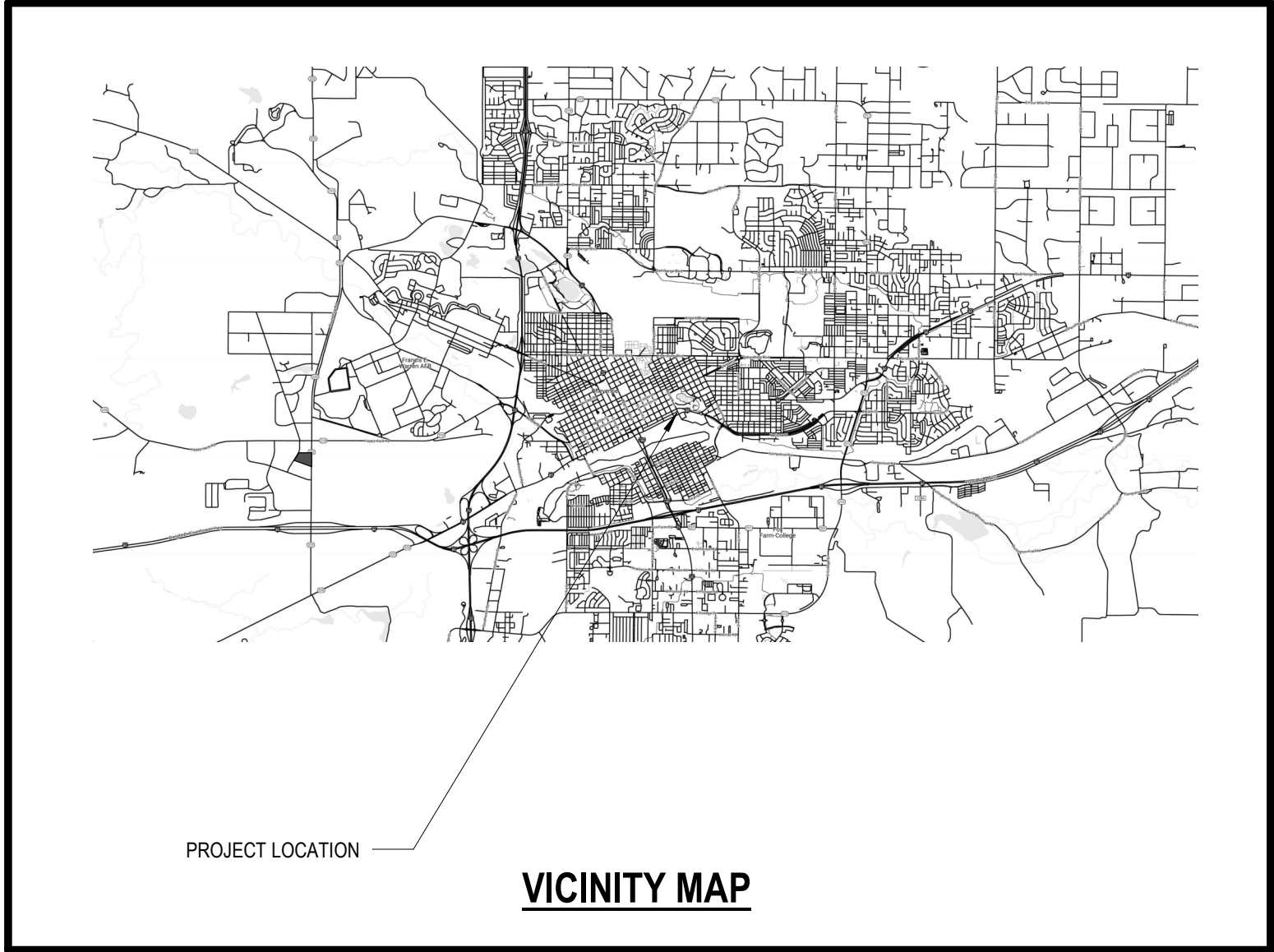


UMC CHEYENNE FACILITY

UMC PROPERTIES LLC

NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY



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CIVIL

PREVIOUSLY SUBMITTED FOR SITE PERMITTING

MECHANICAL

M100	MECHANICAL FIRST FLOOR PLAN
M102	MECHANICAL EQUIPMENT SCHEDULES DETAIL

PLUMBING

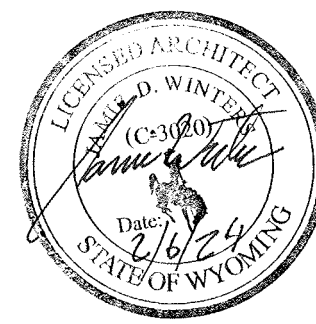
P101	FIRST FLOOR PLAN PLUMBING WASTE
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ABBREVIATIONS

AB	ANCHOR BOLT	KIP	K	1000 POUNDS
AC	AIR CONDITIONING	KLF	K	1000 POUNDS PER LINEAL FOOT
ACT	ACOUSTICAL CEILING TILE			
ACM	ASBESTOS CONTAINING MATERIAL	L	LENGTH	
ADDNL	ADDITIONAL	LAM	LAMINATED	
AFF	ABOVE FINISH FLOOR	LAV	LAVATORY	
ALT	ALTERNATE	LS	POUNDS	
ALUM	ALUMINUM	LF	LINEAR FOOT	
APPROX.	APPROXIMATE	LVL	LAMINATED VENEER LUMBER	
ARCH	ARCHITECT/ARCHITECTURAL			
AUTO	AUTOMATIC	MAT.	MATERIAL	
BBF	BOX-BOX-FILE DRAWERS	MAX	MAXIMUM	
BD	BOARD	MECH	MECHANICAL	
BLDG	BUILDING	MFR	MANUFACTURER	
BRG	BEARING	MIN	MINIMUM	
BS	BOTH SIDES	MISC	MISCELLANEOUS	
BSMT	BASEMENT	MTL	METAL	
BTWN	BETWEEN			
CAB	CABINET	(N)	NEW	
CRB	CEMENTITIOUS BACKER BOARD	N	NORTH	
CG	CORNER GUARD	N/A	NOT APPLICABLE	
CJ	CONSTRUCTION / CONTROL JOINT	NC	NOT IN CONTRACT	
CL	CENTERLINE	NO.	NUMBER	
CLG	CEILING	NOM.	NOMINAL	
CLR	CLEAR	NS	NEAR SIDE	
CMU	CONCRETE MASONRY UNIT	NTS	NOT TO SCALE	
COL	COLUMN			
CONC	CONCRETE	OC	ON CENTER	
CONT	CONTINUOUS	OD	OUTSIDE DIAMETER	
COORD	COORDINATE	OPNG	OPENING	
CT	COUNTERTOP	ORB	OIL RUBBED BRONZE	
		OSCI	OWNER SUPPLIED, CONTRACTOR INSTALLED	
		OSOI	OWNER SUPPLIED, OWNER INSTALLED	
D	DEPTH	PL	PLATE	
DBL	DOUBLE	PLAM	PLASTIC LAMINATE	
DEMO	DEMOLITION	PLF	POUNDS PER LINEAL FOOT	
DEPT.	DEPARTMENT	PLYWD	PLYWOOD	
DF	DRINKING FOUNTAIN	PREFAB	PREFABRICATED	
DIM	DIMENSION	PT	PAINT	
DISP	DISPENSER	PVC	POLYVINYL CHLORIDE	
DN	DOWN			
DS	DOWNSPOUT	RAD.	RADIUS	
DTL	DETAIL	RCP	REFLECTED CEILING PLAN	
DW	DISHWASHER	RD	ROOF DRAIN	
DWGS	DRAWINGS	RE-	REFER/REFERENCE	
		REF	REFRIGERATOR	
EA	EACH	REINF.	REINFORCEMENT	
EF	EACH FACE	REQ.	REQUIRED	
EFS	EXTERIOR INSULATION & FINISH SYSTEM	REV	REVISION	
ELEC	ELECTRICAL	RM	ROOM	
ELEV	ELEVATION	RO	ROUGH OPENING	
EQ	EQUAL	RTU	ROOF TOP UNIT	
EQUIP	EQUIPMENT	RWB	RUBBER WALL BASE	
EW	EACH WAY			
EX	EXISTING	SAT	SUSPENDED ACOUSTICAL TILE	
EXP	EXPANSION	SCHED.	SCHEDULE	
EXT	EXTERIOR	SECT.	SECTION	
		SF	SQUARE FOOT/FEET	
FD	FLOOR DRAIN	SHT	SHEET	
FDN	FOUNDATION	SIM	SIMILAR	
FE	FIRE EXTINGUISHER	SOG	SLAB ON GRADE	
FF	FINISHED FLOOR	SPEC.	SPECIFICATION(S)	
FF&E	FURNITURE FIXTURES AND EQUIPMENT	SQ	SQUARE	
FLR	FLOOR	SS	STAINLESS STEEL	
FRP	FIBER REINFORCED PANEL	STC	SOUND TRANSMISSION CLASS	
FS	FAR SIDE	STD.	STANDARD	
FT	FOOT/FEET	STL	STEEL	
FTG	FOOTING	STOR	STORAGE	
		STRUCT	STRUCTURAL	
GAL	GAUGE	SUBFLR	SUBFLOOR	
GALV	GALVANIZE	SW	SIDE WALK	
GB	GRADE BEAM	SYM	SYMMETRICAL	
GC	GENERAL CONTRACTOR			
GEN	GENERAL	T&G	TONGUE AND GROOVE	
GL	GLASS	T.O.C.	TOP OF CONCRETE	
GLULAM	GLUE LAMINATED WOOD	TBD	TO BE DETERMINED	
GYP	GYPSUM BOARD	TEMP.	TEMPERED	
GWB	GYPSUM WALL BOARD	TV	TELEVISION	
		TYP	TYPICAL	
HB	HOSE BIB	TYPE 'X'	FIRE-RATED GYPSUM BOARD	
HC	HANDICAPPED			
HDR	HEADER	UNO	UNLESS NOTED OTHERWISE	
HDRW	HARDWARE			
HM	HOLLOW METAL	VAR.	VARIES	
HORIZ	HORIZONTAL	VERT	VERTICAL	
HT	HEIGHT	VIF	VERIFY IN FIELD	
HVAC	HEATING VENTILATION AND AIR CONDITIONING			
		W	WIDTH	
IBC	INTERNATIONAL BUILDING CODE	W/	WITH	
IF	INSIDE FACE	W/O	WITHOUT	
INSUL	INSULATION	WC	WATER CLOSET	
INT	INTERIOR	WD	WOOD	
		WH	WATER HEATER	
JC	JANITOR CLOSET	WWF	WELDED WIRE FABRIC	
JT	JOINT			



ARCHITECT

WINTERS | GRIFFITH
ARCHITECTS
211 E 19TH STREET, CHEYENNE, WY 82001 | (307) 632-2705 | ©2023

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STRUCTURAL DESIGN

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Gabriel Herrera, PE
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WSP

Rick Shields, PE
307-637-6017
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CIVIL ENGINEER

Engineering
SURVEYING

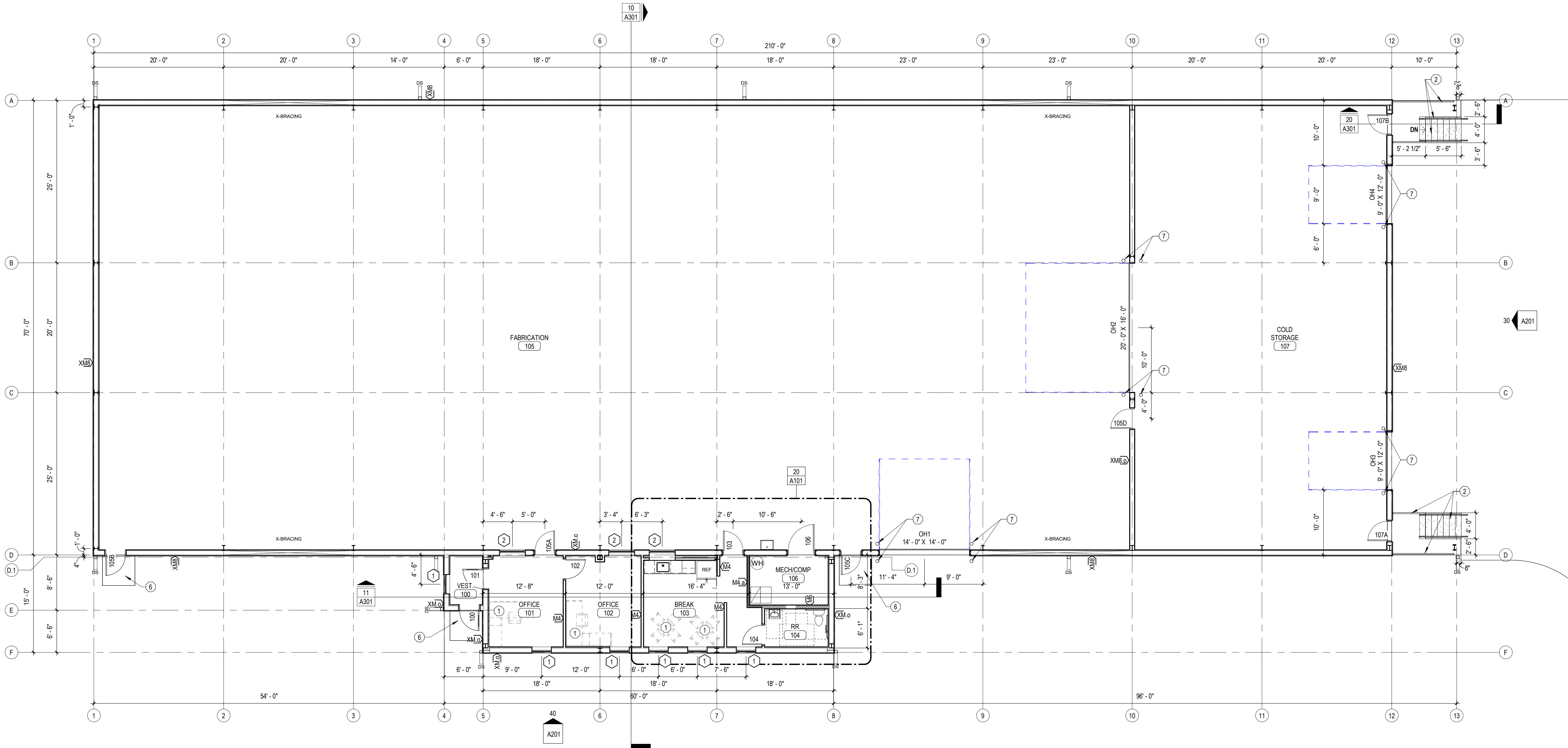
Brad Emmons, AICP
307-637-6017
emmons@evpc.com

CONTRACTOR

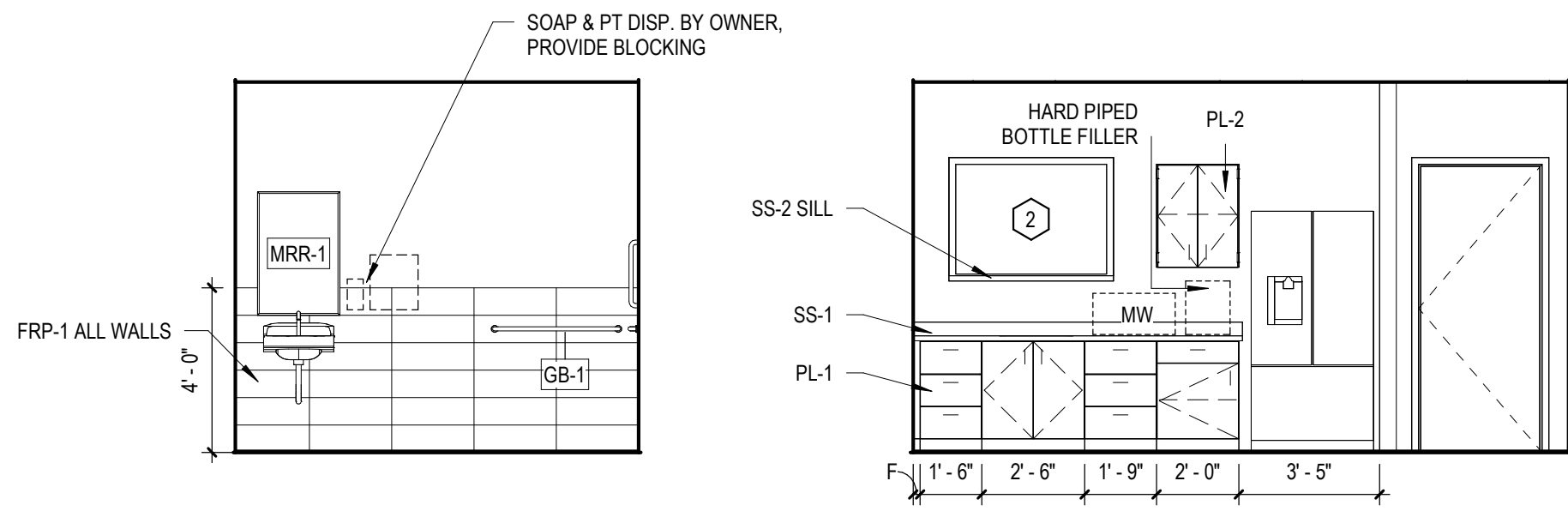
Richardson Construction, Inc.

Doug Mainwaring
101 Lexington Avenue, Suite 2
Cheyenne, WY 82007
(307) 635-6166
randy@rcwyco.com

10 FIRST FLOOR PLAN
A101 1/8" = 1'-0"



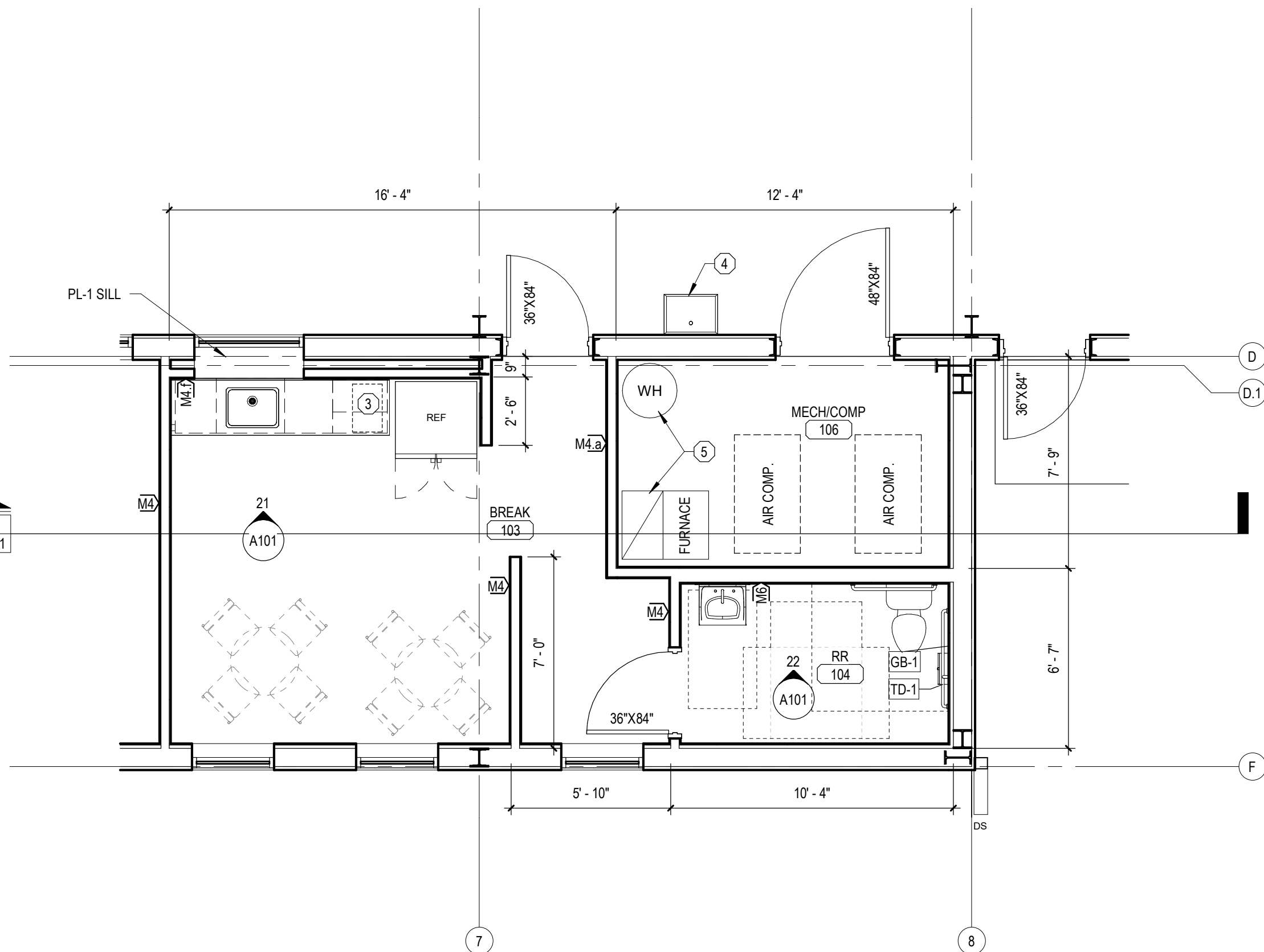
TOILET ACCESSORIES			
Type Mark	Manufacturer	Model	Comments
GB-1	Bobrick		
TD-1	Bobrick	B-3588	



22 INT. ELEV. @ RR 104
1/4" = 1'-0"

21 INT. ELEV. @ BREAK RM
1/4" = 1'-0"

20 ENLARGED FLOOR PLAN
A101 1/4" = 1'-0"



PLAN KEYNOTES

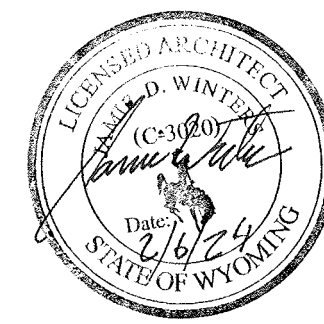
- FURNITURE, N.I.C.
- CONCRETE STAIRS WITH PAINTED STEEL HANDRAILS.
- COUNTERTOP BOTTLE FILLER, REF. PLUMBING.
- SERVICE SINK, REF. PLUMBING.
- FURNACE AND WATER HEATER, REF. PLUMBING & HVAC.
- FROST PROTECTED STOOP, REF. STRUCTURAL.
- 4" PIPE BOLLARD, FILL WITH CONC. WITH YELLOW PAINT OR PLASTIC COVER.

REVISION
DATE
DESCRIPTION

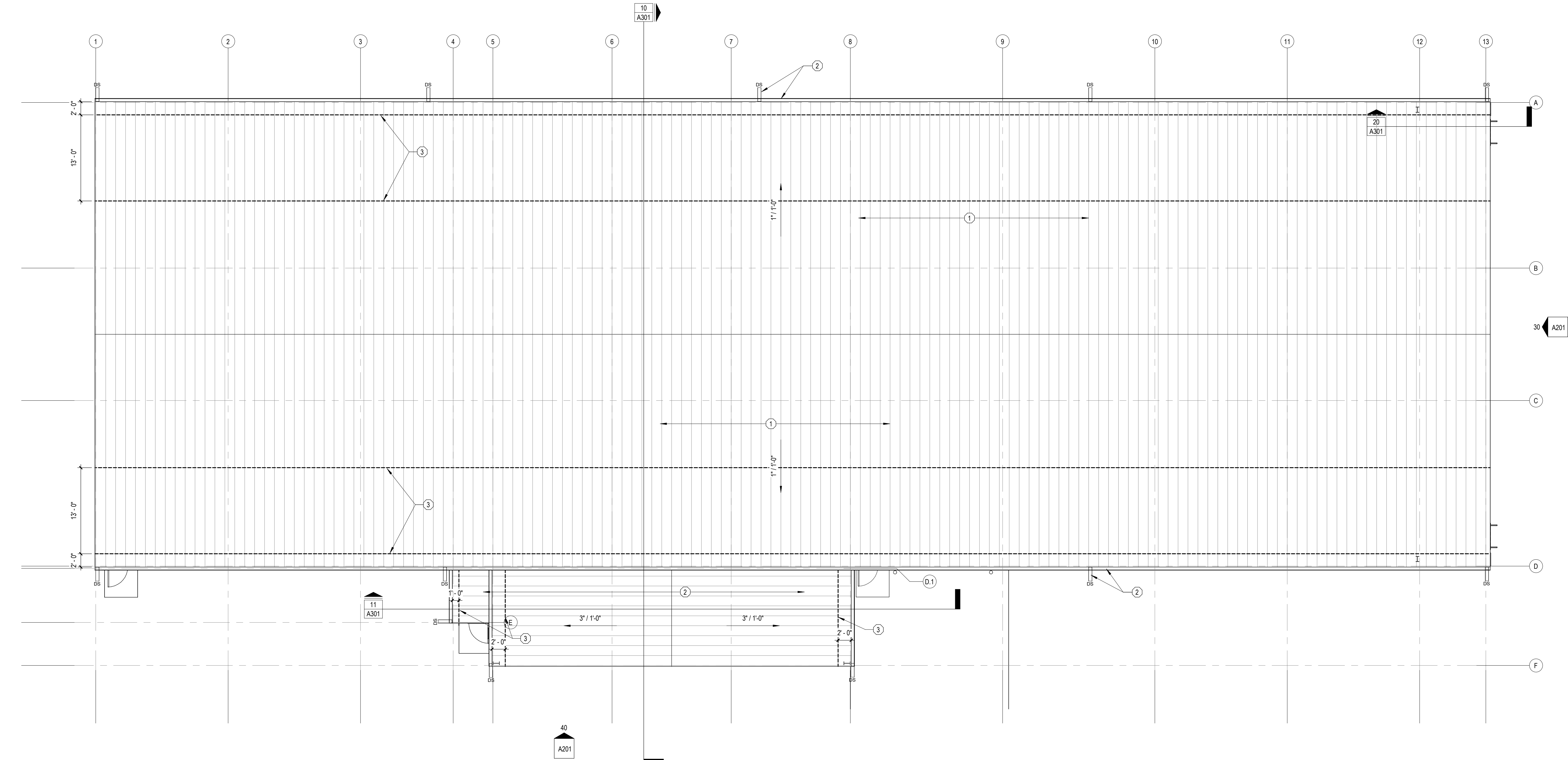
NO
STATUS: CONSTRUCTION
DOCUMENTS
DATE: 2/8/2024

FIRST FLOOR PLAN

UMC CHEYENNE FACILITY
UMC PROPERTIES LLC
NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY

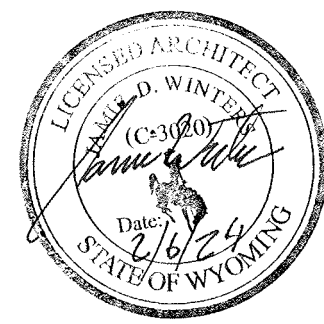


2/12/2024 9:31:55 AM



ROOF PLAN KEYNOTES

1. EXPOSED FASTENER METAL PANELS, PER METAL BUILDING MFR.
2. GUTTERS & DOWNSPOUTS PER METAL BUILDING MFR.
3. SNOWGUARDS WITH COLOR MATCH STRIPS, SSI CLAMPS.



UMC CHEYENNE FACILITY

UMC PROPERTIES LLC

NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY

ROOF PLAN

DATE

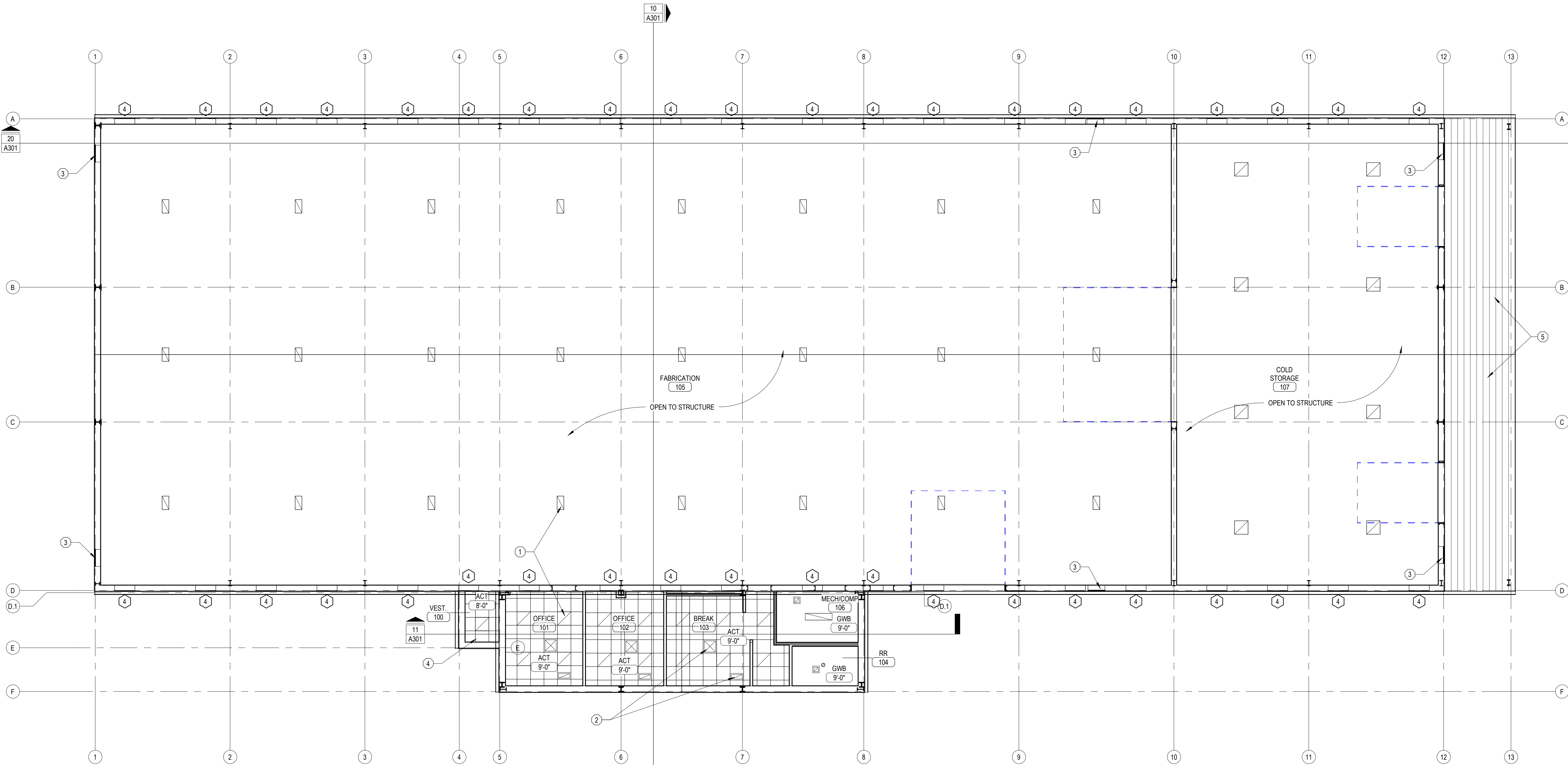
REVISION
SCHEDULE
DESCRIPTION

NO.

STATUS: CONSTRUCTION DOCUMENTS

DATE: 2/8/2024

A102

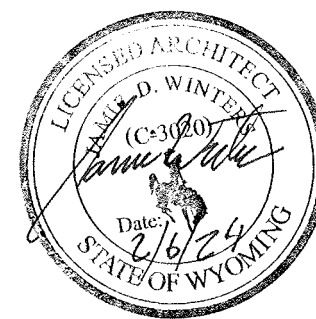


REFLECTED CEILING PLAN KEYNOTES

1. LIGHT FIXTURES TYP., REF. ELECTRICAL
2. HVAC TERMINALS TYP., REF. MECHANICAL
3. INTAKE/EXHAUST LOUVER, REF. MECHANICAL
4. PROVIDE ACT HOLD DOWN CLIPS IN VEST 100.
5. EXPOSED FASTENER METAL PANELS AT SOFFIT.

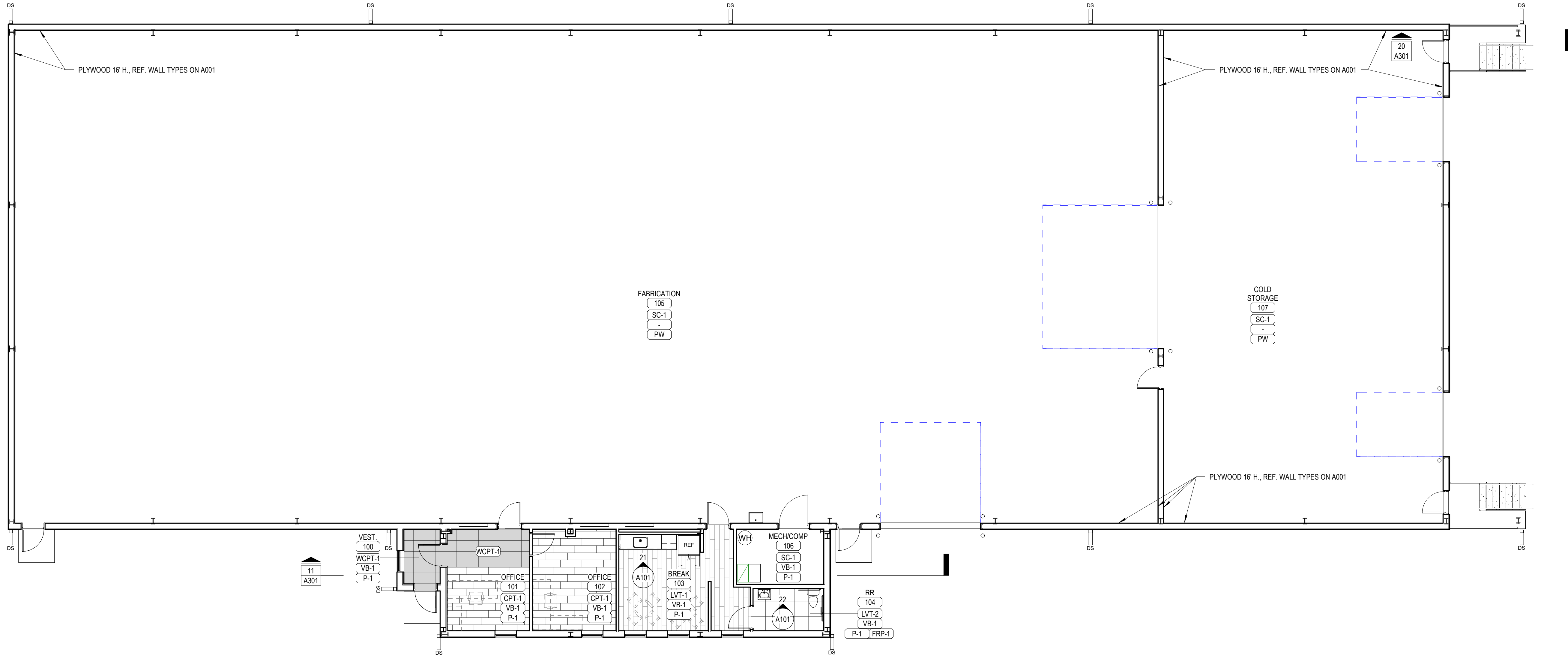
CEILING EQUIPMENT LEGEND

SYMBOL	DESCRIPTION
	SURFACE OR RECESSED LIGHT FIXTURE
	RECESSED INDIRECT LIGHT FIXTURE
	WALL MOUNTED LINEAR LIGHT FIXTURE
	PENDANT LINEAR LIGHT FIXTURE
	STRIP LIGHT FIXTURE
	RECESSED CAN LIGHT FIXTURE
	RECESSED CAN WALL WASH LIGHT FIXTURE
	PENDANT LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	EXIT SIGN
	SUPPLY DIFFUSER - SEE MECHANICAL
	RETURN GRILLE - SEE MECHANICAL
	GWS CEILING
	ACOUSTIC TILE CEILING
	PARTITION TO STRUCTURE
	1 HOUR FIRE PARTITION
	2 HOUR FIRE WALL
	3 HOUR FIRE WALL



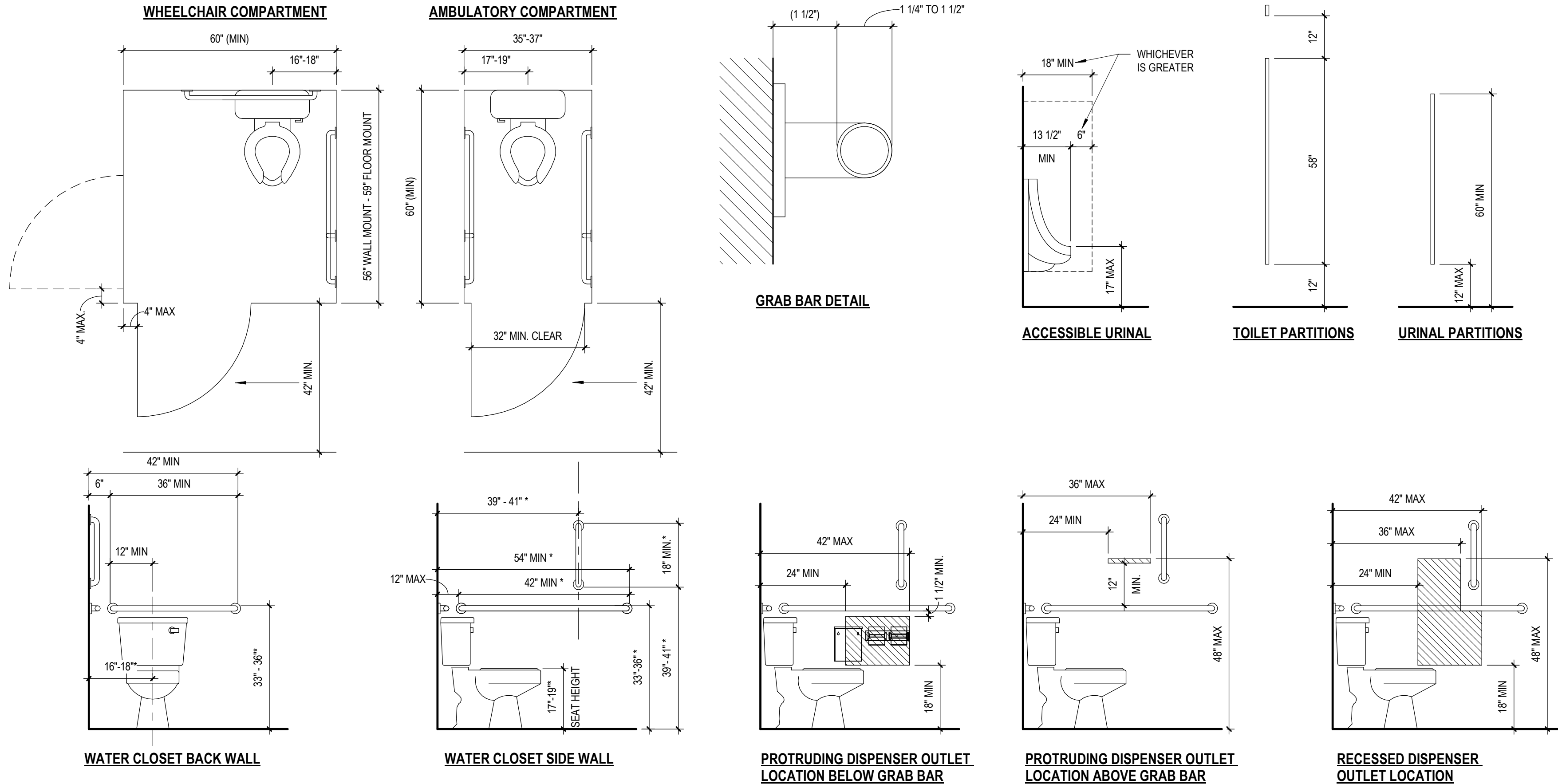
10 FIRST FLOOR FINISH PLAN

A121 1/8" = 1'-0"



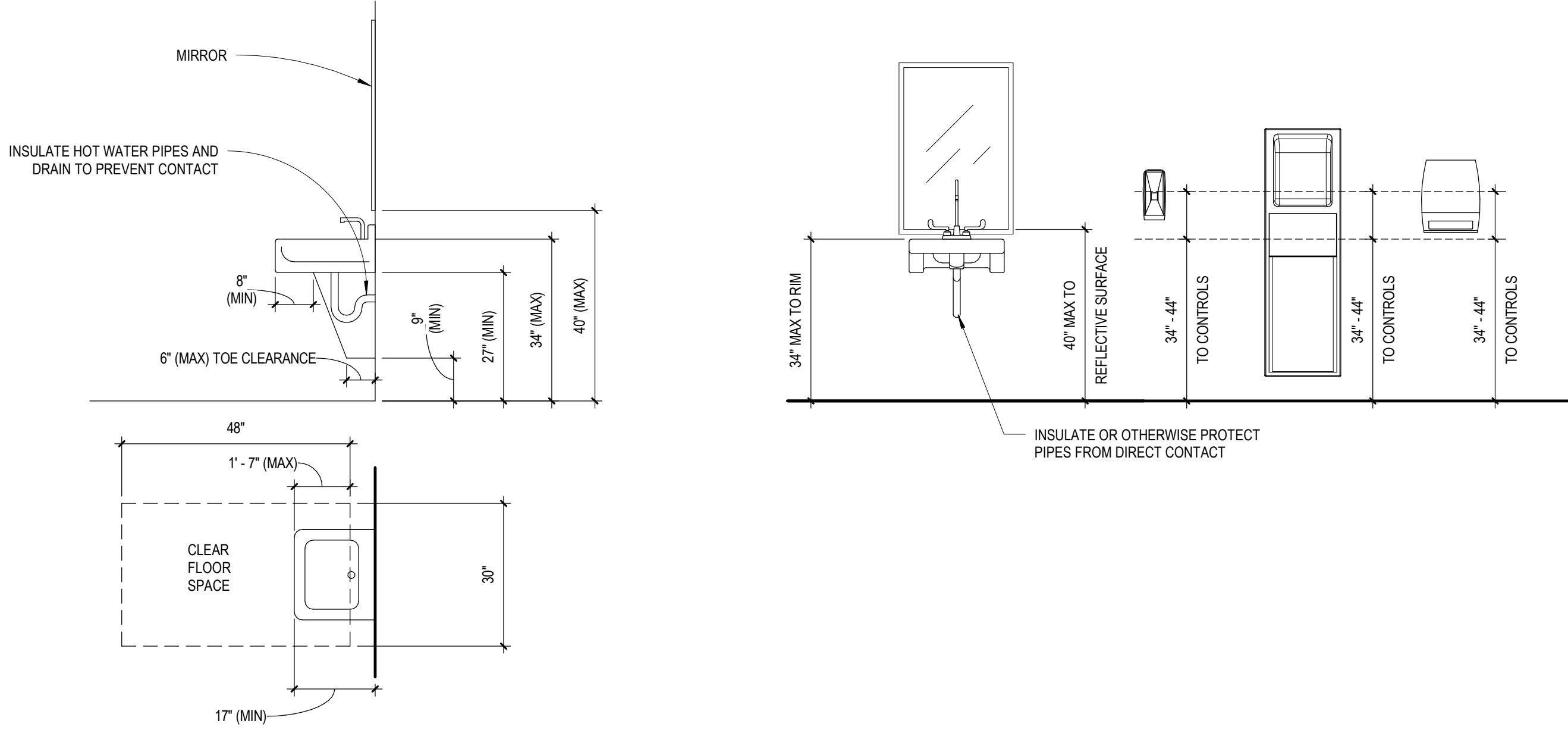
21 A117.1 WATER CLOSET DETAILS

1/2" = 1'-0"



20 A117.1 LAVATORY DETAIL

1/2" = 1'-0"

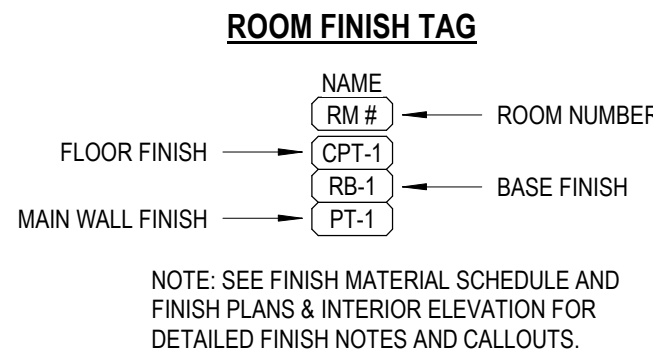


- GENERAL RESTROOM ACCESSORY NOTES:**
- a. REFER TO SPECIFICATIONS FOR INFORMATION ON CONTRACTOR PROVIDED ACCESSORIES.
 - b. PLUMBING FIXTURES AND ACCESSORY ITEMS SHOWN FOR REFERENCE ONLY AND MAY NOT BE REPRESENTATIVE OF WHAT IS ACTUALLY SPECIFIED FOR THIS PROJECT. REFER TO PLUMBING FOR FIXTURE SPECIFICATIONS.
 - c. PROVIDE BLOCKING FOR ALL WALL MOUNTED EQUIPMENT.

ITEMS PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR:

- SN - SANITARY NAPKIN DISPOSAL
- TD - TOILET PAPER DISPENSER
- SD - SOAP DISPENSER
- PT - PAPER TOWEL DISPENSER

FINISH PLAN LEGEND



FINISH MATERIAL SCHEDULE						
MARK	MATERIAL	MANUFACTURER	STYLE	COLOR	SIZE/FINISH	REMARKS/LOCATION
CPT-1	CARPET TILE	MOHAWK GROUP	TIMELESS TAILORED COLLECTION/DISTRESSED TWILL GT489	949 MINERAL	12" X 36"	BRICK ASHLAR INSTALLATION/OFFICES
FRP-1	FIBERGLASS REINFORCED PLASTIC	MARLITE	SYMMETRIX SMARTSEAM SUBWAY HORIZONTAL (SS917 G63R-1)	WHITE PANEL W/ GREY GROUT LINES	6" X 3" TILE CONFIGURATION	UP TO 48" ON ALL WALLS OF RESTROOMS
LVT-1	LUXURY VINYL TILE	TAJ FLOORING	SELECT COLLECTION	NVF-2531 DUSKY GRAY	7" X 48"	BREAK ROOM FLOORING
LVT-2	LUXURY VINYL TILE	SHAW CONTRACT	COMPOUND 2.5 MM (4074V)	FOUNDATION	24" X 24"	RESTROOM FLOORING
P-1	PAINT	SHERWIN WILLIAMS	SW 6252	ICE CUBE	RE: FINISH PLAN	
PL-1	PLASTIC LAMINATE	FORMICA	STAINLESS	9319-BH	BRUSH FINISH	BREAK ROOM WALL CABINETS
PL-2	PLASTIC LAMINATE	FORMICA	TERRILL	2296-PX	PLEX FINISH	BREAK ROOM BASE CABINETS
SC-1	SEALED CONCRETE	W.R. MEADOWS	PENTREAT 244-20 W/B			BREAK ROOM COUNTERTOP
SS-1	SOLID SURFACE	WILSONART	BROOKLYN CONCRETE	6209GS		BREAK ROOM COUNTERTOP
VB-1	VINYL WALL BASE	MANNINGTON COMMERCIAL	BURKE WALL BASE COLLECTION/ACCORD COLORS	650 ROCKY	4" COVE/TYPE TV	RE: FINISH PLAN
WCPT-1	WALK-OFF CARPET TILE	MANNINGTON COMMERCIAL	FRIXION	SLIDE (34368)	18" X 36"	HORIZONTAL BRICK ASHLAR INSTALLATION/VESTIBULE & OFFICE 101

FIRST FLOOR FINISH PLAN

DATE

REVISION SCHEDULE
DESCRIPTION

NO

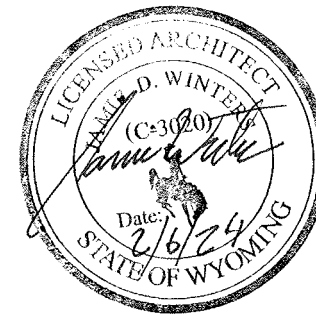
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DATE: 2/6/2024

A121

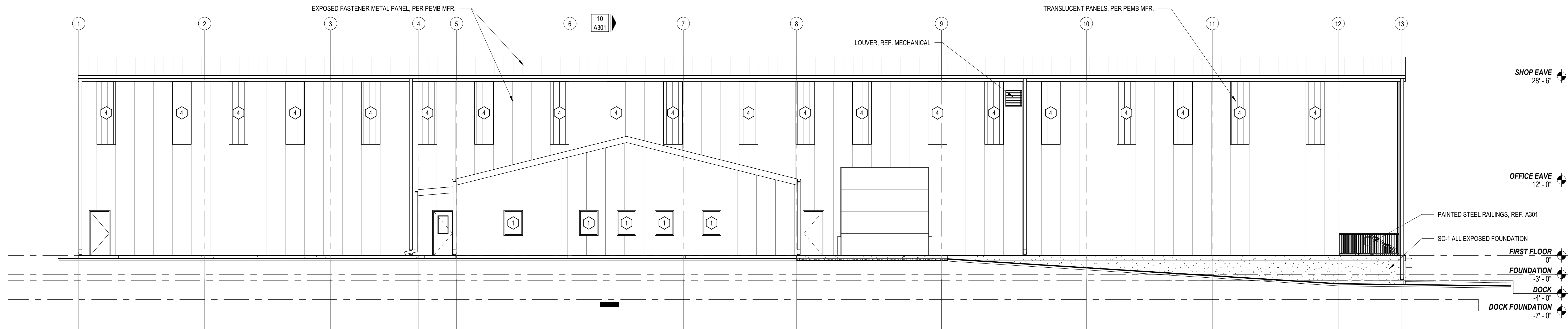
UMC CHEYENNE FACILITY

UMC PROPERTIES LLC

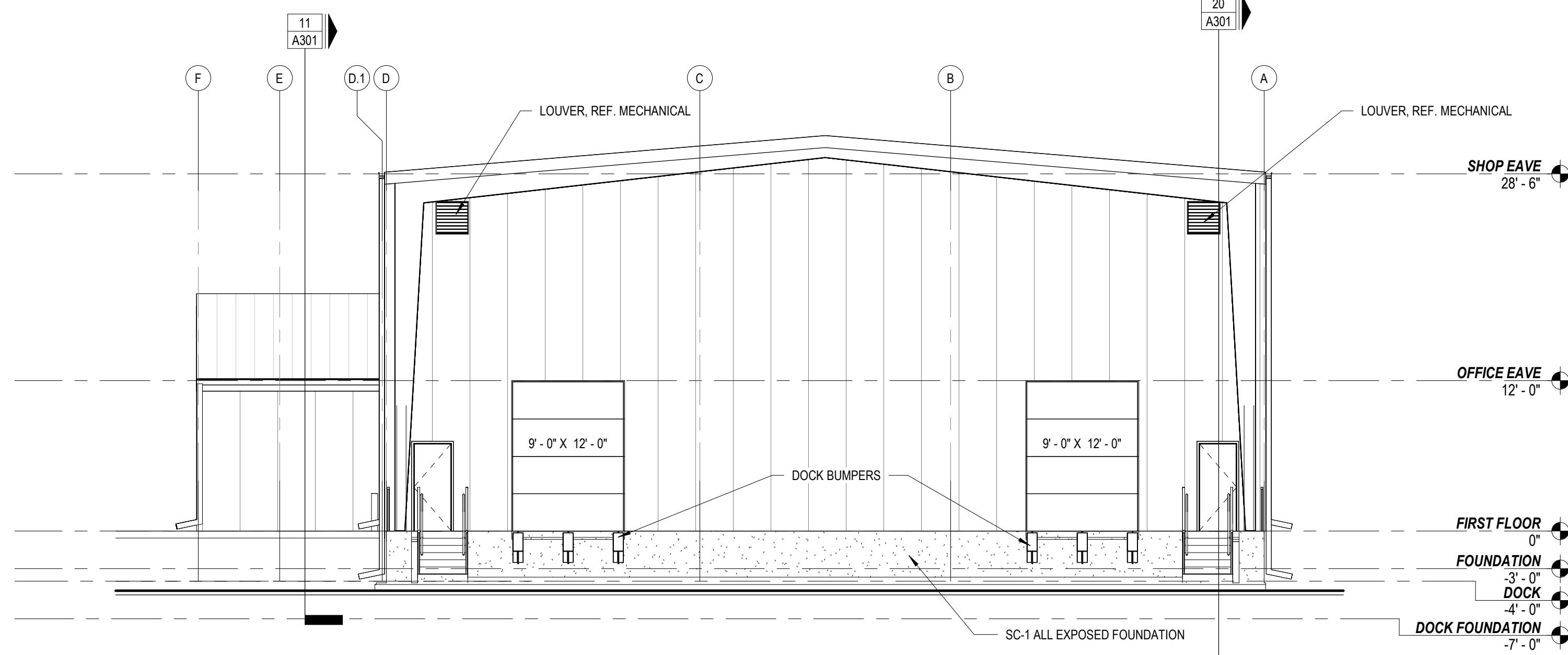
NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY



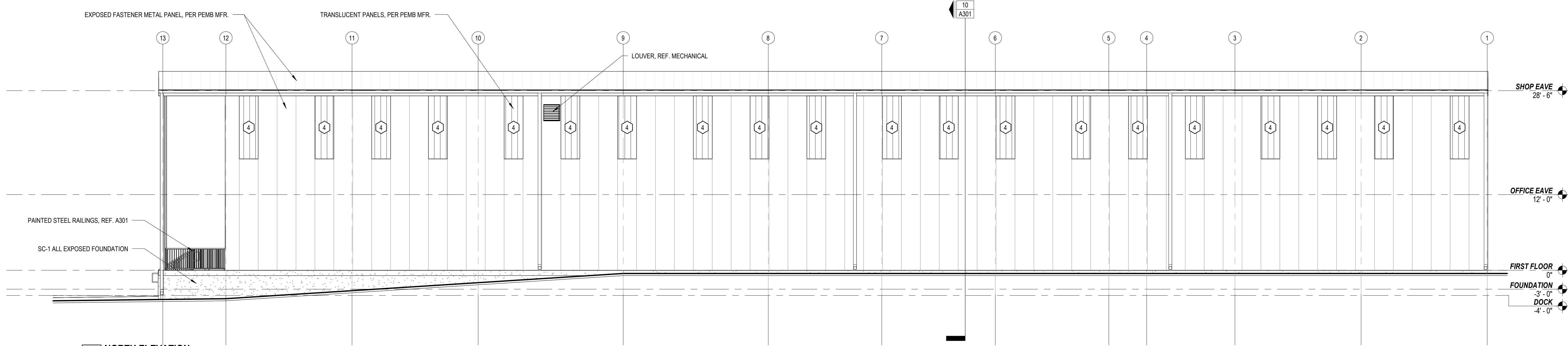
WINTERS GRIFFITH ARCHITECTS
211 E 19TH STREET, CHEYENNE, WY 82001 | (307) 632-7705 | ©2023



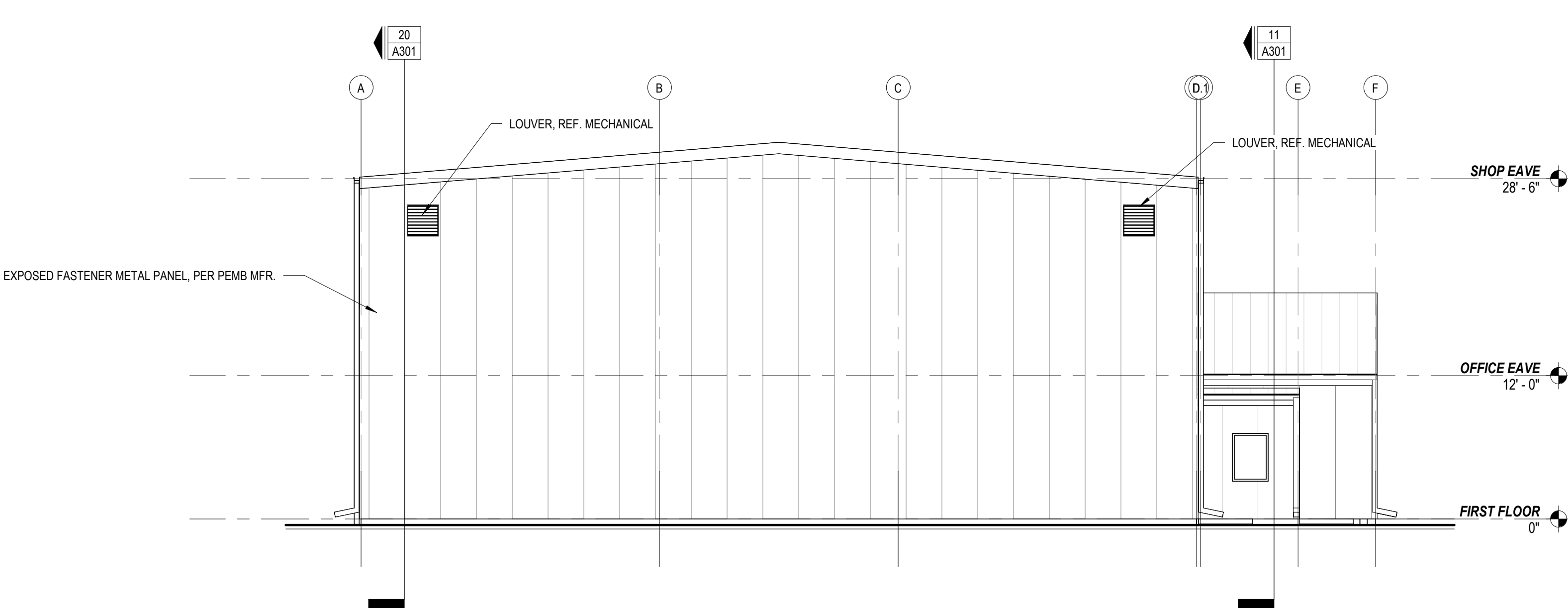
40 SOUTH ELEVATION
1/8" = 1'-0"



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

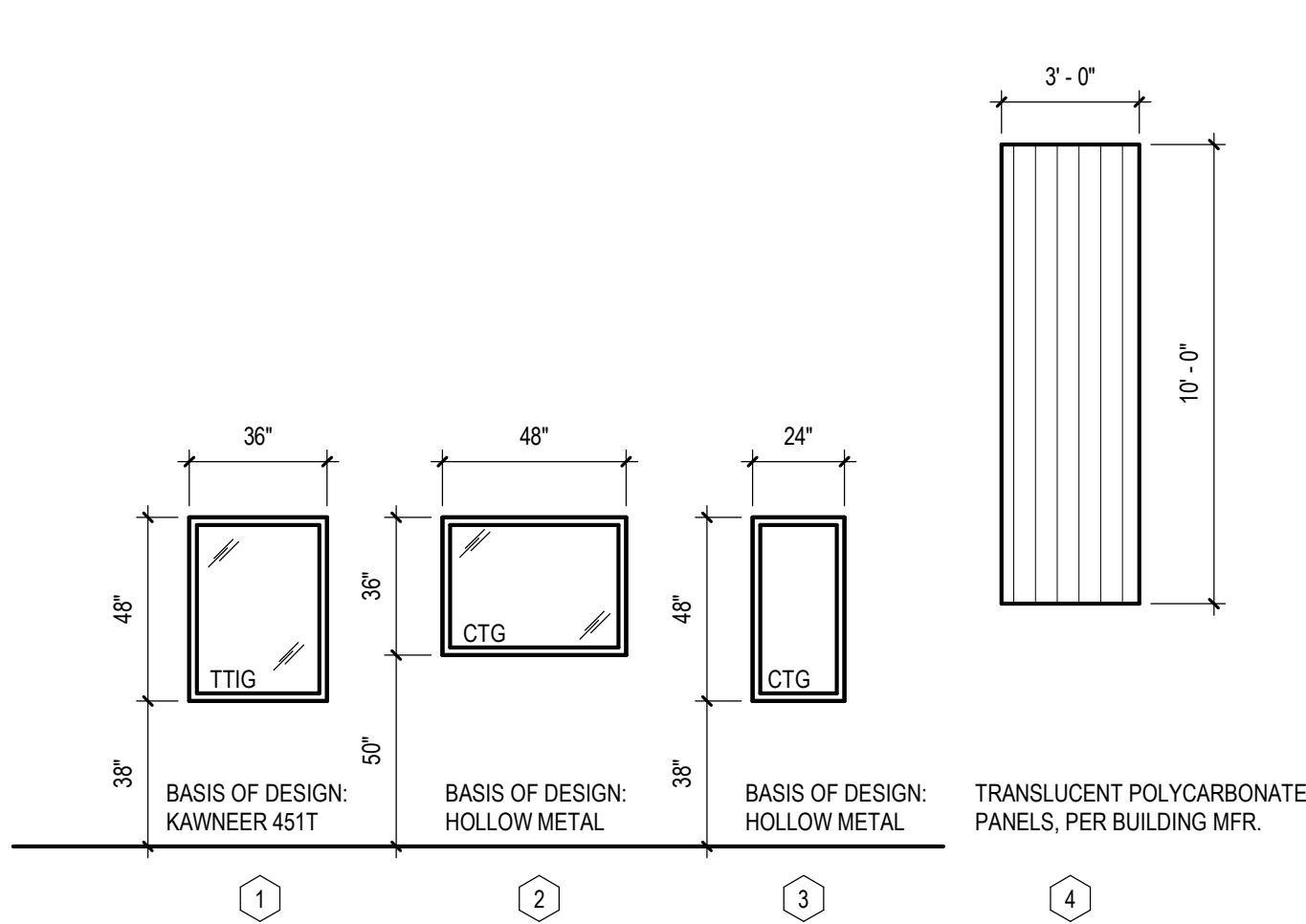


20 NORTH ELEVATION
1/8" = 1'-0"

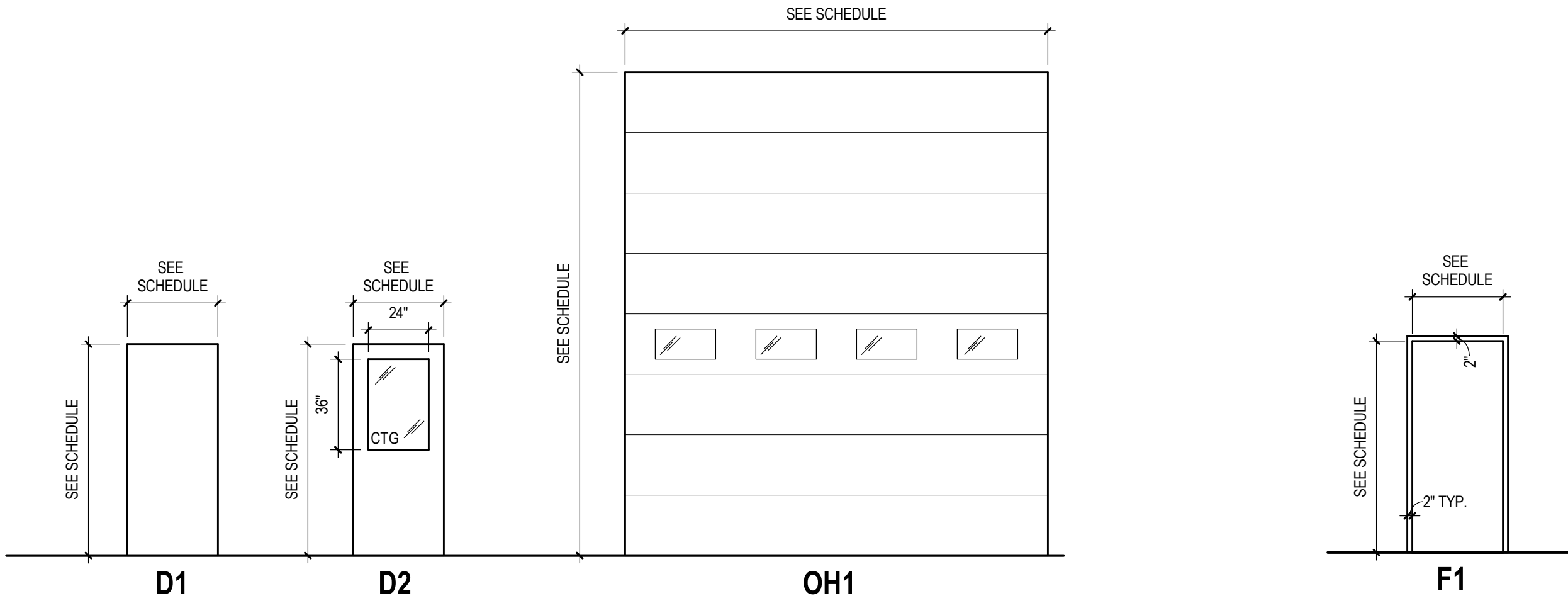


10 WEST ELEVATION
1/8" = 1'-0"

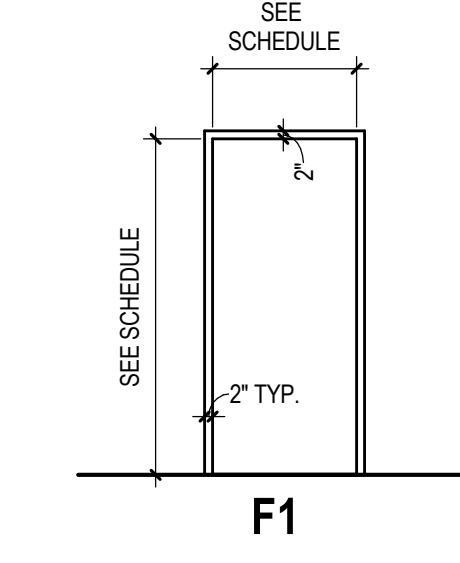
DOOR SCHEDULE											
MARK	DOOR				FRAME		FIRE RATING	GLAZING	HARDWARE FUNCTION	SCHEDULE NOTES	
	WIDTH	HEIGHT	THICKNESS	DOOR TYPE	DOOR MATERIAL	FRAME TYPE					
100	3'-0"	7'-0"	1 3/4"	D2	HM	F1	HM	TTIG	ENTRY		
101	3'-0"	7'-0"	1 3/4"	D2	HM	F1	HM	CTG	ENTRY		
102	3'-0"	7'-0"	1 3/4"	D1	HM	F1	HM		OFFICE		
103	3'-0"	7'-0"	1 3/4"	D2	HM	F1	HM		PASSAGE		
104	3'-0"	7'-0"	1 3/4"	D1	HM	F1	HM	CTG	PRIVACY		
105A	3'-0"	7'-0"	1 3/4"	D2	HM	F1	HM	CTG	PASSAGE		
105B	3'-0"	7'-0"	1 3/4"	D1	HM	F1	HM		ENTRY		
105C	3'-0"	7'-0"	1 3/4"	D1	HM	F1	HM		ENTRY		
105D	3'-0"	7'-0"	1 3/4"	D1	HM	F1	HM		PASSAGE		
105	4'-0"	7'-0"	1 3/4"	D1	HM	F1	HM		STORAGE		
107A	3'-0"	7'-0"	1 3/4"	D1	HM	F1	HM		ENTRY		
107B	3'-0"	7'-0"	1 3/4"	D1	HM	F1	HM		ENTRY		
OH1	14'-0"	14'-0"	1 1/2"	OH1	STEEL				-		
OH2	20'-0"	16'-0"	1 1/2"	OH1	STEEL				-		
OH3	9'-0"	12'-0"	1 1/2"	OH1	STEEL				-		
OH4	9'-0"	12'-0"	1 1/2"	OH1	STEEL				-		



22 WINDOW TYPES
1/4" = 1'-0"

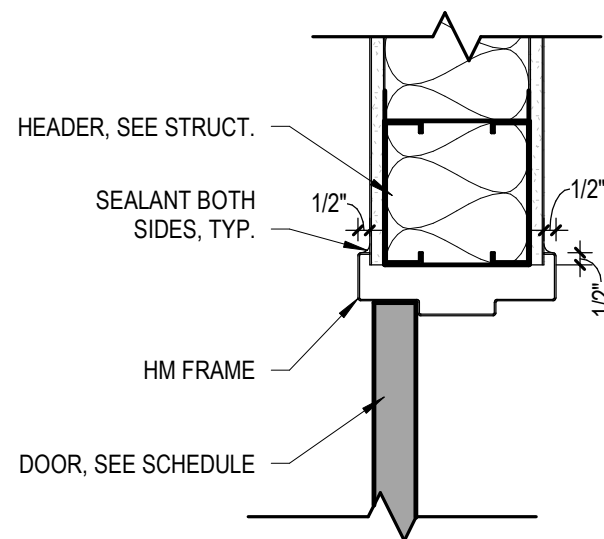


21 DOOR TYPES
1/4" = 1'-0"

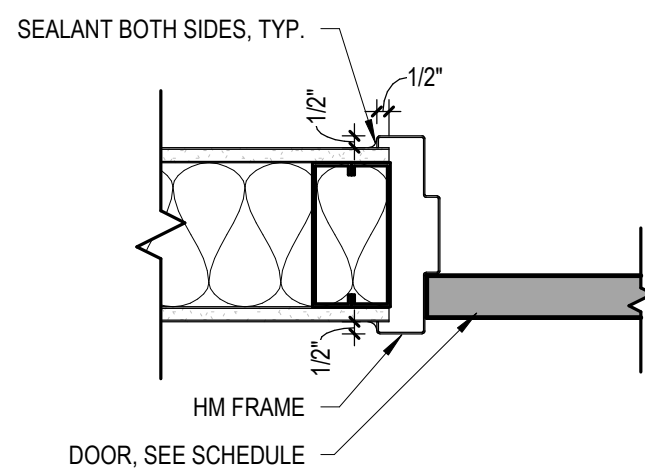


20 FRAME TYPES
1/4" = 1'-0"

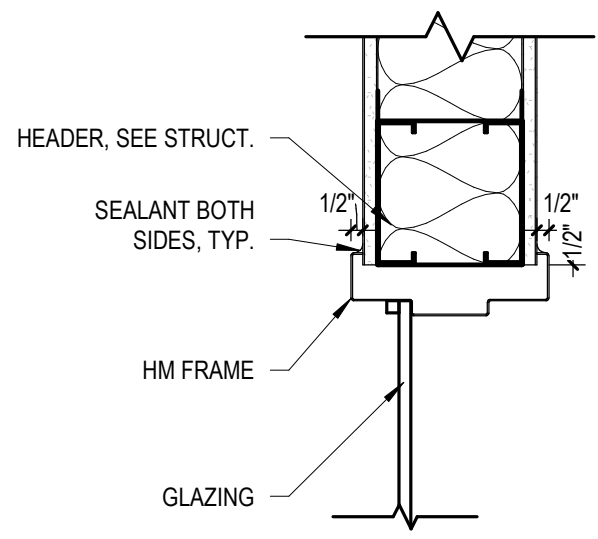
INTERIOR WALLS



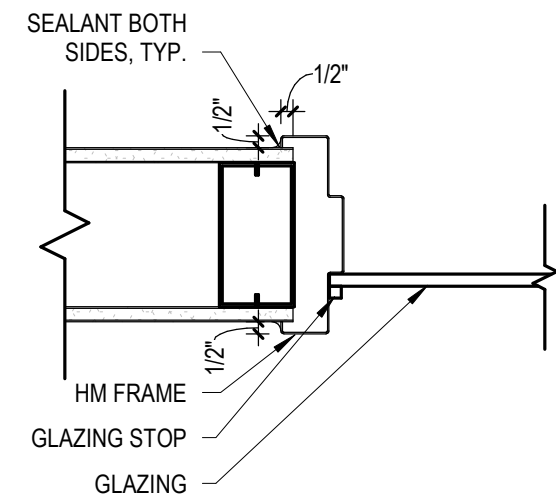
1 HM DOOR HEAD DETAIL



2 HM DOOR JAMB DETAIL

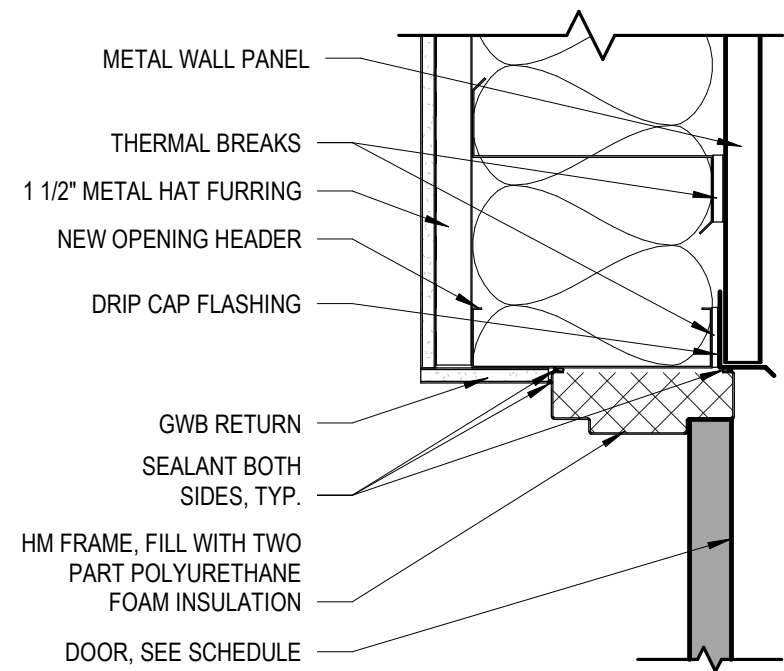


3 HM WINDOW HEAD DETAIL

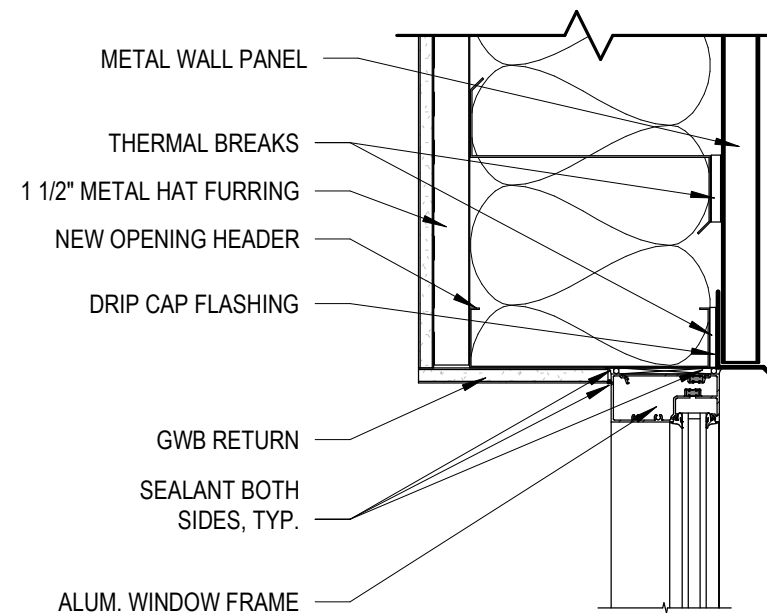


4 HM WINDOW JAMB DETAIL

EXTERIOR WALLS

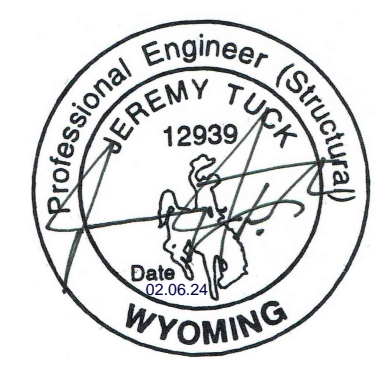


X HM DOOR HEAD @ METAL BLD. JAMB SIM.



X HM WIN. HEAD @ P.E. MTL. BLD.

10 DOOR & WINDOW DETAILS
1 1/2" = 1'-0"



DESIGN CRITERIA

1. **SCOPE OF STRUCTURAL DRAWINGS**
- A. THESE DRAWINGS ARE INTENDED TO DEFINE THE FOUNDATION SYSTEM ONLY. ELEVATION STRUCTURAL DESIGN, LLC IS NOT RESPONSIBLE FOR ANY OTHER STRUCTURAL COMPONENT CONSTRUCTED, OR ERECTED, AS PART OF THIS PROJECT.
- B. FOUNDATION DESIGN IS BASED ON RIGID FRAME AND END WALL COLUMN LOCATIONS SHOWN IN THE METAL BUILDING FRAMING DIAGRAM IN THESE PLANS.
- C. IF AT ANY TIME, THE LOADING, GEOMETRY OR DETAILING OF THE PRE-ENGINEERED METAL BUILDING SYSTEM IS MODIFIED FROM THAT SHOWN IN THESE DRAWINGS, CONTACT EOR PRIOR TO PROCEEDING WITH THE WORK.
2. **CODES AND STANDARDS**
- A. INTERNATIONAL BUILDING CODE (IBC) 2021
- B. ASCE/SEI 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS & OTHER STRUCTURES
- C. ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
3. **DEAD, LIVE AND SNOW LOADS**
- A. FOR DEAD AND LIVE LOADS, REFER TO GRAVITY LOADS TABLE BELOW.
- B. FOR SNOW LOADS, REFER TO GRAVITY LOADS TABLE BELOW. SNOW LOADS WERE CALCULATED USING THE FOLLOWING DESIGN CRITERIA:
- RISK CATEGORY = II
 - GROUND SNOW LOAD, P_g = 30 PSF
 - TERRAIN CATEGORY = C
 - SNOW EXPOSURE FACTOR, C_e = 1.0
 - SNOW THERMAL FACTOR, C_t = 1.0
 - SNOW IMPORTANCE FACTOR, I_s = 1.0
 - UNIFORM ROOF DESIGN SNOW LOAD, P_f = 30 PSF
- C. FOR SNOW DRIFT LOADS AND LOCATIONS, REFER TO SNOW DRIFT PLAN BELOW.

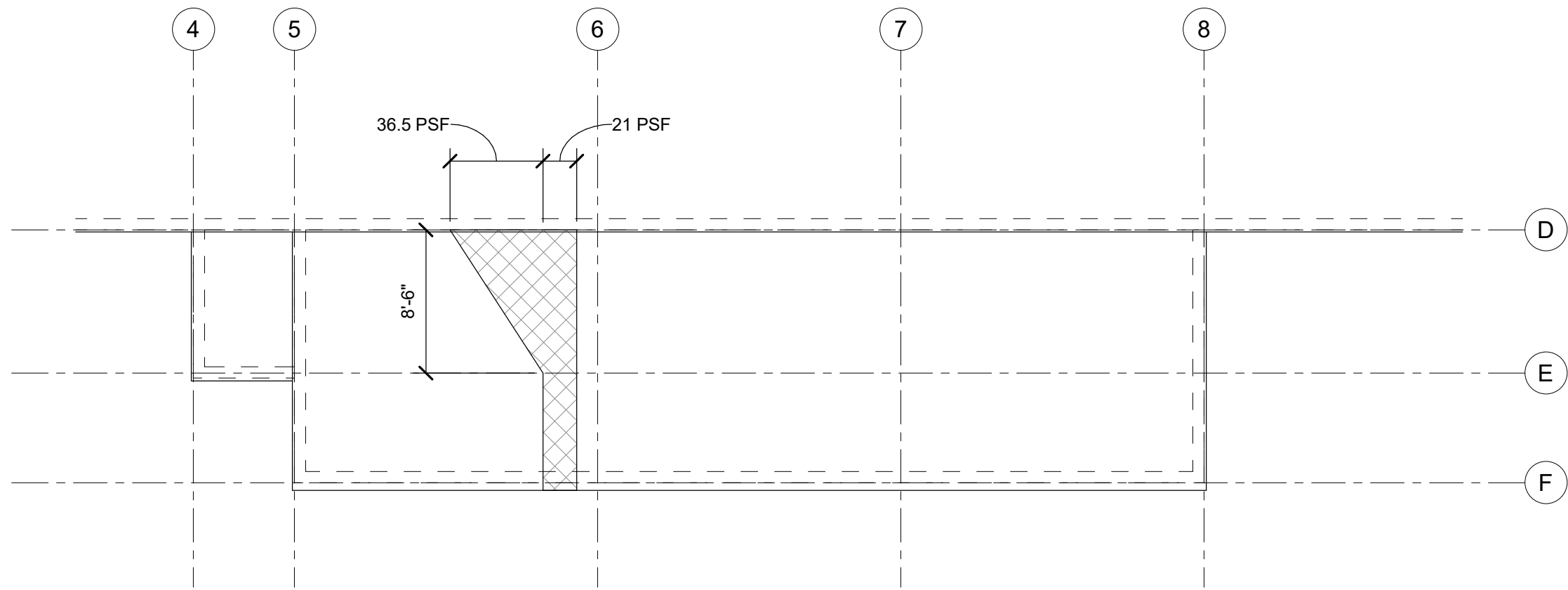
GRAVITY LOADS TABLE

LOCATION	DEAD LOAD (DL)	LIVE LOAD (LL) SNOW LOAD (SL)	NOTES
SHOP FLOOR	NA	100 PSF (LL)	N/A
OFFICE FLOOR	NA	100 PSF (LL)	N/A
ROOF	20 PSF	30 PSF (SL)	N/A

4. **WIND AND SEISMIC LOADS**
- A. THE LATERAL LOAD RESISTING SYSTEM IS COMPRISED OF METAL BUILDING RIGID FRAMES, X-BRACING AND END WALL COLUMNS AS SHOWN ON THE DRAWINGS. ALL LATERAL ELEMENTS SHALL BE PROVIDED BY THE METAL BUILDING MANUFACTURER.
- B. MAIN WIND FORCE RESISTING SYSTEM (MWFRS) AND COMPONENTS & CLADDING (C&C) PRESSURES SHALL BE CALCULATED USING THE FOLLOWING DESIGN CRITERIA:
- RISK CATEGORY = II
 - BASIC ULTIMATE WIND SPEED = 115 MPH
 - BASIC NOMINAL WIND SPEED = 89 MPH
 - EXPOSURE CATEGORY = C
 - INTERNAL PRESSURE COEFFICIENT = +/- 0.18
- C. SEISMIC LOADS SHALL BE CALCULATED USING THE FOLLOWING DESIGN CRITERIA:
- RISK CATEGORY = II
 - SEISMIC IMPORTANCE FACTOR, I_e = 1.0
 - SHORT PERIOD SPECTRAL RESPONSE, S_s = 0.162g
 - 1-SEC SPECTRAL RESPONSE, S_1 = 0.051g
 - SHORT PERIOD SPECTRAL RESPONSE, S_{s1} = 0.172g
 - 1-SEC SPECTRAL RESPONSE, S_{D1} = 0.082g
 - SITE CLASS = D (ASSUMED)
 - SEISMIC DESIGN CATEGORY = B
 - SEISMIC ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16

SNOW DRIFT PLAN

1/8" = 1'-0"



FOUNDATIONS

1. **FOUNDATION DESIGN CRITERIA**
- A. FOUNDATION DESIGN IS BASED ON THE PRESUMPTIVE LOAD BEARING VALUES OF SOILS AS PRESCRIBED BY THE GEOTECHNICAL ENGINEERING REPORT PROVIDED BY JB ENGINEERS - PROJ #01-23144, DATED 10/16/2023.
- ALLOWABLE BEARING PRESSURE = 2500 PSF
 - FROST DEPTH = 36 INCHES
 - SITE CLASS = D
2. **EXISTING SITE CONDITIONS**
- A. ALL UTILITIES SHALL BE LOCATED PRIOR TO EXCAVATION. IF UTILITIES ARE DISCOVERED WITHIN THE BUILDING PAD FOOTPRINT, CONTACT ARCHITECT & ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- B. ALL EXISTING SOILS CONTAINING VEGETATION, ORGANIC MATTER OR OTHER FOREIGN DEBRIS SHALL BE REMOVED FROM THE BUILDING PAD FOOTPRINT.
3. **SUBGRADE PREPERATION**
- A. ALL FOOTINGS & FOUNDATIONS SHALL BEAR ON PROPERLY COMPACTED STRUCTURAL FILL. REFER TO THE PROJECT'S GEOTECHNICAL REPORT FOR STRUCTURAL FILL & COMPACTION REQUIREMENTS.
- B. ALL SLABS ON GRADE WITHIN THE BUILDING FOOTPRINT SHALL BEAR ON A 0'-6" AGGREGATE BASE COURSE OVER PROPERLY COMPACTED STRUCTURAL FILL. REFER TO THE PROJECT'S GEOTECHNICAL REPORT FOR STRUCTURAL FILL & COMPACTION REQUIREMENTS.
4. **OPEN HOLE INSPECTIONS**
- A. OPEN HOLE INSPECTIONS ARE NOT PROVIDED BY ELEVATION STRUCTURAL DESIGN AND ARE THE RESPONSIBILITY OF THE CONTRACTOR OR OWNER.
- B. AN ENGINEER, LICENSED IN THE STATE OF WYOMING, SHALL BE OBTAINED TO PROVIDE THE OPEN HOLE INSPECTION AND VERIFY THAT THE ON-SITE SOIL CONDITIONS MEET OR EXCEED FOUNDATION DESIGN CRITERIA SHOWN ABOVE. IF THE ON-SITE SOIL CONDITIONS DO NOT MEET OR EXCEED THE FOUNDATION DESIGN CRITERIA, CONTACT THE ARCHITECT & ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

GENERAL NOTES & REQUIREMENTS

1. **GENERAL**
- A. REFERENCES TO 'ENGINEER' ON THE STRUCTURAL DRAWINGS SHALL MEAN STRUCTURAL ENGINEER OF RECORD.
- B. REFERENCES TO 'CONTRACTOR' ON THE STRUCTURAL DRAWINGS SHALL MEAN THE GENERAL CONTRACTOR, OR THE GENERAL CONTRACTORS SUB-CONTRACTORS.
- C. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. NOTHING SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE INFERRED TO ALLEVATE THE NEED FOR:
- THE CONTRACTOR TO COMPLY WITH ALL OSHA REQUIREMENTS, OR
 - THE CONTRACTOR TO FAIL TO PROVIDE ANY TEMPORARY SUPPORT (I.E. - BRACING, SHORING, ETC.) FOR ANY TEMPORARY CONDITIONS WHICH MAY ARISE FROM THEIR CONSTRUCTION MEANS, METHODS AND/OR SEQUENCES. REFER TO THE LATERAL LOAD RESISTING SYSTEM DESCRIPTION FOR MORE INFORMATION.
2. **COORDINATION AND USE OF DRAWINGS**
- A. STRUCTURAL DRAWINGS ARE NOT STAND ALONE DOCUMENTS AND ARE INTENDED TO BE USED IN CONJUNCTION, AND COORDINATED WITH, DRAWINGS SUPPLIED BY OTHER DISCIPLINES (I.E. - ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, CIVIL, ETC.). THE CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS SHOWN WITHIN THE CONTRACT DOCUMENTS INTO SUBMITTALS, SHOP DRAWINGS AND WORK.
- B. WHERE DISCREPANCIES EXIST WITHIN THE STRUCTURAL DRAWINGS, OR BETWEEN THE STRUCTURAL DRAWINGS AND DRAWINGS SUPPLIED BY OTHER TRADES, THE CONTRACTOR SHALL SUBMIT, IN WRITING, A REQUEST FOR INFORMATION PRIOR TO PROCEEDING WITH THE WORK.
- C. WHERE DISCREPANCIES EXIST BETWEEN GENERAL NOTES, PLANS, DETAIL AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.
- D. AGGREGATE SPECIFIC DETAILS TAKE PRECEDENCE OVER TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAIL APPLY TO ALL SIMILAR CONDITIONS. WHERE SPECIFIC DETAILS ARE NOT SHOWN, WORK SHALL CONFORM TO SIMILAR CONDITIONS ON THE PROJECT.
- E. DO NOT SCALE STRUCTURAL DRAWINGS.
- F. THE CONTRACTOR SHALL COORDINATE QUANTITIES, LOCATIONS AND DIMENSION OF OPENINGS, BLOCK OUTS, DEPRESSIONS, ETC. IN BOTH VERTICAL AND HORIZONTAL CONSTRUCTION WITH DRAWINGS SUPPLIED BY OTHER DISCIPLINES AND FIELD CONDITIONS PRIOR TO PROCEEDING WITH THE WORK.
- G. REFER TO ARCHITECTURAL PLANS FOR INTERIOR, NON-STRUCTURAL PARTITION TYPES AND LOCATIONS. FASTEN PARTITIONS TO PRIMARY STRUCTURE IN SUCH A MANNER AS TO ALLOW VERTICAL LIVE LOAD DEFLECTIONS OF a) L/360 AT FLOOR MEMBERS AND b) L/240 AT ROOF MEMBERS.
3. **SUBMITTALS AND SUBSTITUTIONS**
- A. ALL SHOP DRAWINGS AND PRODUCT SUBMITTALS SHALL BE SUBMITTED TO THE ENGINEER IN ELECTRONIC FORMAT ONLY.
- B. CONSTRUCTION DOCUMENTS SHALL NOT BE REPRODUCED FOR USE IN SHOP DRAWINGS AND/OR OTHER SUBMITTALS.
- C. SHOP DRAWINGS SHALL REFERENCE THE SHEET AND DETAIL NUMBER OF THE STRUCTURAL DRAWINGS REFERENCED DURING THE PREPARATION OF THE SHOP DRAWING SUBMITTAL.
- D. ALL SUBSTITUTIONS SHALL BE REVIEWED AND APPROVED BY THE ARCHITECT AND ENGINEER PRIOR TO PERFORMING THE WORK.
- E. REQUIRED SUBMITTALS INCLUDE:
- CONCRETE SUBMITTALS:
 - CONCRETE MIX DESIGN SUBMITTALS (INCLUDING ASR TESTING)
 - CONCRETE REINFORCING SHOP DRAWINGS
 - PRE-ENGINEERED METAL BUILDING SYSTEMS SUBMITTALS:
 - METAL BUILDING SYSTEM SHOP DRAWINGS
4. **SPECIAL INSPECTIONS AND TESTING**
- A. THE OWNER SHALL ENGAGE A QUALIFIED, INDEPENDENT AGENCY TO PERFORM SPECIAL INSPECTIONS AND TESTING AS REQUIRED BY SECTION 1704 OF THE 2021 IBC AND/OR THE LOCAL BUILDING OFFICIAL.
- B. SPECIAL INSPECTIONS AND TESTING REQUIRED FOR THIS PROJECT ARE LISTED IN THE SPECIAL INSPECTIONS AND TESTING TABLE BELOW.
- C. SPECIAL INSPECTORS SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE ARCHITECT AND ENGINEER. REPORTS SHALL INDICATE WHETHER OR NOT THE WORK WAS COMPLETED IN CONFORMANCE WITH THE APPROVED CONTRACT DOCUMENTS.
- D. ALL DISCREPANCIES SHALL BE IMMEDIATELY CORRECTED AND BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR REPAIR AND TO THE ATTENTION OF THE ARCHITECT, ENGINEER AND BUILDING OFFICIAL.

REQUIRED SPECIAL INSPECTIONS & TESTING

DESCRIPTION OF WORK	INSPECTION		TESTING		NOTES
	YES	NO	YES	NO	
SOILS SUPPORTING STRUCTURE					
DEPTH OF EXCAVATION	P			●	2A
BEARING MATERIALS	P			●	
STRUCTURAL FILL & COMPACTION	C		C		
CONCRETE CONSTRUCTION					
CONCRETE		●	C		3B
REINFORCEMENT: SIZE & SPACING	P			●	
CAST-IN-PLACE ANCHORS	P			●	
POST-INSTALLED ANCHORS	C		C		

SPECIAL INSPECTIONS & TESTING NOTES

1. FREQUENCY OF INSPECTIONS
- = YES -or- NO
 - P = PERIODIC
 - C = CONTINUOUS
2. SOILS
- A. REFER TO TABLE 1706.3 OF THE 2021 IBC FOR ADDITIONAL INFORMATION.
3. CONCRETE
- A. REFER TO TABLE 1706.3 OF THE 2021 IBC FOR ADDITIONAL INFORMATION.
- B. PROVIDE SLUMP, AIR & COMPRESSIVE STRENGTH TESTS PRIOR TO PLACEMENT EACH DAY.

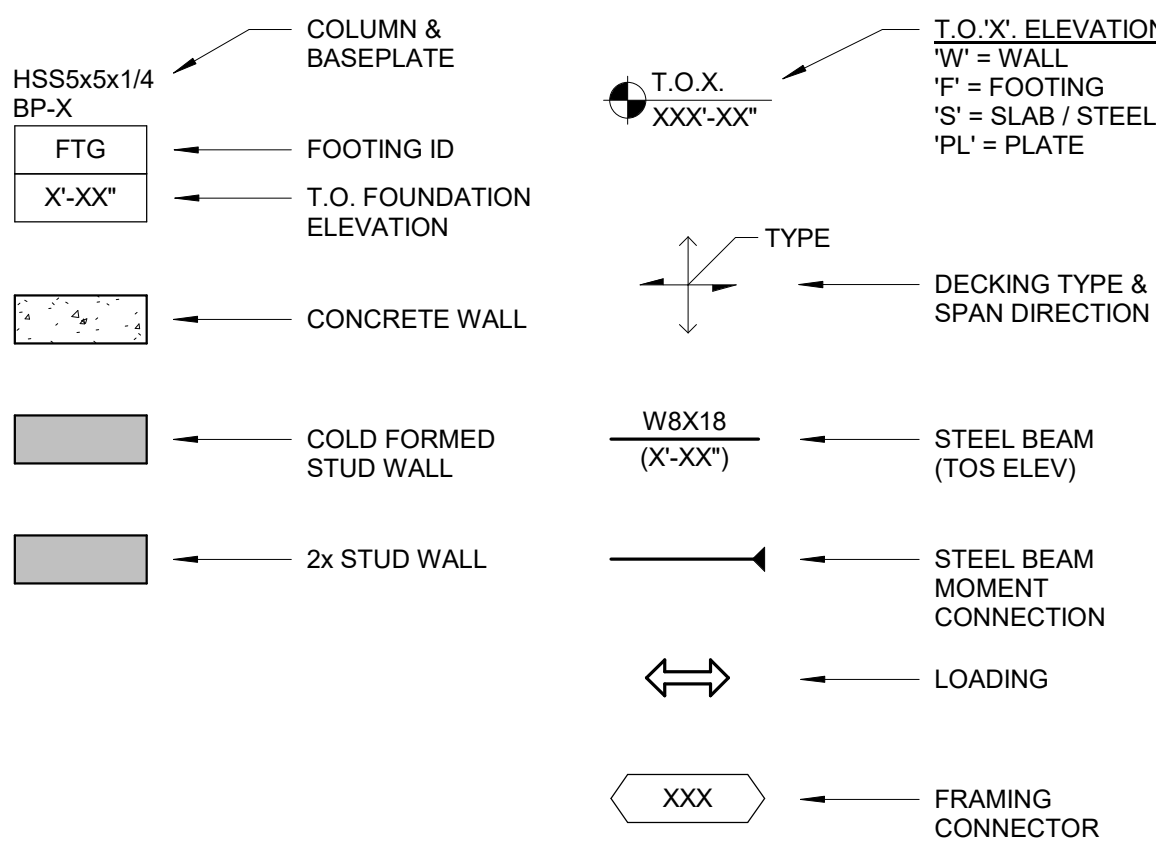
CONCRETE NOTES & SPECIFICATIONS

1. **GENERAL**
- A. ALL WORK SHALL CONFORM WITH ACI 301, LATEST EDITION.
2. **CONCRETE MATERIALS AND MIX DESIGNS**
- A. CONCRETE MIX DESIGNS FOR FOOTINGS & FOUNDATION WALLS SHALL MEET THE FOLLOWING REQUIREMENTS:
- MINIMUM COMPRESSIVE STRENGTH (f'_c) = 4500 PSI AT (28) DAYS
 - PORTLAND CEMENT (ASTM C150) = TYPE III
 - NORMAL WEIGHT AGGREGATES (ASTM C33) = 3/4" MAX
 - AIR CONTENT = 6% ± 1%
- B. CONCRETE MIX DESIGNS FOR SLABS ON GRADE SHALL MEET THE FOLLOWING REQUIREMENTS:
- MINIMUM COMPRESSIVE STRENGTH (f'_c) = 3500 PSI AT (28) DAYS
 - PORTLAND CEMENT (ASTM C150) = TYPE III
 - NORMAL WEIGHT AGGREGATES (ASTM C33) = 3/4" MAX
 - AIR CONTENT = NO ENTRAINED AIR
- C. CONCRETE MIX DESIGN NOTES:
- THE CONTRACTOR SHALL PROPORTION MIX DESIGNS TO CONFORM WITH THE REQUIREMENTS SHOWN IN THE CONCRETE MIX DESIGN TABLE. IF REQUIRED, ADJUST THE MIX'S SLUMP TO ACHIEVE THE CONSISTENCY AND WORKABILITY REQUIRED FOR THE MEANS AND METHODS OF PLACEMENT. THE USE OF ADMIXTURES CONFORMING TO ASTM C494 IS ACCEPTABLE.
 - PROVIDE TYPE III PORTLAND CEMENT IN ALL MIX DESIGNS, UNLESS NOTED OTHERWISE. PORTLAND CEMENT SHALL CONFORM TO ASTM C150.
 - IT IS PERMISSIBLE TO PROVIDE FLY ASH IN MIX DESIGNS, DO NOT EXCEED 25% OF TOTAL CEMENTITIOUS MATERIALS. FLY ASH SHALL CONFORM TO ASTM C018.
 - PROVIDE NORMAL WEIGHT AGGREGATE, CONFORMING TO ASTM C33, FOR ALL MIX DESIGNS UNLESS NOTED OTHERWISE.
 - AGGREGATES USED SHALL BE EVALUATED FOR THE POTENTIAL FOR ALKALI-SILICA REACTIVITY. IF AGGREGATES ARE FOUND TO BE POTENTIAL REACTIVE, MIX DESIGN SHALL INCORPORATE MEANS TO CONTROL REACTIVITY. REFER TO THE PORTLAND CEMENT ASSOCIATION'S 'GUIDE SPECIFICATION FOR CONCRETE SUBJECT TO ALKALI-SILICA REACTION.'
 - THE USE OF ENTRAINED AIR ADMIXTURES IS NOT PERMITTED IN SLABS ON GRADE.
- D. NON-SHRINK GROUT:
- 6000 PSI AT 28 DAYS = ASTM C1107 GR. B OR C
3. **CONCRETE REINFORCING**
- A. REINFORCING MATERIALS:
- TYP REINFORCING = ASTM A615
 - DEFORMED OR FIELD BENT REINFORCING = ASTM A706
 - WELDED WELDED WIRE FABRIC = ASTM A497
- B. FABRICATE ALL REINFORCING IN ACCORDANCE WITH THE ACI DETAILING MANUAL.
- C. THE CONTRACTOR SHALL PROVIDE ALL ACCESSORIES (I.E. - CHAIRS, STANDEES, TIES, STIRRUPS, ETC.) REQUIRED TO SECURE REINFORCEMENT DURING CONCRETE PLACEMENT.
4. **PLACEMENT**
- A. REINFORCEMENT PLACEMENT:
- ALL REINFORCING MUST BE SECURED INTO PLACE PRIOR TO CONCRETE PLACEMENT. 'WET STABBING' OF REINFORCEMENT IS NOT PERMITTED.
 - WELDING OF REINFORCEMENT IS NOT PERMITTED EXCEPT WHERE SPECIFICALLY CALLED OUT IN THE CONTRACT DOCUMENTS. WHERE PERMITTED, WELDING OF REINFORCEMENT SHALL CONFORM TO AWS D1.4.
 - FIELD BENDING OF REINFORCEMENT IS NOT PERMITTED EXCEPT WHERE SPECIFICALLY CALLED OUT IN THE CONTRACT DOCUMENTS. ALL REINFORCEMENT SHALL BE BENT COLD.
- B. CONCRETE PLACEMENT:
- ALL FORMWORK SHALL BE PLACED WITHIN THE TOLERANCES DESCRIBED IN ACI 301, LATEST EDITION.
 - ALL FORMWORK SHALL BE CLEAN AND FREE OF RUST & DEBRIS PRIOR TO PLACEMENT OF CONCRETE.
 - PLACE CONCRETE IN A SINGLE, CONTINUOUS OPERATION WHERE POSSIBLE. WHERE CONSTRUCTION JOINTS (COLD JOINTS) ARE REQUIRED, PROVIDE A KEYS JOINT PER TYPICAL DETAILS.
 - CONSOLIDATE CONCRETE BY MECHANICAL VIBRATION, RODDING AND TAMPING IN ACCORDANCE W/ ACI 308R.
 - HOT WEATHER PROTECTION (PER ACI 308):
 - MAINTAIN CONCRETE TEMPERATURE BELOW 90°F AT TIME OF PLACEMENT. CHILLED WATER OR CHOPPED ICE MAY BE USED PROVIDED THAT THE VOLUME IS ACCOUNTED FOR IN THE MIX DESIGN.
 - FOG-SPRAY FORMS, REINFORCING AND SUBGRADE IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE. DO NOT OVER-SATURATE SUBGRADE.
 - COLD WEATHER PROTECTION (PER ACI 308):
 - WHEN THE AVERAGE TEMPERATURE IS EXPECTED TO FALL BELOW 40°F FOR (3) SUCCESSIVE DAYS, MAINTAIN CONCRETE MIX TEMPERATURE WITHIN THE RANGE REQUIRED BY ACI.
 - DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE AND SNOW IN MIX DESIGN. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE.
 - DO NOT USE CALCIUM CHLORIDE, SALT OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS.
 - EMBEDDED ITEMS (I.E. - ANCHOR BOLTS, EMBED PLATES, PIPE SLEEVES, ETC.) SHALL BE SECURELY TIED INTO PLACE WITHIN THE FORMWORK PRIOR TO PLACEMENT OF CONCRETE. 'WET STABBING' IS NOT PERMITTED.

CONCRETE NOTES & SPECIFICATIONS (CONT)

5. **CONCRETE FINISHING AND CURING**
- A. CONCRETE FINISHING:
- FORMED SURFACES
 - PROVIDE EXPOSED ROUGH FORM FINISH. REMOVE ALL FINS, PROJECTIONS AND REPAIR ALL OTHER DEFECTS INCLUDING ROCK POCKETS (HONEYCOMBING).
 - EXPOSED SLABS & SLABS RECEIVING ADHESIVE FLOORING
 - FLOAT FINISH CONCRETE TO PROVIDE STRAIGHT & UNIFORM SLAB SURFACE. PROVIDE STEEL TROWEL FINISH; CONTINUE TROWELING PASSES UNTIL SURFACE IS UNIFORM AND FREE OF TROWEL MARKS. GRIND DOWN ANY SURFACE DEFECTS TO SATISFACTION OF ARCHITECT & OWNER.
 - SLABS RECEIVING BROOM FINISH
 - FLOAT FINISH CONCRETE TO STRAIGHT & UNIFORM SLAB SURFACE. IMMEDIATELY AFTER FLOAT FINISHING, SLIGHTLY ROUGHEN CONCRETE SURFACE FIBRE-BRISTLE BROOM PERPENDICULAR TO MAIN TRAFFIC PATTERN. COORDINATE FINAL FINISH WITH ARCHITECT.
- B. CONCRETE CURING:
- PROTECT CONCRETE FROM PREMATURE DRYING AND EXCESSIVELY HOT OR COLD TEMPERATURES.
 - FORMED SURFACES
 - CURE IN FORMS
 - DO NOT USE SPRAY APPLIED CURING COMPOUNDS UNLESS SPECIFICALLY ALLOWED BY FLOORING MANUFACTURER.
 - EXPOSED SLABS
 - PROVIDE CURING COMPOUND OR CURING AND SEALING COMPOUND. APPLY IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
6. **SLABS ON GRADE**
- A. PROVIDE SAW CUT CONTROL JOINTS AT 15'-0" OC MAX. EACH DIRECTION. SLAB SECTIONS DEFINED BY CONTROL JOINTS SHALL HAVE AN ASPECT RATIO NO GREATER THAN 1.5.
- B. CONSTRUCTION JOINTS IN SLAB ON GRADE CONSTRUCTION SHALL BE LOCATED TO ACCOMMODATE THE MAXIMUM AREA THE CONTRACTOR CAN PLACE, FINISH AND CUT CONTROL JOINTS ON THE SAME DAY.
- C. THE CONTRACTOR SHALL COORDINATE SLAB SLOPES, DEPRESSIONS, STEPS, CURBS, PADS AND THRESHOLDS WITH ARCH & MEP DRAWINGS.
- D. THE CONTRACTOR SHALL COORDINATE VAPOR RETARDER/BARRIER REQUIREMENTS AND LOCATIONS WITH ARCH DRAWINGS. VAPOR RETARDERS/BARRIERS SHALL BE INSTALLED PER THE RECOMMENDATIONS OF ACI 302.1R-04.
- E. THE MAXIMUM GAP UNDER A 10'-0" STRAIGHT EDGE, MEASURED BETWEEN SUPPORT POINTS, SHALL BE 1/4" MAXIMUM FOR A FLAT, RANDOM TRAFFIC FLOOR SLAB.

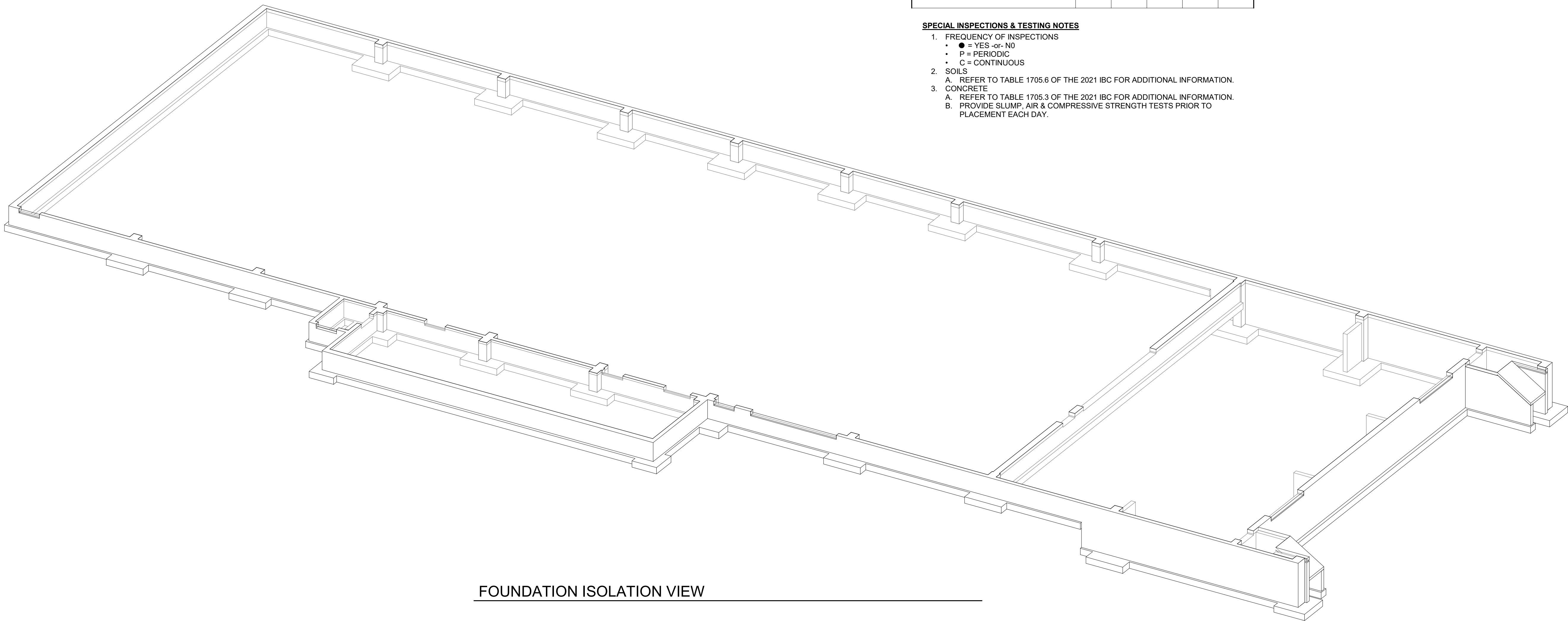
SYMBOLS LEGEND



DRAWING SHEET INDEX - STRUCTURAL

SHEET NUMBER	SHEET TITLE
S001	GENERAL NOTES
S101	FOUNDATION PLAN
S300	FOUNDATION DETAILS
Total Number of Sheets: 3	

FOUNDATION ISOLATION VIEW

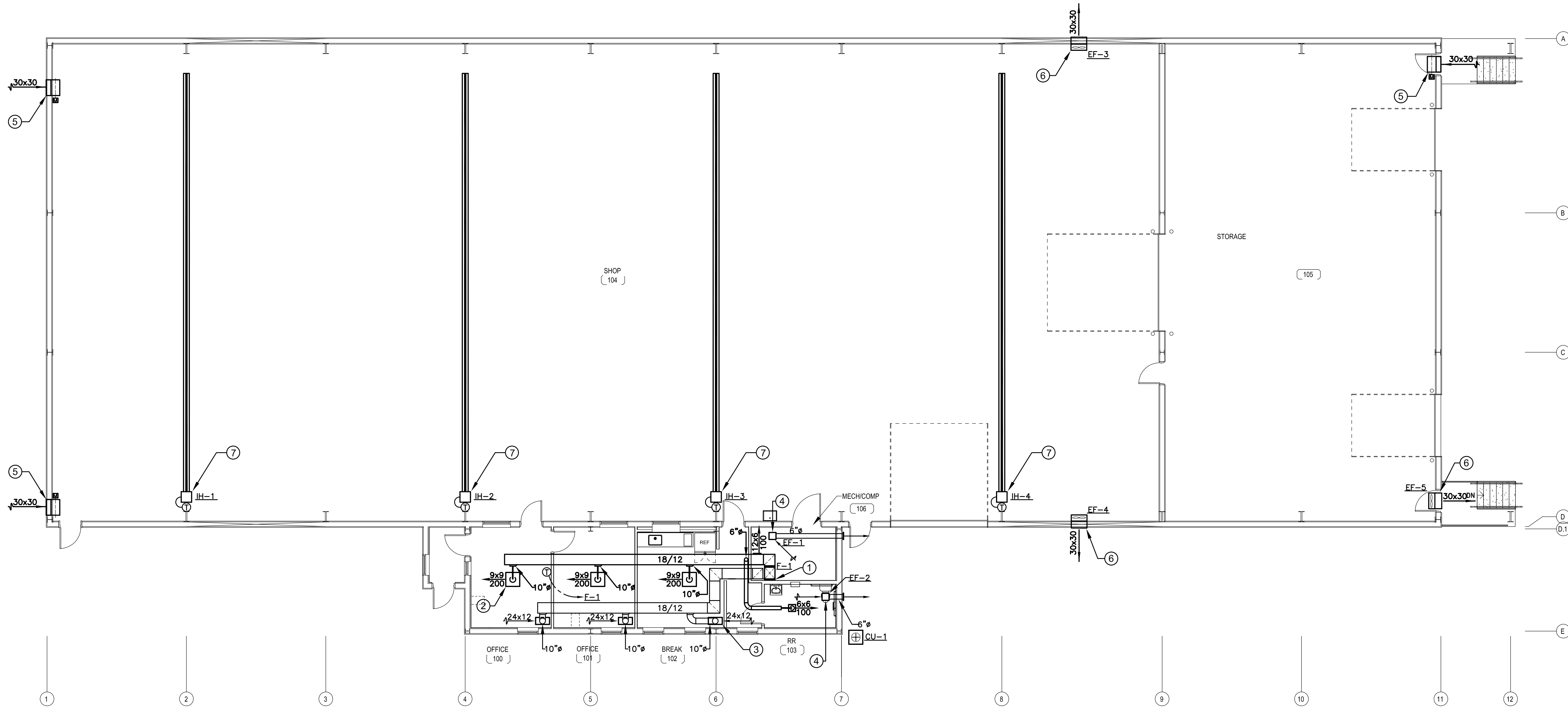


GENERAL NOTES: ⑥

- WORKMANSHIP SHALL COMPLY WITH CURRENT CODES AND ORDINANCES.
- WORK SHALL BE PERFORMED BY A LICENSED AND BONDED CONTRACTOR IN THE STATE OF WYOMING. USE SKILLED TRADESMEN IN ACCORDANCE WITH ACCEPTABLE PRACTICES.
- FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE, THE CONTRACTOR AGREES TO REPLACE AND REPAIR ALL DEFECTIVE EQUIPMENT AND INSTALLATION.
- BE RESPONSIBLE FOR, AND COORDINATE WORK WITH ALL OTHER SUBCONTRACTORS.
- PROVIDE CUT SHEETS, SUBMITTAL DATA, AND IOM DOCUMENTATION TO OWNER AT SUBSTANTIAL COMPLETION.
- ALL DUCT SHALL BE A MINIMUM OF 26 GA GALVANIZED SHEET METAL PER IMC AND SMACNA STANDARDS. FABRICATE DUCT PER SMACNA PRESSURE CLASS FOR WHICH IT IS BEING INSTALLED.
- PROVIDE TEST AND BALANCE BY A NEBB/AABC CERTIFIED INDEPENDENT CONTRACTOR. BALANCE SYSTEMS TO WITHIN 10% OF DESIGN REQUIREMENTS.
- DIMENSIONS SHOWN ON DRAWINGS FOR DUCTWORK ARE SHEET METAL DIMENSIONS. FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION OF DUCTWORK.
- INSULATE RECTANGULAR SUPPLY, RETURN AND TRANSFER DUCT WITH 1" LINER. ALL ROUND SUPPLY AND OUTSIDE AIR DUCTS ARE TO BE WRAPPED. EXHAUST AIR DUCT DOES NOT REQUIRE INSULATION. DUCTS LOCATED IN THE SPACE WHICH THEY ARE SERVING REQUIRE NO INSULATION.
- COORDINATE TYPE AND LOCATION OF ALL GRILLES, REGISTERS AND DIFFUSERS WITH ARCHITECTURAL REFLECTED CEILING PLAN PRIOR TO INSTALLATION.
- LABEL ALL EQUIPMENT WITH BLACK PLASTIC LAMINATE WITH WHITE LETTERING. MECHANICALLY FASTEN TO EQUIPMENT. LABEL EQUIPMENT AS SCHEDULED, UNLESS OTHERWISE NOTED.
- SMOKE DUCT DETECTORS ON ALL FURNACES PROVIDED AND WIRED BY EC, INSTALLED BY MC.

FLAG NOTES: ⑥

- F-1 NEW GAS FIRED FURNACE WITH CONDENSING UNIT. ROUTE 8"Ø OUTSIDE AIR DUCT THROUGH THE EXTERIOR WALL AND MAINTAIN MINIMUM 10FT. DISTANCE FROM ALL EXHAUST LOUVERS. PUMP CONDENSATE FROM COOLING COIL AND FURNACE TO BREAKROOM SINK TAILPIECE. INDIRECT CONDENSATE. ROUTE REFRIGERANT PIPING AS REQUIRED TO CONDENSING UNIT. SEE DETAIL ON DRAWING M102.
- SD-1 SUPPLY DIFFUSER. TITUS TDC OR EQUAL.
- RG-2 RETURN GRILLE. TITUS PAR OR EQUAL.
- EF-1 NEW EXHAUST FAN. ENERGIZE RESTROOM AND MECHANICAL ROOM FANS FROM LIGHT SWITCH. ENERGIZE BREAKROOM FAN FROM TIMER SWITCH. PANASONIC WHISPER OR EQUAL. 150 CFM, 120-1PH.
- IL-1 INTAKE LOUVER WITH LOW-LEAK MOTORIZED DAMPER. MOUNT AS HIGH AS POSSIBLE.
- EL-1 / EF-3 EXHAUST LOUVER WITH EXHAUST FAN. SEE SCHEDULE ON DRAWING M102. MOUNT AS HIGH AS POSSIBLE.
- IH-1 THRU IH-4 INFRARED HEATER. COORDINATE SPECIFIC CLEARANCE FROM ALL COMBUSTIBLES WITH THE MANUFACTURE, STRUCTURE, LIGHTING, ETC. SUSPEND PER MANUFACTURE INSTRUCTION 15'-0" AFF. MOUNT ASSOCIATED THERMOSTAT 48" AFF ON AN INSULATED WALL BRACKET.



1
M100

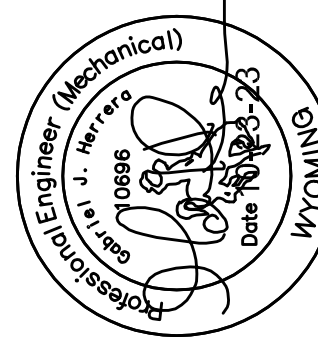
MECHANICAL FIRST FLOOR PLAN

1/8" = 1'-0"



WINTERS | GRIFFITH
ARCHITECTS

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UMC CHEYENNE FACILITY

ULLRICH MACHINERY COMPANY

NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY

MECHANICAL
FIRST FLOOR PLAN

Date

Revision Schedule
Description

No.

STATUS: PERMIT SET

DATE: 10/23/2023

M100

SEQUENCE OF OPERATION - FURNACE:

THE SPLIT-SYSTEM FURNACE SHALL BE CONTROLLED BY A 7-DAY PROGRAMMABLE THERMOSTAT WITH LCD TOUCHSCREEN, TRANE 802. THE THERMOSTAT SHALL BE WIRED TO THE FURNACE OUTSIDE AIR DAMPER TO OPEN/CLOSE PER OCCUPIED/UNOCCUPIED SCHEDULE. COORDINATE WITH THE OWNER TO SET UP THE OCCUPIED/UNOCCUPIED SCHEDULE.

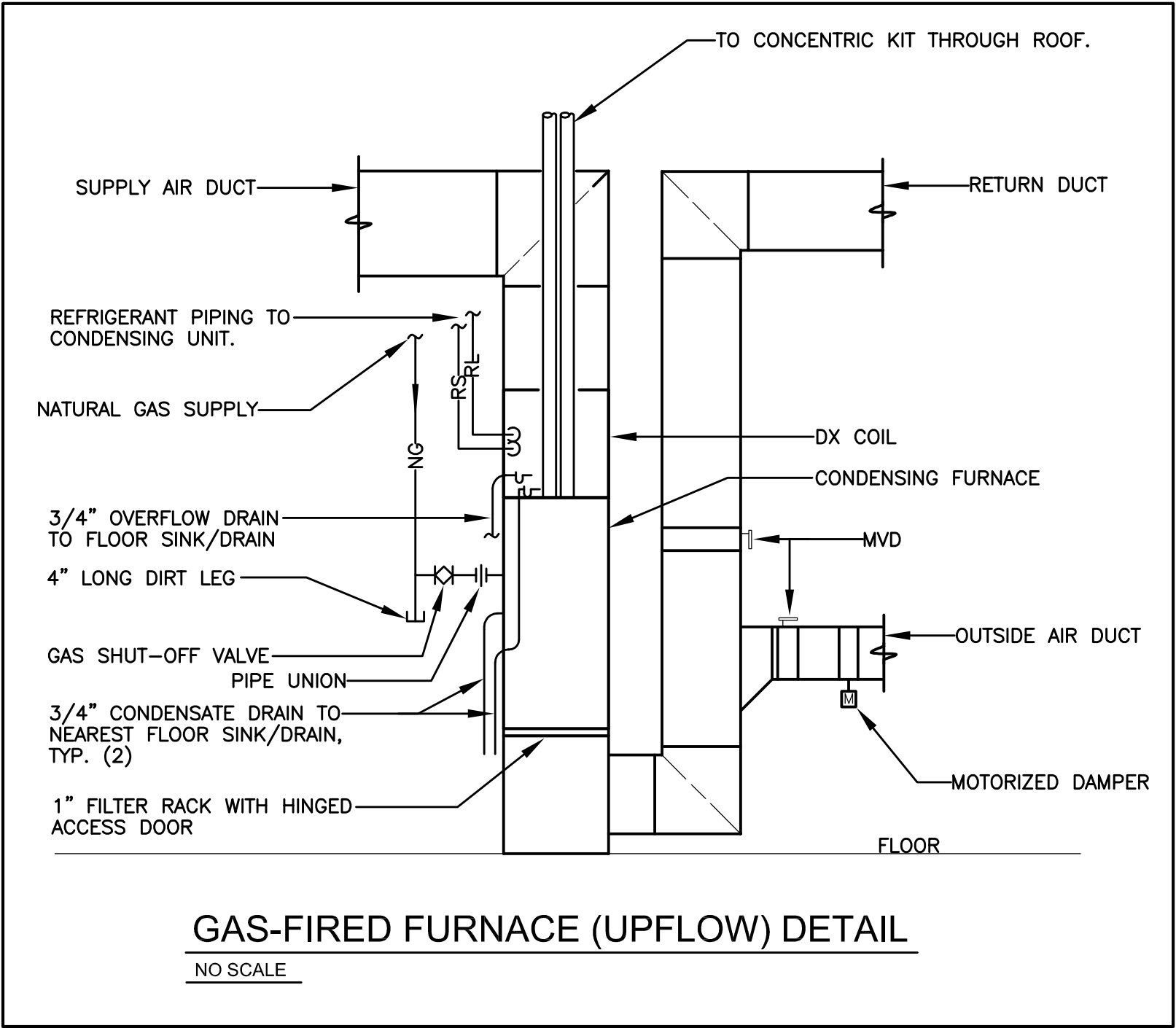
OCCUPIED MODE:

- THE FAN SHALL START AND RUN CONTINUOUSLY. (50% OF TOTAL) THE OUTSIDE AIR DAMPER SHALL OPEN TO THE MINIMUM OUTSIDE AIR POSITION. F-1.
- ON A RISE IN ROOM TEMPERATURE ABOVE THE COOLING SET POINT, THE DX COOLING SHALL CYCLE AS REQUIRED TO MAINTAIN THE COOLING SET POINT AND THE GAS HEATING SHALL BE OFF. FAN SHALL RAMP UP TO MEET SET POINT.
- ON A DROP IN ROOM TEMPERATURE BELOW THE HEATING SET POINT, THE GAS HEATING SHALL STAGE AS REQUIRED TO MAINTAIN THE HEATING SET POINT AND THE DX COOLING SHALL BE OFF. FAN SHALL RAMP UP TO MEET SET POINT.
- COOLING SET POINT = 75 DEGREES F (ADJ.), HEATING SET POINT = 70 DEGREES F (ADJ.).

UNOCCUPIED MODE:

- THE SUPPLY FAN SHALL BE OFF AND THE OUTSIDE AIR DAMPER SHALL BE CLOSED.
- ON A RISE IN ROOM TEMPERATURE ABOVE THE COOLING SET POINT, THE FAN SHALL CYCLE ON AND THE DX COOLING SHALL CYCLE AS REQUIRED TO MAINTAIN THE COOLING SET POINT AND THE GAS HEATING SHALL BE OFF.
- ON A DROP IN ROOM TEMPERATURE BELOW THE HEATING SET POINT, THE FAN SHALL CYCLE ON AND THE GAS HEATING SHALL STAGE AS REQUIRED TO MAINTAIN THE HEATING SET POINT AND THE DX COOLING SHALL BE OFF.
- COOLING SET POINT = 80 DEGREES F (ADJ.), HEATING SET POINT = 65 DEGREES F (ADJ.).

PROVIDE TRAINING FOR THE OWNER ON HOW TO MODIFY THE CONTROL SET POINTS AND SCHEDULE.



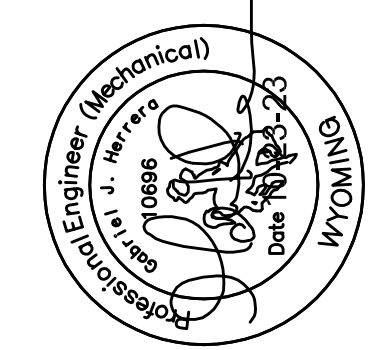
NATURAL GAS FIRED FURNACE SCHEDULE														
TAG	MAKE	MODEL	SUPPLY AIR FAN DATA					GAS HEAT DATA				DX COOLING DATA		NOTES
			CFM	MIN. OSA CFM	DRIVE	ESP IN W.C.	FAN HP	FUEL	STAGES	HEAT INPUT (MBH)	AFUI	MODEL	NOMINAL CAPACITY	
F-1	TRANE	S9V2	800	160	DIRECT	.75	3/4	NG	1	60	95%	4PXC	24,000	ALL
<div>NOTES:</div> <div><div>1.</div><div>7-DAY PROGRAMMABLE THERMOSTAT.</div></div> <div><div>2.</div><div>WALL MOUNT CONCENTRIC KIT - BAYVENT200B.</div></div> <div><div>3.</div><div>HIGH ALTITUDE KIT.</div></div> <div><div>4.</div><div>1" FILTER RACK.</div></div> <div><div>5.</div><div>NG-NATURAL GAS</div></div>														

CONDENSING UNIT SCHEDULE								
TAG	MAKE	MODEL	NOMINAL TONS	SEER	REF	ELECTRICAL		NOTES
						VOLTAGE PHASE	MAX FUSE	
CU-1	TRANE	4TTR	2	16	410A	208-3	60	ALL
NOTES: 1. LOUVERED HAIL GUARDS. 2. HIGH PRESSURE SWITCH. 3. HARD START KIT.								

GAS FIRED RADIANT HEATER SCHEDULE					
ITEM	FEET OF TUBE	INPUT MBH	VOLTS AND PHASE	MANUFACTURE	MODEL
IH-1 THRU IH-4	60 FEET	205	120-1	SUPERIOR RADIANT	UA
NOTES: 1. PROVIDE FACTORY THERMOSTATS.					

EXHAUST FAN SCHEDULE								
ITEM	TYPE	CFM	TSP	ELECTRICAL		MAKE	MODEL	CONTROL
				VOLTAGE PHASE	AMPS			
EF-1	INLINE	150	.50	120/1	5.1W	PANASONIC	WHISPER	LIGHTS
EF-2	INLINE	150	.50	120/1	5.1W	PANASONIC	WHISPER	OCC. SENSOR
EF-3 THRU EF-5	INLINE	1800	.50	120/1	1/4HP	COOK	XMW	TIME CLOCK BY ELEC,
NOTE: EF-3 THRU EF-5: PROVIDE WITH LOW-LEAK MOTORIZED DAMPER WITH 120-1PH ACTUATOR WALL HOUSING AND OSHA GUARD.								

LOUVER SCHEDULE					
ITEM	CFM	SIZE INCHES W x H	MANUFACTURE	MODEL	NOTES
EL-1	1800	30x30	RUSKIN	ELC6375	1
IL-1	1800	30x30	RUSKIN	ELC6375	1,2
NOTES: 1. COLOR BY ARCHITECT. 2. PROVIDE WITH LOW-LEAK DAMPER AND 120V ACTUATOR.					



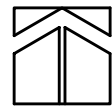
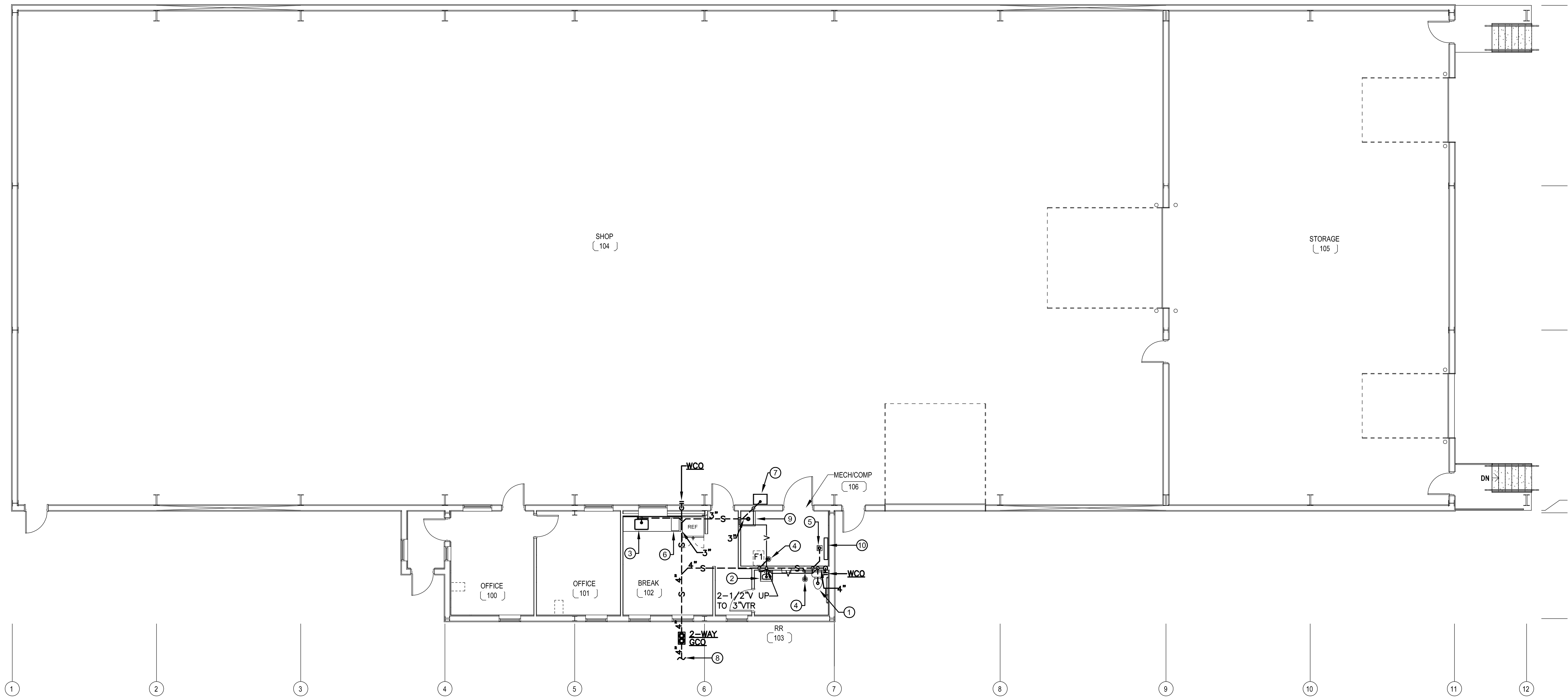
SANITARY WASTE AND VENT

GENERAL NOTES: ①

1. SEE SPECIFICATIONS, DETAILS, FIXTURE CONNECTION SCHEDULE, NOTES AND OTHER DRAWINGS FOR ADDITIONAL INFORMATION.
2. REFERENCE ARCHITECTURAL DRAWINGS FOR WALL DIMENSIONS TO LOCATE ALL PLUMBING FIXTURES.
3. REFERENCE PLUMBING DETAIL DRAWINGS, PLUMBING FIXTURE SCHEDULE DRAWING AND PLUMBING SPECIFICATION DRAWING FOR INFORMATION ON PLUMBING FIXTURES AND EQUIPMENT AND METHODS.
4. FIRE CAULK ALL PENETRATIONS OF FIRE RATED CORRIDORS, WALLS, FLOORS, GYPSUM CEILINGS AND RATED ASSEMBLIES, OR OTHER AREAS REQUIRED BY CODE AUTHORITY. THE MINIMUM SPACE AROUND PIPING SHALL BE 1/2" OR AS REQUIRED BY LOCAL AND NATIONAL CODES. SEE ARCHITECTURAL DRAWINGS FOR FURTHER INFORMATION.
5. PROVIDE SLEEVES AT ALL PIPE PENETRATIONS AT WALLS AND FLOORS. SLEEVES SHALL BE EITHER DUCTILE IRON OR PVC SIZED AT LEAST 1" LARGER THAN PIPE SIZE. AFTER PIPE IS INSTALLED, CAULK AND SEAL SLEEVE FULL DEPTH TO MAKE WATER TIGHT AND MEET FIRE CODE REQUIREMENTS.
6. PLUMBING VENT PIPING SHOWN WITH DASHED LINES IS LOCATED BELOW FLOOR SLAB, CONCRETE, ASPHALT PAVING, ETC.
7. COORDINATE LOCATION AND ROUTING OF ALL SANITARY AND VENT PIPING WITH LOCATIONS OF BEAMS, COLUMNS, PILASTERS, FOOTERS, EQUIPMENT AND OTHER TRADES. RE-ROUTE PIPING AS NECESSARY TO AVOID ANY OF THESE ITEMS OR CONFLICTS.

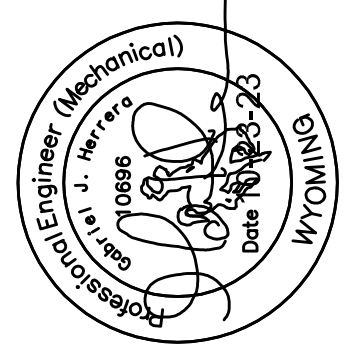
FLAG NOTES: ②

1. WC-1. WATER CLOSET. SEE PLUMBING FIXTURE CONNECTION SCHEDULE.
2. L-1. LAVATORY. SEE PLUMBING FIXTURE CONNECTION SCHEDULE.
3. S-1. BREAKROOM SINK. CONNECT AIR ADMITTANCE DEVICE MANUFACTURE STUDOR OR EQUAL, SIZED FOR A MINIMUM OF 5 FIXTURE UNITS TO WASTE LINE AND EXTEND UP INSIDE CABINET. SECURE VERTICAL PIPE AND AIR ADMITTANCE DEVICE TO MAKE SECURE INSIDE CABINET, TYPICAL. SEE PLUMBING FIXTURE SCHEDULE.
4. FD-1. FLOOR DRAIN. SEE PLUMBING FIXTURE CONNECTION SCHEDULE.
5. FS-1. FLOOR SINK. SEE PLUMBING FIXTURE CONNECTION SCHEDULE.
6. BF-1. BOTTLE FILLER. SEE PLUMBING FIXTURE SCHEDULE.
7. S-2. WASH SINK. SEE PLUMBING FIXTURE SCHEDULE.
8. CONTINUED BY CIVIL DIVISION.
9. MSB-1. MOP SERVICE BASIN. SEE PLUMBING FIXTURE SCHEDULE.
10. DOMESTIC WATER ENTRY.



1 FIRST FLOOR PLAN PLUMBING WASTE

P101 1/8" = 1'-0"



UMC CHEYENNE FACILITY
ULLRICH MACHINERY COMPANY
NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY

FIRST FLOOR PLAN
PLUMBING WASTE

Revision Schedule	
No.	Description
1	PERMIT SET
DATE:	10/23/2023

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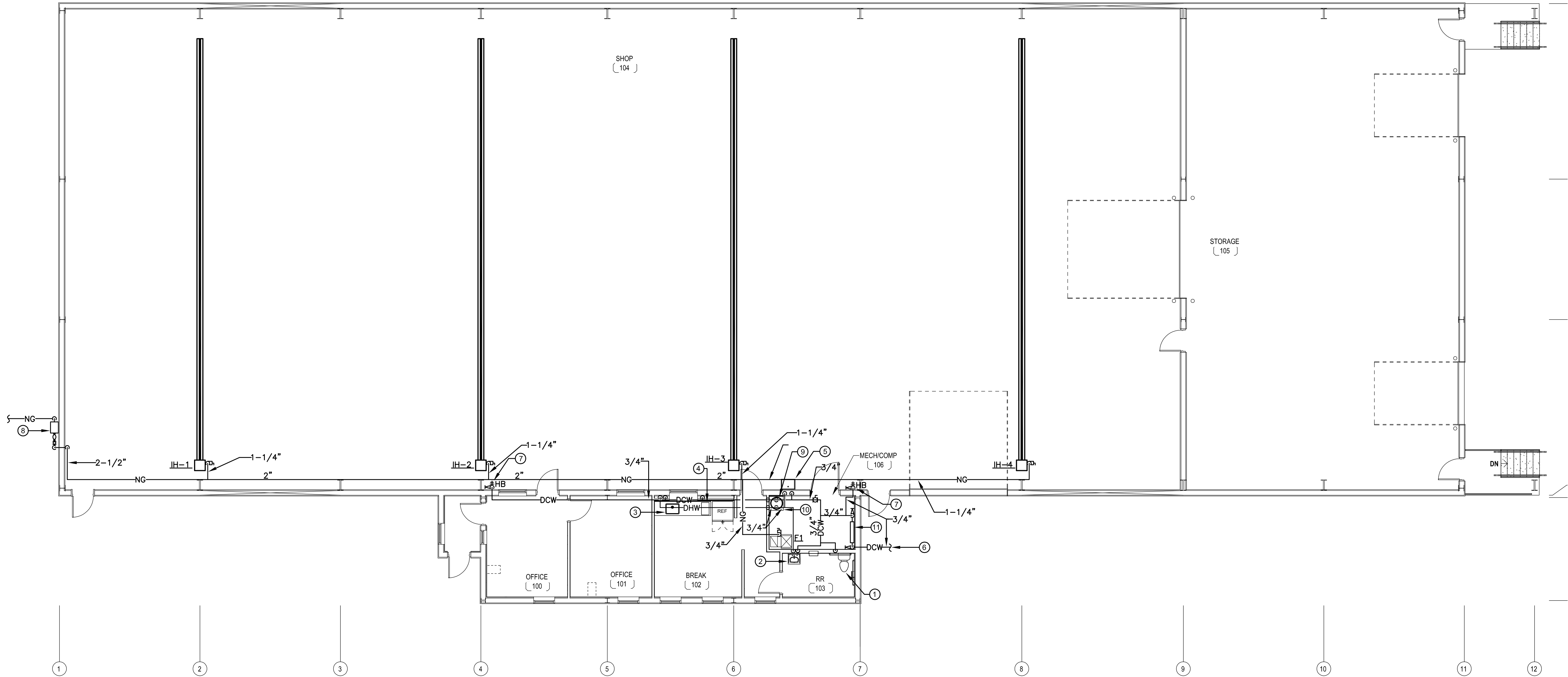
DOMESTIC WATER-NATURAL GAS

GENERAL NOTES: ①

1. SEE SPECIFICATIONS, DETAILS, FIXTURE CONNECTION SCHEDULE, NOTES AND OTHER DRAWINGS FOR ADDITIONAL INFORMATION.
2. REFERENCE ARCHITECTURAL DRAWINGS FOR WALL DIMENSIONS TO LOCATE ALL PLUMBING FIXTURES.
3. REFERENCE PLUMBING DETAIL DRAWINGS, PLUMBING FIXTURE SCHEDULE DRAWING AND PLUMBING SPECIFICATION DRAWING FOR INFORMATION ON PLUMBING FIXTURES AND EQUIPMENT AND METHODS.
4. FIRE CAULK ALL PENETRATIONS OF FIRE RATED CORRIDORS, WALLS, FLOORS, GYPSUM CEILINGS AND RATED ASSEMBLIES, OR OTHER AREAS REQUIRED BY CODE AUTHORITY. THE MINIMUM SPACE AROUND PIPING SHALL BE 1/2" OR AS REQUIRED BY LOCAL AND NATIONAL CODES. SEE ARCHITECTURAL DRAWINGS FOR FURTHER INFORMATION.
5. PROVIDE SLEEVES AT ALL PIPE PENETRATIONS AT WALLS AND FLOORS. SLEEVES SHALL BE EITHER DUCTILE IRON OR PVC SIZED AT LEAST 1" LARGER THAN PIPE SIZE. AFTER PIPE IS INSTALLED, CAULK AND SEAL SLEEVE FULL DEPTH TO MAKE WATER TIGHT AND MEET FIRE CODE REQUIREMENTS..
6. COORDINATE LOCATION AND ROUTING OF ALL WATER PIPING WITH LOCATIONS OF BEAMS, COLUMNS, PILASTERS, FOOTERS, EQUIPMENT AND OTHER TRADES. RE-ROUTE PIPING AS NECESSARY TO AVOID ANY OF THESE ITEMS OR CONFLICTS.

FLAG NOTES: ①

1. WC-1. WATER CLOSET. SEE PLUMBING FIXTURE CONNECTION SCHEDULE.
2. L-1. LAVATORY. SEE PLUMBING FIXTURE CONNECTION SCHEDULE.
3. S-1. BREAKROOM SINK. SEE PLUMBING FIXTURE CONNECTION SCHEDULE.
4. BF-1. BOTTLE FILLER. SEE PLUMBING FIXTURE SCHEDULE.
5. S-2. WASH SINK. SEE PLUMBING FIXTURE SCHEDULE.
6. CONTINUED BY CIVIL DIVISION.
7. HB-1. HOSE BIBB. MOUNT AT +48" AFF. SEE PLUMBING FIXTURE SCHEDULE.
8. NATURAL GAS SERVICE AND METER BY LOCAL UTILITY COMPANY. COORDINATE WITH LOCAL UTILITY FOR A NATURAL GAS LOAD OF 880 CFH. IF GAS METER LOCATION WILL NOT BE AS SHOWN ON THIS DRAWING, THEN PIPING LAYOUT AND SIZING MAY NEED TO BE REVIEWED AND MODIFIED.
9. DWH-1. ELECTRIC WATER HEATER. SEE PLUMBING FIXTURE SCHEDULE AND DETAIL.
10. MSB-1. MOP SERVICE BASIN. SEE PLUMBING FIXTURE SCHEDULE.
11. DOMESTIC WATER ENTRY. SEE PLUMBING FIXTURE SCHEDULE AND DETAIL.



1

FIRST FLOOR PLAN PLUMBING SUPPLY

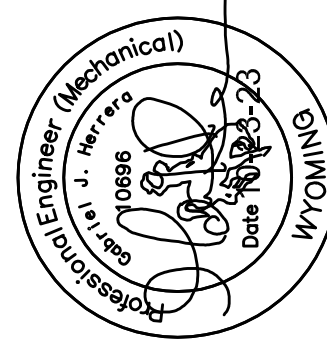
P102

1/8" = 1'-0"



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UMC CHEYENNE FACILITY

ULLRICH MACHINERY COMPANY

NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY

FIRST FLOOR PLAN
PLUMBING SUPPLY

Date

Revision Schedule
Description

No.

STATUS: PERMIT SET

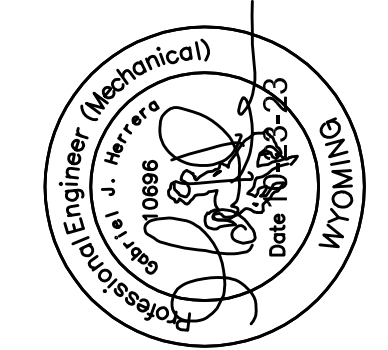
DATE: 10/23/2023

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PLUMBING FIXTURE SCHEDULE										
FIX. TAG	FIXTURE TYPE	MANUFACTURER AND MODEL NO.	COLOR	SPECIFICATIONS	DCW	DHW	VENT	WASTE	FLOW RATE	COMMENTS
WC-1	WATER CLOSET (ADA)	AMERICAN STANDARD CADET PRO RIGHT HEIGHT ELONGATED TOILET: 2467.016 OR EQUIVALENT	WHITE	FLOOR MOUNT, VITREOUS CHINA, 1.6 GPF. TOILET SEAT: AMERICAN STANDARD 5901.100SS ELONGATED. PROVIDE SUPPLY AND QUARTER TURN STOP VALVE, WAX RING, AND ALL OTHER REQUIRED COMPONENTS TO MAKE A COMPLETE WORKING SYSTEM.	1/2"	—	2"	4"	1.6 GPF	SEE NOTE 3
L-1	LAVATORY (ADA)	AMERICAN STANDARD 0355.012 OR EQUIVALENT	WHITE	WALL HUNG, WHITE VITREOUS CHINA, 4" CENTERS, CHROME PLATED OFFSET DRAIN AND TAILPIECE, CHROME PLATED ESCUTCHEON PLATE AT WALL. PROVIDE SUPPLIES AND QUARTER TURN STOP VALVES, AND ALL OTHER COMPONENTS REQUIRED. PROVIDE AND INSTALL CONCEALED ARM SUPPORT APPROPRIATE FOR LAVATORY USED. PROVIDE AND INSTALL INSULATION GUARD KIT FOR DRAIN PIPE, P-TRAP, HOT AND COLD WATER SUPPLIES AND STOP VALVES AS MANUFACTURED BY TRUEBRO OR EQUIVALENT. MOUNT AT CODE REQUIRED HEIGHT FOR ADA.	—	—	1-1/2"	2"	—	SEE NOTES 2,3
	FAUCET (ADA)	DELTA FAUCET 523LF-HGMHDF OR EQUIVALENT	POLISHED CHROME	4" CENTERSET, SINGLE LEVER HANDLE, OFFSET METAL GRID STRAINER, CHROME PLATED DECK MOUNT. 0.5 GPM FLOW.	1/2"	1/2"	—	—	0.5GPM	BACK-TO-BACK INSTALLATIONS. 3/4" DCW AND 3/4" DHW
MSB-1	MOP SERVICE BASIN	FIAT PRODUCTS MSB TSBC 1610 OR EQUIVALENT	GRAY	MOP SERVICE BASIN WITH DROP FRONT WITH STAINLESS STEEL CAPS AND INTEGRAL DRAIN FOR 3" SANITARY SEWER PIPE CONNECTION. 24"x24"x12"	—	—	2"	3"	—	
	MOP SERVICE BASIN FAUCET	CHICAGO FAUCET 897-CP OR EQUIVALENT	CHROME PLATED	WALL MOUNT, HOT AND COLD FAUCET. ATMOSPHERIC VACUUM BREAKER SPOUT, WITH LEVER HANDLES, PAIL HOOK, 3/4" HOSE END AND BRACE. POLISHED CHROME PLATED FINISH. (ADA). SECURE FAUCET TO WALL AS REQUIRED TO MAKE A SECURE AND RIGID INSTALLATION.	1/2"	1/2"	—	—	—	
ET-1	EXPANSION TANK	WATTS PLT5	—	THERMAL EXPANSION ABSORBER. INSTALL PER MANUFACTURE AND CODE REQUIREMENTS.	—	—	—	—	—	
FD-1	FLOOR DRAIN	WADE 1100-A	—	TOILET ROOM. CAST IRON BODY, FLASHING COLLAR, ADJUSTABLE TOP, NICKEL BRONZE STRAINER, ROUND GRATE.	—	—	2"	2"	—	SEE NOTES 1,4
BFP-1	DOUBLE CHECK BACKFLOW PREVENTER	WATTS LF 007S	—	BACKFLOW PREVENTER ASSEMBLY TO INCLUDE ALL BALL VALVES, UNIONS, TEST PORTS, STRAINER. COORDINATE WITH LOCAL CODE AUTHORITY HAVING JURISDICTION AS TO TYPE OF WATER METER AND LOCATION OF WATER METER. PROVIDE AND INSTALL WATER METER PER LOCAL CODE AUTHORITY HAVING JURISDICTION.	SIZE AS SHOWN ON DRAWINGS	—	—	—	—	INSTALL ON DOMESTIC WATER SERVICE LINE AFTER PRESSURE REDUCING VALVE.
PRV-1	WATER PRESSURE REDUCING VALVE	WATTS SERIES LFUSB	—	ALL BRONZE, SPRING AND DIAPHRAGM, MANUAL ADJUSTMENT FOR OUTLET WATER PRESSURE, FEMALE THREAD CONNECTIONS, IN-LINE INLET WATER STRAINER. 300 PSI INLET WATER PRESSURE RATING. MANUFACTURE: WATTS, WILKINS OR EQUIVALENT	1-1/2"	—	—	—	—	SEE WATER ENTRY DETAIL ON P-103 FOR MORE INFORMATION. SET TO 65 PSI.
FS-1	FLOOR SINK	WADE 9110	—	SQUARE CAST IRON BODY WITH FLASHING COLLAR, PORCELAIN ENAMELED INTERIOR, 6" DEEP X 8" SQUARE, NICKEL BRONZE RIM AND 3/4 GRATE. BOTTOM WASTE OUTLET FOR CONNECTION TO SANITARY WASTE PIPING. PROVIDE AND INSTALL TRAP GUARD AS MANUFACTURED BY SURESEAL OR APPROVED EQUIVALENT	—	—	2"	3"	—	SEE NOTES 1,4
S-1	SINK	ELKAY LRAD 221965PD	SS	WITH PERFECT DRAIN AND STRAINER. (3) 1-1/2" FAUCET HOLES AT 4" CENTERS. PROVIDE COMPLETE SINK ASSEMBLY. PROVIDE STOP VALVES, FLEX SUPPLIES, ESCUTCHEONS, ETC.	—	—	1-1/2"	2"	—	SEE NOTES 1,2,3
	SINK FAUCET	CHICAGO FAUCET 201-AGN8AE35VPABCP	POLISHED CHROME	8" CENTERSET, 8" RIGID/SWING GOOSENECK SPOUT, VANDAL PROOF AERATOR, LEVER HANDLES, CHROME PLATED DECK MOUNT.	1/2"	1/2"	—	—	—	
S-2	WASH SINK	ELKAY EWS 2520W4C	SS	WALL MOUNT WITH HANGERS. PROVIDE APPROPRIATE DRAIN AND STRAINER. 2" DRAIN WITH "P" TRAP. PROVIDE COMPLETE SINK ASSEMBLY. PROVIDE STOP VALVES, FLEX SUPPLIES, ESCUTCHEONS, ETC.	—	—	1-1/2"	3"	—	SEE NOTES 3
	SINK FAUCET	ELKAY LK940GN05T4H	POLISHED CHROME	8" CENTERSET, GOOSENECK SPOUT, VANDAL PROOF AERATOR, WRIST BLADE HANDLES, CHROME PLATED. PROVIDE STOP VALVES, FLEX SUPPLIES, ESCUTCHEONS, ETC.	1/2"	1/2"	—	—	—	
BF-1	BOTTLE FILLER	AVALON AB ABCTBOTTLELSSBLK	BLACK	COUNTERTOP BOTTLE LESS WATER COOLER/HEATER. INCLUDES FILTERS AND INSTALLATION KIT. PROVIDE STOP VALVE, FLEX SUPPLY, ESCUTCHEONS, ETC. 115V-1PH. 520 WATTS. COORDINATE WITH ELECTRICAL FOR GFIC RECEPTACLE..	1/2"	—	—	—	—	
<div>NOTES:</div> <div><div><div>1. PROVIDE WITH TRAP SEAL GUARDS. TRUE SEAL OR EQUIVALENT.</div><div>2. IF REQUIRED BY LOCAL CODE AUTHORITY HAVING JURISDICTION, PROVIDE AND INSTALL AT THE ENDS OF THE LAVATORIES DCW AND DHW 3/4" SUPPLIES, WATER HAMMER ARRESTORS, PDI SIZE A. SIOUX CHIEF MODEL 652-A. PROVIDE SHUT OFF VALVES AND COORDINATE WITH GC FOR FIXTURE ACCESS.</div></div><div><div>3. PROVIDE ALL NECESSARY STOP VALVES, FITTINGS, SUPPLY PIPES, ETC., TO MAKE FOR COMPLETE CODE APPROVED WORKING PLUMBING FIXTURES AND SYSTEMS. IF WATER AND WASTE PIPING IS EXPOSED UNDER LAVATORY, PROVIDE AND INSTALL PIPE INSULATION COVER KIT BY TRUEBRO OR EQUIVALENT.</div><div>4. VENT PIPING LOCATED BELOW FLOOR SLAB SHALL BE NO SMALL THAN 2" IN DIAMETER.</div><div>5. AT ALL LAVATORIES AND SINKS REQUIRING ADA 110' F WATER, INSTALL POINT OF USE 4--PORT THERMOSTATIC TEMPERING VALVE MANUFACTURED BY LEONARD 170A-LF OR ZURN AQUA GUARD THERMOSTATIC MIXING VALVE ZW3870XLT-4P. INSTALL PER CODE AND MANUFACTURE REQUIREMENTS.</div></div></div>										

ELECTRIC WATER HEATER SCHEDULE												
EQUIPMENT TAG	MANUFACTURER AND MODEL NUMBER	WATER TEMPERATURE	RECOVERY AT 80' F RISE	TANK CAPACITY	NUMBER OF ELEMENTS	KW INPUT	ELECTRICAL DATA			DISCONNECT		NOTES
							FLA	VOLTAGE	PHASE	FURNISHED BY	INSTALLED BY	
DWH-1	A.O. SMITH DEL-20	120	23 GPH	20 GAL.	1	4.5 KW	21.6	208	1	EC	EC	
PROVIDE AND INSTALL THESE ACCESSORIES												
<div><div><div>1. 125 PSIG PRESSURE AND TEMPERATURE RELIEF VALVE</div><div>2. AXIOM INDUSTRIES LTD., MODEL NC-1 CONDENSATE NEUTRALIZATION KIT.</div><div>3. EXPANSION TANK.</div><div>4. THERMOSTATIC MIXING VALVE, OR POINT OF USE THERMOSTATIC TEMPERING VALVE AS DESCRIBED IN NOTE 5.</div></div><div><div>5. AT ALL LAVATORIES AND SINKS REQUIRING ADA 110' F WATER, INSTALL POINT OF USE 4--PORT THERMOSTATIC TEMPERING VALVE MANUFACTURED BY LEONARD 170A-LF, OR ZURN AQUA GUARD THERMOSTATIC MIXING VALVE ZW3870XLT-4P. INSTALL PER CODE REQUIREMENTS FOR ADA, AND MANUFACTURE REQUIREMENTS.</div></div></div>												

PLUMBING LEGEND	
	BALL VALVE
	FLOW ARROW
	PIPE BREAK
	PIPE CHANGE OF DIRECTION
	PIPE CHANGE OF DIRECTION WITH BALL SHUTOFF VALVE.
	PIPE CHANGE OF DIRECTION WITH PLUG TYPE SHUTOFF VALVE.
	PIPE CAP
	VENT (SANITARY)
	SANITARY WASTE PIPING
	EXISTING VENT (SANITARY)
	EXISTING SANITARY WASTE PIPING
	VENT THRU ROOF
	CEILING
	PLUG VALVE
	PRESSURE GAUGE
	PRESSURE REDUCING VALVE
	NATURAL GAS PIPING
	NATURAL GAS PIPING STRAINER
	DRAIN LINE/PIPE
	COMPRESSED AIR PIPE
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER CIRCULATING
	EXISTING DOMESTIC COLD WATER
	EXISTING DOMESTIC HOT WATER
	EXISTING DOMESTIC HOT WATER CIRCULATING
	FLOOR CLEANOUT
	WALL CLEANOUT
	GRADE CLEANOUT
	CONNECTION TO EXISTING PIPE
NOTE: NOT ALL SYMBOLS ARE NECESSARILY USED	



UMC CHEYENNE FACILITY

ULLRICH MACHINERY COMPANY

NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY

PLUMBING

FIXTURE SCHEDULE

Date

Revision Schedule

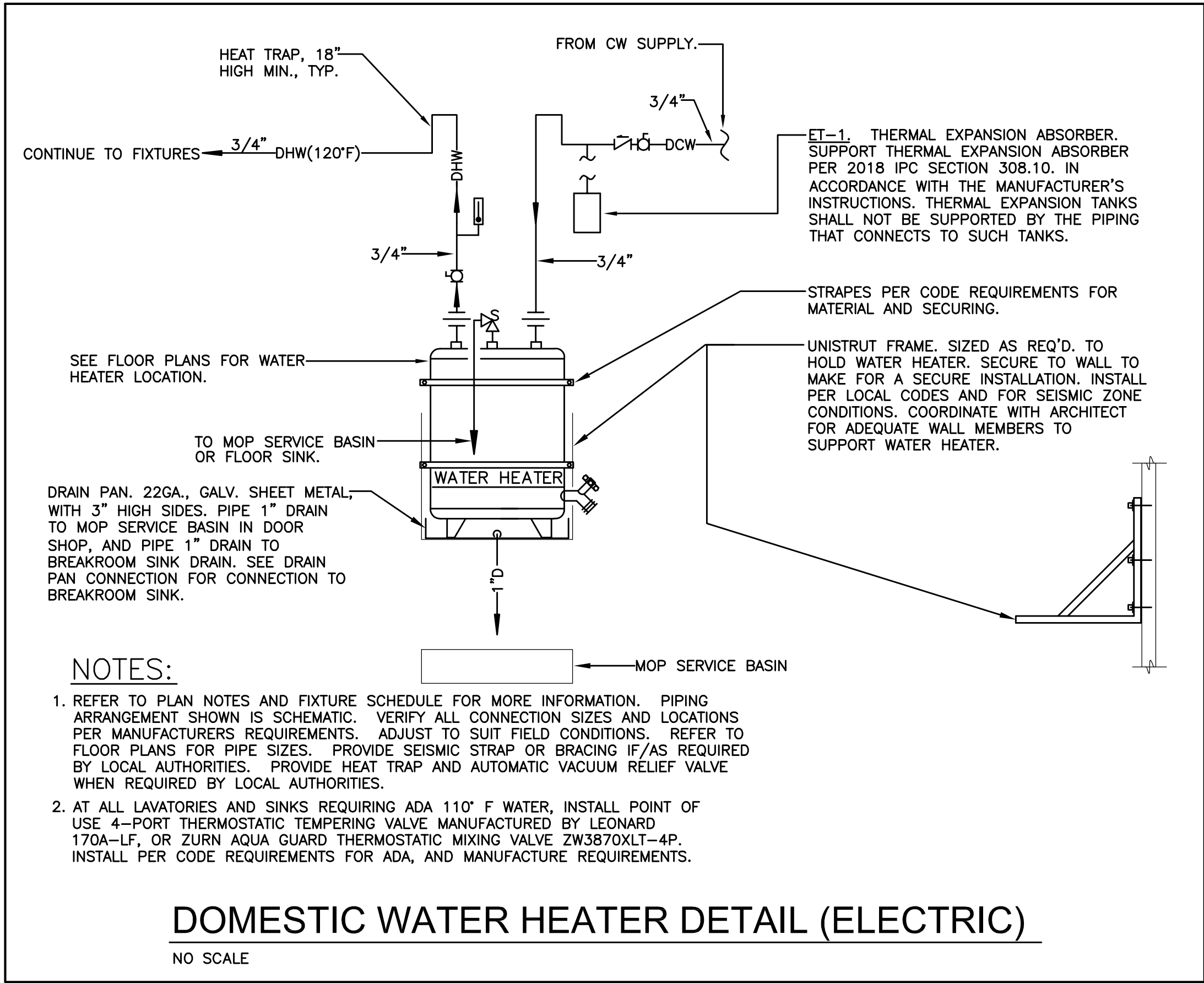
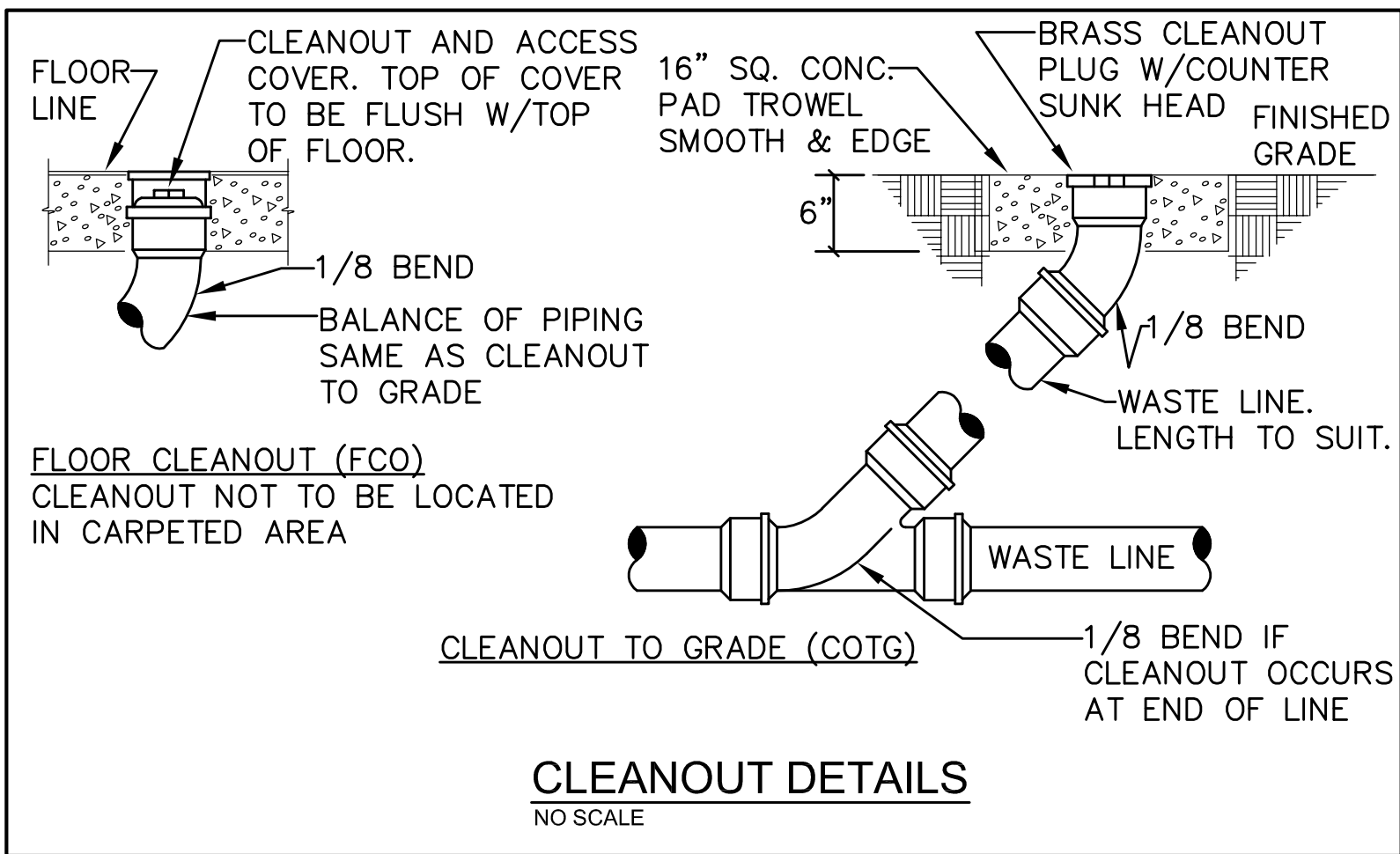
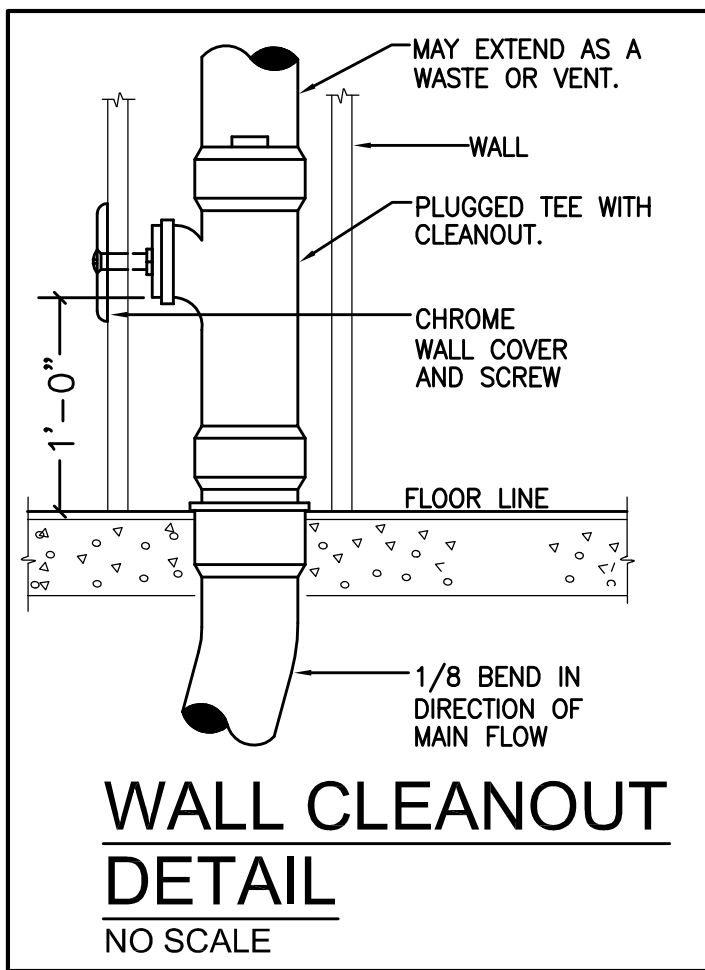
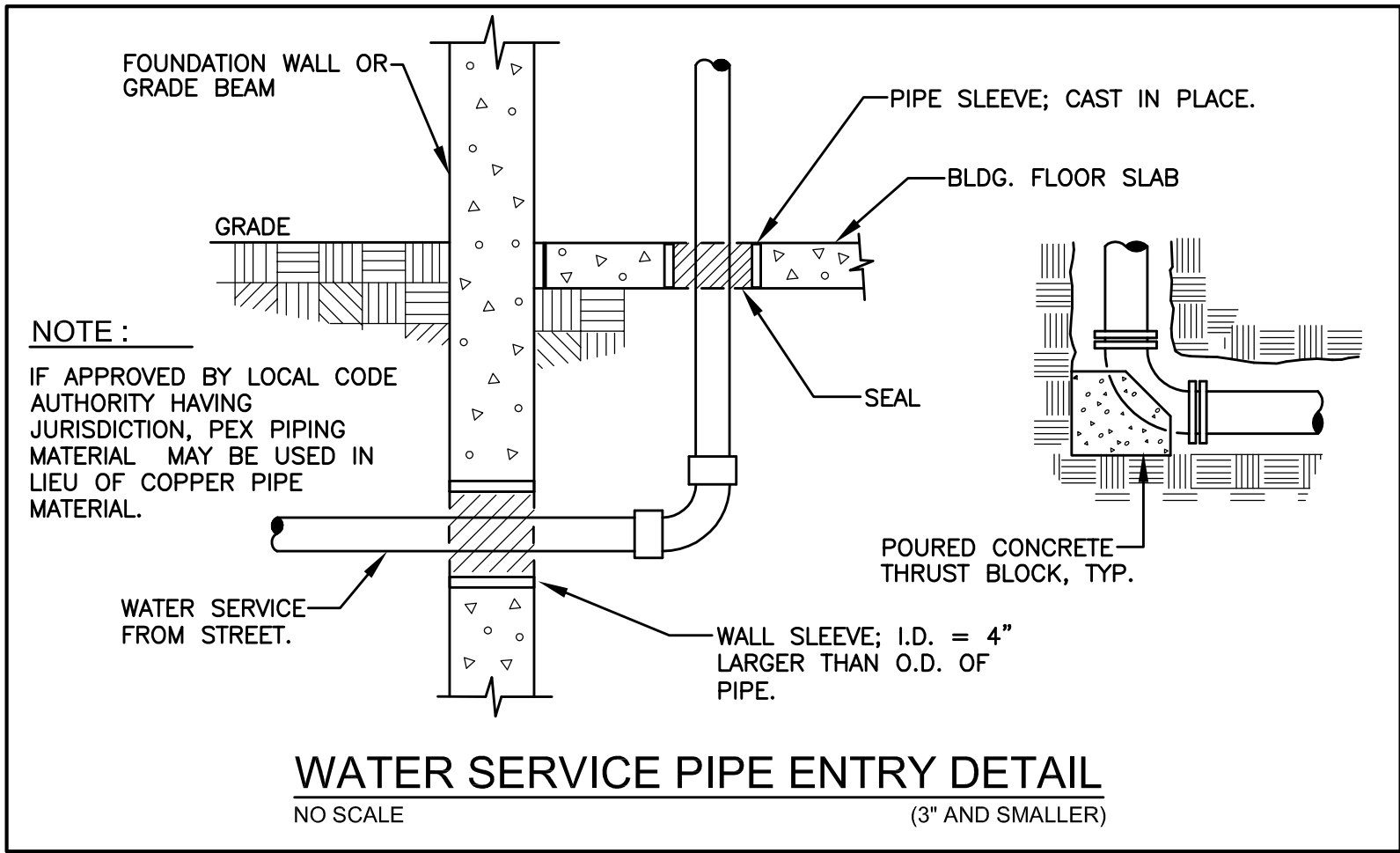
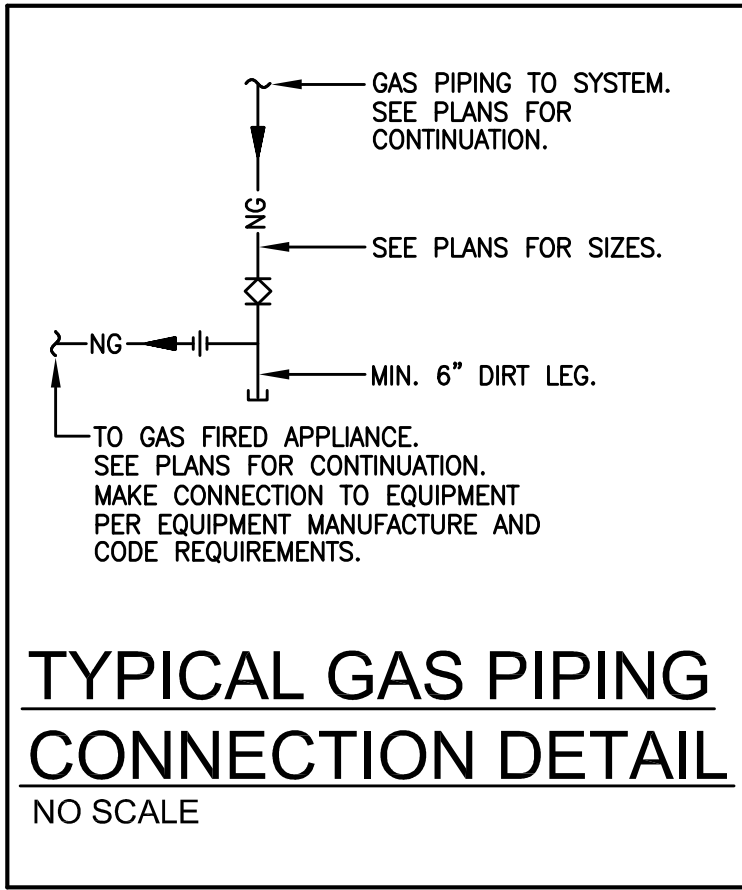
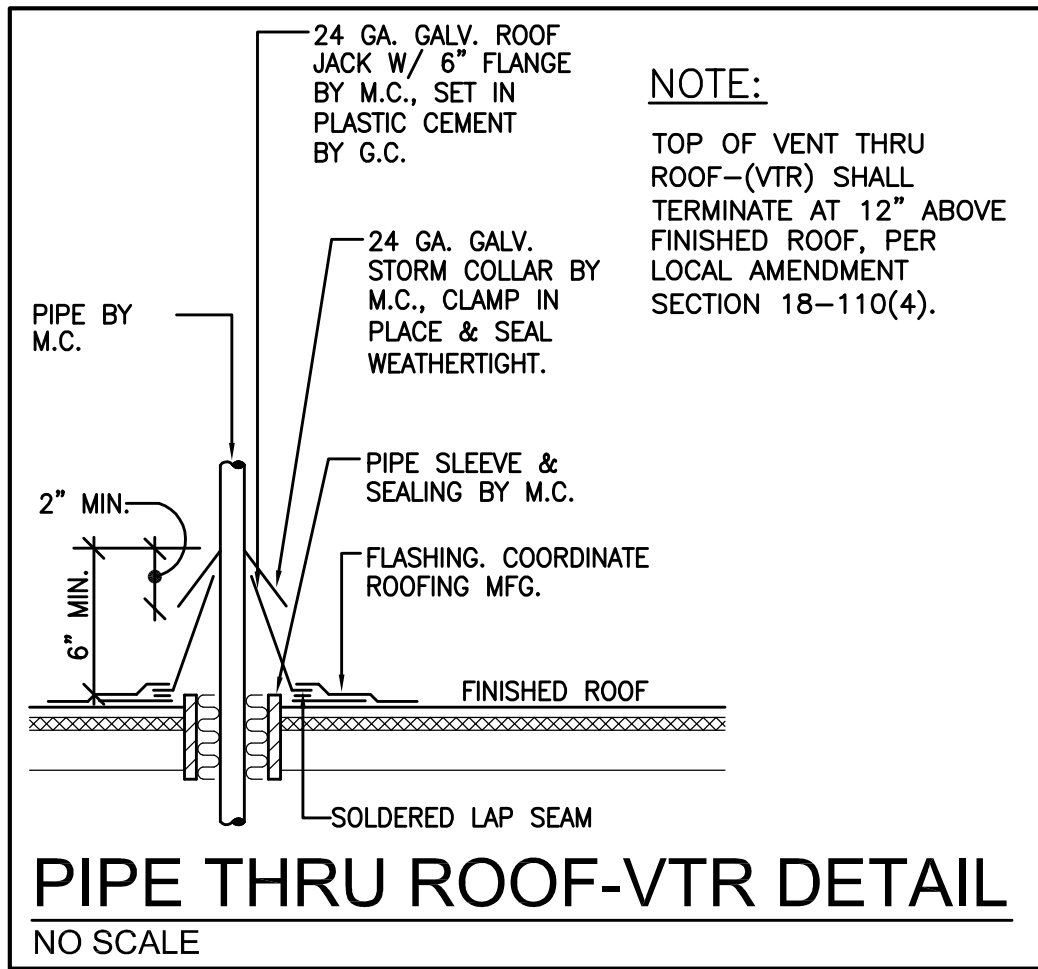
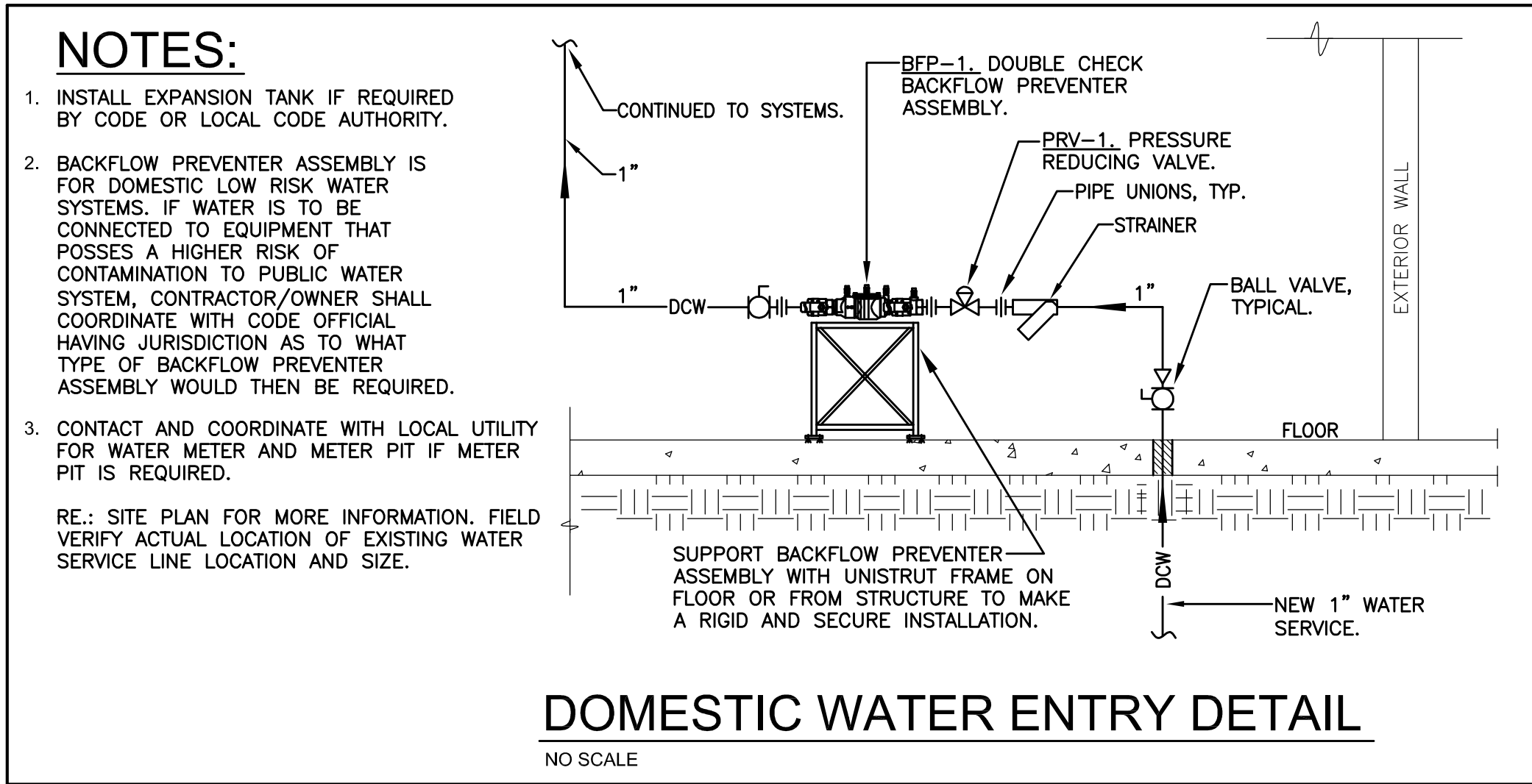
Description

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STATUS: PERMIT SET

DATE:

10/23/2023



SPECIFICATIONS:

1.

THE DRAWINGS AND SPECIFICATIONS ARE PRELIMINARY IN NATURE. THE PURPOSE OF THE DRAWINGS AND SPECIFICATIONS IS TO COMMUNICATE THE GENERAL INTENT OF THE DESIGN. THE LEVEL OF DETAIL IN THE DRAWINGS AND SPECIFICATIONS IS SCHEMATIC, HOWEVER, AND NO ATTEMPT HAS BEEN MADE TO SHOW ALL ITEMS REQUIRED TO FORM COMPLETE AND OPERATIONAL SYSTEMS IN EVERY RESPECT. IT IS INTENDED THAT PRICING SUBMITTED SHALL BE FOR A COMPLETE AND OPERATIONAL INSTALLATION AND SHALL INCLUDE EVERYTHING REQUIRED TO MAKE IT SO, WHETHER SHOWN ON THE SCHEMATIC DRAWINGS AND SPECIFICATIONS OR NOT. THE COST OF RELOCATING EXISTING EQUIPMENT, PIPING, DUCTWORK AND CONDUIT TO ALLOW FOR INSTALLATION OF NEW WORK SHALL BE INCLUDED IN PRICING/BID.
2.

ALL WORK SHALL BE PERFORMED BY OR DIRECTLY SUPERVISED BY AN EXPERIENCED AND SKILLED CRAFTSMAN IN THE TRADE. ALL WORK SHALL BE NEAT, CLEAN AND PROFESSIONAL LOOKING. UNSATISFACTORY INSTALLATION IDENTIFIED BY OWNER OR ARCHITECT, GC SHALL REPLACE AT THE CONTRACTOR'S EXPENSE WITHOUT IMPACT TO THE CONSTRUCTION SCHEDULE.
3.

NEW EQUIPMENT MANUFACTURE AND MODEL NUMBERS LISTED IN SCHEDULES AND NOTES DEFINE PERFORMANCE, PHYSICAL AND QUALITY REQUIREMENTS. THE CONTRACTOR SHALL VERIFY ANY CHANGES TO EQUIPMENT LISTED MEET OR EXCEED THOSE REQUIREMENTS PRIOR TO OBTAINING APPROVAL BY GC AND OWNER OR ARCHITECT FOR ALTERNATE EQUIPMENT AND DEVICES.
4.

WORK SHALL BE PERFORMED BY A LICENSED AND BONDED CONTRACTOR IN WYOMING UTILIZING TRADESMEN SKILLED IN THE ART AND IN ACCORDANCE WITH ACCEPTABLE PRACTICES.
5.

PROVIDE AND INSTALL ALL INCIDENTAL ITEMS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM.
6.

FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE, CONTRACTOR FURTHER AGREES THAT HE WILL REPLACE OR REPAIR ALL DEFECTIVE EQUIPMENT AND INSTALLATION THAT BECOMES DEFECTIVE DURING THE TERM OF THE WARRANTY. THIS DOES NOT INCLUDE EXCESSIVE ABUSE OR DAMAGE INFLECTED BY THE OWNER AND/OR OTHERS.
7.

PERFORM WORK IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE. THE GOOD APPEARANCE OF THE FINISHED WORK SHALL BE OF EQUAL IMPORTANCE WITH ITS MECHANICAL EFFICIENCY. DESIGN TEAM/OWNER MAY REJECT WORK IF WORKMANSHIP AND APPEARANCE ARE NOT SATISFACTORY.
8.

STORAGE OF MATERIAL: STORE ALL MATERIALS PROVIDED FOR PROJECT ON PROJECT SITE PROTECTED FROM ENVIRONMENT. STORE MATERIALS OFF OF FINISHED GRADE OR FLOOR. PROVIDE CRIBBING, SHELVING OR STORAGE CONTAINERS AS NECESSARY. PROVIDE PIPE AND DUCT CAPS FOR ALL STORED, STAGED AND HUNG MATERIALS.
9.

INSTALL ALL EQUIPMENT PER THE MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.
10.

INSTALL EQUIPMENT TO ALLOW SERVICE CLEARANCES AS SUGGESTED BY THE MANUFACTURERS.
11.

PROVIDE CUT SHEETS, SUBMITTAL DATA, AND ONE O&M DOCUMENTATION IN A BINDER TO OWNER AT SUBSTANTIAL COMPLETION.
12.

FIRE CAULK ALL PENETRATIONS OF FIRE RATED CORRIDORS, WALLS, FLOORS, GYPSUM CEILINGS AND RATED ASSEMBLIES, OR OTHER AREAS REQUIRED BY CODE AUTHORITY. THE MINIMUM SPACE AROUND PIPING SHALL BE 1/2" OR AS REQUIRED BY LOCAL OR NATIONAL CODES. SEE ARCHITECTURAL DRAWINGS FOR FURTHER INFORMATION.
13.

COORDINATE EXACT LOCATION OF EQUIPMENT AND ROUTES TO AND FROM EQUIPMENT WITH STRUCTURE AND CONDITIONS. CONDITIONS MAY WARRANT DEVIATIONS FROM PLANS. THIS CONTRACTOR IS RESPONSIBLE FOR OFFSETS OF PIPING TO AVOID CONFLICTS. NOT ALL OFFSETS, FITTINGS, EXTENSIONS SHOWN THAT MAY BE REQUIRED DURING CONSTRUCTION.
14.

INFORMATION ON DRAWINGS HAS BEEN GATHERED FROM ARCHITECTURAL DRAWINGS. THESE DRAWINGS ARE AS ACCURATE AS THE CONDITIONS WOULD ALLOW. CONTRACTOR TO VERIFY ALL EQUIPMENT PRIOR TO ORDERING WITH STRUCTURE AND BUILDING CONDITIONS.
15.

CONTRACTOR TO COORDINATE AND SCHEDULE WORK WITH OTHER TRADES.
16.

ALL PIPING AND EQUIPMENT SHALL BE INSTALLED IN A CAREFUL MANNER BY SKILLED CRAFTSMEN. ALL LENGTHS SHALL BE PLUMB WITH STRUCTURE UNLESS SHOWN OTHERWISE.
17.

THE OWNER IS NOT RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OF THE MEANS, METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES OR PROCEDURES REQUIRED TO PERFORM HIS WORK.

18.

ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL CURRENT ADOPTED APPLICABLE STATE AND LOCAL CODES, INTERNATIONAL CODES, ACCEPTABLE STANDARDS AND LOCAL AUTHORITIES.
19.

PIPING MATERIALS SHALL BE PER I.P.C. REQUIREMENTS. MEET ANSI/ASTM REFERENCE STANDARDS FOR MATERIALS, FITTING, JOINTS AND CONNECTION METHODS, AND MEET LOCAL AHJ REQUIREMENTS. ALL PIPING SHALL BE INSTALLED AND SUPPORTED PER I.P.C. REQUIREMENTS AND ANSI/ASTM STANDARDS.
20.

SEE PLUMBING FIXTURE CONNECTION SCHEDULE FOR PIPE SIZES TO EACH FIXTURE.
21.

EXAMINE ROUGH-IN FOR WATER, VENT AND WASTE PIPING SYSTEMS AND SUPPORTS TO VERIFY ACTUAL LOCATIONS AND SIZES OF PIPING CONNECTION AND THAT LOCATIONS AND TYPES OF SUPPORTS MATCH THOSE INDICATED BEFORE PLUMBING FIXTURE INSTALLATION. USE MANUFACTURER ROUGH-IN DATA IF ROUGH-IN DATA IS NOT INDICATED.
22.

INSTALL TRAP AND VENT ON DRAIN OUTLET OF EACH FIXTURE TO BE DIRECTLY CONNECTED TO SANITARY DRAINAGE SYSTEM.
23.

PIPE TRENCHING: DIG TRENCHES TO DEPTH, WIDTH, CONFIGURATION, AND GRADE APPROPRIATE TO PIPING BEING INSTALLED. DIG TRENCHES TO 6" BELOW LEVEL OF BOTTOM OF PIPE TO BE INSTALLED. INSTALL 6" OF PEA GRAVEL OR SAND. MECHANICALLY TAMP TO FIRM BED FOR PIPING, TRUE TO LINE AND GRADE. VERIFY COMPACTION COMPLETION WITH GENERAL CONTRACTOR.
24.

ALL NEW WATER PIPING ABOVE GRADE SHALL BE TYPE "L", HARD DRAWN COPPER, WROUGHT COPPER FITTINGS AND LEAD FREE SOLDER, 96-4 (TIN/SILVER). WHERE COPPER IS JOINTED TO BRASS OR BRONZE, USE BCuP2 CLASS BRAZING ALLOY.

IF APPROVED BY LOCAL CODE AUTHORITY, CROSS-LINKED POLYETHYLENE PLASTIC TUBE AND TUBING (PEX) SHALL BE ALLOWED. PIPING MATERIAL, FITTINGS AND VALVES SHALL MEET CODE REQUIREMENTS INCLUDING THE FOLLOWING STANDARDS:
PIPE MATERIALS: ASTM F876; ASTM F877; AWWA C904; CSA B137.5
VALVES: SHALL MEET NSF 61 FOR POTABLE WATER.
ASME A112.4.14; ASME A112.18.1; CSA B125.1; CSA B125.3; NSF 359
FITTINGS: ASSE 1061; ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F 2098; ASTM F2159; ASTM F 2434; ASTM F2735; CAS B137.5
SUPPORT PIPING PER IPC AND LOCAL CODE AUTHORITY REQUIREMENTS.
25.

ALL NEW WATER PIPING BELOW GRADE SHALL BE SOFT DRAWN COPPER TYPE "K" (PER CODE REQUIREMENTS), WROUGHT COPPER FITTINGS. USE 15% SILVER BRAZING ALLOY AND SILVER BRAZING FLUX.
26.

SANITARY WASTE AND VENT AND STORM PIPE BELOW GRADE: SCHEDULE 40 PVC-DIW. PIPE SHALL MEET ASTM D2729. PVC SEWER FITTINGS: ANSI/ASTM D2729/D2665. SOLVENT FOR PVC JOINTING: ANSI/ASTM D2564. OR, COATED HUBLESS CAST IRON WITH GASKET (ANSI/ASTM A888) TYPE 304 STAINLESS STEEL SHIELD WORM DRIVE AND CLAMP FITTINGS. VERIFY WITH CODE OFFICIALS FOR USE OF PVC PIPE INSIDE WALLS IN AREAS THAT HAVE RETURN AIR PLENUMS.
27.

SANITARY WASTE AND VENT AND STORM PIPE ABOVE GRADE: HUBLESS CAST IRON WITH GASKET (ANSI/ASTM A888) TYPE 304 STAINLESS STEEL SHIELD WORM DRIVE AND CLAMP FITTINGS.
28.

ALL VALVES 2" AND SMALLER SHALL BE BALL VALVES UNLESS SPECIFICALLY OTHERWISE NOTED.
29.

DOMESTIC WATER PIPING SHALL NOT BE ROUTED IN ANY EXTERIOR WALLS. ALL WATER DROPS AND CONNECTIONS SHALL BE IN INTERIOR WALLS, INCLUDING WALL HYDRANT SUPPLY.
30.

NATURAL GAS PIPE: STEEL, SCHEDULE 40, BLACK, ASTM A-53. ALL JOINTS FOR GAS PIPING INSTALLED IN PLENUMS AND CONCEALED SPACES SHALL BE WELDED. INSTALLATION SHALL BE PER CODE AND AHJ REQUIREMENTS.
31.

DRAIN PIPING MATERIAL: (IE.: CONDENSATE DRAINS, ETC.) ABOVE GRADE TO BE TYPE "L" HARD DRAWN COPPER, WROUGHT COPPER FITTINGS AND LEAD-FREE SOLDER, 96-4 (TIN/SILVER). WHERE COPPER IS JOINTED TO BRASS OR BRONZE, USE BCuP2 CLASS BRAZING ALLOY. INDIRECT DRAIN SHALL TERMINATE AT FLOOR SINK WITH 90 DEGREE ELBOW INTO DRAIN. MINIMUM 2" GAP BETWEEN BOTTOM OF FLOOR SINK AND PIPING SHALL BE MAINTAINED. IF APPROVED BY CODES, SCH. 40 PVC (ASTM D2729) CAN BE USED IN LIEU OF COPPER PIPE, WITH FITTINGS (ANSI/ASTM D2729/D2665) AND SOLVENT FOR PVC JOINTING (ANSI/ASTM 2564).
32.

LABEL ALL PIPING EVERY 8' OR AFTER EACH CHANGE IN DIRECTION WITH DIRECTION AND CONTENT LABELING MATCHING STANDARD COLOR CODES.
33.

PIPE INSULATION SHALL BE HEAVY DENSITY ONE-PIECE FIBERGLASS, FACTORY APPLIED CONTINUOUS VAPOR BARRIER JACKET, DOUBLE SURFACE ADHESIVE SELF-SEALING LAP, "K" FACTORY AT DEGREES F MEAN TEMPERATURE PER LATEST ADOPTED ENERGY CODE. AND LOCAL CODE AUTHORITY REQUIREMENTS. ALL DOMESTIC COLD AND HOT WATER PIPING, AND ALL ABOVE FLOOR STORM DRAIN PIPING, AND ALL ROOF DRAIN BODIES, SHALL HAVE MINIMUM THICKNESS INSULATION PER LATEST ADOPTED ENERGY CODE AND LOCAL CODE AUTHORITY REQUIREMENTS. OVERSIZE HANGERS FOR INSULATION SO NO PENETRATION OF THE VAPOR BARRIER OCCURS. PROVIDE SHEET METAL SHIELDS AND SADDLES OR HIGH DENSITY INSERTS AS REQUIRED TO PREVENT INSULATION DAMAGE FROM SUPPORTS. INSULATION SHALL CARRY THROUGH PIPE HANGERS AND CLAMPS. ALL PIPE INSULATION SHALL MEET THE LATEST INTERNATIONAL ENERGY CONSERVATION CODE. (IECC)

SPECIFICATIONS:

PIPE HANGERS AND SUPPORTS

FOR PIPE SIZES 2" AND LARGER, PROTECT INSULATED HORIZONTAL PIPE AT POINT OF SUPPORT BY 180 DEGREE, 12" LONG GALVANIZED SHEET METAL SHIELD SURROUNDING 180 DEGREE INSERT OF HIGH DENSITY CALCIUM SILICATE INSULATION OF SAME THICKNESS AS ADJOINING PIPE INSULATION. ON COLD PIPING, EXTEND INSULATION INSERT 1" BEYOND SHEET METAL SHIELD AT EACH END. OVERSIZE HANGERS TO ACCOMMODATE SHIELDED INSERTS. NO HANGER SHALL PENETRATE OR CRUSH INSULATING MATERIAL. AT CONTRACTOR'S OPTION, PRE-MANUFACTURED THERMAL HANGER SHIELDS WITH INTEGRAL VAPOR BARRIER, EQUIVALENT TO VALUE ENGINEERED PRODUCTS PRO-SHIELD OR PRO-SHIELD N/T, MAY BE UTILIZED. FOR EXTERIOR INSTALLATIONS USE WEATHER SHIELD WITH ALUMINUM JACKET.

PIPE HANGER RODS

THREADED STEEL.

UPPER ATTACHMENTS

STEEL STRUCTURE: BEAM CLAMP, OR C-CLAMP WITH RETAINING STRAP.

CONCRETE STRUCTURE: DROP-IN ANCHOR, ZINC PLATED CARBON STEEL BODY WITH FLANGED TOP, FOUR WAY EXPANSION SLOTS.

WOOD STRUCTURE: ANGLE CLIP - MINIMUM 1-1/2" BY 1-1/2" BY 3/16" THICK WITH TWO LAG OR WOOD SCREWS INTO WOOD MEMBER, PENETRATED A MINIMUM OF 2" INTO WOOD. FOR NOMINAL 2" LUMBER (1-1/2" THICK) THROUGH-BOLT WITH MINIMUM 1/4" DIAMETER MACHINE SCREW AND MINIMUM 1" OD FLAT WASHER EACH SIDE. DOUBLE-NUT THREADED ROD THROUGH ANGLE CLIP.

ANCHORS

USE ANCHORS FOR SUSPENDING HANGERS FROM REINFORCED CONCRETE SLABS, AND SIDES OF REINFORCED CONCRETE BEAMS.

REVIEW ANCHOR LOCATIONS, DEPTHS WITH ARCHITECT AND STRUCTURAL ENGINEER BEFORE INSTALLATION.

INSTALL PER MANUFACTURER'S DESIGN CRITERIA, INSTALLATION INSTRUCTIONS.

PIPE HANGERS AND SUPPORTS

SUPPORT HORIZONTAL PIPING AS FOLLOWS: (OR AS REQUIRED BY CODE AUTHORITY AND LATEST ADOPTED CODE.)

NOMINAL PIPE SIZE	MAXIMUM HANGER SPACING			HANGER ROD DIAMETER
	STEEL	COPPER	SCHEDULE 40 PVC	
1-1/2" AND SMALLER	6'-0"	6'-0"	4'-0"	3/8"
2" TO 4"	10'-0"	10'-0"	4' 0"	3/8"
5" TO 8"	10'-0"	10'-0"	4'-0"	1/2"
10" TO 12"	10'-0"	10'-0"	4'-0"	5/8"

INSTALL HANGERS TO PROVIDE MINIMUM 1/2" CLEAR SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK, EXCEPT WHERE UL LISTING FOR FIRE RATED CEILING REQUIRES 4" MINIMUM SEPARATION.

PLACE HANGER WITHIN 1'-6" OF EACH ELBOW OR TEE.

USE HANGERS WHICH ARE VERTICALLY ADJUSTABLE 1-1/2" MINIMUM AFTER PIPING IS ERECTED.

SUPPORT HORIZONTAL NO-HUB CAST IRON PIPE RUNS AT EACH FITTING AND AT EACH LENGTH OF PIPE LESS THAN 4'-0" WITH AT LEAST ONE HANGER. SUPPORT HORIZONTAL NO-HUB PIPES LONGER THAN 4'-0" ON BOTH SIDES OF EACH JOINT.

SUPPORT EACH BRANCH PIPE TO EQUIPMENT AT TAKE-OFF AND WITHIN 12" OF TERMINATION.

PROVIDE GALVANIZED STEEL INSULATION PROTECTION SADDLES AT ALL SUPPORT POINTS FOR INSULATED PIPES ON TRAPEZE HANGERS.

ANCHOR ALL SUPPORTING LUGS OR GUIDES TO BUILDING STRUCTURE.

REPAIR ANY FIRE RATED COATING TO STRUCTURE DAMAGED DURING INSTALLATION OF ATTACHMENTS.

FLASHING

FLASH AND COUNTERFLASH WHERE MECHANICAL EQUIPMENT PASSES THROUGH WEATHER- OR WATER-PROOFED WALLS, FLOORS, ROOFS.

SLEEVES

PROVIDE PIPE SLEEVES TO APPLICABLE TRADES WITH PRECISE ROUGH-IN LOCATIONS FOR PIPES PASSING THROUGH CONCRETE OR MASONRY CONSTRUCTION. UNLESS OTHERWISE INDICATED, SLEEVES SHALL BE OF SIZE TO PROVIDE FROM 1/4" TO 1" CLEARANCE BETWEEN BARE PIPE AND SLEEVE OR BETWEEN INSULATION JACKET AND SLEEVE. WHERE PIPE PASSES THROUGH CONCRETE FLOOR, EXTEND SLEEVE MINIMUM 1" ABOVE FINISHED FLOOR.

SLEEVES IN BEARING WALLS, WATERPROOF MEMBRANE FLOORS, WET AREAS SHALL BE STEEL PIPE OR CAST IRON PIPE. SLEEVES IN NON-BEARING WALLS, FLOORS, CEILINGS SHALL BE STEEL PIPE, CAST IRON PIPE.

ENCASE ALL INSULATED PIPES PENETRATING FIRE WALLS AND FLOORS IN 360 DEGREE METAL-SHIELDED INSULATION INSERTS AS MANUFACTURED BY VALUE ENGINEERED PRODUCTS OR EQUIVALENT. PACK AND SEAL SPACE BETWEEN SHIELD AND SLEEVE PER PRECEDING PARAGRAPH. EXTEND INSULATION INSERT ON ALL DOMESTIC COLD AND HOT WATER LINES 1" BEYOND SHEET METAL SHIELD.

WHERE PIPE PENETRATIONS OCCUR IN NON-FIRE RATED FLOORS OR WALLS, PACK SPACE BETWEEN PIPE AND SLEEVE OR INSULATION INSERT AND SLEEVE ON EACH END WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL.

PIPE TO SLEEVE CLOSURE FOR PIPES PENETRATING FOUNDATIONS, WATERPROOFING MEMBRANE FLOORS, WET AREAS SHALL BE "LINK-SEAL."

AFTER PAINTING IS COMPLETED, INSTALL CHROME PLATED ESCUTCHEONS ON ALL PIPES PASSING THROUGH FINISHED WALLS AND FLOORS.

EXECUTION

ROUTE PIPING IN ORDERLY MANNER. RUN EXPOSED PIPING PARALLEL TO WALLS. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.

MAKE CONNECTIONS TO EQUIPMENT WITH UNIONS OR FLANGES.

PIPE REDUCERS: USE REDUCERS, NOT BUSHINGS, FOR CHANGES IN PIPE SIZES.

REAM PIPE TUBE ENDS. REMOVE BURRS. BEVEL PLAIN END FERROUS PIPE.

REMOVE SCALE AND DIRT, INSIDE AND OUTSIDE, BEFORE ASSEMBLY.

REMOVE FOREIGN MATERIAL FROM PIPE AND FITTING MATERIALS.

CLOSE ENDS OF PIPE IMMEDIATELY AFTER INSTALLATION. LEAVE CLOSURE IN PLACE UNTIL REMOVAL IS NECESSARY FOR COMPLETION OF INSTALLATION.

FLUSH EACH PIPING SYSTEM AND PROVE CLEAN.

ALL PIPE MATERIALS SHALL MEET LOCAL CODE AUTHORITY APPROVAL AND REQUIREMENTS.

PIPE TESTING

GENERAL

TEST ALL PIPING SYSTEMS. CORRECT LEAKS BY REMAKING JOINTS. REMOVE EQUIPMENT NOT ABLE TO WITHSTAND TEST PRESSURE FROM SYSTEM DURING TEST. CONSULT GOVERNING CODE AUTHORITY FOR SPECIAL SYSTEM REQUIREMENTS.

GIVE AMPLE NOTICE OF DATES WHEN ACCEPTANCE TEST WILL BE CONDUCTED. CONDUCT PRESSURE, PERFORMANCE, OPERATING TESTS IN PRESENCE OF REPRESENTATIVE OF AGENCIES HAVING JURISDICTION. SUBMIT THREE COPIES OF SUCCESSFUL TEST RESULTS TO OWNER.

TEST PIPING BEFORE BEING PERMANENTLY ENCLOSED.

OBTAIN CERTIFICATES OF APPROVAL, ACCEPTANCE, COMPLIANCE WITH REGULATIONS OF AGENCIES HAVING JURISDICTION. SUBMIT TO OWNER.

ALL TESTS RESULTS SHOULD BE REPORTED TO ENGINEER OR ARCHITECT IN WRITING. NOTING THE DATE, TIME, DURATION, PORTION TESTED, MATERIAL, METHODS AND RESULTS OF PRESSURE TEST.

GAS PIPE AND PIPE FITTINGS

ALL PIPING MATERIALS SHALL COMPLY WITH LOCAL CODES.

PIPE AND TUBE

STEEL PIPE: SCHEDULE 40, BLACK ANSI/ASTM A53.

PIPE AND TUBE JOINTS AND FITTINGS

THREADED PIPE FITTINGS: MALLEABLE IRON, ANSI/ASME B16.3.

ALL JOINTS FOR GAS PIPING INSTALLED IN CONCEALED SPACES OR PLENUMS SHALL BE WELDED.

UNIONS AND COUPLINGS

DIELECTRIC UNIONS AND FLANGES: EPCC OR EQUAL HAVING PROPER GASKET MATERIAL FOR CONNECTION OF DISSIMILAR METALS.

EXECUTION

ROUTE PIPING IN ORDERLY MANNER. RUN EXPOSED PIPING PARALLEL TO WALLS. GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.

MAKE CONNECTIONS TO EQUIPMENT WITH UNIONS OR FLANGES.

PIPE REDUCERS: USE REDUCERS, NOT BUSHINGS, FOR CHANGES IN PIPE SIZES.

INSTALL VERTICAL DIRT LEG IN GAS PIPING AHEAD OF ALL GAS-FIRED EQUIPMENT AND APPLIANCES.

REAM PIPE TUBE ENDS. REMOVE BURRS. BEVEL PLAIN END FERROUS PIPE.

REMOVE SCALE AND DIRT, INSIDE AND OUTSIDE, BEFORE ASSEMBLY.

REMOVE FOREIGN MATERIAL FROM PIPE AND FITTING MATERIALS.

CLOSE ENDS OF PIPE IMMEDIATELY AFTER INSTALLATION. LEAVE CLOSURE IN PLACE UNTIL REMOVAL IS NECESSARY FOR COMPLETION OF INSTALLATION.

FLUSH EACH PIPING SYSTEM AND PROVE CLEAN.

STEEL PIPE CONNECTIONS

ALL GAS PIPING SHALL BE INSTALLED PER LATEST ADOPTED INTERNATIONAL FUEL CODE REQUIREMENTS, INTERNATIONAL PLUMBING CODE REQUIREMENTS AND LOCAL CODE REQUIREMENTS.

2" AND SMALLER - THREADED. OR WELDED IF OR AS REQUIRED BY CODE.

2 PSI PIPING SHALL BE WELDED WITH WELDED FITTINGS, JOINTS, ETC.

LABEL ALL GAS PIPING "NATURAL GAS" AND 2PSI GAS PIPE "NATURAL GAS 2PSI"

LABEL GAS PIPING WITH FLOW ARROWS.

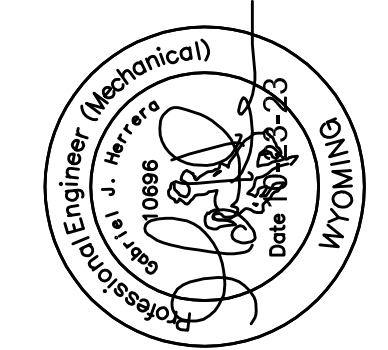
ALL JOINTS FOR GAS PIPING INSTALLED IN CONCEALED SPACES OR PLENUMS SHALL BE WELDED.

DIE CUT THREADED JOINTS WITH FULL CUT STANDARD TAPER PIPE THREADS WITH 1/2" WIDE WHITE TEFLON PIPE JOINT SEALANT TAPE APPLIED TO MALE THREADS ONLY.

USE ONLY MALLEABLE IRON THREADED PIPE FITTINGS FOR GAS PIPING IN NON-CONCEALED SPACES.

GAS PRESSURE REGULATING VALVES

AGA APPROVED. SINGLE STAGE, STEEL OR ALUMINUM HOUSING, CORROSION RESISTANT GAS PRESSURE REGULATOR WITH ATMOSPHERIC VENT, VENT KIT, ELEVATION COMPENSATOR, THREADED ENDS FOR 2" AND SMALLER, FLANGES ENDS FOR 2-1/2" AND LARGER.



UMC CHEYENNE FACILITY
ULLRICH MACHINERY COMPANY
NORTH RANGE BUSINESS PARK, LOT 2, BLOCK 9, CHEYENNE, WY

PLUMBING
SPECIFICATIONS

Revision Schedule	
No	Description
STATUS:	PERMIT SET
DATE:	10/23/2023

ABBREVIATIONS	LIGHTING SYMBOLS	ONE-LINE SYMBOLS	GENERAL NOTES																																																																																																																																																																																																																																																																																																																																																																																				
AC ABOVE COUNTER AFC ABOVE FINISHED CEILING AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE AHJ AUTHORITY HAVING JURISDICTION AIC AMPERE INTERRUPTING CAPACITY AL ALUMINUM AMP AMPERE AWG AMERICAN WIRE GAUGE BC BELOW COUNTER BFG BELOW FINISHED GRADE BLDG BUILDING BOS BOTTOM OF STEEL C CONDUIT, CONDUCTOR CATV CABLE TELEVISION CB CIRCUIT BREAKER CCTV CLOSED CIRCUIT TELEVISION CLG CEILING CPT CONTROL, POWER TRANSFORMER CR CORROSION RESISTANT CT CURRENT TRANSFORMER CU COPPER DACT DIGITAL ALARM COMMUNICATOR TRANSMITTER DB DIRECT BURIED DISC DISCONNECT DN DOWN EO ELECTRICAL CONTRACTOR ELR END OF LINE RESISTOR EM EMERGENCY EMT ELECTRICAL METALLIC TUBING EST EMERGENCY STOP ETM ELAPSED TIME METER EWC ELECTRIC WATER COOLER EQP EQUIPMENT EXIST EXISTING FAA FIRE ALARM ANNUNCIATOR FACP FIRE ALARM CONTROL PANEL FBO FURNISHED BY OTHERS FLA FULL LOAD AMPS FLR FLOOR FNR FULL VOLTAGE, NON-REVERSING FVR FULL VOLTAGE, REVERSING FWE FURNISHED WITH EQUIPMENT FU FUSE GEN GENERATOR GFCI GROUND FAULT CIRCUIT INTERRUPTER GND GROUND GRG GALVANIZED RIGID CONDUIT HOA HAND-OFF-AUTOMATIC HP HORSEPOWER HTR HEATER IG ISOLATED GROUND IMC INTERMEDIATE METAL CONDUIT K KILO KOMIL THOUSAND CIRCULAR MILS KV KILOVOLT KVA KILOVOLT-AMPERE KVAR KILOVOLT-AMPERE REACTIVE KW KILOWATT KWH KILOWATT-HOUR LA LIGHTNING ARRESTER LC LIGHTING CONTACTOR LOR LOCAL-OFF-REMOTE LS LEVEL SWITCH LT LET THROUGH LTG LIGHTING MC METAL CLAD MCA MINIMUM CIRCUIT AMPACITY MCB MAIN CIRCUIT BREAKER MCC MOTOR CONTROL CENTER MCCB MOLDED CASE CIRCUIT BREAKER MFR MANUFACTURER MI MINERAL INSULATED MLO MAIN LUG ONLY MTD MOUNTED MV MEDIUM VOLTAGE NC NORMALLY CLOSED NEC NATIONAL ELECTRICAL CODE NEG NEGATIVE NEUT NEUTRAL NIC NOT IN CONTRACT NL NIGHT LIGHT NO NORMALLY OPEN NTS NOT TO SCALE OCP OVER-CURRENT PROTECTION OL OVERLOAD PF POWER FACTOR PH PHASE PVC POLYVINYL CHLORIDE RM ROOM RSC RIGID STEEL CONDUIT RTD RESISTANCE TEMPERATURE DETECTOR RTD REDUCED VOLTAGE, NON-REVERSING RWR RIGID WIRE SN SOLID NEUTRAL SPD SURGE PROTECTION DEVICE STP SHIELDED TWISTED PAIR STT SHIELDED TWISTED TRIPLET SWBD SWITCHBOARD SWCR SWITCHGEAR TOS TOP OF STEEL TTB TELEPHONE TERMINAL BOARD TVSS TRANSIENT VOLTAGE SURGE SUPPRESSOR TYP TYPICAL UG UNDERGROUND V VOLT VA VOLT-AMPERE VAR VOLT-AMPERE REACTIVE VFD VARIABLE FREQUENCY DRIVE WG WIREGUARD WM WATT METER WP WEATHER PROOF XPMR TRANSFORMER XP EXPLOSION PROOF ZS LIMIT OR POSITION SWITCH	<div><div><div><div></div><div>CEILING MOUNTED LUMINAIRE</div></div><div><div></div><div>WALL MOUNTED LUMINAIRE</div></div><div><div></div><div>SURFACE MOUNTED LUMINAIRE</div></div><div><div></div><div>RECESS MOUNTED LUMINAIRE</div></div><div><div></div><div>STRIP LUMINAIRE</div></div><div><div></div><div>EXTERIOR POLE MOUNTED LUMINAIRE, AS SCHEDULED</div></div><div><div></div><div>CEILING OR WALL MOUNTED EXIT SIGN, INSTALL FACES AS INDICATED BY SHADING</div></div><div><div></div><div>EMERGENCY LIGHT AS NOTED</div></div><div><div></div><div>REMOTE EMERGENCY EGRESS LIGHT</div></div></div><div><div>POWER SYMBOLS</div><div><div></div><div>STRAIGHT BLADE DUPLEX RECEPTACLE</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>STRAIGHT BLADE DOUBLE DUPLEX RECEPT. (FOURPLEX)</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>DUPLEX GROUND FAULT CIRCUIT INTERRUPTER</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>DOUBLE DUPLEX GROUND FAULT CIRCUIT INTERRUPTER</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>WALL MOUNTED OUTLET WITH SPECIAL DEVICE, AS NOTED</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>FLOOR MOUNTED POWER BOX, AS NOTED</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>FLOOR MOUNTED COMBINATION OUTLET BOX, AS NOTED</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>JUNCTION BOX</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>OUTLET BOX</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>WALL MOUNTED OUTLET BOX</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>PULL BOX</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>CONNECTION TO MOTOR</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>MAGNETIC MOTOR STARTER</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>NON-FUSED SAFETY SWITCH</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>FUSED SAFETY SWITCH</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>COMBINATION DISCONNECT AND STARTER</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>ENCLOSED CIRCUIT BREAKER, MOLDED-CASE, THERMAL-MAGNETIC FIXED</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>CONNECTION TO PRE-WIRED EQUIPMENT</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>PANELBOARD</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>MOTOR CONTROL CENTER</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>SURGE PROTECTION DEVICE</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>TRANSFORMER</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>ENGINE GENERATOR</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>TIME CLOCK</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>FREQUENCY CONVERTER</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div></div><div><div>SWITCHING / CONTROLS</div><div><div></div><div>WALL MOUNTED SWITCH</div><div>SUBSCRIPTS: 2 = DOUBLE POLE 3 = 3-WAY 4 = 4-WAY D = DIMMER K = KEY-OPERATED P = PILOT LIGHT T = THERMAL OVERLOAD LV = LOW VOLTAGE DS = DOOR SWITCH OS = OCCUPANCY SENSOR</div></div><div><div></div><div>DUAL-LEVEL SWITCHES</div><div>SUBSCRIPTS: 2 = DOUBLE POLE 3 = 3-WAY 4 = 4-WAY D = DIMMER K = KEY-OPERATED P = PILOT LIGHT T = THERMAL OVERLOAD LV = LOW VOLTAGE DS = DOOR SWITCH OS = OCCUPANCY SENSOR</div></div><div><div></div><div>CEILING-MOUNTED OCCUPANCY SENSOR</div><div>SUBSCRIPTS: 2 = DOUBLE POLE 3 = 3-WAY 4 = 4-WAY D = DIMMER K = KEY-OPERATED P = PILOT LIGHT T = THERMAL OVERLOAD LV = LOW VOLTAGE DS = DOOR SWITCH OS = OCCUPANCY SENSOR</div></div></div></div> <div><div>COMMUNICATIONS SYMBOLS</div><div><div></div><div>FLOOR MOUNTED TELEPHONE AND/OR DATA OUTLET BOX, AS NOTED</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>WALL MOUNTED TELEPHONE OUTLET</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>WALL MOUNTED DATA OUTLET</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>WALL MOUNTED COMBINATION TELEPHONE/DATA OUTLET BOX</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>WIRELESS ACCESS POINT CEILING-MOUNTED</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>WALL MOUNTED TELEPHONE OUTLET, 448" AFF</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>TELEPHONE TERMINAL BOARD - TTB</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>CEILING OR WALL MOUNTED SPEAKER</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>VOLUME CONTROL</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div><div><div></div><div>TELEVISION OUTLET</div><div>SUBSCRIPTS: BC = BELOW COUNTER AC = 6" ABOVE COUNTER</div></div></div>																																																																																																																																																																																																																																																																																																																																																																																						
<div>1. INFORMATION SHOWN ON THE DRAWINGS IS DIAGRAMMATIC ONLY AND SHALL NOT BE SCALED. OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS AMONG TRADES, ETC. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND FOR ADJUSTING THE WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT.</div> <div>2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA-70, NATIONAL ELECTRICAL CODE (NEC) 2020.</div> <div>3. ALL GENERAL NOTES, SYMBOL LISTS AND DETAILS SHALL BE CONSIDERED AS APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION IN THE DESIGN.</div> <div>4. REFER TO THE ARCHITECTURAL PLANS, ELEVATIONS, AND DIAGRAMS FOR LOCATIONS OF THE FLOOR AND WALL DEVICES. UNLESS OTHERWISE NOTED CONVENIENCE RECEPTACLES SHALL BE MOUNTED 18-INCHES AFF (TO CENTERLINE OF DEVICE), LIGHTING TOGGLE SWITCHES 48-INCHES AFF (TO CENTERLINE OF DEVICE), DATA SYSTEM OUTLETS 18-INCHES AFF (TO CENTERLINE OF DEVICES), FIRE ALARM NOTIFICATION DEVICES 30-INCHES AFF OR 6-INCHES BELOW CEILING (TO CENTERLINE OF DEVICE), WHICHEVER IS LOWER, AND FIRE ALARM MANUAL PULL STATIONS 48-INCHES TO TOP OF DEVICE.</div> <div>5. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ANY NEW ELECTRICAL SERVICE INSTALLATION OR MODIFICATIONS TO THE EXISTING ELECTRICAL SERVICE WITH THE LOCAL UTILITY COMPANY PRIOR TO STARTING ANY WORK.</div> <div>6. COORDINATE ALL EQUIPMENT LOCATIONS WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATE THE WIRING DEVICE LOCATIONS WITH THE ARCHITECTURAL ELEVATIONS, CASEWORK SHOP DRAWINGS, AND EQUIPMENT INSTALLATION DRAWINGS. COORDINATE THE LOCATION OF THE MECHANICAL EQUIPMENT WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. COORDINATE THE LOCATION OF THE LUMINAIRES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.</div> <div>7. ANY ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE OWNER.</div> <div>8. UNLESS OTHERWISE NOTED BRANCH CIRCUITS SHALL BE #12 AWG CONDUCTORS AND #12 GND. HOME RUNS FED FROM 200-1P CIRCUITS IN EXCESS OF 100 FEET SHALL BE #10 AWG. BRANCH CIRCUITS SHOWN AS A SINGLE HOME RUN SHALL NOT BE COMBINED WITH OTHER CIRCUITS.</div> <div>9. ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE EQUIPMENT GROUNDING CONDUCTORS INSTALLED IN THE RACEWAY.</div> <div>10. TRANSFORMERS INDICATED TO BE SUSPENDED FROM THE STRUCTURE SHALL BE SUPPORTED BY A UNISTRUT FRAME THAT IS ATTACHED TO THE STRUCTURE.</div> <div>11. PROVIDE (1) 3/4" C WITH BUSHING AND PULL WIRE FROM EACH TELEPHONE, DATA, COMMUNICATION, AND THERMOSTAT OUTLET TO ABOVE THE ACCESSIBLE CEILING, UNLESS NOTED OTHERWISE.</div> <div>12. THE CONTRACTOR SHALL MAINTAIN FIRE-RATINGS FOR ALL CONDUIT PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.</div> <div>13. COORDINATE THE LOCATIONS AND CONTROLS OF ALL APPLICABLE FIRE/SMOKE DAMPERS WITH THE MECHANICAL CONTRACTOR, PRIOR TO CONSTRUCTION.</div> <div>14. ALL MOUNTING OF ELECTRICAL DEVICES (LUMINAIRES, TRANSFORMERS, PANELS, OUTLETS, CONDUIT RUNS, ETC.) SHALL COMPLY WITH STATE AND LOCAL SEISMIC REQUIREMENTS. ALL LUMINAIRES SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING SUPPORT HANGERS IN COMPLIANCE WITH IBC AND NEC REQUIREMENTS.</div> <div>15. ADA COMPLIANCE: ELECTRICAL DEVICES PROJECTING FROM THE WALLS WITH THEIR LEADING EDGES BETWEEN 27" AND 80" AFF SHALL PROTRUDE NO MORE THAN 4" INTO WALKWAYS OR CORRIDORS.</div> <div>16. BACK TO BACK MOUNTING OF RECEPTACLES OR COMMUNICATION OUTLETS IS NOT PERMITTED. THE MINIMUM SEPARATION BETWEEN DEVICES SHALL BE 6" O.C. IN COMMON WALLS AND 24" O.C. IN SOUND-RATED WALLS.</div> <div>17. GFCI DEVICES SHALL BE PROVIDED AS NOTED AND SHALL COMPLY WITH NEC AND LOCAL REQUIREMENTS. GFCI DUPLEX RECEPTACLES SHALL BE UL 943 2006 "LOCK-OUT" ACTION OR "NOTIFICATION" COMPLIANT.</div> <div>18. ALL RECEPTACLES IN COMMERCIAL KITCHENS AND BREAK ROOMS SHALL BE GFCI PROTECTED. PROVIDE REMOTE BLANK FACE GFCI DEVICE IN AN ACCESSIBLE LOCATION AS REQUIRED FOR INACCESSIBLE RECEPTACLES. VERIFY EXACT REMOTE BLANK FACE GFCI DEVICE LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.</div> <div>19. ALL RECEPTACLES SERVING REFRIGERATORS AND FREEZERS SHALL BE GFCI PROTECTED. PROVIDE REMOTE BLANK FACE GFCI DEVICE IN AN ACCESSIBLE LOCATION AS REQUIRED FOR INACCESSIBLE RECEPTACLES. VERIFY EXACT REMOTE BLANK FACE GFCI DEVICE LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.</div> <div>20. FLEXIBLE CONNECTIONS TO MOTORS SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT, UNLESS OTHERWISE NOTED.</div> <div>21. LIGHTING TOGGLE SWITCHES SHALL BE COMMERCIAL SPECIFICATION GRADE 120 VOLT, SIDE WIRED AND PROVIDED WITH GROUNDING SCREW, LEVITON, PASS AND SEYMOUR OR APPROVED EQUAL. COORDINATE COLOR WITH ARCHITECT.</div> <div>22. CONVENIENCE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE GROUNDING TYPE NEMA 5-20R, SIDE WIRED, LEVITON, PASS AND SEYMOUR OR APPROVED EQUAL. COORDINATE COLOR WITH ARCHITECT.</div> <div>23. PROVIDE WALL PLATES FOR ALL WIRING DEVICES, NYLON SMOOTH TYPE IN FINISHED AREAS AND GALVANIZED IN UNFINISHED AREAS.</div> <div>24. ALL WIRING SHALL BE 600V, COPPER WITH THHN/THWN INSULATION. SERVICE ENTRANCE CONDUCTORS SHALL HAVE XHHW INSULATION.</div> <div>25. SWITCHES CONTROLLING LIGHTING LOADS: WHERE SWITCHES CONTROL LIGHTING LOADS SUPPLIED BY A GROUNDED GENERAL PURPOSE BRANCH CIRCUIT, THE GROUNDED CIRCUIT CONDUCTOR (NEUTRAL WIRE) FOR THE CONTROLLED LIGHTING CIRCUIT SHALL BE PROVIDED AT THE SWITCH LOCATION. EXISTING SWITCHES IN REMODELED SPACES SHALL NOT BE EXEMPT FROM THIS REQUIREMENT.</div> <div>26. WHERE DIMMING CONTROL IS SPECIFIED AS A PORTION OF A CIRCUIT THAT ALSO HAS SWITCHED LIGHTING IN ADJACENT SPACES, PROVIDE A SEPARATE, DEDICATED NEUTRAL WIRE FROM THE DIMMING DEVICE BACK TO THE ORIGINATING PANEL.</div> <div>27. COORDINATE THE INSTALLATION OF COMMUNICATIONS CABLING, ROUTING, MOUNTING BOXES, AND TERMINATIONS WITH THE OWNER OR IT MANAGER, PRIOR TO CONSTRUCTION.</div> <div>28. ALL LOW VOLTAGE AND SYSTEMS CABLING LOCATED ABOVE THE ACCESSIBLE CEILING SHALL BE PROPERLY RATED FOR THE APPLICATION. WITHOUT EXCEPTION, ALL CABLING SHALL BE HUNG FROM BRIDLE-TYPE RINGS OR PLACED IN CABLE TRAYS BY THE ELECTRICAL CONTRACTOR. IN EXPOSED CEILING AREAS, ALL CABLING SHALL BE RUN IN CONDUIT TO THE NEAREST ACCESSIBLE CEILING LOCATION.</div> <div>29. ELECTRICAL DEVICE IDENTIFICATION LABELS: PROVIDE ADHESIVE FILM LABEL, MACHINE PRINTED, IN BLACK BY THERMAL TRANSFER OR EQUIVALENT PROCESS WITH MINIMUM LETTER HEIGHT OF 3/8" ON ALL ELECTRICAL DEVICES. LABEL SHALL IDENTIFY ORIGINATING PANEL AND CIRCUIT NUMBER IN THE FOLLOWING FORMAT: PANEL-CKT. REFERENCE SPECIFICATIONS FOR ADDITIONAL LABELING REQUIREMENTS WHERE THE PROJECT SPECIFICATIONS INDICATE MORE STRINGENT LABELING REQUIREMENTS, THOSE REQUIREMENTS SHALL TAKE PRECEDENCE.</div> <div>30. PROVIDE ACCESS PANELS IN GYPSUM BOARD WALLS OR CEILINGS, WHERE ACCESS IS REQUIRED TO ELECTRICAL EQUIPMENT, JUNCTION BOXES, ETC., BEHIND WALLS, OR WHERE NOT READILY ACCESSIBLE VIA AN ATTIC SPACE. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.</div>																																																																																																																																																																																																																																																																																																																																																																																							
<div>NOTATIONS</div> <div>1 - UPPER CASE LETTER AT LUMINAIRES (A, B, ETC.) INDICATES LUMINAIRE TYPE. C, B = TYPE B LUMINAIRES IN AREA INDICATED.</div> <div>2 - LOWER CASE LETTER AT LUMINAIRES AND SWITCHES (a, b, ETC.) INDICATE ASSOCIATED UNITS FOR SWITCHING.</div> <div>3 - SHADING WITHIN LUMINAIRE DENOTES UNIT WITH EMERGENCY BATTERY PACK.</div> <div>4 - "NL" WITHIN LUMINAIRES DENOTES UNIT ON NIGHT LIGHT CIRCUIT.</div> <div>5 - PLUS (+) SIGN WITH DIMENSION AT OUTLET INDICATES HEIGHT ABOVE FINISHED FLOOR OR GRADE TO CENTERLINE OF OUTLET.</div>			<div>INDEX OF DRAWINGS</div> <table><tr><th>TITLE</th><th>DWG NO.</th></tr><tr><td>ELECTRICAL COVER SHEET</td><td>E000</td></tr><tr><td>LIGHTING PLAN</td><td>E101</td></tr><tr><td>POWER PLAN</td><td>E201</td></tr><tr><td>ELECTRICAL ONE-LINE AND SCHEDULES</td><td>E301</td></tr><tr><td>ELECTRICAL SPECIFICATIONS</td><td>E401</td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> 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GENERAL NOTES

1. INFORMATION SHOWN ON THE DRAWINGS IS DIAGRAMMATIC ONLY AND SHALL NOT BE SCALED. OBTAIN AND VERIFY EXACT LOCATIONS, MEASUREMENTS, LEVELS, SPACE REQUIREMENTS, POTENTIAL CONFLICTS AMONG TRADES, ETC. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND FOR ADJUSTING THE WORK AS REQUIRED BY THE ACTUAL CONDITIONS OF THE PROJECT.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA-70, NATIONAL ELECTRICAL CODE (NEC) 2020.

3. ALL GENERAL NOTES, SYMBOL LISTS AND DETAILS SHALL BE CONSIDERED AS APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION IN THE DESIGN.

4. REFER TO THE ARCHITECTURAL PLANS, ELEVATIONS, AND DIAGRAMS FOR LOCATIONS OF THE FLOOR AND WALL DEVICES. UNLESS OTHERWISE NOTED CONVENIENCE RECEPTACLES SHALL BE MOUNTED 18-INCHES AFF (TO CENTERLINE OF DEVICE), LIGHTING TOGGLE SWITCHES 48-INCHES AFF (TO CENTERLINE OF DEVICE), DATA SYSTEM OUTLETS 18-INCHES AFF (TO CENTERLINE OF DEVICE), FIRE ALARM NOTIFICATION DEVICES 80-INCHES AFF OR 6-INCHES BELOW CEILING (TO CENTERLINE OF DEVICE), WHICHEVER IS LOWER, AND FIRE ALARM MANUAL PULL STATIONS 48-INCHES TO TOP OF DEVICE.

5. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ANY NEW ELECTRICAL SERVICE INSTALLATION OR MODIFICATIONS TO THE EXISTING ELECTRICAL SERVICE WITH THE LOCAL UTILITY COMPANY PRIOR TO STARTING ANY WORK.

6. COORDINATE ALL EQUIPMENT LOCATIONS WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATE THE WIRING DEVICE LOCATIONS WITH THE ARCHITECTURAL ELEVATIONS, CASEWORK SHOP DRAWINGS, AND EQUIPMENT INSTALLATION DRAWINGS. COORDINATE THE LOCATION OF THE MECHANICAL EQUIPMENT WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. COORDINATE THE LOCATION OF THE LUMINAIRES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.

7. ANY ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE OWNER.

8. UNLESS OTHERWISE NOTED BRANCH CIRCUITS SHALL BE 2#12 AWG CONDUCTORS AND #12 GND. HOME RUNS FED FROM 200-1P CIRCUITS IN EXCESS OF 100 FEET SHALL BE #10 AWG. BRANCH CIRCUITS SHOWN AS A SINGLE HOME RUN SHALL NOT BE COMBINED WITH OTHER CIRCUITS.

9. ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE EQUIPMENT GROUNDING CONDUCTORS INSTALLED IN THE RACEWAY.

10. TRANSFORMERS INDICATED TO BE SUSPENDED FROM THE STRUCTURE SHALL BE SUPPORTED BY A UNISTRUT FRAME THAT IS ATTACHED TO THE STRUCTURE.

11. PROVIDE (1) 3/4" WITH BUSHING AND PULL WIRE FROM EACH TELEPHONE, DATA, COMMUNICATION, AND THERMOSTAT OUTLET TO ABOVE THE ACCESSIBLE CEILING, UNLESS NOTED OTHERWISE.

12. THE CONTRACTOR SHALL MAINTAIN FIRE-RATINGS FOR ALL CONDUIT PENETRATIONS THROUGH FIRE-RATED CONSTRUCTION.

13. COORDINATE THE LOCATIONS AND CONTROLS OF ALL APPLICABLE FIRE/SMOKE DAMPERS WITH THE MECHANICAL CONTRACTOR, PRIOR TO CONSTRUCTION.

14. ALL MOUNTING OF ELECTRICAL DEVICES (LUMINAIRES, TRANSFORMERS, PANELS, OUTLETS, CONDUIT RUNS, ETC.) SHALL COMPLY WITH STATE AND LOCAL SEISMIC REQUIREMENTS. ALL LUMINAIRES SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING SUPPORT HANGERS IN COMPLIANCE WITH IBC AND NEC REQUIREMENTS.

15. ADA COMPLIANCE: ELECTRICAL DEVICES PROJECTING FROM THE WALLS WITH THEIR LEADING EDGES BETWEEN 27" AND 80" AFF SHALL PROTRUDE NO MORE THAN 4" INTO WALKWAYS OR CORRIDORS.

16. BACK TO BACK MOUNTING OF RECEPTACLES OR COMMUNICATION OUTLETS IS NOT PERMITTED. THE MINIMUM SEPARATION BETWEEN DEVICES SHALL BE 6" O.C. IN COMMON WALLS AND 24" O.C. IN SOLID-RATED WALLS.

17. GFCI DEVICES SHALL BE PROVIDED AS NOTED AND SHALL COMPLY WITH NEC AND LOCAL REQUIREMENTS. GFCI DUPLEX RECEPTACLES SHALL BE UL 943 2006 "LOCK-OUT" ACTION OR "NOTIFICATION" COMPLIANT.

18. ALL RECEPTACLES IN COMMERCIAL KITCHENS AND BREAK ROOMS SHALL BE GFCI PROTECTED. PROVIDE REMOTE BLANK FACE GFCI DEVICE IN AN ACCESSIBLE LOCATION AS REQUIRED FOR INACCESSIBLE RECEPTACLES. VERIFY EXACT REMOTE BLANK FACE GFCI DEVICE LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

19. ALL RECEPTACLES SERVING REFRIGERATORS AND FREEZERS SHALL BE GFCI PROTECTED. PROVIDE REMOTE BLANK FACE GFCI DEVICE IN AN ACCESSIBLE LOCATION AS REQUIRED FOR INACCESSIBLE RECEPTACLES. VERIFY EXACT REMOTE BLANK FACE GFCI DEVICE LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

20. FLEXIBLE CONNECTIONS TO MOTORS SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT, UNLESS OTHERWISE NOTED.

21. LIGHTING TOGGLE SWITCHES SHALL BE COMMERCIAL SPECIFICATION GRADE 120 VOLT, SIDE WIRED AND PROVIDED WITH GROUNDING SCREW. LEVITON, PASS AND SEYMOUR OR APPROVED EQUAL. COORDINATE COLOR WITH ARCHITECT.

22. CONVENIENCE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE GROUNDING TYPE NEMA 5-20R, SIDE WIRED. LEVITON, PASS AND SEYMOUR OR APPROVED EQUAL. COORDINATE COLOR WITH ARCHITECT.

23. PROVIDE WALL PLATES FOR ALL WIRING DEVICES, NYLON SMOOTH TYPE IN FINISHED AREAS AND GALVANIZED IN UNFINISHED AREAS.

24. ALL WIRING SHALL BE 600V, COPPER WITH THHN/THWN INSULATION. SERVICE ENTRANCE CONDUCTORS SHALL HAVE XHHW INSULATION.

25. SWITCHES CONTROLLING LIGHTING LOADS: WHERE SWITCHES CONTROL LIGHTING LOADS SUPPLIED BY A GROUNDED GENERAL PURPOSE BRANCH CIRCUIT, THE GROUNDED CIRCUIT CONDUCTOR (NEUTRAL WIRE) FOR THE CONTROLLED LIGHTING CIRCUIT SHALL BE PROVIDED AT THE SWITCH LOCATION. EXISTING SWITCHES IN REMODELED SPACES SHALL NOT BE EXEMPT FROM THIS REQUIREMENT.

26. WHERE DIMMING CONTROL IS SPECIFIED AS A PORTION OF A CIRCUIT THAT ALSO HAS SWITCHED LIGHTING IN ADJACENT SPACES, PROVIDE A SEPARATE, DEDICATED NEUTRAL WIRE FROM THE DIMMING DEVICE BACK TO THE ORIGINATING PANEL.

27. COORDINATE THE INSTALLATION OF COMMUNICATIONS CABLING, ROUTING, MOUNTING BOXES, AND TERMINATIONS WITH THE OWNER OR IT MANAGER, PRIOR TO CONSTRUCTION.

28. ALL LOW VOLTAGE AND SYSTEMS CABLING LOCATED ABOVE THE ACCESSIBLE CEILING SHALL BE PROPERLY RATED FOR THE APPLICATION. WITHOUT EXCEPTION, ALL CABLING SHALL BE HUNG FROM BRIDLE-TYPE RINGS OR PLACED IN CABLE TRAYS BY THE ELECTRICAL CONTRACTOR. IN EXPOSED CEILING AREAS, ALL CABLING SHALL BE RUN IN CONDUIT TO THE NEAREST ACCESSIBLE CEILING LOCATION.

29. ELECTRICAL DEVICE IDENTIFICATION LABELS: PROVIDE ADHESIVE FILM LABEL, MACHINE PRINTED, IN BLACK, BY THERMAL TRANSFER OR EQUIVALENT PROCESS WITH MINIMUM LETTER HEIGHT OF 3/8" ON ALL ELECTRICAL DEVICES. LABEL SHALL IDENTIFY ORIGINATING PANEL AND CIRCUIT NUMBER IN THE FOLLOWING FORMAT: PANEL-001. REFERENCE SPECIFICATIONS FOR ADDITIONAL LABELING REQUIREMENTS WHERE THE PROJECT SPECIFICATIONS INDICATE MORE STRINGENT LABELING REQUIREMENTS. THOSE REQUIREMENTS SHALL TAKE PRECEDENCE.

30. PROVIDE ACCESS PANELS IN GYPSUM BOARD WALLS OR CEILINGS, WHERE ACCESS IS REQUIRED TO ELECTRICAL EQUIPMENT, JUNCTION BOXES, ETC., BEHIND WALLS, OR WHERE NOT READILY ACCESSIBLE VIA AN ATTIC SPACE. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.

NOTATIONS

1 - UPPER CASE LETTER AT LUMINAIRES (A, B, ETC.) INDICATES LUMINAIRE TYPE. (B) = TYPE B LUMINAIRES IN AREA INDICATED.

2 - LOWER CASE LETTER AT LUMINAIRES AND SWITCHES (a, b, ETC.) INDICATE ASSOCIATED UNITS FOR SWITCHING.

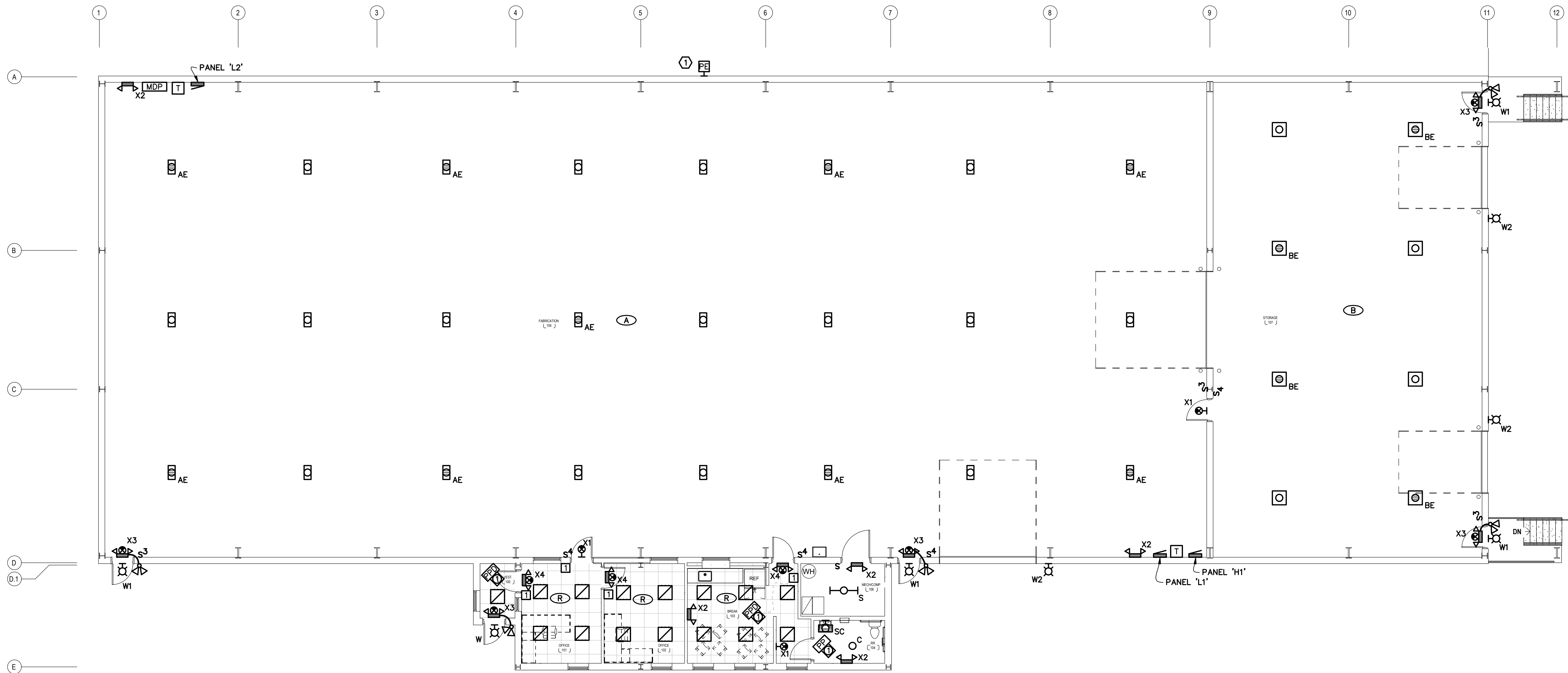
3 - SHADING WITHIN LUMINAIRE DENOTES UNIT WITH EMERGENCY BATTERY PACK.

4 - "NL" WITHIN LUMINAIRES DENOTES UNIT ON NIGHT LIGHT CIRCUIT.

5 - PLUS (+) SIGN WITH DIMENSION AT OUTLET INDICATES HEIGHT ABOVE FINISHED FLOOR OR GRADE TO CENTERLINE OF OUTLET.

INDEX OF DRAWINGS

TITLE	DWG NO.
ELECTRICAL COVER SHEET	E000
LIGHTING PLAN	E101
POWER PLAN	E201
ELECTRICAL ONE-LINE AND SCHEDULES	E301
ELECTRICAL SPECIFICATIONS	E401



FIRST FLOOR LIGHTING PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- A. CONNECT EXIT AND EMERGENCY EGRESS LIGHTING TO LOCAL CIRCUITS, AHEAD OF SWITCHING. NOTE THAT CIRCUITING IS NOT SHOWN DUE TO DRAWING SCALE AND CLARITY.
- B. PROVIDE #10 CONDUCTORS FOR EXTERIOR, FABRICATION, AND COLD STORAGE LIGHTING CIRCUITS.
- C. COORDINATE MOUNTING OF LUMINAIRES WITHIN FABRICATION AREA WITH MECHANICAL CONTRACTOR TO MEET CLEARANCE REQUIREMENTS OF INFRARED HEATING.

LIGHTING CIRCUITING:

CIRCUITING SHALL BE PER THE FOLLOWING SCHEDULE:

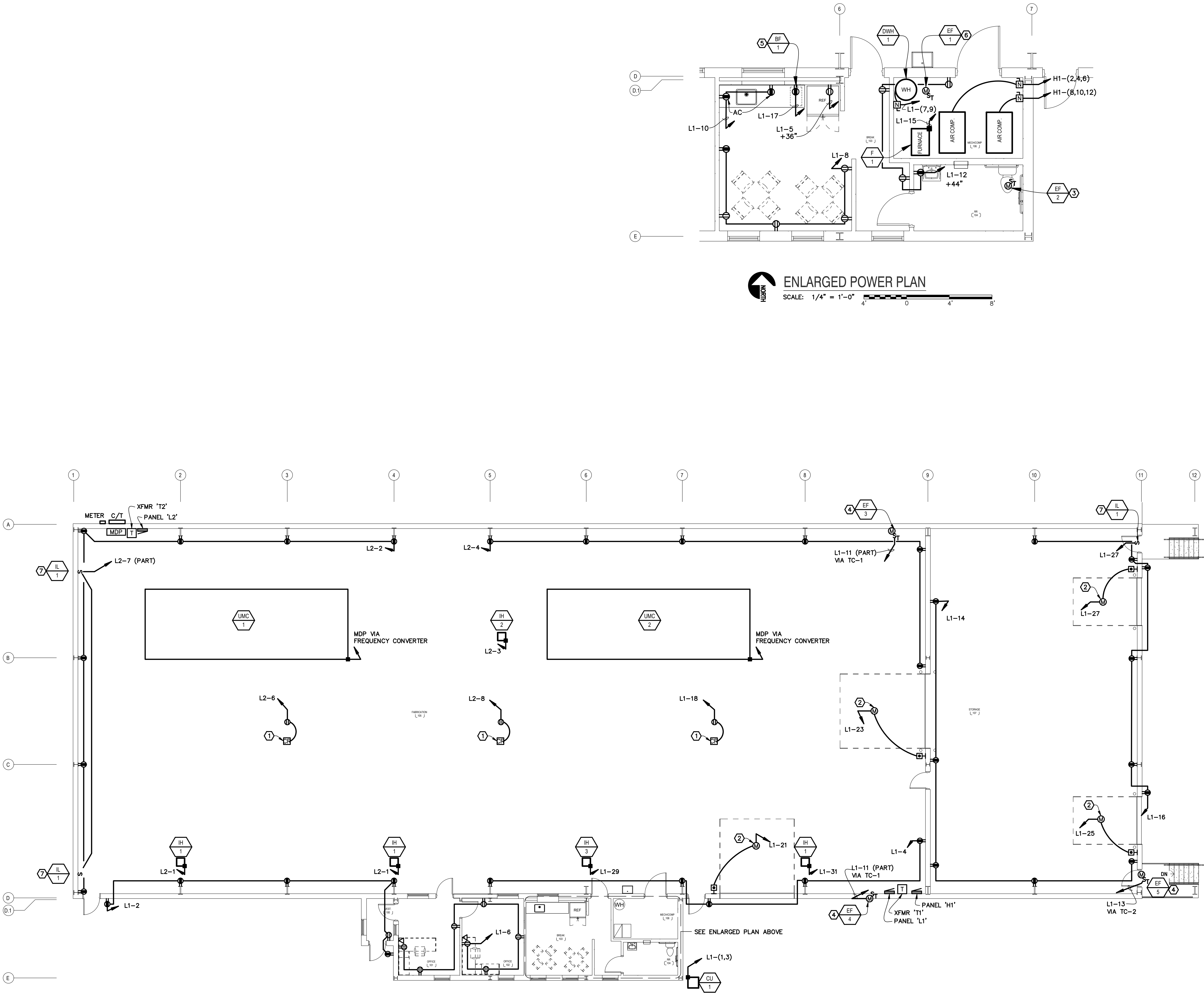
PANEL-CIRCUIT #	ROOM NAME AND #
H1-1	FABRICATION 105
H1-3	STORAGE 107
H1-5	EXTERIOR
L1-19	VESTIBULE 100, OFFICE 101, OFFICE 102, BREAKROOM 103, RESTROOM 104, MECH/COMP 106

KEYED NOTES:

1. PROVIDE PHOTOCELL ON NORTH SIDE OF BUILDING. PROVIDE COMPLETE OUTDOOR PHOTOCELL INTERFACE KIT.

LIGHTING CONTROL LEGEND

- DS** LIGHT: HCM PDT 9 RJ8
LOW-VOLTAGE, CEILING-MOUNT DUAL-TECH OCCUPANCY SENSOR
INITIAL SETTING: 20 MINUTE TIME DELAY OFF
- PP** LIGHT: HPY16 EFP
POWER PACK
- PPD** LIGHT: HPY160 EFP
POWER PACK: DIMMING AND MULTI-SWITCH CAPABLE
- S** SINGLE-POLE WALL SWITCH
- TS** SENSORSWITCH: WSX D PDT WH
WALL SENSOR SWITCH
- W** LOW-VOLTAGE CABLING CAT 5e MINIMUM
- PE** LIGHT: HQ PC KIT
PHOTOCELL KIT



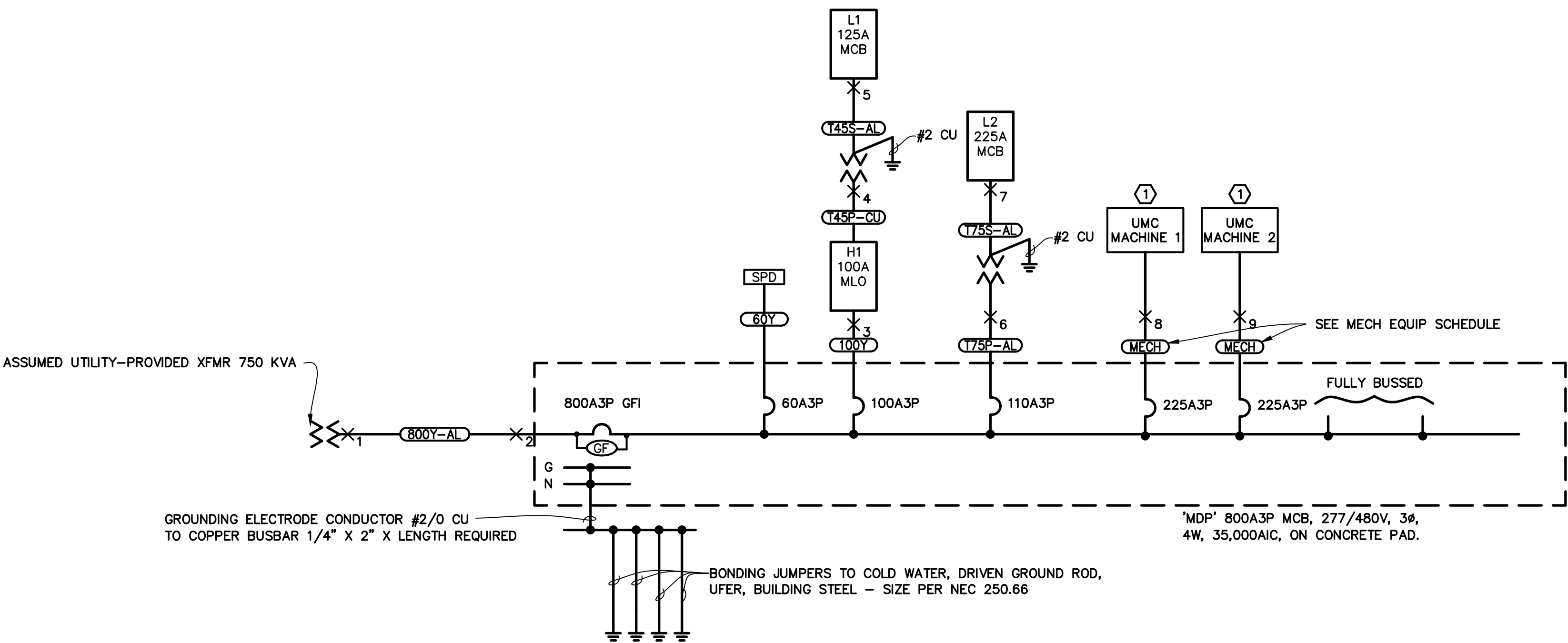
FIRST FLOOR POWER PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- ALL EXTERIOR RECEPTACLES TO BE WEATHERPROOF WHILE-IN-USE, WITH CAST METAL COVER.
- ALL RECEPTACLES WITHIN FABRICATION SHOP AND STORAGE TO BE GFCI AT 48" AFF.

KEYED NOTES:

- PROVIDE CORD REEL: HUBBELL #HBL45123C20 OR EQUAL WITH NEMA 5-20R CORD END. MOUNT AT CEILING. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. PROVIDE DUPLEX RECEPTACLE AT CEILING TO SERVE CORD REEL.
- PROVIDE POWER TO DOOR MOTOR. PROVIDE CONDUIT, LV CABLING, AND MAKE CONNECTIONS TO PUSHBUTTON CONTROLS AND DOOR OPENER.
- RESTROOM EXHAUST FAN CONNECTED TO ROOM LIGHTING CIRCUIT AND CONTROLLED VIA OCCUPANCY SENSOR.
- PROVIDE TWO (2) INTERMATIC ET8015C TIME CLOCKS, OR EQUIVALENT, FOR EXHAUST FAN CONTROL. EF-3 AND EF-4 SHALL BE SERVED FROM TIMECLOCK TC-1, AND EF-5 SHALL BE SERVED FROM TIMECLOCK TC-2. LOCATE TIMECLOCKS ADJACENT TO PANEL L1.
- COORDINATE MOUNTING HEIGHT FOR BOTTLE FILLER WITH ARCHITECT PRIOR TO ROUGH-IN.
- MECHANICAL ROOM EXHAUST FAN CONNECTED TO ROOM LIGHT SWITCH.
- PROVIDE 20A1P SWITCH AND 120V POWER TO MOTORIZED DAMPERS. COORDINATE WITH MECHANICAL.



FEEDER SCHEDULE	
	WIRE AND CONDUIT SIZE - 3Ø, 4W
60Y	(4#4+8G)1-1/4"C
100Y	(4#1+8G)1-1/2"C
T45P-CU	(3#4+8G)1-1/4"C
T45S-AL	(4#3/0+8G)2"C
T75P-AL	(3#2/0+8G)2"C
T75S-AL	(4-300KCMIL+8G)2-1/2"C
800Y-AL	3[(4-400KCMIL)3"C]

FAULT CURRENT		
KEY	SHORT CIRCUIT AMPERES	LENGTH
X ₁	I _{SC} = 28,672	---
X ₂	I _{SC} = 28,090	10'
X ₃	I _{SC} = < 10,000	245'
X ₄	I _{SC} = < 10,000	10'
X ₅	I _{SC} = < 10,000	10'
X ₆	I _{SC} = 24,618	10'
X ₇	I _{SC} = < 10,000	10'
X ₈	I _{SC} = 17,146	95'
X ₉	I _{SC} = < 10,000	170'

FAULT CURRENT LEVELS ARE BASED ON AN ASSUMED UTILITY TRANSFORMER OF 750KVA AND 3.5% IMPEDANCE. IF TRANSFORMER SIZE OR IMPEDANCE VALUES DIFFER, REPORT VALUES TO ENGINEER.

ELECTRICAL ONE-LINE

SCALE: NO SCALE 277/480V, 3Ø, 4W

KEYED NOTES: ①

1. UMC MACHINES PROVIDED BY OWNER.

MDP LOAD SUMMARY											
	FEEDER/PANEL										
	PANEL H1	XFMR T2	UMC 1	UMC 2							
LIGHTING	4.8										
RECEPT. (FIRST 10 KW)											
RECEPT. (REMAINDER)	9.1										
MOTORS	9.1										
LARGEST MOTOR											
APPLIANCES											
EQUIPMENT			138.8	138.8							
HEATING											
TRANSFORMER	26.1	4.5									
OTHER											
CONNECTED KVA			D.F.	DEMAND KVA							
LIGHTING	4.8		1.25	6.1							
RECEPT. (FIRST 10 KW)			1.00								
RECEPT. (REMAINDER)			0.50								
MOTORS	9.1		1.00	9.1							
LARGEST MOTOR	9.1		1.25	11.4							
APPLIANCES			1.00								
EQUIPMENT	277.6		1.00	277.6							
HEATING			1.00								
TRANSFORMER	30.6		1.00	30.6							
OTHER			1.00								
NOTES:											

800 AMP 277 / 480 VOLT 3 PHASE
35000 AIC 800 A MAIN CB 100% NEUTRAL BUS
TOTAL CONNECTED LOAD 331.3 KVA = 388.8 AMPS
TOTAL DEMAND LOAD 334.8 KVA = 402.7 AMPS
TOTAL DESIGN CAPACITY 665.1 KVA = 800.0 AMPS
SPARE 330.3 KVA = 397.3 AMPS

PANEL "H1"											
100 AMP 277 / 480 VOLT 3 PHASE 4 WIRE SERVICE											
SEE 1-LINE A/C											
100 MAIN LUGS ONLY											
GROUND BUS 100% NEUTRAL BUS											
DESCRIPTION	L	R	TYSO	M/A/E/H	PHASE	L	R	TYSO	M/A/E/H	DESCRIPTION	
FABRICATION LTG	3552				20 1 A 2 15					M 3048	AIR COMPRESSOR
COLD STORAGE LTG	904				20 3 B 4 1					M 3048	L
EXTERIOR LTG	388				20 5 C 6 1					M 3048	L
SPR					20 7 A 8 15					M 3048	AIR COMPRESSOR
SPR					20 9 B 10 1					M 3048	2
SPR					20 11 C 12 1					M 3048	SP
SP					13 A 14					M 3048	SP
SP					15 B 16					M 3048	SP
SP					17 C 18					M 3048	SP
SP					19 A 20					M 3048	SP
SP					21 B 22					M 3048	SP
SP					23 A 24					M 3048	SP
SP					25 A 26					M 3048	SP
SP					27 B 28					M 3048	SP
SP					29 C 30					M 3048	SP
TOTAL	4844									M 1828	TOTAL
		CONNECTED		D.F.		DEMAND					
LIGHTING		4.8		1.25		6.1		CONNECTED		49.3 KVA	
RECEPT. (FIRST 10 KW)				0.50				DESIGN		83.1 KVA	
RECEPT. (REMAINDER)				0.50				DEMAND		52.8 KVA	
MOTORS		9.1		1.00		9.1		SPARE		30.3 KVA	
LARGEST MOTOR		9.1		1.25		11.4		CONNECTED			
APPLIANCES				1.00				PHASE A		19.6 KVA	
EQUIPMENT				1.00				PHASE B		17.0 KVA	
HEATING				1.00				PHASE C		12.6 KVA	
TRANSFORMER		26.1		1.00		26.2					
OTHER				1.00				A TO B		86.7%	
								B TO C		74.3%	
								C TO A		64.4%	
TOTAL		49.3 KVA				52.8 KVA		ALL CIRCUIT BREAKERS			
LOAD		59.3 AMPS				63.5 AMPS		ARE 20 AMP, 1 POLE			
DESIGN						100.0 AMPS		UNLESS NOTED OTHERWISE			
SPARE						36.5 AMPS		SP = SPACE SPR = SPARE			
L = LIGHTING		R = RECEPTACLE		M = MOTOR		T = TRANSFORMER		H = HEATING			
S = SUBFEED		E = EQUIPMENT		A = APPLIANCE		O = OTHER					
NOTES:											

PANEL "L1"											
125 AMP 120 / 208 VOLT 3 PHASE 4 WIRE SERVICE											
SEE 1-LINE A/C											
125 MAIN LUGS ONLY											
GROUND BUS 100% NEUTRAL BUS											
DESCRIPTION	L	R	TYSO	M/A/E/H	PHASE	L	R	TYSO	M/A/E/H	DESCRIPTION	
CONDENSING UNIT			M	1768	25 1 A 2 20				1080	FAB VEST	
CU-1			M	1768	1 3 B 4 20				900	FAB	
REFRIGERATOR			A	600	20 5 C 6 20				1260	OFFICE	
WATER HEATER			H	2246	30 7 A 8 20				1260	BREAKROOM	
DWH-1			H	2246	1 9 B 10 20				360	KITCHEN	
EF-3, EF-4, FAB			M	1892	20 11 C 12 20				720	RR MECH BREAK	
EF-5, STORAGE			M	696	20 13 A 14 20				900	STORAGE	
FURNACE			M	1656	20 15 B 16 20				1080	STORAGE	
BOTTLE FILLER, BF-1			A	300	20 17 C 18 20				180	CORD REEL 3	
OFFICE LTG, EF-1,2	331			20 19 A 20 20							
FAB OVERHEAD DOOR			M	1000	20 21 B 22 20					SPR	
FAB OVERHEAD DOOR			M	1000	20 23 C 24 20					SPR	
STOR OVERHEAD DOOR			M	1000	20 25 A 26 20					SPR	
STOR OVERHEAD DOOR			M	1000	20 27 B 28 20					SPR	
RADIANT HEAT, IH-3			M	696	20 29 C 30 20					SPR	
RADIANT HEAT, IH-4			M	696	20 31 A 32 20					SPR	
SPR				20 33 B 34 20						SPR	
SPR				20 35 C 36 20						SPR	
SPR				20 37 A 38 20						SPR	
SPR				20 39 B 40 20						SPR	
SPR				20 41 C 42 20						SPR	
TOTAL	331		M	12672					7740	M	TOTAL
		CONNECTED		D.F.		DEMAND					
LIGHTING		0.3		1.25		0.4		CONNECTED		26.1 KVA	
RECEPT. (FIRST 10 KW)		7.7		1.00		7.7		DESIGN		45.0 KVA	
RECEPT. (REMAINDER)				0.50				DEMAND		27.1 KVA	
MOTORS		9.1		1.00		9.1		SPARE		17.9 KVA	
LARGEST MOTOR		3.5		1.25		4.4		CONNECTED			
APPLIANCES		0.9		1.00		0.9		PHASE A		10.0 KVA	
EQUIPMENT				1.00				PHASE B		10.0 KVA	
HEATING		4.5		1.00		4.5		PHASE C		6.1 KVA	
TRANSFORMER				1.00							
OTHER				1.00				A TO B		99.7%	
								B TO C		61.4%	
								C TO A		61.6%	
TOTAL		26.1 KVA				27.1 KVA		ALL CIRCUIT BREAKERS			
LOAD		72.5 AMPS				75.2 AMPS		ARE 20 AMP, 1 POLE			
DESIGN						125.0 AMPS		UNLESS NOTED OTHERWISE			
SPARE						49.8 AMPS		SP = SPACE SPR = SPARE			
L = LIGHTING		R = RECEPTACLE		M = MOTOR		T = TRANSFORMER		H = HEATING			
S = SUBFEED		E = EQUIPMENT		A = APPLIANCE		O = OTHER					
NOTES: ①) PROVIDE GFCI CIRCUIT BREAKER.											

PANEL "L2"											
120 / 208		VOLT		3 PHASE		4 WIRE SERVICE					
225 AMP SEE 1-LINE, A/C		225 MAIN LUGS ONLY				GROUND BUS 100% NEUTRAL BUS				SURFACE MOUNTED	
DESCRIPTION	L	R	T/S/O	M/A/E/H	PHASE	L	R	T/S/O	M/A/E/H	DESCRIPTION	
RADIANT HEAT, IH-1			H	696	20 1 A 2 20				1260	FAB	
RADIANT HEAT, IH-2			H	696	20 3 B 4 20				1080	FAB	
DAMPERS, IL-1			M	360	20 5 C 6 20				180	CORD REEL 1	
SPR					20 7 A 8 20				180	CORD REEL 2	
SPR					20 9 B 10 20					SPR	
SPR					20 11 C 12 20					SPR	
SPR					20 13 A 14 20					SPR	
SPR					20 15 B 16 20					SPR	
SPR					20 17 C 18 20					SPR	
SPR					20 19 A 20 20					SPR	
SPR					20 21 B 22 20					SPR	
SPR					20 23 C 24 20					SPR	
SPR					20 25 A 26 20					SPR	
SPR					20 27 B 28 20					SPR	
SPR					20 29 C 30 20					SPR	
SPR					20 31 A 32 20					SPR	
SPR					20 33 B 34 20					SPR	
SPR					20 35 C 36 20					SPR	
SPR					20 37 A 38 20					SPR	
SPR					20 39 B 40 20					SPR	
SPR					20 41 C 42 20					SPR	
TOTAL			M A E	360 1392	LOADS IN VOLT-AMPERES				2700 E	M A E	TOTAL
CONNECTED						D.F.		DEMAND			
LIGHTING						1.25					
RECEPT (FIRST 10 KW)						2.7		1.00		2.7	
RECEPT (REMAINDER)						0.50					
MOTORS						1.00					
LARGEST MOTOR						0.4		1.25		0.5	
APPLIANCES						1.00					
EQUIPMENT						1.00					
HEATING						1.4		1.00		1.4	
TRANSFORMER						1.00					
OTHER						1.00					
TOTAL						4.5 KVA		4.5 KVA			
LOAD						12.4 AMPS		12.6 AMPS			
DESIGN								225.0 AMPS			
SPARE								212.4 AMPS			
ALL CIRCUIT BREAKERS ARE 20 AMP, 1 POL. UNLESS NOTED OTHERWISE SP = SPACE SPR = SPARE											
L = LIGHTING R = RECEPTACLE M = MOTOR T = TRANSFORMER H = HEATING S = SUBFEED E = EQUIPMENT A = APPLIANCE O = OTHER											
NOTES: [1] PROVIDE GFCI CIRCUIT BREAKER.											

DIVISION 26 – ELECTRICAL SPECIFICATION

SECTION 26 0000 – BASIC ELECTRICAL REQUIREMENTS.

1. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS FOR COMPLETION OF ALL ELECTRICAL SYSTEMS DESCRIBED HERE IN. ALL ELECTRICAL EQUIPMENT AND MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS, GOVERNING AUTHORITIES, AND IN A NEAT AND WORKMANLY MANNER BY SKILLED AND COMPETENT ELECTRICIANS IN CONFORMANCE WITH THE STANDARD PRACTICES OF THE ELECTRICAL INDUSTRY. ALL ELECTRICAL SYSTEMS SHALL BE COMPLETE AND OPERATIONAL TO THE BENEFIT OF THE OWNER.

A. GOOD WORKMANSHIP AND APPEARANCE ARE CONSIDERED EQUAL TO PROPER OPERATION.

B. THE CONTRACTOR SHALL PROVIDE ALL FORESEEN ELECTRICAL EQUIPMENT AND ACCESSORIES NECESSARY, WHETHER SPECIFICALLY STATED OR NOT, TO MAKE THE REQUIRED ELECTRICAL SYSTEMS COMPLETE AND OPERATIONAL.

2. THE ELECTRICAL CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE GENERAL CONDITIONS, SUPPLEMENTAL GENERAL CONDITIONS OF THE PROJECT SPECIFICATIONS, ANY BASE BUILDING SPECIFICATIONS AND BUILDING CRITERIA, AND ALL CONTRACT SPECIFICATIONS AND DOCUMENTS.

3. DEFINITIONS AND STANDARDS:

A. "PROVIDE" MEANS CONTRACTOR IS RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF.

B. "EXPOSED" MEANS WHERE IT CAN BE SEEN AFTER THE BUILDING IS COMPLETED SUCH AS IN EQUIPMENT ROOMS, UNFINISHED AREAS, ACCESSIBLE TUNNELS, ETC. WHERE CONDUIT/EQUIPMENT IS ACCESSIBLE.

C. "CONCEALED" MEANS WHERE IT CANNOT BE SEEN AFTER THE BUILDING IS COMPLETED SUCH AS IN SPACES AS CHASES, TRENCHES, ABOVE CEILINGS, IN WALLS AND BURRED WHERE CONDUIT/WIRE IS INACCESSIBLE WHEN BUILDING IS COMPLETED.

D. STANDARDS FOR MATERIALS: ALL MATERIALS SHALL BE NEW EXCEPT AS OTHERWISE STATED, AND SHALL CONFORM WITH THE CURRENT APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS' LABORATORIES STANDARDS.

4. COORDINATE AND ORDER THE PROGRESS OF ELECTRICAL WORK TO CONFORM TO THE OWNER'S SCHEDULE AND THE PROGRESS OF THE WORK OF THE OTHER TRADES.

5. APPLY FOR AND PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS FOR THIS DIVISION OF WORK.

6. PROVIDE TEMPORARY LIGHTING AND POWER AS REQUIRED.

7. VISIT THE PROJECT BEFORE SUBMITTING A BID AS NO EXTRAS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF OBVIOUS EXISTING CONDITIONS.

8. DRAWINGS ARE DIAGRAMMATIC IN NATURE. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK.

9. COMPLY WITH THE LATEST FEDERAL, STATE AND LOCAL CODES REQUIREMENTS, AND ORDINANCES, WITH THE NATIONAL ELECTRICAL CODE OF THE NATIONAL FIRE PROTECTION ASSOCIATION, AND WITH REQUIREMENTS OF THE POWER AND TELEPHONE COMPANIES FURNISHING SERVICES TO THE PROJECT. THE FOLLOWING IS A BRIEF LIST OF APPLICABLE CODES:

A. NFPA NO. 70 – NATIONAL ELECTRICAL CODE, LATEST EDITION

B. NFPA NO. 72 – FIRE ALARM, LATEST EDITION

C. NFPA NO. 101 – LIFE SAFETY CODE, LATEST EDITION

D. IBC & UBC, LATEST EDITION

E. LOCAL BUILDING CODES, LATEST EDITION

10. ALL EQUIPMENT AND MATERIALS SHALL BE NEW UNLESS NOTED OTHERWISE AND ACCEPTABLE FOR INSTALLATION ONLY IF LABELED OR LISTED AS DEFINED IN NFPA 70, ARTICLE 100, BY UL OR BY A RECOGNIZED TESTING LABORATORY WHERE STANDARDS HAVE BEEN ESTABLISHED AND ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION. LABELED OR LISTED EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ANY INSTRUCTIONS OR LABELING PROVIDED WITH THE EQUIPMENT.

11. PROVIDE ALL CORE DRILLING, CHANNELING, CUTTING, PATCHING, SLEEVES, ETC. AS REQUIRED FOR INSTALLATION OF ELECTRICAL EQUIPMENT. SEAL HOLES, FIREPROOFING WHERE NECESSARY, AND REFINISH ALL REPAIR WORK TO ORIGINAL CONDITION WHERE DAMAGED BY ELECTRICAL WORK.

A. COORDINATE CORE DRILL LOCATIONS WITH STRUCTURAL PRIOR TO WORK.

B. COORDINATE USE SITE UTILITIES WITH APPROPRIATE UTILITY COMPANY PRIOR TO WORK.

12. MAKE PROVISIONS FOR SAFE DELIVERY AND SECURE STORAGE OF ALL MATERIALS.

13. PROVIDE TESTING OF ALL ELECTRICAL SYSTEMS AND COMPONENTS AS REQUIRED BY ALL APPLICABLE BUILDING CODES AND ORDINANCES, UL, NEMA, ANSI, IEA, NECA, ETC., AND AS RECOMMENDED BY THE ELECTRICAL EQUIPMENT MANUFACTURERS.

14. WARRANTIES: PROVIDE A WRITTEN WARRANTY TO THE OWNER COVERING THE ENTIRE ELECTRICAL WORK TO BE FREE FROM DEFECTIVE MATERIALS, EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE. ALL DEFECTIVE EQUIPMENT OR MATERIALS WHICH APPEAR DURING THE WARRANTY PERIOD SHALL BE REPLACED OR REPAIRED BY THE ELECTRICAL CONTRACTOR IN A TIMELY FASHION AT NO COST TO THE OWNER.

15. PRODUCT ALTERATIONS AND SUBSTITUTIONS: SHOULD THE CONTRACTOR WISH TO HAVE PRODUCTS CONSIDERED OTHER THAN THOSE SPECIFIED, CONTRACTOR MUST SUBMIT THOSE ITEMS AS REQUIRED IN DIVISION 1. CONTRACTOR WILL BE REQUIRED TO SUBMIT THE TOTAL SAVINGS (ANTICIPATED SAVINGS) TO THE OWNER.

16. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS AS REQUIRED IN DIVISION 1 FOR ALL MATERIALS AND EQUIPMENT. SUBMITTALS SHALL CLEARLY INDICATE PROPOSED ITEMS BY HIGHLIGHTING, BOXING, ETC. SUBMITTAL OF UNMARKED MANUFACTURER CATALOGS IS NOT ACCEPTABLE AND SUBMITTAL WILL BE REJECTED WITHOUT REVIEW. IF THE SHOP DRAWINGS DEVIATE FROM THE CONTRACT DOCUMENTS ADVISE THE ENGINEER OF THE DEVIATIONS VIA WRITTEN FORMAT. ACCOMPANYING THE SHOP DRAWINGS INCLUDE THE REASON FOR THE DEVIATION(S). COORDINATE ALL REQUIRED CHANGES WITH THE OTHER TRADES AFFECTED. IF THE CHANGES ARE OCCASIONED BY THE CONTRACTOR, THE CONTRACTOR SHALL PAY ANY COSTS INVOLVED. SHOP DRAWINGS SHALL INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

A. PRODUCT DATA FOR ELECTRICAL IDENTIFICATION.

B. PRODUCT DATA FOR BOXES, ENCLOSURES AND CABINETS.

C. PRODUCT DATA FOR WIRING DEVICES.

D. PRODUCT DATA FOR LIGHTING CONTROL DEVICES.

E. PRODUCT DATA FOR EQUIPMENT WIRING SYSTEMS.

F. PRODUCT DATA AND DRAWINGS FOR ENCLOSED SWITCHES AND CIRCUIT BREAKERS.

G. PRODUCT DATA AND DRAWINGS FOR PANELBOARDS.

H. PRODUCT DATA AND DRAWINGS FOR TRANSFORMERS.

I. PRODUCT DATA FOR FUSES.

J. PRODUCT DATA FOR LIGHTING.

K. PRODUCT DATA, CALCULATIONS AND DRAWINGS FOR FIRE ALARM SYSTEM.

L. TEST REPORTS AS REQUIRED.

M. CERTIFICATES OF OPERATION AS REQUIRED.

17. PROJECT RECORD DRAWINGS: AT COMPLETION OF WORK, DELIVER COMPLETED PROJECT RECORD DOCUMENTS TO ARCHITECT/ENGINEER. PROJECT RECORD DOCUMENTS SHALL BE IN ELECTRONIC FORMAT AND SHALL INCLUDE ANY SPECIAL SYSTEMS (FIRE ALARM, ETC.) AND "PROJECT RECORD" SHOP DRAWINGS.

18. OPERATION AND MAINTENANCE MANUALS: SUBMIT IN ELECTRONIC FORMAT FOR APPROVAL PRIOR TO SCHEDULING ANY SYSTEM DEMONSTRATION FOR THE OWNER AND FIFTEEN (15) DAYS PRIOR TO FINAL OBSERVATION. MANUALS SHALL BE ARRANGED IN SEQUENCE TO MATCH THE SPECIFICATION SECTIONS.

SECTION 26 0519 – CONDUCTORS AND CABLES 600-V AND LESS

1. MINIMUM SIZE NO. 12 EXCEPT FOR CONTROL OR SIGNAL CIRCUITS, WHICH MAY BE NO. 14 OR SMALLER. INCREASE CONDUCTOR SIZE AS NECESSARY TO LIMIT BRANCH CIRCUIT VOLTAGE DROP TO 3 PERCENT AND SERVICE/FEEDER VOLTAGE DROP TO 2 PERCENT.

2. ALL WIRING SHALL BE AS FOLLOWS:

A. SERVICE ENTRANCE, EXPOSED FEEDERS, AND FEEDERS CONCEALED IN CEILINGS, WALLS AND PARTITIONS: TYPE THHN, THWN OR XHHW, SINGLE CONDUCTORS IN RACEWAY.

B. FEEDERS CONCEALED IN CONCRETE AND BELOW SLABS--ON-GRADE: TYPE THHN--THHN, SINGLE CONDUCTORS IN RACEWAY.

C. BRANCH CIRCUITS CONCEALED IN CEILINGS, WALLS, AND PARTITIONS, AND CONCEALED IN CONCRETE OR BELOW SLABS--ON-GRADE: TYPE THHN--THHN, SINGLE CONDUCTORS IN RACEWAY.

D. CORD DROPS AND PORTABLE APPLIANCE CONNECTIONS: TYPE SO, HARD SERVICE CORD.

E. FIRE ALARM CIRCUITS: TYPE THHN--THHN, IN RACEWAY OR POWER-LIMITED, FIRE-PROTECTIVE, SIGNALING CIRCUIT CABLE, TYPE NPLF OR PLF.

F. CLASS 1 CONTROL CIRCUITS: TYPE THHN--THHN, IN RACEWAY.

G. CLASS 2 CONTROL CIRCUITS: TYPE THHN--THHN, IN RACEWAY OR POWER-LIMITED CABLE,

CONCEALED IN BUILDING FINISHES.

3. ALL CONDUCTORS SHALL BE COPPER; SOLID CONDUCTOR FOR NO.12 AWG AND SMALLER, STRANDED FOR NO. 10 AWG AND LARGER.

4. SPLICES FOR NO. 6 AWG AND SMALLER SHALL BE MADE WITH TWIST-ON WIRE CONNECTORS.

5. SPLICES FOR NO. 4 AWG AND LARGER SHALL BE MADE WITH SOLDERLESS OR COMPRESSION TYPE CU/ALR LUGS.

6. WIRING FOR CONTROL SYSTEMS SHALL BE INSTALLED IN CONJUNCTION WITH MECHANICAL AND MISCELLANEOUS EQUIPMENT.

7. INSTALL CONDUCTOR AT EACH OUTLET, WITH AT LEAST 6 INCHES OF SLACK TO ALLOW FOR CONNECTION TO DEVICE.

8. TESTING: PERFORM THE FOLLOWING FIELD QUALITY--CONTROL TESTING:

A. TORQUE TEST CONDUCTOR CONNECTIONS AND TERMINATIONS TO MANUFACTURER'S RECOMMENDED VALUES.

B. PERFORM CONTINUITY TEST ON ALL POWER AND EQUIPMENT BRANCH CIRCUIT CONDUCTORS. VERIFY PROPER PHASING CONNECTIONS.

C. INSULATION TEST: MEASURE THE INSULATION OF FEEDER CONDUCTORS. MEASUREMENTS SHALL BE TAKEN BETWEEN CONDUCTORS, AND CONDUCTORS AND GROUND. RESISTANCE SHALL BE 1,000,000 OHMS OR MORE WHEN TESTED AT 500 VOLTS BY MEGGER WITHOUT CIRCUIT LOADS.

SECTION 26 0528 – GROUNDING AND BONDING

1. CONDUIT SYSTEMS, SUPPORTS, CABINETS, EQUIPMENT, TRANSFORMERS, FIXTURES, THE GROUNDING CIRCUIT CONDUCTOR, ETC. SHALL BE PROPERLY GROUNDING IN ACCORDANCE WITH THE CURRENT ISSUE OF THE NATIONAL ELECTRICAL CODE. PROVIDE ALL BONDING JUMPERS AND WIRE, GROUNDING BUSINGS, CLAMPS, ETC. AS REQUIRED FOR COMPLETE GROUNDING.

A. CONNECTIONS SHALL BE EITHER BOLTED--PRESSURE--TYPE, COMPRESSION TYPE OR EXOTHERMIC--WELDED TYPE.

2. PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ALL FEEDER AND BRANCH CIRCUITS AND ALL FLEXIBLE AND NONMETALLIC RACEWAYS.

3. GROUND ALL COMMUNICATIONS EQUIPMENT, ALL COMMUNICATION ROOMS, IDF CLOSETS, ETC. SHALL BE PROVIDED WITH A 4"x12" COPPER GROUND BAR BONDED TO THE MAIN ELECTRICAL SERVICE OR BUILDING STEEL PER ANSI-J--STD--607--A.

4. GROUNDING CONDUCTOR MATERIAL: COPPER.

5. BOND THE ELECTRICAL SERVICE NEUTRAL AT SERVICE ENTRANCE EQUIPMENTS PER THE CURRENT ISSUE OF THE NATIONAL ELECTRICAL CODE UTILIZING MAIN COLD WATER PIPE, BUILDING STEEL, DRYEN GROUND ROD, CONCRETE ENCASED ELECTRODE AS APPLICABLE. ROUTE GROUNDING ELECTRODE CONDUCTORS TO PROVIDE THE SHORTEST AND MOST DIRECT PATH TO THE GROUND ELECTRODE SYSTEM.

SECTION 26 0529 – HANGERS AND SUPPORTS

1. PROVIDE HANGERS AND SUPPORTS FOR EQUIPMENT, RACEWAYS AND CABLES, INCLUDING WEIGHT OF WIRE IN RACEWAYS. ALL SYSTEMS CABLEG SHALL BE SUPPORTED BY BRIDAL RINGS OR SIMILAR MEANS.

2. USE HOT-DIPPED GALVANIZED MATERIAL OR NONMETALLIC, U--CHANNEL SYSTEMS FOR ALL DAMP AND OUTDOOR LOCATIONS.

3. STEEL MATERIAL SHALL BE USED FOR DRY LOCATIONS.

SECTION 26 0553 – ELECTRICAL IDENTIFICATION

1. PROVIDE LABELING FOR RACEWAYS AND CABLES.

2. PROVIDE UNDERGROUND LINE WARNING TAPE FOR ALL UNDERGROUND ELECTRICAL SERVICE (POWER, COMMUNICATIONS, ETC.) SYSTEM RACEWAYS.

3. PROVIDE ENGRAVED NAMEPLATES FOR ALL ELECTRICAL CABINETS, ENCLOSURES, PANELBOARDS, DISTRIBUTION EQUIPMENT, ELECTRICAL EQUIPMENT, BOXES, ETC. NAMEPLATES SHALL BE ENGRAVING STOCK, MELAMINE PLASTIC LAMINATE, MINIMUM 1/8" THICK FOR SIGNS UP TO 20 SQ. IN. AND 1/4" THICK FOR LARGER SIZES WITH BLACK LETTERS ON A WHITE FACE OR AS REQUIRED BY CODE OR OWNER.

4. COLOR CODING OF PHASE CONDUCTORS:

A. CONDUCTORS NO. 8 AWG AND SMALLER SHALL BE FACTORY COLOR CODED. WIRE NO. 6 AWG AND LARGER MAY BE COLOR CODED BY FIELD PAINTING OR COLOR TAPING A 6--INCH LENGTH OF EXPOSED END.

B. WIRING FOR CONTROL SYSTEMS SHALL BE COLOR-CODED IN ACCORDANCE WITH THE WIRING DIAGRAMS FURNISHED WITH THE EQUIPMENT.

277/480 VOLTS		120/208 VOLTS	
PHASE A:	BROWN	PHASE A:	BLACK
PHASE B:	ORANGE	PHASE B:	RED
PHASE C:	YELLOW	PHASE C:	BLUE
NEUTRAL:	GRAY	NEUTRAL:	WHITE
GROUND:	GREEN	GROUND:	GREEN
TRAVELLERS:	PURPLE	TRAVELLERS:	PINK

SECTION 26 0533.1 – RACEWAYS

1. ALL CONDUCTORS SHALL BE ENCLOSED BY CONDUIT SIZED IN ACCORDANCE WITH CHAPTER 9, TABLE 4 OF THE NATIONAL ELECTRICAL CODE. MINIMUM SIZE 1/2 INCH. ALL CONDUITS SHALL BE CONCEALED IN FINISHED AREAS.

2. GALVANIZED RIGID METAL CONDUIT (RMC) AND INTERMEDIATE METAL CONDUIT (IMC) SHALL BE UTILIZED FOR ABOVE AND BELOW GRADE APPLICATIONS IN ACCORDANCE WITH ARTICLES 344 AND 342 OF THE NATIONAL ELECTRICAL CODE. ALL COUPLINGS SHALL BE THREADED.

3. ELECTRICAL METALLIC TUBING (EMT) SHALL BE UTILIZED FOR ALL DRY, ABOVE GRADE OR ABOVE FLOOR FEEDERS AND BRANCH CIRCUIT HOMERUN APPLICATIONS IN ACCORDANCE WITH ARTICLE 358 OF THE NATIONAL ELECTRICAL CODE. COUPLINGS SHALL BE STEEL SET SCREW TYPE.

4. METAL-CLAD CABLE (MC) WITH SEPARATE GROUND CONDUCTOR SHALL BE PERMITTED FOR ALL CONCEALED, ABOVE GRADE OR ABOVE FLOOR BRANCH CIRCUIT APPLICATIONS EXCLUDING HOMERUNS IN ACCORDANCE WITH ARTICLE 330 OF THE NATIONAL ELECTRICAL CODE. CONNECTORS SHALL BE LISTED FOR APPLICATION OF SERVICE INDICATED.

5. FLEXIBLE METAL CONDUIT SHALL BE UTILIZED FOR ALL CONNECTIONS TO VIBRATING EQUIPMENT SUCH AS MOTORS (MINIMUM OF 2'-0", MAXIMUM OF 6'-0"), CONNECTIONS TO LAY-IN TYPE LIGHT FIXTURES OR IN REMODEL AREAS SPECIFICALLY NOTED FOR "FISHING" IN EXISTING WALLS OR NON-ACCESSIBLE CEILINGS.

6. RIGID NONMETALLIC CONDUIT (PVC) SHALL BE UTILIZED FOR ABOVE AND BELOW GRADE APPLICATIONS IN ACCORDANCE WITH ARTICLE 352 OF THE NATIONAL ELECTRIC CODE. CONNECTIONS TO BE MADE BY THE USE OF A SUITABLE SOLVENT--TYPE CEMENT.

7. SURFACE METALLIC RACEWAYS SHALL BE LIMITED TO ONLY AREAS SPECIFICALLY NOTED AND OF SIZE AND TYPE SPECIFIED ON THE DRAWINGS.

8. ALL CONDUITS EXPOSED OR CONCEALED SHALL BE ROUTED PARALLEL OR PERPENDICULAR WITH THE BUILDING WALLS. SUPPORT CONDUIT AS REQUIRED BY THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.

9. PROVIDE EXPANSION TYPE FITTINGS FOR ALL CONDUITS, WHICH CROSS EXPANSION JOINTS.

SECTION 26 0533.2 – BOXES, ENCLOSURES AND CABINETS

1. OUTLET BOXES:

A. FOUR INCH SQUARE OR OCTAGONAL, ZINC--COATED SHEET STEEL TYPE.

B. OUTLET BOXES SHALL BE LOCATED SO THAT TRANSMISSION OF SOUND THROUGH COMMON WALLS WILL NOT OCCUR.

C. ENCLOSURES EXPOSED TO WEATHER OR DAMP LOCATIONS SHALL BE WEATHERPROOF TYPE.

2. PROVIDE COVERS SET TO COME FLUSH WITH FINISHED WALLS.

3. PULL BOXES AND JUNCTION BOXES: JUNCTION BOXES AND PULL BOXES WILL BE PROVIDED AS REQUIRED. SIZE OF BOXES SHALL BE IN ACCORDANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE REQUIREMENTS.

A. ENCLOSURES SHALL BE NEMA TYPE SUITABLE FOR THE SURROUNDING AREA AND CONDITIONS.

4. FLOOR BOXES: FLOOR BOXES SHALL BE CAST METAL, FULLY ADJUSTABLE, OR AS SPECIFIED ON THE DRAWINGS.

SECTION 26 0583 – EQUIPMENT WIRING SYSTEMS

1. PROVIDE BRANCH CIRCUITS TO EQUIPMENT PROVIDED BY OTHERS AND TO MECHANICAL EQUIPMENT AND MAKE ALL CONNECTIONS. TEMPERATURE CONTROL EQUIPMENT WIRING AND CONNECTIONS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR.

2. PROVIDE SAFETY SWITCHES AND/OR THERMAL OVERLOAD SWITCHES AS REQUIRED.

3. HEATER UNITS IN ALL MOTOR STARTERS SHALL BE SIZED FOR APPROXIMATELY ONE HUNDRED FIFTEEN PERCENT (115%) OF FULL LOAD MOTOR CURRENT. CHECK AND COORDINATE ALL THERMAL PROTECTIVE DEVICES WITH THE EQUIPMENT THEY PROTECT.

4. PROVIDE FOR EACH MOTOR, ONE-HALF (1/2) HORSEPOWER AND BELOW, A HORSEPOWER RATED DISCONNECT SWITCH AND THERMAL OVERLOAD PROTECTION UNLESS INTERNALLY PROVIDED WITH THE MOTOR. THERMAL OVERLOAD SWITCHES FOR SINGLE PHASE MOTORS SHALL BE ALLEN--BRADLEY BULLETIN 600 OR ACCEPTABLE.

5. CAREFULLY COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER APPLICABLE DIVISIONS.

SECTION 26 0923 – LIGHTING CONTROL DEVICES

1. RELAY PANELS: FIELD--CONFIGURABLE RELAYS, INDIVIDUALLY PROGRAMMABLE, MANUALLY OVER--RIDES, INTEGRAL ASTRONOMICAL DIGITAL TIMECLOCK, SURFACE MOUNT SCREW COVER, AS SPECIFIED ON DRAWINGS.

2. OUTDOOR PHOTOELECTRIC SWITCHES, LOW VOLTAGE: SOLID STATE; ONE SET OF N.O. DRY CONTACTS RATED FOR 24 (VDC) AT 1 A. TO OPERATE CONNECTED LOAD, COMPLYING WITH UL 773, AND COMPATIBLE WITH LUMINAIRE, POWER PACK, OR LIGHTING CONTROL PANELBOARD.

A. LIGHT LEVEL MONITORING: RANGE: 0 TO 3500 FC, WITH ADJUSTABLE 1--3FC TURN--ON / 1--5FC TURN--OFF LEVELS.

3. OCCUPANCY SENSORS: AS SPECIFIED ON THE DRAWINGS.

4. TESTING: SET AND OPERATE DEVICES TO DEMONSTRATE THEIR FUNCTIONS AND CAPABILITIES IN A METHODOICAL SEQUENCE THAT CUES AND REPRODUCES ACTUAL OPERATING FUNCTIONS.

SECTION 26 2213 – DRY-TYPE TRANSFORMERS (600-V AND LESS)

1. DRY TYPE TRANSFORMERS SHALL BE FACTORY--ASSEMBLED, AIR COOLED UNITS; RATINGS AS SHOWN ON THE DRAWINGS.

2. COLLS: PROVIDE ELECTRICAL GRADE ALUMINUM, CONTINUOUS WINDING COIL CONDUCTORS WITHOUT SPLICES, EXCEPT FOR TAPS, WITH TERMINATIONS BRAZED OR WELDED.

3. INSULATION CLASS: 185 OR 220 DEG. C. FOR 15--KVA OR SMALLER, 220 DEG. C. FOR LARGER THAN 15--KVA.

4. RATED TEMPERATURE RISE: 150 DEG. C. MAXIMUM RISE ABOVE 40 DEG. C., FOR 220 DEG. C. CLASS INSULATION; 115 DEG. C. MAXIMUM RISE FOR 185 DEG. C. CLASS INSULATION.

5. WINDING: ONE COIL PER PHASE IN PRIMARY AND SECONDARY.

6. TAPS ARE AS FOLLOWS:

A. TAPS, 3 THROUGH 15--KVA: TWO 5 PERCENT TAPS BELOW RATED HIGH VOLTAGE.

B. TAPS, 15 THROUGH 500--KVA: SIX 2.5 PERCENT TAPS, 2 ABOVE AND 4 BELOW RATED HIGH VOLTAGE.

7. BASIC IMPULSE LEVEL FOR TRANSFORMERS LESS THAN 300 KVA SHALL BE 10 KV. 300KVA AND OVER SHALL BE 30 KV.

8. ISOLATE CORE AND COIL FROM ENCLOSURE USING VIBRATION--ABSORBING MOUNTS.

9. GROUND CORE AND COIL ASSEMBLY TO ENCLOSURE BY MEANS OF A VISIBLE FLEXIBLE COPPER GROUNDING STRAP.

10. TRANSFORMERS RATED 600V OR LESS AND NOT EXCEEDING 50KVA SHALL BE PERMITTED TO BE INSTALLED ABOVE ACCESSIBLE CEILING SPACES PROVIDED ADEQUATE VENTILATION IS AVAILABLE.

11. TRANSFORMERS 75 KVA AND LESS SHALL BE SUITABLE FOR WALL, FLOOR OR TRAPEZE MOUNTING; TRANSFORMERS GREATER THAN 75 KVA SHALL BE SUITABLE FOR FLOOR MOUNTING UNLESS NOTED OTHERWISE.

12. PROVIDE NEMA ENCLOSURE TYPE SUITABLE FOR THE SURROUNDING AREA AND CONDITIONS.

13. PROVIDE LIFTING EYES OR BRACKETS: HANDLE TRANSFORMERS USING ONLY LIFTING EYES OR BRACKETS PROVIDED FOR THAT PURPOSE. PROTECT UNITS AGAINST ENTRANCE OF RAIN, SLEET, OR SNOW IF HANDLED IN INCLEMENT WEATHER.

14. INSTALL FLOOR--MOUNTED TRANSFORMERS ON 4 INCH HIGH CONCRETE BASE EXTENDING A MINIMUM OF 2 INCHES BEYOND ENCLOSURE.

15. STORE TRANSFORMER IN A WARM, DRY LOCATION WITH UNIFORM TEMPERATURE. COVER VENTILATING OPENINGS TO KEEP OUT DUST.

16. SET TRANSFORMER PLUMB AND LEVEL. TRANSFORMERS SHALL BE MOUNTED ON VIBRATION ISOLATION PADS SUITABLE FOR ISOLATING THE TRANSFORMER NOISE FROM THE BUILDING STRUCTURE.

17. USE FLEXIBLE CONDUIT, 2"--0" MINIMUM LENGTH, FOR CONNECTIONS TO TRANSFORMER ENCLOSURE. MAKE CONDUIT CONNECTIONS TO SIDE PANEL OF ENCLOSURE.

SECTION 26 2416 – PANELBOARDS

1. PROVIDE DEAD-FRONT, CIRCUIT BREAKER TYPE PANELS, SIZE, VOLTAGE, AMPERAGE AND NUMBER OF BRANCHES AS INDICATED ON THE DRAWINGS. BREAKERS SHALL BE THERMAL MAGNETIC TYPE (BOLTED) EMPLOYING QUICK--MAKE AND QUICK--BREAK MECHANISM FOR MANUAL OPERATION AS WELL AS AUTOMATIC OPERATION, AUTOMATIC TRIPPING SHALL BE INDICATED BY THE BREAKER HANDLE ASSUMING A DISTINCTIVE POSITION FROM THE MANUAL "ON" AND "OFF" MULTIPOLE BREAKERS SHALL HAVE A COMMON TRIP. TIE HANDLES WILL NOT BE PERMITTED.

2. ALL SPACES SHALL BE FULLY BUSSED.

3. PANELBOARDS SHALL HAVE A GROUNDING BUS FOR THE EQUIPMENT GROUNDING SYSTEM.

4. CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING CAPACITY AS FOLLOWS, UNLESS OTHERWISE NOTED -- SEE ONE-LINE DIAGRAM:

120/208 VOLTS:	10,000 AMPERES
277/480 VOLTS:	14,000 AMPERES

5. PANELBOARDS SHALL BE A MINIMUM TWENTY INCHES (20") WIDE.

6. ALL BUSSING SHALL BE TIN--PLATED, HIGH STRENGTH, ELECTRICAL GRADE ALUMINUM ALLOY AND EXTEND ENTIRE LENGTH OF THE PANELBOARD.

7. DISTRIBUTION PANELBOARDS SHALL BE PROVIDED WITH A HINGED LOCKABLE DOOR.

8. LIGHTING AND APPLIANCE PANELBOARDS SHALL BE PROVIDED WITH FRONT COVER SCREWED TO THE BOX.

9. EACH PANELBOARD SHALL BE PROVIDED WITH A TYPED DIRECTORY CARD INSTALLED IN A TRANSPARENT PROTECTIVE COVER ON INSIDE OF DOOR PANEL.

10. ENCLOSURE: NEMA TYPE SUITABLE FOR THE SURROUNDING AREA AND CONDITIONS.

11. INSTALL FLOOR--MOUNTED PANELBOARDS ON 4 INCH HIGH CONCRETE BASE EXTENDING A MINIMUM OF 2 INCHES BEYOND ENCLOSURE.

12. PROVIDE FULL FAULT CURRENT AND ARC FLASH STUDY, AND FULL COORDINATION STUDY AS REQUIRED IN SECTION 26 2413 "SWITCHBOARDS."

13. TESTING: TEST INSULATION RESISTANCE FOR EACH PANELBOARD BUS, COMPONENT, CONNECTING SUPPLY, FEEDER, AND CONTROL CIRCUIT. TEST CONTINUITY OF EACH CIRCUIT. AFTER INSTALLING PANELBOARDS AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, DEMONSTRATE PRODUCT CAPABILITY AND COMPLIANCE WITH REQUIREMENTS. CORRECT MALFUNCTIONING UNITS ON--SITE, WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE; OTHERWISE, REPLACE WITH NEW UNITS AND RETEST.

14. UPON COMPLETION OF INSTALLATION, INSPECT INTERIOR AND EXTERIOR OF PANELBOARDS. REMOVE PAINT SPATTERS AND OTHER SPOTS, DIRT AND DEBRIS. VACUUM DIRT AND DEBRIS; DO NOT USE COMPRESSED AIR TO ASSIST CLEANING. TOUCH UP SCRATCHED AND MARRED FINISHES TO MATCH ORIGINAL FINISH.

15. PANELBOARDS SHALL BE AS MANUFACTURED BY EATON CORP.; CUTLER HAMMER, GENERAL ELECTRIC CO., SIEMENS ENERGY AND AUTOMATION, INC., OR SCHNEIDER/SQUARE D CO.

SECTION 26 2413 – SWITCHBOARDS

1. SWITCHBOARD SHALL BE 120/208--V OR 277/480--V, AS INDICATED ON ELECTRICAL ONE--LINE DIAGRAM (SEE DRAWINGS) WITH MAIN CIRCUIT BREAKER, FRONT--CONNECTED, FRONT--ACCESSIBLE, WITH FULL NEUTRAL BUSS.

a. SWITCHBOARD RATED 277/480 VOLTS AND 1200 AMPS OR ABOVE SHALL BE PROVIDED WITH GFF (GROUND FAULT) PROTECTION.

b. SWITCHBOARDS WITH OVERCURRENT DEVICES RATED AT, OR CAN BE ADJUSTED TO, 1200 AMPS OR ABOVE SHALL BE PROVIDED WITH AN ENERGY--REDUCING MAINTENANCE SWITCH (ERMS) FOR THE PURPOSE OF ARC--FLASH MITIGATION PER NEC 240.87.

c. SWITCHBOARD AND COMPONENTS SHALL BE BRACED FOR AVAILABLE FAULT.

d. SWITCHBOARD SHALL BE PROVIDED WITH A GROUND BUS FOR THE EQUIPMENT AND SERVICE GROUNDING SYSTEM.

e. BUSSING SHALL BE TIN--PLATED, HIGH-STRENGTH, ELECTRICAL--GRADE, ALUMINUM ALLOY AND SHALL EXTEND THE ENTIRE LENGTH OF THE SWITCHBOARD.

2. DISTRIBUTION DEVICES SHALL BE MOLDED--CASE, THERMAL--MAGNETIC CIRCUIT BREAKER TYPE BOLTED TO THE BUS. CIRCUIT BREAKERS 250 AMPS AND LARGER SHALL BE PROVIDED WITH ADJUSTABLE MAGNETIC TRIP.

3. METERS: A METER SOCKET AND ELECTRIC METER SHALL BE PROVIDED ON THE EXTERIOR WALL OF THE BUILDING. COORDINATE ALL METERING REQUIREMENTS WITH UTILITY COMPANY PROVIDING SERVICE TO THE BUILDING.

4. SPARE: PROVIDE TWENTY FIVE PERCENT (25%) SPARE DEVICE/BUSS SPACE IN SWITCHBOARD FOR FUTURE.

5. ENCLOSURE: NEMA TYPE SUITABLE FOR THE SURROUNDING AREA AND CONDITIONS.

6. SWITCHBOARD MANUFACTURER SHALL SUBMIT TO ENGINEER A FULL FAULT CURRENT AND ARC FLASH STUDY, AND FULL COORDINATION STUDY STAMPED BY A WITOMING P.E., STUDY SHALL PROVIDE RECOMMENDED SETTINGS FOR ALL ADJUSTABLE CIRCUIT BREAKERS AND GFP SETTINGS.

8. PROVIDE 4--INCH HIGH CONCRETE BASE EXTENDING A MINIMUM OF 2 INCHES BEYOND ENCLOSURE.

9. TESTING: TEST INSULATION RESISTANCE FOR EACH PANELBOARD BUS, COMPONENT, CONNECTING SUPPLY, FEEDER, AND CONTROL CIRCUIT. TEST CONTINUITY OF EACH CIRCUIT. AFTER INSTALLING PANELBOARDS AND AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, DEMONSTRATE PRODUCT CAPABILITY AND COMPLIANCE WITH REQUIREMENTS. CORRECT MALFUNCTIONING UNITS ON--SITE, WHERE POSSIBLE, AND RETEST TO DEMONSTRATE COMPLIANCE; OTHERWISE, REPLACE WITH NEW UNITS AND RETEST.

10. UPON COMPLETION OF INSTALLATION, INSPECT INTERIOR AND EXTERIOR OF SWITCHBOARDS. REMOVE PAINT SPATTERS AND OTHER SPOTS, DIRT AND DEBRIS. VACUUM DIRT AND DEBRIS; DO NOT USE COMPRESSED AIR TO ASSIST CLEANING. TOUCH UP SCRATCHED AND MARRED FINISHES TO MATCH ORIGINAL FINISH.

11. SWITCHBOARDS SHALL BE AS MANUFACTURED BY EATON CORP., CUTLER--HAMMER, GENERAL ELECTRIC CO., SIEMENS ENERGY AND AUTOMATION, INC., OR SCHNEIDER/SQUARE D CO.

SECTION 26 2726 – WIRING DEVICES

1. RECEPTACLES SHALL BE 20 AMP HUBBELL HBL3552 SERIES SPECIFICATION GRADE, OR ACCEPTABLE. ON AND EXTERIOR RECEPTACLES SHALL BE HUBBELL GF3552 SERIES, OR ACCEPTABLE AND IF REQUIRED PROVIDE WP IN USE METAL TYPE COVER, OR ACCEPTABLE. PROVIDE DEVICE COLOR AS DIRECTED BY THE ARCHITECT, OR TO MATCH BASE BUILDING STANDARDS, WHICHEVER IS APPLICABLE.

2. AC QUIET OPERATING TYPE SWITCHES SHALL BE 120/277--V, 20 AMP HUBBELL 1221 SERIES, OR ACCEPTABLE. PROVIDE DEVICE COLOR AS DIRECTED BY THE ARCHITECT, OR TO MATCH BASE BUILDING STANDARDS, WHICHEVER IS APPLICABLE.

3. PROVIDE SPECIAL PURPOSE OUTLETS AS REQUIRED FOR EQUIPMENT PROVIDED BY OTHERS.

4. DEVICE PLATES SHALL BE HIGH ABUSIVE NYLON, COLOR TO MATCH DEVICE, OR TO MATCH BASE BUILDING STANDARDS, WHICHEVER IS APPLICABLE.

5. MOUNT DEVICES IN ACCORDANCE WITH THE FOLLOWING SCHEDULE EXCEPT WHERE OTHERWISE NOTED ON THE DRAWINGS OR IN AREAS WITH COUNTERS, BASEBOARD HEATERS OR IN AREAS OF BLOCK OR BRICK CONSTRUCTION:

* CONVENIENCE RECEPTACLES: LONG AXIS VERTICAL AT 1'-6" AFF TO CENTER *
LIGHT SWITCHES: LATCH SIDE OF DOOR, LATCH SIDE OF DOOR AT 4'-6" AFF TO CENTER
TELEPHONE OUTLETS: LONG AXIS VERTICAL AT 1'-6" AFF TO CENTER *

* EXCEPT IN AREAS WITH COUNTERS, BASEBOARD HEATERS, OR IN AREAS OF BLOCK OR BRICK CONSTRUCTION.

SECTION 26 2813 – FUSES

1. LOW--VOLTAGE FUSES: DUAL--ELEMENT FUSES ACCURATELY RATED, OF THE CORRECT VOLTAGE AND CAPACITY TO PROTECT THE EQUIPMENT OR CIRCUITS SHALL BE PROVIDED. ALL FUSES SHALL BE PROPERLY COORDINATED AND SHALL BE OF THE SAME MANUFACTURER. ONE SET OF SPARE FUSES FOR EACH SIZE SHALL BE PROVIDED.

2. FUSES SHALL BE AS MANUFACTURED BY BUSSMANN REACTION TYPE "TUSETRON" OR APPROVED EQUAL. CONTROL FUSES SHALL BE BUSSMANN ONE-TIME NONRENEWABLE.

3. SPARE FUSE CABINET: IF REQUIRED, WALL MOUNT SIZE AS REQUIRED FOR STORAGE OF SPARE FUSES SPECIFIED WITH 15 PERCENT SPARE CAPACITY.

SECTION 26 2816 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS