MECHANICAL SPECIFICATIONS

PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM. DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. INSTALL MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. PROVIDE 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 90º 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 2022, 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 2022 CALIFORNIA 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. COORDINTAE 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 2022 CALIFORNIA 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 CALIFORNIA MECHANICIAL CODE. DUCTS NOT REQUIRING DAMPERS SHALL COMPLY WITH SECTION 714 & 717 OF THE 2022 PHILADELPHIA 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 2022 PHILADELPHIA 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.

1) DUCTS FOR KITCHEN COOKTOPS OR RANGES SHALL BE SHOWN OF METAL WITH A SMOOTH INTERIOR.

a) DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE INSTALLED IN ACCORDANCE WITH IMC 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. OR D.		RISE OR DROP IN DIRECTION OF AIR FLOW
	FLEX. CONN.	FLEXIBLE CONNECTION
		DUCT TRANSITION, ROUND AND RECTANGULAR
		SPLITTER DAMPER
Angle		EXTRACTOR AT BRANCH DUCT
		TURNING VANES
		FLEXIBLE DUCT
		SINGLE LINE DUCT WORK
	AVD	AUTOMATIC VOLUME DAMPER
	MVD	MANUAL VOLUME DAMPER
	BDD	BACKDRAFT DAMPER
	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
	T/B	TO BELOW
	F/B	FROM BELOW
	T/A	TO ABOVE
	F/A	FROM ABOVE

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.

PHASE A

No.	Date	Issue / Revision

Title
MECH. LIST OF SYMBOLS AND GENERAL NOTES.

Project Number: 20001.00
Date: 30/03/2023
Drawn By: MK, JM
Checked By: CJK

M0.0

SCALE: NTS

CD PROGRESS 03-29-23

CALIFORNIA MECHANICAL CODE CHECKING:

DUCT SIZING, THICKNESS & INSULATION

PLEASE REFER TO TABLE 506.2(1) FOR MINIMUM S HEET METAL THICKNESS FOR ROUND DUCTS

604.0 Insulation of Ducts.

604.1 General. Air ducts conveying air at temperatures exceeding 140°F (60°C) shall be insulated to maintain an insulation surface temperature of not more than 140°F (60°C). Factory-made air ducts and insulations intended for installation on the exterior of ducts shall be legibly printed with the name of the manufacturer, the thermal resistance (R) value at installed thickness, flame-spread index, and smoke developed index of the composite material. Internal duct liners and insulation shall be installed in accordance with SMACNA HVAC Duct Construction standards – Metal and Flexible. **[OSHPD 1, 1R, 2, 3, 4 & 5]** *Cold air ducts shall be insulated wherever necessary or to prevent condensation.*

Exceptions:

(1) Factory-installed plenums, casings, or ductwork furnished as part of HVAC equipment tested and rated in accordance with approved energy efficiency standards.

(2) Ducts or plenums located in conditioned spaces where heat gain or heat loss will not increase energy use.

(3) For runouts less than 10 feet (3048 mm) in length to air terminals or air outlets, the rated R-value of insulation need not exceed R-3.5.

(4) Backs of air outlets and outlet plenums exposed to unconditioned or indirectly conditioned spaces with face areas exceeding 5 square feet (0.5m^2) need not exceed R-2; those 5 square feet (0.5m^2) or smaller need to be insulated.

(5) Ducts and plenums used exclusively for evaporative cooling systems.

E 502.4 Ducts. Ducts shall be sized, installed, and tested in accordance with Section E 502.4.1 though Section E 502.4.4.

E 502.4.1 Insulation and Ducts. Portions of the air distribution system installed in or on buildings for heating and cooling shall be R-8. Where the mean outdoor dew-point temperature in a month exceeds 60°F (16°C), vapor retarders shall be installed on conditioned-air supply ducts. Vapor retarders shall have a water vapor permeance not exceeding 0.5 perm [2.87 E-11 kg/(Pa.s.m^2)] where tested in accordance with Procedure A in ASTM E96.

Insulation shall not be required where the ducts are within the conditioned space. [ASHRAE 90.2:6.4]

E 502.4.4 Duct Sizing. Duct systems shall be sized in accordance with ACCA Manual D or other methods approved by the Authority Having Jurisdiction with the velocity in the main duct not exceed 1000 feet per minute (ft/min) (5.08m/s) and the velocity in the secondary branch duct not to exceed 600 ft/min (3.048 m/s).

CONDENSATE DRAIN:

310.0 Condensate Wastes and Control.
310.1 Condensate Disposal. Condensate from air washers, air-cooling coils, condensing appliances, and the overflow from evaporative coolers and similar water-supplied equipment or similar air-conditioning equipment shall be collected and discharged to an approved plumbing fixture or disposal area. Where discharged into the drain system, equipment shall drain by means of an indirect waste pipe. The Waste pipe shall have a slope of not less than ⅛ inch per foot (10.4 mm/m) or 1 percent slope and shall be of approved corrosion-resistant material not smaller than the outlet size in accordance with Section 310.3 or Section 310.4 for air-cooling coils or condensing appliances, respectively. Condensate or wastewater shall not drain over a public way.

310.3 Condensate Waste Pipe Material and Sizing. Condensate waste pipes from air-cooling coils shall be sized in accordance with the equipment capacity as specified in Table 310.3. The material of the piping shall comply with the pressure and temperature rating of the appliance or equipment, and shall be approved for use with the liquid being discharged.

TABLE 310.3
MINIMUM CONDENSATE WASTE PIPE SIZE

EQUIPMENT CAPACITY IN TONS OF REFRIGERATION	MINIMUM CONDENSATE PIPE DIAMETER (inches)
Up to 20	¾
21 – 40	1
41 – 90	1 ¼
91 – 125	1 ½
126 – 250	2

For SI units: 1 ton of refrigeration = 3.52 kW, 1 inch = 25 mm

310.3.1 Cleanouts. Condensate drain lines shall be configured or provided with a cleanout to permit the clearing of blockages and for maintenance without requiring the drain line to be cut.

310.5 Point of Discharge. Air conditioning condensate waste pipes shall connect indirectly, except where permitted in Section 310.6, to the drainage system through an air gap or air break to trapped and vented receptors, dry wells, leach pits, or the tailpiece of plumbing fixtures. A condensate drain shall be trapped in accordance with the appliance manufacturer's instructions or as approved.

310.6 Condensate Waste From Air-Conditioning Coils. Where the condensate waste from air-conditioning coils discharges by direct connection to a lavatory tailpiece or to an approved accessible inlet on a bathtub overflow, the connection shall be located in the area controlled by the same person controlling the air-conditioned space.

AIR INTAKE AND EXHAUST:

402.4 Outdoor Air Intake Protection. Required outdoor-air intakes shall be covered with a screen having not less than ¼ of an inch (6.4 mm) openings, and shall have not more than ½ of an inch (12.7 mm) openings.

402.4.1 Weather Protections. Outdoor air intakes that are part of the mechanical ventilation system shall be designed to manage rain entrainment, to prevent rain intrusion, and manage water from snow in accordance with ASHRAE 62.1.

402.5 Bathroom Exhaust Fans. [HCD 1 & HCD 2] *Each bathroom shall be mechanically ventilated in accordance with Division 4.5 of the California Green Building Standards Code (CALGreen).*

407.2.2 Exhaust Outlets. *Exhaust outlets shall be located a minimum of 10 feet (3048 mm) above adjoining grade and 10 feet (3048 mm) from doors, occupied areas, and operable windows.*

Exception: *Airborne infection isolation rooms shall comply with Section 414.1.*

701.10.1 Minimum Screen Mesh Size. Screens shall be not less than ¼ of an inch (6.4 mm) mesh. [NFPA 54:9.3.7.2]

311.3 Prohibited Source. Outside or return air for a heating or cooling air system shall not be taken from the following locations:
(1) Less than 10 feet (3048 mm) in distance from an appliance vent outlet, a vent opening of a plumbing drainage system, or the discharge outlet of an exhaust fan, unless the outlet is 3 feet (914 mm) above the outside-air inlet.
(2) Less than 10 feet (3048 mm) above the surface of an abut ting public way, sidewalk, street, alley, or driveway.

FACTORY-MADE AIR DUCTS

FACTORY-MADE AIR DUCTS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181 AND INSTALLED IN ACCORDANCE WITH THE TERMS OF THEIR LISTING, THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE.

FACTORY-MADE AIR DUCTS SHALL NOT BE USED FOR VERTICAL RISERS IN AIR-DUCT SYSTEMS SERVING MORE THAN TWO STORIES AND SHALL NOT PENETRATE A FIRE-RESISTANCE-RATED ASSEMBLY OR CONSTRUCTION.

FACTORY-MADE AIR DUCTS SHALL BE INSTALLED WITH NOT LESS THAN 4 INCHES (102 MM) OF SEPARATION FROM EARTH, EXCEPT WHERE INSTALLED AS A LINER INSIDE OF CONCRETE, TILE, OR METAL PIPE AND SHALL BE PROTECTED FROM PHYSICAL DAMAGE.

THE TEMPERATURE OF THE AIR TO BE CONVEYED IN A DUCT SHALL NOT EXCEED 250°F (121° C). FLEXIBLE AIR CONNECTORS SHALL NOT BE PERMITTED.

RECTANGULAR DUCTS

SUPPORTS FOR RECTANGULAR DUCTS SHALL BE INSTALLED ON TWO OPPOSITE SIDES OF EACH DUCT AND SHALL BE RIVETED, BOLTED, OR METAL SCREWED TO EACH SIDE OF THE DUCT AT INTERVALS SPECIFIED.

METAL DUCTS

DUCTS SHALL BE SUPPORTED AT EACH CHANGE OF DIRECTION AND IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE. RISER DUCTS SHALL BE HELD IN PLACE BY MEANS OF METAL STRAPS OR ANGLES AND CHANNELS TO SECURE THE RISER TO THE STRUCTURE.

METAL DUCTS SHALL BE INSTALLED WITH NOT LESS THAN 4 INCHES (102 MM) SEPARATION FROM EARTH. DUCTS SHALL BE INSTALLED IN A BUILDING WITH CLEARANCES THAT WILL RETAIN THE FULL THICKNESS OF FIRE-PROOFING ON STRUCTURAL MEMBERS.

COMBUSTIBLES WITHIN DUCTS OR PLENUMS

MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NONCOMBUSTIBLE 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.

EXCEPTIONS:
1. RETURN-AIR AND OUTSIDE-AIR DUCTS, PLENUMS, OR CONCEALED SPACES THAT SERVE A DWELLING UNIT.
2. AIR FILTERS IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 311.2.
3. WATER EVAPORATION MEDIA IN AN EVAPORATIVE COOLER.
4. CHARCOAL FILTERS WHERE PROTECTED WITH AN APPROVED FIRE SUPPRESSION SYSTEM.
5. PRODUCTS LISTED AND LABELED FOR INSTALLATION WITHIN PLENUMS IN ACCORDANCE WITH SECTION 602.2.1 THROUGH SECTION 602.2.3.
6. SMOKE DETECTORS.
7. DUCT INSULATION, COVERINGS, AND LININGS AND OTHER SUPPLEMENTARY MATERIALS INSTALLED IN ACCORDANCE WITH SECTION 604.0.
8. MATERIALS IN A HAZARDOUS FABRICATION AREA INCLUDING THE AREAS ABOVE AND BELOW THE FABRICATION AREA SHARING A COMMON AIR RECIRCULATION PATH WITH THE FABRICATION AREA.

PHASE A

No.	Title	Date / Revision

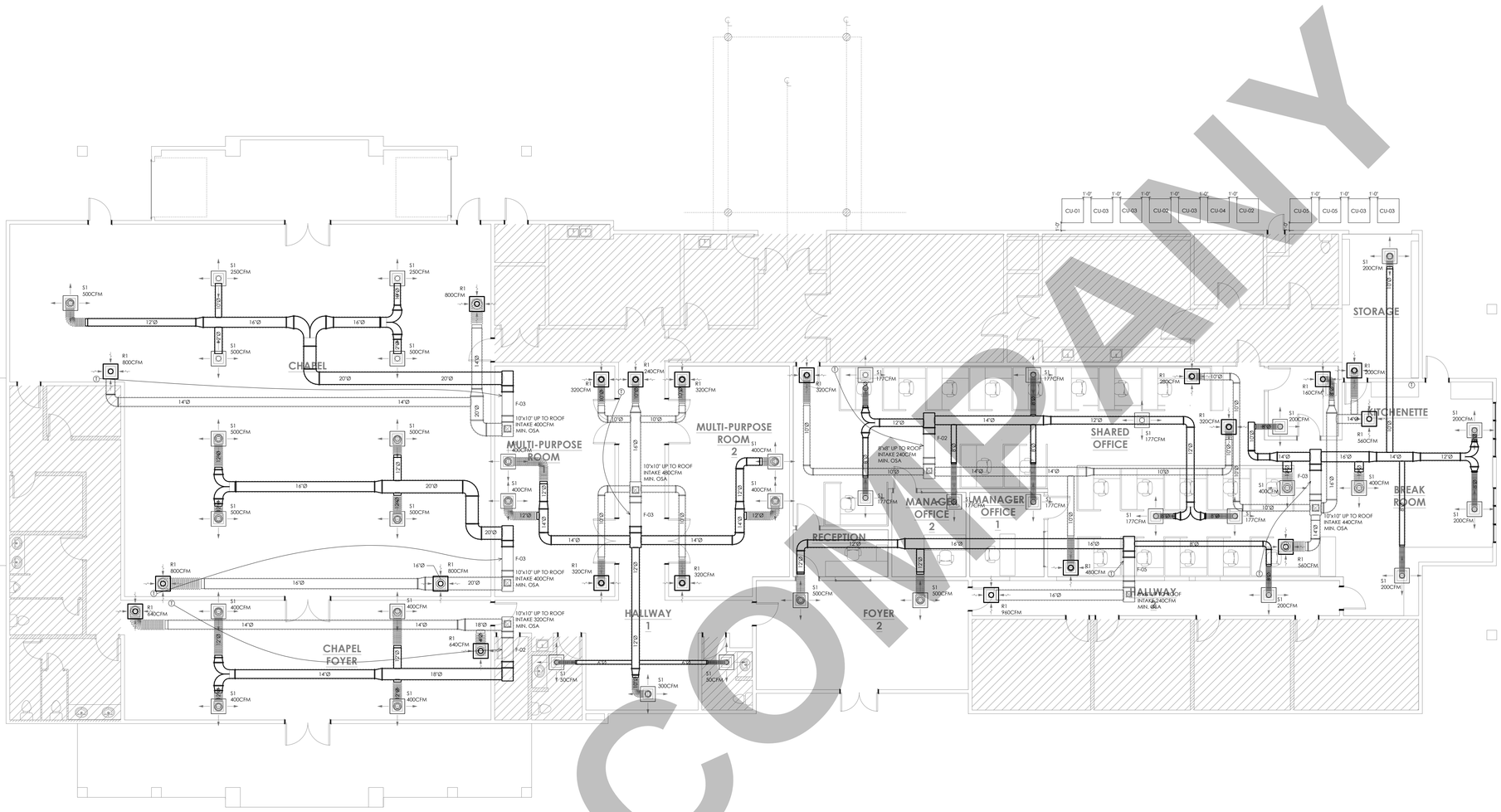
Title
MECHANICAL CODE CHECKING.

Project Number 20001.00
Date 30/03/2023
Drawn By MK, JM
Checked By CJK

M 1 . 0

SCALE: NTS

CD PROGRESS 03-29-23



GENERAL NOTES:

1. MECHANICAL CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF MECHANICAL COMPONENTS AND EQUIPMENT WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS PRIOR TO PERFORMING WORK.
2. CONTRACTOR TO CUT AND PATCH AS REQUIRED TO PERFORM THE WORK.
3. ACCESS DOORS ARE REQUIRED FOR ANY COMPONENT REQUIRING ACCESS ABOVE HARD LID CEILINGS. COORDINATE SIZE, LOCATION AND FINISH WITH ARCHITECT PRIOR TO PERFORMING WORK.
4. REFER TO THE DIAGRAMS THAT APPLY TO THIS SHEET WHICH PROVIDE GENERAL GUIDANCE FOR INSTALLATION THOUGH NOT ALL COMPONENTS AND ACCESSORIES MAY BE SHOWN.
5. PRIOR TO INSTALLATION, CONFIRM SPECIFIC LOCATION FOR ALL THERMOSTATS / SENSORS WITH ARCHITECT. MOUNT AT 48" A.F.F. OR IN ACCORDANCE WITH ADA REQUIREMENTS. PROVIDE LOCKING COVERS.
6. COORDINATE AND CONFIRM BORDER, FRAME, FINISH, AND LOCATION WITH ARCHITECT PRIOR TO ORDERING.
7. ANY PENETRATIONS THROUGH WALL STUDS, FLOOR JOISTS, OR ROOF TO BE IN ACCORDANCE WITH THE LATEST ADOPTED BUILDING CODE.
8. DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
9. CONTRACTOR TO CONFIRM ADEQUATE RETURN AIR PATH BACK TO MAIN AIR HANDLING UNIT.

SCHEDULE No. 1
EXISTING GAS/ELECTRIC - INDOOR & OUTDOOR UNIT

TAG	F-01 & CU-01	F-02 & CU-02	F-03 & CU-03	F-04 & CU-04	F-05 & CU-05
SERVING	AS SHOWN	AS SHOWN	AS SHOWN	AS SHOWN	AS SHOWN
MANUFACTURER	TRANE	TRANE	TRANE	TRANE	TRANE
INDOOR MODEL	TDDO40C924A	TDDO0C948A	TDDO40C960A	TDDO80C925A	TDDO80C945A
POWER SUPPLY	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60
AIR FLOW (CFM) - NOMINAL	800	1600	2000	1000	1200
EXTERNAL STATIC PRESSURE (in.W.C)	0.50	0.50	0.50	0.50	0.50
INPUT HEATING CAPACITY (MBH)	40.0	100.0	100.0	80.0	80.0
UNIT WEIGHT (LBS)	110.0	170.0	170.0	120.0	130.0
OUTDOOR MODEL	TTA030A300B	TTA048A300B	TTA060A300B	TTA036A300B	TTA042A300B
POWER SUPPLY	208/230 / 3 / 60	208/230 / 3 / 60	208/230 / 3 / 60	208/230 / 3 / 60	208/230 / 3 / 60
EER	8.7	8.6	8.5	8.65	8.75
COOLING CAPACITY (MBH)	28.2	47.0	59.5	34.9	39.9
INPUT/OUTPUT HEATING CAPACITY (MBH)	95.0/67.0	95.0/67.0	95.0/67.0	95.0/67.0	95.0/67.0

NOTES:
1. PROVIDE CONDENSATE PUMP, IF REQUIRED.
2. PROVIDE DISCONNECT SWITCH.
3. PROVIDE 2" MERV 8 THROWAWAY FILTER.
4. PROVIDE VIBRATION ISOLATION.
5. PROVIDE FREEZE THERMOSTAT.

310.1 Condensate Disposal:
Condensate from air washers, air-cooling coils, condensing appliances, and the overflow from evaporative coolers and similar water-supplied equipment or similar air-conditioning equipment shall be collected and discharged to an approved plumbing fixture or disposal area. Where discharged into the drainage system, equipment shall drain by means of an indirect waste pipe. The waste pipe shall have a slope of not less than 1/8 inch per foot (10.4 mm/m) or 1 percent slope and shall be of approved corrosion-resistant material not smaller than the outlet size in accordance with Section 310.3 or Section 310.4 for air-cooling coils or condensing appliances, respectively. Condensate or wastewater shall not drain over a public way.

PHASE A

No.	Date	Issue / Revision

Title
LEVEL 1 FLOOR
MECH. LAYOUTS & SCHEDULE

Project Number 20001.00
Date 30/03/2023
Drawn By MK, JM
Checked By CJK

M 2 . 0

SCALE: 1/8"=1'-0"

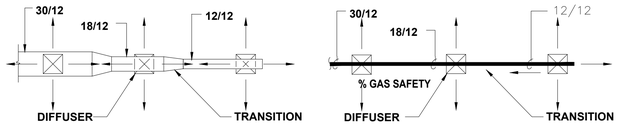
CD PROGRESS 03-29-23

GENERAL NOTES

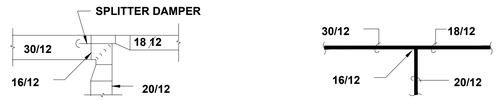
1. MECHANICAL CONTRACTOR SHALL EXAMINE ALL OTHER SPECIFICATIONS, DRAWINGS AND ALL FEATURES OF BUILDING CONSTRUCTION WHICH MAY AFFECT HIS WORK AND SHALL B GOVERNED BY THESE AND OTHER SPECIFICATIONS, INCLUDIN THE GENERAL CONDITIONS AND PARTICULAR INSTRUCTIONS T ALL BIDDER AND SUPPLIERS .
2. ALL WORK SHALL 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 .
3. 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 .
7. 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 2022 CALIFORNIA MECHANICAL CODE AND THE 2022 CALIFORNIA BUILDINGCODE AND THE 2022 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,ANDAIR 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
    - C. 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 .

DUCTWORK SYMBOLS LEGEND

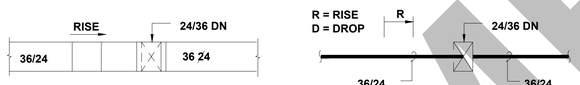
TRANSITIONS



MAIN BRANCH TAKE-OFFS

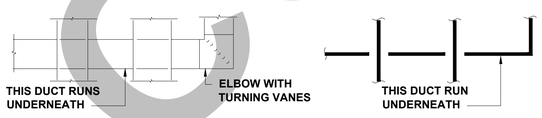


RISERS

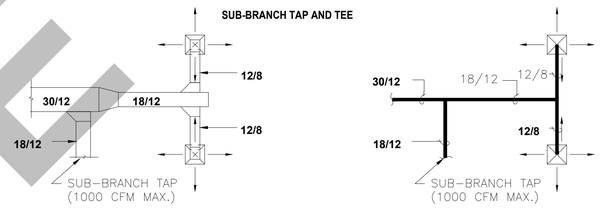


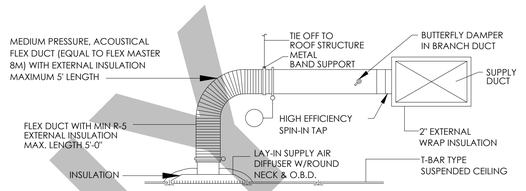
SIDEWALL REGISTERS

DUCT CROSSOVERS

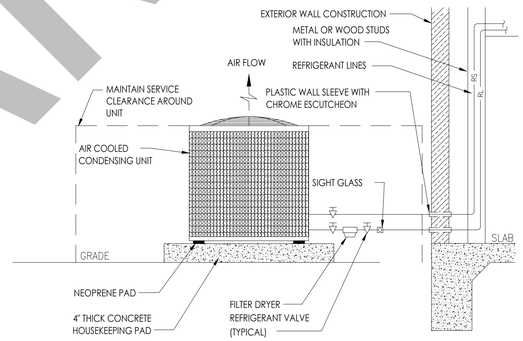


SUB-BRANCH TAP AND TEE

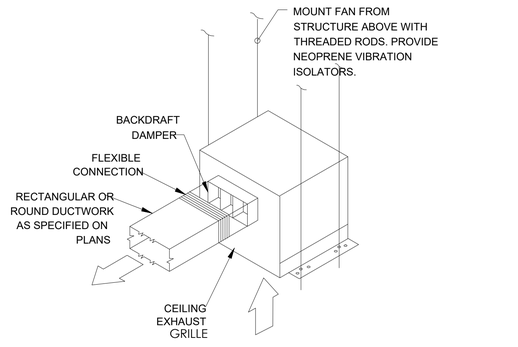




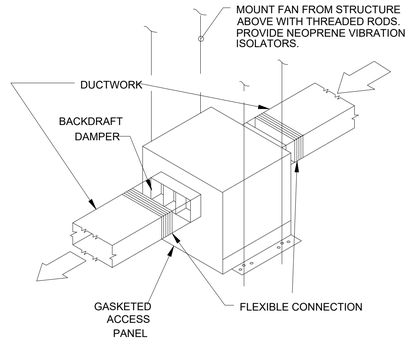
SUPPLY AIR DIFFUSER CONNECTION



OUTSIDE AIR CONDITIONER



CEILING EXHAUST FAN DETAIL



IN-LINE FAN DETAIL

PHASE A

No.	Date	Issue / Revision

Title
MECHANICAL GENERAL DETAILS.

Project Number 20001.00
Date 30/03/2023
Drawn By MK, JM
Checked By CJK

M 3 . 0

SCALE: NTS

CD PROGRESS 03-29-23

GENERAL ELECTRICAL NOTES

#	DESCRIPTION
1	GENERAL CONTRACTOR SHALL VERIFY FIELD CONDITIONS BEFORE SUBMITTING BID
3	GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, CERTIFICATES, ETC. REQUIRED.
4	GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR BOTH ROUGH AND FINAL UNDER-WRITERS OR OTHER APPROVED INSPECTION AGENCY CERTIFICATES "ELECTRICAL INSPECTION". THESE CERTIFICATES SHALL BE PRESENTED WITH REQUEST FOR FINAL PAYMENT.
5	IT IS THE INTENT OF THESE PLANS TO PROVIDE A COMPLETE OPERATING ELECTRICAL SYSTEM. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRING, EQUIPMENT, MATERIAL, ETC. REQUIRED, EXCEPT WHERE SPECIFICALLY NOTED AS BEING FURNISHED BY OTHERS. SHOULD THERE BE ANY QUESTIONS CONCERNING RESPONSIBILITY, THEY SHALL BE ADDRESSED TO ARCHITECT PRIOR TO BID. NO EXTRA CHARGES WILL BE ALLOWED.
6	ELECTRICAL SERVICE SHALL BE COORDINATED WITH THE EXISTING FIELD CONDITIONS.
7	CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO ALL CONTROLS, OWNER-SUPPLIED EQUIPMENT, MECHANICAL AND PLUMBING EQUIPMENT AS REQUIRED.
8	REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATION DETAILS. ALL FIXTURE AND DEVICE LOCATIONS SHOWN ON ARCHITECTURAL DRAWINGS SUPERSEDE THOSE SHOWN ON ELECTRICAL PLANS.
9	CIRCUIT NUMBER ON THE DRAWINGS ARE FOR IDENTIFICATION ONLY AND DO NOT INDICATE THE POSITION ON THE PANEL BOARD. CONNECT THE CIRCUITS WITH THE LIGHTEST LOADS AND THE RECEPTACLE CIRCUITS NEAR THE TOP OF THE PANEL, AND THE MORE HEAVILY LOADED CIRCUITS NEAR THE BOTTOM. BALANCE ALL CIRCUITS EVENLY BETWEEN PHASE SO THAT FEEDER WIRES CARRY APPROXIMATELY EQUAL CURRENT. ALL PHASES MUST BE BALANCED WITHIN 10% OR LESS. G.C. SHALL REBALANCE IF NECESSARY.
10	BRANCH CIRCUIT CONDUCTOR INSULATION SHALL BE COLOR CODED AND SHALL BE 600 VOLT. TYPE THHN/THWN.
11	CABLES IN HIGH TEMPERATURE AREAS SHALL HAVE INSULATION TYPE SUITABLE FOR THE TEMPERATURE. CABLES USED IN SPACES FOR ENVIRONMENTAL AIR SHALL CONFORM WITH APPLICABLE N.E.C REQUIREMENTS.
12	ALL WIRING USED IN RETURN OR DISCHARGE AIR PLENUMS SHALL BE PLENUM RATED OR INSTALLED PER METHODS APPROVED BY THE LATEST EDITION OF THE N.E.C. FOR SUCH APPLICATION.
13	ALL WIRE AND CABLE CONDUCTORS SHALL BE COPPER WITH INSULATION RATED 600V. CONDUCTORS SIZED #10 AWG AND SMALLER SHALL BE SOLID OD STRANDED, AND CONDUCTORS SIZED LARGER THAN #10 AWG SHALL BE STRANDED WIRE.
14	BRANCH CIRCUITS FOR POWER AND LIGHTING SHALL NOT BE LESS THAN #12 AWG, OR AS NOTED. WIRES ARE TO BE SIZED FOR THE APPROPRIATE VOLTAGE DROPS. SEE WIRE SIZE SCHEDULE ON THIS SHEET.
15	ALL DATA CABLES SHALL BE CAT6, PLENUM RATED. TO BE PROVIDED BY OWNER SELECTED VENDOR. ELECTRICAL WORK SHALL BE TO PROVIDE OUTLET BOXES AND "RING AND STRING" FOR PULLING OF CABLES IN CONCEALED SPACES.
16	CONTROL WIRING SHALL NOT BE LESS THAN #14 AWG UNLESS OTHERWISE NOTED.
17	HOMERUNS SHOWN ARE SCHEMATIC. CONTRACTOR MAY ORIGINATE HOMERUNS FROM DIFFERENT LOCATIONS. ALL WIRE INCLUDING HOMERUNS SHALL BE DELINEATED ON AS-BUILT DRAWINGS.
18	ALL WIRING INSTALLED UNDER THIS CONTRACT SHALL BE TESTED FOR PROPER CONNECTIONS AND SHORT CIRCUITS PRIOR TO THE TURNING OVER OF WORK AS A COMPLETE UNIT.
19	PROVIDE ALL ELECTRICAL SYSTEM GROUNDING IN ACCORDANCE WITH N.E.C. REQUIREMENTS EVEN IF IT IS NOT SHOWN ON THE DRAWINGS. INCLUDE ADDITIONAL GROUNDING CONDUCTORS IN ALL RACEWAYS EVEN THOUGH THE DRAWINGS SHOW ONLY CIRCUIT AND/OR NEUTRALS CONDUCTORS. THE PLUMBING AND PIPING SYSTEM SHALL NOT BE USED AS A GROUND. ALL TRANSFORMER NEUTRALS SHALL BE GROUNDED TO BUILDING STEEL IN ACCORDANCE WITH NEC 250-70.
20	ALL CONDUITS PASSING THROUGH PARTITIONS ARE TO BE APPROPRIATELY SLEEVED AND SEALED.
21	FURNISH AND INSTALL ALL CONDUIT WITH PULL WIRES AS REQUIRED. ALL OUTLET BOXES SHALL BE STEEL, EXTRA DEEP WITH GROUNDING PIGTAILS. GROUNDING PUSH-CLIPS ARE NOT ACCEPTABLE.
22	ALL PENETRATIONS SHALL BE INSTALLED AND SEALED PER NATIONAL STATE AND LOCAL CODES
23	DO NOT MAKE ANY CHANGES OR SUBSTITUTIONS WITHOUT SPECIFIC WRITTEN APPROVAL FROM THE ARCHITECT OR ENGINEER.
24	GUARANTEE ALL WORK, MATERIAL AND EQUIPMENT FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL AND FINAL ACCEPTANCE.
25	THIS DESIGN IS BASED ON INITIAL DESIGN DATA. GENERAL CONTRACTOR TO SUPPLY AND INSTALL FEEDERS, FUSES AND CIRCUIT BREAKERS TO MATCH THE NAMEPLATE RATING OF ALL EQUIPMENT. THIS SHALL BE INCLUDED IN THE INITIAL BID PROPOSAL AND NO EXTRAS SHALL BE ENTERTAINED.
26	LABEL ALL JUNCTION BOXES, OUTLETS, LIGHT SWITCH, ETC. WITH CIRCUIT NUMBER ON INTERIOR ON COVER PLATE. USE SELF-ADHESIVE "DYMO" LABEL 1/8" HIGH LETTERS.
27	GENERAL CONTRACTOR SHALL PROVIDE SEISMIC RESTRAINTS AND SUPPORTS FOR ALL FLOOR, WALL, AND CEILING MOUNTED ELECTRICAL EQUIPMENT TO RESIST EARTHQUAKE EFFECTS DETERMINED IN ACCORDANCE WITH THE BUILDING CODE.
28	THE G.C. SHALL PROVIDE ALL EQUIPMENT, MATERIALS AND LABOR TO COMPLETE ALL ELECTRICAL WORK IN A NEAT AND WORKMANLIKE MANNER AND IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE INCLUDING THE INSTALLATION OF ALL THE EQUIPMENT MATERIALS AND SYSTEMS AND THE FINAL CONNECTIONS TO THE OWNER'S EQUIPMENT AND FIXTURES AS REQUIRED BY THE OWNER. THE G.C. SHALL ALSO FURNISH TEMPORARY WIRING AND LIGHTING TO PROVIDE A MINIMUM OF 25 FC IN WORK AREAS FOR USE OF ALL THE TRADES DURING CONSTRUCTION AND THE INSTALLATION OF THE OWNERS FIXTURES. THE G.C. IS RESPONSIBLE TO REMOVE ALL TEMPORARY WIRING UPON COMPLETION OF CONSTRUCTION OF ALL TRADES.
29	THIS CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL SUPPLEMENTARY SUPPORT, INCLUDING SUPPORT STEEL AS REQUIRED TO HANG ALL EQUIPMENT AND LIGHTING FROM THE EXISTING STRUCTURE IN ACCORDANCE WITH THE ARCHITECTURAL/STRUCTURAL SUPPORT AND LOADING CRITERIA.
30	IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO PROVIDE FULLY DIMENSIONED COORDINATION DRAWINGS FOR ALL OF HIS RESPECTIVE WORK. THESE DRAWINGS MUST BE FULLY COORDINATED WITH ALL EXISTING CONDITIONS, ALL HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, LIGHTING, STRUCTURAL AND ARCHITECTURAL SYSTEMS PRIOR TO PREPARING COMPOSITE MULTI DISCIPLINE COORDINATION DRAWINGS.
31	ALL DISCONNECTING MEANS AND EQUIPMENT INDICATED ON THE DRAWING SHALL BE IDENTIFIED BY NAMEPLATE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE 110-22.
32	ALL WIRING FOR THE EMERGENCY LIGHTING AND EMERGENCY SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE ARTICLE 700.
33	THE WIRING METHODS AND MATERIALS INDICATED IN THE SPECIFICATIONS AND ON THE DRAWINGS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE ARTICLE 300.

GENERAL ELECTRICAL NOTES

#	DESCRIPTION
33	THE WIRING METHODS AND MATERIALS INDICATED IN THE SPECIFICATIONS AND ON THE DRAWINGS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE ARTICLE 300.
34	THE ELECTRICAL SERVICE AND DISTRIBUTION SYSTEM AS INDICATED ON THE RISER DIAGRAM AND MATERIALS INDICATED IN THE SPECIFICATIONS SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE ARTICLE 230, SERVICES.
35	ALL OVER CURRENT PROTECTION SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE SECTION 240, OVERCURRENT PROTECTION.
36	ALL GROUNDING REQUIREMENTS OF THE COMPLETE ELECTRICAL DISTRIBUTION SYSTEM AND AS INDICATED IN THE SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ARTICLE 250, GROUNDING AND BONDING.
37	PRIOR TO ANY REQUIRED CUTTING AND PATCHING OF CONCRETE FLOOR AND/OR CUTTING OF ROOF, CONTRACTOR SHALL COORDINATE WITH BUILDING ENGINEER.
38	FOR ALL LIGHTING FIXTURES MOUNTED IN HUNG CEILING THE GENERAL CONTRACTOR SHALL PROVIDE AND INSTALL INDIVIDUAL SUPPORT AT EACH CORNER OF RECESSED LIGHTING TROFFER CONNECTED TO BUILDING STEEL ABOVE ALL CONDUIT AND MC CABLE MOUNTED ABOVE HUNG CEILING SHALL BE INDIVIDUALLY SUPPORTED IN THE SAME FASHION AS PER NEC REQUIREMENTS.
39	DO NOT SCALE FROM THESE DRAWINGS.
40	PLANS ARE PREPARED WITH REQUIRED BRANCH CIRCUITS INDICATED BY CIRCUITS NUMBERS. PROVIDE AND INSTALL ALL CONDUITS, CONDUCTORS, BOXES, MISCELLANEOUS FITTINGS, ETC. FOR A COMPLETE AND OPERABLE SYSTEM (HOME RUN SHOWN). BRANCH CIRCUIT INSTALLATION SHALL COMPLY WITH SPECIFICATIONS AND N.E.C.
41	ELECTRICAL RECEPTACLE, SWITCH AND CONTROL HEIGHTS (CBC-1136A.1:) RECEPTACLE HEIGHTS: ELECTRICAL RECEPTACLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES OR LESS AND COMMUNICATION SYSTEM RECEPTACLES SHALL BE LOCATED NO MORE THAN 48 INCHES (1219MM) MEASURED FROM THE TOP OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING NOR LESS THAN 15 INCHES (381MM) MEASURED FROM THE BOTTOM OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING TO THE LEVEL OF FINISHED FLOOR OR WORKING FLATFORM. IF THE REACH IS OVEN AN OBSTRUCTION (FOR EXAMPLE, A KITCHEN BASE CABINET) BETWEEN 20 AND 25 INCHES (508 AND 635MM) IN DEPTH, THE MAXIMUM HEIGHT MEASURED AT THE BOX IS REDUCED TO 44 INCHES (1118MM) FOR FORWARD APPROACH, OR 46 INCHES (1168MM) FOR SIDE APPROACH, PROVIDED THE OBSTRUCTION IS NO MORE THAN 24 INCHES (610MM) IN DEPTH. OBSTRUCTION SHALL NOT EXCEED MORE THAN 25 INCHES (635MM) FROM THE WALL BENEATH THE RECEPTACLE.
42	SWITCH AND CONTROL HEIGHTS: (CBC 1136A.2:) CONTROL OR SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF THE ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES, ALARMS OR COOLING, HEATING AND VENTILATING EQUIPMENT SHALL BE LOCATED NO MORE THAN 48 INCHES (1219MM) MEASURED FROM THE TOP OF THE OUTLET BOX NOR LESS THAN 15 INCHES (381MM) MEASURED FROM THE BOTTOM OF THE OUTLET BOX TO THE LEVEL OF THE FINISHED FLOOR OR WORKING PLATFORM. IF THE REACH IS OVER A PHYSICAL BARRIER OR AN OBSTRUCTION (FOR EXAMPLE, A KITCHEN BASE CABINET) BETWEEN 20 AND 25 INCHES (508 AND 635MM) IN DEPTH, THE MAXIMUM HEIGHT IS REDUCED TO 44 INCHES (1118MM) FOR FORWARD APPROACH, OR 46 INCHES (1168MM) FOR SIDE APPROACH, PROVIDED THE OBSTRUCTION IS NO MORE THAN 24 INCHES (610MM) IN DEPTH. PHYSICAL BARRIERS OR OBSTRUCTIONS SHALL NOT EXTEND MORE THAN 25 INCHES (635MM) FROM THE WALL BENEATH A CONTROL.

LIGHTING FIXTURE SCHEDULE

Type	Symbol	Type Location Description	Mfc Catalog #	Lamps	Watts	Voltage
L1		CEILING MOUNTED 2X4 FT LIGHT	GTB GENERAL PURPOSE T8 TROFFER 2'X4' 4 LP T8 #A19 LENS 114 ELEC	LED	40W	120V
L2		RECESSED LED DOWNLIGHT	LUMINATION LED LUMINAIRE, RECESSED DOWNLIGHTS D4RI - 4" ROUND APERTURE	LED	14W	120V
(E)		EXISTING SPOT LIGHT IN CHAPEL AREA				
(E)		EXISTING SUSPENDED CHANDELIER				
L3		LINEAR LED WALL MOUNTED	SCX-8FT-40W-MCT4-D WALL MOUNTING, MUD-IN FLANGE	LED	40W	120V
L4		LINEAR LED RECESSED, MUD-IN FLANGE	SCX-4FT-40W-MCT4-D SUSPENDED MOUNTING	LED	40W	120V
L5		CEILING MOUNTED 2X2 FT LIGHT	Hyperikon 2x2 Foot LED Backlit Flat Panel, 30W, Recessed Troffer, Color Changing Tunable 3500K	LED	30W	120V
EX	EXIT (E)	EXIT SIGNS. E: DENOTES EXISTING	RECESSED LED EDGE-LIT EXIT SIGN W/ EMERGENCY BATTERY BACK-UP, ELK-618, CLEAR ACRYLIC, GREEN LETTERS,	LED	3.0W	120V
EM	(E)	EMERGENCY LIGHTS. E: DENOTES EXISTING	EMERGENCY ILLUMINATION FIXTURE, SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN. WALL MOUNTED	LED	3.0W	120V
EM	EM (E)	EMERGENCY LIGHTS	EMERGENCY ILLUMINATION FIXTURE, SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN. CEILING MOUNTED	LED	3.0W	120V

S^{0}_{D}	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
$S^{0}_{D\,3}$	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
S_{F}	ONE WAY ONE GANG SWITCH FOR TOILET EXHAUST FAN - WALL MOUNTED @ +48" A.F.F.L

WIRE SCHEDULE AND NOTES

LOAD PER PH (KVA)	WIRE SIZE (AWG)	MAXIMUM LENGTH OF BRANCH CIRCUIT PER UTILIZATION VOLTAGE (120, 1PH, MAX V.D. 3%)	(240, 1PH, MAX V.D. 3%)	(240, 3PH, MAX V.D. 3%)	NOTES AND REMARKS
< 1.92	#12	56 FT	85 FT	98 FT	5
	#10	94 FT	141 FT	163 FT	5
	#8	144 FT	217 FT	250 FT	5
	#6	230 FT	345 FT	398 FT	5
< 1.44	#12	75 FT	113 FT	130 FT	5
	#10	125 FT	188 FT	217 FT	5
	#8	192 FT	289 FT	334 FT	5
	#6	306 FT	460 FT	531 FT	5
< 1.26	#12	86 FT	129 FT	149 FT	
	#10	143 FT	215 FT	248 FT	
	#8	220 FT	330 FT	381 FT	
< 1.08	#12	100 FT	150 FT	173 FT	
	#10	167 FT	250 FT	289 FT	
	#8	256 FT	385 FT	445 FT	
< 0.9	#12	120 FT	180 FT	240 FT	
	#10	200 FT	300 FT	347 FT	
<0.72	#12	150 FT	225 FT	260 FT	
	#10	250 FT	376 FT	434 FT	

#	NOTES
1	CONTRACTOR SHALL REFER TO THIS TABLE PRIOR TO START OF BRANCH CIRCUIT ROUGH-IN.
2	CONTRACTOR SHALL USE THE APPROPRIATE WIRE SIZE IN CONJUNCTION WITH THE LENGTH OF THE PROPOSED FIELD VERIFIED ROUTING OF BRANCH CIRCUIT WIRING (INCLUDING VERTICAL & LATERAL RUN, ROUTED PARALLEL/PERPENDICULAR TO THE BUILDING STRUCTURE).
3	SEE PANEL SCHEDULE FOR THE CORRESPONDING KVA LOAD PER PHASE OF A PARTICULAR BRANCH CIRCUIT.
4	RESISTANCE VALUES USED ARE FOR UNCOATED COPPER WIRES IN STEEL CONDUIT. 75 DEGREE C., OPERATING AT 60HZ.
5	THE VALUES IN "120V, 1PH" COLUMN IS TO BE USED FOR GENERAL PURPOSE RECEPTACLE LOADS.

ABBREVIATIONS AND TAGS

ABB.	DESCRIPTION	ABB.	DESCRIPTION
EWH	ELECTRIC WATER HEATER	SD	SMOKE DETECTOR
(E)	EXISTING TO REMAIN	TEL	TELEPHONE
EC	ELECTRICAL CONTRACTOR	TX	TRANSFORMER
FA	FIRE ALARM	TV	TELEVISION
FMT	FLEXIBLE METALLIC TUBING	UAC	UNDER ANOTHER CONTRACT
GC	GENERAL CONTRACTOR	UAS	UNDER ANOTHER SECTION
GFCI	GROUND FAULT INTERUPTER	UON	UNLESS OTHERWISE NOTED
IG	ISOLATED GROUND	V.D.	VOLTAGE DROP
LL	LANDLORD	W	WIRE
LV	LOW VOLTAGE	WP	WEATHERPROOF
AC 1	MECHANICAL UNIT TAG. SEE MECHANICAL DRAWINGS FOR ADDITIONAL DESCRIPTION	E-4 4	DETAIL TAG. REFER TO DETAIL 4 ON SHEET NUMBER E-4

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
S^{0}_{D}	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
$S^{0}_{D\,3}$	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.
S_{F}	ONE WAY ONE GANG SWITCH FOR TOILET EXHAUST FAN - WALL MOUNTED @ +48" A.F.F.L
	WALL MOUNTED DUPLEX ELECTRICAL OUTLET/RECEPTACLE, MOUNTED AT 15" A.F.F., U.O.N.
	WALL MOUNTED QUAD ELECTRICAL OUTLET/RECEPTACLE, MOUNTED AT 15" A.F.F., U.O.N.
	WALL MOUNTED SINGLE GANG COMBINATION VOICE/DATA OUTLET/RECEPTACLE OUTLET MOUNTED AT 15" A.F.F., U.O.N.
	DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED GFCI DENOTES: GROUD FAULT PROTECTION
	DUPLEX RECEPTACLE - FLOOR MOUNTED UNLESS NOTED GFCI DENOTES: GROUD FAULT PROTECTION
GFI	GFI DUPLEX RECEPTACLE ABOVE COUNTER LEVEL, NEMA 5-20R.
GFI	GFI DUPLEX RECEPTACLE ABOVE COUNTER LEVEL, VACANCY SENSOR CONTROLLED, NEMA 5-20R.
	SPECIAL PURPOSE CONNECTION FOR ELECTRICAL EQUIPMENT. VERIFY CONNECTION TYPE AND WIRING REQUIREMENTS PRIOR TO ROUGH-IN.
EP	CLASS 1, DIVISION 1 RATED EXPLOSION-PROOF OUTLET. SEE ADDITIONAL NOTES ON SHEET E3.1.
	RECEPTACLE, 120V/240V, 3PH, 4W, GRD, RATING AS INDICATED IN PLANS.
	RECEPTACLE 20A, 480V, 3PH, 4W, GRD, NEMA L22-20R, +18"AFF UON.
	DUPLEX RECEPTACLE 20A, 120V, GND (5-20R U.O.N), SUSPENDED BY TYPE S.O. CORD WITH GRIPS AT EACH END.
	DOUBLE DUPLEX RECEPTACLE 20A, 120V, GND (5-20R U.O.N), SUSPENDED BY TYPE S.O. CORD WITH GRIPS AT EACH END.
OD9	COMBINED OCCUPANCY & DAYLIGHT SENSOR. CEILING MOUNTED FOR ROOM CONTROLLER
OS	OCCUPANCY SENSOR LOW VOLTAGE CEILING MOUNTED FOR ROOM CONTROLLER.
OS	OCCUPANCY SENSOR LOW VOLTAGE WALL MOUNTED FOR ROOM CONTROLLER.
DS	CEILING MOUNTED DAYLIGHT SENSOR.
J	JUNCTION BOX CEILING MOUNTED, SIZE TO CODE, TAPE AND TAG WIRES.
J	JUNCTION BOX WALL MOUNTED, SIZE TO CODE, TAPE AND TAG WIRES.
	ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED (277/480V).
	ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED (120/208V).
	SPECIAL PURPOSE ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED.
	TRANSFORMER - DRY TYPE.
YXXA	FUSED DISCONNECT SWITCH WITH DUAL ELEMENT FUSES. SWITCH AND FUSES RATING PER NAMEPLATE OF SERVED UNIT.
YXXA	NON-FUSED DISCONNECT SWITCH, RATING PER NAMEPLATE OF SERVED UNIT.
	MAGNETIC MOTOR STARTER, NEMA RATING AS REQUIRED PER SERVED UNIT.
P	WALL MOUNTED JUNCTION BOX FOR PRE-WIRED FURNITURE POWER SYSTEM CONNECTION. PROVIDE POWER WHIP WITH TERMINATION PLUG TO MATCH FURNITURE SYSTEM CONNECTOR. LOCATE BOX AS LOW AS POSSIBLE. FIELD COORDINATE FINAL LOCATION.
C	COMBINATION TELEPHONE AND DATA OUTLET, WALL MOUNTED AS LOW AS POSSIBLE FOR FLEXIBLE CONNECTION TO FURNITURE SYSTEM.
C P	FLOOR MOUNTED FURNITURE FEEDS W/POWER & TELE/DATA PORT CAPACITY FOR ELECTRIFIED DESKS PER CLIENT'S REQUIREMENTS.
C P	POWER POLES W/POWER & TELE/DATA PORT CAPACITY FOR ELECTRIFIED DESKS PER CLIENT'S REQUIREMENTS.
SD	Smoke Detector
HD	HEAT DETECTOR

LEGEND NOTES:
1. MOUNTING HEIGHT INDICATED ARE AFF TO CENTER OF PLATE. INCASE OF CONFLICT, GENERAL NOTES 41 & 42 SHALL PREVAIL.
2. NOT ALL SYMBOLS AND ABBREVIATIONS ARE NECESSARILY USED IN THIS PROJECT.

PHASE A

No.	Date	Issue / Revision

Title

ELECTRICAL LEGEND AND SPECIFICATIONS

Project Number	20001.00
Date	30/03/2023
Drawn By	MK, JM
Checked By	CJK

E0.0

SCALE: NTS

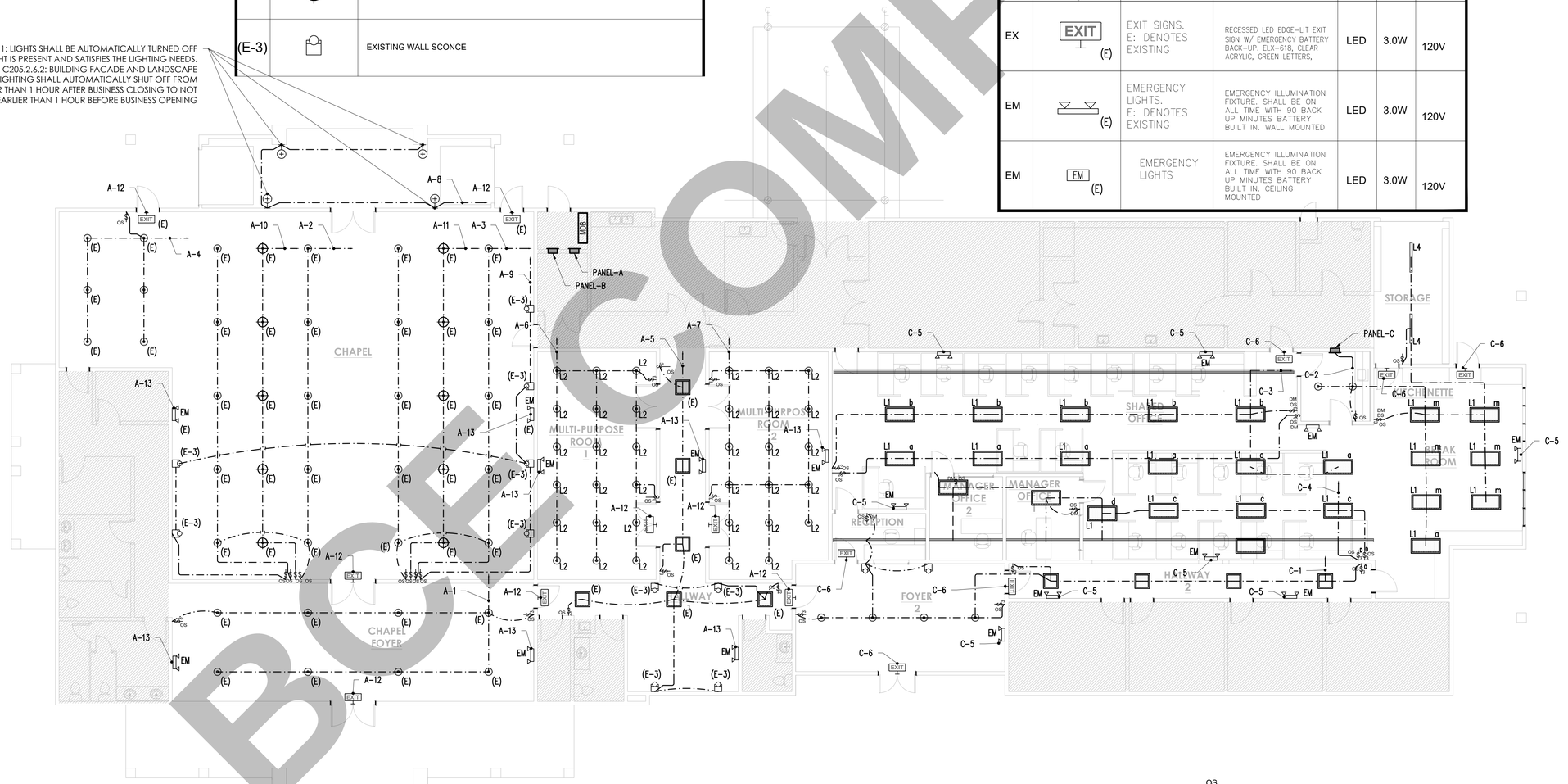
LIGHTING FIXTURE SCHEDULE

Type	Symbol	Type Location Description	Mfr Catalog #	Lamps	Watts	Voltage
L1	▭	CEILING MOUNTED 2X4 FT LIGHT	GT8 GENERAL PURPOSE T8 TROFFER 2'X4' 4 LP T8 #A19 LENS 1/4 ELEC	LED	40W	120V
L2	⊙	RECESSED LED DOWNLIGHT	LUMINATION LED LUMINAIRE, RECESSED DOWNLIGHTS DI4R – 4" ROUND APERTURE	LED	14W	120V
(E)	⊙	EXISTING SPOT LIGHT IN CHAPEL AREA				
(E)	⊕	EXISTING SUSPENDED CHANDELIER				
(E-3)	⌂	EXISTING WALL SCONCE				

LIGHTING FIXTURE SCHEDULE

Type	Symbol	Type Location Description	Mfr Catalog #	Lamps	Watts	Voltage
L5	▬	LINEAR LED RECESSED, MUD-IN FLANGE	SCX-4FT-40W-MCT4-D SUSPENDED MOUNTING	LED	40W	120V
L5	▣	CEILING MOUNTED 2X2 FT LIGHT	Hyperikon 2x2 Foot LED Backlit Flat Panel, 30W, Recessed Troffer, Color Changing Tunable 3500K	LED	30W	120V
EX	EXIT (E)	EXIT SIGNS. E: DENOTES EXISTING	RECESSED LED EDGE-LIT EXIT SIGN W/ EMERGENCY BATTERY BACK-UP. ELX-618, CLEAR ACRYLIC, GREEN LETTERS,	LED	3.0W	120V
EM	▽ (E)	EMERGENCY LIGHTS. E: DENOTES EXISTING	EMERGENCY ILLUMINATION FIXTURE, SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN. WALL MOUNTED	LED	3.0W	120V
EM	EM (E)	EMERGENCY LIGHTS	EMERGENCY ILLUMINATION FIXTURE, SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN. CEILING MOUNTED	LED	3.0W	120V

C405.2.6.1: LIGHTS SHALL BE AUTOMATICALLY TURNED OFF WHEN DAYLIGHT IS PRESENT AND SATISFIES THE LIGHTING NEEDS. C205.2.6.2: BUILDING FACADE AND LANDSCAPE LIGHTING SHALL AUTOMATICALLY SHUT OFF FROM NOT LATER THAN 1 HOUR AFTER BUSINESS CLOSING TO NOT EARLIER THAN 1 HOUR BEFORE BUSINESS OPENING



PHASE A

No.	Date	Issue / Revision

Title

LEVEL 1 LIGHTING LAYOUT

Project Number	20001.00
Date	30/03/2023
Drawn By	MK, JM
Checked By	CJK

E 1 . 0

SCALE: 1/8"=1'-0"

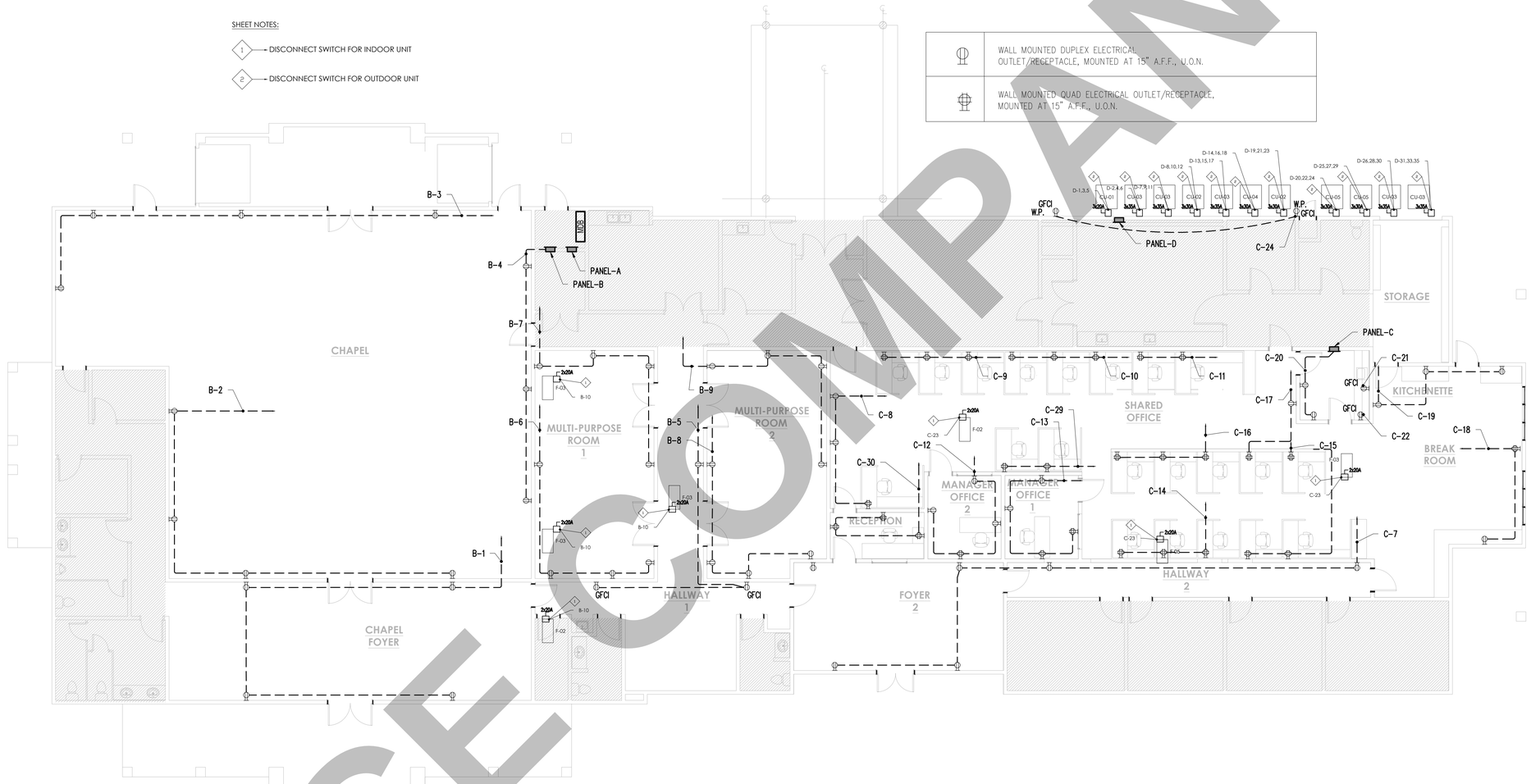
CD PROGRESS 03-29-23

SHEET NOTES:

1 — DISCONNECT SWITCH FOR INDOOR UNIT

2 — DISCONNECT SWITCH FOR OUTDOOR UNIT

	WALL MOUNTED DUPLEX ELECTRICAL OUTLET/RECEPTACLE, MOUNTED AT 15" A.F.F., U.O.N.
	WALL MOUNTED QUAD ELECTRICAL OUTLET/RECEPTACLE, MOUNTED AT 15" A.F.F., U.O.N.



PHASE A

No.	Date	Issue / Revision

Title

LEVEL 1 POWER LAYOUT

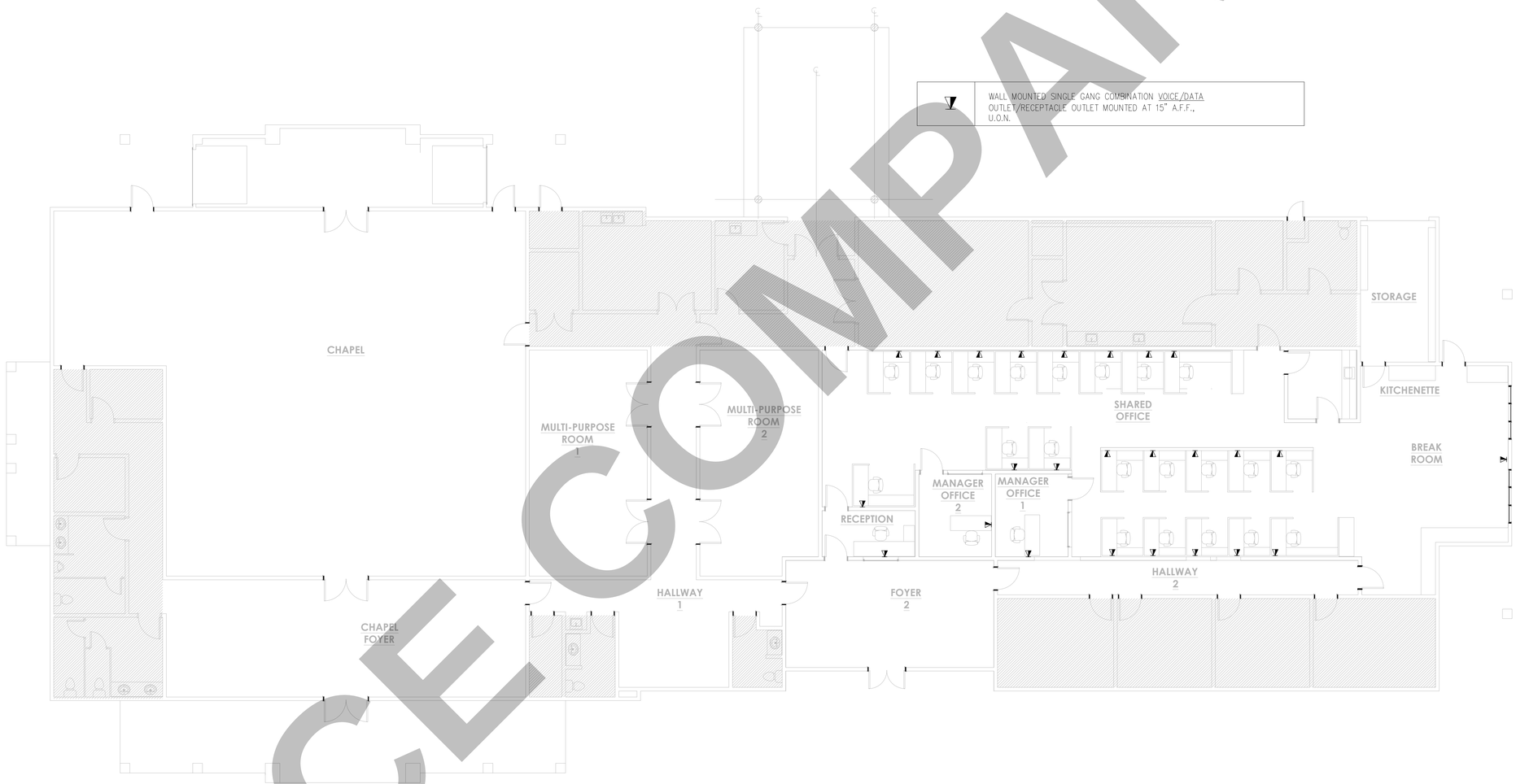
Project Number	20001.00
Date	30/03/2023
Drawn By	MK, JM
Checked By	CJK

E 2 . 0

SCALE: 1/8"=1'-0"

CD PROGRESS 03-29-23

WALL MOUNTED SINGLE GANG COMBINATION VOICE/DATA OUTLET/RECEPTACLE OUTLET MOUNTED AT 15" A.F.F., U.O.N.



PHASE A

No.	Date	Issue / Revision

Title

LEVEL 1 TELEPHONE LAYOUT

Project Number: 20001.00

Date: 30/03/2023

Drawn By: MK, JM

Checked By: CJK

E 3 . 0

SCALE: 1/8"=1'-0"

CD PROGRESS 03-29-23

Location: ELEC

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	B	C	DEMAND TOTAL
L	Lighting		1.25				
R	Convenience Recept						
H	Heating (Space)		1.25				
C	Cooling		1.00				
A	HVAC		1.00				
P	Process		1.00				
O	Other Continuous	125.51	1.25	41.73	41.78	42.00	156.89
K	Kitchen		0.85				
N	Noncontinuous		1.00				
M	Motor		1.00				
	Total	**125.51**		41.73	41.78	42.00	156.89

Total Demand Load (KVA)	156.89
Total Demand Current (A)	435.48
Min. Feeder Ampacity (A)	544.35

*: GFCI BREAKER

PANEL MSB

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	208/120V, 3Φ, 4W
BUS SIZE	800
SYSTEM TYPE	NORMAL
FEEDER PROT	800A-3P C/B Bus Plug
CONDUCTOR SIZE	400-kcmil - #2/0G AL
CONDUCTOR/PHASE	3
MAINS	800A MCB
SCCR	SERIES RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	200
FEEDER V. DROP (%)	2.354
FAULT CURRENT	
KAIC RATING	25
ENCLOSURE	TYPE 3R

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1		O				3.10	7.42			4.32					O	2
3	Panel A	O	4X 4/0 AWG - #3/0G		200A-3P	4.25		6.14		1.89	125A-3P	4X 1/0 AWG - #2G		Panel B	O	4
5		O				4.45			8.36	3.91					O	6
7		O				9.23	34.31			25.08					O	8
9	Panel C	O	4X 1/0 AWG - #2G		125A-3P	10.56		35.64		25.08	450A-3P	4X 4 AWG - #8G		Panel D	O	10
11		O				8.56			33.64	25.08					O	12
13																14
15	SPARE				125A-3P						200A-3P			SPARE		16
17																18
19																20
21	SPACE													SPACE		22
23																24
25																26
27	SPACE													SPACE		28
29																30
	(KVA)															
	Total Connected Load					41.73	41.78	42.00								

Location: ELEC

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	B	C	DEMAND TOTAL
L	Lighting	11.80	1.25	3.10	4.25	4.45	11.80
R	Convenience Recept						
H	Heating (Space)		1.25				
C	Cooling		1.00				
A	HVAC		1.00				
P	Process		1.00				
O	Other Continuous		1.25				
K	Kitchen		0.85				
N	Noncontinuous		1.00				
M	Motor		1.00				
	Total	**11.80**		3.10	4.25	4.45	11.80

Total Demand Load (KVA)	11.80
Total Demand Current (A)	32.75
Min. Feeder Ampacity (A)	40.94

*: Lock on Device as per NEC 700.12 (1)(2)(3)

PANEL A

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	208/120V, 3Φ, 4W
BUS SIZE	200
SYSTEM TYPE	NORMAL
FEEDER PROT	200A-3P C/B Bus Plug
CONDUCTOR SIZE	4/0 AWG - #3/0G AL
CONDUCTOR/PHASE	1
MAINS	200A MCB
SCCR	SERIES RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	20
FEEDER V. DROP (%)	0.334
FAULT CURRENT	
KAIC RATING	16
ENCLOSURE	TYPE 3R

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	Ltg. Foyer	L	2X 12 AWG - #12G		15A-1P	0.30	0.65			0.35	15A-1P	2X 12 AWG - #12G		Ltg. Chapel	L	2
3	Ltg. Chapel	L	2X 12 AWG - #12G		15A-1P	0.35		0.65		0.30	15A-1P	2X 12 AWG - #12G		Ltg. Chapel	L	4
5	Ltg. Corridor	L	2X 12 AWG - #12G		15A-1P	0.40			0.95	0.55	15A-1P	2X 12 AWG - #12G		Ltg. Multipurpose Room	L	6
7	Ltg. Multipurpose Room	L	2X 12 AWG - #12G		15A-1P	0.55	1.15			0.60	15A-1P	2X 12 AWG - #12G		Ltg. Outdoor	L	8
9	Ltg. Chapel	L	2X 12 AWG - #12G		15A-1P	0.50		1.25		0.75	15A-1P	2X 12 AWG - #12G		Ltg. Chapel	L	10
11	Ltg. Chapel	L	2X 12 AWG - #12G		15A-1P	0.75			1.00	0.25	15A-1P	2X 12 AWG - #12G		Exit Light *	L	12
13	Emergency Light *	L	2X 12 AWG - #12G		15A-1P	0.30	1.30			1.00	15A-1P	2X 12 AWG - #12G		External Lighting (Existing)	L	14
15	External Lighting (Existing)	L	2X 12 AWG - #12G		15A-1P	1.10		2.35		1.25	15A-1P	2X 12 AWG - #12G		External Lighting (Existing)	L	16
17	External Lighting (Existing)	L	2X 12 AWG - #12G		15A-1P				2.50	1.25	15A-1P	2X 12 AWG - #12G		External Lighting (Existing)	L	18
19	SPARE				15A-1P						15A-1P			SPARE		20
21	SPARE				15A-1P						15A-1P			SPARE		22
23	SPARE				20A-1P						20A-1P			SPARE		24
25	SPARE				20A-1P						20A-1P			SPARE		26
27	SPARE				20A-1P						20A-1P			SPARE		28
29	SPARE				20A-1P						20A-1P			SPARE		30
31	SPARE				20A-1P						20A-1P			SPARE		32
33	SPARE				20A-1P						20A-1P			SPARE		34
35	SPARE				20A-1P						20A-1P			SPARE		36
	(KVA)															
	Total Connected Load					3.10	4.25	4.45								

PHASE A

No.	Date	Issue / Revision

Title

PANEL BOARD SCHEDULE SHEET 1 OF 3

Project Number 20001.00

Date 30/03/2023

Drawn By MK, JM

Checked By CJK

E 4 . 0

SCALE: NTS

CD PROGRESS 03-29-23

Location: ELEC

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	B	C	DEMAND TOTAL
L	Lighting		1.25				
R	Convenience Recept	9.18		4.32	2.97	1.89	9.18
H	Heating (Space)		1.25				
C	Cooling		1.00				
A	HVAC	0.94	1.00		0.94		0.94
P	Process		1.00				
O	Other Continuous		1.25				
K	Kitchen		0.85				
N	Noncontinuous		1.00				
M	Motor		1.00				
	Total	**10.12**		4.32	3.91	1.89	10.12

Total Demand Load (KVA)	10.12
Total Demand Current (A)	28.10
Min. Feeder Ampacity (A)	35.13

*: Lock on Device as per NEC 700.12 (1)(2)(3)

PANEL B

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	208/120V, 3Φ, 4W
BUS SIZE	125
SYSTEM TYPE	NORMAL
FEEDER PROT	125A-3P C/B Bus Plug
CONDUCTOR SIZE	1/0 AWG - #2G AL
CONDUCTOR/PHASE	1
MAINS	125A MCB
SCCR	SERIES RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	20
FEEDER V. DROP (%)	0.418
FAULT CURRENT	
KAIC RATING	16
ENCLOSURE	TYPE 3R

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	Receptacles Foyer	R	2X 10 AWG - #10G		20A-1P	1.08	2.16			1.08	20A-1P	2X 10 AWG - #10G		Receptacles Chapel	R	2
3	Receptacles Chapel	R	2X 10 AWG - #10G		20A-1P	1.08		1.89		0.81	20A-1P	2X 10 AWG - #10G		Receptacles Chapel	R	4
5	Receptacles Corridor	R	2X 10 AWG - #10G		20A-1P	0.81			1.89	1.08	20A-1P	2X 10 AWG - #10G		Receptacles Multi-Purpose Room	R	6
7	Receptacles Multi-Purpose Room	R	2X 10 AWG - #10G		20A-1P	1.08	2.16			1.08	20A-1P	2X 10 AWG - #10G		Receptacles Multi-Purpose Room	R	8
9	Receptacles Multi-Purpose Room	R	2X 10 AWG - #10G		20A-1P	1.08		2.02		0.94	20A-1P	2X 10 AWG - #10G		Indoor Unit	A	10
11		R	2X 10 AWG - #10G		20A-1P						20A-1P	2X 10 AWG - #10G			R	12
13		R	2X 10 AWG - #10G		20A-1P						20A-1P	2X 10 AWG - #10G			R	14
15		O	2X 10 AWG - #10G		20A-1P						20A-1P	2X 10 AWG - #10G			R	16
17	SPARE				15A-1P						15A-1P			SPARE		18
19	SPARE				15A-1P						15A-1P			SPARE		20
21	SPARE				15A-1P						15A-1P			SPARE		22
23	SPARE				20A-1P						20A-1P			SPARE		24
25	SPARE				20A-1P						20A-1P			SPARE		26
27	SPARE				20A-1P						20A-1P			SPARE		28
29	SPARE				20A-1P						20A-1P			SPARE		30
31	SPARE				20A-1P						20A-1P			SPARE		32
33	SPARE				20A-1P						20A-1P			SPARE		34
35	SPARE				20A-1P						20A-1P			SPARE		36
			(KVA)													
			Total Connected Load				4.32	3.91	1.89							

Location: ELEC

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	B	C	DEMAND TOTAL
L	Lighting	2.93	1.25	1.25	1.08	0.60	2.93
R	Convenience Recept	24.48		7.98	9.48	7.02	17.24
H	Heating (Space)		1.25				
C	Cooling		1.00				
A	HVAC	0.94	1.00			0.94	0.94
P	Process		1.00				
O	Other Continuous		1.25				
K	Kitchen		0.85				
N	Noncontinuous		1.00				
M	Motor		1.00				
	Total	**28.35**		9.23	10.56	8.56	21.11

Total Demand Load (KVA)	21.11
Total Demand Current (A)	58.61
Min. Feeder Ampacity (A)	73.26

*: Lock on Device as per NEC 700.12 (1)(2)(3)

PANEL C

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	208/120V, 3Φ, 4W
BUS SIZE	125
SYSTEM TYPE	NORMAL
FEEDER PROT	125A-3P C/B Bus Plug
CONDUCTOR SIZE	1/0 AWG - #2G AL
CONDUCTOR/PHASE	1
MAINS	125A MCB
SCCR	SERIES RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	110
FEEDER V. DROP (%)	2.299
FAULT CURRENT	
KAIC RATING	16
ENCLOSURE	TYPE 3R

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	Ltg. Foyer & Corridor	L	2X 12 AWG - #12G		15A-1P	0.55	1.25			0.70	15A-1P	2X 12 AWG - #12G		ltg. Break Room & Kitchenette	L	2
3	Ltg. Shared Office	L	2X 12 AWG - #12G		15A-1P	0.64		1.08		0.44	15A-1P	2X 12 AWG - #12G		Ltg. Shared Office	L	4
5	Emergency Light *	L	2X 12 AWG - #12G		15A-1P	0.35			0.60	0.25	15A-1P	2X 12 AWG - #12G		Exit Light *	L	6
7	Receptacles Foyer & Corridor	R	2X 10 AWG - #10G		20A-1P	1.35	2.97			1.62	20A-1P	2X 10 AWG - #10G		Receptacles Shared Office	R	8
9	Receptacles Shared Office	R	2X 10 AWG - #10G		20A-1P	1.62		3.24		1.62	20A-1P	2X 10 AWG - #10G		Receptacles Shared Office	R	10
11	Receptacles Shared Office	R	2X 10 AWG - #10G		20A-1P	1.08			2.70	1.62	20A-1P	2X 10 AWG - #10G		Receptacles Manager Office	R	12
13	Receptacles Manager Office	R	2X 10 AWG - #10G		20A-1P	1.08	2.70			1.62	20A-1P	2X 10 AWG - #10G		Receptacles Shared Office	R	14
15	Receptacles Shared Office	R	2X 10 AWG - #10G		20A-1P	1.62		3.24		1.62	20A-1P	2X 10 AWG - #10G		Receptacles Shared Office	R	16
17	Receptacles Shared Office	R	2X 10 AWG - #10G		20A-1P	0.81			1.62	0.81	20A-1P	2X 10 AWG - #10G		Receptacles Break Room	R	18
19	Receptacles Break Room	R	2X 10 AWG - #10G		20A-1P	0.81	2.31			1.50	20A-1P	2X 10 AWG - #10G		Receptacles Kitchenette	R	20
21	Receptacles Kitchenette	R	2X 10 AWG - #10G		20A-1P	1.50		3.00		1.50	20A-1P	2X 10 AWG - #10G		Receptacles Kitchenette	R	22
23	Indoor Unit	A	2X 10 AWG - #10G		20A-1P	0.94			1.48	0.54	20A-1P	2X 10 AWG - #10G		Receptacles Outdoor	R	24
25	SPARE				20A-1P						20A-1P			SPARE		26
27	SPARE				20A-1P						20A-1P			SPARE		28
29	Receptacles Shared Office	R	2X 10 AWG - #10G		20A-1P	1.08			2.16	1.08	20A-1P	2X 10 AWG - #10G		Receptacles Reception	R	30
31	SPARE				20A-1P						20A-1P			SPARE		32
33	SPARE				20A-1P						20A-1P			SPARE		34
35	SPARE				20A-1P						20A-1P			SPARE		36
			(KVA)													
			Total Connected Load				9.23	10.56	8.56							

PHASE A

No.	Date	Issue / Revision

Title

PANEL BOARD SCHEDULE SHEET 2 OF 3

Project Number	20001.00
Date	30/03/2023
Drawn By	MK, JM
Checked By	CJK

E 4 . 1

SCALE: NTS

CD PROGRESS 03-29-23

Location: ELEC

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	B	C	DEMAND TOTAL
L	Lighting		1.25				
R	Convenience Recept						
H	Heating (Space)		1.25				
C	Cooling		1.00				
A	HVAC	75.24	1.00	25.08	25.08	25.08	75.24
P	Process		1.00				
O	Other Continuous		1.25				
K	Kitchen		0.85				
N	Noncontinuous		1.00				
M	Motor		1.00				
	Total	**75.24**		25.08	25.08	25.08	75.24

Total Demand Load (KVA)	75.24
Total Demand Current (A)	208.85
Min. Feeder Ampacity (A)	261.06

*: Lock on Device as per NEC 700.12 (1)(2)(3)

PANEL D

PANELBOARD DESIGNATION

SYSTEM VOLTAGE	208/120V, 3Φ, 4W
BUS SIZE	400
SYSTEM TYPE	NORMAL
FEEDER PROT	400A-3P C/B Bus Plug
CONDUCTOR SIZE	400-kcmil - #2/0G AL
CONDUCTOR/PHASE	2
MAINS	400A MCB
SCCR	SERIES RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	120
FEEDER V. DROP (%)	1.059
FAULT CURRENT	
KAIC RATING	16
ENCLOSURE	TYPE 3R

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	CU-01	A	4X 10 AWG	- #10G	20A-3P	1.68	4.20			2.52	35A-3P	4X 8 AWG	- #8G	CU-03	A	2
3		A				1.68		4.20		2.52					A	4
5		A				1.68			4.20	2.52					A	6
7	CU-03	A	4X 8 AWG	- #8G	35A-3P	2.52	4.68			2.16	30A-3P	4X 8 AWG	- #8G	CU-02	A	8
9		A				2.52		4.68		2.16					A	10
11		A				2.52			4.68	2.16					A	12
13	CU-03	A	4X 8 AWG	- #8G	35A-3P	2.52	4.68			2.16	30A-3P	4X 8 AWG	- #8G	CU-04	A	14
15		A				2.52		4.68		2.16					A	16
17		A				2.52			4.68	2.16					A	18
19	CU-02	A	4X 8 AWG	- #8G	30A-3P	2.16	4.32			2.16	30A-3P	4X 8 AWG	- #8G	CU-05	A	20
21		A				2.16		4.32		2.16					A	22
23		A				2.16			4.32	2.16					A	24
25	CU-05	A	4X 8 AWG	- #8G	30A-3P	2.16	4.68			2.52	35A-3P	4X 8 AWG	- #8G	CU-03	A	26
27		A				2.16		4.68		2.52					A	28
29		A				2.16			4.68	2.52					A	30
31	CU-03	A	4X 8 AWG	- #8G	35A-3P	2.52	2.52				35A-3P			SPARE		32
33		A				2.52		2.52								34
35		A				2.52			2.52							36
			(KVA)													
					Total Connected Load		25.08	25.08	25.08							

PHASE A

No.	Date	Issue / Revision

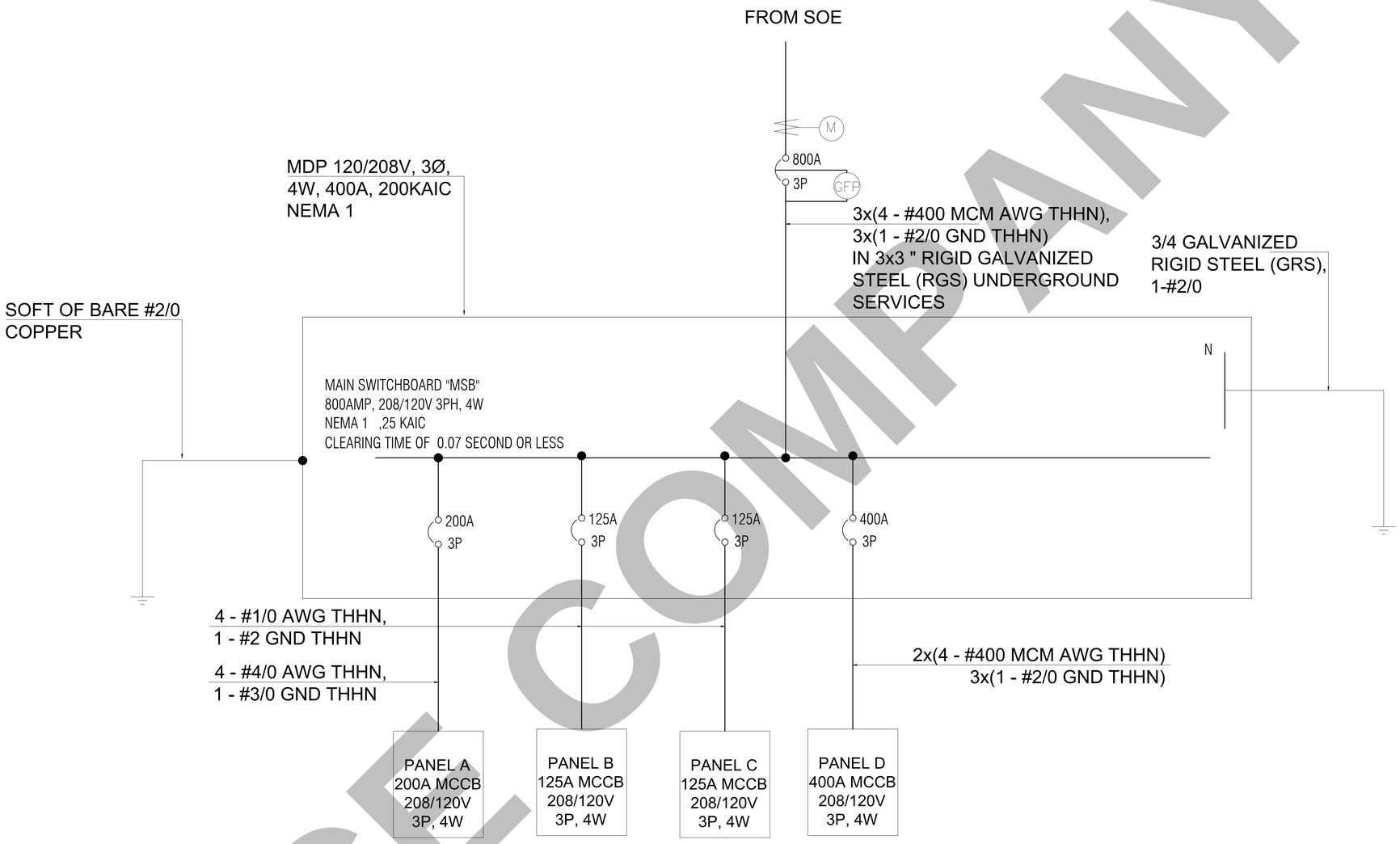
Title
PANEL BOARD SCHEDULE SHEET 3 OF 3

Project Number: 20001.00
Date: 30/03/2023
Drawn By: MK, JM
Checked By: CJK

E 4 . 2

SCALE: NTS

CD PROGRESS 03-29-23



PHASE A

No.	Date	Issue / Revision

Title

POWER RISER SINGLE LINE DIAGRAM

Project Number	20001.00
Date	30/03/2023
Drawn By	MK, JM
Checked By	CJK

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SCALE: NTS

CD PROGRESS 03-29-23

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 2022 CALIFORNIA PLUMBING CODE, 2022 CALIFORNIA BUILDING CODE, 2022 CALIFORNIA 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.
5 REPORT ANY DISCREPANCIES, IN WRITING, TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.
4. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS. 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 2022 CALIFORNIA 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.
10. PIPING:

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 CALIFORNIA 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 STRUCTURE.
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.

PLUMBING LEGEND

SYMBOL	ABBRV.	DESCRIPTION
	SS or W	NEW SEWER OR WASTE
	V	NEW VENT
	CW	NEW COLD WATER
	HW	NEW HOT WATER
	G	NEW GAS
	CD	NEW CONDENSATE DRAIN
CA	CA	COMPRESSED AIR
	FCO	FLOOR CLEANOUT
	WCO	WALL CLEANOUT
	FD	FLOOR DRAIN
	FS	FLOOR SINK
	TP	TRAP PRIMER & TRAP PRIMER PIPING
	SOV	SHUT-OFF VALVE
	CV	CHECK VALVE
	PRV	BACKFLOW PREVENTER W SOV'S
T & P	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
	S= %_	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.

BATHTUBS WASTE OPENING IN FLOOR OVER CRAWL SPACES SHALL BE PROTECTED BY A METAL SCREEN NOT EXCEEDING 12" OR SOLID COVER.

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.
VERIFY AND WHERE WATER PRESSURE EXCEEDS 80 PSI AN APPROVED PRESSURE REGULATOR PRECEDED BY AN ADEQUATE STRAINER SHALL BE INSTALLED
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
.
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 IPC 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.
IF WATER PRESSURE EXCEEDS 80 PSI, AND EXPANSION TANK AND AN APPROVED PRESSURE REGULATOR SHALL BE INSTALLED.
NON-REMOVABLE BACK FLOW PRE-VENTER OR BIBB-TYPE VACUUM BREAKER WILL BE INSTALLED ON ALL EXTERIOR HOSE BIBS. HOT WATER RE-CIRCULATING SYSTEM IS INSTALLED, THE ENTIRE LENGTH OF HOT WATER PIPES SHALL BE INSULATED.

NOTES:
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 method.
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 PROCEDURES
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

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 REPRESENTATIVE 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.

PHASE A

No.	Date	Issue / Revision

Title
PLUMBING LIST OF SYMBOLS AND GENERAL NOTES.

Project Number: 20001.00
Date: 30/03/2023
Drawn By: MK, JM
Checked By: CJK
P0.0
SCALE: NTS

CD PROGRESS 03-29-23

CALIFORNIA PLUMBING CODE CHECKING:

PIPE SUPPORTS:

TABLE 313.3
HANGERS AND SUPPORTS

MATERIALS	TYPES OF JOINTS	HORIZONTAL	VERTICAL
Cast	Lead and Oakum	5 feet, except 10 feet where 10 foot length are installed[1, 2, 3]	Base and each floor, not to exceed 15 feet
	Compression Gasket	Every other joint, unless over 4 feet then support each joint[1, 2, 3]	Base and each floor, not to exceed 15 feet
Cast-Iron Hubless	Shielded Coupling	Every other joint, unless over 4 feet then support each joint[1, 2, 3, 4]	Base and each floor, not to exceed 15 feet
Copper & Copper Alloys	Soldered, Brazed, Threaded, or Mechanical	1 ½ inches and smaller, 6 feet; 2 inches and larger, 10 feet	Each floor, not to exceed 10 feet[5]
Steel Pipe for Water or DWV	Threaded or Welded	¾ inch and smaller, 10 feet; 1 inch and smaller, 12 feet	Every floor, not to exceed 25 feet[5]
Steel Pipe for Gas	Threaded or Welded	½ inch, 6 feet; ¾ inch and 1 inch, 8 feet; 1 ¼ inches and larger, 10 feet	½ inch, 6 feet; ¾ inch and 1 inch, 8 feet; 1 ¼ inches every floor level
Schedule 40 PVC and ABS DWV	Solvent Cemented	All sizes, 4 feet; allow for expansion every 30 feet[3]	Base and each floor; provide mid-story guides; provide for expansion every 30 feet
CPVC	Solvent Cemented	1 inch and smaller, 3 feet; 1 ¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides
CPVC-AL-CPVC	Solvent Cemented	½ inch, 5 feet; ¾ inch, 65 inches; 1 inch, 6 feet	Base and each floor; provide mid-story guides
Lead	Wiped or burned	Continuous Support	Not to exceed 4 feet
Steel	Mechanical	In accordance with standards acceptable to the Authority Having Jurisdiction	
PEX	Cold Expansion, Insert and Compression	1 inch and smaller, 32 inches; 1 ¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides
PEX-AL-PEX	Metal Insert and Metal compression	½ inch, ¾ inch, 1 inch } All sizes 98 inches	Base and each floor; provide mid-story guides
PE-AL-PE	Metal Insert and Metal compression	½ inch, ¾ inch, 1 inch } All sizes 98 inches	Base and each floor; provide mid-story guides
PE-RT	Insert and Compression	1 inch and smaller, 32 inches; 1 ¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides
Polypropylene (PP)	Fusion weld (socket, but, saddle, electrofusion), threaded (metal threads only), or mechanical	1 inch and smaller, 32 inches; 1 ¼ inches and larger, 4 feet	Base and each floor; provide mid-story guides

For SI units; 1 inch = 25.4 mm, 1 foot = 304.8 mm

Notes:

[1] Support adjacent to joint, not to exceed 18 inches (457 mm)

[2] Brace not to exceed 40 foot (12 192 mm) intervals to prevent horizontal movement.

[3] Support at each horizontal branch connection.

[4] Hangers shall not be placed on the coupling.

[5] Vertical water lines shall be permitted to be supported in accordance with recognized engineering principles with regard to expansion and contraction, where first approved by the Authority Having Jurisdiction.

DRAINAGE:

719.0 Cleanouts.

719.1 Locations. Cleanouts shall be placed inside the build ing near the connection between the building drain and the building sewer or installed outside the building at the lower end of the building drain and extended to grade.

Additional building sewer cleanouts shall be installed at intervals not to exceed 100 feet (30 480 mm) in straight runs and for each aggregate horizontal change in direction exceeding 135 degrees (2.36 rad)

719.2 No additional Cleanouts. Where a building sewer or a branch thereof does not exceed 10 feet (3048 mm) in length and is a straight-line projection from a building drain that is provided with a cleanout, no cleanout will be required at its point of connection to the building drain.

721.0 Location.

721.1 Building Sewer. Except as provided in Section 721.2, no building sewer shall be located in a lot other than the lot that is the site of the building or structure served by such sewer nor shall a building sewer be located at a point having less than the minimum distances referenced in Table 721.1.

706.0 Changes in Direction of Drainage Flow.

706.1 Approved Fittings. Changes in the direction of drainage piping shall be made by the approximate use of approved fittings and shall be of the angles presented by a one-sixteenth bend, one-eight bend, or one-sixth bend, or other approved fittings of equivalent sweep.

706.2 Horizontal to Vertical. Horizontal drainage lines, connecting with a vertical stack, shall enter through 45 degree (0.79 rad) wye branch, 60 degree (1.05 rad) wye branches, combination wye and one-eighth bend branches, sanitary tee or sanitary tapped tee branches, or other approved fittings of equivalent sweep.

706.4 Vertical to Horizontal. Vertical drainage lines con necting with horizontal drainage lines shall enter through 45 degree (0.79 rad) wye branches, combination wye and one-eighth bend branches, or other approved fittings of equiva- lent sweep. Branches, or other approved fittings of equiva- lent sweep. Branches or offsets of 60 degrees (1.05 rad) shall be permitted to be used where installed in a true vertical posi- tion.

707.4 Location. Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal, and each run of piping, that s more than 100 feet (30 480 mm) in total developed length, shall be provided with a cleanout for each 100 feet (30 480 mm), or fraction thereof, in length of such piping. An additional cleanout shall be provided in a drainage line for each aggregate horizontal change in direction exceeding 135 degrees (2.36 rad). A cleanout shall be installed above the fixture connecting fitting, serving each urinal, regardless of the location of the urinal in the building.

Exceptions

(1) Cleanouts shall be permitted to be omitted on a horizontal drain line less than 5 feet (1524 mm) in length unless such line is serving sinks or urinals

707.5 Cleaning. Each cleanout shall be installed so that it opens to allow cleaning in the direction of flow of the soil or waste or at right angles thereto and, except in the case of wye branch and end-of-line cleanouts, shall be installed vertically above the flow line of the pipe.

708.0 Grade of Horizontal Drainage Piping.

708.1 General. Horizontal drainage piping shall be run in practical alignment and a uniform slope of not less than ¼ inch per foot (20.8 mm/m) or 2 percent toward the point of disposal provided that, where it is impractical due to the depth of the street sewer, to the structural features, or to the arrangement of a building or structure to obtain a slope of ¼ inch per foot (20.8 mm/m) or 2 percent, such pipe or piping 4 inches (100 mm) or larger in diameter shall be permitted to have a slope of not less than ⅛ inch per foot (10.4 mm/m) or 1 percent, where first approved by the Authority Having Jurisdiction.

TABLE 721.1
MINIMUM HORIZONTAL DISTANCE REQUIRED FROM BUILDING SEWER (feet)

Buildings or structures[1]	2
Property line adjoing private property	Clear[2]
Water supply wells	50[3]
Streams	50
On-site domestic water service line	1[4]
Public water main	10[5, 6]

WATER CONVERSION & WATER CONSUMPTION:

WATER CONSERVING PLUMBING FIXTURES AND FITTINGS

Plumbing fixtures and fittings shall comply with the following:

(2022 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 department.

407.3 Limitation of Hot water Temperature for Public Lavatories.
Hot water delivered from public-use lavatories shall be limited to a maximum temperature of 120ºF (49ºC) by a device that complies with ASSE 1070/ASME A112.1070/CSA B125.70, The water heater thermostat shall not be considered a control for meeting this provision.

407.5 Waste Outlet. Lavatories shall have a waste outlet and fixtures tailpiece not less than 1 ¼ inches (32 mm) in diameter.

409.4 Limitation of Hot Water in Bathtubs and Whirlpool Bathtubs. The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 120ºF (49ºC) by a device that complies with ASSE 1070/ASME A112.1070/CSA B125.70. The water heater thermostat shall not be considered a control for meeting this provision.

TABLE 703.2: MAXIMUM UNIT LOADING AND MAXIMUM LENGTH OF DRAINAGE AND VENT PIPING

SIZE OF PIPE (inches)	1 ¼	1 ½	2	3	4	5	6	8	10	12
Maximum Units Drainage Piping[1]										
Vertical	1	2[2]	16[3]	48[4]	256	600	1380	3600	5600	8400
Horizontal	1	1	8[3]	35[4]	216[5]	428[5]	720[5]	2640[5]	4680[5]	8200[5]
Maximum Length Drainage Piping										
Vertical	45	65	85	212	300	390	510	750	–	–
Horizontal										
Vent Piping Horizontal and Vertical[6]										
Maximum Units	1	8[3]	24	84	256	600	1380	3600	–	–
Maximum Lengths, (feet)	45	60	120	212	300	390	510	750		

For SI units: 1 inch = 25 mm, 1 foot = 304.8 mm

Notes:

[1] Excluding trap arm.

[2] Except for sinks, urinals, and dishwashers – exceeding 1 fixture unit.

[3] Except for six-unit traps or water closets.

[4] Only four water closets or six-unit traps allowed on a vertical pipe or stack, and not to exceed three water closets or six-unit traps on a horizontal branch or drain.

[5] Based on ¼ inch per foot (20.8 mm/m) slope, For ⅛ of an inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of 0.8.

[6] The diameter of an individual vent shall be not less than 1 ¼ inches (32 mm) nor less than one-half the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Table 702.1 and Table 702.2(2). Not to exceed one third of the total permitted length of a vent shall be permitted to be installed in a horizontal position. Where vents are increased one pipe size for their entire length, the maximum length limitations specified in this table do not apply. This table is in accordance with the requirements of Section 901.3.

WATER HEATER:

501.1 Applicability.
The minimum capacity for storage water heaters shall be in accordance with the first-hour rating listed in Table 501.1(2).

Number of Bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
Number of Bedrooms	**1**	**2**	**3**	**2**	**3**	**4**	**5**	**3**	**4**	**5**	**6**
First hour rating,[2] Gallons	38	49	49	49	62	62	74	62	74	74	74

For SI units: 1 gallon = 3.785 L.

Notes:

[1] The first-hour rating is found on the "Energy Guide" label.

[2] Solar water heaters shall be sized to meet the appropriate first-hour rating as shown in the table.

504.0 Water Heater Requirements.

504.1 Location. Water heater installations in bedrooms and bathrooms shall comply with one of the following [NFPA54:10.27.1]:

(1) Fuel-burning water heaters shall be permitted to be installed in a closet located in the bedroom or bathroom provided the closet is equipped with a listed, gasketed door assembly and a listed self-closing device. The self- closing door assembly shall meet the requirements of Section 504.1.1. The door assembly shall meet the requirements of Section 504.1.2. Combustion air for such installations shall be obtained from the outdoors in accordance with Section 506.4. The closet shall be for the exclusive use of the water heater.

(2) Water heater shall be of the direct vent type. [NFPA 54: 10.27.1(2)]

504.2 Vent. Water heaters of other than the direct-vent type shall be located as close as practical to the chimney or gas vent.

507.2 Seismic provisions. *Water heaters shall be anchored or strapped to resist horizontal displacement due to earthquake motion. Strapping shall be at points within the upper one third (⅓) and lower one-third (⅓) of its vertical dimensions. At the lower point, a minimum distance of four (4) inches (102 mm) shall be maintained above the controls with the strapping.*

507.4 Ground Support. A water heater supported from the earth shall rest on level concrete or other approved base extending not less than 3 inches (76 mm) above the adjoining ground level.

507.5 Drainage Pan. Where a water heater is located in an attic, in or on an attic ceiling assembly, floor-ceiling assembly, or floor-subfloor assembly where damage results from a leaking water heater, a watertight pan of corrosion-resistant materials shall be installed beneath the water heater with not less than ¾ of an inch (20 mm) diameter drain to an approved location. Such pan shall be not less than 1 ½ (38 mm) in depth.

507.13 Installation in Residential Garages. Appliances in residential garages and in adjacent spaces that open to the garage and are not part of the living space of a dwelling unit shall be installed so that all burners and burner-ignition devices are located not less than 18 inches (457 mm) above the floor unless listed as flammable vapor ignition resistant. [NFPA 54:9.1.10.1]

508.4.4 Lighting and Convenience Outlet. A permanent 120-V receptacle outlet and a lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway. [NFPA 54:9.5.3]

508.2.1 Installation at roof: Clearance. Appliances shall be installed on a well-drained surface of the roof. At least 6 feet (1829 mm) of clearance shall be available between any part of the appliance, and the edge of a roof or similar hazard, or rigidly fixed rails, guards, parapets, or other building structures at least 42 inches (1067 mm) in height shall be provided on the exposed side. [NFPA 54:9.4.2.2]

VENT:

906.0 Vent Termination.

906.1 Roof Termination. Each vent pipe or stack shall extend through its flashing and shall terminate vertically not less than 6 inches (152 mm) above the roof nor less than 1 foot (305 mm) from a vertical surface. ABS and PVC piping exposed to sunlight shall be protected by water based synthetic latex paints.

906.2 Clearance. Each vent shall terminate not less than 10 feet (3048 mm) from, or not less than 3 feet (914 mm) above, an openable window, door, opening, air intake, or vent shaft, or not less than 3 feet (914 mm) in every direction from a hot line, alley and street excepted.

909.0 Special Venting for Island Fixtures.

909.1 General. Traps for island sinks and similar equipment shall be roughed in above the floor and shall be permitted to be vented by extending the vent as high as possible, but not less than the drainboard height and then returning it down- ward and connecting it to the horizontal sink drain immediately downstream from the vertical fixture drain. The return vent shall be connected to the horizontal drain through a wye-branch fitting and shall, in addition, be provided with a foot vent taken off the vertical fixture vent by means of a wye branch immediately below the floor and extending to the nearest partition and then through the roof to the open air, or shall be permitted to be connected to other vents at a point not less than 6 inches (152 mm) above the flood-level rim of
the fixtures served. Drainage fittings shall be used on the vent below the floor level, and a slope of not less than ¼ inch per foot (20.8 mm/m) back to the drain shall be maintained. The return bend used under the drainboard shall be a one-piece fitting or an assembly of a 45 degree (0.79 rad), a 90 degree (1.57 rad), and a 45 degree (0.79 rad) elbow in the order named. Pipe sizing shall be as elsewhere required in this code.

The island sink drain, upstream of the returned vent, shall serve no other fixtures. An accessible cleanout shall be installed in the vertical portion of the foot vent.

WATER SUPPLY:

TABLE 611.4
SIZING OF RESIDENTIAL WATER SOFTENERS[4]

REQUIRED SIZE OF SOFTENER CONNECTION (Inches)	NUMBER OF BATHROOM GROUPS SERVED[1]
¾	up to 2[2]
1	up to 4[3]

For SI units: 1 inch = 25 mm

Notes:

[1] Installation of a kitchen sink and dishwasher, laundry tray, and automatic clothes washer permitted without additional size increase.

[2] An additional water closet and lavatory permitted.

[3] Over four bathroom groups, the softener size shall be engineered for the specific installation.

[4] See also Appendix A, Recommended Rules for Sizing the Water Supply Systems, and Appendix C, Alternate Plumbing Systems, for alternate methods of sizing water supply systems.

A backflow preventer shall not be required to separate a stand-alone sprinkler syste from the water distribution system where the sprinkler system material is in accordance with the requirements of Section 604.0.

606.1 General. Valves up to and including 2 inches (50 mm) in size shall be copper alloy or other approved material. Sizes exceeding 2 inches (50 mm) shall be permitted to have cast iron or copper alloy bodies. Each gate or ball valve shall be a fullway or full-port type with working parts of the non-corrosive material. Valves carrying water used in potable water systems intended to supply drinking water shall comply with the requirements of NSF 61 and ASME A112.4.14, ASME B16.34, ASTM F1970, ASTM F2389 AWWA C500, AWWA C504, AWWA C507, IAPMO Z1157, MSS SP-67, MSS SP- 70, MSS SP-71, MSS SP-72, MSS SP-78, MSS SP-80, MSS SP-110, MSS SP-122, or NSF 359.

608.4 Pressure Relief Valves. Each pressure relief valve shall be an approved automatic type with drain, and each such relief valve shall be set at a pressure of not more than 150 psi (1034 kPa). No shutoff valve shall be installed between the relief valve and the system.

FIRESTOP PROTECTION

1404.0 Combustible Piping Installations.

1404.2 Fire-Resistance Rating. Where penetrating a fire-resistance-rated wall, partition, floor, floor-ceiling assembly, roof-ceiling assembly, or shaft enclosure, the fire-resistance rating of the assembly shall be restored to its original rating.

1404.3 Firestop Systems. Penetrations shall be protected by an approved penetration firestop system installed as tested in accordance with ASTM E119, ASTM E814, UL 263, or UL 1479 with a positive pressure differential of not less than 0.01 of an inch of water (0.002 kPa). Systems shall have and F rating of not less than 1 hour but not less than the required fire-resistance rating of the assembly being penetrated. Systems protecting floor penetrations shall have a T rating of not less than 1 hour but not less than the required fire-resistance rating of the floor penetrations shall have a T rating of not less than 1 hour but not less than the required fire-resistance rating of the floor being penetrated. Floor penetrations contained within the cavity of a wall at the location of the floor penetration do not require a T rating. No T rating shall be required for floor penetrations by piping that is not in direct
contact with combustible material.

1404.6 Sleeves. Where sleeves are used, the sleeves shall be securely fastened to the fire-resistance-rated assembly. The (inside) annular space between the sleeve and the fire-resistance-rated assembly shall be firestopped in accordance with this chapter.

1405.0 Noncombustible Piping Installations.

1405.3 Firestop Systems. Penetrations shall be protected by an approved penetration firestop system installed as tested in accordance with ASTM E119, ASTM E814, UL 263, or UL 1479 with a positive pressure differential of not less than 0.01 of an inch of water (0.002 kPa). Systems shall have an F rating of not less than 1 hour but not less than the required fire-resistance rating of the assembly being penetrated. Systems protecting floor penetrations shall have a T rating of not less than 1 hour but not less than the required fire-resistance rating of the floor penetrations shall have a T rating of not less than 1 hour but not less than the required fire-resistance rating of the floor being penetrated. Floor penetrations contained within the cavity of a wall at location of the floor penetration do not require a T rating. No T rating shall be required for floor penetrations by piping that is not in direct contact with combustible material.

1405.6 Sleeves. Where sleeves are used, the sleeves shall be securely fastened to the fire-resistance-rated assembly. The (inside) annular space between the sleeve and the penetrating item and the (outside) annular space between the sleeve and the fire-resistance-rated assembly shall be firestopped in accordance with this chapter.

PHASE A

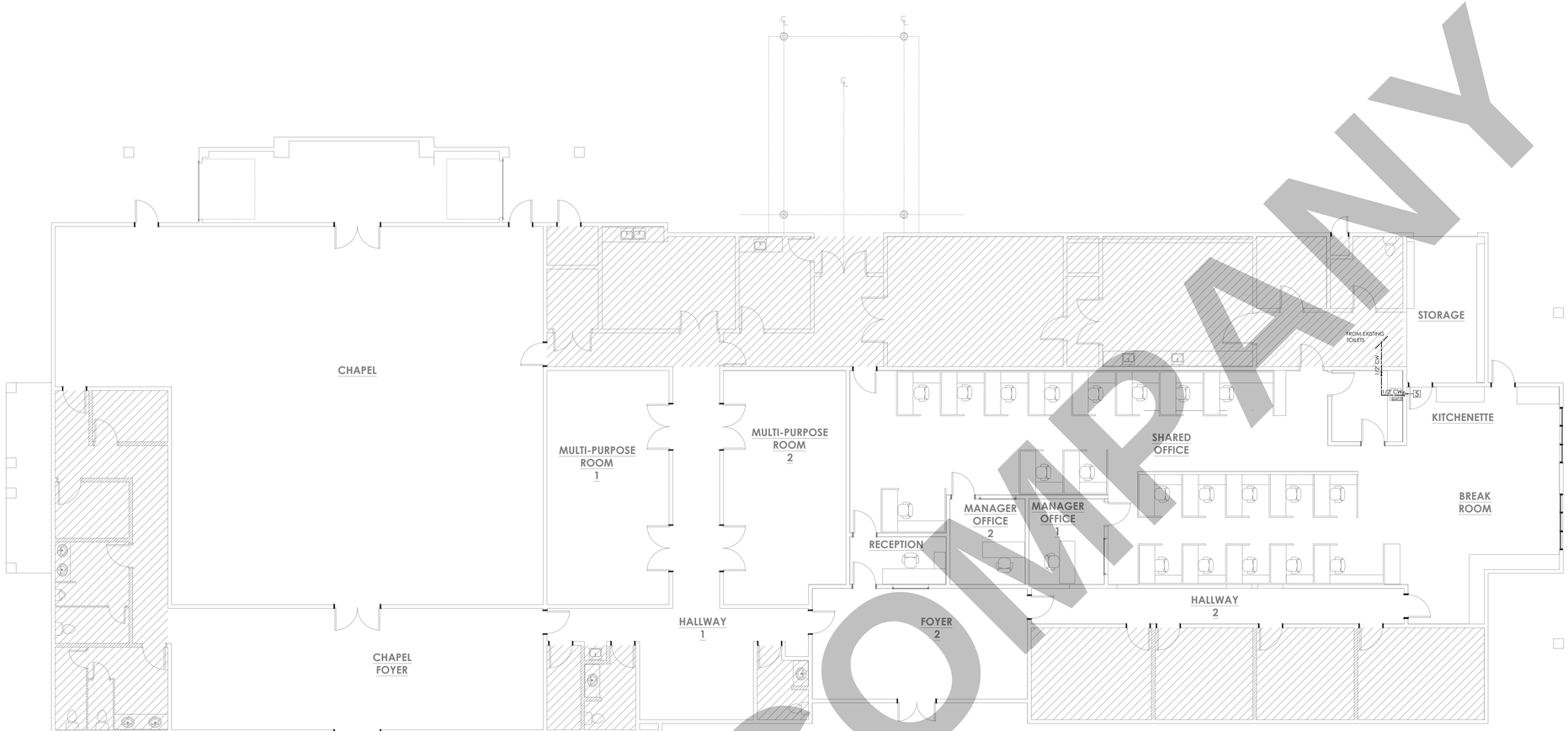
No.	Date	Issue / Revision

Title
PLUMBING CODE CHECKING

Project Number 20001.00
Date 30/03/2023
Drawn By MK, JM
Checked By CJK

P 1 . 0

SCALE: NTS



GENERAL NOTES:

1. 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.
3. REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
4. 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.
6. 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.
7. ALL PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
8. ALL WATER PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
9. 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.

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.

PLUMBING PIPING MATERIAL SCHEDULE

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

SCHEDULE No. 1
ELECTRIC TANKLESS WATER HEATER SCHEDULE

TAG	EWH-01
LOCATION	BATHROOMS
MANUFACTURER	CHRONOMITE
MODEL	SR-15L/120
TYPE	ELECTRIC
VOLTS	120
POWER KW	1.80
AMPS	15
WIDTH x DEPTH (in)	9-5/8" x 2-3/4"
HEIGHT (in)	5-3/4"

PHASE A

No.	Date	Issue / Revision

Title

LEVEL 1 FLOOR
WATER SUPPLY LAYOUT.

Project Number 20001.00
Date 30/03/2023
Drawn By MK, JM
Checked By CJK

P 1 . 1

SCALE: 1/8"=1'-0"

CD PROGRESS 03-29-23

Since 1966

CHRONOMITE®

POINT-OF-USE WATER HEATERS

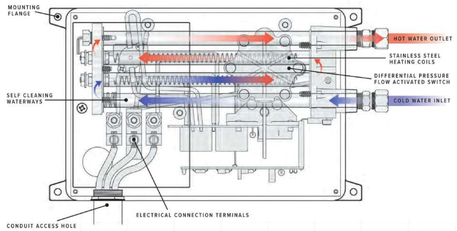
HEATING WATER FOR OVER 50 YEARS

INSTANT-FLOW® C-MICRO (CM SERIES)
Low Activation - 0.20 gpm

BOXER® (ER8 SERIES)
2.8 to 30 gpm

MINI TANK (CMT SERIES)
1.3 to 6.0 Gallons

HOW IT WORKS



A. CHRONOMITE® - INSTANT-FLOW® C-MICRO
CM SERIES TANKLESS WATER HEATER

B. NEO-METRO® - 9153
SLAB EDGE WITH DYSON® AIRBLADE WASH+DRY

1.8 - 9.6 KW

INSTANT-FLOW® SR
MODEL SR SERIES

POINT-OF-USE ELECTRIC TANKLESS WATER HEATER

MODEL SR SERIES

POINT-OF-USE ELECTRIC TANKLESS WATER HEATERS

INSTANT FLOW® - SR SERIES
LOW FLOW

MODEL	ACTIVATION GPM	VOLTS	KW	AMPS	90°C WIRE	°F TEMPERATURE RISE @ 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 FLOW® - SR SERIES
STANDARD FLOW

MODEL	ACTIVATION GPM	VOLTS	KW	AMPS	90°C WIRE	°F TEMPERATURE RISE @ 0.65 GPM	1.0 GPM	1.5 GPM	2.0 GPM
SR-30/208	0.65	208	6.24	30	10 AWG	66	41	28	21
SR-40/208	0.65	208	8.32	40	8 AWG	87	57	38	28
SR-30/240	0.65	240	7.20	30	10 AWG	76	49	33	25
SR-40/240	0.65	240	9.60	40	8 AWG	90+	66	44	33
SR-30/277	0.65	277	8.31	30	10 AWG	87	57	38	28

Note : Local plumbing and electrical codes must be followed for this installation of the water heater and accessories.

Design calculation sheet

Project no:		Date:	23/03/2023	Sheet no.:	1	of 1	Computed by:	Innodez		
Subject:	East Lawn Elk Grove						Checked by:	Innodez		
	Hot Water Calculation						Approved by:	Innodez		

Application Type: Office Building

Water Temperature

Tin	=	50	°F	=	10	°C
Tout	=	140	°F	=	60	°C
ΔT	=	90	°F	=	50	°C

Fixture	GPH		QTY.			
Basin, Private lavatory	2	x	1	=	2	gph

Other	GPH	QTY.

							Maximum Possible Demand	=	2	gph
							Demand Factor **(Custom)**	=	0.3	gph
							Maximum Probable Demand	=	0.6	gph
							Maximum Probable Demand	=	0.01	gpm
								=	0.00	L/s
							Heater Recovery Capacity	=	0.01	gpm
							Storage Factor **(Custom)**	=	0.8	
							Storage Tank Capacity	=	0.48	gal
									1.9	liters
							Actual Selection		2	Liters
Heater or Coil	=	500	x	gpm	x	ΔT	/	Efficiency		
Capacity	=	500	x	0.01	x	90	/	0.9	= 500	btu/hr
								=	0.2	kW
							Actual Selection	=	1	kW

PHASE A

No.	Date	Issue / Revision

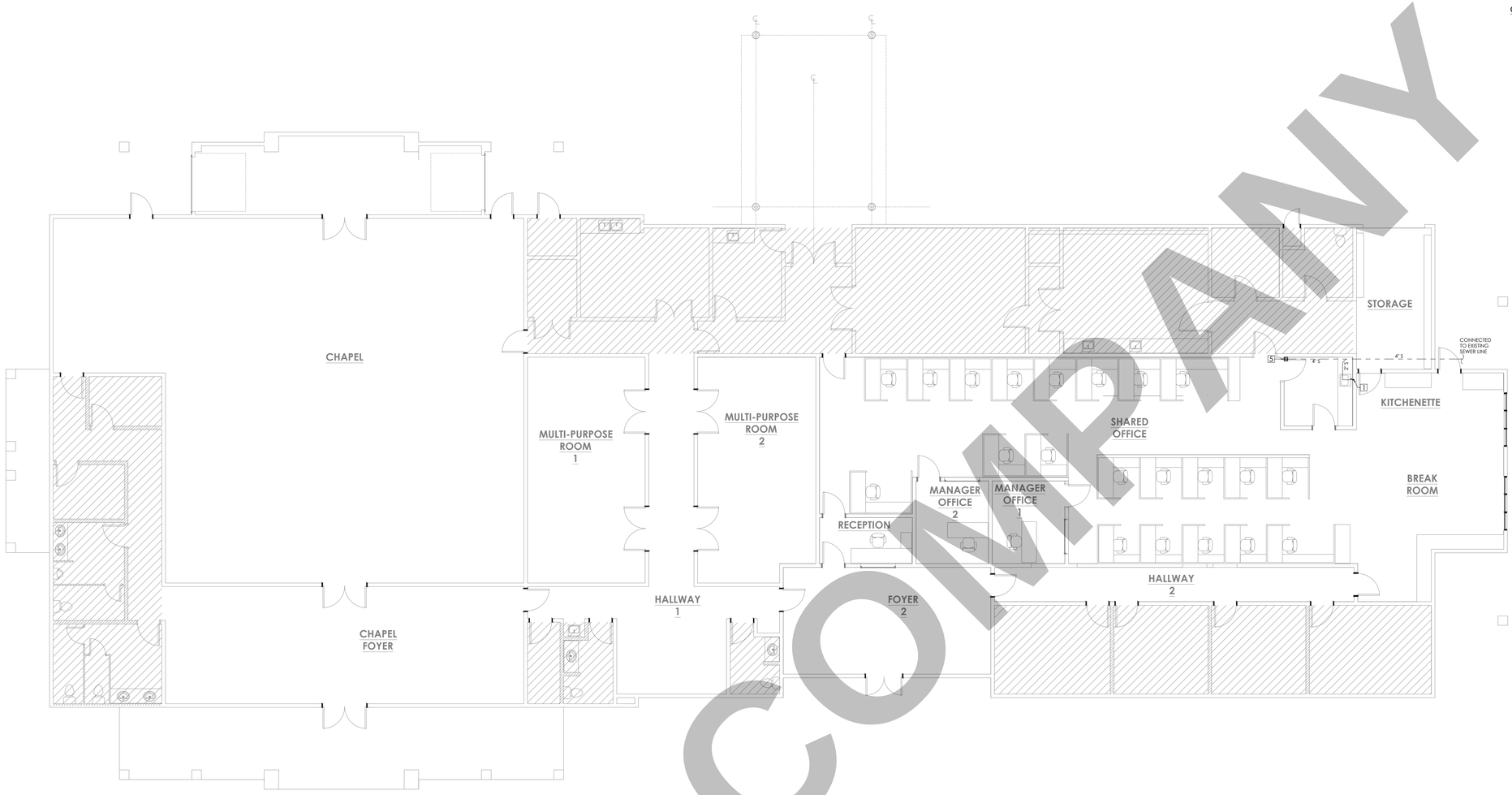
Title
WATER HEATER SCHEDULE CALC.SHEET AND CATALOG

Project Number: 20001.00
Date: 30/03/2023
Drawn By: MK, JM
Checked By: CJK

P 2 . 0

SCALE: NTS

CD PROGRESS 03-29-23



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PLUMBING PIPING MATERIAL SCHEDULE

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

REFERRING TO 2022 CALIFORNIA PLUMBING CODE:
DRAINAGE FIXTURE UNITS FOR FIXTURES AND GROUPS

FIXTURE TYPE	DRAINAGE FIXTURE UNIT VALUE AS LOAD FACTORS
LAVATORY	1
TOILET, PRIVATE	3
BATHTUB	2
LAUNDRY TRAY	2
FLOOR DRAIN 3 INCH TRAP SIZE	3
KITCHEN SINK, DOMESTIC	2

MINIMUM PIPE SIZE PER FIXTURE

FIXTURE UNIT	DR (INCH)	VENT (INCH)
SHOWER	3	2
WATER CLOSET	4	2
LAVATORY	1-1/2	2
KITCHEN SINK	2	2
HAND SINK	2	2
MOP SINK	2	2
DISHWASHER	1-1/2	2
BATHTUB	3	2
LAUNDRY MACHINE	1-1/2	2

FIXTURE TYPE	MAXIMUM FLOW RATE
Water closets	1.28 gallons/flush
Urinals (wall mounted)	0.125 gallons/flush
Showers	1.8 gpm @ 80 psi
Lavatory faucets-nonresidential	0.5 gpm @60 psi
Kitchen faucets	1.8 gpm @ 60 psi
Metering faucets	gallons/cycle

ALL PIPE BELOW 4"Ø PIPE SIZE TO BE SLOPED 2%.
ALL PIPES GREATER THAN 4"Ø PIPE SIZE SHALL BE SLOPED 1%.

REFERRING TO 2022 CALIFORNIA PLUMBING CODE CODE:

Dia of Pipe (Inches)	MAXIMUM NUMBER OF DRAINAGE FIXTURE UNITS (dfu)			
	Stacks			
	Total for Horizontal Branch	Total Discharge into one branch interval	Total for stack of three branch Intervals or less	Total for stack greater than three branch intervals
1 1/2	3	2	4	8
2	6	6	10	24
2 1/2	12	9	20	42
3	20	20	48	72
4	160	90	240	500
5	360	200	540	1,100
6	620	350	960	1,900

Cleanouts are required at the upper most terminals of all horizonal waste lines. Please provide cleanouts location within the floor plan.

ABS/PVC vent terminations up through the roof exposed to sunlight are required to be protected by water based synthetic latex paints." 906.1

PLUMBING SHEET NOTES

SHEET NOTES:

1. WASTE DROP AND 2" VENT RISE.
2. 2" VENT RISE TO HIGH LEVEL.
3. 1-1/2" VENT RISE TO HIGH LEVEL.
4. 3" VENT STACK TO ABOVE TERMINATED NOT LESS THAN 6 INCHES ABOVE THE ROOF NOR LESS THAN 1 FOOT FROM A VERTICAL SURFACE.
5. 4" FLOOR CLEAN-OUT.
6. OUTDOOR FLOOR CLEAN-OUT. REFER TO DWG FOR PIPE SIZE.
7. 3" FLOOR DRAIN.
8. 4" WASTE DROP FROM FLOOR ABOVE
9. 4" WASTE DROP TO FLOOR BELOW
10. 3" ROOF VENT CAP
11. 2" FROM FLOOR SINK
12. 2" WASTE DROP

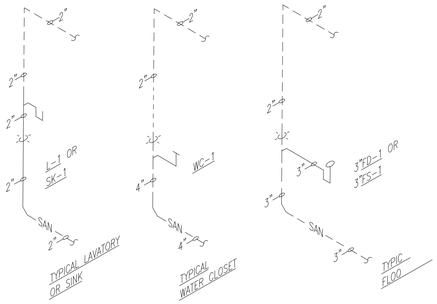
PHASE A

No.	Date	Issue / Revision

Title
LEVEL 1 FLOOR SANITARY LAYOUT.

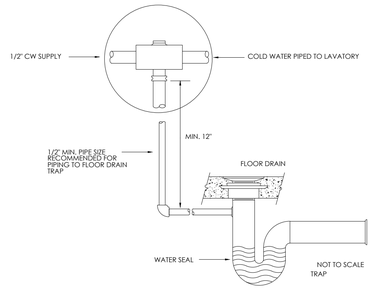
Project Number 20001.00
Date 30/03/2023
Drawn By MK, JM
Checked By CJK
P 3 . 0
SCALE: 1/8"=1'-0"

CD PROGRESS 03-29-23

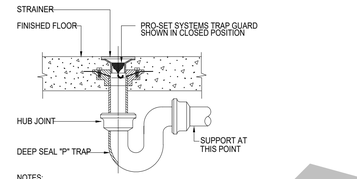


1 **TYPICAL WASTE AND VENT RISERS**

SCALE: NONE



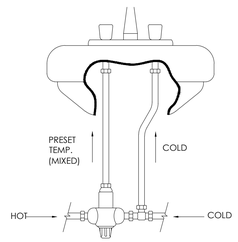
2 TRAP PRIMER



NOTES:
1. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND FLOOR SINK) BY SIZE, MODEL, AND MANUFACTURER.
2. FLOOR SINK/HUB DRAIN TRAP GUARD INSTALLATION IS SIMILAR.
3. INSTALLATION OF TRAP GUARD TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. INSERT TRAP GUARD ONLY AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS TITE SEAL. FOR DRAIN RODDING AFTER INSTALLATION, INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

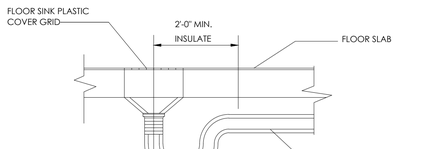
3 **FLOOR DRAIN WITH TRAP SEAL PROTECTION**

SCALE: NONE



ANTI-SCALD MIXING VALVE

NO SCALE

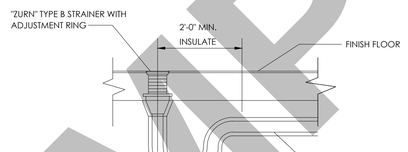


CONTRACTOR TO REFER TO PLUMBING DRAWINGS FOR SIZE AND LOCATION OF SANITARY SEWER LINE.

NOTE:
G.C. TO INSULATE ANY DRAIN OR P-TRAP UNDER SLAB THAT NORMALLY HOLDS WATER

FLOOR SINK DETAIL

NO SCALE

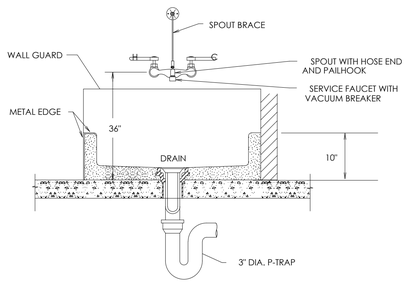


CONTRACTOR TO REFER TO PLUMBING DRAWINGS FOR SIZE AND LOCATION OF SANITARY SEWER LINE.

NOTE:
G.C. TO INSULATE ANY DRAIN OR P-TRAP UNDER SLAB THAT NORMALLY HOLDS WATER

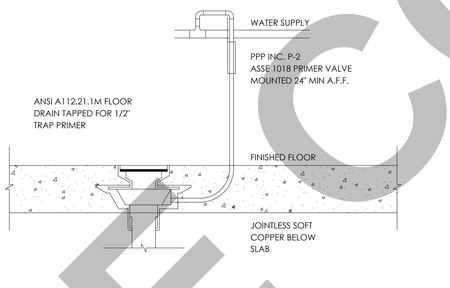
FLOOR DRAIN DETAIL

NO SCALE



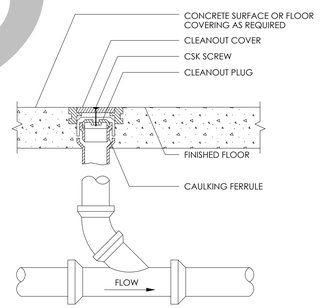
MOP SINK DETAIL

NO SCALE



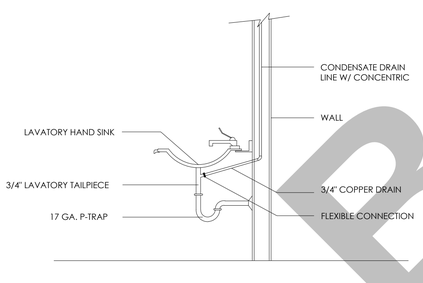
TRAP PRIMER DETAIL

NO SCALE



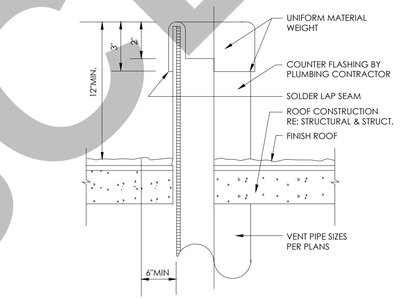
FLOOR CLEANOUT DETAIL

NO SCALE



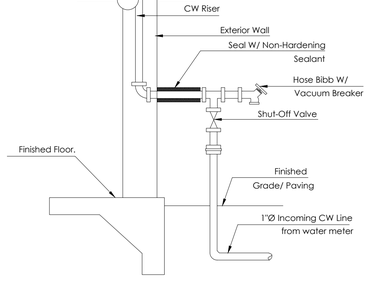
CONDENSATE DETAIL

NO SCALE



VENT THRU ROOF DETAIL

NO SCALE



WATER ENTRY DETAIL

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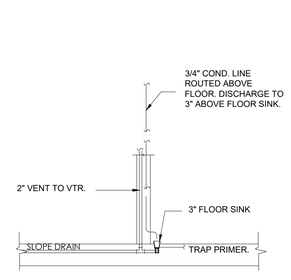

COND. ON FLOOR SINK DETAIL

NO SCALE

PHASE A

No.	Date	Issue / Revision

Title

PLUMBING GENERAL DETAILS.

Project Number	20001.00
Date	30/03/2023
Drawn By	MK, JM
Checked By	CJK

P 4 . 0

SCALE: NTS

CD PROGRESS 03-29-23

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 1 of 13)**

Project Name: East Lawn Mortuary | **Date Prepared:** 2023-04-01

A. General Information

1	Project Name	East Lawn Mortuary			
2	Run Title	Title 24 Analysis			
3	Project Location	East Lawn			
4	City	Elk Grove	5	Standards Version	Compliance 2022
6	Zip code	95624	7	Compliance Software (version)	EnergyPro 9.1
8	Climate Zone	12	9	Building Orientation (deg)	0
10	Building Type(s)	• Nonresidential	11	Weather File	SACRAMENTO-EXECUTIVE_STYP20.epw
12	Project Scope	• Existing alteration	13	Number of Dwelling Units	0
14	Total Conditioned Floor Area in Scope (ft^2)	8575	15	Total # of hotel/motel rooms	0
16	Total Unconditioned Floor Area (ft^2)	0	17	Fuel Type	Natural gas
18	Nonresidential Conditioned Floor Area	8575	19	Total # of Stories (Habitable Above Grade)	1
20	Residential Conditioned Floor Area	0			

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 2 of 13)**

B. PROJECT SUMMARY

Table B shows which building components are included in the performance calculation. If indicated as not included, the project must show compliance prescriptively if within the permit application.

Building Components Complying via Performance						Building Components Complying Prescriptively	
Envelope (See Table G)	Nonres	Not Included	Solar Thermal Water Heating (See Table I3)	☐	Performance	The following building components are ONLY eligible for prescriptive compliance and should be documented on the NRCC form listed if within the scope of the permit application (i.e. compliance will not be shown on the NRCC-PRF-E).	
	MultiFam	Not Included		☒	Not Included		
Mechanical (See Table H)	Nonres	Not Included	Covered Process: Commercial Kitchens (see Table J)	☐	Performance	Indoor Lighting (Unconditioned) 140.6 & 170.2(e)	NRCC-LTI-E is required
	MultiFam	Not Included		☒	Not Included	Outdoor Lighting 140.7 & 170.2(e)	NRCC-LTO-E is required
Domestic Hot Water (See Table I)	Nonres	Performance	Covered Process: Laboratory Exhaust (see Table J)	☐	Performance	Sign Lighting 140.8 & 170.2(e)	NRCC-LTS-E is required
	MultiFam	Not Included		☒	Not Included	**Building Components Complying with Mandatory Measures**	
Lighting (Indoor Conditioned, see Table K)	Nonres	Not Included	Photovoltaics (see Table F)	☒	Performance	Electrical power systems, commissioning, solar ready, elevator and escalator requirements are mandatory and should be documented on the NRCC form listed if applicable (i.e. compliance will not be shown on the NRCC-PRF-E.)	
	MultiFam	Not Included		☐	Not Included	Electrical Power Distribution 110.11	NRCC-ELC-E is required
			Battery (see Table F)	☐	Performance	Commissioning 120.8	NRCC-CXR-E is required
				☒	Not Included	Solar and Battery 110.10	NRCC-SAB-E is required

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 3 of 13)**

C1. COMPLIANCE SUMMARY

COMPLIES[1]

	Time Dependent Valuaton (TDV)		Source Energy Use
	Efficiency[1] (kBtu/ft² - yr)	**Total[2] (kBtu/ft² - yr)**	**Total[2] (kBtu/ft² - yr)**
Standard Design	285.76	285.76	22.67
Proposed Design	285.38	285.38	22.55
Compliance Margins	**0.38**	**0.38**	**0.12**
	Pass	**Pass**	**Pass**

[1] Efficiency measures include improvements like a better building envelope and more efficient equipment
[2] Compliance Totals include efficiency, photovoltaics and batteries
[3] Building complies when efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 4 of 13)**

C2. TDV ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual TDV Energy Use, kBtu/ft² - yr)

COMPLIES[2]

Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Space Heating	3.6	3.6	0
Space Cooling	81.06	81.06	0
Indoor Fans	156.18	156.18	0
Heat Rejection	0	0	0
Pumps & Misc.	0	0	0
Domestic Hot Water	3.91	3.53	0.38
Indoor Lighting	41.01	41.01	0
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**285.76**	**285.38**	**0.38 (0.1%)**
Photovoltaics	---	---	---
Batteries	---	---	---
TOTAL COMPLIANCE	**285.76**	**285.38**	**0.38 (0.1%)**

[1] Notes: This number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 5 of 13)**

C3. TDV ENERGY RESULTS FOR NON-REGULATED COMPONENTS[1]

Non-Regulated Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Receptacle	110.43	110.43	---
Process	---	---	---
Other Ltg	---	---	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**396.19**	**395.81**	**0.38 (0.1%)**

[1] Notes: This table is not used for Energy Code Compliance.

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 6 of 13)**

C4. SOURCE ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual SOURCE Energy Use, kBtu/ft² /yr)

COMPLIES[2]

Energy Component	Standard Design (SOURCE)	Proposed Design (SOURCE)	Compliance Margin (SOURCE)[1]
Space Heating	1.17	1.17	0
Space Cooling	3.67	3.67	0
Indoor Fans	13.8	13.8	0
Heat Rejection	0	0	0
Pumps & Misc.	0	0	0
Domestic Hot Water	0.4	0.28	0.12
Indoor Lighting	3.63	3.63	0
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**22.67**	**22.55**	**0.12 (0.5%)**
Photovoltaics	---	---	---
Batteries	---	---	---
TOTAL COMPLIANCE	**22.67**	**22.55**	**0.12 (0.5%)**

[1] Notes: This number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 7 of 13)**

C5. SOURCE ENERGY RESULTS FOR NON-REGULATED COMPONENTS[1]

Non-Regulated Energy Component	Standard Design (SOURCE)	Proposed Design (SOURCE)	Compliance Margin (SOURCE)[1]
Receptacle	9.71	9.71	---
Process	---	---	---
Other Ltg	---	---	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**32.38**	**32.26**	**0.12 (0.4%)**

[1] Notes: This table is not used for Energy Code Compliance.

C6. 'ABOVE CODE' QUALIFICATIONS

☐ This project is pursuing CalGreen Tier 1 ☐ This project is pursuing CalGreen Tier 2

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 8 of 13)**

C7. ENERGY USE SUMMARY

Energy Component	Standard Design Site (MWh)	Proposed Design Site (MWh)	Margin (MWh)	Standard Design Site (MBtu)	Proposed Design Site (MBtu)	Margin (MBtu)
Space Heating	---	---	---	10.8	10.8	0
Space Cooling	17.2	17.2	0	---	---	---
Indoor Fans	47.9	47.9	0	---	---	---
Heat Rejection	---	---	---	---	---	---
Pumps & Misc.	---	---	---	---	---	---
Domestic Hot Water	1.2	1.2	0	0.8	---	---
Indoor Lighting	12.4	12.4	0	---	---	---
Flexibility	---	---	---	---	---	---
EFFICIENCY TOTAL	**78.7**	**78.7**	**0**	**11.6**	**10.8**	**0.8**
Photovoltaics	---	---	---	---	---	---
Batteries	---	---	---	---	---	---
ENERGY USE SUBTOTAL	**78.7**	**78.7**	**0**	**11.6**	**10.8**	**0.8**
Receptacle	33.5	33.5	0	---	---	---
Process	---	---	---	---	---	---
Other Ltg	---	---	---	---	---	---
Process Motors	---	---	---	---	---	---
ENERGY USE TOTAL	**112.2**	**112.2**	**0**	**11.6**	**10.8**	**0.8**

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 9 of 13)**

C8. ENERGY USE INTENSITY (EUI)

	Standard Design (kBtu/ft² / yr)	Proposed Design (kBtu/ft² / yr)	Margin (kBtu/ft² / yr)	Margin Percentage
GROSS EUI[1]	46	45.9	0.1	0.22
NET EUI[1]	46	45.9	0.1	0.22

[1] Notes: Gross EUI is Energy Use Total (not including PV)/Total Building Area. Net EUI is Energy Use Total (including PV)/Total Building Area.

F1. REQUIRED PV SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception[1]	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)

[1]See Table D1 for any PV exceptions used.

F1B. PV BATTERY BUILDING TYPE(S)

01	02	03
Building Occupancy Type* (From Table 140.10-A/B and 170.2-U/V)	Conditioned Floor Area (ft^2)	Unconditioned Floor Area (ft^2)
Grocery	0	0
High-Rise Multifamily	0	0
Office, Financial Institutions, Unleased Tenant Space	8575	0
Retail	0	0
School	0	0
Warehouse	0	0
Auditorium, Convention Center, Hotel/Motel, Library, Medical Office Building/Clinic, Restaurant, Theater	0	0
None	0	0

**Building Occupancy Types are defined in Section 100.1 of the Energy Code*

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 10 of 13)**

I1. WATER HEATER EQUIPMENT SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Heater Element Type	Tank Type	Qty	Tank Vol (gal)	Rated Input	Rated Input Unit	Efficiency	Efficiency Unit	Tank Insulation R-value in/Ext	Standby Loss Fraction	1st Hr. Rating or Flow Rate (gal)	Heat Pump Type	Tank Location or Ambient Condition
Instantaneous Electric2	Electricity	Instantaneous	1	1	1.58	kW	kW	UEF	N/A	N/A	N/A	N/A	N/A

L. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections made by Documentation Author indicate which Certificates of Installation must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online

Building Component	Form/Title
Envelope	NRCI-ENV-01-E - Must be submitted for all buildings
Mechanical	NRCI-MCH-01-E - Must be submitted for all buildings
Plumbing	NRCI-PLB-01-E - Must be submitted for all buildings
Plumbing	NRCI-PLB-E - For all buildings with Plumbing Systems
Indoor Lighting	NRCI-LTI-01-E - Must be submitted for all buildings

M. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections made by Documentation Author indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP).

Building Component	Form/Title
Envelope	NRCA-ENV-02-F - NRFC label verification for fenestration
Indoor Lighting	NRCA-LTI-02-A - Occupancy Sensors and Automatic Time Switch Controls.
Indoor Lighting	NRCA-LTI-03-A - Automatic Daylight Controls.

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 11 of 13)**

N. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

Selections made by Documentation Author indicate which Certificates of Verification must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online

There are no Certificates of Verification applicable to this project

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 12 of 13)**

Documentation Author's Declaration Statement

I. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mohamad Nohayli	Documentation Author Signature:
Company:	Signature Date:
Address:	CEA/HERS Certification Identification (if applicable):
City/State/Zip: ,	Phone:

Responsible Person's Declaration statement

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections, and I will take the necessary steps to accomplish this requirement.
6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy, and I will take the necessary steps to accomplish these requirements.

PHASE A

No	Date	Issue / Revision

Title

T24-01

Project Number: 20001.00

Date: 30/03/2023

Drawn By: MK, JM

Checked By: CJK

T 2 4 . 1

SCALE: NTS

CD PROGRESS 03-29-23

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD		NRCC-PRF-E
Nonresidential Performance Compliance Method		**(Page 13 of 13)**
Responsible Designer Name: Syed P. Alam	Responsible Designer Signature: **Syed Alam**	
Company: Innodez Inc.	Date Signed: **2023-04-01**	
Address: 726 Foxbrough	License #: 27087	
City/State/Zip: Pleasanton, CA 94566	Title: **PE Engineer**	Scope: **Mechanical**
Phone:		

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220601 | Report Generated: 2023-04-01 17:52:54 Compliance ID: EnergyPro-50207-0423-0015

STATE OF CALIFORNIA
Electrical Power Distribution
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-ELC-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 1 of 4)**
Project Address:	East Lawn	**Date Prepared:** 4/1/2023

A. GENERAL INFORMATION

01	Project Location (city)	Elk Grove	02	Climate Zone	12
			03	Occupancy Types Within Project:	All Other OccupanciesConvention CenterOfficeSupport Areas

B. PROJECT SCOPE

This table includes electrical systems that are within the scope of the permit application.

01	02	03	04	05	06	07
Electrical Service Designation/ Description	Scope of Work[1]	Rating[2] (kVA)	Utility Provided Metering System Exception to 130.5(a)/ 160.6(a)[3]	System subject to CA Elec Code Article 517 Exception to 130.5(a)and (b)	Demand Response Controls	Provides power to dwelling units/common living areas only in multifamily occupancy
Main	Add/Alt to feeders and branch circuits only	50	☐	☐	Where required, demand response controls must be specified which are capable of receiving and automatically responding to at least one standards based messaging protocol which enables demand response after receiving a demand response signal. Sections 120.2/ 160.3, 130.1/ 160.5, and 130.3/ 160.5, and mechanical, indoor lighting, and sign lighting Certificate of Compliance documents will indicate when demand response controls are required.	☐

[1] *FOOTNOTES: Adding only new feeders and branch circuits triggers Voltage Drop 130.5(c)/160.6(c), no other requirements from 130.5/160.6 are required.*
[2] *If common use area in a multifamily are submetered, rating is for submeter size serving common use areas.*
[3] *Applicable if the utility company is providing a metering system that indicates instantaneous kW demand and kWh for a utility-defined period.*

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0153 Report Generated: 2023-04-01 17:53:23

STATE OF CALIFORNIA
Electrical Power Distribution
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-ELC-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 2 of 4)**
Project Address:	East Lawn	**Date Prepared:** 4/1/2023

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through J. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

01		02		03		04	05	06
Service Electrical Metering 130.5(a)/ 160.6(a) (See Table F)	AND	Separation for Monitoring 130.5(b)/ 160.6(b) (See Table G)	AND	Voltage Drop 130.5(c)/ 160.6(c) (See Table H)	AND	Controlled Receptacles 130.5(d)/ 160.6(d) (See Table I)	Electric Ready 160.9 (See Table J)	**Compliance Results**
Yes	AND	Yes	AND	Yes	AND	Yes	Yes	COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. SERVICE ELECTRICAL METERING

This section does not apply to this project.

G. SEPARATION OF ELECTRICAL CIRCUITS FOR ENERGY MONITORING

This section does not apply to this project.

H. VOLTAGE DROP

This table includes entirely new or complete replacement electrical power distribution systems, or alterations that add, modify or replace both feeders and branch circuits to demonstrate compliance with 130.5(c)/ 160.6(c). For alterations, only the altered circuits must demonstrate compliance per 141.0(b)2H6/ 180.2(b)4Bvlic.

01	02	03	04	05	
Electrical Service Designation/Description	Combined Voltage Drop on Installed Feeder/Branch Circuit Conductors Compliance Method	Location of Voltage Drop Calculations[1]	Sheet Number for Voltage Drop Calculations in Construction Documents	Field Inspector	
				Pass	Fail

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CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0153 Report Generated: 2023-04-01 17:53:23

STATE OF CALIFORNIA
Electrical Power Distribution
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-ELC-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 3 of 4)**
Project Address:	East Lawn	**Date Prepared:** 4/1/2023

H. VOLTAGE DROP

Main	☒	Voltage drop less than 5%	☐	Permitted by CA Elec Code (Exception to 130.5(c))*	Attached		☐	☐

** NOTES: If "Permitted by CA Elec Code *" is selected under Compliance Method above, please indicate where the exception applies in the space provided below.*

[1] *FOOTNOTES: Voltage drop calculations may be attached to the permit application outside the construction documents if allowed by the Authority Having Jurisdiction. Select "attached" if applicable. If calculations will be the responsibility of the installing contractor, select "Contractor Responsible".*

I. CIRCUIT CONTROLS FOR 120-VOLT RECEPTACLES AND CONTROLLED RECEPTACLES

This section does not apply to this project.

J. ELECTRIC READY BUILDINGS

This section does not apply to this project.

K. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Form/Title
NRCI-ELC-E - Must be submitted for all buildings

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0153 Report Generated: 2023-04-01 17:53:23

STATE OF CALIFORNIA
Electrical Power Distribution
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-ELC-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 4 of 4)**
Project Address:	East Lawn	**Date Prepared:** 4/1/2023

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Muhamad Nohayli	Documentation Author Signature: **Muhamad Nohayli**
Company:	Signature Date: **2023-04-01**
Address: **726 Foxbrough**	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: **Pleasanton CA 94566**	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0153 Report Generated: 2023-04-01 17:53:23

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 1 of 9)**
Project Address:	East Lawn	**Date Prepared:** 4/3/2023

A. GENERAL INFORMATION

01	Project Location (city)	Elk Grove	04	Total Conditioned Floor Area (ft²)	8,575
02	Climate Zone	12	05	Total Unconditioned Floor Area (ft²)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1

● Convention Center ● Office ● Support Areas ● All Other Occupancies

B. PROJECT SCOPE

This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.6 / 170.2(a) or 141.0(b)2 / 180.2(b)4 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☐ New Lighting System				
☐ New Lighting System - Parking Garage				
☑ Altered Lighting System	Area Category Method	8575	Area Category Method	0
Total Area of Work (ft²)	8575		0	

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0156 Report Generated: 2023-04-03 06:49:26

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 2 of 9)**
Project Address:	East Lawn	**Date Prepared:** 4/3/2023

C. COMPLIANCE RESULTS

If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per 140.6(b)1 / 170.2(e)	Allowed Lighting Power per 140.6(b) / 170.2(e) (Watts)						Adjusted Lighting Power per 140.6(a) / 170.2(e) (Watts)			Compliance Results
	01	02	03	04		05	06	07	08	09
	Complete Building Allowed 140.6(c)1	Area Category Allowed 140.6(c)2& / 170.2(e)4	Area Category Additional 140.6(c)2& / 170.2(e)4Av (+)	Tailored 140.6(c)3 / 170.2(e)4B (+)		Total Allowed (Watts)	Total Designed (Watts)	Adjustments PAF Lighting Control Credits 140.6(a)2 / 170.2(e)1B (-)	Total Adjusted (Watts) *Includes Adjustments	**05 must be >= 08 140.6 / 170.2(e)**
	(See Table I)	(See Table I)	(See Table J)	(See Table K)			(See Table F)	(See Table P)		
Conditioned		5,727.8	0		=	5,728	≥ 4,062	0	= 4062	COMPLIES
Unconditioned					=		≥		=	
								Controls Compliance (See Table H for Details)		COMPLIES
								Rated Power Reduction Compliance (See Table Q for Details)		

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0156 Report Generated: 2023-04-03 06:49:26

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 3 of 9)**
Project Address:	East Lawn	**Date Prepared:** 4/3/2023

F. INDOOR LIGHTING FIXTURE SCHEDULE

This table includes all planned permanent and portable lighting other than dwelling unit/ hotel/ motel room lighting. Multifamily dwelling unit and hotel/motel room lighting is documented in Table T. If using Table T to document lighting in multifamily common use areas providing shared provisions for living, eating, cooking or sanitation, those luminaires are not included here.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per 140.6(a)3 / 170.2(e)2C	Design Watts	Field Inspector	
									Pass	Fail
(E) Chandelier	(E) Suspended Chandelier	No	NA	30	Mfr. Spec	10	No	300	☐	☐
(E) Spot	(E) - Spot Light	No	NA	14	Mfr. Spec	34	No	476	☐	☐
(E) WS	L3 - Wall Sconce	No	NA	40	Mfr. Spec	10	No	400	☐	☐
L1	L1 - 2x4 Ceiling	No	NA	40	Mfr. Spec	25	No	1,000	☐	☐
L2	L2 - Recessed 4 Inch LED	No	NA	14	Mfr. Spec	39	No	546	☐	☐
L4	L4 - Linear LED Recessed	No	NA	40	Mfr. Spec	24	No	960	☐	☐
L5	L5 - 2 x 2 Feet LED	No	NA	30	Mfr. Spec	10	No	300	☐	☐
WS	L3 - Wall Sconce	No	NA	40	Mfr. Spec	2	No	80	☐	☐
Total Designed Watts: CONDITIONED SPACES								4,062		

[1] *FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per 140.6(a)4B / 170.2(e)2D is adjusted to be 75% /80% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*

[2] *Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b). Wattage used must be the maximum rated for the luminaire, not the lamp.*

G. MODULAR LIGHTING SYSTEMS

This section does not apply to this project.

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0156 Report Generated: 2023-04-03 06:49:26

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 4 of 9)**
Project Address:	East Lawn	**Date Prepared:** 4/3/2023

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

This table includes lighting controls for conditioned and unconditioned spaces.

Building Level Controls

01	02	03	
		Field Inspector	
		Pass	Fail
Mandatory Demand Response 110.12(c)	Shut-off controls 130.1(c) / 160.5(b)4C		
Required >= 4,000W subject to multilevel	Whole Building Auto Time Switch	☐	☐

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Manual Area Controls 130.1(a) / 160.5(b)4A	Multi-Level Controls 130.1(b) / 160.5(b)4B	Shut-Off Controls 130.1(c) / / 160.5(b)4C	Primary/Sky lit Daylighting 130.1(d) / 160.5(b)4D	Secondary Daylighting 130.1(d) / 160.5(b)4D	Interlocked Systems 140.6(a)1/ 170.2(e)2A	Field Inspector	
								Pass	Fail
Chapel	All Other Space Types	Readily Accessible	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Chapel Foyer	All Other Space Types	Readily Accessible	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Multi Purpose 01	Convention, Conference, Multipurpose and Meeting Center	Readily Accessible	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Multi Purpose 02	Convention, Conference, Multipurpose and Meeting Center	Readily Accessible	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Foyer	All Other Space Types	Readily Accessible	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Hallway 01	Main Entry Lobby	Readily Accessible	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Hallway 02	Main Entry Lobby	Readily Accessible	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0156 Report Generated: 2023-04-03 06:49:26

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 5 of 9)**
Project Address:	East Lawn	**Date Prepared:** 4/3/2023

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

Reception	Main Entry Lobby	Readily Accessible	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Manager Office	Office (<=250 square feet)	Readily Accessible	Dimmer	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm <= 24sf Glazing	No	☐	☐
Manager Office 02	Office (>250 square feet)	Dimmer	Occupancy Sensor		NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Shared Office	Office (>250 square feet)	Readily Accessible	Dimmer	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
Breakroom	Lounge	Readily Accessible	Dimmer	Occupancy Sensor	Included	Included	No	☐	☐
Storage	Commercial Industrial Storage Area	Readily Accessible	NA: Enclosed area <1005F	Occupancy Sensor	NA: Rm < 24sf Glazing	NA: Rm < 24sf Glazing	No	☐	☐
							13		
							Plan Sheet Showing Daylit Zones:		

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Each area complying using the Complete Building or Area Category Methods per 140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per 140.6(c) or adjustments per 140.6(a) are being used .

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
Chapel	Convention, Conference, Multipurpose and Meeting Center	0.75	2,808	2,106	No	No
Chapel Foyer	Convention, Conference, Multipurpose and Meeting Center	0.75	792	594	No	No
Multi Purpose	Convention, Conference, Multipurpose and Meeting Center	0.75	1,552	1,164	No	No
Foyer	Corridor	0.4	660	264	No	No

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0156 Report Generated: 2023-04-03 06:49:26

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 6 of 9)**
Project Address:	East Lawn	**Date Prepared:** 4/3/2023

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Offices	Office (>250 square feet)	0.6	1,603	961.8	No	No
Breakroom	Lounge	0.55	1,160	638	No	No
		TOTALS:	8,575	5,727.8	See Tables J, or P for detail	

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

This section does not apply to this project.

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This section does not apply to this project.

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED DECORATIVE /SPECIAL EFFECTS

This section does not apply to this project.

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0156 Report Generated: 2023-04-03 06:49:26

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name:	East Lawn Mortuary	**Report Page:** **(Page 7 of 9)**
Project Address:	East Lawn	**Date Prepared:** 4/3/2023

Q. RATED POWER REDUCTION COMPLIANCE FOR ONE-FOR-ONE ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

T. DWELLING UNIT LIGHTING

This section does not apply to this project.

U. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Form/Title
NRCI-LTI-E - Must be submitted for all buildings

Registration Number: | Generated Date/Time: | Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Report Version: 2022.0.000 Schema Version: rev 20220101 | Compliance ID: EnergyPro-50207-0423-0156 Report Generated: 2023-04-03 06:49:26

PHASE A

No.	Title	Date / Revision

Title
T24-02

Project Number: 20001.00
Date: 30/03/2023
Drawn By: MK, JM
Checked By: CJK

T 2 4 . 2

SCALE: NTS

CD PROGRESS 03-29-23

V. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	Whole Building Time Switch; Chapel; Chapel Foyer; Multi Purpose 01; Multi Purpose 02; Foyer; Hallway 01; Hallway 02; Reception; Manager Office; Manager Office 02; Shared Office; Breakroom; Storage;
NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	Breakroom;
NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	Whole Building Demand Response;

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Mohamad Nohayli	**Mohamad Nohayli**
Company:	Signature Date: 2023-04-03
Address: **726 Foxbrough**	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: **Pleasanton CA 94566**	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

This document is used to demonstrate compliance for nonresidential occupancies with requirements in 110.1, 110.3, 120.3, and 140.5, and with requirements in 141.0 for additions and alterations, for domestic water heating scopes using the prescriptive path. For high-rise residential and hotel/motel occupancies compliance is demonstrated with requirements in 110.1, 110.3, 160.4 and 170.2(d), and with requirements 180.1 for additions and 180.2 for alterations.

A. GENERAL INFORMATION

01	Project Location (city)	Elk Grove	02	Climate Zone	12
03	Occupancy Types Within Project (select all that apply):				

● Convention Center ● Office ● Support Areas ● All Other Occupancies

B. PROJECT SCOPE

This table includes domestic water heating systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive paths outlined in 140./ 170.2(d) and 141.0(a)/ 180.1, or 141.0(b)2N / 180.2 for additions or alterations. Solar water heating systems are documented on the NRCC-SAB compliance document. Combined hydronic water heating systems are documented on the NRCC-MCH compliance document.

01	02	03	
My project consists of (check all that apply):	System Type[1,2]	System Components	
☒ New system (DHW system being installed for the first time in newly constructed building)	Individual System (serving nonresidential spaces)	☒ Equipment	☒ Distribution ☒ Controls
☐ System Alteration (equipment, distribution or controls)		☐ Equipment	☐ Distribution ☐ Controls

[1] FOOTNOTES: Point of use water heaters, or other non-central systems used to serve nonresidential spaces, are considered individual systems.
[2] Dwelling units refers to hotel/motel guest rooms and units in a multifamily residential occupancy.
[3] DHW systems serving 2 or more dwelling units are considered "Central Systems" for multifamily occupancies

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with water heating requirements. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D, or the table indicated as not compliant for guidance.

01	02	03	04
Domestic Hot Water Equipment	Distribution Systems	Controls	**Compliance Results**
Table F	Table G	Table H	
Yes	Yes	Yes	COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. DOMESTIC HOT WATER EQUIPMENT

This table is used to demonstrate compliance with mandatory equipment requirements in 110.1 and 110.3. Compliance with prescriptive requirements in 140.5(c) / 170.2(d) must also be demonstrated and with 141.0 / 180.1/ 180.2 for addition and alteration scopes.

Equipment Schedule: Water Heating Efficiency and Standby Loss

03		04			05		06		
System Name	Instantaneous Electric	Exception to 140.5(c)/ 170.2(d)3			☐	Gas Service Water Heating System >= 1MMBtu/h[1]	Capacity-weighted Average Efficiency %		
07	08	09	10		11	12	13	14	15
Name or Item Tag	Equipment Type	Volume (gal)	Rated Input Capacity (Btu/h)	Max GPM/ First Hour Rating (FHR)	Rated Efficiency	Minimum Efficiency Required	Efficiency Unit	Designed Standby Loss	Maximum Standby Loss
Instantaneous Electric	Consumer Rated Electric Instantaneous (<=12kW)	1	5,400	FHR >=75	0.98	0.92	UEF		

[1] FOOTNOTE: In systems >= 1MMBtu/h with multiple units, gas water heaters with input capacity > 100,000 Btu/h may meet 90% Et requirements via an input capacity-weighted average.

Water Heating Equipment All Occupancies

	Yes	No	Not Applicable	Requirement
18	☐	☐	☒	Unfired storage tank insulation shall have Internal + External >=R-16 OR External >=R-3.5. Label required per 110.3(c)3
19	☐	☐	☒	New state buildings 60% of energy for service water heating from site solar energy or recovered energy per 110.3(c)5
20	☐	☐	☒	Isolation valves for instantaneous water heater with input rating >6.8 kBTUH or 2 kW has been specified per 110.3(c)6
21	☐	☐	☒	School buildings < 25,000 ft^2 and < 4 stories must install a heat pump water heating system per 140.5(a)1. Water heating systems serving an individual bathroom space may be an instantaneous electric water heater.

G. DOMESTIC HOT WATER DISTRIBUTION SYSTEM

This table is used to demonstrate compliance for nonresidential occupancies with distribution requirements in 120.3 and 140.5. For multifamily and hotel/motel occupancies, compliance is demonstrated with requirements 110.3(c), 160.4, 170.2(d).

Mandatory Pipe Insulation All Occupancies

13	☐	For systems serving dwelling units, pipe insulation must meet the minimum insulation requirements in Table 160.4-A (see below) except: • Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall abut securely against all framing members • Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation installation (QII) as specified in the Reference Residential Appendix RA3.5. • Piping surrounded with a minimum of 1 inch of wall insulation, 2 inches of crawlspace insulation, or 4 inches of attic insulation, shall not be required to have pipe insulation.
14	☒	For systems serving nonresidential spaces, pipe insulation for the following applications is specified to comply with Table 120.3-A (see below) per 120.3: • Recirculating system piping, including supply and return piping of the water heater • The first 8 ft of hot and cold outlet piping, including between storage tank and heat trap, for a nonrecirculating storage system • Pipes that are externally heated
15	☐	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service per 120.3(b) / 160.4(f). Pipe insulation buried below grade must be installed in a water proof and non-crushable casing or sleeve.

TABLE 120.3-A / 160.4-A PIPE INSULATION THICKNESS

Fluid Temperature Range (°F)	Conductivity Range (Btu-in per hour per ft^2 per °F)	Insulation Mean Rating Temp (°F)	Nominal Pipe Diameter (in)			
			< 1	1 to < 1.5	1.5 to < 4	1.5 to < 4 Multifamily & Hotel/Motel
			Minimum Insulation Required			
105-140	0.22 - 0.28	100	[1] 1.0 in or R-7.7	1.5 in or R-12.5	1.5 in or R-11	2.0 in or R-16

H. DOMESTIC HOT WATER CONTROLS

This table is used to demonstrate compliance with control requirements in 110.3 for all occupancies. For multifamily residential and hotel/motel occupancies, compliance is also demonstrated with requirements in 160.4(e) / 170.2(d).

	Yes	No	Not Applicable	Requirement
01	☒	☐	☐	Construction documents require manufacturer certification that service water-heating systems are equipped with automatic temperature controls capable of adjusting temperature settings per 110.3(a).
02	☐	☐	☒	Systems with capacity > 167,000 BTUH equipped with outlet temperature controls per 110.3(c)1 unless covered by California Plumbing Code 613.0.
03	☐	☐	☒	Controls for circulating pumps or electrical heat trace systems are capable of automatically turning off the system per §110.3(c)2 unless systems serves healthcare facility.
04	☐	☐	☒	For recirculation systems serving multiple dwelling units, design includes automatic pump controls per 170.2(d) or 180.1(b)3 for additions.
05	☐	☐	☒	For recirculation systems serving individual dwelling units, design includes manual on/off controls as specified in Reference Appendix RA4.4.9 per 170.2(d).
06	☐	☐	☒	Combustion air positive shut-off shall be provided per 160.4(3).on all newly installed commercial boilers as follows: • Boilers with input capacity >= 2.5 MMBtu/h, in which the boiler is designed to operate with a nonpositive vent static pressure • Boilers where one stack serves two or more boilers with a total combined input capacity per stack of 2.5 MMBtu/h.
07	☐	☐	☒	Boiler combustion air fans with motor >= 10 hp shall meet one of the following • The fan motor shall be driven by a variable speed drive OR • The fan motor shall include controls that limit the fan motor demand to <=30% of the total design wattage at 50% of the design air volume.
08	☐	☐	☒	Newly installed boilers with an input capacity (d:gte:] 5MMBtu/h and a steady state full-load combustion efficiency < 90% shall maintain excess (stack-gas) oxygen concentrations <= 5% by volume on a dry basis over firing rates of 20-100%. Combustion air volume shall be controlled with respect to firing rate or flue gas oxygen concentration. Use of a common gas and combustion air control linkage or jack shaft is prohibited.

I. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Form/Title
NRCI-PLB-E - Must be submitted for all buildings

J. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no forms required for this project.

K. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no forms required for this project.

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Mohamad Nohayli	**Mohamad Nohayli**
Company:	Signature Date: 2023-04-01
Address: **726 Foxbrough**	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: **Pleasanton CA 94566**	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

PHASE A

No.	Date	Title / Revision

T24-03

Project Number: 20001.00
Date: 30/03/2023
Drawn By: MK, JM
Checked By: CJK

T 2 4 . 3

SCALE: NTS

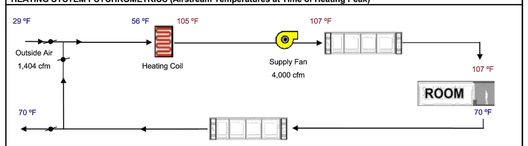
CD PROGRESS 03-29-23

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

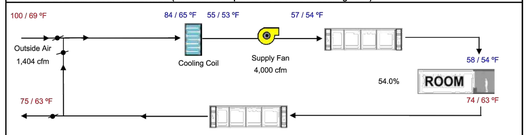
Project Name: East Lawn Mortuary | Date: 4/1/2023
System Name: F-03 (2) | Floor Area: 2,808

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Number of Systems	2						
Heating System							
Output per System	100,000	Total Room Loads	4,163	73,847	29,016	326	12,830
Total Output (Btuh)	200,000	Return Vented Lighting		0			
Output (Btuh/sqft)	71.2	Return Air Ducts		3,692			641
Cooling System		Return Fan		0			0
Output per System	60,000	Ventilation	1,404	38,056	-12,728	1,404	61,830
Total Output (Btuh)	120,000	Supply Fan		7,283			-7,283
Total Output (Tons)	10.0	Supply Air Ducts		3,692			641
Total Output (Btuh/sqft)	42.7						
Total Output (sqft/Ton)	280.8	TOTAL SYSTEM LOAD		126,570	16,288		68,660
Air System							
CFM per System	2,000	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	4,000	F03		112,809	0		200,000
Airflow (cfm/sqft)	1.42						
Airflow (cfm/Ton)	400.0						
Outside Air (%)	35.1%	Total Adjusted System Output (Adjusted for Peak Design conditions)		112,809	0		200,000
Outside Air (cfm/sqft)	0.50						
Note: values above given at ARI conditions		TIME OF SYSTEM PEAK			Jul 3 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

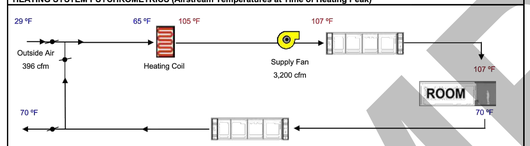


HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

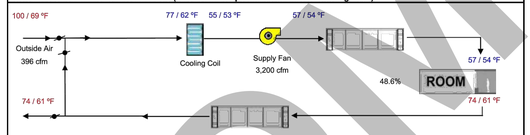
Project Name: East Lawn Mortuary | Date: 4/1/2023
System Name: F-02 (2) | Floor Area: 792

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Number of Systems	2						
Heating System							
Output per System	100,000	Total Room Loads	1,168	21,318	8,184	118	4,686
Total Output (Btuh)	200,000	Return Vented Lighting		0			
Output (Btuh/sqft)	252.5	Return Air Ducts		1,066			234
Cooling System		Return Fan		0			0
Output per System	48,000	Ventilation	396	10,967	-1,702	396	17,474
Total Output (Btuh)	96,000	Supply Fan		6,069			-6,069
Total Output (Tons)	8.0	Supply Air Ducts		1,066			234
Total Output (Btuh/sqft)	121.2						
Total Output (sqft/Ton)	99.0	TOTAL SYSTEM LOAD		40,486	6,482		16,559
Air System							
CFM per System	1,600	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	3,200	F02		86,599	0		200,000
Airflow (cfm/sqft)	4.04						
Airflow (cfm/Ton)	400.0						
Outside Air (%)	12.4%	Total Adjusted System Output (Adjusted for Peak Design conditions)		86,599	0		200,000
Outside Air (cfm/sqft)	0.50						
Note: values above given at ARI conditions		TIME OF SYSTEM PEAK			Aug 3 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

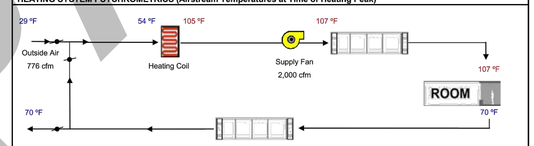


HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

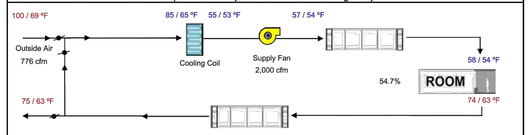
Project Name: East Lawn Mortuary | Date: 4/1/2023
System Name: F-03 (1) | Floor Area: 1,552

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Number of Systems	1						
Heating System							
Output per System	100,000	Total Room Loads	2,234	39,478	16,037	104	4,116
Total Output (Btuh)	100,000	Return Vented Lighting		0			
Output (Btuh/sqft)	64.4	Return Air Ducts		1,974			206
Cooling System		Return Fan		0			0
Output per System	60,000	Ventilation	776	20,984	-7,519	776	34,218
Total Output (Btuh)	60,000	Supply Fan		3,641			-3,641
Total Output (Tons)	5.0	Supply Air Ducts		1,974			206
Total Output (Btuh/sqft)	38.7						
Total Output (sqft/Ton)	310.4	TOTAL SYSTEM LOAD		68,051	8,518		35,105
Air System							
CFM per System	2,000	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	2,000	F03		56,684	0		100,000
Airflow (cfm/sqft)	1.29						
Airflow (cfm/Ton)	400.0						
Outside Air (%)	38.8%	Total Adjusted System Output (Adjusted for Peak Design conditions)		56,684	0		100,000
Outside Air (cfm/sqft)	0.50						
Note: values above given at ARI conditions		TIME OF SYSTEM PEAK			Jul 3 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

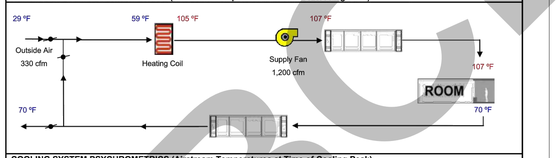


HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

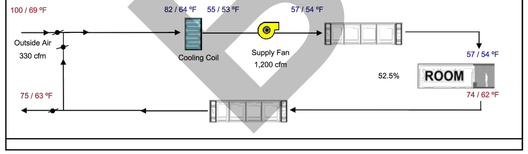
Project Name: East Lawn Mortuary | Date: 4/1/2023
System Name: F-05 | Floor Area: 660

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Number of Systems	1						
Heating System							
Output per System	80,000	Total Room Loads	973	17,481	6,820	81	3,195
Total Output (Btuh)	80,000	Return Vented Lighting		0			
Output (Btuh/sqft)	121.2	Return Air Ducts		874			160
Cooling System		Return Fan		0			0
Output per System	40,000	Ventilation	330	9,009	-2,567	330	14,542
Total Output (Btuh)	40,000	Supply Fan		2,149			-2,149
Total Output (Tons)	3.3	Supply Air Ducts		874			160
Total Output (Btuh/sqft)	60.6						
Total Output (sqft/Ton)	198.0	TOTAL SYSTEM LOAD		30,387	4,253		15,907
Air System							
CFM per System	1,200	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	1,200	F05		37,183	0		80,000
Airflow (cfm/sqft)	1.82						
Airflow (cfm/Ton)	360.0						
Outside Air (%)	27.5%	Total Adjusted System Output (Adjusted for Peak Design conditions)		37,183	0		80,000
Outside Air (cfm/sqft)	0.50						
Note: values above given at ARI conditions		TIME OF SYSTEM PEAK			Jul 3 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

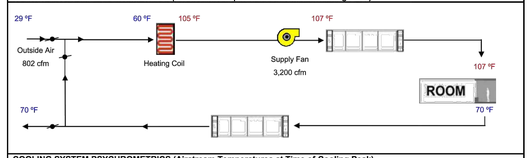


HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

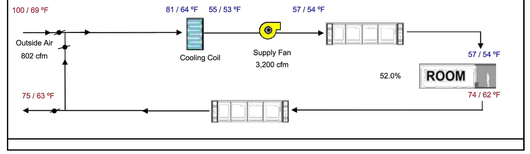
Project Name: East Lawn Mortuary | Date: 4/1/2023
System Name: F-02 (1) | Floor Area: 1,603

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Number of Systems	2						
Heating System							
Output per System	100,000	Total Room Loads	2,400	42,991	16,564	85	3,353
Total Output (Btuh)	200,000	Return Vented Lighting		0			
Output (Btuh/sqft)	124.8	Return Air Ducts		2,150			168
Cooling System		Return Fan		0			0
Output per System	48,000	Ventilation	802	21,926	-5,898	802	35,383
Total Output (Btuh)	96,000	Supply Fan		6,069			-6,069
Total Output (Tons)	8.0	Supply Air Ducts		2,150			168
Total Output (Btuh/sqft)	59.9						
Total Output (sqft/Ton)	200.4	TOTAL SYSTEM LOAD		75,285	10,666		33,003
Air System							
CFM per System	1,600	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	3,200	F02		88,894	0		200,000
Airflow (cfm/sqft)	2.00						
Airflow (cfm/Ton)	400.0						
Outside Air (%)	25.0%	Total Adjusted System Output (Adjusted for Peak Design conditions)		88,894	0		200,000
Outside Air (cfm/sqft)	0.50						
Note: values above given at ARI conditions		TIME OF SYSTEM PEAK			Jul 3 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

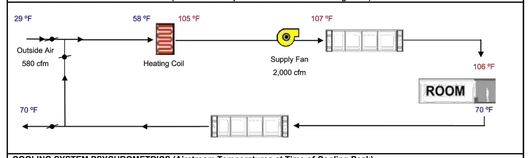


HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

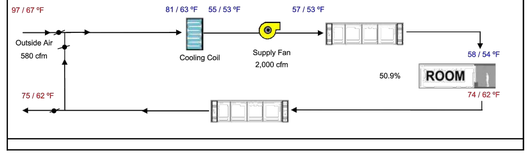
Project Name: East Lawn Mortuary | Date: 4/1/2023
System Name: F-03 (3) | Floor Area: 1,160

ENGINEERING CHECKS		SYSTEM LOAD	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Number of Systems	1						
Heating System							
Output per System	100,000	Total Room Loads	2,628	46,017	11,987	232	9,124
Total Output (Btuh)	100,000	Return Vented Lighting		0			
Output (Btuh/sqft)	86.2	Return Air Ducts		2,301			456
Cooling System		Return Fan		0			0
Output per System	60,000	Ventilation	580	13,682	-5,653	580	25,503
Total Output (Btuh)	60,000	Supply Fan		3,641			-3,641
Total Output (Tons)	5.0	Supply Air Ducts		2,301			456
Total Output (Btuh/sqft)	51.7						
Total Output (sqft/Ton)	232.0	TOTAL SYSTEM LOAD		67,942	6,334		31,898
Air System							
CFM per System	2,000	HVAC EQUIPMENT SELECTION					
Airflow (cfm)	2,000	F03		56,004	0		100,000
Airflow (cfm/sqft)	1.72						
Airflow (cfm/Ton)	400.0						
Outside Air (%)	29.0%	Total Adjusted System Output (Adjusted for Peak Design conditions)		56,004	0		100,000
Outside Air (cfm/sqft)	0.50						
Note: values above given at ARI conditions		TIME OF SYSTEM PEAK			Sep 2 PM		Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)



PHASE A

No.	Date	Issue / Revision

Title: T24-04

Project Number: 20001.00
Date: 30/03/2023
Drawn By: MK, JM
Checked By: CJK
T24.4
SCALE: NTS

CD PROGRESS 03-29-23