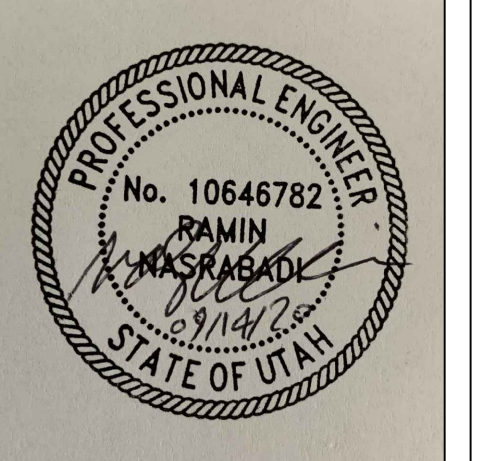


NOTE:

- CONTRACTOR SHALL VERIFY ALL THE UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO ALL EXISTING UTILITIES.
- CONTRACTOR TO TAKE CAUTION WHILE REMOVING TREES AROUND OVERHEAD POWER.
- CONTRACTOR TO COORDINATE WITH OWNER ON TREE REMOVAL AND REUSE.
- CONTRACTOR TO TAKE CAUTION WHILE WORKING NEAR GAS LINE.
- CONTRACTOR TO APPLY FOR ENCROACHMENT PERMIT PRIOR TO ALL ROADS CUTS IN ROW.
- CONTRACTOR TO FOLLOW GEOTECH RECOMMENDATIONS DURING CONSTRUCTION.



Saturn Engineering
CIVIL ENGINEERING
1777 E. 2100 S.
SALT LAKE CITY, UT 84106
TEL: 801-805-5993
RAMING@SATURNENG.US



**ARLINGTON MIXED USE
DEVELOPMENT**
4572 S. 900 E., MILLCREEK, UT
DEMOLITION PLAN

REVISIONS	DATE
ION PIPE RELOCATION	04-28-2020



DATE: 09/14/2020

DRAWN BY: RN

DESIGNED BY: RN

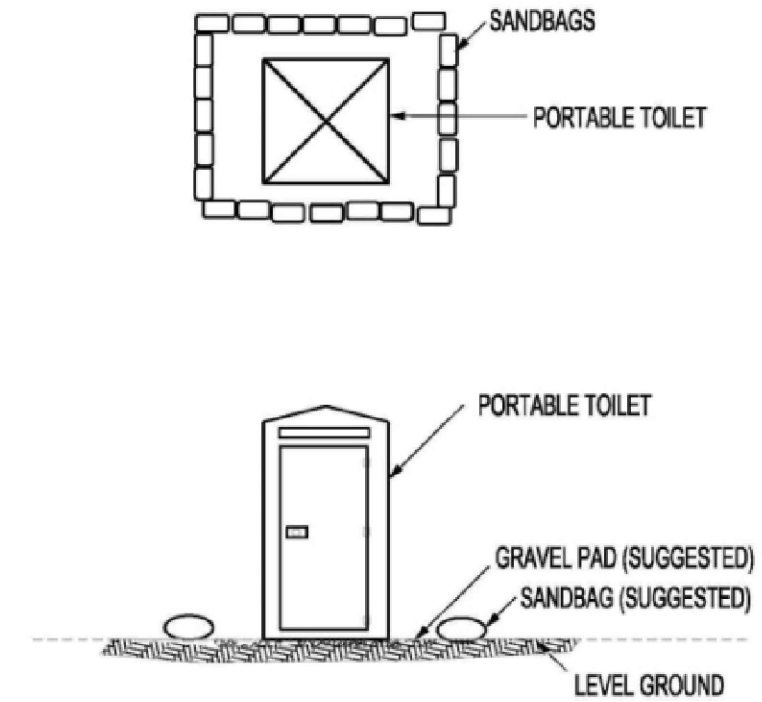
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PROJECT NO: 19-101

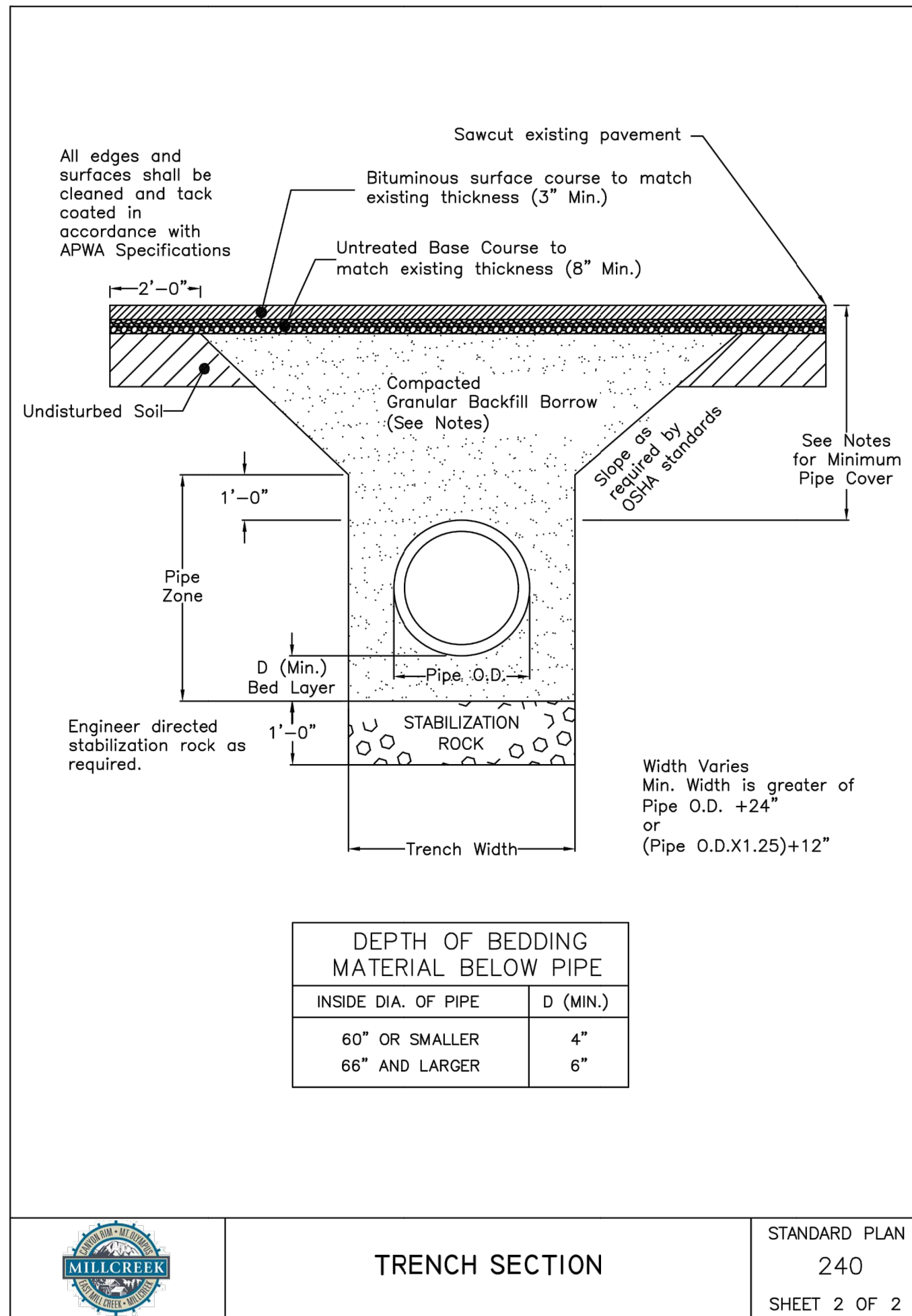
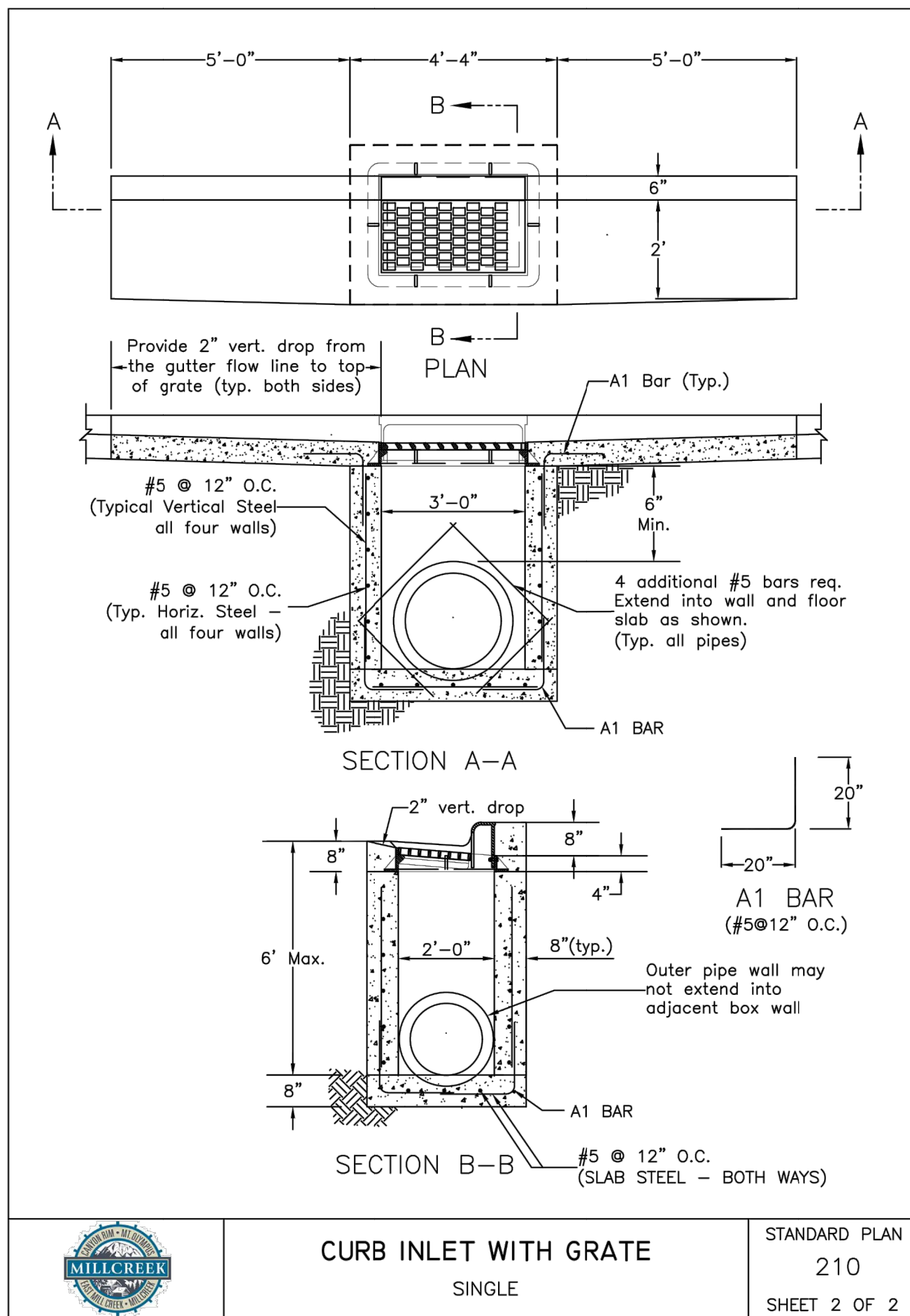
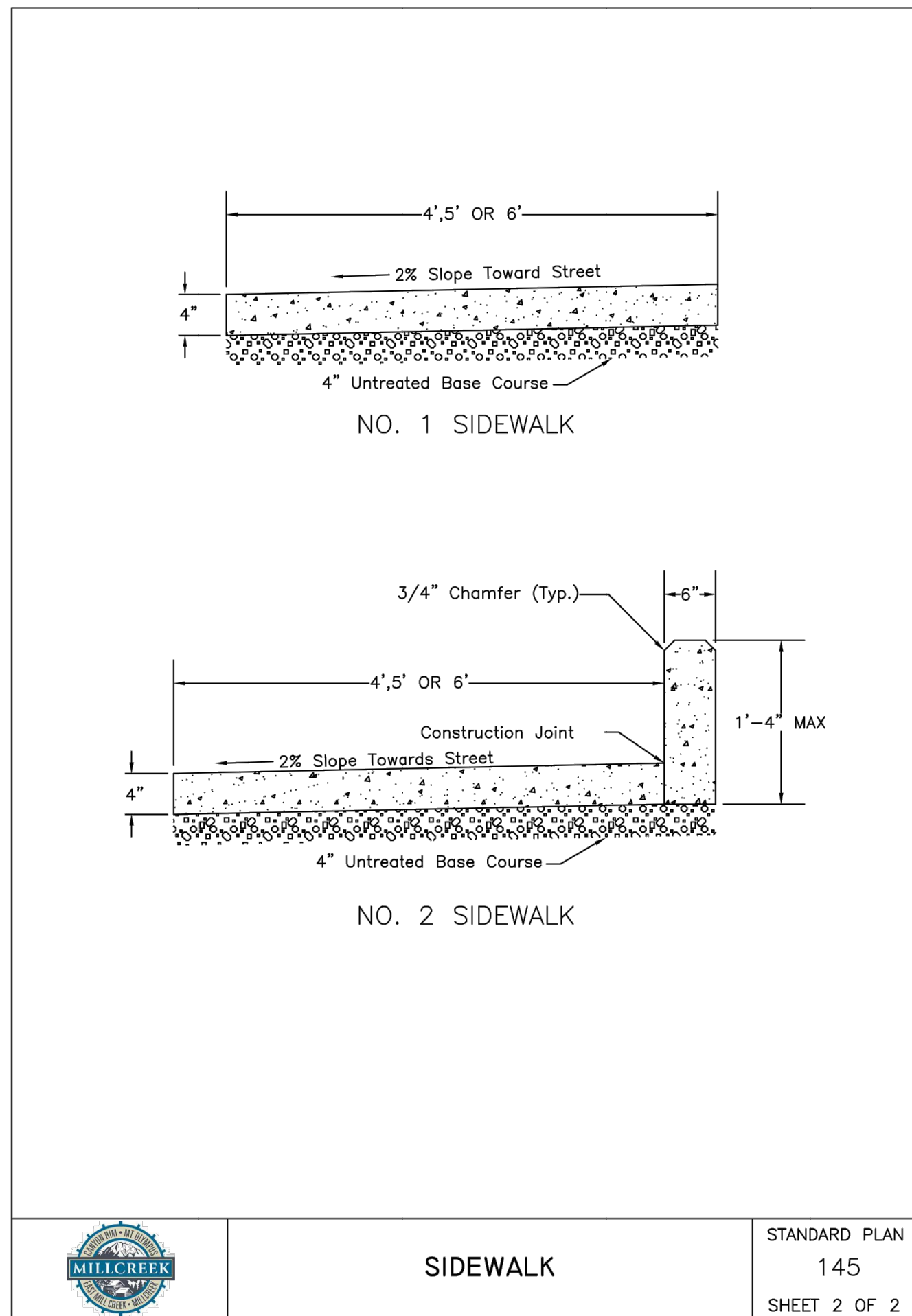
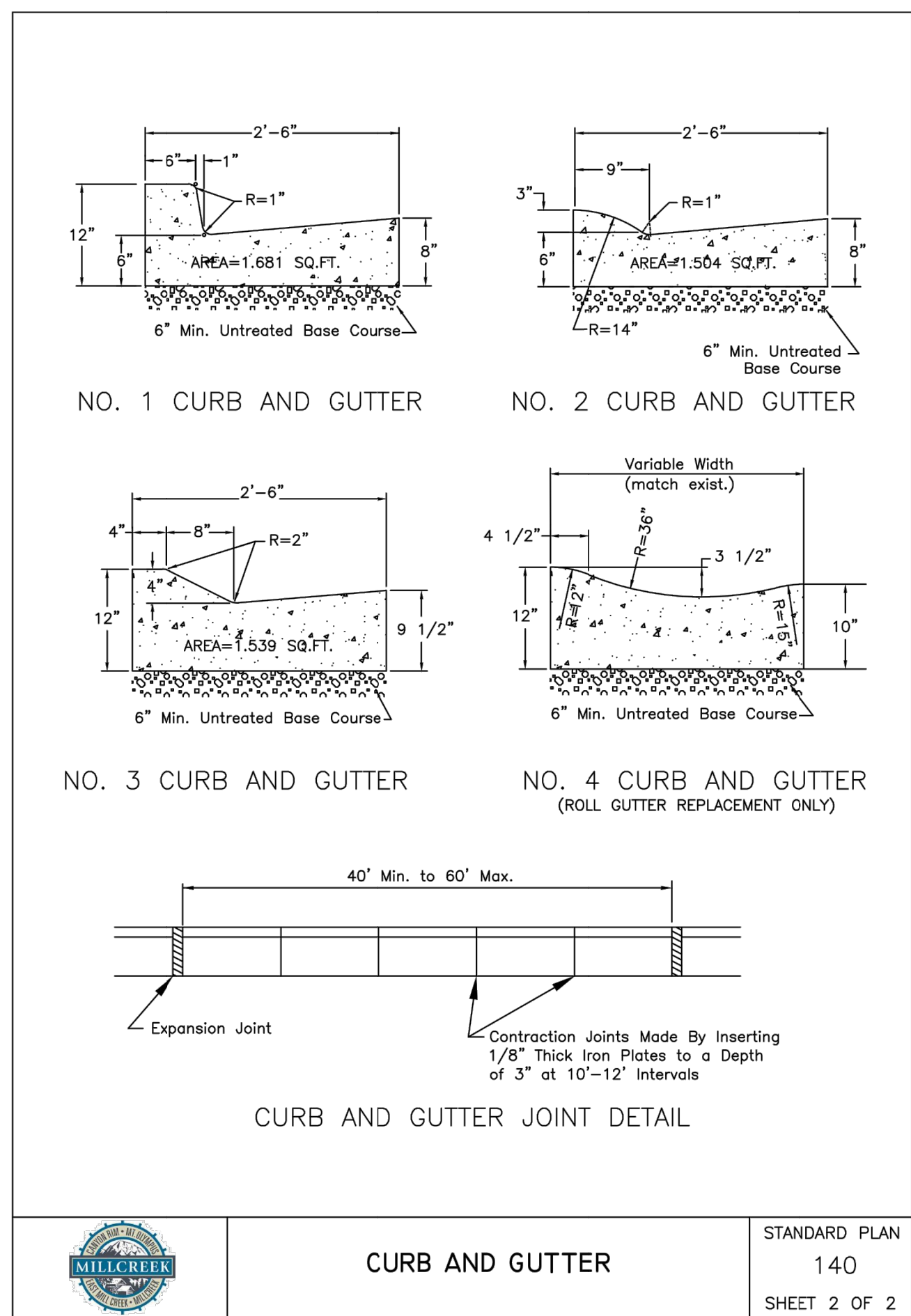
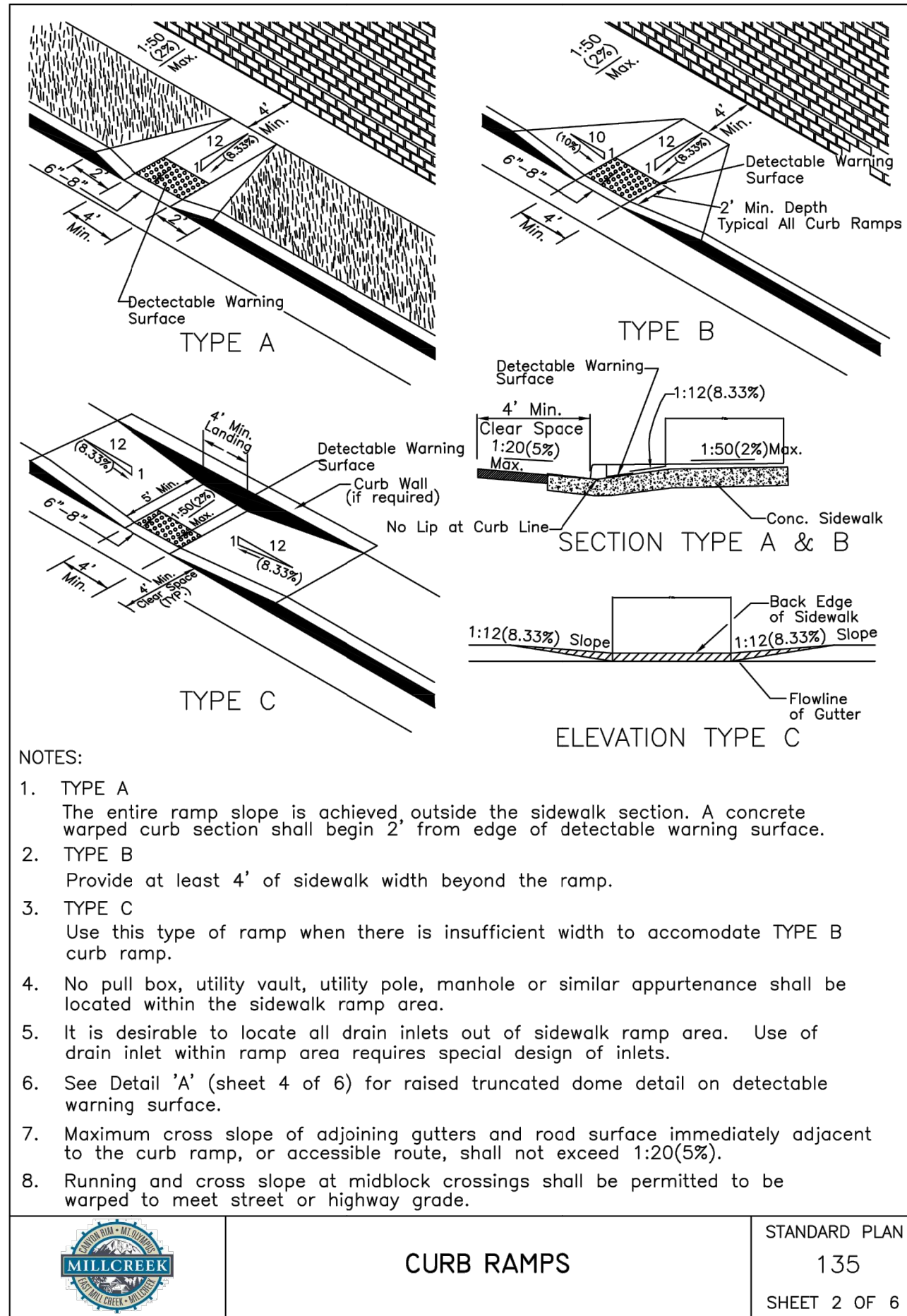
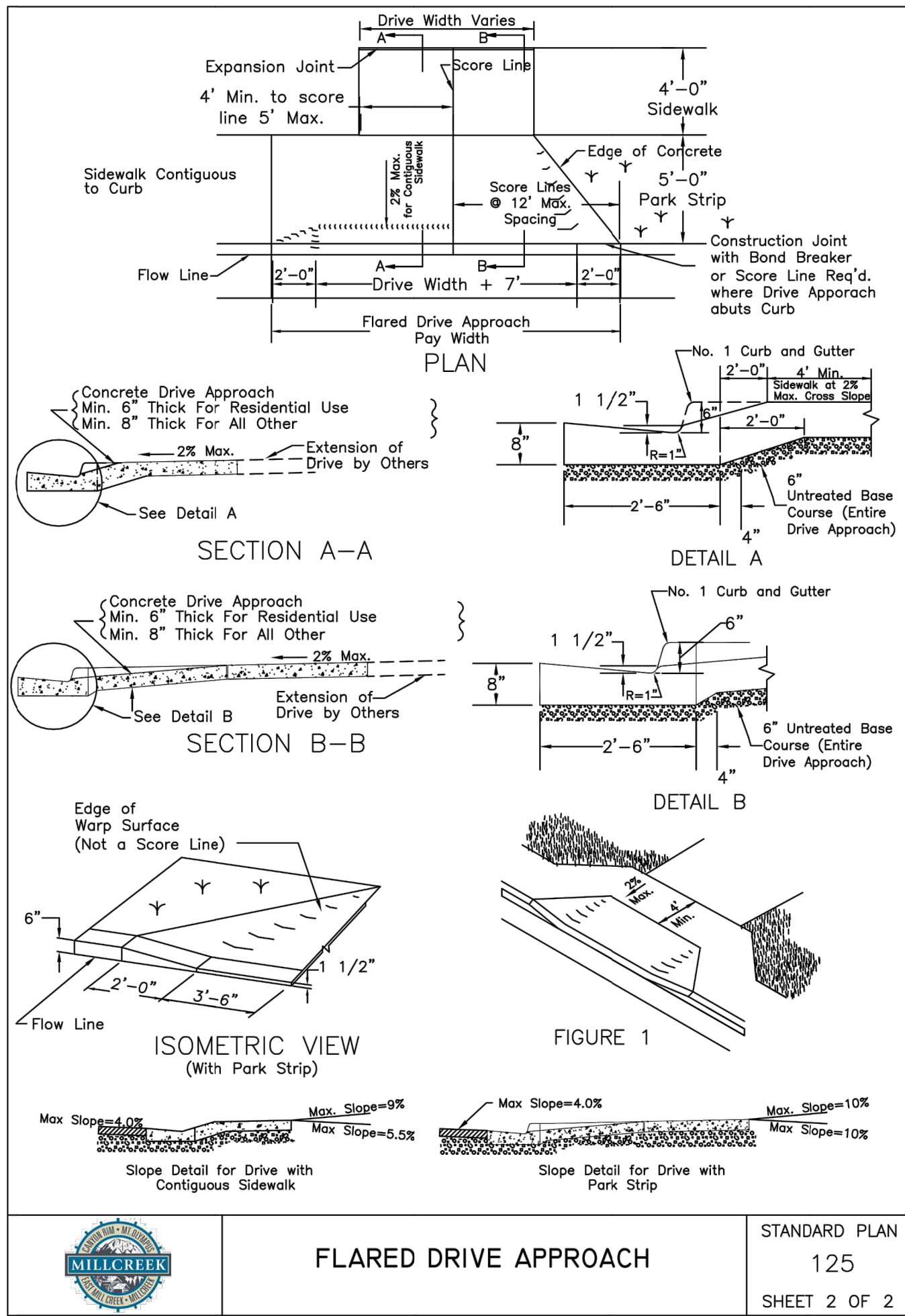
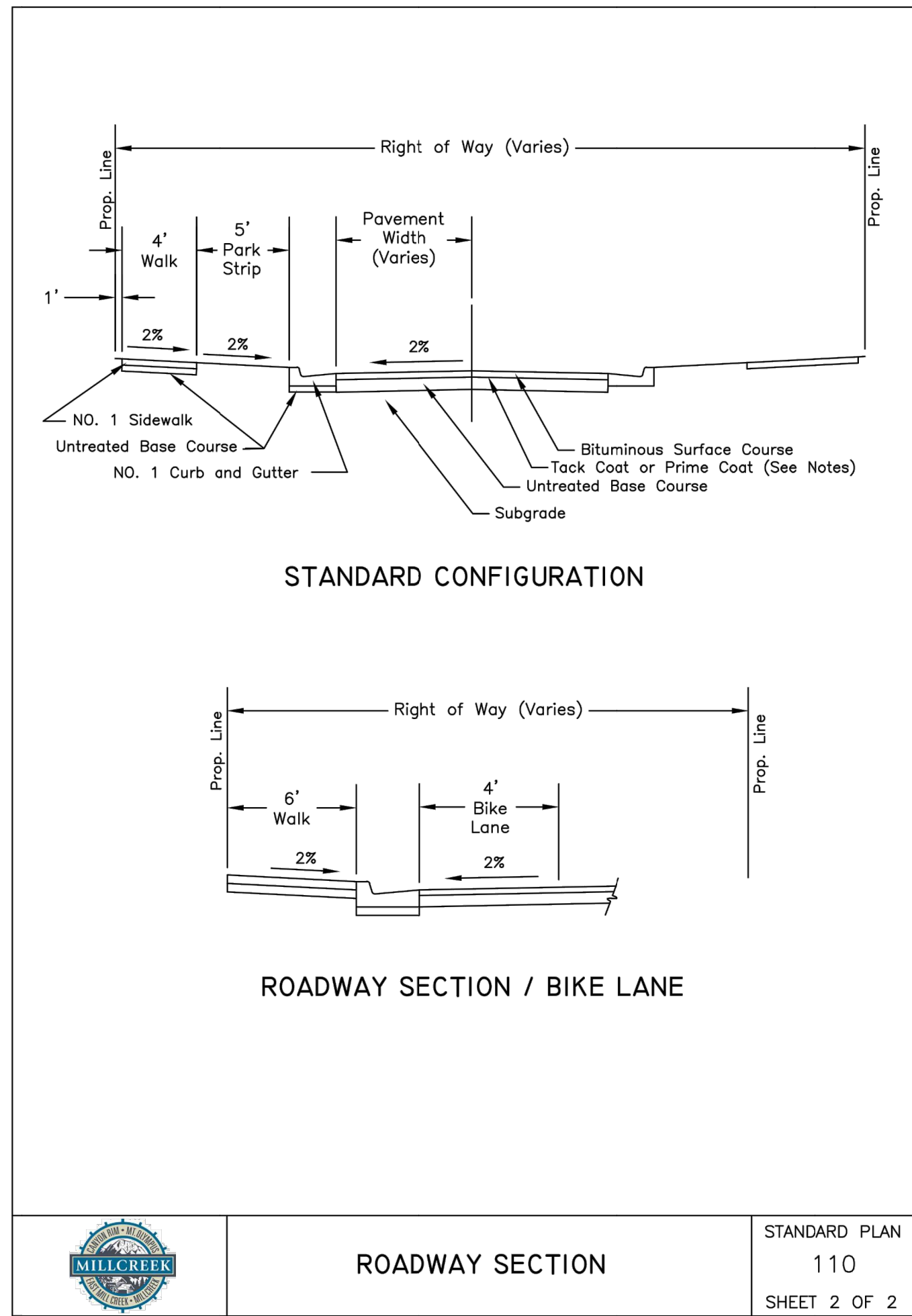
SHEET:
CP001

BINDING ORDER
2 of 10





-
- A circular professional engineer seal for the State of Utah. The outer ring contains the text "PROFESSIONAL ENGINEER" at the top and "STATE OF UTAH" at the bottom, separated by a decorative rope-like border. Inside the ring, the text "No. 10646782" is at the top, "RAMON MASRABADI" is in the center, and "09/14/20" is at the bottom. A signature is written across the center of the seal.

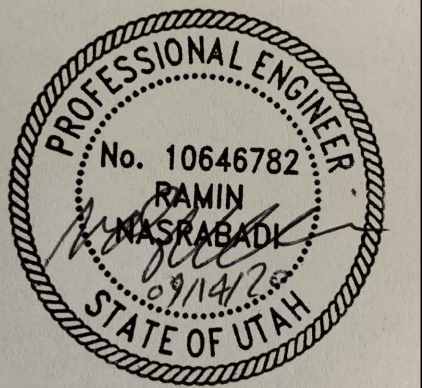
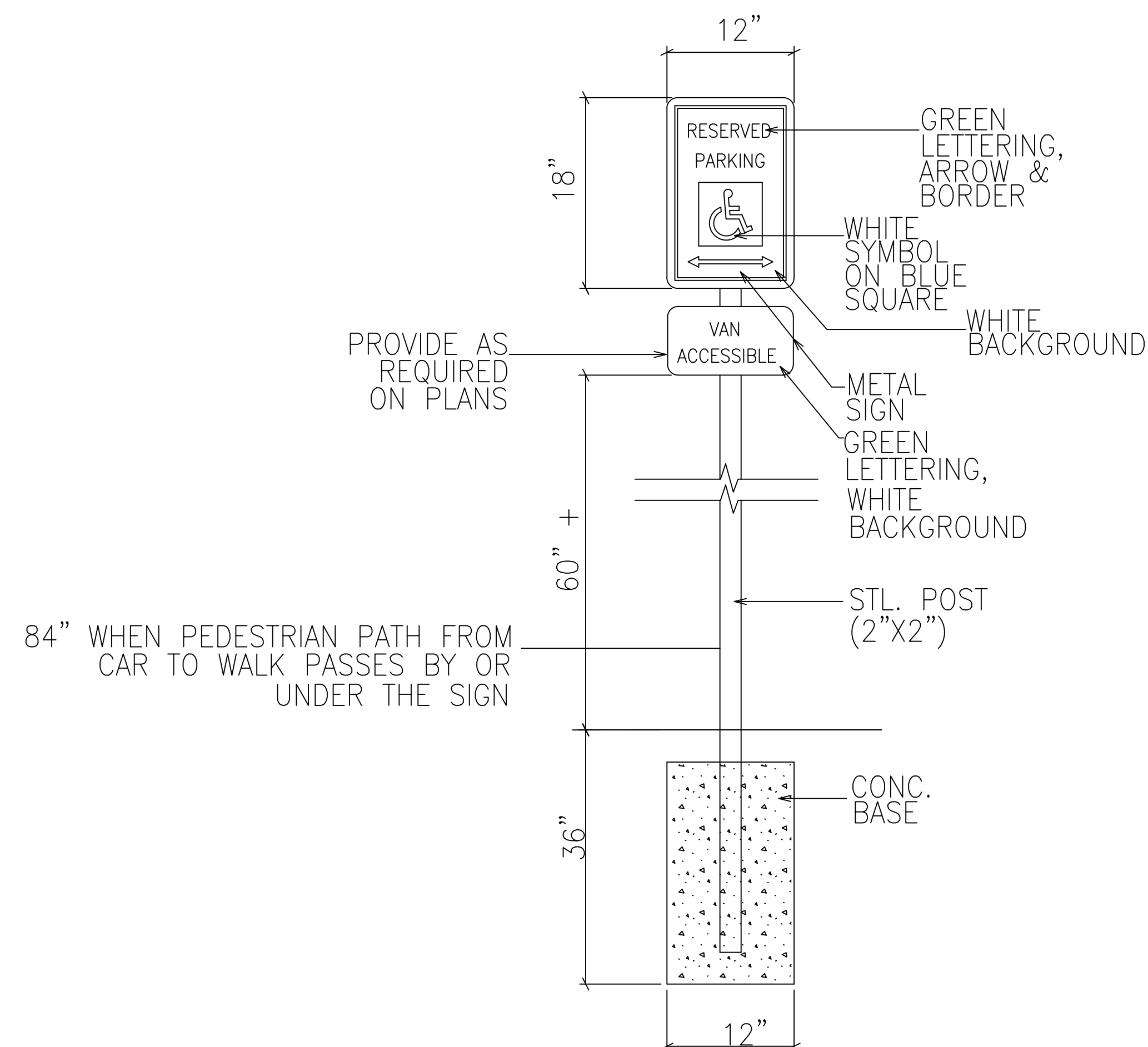
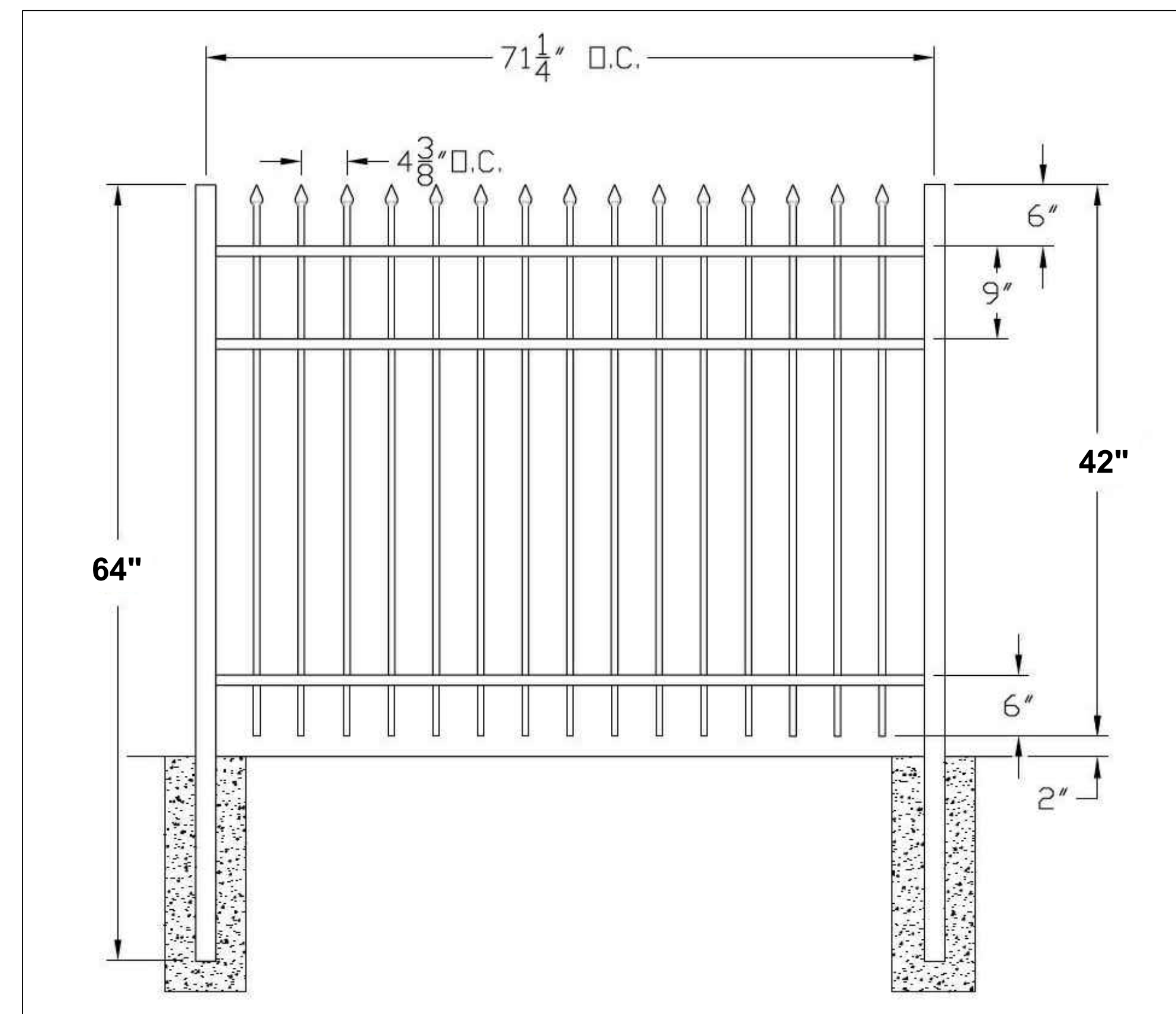
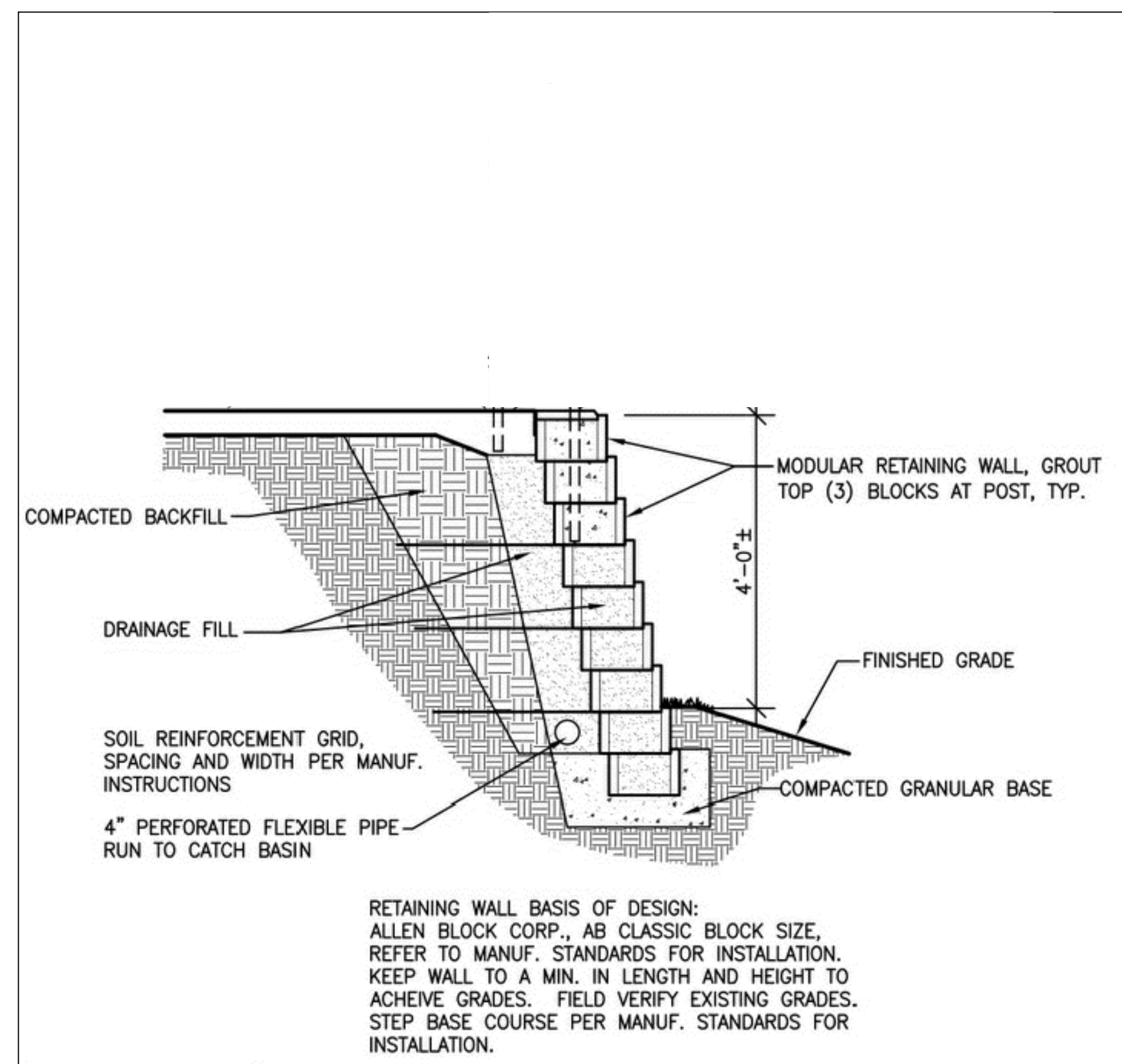


REVISIONS	DATE
ION PIPE RELOCATION	04-28-2020



DATE:	09/14/2020
DRAWN BY:	RN
DESIGNED BY:	RN
CHECKED BY:	RN
PROJECT NO:	19-101
SHEET:	DT001
BINDING ORDER	8 of 10

REVIEWED FOR CODE COMPLIANCE
FOR CONSTRUCTION OF DOCUMENTS
DO NOT AUTHORIZE CONSTRUCTION TO
PROCEED WITHOUT REVIEWER'S SIGNATURE
DATE: 10/28/2020
WEST COAST CODE CONSULTANTS, INC.



ARLINGTON MIXED USE
DEVELOPMENT
4572 S. 900 E., MILLCREEK, UT
DETAILS

[illegible]

DATE: 09/14/2020

DRAWN BY: RN

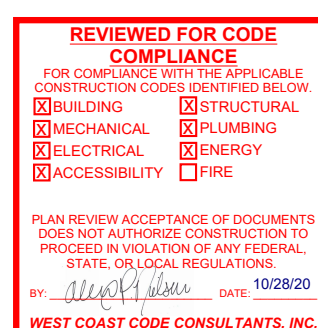
DESIGNED BY: RN

CHECKED BY: RN

PROJECT NO: 19-101

SHEET:
DT003

BINDING ORDER
10 of 10



DESIGN CRITERIA

Address:	ARLINGTON PROPERTIES LLC 4572 S. & 4600 S. 900 EAST
ROOF LOAD:	30 LB SNOW & 20 LB DEAD LOAD
FLOOR LOADING:	
Wood Framed:	70 total - 40 LB L.L. & 30 LB TOTAL DEAD LOAD
(Bedrooms)	60 total - 30 LB. L.L. & 30 LB TOTAL D.L.
(Public Corridors)	60 total - 30 LB. L.L. & 30 LB TOTAL D.L.
Concrete (Suspended Slab)	165 total - 40 LB. L.L. + 125 D.L.
GROUND SNOW LOAD:	PSF
SOIL BEARING:	2,000 PSF (If placed on suitable, undisturbed natural soil)
	2,500 PSF (If placed on a min. of 18" of Structural Fill)
SEISMIC ZONE:	D
	S _S = 1.506 g S _{MS} = 1.807 g S _{DS} = 1.205 g
	S ₁ = 0.536 g S _{M1} = 0.804 g S _{D1} = 0.536 g
WIND:	115 MPH - 3 SEC GUST
EXPOSURE:	B or C
FROST DEPTH:	30" Fa=1.2

APPLICABLE BUILDING CODE: 2018 INTERNATIONAL RESIDENTIAL CODE
(AS AMENDED AND ADOPTED BY STATE OF UTAH)
2018 INTERNATIONAL BUILDING CODE.

CONCRETE STRENGTH:	
FOOTINGS	2,500 PSI
FOUNDATION	3,000 PSI
INTERIOR SLAB	3,000 PSI
GARAGE SLAB	4,000 PSI
EXTERIOR SITE	4,000 PSI

GENERAL

- VISITS TO THE JOB SITE BY REPRESENTATIVES OF THE ENGINEER DO NOT CONSTITUTE APPROVAL OF THE WORK PERFORMED BY THE CONTRACTOR OR HIS SUBCONTRACTORS & ARE MERELY FOR THE PURPOSE OF OBSERVING THE WORK PERFORMED
- CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES, OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND /OR SPECIFICATIONS BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN ALL CASES, UNLESS OTHERWISE DIRECTED, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN AND BE PERFORMED.
- CONTRACTOR SHALL VERIFY ALL CONDITIONS, DIMENSIONS AND ELEVATIONS, ETC., AT THE SITE AND SHALL COORDINATE WORK PERFORMED BY ALL TRADES.
- TEMPORARY BRACING SHALL BE PROVIDED WHENEVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING WIND. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY, OR UNTIL THE STRUCTURAL ELEMENTS ARE COMPLETE
- CONTRACTOR AND ALL SUBCONTRACTORS SHALL PERFORM THEIR TRADES AND DUTIES IN A MANNER CONFORMING TO THE PROCEDURES AND REQUIREMENTS OF APPLICABLE BUILDING CODE, AND ALL APPLICABLE REFERENCED CODES THEREIN.
- ANY SPECIAL INSPECTION REQUIRED BY THE BUILDING OFFICIAL OR THE APPLICABLE BUILDING CODE ARE THE RESPONSIBILITY OF THE CONTRACTOR.

FOOTINGS & FOUNDATIONS

- ALL FOOTINGS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE INDICATED IN THE DESIGN CRITERIA ABOVE. ANY SOIL CONDITION ENCOUNTERED DURING EXCAVATION THAT IS CONTRARY TO DESIGN CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER BEFORE PROCEEDING.
- ALL FOOTINGS SHALL BEAR ON UNDISTURBED NATIVE SOIL OR ENGINEERED FILL COMPACTED TO 95% OF MAX DRY DENSITY, BASED ON ASTM D15557 METHOD OF COMPACTION. FILL SHALL BE PLACED IN ACCORDANCE WITH RECOMMENDATIONS OF SOIL ENGINEER AND SHALL EXTEND DOWN TO IN-SITU COHESIVE SOILS. FILL SHALL BE COMPACTED UNDER ALL STRUCTURAL CONCRETE WORK ON THE SITE.
- NO FOOTING SHALL BE PLACED IN WATER OR ON FROZEN GROUND. CONTRACTOR SHALL NOTIFY ENGINEER IN CASE GROUND WATER LEVELS ARE FOUND WITHIN FIVE FEET BELOW THE FINISHED GRADES.
- ALL EXCAVATIONS ADJACENT TO AND BELOW FOOTING ELEVATION FOR OTHER TRADES SHALL BE ACCOMPLISHED PRIOR TO POURING ANY FOOTINGS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR LATERALLY SPORTING ALL RETAINING TYPE FOUNDATION WALLS WHILE COMPACTING BEHIND WALLS AND UNTIL ALL SUPPORTING MEMBERS HAVE BEEN PLACED (SUCH AS FLOOR SLABS). ALL OPEN EXCAVATIONS AND TRENCHES SHALL BE SUPPORTED AND BARRICADED BY CONTRACTOR TO CONFORM TO OSHA SAFETY STANDARDS.
- ALL FOOTING REINFORCEMENT AND WALL AND COLUMN DOWELS SHALL BE SECURELY TIED IN PLACE PRIOR TO POURING CONCRETE.
- PROVIDE DOWELS IN FOOTINGS AND FOUNDATIONS TO MATCH ALL VERTICAL BARS IN WALLS AND COLUMNS ABOVE, UNLESS NOTED OTHERWISE.
- ALL INTERIOR AND GARAGE SLABS SHALL BE OVER 4 INCHES OF ¾ INCH FREE GRANULAR FILL, BEARING ON UNDISTURBED NATIVE SOIL OR ENGINEERED GRANULAR FILL (SEE NOTE #2). SEE TYPICAL DETAILS FOR CONTROL JOINTS REQUIREMENTS.
- STABILITY OF SLOPED SITES SHALL BE VERIFIED BY SOILS ENGINEER OR OTHER QUALIFIED PROFESSIONAL.

CONCRETE

- ALL FOOTINGS, FOUNDATIONS AND INTERIOR SLABS SHALL BE NORMAL WEIGHT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST THOSE SHOWN IN DESIGN CRITERIA ABOVE, WITHIN 28 DAYS AFTER POURING.
- ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY SPECIFICATIONS AND ACI STANDARDS AND PRACTICES.

CONCRETE REINFORCING

- ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH APPLICABLE BUILDING CODE.
- ALL METAL REINFORCEMENT SHALL BE DEFORMED TYPE BARS (EXCEPT #2 BARS) AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS ASTM A615 GRADE 60.
- ALL SPLICES IN CONTINUOUS CONCRETE REINFORCING BARS SHALL OVERLAP 36 X THE BAR DIAMETER. ALL SUCH SPLICES SHALL BE MADE IN A REGION OF COMPRESSION UNLESS OTHERWISE SHOWN. ALL CONTINUOUS REINFORCEMENT SHALL TERMINATE WITH A 90 DEG. TURN OR A SEPARATE CORNER BAR.
- ALL REINFORCING BARS SHALL BE SECURELY ANCHORED AND HELD IN PLACE AND SHALL BE SPACED FROM ADJACENT SURFACES (UNLESS NOTED OTHERWISE) AS FOLLOWS:
 - FORMED SURFACES IN CONTACT WITH THE GROUND OR EXPOSED TO WEATHER (GRADE BEAMS, WALLS, ETC.) AND SLAB ON GRADE: 1 ½ INCHES
 - UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH (BOTTOM AND SIDE OF FOOTINGS) : 3 INCHES
- IN ALL CASES MINIMUM COVER SHALL NOT BE LESS THAN THE DIAMETER OF ADJACENT BARS. REINFORCEMENT SHALL BE FREE OF MUD, OIL, OR OTHER NONMETALLIC COATINGS THAT ADVERSELY AFFECT BONDING CAPACITY.
- ALL OPENINGS IN CONCRETE WALL SHALL BE REINFORCED WITH (2) #4 BARS EXTENDING 2 FEET MINIMUM BEYOND THE EDGE OF THE OPENING AT EACH FACE OF OPENING.

LUMBER

- MEMBER GRADES SHALL BE AS FOLLOWS:
GLULAM BEAMS (SIMPLE SPAN)..... 24F-V4 DF/DF
(CANTILEVERED & CONTINUOUS OVER ONE SUPPORT OR MORE)..... 24F-V8 DF/DF
JOISTS..... DOUG FIR #2 BTR
HEADERS..... DOUG FIR #2 BTR
POSTS..... DOUG FIR #1 BTR
STUDS NONBEARING WALLS..... DOUG FIR STUD GRADE BTR
STUDS BEARING WALLS..... DOUG FIR #2 BTR
PRE-FAB TRUSSES/JOISTS..... AS PER MANUFACTURER
SILL PLATES IN CONTACT W/CONCRETE..... DOUG FIR #2 BTR PRESSURE TREATED
UNLESS NOTED OTHERWISE, CONNECT ALL WOOD TO CONCRETE, WOOD TO STEEL AND WOOD TO WOOD (EXCEPT STUD TO PLATE) WITH SIMPSON METAL CONNECTORS OR EQUIVALENT.
ALL MULTIPLE PLATES & LEDGERS SHALL BE NAILED TOGETHER W/ 16d NAILS AT 8" ON CENTER.
ALL MULTIPLE MEMBER HEADERS OR BEAMS SHALL BE GLUED AND NAILED TOGETHER WITH (2) ROWS OF 16d AT 8" O.C. FOR MEMBERS LESS THAN 8" DEEP. FOR MEMBERS MORE THAN 8" DEEP USE (3) ROWS OF 16d AT 8" O.C. & CLINCHED.
STUD WALLS SHALL RUN CONTINUOUS BETWEEN POINTS OF HORIZONTAL SUPPORT. PROVIDE BRACING FOR SUCH STUD WALLS UNLESS NOTED OTHERWISE.
BLOCK ALL HORIZONTAL EDGES OF PLYWOOD WALL SHEATHING WITH 2 INCHES NOMINAL BLOCKING. BLOCK EDGES OF PLYWOOD ON FLOORS AND ROOF AS DIRECTED ON DRAWINGS.
SOLID 2 INCHES NOMINAL BLOCKING SHALL BE PROVIDED AT ENDS OR POINTS OF SUPPORT OF ALL WOOD JOISTS AND TRUSSES. CROSS BRIDGING OF NOT LESS THAN 1 INCH X 3 INCHES MATERIAL SHALL BE PLACED IN ROWS BETWEEN SUPPORT POINTS, NOT TO EXCEED 8 FT APART FOR SPANS OF 14 FEET AND GREATER.
MINIMUM NAILING SHALL BE AS PER APPLICABLE BUILDING CODE -SEE MINIMUM NAILING SCHEDULE BELOW.

FLOOR SHEATHING NOTES

- LAY SHEATHING WITH FACE GRAIN AT RIGHT ANGLES TO FRAMING WITH END JOINTS STAGGERED. GLUE WITH GLUE CONFORMING TO AFG-01 ACCORDING TO APA SPECS.
- BLOCK JOISTS SOLID AT ALL BEARING POINTS

ROOF SHEATHING NOTES

- LAY SHEATHING WITH FACE GRAIN AT RIGHT ANGLES TO FRAMING WITH ENDS STAGGERED.
- BLOCK JOIST SOLID AT ALL BEARING POINTS.

WALL SHEATHING NOTES

- BLOCK ALL HORIZONTAL PLYWOOD EDGES WITH 2 INCHES NOMINAL OR WIDER FRAMING.
- ALL SHEATHING SHALL EXTEND CONTINUOUS FROM SILL PLATE TO ROOF OR FLOOR SHEATHING.
- SHEATHING SHALL BE CONTINUOUS FROM FLOOR FRAMING TO HEIGHT OF ROOF FRAMING ON UPPER LEVEL WALLS (VERTICAL SURFACES AT STEPS IN ROOF)
- NAILS SHALL BE SPACED NOT LESS THAN 3/8 INCHES FROM EDGES AND ENDS OF SHEATHING AND SHALL BE DRIVEN FLUSH BUT SHALL NOT FRACTURE THE SURFACE OF SHEATHING.
- SHEAR PANELS CANNOT BREAK AT FLOOR TRANSITION, THEY MUST BE LAPPED & STAGGERED (EXCEPT IF FLOOR-TO-FLOOR STRAPS ARE USED - CS16 or MST48 STRAPS)

CONNECTION	NAILING
1. JOIST TO SILL OR GIRDER TOENAIL.....	3-8d
2. BRIDGING TO JOIST, TOENAIL EA. END.....	2-8d
3. SOLE PLATE TO JOIST OR BLOCKING, FACE NAIL.....	16d @ 16" O.C.
4. TOP PLAT TO STUD.....	END NAILS 2-16d
5. STUD TO SOLE PLATE.....	4-8d TOENAIL OR 2-16d @ 24" O.C.
6. DOUBLE STUDS.....	FACE NAIL 16d @ 24" O.C.
7. DOUBLE TOP PLATES.....	FACE NAIL 16d @ 16" O.C.
8. TOP PLATES, LAPS AND INTERSECTIONS.....	FACE NAIL 2-16d.
9. CONTINUOUS HEADERS, TWO PIECES.....	ALONG EA. EDGE 16d @ 16" O.C.
10. CEILING JOIST TO PLATE.....	TOENAIL 3-8d
11. CONTINUOUS HEADER TO STUD.....	TOENAIL 4-8d
12. CEILING JOISTS, LAPS OVER PARTITIONS.....	FACE NAIL 3-16d
13. CEILING JOISTS TO PARALLEL RAFTERS.....	FACE NAIL 3-16d
14. RAFTER TO PLATE.....	TOENAIL 3-8d
15. BUILT-UP CORNER TO STUDS.....	16d @ 24" O.C.
16. BUILT-UP GIRDER AND BEAMS.....	20d @ 32" O.C. T&B STAGGERED 2-20d @ ENDS & SPLICES

SHEARWALL STAPLE EQUIVALENCY CHART

COMMON NAILS	16 Ga.	15 Ga.	14 Ga.
8d @ < 3"	STAPLES NOT ALLOWED		
8d @ 3"	2"	3"	3.5"
8d @ 4"	2.5"	3.5"	4"
8d @ 6"	4"	5"	6"
8d @ 8"	5.5"	6.5"	8"
8d @ 10"	6.5"	8"	10"
8d @ 12"	8"	10"	12"

- MINIMUM STAPLE PENETRATION INTO MAIN MEMBER IS 1"
- PLACE STAPLES PARALLEL TO PANEL EDGE
- PROVIDE 3/8" DISTANCE FROM PANEL EDGE TO STAPLE.

EXTERIOR & BEARING WALL FRAMING:

- ALL EXTERIOR WALLS TO BE 2x4 OR 2x6, SHEATHED PER SHEARWALL SCHEDULE.
- USE FULL HEIGHT STUDS ON ALL EXTERIOR WALLS PER EXTERIOR WALL FRAMING CHART.

FRAMING SPECIFICATION	MAXIMUM STUD HEIGHT
2x4's @ 16" O.C.	9'-6"
2x4's @ 12" O.C.	10'-6"
2x4's @ 8" O.C. or (2) 2x4's @ 16" O.C.	12'-6"
2x6's @ 16" O.C.	15'-0"
2x6's @ 12" O.C.	17'-0"

B/ BM	BOTTOM OF BEAM	PL	ON CENTER PLATE
CJ	CONTROL JOINT	SW	SHEAR WALL
CL or t	CENTER LINE	T/	TOP OF
CMU	CON. MASONRY UNIT	T.O.S.	TOP OF SLAB
EF	EACH FACE	T.O.W.	TOP OF WALL
GA	GAUGE	W/	WITH
GSN	GEN. STRUCT. NOTES	WWF	WIRE MESH
N.T.S.	NOT TO SCALE	U.N.O.	UNLESS NOTED OTHERWISE

AS A MINIMUM AND IF NOT SPECIFICALLY DETAILS OR NOTED ELSEWHERE & OTHERWISE, THE VARIOUS WOOD COMPONENTS OF THE STRUCTURE SHALL BE FASTENED TOGETHER AS FOLLOWS:

ITEM	GRAPHIC	DESCRIPTION & FASTENING
1.		JOIST TO MUD SILL or UPPER TOP PLATE: (3) 8d COMMON or 16d SINKER or SHORT NAIL, TOE-NAIL.
2.		BLOCKING TO JOIST: (3) 8d COMMON or 16d SINKER or SHORT, TOE-NAIL or (2) 16d SINKER or SHORT FACE NAIL.
3.		SOLID (BOTTOM) PLATE TO JOIST or BLOCKING: 16d SINKER or SHORT FACE NAIL @ 16" O.C.

4.		LOWER TOP PLATE TO STUD: (2) 16d COMMON FACE NAIL.
5.		STUD TO SOLE BOTTOM PLATE: (2) 16d SINKER or SHORT FACE NAIL or (4) 8d COMMON or 16d SINKER or SHORT TOE-NAIL. AT 3x SILL PLATES, USE (2) 20d BOX FACE NAIL IN LIEU OF (2) 16d SINKER or SHORT.
6.		DOUBLE STUDS, or BUILT-UP STUDS TYPICAL STITCHING: 16d SINKER or SHORT FACE NAILS @ 24" O.C.

7.		TOP PLATE AT INTERSECTION, FACE NAIL: (4) 16d COMMON FACE NAIL.
8.		TOP PLATES TYPICAL STITCHING: 16d SINKER or SHORT FACE NAILS @ 16" O.C.
9.		UPPER TOP PLATES AT LAPS: (8) 16d SINKER or SHORT FACE NAIL EACH SIDE OF BUTT JOINT.

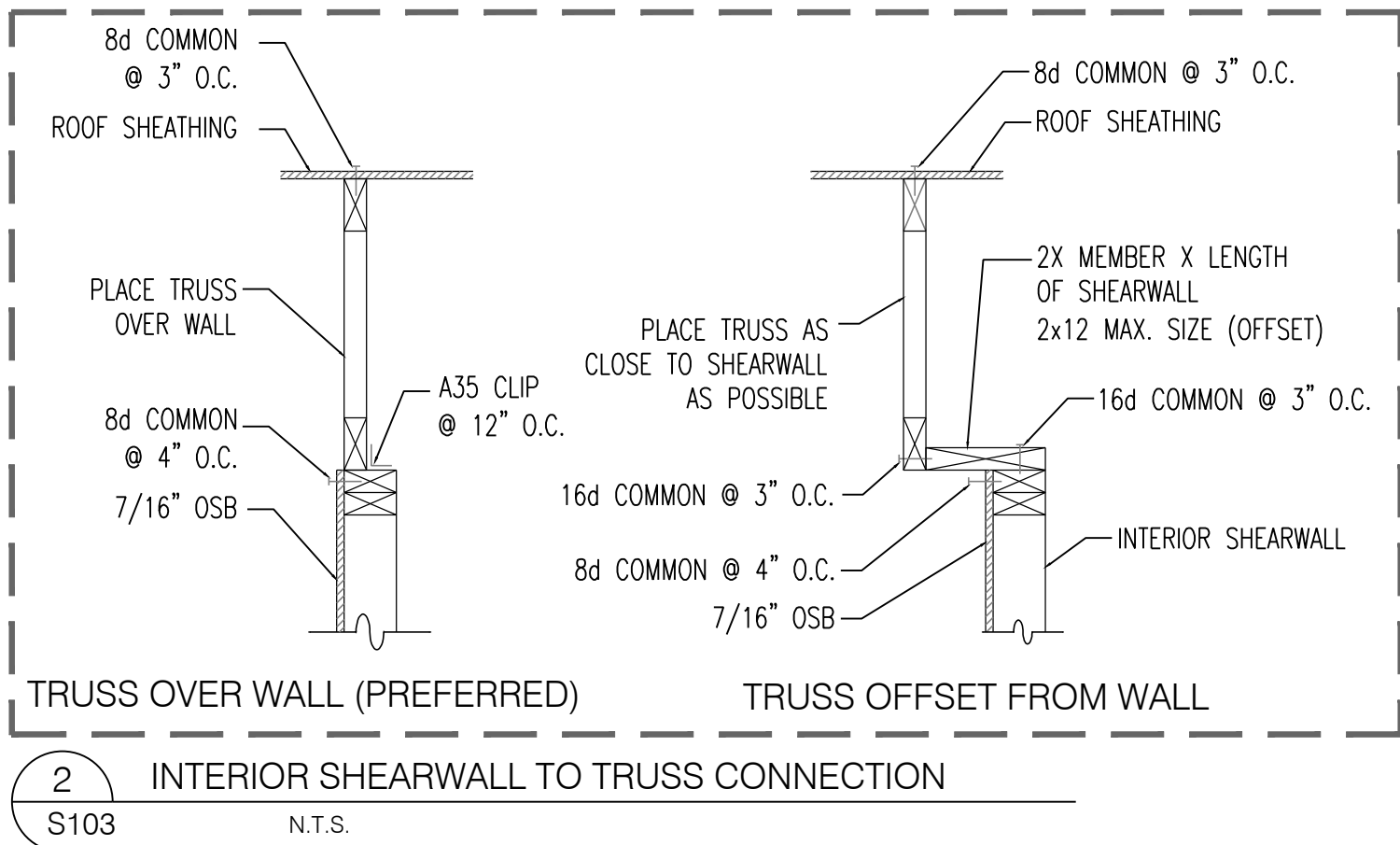
10.		RIM JOIST TO UPPER TOP PLATE or MUD SILLS: 8d COMMON or 16d SINKER or SHORT TOE-NAILS @ 6" O.C. AT EXTERIOR WALLS SHEATHING MUST OVERLAP ALL JOINTS BY 12" MINIMUM.
11.		CEILING JOIST TO TOP PLATE, TOE-NAIL: (3) 8d COMMON or 16d SINKER or SHORT TOE NAIL.

12.		CEILING JOIST, LAP OVER WALLS & PARTITIONS: (3) 16d COMMON FACE NAILS.
13.		CEILING JOIST, TO PARALLEL RAFTERS: (3) 16d COMMON FACE NAILS.
14.		RAFTER TO PLATE, TOE NAIL: (3) 8d COMMON or 16d SINKER or SHORT TOE NAIL.

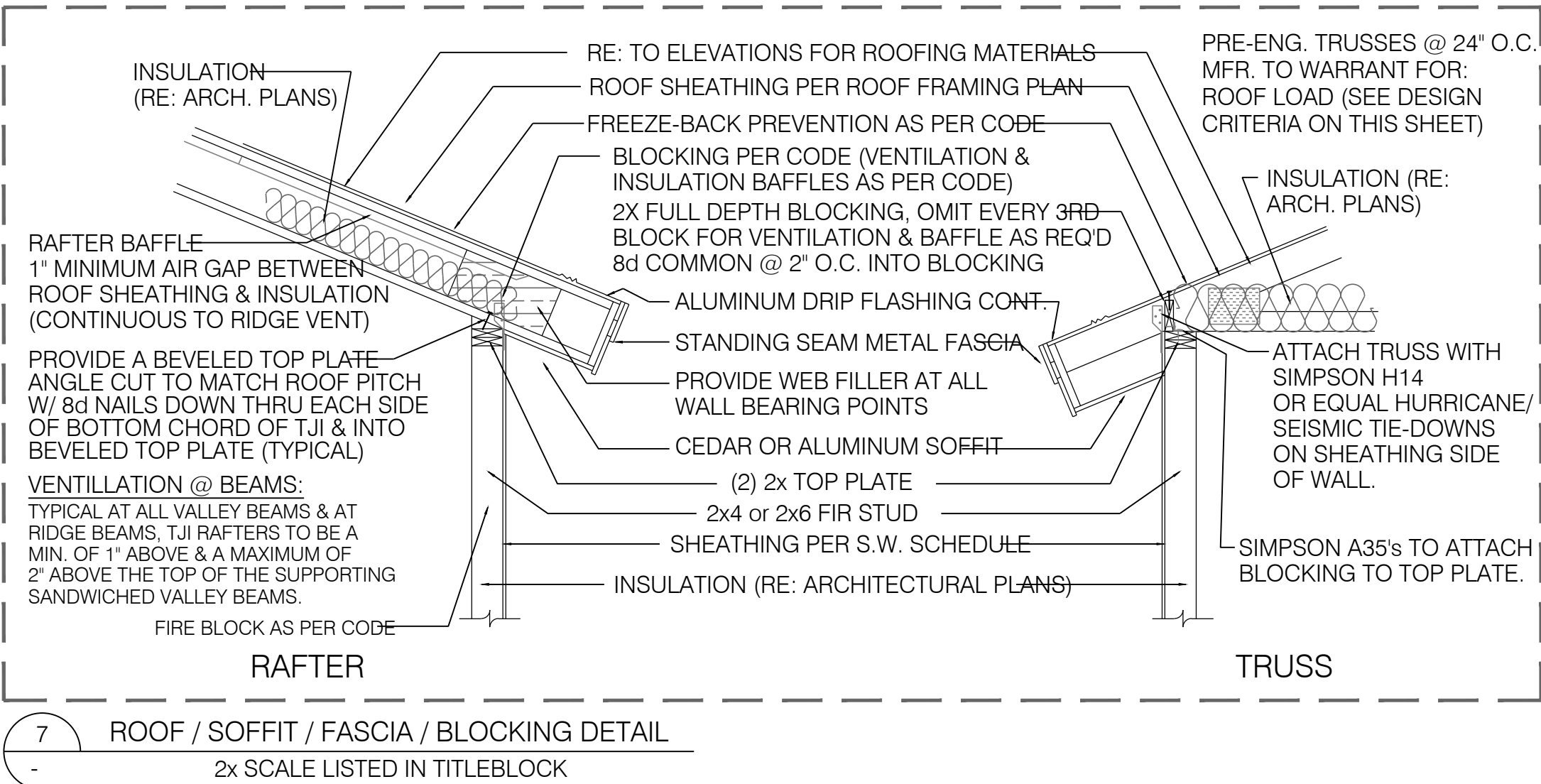
15.		BUILD UP CORNER STUD: 16d COMMON FACE NAILS @ 24" O.C.
16.		THREE PIECE BUILD UP GIRDER & BEAM: PER SUPPLIER / MFR.

NOTES:

- Fasteners, including nuts and washers, and connectors in contact with preservative-treated and fire-retardant-treated wood shall be in accordance with Sections 2304.10.5.1 through 2304.10.5.4. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A153. Stainless steel driven fasteners shall be in accordance with the material requirements of ASTM F1667.



2 INTERIOR SHEARWALL TO TRUSS CONNECTION
S103 N.T.S.



TASK	FREQUENCY		REFERENCES	
	PERIODIC	CONTINUOUS	STANDARD	IBC
1. Inspection of reinforcing steel, & placement	x	---	ACI 318: 3.5, 7.1-7.7	1913.4
2. Inspect bolts to be installed in concrete prior to and during placement of concrete	---	x	ACI 318: 8.1, 21.1.8	1911.5, 1912.1
3. Inspection of anchors installed in hardened concrete	x	---	ACI 318: 3.8.6, 8.1.3, 21.1.9	1912.1
4. Verify use of required design mix	x	---	ACI 318: Ch. 4, 5.2-5.4	1904.3, 1913.2, 1913.3
5. Perform slump test, measure air content, measure temperature of fresh concrete at the time strength test specimens are taken	---	x	ASTM C172, ASTM C31	1913.10
6. Inspection of concrete placement for proper application techniques	---	x	ACI 318: 5.11 - 5.13	1913.6, 1913.7, 1913.8
7. Inspection for specified curing temperature and techniques	x	---	ACI 318: Ch. 16	1913.9
8. Inspect framework for shape, location and dimensions of concrete forms	x	---	ACI 318: 6.1.1	---

TASK	FREQUENCY	
	PERIODIC	CONTINUOUS
1. Verify materials below footings are adequate to achieve the design bearing capacity	x	---
2. Verify proper depth of excavations and that proper material has been reached	x	---
3. Perform testing and classification of controlled fill materials	x	---
4. Verify use of specified; material, density, and lift thickness during placement and compaction of controlled fill	---	x
5. Observe subgrade and verify proper grading prior to placement of controlled fill	x	---

SPECIAL INSPECTION REQUIREMENTS

- SPECIAL INSPECTION REQUIREMENTS SHALL BE PROVIDED BY OWNER PER CHAPTER 17 OF IBC. THE SPECIAL INSPECTOR SHALL OBSERVE WORK FOR CONFORMANCE WITH CONTRACT DOCUMENTS THE SPECIAL INSPECTOR SHALL SEND REPORTS TO THE OWNER, BUILDING OFFICIAL, ARCHITECT, ENGINEER, AND CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. A FINAL REPORT SHALL BE SUBMITTED BY THE SPECIAL INSPECTOR STATING THAT COMPLETED WORK WAS, TO THE BEST OF HIS KNOWLEDGE, IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS AND APPLICABLE WORKMANSHIP PROVISIONS OF THE IBC.
- ALL INSPECTION IS TO BE CONTINUOUS SPECIAL INSPECTION UNLESS NOTED OTHERWISE.
 - CONTINUOUS SPECIAL INSPECTION IS DEFINED AS: FULL TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED.
 - PERIODIC SPECIAL INSPECTION IS DEFINED AS: PART TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND UPON COMPLETION OF THE WORK.
- SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING WORK:
 - CONCRETE
 - SEE TABLE 1 (THIS SHEET) FOR INSPECTION REQUIREMENTS.
 - NO INSPECTION REQUIRED FOR SLAB ON GRADE
 - EXCEPTION: SPECIAL INSPECTION NOT REQUIRED FOR CONTINUOUS AND SPOT FOOTINGS EXCEPT THAT INSPECTION OF INSTALLATION OF ANCHOR RODS SHALL BE COMPLETED BEFORE PLACING CONCRETE.
 - HIGH STRENGTH BOLTS (PERIODIC)
 - INSPECTION OF ALL CONNECTIONS USING ASTM A325 BOLTS IS REQUIRED.
 - ALL HIGH STRENGTH BOLTS IN BEARING OR SHEAR TYPE CONNECTIONS IN BEARING OR SHEAR CONNECTIONS SHALL BE FULLY TIGHTENED TO "SNUG TIGHT" CONDITION PER RCSC SPECIFICATION SECTION 8.1
 - STEEL
 - NONE FOR THIS PROJECT.
 - FABRICATION (PERIODIC)
 - VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROLS FOR THE WORKMANSHIP.
 - VERIFY THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS.
 - REVIEW PROCEDURES TO ASSURE COMPLETENESS AND ADEQUACY.
 - EXCEPTION: SPECIAL INSPECTION NOT REQUIRED IF FABRICATOR IS REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION.
 - EPOXY ANCHORAGE
 - APPROVED MANUFACTURERS ARE: SIMPSON SET-XP (ICC ESR-2508), HILTI HIT-RE 500-SD (ICC ESR-2322)
 - INSPECT FOR PROPER INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.
 - SOILS
 - SEE TABLE 3 (THIS SHEET) FOR INSPECTION REQUIREMENTS
 - STRUCTURAL OBSERVATIONS: NONE REQUIRED UNLESS REQUIRED BY BUILDING OFFICIAL.
 - AT COMPLETION OF FABRICATION THE BEAM AND JOIST MANUFACTURER SHALL SUBMIT A CERTIFICATE OF COMPLIANCE AS AN APPROVED FABRICATOR AND THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH APPROVED CONSTRUCTION DOCUMENTS AND WITH STANDARD SPECIFICATIONS PER IBC SECTION 1704.2.5.1.
 - SPECIAL INSPECTOR(S) SHALL BE QUALIFIED AND APPROVED BY CITY BUILDING DEPARTMENT
 - THE LATERAL RESTRAINT SHALL BE INSPECTED BY THE STRUCTURAL ENGINEER.
 - SPECIAL INSPECTION IS REQUIRED FOR TIMBER FRAMING.



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10/19/20
No. 362118
Bradley S. Gilson
Professional Engineer
State of Utah

MIXED USE SITE DEVELOPEMENT

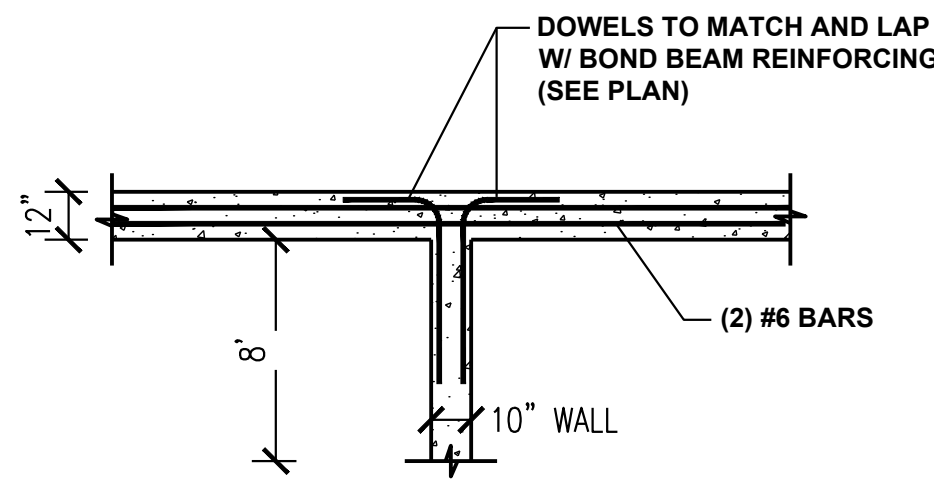
STRUCTURAL NOTES DETAILS

MARK.	DATE	DESCRIPTION
2	07/20/20	Changes per WC# Plan Chk.

PROJECT: A-19-001
SCALE: (11x17): 1/8"=1'-0"
SCALE: (24x36): 1/4"=1'-0"
CHECKED BY: BG
ISSUED: 02/07/2020

SHEET

S100



BOND BEAM DETAIL
NO SCALE

ANCHOR BOLT NOTES

- J BOLTS or EPOXIED ANCHORS.
- 1/2" Ø x 16" @ 32" O.C.
- MINIMUM 10" EMBEDMENT
- MINIMUM (2) BOLTS PER WALL WITH ONE BOLT NOT LESS THAN 12" FROM ENDS.
- USE 3" x 3" x 1/4" WASHERS.
- STANDARD CUT WASHERS TO BE PLACED BETWEEN THE WASHER & NUT. (RE: 2015 IRC - R602.11.1).

GENERAL BASEMENT & CONC. NOTES:

1. BOTTOM OF FOOTINGS TO BE $\geq 36"$ BELOW FINISHED GRADE.
2. SILL TO BE REDWOOD, CEDAR OR PRESSURE TREATED LUMBER OVER SILL SEALER.
3. BOTT. PLATE CONTACTING CONCRETE TO BE REDWOOD or PRESSURE TREATED LUMBER.
4. SLOPE GARAGE SLAB 1/4" PER FOOT TOWARDS O.H. DOOR(S)
5. PLUMBER TO PROVIDE DRAIN IN MECHANICAL ROOM.
6. SLOPE SLAB TO DRAIN IN MECHANICAL ROOM.
7. FLASH AND CAULK ALL EXTERIOR WINDOWS & DOORS PER MFR. INSTRUCTIONS.
8. BATHTUB & WHIRLPOOL TUBS MUST HAVE ANTI-SCALD MIXING VALVES LIMITING WATER TEMPERATURE TO 120° FAHRENHEIT.
9. LID AND WALLS OF ENCLOSED STAIRS TO BE COVERED w/ 5/8" TYPE 'X' DRYWALL.

FOUNDATION NOTES:

FOUNDATION CONCRETE TO BE 3,000 PSI & ALL REBAR TO BE GRADE 60
PROVIDE (2) #4s AROUND ALL OPENINGS AT TOP, BOTTOM & SIDES

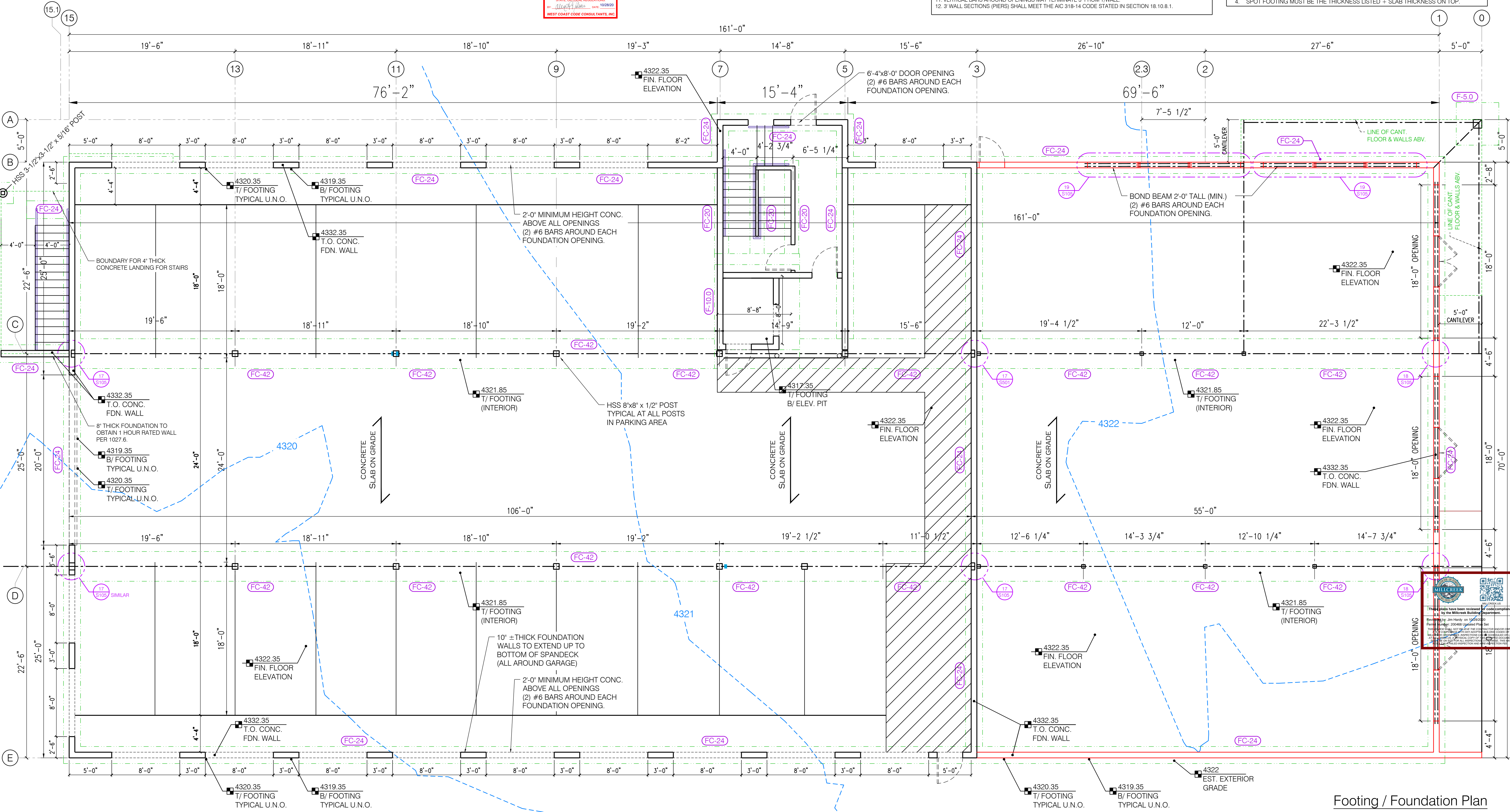
10' x (4'-6" MAX.) WALL:	10' x (8'-0" MAX.) WALL:	10' x (9'-0" MAX.) WALL:
#4 @ 24" MAX O.C. VERT. #4 @ 18" MAX O.C. HORIZ. (MIN. OF 4 HORIZ BARS REQ'D)	#4 @ 24" MAX O.C. VERT. #4 @ 18" MAX O.C. HORIZ. (MIN. OF 8 HORIZ BARS REQ'D)	#4 @ 16" MAX O.C. VERT. #4 @ 18" MAX O.C. HORIZ. (MIN. OF 7 HORIZ BARS REQ'D)
10' x (10'-6" MAX.) WALL:	10' x (11'-6" MAX.) WALL:	
#4 @ 12" MAX O.C. VERT. #4 @ 12" MAX O.C. HORIZ. (2) MATS	#5 @ 12" MAX O.C. VERT. #4 @ 12" MAX O.C. HORIZ. (2) MATS	

1. WALL HEIGHT REFERS TO THE FINAL GRADE DIFFERENCE THROUGH THE WALL. TOTAL HEIGHT OF WALL MAY BE HIGHER DUE TO THE FOOTING DROP FOR FROST PROTECTION OR NATIVE SOIL BEARING AS LONG AS WALL IS BACKFILLED SUCH THAT THE GRADE DIFFERENCE DOES NOT EXCEED THE WALL HEIGHT AT ANY TIME DURING CONSTRUCTION.
2. ALL REBAR TO BE GRADE 60.
3. PLACE VERTICAL BARS IN THE CENTER OF WALL.
4. EXTEND VERTICAL BARS FROM THE FOOTING TO WITHIN 3' OF T.WALL.
5. PROVIDE #4 DOWEL w/ STD. HOOK IN THE FOOTING TO MATCH THE VERTICAL REBAR.
6. EXTEND VERTICAL LEG OF DOWEL 24" MIN. INTO WALL.
7. PLACE (1) #4 HORIZONTALLY WITHIN 4" OF TOP & BOTTOM OF WALL.
8. PROVIDE CORNER REINFORCING SO AS TO LAP 24" MINIMUM.
9. PROVIDE (2) #4 ABOVE, (1) #4 EACH SIDE, & (1) #4 BELOW ALL OPNGS.
10. PLACE STEEL WITHIN 2" OF OPENINGS & EXTEND BEYOND EDGE 24".
11. VERTICAL BARS AROUND OPENINGS MAY TERMINATE 3' FROM T.WALL.
12. 3' WALL SECTIONS (PIERS) SHALL MEET THE A/C 318-14 CODE STATED IN SECTION 18.10.8.1.

FOOTING SCHEDULE:

MARK	WIDTH	THICK	LENGTH	REBAR	REMARKS
(FC-20)	20"	10"	CONT.	(2) #5 CONTINUOUS	1, 2, 3
(FC-24)	24"	10"	CONT.	(3) #5 CONTINUOUS	1, 2, 3
(FC-36)	36"	10"	CONT.	(3) #5 CONTINUOUS & TRANSVERSE #5 BARS @ 32" O.C.	1, 2, 3
(FC-42)	42"	12"	CONT.	(4) #5 CONTINUOUS & TRANSVERSE #5 BARS @ 16" O.C.	1, 2, 3
(F-5.0)	5'-0"	12"	5'-0"	#5 BARS @ 12" O.C. EACH WAY	1, 2, 3
(F-10.D)	10'-0"	12"	10'-0"	#5 BARS @ 12" O.C. EACH WAY	1, 2, 3

1. 3000 PSI CONCRETE
2. GRADE 60 STEEL
3. INTERIOR CONTINUOUS FOOTINGS ARE OKAY TO BE THICKENED SLAB FOOTINGS.
4. SPOT FOOTING MUST BE THE THICKNESS LISTED + SLAB THICKNESS ON TOP.



- ▲ SIMPSON STHD14(RJ) HOLDOWN STRAPS. USE (RJ) MODEL WHERE STRAP OVERLAPS A FLOOR RIM JOIST. OR HDU-11 WITH 1" WEDGE ANCHOR BOLT WITH 10" EMBED SET EPOXY.
- ▲ SIMPSON STHD16(RJ) HOLDOWN STRAPS.

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801-608-9382

FOOTING / FOUNDATION PLAN

MARK	DATE	DESCRIPTION
2	07/20/20	Changes per WC# Plan Chk.

PROJECT: A-19-001
SCALE (11x17): 3/32"=1'-0"
SCALE (24x36): 3/16"=1'-0"
CHECKED BY: BG
ISSUED: 02/07/2020

SHEET
S101

- 8" THICK PRECAST HOLLOW CORE CONCRETE BY FORTERRA STRUCTURAL PRECAST, LLC. CONCRETE TOPPING & TOPPING REBAR & WALL CONNECTION DETAILS PROVIDED BY MFR.
- SLAB TO BE DESIGNED AS A STRUCTURAL DIAPHRAGM IN ACCORDANCE WITH SECTION 18.12 OF THE AIC 318-14.

-
- SIMPSON STHD16(RJ) HOLDOWN STRAPS.


- ALL EXTERIOR FRAMED WALLS TO BE:
2x6 (RE. PLANS) SHEATHED PER S.W. SCHEDULE.
WIND: 115 (3 SEC. GUST).
SEISMIC CATEGORY: (SEE ENGINEERING CALC'S).
- GLUE & NAIL FLOOR DIAPHRAGMS TO JOISTS & PONY WALLS
PER CODE.
- FLOOR JOISTS/TRUSSES/LAOD RATINGS:
RESIDENTIAL UNITS:
FLOOR TRUSSES: 40# L.L. & 20# D.L. + 15# Gypcrete
BEDROOMS: 30# L.L. & 20# D.L. + 15# Gypcrete
CORRIDORS / LOBBY 100# L.L. & 20# D.L. + 15# Gypcrete
- SUSPENDED SLAB FLOOR WITH TOP COAT (SPAN DECK)
RESIDENTIAL UNITS:
40# L.L. & 125# D.L.
- PONY WALLS TO BE 2x4 OR 2x6 STUDS @ 16" O.C.
- STIFF BACKING, ROTATIONAL & LATERAL BLOCKING REQUIRED
AS PER TRUSS MANUFACTURE SPECIFICATIONS.
- EXTERIOR SHEATHING UNDER ALL WINDOWS TO BE
CONTINUOUS DOWN TO TREATED PLATE.
- FLOOR JOISTS CALL OUT ARE A MINIMUM I SIZE. HIGHER RATED
JOISTS MAY BE USED TO MINIMUM DEFLECTION.
- BCI OR WILLMETTIE INDUSTRIES INC. EQUIVALENTS MAY BE
USED IN PLACE OF JOISTS CALLED OUT ON PLANS.
- DOUBLE FLOOR JOISTS (UNDER ALL PARALLEL SHEARWALLS
ABOVE).
- SAW CUTTING AS PERMITTED BY MANUFACTURE OF
SUSPENDED SLAB.

MARK	BEAM TYPE & SIZE	TRIMMERS (DF #2)
BB-1	BOND BEAM (SEE SHEET S101)	SEE PLAN
BB-2	BOND BEAM (SEE SHEET S101)	SEE PLAN
BB-3	BOND BEAM (SEE SHEET S105)	SEE PLAN
FB-13	(2) 1-3/4" X 18" LVL'S	HSS POST & HGU67.2514 HANGER
FB-14	(2) 1-3/4" X 18" LVL'S	HSS POST & (4) 2X6
FB-15	(2) 1-3/4" X 18" LVL'S	(4) 2X6
** NAIL (1) 2x6 KING STUD IN ADDITION TO THE TRIMMERS SPECIFIED IN PARENTHESIS ABOVE W/ 16d COMMON @ 4" O.C.		

MARK	BEAM TYPE & SIZE	TRIMMERS (#F #2)
FB-1	W24x94 STEEL BEAM (24.31'x9.065'x94#1.1)	SEE PLAN
FB-2	W24x94 STEEL BEAM (24.31'x9.065'x94#1.1)	SEE PLAN
FB-3	W16x67 STEEL BEAM (16.375'x10.25'x67#1.1)	SEE PLAN
FB-4	W16x36 STEEL BEAM (15.875'x7'x36#1.1)	SEE PLAN
BB-1	BOND BEAM (SEE SHEET S101)	SEE PLAN
BB-2	BOND BEAM (SEE SHEET S101)	SEE PLAN
FB-10	W16x77 STEEL BEAM (16.52'x10.295'x77#1.1)	SEE PLAN
FB-11	W16x77 STEEL BEAM (16.52'x10.295'x77#1.1)	SEE PLAN
FB-12	W16x77 STEEL BEAM (16.52'x10.295'x77#1.1)	SEE PLAN

** NAIL (1) 2x6 KING STUD IN ADDITION TO THE TRIMMERS SPECIFIED IN PARENTHESIS ABOVE V161 COMMODITY @ 4" O.C.





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MIXED USE SITE DEVELOPMENT

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MILLCREEK, UTAH 84107

09/08/20
No. 382118
Bradley S. Gilson
Bradley S. Gilson

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07/20/20
Changes per WC# Plan Chk.
3/32" = 1'-0"
3/16" = 1'-0"
BG
02/07/2020

PROJECT: A-19-001
SCALE (1"=17'): 3/32" = 1'-0"
SCALE (2406): 3/16" = 1'-0"
CHECKED BY: BG
ISSUED: 02/07/2020

07/20/20
Changes per WC# Plan Chk.
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MARK: DATE: 07/20/20

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07/20/20
Changes per WC# Plan Chk.
3/32" = 1'-0"
3/16" = 1

Upper Floor Framing Plan

INTERIOR SHEARWALL TO FLOOR CONNECTION INTO TJI / BCI or FLOOR TRUSS:
PROVIDE DOUBLE FLOOR JOIST or SINGLE FLOOR TRUSS WHERE SHEARWALLS EXIST ABOVE or BUILD WALL UP TO BOTTOM OF FLOOR SHEATHING ABOVE(S.W. PARALLEL TO JOISTS or TRUSSES)
TYPICAL SHEARWALL TO FLOOR CONNECTION:
1/4" Ø x 5' LONG SIMPSON SDS SCREWS @ 16" O.C.
WHERE SHEARWALLS ARE PARALLEL TO JOISTS / FLR TRUSSES:
BOLT DOWN THRU WALL BOTTOM PLATE OF SHEARWALL & INTO DOUBLE JOIST OR FLOOR TRUSS.

WHERE SHEARWALLS ARE PERP. TO JOISTS / FLR TRUSSES:
BOLT DOWN THRU WALL BOTTOM PLATE OF SHEARWALL & INTO EVERY JOIST OR FLOOR TRUSS. PROVIDE BLOCKING UNDER SHEARWALL.

WHERE SHEARWALLS ARE PERP. TO JOISTS / FLR TRUSSES:
FOR ATTACHEMENT TO TRUSSES: SEE DETAIL ON SHEET S100.

ALL EXTERIOR WALLS TO BE SW-1 UNLESS OTHERWISE NOTED

INDICATES INTERIOR SHEARWALL

SHEARWALL SCHEDULE

MARK	SIZE	TYPE	GRADE	8d NAILS TO BE 2 1/2" LONG (MINIMUM)		REMARKS
				EDGE	FIELD	
SW-1	7/16"	CDX OR O.S.B.	APA RATED C-C, C-D	8d @ 4" O.C.	8d @ 12" O.C.	1, 2, 3
SW-2	7/16"	CDX OR O.S.B.	APA RATED C-C, C-D	8d @ 3" O.C.	8d @ 12" O.C.	1, 2, 3

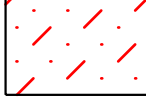
1. USE COMMON OR GALVANIZED BOX NAILS.
2. BLOCK ALL EDGES.
3. SEE SHEET S100 FOR STAPLE EQUIV. CHART.

ROOF SHEATHING:

- PROVIDE 7/16" APA RATED PANEL w/ 8d COMMON NAILING @ 6" O.C. EDGE / 12" O.C. FIELD NAILING. or (16 GAUGE 1 1/2" STAPLES @ 6" O.C. FIELD & 4" O.C. EDGE).
- PROVIDE "H" CLIPS AT ALL UNSUPPORTED EDGES.
- 1/8" GAP BETWEEN PANELS AT INSTALLATION.
- SHEATH UNDER ALL OVERBUILD AREAS.
- NAIL SHEATHING INTO ROTATIONAL BLOCKING WITH THE SAME NAILING / STAPLE PATTERN AS ABOVE.

ROOF OVERBUILD:

OVERBUILD AREA:
2x4s SUPPORTED
@ 4'-0" O.C. MAXIMUM.



ROOF FRAMING KEY NOTES:

- 5 PROVIDE SOLID BLOCKING BETWEEN JOISTS OR TRUSSES AT ALL BEARING WALLS & BEARING BEAMS & UNDER SHEARWALLS ABOVE.
- 6 PROVIDE CONNECTION FOR SHEARWALL ABOVE TO ROOF RAFTERS OR TRUSSES PER INTERIOR SHEARWALL CONNECTION TO ROOF NOTES ON THIS SHEET.

ROOF NOTES:

- ALL ROOF TRUSSES TO BE ENGINEERED FOR:
30 LB SNOW LOAD & 20 LB. DEAD LOAD.
WIND: 150 (3 SEC. GUST).
SEISMIC CATEGORY (SEE ENGINEERING CALCS).
- ROTATIONAL BLOCK BOTH ENDS & ALL MIDPOINT BEARING OF TRUSSES
- HURRICANE CLIPS AT EVERY TRUSS (ALTERNATING SIDES).
- OVERBUILD FRAMING TO TRANSFER LOAD TO SHEATHED TRUSSES AT 4' INTERVALS.
- SECURE VALLEY RAFTERS TO VALLEY BOARD OF >= 2x10.
- SUPPORT ALL GIRDER TRUSSES w/ (3) 2x4s or (3) 2x6s (MIN).
- LOADS FROM MAIN & UPPER FLOORS & ROOF BEAMS MUST BE CARRIED DOWN THROUGH TRIMMERS SPECIFIED TO FLOOR. SQUASH BLOCKING OR POSTS MUST BE INSTALLED UP TO THE UNDER-SIDE OF THE FLOOR DIAPHRAGM MUST BE PROVIDED TO TRANSFER THE LOAD THROUGH THE FLOOR AREA. POST OR TRIMMER OF EQUAL OR GREATER SIZE MUST BE PROVIDED TO CARRY THE LOAD DOWN TO A FOUNDATION WALL / FOOTING.
- TJI HANGER NOTE: WHERE TJI HANGERS ARE USED, WEB FILLER MAY BE REQUIRED BY HANGER MFR.
- GABLE END VENTS or TURTLE VENTS OVER TRUSS AREAS TO BE 1:150 w/o SOFFIT VENTING, 1:300 w/ SOFFIT VENTING.
- PLUMB. VENTS TO BE AT REAR SIDE OF ROOF, IF POSSIBLE.

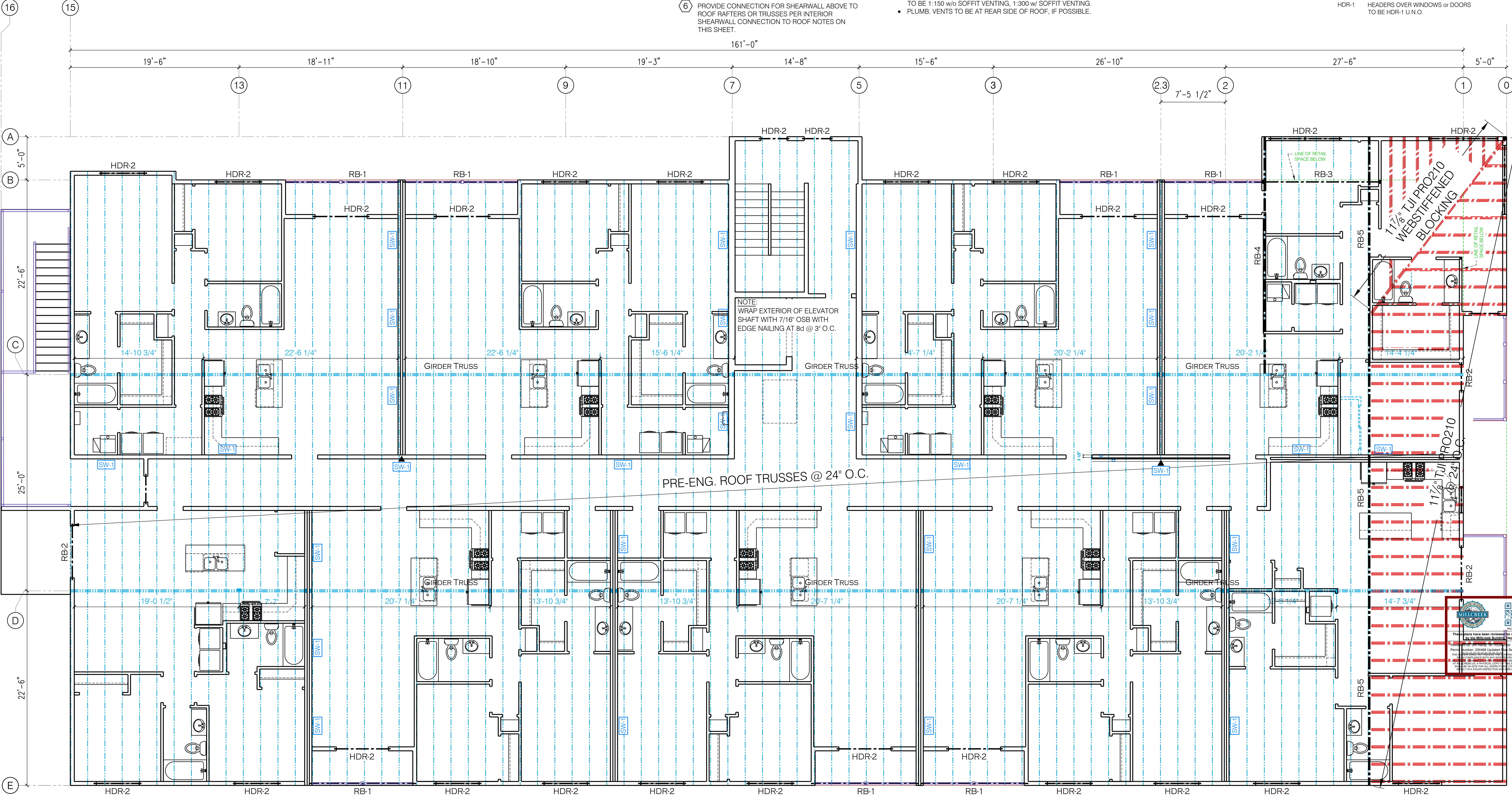


BEAM SCHEDULE:

MARK	BEAM TYPE & SIZE	TRIMMERS (DF #2)
RB-1	(3) 1 3/4" x 11 7/8" LVL	(2) **
RB-2	(3) 1 3/4" x 11 7/8" LVL	(2) **
RB-3	(3) 1 3/4" x 11 7/8" LVL	
RB-4	(4) 1 3/4" x 18" LVL	
RB-5	(4) 1 3/4" x 18" LVL	
HDR-1	(2) 2x10s (Select Structural)	(1) **
HDR-2	(2) 1 3/4" x 9 1/2" LVL	(2) **

** NAIL (1) 2x6 KING STUD IN ADDITION TO THE TRIMMERS SPECIFIED IN PARENTHESIS ABOVE W/ 16d COMMON @ 4' O.C.

HDR-1 HEADERS OVER WINDOWS or DOORS TO BE HDR-1 U.N.O.



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ROOF FRAMING PLAN

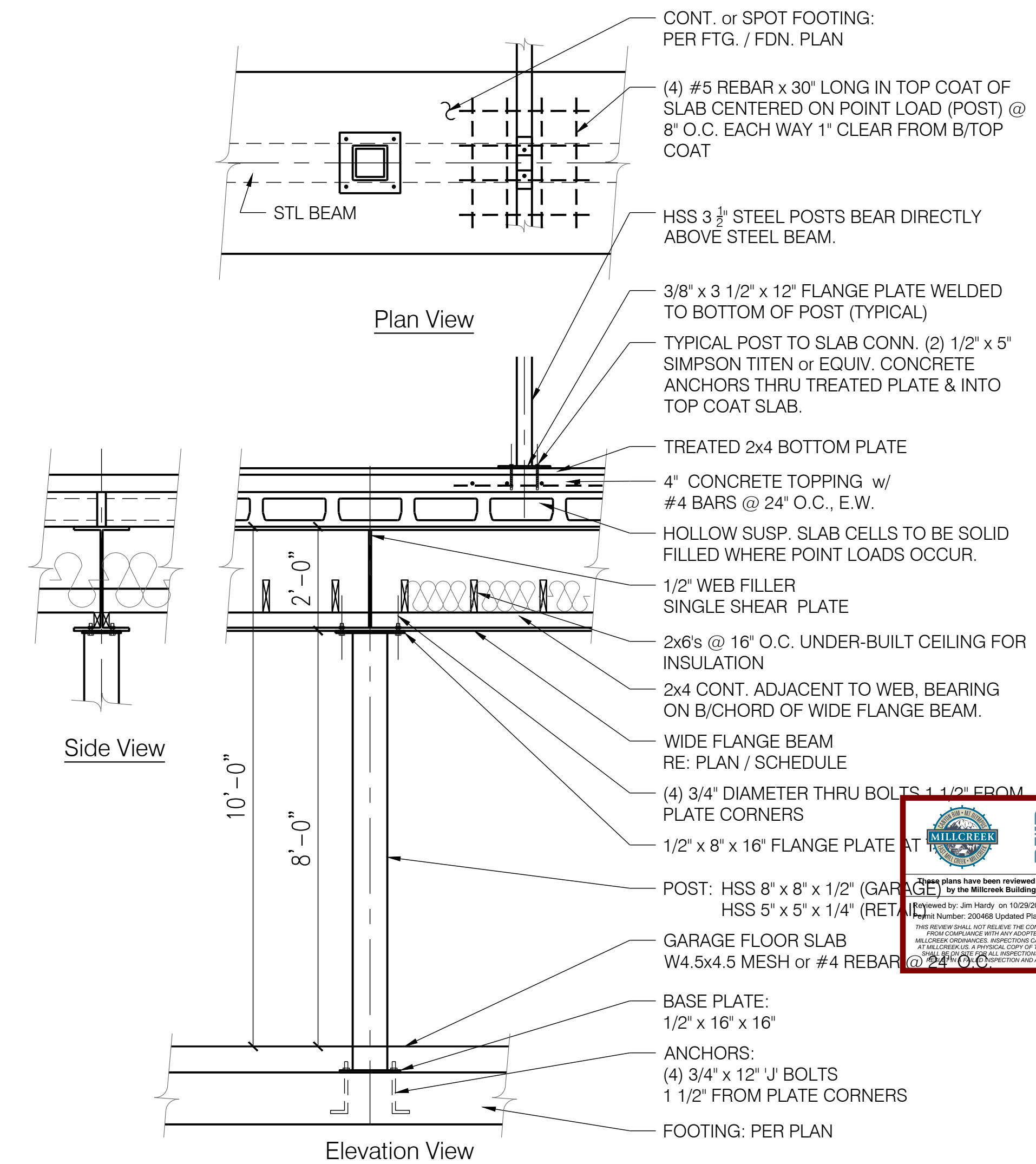
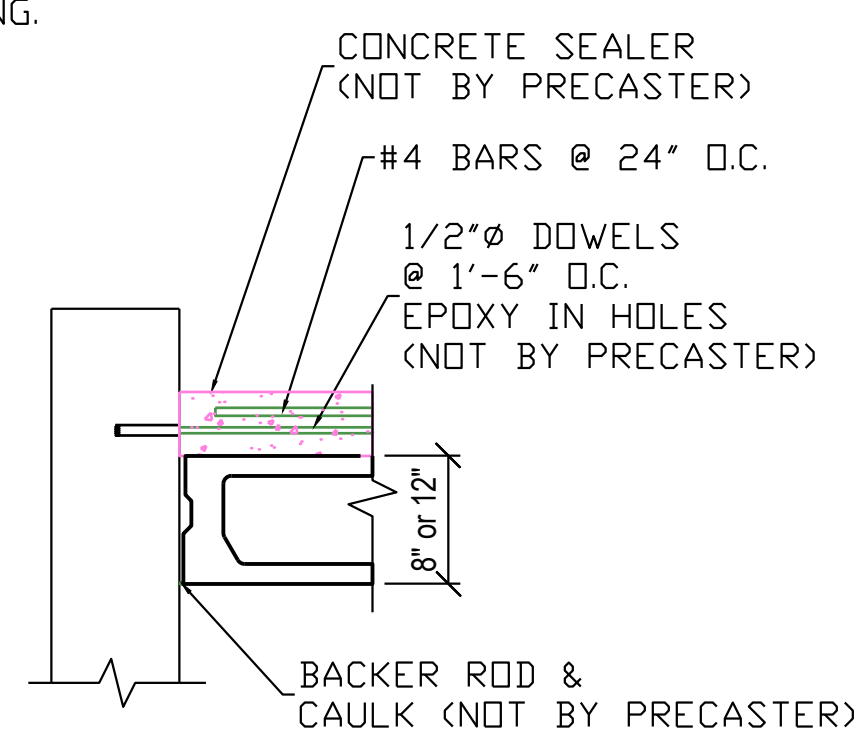
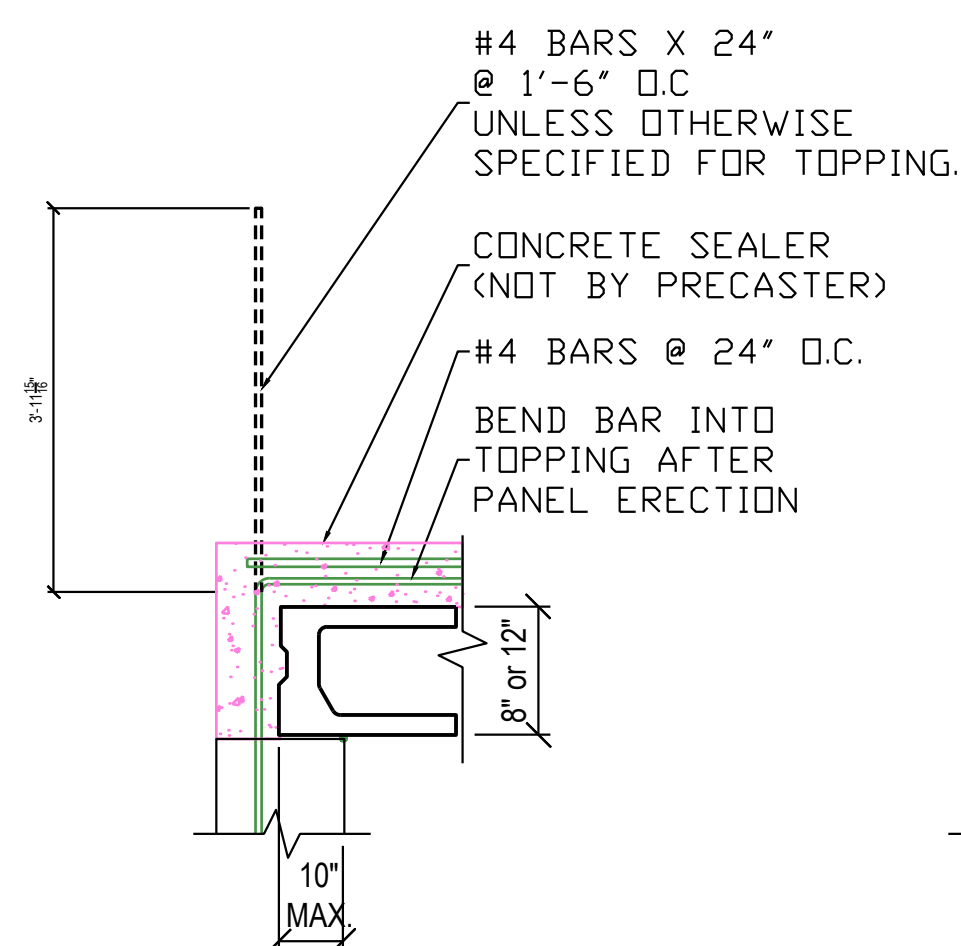
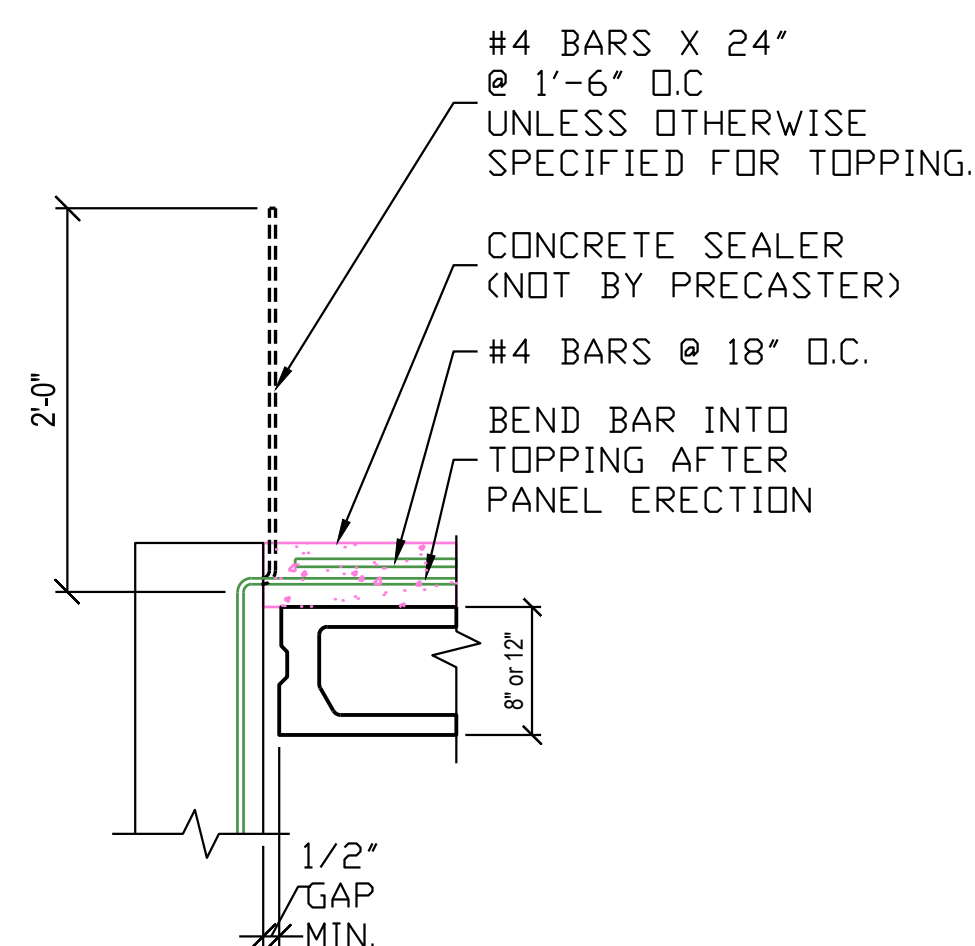
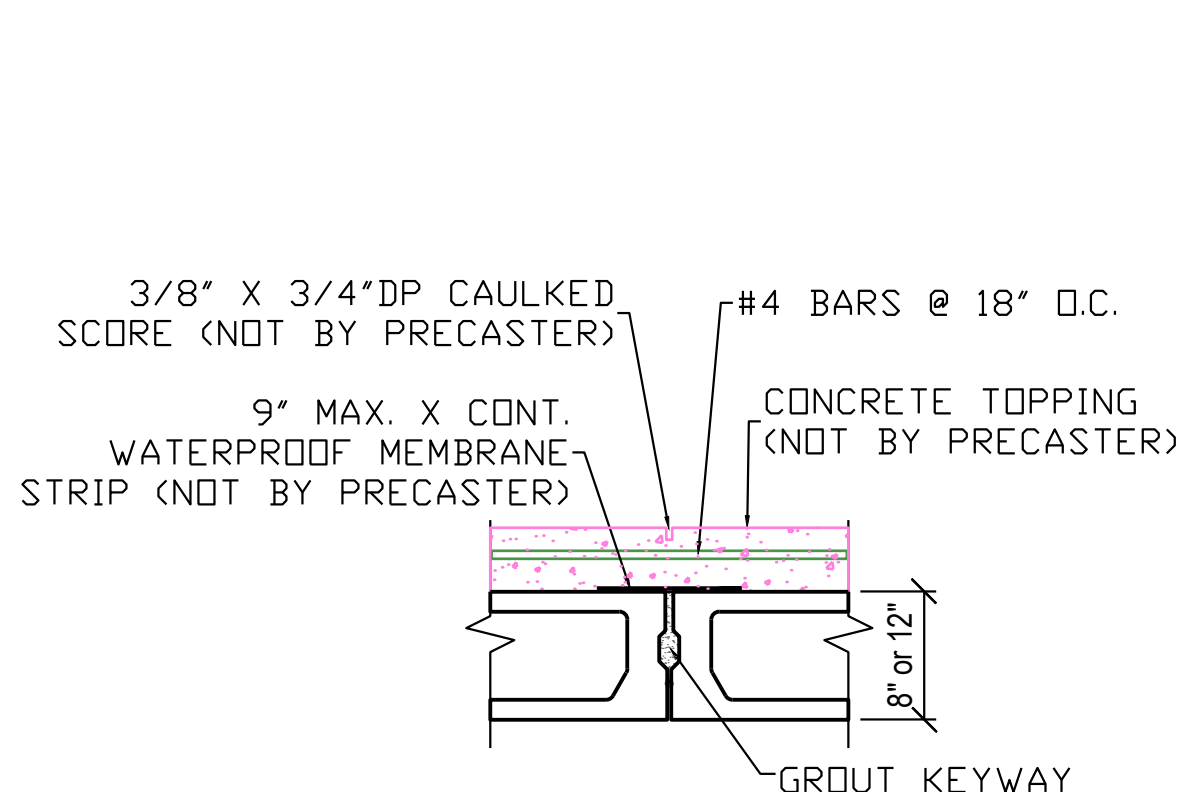
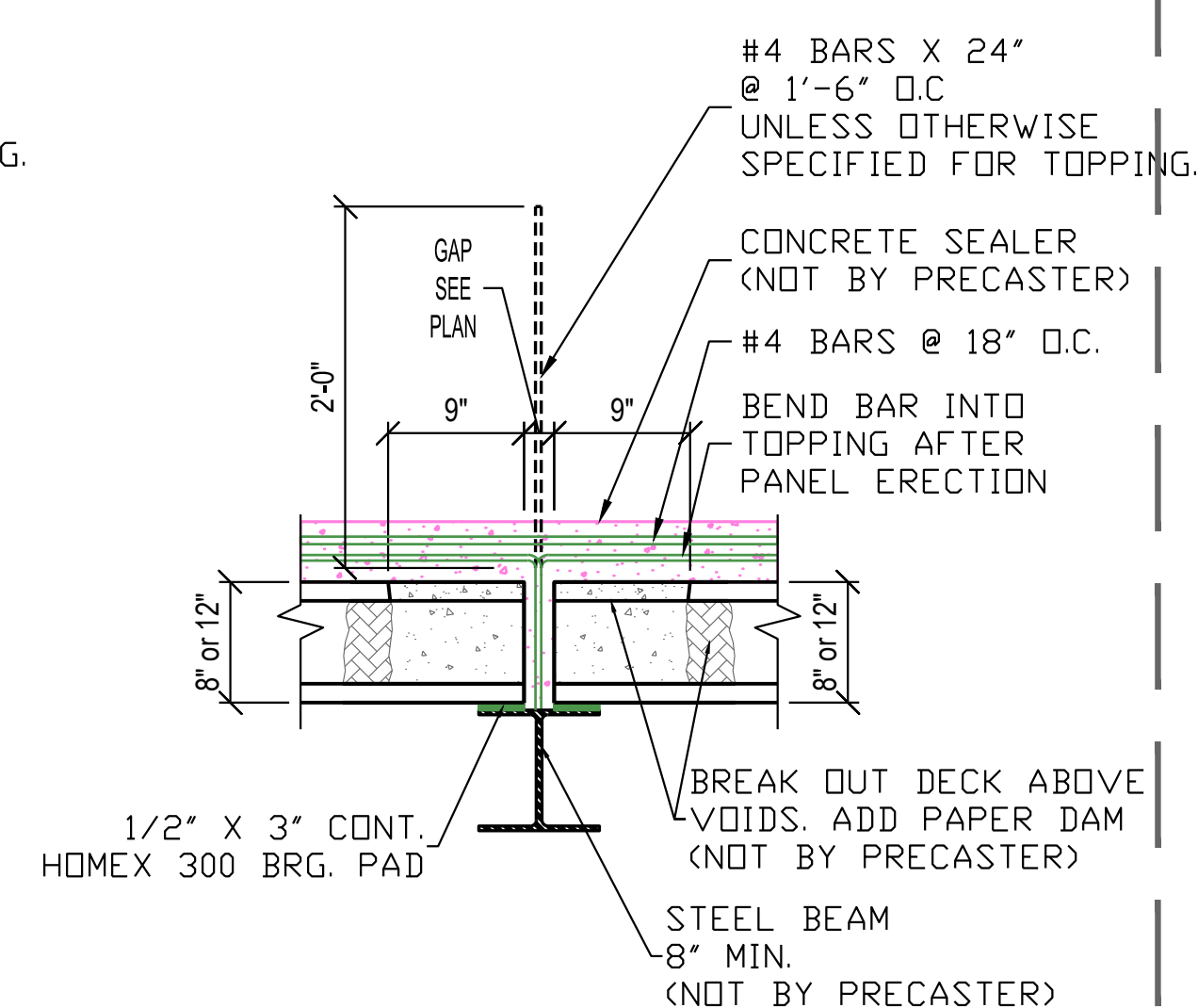
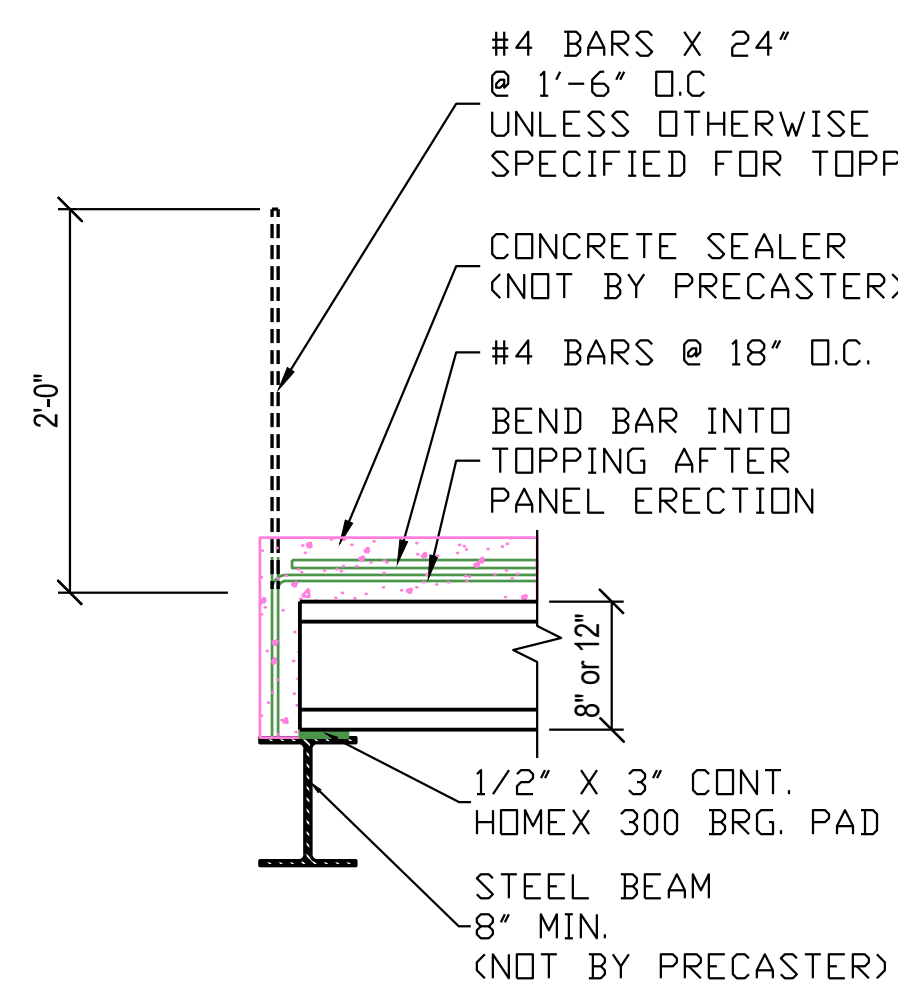
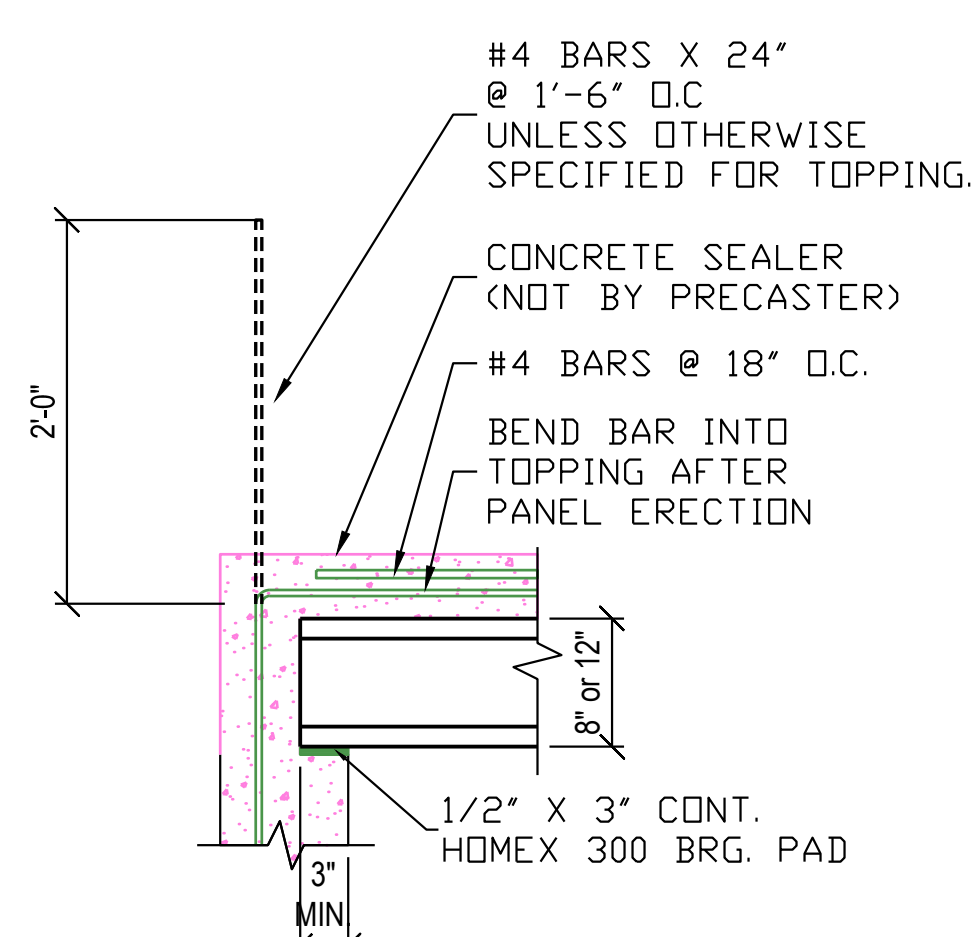
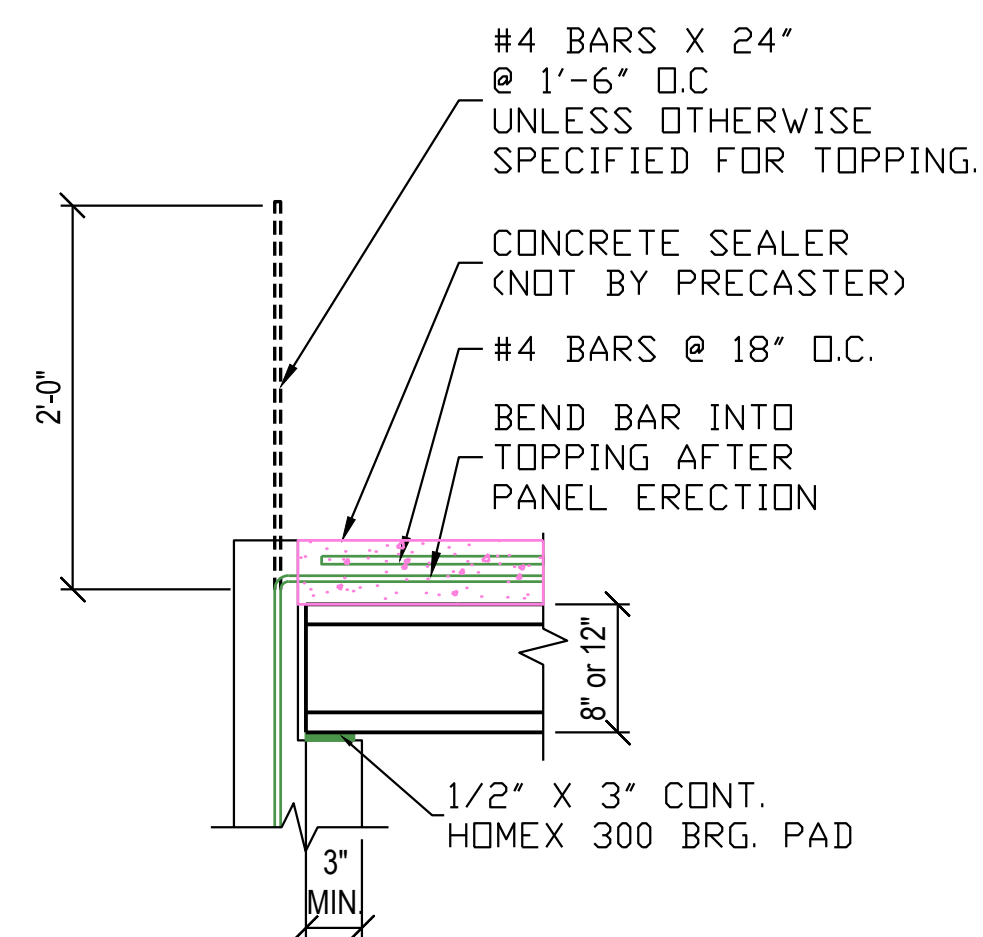
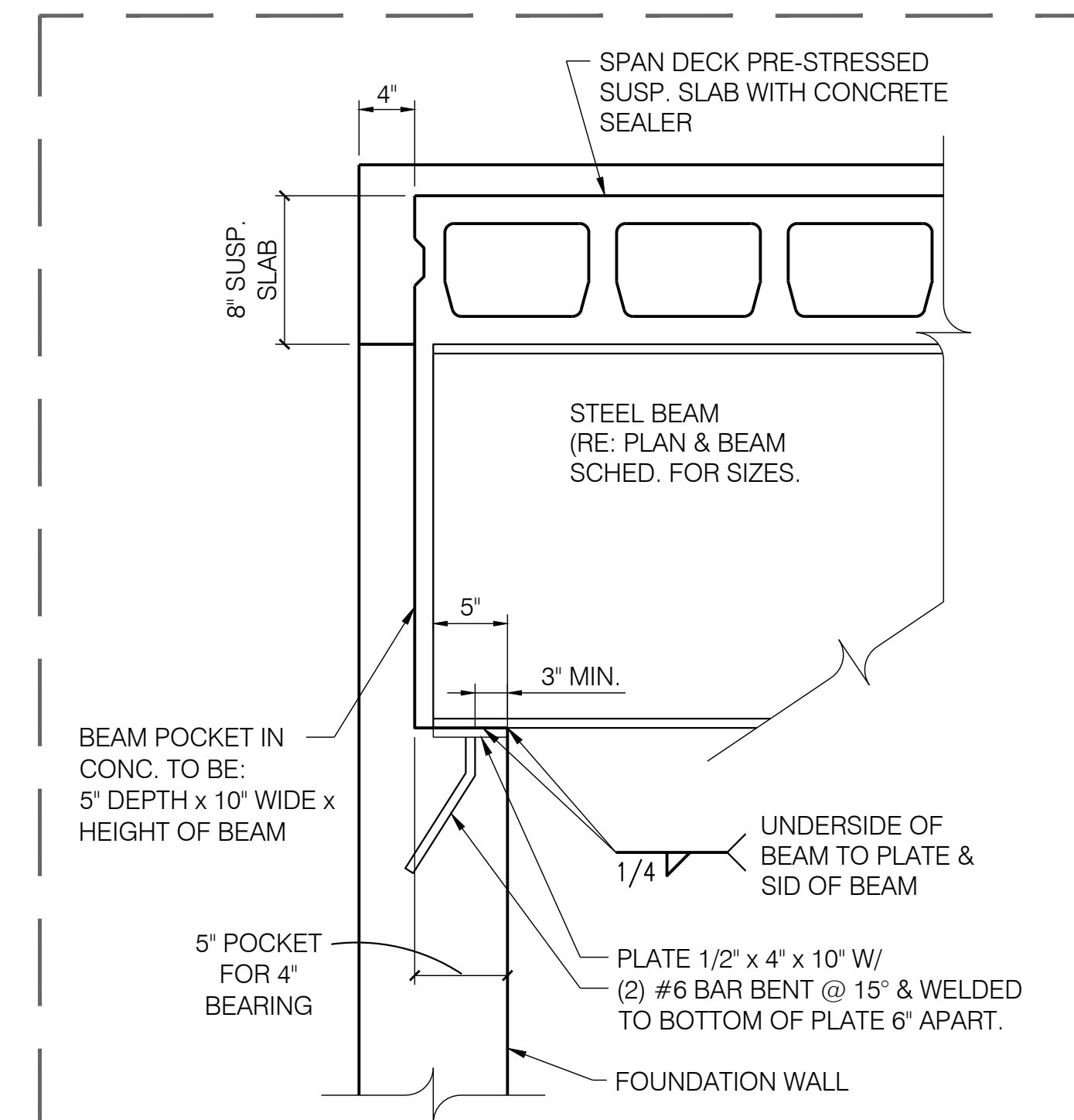
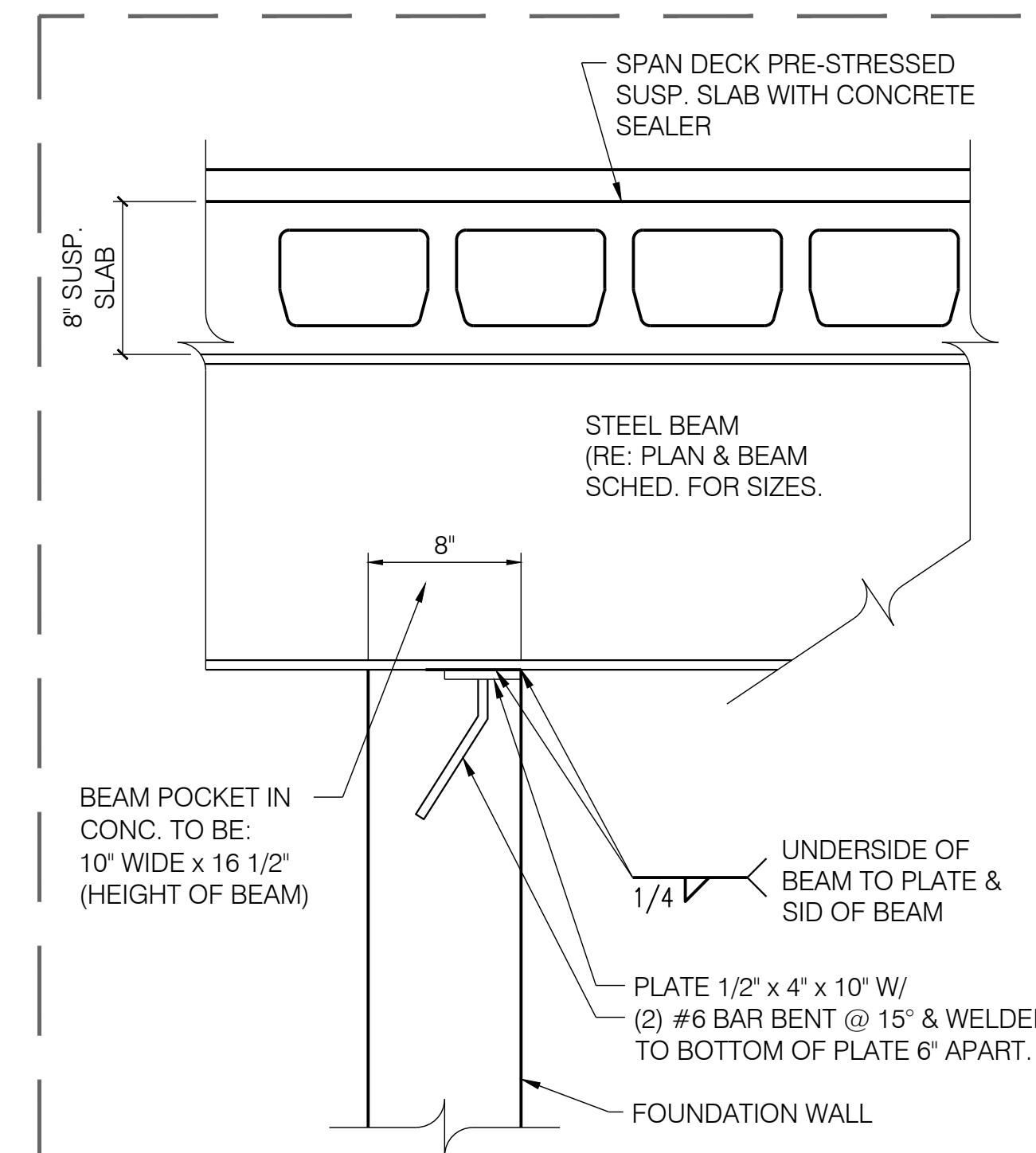
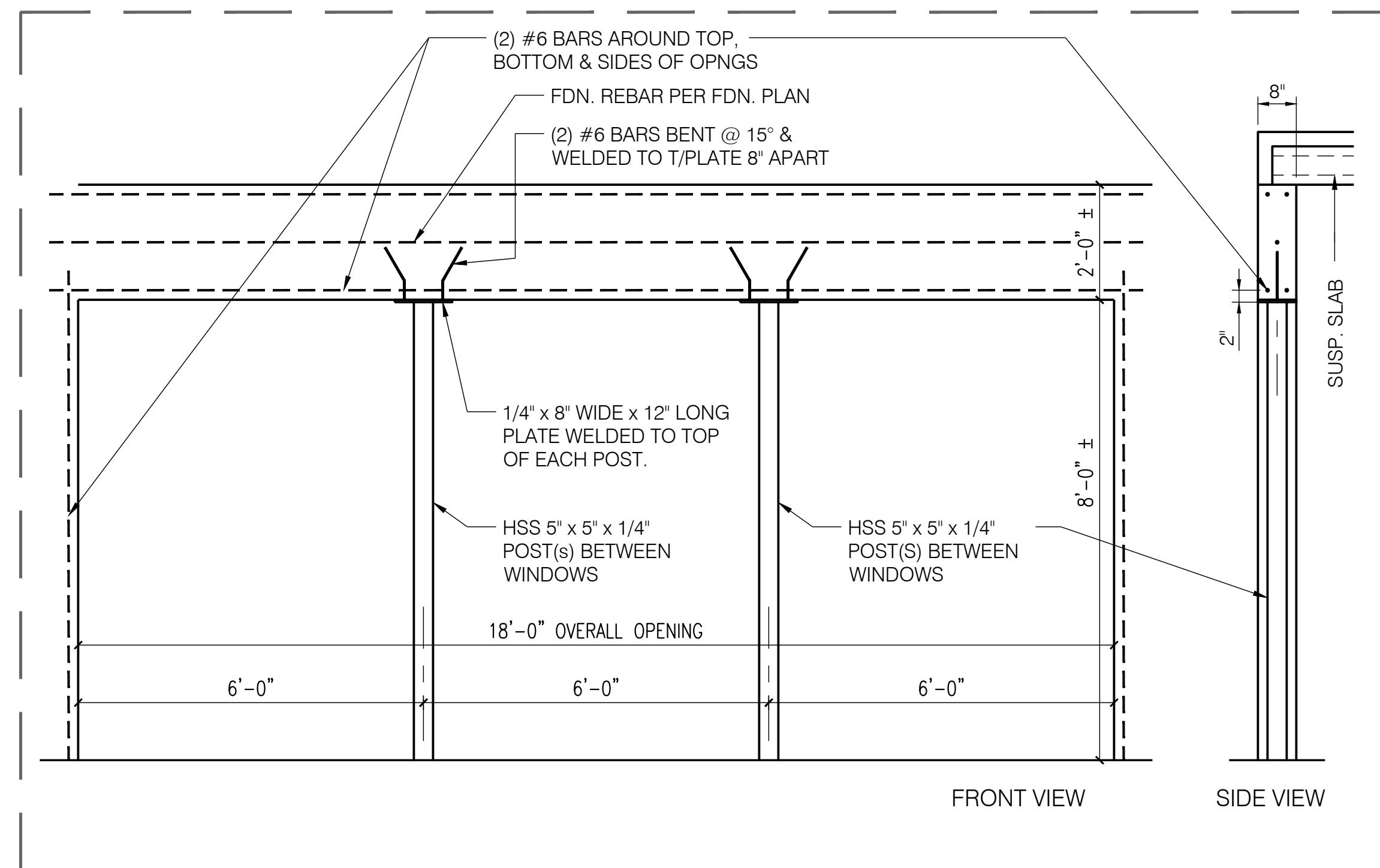
MARK	DATE	DESCRIPTION
2	07/20/20	Changes per WC# Plan Chk.

PROJECT: A-19-001
SCALE: (11x17): 3/32"=1'-0"
SCALE: (24x36): 3/16"=1'-0"
CHECKED BY: BG
ISSUED: 02/07/2020

SHEET

S104

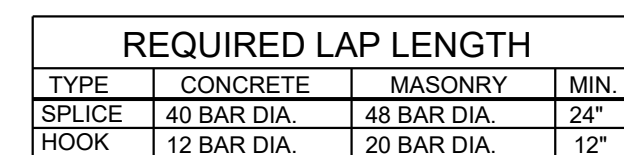
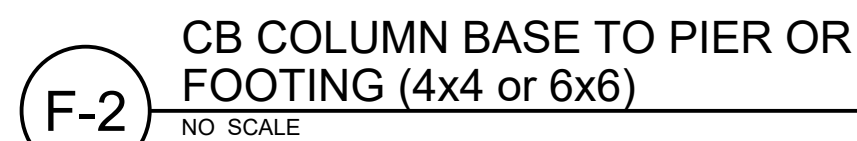
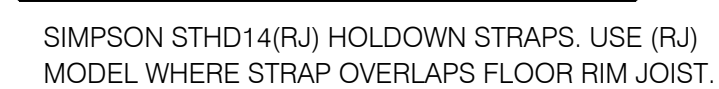
Roof Framing Plan





is not continuous over header

A 3D perspective diagram of a beam with a joint over a header. The beam is supported by two vertical posts. A horizontal line indicates a joint or discontinuity in the beam's continuity over the header. An arrow points to this joint with the text 'is not continuous over header'.



	<p>W-13 SHEAR WALL PERPENDICULAR TO INTERIOR FRAMING NO SCALE</p>	<p>W-12 SHEAR WALL PERPENDICULAR TO EXTERIOR FRAMING NO SCALE</p>	<p>W-11 SHEAR WALL PARALLEL TO EXTERIOR FRAMING NO SCALE</p>	<p>W-10 SHEAR WALL PARALLEL TO INTERIOR FRAMING NO SCALE</p>

These plans have been reviewed for code compliance by the Millcreek Building Department.

Reviewed by: Jim Hardy on 10/29/2020

Permit Number: 200468 Updated Plan Set

These plans shall not be used for construction or for any other purpose without the approval of the Millcreek Building Department. Any changes to these plans shall be made in accordance with the Millcreek Building Department's rules and regulations. The Millcreek Building Department is not responsible for any errors or omissions in these plans.

REVIEWED FOR CODE COMPLIANCE

FOR COMPLIANCE WITH THE APPLICABLE CONSTRUCTION CODES LISTED BELOW

☒ BUILDING
 ☒ STRUCTURAL
 ☒ MECHANICAL
 ☒ PLUMBING
 ☒ ELECTRICAL
 ☒ ENERGY
 ☒ ACCESSIBILITY
 ☐ FIRE

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DATE: 10/29/20

WEST COAST CODE CONSULTANTS, INC.

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DATE: 10/29/20

WEST COAST CODE CONSULTANTS, INC.

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Professional Engineers & Surveyors
12401 SOUTH 450 EAST, SUITE 100, DUBLAR, UT 84005
PHONE: (801) 577-9414 FAX: (801) 577-1945

MIXED USE SITE DEVELOPMENT

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4572 S. & 4600 S. 900 EAST
MILLCREEK, UTAH 84107

Contacts: Mehran 801-808-9382 Mehranjan@me.com
Jay Mirraile jmirraile@gmail.com

STRUCTURAL DETAILS

MARK	DATE	DESCRIPTION
2	07/20/20	Changes per WC# Plan Chk.

PROJECT: A-19-001

SCALE (11x17): 1/8"=1'-0"

SCALE (24x36): 1/4"=1'-0"

CHECKED BY: BG

ISSUED: 02/07/2020

SHEET

S107

DUCTWORK SEISMIC SUPPORT NOTES:

1. PER ASCE STANDARD 7-16 SEISMIC SUPPORTS ARE NOT REQUIRED FOR THE FOLLOWING CONDITIONS:

1.1. HVAC DUCTS ARE SUSPENDED WITH HANGERS 12" OR LESS IN LENGTH.

1.2. HVAC DUCTS HAVE A CROSS-SECTIONAL AREA OF LESS THAN 6 SQUARE FEET.

2. IF INSTANCES OCCUR WHERE HVAC DUCT IS SUSPENDED WITH HANGERS GREATER THAN 12" IN LENGTH AND HVAC DUCT HAS A CROSS-SECTIONAL AREA GREATER THAN 6 SQUARE FEET SYSTEM CONNECTORS AND COMPONENTS SHALL BE COMPATIBLE AND DESIGNED FOR THE APPLICATION THAT THEY ARE USED FOR. SHALL HAVE A MINIMUM OF TWO TRANSVERSE BRACES PER STRAIGHT DUCT RUN WITH A MAXIMUM DISTANCE OF 30' BETWEEN TRANSVERSE BRACES. SHALL HAVE A MINIMUM OF ONE LONGITUDINAL BRACE PER STRAIGHT DUCT RUN WITH A MAXIMUM DISTANCE OF 40' BETWEEN LONGITUDINAL BRACES. BRACING SHALL ONLY OCCUR AT OR NEAR AREAS WHERE SUFFICIENT DUCT STIFFNESS IS PRESENT (AT OR NEAR JOINT CONNECTIONS).

3. FOR SEISMIC BRACING OF MECHANICAL EQUIPMENT AN INDEPENDENT SEISMIC AND VIBRATION CONTROL SUBCONTRACTOR WITH EXPERIENCE, COMPUTING CAPABILITIES, AND MANUFACTURED PRODUCTS SHALL BE FURNISHED BY MECHANICAL CONTRACTOR. INDEPENDENT SEISMIC CONSULTANT SHALL PROVIDE REQUIRED COMPUTATIONS, SHOP DRAWINGS, AND MANUFACTURED PRODUCTS TO MEET THE MINIMUM REQUIREMENTS OF ASCE 7-16 AND INTERNATIONAL BUILDING CODES (LATEST ADOPTED EDITION) FOR THE RESPECTIVE SEISMIC DESIGN FOR SEISMIC ZONE WITH IMPORTANCE FACTOR 1.5. SEISMIC SUBCONTRACTOR SHALL EXERCISE THE QUALITY CONTROL FOR THIS WORK AND SHALL NOT BE LIMITED TO INSTRUCTIONS DIRECTED TO THE MECHANICAL CONTRACTOR. THE SEISMIC SUBCONTRACTOR SHALL CERTIFY IN WRITING THAT THEY HAVE INSPECTED THE INSTALLATION AND THAT ALL ISOLATION ANCHORS AND SEISMIC RESTRAINT MATERIALS ARE INSTALLED CORRECTLY AND FUNCTIONING PROPERLY. CERTIFICATION SHALL BE PROVIDED AFTER ALL CORRECTIVE WORK HAS BEEN COMPLETED.

COMMISSIONING NOTES:

MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL DOCUMENTATION TO THE OWNER AS PER THE LISTED 2018 IECC CODE REFERENCES BELOW:

C408.2.1 A COMMISSIONING PLAN SHALL BE DEVELOPED BY A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY AND SHALL INCLUDE THE FOLLOWING ITEMS:

1. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.

2. A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.

3. FUNCTIONS TO BE TESTED, INCLUDING, BUT NOT LIMITED TO CALIBRATIONS AND ECONOMIZER CONTROLS.

4. CONDITIONS UNDER WHICH THE TESTS WILL BE PERFORMED. AT A MINIMUM, TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.

5. MEASURABLE CRITERIA FOR PERFORMANCE.

C408.2.4 PRELIMINARY COMMISSIONING REPORT: A PRELIMINARY REPORT OF COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE COMPLETED AND CERTIFIED BY THE REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY AND PROVIDED TO THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT. THE REPORT SHALL BE ORGANIZED WITH MECHANICAL AND SERVICE HOT WATER FINDINGS IN SEPARATE SECTIONS TO ALLOW INDEPENDENT REVIEW. THE REPORT SHALL BE IDENTIFIED AS "PRELIMINARY COMMISSIONING REPORT," SHALL INCLUDE THE COMPLETED COMMISSIONING COMPLIANCE CHECKLIST, FIGURE C408.2.4, AND SHALL IDENTIFY:

1. ITEMIZATION OF DEFICIENCIES FOUND DURING TESTING REQUIRED BY THIS SECTION THAT HAVE NOT BEEN CORRECTED AT THE TIME OF REPORT PREPARATION.

2. DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF REPORT PREPARATION BECAUSE OF CLIMATIC CONDITIONS.

3. CLIMATIC CONDITIONS REQUIRED FOR PERFORMANCE OF THE DEFERRED TESTS.

4. RESULTS OF FUNCTIONAL PERFORMANCE TESTS.

5. FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS, INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE.

C408.2.4.1 ACCEPTANCE OF REPORT: BUILDINGS, OR PORTIONS THEREOF, SHALL NOT BE CONSIDERED AS ACCEPTABLE FOR A FINAL INSPECTION PURSUANT TO SECTION C105.2.6 UNTIL THE CODE OFFICIAL HAS RECEIVED THE PRELIMINARY COMMISSIONING REPORT FROM THE BUILDING OWNER OR OWNER'S AUTHORIZED AGENT.

C408.2.4.2 THE CODE OFFICIAL SHALL BE PERMITTED TO REQUIRE THAT A COPY OF THE PRELIMINARY COMMISSIONING REPORT BE MADE AVAILABLE FOR REVIEW BY THE CODE OFFICIAL.

C408.2.5 DOCUMENTATION REQUIREMENTS. THE CONSTRUCTION DOCUMENTS SHALL SPECIFY THAT THE DOCUMENTS DESCRIBED IN THIS SECTION BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS OF THE RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

DOCUMENTS SHALL INCLUDED BUT ARE NOT LIMITED TO: DRAWINGS, MANUALS, SYSTEM BALANCING REPORT, AND FINAL COMMISSIONING REPORT.

DESIGN CONTACTS	
MECHANICAL ENGINEER:	MARK MAKIN
MECHANICAL PROJECT MANAGER:	CHRIS FALSLEV
MECHANICAL DESIGNER:	TRE PRESSON

SUBMITTALS:

1. CONTRACTOR TO ALLOW 10 WORKING DAYS FOR SUBMITTAL TURNAROUND.

2. CONTRACTOR TO PROVIDE SUBMITTALS FOR ALL EQUIPMENT AND MATERIALS IN A SINGLE PACKAGE. PIECEMEAL SUBMITTALS WILL BE RETURNED WITH A NOTE TO REVISE AND RESUBMIT.

3. SUBMITTALS WILL BE CHECKED FOR COMPLIANCE WITH CAPACITY REQUIREMENTS AND ELECTRICAL REQUIREMENTS. CONTRACTOR TO VERIFY THAT WEIGHTS, DIMENSIONS, AND DUCT CONNECTIONS ON SUBMITTED EQUIPMENT IS CONSISTENT WITH SCHEDULED EQUIPMENT PRIOR TO SUBMITTAL. CHANGES IN SCOPE BROUGHT ABOUT BY SUBMITTED EQUIPMENT THAT DOES NOT COMPLY WITH THE WEIGHTS, DIMENSIONS, OR CONNECTION LOCATIONS ON SCHEDULED EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

PROJECT MECHANICAL NOTES:

1. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL A 7-DAY PROGRAMMABLE THERMOSTAT FOR EACH FURNACE. VERIFY THERMOSTAT LOCATION WITH OWNER REPRESENTATIVE IN FIELD. INSTALL THERMOSTAT AT 48" A.F.F. PROVIDE AND INSTALL A HEAVY DUTY VANDAL RESISTANT COVER IN ALL COMMON AREAS.

2. COORDINATE EXACT LOCATION OF ALL MECHANICAL UNITS WITH GENERAL CONTRACTOR. VERIFY IN FIELD.

3. PROVIDE AND INSTALL OUTSIDE AIR AS SPECIFIED ON THE PLANS. SEE TYPICAL OUTSIDE AIR DETAIL FOR FAN COILS AND FURNACES.

4. PROVIDE AND INSTALL ALL NECESSARY COMPONENTS FOR FURNACE/CONDENSING UNIT SYSTEMS. (IE REFRIGERANT LINES, COMBUSTION AIR PIPING, EXHAUST PIPING, CONCENTRIC TERMINATION KIT). ALL PER MANUFACTURERS RECOMMENDATIONS.

5. PROVIDE AND INSTALL MAKE-UP AIR FOR LAUNDRY CLOSETS AS REQUIRED AS PER 2018 IMC 504.6. MAKE-UP AIR CAN BE PROVIDED FROM INTERIOR SPACES VIA DUCTING OR LOUVERS IN DOORS OR WALLS. (OPENING WITH 100 SQUARE INCHES MIN.).

6. PROVIDE AND INSTALL MANUAL CONTROL DAMPERS AT EACH BRANCH TAKE-OFF. EACH SUPPLY AIR GRILLE SHALL BE DOWNSTREAM FROM A CONTROL DAMPER FOR BALANCING AND ADJUSTMENT. SOME INSTALLATIONS MAY REQUIRE OPPOSED BLADE DAMPERS OR CONCEALED DAMPER REGULATORS THAT ARE REMOTELY ADJUSTED. (COMMON AREAS)

7. PROVIDE AND INSTALL MANUAL BALANCING GRILLES AT EACH SUPPLY AIR TERMINATION FOR SEASONAL BALANCING AND ADJUSTMENT. SOME INSTALLATIONS MAY REQUIRE OPPOSED BLADE DAMPERS OR CONCEALED DAMPER REGULATORS THAT ARE REMOTELY ADJUSTED. (RESIDENTIAL AREAS)

8. SIZING FOR EQUIPMENT COMBUSTION AIR AND VENT PIPING DETERMINED USING MANUFACTURERS SPECIFICATIONS, ACTUAL LENGTH AND CONFIGURATION INFORMATION FROM FIELD.

9. PROVIDE AND INSTALL FIRE DAMPERS IN MECHANICAL DUCT WITH REQUIRED ACCESS DOORS AT ALL FIRE RATED ASSEMBLY PENETRATIONS. FIRE BARRIER IS AT GYP. BOARD. VERIFY AND COORDINATE ASSEMBLY AND BARRIER LOCATIONS WITH ARCHITECTURAL PLANS.

10. MECHANICAL CONTRACTOR TO PROVIDE DOCUMENTATION OF REQUIRED MANUFACTURER START-UP FOR EQUIPMENT INCLUDING MANUFACTURER, MODEL NUMBER, SERIAL NUMBER, COOLING CAPACITY, GAS HEATING INPUT, ALL ENTERING AND LEAVING TEMPERATURES, CONNECTED CIRCUIT VOLTAGE, AND VERIFICATION OF PROPER FUNCTION OF THERMOSTAT. CONTRACTOR SHALL PROVIDE MANUALS FOR EQUIPMENT AND NAME OF SERVICE AGENCY.

11. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL SINGLE THICKNESS TURNING VANES AT EACH 90 DEGREE SQUARE DUCT ELBOW.

12. MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL TRANSFER AIR GRILLES FOR ALL LIVING SPACES (BEDROOMS, LIVING ROOMS, ETC.) AT THE CFM NOTED WITHIN THE SPACE. SEE THE PLANS AND DETAILS FOR ADDITIONAL INFORMATION. COORDINATE LOCATIONS WITH STRUCTURE AND OWNERS REPRESENTATIVE. TRANSFER SHALL INCLUDE BUT NOT LIMITED TO TWO TRANSFER GRILLES, DUCTING, AND SOUND INSULATION.

13. USING CFM NOTED ON PLANS INSTALL GRILLES AND DIFFUSERS WITH MAXIMUM NOISE CRITERIA (NC) OF 25 FOR ALL PUBLIC/Common AREAS AND AN NC OF 30 FOR RESIDENTIAL SPACES.

14. DUCTWORK SIZING, ROUTING, AND LOCATION TO BE FIELD VERIFIED AND APPROVED FOR ANY CHANGES TO THE DUCT SIZING AND/OR ROUTING PRIOR TO DUCT FABRICATION AND INSTALLATION. DUCTWORK FABRICATED PRIOR TO FIELD VERIFICATION AND APPROVALS THAT NEEDS TO BE ALTERED WILL BE ALTERED AS NEEDED BY THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER.

MECHANICAL SYMBOLS

NOTES:
1. ALL SYMBOLS MAY NOT BE USED.
2. DOTTED SYMBOLS INDICATE EXISTING EQUIPMENT, ETC

SYMBOL	EXPLANATION
Ø	ROUND MEASUREMENT
	RETURN AIR GRILLE/DUCT
	SUPPLY AIR DIFFUSER/DUCT
	EXHAUST AIR INTAKE GRILLE
	EXHAUST FAN
	THERMOSTAT/SENSOR
	SENSOR
	MECHANICAL EQUIPMENT SYMBOL
	KEYED NOTE REFERENCE
	NECK: NECK AND BRANCH DUCT SIZE. CFM: CFM OF DIFFUSER OR GRILLE. TAG: DIFFUSER OR GRILLE CALL-OUT.
	SUPPLY AIR DUCTWORK
	RETURN AIR DUCTWORK
	EXHAUST AIR DUCTWORK
	OUTSIDE AIR DUCTWORK
	RADIATION DAMPER
	FIRE/SMOKE DAMPER
	BALANCING DAMPER

PROJECT MECHANICAL NOTES:

15. ALL FRESH/OUTSIDE AIR INTAKES SHALL BE 10 FEET MIN. FROM ALL EXHAUST & PLUMBING VENTS.

16. PROVIDE AIR TIGHT SEAL AT EACH DUCT PENETRATION OF ATTIC DRAFT STOP. USE FIRE SAFING, OR OTHER APPROVED NON COMBUSTIBLE MATERIAL OR FIRE STOPPING MATERIAL.

17. ALL RETURN AIR & SUPPLY AIR DUCTWORK IN UNCONDITIONED SPACES SHALL BE INSULATED PER APPLICABLE CODES.

18. ALL EQUIPMENT SHALL HAVE A FLEXIBLE CONNECTION FOR THE RETURN AIR & SUPPLY AIR DUCTWORK.

19. BALANCE ALL SYSTEMS TO CFM NOTED AT EACH DIFFUSER AND GRILLE BY AN INDEPENDENT BALANCING CONTRACTOR.

20. HEATING LOADS COMPLETED USING CHVAC OR OTHER APPROVED CALCULATION METHODS.

21. THE MAXIMUM LENGTH OF A CLOTHES DRYER EXHAUST DUCT SHALL NOT EXCEED 35 FEET FROM THE DRYER LOCATION TO THE OUTLET TERMINAL. THE MAXIMUM LENGTH OF THE DUCT SHALL BE REDUCED 2-1/2 FEET FOR EACH 45° BEND AND 5 FEET FOR EACH 90° BEND. THE MAXIMUM LENGTH OF THE EXHAUST DUCT DOES NOT INCLUDE THE TRANSITION DUCT. 2018 IMC 504.8.4.

22. REFRIGERANT PIPING INSULATION.

22.1. INSULATE ALL REFRIGERANT SUCTION PIPING WITH 1/2" THICK FLEXIBLE FOAMED PLASTIC CLOSED CELL PIPE INSULATION.

22.2. INSULATION SHALL HAVE A "K" FACTOR OF NOT MORE THAN .26 AT 70°F AND A WATER VAPOR TRANSMISSION RATE OF 0.1 PERM-INCH OR LESS IN CONFORMANCE WITH ASTM C-177 & ASTM C-355 WATER METHOD.

22.3. WHEN INSULATION IS EXPOSED TO SUNLIGHT WRAP WITH POLYTAPE WITH ONE THIRD OVERLAP.

22.4. INSTALL INSULATION BY SLITTING TUBULAR SECTIONS AND APPLYING OVER PIPING.

22.5. PAINT ALL INSULATION AND/OR TAPE EXPOSED TO THE EXTERIOR WITH ULTRAVIOLET RESISTING PAINT.

23. COORDINATE ALL RETURN AIR & SUPPLY AIR DUCTWORK AND DIFFUSERS IN FIELD WITH LIGHTING AND OTHER SYSTEMS.

24. MECHANICAL CONTRACTOR SHALL INSTALL OWNER PROVIDED DRYERS. PURCHASED DRYER MODEL SHALL BE RATED FOR TOTAL SYSTEM EQUIVALENT LENGTH OR A BOOSTER FAN AND ACCESS PANEL (FIRE RATED AS REQUIRED) SHALL BE INSTALLED. IF BOOSTER IS INSTALLED COORDINATE ALL REQUIREMENTS WITH ELECTRICAL CONTRACTOR AND ENGINEER OF RECORD.

25. MECHANICAL CONTRACTOR TO COORDINATE WITH TRUSS MANUFACTURER AND OWNERS REPRESENTATIVE TO ENSURE ALL REQUIRED BLOCK-OUTS FOR DUCTING ARE PROVIDED.

26. COORDINATE ALL WORK WITH OTHER TRADES AS REQUIRED.

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
MO.1	MECHANICAL NOTES & LEGENDS
M1.1	MAIN FLOOR MECHANICAL PLAN
M1.2	2ND/3RD FLOOR MECHANICAL PLAN
M4.1	ENLARGED UNIT MECHANICAL PLANS
M5.1	MECHANICAL DETAILS
M5.2	MECHANICAL DETAILS
M5.3	MECHANICAL DETAILS
M6.1	MECHANICAL SCHEDULES
M7.1	MECHANICAL SPECIFICATIONS
M7.2	MECHANICAL SPECIFICATIONS
M7.3	MECHANICAL SPECIFICATIONS

SITE CONDITIONS

SITE CONDITIONS:
CITY: MILLCREEK, UTAH
ELEVATION: 4,285'
OUTDOOR CONDITIONS:
WINTER: HTG: 3° F
SUMMER: CLG: 98° F
INDOOR CONDITIONS
WINTER: HTG: 75° F
SUMMER: CLG: 72° F

IF TEMPERATURES SHOWN DO NOT MATCH CONDITIONS DESIRED FOR THIS PROJECT CONTACT THE ENGINEER OF RECORD.

ROYAL
ENGINEERING

ELECTRICAL
1837 S. EAST BAY BLVD.
PHONE: 801.375.2228

MECHANICAL
PROVO, UTAH 84606
FAX: 801.375.2676

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2619 W. Alice Springs Rd., Riverton, Utah 84065
epjames2@gmail.com
Licence # 131856-0301

MIXED USE SITE
DEVELOPEMENT

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4572 S. & 4600 S. 900 EAST
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Mehran
Jay Mirratile
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MECHANICAL
NOTES &
LEGENDS

MARK: DATE:
1 06/05/20
2 06/26/20
3 07/09/20

DESCRIPTION:
Changes per WCA# Plan Chk.
Changes per WCA# Plan Chk.
Changes per WCA# Plan Chk.

PROJECT: A-19-001
SCALE (11x17): 1/16"=1'-0"
SCALE (24x36): 1/8"=1'-0"
CHECKED BY:
ISSUED: 03/03/2020

WEST COAST CODE CONSULTANTS, INC.
102820
9/4/20

WEST COAST CODE CONSULTANTS, INC.

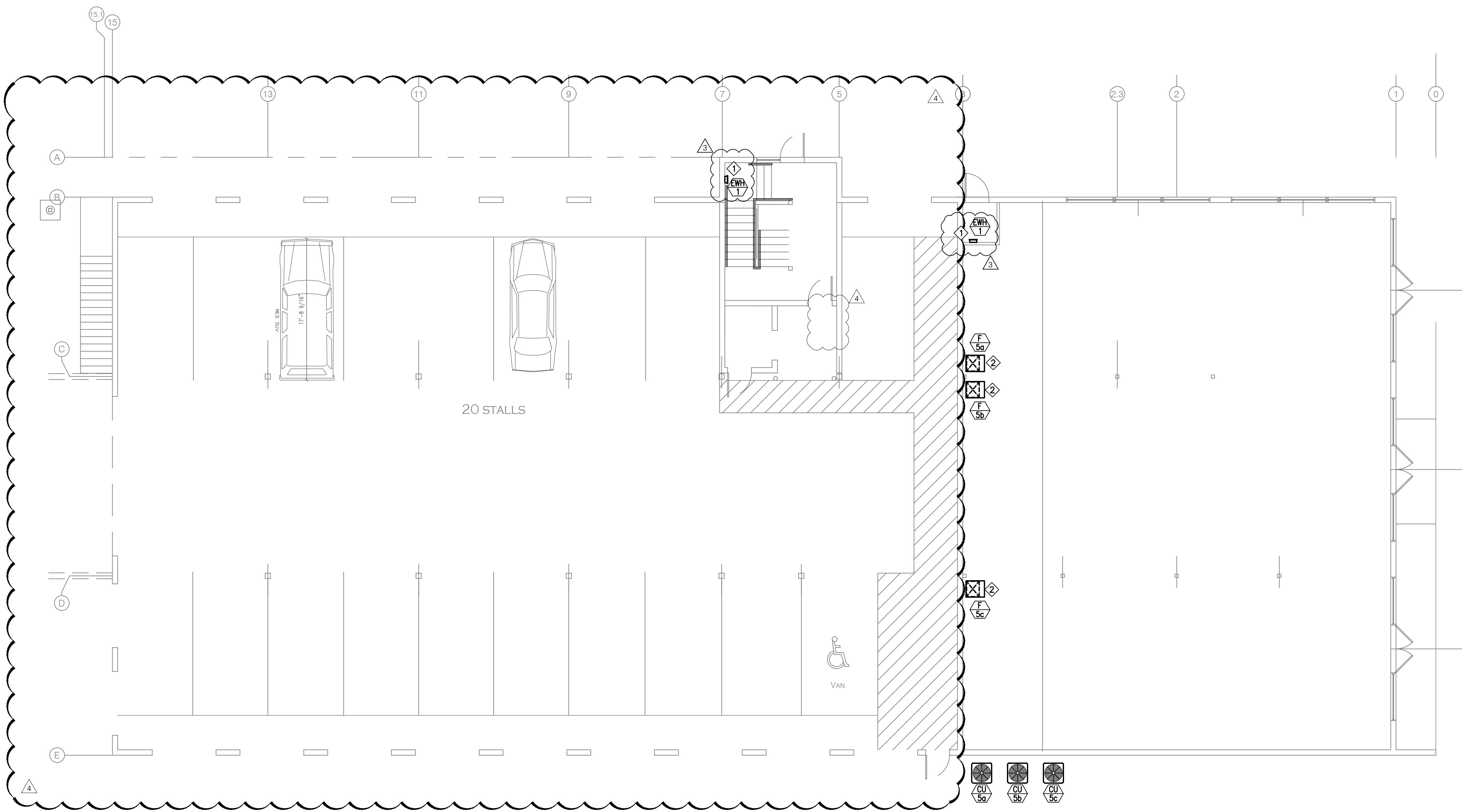
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MO.1



- MECHANICAL KEYED NOTES:**
- ◇ SUGGESTED WALL HEATER LOCATION. INSTALL PER MANUFACTURES RECOMMENDATIONS. INSTALL WITHIN WALL WHEN POSSIBLE. COORDINATE LOCATION, WALL OR SURFACE MOUNTING WITH STRUCTURE AND OWNER REPRESENTATIVE.
 - ◇ PROPOSED FURNACE LOCATION, PROVIDE SUSPENDED HORIZONTAL BID OPTION AT OWNERS REQUEST SEE MECHANICAL PERFORMANCE NOTES, SCHEDULES AND DETAILS. MAKE ALL CONNECTIONS TO COMPLETE SYSTEM. COORDINATE FINAL LOCATION WITH OWNER REPRESENTATIVE.

MAIN FLOOR MECHANICAL PLAN
SCALE: 1/8" = 1'-0"

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MILLCREEK
UNINCORPORATED

These plans have been reviewed for compliance with the requirements of the Utah Building Code. The reviewer has not performed a field inspection of the project. The reviewer's review is limited to the information provided in the plans and specifications. The reviewer does not assume any liability for any damage or loss of any kind, including but not limited to, damages, losses, or expenses of any kind, including attorney's fees, arising out of or in connection with these plans and specifications. REFER TO ACT 17 U.S.C. PAR. 17 U.S.C. PAR. 301 (1991).

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BY: *[Signature]* DATE: 10/28/20
WEST COAST CODE CONSULTANTS, INC.

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Jay Mirraile jmirraile@gmail.com

MAIN FLOOR MECHANICAL PLAN

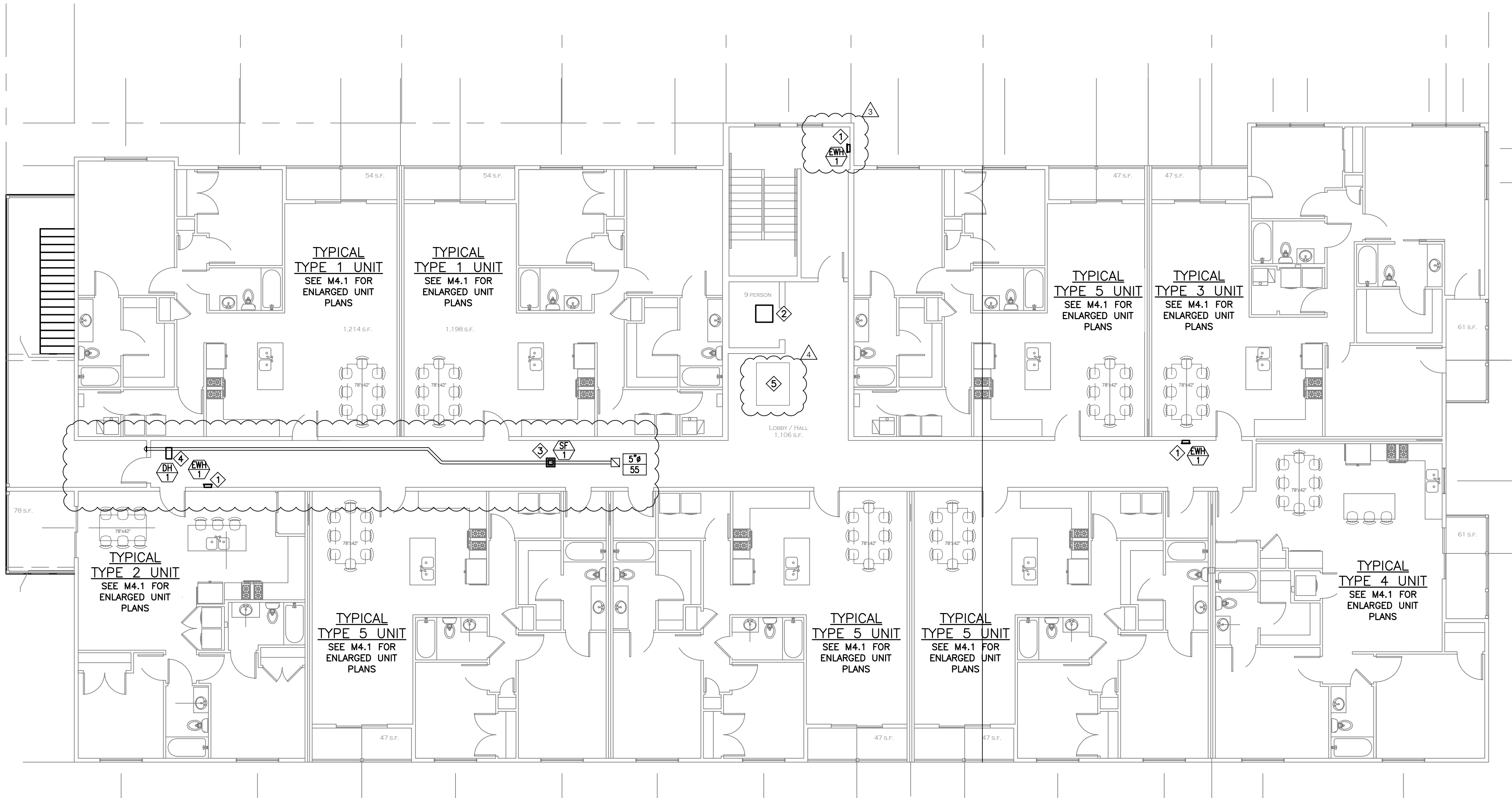
MARK	DATE	DESCRIPTION
1	06/05/20	
2	06/26/20	Changes per WC# Plan Chk.
3	07/09/20	Changes per WC# Plan Chk.

PROJECT: A-19-001
SCALE (11x17): 1/16" = 1'-0"
SCALE (24x36): 1/8" = 1'-0"
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ISSUED: 03/03/2020

MARK L. MARKIN
REGISTERED PROFESSIONAL ENGINEER
STATE OF UTAH
9/4/20

SHEET

M1.1

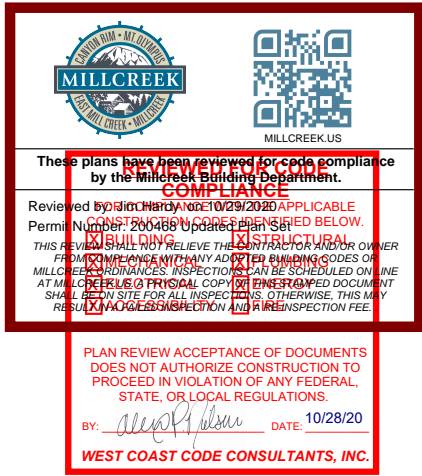


2ND/3RD FLOOR MECHANICAL PLAN
SCALE: 1/8" = 1'-0"

NOTE: RESIDENCE CONDENSING UNIT(S) TO BE INSTALLED AT ROOFTOP.

MECHANICAL KEYED NOTES:

- 1 SUGGESTED WALL HEATER LOCATION. INSTALL PER MANUFACTURERS RECOMMENDATIONS. INSTALL WITHIN WALL WHEN POSSIBLE. COORDINATE LOCATION, WALL OR SURFACE MOUNTING WITH STRUCTURE AND OWNER REPRESENTATIVE.
- 2 PROVIDE AND INSTALL CURB MOUNTED ELEVATOR SHAFT VENT WITH CAP, SMOKE DAMPER, ETC. (DESIGN GUIDE: GREENHECK MODEL NUMBER PEV-400). THE AREA OF THE VENTS SHALL NOT BE LESS THAN 3-1/2 PERCENT OF THE AREA OF THE HOIST-WAY NOR LESS THAN 3 SQUARE FEET FOR EACH ELEVATOR CAR. OF THE TOTAL REQUIRED VENT AREA, NOT LESS THAN ONE-THIRD SHALL BE PERMANENTLY OPEN. CLOSED PORTIONS OF THE REQUIRED VENT AREA SHALL CONSIST OF OPENINGS GLAZED WITH ANNEALED GLASS NOT GREATER THAN 1/8 INCH IN THICKNESS. COORDINATE WITH ELECTRICAL CONTRACTOR TO ENSURE SMOKE DAMPER IS CONNECTED TO FIRE CONTROL SYSTEM IF REQUIRED.
- 3 PROPOSED LOCATION OF INLINE SUPPLY FAN TO BE RAN CONTINUOUSLY TO PROVIDE FRESH AIR TO CORRIDOR SPACES. BALANCE SYSTEM TO DELIVER 55 CFM MINIMUM AT A 68-72 DEG AIR TEMPERATURE IN THE WINTER. PROVIDE 1.5 KW DUCT HEATER INLINE NEAR AIR INLET. FIELD VERIFY FINAL LOCATION(S) WITH OWNERS REPRESENTATIVE & STRUCTURE. PROVIDE AND INSTALL ALL SYSTEMS PER MANUFACTURERS RECOMMENDATIONS AND PROVIDE ACCESS PANELS FOR MAINTENANCE (FIRE RATED AS REQUIRED).
- 4 PROPOSED LOCATION OF 1.5 KW MINIMUM INLINE DUCT HEATER WITH DUCT MOUNTED THERMOSTAT AND ACCESS PANEL TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS. FIELD VERIFY FINAL LOCATION WITH OWNERS REPRESENTATIVE & STRUCTURE. SET DUCT HEATER TO DELIVER OUTSIDE AIR AT A MINIMUM TEMPERATURE OF 55 DEGREES FAHRENHEIT.
- 5 ROOF ACCESS PER ARCHITECTURAL PLANS (ON LEVEL 3 ONLY).



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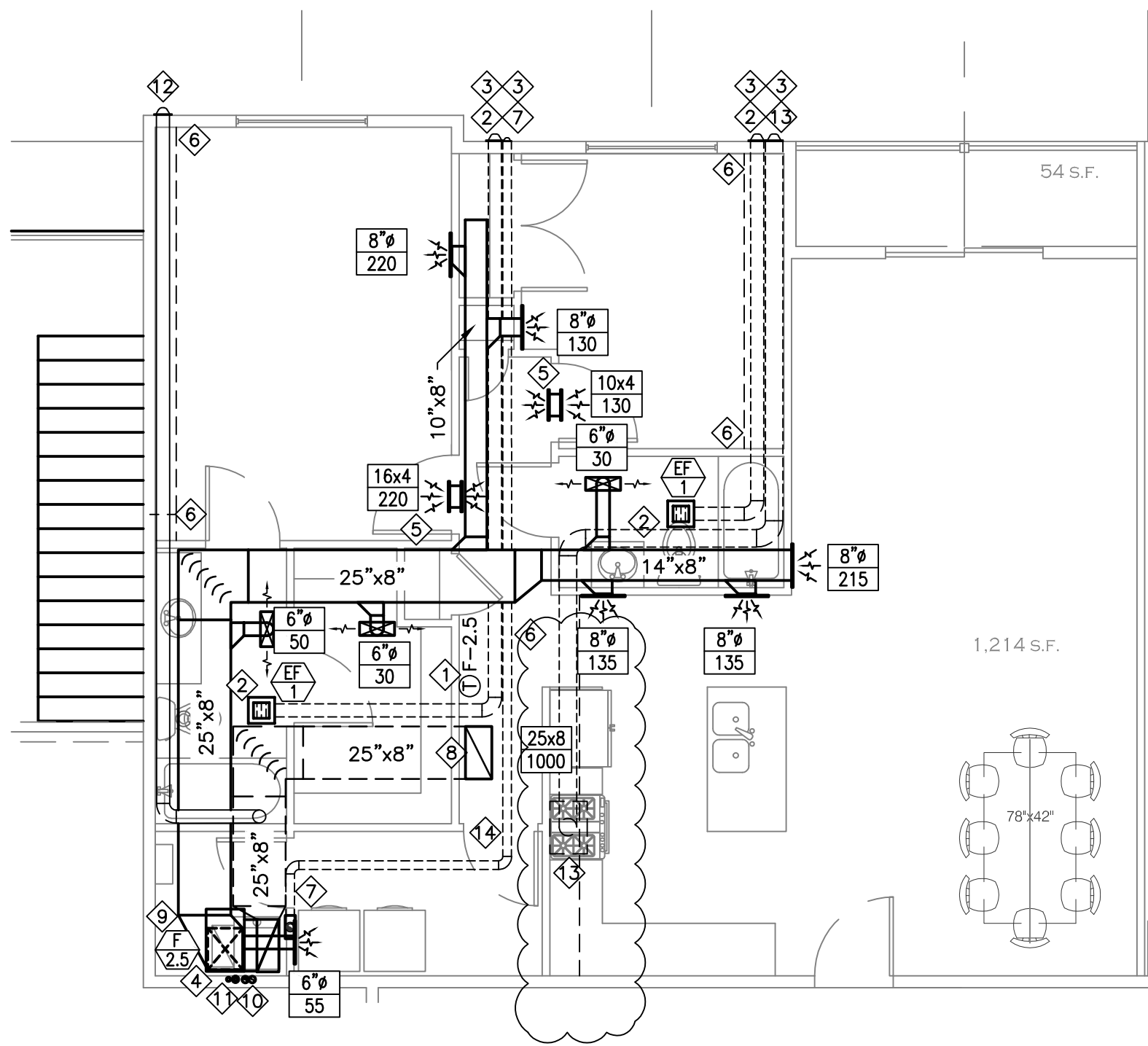
2ND/3RD FLOOR MECHANICAL PLAN

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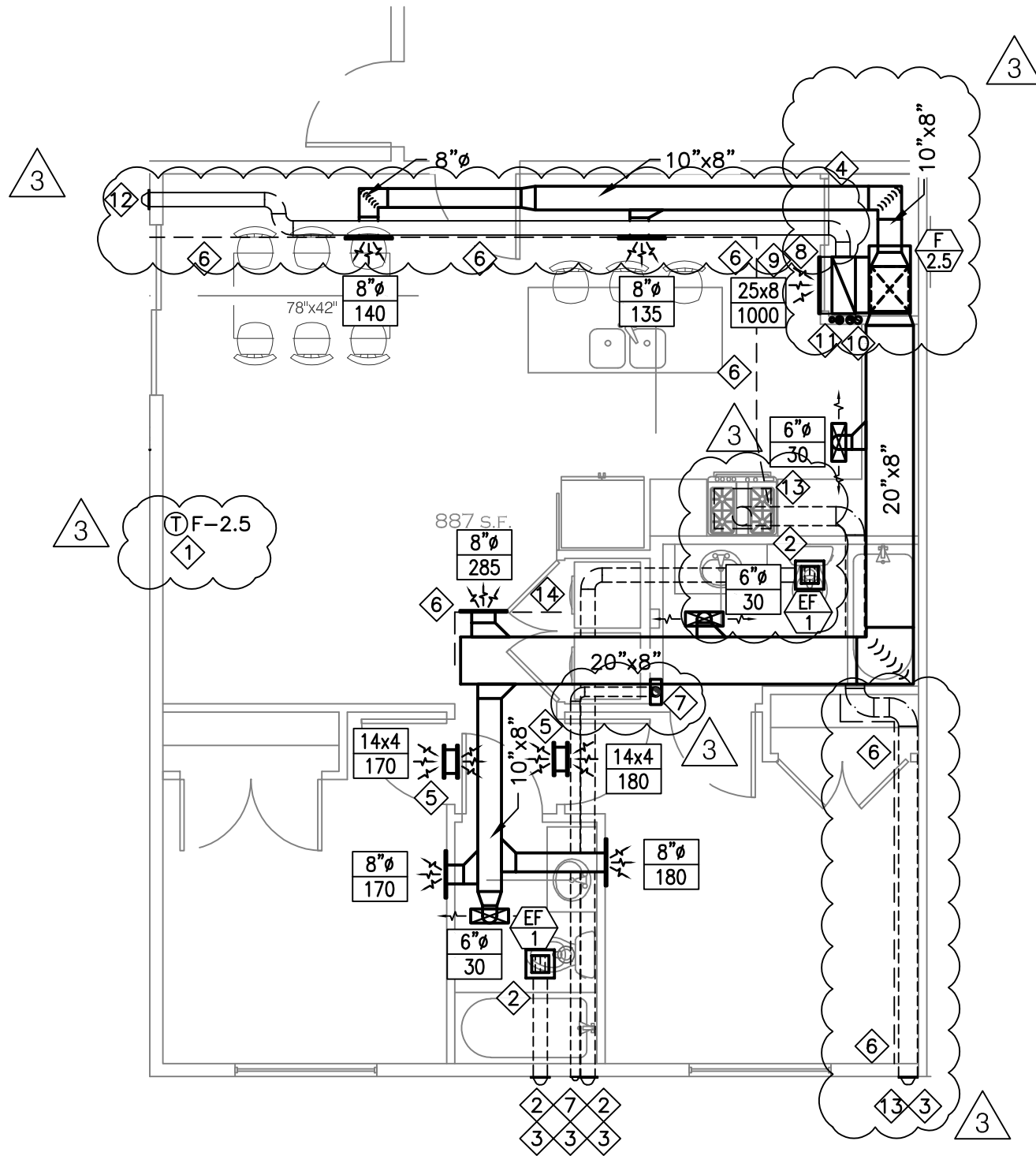
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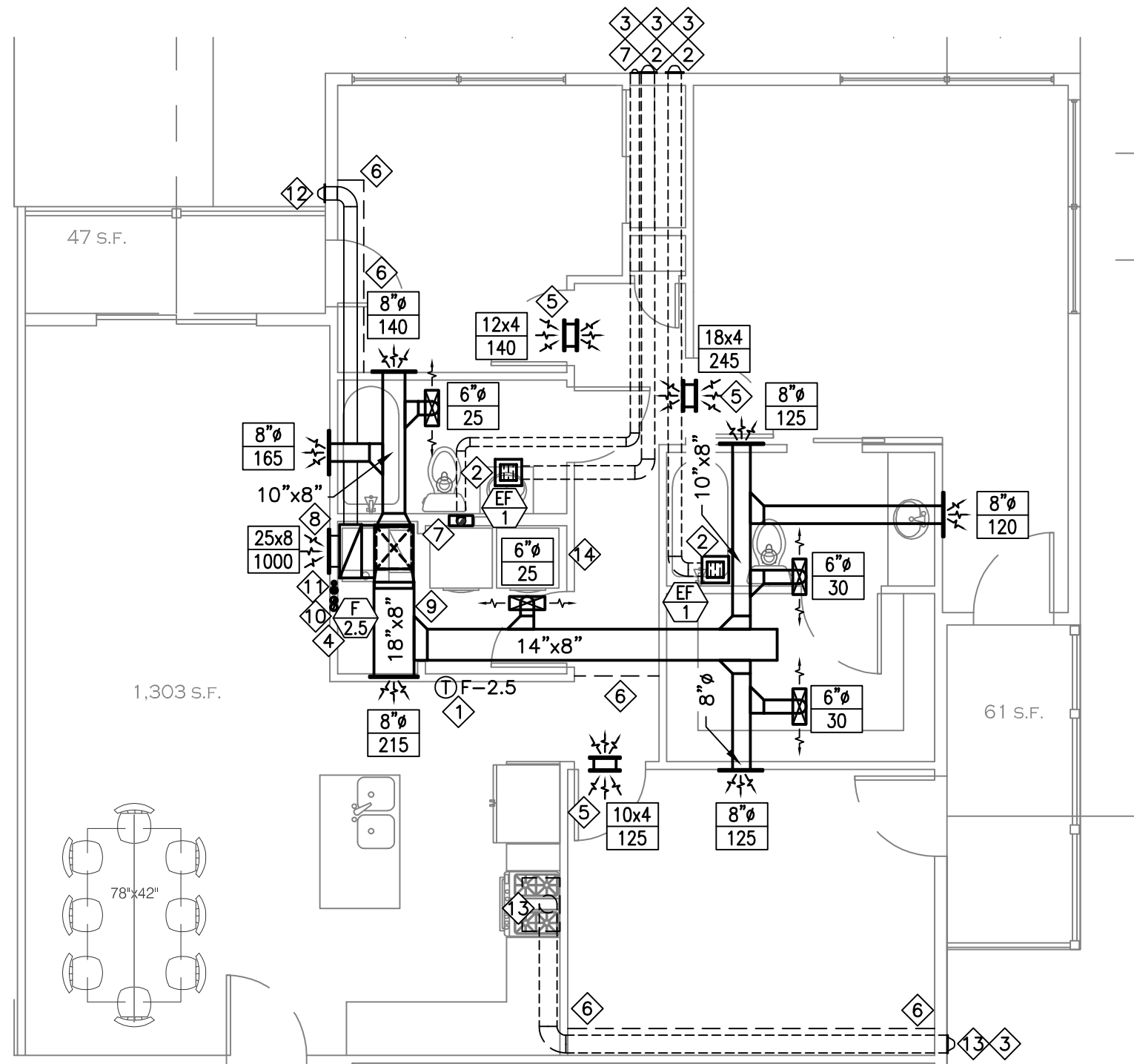
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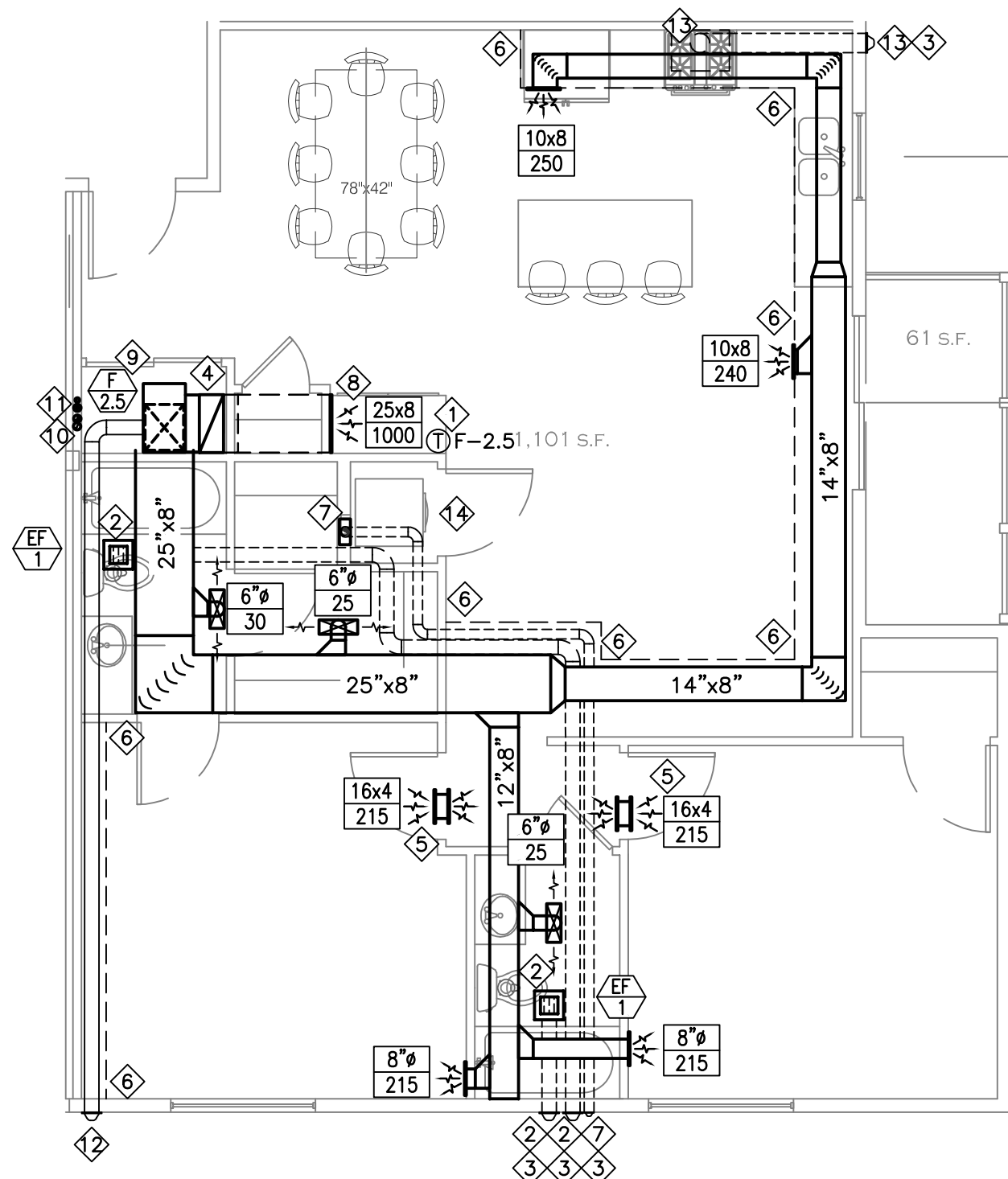
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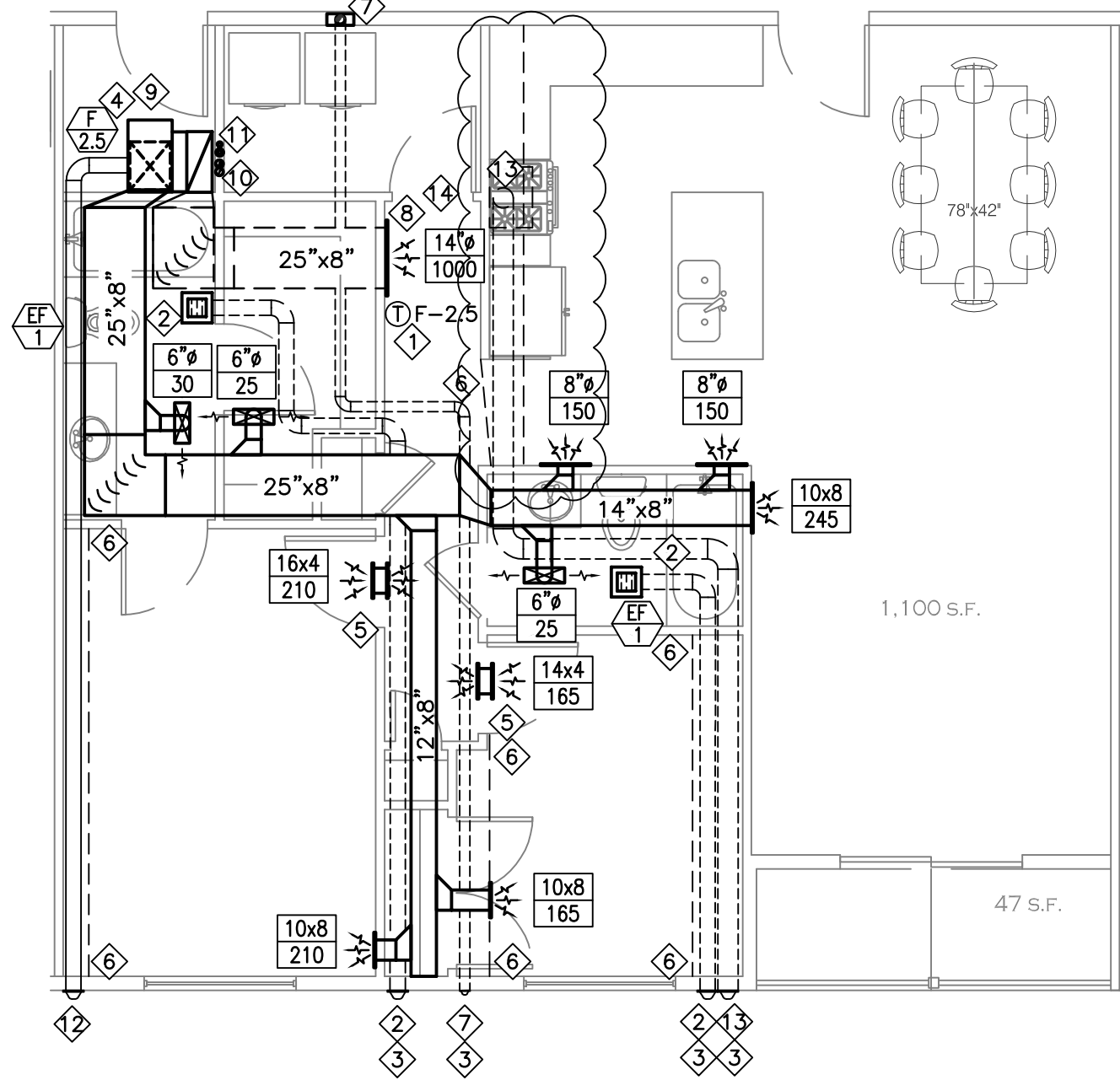
TYPICAL UNIT TYPE 2



TYPICAL UNIT TYPE 3



TYPICAL UNIT TYPE 4



TYPICAL UNIT TYPE 5

- MECHANICAL KEYED NOTES:**
- FIELD VERIFY 7-DAY PROGRAMMABLE THERMOSTAT LOCATION WITH OWNERS REPRESENTATIVE. INSTALL THERMOSTAT AT 48" A.F.F..
 - PROVIDE AND INSTALL 6" EXHAUST DUCT TO OWNER REPRESENTATIVE APPROVED EXHAUST VENT TERMINATION. VERIFY LOCATION IN FIELD. ACTUAL DUCT SIZE DETERMINED BY EXHAUST FAN OUTLET.
 - ALL EXHAUST AIR DUCTING SHALL TERMINATE WITH A BACKDRAFT DAMPER AND MANUFACTURER/OWNERS REPRESENTATIVE RECOMMENDED TERMINATION GRILLE AT A MINIMUM OF 3 FEET FROM OPERABLE BUILDING OPENINGS AND 10' FROM MECHANICAL FRESH AIR INTAKES (IMC SECTION 501.3.1 #3).
 - PROPOSED FURNACE LOCATION, PROVIDE WITH FILTER SECTION. SEE MECHANICAL PERFORMANCE NOTES, SCHEDULES AND DETAILS. MAKE ALL CONNECTIONS TO COMPLETE SYSTEM. COORDINATE FINAL LOCATION WITH OWNER REPRESENTATIVE.
 - PROPOSED LOCATION OF TRANSFER GRILLE(S) FOR NOTED CFM IN ENCLOSED LIVING SPACE. COORDINATE FINAL LOCATION WITH STRUCTURE. SEE HIGH-LOW TRANSFER DETAIL FOR MORE INFORMATION. A 1" DOOR UNDERCUT (36" DOOR) CAN ACCOUNT FOR UP TO 80 CFM OF RETURN AIR TRANSFER.
 - DUCTING IN UNIT HAS BEEN SHOWN TO REFLECT INSTALLATION OF DUCTING TO BE WITHIN AN ARCHITECTURAL SOFFIT/DROP. COORDINATE SOFFIT/DROPS WITH ARCHITECTURAL DRAWINGS FOR FINAL LOCATIONS AND DIMENSIONS. FIRE RATING SHALL BE AT TOP OF SOFFIT/DROP. ANY DUCTING PENETRATING THE FIRE RATED ASSEMBLY REQUIRES A RADIATION/FIRE DAMPER.
 - PROVIDE AND INSTALL DRYER VENT BOX AND 4" EXHAUST DUCT TO OWNER REPRESENTATIVE APPROVED EXHAUST VENT TERMINATION. VENT SHALL BE CONSTRUCTED OF METAL WITH A SMOOTH INTERIOR FINISH. VERIFY FINAL TERMINATION LOCATION IN FIELD WITH STRUCTURE AND OTHER TRADES. DRYER MANUFACTURERS MAXIMUM EXHAUST DUCTING LENGTH SHALL MEET OR EXCEED MAXIMUM INSTALLED EQUIVALENT EXHAUST DUCTING LENGTH. DRYER DUCTS IN THE ABSENCE OF THE MANUFACTURER INSTRUCTIONS SHALL BE LIMITED TO THE EQUIVALENT LENGTH CALCULATIONS OF 2018 IMC TABLE 504.8.4.1. PAINT EXTERIOR WALL TERMINATIONS SAME COLOR AS THE SURROUNDING WALL. IF DRYER BOX IS INSTALLED IN A FIRE RATED ASSEMBLY THE BOX IS REQUIRED TO BE RATED TO MEET OR EXCEED THE WALLS RATING IN ACCORDANCE WITH IMC SECTION 603. COORDINATE FIRE RATED ASSEMBLIES WITH ARCHITECTURAL PLANS. A 12" X 12" RELIEF AIR LOUVER SHALL BE PROVIDED AND INSTALLED PER IMC 504.6.

- MECHANICAL KEYED NOTES:**
- PROVIDE AND INSTALL RETURN AIR FILTER CAPABLE OF CFM NOTED WITH AN NC OF NO GREATER THAN 30.
 - PROVIDE AND INSTALL CONDENSATE DRAIN PIPE FROM FURNACE AND COOLING COIL TO FLOOR DRAIN.
 - PROPOSED LOCATION OF FURNACE CONCENTRIC PIPING TO ROOF. COORDINATE WITH OWNER REPRESENTATIVE IF ROOF VENTING OR ANOTHER LOCATION IS DESIRED. INSTALL VENTING PER MANUFACTURERS INSTALLATION INSTRUCTIONS. SEE MECHANICAL DETAILS.
 - PROPOSED LOCATION OF REFRIGERANT LINES TO/FROM CONDENSERS. COORDINATE FINAL LOCATION WITH STRUCTURE AND OWNER REPRESENTATIVE. SEE MECHANICAL DETAILS.
 - SUGGESTED LOCATION OF OUTSIDE AIR DUCTING AND INTAKE WITH APPROVED GRILLE. COORDINATE FINAL LOCATION GRILLE/INTAKE WITH OWNER REPRESENTATIVE. PAINT EXTERIOR GRILLE/INTAKE SAME COLOR AS SURROUNDING WALL. COORDINATE COLOR WITH OWNER REPRESENTATIVE. SEE MECHANICAL DETAILS, NOTES AND OUTSIDE AIR SCHEDULE.
 - PROVIDE AND INSTALL RANGE HOOD EXHAUST DUCT TO APPROVED EXHAUST VENT TERMINATION AT LOCATION APPROVED BY OWNER REPRESENTATIVE. ACTUAL DUCT SIZE SHALL BE DETERMINED BY RANGE HOOD OUTLET. TERMINATION LOCATION MUST BE A MINIMUM OF 3 FEET FROM ANY OPERABLE OPENING INTO THE BUILDING. FIELD ADJUSTMENT TO LOCATION MAY BE REQUIRED IF TERMINATION LOCATION SHOWN WILL NOT MEET THE 3 FOOT CLEARANCE REQUIREMENT. PAINT WALL GRILLE/TERMINATION(S) SAME COLOR AS SURROUNDING WALL/SURFACE. COORDINATE COLOR WITH OWNER REPRESENTATIVE. SEE MECHANICAL PERFORMANCE NOTES, SCHEDULES, AND DETAILS.
 - PROVIDE AND INSTALL GRILLE WITH 10"x10" DUCT (12"x12" GRILLE) TO INTERIOR. DUCT SHALL SUPPLY MAKE-UP AIR FOR DRYER (100 SQUARE INCHES MINIMUM).

ENLARGED UNIT MECHANICAL PLANS

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

NOTE:

- ALL DUCTING SHALL BE ROUTED BELOW THE FIRE BARRIER (IN DROPPED CEILING) OR BE CONSTRUCTED OF 26 GAUGE OR THICKER DUCTING PER 2018 IMC 607.1 EXCEPTION 1.
- ALL RETURN AIR GRILLES SHALL BE LOCATED NO CLOSER THAN 10' FROM THE KITCHEN RANGE (MEASURED HORIZONTALLY)
- MANUFACTURER INSTALLATION INSTRUCTIONS FOR HIGH EFFICIENCY HVAC AND WATER HEATERS MUST BE AVAILABLE FOR THE INSPECTOR AT THE TIME OF ROUGH INSPECTION.
- PROVIDE AND INSTALL CONDENSING UNIT(S) AT ROOFTOP.

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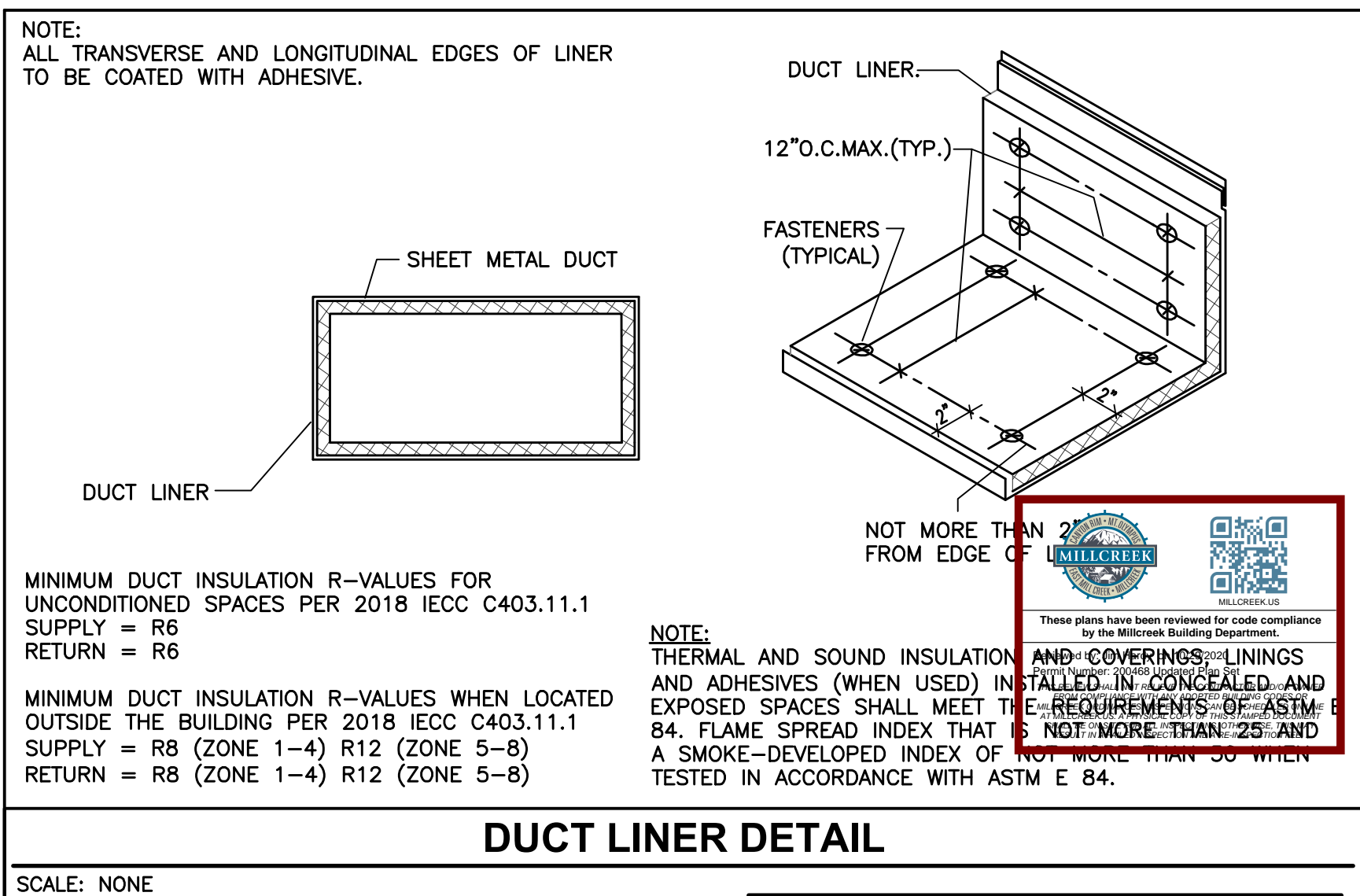
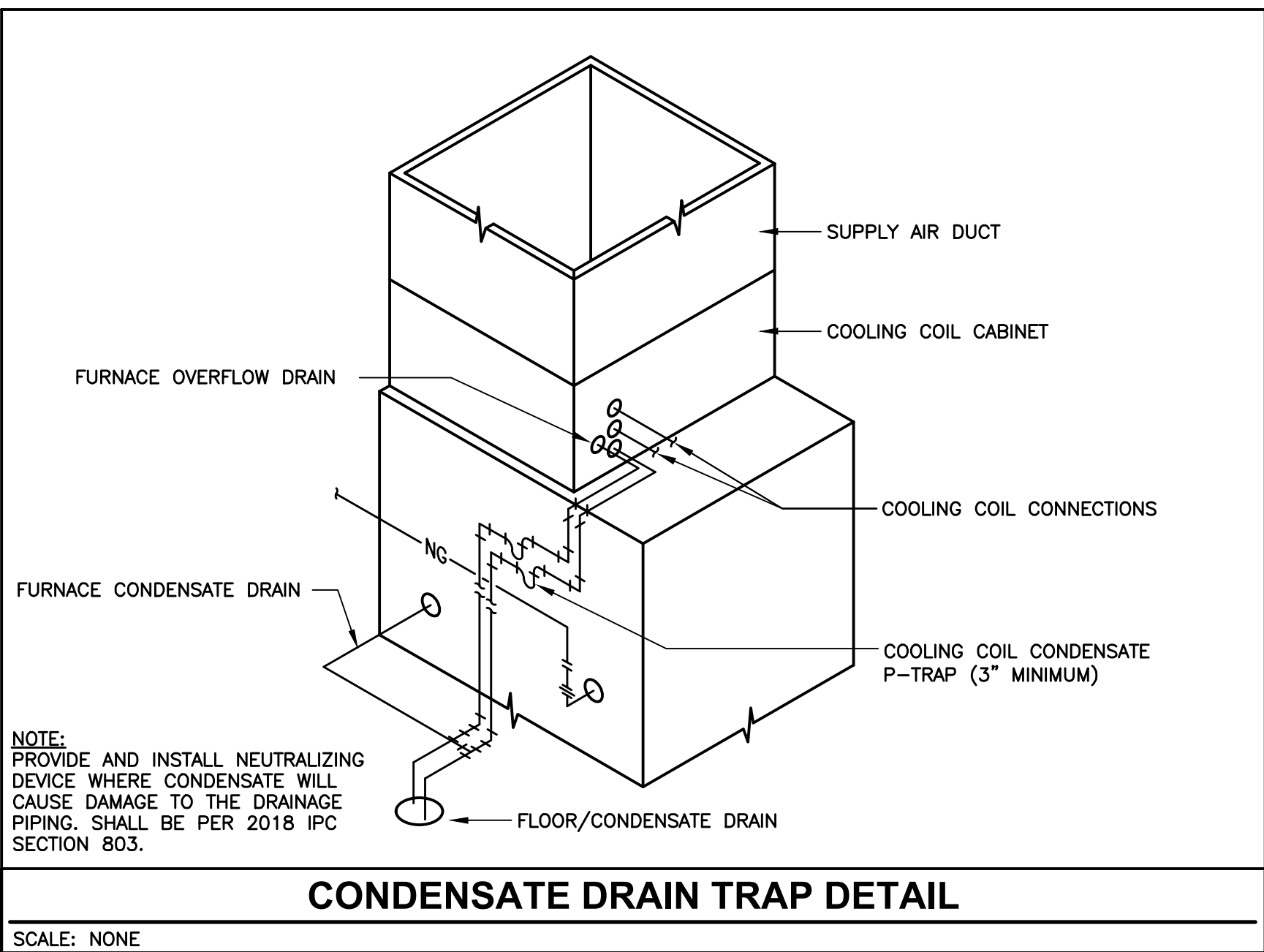
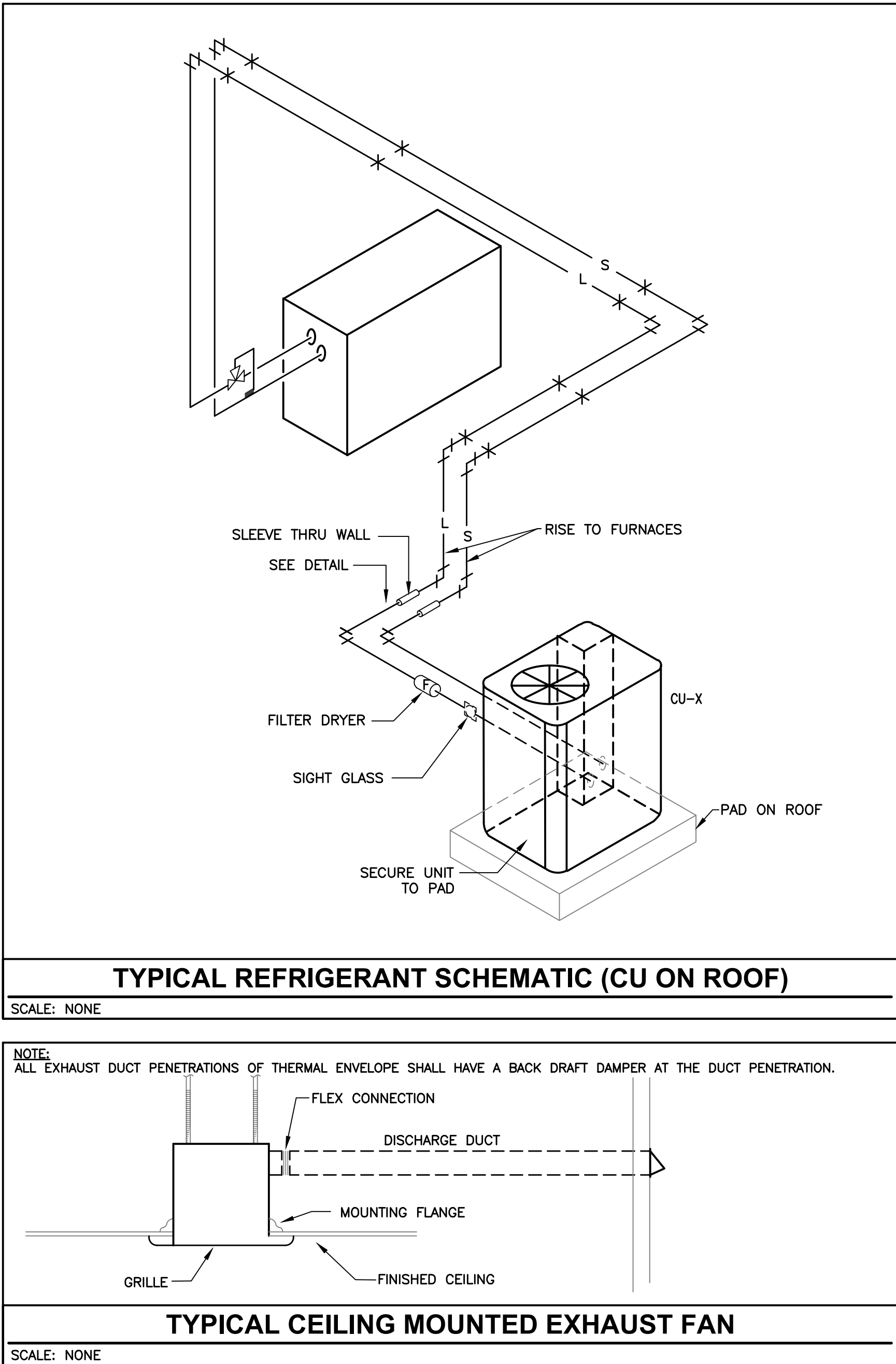
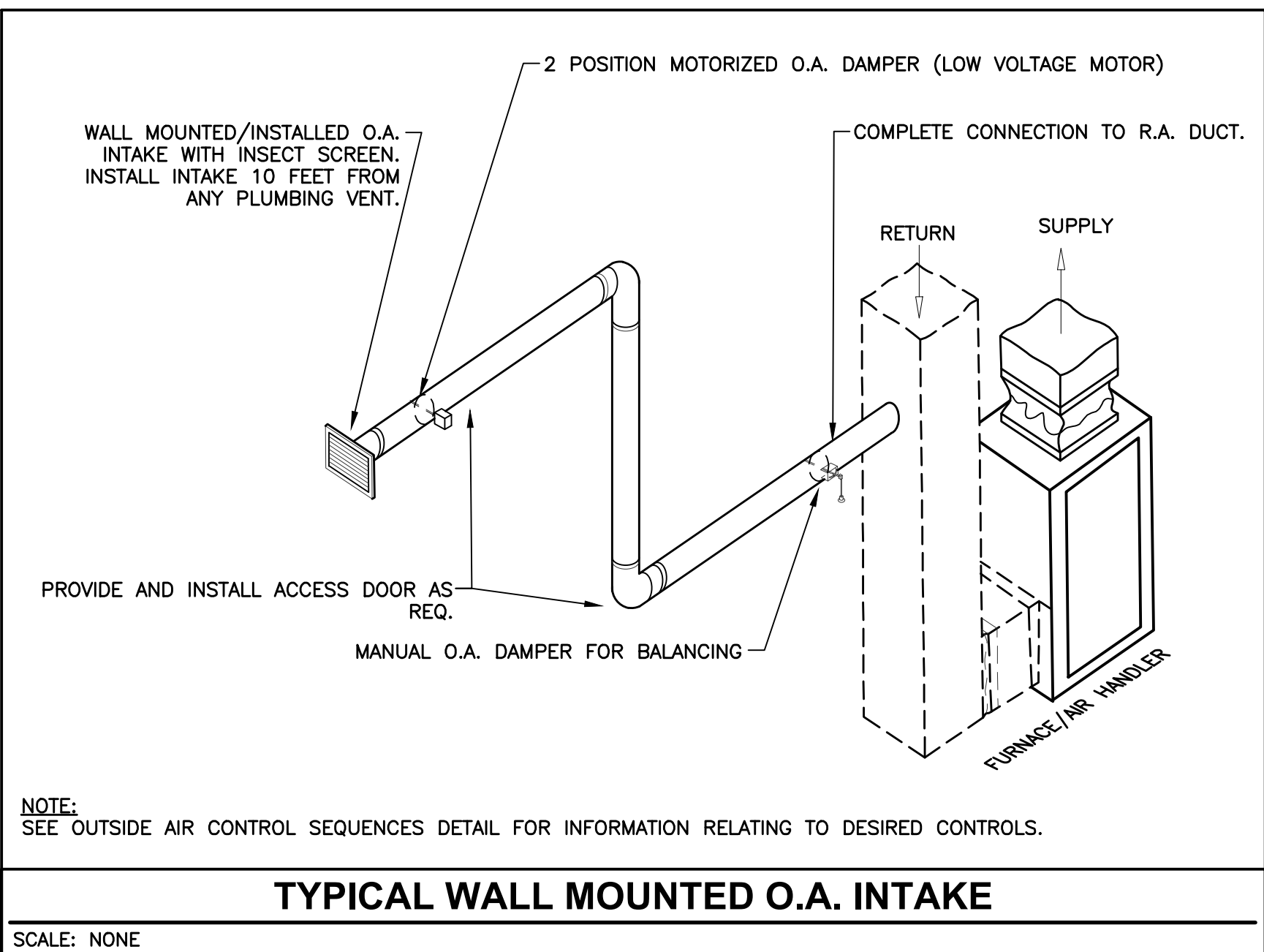
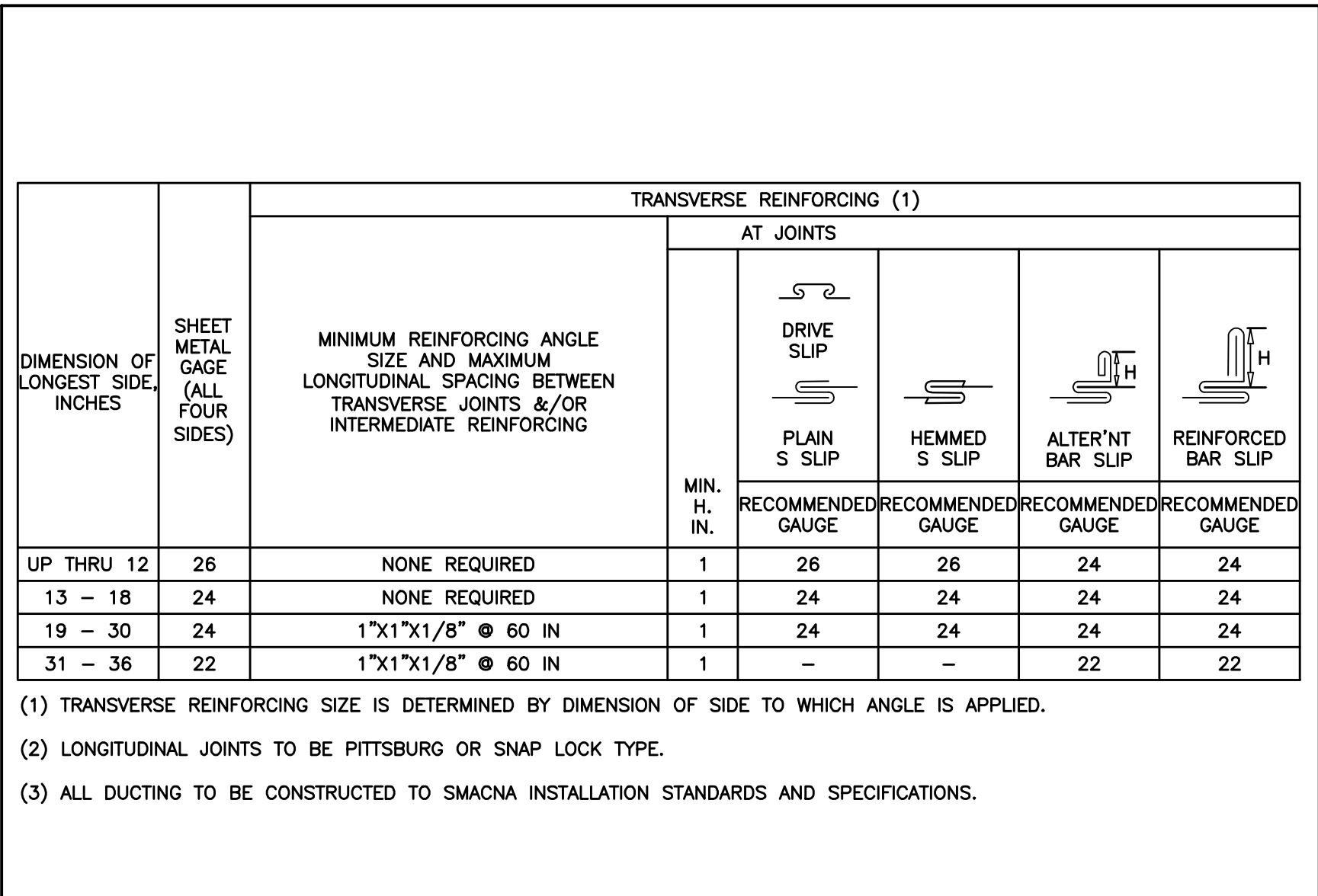
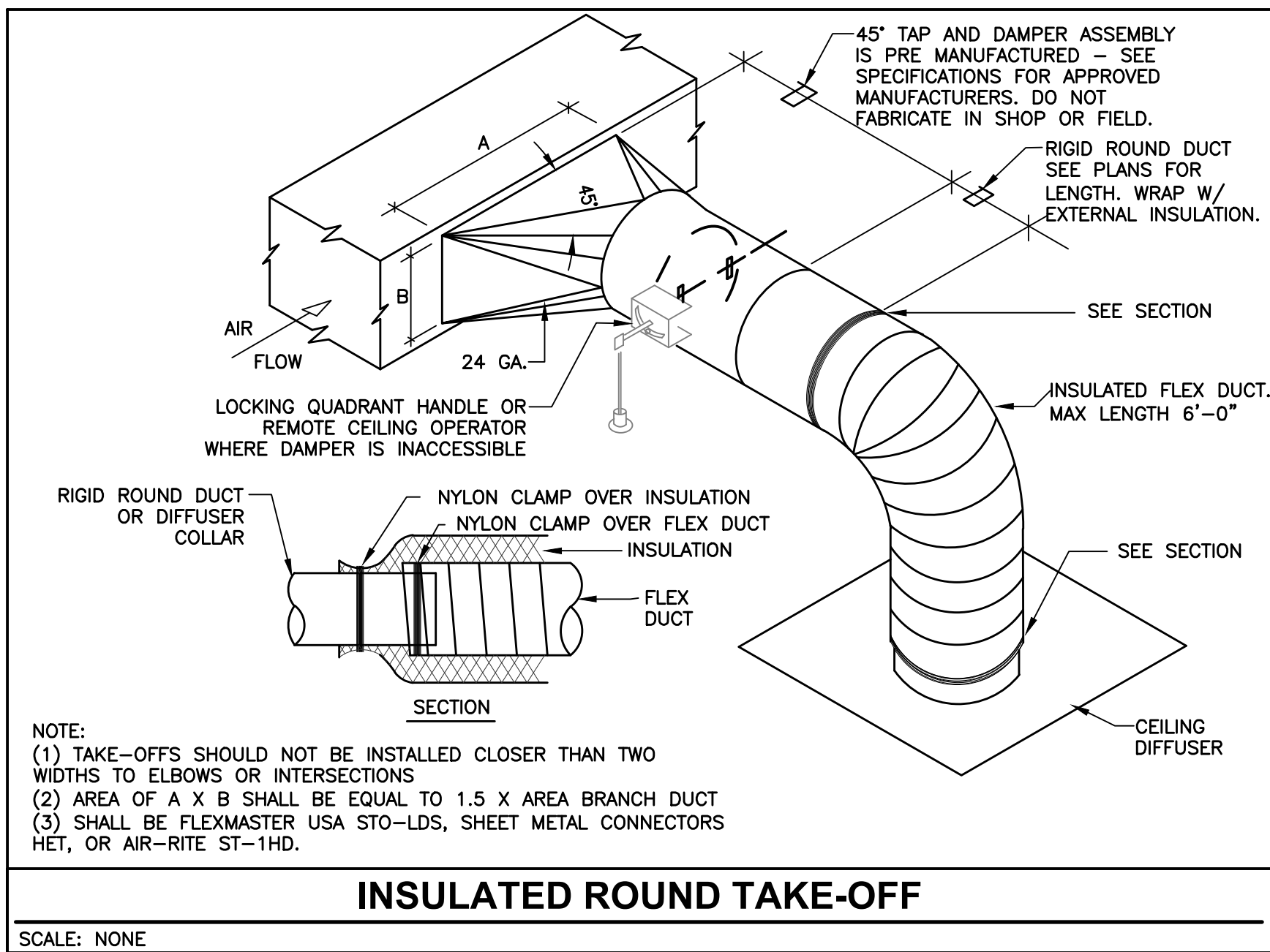
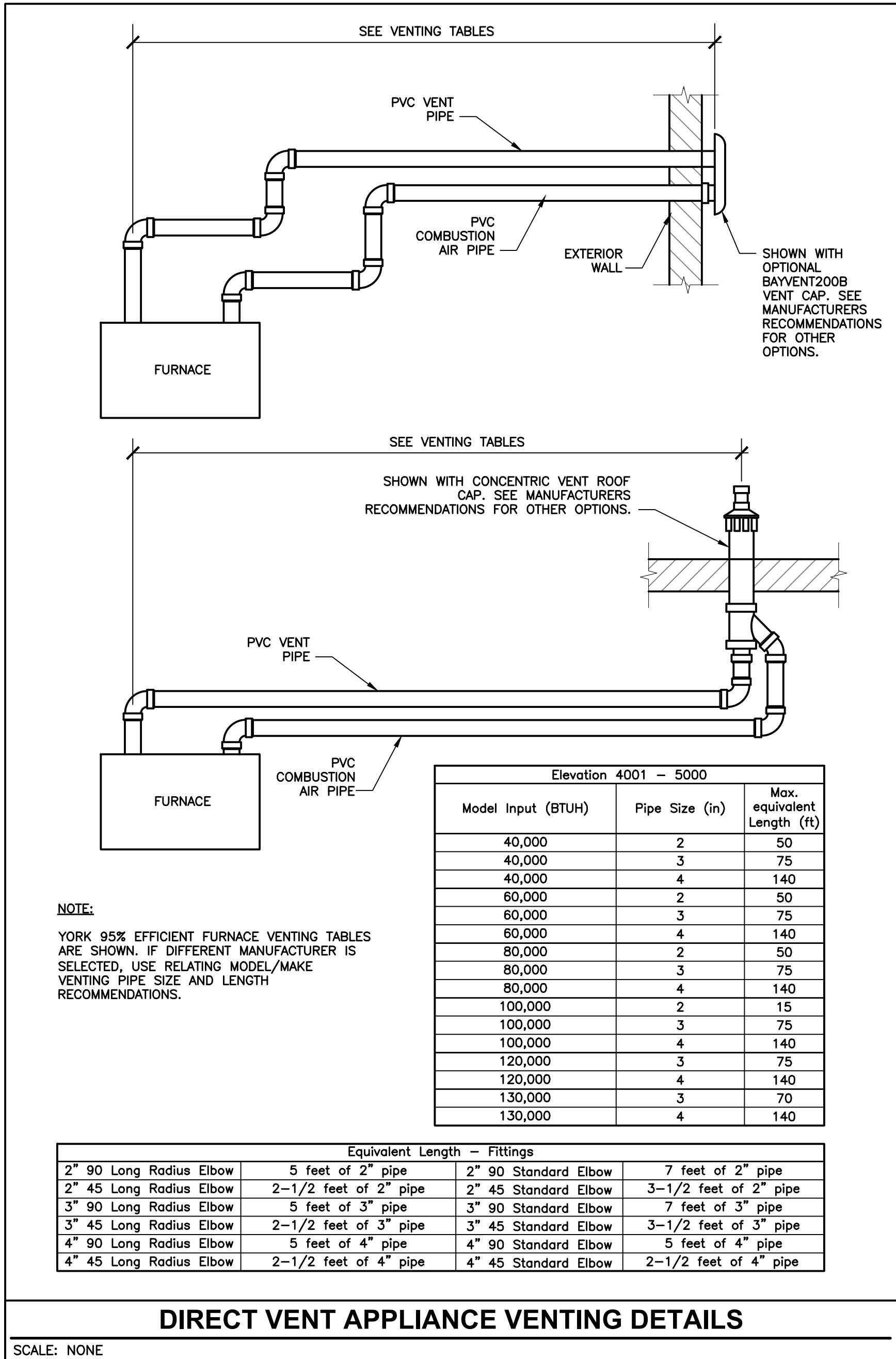
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SCALE (24x36): 1/8" = 1'-0"
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PROFESSIONAL SEAL: MARK L. MARKIN, 4858622, 3/7/20, UTAH, 01/17/20

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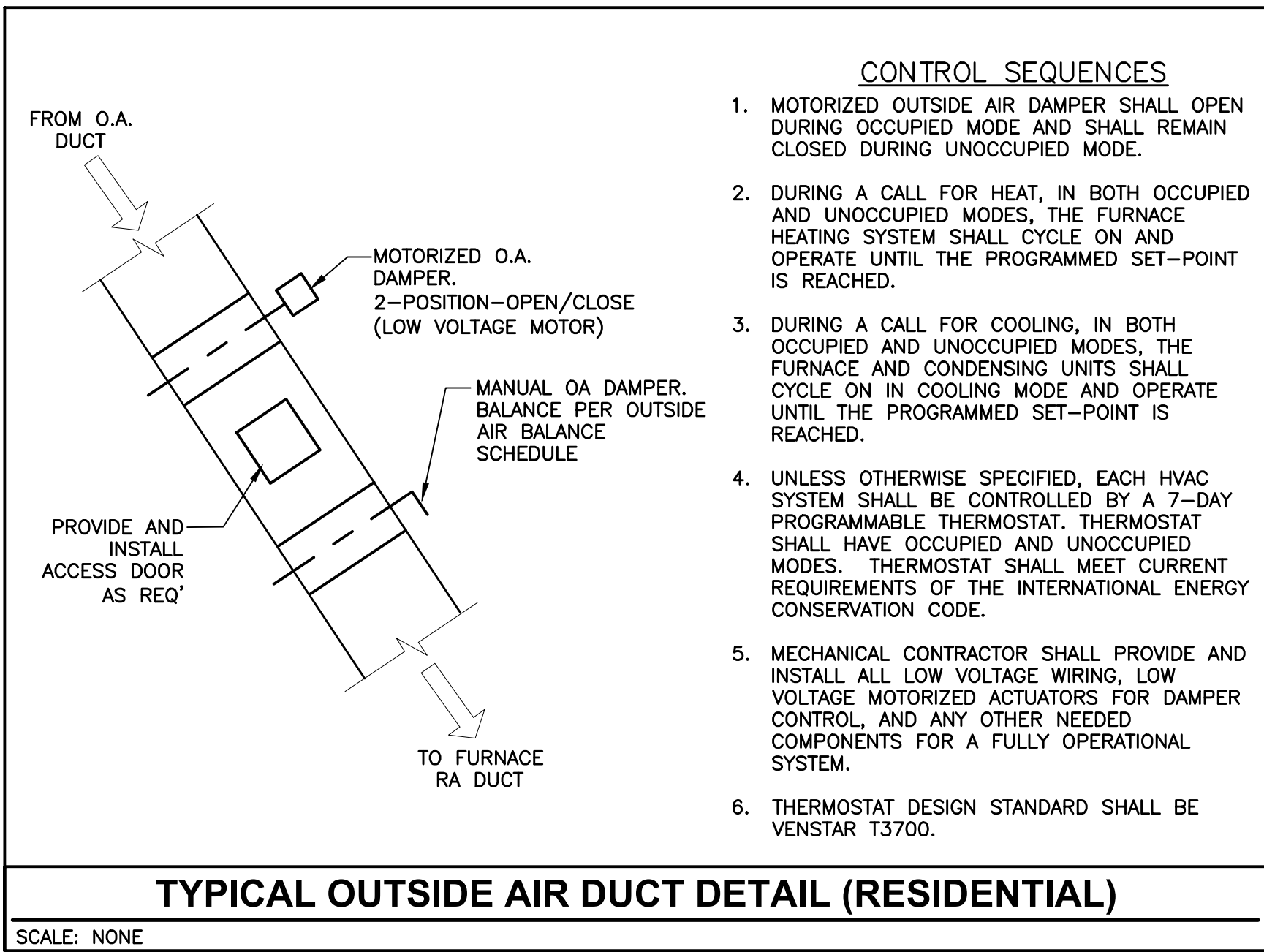
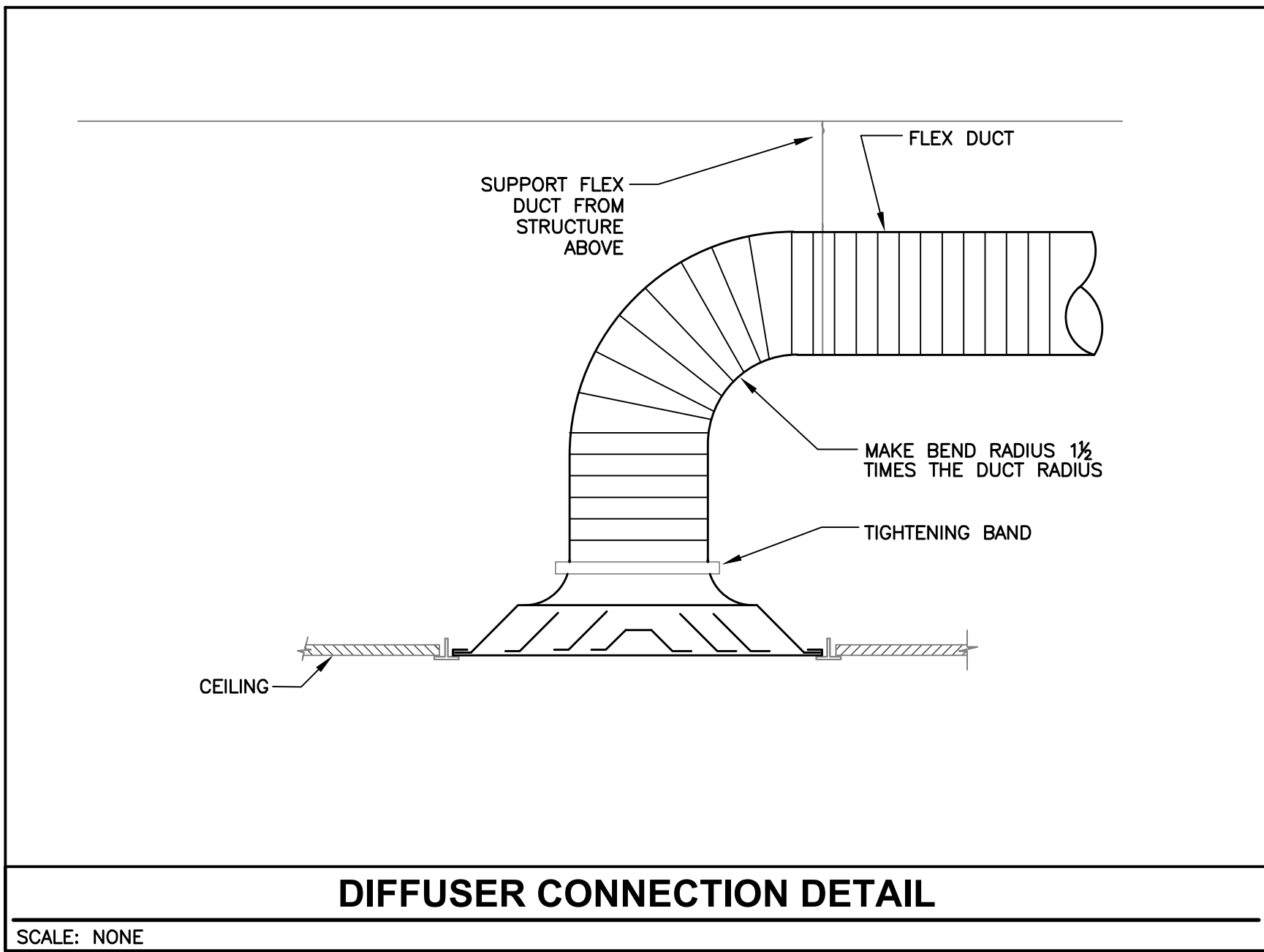
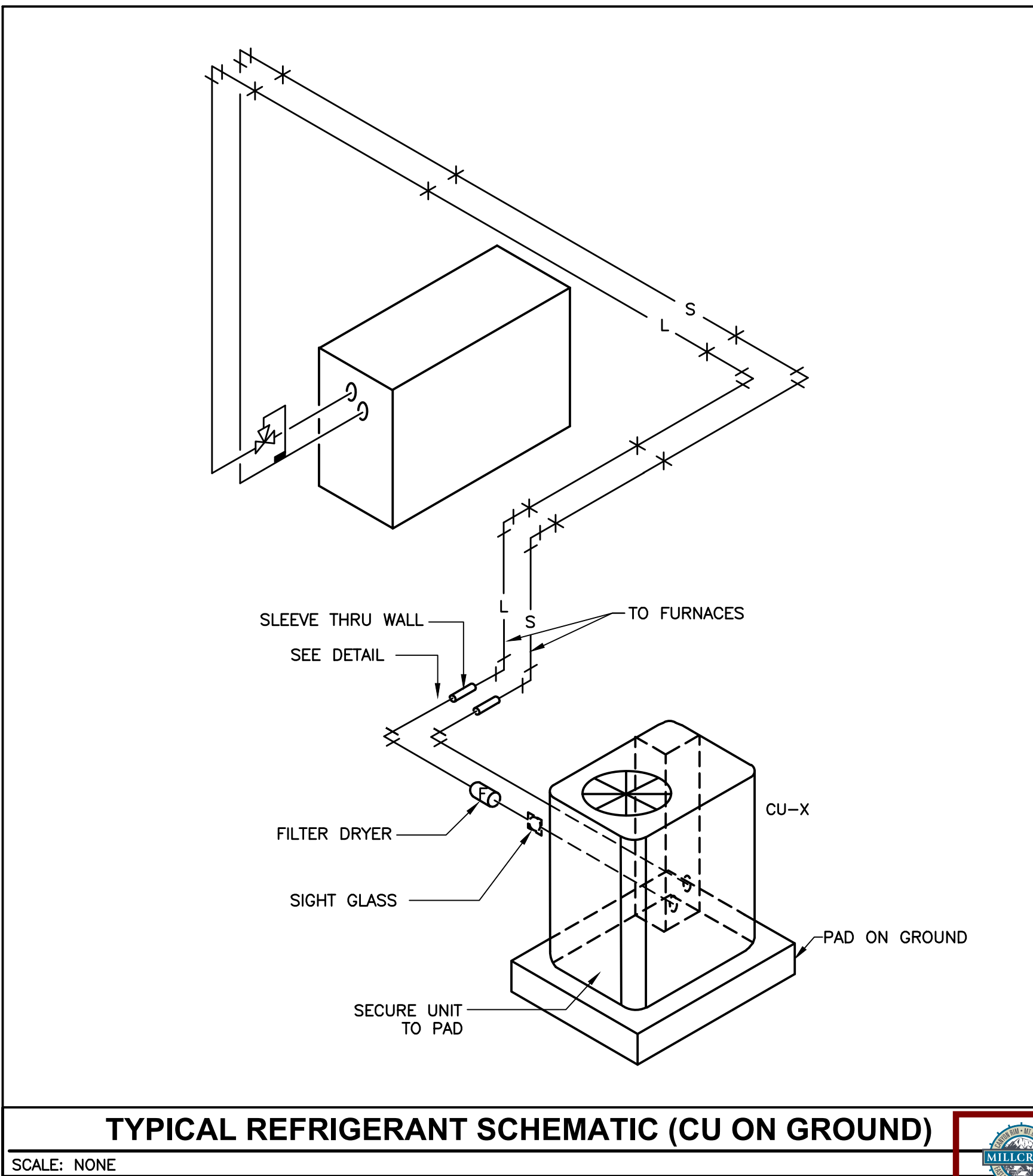
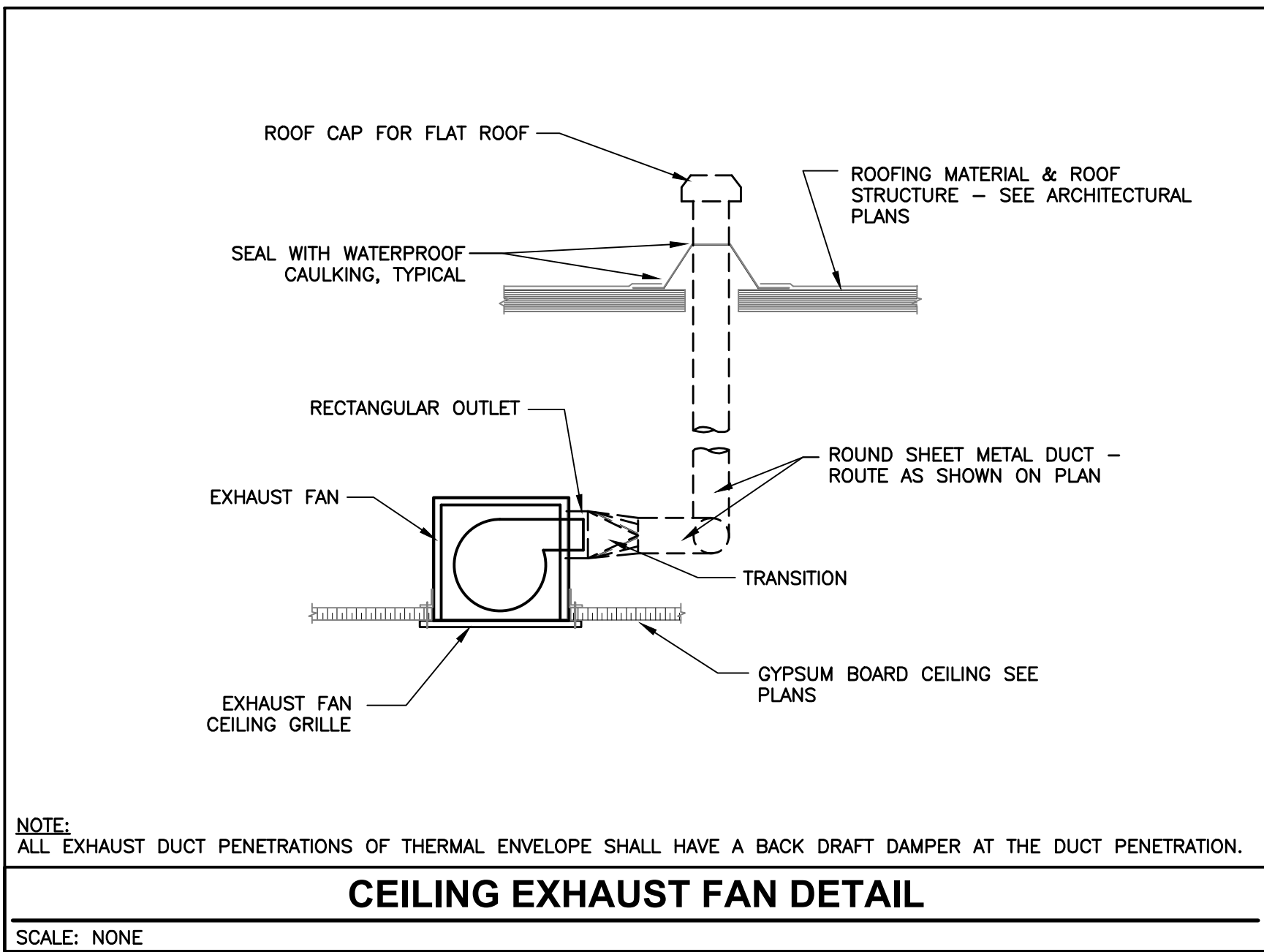
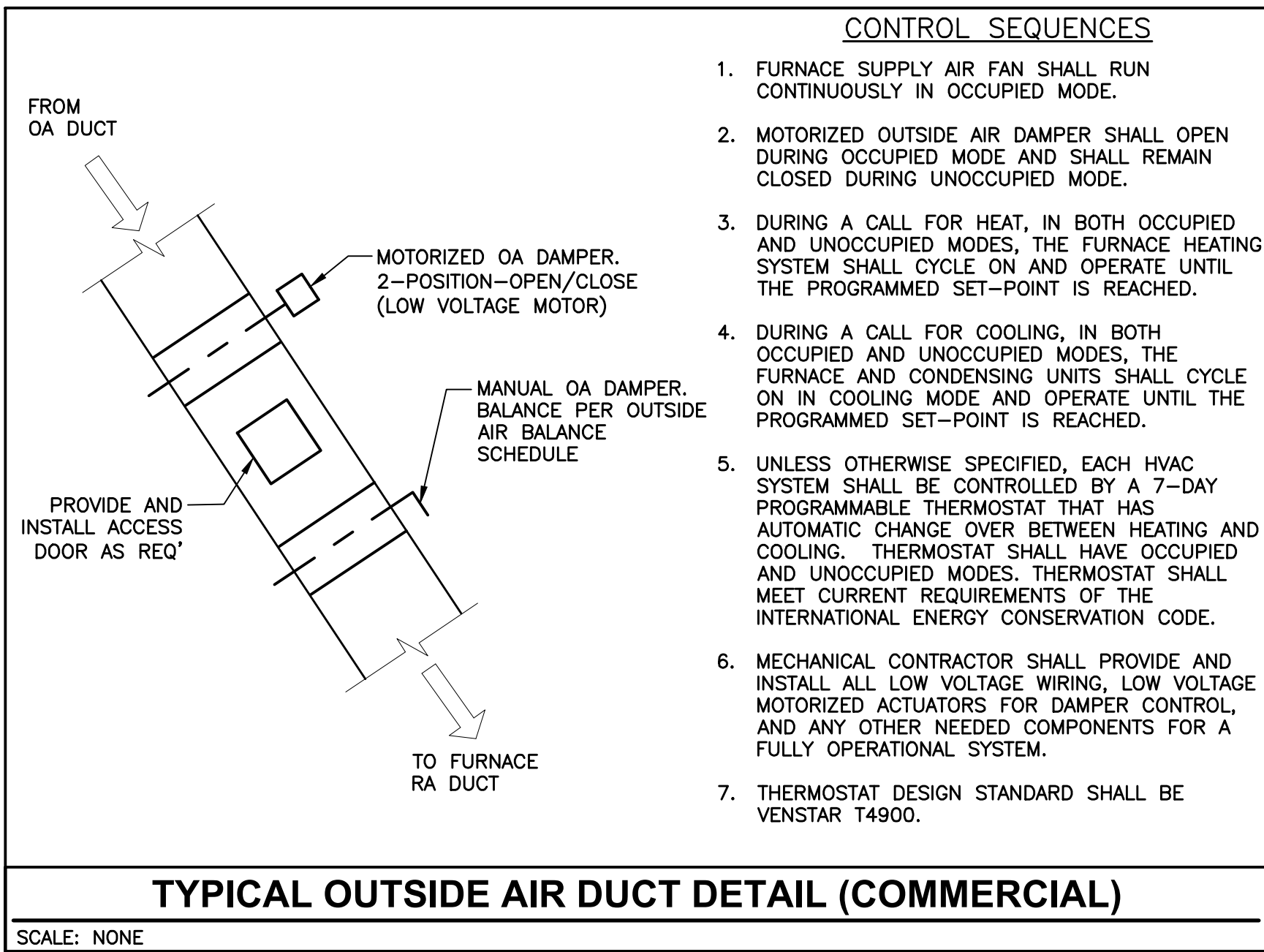
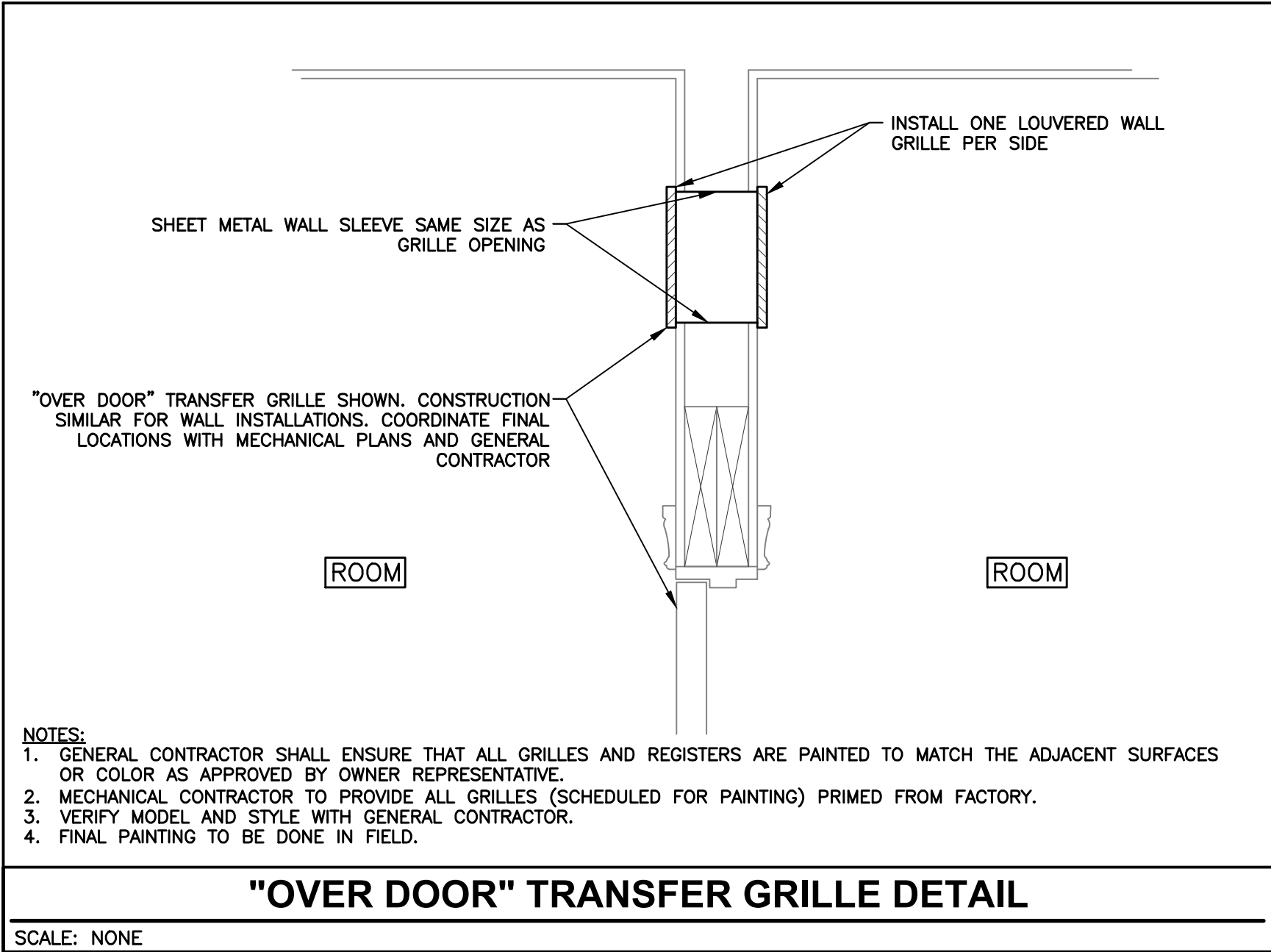
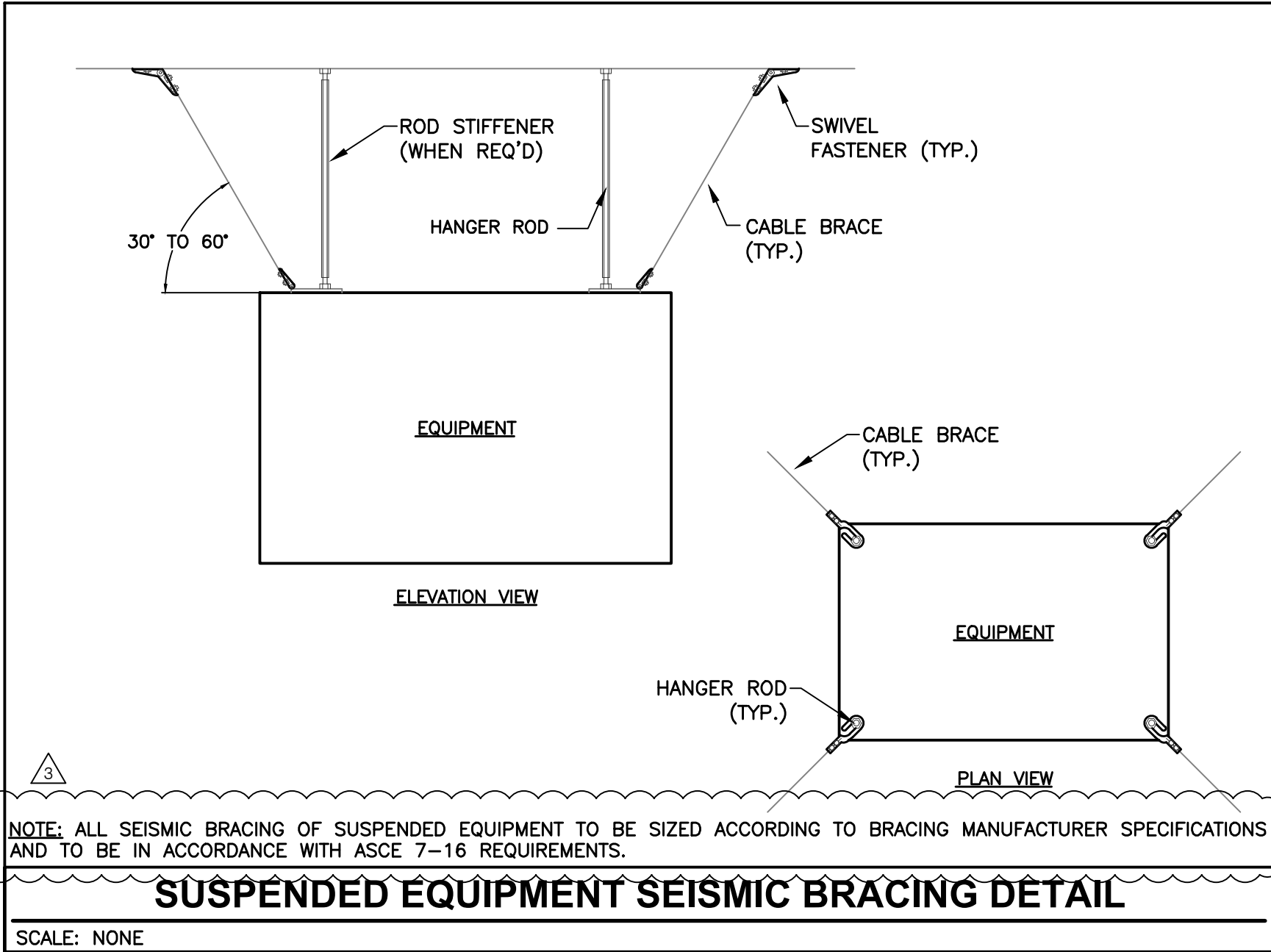
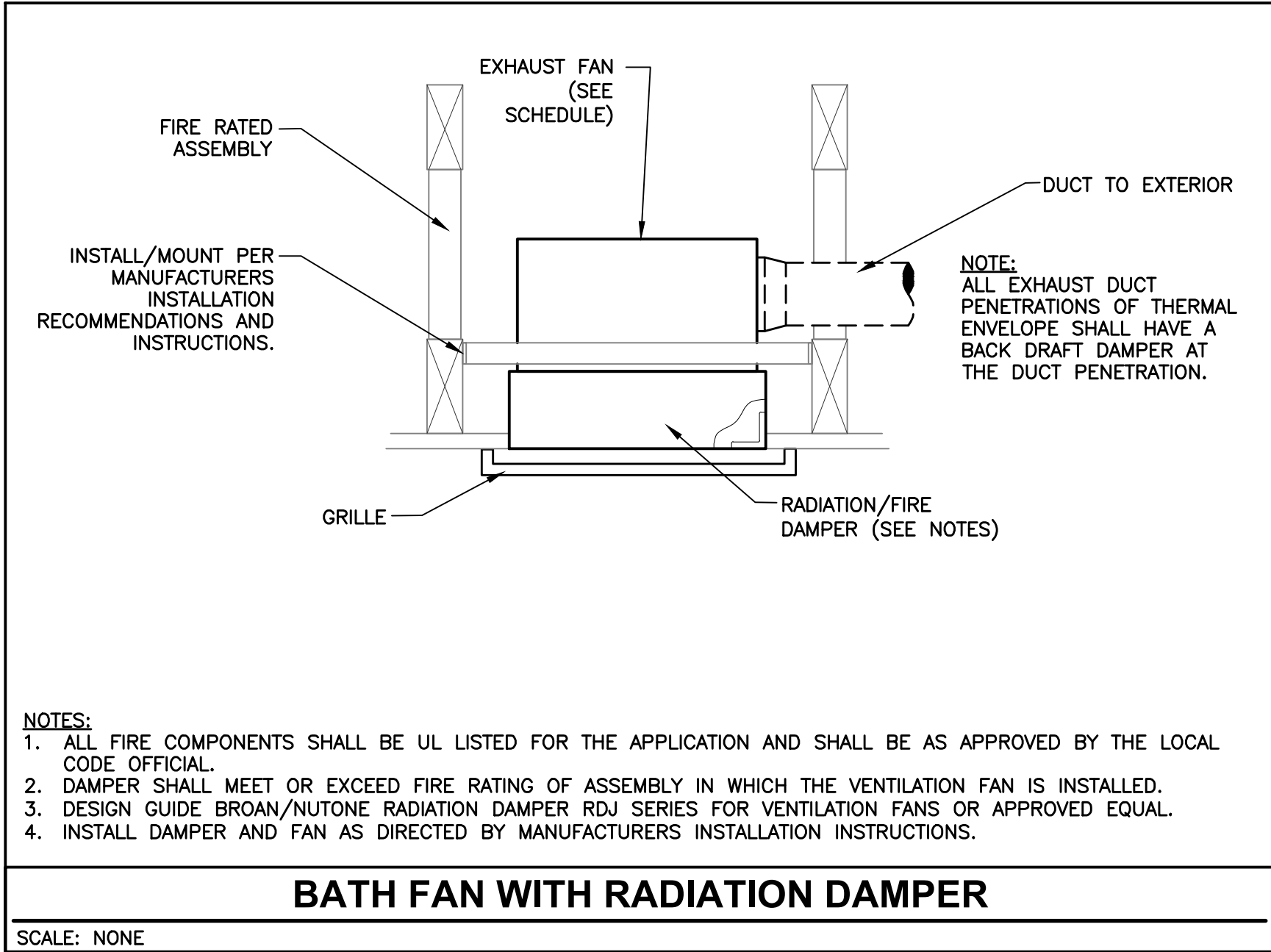
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OWNER APPROVED DRYER VENT CAP WITH BACKDRAFT DAMPER (INSTALL ABOVE SNOW LEVEL)

ONE 90° CORNER MAX OVERALL DUCT LENGTH 30'

TWO 90° CORNERS MAX OVERALL DUCT LENGTH 25'

OWNER APPROVED DRYER VENT WITH BACKDRAFT DAMPER

PROVIDE AND INSTALL IN-WALL DRYER CONNECTION BOX

FLEXIBLE TRANSITION DUCT MAX LENGTH 8 FEET

NO 90° CORNERS MAX LENGTH 35'

OWNER APPROVED DRYER VENT WITH BACKDRAFT DAMPER

CLOTHES DRYER

CLOTHES DRYER

TWO 90° CORNERS MAX OVERALL DUCT LENGTH 25'

- ## TYPICAL CLOTHES DRYER EXHAUST ROUTING DIAGRAM

UL APPROVED CONNECTION COLLAR

GALVANIZED STEEL BOOT

CEILING RADIATION/FIRE DAMPER

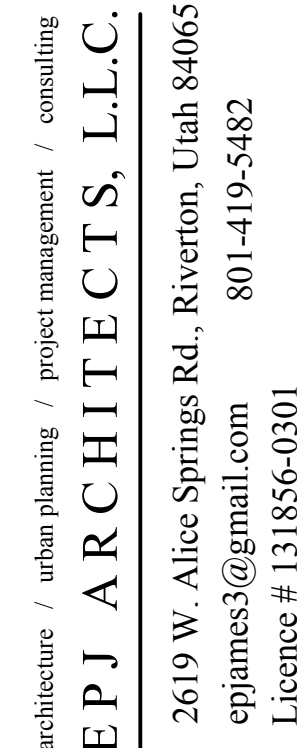
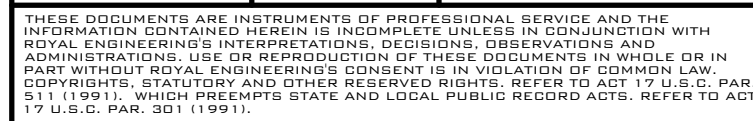
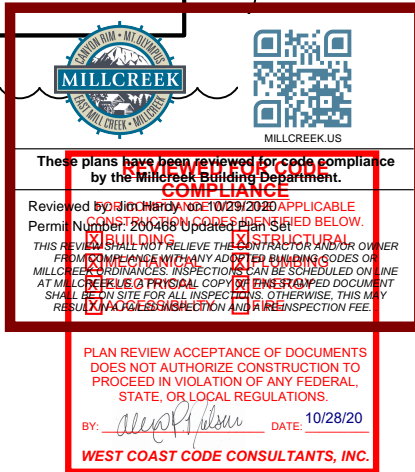
PLASTER/GYP. BOARD FLANGE (4 SIDES)

FLANGE (4 SIDES)

1. FUSIBLE LINK (164 DEGREES F.)
2. COLD ROLLED GALVANIZED STEEL DAMPER BLADES.
3. GALVANIZED STEEL FRAME.
4. RECTANGULAR W X H ACTUAL SIZE FOR REGISTER INSTALLATION.
5. NON-ASBESTOS FIRE RESISTANT MATERIALS.

1. GALVANIZED STEEL.
2. 1/2" PLASTER/GYPSUM BOARD FLANGE
3. GALVANIZED STEEL MOUNTING FLANGE.
4. UL APPROVED INSTALLATION COLLAR.

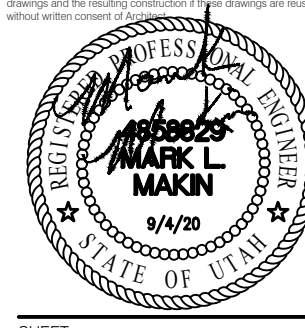
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



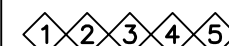




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








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1	06/05/20	
2	06/26/20	Changes per WC# Plan Chk.
3	07/08/20	Changes per WC# Plan Chk.



PROJECT: A-19-001
SCALE (11x17): 1/16" = 1'-0"
SCALE: (24x36): 1/8" = 1'-0"
CHECKED BY:
ISSUED: 03/03/2020



M5.3


FURNACE 95.5% AFUE (1-STAGE, SPLIT SYSTEM)																						
FURNACE											CONDENSING UNIT									REMARKS		
MARK	DESIGN GUIDE	NOMINAL COOLING SUPPLY CFM	ESP (IN)	COOLING EAT DB/WB (°F)	COOLING LAT DB/WB (°F)	COOLING COIL CAPACITY (TONS)	HEATING INPUT CAPACITY (BTU/hr)	HEATING EAT/LAT DB (°F)	ELECTRICAL			MARK	DESIGN GUIDE	MINIMUM NOMINAL SIZE (TONS)	ELECTRICAL			SEER	REFRIGERANT			MAX OPERATING WEIGHT
									VOLT/PH/HZ	UNIT MCA	UNIT MOCP				VOLT/PH/HZ	UNIT FLA	UNIT MOCP					
	YORK TG9E SERIES	1,000	0.5	80/62	56.6/52.5	2.5	60,000	65/95	120/1/60	10	15		YORK CZF SERIES	2.5	208/1/60	18.1	30	15	R410	166		
	YORK TG9E SERIES	1,995	0.5	80/62	54.4/51.9	5	100,000	65/95	120/1/60	17	20		YORK CZF SERIES	5	208/1/60	29.5	50	15	R410	235		
 SITE CONDITIONS ARE 98/62° DB/WB SUMMER, 3°F DB WINTER, AND AN ELEVATION OF 4,285 FEET ABOVE SEA LEVEL.																						
 APPROVED MANUFACTURERS: CARRIER, LENNOX, TRANE, YORK. (SUBJECT TO DOCUMENT CONFORMANCE).																						
 WITH CONCENTRIC VENT KIT.																						
 MATCH COOLING COIL WITH CONDENSING UNIT. SHALL BE COMPATIBLE WITH FURNACE. FURNACE SHALL BE DESIGNED FOR MULTI-POSITION INSTALLATION. COORDINATE COIL WITH FURNACE ORIENTATION.																						
SINGLE STAGE OF HEATING AND COOLING.																						


ELECTRIC WALL HEATER SCHEDULE						
MARK	DESIGN GUIDE	NOMINAL BTUH	ELECTRICAL			REMARKS
			VOLTS/PH/HZ	NOMINAL LOAD WATTS	FULL LOAD AMPS	
	BROAN 174	5,120	120/1/60	1,500	12.5	SURFACE/WALL     
 APPROVED MANUFACTURERS: BROAN, BERKO, QMARK, MARKEL, RAYWALL, REZNOR, REDD. (SUBJECT TO PROJECT DOCUMENT CONFORMANCE)						
 CONTRACTOR SHALL INSTALL EQUIPMENT AS PER MANUFACTURER'S SPECIFICATIONS.						
 WALL HEATER SHALL BE PROVIDED WITH INTEGRAL THERMOSTAT, PERMANENTLY LUBRICATED MOTOR.						
 FINISH SHALL BE 20 GAUGE STEEL LOUVERED WITH WHITE ENAMEL FINISH UNLESS SPECIFIED DIFFERENTLY BY ARCHITECT.						
 CONTRACTOR SHALL PROVIDE HEATER WITH SURFACE MOUNTING KIT WHERE REQUIRED.						


OUTSIDE AIR BALANCING SCHEDULE				
MARK	ZONE / AREA	BALANCE TO CFM	MINIMUM DUCT SIZE	REMARKS
	RESIDENTIAL UNITS	80	6"Ø OR 8"x4"	SEE OUTSIDE AIR DUCT DETAIL
	FUTURE TENANT SPACES	TBD	TBD	TO BE DETERMINED BY FUTURE TENANT, SEE OUTSIDE AIR DUCT DETAIL

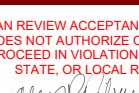
DUCT HEATER SCHEDULE									
MARK	DESCRIPTION	TYPE	ELECTRICAL				WIDTH	HEIGHT	REMARKS
			KW	STAGE	VOLT/PH/HZ	AMPS			
DH 1	INDEECO UNIT: MODEL #QUA-K SERIES	ELECTRIC	1.5	1	208V/3ø/ 60HZ	15	8"	6"	◇
◇ INSTALL PER MANUFACTURER RECOMMENDATIONS.									


EXHAUST FAN SCHEDULE									
MARK	NOMINAL CFM	TOTAL STATIC PRESSURE IN. W.C.	ELECTRICAL			SOUND RATING SONES	DESIGN GUIDE	REMARKS	
			RATED LOAD WATTS	VOLTS	HERTZ				PHASE
<div>EF 1</div>	75	0.25	100	115	60	1	0.6	GREENHECK SP-B110	<div>2 3 4</div>
<div>SF 1</div>	55	0.25	26	115	60	1	--	S&P TD-100	<div>2 3 4 5</div>
<div>1</div> APPROVED MANUFACTURERS: BROAN, FANTECH, ACME, CARNES, PENN. COOK, BREIDERT, COOLAIR, CAPTIVE AIRE, S&P, GREENHECK, TWIN CITY FAN, DELTA BREEZ, AIR KING. (SUBJECT TO PROJECT DOCUMENT CONFORMANCE)									
<div>2</div> EXHAUST FAN SHALL HAVE INTEGRAL BACKDRAFT DAMPER.									
<div>3</div> CONTROL BY ELECTRICAL CONTRACTOR WITH SEPARATE CONTROL SWITCH.									
<div>4</div> WITH METAL GRILLE KIT.									
<div>5</div> FAN TO RUN CONTINUOUSLY 24/7.									







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DOES NOT AUTHORIZE CONSTRUCTION TO PROCEED IN VIOLATION OF ANY FEDERAL, STATE OR LOCAL REGULATIONS.
BY:  DATE: 10/28/20
WEST COAST CODE CONSULTANTS, INC.



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MIXED USE SITE DEVELOPEMENT

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MECHANICAL SCHEDULES

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CHECKED BY:
ISSUED: 03/03/2020



SHEET

M6.1

SECTION 23 Mechanical – GENERAL PROVISIONS
Not all specification items are used in every project.

PART 1 – GENERAL

- **Scope:**
- Provisions of this section apply to all work specified in all sections under Division 23.
 - In addition, work in Division 23 is governed by the provisions of the Bidding Requirements, Contract Forms, General Conditions and all sections under Division 1, General Requirements.
 - Contractor is responsible for results deviating from the plans.
- **Examination of Premises:** Visit the site, verify all measurements and job conditions, and pay all costs necessary to perform the work. Coordinate division of fee responsibilities with the General Contractor.
- **The Mechanical Contractor** shall be licensed and hold a current contracting license that has been valid for a minimum of two years as a Mechanical Contractor in the State where the project is located.
- **The Mechanical Contractor** shall have a minimum of five years experience installing commercial cooling and heating systems similar to those described in these specifications and provide a list of previous projects, including name of project and contact person names and phone numbers as a separate document in addition to the mechanical bid submitted if required by the General Contractor.
- **The Mechanical Contractor** shall be able to bond work he is bidding to perform and shall provide a written statement from the bonding agency proposed to be used for this project as a separate document in addition to the mechanical bid submitted if required by the General Contractor. The bonding agency shall be one having a Best's insurance rating of A or A+.
- **Regulations, Permits, Fees, Charges, Inspections:**
- Regulations: Comply with all applicable codes, rules and regulations. All materials and work must comply with local construction, mechanical, plumbing, electrical and fire codes. As a minimum, comply with the following: IBC, IMC, IPC, NEC, NFPA codes and all City codes.
 - In addition to the requirements of all governing codes, ordinances and agencies, conform to the requirements of the following codes and standards.
 - 2018 International Mechanical Code
 - 2018 International Building Code
 - 2018 International Energy Code
 - 2018 International Plumbing Code
 - 2018 International Energy Code
 - 2018 International Fuel Gas Code
 - ASHRAE 90.1 – 2016***Current codes adopted by the respective jurisdiction will supercede this list of codes.
 - Fees and Permits: Pay all connection, installation, use, development, etc., fees and/or charges. Obtain and pay for all required permits and licenses. Coordinate division of fee responsibilities with the General Contractor.
 - Inspections: All work must be inspected and approved by local authorities. Prior to final approval, furnish the Architect with certificates of inspections and approvals by the local authorities in accordance with Division 1.
 - Preheat and interpass temperature shall be determined by temperature indicating crayons, contact pyrometers or other equally suitable means.
 - Postweld Heat Treatment: Postweld heat treatment for pressure components shall be as specified in Table 131 of ANSI B31.1.
- **Drawings and Specifications:**
- Refer to Division 1 for information on submittals and shop drawings.
 - If a conflict exists between the drawings and specifications, promptly notify the Architect and Engineer.
- **Record Drawings:** Provide record drawings for all work under sections in Division 22 & 23. See Division 1 for detailed requirements covering preparation of record drawings.
- **Work and Materials:** Unless otherwise specified, all materials must be new and of the quality specified. The workmanship shall be of a quality that is acceptable to the Architect and is equal to the standards of the trades. Contractor must staff the project with sufficient skilled workmen, including a fully qualified construction Superintendent, to complete the work in the time allotted. The Superintendent must be qualified to supervise all of the work in his work category.
- **Approvals of Materials and Equipment:** Refer to Division 1 for description of material and equipment for prior approvals and substitutions. Must be received by Engineer 10 days prior to due date/bid opening.
- **Maintenance Manual:**
- Prior to completion of the project, compile a complete equipment and maintenance manual for all equipment supplied under sections of Division 23, as described in Division 1.
 - Manuals shall be bound in a three-ring binder. A preliminary submittal of the manual shall be made to the Architect 90 days after receiving approved submittals. Final submittal of the manual shall be made four weeks prior to substantial completion of the project.
- **Equipment Purchases:** Arrange for purchase and delivery of all materials and equipment within 15 days after approval of submittals. Coordinate with General Contractor.
- **Cooperative Work:**
- Correct without charge any work requiring alteration due to lack of proper supervision or failure to make proper provision in time. Correct without charge any damage to adjacent work caused by the alteration. See Division 1 for additional requirements.
 - Cooperative Work Includes:
 - General supervision and responsibility for proper location, rough-in and size of work related to Division 22 & 23 but provided under other divisions of these specifications.
 - Installation of sleeves, inserts and anchors bolts for work under sections in Division 23.
 - Electrical work as specified herein. Refer to Division 26 for requirements.
- **Construction Facilities:**
- General: Under this division of the specifications execute all work in a manner to provide safe and lawful ingress and egress to the Owner's establishment and such facilities shall be kept clear of materials or equipment as directed by the Architect. Refer to Division 1 for additional requirements.
 - Furnish and maintain from the beginning to the completion of all work all lawful and necessary guards, railings, fences, canopies, lights, and warning signs. Take all necessary precautions required by city and state laws to avoid injury or damage to any and all persons and property.
- **Guarantee:** Guarantee all material, equipment, and workmanship for all sections under Division 23 in writing to be free from defects of material and workmanship for one year from date of final acceptance as outlined in Division 1. Replace without charge any material or equipment proving defective during this period. The guarantee shall include performance of the equipment under all conditions of load, installing any additional items of control and/or protective devices as required and the replacing of any refrigerant lost.
- **Mechanical Wiring:**
- Provide all temperature control wiring, all interlock wiring, and equipment control wiring for the equipment that is to be provided under this Division unless specifically shown on electrical drawings.
 - All wiring shall be not less than No. 14 insulated, color coded wire in electrical metallic tubing. Installation shall comply with Division 26.
 - Before ordering motors, equipment, etc., verify the available voltage and phase with the electrical trades.ion 26.

– **Electrical Work:**

- Electrical wiring, including power wiring and control wiring (except as otherwise specified under Automatic Temperature Controls), all raceways, wiring, outlet and junction boxes, and labor for installation of the wiring and equipment shall be included in Electrical Division 26 of the specifications.
- All starters in motor control centers are to be furnished and installed under the Electrical Division of the specifications.
- Under the Automatic Temperature Control section of these specifications, furnish and install all wiring, conduit, electric automatic temperature control devices, thermostats, relays, pneumatic electric switches, automatic control switches and pilot lights. See the Automatic Temperature Control Section, for additional detailed information.
- All loose starters and control devices for equipment furnished under Division 23 (except as otherwise specified under Automatic Temperature Control Section) are to be furnished under that particular section of Division 23 and installed under the electrical division.
- Contractor shall be responsible for the checking and testing of all controls and the interlocks for a complete and satisfactory operating system.
- Before ordering any motors and equipment. Verify the available voltage and phase for all motors with the Electrical Contractor.
- Submit a complete list of all motors prior to final closeout of job indicating the location, horsepower, voltage, phase specified in Table 132 of ANSI B.1.
- All field wiring and equipment must conform to the applicable section of the Electrical specifications, Division 26.

– **Welding Codes and Standards:** All welding and other criteria covered by this specification shall be in accordance with the following code:

- ASME Boiler and Pressure Vessel Code
- Section IX ANSI Code for Power Piping: B31.1

– **Product Handling**

- Protection: Take all precautions necessary to protect the materials of this section, before, during and after installation.
- Replacements: In the event of damage immediately repair all damaged and defective work to the approval of the Engineer, at no additional cost to the Owner.

– **Job Conditions**

- Examination of site: Examine the site and include in bid proposal all conditions under which work is to be performed.

– **Miscellaneous**

- Permit and Fees: Apply and pay for all necessary permits, inspections, examinations and fees or charges required by Public Authorities having jurisdiction.
- Locations and Accessibility: Contractor shall fully inform himself regarding peculiarities and limitations of space available for installation of work under this section. Valves, motors, controls and other devices requiring service. Maintenance and adjustments shall be placed in fully accessible positions and locations, provide access doors where required in ductwork and/or construction whether specifically detailed or not, and mender all such devices accessible.
- Scaffolding: Furnish all scaffolding, rigging and hoisting as required for the proper execution of the work.
- All HVAC equipment shall be labeled. Information on labels shall include: Identification number and name same as the drawings, flow and static pressure and the area to which the unit serves. Labels shall be black faced Formica with white engraved lettering at least $\frac{1}{8}$ inch high.
- All gas fired equipment shall include a label indication that the appliance has been adjusted, modified or re-calibrated for the altitude wherein the project is to be located. The appliance shall also include a compliance statement indicating that the appliance has been adjusted, modified or re-calibrated for the proper operation at the altitude of the project and shall be listed capable for use with natural gas or propane gas if propane is listed on the drawings.

– **Submittals**

- Shop Drawings: Within 15 days after award of contract, and before any of the materials of this section are fabricated and delivered to the jobsite, submit complete shop drawings and equipment submittals for the Engineer to review in accordance with these specifications. show all details of all ductwork and equipments pads.
- Product Data:
 - Submit six (6) copies of all manufacturer's product data simultaneously with all shop drawings submittals.
 - Product data to include, all air conditioning equipment, hangers, fans and other standard items as required to complement shop drawings for a submittal indications products to be used on this work.
- Record Drawings: Maintain throughout the progress of the work project record drawings and submit to the Owner.
- Operating Manuals and Maintenance Manuals:
 - Submit four (4) copies of all operating instructions and maintenance manuals.
 - Fully instruct Owner's operating personnel and demonstrate performance, operation and maintenance of equipment. Amount of allocated for said instruction and demonstration of equipment and systems shall be part of these obligations. Submit to Engineer a letter signed by Owner's representative who will operate system stating that he has been fully instructed by contractor about operation and maintenance of equipment and system.
 - Submit one (1) additional set of approved instructions and one (1) additional set of approved control diagrams.
- Guarantees: In addition to equipment warranties, furnish a written guarantee against defects in materials and workmanship for one year. Guarantee shall include repair of damage to, or replacement of any part of equipment or premises caused by leaks or breaks in pipe or equipment provided under this section.

– **Equipment Identification**

- Except for individual room heating units and items furnished under temperature control all items of mechanical equipment, including fans, pumps, boilers and electrical switches and starters for mechanical equipment and gauges shall be labeled.
- Information on labels shall include the following:
 - Identification number and name. Generally this number and name shall be the same as that shown on the drawings or in the specs.
 - If the item is a fan or pump, the flow and head shall be indicated.
 - If the item is part of a unit, the label shall have in addition to its item number, the number of the main item it is serving.
 - Valves shall be tagged with the area served and their normal operating positions shall be indicated.
 - Where the main unit is served by the valve is apparent, only the valve function needs to be included on the nameplate.
- The types of Nameplates shall be as follows:
 - The valve tags shall be $\frac{1}{2}$ " embossed aluminum tapes with identification on one side for valves. Tags for magnetic starters shall be screwed to the metal starter cover. Gags sags shall be Addressograph No. B-5300.
 - Equipment nameplates shall be black faced Formica with white engraved lettering at least $\frac{1}{8}$ " high.

– **Refrigerant Lines**

- Refrigerant lines shall be connected to valve stems by steel rings or chains. Screws shall be used for equipment labels prior to installation. The contractor shall submit to the Engineer a complete list of all valves and each item of equipment to be installed with proper identification per manufacturer's requirements. Lines to be fully insulated with 1 inch foam flex or equal. Insulation exposed to the sun shall be painted with two coats of protective paint. The system is to be evacuated to 200 microns, hold vacuum 24 hours. Break with freon and leak test with halide detector. Each heat pump to be provided with a refrigerant line kit.

– **Fire Stopping**

- Only tested fire stop systems shall be used.
- Fire stop system installation must meet requirements of ASTM E-814, UL 1479 or UL 2079 tested assemblies that provide a fire rating equal to that of construction being penetrated.
- Proposed fire stop materials and methods shall conform to applicable having codes having local jurisdiction.
- Fire stop systems do not reestablish the structural integrity of the load bearing partitions/assemblies, or support live loads and traffic. Installer shall consult the Structural Engineer prior to penetrating any load bearing assembly.
- For those fire stop applications that exist for which no UL tested system is available through a manufacturer, and engineering judgment derived from similar UL system design or other test will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineer judgment drawings must follow requirements set forth by the International Fire stop Council.
- The work of this section shall be accomplished by a single source contractor or by those contractors who, by their contract, are penetrating rated construction with their work. Regardless of responsibility the General Contractor shall be responsible to assure and verify that all products, systems, etc. used under this section are appropriate and meet the intent of this specification and is accomplished by factory trained workmen.
- Acceptable manufacturers are subject to compliance with through penetration firestop systems (XHEZ) listed in volume 2 of the UL fire resistance directory. Provide products from the following manufacturers as identified: 1. Hilti Inc. 2. 3M Corporations. 3. Specified Technologies Inc. 4. Metacaulk, Rectorseal Corp. F. Tremco. 6. Catco, Isolatak International. 7. Nelson Firestop Product.
- Use only firestop products that have been UL 1479, ASTM E-814, or UL 2079 listed for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements and fire-rating involved for each separate instance.
- Cast-in-place firestop devices for use with non-combustible and combustible plastic pipe (closed and open piping systems) penetrating concrete floors, the following products are acceptable:
 - HILTI CP 680 cast-in-place firestop devise.
- Add aerator adaptor when used in conjunction with aerator ("Sovent") system.
 - HILTI CP 681 tub box kit for use with tub installations.
- Sealants, caulking materials, or foams for use with non-combustible items including steel pipe, copper pipe, rigid steel conduit and electrical metallic tubing (EMT). The following products are acceptable:
 - HILTI FS-One Intumescent Firestop Sealant
 - HILTI CP 604 Self-leveling Firestop Sealant
 - HILTI CP 620 Fire Foam
 - HILTI CP 606 Flexible Firestop Sealant
 - HILTI CP 601S Elastomeric Firestop Sealant
- Sealants or caulking materials for use with sheet metal ducts. The following products are acceptable:
 - HILTI CP 601S Elastomeric Firestop Sealant
 - HILTI CP 606 Flexible Firestop Sealant
 - HILTI FS-One Intumescent Firestop Sealant
- Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including insulated metal pipe, PVC jacketed, flexible cable or cable bundles and plastic pipe. The following products are acceptable:
 - HILTI FS-One Intumescent Firestop Sealant
- Firestop collar or wrap devices attached to assembly around combustible plastic pipe (closed or open piping systems). The following products are acceptable.
 - HILTI CP 642 Firestop Collar
 - HILTI CP 643 Firestop Collar
 - HILTI CP 645 Wrap Strips
- Materials used for complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways. The following products are acceptable
 - HILTI CP 637 Trowelable Firestop Compound
 - HILTI FS 657 Fire Block
 - HILTI CP 620 fire Foam
- Non curing, re-penetrable materials used for large size/complex penetrations made to accommodate cable trays, multiple steel and copper pipes, electrical busways in raceways. The following products are acceptable:
 - HILTI FS 657 Fire Block

PART 2 – PRODUCTS

– **Machinery Drives:**

- Use V-belts designed for 150% of capacity for all belt drives. For multiple belt drives, use matched sets, so marked at the factory.
- On drives with not more than two belts, provide adjustable pitch motor sheaves with the midpoint of the adjustment range equal to that required to achieve the specified fan capacity.
- On motors with drives with more than two belts, furnish nonadjustable sheaves, providing the specified fan capacity.

– **Machinery Accessories:**

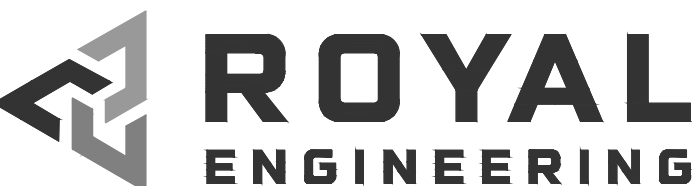
- Lubricating Devices: Provide all oil level gauges, oil pressure gauges, grease cups, grease gun fittings, as required by the equipment. Extend all lubricating fittings to readily accessible locations.
- Guards: Provide totally-enclosed OSHA type belt guards for all rotating equipment. Design guards to be readily removable for access to belt drives.

– **Equipment Design and Installation:**

- Uniformity: Unless otherwise specified, provide all equipment of same type or classification by the same manufacturer.
- Design: Design all equipment in accordance with ASME, AGA, UL and other applicable technical standards as follows:
- Pressures vessels – ASME Code constructed and stamped
- Electric appliances – UL labeled
- Fire protection equipment – UL approved and labeled
- Fans – AMCA rated and stamped
- Cooling equipment – ARI certified
- Fire dampers, smoke dampers, combination fire and smoke dampers – UL listed
- Concrete Inserts:

- The work under this section includes furnishing and installing all concrete inserts required for equipment specified herein or in other sections of Division 23.
- Provide concrete inserts equal to Unistrut Series 3200 with standard, plain, oiled finish. Supports with factory finished enamel paint.





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MECHANICAL SPECIFICATIONS

MARK	DATE	DESCRIPTION
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ISSUED: 03/03/2020



MARK L. MARK
PROFESSIONAL ENGINEER
UTAH STATE BOARD OF PROFESSIONAL ENGINEERS
10/28/20

SHEET

M7.1

Diffusers, Registers and Grilles

Air distribution equipment shall be of sizes, types, and capacities indicated.

Registers, grilles, and diffusers of the sizes shown on the drawings and described here in shall be furnished and installed. All grilles, diffusers and registers shall be complete with frames with rubber gaskets suitable for the area and wall construction where shown on the drawings.

Finish for all registers, diffusers, grilles, etc. shall be off-white unless otherwise selected by the Owner/Owner Representative. Approved manufacturers for all air distribution products shall be Price Industries, Nailor, Metal Air, Tuttle & Bayley, Carnes, Hart and Cooley, or Anemostat.

Supply air shall be introduced into conditioned space in such a manner that conditioned air and room air is rapidly and evenly mixed, resulting in equalization of temperature and draftless air distribution through zone of occupancy with temperature differentials up to 25 degrees F for both cooling and heating air. Quantities and throws shall be as indicated.

Velocity of moving air below 5 foot level, during cooling cycle, shall not exceed limits of either 50 fpm at 1.5 degrees F below average room temperature or 70 fpm at 1 degree F below average room temperature. Velocity of moving air at the 1 foot level, during heating cycle shall not be less than 10 fpm. Temperature difference at or below the 5 foot level shall not exceed the following: 2 degrees F below average room temperature at 30 fpm, 1.5 degrees F below average room temperature at 50 fpm, 1 degree F below average room temperature at 70 fpm. Sound pressure level in all octave bands for each diffuser shall not exceed NC35 noise criteria curve at task level when units operate at designed capacities.

Ceiling diffusers, grilles and registers shall be independently supported from the structure so that they are not depending on the ceiling for support.

Ceiling diffusers may be round necked or equivalent size square neck. Provide square to round neck adapter as necessary. Flex duct shall typically connect directly to the diffuser using a 1-1/2" radius flexible duct elbow. If space does not allow for a full 1-1/2" radius to be provided, then a lined sheet metal boot shall be provided. The flexible duct shall be connected to the side of the sheet metal boot. The flexible duct shall not be connected to the top of the sheet metal boot.

Ceiling supply air diffusers shall be louvered faced directional diffuser model SMD manufactured by Price Industries with border type 36 for lay in ceiling or border type 1 for surface mounting in other than lay in ceilings, baked enamel finish, blow and pattern shown on the drawings.

Supply, exhaust, transfer and return air grilles mounted on walls 6 feet above the floor shall be Price Industries model 635, with 45-degree deflection, 1/2" blade spacing, horizontal extruded aluminum blades, baked enamel finish.

Supply, exhaust, transfer and return air grilles mounted on walls lower than 6 feet above the floor shall be sight-proof, heavy duty gymnasium type equal to Price Industries model 91 (or equal) with horizontal 45-degree deflection blades, 3/8" blade spacing, baked enamel finish.

Drum louvers shall be Price Industries model HCD (or equal) with opposed blade damper.

Exposed duct round diffuser shall be Price Industries model RCD (or equal), 3-position adjustment, 4 cone style, baked enamel finish.

Linear slot supply diffusers shall be Price Industries model SDS75, extruded aluminum frame construction with 180° range of air pattern adjustments.

Linear slot supply diffusers shall be price industries model SDS75, extruded aluminum frame construction with 180° range of air pattern adjustments.

Make up air supply diffusers shall be Price Industries model PDC perforated face ceiling diffusers, fixed 1-way air pattern, hinged removable perforated face screen, baked enamel finish.

Ceiling filter return air grilles in lay in ceiling shall be Price Industries model 10FF, with hinged, perforated faceplate and 1" filter for lay in T-bar application, baked enamel finish. The contractor shall provide the 1" filter.

Ceiling filter return grilles and transfer air grilles shall be Price Industries model PDR or PDDR perforated diffuser with removable perforated faceplate in lay in T-bar application, bake enamel finish.

Ceiling return, exhaust and transfer air grilles for surface mounting in other than lay in ceilings shall be Price industries model 10F, with perforated removable faceplate, baked enamel finish.

Ducts and Sheet Metal Work

Provide ducts, plenums, access doors, fresh air intakes, and exhaust as indicated and required. All ductwork shall be constructed, erected and tested in accordance with the most restrictive of local regulations, procedures and detailed in the ASHRAE Handbook of Fundamentals or the applicable standards adopted by the Sheet Metal and Air Conditioning Contractors National Association (SMACNA). Provide prefabricated spiral lockseam ducts and fittings and rectangular ducts of galvanized steel. Aluminum flexible ductwork or gypsum board ductwork is not acceptable.

All connections to main ducts shall be made with low loss fittings.

Flat duct surfaces shall be crimped diagonally regardless of size. Longitudinal joints in all duct sizes may be flat lock joints. Transverse joints and intermediate bracing shall be constructed of galvanized sheet metal or galvanized structural angles in accordance with requirements of ASHRAE Guide and public authorities having jurisdiction.

Transverse joints on all ducts shall be sealed with mastic or tape.

Longitudinal joints on ducts with internal static pressures in excess of 0.75 inches of water pressure shall be sealed with mastic or tape.

Lock joints shall be hammered to make them airtight. Inside of duct shall present a smooth surface to flow air.

Changes in size of ducts shall increase gradually with a slope of not more than 12 inches in 5 feet where possible, but not more than 12 inches in 3 feet in any event.

Turns shall be made with throat radius of not less then the duct width.

Plenums shall be made of 18 gauge galvanized sheet steel reinforced horizontally on a maximum of 48" centers by 1-1/2"x1-1/4"x 8" galvanized angles reinforced vertically by 1-1/2" standing seams.

Fire and Smoke Dampers

Fire/smoke dampers shall be Ruskin FSD-36 multiblade, Venco, Louvers and Dampers, Greenheck, C&S, Safe Air, NCA, or Air Balance, complete with blade lever arm 120 volt, electric damper motor, fusible and blade reset fusible link.

Fire/Smoke dampers shall be interlocked to the fire detection system by the electrical contractor. Damper motors shall be capable of closing the damper against system air pressure when the fan is operating. Each damper shall be complete with duct connections for round or rectangular ducts. Minimum 1-1/2 foot by 1-1/2 inch 14-gauge mounting angles shall be provided for all dampers.

Damper motors, where required, are to be supplied as an integral part of the assembly to meet UL rating requirements. Damper installation shall conform to manufacturer's instructions.

Access opening shall be provided at each damper for servicing the damper. The opening or openings shall be of sufficient size and locations so that the damper can be easily inspected and serviced. A sheet metal-hinged door and cover shall be provided and shall be insulated.

Fire damper and fire smoke combination damper manufacturer installation instructions to be submitted as a deferred submittal by the mechanical contractor.

Ceiling Radiation Damper

All ceiling register and grille openings in fire rated ceilings shall be protected by appropriately UL fire resistance classified ceiling fire dampers. Furnish and install, at locations shown on plans, ceiling fire dampers constructed and tested in accordance with the current edition of UL 555C standard for ceiling dampers. Ceiling dampers shall be UL classified to provide protection to HVAC penetrations or up to 576 sq. in. maximum opening size through UL fire rated assemblies with fire resistance ratings of 3 hours or less.

Ceiling dampers shall be used on lieu of hinged blade sheet metal dampers in steel ducts as specified in the "Design Information Section - General" and in ceiling/floor or ceiling/roof designs as described and illustrated in the UL fire resistance directory. Each ceiling damper shall consist of a minimum of 20 gauge blades, hinged in the center and held open with a 212 degree F fusible link. submittal information shall include the fire protection rating and the manufacturer's UL installation instructions. Each ceiling fire damper shipment shall include the same UL installation instructions and the dampers shall be installed in accordance with these instructions. Ceiling fire dampers shall be Ruskin type CFD.

Each ceiling diffuser opening shall be protected with appropriately UL fire resistance classified ceiling diffuser radiation shields. The UL fire resistance classification(s) shall apply to the specific ceiling in accordance with manufacturer's published installation instructions.

Lay-in ceiling diffusers shall be a minimum of 24 gauge steel construction. Ceiling diffuser radiation shield shall consist of an appropriate ceiling fire damper protecting the diffuser neck and a thermal insulating blanket protecting the diffuser plan. The entire system shall be UL classified for use in all UL fire rated floor/ceiling systems with fire resistance ratings of 3 hours or less. System proposed for installation must be equivalent in all respects to Ruskin model CFD5 ceiling diffuser radiation shield.

Blade material shall be 20 gauge galvanized steel with UL classified installation as required. Frame material shall be 20 gauge galvanized steel.

Fusible link shall be 212 degree F rated standard.

Thermal insulation blanket shall be mineral wool.

Volume Dampers

Dampers used in low velocity branch ducts to control the volume of air flow shall be Young No. 817 volume damper or equal. All operating head shall be place on the side of the duct and shall locked in position by a set key where the damper is accessible. Where the damper is not accessible, Young No. 817A or 817B volume control damper or equal consisting of an end bearing or miter gear, coupling, 3/8-inch square shaft, and regulator for operating the unit from the ceiling shall be provided.

Temperature Controls

Thermostats shall be provided with the air conditioning units. They shall be installed and wired by the HVAC contractor. T-stats for roof top units shall be programmable with night setback and override control.

Insulation

Thermal/Acoustical duct insulation: Line the first 10' of supply air and return air ducts from the mechanical unit, unless otherwise specified with Knauf or equal. Duct Liner shall be mat-faced to provide a smooth air-steam surface, mold resistant, 1-1/2" thick insulation wrapped entirely around duct with joints lapped at least 2" and secured with 16 gauge galvanized wire on 12" centers. Insulation shall cover all surfaces including standing seams.

Rectangular supply ducts and return air ducts located on unconditioned spaces shall be lined with Knauf un-acoustic or equal. 1 inch of 1-1/2 lb. thermal resistive value of duct liner shall be a minimum of R-6. Rectangular supply ducts and return air ducts located outside the building envelope shall be lined with Knauf un-acoustic or equal. 2 inch, 1-1/2 lb. thermal resistive value of duct liner shall be a minimum of R-8. Density coated fiberglass duct liner complying with friction correction factor not greater than 1.1 at a velocity of 3000 fpm. Apply insulation to inside of ducts with an approved fire retardant adhesive to provide 100% coverage and a smooth surface. In ducts with one side more than 12" secure insulation with mechanical fasteners in addition to adhesive, spaced at 14" centers in both directions. Mechanical fasteners shall be flush with the liner surface and shall start within 2" of the leading edge of each section and within 3" of the leading edge of all cross joints of the liner shall be heavily coated with an approved fire resistant adhesive. The duct liner shall shall be cut to assure snug closing corner joints. The black surface of the liner shall face the air stream. Transverse joints shall be neatly butted and all damaged areas shall be heavily coated with a approved adhesive.

All duct insulation shall have an NRC rating of not less than 0.60 and a K factor of not more than 0.27. Duct dimensions shall be increased 2 inches on each side from those shown on drawings to accommodated insulation.

Ceiling Mounted Fan

Ceiling type exhaust fans of the capacity shown on the drawings shall be furnished and installed. Fans shall be direct drive of RPM shown and shall be complete with fan housing, inlet grille, backdraft damper and motor. Noise level shall not exceed 3.8 sones. Air quantities shall be certified by AMCA. Fans shall be from manufacturer listed in the equipment schedule.

Split System Indoor Furnace

Furnish and install a natural gas fired furnace of the size and capacity as listed on the drawings. Each furnace shall be up-flow, horizontal flow as indicated, completely factory assembled, certified by AGA. Complete with blower section, furnace section, filter section and steel casing. Unit shall come piped and wired. Cooling coil shall be provided as indicated.

Blower section shall consist of 22 GA. cold rolled steel cabinet with finish coat of baked-on enamel. Blower shall be class 1, full DWDI, and statically and dynamically balanced. Blower shall be driven by a motor with adjustable pitch V-belt or by multi-speed direct driven motor.

Cooling coil shall be provided with heavy gauge steel cabinet with baked-on enamel finish to match furnace. Coil shall have aluminum fins bonded to seamless copper tubing and shall be ARI rated. Drain pan with connections at either end shall be provided at each coil.

Filters shall be one-inch thick throw-away type as furnished by the furnace manufacturer.

Heat exchanger section shall be enclosed in a 22-gauge or heavier enameled steel casing lined with foil covered insulation. Exchanger shall be ceramic or glass coated, stainless steel or 18-gauge aluminized steel.

Unit shall be of manufacturer listed in equipment schedule.

Split System Condensing Unit

Condensing unit shall be by the same manufacturer as the furnace and of size and capacity indicated. Units shall be completely assembled and tested complete with refrigerant charge and ready to operate. Unit shall be UL listed and carry a UL Label.

Cabinet shall be constructed of galvanized steel, bonderized and coated with a powder coat paint.

Coils shall be of nonferrous construction with aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed.

Compressors shall be hermetically sealed. Compressor will be mounted on rubber vibrations isolators.

Refrigerant circuit components shall include the following: Liquid tube shutoff valve with sweat connections, suction tub shutoff valves with sweat connections. System charged with Refrigerant R-410, Compressor oil, accumulator, and reversing valve. System shall have a low ambient kit installed.

Compressor fans shall be direct drive propeller type, discharging air upward. Fan motors shall be totally enclosed 1-phase type with class B insulation and permanently lubricated bearings. Shafts shall be corrosion resistant. Fan blades shall be statically and dynamically balanced. Condenser fan openings shall be equipped with steel wire safety guards.

Unit shall be of manufacturer listed in the equipment schedule.

Duct Penetrations

All ducts penetrating through the fire rated walls and floors shall be properly safed with Dow Corning 3-6548 silicone RTV foam or equal. Install per manufacturer's directions.

Turning Vanes

Turning vanes shall be furnished and installed in all 90-degree turns in supply, return, mixed air and fresh air ducts, and elsewhere as shown on the drawings. Material of turning vanes shall match ductwork. Vanes are to be single blade, of size, gauge, and fabrication in accordance with SMACNA recommendations.

Equal Materials and Substitutions

In addition to manufacturers specified, the following shall also be considered equal. Provided corresponding models meet specified requirements. Equivalent substituted equipment named herein shall be submitted to Architect for approval. Submit alternate selections for prior approval. Must be received by Engineer 10 days prior to due date/bid opening.

Insulation: Certainteed, Manville, Fiberglas

Air Filters: AAF, Farr or Engineer approved equivalent.

Split System: From manufacturers listed in the schedule.

Diffusers and Grilles: Titus, Nailor, Price, Krueger, Hart and Cooley, Carnes, or Engineer approved equivalent.

Ceiling Exhaust Fan: Broan, Fantech, Acme, Carnes, Penn, Cook, Breidert, Coolair, Captive aire, S&P, Greenheck, Twin City Fan, Delta Breez, Air King. (subject to project document conformance)

Roof Top Unit: From manufacturers listed in the schedule.

Electric Wall Heater

The heating equipment shall include and electric automatic fan forced air heater suitable for small area heating. The heater shall be designed for wall mounting, recess or surface. Heaters shall be UL listed.

Backbox: the backbox shall be designed for duty as a recessed rough-in box in either masonry or frame installations and is also used with the surface mounting frame in surface mounting installations. The backbox shall be heavy gauge galvanized steel and shall contain knockouts through which power leads are brought.

Inner frame assembly: The heater assembly which fits into the backbox shall consist of a heavy gauge steel fan panel upon which is mounted all of the operational parts of the heater. The inner frame assembly shall be completely pre-wired.

Heating element: The heating element shall be of the non-glowing design consisting of an 80/20 nickel-chromium resistance wire enclosed in a steel sheath to which plate fins are copper brazed. It shall be warranted for 5 years. The element shall cover the entire air discharge area to ensure uniform heating of all discharge air.

Motor and controls: The fan motor shall be impedance protected, permanently lubricated and with totally enclosed rotor. Fan control shall be of the bi-metallic, snap-action type and shall activate fan after heating element reaches operating temperature, and continue to operate the fan after the thermostat is satisfied and until all heated air has been discharged. The thermostat shall be single pole type on all models. Thermal cutout shall be bi-metallic, snap-action type designed to shut off heat in the event of overheating. The fan shall be five-bladed aluminum. The fan motor shall be totally enclosed.

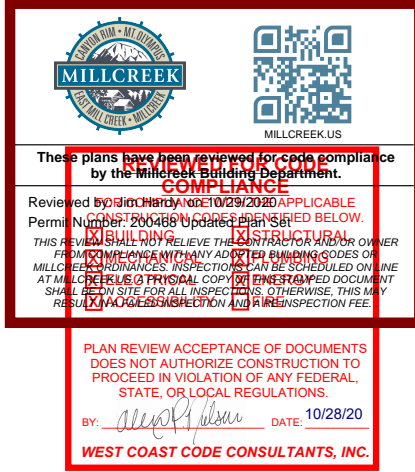
Surface mounting frame: The surface mounting frame shall be of heavy gauge steel designed to mount around the backbox for a finished surface installation. Slot knock outs shall be provided for power supply conduit.

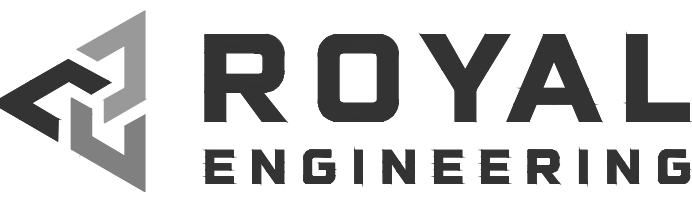
Front cover: The louvered front cover shall be of heavy gauge steel with a powder point finish. A plug button will be provided to replace the thermostat knob and render the unit tamper-resistant.

Finish: All sheet metal parts, except the galvanized steel backbox, shall be phosphatized, then completely painted by a powder paint process. Heater shall be from the manufacturers listed in the equipment schedule

Motorized Volume Dampers

Motorized dampers used in low velocity branch ducts to control the volume or air flow shall be Carrier model Dampnd-B for round ducts and Damprec-B rectangle ducts or equal.





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MARKS
DATE: 06/05/20
2
06/26/20
3
07/06/20

PROJECT: A-19-001
SCALE (11x17): 1/16" = 1'-0"
SCALE (24x36): 1/8" = 1'-0"
CHECKED BY:
ISSUED: 03/03/2020



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**MECHANICAL
SPECIFICATIONS**

MARKS	DATE	DESCRIPTION
1	06/05/20	Changes per WCA# Plan Chk.
2	06/26/20	Changes per WCA# Plan Chk.
3	07/06/20	Changes per WCA# Plan Chk.

PROJECT: A-19-001
SCALE (11x17): 1/16" = 1'-0"
SCALE (24x36): 1/8" = 1'-0"
CHECKED BY:
ISSUED: 03/03/2020



MARK L. MARKS
9/4/20

M7.2