



307B SW Market St., Lee's Summit, MO 64063 | 816.249.2270 | www.collinsandwebb.com

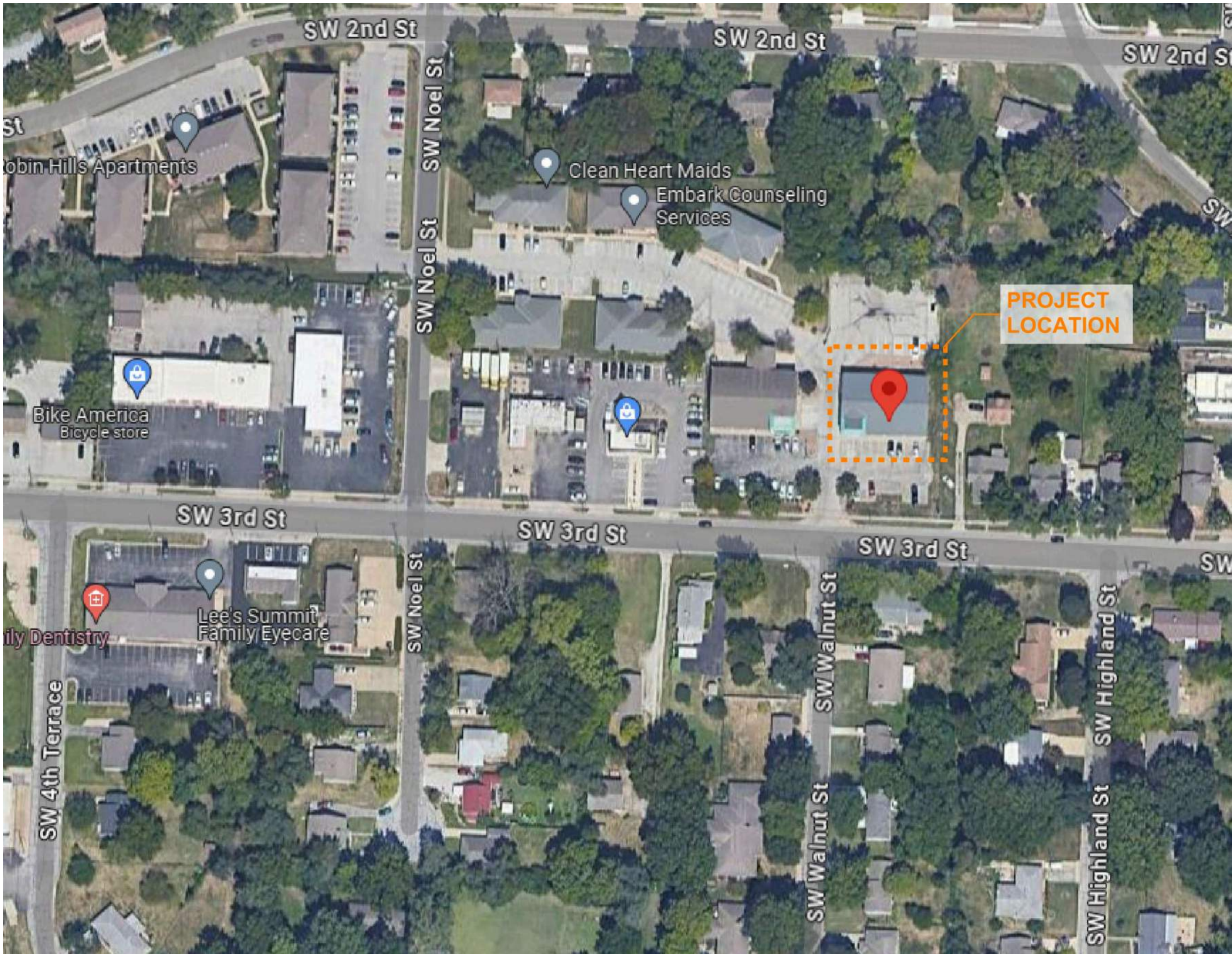
SereniTea Boutique

500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063

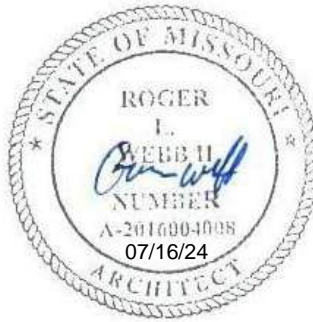
PERMIT DOCUMENTS

16 JULY 2024

COLLINS WEBB #: 24036



GENERAL	
SHEET NUMBER	SHEET NAME
CS	COVER SHEET
G001	GENERAL INFORMATION
G002	ACCESSIBILITY GUIDELINES
G003	LIFE SAFETY PLAN, WALL TYPES, AND PROJECT INFORMATION
G500	GENERAL PROJECT SPECIFICATIONS
G501	GENERAL PROJECT SPECIFICATIONS
ARCHITECTURAL	
SHEET NUMBER	SHEET NAME
A101	PLANS, SECTIONS, AND ELEVATIONS
MEP	
SHEET NUMBER	SHEET NAME
M101	MECHANICAL NOTES, SYMBOLS & ABBREVIATIONS
M201	MECHANICAL PLAN
M301	MECHANICAL SPECIFICATIONS
E101	ELECTRICAL NOTES, SYMBOLS & ABBREVIATIONS
E201	ELECTRICAL POWER PLAN
E301	ELECTRICAL LIGHTING PLAN
E401	ELECTRICAL RISER DIAGRAM & SCHEDULES
E501	ELECTRICAL SPECIFICATIONS
E502	ELECTRICAL SPECIFICATIONS
P101	PLUMBING NOTES, SYMBOLS & ABBREVIATIONS
P102	PLUMBING DETAILS AND SCHEDULES
P201	PLUMBING WASTE AND VENT PLAN
P202	PLUMBING WATER PLAN
P301	PLUMBING SPECIFICATIONS



OWNER

SERENITEA BOUTIQUE
500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063
P: 816.786.9506
sereniteaboutique@gmail.com

OWNER

THE PAPERBACK BAKERY
500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063
P: 816.786.9506
thepaperbackbakery@gmail.com

CONTRACTOR

MORGAN JACOBS GENERAL CONTRACTING
LLC
11420 E PUTNAM ST.
SUGAR CREEK, MO 64054-1120
P: 816.200.3118

ARCHITECT

COLLINS | WEBB ARCHITECTURE
307B SW MARKET ST.
LEE'S SUMMIT, MO 64063
P: 816.249.2270
www.collinsandwebb.com

MEP ENGINEER

ENGINEERED BUILDING SOLUTIONS, LLC
11320 W 79TH ST.
OVERLAND PARK, KS 66214
P: 913.735.5654
www.ebsolutionskc.com

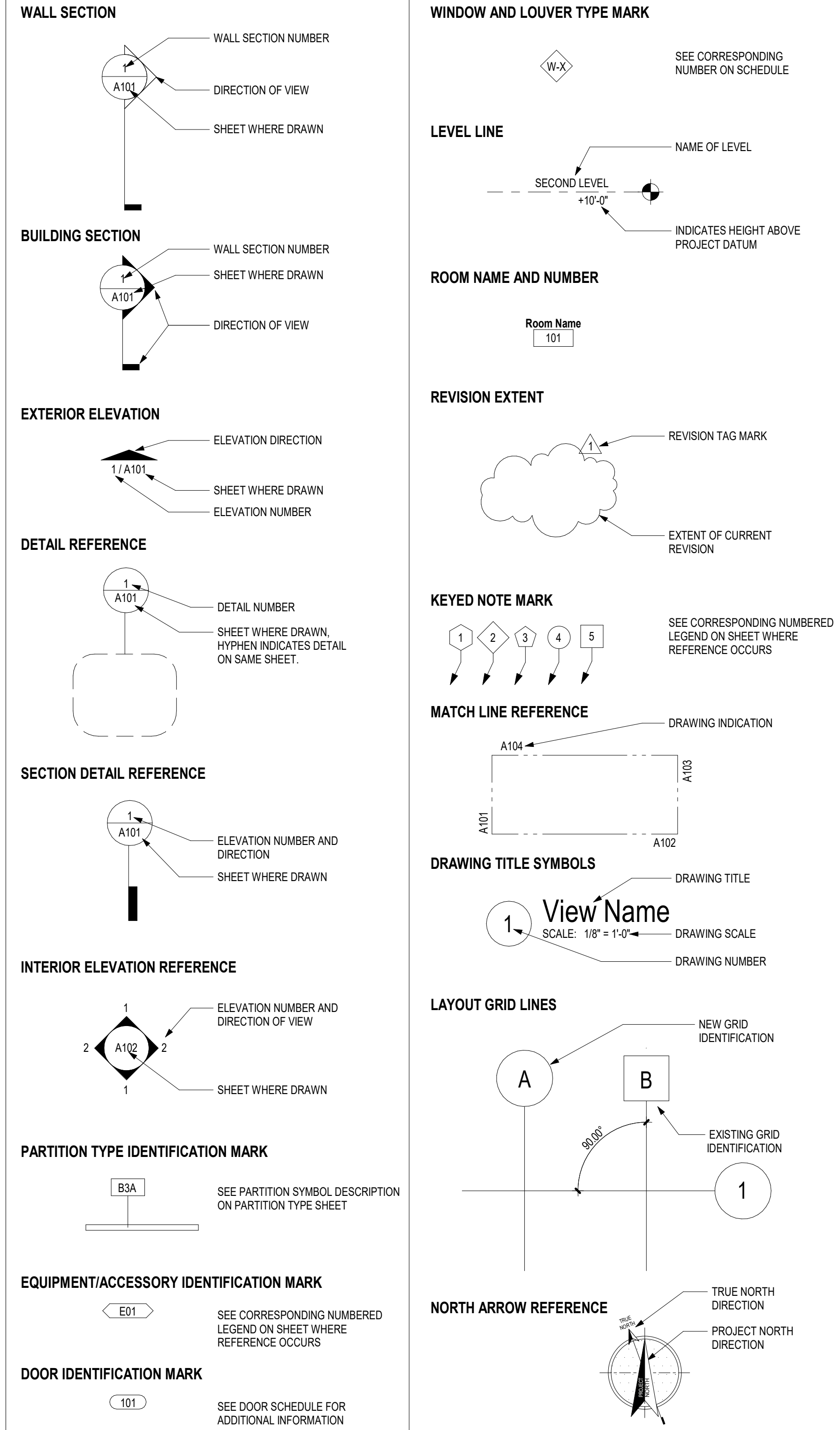
GENERAL INFORMATION NOTES:

- [illegible]

ARCHITECTURAL DIMENSIONING CONVENTIONS

- NOTE NO. 3 CONTINUED.
- CAUTION: DUE TO THE POSSIBLE APPLICATION OF APPLIED FINISHES - THICKNESS OF WHICH MAY VARY BETWEEN FLOOR AND CEILING AND IS NOT ACCOUNTED FOR (EXCEPT AS INDICATED BY "TOP" OR "CLEAR") BY THE DIMENSION SHOWN ON THE FLOOR PLANS - THE CONTRACTOR MUST ADJUST, AS NECESSARY, THE FLOOR PLAN DIMENSIONS TO REFLECT THE ACTUAL DIMENSIONS FOUND AT PLANE OF THE CEILING.
-
4. WHERE DIMENSIONS ARE NOT PROVIDED ON FLOOR PLANS TO LOCATE DOOR OPENINGS, APPLY THE FOLLOWING RULES, IN ORDER, TO DETERMINE THE LOCATION OF DOOR OPENINGS:
- DOOR OPENINGS MAY BE DIMENSIONED ON DRAWINGS OTHER THAN THE FLOOR PLANS. REFER TO THE SECTIONS, ELEVATIONS, DETAILS, AND DOOR SCHEDULE NOTES FOR ADDITIONAL DIMENSIONAL INFORMATION.
 - WHERE THE HINGE-SIDE OF A DOOR IS SHOWN ADJACENT TO A WALL - OR WALLS - PERPENDICULAR TO THE WALL IN WHICH THE DOOR OPENING OCCURS:
 - AT DOORS OCCURRING IN METAL FRAMED GYPSUM BOARD PARTITIONS. LOCATE THE HINGE-SIDE OF THE DOOR FINISH OPENING 4 INCHES FROM THE FACE (EXCLUSIVE OF APPLIED FINISHES) OF THE CLOSEST PERPENDICULAR WALL OR PARTITION ASSEMBLY.
 - AT DOORS OCCURRING IN WALLS OF CONC MASONRY UNIT CONSTRUCTION. LOCATE THE HINGE-SIDE OF THE DOOR FINISH OPENING 10 INCHES FROM THE FACE (EXCLUSIVE OF APPLIED FINISHES) OF THE CLOSEST PERPENDICULAR WALL OR PARTITION ASSEMBLY.
-
5. WHERE WALLS AND/OR PARTITIONS OF UNEQUAL THICKNESS BUT ALIGN EXPOSED FACES, UNLESS OTHERWISE NOTED:
-
- NOTE NO. 4 CONTINUED.
- C. WHERE DOOR OCCURS NOT ADJACENT TO A PERPENDICULAR WALL AND EITHER "DM" E" OR "DM" F" IN DIAGRAM BELONGS TO 16" OR LESS. LOCATE DOOR UTILIZING THE FOLLOWING MINIMUM DIMENSIONS:
- DIMENSION A = 16 INCHES MIN
 - DIMENSION B = 12 INCHES MIN
 - DIMENSION C = DOOR WIDTH + 2 INCHES MINIMUM
 - DIMENSION D = 4 INCHES MIN AT METAL FRAMED GYP BOARD PARTITIONS OR - EVEN MULTIPLE OF 12 CMU MODULE PLUS 2 INCHES AT CONC MASONRY UNIT WALLS
 - DIMENSION E AND F = AS SHOWN ON PLANS
 - DIMENSION G = 36 INCHES MIN
 - DIMENSION H = 60 INCHES MIN
-
- F. IF SPACE ALLOWS, CENTER DOOR IN WALL SHOWN ON THE DRAWINGS SO THAT EITHER "DM" A" EQUALS "DM" C" OR "DM" B" EQUALS "DM" D."
- D. IF "DM" E" IN DIAGRAMS BELOW IS LESS THAN THE SUM OF 2 TIMES THE DOOR WIDTH PLUS 25 INCHES. LOCATE DOOR SO THAT MINIMUMS STATE NOTE NO. 4C ABOVE FOR "DM" B" AND "DM" D" ARE MET - MAXIMIZING "DM" A" AND MINIMIZING "DM" D" TO THE EXTENT POSSIBLE.
-
- E. WHERE DOOR IS SHOWN LOCATED IN A LARGE EXPOSURE OF OPEN WALL FORM "DM" A" AND "DM" F" IN DIAGRAM BELOW - BOTH EXCEED 16-0". PLACE DOOR AT APPROXIMATE LOCATION SHOWN ON THE PLANS. WHERE DOOR OCCURS IN CMU WALL - PLACE DOOR AT APPROXIMATE LOCATION SHOWN WHILE MINIMIZING "CUT" OR PARTIAL CMU MODULES ADJACENT TO THE JAMBS.
-
6. WHERE "EQUAL" DIMENSIONS ARE USED ON REFLECTED CEILING PLANS TO LOCATE CEILING GRID WORK POINTS, MEASURE DIMENSIONS TO:
- EDGE OF THE INDICATED CEILING AT THE FACE OF THE ADJACENT APPLIED FINISH MEASURED AT THE PLANE OF THE CEILING.

TYPICAL ARCHITECTURAL REFERENCE SYMBOLS



ARCHITECTURAL ABBREVIATIONS

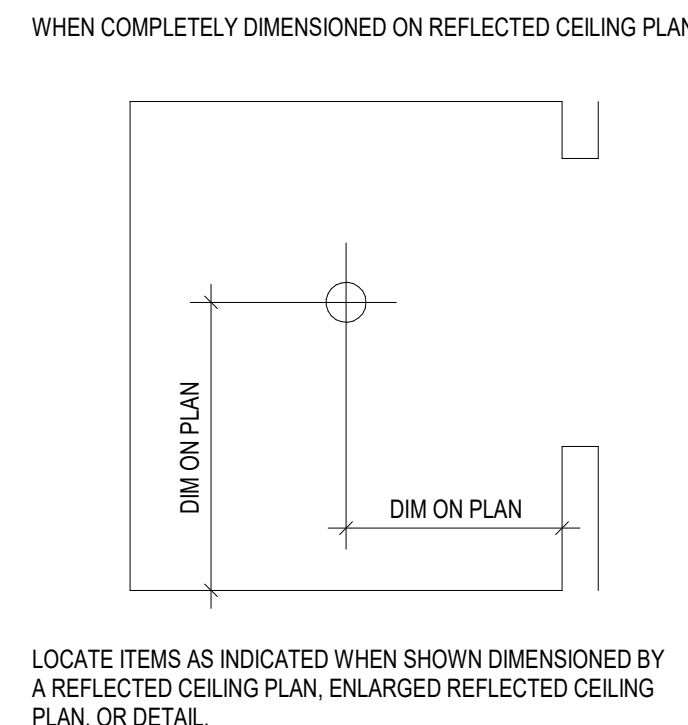
A	ANGLE	E	EAST	ID	INSIDE DIAMETER	PA	PUBLIC ADDRESS	SPKLR	SPRINKLER
AB	ANCHOR BOLT	EDR	EQUIPMENT DRAWING	IN	INCH	PART	PARTIAL	SPKR	SPEAKER
AC	ACROUSTIC(Acoustical)	EGS	EDGE GUARD	INCAND	INCANDESCENT	PCB	PCB PART	SQ	SQUARE
ACT	ACOUSTICAL CEILING TILE	EFS	EXTERIOR INSULATION FINISH SYSTEM	INCL	INCLUDE, INCLUDING	PBX	PRIVATE TELEPHONE EXCHANGE	SS	SANITARY SEWER
ACU	ACOUSTICAL CEILING PANEL	EP	EXPANSION JOINT	INFO	INFORMATION	PCF	POUNDS PER CUBIC FOOT	SS	SERVICE SINK
ACS PNL	ACCESS PANEL	EL	ELEVATION	INSUL	INSULATION	PCI	POUNDS PER CUBIC INCH	ST	STAINLESS STEEL
AD	AREA DRAIN	ELAST	ELASTOMERIC	INTR	INTERIOR	PERF	PERFORATED	ST	STREET
ADH	ADHESIVE	ELCT	ELECTRICAL	INVT	INVERT	PERM	PERMANENT	STA	STATION
ADJ	ADJUSTABLE	ELEV	ELEVATOR	INT	INTRAVENOUS TRACK	PERP	PERPENDICULAR	STC	SOUND TRANSMISSION COEFFICIENT
ADJAC	ADJACENT	EMER	EMERGENCY			PI	POINT OF INTERSECTION	STD	STANDARD
AF	AFRICAN	ENCL	ENCLOSURE			PL	PLATE	STEEL	STEEL
AFB	ABOVE FINISH FLOOR	ENGR	ENGINEER			PLAM	PLASTIC LAMINATE	STR	STORAGE
AFG	ABOVE FINISH GRADE	EOS	EDGE OF SLAB	JAN	JANITOR	PLAS	PLASTER, PLASTIC	STRUCT	STRUCTURAL
AG	AGGREGATE	EP	ELECTRICAL PANEL	JST	JOIST	PLUMB	PLUMBING	STRUT	SELF-TAPPING STEEL
AGGR	AGGREGATE	EPB	ELECTRICAL PANEL BOARD	JT	JOINT	PLF	POUNDERS PER LINEAR FOOT	SUSP	SUSPENDED
ALUM AL	ALUMINUM	EPOM	ETHYLENE PROPYLENE DIENE MONOMER			PLYO	PLYWOOD	SUSP CLG	SUSPENDED CEILING
ALT	ALTERNATE	EQUAL	EQUAL			PNEAL	PNEUMATIC	SW	SWITCH
ANOD	ANODIZED	EQL SP	EQUALLY SPACED			PNL	PANEL	SW	SOUTHWEST
APPROX	APPROXIMATELY	EQUIP	EQUIPMENT	KG	KILOGRAM	PNL BD	PANEL BOARD	SYMM	SYMMETRICAL
ARCHIT	ARCHITECTURAL	EQUIV	EQUIVALENT			PNT	PANT	SYST	SYSTEM
ASPH	ASPHALT	ESAL	ESCALATOR	KIT	KITCHEN	PORT	PORTABLE		
AVH	AVIATION	EST	ESTIMATED	KPL	KICK PLATE	PP	PUSH PLATE		
AVG	AVERAGE	EXC	ELECTRIC WATER COOLER	KS	KNEE SPACE	PPM	PARTS PER MILLION		
		EXH	EXHAUST			PR	PAIR	T	TREAD
		EXIST. (E)	EXISTING			PRECAST	PRECAST	T	TOP
BB	BULLETIN BOARD	EXP	EXPANSION	L	LENGTH	PREP	PREPARATION	T&G	TOP AND BOTTOM
BD	BOARD	EXP	EXPANSION	L	LENGTH	PREFAB	PREFABRICATION	TCH	TOP OF CONCRETE
BTWN	BETWEEN	EXP JT	EXPANSION JOINT	LAB	LABORATORY	PARKING	PARKING	TR	TRUCK
BTUM	BITUMINOUS	EXT	EXTERIOR	L	LAB	PROJ	PROJECT	TEL	TELEPHONE
BLK /BLKG	BLOCK /BLOCKING	EXBR	EXISTING BRICK	LAM	LAMINATE, LAMINATION	PROP	PROPERTY	TEMP	TEMPERATURE
BK	BUILDING			LAV	LAVATORY	PROPS	POUNDS PER SQUARE FOOT	THERM	THERMAL
BM	BENCHMARK			LAB	LABORATORY	PROP	POUNDS PER SQUARE INCH	THK	THICK, THICKNESS
BMO	BOTTOM OF METAL DECK	FF	FACE TO FACE	LED	LIGHT EMITTING DIODE	PT	PTD	THRES	THRESHOLD
BTM	BOTTOM OF /BY OTHERS	FA	FIRE ALARM	LF	LINEAR FOOT	PTN	POINT, PANT / PAINTED	THROUG	THROUGH
BOT	BOTTOM	FAS	FIRE ALARM STATION	LG	LENGTH	PTN	PNEUMATIC TUBE STATION	TMPO CL	TEMPERED GLASS
BOS	BOTTOM OF STEEL	FB	FLAT BAR	LN	LINEAR	PVC	POLYVINYL CHLORIDE	TO	TOP OF
BRS	BEARING	FCU	FAN COIL UNIT	LE	LEAD LINE	PV	PAVING	TOP OF RAILING	
BSMT	BASEMENT	FD	FLOOR DRAIN	LPT	LOW POINT	PVMT	PAVEMENT	TOS	TOP OF STEEL
BUR	BUILT UP ROOFING SYSTEM	FEC	FIRE DEPARTMENT CONNECTION	LT	LIGHT	PWR	POWER	TOT	TOTAL
		FEN	FOUNDATION	LTW	LIGHT WEIGHT			TOW	TOP OF WALL
		FE	FIRE EXTINGUISHER CABINET	LTG	LIGHTING			TP	TOP OF PAVEMENT
		FE	FIRE EXTINGUISHER	LVR	LOUVER			TPH	TOLLE PAPER HOLDER
I	CHANNEL	FG	FINISH FACE					TRAN	TRANSPARENT
CAB	CABINET	FG	FINISH GRADE			QT	QUARRY TILE	TTB	TELEPHONE TERMINAL BOARD
CPT	CARPET	FHC	FIRE HOSE CABINET			QTY	QUANTITY	TV	TELEVISION
CB	CAST IRON	FHS	FIRE HOSE / EXTINGUISHER CABINET					TY	TYPICAL
CB	CAST BASIN	FHS	FIRE HOSE / EXTINGUISHER CABINET					TW	TOP OF WALL
CCR	CARD CONTROL READER	FHM	FLAT HEAD MACHINE SCREW	M	METERS				
CSWK	CASEWORK	FHWS	FLAT HEAD WOOD SCREW	MACH	MACHINE				
CCTV	CLOSED CIRCUIT TELEVISION	FHY	FIRE HYDRANT	MATL	MATERIAL				
COMB	COMBINATION STAND PIPE	FIN	FINISH, FINISHED	MATV	MASTER ANTENNA TELEVISION SYSTEM				
CG	CORNER GUARD	FLAM	FLAMMABLE	MB	MACHINE BOLT				
CEM	CEMENT, CEMENTITIOUS	FLASH	FLASHING	MC	MACHINE BOLT				
CT	CERAMIC TILE	FLEX	FLEXIBLE	ME	MEDICINE CABINET				
CH BD	CHALKBOARD	FLOOR	FLOOR	MECH	MECHANICAL				
CL	CERAMIC LINE	FLOR	FLUORESCENT						
CLG	CEILING	FO	FACE OF						
CLR	CLEAR	FRT	FIRE RETARDANT TREATMENT	ME	MEDIUM				
CLQ	CLIQUE	FSTNR	FASTENER	MTL	METAL				
CMU	CORNER GUARD	FZB	FOLDING SHOWER BENCH	MFB / MFG	MANUFACTURER				
CRSC	COLD ROLLED STEEL CHANNEL	FT	FOOT, FEET	MEM	MEMBRANE				
CV	COLD WATER	FTG	FOOTING	MFG / MFG	MANUFACTURER				
CNTR	COUNTER	FURN	FURNITURE	MFG	MANUFACTURER				
CONC	COUNTERSINK	FXTR	FIXTURE	MM	MILLIMETERS				
CONC	CONCRETE	G	GAS	MM	MILLIMETERS				
CONF	CONFERENCE	G	GAS, GAGE	MTD	MOUNTED				
CONN	CONNECTION	GAL	GALLON	MTG	MOUNTING				
CONSTR	CONSTRUCTION	GALV	GALVANIZED	MVB	MOVABLE				
CONT	CONTINUOUS	GB	GRADE BAR	MULL	MULLION				
CONTR	CONTRACTOR	GC	GENERAL CONTRACTOR						
CJ	CONTROL ZONE	GFCI	GROUND FAULT CIRCUIT INTERRUPTER						
CONGR	CORNER GUARD	GFRG	GLASS FIBER REINFORCED CONCRETE						
CORR	CORRUGATED, CORRIDOR	GFRG	GLASS FIBER REINFORCED CONCRETE						
CJ	CUBIC	GL	GLASS	(N)	NEW				
		GLU LAM	GLUE LAMINATED	N	NORTH				
D	DEPTH	GLZ	GLAZING	N	NATURAL				
DBL ACT	DOUBLE ACTING	GR	GRADE OR GRADING	NE	NORTHEAST				
DEG	DEGREE	GRV	GRAVEL	NC	NORTH CONTRACT				
DEMOLISH	DEMOLISH	GYSUM	GYP SUM	NO	NUMBER				
DEPT	DEPARTMENT	GYP BD	GYP SUM BOARD	NOM	NOMINAL				
DET	DETAIL	GYP PLAS	GYP SUM PLASTER	NTS	NOT TO SCALE				
DIA	DIAMETER	H	HIGH	NW	NORTHWEST				
DIA	DIAGONAL	H	HIGH						
DF	DIFFUSER	HO	HOLE						
DM	DIMENSION	HDBD	HOLLOW BOARD						
DM PT	DIMENSION POINT	HWD, HWDR	HARDWARE	OC	ON CENTER				
DISP	DISPENSER	HDWD	HARDWOOD	OA	OVERALL				
DIST	DISTANCE	HGT, HT	HEIGHT	OC	OUTSIDE DIAMETER				
DK	DECK	HO	HOLLOW	OFCI	OWNER FURNISHED-CONTRACTOR INSTALLED				
DN	DOWN	HORIZ	HORIZONTAL	OFCI	OWNER FURNISHED-OWNER INSTALLED				
DR	DRAIN, DOOR	HOZ	HORIZONTAL	OP	OPPOSITE				
DS	DOWNSPOUT	HPT	HIGH POINT	OPP	OPPOSITE				
DRY	DRY STANDPIPE	HOUR	HOUR	OR	OVERHEAD				
DT	DRAPERY TRACK	HVAC	HEATING-VENTILATION-AIR CONDITIONING	OVD	OVERLAP ROOF DRAIN				
DETAL	DETAIL	HW	HOT WATER	OV	OVERHEAD				
DW	DRAWER			OUNCE	OUNCE				
DWG	DWG/DWG DRAWING / DRAWINGS								

TYPICAL RULES FOR DETERMINING REFLECTED CEILING PLAN LOCATIONS, DIMENSIONS, AND CONFIGURATIONS

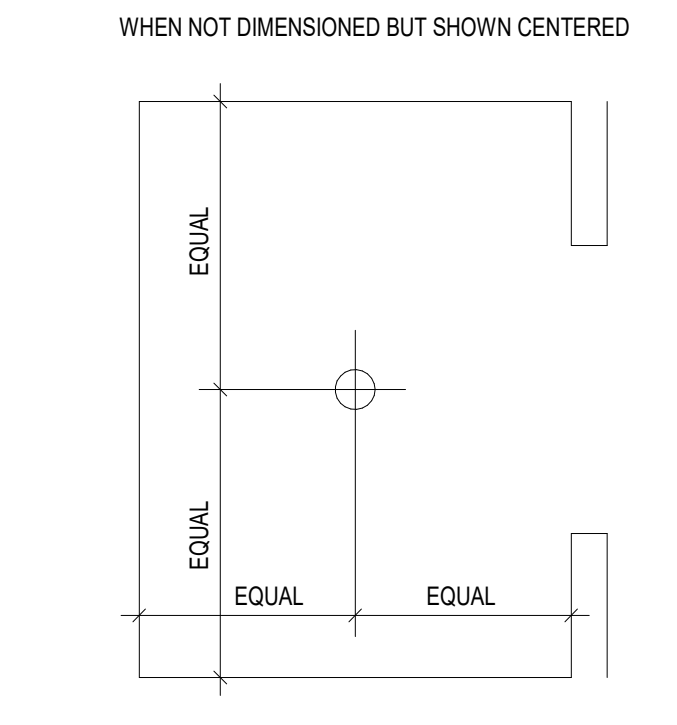
GENERAL NOTES

- A THE A-SERIES DRAWINGS ESTABLISH AND COORDINATE THE FINISHED APPEARANCE AND LOCATION OF ALL EXPOSED ELEMENTS. THE A-SERIES DRAWINGS TAKE PRECEDENCE OVER ALL OTHERS IN CONFLICTING SITUATIONS. THE A-SERIES DRAWINGS SHALL BE USED TO DETERMINE THE FOLLOWING:
- EXCEPTION:** DIMENSIONS LOCATED ON DRAWINGS OF OTHER DISCIPLINES SHALL GOVERN ONLY WHERE:
- 1. THE DIMENSION IS NOT INDIVIDUALLY INDICATED BY SYMBOL, KEYED NOTE, OR NOTATION ON THE ARCHITECTURAL DRAWINGS
 - 2. THE DIMENSION IS REQUIRED TO PROVIDE SPACE FOR WHICH ARCH SHEET OR SCHEDULE NOTES INDICATE THAT DIMENSIONS PROVIDED ELSEWHERE SHALL GOVERN.
- B THE PURPOSE OF THIS SHEET IS TO ILLUSTRATE THE TYPICAL RULES WHICH GOVERN THE LOCATION, CONFIGURATION IN RELATIONSHIP TO OTHER ELEMENTS OF THE WORK, THE SEQUENCE ALIGNMENT OF ALL ITEMS OCCURRING ON REFLECTED CEILING PLANS OF THE PROJECT.
- C THE A-SERIES FLOOR PLANS, REFLECTED CEILING PLANS, SECTIONS, ELEVATIONS, AND DETAILS ARE SUBJECT TO THE FOLLOWING RULES WHICH GOVERN THE LOCATION OF PARTS OF THE WORK. APPLY THE RULES ON THE WORK. **IN ORDER -** TO DETERMINE THE LOCATION OF EXPOSED PART OF THE WORK:
- 1. WHEN SPECIFICALLY AND SEPARATELY DIMENSIONED ON THE A-SERIES PLANS, SECTIONS, OR ELEVATIONS (OR COMBINATION THEREOF), LOCATE AS DIMENSIONED.
 - 2. IF NOT SHOWN, OR IF SHOWN BUT NOT DIMENSIONED, BY THE A-SERIES PLANS OR ELEVATIONS, LOCATE AS INDICATED BY THE APPLICABLE RULE.
- D REFER TO THE A-SERIES DRAWINGS FOR THE LOCATION OF SPACERS WHICH MAY BE APPLICABLE TO THE WORK. SHOWN ON THIS SHEET.
- E THE A-SERIES FLOOR PLANS, REFLECTED CEILING PLANS, SECTIONS, ELEVATIONS, AND DETAILS ARE SUBJECT TO THE FOLLOWING RULES WHICH GOVERN THE IDEAL PATTERN FOR LOCATING SPRINKLER HEADS IN SPACES WHERE HEADS ARE SHOWN. FOLLOW PATTERN ESTABLISHED BY THE DRAWINGS. WHERE HEADS ARE NOT SHOWN, FOLLOW THE PATTERN ESTABLISHED BY THE DRAWINGS. CONFORMITY WITH PATTERN ESTABLISHED BY THE DRAWINGS.
- F IN SPACES WHERE SPRINKLER HEADS ARE NOT SHOWN BY THE ARCHITECTURAL DRAWINGS, LOCATE SPRINKLER HEADS AS INDICATED BY THE FOLLOWING:

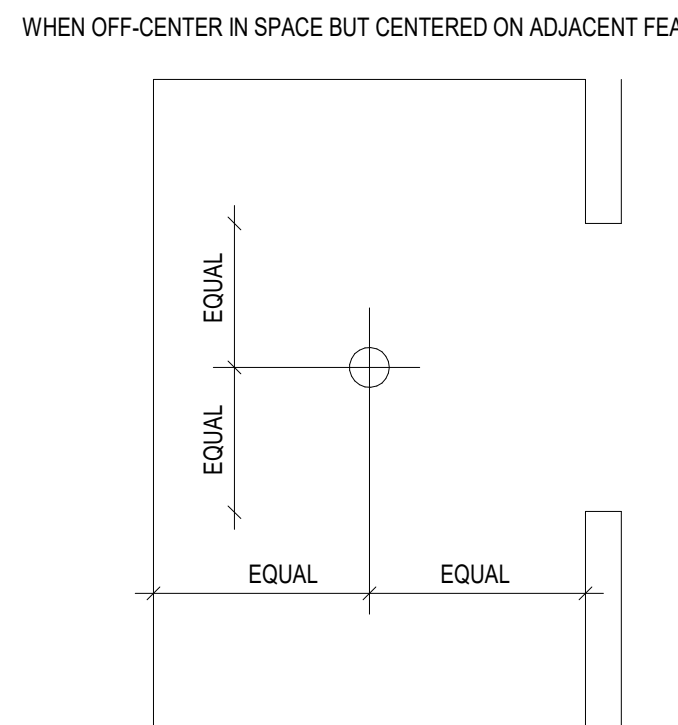
RULE 1



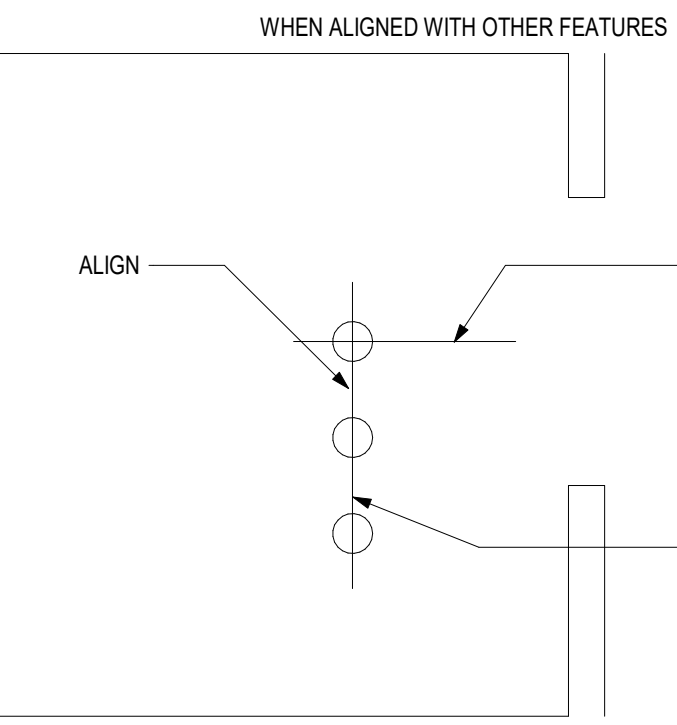
RULE 2



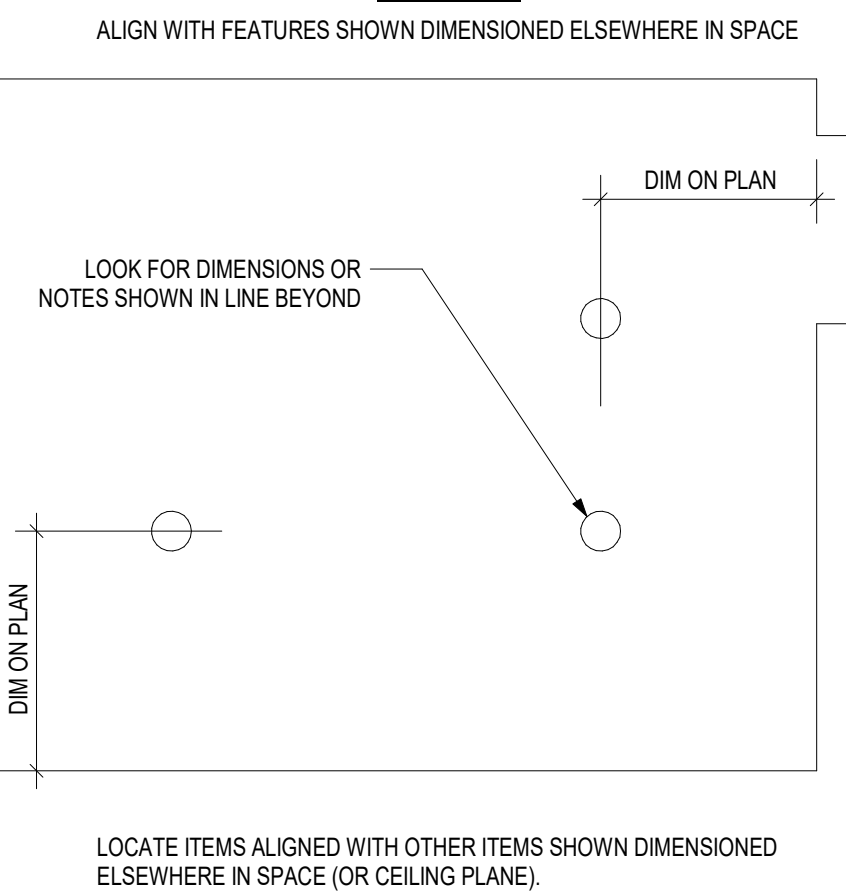
RULE 3



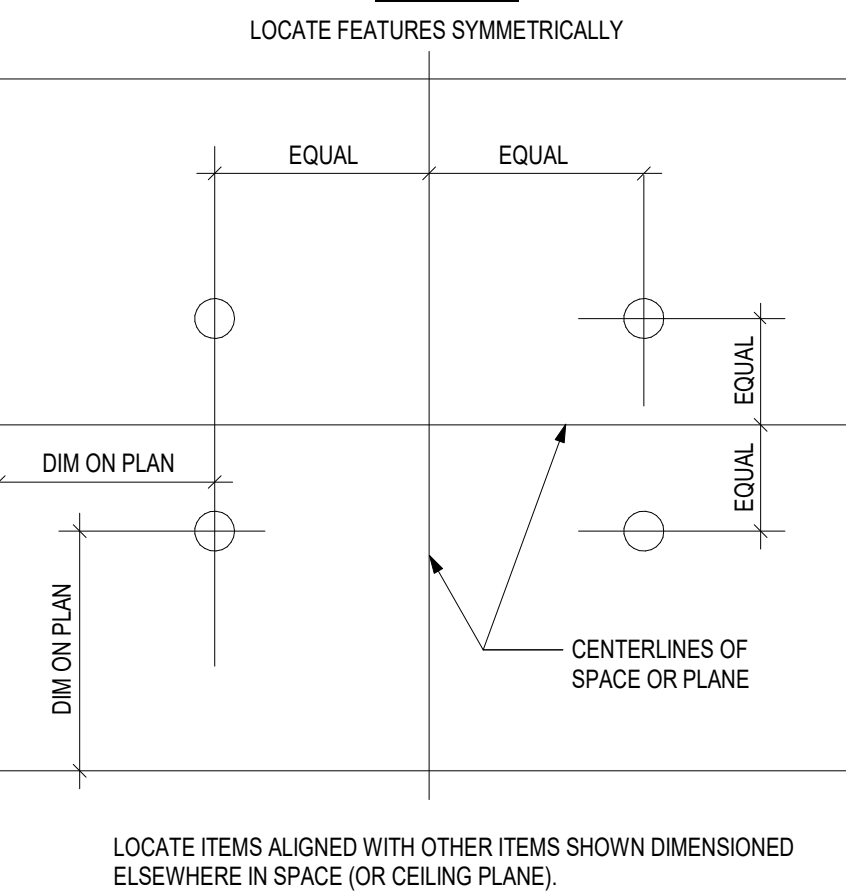
RULE 4



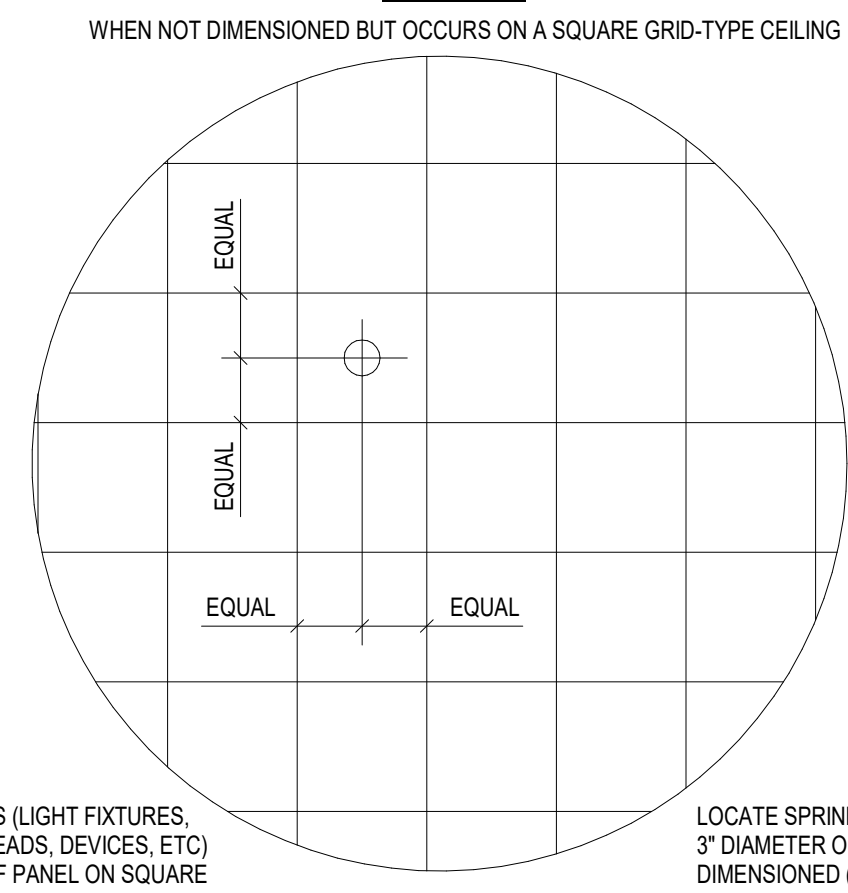
RULE 5



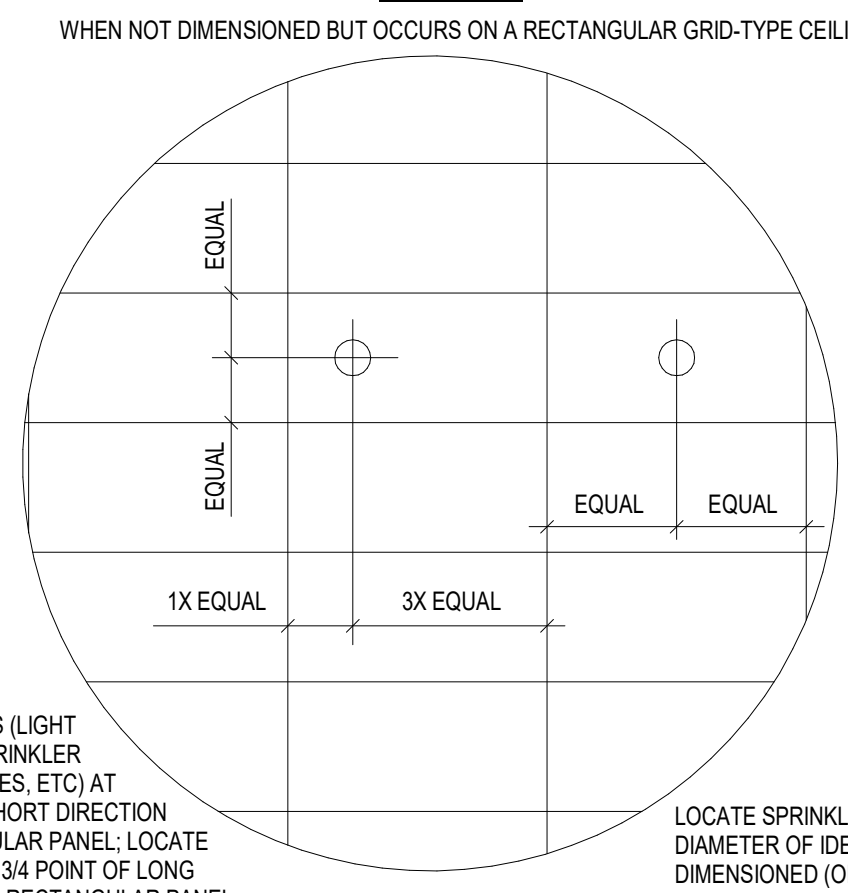
RULE 6



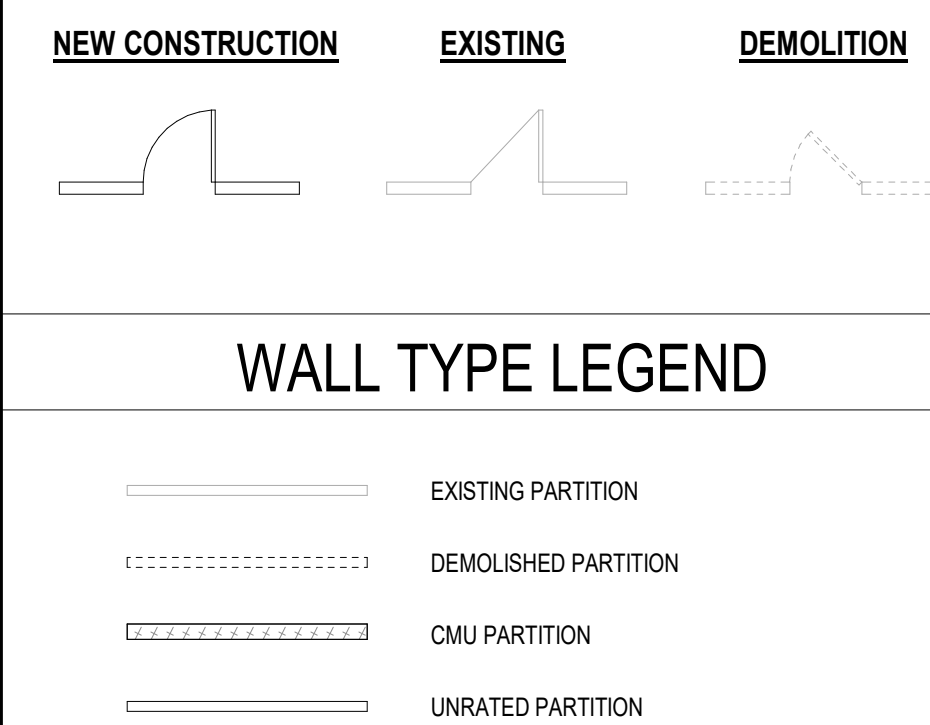
RULE 7



RULE 8



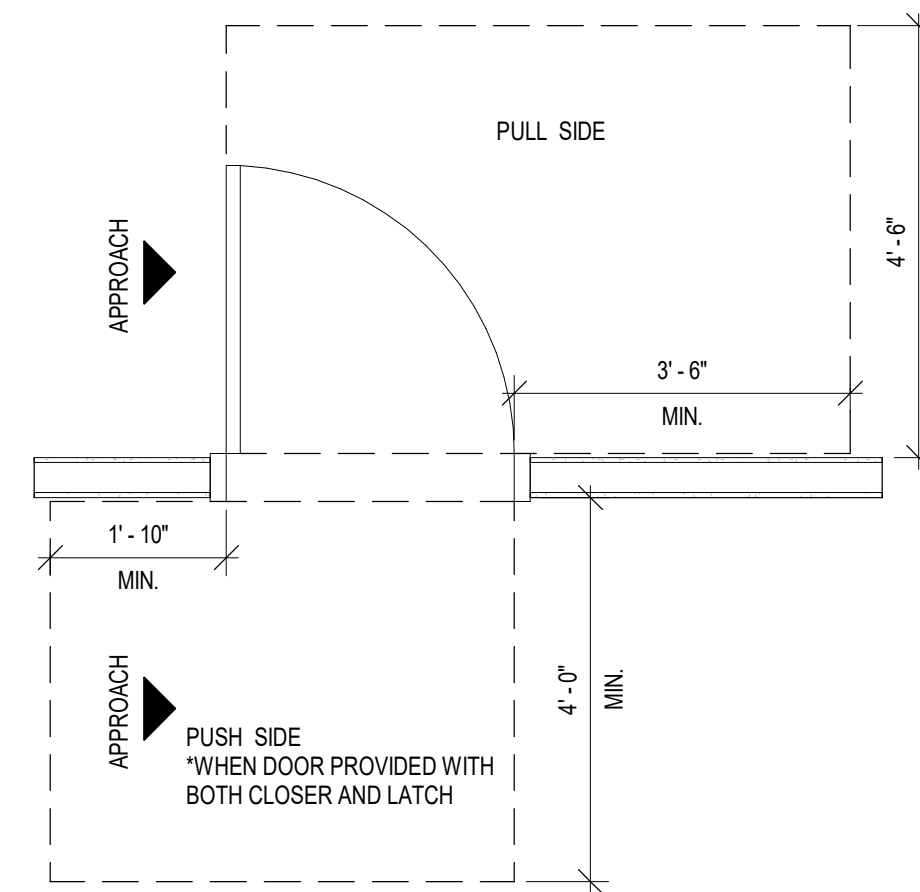
TYP DOOR LEGEND



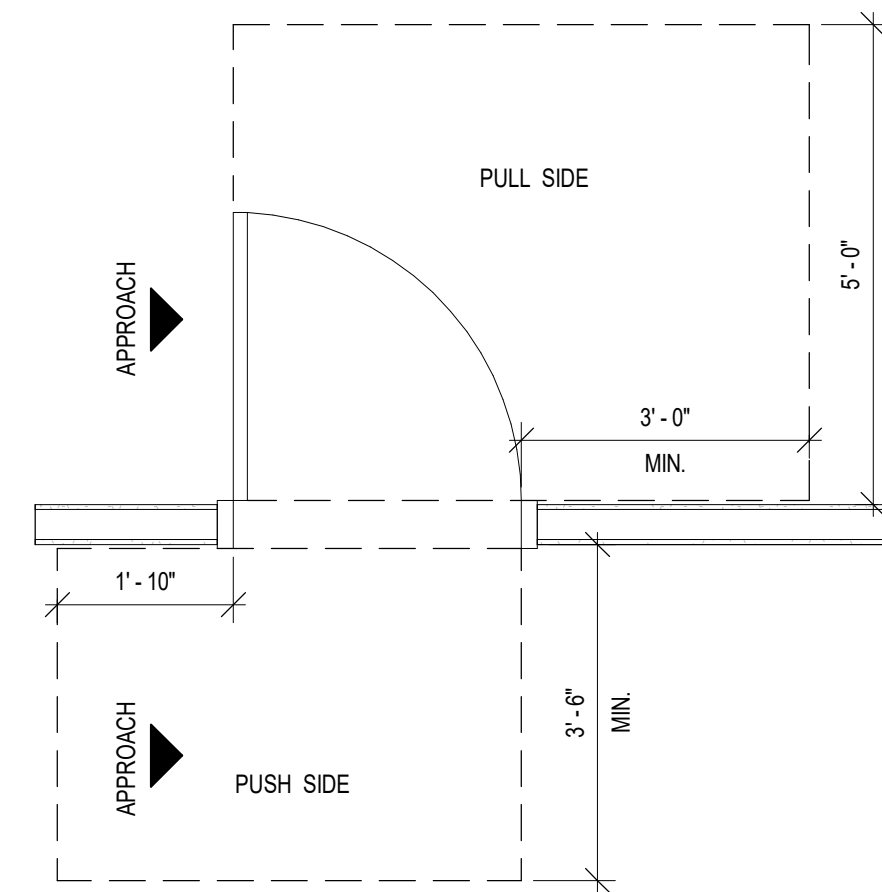
GENERAL NOTES: ACCESSIBILITY GUIDELINES

- NOTE: ALL DIMENSIONS ARE MEASURED FROM FLOOR, UNLESS NOTED OR SHOWN OTHERWISE.
- ADA UNOBSTRUCTED REACH RANGES: ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
- DOOR HARDWARE (TO CENTER OF HARDWARE): STANDARD MOUNTING HEIGHTS: PUSH PLATES = 42"; PULL HANDLES = 42"; KNOBS/LEVERS = 40"; PANIC EXIT = 40" CENTERLINE OF BAR, KICKPLATES: WIDTH = DOOR WIDTH MINUS 2" CENTER, HEIGHT = 16" FROM B.O. DOOR THRESHOLDS: STANDARD = 12" MAX. AT EXT. SLIDING DOORS = 34" MAX., ADA HARDWARE = 34" MIN. TO 48" MAX.
- DRINKING FOUNTAINS & EWCS (TO SPOUT): STANDARD = 40" TYP. 42" MAX. ADA = 38" MAX. (27" MIN. CLEARANCE SPACE)
- COUNTERTOPS (TO SINK RIM/COUNTERTOP): ADA = 28" MIN. TO 34" MAX.
- WATER CLOSETS (TO TOP OF SEAT): STANDARD = 14" TO 15" ADA (TO TOP OF SEAT) = 17" TO 19" ADA FLUSH CONTROLS = 44" MAX.
- URNALS (TO RIM): STANDARD = 24" MAX. ADA = 17" MAX. ADA FLUSH CONTROLS = 44" MAX.
- LAVATORIES (TO SINK RIM/COUNTERTOP): STANDARD = 36" MAX. ADA = 34" MAX. (27" MIN. CLEARANCE SPACE)
- MIRRORS (TO B.O. REFLECTIVE SURFACE): STANDARD = VARIES. ADA = 40" MAX.
- GRAB BARS: ADA (TO TOP OF BAR): WATER CLOSETS = 33" MIN. TO 36" MAX. SHOWERS = 33" MIN. TO 36" MAX. (FROM B.O. SHOWER). BATHTUBS: TOP BAR = 33" MIN. TO 36" MAX. BOT. BAR = 8" ABOVE T.O. TUB.
- SHOWER HEADS (FROM FLOOR TO HEAD): STANDARD = 72" TO 84" ADA = SPRAY UNIT W/ HOSE 60" LONG MIN. ADA = FIXED SHOWER HEAD = 48" AFF.
- SHOWER CONTROLS (TO CONTROL AREA): STANDARD = 48" MAX. (TO TOP). ADA = 38" MIN. TO 48" MAX.
- SHOWER ROD (FROM FLOOR TO C.L.): STANDARD = 78" MAX.
- TOILET ROOM PARTITIONS: TOILETS = 12" TO BOT. & 70" TO TOP. URNALS = 18" TO BOT. & 40" TO TOP.
- TOILET PAPER DISPENSERS (TO C.L. OF OUTLET): STANDARD = 24" ADA = 18" MIN. TO 24" MAX.
- WALL MOUNTED SOAP DISPENSERS (TO C.L. OF PUSH BUTTON): STANDARD = 48" ADA = VARIES. RE-OBSTRUCTED AND UNOBSTRUCTED REACH RANGES: ADA SIDE REACH = 48" MAX. ABOVE SINK IN COUNTER.
- PAPER TOWEL DISPENSER: WASTE RECEPTACLE (TO TOWEL SLOT): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
- WARM AIR HAND DRYER (TO PUSH SWITCH): STANDARD = 44" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
- SANITARY NAPKIN DISPENSER (TO C.L. OF COIN SLOT): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
- SANITARY NAPKIN DISPOSAL (TO TOP OF UNIT): STANDARD = 28" MAX. ADA = 18" MIN. TO 24" MAX. (TO OPNG.)
- TOILET SEAT COVER DISPENSERS (TO OPNG.): STANDARD = 40" MAX. ADA FORWARD REACH = 48" MAX. & 15" MIN. ADA SIDE REACH = 48" MAX. & 15" MIN.
- SHelves: ADA = 48" MAX.
- COAT COCKS: STANDARD = 68" ADA = 48" MAX.
- CHALKBOARDS, TACKBOARDS & MARKERBOARDS: STANDARD = 32" TO 36" (TO B.O. BOARD OR CHALKTRAY). STANDARD = 80" (RECOMMENDED) (TO T.O. BOARD).
- THERMOSTATS & CONTROL DEVICES (TO TOP): ADA FORWARD REACH = 48" MAX. ADA SIDE REACH = 48" MAX.
- CONVENIENCE RECEPTACLES - ELECTRICAL/TELEPHONE/ DATA (TO C.L.): STANDARD = 18" ADA = 15" MIN.
- EXIT LIGHTS - WALL MOUNTED: 2" MIN. BELOW CEILING. 2" MIN. ABOVE DOOR FRAME. EQUAL SPACE FROM CEILING TO TOP OF FRAME.
- FIRE EXTINGUISHERS (TO TOP, U.N.O.): GROSS WGT. 40 LBS. OR LESS = 80" MAX. GROSS WGT. MORE THAN 40 LBS. = 42" MAX. ADA = 40" MAX. (B.O. CABINET).
- FIRE ALARM PULL STATIONS (TO LEVER): STANDARD = 48" MAX. ADA FORWARD REACH = 48" MAX. ADA SIDE REACH = 48" MAX.
- SMOKE AND/OR HEAT DETECTORS: STANDARD = CEILING HEIGHT.
- HORN/SPEAKER/VISUAL SIGNALS: STANDARD = 80" AFF. OR 6" BELOW CEILING - WHICHEVER IS LOWER.
- ROOM SIGNAGE (TO C.L.): STANDARD = 60" HIGH AFF. & WITHIN 18" OF LATCH SIDE OF DOOR.

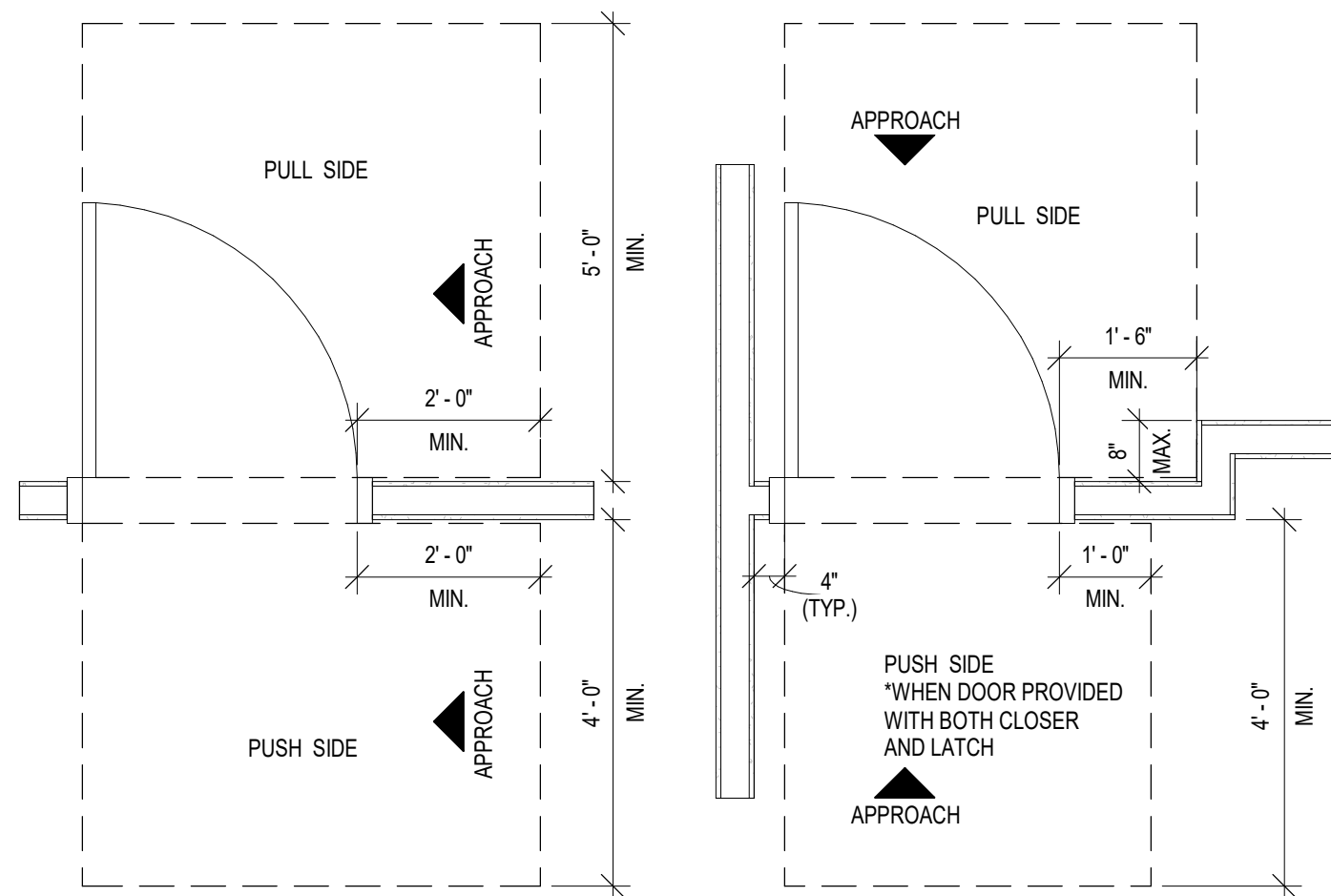
H7 FE CABINET
1/2" = 1'-0"



H4 FIRE EXTINGUISHER
1/2" = 1'-0"



H3 BLOCKING SECTION
3" = 1'-0"



F11 TYP. BLOCKING DETAILS
3/4" = 1'-0"

MISCELLANEOUS ACCESSORY TYPICAL MOUNTING HEIGHTS

ACCESSORY TYPE	COMMENTS
FINISH FLOOR	
EXTINGUISHER CABINET	SEMI RECESSED
MANUAL FIRE PULL	SURFACE MOUNTED
STROBE/LIGHT/AUDIBLE ALARM	SURFACE MOUNTED
WALL MOUNTED EXIT SIGN	WALL MOUNTED
WALL MOUNTED HANDRAIL	SURFACE MOUNTED
WALL CLOCK	SURFACE MOUNTED
FABRIC COVERED TACK BOARD	SURFACE MOUNTED
MARKER BOARD	SURFACE MOUNTED
MOP & BROOM HOLDER	SURFACE MOUNTED
ROBE HOOK	SURFACE MOUNTED
ELAPSED TIME CLOCK	SURFACE MOUNTED
SOAP DISPENSER	SURFACE MOUNTED
PAPER TOWEL DISPENSER	SURFACE MOUNTED
ALCOHOL DISPENSER	SURFACE MOUNTED

TOILET ACCESSORY TYPICAL MOUNTING HEIGHTS

ACCESSORY TYPE	COMMENTS
FINISH FLOOR	
PAPER TOWEL DISPENSER	SURFACE MOUNTED
POWER HAND DRYER	SURFACE MOUNTED
SEMI RECESSED	
TOILET TISSUE DISPENSER	SURFACE MOUNTED
SANITARY NAPKIN DISPOSAL	SURFACE MOUNTED
SANITARY NAPKIN DISPENSER	RECESSED & SURFACE
TOILET TISSUE DISPENSER	SURFACE MOUNTED
VANITY SOAP DISPENSER	SURFACE MOUNTED
FRAMED VANITY MIRROR	SURFACE MOUNTED
DIAPER CHANGING STATION	SURFACE MOUNTED
SOAP DISPENSER	COUNTERTOP MOUNTED
FOLDING SHOWER SEAT	SURFACE MOUNTED
TOILET PARTITION	WALL MOUNTED
URNAL SCREEN	WALL MOUNTED

MISCELLANEOUS ACCESSORY TYPICAL MOUNTING HEIGHTS

ACCESSORY TYPE	COMMENTS
FINISH FLOOR	
CLOSET HANGAR ROD & SHELF	WALL MOUNTED
WALL PHONE	SURFACE MOUNTED
TELEPHONE HOUSING	SURFACE MOUNTED
CUP DISPENSER	SURFACE MOUNTED
WALL SWITCH	SURFACE MOUNTED
TELEPHONE OUTLET	SURFACE MOUNTED
RECEPTACLE/TELEPHONE/ DATA	SURFACE MOUNTED
RECEPTACLE/TELEPHONE/ DATA	SURFACE MOUNTED
SPECIALTY EQUIP (IE. THERMOSTAT CARD READER/INTERCOM)	SURFACE MOUNTED
ELEVATOR CALL BUTTON	SURFACE MOUNTED
ELEVATOR VISIBLE SIGNAL INDICATOR	SURFACE MOUNTED
TACTILE CHARACTER INDICATOR	SURFACE MOUNTED
PANIC BAR	SURFACE MOUNTED
DOOR PULL	SURFACE MOUNTED
DOOR LATCH	SURFACE MOUNTED
ADA DOOR OPERATOR	VARIES

PLUMBING FIXTURE TYPICAL MOUNTING HEIGHTS

ACCESSORY TYPE	COMMENTS
FINISH FLOOR	
SHOWER MIXING VALVE	WALL MOUNTED
SHOWER HEAD	WALL MOUNTED
HAND HELD SHOWER	WALL MOUNTED
LAVATORY	WALL MOUNTED
LAVATORY	COUNTER MOUNTED
CHILDREN'S DRINKING FOUNTAIN	WALL MOUNTED
SINGLE DRINKING FOUNTAIN	WALL MOUNTED
DOUBLE DRINKING FOUNTAIN	WALL MOUNTED
TOILET	WALL MOUNTED
URNAL	WALL MOUNTED

GRAB BAR TYPICAL MOUNTING HEIGHTS & TOILET ACCESSORY PLANS

ACCESSORY TYPE	COMMENTS
FINISH FLOOR	
ADA TOILET GRAB BAR	SURFACE MOUNTED
SHOWER STALL GRAB BAR	SURFACE MOUNTED
ROLL-IN SHOWER STALL GRAB BAR	SURFACE MOUNTED
TYPICAL ACCESSORIES AT ACCESSIBLE TOILET	NOTE: SANITARY NAPKIN DISPOSAL AT WOMEN'S & UNISEX ONLY
TYPICAL ADA SINK ENCLOSURE PANEL CLEARANCE	
TYPICAL TOILET PAPER DISPENSER PER ICC A117.1	SURFACE MOUNTED BELOW GRAB BAR

A11 TYP. MOUNTING HEIGHTS
1/4" = 1'-0"

ACCESSIBILITY GUIDELINES

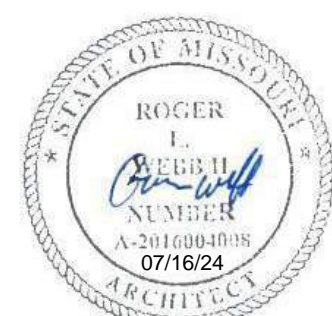


SereniTea Boutique

500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC

REVISION DATES:



PROFESSIONAL SEAL

G501

ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 24036

GENERAL PROJECT SPECIFICATIONS

SPECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS

DIVISION 9 - FINISHES (CONT.)

PART 3 EXECUTION (09 9000 HIGH PERFORMANCE COATINGS CONT.)

- 3.1 MANUFACTURER'S INSTRUCTIONS.
- 3.2 EXAMINATION:
- A. SITE VERIFICATION OF CONDITIONS: VERIFY THAT SUBSTRATE CONDITIONS ARE SUITABLE FOR INSTALLATION OF THE FLOORING SURFACE SYSTEM.
 - B. DO NOT PROCEED WITH INSTALLATION UNTIL UNSUITABLE CONDITIONS ARE CORRECTED.
- 3.3 SURFACE PREPARATION:
- A. DEGREASING: IT IS VERY IMPORTANT WHEN USING A DEGREASER THAT THE CLEAN-UP IS ABSOLUTELY THOROUGH AND COMPLETE AND THAT ALL DISSOLVED RESIDUE, FAT, OILS, GREASE, DUST, ETC. IS LEFT ON THE SURFACE. THIS IS FURTHER ACHIEVED BY REPEATING RINSES OF WATER.
 - 1. EF-500 ECO-FAST 500 DEGREASER CONCENTRATE
 - 2. EEA-8000 ECO-ETCH PRO ETCH-A-CLEAN CONCENTRATE
 - B. CONCRETE: THE CONCRETE SURFACE SHOULD BE HAND TROWELED OR WITH A BRUSH/BROOM FINISH TO ENSURE OPTIMUM POROSITY FOR ADHESION. OTHERWISE PROPER SURFACE PROFILING IS REQUIRED. NEW CONCRETE NEEDS AT LEAST 28 DAYS TO CURE PROPERLY. PRIOR TO PRIMER APPLICATION, UNLESS THE NEW CONCRETE IS DRY, ADHESION PROBLEMS WILL BE EXPERIENCED.
 - 1. PROFILE AND CLEAN THE CONCRETE FOR MAXIMUM BONDING AND PENETRATION BY USING ECO ETCH PRO CONCENTRATE IN FULL STRENGTH OR 1:1. IF PERFORMING MECHANICAL ABRASION, BE SURE THE SURFACE TEXTURE DOES NOT ALTER EXPECTED RESULTS. VERY DENSE SURFACE STILL MAY REQUIRE AN ECO ETCH PRO APPLICATION TO OPEN THE PORES ADEQUATELY. TEST FOR OPTIMUM POROSITY PRIOR TO PROCEEDING. A CSP-1 TO CSP-3 SURFACE PROFILE IS REQUIRED DEPENDENT UPON SURFACE TEXTURE, FINISH, AND ENVIRONMENT.
 - 2. CONCRETE SHOULD BE COMPLETELY CLEAN AND DRY. TEST FOR PROPER PH LEVELS AND MOISTURE VAPOR TRANSMISSION PER INDUSTRY STANDARDS FOR COATING APPLICATIONS.
 - 3. PATCH ALL IMPERFECTIONS, CRACKS, ETC WITH CONCRETE PATCH FILLER AND FLEXIBLE JOINT FILLERS. DO NOT USE SILICONE PRODUCTS. THE PRODUCT WILL NOT ADHERE TO SILICONE.
 - 4. PRIME WITH ET-6900 OR ET-7007 AS PER MANUFACTURER INSTRUCTIONS. WHEN PRIMER HAS PROPERLY CURED, PERFORM TEST PATCH TO ENSURE ADHESION.
 - C. WOOD: INSPECT THOROUGHLY FOR EXCESSIVE MOISTURE AND TANNIN BLEED. ALL WOOD SPECIES MUST BE COMPLETELY DRY AND FREE FROM BLEED.
 - 1. SAND WOOD IF NECESSARY TO REMOVE ALL BOND BREAKERS, LOOSE PARTICLES AND OTHER SURFACE CONTAMINANTS.
 - 2. DEGREASE WITH SOY-IT DEGREASER TO REMOVE SURFACE OILS, GRIME. ENSURE THAT ALL RESIDUE AND DUST IS COMPLETELY REMOVED.
 - 3. WOOD SHOULD BE COMPLETELY CLEAN AND DRY BEFORE APPLYING COATING MATERIALS.
 - D. METAL: PRIME METALS WITH AN APPLICABLE STANDARD WATER-BASED RUST INHIBITING PRIMER TO INHIBIT RUST AND CORROSION PRIOR TO COATING APPLICATION. HIGH TRAFFIC AREAS WITH STEEL GRATES, DIAMOND PLATE RAMPS, ETC. SHOULD BE ACID WASHED AND/OR GRIND TO PROVIDE OPTIMUM PROFILE FOR COATING ADHESION PRIOR TO A PRIME COAT.
- 3.4 INSTALLATION:
- A. TYPES OF APPLICATIONS
 - 1. ROLLER APPLICATION
 - A. USE A 3/8" NAP ROLLER WHEN APPLYING THE PRIMER, FLOOR COATING, OR CLEAR COATING. USE A FOAM TEXTURED ROLLER WHEN APPLYING THE ECO-TUFF FLOOR COATING WITH RUBBER AGGREGATE. OTHER ROLLERS MAY NOT PICK UP AND SPREAD THE PRODUCT EVENLY. THE FOAM TEXTURED ROLLER MUST BE CAPABLE OF LIFTING THE RUBBER CRUMBS WITHIN THE PRODUCT TO THE SURFACE. ALL OTHER PRODUCTS ARE SUITABLE USE TRADITIONAL AND APPLICABLE SIZED NAP FOR THE INTENDED SUBSTRATE AND TEXTURE.
 - B. SOAK ROLLER IN WATER - REMOVE EXCESS WATER PRIOR TO APPLICATION.
 - C. POUR PRODUCT INTO PAINT TRAY OR HANG ROLLER GRID INTO A GALLON BUCKET. MAKE SURE TO COMPLETELY SATURATE ROLLER WITH PRODUCT. LEAVING NO BARE SPOTS ON ROLLER.
 - D. APPLY THE PRIMER COAT AS A THIN COAT AND ALLOW TO DRY TO BE TACK FREE USUALLY WITHIN 1 HOUR AND NOT TO EXCEED 24 HOURS.
 - E. RESATURATE ROLLER AFTER EACH PASS. MAKE 4-5 CONSECUTIVE PASSES IN THE SAME DIRECTION, WITH EACH PASS RIGHT NEXT TO THE OTHER. WHEN APPLYING, ROLL IN ONE DIRECTION FIRST, THEN ROLL IN THE OPPOSITE DIRECTION IN ORDER TO PROPERLY BLEND THE PRODUCT AND CREATE A UNIFORM SURFACE.
 - F. ONCE AN AREA IS COVERED, RUN THE ROLLER VERY LIGHTLY OVER IT TO ENSURE EVEN DISTRIBUTION OF COLOR AND RUBBER CRUMB IF APPLICABLE.
 - G. WHEN DRY TO THE TOUCH, APPLY 2ND COAT. IF INSTALLING NON SKID AGGREGATE, APPLY THE ECOTUFF FLOOR COATING WITHOUT AGGREGATE OR APPLY THE ECOTUFF CLEAR COAT AS THE FINISH COAT TO HELP ENCAPSULATE OR REGULATE THE FINAL TEXTURE. REPEAT IF A 3RD COAT IS DESIRED.
 - 2. SPRAY APPLICATIONS
 - A. MASK OFF AREAS AS NEEDED.
 - 1. WHEN SPRAY APPLYING ECO-TUFF FLOOR COATING WITH RUBBER AGGREGATE MIXED, USE A HOPPER TYPE GRACO BRAND "TEX-SPRAY COMPACT" OR EQUIVALENT.
 - 2. WHEN SPRAY APPLYING ECO-TUFF CLEAR COATING USE A STANDARD AIRLESS WITH A # 12-415 TIP AS APPLICABLE TO THE FINISH AND MIL THICKNESS REQUIRED.
 - B. ATTACH SPRAY GUN TO A COMPRESSOR AIRLINE GIVING PRESSURE OF AT LEAST 40 PSI.
 - C. SPRAY ALL WATER OUT OF THE GUN TO PRIME.
 - D. BEFORE STARTING THE JOB, SPRAY A FEW SHORT BURSTS AWAY FROM THE SURFACE TO TEST THAT EVERYTHING IS WORKING PROPERLY.
 - E. HOLDING GUN APPROXIMATELY 12-24" AWAY FROM SURFACE. SPRAY AN EVEN, LIGHT COAT OVER THE ENTIRE SURFACE. DO NOT APPLY TOO THICK.
 - F. KEEP SPRAY GUN AT A 90 DEGREE ANGLE TO THE SURFACE.
 - G. IF USING THE HOPPER SPRAY GUN FOR THE NON-SKID COATING, IT SHOULD MAKE A SLIGHT "SPITTING" SOUND. THIS IS A CHARACTERISTIC OF THE GUNS AND IS NECESSARY FOR AN EVEN TEXTURE. THE PRODUCT WILL SELF-LEVEL TO A CERTAIN EXTEND, BUT DO NOT ALLOW TO PUDDLE.
 - H. WHEN SURFACE BECOMES TOUCH DRY, SPRAY SUBSEQUENT COATS.
 - I. WHILE SPRAYING THE ECO-TUFF FLOOR COATING WITH RUBBER AGGREGATE, BE CAREFUL NOT TO BLOW RUBBER CRUMBS AWAY FROM THE AREA YOU ARE WORKING ON AS THIS CAN ACCUMULATE IN OTHER AREAS OF THE JOB THAT WILL PREVENT THE COATING FROM BONDING WITH THE SUBSTRATE.
 - J. IF THE RUBBER CRUMB IS BOUNCING BACK AT YOU, LOWER THE PRESSURE OR HOLD GUN FURTHER FROM THE SURFACE. THE FURTHER AWAY FROM THE SURFACE YOU HOLD THE GUN, THE GREATER THE TEXTURE. THE CLOSER, THE FINER.
 - K. REMOVE ANY OVER SPRAY IMMEDIATELY WITH CLOTH AND WATER.
 - B. APPLICATION TEMPERATURE AND CURING TIME
 - 1. UNDER NORMAL WORKING CONDITIONS, THE PRODUCT WILL BE DRY TO THE TOUCH WITHIN 1 HOUR AND CAN BE SUBJECTED TO LIGHT FOOT TRAFFIC WITHIN 24 HOURS. FULL CURING TIME ONLY AFFECTS THE AMOUNT OF TIME REQUIRED TO WAIT BEFORE SUBJECTING THE SURFACE TO CLEANING, HEAVY LOADS AND CHEMICAL EXPOSURE. SURFACE CAN BE SUBJECTED TO NORMAL LOADS WELL BEFORE THIS MINIMUM TIME REQUIREMENT.
 - 2. THE COATING SHOULD NOT BE SUBJECTED TO CLEANING, HEAVY LOADS, OR CHEMICAL EXPOSURE UNTIL FULLY CURED AFTER 7 DAYS. LESS IN HOT-HUMID CONDITIONS, MORE IN COLD, DRY WEATHER. SUMMERSED APPLICATIONS SHOULD ALLOW A 7-14 DAYS. DRY TIMES IN THIS MANUAL ARE BASED ON A TEMPERATURE OF 77 DEGREES F AND 50% HUMIDITY. THE PRODUCT SHOULD NOT BE USED UNDER 40 DEGREES F. DO NOT ALLOW PRODUCT TO FREEZE.
 - 3. DO NOT USE ANY SOLVENTS, SOLVENT BASED ALCOHOLS, THINNERS OR LACQUERS TO THIN PRODUCT.
- 3.5 PROTECTION: PROTECT THE INSTALLED SURFACE FROM DAMAGE RESULTING FROM SUBSEQUENT CONSTRUCTION ACTIVITY ON THE SITE.
- 3.6 STORAGE AND REPAIR:
 - A. TO STORE PARTIALLY USED CANS, SEAL CAN WELL (AIRTIGHT) AND PLACE IN COOL, DRY PLACE. THE CONTENTS SHOULD BE USABLE FOR AT LEAST 12 MONTHS.
 - B. THE EVAPORATION OF THE WATER WITHIN THE PRODUCT WILL CAUSE THE PRODUCT TO CURE. IF SOME WATER CONTENT HAS EVAPORATED, RECONSTITUTION WITH CLEAN WATER MAY RESTORE PRODUCT VIABILITY IF THE CURING PROCESS WITHIN THE CAN IS NOT TOO ADVANCED.
- 3.7 REPAIRING: IN THE EVENT THAT THE PRODUCT IS DAMAGED, IT CAN EASILY BE REPAIRED OR OVER-COATED. DUE TO SELF-BONDING:
 - A. REMOVE ALL DAMAGED PRODUCT. USE A SHARP KNIFE SUCH AS A UTILITY KNIFE TO MAKE A WELL-DEFINED AREA SUCH AS A SQUARE AND ELIMINATE UNEVEN EDGES.
 - B. SAND AREA WITH 36 OR 40 GRIT SANDPAPER SO THAT THE NEW APPLICATION CAN GET A GOOD GRIP. SLIGHTLY BEVEL THE EDGES OF THE EXISTING PRODUCT SO THAT THE NEW PRODUCT CAN FILL IN THE CUTOUT AREA AND GO SLIGHTLY ONTO THE EXISTING.
 - C. CLEAN AREA WITH WATER.
 - D. TEST FOR ADHESION FIRST. BEFORE COMPLETING JOB, THEN APPLY THE PRODUCT TO THE AFFECTED AREA.
- 3.8 MAINTENANCE:
 - A. MOST GENERAL NEUTRAL PH FLOOR CLEANERS HAVE BEEN TESTED AND WILL WORK WELL. WE RECOMMEND ECOFAST 500 DEGREASER CONCENTRATE.
 - B. DO NOT USE CONCENTRATED BLEACH OR CAUSTICS.
 - C. FOR BEST RESULTS ON THE ECO-TUFF FLOOR COATING WITH TEXTURED AGGREGATES, USE A STIFF BRISTLE DECK BRUSH TO AGITATE CLEANER ON THE SURFACE. RINSE THOROUGHLY TO REMOVE ALL RESIDUE. ALL OTHERS USE A WET/DRY MICROFIBER MOP.
 - D. SURFACES CAN ALSO BE CLEANED WITH THE USE OF AUTOMATIC SCRUBBERS. THESE ARE MACHINES WHICH, IN ONE PASS, PUT DOWN THE WASHING SOLUTION, SCRUB THE FLOOR WITH A LIGHT PAD OR BRUSH ATTACHMENT AND EXTRACT THE DIRTY WATER. IT SHOULD BE POINTED OUT THAT THE PAD PRESSURE USED IN THE SCRUBBER MUST BE LIGHT AND NEED ONLY BE SUFFICIENT FOR THE PAD TO MAKE LIGHT CONTACT WITH THE FLOOR.
 - E. HEAVY SCRUBBING WILL NEGATIVELY AFFECT THE COATED SURFACE OVER TIME.

DIVISION 10 - SPECIALTIES

10 4400 - FIRE PROTECTION SPECIALTIES

- A. REFERENCE CONSTRUCTION DRAWINGS FOR TYPE, SIZE AND LOCATIONS OF FIRE EXTINGUISHERS AND CABINETS.
- B. SUBMITTALS: PRODUCT DATA ONLY.
- C. FIELD CONDITIONS: DO NOT INSTALL EXTINGUISHERS WHEN AMBIENT TEMPERATURE MAY
- D. MANUFACTURERS:
 - 1. FIRE EXTINGUISHERS:
 - A. ANSUL, A TYCO BUSINESS: WWW.ANSUL.COM/
 - B. KIDDE, A UNIT OF UNITED TECHNOLOGIES CORP.: WWW.KIDDE.COM/
 - C. NYSFROM, INC.: WWW.NYSFROM.COM/
 - D. SUBSTITUTIONS: SEE SECTION 106000 - PRODUCT REQUIREMENTS.
 - 2. FIRE EXTINGUISHER CABINETS AND ACCESSORIES:
 - A. ACTVAK CONSTRUCTION PRODUCTS GROUP - JL INDUSTRIES: WWW.ACTVAKPCG.COM
 - B. ANSUL, A TYCO BUSINESS: WWW.ANSUL.COM
 - C. LARSENS MANUFACTURING CO.: WWW.LARSENSMFG.COM
 - D. NYSFROM, INC.: WWW.NYSFROM.COM
 - E. PYRO-CHEM, A TYCO BUSINESS: WWW.PYROCHEM.COM
 - F. SUBSTITUTIONS: SEE SECTION 106000 - PRODUCT REQUIREMENTS
- E. FIRE EXTINGUISHERS:
 - 1. FIRE EXTINGUISHERS - GENERAL: COMPLY WITH PRODUCT REQUIREMENTS OF NFPA 10 AND APPLICABLE CODES, WHICHEVER IS MORE STRINGENT.
 - 2. MULTIPURPOSE DRY CHEMICAL TYPE FIRE EXTINGUISHERS: CARBON STEEL TANK, WITH PRESSURE GAUGE.
 - A. CLASS: A-B-C TYPE
 - B. SIZE: 10 POUND (4.54 kg)
 - C. FINISH: BAKED POLYESTER POWDER COAT, COLOR AS SELECTED
 - D. TEMPERATURE RANGE: MINUS 40 DEGREES F TO 120 DEGREES F
 - 3. DRY CHEMICAL TYPE FIRE EXTINGUISHERS: STAINLESS STEEL TANK, WITH PRESSURE GAUGE.
 - A. CLASS: K-TYPE
 - B. SIZE: 2.5 POUND (1.13 kg)
 - C. FINISH: POLISHED STAINLESS STEEL
 - D. TEMPERATURE RANGE: MINUS 20 DEGREES F TO 120 DEGREES F
- F. FIRE EXTINGUISHER CABINETS:
 - 1. FIRE RATING: LISTED AND LABELED IN ACCORDANCE WITH ASTM E814 REQUIREMENTS FOR FIRE RESISTANCE RATING OF WALLS WHERE BEING INSTALLED.
 - 2. CABINET CONSTRUCTION: NON-FIRE RATED.
 - 3. FORMED STAINLESS STEEL SHEET: 0.036 INCH THICK BARE METAL.
 - 3. FIRE RATED CABINET CONSTRUCTION: ONE-HOUR FIRE RATED.
 - A. STEEL: DOUBLE WALL OR OUTER ADN INNER BOXES WITH 5/8 INCH THICK FIRE BARRIER MATERIAL.
 - 4. CABINET CONFIGURATION: RECESSED TYPE.
 - A. SIZE TO ACCOMMODATE ACCESSORIES.
 - B. TRIMLESS TYPE.
 - C. PROVIDE CABINET ENCLOSURE WITH RIGHT ANGLE INSIDE CORNERS AND SEAMS, AND WITH FORMED PERIMETER TRIM AND DOOR STILES
 - 5. DOOR: 0.036 INCH METAL THICKNESS, REINFORCED FOR FLATNESS AND RIGIDITY WITH NYLON CATCH HINGE DOORS FOR 180 DEGREE OPENING WITH TWO BUTT HINGE.
 - 6. DOOR GLAZING: ACRYLIC PLASTIC, CLEAR, 1/8 INCH THICK, FLAT SHAPE AND SET IN RESILIENT CHANNEL GLAZING GASKET.
 - 7. CABINET MOUNTING HARDWARE: APPROPRIATE TO CABINET, WITH PRE-DRILLED HOLES FOR PLACEMENT OF ANCHORS.
 - 8. FINISH OF CABINET EXTERIOR TRIM AND DOOR: NO. 4 - BRUSHED STAINLESS STEEL.
 - 9. FINISH OF CABINET INTERIOR: WHITE COLORED ENAMEL.
- G. ACCESSORIES:
 - 1. EXTINGUISHER BRACKETS: FORMED STEEL, CHROME-PLATED
- H. INSTALLATION:
 - 1. INSTALL IN ACCORDANCE WITH MFG'S INSTRUCTIONS.
 - 2. SECURE RIGIDLY IN PLACE.

DIVISION 11 - EQUIPMENT

11 3000 - APPLIANCES

- A. REFERENCE CONSTRUCTION DRAWINGS FOR QUANTITY, AND LOCATION OF APPLIANCES TO BE FURNISHED BY OWNER.

DIVISION 12 - FURNISHINGS

12 3661 COUNTERTOPS

- A. REFERENCE CONSTRUCTION DRAWINGS & SCHEDULES FOR TYPE, QUANTITY, AND LOCATIONS OF TOILET AND BATH ACCESSORIES.
- B. SUBMITTALS: INCLUDE PLANS, SECTIONS, DETAILS, AND ATTACHMENTS TO OTHER WORK.
 - 1. PRODUCT DATA FOR EACH STONE, STONE ACCESSORY, AND MANUFACTURED PRODUCT.
 - 2. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.
 - 3. SAMPLES: FOR EACH STONE TYPE INDICATED.
- C. FIELD CONDITIONS:
 - 1. FIELD MEASUREMENTS: VERIFY DIMENSIONS OF CONSTRUCTION TO RECEIVE STONE COUNTERTOPS BY FIELD MEASUREMENTS BEFORE FABRICATION.
- D. PRODUCTS:
 - 1. SOURCE LIMITATIONS FOR STONE: OBTAIN FROM A SINGLE SOURCE TO PROVIDE MATERIALS OF CONSISTENT QUALITY IN APPEARANCE AND PHYSICAL PROPERTIES.
- E. COUNTERTOPS:
 - 1. QUALITY STANDARD: PREMIUM GRADE, IN ACCORDANCE WITH AWWA/MACWII (AWS) OR AWWA/CWII (NAAWS), UNLESS NOTED OTHERWISE.
 - 2. QUALITY STANDARD: SEFA 3 FOR LABORATORY WORKSURFACES.
 - 3. PLASTIC LAMINATE COUNTERTOPS: HIGH-PRESSURE DECORATIVE LAMINATE (HPDL) SHEET BONDED TO SUBSTRATE.
 - A. LAMINATE SHEET: NEMA LD 3, GRADE HGS, 0.048 INCH NOMINAL THICKNESS.
 - B. EXPOSED EDGE TREATMENT: AS NOTED. SUBSTRATE BUILT UP TO MINIMUM 1-1/4 INCH THICK, COVERED WITH MATCHING LAMINATE.
 - C. BACK AND END SPLASHES: SAME MATERIAL, SAME CONSTRUCTION.
 - D. FABRICATE IN ACCORDANCE WITH AWWA/MACWII (AWS) OR AWWA/CWII (NAAWS), SECTION 11 - COUNTERTOPS: CUSTOM GRADE.
 - E. MANUFACTURERS:
 - A. REFER TO FINISH LEGEND.
 - 4. NATURAL QUARTZ AND RESIN COMPOSITE COUNTERTOPS: SHEET OR SLAB OF NATURAL QUARTZ AND PLASTIC RESIN OVER CONTINUOUS SUBSTRATE.
 - A. FLAT SHEET THICKNESS: 1-1/4 INCH, MINIMUM.
 - B. NATURAL QUARTZ AND RESIN COMPOSITE SHEETS, SLABS AND CASTINGS: COMPLYING WITH ISFA 3-41 AND NEMA LD 3, ORTHOPHTHALIC POLYESTER RESIN, MINERAL FILLER, AND PIGMENTS: HOMOGENEOUS, NON-POROUS AND CAPABLE OF BEING WORKED AND REPAIRED USING STANDARD WOODWORKING TOOLS. NO SURFACE COATING, COLOR AND PATTERN CONSISTENT THROUGHOUT THICKNESS.
 - C. MANUFACTURERS:
 - A. REFER TO FINISH LEGEND FOR SOLID SURFACE AND CORIAN QUARTZ DESCRIPTIONS, MANUFACTURERS, PRODUCT NUMBERS, COLORS, SIZES AND CONTACT INFORMATION.
 - D. FACTORY FABRICATE COMPONENTS TO THE GREATEST EXTENT PRACTICAL IN SIZES AND SHAPES INDICATED; COMPLY WITH THE MAX DIMENSION STONE DESIGN MANUAL.
 - E. FINISH ON EXPOSED SURFACES: POLISHED.
 - F. COLOR AND PATTERN: AS INDICATED ON DRAWINGS.
 - 5. CULTURED MARBLE AND RESIN COMPOSITE VANITY COUNTERTOP WITH INTEGRATED BOWL OVER CONTINUOUS SUBSTRATE.
 - A. CULTURED MARBLE AND RESIN COMPOSITE SHEETS, SLABS AND CASTINGS: ORTHOPHTHALIC POLYESTER RESIN, MINERAL FILLER, AND PIGMENTS: HOMOGENEOUS, NON-POROUS AND CAPABLE OF BEING WORKED AND REPAIRED USING STANDARD WOODWORKING TOOLS; NO SURFACE COATING, COLOR AND PATTERN CONSISTENT THROUGHOUT THICKNESS.
 - B. MANUFACTURERS:
 - A. REFER TO FINISH LEGEND FOR DESCRIPTIONS, MANUFACTURERS, PRODUCT NUMBERS, COLORS, SIZES AND CONTACT INFORMATION.
 - C. FINISH ON EXPOSED SURFACES: POLISHED.
 - D. COLOR AND PATTERN: AS INDICATED ON DRAWINGS.
- F. INSTALLATION:
 - 1. SECURELY ATTACH COUNTERTOPS TO CABINETS OR SUPPORTS USING CONCEALED FASTENERS. MAKE FLAT SURFACES LEVEL; SHIM WHERE REQUIRED.
 - 2. ATTACH PLASTIC LAMINATE COUNTERTOPS USING SCREWS WITH MINIMUM PENETRATION INTO SUBSTRATE BOARD OF 5/8 INCH.
 - 3. SEAL JOINT BETWEEN BACK/END SPLASHES AND VERTICAL SURFACES.
 - 4. GENERAL: INSTALL COUNTERTOPS OVER PLYWOOD SUBTOPS WITH FULL SPREAD OF WATER CLEANABLE EPOXY ADHESIVE.
 - 5. GENERAL: INSTALL COUNTERTOPS BY ADHERING TO SUPPORTS WITH WATER CLEANABLE EPOXY ADHESIVE.
 - 6. SET STONE TO COMPLY WITH REQUIREMENTS INDICATED. SHIM AND ADJUST STONE TO LOCATIONS INDICATED, WITH UNIFORM JOINTS OF WIDTHS INDICATED AND WITH EDGES AND FACES ALIGNED ACCORDING TO ESTABLISHED RELATIONSHIPS.
 - 7. SPACE JOINTS WITH 1/16" INCH GAP FOR FILLING WITH SEALANT. USE TEMPORARY SHIMS TO ENSURE UNIFORM SPACING. CLAMP UNITS TO TEMPORARY BRACING, SUPPORTS, OR EACH OTHER TO ENSURE THAT COUNTERTOPS ARE PROPERLY ALIGNED AND JOINTS ARE OF SPECIFIED WIDTH.
 - 8. COMPLETE CUTOUTS NOT FINISHED IN SHOP. MASK AREAS OF COUNTERTOPS ADJACENT TO CUTOUTS TO PREVENT DAMAGE WHILE CUTTING. USE POWER SAWS WITH DIAMOND BLADES TO CUT STONE. MAKE CUTOUTS TO ACCURATELY FIT ITEMS TO BE INSTALLED, AND AT RIGHT ANGLES TO FINISHED SURFACES UNLESS BEVELING IS REQUIRED FOR CLEARANCE. EASE EDGES SLIGHTLY TO PREVENT SNIPPING.
 - 9. INSTALL BACK/SPLASHES AND END SPLASHES BY ADHERING TO WALL WITH WATER- CLEANABLE EPOXY ADHESIVE. LEAVE 1/16" INCH GAP BETWEEN COUNTERTOP AND SPLASHES FOR FILLING WITH SEALANT. USE TEMPORARY SHIMS TO ENSURE UNIFORM SPACING.
 - 10. GROUT JOINTS TO COMPLY WITH ANSI A108.10. REMOVE TEMPORARY SHIMS BEFORE GROUTING. TOOL GROUT UNIFORMLY AND SMOOTHLY WITH PLASTIC TOOL.
 - 11. APPLY SEALANT TO JOINTS AND GAPS SPECIFIED FOR FILLING WITH SEALANT; COMPLY WITH SECTION 072000 "JOINT SEALANTS." REMOVE TEMPORARY SHIMS BEFORE APPLYING SEALANT.
 - 12. ASSURE THAT SEAMS ARE SMOOTH LEVEL AND TIGHT. SEAMS SHALL BE FILLED ENTIRELY SO FLUSH WITH COUNTERTOP. POLISH SURFACE AT SEAM. ASSURE THAT FILLER IS NON-YELLOWING.
 - 13. CLEANING: CLEAN COUNTERTOPS AS WORK PROGRESSES. REMOVE ADHESIVE, GROUT, MORTAR, AND SEALANT REMAERS IMMEDIATELY. CLEAN STONE COUNTERTOPS NO FEVER THAN SIX DAYS AFTER COMPLETION OF INSTALLATION, USING CLEAN WATER AND SOFT BRUSHES. DO NOT USE WIRE BRUSHES, ACID TYPE CLEANING AGENTS, CLEANING COMPOUNDS WITH CAUSTIC OR HARSH FILLERS, OR OTHER MATERIALS OR METHODS THAT COULD DAMAGE STONE.
 - 14. SEALER APPLICATION: APPLY STONE SEALER TO COMPLY WITH STONE PRODUCERS AND SEALER MANUFACTURERS WRITTEN INSTRUCTIONS.

MECHANICAL ABBREVIATIONS	
(ALPHABETICAL BY ABBREVIATION)	
ABBREVIATION	LONG FORM
ABV	ABOVE
AC OR ACU	AIR-CONDITIONING UNIT
AHAP	AS HIGH AS POSSIBLE
AHU	AIR-HANDLING UNIT
AUTO	AUTOMATIC
BLW	BELOW
C	CHILLER
CD	CONDENSATE
CF	CABINET FAN
CFM	CUBIC FEET PER MINUTE
CH	CABINET HEATER
CHP	CHILLED WATER PUMP
CLNG OR CLG	CEILING
CONC	CONCRETE
CP OR CWP	CONDENSER WATER PUMP
CS	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CRAC OR CACU	COMPUTER ROOM AIR-CONDITIONING UNIT
CREF	CHILLER ROOM EXHAUST FAN
CRU	CONDENSATE (STEAM) RETURN UNIT
CT	CODING TOWER CELL
CTU	CONDENSATE (STEAM) TRANSFER UNIT
CU	CONDENSING UNIT
DV	CONSTANT VOLUME TERMINAL BOX
DEF	DISHWASER EXHAUST FAN
DMPR	DAMPER
DN	DOWN
EA	EACH
EBH	ELECTRIC BASEBOARD HEATER
EDH	ELECTRIC DUCT-MOUNTED HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
FD	FIRE DAMPER
FCU	FAN-COIL UNIT
FF	FINAL FILTER
FFCH	FORCED-FLOW CABINET HEATER
FFU	FAN FILTER UNIT
FP	FAN POWERED TERMINAL BOX
GPM	GALLONS PER MINUTE
HC	HEATING COIL
HUM	HUMIDIFIER
HWP OR HP	HEATING WATER PUMP
HX	HEAT EXCHANGER
KEF	KITCHEN (GREASE HOOD) EXHAUST FAN
KW	KILOWATTS
LD	LINEAR SUPPLY DIFFUSER
MOT	MOTORIZED
MTD	MOUNTED
MUAF	MAKE-UP AIR FAN
MUAFU	MAKE-UP AIR-HANDLING UNIT
OA	OUTSIDE AIR
OKF	OUTSIDE AIR FAN
OPG OR OPNG	OPENING
NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT	

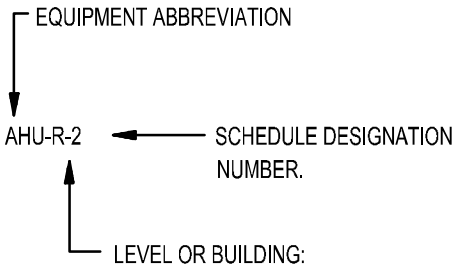
MECHANICAL ABBREVIATIONS	
CONT.	
(ALPHABETICAL BY ABBREVIATION)	
ABBREVIATION	LONG FORM
PF	PRE-FILTER
PLNM	PLENUM
RA	RETURN AIR
RAF	RETURN AIR FAN
RAG OR RG	RETURN AIR GRILLE
RAR OR RR	RETURN AIR REGISTER
RAS	RETURN AIR SILENCER
RE	IN REFERENCE TO
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SAP OR SF	SUPPLY AIR FAN
SAG OR SG	SUPPLY AIR GRILLE
SAR OR SR	SUPPLY AIR REGISTER
SAS	SUPPLY AIR SILENCER
SCHP	SECONDARY CHILLED WATER PUMP
SD	SMOKE DAMPER OR DETECTOR
SPCHP	SPECIAL PROCESS CHILLED WATER PUMP
TA	THROW AWAY (FILTER TYPE)
TDEF	TRUCK DOCK EXHAUST FAN
TEF	TOILET EXHAUST FAN
TRANS	TRANSITION OR TRANSFER
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
V-V	VARIABLE VOLUME TERMINAL BOX
WI	WITH
XFMR OR TMR	TRANSFORMER
XT OR EX	EXPANSION TANK
NOT ALL ABBREVIATIONS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT	

DUCTWORK LEGEND		
(REFER TO SPECIFICATIONS SECTIONS 15B15 AND 15B20 FOR ADDITIONAL INFORMATION)		
SINGLE LINE	DESCRIPTION	DOUBLE LINE
	ROUND ELBOW DOWN	
	ROUND ELBOW UP	
	OFFSET TO CHANGE ELEVATION (AT 30° WHEN POSSIBLE. ARROW SLOPES DN, U.N.O.)	
	ROUND RADIUS ELBOW	
	90° STRAIGHT TEE	
	90° CONICAL TEE	
	45° LATERAL TAP	
	45° LATERAL CONICAL TEE	
	SIZE OR SHAPE TRANSITION	
	ROUND FLEXIBLE DUCT	
	RECTANGULAR ELBOW DOWN	
	RECTANGULAR ELBOW UP	
	OFFSET TO CHANGE ELEVATION (AT 30° WHERE POSSIBLE. ARROW SLOPES DN, U.N.O.)	
	RECTANGULAR RADIUS ELBOW	
	RECTANGULAR ELBOW WITH TURNING VANES	
	SPLIT BRANCH TAKE-OFF WITH SQUARE ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF WITH RADIUS ELBOW & SPLITTER DAMPER	
	SPLIT BRANCH TAKE-OFF TEE WITH STATIONARY SPLITTER DAMPER	
	BRANCH TAKE-OFF WITH 45° LEAD IN TAP	
	INSULATED LINED DUCTWORK (U.N.O.)	
	SQUARE FACED CEILING DIFFUSER 4-WAY DIRECTIONAL THROW (U.N.O.)	
	ROUND FACED CEILING DIFFUSER	
	CEILING RETURN OR EXHAUST AIR GRILLE OR REGISTER	
	SIDEALL SUPPLY GRILLE OR REGISTER	
	SUPPLY DUCT RISER	
	RETURN, EXHAUST OR OUTSIDE AIR DUCT RISER	
	MANUAL BALANCING DAMPER	
	AUTOMATIC (MOTOR-OPERATED) DAMPER	
	FIRE DAMPER	
	GRAVITY BACKDRAFT DAMPER	
	COMBINATION FIRE AND SMOKE DAMPER WITH SMOKE DETECTOR	
	SMOKE DAMPER (AUTOMATIC) WITH SMOKE DETECTOR	
	DUCT MOUNTED SMOKE DETECTOR	
NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT		

STANDARD MECHANICAL SYMBOLS	
SYMBOL	DESCRIPTION
	GATE VALVE
	BALL VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	ANGLE VALVE
	CHECK VALVE
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)
	AUTOMATIC CONTROL VALVE (3-WAY)
	AUTOMATIC CONTROL VALVE (ANGLE)
	AUTOMATIC CONTROL VALVE (STRAIGHT THROUGH)
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	GAUGE COCK
	PRESSURE GAUGE WITH GAUGE COCK
	THERMOMETER
	THERMOMETER WELL
	TEST PLUG
	FLOW METER
	TEMPERATURE SENSOR
	PRESSURE SENSOR
	DIFFERENTIAL PRESSURE SWITCH
	IMMERSION THERMOSTAT
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	FLOW SWITCH
	ORIFICE
	PIPE SLEEVE THRU WALL OR FLOOR
	EXPANSION JOINT
	FLEXIBLE PIPE JOINT
	PIPE GUIDE
	ANCHOR
	STRAINER (Y-TYPE)
	STRAINER (BASKET TYPE)
	UNION
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	THERMOSTAT
	HUMIDISTAT
	FAN SPEED CONTROLLER
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	CONDENSATE DRAIN
NOT ALL SYMBOLS ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT	

OTHER SYMBOLS	
SYMBOL	DESCRIPTION
	INDICATES CONNECTION TO EXISTING DUCT OR PIPE

GENERAL EQUIPMENT DESIGNATION KEY:



MECHANICAL GENERAL NOTES	
1. PRIOR TO SUBMITTING BID, VISIT THE SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW GENERAL NOTES, SPECIFICATIONS AND ALL OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.	
2. COORDINATE THE INSTALLATION OF MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. DUCTWORK AND PIPING SHALL BE ROUTED TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC.	
3. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN FOR NEW INSTALLATION DURING WORK. REPAIR ANY DAMAGE CAUSED DURING CONSTRUCTION AT NO COST TO THE OWNER.	
4. ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.	
5. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING IS SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND SHALL MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. FIELD VERIFY FINAL LOCATIONS TO INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.	
6. REFER TO ARCHITECTURAL DRAWINGS FOR ALL RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. CHASE AND PENETRATIONS INTENDED FOR DUCTWORK AND PIPING SHALL BE VERIFIED WITH ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION.	
7. COORDINATE LOCATION OF ROOF PENETRATIONS WITH THE EXISTING CONDITIONS AND ARCHITECTURAL DRAWINGS.	
8. SEAL ALL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS. FIREPROOF ALL PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.	
9. COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL, AND DUCT INSTALLATION REQUIREMENTS.	
10. LOCATION OF CEILING DIFFUSERS, REGISTERS, AND GRILLES SHALL BE ADJUSTED AS REQUIRED TO ACCOMMODATE FINAL CEILING AND LIGHTING LOCATIONS.	
11. DUCTWORK CROSSING FIRE RATED WALL OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.	
12. PROVIDE FIRE AND/OR FRESMOKE DAMPERS IN DUCTWORK AT CEILINGS AND WALLS AS REQUIRED BY BUILDING CODE AUTHORITY HAVING JURISDICTION. FIRE AND FRESMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE.	
13. PROVIDE WALL AND/OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO ALL FIRE AND/OR FRESMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 6"x6" AND SHALL BE INSTALLED WITH 1/2" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 6"x6" ACCESS DOOR.	
14. THERMOSTATS AND HUMIDISTATS SHALL BE LOCATED AND SET BY MECHANICAL CONTRACTOR AND WIRED IN CONDUIT BY ELECTRICAL CONTRACTOR. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. MOUNTING HEIGHTS SHALL BE 48" AFF TO MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS.	
15. COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH ANY WALL MOUNTED ITEMS INDICATED ON THE ARCHITECTURAL DRAWINGS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF ANY WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.	
16. ALL BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS, AND GRILLES SHALL HAVE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR AROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT.	
17. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.	
18. RIGID DUCTWORK INSULATION: PROVIDE R-6 MINIMUM INSULATION WRAP ON ALL CONCEALED DUCTWORK. PROVIDE R-4 MINIMUM INTERNAL DUCT LINER ON ALL EXPOSED DUCTWORK. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE DIMENSIONS. SHEET METAL SIZES SHALL INCREASE ACCORDINGLY. PROVIDE R-12 MINIMUM INSULATION ON ALL DUCTWORK INSTALLED IN UNCONDITIONED SPACES. REFER TO SPECIFICATIONS FOR MORE INFORMATION.	
19. FLEXIBLE DUCT WORK SHALL BE THERMAFLEX TYPE MKE, FLEXMASTER TYPE SM, OR APPROVED EQUAL. SHALL BE LISTED UNDER 191 AS CLASS 1 AIR DUCT AND SHALL BE PROVIDED WITH INTEGRAL R-4 MINIMUM FIBERGLASS INSULATION. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORT TO AVOID SHARP BENDS AND SAGGING.	
20. WALL MOUNTED DIFFUSERS AND GRILLES SHALL BE PROVIDED WITH SUITABLE MOUNTING FRAME TO MATCH WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL DRAWINGS.	

GENERAL MECHANICAL NOTES:

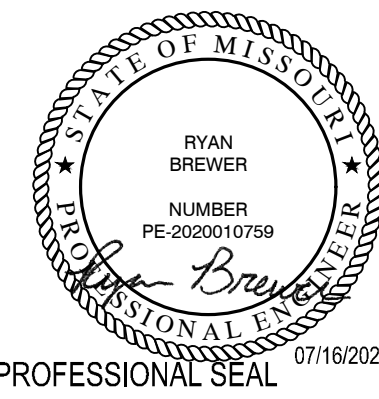
- REFER TO ARCHITECTURAL PLANS FOR RATED WALLS AND PARTITIONS. VERIFY FIRE AND/OR SMOKE DAMPER LOCATIONS AT DUCTS OR OPENINGS PENETRATING THESE WALLS.
- REFER TO ARCHITECTURAL PLANS FOR ROOM NAMES AND NUMBERS.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.
- VERIFY LOCATIONS OF THERMOSTATS WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION.
- VERIFY LOCATIONS OF EXPOSED DUCTS WITH ARCHITECT PRIOR TO INSTALLATION.
- DUCT DIMENSIONS INDICATED ON PLANS ARE FREE AREA DIMENSIONS.
- SUPPLY AND RETURN AIR DUCT SHALL BE INTERNALLY LINED WHERE SPECIFIED.
- ALL LOUVER SIZES ON MECHANICAL PLANS ARE GIVEN IN FREE AREA REQUIRED. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS AND LOCATIONS.
- COORDINATE TERMINAL BOX AND BALANCING DAMPER LOCATIONS CAREFULLY TO INSURE PROPER AND ADEQUATE ACCESS TO FILTERS, MOTORS, CONTROL VALVES, CONTROL PANELS, ETC. PROVIDE ACCESS PANELS AS SPECIFIED WHERE REQUIRED TO ASSURE THIS ACCESS.
- CEILING PLENUM SPACE IS VERY TIGHT. WHERE REQUIRED, DUCTS OR PIPES SHALL BE ROUTED BETWEEN LIGHT FIXTURES AND UP AND OVER OTHER DUCTS OR PIPES USING THE SPACES BETWEEN STRUCTURAL JOISTS OR BEAMS WHERE APPLICABLE. CONTRACTOR SHALL BE RESPONSIBLE FOR CAREFULLY COORDINATING ALL TRADES. EXISTING UNKNOWN CONDITIONS MAY AFFECT EXACT DUCT OR PIPE ROUTING, OR EXISTING CONDITIONS MAY NEED TO BE MODIFIED TO ACCOMMODATE DUCTS AND PIPES.

SereniTea Boutique

500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC

REVISION DATES:



M101

ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 22097

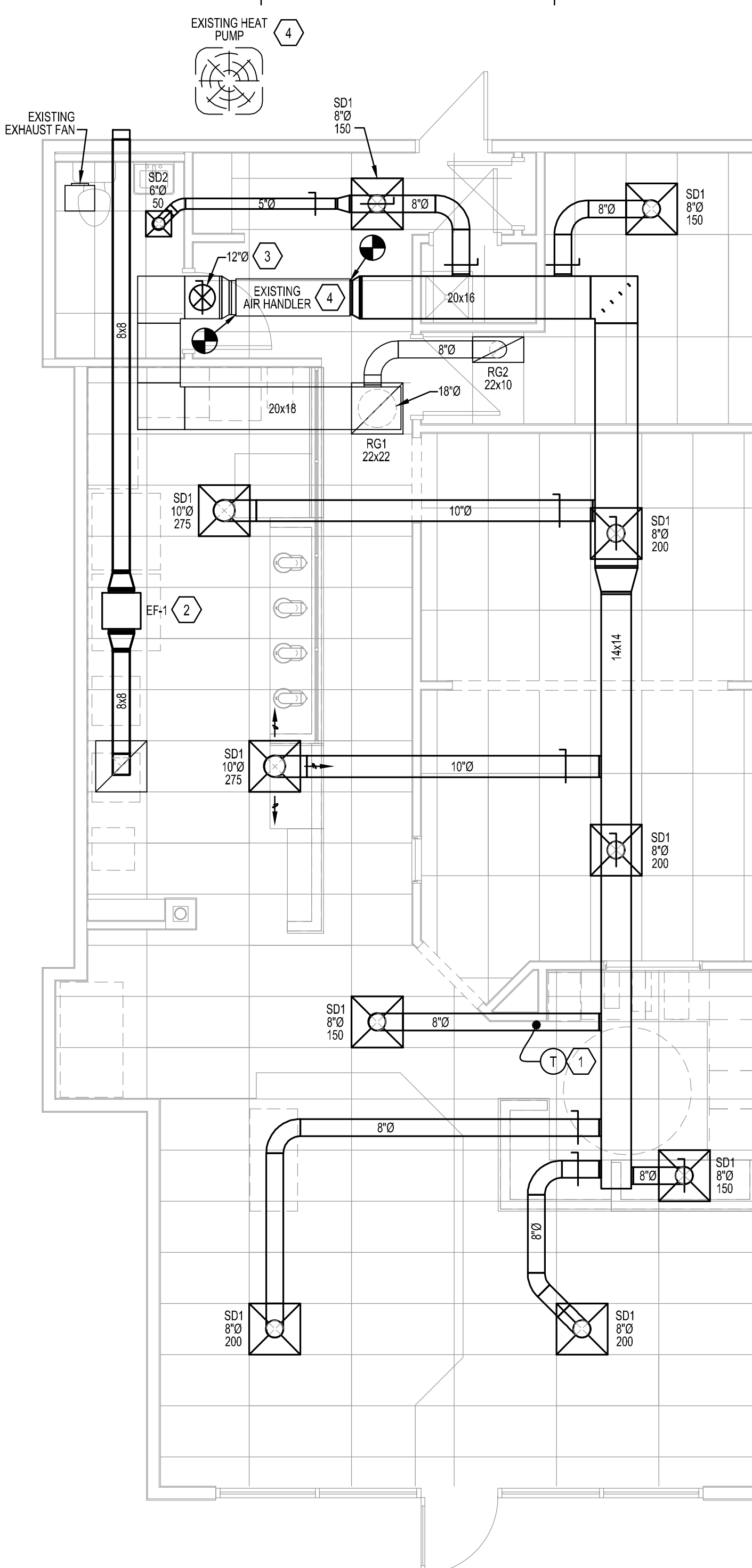
MECHANICAL NOTES,
SYMBOLS, AND ABBREVS.

1. REFERENCE SHEET M1.01 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

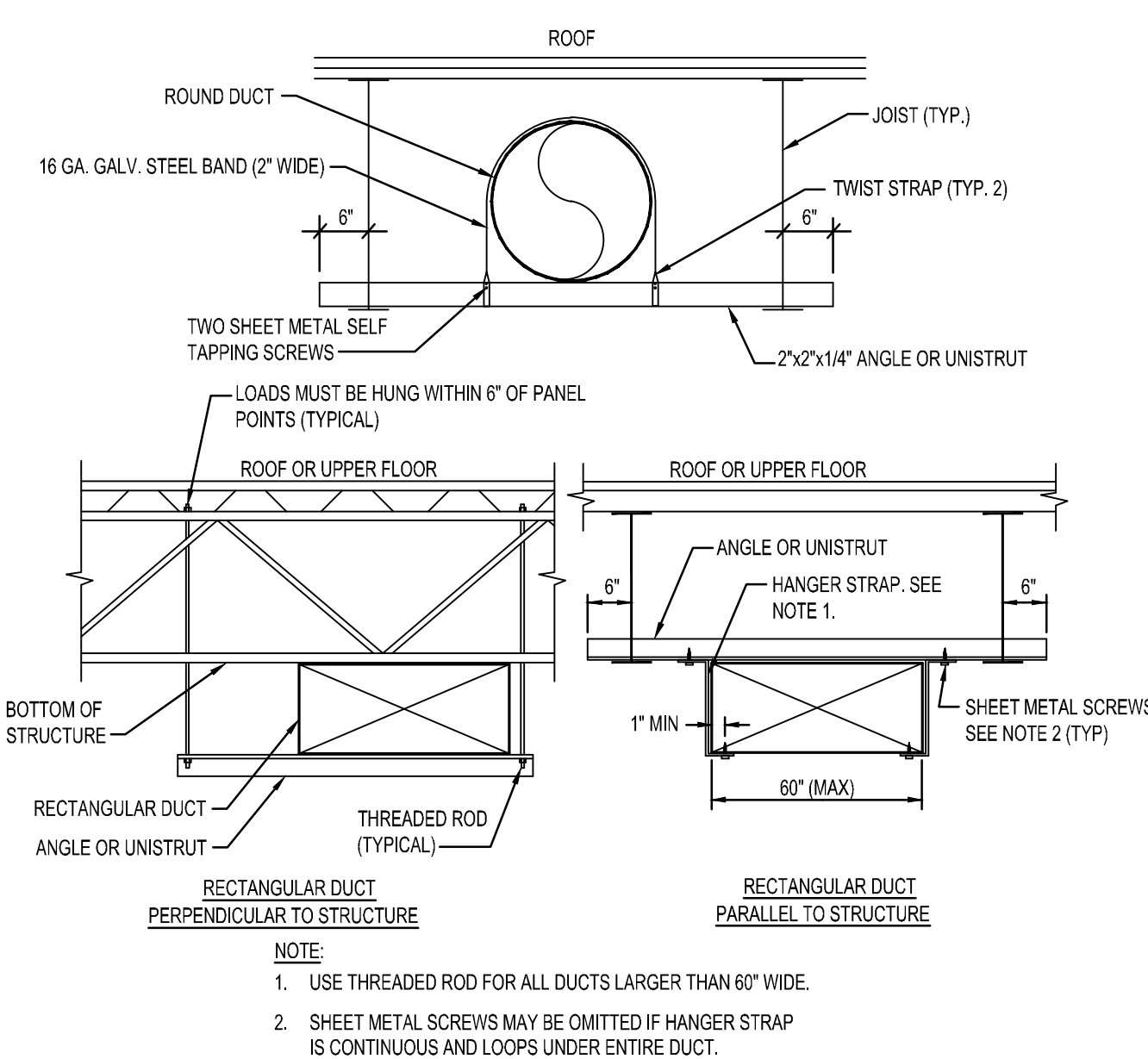
1. REFERENCE SHEET M1.01 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.

1. RELOCATE EXISTING THERMOSTAT FOR EXISTING AIR HANDLER TO LOCATION INDICATED. MOUNT TOP OF THERMOSTAT AT MAXIMUM 48" AFF PER ADA REQUIREMENTS
 2. ROUTE EXHAUST DUCT TO EXTERIOR WALL AND TERMINATE WITH WALL CAP. EF-1 SHALL RUN CONTINUOUSLY DURING OPERATING HOURS.
 3. ROUTE 12" FRESH AIR DUCT FROM RETURN DUCT UP THROUGH ROOF AND TERMINATE WITH ROOF HOOD.
 4. EXISTING 5-TON SPLIT SYSTEM TO REMAIN. FIELD VERIFY EXACT LOCATION OF INDOOR AND OUTDOOR UNITS.
- BALANCE SUPPLY AIRFLOW OF INDOOR UNIT TO 2000 CFM AND FRESH AIR INTAKE TO 400 CFM.

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

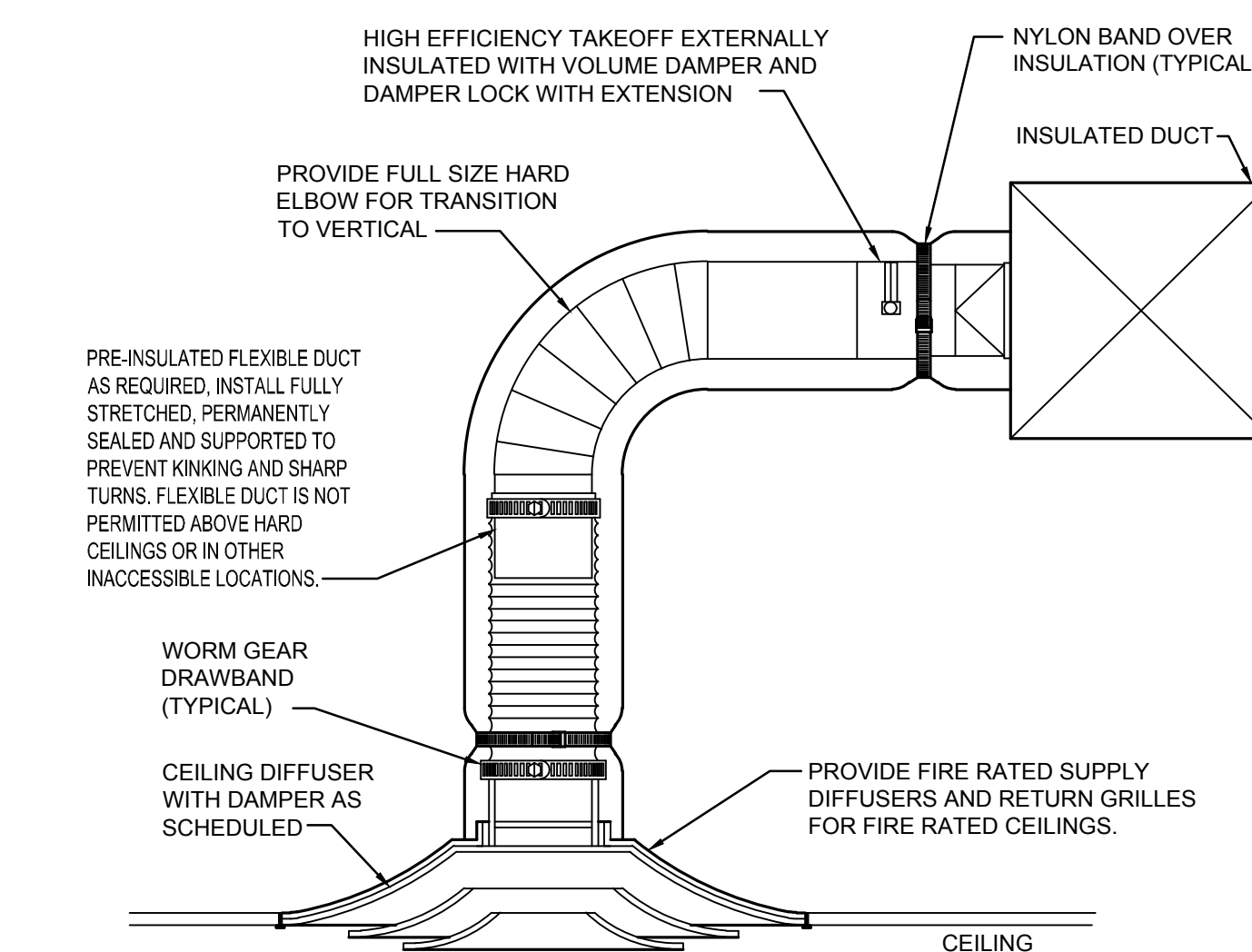


(2) NOT TO SCALE

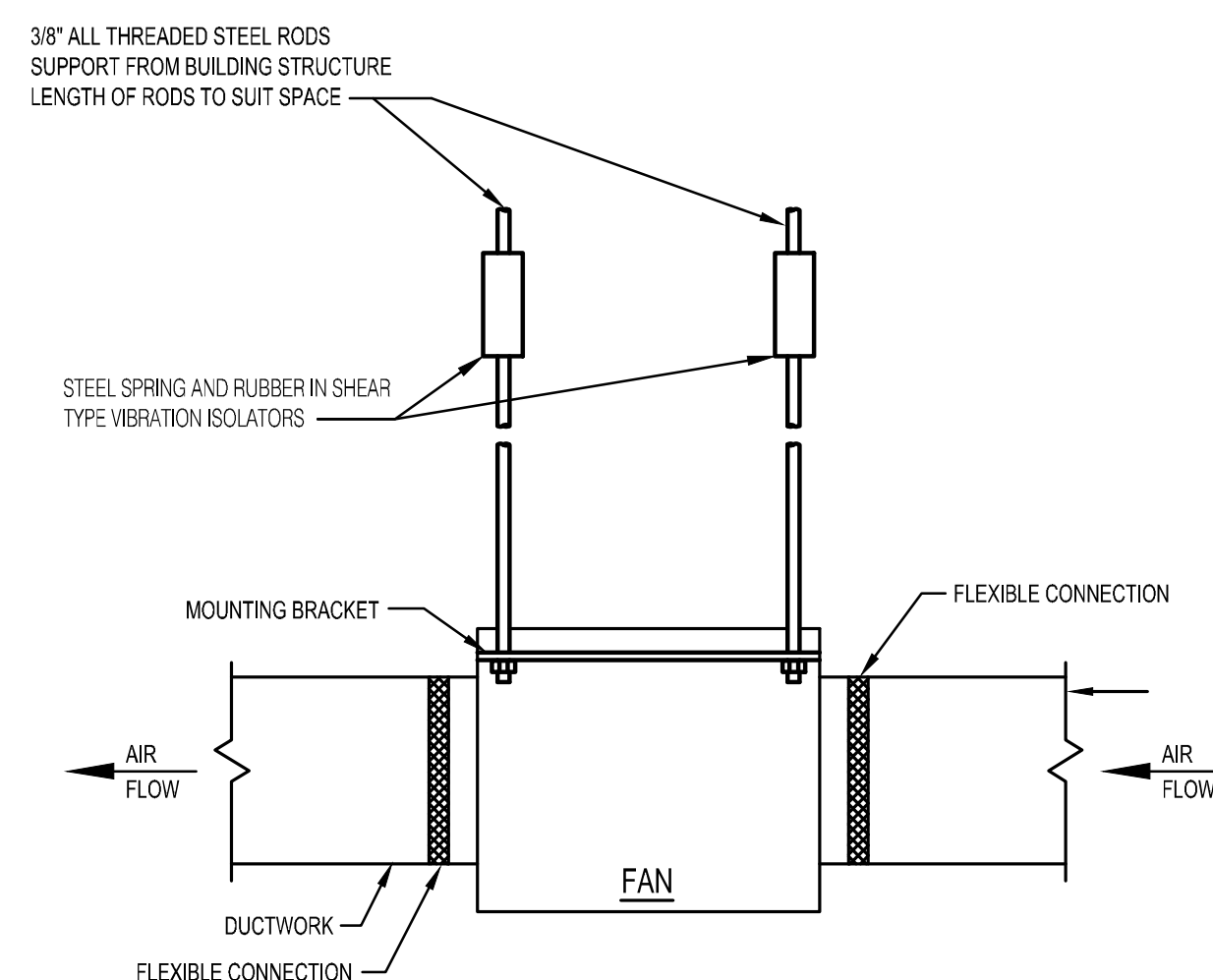


NOT TO SCALE

NOT TO SCALE



(4) NOT TO SCALE



MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	NOTES
SD1	PRICE	SCD	SQUARE CONE	CEILING	24"x24"	1,2,3,4,5,6,7
SD2	PRICE	SCD	SQUARE CONE	CEILING	12"x12"	1,2,3,4,5,6,7
RG1	PRICE	80	EGGCRATE	CEILING	24"x24"	1,3,4,6,7
RG2	PRICE	80	EGGCRATE	CEILING	12"x12"	1,3,4,6,7
EG1	PRICE	PDDR	PERFORATED	CEILING	24"x24"	1,3,4,6,7

- NOTES:
- 1 NECK SIZE SHOWN ON DRAWINGS.
 - 2 4-WAY THROW PATTERN, UNLESS SHOWN OTHERWISE ON DRAWINGS (REFER TO FLOW ARROWS IF INDICATED ON DRAWINGS)
 - 3 BAKED ENAMEL FINISH TO MATCH CEILING/WALL COLOR. COORDINATE WITH ARCHITECTURAL PLANS.
 - 4 PROVIDE NECK FOR DUCT CONNECTION.
 - 5 BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
 - 6 FRAME TYPE TO MATCH CONSTRUCTION OF MOUNTING LOCATION, COORDINATE WITH ARCHITECTURAL PLANS.
 - 7 PROVIDE WITH VOLUME DAMPER OPERABLE FROM FACE OF DIFFUSER/GRILLE IN HARD CEILINGS.

MARK	MANUFACTURER	MODEL	MOUNTING	VOLUME (CFM)	ESP (IN)	FAN RPM	DRIVE (BELT/DIRECT)	MOTOR HP	ELECTRICAL VOLTS/PH	WEIGHT (LBS)	NOTE
EF-1	GREENHECK	SQ-90-VG	INLINE	300	0.5	1540	DIRECT	1/6	240/1/60	60	1,2

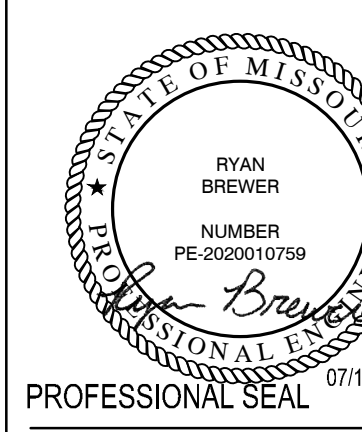
- NOTES:
- 1 PROVIDE WITH BACK DRAFT DAMPER, DISCONNECT, AND SPEED CONTROLLER FOR BALANCING. SUSPEND FROM STRUCTURE WITH ALL-THREAD RODS.
- 2 FAN SHALL RUN CONTINUOUSLY DURING OPERATING HOURS.



PERMIT DOCUMENTS

SereniTea Boutique
500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC
REVISION DATES:



M301
ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 22097
MECHANICAL
SPECIFICATIONS

15000 - BASIC MECHANICAL REQUIREMENTS

DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS, APPLY TO THIS AND THE OTHER SECTIONS OF DIVISION 15.

READ THE SPECIFICATIONS AND REVIEW DRAWINGS FOR ALL DIVISIONS OF WORK AND COORDINATE AND THE WORK OF SUBCONTRACTORS WITH ALL DIVISIONS OF WORK. PROVIDE SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.

SCHEDULE THE COMPLETION AND INSPECTION OF WORK AND THE WORK OF SUBCONTRACTORS TO COMPLY WITH THE SCHEDULE AND THE PROJECT COMPLETION DATE.

VISIT THE SITE PRIOR TO SUBMITTAL OF BID TO DETERMINE CONDITIONS AFFECTING THE WORK, ANY ITEMS WHICH ARE NOT COVERED IN THE BID REQUIREMENTS OR ANY PROPOSED SUBSTITUTIONS SHALL BE LISTED SEPARATELY AND QUALIFIED IN THE BID. SUBMITTAL OF BID SHALL SERVE AS EVIDENCE OF KNOWLEDGE OF EXISTING CONDITIONS AND ANY MODIFICATIONS WHICH ARE REQUIRED TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. FAILURE TO VISIT THE SITE DOES NOT RELIEVE RESPONSIBILITY IN PERFORMANCE OF WORK.

READ ALL RELEVANT CONDITIONS, BECOME FAMILIAR WITH THE JOB, SCOPE OF WORK, TYPE OF GENERAL CONSTRUCTION, AND THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS, AND ALSO UNDERSTAND THE PURPOSE FOR WHICH THESE DOCUMENTS HAVE BEEN PREPARED AND BECOME COGNIZANT OF ALL THE DETAILS INVOLVED. COORDINATE WORK WITH THAT OF OTHERS.

DEFINITIONS:
FURNISH - PURCHASE AND DELIVER TO PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT.
INSTALL - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT.
PROVIDE - FURNISH AND INSTALL.

GENERAL REQUIREMENTS
PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INSTRUCTIONS AND DETAILS NECESSARY TO PROVIDE A COMPLETE MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS, CALLED FOR IN THE SPECIFICATIONS, AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE OTHERS SHALL BE PROVIDED. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH THE ARCHITECT-ENGINEER, AS REQUIRED.

THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS OBVIOUSLY NECESSARY TO COMPLETE THE WORK, AND WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE FURNISHED AND INSTALLED AS PART OF CONTRACT.

WHERE THE DRAWINGS OR SPECIFICATIONS CALL FOR ITEMS WHICH EXCEED CODES OR THE OWNERS CRITERIA, PROVIDE THE SYSTEM WITH THE MORE STRINGENT REQUIREMENTS AS DESIGNED AND DESCRIBED IN THESE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.

ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING, AND REPAIRING. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUFFICIENT SERVICE ACCESS TO ALL EQUIPMENT.
ALL WORK SHALL BE PERFORMED IN A NEAT PROFESSIONAL MANNER USING GOOD ENGINEERING PRACTICE.

UNLESS SPECIFICALLY NOTED OTHERWISE, MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW, UNDETERMINED LABORATORIES LISTED AND LABELED AND SIZED IN CONFORMITY WITH REQUIREMENTS OF STATE AND LOCAL CODES, WHICHEVER IS MORE STRINGENT.

CODES
ALL WORK SHALL CONFORM TO THE OWNERS CRITERIA, THE STATES, COUNTYS, CITIES AND LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY CODES AND ALL OTHER APPLICABLE CODES AND REQUIREMENTS. INQUIRE INTO AND COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS. INCLUDE ANY CHANGES REQUIRED BY CODES IN THE BID AND IF THESE CHANGES ARE NOT INCLUDED IN THE BID, THEY MUST BE QUALIFIED AS A SEPARATE LINE ITEM IN THE BID. AFTER CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE OWNER.

LICENSES, PERMITS, COMMISSIONING, INSPECTIONS & FEES
OBTAIN AND PAY FOR ALL LICENSES, PERMITS, COMMISSIONING, INSPECTIONS, AND FEES REQUIRED OR RELATED TO THIS WORK.

PROVIDE TO THE OWNER/ARCHITECT A COMMISSIONING PLAN, PRELIMINARY COMMISSIONING REPORT, FINAL COMMISSIONING REPORT, AND CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

TRADE NAMES, MANUFACTURERS AND SHOP DRAWINGS
WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUAL OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO APPROVAL BY ARCHITECT-ENGINEER PRIOR TO BID THROUGH SHOP DRAWING SUBMITTAL PROCESS. FOR ACCEPTANCE PRIOR TO INSTALLATION, ANY CHANGES TO ELECTRICAL SERVICE, STRUCTURAL FRAMING, ETC. OR ANY OTHER MODIFICATION THAT IS REQUIRED BY THE USE OF ALTERNATE EQUIPMENT SHALL BE COORDINATED WITH OTHER TRADES AND SHALL INCLUDE ALL COSTS IN BID FOR THE REQUIRED CHANGES. THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT NO EXPENSE TO THE OWNER.

WARRANTY
GUARANTEE ALL MATERIALS AND WORK PROVIDED UNDER THIS CONTRACT AND MAKE GOOD, REPAIR OR REPLACE AT NO EXPENSE TO THE OWNER, ANY DEFECTIVE WORK, MATERIAL, OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF TWELVE (12) MONTHS FROM THE DATE OF ACCEPTANCE (IN WRITING) OF THE INSTALLATION. EXTENDED WARRANTIES ARE AS SPECIFIED WITH INDIVIDUAL EQUIPMENT.

QUALITY ASSURANCE
INDUSTRY STANDARDS AND CODES: UNLESS MODIFIED BY THESE SPECIFICATIONS, THE DESIGN, MANUFACTURER, TESTING AND METHOD OF INSTALLING ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL CONFORM TO THE FOLLOWING:
1. ARI CODE FOR REFRIGERATION APPARATUS
2. ANSI B31.1 SAFETY CODE FOR MECHANICAL REFRIGERATION
3. STANDARDS OF NATIONAL FIRE PROTECTION ASSOCIATION
4. SMACNA
5. ASHRAE

RECORD DRAWINGS
MAINTAIN ONE COPY OF DRAWINGS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS LOCATION OF CONCEALED PIPING VALVES AND DUCTS, REVISIONS, ADDENDUMS, AND CHANGE ORDERS, AND SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS, AND CONTRACTORS COORDINATION WITH OTHER TRADES.

AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. A SET OF REPRODUCIBLE DRAWINGS ALONG WITH ONE SET OF BLUELINES OF THE MOST RECENT SET OF DRAWINGS WITH TEMPERATURE CONTROL DRAWINGS INCLUDED SHALL BE DELIVERED TO THE ARCHITECT UPON COMPLETION OF THE WORK AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

DISCREPANCIES IN DOCUMENTS
DRAWINGS (PLANS, SPECIFICATIONS, AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWINGS, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE

UNCLEAR, ADVISE THE ARCHITECT-ENGINEER IN WRITING, OF VARIATIONS TO CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, ARCHITECT-ENGINEERS INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

PHASING REQUIREMENTS
INCLUDE IN BID ALL NECESSARY SERVICE REQUIRED TO KEEP THE OPERATING PHASE OF THE PROJECTS HVAC PLUMBING AND SPRINKLER SERVICE IN OPERATION, IF APPLICABLE. SCHEDULE IN WRITING WITH ARCHITECT ONE WEEK PRIOR TO ANY SHUT DOWN OF THE HVAC, PLUMBING OR FIRE PROTECTION SYSTEMS.

DEMOLITION
COORDINATE THE DEMOLITION OF EXISTING WORK AND THE DEMOLITION PROVIDED BY OTHER. COORDINATE ANY EXISTING EQUIPMENT REMOVAL BE LEFT INTACT.

VERIFY SCOPE OF AND THE REMOVAL OF ALL EXISTING FIRE PROTECTION, PLUMBING FIXTURES, PIPING, HVAC UNITS, REFRIGERANT RECAPTURE, EXHAUST FANS, ETC. AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. VERIFY ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF NOT APPLICABLE TO THE NEW WORK MUST BE REMOVED AND ROOF/WALL/FLOOR PATCHED OR REPAIRMENT TO MATCH EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS, OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT TO BE REUSED IN THIS PROJECT. ABANDONED PIPING AND/OR DUCTWORK MUST BE REMOVED TO POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN BID PROPOSAL.

CUTTING AND PATCHING
PERFORM ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF THE WORK UNDER THIS SPECIFICATION. NO CUTTING OF THE STRUCTURE SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ARCHITECT/ENGINEER.

PATCHING SHALL BE OF THE SAME WORKMANSHIP, MATERIAL AND FINISH AND SHALL MATCH ACCURATELY ALL SURROUNDINGS CONSTRUCTION IN A MANNER SATISFACTORY TO THE ARCHITECT.

EXISTING UTILITIES, ETC. THAT ARE DAMAGED DURING THE CONSTRUCTION PERIOD, WHETHER OR NOT DUE TO NEGLIGENCE SHALL BE REPAIRED OR REPLACED AND LEFT IN THE SAME CONDITION AS TO THE ARCHITECT.

SLEEVES
PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL, OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2" ABOVE THE FLOOR. COORDINATE THROUGH THE ARCHITECT ANY CORE DRILLING OR CUTTING OF DRILLINGS IN MASONRY FLOORS OR WALLS.

ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE FIRE SEALED WITH CALCIUM SULFATE, SILICONE PUTTY, OR "M" FIRE RATED SEALANTS OR EQUAL, SO AS TO RETAIN THEIR FIRE RATING.

SLEEVES IN BEARING AND MASONRY WALLS, FLOORS, AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILING, OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE NO. 22 U.S.G. GALVANIZED STEEL MINIMUM.

HANGERS
HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL, SUCH AS ANGLE IRON, BANDS, C-C-CLAMPS WITH RETAINING PLUGS, CHANNELS, HANGER RODS, ETC., NECESSARY FOR THE INSTALLATION OF WORK.

HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY BUT NOT TO PIPING. HANGING FROM METAL DECK IS NOT PERMITTED. HANGERS MUST BE ATTACHED TO A CHORD OR CHAIR. WHERE INTERFERENCES OCCUR, HANGERS IN ORDER TO SUPPORT DUCTWORK OR PIPING, INSTALL TRAPEZOID TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, AND OTHER EQUIPMENT. HANGER TYPES AND INSTALLATION METHODS ARE ALSO SUBJECT TO LANDLORD CRITERIA.

HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DAMPERS OF INSULATION. INSTALL PLONG BOLT OR RIGID OR LATE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.

HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED.

PROVIDE SWAY AND SEISMIC BRACING WHERE REQUIRED BY CODE.

JOB CONDITIONS
PROTECT MATERIALS, APPARATUS AND EQUIPMENT FROM DAMAGE, MOISTURE, DIRT, DERRIS AND WORK OF OTHER TRADES.

OPERATION MANUALS AND INSTRUCTIONS
PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS AT THE COMPLETION OF THE PROJECT. SUBMIT THREE HARD BOUND COPIES TO ARCHITECT.

SCHEDULE A MEETING WITH THE OWNERS REPRESENTATIVE AT THE SITE TO PROVIDE DETAILED INFORMATION ON THE OPERATING AND MAINTENANCE OF EQUIPMENT.

SUBMITTALS
SUBMIT WITHIN THIRTY (30) DAYS AFTER THE DATE OF NOTICE TO PROCEED AND BEFORE PURCHASING ANY MATERIALS OR EQUIPMENT. SUBMIT TO THE ARCHITECT FOR REVIEW, A COMPLETE LIST, IN SIX (6) COPIES, OF ALL MATERIALS INCORPORATED IN THE WORK. THIS LISTING SHALL BE APPROVED BY THE ORDER OF OCCURRENCE IN THE SPECIFICATIONS, FOLLOWED BY THE ITEMS ON THE DRAWING NOT SPECIFICALLY INCLUDED IN THE SPECIFICATIONS.

AFTER THE LIST HAS BEEN PROCESSED BY THE ARCHITECT, SUBMIT COMPLETE SHOP DRAWINGS AND PRODUCT DATA OF ALL EQUIPMENT. THESE SUBMITTALS SHALL BE SUBMITTED WITHIN THIRTY (30) DAYS AFTER THE PROCESSING DATE OF THE ORIGINAL SUBMITTAL LIST. SUBMISSIONS SHALL BE MADE EARLY ENOUGH IN PROJECT TO ALLOW FOR (10) WORKING DAYS FOR REVIEW BY ARCHITECT-ENGINEER WITHOUT CAUSING DELAYS OR CONFLICTS IN THE PROJECTS PROGRESS.

ALL SUBMITTALS SHALL BE COMPLETE AND SHALL BE IN THREE-RING, LOOSE-LEAF BINDERS, NO CONSIDERATION WILL BE GIVEN TO PARTIAL SUBMITTALS. UNLESS NOTED OTHERWISE BY ARCHITECT, EACH ITEM SHALL HAVE A COVER PAGE STATING PROJECT, SPECIFICATION AND PARAGRAPH REFERENCE NUMBER, OR DRAWING REFERENCE NUMBER, AND SCHEDULED EQUIPMENT IDENTIFICATION NUMBER, IF APPLICABLE.

THE REVIEW OF SUBMITTALS DOES NOT RELIEVE RESPONSIBILITY OF SHOP DRAWING ERRORS IN DETAILS, SIZES, QUANTITIES, WRITING DIAGRAM ARRANGEMENTS AND DIMENSIONS WHICH DEVIATE FROM THE SPECIFICATIONS, CONTRACT DRAWINGS AND/OR JOB CONDITIONS AS THEY EXIST.

IF APPARATUS OR MATERIALS ARE SUBSTITUTED FOR THOSE SPECIFIED UNDER THIS SECTION, AND SUCH SUBSTITUTIONS NECESSITATE CHANGES IN OR ADDITIONAL CONNECTIONS, PIPING SUPPORTS OR CONSTRUCTIONS, SAME SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER. ASSUME COST AND ENTIRE RESPONSIBILITY THEREOF, ARCHITECT'S PERMISSION TO MAKE SUCH SUBSTITUTION SHALL NOT RELIEVE FULL RESPONSIBILITY FOR WORK.

TEST AND BALANCE REPORT: SUBMIT AT FINAL INSPECTION OPERATION AND MAINTENANCE MANUALS. SUBMIT COPIES IN COMPLIANCE WITH SECTION, OPERATION AND MAINTENANCE MANUALS.

15000 - HEATING VENTILATION AND AIR CONDITIONING

PRODUCTS:
ALL MATERIALS AND EQUIPMENT SHALL BE NEW. SYSTEMS SHALL FUNCTION CORRECTLY AS A WHOLE, AND IN ALL ITS PARTS, UP TO THE SPECIFIED CAPACITY. SYSTEMS OR DEVICES FAILING TO MEET PERFORMANCE REQUIREMENTS SHALL BE REPLACED, ALTERED OR REPAIRED AS REQUIRED TO BRING PERFORMANCE UP TO SPECIFIED REQUIREMENTS. WORK DAMAGED OR MARRED BY SUCH REPLACEMENTS, ALTERATIONS, OR REPAIRS SHALL BE RESTORED TO PRIOR CONDITIONS, AT NO ADDITIONAL COST TO THE OWNER. WHERE

MULTIPLE ITEMS OF EQUIPMENT OR MATERIALS ARE REQUIRED, THEY SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER. BEFORE ORDERING EQUIPMENT, THE PHYSICAL DIMENSIONS SHALL BE CHECKED TO VERIFY ALL SPACES ALLOTTED ON THE DRAWINGS. INSERTS, PIPE SLEEVES, AND SUPPORTS OF AIR CONDITIONING EQUIPMENT SHALL BE PROVIDED AS SPECIFIED. WHERE SUCH ITEMS ARE TO BE SET OR EMBEDDED IN CONCRETE, MASONRY OR SIMILAR MATERIAL, THEY SHALL BE FURNISHED AT THE PROPER TIME FOR SETTING OR EMBEDMENT SO AS TO CAUSE NO DELAY, DUCTWORK AND EQUIPMENT ASSEMBLIES SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. ADDITIONAL DUCTWORK AND APPURTENANCES REQUIRED FOR PROPER OPERATION OF EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

MANUFACTURERS NAMES AND CATALOG NUMBERS
SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURERS NAMES AND MODEL OR CATALOG NUMBERS. THIS DOES NOT INDICATE THAT THE MATERIAL AND EQUIPMENT SPECIFIED IS NECESSARILY AN "OFF THE SHELF" ITEM. REQUIREMENTS FOR SPECIFIC MATERIALS, MATERIALS OR OTHER MODIFICATIONS MAY INTRODUCE VARIANCES FROM MANUFACTURERS STANDARDS. ASCERTAIN THAT SUCH MODIFICATIONS ARE FULLY COMPLETED.

DIAGRAMS, NAMEPLATES AND LABELS
EACH MAJOR COMPONENT OF EQUIPMENT SHALL HAVE THE MANUFACTURERS NAME, ADDRESS AND CATALOG NUMBER ON A PLATE SECURELY AFFIXED IN A CONSPICUOUS PLACE. THE NAMEPLATE OF A DISTRIBUTING AGENT WILL NOT BE ACCEPTED. ALL PIECES OF EQUIPMENT, VALVES, STARTERS, DISCONNECTS, AND ALL PNEUMATIC AND ELECTRIC CONTROL INSTRUMENTS AND APPARATUS SHALL BE IDENTIFIED WITH 1/16" THICK BLACK LAMINATED PLASTIC NAMEPLATES, WITH 5/16" HIGH WHITE LAMINATED LETTERS. SIMILAR AND LIKE EQUIPMENT SHALL BE DESIGNATED WITH NUMERICAL SUFFIX (EXAMPLE: THERMOSTAT 1-1). THE NAMEPLATE IDENTIFICATIONS SHALL CONCORD WITH ITEMS APPEARING ON DIAGRAMS. PROVIDE A LABEL FOR THE MECHANICAL SYSTEM STATING (NAME, ADDRESS AND PHONE NUMBER OF CONTRACTOR). LETTERS SHALL BE 1/4" HIGH AND LOCATED IN A CONSPICUOUS PLACE NEAR THE HVAC EQUIPMENT.

EXECUTION
INSTALLATION AND WORKMANSHIP
THE WORK SHALL BE PERFORMED BY QUALIFIED MECHANICS. ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BE INSTALLED IN NEAT, WORKMANLIKE MANNER. MATERIALS, DEVICES OR EQUIPMENT WHICH, IN THE OPINION OF THE ARCHITECT-ENGINEER, IS IMPROPERLY INSTALLED SHALL BE REMOVED AND REINSTALLED IN AN APPROVED MANNER AT NO ADDITIONAL COST TO THE OWNER. THE WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES, WHERE THE WORK IS DEPENDENT UPON WORK OF OTHER TRADES OR WORK ALREADY IN PLACE. SUCH OTHER WORK AND WORK IN PLACE SHALL BE EXAMINED AND SHALL BE IN PROPER CONDITION AND STATE OF COMPLETION BEFORE CONTINUING THE INSTALLATION. THE INSTALLATION OF WORK SHALL, IN GENERAL, BE AS HIGH AS POSSIBLE AND LOCATED IN CONFORMANCE WITH THE DRAWINGS. DUCTWORK INDICATED SHALL BE FOLLOWED AS ACCURATELY AS POSSIBLE. ANY NECESSARY DEVIATIONS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT-ENGINEER. BEFORE COMMENCING WORK, SHOWING PROPOSED CHANGES, APPROVAL IS REQUIRED BEFORE CHANGES SHALL TAKE EFFECT.

CUTTING AND PATCHING
PIVOT OPENINGS FOR EXHAUSTS IN MASONRY FLOORS OR WALLS.

CONCRETE OR ANY OTHER STRUCTURAL PART MUST BE APPROVED IN WRITING BY ARCHITECT-ENGINEER PRIOR TO CUTTING.

WATERPROOFING
DO NOT CUT OR PENETRATE WATERPROOFED SURFACES, OR WATERPROOFING MEMBRANES, WITHOUT FIRST MAKING ARRANGEMENTS FOR REPAIR BY A METHOD APPROVED BY ARCHITECT-ENGINEER.

PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL, AS REQUIRED.

ELECTRICAL WORK
POWER WIRING FROM MOTORS TO MOTOR CONTROLLERS AND FROM CONTROLLERS TO ALL HYDRONIC PIPING FOR CHILLED WATER AND/OR HEATING WATER NOT INCLUDING CONDENSER WATER UNLESS SPECIFICALLY NOTED OTHERWISE, VALVES, FITTINGS, AND ACCESSORIES SHALL BE INSULATED. FOR PIPE SIZES UP TO 10 INCHES, INSULATE WITH 1 INCH THICK (K=23 @ 75 F) FIBERGLASS INSULATION WITH ALL SERVICE JACKET AND VAPOR BARRIER. FOR PIPE SIZES >10 INCHES AND LARGER, INSULATE WITH 1-1/2 INCH THICK (K=23 @ 75 F) FIBERGLASS INSULATION WITH ALL SERVICE JACKET AND VAPOR BARRIER.

INSULATION AT ALL HANGERS FOR PIPING 2 1/2 INCHES AND LARGER SHALL BE HARD AND NON-COMPRESSIBLE.

INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NO HIGHER THAN 50 TO CONFORM WITH THE REQUIREMENTS OF THE NFPA. PROVIDE ZESTON OR EQUAL INSULATION FITTINGS FOR ALL TEES, ELBS OR SPECIALTY FITTINGS.

GENERAL INSTALLATION
INSTALL WATER MAINS WITHOUT PITCH. USE ECCENTRIC REDUCING COUPLINGS AT CHANGES IN SIZE WITH THE TOP OF PIPES AT SAME ELEVATION.

BRANCHES TO UNITS BELOW MAINS TO BE TAKEN FROM BOTTOM OF MAINS AT A 45° ANGLE. PITCH DOWNWARDS TOWARDS UNITS. BRANCHES TO UNITS ABOVE MAINS TO BE TAKEN FROM TOP OF MAINS AT A 45° ANGLE PITCHED UPWARDS TOWARDS UNITS. PITCH NOT LESS THAN 1" TO 10 FEET.

SEE MECHANICAL DETAIL DRAWINGS FOR APPLICABLE DETAILS.

HVAC INSULATION
LOW PRESSURE DUCTWORK INSULATION
EXTERNAL INSULATION SHALL BE R-6 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS OR APPROVED EQUAL, WITH AN EMBOSSED ALUMINUM FOIL FACING. INTERNAL INSULATION SHALL BE R-6 MINIMUM LINER WITH A COATED AIR SIDE SURFACE TO PREVENT EROSION. APPLY ADHESIVES AND FASTENERS PER SMACNA AND THE MANUFACTURER. ALL TRANSVERSE EDGES TO BE COATED WITH ADHESIVE. ALL CONCEALED DUCTWORK SHALL HAVE EXTERNAL INSULATION. UNCONCEALED DUCTWORK SHALL BE INTERNALLY LINED. DUCTWORK INSTALLED IN UNCONDITIONED SPACES SHALL BE R-12 MINIMUM SCHULLER TYPE SMALLLITE, FSK SPIN-GLAS OR APPROVED EQUAL, WITH AN EMBOSSED ALUMINUM FOIL FACING.

ALL AIR SUPPLY DIFFUSERS BACKS AND NECKS, SHALL BE INSULATED WITH R-6 MINIMUM MANVILLE R-SERIES SMALLITE, OR APPROVED EQUAL, FIBERGLASS BLANKET INSULATION.

ADHESIVES, MASTIC, SEALANTS
ADHESIVE SHALL BE FOSTERS B5-20. STUDIED PINS SHALL BE USED WITH FOSTERS 30-SR ADHESIVE. ALL JOINTS, SEAMS AND BREAKS IN THE VAPOR BARRIER SHALL BE SEALED WITH FOSTERS 30-SR, REINFORCED WITH 4 INCH WIDE GLASS FABRIC.

TERMINAL HEAT TRANSFER UNITS
DESCRIPTION
INSTALL AIR CONDITIONING UNITS OF THE CAPACITIES INDICATED. COMPLETE WITH GAS-FRED HEATING SYSTEM, WHERE INDICATED ON THE DRAWINGS. UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLI. CARE ASME AND ANSI CODES AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES. UNIT SHALL BE RATED IN ACCORDANCE WITH THE LATEST ARI STANDARD 21. WHERE SPECIFIED OPERATING CONDITIONS ARE OTHER THAN ARI STANDARD CONDITIONS, CAPACITIES SHALL BE INTERPOLATED FROM ARI CONDITIONS.

MANUFACTURERS
UNITS SHALL BE TRANE, LENOX, AARON OR APPROVED EQUAL.

EXHAUST FANS
INLINE EXHAUST FAN
INSTALL DIRECT DRIVE CENTRIFUGAL INLINE EXHAUST FAN BY GREENHECK OR APPROVED EQUAL WITH GALVANIZED STEEL HOUSING, BACKWARD INCLINED ALUMINUM WHEEL, ACCESS PANELS, INTERNAL DUCT CONNECTION, FLANGES, BALL BEARING MOTORS, AND CORROSION RESISTANT FASTENERS. FAN SHALL COME INSTALLED WITH NEMA 1 TOGGLE SWITCH, MOUNTED AND WIRED. SOLID STATE SPEED CONTROLLER SHIPPED LOOSE AND PSC MOTOR.

WATER SOURCE HEAT PUMPS
DESCRIPTION
INSTALL AIR CONDITIONING UNITS OF THE CAPACITIES INDICATED. COMPLETE WITH GAS-FRED HEATING SYSTEM, WHERE INDICATED ON THE DRAWINGS. UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPLI. CARE ASME AND ANSI CODES AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES. UNIT SHALL BE RATED IN ACCORDANCE WITH THE LATEST ARI STANDARD 21. WHERE SPECIFIED OPERATING CONDITIONS ARE OTHER THAN ARI STANDARD CONDITIONS, CAPACITIES SHALL BE INTERPOLATED FROM ARI CONDITIONS.

DUCT CONNECTORS
WHERE FLEXIBLE DUCTS CONNECT TO LOW PRESSURE DUCTS TO FORM RUNOUTS TO INDIVIDUAL OUTLETS, PLUNGING OR LOW PRESSURE TERMINALS, PROVIDE FACTORY FABRICATED FITTINGS COMPLETE WITH MANUAL BALANCING DEVICES HAVING LOOKING QUADRANTS. WHERE LOW PRESSURE DUCTS ARE INTERNALLY INSULATED, THE CONNECTOR SHALL BE FURNISHED WITH AIR EXTENSION TO PROJECT THROUGH AND PROTECT THE INSULATION FOR CONNECTION TO EQUIPMENT. AUXILIARY SLEEVES SHALL BE PROVIDED TO ALLOW AT LEAST 2 INCHES OF SURFACE FOR CLAMPING OF FLEXIBLE DUCTWORK. SLEEVES SHALL BE SCREWED OR BOLTED TO EQUIPMENT UP FRAME.

CLAMPS
PROVIDE GALVANIZED SPRING STEEL CLAMPS OR PADOUT STRAPS AT CONNECTIONS TO DUCT FITTINGS OR DEVICES.

PROVIDE CONDENSATE DRAINS FOR ALL AIR CONDITIONING UNITS AND PIPE AS DENOTED ON DRAWINGS. CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH TRAP AT THE COIL. RATED ACCORDING TO ARI-500.35.4. GALVANIZED-STEEL CASING WITH ACCESS PANELS FOR MAINTENANCE AND FILTER REPLACEMENT. KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS. FLANGED DUCT CONNECTIONS AND CABINET INSULATION OF 1/2" THICK MULTI-DENSITY COATED GLASS FIBER. THE UNIT SHALL BE DESIGNED TO OPERATE WITH ENTERING FLUID TEMPERATURES BETWEEN 50° AND 110° F IN COOLING AND BETWEEN 50° AND 80° F IN HEATING.

THE UNITS SHALL BE WARRANTED BY THE MANUFACTURER AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR ON ALL PARTS AND FITS (5) YEARS ON COMPRESSOR.

REFRIGERATION CIRCUITS SHALL UTILIZE R-410A. THE UNIT SHALL CONTAIN SEALED REFRIGERANT CIRCUITS INCLUDING HERMETIC COMPRESSORS, THERMAL EXPANSION VALVE, REVERSING VALVES, REFRIGERANT DRIER, FINED TUBE AIR-CHREFRIGERANT EXCHANGERS, REFRIGERANT REVERSING VALVES AND SERVICE PORTS. COMPRESSORS SHALL BE HIGH EFFICIENCY, DESIGNED FOR HEAT PUMP DUTY, INTERNALLY SPRING ISOLATED, EXCEPT FOR SCROLL TYPE COMPRESSORS FOR MINIMUM SOUND ATTENUATION AND MOUNTED ON RUBBER VIBRATION ISOLATORS. COMPRESSOR MOTORS SHALL BE EQUIPPED WITH OVERLOAD PROTECTION. THE FINED TUBE COIL SHALL BE CONSTRUCTED OF LANCED ALUMINUM FINNS NOT EXCEEDING 14 FINS PER INCH. COILS SHALL HAVE A BAKED POLYESTER ENAMEL COATING FOR PROTECTION AGAINST MOST ABORNE CHEMICALS. THE COAXIAL WATER-TO-REFRIGERANT HEAT EXCHANGERS SHALL BE CONSTRUCTED OF A CONVULGATED COPPER INNER TUBE AND STEEL OUTER TUBE WITH A DESIGNED REFRIGERANT WORKING PRESSURE OF 40 PSIG AND A DESIGNED WATER WORKING PRESSURE OF NO LESS THAN 400 PSIG.

UNITS 5 TONS AND LARGER, THE FANS SHALL BE BELT DRIVEN FORWARD CURVE TYPE WITH DYNAMICALLY BALANCED WHEELS. THE FAN HOUSINGS SHALL BE REMOVABLE FROM THE UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF FAN MOTORS. MOTORS SHALL BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

UNITS SMALLER THAN 5 TONS, THE FAN SHALL BE DIRECT DRIVE CENTRIFUGAL FORWARD CURVED TYPE WITH A DYNAMICALLY BALANCED WHEEL. FAN HOUSING SHALL BE REMOVABLE FROM UNIT WITHOUT DISCONNECTING THE SUPPLY AIR DUCTWORK FOR SERVICING OF FAN MOTOR. THE MOTOR SHALL BE THREE SPEED PSC TYPE AND BE PERMANENTLY LUBRICATED AND HAVE THERMAL OVERLOAD PROTECTION.

DUCTWORK, LOW PRESSURE, GALVANIZED STEEL
QUALITY ASSURANCE
DUCTS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY SMACNA. DUCT MATERIAL SHALL BE GALVANIZED STEEL.

JOB CONDITIONS
INSPECT THE DRAWINGS AND VERIFY EXISTING CONDITIONS IN THE FIELD. REPORT CONFLICTS BEFORE STARTING FABRICATION.

DUCT MATERIAL
WEIGHTS AND GAGES SHALL BE IN ACCORDANCE WITH TABLE I OF "HVAC DUCT CONSTRUCTION STANDARDS" PUBLISHED BY SMACNA. DUCT MATERIAL SHALL BE GALVANIZED STEEL.

SPLITTER DAMPERS
SPLITTERS SHALL BE 18 GAGE GALVANIZED STEEL, WITH HORIZONTAL AND VERTICAL DIMENSIONS SUFFICIENT TO CLOSE OFF AIR TO BRANCH. PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 180 DAMPER ASSEMBLY.

VOLUME DAMPERS
VOLUME DAMPERS SHALL BE 18 GAGE STEEL, SINGLE BLADE UP TO 8" X 8", OPPOSED BLADE ON 10" DUCTS OVER 8" X 8". PROVIDE VENTLOK NO. 607 END BEARINGS AND VENTLOK NO. 641 SET-FLUCCING REGULATOR. DAMPER RODS SHALL BE 1/2" SQUARE BARS WITH BLADES SECURELY RIVETED TO BAR.

TURNING VANES
SQUARE AND RECTANGULAR ELBOWS SHALL CONTAIN TITUS NO. AG-225 TURNING VANES.

HANGERS
IN ACCORDANCE WITH CHAPTER IV OF SMACNA.

FLEXIBLE CONNECTIONS
FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR EACH AIR HANDLING DEVICE TO PREVENT TRANSMISSION OF VIBRATIONS. MAKE FLEXIBLE CONNECTION A MINIMUM OF 4 INCHES WIDE OF VENTILAS AS MADE BY VENTIFABRICS, INC.

INSTALLATION
GENERAL, SPLIT, DIVIDE OR TURN DUCTS AS NECESSARY TO AVOID OBSTRUCTIONS AND, IN SUCH CASES, PROVIDE AIR STREAM DEFLECTORS AND INCREASE SIZE OF DUCT TO AN EQUIVALENT AREA.

SPLITTERS RIGIDLY ATTACH SPLITTERS TO PIVOT ROD AND OPERATING LINKAGE. SET DAMPER ASSEMBLY ON RAISED INSULATED BASE ON INSULATED DUCTWORK, VOLUME DAMPER POSITION.

FLEXIBLE CONNECTIONS SECURE FLEXIBLE CONNECTIONS TO DUCT AND UNIT WITH GALVANIZED STEEL STRAPS HOLDING THE MATERIAL IN FORMED GALVANIZED STEEL CHANNELS. TEST TO ENSURE PROPER INSTALLATION.

PLUGS: PROVIDE SQUARE HEAD TEST PLUGS AS REQUIRED FOR INSERTION OF TEST APPARATUS. PROVIDE A RING AND A REMOVABLE INSULATION PLUG WHERE DUCTS ARE INSULATED.

PAINTING: PAINT INTERIOR OF DUCTWORK FLAT BLACK WHERE VISIBLE THROUGH GRILLES AND REGISTERS.

SEALING: DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA "SEAL CLASS B".

CORRECTIONS
REMOVE ALL DUCTWORK FOUND TO VIBRATE, CHATTER OR PULSATE AND REPLACE WITH NEW DUCTWORK.

DUCTWORK, LOW PRESSURE, FLEXIBLE
DESCRIPTION
PROVIDE WHERE INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN, FACTORY FABRICATED AND PER INSULATED FLEXIBLE DUCTS.

QUALITY ASSURANCE
FLEXIBLE DUCTS, INCLUDING INSULATION AND SEALANTS, SHALL CONFORM TO THE REQUIREMENTS OF NFPA 800 AND UL STANDARD 181 FOR CLASS 1 DUCTS. PERFORMANCE DATA SHALL BE BASED ON TEST PERFORMED IN ACCORDANCE WITH AIR DIFFUSION COUNCIL FLEXIBLE AIR DUCT TEST CODE FD72.

LOW PRESSURE FLEXIBLE DUCTWORK
LOW PRESSURE FLEXIBLE DUCTWORK SHALL CONSIST OF CORROSION RESISTANT SPRING STEEL HELD BONDED TO A GLASS REINFORCED NEOPRENE SLEEVE INSULATED WITH A MINIMUM OF 1 INCH THICK 1 POUND DENSITY FIBERGLASS INSULATION WHICH IS IN TURN COVERED WITH AN OUTER VAPOR BARRIER OF FIBER REINFORCED FOIL, SCHEM-KRAFT LAMINATE. INSULATION SHALL HAVE A THERMAL CONDUCTIVITY (K) NO GREATER THAN 0.25 AT 75 DEGREES F. DUCT FOR LOW VELOCITY SYSTEMS CONNECTORS SHALL HAVE A WORKING PRESSURE OF NOT LESS THAN 1-1/2 INCHES OF WATER GAGE AND A MAXIMUM OPERATING TEMPERATURE OF NOT LESS THAN 250 DEGREES F.

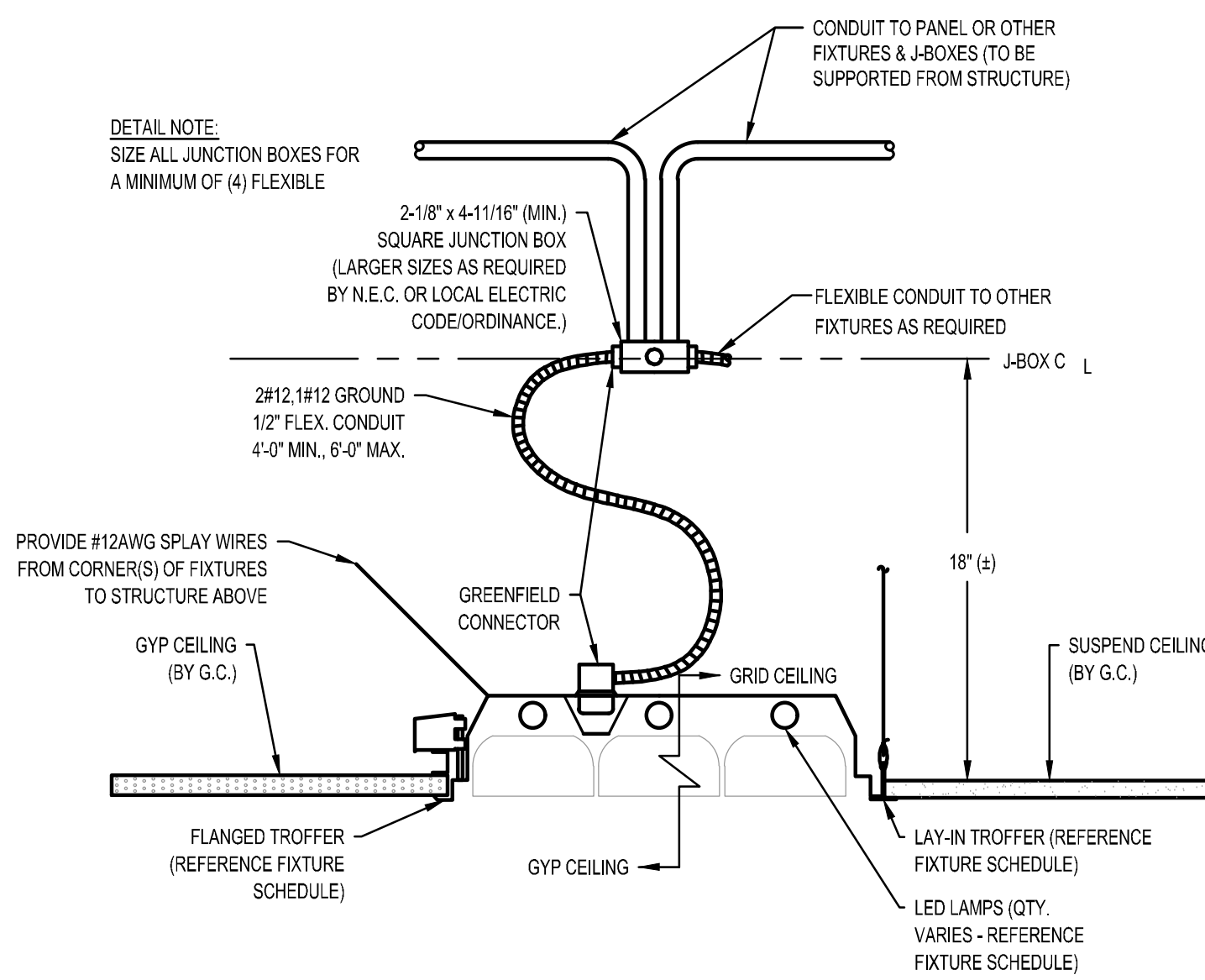
DUCT CONNECTORS
WHERE FLEXIBLE DUCTS CONNECT TO LOW PRESSURE DUCTS TO FORM RUNOUTS TO INDIVIDUAL OUTLETS, PLUNGING OR LOW PRESSURE TERMINALS, PROVIDE FACTORY FABRICATED FITTINGS COMPLETE WITH MANUAL BALANCING DEVICES HAVING LOOKING QUADRANTS. WHERE LOW PRESSURE DUCTS ARE INTERNALLY INSULATED, THE CONNECTOR SHALL BE FURNISHED WITH AIR EXTENSION TO PROJECT THROUGH AND PROTECT THE INSULATION FOR CONNECTION TO EQUIPMENT. AUXILIARY SLEEVES SHALL BE PROVIDED TO ALLOW AT LEAST 2 INCHES OF SURFACE FOR CLAMPING OF FLEXIBLE DUCTWORK. SLEEVES SHALL BE SCREWED OR BOLTED TO EQUIPMENT UP FRAME.

CLAMPS
PROVIDE GALVANIZED SPRING STEEL CLAMPS OR PADOUT STRAPS AT CONNECTIONS TO DUCT FITTINGS OR DEVICES.

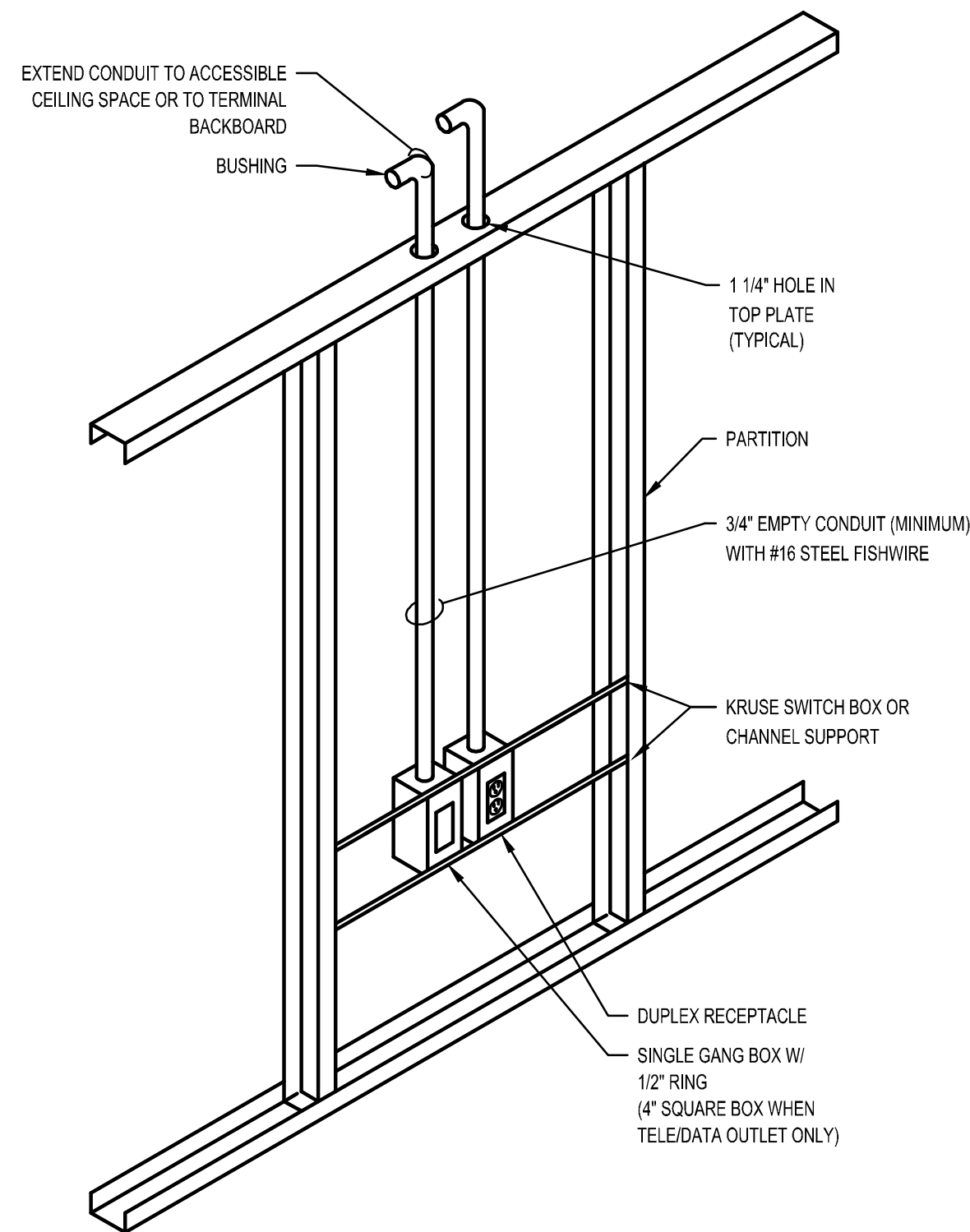
INSTANT WATER SOURCE HEAT PUMP OF CAPACITIES INDICATED MANUFACTURED BY FLORIDA HEAT PUMP, INDOXYAN OR AN APPROVED EQUAL, FACTORY ASSEMBLED AND RATED ACCORDING TO ARI-500.35.4. GALVANIZED-STEEL CASING WITH ACCESS PANELS FOR MAINTENANCE AND FILTER REPLACEMENT. KNOCKOUTS FOR ELECTRICAL AND PIPING CONNECTIONS. FLANGED DUCT CONNECTIONS AND CABINET INSULATION OF 1/2" THICK MULTI-DENSITY COATED GLASS FIBER. THE UNIT SHALL BE DESIGNED TO OPERATE WITH ENTERING FLUID TEMPERATURES BETWEEN 50° AND 110° F IN COOLING AND BETWEEN 50° AND 80° F IN HEATING.

THE UNITS SHALL BE WARRANTED BY THE MANUFACTURER AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR ON ALL PARTS AND FITS (5) YEARS ON COMPRESSOR.

REFRIGERATION CIRCUITS SHALL UTILIZE R-410A. THE UNIT SHALL CONTAIN SEALED REFRIGERANT CIRCUITS INCLUDING HERMETIC COMPRESSORS, THERMAL EXPANSION VALVE, REVERSING VALVES, REFRIGERANT DRIER, FINED TUBE AIR-CHREFRIGERANT EXCHANGERS, REFRIGERANT REVERSING VALVES AND SERVICE PORTS. COMPRESSORS SHALL BE HIGH EFFICIENCY, DESIGNED FOR HEAT PUMP DUTY, INTERNALLY SPRING ISOLATED, EXCEPT FOR SCROLL TYPE COMPRESSORS FOR MINIMUM SOUND ATTENUATION AND MOUNTED ON RUBBER VIBRATION ISOLATORS. COMPRESSOR MOTORS SHALL BE EQUIPPED WITH OVERLOAD PROTECTION. THE FINED TUBE COIL SHALL BE CONSTRUCTED OF LANCED ALUMINUM FINNS NOT EXCEEDING 14 FINS PER INCH.



1 TYPICAL RECESSED FIXTURE DETAIL
SCALE: NOT TO SCALE



2 OUTLET IN HOLLOW PARTITION
SCALE: NOT TO SCALE






















































ELECTRICAL ABBREVIATIONS

AC	ALTERNATING CURRENT
AHU	AIR HANDLING UNIT
A, OR AMPS	AMPERES
APC	ABOVE FINISH COUNTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
BTC	BRANCH TO CONNECTION POINT AND CONNECT EQUIPMENT
C	CONDUIT ("E.C." IS EMPTY CONDUIT)
CF	CEILING FAN
CM	COFFEE MAKER
CT	COOKTOP
D	DEDICATED CIRCUIT
DCO	DUPLEX CONVENIENCE OUTLET
DP	DISPOSAL
DW	DISHWASHER
DY	DRYER
EMT	ELECTRICAL METALLIC TUBING
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER (WATER-COOLED DRINKING FOUNTAIN)
EX	EXISTING
FCU	FAN COIL UNIT
GFIC/FCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI/P	GROUND FAULT INTERRUPTER PROTECTED
GRD	GROUND
H	HORIZONTAL MOUNT (RECEPTACLE)
HD	VENTILATION HOOD
HP	HORSEPOWER
HT	HEAT TRACE POWER (PROVIDE W/ 20A/1P GFI BREAKER)
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
HZ	HERTZ
IG	ISOLATED GROUND (DUPLEX RECEPTS - NEMA 5-20RIG)
KCM	THOUSAND CIRCULAR MILLS
KVA	KILOVOLT-AMPERES (1000 VOLT-AMPERES)
KW	KILOWATTS (1000 WATTS)
MLO	MAIN LUGS ONLY
MCB	MAIN CIRCUIT BREAKER
MW	MICROWAVE (COORD MTG HT W/ ARCHITECT)
NIC	NOT IN CONTRACT
NEC	NATIONAL ELECTRICAL CODE
NF	NOT FUSED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PNL	PANEL
PH OR Ø	PHASE
P	POLE
PVC	POLYVINYL CHLORIDE
RF	REFRIGERATOR
RG	RANGE
SPD	SURGE PROTECTIVE DEVICE
T	TAMPERPROOF RECEPTACLE
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION RECEPTACLE
UC	UNDERCOUNTER REFRIGERATOR (OR ICE MACHINE)
UL	UNDERWRITERS LABORATORIES
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLTS
VA	VOLT-AMPERES
VD	VENDING MACHINE (2P/4P)
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WA	WASHER
WD	WARMING DRAWER
W/O	WALL OVEN
WP	WEATHERPROOF
WPWR	WEATHERPROOF/WEATHER RESISTANT
W/UNT	DISCONNECT IS SUPPLIED WITH THE UNIT

GENERAL ELECTRICAL NOTES

1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, REQUIREMENTS OF THE AHJ AND ALL LOCAL & STATE CODES.
2. DO NOT SCALE FROM THESE DRAWINGS.
3. REFER TO ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES.
4. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH PULL STRINGS AND BUSHINGS.
5. ALL JUNCTION BOXES SHALL HAVE A COVER.
6. COORDINATE EACH LIGHT FIXTURE INSTALLATION(S) W/ ACTUAL CEILING TO BE FURNISHED.
7. ALL BRANCH CIRCUITS WITHOUT A CONDUCTOR & CONDUIT INDICATED SHALL BE ROUTED TO A 20A-1P BREAKER W/ 2412, 1P/2EG, 3/4" C.
8. ALL BRANCH CIRCUIT CONDUCTORS SHALL NOT BE SMALLER THAN #12 AWG AND ALL CONDUIT SHALL NOT BE SMALLER THAN 3/4" C. UNLESS SPECIFICALLY NOTED OTHERWISE.
9. ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH DEDICATED NEUTRALS UNLESS NOTED OTHERWISE. WHERE NEUTRALS ARE INDICATED TO BE SHARED, MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH 2P OR 3P BREAKERS AS REQUIRED PER NEC 210.4.
10. ALL CIRCUITS (LIGHTING AND POWER) SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC. THE RACEWAY SHALL NOT BE USED AN EQUIPMENT GROUND.
11. ALL FIXTURES SHALL BE SUPPORTED FROM EACH CORNER (INDEPENDENT OF THE SUSPENDED CEILING) WITH 12 GAUGE WIRE CONNECTED TO STRUCTURAL SYSTEM OF BUILDING. THE INSTALLATION SHALL MEET OR EXCEED THE SEISMIC REQUIREMENTS OF LOCAL AND NATIONAL CODES.
12. ELECTRICAL DEVICE MOUNTING HEIGHTS, UNO:
 - PANELBOARDS 78" AFF TO TOP OF PANEL
 - SWITCHES 48" AFF TO TOP OF JUNCTION BOX
 - RECEPTACLES 18" AFF TO CENTER OF RECEPTACLE
 - TELEDATA OUTLETS 18" AFF TO CENTER OF RECEPTACLE
 - APARTMENT LOADCENTERS PER ANSI A111.1 REQUIREMENTS (VERIFY WITH LOCAL INSPECTOR)
13. ELECTRICAL EQUIPMENT (PANELBOARDS, TRANSFORMERS, DISTRIBUTION EQUIPMENT, ETC.) IS SHOWN TO SCALE ON THE FLOOR PLANS.
14. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING EQUIPMENT THAT WILL FIT WITHIN THE SPACES SHOWN ON THE PLANS AND COMPLYING WITH ALL CODE REQUIRED CLEARANCES.
15. ELECTRICAL CONTRACTOR TO LABEL ALL DEVICES (RECEPTACLES, SWITCHES, PANELBOARDS, DISCONNECTS, ETC.) WITH CIRCUIT NUMBER AND PANELBOARD DESIGNATION. RECEPTACLES, SWITCHES, AND SIMILAR DEVICES TO HAVE PRE-PRINTED, SELF-ADHESIVE LABEL.
16. PANELBOARDS, DISCONNECT SWITCHES, AND SIMILAR DEVICES TO HAVE ENGRAVED, SELF-ADHESIVE, LAMINATED ACRYLIC LABEL (BLACK W/ WHITE LETTERING).
17. PROVIDE TYPE-WRITTEN PANELBOARD SCHEDULES FOR ALL ELECTRICAL PANELBOARDS.

ELECTRICAL SYMBOLS

LIGHTING FIXTURES/DEVICES			POWER EQUIPMENT/DEVICES		
SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
	DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING		SWITCHBOARD OR DISTRIBUTION PANEL REFER TO PANEL SCHEDULES	
	DIRECTIONAL DOWNLIGHT (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING		DRY-TYPE TRANSFORMER REFER TO PLANS FOR KVA RATING	
	WALL MOUNTED LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL		120/208V, 30, 4W PANELBOARD REFER TO PANEL SCHEDULES	
	LINEAR LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING OR SUSPENDED		277/480V, 30, 4W PANELBOARD REFER TO PANEL SCHEDULES	
	2X4 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING		JUNCTION BOX	WALL OR CEILING
	2X2 LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	CEILING		FUSED SAFETY SWITCH (E.G. 30/250 INDICATES A 30A, 3-POLE SWITCH WITH 25A FUSES)	
	HATCHING ON FIXTURE INDICATES FIXTURE TO HAVE EMERGENCY BACK-UP			NON-FUSED SAFETY SWITCH (E.G. 30/NF3 INDICATES A 30A, 3-POLE SWITCH WITHOUT FUSES)	
	TWO HEAD EMERGENCY LIGHT FIXTURE (LETTER INDICATES FIXTURE TYPE); REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING		MOTOR RATED SWITCH	
	EMERGENCY EXIT SIGN. PROVIDE ARROW(S) AS INDICATED. SHADING INDICATES FACE (LETTER INDICATES FIXTURE TYPE) REFER TO LIGHT FIXTURE SCHEDULE	WALL OR CEILING		MOTOR	
	SINGLE POLE SWITCH 20A (120/277V)	WALL - 48" AFF		NEMA 5-20R SIMPLEX RECEPTACLE	WALL - 18" AFF
	THREE WAY SWITCH 20A (120/277V)	WALL - 48" AFF		NEMA 5-20R DUPLEX RECEPTACLE	WALL - 18" AFF
	FOUR WAY SWITCH 20A (120/277V)	WALL - 48" AFF		NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER	
	WALL BOX DIMMER SWITCH	WALL - 48" AFF		NEMA 5-20R QUAD-PLEX RECEPTACLE	WALL - 18" AFF
	CEILING OR WALL MOUNTED OCCUPANCY SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL OR CEILING		NEMA 5-20R SPLIT RECEPTACLE. TOP OUTLET WIRED HOT. BOTTOM OUTLET SWITCHED.	WALL - 18" AFF
	LOW-VOLTAGE CONTROL STATION (LETTER INDICATES CONTROL STATION TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	WALL - 48" AFF		SPECIAL PURPOSE RECEPTACLE REFER TO PLANS FOR NEMA CONFIGURATION	WALL - 18" AFF OR CEILING
	PHOTOCELL SENSOR (LETTER INDICATES SENSOR TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	FIELD VERIFY		NEMA 5-20R - DUPLEX RECEPTACLE WITH USB PORTS SIMILAR TO HUBBELL FUSE20ACSW	WALL - 18" AFF
	POWERPACK (LETTER INDICATES POWERPACK TYPE) REFER TO LIGHTING CONTROLS SCHEDULE	ACCESSIBLE CEILING		NEMA 5-20R DUPLEX RECEPTACLE MOUNTED ON CEILING	CEILING - FLUSH
COMMUNICATION/LOW-VOLTAGE DEVICES				HUBBELL CF84 SERIES FLOOR BOX (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
SYMBOL	DESCRIPTION	MOUNTING		HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) WITH (1) DUPLEX RECEPTACLE AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
	CARD READER (VERIFY EXACT REQUIREMENTS)			HUBBELL B24 SERIES FLOOR BOX (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE VERIFY EXACT CONNECTION WITH FURNITURE VENDOR	FLOOR - FLUSH
	DATA, TELEPHONE, OR COMBO TELEDATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	WALL - 18" AFF		HUBBELL S1PT SERIES 4-POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION CONNECTION CAPABILITY	FLOOR - FLUSH
	DATA, TELEPHONE, OR COMBO TELEDATA OUTLET PROVIDE PULLSTRING IN CONDUIT TO ACCESSIBLE CEILING	FLOOR OR CEILING		HUBBELL S1PTFF SERIES 4-POKE-THRU (OR EQUAL) FOR POWER AND DATA CONNECTIONS TO PRE-WIRED FURNITURE VERIFY EXACT CONNECTION WITH FURNITURE VENDOR	FLOOR - FLUSH
	TELEVISION OUTLET	WALL OR CEILING		HUBBELL S1H SERIES 6-POKE-THRU (OR EQUAL) WITH (2) DUPLEX RECEPTACLES AND DATA/COMMUNICATION AND AV CONNECTION CAPABILITY	FLOOR - FLUSH
	SPEAKER OUTLET	FIELD VERIFY		CONDUIT IN OR UNDER FLOOR/GRADE	
	TELEPHONE TERMINAL BOARD	WALL		CONDUCTOR HOME RUN - (H) HOT, (N) NEUTRAL, (G) EQUIPMENT GROUND, & (I) ISOLATED GROUND	
	SECURITY CAMERA OUTLET	FIELD VERIFY		EQUIPMENT CONNECTION	
	PUSH BUTTON			CONDUIT IN CEILING OR WALL	

NOTE: NOT ALL SYMBOLS MAY BE USED.

1. IF MOUNTED ABOVE A COUNTER, DEVICE TO BE WALL MOUNTED 6\"/>

Architectural floor plan of the first floor of a building. The plan shows various rooms and structural elements:

- Restroom (103):** Located in the upper left corner.
- Furnace (Existing):** Located in the upper left corner, adjacent to the Restroom.
- Office (106):** Located in the upper right corner.
- Book Nook (107):** Located in the center-right area.
- Retail Counters (101, 100):** Located in the lower right area.
- 300A Meter Center (Existing):** Located in the lower right corner.
- Heat Pump (Existing):** Located in the upper left corner.
- Panel LA2, Panel LA1:** Located in the upper left corner.
- 17' Deep Shelving:** Located in the center-left area.
- 47'8" Cased Opening:** Located in the center-right area.
- 30'8" Cased Opening:** Located in the center-left area.
- Compass Rose:** Located in the upper right corner, indicating North (N).

The plan also includes various structural elements and annotations:

- LA1-21/23, LA1-17/19, LA1-20, LA2-18, LA2-19, LA2-20, LA2-18, LA2-12, LA2-12, LA2-12, LA2-14, LA2-16, LA2-16, LA2-14:** Labels for structural elements or openings.
- K1, K2, K3, K4, K5, K6, K7, K8, K9, K10, K11, K12, K13, K14, K15, K16, K17, K18, K19, K20, K21, K22, K23, K24, K25, K26, K27, K28, K29, K30, K31, K32, K33, K34, K35, K36, K37, K38, K39, K40, K41, K42, K43, K44, K45, K46, K47, K48, K49, K50, K51, K52, K53, K54, K55, K56, K57, K58, K59, K60, K61, K62, K63, K64, K65, K66, K67, K68, K69, K70, K71, K72, K73, K74, K75, K76, K77, K78, K79, K80, K81, K82, K83, K84, K85, K86, K87, K88, K89, K90, K91, K92, K93, K94, K95, K96, K97, K98, K99, K100, K101, K102, K103, K104, K105, K106, K107, K108, K109, K110, K111, K112, K113, K114, K115, K116, K117, K118, K119, K120, K121, K122, K123, K124, K125, K126, K127, K128, K129, K130, K131, K132, K133, K134, K135, K136, K137, K138, K139, K140, K141, K142, K143, K144, K145, K146, K147, K148, K149, K150, K151, K152, K153, K154, K155, K156, K157, K158, K159, K160, K161, K162, K163, K164, K165, K166, K167, K168, K169, K170, K171, K172, K173, K174, K175, K176, K177, K178, K179, K180, K181, K182, K183, K184, K185, K186, K187, K188, K189, K190, K191, K192, K193, K194, K195, K196, K197, K198, K199, K200, K201, K202, K203, K204, K205, K206, K207, K208, K209, K210, K211, K212, K213, K214, K215, K216, K217, K218, K219, K220, K221, K222, K223, K224, K225, K226, K227, K228, K229, K230, K231, K232, K233, K234, K235, K236, K237, K238, K239, K240, K241, K242, K243, K244, K245, K246, K247, K248, K249, K250, K251, K252, K253, K254, K255, K256, K257, K258, K259, K260, K261, K262, K263, K264, K265, K266, K267, K268, K269, K270, K271, K272, K273, K274, K275, K276, K277, K278, K279, K280, K281, K282, K283, K284, K285, K286, K287, K288, K289, K290, K291, K292, K293, K294, K295, K296, K297, K298, K299, K300, K301, K302, K303, K304, K305, K306, K307, K308, K309, K310, K311, K312, K313, K314, K315, K316, K317, K318, K319, K320, K321, K322, K323, K324, K325, K326, K327, K328, K329, K330, K331, K332, K333, K334, K335, K336, K337, K338, K339, K340, K341, K342, K343, K344, K345, K346, K347, K348, K349, K350, K351, K352, K353, K354, K355, K356, K357, K358, K359, K360, K361, K362, K363, K364, K365, K366, K367, K368, K369, K370, K371, K372, K373, K374, K375, K376, K377, K378, K379, K380, K381, K382, K383, K384, K385, K386, K387, K388, K389, K390, K391, K392, K393, K394, K395, K396, K397, K398, K399, K400, K401, K402, K403, K404, K405, K406, K407, K408, K409, K410, K411, K412, K413, K414, K415, K416, K417, K418, K419, K420, K421, K422, K423, K424, K425, K426, K427, K428, K429, K430, K431, K432, K433, K434, K435, K436, K437, K438, K439, K440, K441, K442, K443, K444, K445, K446, K447, K448, K449, K450, K451, K452, K453, K454, K455, K456, K457, K458, K459, K460, K461, K462, K463, K464, K465, K466, K467, K468, K469, K470, K471, K472, K473, K474, K475, K476, K477, K478, K479, K480, K481, K482, K483, K484, K485, K486, K487, K488, K489, K490, K491, K492, K493, K494, K495, K496, K497, K498, K499, K500, K501, K502, K503, K504, K505, K506, K507, K508, K509, K510, K511, K512, K513, K514, K515, K516, K517, K518, K519, K520, K521, K522, K523, K524, K525, K526, K527, K528, K529, K530, K531, K532, K533, K534, K535, K536, K537, K538, K539, K540, K541, K542, K543, K544, K545, K546, K547, K548, K549, K550, K551, K552, K553, K554, K555, K556, K557, K558, K559, K560, K561, K562, K563, K564, K565, K566, K567, K568, K569, K570, K571, K572, K573, K574, K575, K576, K577, K578, K579, K580, K581, K582, K583, K584, K585, K586, K587, K588, K589, K590, K591, K592, K593, K594, K595, K596, K597, K598, K599, K600, K601, K602, K603, K604, K605, K606, K607, K608, K609, K610, K611, K612, K613, K614, K615, K616, K617, K618, K619, K620, K621, K622, K623, K624, K625, K626, K627, K628, K629, K630, K631, K632, K633, K634, K635, K636, K637, K638, K639, K640, K641, K642, K643, K644, K645, K646, K647, K648, K649, K650, K651, K652, K653, K654, K655, K656, K657, K658, K659, K660, K661, K662, K663, K664, K665, K666, K667, K668, K669, K670, K671, K672, K673, K674, K675, K676, K677, K678, K679, K680, K681, K682, K683, K684, K685, K686, K687, K688, K689, K690, K691, K692, K693, K694, K695, K696, K697, K698, K699, K700, K701, K702, K703, K704, K705, K706, K707, K708, K709, K710, K711, K712, K713, K714, K715, K716, K717, K718,**

GENERAL NOTES
(NOT ALL NOTES APPLY)

- KEYED NOTES:**

1. NO SCOPE IN THIS AREA. EXISTING RESTROOM AREA TO REMAIN. CONTACT EXISTING CONTRACTOR TO NEW PANELS AS REQUIRED.
2. NO EXHAUST FAN CIRCUIT THROUGH TIME MACHINE. CONTROL INTENT IS FOR EXHAUST FAN TO BE 'ON' DURING BUSINESS HOURS. REFER TO DETAIL 2 (SEE E301) FOR ADDITIONAL INFORMATION.
3. PROVIDE TWO (2) SHEETS ABOVE SHOW WINDOW AS REQUIRED PER SMC 210.62.
4. FIELD VERIFY ALL EQUIPMENT CONNECTIONS AND LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.
5. PROVIDE TWO (2) NEW 12" WIDE PANELS 1/4" & 1/2" W/2" OWNER PRIOR TO ROUGH-IN. ENSURE ALL WORKING CLEARANCES ARE MAINTAINED PER SMC 110.26.
6. STUB 1" CONDUIT FROM MILLWORK TO NEAREST WALL AND UP TO ACCESSIBLE CEILING FOR POWER TO NEW LIGHT FIXTURES. PROVIDE 1/2" W/2" OWNER PRIOR TO ROUGH-IN. PATCH AND REPAIR FLOORING AS REQUIRED.
7. PROVIDE METER CENTER TAP BOX, 400A SELF-CONTAINED METER AND 400A FUSED DISCONNECT FOR ELECTRICAL FEED TO NEW LIGHT FIXTURE. REFER TO SHEET E401 FOR ADDITIONAL INFORMATION.
8. INTERCEPT AND EXTEND CIRCUIT FOR EXISTING EQUIPMENT TO REMAIN TO NEW PANELS AS REQUIRED. FIELD VERIFY AND CONFIRM WITH OWNER. PROVIDE A NEW BREAKER IN NEW PANELS TO MATCH.

GENERAL NOTES
(NOT ALL NOTES APPLY)

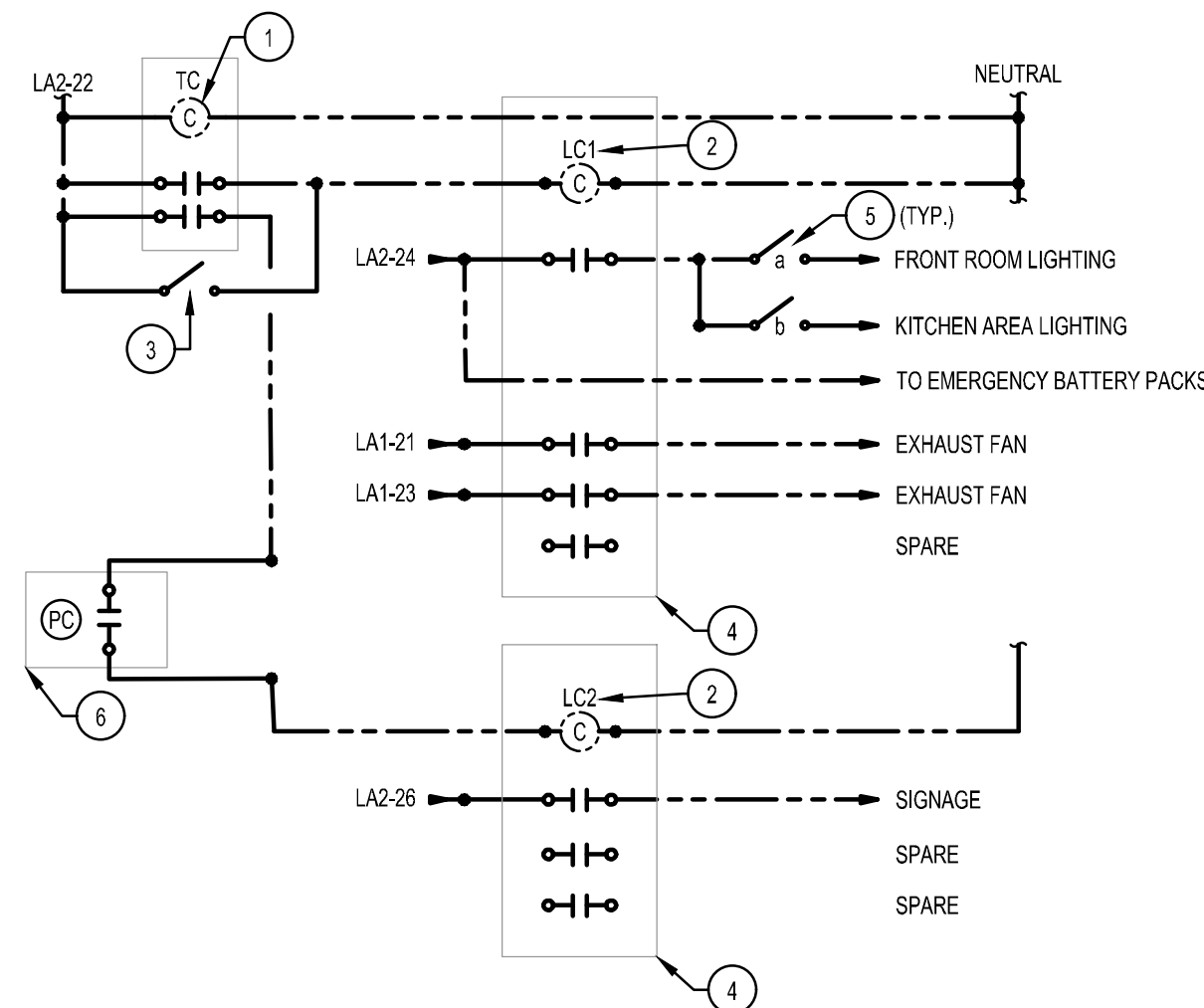
- REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
- COORDINATE ALL MOUNTING HEIGHTS FOR ALL PUBLIC SPACE DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
- CIRCUIT ALL EXIT SIGNS TO NEAREST EMERGENCY LIGHTING CIRCUIT (OR NEAREST LIGHTING CIRCUIT IF NO GENERATOR).
- VERIFY ALL EXISTING BRANCH CIRCUITING. CONTRACTOR SHALL WIRE FIXTURES IN ACCORDANCE WITH SWITCHING INDICATED. CONNECTED LOAD ON 277V/20A CIRCUITS SHALL NOT EXCEED 4000W, 120V/20A CIRCUITS SHALL NOT EXCEED 1800W.
- CIRCUIT NUMBERS ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.
- EXISTING CONDITIONS INDICATED IN THESE DOCUMENTS ARE BASED ON A CURSORY SITE REVIEW AND DO NOT REPRESENT A COMPLETE "AS-BUILT" SET OF DOCUMENTS. IT IS THE CONTRACTORS RESPONSIBILITY TO FULLY INVESTIGATE ALL EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES TO THESE DOCUMENTS OR THE DESIGN INTENT.

KEYED NOTES:

- NO SCOPE IN THIS AREA. EXISTING RESTROOM AREA TO REMAIN.
- CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO TURN 'ON/OFF' ON A TIME-OF-DAY SCHEDULE WITH MANUAL OVERRIDE VIA THE WALL BOX DIMMER. VERIFY SCHEDULING WITH OWNER. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.
- MANUAL OVERRIDE SWITCHES FOR FRONT ROOM/KITCHEN AREA. FIELD VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. REFER TO DETAIL 3 (THIS SHEET) FOR ADDITIONAL INFORMATION.
- CONTROL INTENT FOR THIS AREA IS FOR FIXTURES TO BE MANUAL 'ON', 'AUTO' 'OFF' VIA OCCUPANCY SENSOR WITH MANUAL OVERRIDE VIA THE LOW-VOLTAGE CONTROL STATION.
- PROVIDE NEMA 3R, LOCKABLE DISCONNECT SWITCH FOR EXTERIOR SIGNAGE. FIELD VERIFY EXACT LOCATION WITH OWNER/SIGN VENDOR PRIOR TO ROUGH-IN. CONTROL INTENT IS FOR SIGNAGE TO BE 'ON/OFF' VIA TIME-OF-DAY SCHEDULE. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.
- TIME CLOCK AND CONTACTORS. REFER TO DETAIL 2 (THIS SHEET) FOR ADDITIONAL INFORMATION.
- PROVIDE WALL BOX DIMMER SWITCH SIMILAR TO LUTRON DIVA SERIES FOR MANUAL OVERRIDE OF LIGHTING. VERIFY COMPATIBILITY OF DIMMER SWITCH WITH EACH FIXTURE TYPE PRIOR TO ORDERING.

LIGHTING CONTROL
KEYED NOTES:

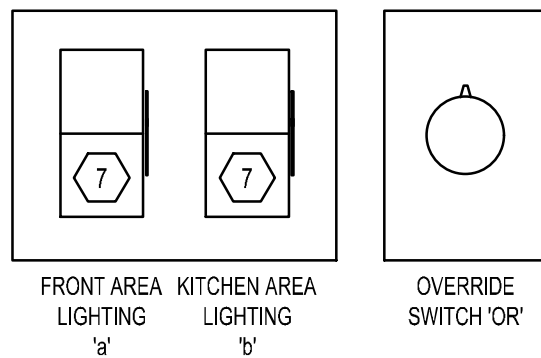
- PROVIDE TORK DIGITAL SERIES, MODEL DGLC200A-NC (2-CHANNEL) TIMECLOCK (OR EQUAL).
- PROVIDE SQUARE D MODEL 8903 ELECTRICALLY HELD LIGHTING CONTACTORS (LC1 & LC2) WITH POLE QUANTITY AS REQUIRED.
- PROVIDE PARAGON #SWP2H 2-HOUR SPRING WOUND OVERRIDE SWITCH (OR EQUAL).
- PROVIDE NEMA 1 ENCLOSURE TO HOUSE ALL CONTACTORS INDICATED.
- REMOTE MANUAL SWITCH. REFER TO SWITCHING DETAIL (THIS SHEET) FOR ADDITIONAL INFORMATION.
- PROVIDE INTERMATIC #K4238C PHOTOCELL MOUNTED ON A WEATHERPROOF BOX. CONTROL INTENT OF EXTERIOR LIGHT FIXTURES IS FOR LIGHTS TO BE ON A TIME-OF-DAY SCHEDULE WITH PHOTOCELL OVERRIDE. PER 2021 IECC, LIGHTS SHALL NOT ENERGIZE 'ON' WHEN ENOUGH DAYLIGHT IS PRESENT.



NOTE:
THIS DETAIL IS SCHEMATIC IN NATURE. PROVIDE ALL WIRING, COMPONENTS AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND OPERATIONAL LIGHTING CONTROL SYSTEM.

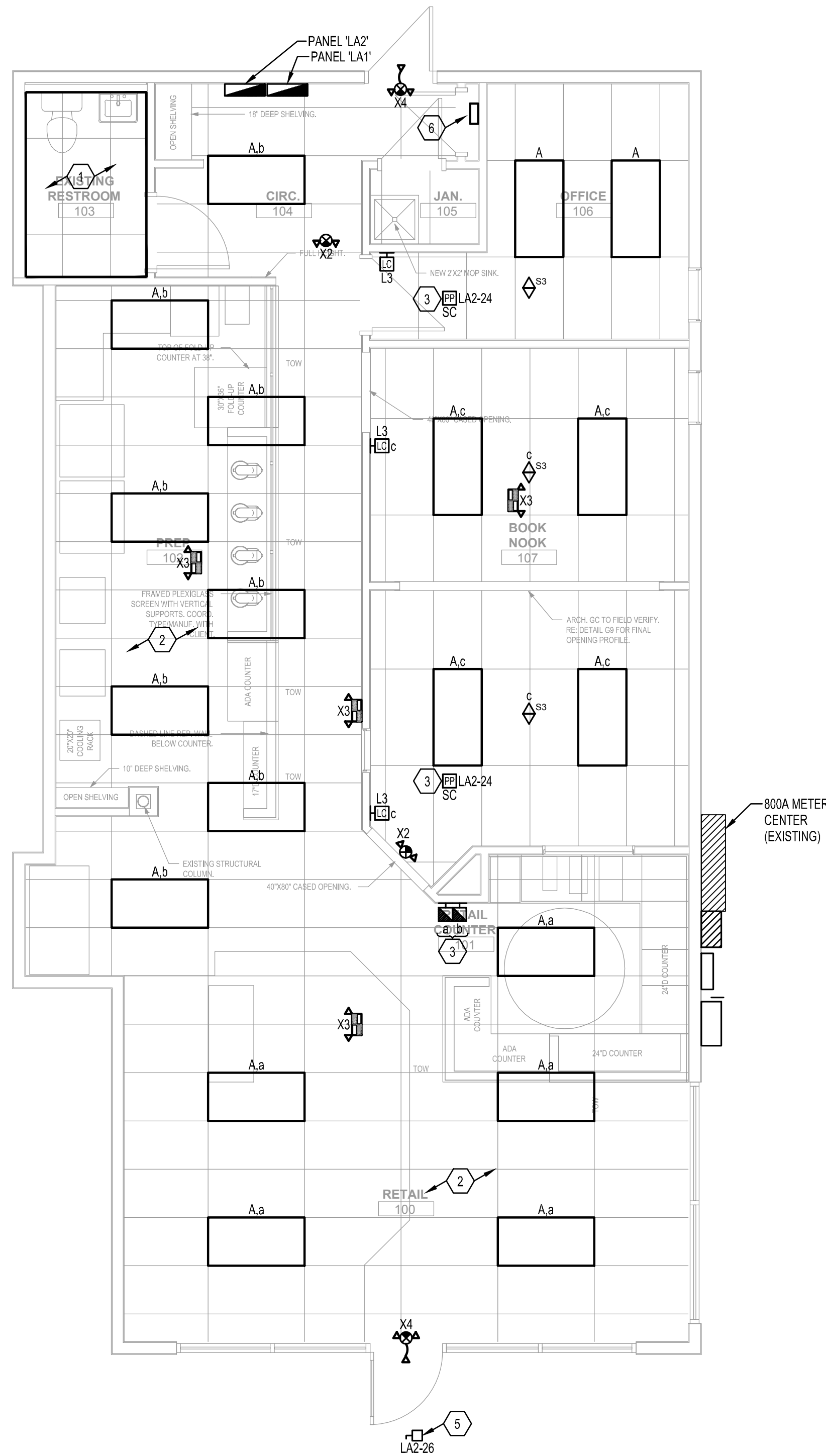
2 LIGHTING CONTROLS DETAIL

SCALE: NO SCALE



3 SWITCHING DETAIL

SCALE: NO SCALE



1 ELECTRICAL LIGHTING PLAN

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



SereniTea Boutique
500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC

REVISION DATES:



E401

ISSUE DATE: 16 JULY 2024
COLLINS WEBB # 22097

ELECTRICAL RISER
DIAGRAM & SCHEDULES

GENERAL NOTES

(NOT ALL NOTES APPLY)

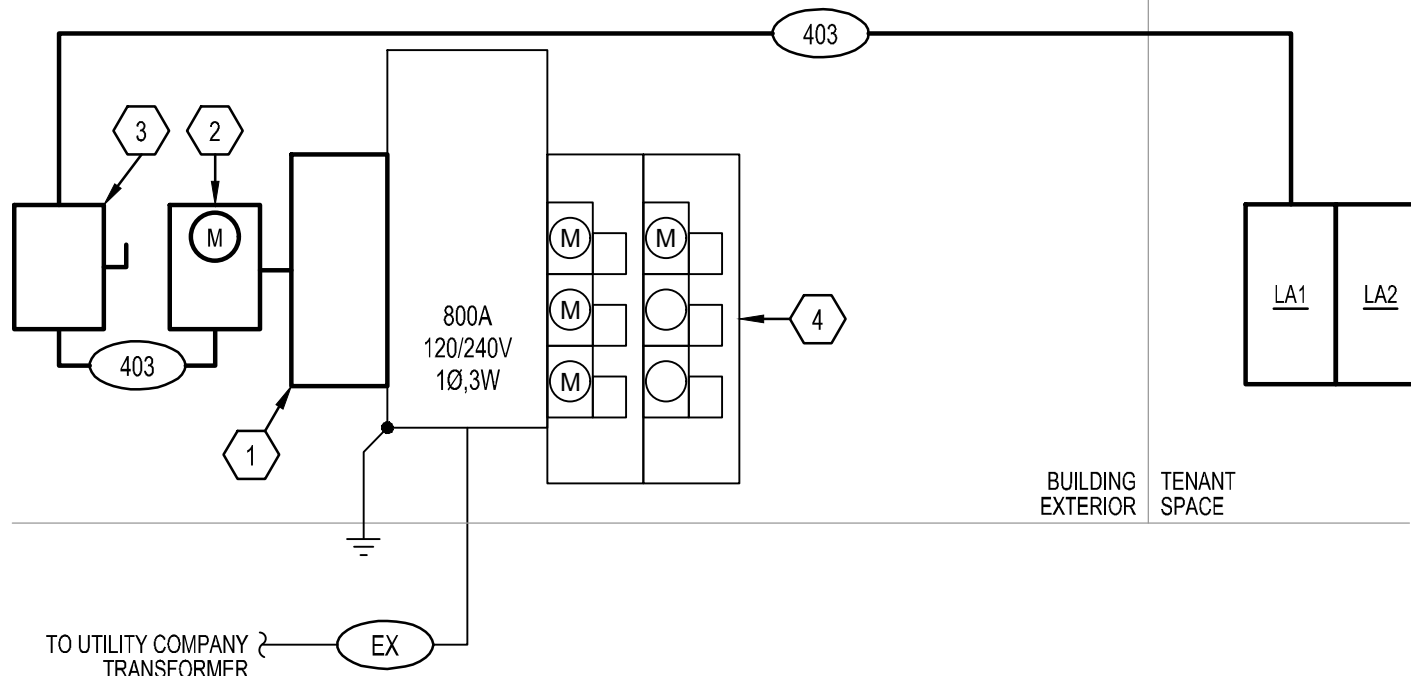
- REFERENCE SHEET E101 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
- COORDINATE MOUNTING HEIGHTS AND LOCATIONS FOR ALL DEVICES WITH ARCHITECT AND/OR INTERIOR ELEVATIONS PRIOR TO ROUGH-IN.
- FIELD VERIFY ALL ELECTRICAL WORK WITH OWNER PRIOR TO START OF PROJECT.

KEYED NOTES:

- PROVIDE METER CENTER TAP BOX TO CONNECT TO EXISTING METER CENTER, EATON #MTB800R.
- PROVIDE 400A, SELF-CONTAINED UTILITY METER PER UTILITY COMPANY STANDARDS. INSTALLATION SHALL MEET ALL UTILITY COMPANY REQUIREMENTS AND LOCAL CODES.
- PROVIDE 400A, NEMA 3R, FUSED SAFETY SWITCH FOR TENANT DISCONNECTING MEANS.
- THREE OF THE EXISTING METERS WILL REMAIN TO SERVE EXISTING TENANTS AND THE HOUSE PANEL. CONSOLIDATE THESE METERS INTO (1) METER STACK AND REMOVE THE STACK CONTAINING (3) SPARE METER SPACES PER EVERY'S REQUEST. PROVIDE CAP ON SIDE OF EXISTING METER STACK TO REMAIN AND RETURN THE REMOVED METER STACK TO THE BUILDING OWNER. CONTACT AMBER AT EVERY TO COORDINATE WORK AS REQUIRED. (785) 215-5923.

GENERAL NOTES

- THIS RISER DIAGRAM REPRESENTS (AS ACCURATELY AS POSSIBLE) THE ELECTRICAL DISTRIBUTION SYSTEM. FIELD VERIFY ALL SIZES OF EQUIPMENT, CONDUCTORS, FUSES, ETC. ALL EQUIPMENT AND CONDUCTORS ARE EXISTING TO REMAIN UNLESS NOTED OTHERWISE.



NEC 220.87 CALCULATION FOR 120/240V, 1Ø SERVICE

PEAK DEMAND OVER LAST 12 MONTHS = 510KVA
DEMAND LOAD OF NEW ADDITION = 71.13KVA

51 x 1.25 + 57.8 = 121.38KVA

125.18KVA @ 120/240V, 1Ø = 505.6 AMPS

EXISTING SERVICE SIZE IS 800 AMPS AT 120/240V, 1Ø (PER SITE VISIT W/ EVERGY)

THE EXISTING SERVICE SIZE IS ADEQUATE.

1 ELECTRICAL RISER DIAGRAM

SCALE: NO SCALE

VOLTAGE DROP CHART

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR 1Ø CIRCUITS

BRANCH CIRCUIT RATING (AMPS)	WIRE SIZE (AWG)	MAXIMUM LENGTH OF BRANCH CIRCUIT (FEET)				
		120V	208V	240V	277V	480V
20A	#12	50	90	110	125	200
	#10	80	150	175	200	350
	#8	140	230	280	320	550
	#6	215	375	430	500	870
30A	#10	50	100	110	130	225
	#8	80	160	180	210	360
	#6	135	250	280	325	560
	#4	220	400	450	525	910

NOTES:

- PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
- CONDUCTOR SIZES ARE BASED ON SOLID COPPER CONDUCTORS FOR WIRES #6 AND LARGER, IN A SINGLE METAL CONDUIT.
- LIMITS FOR CONDUCTOR LENGTH SHOWN ARE BASED ON A MAXIMUM OF 3% VOLTAGE DROP TO COMPLY WITH THE NEC FOR CIRCUITS LOADED UP TO 80% OF THE BRANCH BREAKER RATING. FIELD VERIFY EXACT BRANCH CIRCUIT LENGTHS AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

UNLESS NOTED OTHERWISE, WIRE SIZES CALLED OUT IN PANEL SCHEDULES DO NOT ACCOUNT FOR VOLTAGE DROP. CONTRACTOR SHALL INCREASE WIRE SIZES AS REQUIRED UTILIZING VOLTAGE DROP TABLE PROVIDED.

AFTER DEMOLITION, VERIFY THE QUANTITY OF AVAILABLE CIRCUITS IN THE EXISTING PANELBOARDS IF THE QUANTITY OF AVAILABLE CIRCUITS IS NOT ENOUGH TO COMPLETE THE NEW SCOPE OF WORK, NOTIFY ENGINEER, WHERE NECESSARY, PROVIDE NEW BREAKERS AS REQUIRED.

FEEDER SCHEDULE

THHN/THWN COPPER CONDUCTORS W/ EG CONDUCTOR
XHHW ALUMINUM CONDUCTORS W/ EG CONDUCTOR

CONDUCTORS & GROUND				AMPS
CODE	SETS	CONDUCTORS	RACEWAY	
EX		EXISTING CONDUCTORS TO REMAIN		
403	2	3#3/0,1#3G, (CU)	2"	400

NOTES:

- ALL CONDUCTORS AMPACITY BASED ON THE NEC TABLE 310-16 FOR CONDUCTORS W/ 75°C INSULATION.
- ALL RACEWAY SIZES (EMT/RMC/PVC 40) BASED ON THE NEC TABLE 4(CHAPTER 9), 40% FILL COLUMN.
- ELECTRICAL CONTRACTOR TO VERIFY ALL EQUIPMENT CONDUCTOR TERMINATION TEMPERATURE RATINGS (IE, 60°C OR 75°C), ADJUST CONDUCTOR AMPACITY AND CONDUIT SIZES ACCORDINGLY.
- VERIFY MAXIMUM NO. OF SETS OF SERVICE ENTRANCE CONDUCTORS ALLOWED W/ UTILITY CO.
- EQUIPMENT GROUNDING CONDUCTORS BASED ON 250.122. GROUND TO BE ADJUSTED PER 250.66 FOR SEPARATELY DERIVED SYSTEMS.
- ALUMINUM FEEDERS NOT TO BE USED ON TRANSFORMER SECONDARY CONDUCTORS.

LIGHTING FIXTURE SCHEDULE

FIXT. TYPE	DESCRIPTION & MANUFACTURER OPTIONS	LAMPS NO.	LAMP TYPE	FIXT. VOLT	TOTAL WATTS	FINISH	REMARKS/MOUNTING	NOTES
A	2' x 4' Field Selectable LED Troffer	1	LED	UNV	40W	Standard	Recessed (Jay-in)	
	M# LITHONIA #STAKS 2X4 AL06 SHW7							
X2	Combination LED Exit Sign and Emergency Light Fixture, Universal Mount, Emergency Battery Pack. Provide Arrows as Indicated.	1	LED	UNV	2W		Wall/Ceiling/Pendant	1
	M# EVENLITE#TCXCOM-R-U-W DUAL LITE#BVC-U-R-W							
X3	LED Emergency Light w/ (2) 2-Watt Adjustable LED Heads and Emergency Battery Backup	2	LED	UNV	5W	White	Surface (Wall/Ceiling)	1
	M# EVENLITE#TCL-4-W DUAL LITE#VAD-02L							
X4	Combination LED Exit Sign and Emergency Light Fixture w/ Exterior Rated Remote Emergency Heads, Universal Mount, Emergency Battery Pack. Provide Arrows as Indicated.	1	LED	UNV	5W		Wall/Ceiling/Pendant	1
	M# EVENLITE#TCXCOM-R-U-W-PRVLED2W DUAL LITE#BVC-U-R-W-DK WITH BVO-D-X							

NOTES:

- Circuit Emergency Battery Packs and Exit Signs to Local Lighting Circuit Ahead of Any Means of Control for Proper Operation.

LIGHTING CONTROLS SCHEDULE

FIXTURE TAG	MANUFACTURER	MODEL #	SETTINGS	DESCRIPTION	NOTES
SC	ACUITY BRANDS- nLIGHT	#PPI6 SERIES	REFER TO PLANS FOR CONTROL INTENT	ON/OFF ROOM SWITCH CONTROLLER LINE VOLTAGE - SINGLE RELAY	1,2,4
L3	ACUITY BRANDS- nLIGHT	#PODM	-	ON/OFF LOW VOLTAGE SWITCH WITH 1-CHANNEL CONTROL	1,6
S3	ACUITY BRANDS- nLIGHT	#CM0 SERIES	-	CEILING MOUNT OCCUPANCY SENSOR - SMALL MOTION LOW VOLTAGE	3
WIRE	-	-	-	CATS, CATS/E OR CAT 6 STANDARD OR SOLID. TERMINATED AS RJ45 TIA/EIA-568B	

NOTES:

- COORDINATE ALL MODEL NUMBERS WITH MANUFACTURER PRIOR TO ORDERING. PROVIDE DEVICES TO MEET CONTROL INTENT INDICATED ON THE DRAWINGS.
- PROVIDE 6'-0" OF EXCESS CONTROL WIRING, COILED AND TIED, BETWEEN CEILING MOUNTED OCCUPANCY SENSOR AND CORRESPONDING LOAD CONTROLLER.
- MODIFY LOCATIONS OF CEILING MOUNTED OCCUPANCY SENSORS AS REQUIRED SO THAT NO OCCUPANCY SENSORS IS WITHIN 4'-0" OF AN HVAC SUPPLY DIFFUSER.
- LOCATE DEVICE ABOVE CEILING OR AT STRUCTURE IN ACCESSIBLE LOCATION. LOCATIONS SHOWN ON DRAWINGS ARE SCHEMATIC. ADD ACCESS PANEL WITHIN CEILING IF NECESSARY. COORDINATE ACCESS PANEL LOCATION AND SPECIFICATION DIRECTLY WITH ARCHITECT.
- LOCATION SHOWN ON PLAN FOR REFERENCE ONLY. CONTRACTOR MAY RELOCATE BRIDGE PORTS FOR A MORE ECONOMIC LAYOUT IF DESIRED.
- PROVIDE DEVICES WITH DEFAULT MANUFACTURE MARKINGS ON BUTTONS.
- ROUTE RECEPTACLE CIRCUIT INDICATED ON PLAN AS "CONTROLLED RECEPTACLES" THROUGH PLUG LOAD CONTROLLER FOR AUTOMATIC ON/OFF CONTROL.
- MA OCCUPANCY SENSOR. ONE CONTROLLED CIRCUIT PER PLUG CONTROLLER.
- DEVICE TO BE INSTALLED IN SINGLE GANG BOX. COORDINATE TIME-OF-DAY SCHEDULES WITH OWNER FOR ZONES TO BE ON TIME-OF-DAY CONTROL.
- PENDANT MOUNT DEVICE TO 12" KNOCKOUT ON JUNCTION BOX AS REQUIRED.



307B SW Market St., Lee's Summit, Missouri 64063 | 816.249.2271 | www.collinswebb.com

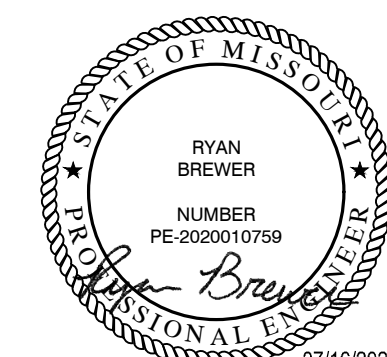
PERMIT DOCUMENTS

SereniTea Boutique

500 SW 3RD ST., UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC

REVISION DATES:



E501

ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 22097

ELECTRICAL SPECIFICATIONS

16000 - ELECTRICAL

GENERAL

DESCRIPTION

DIVISION 16 OF THE SPECIFICATIONS COVERS ALL ELECTRICAL WORK FOR THE PROJECT. WORK SHALL INCLUDE LABOR, MATERIAL, AND ACCESSORIES NECESSARY TO ACCOMPLISH THE WORK AS SPECIFIED AND SHOWN ON THE DRAWINGS, INCLUDING CONNECTION AND CHECKOUTS OF EQUIPMENT FURNISHED BY OTHERS (OTHER TRADES, THE OWNER AND OTHER CONTRACTORS), AND TO ALL EQUIPMENT ITEMS AND AS INDICATED ON DRAWINGS OR AS REQUIRED.

THE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS INCLUDING THE GENERAL CONDITIONS, INCLUDING ALL SUPPLEMENTS ISSUED THEREIN, INSTRUCTIONS TO BIDDERS, AND OTHERS PERTINENT DOCUMENTS ISSUED BY THE ARCHITECT ARE A PART OF THESE SPECIFICATIONS AND ELECTRICAL DRAWINGS. THIS TRADE SHALL CONSULT THEM FOR INSTRUCTIONS WHICH APPLY. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE ELECTRICAL LAYOUT AND WORK INCLUDED. ELECTRICIAN SHALL FOLLOW DRAWINGS IN LAYOUT THE ELECTRICAL WORK AND CONSULT THE DRAWINGS AND LAYOUTS OF OTHER TRADES TO VERIFY LOCATION AND SPACES IN WHICH WORK WILL BE INSTALLED.

CODES, PERMITS, INSPECTION AND COMMISSIONING
INSTALLATION SHALL COMPLY WITH ALL LAWS APPLYING TO ELECTRICAL WORK IN EFFECT, INCLUDING THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), THE NATIONAL ELECTRICAL SAFETY CODE, ALL LOCAL GOVERNING CODES AND ORDINANCES, WITH THE REGULATIONS OF THE SERVING ELECTRICAL UTILITY COMPANY. PROVIDE ALL REQUIRED PERMITS AND INCLUDE THE COST OF SAME IN THE COST OF THE PROJECT. OBTAIN AND PAY FOR (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ALL REQUIRED INSPECTIONS AND REVIEWS. PROVIDE FOR AND PAY ALL EXPENSES (WITHOUT ADDITIONAL EXPENSE TO THE OWNER) ASSOCIATED WITH LIGHTING AND LIGHTING CONTROLS COMMISSIONING. ALL COMMISSIONING DOCUMENTATION SHALL BE CERTIFIED AND GIVEN TO OWNER AND DESIGN PROFESSIONAL.

QUALITY ASSURANCE

THE FOLLOWING INDUSTRY STANDARDS AS APPLICABLE TO ELECTRICAL WORK SHALL APPLY TO THE WORK OF THIS DIVISION EXCEPT THAT, WHERE THE REQUIREMENTS OF THESE SPECIFICATIONS ARE MORE THAN THE LISTED STANDARD, THESE SPECIFICATIONS SHALL TAKE PRECEDENCE.

UL - UNDERWRITERS' LABORATORIES
NEMA - NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION
NECA - NATIONAL ELECTRICAL CONTRACTORS' ASSOCIATION
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM - AMERICAN SOCIETY OF TESTING MATERIALS

ALL MATERIALS SHALL BE NEW, UL LISTED AND LABELED WHERE LABELED MATERIALS ARE AVAILABLE, UN Damaged AND FREE OF DEFECTS AT TIME OF INSTALLATION. MATERIALS OR EQUIPMENT DAMAGED IN SHIPMENT OR OTHERWISE DAMAGED PRIOR TO OR DURING INSTALLATION SHALL NOT BE REPAIRED AT THE JOB SITE, BUT SHALL BE REPLACED WITH NEW MATERIALS, WHEN THE MANUFACTURER'S NAME APPEARS IN THESE SPECIFICATIONS AND DRAWINGS, IT SHALL BE OF THE SAME TYPE, UNLESS OTHERWISE SPECIFIED TO MEET THE FULL REQUIREMENTS OF THE SPECIFICATIONS AND DRAWINGS.

SUBMITTALS

SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT TO THE ARCHITECT FOR ENGINEER'S REVIEW ELECTRONICALLY OR HARD COPIES. INCLUDE SUFFICIENT INFORMATION TO INDICATE COMPLETE COMPLIANCE WITH SPECIFICATIONS. PROVIDE SUBMITTALS AS EARLY AS REQUIRED TO SUPPORT THE PROJECT SCHEDULE. ALLOW ONE WEEK FOR ENGINEER REVIEW TIME. THE ENGINEER'S SUBMITTAL REVIEWS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, OR QUANTITIES; OR FOR OMITTING COMPONENTS OR FITTINGS; OR FOR NOT COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS AND/OR OTHER TRADES.

OWNER RECORDS

ACCUMULATE DURING THE PROGRESS OF THE JOB, THE FOLLOWING DATA IN DUPLICATE, AND PREPARE IN A NEAT BROCHURE OR PACKET FOLDER TO BE TURNED OVER TO THE OWNER AT SUBSTANTIAL COMPLETION: RECORD DRAWINGS PER ABOVE.

ALL WARRANTIES, GUARANTEES, AND MANUFACTURER'S DIRECTION ON EQUIPMENT & MATERIAL FURNISHED.

COMPLETE PLAIN ENGLISH STEP-BY-STEP OPERATING INSTRUCTIONS FOR THE ELECTRICAL SYSTEM. ONE COPY OF THESE INSTRUCTIONS SHALL BE FRAMED AND POSTED AS DIRECTED ON THE PREMISES.

CERTIFIED LIGHTING AND LIGHTING CONTROLS COMMISSIONING AS REQUIRED BY CURRENTLY ADOPTED ENERGY CODE REQUIREMENTS.

MANUFACTURER'S NAMES AND CATALOG NUMBERS
IN SOME INSTANCES, SPECIFIC REFERENCES HAVE BEEN MADE TO ONE OR MORE MANUFACTURER'S NAME AND MODEL OR CATALOG NUMBERS. USE OF NAMES AND CATALOG NUMBERS DOES NOT INDICATE THAT THE EQUIPMENT SPECIFIED IS NECESSARILY AN "OFF THE SHELF" ITEM. VARIATIONS FROM THE REQUIREMENT OF DESIRED FINISH, MATERIAL OR OTHER MODIFICATION.

IN THE CASE OF PANELBOARDS, SAFETY SWITCHES AND OTHER EQUIPMENT REQUIRING WIRE AND CABLE TERMINATIONS, ASCERTAIN THAT LUG SIZES AND WIRING GUTTERS OR WIRING SPACE ALLOWED IS PROPER FOR THE WIRES AND CABLES CONTAINED THEREIN.

WHEN APPROVAL IS GIVEN FOR THE USE OF EQUIPMENT DIFFERING FROM THAT SHOWN ON DRAWINGS IN REGARD TO FOUNDATIONS, SPACE FOR PIPING, DUCTWORK, WIRING, INSULATION, ETC. CHANGES REQUIRED TO ACCOMPLISH SUCH DIFFERENCES SHALL BE ACCOMPLISHED AT NO COST TO THE OWNER.

PROTECTION OF EQUIPMENT

ELECTRICAL EQUIPMENT SHALL BE PROTECTED FROM THE WEATHER, IN PARTICULAR, DRIPPING OR SPLASHING WATER, AT ALL TIMES DURING SHIPMENT, STORAGE AND CONSTRUCTION. MANUFACTURER'S RECOMMENDATIONS WITH REGARD TO STORAGE, PROTECTION, AND HANDLING SHALL BE FOLLOWED.

SHOULD ANY APPARATUS BE SUBJECTED TO POSSIBLE INJURY DUE TO WATER, IT SHALL BE THOROUGHLY DRIED AND PUT THROUGH A DIELECTRIC TEST, AT THE EXPENSE OF THE CONTRACTOR, TO ASCERTAIN THE SUITABILITY OF THE APPARATUS OR IT SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.

DAMAGED OR DEFECTIVE EQUIPMENT - INSPECT ALL ELECTRICAL EQUIPMENT AND MATERIALS PRIOR TO INSTALLATION. INSTALLATION OR PLACEMENT INTO SERVICE OF DAMAGED MATERIALS WITHOUT THE PRIOR WRITTEN CONSENT OF THE OWNER IS PROHIBITED. REPLACE OR REPAIR TO NEW CONDITION, AS CERTIFIED BY THE MANUFACTURER, AND TEST DAMAGED EQUIPMENT IN COMPLIANCE WITH INDUSTRY STANDARDS AT NO ADDITIONAL COST TO THE OWNER. EQUIPMENT REQUIRED FOR THE TESTING SHALL BE PROVIDED BY THE CONTRACTOR.

WORKING CLEARANCE

THE SIZE OF ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS IS BASED ON DIMENSIONS OF A PARTICULAR MANUFACTURER, (GENERALLY THE FIRST NAMED), WHILE OTHER MANUFACTURERS MAY BE ACCEPTABLE, IT IS THE RESPONSIBILITY OF THE TRADE TO DETERMINE IF THE EQUIPMENT PROPOSED WILL FIT IN THE ALLOCATED SPACE.

INSTALL ALL EQUIPMENT IN A MANNER TO PERMIT ACCESS TO ALL SURFACES.

MAINTAIN PROPER CLEARANCE TO MEET ALL SAFETY AND OPERATING CODES, PARTICULARLY N.E.C. INCLUDE ALL REQUIREMENTS DICTATED BY OPERATION, CONTROL, ADJUSTMENT, MAINTENANCE AND POSSIBLE REPLACEMENT OF EQUIPMENT IN DETERMINING CLEARANCE.

SHOULD THERE BE APPARENT VIOLATIONS OF N.E.C. CLEARANCE, NOTIFY THE ARCHITECT-ENGINEER BEFORE PROCEEDING WITH CONNECTION OR PLACEMENT OF EQUIPMENT.

COORDINATION

INSTALLATION STUDIES ARE REQUIRED TO COORDINATE THE ELECTRICAL WORK WITH THE WORK OF OTHER TRADES. PREPARE COORDINATION DRAWINGS AT ACCURATE SCALE WHERE SEVERAL ELEMENTS OF ELECTRICAL OR COMBINED MECHANICAL/STRUCTURAL/ELECTRICAL WORK MUST BE SEQUENCED AND POSITIONED WITH PRECISION IN ORDER TO FIT INTO THE AVAILABLE SPACE.

SHOW THE ACTUAL PHYSICAL DIMENSIONS REQUIRED FOR PROPER INTEGRATION OF EQUIPMENT WITH BUILDING SYSTEMS.

PROVIDE APPROVED SHOP DRAWINGS TO ALL REQUIRED DISCIPLINES AND VERIFY FINAL ELECTRICAL CHARACTERISTICS BEFORE ROUGHING POWER FEEDS TO ANY EQUIPMENT. WHEN ELECTRICAL DATA ON APPROVED SHOP DRAWINGS DIFFERS FROM CONTEMPLATED DESIGN, MAKE NECESSARY ADJUSTMENTS TO THE WIRING, DISCONNECTS, AND BRANCH-CIRCUIT PROTECTION FOR THE EQUIPMENT ACTUALLY INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

DAMAGE FROM INTERFERENCE CAUSED BY INADEQUATE COORDINATION SHALL BE RECTIFIED AT NO ADDITIONAL COST TO THE OWNER.

WORKMANSHIP

ALL WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.

ANY MATERIAL ITEMS OR WORK NOT SHOWN ON THE DRAWINGS, BUT MENTIONED IN THESE SPECIFICATIONS OR VISA-VERSA, OR ANY ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE IN ALL RESPECTS AND READY FOR OPERATION SHALL BE PROVIDED WITHOUT ADDITIONAL COST TO THE OWNER.

THIS TRADE SHALL DO OR HAVE DONE BY COMPETENT TRADESMEN ALL CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF THIS WORK. NO CUTTING IN CONSTRUCTIVE PARTS OF THE BUILDING LIKELY TO IMPAIR ITS STRENGTH SHALL BE DONE WITHOUT THE ARCHITECT-ENGINEER'S WRITTEN APPROVAL.

EXCAVATION AND BACKFILL

EXCAVATION, TRENCHING AND BACKFILLING ARE SPECIFIED IN SECTION EXCAVATION. TRENCHING AND BACKFILLING FOR UTILITIES. CONDUIT IS TO BE INSTALLED AS SPECIFIED FOR PIPELINES. CONDUIT INSTALLED BENEATH FLOOR SLAB SHALL BE A MINIMUM OF 6" BELOW SLAB. BACKFILL OVER CONDUIT SHALL BE COMPACTED AS FOR SLAB BEDDING MATERIAL. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF CONDUIT (PIPE) PENETRATION OF EXTERIOR FOOTINGS. COMPLETE INSTALLATION SHALL CONFORM TO N.E.C.

PENETRATIONS

COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION OF FIRE-STOPPING SPECIFIED IN ARCHITECTURAL SPECIFICATIONS.

ROOFS

COORDINATE ALL ROOF PENETRATIONS WITH ENGINEER, OWNER, AND AS APPLICABLE, THE ROOFING CONTRACTOR PROVIDING A ROOF WARRANTY. KEEP ALL RACKWAY PENETRATIONS WITHIN MECHANICAL EQUIPMENT CURBS WHEREVER POSSIBLE. COORDINATE WITH DIVISION 15, FLASH AND COUNTERFLASH ALL OPENINGS THROUGH ROOF, AND/OR PROVIDE PRE-FABRICATED MOLDED SEALS COMPATIBLE WITH THE ROOF CONSTRUCTION INSTALLED, OR AS REQUIRED BY THE ENGINEER, OWNER, OR ROOFING CONTRACTOR. ALL ROOF PENETRATIONS SHALL BE LEAKTIGHT AT THE TERMINATION OF THE WORK AND SHALL NOT VOID ANY NEW OR EXISTING ROOF WARRANTIES.

WALLS AND FLOORS - SLEEVES FOR RACEWAYS AND CABLES

STEEL PIPE SLEEVES: ASTM A 53A 3MM, TYPE E GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS AND DRIP RINGS.

CAST IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE," EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL WATERSTOP, UNLESS OTHERWISE INDICATED.

FIRESTOPPING - FIRE RESISTANT THROUGH PENETRATION SEALANTS - TWO PART, FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN THROUGH-PENETRATION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE TRAY PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E 814, BY UNDERWRITERS' LABORATORIES, INC., OR OTHER NRTL ACCEPTABLE TO AHJ. ACCEPTABLE MANUFACTURERS - HILTI, INC., 3M CORP. RETICOR SEAL, SPECIFY TECHNOLOGY INC., UNITED STATES GYPSUM COMPANY.

ELECTRICAL SERVICE

SERVICE SHALL BE AS SHOWN ON DRAWINGS.

PROVIDE SECONDARY SERVICE INTO THE BUILDING WITH CONDUIT AND WIRING AS SHOWN ON THE PLANS, INCLUDING, BUT NOT LIMITED TO, UNDERGROUND RACEWAYS AND CABLES AND SECONDARY CONNECTIONS TO UTILITY TRANSFORMERS AS REQUIRED BY SERVING ELECTRICAL UTILITY COMPANY. COORDINATE ALL REQUIREMENTS WITH UTILITY COMPANY PRIOR TO BID.

PROVIDE ALL REQUIRED GROUNDING FOR A COMPLETE SERVICE ENTRANCE GROUNDING SYSTEM. PERMANENTLY AND EFFECTIVELY GROUND AND BOND THE ELECTRICAL INSTALLATION IN A THOROUGH AND EFFICIENT MANNER, AND IN CONFORMANCE (AT A MINIMUM) WITH N.E.C. OR THESE DOCUMENTS, WHERE THEY EXCEED CODE REQUIREMENTS. USE BARE OR INSULATED CONDUCTORS, AS SPECIFIED HEREIN, AND OTHER MATERIALS INDICATED ON THE DRAWINGS.

PROVIDE ALL NECESSARY ENCLOSURES REQUIRED BY THE OWNER FOR THE UTILITY COMPANY METERING. REFER TO DRAWINGS FOR MINIMUM REQUIREMENTS. COORDINATE WITH UTILITY COMPANY PRIOR TO BID FOR ALL REQUIREMENTS.

PRODUCTS

GENERAL

ALL EQUIPMENT OF A PARTICULAR KIND, SUCH AS WIRING DEVICES AND PANELBOARDS AND ALL LIGHTING FIXTURES OF THE SAME TYPE, SHALL BE THE PRODUCT OF THE SAME MANUFACTURER.

PROVIDE ACCESS PANELS FOR ALL EQUIPMENT AND DEVICES REQUIRING SUCH PANELS. SIZE AS REQUIRED FOR PROPER ACCESS AND MAINTENANCE, MINIMUM ACCEPTABLE IS 12 IN BY 12 IN CLEAR OPENING WHERE HAND ACCESS ONLY IS REQUIRED.

PROVIDE LABELS FOR EACH MOTOR CONTROLLER, SAFETY SWITCH, RELAY, PANELBOARD, CONTACTOR, TIMER, CONTROL DEVICE, METER AND CIRCUIT BREAKER. LABELS SHALL BE LAMINATED, PHENOLIC STRIPS 1/16" THICK, AND ENGRAVED TO SHOW BLACK LETTERS ON A WHITE BACKGROUND NOT LESS THAN 1/4" HIGH. SIZE STRIPS TO PROPERLY FIT MANUFACTURER'S BRACKETS AND BE LEGIBLE, WHERE MANUFACTURER'S BRACKETS ARE NOT PROVIDED, MOUNT LABELS WITH PROPER SCREWS, OR AN APPROVED ADHESIVE.

RACEWAYS

CONDUIT, RIGID STEEL, GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.1. FITTINGS SHALL BE PIPE THREADED, MALLEABLE IRON. CONNECTORS SHALL BE INSULATED THROAT TYPE.

CONDUIT, PVC, POLY VINYL CHLORIDE SCHEDULE 40 PIPE SPECIFICALLY MANUFACTURED AND LABELED UL STANDARD 651 FOR USE AS ELECTRICAL CONDUIT. FITTINGS SHALL BE EITHER SOCKET WELDED TYPE OR PIPE THREADED WITH INSULATED THROAT.

CONDUIT, FLEXIBLE METALLIC, GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH GALVANIZED OR SHERADIZED FITTINGS. LISTED PER UL. FITTINGS SHALL BE OF THE SQUEEZE TYPE WITH INSULATED THROATS.

CONDUIT, LIQUIDTIGHT FLEXIBLE METALLIC, GALVANIZED, INTERLOCKED SPIRALLY WOUND STEEL STRIP WITH OVERLAP JACKET OF LIQUID TIGHT PVC, UL LISTED. FITTINGS SHALL BE STEEL OR MALLEABLE IRON INSULATED THROAT, WATER TIGHT.

ELECTRIC METALLIC TUBING, GALVANIZED OR SHERADIZED AND MANUFACTURED IN ACCORDANCE WITH ANSI STANDARD C80.3. FITTINGS 1/2 INCH THROUGH 2 INCH TRADE SIZE SHALL BE COMPRESSION TYPE, MANUFACTURED FROM MALLEABLE IRON OR STEEL, AND RAIN AND/OR CONCRETE-TIGHT AS REQUIRED BY INSTALLATION. POT METAL OR DIE CAST TYPE FITTINGS ARE PROHIBITED, CONNECTORS SHALL BE INSULATED THROAT TYPE.

CONDUCTORS AND CABLES

GENERAL: SERVICE LATERAL AND PANELBOARD FEEDERS SHALL BE OF ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70. SOLID CONDUCTOR FOR NO. 10 AWG AND SMALLER, CONCENTRIC, COMPRESSED STRANDED FOR NO. 8 AWG AND LARGER. ALL FEEDER CONDUCTORS NO. 8 AWG AND LARGER: STRANDED, TYPE THWN-2 OR XHHW-2 INSULATION. ALL CONDUCTORS NO. 10 AWG AND SMALLER, USED FOR POWER AND LIGHTING CIRCUITS, SOLID COPPER, TYPE THWN-2 INSULATION (WET OR DAMP LOCATIONS, OR IN CONDUIT BELOW GRADE OR SLAB), TYPE THHN INSULATION (DRY LOCATIONS ONLY ABOVE GRADE), OR DUAL RATED TYPE THHN/THWN-2. ALL BRANCH CIRCUIT WIRING SHALL NOT BE SMALLER THAN NO. 12 AWG. IF NO CONDUCTOR SIZE IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE CONDUCTORS AND CONDUIT SIZED PER NFPA 70 AND BASED ON THE INDICATED BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE RATING AND NUMBER OF POLES. WHERE NO CIRCUIT SIZE, CONDUCTOR SIZE, AND OVERCURRENT PROTECTIVE DEVICES IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE THREE NO. 12 AWG CONDUCTORS IN 3/4" RACEWAY, AND A 20A SINGLE POLE CIRCUIT BREAKER.

CONDUCTOR INSULATION TYPES: 90-DEGREE C-RATED, TYPE THHN/THWN-2 OR XHHW-2 COMPLYING WITH ICEA S-95-658/NEMA WC70.

COLORS FOR 208/210V CONDUCTORS

PHASE A: BLACK
PHASE B: RED
PHASE C: BLUE
NEUTRAL: WHITE
EQUIPMENT GROUND: GREEN
ISOLATED GROUND: GREEN WITH YELLOW STRIPE

COLORS FOR 480/277V CONDUCTORS

PHASE A: BROWN
PHASE B: ORANGE
PHASE C: YELLOW
NEUTRAL: WHITE
EQUIPMENT GROUND: GREEN

UNLESS NOTED OTHERWISE, SPECIAL PURPOSE CONDUCTORS AND CABLES, SUCH AS LOW VOLTAGE CONTROL AND SHIELDED INSTRUMENT WIRING, SHALL BE AS RECOMMENDED BY THE SYSTEM EQUIPMENT MANUFACTURER.

CONTROL WIRING: STRANDED COPPER CONDUCTORS, 800V INSULATION, OF THE PROPER TYPE, SIZE AND NUMBER AS REQUIRED TO ACCOMPLISH SPECIFIED FUNCTION. MINIMUM SIZE, NO. 14 AWG UNLESS NOTED OTHERWISE.

MC TYPE CABLE CAN BE USED IF ACCEPTED BY LOCAL AUTHORITY AND GOVERNING CODES FOR WHIPS FROM JUNCTION BOX TO LIGHT FIXTURES ONLY. TYPE MC CABLE, 600V, UNJACKETED; ANSI E119 AND E814, UL STANDARDS 44 OR 83 (AS APPLICABLE), AND 1569, NFPA 70 ARTICLE 330; ALUMINUM OR GALVANIZED STEEL, INTERLOCKED ARMOR, THIN-OR XHHW-INSULATED CONDUCTORS; COLOR CODE: ICEA METHOD 1, WITH GREEN INSULATED GROUNDING CONDUCTOR.

PROVIDE A DEDICATED EQUIPMENT-GROUNDING CONDUCTOR, OR BONDING JUNCTION, AS APPLICABLE, AND ALL BRANCH CIRCUITS AND FEEDERS, SIZED IN ACCORDANCE WITH NFPA 70, UNLESS INDICATED AS LARGER ON THE DRAWINGS.

PROVIDE A DEDICATED NEUTRAL (WHERE REQUIRED) AND DEDICATED GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT.

VOLTAGE DROP IN BRANCH CIRCUITS SHALL NOT EXCEED 2%.

GFCI CIRCUITS, DO NOT USE MULTI-CONDUCTOR CIRCUITS, WITH A SHARED NEUTRAL, FOR ANY GFCI BREAKER OR RECEPTACLE CIRCUIT. BRANCH CIRCUITS FEED FROM GFCI CIRCUIT BREAKERS, LIMIT THE ONE-WAY CONDUCTOR LENGTH TO 100 FEET BETWEEN THE PANELBOARD AND THE MOST REMOTE RECEPTACLE OR LOAD ON THE GFCI CIRCUIT.

BOXES

JUNCTION AND PULL BOXES: GALVANIZED PRESSED STEEL WITH GALVANIZED STEEL EXTENSION RINGS OR PLASTER RINGS OR TILE RINGS TO PROVIDE EXPOSED SURFACE FLUSH WITH WALL OR CEILING FINISH. PROVIDE ALL CEILING OUTLET BOXES WITH "NO-BOLT" OR THROUGH AND LOCKWATTED TYPE FIXTURE STUDS.

UNLESS OTHERWISE SPECIFIED, ALL BOXES SHALL BE MADE IN ACCORDANCE WITH NEMA AND N.E.C. STANDARDS AND REQUIREMENTS INSOFAR AS MATERIAL, GAUGES, DIMENSIONS, AND FABRICATION METHODS. BOXES SHALL BEAR THE UL LABEL. WHERE BOXES ARE NOT SIZED ON THE DRAWINGS, THEY SHALL BE SIZED IN ACCORDANCE WITH N.E.C. REQUIREMENTS. FINISH IN STANDARD GRAY ENAMEL, WITH SIDES AND BACK SPOT-WELDED IN POSITION AND THE REMOVABLE SCREW COVER MOUNTED WITH BRASS MACHINE SCREWS.

WIRING DEVICES

SWITCHES: DECORA STYLE, HEAVY DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE-POLE, DOUBLE-POLE, THREE-POLE, OR FOUR-WAY AS NOTED ON DRAWINGS OR AS REQUIRED FOR THE SWITCHING ARRANGEMENTS IN EACH SPACE. HUBBELL #HBL122" OR EQUAL. COORDINATE SWITCH COLORS WITH COVERPLATES AS DESCRIBED ON POWER PLAN.

SWITCHES, SPECIAL PURPOSE, KEY OPERATED, HEAVY-DUTY AC, RATED 20 AMPERES, 120/277 VOLTS, SINGLE OR MULTI-POLE AS NOTED OR AS REQUIRED, HUBBELL #HBL122" OR EQUAL.

RECEPTACLES: DECORA STYLE, THREE WIRE GROUNDING TYPE, 120 VOLT RATED, SPECIFICATION GRADE 20 AMPERES DUPLEX UNLESS NOTED OTHERWISE ON DRAWINGS, HUBBELL #5882 OR EQUAL. COORDINATE RECEPTACLE COLOR WITH COVERPLATE AS DESCRIBED ON POWER PLAN. SINGLE RECEPTACLE, 20 AMPERE, 120 VOLT, SPECIFICATION GRADE, HUBBELL #5901 OR EQUAL.

DUST AND MOISTURE RESISTANT, MELAMINE BODY, NYLON FACE BACKED BY FABRIC REINFORCED NEOPRENE GASKET SLIT TO PROVIDE WIPING ACTION ON CAP BLADES. PASS & SEYMOUR #R307 OR APPROVED EQUAL. GROUND FAULT CIRCUIT INTERRUPTER, NYLON FACE, CLASS A, NEMA 5-20R, SPECIFICATION GRADE, HUBBELL #GF-5362" OR EQUAL.

CORROSION RESISTANT, SIMILAR AND APPROVED EQUAL TO STANDARD RECEPTACLE, EXCEPT FABRICATED FROM MELAMINE PLASTIC WITH NYLON FACE AND EXPOSED METAL PARTS FINISHED TO RESIST CORROSION. (NEMA 5-15R - HUBBELL #52CM1).

ISOLATED GROUND, DUPLEX OR SIMPLEX THREE WIRE GROUNDING TYPE, SPECIFICATION GRADE, ORANGE FACE, GROUND CONTACT FULLY ISOLATED FROM STRAP AND EQUIPPED WITH SCREW TERMINAL. HUBBELL #IG-5362" OR EQUAL.

RECEPTACLES, SPECIAL PURPOSE: SPECIAL PURPOSE OUTLETS SHALL BE AS SCHEDULED ON DRAWINGS.

PLATES: PROVIDE PLATES FOR ALL OUTLET BOXES. PLATES SHALL BE OF SUITABLE CONFIGURATION FOR THE NUMBER AND TYPE OF DEVICES SERVED, SHALL BE ONE PIECE, SHALL OVERLAP OUTLET BOX EDGE AND ROOM SURFACES, AND SHALL BE SMOOTH SANISH NYLON TYPE OF SAME MANUFACTURER AS THE WIRING DEVICES. VERIFY DESIRED MATERIALS AND COLORS WITH ARCHITECT PRIOR TO INSTALLATION.

STANDARD INTERIOR: REFER TO PLANS - COORDINATE ALL COLORS WITH ARCHITECT

INTERIOR DAMP LOCATIONS: STAINLESS STEEL.

EXTERIOR LOCATIONS: FOR UNATTENDED WET LOCATIONS, PROVIDE IN-HOUSE NEMA 3R, UL LABELED PLATES MOLDED FROM A CLEAR HIGH IMPACT ULTRAVIOLET STABILIZED POLYCARBONATE MATERIAL FOR EASY VERIFICATION THAT CORDS ARE PLUGGED IN AND THAT THE GFCI IS FUNCTIONING. COVER PLATES SHALL BE BY THE SAME MANUFACTURER AS THE WIRING DEVICES, COMPLYING WITH NFPA 70 408.8 (A) OR (B) REQUIREMENTS FOR ATTENDED OR UNATTENDED USE AS APPLICABLE.

ACCEPTABLE MANUFACTURERS: HUBBELL, PASS & SEYMOUR, LEVITON AND COOPER.

CABINETS AND ENCLOSURES

FURNISH AND INSTALL FLUSH CABINETS AND ENCLOSURES AS SHOWN ON THE PLANS AND AS HEREIN SPECIFIED. UNIT SHALL BE PROVIDED WITH DEAD FRONT SUB PANEL, RECESSED AS REQUIRED, TO HOUSE CONTROLS. DOOR SHALL BE PROVIDED WITH CONCEALED HINGES AND FLUSH KEY OPERATED LOCK. DOOR AND TRIM SHALL BE PRIME PAINTED FOR FIELD PAINTING TO MATCH WALL FINISHES. PROVIDE KNOCK-OUTS, LOUVERS AND IDENTIFICATION ENGRAVING AS REQUIRED TO MEET FIELD CONDITIONS. EXACT BOXBOX SIZE TO BE COORDINATED WITH EQUIPMENT SUPPLIER.

CIRCUIT DISCONNECTS

SAFETY SWITCHES, SAFETY SWITCHES SHALL CONSIST OF A BOX, FRONT COVER, AND CIRCUIT PROTECTOR DEVICE ALL MANUFACTURED AND ASSEMBLED IN ACCORDANCE WITH NEMA STANDARDS

THE BOX SHALL BE FABRICATED FROM CODE GAUGE GALVANIZED SHEET STEEL IN ACCORDANCE WITH UL LISTING AND LABEL. THE CIRCUIT PROTECTOR DEVICE SHALL BE HEAVY DUTY, QUICKMAKE, QUICK-BREAK FUSED OR UNFUSED SWITCH RATED FOR MOTOR CIRCUITS AND/OR SERVICE ENTRANCE DUTY, IF REQUIRED. UNITS SHALL BE FURNISHED FOR SURFACE OR FLUSH MOUNTING WITH EITHER GENERAL PURPOSE OR RAIN TIGHT ENCLOSURES, AS REQUIRED. FUSED UNITS SHALL BE FURNISHED COMPLETE WITH PROPER FUSES.

PANELBOARDS

SHALL CONSIST OF BOX, INTERIOR, FRONT, AND CIRCUIT PROTECTIVE DEVICES. THE ASSEMBLY SHALL BE UL LISTED AND BE LISTED FOR SERVICE. THE ASSEMBLY SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH NEMA STANDARD PB-1, THE LATEST UL STANDARD (UL-50) AND SHALL HAVE A TURNED EDGE AROUND THE FRONT FOR RIGIDITY AND FOR CLAMPING ON FRONT. PROVIDE STANDARD KNOCKOUTS ON REMOVABLE BOX ENDS. FABRICATE FROM SHEET STEEL AND FINISH WITH BAKED ON GRAY ENAMEL OVER RUST INHIBITOR. EACH FRONT SHALL HAVE A DOOR MOUNTED ON SEM-CONCEALED HINGES WITH A CYLINDER LOCK, INDEX CARD CIRCUIT DIRECTORY MOUNTED BEHIND CLEAR PLASTIC AND HELD IN A METAL FRAME, AND CONCEALED TRIM CLAMPS FOR MOUNTING TO THE BOX. ALL LOCKS SHALL BE MASTER KEYPED AND ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

ALL INTERIORS SHALL BE COMPLETELY FACTORY ASSEMBLED. THE DESIGN OF THE INTERIOR SHALL PERMIT REPLACEMENT OF INDIVIDUAL BRANCH BREAKERS WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT MACHINE DRILLING OR TAPPING. BUS BARS FOR PANELS RATED 800 AMPERES OR MORE SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OR TIN FINISH ALUMINUM 57% CONDUCTIVITY OF RECTANGULAR CROSS-SECTION. BUS BARS FOR PANELS RATED LESS THAN 800 AMPERES SHALL BE TIN PLATED 98% CONDUCTIVITY COPPER OR RECTANGULAR CROSS-SECTION. BUS BAR CONNECTIONS TO BRANCH CIRCUIT BREAKERS SHALL BE THE PHASE SEQUENCE TYPE AND ACCEPT BOLT ON TYPE BREAKERS ONLY. PANELBOARD BUS STRUCTURE AND MAIN BREAKER OR MAIN LUGS SHALL BE RATED AS SCHEDULED ON DRAWING. SUCH RATINGS SHALL BE ESTABLISHED BASED ON HEAT RISE TESTS IN ACCORDANCE WITH UL STANDARDS. GROUP INCOMING CABLE LUGS AT ONE END FOR SEPARATION FROM LOAD SIDE CABLES. EQUIPMENT NEUTRAL BUSSING WITH A LUG FOR EACH BRANCH BREAKER POSITION. INTERIOR SHALL MOUNT TO BOX WITHOUT TOOLS.

BREAKERS SHALL BE QUICKMAKE, QUICK-BREAK, BOLT-ON THERMAL-MAGNETIC MOLDED CASE CIRCUIT BREAKERS, ONE, TWO OR THREE POLE WITH INTEGRAL CROSSBAR FOR MULTIPOLE UNITS, EQUIPPED WITH AN OVERCURRENT, TRIP-FREE, TOGGLE-TYPE OPERATING ACTION AND POSITIVE HANDLE INDICATION OF BREAKER STATUS. CIRCUIT BREAKERS SHALL BE UL LISTED IN ACCORDANCE WITH UL STANDARDS.

EACH PANELBOARD, AS A COMPLETE UNIT, SHALL HAVE A SHORT CIRCUIT RATING EQUAL TO, OR GREATER THAN THE INTEGRATED EQUIPMENT RATINGS SHOWN ON DRAWINGS. THE RATING SHALL BE ESTABLISHED BY TESTING WITH THE OVERCURRENT DEVICES MOUNTED IN THE PANELBOARD. THE SHORT CIRCUIT TESTS ON THE OVERCURRENT DEVICES ON THE STRUCTURE SHALL BE MADE SIMULTANEOUSLY BY CONNECTING THE FAULT TO EACH OVERCURRENT DEVICE WITH THE PANELBOARD CONNECTED TO ITS RATED SUPPLY VOLTAGE.

REFER TO PANELBOARD SCHEDULES FOR FULLY RATED OR SERIES-RATED REQUIREMENTS. SERIES-RATED SYSTEMS ARE NOT ALLOWED UNLESS SPECIFICALLY INDICATED ON PANELBOARD SCHEDULES, WHERE ALLOWED, SERIES-RATED SYSTEMS SHALL BE PROPERLY LABELLED BY NEC REQUIREMENTS.

METHOD OF TESTING SHALL BE PER UL STANDARDS. PANELBOARDS SHALL BE MARKED WITH THEIR MAXIMUM SHORT CIRCUIT CURRENT RATING AT THE SUPPLY VOLTAGE.

APPROVED MANUFACTURERS: SQUARE-D CO. OR EQUAL, BY GE, SIEMENS AND/OR EATON.

OVERCURRENT PROTECTIVE DEVICES

FUSES OF THE PROPER SIZE, RATING AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED IN EACH FUSIBLE DEVICE. FUSES OF 600 VOLTS AND BELOW SHALL BE UL CLASS RK-1, CURRENT-LIMITING, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERE RMS SYMMETRICAL INTERRUPTING CAPACITY ON NON-MOTOR CIRCUITS AND UL CLASS RK-5, TIME-DELAY, DUAL-ELEMENT, 200,000 AMPERES RMS SYMMETRICAL INTERRUPTING CAPACITY ON MOTOR CIRCUITS.

APPROVED MANUFACTURERS: BUSSMANN, LITTELFUSE OR FERRAZ-SHAWMUT (ALL FUSES SHALL BE OF SAME MANUFACTURER TO ENSURE SELECTIVE COORDINATION).

CIRCUIT BREAKERS: CIRCUIT BREAKERS OF THE PROPER SIZE, RATING, AND ELECTRICAL CHARACTERISTICS SHALL BE PROVIDED WHERE CALLED FOR ON DRAWINGS. BREAKERS SHALL BE THERMAL-MAGNETIC MOLDED-CASE WITH

QUICK-MAKE, QUICK-BREAK, OVER CENTER TOGGLE TYPE MECHANISM AND TRIP-FREE HANDLE MECHANISM. THE BREAKER SHALL BE ENCLOSED IN A SUITABLE NEMA RATED ENCLOSURE. BREAKERS SHALL BE OF SAME MANUFACTURER AS THOSE IN THE PANELBOARDS.

TIMESWITCHES

ELECTRONIC TIME SWITCHES: ELECTRONIC, SOLID STATE PROGRAMMABLE UNITS WITH ALPHANUMERIC DISPLAY, COMPLYING WITH UL917. SPST, 30 AMPERE INDUCTIVE OR RESISTIVE, 240VAC, CONTACT RATING, 2 PROGRAMMABLE ON-OFF SET POINTS ON A 24-HOUR SCHEDULE, ALLOWING DIFFERENT SET POINTS FOR EACH DAY OF THE WEEK, ALLOW CONNECTION OF A PHOTOELECTRIC RELAY AS SUBSTITUTE FOR ON-OFF FUNCTION OF A PROGRAM. ASTRONOMIC TIME ON ALL CHANNELS. BATTERY BACKUP FOR SCHEDULES AND TIME CLOCK.

OUTDOOR PHOTOELECTRIC SWITCHES

SOLID STATE, WITH SPST DRY CONTACT RATED FOR 1800-VA TUNGSTEN OR 1000-VA INDUCTIVE, TO OPERATE CONNECTED RELAY, CONTACTOR COILS OR MICROPROCESSOR INPUT, COMPLYING WITH UL 773A.

TELEPHONE AND DATA SYSTEMS

FURNISH AND INSTALL A SYSTEM OF PROPERLY SIZED AND PROPERLY LOCATED OUTLETS WITH ASSOCIATED CONNECTING CONDUIT RUNS, EXTENDING TO PULL BOXES AND TELEPHONE BACKBOARD. FURNISH AND INSTALL RACEWAYS, FOR INCOMING SERVICE WHERE INDICATED.

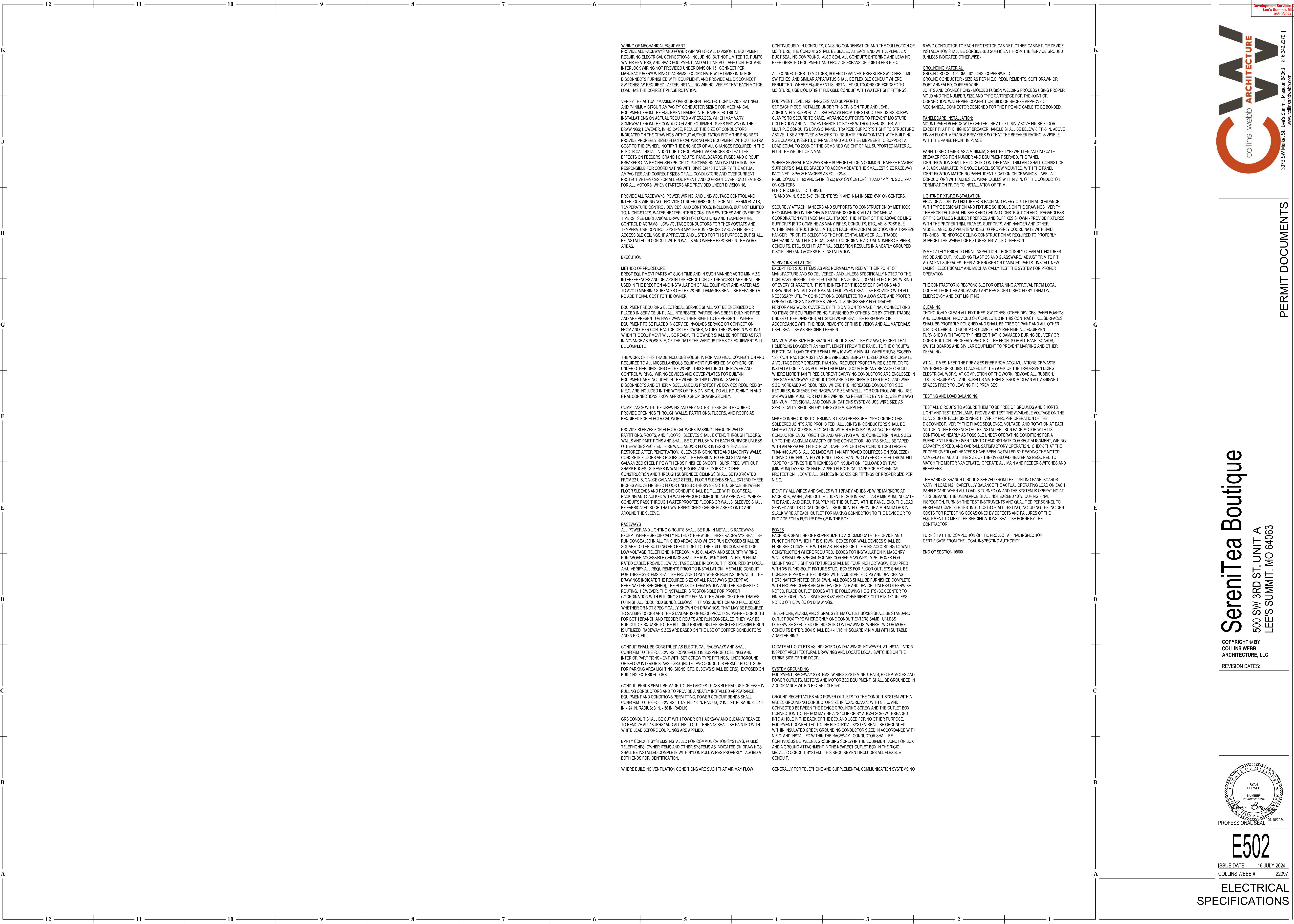
OUTLET BOXES: UNLESS OTHERWISE INDICATED, ALL TELEPHONE OUTLETS AND JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO ACCOMMODATE INTERNAL TERMINAL STRIPS BY TELEPHONE CO.

RACEWAYS: MATERIALS FOR TELEPHONE RACEWAY SYSTEM WORK SHALL BE IN ACCORDANCE WITH CORRESPONDING RACEWAYS SPECIFIED HEREIN AND IN OTHER SECTIONS.

VERIFY LOCATION OF WALL OUTLETS BEFORE ROUGHING IN TO ENSURE COORDINATION WITH OWNER'S FINAL INTENDED FURNITURE LAYOUT. PLAN INDICATIONS SHALL NOT BE SCALED UNLESS DIRECTED. OUTLETS SHALL BE RELOCATED WITHIN ROOMS BEFORE ROUGH-IN WHERE DIRECTED BY ARCHITECT-ENGINEER WITHOUT ADDITIONAL COST TO OWNER.

TELEPHONE SERVICE CONDUIT LAYOUT SHALL HAVE THE JOB SITE APPROVAL OF AN AUTHORIZED REPRESENTATIVE OF THE TELEPHONE CO. COORDINATE WORK SO THAT BOTH TELEPHONE CO. AND OWNER'S REPRESENTATIVES ARE PRESENT AT THE SAME TIME FOR APPROVAL OR CHANGES IN AMPLIE TIME FOR ANY REQUIRED CORRECTIONS BEFORE COMPLETION OF PROJECT.

FROM EACH TELEPHONE OUTLET, PROVIDE 3/4" EMT CONDUIT CONCEALED IN WALL TO 6" ABOVE ACCESSIBLE CEILING OR UP TO STRUCTURE WHERE NO CEILING EXISTS, UNLESS SHOWN OTHERWISE ON DRAWINGS.



WIRING OF MECHANICAL EQUIPMENT
PROVIDE ALL RACEWAYS AND POWER WIRING FOR ALL DIVISION 15 EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, PUMPS, WATER HEATERS, AND HVAC EQUIPMENT, AND ALL LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15. CONNECT PER MANUFACTURER'S WIRING DIAGRAMS. COORDINATE WITH DIVISION 15 FOR DISCONNECTS FURNISHED WITH EQUIPMENT. AND PROVIDE ALL DISCONNECT SWITCHES AS REQUIRED. AFTER INSTALLING WIRING, VERIFY THAT EACH MOTOR LOAD HAS THE CORRECT PHASE ROTATION.

VERIFY THE ACTUAL "MAXIMUM OVERCURRENT PROTECTION" DEVICE RATINGS AND "MINIMUM CIRCUIT AMPACITY" CONDUCTOR SIZING FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. BASE ELECTRICAL INSTALLATIONS ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY SOMEWHAT FROM THE CONDUCTOR AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS; HOWEVER, IN NO CASE, REDUCE THE SIZE OF CONDUCTORS INDICATED ON THE DRAWINGS WITHOUT AUTHORIZATION FROM THE ENGINEER. PROVIDE PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT WITHOUT EXTRA COST TO THE OWNER. NOTIFY THE ENGINEER OF ALL CHANGES REQUIRED IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES SO THAT THE EFFECTS ON FEEDERS, BRANCH CIRCUITS, PANELBOARDS, FUSES AND CIRCUIT BREAKERS CAN BE CHECKED PRIOR TO PURCHASING AND INSTALLATION. BE RESPONSIBLE FOR COORDINATING WITH DIVISION 15 TO VERIFY THE ACTUAL AMPACITIES AND CORRECT SIZES OF ALL CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICES FOR ALL EQUIPMENT, AND CORRECT OVERLOAD HEATERS FOR ALL MOTORS, WHEN STARTERS ARE PROVIDED UNDER DIVISION 16.

PROVIDE ALL RACEWAYS'S POWER WIRING, AND LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER DIVISION 15, FOR ALL THERMOSTATS, TEMPERATURE CONTROL DEVICES, AND CONTROLS, INCLUDING, BUT NOT LIMITED TO, NIGHT-STATS, WATER HEATER INTERLOCKS, TIME SWITCHES AND OVERRIDE TIMERS. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAM. LOW-VOLTAGE CONDUCTORS FOR THERMOSTATS AND TEMPERATURE CONTROL SYSTEMS MAY BE RUN EXPOSED ABOVE FINISHED ACCESSIBLE CEILINGS, IF APPROVED AND LISTED FOR THIS PURPOSE, BUT SHALL BE INSTALLED IN CONDUIT WITHIN WALLS AND WHERE EXPOSED IN THE WORK AREAS.

EXECUTION

METHOD OF PROCEDURE
ERECT EQUIPMENT PARTS AT SUCH TIME AND IN SUCH MANNER AS TO MINIMIZE INTERFERENCES AND DELAYS IN THE EXECUTION OF THE WORK CARE SHALL BE USED IN THE ERECTION AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS TO AVOID MARRING SURFACES OF THE WORK. DAMAGES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

EQUIPMENT REQUIRING ELECTRICAL SERVICE SHALL NOT BE ENERGIZED OR PLACED IN SERVICE UNTIL ALL INTERESTED PARTIES HAVE BEEN DULY NOTIFIED AND ARE PRESENT OR HAVE WAIVED THEIR RIGHT TO BE PRESENT WHERE EQUIPMENT TO BE PLACED IN SERVICE INVOLVES SERVICE OR CONNECTION FROM ANOTHER CONTRACTOR OR THE OWNER, NOTIFY THE OWNER IN WRITING WHEN THE EQUIPMENT WILL BE READY. THE OWNER SHALL BE NOTIFIED AS FAR IN ADVANCE AS POSSIBLE, OF THE DATE THE VARIOUS ITEMS OF EQUIPMENT WILL BE COMPLETE.

THE WORK OF THIS TRADE INCLUDES ROUGH-IN FOR AND FINAL CONNECTION AND REQUIRED TO ALL MISCELLANEOUS EQUIPMENT FURNISHED BY OTHERS, OR UNDER OTHER DIVISIONS OF THE WORK. THIS SHALL INCLUDE POWER AND CONTROL WIRING. WIRING DEVICES AND COVER-PLATES FOR BUILT-IN EQUIPMENT ARE INCLUDED IN THE WORK OF THIS DIVISION. SAFETY DISCONNECTS AND OTHER MISCELLANEOUS PROTECTIVE DEVICES REQUIRED BY N.E.C. ARE INCLUDED IN THE WORK OF THIS DIVISION. DO ALL ROUGHING-IN AND FINAL CONNECTIONS FROM APPROVED SHOP DRAWINGS ONLY.

COMPLIANCE WITH THE DRAWING AND ANY NOTES THEREON IS REQUIRED. PROVIDE OPENINGS THROUGH WALLS, PARTITIONS, FLOORS, AND ROOFS AS REQUIRED FOR ELECTRICAL WORK.

PROVIDE SLEEVES FOR ELECTRICAL WORK PASSING THROUGH WALLS, PARTITIONS, ROOFS, AND FLOORS. SLEEVES SHALL EXTEND THROUGH FLOORS, WALLS AND PARTITIONS AND SHALL BE CUT FLUSH WITH EACH SURFACE, UNLESS OTHERWISE SPECIFIED. FIRE WALL AND/OR FLOOR INTEGRITY SHALL BE RESTORED AFTER PENETRATION. SLEEVES IN CONCRETE AND MASONRY WALLS, CONCRETE FLOORS AND ROOFS, SHALL BE FABRICATED FROM STANDARD GALVANIZED STEEL PIPE WITH ENDS FINISHED SMOOTH, BURR FREE, WITHOUT SHARP EDGES. SLEEVES IN WALLS, ROOFS, AND FLOORS OF OTHER CONSTRUCTION AND THROUGH SUSPENDED CEILINGS SHALL BE FABRICATED FROM 22 U.S. GAUGE GALVANIZED STEEL. FLOOR SLEEVES SHALL EXTEND THREE INCHES ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED. SPACE BETWEEN FLOOR SLEEVES AND PASSING CONDUIT SHALL BE FILLED WITH DUCT SEAL PACKING AND CAULKED WITH WATERPROOF COMPOUND AS APPROVED. WHERE CONDUITS PASS THROUGH WATERPROOFED FLOORS OR WALLS, SLEEVES SHALL BE FABRICATED SUCH THAT WATERPROOFING CAN BE FLASHED ONTO AND AROUND THE SLEEVE.

RACEWAYS
ALL POWER AND LIGHTING CIRCUITS SHALL BE RUN IN METALLIC RACEWAYS EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. THESE RACEWAYS SHALL BE RUN CONCEALED IN ALL FINISHED AREAS, AND WHERE RUN EXPOSED SHALL BE SQUARE TO THE BUILDING AND HELD TIGHT TO THE BUILDING CONSTRUCTION. LOW VOLTAGE, TELEPHONE, INTERCOM, MUSIC, ALARM AND SECURITY WIRING RUN ABOVE ACCESSIBLE CEILINGS SHALL BE RUN USING INSULATED, PLENUM RATED CABLE. PROVIDE LOW VOLTAGE CABLE IN CONDUIT IF REQUIRED BY LOCAL A.U.I. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION. METALLIC CONDUIT FOR THESE SYSTEMS SHALL BE PROVIDED ONLY WHERE RUN INSIDE WALLS. THE DRAWINGS INDICATE THE REQUIRED SIZE OF ALL RACEWAYS (EXCEPT AS HEREINAFTER SPECIFIED). THE POINTS OF TERMINATION AND THE SUGGESTED ROUTING, HOWEVER, THE INSTALLER IS RESPONSIBLE FOR PROPER COORDINATION WITH BUILDING STRUCTURE AND THE WORK OF OTHER TRADES. FURNISH ALL REQUIRED BENDS, ELBOWS, FITTINGS, JUNCTION AND PULL BOXES, WHETHER OR NOT SPECIFICALLY SHOWN ON DRAWINGS, THAT MAY BE REQUIRED TO SATISFY CODES AND THE STANDARDS OF GOOD PRACTICE. WHERE CONDUITS FOR BOTH BRANCH AND FEEDER CIRCUITS ARE RUN CONCEALED, THEY MAY BE RUN OUT OF SQUARE TO THE BUILDING PROVIDING THE SHORTEST POSSIBLE RUN IS UTILIZED. RACEWAY SIZES ARE BASED ON THE USE OF COPPER CONDUCTORS AND N.E.C. FILL.

CONDUIT SHALL BE CONSTRUED AS ELECTRICAL RACEWAYS AND SHALL CONFORM TO THE FOLLOWING: CONCEALED IN SUSPENDED CEILINGS AND INTERIOR PARTITIONS - EMT WITH SET SCREW TYPE FITTINGS. UNDERGROUND OR BELOW INTERIOR SLABS - GRS. (NOTE: PVC CONDUIT IS PERMITTED OUTSIDE FOR PARKING AREA LIGHTING, SIGNS, ETC. ELBOWS SHALL BE GRS). EXPOSED ON BUILDING EXTERIOR - GRS.

CONDUIT BENDS SHALL BE MADE TO THE LARGEST POSSIBLE RADIUS FOR EASE IN PULLING CONDUCTORS AND TO PROVIDE A NEATLY INSTALLED APPEARANCE. EQUIPMENT AND CONDITIONS PERMITTING, POWER CONDUIT BENDS SHALL CONFORM TO THE FOLLOWING: 1-1/2 IN. - 18 IN. RADIUS; 2 IN. - 24 IN. RADIUS; 2-1/2 IN. - 24 IN. RADIUS; 3 IN. - 36 IN. RADIUS.

GRS CONDUIT SHALL BE CUT WITH POWER OR HACKSAW AND CLEANLY REAMED TO REMOVE ALL "BURRS" AND ALL FIELD CUT THREADS SHALL BE PAINTED WITH WHITE LEAD BEFORE COUPLINGS ARE APPLIED.

EMPTY CONDUIT SYSTEMS INSTALLED FOR COMMUNICATION SYSTEMS, PUBLIC TELEPHONES, OWNER ITEMS AND OTHER SYSTEMS AS INDICATED ON DRAWINGS SHALL BE INSTALLED COMPLETE WITH NYLON PULL WIRES PROPERLY TAGGED AT BOTH ENDS FOR IDENTIFICATION.

WHERE BUILDING VENTILATION CONDITIONS ARE SUCH THAT AIR MAY FLOW

CONTINUOUSLY IN CONDUITS, CAUSING CONDENSATION AND THE COLLECTION OF MOISTURE, THE CONDUITS SHALL BE SEALED AT EACH END WITH A PLIABLE, NON-FLAMMABLE SEALING COMPOUND. ALSO SEAL ALL CONDUITS ENTERING AND LEAVING REFRIGERATED EQUIPMENT AND PROVIDE EXPANSION JOINTS PER N.E.C.

ALL CONNECTIONS TO MOTORS, SOLENOID VALVES, PRESSURE SWITCHES, LIMIT SWITCHES, AND SIMILAR APPARATUS SHALL BE FLEXIBLE CONDUIT WHERE PERMITTED. WHERE EQUIPMENT IS INSTALLED OUTDOORS OR EXPOSED TO MOISTURE, USE LIQUIDTIGHT FLEXIBLE CONDUIT WITH WATER TIGHT FITTINGS.

EQUIPMENT LEVELING, HANGERS AND SUPPORTS
SET EACH PIECE INSTALLED UNDER THIS DIVISION TRUE AND LEVEL. ADEQUATELY SUPPORT ALL RACEWAYS FROM THE STRUCTURE USING SCREW CLAMPS TO SECURE TO SAME, ARRANGE SUPPORTS TO PREVENT MOISTURE COLLECTION AND ALLOW ENTRANCE TO BOXES WITHOUT BENDS. INSTALL MULTIPLE CONDUITS USING CHANNEL, TRAPEZE SUPPORTS TIGHT TO STRUCTURE ABOVE. USE APPROVED SPACERS TO INSULATE FROM CONTACT WITH BUILDING. SIZE CLAMPS, INSERTS, CHANNELS AND ALL OTHER MEMBERS TO SUPPORT A LOAD EQUAL TO 200% OF THE COMBINED WEIGHT OF ALL SUPPORTED MATERIAL PLUS THE WEIGHT OF A MAN.

WHERE SEVERAL RACEWAYS ARE SUPPORTED ON A COMMON TRAPEZE HANGER, SUPPORTS SHALL BE SPACED TO ACCOMMODATE THE SMALLEST SIZE RACEWAY INVOLVED. SPACE HANGERS AS FOLLOWS:
RIGID CONDUIT: 1/2 AND 3/4 IN. SIZE: 6'-0" ON CENTERS; 1 AND 1-1/4 IN. SIZE: 9'-0" ON CENTERS
ELECTRIC METALLIC TUBING: 1/2 AND 3/4 IN. SIZE: 5'-0" ON CENTERS; 1 AND 1-1/4 IN. SIZE: 6'-0" ON CENTERS.

SECURELY ATTACH HANGERS AND SUPPORTS TO CONSTRUCTION BY METHODS RECOMMENDED IN THE "NECA STANDARDS OF INSTALLATION" MANUAL. COORDINATION WITH MECHANICAL TRADES: THE INTENT OF THE ABOVE CEILING SUPPORTS IS TO COMBINE AS MANY PIPES, CONDUITS, ETC. AS IS POSSIBLE WITHIN SAFE STRUCTURAL LIMITS, ON EACH HORIZONTAL SECTION OF A TRAPEZE HANGER. PRIOR TO SELECTING THE HORIZONTAL MEMBER, ALL TRADES, MECHANICAL AND ELECTRICAL, SHALL COORDINATE ACTUAL NUMBER OF PIPES, CONDUITS, ETC., SUCH THAT FINAL SELECTION RESULTS IN A NEATLY GROUPED, DISCIPLINED AND ACCESSIBLE INSTALLATION.

WIRING INSTALLATION
EXCEPT FOR SUCH ITEMS AS ARE NORMALLY WIRED AT THEIR POINT OF MANUFACTURE AND SO DELIVERED, - UNLESS SPECIFICALLY NOTED TO THE CONTRARY HEREIN - THE ELECTRICAL TRADE SHALL DO ALL ELECTRICAL WIRING OF EVERY CHARACTER. IT IS THE INTENT OF THESE SPECIFICATIONS AND DRAWINGS THAT ALL SYSTEMS AND EQUIPMENT SHALL BE PROVIDED WITH ALL NECESSARY UTILITY CONNECTIONS, COMPLETED TO ALLOW SAFE AND PROPER OPERATION OF SAID SYSTEMS, WHEN IT IS NECESSARY FOR TRADES PERFORMING WORK COVERED BY THIS DIVISION TO MAKE FINAL CONNECTIONS TO ITEMS OF EQUIPMENT BEING FURNISHED BY OTHERS, OR BY OTHER TRADES UNDER OTHER DIVISIONS. ALL SUCH WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DIVISION AND ALL MATERIALS USED SHALL BE AS SPECIFIED HEREIN.

MINIMUM WIRE SIZE FOR BRANCH CIRCUITS SHALL BE #12 AWG, EXCEPT THAT MOTORS RUNS LONGER THAN 100 FT. LENGTH FROM THE PANEL TO THE CIRCUITS ELECTRICAL LOAD CENTER SHALL BE #10 AWG MINIMUM. WHERE RUNS EXCEED 150', CONTRACTOR MUST ENSURE WIRE SIZE BEING UTILIZED DOES NOT CREATE A VOLTAGE DROP GREATER THAN 3%. REQUEST PROPER WIRE SIZE PRIOR TO INSTALLATION. A 3% VOLTAGE DROP MAY OCCUR ON ANY BRANCH CIRCUIT WHERE MORE THAN THREE CURRENT CARRYING CONDUCTORS ARE ENCLOSED IN THE SAME RACEWAY, CONDUCTORS ARE TO BE DERATED PER N.E.C. AND WIRE SIZE INCREASED AS REQUIRED. WHERE THE INCREASED CONDUCTOR SIZE REQUIRES, INCREASE THE RACEWAY SIZE AS WELL. FOR CONTROL WIRING, USE #14 AWG MINIMUM. FOR FIXTURE WIRING, AS PERMITTED BY N.E.C., USE #18 AWG MINIMUM. FOR SIGNAL AND COMMUNICATIONS SYSTEMS USE WIRE SIZE AS SPECIFICALLY REQUIRED BY THE SYSTEM SUPPLIER.

MAKE CONNECTIONS TO TERMINALS USING PRESSURE TYPE CONNECTORS. SOLDERED JOINTS ARE PROHIBITED. ALL JOINTS IN CONDUCTORS SHALL BE MADE AT AN ACCESSIBLE LOCATION WITHIN A BOX BY TWISTING THE BARE CONDUCTOR ENDS TOGETHER AND APPLYING A WIRE CONNECTOR IN ALL SIZES UP TO THE MAXIMUM CAPACITY OF THE CONNECTOR. JOINTS SHALL BE TAPED WITH AN APPROVED ELECTRICAL TAPE. SPLICES FOR CONDUCTORS LARGER THAN #10 AWG SHALL BE MADE WITH AN APPROVED COMPRESSION (SQUEEZE) CONNECTOR INSULATED WITH NOT LESS THAN TWO LAYERS OF ELECTRICAL FILL TAPE TO 1.5 TIMES THE THICKNESS OF INSULATION, FOLLOWED BY TWO (MINIMUM) LAYERS OF HALF-LAPPED ELECTRICAL TAPE FOR MECHANICAL PROTECTION. LOCATE ALL SPLICES IN BOXES OR FITTINGS OF PROPER SIZE PER N.E.C.

IDENTIFY ALL WIRES AND CABLES WITH BRADY ADHESIVE WIRE MARKERS AT EACH BOX, PANEL, AND OUTLET. IDENTIFICATION SHALL, AS A MINIMUM, INDICATE THE PANEL AND CIRCUIT SUPPLYING THE OUTLET. AT THE PANEL END, THE LOAD SERVED AND ITS LOCATION SHALL BE INDICATED. PROVIDE A MINIMUM OF 6 IN. SLACK WIRE AT EACH OUTLET FOR MAKING CONNECTION TO THE DEVICE OR TO PROVIDE FOR A FUTURE DEVICE IN THE BOX.

BOXES
EACH BOX SHALL BE OF PROPER SIZE TO ACCOMMODATE THE DEVICE AND FUNCTION FOR WHICH IT IS SHOWN. BOXES FOR WALL DEVICES SHALL BE FURNISHED COMPLETE WITH PLASTER RING OR TILE RING ACCORDING TO WALL CONSTRUCTION WHERE REQUIRED. BOXES FOR INSTALLATION IN MASONRY WALLS SHALL BE SPECIAL SQUARE CORNER MASONRY TYPE. BOXES FOR MOUNTING OF LIGHTING FIXTURES SHALL BE FOUR INCH OCTAGON, EQUIPPED WITH 3/8 IN. "NO-BOLT" FIXTURE STUD. BOXES FOR FLOOR OUTLETS SHALL BE CONCRETE PROOF STEEL BOXES WITH ADJUSTABLE TOPS AND DEVICES AS HEREINAFTER NOTED OR SHOWN. ALL BOXES SHALL BE FURNISHED COMPLETE WITH PROPER COVER AND/OR DEVICE PLATE AND DEVICE. UNLESS OTHERWISE NOTED, PLACE OUTLET BOXES AT THE FOLLOWING HEIGHTS (BOX CENTER TO FINISH FLOOR): WALL SWITCHES 48" AND CONVENIENCE OUTLETS 18" UNLESS NOTED OTHERWISE ON DRAWINGS.

TELEPHONE, ALARM, AND SIGNAL SYSTEM OUTLET BOXES SHALL BE STANDARD OUTLET BOX TYPE WHERE ONLY ONE CONDUIT ENTERS SAME. UNLESS OTHERWISE SPECIFIED OR INDICATED ON DRAWINGS, WHERE TWO OR MORE CONDUITS ENTER, BOX SHALL BE 4-11/16 IN. SQUARE MINIMUM WITH SUITABLE ADAPTER RING.

LOCATE ALL OUTLETS AS INDICATED ON DRAWINGS; HOWEVER, AT INSTALLATION INSPECT ARCHITECTURAL DRAWINGS AND LOCATE LOCAL SWITCHES ON THE STRIKE SIDE OF THE DOOR.

SYSTEM GROUNDING
EQUIPMENT, RACEWAY SYSTEMS, WIRING SYSTEM NEUTRALS, RECEPTACLES AND POWER OUTLETS, MOTORS AND MOTORIZED EQUIPMENT, SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. ARTICLE 250.

GROUND RECEPTACLES AND POWER OUTLETS TO THE CONDUIT SYSTEM WITH A GREEN GROUNDING CONDUCTOR SIZE IN ACCORDANCE WITH N.E.C. AND CONNECTED BETWEEN THE DEVICE GROUNDING SCREW AND THE OUTLET BOX. CONNECTION TO THE BOX MAY BE A "C" CLIP OR BY A 1/2024 SCREW THREADED INTO A HOLE IN THE BACK OF THE BOX AND USED FOR NO OTHER PURPOSE. EQUIPMENT CONNECTED TO THE ELECTRICAL SYSTEM SHALL BE GROUNDED WITHIN INSULATED GREEN GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH N.E.C. AND INSTALLED WITHIN THE RACEWAY. CONDUCTOR SHALL BE CONTINUOUS BETWEEN A GROUNDING SCREW IN THE EQUIPMENT JUNCTION BOX AND A GROUND ATTACHMENT IN THE NEAREST OUTLET BOX IN THE RIGID METALLIC CONDUIT SYSTEM. THIS REQUIREMENT INCLUDES ALL FLEXIBLE CONDUIT.

GENERALLY FOR TELEPHONE AND SUPPLEMENTAL COMMUNICATION SYSTEMS NO

6 AWG CONDUCTOR TO EACH PROTECTOR CABINET, OTHER CABINET, OR DEVICE INSTALLATION SHALL BE CONSIDERED SUFFICIENT. FROM THE SERVICE GROUND (UNLESS INDICATED OTHERWISE).

GROUNDING MATERIAL
GROUND-RODS - 1/2" DIA., 10' LONG, COPPERWELD
GROUND CONDUCTOR - SIZE AS PER N.E.C. REQUIREMENTS, SOFT DRAWN OR SOFT ANNEALED, COPPER WIRE.
JOINTS AND CONNECTIONS - MOLDED FUSION WELDING PROCESS USING PROPER MOLD AND THE NUMBER, SIZE AND TYPE CARTRIDGE FOR THE JOINT OR CONNECTION. WATERPIPE CONNECTION, SILICON BRONZE APPROVED.
MECHANICAL CONNECTOR DESIGNED FOR THE PIPE AND CABLE TO BE BONDED.

PANELBOARD INSTALLATION
MOUNT PANELBOARDS WITH CENTERLINE AT 5 FT. -6IN. ABOVE FINISH FLOOR, EXCEPT THAT THE HIGHEST BREAKER HANDLE SHALL BE BELOW 6 FT. -5 IN. ABOVE FINISH FLOOR. ARRANGE BREAKERS SO THAT THE BREAKER RATING IS VISIBLE WITH THE PANEL FRONT IN PLACE.

PANEL DIRECTORIES, AS A MINIMUM, SHALL BE TYPEWRITTEN AND INDICATE BREAKER POSITION NUMBER AND EQUIPMENT SERVED. THE PANEL IDENTIFICATION SHALL BE LOCATED ON THE PANEL TRIM AND SHALL CONSIST OF A BLACK LAMINATED PHENOLIC LABEL, SCREW MOUNTED, WITH THE PANEL IDENTIFICATION MATCHING PANEL IDENTIFICATION ON DRAWINGS. LABEL ALL CONDUCTORS WITH ADHESIVE WRAP LABELS WITHIN 2 IN. OF THE CONDUCTOR TERMINATION PRIOR TO INSTALLATION OF TRIM.

LIGHTING FIXTURE INSTALLATION
PROVIDE A LIGHTING FIXTURE FOR EACH AND EVERY OUTLET IN ACCORDANCE WITH TYPE DESIGNATION AND FIXTURE SCHEDULE ON THE DRAWINGS. VERIFY THE ARCHITECTURAL FINISHES AND CEILING CONSTRUCTION AND - REGARDLESS OF THE CATALOG NUMBER PREFIXES AND SUFFIXES SHOWN - PROVIDE FIXTURES WITH THE PROPER TRIM, FRAMES, SUPPORTS, AND HANGER AND OTHERS. MISCELLANEOUS APPURTENANCES TO PROPERLY COORDINATE WITH SAID FINISHES. REINFORCE CEILING CONSTRUCTION AS REQUIRED TO PROPERLY SUPPORT THE WEIGHT OF FIXTURES INSTALLED THEREON.

IMMEDIATELY PRIOR TO FINAL INSPECTION: THOROUGHLY CLEAN ALL FIXTURES INSIDE AND OUT, INCLUDING PLASTICS AND GLASSWARE. ADJUST TRIM TO FIT ADJACENT SURFACES. REPLACE BROKEN OR DAMAGED PARTS. INSTALL NEW LAMPS. ELECTRICALLY AND MECHANICALLY TEST THE SYSTEM FOR PROPER OPERATION.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVAL FROM LOCAL CODE AUTHORITIES AND MAKING ANY REVISIONS DIRECTED BY THEM ON EMERGENCY AND EXIT LIGHTINGS.

CLEANING
THOROUGHLY CLEAN ALL FIXTURES, SWITCHES, OTHER DEVICES, PANELBOARDS, AND EQUIPMENT PROVIDED OR CONNECTED IN THIS CONTRACT. ALL SURFACES SHALL BE PROPERLY POLISHED AND SHALL BE FREE OF PAINT AND ALL OTHER DIRT OR DEBRIS. TOUCHUP OR COMPLETELY REFINISH ALL EQUIPMENT FURNISHED WITH FACTORY FINISHES THAT IS DAMAGED DURING DELIVERY OR CONSTRUCTION. PROPERLY PROTECT THE FRONTS OF ALL PANELBOARDS, SWITCHBOARDS AND SIMILAR EQUIPMENT TO PREVENT MARRING AND OTHER DEFACING.

AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIALS OR RUBBISH CAUSED BY THE WORK OF THE TRADESMEN DOING ELECTRICAL WORK. AT COMPLETION OF THE WORK, REMOVE ALL RUBBISH, TOOLS, EQUIPMENT, AND SURPLUS MATERIALS. BROOM CLEAN ALL ASSIGNED SPACES PRIOR TO LEAVING THE PREMISES.

TESTING AND LOAD BALANCING

TEST ALL CIRCUITS TO ASSURE THEM TO BE FREE OF GROUNDS AND SHORTS. LIGHT AND TEST EACH LAMP. PROVE AND TEST THE AVAILABLE VOLTAGE ON THE LOAD SIDE OF EACH DISCONNECT. VERIFY PROPER OPERATION OF THE DISCONNECT. VERIFY THE PHASE SEQUENCE, VOLTAGE, AND ROTATION AT EACH MOTOR IN THE PRESENCE OF THE INSTALLER. RUN EACH MOTOR WITH ITS CONTROL AS NEARLY AS POSSIBLE UNDER OPERATING CONDITIONS FOR A SUFFICIENT LENGTH OF TIME TO DEMONSTRATE CORRECT ALIGNMENT, WIRING CAPACITY, SPEED, AND OVERALL SATISFACTORY OPERATION. CHECK THAT THE PROPER OVERLOAD HEATERS HAVE BEEN INSTALLED BY READING THE MOTOR NAMEPLATE. ADJUST THE SIZE OF THE OVERLOAD HEATER AS REQUIRED TO MATCH THE MOTOR NAMEPLATE. OPERATE ALL MAIN AND FEEDER SWITCHES AND BREAKERS.

THE VARIOUS BRANCH CIRCUITS SERVED FROM THE LIGHTING PANELBOARDS VARY IN LOADING. CAREFULLY BALANCE THE ACTUAL OPERATING LOAD ON EACH PANELBOARD WHEN ALL LOAD IS TURNED ON AND THE SYSTEM IS OPERATING AT 100% DEMAND. THE UNBALANCE SHALL NOT EXCEED 10%. DURING FINAL INSPECTION, FURNISH THE TEST INSTRUMENTS AND QUALIFIED PERSONNEL TO PERFORM COMPLETE TESTING. COSTS OF ALL TESTING, INCLUDING THE INCIDENT COSTS FOR RETESTING OCCASIONED BY DEFECTS AND FAILURES OF THE EQUIPMENT TO MEET THE SPECIFICATIONS, SHALL BE BORNE BY THE CONTRACTOR.

FURNISH AT THE COMPLETION OF THE PROJECT A FINAL INSPECTION CERTIFICATE FROM THE LOCAL INSPECTING AUTHORITY.

END OF SECTION 16000

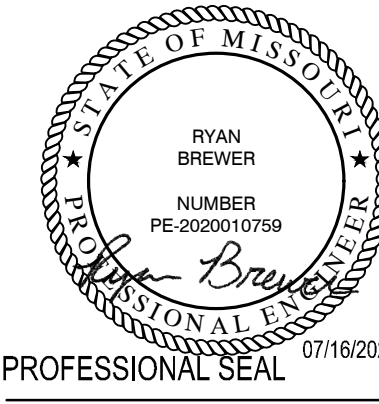


PERMIT DOCUMENTS

SereniTea Boutique
500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC

REVISION DATES:



E502

ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 22097

**ELECTRICAL
SPECIFICATIONS**



SereniTea Boutique
500 SW 3RD ST., UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC

REVISION DATES:



P101

ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 22097

PLUMBING NOTES, SYMBOLS
& ABBREVIATIONS

GENERAL PLUMBING NOTES

- ALL WORK SHALL BE IN CONFORMANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
- PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS AND ALL PLUMBING SYSTEMS EQUIPMENT MANUALS INCLUDING WARRANTIES.
- COORDINATE THE COMPLETE INSTALLATION OF SYSTEMS TO AVOID CONFLICT WITH OTHER TRADES.
- COORDINATE ALL ABOVE SLAB AND UNDER SLAB SANITARY AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS AND COLUMN FOOTINGS. ALL SOL AND WASTE PIPING SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER. ALL GREASE WASTE PIPING SHALL BE ROUTED AT 1/4" PER FOOT SLOPE MINIMUM.
- COORDINATE ALL FLOOR DRAINS, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUMB AND FLUSH WITHOUT CRACKS, RISER IN THE SLAB, OR VOIDS AROUND GRATES OR TOPS. ALL CLEANOUTS SHALL BE INSTALLED ALONG WALLS AT 50'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT. ANY DRAIN GRATES THAT ARE DAMAGED AS A RESULT OF OTHER CONSTRUCTION PRIOR TO RELEASE OF THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATE AT NO EXPENSE OF THE OWNER.
- ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS.
- PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS IF REQUIRED BY CODE OR OWNER.
- PLUMBING VENTS THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES.
- ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
- PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.
- CONTRACTOR TO FULLY INVESTIGATE ALL EXISTING PIPING TO REMAIN TO INSURE EXISTING PIPING IS IN GOOD REPAIR. IF ANY EXISTING PIPING IS FOUND TO BE DAMAGED REPLACE WITH LIKE.

PLUMBING ABBREVIATIONS

AD	AREA DRAIN, ACCESS DOOR	IE	INVERT ELEVATION
APC	ABOVE FINISH CEILING	LP	LIQUIFIED PETROLEUM
AFG	ABOVE FINISH GRADE	MBH	1000 BTU PER HOUR
AHU	AIR HANDLING UNIT	N/A	NOT APPLICABLE
BFP	BACKFLOW PREVENTER	ORD	OVERFLOW ROOF DRAIN
BOP	BOTTOM OF PIPE	OST	STORM OVERFLOW
BOS	BOTTOM OF STRUCTURE	PD	PUMP DISCHARGE
CD	CONDENSATE	PIV	POST INDICATOR VALVE
CO	CLEANOUT	PRV	PRESSURE REDUCING VALVE
CW	DOMESTIC COLD WATER	REV	REVISION
DD	DECK DRAIN	RPM	REVOLUTIONS PER MINUTE
DN	DOWN	RTU	ROOF TOP UNIT
ETR	EXISTING TO REMAIN	SAN	SANITARY
EWIC	ELECTRIC WATER COOLER	SCW	SOFT DOMESTIC COLD WATER
FCD	FLOOR CLEANOUT	SHW	SOFT DOMESTIC HOT WATER
FTA	FROM FLOOR ABOVE	SDHWR	SOFT RECIRC. HOT WATER
FP	FIRE PROTECTION	ST	STORM
FS	FLOOR SINK	TFA	TO FLOOR ABOVE
G	GAS (NATURAL)	TFB	TO FLOOR BELOW
GCD	GRADE CLEANOUT	TW	TEMPERED WATER
GPM	GALLONS PER MINUTE	UH	UNIT HEATER
HB	HOSE BIBB	V	VENT PIPE
HW	DOMESTIC HOT WATER	VTR	VENT THROUGH ROOF
HWR	HOT WATER RETURN	WCO	WALL CLEANOUT
HWS	HOT WATER SUPPLY	WH	WALL HYDRANT

PLUMBING SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	GATE VALVE		FLOOR DRAIN / AREA DRAIN
	CHECK VALVE		FLOOR SINK
	PRESSURE		ROOF DRAIN
	SOLENOID VALVE		OVERFLOW ROOF DRAIN
	GLOBE VALVE (STRAIGHT PATTERN)		HOT WATER RECIRCULATION PUMP
	BUTTERFLY VALVE		PLUMBING VENT THRU ROOF
	BALL VALVE		POINT OF CONNECTION (CONNECT NEW TO EXISTING)
	GAS COOK		PLUMBING EQUIPMENT DESIGNATION
	PLUG VALVE		PLUMBING RISER OR DETAIL DESIGNATION
	FLOOR CLEAN OUT		SANITARY SEWER PIPING
	WALL CLEAN OUT		STORM SEWER PIPING
	CLEAN OUT		VENT PIPING
	HOSE BIBB		VENT PIPING (BELOW SLAB)
	FREEZE PROOF WALL HYDRANT		COLD WATER PIPING
	SHOWER HEAD		HOT WATER PIPING
	ELBOW DOWN		SOFTENED COLD WATER PIPING
	ELBOW UP		HOT WATER RECIRCULATING PIPING
	TEE UP		FILTERED WATER PIPING
	TEE DOWN		FILTERED WATER PIPING BELOW GRADE
	STRAINER		GAS PIPING
	UNION		CONDENSATE PIPING
	REDUCER		
	CAP		
	FLEX PIPE		

PLUMBING FIXTURE MINIMUM
CONNECTION SCHEDULE

DESIGNATION	FIXTURE	C.W.	H.W.	DRAIN	VENT
WC	WATER CLOSET	1"	-	4"	2"
UR	URINAL	3/4"	-	2"	2"
LAV.	LAVATORY	1/2"	1/2"	2"	2"
EWIC/DF	ELECTRIC WATER COOLER/DRINKING FOUNTAIN	1/2"		2"	2"
MBSS	MOP BASIN/SERVICE SINK	1/2"	1/2"	3"	2"
SHBT	SHOWER/BATH TUB	1/2"	1/2"	2"	2"
SK	SINK	1/2"	1/2"	2"	2"

GENERAL NOTES:

- PITCH ALL DRAINAGE PIPING 3" AND LARGER AT 1/8" PER FOOT MINIMUM UNLESS OTHERWISE NOTED. PITCH ALL DRAINAGE PIPING 2-1/2" AND SMALLER AT 1/4" PER FOOT.
- ALL UNDERGROUND DRAINAGE PIPING SHALL BE A MINIMUM OF 2' IN SIZE.
- PROVIDE TRAP PRIMER UNITS FOR ALL FLOOR DRAINS.
- VERIFY/COORDINATE LOCATIONS OF ALL FIXTURES, DRAIN, ETC. WITH ARCHITECT PRIOR TO ROUGH-IN.

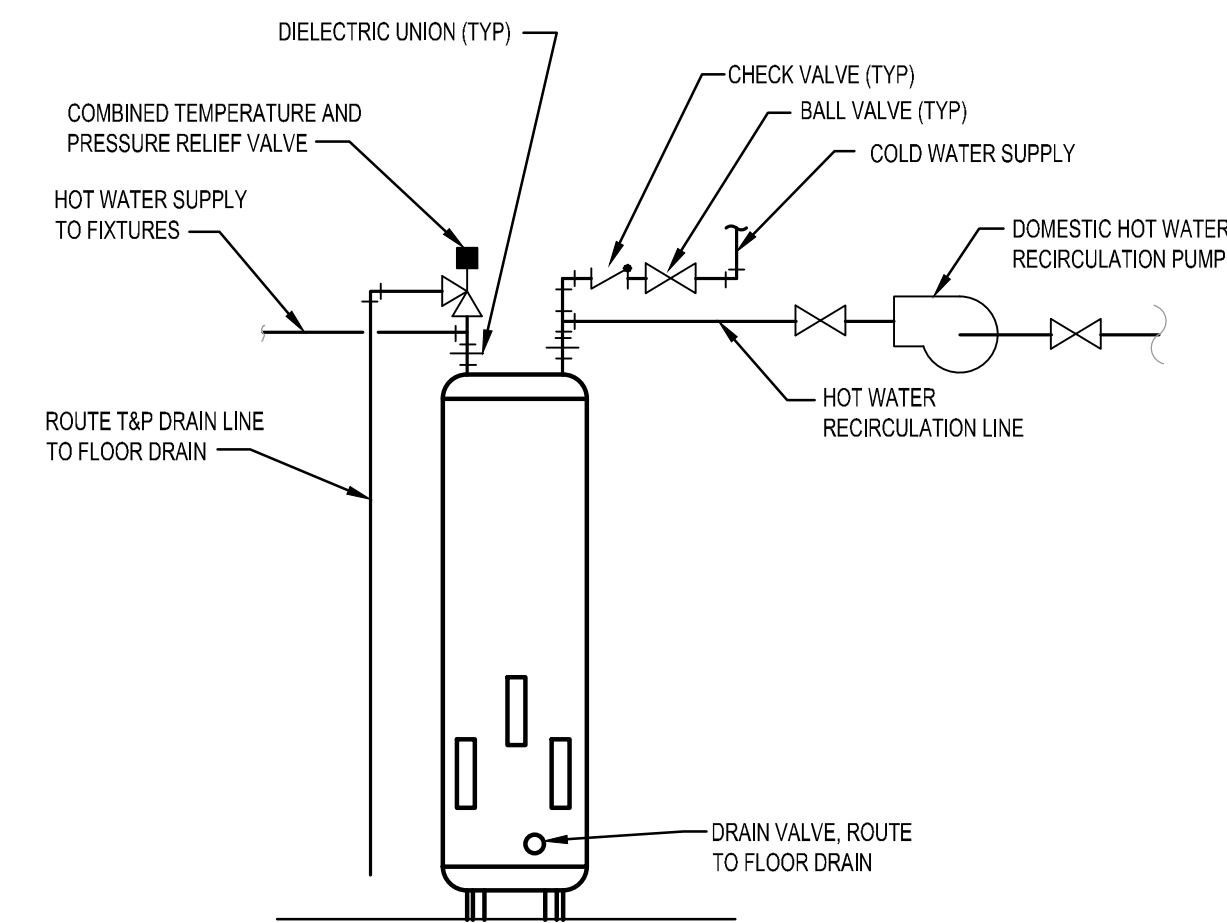
PLUMBING FIXTURE SCHEDULE

TAG	MANUFACTURER	MODEL	DRAIN	VENT	COLD WATER	HOT WATER	ELECTRICAL REQUIREMENTS	DESCRIPTION
FCO	SIoux CHIEF	834-4ANR	4"	---	---	---	---	FLOOR CLEANOUT ABS BODY AND NICKEL-BRONZE COVER
GI	SCHIER	GB1	2"	---	---	---	---	HYDROMECHANICAL GREASE INTERCEPTOR RATED FOR 70 LBS GREASE AT 20 GPM
MS	FIAT	MSBIDTG2424	3"	2"	3/4"	3/4"	---	MOLDED STONE INTEGRAL DRAIN MOP SERVICE BASIN WITH 830AA FAUCET, 832AA HOSE AND BRACKET, 889CC MOP HANGER BRACKET AND QIC3XH QUICK DRAIN CONNECTOR.
RP	TACO	0026e-F2	---	---	---	3/4"	115V 1 AMP	IN-LINE CARTRIDGE STYLE CIRCULATOR PUMP CAPABLE OF 12 FEET OF HEAD AT 8 GPM PROVIDE WITH AQUASTAT.
SK1	ADVANCE TABCO	94-K6-18D	2"	1-1/2"	1/2"	1/2"	---	CORNER 3-COMPARTMENT SINK WITH DRAINBOARDS. PROVIDE WITH DTA-53 PRERINSE FAUCET AND K-1 FAUCET.
SK2	ADVANCE TABCO	7-PS-68	2"	1-1/2"	1/2"	1/2"	---	WALL MOUNT HAND SINK WITH K-59 SPLASH MOUNTED GOOSENECK FAUCET WITH WRIST BLADE HANDLES. PROVIDE WITH ASSE 1070 COMPLIANT MIXING VALVE AND TRUEBRO LAV GUARD 2 TRAP WRAP
EWB	BRADFORD WHITE	E32-80R-3	---	---	3/4"	3/4"	240V 1-PHASE 15KW	ELECTRIC WATER HEATER 80 GALLON/82 GALLON RECOVERY AT 100 %%DF RISE. PROVIDE WITH AMTROL ST-12 THERMAL EXPANSION TANK AND HOLDRITE QUICKSTAND.

- NOTES:
- MODELS IN SCHEDULE ARE A BASIS OF DESIGN CONFIRM FINAL FIXTURE MODELS WITH OWNER PRIOR TO PURCHASING.
 - ALL LAVATORIES SHALL BE PROVIDED WITH ANTI-SCALD ASSE 1070 COMPLIANT VALVE.
 - PROVIDE LOOSE KEY STOPS AND FLEXIBLE RISERS.
 - ON LAVATORY INSULATE EXPOSED TAILPIECE, P-TRAP, AND WATER RISERS WITH TRU-BRO INSULATION KIT.
 - PROVIDE FLUSH VALVE HANDLE ON WIDE SIDE OF ROOM.
 - PROVIDE HANDLE STOPS AND FLEXIBLE RISERS.

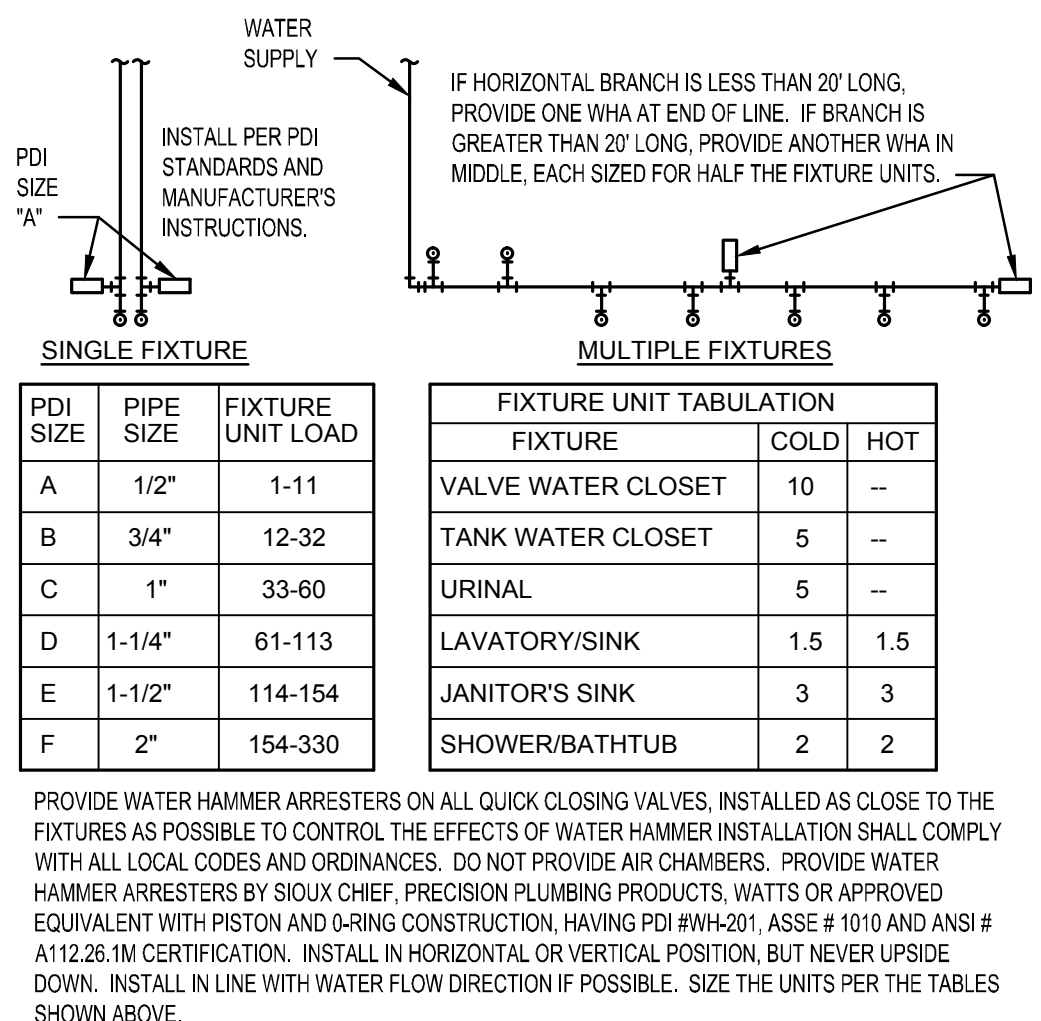
8 WATER HEATER DETAIL

NOT TO SCALE



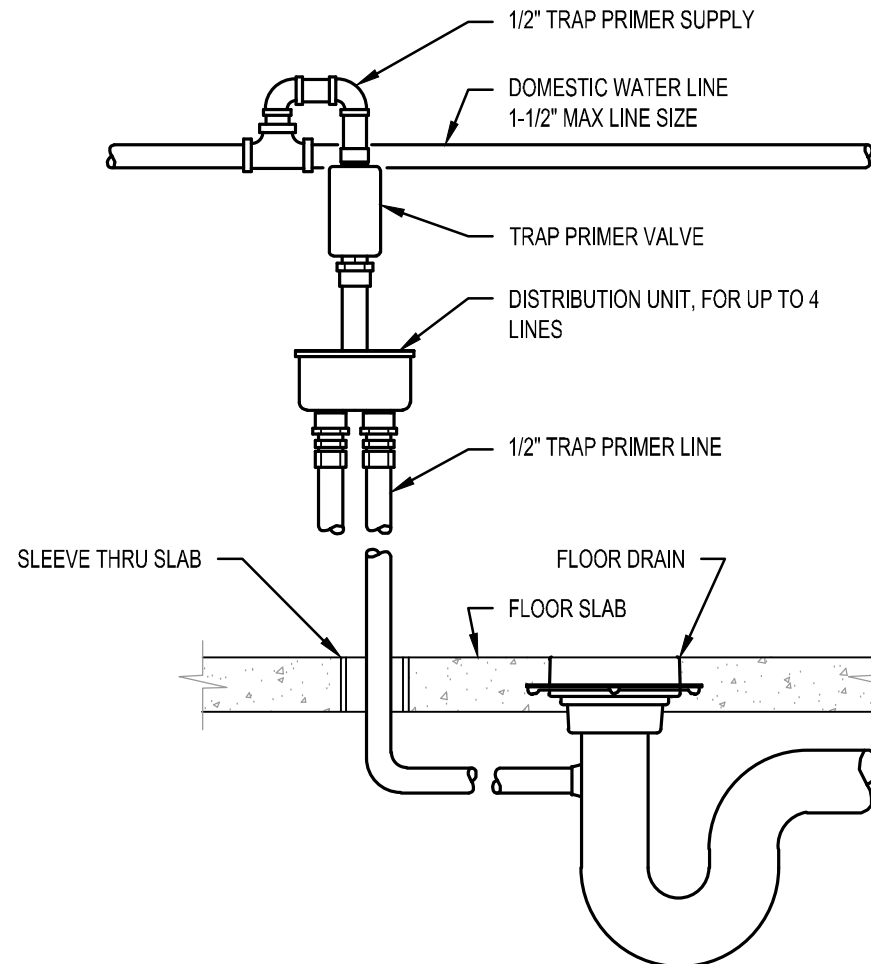
7 WATER HAMMER ARRESTERS

NOT TO SCALE



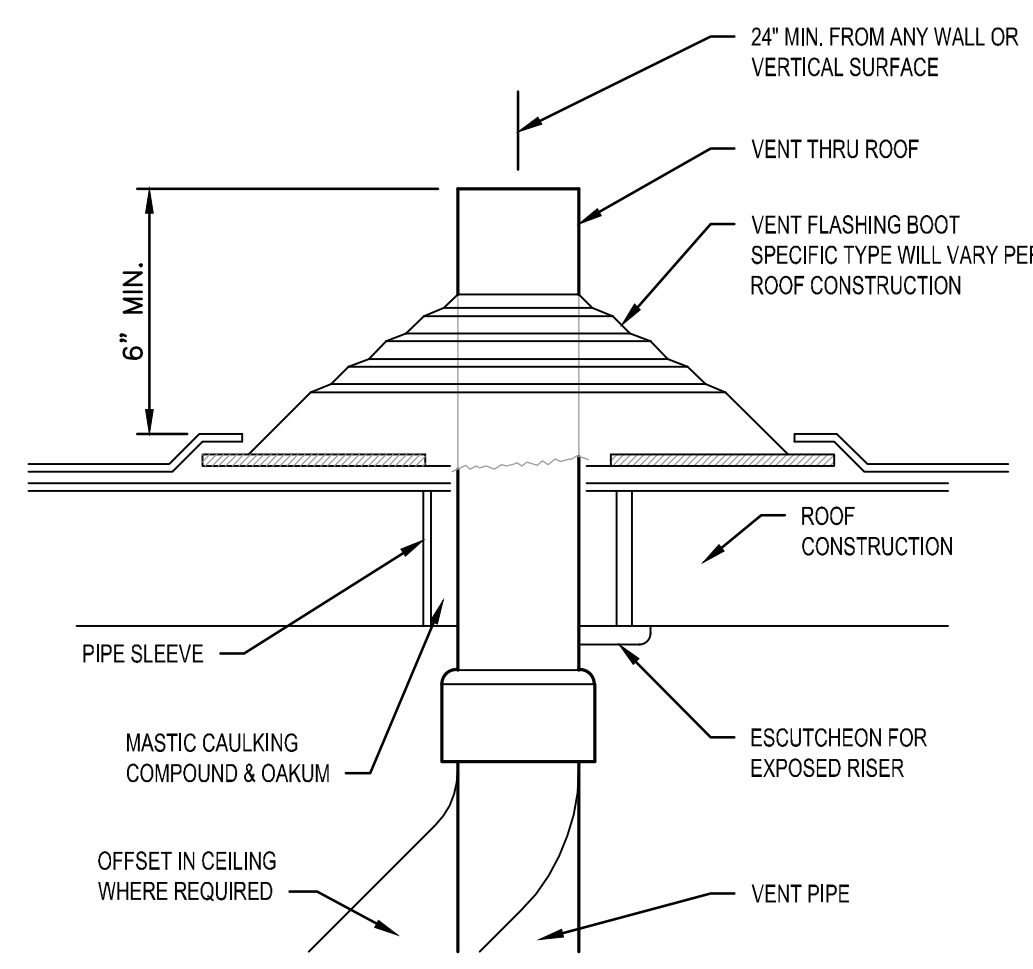
6 TRAP SEAL PRIMER DETAIL

NOT TO SCALE



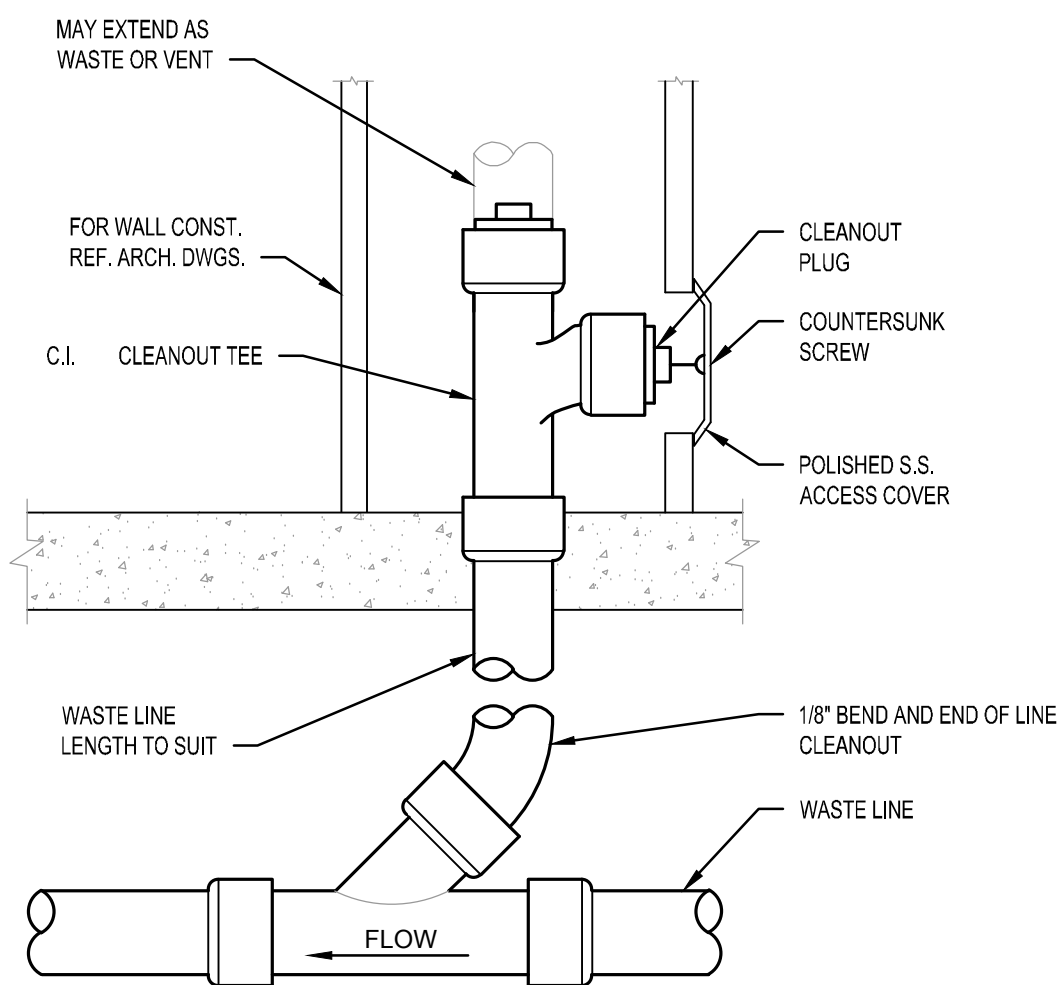
5 VENT THROUGH ROOF DETAIL (VTR)

NOT TO SCALE



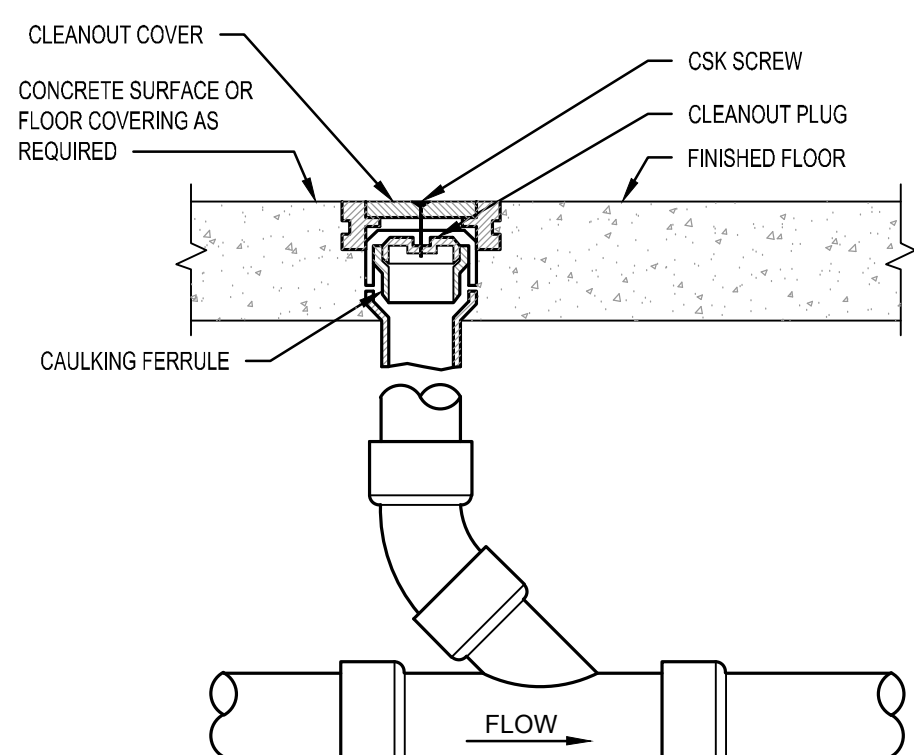
4 WALL CLEANOUT

NOT TO SCALE



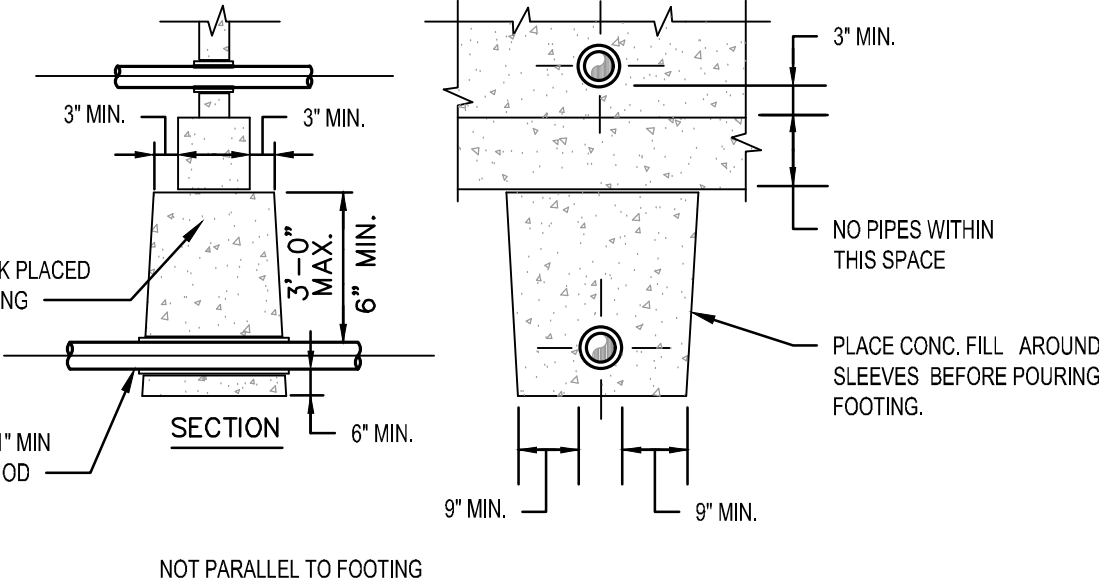
3 FLOOR CLEANOUT

NOT TO SCALE



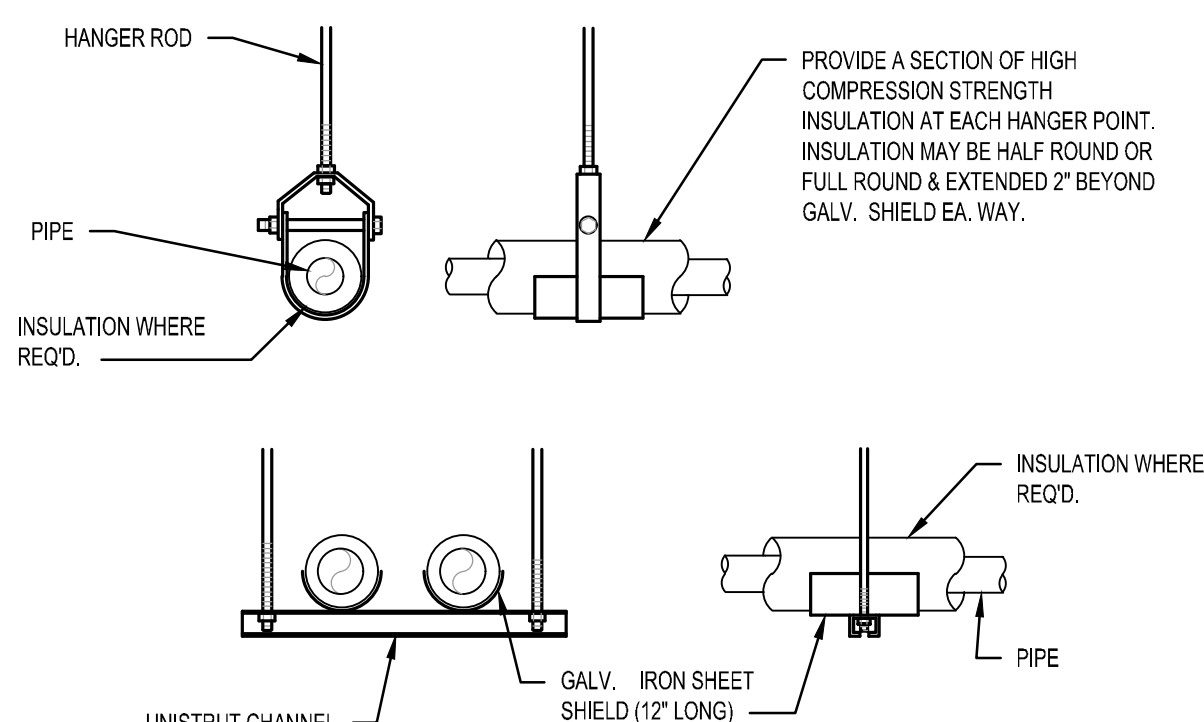
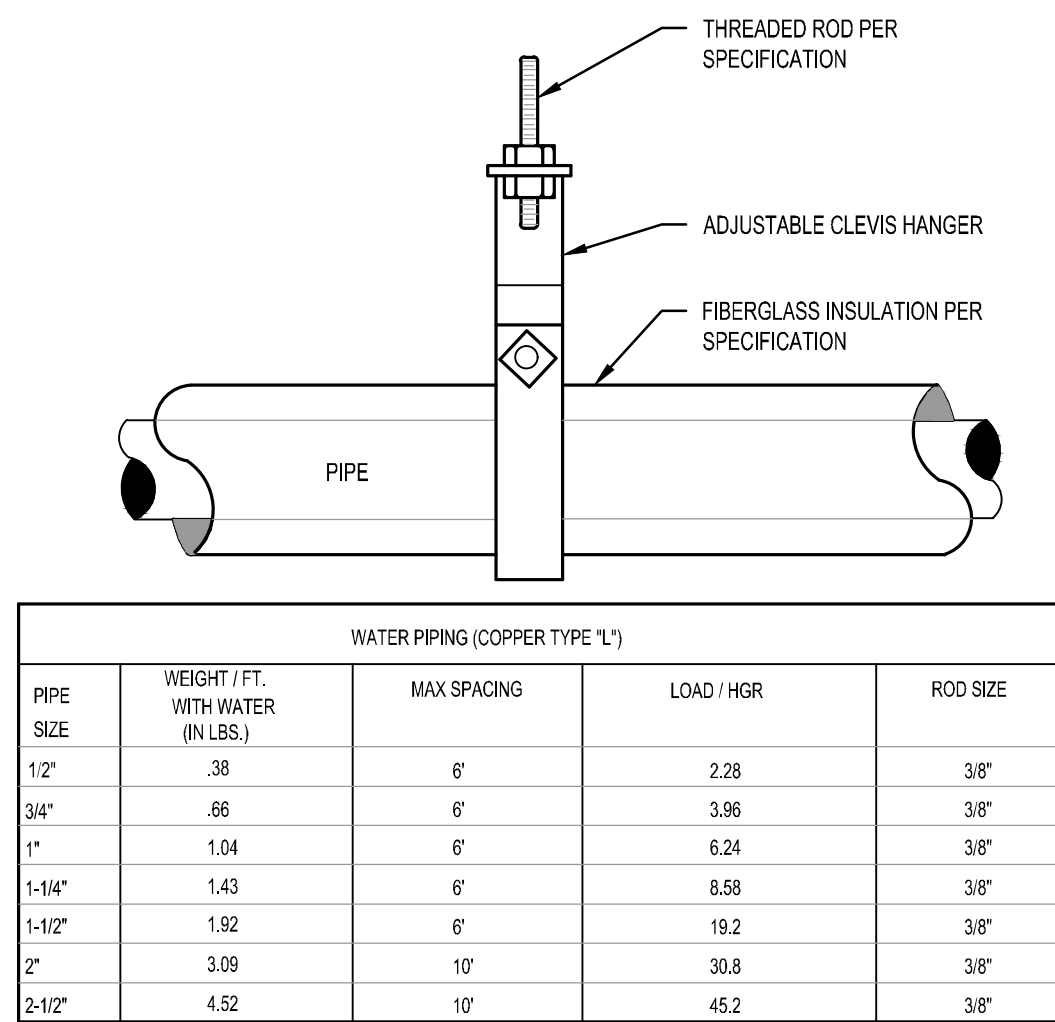
2 PIPE AT CONCRETE FOOTING

NOT TO SCALE



1 PIPE HANGING DETAIL

SCALE: NTS



- NOTES:
- ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAMS.
 - PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.

1. REFERENCE SHEET P1.01 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN CONFORMANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES HAVING JURISDICTION AND INSPECTION. CONFLICTS OF CODES SHALL BE RESOLVED IN FAVOR OF THE SYSTEMS TO AVOID CONFLICT WITH OTHER TRADES.
3. PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTION AGENCIES FOR ALL SYSTEMS EQUIPMENT MANUFACTURING WARRANTIES.
4. COORDINATE ALL ABOVE, SLAB AND UNDER SLAB SANITARY, AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS, AND CULM FOOTINGS. ALL PIPING SHALL BE PROTECTED BY A MINIMUM OF 18" UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER. COORDINATE FLOOR LEVELS WITH EXISTING PIPING TO PROVIDE A MINIMUM OF 18" SLAB INSTALLATION. COORDINATE ALL FLOOR DRAIN, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUMB AND FLUSH WITHOUT CRACKS, ROSE IN THE SLAB, OR VOIDS AROUND THEM. PROVIDE A MINIMUM OF 18" CLEARANCE AROUND ALONG MAINS AT 10'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT.
5. ANY DRAIN GRATINGS THAT ARE DAMAGED AS A RESULT OF THE WORK SHALL BE REPLACED WITH LIKE GRATING TO THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATING AT NO EXPENSE OF THE OWNER.
6. PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS. PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS.
7. PLUMBING VENTURES THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES.
8. ALL FLOOR OR BALCONY VALVES TO PLUMBING ROUTED IN PIPE CHASSES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
9. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL CLOSURES.
10. PROVIDE CONNECTIONS FOR ALL EQUIPMENT SPECIFIED IN PLUMBING FIXTURES AND EQUIPMENT SCHEDULES IN THESE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
11. PROVIDE BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS INDICATED ON PLUMBING SCHEDULES AND AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ANY SPECIAL EQUIPMENT REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.

1. CONNECT NEW 4" S INTO EXISTING SANITARY. FIELD VERIFY EXACT CONNECTION POINT, LINE SIZE, MATERIAL AND AVAILABLE INVERT.
2. 3' UP TO 3' VTR. COORDINATE FINAL LOCATION WITH ALL ROOF TOP EQUIPMENT AND OPENINGS. MAINTAIN A MINIMUM 10' FROM ALL FRESH AIR INTAKES AND 2' FROM ALL VERTICAL SURFACES.
3. INSTALL HUB DRAIN TIGHT TO WALL. TERMINATE DRAIN LINES OVER HUB DRAIN WITH AIR GAP PER CODE.
4. INSTALL SAMPLING PORT ON GREASE TRAP AS PER LOCAL CODES.





307B SW Market St., Lee's Summit, Missouri 64063 | 816.249.2270 |
www.collinswebb.com

PERMIT DOCUMENTS

SereniTea Boutique

500 SW 3RD ST. UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC

REVISION DATES:



P202

ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 22097

PLUMBING WATER
PLAN

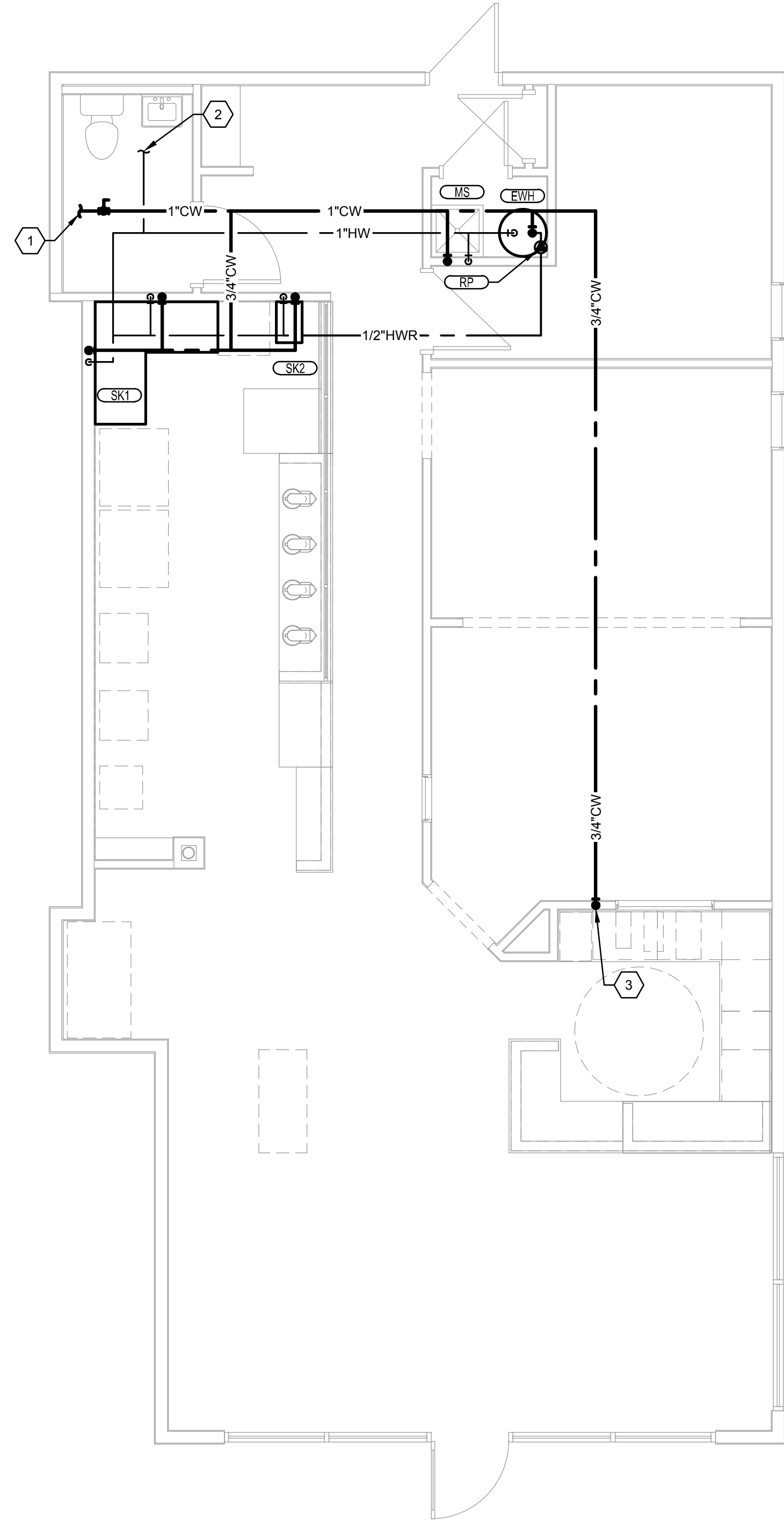
GENERAL NOTES

(NOT ALL NOTES APPLY)

1. REFERENCE SHEET P1.01 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
2. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN CONFORMANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES HAVING JURISDICTION AND INSPECTION.
3. COORDINATE THE COMPLETE INSTALLATION OF SYSTEMS TO AVOID CONFLICT WITH OTHER TRADES.
4. PROVIDE TO OWNER A COPY OF ALL REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS AND ALL PLUMBING SYSTEMS EQUIPMENT MANUALS INCLUDING WARRANTIES.
5. COORDINATE ALL ABOVE SLAB AND UNDER SLAB SANITARY, AND WATER PIPING SYSTEMS TO AVOID CONFLICT WITH ALL OTHER TRADES SYSTEMS, AND COLUMN FOOTINGS. ALL SOIL AND WASTE PIPING SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER. COORDINATE FINAL INVERTS WITH EXISTING PIPING PRIOR TO ROUGH-IN OF UNDER SLAB INSTALLATION.
6. COORDINATE ALL FLOOR DRAINS, CLEANOUTS, AND FLOOR MOUNTED FIXTURES WITH FINISHED FLOOR SLAB ELEVATION TO ENSURE THEY ARE INSTALLED PLUMB AND FLUSH WITHOUT CRACKS, RISE IN THE SLAB, OR VOIDS AROUND GRATES OR TOPS. ALL CLEANOUTS SHALL BE INSTALLED ALONG MAINS AT 30'-0" DISTANCE MAXIMUM. ALL FLOOR AND WALL CLEANOUTS SHALL BE ACCESSIBLE FOR MAINTENANCE AND NOT INSTALLED BENEATH EQUIPMENT. ANY DRAIN GRATES THAT ARE DAMAGED AS A RESULT OF OTHER CONSTRUCTION PRIOR TO RELEASE OF THE BUILDING TO THE OWNER SHALL BE REPLACED WITH LIKE GRATE AT NO EXPENSE OF THE OWNER.
7. PROVIDE TRAP AND SEAL PRIMERS ON ALL FLOOR DRAINS IF REQUIRED BY CODE OR OWNER.
8. PLUMBING VENTS THROUGH THE ROOF ARE LOCATED AT A MINIMUM OF 5'-0" FROM BUILDING PARAPETS AND 10'-0" FROM FRESH AIR INTAKES AND AS REQUIRED TO MEET LOCAL CODES.
9. ALL SHUT-OFF OR BALANCING VALVES TO PLUMBING ROUTED IN PIPE CHASES SHALL BE ACCESSIBLE FROM CEILING AREA OR ACCESS DOORS PROVIDED IN WALL.
10. ALL EXPOSED PIPES PENETRATING FINISHED WALLS SHALL BE EQUIPPED WITH WALL ESCUTCHEONS.
11. PROVIDE FINAL CONNECTIONS FOR ALL EQUIPMENT SPECIFIED IN PLUMBING FIXTURES AND EQUIPMENT SCHEDULES ON THESE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE ALL REQUIRED SHUT-OFFS, BACKFLOW PREVENTERS, PRESSURE REGULATORS, AND CONDENSATE DRAINS INDICATED ON PLUMBING SCHEDULES AND AS REQUIRED BY LOCAL CODES FOR COMPLETE EQUIPMENT INSTALLATION. CONSULT EQUIPMENT SUPPLIER OR OWNER FOR ADDITIONAL FINAL CONNECTION REQUIREMENTS NOT SHOWN ON THESE DRAWINGS.

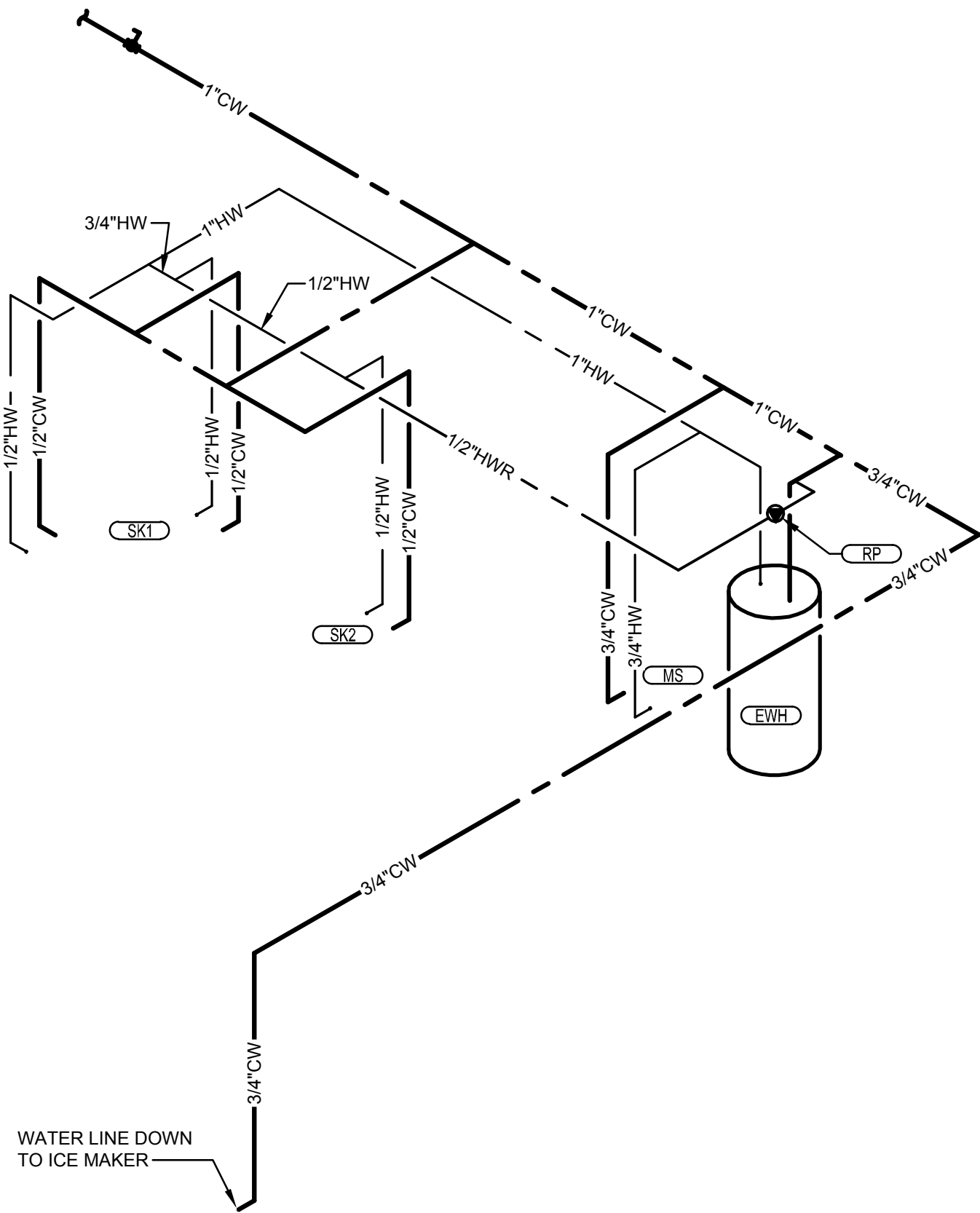
KEYED NOTES: ○

1. CONNECT NEW 1" CW INTO EXISTING LANDLORD PROVIDED COLD WATER LINE. FIELD VERIFY EXACT CONNECTION POINT, LINE SIZE, MATERIAL AND ROUTING.
2. CONNECT NEW 1/2" HW INTO EXISTING LAVATORY. FIELD VERIFY EXACT CONNECTION POINT, LINE SIZE, MATERIAL AND ROUTING.
3. ROUTE 3/4" CW DOWN IN WALL. ROUTE WATER PIPING TO ALL FIXTURES AS REQUIRED. INSTALL ALL VALVING AND BACKFLOW PREVENTION AS PER MANUFACTURERS RECOMMENDATIONS AND LOCAL CODE. COORDINATE WITH OWNER FOR FINAL REQUIREMENTS AND LOCATIONS.



1 PLUMBING WATER PLAN

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



2 WATER RISER

WATER LINE DOWN
TO ICE MAKER



3076 SW Market St., Lee's Summit, Missouri 64063 | 816.249.2271 | www.collinswebb.com

PERMIT DOCUMENTS

SereniTea Boutique

500 SW 3RD ST., UNIT A
LEE'S SUMMIT, MO 64063

COPYRIGHT © BY
COLLINS WEBB
ARCHITECTURE, LLC

REVISION DATES:



P301

ISSUE DATE: 16 JULY 2024
COLLINS WEBB #: 22097

PLUMBING SPECIFICATIONS

CLEANOUTS ON STORM AND COLD DRAIN PIPING. DO NOT COVER CLEANOUTS.

DOMESTIC WATER HEATING

DESCRIPTION
PROVIDE DOMESTIC WATER HEATING EQUIPMENT WHERE SHOWN ON DRAWINGS AND SPECIFIED.

DISCHARGE PIPE
RELIEF VALVE DISCHARGE SHALL BE COPPER WATER TUBE, TYPE M.

INSTALLATION
WATER HEATER SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS.

DISCHARGE PIPE SHALL HAVE TERMINATING END CUT AT 45 DEGREE ANGLE.

TERMINATE RELIEF VALVE DRAIN AS SHOWN ON THE DRAWINGS.

MEDICAL GAS PIPING INSTALLATION

INSTALL NON-FLAMMABLE MEDICAL GAS SYSTEM. INHALATION ANAESTHETIC SYSTEM AND VACUUM PIPING SYSTEM IN ACCORDANCE WITH NFPA 99 AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

PRE-INSTALLATION CLEANING: PRIOR TO INSTALL, DISASSEMBLE POSITIVE PRESSURE GAS SYSTEM PIPING, FITTINGS, VALVES, AND COMPONENTS (UNLESS SUPPLIED CLEAN AND PREPARED FOR INTENDED SERVICE) AND THOROUGHLY WASH IN HOT SOLUTION OF SODIUM CARBONATE OR TRISODIUM PHOSPHATE MIXED ONE POUND TO THREE GALLONS OF WATER, RINSE WITH WATER, THOROUGHLY DRY AND CAP UNTIL INSTALLATION.

BRAZE JOINTS IN PIPE AND TUBING. DO NOT LEAVE EXCESS FLUX ON INSIDE OF PIPES AND FITTINGS. PURGE INTERIOR OF PIPE WITH NITROGEN CONTINUOUSLY DURING BRAZING OF PIPE CONNECTIONS.

BENDS SHALL BE FREE OF FLATTENING, BUCKLING OR THINNING OF TUBE WALL. MAKE CHANGES IN DIRECTION FOR REQUIRED TURNS OR OFFSETS WITH FITTINGS OR TUBING SHAPED BY UTILIZING A BENDING TOOL.

PIPING TO BE GRADED DOWN IN DIRECTION OF FLOW.

PROVIDE PIPE SLEEVES WHERE PIPES AND TUBING PASS THROUGH WALLS, FLOORS, ROOFS, AND PARTITIONS. FINISH FLUSH AT BOTH ENDS. EXTEND TWO INCHES (50MM) ABOVE FINISHED FLOORS PACK SPACE BETWEEN PIPE AND/OR TUBING SLEEVE AND CAULK.

PIPING SHALL BE LISTED AND IDENTIFIED IN ACCORDANCE WITH MIL-STD 101 USING TAPE AND DECALS TO FSPPP-1-66. PROVIDE LABELING ON PIPE IN EACH ROOM. AT EACH LEVEL TRAVERSED BY PIPING AND AT INTERVALS NOT EXCEEDING TWENTY FEET.

SUPPORT GAS PIPING WITH HANGERS OR PIPE HOOKS ACCEPTABLE FOR SIZE OF PIPING. SUPPORT SPACING SHALL BE AS FOLLOWS: 1/2" PIPE OR TUBING: 72 INCHES, 3/4" OR 1" PIPE OR TUBING: 36 INCHES, HORIZONTAL PIPING 1-1/4" OR LARGER: 120 INCHES, VERTICAL PIPING 1-1/4" OR LARGER, AT EVERY FLOOR.

PIPING SYSTEMS CLEANING AND PRESSURE TESTING

PRIOR TO INSTALLATION OF SERVICE OUTLET VALVES AND AFTER INSTALLATION OF PIPE AND TUBING, BLOW SYSTEM CLEAR OF MOISTURE AND FOREIGN DEBRIS WITH NITROGEN GAS.

AFTER INSTALLATION OF SERVICE OUTLET VALVES, TEST SYSTEM TO PRESSURE OF 150 PSIG WITH NITROGEN OR DRY COMPRESSED AIR. CHECK ALL LINES AND FITTINGS WITH SOAPY WATER AND PROVIDE 24-HOUR STANDING PRESSURE TEST.

CROSS-CONNECTION TESTS

THE MEDICAL GAS EQUIPMENT SUPPLIER OR AN INDEPENDENT TESTING AGENCY SHALL PERFORM A CROSS CONNECTION TEST ON THE SYSTEM. THE TESTING AGENCY SHALL BE CERTIFIED TO PERFORM MEDICAL GAS TESTING PROCEDURES AND SHALL CERTIFY THAT THE SYSTEM IS COMPLETE WITH ALL ZONE VALVES INSTALLED, ALARM SYSTEMS FUNCTIONAL, AND ENSURE THAT ALL TESTING REQUIRED BY THE 2018 NFPA 99 WERE PERFORMED. DOCUMENT TESTS AND SUBMIT CERTIFICATE TO OWNER AND LOCAL AHA.

REDUCE PRESSURE TO ATMOSPHERIC PRESSURE IN ALL PIPING SYSTEMS OTHER THAN THE SYSTEM BEING TESTED.

CHECK EVERY STATION OUTLET OF EACH SYSTEM TO CONFIRM TEST GAS IS ONLY DISPENSED FROM OUTLET OF SYSTEM BEING TESTED. MEASURE PRESSURE WITH GAGE ATTACHED TO SPECIFIC ADAPTOR. UNIVERSAL ADAPTORS ARE NOT ALLOWED.

AFTER TESTING, DISCONNECT TEST GAS AND CONNECT PROPER GAS TO EACH SYSTEM. PURGE ENTIRE SYSTEM TO REMOVE TEST GAS AND CHECK WITH ANALYZER SUITABLE FOR GAS INSTALLED.

MEDICAL VACUUM

- TYPE I HARD DRAWN COPPER TUBING, ASTM B-419.
- WROUGHT BRONZE SOLDERED FITTINGS.
- JOINTS TO BE AHS A5A, BCUP SILVER BRAZE (15% SILVER SOLDER).
- PIPING SHALL BE CLEANED AND INSTALLED PER INSTALLATION OF MEDICAL GAS PIPING SECTION OF THIS SPECIFICATION.
- PVC PLASTIC PIPE SHALL BE SCHEDULE 40 OR SCHEDULE 80, COMPLYING WITH ASTM D 1785 STANDARD SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PLASTIC PIPE SCHEDULES 40, 80 AND 120.
- PVC PLASTIC FITTINGS SHALL BE SCHEDULE 40 OR 80 TO MATCH THE PIPING AND COMPLY WITH ASTM D 2468 STANDARD SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PLASTIC PIPE FITTINGS, SCHEDULE 40 OR ASTM D 2467 STANDARD SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PLASTIC PIPE FITTINGS, SCHEDULE 80.
- PVC PLASTIC PIPING JOINTS SHALL BE SOLVENT-CEMENTED IN ACCORDANCE WITH ASTM D 2672 STANDARD SPECIFICATION FOR JOINTS FOR IPS PVC PIPE USING SOLVENT CEMENT.

OXYGEN

- TYPE I HARD DRAWN COPPER TUBING PER ASTM B-419.
- WROUGHT BRONZE SOLDERED FITTINGS.
- JOINTS TO BE AHS A5A, BCUP SILVER BRAZE (15% SILVER SOLDER).
- PIPING SHALL BE CLEANED AND INSTALLED IN ACCORDANCE WITH INSTALLATION OF MEDICAL GAS PIPING SECTION OF THIS SPECIFICATION.

NITROUS OXIDE

- TYPE I HARD DRAWN COPPER TUBING PER ASTM B-419.
- WROUGHT BRONZE SOLDERED FITTINGS.
- JOINTS TO BE AHS A5A, BCUP SILVER BRAZE (15% SILVER SOLDER).
- PIPING SHALL BE CLEANED AND INSTALLED IN ACCORDANCE WITH INSTALLATION OF MEDICAL GAS PIPING SECTION OF THIS SPECIFICATION.

DOMESTIC HOT AND COLD WATER

DESCRIPTION
THE WORK INCLUDES FURNISHING AND INSTALLING HOT AND COLD WATER PIPING AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

PIPING
HOT AND COLD WATER PIPING SHALL BE COPPER WATER TUBE HARD TEMPER, TYPE "L" WITH WROUGHT SOLDER FITTINGS ABOVE FLOOR AND SOFT TEMPER, TYPE "K" WITH WROUGHT SOLDER FITTINGS BELOW GRADE.

PEX, HIGH-DENSITY CROSS-LINKED POLYETHYLENE TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F876 AND MEET THE STANDARD GAUGE HYDROSTATIC PRESSURE RATINGS FROM PLASTIC PIPE INSTITUTE IN ACCORDANCE WITH TR-403.

GATE VALVES
SPECIFIED IN SECTION, PLUMBING VALVES.

INSTALLATION
NOTHING OF PIPE FOR CONNECTION NOT PERMITTED.

WHERE POSSIBILITY OF BACKFLOW FROM THE DRAIN TO THE SUPPLY FITTING EXISTS, INSTALL VACUUM BREAKERS.

NOT MORE THAN ONE LAVATORY, SINK, OR SIMILAR FIXTURE SHALL BE SUPPLIED BY A 1/2 INCH BRANCH. LINEAR DIMENSIONS NOT TO EXCEED 5 FEET.

MAKE CONNECTION TO EQUIPMENT AND FIXTURES INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN.

HOT WATER BRANCH CONNECTIONS TO DISTRIBUTION MAINS SHALL BE TOP TAKE-OFF, SWING JOINT TYPE.

ALL PIPING INSTALLED BELOW GROUND SHALL RECEIVE TWO COATS OF KOPPERS NO. 30 OR APPROVED EQUAL.

PLUMBING INSULATION

DESCRIPTION
INSULATION SHALL NOT BE INSTALLED UNTIL TESTING PROCEDURES HAVE BEEN COMPLETED WITH ALL SURFACES HAVE BEEN CLEANED AND FREE OF DIRT, GREASE AND COMPLETELY DRIED.

MATERIALS SHALL COMPLY WITH UL 723, FLAME SPREAD RATINGS, HOT SURFACE TEST PERFORMANCE, AND SMOKE DEVELOPED RATING.

SUBMITTALS
PROVIDE ALL MANUFACTURER'S PRODUCT DATA. SUBMIT SAMPLES OF INSULATION AND ADHESIVE AND PRODUCT DATA LISTING RECOMMENDATIONS FOR USE AND COMPLIANCE WITH NFPA 90.

INSULATION
INSULATION FOR HOT AND COLD WATER PIPING, SHALL BE SECTIONAL GLASS FIBER AS MANUFACTURED BY OWENS CORNING FIBERGLASS TYPE ASJ/SJSL OR APPROVED EQUAL, WITH FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT JACKET.

INSULATION FOR EXPOSED HOT AND COLD WATER PIPING SHALL BE SECTIONAL GLASS FIBER AS MANUFACTURED BY OWENS CORNING FIBERGLASS TYPE ASJ/SJSL OR APPROVED EQUAL, WITH FACTORY APPLIED, .016 EMBOSSED ALUMINUM JACKET.

ADHESIVE SHALL BE BENJAMIN FOSTER 30-36, OR APPROVED EQUAL, WHITE INSULATION LAGGING ADHESIVE.

VAPOR BARRIER MASTIC SHALL BE BENJAMIN FOSTER NO. 82-07, WHITE, OR APPROVED EQUAL.

INSTALLATION
HOT AND COLD WATER PIPING, SHALL BE INSULATED WITH 1/2 INCH THICK GLASS FIBER INSULATION HAVING A FACTORY APPLIED, ALL PURPOSE, FIRE RETARDANT JACKET WITH A MINIMUM R-4.0 PER INCH. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL JACKET LEGS AND BUTT JOINT STRIPS WITH ADHESIVE.

INSULATE FITTINGS FOR PIPING UP TO 3 INCHES IPS WITH MOLDED GLASS FIBER. INSULATE FITTINGS FOR PIPING LARGER THAN 3 INCHES WITH MOLDED FITTINGS OR SEGMENTED SECTIONS, WIRED IN PLACE TO THE SAME THICKNESS AS ADJACENT INSULATION. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 6 OUNCE CANVAS PIPING INCLUDING THE FITTING CHANGE FROM HORIZONTAL TO VERTICAL. CONCEALED AND EXPOSED PIPING SHALL HAVE THE INSULATION APPLIED WITH SIDE AND END JOINTS BUTTED TIGHTLY. SEAL OFF ENDS OF INSULATION WITH VAPOR BARRIER MASTIC AT EACH FITTING AND AT 21 FOOT INTERVALS ON CONTINUOUS RUNS.

INSTALL THE FACTORY APPLIED FIRE RETARDANT JACKET VAPOR BARRIER SO THAT IT WILL LAP SMOOTHLY AND SECURELY AT THE LONGITUDINAL LAP AND ADHERE IT WITH VAPOR BARRIER MASTIC. ADHERE 3 INCH WIDE BUTT STRIPS X SMOOTHLY OVER ALL END JOINTS WITH THE VAPOR BARRIER MASTIC TO ASSURE A CONTINUOUS VAPOR BARRIER - NO STAPLES ALLOWED. INSULATE DRAIN BODIES AND FITTINGS WITH METERED SEGMENTS OF PIPE INSULATION. OVERSIZED PIPE INSULATION OR MOLDED FITTINGS, COAT WITH TWO, 18 INCH COATS OF VAPOR BARRIER MASTIC REINFORCED WITH GLASS FABRIC EXTENDING 2 INCHES ONTO ADJACENT PIPES. EXPOSED INSULATED PIPING AND FITTINGS SHALL BE JACKETED WITH 6 OUNCE CANVAS. TERMINATE INSULATION NEATLY AT

FERROUS PIPING AND COPPER TUBING.
DIAMETER OF PIPE MAXIMUM SPACING ROD SIZE
1/2" THROUGH 1-1/2" 6 FT. 3/8"
2" THROUGH 3" 10 FT. 1/2"
4" THROUGH 5" 12 FT. 5/8"
6" AND LARGER 16 FT. 3/4" D.

CAST IRON PIPING:
DIAMETER OF PIPE MAXIMUM SPACING ROD SIZE
2" AND 3" EACH JOINT 3/8"
4" AND 5" EACH JOINT 1/2"
6" AND 8" EACH JOINT 3/4"
10" THROUGH 15" EACH JOINT 3/4" (TWO HANGERS)

RISER CLAMPS
INSTALL AT EACH LEVEL BELOW THE FLOOR. SUSPEND FROM TWO HANGER RODS AND INSERTS WHERE THE INSTALLATION OF ESCUTCHEON PLATES IS REQUIRED.

TESTING OF PLUMBING PIPING

DESCRIPTION
CONDUCT ALL TESTS AFTER PIPING IS INSTALLED AND BEFORE PIPING IS CONCEALED OR COVERED.

PROVIDE ALL NECESSARY TEMPORARY PIPING CLOSURES.

PROVIDE ALL TESTING EQUIPMENT, MATERIALS AND SUPPLIES.

SYSTEMS SHALL REMAIN UNDER TEST FOR SUFFICIENT LENGTH OF TIME TO PROVE TIGHTNESS THEREOF AND FOR ADEQUATE OBSERVATION BY THE ARCHITECT-ENGINEER.

MATERIALS OTHER THAN THOSE SPECIFIED FOR JOINING WILL NOT BE PERMITTED IN THE PIPING SYSTEMS FOR THE PURPOSE OF STOPPING LEAKS.

ALL LEAKS DISCLOSED BY THE TESTING PROCEDURES SHALL BE REPAIRED AND TESTING REPEATED UNTIL THE SYSTEM IS PROVEN TIGHT.

TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

SUBMITTALS
STERILIZATION: PROVIDE A DATED LETTER TO THE ARCHITECT-ENGINEERS REPRESENTATIVE STATING THAT PIPING SYSTEM HAS BEEN STERILIZED AND FLUSHED AS SPECIFIED.

PIPING TEST
DOMESTIC HOT AND COLD WATER PIPING SHALL BE FILLED, THEN TESTED TO A HYDROSTATIC PRESSURE OF 150 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM OF ONE HOUR.

SANITARY PIPING, PREVIOUS TO CONNECTION OF FIXTURES, SHALL BE FILLED WITH WATER TO THE TOP OF THE SYSTEM AND PROVEN TIGHT. WHEN TESTING THE SYSTEM BY SECTIONS THE MINIMUM HEIGHT OF THE WATER COLUMN SHALL BE 10 FEET. EXAMINE ALL JOINTS FOR LEAKS.

NEW FIRE STANDPIPE SYSTEM SHALL BE TESTED TO A HYDROSTATIC PRESSURE OF 200 PSIG. MAINTAIN TEST PRESSURE FOR A MINIMUM OF TWO HOURS.

GAS PIPING SHALL BE TESTED WITH NITROGEN TO 50 PSIG. PRESSURE SHALL BE MEASURED WITH A MANOMETER. MAINTAIN TEST PRESSURE FOR A MINIMUM OF 30 MINUTES.

STERILIZATION
AFTER TESTS ARE COMPLETED ALL WATER SUPPLY SYSTEMS SHALL BE FILLED WITH A SOLUTION CONTAINING 100 PPM OF AVAILABLE CHLORINE AND ALLOWED TO STAND FOR A PERIOD TO TWO HOURS BEFORE BEING FLUSHED WITH CLEAN WATER.

PLUMBING, FIXTURES, TRIM AND DRAINS

MANUFACTURER
MANUFACTURER SHALL BE AS SCHEDULED OR BY APPROVED EQUAL.

PIPING
PIPING TO SERVICE FIXTURES AND EQUIPMENT AND EXPOSED TO VIEW IN FINISHED AREAS SHALL BE BRASS, CHROMIUM PLATED.

SUPPORTS
PROVIDE ALL BRACKETS, PLATES, ANCHORS AND FASTENING DEVICES REQUIRED FOR ANCHORING THE FIXTURES RIGIDLY IN PLACE. RISERS TO SHOWER HEADS SHALL BE ANCHORED TO THE WALL CONSTRUCTION TO PREVENT MOVEMENT.

FIXTURES
PROVIDE PLUMBING FIXTURES AS SCHEDULED ON DRAWINGS, AMERICAN STANDARD, KOHLER, ELIER OR APPROVED EQUAL.

PLUMBING DRAINS
FURNISH WITH SEEPAGE FLANGE WHERE INSTALLED WITH PANS OR FLASHING, FURNISH PLUMBING RING.

ALL DRAINS SHALL BE OF THE SAME MANUFACTURER.

FURNISH FLOOR DRAINS WITH PRIMER CONNECTIONS WHERE INDICATED ON THE DRAWINGS. IN LIEU OF CAST-IN PRIMER CONNECTIONS ON THE DRAIN BODY, A TEE BETWEEN THE DRAIN BODY AND THE TRAP, TO RECEIVE THE PRIMER DISCHARGE WILL BE ACCEPTABLE.

PROVIDE FLOOR DRAINS WITH 4 INCH DEEP SEAL TRAPS.

PROVIDE ALL DRAINS AS SCHEDULED ON DRAWINGS OR APPROVED EQUAL.

INSTALLATION
DRAIN SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS. ACCESSIBLE AND LOCATED TO SUIT EQUIPMENT APPROVED FOR INSTALLATION. WHERE FLUSH VALVES ARE SPECIFIED WITH FIXTURES, THE SUPPLY TO THE VALVE IN EACH ROOM SHALL BE AT THE SAME HEIGHT FOR THE TYPE OF FIXTURE AND THE VALVE SHALL BE SET IN PLACE SO THAT THE CENTER LINE OF THE VALVE DISCHARGE IS DIRECTLY ABOVE THE CENTER LINE OF FIXTURE STUD. BENDING OF NIPPLE BETWEEN THE VALVE AND THE STUD TO ACHIEVE CONNECTION WILL NOT BE PERMITTED.

CHROME PLATED PIPING REQUIRING THE USE OF WRENCH SHALL BE PROTECTED FROM DAMAGE.

BOLT WATER CLOSET CARRIER TO FLOOR.

GAS PIPING

PIPING
SHALL COMPLY WITH THE REQUIREMENTS OF NFPA NO. 54 AND THE LOCAL GAS COMPANY.

PIPE SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE FITTINGS

INSTALLATION
PIPING SHALL COMPLY WITH THE REQUIREMENTS OF NFPA NO. 54 AND THE LOCAL GAS COMPANY.

INSTALL GAS SHUT-OFF AND GAS MANIFOLDS AS INDICATED OR REQUIRED.

TO EQUIPMENT.

VACUUM BREAKERS
SHALL CONFORM TO THE REQUIREMENTS OF THE REFERENCED PLUMBING CODE AND SHALL BE PROVIDED FOR HOSE BIBBS, FLUSHMETERS AND ANY FIXTURE OR EQUIPMENT WATER SUPPLY HAVING A THREADED OUTLET.

FLASHING
VENT FLASHING SHALL COMPLY WITH ROOFING MANUFACTURER'S WRITTEN SPECIFICATIONS

CLEANOUTS
CLEANOUTS ON NO-HUB PIPE SHALL BE STANDARD NO-HUB FITTINGS. CLEANOUTS ON CAST IRON HUB AND SPIGOT PIPING, SHALL BE CADMIUM PLATED. APPROVED MANUFACTURERS: ZURN, JOSAM OR JONSEPEC.

TRAP PRIMERS
PROVIDE WHERE INDICATED ON DRAWINGS. PRECISION PRODUCTS WITH DISTRIBUTION UNIT OR APPROVED EQUAL.

PIPE SLEEVES

- EXTEND SLEEVE 1/4 INCH BEYOND FINISHED SURFACE.
- SET SLEEVE BEFORE POURING CONCRETE.
- PROVIDE CLEARANCE BETWEEN SLEEVE AND PIPE OR BETWEEN SLEEVE AND INSULATION TO ALLOW FOR PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION.
- INSULATION SHALL PASS CONTINUOUS THROUGH THE SLEEVE.
- CAULK BETWEEN SLEEVE AND PIPE OR SLEEVE AND INSULATION. PREFABRICATED, PRE-INSULATED, "PIPE SHIELDS" WILL BE ACCEPTABLE FOR PIPES PASSING THROUGH FLOORS, EXTERIOR WALLS, FIRE WALLS AND FIRE RESISTIVE WALLS AND PARTITIONS.
- ESCUTCHEONS: FIT AROUND INSULATION WHERE PRESENT. PROVIDE DEEP ESCUTCHEON PLATES WHERE PIPE SLEEVES EXTEND ABOVE FLOORS.
- WATER HAMMER ARRESTERS: INSTALL WHERE SHOWN ON DRAWINGS.
- CLEANOUTS: INSTALL WHERE SHOWN ON DRAWINGS AND AT BASE OF ALL RISERS. PROVIDE ADDITIONAL CLEANOUTS WHERE REQUIRED BY LOCAL CODES AND FOR CONVENIENCE OF TESTING AND ERECTION AT CONTRACTOR'S OPTION.
- FRAMES AND COVERS SHALL BE FLUSH WITH ADJOINING ARCHITECTURAL FINISH.

PLUMBING VALVES

DESCRIPTION
INSTALL IN ACCESSIBLE LOCATION.

- VALVES SHALL NOT BE INSTALLED WITH THE STEMS BELOW THE HORIZONTAL POSITION.
- VALVES, GATE, 125# UNION BONNET. RISING STEM 3 INCH AND SMALLER.
- WROUGHT COPPER AND BRONZE SOLDER-JOINT PRESSURE FITTINGS: ANSI B16.29.
- SOLDER JOINT: ITT GRINNELL #3080 SJ OR APPROVED EQUAL.
- SOLDER JOINT: ITT GRINNELL #3080 SJ OR APPROVED EQUAL.

VALVES, BALL, MAY BE USED IN LIEU OF GATE VALVES UP TO 2" AND SMALLER NIBCO #7580. TWO PIECE BRONZE BODY, WITH SCREWED ENDS, CHROME PLATED BRONZE BALL WITH CONVENTIONAL PORT, 400 PSI, BLOW OUT PROOF STEM.

- VALVES, GLOBE 150# TEFLON DISC. UNION BONNET 3 INCH OR SMALLER.
- SOLDER JOINT: ITT GRINNELL #3240 OR APPROVED EQUAL.
- SOLDER JOINT: ITT GRINNELL #3240 SJ OR APPROVED EQUAL.

VALVES, CHECK 125# REMOVABLE REGRINDABLE DISC. A. 3 INCH AND SMALLER, HORIZONTAL:
1. SCORED: ITT GRINNELL #3300 OR APPROVED EQUAL.
2. SOLDER JOINT: ITT GRINNELL #3300 SJ OR APPROVED EQUAL.

- 3 INCH AND SMALLER, VERTICAL:
1. FOR SCREWED AND SOLDER JOINT INSTALLATION, SAME AS SECTION A OR APPROVED EQUAL. PROVIDE ADAPTERS FOR SOLDER JOINT CONNECTION. 2.15 SKE RISING A. SEE VAPOR SCHEDULE ON DRAWINGS. B. PLUG COCKS, 125# BRONZE COCKS. TWO (2) INCH AND SMALLER SHALL BE CRANE NO. 250 OR APPROVED EQUAL.

INSTALLATION
INSTALL VALVES WHERE SHOWN ON DRAWINGS.

PLUMBING HANGERS AND SUPPORTS

DESCRIPTION
PROVIDE HANGERS FOR ALL PIPING NOT INDICATED BELOW GRADE. USE HANGERS CAPABLE OF ADJUSTMENT.

HANGERS AND SUPPORTS
HANGERS FOR BLACK OR GALVANIZED STEEL PIPE SHALL BE GRINNELL, MODEL NO. 65 OR APPROVED EQUAL.

HANGERS FOR CAST IRON PIPE SHALL BE GRINNELL, MODEL NO. 280 OR APPROVED EQUAL.

HANGERS FOR COPPER TUBING SHALL BE GRINNELL, MODEL NO. 97 C OR APPROVED EQUAL.

TRAPEZE HANGERS OF A TYPE APPROVED BY THE OWNER'S REPRESENTATIVE MAY BE USED WHERE PIPES ARE DESIGNED TO RUN PARALLEL AT THE SAME ELEVATION.

PROVIDE ISOLATION HANGER WITH PROTECTIVE SHIELD, GRINNELL, MODEL NO. 300 103 OR APPROVED EQUAL. FOR ALL INSULATED PIPING, AT HANGER POINTS, PROVIDE 8 INCH LONG SECTION OF 1/2 INCH THICK CALCIUM SILICATE SECTIONAL PIPE INSULATION WITH FACTORY LONGITUDINAL LAP. SEAL BUTT JOINTS WITH INSULATING CEMENT.

STRAP HANGERS: NOT PERMITTED.

RISER CLAMPS: PROVIDE RISER CLAMPS FOR VERTICAL PIPING AT EACH LEVEL, GRINNELL, MODEL NO. 261

INSERTS: IN CONCRETE, GRINNELL, MODEL NO. 285 OR APPROVED EQUAL, HAVING ADJUSTMENT FROM 3/4 INCH THROUGH 1-1/4 INCH. IN METAL DECKS READHEAD SD1 OR APPROVED EQUAL. POWDER PROPELLED PERMITTED IN NEW CONSTRUCTION WHERE TYPE AND LOCATION ARE APPROVED PRIOR TO INSTALLATION. IN EXISTING CONSTRUCTION, START SLUGG NO. 6800 SERIES OR APPROVED EQUAL.

SIDE BEAM CLAMPS: PROVIDE WHEN SUPPORTING FROM STRUCTURAL STEEL MEMBERS, GRINNELL, MODEL 225 OR APPROVED EQUAL.

OTHER SUPPORTS: OBTAIN OWNER'S REPRESENTATIVE APPROVAL FOR OTHER METHODS OF SUPPORT.

SPACING OF HANGERS
PROVIDE HANGER AT EACH CHANGE OF DIRECTION.

SPACE HANGERS AND SUPPORTS TO PREVENT SAGGING AND REDUCE STRAIN ON VALVES AND SPECIALTIES WITH SPACING NO GREATER AND ROD NO SMALLER THAN SHOWN ON THE FOLLOWING TABLE. HANGERS SHALL ALLOW FOR EXPANSION AND CONTRACTION.

NECESSARY PLUMBING SERVICES, ACCESSIBLE VALVES ON PLUMBING BRANCHES AND MAKE ALL FINAL CONNECTIONS.

PLUMBING OPERATION AND MAINTENANCE MANUALS

DESCRIPTION
FURNISH TWO COPIES OF COMPLETE OPERATION AND MAINTENANCE MANUALS TO THE OWNER'S REPRESENTATIVE, FOR APPROVAL AND FOR THE OWNER, ON PLUMBING EQUIPMENT AND SPECIALTIES. THE MANUAL SHALL BE BOUND IN HARD-BACK, THREE-RING LOOSE-LEAF BINDERS.

MANUAL CONTENTS
TITLE SHEET WITH JOB NAME, AND THE NAMES, ADDRESSES AND PHONE NUMBERS OF THE CONTRACTOR, SUBCONTRACTOR, CONTROL, SUBCONTRACTOR, RELATED CONTRACTOR AND MATERIAL AND EQUIPMENT SUPPLIERS.

INDEX OF CONTENTS
TYPEWRITTEN OPERATING INSTRUCTIONS FOR THE OWNER'S PERSONNEL DESCRIBING HOW TO OPERATE EACH PIECE OF EQUIPMENT, AND CAUTION AND WARNING NOTICES.

APPROVED SHOP DRAWINGS, PRODUCT DATA AND PARTS AND MAINTENANCE BOOKLET FOR EACH ITEM OF PLUMBING, EQUIPMENT SPECIFIED IN DIVISION 15.

COPIES OF CERTIFICATES OF INSPECTION, WHERE INSPECTION IS REQUIRED, GUARANTEES, INCLUDING EXTENDED GUARANTEES.

SUBMIT MEDICAL GAS CERTIFICATION REPORT TO OWNER AND LOCAL AHA.

DELIVERY
DELIVER THE MANUALS TO THE OWNER'S REPRESENTATIVE PRIOR TO SUBMITTING APPLICATION FOR FINAL PAYMENT.

PLUMBING PIPING

DESCRIPTION
FURNISH AND INSTALL PLUMBING PIPING WHERE SHOWN ON DRAWINGS AND AS SPECIFIED.

PIPING MATERIALS
OPTIONS:

- CAST IRON HUBLESS SANITARY PIPE AND FITTINGS: CISPI STD. 301.
- CAST IRON SOIL PIPE AND FITTINGS, SERVICE WEIGHT: ASTM A 74.
- CAST IRON SOIL PIPE AND FITTINGS, EXTRA HEAVY WEIGHT: ASTM A 74.
- STEEL PIPE: ASTM A 53.
- MALLEABLE IRON FITTINGS, 150 LB.: ASTM A 197.
- PIPE THREADS: ANSI B2.1.
- NIPPLES, PIPE (THREADED): FED SPEC. WW-4-351.
- COPPER WATER TUBE: ASTM B 88.
- WROUGHT COPPER AND BRONZE SOLDER-JOINT PRESSURE FITTINGS: ANSI B16.29.
- WROUGHT COPPER AND WROUGHT COPPER ALLOY SOLDER-JOINT DRAINAGE FITTINGS: ANSI B16.29.
- CALCULUM LEAD, FED. SPEC. QQ-C-40 (2).
- SHEET LEAD, FED. SPEC. QQ-L-001.
- SHEET COPPER: ASTM B 152.
- NO-HUB STAINLESS STEEL COUPLING AND GASKETS: CISPI STD. S-301.
- WHERE ACCEPTABLE BY LOCAL AUTHORITY HAVING JURISDICTION SOLID WALL ABS PIPING MAY BE USED FOR WASTE PIPING.
- PVC/ABS PIPING CANNOT BE USED IN RETURN AIR PLENUM APPLICATION.
- WHERE ACCEPTABLE BY LOCAL AUTHORITY HAVING JURISDICTION PEX PIPING CONFORMING TO ASTM F876 MAY BE USED FOR HOT AND COLD WATER PIPING.

JOINTS AND CONNECTIONS

- CAST IRON, HUB AND SPIGOT: PACKED WITH OILKUM AND FINISHED WITH LEAD NOT LESS THAN 1 INCH DEEP, WELL CAULKED.
- CAST IRON, NO-HUB: NEOPRENE GASKET AND CORRUGATED 304 STAINLESS STEEL SHIELD IN CONJUNCTION WITH 4 STAINLESS STEEL CLAMPS FOR 4" AND SMALLER. 5 CLAMPS FOR 5" AND LARGER.
- BETWEEN LEAD AND BRASS: FERULOUS OR SOLDERING NIPPLES WITH WIPE, JOINTS 3/8" THICK AND 3/4" EACH SIDE OF JOINTS.
- SCREWED JOINTS: AMERICAN NATIONAL STANDARD WITH PIPE FREE FROM CUTTING AND BURRS. THREE THREADS EXPOSED MAXIMUM.
- SOLDERED JOINTS: 95% TIN/ANTIMONY SOLDER. SLIP JOINTS: USE FOR PLUMBING TRAP SEALS ON INLET SIDE ONLY.
- BETWEEN COPPER AND FERROUS MATERIALS: INSULATING DIELECTRIC UNION.
- FLANGED JOINTS: FURNISH WITH COMPANION FLANGE AND CLOTH INSERTED RUBBER GASKET.
- FLANGED BOLTS: ASTM A 354, MINIMUM GRADE B8, ALLOY STEEL WITH HEX NUTS IN COMPLIANCE WITH ANS B16.22 AND STANDARD ROLLED STEEL WASHERS.
- ASSEMBLY FOR HUBLESS PIPING: AS RECOMMENDED BY THE MANUFACTURER.
- CHANGES IN PIPE SIZE SHALL BE MADE WITH REDUCERS, INCREASES OR REDUCING FITTINGS. BUSHINGS WILL NOT BE PERMITTED.

INSTALLATION
BEFORE INSTALLING PIPE IN ANY PART OF THE SYSTEM, THE PIPE SHALL BE CLEANED INSIDE AND MADE FREE OF OIL, DIRT, AND FOREIGN MATTER. PROPERLY ALIGN AND INSTALL IN NEAT ARRANGEMENT, TRUE TO THE LINES OF THE BUILDING. PITCH LINE AT A CONSTANT SLOPE FOR PROPER DRAINAGE.

EXCEPT AS NOTED OTHERWISE ON DRAWINGS, PIPING SHALL BE HELD AS HIGH AS POSSIBLE. BETWEEN STRUCTURES AND THROUGH JOIST WEBBING, WITH DUE REGARD TO CONFLICTS WITH OTHER SYSTEMS AND THEIR REQUIREMENTS FOR SPACE.

PIPING, INCLUDING NO-HUB PIPING, SHALL BE INSTALLED STRAIGHT AND TRUE TO VERTICAL AND HORIZONTAL LINES. DEFLECTION SHALL NOT EXCEED ONE DEGREE. WHEN NECESSARY TO ACHIEVE THIS ALIGNMENT PROVIDE ADDITIONAL HANGERS OR BRACING.

APPLY LUBRICANT TO SCREW JOINT MALE THREADS.

METAL TO BE SOLDERED SHALL BE CLEANED AND FLUXED AS SUITABLE FOR THE SOLDER USED.

NOTHING OF COPPER TUBING OR PLASTIC PIPING FOR CONNECTIONS WILL NOT BE PERMITTED.

PLUMBING SPECIALTIES

PIPE SLEEVES
SCHEDULE 40 BLACK STEEL, GALVANIZED 26 GAGE STEEL. PROVIDE FOR ALL PIPES THROUGH WALLS AND FLOORS.

ESCUTCHEONS
PROVIDE FOR ALL PIPING THROUGH WALLS, FLOORS AND CEILING WHERE PIPING IS EXPOSED TO VIEW IN FINISHED AREA. ESCUTCHEONS SHALL BE CHROMIUM PLATED, TWO PIECE, HINGED WITH SET SCREW.

</