

ANCHOR BOLT PLAN
FOR SETTING DETAILS SEE AB2



P.O. BOX 1512
RUSSELLVILLE, AR 72811
wework@cowellsteel.com

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PHONE: (479) 968-5420
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REV.

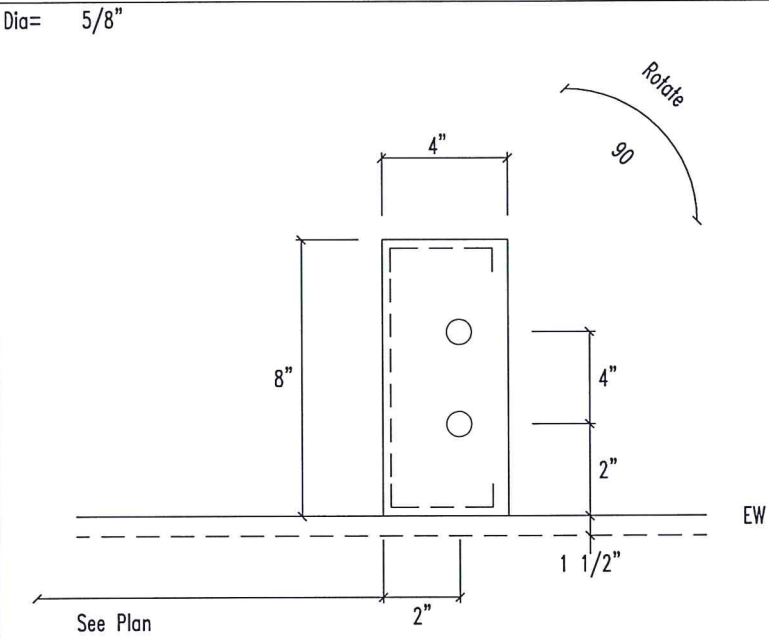
CUSTOMER: CROW CONSTRUCTION

CONTRACT #:
CG-10191801

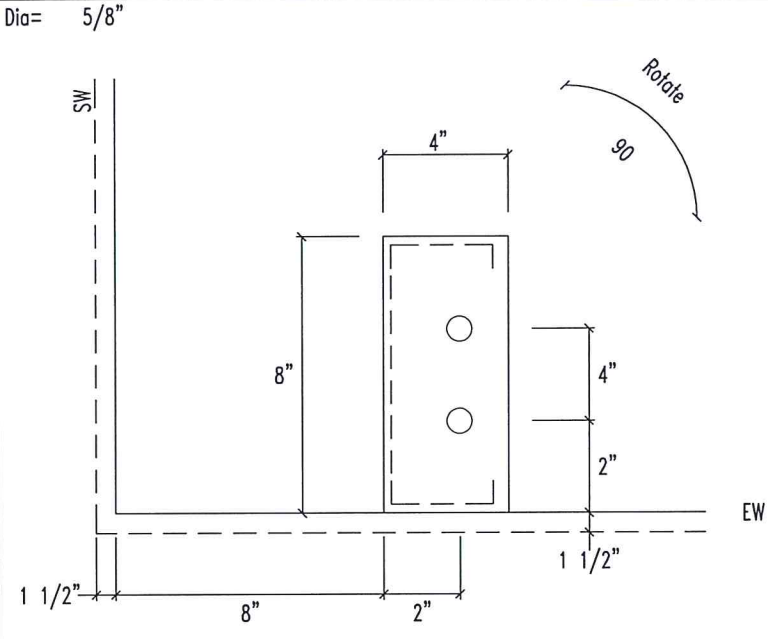
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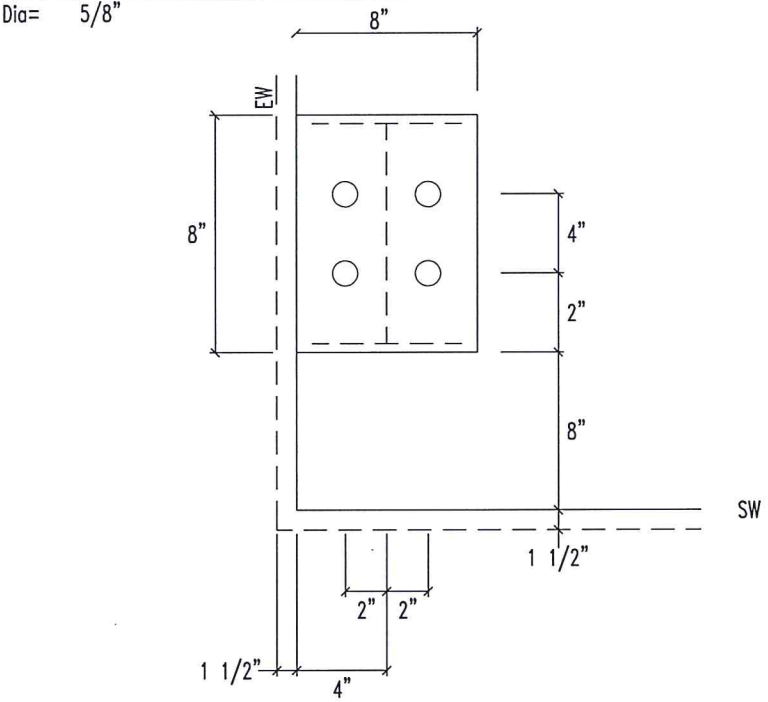
DRAWING:
AB1



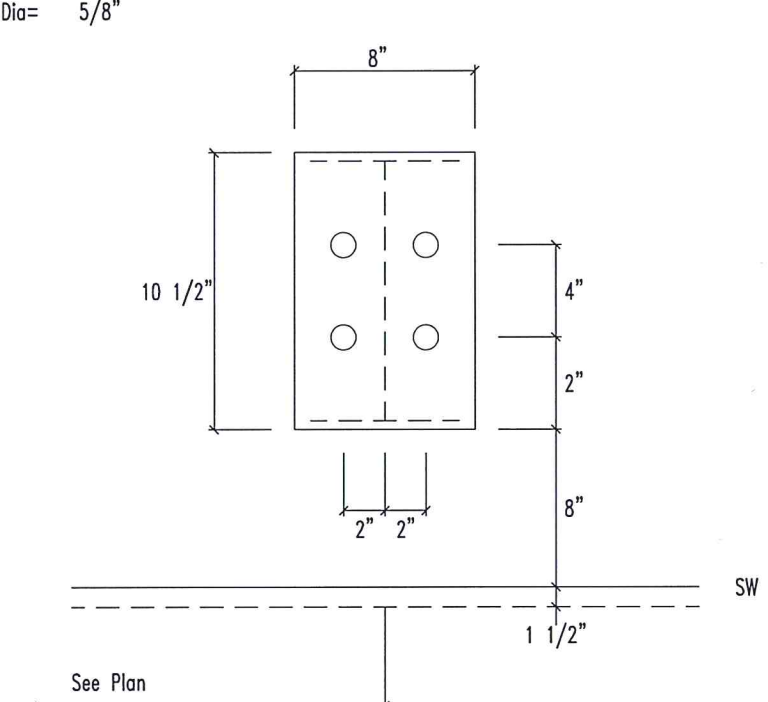
DETAIL A Base EL. 100'-0"



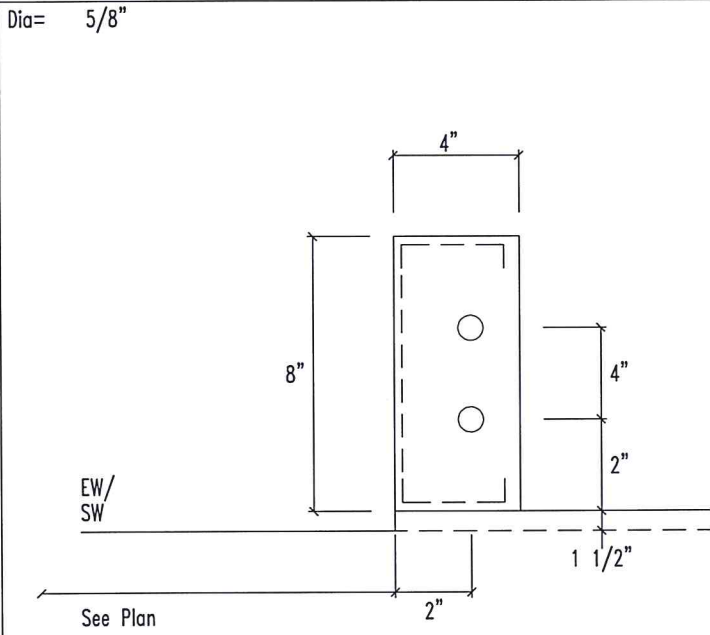
DETAIL B Base EL. 100'-0"



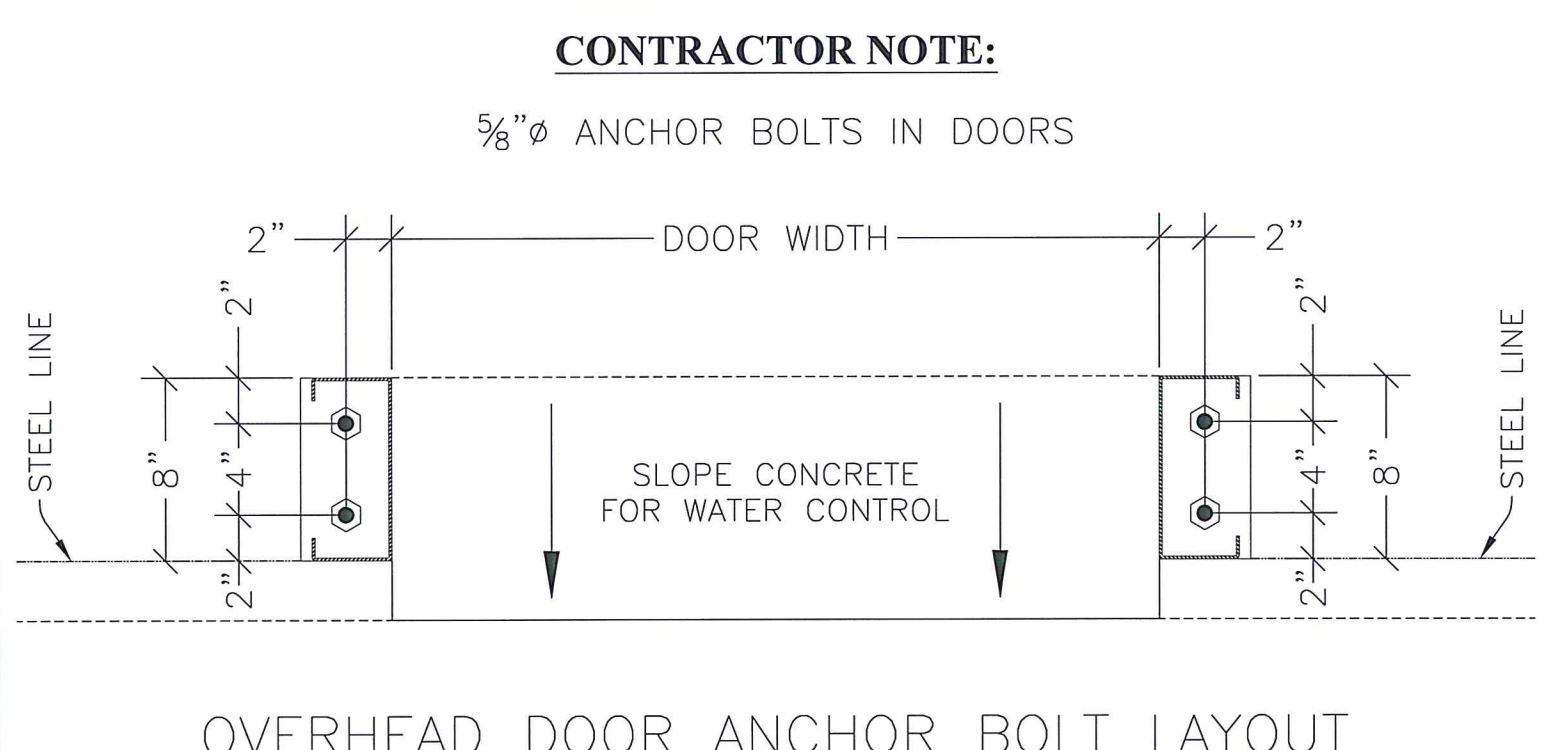
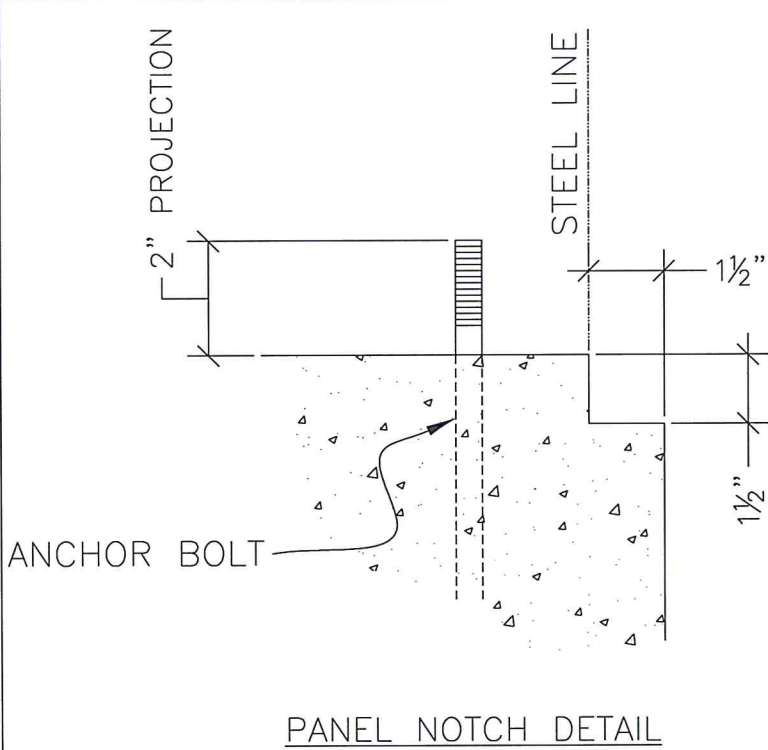
DETAIL C Base EL. 100'-0"



DETAIL D Base EL. 100'-0"



DETAIL E Base EL. 100'-0"



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CUSTOMER: CROW CONSTRUCTION				
CONTRACT #: CG-10191801	DRAWN BY: DBS	CHECKED BY:	DRAWING: AB2	

ENDWALL COLUMN:

BASIC COLUMN REACTIONS (k)												
Frm Line	Col Line	Dead Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert	Wind_Press Horiz	Wind_Suct Horiz	Wind_Suct Vert	Wind Long1 Vert
1	A	0.46	1.74	0.67	-1.93	-1.11	-1.21	-0.39	-6.70	-2.84	1.11	2.84
1	B	0.92	4.53	1.74	-5.05	-3.11	-3.48	-1.53	-2.02	0.00	2.23	0.00
1	C	0.92	4.53	1.74	-3.11	-5.05	-1.53	-3.48	-2.02	0.00	2.23	0.00
1	D	0.46	1.74	0.67	-1.11	-1.93	-0.39	-1.21	-0.97	0.00	1.11	0.00

Frm Line	Col Line	Wind Long2 Vert	Seis Left Vert	Seis Right Vert	Seis_Long Horiz	Seis_Long Vert	--MIN_SNOW-- Horiz	Ver	E1UNB_SL_L- Horiz	Ver	E1UNB_SL_R- Horiz	Ver	E1PAT_LL_1- Horiz	Ver
1	A	-1.15	0.00	0.00	-2.41	-1.19	0.00	0.88	0.00	0.64	0.00	0.17	0.00	1.68
1	B	-3.06	0.00	0.00	0.00	0.00	0.00	2.29	0.00	2.28	0.00	0.71	0.00	4.92
1	C	-5.01	0.00	0.00	0.00	0.00	0.00	2.29	0.00	0.71	0.00	2.28	0.00	1.94
1	D	-1.97	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.17	0.00	0.64	0.00	-0.16

Frm Line	Col Line	E1PAT_LL_2- Horiz	Ver	E1PAT_LL_3- Horiz	Ver	E1PAT_LL_4- Horiz	Ver
1	A	0.00	-0.16	0.00	1.97	0.00	-0.22
1	B	0.00	1.94	0.00	2.22	0.00	2.32
1	C	0.00	4.92	0.00	2.22	0.00	2.32
1	D	0.00	1.68	0.00	1.97	0.00	-0.22

Frm Line	Col Line	Dead Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert	Wind_Press Horiz	Wind_Suct Horiz	Wind_Suct Vert	Wind Long1 Vert	Wind Long2 Vert	Seis Left Vert
4	D	0.37	1.74	0.67	-1.93	-1.11	-1.21	-0.39	-0.97	1.11	-1.97	-1.15	0.00	0.00
4	C	0.92	4.53	1.74	-5.05	-3.11	-3.48	-1.53	-2.02	2.23	-5.01	-3.06	0.00	0.00
4	B	0.92	4.53	1.74	-3.11	-5.05	-1.53	-3.48	-2.02	2.23	-3.06	-5.01	0.00	0.00
4	A	0.37	1.74	0.67	-1.11	-1.93	-0.39	-1.21	-0.97	1.11	-1.15	-1.97	0.00	0.00

Frm Line	Col Line	Seis Right Vert	--MIN_SNOW-- Horiz	Ver	E2UNB_SL_L- Horiz	Ver	E2UNB_SL_R- Horiz	Ver	E2PAT_LL_1- Horiz	Ver	E2PAT_LL_2- Horiz	Ver	E2PAT_LL_3- Horiz	Ver
4	D	0.00	0.00	0.88	0.00	0.64	0.00	0.17	0.00	1.68	0.00	-0.16	0.00	1.97
4	C	0.00	0.00	2.29	0.00	2.28	0.00	0.71	0.00	4.92	0.00	1.94	0.00	2.22
4	B	0.00	0.00	2.29	0.00	0.71	0.00	2.28	0.00	1.94	0.00	4.92	0.00	2.22
4	A	0.00	0.00	0.88	0.00	0.17	0.00	0.64	0.00	-0.16	0.00	1.68	0.00	1.97

Frm Line	Col Line	E2PAT_LL_4- Horiz	Ver
4	D	0.00	-0.22
4	C	0.00	2.32
4	B	0.00	2.32
4	A	0.00	-0.22

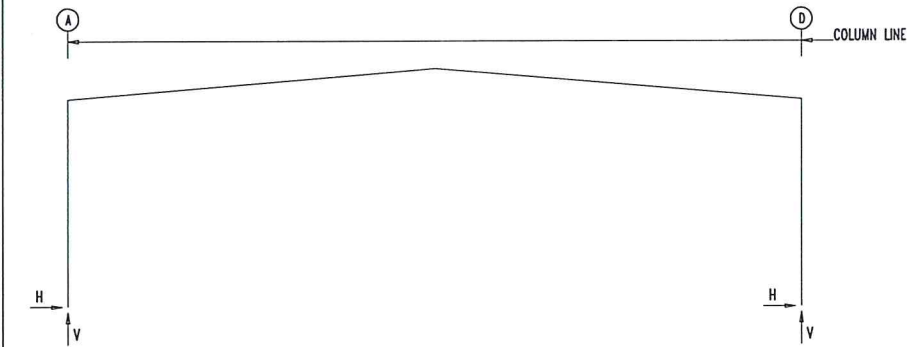
ENDWALL COLUMN:

MAXIMUM REACTIONS						
Frm Line	Col Line	Column_Reactions(k)			Hmin H	V Vmin
		Load Id	Hmax	V		
1	A	6	0.67	0.80	7	-4.02
		8	0.50	2.87		-2.61
1	B	9	1.34	-2.48	7	-1.21
		10	0.00	5.85	9	1.34
1	C	11	1.34	-2.48	12	-1.21
		13	0.00	5.85	11	1.34
1	D	14	0.67	-0.91	12	-0.58
		15	0.00	2.44	14	0.67
4	D	6	0.67	-0.96	7	-0.58
		16	0.00	2.35	6	0.67
4	C	9	1.34	-2.48	7	-1.21
		17	0.00	5.85	9	1.34
4	B	11	1.34	-2.48	12	-1.21
		18	0.00	5.85	11	1.34
4	A	14	0.67	-0.96	12	-0.58
		16	0.00	2.35	14	0.67

BUILDING BRACING REACTIONS

Wall		Col		Reactions(k)		Panel_Shear (lb/ft)	
Loc	Line	Line		Wind Horiz	Seismic Vert	Wind Horiz	Seis Vert
L_EW	1					33	28
F_SW	D	Torsional Bracing Used					
R_EW	4					33	28
B_SW	A	2,1		3.44	1.70	1.69	0.84

FRAME LINES: 2 3



RIGID FRAME:

MAXIMUM REACTIONS						
Frm Id	Col Line	Column_Reactions(k)			Hmin H	V Vmin
		Load Id	Hmax	Vmax		
1*	A	1	5.91	10.01	2	-3.87
		4		-2.72		-4.98
1*	D	3	3.87	-4.98	1	-5.91
		1	-5.91	10.01	5	2.72
1*	Frame lines: 2 3					

RIGID FRAME:

RIGID FRAME:		BASIC COLUMN REACTIONS (k)											
Frame Id	Column Line	-----Dead-----		-----Live-----		-----Snow-----		--Wind_Left1--		--Wind_Right1--		--Wind_Left2--	
		Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert
1*	A	1.38	2.51	4.54	7.50	2.86	4.72	-7.82	-10.81	-1.81	-7.05	-6.71	-6.28
1*	D	-1.38	2.51	-4.54	7.50	-2.86	4.73	1.81	-7.05	7.82	-10.81	0.70	-2.52
Frame Id	Column Line	--Wind_Right2--		--Wind_Long1--		--Wind_Long2--		-Seismic_Left		Seismic_Right		-Seismic_Long	
		Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert
1*	A	-0.70	-2.52	-5.90	-14.24	-0.51	-9.32	-0.37	-0.20	0.37	0.20	-1.20	-1.83
1*	D	6.71	-6.28	0.51	-6.48	5.90	-11.40	-0.37	0.20	0.37	-0.20	-1.21	0.64
Frame Id	Column Line	--WIN_SNOW--		F1UNB_SL_L-		F1UNB_SL_R-							
		Horiz	Vert	Horiz	Vert	Horiz	Vert						
1*	A	3.77	6.24	2.48	4.77	2.50	2.76						
1*	D	-3.77	6.24	-2.50	2.76	-2.48	4.77						
Frame lines:		2 3											

NOTES FOR REACTIONS

DESIGN NOTES:

1. BUILDING CODE = AR FIRE PREVENTION CODE 2012
2. LIVE LOAD = 12 / 20.00
3. WIND LOAD = 115 / EXPOSURE " B "
4. SEISMIC LOADS = (Ss= 0.24 , S1= 0.11)
5. GROUND SNOW LOAD = 10 PSF
6. COLLATERAL LOAD = 0 PSF

ANCHOR BOLT SUMMARY

Qty	Locate	Dia (in)	Type	Total Len (in)	Proj (in)
○ 20	Jamb	5/8"	A307	14.0	2.00
○ 20	Endwall	5/8"	A307	14.0	2.00
○ 16	Frame	5/8"	A307	14.0	2.00



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REV.

CUSTOMER: CROW CONSTRUCTION

CONTRACT #: CG-10191801	DRAWN BY: DBS	CHECKED BY:	DRAWING: AB3
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END OF SECTION 265619

SHEET NUMBER:

E302



HENDERSON STATE PRE-FAB BUILDING

HENDERSON STATE UNIVERSITY

100 Simonson Road, Bismarck, AR 71929

[illegible]

MARK	DATE	DESCRIPTION
	ISSUE DATE:	12-18-18
	PROJECT NUMBER:	01-18-0207

SHEET TITLE:
SCHEDULES, DETAILS,
LEGEND AND
SPECIFICATIONS -
HVAC

SHEET NUMBER:

M001

SECTION 23 00 00 – MECHANICAL WORK

PART 1 - GENERAL

- 1. CONTRACT DOCUMENTS**
A. Refer to and comply with other sections of these specifications in the installation of all mechanical work.
B. Drawings are diagrammatic; therefore, all offsets, fittings, valves and accessories are not indicated. Coordinate work around building details and other trades.
- 2. CODES, ORDINANCES, INSPECTIONS AND PERMITS**
A. Work to be executed and inspected in accordance with local and state codes, laws, ordinances, rules and regulations applicable to particular class of work, and any fees in connection therewith are to be paid by the Contractor.
B. Comply with applicable provisions of ANSI B31.2 "Fuel Gas Piping". Comply with applicable provisions of NFPA 54 (ANSI Z223.1) "National Fuel Gas Code"; and ANSI Z223.1a "Supplement to National Fuel Gas Code". Comply with requirements of local utility.
C. Arrange with governing authority for complete inspection, paying all charges pertaining thereto.
- 3. SHOP DRAWINGS, SUBMITTALS AND SUBSTITUTIONS**
A. Submit manufacturer's catalog sheets and/or shop drawings covering all phases of work included in this contract.
B. Submittals shall be arranged in sets and bound in folders.
C. Submittals required even though equipment being furnished is exactly as specified.
D. Final decision as to whether or not a specific piece of equipment meets specifications shall rest with Engineer.
- 4. CORRECTION OF WORK AND OPERATION INSTRUCTIONS:**
A. Correct defective work within one week of date of Substantial Completion in accordance with General and Supplementary Conditions, regardless of start-up date of equipment. In addition, time period for correction of defective motors and compressors shall be five years from date of Substantial Completion.
B. Performance and operation instructions for each piece of equipment for Owner's use to include:
1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial requirements of replacement parts.
2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.
3. Servicing instructions and lubrication charts and schedules.
4. Warranties.
- 5. DELIVERY, STORAGE AND HANDLING:**
A. Deliver materials and equipment to the site and store in original containers, suitably sheltered from the elements, readily accessible for inspection by Engineer until installed.
B. Store all items subject to moisture damage in dry heated spaces. Tightly cover equipment and protect against dirt, water, chemical and mechanical injury, and theft.
- 6. FLASHINGS:**
A. Roof flashings are to be furnished and installed under the roofing section of these specifications.
- 7. CUTTING AND PATCHING:**
A. Provide all cutting and patching required to perform the Mechanical Work.
- 8. ELECTRICAL**
A. Furnish and install all electrical interlock and control wiring for proper operation and control of all mechanical equipment.
B. Supervise and coordinate all electrical work in connection with mechanical systems.
C. Furnish all motor controllers or contactors for proper operation of all motors.

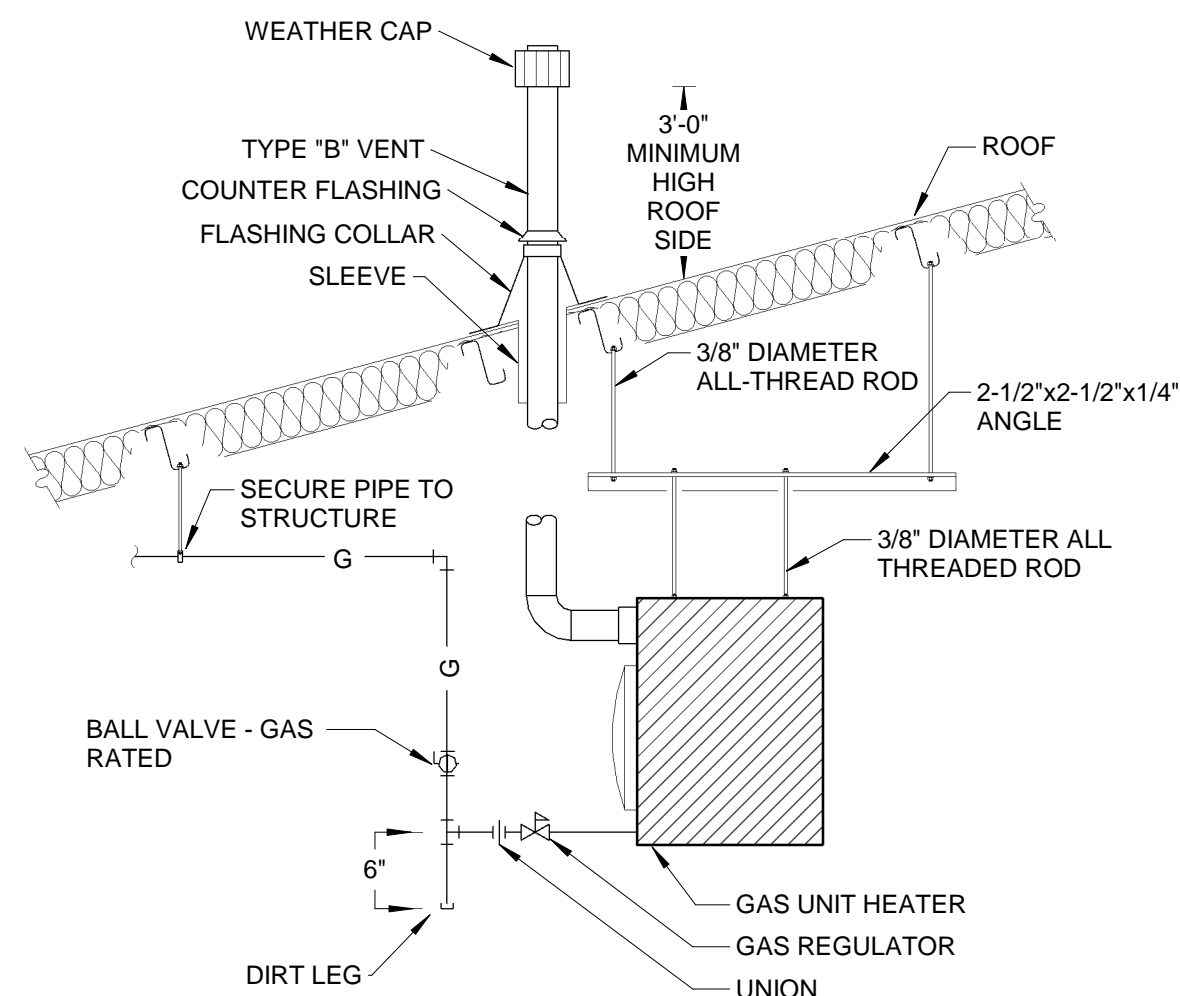
PART 2 - PRODUCTS

1. **EXPANSION COMPENSATION:**
1. **Exterior Gas Piping:**
 - a. All Pipe Sizes: Black steel pipe, Schedule 40, wrought-steel butt-weld fittings. Provide approved wrap and coating.
 - a. Pipe Sizes 1/2" Through 12": Thermoplastic gas pressure pipe, tubing and fittings.
 - a. Pipe Sizes 2" Through 12": Reinforced epoxy resin gas pressure pipe and fittings.
 2. **Building Distribution Piping:**
 - a. Pipe Sizes 2" and Smaller: Black steel pipe, Schedule 40, malleable iron threaded fittings.
 - a. Pipe Sizes 2-1/2" and Larger: Black steel pipe, Schedule 40, wrought-steel butt-weld fittings.
2. **EXPANSION COMPENSATION:**
1. **Provide required expansion compensation devices** consisting of expansion compensators and rubber packless expansion joints, slip joints, flexible ball pipe joints, combination couplings and nipples and slip-joint expansion joints for grooved piping, and pipe alignment guides.
3. **VALVES:**
- A. For piping 2" and smaller provide threaded or soldered end valves.
 - B. For piping 2-1/2" and larger provide flanged end valves.
 - C. **Gas Cocks:** Provide gas cock on each connection piece for gas fired equipment.
4. **PIPING SPECIALTIES:**
- A. **Dielectric Unions:** Provide between dissimilar piping materials.
 - B. **Sleeves and Seals:** Provide around piping and insulation when passing through concrete.
 - C. **Shields:** Provide between piping insulation and pipe hanger.
5. **SUPPORTS, ANCHORS AND SEALS:**
1. **Except as otherwise indicated, provide factory-fabricated piping hangers and supports** complying with ANSI/SMSS SP-58 for slip piping systems in accordance with MSS SP-69 and provide the following published product information. Select size of hangers and supports to exactly fit pipe size for bare piping and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for copper piping systems. Mason unions or approved equal.
 1. The Contractor shall be responsible for the miscellaneous supporting systems.
 2. Provide adequate pipe, equipment foundation and suspension systems.
6. **MECHANICAL IDENTIFICATION:**
1. **Pipe Markers:**
 - a. Stacon, pre-tensioned, semi-rigid plastic pipe markers for exterior diameter less than 6" (including insulation, if any).
 2. Full-band or strip-type marker (not narrower than three times letter height) strapped to pipe (or insulation) with manufacturer's stainless steel bands.
 3. Underground plastic line marker.
 2. **Gas Tags:** 1-1/2" diameter, 19 gage polished brass with hole for solid brass chain (wired link or beaded) or solid brass S-hooks.
 - C. **Equipment:** 1/8" thick engraved melamine plastic laminate (black with white letters) punched for mechanical fastening.
 1. **Fasteners:** Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate the substrate.
7. **Painting:**
1. Where piping is exposed to view, paint color shall be as selected by Owner.
 2. Select support components which are not factory painted shall be painted black.
8. **PUMPING FITTINGS, SPECIALTIES AND EQUIPMENT:**
1. **Gas Cocks required for propane gas piping systems by DeZurek:** Unit of General Singing, Homestead Industries, Inc.; Valve Div., Jenkins Bros., Lunkenheimer Co., Div. of Conval
 1. **Gas Cocks:** 2" and Larger: 150 psi non-shock WOG, iron body, bronze mounted, straightway cock, flat or square head, threaded ends.
 1. **Gas Cocks 2-1/2" and Larger:** 125 psi non-shock WOG, iron body, bronze mounted, straightway cock, square head, flanged ends.
9. **FUELED HEATING:**
- A. **Subject to compliance with requirements, provide units as manufactured by Reznor, Markel, or approved equal.**
 - B. **Gas-Fired Propeller Unit Heaters:** Provide gas-fired propeller unit heaters as indicated, of type and minimum capacity as scheduled.
- C. **Provide the following controls, factory-piped and prewired to electrical junction box mounted on unit:**
1. Limit control
 2. 120V to 24V control transformer.
 3. Post-purge switch.
 4. Time delay relay.
 5. Pilot line solenoid valve.
 6. Combination redundant gas valve consisting of:
 - a. Automatic electric gas valve.
 - b. Pilot filter.
 - c. Pressure regulator.
 - d. Pilot shutoff.
 - e. Manual shutoff.
- D. **Provide the following accessories, factory-mounted, and prewired to electrical junction box:**
1. Two-stage gas valve providing two-stage control of 100% or approximately 50% of full unit rating.
10. **AIR DISTRIBUTION:**
- A. **Gas Vents:** Metalbestos, or approved equal, Type "B", double wall gas vent with flashing, support, and flue cap.
11. **CONTROLS:**
- A. **Provide all temperature controls, valves, dampers, etc. required for complete and operating mechanical system.**
 - B. **Furnish complete wiring diagrams, adjusting, and balancing reports** bearing the seal and signature of the TAB engineer. Wiring is to be color-coded and installed in accordance with National Electrical Code (NEC).
- C. **Provide all temperature controls in accordance with recommendations of the equipment manufacturer.**
12. **TESTING, ADJUSTING AND BALANCING:**
- A. **Employ the services of an independent testing, adjusting, and balancing agency certified by National Environmental Balancing Bureau (NEBB) or certified by Associated Air Balance Council (AABC) to be the single source of responsibility to test, adjust, and balance the building mechanical systems identified above, to produce the design objectives. Services shall include the following:**
 - a. Testing, adjusting, and balancing of the mechanical systems in accordance with the design and performance specifications and establishment of the fluid quantities of the mechanical systems as required to meet design specifications, and recording and reporting the results.
 - B. **Codes and Standards:**
 - a. NEBB: "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems".
 2. AABC: "National Standards for Total System Balance".
 - C. **Test, adjust, and balance the complete mechanical systems.**
 - D. **Submit testing, adjusting, and balancing reports** bearing the seal and signature of the TAB engineer. The reports shall be certified proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedure; and are an accurate record of all final quantities measured, to establish normal operating conditions of the systems. Report forms shall be those standard forms supported by the referenced standard for each respective item and system to be tested, adjusted, and balanced.

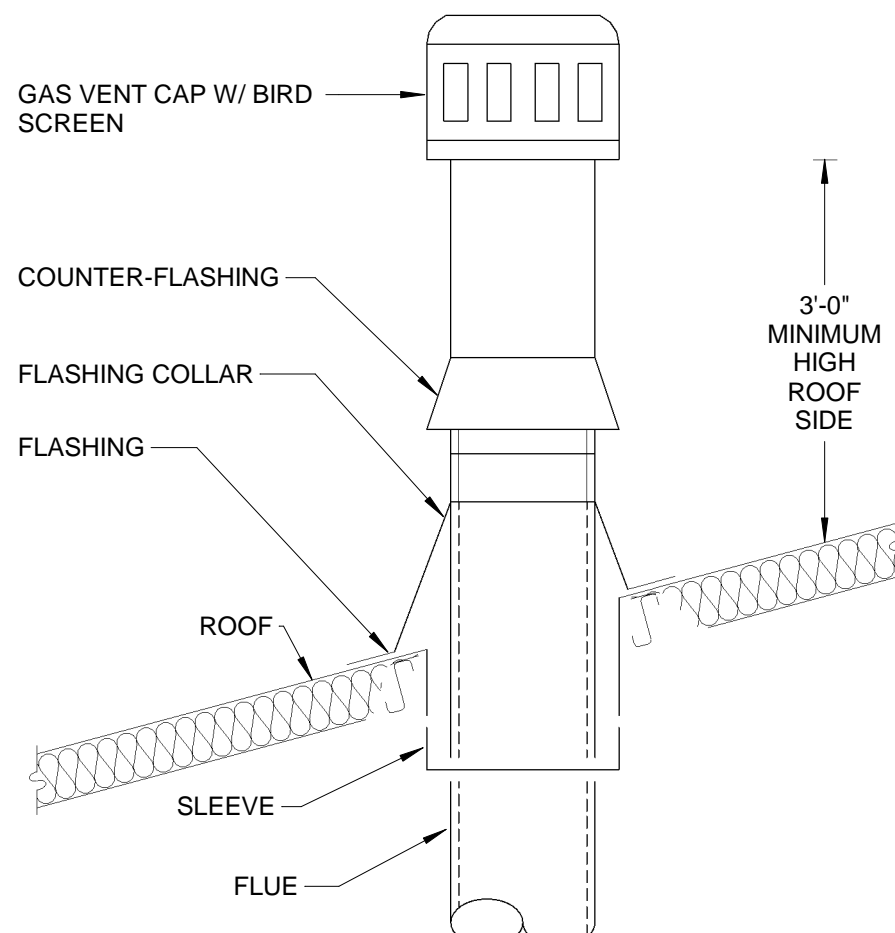
PART 3 - EXECUTION

3. GENERAL
- A. Verify local site conditions.
 - B. Install equipment and systems in accordance with local and state codes, laws, ordinances, rules and regulations, industry standards and practices and in accordance with manufacturer's written instructions.
 - C. Install equipment and systems plumb, rigid and true to line.
 - D. Coordinate installation with building components and with all trades.
 - E. Remove and replace defective work.
 - F. Clean materials, systems and equipment thoroughly prior to start up, operational tests, and test and balance work.
 - G. Repair marred and damaged factory painted finishes with materials to match original factory finish.
 - H. Start up for systems and components shall be in accordance with manufacturer's instructions. Install a clean set of filters prior to start up and balancing.
 - I. Obtain owner regarding location of equipment and areas served, including location of critical shut-off valves.
 - J. Demonstrate to Owner system's operation and control.

END OF SECTION 23 00 00




1 GAS FIRED UNIT HEATER DETAIL



2 GAS VENT DETAIL

[illegible]

DUCTWORK SYMBOLS

	THERMOSTAT
	THERMOSTAT WIRING

M001



100 Simonson Road, Bismarck, AR 71929

M101

M101



CORPORATE SEAL



ENGINEER SEAL

HENDERSON STATE PRE-FAB BUILDING

HENDERSON STATE UNIVERSITY

100 Simonson Road, Bismarck, AR 71929

PLUMBING PIPING SPECIALIES SCHEDULE					
ITEM	FIXTURE	DESCRIPTION	SIZE	COLD	HOT
FD-1	FLOOR DRAIN	ZURN ZN-415-E-P, 7" POLISHED NICKEL BRONZE FUNNEL STRAINER, 1/2" TRAP PRIMER CONNECTION.	AS NOTED	-	-
FS-1	FLOOR SINK	ZURN ZN-1901-2-32, WHITE A.R.E. INTERIOR, POLISHED NICKEL BRONZE FRAME AND HALF GRATE, ALUMINUM BOTTOM STRAINER, 12" X 12" X 8" DEEP.	AS NOTED	-	-
FPWH	FREEZEPROOF WALL HYDRANT	ZURN Z-1300 "ECOLOTRON", ANTI-SIPHON, NON-FREEZE, 3/4" SIZE, NICKEL BRONZE CASING AND ALL BRONZE INTERIOR PARTS, POLISHED NICKEL BRONZE FACE, INTEGRAL BACKFLOW PREVENTER, UNION ELBOW INLET, WALL CLAMP AND KEY HANDLE.	-	3/4"	-
COP	CLEANOUT PLUG	ZURN Z-1440-A-BP, CAST IRON NO-HUB CLEANOUT FERRULE, RAISED HEAD BRONZE PLUG.	AS NOTED	-	-
WCO	WALL CLEANOUT	ZURN Z-1441-BP-VP, CAST IRON NO-HUB CLEANOUT FERRULE, BRONZE PLUG, STAINLESS STEEL ROUND ACCESS COVER PLATE, VANDAL-PROOF SCREW.	AS NOTED	-	-
FCO	FLOOR CLEANOUT	ZURN ZN-1400-BP-VP "LEVEL-TROL", CAST IRON, GASKETED HUB OUTLET, THREADED ADJUSTABLE HOUSING, BRONZE PLUG, DURA-COATED CAST IRON TOP, VANDAL-PROOF SCREWS.	AS NOTED	-	-
COTG	CLEANOUT TO GRADE	ZURN Z-1400-BP-VP "LEVEL-TROL", GASKETED HUB OUTLET, THREADED ADJUSTABLE HOUSING, BRONZE PLUG, DURA-COATED CAST IRON TOP, VANDAL-PROOF SCREWS.	AS NOTED	-	-
DCOTG	DOUBLE CLEANOUT TO GRADE	(2) ZURN Z-1400-BP-VP "LEVEL-TROL", GASKETED HUB OUTLET, THREADED ADJUSTABLE HOUSING, BRONZE PLUG, DURA-COATED CAST IRON TOP, VANDAL-PROOF SCREWS, TYLER TWIN CLEANOUT FITTING.	AS NOTED	-	-
HB-1	HOSE BIBB	T&S BRASS 8-0737 SILL FAUCET, CHROME PLATED, ELONGATED LOCK SHIELD CAP, LOOSE KEY, 3/4" SIZE, WITH CHROME FINISH VACUUM BREAKER.	-	3/4"	-
RPZ-1	REDUCED PRESSURE BACKFLOW PREVENTER	WILKINS 975XL, ALL BRONZE CONSTRUCTION, REDUCED PRESSURE TYPE, COMPLETE WITH STRAINER, TEST COCKS, BALL VALVES, AND AIR GAP.	-	--	-
APPROVED MANUFACTURERS: 1. DRAIN/INTERCEPTOR/HYDRANTS/CLEANOUTS/WATER HAMMER ARRESTORS: WADE, J.R. SMITH, JOSAM, MIFAB, WATTS DRAINAGE 2. HOSE BIBBS: CHICAGO FAUCET, T&S BRASS, WOODFORD 3. BACKFLOW PREVENTERS: WILKINS, FEBCO, WATTS 4. THERMOSTATIC MIXING VALVES: SYMMONS, POWERS, LEONARD					

WATER HAMMER ARRESTOR SCHEDULE						
P.D.I. UNITS	A	B	C	D	E	F
FIXTURE UNITS	1-11	12-32	33-60	61-113	114-154	155-330
CLASSIFICATIONS ESTABLISHED BY THE PLUMBING AND DRAINAGE INSTITUTE "STANDARD P.D.I.-WH201".						
APPROVED MANUFACTURERS: 1. ZURN, WADE, J.R. SMITH, JOSAM, MIFAB						

PLUMBING GENERAL NOTES:

- ALL WORK IS TO CONFORM TO THE LATEST EDITIONS OF THE AR, STATE PLUMBING CODE, AR, STATE GAS CODE, NFPA AND ALL LOCAL ORDINANCES.
- BY NECESSITY, THESE DRAWINGS REFLECT A SYSTEM DESIGNED AROUND SPECIFIC REFERENCE PRODUCTS, THE SOLUTION OF WHICH HAS IMPACTED THE DESIGNS OF OTHER TRADES (ELECTRICAL, STRUCTURAL, ETC). IF ALTERNATE MANUFACTURERS, FUEL SOURCES, SIZES, OR MODEL NUMBERS ARE SUBMITTED OR BID, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS TO COORDINATE ALL DIFFERENCES PRIOR TO BID. THE SUBSTITUTING CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL PAY FOR CHANGES REQUIRED TO OTHER TRADES IF ALTERNATE EQUIPMENT IS BID OR INSTALLED AT THE CONTRACTORS OPTION.
- ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRIC RELATIONSHIPS OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING, OR COMPONENT. CONTRACTOR SHALL NOT SCALE DRAWINGS. EQUIPMENT SCHEDULES SHALL TAKE PRECEDENCE OVER CONFLICTING DRAWING INFORMATION. DRAWINGS SPECIFIC TO THIS DISCIPLINE DO NOT LIMIT THE RESPONSIBILITY OF WORK REQUIRED BY CONTRACT DOCUMENTS. REFER TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND OTHER DRAWINGS FOR COMPLETE INFORMATION.
- EXCEPT WHERE MODIFIED BY SPECIFIC NOTATION TO THE CONTRARY, IT SHALL BE UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF ANY ITEM, IN THE DRAWINGS OR SPECIFICATIONS OR BOTH, CARRIES WITH IT THE INSTRUCTION TO FURNISH AND INSTALL THE ITEM, REGARDLESS OF WHETHER OR NOT THIS INSTRUCTION IS EXPLICITLY STATED AS PART OF THE INDICATION OR DESCRIPTION.
- EXACT LOCATION OF ALL EQUIPMENT AND PIPING SHALL BE COORDINATED WITH OTHER TRADES. CEILING MOUNTED SPRINKLER, LIGHTING AND ELECTRICAL REQUIREMENTS TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL REQUIREMENTS.
- ALL PLUMBING SYSTEMS SHALL BE INSTALLED AS PER SPECIFICATIONS AND GOVERNING CODES.
- INFORMATION AND COMPONENTS SHOWN ON RISER DIAGRAMS OR DETAILS, BUT NOT SHOWN ON PLANS, AND VICE-VERSA, SHALL BE PROVIDED AS IF EXPRESSLY REQUIRED BY BOTH.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF OTHER TRADES, HVAC, STRUCTURAL, CIVIL, ETC. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING DETAILS AND DIMENSIONS. REFER TO CIVIL PLANS FOR ALL UTILITY CONNECTION POINTS OUTSIDE THE BUILDING.
- REFER TO SPECIFICATIONS OR SCHEDULES ON DRAWINGS FOR ACCEPTABLE MANUFACTURERS AND MODELS OF PLUMBING FIXTURES AND EQUIPMENT, AND PROPER APPLICATIONS OF SAME.

- PROVIDE PRESSURE REDUCERS IN WATER SUPPLY LINES TO KEEP PRESSURE BELOW 70 PSI AT ALL OUTLETS. MINIMUM PRESSURE ACCEPTABLE AT WATER OUTLETS IS 25 PSI AT DIRECT SUPPLY FLUSH VALVES, AND 8 PSI AT ALL OTHER OUTLETS.
- INSULATE ALL WATER LINES ABOVE FLOOR. INSULATE ALL HORIZONTAL STORM LINES (EXCLUDING OVERFLOW LINES) ABOVE FLOOR.
- SLOPE ALL SANITARY AND STORM LINES ARE 1/4" PER FOOT FOR PIPES LESS THAN 3" IN DIAMETER, AND NOT LESS THAN 1/8" PER FOOT FOR PIPES 3" AND LARGER. VERIFY INVERTS WITH SITE DRAWINGS AND COORDINATE INSTALLATION TO ASSURE PROPER FLOW.
- SEE THIS SHEET FOR PLUMBING LEGEND AND FIXTURE SCHEDULE.
- HOT AND COLD WATER SUPPLIES TO FIXTURES SHALL BE AS SHOWN IN PLUMBING FIXTURE SCHEDULE.
- PROVIDE GAS COCK, DIRT LEG, AND UNION AT ALL FINAL CONNECTIONS OF GAS PIPING TO EQUIPMENT.
- WHERE THIS SYMBOL OCCURS ON THE DRAWINGS, REFERENCE SHOULD BE MADE TO THE KEYED NOTES ON THAT SAME SHEET AND THE CORRESPONDING NUMBER OF NOTE.
- IN ALL AREAS SUBJECT TO FREEZING, WATER PIPING SHALL BE INSTALLED ON THE THERMAL SIDE OF THE INSULATION.
- THE CONTRACTOR SHALL, PRIOR TO THE START OF ANY WORK UNDER THIS CONTRACT, VISIT JOB SITE TO VERIFY SIZE, ELEVATION, LOCATION, ETC., OF ANY EXISTING PIPING NOTED, SHOWN OR IMPLIED, TO WHICH NEW PIPING IS RELATED OR CONNECTED.
- NO STRUCTURAL MEMBERS MAY BE CUT OR MODIFIED WITHOUT THE WRITTEN PERMISSION OF THE STRUCTURAL ENGINEER.
- MAINTAIN A DISTANCE OF 10'-0" FROM A SANITARY VENT THROUGH THE ROOF AND ANY FRESH AIR INTAKES.
- MAKE ALL UTILITY CONNECTIONS AND INSTALLATIONS IN FULL ACCORDANCE WITH ALL UTILITY REGULATIONS. PROVIDE ALL ADDITIONAL APPURTENANCES AS REQUIRED BY THE UTILITY COMPANY. THE COMPLETED INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE AND SAFETY, AND THE MANUFACTURER'S STRICTEST RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, DOCUMENTS AND SERVICES RELATED TO THE INSTALLATION OF THE WORK.

PLUMBING LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BALL VALVE		NEW EQUIPMENT
	GATE VALVE		SANITARY SEWER BELOW FLOOR
	CHECK VALVE (SWING CHECK)		SANITARY SEWER ABOVE FLOOR
	PRESSURE REDUCING VALVE		COMBINATION WASTE & VENT BELOW FLOOR
	VALVE AT RISER		COMBINATION WASTE & VENT ABOVE FLOOR
	STRAINER W/ DRAIN VALVE		SANITARY VENT (V)
	UNION		ACID VENT (AV)
	BALANCING COCK		COLD WATER (CW)
	GAS VALVE		HOT WATER (HW)
	PRESSURE GAUGE		HOT WATER RETURN (HWR)
	THERMOMETER W/ INSERTION WELL		LIQUID PROPANE GAS
	WATER HAMMER ARRESTER		PLUMBING FIXTURE
	HOSE BIBB (HB)		FLOOR DRAIN
	ELBOW, TURNED UP		VENT THRU ROOF
	ELBOW, TURNED DOWN		CLEANOUT PLUG
	RISE OR DROP IN PIPE		FLOOR CLEANOUT
	TEE, SIDE CONNECTION		WALL CLEANOUT
	TEE, OUTLET UP		CLEANOUT TO GRADE
	TEE, OUTLET DOWN		RISER NUMBER / RISER SHEET NUMBER / DESIGNATION
	CAPPED OUTLET		
	CAPPED PIPE		
	DIRECTION OF PITCH		
	PIPE TO FLOOR DRAIN		

PLUMBING SPECIFICATIONS

GENERAL PLUMBING PROVISIONS

ALL WORK SHALL COMPLY WITH APPLICABLE CODES, ARKANSAS STATE PLUMBING CODE, LOCAL CODES, INDUSTRY STANDARD AND UTILITY REGULATIONS. CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES AND LATERAL COSTS PERTAINING TO THIS CONTRACTORS WORK.
PROVIDE A WRITTEN CERTIFICATE GUARANTEEING ALL MATERIALS, EQUIPMENT AND LABOR FOR ONE FULL YEAR.
VISIT JOB SITE AND DETERMINE CONDITIONS AFFECTING WORK INCLUDING SOIL CONDITIONS. VERIFY EXACT LOCATIONS AND ELEVATIONS OF UTILITIES SHOWN OR IMPLIED.
SUBMIT SHOP DRAWINGS ON EQUIPMENT AND MATERIAL TO BE USED.
COORDINATE MECHANICAL WORK WITH THAT OF OTHER TRADES.
PROVIDE RECORD DRAWINGS SHOWING EXACT LOCATIONS AND SIZES AS WORK INVOLVED HAS ACTUALLY BEEN INSTALLED.
PROVIDE CATALOG DATA OF EQUIPMENT INSTALLED, TO OWNER.
SYSTEMS SHALL BE FREE OF OBJECTIONABLE NOISES.
SEE ARCHITECTURAL DRAWINGS AND COORDINATE WITH EXISTING FIELD CONDITIONS FOR CUTTING AND PATCHING WORK.

PIPE AND PIPE FITTINGS:

GAS PIPING: SCHEDULE 40 BLACK STEEL, SCREW JOINTS 2" AND LESS, WELD JOINTS OVER 2".

DOMESTIC WATER PIPING: TYPE 1" HARD COPPER WITH CODE APPROVED, LEAD FREE SOLDER, 1/2" THICK (MIN) FIBERGLASS INSULATION WITH FIRE RETARDANT JACKET, HOT WATER PIPING SHALL HAVE 1" THICK INSULATION. PIPES UNDER AND/OR THRU CONCRETE WALLS AND FLOORS OR OTHER CORROSIVE MATERIALS SHALL BE PROTECTED BY PROTECTIVE SHEATHING, WRAPPING OR OTHER MEANS THAT WILL WITHSTAND FROM THE LIME AND ACID OF CONCRETE, CINDER OR OTHER CORROSIVE MATERIALS. SHEATHING AND WRAPPING SHALL ALLOW FOR EXPANSION AND CONTRACTION OF PIPING TO PREVENT RUBBING. PROVIDE PIPE SLEEVES AT LEAST TWO PIPE SIZES LARGER THAN THE PIPE PASSING THRU. SOIL, WASTE, DRAIN AND VENT PIPING: SHALL BE SERVICE WEIGHT CAST IRON, COATED, MAY BE HUBLESS ABOVE GRADE, OR HUB-AND-SPIGOT; 1 1/2" AND SMALLER SHALL BE "DWV" COPPER; MAY BE PVC IF ALLOWED BY LOCAL CODES.

PIPING SPECIALTIES:

PROVIDE ESCUTCHEONS AT PIPE PENETRATIONS OF FLOORS, WALL AND CEILINGS, WHICH ARE EXPOSED TO VIEW.
PROVIDE CAST ESCUTCHEONS WITH SET SCREWS.
PROVIDE DIELECTRIC UNIONS AT EACH PIPING JOINT BETWEEN FERROUS AND NON-FERROUS PIPING.

SUPPORTS ANCHORS AND SLEEVES:

ALL PIPING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE ON APPROVED HANGERS.
PROVIDE GALVANIZED WROUGHT SLEEVES CUT FLUSH WITH SURFACE EXCEPT FLOOR SLEEVES WHICH SHALL BE EXTENDED 1" ABOVE FLOOR.

VALVES, COCKS AND FAUCETS:

VALVES:
GATE VALVES: 2" AND SMALLER, MILWAUKEE 148 BRONZE, SCREWED, 200# WOG, 2 1/2" AND LARGER, MILWAUKEE #F-2885M, 200# WOG, GATE WITH TRIM AND OS&Y.
CHECK VALVES: 2" AND SMALLER, MILWAUKEE 509 BRONZE, SCREWED, 200# WOG, 2 1/2" AND LARGER, MILWAUKEE #F-2974M, 200# WOG.
PLUG COCKS: 2" AND SMALLER, BRONZE BODY, SCREWED ENDS, EQUAL TO MCDONALD 9702.
USE PLUG COCKS FOR GAS SERVICE.
PROVIDE DRAIN VALVES IN LOW POINTS OF PIPING.
ALL VALVES SHALL BE ACCESSIBLE, WITH ACCESS DOORS, IF REQUIRED.

NATURAL GAS PIPING:

PROVIDE SEALANT ON SCREW JOINTS.
PROVIDE DRIP LEGS WHERE INDICATED OR REQUIRED BY CODE.
PROVIDE PLUG COCK AND DIELECTRIC UNIONS AT CONNECTION OF EACH PIECE OF GAS FIRED EQUIPMENT AND AS SHOWN.
TEST GAS PIPING IN ACCORDANCE WITH UTILITY REQUIREMENTS.
INSTALL GAS PIPING IN VENTILATED SPACES.

PLUMBING SYSTEMS:

TRAP AND VENT ALL FIXTURES AS REQUIRED BY CODE.
PROVIDE AND SET CLEANOUTS AT THE END OF ALL BRANCHES, AT THE BASE OF ALL VERTICAL SOIL AND WASTE LINES AND ON ALL EXPOSED OR ACCESSIBLE P-TRAPS.
CLEANOUTS AND CLEANOUT ACCESS COVERS: PLUG, CAULKED OR THREADED TYPE EXTENDED TO FINISHED FLOOR OR WALL SURFACE.
WALL CLEANOUTS: PROVIDE CLEANOUT FERRULE WITH BRASS PLUG AND SQUARE NICKEL BRONZE FRAME WITH SMOOTH STAINLESS STEEL ACCESS COVERS.
PROVIDE VACUUM BREAKERS ON PLUMBING LINES AT POINTS OF POSSIBLE CROSS CONNECTIONS.

DOMESTIC WATER PIPING SYSTEMS:

ALL DOMESTIC WATER PIPING SHALL BE COPPER.
ANY DOMESTIC WATER PIPING BELOW SLABS SHALL BE JOINTLESS TYPE "K" COPPER IN PROTECTIVE SLEEVING.
PROVIDE AIR CHAMBERS ON ALL HOT AND COLD SUPPLIES TO EACH FIXTURE, SAME DIAMETER AS SUPPLY AND 18" LONG.
PROVIDE HOSE BIBB AT LOWEST POINT OF DOMESTIC WATER PIPING SYSTEM TO ALLOW DRAINAGE OF SYSTEM.
THE DOMESTIC WATER PIPING SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH THE ARKANSAS STATE PLUMBING CODE.
ALL DOMESTIC WATER PIPING ON EXTERIOR WALLS SHALL BE RUN ON HEATED SIDE OF INSULATION.



CORPORATE SEAL



ENGINEER SEAL

HENDERSON STATE PRE-FAB BUILDING

HENDERSON STATE UNIVERSITY

100 Simonson Road, Bismarck, AR 71929

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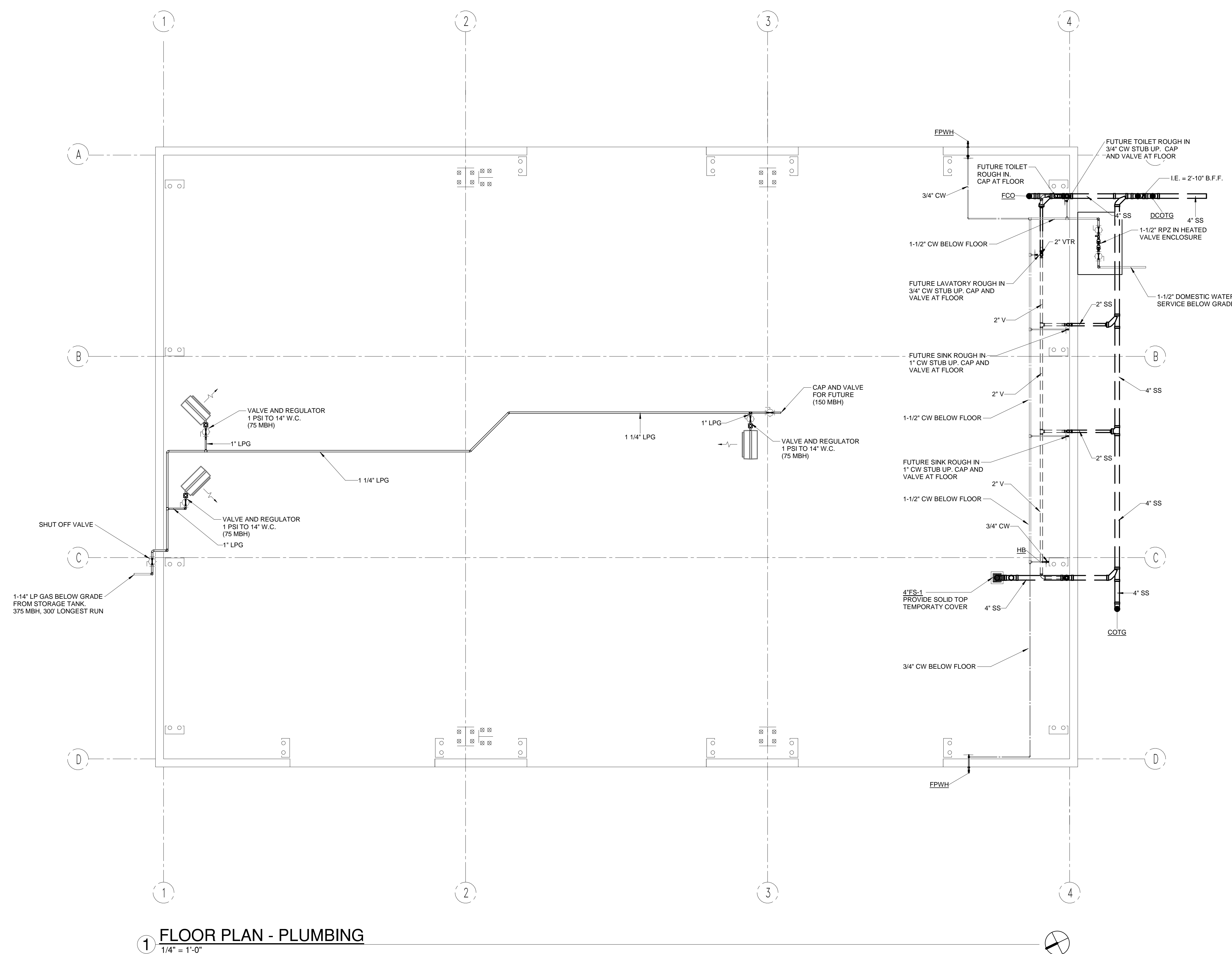
MARK	DATE	DESCRIPTION
ISSUE DATE:		12-18-18
PROJECT NUMBER:		01-18-0207

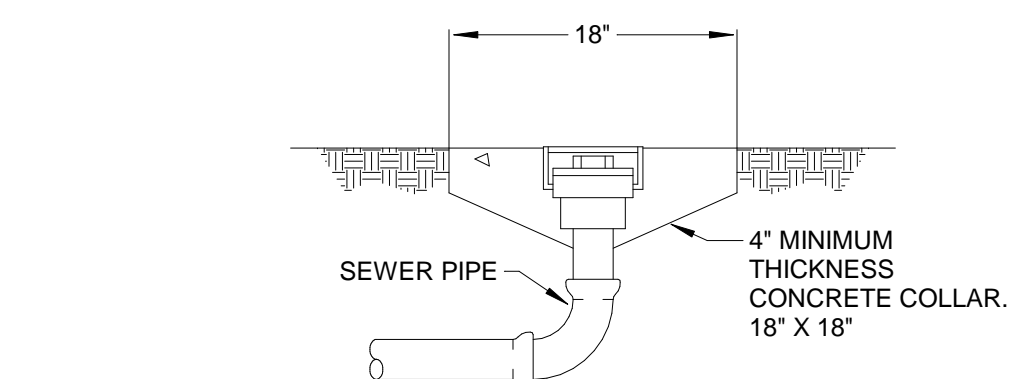
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FLOOR PLAN -
PLUMBING

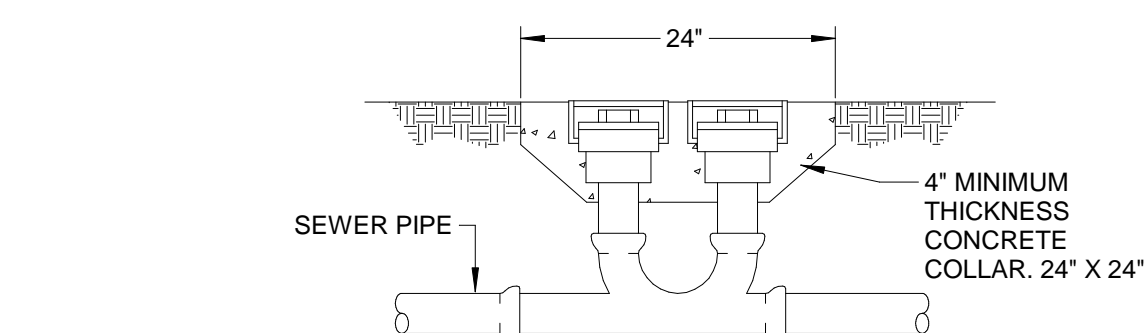
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P201

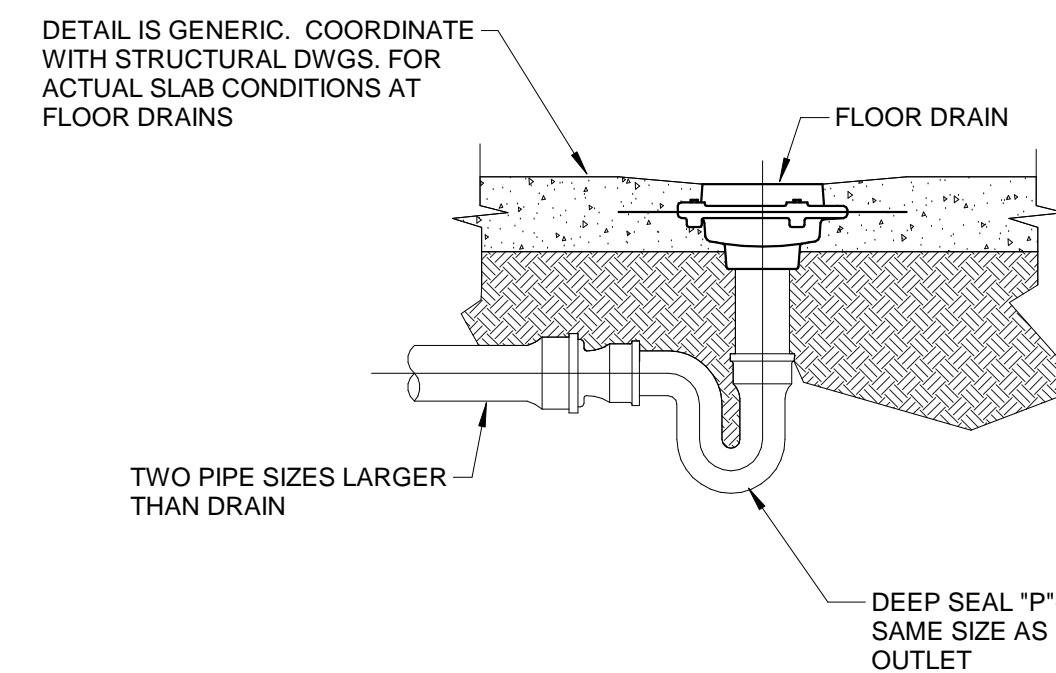




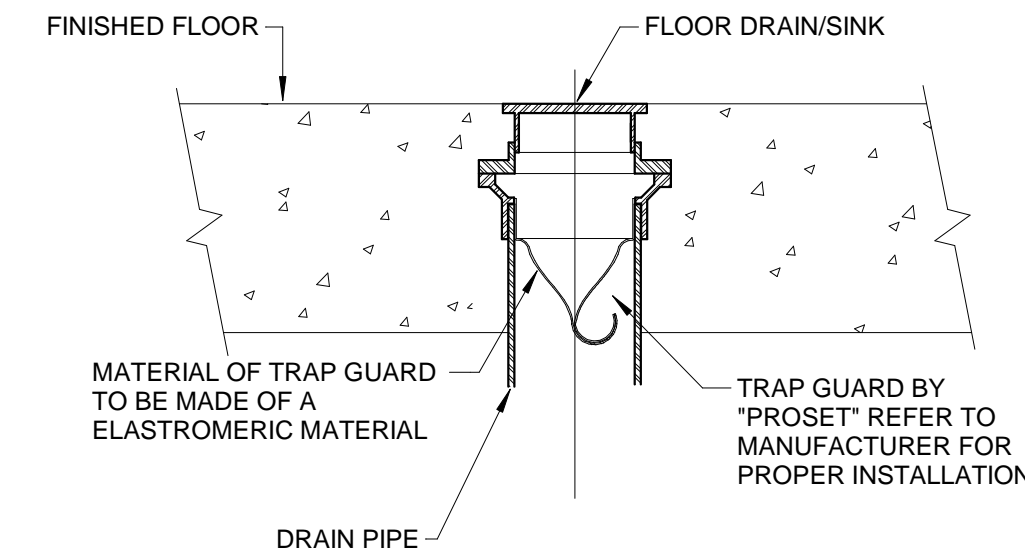
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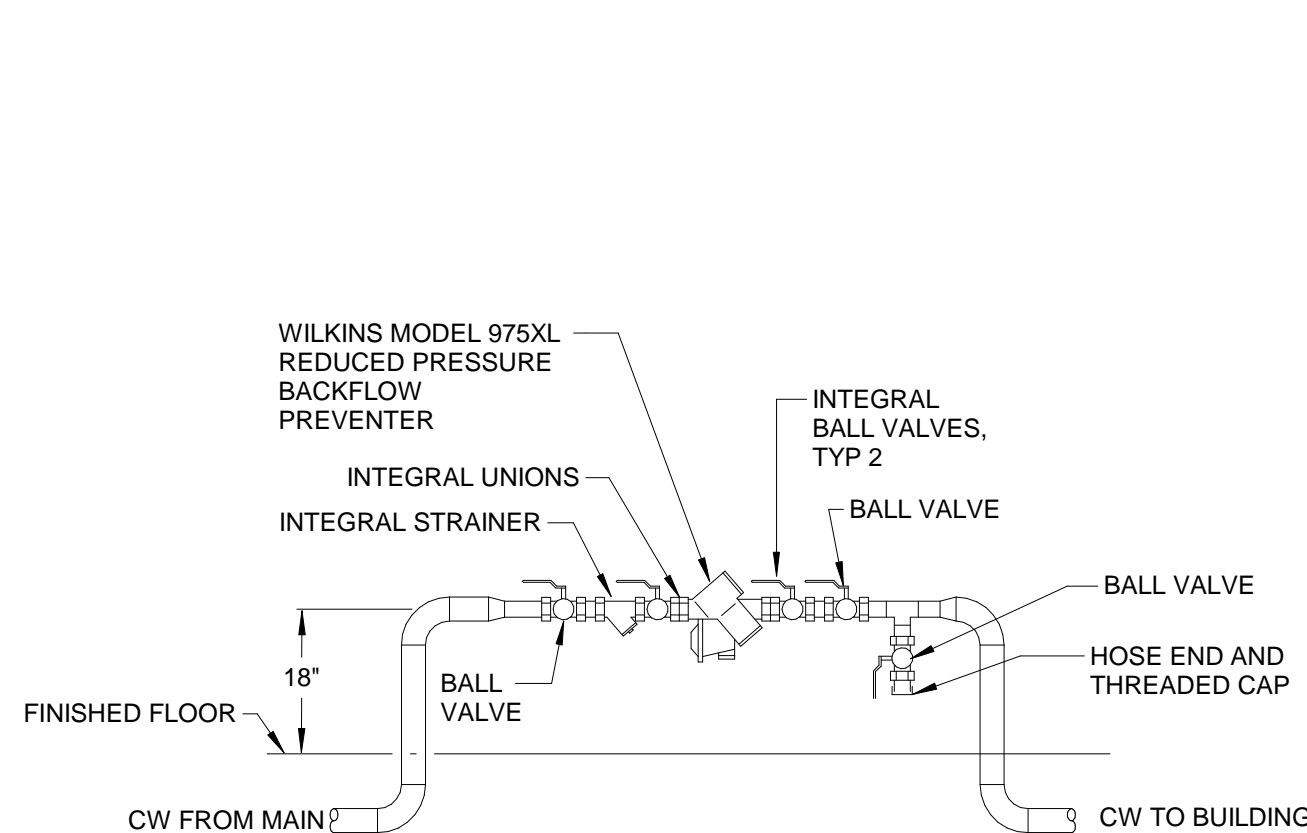
2 TWO-WAY CLEAN OUT TO GRADE DETAIL
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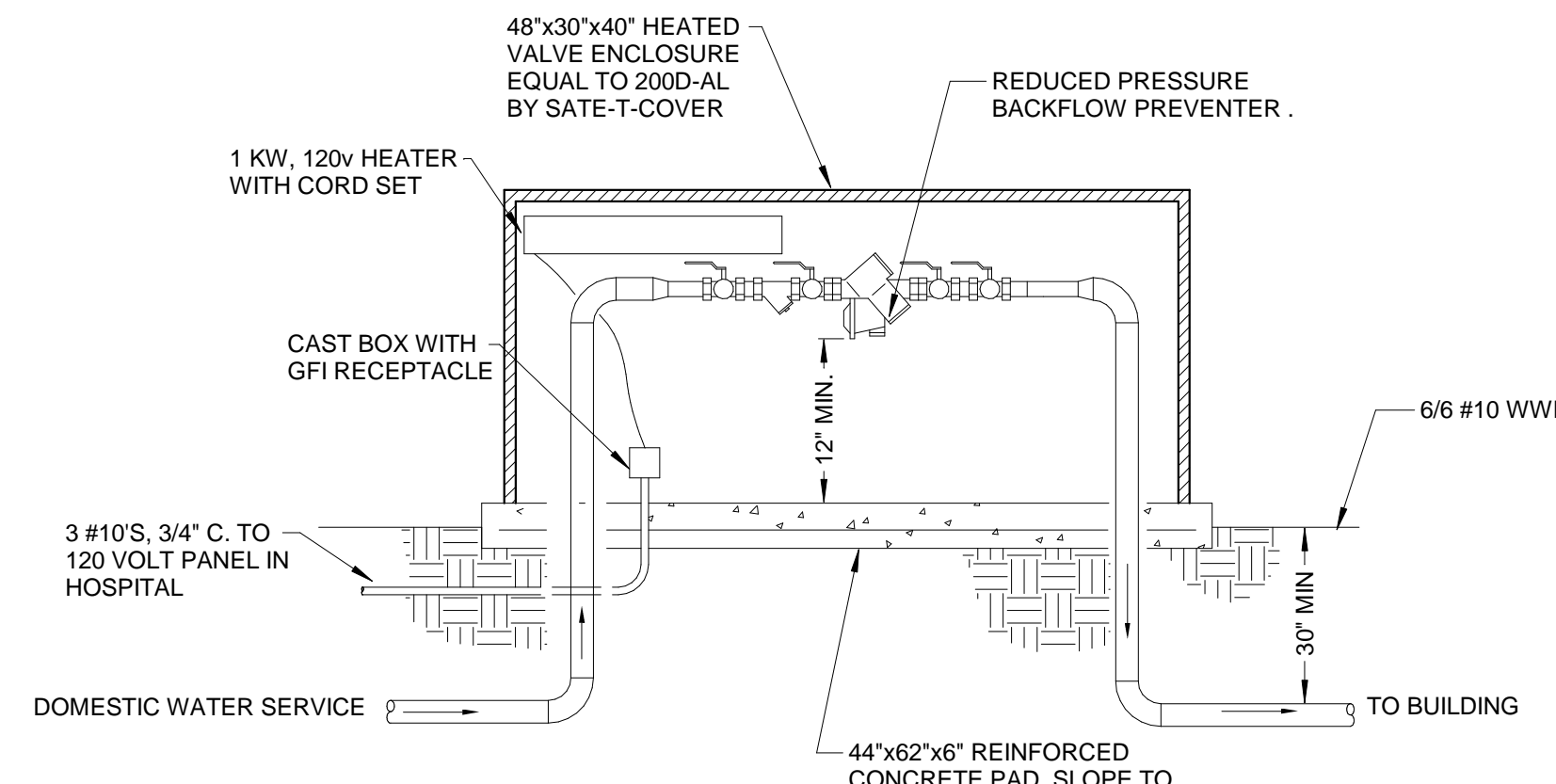
3 COMBINATION WASTE AND VENT DETAIL
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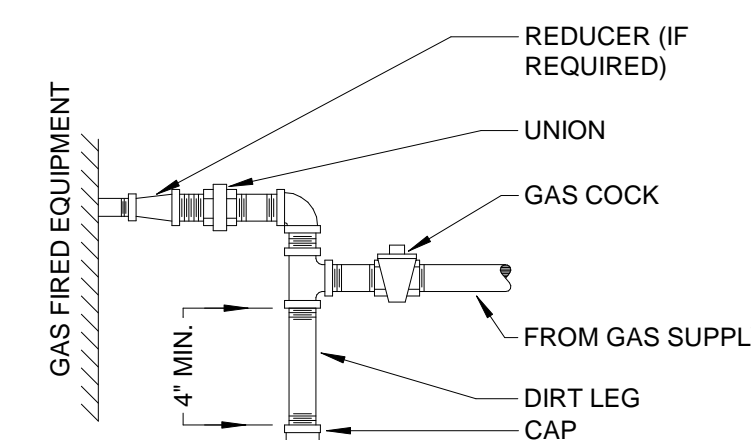
4 TRAP-GUARD DETAIL
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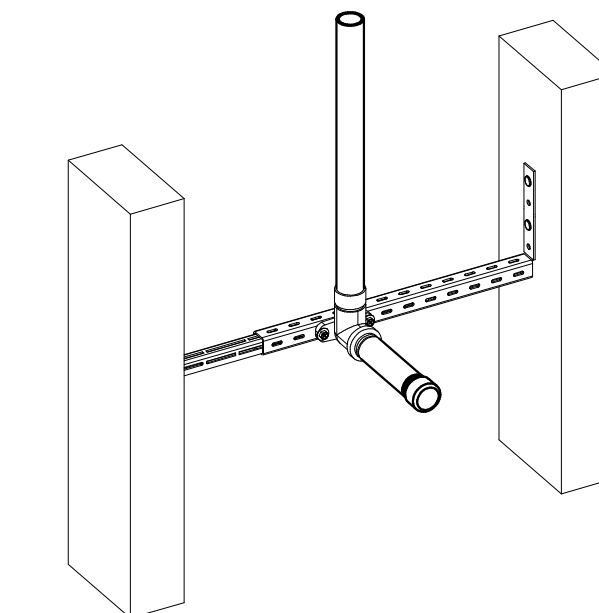
5 DOMESTIC WATER RPZ DETAIL
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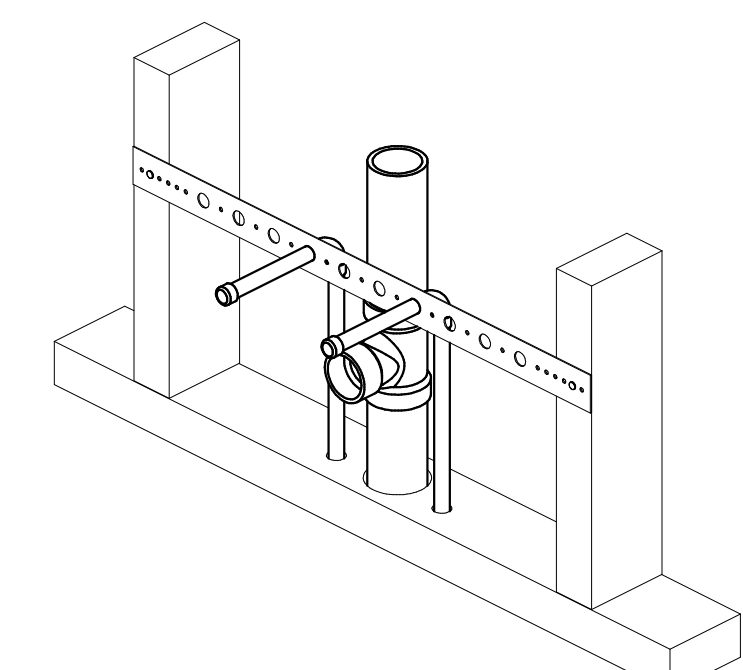
6 HOT BOX DETAIL
NOT TO SCALE:



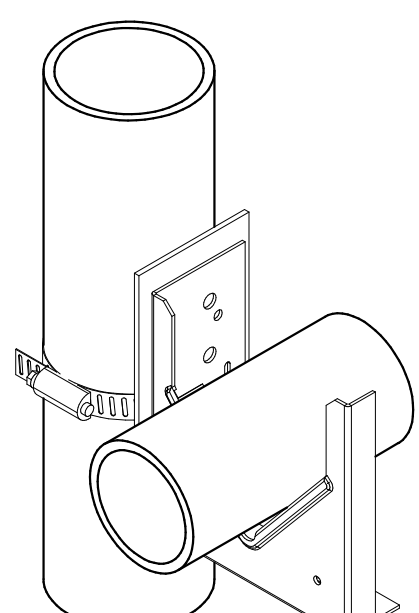
7 TYPICAL EQUIPMENT GAS CONNECTION
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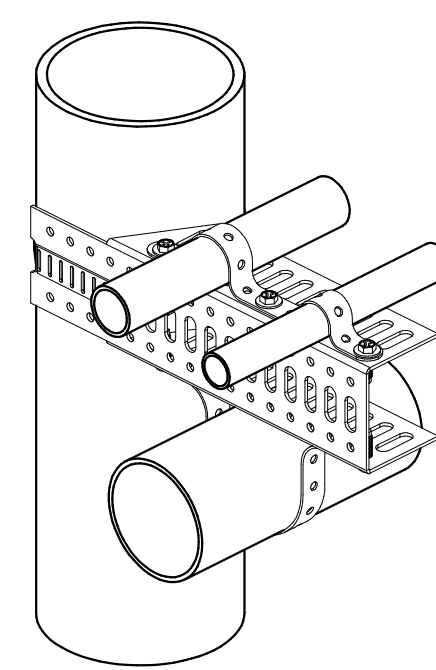
8 TOILET OR OTHER SINGLE SUPPLY FIXTURE PIPE SUPPORT
NOT TO SCALE:



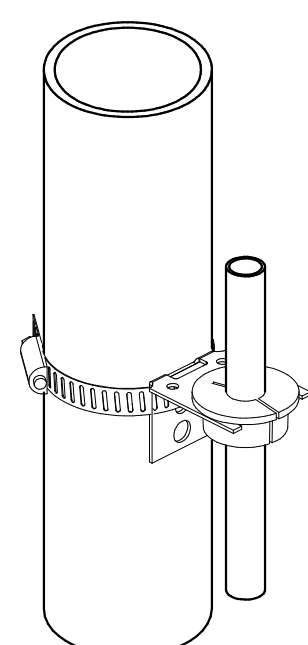
9 LAVATORY OR SINK PIPE SUPPORT
NOT TO SCALE:



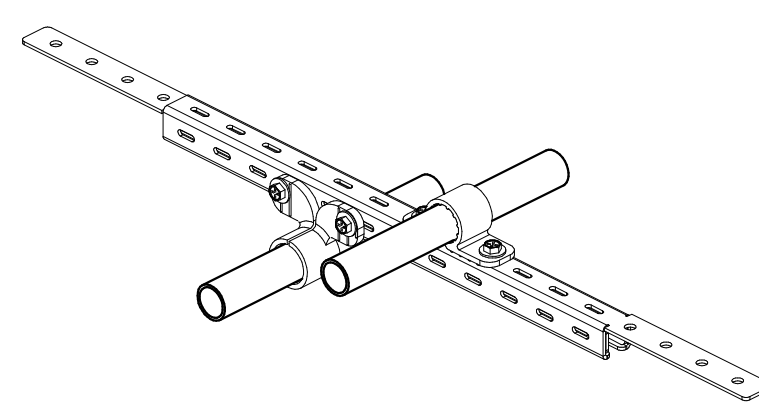
10 HORIZONTAL PIPING SUPPORT
NOT TO SCALE:



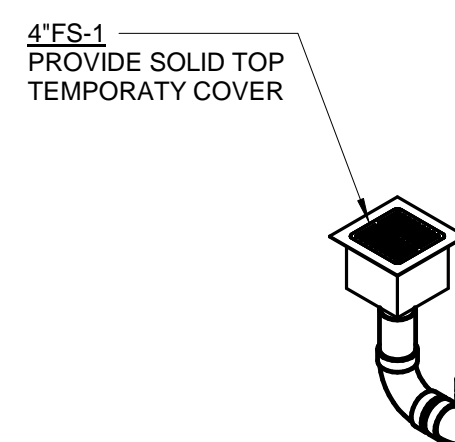
11 HORIZONTAL - VERTICAL PIPING SUPPORT - 1
NOT TO SCALE:



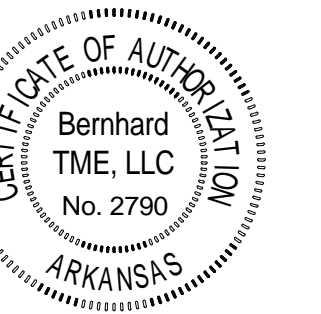
12 HORIZONTAL - VERTICAL PIPING SUPPORT - 2
NOT TO SCALE:



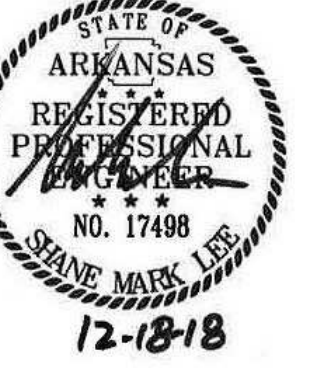
13 HORIZONTAL - VERTICAL PIPING SUPPORT - 3
NOT TO SCALE:



14 SANITARY WASTE AND VENT RISER



CORPORATE SEAL



ENGINEER SEAL

HENDERSON STATE PRE-FAB BUILDING

HENDERSON STATE UNIVERSITY

100 Simonson Road, Bismarck, AR 71929

MARK	DATE	DESCRIPTION
ISSUE DATE:	12-18-18	
PROJECT NUMBER:	01-18-0207	
SHEET TITLE:	DETAILS - PLUMBING	
SHEET NUMBER:	P301	

STRUCTURAL DESIGN CRITERIA

1. FOUNDATION DESIGN WAS BASED OFF THE PRE-ENGINEERED METAL BUILDING (PEMB) SUBMITTAL PROVIDED BY COWELL STEEL STRUCTURES, INC. OUT OF RUSSELLVILLE, AR (CONTRACT # CG-10191801) (877-626-9355).

PER INTERNATIONAL BUILDING CODE (IBC 2012)
2. SEISMIC DESIGN:
RISK CATEGORY: II
IMPORTANCE FACTOR: 1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS: S_s = 0.24 S₁ = 0.11
SITE CLASS: C
SPECTRAL RESPONSE COEFFICIENTS: S_{DS} = 0.13, S_{D1} = 0.06
SEISMIC DESIGN CATEGORY: B
BASIC SEISMIC FORCE RESISTING SYSTEM: DETERMINED BY PEMB SUPPLIER
SEISMIC BASE SHEAR: DETERMINED BY PEMB SUPPLIER
SEISMIC RESPONSE COEFFICIENTS: DETERMINED BY PEMB SUPPLIER
RESPONSE MODIFICATION FACTOR: DETERMINED BY PEMB SUPPLIER
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE (ELFP)

3. SNOW LOAD
GROUND SNOW LOAD: P_g = 10 PSF (ASCE 7)
EXPOSURE COEFFICIENT, C_e = 0.9
THERMAL FACTOR, C_t = 1.0
IMPORTANCE FACTOR FOR SNOW, I = 1.0
ROOF SLOPE FACTOR, C_s = 1.0
FLAT ROOF SNOW LOAD, P_f = 6.3 PSF

4. WIND LOAD
DESIGN ULTIMATE WIND SPEED: 115 MPH
RISK CATEGORY: II
EXPOSURE CATEGORY: B
INTERNAL PRESSURE COEFFICIENTS: GCFI = +0.18
VELOCITY PRESSURE: PER PEMB SUPPLIER

5. ROOF LOADS:
DEAD LOAD: 2 PSF (PER PEMB SUPPLIER)
LIVE LOAD: 20 PSF (REDUCIBLE PER PEMB SUPPLIER)

6. DESIGN SOIL CRITERIA AS FOLLOWS:
THE FOUNDATION FOR THIS STRUCTURE HAS BEEN DESIGNED BASED UPON THE RECOMMENDATIONS OF THE SOIL AND FOUNDATION INVESTIGATION FOR THIS SITE BY ANDERSON ENGINEERING CONSULTANTS, INC. OF LITTLE ROCK, AR (01-455-4545). ALLOWING SOIL BEARING PRESSURE OF 2000 PSF IN NATURAL GROUND AND 3000 PSF ON SHALE TO BE VERIFIED BY GEOTECHNICAL ENGINEER AT TIME OF EXCAVATION.

I HEREBY CERTIFY THAT THE STRUCTURAL PLANS SUBMITTED HEREWITH ARE DESIGNED WITH THE STRUCTURAL LOAD CARRYING ELEMENTS TO RESIST THE ANTICIPATED FORCES OF THE DESIGNATED SEISMIC ZONE IN WITH THE STRUCTURE IS LOCATED IN ACCORDANCE WITH ARKANSAS CODE ANNOTATED §12-80-104(B)(3).

SEISMIC ZONE PER A.C.A. 12-80-101 ET SEQ. ZONE: 1

CODES: 2012 ARKANSAS FIRE PREVENTION CODE A.C.A. 12-80-101 ET. SEQ. (ARKANSAS STATE LAW)

GENERAL INFORMATION

- ALL COLUMNS SHALL BE CENTERED ON GRID LINES UNLESS NOTED OTHERWISE.
- ALL COLUMN FOOTINGS SHALL BE CENTERED ON COLUMNS UNLESS NOTED OTHERWISE.
- ALL WALL FOOTINGS SHALL BE CENTERED ON WALLS UNLESS NOTED OTHERWISE.
- UNLESS OTHERWISE NOTED OR DETAILED, CONCRETE PADS FOR MECHANICAL EQUIPMENT SHALL BE 4" THICK (MINIMUM) AND REINFORCED WITH #3 @ 12" OC EACH WAY CENTERED.
- SUBSTITUTION OF EXPANSION OR ADHESIVE ANCHORS FOR EMBEDDED ANCHORS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO PLACING OF CONCRETE CONTAINING THE ANCHORS.
- BACKFILL BOTH SIDES OF ALL FOUNDATION AND RETAINING WALLS EQUALLY UNTIL LOW SIDE IS UP TO FINISH GRADE. DO NOT BACKFILL ANY WALLS UNTIL CONCRETE HAS REACHED ITS SPECIFIED 28-DAY COMPRESSIVE STRENGTH.
- PERMANENT STABILITY OF THE BUILDING AND COMPONENTS IS NOT PROVIDED UNTIL THE ERECTION IS COMPLETED AS SHOWN ON THE CONTRACT DRAWINGS. PER SECT 7.10.3 OF AISC CODE OF STANDARD PRACTICE FOR BUILDINGS AND BRIDGES MARCH 18, 2005, TEMPORARY SUPPORTS, SUCH AS TEMPORARY GUYS, BRACES, FALSEWORK, CRIBBING OR OTHER ELEMENTS REQUIRED FOR THE ERECTION OPERATION WILL BE DETERMINED, FURNISHED AND INSTALLED BY THE ERECTOR.
- WEIGHTS OF MECHANICAL EQUIPMENT SHOWN ON THE STRUCTURAL PLANS ARE FOR UNITS SPECIFIED BY THE MECHANICAL ENGINEER. CONTRACTOR SHALL VERIFY WEIGHTS AND ANY SUBSTITUTIONS THAT RESULT IN INCREASED WEIGHT SHALL BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.
- THE CONTRACTOR SHALL INSURE THAT NO CONSTRUCTION LOAD EXCEEDS THE DESIGN LIVE LOADS INDICATED ON THE STRUCTURAL DRAWINGS AND THAT THESE LOADS ARE NOT PLACED ON THE STRUCTURAL MEMBERS PRIOR TO THE TIME THAT ALL FRAMING MEMBERS AND THEIR CONNECTIONS ARE IN PLACE.
- THE SIZE AND LOCATION OF EQUIPMENT PADS AND PENETRATIONS THROUGH THE STRUCTURE FOR MECHANICAL, ELECTRICAL, AND PLUMBING WORK SHALL BE VERIFIED BY THE CONTRACTOR. OPENINGS AND PENETRATIONS NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.

11. PRIOR TO FABRICATION AND/OR ERECTION OF ANY MATERIALS, THE CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT EXISTING DIMENSIONS, ELEVATIONS, AND CONDITIONS AND SHALL REPORT ANY DISCREPANCIES TO THE STRUCTURAL ENGINEER OF RECORD OR THE ARCHITECT IMMEDIATELY UPON DISCOVERY.

12. WATERSTOPS SHALL BE WATERSTOP-ROX VOLCLAY BY AMERICAN COLLOID COMPANY OR EQUIVALENT UNLESS NOTED OTHERWISE. WATERSTOPS TO BE LOCATED SUCH THAT A 3" MINIMUM COVER IS MAINTAINED.

13. EXPANSION JOINT FILLER SHALL BE NON-EXTRUDING PREMOLDED MATERIAL COMPOSED OF FIBERBOARD IMPREGNATED WITH ASPHALT CONFORMING TO THE REQUIREMENTS OF ASTM D1751 UNLESS NOTED OTHERWISE.

14. THE PREPARATION OF THE SUBGRADE INCLUDING ALL PROOF-ROLLING AND UNDERCUTTING AND THE SELECTION, PLACEMENT, COMPACTION AND TESTING OF ALL FILL MATERIAL SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT FOR THIS PROJECT.

15. THE GENERAL CONTRACTOR SHALL VERIFY THE SITE CONDITIONS INCLUDING UNDERGROUND UTILITIES BEFORE STARTING WORK AND SHALL NOTIFY THE STRUCTURAL ENGINEER OF RECORD OF ANY CONDITIONS ENCOUNTERED CONTRADICTORY TO THOSE SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS.

16. THE GENERAL CONTRACTOR SHALL COORDINATE THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL WORK WITH THE STRUCTURAL CONTRACT DOCUMENTS AND SHALL REPORT ANY SUSPECTED DISCREPANCIES OR OMISSIONS TO THE ARCHITECT IMMEDIATELY. THE STRUCTURAL CONTRACT DOCUMENTS DO NOT INCLUDE SHOP DRAWINGS, VENDOR DRAWINGS NOR ANY MATERIAL PREPARED AND SUBMITTED BY THE CONTRACTOR OR SUBCONTRACTORS.

17. REFERENCE TO STANDARD SPECIFICATIONS OF ANY TECHNICAL SOCIETY, ORGANIZATION OR ASSOCIATION OR TO CODES OF LOCAL OR STATE AUTHORITIES SHALL MEAN THE LATEST STANDARD, CODE, SPECIFICATION OR TENTATIVE SPECIFICATION ADOPTED AND PUBLISHED AT THE DATE OF TAKING BIDS UNLESS SPECIFICALLY STATED OTHERWISE.

18. FOR DIMENSIONS NOT SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS, SEE THE PEMB DRAWINGS. THE CONTRACTOR SHALL REVIEW THE STRUCTURAL DRAWINGS FOR SECTIONS AND DETAILS THAT ARE LABELED AS "TYPICAL" AND ARE NOT NECESSARILY REFERENCED ON THE STRUCTURAL PLANS WHERE THEY APPLY.

SUBMITTAL PROCEDURES

- TRANSMIT SUBMITTALS SUFFICIENTLY IN ADVANCE OF RELATED CONSTRUCTION ACTIVITIES TO AVOID UNNECESSARY DELAY. THE STRUCTURAL ENGINEER OF RECORD MAY WITHHOLD ACTION ON A SUBMITTAL REQUIRING COORDINATION WITH OTHER SUBMITTALS UNTIL ALL RELATED SUBMITTALS ARE RECEIVED.
- SUBMIT DIGITAL COPIES FOR APPROVAL.
- CONTRACTOR SHALL COMPLY WITH DIVISION ONE SECTION - "SUBMITTALS"
- NO REPRODUCTIONS OF THE CONSTRUCTION DOCUMENTS ARE ACCEPTABLE FOR USE AS SHOP DRAWINGS.
- ACTION STAMP: THE STRUCTURAL ENGINEER OF RECORD WILL STAMP EACH SUBMITTAL WITH A UNIFORM ACTION STAMP TO INDICATE THE ACTION TAKEN IN ONE OF FOUR OPTIONS LISTED BELOW:

APPROVED WORK COVERED BY THE SUBMITTAL COMPLIES WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

APPROVED AS NOTED WORK COVERED BY THE SUBMITTAL MAY PROCEED PROVIDED IT COMPLIES WITH NOTATIONS OR CORRECTIONS ON THE SUBMITTAL AND REQUIREMENTS OF THE CONTRACT DOCUMENTS

REVISE AND RESUBMIT WORK COVERED BY THE SUBMITTAL DOES NOT COMPLY WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND MUST BE CHANGED TO COMPLY AND RESUBMIT THE ENTIRE SUBMITTAL.

REJECTED WORK COVERED BY THE SUBMITTAL IS TOTALLY UNACCEPTABLE AND MAY NOT PROCEED.

ADHESIVE SET ANCHORS, REINFORCING BARS, & DOWEL NOTES

- USE HILTI'S HY70 SYSTEM OR APPROVED EQUAL FOR ATTACHMENT TO HOLLOW AND GROUT-FILLED MASONRY UNITS.
- USE HILTI'S HY200 SYSTEM OR APPROVED EQUAL FOR ATTACHMENT INTO SOLID SURFACES ONLY. (E.G., SOLID CONCRETE.)
- FOR REBAR AND DOWEL EMBEDMENT, USE HY200 ADHESIVE, OR APPROVED EQUAL AS NOTED ABOVE.
- USE HILTI'S THREADED RODS OR APPROVED EQUAL UNLESS SPECIFICALLY NOTED OTHERWISE. SUBSTITUTION OF A 3/8" ALL-THREAD ROD WILL **NOT** BE ALLOWED. RODS ANCHORING INTO UNREINFORCED MASONRY SHALL BE BENT AT 22 1/2° ANGLE UNO.
- WHERE BASE MATERIAL IS HOLLOW BLOCK, BRICK OR OTHER MATERIAL CONTAINING POCKETS OR VOIDS, A SCREEN TUBE, PER MANUFACTURERS RECOMMENDATIONS, SHALL BE EMPLOYED IN THE SYSTEM.
- FOLLOW MANUFACTURERS REQUIREMENTS FOR MINIMUM DEPTH OF BASE MATERIAL, MINIMUM EDGE DISTANCES, AND MINIMUM BOLT/BAR SPACING.
- UNLESS SPECIFIED OTHERWISE, ANCHORS SHALL BE EMBEDDED IN THE APPROPRIATE SUBSTRATE WITH A MINIMUM EMBEDMENT OF 8 TIMES THE NOMINAL ANCHOR DIAMETER OR THE EMBEDMENT DEPTH REQUIRED TO SUPPORT THE INTENDED LOAD.
- POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER-OF-RECORD PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REINFORCING. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE. PROVIDE CONTINUOUS SPECIAL INSPECTION FOR ALL ADHESIVES AND MECHANICAL ANCHORS PER THE PRODUCTS APPLICABLE ICC-ES OR IAPMO-ES EVALUATION REPORT (ICC-ES ESR), CONTACT MANUFACTURER'S REPRESENTATIVE FOR THE INITIAL TRAINING AND INSTALLATION OF ANCHORS AND FOR PRODUCT RELATED QUESTIONS AND AVAILABILITY.

A. CONCRETE ANCHORS

- MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 308.2 AND ICC-ES AC193 FOR CRACKED AND UNCRACKED CONCRETE RECOGNITION.
- ADHESIVE ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 308.4 AND ICC-ES AC308 FOR CRACKED AND UNCRACKED CONCRETE RECOGNITION.

B. MASONRY ANCHORS

- ANCHORAGE TO SOLID-GROUTED CONCRETE MASONRY
 - MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC101 OR AC106.
 - ADHESIVE ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC68.
- ANCHORAGE TO HOLLOW CONCRETE MASONRY/UNREINFORCED CLAY BRICK MASONRY
 - MECHANICAL ANCHORS SHALL HAVE BEEN TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC106.
 - ADHESIVE ANCHORS WITH SCREEN TUBES SHALL BE TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC68 OR AC60, AS APPROPRIATE.

LEGEND

FX FOOTING MARK

CONCRETE LAP SPLICE SCHEDULE						
BAR SIZE	f'c = 5000		f'c = 4000		f'c = 3000	
	TOP BARS*	OTHER BARS	TOP BARS*	OTHER BARS	TOP BARS*	OTHER BARS
#11	101"	78"	113"	87"	131"	101"
#10	91"	70"	102"	79"	118"	91"
#9	81"	63"	91"	70"	105"	81"
#8	72"	55"	80"	62"	93"	72"
#7	63"	49"	70"	54"	81"	63"
#6	43"	33"	48"	37"	56"	43"
#5	36"	28"	40"	31"	47"	36"
#4	22"	17"	24"	19"	28"	22"

* LAP SPLICE LENGTHS ARE TYP UNLESS DETAILED OR NOTED OTHERWISE.

FOUNDATION NOTES

- REFER TO 'DESIGN SOIL CRITERIA' UNDER 'STRUCTURAL DESIGN CRITERIA' IN THESE GENERAL NOTES FOR BEARING VALUES AND REFERENCED GEOTECHNICAL REPORT.
- ALL SOIL PREPARATION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS GIVEN IN THE REFERENCED GEOTECHNICAL REPORT.
- UNLESS NOTED OTHERWISE IN THE GEOTECHNICAL REPORT STRIP AREA OF ALL GRAVEL, SURFACE VEGETATION, TOPSOIL, AND ANY DEBRIS. REMOVE ALL EXISTING STRUCTURES, FOUNDATIONS, AND BELOW GRADE SITE FEATURES. AFTER STRIPPING AND MAKING REQUIRED CUTS, EXPOSED SUBGRADE SHOULD BE PROOF ROLLED WITH A 25 TON TANDEM-AXLE DUMP TRUCK. OVER EXCAVATE AND STABILIZE ANY SOFT OR UNSTABLE AREAS DISCOVERED BY PROOF ROLLING.
- THE GEOTECHNICAL ENGINEER SHALL BE PRESENT DURING PROOF ROLLING AND SHALL INSPECT THE SUBGRADE PRIOR TO ANY FILL OPERATIONS. ALL COMPACTED FILL SHALL BE CONTINUOUSLY INSPECTED BY THE OWNER'S SELECTED INDEPENDENT TESTING LABORATORY.
- IF THE SOIL AT THE BEARING ELEVATIONS SHOWN IS OF QUESTIONABLE BEARING VALUE, THE STRUCTURAL ENGINEER OF RECORD OR ARCHITECT SHALL BE NOTIFIED IMMEDIATELY.
- UNLESS NOTED OTHERWISE IN THE GEOTECHNICAL REPORT WHERE FILL MATERIAL IS REQUIRED OVER IN-SITU SUBGRADE, SCARIFY SUBGRADE TO A MINIMUM DEPTH OF 9" AND ADJUST MOISTURE CONTENT TO EQUAL OPTIMUM MOISTURE CONTENT. COMPACT SCARIFIED SUBGRADE USING THE SAME REQUIREMENTS LISTED BELOW FOR COMPACTED STRUCTURAL FILL.
- ALL FILL MATERIAL UNDER STRUCTURE SHALL COMPLY WITH REQUIREMENTS STATED IN GEOTECHNICAL REPORT UNLESS SPECIFICALLY NOTED OTHERWISE. AS A MINIMUM, ALL FILL MATERIAL UNDER STRUCTURE SHALL BE SANDY CLAY OR CLAYEY SAND EXHIBITING A LIQUID LIMIT LESS THAN 35. FILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8" AND COMPACTED TO A DENSITY OF NOT LESS THAN 90% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) AT OR SLIGHTLY WET OF OPTIMUM MOISTURE CONTENT. IN PLACE MOISTURE AND DENSITY OF EACH LIFT SHALL BE DETERMINED BY IN-SITU FIELD TESTS PRIOR TO PLACING ADDITIONAL FILL.
- FTER FOOTING EXCAVATIONS ARE COMPLETED AND BEFORE PLACING CONCRETE, THE EXCAVATED AREAS SHALL BE INSPECTED AND APPROVED BY THE OWNER'S SELECTED INDEPENDENT TESTING LABORATORY.
- PROVIDE A MINIMUM OF 4" CLEAN FREE DRAINING GRANULAR SUB-BASE FILL BELOW ALL INTERIOR SLAB-ON-GRADE UNLESS NOTED OR DETAILED OTHERWISE. SUB-BASE SHALL MEET GRADATION REQUIREMENTS OF ASTM C-33 SIZE NO. 67 UNLESS SPECIFICALLY NOTED OTHERWISE.
- A 15-MIL MINIMUM POLYETHYLENE FILM VAPOR RETARDER, MEETING THE REQUIREMENTS IN THE SPECIFICATIONS, SHALL BE PLACED BELOW ALL INTERIOR SLAB-ON-GRADE UNLESS SPECIFICALLY NOTED OTHERWISE.

CAST-IN-PLACE CONCRETE NOTES

- CONCRETE DESIGN AND DETAILING SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND ACI 301, LATEST EDITIONS.
- MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
 - CONTINUOUS FOOTINGS, SPREAD FOOTINGS ----- 3000 PSI
 - SLAB-ON-GRADE ----- 3000 PSI
 - EXTERIOR AIR-ENTRAINED SLAB-ON-GRADE ----- 4000 PSI
- ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 NEW AND DEFORMED. SEE LAP SCHEDULE UNLESS NOTED OR DETAILED OTHERWISE.
- CONTRACTOR SHALL PROVIDE REINFORCING SHOP DRAWINGS WHICH ADEQUATELY DEPICT THE REINFORCING BAR SIZES AND PLACEMENT. WRITTEN DESCRIPTION OF REINFORCEMENT WITHOUT ADEQUATE SECTIONS, ELEVATIONS AND DETAILS IS NOT ACCEPTABLE.
- SUBMIT WRITTEN REPORTS OF EACH PROPOSED MIX DESIGN FOR EACH CLASS OF CONCRETE WITH CONCRETE CYLINDER TEST RESULTS AT LEAST 15 DAYS PRIOR TO START OF WORK.
- ALL CONCRETE THAT WILL BE EXPOSED TO THE WEATHER SHALL HAVE 3% TO 5% AIR ENTRAINMENT.
- ARRANGEMENT & BENDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL LATEST EDITION.
- REINFORCING STEEL SHALL BE NEW & ALL BARS SHALL BE DEFORMED.
- PROVIDE SUITABLE WIRE SPACERS, CHAIRS, TIES, ETC. FOR SUPPORTING REINFORCING STEEL IN THE PROPER POSITION WHILE PLACING CONCRETE. DO NOT "WET STICK" DOWELS.
- ALL WELDED WIRE REINFORCING SHALL BE LAPPED A MIN OF 6" AT THE SIDES AND ENDS.
- MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT AT SURFACES NOT EXPOSED DIRECTLY TO WEATHER OR GROUND SHALL BE 3/4" FOR SLABS, JOISTS, AND WALLS AND 1 1/2" FOR BEAM STIRRUPS, COLUMN TIES, OR SPIRALS UNO.
- MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT AT SURFACES WHICH WILL BE EXPOSED TO THE WEATHER OR BE IN CONTACT WITH THE GROUND SHALL BE 2" FOR BARS LARGER THAN #8 & 1 1/2" FOR #5 OR SMALLER BARS UNO. PROVIDE 3" COVER BELOW AND AT ENDS OF FOOTING BARS UNO.
- LOCATIONS AND SIZES OF OPENINGS, SLEEVES, ETC. REQUIRED FOR OTHER TRADES MUST BE VERIFIED BY THESE TRADES BEFORE PLACING CONCRETE.
- ALL SLOTS, SLEEVES, TRENCHES, AND OTHER EMBEDDED ITEMS SHALL BE SET AND SECURED AGAINST MOVEMENT BEFORE THE CONCRETE IS PLACED. SEE ARCHITECTURAL, ELECTRICAL, MECHANICAL, PLUMBING, AND VENDOR DRAWINGS FOR SIZES AND LOCATIONS. COORDINATE LOCATIONS, SPACINGS, AND SIZES WITH THE STRUCTURAL ENGINEER OF RECORD PRIOR TO PLACING CONCRETE.
- AS PART OF THE SUBMITTAL PROCESS, THE ELECTRICAL AND MECHANICAL CONTRACTOR(S) SHALL SUBMIT A PROPOSED ROUTING PLAN FOR ALL PIPES, CONDUITS, OR OTHER DEVICES TO BE EMBEDDED IN THE CONCRETE. THE SUBMITTAL SHALL SHOW SPECIFIC SIZES AND LOCATIONS OF ALL PROPOSED EMBED ITEMS REFERENCING PROXIMITY TO BEAM, COLUMN, AND SLAB EDGES. NO ITEMS SHALL BE ALLOWED TO BE EMBEDDED IN THE CONCRETE WITHOUT PRIOR WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER OF RECORD.
- CONDUITS & PIPES EMBEDDED IN CONCRETE SLABS MAY BE NO LARGER THAN 1/3 THE SLAB THICKNESS (BASED ON THE MAXIMUM OUTSIDE DIAMETER) AND SHALL HAVE A CENTER-TO-CENTER SPACING NO LESS THAN THREE (3) CONDUIT DIAMETERS REGARDLESS OF DIAMETER, THE MINIMUM CLEAR SPACING BETWEEN CONDUITS OR REINFORCING SHALL BE 1".
- NO MORE THAN FOUR CONDUITS MAY BE PLACED ADJACENT TO EACH OTHER WITHOUT PRIOR APPROVAL IN WRITING FROM THE STRUCTURAL ENGINEER OF RECORD.
- NO ALUMINUM CONDUITS, DEVICES, OR FIXTURES MAY BE EMBEDDED INTO THE CONCRETE SO THAT THE ALUMINUM IS IN DIRECT CONTACT WITH THE CONCRETE.
- CORNER BARS SHALL BE PROVIDED FOR ALL HORIZONTAL REINFORCING BARS AT THE INTERSECTIONS AND CORNERS OF ALL STRIP FOOTINGS, BEAMS, AND WALLS UNLESS NOTED OTHERWISE. CORNER BARS SHALL BE OF THE SAME SIZE AND GRADE AS THE HORIZONTAL REINFORCING THEY CONNECT. MINIMUM LAP LENGTHS SHALL BE AS INDICATED IN THE CORNER BAR DETAIL UNLESS NOTED OTHERWISE.
- FOR SLAB-ON-GRADE PROVIDE SAW-CUT CONTROL JOINTS AT INTERVALS OF 15-20' OC MAX ACROSS THE WIDTH OF THE SLAB. REFER TO STRUCTURAL DRAWINGS FOR TYPICAL CONTROL JOINT LAYOUT AND DETAILS.
- SAW-CUTS SHALL BE MADE AS SOON AS THE CONCRETE CAN SUPPORT THE SAW WITHOUT DAMAGING THE SURFACE (EIGHT (8) HOURS MAX FROM THE START OF THE CONCRETE PLACEMENT).
- ALL STRUCTURAL CONCRETE EXPOSED TO VIEW TO BE SMOOTH FORMED FINISHED WITH 3/4" CHAMFERS AT ALL EXPOSED EDGES.

CONCRETE HOOK DEVELOPMENT LENGTHS			
BAR SIZE	f'c = 5000	f'c = 4000	f'c = 3000
#11	24"	27"	31"
#10	22"	24"	28"
#9	19"	22"	25"
#8	17"	19"	22"
#7	15"	17"	19"
#6	13"	15"	17"
#5	11"	12"	14"
#4	9"	10"	11"

* TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE.

1 ALLIED DRIVE, BUILDING 2
SUITE 2600
LITTLE ROCK, AR 72202
Phone: (501) 666-6776
Fax: (501) 663-8888
tme@bernhardtme.com



CORPORATE SEAL



ENGINEER SEAL

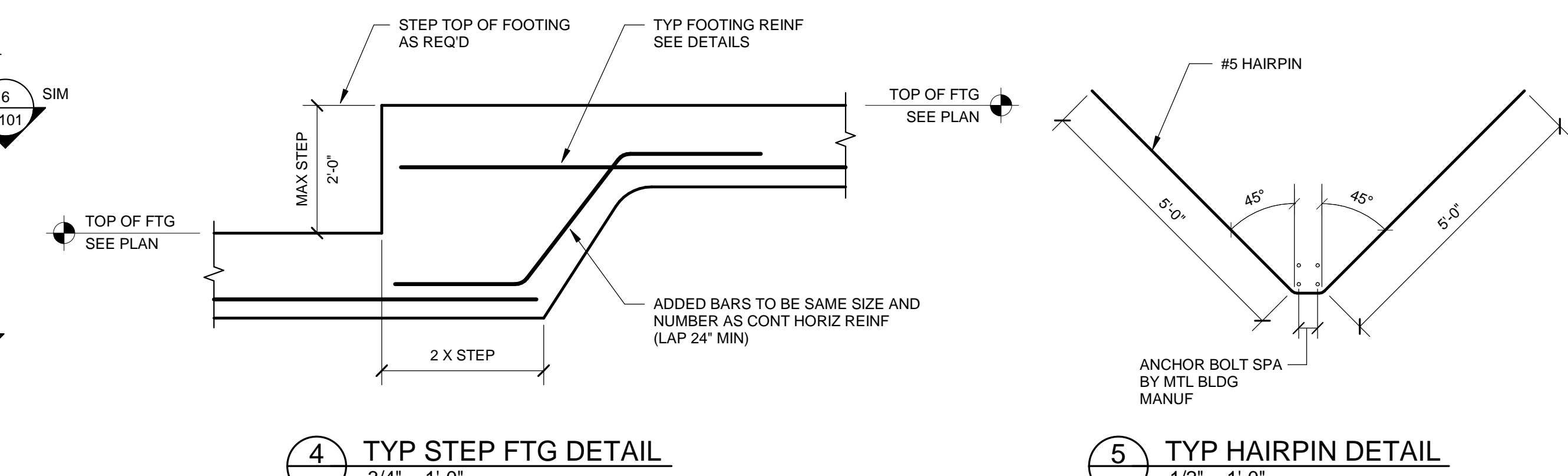
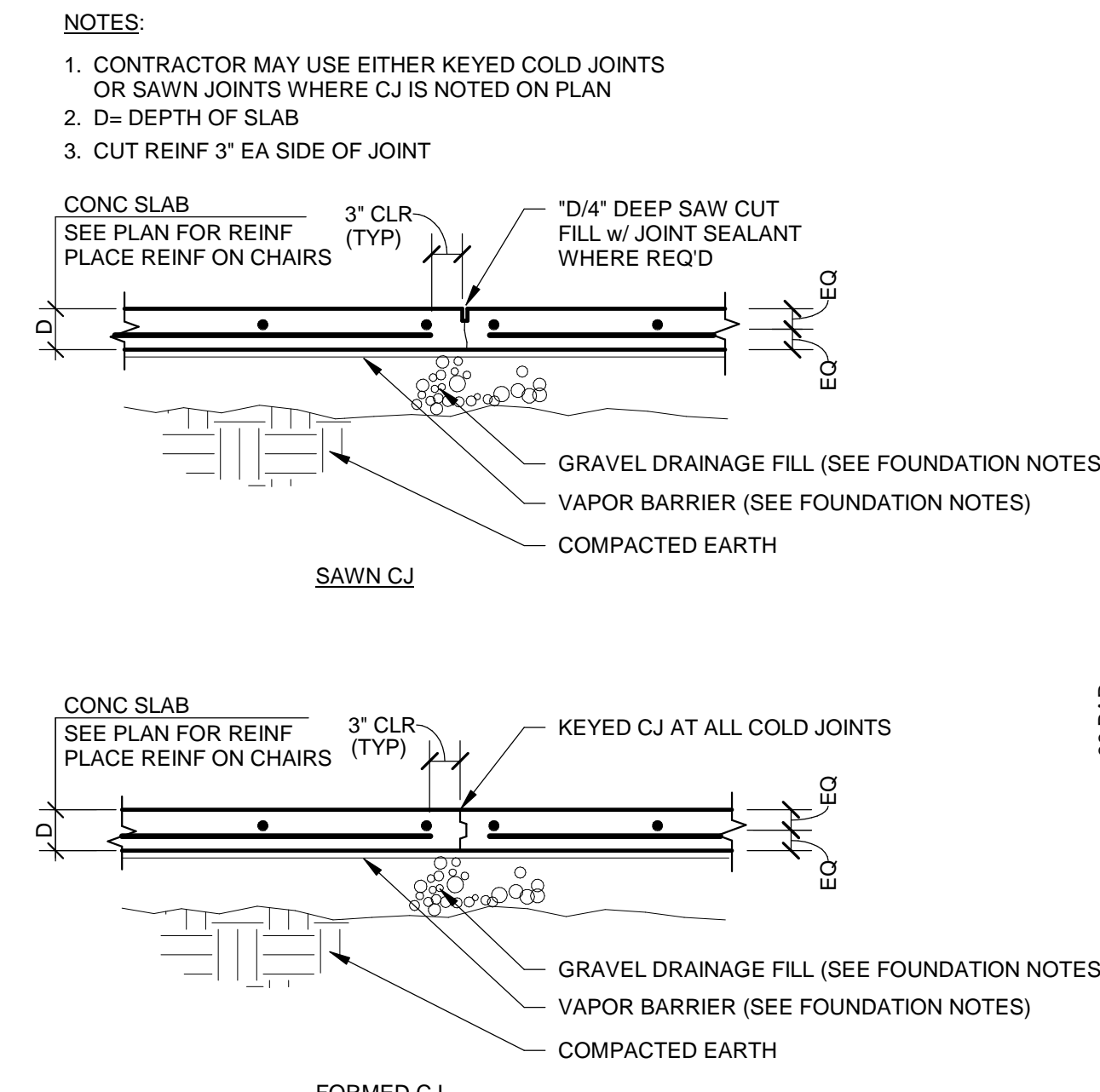
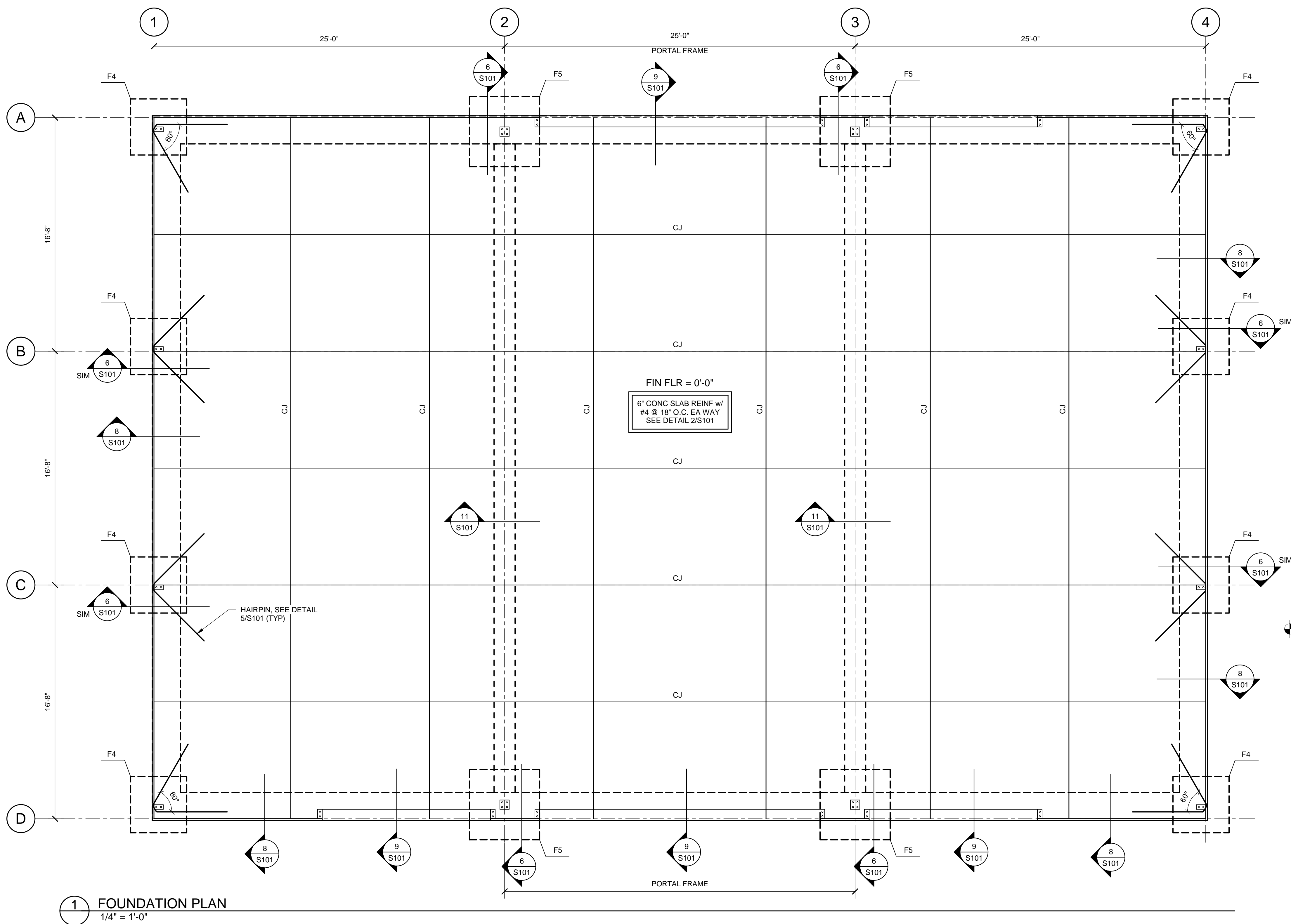
MARK	DATE	DESCRIPTION
	ISSUE DATE:	12-18-18
	PROJECT NUMBER:	01-18-0207

SHEET TITLE:

STRUCTURAL NOTES

SHEET NUMBER:

S001

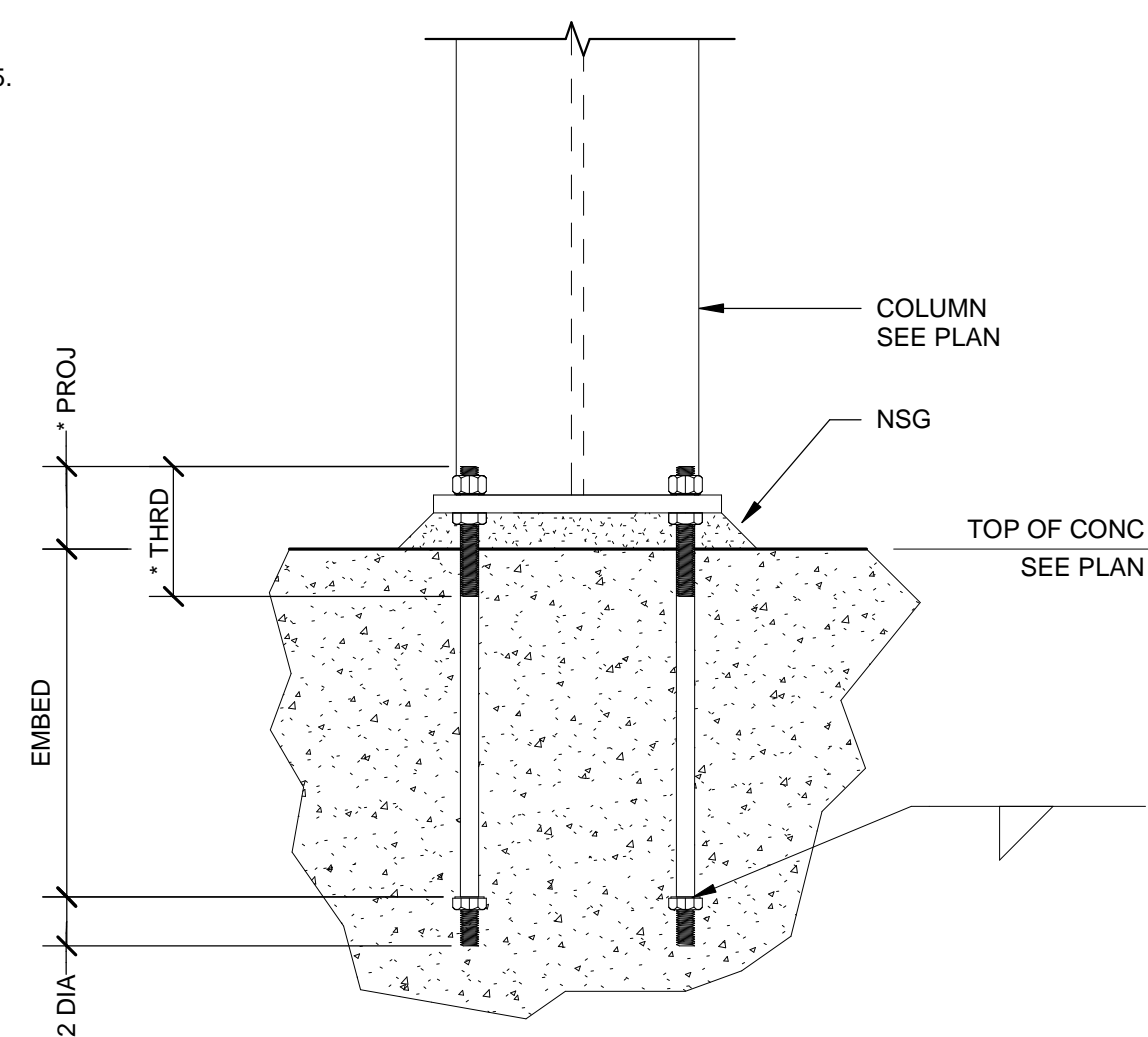


PAD FOOTING SCHEDULE			
MARK	FOOTING SIZE	THICKNESS	REINFORCING
F4	4'-0" x 4'-0"	2'-0"	7 - #5 EW BOT
F5	5'-0" x 5'-0"	2'-0"	9 - #5 EW BOT

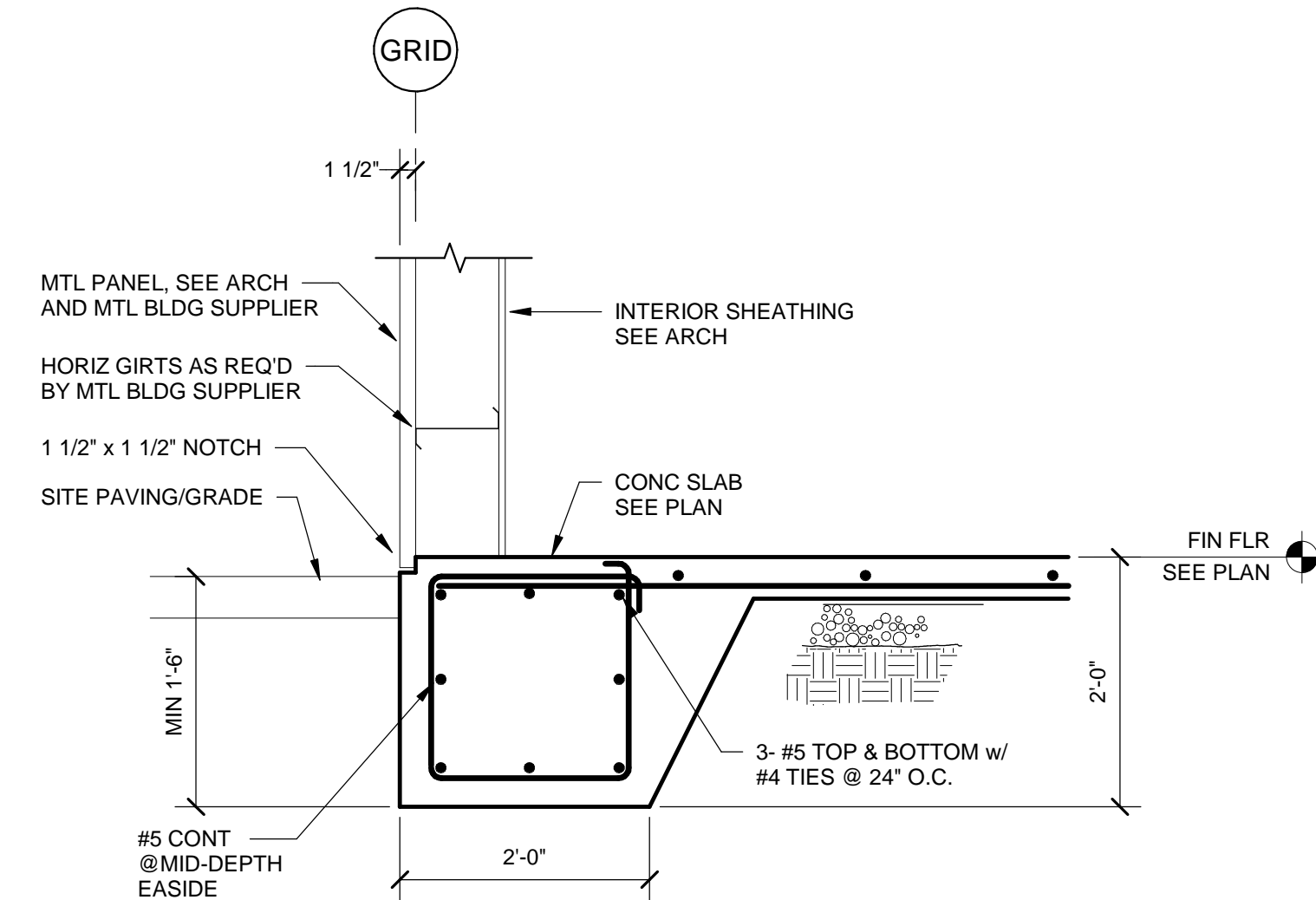
PAD FOOTING SCHEDULE NOTES:
 1. PAD FOOTINGS ARE CENTERED UNDER COLUMNS UNLESS NOTED OTHERWISE.
 2. EQUALLY SPACE REINFORCING WITHIN EACH PAD FTG SIZE.

NOTES:
 1. ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F1554-GR 55.
 2. ALL ANCHOR BOLTS SHALL BE FURNISHED WITH HEX NUTS AND CUT WASHERS OF SPECIFICATIONS COMPATIBLE WITH THOSE OF THE THREADED SHANKS UNLESS NOTED OTHERWISE.
 3. FOR CONVENTIONAL COLUMNS (W & HSS SHAPES) A NUT SHALL BE PLACED UNDER THE BASE PLATE AND USED FOR LEVELING.
 4. HEADED BOLTS MAY BE SUBSTITUTED FOR BOLTS AS SHOWN.

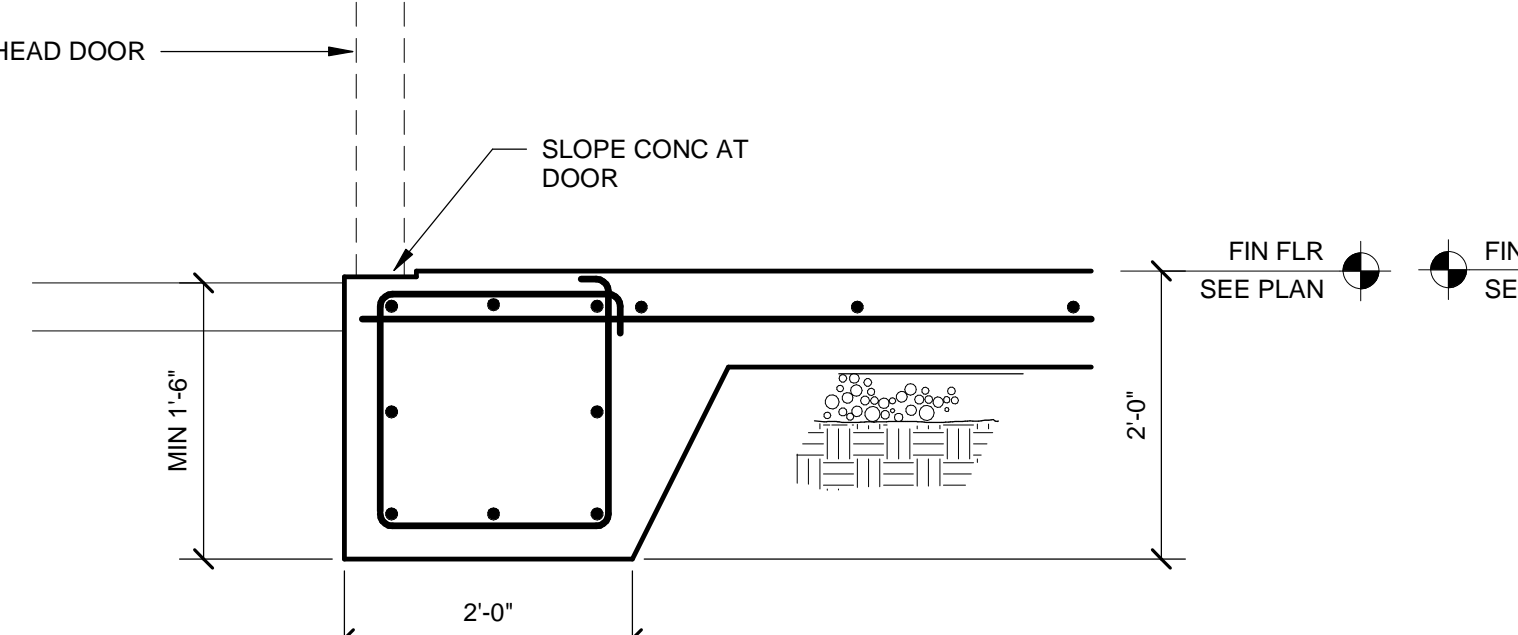
ANCHOR BOLT SCHEDULE		
DIA	EMBEDMENT	NSG
5/8"	1'-0"	1'



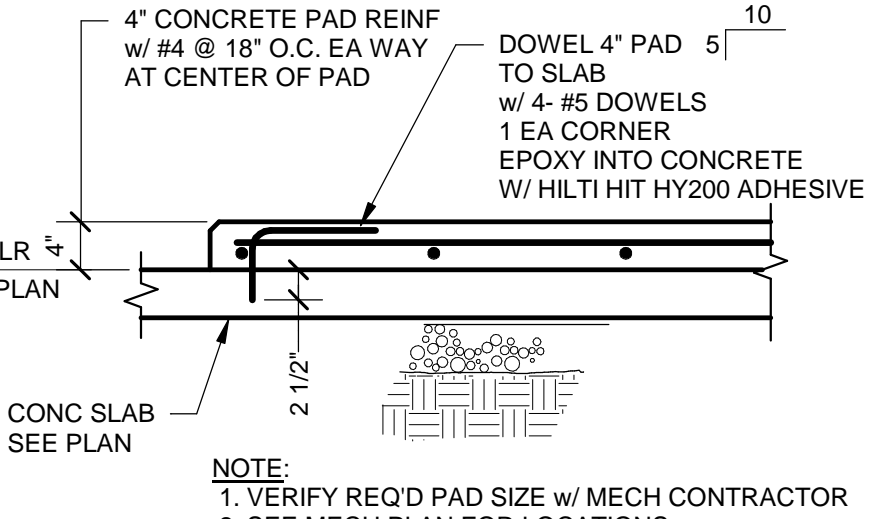
*PROJ = BASE PLATE THICKNESS + NSG + DIA + 1"
 *THRD = PROJ + 1"



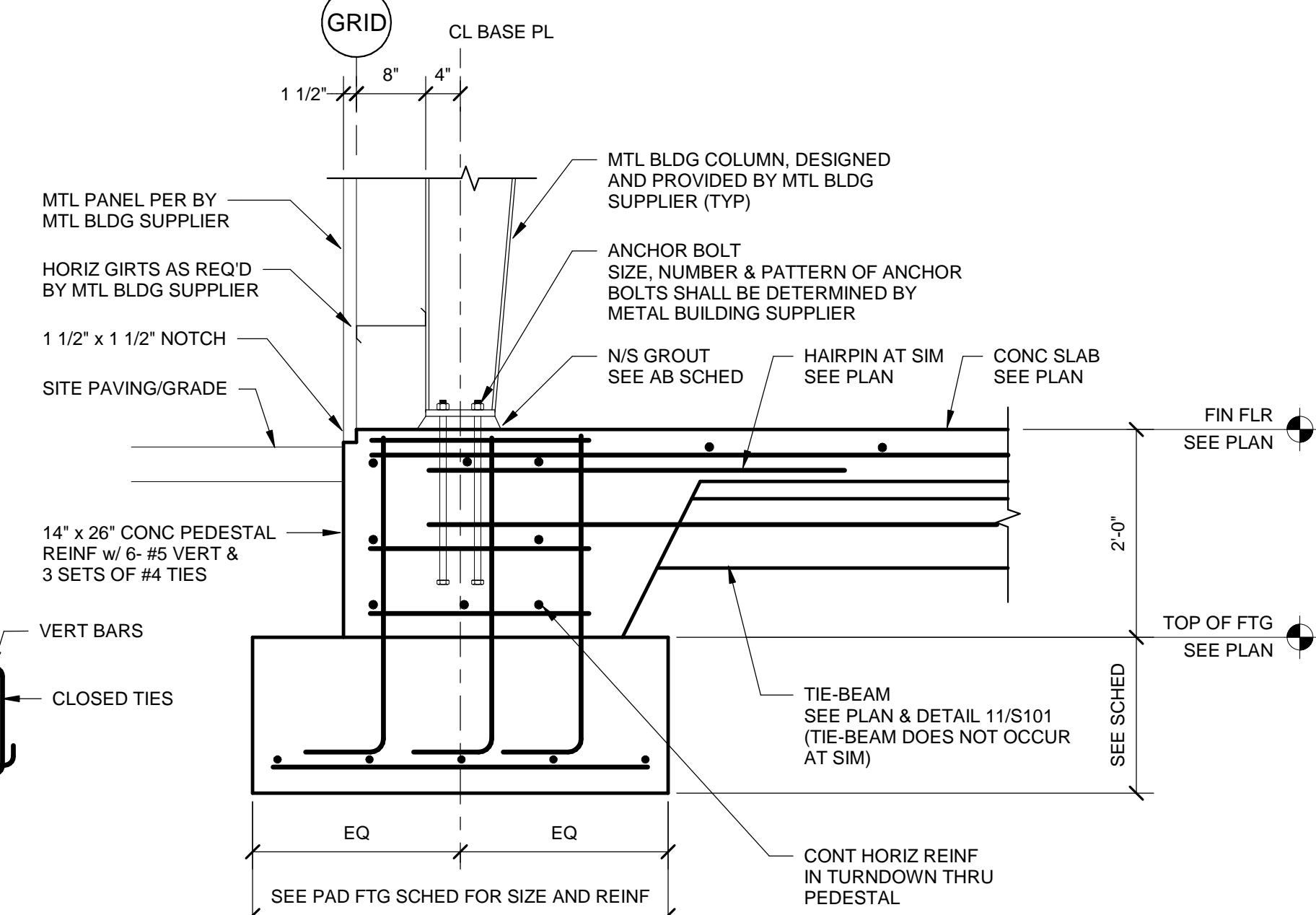
8 FOUNDATION SECTION AT WALL GIRTS
 3/4" = 1'-0"



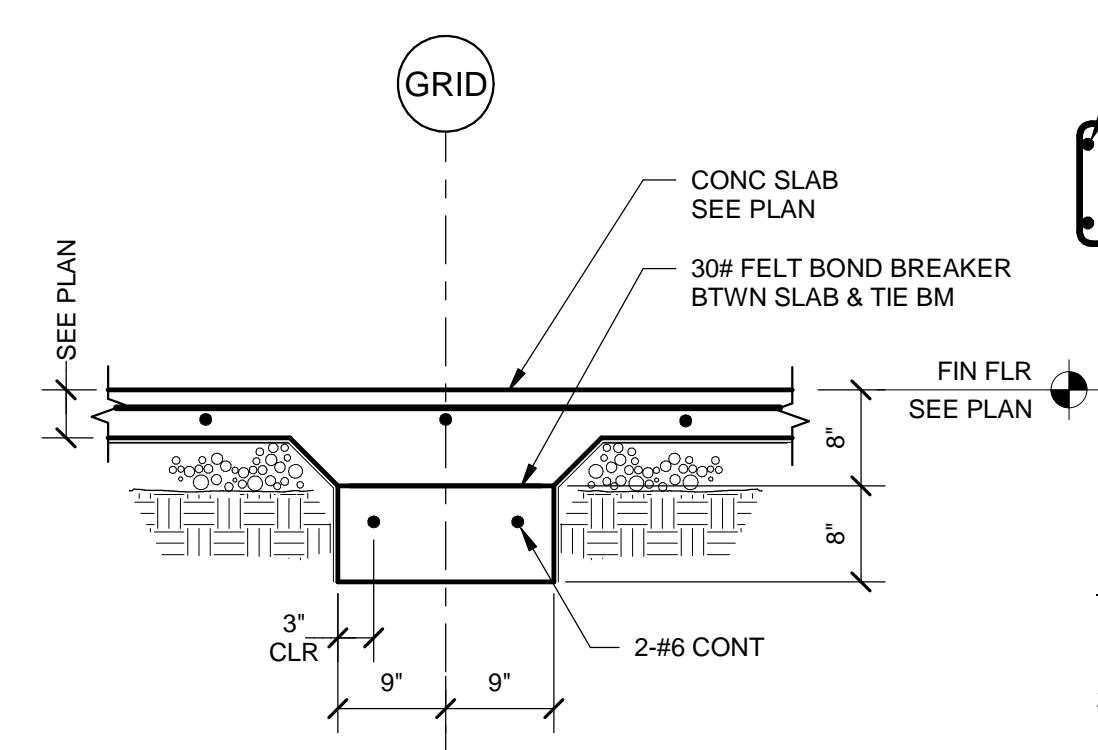
9 FOUNDATION SECTION AT OVERHEAD DOOR
 3/4" = 1'-0"



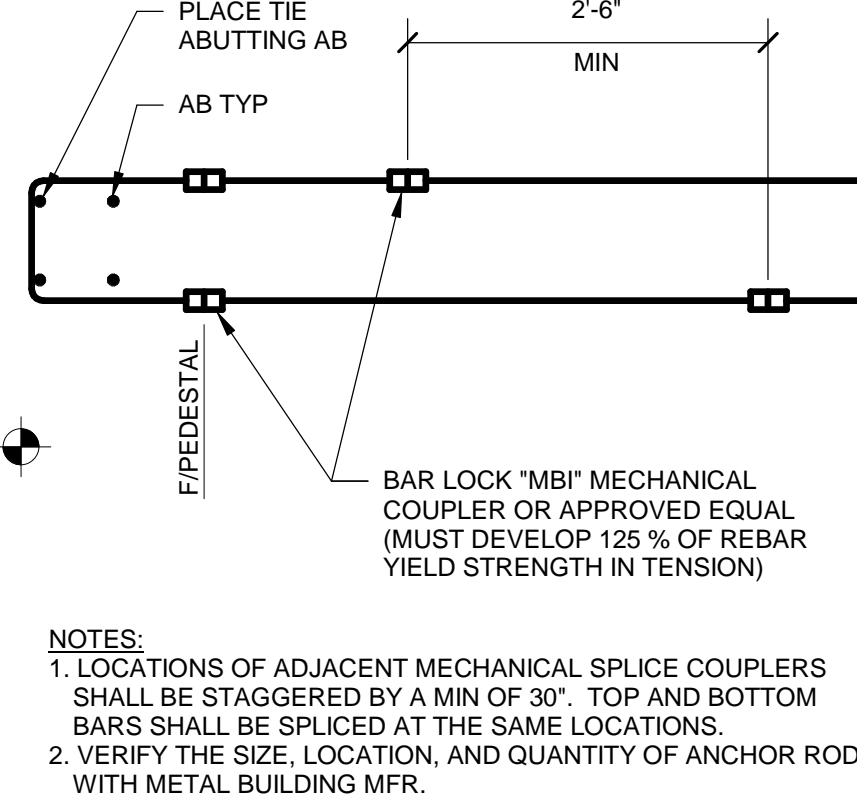
10 TYP HOUSEKEEPING PAD
 3/4" = 1'-0"



6 FOUNDATION SECTION AT MTL BLDG FRAME
 3/4" = 1'-0"



11 SECTION AT TIE-BEAM
 3/4" = 1'-0"



NOTES:
 1. LOCATIONS OF ADJACENT MECHANICAL SPICE COUPLERS SHALL BE STAGGERED BY A MIN OF 30". TOP AND BOTTOM BARS SHALL BE SPICED AT THE SAME LOCATIONS.
 2. VERIFY THE SIZE, LOCATION, AND QUANTITY OF ANCHOR RODS WITH METAL BUILDING MFR.



CORPORATE SEAL



ENGINEER SEAL

HENDERSON STATE PRE-FAB BUILDING

HENDERSON STATE UNIVERSITY

100 Simonson Road, Bismarck, AR 71929

MARK	DATE	DESCRIPTION
ISSUE DATE:	12-18-18	
PROJECT NUMBER:	01-18-0207	

SHEET TITLE:

FOUNDATION PLAN AND SECTIONS

SHEET NUMBER:

S101

ELECTRICAL LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION

[illegible]

Location: FAB SHOP
Supply From: MAIN BREAKER OUTSIDE
Mounting: SURFACE
Enclosure: NEMA 1

Volts: 120/240 Single
Phases: 1
Wires: 3

A.I.C. Rating: 10,000
Bus Rating: 400 A
MCB Rating: MLO

Notes

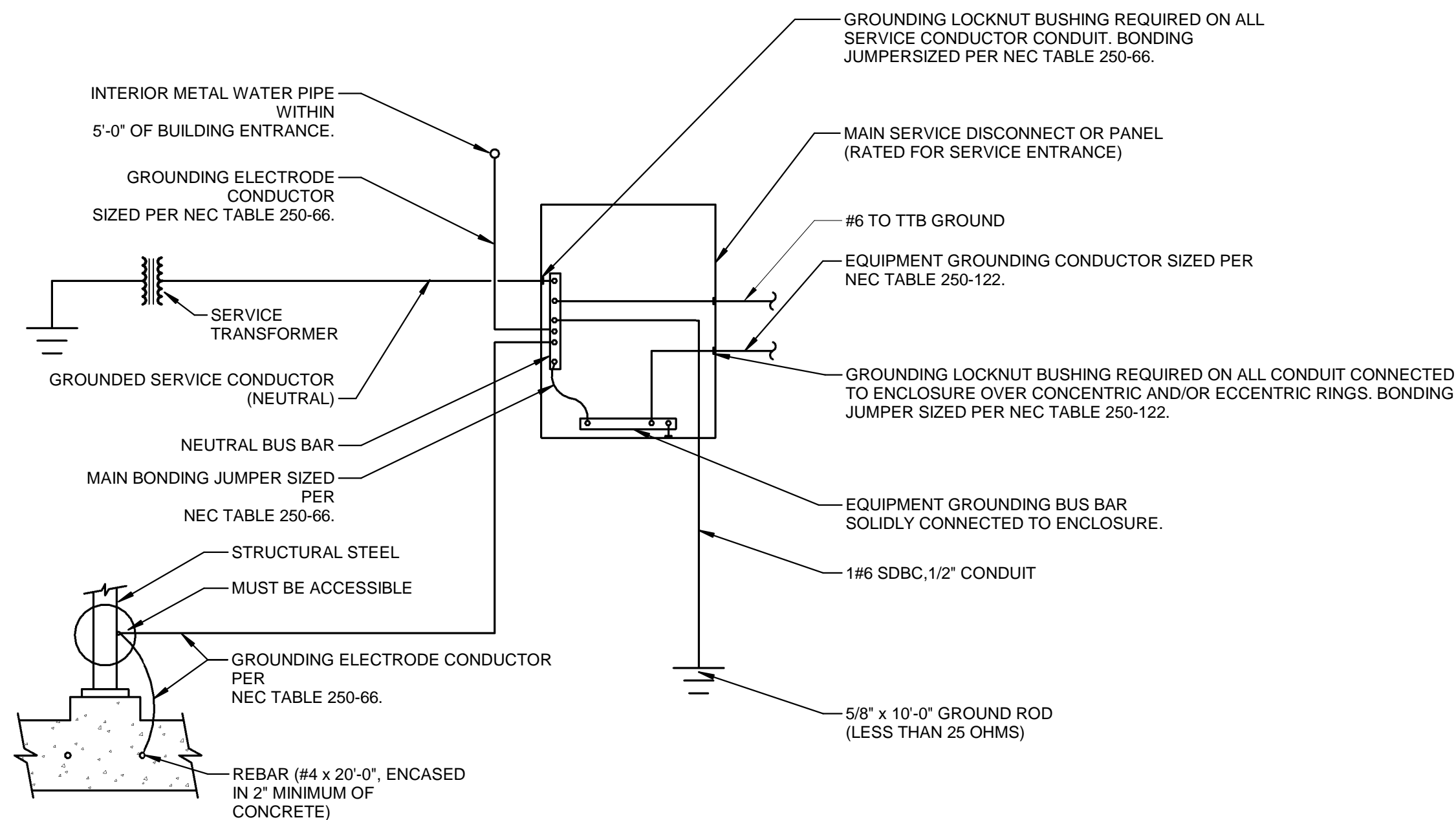
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		Total Load: 29296 VA		31024 VA	
		Total Amps: 244 A		259 A	
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	3520 VA	100.00%	3520 VA		
RECEP/TACLES	15120 VA	83.07%	12580 VA	Total Conn. Load:	60320 VA
MOTORS/EQUIPMENT	11880 VA	100.00%	11880 VA	Total Est. Demand:	206 A
Heating	1000 VA	100.00%	1000 VA	Total Conn. Current:	168 A
Seam Welder	28800 VA	71.00%	20448 VA	Total Est. Demand Current:	206 A

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	MODEL	LAMP	VOLTAGE	DESCRIPTION	
H	COLUMBIA	CHB2-40MH-FA-EDU	LED172W/2200MM/840	120	2' LED HIGH BAY, 4000K, 0-10V DIMMING, 120-277V, MOUNT AT 13'-0" ABOVE FINISH FLOOR	
H	COLUMBIA	CHB2-40MH-FA-EDU-ELL14	LED172W/2200MM/840	120	2' LED HIGH BAY, 4000K, 0-10V DIMMING, 120-277V, EMERGENCY BATTERY, MOUNT AT 13'-0" ABOVE FINISH FLOOR	
W	HUBBELL	TRP1-12L-20-4K7-3-U-SPECIFY-PCU	LED20W/2140L/740	120	12 LED, TYPE 3, 4000K, 120-277V, BUTTON PHOTOCELL, MOUNT AT 10'-0" ABOVE FINISH GRADE	
W1	HUBBELL	TRP1-12L-20-4K7-3-U-FINISH-PCU-E	LED20W/2140L/740	120	12 LED, TYPE 3, 4000K, 120-277V, BUTTON PHOTOCELL, EMERGENCY BATTERY, MOUNT AT 10'-0" ABOVE FINISH GRADE	

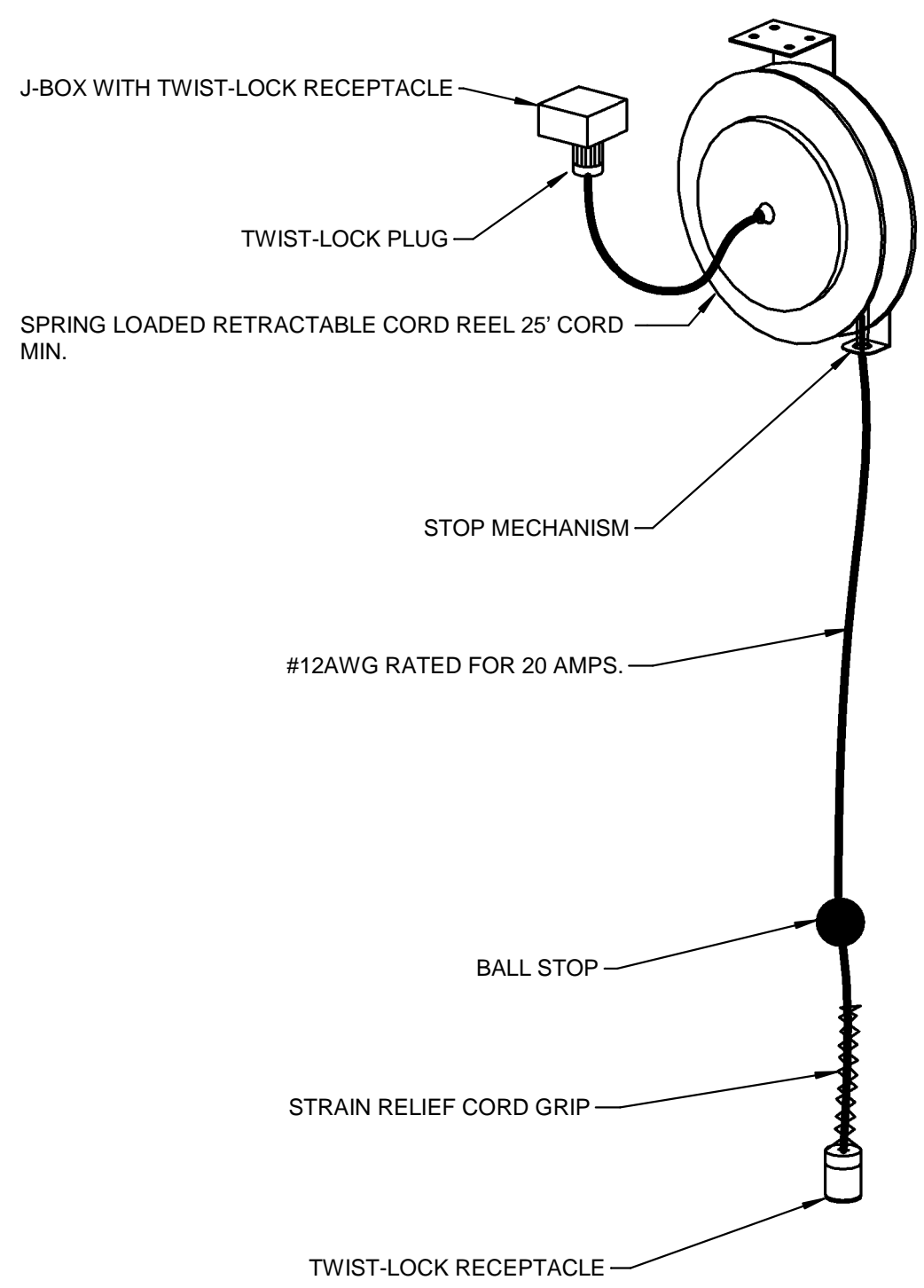
LIGHTING FIXTURE SCHEDULE NOTES

1. FIXTURES SHOWN ARE BASIS-OF-DESIGN. SUBMIT FIXTURES AS SHOWN OR EQUAL FIXTURES FOR APPROVAL. LED FIXTURES SHALL BE MINIMUM 50,000 HOURS LUMEN MAINTENANCE AT L70.
2. PROVIDE 2% REPLACEMENT DRIVERS FOR EACH FIXTURE TYPE, WITH MINIMUM ONE REPLACEMENT. VERIFY LOCATION TO STORE FOR BACKSTOCK WITH OWNER. REFER TO DIVISION 26 SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. VERIFY FINISH TYPES AND LENS TYPES WITH ARCHITECT PRIOR TO ORDERING.
4. PROVIDE AND INSTALL LAMPS IN EACH LUMINAIRE BEFORE OWNER OCCUPANCY, EXCEPT WHERE INDICATED OTHERWISE.
5. PROVIDE EARTHQUAKE CLIPS FOR LIGHTING FIXTURES, TIE WITH THE WIRE TO STRUCTURE THE FIXTURES WITHOUT INSTALLED EARTHQUAKE CLIPS.
6. AIM AND CONFIGURE ADJUSTABLE LUMNAIRES IN PRESENCE OF OWNER.
7. FIXTURE VOLTAGES SPECIFIED AS "UNV" ARE RATED FOR 120V AND 277V.



NOTE

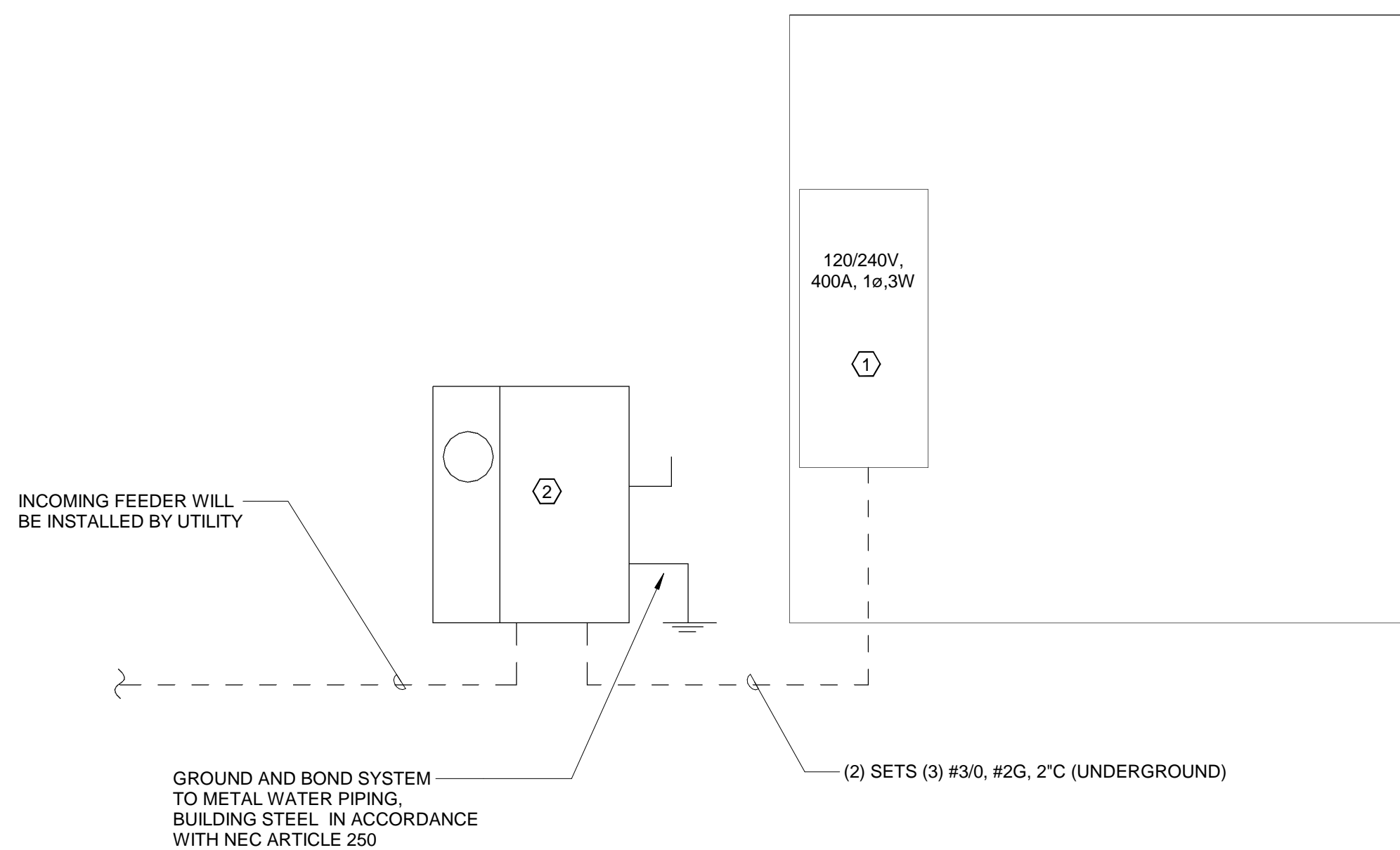
ALL SERVICE GROUNDING/BONDING SHALL COMPLY WITH ARTICLE 250 OF THE NEC 2017 EDITION.



GENERAL NOTES:

1. PROVIDE THOROUGH SUPPORT AT STRUCTURE. PROVIDE ADDITIONAL BRACING AS REQUIRED.
2. CONTRACTOR SHALL PROVIDE ALL PLUGS AND RECEPTACLES AS REQUIRED.
3. SYSTEM SHOWN IS FOR VISUALIZATION PURPOSES. ACTUAL INSTALLATIONS WILL VARY COORDINATE ACTUAL SYTEM WITH ELECTRICAL PLANS.

1 ELECTRIC
NOT TO SCALE



2 CORD F
NOT TO SCALE

1. REFER TO UTILITY SPECIFICATIONS FOR INSTALLING PULL BOXES AND CONDUITS.

① PROVIDE WITH 2 SETS OF LUGS.

- ① PROVIDE WITH 2 SETS OF LUGS.
- ② PROVIDE AND INSTALL 400A METER SOCKET WITH 400A2P ENCLOSED BREAKER IN A NEMA3R ENCLOSURE. PROVIDE AND INSTALL 3" SWEEPING L PLUMBED INTO SOCKET. COORDINATE EXACT LOCATION WITH UTILITY PRIOR TO ROUGH-IN.

③ ONE-LIN
NOT TO SCALE



CORPORATE SEAL



12/18/18
ENGINEER SEAL

HENDERSON STATE PRE-FAB BUILDING

HENDERSON STATE UNIVERSITY

100 Simonson Road, Bismarck, AR 71929

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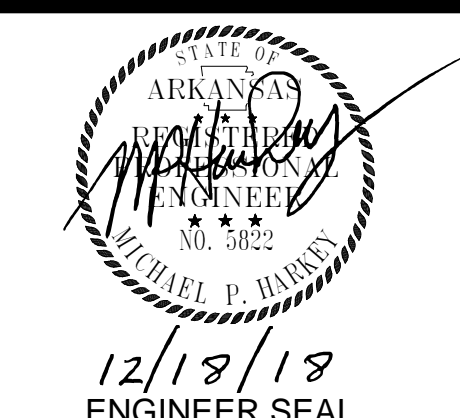
MARK	DATE	DESCRIPTION
ISSUE DATE:		12-18-18
PROJECT NUMBER:		01-18-0207

SHEET TITLE:

SCHEDULES, LEGENDS
AND GENERAL NOTES -
ELECTRICAL

SHEET NUMBER:

E001



HENDERSON STATE PRE-FAB BUILDING

HENDERSON STATE UNIVERSITY

100 Simonson Road, Bismarck, AR 71929

[illegible]

MARK	DATE	DESCRIPTION
ISSUE DATE:		12-18-18
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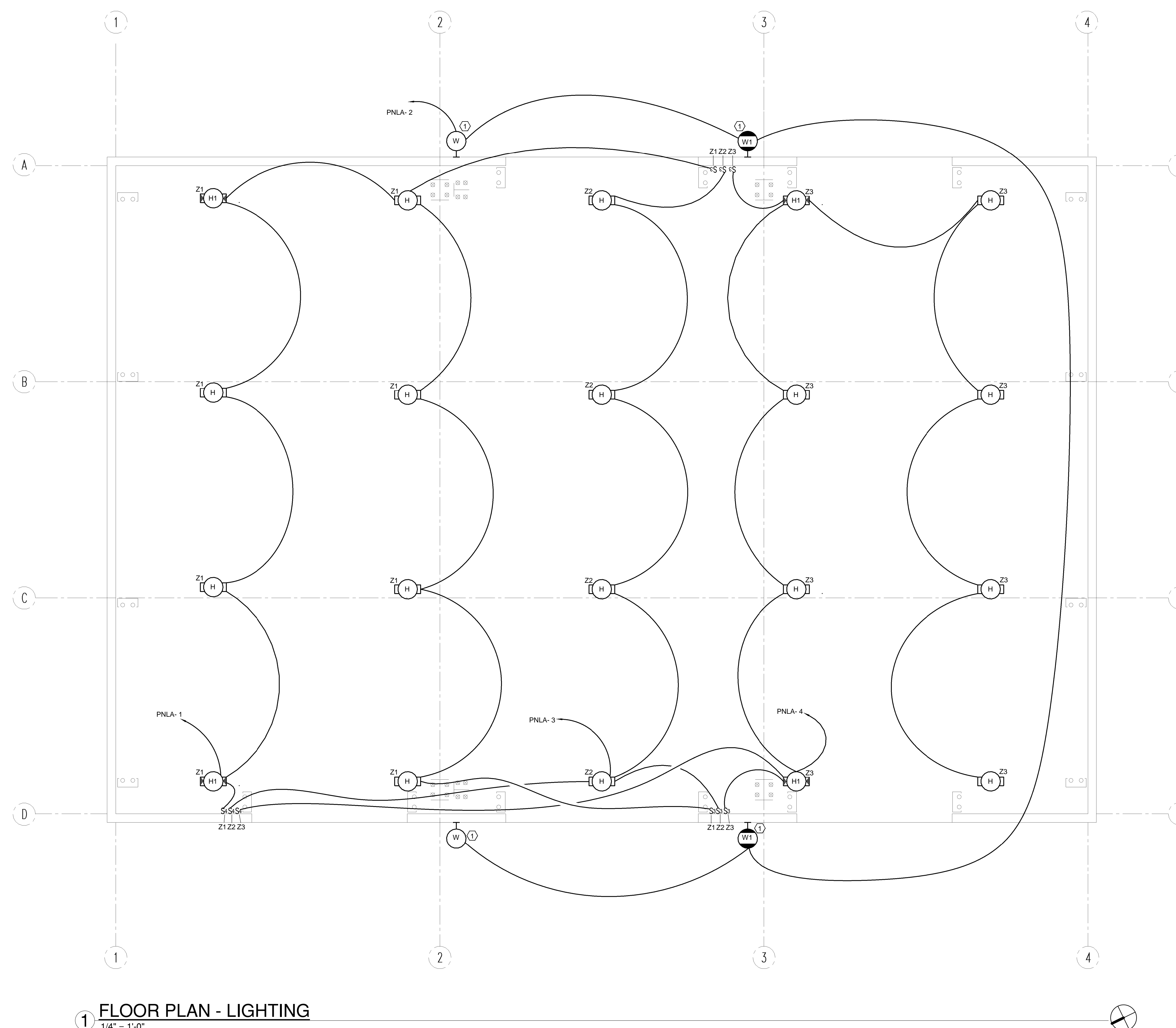
FLOOR PLAN - LIGHTING

SHEET NUMBER:

E101

1. ALL EMERGENCY FIXTURES ARE TO HAVE A NON SWITCHED HOT TO EMERGENCY BATTERY PACK.

① COORDINATE EXACT PLACEMENT WITH OWNER.



1 FLOOR PLAN - LIGHTING
1/4" = 1'-0"



HENDERSON STATE PRE-FAB BUILDING

HENDERSON STATE UNIVERSITY

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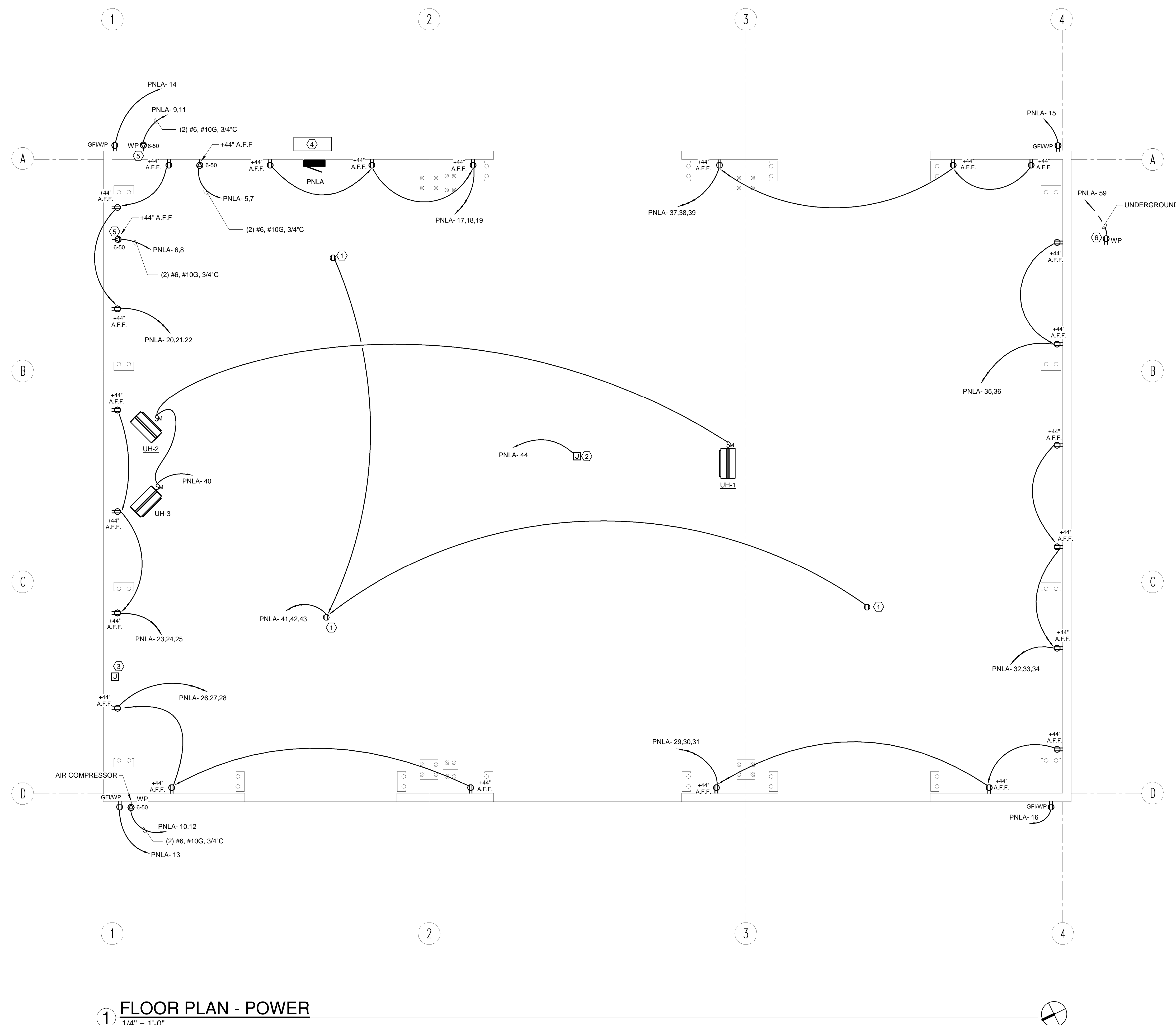
MARK	DATE	DESCRIPTION
ISSUE DATE:		12-18-18
PROJECT NUMBER:		01-18-0207

SHEET TITLE:

FLOOR PLAN - POWER

SHEET NUMBER:

E201



KEYED NOTES

- ① PROVIDE AND INSTALL L5-20R DROP CORD WITH STRAIN RELIEF. COORDINATE EXACT PLACEMENT WITH OWNER PRIOR TO ROUGH-IN.
- ② CONNECT POWER TO OWNER PROVIDED CEILING FAN. COORDINATE EXACT PLACEMENT WITH OWNER PRIOR TO ROUGH-IN.
- ③ CONNECT CEILING FAN CONTROLLER TO CEILING FAN VIA CAT5 CABLE. FAN CONTROLLER AND GIFT CAT 5 CABLE IS PROVIDED WITH THE FAN. PROVIDE AND INSTALL LONGER CAT 5 CABLE AS REQUIRED. COORDINATE EXACT PLACEMENT OF THE CONTROLLER WITH OWNER PRIOR TO ROUGH-IN.
- ④ PROVIDE AND INSTALL 400A METER SOCKET WITH 400A2P ENCLOSED MAIN BREAKER IN A NEARBY ENCLOSURE. PROVIDE AND INSTALL 3" SWIRLING PLUMBED INTERCEPTOR. COORDINATE EXACT LOCATION WITH UTILITY PRIOR TO ROUGH-IN.
- ⑤ VERIFY CORD AND PLUG TYPE FOR WELDER WITH OWNER.
- ⑥ PROVIDE AND INSTALL RECEPTACLE INSIDE PLUMBING CONTRACTOR PROVIDED HOT BOX. COORDINATE EXACT PLACEMENT WITH PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.

BASIC ELECTRICAL REQUIREMENTS

1.01 GENERAL
1.01 SECTION INCLUDES: BASIC ELECTRICAL REQUIREMENTS SPECIFICALLY APPLICABLE TO ELECTRICAL SECTIONS, IN ADDITION TO DIVISION 1 GENERAL REQUIREMENTS.
1.02 DRAWINGS: THE ELECTRICAL DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL PIPING, EQUIPMENT AND APPURTENANCES AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE IN CONSTRUCTION AND THE WORK OF OTHER TRADES WILL PERMIT. THE WORK SHALL CONFORM TO THE REQUIREMENTS SHOWN ON ALL OF THE DRAWINGS. GENERAL AND STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ELECTRICAL DRAWINGS. PROVIDE THE ELECTRICAL WORK IN ACCORDANCE WITH THE DRAWINGS. IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES, WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING THE WORK AND SHALL ARRANGE HIS WORK ACCORDINGLY, PROVIDING SUCH FITTINGS, OFFSETS, AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.
1.03 REFERENCES:
A. THE LATEST EDITION OF SPECIFICATIONS AND STANDARDS OF ISSUES LISTED BELOW BUT REFERRED TO THEREAFTER BY BASIC DESIGNATION ONLY, FORM A PART OF THESE SPECIFICATIONS.
1. NATIONAL ELECTRICAL CODE
2. NATIONAL FIRE PROTECTION ASSOCIATION'S RECOMMENDED PRACTICES
3. LOCAL, CITY & STATE CODES & ORDINANCES
4. NATIONAL ELECTRICAL SAFETY CODE
5. UNDERWRITERS LABORATORIES, INC.
6. ILLUMINATION ENGINEERING SOCIETY
7. INSTITUTE OF ELECTRICAL & ELECTRONIC ENGINEERS
8. INSULATED POWER CABLE ENGINEERS ASSOCIATION
9. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
10. EARTHQUAKE REQUIREMENT OF THE INTERNATIONAL BUILDING CODE
11. AMERICAN SOCIETY FOR TESTING MATERIALS
12. OCCUPATIONAL SAFETY & HEALTH ACT
13. SERVICE REQUIREMENTS OF SERVING UTILITY COMPANY
14. AMERICANS WITH DISABILITIES ACT (ADA)
15. ASHRAE/IESNA STANDARD 90.1-2010
16. INTERNATIONAL BUILDING CODES
17. ARKANSAS DEPARTMENT OF HEALTH
18. INTERNATIONAL ELECTRICAL AND INDUSTRY STANDARDS

A. ALL WORK WITHIN SHOREY BUILDING WILL HAVE TO BE PERFORMED AFTER HOURS AND ON WEEKENDS AS THESE SPACES WILL REMAIN OCCUPIED DURING CONSTRUCTION. AT THE COMPLETION OF WORK EACH SPACE SHALL BE RESTORED TO ACCEPTABLE WORKING CONDITIONS.
B. THE PROGRESS OF THE JOB WILL REQUIRE INTERRUPTION OF CERTAIN SERVICES IN ORDER TO MAKE CONNECTIONS AND CHANGE OVER TO NEW SYSTEMS, INCLUDING ROUTING PIPING, DUCTWORK, ETC. THROUGH OCCUPIED AREAS. IN GENERAL, THIS TYPE OF WORK SHALL BE DONE LATE IN THE NIGHT (AFTER 10:00 P.M.), WEEKENDS (DAY OR NIGHT) OR EARLY IN THE MORNING BEFORE 6:00 A.M. OR AS DESCRIBED IN THE PHASING PLAN OR SCHEDULE. THE CONTRACTOR SHALL VISIT THE JOB SITE TO DETERMINE EXTENT OF INTERRUPTIONS REQUIRED BY HEREIN SPECIFIED WORK. REQUESTS FOR WORK TO BE INTERRUPTED SHALL BE MADE ONE WEEK PRIOR TO PLANNED SHUTDOWN, AND MUST BE COORDINATED WITH THE ENGINEER, THE PHYSICAL PLANT DIRECTOR AND OWNERS' REPRESENTATIVE. NO INTERRUPTION WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE OWNER. THE COST OF INTERRUPTIONS SHALL BE A PART OF THE CONTRACT AMOUNT. NO ADDITIONAL COST TO THE OWNER WILL BE ALLOWED FOR INTERRUPTIONS, NO MATTER HOW MANY ARE REQUIRED.
1.06 REGULATORY REQUIREMENTS
A. WORK SHALL CONFORM TO ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES, AND INDUSTRY STANDARDS.
B. NOTWITHSTANDING ANY REFERENCE IN THE SPECIFICATIONS TO ANY ARTICLE, DEVICE, PRODUCT, MATERIAL, FIXTURE, FORM OR TYPE OF CONSTRUCTION BY NAME, MAKE OR CATALOG NUMBER, SUCH REFERENCE SHALL BE INTERPRETED AS REFERENCE TO THE TYPE OF EQUIPMENT, MATERIAL, OR PRODUCT, WITHOUT REGARD TO THE MANUFACTURER, ESTABLISHING A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. THE CONTRACTOR, IN SUCH CASES, MAY AT HIS OPTION PROPOSE ANY ARTICLE, APPROVED EQUIPMENT OR MATERIAL, WHICH IS NOT IDENTICAL TO THAT SPECIFIED, AS APPROVED IN WRITING BY THE ENGINEER.
C. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES, AND INDUSTRY STANDARDS.
D. IN CASE OF DIFFERENCE BETWEEN BUILDING CODES, SPECIFICATIONS, STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS, THE MOST STRINGENT SHALL GOVERN. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DIFFERENCE.
E. NON COMPLIANCE: SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE BUILDING CODES, STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS AND UTILITY COMPANY REGULATIONS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING THE DEFICIENCIES.
F. PERMITS: ALL PERMITS AND INSURANCE SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR UNDER THE SECTION OF THE SPECIFICATIONS FOR WHICH THEY ARE REQUIRED.
1.07 PROJECT/SITE CONDITIONS
A. INSTALL WORK IN LOCATIONS SHOWN ON DRAWINGS, UNLESS PREVENTED BY PROJECT CONDITIONS. THE ENGINEER/OWNER RESERVES THE RIGHT TO RELOCATE ANY DEVICE A MAXIMUM DISTANCE OF 6'-0" AT THE TIME OF INSTALLATION WITHOUT AN EXTRA COST BEING INCURRED.
B. PREPARE DRAWINGS SHOWING PROPOSED REARRANGEMENT OF WORK TO MEET PROJECT CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS AND INSURANCE FROM ENGINEER BEFORE PROCEEDING.
1.08 CONTRACTOR REVISED DRAWINGS
A. THE CONTRACTOR SHALL PROGRESS OF THE WORK, KEEP AN ACCURATE RECORD OF ALL CHANGES AND CORRECTIONS FROM THE LAYOUTS SHOWN ON THE DRAWINGS. RECORD OF CHANGES SHALL BE KEPT BY ACCURATELY MAKING ALL CHANGES ON A SET OF PRINTS DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL SUBMIT REVISED DRAWINGS TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL FURNISH TO THE ENGINEER, 1 SET OF "CONTRACTOR REVISED" REPRODUCIBLES, LEGIBLY AND ACCURATELY MARKED TO INDICATE ALL CHANGES AND ADDITIONS.
B. THIS CONTRACTOR SHALL VISIT THE SITE OF THE BUILDING BEFORE SUBMITTING A PROPOSAL ON THIS WORK, AND SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND OPERATIONS. FAILURE ON HIS PART TO DO THIS WILL NOT BE CAUSE OF EXTRAS AFTER THE CONTRACT IS SIGNED, BY REASON OF UNFORESEEN CONDITIONS.

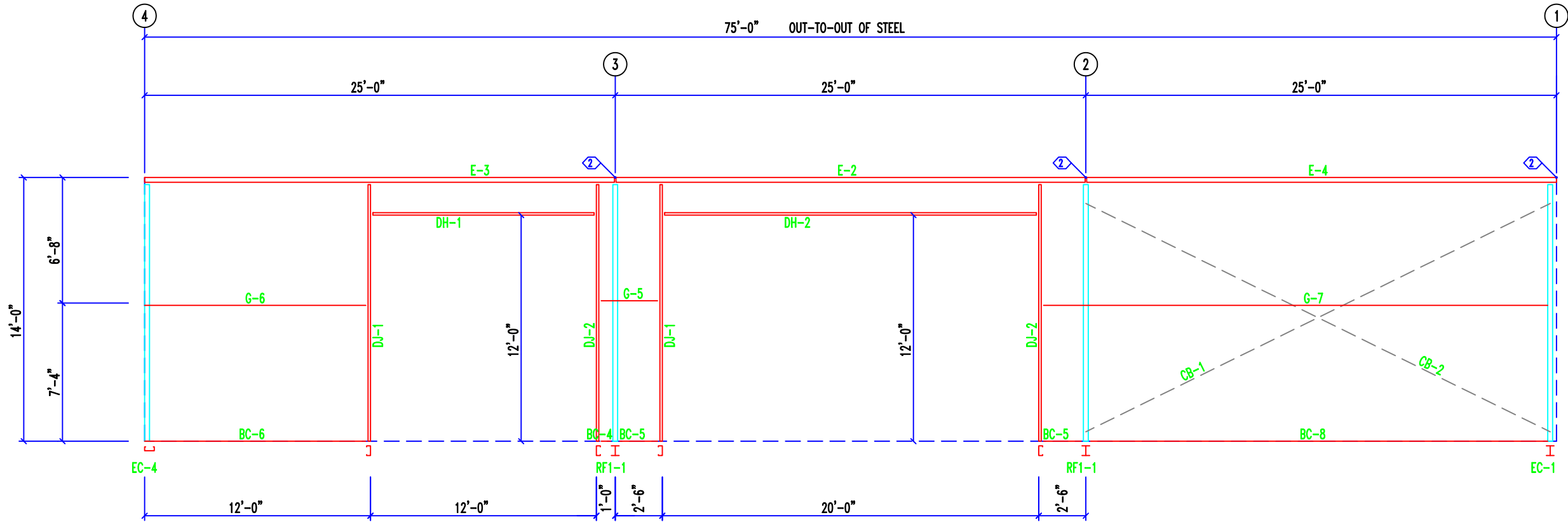
1.15 ELECTRICAL LICENSE REQUIREMENT
A. NO PERSON SHALL PERFORM ELECTRICAL WORK ON THE CONTRACT WITHOUT POSSESSING AN ARKANSAS STATE MASTER LICENSE FROM THE ARKANSAS STATE ELECTRICAL EXAMINERS BOARD. ALL ELECTRICAL WORK AND APPRENTICE ELECTRICIANS SHALL BE SUPERVISED BY A MASTER ELECTRICIAN ON A ONE TO ONE RATIO.
B. ALL ELECTRICIANS SHALL HAVE A COPY OF THEIR LICENSE WITH THEM AND SHALL BE REQUIRED TO SHOW IT UPON REQUEST.
1.16 ELECTRONIC DRAWING FILES FROM AUTOCAD PROJECT TO AUTOCAD DRAWINGS
A. ELECTRONIC DRAWING FILES WILL BE AVAILABLE TO THE CONTRACTOR, SUB-CONTRACTORS, AND/OR VENDORS TO PREPARE SHOP DRAWINGS, ETC., FOR A COST OF \$50.00 PER SHEET. AN AUTOCAD RELEASE FORM WILL BE SUBMITTED FOR SIGNATURE AND PRE-PAYMENT OF ALL COSTS WILL BE REQUIRED BEFORE ANY DRAWING FILES ARE RELEASED. CHECKS ARE TO BE MADE PAYABLE TO THE, INC. PLEASE CONTACT THE PROJECT MANAGER FOR ALL REQUESTS. THE AUTOCAD RELEASE FORM IS ENCLOSED IN THESE SPECIFICATIONS.
PART 2 PRODUCTS
2.01 EQUIPMENT AND MATERIALS
A. ALL MATERIALS SHALL BE NEW AND SHALL BEAR THE MANUFACTURER'S NAME, TRADE NAME AND THE UL LABEL IN EVERY CASE WHERE A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR MATERIAL. THE EQUIPMENT TO BE FURNISHED UNDER EACH SECTION OF THE SPECIFICATION SHALL BE ESSENTIALLY THE STANDARD PRODUCT OF A MANUFACTURER REGULARLY ENGAGED IN THE PRODUCTION OF THE REQUIRED TYPE OF EQUIPMENT, AND SHALL BE THE MANUFACTURER'S LATEST APPROVED DESIGN.
B. WHEN 2 OR MORE UNITS OF MATERIALS OR EQUIPMENT OF THE SAME TYPE OR CLASS ARE REQUIRED, THESE UNITS SHALL BE PRODUCTS OF 1 MANUFACTURER. EQUIPMENT AND MATERIALS OF THE SAME GENERAL TYPE SHALL BE OF THE SAME MAKE THROUGHOUT THE WORK TO PROVIDE UNIFORM APPEARANCE, OPERATION AND MAINTENANCE. MANUFACTURERS OF EQUIPMENT ASSEMBLIES, WHICH USE COMPONENTS MADE BY OTHERS, ASSUME COMPLETE RESPONSIBILITY FOR THE FINAL ASSEMBLED PRODUCT.
C. NAMEPLATE AFFIXED MANUFACTURER'S NAME OR IDENTIFIABLE TRADEMARK SHALL BE SECURELY APPLIED IN A CONSPICUOUS PLACE ON EQUIPMENT, OR NAME OR TRADEMARK CAST INTEGRALLY WITH EQUIPMENT, STAMPED OR OTHERWISE PERMANENTLY MARKED ON EACH ITEM OF EQUIPMENT.
D. ASBESTOS PRODUCTS OR EQUIPMENT OR MATERIALS CONTAINING ASBESTOS SHALL NOT BE USED.
E. EQUIPMENT AND MATERIALS SHALL BE DELIVERED TO THE SITE AND STORED IN THE ORIGINAL CONTAINERS, SUITABLY SHELTERED FROM THE ELEMENTS. ITEMS SUBJECT TO MOISTURE DAMAGE, SUCH AS CONTROL BOXES, SHALL BE STORED IN DRY, HEATED SPACES.
F. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT, WATER, AND CHEMICAL OR MECHANICAL INJURY AND THEFT. AT THE COMPLETION OF THE WORK, EXISTING EQUIPMENT AND MATERIALS SHALL BE CLEANED AND POLISHED THOROUGHLY. DAMAGE OR DEFECTS DEVELOPING BEFORE ACCEPTANCE OF THE WORK SHALL BE MADE GOOD AT THE CONTRACTOR'S EXPENSE.
G. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ITEMS TO BE FURNISHED FIT THE SPACE AVAILABLE. THE CONTRACTOR SHALL MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS, AND SHALL FURNISH AND INSTALL SUCH ITEMS AND SHAPES OF EQUIPMENT THAT THE FINAL INSTALLATION SHALL SUIT THE TRUE INTENT AND MEANING OF THE DRAWINGS AND SPECIFICATIONS.
H. MANUFACTURER'S DIRECTIONS SHALL BE FOLLOWED COMPLETELY IN THE DELIVERY, STORAGE, PROTECTION, AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE MANUFACTURER'S DIRECTIONS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING THE DEFICIENCIES.

EQUIPMENT ACCESSORIES

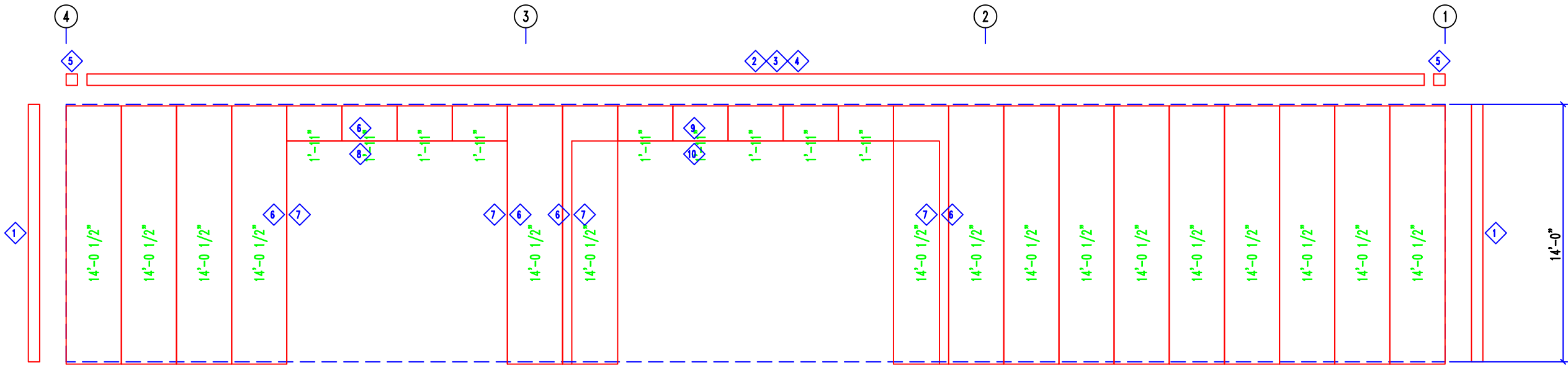
A. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT, ACCESSORIES, CONNECTIONS, AND INCIDENTAL ITEMS NECESSARY TO FULLY COMPLETE THE WORK, READY FOR USE, OCCUPANCY AND OPERATION BY THE OWNER, WHETHER OR NOT SPECIFICALLY SHOWN ON THE PLANS OR HEREIN SPECIFIED.
B. CONNECTIONS: ALL FINAL CONNECTIONS TO EQUIPMENT SHALL BE INSTALLED AS REQUIRED BY THE MANUFACTURER, AND/OR VENDOR.
C. CONNECTIONS DIFFERENT FROM THOSE SHOWN, WHERE EQUIPMENT REQUIRING DIFFERENT ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN THE NECESSARY PERMITS AND APPROVALS FROM THE ENGINEER. THE CONTRACTOR TO INSTALL THE EQUIPMENT TO OPERATE PROPERLY WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. WHEN DIRECTED, THE CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING THE PROPOSED INSTALLATION. IF THE PROPOSED INSTALLATION IS APPROVED, THE CONTRACTOR SHALL MAKE ALL INCIDENTAL CHANGES. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL EQUIPMENT AND MATERIALS REQUIRED FOR THE PROPER OPERATION OF THE SYSTEM RESULTING FROM THE SELECTION OF EQUIPMENT, INCLUDING ALL REQUIRED CHANGES IN AFFECTED TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER INSTALLATION OF THE OTHER TRADES.
PART 3 EXECUTION
3.01 COORDINATION OF WORK
A. THE CONTRACTOR SHALL COMPARE THE ELECTRICAL DRAWINGS AND SPECIFICATIONS WITH THE DRAWINGS AND SPECIFICATIONS FOR OTHER TRADES AND SHALL REPORT ANY DISCREPANCIES BETWEEN THEM TO THE ENGINEER AND OBTAIN WRITTEN INSTRUCTIONS FOR CHANGES NECESSARY IN THE ELECTRICAL WORK. THE ELECTRICAL WORK SHALL BE INSTALLED IN COOPERATION WITH OTHER TRADES INSTALLED RELATED WORK. BEFORE THE ELECTRICAL WORK IS INSTALLED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR INTERFERENCES. ALL CHANGES REQUIRED IN THE WORK OF THE CONTRACTOR CAUSED BY A FAILURE TO COORDINATE THE WORK WITH OTHER TRADES SHALL BE MADE BY THE CONTRACTOR AT HIS OWN EXPENSE.
B. ANCHOR BOLTS, SLEEVES, INSERTS AND SUPPORTS THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK SHALL BE FURNISHED UNDER THE SECTION OF THE SPECIFICATIONS FOR WHICH THEY ARE REQUIRED. THEY SHALL BE SUPPORTED, AND THEY SHALL BE INSTALLED, EXCEPT AS OTHERWISE SPECIFIED, BY THE TRADE FURNISHING AND INSTALLING THE MATERIAL IN WHICH THEY ARE TO BE LOCATED. LOCATION OF ANCHOR BOLTS, SLEEVES, INSERTS AND SUPPORTS SHALL BE DIRECTED BY THE TRADE REQUIRING THEM, WHICH TRADE SHALL ALSO INSURE THAT THEY ARE PROPERLY INSTALLED. ANY EXPENSE RESULTING FROM THE IMPROPER LOCATION OR INSTALLATION OF ANCHOR BOLTS, SLEEVES, INSERTS AND SUPPORTS SHALL BE PAID FOR BY THE CONTRACTOR UNDER THE SECTION OF THE SPECIFICATIONS FOR THE TRADE WITH THE RESPONSIBILITY FOR DIRECTING THEIR PROPER LOCATION.
C. SLOTS, CHASES, OPENINGS AND RECESSES THROUGH FLOORS, WALLS, CEILINGS AND ROOFS AS SPECIFIED WILL BE PROVIDED BY THE OTHER TRADES IN THEIR RESPECTIVE MATERIALS, BUT THE TRADE REQUIRING THEM SHALL SEE THAT THEY ARE PROPERLY LOCATED, AND SHALL DO ANY CUTTING AND PATCHING CAUSED BY THE NEGLECT TO DO SO. SLOTS, CHASES, OPENINGS AND RECESSES IN EXISTING STRUCTURE SHALL BE CUT BY THE TRADE REQUIRING THEM AND PATCHED AND REPAIRED BY THAT TRADE.
D. LOCATIONS OF CONDUITS AND ELECTRICAL EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE THE WORK AND TO AVOID INTERFERENCES ANTICIPATED AND ENCOUNTERED. THE CONTRACTOR SHALL DETERMINE THE EXACT ROUTE AND LOCATION OF EACH CONDUIT AND EQUIPMENT PRIOR TO INSTALLATION.
E. RIGHT-OF-WAY: GENERAL AND STRUCTURAL COMPONENTS HAVE RIGHT-OF-WAY. EQUIPMENT AND PIPING WHICH CANNOT BE CHANGED SHALL HAVE THE RIGHT OF WAY OVER EQUIPMENT AND PIPING WHOSE ELEVATIONS CAN BE CHANGED. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL ELECTRICAL GEAR AND PIPING WITH ALL TRADES PRIOR TO INSTALLATION.
F. OFFSETS, TRANSITIONS AND CHANGES IN DIRECTION IN PIPES AND DUCTS SHALL BE MADE AS REQUIRED TO MAINTAIN PROPER CLEARANCE. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRAPS, AIR VENTS, SANITARY VENTS, ETC., AS REQUIRED TO EFFECT THESE OFFSETS, TRANSITIONS AND CHANGES IN DIRECTION.
G. INSTALLATION AND ARRANGEMENT: THE CONTRACTOR SHALL INSTALL ALL ELECTRICAL EQUIPMENT TO PERMIT REMOVAL (WITHOUT THE USE OF OTHER PARTS), PROVIDE ADEQUATE ACCESS TO ALL OTHER PARTS, REQUIRING PERIODIC REPLACEMENT OR MAINTENANCE. THE CONTRACTOR SHALL ARRANGE EQUIPMENT TO PERMIT REMOVAL OF EQUIPMENT AND TO CLEAR THE OPENINGS OF SWINGING AND OVERHEAD DOORS AND OF ACCESS PANELS. ALL EQUIPMENT SHALL BE INSTALLED IN COMPLIANCE WITH APPLICABLE CLEARANCE REQUIREMENTS.
H. ACCESS: THE CONTRACTOR SHALL PROVIDE ALL NECESSARY ACCESS PANELS IN WALLS, CEILINGS, EQUIPMENT, ETC., AS REQUIRED FOR INSPECTION OF INTERIORS AND FOR PROPER MAINTENANCE AND REPAIR. INSTALLATION OF EQUIPMENT. WHERE CHANGES FROM THE PLANS ARE MADE BY THE CONTRACTOR IN THE INSTALLATION OF HIS WORK, HE SHALL PROVIDE ANY AND ALL ACCESS PANELS REQUIRED AS A RESULT OF THESE CHANGES.
I. ANY WORK TO BE CONDUCTED ON ELECTRICAL EQUIPMENT SHALL BE CLASSIFIED IN ACCORDANCE WITH THE STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE (LEVEL 1 THROUGH 5). ANY ELECTRICAL PANELBOARDS OR SWITCHBOARDS INSTALLED SHALL BE CLEARLY AND LEGIBLY MARKED WITH THE ELECTRICAL SHOCK HAZARD (AVAILABLE ARCS) LABELS IN ACCORDANCE WITH NEC ARTICLE 110.6 CONTRACTOR SHALL PROVIDE ALL NECESSARY RESOURCES TO ASSURE COMPLIANCE.
J. CONTINUITY TEST: THE CONTRACTOR SHALL PERFORM A CONTINUITY TEST ON THE ENTIRE ELECTRICAL SYSTEM PRIOR TO ENERGIZING THE SYSTEM TO INSURE PROPER CABLE CONNECTIONS.
K. REMOVAL OF RUBBISH: CONTRACTOR SHALL REMOVE HIS RUBBISH FROM BUILDING SITE AT INTERVALS AND SHALL MAINTAIN THE SPACES ALLOTTED HIM IN AN ORDERLY MANNER. ON COMPLETING HIS WORK, AND PRIOR TO SUBMISSION OF FINAL ESTIMATE, HE SHALL REMOVE ALL TOOLS, APPURTENANCES, MATERIAL AND RUBBISH FROM THE GROUNDS.
3.08 CUTTING AND PATCHING
A. UNDER EACH SECTION OF THE SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED DIGGING, CUTTING, ETC., INCIDENT TO HIS WORK UNDER THAT SECTION, AND SHALL MAKE ALL SATISFACTORY REPAIRS, BUT IN NO CASE SHALL THE CONTRACTOR QUALITY ASSESS THE STRUCTURAL ELEMENT, BEAM OR COLUMN.
B. PAVEMENTS, SIDEWALKS, ROADS AND CURBS SHALL BE CUT, PATCHED AND REPAIRED OR REPLACED AS REQUIRED TO PERMIT THE INSTALLATION OF THE WORK OF THE VARIOUS TRADES AND SUCH CUTTING, PATCHING, REPAIRING AND REPLACING SHALL BE THE RESPONSIBILITY OF AND FOR THE CONTRACTOR UNDER THE SECTION OF THE SPECIFICATION FOR THE TRADE REQUIRING THE WORK.
C. EACH TRADE SHALL BEAR THE EXPENSE OF ALL CUTTING, PATCHING, REPAIRING OR REPLACING OF THE WORK OF OTHER TRADES REQUIRED BECAUSE OF HIS FAULT, ERROR OR TARDINESS OR BECAUSE OF ANY DAMAGE DONE BY HIM.
D. WHERE HOLES IN CONCRETE FLOORS ARE MORE THAN 1/2 INCH DIAMETER LARGER THAN CONDUIT, THE EXCESS OPENINGS SHALL BE FILLED OR COVERED WITH DAMP-MIX MORTAR OR CONCRETE TO A THICKNESS OF AT LEAST 4 INCHES.
3.09 CONSTRUCTION PHASING
A. THE CONTRACTOR SHALL REFER TO THE GENERAL REQUIREMENTS OF THIS SPECIFICATION AND PREPARE ALL WORK SCHEDULES REQUIRED TO PERFORM ALL WORK AS SHOWN ON THE DRAWINGS AND AS HEREIN SPECIFIED.
B. ALL SERVICES SUCH AS, BUT NOT LIMITED TO, LIGHTING, POWER AND SIGNALING SHALL BE MAINTAINED TO ALL AREAS OF THE BUILDING DURING THIS CONTRACT. TEMPORARY SERVICE CONNECTIONS WILL BE REQUIRED WHERE NECESSARY TO MAINTAIN THESE SERVICES. THE CONTRACTOR WILL MAKE THESE CONNECTIONS AS REQUIRED TO PROVIDE CONTINUOUS SERVICE.
C. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CAREFULLY REVIEW THE DRAWINGS, SPECIFICATIONS AND EXISTING CONDITIONS WITH REFERENCE TO THESE TYPES OF SERVICES SO THAT THE BUILDING MAY FUNCTION NORMALLY DURING THE CONSTRUCTION PROCESS.
3.10 PAINTING
A. THE CONTRACTOR SHALL REMOVE ALL RUST, LOOS AND GREASE FROM EXPOSED SURFACES AND CLEAN ALL APPARATUS OR MATERIALS SPECIFIED TO BE PAINTED UNDER THIS SECTION OF THE SPECIFICATIONS. CONTRACTOR SHALL PAINT EQUIPMENT, PIPING, ETC., IN ACCORDANCE WITH DIVISION 9. EQUIPMENT SPECIFIED TO HAVE FACTORY FINISHES SHALL BE PROTECTED UNTIL COMPLETION OF THE CONTRACT, WITH CONTRACTOR BEING RESPONSIBLE FOR PROTECTING AND MAINTAINING FACTORY FINISHES.
B. APPLY PAINT TO EXPOSED PIPING ACCORDING TO THE FOLLOWING, UNLESS OTHERWISE INDICATED:
1. INTERIOR, FERROUS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH.
2. INTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH.
3. INTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
4. INTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
5. INTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
6. EXTERIOR, FERROUS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
7. EXTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
8. EXTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
9. EXTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
10. EXTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
11. EXTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
12. EXTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
13. EXTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
14. EXTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
15. EXTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
16. EXTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
17. EXTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
18. EXTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
19. EXTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
20. EXTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
21. EXTERIOR, GALVANIZED-STEEL PIPING: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
22. EXTERIOR, FERROUS SUPPORTS: USE SEMI-GLOSS, ACRYLIC-ENAMEL FINISH. INCLUDE FINISH COAT OVER ENAMEL UNDERCOAT AND PRIMER.
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ELECTRICAL CONNECTIONS FOR EQUIPMENT

PART 1 GENERAL
1.01 DESCRIPTION OF WORK
A. TYPES OF ELECTRICAL POWER CONNECTIONS SPECIFIED IN THIS SECTION INCLUDE THE FOLLOWING:
1. BRANCH CIRCUITS
2. CIRCUIT BREAKERS
3. LIGHTING FIXTURES AND RECEPTACLES
B. JUNCTION BOXES REQUIRED FOR ELECTRICAL UNITS OF EQUIPMENT ARE SPECIFIED IN APPLICABLE DIVISION 26 SECTIONS.
C. REFER TO SECTION 26.05 FOR THE RESPONSIBILITY OF THE CONTRACTOR FOR EQUIPMENT POWER REQUIREMENTS.
1.03 QUALITY ASSURANCE
A. MANUFACTURER: FIRMS REGULARLY ENGAGED IN MANUFACTURING OF ELECTRICAL CONNECTORS AND TERMINALS, OF TYPES AND RATINGS REQUIRED, AND ANCILLARY CONNECTION MATERIALS, INCLUDING CONDUIT, SHALL BE RESPONSIBLE FOR THE PROPER INSTALLATION OF THE EQUIPMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER OPERATION OF THE SYSTEM RESULTING FROM THE SELECTION OF EQUIPMENT, INCLUDING ALL REQUIRED CHANGES IN AFFECTED TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER INSTALLATION OF THE OTHER TRADES.
PART 2 PRODUCTS
2.01 MANUFACTURER: QUALIFIED WITH AT LEAST 5 YEARS OF SUCCESSFUL INSTALLATION EXPERIENCE ON PROJECTS WITH ELECTRICAL CONNECTION WORK SIMILAR TO THAT REQUIRED FOR PROJECT.
A. ANSI COMPLIANCE: COMPLY WITH APPLICABLE PORTIONS OF NEC AS TO TYPE PROJECTS USED AND INSTALLATION OF ELECTRICAL POWER CONNECTIONS (TERMINALS AND SPLICES), FOR JUNCTION BOXES, MOTOR STARTERS, AND DISCONNECT SWITCHES.
B. NEMA COMPLIANCE: COMPLY WITH APPLICABLE PORTIONS OF NEMA STANDARDS PERTAINING TO ELECTRICAL CONNECTIONS FOR EQUIPMENT.
C. NEC COMPLIANCE: COMPLY WITH APPLICABLE ANSI STANDARDS PERTAINING TO PRODUCTS AND INSTALLATION OF ELECTRICAL CONNECTIONS.
D. LABELS: PROVIDE ELECTRICAL CONNECTION PRODUCTS AND MATERIALS WHICH HAVE BEEN LISTED OR LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ENGAGED IN THE TESTING, LISTING AND LABELING OF ELECTRICAL MATERIALS AND EQUIPMENT.
PART 2 PRODUCTS
2.02 MATERIALS AND COMPONENTS
A. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND COMPONENTS FOR COMPLETE ASSEMBLY OF MATERIALS, INCLUDING BUT NOT NECESSARILY LIMITED TO PRESSURE CONNECTORS, TERMINALS (LUGS), ELECTRICAL CONDUIT, TUBING, INSULATION, TUBING, CABLE TIES, SOLDERLESS WIRE NUTS, AND OTHER ITEMS AND ACCESSORIES AS NEEDED TO COMPLETE SPLICES AND TERMINATION OF TYPES INDICATED.
B. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND COMPONENTS FOR THE FOLLOWING LISTING OF METAL CONDUIT, TUBING AND FITTINGS:
1. GENERAL: PROVIDE METAL CONDUIT, TUBING AND FITTINGS OF TYPES, GRADES, SIZES AND WEIGHTS (WALL THICKNESS) INDICATED FOR EACH APPLICATION. PROVIDE ALL MATERIALS AND COMPONENTS FOR THE FOLLOWING LISTING OF METAL CONDUIT, TUBING AND FITTINGS:
A. RIGID STEEL CONDUIT
B. RIGID METAL CONDUIT
C. ELECTRIC METALLIC TUBING
D. EMT FITTINGS
E. FLEXIBLE METAL CONDUIT
F. FLEXIBLE METAL CONDUIT FITTINGS
G. LIQUID-TIGHT FLEXIBLE METAL CONDUIT
H. LIQUID-TIGHT FLEXIBLE METAL CONDUIT FITTINGS
I. WIRE, CABLE AND CONNECTORS:
1. GENERAL: PROVIDE WIRES, CABLES AND CONNECTORS COMPLYING OF TYPE, GRADE, SIZE AND WEIGHTS (WALL THICKNESS) INDICATED FOR EACH APPLICATION. PROVIDE ALL MATERIALS AND COMPONENTS FOR THE FOLLOWING LISTING OF METAL CONDUIT, TUBING AND FITTINGS:
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B. RIGID METAL CONDUIT
C



SIDEWALL FRAMING: FRAME LINE A



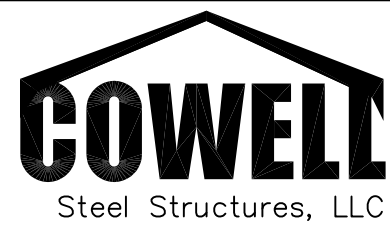
SIDEWALL SHEETING & TRIM: FRAME LINE A

PANELS: 26 Ga. PR

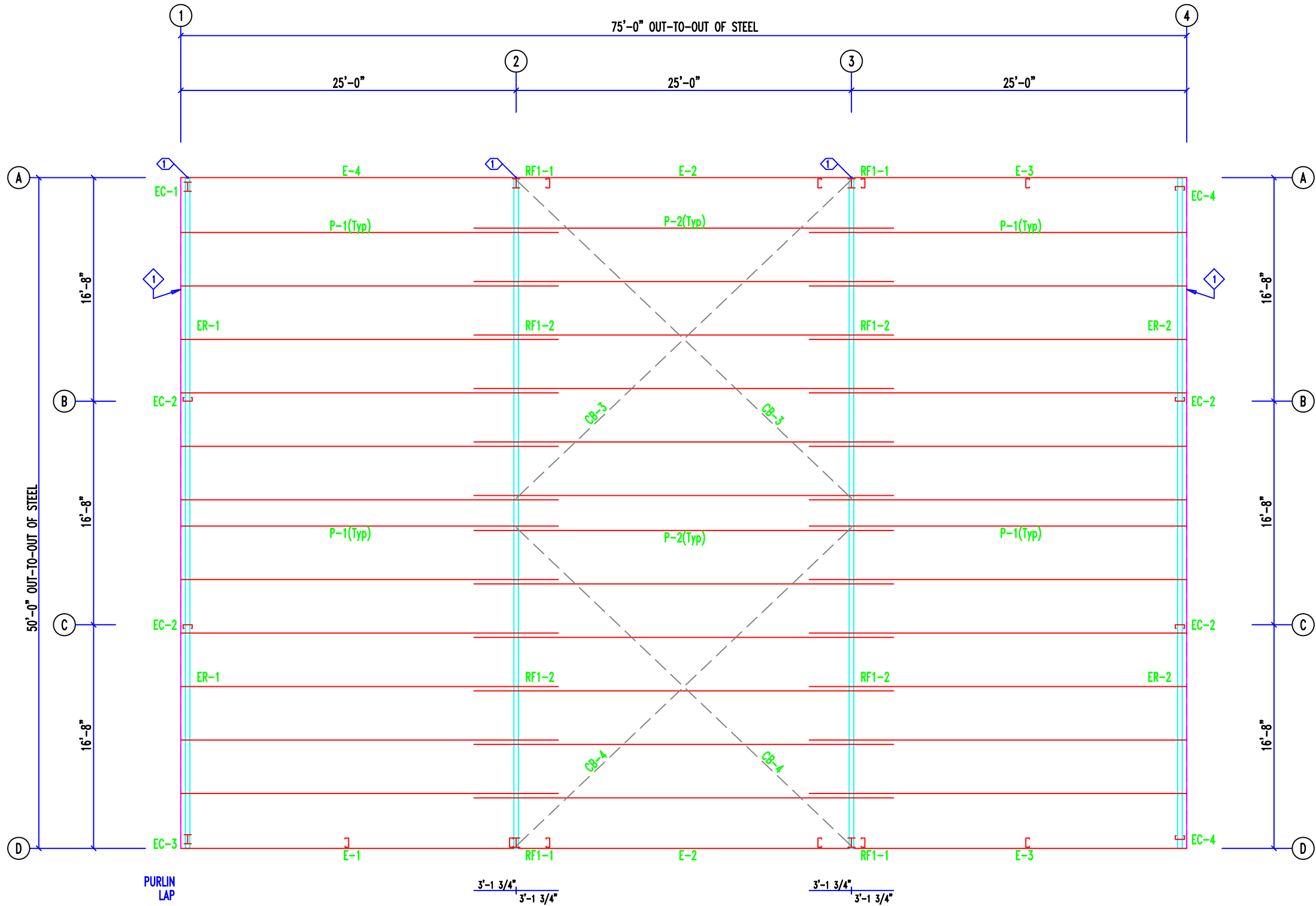
MEMBER TABLE			
FRAME LINE A			
QUAN	MARK	PART	LENGTH
2	DJ-1	C82516	13'-4 5/8"
2	DJ-2	C82516	13'-4 5/8"
1	DH-1	C82516	12'-0"
1	DH-2	C82516	20'-0"
1	E-2	O8534DU1	24'-11 1/2"
1	E-3	O8534DU1	24'-11 1/2"
1	E-4	O8534DU1	24'-11 1/2"
1	G-5	Z82516	3'-0 1/2"
1	G-6	Z82516	11'-9"
1	G-7	Z82512	26'-8"
1	BC-4	B4216P	7 1/2"
2	BC-5	B4216P	2'-1 1/2"
1	BC-6	B4216P	11'-7 1/2"
1	BC-8	B4216P	23'-11 1/2"
1	CB-1	3/8 CBL	27'-10 1/4"
1	CB-2	3/8 CBL	28'-1"

SPECIAL BOLTS					
○ ID	QUAN	TYPE	DIA	LENGTH	WASH
2	2	A325	1/2"	1 1/4"	2

TRIM TABLE			
FRAME LINE A			
◇ ID	QUAN	MARK	LENGTH
1	2	IOSC	14'-1"
2	1	ISET	10'-3"
3	5	ISET	12'-3"
4	1	ISET	14'-3"
5	2	IREC	8"
6	5	IHJC	12'-0"
7	4	IJT	12'-2"
8	1	IOHT	12'-3"
9	1	IHJC	20'-0"
10	1	IOHT	20'-3"



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CONTRACT #: CG-10191801		DRAWN BY: DBS	CHECKED BY:	DRAWING: E6



ROOF FRAMING PLAN

MEMBER TABLE			
ROOF PLAN			
QUAN	MARK	PART	LENGTH
24	P-1	Z82514	28'-1 1/2"
12	P-2	Z82516	31'-3 1/2"
1	E-1	08534DU1	24'-11 1/2"
2	E-2	08534DU1	24'-11 1/2"
2	E-3	08534DU1	24'-11 1/2"
1	E-4	08534DU1	24'-11 1/2"
2	CB-3	3/8 CBL	34'-4"
2	CB-4	1/4 CBL	34'-4"

SPECIAL BOLTS					
ROOF PLAN					
◇ ID	QUAN	TYPE	DIA	LENGTH	WASH
1	2	A325	1/2"	1 1/4"	2

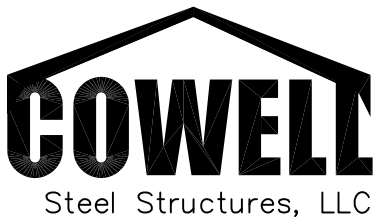
ANGLE TABLE			
ROOF PLAN			
◇ ID	QUAN	MARK	LENGTH
1	2	B4216	25'-0 1/2"

TRIM TABLE		
ROOF PLAN		
◇ ID	QUAN	PART
2	25	RIDGECAP

2
(25)

25'-2 1/2"
(25)
25'-2 1/2"
(25)

ROOF SHEETING
PANELS: 26 Ga. PR

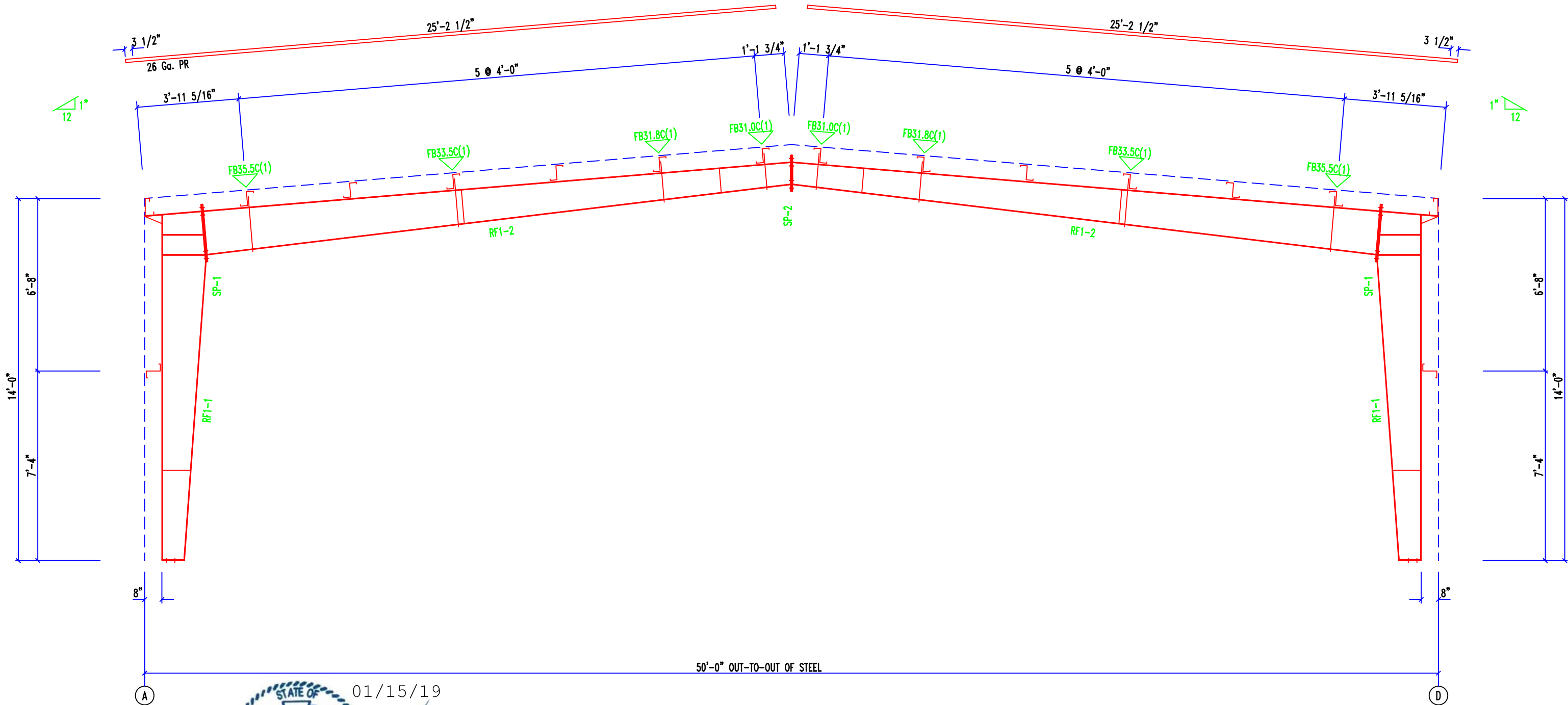


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CUSTOMER: CROW CONSTRUCTION				
CONTRACT #: CG-10191801		DRAWN BY: DBS	CHECKED BY:	DRAWING: E1

SPLICE PLATE & BOLT TABLE									
Mark	Qty Top	Qty Bot	Int	Type	Dia	Length	Width	Thick	Length
SP-1	4	4	0	A325	3/4"	2"	6"	1/2"	2'-2 3/4"
SP-2	4	4	0	A325	3/4"	2"	6"	1/2"	1'-4 3/4"

▽ FLANGE BRACES: (1) One Side; (2) Two Sides
FBxxC(1): xx=length(in)
C - L252514G

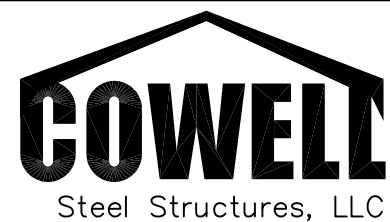
MEMBER TABLE					
Mark	Web Depth	Web Plate		Outside Flange	Inside Flange
	Start/End	Thick	Length	W x Thk x Length	W x Thk x Length
RF1-1	10.0/13.0	0.135	3'-5 7/16"	6 x 1/4" x 13'-3 7/8"	6 x 1/4" x 11'-6 7/16"
RF1-2	13.0/20.0	0.135	10'-0"	6 x 1/4" x 2'-2 3/8"	
	20.0/15.6	0.135	10'-0"	6 x 1/4" x 22'-9 1/8"	6 x 1/4" x 22'-8 7/16"
	11.2/10.0	0.135	2'-9 1/8"		



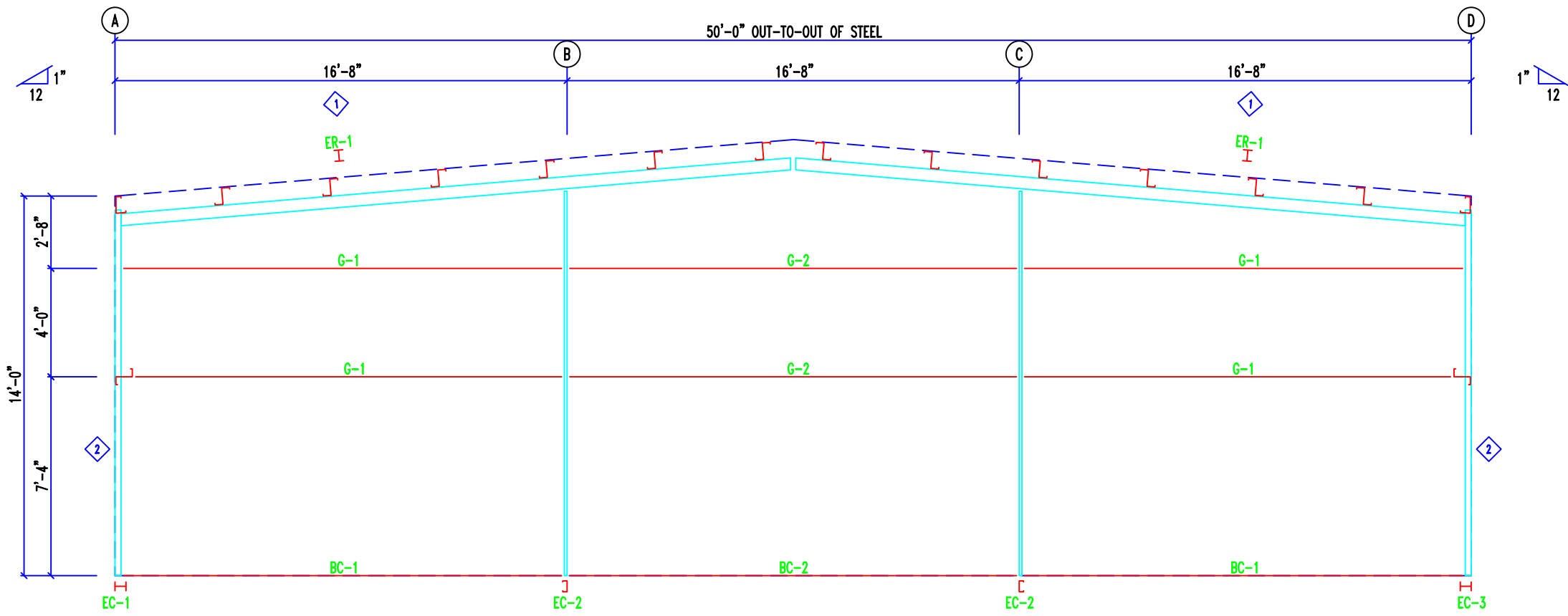
01/15/19

STATE OF
ARKANSAS
REGISTERED
PROFESSIONAL
ENGINEER
No. 3411
JOHN A. JOHNSON

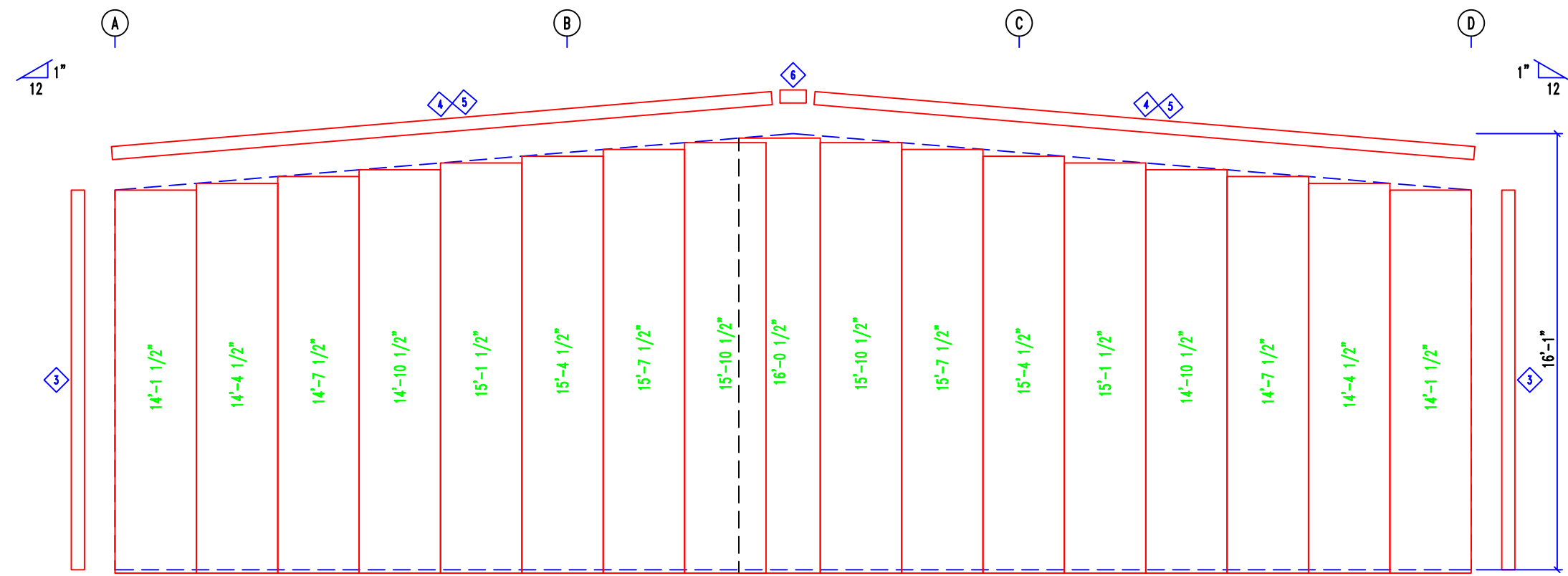
RIGID FRAME ELEVATION: FRAME LINE 2 3



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ENDWALL FRAMING: FRAME LINE 1



ENDWALL SHEETING & TRIM: FRAME LINE 1

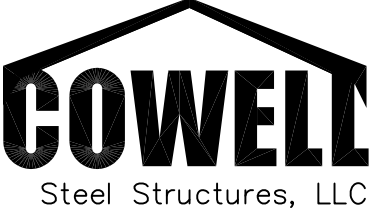
BOLT TABLE FRAME LINE 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
Cor_Column/Raf	4	A325	3/4"	1 1/2"
ER-1/ER-1	8	A325	3/4"	1 3/4"
Int_Column/Raf	2	A325	3/4"	1 1/2"

MEMBER TABLE FRAME LINE 1			
QUAN	MARK	PART	LENGTH
1	EC-1	W8X10	13'-4 5/8"
2	EC-2	C83514GA	13'-11 1/4"
1	EC-3	W8X10	13'-4 5/8"
2	ER-1	W8x10	24'-5 3/4"
4	G-1	Z82516	15'-8 1/8"
2	G-2	Z82516	16'-7 1/2"
2	BC-1	B4216P	15'-7 1/2"
1	BC-2	B4216P	16'-7 1/2"

ANGLE TABLE FRAME LINE 1			
ID	QUAN	PART	LENGTH
1	2	B4216	25'-0 1/2"
2	2	B3516	13'-11 1/2"

TRIM TABLE FRAME LINE 1			
ID	QUAN	MARK	LENGTH
3	2	IOSC	14'-1"
4	2	IRT	14'-3"
5	2	IRT	12'-3"
6	1	IPB1	1'-8"





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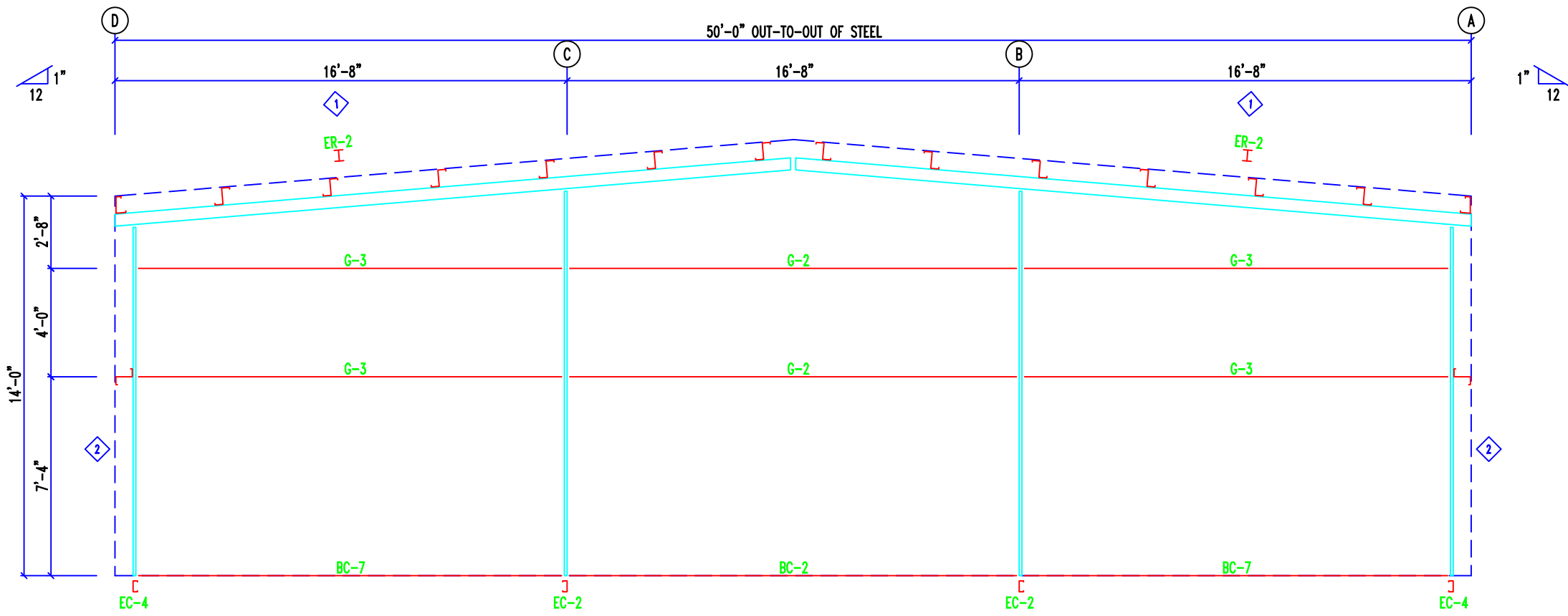
CUSTOMER: CROW CONSTRUCTION

CONTRACT #:
CG-10191801

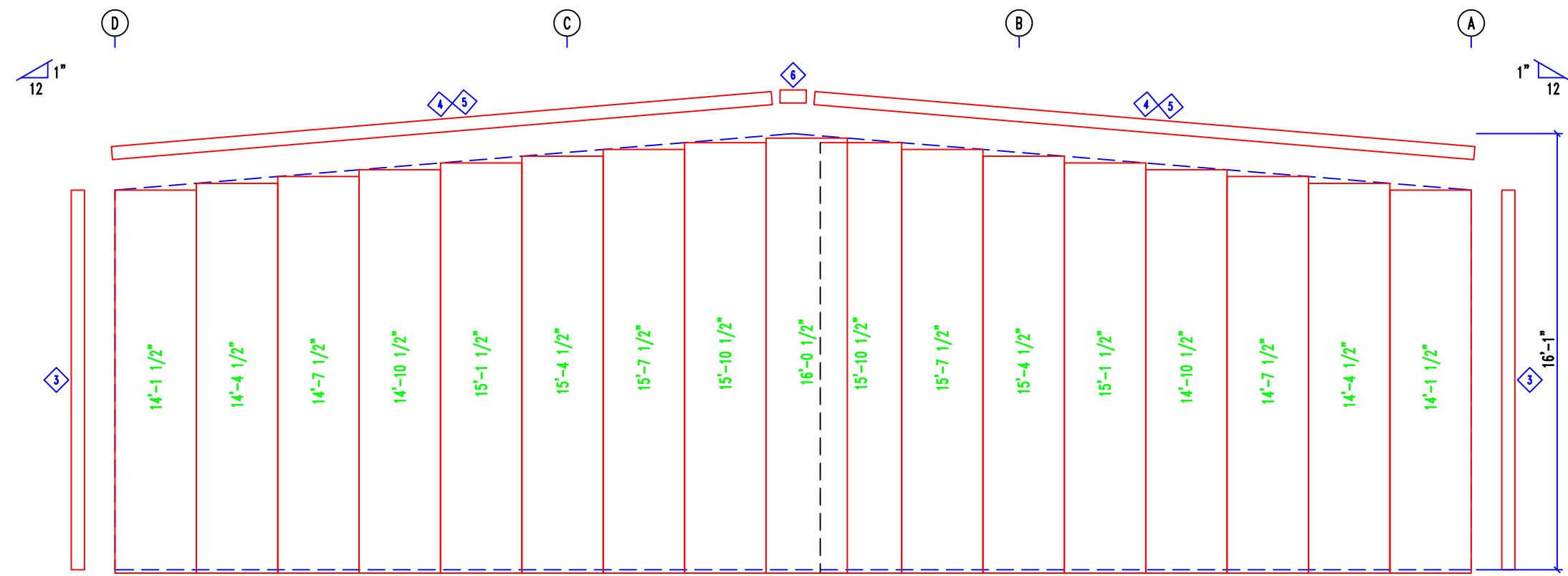
DRAWN BY:
DBS

CHECKED BY:

DRAWING:
E3



ENDWALL FRAMING: FRAME LINE 4



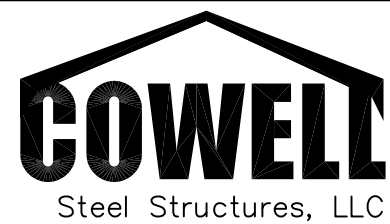
ENDWALL SHEETING & TRIM: FRAME LINE 4

BOLT TABLE FRAME LINE 4				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-2/ER-2	8	A325	3/4"	1 3/4"
Columns/Raf	2	A325	3/4"	1 1/2"

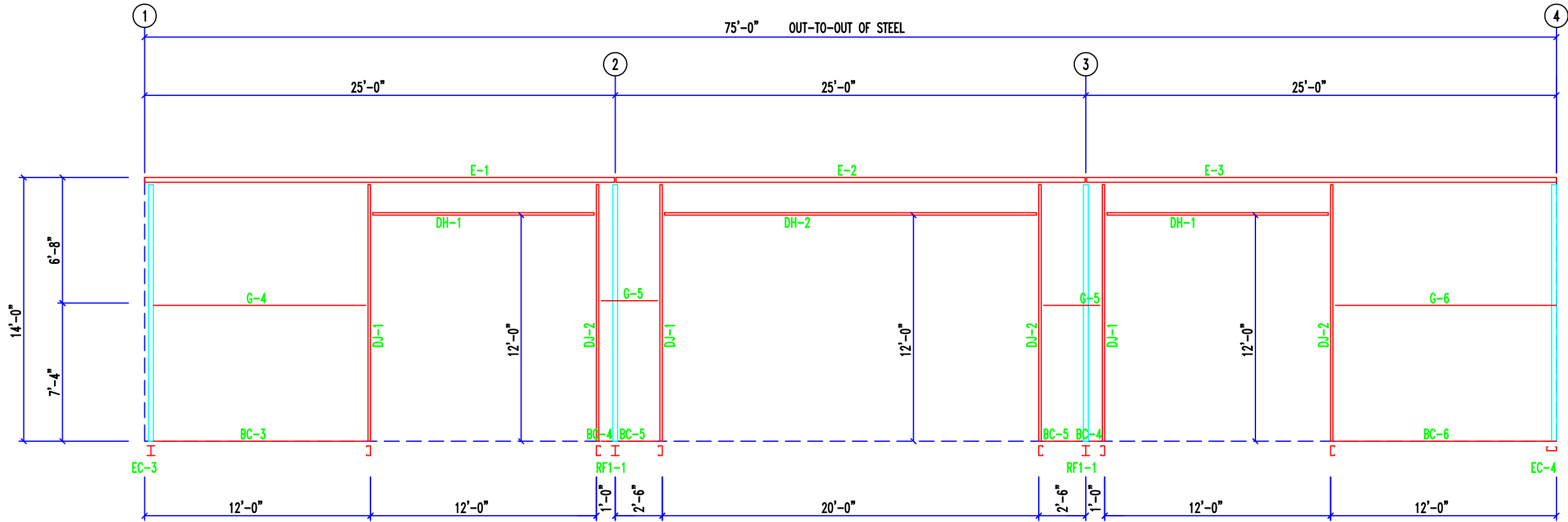
MEMBER TABLE FRAME LINE 4			
QUAN	MARK	PART	LENGTH
2	EC-2	C83514GA	13'-11 1/4"
2	EC-4	C83516GA	12'-7 1/4"
2	ER-2	W8x10	25'-0 13/16"
2	G-2	Z82516	16'-7 1/2"
4	G-3	Z82516	15'-4 1/2"
1	BC-2	B4216P	16'-7 1/2"
2	BC-7	B4216P	15'-3 1/2"

ANGLE TABLE FRAME LINE 4			
◇ ID	QUAN	PART	LENGTH
1	2	B4216	25'-0 1/2"
2	2	B3516	13'-11 1/2"

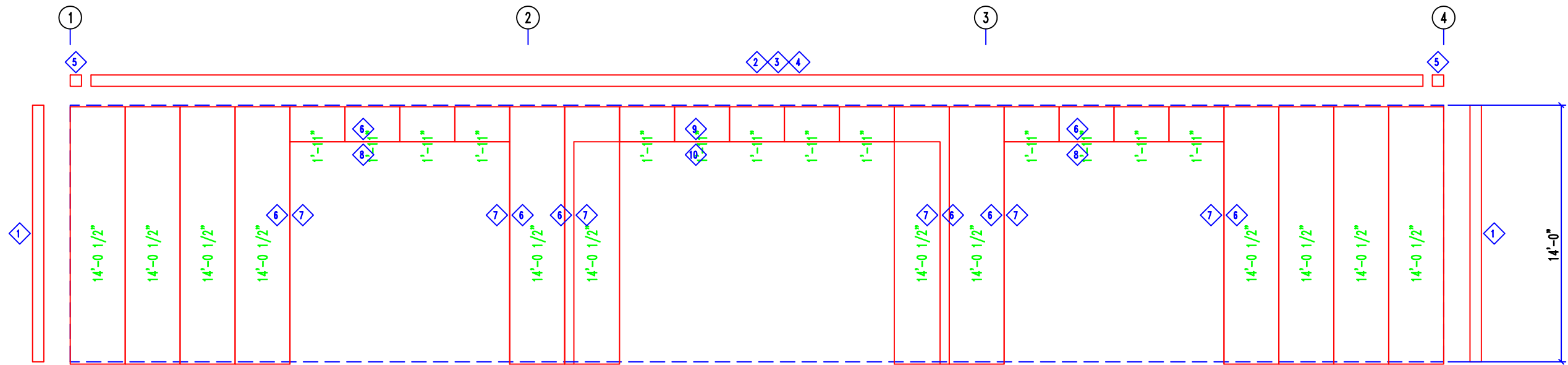
TRIM TABLE FRAME LINE 4			
◇ ID	QUAN	MARK	LENGTH
3	2	IOSC	14'-1"
4	2	IRT	14'-3"
5	2	IRT	12'-3"
6	1	IPB1	1'-8"



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CUSTOMER: CROW CONSTRUCTION				
CONTRACT #: CG-10191801		DRAWN BY: DBS	CHECKED BY:	DRAWING: E4



SIDEWALL FRAMING: FRAME LINE D

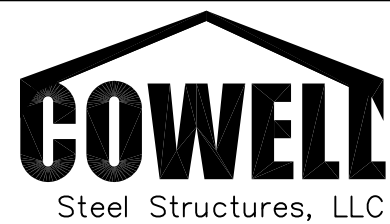


SIDEWALL SHEETING & TRIM: FRAME LINE D

PANELS: 26 Ga. PR

MEMBER TABLE			
FRAME LINE D			
QUAN	MARK	PART	LENGTH
3	DJ-1	C82516	13'-4 5/8"
3	DJ-2	C82516	13'-4 5/8"
2	DH-1	C82516	12'-0"
1	DH-2	C82516	20'-0"
1	E-1	O8534DU1	24'-11 1/2"
1	E-2	O8534DU1	24'-11 1/2"
1	E-3	O8534DU1	24'-11 1/2"
1	G-4	Z82516	11'-2"
2	G-5	Z82516	3'-0 1/2"
1	G-6	Z82516	11'-9"
1	BC-3	B4216P	10'-7 1/2"
2	BC-4	B4216P	7 1/2"
2	BC-5	B4216P	2'-1 1/2"
1	BC-6	B4216P	11'-7 1/2"

TRIM TABLE			
FRAME LINE D			
ID	QUAN	MARK	LENGTH
1	2	IOSC	14'-1"
2	1	ISET	10'-3"
3	5	ISET	12'-3"
4	1	ISET	14'-3"
5	2	IREC	8"
6	8	IHJC	12'-0"
7	6	IJT	12'-2"
8	2	IOHT	12'-3"
9	1	IHJC	20'-0"
10	1	IOHT	20'-3"



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CUSTOMER: CROW CONSTRUCTION				
CONTRACT #: CG-10191801		DRAWN BY: DBS	CHECKED BY:	DRAWING: E5