONCRETE CAST AGAINST EARTH = 3"

B. CONCRETE EXPOSED TO WEATHER:

• #6 BAR AND LARGER = 2"

• #5 BAR AND SMALLER = 1 1/2"

C. CONCRETE NOT EXPOSED TO EARTH OR WEATHER (SLABS, WALLS, & JOISTS):

• #14 BARS AND LARGER = 1 1/2"

• #11 BARS AND SMALLER = 3/4"

D. CONCRETE NOT EXPOSED TO EARTH OR WEATHER (BEAMS & COLUMNS):

• PRIMARY REINFORCEMENT, TIES, STIRRUPS, & SPIRALS = 1 1/2"

5. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING STEEL SHALL CONFORM TO THE LATEST EDITION OF ACI 315 (SP-66), DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.

6. LAP SPLICE LENGTHS FOR BARS INSTALLED IN CONCRETE AND CMU SHALL BE IN ACCORDANCE WITH THE TABLE.

CONCRETE NOTES

1. ALL CONCRETE WORK INCLUDING FORMING, REINFORCING, MIXING, PLACING, FINISHING AND CURING SHALL BE DONE IN ACCORDANCE WITH THE ACI MANUAL OF CONCRETE PRACTICE INCLUDING "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", ACI 318, AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE", ACI 301 LATEST EDITIONS.

2. IT SHALL BE THE RESPONSIBILITY OF THE MIX DESIGN SUPPLIER TO PROPORTION MIXES APPROPRIATELY TO REACH THE REQUIRED PROPERTIES NOTED, AND SHALL BE APPROPRIATE FOR THEIR INTENDED USE. ADMIXTURES MEETING ASTM C494 ARE OPTIONAL. HOWEVER, AIR-ENTRAINING ADMIXTURES MEETING ASTM C280 SHALL BE USED FOR CONCRETE EXPOSED TO THE EXTERIOR OR FREEZE-THAW CYCLES.

3. CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS FOR EACH INTENDED USE ON THE PROJECT FOR REVIEW AND APPROVAL BY THE ENGINEER OF RECORD. CONTENTS OF THE MIX DESIGN SHALL COMPLY WITH, AND INCLUDE ALL INFORMATION REQUIRED BY, ACI 318, CHAPTER 5 (FOR 2011 AND EARLIER CODE EDITIONS), & CHAPTER 26 (FOR 2014 CODE EDITION). THIS INCLUDES, BUT IS NOT LIMITED TO NUMBER OF TESTS AND AGE OF TESTS INCLUDED IN THE MIX DESIGN REPORT.

4. ALL CONCRETE DENSITY SHALL BE NORMAL WEIGHT (145 pcf +/- 5) UNLESS OTHERWISE INDICATED.

5. FLY ASH ALLOWANCES:

• 20% MAXIMUM BY WEIGHT OF CEMENTITIOUS IN FOOTINGS

• 15% MAXIMUM BY WEIGHT OF CEMENTITIOUS IN SLABS

• 0% (NONE) ALLOWED IN SLABS TO RECEIVE SHAKE ON HARDENERS

6. MACRO SYNTHETIC FIBER: POLYPROPYLENE/POLYETHYLENE SYNTHETIC MACRO FIBER COMPLYING WITH ASTM C1116 TYPE 3, MINIMUM 2 INCH LENGTH, ASPECT RATION 50 TO 90.

A. BASIS OF DESIGN: EUCLID CHEMICAL COMPANY (THE): TUFSTRAND SF; WWW.EUCLIDCHEMICAL.COM OR APPROVED EQUAL.

B. FIBER MANUFACTURER SHALL HAVE ISO 9001 CERTIFICATION.

C. MACRO SYNTHETIC FIBER SHALL BE TESTED IN CONCRETE TO MEET THE REQUIREMENTS OF ICC-ES E3383.

7. COORDINATE CONCRETE WORK WITH THAT OF OTHER TRADES TO ALLOW FOR SETTING OF SLEEVES, ACCESSORIES, ETC.

8. ALL REINFORCING STEEL, ANCHOR RODS, DOWELS, AND INSERTS SHALL BE WELL-SECURED IN POSITION PRIOR TO PLACING CONCRETE.

9. TEST CYLINDERS WILL BE REQUIRED, AND RECORDS OF RESULTS SHALL BE SUBMITTED TO ENGINEER OF RECORD. PROVIDE A MINIMUM OF (4) 6" DIAMETER TEST PLACEMENTS AT 7 DAYS, 2 AT 28 DAYS, ONE (ONE SPARE), ALTERNATIVELY, PROVIDE A MINIMUM (5) 4"x8" CYLINDERS FOR TESTING (1 AT 7 DAYS, 3 AT 28 DAYS, ONE SPARE). SLUMP TESTS ARE RECOMMENDED.

10. CONSTRUCTION JOINTS IN CONCRETE INDICATED WITH A ROUGH, CLEAN SURFACE SHALL HAVE A 1/4" AVERAGE AMPLITUDE.

11. ALL COLD JOINTS SHALL BE ROUGHENED AND CLEANED PRIOR TO PLACING CONCRETE.

12. SLUMP: CONCRETE MIXES SHALL BE PROPORTIONED TO ACHIEVE A MAXIMUM SLUMP OF 8" FOR CONCRETE CONTAINING HIGH RANGE WATER REDUCING ADMIXTURE, 6" FOR CONCRETE CONTAINING A MID-RANGE WATER REDUCING ADMIXTURE. MIXES SHALL HAVE A WATER SLUMP OF 2'-3" (3" TO 4" FOR CONCRETE RECEIVING A "DRY-SHAKE" HARDENER), MAXIMUM 4" WATER SLUMP FOR ALL OTHER CONCRETE.

13. SELF-CONSOLIDATING CONCRETE MAY BE USED FOR ALL ARCHITECTURAL CONCRETE AND HEAVILY REINFORCED MEMBERS AS SHOWN ON THE DRAWINGS. ALL SELF-CONSOLIDATING CONCRETE SHALL CONTAIN THE SPECIFIED HIGH-RANGE WATER-REDUCING ADMIXTURE AND VISCOSITY-MODIFYING ADMIXTURE WHERE REQUIRED. MINIMUM SPREAD OF 22'-30" WHEN MEASURED IN ACCORDANCE WITH ASTM C1611 OR AS REQUIRED BY THE SUCCESSFUL TEST PLACEMENT. THE WORKABILITY, PUMPABILITY, FINISHABILITY, AND SETTING TIME OF THE PROPOSED MIX DESIGN SHALL BE VERIFIED WITH A SUCCESSFUL TEST PLACEMENT ONSITE. COMPRESSIVE STRENGTH: 5000 PSI AT 28 DAYS OR AS NOTED ON THE DRAWINGS.

14. AIR CONTENT: ALL CONCRETE EXPOSED TO FREEZING AND THAWING AND/OR REQUIRED TO BE WATER TIGHT SHALL HAVE AN AIR CONTENT OF 4.5% TO 7.5%. ALL INTERIOR SLABS AND ALL SLABS TO RECEIVE DRY-SHAKE SHALL HAVE A MAXIMUM AIR CONTENT OF 3%.

15. DEPOSITE AND CONSOLIDATE CONCRETE FOR FLOORS AND SLABS IN A CONTINUOUS OPERATION, WITHIN LIMITS OF CONSTRUCTION JOINTS, UNTIL PLACEMENT OF A PANEL OR SECTION IS COMPLETE.

A. CONSOLIDATE CONCRETE DURING PLACEMENT OPERATIONS. SO CONCRETE IS THOROUGHLY WORKED AROUND REINFORCEMENT AND OTHER EMBEDDED ITEMS AND INTO CORNERS.

B. MAINTAIN REINFORCEMENT IN POSITION ON CHAIRS DURING CONCRETE PLACEMENT.

C. SCREED SLAB SURFACES WITH A STRAIGHT EDGE AND STRIKE OFF TO CORRECT ELEVATIONS.

D. UTILIZE A VIBRATORY SCREED FOR CONCRETE THAT WILL RECEIVE DIAMOND POLISH FINISH. KEEP VIBRATING SCREED MOVING CONTINUOUSLY ACROSS SURFACE. DO NOT STOP SCREED IN ANY ONE PLACE WHILE VIBRATING.

E. SLOPE SURFACES UNIFORMLY TO DRAINS WHERE REQUIRED.

F. BEGIN INITIAL FLOATING USING BULL FLOATS OR DARBIES TO FORM A UNIFORM AND OPEN-TEXTURED SURFACE PLANE BEFORE EXCESS BLEED WATER APPEARS ON THE SURFACE. DO NOT THINLY DISTURB SLAB SURFACES BEFORE STARTING FINISHING OPERATIONS.

16. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH IN ACCORDANCE WITH THE FOLLOWING:

A. "N" IN COLUMN INDICATES THE ADDITION OF ENTRAINED AIR IS NOT REQUIRED, BUT IS PERMITTED. AIR ENTRAINMENT IS NOT RECOMMENDED FOR SURFACES TO BE GIVEN A SMOOTH, DENSE, HARD-TROWELED FINISH. COORDINATE FINISH REQUIREMENTS WITH ARCHITECTURAL DRAWINGS AND/ OR SPECIFICATIONS.

CONCRETE TABLE					
INTENDED USE	MINIMUM 28 DAY STRENGTH (PSI)	MAX WATER-CEMENT RATIO	% TOTAL AIR LIMITS	MACRO SYNTHETIC FIBER (1)	% MAX SHRINKAGE @ 28 DAYS ASTM C157 (2)
INTERIOR SLAB ON GRADE	4,000	0.50	3	YES	0.04
FOOTINGS/FOUNDATION WALLS	4,000	0.48	6-4.5 TO 7.5 (WHERE EXPOSED TO EXT.)	-	0.05
ALL CONCRETE NOT OTHERWISE SPECIFIED	4,000	0.40	6-4.5 TO 7.5	-	0.05

TABLE NOTES

1. SYNTHETIC MACRO FIBER REINFORCEMENT MAY BE USED TO REPLACE REINFORCING STEEL IN CONCRETE SLABS ON GRADE AND TOPPING SLABS WHERE INDICATED ON DRAWINGS. SUBMIT FIBER MANUFACTURER'S DOCUMENTATION INDICATING THAT PROPOSED FIBER DOSAGE WILL PROVIDE A MINIMUM Fe3 VALUE AS FOLLOWS IN ACCORDANCE WITH ASTM C 1609. UNDER NO CIRCUMSTANCES SHALL DOSAGE RATE BE LESS THAN 3.0lbs PER CUBIC YARD OF CONCRETE IN SLABS ON GRADE AND TOPPING SLABS (4lbs PER CUBIC YARD FOR SLABS ON METAL DECK). SYNTHETIC MACRO FIBER REINFORCEMENT IS PROHIBITED IN CONCRETE TO RECEIVE POLISHED CONCRETE FINISHES.

A. SLABS ON GRADE AND TOPPING SLABS

1. 4" DEEP SLAB: Fe3 = 94psi

2. 6" DEEP SLAB: Fe3 = 129psi

3. 8" DEEP SLAB: Fe3 = 180 psi

2. MAXIMUM SHRINKAGE PERCENT PER ASTM C 157 (MAY BE MODIFIED BY CURING PERIOD DURATION). TEST TAKES 35 DAYS MINIMUM. BEGIN TESTS AS SOON AS POSSIBLE SO FINAL TEST RESULTS AVAILABLE FOR SUBMITTAL TO ENGINEER. SUBMIT ASTM C 157 RESUKTS FOR AT LEAST 3 SPECIMENS. COORDINATE MIX DESIGN WITH ADMIXTURE MANUFACTURER.

DEVELOPMENT LENGTH OF STANDARD HOOKS IN CONCRETE NOTES

1. VALUES IN TABLE ARE BASED ON 60ksi REBAR. FOR OTHER REBAR YIELD STRENGTHS, MULTIPLY VALUES IN THE TABLE BY THE SPECIFIED YIELD STRENGTH DIVIDED BY 60.

2. SEE ACI 318 SECTION 12.5 FOR ALLOWABLE REDUCTIONS IN DEVELOPMENT LENGTH. IT SHALL NOT BE LESS THAN 8 BAR DIAMETERS OR 6 INCHES.

3. HOOKED BARS ARE NOT CONSIDERED EFFECTIVE IN DEVELOPING BARS IN COMPRESSION.

DEVELOPMENT LENGTH OF STANDARD HOOKS IN CONCRETE - 60 KSI REBAR TABLE (INCHES)					
BAR SIZE	fc = 3,000 psi	fc = 3,500 psi	fc = 4,000 psi	fc = 5,000 psi	
#3	9	8	8	7	
#4	11	11	10	9	
#5	14	13	12	11	
#6	17	16	15	13	
#7	20	18	17	15	
#8	22	21	19	17	
#9	25	23	22	20	
#10	28	26	25	22	
#11	31	29	27	24	

TENSION LAP SPLICE LENGTH IN CONCRETE NOTES

1. FOR HORIZONTAL BARS, VALUES IN THE TABLE SHALL BE MULTIPLIED BY 1.3 WHERE MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST BELOW THE BAR.

2. LAP SPLICES IN TENSION ARE NOT PERMITTED FOR BAR LARGER THAN #11. A FULL MECHANICAL OR FULL WELDED SPLICE SHALL DEVELOP AT LEAST 1.25x OF THE BAR.

3. WHERE CLEAR SPACING OF BARS BEING SPLICED IS AT LEAST 2 BAR DIAMETERS AND CLEAR COVER AT LEAST 1 BAR DIAMETER, USE CASE 1. FOR ALL OTHER BAR ARRANGEMENTS, USE CASE 2.

4. VALUES IN THE TABLE ARE BASED ON 60ksi REBAR. FOR OTHER REBAR YIELD STRENGTHS, MULTIPLY VALUES IN THE TABLE BY THE SPECIFIED YIELD STRENGTH DIVIDED BY 60.

5. WHERE BARS OF DIFFERENT SIZES ARE SPLICED, PROVIDED THE LAP LENGTH OF THE LARGER BAR, WELDED WIRE REINFORCEMENT (DEFORMED OR PLAIN WIRE) SHALL BE LAPPED ONE FULL MESH SQUARE PLUS 2 INCHES MINIMUM, BUT NOT LESS THAN 12 INCHES.

6. REBAR IN ALL CONCRETE MEMBERS SHALL BE SPLICED IN ACCORDANCE WITH "TENSION LAP SPLICE LENGTH" TABLE, UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.

TENSION LAP SPLICE LENGTH IN CONCRETE - 60 KSI REBAR TABLE (INCHES)									
f'c =	3,000psi	3,000psi	3,500psi	3,500psi	4,000psi	4,000psi	5,000psi	5,000psi	
BAR SIZE	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	
#3	22	33	20	30	19	28	17	25	
#4	29	43	27	40	25	37	23	34	
#5	36	54	33	50	31	47	28	42	
#6	43	65	40	60	37	56	34	50	
#7	63	94	58	87	54	81	49	73	
#8	72	107	66	99	62	93	56	83	
#9	81	121	75	112	70	105	63	94	
#10	91	136	84	126	79	118	71	106	
#11	101	151	93	140	87	131	78	117	

1. FABRICATION AND ERECTION OF STRUCTURAL STEEL MEMBERS IS TO BE IN ACCORDANCE WITH "AISC CODE OF STANDARD PRACTICE", LATEST EDITION.
2. STEEL FABRICATOR SHALL PARTICIPATE IN THE AISC QUALITY CERTIFICATION PROGRAM AND BE DESIGNATED AN AISC-CERTIFIED PLANT, CATEGORY STD.
3. IT IS THE RESPONSIBILITY OF THE STEEL FABRICATOR TO DESIGN THE CONNECTIONS. CONNECTIONS ARE TO BE IN ACCORDANCE WITH CURRENT AISC STANDARDS AND APPLICABLE GOVERNMENT CODES. ALL CONNECTIONS SHALL BE BOLTED OR WELDED AND SHALL DEVELOP 60% OF THE ALLOWABLE UNIFORM LOAD TABULATED IN THE AISC "MANUAL OF STEEL CONSTRUCTION" FOR ALLOWABLE STRESS DESIGN, 10k (ASD), OR SHEAR REACTION SHOWN ON THE DRAWINGS, WHICHEVER IS GREATER. PROVIDE MINIMUM NUMBER OF ASTM F1525 GRADE A325 OR A490 BOLTS AS SHOWN IN THE "STRUCTURAL STEEL BOLTED CONNECTIONS" TABLE.
4. ANCHOR RODS TO ASTM F1554, GRADE 36 FULLY-THREADED RODS WITH PLATE WASHERS AND NUTS ON THE BOTTOM UNLESS NOTED OTHERWISE SEE "TYPICAL ANCHOR BOLT" DETAIL.
5. BOLT HOLES SHALL BE 1/16" OVERSIZE UNLESS OTHERWISE NOTED ON THE DRAWINGS. FIELD BURNING OF BOLT HOLES SHALL NOT BE PERMITTED.
6. WELDING SHALL BE PERFORMED BY AWS QUALIFIED WELDERS IN CONFORMANCE WITH AWS D1.1, USING E70 SERIES ELECTRODES, UNLESS OTHERWISE NOTED ON THE DRAWINGS. ADDITIONALLY, WELDING IN LOS ANGELES, CA SHALL BE PERFORMED BY LADBS CERTIFIED WELDERS.
7. ALL STEEL SHALL BE SHOP PAINTED WITH A STANDARD ALKYD PRIMER (GRAY). FOR HARSH ENVIRONMENTS USE A GRAY ZINC ORGANIC OR INORGANIC PRIMER.
8. FABRICATE ALL BEAMS WITH THE MILL CAMBER UP.
9. CONNECTION NOTATION IS AS FOLLOWS. SEE PLAN NOTES TO DETERMINE IF LOADS SHOWN ON PLAN/DETAILS ARE ALLOWABLE (ASD) OR ULTIMATE (LRFD):
 - AXIAL FORCE = P
 - SHEAR = V OR []
 - MOMENT = M
 - TORSION = T
10. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS AND GRADES:
 - WIDE FLANGE = A992, fy = 50ksi
 - ANGLES, CHANNELS, PLATES, BARS, AND RODS = A36, fy = 36ksi
 - RECTANGULAR HSS = A500 GRADE B, fy = 46ksi
11. REFER TO "DEFERRED SUBMITTALS" FOR ADDITIONAL REQUIREMENTS.

STEEL JOIST NOTES

1. ALL STEEL JOISTS AND BRIDGING SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST STEEL JOIST INSTITUTE STANDARD SPECIFICATIONS. JOIST FABRICATOR SHALL BE A MEMBER OF THE SJI.
2. PROVIDE STANDARD CAMBER ON ALL JOIST PER SJI - UNO. PROVIDE HALF CAMBER AT NEAREST JOIST PARALLEL TO CONCRETE AND MASONRY WALLS.
3. PROVIDE BOTTOM CHORD CEILING EXTENSIONS AS SHOWN ON ARCHITECTURAL DRAWINGS OR AS NOTED ON THE CEILING.
4. HEADER ANGLES FOR STEEL JOISTS SHALL BE DESIGNED AND FURNISHED BY THE JOIST SUPPLIER AS NOTED ON THE DRAWINGS.
5. ALL STEEL BAR JOISTS SHALL BE SPACED AND SIZED AS SHOWN ON PLANS.
6. TOP AND BOTTOM CHORDS OF ALL JOISTS SHALL BE IN STRAIGHT ALIGNMENT BEFORE WELDING OR FINAL BOLTING ANY BRIDGING IN PLACE.
7. THE ENDS OF ALL BRIDGING TERMINATING AT CONCRETE OR MASONRY WALLS SHALL BE ANCHORED THERETO AT TOP AND BOTTOM CHORDS PER TYPICAL DETAILS.
8. ALL STEEL JOISTS AT CORNERS (OR ADJACENT TO COLUMN CENTERLINES) TO HAVE BOTTOM CHORD EXTENDED TO COLUMN OR BEAM. DO NOT WELD UNLESS SPECIFICALLY NOTED AS SUCH.
9. ALL STEEL BAR JOISTS SHALL BE SHOP PAINTED WITH MANUFACTURER'S STANDARD SHOP PRIMER COMPLYING TO SSPC-PAINT 15.
10. REFER TO "DEFERRED SUBMITTALS" FOR ADDITIONAL REQUIREMENTS.

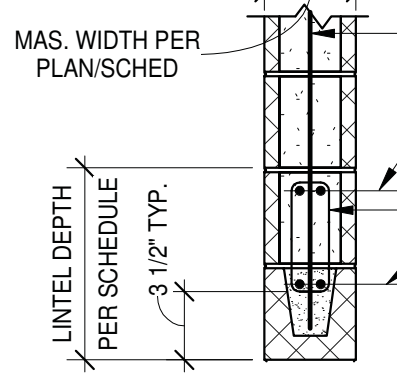
1. DECK SHALL BE GALVANIZED WITH G60 COATING MINIMUM, UNLESS NOTED OTHERWISE. REFER TO PLAN FOR TYPES AND GAUGES. DECK TO BE FINISHED AND INSTALLED IN ACCORDANCE WITH ALL CURRENT PROVISIONS, RECOMMENDED PRACTICES, AND STANDARDS OF THE STEEL DECK INSTITUTE.
2. DECK SHALL SPAN A MINIMUM 3 SUPPORT SPACES. LOCATE JOINTS OVER SUPPORTING MEMBERS ONLY, AND MINIMUM JOINTS SHALL BE INSTALLED UNTIL THE JOISTS (OR FRAMING) HAVE BEEN FURNISHED, AND ALL BRACING AND BRIDGINGS IS INSTALLED.
3. TURN AND INSTALL STEEL METAL CLOSURES, JOINT COVERS, CONCRETE STOPS, AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION.
4. DO NOT SUSPEND PIPES OR DUCTS DIRECTLY FROM DECK.
5. CONTRACTOR AND DECKING SUPPLIER SHALL COORDINATE SIZE AND LOCATIONS OF ANY OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. PROVIDE SUPPORT FRAMING FOR OPENINGS PER TYPICAL DETAIL.
6. ROOF DECK HAS BEEN DESIGNED TO FUNCTION AS A DIAPHRAGM FOR THE TRANSMISSION OF LATERAL LOADS. ATTACH DECK UNITS TO EACH OTHER PER PLAN NOTES. CONNECT DECK UNITS TO EXTERIOR SUPPORTS AND ALL OTHER DECK BOUNDARIES PER PLAN NOTES. ALL DECK SHALL BE FASTENED TO JOIST SUPPORTS AND AT SIDELAPS PER PLAN NOTES AND TYPICAL DETAILS.

1. STEEL FOR COLD-FORMED SECTIONS, AND STEEL SHEET AND PLATE USED IN COLD-FORMED STEEL CONSTRUCTION SHALL CONFORM TO SECTION A2.1 OF AISC STANDARD: "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION.
2. ALL 12, 14, AND 16 GAUGE MEMBERS SHALL MEET THE REQUIREMENTS OF ASTM A1003, GRADE ST50H (MINIMUM YIELD OF 50 KSI). ALL 18 GAUGE MEMBERS SHALL MEET THE REQUIREMENTS OF ASTM A1003 GRADE ST33H (MINIMUM YIELD OF 33,000 psi).
3. SCREWS FOR COLD-FORMED STEEL CONSTRUCTION SHALL BE ITW BULDEX TEK SCREWS (ICC ESR-1976) OR APPROVED EQUAL.
4. ALL SCREWS SHALL BE INSTALLED SO THAT HEADS ARE FLUSH WITH OUTSIDE MATERIAL. DO NOT OVERDRIVE SCREWS. SCREWS WITH WING-TIPS ARE NOT PERMITTED IN SHEAR WALLS OR DIAPHRAGMS. SCREW FASTENERS MUST BE INSTALLED PERPENDICULAR, FULLY SEATED AND WITH A MINIMUM (3) SCREWS PER BOARD. BRACING STUDS ARE NOT TO BE CONNECTED TO BRACING MEMBERS.
5. SECTION PROPERTIES ARE ASSUMED TO BE IN ACCORDANCE WITH THE AMERICAN IRON AND STEEL INSTITUTE "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" 2012 EDITION WITH SUPPLEMENTS. THE CONTRACTORS IS TO VERIFY THAT THE MATERIALS INSTALLED MEET OR EXCEED THESE DESIGN VALUES.
6. MECHANICAL BRIDGING SHALL BE USED IN ALL CASES WHERE INDICATED. INSTALLATION OF BRIDGING MUST BE COMPLETED BEFORE ANY LOADS ARE APPLIED TO THE SYSTEM. ALL BRIDGING SHALL BE TERMINATED AT JOISTS, STUDS OR COLUMNS. BRIDGING ENDS SHALL NOT HANG LOOSE. STUDS SHALL BE BRACED AGAINST ROTATION.
7. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS. STUD ENDS MUST SEAT TIGHTLY INTO TRACKS IN ALL BEARING APPLICATIONS.
8. NO SPLICES IN STUDS, JOISTS, HEADERS, OR OTHER LOAD CARRYING MEMBERS MAY BE MADE WITHOUT PRIOR ENGINEERING REVIEW AND SPECIFIC DETAILS FOR ANY SUCH REVISION TO THE ORIGINAL DESIGN.
9. ALL WELDING SHALL BE PERFORMED BY AWS WELDERS QUALIFIED FOR WELDING COLD-FORMED STEEL CONFORMANCE WITH A1003. USE E60 ELECTRODES, UNLESS OTHERWISE NOTED. STEEL REQUIRING WELDING SHALL BE 16ga MINIMUM.
10. ALL COLD-FORMED STUDS AND JOISTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS REGARDING MINIMUM INSTALLATION STANDARDS FOR BEARING, BRIDGING, AND BRACING.
12. BOTTOM TRACK TO MATCH STUD GAUGE WITH A MINIMUM 1-1/4" FLANGE UNLESS OTHERWISE NOTED.

SPECIAL INSPECTIONS - SOILS AND FOUNDATIONS TABLE

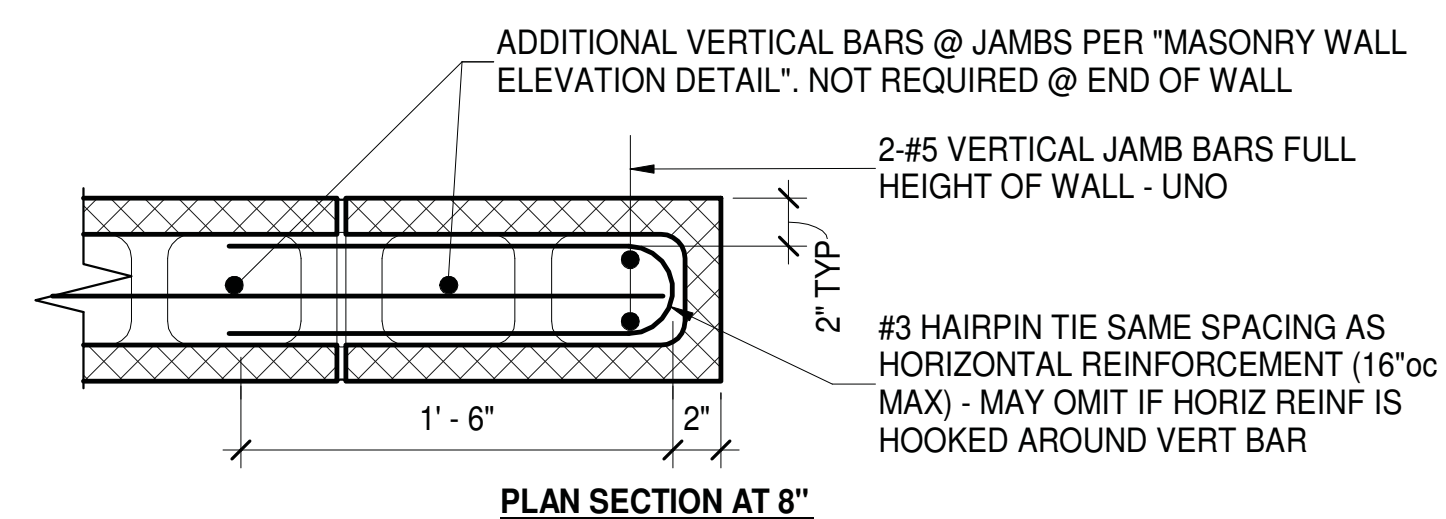
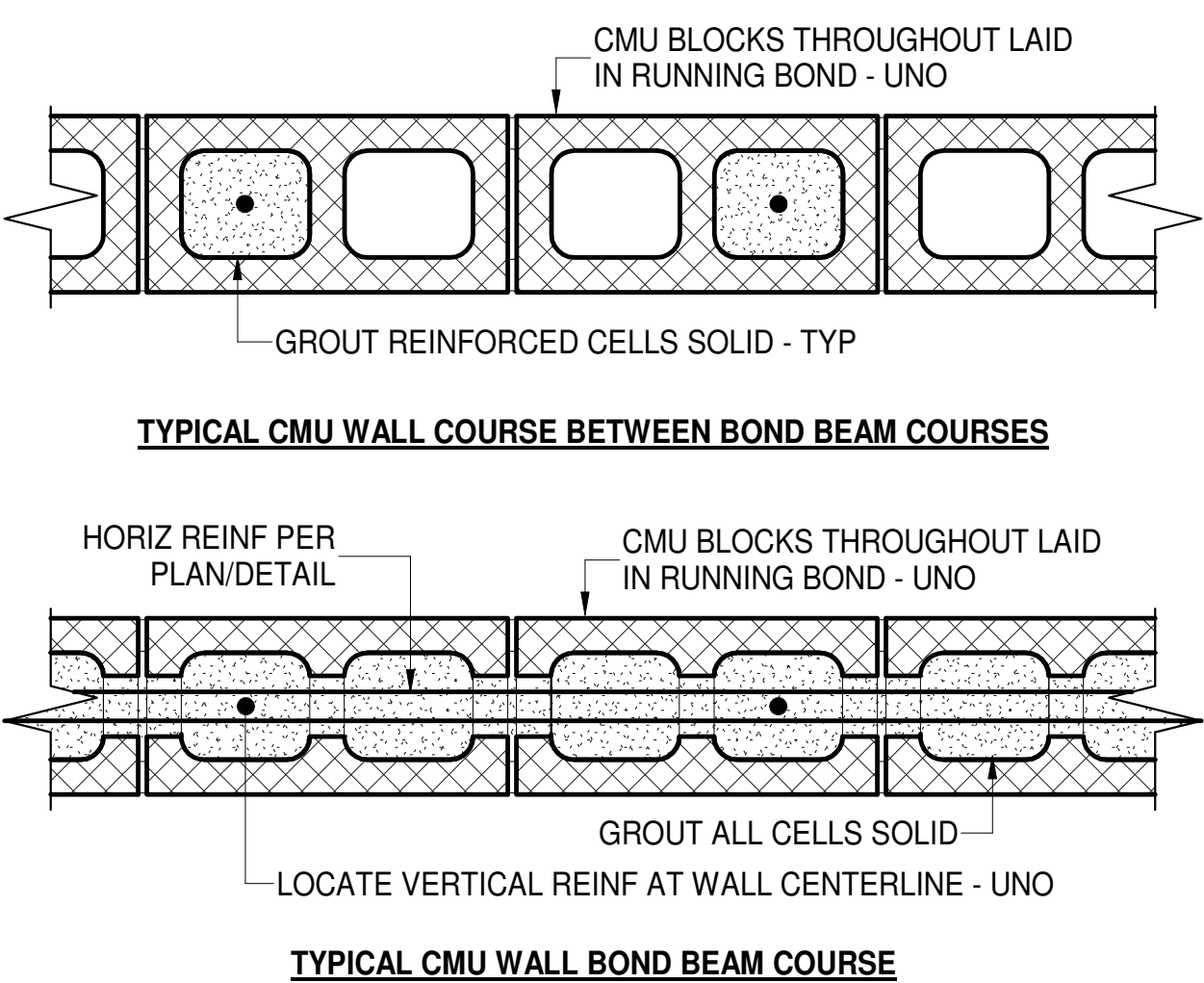
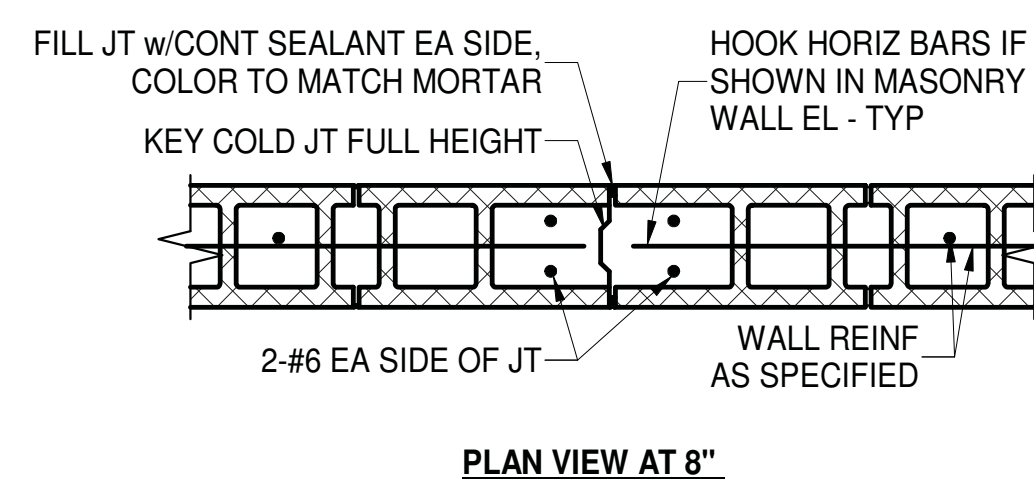
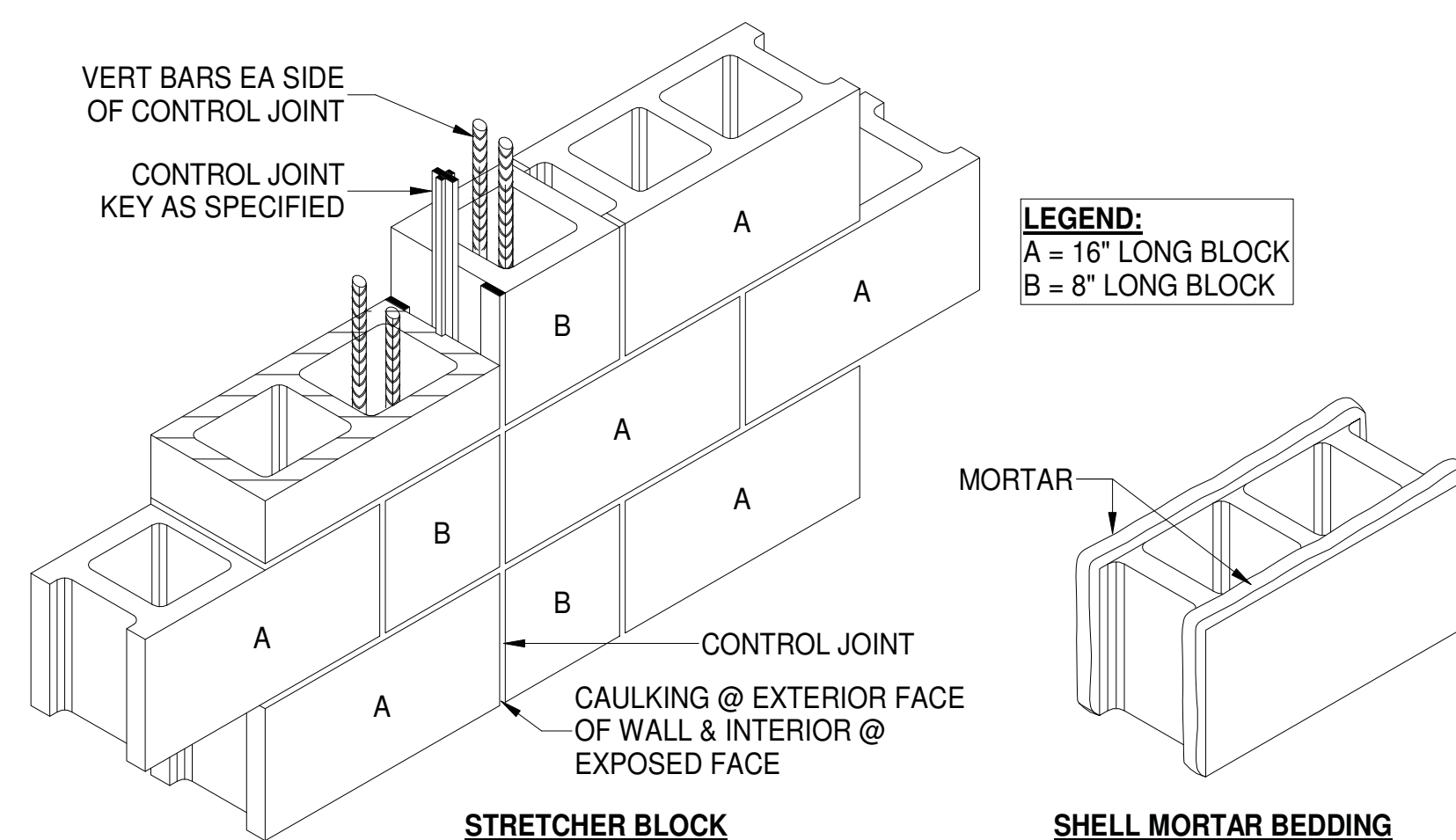
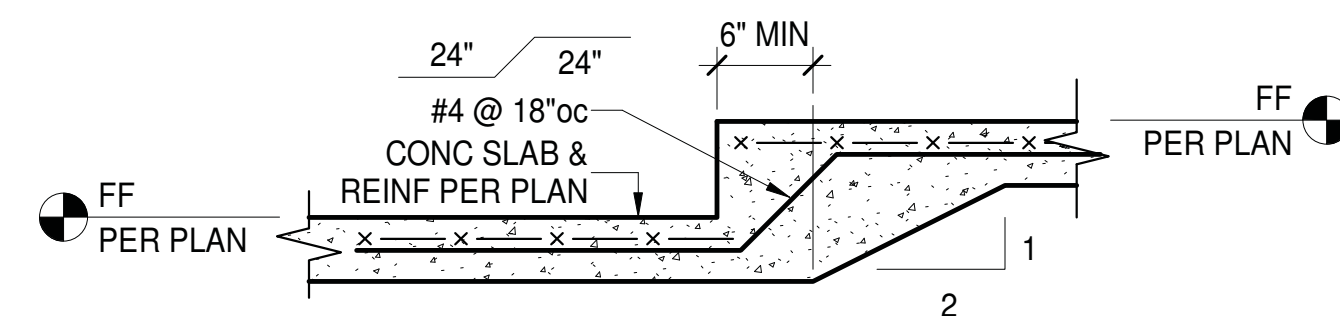
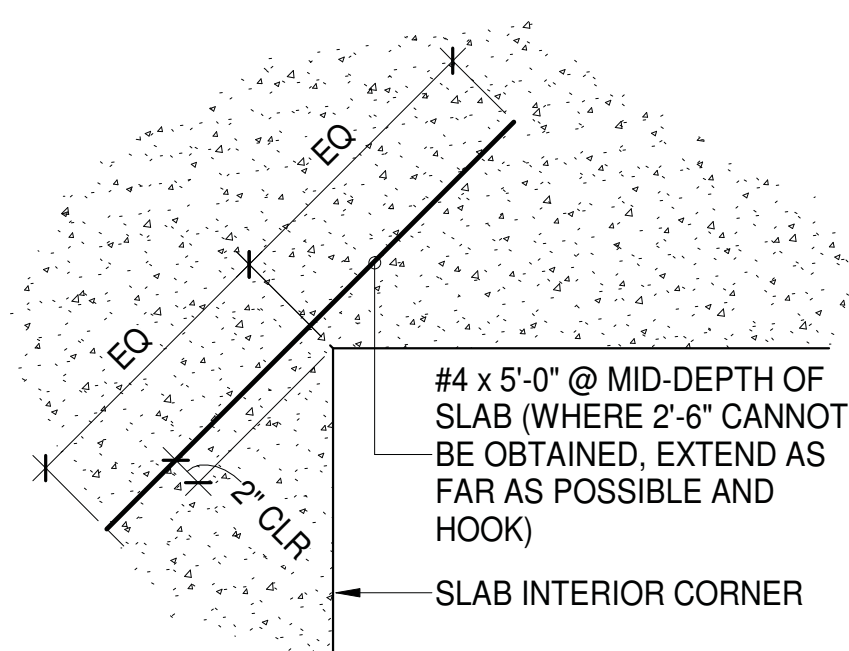
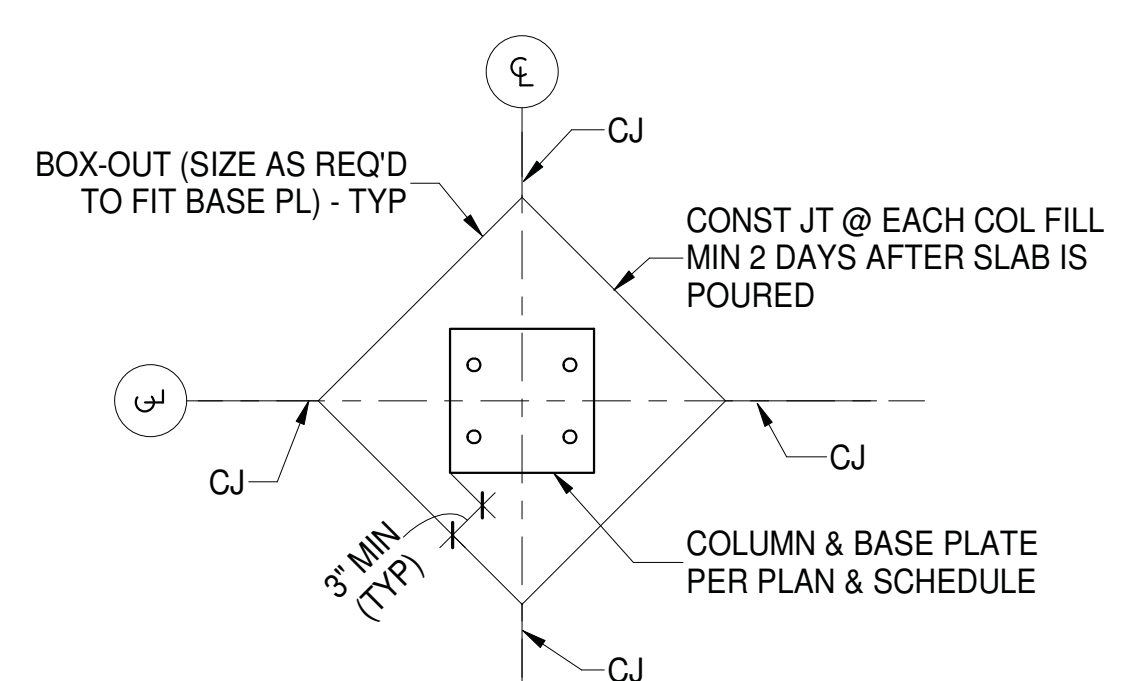
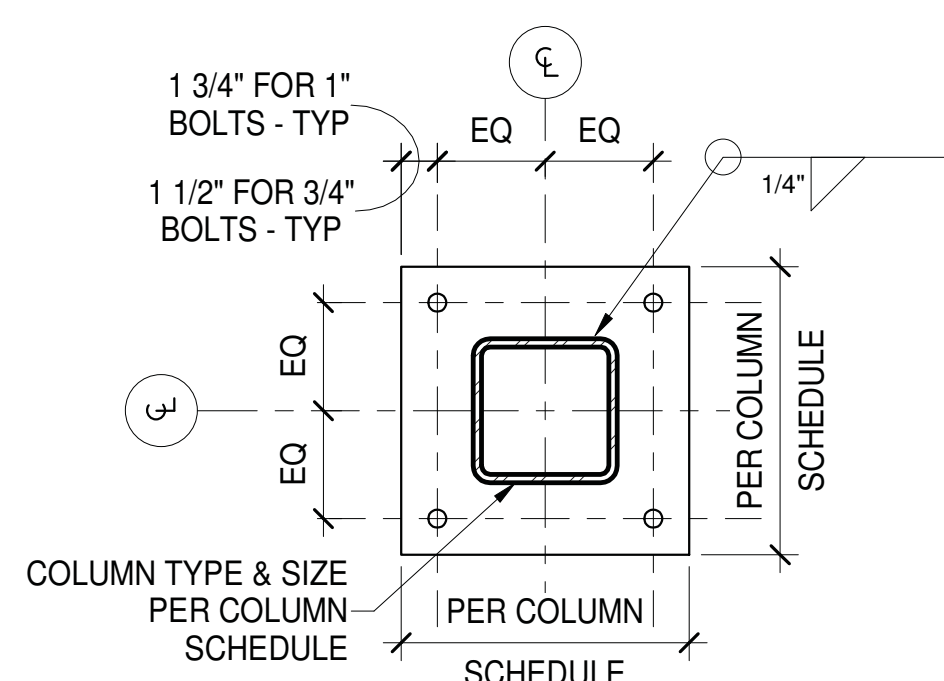
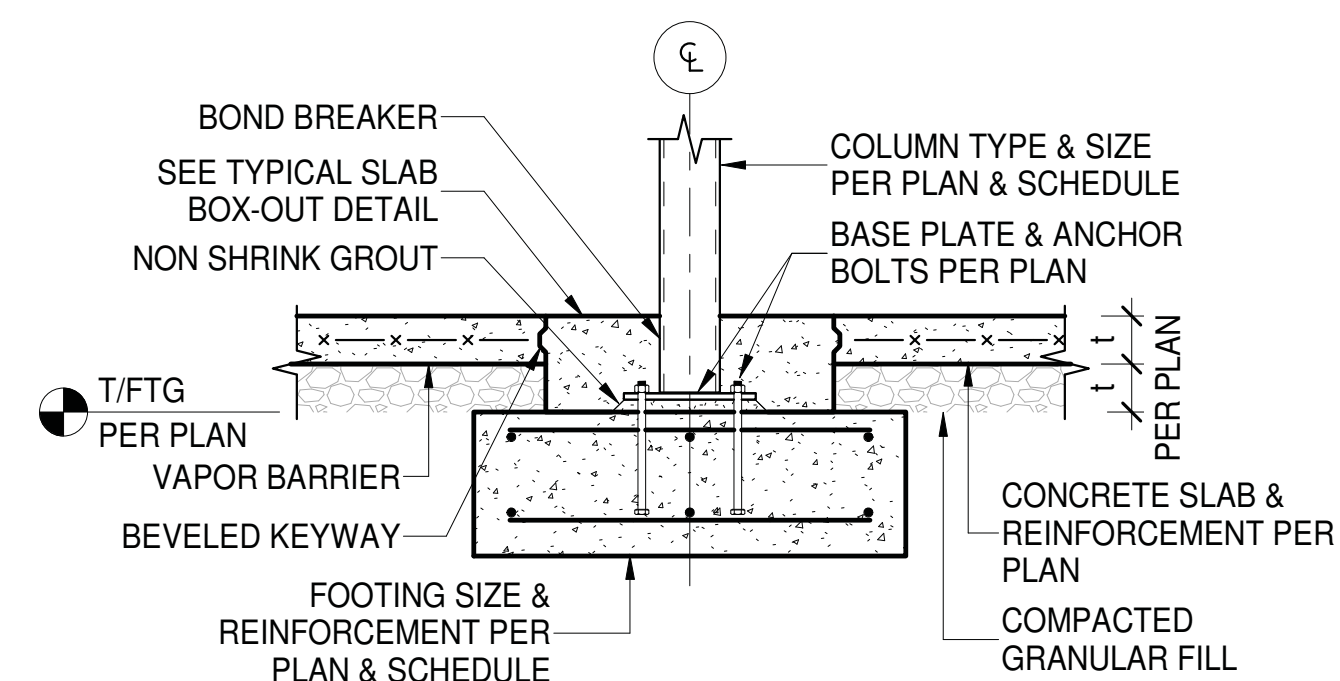
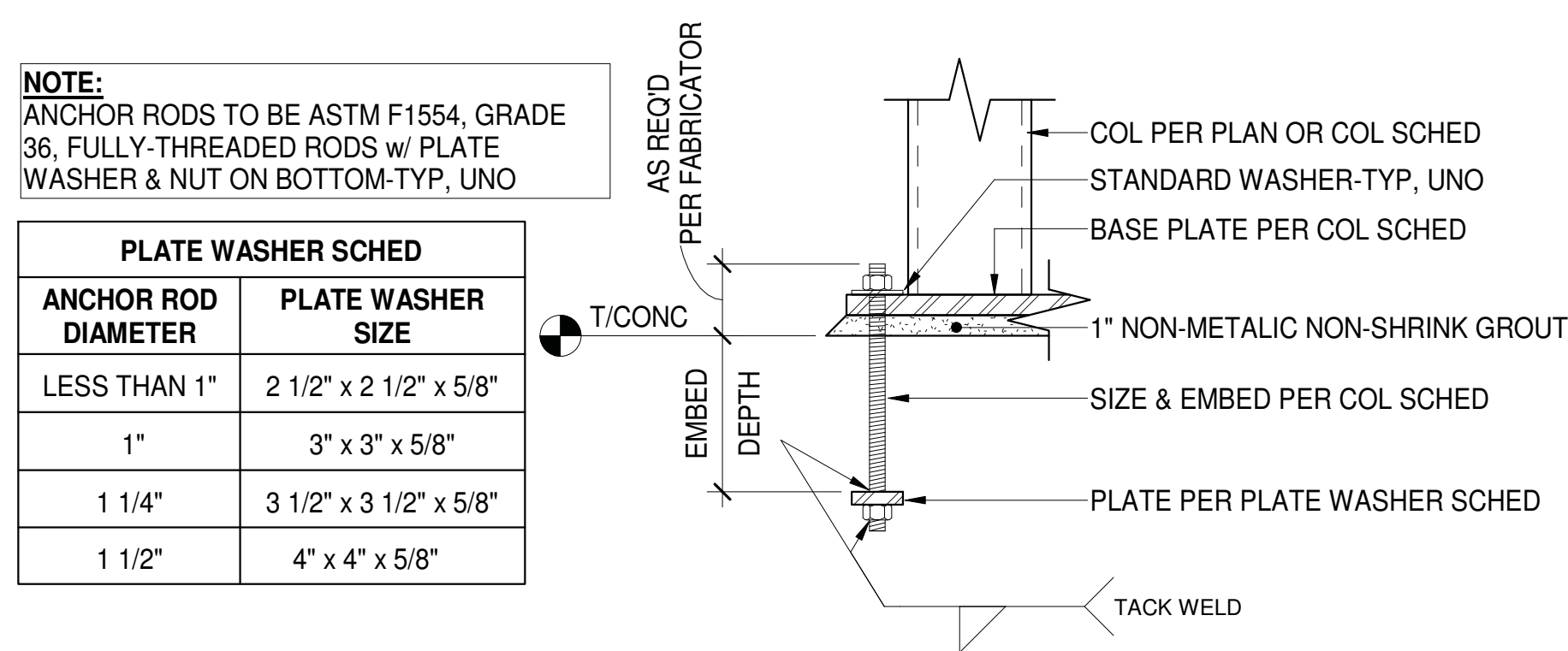
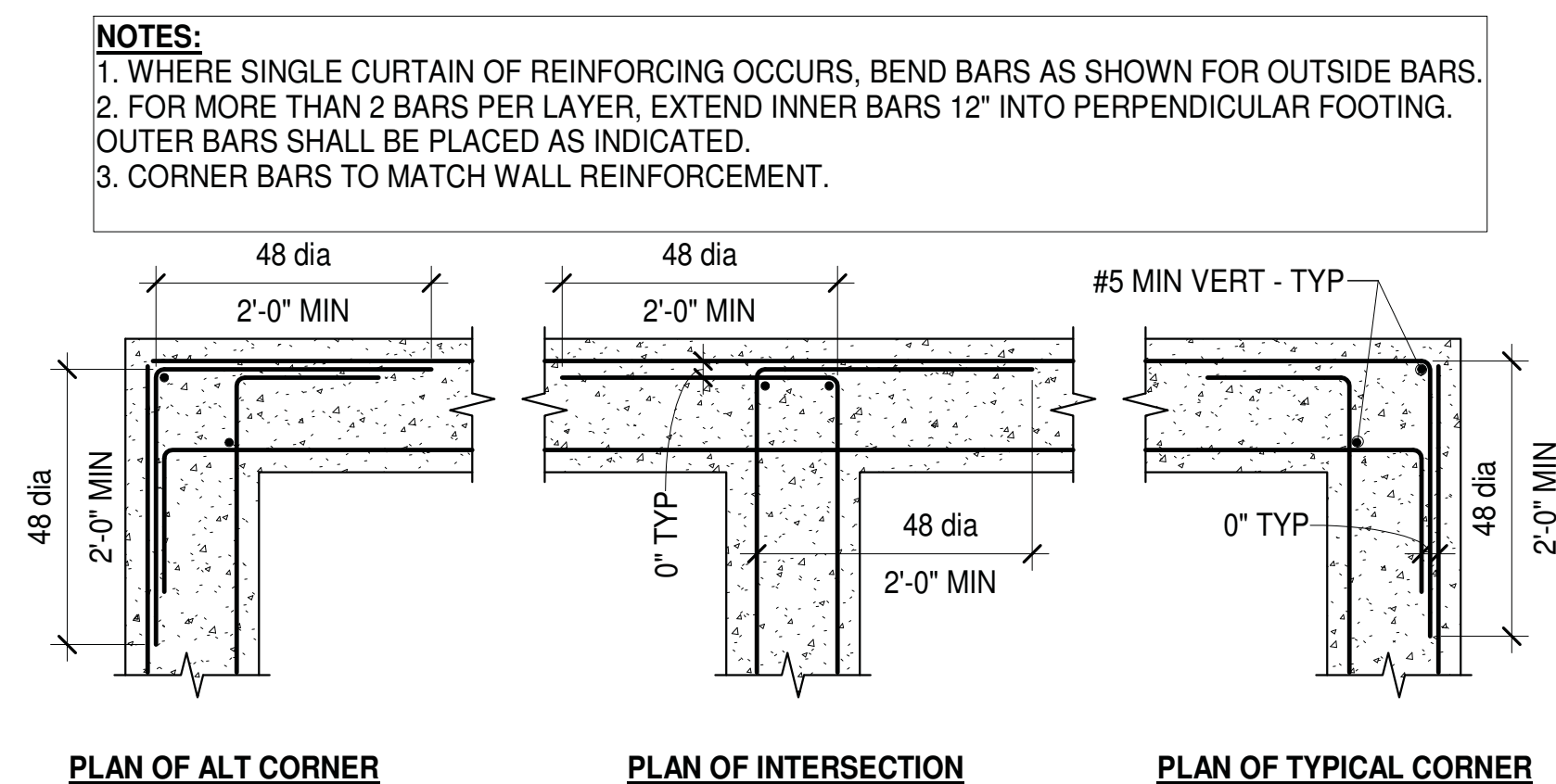
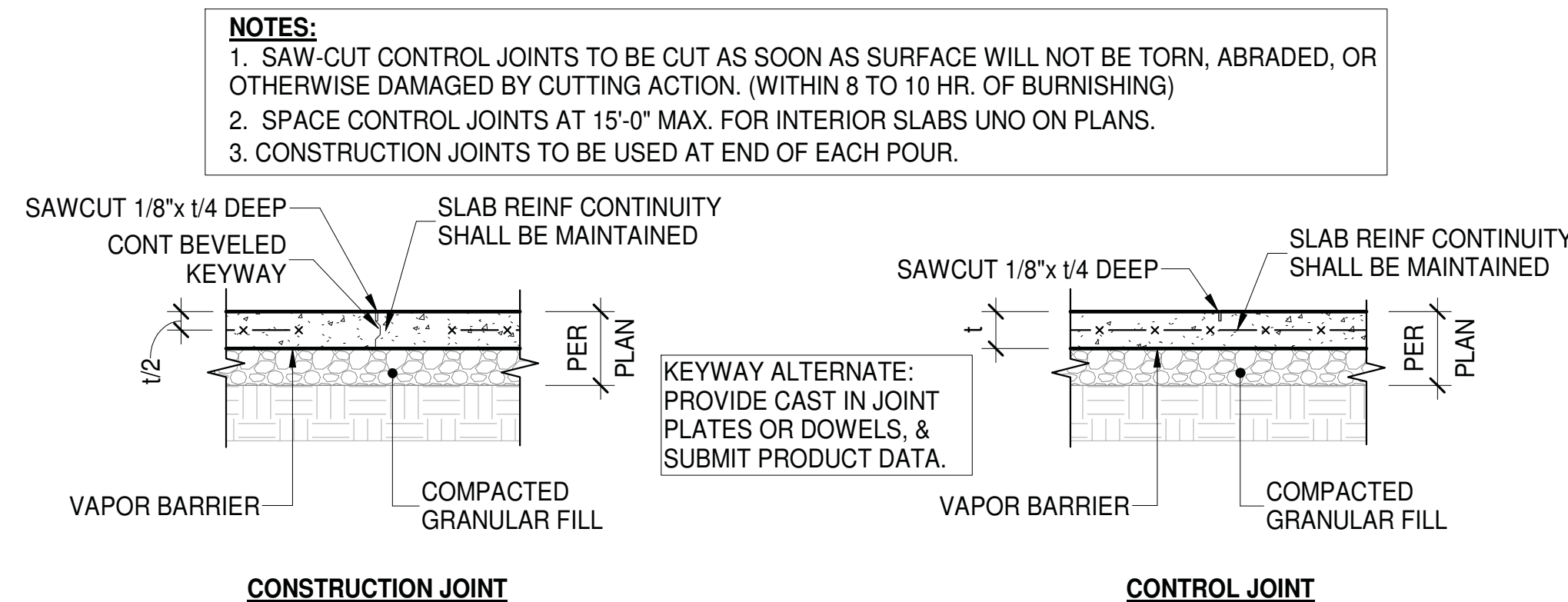
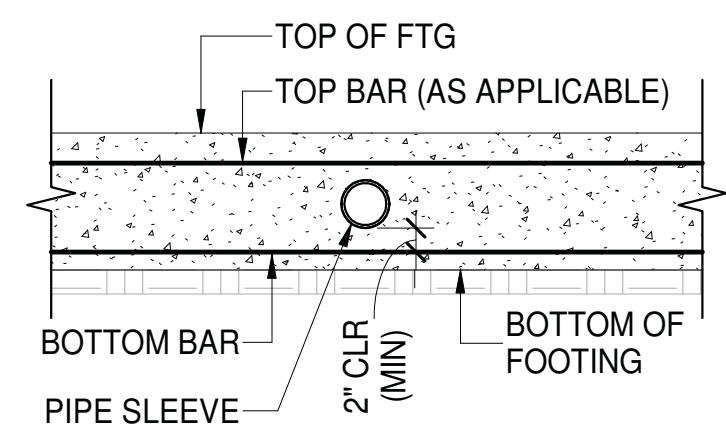
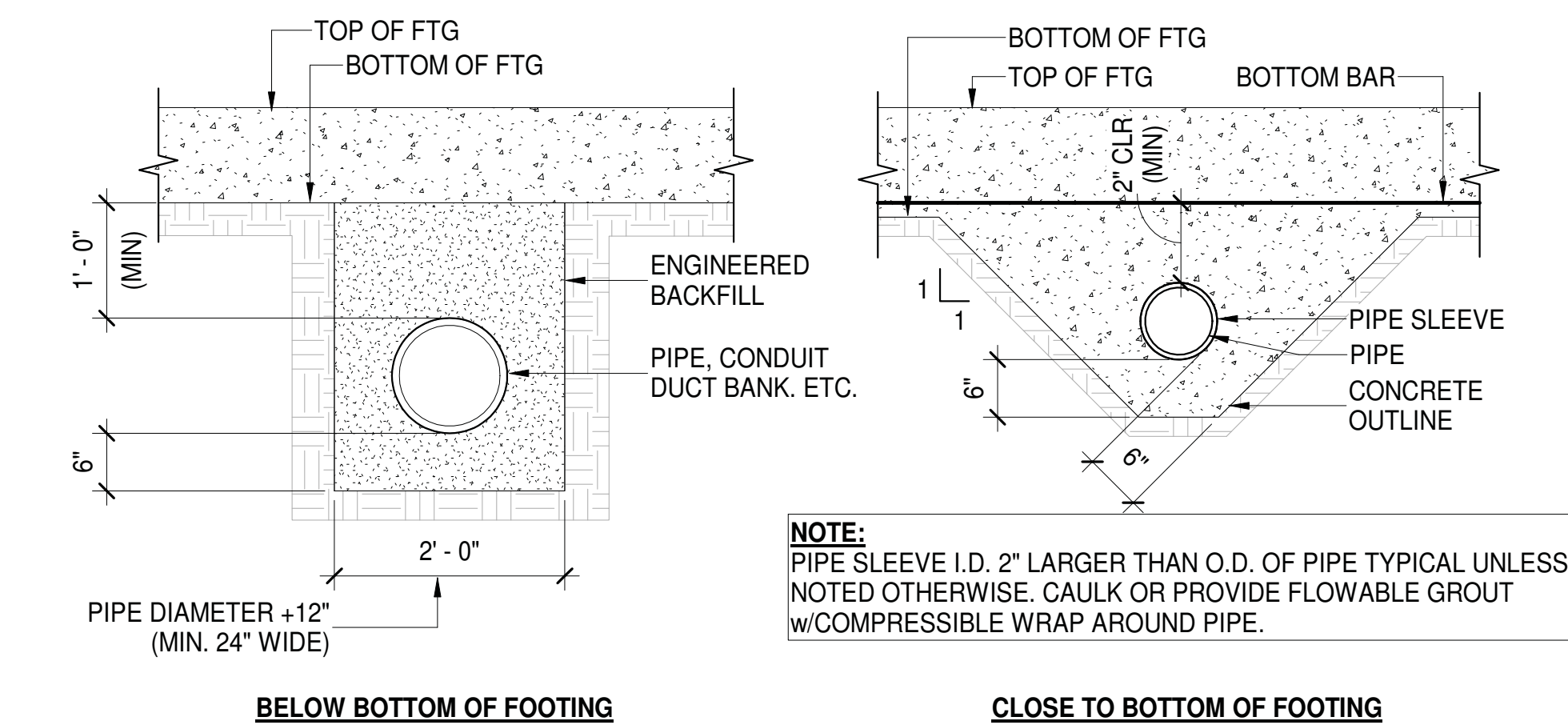
SPECIAL INSPECTIONS - STEEL TABLE

<u>SPECIAL INSPECTIONS - MASONRY - LEVEL 1 INSPECTION</u> <u>(LEVEL B QUALITY ASSURANCE)</u> <u>FOR OCCUPANCY CATEGORY I, II, III STRUCTURES</u>		
ITEM	INSPECTION FREQUENCY	SCOPE
REINFORCEMENT	PERIODIC	LAPPING AND SPLICING OF REBAR; LOCATION, PLACEMENT, GRADE, SIZE, AND TYPE OF REINFORCEMENT AND CONNECTORS
INSTALLATION OF MASONRY, GROUT, AND MORTAR	PERIODIC	CONSTRUCTION OF MORTAR JOINTS; SIZE AND LOCATION OF STRUCTURAL ELEMENTS; PROTECTION OF MASONRY IN COLD WEATHER (BELOW 40° F) OR HOT WEATHER (ABOVE 90° F); CLEAN GROUT SPACE
INSTALLATION OF MASONRY, GROUT, AND MORTAR	CONTINUOUS	GROUT PLACEMENT IN CELLS WITH STEEL REINFORCEMENT
MIXING OF MORTAR AND GROUT	PERIODIC	PROPORTIONS OF SITE-PREPARED MORTAR AND GROUT
ANCHORS	PERIODIC	GROUT PLACEMENT IN CELLS WITH STEEL REINFORCEMENT OR PRESTRESSING BONDED TENDONS
ANCHORS	PERIODIC	INSPECT POST-INSTALLED MECHANICAL AND ADHESIVE ANCHORS PER THE REQUIREMENTS IN THEIR RESPECTIVE ICC-ES REPORTS
EVALUATION OF STRENGTH	CONTINUOUS	PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS; VERIFY 1" PRIOR TO CONSTRUCTION. A "SET" IS HEREBY DEFINED AS A MINIMUM OF 4 PRISM SPECIMENS. A MINIMUM OF 1 SET SHALL BE PREPARED AND TESTED FOR EACH DAY MASONRY IS INSTALLED. TEST 1 PRISM AT 7 DAYS, 2 AT 28 DAYS, AND THE 4th PRISM AT THE EOR'S DIRECTION, IF REQUIRED. REPORT ALL TEST RESULTS TO THE ARCHITECT AND EOR WITHIN 3 WORKING DAYS OF TESTING.
MISCELLANEOUS	PERIODIC	COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED

REINFORCED MASONRY LINTEL SCHEDULE								
MAX. CLEAR SPAN	DEPTH	REINFORCING (ALL REINF. IS AT BOTTOM, UNLESS NOTED OTHERWISE (T=TOP, B=BOTTOM, & M=MIDDLE))					SHEAR REINF.	
		6" WALL	8" WALL	10" WALL	12" WALL			
2'-0"	8"	(1) #3	(2) #5	(2) #5	(2) #5	N/A		
4'-0"	16"	(1) #4	(2) #5	(2) #5	(2) #5	#3 TIES @ 16"oc		
6'-0"	24"	(1) #4	(2) #5	(3) #5	(3) #5	#3 TIES @ 16"oc		
8'-0"	24"	(1) #4	(2) #5 T&B	(3) #5 T&B	(3) #5 T&B	#3 TIES @ 16"oc		
10'-0"	24"	(1) #4	(2) #5 T&B	(3) #5 T&B	(3) #5 T&B	#3 TIES @ 16"oc		
16'-0"	24"	N/A	(2) #5 T&B&M	(3) #5 T&B	(3) #5 T&B	#3 TIES @ 8"oc		

NOTES:

1. EXTEND REINFORCING 24" EACH SIDE OF OPENING (MINIMUM).
2. ALL CELLS SHALL BE FULLY GROUTED.
3. PROVIDE ADDITIONAL WALL REINF FOR TWO CELLS ADJACENT TO OPENING EACH SIDE; USE TYP. VERTICAL WALL REINF (UNO).

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TO GENERAL NOTES FOR COMPLETE LIST OF
DOCUMENTS. SHEET SIZE 30 X 42

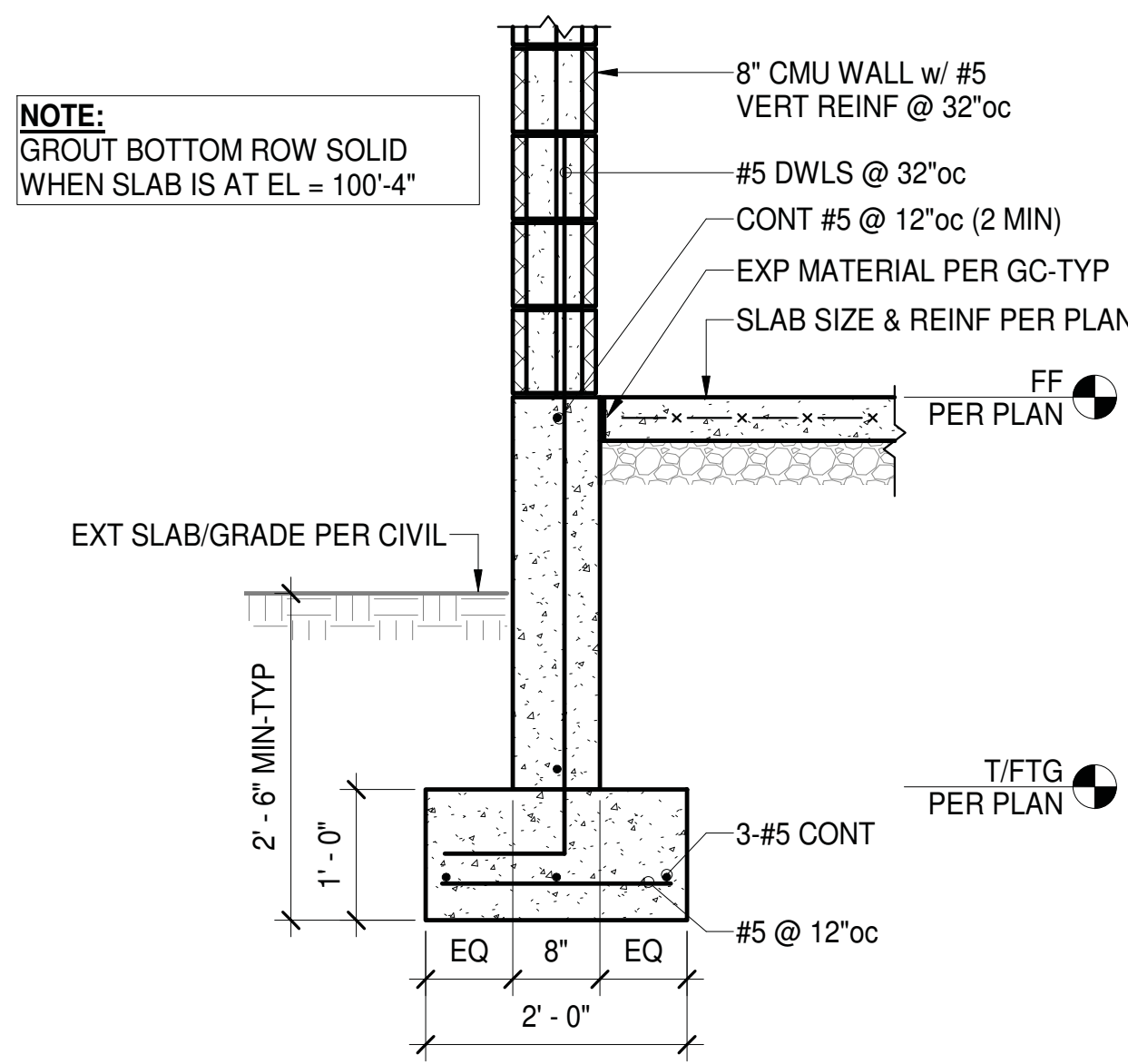
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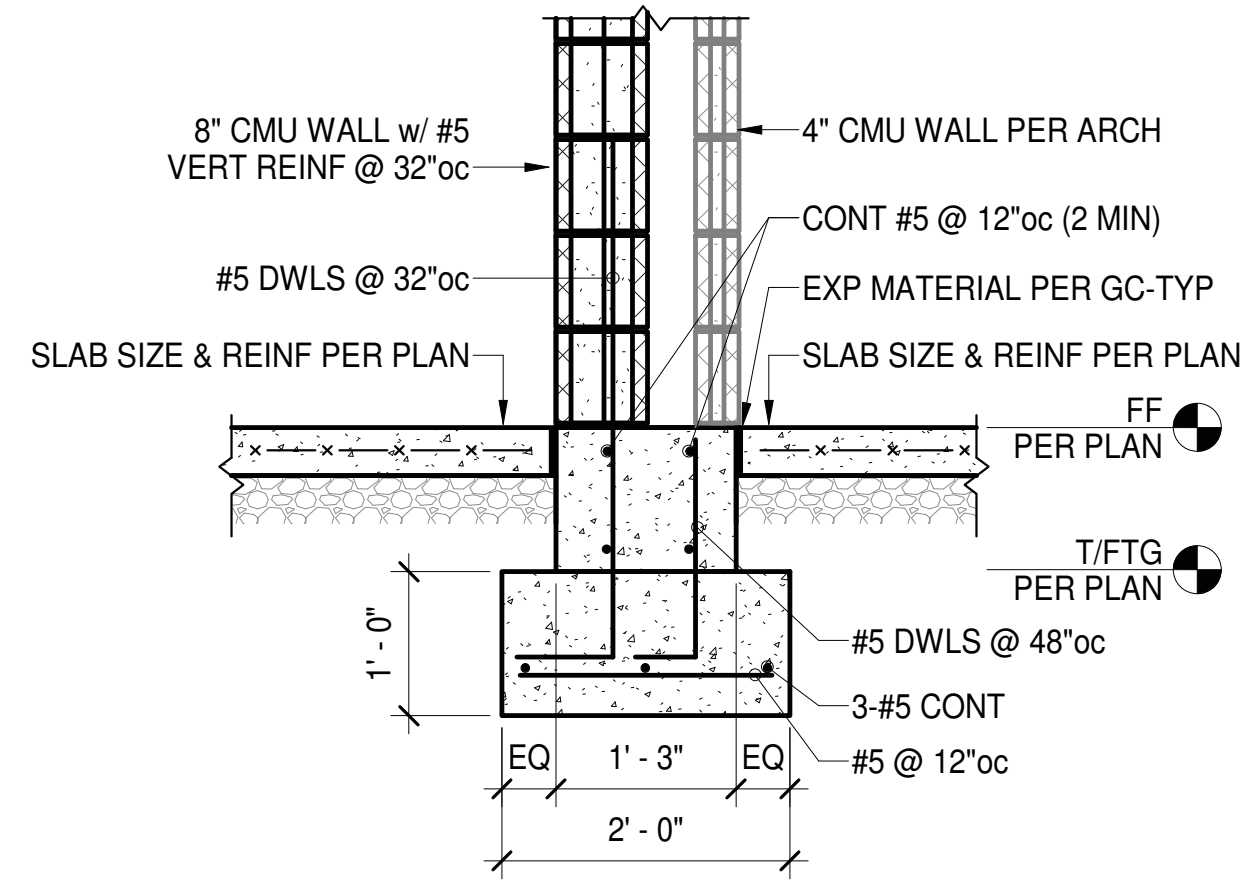
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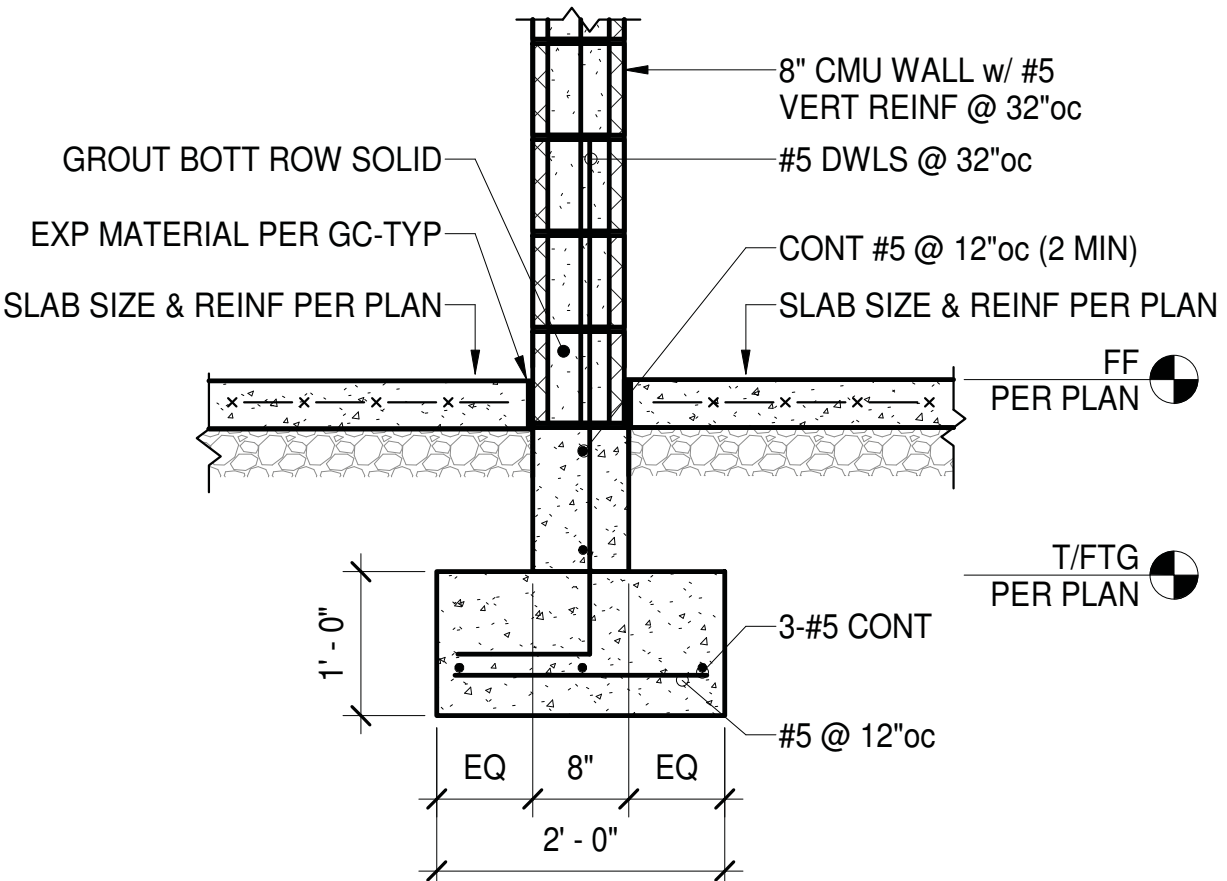
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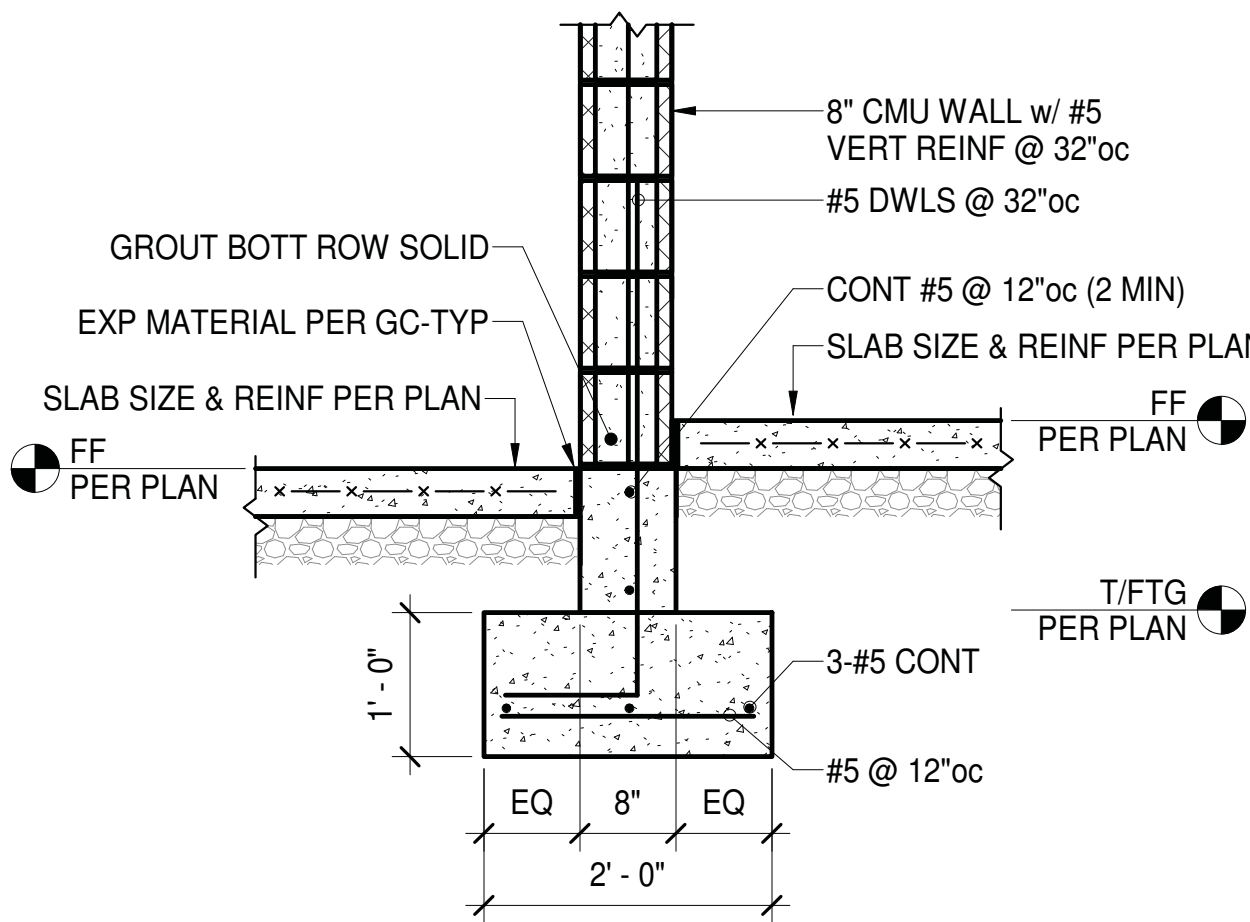
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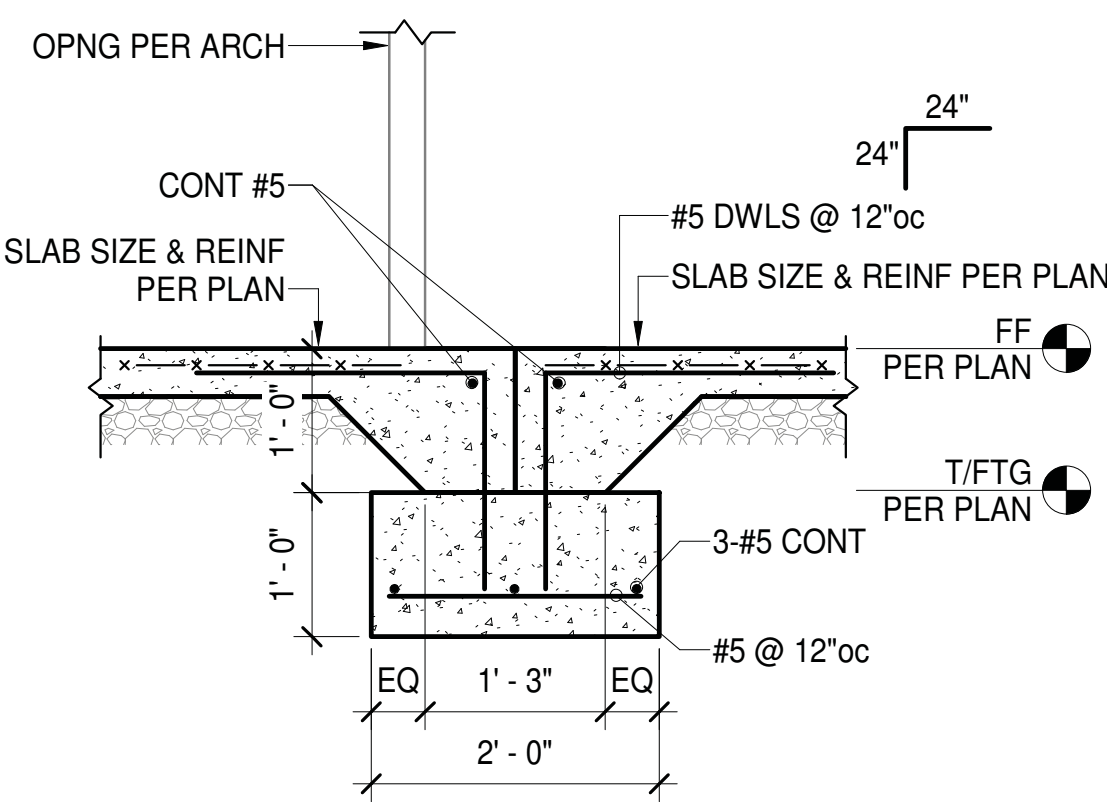
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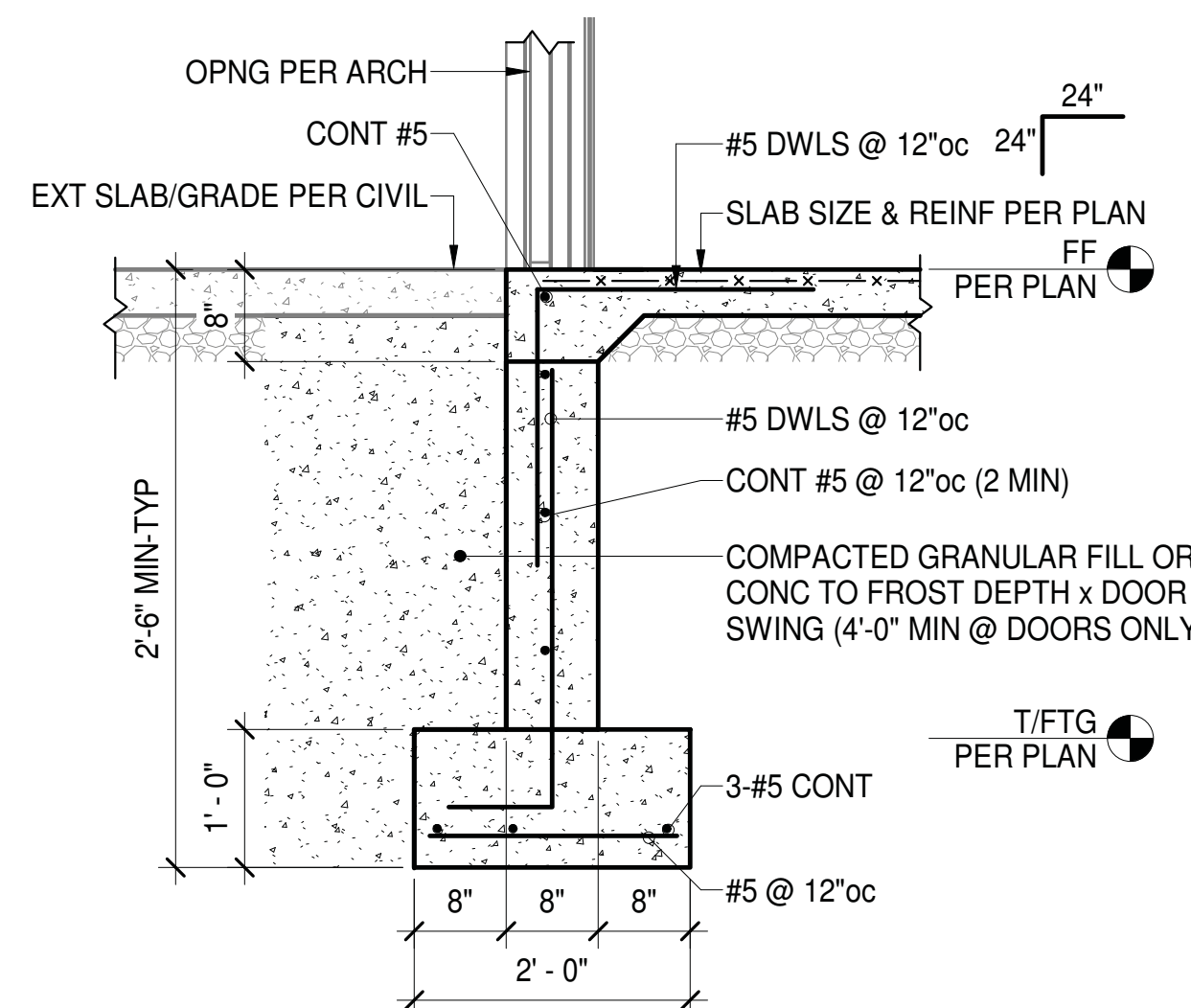
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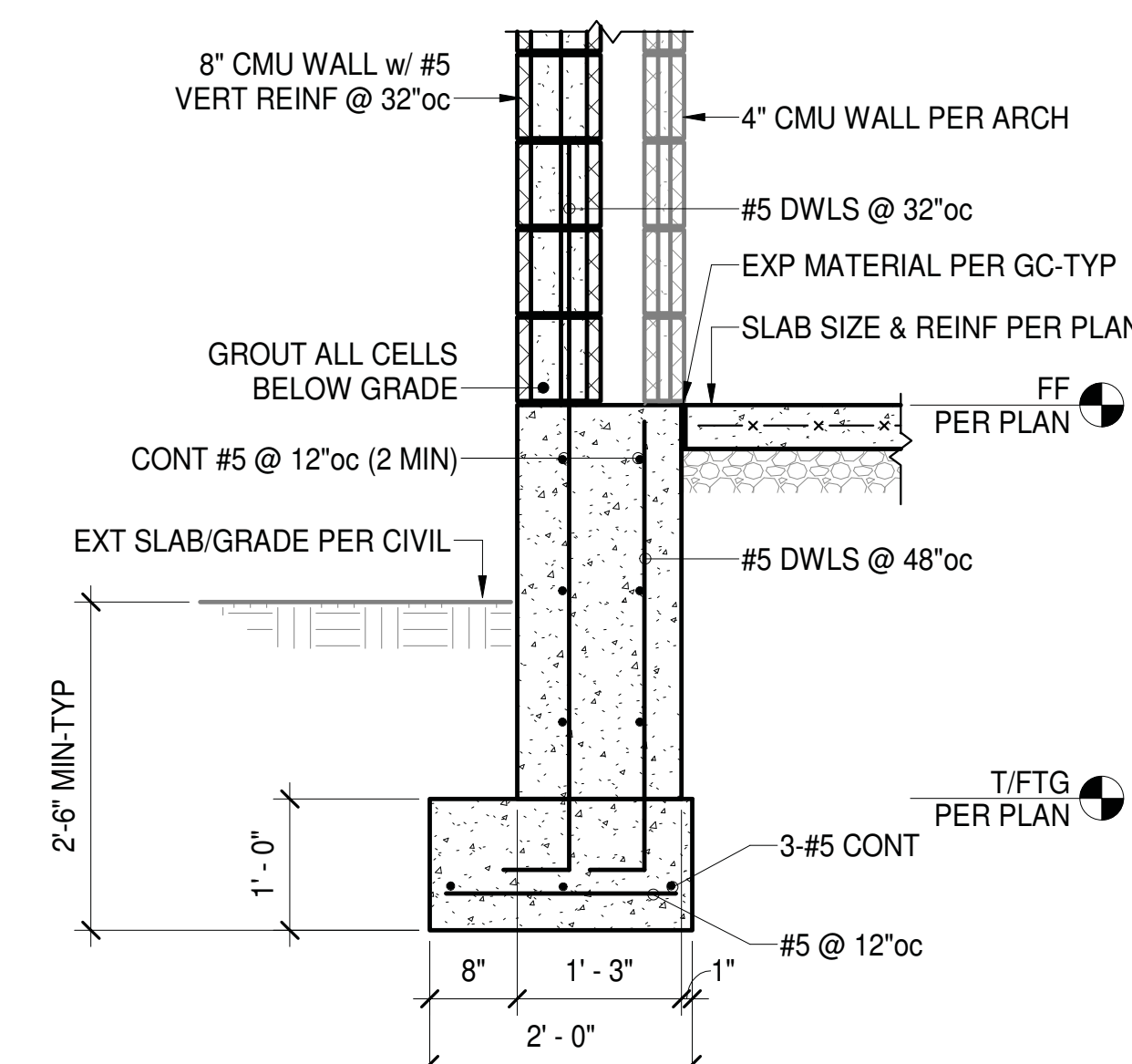
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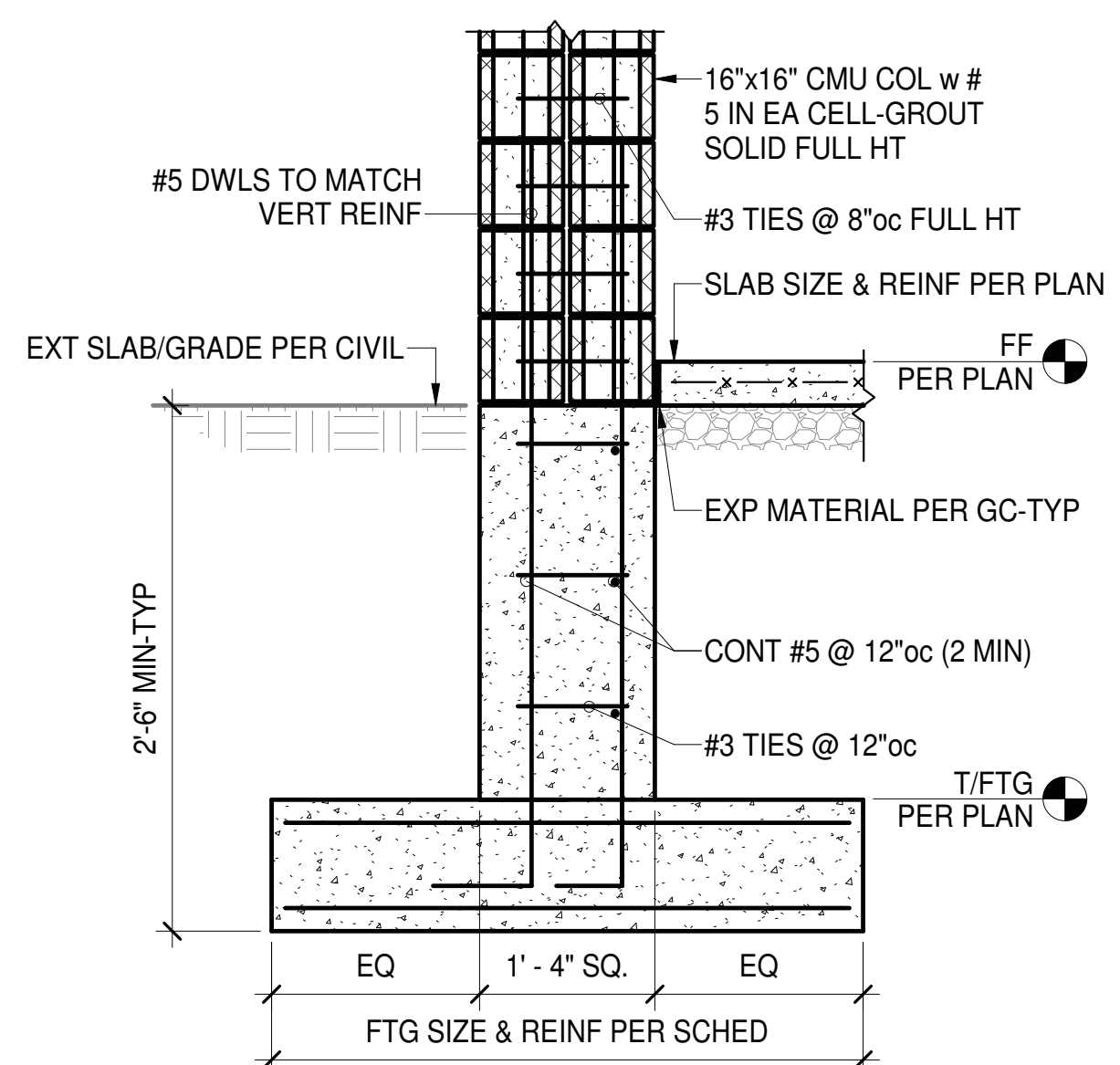
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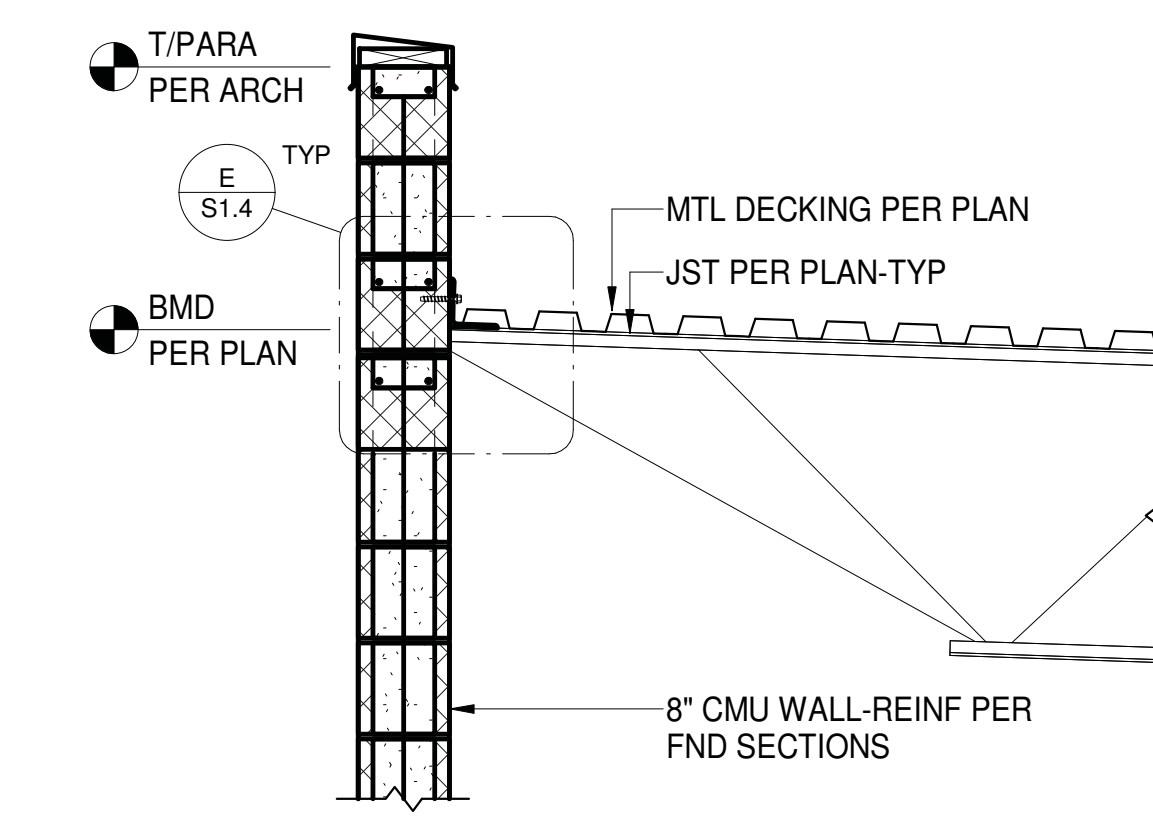
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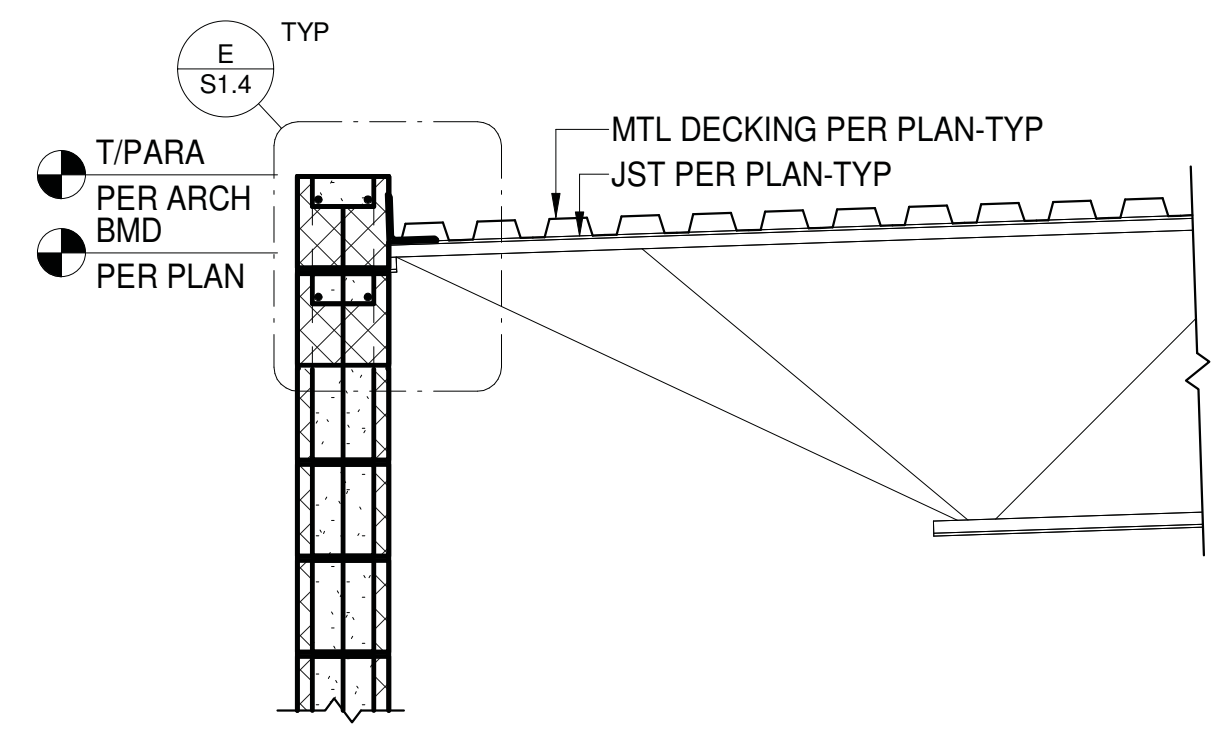
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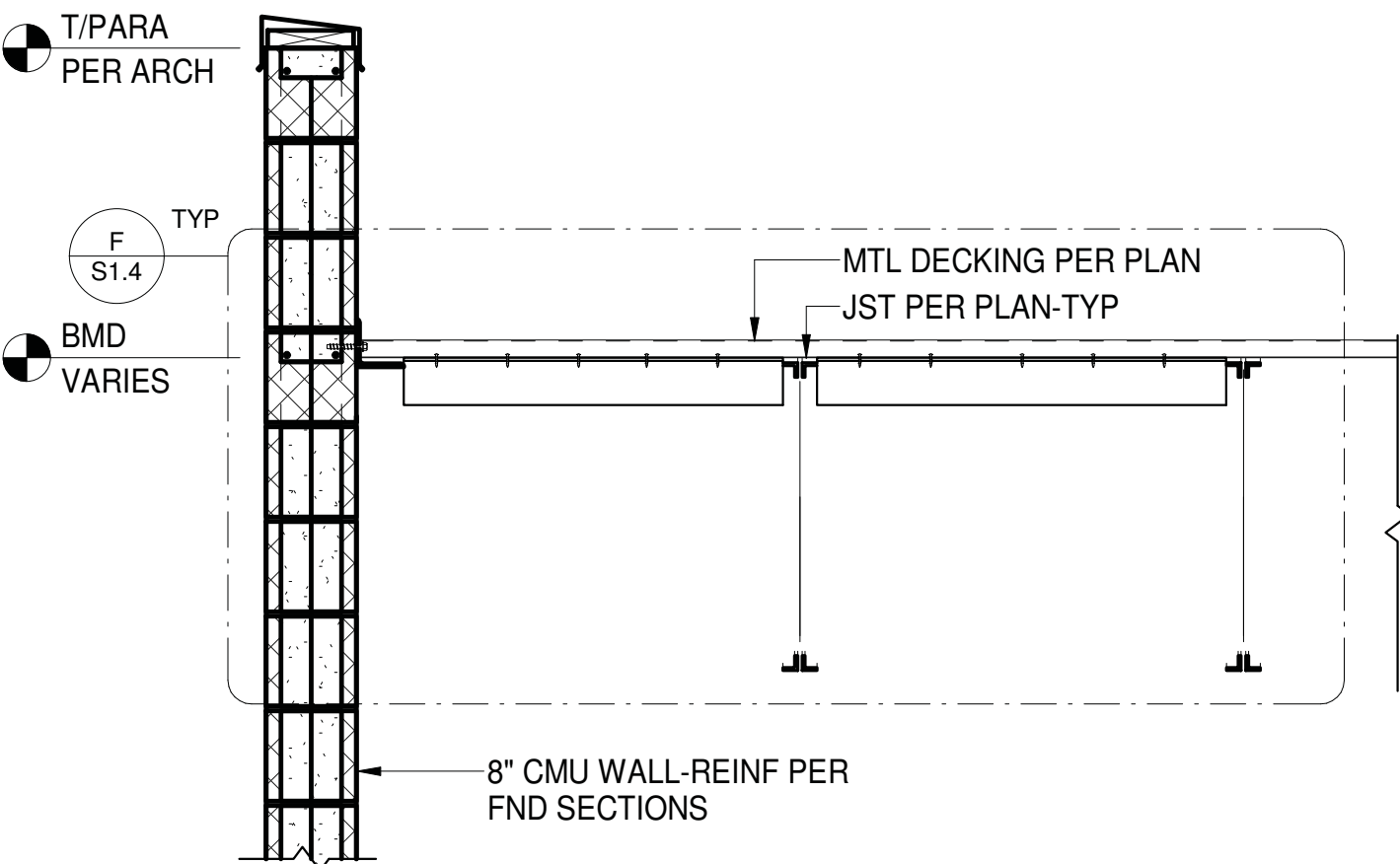
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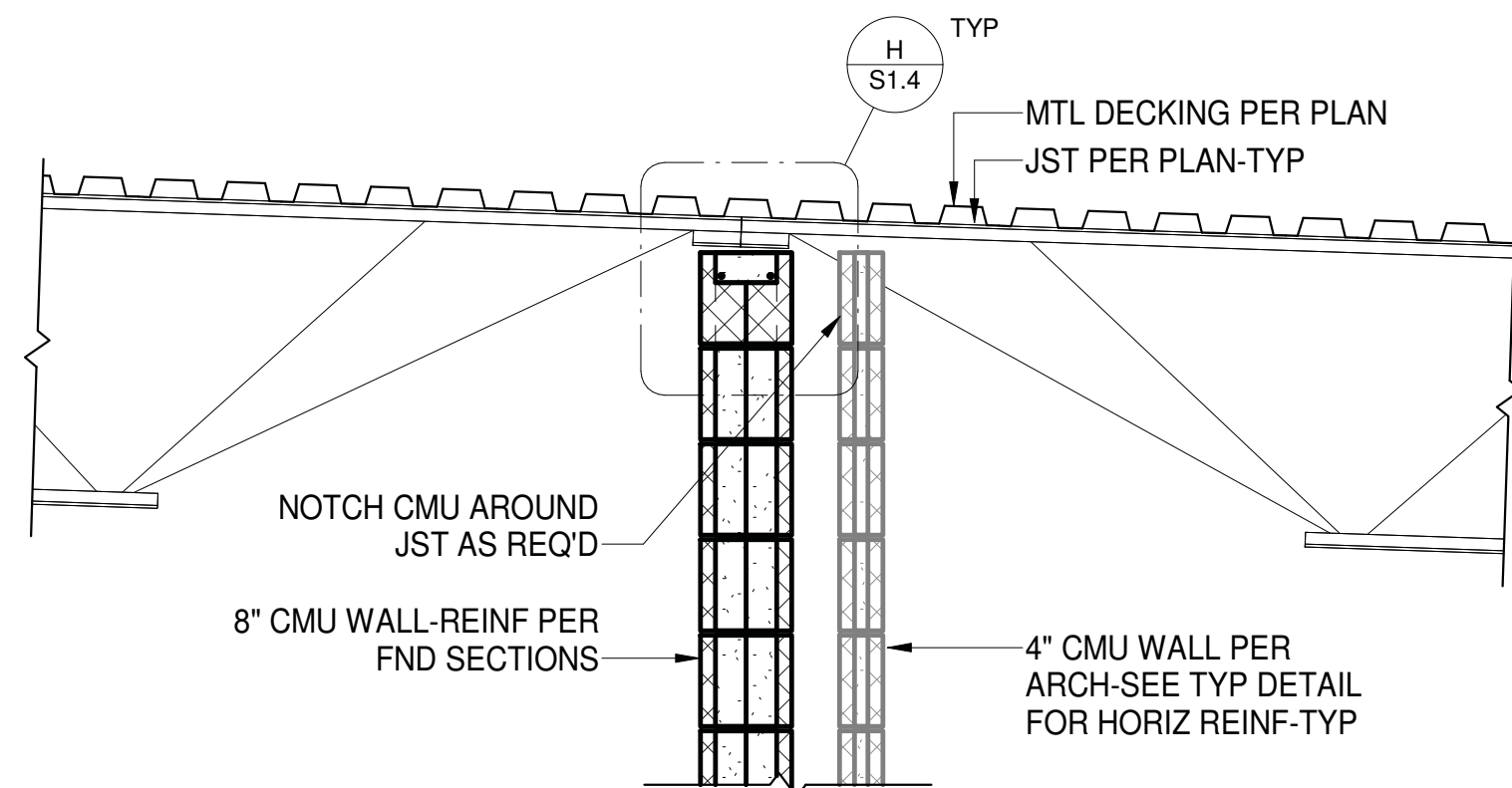
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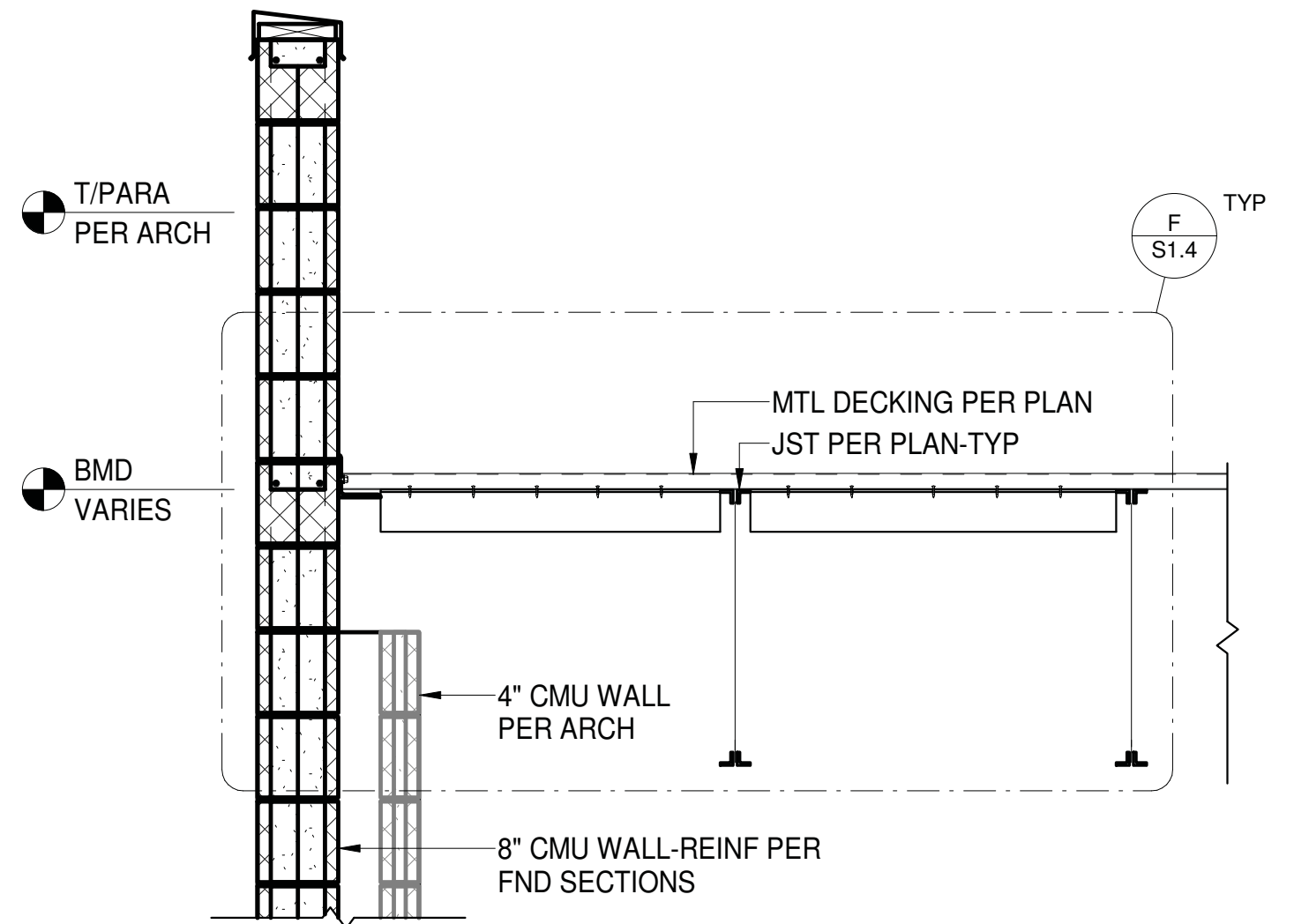
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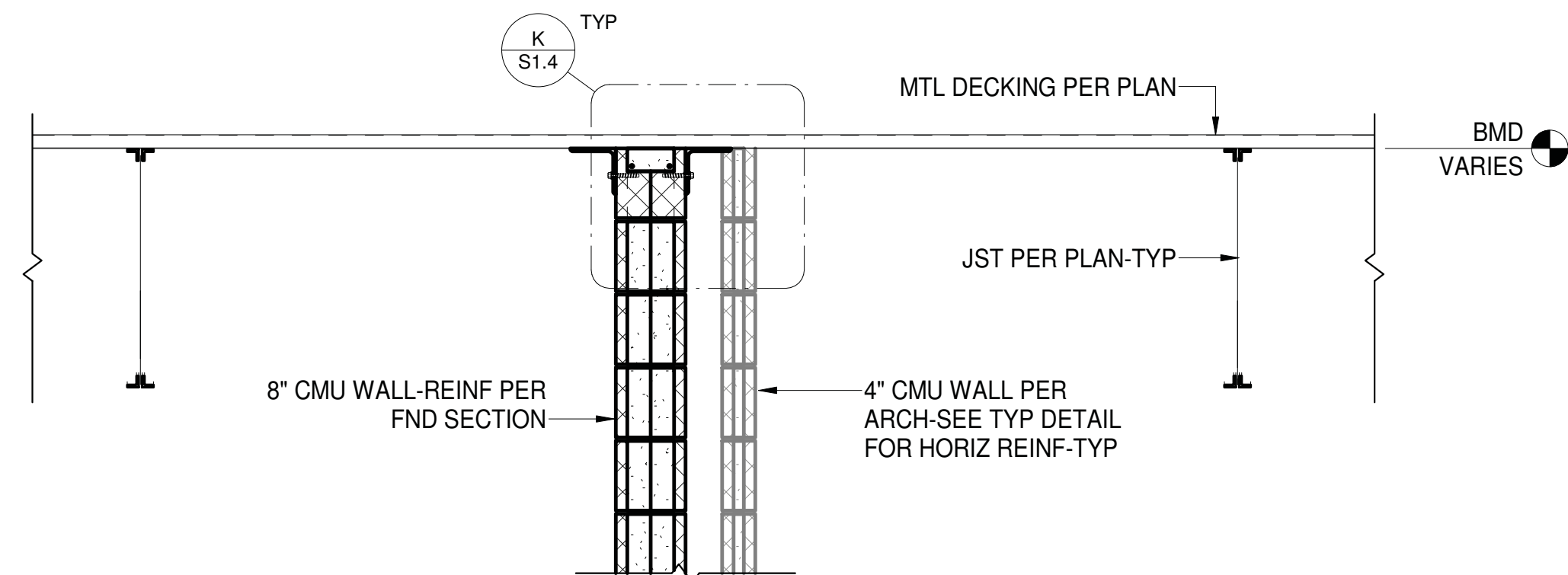
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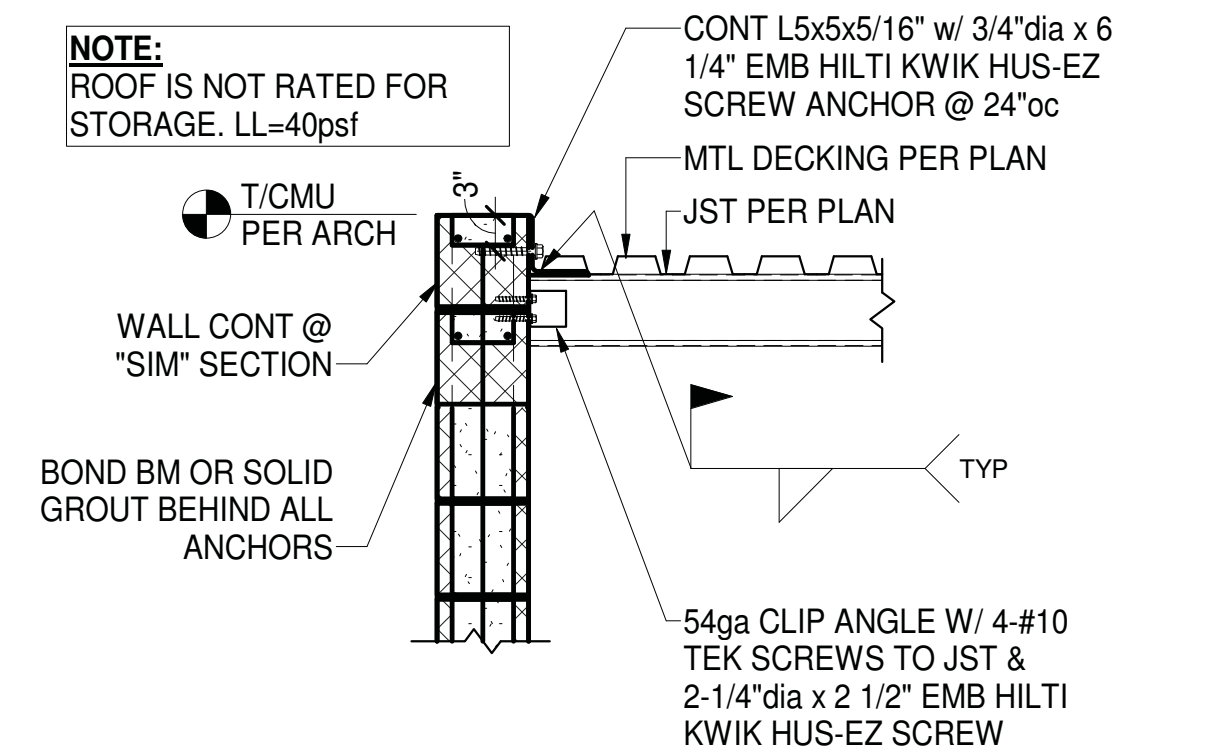
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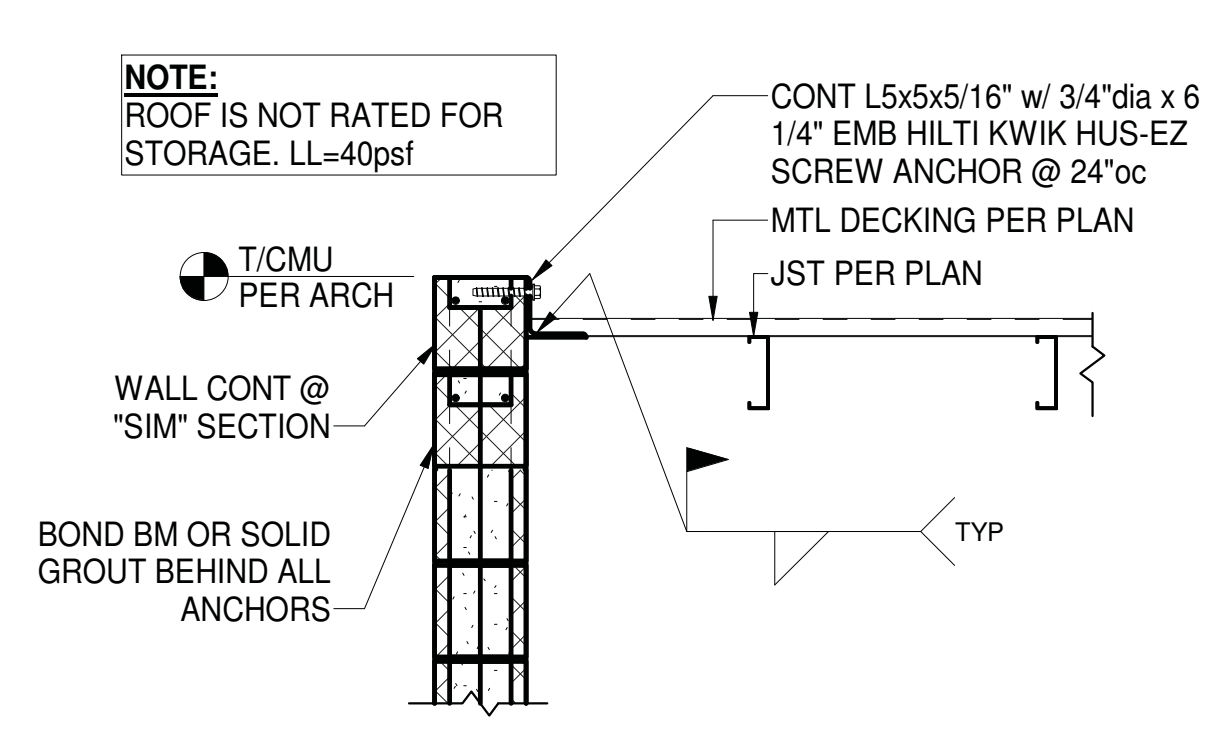
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S3.1 3/4" = 1'-0"



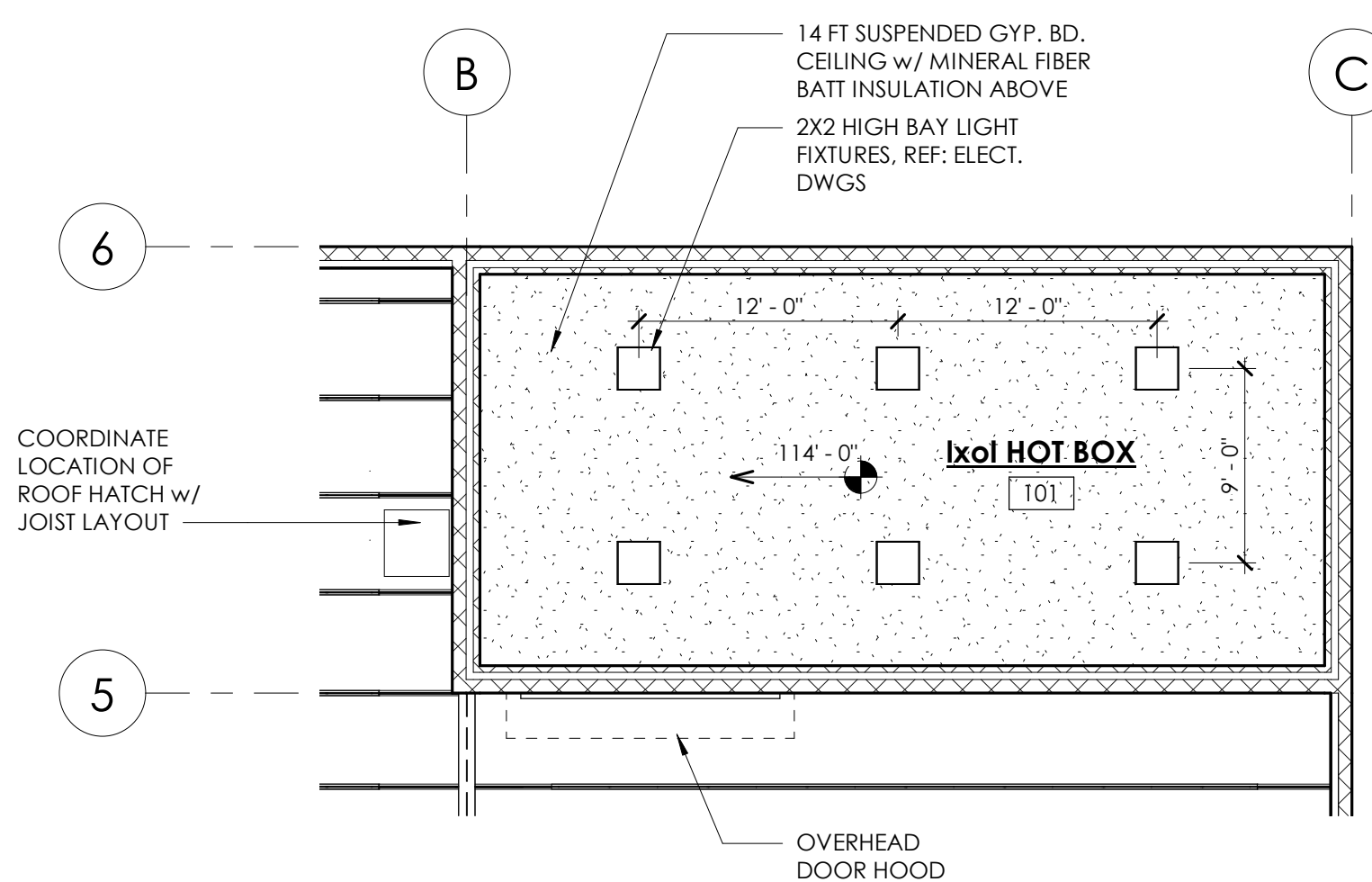
P FRAMING SECTION
S3.1 3/4" = 1'-0"



Q FRAMING SECTION
S3.1 3/4" = 1'-0"



R FRAMING SECTION
S3.1 3/4" = 1'-0"



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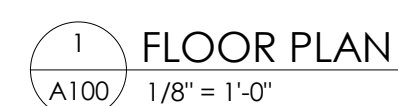
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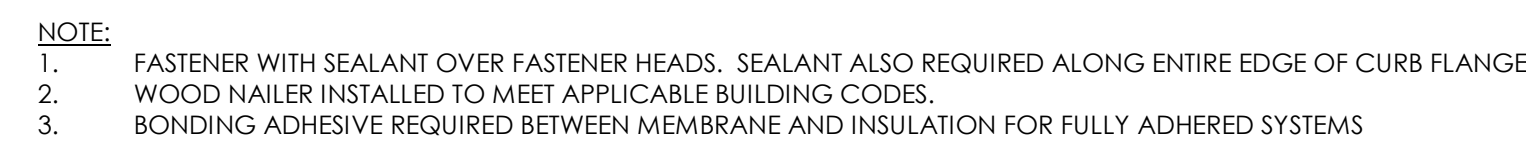


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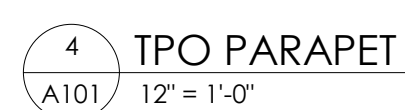
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FLOOR PLAN

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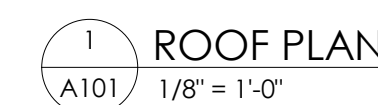




3 TPO RTU DETAIL
A101 6" = 1'-0"



5 TPO INSIDE CORNER
A101 12' = 1'-0"



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SHEET NAME:
ROOF PLAN & DETAILS

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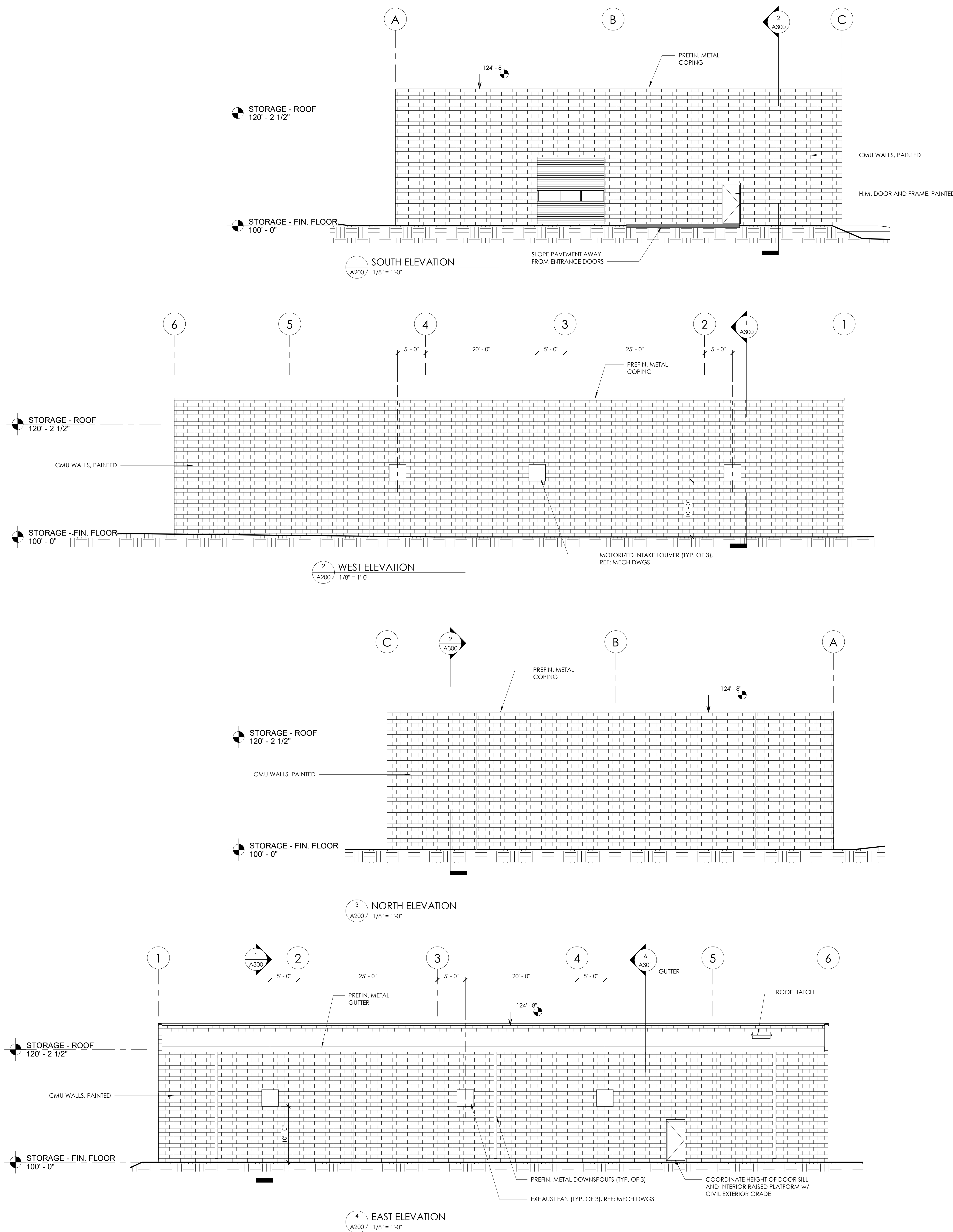
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ISSUE DATE:	Nov 18, 2020

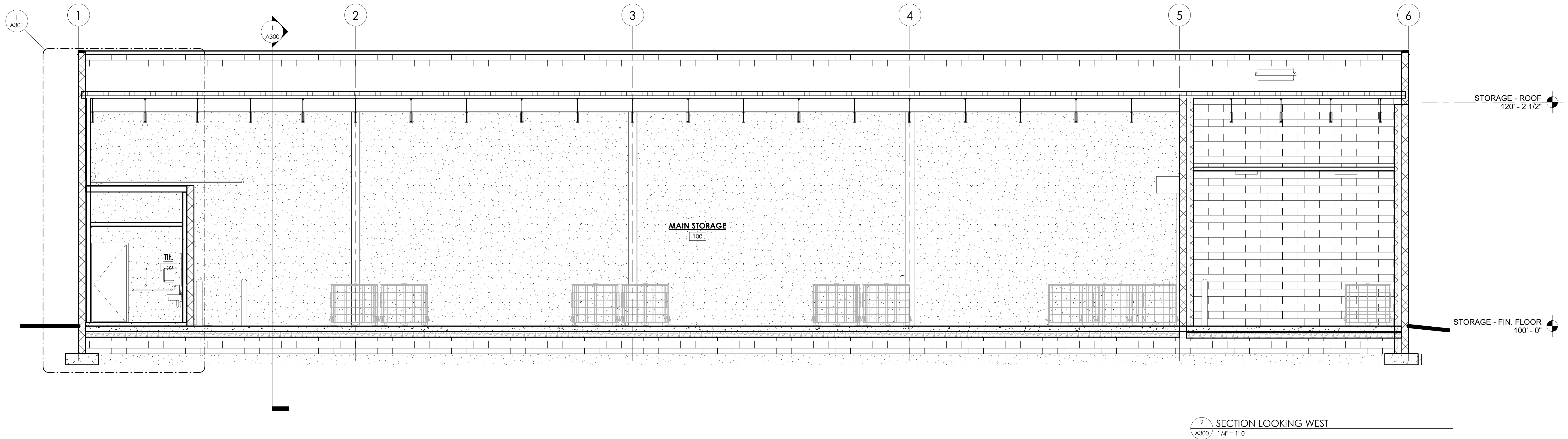
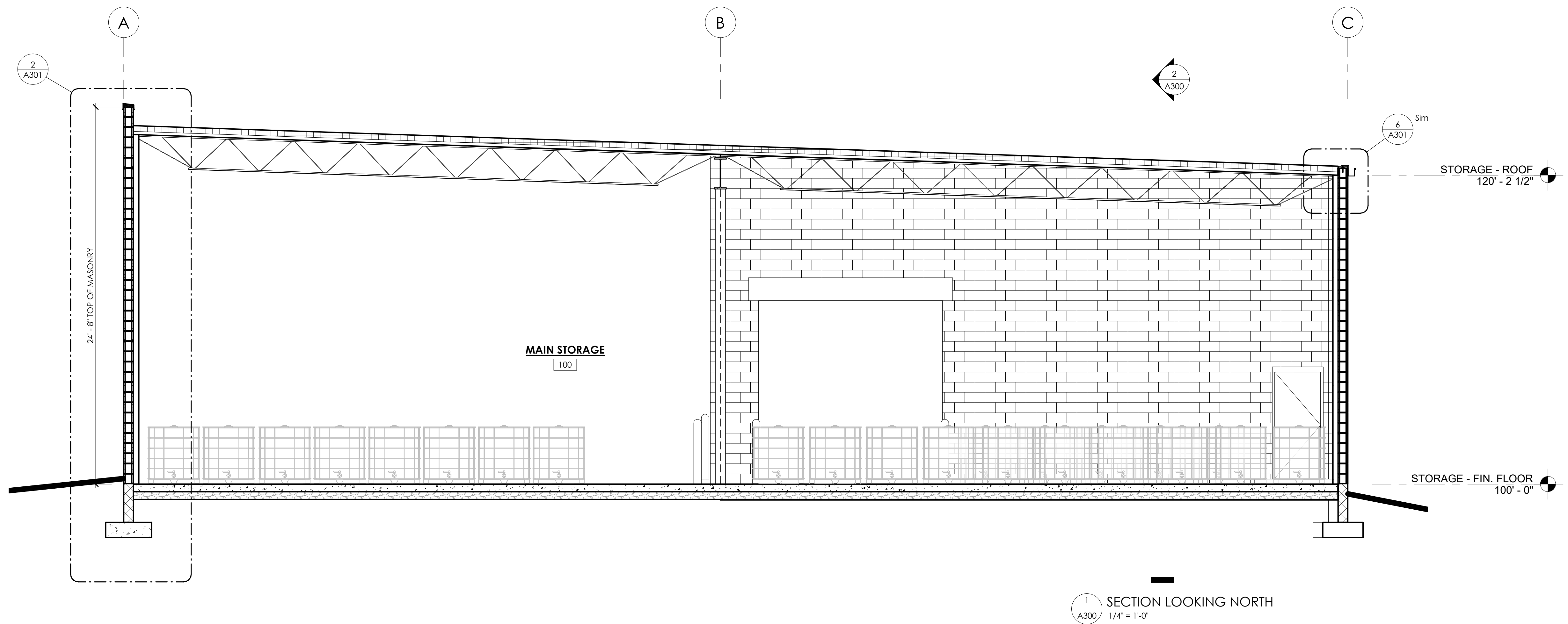
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EXTERIOR ELEVATIONS

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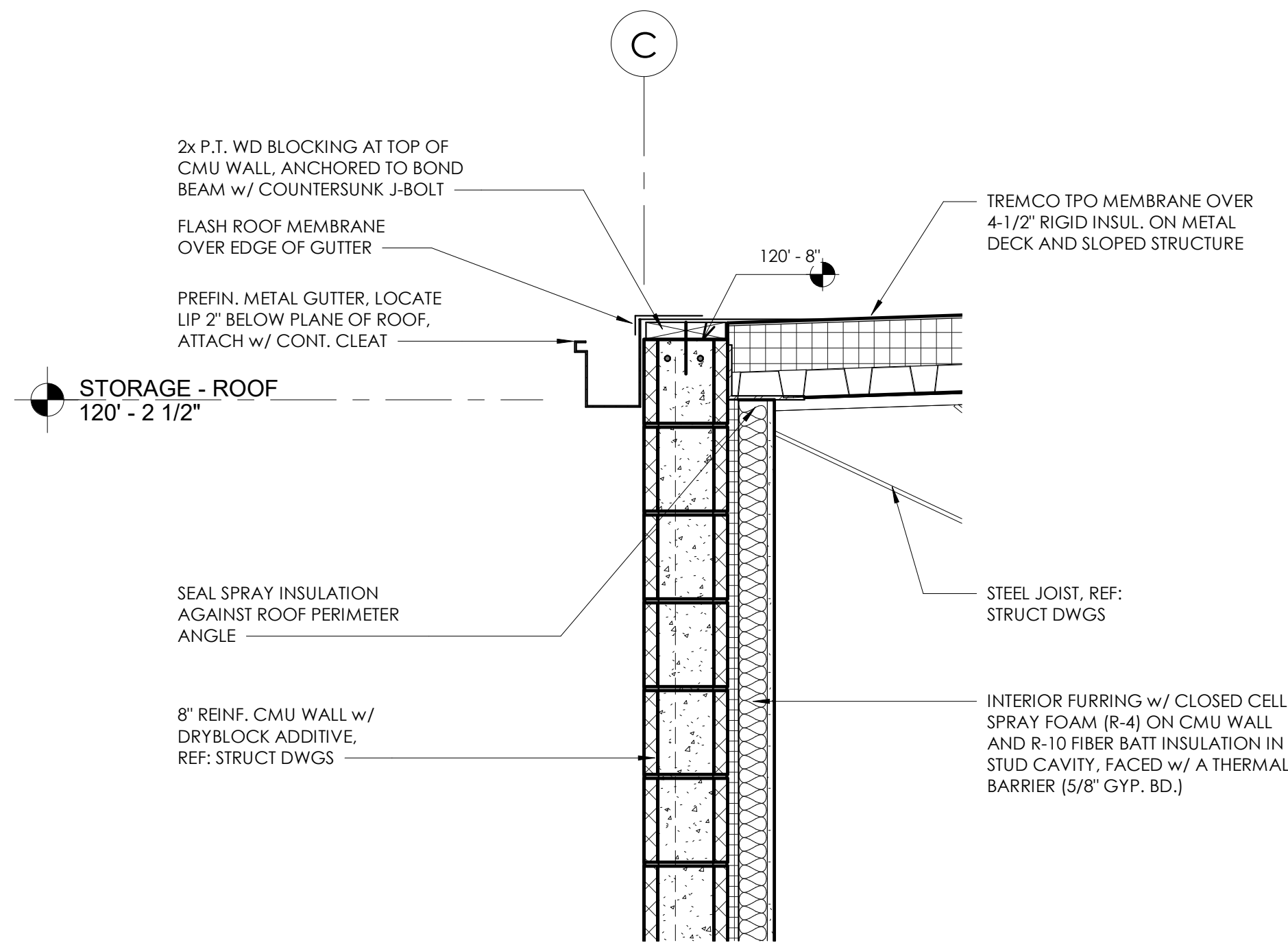
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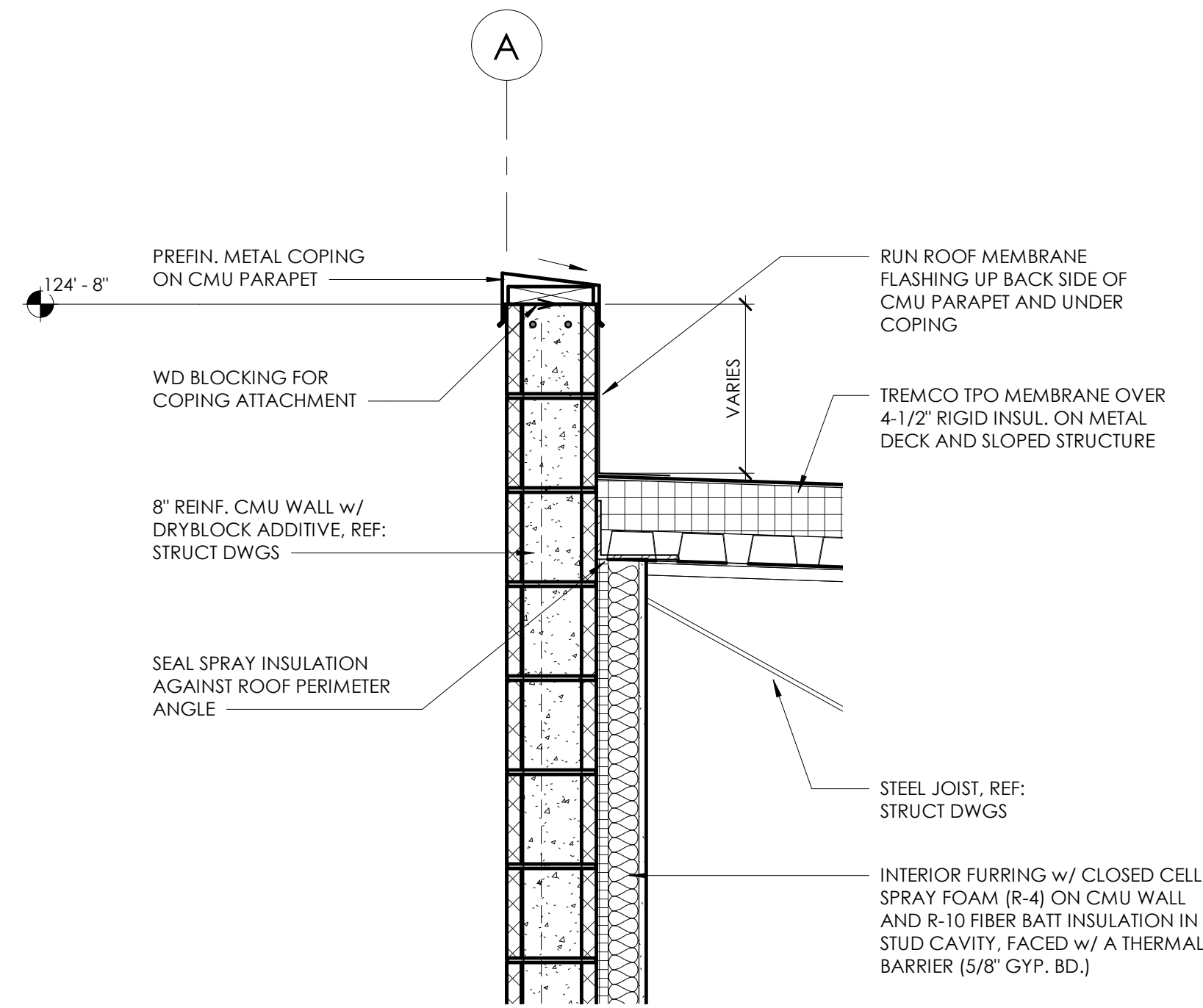
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ISSUE DATE: Nov 18, 2020

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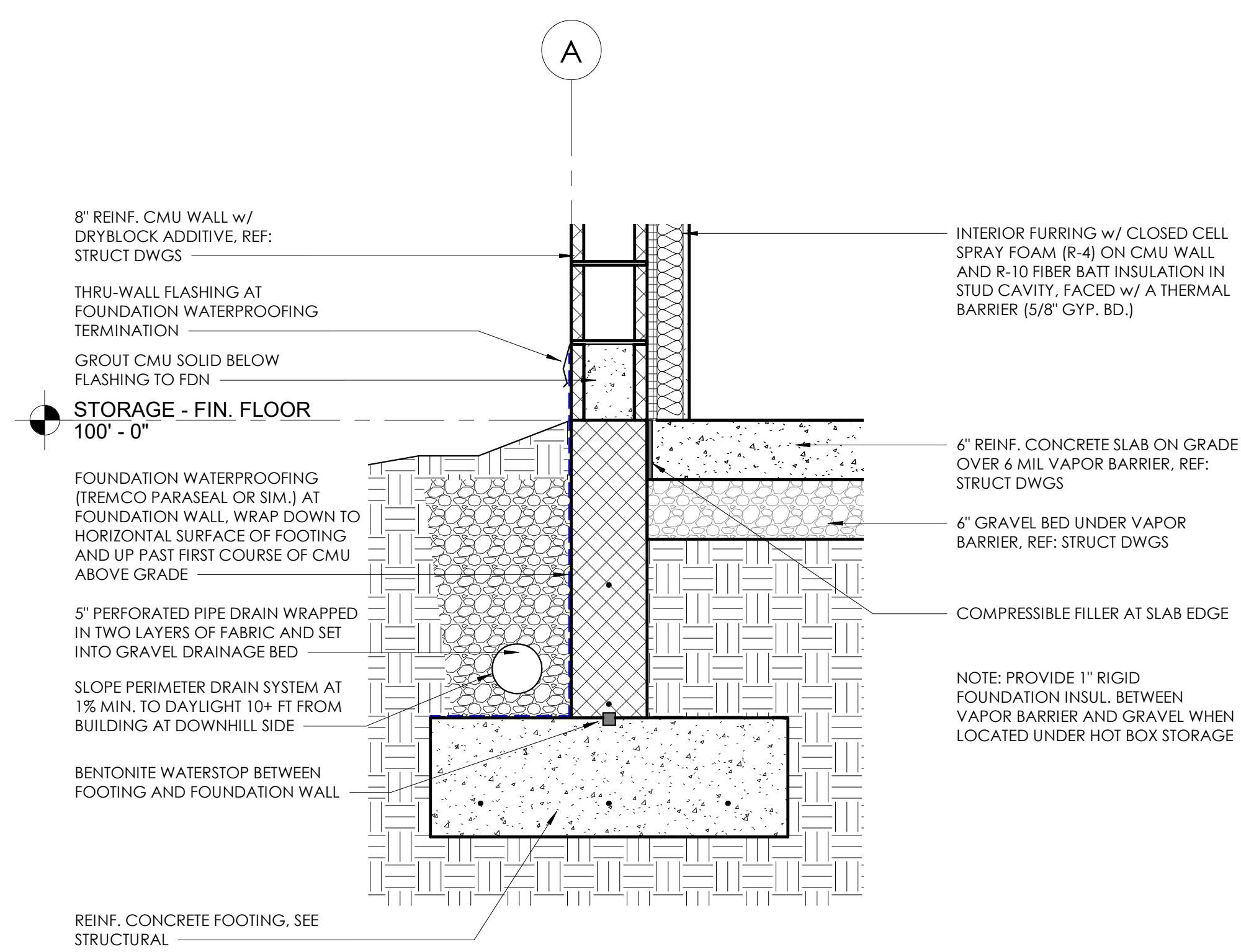
SHEET NO.
A300
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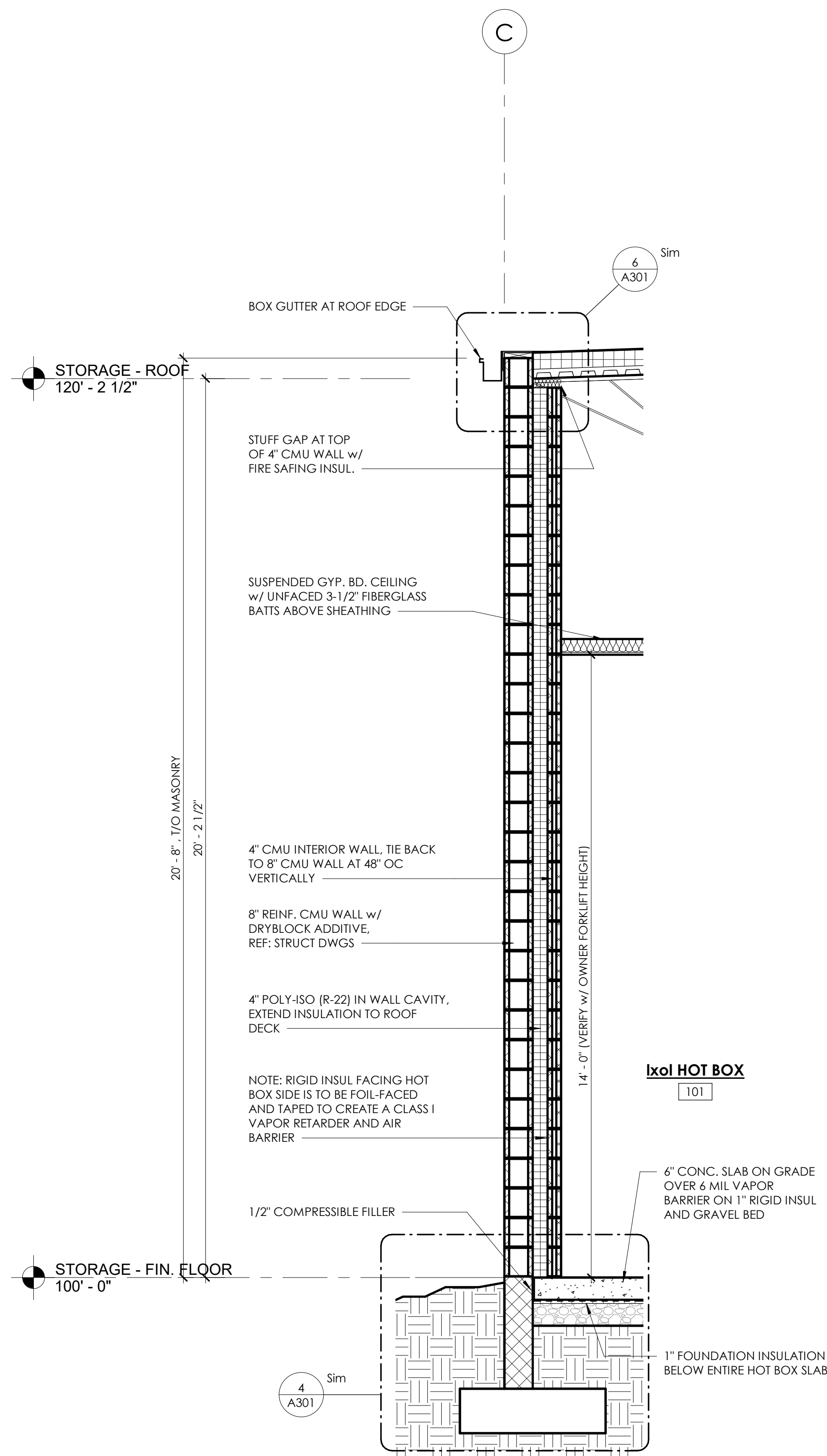
6 EXT. WALL DETAIL AT GUTTER
A301 1" = 1'-0"



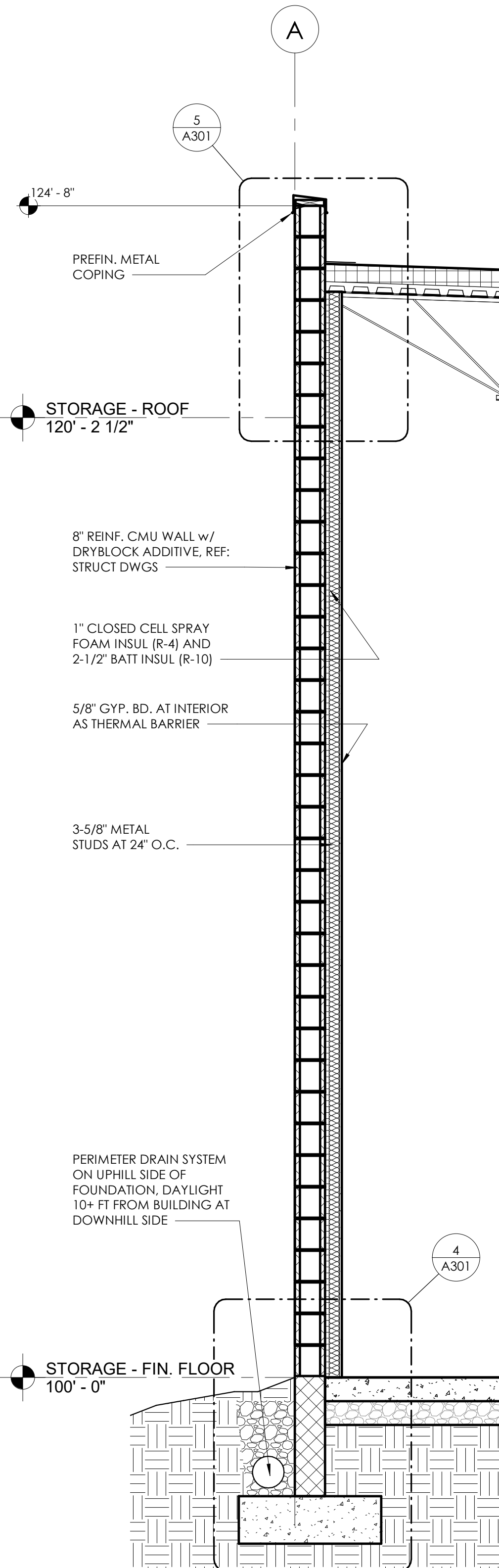
5 EXT. WALL DETAIL AT ROOF TO PARAPET
A301 1" = 1'-0"



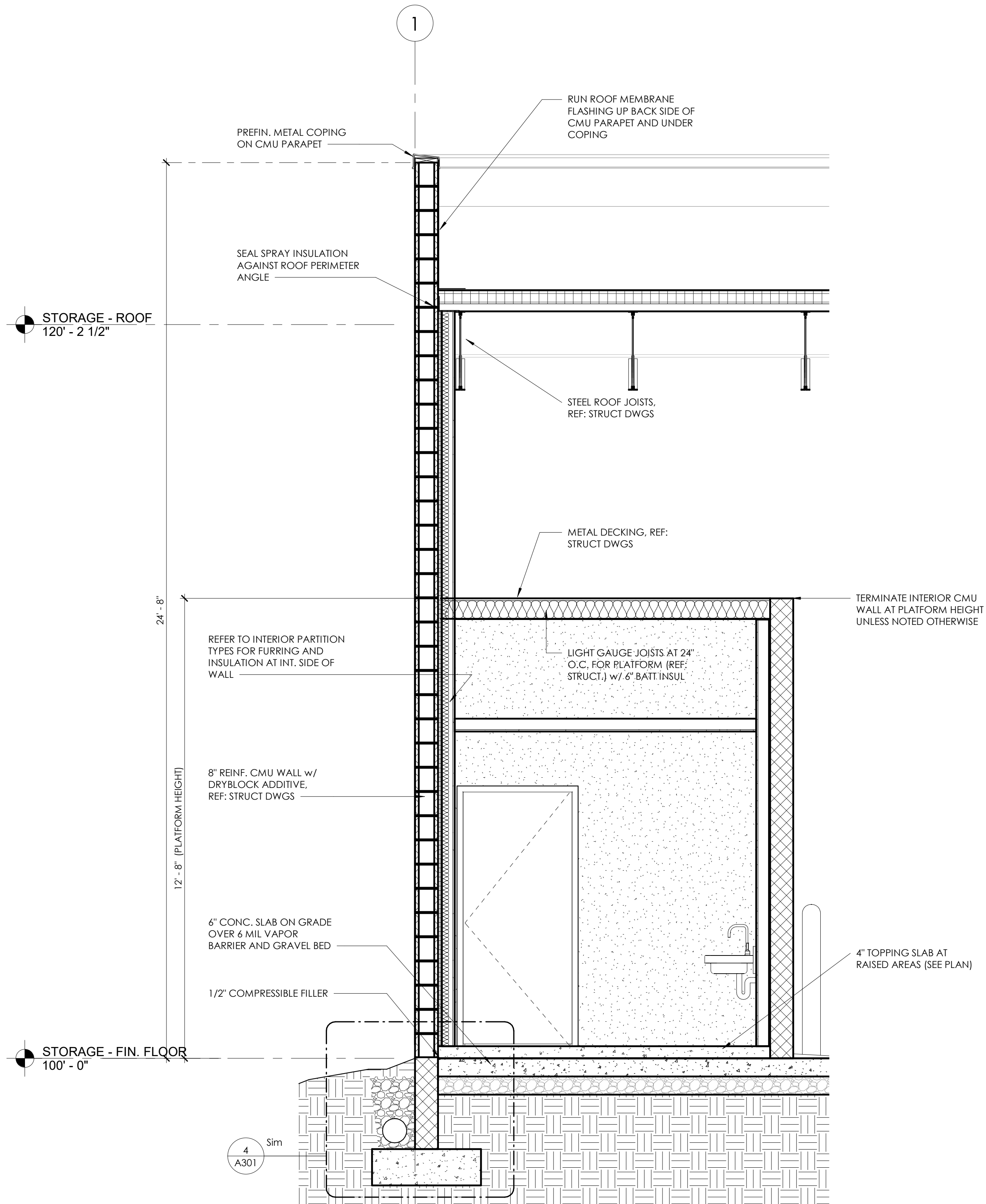
4 EXT. WALL DETAIL AT SLAB
A301 1" = 1'-0"



3 EXT. WALL SECTION AT HOT BOX
A301 1/2" = 1'-0"



2 EXT. WALL SECTION AT ROOF H.P.
A301 1/2" = 1'-0"



1 EXT. WALL SECTION - SOUTH
A301 1/2" = 1'-0"

Project Status		
MARK	DATE	DESCRIPTION

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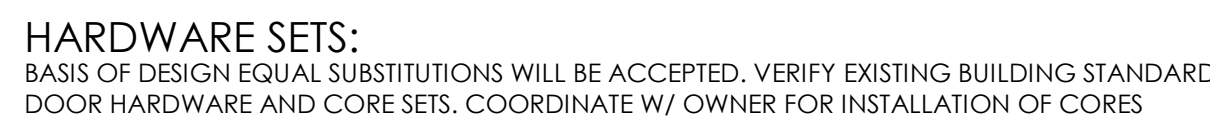
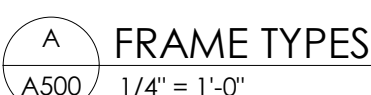
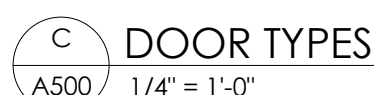
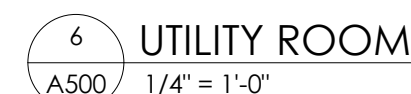
SHEET NAME:
WALL SECTIONS

SHEET NO.
A301

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1. DRYWALL CONTRACTOR TO INSTALL ALL METAL STUDS, FRAMING CHANNELS, & SUSPENSION SYSTEMS IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS & AS RECOMMENDED BY SPECIFICATIONS OF MTL STUD MANUF., &/OR AS NOTED ON DRAWINGS.
2. INSTALL ALL MTL STUD SIZE & GA. AS PER MANUF. FOR REQ'D HEIGHT.
3. CLG, HEIGHTS & FINISH MATERIALS MAY VARY, SEE FINISH SCHEDULES & PLANS.
4. PARTITION TOP W/ STC RATING TO PROVIDE ACOUSTICAL SEALANT @ ALL JOINTS, INTERSECTIONS, DISJUNCTURAL MATERIALS & OTHER OPENING LOCATIONS
5. USE SEALANT TO PROVIDE SOUND ATTENUATION INSULATION @ ALL MTL DECK VOIDS.
6. ALL GYP. BD. TO BE FASTENED TO THE MTL STUDS & TAPED TO MEET STC RATING.
7. ALL GYP. BOARD IN WET AREAS TO BE MOISTURE RESISTANT GYP. BD.
8. ALL AREAS TO RECEIVE TILE ARE TO HAVE CEMENT BACKER BOARD
9. ALL WALLS TO BE FINISHED TO A MIN. LEVEL AS SPECIFIED IN THE GYPSUM ASSOCIATION G-121-470 AND ASTM SPECIFICATIONS FOR MATERIALS SPECIFIED IN "FINISH SCHEDULE & LEGEND"
10. ALL GYP. BD. IS TO BE TAPED & FINISHED, INCLUDING ALL EXPANDING ABOVE CLG. UNLESS NOTED OTHERWISE. TYP.
11. INSTALL EXPANSION JOINTS IN GYP. BD. AS REQ'D BY MANUF. & USE REQ'D SEALANT TO SEAL JOINTS. COORDINATE LOCATIONS AS POSSIBLE FOR EXPANSION JOINTS TO OCCUR @ DOOR JAMBS OR AS NOTED ON DRAWINGS.
12. SEISMIC BRACING FOR PARTITIONS MUST SATISFY ONE OF THE FOLLOWING THREE CONDITIONS (IN AREAS OF SITE CLASSIFICATION C OR D)
 - a. EXTEND PARTITION TO FRAMING ABOVE
 - b. BRACE BY COLUMNS OR INTERSECTING PARTITIONS @ 11'6"

MAX BRACE PARTITIONS TO DECK WITH MTL STUDS OR KICKERS @ MAX. OF 11'6"

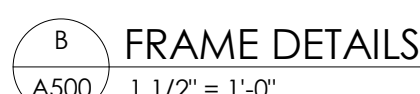


GROUP #1 – EXTERIOR			
3	Hinges	BB1191 NRP	HGR 630
1	Exit Device	4500 X RIG	HGR 626
1	Trim	4500 X RIG	HGR 626
1	Trim Cylinder	3901 Match Keying	HGR 626
1	Closer	5100 Series HDCS	HGR 689
1	Kick plate	1945 10"x20" LDW	HGR 630
1	Threshold	520SN	HGR 628
1	Weatherstrip	BB11SN	HGR 628
1	Rain Drip	8 1/2" 4" Larger than Door	HGR 628
1	Latch Protector	340D	HGR 630
3	Silencers	308D	HGR Grey

GROUP #2 – PRIVACY DOORS				
3	Hinges	BB1191 4-1/2"x4-1/2"	HGR	630
1	Lockset	3440 series x AUG	HGR	626
1	Coat Hook	#P27305-CH	Belwith	
1	Wall Stop	236W	HGR	630
3	Silencers	308D	HGR	Grey

GROUP #3 - STOREROOM/UTILITY				
3	Hinges	BB1191 4-1/2"x4-1/2"	HGR	630
1	Lockset	3480 series x AUG	HGR	626
1	Wall Stop	236W	HGR	630
3	Silencers	308D	HGR	Grey

GROUP #4 – HOT BOX MAN-DOOR			
3	Hinges	881191 4-1/2"x4-1/2"	HGR 630
1	Exit Device	4500 x RIM	HGR 626
1	Trim	45NL x AUG	HGR 626
1	Closer	5100 Series HDCS	HGR 689
* REGULAR ARM INSTALLATION (PULL SIDE)			
1	Kick plate	1945 10"x2" LDW	HGR 630
1	Threshold	421S	HGR 628
1	Weatherstrip	881S	HGR 628



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VERVE PROJECT NO.:	20081
ISSUE DATE:	Nov 18, 2020

SHEET NAME:
PARTITION TYPES & DETAILS

SHEET NO.

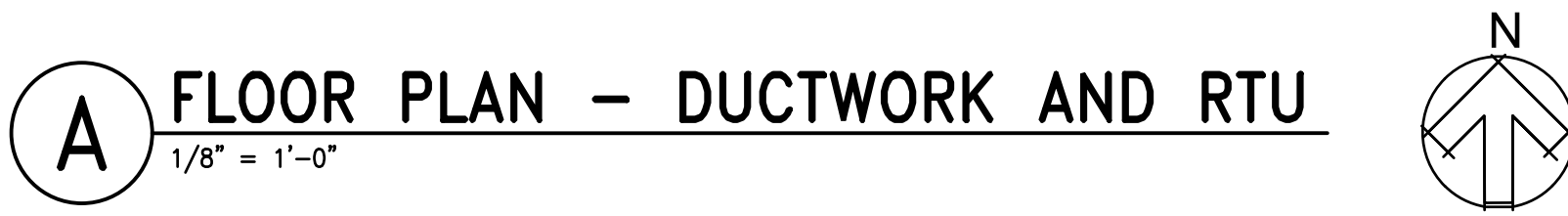
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SHEET NO.
M-02



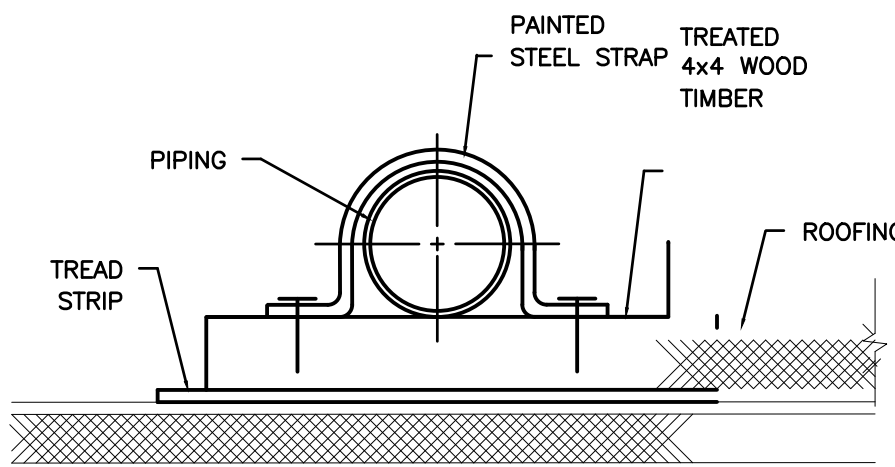
- ### MECHANICAL KEYED NOTES:
1. PROVIDE NEW GAS METER 24". PROVIDE SHUT-OFF VALVE. REFER TO CIVIL DRAWINGS FOR LOCATION.
 2. 1-1/4 GAS PIPING ON ROOF AND PROVIDE GAS PIPING SUPPORT ON ROOF. GAS PIPING TO BE SCH. 40 WELDED PIPE. SEE "B" GAS PIPING SUPPORT DETAIL ON SHEET M-63.
 3. 3/4" GAS PIPING TO BE PROVIDED AND 18" GAS INCHES REGULATOR AND SHUT OFF VALVE. SEE "C" RTU CURB AND PIPING DETAIL ON SHEET M-63
 4. PROVIDE 30x18 LOUVER WITH MECHANIZED DAMPER. SEE LOUVER SCHEDULE ON SHEET M-61
 5. PIPING WORK RELATED TO STORAGE TANKS IN MAIN BUILDING TO BE COORDINATED WITH M-71
 6. ALL PIPING TO GAS-FREED EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. ALL PIPING TO BE IN ACCORDANCE WITH LOCAL CODES, NFPA-54, UPC-1985, ETC. ALL GAS PIPING TO BE INSTALLED IN ACCORDANCE WITH NFPA-54 AND LOCAL CODES AND REGULATIONS. ALL GAS PIPING SHALL BE SCHEDULE 40 BLACK OR SCHEDULE 80S STEEL, WITH BLACK OR GALVANNEZED MALE FLANGED SCHEDULE FITTINGS. LARGER THAN TWO INCHES (2") SHALL BE WELDED. PROVIDE UNION AND GAS SHUT-OFF VALVE TO EACH PIECE OF GAS-FREED EQUIPMENT OR APPLIANCE. ALL PIPE SHALL BE SCHEDULE 40S STEEL WITH MALEABLE FITTINGS AND USE TEFLONE TAPE ON ALL THREADED JOINTS.

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SHEET NAME:
MECHANICAL PIPING
SCHEMATIC

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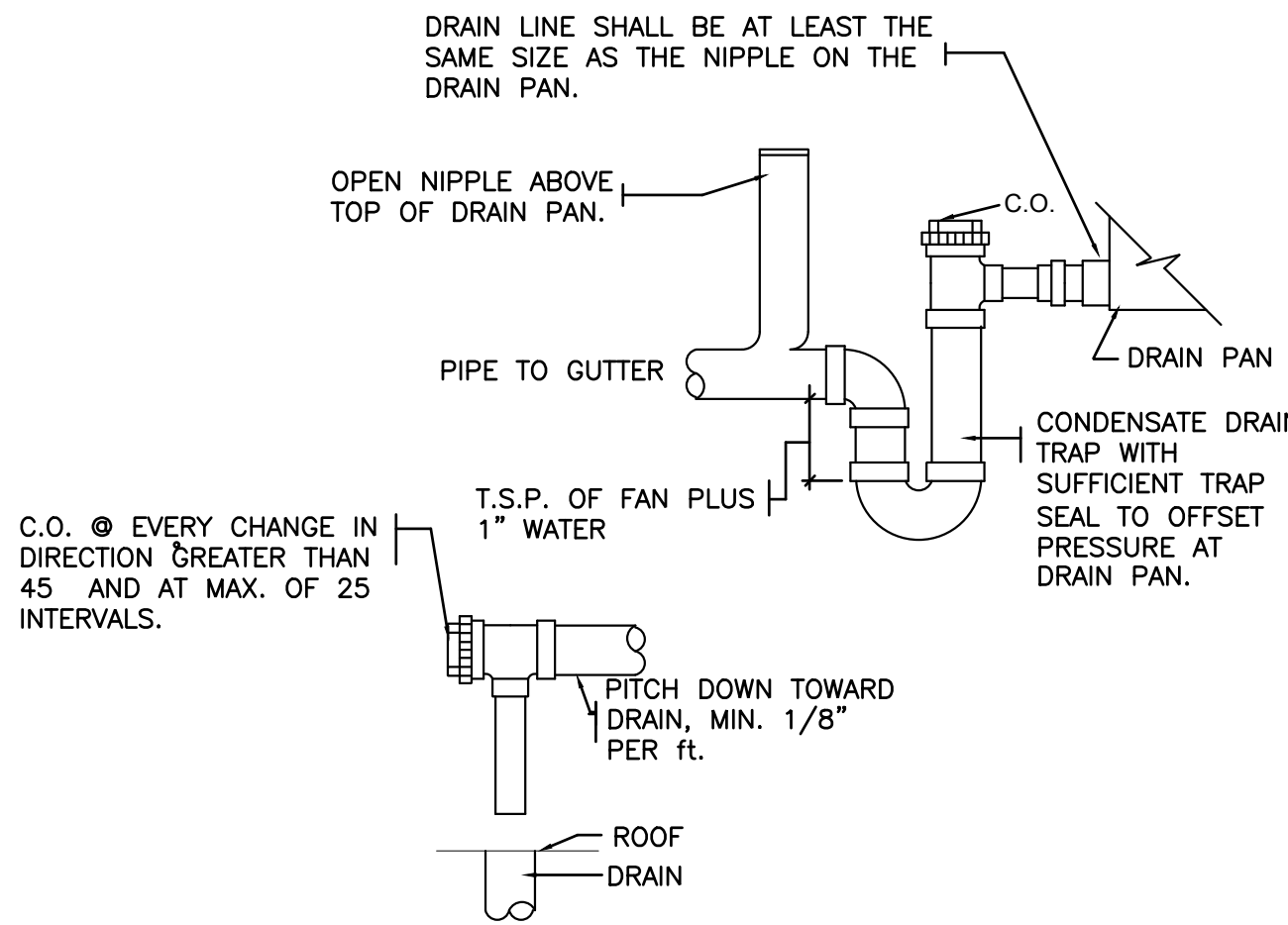


SUPPORT SPACING:
RIGID 1" AND UNDER - 6'
RIGID 1-1/4" AND OVER - 10'
TUBING 1-1/4" AND UNDER - 4'
TUBING 1-1/2" AND OVER - 10'

STEEL STRAP SIZES:
1/8" X 1-1/8" FOR 3/4" TO 1-1/4" PIPE,
3/16" X 1-1/4" FOR 1-1/2" TO 2" PIPE,
3/16" X 1-3/4" FOR 2-1/2" TO 4" PIPE.

- NOTES:
1. THIS DETAIL IS APPLICABLE FOR FLEXIBLE ROUND DUCT TAKE-OFFS FROM BRANCH DUCTS TO DIFFUSERS.
 2. FLEXIBLE DUCT INSULATION SHALL TERMINATE AT SIDE OF BRANCH DUCT SO NO UNINSULATED METAL PARTS ARE EXPOSED.
 3. SIDE TAP FITTING SHALL BE FLEX MASTER U.S.A. INC. OR APPROVED EQUAL, NUMBER FLD WITH DAMPER.

B GAS PIPING SUPPORT ON ROOF DETAIL
NO SCALE



- (A) OMIT COUNTER FLASHING FOR EQUIPMENT WITH BUILT-IN COUNTER FLASHING.
- (B) MINIMUM 3/4" OR FULL DIAMETER HOSE, SCREW TO CONDENSATE DRAIN, TERMINATE TO NEAREST ROOF DRAIN.
- (C) SUPPLY & RETURN DUCTS WITH INSULATED LINING AND FLEXIBLE CONNECTIONS.
- (D) 2 LAYERS EXTERIOR DRYWALL AND INSULATION FOR SOUND ATTENUATION.
- (E) FACTORY CURB BY HVAC.
- (F) OPEN TO ATMOSPHERE.
- (G) GAS COCK
- (H) UNION
- (I) GAS PRESSURE REGULATOR AS REQUIRED
- (J) FULL DIAMETER DRIP LEGS, MIN. 6" LONG

D CONDENSATE DRAIN TRAP DETAIL
NO SCALE



MECHANICAL SPECIFICATIONS

NOTE: MANUFACTURERS' NAMES ON WHICH THIS SPECIFICATION IS BASED INDICATE THE MINIMUM QUALITY OF PRODUCT REQUIRED. SUBSTITUTION MAY BE MADE TO THOSE SPECIFIED IF DEMAED EQUIVALENT BY THE OWNER'S REPRESENTATIVE. ALL WORK AND PRODUCTS SHALL MEET THE REQUIREMENTS OF THE LANDLORD AND GOVERNING CODES.

DIVISION 15
15.1 GENERAL

ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH ALL APPLICABLE CODES AND THE LANDLORD'S MINIMUM REQUIREMENTS AS STATED HEREIN OR OTHERWISE INDICATED BY THE LANDLORD.

SEE ARCHITECTURAL GENERAL AND SPECIAL CONDITIONS. ALL CONDITION REQUIREMENTS SHALL APPLY UNLESS OTHERWISE NOTED.

ALL WORK SHALL BE PERFORMED AS INDICATED ON DRAWINGS UNLESS FIELD CONDITIONS REQUIRE MINOR CHANGES BE MADE. MINOR CHANGES SHALL BE MADE WITH NO ADDITIONAL COST.

ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE WORK BY THE OWNER.

ACTUAL LOCATIONS OF LANDLORD'S SERVICES MUST BE FIELD VERIFIED. CHANGES TO CONFORM TO ACTUAL POINTS OF CONNECTION SHALL BE MADE AT NO ADDITIONAL COST.

CONTRACTOR SHALL PREPARE AND SUBMIT AS-BUILT DRAWINGS TO THE TENANT AND THE LANDLORD. AS-BUILT DRAWINGS SHALL INDICATE THE ACTUAL MANUFACTURER OF THE EQUIPMENT THAT WAS INSTALLED, THE EXACT LOCATION OF THE EQUIPMENT AND PERTINENT CAPACITIES FOR HEATING, COOLING, ETC.

EQUIPMENT, FIXTURES, AND ACCESSORIES SHALL NOT BE SUPPORTED FROM CEILING, SOFFIT, NEUTRAL PIERS, PIPING, DUCTWORK, METAL ROOF DECK, LATERAL BRACING, BRIDGING OR CONDUIT. ITEMS SHALL ONLY BE SUPPORTED FROM STRUCTURE WHICH HAS BEEN APPROVED BY THE LANDLORD FOR SUPPORT.

ALL ROOF WORK PENETRATIONS AND REPAIRS SHALL BE TOTALLY PERFORMED BY ONLY THOSE ROOFING CONTRACTORS APPROVED BY THE LANDLORD. THIS CONTRACTOR SHALL ONLY EMPLOY ROOFING CONTRACTORS APPROVED BY THE LANDLORD FOR ALL ROOF WORK REQUIRED BY THE TENANT'S APPROVED DESIGN.

INSTALLATION OF ROOF MOUNTED EQUIPMENT SHALL BE COORDINATED WITH THE LANDLORD'S DESIGNATED REPRESENTATIVE.

DEFICIENCIES AND NON-CONFORMING ITEMS SHALL BE CORRECTED BY THE CONTRACTOR. FAILURE TO CORRECT SUCH ITEMS SHALL PERMIT THE LANDLORD TO CORRECT SAME AT A COST TO THE CONTRACTOR.

INSTALLATIONS OF EQUIPMENT, I.E. FANS, AIR HANDLING UNITS, ETC., SHALL CONFORM TO THE LANDLORD'S STANDARD DETAILS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH THE LANDLORD'S MINIMUM STANDARDS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL PERMITS AND PAYING FOR SAME. HE SHALL INCLUDE IN HIS BID CHARGES FOR ALL FEES ASSOCIATED WITH THE CONSTRUCTION OF THE SPACE INCLUDING BUT NOT LIMITED TO LOCAL, COUNTY, OR STATE SERVICE CHARGES AND PERMIT FEES, AND LANDLORD'S UTILITY AND/OR EQUIPMENT CHARGES.

THE SCOPE OF WORK OF THIS CONTRACT INCLUDES, BUT SHALL NOT BE LIMITED TO:

- A. PROVIDE AND INSTALL ALL EQUIPMENT, APPLIANCES, CONTROL DEVICES, ACCESSORIES, MATERIAL AND LABOR.
- B. PROVIDE AND INSTALL ALL DUCTWORK, INSULATION, AIR DEVICES, DUCT ACCESSORIES, MATERIAL AND LABOR.
- C. PROVIDE AND INSTALL ALL PIPING, FITTINGS, VALVES, INSULATION, ACCESSORIES, MATERIAL AND LABOR.
- D. PROVIDE AND INSTALL EXHAUST SYSTEM(S) INDICATED.
- E. PROVIDE AND INSTALL ALL ROOF WORK, INCLUDING EQUIPMENT SUPPORTS, ROOF PENETRATIONS, PATCHING AND WATERPROOFING OF ROOF.
- F. PROVIDE ALL EQUIPMENT SUPPORTS AND HANGERS INCLUDING ANY AUXILIARY STEEL REQUIRED. ANY STRUCTURAL MODIFICATION TO THE BUILDING STRUCTURE SHALL BE MADE ONLY WITH THE WRITTEN APPROVAL OF THE LANDLORD.
- G. CLEAN, TEST AND PUT INTO SERVICE ALL SYSTEMS SPECIFIED.
- H. PROVIDE A BALANCE REPORT PREPARED BY AN INDEPENDENT AABC OR NEBB CERTIFIED AIR BALANCE CONTRACTOR.
- I. WARRANTY ALL WORK AND MATERIALS HEREIN SPECIFIED FOR A PERIOD OF NOT LESS THAN ONE YEAR.
- J. PROVIDE AS-BUILT DRAWINGS.

15.2 EXECUTION

ACCESSIBILITY – ALL EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER THAT ALL COMPONENTS REQUIRING ACCESS ARE LOCATED AND INSTALLED THAT THEY MAY BE SERVICED, RESET, REPLACED, OR RECALIBRATED, ETC., BY SERVICE PEOPLE WITH NORMAL SERVICE TOOLS AND EQUIPMENT.

WORK BY OTHER TRADES – FOR THE WORK REQUIRED BY OTHER TRADES FOR CHANGES MADE BY THIS CONTRACTOR IN TYPE OR SIZE OF EQUIPMENT PURCHASED, ANY CUTTING, PATCHING, FURRING, PAINTING, ELECTRICAL OR PLUMBING WORK SHALL BE DONE BY THE AFFECTED TRADE AT THIS CONTRACTOR'S EXPENSE.

WORK NOT INCLUDED – POWER WIRING, INCLUDING FINAL CONNECTIONS, IS BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL INSTALL ALL MOTORS AND FURNISH THE STARTING EQUIPMENT TO THE ELECTRICAL CONTRACTOR FOR INSTALLATION.

DUCT MOUNTED SMOKE DETECTORS SHALL BE FACTORY INSTALLED. THE REMOTE INDICATOR/TESTSTATION FOR EACH SMOKE DETECTOR BE SHIPPED WITH THE ROOF TOP UNIT AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SMOKE DETECTOR WIRING NOT FACTORY INSTALLED. ALL REMOTE INDICATOR/TEST STATION WIRING, AND ALL RELATED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

EARLY START-UP – THIS CONTRACTOR SHALL ENSURE THAT ALL MECHANICAL EQUIPMENT IS CONNECTED WITH ELECTRICAL POWER AS EARLY AS POSSIBLE SO THAT BALANCING AND TESTING CAN BEGIN AT THE EARLIEST DATE AVAILABLE.

CLEANING AND PAINTING – THOROUGHLY CLEAN ALL EQUIPMENT AND REMOVE ALL TRASH, CARTONS, ETC., FROM THE WORK AREA. MAKE ANY NECESSARY COR- RECTIONS OR REPAIR/REPLACE ANY DAMAGED MATERIALS OR EQUIPMENT. LEAVE THE ENTIRE WORK SPACE IN A THOROUGHLY CLEAN AND ORDERLY MANNER. ANY FINISHED SURFACES THAT HAVE BEEN SCRATCHED OR DISCOLORED SHALL BE TOUCHED UP OR REPAINTED TO MATCH THE ORIGINAL COLOR. IF ANY PART HAS BEEN BENT, BROKEN OR OTHERWISE DAMAGED, IT SHALL BE REPLACED PRIOR TO PROJECT CLOSEOUT. ALL METAL ITEMS INSIDE THE BUILDING SUBJECT TO RUSTING, AND ALL FERROUS METAL EXPOSED TO THE WEATHER SHALL BE GIVEN ONE COAT OF RUST PREVENTIVE PRIMER AS SOON AS INSTALLED.

PROVIDE LISTED FIRESTOPPING AT ALL PENETRATIONS THROUGH RATED WALLS, FLOORS, PARTITIONS, ETC.

15.3 EQUIPMENT

HVAC EQUIPMENT SHALL BE AS SCHEDULED ON THE DRAWINGS AND/OR SPECIFIED HEREIN. EQUIVALENT EQUIPMENT AND/OR COMPONENTS THEREOF MAY BE SUBSTITUTED FOR SPECIFIED EQUIPMENT ONLY AS APPROVED BY THE OWNER AND/OR THE PROJECT ENGINEER.

ALL EQUIPMENT AND RELATED PIPING, DUCTWORK, CONTROL WIRING AND ACCESSORIES SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BUILDING LINES AND, IF INSTALLED WITHIN THE BUILDING ENVELOPE SHALL BE INSTALLED AS HIGH AS POSSIBLE TO ALLOW THE MAXIMUM AMOUNT OF HEADROOM. EQUIPMENT THAT REQUIRES ROUTINE MAINTENANCE, SUCH AS FILTER REPLACEMENT SHALL BE INSTALLED AND ARRANGED TO BE ACCESSIBLE. PROVIDE ACCESS PANEL(S) AS REQUIRED AND/OR AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER. ALL EQUIPMENT SHALL BE INSTALLED WITH THE REQUIRED CLEARANCES AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER OR AS REQUIRED BY GOVERNING CODES, WHICHEVER IS GREATER.

15.4 DUCTWORK

ALL DUCTWORK SHALL BE GALVANIZED STEEL WITH TRANSVERSE JOINTS SEALED WITH 4" WIDE HARDCAST TAPE. DUCT TAPE IS NOT ACCEPTABLE. FIBERGLASS FLEXIBLE DUCTS WITH LINER MAY BE USED FOR BRANCH DUCT CONNECTIONS TO OUTLETS WITH 8 FT. MAXIMUM LENGTH.

LOW PRESSURE DUCTWORK AND FITTINGS SHALL BE MADE TIGHT FOR MINIMUM AIR LEAKAGE. DUCT TAPE SHALL NOT BE USED TO SEAL JOINTS, TO MAKE TRANSITIONS OR FOR ANY OTHER REASON ON THE OUTSIDE OF WRAPPED INSULATION.

INSTALL HORIZONTAL DUCTWORK AS HIGH AS POSSIBLE.

PROVIDE TURNING VANES AT ALL CHANGES IN DIRECTION. PROVIDE VANED TEES AT BRANCH CONNECTIONS SERVING MORE THAN ONE DIFFUSER.

PROVIDE VOLUME CONTROL DAMPERS AND BALANCING DEVICES AS REQUIRED TO DISTRIBUTE THE AIR AND AS INDICATED ON THE DRAWINGS.

NOTE: DUCT DIMENSIONS INDICATED ON THE DRAWINGS ARE INSIDE CLEAR, OR "FREE AREA" DIMENSIONS. CONTRACTOR SHALL MAKE ALLOWANCE FOR INTERNAL DUCT LINER WHEN ORDERING PRE-FABRICATED DUCTWORK OR WHEN FABRICATING DUCTS IN THE FIELD.

ALL BRANCH DUCT CONNECTIONS TO OUTLETS SHALL INCLUDE A MANUAL BALANCE DAMPER WITH LOCKING QUADRANT LOCATED AT THE BRANCH DUCT CONNECTION TO THE HEADER DUCT.

THE COMPLETE SHEET METAL SYSTEM SHALL BE FABRICATED AND INSTALLED IN STRICT ACCORDANCE WITH SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION MANUALS. DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS INCREASE DIMENSIONS WHERE LINER IS PROVIDED.

15.5 FLEXIBLE DUCTWORK

DUCTWORK SHALL BE LIMITED IN LENGTH TO THAT NECESSARY TO MAKE CONNECTIONS BETWEEN TRUNK OR BRANCH DUCTS AND AIR DEVICES. FLEX DUCT LENGTH SHALL NOT EXCEED 8'-0".

ALL FLEX DUCT SHALL BE FULLY STRETCHED OUT TO REDUCE AIR RESISTANCE.

CONNECTIONS TO FITTINGS OR AIR DEVICES SHALL BE MADE WITH TWO (2) STAINLESS STEEL BANDS. THE INNER LINER SHALL BE CLAMPED TIGHT WITH THE FIRST BAND, THEN THE INSULATION AND VAPOR-PROOF JACKET PULLED TO BE TIGHT AGAINST THE DUCT FITTING OR AIR DEVICE AND SECURED WITH THE SECOND BAND. INSTALLATION SHALL BE AS RECOMMENDED BY THE DUCT MANUFACTURER AND SMACNA.

SUPPORT THE FLEXIBLE DUCT WITH ADEQUATE HANGERS TO RELIEVE STRAIN ON ANY FITTING. UNNECESSARY BENDS, SAGS, TWISTS, ETC., WILL NOT BE ALLOWED.

15.6 DUCT INSULATION/LINER

SUPPLY DUCTWORK SHALL HAVE 1" THICK, ONE POUND DENSITY FIBERGLASS LINER. RETURN DUCTS WITHIN 10' OF RTU UNITS SHALL HAVE SAME LINER. TRAVERSE JOINTS SHALL BE NEATLY BUTTED AND THERE SHALL BE NO INTERRUPTIONS OR GAPS. DUCT LINER SHALL BE CUT AS REQUIRED TO ENSURE OVERLAPPED AND COMPRESSED LONGITUDINAL CORNER JOINTS.

15.7 AIR DEVICES

INSTALL ALL GRILLES AND DIFFUSERS TO BE FLUSH WITH THE PENETRATED SURFACE AND LEVEL OR STRAIGHT WITH WITH SURROUNDING FEATURES. ALL CEILING MOUNTED AIR DEVICES SHALL BE LOCATED IN THE CEILING TILE INDICATED ON THE DRAWINGS. SUPPORT CEILING MOUNTED GRILLES AND DIFFUSERS AT THE PROPER HEIGHT TO HOLD IT SNUG AGAINST THE CEILING.

15.8 PIPING AND FITTINGS (AS REQUIRED)

CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 PVC WITH SCREWED FITTINGS.

15.9 FIRE/SMOKE DAMPERS

COMBINATION FIRE/SMOKE DAMPERS SHALL BE SUPPLIED AND INSTALLED BY HVAC CONTRACTOR AT DUCT PENETRATIONS IN FIRE RATED CHASES AS REQUIRED. COORDINATE WITH ALL CODES, CODES AND GOVERNING AUTHORITIES HAVING JURISDICTION.

15.10 SEISMIC RESTRAINT

PROVIDE SEISMIC AND VIBRATION ISOLATION EQUIPMENT AND MATERIALS AS REQUIRED BY A SINGLE MANUFACTURER. REFER TO SEISMIC CODE BLOCK.

15.11 ROOF MOUNTED EQUIPMENT

INSTALL ROOF MOUNTED EQUIPMENT SUPPORT RAILS OR ROOF CURBS AS REQUIRED FOR THE JOB CONDITIONS AND AS RECOMMENDED BY THE MANUFACTURER FOR THE INSTALLATION OF ROOF MOUNTED EQUIPMENT. THE EXACT LOCATION OF ALL ROOF MOUNTED EQUIPMENT IS SUBJECT TO THE APPROVAL OF THE LANDLORD. COORDINATE THE ENTIRE INSTALLATION WITH THE LANDLORD'S REPRESENTATIVE.

ALL ROOF PENETRATIONS SHALL BE INSTALLED PER THE LANDLORD'S REQUIREMENTS. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO FAMILIARIZE HIMSELF WITH THE REQUIREMENTS OF THE LANDLORD.

CONTRACTOR SHALL PROVIDE A TEMPORARY PLYWOOD WORK PLATFORM THAT COMPLETELY SURROUNDS THE AREA WHERE NEW ROOF MOUNTED EQUIPMENT AND/OR DUCTS ARE TO BE INSTALLED. THE ENTIRE WORK AREA SHALL REMAIN ON THE ROOF DURING THE ENTIRE PERIOD OF INSTALLATION AND SHALL BE REMOVED FROM THE ROOF AND THE SITE BY THIS CONTRACTOR UPON COMPLETION OF THE INSTALLATION.

ROUTE TRAPPED PVC RTU CONDENSATE DRAIN AWAY FROM TO RTU MINIMUM 6' FROM UNIT. PIPING SIZE SHALL BE EQUAL TO RTU OUTLET SIZE.

ALL ROOF PENETRATIONS FOR POWER AND CONTROL WIRING CONDUITS AND GAS, CONDENSATE, OR REFRIGERANT PIPING SHALL BE MADE WITH WATERPROOF PIPE SLEEVES OR CURB(S) PER THE LANDLORD'S REQUIREMENTS. THIS CONTRACTOR SHALL VERIFY ALL REQUIREMENTS PRIOR TO START OF WORK.

ALL HOISTING COSTS SHALL BE INCLUDED AS PART OF THIS CONTRACTOR'S PROPOSAL. THE HOISTING SHALL BE DONE IN ACCORDANCE WITH THE GENERAL CONTRACTOR'S REQUIREMENTS, AND IN STRICT ACCORDANCE WITH ALL CITY, STATE, AND FEDERAL RULES AND REGULATIONS.

15.12 SYSTEM SHALL CONSIST OF TWO CONSTANT VOLUME HEATING ONLY ROOFTOP UNITS (RTU-1 AND RTU-2). EACH UNIT SUPPLIED WITH A PROGRAMMABLE THERMOSTAT LOCATED AS SHOWN. RTU-1 SERVES THE HOT-BOX ROOM 101 WHICH WILL BE MAINTAINED AT 104°F ALL YEAR ROUND. UNIT WILL RUN CONTINUOUSLY TO MAINTAIN 104°F.

RTU-2 SERVES THE MAIN STORAGE SPACE ROOM 100. WHENEVER OUTSIDE AIR TEMPERATURE IS BELOW 60°F (ADJ.) UNIT TO RUN SO AS TO MAINTAIN 55°F (ADJ.). ABOVE 65°F RTU-2 WILL NOT RUN AND VENTILATION FANS (EF-1, EF-2, EF-3) WILL BE ENERGIZED SUCH THAT ALL FANS RUN WHEN TEMPERATURE IS ABOVE 90°F (ADJ.). WHEN FAN RUN MOTORIZED DAMPER SHALL OPEN.

EXHAUST FAN (EF-4) WILL RUN THRU WHENEVER BUILDING IS OCCUPIED.

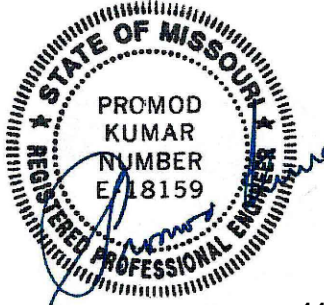
15.13 TESTING, ADJUSTING & BALANCING: THIS CONTRACTOR SHALL ENGAGE THE SERVICES OF AN AABC, TABB, OR NEBB CERTIFIED AIR BALANCE CONTRACTOR TO ADJUST AND COMPLETELY BALANCE THE INSTALLED SYSTEM(S) TO THE DESIGN AIR QUANTITIES. CONTRACTOR SHALL PROVIDE THE OWNER AND THE LANDLORD A COPY OF THE CERTIFIED AIR BALANCE REPORT SHOWING DESIGN AND MEASURED AIR QUANTITIES, STATIC PRESSURES, FAN MOTOR RPM AND MOTOR CURRENT. DEVIATION BETWEEN DESIGN AND MEASURED QUANTITIES SHALL NOT BE GREATER THAN 10%.

15.14 ALL MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. DEFECTS WHICH APPEAR DURING THAT PERIOD SHALL BE CORRECTED AT THIS CONTRACTOR'S EXPENSE.

FOR THE SAME PERIOD, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE PREMISES BY DEFECTS IN HIS WORKMANSHIP OR WORK AND/OR EQUIPMENT INSTALLED BY OTHERS UNDER HIS CONTRACT.



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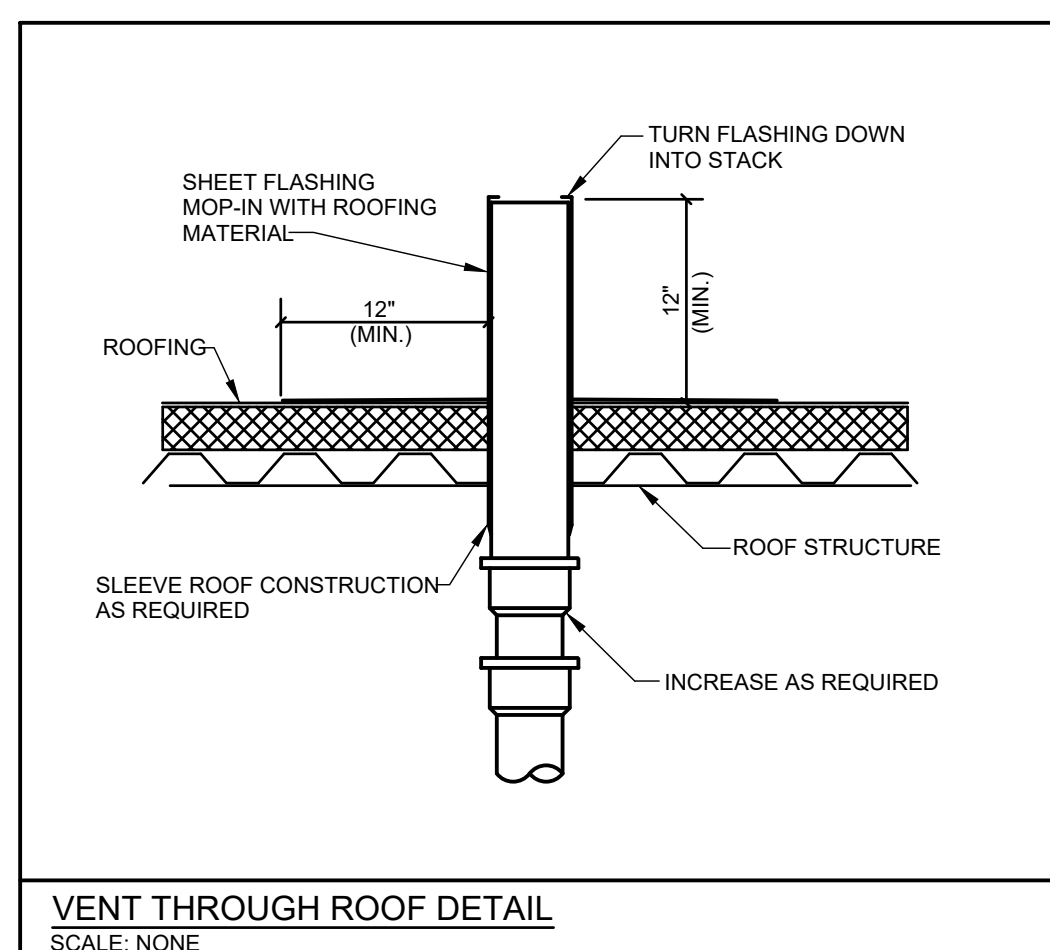
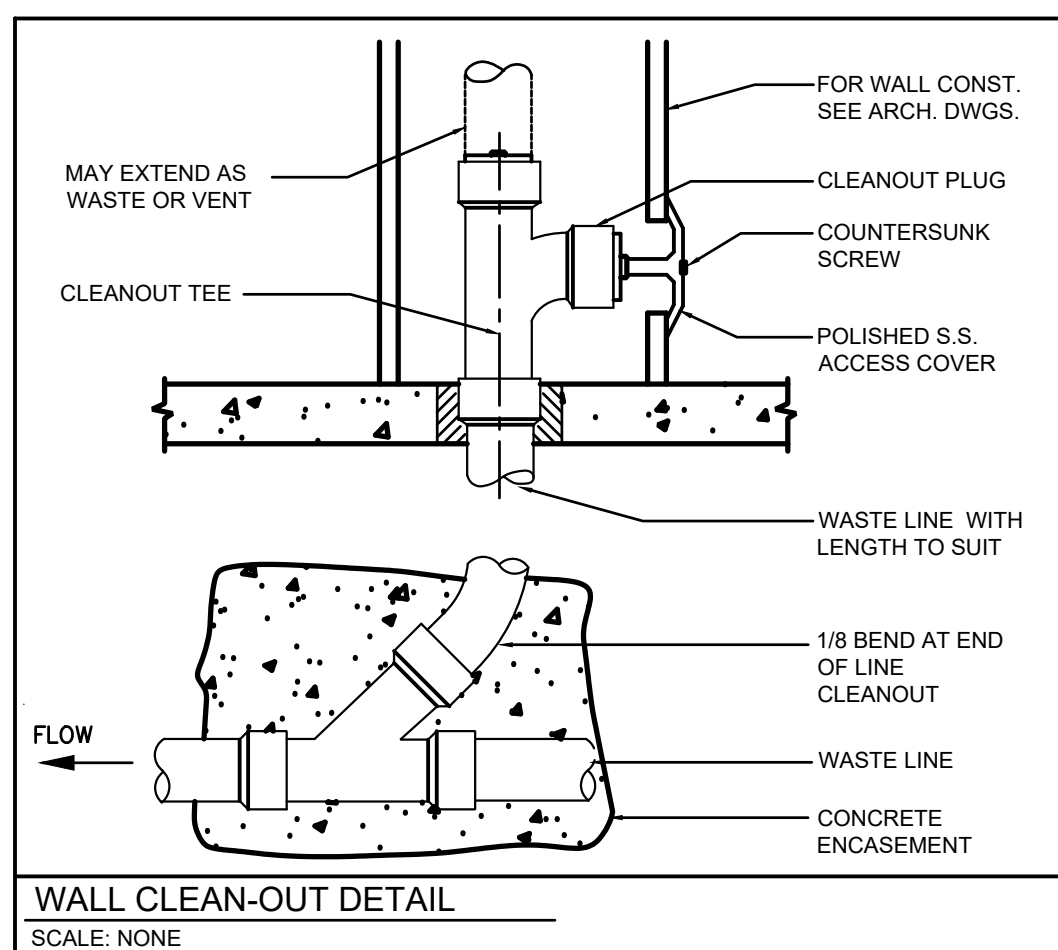
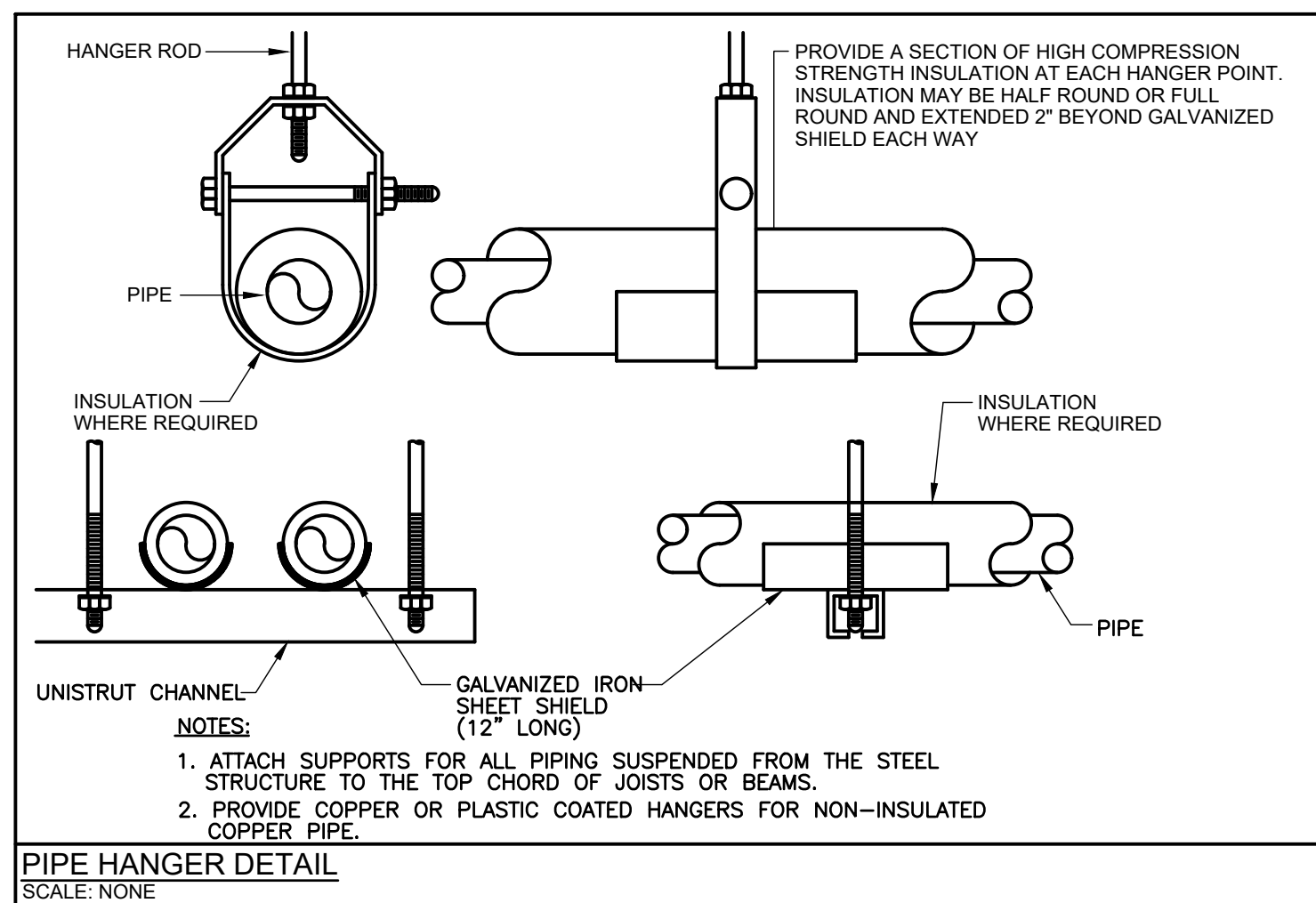
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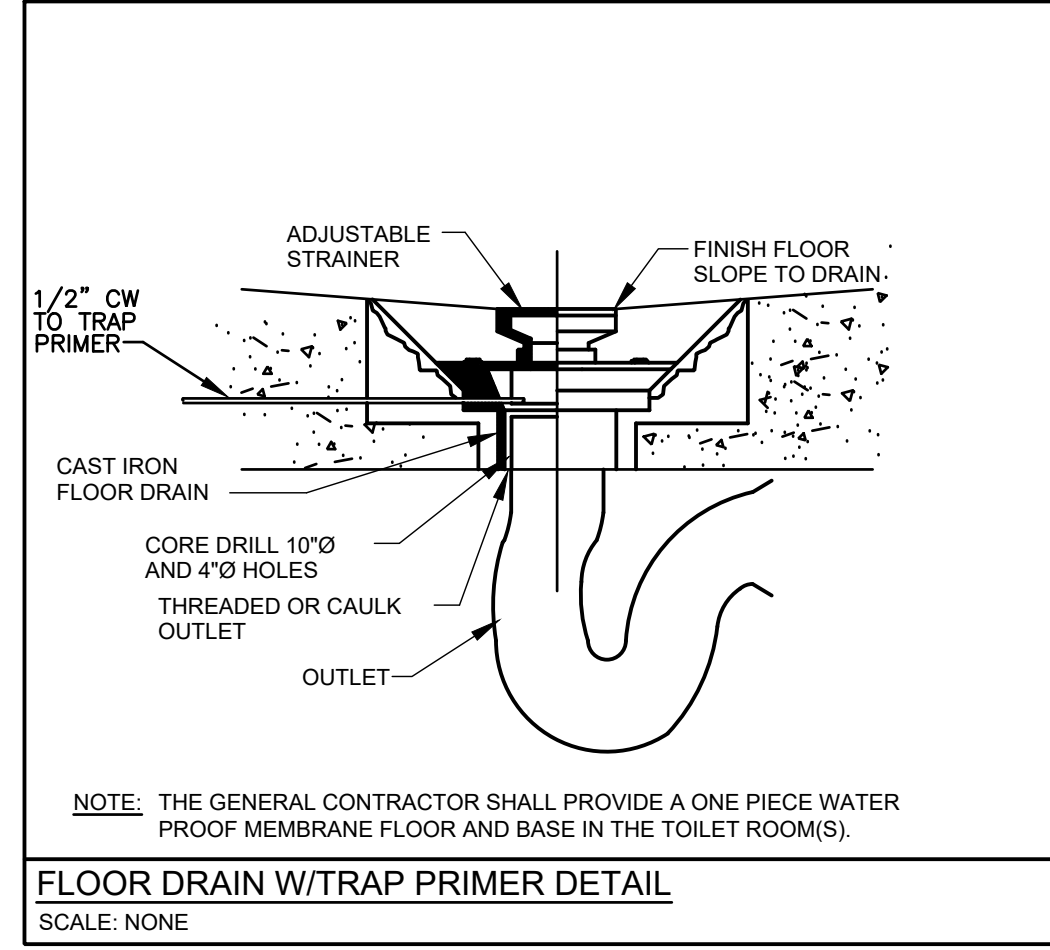
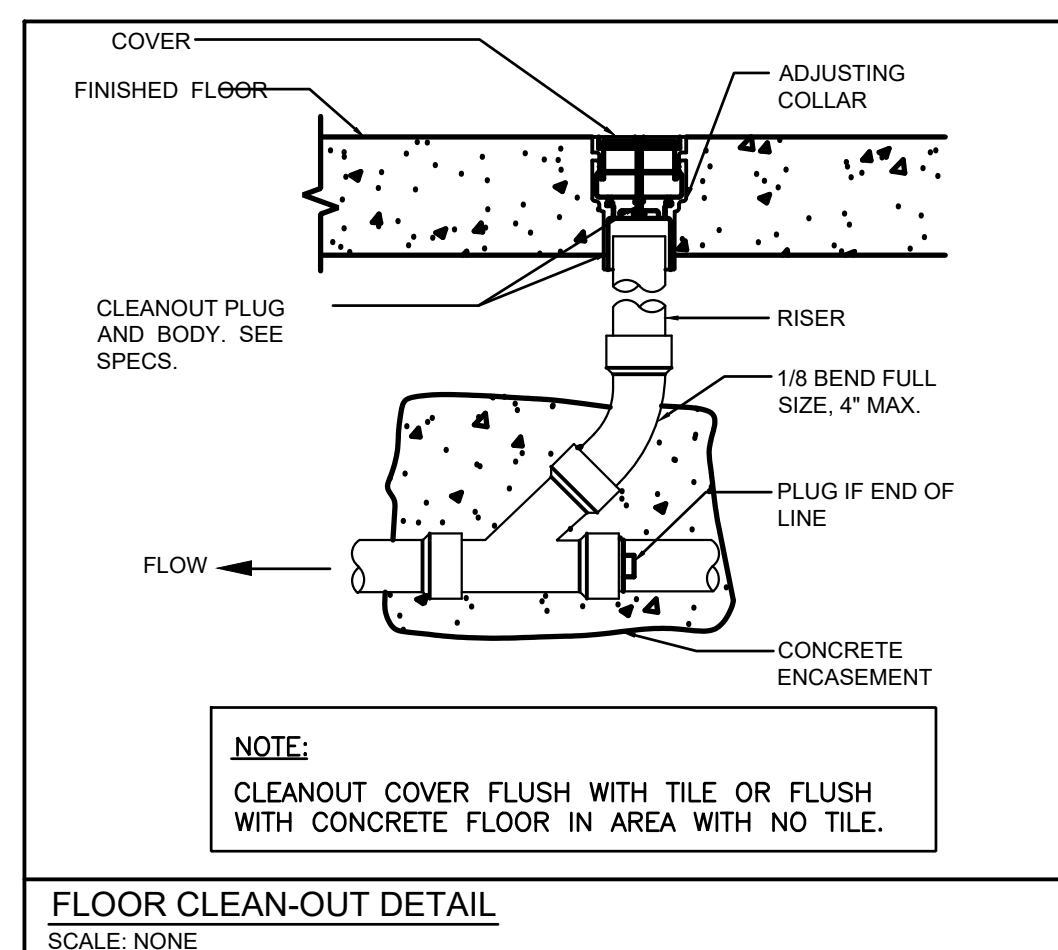
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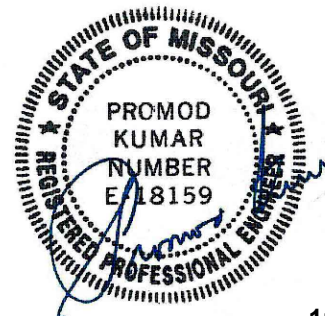
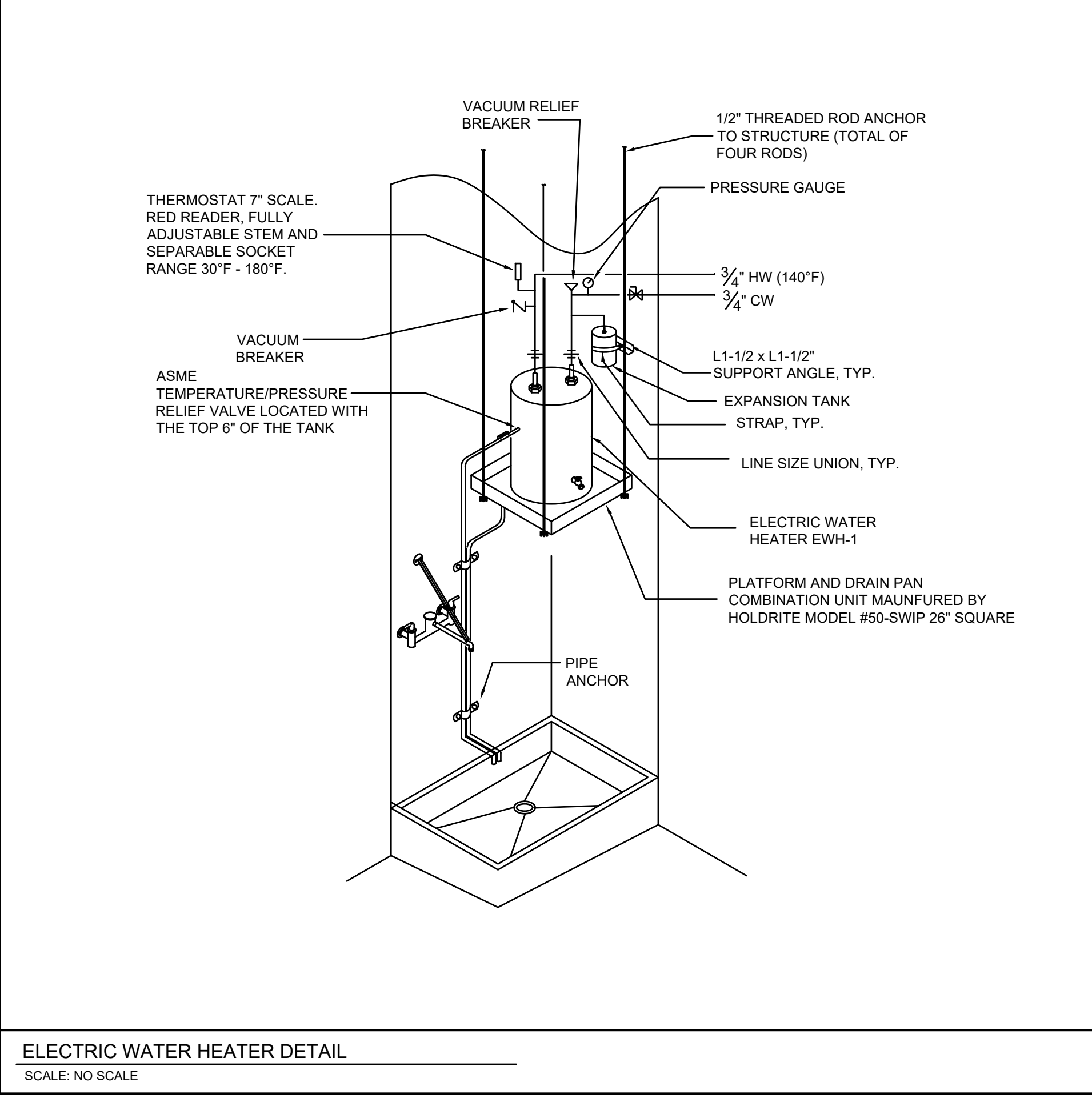
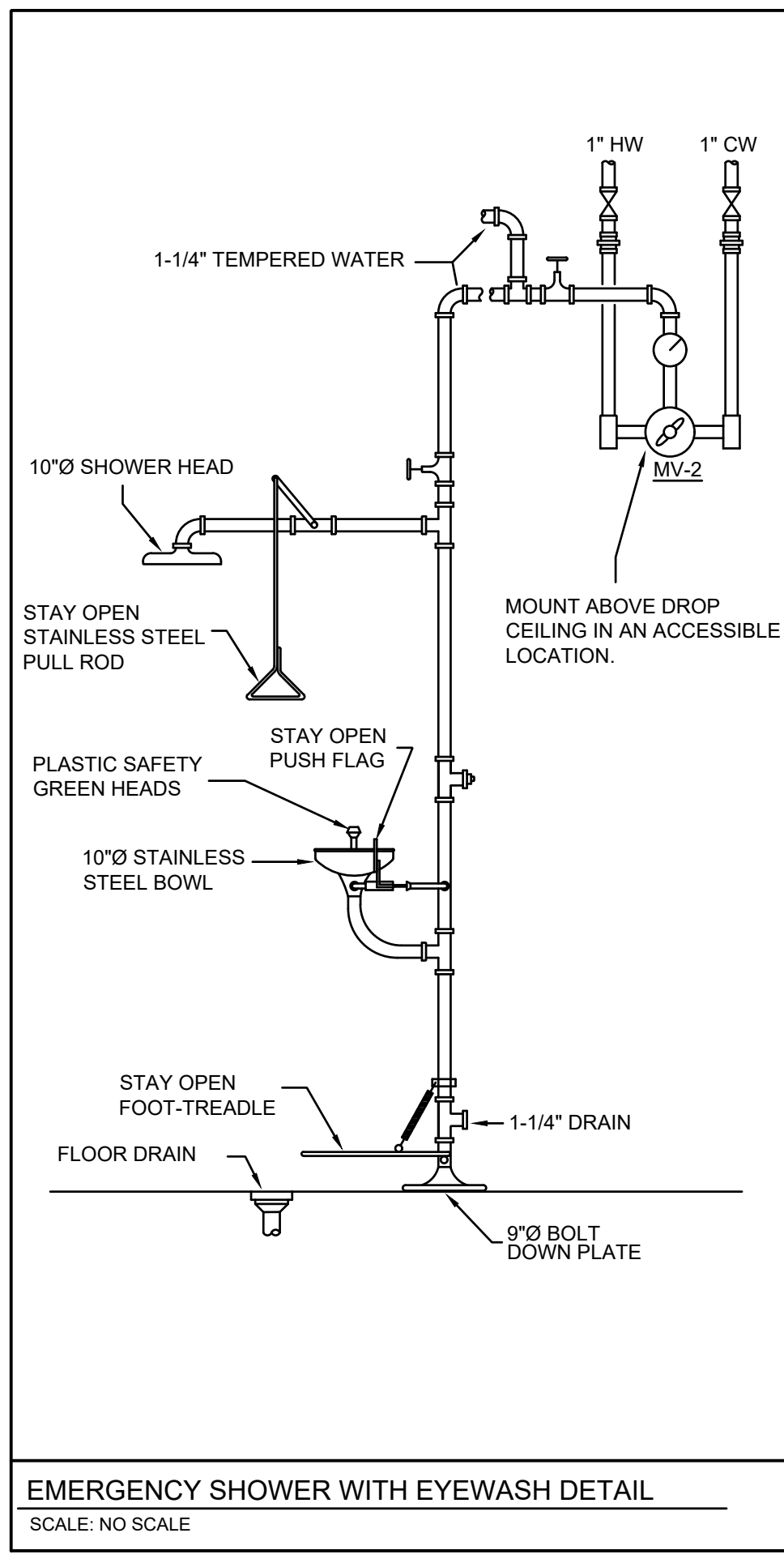
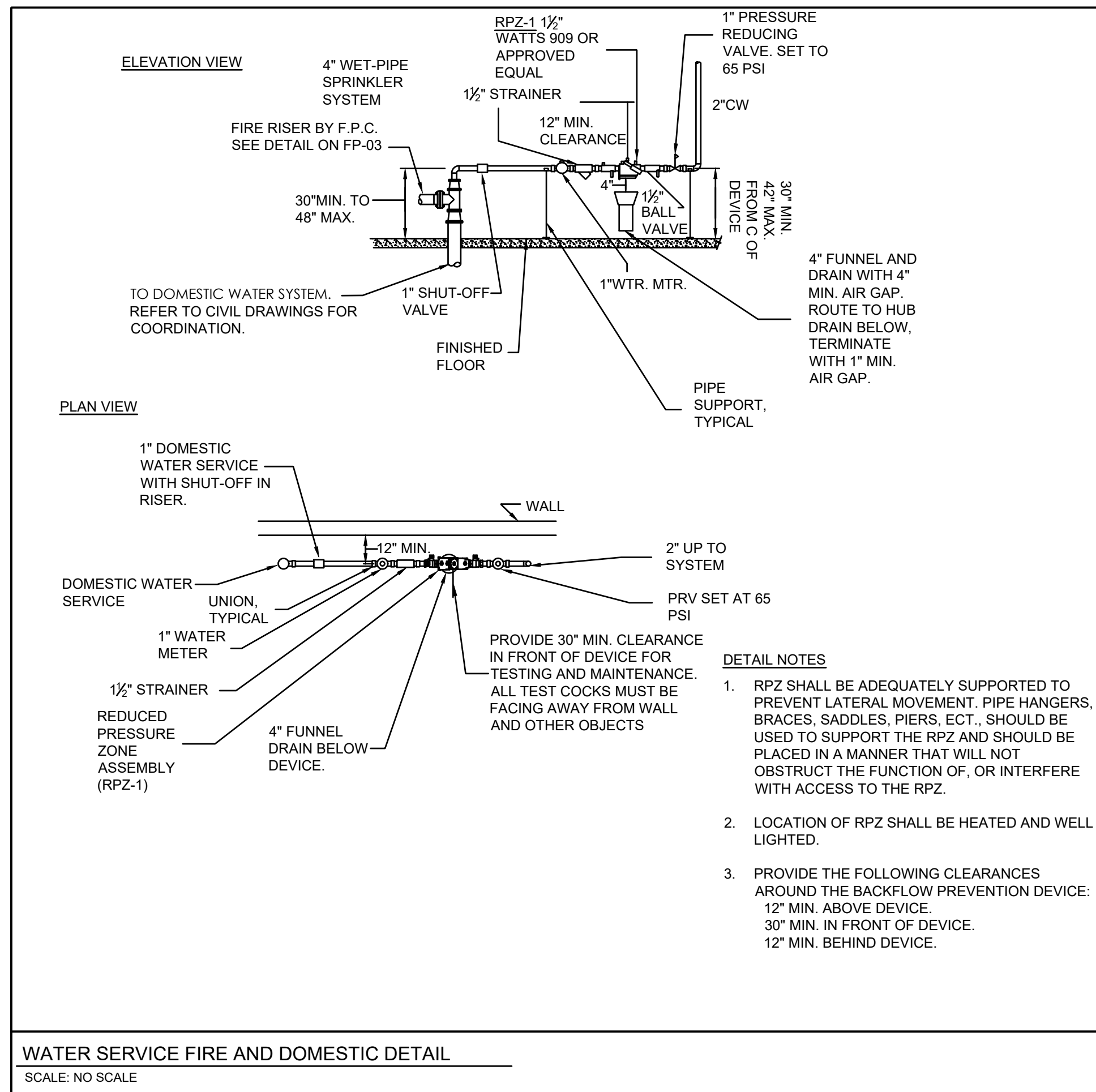
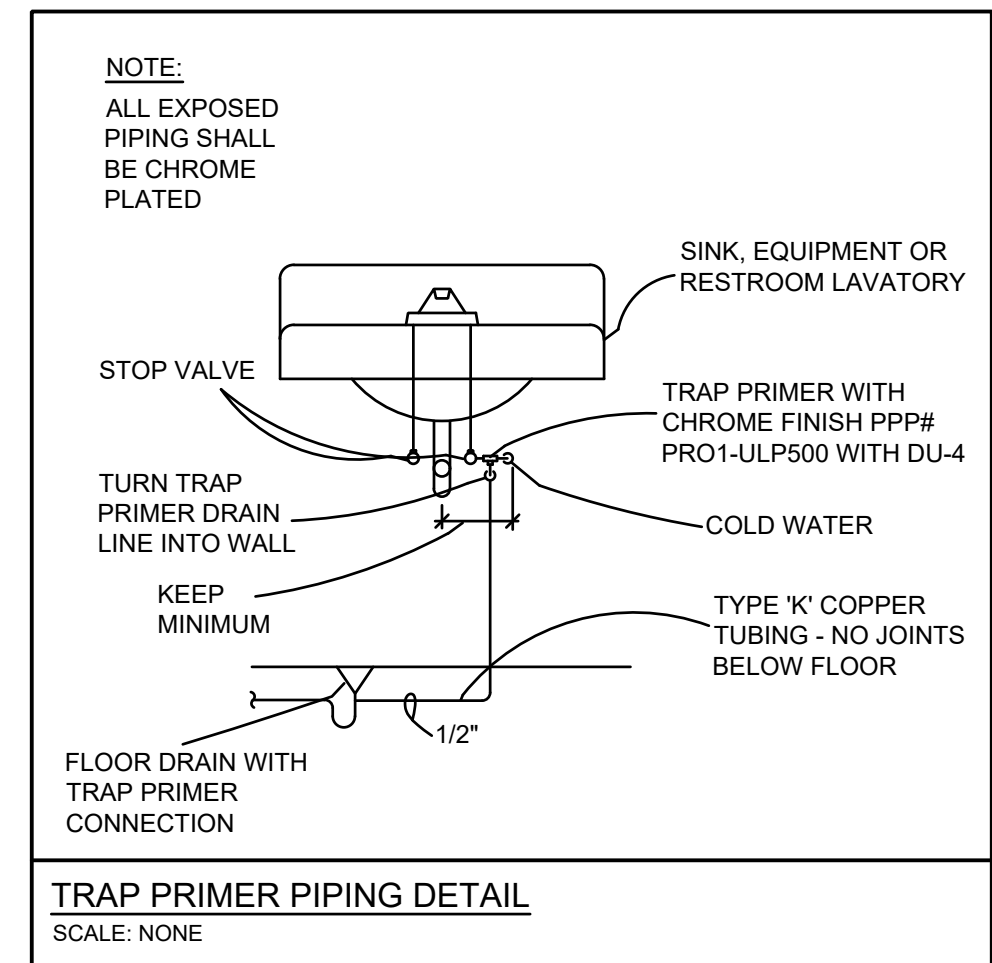
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WATER HEATER SCHEDULE								
MARK	MFR	MODEL	STORAGE	RECOVERY	"F. RISE	VOLT/PHASE	HEAT INPUT	REMARKS
EWH-1	A.O. SMITH	DEL-10	10	20	80	120/1	1500 WATTS	-



PIPE SUPPORT SCHEDULE									
NOMINAL PIPE DIAMETER NPS (IN)	MAXIMUM SUPPORT SPACING (FEET)								
	CAST IRON	COPPER	STEEL	SCH 40 PVC - 60°F	73°F	100°F	120°F	140°F	SC40 CPVC
1/2		8		5	5	4.5	4.5	4	
3/4				5	5	5	4.5	4	
1	5	9		5.5	5.5	5.5	5	4.5	
1 1/4	5	12	7	5.5	5.5	5.5	5.5	5	
1 1/2	5	12	9	6	6	5.5	5.5	5	
2	5	13	10	6	6	6	5.5	5	
2 1/2	5	14	11	7	7	6.5	6.5	6	
3	5	15	12	7	7	7	7	6	
4	5	17	12	7.5	7.5	7.5	7	6.5	
6	5	21	12	8.5	8.5	8	7.5	7	
8	5	24	12	9	9.5	9.5	8.5	7.5	
10	5	26	12	10	10.5	10.5	9.5	8	
12	5	30	12	11.5	11.5	10.5	10	8.5	



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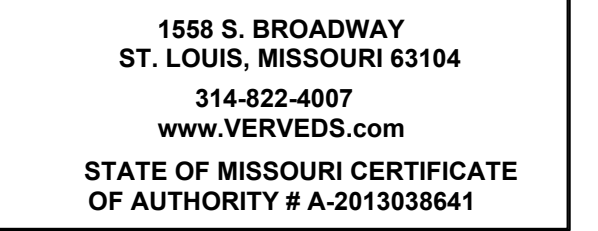
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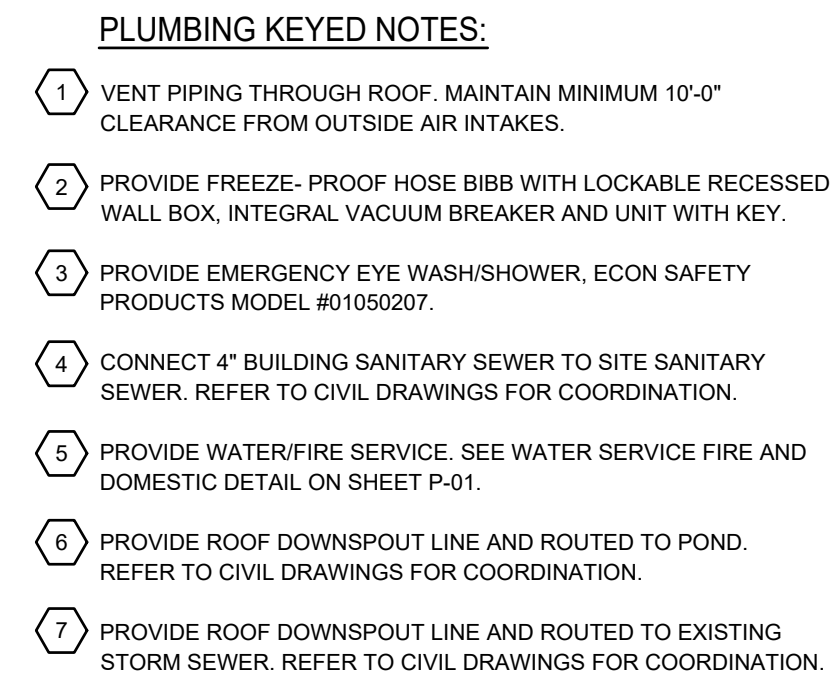
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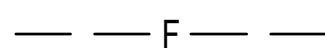
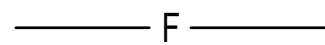























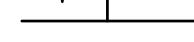






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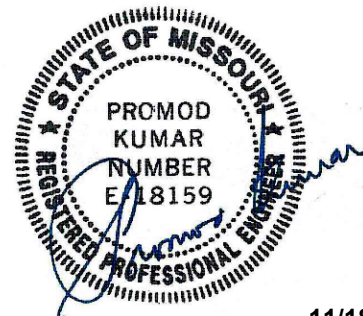
NOTE: NOT ALL SYMBOLS, ABBREVIATIONS OR DESIGNATIONS MAY REFER TO THIS PROJECT

NOTES FOR FIRE PROTECTION:

1. THE CONTRACTOR TO PROVIDE COMPLETE, OPERATIONAL AND CODE COMPLIANT SPRINKLER SYSTEM FOR THE BUILDING. THE CONTRACTOR SCOPE STARTS AT FIRE WATER CONNECTION. THE AREA WILL BE PROTECTED BY A COMBINATION STANDPIPE/AUTOMATIC WET PIPE SPRINKLER SYSTEM. THE SPRINKLER COVERAGE SHALL BE DESIGNED AS PER THE NFPA-13, CITY OF PACIFIC AND THE STATE OF MISSOURI REQUIREMENTS. THE OCCUPANCY HAZARD CLASSIFICATION IS EXTRA HAZARD (WET PIPE). THE DENSITY IS 0.40 GPM PER 2000 SQUARE FEET. MAXIMUM COVERAGE PER SPRINKLER HEAD IS USING HIGH TEMP, K11.2 TYPE.
2. THE WET-PIPE AUTOMATIC SPRINKLER SYSTEM SHALL BE DESIGNED IN ACCORDANCE WITH NFPA-13. THE SYSTEM SHALL BE INSTALLED, TESTED AND OPERATIONAL AS PER NFPA-13.
3. THE SPRINKLER SYSTEM, SPRINKLER PIPING AND SUPPORTS SHALL COMPLY WITH THE SEISMIC REQUIREMENTS OF THE CITY OF PACIFIC AND STATE OF MISSOURI.
4. THE CONTRACTOR TO COORDINATE SPRINKLER PIPING LAYOUT AND INSTALLATION WITH HVAC DUCTWORK, ELECTRICAL LIGHTING AND STRUCTURAL MEMBERS.
5. STEEL PIPE SIZES 2 INCHES AND SMALLER SHALL BE SCHEDULE 40 AND MUST BE THREADED. STEEL PIPE SIZES LARGER THAN 2 INCHES MUST BE MINIMUM SCHEDULE 10. FITTINGS SHALL COMPLY WITH NFPA 13 REQUIREMENTS.
6. THE WATER FLOW TEST DATA WILL BE PROVIDED TO THE CONTRACTOR.
7. THE CONTRACTOR SHALL PERFORM THE HYDRAULIC CALCULATIONS IN ACCORDANCE WITH NFPA-13. HYDRAULIC CALCULATIONS SHALL INCLUDE AN ALLOWANCE OF 500 GPM FOR HOSE STREAMS, ADDED AT THE POINT OF CONNECTION TO THE WATER SUPPLY.
8. SPRINKLER SYSTEM LAYOUT, DRAWINGS AND HYDRAULIC CALCULATION SHALL BE PERFORMED BY A NICET LEVEL III OR IV TECHNICIAN CERTIFIED IN AUTOMATIC SPRINKLER SYSTEMS LAYOUT OR A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSOURI.
9. SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY DESIGN TEAM'S ENGINEER AND CITY OF PACIFIC FIRE MARSHALL. SHOP DRAWING SUBMITTALS SHALL COMPLY WITH THE NFPA-13.
10. ANY REFERENCE TO "AUTHORITY HAVING JURISDICTION" SHALL BE INTERPRETED TO MEAN THE CITY OF PACIFIC FIRE MARSHALL.
11. THE SYSTEM WILL BE HYDROSTATICALLY TESTED AS REQUIRED BY NFPA-13. TESTING TO BE WITNESSED BY THE CITY OF PACIFIC FIRE MARSHALL. PROVIDE CERTIFICATES IN ACCORDANCE WITH NFPA-13.
12. THE SPRINKLER HEADS SHALL BE STANDARD RESPONSE TYPE AND WILL COMPLY WITH NFPA-13. THE TEMPERATURE RATING OF THE SPRINKLER HEADS SHOULD BE SUITABLE FOR THE AMBIENT CONDITIONS. THE IXOL HOT BOX IS MAINTAINED AT 104° F. THE STORAGE BUILDING IS VENTILATED AND WILL HAVE HIGHER TEMPERATURE THAN THE MAXIMUM OUTSIDE DESIGN TEMPERATURE.
13. CONTRACTOR TO PROVIDE FINAL AS-BUILT DRAWINGS OF THE FIRE SUPPRESSION SYSTEM.
14. THE CONTRACTOR SHALL COMPLY WITH NFPA 241, STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION, AND DEMOLITION OPERATIONS AND 29 CFR 1910.34, COVERAGE AND DEFINITIONS, 29CFR 1910-35, COMPLIANCE WITH NFPA 101, LIFE SAFETY CODE, 29CFR 1910-36, DESIGN AND CONSTRUCTION REQUIREMENTS FOR EXIT ROUTES, 29CFR 1910-37, MAINTENANCE, SAFEGUARDS, AND OPERATIONAL FEATURES FOR EXIT ROUTES.
15. CONTRACTOR SHALL PROVIDE FIRE CAULKING AT ALL PIPE PENETRATIONS FOR FLOORS, WALLS AND CEILINGS. FIRE STOPPING SHALL COMPLY WITH FIRESTOP CONTRACTORS INTERNATIONAL ASSOCIATION (FCIA) SPECIFICATION LISTED FOR APPLICATION BEING USED.
16. ALL FIRE SPRINKLER/FIRE PROTECTION SYSTEM WORK INCLUDING BUT NOT LIMITED TO SHUTDOWN, INSTALLATION, AND COMMISSIONING SHALL BE COORDINATED WITH THE PROJECT MANAGER.

Symbol	Abbrev.	Description
	F	FIRE MAIN PIPING BELOW GRADE (BURIED PIPING - TRENCHING AND SLAB REPAIR BY G.C.)
	F	FIRE MAIN PIPING ABOVE GRADE
	WS	WET SPRINKLER PIPING
	DS	DRY SPRINKLER PIPING
	DR	DRAIN PIPING
	PA	PREACTION SPRINKLER PIPING
	SP	STANDPIPE PIPING
	FM	FM 2000 PIPING
	IN	INERGEN PIPING
	ANTI	ANTIFREEZE SPRINKLER PIPING
	TH	FIRE PUMP TEST HEADER PIPING
	FDC	FIRE DEPT. CONNECTION PIPING
		DENOTES ZONE (SECTOR/FLOOR)
	DV	DRAIN VALVE
	DN	PIPE DOWN THROUGH FLOOR
	UP	PIPE UP THROUGH FLOOR ABOVE
		PIPE DROP OR RISE
		PIPE CAP
		PIPE BREAK
		UNION
		STRAINER
		PRESSURE GAUGE
		SHUT-OFF VALVE (TYPE PER SPECS)
		SHUT-OFF VALVE WITH TAMPER SWITCH
		RELIEF VALVE
	FS	FLOW SWITCH
	PRV	PRESSURE REGULATING VALVE
	CV	CHECK VALVE
		FLOW ARROW
	TS	TAMPER SWITCH

Symbol	Abbrev.	Description
	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
	DCVA	DOUBLE CHECK VALVE ASSEMBLY WITH TAMPER SWITCHES
		HEAT DETECTOR
		SMOKE DETECTOR
	FDV-1	FIRE DEPARTMENT VALVE & TYPE
	FDVC-1	FIRE DEPARTMENT VALVE CABINET (SURFACE MOUNT) & TYPE
	FDVC-1	FIRE DEPARTMENT VALVE CABINET (RECESSED) & TYPE
	FHC-1	FIRE HOSE CABINET (SURFACE MOUNT) & TYPE
		PENDENT/RECESSED SPRINKLER HEAD
	EC	PENDENT/RECESSED SPRINKLER HEAD (EXTENDED COVERAGE)
		UPRIGHT SPRINKLER HEAD



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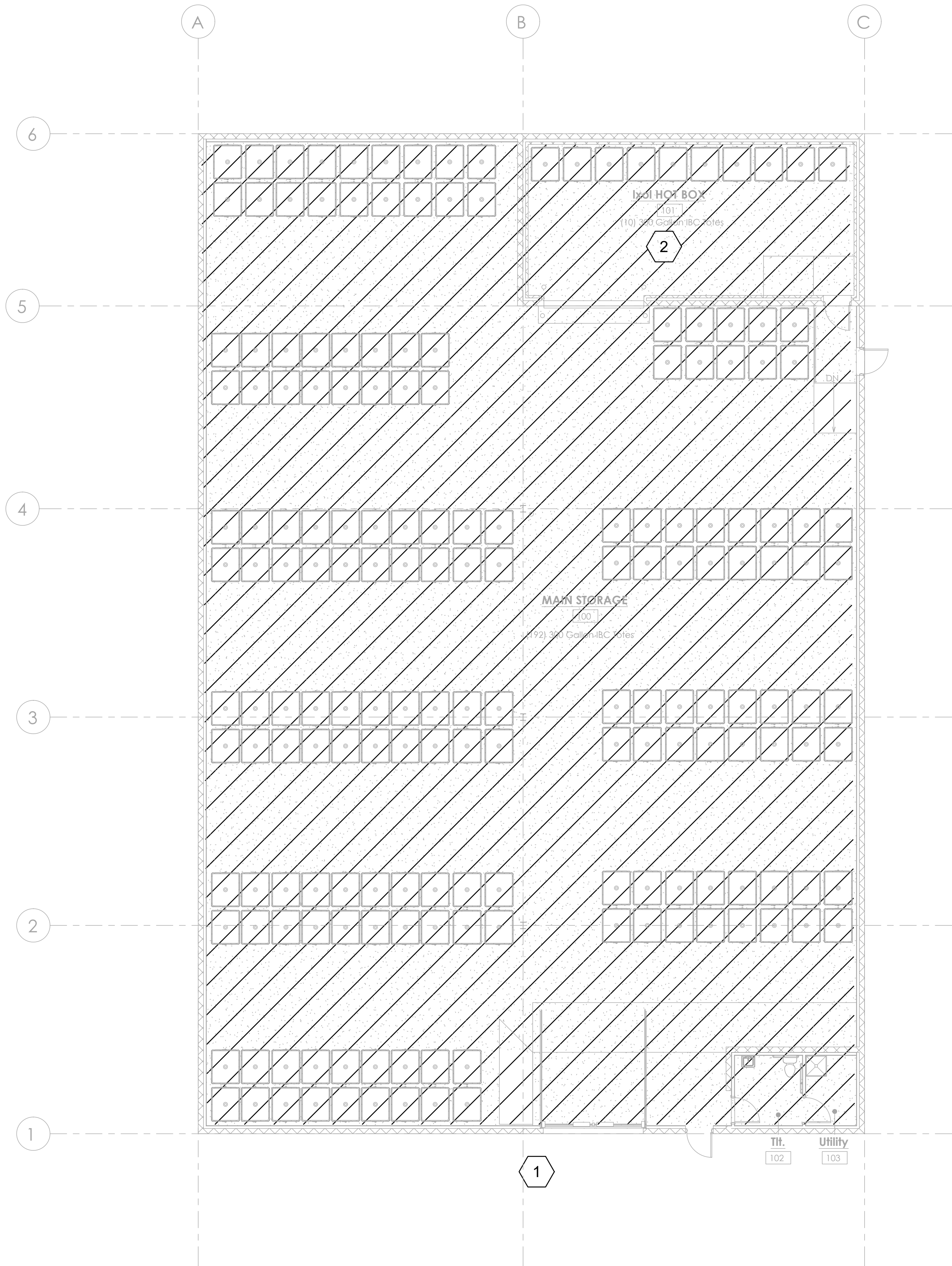
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**FIRE PROTECTION LEGENDS
AND NOTES**

SHEET NO.

FP-01

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FIRE PROTECTION KEYED NOTES:

- 1
- HATCHED AREA REPRESENTS FIRE SPRINKLERS AND ALARM BELL TO BE ADDED PER NEW LAYOUT.
- 2
- PROVIDE A GYP BOARD CEILING AT 14'-0" ELEVATION.

A DOCK LEVEL W/ EXIST. BLDG.- FIRE PROTECTION
1/8" = 1'-0"



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FIRE PROTECTION PLAN

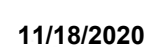
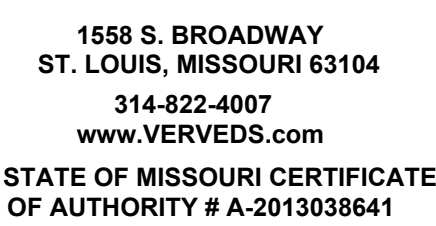
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- 6 FIRE PROTECTION COMBINATION SERVICE DETAIL
NOT TO SCALE



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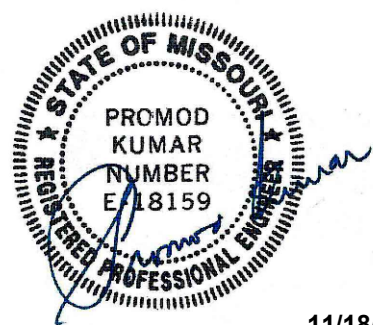
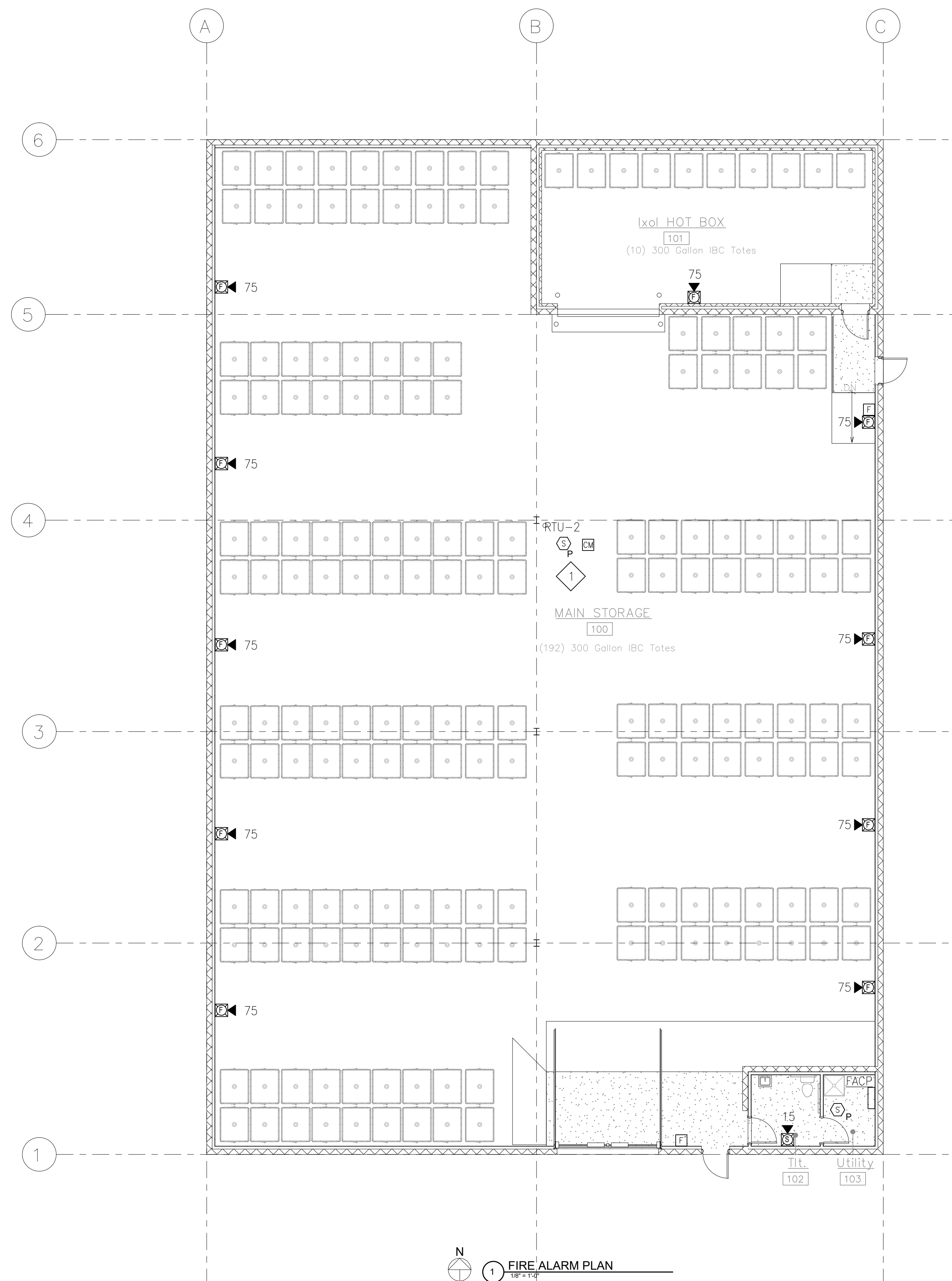
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1. ALL FIRE ALARM WORK SHALL COMPLY WITH NFPA 72 AND ALL LOCAL REQUIREMENTS.

1) FIRE ALARM CONTROL MODULE SHALL SHUT DOWN THE ROOF TOP UNIT UPON ALARM OF SMOKE DETECTOR IN THE RETURN.



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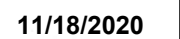
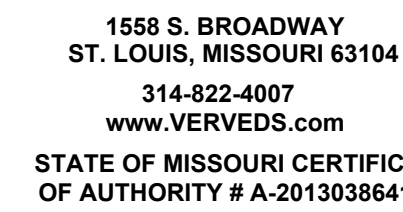
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1. TYPE A LIGHT FIXTURE;
COLUMBIA PEL240-MH-FA-W-EDU-NXSPH-LHVQM5.
2. TYPE B LIGHT FIXTURE;
DUAL-LITE DYN-12-I-06L
3. TYPE C LIGHT FIXTURE;
HUBBELL QSP2-24L50-4K7-4-277-BLT-PC-EH
4. TYPE D LIGHT FIXTURE;
COLUMBIA LAW4-35-MW-E-U
5. TYPE E LIGHT FIXTURE;
COLUMBIA MPL4-9-40-HL-AD-E
6. TYPE X LIGHT FIXTURE;
DUAL-LITE DYN-CD-R-W-12-06L.
7. TYPE XA LIGHT FIXTURE;
DUAL-LITE EVE-U-R-W-EI
8. INSTALL TYPE A AT 14' ABOVE FINISHED FLOOR WITH AIRCRAFT CABLE SUPPORTS. INSTALL TYPE B 10'-0" ABOVE THE FLOOR. INSTALL TYPE C 9'-0" ABOVE FINISHED FLOOR. INSTALL TYPE E AT 1'-0" BELOW THE LOWEST STRUCTURAL MEMBER WITH AIRCRAFT CABLE SUPPORTS. INSTALL TYPE X 9'-0" ABOVE THE FLOOR CENTERED UNDER THE DOOR.
9. TYPES B AND X SHALL BE UNSWITCHED.
10. CONDUIT FOR TYPE C SHALL BE ROUTED WITHIN BUILDING INTERIOR.



1. SEE THE MECHANICAL SHEETS FOR EXACT EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS.
2. ALL HOMERUNS REFERENCE NEW PANELBOARDS. SEE THE PANELBOARD SCHEDULES.

2 PROVIDE A MOTOR RATED TOGGLE SWITCH DISCONNECT FOR THE COILING DOOR MOTOR. PROVIDE ALL RACEWAY AND CONDUCTORS FOR THE DOOR CONTROLS AND INSTALL THE DOOR CONTROLS.



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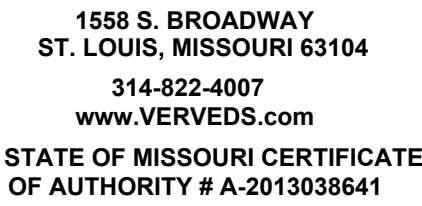
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ELECTRICAL POWER AND
LIGHTING PLANS

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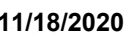
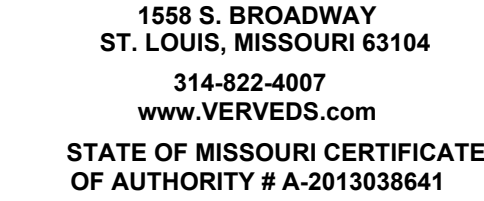
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TO GENERAL NOTES FOR COMPLETE LIST OF
DOCUMENTS. SHEET SIZE 30 X 42

SHEET NAME:
PHOTOMETRIC LAYOUTS

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Luminaire Schedule					
Symbol	Qty	Label	Description	Arrangement	LLF
	6	A	PEL2-40LH-FAW-EDU-NXSPH/LHVQM5	SINGLE	0.900
	3	D	LAW4-35MW-EU	SINGLE	0.900
	27	E	MPL4-9-40HL-AD-EU	SINGLE	0.780



Connected Loads By Phase (VA)		Total Connected Loads By Type (VA)		Demand Factors		Total Demand Loads By Type (VA)	
Total Phase A	9,004	Lighting	3,357	Lighting	1.00	Lighting	3,357
Total Phase B	6,183	Receptacles	0	Receptacles	0.50	Receptacles	0
Total Phase C	5,915	HVAC	17,746	HVAC	1.00	HVAC	17,746
		Miscellaneous	0	Miscellaneous	0.65	Miscellaneous	0
		Total	21,103			Subtotal	21,103
				Spare Capacity	30%	Spare	6,331
						Total Demand Load	27,434
						Total Demand Amps	33

Connected Loads By Phase (VA)		Total Connected Loads By Type (VA)		Demand Factors		Total Demand Loads By Type (VA)	
Total Phase A	6,555	Lighting	0	Lighting	1.00	Lighting	0
Total Phase B	5,073	Receptacles	4,740	Receptacles	1.00	Receptacles	4,740
Total Phase C	6,238	HVAC	11,228	HVAC	0.85	HVAC	9,581
		Miscellaneous	2,500	Miscellaneous	0.65	Miscellaneous	1,625
		Total	18,466			Subtotal	15,346
				Spare Capacity	30%	Spare	4,604
						Total Demand Load	19,950
						Total Demand Amps	55

307 Integram Drive
Pacific, Missouri 63069

[illegible]

VERVE PROJECT NO.: 20033

ISSUE DATE: NOVEMBER 18, 2020

SHEET NO.

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ELECTRICAL SPECIFICATION

ELECTRICAL GENERAL

- 1.1 ELECTRICAL GENERAL
- A. WORK UNDER THIS CONTRACT INCLUDES PROVIDING ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION, SCAFFOLDING, RIGGING, TOOLS AND RELATED ITEMS AND SUBCONTRACT WORK FOR A COMPLETE OPERATING ELECTRICAL SYSTEM AND INCLUDES BUT IS NOT LIMITED TO:
- OBTAINING ALL PERMITS AND APPROVALS FROM AUTHORITIES WHERE APPLICABLE.
 - REMOVALS, ALTERATIONS, RELOCATIONS AND CONNECTIONS TO EXISTING SYSTEMS.
 - IDENTIFICATION.
 - CUTTING AND PATCHING.
 - GUARANTEE.
 - TESTING AND ADJUSTMENTS.
 - CLEAN-UP.
 - FEEDERS AND PANELBOARDS.
 - WIRING DEVICES.
 - GROUNDING SYSTEM.
 - LIGHTING AND POWER BRANCH CIRCUIT CONDUIT AND WIRING.
 - LIGHTING FIXTURES AND LAMPS.
 - LIGHTING CONTROLS.
 - COORDINATION WITH OTHER TRADES.
 - GENERATOR, AUTOMATIC TRANSFER SWITCH, AND UNINTERRUPTIBLE POWER SUPPLY.
 - NURSE CALL SYSTEM.
- 1.2 EXECUTION OF WORK
- A. IT IS THE MEANT OF THE DRAWINGS AND SPECIFICATIONS TO PROVIDE A COMPLETE WORKABLE SYSTEM READY FOR THE OWNER'S OPERATION, ANY ITEM NOT SPECIFICALLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS, BUT REQUIRED TO CONFORM WITH THE INTENT, ARE TO BE CONSIDERED A PART OF THE CONTRACT.
- B. ALL MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW AND UNUSED AND FREE FROM DEFECTS. ALL MATERIALS USED SHALL BEAR THE UNDERWRITER'S LABORATORY, INC. LABEL.
- C. KEEP A SATISFACTION FORCE OF WORKERS ON THE JOB AT ALL TIMES, TO ACTUALLY INSTALLED.
- D. COORDINATE THE LOCATIONS OF ALL ELECTRICAL EQUIPMENT WITH THE EQUIPMENT OF OTHER TRADES AND THE BUILDING CONSTRUCTION.
- E. COMPLY WITH THE LATEST RULES AND REGULATIONS OF THE NATIONAL ELECTRICAL CODE, THE NATIONAL ELECTRICAL SAFETY CODE, ALL NFPA CODES, THE RULES SET FORTH BY THE UTILITY COMPANIES SERVING THIS SITE AND ALL OTHER NATIONAL, STATE OR MUNICIPAL CODES APPLICABLE TO THIS PROJECT.
- 1.3 EXAMINATION AND PATCHING
- A. PRIOR TO THE SUBMITTING OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE OF THE JOB AND SHALL BECOME FAMILIAR WITH ALL CONDITIONS AFFECTING THE PROPOSED INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF, FAILURE TO COMPLY WITH THE INTENT OF THIS PARAGRAPH WILL IN NO WAY RELIEVE THE CONTRACTOR OF PERFORMING ALL NECESSARY WORK SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN.
- 1.4 CUTTING AND PATCHING
- A. WHERE CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER CONSTRUCTION IS NECESSARY FOR PROPER INSTALLATION, THE WORK SHALL BE DONE CAREFULLY TO PRESERVE THE INTEGRITY OF THE CONSTRUCTION. PATCH AND REPAIR ALL HOLES TO THEIR ORIGINAL CONSTRUCTION, FIRE RATING AND FINISH.
- 1.5 MOUNTING HEIGHTS
- A. MOUNTING HEIGHTS LISTED ARE TO THE CENTER OF THE DEVICE AND WHEREVER APPLICABLE
- CONVENIENCE AND GFI OUTLETS - 18 INCHES TO CENTER
 - SWITCHES - 48 INCHES TO CENTER
 - TELEPHONE OR DATA OUTLETS - 18 INCHES
 - WALL TELEPHONE OUTLETS - 4 FEET 6 INCHES
 - DISCONNECT SWITCHES - 5 FEET TO CENTER
 - EXIT LIGHTS - AS NOTED ON DRAWINGS
 - RECEPTACLES INDICATED AS ABOVE COUNTER - 44 INCHES TO CENTER
 - THE MOUNTING HEIGHT SHALL FALL WITHIN THE RANGES GIVEN IN THE LATEST PUBLICATION OF ADA.
- 1.6 CLEANING UP
- A. CONTRACTOR SHALL TAKE CARE TO AVOID ACCUMULATION OF DEBRIS, BOXES, CRATES, ETC., RESULTING FROM THE INSTALLATION OF THE WORK. CONTRACTOR SHALL REMOVE FROM THE PREMISES EACH DAY ALL DEBRIS, BOXES, ETC., AND KEEP THE PREMISES CLEAN, SUBJECT TO THE ARCHITECT/ENGINEER'S INSTRUCTIONS, WHICH SHALL BE PROMPTLY CARRIED OUT.
- B. CONTRACTOR SHALL CLEAN ALL FIXTURES AND EQUIPMENT AT THE COMPLETION OF THE PROJECT.
- 1.7 DEFINITIONS
- A. "PROVIDE" MEANS TO SUPPLY, PURCHASE, INSTALL, CONNECT, TEST AND TURN OVER TO THE OWNER, COMPLETE AND READY FOR OPERATION, THE REQUIRED ITEMS.
- B. "INSTALL" MEANS TO SET IN PLACE, FASTEN, JOIN, ATTACH, CONNECT, TEST AND TURN OVER TO THE OWNER COMPLETE AND READY FOR OPERATION, THE PARTICULAR WORK REFERRED TO.
- C. "FURNISH" MEANS TO PURCHASE AND SUPPLY ALL MATERIALS, EQUIPMENT, TESTING, ACCESSORIES AND ALL OTHER ITEMS CUSTOMARILY REQUIRED FOR THE PROPER AND COMPLETE APPLICATION FOR THE PARTICULAR WORK REFERRED TO.
- D. "CONCEALED" MEANS EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED WITHIN WALL CONSTRUCTION OR INSTALLED ABOVE SUSPENDED CEILINGS.
- 1.8 RECORD DRAWINGS
- A. DURING CONSTRUCTION, KEEP A SET OF BLUEPRINTS AT THE SITE AND RECORD ALL DEVIATIONS BETWEEN THE WORK SHOWN ON THE CONTRACT DOCUMENTS AND THAT WHICH IS ACTUALLY INSTALLED.
- B. UPON COMPLETION OF THE INSTALLATION AND ACCEPTANCE BY THE OWNER, OBTAIN A SET OF MYLAR REPRODUCIBLES, TRANSFER THE ABOVE INFORMATION TO THE REPRODUCIBLES AND DELIVER THEM TO THE ARCHITECT FOR REVIEW AND IF ACCEPTABLE, TRANSMIT TO THE OWNER. THE COST FOR MYLAR REPRODUCIBLES AND FOR MAKING THE REQUIRED CHANGES SHALL BE BORNE BY THE CONTRACTOR.
- 1.9 SHOP DRAWINGS
- A. PREPARE AND SUBMIT SHOP DRAWINGS FOR MATERIALS AND SYSTEMS LISTED HEREIN. SHOP DRAWINGS MAY BE IN THE FORM OF STANDARD MANUFACTURERS CATALOG OIDS. SPECIAL SYSTEMS SUCH AS FIRE ALARM, SECURITY, ETC. WILL REQUIRE MANUFACTURER'S WIRING DIAGRAMS OF THE SYSTEM BEING INSTALLED. SHOP DRAWINGS SHALL BE CLEARLY MARKED TO INDICATE THE EXACT ITEMS BEING SUBMITTED.
- B. SUBMIT SHOP DRAWING FOR THE FOLLOWING EQUIPMENT AND SYSTEMS:
- LIGHTING FIXTURES.
 - DEVICES.
 - WIRE AND CABLE.
 - SPECIAL SYSTEMS.
 - PANELBOARDS.
- 1.10 GUARANTEE
- A. SUBMIT A SINGLE GUARANTEE STATING THAT ALL PORTIONS OF THE WORK ARE IN ACCORDANCE WITH CONTRACT REQUIREMENTS. GUARANTEE ALL WORK AGAINST FAULTY AND INPROPER MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER. OBTAIN SIMILAR GUARANTEES FROM SUBCONTRACTORS, MANUFACTURERS, SUPPLIERS AND SUBTRADE SPECIALISTS.
- 1.11 IDENTIFICATION
- A. PROVIDE FIXED IDENTIFICATION OF ALL DISTRIBUTION EQUIPMENT AND CONDUCTORS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- B. UNLESS OTHERWISE NOTED, NAMEPLATES SHALL BE BLACK LAMACOD PLATES WITH WHITE ENGRAVED UPPER CASE LETTERS ENCLOSED BY WHITE BORDER ON BEVELED EDGE.
- C. ALL NAMEPLATES MUST BE ENGRAVED AND MUST BE SECURED WITH RIVETS, BRASS OR CADMIUM PLATE SCREWS. THE USE OF DYMO TAPE OR THE LIKE IS UNACCEPTABLE.
- D. LETTERING HEIGHTS UNLESS OTHERWISE NOTED MUST BE AS FOLLOWS:
- ITEM/ LETTERING
 - WALL PLATE/ 1/8"
 - PANELBOARDS/ 1/2"
- E. CABLE TAGS MUST BE FLAMEPROOF SECURED WITH FLAMEPROOF NONMETALLIC CORD.
- F. FURNISH AND INSTALL CABLE TAGS ON EACH CABLE WHICH ENTERS A PULLBOX, ENCLOSURE, PANELBOARD, AND AT TERMINATIONS. MARK TAGS WITH TYPE, WRITTEN INSCRIPTION NOTING THE LOAD SERVED, TYPE AND SIZE OF CABLE, AND THE OVERCURRENT DEVICE PROTECTING THE CABLE.
- 1.12 TESTING, INSPECTIONS AND CERTIFICATIONS
- A. PRIOR TO TURNING OVER ELECTRICAL SYSTEMS TO THE OWNER, THE CONTRACTOR SHALL COMPLETELY TEST ALL SYSTEMS AND SHALL CERTIFY THAT ALL SYSTEMS HAVE BEEN TESTED AND ARE IN SAFE AND COMPLETE WORKING ORDER.
- B. PERFORM THE FOLLOWING TESTS OR INSPECTIONS:
- TEST ALL WIRING FOR SHORTS, OPENS OR GROUNDS.
 - TEST ALL CIRCUIT BREAKERS, SWITCHES, STARTERS OR OTHER CONTROL DEVICES.
 - TEST ALL RECEPTACLES FOR PROPER POLARITY AND GROUND.
 - TEST ALL LIGHTING AND SWITCHES FOR PROPER OPERATION. ASSURE THAT ALL LAMPS ARE WORKING AND BALLASTS ARE "TIGHT".
- 1.13 PENETRATIONS
- A. PROVIDE FIRE SEALS AT ALL CABLE AND CONDUIT PENETRATIONS THRU FIRE RATED WALLS, WALLS, FLOORS, CEILINGS OR OTHER CONSTRUCTION. REFER TO THE ARCHITECTURAL DRAWINGS FOR RATINGS.
- B. FIRE SEALING MATERIAL SHALL CONSIST OF A PRE-MANUFACTURED BARRIER OR PRE-MIXED PUTTY AS MANUFACTURED BY NELSON ELECTRIC, CROUSE-HINDS COMPANY OR APPROVED APPROVED EQUAL.
- C. FIRE SEAL AND SEPARATE ELECTRICAL OUTLETS A MINIMUM OF 24" WHEN BACK TO BACK WITHIN FIRE RATED PARTITIONS PER IBC 714.3.2.

SECTION 260534 - RACEWAYS AND BOXES

PART 1 - GENERAL

- 1.1 REGULATORY REQUIREMENTS
- A. MATERIALS: UL AND NEC APPROVED FOR THE APPLICATION INTENDED.
- 1.2 SYSTEM DESCRIPTION
- A. PERFORMANCE REQUIREMENTS
- PROVIDE CONDUIT SYSTEMS FOR WIRING EXCEPT WHERE THE DRAWINGS AND SECTIONS INDICATE THAT WIRING IS NOT INSTALLED IN CONDUIT.

PARTS 2 - PRODUCTS

- 2.1 CONDUIT
- A. ELECTRICAL METALLIC TUBING (EMT): THINWALL, ELECTRICALLY WELDED COLD ROLLED STEEL CONDUIT, GALVANIZED INSIDE AND OUT BY ELECTRO GALVANIZED PROCESS. BAKED CLEAR ELASTIC ENAMEL COATING IN AND OUT.
- B. USE FOR CONDUIT SIZES UP TO 4" INSTALLED IN STUD WALLS, MASONRY WALLS, ABOVE SUSPENDED CEILINGS AND WHERE EXPOSED.
- C. FLEXIBLE METAL CONDUIT: FORMED OF ONE CONTINUOUS LENGTH OF SPIRALLY WOUND ELECTRO GALVANIZED STEEL STRIP.
- D. USE FOR: FINAL CONNECTIONS FROM JUNCTION BOXES TO LIGHTING DEVICES IN ACCESSIBLE CEILING, AND FOR WIRING WITHIN CASEWORK AND MILLWORK.
- 2.2 CONDUIT FITTINGS
- A. METALLIC TUBING FITTINGS: COMPRESSION TYPE GALVANIZED MALLEABLE IRON OR STEEL, WATER AND CONCRETE TIGHT, CONNECTORS WITH NYLON INSULATED THROATS AT CABINETS, BOXES AND GUTTERS. INDENTOR OR SET SCREW TYPE FITTINGS WILL NOT BE ALLOWED. DIE CAST FITTINGS SHALL NOT BE ACCEPTABLE.
- B. FLEXIBLE METAL CONDUIT FITTINGS: SQUEEZE OR SCREW TYPE GALVANIZED MALLEABLE IRON, ALUMINUM OR STEEL WITH NYLON INSULATED THROATS.
- 2.3 OUTLET BOXES
- A. MATERIAL SIZE AND INSTALLATION: COMPLY WITH NEC, ARTICLE 370 AND SHALL BE UL LISTED.
- B. PROVIDE THE FOLLOWING:
- IN STUD WALLS:
 - SINGLE OUTLET: 4" SQUARE BY 2-1/8" DEEP BOX RACO NO. 232 OR 233 OR EQUAL.
 - FOR GANGED OUTLETS: 4-1/2" HIGH BY 1-5/8" DEEP MULTIPLE GANG BOXES RACO NO. 951 THRU NO. 958 OR EQUAL.
 - PROVIDE BOXES WITH RAISED COVERS OF DEPTH AS REQUIRED FOR THICKNESS OF WALL MATERIALS.
 - OUTLET BOXES BACK TO BACK IN FIRE RATED INTERIOR PARTITIONS SHALL BE SEPARATED BY A MINIMUM OF 24" PER FBC 714.3.2 EXCEPTION 1. SEALING MEMBRANE PENETRATIONS FOR CONDUIT AND BOXES INSTALLED IN THE FIRE RESISTANT RATED WALL SHALL COMPLY WITH FBC 704.1 AND 704.4.
2. SURFACE MOUNTED WALL OUTLETS:
- SINGLE OUTLET: 2-1/2" DEEP HANDY BOX RACO NO. 674 OR EQUAL.
 - TWO OUTLETS: 4" SQUARE BY 2-1/2" DEEP BOX RACO NO. 232 OR 233 OR EQUAL.
 - FIXTURE STUDS AND STEEL MOUNTING BAR.
 - FOR MORE THAN TWO GANGED OUTLETS: 3-3/4" X 2-1/2" DEEP MULTIPLE GANG MASONRY BOXES RACO NO. 692 THRU NO. 694 AND NO. 960 THRU NO. 964 OR EQUAL.
 - PROVIDE BOXES WITH 1/2" RAISED COVER AS REQUIRED FOR DEVICE.
3. IN SUSPENDED CEILINGS: 3-1/2" DEEP OCTAGON BOX RACO NO. 280 OR NO. 281 OR EQUAL WITH FIXTURE STUDS AND STEEL MOUNTING BARS.
4. SWITCH OUTLETS IN DOOR JAMBS, PARTITION BOXES, RACO NO. 426 OR EQUAL FOR SINGLE SWITCH.
5. TWO SWITCHES: RACO NO. 426 TWO GANG TANDUM BOX OR EQUAL.
6. THREE SWITCHES: RACO NO. 428 THREE GANG TANDUM BOX OR EQUAL.
7. THE ANNULAR SPACE BETWEEN THE WALL MEMBRANE AND THE OUTLET BOX SHALL NOT EXCEED 1/8".
8. SEALING MEMBRANE PENETRATIONS FOR ELECTRICAL CONDUIT AND BOXES IN A FIRE RESISTANCE RATED WALL SHALL COMPLY WITH IBC SECT 704.1, 704.4.
- 2.4 PULL AND JUNCTION
- A. CONSTRUCTION, SIZES AND INSTALLATION: COMPLY WITH NEC, ARTICLE 370.
- B. ANCHOR AND JUNCTION BOXES NOT SPECIFICALLY DESCRIBED IN NEC, ARTICLE 370: FABRICATE OF HEAVY GAGE GALVANIZED STEEL WITH SCREW COVERS, BRASS SCREWS AND HARDWARE WITH ENAMEL FINISH.
- 2.5 HANGERS AND SUPPORTS
- A. PROVIDE CONDUIT HANGER AND SUPPORT DEVICES OF APPROVED TYPE FOR METHOD OF SUPPORTING REQUIRED.
- B. INCLUDE: STRUCTURAL STEEL MEMBERS, SUSPENSION RODS, CONDUIT CLAMPS, EXPANSION SHIELDS, BEAM CLAMPS AND WELDING PINS.
- C. FINISH: GALVANIZED FINISH OR OTHER APPROVED CORROSION RESISTANCE FINISH.
- D. PROVIDE HANGERS AND SUPPORTS AS FOLLOWS:
- WHERE SINGLE OR MULTIPLE RUN OF CONDUIT IS ROUTED ON SURFACE OF STRUCTURE, USE CONDUIT CLAMPS MOUNTED ON UNISURIT CHANNEL TO MAINTAIN NOT LESS THAN 1" CLEARANCE BETWEEN CONDUIT AND STRUCTURE.
 - WHERE SINGLE RUN OF CONDUIT IS SUSPENDED FROM OVERHEAD, USE SPLIT RUN CONDUIT CLAMP SUSPENDED BY STEEL DROP ROD.
 - ANY FORM OF STRAP IRON OR WIRE HANGERS WILL NOT BE ACCEPTED.
 - MAXIMUM HANGER AND SUPPORT SPACING: IN ACCORDANCE WITH NEC, SECTIONS 345-12, 346-12 AND 348-12.
- C. ANCHOR HANGERS AND SUPPORTS TO STRUCTURE AS FOLLOWS:
- ANCHORED TO STRUCTURAL STEEL: BEAM CLAMPS AND/OR STEEL CHANNELS AS REQUIRED BY STRUCTURAL SYSTEM.
 - ANCHORED TO METAL DECK: SPRING SCROUS OR APPROVED WELDING PINS.
 - MINIMUM PERMISSIBLE LOAD ON EACH HANGER NOT TO EXCEED 50 POUNDS.
 - THE USE OF EXPLOSIVE FORCE HAMMER ACTUATED, BOOSTER ASSIST OR SIMILAR ANCHORING DEVICE WILL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE ARCHITECT.

PART 3 - EXECUTION

- 3.1 CONDUIT INSTALLATION
- A. INSTALL HORIZONTAL RUNS OF CONDUIT IN CEILING PLENUM. ROUTE CONDUIT FOR CONVENIENCE OUTLETS, WALL MOUNTED FIXTURES AND OTHER WALL OUTLETS OVERHEAD AND DROPPED THROUGH WALL TO THE OUTLET.
- B. INSTALL CONDUIT IN CONCEALED LOCATION EXCEPT IN MECHANICAL EQUIPMENT ROOMS, AND AT CONNECTIONS TO SURFACE PANELS AND FREE STANDING EQUIPMENT, AND AS OTHERWISE NOTED.
- C. MINIMUM SIZE CONDUIT: 3/4" TRADE SIZE, EXCEPT SWITCH LEGS, DEAD ENDS AND CONDUIT FOR SIGNAL, CONTROL AND COMMUNICATIONS MAY BE 1/2" WHERE ADQUATE.
- 3.2 OUTLET BOX INSTALLATION
- A. INSTALL FOR ALL FIXTURES, SWITCHES, RECEPTACLES AND OTHER DEVICES.
- B. DO NOT INSTALL BACK-TO-BACK OR THROUGH WALL TYPE BOXES FLUSH IN COMMON WALL CAVITY.
- C. SEAL BOXES LOCATED ON OPPOSITE SIDES OF COMMON WALLS AND CLOSELY CONNECTED BY CONDUIT WITH DUCT SEAL.
- 3.3 PULL AND JUNCTION BOX AND GUTTER INSTALLATION
- A. INSTALL WHERE REQUIRED TO FACILITATE INSTALLATION OF THE WIRING.
- B. HANGER AND SUPPORT INSTALLATION.
- C. INSTALL FOR ALL CONDUIT AND BOXES.
- D. DO NOT ATTACH CONDUIT AND BOXES TO OR SUPPORT FROM MECHANICAL PIPES, PLUMBING PIPES, SHEET METAL DUCTS OR CEILING SUPPORT WIRES.

SECTION 260519 - CONDUCTORS AND CABLES

PART 1 - GENERAL

- 1.1 SUMMARY
- A. THIS SECTION INCLUDES WIRES, CABLES, AND CONNECTORS FOR POWER, LIGHTING, SIGNAL, CONTROL AND RELATED SYSTEMS RATED 600 VOLTS AND LESS.

PART 2 - PRODUCTS

- 2.1 MANUFACTURERS
- A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
- WIRE AND CABLE: ALPHA, BELDEN, CABLE, ROME, SOUTHWIRE OR APPROVED EQUAL.
 - CONNECTORS FOR WIRES AND CABLE CONDUCTORS: AMP, BUCHANAN, BURNDY, GOULD, IDEAL, GEDNEY, SCOTCH, 1 & 8 OR APPROVED EQUAL.
- 2.2 WIRES AND CABLES
- A. PROVIDE WIRE AND CABLE SUITABLE FOR THE TEMPERATURE, CONDITIONS AND LOCATION WHERE INSTALLED. MATERIALS SHALL BE FREE FROM DEFECT OR DAMAGE.
- B. CONDUCTORS:
- PROVIDE STRANDED COPPER CONDUCTORS FOR ALL WIRES AND CABLES. SOLID COPPER IS ACCEPTABLE FOR #12 AWG AND #10 AWG BRANCH CIRCUITS.
- C. CONDUCTOR SIZE:
- FEEDERS AND BRANCH CIRCUITS MINIMUM #12 AWG.
 - FIRE PROTECTION SIGNAL WIRING MINIMUM #14 AWG.
 - CLASS 1 CONTROL CIRCUITS MINIMUM #14 AWG.
 - CLASS 2 CONTROL CIRCUITS MINIMUM #18 AWG.
- D. INSULATION:
- #16-18 TYPE TFL.
 - #14-10 TYPE THHN/THWN.
 - #8 AND LARGER TYPE THHN/THWN OR XHHW.
- F. COLOR CODE: USE COLOR CODING SAME AS PRESENTLY USED.
- A. PROVIDE UL-LISTED FACTORY-FABRICATED, SOLDERLESS METAL CONNECTORS OF SIZES, AMPACITY RATINGS, MATERIALS, TYPES AND CLASSES FOR APPLICATIONS AND FOR SERVICES INDICATED. USE CONNECTORS WITH TEMPERATURE RATINGS EQUAL TO OR GREATER THAN THOSE OF THE WIRES UPON WHICH USED.
5. CONDUCTORS #8 AWG AND LARGER SHALL USE COMPRESSION CRIMP CONNECTORS.
6. CONDUCTORS #10 AWG AND SMALLER MAY USE EITHER COMPRESSION CRIMP OR TWIST ON PRESSURE CONNECTORS. TWIST-ON CONNECTORS SHALL NOT BE USED FOR MOTOR CONNECTIONS.
7. CONTROL CONDUCTORS SHALL USE INSULATED COMPRESSION CRIMP CONNECTORS.
- 2.4 INSULATING MATERIALS FOR CONDUCTORS
- A. PROVIDE INSULATING MATERIALS, TAPES, SLEEVES, COMPOUND AND FILLERS WHICH MEET OR EXCEED THE FOLLOWING:
- VINYL TAPE SHALL BE 7 MILS THICK, RATED FOR 600V FROM 118 TO 105 DEG C.
 - RUBBER TAPE SHALL BE 30 MILS THICK, RATED FOR 600V, AND BE SELF FUSING.

PART 3 - EXECUTION

- 3.1 WIRING METHOD
- A. USE #10 AWG MINIMUM FOR 120/208V CIRCUITS OVER 75 FEET IN LENGTH.
- B. USE THE FOLLOWING WIRING METHODS AS INDICATED:
- WIRE: INSTALL ALL WIRE IN RACEWAY.
 - USE OF MC CABLE FOR BRANCH CIRCUITS IS NOT ALLOWED.
- 3.2 INSTALLATION OF WIRES AND CABLES
- A. MULTIWIRE BRANCH CIRCUITS SHALL BE INSTALLED ONLY WHERE SPECIFICALLY INDICATED OR FOR COMMON TRIP MULTIPLE CIRCUIT BREAKERS. NEUTRAL CONDUCTOR SHALL BE INCREASED BY ONE SIZE GREATER THAN PHASE CONDUCTORS. IN NO CASE, SHALL MORE THAN THREE (3) PHASE WIRES, ONE (1) NEUTRAL AND ONE (1) GROUND WIRE OCCUPY THE SAME CONDUIT UNLESS SPECIFICALLY CALLED FOR ON THE DRAWINGS.
- B. PROVIDE INDIVIDUAL PHASE AND NEUTRAL CONDUCTORS FOR EACH CIRCUIT. A COMMON GROUND WIRE SHALL BE PULLED FOR EACH CIRCUIT. A COMMON GROUND WIRE SHALL BE PULLED FOR EACH RACEWAY. INSTALL CONDUCTORS INTACT AND FREE OF SPLICES.
- 3.3 SPLICES, TAPS AND CONNECTIONS
- A. SPLICES ARE PERMITTED FOR CONNECTING MULTIPLE LOADS TO A COMMON SOURCE, I.E., DIVISION OF CIRCUITS AND FIXTURE TAP CONDUCTORS.
- B. KEEP CONDUIT SPLICES TO MINIMUM. SPLICES AND CONNECTIONS SHALL BE MADE IN ACCESSIBLE OUTLET, PULL OR JUNCTION BOXES.
- 3.4 INSULATING MATERIALS
- A. INSULATE ALL SPLICES AND TAPS WITH UL APPROVED PLASTIC TAPE OR MOLDED COMPOSITION CAPS WITH VOLTAGE RATING EQUAL TO OR GREATER THAN INSULATING: RATING OF CONDUCTORS BEING SPLICED.
- B. INSTALL RUBBER SPLICING TAPE AND A FINAL LAYER OF VINYL ELECTRICAL TAPE WHEN INSULATING SURFACES WITH TAPE.
- 3.5 FIELD QUALITY CONTROL
- A. PRIOR TO ENERGIZING, CHECK INSTALLED WIRES AND CABLES WITH 500 VDC MEGOHM METER TO DETERMINE INSULATION RESISTANCE LEVELS TO ASSURE REQUIREMENTS ARE FULFILLED.
- PHASE TO PHASE, PHASE TO NEUTRAL, PHASE TO GROUND SHALL EXCEED 1 MEGOHM.
 - NEUTRAL TO GROUND SHALL BE 3 OHMS OR LESS.

SECTION 242726 - WIRING DEVICES

PART 1 - GENERAL

- 1.1 DESCRIPTION
- A. GENERAL: PROVIDE WIRING DEVICES AS DESCRIBED HEREIN AND AS SHOWN ON THE DRAWINGS.
- 1.2 STANDARDS
- A. EXCEPT AS MODIFIED BY GOVERNING CODES AND BY THE CONTRACT DOCUMENTS, COMPLY WITH THE LATEST APPLICABLE PROVISIONS AND LATEST RECOMMENDATIONS OF THE FOLLOWING:
- SWITCHES
 - FEDERAL SPECIFICATION STANDARD WS-898E.
 - RECEPTACLES
 - NEMA STANDARD WD-1, 3.2 THROUGH 3.10.
 - UL STANDARD 488 FEDERAL SPECIFICATION WSC596-D.
 - ANSI

PART 2 - PRODUCTS

- 2.1 CATALOG NUMBERS AND APPROVED MANUFACTURERS
- A. DEVICES LISTED BELOW ARE BY HUBBELL. EQUIVALENT DEVICES AS MANUFACTURED BY PASS & SEYMOUR, COOPER, GENERAL ELECTRIC, AND LEVITON ARE ACCEPTABLE. ALL DEVICES SHALL BE OF THE SAME MANUFACTURER. CONFIRM THE DEVICE AND DEVICE PLATE COLOR PRIOR TO ORDERING.
- B. SWITCHES - SINGLE POLE
- HUBBELL - HBL12211
 - SWITCHES - THREE WAY
 - HUBBELL - HBL12231
- D. SWITCH - FOUR WAY
- HUBBELL - HBL12241
- E. DUPLEX CONVENIENCE RECEPTACLES AND GFI: HEAVY DUTY OR INDUSTRIAL GRADE AND TAMPER RESISTANT
- DUPLEX: HUBBELL - 5362TR
 - GFI: HUBBELL GFI5362TR
 - CONTROLLED DUPLEX: HUBBELL 5362LC2
- F. FACEPLATES
- TYPE 302 STAINLESS STEEL.
- 2.2 SWITCHES
- A. PROVIDE HEAVY DUTY, SPECIFICATION GRADE, FLUSH MOUNTING, QUIET-OPERATING AC TYPE, WITH TOGGLE OPERATOR, HEAT-RESISTANT PLASTIC HOUSING AND SELF GROUNDING METAL SILVER ALLOY CONTACT. RATED 20A AT 120-277V AND CAPABLE OF FULL CAPACITY ON TUNGSTEN OR FLUORESCENT LAMP LOAD, DESIGN RATED SIZE OR BACK WIRING WITH UP TO NUMBER 10 WIRE, VERIFIED BY UL TO MEET OR EXCEED FEDERAL SPECIFICATION WS-898E.
- F. COLOR OF DEVICES SHALL BE VERIFIED BY THE ARCHITECT.
- 2.3 RECEPTACLES
- A. PROVIDE 3-POLE NEMA AND ANSI STANDARD TYPE, WITH BRONZE CONTACTS THAT ACCEPT PLUG WITH 2 PARALLEL BLADES AND 1 GROUNDING BLADE. HEAT-RESISTANT, THERMOPLASTIC BASE WITH IMPACT RESISTANT, NYLON FACTORY 2 GROUNDING SCREWS. BREAK-OFF TERMINALS FOR 2-CIRCUIT WIRING. RATED 20 AMPERES AT 125-VOLT ELECTRICAL ALTERNATING CURRENT (HOSPITAL GRADE)
- B. COLOR OF DEVICES SHALL BE VERIFIED BY THE ARCHITECT.
- 2.4 FACEPLATES
- A. PROVIDE COVER PLATES FOR WALL RECEPTACLES, OUTLETS, AND SWITCHES OF TYPE 302 STAINLESS STEEL CONSTRUCTION, UNLESS OTHERWISE NOTED. WHEN TWO OR MORE SWITCHES OR OR DEVICES ARE SHOWN IN ONE LOCATION, MOUNT UNDER A COMMON PLATE.

PART 3 - EXECUTION

- 3.1 SWITCHES
- A. MOUNT SWITCHES VERTICALLY WITH THE "ON" POSITION ON TOP, UNLESS NOTED OR SPECIFIED OTHERWISE.
- B. CAREFULLY COORDINATE THE LOCATION OF SWITCHES TO INSURE LOCATIONS AT THE STRIKE SIDE OF DOORS.
- 3.2 RECEPTACLES
- A. UNLESS OTHERWISE NOTED, MOUNT RECEPTACLE VERTICALLY WITH U-SHAPED GROUND POSITION ON BOTTOM.
- 3.3 GENERAL INSTALLATION
- A. ALL DEVICES SHALL BE FLUSH-MOUNTED EXCEPT AS OTHERWISE NOTED ON THE DRAWINGS..
- B. LOCATIONS
- COMPLY WITH LAYOUT DRAWINGS FOR GENERAL LOCATION: CONTACT OWNER'S REPRESENTATIVE FOR QUESTIONS ABOUT LOCATIONS AND MOUNTING METHODS.
 - GANGING OF SWITCHES - PROVIDE BARRIERS BETWEEN GANGED 277 VOLT SWITCHES OF DIFFERENT PHASES.
 - POWER OUTLETS - INSTALL POWER OUTLETS COMPLETE WITH BACK BOXES, WHERE INSTALLED IN EXISTING BUILDINGS OR EXTENSIONS OF EXISTING BUILDINGS. COORDINATE PHASE CONNECTIONS FOR ROTATING EQUIPMENT WITH CONNECTIONS IN EXISTING BUILDING. VERIFY THE EXACT AMPERAGE AND CONFIGURATION OF EACH POWER OUTLET WITH THE EQUIPMENT THEY SERVE PRIOR TO ORDERING SUCH.

SECTION 262818 - ENCLOSED SWITCHES

PART 1 - GENERAL

- 1.1 DESCRIPTION
- A. GENERAL: PROVIDE FUSED AND UNFUSED DISCONNECT SWITCHES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- 1.2 STANDARDS
- A. EXCEPT AS MODIFIED BY GOVERNING CODES AND BY THE CONTRACT DOCUMENTS, COMPLY WITH THE LATEST APPLICABLE PROVISIONS AND LATEST RECOMMENDATIONS OF THE FOLLOWING:
- DISCONNECT SWITCHES
 - UL STANDARDS #98 (FILE #4776) AND #508
 - FEDERAL SPECIFICATIONS W-5-B85C.
 - NEMA STANDARD KST-865C.
 - UL 20 AND FEDERAL SPECIFICATION TEST STANDARDS FOR TOGGLE SWITCHES.
- 1.3 SUBMITTALS
- A. SUBMIT MANUFACTURER'S DATA FOR ALL DISCONNECT SWITCHES.
- B. IDENTIFY MOTOR OR EQUIPMENT SERVED BY EACH SWITCH. INDICATE NAMEPLATE INSCRIPTION.

PART 2 - PRODUCTS

- 2.1 ACCEPTABLE MANUFACTURERS
- A. SAFETY SWITCHES
- SHALL BE OF THE SAME MANUFACTURER AS THE PANELBOARDS.
 - TOGGLE TYPE MANUAL CONTROL SWITCHES
 - SQUARE D CLASS 2510,11,12 OR APPROVED EQUAL.
- 2.2 SAFETY SWITCHES
- A. HEAVY DUTY, HORSEPOWER RATED, SINGLE THROW KNIFE SWITCH WITH QUICK MAKE, QUICK BREAK MECHANISM, CAPABLE OF FULL LOAD OPERATIONS. MEET NEMA AND U.S. GOVERNMENT SPECIFICATIONS FOR CLASS A SWITCHES.
- B. PROVIDE WITH CONTACT ARC-QUENCHING DEVICES, SUCH AS MAGNETIC BLOWOUTS OR SNUFFING PLATE. PROVIDE SELF-ALIGNING SWITCHBLADES WITH SILVER ALLOY CONTACTS AREAS AND DESIGNED SO THAT ARCING UPON MAKING AND BREAKING DOES NOT OCCUR ON THE FINAL CONTACT POINTS. PROVIDE WITH HIGH-PRESSURE, SPRING-LOADED CONTACT. MOUNT SWITCH PARTS ON HIGH-GRADE INSULATING BASE.
- C. ENCLOSURE-NEMA 1 OR NEMA 3R WITH HINGED DOOR, AND DEFEATABLE INTERLOCK WHEN SWITCH IS IN "ON" POSITION AND CAN BE POSITIVELY PADLOCKED IN "ON" AND "OFF" POSITIONS. UTILIZE NEMA 3R (RAIN-TIGHT) ENCLOSURE FOR EXTERIOR INSTALLATIONS.
- D. SIZE, FUSING AND NUMBER OF POLES AS SHOWN OR AS REQUIRED. WHERE FUSED, THE DEVICES MUST BE PROVIDED WITH UL LISTED REJECTION FEATURE TO REJECT ALL BUT CLASS R FUSES. PROVIDE HORSEPOWER RATED SWITCH TO MATCH MOTOR LOAD IF NO SIZE IS SHOWN. USE 3 POLE PLUS SOLID NEUTRAL SWITCHES ON FOUR WIRE CIRCUITS AND 3 POLE SWITCHES ON ALL OTHER CIRCUITS, UNLESS OTHERWISE NOTED.
- E. LUGS MUST BE UL LISTED FOR COPPER CONDUCTORS AND BE FRONT REMOVABLE.
- 2.3 SAFETY SWITCHES
- A. PROVIDE SWITCHES THAT OPERATE AT THEIR FULL RATING WITH FLUORESCENT, TUNGSTEN AND RESISTANCE LOADS, AND AT 80% OF THEIR RATED CAPACITY WITH MOTOR LOAD.
- B. SWITCHES TO BE HEAVY DUTY AND HAVE:
- ARC-RESISTING BODIES
 - SLOW MAKE-AND-BREAK MECHANISMS
 - SPRING ALLOY CONTACT BUTTONS
 - SIDE OR BACK WIRING WITH UP TO NO. 10 AWG SOLID CONDUCTORS

PART 3 - EXECUTION

- 3.1 APPLICATIONS
- A. EACH MOTOR OVER 1/2HP SHALL BE PROVIDED WITH A HORSEPOWER-RATED SAFETY TYPE DISCONNECT SWITCH.
- B. EACH PIECE OF EQUIPMENT UTILIZING MULTI-PHASE POWER SHALL BE SUPPLIED WITH A SAFETY-TYPE DISCONNECT SWITCH.
- C. EACH PIECE OF EQUIPMENT UTILIZING SINGLE-PHASE POWER BUT PROTECTED AT OVER 30 AMPERES SHALL BE SUPPLIED WITH A SAFETY-TYPE DISCONNECT SWITCH.
- D. EQUIPMENT OTHER THAN THAT MENTIONED ABOVE MAY UTILIZE A TOGGLE TYPE MANUAL CONTROL SWITCH PROPERLY SIZED AND RATED FOR THE EQUIPMENT IT DISCONNECTS. TOGGLE DISCONNECT SWITCHES SHALL INCLUDE A RED LED INDICATING LIGHT.
- 3.2 MOUNTING
- A. PROVIDE CONNECTIONS AND WIRING TO AND FROM EACH DISCONNECT SWITCH. SUPPORT CONDUIT FEEDER FROM CEILING OR FLOOR.
- B. DISCONNECT SWITCHES SHALL BE MOUNTED ON ADJACENT WALL OF FROM THE FLOOR WITH INDEPENDENT SUPPORTS. SWITCHES SHALL BE MOUNTED ON FAN HOUSINGS.
- C. INSTALL FUSES AS SPECIFIED.
- 3.3 IDENTIFICATION
- A. PROVIDE IDENTIFICATION OF ALL DISCONNECTS IN ACCORDANCE WITH SECTION 16010.
- B. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LIGHTING FIXTURES AND LAMPS. ALL MISSING, DAMAGED, OR DEFECTIVE PARTS SHALL BE REPLACED PRIOR TO ACCEPTANCE BY OWNER.

SECTION 264300 - SURGE SUPPRESSION DEVICES

PART 1 - GENERAL

- 1.1 DESCRIPTION
- A. GENERAL
- ALSO REFERRED TO AS "SPD".
 - FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND SERVICES AS INDICATED IN ACCORDANCE WITH PROVISIONS OF CONTRACT DOCUMENTS.
 - COMPLETELY COORDINATE WITH WORK OF ALL OTHER TRADES.
 - ALTHOUGH SUCH WORK IS NOT SPECIFICALLY INDICATED, FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.
- B. SUBMITTAL
- PRODUCT DATA
 - TECHNICAL DATA ON EACH PRODUCT, INCLUDING FINISHES.
 - PROJECT DATA
 - OPERATING AND MAINTENANCE DATA

PART 2 - PRODUCTS

- 2.1 DESCRIPTION
- A. FACTORY-ASSEMBLED AND TESTED UNITS FOR 60-HERTZ SERVICE.
- B. TYPE: 2
- C. UL LISTING: 1449, 4TH EDITION
- D. RATING: SUITABLE FOR THE REQUIRED VOLTAGE INDICATED ON DRAWINGS.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL ALL COMPONENTS AND COMPLETE SYSTEM AS INDICATED IN ACCORD WITH MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS.
- B. INSTALL AS FIRST OCP DEVICE OF THE MAIN PANELBOARD INDICATED.
- C. UNIT SHALL BE MOUNTED WITHIN 4" ADJACENT TO OCP DEVICE CONNECTION; MAINTAIN SHORTEST LENGTH POSSIBLE AND STRAIGHTEST ROUTE BETWEEN SPD AND OCP CONNECTION AT BUS.
- 3.2 SYSTEM TESTING
- A. TEST EACH COMPONENT AND COMPLETE SYSTEM FOR PROPER OPERATION, INCLUDING THE VARIOUS MODES. PERFORM CORRECTONAL WORK WHEN REQUIRED.

SECTION 262200 - LOW VOLTAGE TRANSFORMERS

PART 1 - GENERAL

- 1.1 DESCRIPTION
- A. GENERAL
- FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND SERVICES AS INDICATED IN ACCORDANCE WITH PROVISIONS OF CONTRACT DOCUMENTS.
 - COMPLETELY COORDINATE WITH WORK OF ALL OTHER TRADES.
 - ALTHOUGH SUCH WORK IS NOT SPECIFICALLY INDICATED, FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.
- B. SUBMITTAL
- PRODUCT DATA
 - TECHNICAL DATA ON EACH PRODUCT, INCLUDING FINISHES.
 - PROJECT DATA
 - OPERATING AND MAINTENANCE DATA

PART 2 - PRODUCTS

- 2.1 DESCRIPTION
- A. FACTORY-ASSEMBLED AND TESTED, AIR-COOLED UNITS FOR 60-HERTZ SERVICE.
- B. CORE: GRAIN-ORIENTED, NON-AGING SILICON STEEL
- C. ENCLOSURE: NEMA 1
- D. COILS: CONTINUOUS WINDINGS WITHOUT SPLICES EXCEPT AT TAPS
- COIL MATERIAL: ALUMINUM OR COPPER

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL ALL COMPONENTS AND COMPLETE SYSTEM AS INDICATED IN ACCORD WITH MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS.
- 3.2 SYSTEM TESTING
- A. TEST EACH COMPONENT AND COMPLETE SYSTEM FOR PROPER OPERATION, INCLUDING THE VARIOUS MODES. PERFORM CORRECTONAL WORK WHEN REQUIRED.

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

- 1.1 DESCRIPTION
- A. GENERAL
- FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND SERVICES AS INDICATED IN ACCORDANCE WITH PROVISIONS OF CONTRACT DOCUMENTS.
 - COMPLETELY COORDINATE WITH WORK OF ALL OTHER TRADES.
 - ALTHOUGH SUCH WORK IS NOT SPECIFICALLY INDICATED, FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.
- B. SUBMITTAL
- PRODUCT DATA
 - TECHNICAL DATA ON EACH PRODUCT, INCLUDING FINISHES.
 - PROJECT DATA
 - OPERATING AND MAINTENANCE DATA

PART 2 - PRODUCTS

- 2.1 DESCRIPTION
- A. FABRICATED, TESTED AND AIC RATED TO WITHSTAND MAXIMUM PEAK LET-THRU OF TRANSFORMERS UPSTREAM OF PANELBOARDS PLUS ANY DEGRADATION RESULTING FROM LENGTH, MEDIA, CONDUIT MATERIALS, ETC.
- B. BUS: ALUMINUM OR COPPER
- C. ENCLOSURE: NEMA 1
- D. TYPE: LIGHTING AND APPLANCE TYPE.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. INSTALL ALL COMPONENTS AND COMPLETE SYSTEM AS INDICATED IN ACCORD WITH MANUFACTURERS RECOMMENDATIONS AND INSTRUCTIONS.
- B. PROVIDE LOCK-ON OR LOCK-OFF HANDLE TIES w/LOCKING-DETERENT FEATURE FOR ALL OCP DEVICES SUPPLYING CRITICAL/EMERGENCY SYSTEMS: SPD/TVSS; FACP; TELECOMMUNICATION-IDF CIRCUITS; ETC.
- 3.2 SYSTEM TESTING
- A. TEST EACH COMPONENT AND COMPLETE SYSTEM FOR PROPER OPERATION, INCLUDING THE VARIOUS MODES. PERFORM CORRECTONAL WORK WHEN REQUIRED.

SECTION 265100 - LUMINAIRES AND ACCESSORIES

PART 1 - GENERAL

- 1.1 SUMMARY
- A. THIS SECTION SHALL INCLUDE FIXTURES, LAMPS, AND ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION AS SHOWN AND SPECIFIED.
- INTERIOR LED LIGHTING FIXTURES.
 - SITE LIGHTING LED FIXTURES
 - EXIT FIXTURES
- 1.2 DELIVER, STORAGE AND HANDLING
- A. DELIVER INTERIOR LIGHTING FIXTURES IN FACTORY-FABRICATED CONTAINERS OR WRAPPINGS, WHICH PROPERLY PROTECT FIXTURES FROM DAMAGE. DO NOT STORE OUTSIDE OR WHERE SUBJECT TO MOISTURE.

PART 2 - PRODUCTS

- 2.1 MANUFACTURERS
- A. THE "LIGHTING FIXTURE SCHEDULE" ON THE DRAWINGS INDICATES THE TYPE AND QUALITY OF LIGHTING FIXTURES REQUIRED. FIXTURES, LENSES, LAMPS, BALLASTS, ETC. SHALL MATCH THE SCHEDULED FIXTURES.
- B. LIGHTING FIXTURES AND LAMPS
- GENERAL
 - LIGHTING FIXTURES SHALL BE FURNISHED AS SHOWN ON DRAWING SCHEDULES
 - LIGHTING FIXTURES SHALL CARRY INSPECTION LABEL OF THE UNDERWRITER'S LABORATORIES, INC.
 - UNPAINTED FIXTURE PARTS SHALL BE EITHER ANODIZED ALUMINUM, NON-CORROSIVE GRADE STAINLESS STEEL OR AN ACCEPTABLE EQUIVALENT OF NON-CORROSIVE MATERIAL.

PART 3 - EXECUTION

- 3.1 COORDINATION
- A. COORDINATE WITH OTHER ELECTRICAL WORK, AS WELL AS, OTHER TRADES AS APPROPRIATE TO PROPERLY INTERFACE INSTALLATION OF INTERIOR LIGHTING FIXTURES.



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