MECHANICAL SPECIFICATIONS

PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM.

DEFINITIONS: <u>FURNISH</u> MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. <u>INSTALL</u> MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. <u>PROVIDE</u> MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

PROVIDE OPERATION MANUALS, MAINTENANCE MANUALS AND SCHEMATICS FOR ALL MECHANICAL EQUIPMENT INSTALLED.

COORDINATION: COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NRCA" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOF WARRANTY.

DUCT DIMENSIONS: UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS.

SHEET METAL DUCTWORK: PROVIDE SHEET METAL DUCTWORK FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS, FOR 1" W.G. PRESSURE CLASS, SEAL CLASS "A". SHEET METAL SHALL BE GALVANIZED SHEET STEEL OF LOCK FORMING QUALITY, WITH G90 ZINC COATING. SHEET STEEL SHALL COMPLY WITH ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENTS FOR SHEET, METALLIC-COATED BY THE HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES AT ALL 90° ELBOWS.

TRAPEZE DUCT HANGERS: PROVIDE MINIMUM 1" X 2" X 1" X 18 GAUGE CHANNELS WITH MINIMUM 1" X 18 GAUGE STRAPS TO STRUCTURAL SUPPORT.

ROUND SHEET METAL DUCT: PROVIDE SPIRAL SEAM (ALL SIZES) OR SNAP LOCK (DUCT SIZES UP TO 10") GALVANIZED STEEL COMPLYING WITH SMACNA STANDARDS. SPIRAL SEAM DUCTWORK SHALL HAVE SMACNA SEAM TYPE RL-1.

FIBER GLASS DUCT BOARD IS AN ACCEPTABLE ALTERNATIVE IF APPROVED BY OWNER AND THE LOCAL BUILDING CODE OFFICIAL. PRODUCT AND INSTALLATION MUST MEET NAIMA STANDARDS AND OTHER APPLICABLE CODES AND REGULATIONS.

EXPOSED DUCTWORK: EXPOSED DUCTWORK SHALL BE CLEANED OF DEBRIS AND OIL, THEN WIPED DOWN WITH VINEGAR OR OTHER SURFACE PREPARING CHEMICAL TO PREPARE DUCT FOR PAINT.

DUCT SEALANT: PROVIDE POLYMERIC RUBBER TYPE SEALANT FOR USE ON BOTH INTERIOR LOCATED DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS. SEALER SHALL HAVE HIGH BONDING STRENGTH FOR SURE, FIRST TIME SEALING OF JOINTS IN LOW, MEDIUM, AND HIGH PRESSURE DUCT SYSTEMS. SEALER SHALL BE HIGH IN SOLID CONTENT. PROVIDE A TWO PART TAPE SEALING SYSTEM, CONSISTING OF WOVEN FIBER TAPE IMPREGNATED WITH A GYPSUM MINERAL COMPOUND, AND A MODIFIED ACRYLIC/SILICONE ACTIVATOR THAT REACTS EXOTHERMICALLY WITH THE TAPE. TWO PART TAPE SEALING SYSTEM MUST BE RATED FOR BOTH INDOOR AND OUTDOOR APPLICATION. TAPE SHALL NOT CONTAIN ASBESTOS.

DUCT INSULATION: MATERIAL FOR SUPPLY AND RETURN AIR DUCT ABOVE CEILING INSIDE THE BUILDING SHALL HAVE THE EQUIVALENT THERMAL RESISTANCE OF MINIMUM R-6. THE REQUIRED R VALUES ARE FOR INSTALLED INSULATION WITH 25% COMPRESSION AT THE CORNERS. PROVIDE PINS AND WASHERS IN ACCORDANCE WITH SMACNA REQUIREMENTS AND AS REQUIRED TO PREVENT INSULATION FROM SAGGING. PROVIDE ADEQUATE INSULATION AT THE SUPPLY AIR DIFFUSERS TO PREVENT CONDENSATION.

FLEXIBLE DUCT: UL #181 LISTED, CLASS 1, AND CONTAIN A 0.1 PERM RATED POLYETHYLENE INNER LINER, WITH R-8 FIBERGLASS INSULATION. FLEXIBLE DUCTS SHALL BE SECURED TO RIGID SHEET METAL COLLARS AND AIR DIFFUSERS WITH NYLON TIES OR STAINLESS STEEL WORM GEAR STRAPS. SEAL ALL CONNECTIONS AND JOINTS AIRTIGHT. SUPPORT FLEXIBLE DUCTS FROM THE BUILDINGS STRUCTURE WITH MINIMUM 1" WIDE, 18 GAUGE, GALVANIZED STEEL STRAP AT MAXIMUM 4'-0" CENTERS. PROVIDE 4" WIDE SHEET METAL SADDLES AT EACH SUPPORT EACH STRAP. SAG OF FLEXIBLE DUCT BETWEEN HANGERS SHALL NOT EXCEED 1/2" PER FOOT OF SUPPORT SPACING. RADIUS FOR TURNS OF FLEXIBLE DUCTS SHALL BE A MINIMUM OF ONE DUCT DIAMETER. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 10'-0" IN LENGTH AND SHALL BE THE SAME SIZE AS THE DIFFUSER NECK CONNECTION.

ROUND VOLUME DAMPERS: PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME AND BLADES, MINIMUM 3/8" SQUARE STEEL AXLE, MOLDED SYNTHETIC BEARINGS, WITH LOCKING POSITION REGULATOR. REGULATOR SHALL BE POSITIONED WITH SHEET METAL BRACKET BEYOND DUCT COVERING. WHERE POSITIONING REGULATOR IS NOT ACCESSIBLE, PROVIDE COUPLING AND EXTENSION ROD WITH REGULATOR FOR CEILING OR WALL INSTALLATION, AS REQUIRED.

RECTANGULAR VOLUME DAMPERS: PROVIDE MINIMUM 16 GAUGE GALVANIZED STEEL CHANNEL FRAME, 16 GAUGE GALVANIZED STEEL BLADES, MINIMUM ½" HEXAGONAL AXLE, BOLDED SYNTHETIC BEARINGS, WITH 3/8" SQUARE PLATED STEEL CONTROL SHAFT. LINKAGES SHALL BE CONCEALED IN THE FRAME. OPERATING SHAFT SHALL EXTEND BEYOND FRAME AND DUCT TO A LOCKING QUADRANT WITH ADJUSTABLE LEVER. MAXIMUM BLADE WIDTH SHALL NOT EXCEED 6".

DUCT TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". PROVIDE TURNING VANES CONSTRUCTED OF CURVED BLADES, SUPPORTED WITH BARS PERPENDICULAR TO BLADES, AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. FOLLOW SMACNA GUIDELINES FOR SPACING SUPPORT, AND CONSTRUCTION. ALL BLADES SHALL BE DOUBLE THICKNESS AIRFOIL TYPE.

FLEXIBLE DUCT CONNECTORS: PROVIDE U.L. LABELED 30 OUNCE NEOPRENE COATED FIBERGLASS FABRIC DUCT CONNECTORS.

DUCT ACCESS DOORS: PROVIDE HINGED ACCESS DOORS IN DUCTWORK WHERE REQUIRED FOR ACCESS TO EQUIPMENT. PROVIDE INSULATED ACCESS DOORS FOR INSULATED DUCTWORK. CONSTRUCT OF SAME OR THICKER GAUGE SHEET METAL AS DUCT IN WHICH IT IS INSTALLED. PROVIDE FLUSH FRAMES FOR UN-INSULATED DUCTS, AND EXTENDED FRAMES FOR EXTERNALLY INSULATED DUCTS. PROVIDE CONTINUOUS HINGE ON ONE SIDE, WITH ONE HANDLE-TYPE LATCH FOR ACCESS DOORS 12" HIGH AND SMALLER, AND TWO HANDLE-TYPE LATCHES FOR LARGER ACCESS DOORS.

HVAC CONTROL SYSTEM: PROVIDE ALL THE NECESSARY CONTROLS AND CONTROL WIRING IN CONDUIT COMPATIBLE TO SYSTEMS SHOWN ON EQUIPMENT SCHEDULE M2.0.

PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM SHALL ENABLE THE SUPPLY FAN AND CYCLE THE COOLING AND HEATING STAGES TO MAINTAIN SPACE SET-POINT. SUPPLY FAN RUNS CONTINUOUSLY DURING THE OCCUPIED MODE.

EACH THERMOSTAT SHALL HAVE A DEAD BAND OF AT LEAST 5 DEGREES (ADJ) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING IS SHUT OFF,

EACH THERMOSTAT SHALL HAVE SETBACK AND SET-UP CAPABILITY DURING THE UNOCCUPIED MODE. FOR SETBACK, THE HEATING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET-POINT ADJUSTABLE DOWN TO 55 DEGREES. FOR SET-UP, THE COOLING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET-POINT ADJUSTABLE UP TO 85 DEGREES OR TO PREVENT HIGH SPACE HUMIDITY LEVELS.

EACH SYSTEM SHALL BE PROVIDED WITH A MOTORIZED OUTSIDE AIR DAMPER THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACES SERVED ARE NOT IN USE. VENTILATION OUTSIDE AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY CLOSING DURING PREOCCUPANCY BUILDING WARM-UP, COOL DOWN, AND SETBACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (e.g., NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

COMMISSIONING/VERIFICATION: HVAC CONTROL SYSTEM SHALL BE TESTED TO ENSURE THAT CONTROL ELEMENTS ARE CALIBRATED, ADJUSTED, AND IN PROPER WORKING CONDITION, AND THAT THE SYSTEM MEETS THE DESIGN REQUIREMENTS.

TEST AND BALANCE: CONTRACT DIRECTLY A THIRD PARTY TO PROVIDE TEST AND BALANCE OF THE HVAC SYSTEM. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING. TEST AND ADJUST ALL MECHANICAL SYSTEM AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH NEBB PROCEDURAL STANDARDS-1999 OR AABC 2002, AND ASHRAE STANDARD 111. ELIMINATE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF CONTROLS. SUBMIT COMPLETED TEST AND BALANCE REPORT TO OWNER'S REPRESENTATIVE. BALANCING CONTRACTOR SHALL BE INDEPENDENT AND CERTIFIED WITH NEBB OR AABC. BALANCE ALL SYSTEMS WITHIN 5% OF AIR FLOW INDICATED ON DRAWINGS, AND REPORT ALL DISCREPANCIES TO THE HVAC CONTRACTOR FOR CORRECTION. MARK FINAL BALANCE POSITIONS ON DAMPERS WITH PERMANENT MARKER.

COMPLETION REQUIREMENTS: THE CONTRACTOR SHALL PROVIDE, WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS AND AN OPERATING AND MAINTENANCE MANUAL TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE OWNER.

THE RECORD DRAWING SHALL BE OF THE ACTUAL INSTALLATION AND INCLUDE AS A MINIMUM THE LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF DUCT AND PIPE DISTRIBUTION SYSTEM INCLUDING SIZES, AND THE TERMINAL AIR OR WATER DESIGN FLOW RATES.

THE OPERATING AND MAINTENANCE MANUALS SHALL BE IN ACCORDANCE WITH INDUSTRY-ACCEPTED STANDARDS AND SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING; (A) SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE; (B) OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED; (C) NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY; (D) HVAC CONTROLS SYSTEMS MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SYSTEM SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET-PIONTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS; (E) A COMPLETE NARRATIVE OF HOW EACH SYSTEM EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING SET-POINTS.

HVAC GENERAL NOTES

- 1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.
- 2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.
- 3. DRAWINGS FOR HVAC WORK ARE DIAGRAMATIC SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT, REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. PROVIDE ALL DUCTWORK, MATERIALS, CONNECTIONS, ACCESSORIES, FITTINGS, OFFSETS, TRANSITIONS, DAMPERS AS REQUIRED FOR A COMPLETE WORKABLE SYSTEM.
- 4. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND APPROVED LISTING. ALL EQUIPMENT, PIPING AND SUPPORTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE "GUIDLINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS" BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA). ALL EQUIPMENT SHALL BE ANCHORED TO RESIST THE LATERAL FORCE REQUIREMENTS OF CHAPTER 16 OF THE 2018 INTERNATIONAL BUILDING CODE.
- 5. COORDINATE THE INSTALLATION OF THE HVAC SYSTEM WITH ALL OTHER TRADES PRIOR TO FABRICATION OR INSTALLATION. COORDINATE THE LOCATIONS OF PENETRATIONS AND FINAL LOCATION OF ALL EQUIPMENT WITH THE GENERAL CONTRACTOR. PROVIDE EQUIPMENT WEIGHTS, EQUIPMENT DIMENSIONS, PLATFORM SIZES & LOCATIONS, CURB SIZES & LOCATIONS, CONCRETE PAD SIZES AND LOCATIONS AST REQUIRED. COORDINATE LOCATIONS OF GAS & CONDENSATE LINES WITH PLUMBING CONTRACTOR. COORDINATE LOCATIONS OF POWER, DISCONNECTS, AND CONTROL CONDUIT WITH THE ELECTICAL CONTRACTOR. COORDINATE LOCATIONS OF ALL DIFFUSERS, REGISTERS, AND GRILLES WITH ARCHITECTURAL PLANS, ELECTRICAL LIGHTING PLANS AND ARCHITECTURAL ELEVATIONS.
- 6. DETAILS FOR EQUIPMENT PADS, PLATFORMS, AND FLASHINGS SHALL BE AS INDICATED BY THE ARCHITECTURAL/STRUCTURAL/CIVIL DRAWINGS, UNLESS NOTED OTHERWISE.
- 7. ALL EQUIPMENT, DUCTS, PIPING, SUPPORTS, AND OTHER DEVICES OUTSIDE OF THE BUILDING OR EXPOSED TO WEATHER, SHALL BE COMPLETELY WEATHER-PROOFED.
- 8. OUTSIDE AIR INTAKES SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. BELOW ANY VENT OR EXHAUST DISCHARGE.
- 9. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. DUCTWORK SHALL BE CONSTRUCTED, ERECTED, INSULATED AND TESTED IN ACCORDANCE CHAPTER 6 OF THE 2018 INTERNATIONAL MECHANICAL CODE.
- 10. ALL EXHAUST FANS SHALL BE EQUIPED WITH A BACK DRAFT DAMPER.
- 11. DUCT AND AIR TRANSFER PENETRATIONS THRU BUILDING ASSEMBLIES REQUIRING PROTECTION SHALL BE PROTECTED WITH FIRE DAMPERS, SMOKE DAMPERS, COMBINATION SMOKE/FIRE DAMPERS AND CEILING RADIATION DAMPERS IN ACCORDANCE WITH SECTION 607 OF THE INTERNATIONAL MECHANICIAL CODE. DUCTS NOT REQUIRING DAMPERS SHALL COMPLY WITH SECTION 714 & 717 OF THE 2019 CALIFORNIA BUILDING CODE.
- 12. INSTALL SMOKED DETECTORS AND PROVIDE FOR SMOKE DETECTION AND AUTOMATIC SHUT-OFF OF ALL AIR HANDLING EQUIPMENT IN ACCORDANCE WITH SECTION 606 OF THE 2019 CALIFORNIA MECHANICAL CODE.
- 13. UNLESS NOTED OTHERWISE, ALL LINE VOLTAGE WIRING, CONDUIT, FINAL CONNECTIONS, DISCONNECTS, STARTERS, AND OVER CURRENT PROTECTION DEVICES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THESE MECHANICAL DRAWINGS AND/OR ELECTRICAL DRAWINGS AND/OR ELECTRICAL SECTION OF THE SPECIFICATIONS.
- 14. INSTALL ALL LOW VOLTAGE HVAC CONTROL WIRE AND DEVICES PER PLAN. ALL WIRE SHALL BE IN CONDUIT PROVIDED AND INSTALLED BY THE ELECTICAL CONTRACTOR UNLESS NOTEDED OTHERWISE.
- 15. PROVIDE OWNER WITH THREE COPIES OF A CERTIFIED AIR BALANCE REPORT PREPARED IN BY A THIRD PARTY CERTIFIED BY THE AABC OR NEBB. TEST, ADJUST AND BALANCE THE HVAC SYSTEM IN ACCORDANCE WITH AABC OR NEBB PROCEDURES. PROVIDE START-UP/TEST REPORTS FOR ALL AIR HANDLING EQUIPMENT, FANS, AND REFRIGERATION EQUIPMENT. TEST AND VERIFY PROPER OPERATION OF ALL MAKE-UP AIR/EXHAUST AIR INTERLOCK SYSTEMS AND THIER SEQUENCES OF OPERATION. BALANCE ALL AIR FLOWS WITHIN 5% OF DESIGN VALUES. PERMANENTLY MARK BALANCE POSITION OF ALL REGULATING DEVICES.
- 16. PROVIDE OWNER WITH THREE SETS OF AS-BUILT PLANS AND OPERATIONS AND MAINTENANCE MANUALS. CLEARLY IDENTIFY ALL EQUIPMENT WITH PERMANENT PLASTIC OR METAL LABELS/TAGS (PEN MARKING NOT ACCEPTABLE).
- 17. PROVIDE ONE YEAR WARRANTY ON ALL LABOR, PARTS AND MATERIALS.
- 18. ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK.

19.0

a) DUCTS FOR DEMAND CONTROLLED VENTILATION SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE FAN MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE PROVISIONS ASHRAE 62.2, TABLE 5.3, OR THE AIRFLOW SHALL BE MEASURED AS REQUIRED BY AND IN COMPLIANCE WITH ASHRAE 62.2, 5.4.

- b) DUCTS FOR KITCHEN COOKTOPS OR RANGES SHALL BE SHOWN OF METAL WITH A SMOOTH INTERIOR. [CMC 504.3].
- IDENTIFY THE DETAILED REQUIREMENTS OF CMC DRYER DUCTS. SPECIFY- DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE INSTALLED IN ACCORDANCE WITH CMC 504.0.
- b) DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE RIGID METALLIC DUCTS WITH A MINIMUM MILL THICKNESS OF 16 (0.016-INCH), SHALL HAVE A MINIMUM 4-INCH DIAMETER AND A SMOOTH INTERIOR. THE COMBINED HORIZONTAL AND VERTICAL LENGTH OF THE DUCTS OF THE DUCTS SHALL BE 14-FEET, WHICH SHALL BE REDUCED BY 2-FEET FOR EVERY 90-DEGREE ELBOW IN EXCESS OF TWO ELBOWS.
- c) LISTED CLOTHES DRYER TRANSITION DUCTS NOT MORE THAN 6-FEET IN LENGTH SHALL BE PERMITTED TO CONNECT THE DRYER TO THE EXHAUST DUCTS AS LONG AS THEY ARE NOT CONCEALED WITHIN CONSTRUCTION, AND THEY ARE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

		LEGEND
AxB		DUCT WORK (WIDTHXDEPTH)
AxB		LINED DUCT WORK (WIDTHXDEPTH DIMENSIONS ARE FOR I.D.)
		SUPPLY DUCT, SECTION
		RETURN DUCT, SECTION
		EXHAUST DUCT, SECTION
R.ORD		RISE OR DROP IN DIRECTION OF AIR FLOW
+	FLEX. CONN.	FLEXIBLE CONNECTION
		DUCT TRANSITION, ROUND AND RECTANGULAR
		SPLITTER DAMPER
		EXTRACTOR AT BRANCH DUCT
		TURNING VANES
- \\\\\-		FLEXIBLE DUCT
>		SINGLE LINE DUCT WORK
	AVD	AUTOMATIC VOLUME DAMPER
	VD	VOLUME DAMPER
+	BDD	BACKDRAFT DAMPER
<u> </u>	MD	MODULATING DAMPER
+ +	AFD	AUTOMATIC FIRE DAMPER
	AD	ACCESS DOOR
← □ ←	SD	SUPPLY DIFFUSER
	RR	RETURN REGISTER
	ER	EXHAUST REGISTER
	SWR	SIDE WALL SUPPLY REGISTER
	SWE	SIDE WALL RETURN OR EXHAUST
~~ [LD	LINEAR DIFFUSER
— D.L. —►	DL	DOOR LOUVER
— U.C. —►	UC	UNDER CUT DOOR
	VAV	VARIABLE AIR VOLUME
T		THERMOSTAT
S		DUCT SMOKE DECTECTOR

SPECIAL NOTICE TO CONTRACTORS

- 1. ALL CONTRACTORS (GENERAL CONTRACTOR AND SUB-CONTRACTORS) BIDDING THIS PROJECT ARE REQUIRED TO VISIT THE JOB SITE AND VERIFY THE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. CONTRACTORS ARE TO CAREFULLY REVIEW ALL CONSTRUCTION DOCUMENTS AND NOTE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED AT THE JOB SITE PRIOR TO SUBMISSION OF ANY BID. THE BUILDING OWNER REPRESNENTATIVE LISTED BELOW MAY BE CONTACTED FOR ACCESS TO THE JOB SITE.
- 2. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING THE LOCATION AND CONDITION OF ALL POINTS OF CONNECTION, LOCATION AND CONDITION OF ALL BUILDING (ROOF/FLOOR/CEILING) PENETRATIONS, LOCATION AND CONDITION OF ALL UTILITIES AND BUILDING SYSTEMS INCLUDING, BUT NOT LIMITED TO, GAS, WATER, SEWER, VENT, ELECTRICAL, BUILDING MECHANICAL SYSTEMS, DUCT CONNECTIONS, EXHAUST/OUTSIDE AIR CONNECTIONS, SECURITY, FIRE ALARM, DATA, AND PHONE PRIOR TO SUBMISSION OF THEIR BID.
- 3. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED SHALL BE BROUGHT TO THE ATTENTION, IN WRITING, TO THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- 4. NO WORK SHALL BE DONE ON ANY PART OF THE BUILDING BEYOND THE POINT INDICATED IN EACH SUCCESSIVE INSPECTION WITHOUT FIRST OBTAINING THE WRITTEN APPROVAL OF THE CODE OFFICIAL. NO CONSTRUCTION SHALL BE CONCEALED WITHOUT BEING INSPECTED AND APPROVED.

12/14/22 PLAN SUBMITTAL REVISIONS

No Date Issue / Revision

Title

MECHANICAL

LEGEND & ABV

© Copyright 2021 C J K D e s i g n Group

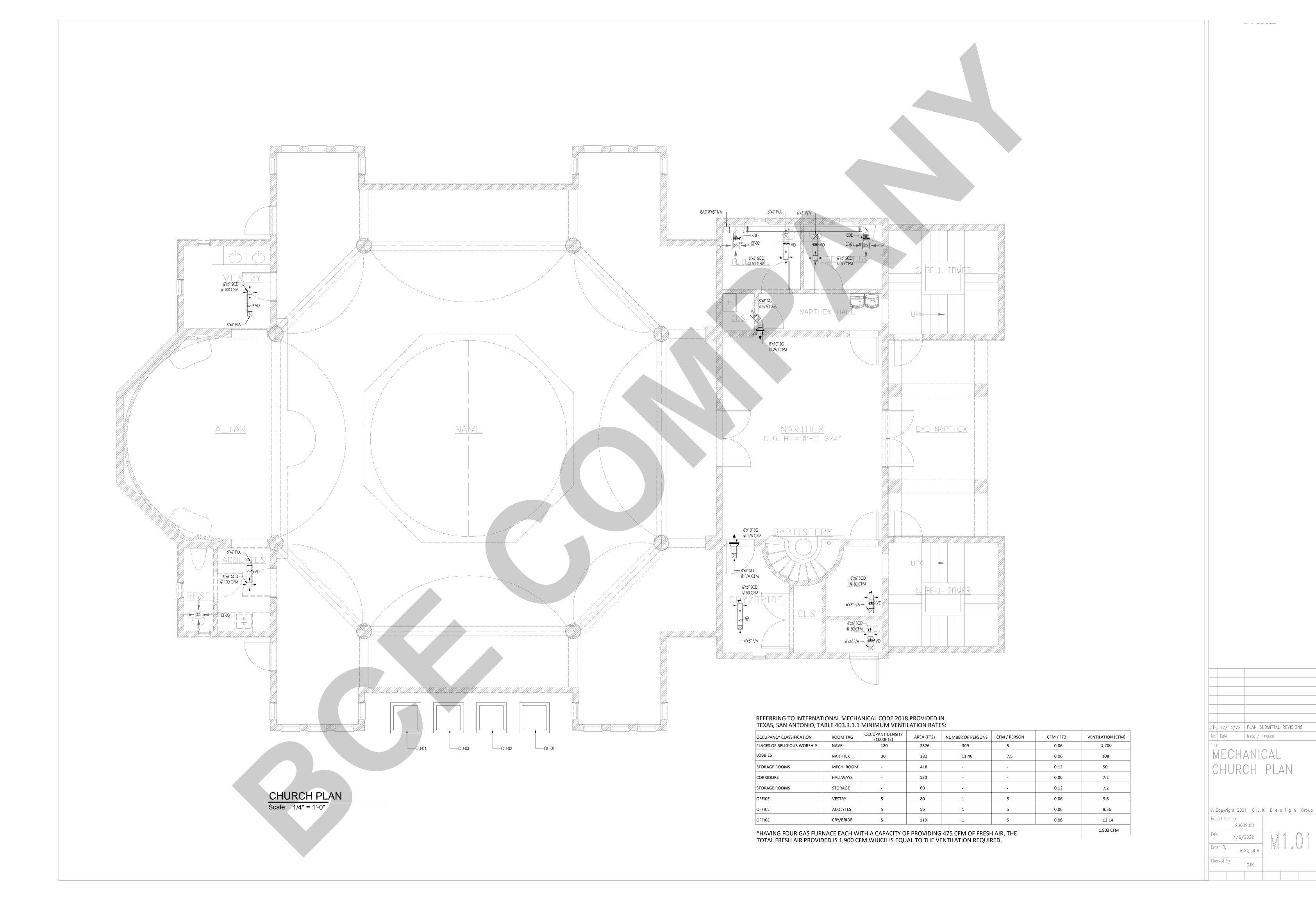
Project Number

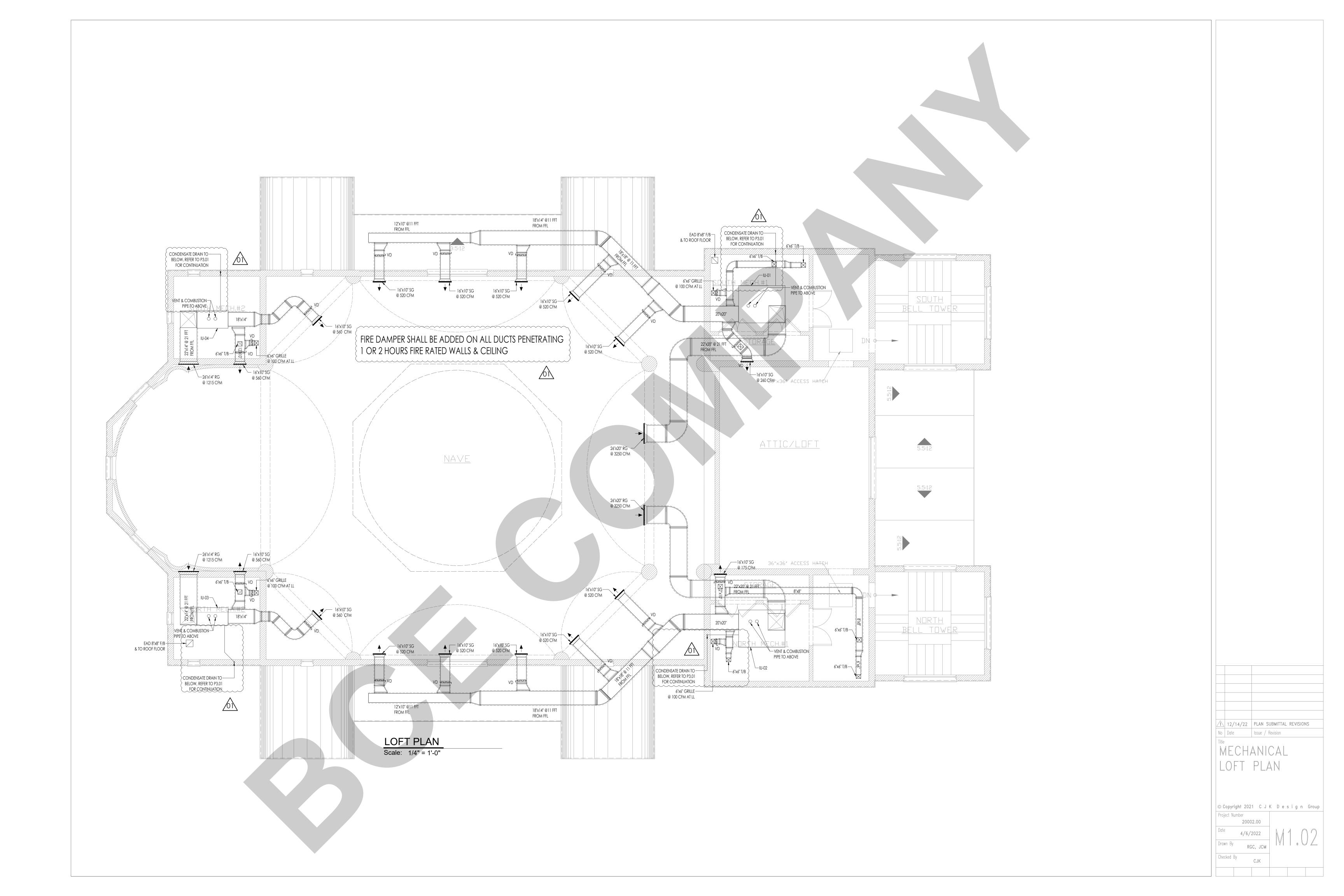
20002.00

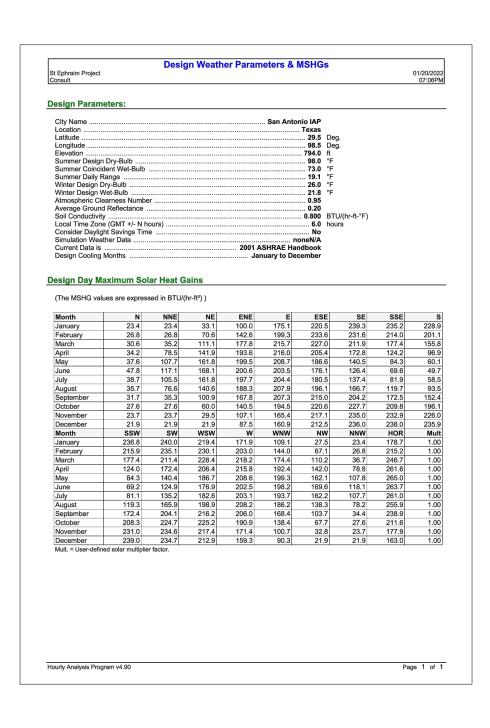
Date

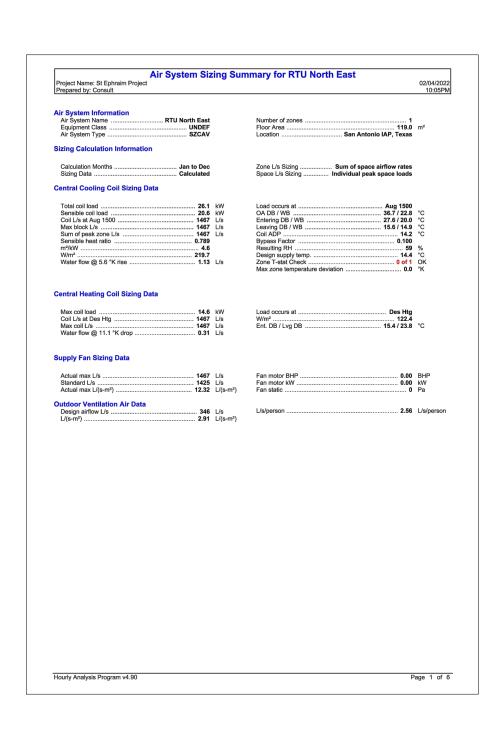
4/6/2022

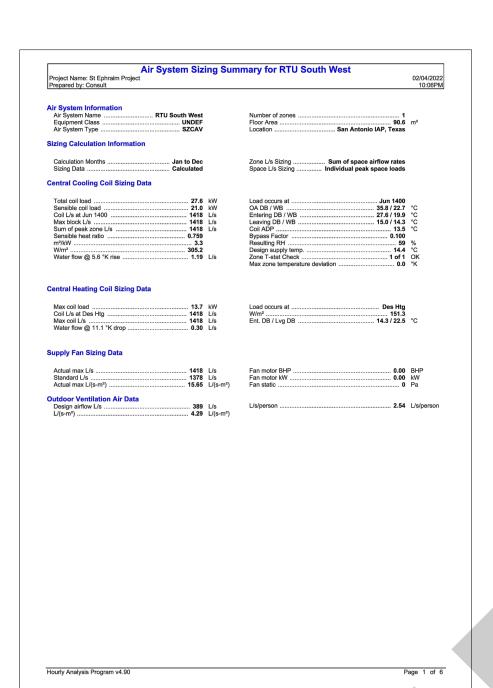
RGC, JCM

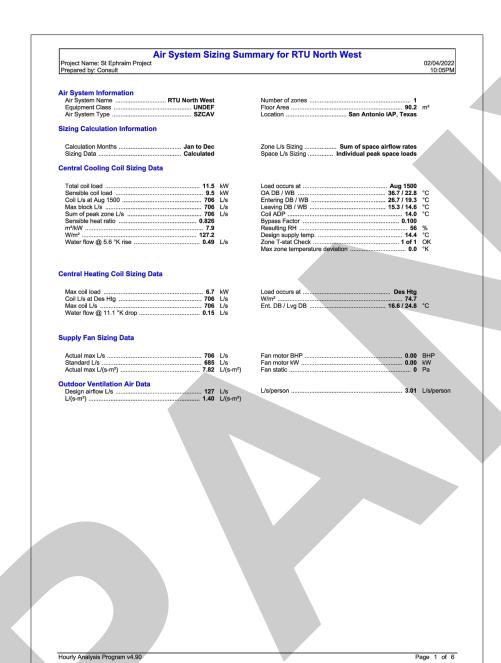


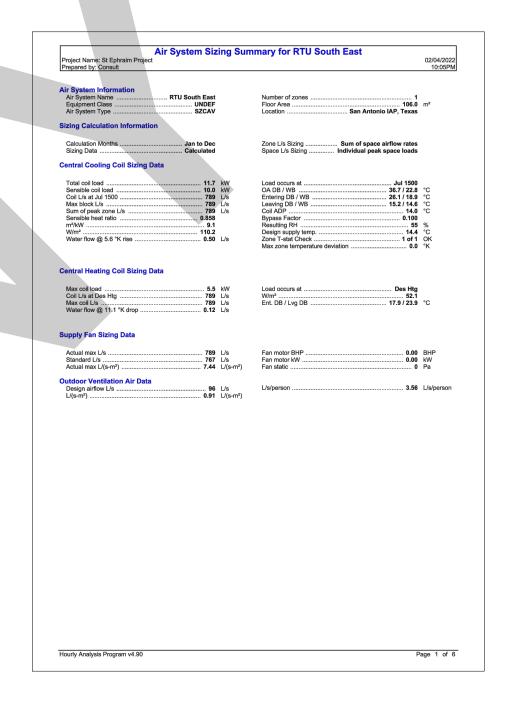




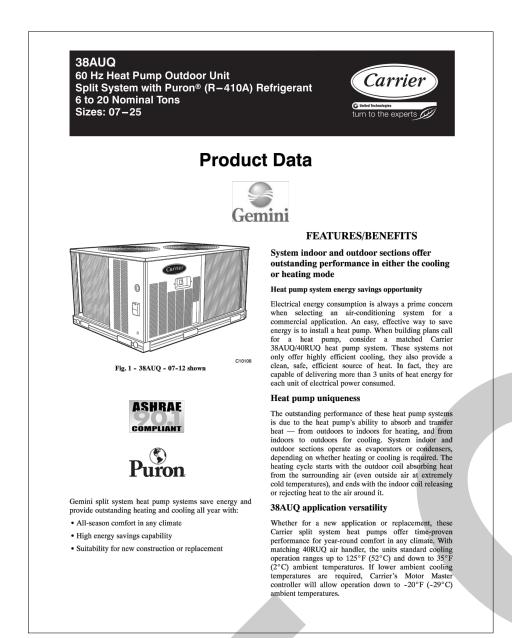


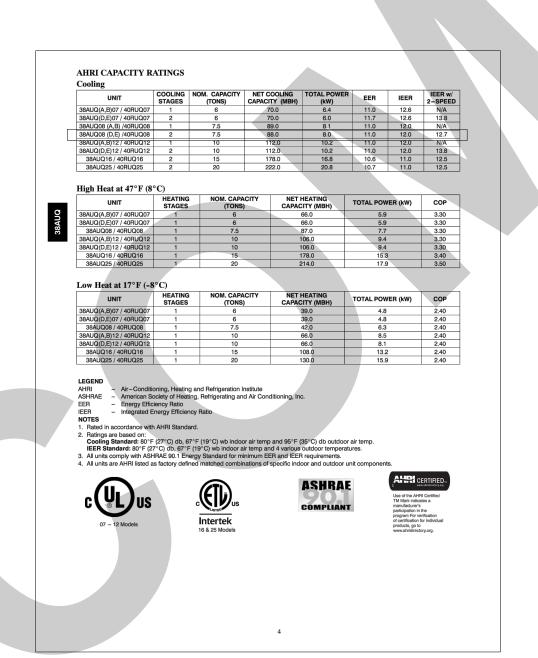


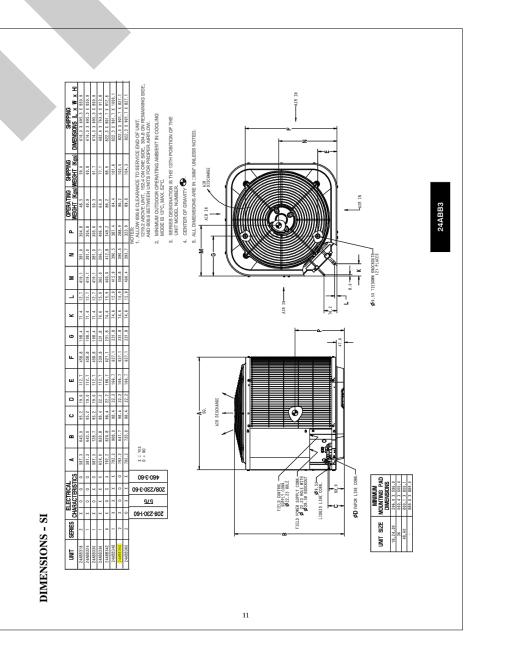


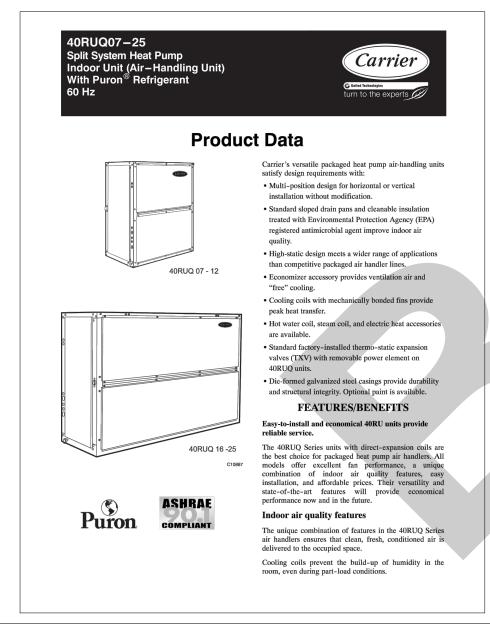


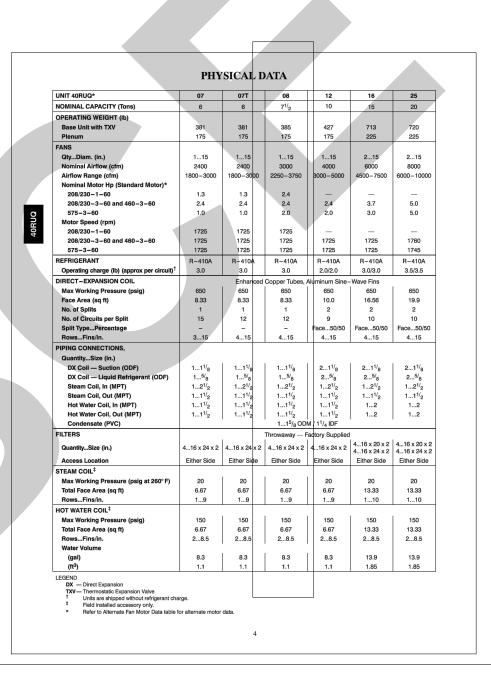












UNIT SIZE			040-08	040-12	060-08	60-12	060-16	080-12
Input Btuh*	ENFORMANCE		40,000	40,000	60,000	60,000	60,000	80,000
Output Capacity	Direct Vent (2-Pipe		37,000	37,000		6,000	56,000	74,000
BTUH* (ICS) (Shaded capa-		Downflow	37,000	37,000		6,000	56,000	74,000
cities are spe-	Non-Direct Vent (1-Pi	pe) Horizontal Upflow	37,000 37,000	37,000 37,000		56,000 56,000	56,000 56,000	74,000 74,000
cified on rating plate)	Non-Direct Vent (1-F)	Downflow	37,000	37,000		56.000	56,000	74,000
piate)		Horizontal	37,000	37,000	56,000	6,000	56,000	74,000
AFUE%	Direct Vent (2-Pipe		92.3	92.3	92.3	92.3	92.3	92.3
Nonweather- ized ICS		Downflow	91.2	91.2 92.1	91.2	91.2	91.2	91.2
	Non-Direct Vent (1-Pi	Horizontal ipe) Upflow	92.1	92.1	92.1	92.1	92.1	92.1
	14011—Billect Venit (1—11	Downflow			91			
		Horizontal			91			
Certified Tempera	ture Rise Range °F (°C)	·	30-60	15-45	45-75	30-60	20-50	40-70
Certified External	Static Proceuro	Heating	(17-33) 0.10	(8-25)	(25-41) (0.12	7-33) 0.12	(11-28) 0.12	(22-39)
Certilled External	Static Fressure	Cooling	0.50	0.50	0.50	0.50	0.50	0.13
Airflow CFM‡		Heating	850	1125	885	1065	1320	1190
		Cooling	895	1215	900	1200	1545	1245
ELECTRICAL Unit Volts – Hertz –	Dhoop				115-60	1		
	Range Min-Max**				104-12			
Maximum Unit Am	nps		6.1	7.4	6.1	7.2	9.6	7.7
Unit Ampacity††			8.4	10.0	8.4	9.8	12.8	10.4
Minimum Wire Siz Maximum Wire Le			14	14 37	14	14	14	14
			(13.4)	(11.2)	(13.4)	(11.5)	(8.8)	(10.9)
	ize or Ckt Bkr Amps (Time	-Delay Type Recommended)	15	15	15	15	15	15
Transformer (24v) External Control F	Power Aveilable	Heating			40va 12va			
External Control P	-Ower Available	Cooling			21va			
Air Conditioning E	Blower Relay				Standa	d		
CONTROLS								
Limit Control Heating Blower C	antrol (Off Dalay)				SPST Factory – Set at	12E Coo		
Burners (Monopo			2	2	3	3	3	4
Gas Connection S	Size				1/2-in. N	IPT T		
GAS CONTROLS								
Gas Valve (Redun	idant)	Manufacturer Min Inlet Pressure (In. wc)			White-Roo 4.5 (Natural	Gae\		
		Max Inlet Pressure (In. wc)			13.6 (Natura			
Ignition Device					Hot Surfa	ce		
BLOWER DATA	110.00		1 1 10				1/2	1/3
Motor Full Load A	or HP (Permanent Split Ca	ipacitor)	1/5	1/3	1/5	1/3	7.9	1/3 5.8
RPM (Nominal) – 8			1075-3	1075-4	1075-3	0.0	1075-4	0.0
Blower Wheel Dia	meter x Width - In. (mm)		10 x 6	10 x 7	10 x 6	10 x 7	11 x 8	10 x 7
			(254 x 152)	(254 x 178)	(254 x 152)	(254 x 178)	(279 x 203)	(254 x 178)
Filter Size - In. (n	nm) – Sold Separately		,		16 x 25 x 3/4 (4			
FACTORY-AUTH	HORIZED AND LISTED, D	EALER-INSTALLED OPTIONS			KGANP460			
	Kit-Natural-to-Propane Kit-Propane-to-Natural				KGAPN390			
Twinning Kit	di-Froparie-to-Haturar				I/A	ALL	KGATW	N/A
Manufactured (Mo	ahila) Hama Kit				KGAMH030	VIVIT	0601HSI	IN/A
Downflow Base**	*				KGASB030	1ALL		
Vent Termination	Kit (Bracket Only for 2 Pip	es)		-KGAVT010	1BRA	3-in.	-KGAVT020	1BRA
Concentric Vent T	ermination Kit (Single Exit)	2-in	-KGAVT070	OICVT	3-in.	-KGAVT080	1CVT
Condensate Free	ze Protection Kit ralizer Kit (Obtained Thru	BCD)			KGAHT010 P908-00			
	Without Filter) – Upflow ON				KGAFR020	BALL		
Electronic/Mecha				Mod	el EACA, EZXC	B, or FIL	_CAB	
Humidifier					Model H			
Heat/Energy Reco	overy Ventilator				Model H Model U			
Door Gasket Kit					KGBAC011	DGK		
Unframed Filter P	ermanent Washable 3/4-	in. (19 mm) thick						
16 x 25 (406 x 635 24 x 25 (610 x 635	5 mm) 5 mm)				KGAWF130	GUFR GUFP		
24 x 25 (610 x 635	ō mm)		1		KGAWF150	6UFR		

12/14/22 PLAN SUBMITTAL REVISIONS

No Date Issue / Revision

Title

MECHANICAL

CALCULATION

& CATALOGS

© Copyright 2021 C J K D e s i g n Group

Project Number
20002.00

Date 4/6/2022

Drawn By RGC, JCM

Checked By

CJK

GENERAL NOTES

- 1. MECHANICAL CONTRACTOR SHALL EXAMINE ALL OTHER SPECIFICATIONS, DRAWINGS AND ALL FEATURES OF BUILDING CONSTRUCTION WHICH MAY AFFECT HIS WORK AND SHALL B GOVERNED BY THESE AND OTHER SPECIFICATIONS, INCLUDIN THE GENERAL CONDITIONS AND PARTICULAR INSTRUCTIONS T ALL BIDDER AND SUPPLIERS
- 2. ALL WORK SHALL BE EXECUTED AND INSPECTED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND/OR STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THIS PARTICULAR CLASS OF WORK, AND EACH CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, TAXES, AND OTHER SIMILAR COSTS IN CONNECTION THEREWITH.
- PRIOR TO FABRICATION OF DUCTWORK, THE MECHANICAL CONTRACTOR SHALL EXAMINE AND VERIFY ALL CONDITIONS ABOVE AND BELOW THE CEILING WHICH MAY INTERFERE WITH THE DUCT SYSTEM AND NOTIFY THE ARCHITECT OF ANY CONFLICT ENCOUNTERED. CONTRACTOR SHALL PROVIDE ALL OFFSETS, ETC WHICH MAY BE REQUIRED, WITHOUT ADDITIONAL COST TO THE OWNER
- 4. ALL SHEET METAL DUCT CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH "SMACNA" LOW PRESSURE DUCT CONSTRUCTION STANDARD
- 5. TURNING VANES SHALL BE INSTALLED IN ALL BENDS IN RECTANGULAR DUCT EXCEEDING 30"
- 6. ALL DUCTS SHALL BE SUPPORTED WITH 1"WIDE, 16 GAUGE, GALVANIZED STEEL BANDS
- ALL RECTANGULAR DUCT SHALL BE INSULATED WITH A MIN OF 1"INTERNAL LINER, 2 LBS DENSITY R-60 ALL ROUND DUCTS AND DIFFUSER TOPS SHALL HAVE A MIN 2" THICK OF FOIL BACKED BLANKET TYPE INSULATION R=4-4 2, WITH ALL JOINTS BUTTED AND TAPED
- 8. ALL DUCT DIMENSIONS SHOWN ON PLANS ARE INTERNAL
- 9. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF SUPPLY AND RETURN AIR REGISTERS, DUCTS, GRILLES AND DIFFUSERS WITH LIGHTING AND CEILING PATTERNS
- 10. PROVIDE LATERAL BRACING OF ALL DUCTS AND PIPES AS REQUIRED BY CODE
- 11. INSULATE AND SEAL ALL DUCTWORK PER CHAPTER 10 OF THE STATE MECHANICAL CODE (T-24, PART 4)
- 12. MOUNT ALL THERMOSTATS AT 48" ABOVE FINISHED **FLOOR**
- 13. ALL BRACING OF DUCTS AND PIPING SHALL BE INSTALLED IN **ACCORDANCE WITH SMACNA GUIDELINES**
- 14. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND THE MECHANICAL ENGINEER
- 15. DUCT SMOKE DETECTOR SHALL BE INSTALLED BELOW THE ROOF
- 16. ALL MECHANICAL EQUIPMENT AND SYSTEMS INSTALLED AS PART OF PROJECT SHALL COMPLY WITH ALL REQUIREMENTS OF THE 2013 CALIFORNIA MECHANICAL CODE AND THE 2013 CALIFORNIA BUILDINGCODE AND THE 2013 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS
- 17. OUTSIDE AIR FOR A HEATING OR COOLING SYSTEM SHALL NOT BE TAKEN FROM CLOSER THAN 10 FEET FROM AN APPLIANCE VENT OUTLET, VENT OPENING OF A PLUMBING SYSTEM, OR THE DISCHARGE OUTLET OF EXHAUST FAN, UNLESS THE OUTLET IS 3 FT. ABOVE THE OUTSIDE AIR INLET (CMC 314 3)
- 18. PROVIDE 120 VOLT ELECTRICAL OUTLETS WITHIN 25 FT OF ALL MECH EQUIPT (CMC 309)
- 19. HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS IN ACCORDANCE WITH CMC 317.1 REQUIREMENTS.
 - A. AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE
 - B. ACCA MANUAL B
 - ASHRAE 111
 - D. NEBB PROCEDURAL STANDARDS FOR TESTING, ADJUSTING ADJUSTING BALANCING OF ENVIRONMENTAL SYSTEMS
 - E. SMACNA HVAC TESTING, ADJUSTING, AND BALANCING
- 20. MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NON COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX NOT TO EXCEED 25 AND A SMOKE DEVELOPED INDEX NOT TO EXCEED 50 WHERE TESTED AS A COMPOSITE PRODUCT IN ACCORDANCE WITH ASTM E84 OR UL 723

FURNACE AND COIL SCHEDULE

TAG	MANUFACTURER	MODEL	TOTAL COOLING (MBH)	HEATING UNIT (MBH)	HEATING TOTAL (MBH)	SUPPLY AIRFLOW (CFM)	MIN VENTILATION AIRFLOW (CFM)	МСА	MAX FUSE	VOLT/PH/HZ	DIMENSION (LxWxH) INCHES
IU-01	CARRIER	40RUQ08	96.00	112.00	120.00	3300.00	660.00	13.8 A	20 A	230/1/60	48 x 60 x 30
IU-02	CARRIER	40RUQ08	96.00	112.00	120.00	3300.00	660.00	13.8 A	20 A	230/1/60	48 x 60 x 30
IU-03	CARRIER	58MCB60-08	36.00	60.00	56.00	1215.00	250.00	14.6 A	20 A	115/1/60	40 x 23 x 23
IU-04	CARRIER	58MCB60-08	36.00	60.00	56.00	1215.00	250.00	14.6 A	20 A	115/1/60	40 x 23 x 23

- 1. SEQUENCE OF OPERATION: OUTSIDE AIR DAMPER OPENS TO 7.5% OF MINIMUM CFM INDICATED. ON A RISE IN CO2 (DETECTED BY SENSOR LOCATED NEXT TO T-STAT) OUTSIDE AIR DAMPER OPENS TO AMOUNT INDICATED & RELIEF DAMPER OPENS.
- 2. ALL UNITS SHALL BE EQUIPPED WITH SMOKE DETECTOR IN RETURN AIR DUCT, PRIOR TO ENTERING UNIT, SO THAT IN THE EVEN OF FIRE, DETECTOR SHALL DEACTIVATE BLOWER MOTOR & SOUND ALARM.

CONDENSING UNIT SCHEDULE				
TAG	OU-01	OU-02	OU-03	OU-04
SERVING	IU-01	IU-02	IU-03	IU-04
MANUFACTURER	CARRIER	CARRIER	CARRIER	CARRIER
OUTDOOR MODEL	38AUQ-08	38AUQ-08	24ABB3-60-52	24ABB3-60-52
COOLING CAPACITY	8 TONS	8 TONS	2 TONS	2 TONS
MINIMUM CIRCUIT AMPACITY	35 A	35 A	17.6 A	17.6 A
MAX OVERCURRENT DEVICE	50 A	50 A	25 A	25 A
ELECTRICAL (V/PH/HZ)	230/3/60	230/3/60	230/1/60	230/1/60
DIMENSION (L x W x H) INCHES	60 x 46 x 40	60 x 46 x 40	23 x 23 x 26	23 x 23 x 26

	Y GRILL ULE - S								
CFM	RANGE	F	ACE S	IZE	DUCT SIZE				
0 -	125		8″×8′	/	6	o"×6"			
126	- 225		10"×10"			8"×8"			
226	- 330		14″×8	//	12	2"×6"			
331 -	- 440		14″×10	//	12″×8″				
441	580		14″×12	//	12	"×10"			
	SIZE TO RWISE N			SHO	JWN UNLESS				
	SIZE TO SS OTHE				WN DR	R EQUIVALENT			
LDUV	'ER SCH	IEDU	LE						
TAG	TAG TYPE		CFM	PR. :	DROP '.G.	MANUFACTURER MDDEL			
L-1	INTAKE	AIR	50	0.0	3	RUSKIN ELF6375DX			

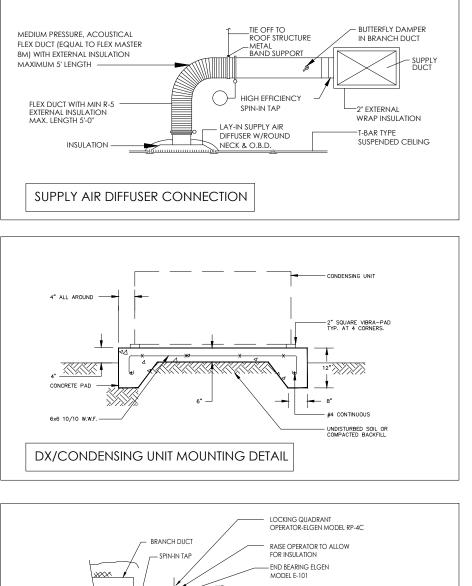
10"×8"	8″×6″						
10"×10"	8"×8"						
14"×12"	12″×10″						
24"×12"	14"×14"						
24"×18"	16"×16"						
24"×24"	18″×16″						
BE SIZE SHOW TED	'N UNLESS						
DUCT SIZE TO BE SIZE SHOWN OR EQUIVALENT UNLESS OTHERWISE NOTED							
	14"×12" 24"×12" 24"×18" 24"×24" BE SIZE SHOW FED BE SIZE SHOW						

EXHAUST FAN SCHEDULE

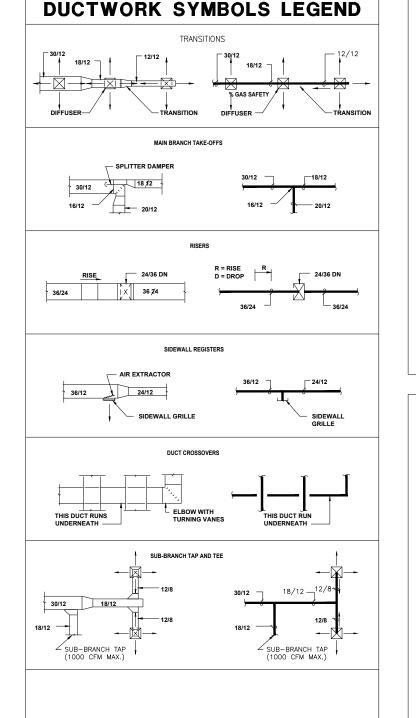
TAG	EF-01-EF-03
LOCATION	TOILETS
DESIGN SUPPLY VOLUME (CFM)	50
SELECT SUPPLY VOLUME (CFM)	50
DESIGN PRESSURE DROP (INCH W.C.)	0.250
SELECTED PRESSURE DROP (INCH W.C.)	0.250
ELECTRICAL (V / PH / HZ)	120 / 1 / 60
CURRENT (A)	0.20
MOTOR SPEED (RPM)	1182
FAN TYPE	CEILING MOUNT
DRIVE TYPE	DIRECT DRIVE
MANUFACTURER	PANASONIC
MODEL	FV-0511KV2

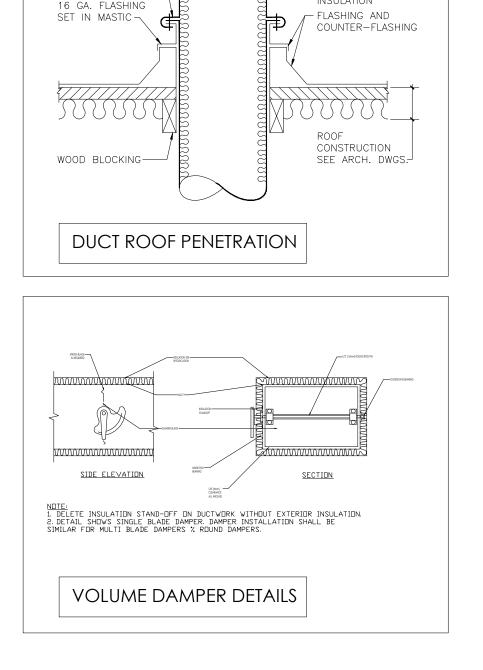
NOTES

- PROVIDE UL LISTING.
- PROVIDE ENERGY STAR COMPLIANCE.
- 3. INTERLOCK WITH WALL SWITCH. 4. PROVIDE MOTOR WITH THERMAL OVERLOADS.



FLEXIBLE DUCT TAP



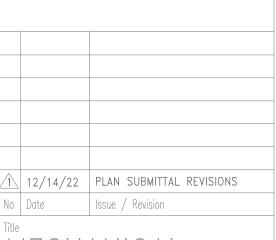


INSULATION

GOVT. LOCK

WITH MASTIC ---

16 GA. FLASHING



MECHANICAL EQUIPMENT SCHEDULE



LIST OF SYMBOLS AND SERVICES

	SURFACE MTD. 1'W X 4'L LIGHTING FIXTURE, "LITHONIA LIGHTING"ZL1N-L46-3000LM-35K-MVOLT LED 25W WITH 90 MIN BATTER'
[0]	INDIRECT COVE LIGHT SIMILAR TO PHILIPS V4 INDIRECT LIGHTING POINT OUTLET
10	VALANCE LIGHTING SIMILAR TO PHILIPS V4 INDIRECT LIGHTING POINT OUTLET
	LED LIGHTING TRACK BEYOND ICON SCREEN SIMILAR TO PHILIPS V4 INDIRECT LIGHTING POINT OUTLET
0	CEILING RECESSED LED (6" ROUND) "LITHONIA LTG" LDN6 40/05 LO6AR LD LED 20W
	CEILING RECESSED LED (6" ROUND) "LITHONIA LTG" LDN6 40/05 LO6AR LD LED 20W WITH 90MIN BATTERY
∇	CEILING MOUNTED EMERGENCY ILLUMINATION FIXTURE. SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN SIMILAR TO COOPER CEL10050SD TYPE EE
EXIT	EXIT SIGN WITH EMERGENCY LIGHT SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN SIMILAR NICOR EXL2
	WALL MOUNTED LIGHTING POINT FOR STAIRS ZONE SIMILAR TO ABL Gotham ICO4UDWC
_D S ⁰	SINGLE POLE SWITCH , 20A, 120/277 VOLTS - WALL MOUNTED @ +48" A.F.F.L TO CENTER. D: DENOTES SWITCH WITH ELECTRONIC DIMMER O: DENOTES OCCUPANCY SENSOR
S ₀	3 WAY SWITCH, 20A, 120/277 VOLTS - WALL MOUNTED @ +48" A.F.F.L TO CENTER. D: DENOTES SWITCH WITH ELECTRONIC DIMMER O: DENOTES OCCUPANCY SENSOR
SF	ONE WAY ONE GANG SWITCH FOR TOILET EXHAUST FAN - WALL MOUNTED @ +48" A.F.F.L
	DAY LIGHT SENSOR
	120/240V, 1PH, 3W LOAD CENTER
	SINGLE RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
	DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
	JUNCTION BOX - WALL MOUNTED - HEIGHT AS INDICATED
J	JUNCTION BOX
YxXXA └─	NON-FUSED DISCONNECT SWITCH - SIZE AS INDICATED
. — — — —	- CONDUITS IN CEILING
	CONDUITS UNDER TILES
NSTALLATION HEIG h1: 23.622 ind h2: 43.3071 ir h3: 47.2441 ir h4: 70.86 incl	ches. nches.

DRAWING LIST

E0.00	DRAWING LIST AND LEGEND AND GENERAL NOTES	NTS
E0.01	ELECTRICAL SPECIFICATIONS	NTS
E1.01	GROUND FLOOR LIGHTING LAYOUT	1/4"=1'
E1.02	MEZZANINE FLOOR LIGHTING LAYOUT	1/4"=1'
E1.03	FACADE LIGHTING	NTS
E2.01	GROUND FLOOR POWER LAYOUT	1/4"=1'
E2.02	MEZZANINE FLOOR POWER LAYOUT	1/4"=1'
E3.01	PANEL BOARDS SCHEDULE AND POWER RISER DIAGRAM	NTS
E4.01	GENERAL DETAILS SHEET-1	NTS
E4.02	GENERAL DETAILS SHEET-2	NTS
E5.01	STREET LIGHTING LAYOUT	NTS

GENERAL NOTES:

- 1. ALL WORK AND EQUIPMENT UNDER THIS DIVISION SHALL BE IN STRICT COMPLIANCE WITH THE CODES, STANDARDS AND PRACTICES LISTED HEREIN, AND THEIR RESPECTIVE DATES ARE FURNISHED AS THE MINIMUM LATEST REQUIREMENTS.
- A. LIFE SAFETY CODE

 B. NATIONAL FIRE PROTECTION ASSOCIATION
- C. NATIONAL ELECTRICAL CODE
- D. AMERICAN NATIONAL STANDARDS INSTITUTE
- E. INSTITUTE IF ELECTRICAL AND ELECTRONIC ASSOCIATION
 F. NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)
- G. REQUIREMENTS OF LOCAL POWER COMPANY
- H. BUILDING CODE
- 2. THE ELECTRICAL INSTALLATION SHALL MEET THE APPROVAL OF THE LOCAL GOVERNING AUTHORITIES AND THE OWNER'S REPRESENTATIVE PRIOR TO ACCEPTANCE.
- 3. REFER TO THE ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, CIVIL, INTERIOR DESIGN, FOR RELATED INFORMATION AND ADDITIONAL INSTALLATION REQUIREMENTS TO BE CONSIDERED AS PART OF THE ELECTRICAL CONTRACT DOCUMENTS.
- 4. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION THE CONTRACTOR IS EXPECTED TO FURNISH ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM. PROVIDE EVERYTHING NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MINOR ITEMS WHICH ARE OBVIOUSLY NECESSARY TO COMPLETE THE INSTALLATION.
- 5. LIGHT SWITCHES SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR TO CENTER LINE OF THE DEVICE, UNLESS NOTED OTHERWISE. GANG SWITCHES AND DIMMER WITH A COMMON PLATE WHERE TWO (2) OR MORE ARE INDICATED ADJACENT TO EACH OTHER
- 6. RECEPTACLES SHALL BE LOCATED 18" ABOVE FINISHED FLOOR TO CENTER LINE OF DEVICE. UNLESS NOTED OTHERWISE. ABOVE-COUNTER RECEPTACLES SHALL BE MOUNTED 6" ABOVE BACK SPLASH TO CENTERLINE OF DEVICE UNLESS NOTED OTHERWISE.
- 7. USE GALVANIZED RIGID STEEL CONDUIT WHERE EPOSED TO EXTERIOR CONDITIONS OR WHERE EXPOSED IN ANY LOCATIONS WHERE SUBJECT TO MECHANICAL DAMAGE. EMT SHALL BE PROVIDED WITH SET SCREW STEEL FITTINGS FOR INSTALLATION IN ALL CONCEALED WALLS AND CEILINGS IN DRY AREAS. ALL CONDUIT FOR LIGHTING PROTECTION SHALL BE PVC, SCHEDULE 40. UNLESS OTHERWISE NOTED, PVC MAY BE USED WHERE BURIED UNDER GRADE AND ENCASED IN CONCRETE SLAB OR WALLS. ALUMINUM CONDUIT IS NOT ALLOWED. EMT CAN BE USED IN DRY AREAS WHEN INSTALLED 10 FEET ABOVE FINISHED FLOOR LEVEL.
- 8. ALL CONDUITS IN PUBLIC SHALL BE CONCEALED UNLESS NOTED OTHERWISE.

ELECTRICAL ABBREVIATIONS

WEATHER PROOF

W.P

FF	ABOVE FINISHED FLOOR	HOA	HAND-OFF-AUTOMATIC		SWITCH BOARD
FG	ABOVE FINISHED GRADE	HP	HORSEPOWER	SQFT	SQUARE FEET
/C	AMP INTERRUPTING CURRENT				
	ALUMINUM	IG	ISOLATED GROUND	TL	TWISTLOCK
S	AUTOMATIC TRANSFER SWITCH			TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
		JBOX	JUNCTION BOX	TVP	TYPICAL
G	BELOW FINISHED GRADE				
BD	BACKBOARD	KVA	KILOVOLT-AMPS	UG	UNDERGROUND
		KW	KILOWATT	UMC	UNIFORM MECHANICAL CODE
: U	CONDUIT COPPER			UON	UNLESS OTHERWISE NOTED
J	COPPER	MCC	MOTOR CONTROL CENTER	UPS	UNINTERRUPTABLE POWER SUPPLY
		MPC	MINI POWER CENTER		
3	DISTRIBUTION BOARD			V	VOLTS
		NC	NORMALLY CLOSED	VA	VOLT-AMPS
)	EXISTING TO REMAIN	NEC	NATIONAL ELECTRIC CODE	V/PH/A	VOLTS/PHASE/AMPS
4	EACH	NF	NON-FUSED	V/PH/HZ	VOLTS/PHASE/HERTZ
M	EMERGENCY	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	VFD	CARIABLE FREQUENCY DRIVE - PROVIDED BY
NCS	ENERGY MANAGEMENT CONTROL SYSTEM	NIC	NOT IN CONTRACT	MECHANICA	
٧C	ELECTRIC WATER COOLER	NL	NIGHT LIGHT	WP	WEATHER PROOF (NEMA 3R)
		NO	NOT TO SCALE		
	FUSE (DUAL ELEMENT, TIME DELAY)			(X)	EXISTING TO BE REMOVED
30	FINISHED BY OTHERS	PB	PULLBOX	XFMR	TRANSFORMER
Ν	FUSE PER NAMEPLATE	PNL	PANEL BOARD	XP	EXPLOSION PROOF
CI	GROUND FAULT CIRCUIT INTERRUPTER	(R)	EXISTING TO BE RELOCATED		
SND	GROUND	RGS	RIGID GALVANIZED STEEL		

12/14/22 PLAN SUBMITTAL REVISIONS

No Date Issue / Revision

Title

LEGEND AND

GENERAL

ABBREVIATION

© Copyright 2021 C J K D e s i g n Group

Project Number
20002.00

Date 4/6/2022

Drawn By RGC, JCM

Checked By

ELECTRICAL SPECIFICATIONS

- 1. <u>DO NOT SCALE DRAWINGS.</u> VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK
- 2. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "PROVIDE AND INSTALL".
- 3. FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE
- THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- 4. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER RESERVES THE RIGHT TO APPROVE METHODS AND MATERIALS NOT REFLECTED HEREIN.
- 5. CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND OTHER RELATED DRAWINGS PRIOR TO BID.
- 6. CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR
- SHALL INCLUDE IN HIS BID, ANY COSTS REQUIRED TO MAKE HIS WORK MEET THE CONTRACT SCOPE UTILIZING EXISTING CONDITIONS.
- 7. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.
- 8. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES AND ORDINANCES.
- 9. PROVIDE PERMITS AND INSPECTIONS REQUIRED.
- 10. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD
- OF ONE YEAR AFTER OWNER'S ACCEPTANCE, DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
- 11. PROVIDE RECORD DRAWINGS TO ENGINEER. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
- 12. VERIFY SPECIFIC LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- 13. ELECTRICAL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
- 14. RECESSED LIGHT FIXTURES INSTALLED IN GYP. BOARD OR PLASTER CEILINGS SHALL HAVE PLASTER FRAMES INSTALLED PRIOR TO CEILING MATERIAL.
- 15. RECESSED FIXTURES INSTALLED INDOORS SHALL BE THERMALLY PROTECTED.
- 16. SEE DIVISION 15 DRAWINGS FOR LOCATION OF MECHANICAL EQUIPMENT. PROVIDE SERVICE TO AND CONNECT EQUIPMENT AS REQUIRED.
- 17. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS.
- 18. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
- 19. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C.
- 20. THE FOLLOWING CONDUCTOR SIZES SHALL BE UTILIZED FOR 20 AMP CIRCUITS PERTAINING TO DISTANCES (IN FEET) INDICATED:

CONDUCTOR 240 VOLT, (1PH) #10AWG 130-212 213-321

NOTE: BASED ON 75°C COPPER CONDUCTORS INSTALLED IN EMT WITH 16AMP LOAD @ 85% P.F.

- 21. CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SHALL PROVIDE LIGHTS, SWITCHES, RECEPTACLES, EQUIPMENT CONNECTIONS, ETC., AND ASSOCIATED CIRCUITING IN NEW AND REMODELED AREAS, EVEN IF SUCH AREAS ARE NOT SHOWN ON ELECTRICAL DRAWINGS. LAYOUTS, FIXTURE TYPES, QUANTITIES AND SPACING SHALL BE IN ACCORDANCE WITH SIMILAR AREAS ON THIS PROJECT. CONTRACTOR SHALL INCLUDE COSTS FOR THE ABOVE IN HIS BID. IN ADDITION, CONTRACTOR SHALL PROVIDE LAYOUT DRAWINGS FOR WORK IN SUCH AREAS AND SUBMIT FOR APPROVAL PRIOR TO ROUGH-IN.
- 22. WIRE SHALL BE COPPER, 75 DEGREES C RATED FOR GENERAL USE, FOR WIRING WITHIN 3 INCHES OF FLUORESCENT BALLASTS WIRE SHALL BE COPPER, MINIMUM 90 DEGREES C RATED. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30 DEGREES C AMBIENT. CONDUCTOR AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS. 600 VOLT COMPACT ALUMINUM WIRE AND CABLE IN SIZES 1/0 AND LARGER MAY BE SUBSTITUTED FOR COPPER ON SERVICES AND FEEDERS IF AMPACITY IS EQUIVALENT TO OR GREATER
- 23. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS
- 24. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS, EQUIPMENT OR INSTALLATION METHODS.
- 25. ELECTRICAL SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION AT COMPLETION OF PROJECT.
- 26. RECEPTACLES WHICH ARE SHOWN WALL MOUNTED ON THE ELECTRICAL DRAWINGS ON WALLS WHICH, ON THE ARCHITECTURAL DRAWINGS AND ELEVATIONS ARE SHOWN AS GLASS OR PARTITIONS, SHALL BE FLUSH FLOOR
- 27. RECEPTACLES AT COUNTER SHALL BE MOUNTED WITH THEIR LONG AXIS HORIZONTAL AT +46" UNLESS NOTED.
- 28. FLUSH FLOOR RECEPTACLE OUTLETS SHALL BE WIREMOLD 862 SERIES. PROVIDE CARPET OR TILE FLANGE TO MATCH FLOOR FINISH.
- 29. THE COLOR OF THE DEVICES AND COVER PLATES SHALL BE AS DIRECTED BY ARCHITECT. IN DAMP OR WET LOCATIONS COVER PLATES SHALL BE STAINLESS STEEL. IN DRY LOCATIONS COVER PLATES SHALL BE SMOOTH HIGH ABUSE NYLON OR EQUIVALENT. PROVIDE COVER PLATES FOR SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, COMPUTER AND J-BOX OUTLETS AS REQUIRED.
- 30. ROMEX CABLE WITH A GROUNDING CONDUCTOR MAY BE USED WHERE PERMITTED BY BOTH THE N.E.C. AND LOCAL ORDINANCES.
- 31. DISCONNECT SWITCHES SHALL BE GENERAL DUTY TYPE. FUSIBLE SWITCHES SHALL ACCEPT CLASS 'R' FUSES ONLY AND REJECT ALL OTHERS.
- 32. FINAL CONNECTIONS TO VIBRATING EQUIPMENT SHALL BE WITH FLEX (LIQUIDTIGHT FOR EXTERIOR APPLICATIONS) AND APPROVED FITTINGS. DO NOT SECURE CONDUITS, DISCONNECTS OR DEVICES TO DUCTWORK OR MECHANICAL EQUIPMENT.
- 33. THE ENGINEER OF RECORD HAS PERFORMED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS INDICATED FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.
- 34. THE ENGINEER OF RECORD HAS PERFORMED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUITS AND FEEDERS COMPLY WITH NEC 210-19(A) FPN NO4.
- 35. THE CONTRACTOR SHALL PROVIDE 120V CONNECTION TO NEAREST MAINTENANCE RECEPTACLE WHERE REQUIRED FOR CONDENSATE PUMPS ASSOCIATED WITH FAN COIL UNITS. COORDINATE WITH MECHANICAL CONTRACTOR.
- 36. THE CONTRACTOR SHALL COORDINATE THE SPECIFIC LOCATION, MOUNTING HEIGHT, ROTATION, TYPE, COLOR, ETC. OF ALL DEVICES PRIOR TO INSTALLATION.
- 37. CONNECTIONS TO HYDROMASSAGE BATHTUBS, JACCUZZI TUBS OR SIMILAR EQUIPMENT SHALL BE MADE IN ACCORDANCE WITH ARTICLE 680.70 OF THE NEC. PROVIDE BONDING AS REQUIRED BY ARTICLE 680.74 OF THE NEC.
- 38. ALL INDOOR FLUORESCENT FIXTURES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE OR BALLASTED LUMINARIES THAT ARE SUPPLIED FROM MULTIWIRE BRANCH CIRCUITS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE SHALL COMPLY WITH 410.73 (G) OF THE NEC.
- 39. CEILING MOUNTED SMOKE AND CARBON MONOXIDE DETECTORS PER NFPA 72, SECTION R314 MUST COMPLY WITH U.L. 2075 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- 40. ALL SMOKE DETECTORS AND COMBINATION SMOKE/CARBON MONOXIDE DETECTORS SHALL BE HARDWIRED ON SAME CIRCUIT AND HAVE A BATTERY BACKUP SYSTEM.
- 41. WHEN MORE THAN EITHER ONE (1) SMOKE ALARM OR MORE THAN ONE (1) CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT, ALL ALARM DEVICES SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WITH ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. SMOKE AND CARBON MONOXIDE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS. (IRC
 - A. SMOKE ALARMS IN EACH SLEEPING ROOM.
 - B. SMOKE ALARMS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. C. SMOKE ALARMS ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACE AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER
 - LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.. D. CARBON MONOXIDE ALARMS OUTSIDE OF SLEEPING AREAS IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLING UNITS WITHIN WHICH FUEL-FIRED APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES.
 - E. CARBON MONOXIDE ALARMS WITHIN EACH BEDROOM WHICH CONTAINS A FUEL-FIRED APPLIANCE.
- 43. ALL BRANCH CIRCUITS THAT SUPPLY 125-VOLT, SINGLE PHASE, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. NEC ARTICLE 210.12 (A).
- 44. ALL ATTIC ACCESSES SHALL BE PROVIDED WITH A SWITCHED LIGHT AND 120 VOLT GFI OUTLET AT OR NEAR THE FORCED AIR UNIT. LOCATE LIGHT SWITCH AT THE ATTIC ACCESS OPENING.
- 45. ALL RECESSED LED STRIP LIGHTING SALL BE BY KLUS.
- 46. Electrical Service Areas. At least one 125-volt, single-phase, 15- or 20-ampere-rated receptacle outlet shall be installed in an accessible location within 7.5 m (25 ft) of the indoor electrical service equipment. The required receptacle outlet shall be located within the same room or area as the ser-vice equipment. Exception No. 1: The receptacle outlet shall not be required to be installed in one- and two-family dwellings.
- 7. Tamper Resistant Receptacles Comply with NEC 2017 Sec. 406.12.
- 48. Provide a grounding/foundation detail for new light poles according to NEC 2017 Art. 410.40
- 49. the panel schedule will be updated. 2017 NEC 408.4 50. Commissioning for the Electrical control system is always required if new electrical lighting controls are designed and installed under the 2018 IECC per C408.3.

1. FIXTURES SHALL HAVE APPROPRIATE U.L. LABEL (i.e., DAMP OR WET) AS REQUIRED BY CODES AND ORDINANCES.

2. FIXTURES SHALL INCLUDE ALL ACCESSORIES NECESSARY FOR INSTALLATION ACCORDING TO MANUFACTURER'S SHOP DRAWINGS AND AS REQUIRED BY CODES AND LOCAL ORDINANCES.

3. PRIOR TO ORDERING ANY LIGHTING EQUIPMENT, THE CONTRACTOR SHALL COORDINATE ALL FIXTURE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND CEILING CAVITY

4. ALL LAMPS SHALL BE PROVIDED AND INSTALLED ACCORDING TO THE ATTACHED FIXTURE SCHEDULE AND SPECIFICATIONS ENSURE COMPATIBILITY BETWEEN FIXTURE, LAMP(S) AND BALLAST(S). (OSRAM SYLVANIA SERIES)

5. CONTRACTOR SHALL VERIFY FIXTURE VOLTAGES AND CEILING TRIM COMPATIBILITY PRIOR TO ORDERING FIXTURE.

6. PROVIDE APPROVED FIRE-RATED ENCLOSURES FOR ALL LIGHTING FIXTURES LOCATED IN FIRE-RATED CEILINGS.

7. LIGHTING FIXTURE CATALOG NUMBERS ARE SERIES TYPE ONLY. PROVIDE ALL NECESSARY HARDWARE AS REQUIRED BY THE SPECIFICATIONS, DRAWINGS, AND PROJECT CONDITIONS FOR A COMPLETE

8. ALL FIXTURES SHALL BE ORDERED WITH APPROPRIATE BALLAST(S) THAT HAVE U.L. AND CB, LABELS. ALL BALLASTS MUST CONFORM TO TITLE 24 AND/OR IECC REQUIREMENTS FOR

PERFORMANCE. PROVIDE MULTIPLE BALLASTS FOR DUAL LEVEL SWITCHING AND WIRING (i.e. TANDEM) AS INDICATED ON THE PLANS.

9. UPON INITIAL ENERGIZING OF ALL NEW FLUORESCENT LAMPS, A CONTINUOUS PERIOD OF 30 HOURS SHALL OCCUR PRIOR TO DE-ENERGIZING OF LAMPS FOR MANUFACTURER REQUIRED 10. ALL FLUORESCENT BALLASTS SHALL BE ELECTRONIC TYPE. PROVIDE END OF LIFE (EOL) SHUT-DOWN PROTECTION FOR COMPACT FLUORESCENT LAMPS.

. ENSURE COMPATIBILITY OF ALL LIGHTING SYSTEM COMPONENTS, ESPECIALLY DIMMED SYSTEMS. FIXTURES, LAMPS, BALLAST(S), AND DIMMING SYSTEMS/INDIVIDUAL CONTROLS MUST BE FACTORY CERTIFIED COMPATIBLE FOR FULL RANGE OF DIMMING COMPATIBILITY.

12. PROVIDE CLEARANCES FROM COMBUSTIBLES, A MINIMUM OF 3/4" (OTHER THAN AT POINTS OF SUPPORT) AND 3" FROM INSULATION FOR RECESSED LIGHTING FIXTURES WHICH ARE NON-IC

3. PROVIDE A MINIMUM OF TWO (2) #12 SUPPORT WIRES ATTACHED TO BUILDING FRAME IN ADDITION TO T-BAR CLIPS FOR FLUORESCENT FIXTURES RECESSED IN SUSPENDED T-BAR CEILING.

14. FIXTURES WITH EMERGENCY BATTERY BACKUP SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING IN COMPLIANCE WITH NEC ARTICLE 700.

15. EMERGENCY LIGHTING UNITS SHALL BE EQUIPPED WITH FACTORY-INSTALLED INTEGRAL TEST SWITCHES.

16. PROVIDE DOOR-TO-FRAME AND LENS-TO-DOOR GASKETING, INVERTED LENS, AND FOOD SERVICE RATING FOR ALL FIXTURES LOCATED IN FOOD SERVICE AREAS.

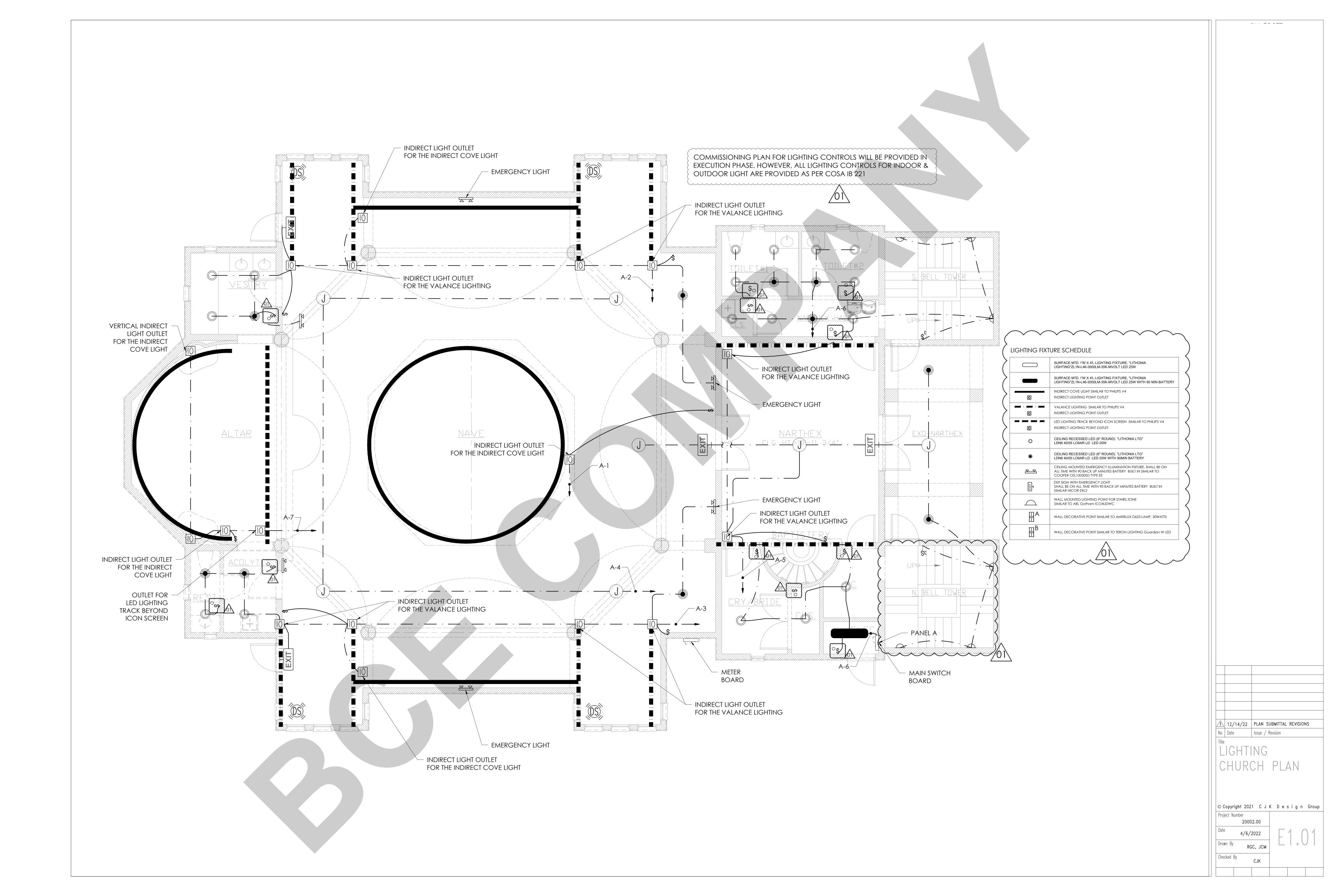
17. FLUORESCENT LUMINARIES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE, OR BALLASTED LUMINAIRES THAT ARE SUPPLIED FROM

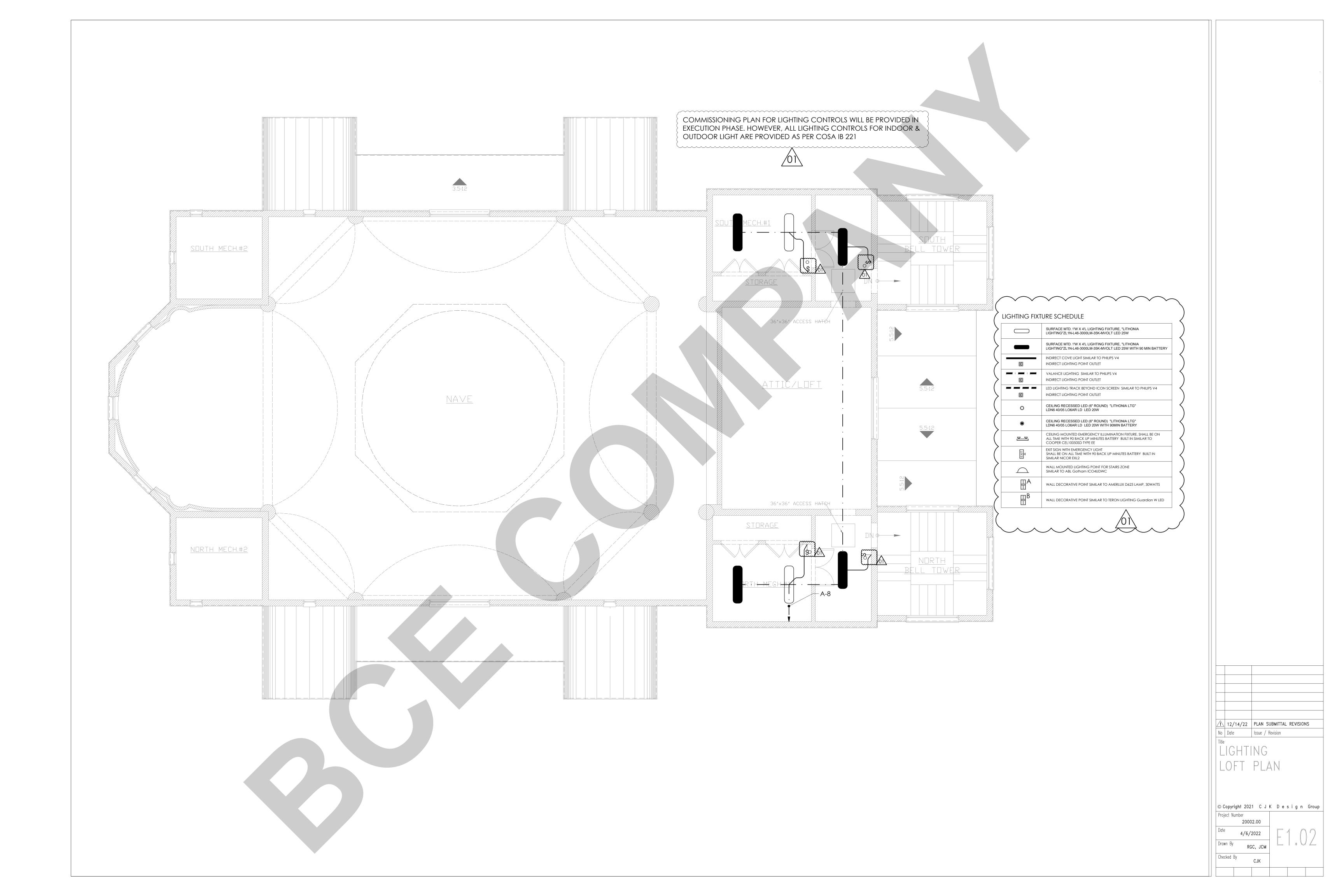
MULTI- WIRE BRANCH CIRCUITS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE, SHALL HAVE DISCONNECTING MEANS EITHER INTERNAL OR EXTERNAL TO EACH LUMINAIRE SO TO DISCONNECT SIMULTANEOUSLY FROM THE SOURCE OF SUPPLY ALL CONDUCTORS OF THE BALLAST (INCLUDING THE GROUNDED CONDUCTOR IF ANY). IN ACCORDANCE WITH NEC ARTICLE 410, THE LINE-SIDE TERMINALS OF

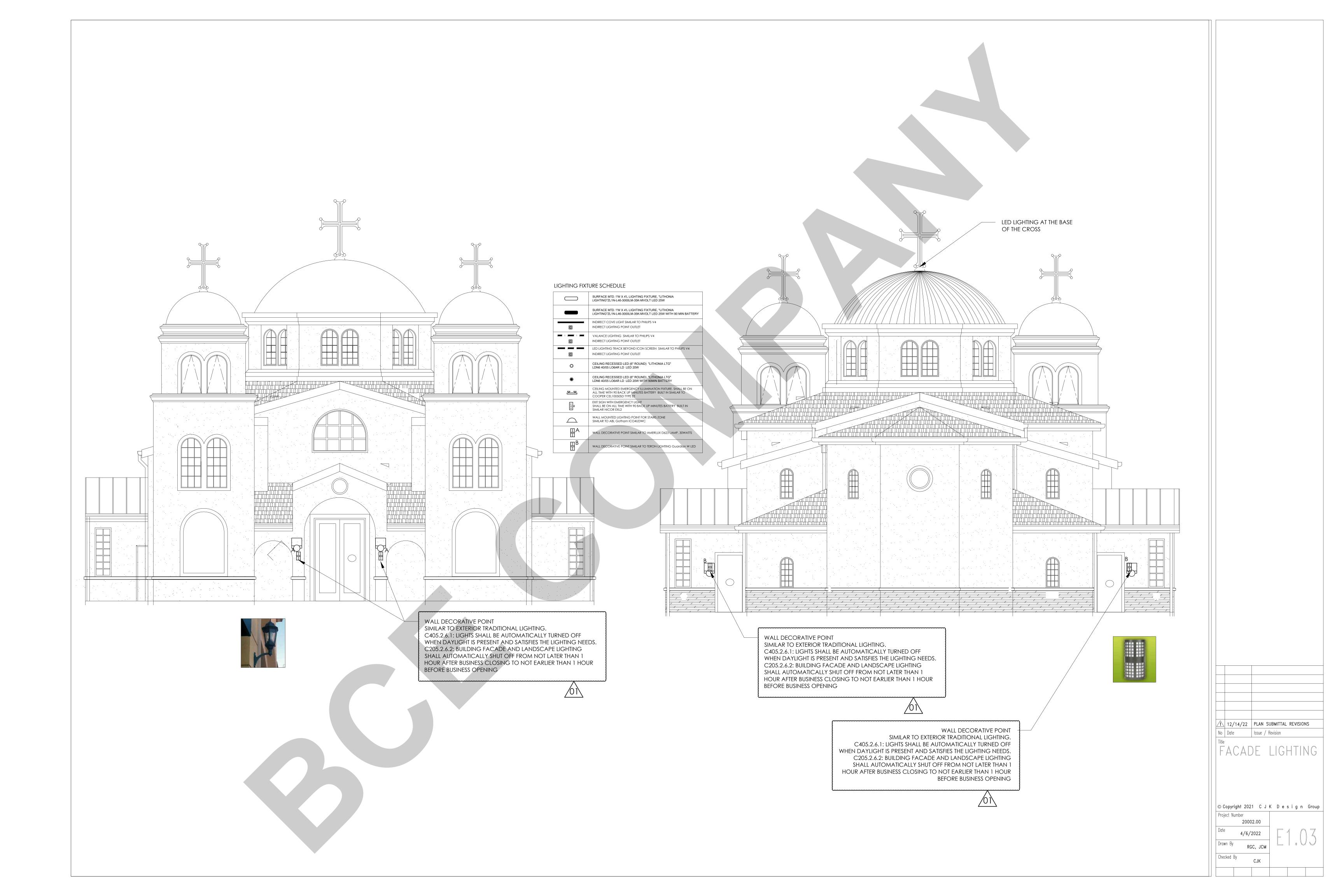
THE DISCONNECTING MEANS SHALL BE LOCATED SO AS TO BE ACCESSIBLE TO QUALIFIED PENSIONS BEFORE SERVICING OR MAINTAINING THE BALLAST. 18. ALL FLUORESCHENT LAMPS SHALL BE OF A LOW MERCURY DESIGN, HAVE A MINIMUM CRI RATING OF 85 AND 3500K COLOR TEMPERATURE UNLESS NOTED OTHERWISE.

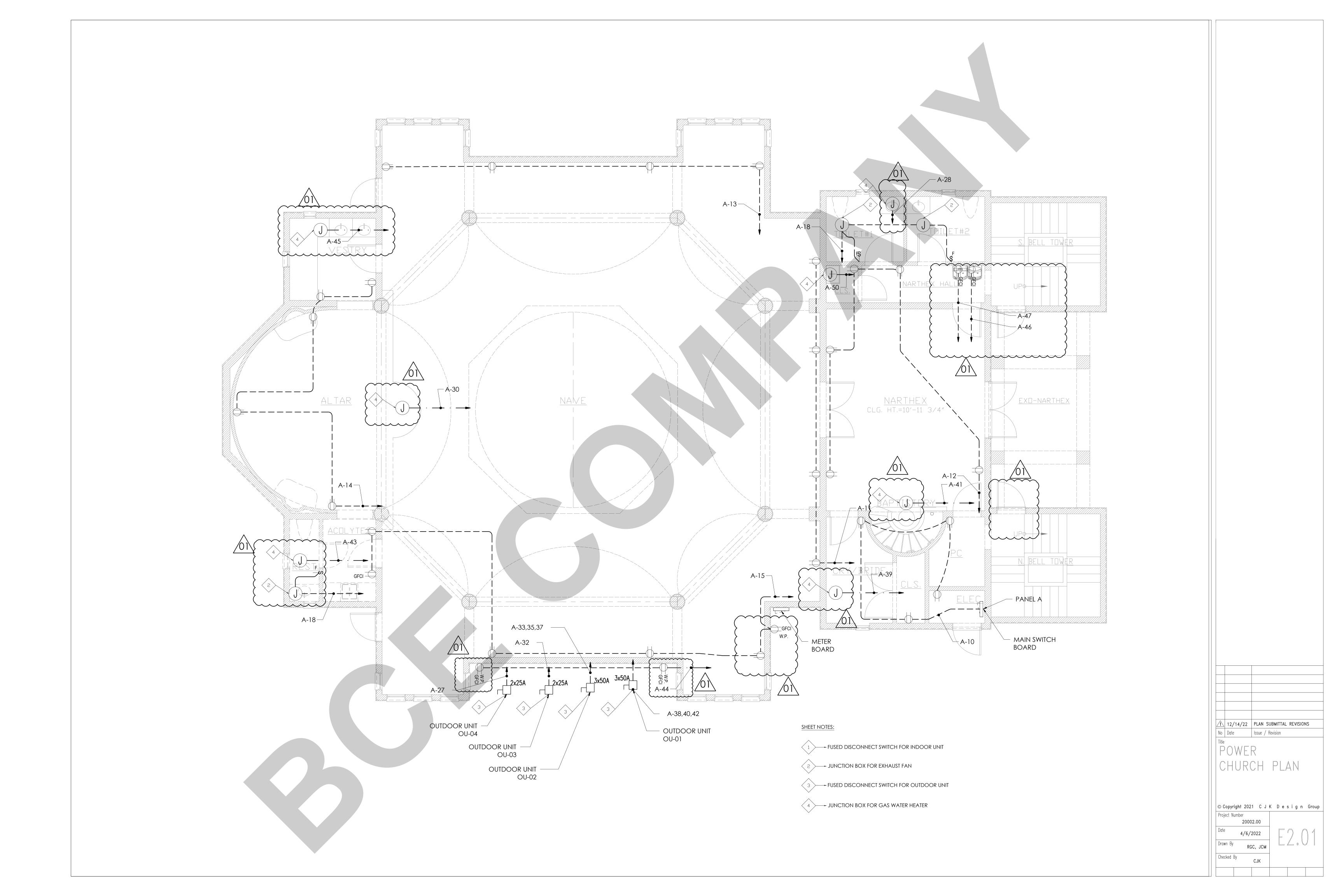
> 1 12/14/22 | PLAN SUBMITTAL REVISIONS Issue / Revision

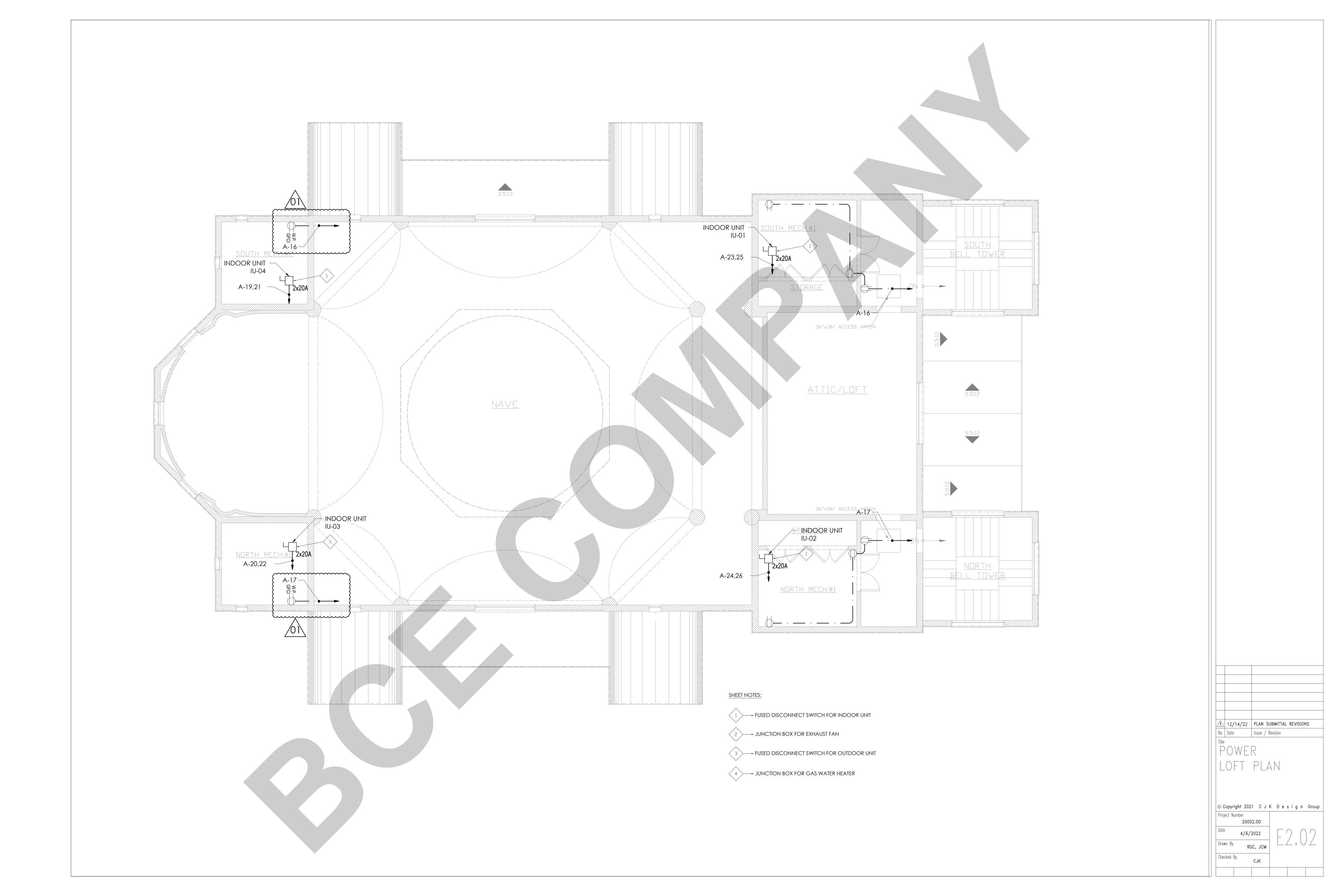
© Copyright 2021 C J K D e s i g n Group 20002.00 4/6/2022 RGC, JCM

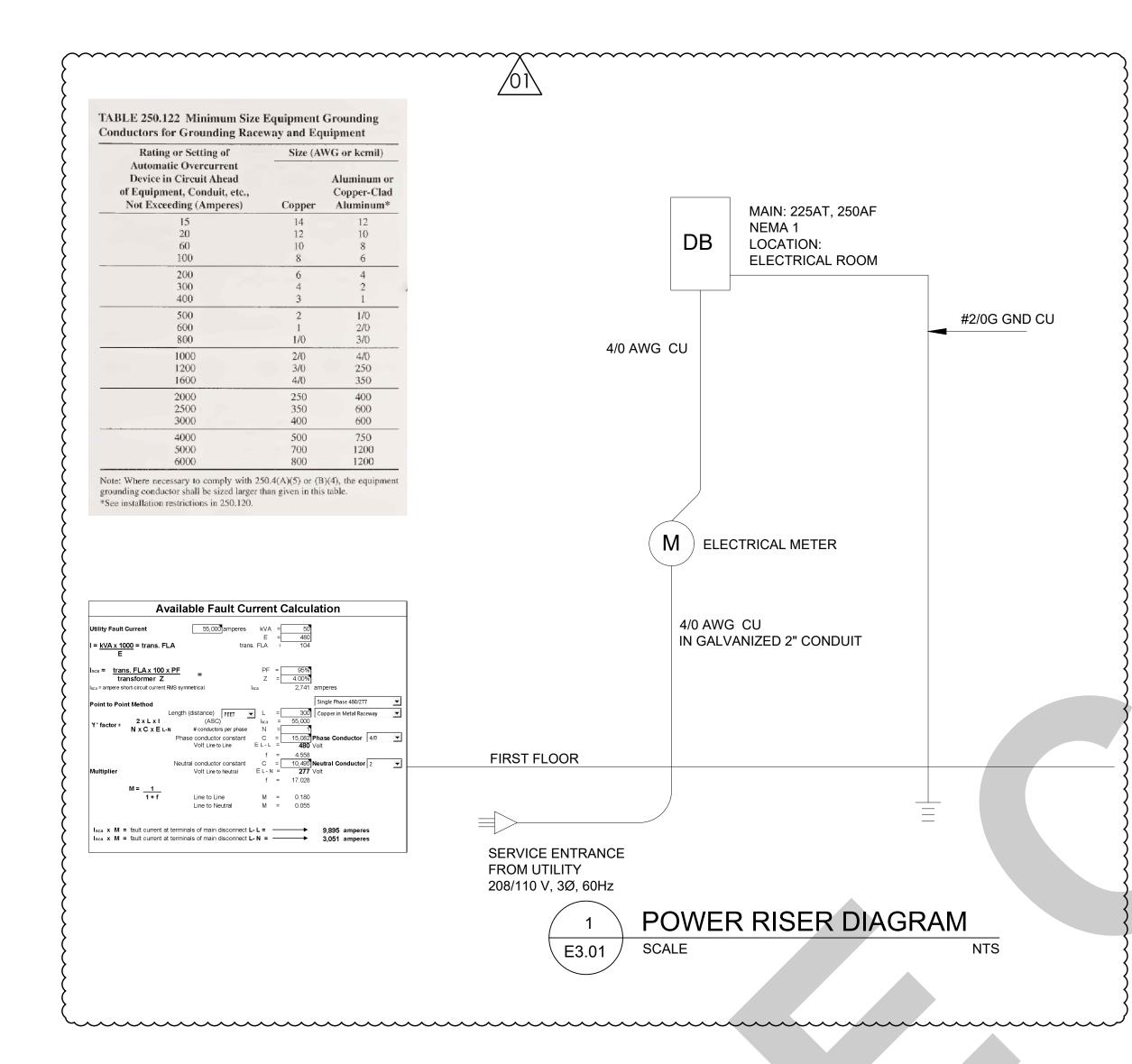












							O. C.	gr			—					PANEL A		
Second S	0.7			C		CC	1		-	100000000000000000000000000000000000000	- * * * -				PANELE	BOARD DESIGI	NATION	
Supervise Record 19.66 1.52 1												OVOTEM	VOLTA O				000/400/4 04 4/4/	
	+				1.25									E				
100 14.09 17.00 14.09 17.00	+		10.95		1 25	3.15	3.	90	3.90	10.40								
MAC	+				11 1	 											225A-3P C/B Bus Plu	ıg
Second Columnics 1.00	+		42.87			14.80	14	.75	13.32	42.87							4/0 AWG - #2/0G	_
Section	+										┪`	CONDUC	TOR/PHAS	SE			1	
Notice 1.00	(Other Continuous			1.25							MAINS					225A MCB	
Motor Table	k	Kitchen			0.65							SCCR					SERIES RATED	
Total Demond Load (NVA) 62-14 Total Demond Load (NVA) 62-14 Total Commond Current (N) 172-93 Mer Fonder's Ampent (N) 172-93	N	Noncontinuous			1.00							MCB RAT	TING				80%	
Total Demand Load (NVA)	I N	Motor			1.00							GROUND	FAULT				NO	
The panel schedules will be sported Panel	7	Total Total	62.62			20.70	21	.60	20.32	62.14		FEEDER L	ENGTH (F	- T)			300	
The part of chother will be explained 2011 (VeC 019.4 2011 (1	Γ									<mark>%)</mark>				
DESCRIPTION WINE GRD GR KVA A B C KVA CB WIRE GRD DESCRIPTION FFF 58	\vdash		70.1		\wedge	The p	oanel s	chedule	e w ill be	updated.								
DESCRIPTION	\vdash	, ,										<u> </u>						
Indirect Cover Light:	IN	wiin. Feeder Ampacity (A)	213.61]	70.							ENCLOSE	JKE				ITPESK	
Indirect Cover Light:	Γ	DESCRIPTION	N	*	WIRE GRD	СВ	KVA	Α	В	С	KVA	СВ	WIR	E	GRD	D	ESCRIPTION	Τ
Value Lighting Lax 12 AWG 2126 154-19 0.65 1.70 0.55 154-19 2X 12 AWG 2726 Lighting Tolishex Zone Lighting For Nathex Zone Lighting Mazzanino Receptacies Storago Beachteal Record Record Mazzanino Lighting Mazzanino Record Mazzanino Lighting Mazzanino Record Mazzanino Lighting Mazzanino Record Mazzanino Record Mazzanino Record Mazzanino Lighting Mazzanino Record Mazzanino Record Mazzanino Record Mazzanino Lighting Mazzanino Record Mazzanino Recor	†	Indirect Cove Ligh	nt .										2Y 12 A	MG +	#12G	V	/alance Lighting	1
Lighting for Nathwe Zone 1		maneot cove Ligi			2X 12 XWG 9 #12G	10/1 11	0.40	1.10			0.00	13A-11	2/ 12/		+120	,	- Clariting	ļ
Lighting Atar Zone		Valance Lighting	į	L	2X 12 AWG - #12G	15A-1P	0.65		1.20		0.55	15A-1P	2X 12 A	WG -#	#12G	Junction	Boxes for Chandillier	
Lighting After Zone Lighting After Zone Lighting Mezzanine Rome Receptacks Nave Zone R	;	Lighting for Nathex 7	one		2X 12 AWG - #12G	15A-1P	0.55			1.10	0.55	15A-1P	2X 12 A	.WG -#	#12G	Ligh	nting Toilets Zone	t
Figure 1	+			-	27. 127.110 #120					1.10		1071	27			9-		+
Receptacies New Zone R 2X 10 AWG - #10G 20A-1P 1.08 2.16 1.09 20A-1P 2X 10 AWG - #10G Receptacies Number Zone R 2X 10 AWG - #10G 20A-1P 1.08 2.16 1.09 20A-1P 2X 10 AWG - #10G Receptacies Naturation Receptacies Alter Zone Receptacies Alter Zone Receptacies Alter Zone Receptacies Mezzamne Floor R 2X 10 AWG - #10G 20A-1P 1.08 2.16 1.08 20A-1P 2X 10 AWG - #10G Receptacies Naturation Receptacies Mezzamne Floor Receptacies Mezzamne Floor R 2X 10 AWG - #10G 20A-1P 1.08 1.13 0.05 20A-1P 2X 10 AWG - #10G Tolets Exhausts Fan 1.51 3.02 1.51 20A-1P 2X 10 AWG - #10G Indoor Unit IU-03 Indoor Unit IU-03 Indoor Unit IU-04 A 2X 10 AWG - #10G 20A-1P 1.51 3.02 1.51 20A-1P 2X 10 AWG - #10G Indoor Unit IU-03 Indoor		Lighting Altar Zon	е	T	2X 12 AWG - #12G	15A-1P	0.65	1.10			0.45	20A-1P	2X 10 A	WG - #	#10G	Lig	ghting Mezzanine	
Receptacies New Zone R 2X 10 AWG - #10G 20A-1P 1.08 2.16 1.09 20A-1P 2X 10 AWG - #10G Receptacies Number Zone R 2X 10 AWG - #10G 20A-1P 1.08 2.16 1.09 20A-1P 2X 10 AWG - #10G Receptacies Naturation Receptacies Alter Zone Receptacies Alter Zone Receptacies Alter Zone Receptacies Mezzamne Floor R 2X 10 AWG - #10G 20A-1P 1.08 2.16 1.08 20A-1P 2X 10 AWG - #10G Receptacies Naturation Receptacies Mezzamne Floor Receptacies Mezzamne Floor R 2X 10 AWG - #10G 20A-1P 1.08 1.13 0.05 20A-1P 2X 10 AWG - #10G Tolets Exhausts Fan 1.51 3.02 1.51 20A-1P 2X 10 AWG - #10G Indoor Unit IU-03 Indoor Unit IU-03 Indoor Unit IU-04 A 2X 10 AWG - #10G 20A-1P 1.51 3.02 1.51 20A-1P 2X 10 AWG - #10G Indoor Unit IU-03 Indoor		Façade Lighting			2X 12 AWG - #12G	15A-1P	0.75		1.83		1.08	20A-1P	2X 10 A	WG -#	#10G	Receptacles	Storage Electrical Rooms	T
Receptacles Nave Zone R 2X 10 AWS - #10G 20A-1P 1.08 2.16 1.08 20A-1P 2X 10 AWS - #10G Receptacles Altar Zone R 2X 10 AWS - #10G 20A-1P 1.08 2.16 1.08 20A-1P 2X 10 AWS - #10G Receptacles Mezzarine Floor Receptacles Altar Zone Receptacles Mezzarine Floor Receptacles Altar Zone Receptacles A	+			H							1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							╀
Receptacles Atar Zone R 2X 10 AWG - #10G 20A-1P 1.08	1	Receptacles Nave Z	one	R	2X 10 AWG - #10G	20A-1P	1.08			2.16	1.08	20A-1P	2X 10 A	WG - #	#10G	Recep	tacles Narthex Zone	
Receptacies Mezzanine Floor R 2X 10 AWG - #10G 20A-1P 1.08 1.13 0.05 20A-1P 2X 10 AWG - #10G Tolets Exhausts Fan	3	Receptacles Nave Z	one	R	2X 10 AWG - #10G	20A-1P	1.08	2.16			1.08	20A-1P	2X 10 A	.WG -#	#10G	Rece	eptacles Altar Zone	
Receptacies Mezzanine Floor R 2X 10 AWG - #10G 20A-1P 1.08 1.13 0.05 20A-1P 2X 10 AWG - #10G Tolets Exhausts Fan	+											+						ł
Indoor Unit IU-04	5	Receptacles Altar Z	one	R	2X 10 AWG - #10G	20A-1P	1.08		2.16		1.08	20A-1P	2X 10 A	WG - #	#10G	Recepta	acles Mezzanine Floor	
Indoor Unit IU-04	7	Receptacles Mezzanine	e Floor	R	2X 10 AWG - #10G	20A-1P	1.08			1.13	0.05	20A-1P	2X 10 A	.WG -#	#10G	Toil	ets Exhausts Fan	
Indoor Unit IL-04							4.54	2.00	1		4.54							\dagger
1.51	9	Indoor Unit IU-04		A L	2X 10 AWG - #10G	20A-1P	1.51	3.02			1.51	20A-1P	2X 10 A	AWG -	-#10G	lr	ndoor Unit IU-03	,
Indoor Unit IU-04	1			A			1.51		3.02		1.51							,
Indoor Unit IU-04	,			_			1 51			2.02	1 51	1						t
Outdoor Unit OU-4 A 2X 10 AWG - #10G	_	Indoor Unit IU-04			2X 10 AWG - #10G	20A-1P	1.51			3.02	1.51	20A-1P	2X 10 A	AWG -	#10G	Ir	ndoor Unit IU-03	,
Street lighting L 2X 12 AWG -#12G 15A-1P 1.00 4.60 3.60 40A-1P 2X 8 AWG -#8G Electrical Water Heater Street lighting L 2X 12 AWG -#12G 15A-1P 1.00 3.11 2.11 25A-1P 2X 10 AWG -#10G Outdoor Unit OU-3 Outdoor Unit RTU OU-2 A 4X 6 AWG -#6G 50A-3P 2.43 3.43 1.00 15A-1P 2X 12 AWG -#12G Street lighting Outdoor Unit RTU OU-2 A 4X 6 AWG -#6G 50A-3P 2.43 A 2X 10 AWG -#10G 20A-1P 1.80 4.23 2.43 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 A 2X 10 AWG -#10G 20A-1P 1.80 A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater Blectrical Water Heater Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater B	5			A			1.51	3.02			1.51							,
Street lighting L 2X 12 AWG -#12G 15A-1P 1.00 4.60 3.60 40A-1P 2X 8 AWG -#8G Electrical Water Heater Street lighting L 2X 12 AWG -#12G 15A-1P 1.00 3.11 2.11 25A-1P 2X 10 AWG -#10G Outdoor Unit OU-3 Outdoor Unit RTU OU-2 A 4X 6 AWG -#6G 50A-3P 2.43 3.43 1.00 15A-1P 2X 12 AWG -#12G Street lighting Outdoor Unit RTU OU-2 A 4X 6 AWG -#6G 50A-3P 2.43 A 2X 10 AWG -#10G 20A-1P 1.80 4.23 2.43 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 A 2X 10 AWG -#10G 20A-1P 1.80 A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater Blectrical Water Heater Blectrical Water Heater A 2X 10 AWG -#10G 20A-1P 1.80 Blectrical Water Heater B	7	Outdoor Unit OLL	1	٨	2V 10 AVVC #10C	25∆ -1P	1 //8		2 20		1.80	20A 1D	2V 10 A	WC +	#10C	Flec	trical Water Heater	t
1 Street lighting L 2X 12 AWG - #12G 15A-1P 1.00 3.11 25A-1P 2X 10 AWG - #10G Outdoor Unit OU-3 3 Outdoor Unit RTU OU-2 A 4X 6 AWG - #6G 50A-3P 2.43 3.43 1.00 15A-1P 2X 12 AWG - #12G Street lighting 5 Outdoor Unit RTU OU-2 A 4X 6 AWG - #6G 50A-3P 2.43 3.43 1.00 15A-1P 2X 12 AWG - #12G Street lighting 6 Electrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 4.23 2.43 50A-3P 4X 6 AWG - #6G Outdoor Unit OU-1 7 Electrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 4.23 2.43 50A-3P 4X 6 AWG - #6G Outdoor Unit OU-1 8 Electrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 2.34 0.54 20A-1P 2X 10 AWG - #10G Receptacles Outdoor Unit Area 9 Electrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 2.34 0.66 20A-1P 2X 10 AWG - #10G Drinking Fountain 7 Drinking Fountain R 2X 10 AWG - #10G 20A-1P 0.66 0.66 20A-1P 2X 10 AWG - #10G Electrical Water Heater 9 SPARE 20A-1P SPARE 1 SPARE 20A-1P SPARE	_	Outdoor Offic OO-	1	A	2X 10 AVVG - #10G	25A-11	1.40		3.20		1.00	20A-1P	2X 10 A	1000 - 4	+10G	Lieu	ilical vvatel i leatel	
2.43	9	Street lighting		L	2X 12 AWG - #12G	15A-1P	1.00			4.60	3.60	40A-1P	2X 8 A V	NG -#	#8G	Elec	trical Water Heater	
3 Outdoor Unit RTU OU-2 A A 4X 6 AWG - #6G 50A-3P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater Bectrical Water Heater Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P Bectrical Water Heater Bectrical Water Heate	1	Street lighting			2X 12 AWG - #12G	15A-1P	1.00	3.11			2.11	25A-1P	2X 10 A	.WG -#	#10G	Oı	utdoor Unit OU-3	t
Outdoor Unit RTU OU-2 A 4X 6 AWG - #6G 50A-3P 2.43 3.43 1.00 15A-1P 2X 12 AWG - #12G Street lighting Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 4.23 2.43 50A-3P 4X 6 AWG - #6G Outdoor Unit OU-1 Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 4.23 2.43 50A-3P 4X 6 AWG - #10G Outdoor Unit OU-1 Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 2.34 0.54 20A-1P 2X 10 AWG - #10G Receptacles Outdoor Unit Area Bectrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 2.46 0.66 20A-1P 2X 10 AWG - #10G Drinking Fountain Torinking Fountain R 2X 10 AWG - #10G 20A-1P 0.66 0.66 20A-1P 2X 10 AWG - #10G Electrical Water Heater SPARE 20A-1P 20A-1P SPARE	+			\vdash	27()27(1)0							2071	2/1 /0//					Ŧ
7	3			Α			2.43		3.43		1.00	15A-1P	2X 12 A	WG -#	#12G		Street lighting	
Bectrical Water Heater	5	Outdoor Unit RTU O	U-2	A	4X 6 AWG - #6G	50A-3P	2.43			3.43	1.00	15A-1P	2X 12 A	.WG -#	#12G		Street lighting	
Bectrical Water Heater	\exists								+			+						ł
Bectrical Water Heater	7			Α			2.43	4.85			2.43	_						,
3 Electrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 2.34 0.54 20A-1P 2X 10 AWG - #10G Receptacles Outdoor Unit Area 5 Electrical Water Heater A 2X 10 AWG - #10G 20A-1P 1.80 2.46 0.66 20A-1P 2X 10 AWG - #10G Drinking Fountain 7 Drinking Fountain R 2X 10 AWG - #10G 20A-1P 0.66 0.66 20A-1P 2X 10 AWG - #10G Electrical Water Heater 9 SPARE 20A-1P 20A-1P SPARE 1 SPARE 20A-1P 20A-1P SPARE	9	Electrical Water Hea	ater	Α	2X 10 AWG - #10G	20A-1P	1.80		4.23		2.43	50A-3P	4X 6 A	WG	- #6G	Oı	utdoor Unit OU-1	,
Bectrical Water Heater	+	Clastical Material Inc			07.40.4140	204 45	4.00	<u> </u>	<u> </u>	4.00	2.42	1						ŀ
Electrical Water Heater	_	⊟ectrical vvater ⊓ea	atei	A	2X 10 AVVG - #10G	20A-1P	1.00			4.23	2.43							
7 Drinking Fountain R 2X 10 AWG - #10G 20A-1P 0.66 0.66 20A-1P 2X 10 AWG - #10G Electrical Water Heater 9 SPARE 20A-1P 20A-1P 2X 10 AWG - #10G SPARE 1 SPARE 20A-1P 20A-1P SPARE	3	Electrical Water Hea	ater	Α	2X 10 AWG - #10G	20A-1P	1.80	2.34			0.54	20A-1P	2X 10 A	.WG -#	#10G	Recepta	cles Outdoor Unit Area	
SPARE 20A-1P 20A-1P SPARE SPARE 20A-1P 20A-1P SPARE	5	Electrical Water Hea	ater	Α	2X 10 AWG - #10G	20A-1P	1.80		2.46		0.66	20A-1P	2X 10 A	.WG -#	#10G	D	rinking Fountain	Ī
SPARE 20A-1P 20A-1P SPARE SPARE 20A-1P 20A-1P SPARE	7	Drinking Fountain	1	R	2X 10 AWG - #10G	20A-1P	0.66			0.66		20A-1P	2X 10 A	.WG -#	#10G	Elec	trical Water Heater	ł
1 SPARE 20A-1P SPARE	9			H													SPARE	
	+																	
oj spake	+																	
	,	SPARE		Ш		ZUA-1P						20A-1P					SPAKE	

12/14/22 PLAN SUBMITTAL REVISIONS

No Date Issue / Revision

Title

PANEL BOARDS

SCHEDULE AND

RISER DIAGRAM

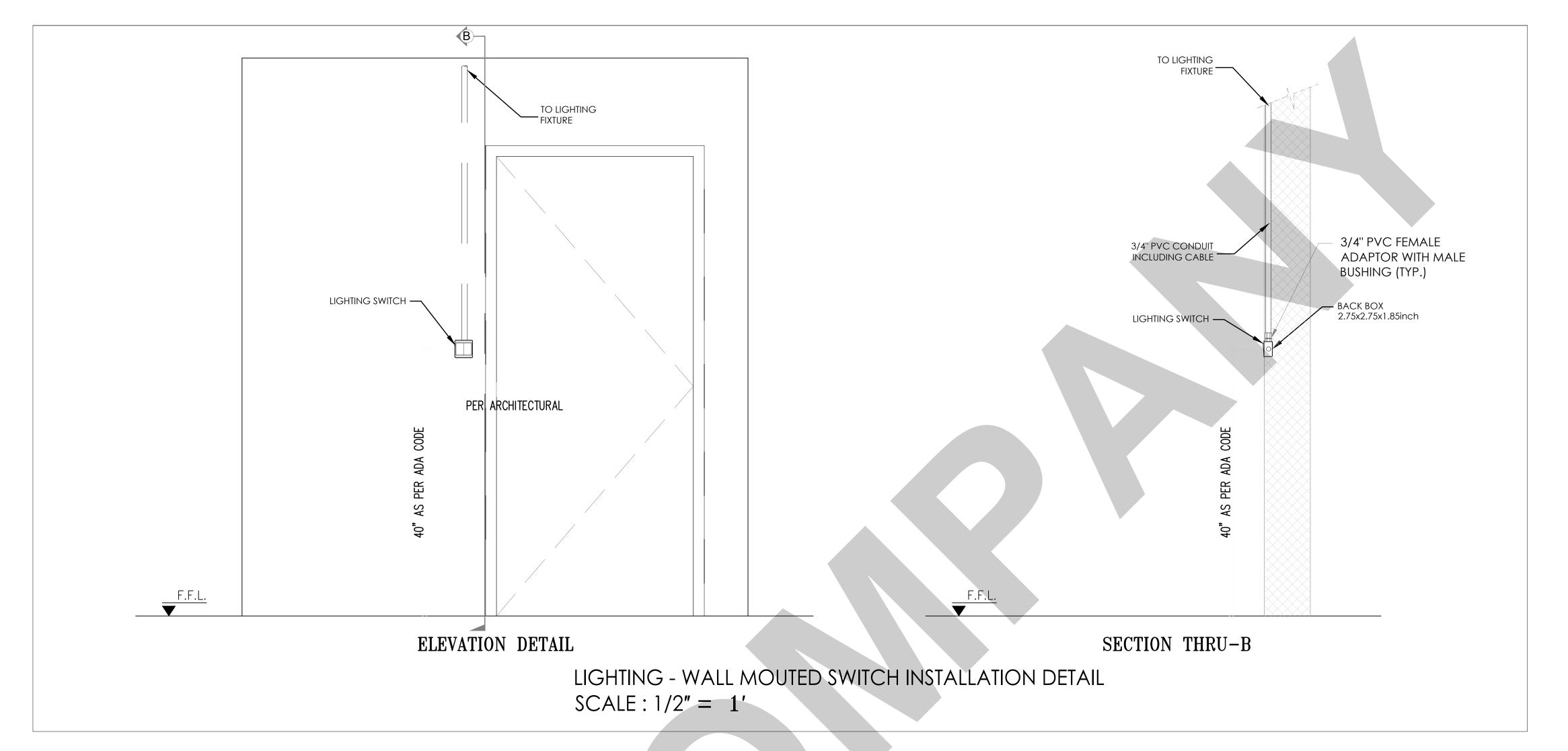
© Copyright 2021 C J K D e s i g n Group

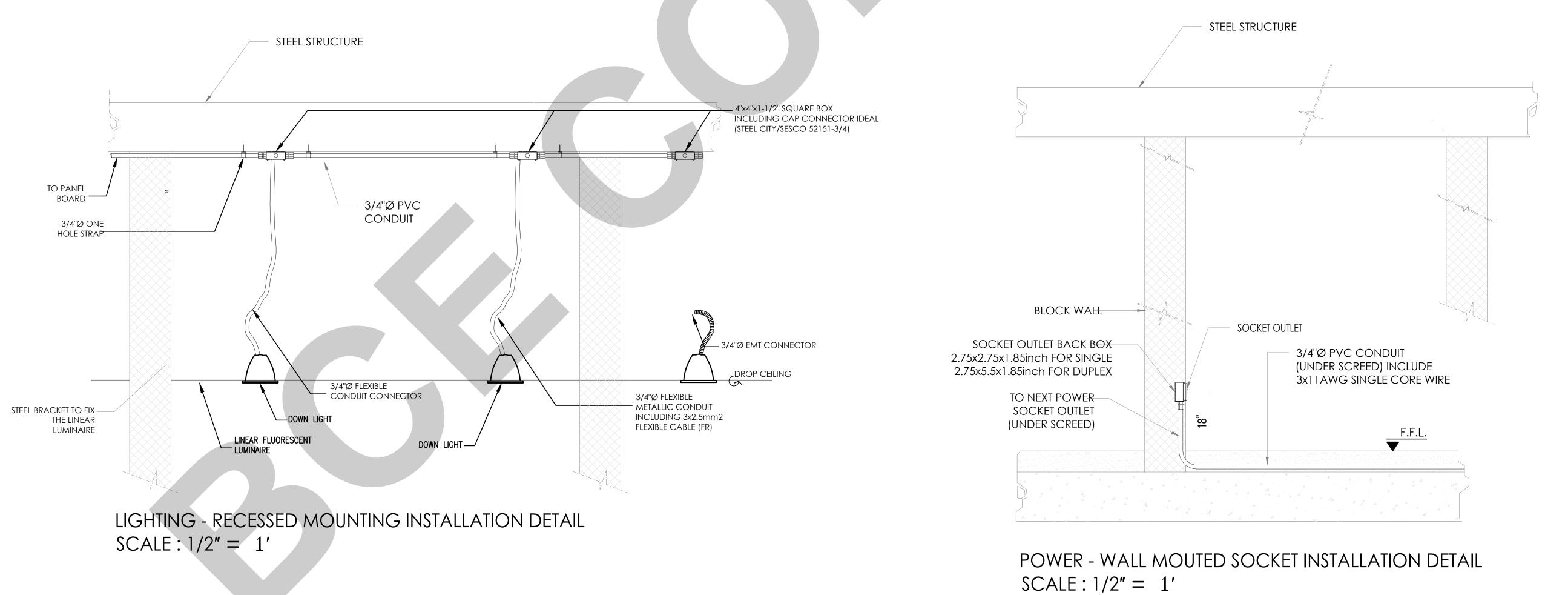
Project Number 20002.00

Date 4/6/2022

Drown By RGC, JCM

Checked By CJK





12/14/22 PLAN SUBMITTAL REVISIONS

Issue / Revision

GENERAL DETAILS

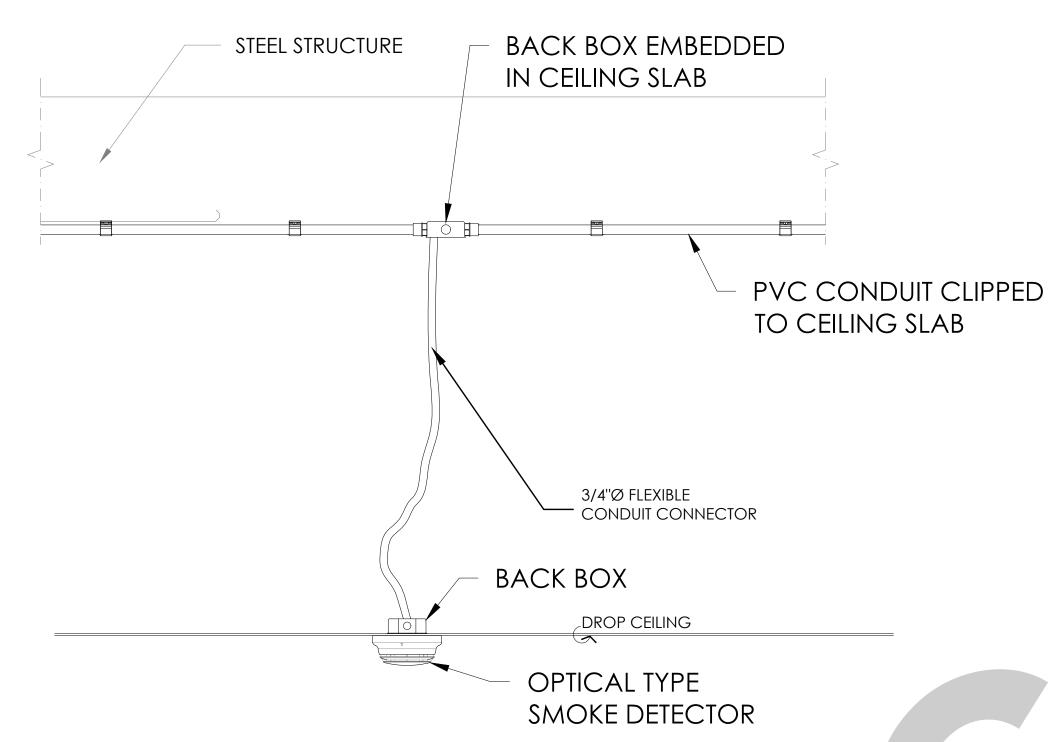
© Copyright 2021 C J K D e s i g n Group

SHEET-1

20002.00

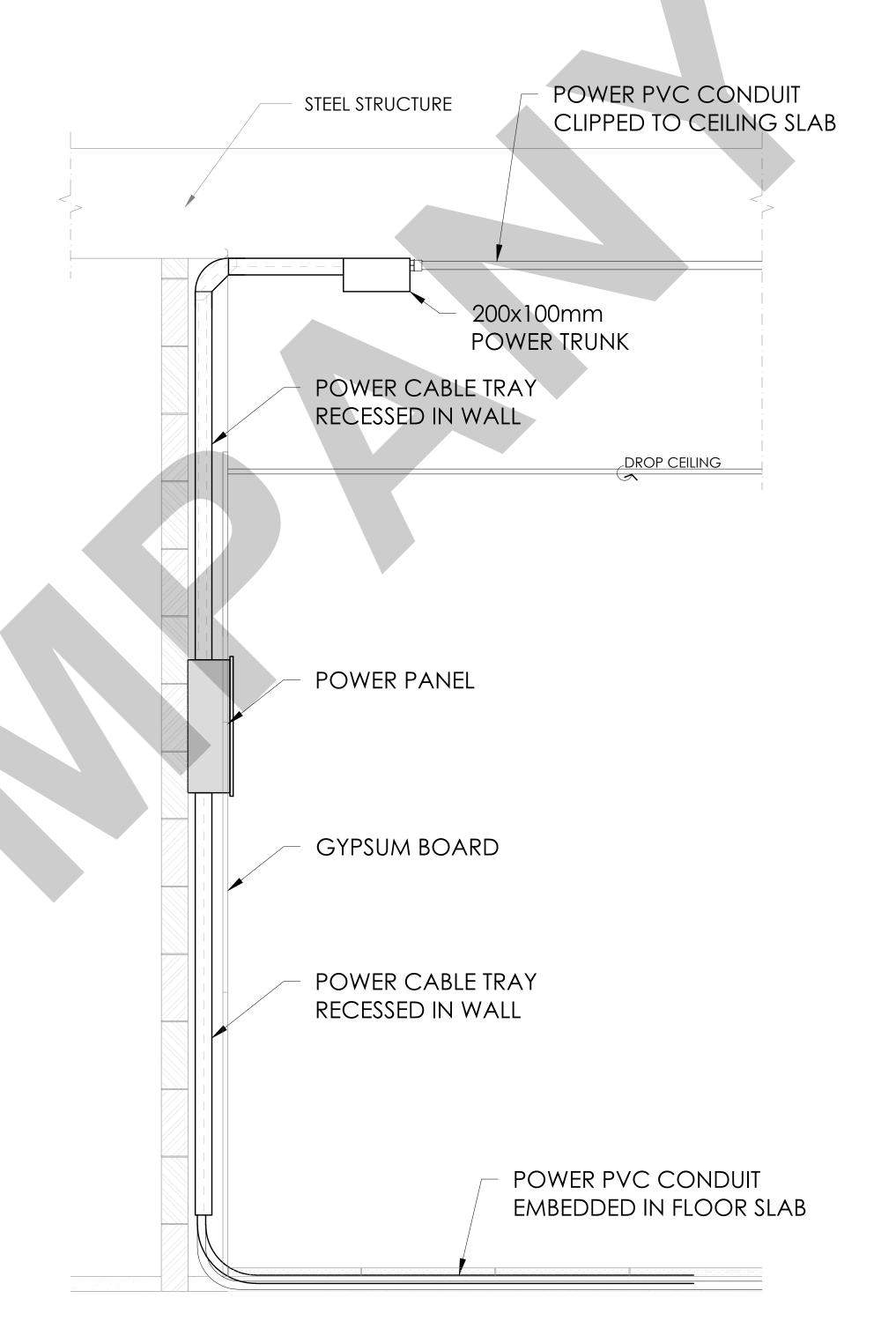
Drawn By RGC, JCM

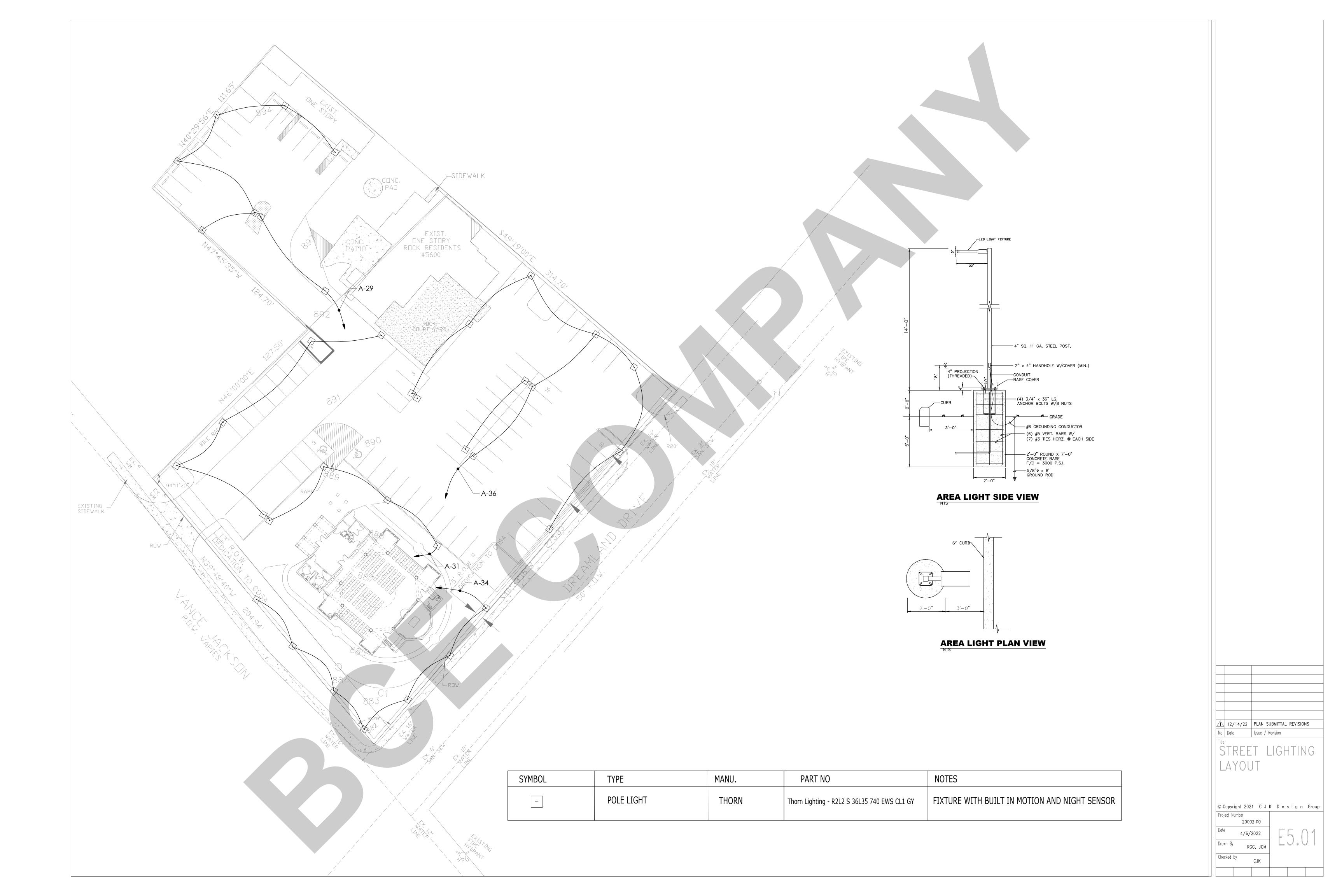
Checked By



CEILING SLAB CLIPPED CONDUIT MOUNTED TO FALSE CEILING SMOKE DETECTOR - INSTALLATION DETAIL

SCALE: 1/2" = 1'





PLUMBING SPECIFICATIONS

THE WORK INCLUDES MODIFICATION TO THE EXISTING PLUMBING SYSTEM AND PROVIDING NEW MATERIALS, FITTINGS AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. THE WORK ALSO INCLUDES ROUGH-IN AND FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT AND BEVERAGE DISPENSING EQUIPMENT PROVIDED BY OTHERS. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND/OR ORDINANCES AND IS SUBJECT TO INSPECTION.

HOOK-UP CHARGES, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE INCLUDED AS A PART OF THIS SECTION.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

PIPING SYSTEMS - GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING, PROVIDE AN ISOLATING DIALECTIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.

PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED.

FIXTURES/EQUIPMENT FURNISHED BY OTHERS: PLUMBING CONTRACTOR SHALL PROVIDE UTILITY CONNECTIONS REQUIRED SUCH AS WATER, GAS, AIR, SUPPLIES, WASTE OUTLET, TRAPS, ETC. AT ALL PLUMBING TYPE FIXTURES OR EQUIPMENT FURNISHED BY OWNER, GENERAL CONTRACTOR, FOOD SERVICE CONTRACTOR, EQUIPMENT SUPPLIER, ETC. INCLUDED ARE STOP VALVES, ESCUTCHEONS, AND CHROME PLATED BRASS TUBING WITH COMPRESSION FITTINGS.

SEWER AND WASTE PIPING: PROVIDE ALL DRAINS AND SEWERS WITHIN THE SPACE WITH CONNECTION TO THE EXISTING DRAINAGE SYSTEMS ON-SITE. SANITARY DRAINAGE PIPING ABOVE FLOOR SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE, FITTINGS AND CONNECTIONS. SANITARY DRAINAGE PIPING BELOW GRADE SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE WITH SOLVENT WELD FITTINGS MAY BE USED (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES). ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED, 1/4" PER FOOT UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON THE DRAWINGS.

VENTS: PROVIDE A COMPLETE SYSTEM OF STANDARD WEIGHT CAST IRON NO-HUB VENT RISERS WHERE THE CEILING SPACE IS USED AS A RETURN AIR PLENUM OR USE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES) WHERE THERE IS A DUCTED RETURN AIR SYSTEM. DO NOT USE PVC PIPE IN RETURN AIR PLENUM SPACES. THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.

CONDENSATE AND INDIRECT DRAIN PIPING:PIPING ABOVE FLOOR SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE, FITTINGS AND CONNECTIONS. PIPING BELOW GRADE SHALL BE CO-EXTRUDED PVC DWV (SCHEDULE 40) PIPE WITH SOLVENT WELD FITTINGS.

CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZE AS THE PIPES THEY SERVE, CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBSCURE FROM VIEW.

WATER DISTRIBUTION PIPING: LAYOUT WATER PIPING SO THAT THE ENTIRE SYSTEM CAN BE DRAINED. HOT AND COLD WATER PIPING SHALL BE 1/2" MIN. CPVC PIPE WITH SOLVENT FITTING. PROVIDE WATER HAMMER ARRESTERS AT EACH FIXTURE OR GROUP OF FIXTURES AS REQUIRED. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS).

PIPE INSULATION: INSULATE (AS ALLOWED BY CODE) ALL LISTED SERVICE PIPING AS FOLLOWS. DOMESTIC COLD/HOT WATER, HOT WATER RETURN, STORM WATER PIPING. PROVIDE 1" PREFORMED FIBERGLASS, ASJ/SS-11, FLAME SPREAD 25, SMOKE DEVELOPED 50, ASTM C-547. FOR CONDENSATE PIPING PROVIDE 1/2" THICK INSULATION OF SAME CHARACTERISTICS AS LISTED FOR 1" ABOVE. WHERE PERMITTED BY LOCAL CODES, PROVIDE 1/2" SELF-ADHESIVE UNICELLULAR FOAM PIPE INSULATION WITH PRE-FORMED PVC FITTING COVERS - EQUAL TO SELF-ADHESIVE ARMSTRONG 2000 WITH K FACTOR OF 0.27 AT 75 DEGREES MEAN TEMPERATURE. INSULATE ANY EXPOSED CONDENSATE PIPING WITH WASTE TEMPERATURE BELOW 60 DEGREES F.

SHUTOFF VALVES, WITH UNIONS SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE, FOOD SERVICE EQUIPMENT ITEM OR OTHER EQUIPMENT ITEM, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. VALVES SHALL BE EQUAL TO JENKINS #902-T BALL VALVE, CHROME-FINISHED BRONZE, TEFLON SEATS AND PACKING, 400 LB. W.O.G., SOLDER END.

ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES, ETC. ARE CONCEALED WITHIN WALLS. WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE THROUGH LAY-IN SUSPENDED CEILINGS, ACCESS PANELS ARE NOT REQUIRED.

PIPING SYSTEM- PVC SCHEDULE 40, SCHEDULE 80 AND CPVC PIPE WITH SOLVENT FITTINGS SHALL BE USED WHERE PEMITTED BY CODE/LOCAL AUTHORITIES.

INSTALLATION: THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS TO EXCLUDE DIRT UNTIL FIXTURES ARE INSTALLED AND FINAL CONNECTIONS HAVE BEEN MADE. PROCEED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET FIXTURES LEVEL AND IN PROPER ALIGNMENT. INSTALL SUPPLIES IN PROPER ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN FIXTURES AND ADJACENT MATERIAL, FOR SANITARY JOINT, AND OMIT ESCUTCHEONS.

REPAIR EXISTING PLUMBING SYSTEM COMPONENTS DAMAGED BY CONSTRUCTION OPERATIONS AND RESTORE TO ORIGINAL CONDITIONS.

TEST WATER SYSTEM UNDER 150 PSIG HYDROSTATIC PRESSURE, FOR FOUR (4) HOURS MINIMUM. WHEN TESTING INDICATES MATERIALS OR WORKMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NRCA" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOFING WARRANTY.

GENERAL NOTES

- 1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE PLUMBING INSTALLATION AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.
- 2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE 2018 UNIFORM PLUMBING CODE, 2018 INTERNATIONAL BUILDING CODE, 2018 INTERNATIONAL ENERGY CONSERVATION CODE AND ALL OTHER APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.
- 3. COORDINATE ENTIRE INSTALLATION OF THE PLUMBING SYSTEM WITH THE WORK OF OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. REPORT ANY DISCREPANCIES, IN WRITING, TO THE ENGINEER PRIOR TO COMMENCEMENT
- 4. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS.

5 PROVIDE ONE YEAR WARRANTY ON ALL PARTS AND LABOR.

- 6. THE DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW SCOPE. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES TO PROVIDE THE BEST ARRANGEMENT OF ALL DUCT, PIPE, CONDUIT, ETC.
- 7. ALL CUTTING AND PATCHING OF THE EXISTING STRUCTURE SHALL BE PROVIDED UNDER OTHER SECTIONS OF THE WORK. PROVIDE NECESSARY REQUIREMENTS TO THE PROJECT SUPERINTENDENT.
- 8. ALL HOT WATER PIPING AND RECIRCULATION PIPING (EXCEPT RUNOUTS 12 FT. OR SHORTER TO INDIVIDUAL FIXTURES) SHALL BE INSULATED TO MEET THE REQUIREMENTS OF THE 2018 INTERNATIONAL ENERGY CONSERVATION CODE
- 9. CONDENSATE DRAINS SHALL BE PROVIDED FOR EACH AIR CONDITIONING UNIT. HORIZONTAL CONDENSATE DRAINS ABOVE ANY CEILING SHALL BE INSULATED WITH MIN. 3/8" THICK CLOSED CELL INSULATION.
- A. WASTE, VENT, AND STORM DRAIN PIPING SHALL BE CO-EXTRUDED PVC SCHEDULE 40) PIPE
- B. WATER PIPE SHALL BE CPVC PIPE

C. CONDENSATE PIPING SHALL BE CO-EXTRUDED PVC (SCHEDULE 40) PIPE

- D. INSIDE GAS PIPING SHALL BE BLACK IRON SCHEDULE 40 WITH MALLEABLE IRON FITTINGS. OUTSIDE SHALL BE GALVANIZED IRON SCHEDULE 40 WITH GALVANIZED FITTINGS. GAS LINE TO BE PAINTED GRAY IN COLOR. A 24 HOUR METERED GAS TEST SHALL BE REQUIRED.
- E. ALL PIPING NOT ENCLOSED IN CONDITION SPACE OR AT EXTERIOR WALLS SHALL BE INSULATED.
- F. PIPING: PVC SCHEDULE 40, SCHEDULE 80 AND CPVC PIPING WITH SOLVENT WELD FITTINGS SHALL BE USED WHERE PERMITTED BY CODE/LOCAL AUTHORITIES
- 11. ALL VENTS OR EXHAUSTS SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. ABOVE ANY WINDOW, DOOR, OPENING, OR AIR INTAKE.
- 12. CLEANOUTS SHALL BE INSTALLED PER THE UNIFORM PLUMBING CODE.
- 13. PROVIDE WATER TIGHT FLASHINGS WHEREVER PIPES PASS THROUGH EXTERIOR WALLS, ROOFS, OR FLOORS.
- 14. PROVIDE ISOLATION FOR ALL PIPES THAT COME IN CONTACT WITH THE
- 15. LOCATION OF EXISTING UTILITIES AND POINTS OF CONNECTION ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICES PRIOR TO STARTING WORK OF THIS SECTION. IF INDICATED POINTS OF CONNECTION CANNOT BE MADE TO EXISTING UTILITIES AS FOUND, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO INSTALLING ANY WORK WHICH MAY BE AFFECTED.
- 16. VALVES SHALL BE NIBCO, JENKINS, HAMMOND, RED & WHITE OR APPROVED EQUAL. SERVICE PRESSURE SHALL BE SUITABLE FOR SERVICE INTENDED. THE MAIN WATER SHUT OF VALVE SHALL BE A FULL PORT BALL TYPE AND APPROVED FOR SERVICE INTENDED.
- 17. CONTRACTOR SHALL PROVIDE ALL SHUT OFF VALVES AS NECESSARY TO ISOLATE ANY EQUIPMENT, PLUMBING ITEMS, OR FIXTURES, THAT MAY NEED SERVICING OR ARE SUBJECT TO FAILURE WHETHER OR NOT SUCH VALVES ARE SHOWN ON THE DRAWINGS.
- 18. PROVIDE HANGERS AND SUPPORTS AS REQUIRED. PLUMBERS TAPE AND WIRE ARE NOT ACCEPTABLE.
- 19. CONTRACTOR IS RESPONSIBLE FOR HIS OWN TRENCHING, BACKFILL, AND COMPACTION OF TRENCHES NECESSARY TO COMPLETE HIS SCOPE OF WORK. BACKFILLED TRENCHES SHALL BE RETURNED TO THEIR ORIGINAL GRADE UNLESS NOTED OTHERWISE.
- 20. CONTRACTOR SHALL AFFIX A MAINTENANCE LABEL TO ALL EQUIPMENT REQUIRING ROUTINE MAINTENANCE AND SHALL PROVIDE MAINTENANCE AND OPERATIONAL MANUALS IN ACCORDANCE WITH THE SPECIFICATIONS.
- 21. ALL EQUIPMENT THAT REQUIRES KEYS OR SPECIAL TOOLS TO OPERATE SHALL SUPPLY THE OWNER WITH TWO OF ANY SUCH KEYS OR TOOLS FOR EACH PIECE OF EQUIPMENT THAT REQUIRE THE SAME.
- 25. ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE APPROVAL, IN WRITING, OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK.
- 26. ALL PLUMBING, ELECTRICAL, AND GAS LINES SHALL BE CONCEALED WITHIN THE THE BUILDING STRUCTURE TO AS GREAT EXTENT AS POSSIBLE. ALL LINES NOT CONCEALED SHALL BE SECURED 6" OFF THE FLOOR AND 3/4" FROM THE WALLS USING STANDOFF BRACKETS
- 27. AN APPROVED BACKFLOW PREVENTOR SHALL BE PROPERLY INSTALLED UPSTREAM OF ANY POTENTIAL HAZARD BETWEEN THE POTABLE WATER SUPPLY AND SOURCE OF COMTAMINATION.
- 28. WATER SUPPLY CARBONATORS SHALL BE PROTECTED BY AN APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR. THE RELIEF VALVE SHALL DRAIN IN-DIRECTLY TO A FLOOR SINK WITH A 1" MIN. AIR GAP.

	ABBREV SS or W V CW HW	DESCRIPTION NEW SEWER OR WASTE NEW VENT
	V CW HW	
	CW	NEW VENT
	HW	
		NEW COLD WATER
		NEW HOT WATER
	G	NEW GAS
	CD	NEW CONDENSATE DRAIN
CA	CA	COMPRESSED AIR
φ	FCO	FLOOR CLEANOUT
Ю	WCO	WALL CLEANOUT
D	FD	FLOOR DRAIN
	FS	FLOOR SINK
<u> </u>	TP	TRAP PRIMER & TRAP PRIMER PIPING
$\overline{}$	SOV	SHUT-OFF VALVE
N-	CV	CHECK VALVE
	PRV	BACKFLOW PREVENTER W SOV'S
<u></u>	T&P	
─	DN	PIPE DOWN
	UP	PIPE UP
	POC	POINT OF CONNECTION
7	-	PLUMBING NOTE CALL-OUT
	ABV	ABOVE
	AFF	ABOVE FINISH FLOOR
	AP	ACCESS PANEL
	BEL	BELOW
	BLDG	BUILDING
	CLG	CEILING
	CONT	CONTINUATION
	EL	ELEVATION
	FIN	FINISH
	FL	FLOOR
	GR	GRADE
	NTS	NOT TO SCALE
	OC	ON CENTER
	<u>S= %</u>	SLOPE AT A PERCENTAGE
	SHT	SHEET
	TYP	TYPICAL
	VTR	VENT THRU ROOF

PLUMBING / GENERAL NOTES

BATHTUBS AND WHIRLPOOL BATHTUBS. THE MAX, HOT WATER TEMPERATURE DISCHARGING SHALL BE LIMITED TO 120 DEGREES. CPC

BATHTUBS WASTE OPENING IN FLOOR OVER CRAWL SPACES SHALL BE PROTECTED BY A METAL SCREEN NOT EXCEEDING 12" OR SOLID COVER. CPC 313.12.4 2019 SHOWERS AND TUB-SHOWERS COMBINATIONS IN ALL BUILDINGS SHALL

BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE, THERMOSTATIC, OR COMBINATION OF BOTH THAT PROVIDE SCALD AND THERMAL SHOCK PROTECTION. VALVES SHALL BE ADJUSTED TO DELIVER A MAXIMUM MIXED WATER SETTING OF 120 DEGREES FAHRENHEIT. THE WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED A SUITABLE CONTROL FOR

MEETING THIS PROVISION. 418.0 CPC/2019 VERIFY AND WHERE WATER PRESSURE EXCEEDS 80 PSI AN APPROVED PRESSURE REGULATOR PRECEDED BY AN ADEQUATE STRAINER SHALL BE INSTALLED 608.2 C[C / 2019 1-INSTALL TEMPERATURE AND PRESSURE RELIEF VALVE WITH MINIMUM

34" DRAIN PIPE AND TERMINATE TO THE EXTERIOR OF THE BUILDING OVER WINDOW, DOOR OR VISIBLE LOCATION. DISCHARGE FROM A RELIEF VALVE INTO A WATER HEATER PAN SHALL BE PROHIBITED CPC 608.5, 2-PROVIDE (ON THE PLANS) A GAS PIPING DIAGRAM OF THE GAS PIPING

SYSTEM THAT INCLUDES ALL PIPE SIZES, PIPE LENGTHS AND BTU

RATINGS.

3-SUBMIT GAS LOAD CALCULATIONS IN ACCORDANCE WITH CPC TABLE 12-8 TO VERIFY THE PIPE SIZES ARE ADEQUATE FOR THE MAXIMUM DELIVERY CAPACITY OF CUBIC FEET OF GAS PER HOUR. 4- A WHOLE HOUSE HAS TEST IS REQUIRED UPON COMPLETION OF THE INSTALLATION,

ALTERATION, OR REPAIR OF ANY GAS PIPING. THE CITY SHALL BE NOTIFIED WHEN GAS PIPING IS READY FOR INSPECTION. 5- 2 GPM SHOWER FIXTURE, MAX.1.5 GPM BATHROOM FAUCET, MAX. 2 GPM KITCHEN FAUCET, AND MAX 1.28 WATER CLOSET TO CONFORM TO CITY GREEN REQUIREMENTS.

BATHROOMS: PROVIDE AN EXHAUST FAN (AT LEAST 50 CFM) DUCTED TO THE OUTSIDE (MINIMUM 4" DIAMETER FLEX DUCT WITH A MAXIMUM LENGTH OF 70") WITH A MINIMUM VENTILATION RATE OF 100 CFM, IDENTIFY THE REQUIREMENT FOR A BACKDRAFT DAMPER ON THE DUCT, AN ENERGY STAR COMPLIANT EXHAUST FAN THAT IS CONTROLLED BY A HUMIDITY SENSOR THAT IS CAPABLE OF BEING ADJUSTED BETWEEN ≤ 50-PERCENT TO 80-PERCENT HUMIDITY; AND A SEPARATE SWITCH FROM THE LIGHT UNLESS THE FAN IS ALLOWED TO OPERATE WITH THE LIGHT SWITCHED OFF.

6-NOTE THAT ALL PLUMBING VENTS SHALL TERMINATE NOT LESS THAN 6" ABOVE ROOF NOR LESS THAN 1' FROM ANY VERTICAL SURFACE. VENTS SHALL TERMINATE NOT LESS THAN 10" FROM OR 3' ABOVE ANY WINDOW, DOOR OPENING AIR INTAKE, OR VENT SHAFT NOR 3' FROM LOT LINE. (2019 CPC 906) IF WATER PRESSURE EXCEEDS 80 PSI, AND EXPANSION TANK AND AN APPROVED PRESSURE REGULATOR SHALL BE INSTALLED. (2019 CPC608.2) NON-REMOVABLE BACK FLOW PRE-VENTER OR BIBB-TYPE VACUUM BREAKER WILL BE INSTALLED ON ALL EXTERIOR HOSE BIBS. (2019 CPC603.4.7) HOT WATER RE-CIRCULATING SYSTEM IS INSTALLED, THE ENTIRE LENGTH OF HOT WATER PIPES SHALL BE INSULATED. (2008 CALIFORNIA ENERGY REGULATIONS 150 (J)) HOT WATER PIPE FROM THE WATER HEATER TO THE KITCHEN WILL BE INSULATED. (2008 CALIFORNIA ENERGY REGULATIONS 151 (F)8 D)

1-Projects which disturb less than one acre of soil shall manage storm water drainage during construction by one of the following: A. Retention basins. B. Where storm water is conveyed to a public drainage system, water shall be filtered by use of a barrier system, wattle or other approved

2-Site grading or drainage system will manage all surface water flows to keep water from entering buildings (swales, water collection, French drains, etc.). CGC Section 4.106.3. Exception: Additions not altering the drainage path.

3-When a shower is provided with multiple shower heads, the sum of flow to all the heads shall not exceed 1.8 gpm @ 80 psi, or the shower shall be designed so that only one head is on at a time.

CGC Section 4.303.1.3.2. 4-Landscape irrigation water use shall have weather or soil based controllers. CGC Section 4.304.1. 5-The plans that a minimum of 65% of construction waste is to be recycled. CGC Section 4.408.1. 6-The contractor shall submit a Construction Waste Management Plan, per CGC Section 4.408.2. 7-The builder is to provide an operation manual (containing information for maintaining appliances, etc.) for the owner at the time of final inspection. CGC Section 4.410.1.

8-The gas fireplace(s) shall be a direct-vent sealed- combustion type. Woodstove or pellet stoves must be US EPA Phase II rated appliances. CGC Section 4.503.1.

WATER SAVING STANDARDS.

THE WATER SAVING PERFORMANCE STANDARDS FOR A PLUMBING FIXTURE ARE THOSE ESTABLISHED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), CURRENT REVISION, OR THE FOLLOWING STANDARDS, WHICHEVER ARE THE MORE RESTRICTIVE 1.THE MAXIMUM FLOW FROM A SINK OR LAVATORY FAUCET OR A FAUCET AERATOR SHALL NOT EXCEED 0.5 GALLONS OF WATER PER MINUTE AT A PRESSURE OF 60 POUNDS PER SQUARE INCH WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES 2.THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A TOILET SHALL NOT EXCEED AN AVERAGE OF 1 28 GALLONS WHEN TESTED IN ACCORDANCE WITH ANSI TESTING

3. THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A URINAL AND THE ASSOCIATED FLUSH VALVE, IF ANY, SHALL NOT EXCEED AN AVERAGE OF ONE GALLON WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES

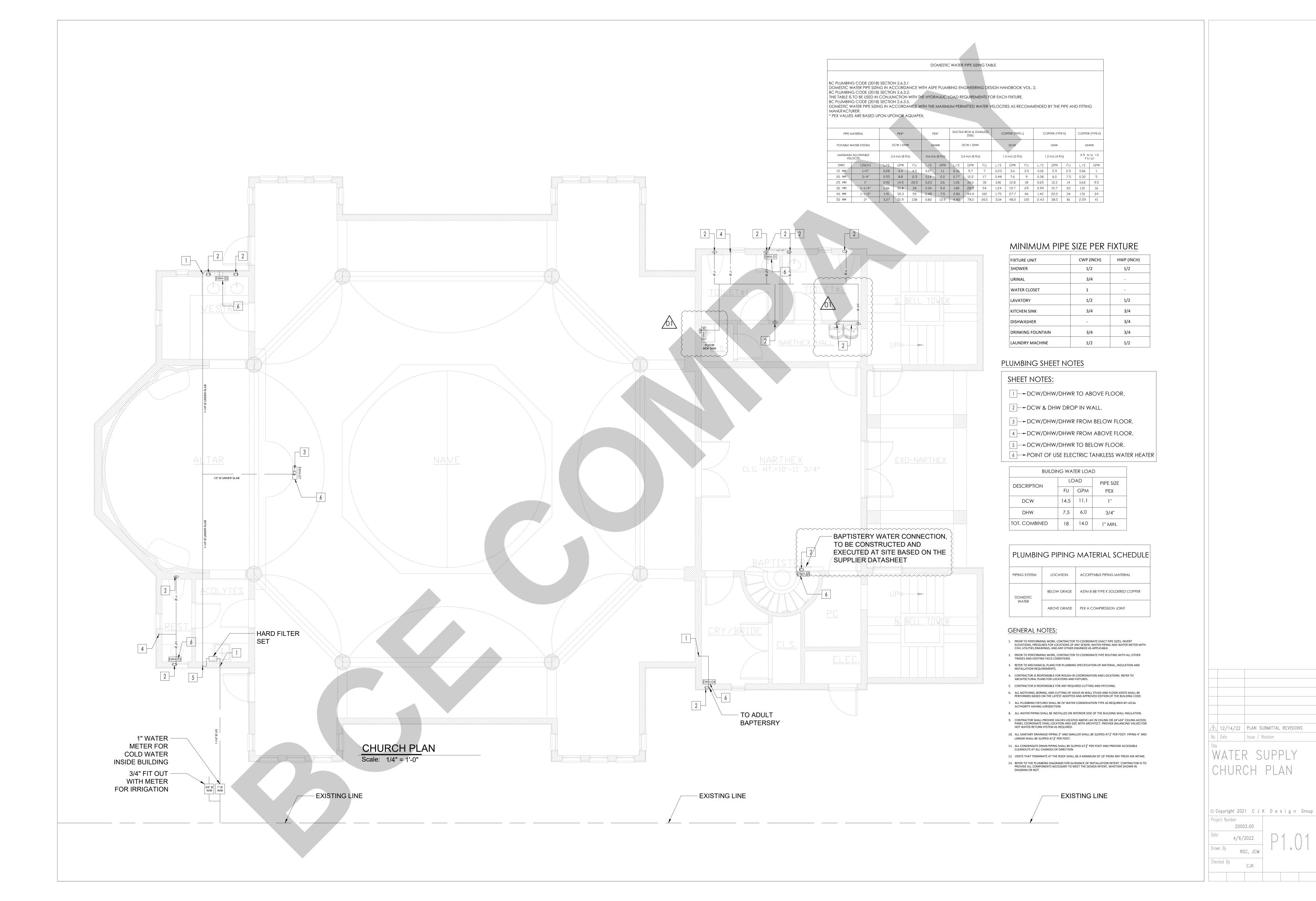
SPECIAL NOTICE TO CONTRACTORS

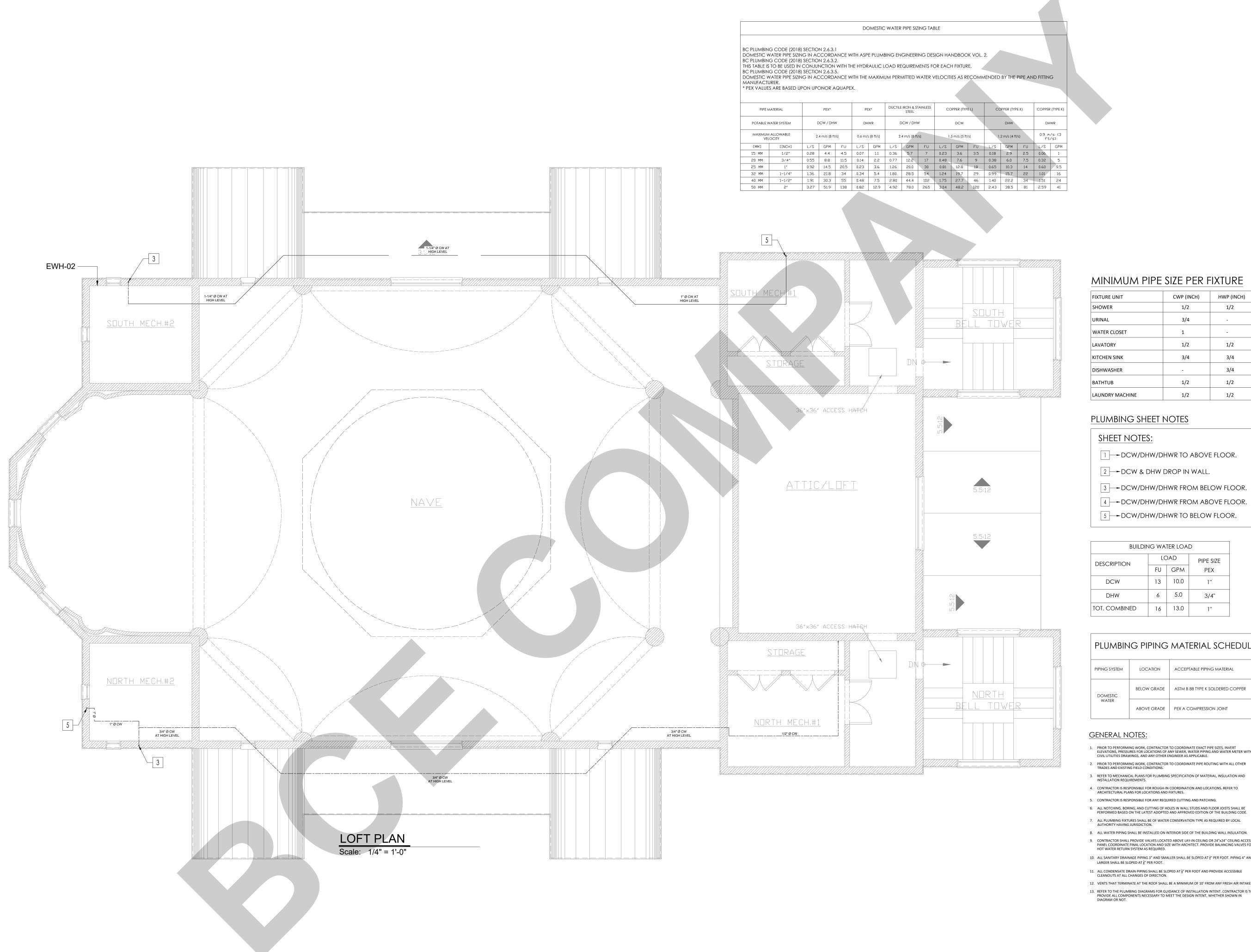
- I. ALL CONTRACTORS (GENERAL CONTRACTOR AND SUB-CONTRACTORS) BIDDING THIS PROJECT ARE REQUIRED TO VISIT THE JOB SITE AND VERIFY THE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. CONTRACTORS ARE TO CAREFULLY REVIEW ALL CONSTRUCTION DOCUMENTS AND NOTE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED AT THE JOB SITE PRIOR TO SUBMISSION OF ANY BID. THE BUILDING OWNER REPRESENTATIVE LISTED BELOW MAY BE CONTACTED FOR ACCESS TO THE JOB
- . CONTRACTORS ARE RESPONSIBLE FOR VERIFYING THE LOCATION AND CONDITION OF ALL POINTS OF CONNECTION, LOCATION AND CONDITION OF ALL BUILDING (ROOF/FLOOR/CEILING) PENETRATIONS, LOCATION AND CONDITION OF ALL UTILITIES AND BUILDING SYSTEMS INCLUDING, BUT NOT LIMITED TO, GAS, WATER, SEWER, VENT, ELECTRICAL, BUILDING MECHANICAL SYSTEMS, DUCT CONNECTIONS, EXHAUST/OUTSIDE AIR CONNECTIONS, SECURITY, FIRE ALARM, DATA, AND PHONE PRIOR TO SUBMISSION OF THEIR BID.
- 8. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED SHALL BE BROUGHT TO THE ATTENTION, IN WRITING, TO THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

12/14/22 | PLAN SUBMITTAL REVISIONS Issue / Revision

© Copyright 2021 C J K Design Group 20002.00 4/6/2022

RGC, JCM





MINIMUM PIPE SIZE PER FIXTURE

FIXTURE UNIT	CWP (INCH)	HWP (INCH)
SHOWER	1/2	1/2
URINAL	3/4	-
WATER CLOSET	1	-
LAVATORY	1/2	1/2
KITCHEN SINK	3/4	3/4
DISHWASHER	-	3/4
BATHTUB	1/2	1/2
LAUNDRY MACHINE	1/2	1/2

PLUMBING SHEET NOTES

SHEET NOTES:
1 — DCW/DHW/DHWR TO ABOVE FLOOR.
2 DCW & DHW DROP IN WALL.
3 — DCW/DHW/DHWR FROM BELOW FLOOR.
4 — DCW/DHW/DHWR FROM ABOVE FLOOR.
5 DCW/DHW/DHWR TO BELOW FLOOR.

BUILDING WATER LOAD							
DESCRIPTION	LC	DAD	PIPE SIZE				
DESCRIPTION	FU	GPM	PEX				
DCW	13	10.0	1"				
DHW	6	5.0	3/4"				
TOT. COMBINED	16	13.0	1"				

PLUMBING PIPING MATERIAL SCHEDULE

PIPING SYSTEM	LOCATION	ACCEPTABLE PIPING MATERIAL
DOMESTIC	BELOW GRADE	ASTM B 88 TYPE K SOLDERED COPPER
WATER	ABOVE GRADE	PEX A COMPRESSION JOINT

GENERAL NOTES:

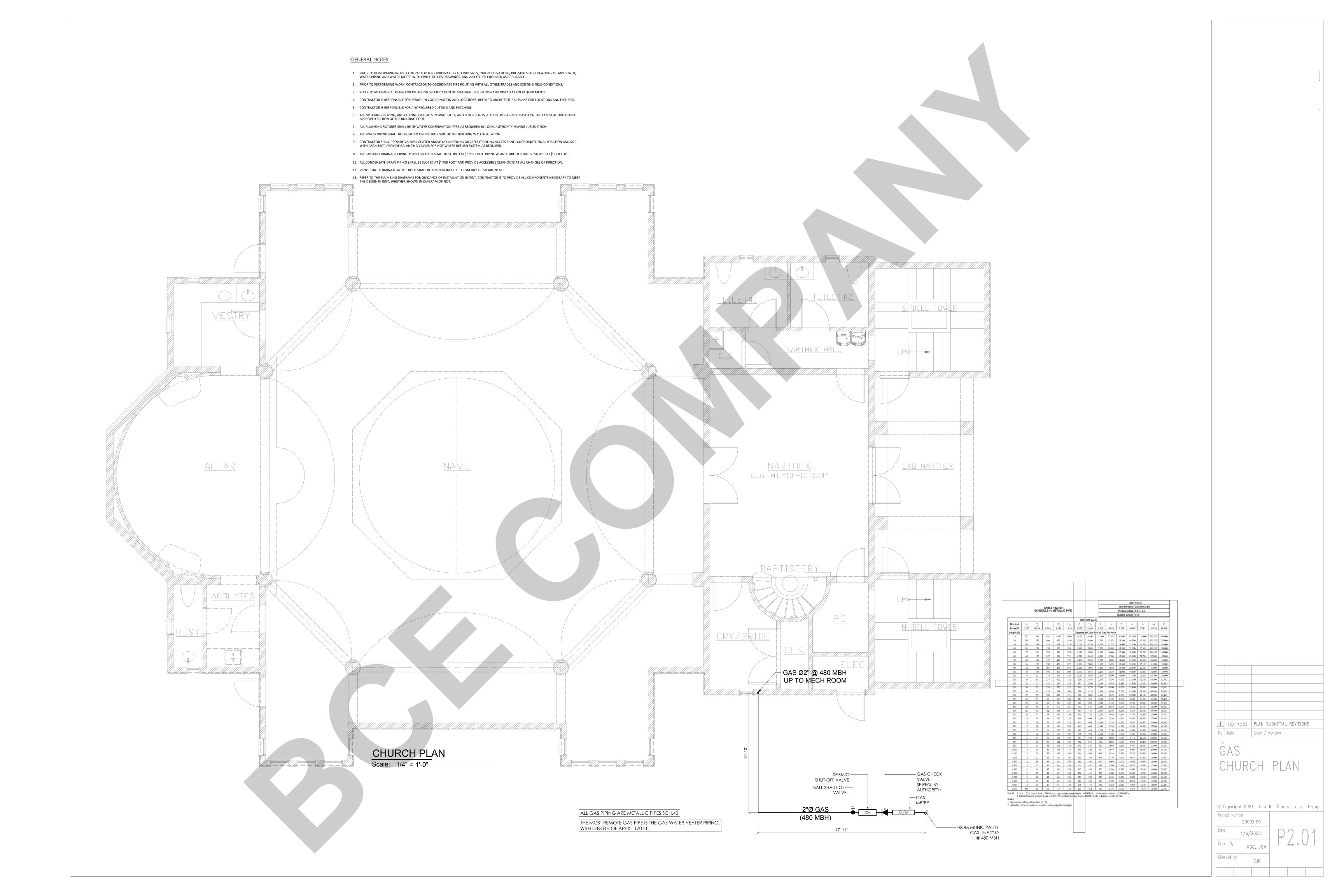
- PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
- 2. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
- REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES.
- 5. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED CUTTING AND PATCHING.
- ALL NOTCHING, BORING, AND CUTTING OF HOLES IN WALL STUDS AND FLOOR JOISTS SHALL BE PERFORMED BASED ON THE LATEST ADOPTED AND APPROVED EDITION OF THE BUILDING CODE.
- ALL PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
- CONTRACTOR SHALL PROVIDE VALVES LOCATED ABOVE LAY-IN CEILING OR 24"x24" CEILING ACCESS
 PANEL COORDINATE FINAL LOCATION AND SIZE WITH ARCHITECT. PROVIDE BALANCING VALVES FOR
 HOT WATER RETURN SYSTEM AS REQUIRED.
- 10. ALL SANITARY DRAINAGE PIPING 3" AND SMALLER SHALL BE SLOPED AT $\frac{1}{4}$ " PER FOOT. PIPING 4" AND
- LARGER SHALL BE SLOPED AT $\frac{1}{8}$ " PER FOOT.
- 11. ALL CONDENSATE DRAIN PIPING SHALL BE SLOPED AT $\frac{1}{8}$ " PER FOOT AND PROVIDE ACCESSIBLE CLEANOUTS AT ALL CHANGES OF DIRECTION.
- 12. VENTS THAT TERMINATE AT THE ROOF SHALL BE A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
- 13. REFER TO THE PLUMBING DIAGRAMS FOR GUIDANCE OF INSTALLATION INTENT. CONTRACTOR IS TO PROVIDE ALL COMPONENTS NECESSARY TO MEET THE DESIGN INTENT, WHETHER SHOWN IN DIAGRAM OR NOT.

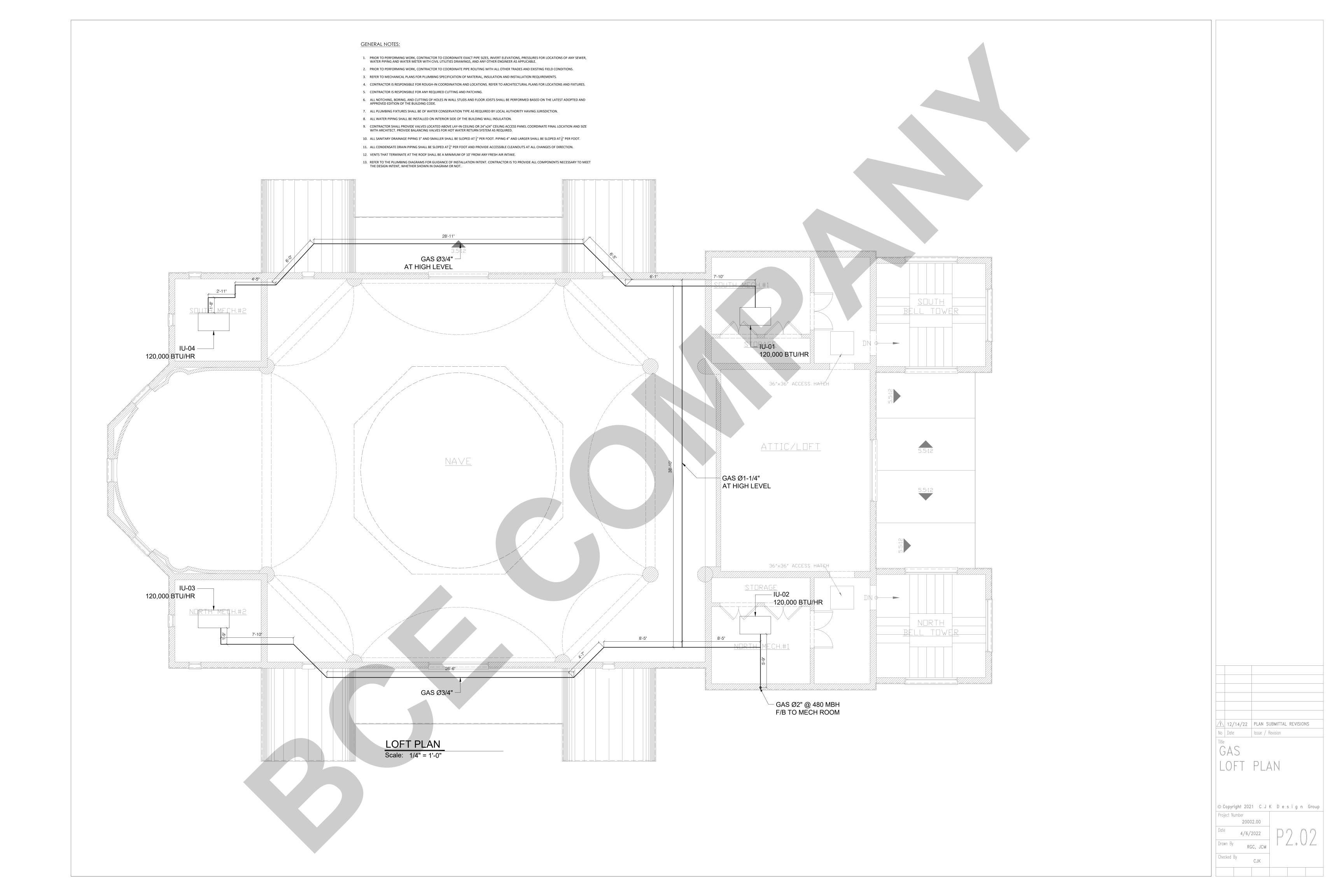
12/14/22 | PLAN SUBMITTAL REVISIONS No Date | Issue / Revision

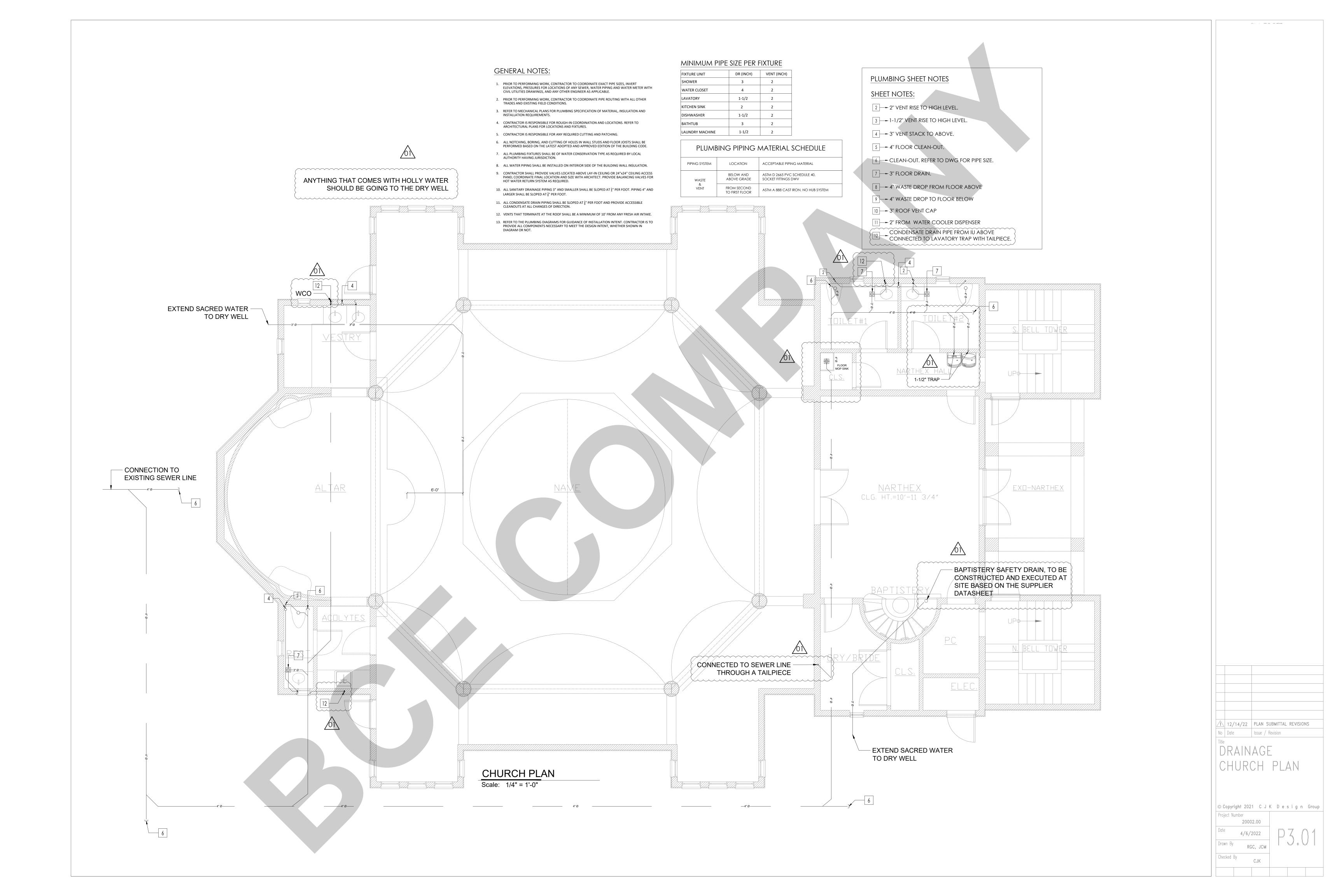
WATER SUPPLY LOFT PLAN

© Copyright 2021 C J K D e s i g n Group Project Number 20002.00

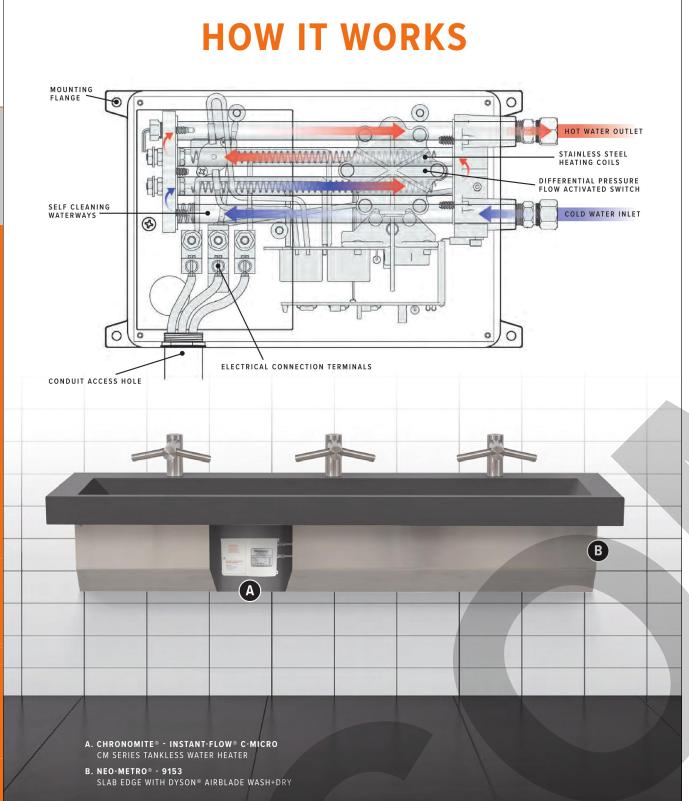
4/6/2022 Drawn By RGC, JCM Checked By











INSTANT-FLOW® SR POINT-OF-USE ELECTRIC TANKLESS WATER HEATER

INSTANT FL	OW® - SR SERIES	5								
LOW FLOW							°F TEMP	ERATURE	RISE @	
MODEL	ACTIVATION GPM	VOLTS	KW	AMPS	90°C WIRE	0.35 GPM	0.5 GPM	1.0 GPM	1.5 GPM	2.0 GPM
SR-15L/120	0.35	120	1.80	15	14 AWG	35	25	12	8	6
SR-20L/120	0.35	120	2.40	20	12 AWG	47	31	16	11	8
SR-30L/120	0.35	120	3.60	30	10 AWG	70	49	25	16	12
SR-20L/208	0.35	208	4.16	20	12 AWG	81	57	28	19	14
SR-20L/240	0.35	240	4.80	20	12 AWG	90+	66	33	22	16
SR-15L/277	0.35	277	4.15	15	14 AWG	81	57	28	19	14
SR-20L/277	0.35	277	5.54	20	12 AWG	90+	76	38	25	19
INSTANT FL	OW® - SR SERIES	S								
STANDARD	FLOW						°F TEMF	PERATURE	RISE @	
MODEL	ACTIVATION GPM	VOLTS	KW	AMPS	90°C WIRE	0.65 GPM	1.0 GF	PM 1.5	GPM	2.0 GPM
SR-30/208	0.65	208	6.24	30	10 AWG	66	41		28	21

0.65 208 8.32 40 8 AWG 87 57 38 28

0.65 240 9.60 40 8 AWG 90+ 66 44 33 0.65 277 8.31 30 10 AWG 87 57 38 28

240 7.20 30 10 AWG 76 49 33 25

CHRONOMITE LABORATORIES, INC. • 800-447-4962 • WWW.CHRONOMITE.COM

IDEAL APPLICATIONS

Manual handwashing faucets, kitchen sinks, bar sinks, utility sinks, and hand set showers.

Chronomite Instant-Flow® SR Low-Flow Electric Tankless Water Heaters are designed to provide reliable are the space-saving solution for point-of-use, instant hot water when installed at the point of use. This instant electric tankless water heater is perfect for lavatories and sinks. It is ideal for two-handle and Electric Tankless Water Heaters are designed single-handle faucets and is the perfect under-the-sink to be lightweight, compact and are constructed water heater. The SR series is designed to provide a predetermined temperature rise to the incoming cold resistance. No pressure and temperature relief water and to increase the water outlet temperature by valves are needed (unless required by code), saving manually increasing/decreasing water flow.

Instant-Flow® SR Electric Water Heaters meet the ADA

Chronomite Electric Tankless Water Heaters under-the-counter sink and basin applications where instant hot water is needed. Chronomite with a durable metal housing for optimal vandal time and money on installation.

barrier-free requirements and are 99% energy efficient.

FOR OPTIMAL PERFORMANCE, CHRONOMITE ELECTRIC TANKLESS WATER HEATERS SHOULD ALWAYS BE INSTALLED WITHIN 18 INCHES OF THE POINT OF USE.

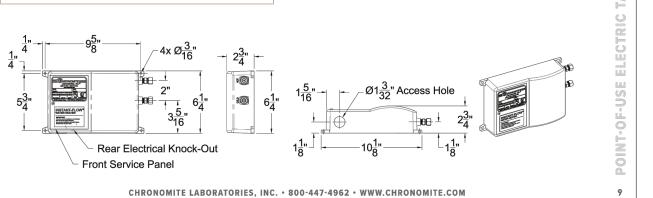
SR ELECTE	E INSTANT-FLOW® RIC TANKLESS ATER FEATURES
99% Energy Efficient Compact Size	Unlimited Hot Water Meets ADA Requirements

Optional Stainless

Easy to Install

Low Installation Cost

Aluminum Standard housing ABS Housing Satin Finish Stainless housing Polished Stainless Housing 1/2" Male NPT Connection 3/4" Male NPT Connection - ABS only Disconnect Switch



SCHEDULE No. 1 ELECTRIC TANKLESS WATER HEATER SCHEDULE

EWH-1 TO 6 AS SHOWN	EWH-7
V	
AS SHOWIN	AS SHOWN
CHRONOMITE	CHRONOMITE
SR-15L/120	SR-30L/120
ELECTRIC	ELECTRIC
120	120
1.80	3.60
15	30
9-5/8" x 2-3/4"	9-5/8" x 2-3/4"
5-3/4"	5-3/4"
	CHRONOMITE 5R-15L/120 ELECTRIC .20 80 .5 9-5/8" x 2-3/4"

	WATER CONSERVING PLUMBING FIXTURES AND FITTINGS
	Plumbing fixtures and fittings shall comply with the following:
(201	9 CGBSC, California Plumbing Code (CPC) and Table 1401.1 of the CPC)
4303.1.1	All Water closets: ≤1.28 gal/flush Tank type water closet shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.
4303.1.2	Urinals: <0.5 gal/flush
4303.1.3.1	Single showerheads: <1.8 gpm @ 80 psi
4303.1.3.2	Multiple showerheads: combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gpm @ 80 psi or only one shower outlet is to be in operation at a time.
4303.1.4.1	Residential Lavatory Faucets: 0.8 gpm @ 20 psi < Flow Rate <1.2 gpm @ 60 psi
4303.1.4.2	Lavatory Faucets in common and Public Use Areas (outside of dwellings or sleeping units) in residential buildings: <0.5 gpm @ 60 psi
4303.1.4.3	Metering Faucets: ≤0.25 gallons per cycle
4303.1.4.4	Kitchen Faucets: ≤1.8 gpm @ 60 psi; Maximum Flow Rate of 1.8 gpm

PLUMBING FIXTURE CERTIFICATION REQUIRED: A plumbing fixture certification must be completed and signed by either a licensed general contractor, or a plumbing subcontractor, or the building owner certifying the flow rate of the fixtures installed. A copy of the certification can be obtained from the development services

							יאווטואי	G FIXTURE SCHEDULE
FIXT. DESCRIPTION		MANUFACTURER	MODEL	W	ROU(GH-IN CW	HW	REMARKS
3CS-1	3-COMPARTMENT SINK	SELECT BY ARCH/OWNER	-	3"	2"	3/4"	3/4"	SELECTED BY ARCHITECT/OWNER. VERIFY FOR EXACT SPECIFICATION AND MODEL NUMBER OF PLUMBING FIXTURE WITH ARCHITECT AND OWNER PRIOR TO ORDERING AND INSTALLATION
HS-1	hand sink	SELECT BY ARCH/OWNER	-	2"	2"	1/2"	1/2"	SELECTED BY ARCHITECT/OWNER. VERIFY FOR EXACT SPECIFICATION AND MODEL NUMBER OF PLUMBING FIXTURE WITH ARCHITECT AND OWNER PRIOR TO ORDERING AND INSTALLATION
TP-1	TRAP PRIMER	WATTS	LFTP300-DR	-	-	1/2"	-	WATTS DRAINAGE LFTP300-DR PRESSURE DROP ACTIVATED LEAD FREE*BRASS TRAP PRIMER WITH EPDM SEALS, INTEGRAL AIR GAP, AND 1/2"SWEAT OR NPT THREADED CONNECTIONS. OPERATING PRESSURE 25 PSI - 125 PSI. TESTED AND APPROVED IN CONFORMANCE WITH ASSE STANDARD 1018. SPECIFY MODEL LFTP300-DU-DR FOR DISTRIBUTION UNIT.
FCO	FLOOR CLEANOUT	WATTS	CO-200-S	PIPE SIZE	-	-	-	WATTS DRAINAGE CO-200-S EPOXY COATED CAST IRON FLOOR CLEANOUT WITH 5"X5" SQUARE ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB (STANDARD) OUTLET.
wco	WALL CLEANOUT	WATTS	CO-380	PIPE SIZE	-	-	-	WATTS DRAINAGE CO-380 CAST IRON CLEANOUT WITH GASKETED BRASS COUNTERSUNK PLUG, AND NO HUB CONNECTION.
FS-1	FLOOR SINK	WATTS	FS-780	2"	2"	-	-	WATTS DRAINAGE FS-780 12" SQUARE X 6" DEEP 14 GA. TYPE 304 STAINLESS STEEL SANITARY FLOOR SINK WITH LOOSE SET CAST STAINLESS STEEL GRATE, DOME BOTTOM STRAINER, AND NO HUB (STANDARD) OUTLET.
FD-1	FLOOR DRAIN	WATTS	FD-320-Y	2"	2"	-	-	WATTS DRAINAGE FD-320-Y EPOXY COATED CAST IRON AREA DRAIN WITH ANCHOR FLANGE, WEEPHOLES, 8"DIAMETER FIXED TOP WITH HEEL PROOF DUCTILE IRON GRATE, AND NO HUB (STANDARD) OUTLET
WC-1	WATER CLOSET (ADA APPROVED)			4"	2"	3/4"	-	DELTA MODEL # C41908-WH4.5547(411) TURNER 2-PIECE 1.28 GPF SINGLE FLUSH ROUND FRONT TOILET IN WHITE. TOILET SHALL BE ADA AND ASME A112.19.1 COMPLIANT (OR APPROVED EQUAL).
LAV-1	LAVATORY (ADA APPROVED)			2"	2"	1/2"	1/2"	"KOHLER" HUDSON MODEL K-2849 WHITE VITREOUS CHINA WALL MOUNTED LAVATORY WITH 4" CENTERS OR APPROVED EQUAL. INCLUDE MODEL K-7401-5A FAUCET WITH STANDARD AERATOR AND WRISTBLADE HANDLES. LAVATORY AND FAUCETS SHALL BE ADA AND ASME A112.19.1M COMPLIANT (OR APPROVED EQUAL)

12/14/22 | PLAN SUBMITTAL REVISIONS No Date Issue / Revision

SCHEDULE

© Copyright 2021 C J K D e s i g n Group Project Number 20002.00 Drawn By

