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 90° ELBOWS. TRAPEZE DUCT HANGERS: PROVIDE MINIMUM 1" X 2" X 1" X 18 GAUGE CHANNELS WITH MINIMUM 1" X 18 GAUGE STRAPS TO STRUCTURAL SUPPORT. ROUND SHEET METAL DUCT: PROVIDE SPIRAL SEAM (ALL SIZES) OR SNAP LOCK (DUCT SIZES UP TO 10") GALVANIZED STEEL COMPLYING WITH SMACNA STANDARDS. SPIRAL SEAM DUCTWORK SHALL HAVE SMACNA SEAM TYPE RL-1. FIBER GLASS DUCT BOARD IS AN ACCEPTABLE ALTERNATIVE IF APPROVED BY OWNER AND THE LOCAL BUILDING CODE OFFICIAL. PRODUCT AND INSTALLATION MUST MEET NAIMA STANDARDS AND OTHER APPLICABLE CODES AND REGULATIONS. EXPOSED DUCTWORK: EXPOSED DUCTWORK SHALL BE CLEANED OF DEBRIS AND OIL, THEN WIPED DOWN WITH VINEGAR OR OTHER SURFACE PREPARING CHEMICAL TO PREPARE DUCT FOR PAINT. DUCT SEALANT: PROVIDE POLYMERIC RUBBER TYPE SEALANT FOR USE ON BOTH INTERIOR LOCATED DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS. SEALER SHALL HAVE HIGH BONDING STRENGTH FOR SURE, FIRST TIME SEALING OF JOINTS IN LOW, MEDIUM, AND HIGH PRESSURE DUCT SYSTEMS. SEALER SHALL BE HIGH IN SOLID CONTENT. PROVIDE A TWO PART TAPE SEALING SYSTEM, CONSISTING OF WOVEN FIBER TAPE IMPREGNATED WITH A GYPSUM MINERAL COMPOUND, AND A MODIFIED ACRYLIC/SILICONE ACTIVATOR THAT REACTS EXOTHERMICALLY WITH THE TAPE, TWO PART TAPE SEALING SYSTEM MUST BE RATED FOR BOTH INDOOR AND OUTDOOR APPLICATION. TAPE SHALL NOT CONTAIN ASBESTOS. DUCT INSULATION: MATERIAL FOR SUPPLY AND RETURN AIR DUCT ABOVE CEILING INSIDE THE BUILDING SHALL HAVE THE EQUIVALENT THERMAL RESISTANCE OF MINIMUM R-6. THE REQUIRED R VALUES ARE FOR INSTALLED INSULATION WITH 25% COMPRESSION AT THE CORNERS. PROVIDE PINS AND WASHERS IN ACCORDANCE WITH SMACNA REQUIREMENTS AND AS REQUIRED TO PREVENT INSULATION FROM SAGGING. PROVIDE ADEQUATE INSULATION AT THE SUPPLY AIR DIFFUSERS TO PREVENT CONDENSATION. FLEXIBLE DUCT : UL #181 LISTED, CLASS 1, AND CONTAIN A 0.1 PERM RATED POLYETHYLENE INNER LINER, WITH R-8 FIBERGLASS INSULATION, FLEXIBLE DUCTS SHALL BE SECURED TO RIGID SHEET METAL COLLARS AND AIR DIFFUSERS WITH NYLON TIES OR STAINLESS STEEL WORM GEAR STRAPS. SEAL ALL CONNECTIONS AND JOINTS AIRTIGHT. SUPPORT FLEXIBLE DUCTS FROM THE BUILDINGS STRUCTURE WITH MINIMUM 1" WIDE, 18 GAUGE, GALVANIZED STEEL STRAP AT MAXIMUM 4'-0" CENTERS. PROVIDE 4" WIDE SHEET METAL SADDLES AT EACH SUPPORT EACH STRAP. SAG OF FLEXIBLE DUCT BETWEEN HANGERS SHALL NOT EXCEED 1/2" PER FOOT OF SUPPORT SPACING. RADIUS FOR TURNS OF FLEXIBLE DUCTS SHALL BE A MINIMUM OF ONE DUCT DIAMETER. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 10'-0" IN LENGTH AND SHALL BE THE SAME SIZE AS THE DIFFUSER NECK CONNECTION. ROUND VOLUME DAMPERS: PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME AND BLADES, MINIMUM 3/8" SQUARE STEEL AXLE, MOLDED SYNTHETIC BEARINGS, WITH LOCKING POSITION REGULATOR. REGULATOR SHALL BE POSITIONED WITH SHEET METAL BRACKET BEYOND DUCT COVERING. WHERE POSITIONING REGULATOR IS NOT ACCESSIBLE, PROVIDE COUPLING AND EXTENSION ROD WITH REGULATOR FOR CEILING OR WALL INSTALLATION, AS REQUIRED. RECTANGULAR VOLUME DAMPERS: PROVIDE MINIMUM 16 GAUGE GALVANIZED STEEL CHANNEL FRAME, 16 GAUGE GALVANIZED STEEL BLADES, MINIMUM 1/2" HEXAGONAL AXLE, BOLDED SYNTHETIC BEARINGS, WITH 3/8" SQUARE PLATED STEEL CONTROL SHAFT. LINKAGES SHALL BE CONCEALED IN THE FRAME. OPERATING SHAFT SHALL EXTEND BEYOND FRAME AND DUCT TO A LOCKING QUADRANT WITH ADJUSTABLE LEVER. MAXIMUM BLADE WIDTH SHALL NOT EXCEED 6".

DUCT TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". PROVIDE TURNING VANES CONSTRUCTED OF CURVED BLADES, SUPPORTED WITH BARS PERPENDICULAR TO BLADES, AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. FOLLOW SMACNA GUIDELINES FOR SPACING SUPPORT, AND CONSTRUCTION. ALL BLADES SHALL BE DOUBLE THICKNESS AIRFOIL TYPE. FLEXIBLE DUCT CONNECTORS: PROVIDE U.L. LABELED 30 OUNCE NEOPRENE COATED FIBERGLASS FABRIC DUCT CONNECTORS. DUCT ACCESS DOORS: PROVIDE HINGED ACCESS DOORS IN DUCTWORK WHERE REQUIRED FOR ACCESS TO EQUIPMENT. PROVIDE INSULATED ACCESS DOORS FOR INSULATED DUCTWORK. CONSTRUCT OF SAME OR THICKER GAUGE SHEET METAL AS DUCT IN WHICH IT IS INSTALLED. PROVIDE FLUSH FRAMES FOR UN-INSULATED DUCTS, AND EXTENDED FRAMES FOR EXTERNALLY INSULATED DUCTS. PROVIDE CONTINUOUS HINGE ON ONE SIDE, WITH ONE HANDLE-TYPE LATCH FOR ACCESS DOORS 12" HIGH AND SMALLER, AND TWO HANDLE-TYPE LATCHES FOR LARGER ACCESS DOORS. HVAC CONTROL SYSTEM: PROVIDE ALL THE NECESSARY CONTROLS AND CONTROL WIRING IN CONDUIT COMPATIBLE TO SYSTEMS SHOWN ON EQUIPMENT SCHEDULE M2.0. PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM SHALL ENABLE THE SUPPLY FAN AND CYCLE THE COOLING AND HEATING STAGES TO MAINTAIN SPACE SET-POINT. SUPPLY FAN RUNS CONTINUOUSLY DURING THE OCCUPIED MODE. EACH THERMOSTAT SHALL HAVE A DEAD BAND OF AT LEAST 5 DEGREES (ADJ) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING IS SHUT OFF, EACH THERMOSTAT SHALL HAVE SETBACK AND SET-UP CAPABILITY DURING THE UNOCCUPIED MODE. FOR SETBACK, THE HEATING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET-POINT ADJUSTABLE DOWN TO 55 DEGREES. FOR SET-UP, THE COOLING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET-POINT ADJUSTABLE UP TO 85 DEGREES OR TO PREVENT HIGH SPACE HUMIDITY LEVELS. EACH SYSTEM SHALL BE PROVIDED WITH A MOTORIZED OUTSIDE AIR DAMPER THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACES SERVED ARE NOT IN USE. VENTILATION OUTSIDE AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY CLOSING DURING PREOCCUPANCY BUILDING WARM-UP, COOL DOWN, AND SETBACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (e.g., NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS. COMMISSIONING/VERIFICATION: HVAC CONTROL SYSTEM SHALL BE TESTED TO ENSURE THAT CONTROL ELEMENTS ARE CALIBRATED, ADJUSTED, AND IN PROPER WORKING CONDITION, AND THAT THE SYSTEM MEETS THE DESIGN REQUIREMENTS. TEST AND BALANCE: CONTRACT DIRECTLY A THIRD PARTY TO PROVIDE TEST AND BALANCE OF THE HVAC SYSTEM. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING. TEST AND ADJUST ALL MECHANICAL SYSTEM AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH NEBB PROCEDURAL STANDARDS-1999 OR AABC 2002, AND ASHRAE STANDARD 111. ELIMINATE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF CONTROLS. SUBMIT COMPLETED TEST AND BALANCE REPORT TO OWNER'S REPRESENTATIVE. BALANCING CONTRACTOR SHALL BE INDEPENDENT AND CERTIFIED WITH NEBB OR AABC. BALANCE ALL SYSTEMS WITHIN 5% OF AIR FLOW INDICATED ON DRAWINGS, AND REPORT ALL DISCREPANCIES TO THE HVAC CONTRACTOR FOR CORRECTION. MARK FINAL BALANCE POSITIONS ON DAMPERS WITH PERMANENT MARKER. COMPLETION REQUIREMENTS: THE CONTRACTOR SHALL PROVIDE, WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS AND AN OPERATING AND MAINTENANCE MANUAL TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE OWNER. THE RECORD DRAWING SHALL BE OF THE ACTUAL INSTALLATION AND INCLUDE AS A MINIMUM THE LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF DUCT AND PIPE DISTRIBUTION SYSTEM INCLUDING SIZES, AND THE TERMINAL AIR OR WATER DESIGN FLOW RATES. THE OPERATING AND MAINTENANCE MANUALS SHALL BE IN ACCORDANCE WITH INDUSTRY-ACCEPTED STANDARDS AND SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING; (A) SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE; (B) OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED; (C) NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY; (D) HVAC CONTROLS SYSTEMS MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SYSTEM SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET-PIONTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS; (E) A COMPLETE NARRATIVE OF HOW EACH SYSTEM EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING SET-POINTS.

HVAC GENERAL NOTES

- 1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.
- 2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.
- 3. DRAWINGS FOR HVAC WORK ARE DIAGRAMATIC SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT, REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. PROVIDE ALL DUCTWORK, MATERIALS, CONNECTIONS, ACCESSORIES, FITTINGS, OFFSETS, TRANSITIONS, DAMPERS AS REQUIRED FOR A COMPLETE WORKABLE SYSTEM.
- 4. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND APPROVED LISTING. ALL EQUIPMENT, PIPING AND SUPPORTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE "GUIDLINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS" BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA). ALL EQUIPMENT SHALL BE ANCHORED TO RESIST THE LATERAL FORCE REQUIREMENTS OF CHAPTER 16 OF THE 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 2021 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 INTERNATIONAL MECHANICIAL CODE. DUCTS NOT REQUIRING DAMPERS SHALL COMPLY WITH SECTION 714 & 717 OF THE 2022 CALIFORNIA BUILDING CODE.
- 12. INSTALL SMOKED DETECTORS AND PROVIDE FOR SMOKE DETECTION AND AUTOMATIC SHUT-OFF OF ALL AIR HANDLING EQUIPMENT IN ACCORDANCE WITH SECTION 606 OF THE 2022 CALIFORNIA MECHANICAL CODE.
- 13. UNLESS NOTED OTHERWISE, ALL LINE VOLTAGE WIRING, CONDUIT, FINAL CONNECTIONS, DISCONNECTS, STARTERS, AND OVER CURRENT PROTECTION DEVICES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THESE MECHANICAL DRAWINGS AND/OR ELECTRICAL DRAWINGS AND/OR ELECTRICAL SECTION OF THE
- 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
- 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 CMC 504.0.
- b) DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE RIGID METALLIC DUCTS WITH A MINIMUM MILL THICKNESS OF 16 (0.016-INCH), SHALL HAVE A MINIMUM 4-INCH DIAMETER AND A SMOOTH INTERIOR. THE COMBINED HORIZONTAL AND VERTICAL LENGTH OF THE DUCTS OF THE DUCTS SHALL BE 14-FEET, WHICH SHALL BE REDUCED BY 2-FEET FOR EVERY 90-DEGREE ELBOW IN EXCESS OF TWO ELBOWS.
- c) LISTED CLOTHES DRYER TRANSITION DUCTS NOT MORE THAN 6-FEET IN LENGTH SHALL BE PERMITTED TO CONNECT THE DRYER TO THE EXHAUST DUCTS AS LONG AS THEY ARE NOT CONCEALED WITHIN CONSTRUCTION, AND THEY ARE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

				LEGEND
		AxB		DUCT WORK (WIDTHxDEPTH)
		AxB		LINED DUCT WORK (WIDTHXDEPTH DIMENSIONS ARE FOR I.D.)
				SUPPLY DUCT, SECTION
				RETURN DUCT, SECTION
				exhaust duct, section
S		R.ORD		RISE OR DROP IN DIRECTION OF AIR FLOW
			FLEX. CONN.	FLEXIBLE CONNECTION
				DUCT TRANSITION, ROUND AND RECTANGULAR
				SPLITTER DAMPER
		-		EXTRACTOR AT BRANCH DUCT
				TURNING VANES
		<u> </u>		FLEXIBLE DUCT
		\$\$		SINGLE LINE DUCT WORK
			AVD	AUTOMATIC VOLUME DAMPER
			MVD	MANUAL VOLUME DAMPER
			BDD	BACKDRAFT DAMPER
			MD	MODULATING DAMPER
			AFD	AUTOMATIC FIRE DAMPER
S			AD	ACCESS DOOR
			SD	SUPPLY DIFFUSER
			RR	RETURN REGISTER
1		✓ • •	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
- 1	1 +			

SPECIAL NOTICE TO CONTRACTORS

- 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.

SCOPE OF WORK

PROVIDE MECHANICAL DESIGN FOR THE OFFICE BUILDING OF R LIFE REALTY.

MECHANICAL LIST OF DRAWINGS (LoD):

	\					
SHEET TAG	TITLE	SCALE				
M 0.00	MECH GENERAL NOTES AND SPECIFICATIONS.	NTS				
M 0.01	MECHANICAL CODE CHECKING.	NTS				
M 1.01	MAIN FLOOR - MECHANICAL LAYOUT.					
M 2.01	MECHANICAL EQUIPMENT SCHEDULE.	NTS				
M 4.01	MECHANICAL EQUIPMENT DATA SHEETS.	NTS				
M 5.01	MECHANICAL GENERAL DETAILS.	NTS				

CLIENT:

ADDRESS:

CONFIDENTIALITY STATEMENT:

ALL DRAWINGS AND WRITTEN MATERIALS

APPEARING HEREIN CONSTITUTE THE

DESIGNER AND THE SAME MAY NOT BE

ORIGINAL AND UNPUBLISHED WORK OF THE

DUPLICATED, USED OR DISCLOSED WITHOUT

CONSENT OF THE DESIGNER.

NOTES:

ALL DIMENSIONS HEREIN ARE IN IMPERIAL UNITS UNLESS STATED OTHERWISE.
 THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DESIGNER, ENGINEER OR SPECIALIST DRAWINGS AND SPECIFICATIONS.

3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING

4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

(REV. NO.	DESCRIPTION	DATE

PROJECT:

MECH. SPECIFICATIONS & GENERAL NOTES.

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:

NTS

DRAWING NO. REV.

M 0 . 0 0

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 (0.5m²) need not exceed R-2; those 5 square feet (0.5m²) 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 per-

meance not exceeding 0.5 perm $[2.87 \text{ E-}11 \text{ kg/(Pa.s.m}^2)]$

where tested in accordance with Procedure A in ASTM

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 colected 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 ½ 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	3/4
21 – 40	1
41 – 90	1 1/4
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 outdoorair intakes shall be covered with a screen having not less than $\frac{1}{4}$ of an inch (6.4 mm) openings, and shall have not more than $\frac{1}{2}$ 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 $\frac{1}{4}$ 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.

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3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING WORK

4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

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
- 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.

NOTES ON DUCTS MATERIAL & CONSTRUCTION:

FLEXIBLE AIR DUCTS

FLEXIBLE AIR DUCTS SHALL COMPLY WITH UL 181, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE.

FLEXIBLE AIR DUCT INSTALLATIONS SHALL COMPLY WITH THE FOLLOWING:

- 1. DUCTS SHALL BE INSTALLED USING THE MINIMUM REQUIRED LENGTH TO MAKE THE CONNECTION.
- 2. HORIZONTAL DUCT RUNS SHALL BE SUPPORTED AT NOT MORE THAN 4 FEET (1219 MM) INTERVALS.
- 3. VERTICAL RISERS SHALL BE SUPPORTED AT NOT MORE THAN 6 FEET (1829 MM) INTERVALS.
- 4. SAG BETWEEN SUPPORT HANGERS SHALL NOT EXCEED 1/2 INCH (12.7 MM) PER FOOT (305 MM) OF SUPPORT SPACING.
 5. SUPPORTS SHALL BE RIGID AND SHALL BE NOT LESS THAN 11/2 INCHES (38 MM) WIDE AT POINT OF CONTACT WITH THE DUCT SURFACE.
- 6. DUCT BENDS SHALL BE NOT LESS THAN ONE DUCT DIAMETER BEND RADIUS.
- 7. SCREWS SHALL NOT PENETRATE THE INNER LINER OF NON-METALLIC FLEXIBLE DUCTS UNLESS PERMITTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 8. FITTINGS FOR ATTACHING NON-METALLIC DUCTS SHALL BE BEADED AND HAVE A COLLAR LENGTH OF NOT LESS THAN 2 INCHES (51 MM) FOR ATTACHING THE DUCT.
 EXCEPTION: A BEAD SHALL NOT BE REQUIRED WHERE METAL WORM-GEAR CLAMPS ARE USED OR WHERE ATTACHING METALLIC DUCTS USING SCREWS IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 9. DUCT INNER LINER SHALL BE INSTALLED AT NOT LESS THAN 1 INCH (25.4 MM) ON THE COLLAR AND PAST THE BEAD PRIOR TO THE APPLICATION OF THE TAPE AND MECHANICAL FASTENER. WHERE MASTIC IS USED INSTEAD OF TAPE, THE MASTIC SHALL BE APPLIED IN ACCORDANCE THE MASTIC MANUFACTURER'S INSTRUCTIONS.
- 10. DUCT OUTER VAPOR BARRIERS SHALL BE SECURED USING TWO WRAPS OF APPROVED TAPE. A MECHANICAL FASTENER SHALL BE PERMITTED TO BE USED IN PLACE OF, OR IN COMBINATION WITH, THE TAPE.
- 11. FLEXIBLE AIR DUCTS SHALL NOT PENETRATE A FIRE-RESISTANCE-RATED ASSEMBLY OR CONSTRUCTION.
 12. THE TEMPERATURE OF THE AIR TO BE CONVEYED IN A FLEXIBLE AIR DUCT SHALL NOT EXCEED 250°F (121°C).
- 13. FLEXIBLE AIR DUCTS SHALL BE SEALED IN ACCORDANCE WITH SECTION 603.10.

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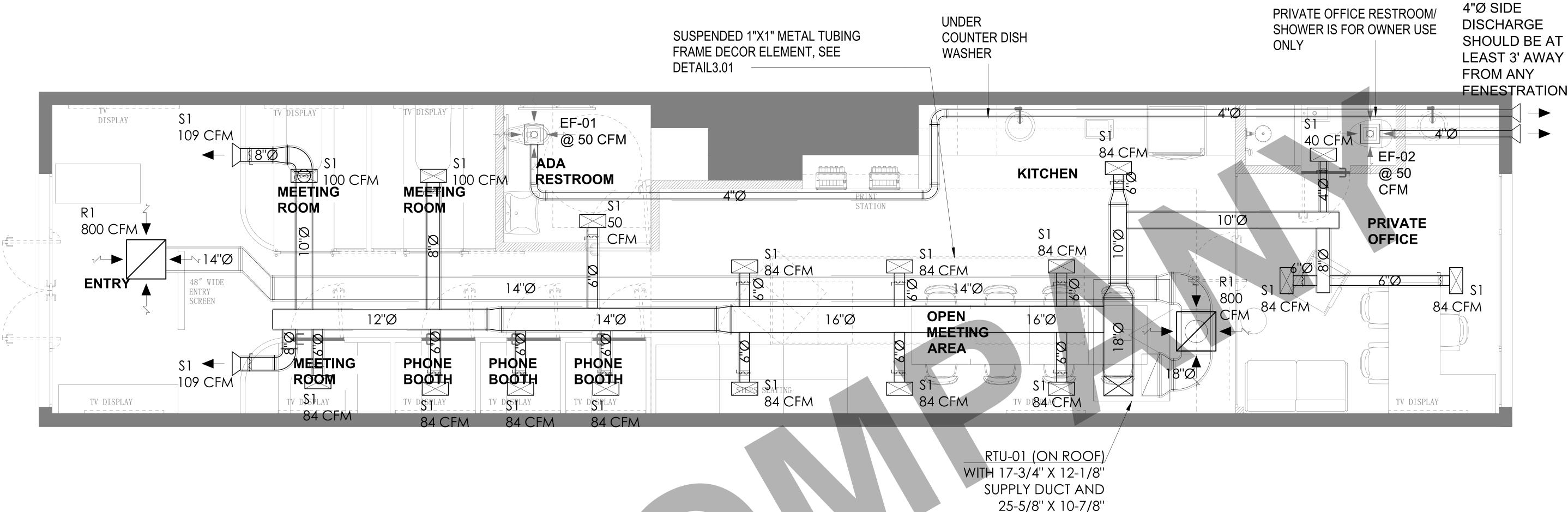
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GENERAL NOTES:

- MECHANICAL CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF MECHANICAL COMPONENTS AND EQUIPMENT WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS PRIOR TO PERFORMING WORK.
- CONTRACTOR TO CUT AND PATCH AS REQUIRED TO PERFORM THE WORK.
- ACCESS DOORS ARE REQUIRED FOR ANY COMPONENT REQUIRING ACCESS ABOVE HARD LID CEILINGS. COORDINATE SIZE, LOCATION AND FINISH WITH ARCHITECT PRIOR TO PERFORMING WORK.
- REFER TO THE DIAGRAMS THAT APPLY TO THIS SHEET WHICH PROVIDE GENERAL GUIDANCE FOR INSTALLATION THOUGH NOT ALL COMPONENTS AND ACCESSORIES MAY BE SHOWN.
- 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.
- 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.
- DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
- CONTRACTOR TO CONFIRM ADEQUATE RETURN AIR PATH BACK TO MAIN AIR HANDLING UNIT.

CMC-402.4-Required outdoor-air intakes shall be covered with a screen having not less than 1/4 of an inch (6.4 mm) openings, and shall have not more than 1/2 of an inch (12.7 mm)

CMC-407.2-Outdoor air intakes shall be located at least 25 feet (7.62 m) from exhaust outlets of ventilating systems, combustion equipment stacks, medical-surgical vacuum systems, cooling towers, and areas that may collect vehicular exhaust or other noxious fumes. Plumbing vents shall be located in relation to outdoor air intakes per California Plumbing Code. The bottom of outdoor air intakes shall be located as high as practicable, but not less than 10 feet (3048 mm) above ground level. If installed above the roof, they shall be located 18 inches (457 mm) above roof level or 3 feet (914 mm) above a flat roof where heavy snowfall is anticipated.

RETURN DUCT

CMC-502.2.1-Environmental air duct exhaust shall terminate not less than 3 feet (914 mm) from a property line, 10 feet (3048 mm) from a forced air inlet, 10 feet (3048 mm) above a public walkway, and 3 feet (914 mm) from openings into the building. The discharge of environmental exhaust ducts shall not be directed onto a public walkway

CMC-504.1.1-Exhaust ducts shall terminate outside the building and shall be equipped with backdraft dampers or with motorized dampers that automatically shut where the systems or spaces served are not in use. [OSHPD 1, 1R, 2, 4 & 5] Exception: Backdraft dampers are not required when the exhaust fan must operate continuously. Exception: Where the exhaust duct does not discharge into a common exhaust plenum and one of the following:

1- The exhaust fan runs continuously.

2- The exhaust duct serves space(s) that are not mechanically heated or cooled.

3- The space served is maintained at positive pressure.

CMC-505.6-Fire dampers shall be permitted to be installed in exhaust systems in accordance with the following:

Where ducts pass through fire barriers

Where a collection system installed on the end of the system is protected with an automatic extinguishing system

Where the duct system is protected with an automatic extinguishing system

CMC-603.4.1-[Not permitted for OSHPD 1, 1R, 2, 3, 4 & 5] Flexible air ducts shall be not more than 5 feet (1524 mm) in length and shall not be used in lieu of rigid elbows or fittings. Flexible air ducts shall be permitted to be used as an elbow at a terminal device. Exception: Residential occupancies.

CMC-603.7.1-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.

CMC-609.1-Air-moving systems supplying air in excess of 2000 cubic feet per minute (ft3/min) (0.9439 m3/s) to enclosed spaces within buildings shall be equipped with an automatic shutoff. Automatic shutoff shall be accomplished by interrupting the power source of the air-moving equipment upon detection of smoke in the main supply-air duct served by such equipment.

1- Automatic shutoff is not required where occupied rooms served by the air-handling equipment have direct exit to the exterior, and the travel distance does not exceed 100 feet (30 480 mm). 2- Automatic shutoff is not required for Group R. Division 3 and Group U Occupancies.

CMC-903.2.3-The installation of air-conditioning appliances shall comply with the following requirements:

1- Listed air-conditioning appliances shall be installed with clearances in accordance with the terms of their listing and the manufacturer's installation instructions.

2- Unlisted air-conditioning appliances shall be installed with clearances from combustible material of not less than 18 inches (457 mm) above the appliance and at the sides, front, and rear and in accordance with the manufacturer's installation instructions. [NFPA 54:10.2.3(2)]

CMC-Appendix E 502.3.1-Balancing Dampers shall be installed in branch ducts, and the axis of the damper shall be installed parallel to the direction of airflow in the main duct

CMC-Appendix E 502.4.4-Duct systems shall be sized in accordance with ACCA Manual D. Velocity in main duct shall not exceed 1000 feet per minute. Velocity in section branches shall not exceed 600 feet per minute.

CMC-Appendix E 503.4.6.1-Outdoor air intake and exhaust systems shall be equipment with motorized dampers that will automatically shut when the systems or spaces served are not in use. Exceptions: Back-draft gravity dampers shall be permitted for exhaust and relief in buildings less than 3 stories in height.

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SCALE @ 24X36

3/8" = 1'-0"

SCHEDULE No. 1

PACKAGED ROOFTOP UNIT

RTU-01
WHOLE OFFICE
CARRIER
50FCQA05
49,500 / 4.2
46,000 / 23,600
14.3 / 11.8 / 8.2 / 3.7 / 2.28
1,200 TO 2,000
230 / 1 / 60
19.8 / 130
325 / 1.5
87% / 5
32 / 50
46-5/8" X 74-3/8" X 33-3/8"
473

SCHEDULE No. 2 BATHROOM EXHAUST FANS

TAG	EF-01,02
LOCATION	BATHROOMS
AIR FLOW (CFM)	50
STATIC PRESSURE (IN. W.G)	0.1"
VOLTAGE (V / PH / HZ)	120/1/60
POWER (W) / CURRENT (A)	3.1 / 0.04
IMPELLER SPEED (RPM)	722
ENERGY EFF. (CFM/W)	16.2
FAN TYPE	CEILING FANS
MANUFACTURER	PANASONIC
MODEL	FV-0511VK2

NOTES:

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

SCHEDULE No. 3 AIR OUTLETS

TAG	DESCRIPTION	MANUFACTURER	MODEL	MOUNTING
S1	SUPPLY DIFFUSER	TITUS	14in. x 6in.	Duct Mounted
S2	SUPPLY GRILL	TITUS	6in. x 8in.	Duct Mounted
R1	RETURN DIFFUSER	TITUS	24in. x 24in.	Duct Mounted

NOTES:

- COORDINATE FINISH, COLOR, BORDER AND EXACT LOCATION WITH OWNER PRIOR TO ORDERING.
- PROVIDE OPPOSED BLADE DAMPER ACCESSIBLE THROUGH DIFFUSER FACE FOR GYP BD. CEILING INSTALLATIONS.
- PROVIDE DUCT TRANSITIONS AS REQUIRED.
- RETURNS R1 ARE PROVIDED WITH PROPER FILTERS.

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4. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

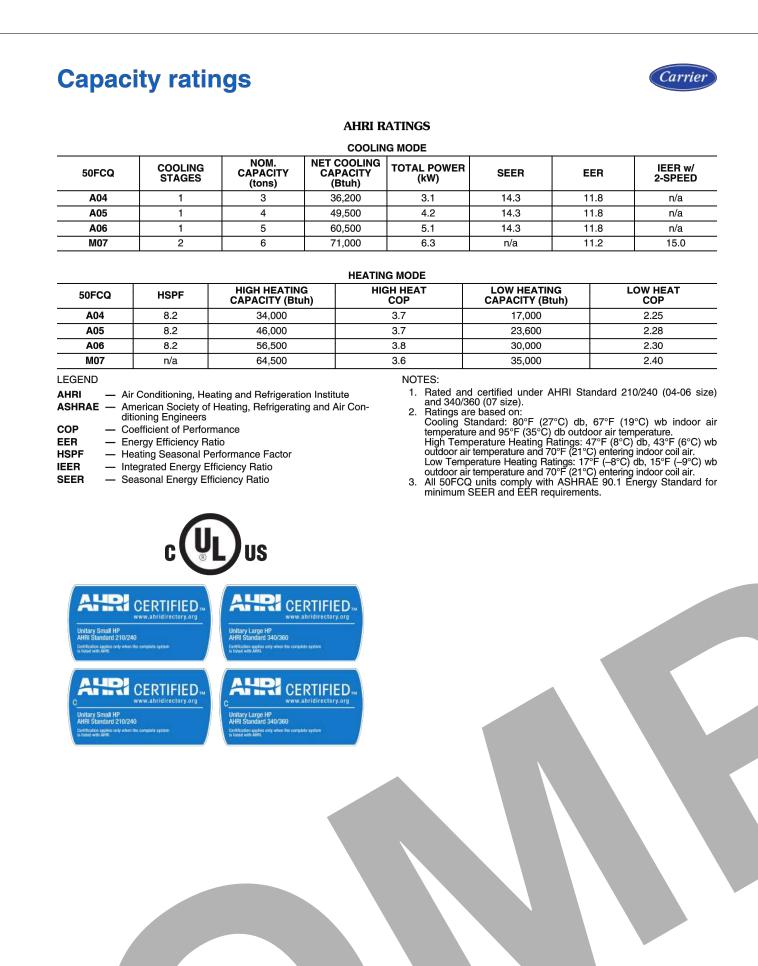
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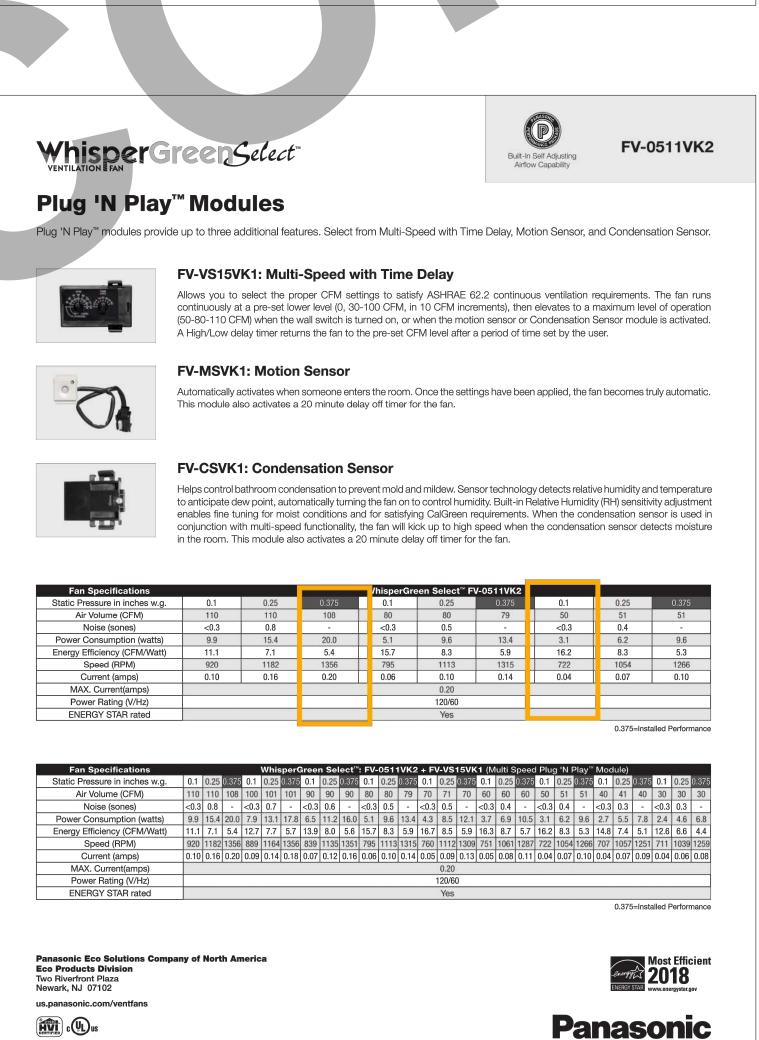
MECHANICAL EQUIPMENT SCHEDULE.						
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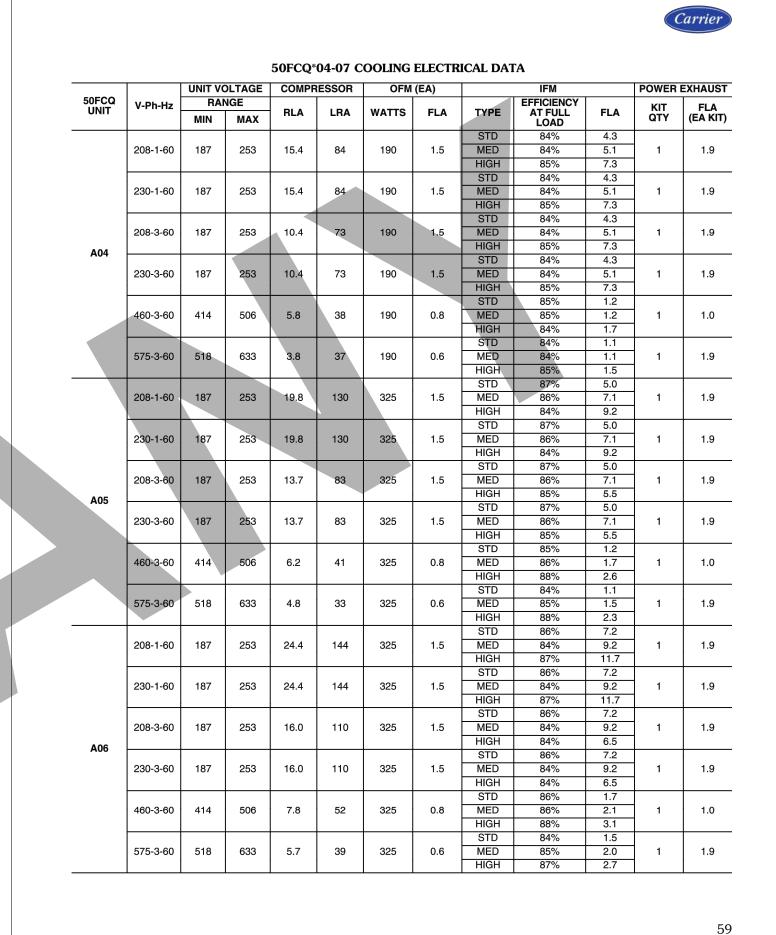
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FV-0511VK2 WhisperGreenSelect* **Specification Submittal Data** / Panasonic Ventilation Fan Customizable ceiling mount ventilating fan, low sone and rated for continuous operation. 4" or 6" duct ENERGY STAR® rated and certified by the Home Ventilating Institute (HVI). Evaluated by the Underwriters Laboratories and conforms to both UL and cUL standards. • Enclosed brushless ECM smart motor technology rated for continuous operation Adjustable ventilation rates at 50 – 80 – 110 CFM Power rating of 120 volts and 60 Hz UL and cUL listed for tub/shower enclosure when GFCI protected Motor equipped with thermal cutoff fuse Removable permanently lubricated plug-in motor • Environmentally friendly 26 gauge Zinc-Aluminum-Magnesium (ZAM) housing Integrated dual 4" or 6" diameter duct adapter Built-in damper reduces back draft and helps with blower door testing Built-in metal flange provides blocking for penetrations through drywall as an Air Barrier, and assists with the decrease in leakage in the Building Envelope during blower door testing Suitable for installation in ceilings insulated up to R60 Articulating and expandable installation bracket up to 24" Attractive design using Poly Pro materialAttaches directly to housing with torsion springs Includes a motion sensor cap for use as a cover when motion sensor Plug 'n Play™ module has not been selected • ECM Motor: 6 Years from original purchase date ALL Parts: 3 Years from original purchase date Customizable ceiling mount ventilation fan, ENERGY STAR® rated with built-in speed selector. Select from 50/80/110 CFM with <0.3 sone as certified by the Home Ventilating Performance Curve 4" or 6" duct Institute (HVI) at 0.1 w.g. with 51/80/110 CFM and no more than 0.4/0.5/0.8 sones at 0.25 w.g. and 51/79/108 CFM at 0.375 w.g. Power Consumption shall be no greater than 9.9/7.9/6.5 watts at 0.1 w.g. and 15.4/13.1/11.2 watts at 0.25 w.g. and 9.6/13.4/20.0 watts at 0.375 w.g. ENERGY STAP® rated with efficiency of no less than 16.2/15.7/11.1 CFM/watt at 0.1 w.g. and 8.3/8.3/7.1 CFM/watt at 0.25 w.g. and 5.3/5.9/5.4 CFM/watt at 0.375 w.g. The motor engineered to run continuously. FCM mater appeal at the propose when the far energy at the continuously. ECM motor speed shall automatically increase when the fan senses static pressure to maintain selected CFM. Power rating shall be 120v/60Hz. Duct diameter shall be no less than 4", inclusive of an integrated dual 4" or 6" duct adapter. **Plug 'N Play™** modules provide up to three additional features. Select from Multi-Speed with Time Delay, Condensation Sensor, and Motion Sensor. Fan shall be RoHS Compliant and UL and cUL listed for tub/shower enclosure when GFCI protected. Also suitable for installation in ceilings insulated up to R60. Fan can be used to comply with ASHRAE 62.2, LEED, ENERGY STAR® IAP, EarthCraft, California Title-24 and WA Ventilation Code. When fan senses static pressure, its speed is automatically increased to ensure that the desired CFM is not compromised, which allows the fan to Project: Location: Architect: Engineer: Contractor: Submitted by: For complete Installation Instructions visit us.panasonic.com/ventfans Ceiling Radiation Damper: WhisperGreen Select™ is UL listed for use with the Panasonic Ceiling Radiation Damper (Model #: PC-RD05C5, sold separately).







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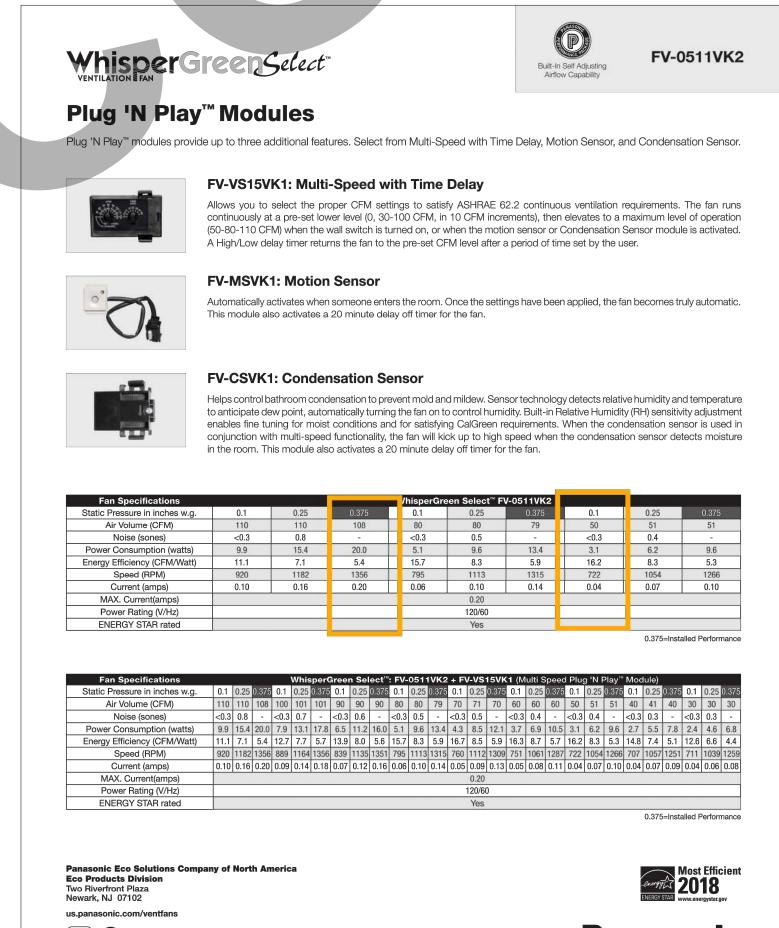
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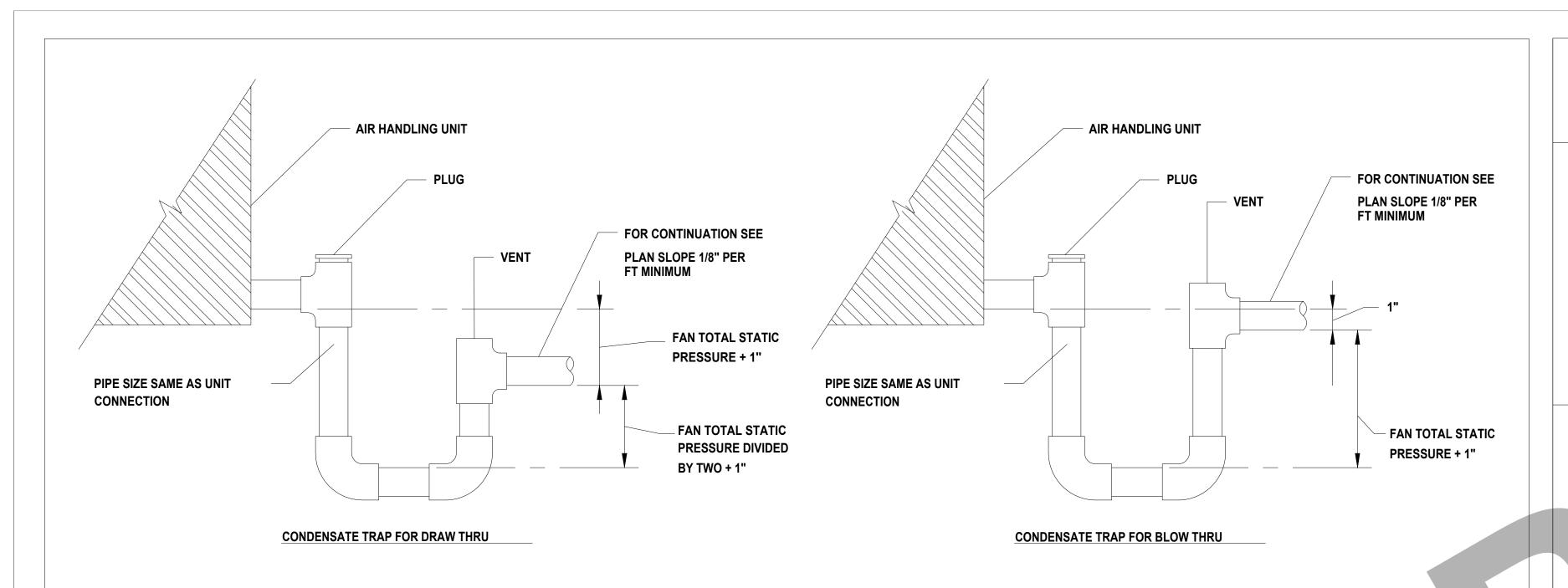
MECHANICAL EQUIPMENT DATASHEETS.

SCALE @ 24X36: PROJ. NO. PROJ. ENGR. NTS DRAWING NO.

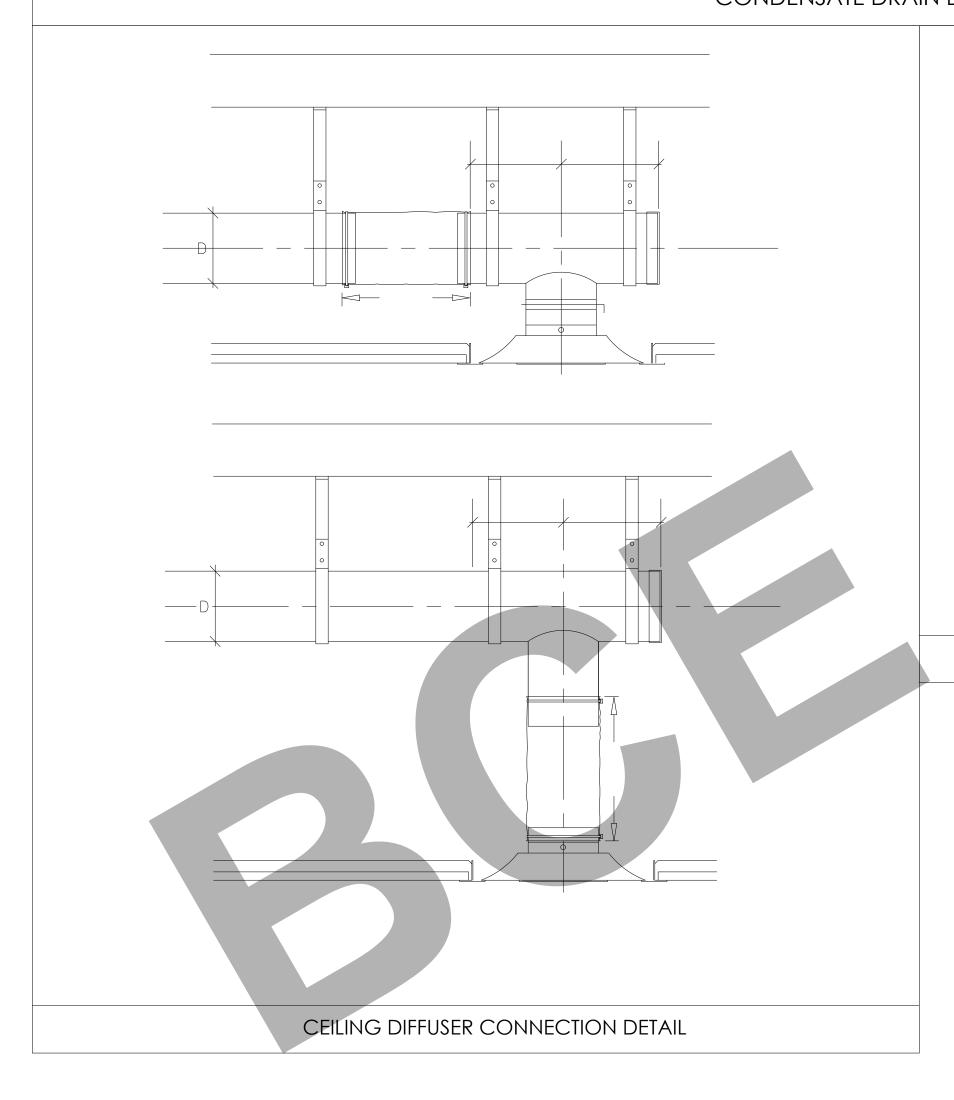
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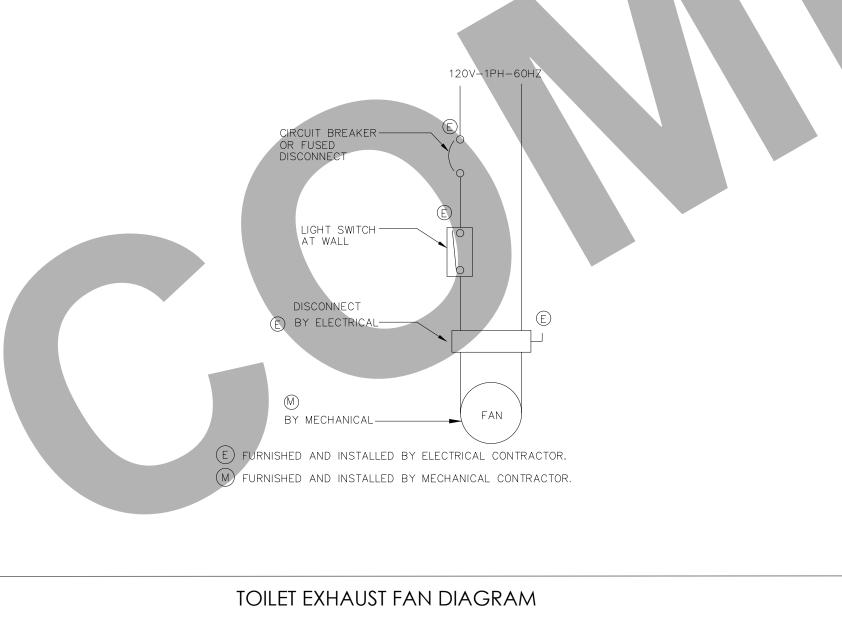


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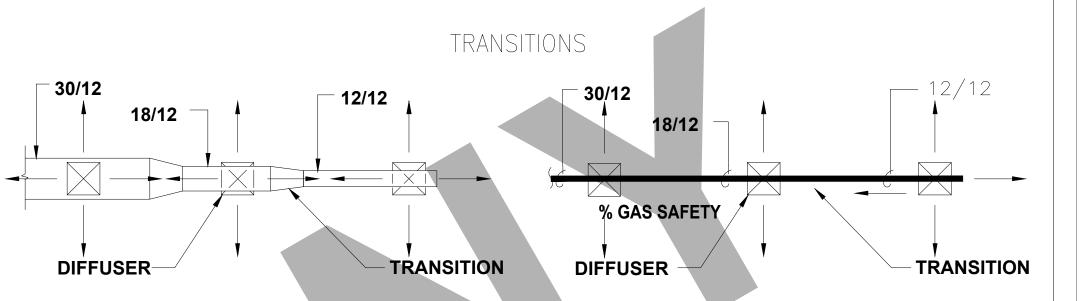


CONDENSATE DRAIN DETAIL





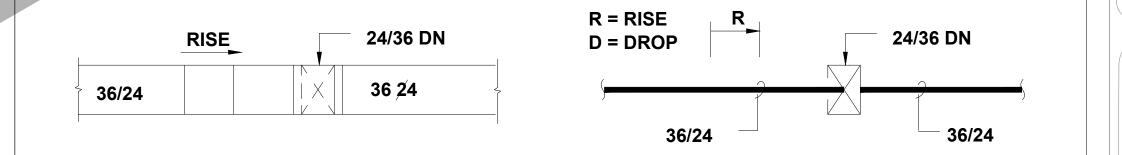
DUCTWORK SYMBOLS LEGEND



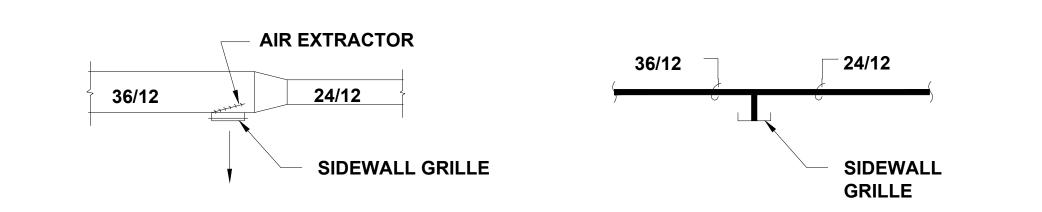
MAIN BRANCH TAKE-OFFS



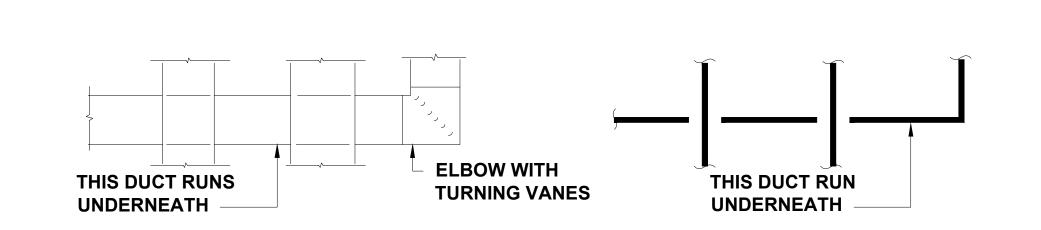
RISERS

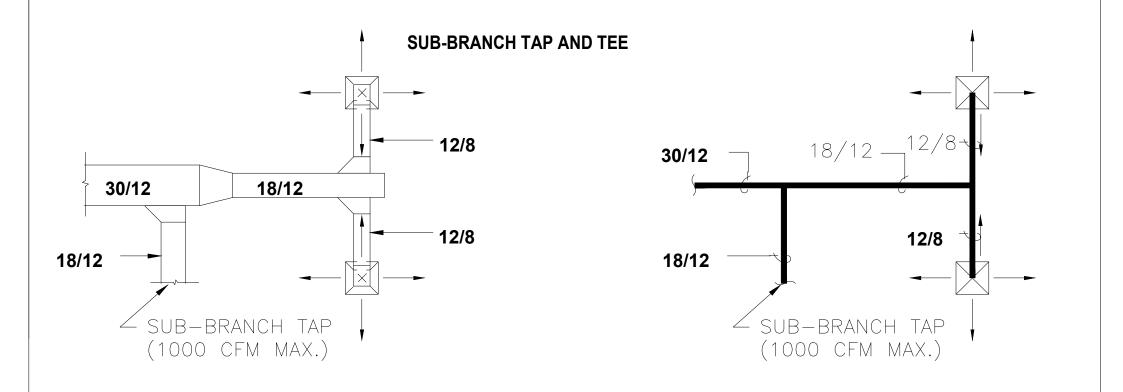


SIDEWALL REGISTERS



DUCT CROSSOVERS





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3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING

4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

REV. NE	J. DESCRIPTION	DATE	BY
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MECHANICAL GENERAL

DETAILS. SCALE @ 24X36: PROJ. NO. PROJ. ENGR. NTS DRAWING NO.

PROJECT:

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ELECTRICAL SPECIFICATIONS

- . DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK.
- WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "PROVIDE AND INSTALL".
- 3. FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE

THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.

- 4. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER RESERVES THE RIGHT TO APPROVE METHODS AND MATERIALS NOT REFLECTED HEREIN.
- 5. CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND OTHER RELATED DRAWINGS PRIOR TO BID.
- 6. CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR

SHALL INCLUDE IN HIS BID, ANY COSTS REQUIRED TO MAKE HIS WORK MEET THE CONTRACT SCOPE UTILIZING EXISTING CONDITIONS.

- 7. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.
- 8. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES AND ORDINANCES.
- 9. PROVIDE PERMITS AND INSPECTIONS REQUIRED.
- 10. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD

OF ONE YEAR AFTER OWNER'S ACCEPTANCE, DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.

- 11. PROVIDE RECORD DRAWINGS TO ENGINEER. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
- 12. VERIFY SPECIFIC LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- 13. ELECTRICAL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
- 14. RECESSED LIGHT FIXTURES INSTALLED IN GYP. BOARD OR PLASTER CEILINGS SHALL HAVE PLASTER FRAMES INSTALLED PRIOR TO CEILING MATERIAL.
- 15. RECESSED FIXTURES INSTALLED INDOORS SHALL BE THERMALLY PROTECTED.
- 16. SEE DIVISION 15 DRAWINGS FOR LOCATION OF MECHANICAL EQUIPMENT. PROVIDE SERVICE TO AND CONNECT EQUIPMENT AS REQUIRED.
- 17. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS.
- 18. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
- 19. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C.
- 20. THE FOLLOWING CONDUCTOR SIZES SHALL BE UTILIZED FOR 20 AMP CIRCUITS PERTAINING TO DISTANCES (IN FEET) INDICATED:

120VOLT, 1PH	CONDUCTOR	240 VOLT, (1PH)
0-64	#12AWG	0-129
65106	#10AWG	130-212
107-160	#8AWG	213-321

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

- 21. CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SHALL PROVIDE LIGHTS, SWITCHES, RECEPTACLES,
- EQUIPMENT CONNECTIONS, ETC., AND ASSOCIATED CIRCUITING IN NEW AND REMODELED AREAS, EVEN IF SUCH AREAS ARE NOT SHOWN ON
- ELECTRICAL DRAWINGS. LAYOUTS, FIXTURE TYPES, QUANTITIES AND SPACING SHALL BE IN ACCORDANCE WITH SIMILAR AREAS ON THIS PROJECT.
- CONTRACTOR SHALL INCLUDE COSTS FOR THE ABOVE IN HIS BID. IN ADDITION, CONTRACTOR SHALL PROVIDE LAYOUT DRAWINGS FOR WORK IN SUCH AREAS AND SUBMIT FOR APPROVAL PRIOR TO ROUGH-IN.
- 22. WIRE SHALL BE COPPER, 75 DEGREES C RATED FOR GENERAL USE, FOR WIRING WITHIN 3 INCHES OF FLUORESCENT BALLASTS WIRE SHALL BE
- COPPER, MINIMUM 90 DEGREES C RATED. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30 DEGREES C AMBIENT. CONDUCTOR
- AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS. 600 VOLT COMPACT ALUMINUM WIRE AND CABLE IN SIZES 1/0 AND LARGER

MAY BE SUBSTITUTED FOR COPPER ON SERVICES AND FEEDERS IF AMPACITY IS EQUIVALENT TO OR GREATER

- 23. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
- 24. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS, EQUIPMENT OR INSTALLATION METHODS.
- 25. ELECTRICAL SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION AT COMPLETION OF PROJECT.
- 26. RECEPTACLES WHICH ARE SHOWN WALL MOUNTED ON THE ELECTRICAL DRAWINGS ON WALLS WHICH, ON THE ARCHITECTURAL DRAWINGS AND ELEVATIONS ARE SHOWN AS GLASS OR PARTITIONS, SHALL BE FLUSH FLOOR DUPLEX RECEPTACLES MOUNTED ADJACENT TO BAS OR WALLS.
- 27. RECEPTACLES AT COUNTER SHALL BE MOUNTED WITH THEIR LONG AXIS HORIZONTAL AT +46" UNLESS NOTED.
- 28. FLUSH FLOOR RECEPTACLE OUTLETS SHALL BE WIREMOLD 862 SERIES. PROVIDE CARPET OR TILE FLANGE TO MATCH FLOOR FINISH
- 29. THE COLOR OF THE DEVICES AND COVER PLATES SHALL BE AS DIRECTED BY ARCHITECT. IN DAMP OR WET LOCATIONS COVER PLATES SHALL BE STAINLESS STEEL. IN DRY LOCATIONS COVER PLATES SHALL BE SMOOTH HIGH ABUSE NYLON OR EQUIVALENT. PROVIDE COVER PLATES FOR SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, COMPUTER AND J-BOX OUTLETS AS REQUIRED.
- 30. ROMEX CABLE WITH A GROUNDING CONDUCTOR MAY BE USED WHERE PERMITTED BY BOTH THE N.E.C. AND LOCAL ORDINANCES.
- 31. DISCONNECT SWITCHES SHALL BE GENERAL DUTY TYPE. FUSIBLE SWITCHES SHALL ACCEPT CLASS 'R' FUSES ONLY AND REJECT ALL OTHERS.
- 32. FINAL CONNECTIONS TO VIBRATING EQUIPMENT SHALL BE WITH FLEX (LIQUIDTIGHT FOR EXTERIOR APPLICATIONS) AND APPROVED FITTINGS. DO NOT SECURE CONDUITS, DISCONNECTS OR DEVICES TO DUCTWORK OR MECHANICAL EQUIPMENT.
- 33. THE ENGINEER OF RECORD HAS PERFORMED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS INDICATED FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.
- 34. THE ENGINEER OF RECORD HAS PERFORMED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUITS AND FEEDERS COMPLY WITH NEC
- 210-19(A) FPN NO4.
- 35. THE CONTRACTOR SHALL PROVIDE 120V CONNECTION TO NEAREST MAINTENANCE RECEPTACLE WHERE REQUIRED FOR CONDENSATE PUMPS ASSOCIATED WITH FAN COIL UNITS. COORDINATE WITH MECHANICAL CONTRACTOR.
- 36. THE CONTRACTOR SHALL COORDINATE THE SPECIFIC LOCATION, MOUNTING HEIGHT, ROTATION, TYPE, COLOR, ETC. OF ALL DEVICES PRIOR TO INSTALLATION.
- 37. CONNECTIONS TO HYDROMASSAGE BATHTUBS, JACCUZZI TUBS OR SIMILAR EQUIPMENT SHALL BE MADE IN ACCORDANCE WITH ARTICLE 680.70 OF THE NEC. PROVIDE BONDING AS REQUIRED BY ARTICLE 680.74 OF THE NEC.
- 38. ALL INDOOR FLUORESCENT FIXTURES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE OR BALLASTED LUMINARIES THAT ARE SUPPLIED FROM MULTIWIRE BRANCH CIRCUITS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE SHALL COMPLY WITH 410.73 (G) OF THE NEC.
- 39. CEILING MOUNTED SMOKE AND CARBON MONOXIDE DETECTORS PER NFPA 72, SECTION R314 MUST COMPLY WITH U.L. 2075 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- 40. ALL SMOKE DETECTORS AND COMBINATION SMOKE/CARBON MONOXIDE DETECTORS SHALL BE HARDWIRED ON SAME CIRCUIT AND HAVE A BATTERY BACKUP SYSTEM.
- 41. WHEN MORE THAN EITHER ONE (1) SMOKE ALARM OR MORE THAN ONE (1) CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT, ALL ALARM DEVICES SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WITH ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. SMOKE AND CARBON MONOXIDE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS. (IRC SECTION R3143 AS AMENDED)
 - A. SMOKE ALARMS IN EACH SLEEPING ROOM.
 - B. SMOKE ALARMS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
 - C. SMOKE ALARMS ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACE AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL..
 - D. CARBON MONOXIDE ALARMS OUTSIDE OF SLEEPING AREAS IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLING UNITS WITHIN WHICH FUEL-FIRED APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES.
 - CARBON MONOXIDE ALARMS WITHIN EACH BEDROOM WHICH CONTAINS A FUEL-FIRED APPLIANCE.
- 43. ALL BRANCH CIRCUITS THAT SUPPLY 125-VOLT, SINGLE PHASE, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. NEC ARTICLE 210.12 (A).
- 44. ALL ATTIC ACCESSES SHALL BE PROVIDED WITH A SWITCHED LIGHT AND 120 VOLT GFI OUTLET AT OR NEAR THE FORCED AIR UNIT. LOCATE LIGHT SWITCH AT THE ATTIC ACCESS OPENING.

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REV. NO	DESCRIPTION	DATE	ВЛ

PROJECT:

TITLE:

ELECTRICAL SPECIFICATIONS

PROJ. NO. PROJ. ENGR. SCALE @ 24X36

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NOTES:

- 1. FIXTURES SHALL HAVE APPROPRIATE U.L. LABEL (i.e., DAMP OR WET) AS REQUIRED BY CODES AND ORDINANCES.
- 2. FIXTURES SHALL INCLUDE ALL ACCESSORIES NECESSARY FOR INSTALLATION ACCORDING TO MANUFACTURER'S SHOP DRAWINGS AND AS REQUIRED BY CODES AND LOCAL ORDINANCES.
- 3. PRIOR TO ORDERING ANY LIGHTING EQUIPMENT, THE CONTRACTOR SHALL COORDINATE ALL FIXTURE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND CEILING CAVITY DEPTHS.
- 4. ALL LAMPS SHALL BE PROVIDED AND INSTALLED ACCORDING TO THE ATTACHED FIXTURE SCHEDULE AND SPECIFICATIONS ENSURE COMPATIBILITY BETWEEN FIXTURE, LAMP(S) AND BALLAST(S). (OSRAM SYLVANIA SERIES)
- 5. CONTRACTOR SHALL VERIFY FIXTURE VOLTAGES AND CEILING TRIM COMPATIBILITY PRIOR TO ORDERING FIXTURE.
- 6. PROVIDE APPROVED FIRE-RATED ENCLOSURES FOR ALL LIGHTING FIXTURES LOCATED IN FIRE-RATED CEILINGS.
- 7. LIGHTING FIXTURE CATALOG NUMBERS ARE SERIES TYPE ONLY. PROVIDE ALL NECESSARY HARDWARE AS REQUIRED BY THE SPECIFICATIONS, DRAWINGS, AND PROJECT CONDITIONS FOR A COMPLETE INSTALLATION.
- 8. ALL FIXTURES SHALL BE ORDERED WITH APPROPRIATE BALLAST(S) THAT HAVE U.L. AND CB, LABELS. ALL BALLASTS MUST CONFORM TO TITLE 24 AND/OR IECC REQUIREMENTS FOR PERFORMANCE. PROVIDE MULTIPLE BALLASTS FOR DUAL LEVEL SWITCHING AND WIRING (i.e. TANDEM) AS INDICATED ON THE PLANS.
- 9. UPON INITIAL ENERGIZING OF ALL NEW FLUORESCENT LAMPS, A CONTINUOUS PERIOD OF 30 HOURS SHALL OCCUR PRIOR TO DE-ENERGIZING OF LAMPS FOR MANUFACTURER REQUIRED
- 10. ALL FLUORESCENT BALLASTS SHALL BE ELECTRONIC TYPE. PROVIDE END OF LIFE (EOL) SHUT-DOWN PROTECTION FOR COMPACT FLUORESCENT LAMPS.
- 11. ENSURE COMPATIBILITY OF ALL LIGHTING SYSTEM COMPONENTS, ESPECIALLY DIMMED SYSTEMS. FIXTURES, LAMPS, BALLAST(S), AND DIMMING SYSTEMS/INDIVIDUAL CONTROLS MUST BE FACTORY CERTIFIED COMPATIBLE FOR FULL RANGE OF DIMMING COMPATIBILITY.

 12. PROVIDE CLEARANCES FROM COMBUSTIBLES, A MINIMUM OF 3/4" (OTHER THAN AT POINTS OF SUPPORT) AND 3" FROM INSULATION FOR RECESSED LIGHTING FIXTURES WHICH ARE NON-IC RATED.
- 13. PROVIDE A MINIMUM OF TWO (2) #12 SUPPORT WIRES ATTACHED TO BUILDING FRAME IN ADDITION TO T-BAR CLIPS FOR FLUORESCENT FIXTURES RECESSED IN SUSPENDED T-BAR CEILING.
- 14. FIXTURES WITH EMERGENCY BATTERY BACKUP SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING IN COMPLIANCE WITH NEC ARTICLE 700.
- 15. EMERGENCY LIGHTING UNITS SHALL BE EQUIPPED WITH FACTORY-INSTALLED INTEGRAL TEST SWITCHES.
- 16. PROVIDE DOOR-TO-FRAME AND LENS-TO-DOOR GAS KETLING, INVERTED LENS, AND FOOD SERVICE RATING FOR ALL FIXTURES LOCATED IN FOOD SERVICE AREAS.
- 17. FLUORESCENT LUMINARIES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE, OR BALLASTED LUMINAIRES THAT ARE SUPPLIED FROM MULTI- WIRE BRANCH CIRCUITS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE, SHALL HAVE DISCONNECTING MEANS EITHER INTERNAL OR EXTERNAL TO EACH LUMINAIRE SO TO DISCONNECT SIMULTANEOUSLY FROM THE SOURCE OF SUPPLY ALL CONDUCTORS OF THE BALLAST (INCLUDING THE GROUNDED CONDUCTOR IF ANY). IN ACCORDANCE WITH NEC ARTICLE 410, THE LINE-SIDE TERMINALS OF THE DISCONNECTING MEANS SHALL BE LOCATED SO AS TO BE ACCESSIBLE TO QUALIFIED PENSIONS BEFORE SERVICING OR MAINTAINING THE BALLAST.
- 18. ALL FLUORESCENT LAMPS SHALL BE OF A LOW MERCURY DESIGN, HAVE A MINIMUM CRI RATING OF 85 AND 3500K COLOR TEMPERATURE UNLESS NOTED OTHERWISE.

LIST OF DRAWINGS

E0.00 ELECTRICAL SPECIFICATION
E1.00 ELECTRICAL GENERAL NOTES
E2.00 ELECTRICAL LIGHTING LAYOUT
E3.00 ELECTRICAL POWER FLOOR PLAN
E4.00 SINGLE LINE LAYOUT
E5.00 PANEL BOARDS SCHEDULE

INSTALLATION RECEPTACLES

HEIGHTS:

h1: 24 in

h2: 46 in

h3: 48 in

h4: 84 in h5: 94 in

h6: 60 in

SCOPE OF WORK

PROVIDING ELECTRICAL LIGHTING DESIGN AND POWER DESIGN

APPLICABLE CODES:

2022 CALIFORNIA ELECTRICAL CODE (CEC) 2022 CALIFORNIA BUILDING CODE (CBC) 2022 CALIFORNIA MECHANICAL LOAD (CMC) 2022 CALIFORNIA PLUMBING CODE (CPC)

GENERAL NOTES

- 1. ALL 120 VOLT, SINGLE PHASE 15 AND 20 AMPERE BRANCH CIRCUIT SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION TYPE INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. (NEC ARTICLE 210.12(A))
- 2. IN EVERY KITCHEN, FAMILY ROOM, DINING ROOM, LIVING ROOM, PARLOR, LIBRARY, DEN, SUNROOM, BEDROOM, RECREATION ROOM OR SIMILAR ROOM OR AREA OF DWELLING UNITS RECEPTACLE OUTLETS SHALL BE INSTALLED IN ACCORDANCE WITH THE GENERAL PROVISIONS SPECIFIED IN THE FOLLOWING ARTICLES.
- a. NEC ARTICLE 210.52(A) (1) SPACING. RECEPTACLES SHALL BE INSTALLED THAT NO POINT ALONG THE FLOOR LINE OF THE WALL IS MORE THAN 6-FEET FROM A RECEPTACLE.
- b. NEC article 210.52(a) (2) AS AMENDED WALL SPACE. ANY WALL 24-INCHES OR MORE IN LENGTH SHALL BE PROVIDED WITH A RECEPTACLE OUTLET. WALL SPACE SHALL INCLUDE AROUND CORNERS, THE FIRST SLIDING PANEL OF A SLIDING DOOR, FIXED ROOM DIVIDERS SUCH AS A FREESTANDING BAR TYPE COUNTER. WALL SPACE NED NOT INCLUDE THE SPACE BEHIND OPERABLE DOORS. AND NEED NOT INCLUDE ENTRIES, HALLWAYS ETC. LESS THAN 5-FEET WIDE LOCATED IN BEDROOMS.
- c. NEC ARTICLE 210.52(A) (3) AS AMENDED FLOOR RECEPTACLES.
- 3. IN EVERY KITCHEN, FAMILY ROOM, DINING ROOM, LIVING ROOM, PARLOR, LIBRARY, DEN, SUNROOM, BEDROOM, RECREATION ROOM OR SIMILAR ROOM OR AREA OF DWELLING UNITS, ALL 125 VOLT 15 AND 20 AMP RECEPTACLES SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES
- NEC 406.12)
- 4. ALL WORK AND EQUIPMENT UNDER THIS DIVISION SHALL BE IN STRICT COMPLIANCE WITH THE CODES, STANDARDS AND PRACTICES LISTED HEREIN, AND THEIR RESPECTIVE DATES ARE FURNISHED AS THE MINIMUM LATEST REQUIREMENTS.
- A. LIFE SAFETY CODE
- B. NATIONAL FIRE PROTECTION ASSOCIATION
- C. NATIONAL ELECTRICAL CODE
- D. AMERICAN NATIONAL STANDARDS INSTITUTE
- E. INSTITUTE IF ELECTRICAL AND ELECTRONIC ASSOCIATION
- F. NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)
 G. REQUIREMENTS OF LOCAL POWER COMPANY
- G. REQUIREMENTS OF EOCA
- H. BUILDING CODE
- 5. THE ELECTRICAL INSTALLATION SHALL MEET THE APPROVAL OF THE LOCAL GOVERNING AUTHORITIES AND THE OWNER'S REPRESENTATIVE PRIOR TO ACCEPTANCE.
- 6. REFER TO THE ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, CIVIL, INTERIOR DESIGN, FOR RELATED INFORMATION AND ADDITIONAL INSTALLATION REQUIREMENTS TO BE CONSIDERED AS PART OF THE ELECTRICAL CONTRACT DOCUMENTS.
- 7. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION THE CONTRACTOR IS EXPECTED TO FURNISH ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM. PROVIDE EVERYTHING NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MINOR ITEMS WHICH ARE OBVIOUSLY NECESSARY TO COMPLETE THE INSTALLATION.
- 8. LIGHT SWITCHES SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR TO CENTER LINE OF THE DEVICE, UNLESS NOTED OTHERWISE. GANG SWITCHES AND DIMMER WITH A COMMON PLATE WHERE TWO (2) OR MORE ARE INDICATED ADJACENT TO EACH OTHER.
- 9. RECEPTACLES SHALL BE LOCATED 18" ABOVE FINISHED FLOOR TO CENTER LINE OF DEVICE. UNLESS NOTED OTHERWISE. ABOVE-COUNTER RECEPTACLES SHALL BE MOUNTED 6" ABOVE BACK SPLASH TO CENTERLINE OF DEVICE UNLESS NOTED OTHERWISE.
- 10. USE GALVANIZED RIGID STEEL CONDUIT WHERE EPOSED TO EXTERIOR CONDITIONS OR WHERE EXPOSED IN ANY LOCATIONS WHERE SUBJECT TO MECHANICAL DAMAGE. EMT SHALL BE PROVIDED WITH SET SCREW STEEL FITTINGS FOR INSTALLATION IN ALL CONCEALED WALLS AND CEILINGS IN DRY AREAS. ALL CONDUIT FOR LIGHTING PROTECTION SHALL BE PVC, SCHEDULE 40. UNLESS OTHERWISE NOTED, PVC MAY BE USED WHERE BURIED UNDER GRADE AND ENCASED IN CONCRETE SLAB OR WALLS. ALUMINUM CONDUIT IS NOT ALLOWED. EMT CAN BE USED IN DRY AREAS WHEN INSTALLED 10 FEET ABOVE FINISHED FLOOR LEVEL.
- 11. ALL CONDUITS IN PUBLIC SHALL BE CONCEALED UNLESS NOTED OTHERWISE.

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TION DATE BY	DESCRIPTION	REV. ND.

TITLE: ELECTRICAL GENERAL

GENERAL NOTES

PROJ. NO. PROJ. ENGR. SCALE @ 24X368

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GENERAL NOTES

built in photocell. Equipped with 90 minutes

back up battery. Lighting at all exterior

ground.vandal protection.

doorways: maintained minimum 1.0 fc @

- ALL JUNCTION BOXES, CONDUITS, AND AIRES SHALL BE SIZED PER NEC.
- 2. CONNECT ALL EXIT LIGHTS AHEAD OF ANY LOCAL OR AUTOMATIC SWITCHING DEVICE.
- PROVIDE A CONSTANT HOT FROM PANEL BOARD DIRECTLY TO ALL EMERGENCY BATTERY PACKS/BALLASTS IN EMERGENCY LIGHTING FIXTURES AND EXIT SIGNS. EMERGENCY LIGHTING FIXTURES SHALL TURN ON TO FULL BRIGHTNESS IN **CASE OF POWER LOSS.**
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION & MOONING HEIGHTS OF ALL LIGHTING FIXTURES SHOWN ON THIS DRAWING.
- REFER TO DETAIL SHEET FOR SYMBOLS, SPECIFICATIONS, ABBREVIATIONS, AND LIGHTING FIXTURE SCHEDULE.
- ALL DEVICES AND EQUIPMENT OUTSIDE THE SCOPE OF WORK ARE EXISTING TO REMAIN U.O.N.
- CONTRACTOR SHALL PROVIDE AN ACCURATELY TYPED PANEL BOARD SCHEDULE FOR EACH PANEL BOARD.
- ELECTRICAL CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY PROBLEMS PERTAINING TO CIRCUIT AVAILABILITY OR LOAD CAPACITY PRIOR TO INSTALLATION.
- ALL EXTERIOR LUMINARIES AND ELECTRICAL DEVICES SHALL BE USED AS WEATHERPROOF TYPE.
- 10. ALL NEW CEILING OCCUPANCY SENSORS SHALL BE DUAL-TECHNOLOGY WITH 1000 SQFT COVERAGE AT 360 DEGREES U.O.N. ON THE DRAWING. COORDINATE EXACT LOCATION AND REQUIREMENTS OF ALL OCCUPANCY SENSORS SHOWN ON THIS DRAWING WITH MANUFACTURER REPRESENTATIVE PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR TO PROVIDE POWER PACKS AS REQUIRED.
- 11. CONTRACTOR SHALL CONFIRM COMPATIBILITY OF ALL LIGHTING CONTROL DEVICES/SWITCHES/DIMMERS WITH LIGHTING FIXTURES AND BALLASTS/DRIVERS PRIOR TO SUBMITTAL.
- 12. FIXTURE MARKED WITH SUBSCRIPT "(E)" IS EXISTING TO REMAIN, CONTRACTOR TO MAINTAIN CONTINUITY OF BRANCH CIRCUITS.
- 13. ALL CONDUIT RUNS IN OPEN PLENUM SPACE SHALL BE INSTALLED IN A NEAT MANNER PERPENDICULAR OR PARALLEL TO WALLS AND PAINTED AS DIRECTED BY OWNER.

HEAVY DUTY JUNCTION BOX, FLUSH IN CEILING FOR ONE WAY LIGHTING SWITCH SWITCH WITH OCCUPANCY SENSOR DAYLIGHT SENSOR SELF CONTAINED SMOKE/CARBON MONOXIDE (120 W/BATTERY BACKUP) - CEILING MOUNTED SELF CONTAINED SMOKE DETECTOR/ANNUNCIATOR (120 W/BATTERY BACKUP) - CEILING MOUNTED RECESSED TRIMNESS ROUND DOWN LIGHT ---- LED STRIPE WALL SCONE LIGHT EXIT SIGN WALL MOUNTED WITH INTERNAL BACK UP BATTERY WITH MINIMUM 90 MINS AUTONOMY LINEAR LIGHT. PENDANT MOUNTED

ELECTRICAL LEGEND

21:Wall Mounted exterior light controlled by PRIVATE¹ OFFICE L-3 L-5 ° L+3 TV DISPLAY

SUSPENDED 1"X1" METAL TUBING FRAME DECOR ELEMENT, SEE

DETAIL3.01-

	LIGHTING SCHEDULE							
ID	SYMBOL	DESCRIPTION	LUMIN. TYPE	COLOR / FINISH	LOAD WATT	REMARKS		
L1		Led Surface Mount Recessed Downlight Trim	LED	WHITE	9.7W	ALO SMD4R6950WHDM SMD-Dm Lens Round Integrated Led Surface Mount Recessed Downlight Trim, 5000K Daylight, (No Can Needed), 4.85 In, White		
L2	4 ⊗EX	Emergency with Battery	LED	_	4.6W	Emergency with minimum 90 min included 9.6 V Ni-Cad Battery, Efficacy 53 LPW, Max Mounting Height 35.31 Ft		
L3		LJXiioo Dimmable 31" Linear Desk Pendant Light	LED	WHITE	24W	JXiioo Dimmable 31" Linear Desk Pendant Light - Modern Matte Black LED Pendant Light Height Adjustable for Kitchen Island Dining Room Table Officeliving Room		
L 4		28" Dimmable Integrated LED Metal Wall Sconce	LED	WHITE	10W	ONATHAN Y JYL7022B Makena 28" Dimmable Integrated LED Metal Wall Sconce, Minimalistic, Modern, Contemporary 3000K LED Bulbs		
L5	LED	UltraPro 10in. Linkable LED Bright Strips	LED	WHITE	3.5W	UltraPro 10in. Linkable LED Bright Strips, 1650 Lumens, 2700K Warm White Light, Low Voltage, Under Cabinet Lighting, Strip Light, Flat Plug, 44415		
L6		Wall Sconce Outdoor	LED	WHITE	12.6W	LED Built-in, Dimmable, Aluminum, ADA & T24 Compliant		

NOTES:

- THIS PLAN SHALL BE USED IN CONJUNCTION WITH THE ELECTRICAL, MECHANICAL AND PLUMBING PLANS. COORDINATION REQUIRED. NOTIFY ARCHITECT IN CASE OF DISCEPANCIES FOUND.
- MANUFACTURERS AND MODELS ARE SHOWN FOR CODE COMPLIANCE AND BIDDING PURPOSES ONLY. PRIOR ORDERING / INSTALLING ANY LIGHT FIXTURES CONTRACTOR SHALL PROVIDE SAMPLES AND CUT SHEETS TO OWNER FOR APPROVAL AND CONFIRM MANUFACTURER, MODEL, COLOR AND BUDGET / COSTS.

SHEET NOTES:

HEAVY DUTY JUNCTION BOX, FLUSH IN CEILING FOR EXHAUST FANS

PRIVATE OFFICE RESTROOM

CLIENT: ADDRESS: 5728 **CONFIDENTIALITY STATEMENT:** ALL DRAWINGS AND WRITTEN MATERIALS APPEARING HEREIN CONSTITUTE THE ORIGINAL AND UNPUBLISHED WORK OF THE DESIGNER AND THE SAME MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT

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CONSENT OF THE DESIGNER.

4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

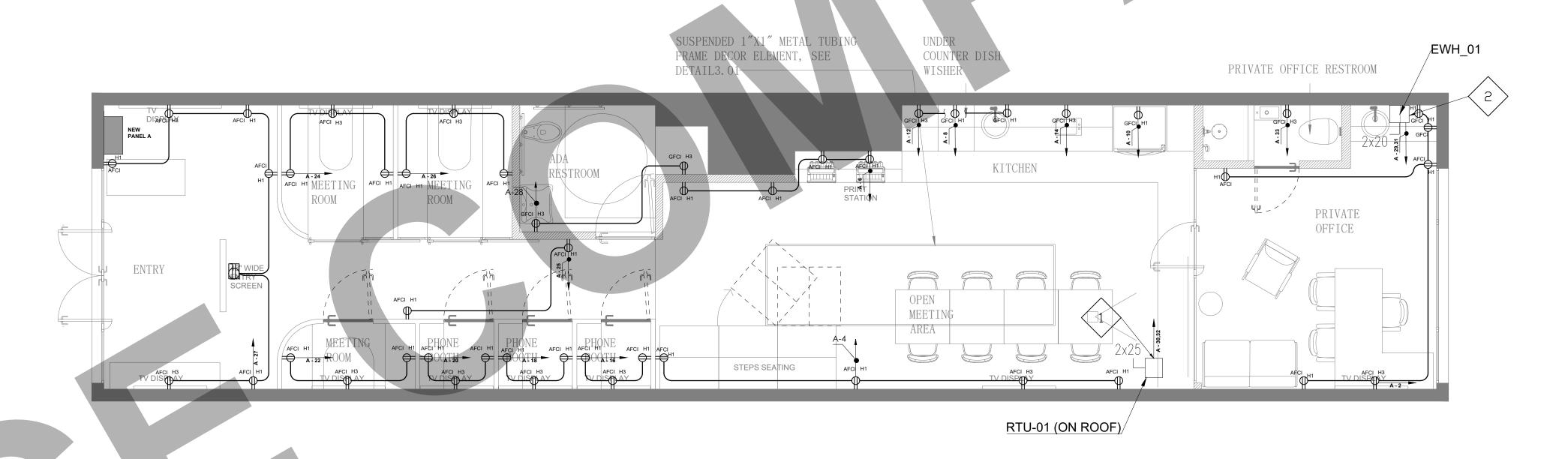
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PROJ. NO. PROJ. ENGR. SCALE @ 24X36 1/4" = 1'-0" DRAWING NO.

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GENERAL NOTES

- 1. ALL 120 VOLT, SINGLE PHASE 15 AND 20 AMPERE BRANCH CIRCUIT SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION TYPE INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. (NEC ARTICLE 210.12(A))
- 2. IN EVERY KITCHEN, FAMILY ROOM, DINING ROOM, LIVING ROOM, PARLOR, LIBRARY, DEN, SUNROOM, BEDROOM, RECREATION ROOM OR SIMILAR ROOM OR AREA OF DWELLING UNITS RECEPTACLE OUTLETS SHALL BE INSTALLED IN ACCORDANCE WITH THE GENERAL PROVISIONS SPECIFIED IN THE FOLLOWING ARTICLES.
- a. NEC ARTICLE 210.52(A) (1) SPACING. RECEPTACLES SHALL BE INSTALLED THAT NO POINT ALONG THE FLOOR LINE OF THE WALL IS MORE THAN 6-FEET FROM A RECEPTACLE.
- b. NEC article 210.52(a) (2) AS AMENDED WALL SPACE. ANY WALL 24-INCHES OR MORE IN LENGTH SHALL BE PROVIDED WITH A RECEPTACLE OUTLET. WALL SPACE SHALL INCLUDE AROUND CORNERS, THE FIRST SLIDING PANEL OF A SLIDING DOOR, FIXED ROOM DIVIDERS SUCH AS A FREESTANDING BAR TYPE COUNTER. WALL SPACE NED NOT INCLUDE THE SPACE BEHIND OPERABLE DOORS. AND NEED NOT INCLUDE ENTRIES, HALLWAYS ETC. LESS THAN 5-FEET WIDE LOCATED IN BEDROOMS.
- c. NEC ARTICLE 210.52(A) (3) AS AMENDED FLOOR RECEPTACLES.
- 3. IN EVERY KITCHEN, FAMILY ROOM, DINING ROOM, LIVING ROOM, PARLOR, LIBRARY, DEN, SUNROOM, BEDROOM, RECREATION ROOM OR SIMILAR ROOM OR AREA OF DWELLING UNITS, ALL 125 VOLT 15 AND 20 AMP RECEPTACLES SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES **NEC 406.12)**
- 4. APPLIANCES IDENTIFIED IN 422.5(A)(1) THROUGH (A)(7) RATED 150 VOLTS OR LESS TO GROUND AND 60 AMPERES OR LESS, SINGLE-OR 3- PHASE, SHALL BE PROVIDED WITH CLASS A GFCI PROTECTION FOR PERSONNEL. MULTIPLE CLASS A GFCI (7) DISHWASHERS PROTECTIVE DEVICES SHALL BE PERMITTED BUT SHALL NOT BE REQUIRED.
- 5. ELECTRICAL MATERIAL AND EQUIPMENT LISTED APPROVAL NO ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES, OR EQUIPMENT SHALL BE SOLD OR INSTALLED UNLESS THEY ARE IN CONFORMANCE WITH THE PROVISIONS OF THIS CODE, THE LAWS OF THE STATE OF TEXAS AND ANY APPLICABLE RULES AND REGULATIONS ISSUED UNDER THE AUTHORITY OF THE STATE STATUTES. THE MAKERS NAME, TRADEMARK, OR OTHER IDENTIFICATION SYMBOL SHALL BE PLACED ON ALL ELECTRICAL MATERIALS, APPARATUS, DEVICES, APPLIANCES, FIXTURES, AND EQUIPMENT USED OR INSTALLED UNDER THE PROVISIONS OF THIS CODE. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED AND LABELED FOR THE INTENDED USE AND SHALL BE INCLUDED IN A LIST PUBLISHED BY AN APPROVED AGENCY



ELECTRICAL LEGEND



DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED GFCI DENOTES: GROUD FAULT PROTECTION



NON-FUSED DISCONNECT SWITCH - SIZE AS INDICATED



DUPLEX RECEPTACLE - FLOOR MOUNTED IG DENOTES: IG TYPE

SHEET NOTES:



PROVIDE NON-FUSED NEMA 3R DISCONNECT SWITCH FOR OUTSIDE UNIT (RTU_01).



-- PROVIDE NON-FUSED NEMA 3R DISCONNECT FOR WATER HEATER (EWH_01).

CLIENT:

ADDRESS:

572

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PROJEC	T:		

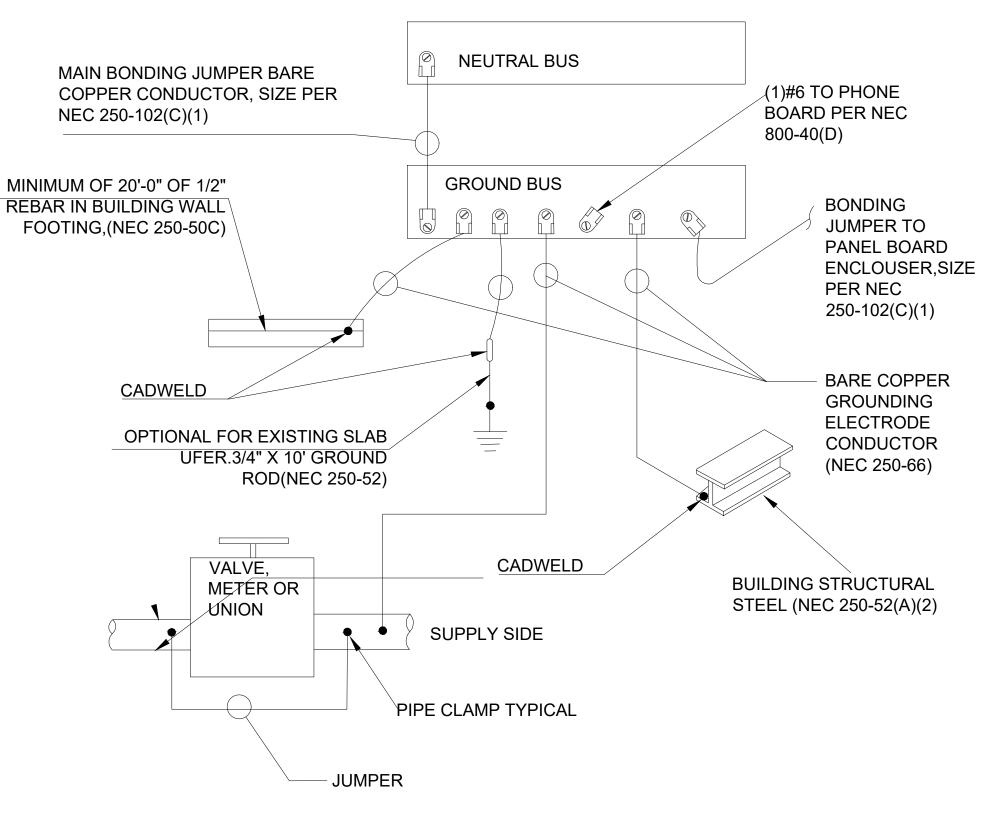
ELECTRICAL POWER FLOOR PLAN

PROJ. NO. PROJ. ENGR. | SCALE @ 24X36:

1/4" = 1'-0"

DRAWING NO.

E 3.00

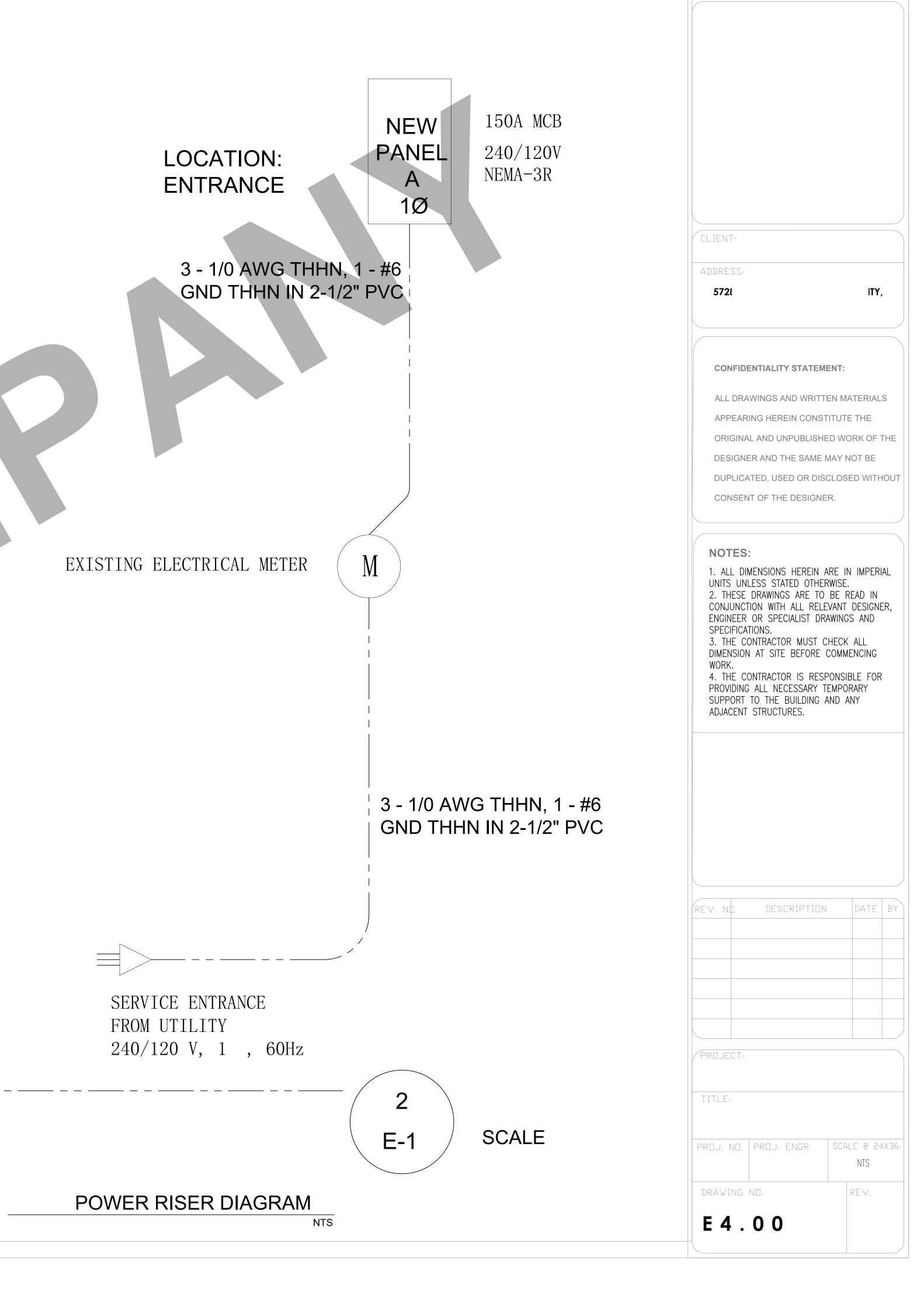


NOTE: ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE, SIZE OF CONDUCTORS PER ONE-LINE

GROUNDING DETAIL

GENERAL NOTES

- A. ALL EXISTING COMPONENTS OF THIS ELECTRICAL DIAGRAM ARE TO REMAIN AS INSTALLED AND ARE SHOWN FOR REFERENCE ONLY.
- B. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL FIRE PROTECTION
- C. ASSOCIATION (NFPA) 70, NATIONAL ELECTRICAL CODE. ALL ITEMS ARE ON AN OR EQUAL BASIS.
- D. ALL SINGLE PHASE BRANCH CIRCUITS (RECEPTACLES, LIGHTING, ETC.; ARE 1/2" CONDUIT OR EMT WITH THIN, 90C WIRING, UNLESS NOTED OTHERWISE. ALL OTHER CONDUIT AND WIRING SHALL BE AS INDICATED ON THE PLANS. ACTUAL ROUTING AND HOME RUN GROUPINGS ARE TO BE DETERMINED IN THE FIELD.
- E. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC EXCEPT FOR DETAILS AND ELEVATIONS. DO NOT SCALE FROM DIAGRAMMATIC DRAWINGS. EXACT LOCATIONS OF DEVICES AND PANELS ARE TO BE DETERMINED AND ROUGHED-IN DURING CONSTRUCTION TO AVOID INTERFERENCE, TO MEET USER REQUIREMENTS, TO PROVIDE ADEQUATE MOUNTING, AND TO MEET NEC LINEAR ACCESS AND CLEARANCE REQUIREMENTS.
- F. BACK TO BACK MOUNTING OF RECEPTACLES IS NOT PERMITTED.
- G. IN ADDITION TO THE NEC REQUIREMENTS FOR GFCI PROTECTION FOR RECEPTACLES, THE FOLLOWING RECEPTACLES SHALL ALSO HAVE GFCI PROTECTION: (1)-ALL RECEPTACLES LOCATED WITHIN 8 FEET OF A SINK, (2)-ALL RECEPTACLES WHICH ARE PROVIDED FOR CONVENIENCE IN SERVICING HVAC EQUIPMENT REGARDLESS OF LOCATION.AS REQUIRED TO ACCOMMODATE CONDUCTOR PULLING EASE, FIELD LIFE SAFETY.
- H. PROVIDE A LAMICOID NAMEPLATE (WHITE LETTERS ON BLACK BACKGROUND; ON EACH PANELBOARD, MOTOR STARTER, CONTACTOR, TRANSFORMER, ETC. LETTERS SHALL BE 0.75 INCH MAINIMUM.
- I. CONTRACTOR SHALL CUT AS REQUIRED TO INSTALL ELECTRICAL EQUIPMENT REPAIR OF FLOOR OR WALLS SHALL BE COORDINATED WITH GENERAL CONTRACTOR CONTRACTOR SHALL ALSO REPAIR ALL OPENINGS LEFT DUE TO EQUIPMENT REMOVAL.
- J. CONDUCTORS ARE COPPER UNLESS OTHERWISE SHOWN. ALL CONDUCTORS LARGER THAN #10 SHALL BE STRANDED.
- K. PANELBOARDS SHALL CONTAIN A TYPEWRITTEN DIRECTORY WITH A PLASTIC COVER AFFIXED TO THE INSIDE DOOR.
- L. ALL FIXTURES, DEVICES, CONDUIT, AND EQUIPMENT SHALL BE SECURED WITH APPROVED HANGERS AND ANCHORS AND IN ACCORDANCE WITH APPROVED STANDARDS OF INSTALLATION.
- M. ALL BREAKERS SHOWN IN THE PANELBOARD SCHEDULE SHALL BE RATED AS SHOWN FOR BOTH CIRCUIT CAPACITY AND FAULT CURRENT INTERRUPTING CAPACITY.
- N. ALL PANELBOARDS, DISCONNECT SWITCHES, MOTOR STARTERS, AND CONTACTORS SHALL BE NEMA 1, UNLESS OTHERWISE NOTED.
- O. ELECTRICAL CONTRACTOR MUST BE AVAILABLE AT TIME OF DBS INSPECTION. COORDINATE WITH GENERAL CONTRACTON.
- P. FIELD VERIFY THE AVAILABLE FAULT CURRENT AT THE LANDLORD'S EXISTING PANEL AND PROVIDE A NEW, FULLY RATED, PANEL TO MATCH EXISTING.
- Q. CONTRACTOR TO MAKE FINAL CONNECTIONS IN EMS PANEL FOR LANDLORD PROVIDED LIGHTING CIRCUITS. 50% OF THE GENERAL LIGHTING CIRCUITS SHOULD BE ROUTED THROUGH THE CUSTOMER CONTROL ZONE.



	Lo	CONNECT	CONNECTED LOAD				
*	LOAD SUMMARY	LOAD SUMMARY CL		А	В	TOTAL	
L	Lighting	0.98	1.25	0.35	0.63	1.23	
R	Convenience Recept	9.20		4.60	4.60	9.20	
Н	Heating (Space)	6.00	1.25	3.00	3.00	7.50	
С	Cooling		1.00				
Α	HVAC	4.20	1.00	2.10	2.10	5.25	
Р	Process		1.00			Na.	
0	Other Continuous		1.25			ē .	
K	Kitchen	2.00	2.00	1.75	1.20	2.95	
N	Noncontinuous		1.00				
			1.00				
	Total	22.38		11.80	11.53	26.13	

26.13

108.87

Total Demand Load (KVA)

Total Demand Current (A)

Min. Feeder Ampacity (A)

EXISTING MAIN	I PANEL-A						
PANELBOARD DESIGNATION							
SYSTEM VOLTAGE	240/120V, 1Ф, 3W						
BUS SIZE	150A						
SYSTEM TYPE	NORMAL						
FEEDER PROT	150A-2P C/B Bus Plug						
CONDUCTOR SIZE	1/0 AWG - #6G CU						
CONDUCTOR/PHASE	1						
MAINS	150A MCB						
SCCR	FULLY RATED						
MCB RATING	80%						
GROUND FAULT	NO						
FEEDER LENGTH (FT)	100						
FEEDER V. DROP (%)	1.527						
FAULT CURRENT							
KAIC RATING	10						
ENCLOSURE	TYPE 1						

		, .		, ,							(r)				
	DESCRIPTION	*	WIRE	GRD	СВ	KVA	Α	В	KVA	СВ	WIRE	GRD	DESCRIPTION	*	
1	LIGHTING OFFICE	L	2x 14 AWG	- #14G	15A-1P	0.07	1.07		1.00	20A-1P	2x 12 AW	'G -#12G	RECEPTACLES OFFICE	R	2
3	LIGHTING OFFICE BATHROOM	L	2x 14 AWG	- #14G	15A-1P	0.11		0.91	0.80	20A-1P	2x 12 AW	/G - #12G	RECEPTACLES OPEN MEETING AREA	R	4
5	LIGHTING OPEN MEETING AREA	L	2x 14 AWG	- #14G	15A-1P	0.11	1.31		1.20	20A-1P	2x 12 AW	'G - #12G	RECEPTACLES PRINTING AREA	R	6
7	LIGHTING UTILITY CLOSET	L	2x 14 AWG	- #14G	15A-1P	0.02		1.22	1.20	20A-1P	2x 12 AW	/G -#12G	RECEPTACLES DISH WASHER	к	8
9	LIGHTING KITCHEN	L	2x 14 AWG	- #14G	15A-1P	0.04	0.79		0.75	20A-1P	2x 12 AW	/G -#12G	RECEPTACLES FRIDGE	К	10
11 L	LIGHTING PHONE BOOTH - MEETING ROOM	L	2x 14 AWG	- #14G	15A-1P	0.04		0.44	0.40	20A-1P	2x 12 AW	/G - #12G	RECEPTACLES KITCHEN	R	12
13	LIGHTING MEETING ROOM	L	2x 14 AWG	- #14G	15A-1P	0.04	1.04		1.00	20A-1P	2x 12 AW	/G -#12G	RECEPTACLES MICROWAVE	К	14
15	LIGHTING ADA BATHROOM	L	2x 14 AWG	-#14G	15A-1P	0.12		0.72	0.60	20A-1P	2x 12 AW	/G - #12G	RECEPTACLES PHONE BOOTH	R	16
17	LIGHTING CORRIDOR	L	2x 14 AWG	- #14G	15A-1P	0.06	0.66		0.60	20A-1P	2x 12 AW	/G -#12G	RECEPTACLES PHONE BOOTH	R	18
19	LIGHTING ENTRY	L	2x 14 AWG	- #14G	15A-1P	0.08		0.68	0.60	20A-1P	2x 12 AW	/G -#12G	RECEPTACLES PHONE BOOTH	R	20
21	LIGHTING ENTRANCE	L	2x 14 AWG	- #14G	15A-1P	0.03	0.63		0.60	20A-1P	2x 12 AW	/G - #12G	RECEPTACLES MEETING ROOM	R	22
23	SMOKE DETECTORS	L	2x 14 AWG	- #14G	15A-1P	0.27		0.87	0.60	20A-1P	2x 12 AW	/G -#12G	RECEPTACLES MEETING ROOM	R	24
25	RECEPTACLES CORRIDOR	R	2x 12 AWG	- #12G	20A-1P	0.40	1.00		0.60	20A-1P	2x 12 AW	/G -#12G	RECEPTACLES MEETING ROOM	R	26
27	RECEPTACLES ENTRY	R	2x 12 AWG	- #12G	20A-1P	1.40		1.60	0.20	20A-1P	2x 12 AW	/G -#12G	RECEPTACLES ADA BATHROOM	R	28
29		Н				3.00	5.10		2.10	051 05	av 1000	NO 11125		А	30
31	EWH_01	Н	3X 10 AWG	- #10G	20A-2P	3.00		5.10	2.10	25A-2P	3X 12 A	WG - #10G	RTU_01	Α	32
33	PRIVATE OFFICE RESTROOM	R	2x 12 AWG	- #12G	20A-1P	0.20	0.20			,			SPARE		34
35	SPARE	\prod											GFARE	i di	36
\dashv		(KV	/A)							<u> </u>				1	
		197		Tota	I Connecte	d Load	11.80	11.53							

	A	vailable Fa	ult C	urre	nt	Calculation
Utility Fault Cur I = <u>kVA x 1000</u> E			amperes trar	kVA E ns. FLA	= =	26.13 208 126
trans	FLA x 100 x P former Z	=		PF Z	= _	90% 3.00%
I _{sca} = ampere short-o		symmetrical.		lsca	:	: 4,653 amperes Single Phase 240/120 ▼
Point to Point N	Vi ethod	***				Single Phase 240/120 ▼
	Le	ength (distance)	FEET	▼ L	=	100 Copper in Nonmetallic Raceway
If I fortan	2 x L x I	(ASC)		Isca	=	4,653
'f' factor =	N x C x E L-N	# conductors p	er phase	Ν	=	1
		Phase conductor of	constant	С	=	9,317 Phase Conductor 1/0
		Volt Line to L		EL-L	= _	240 Volt
				f	=	0.440
		Neutral conductor of	constant	Ċ	= [9,317 Neutral Conductor 1/0
Multiplier		Volt Line to N		EL-N		100
Manapher		VOIL TIME TO IN		f	=	1.248
	1 = 1			•		1.240
	1 - <u>- </u>	Line to Line	<u>.</u>	М	_	0.706
	1 7 1			M	_	
		Line to Neu	ual	IVI	=	0.445
		rminals of main disc rminals of main disc				→ 3,286 amperes → 3,104 amperes

ADDRESS:

5728 ITY,

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REV. NO. DESCRIPTION DATE BY

PROJECT:

PANEL BOARDS
SCHEDULE

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:

NTS

DRAWING NO. REV.

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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

- 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. 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.
- 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
- 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.
- ALL PIPING NOT ENCLOSED IN CONDITION SPACE OR AT EXTERIOR WALLS SHALL BE INSULATED.
- PIPING: PVC SCHEDULE 40, SCHEDULE 80 AND CPVC PIPING WITH SOLVENT WELD FITTINGS SHALL BE USED WHERE PERMITTED BY CODE/LOCAL AUTHORITIES
- 11. ALL VENTS OR EXHAUSTS SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. ABOVE ANY WINDOW, DOOR, OPENING, OR AIR INTAKE.
- 12. CLEANOUTS SHALL BE INSTALLED PER THE UNIFORM PLUMBING CODE. 13. PROVIDE WATER TIGHT FLASHINGS WHEREVER PIPES PASS THROUGH
- EXTERIOR WALLS, ROOFS, OR FLOORS. 14. PROVIDE ISOLATION FOR ALL PIPES THAT COME IN CONTACT WITH THE 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.

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
φ	FCO	FLOOR CLEANOUT
Ю	WCO	WALL CLEANOUT
D	FD	FLOOR DRAIN
	FS	FLOOR SINK
<u> </u>	TP	TRAP PRIMER & TRAP PRIMER PIPING
\square	SOV	SHUT-OFF VALVE
N	CV	CHECK VALVE
	BFP	BACKFLOW PREVENTER W SOV'S
₹	T & P	
	DN	PIPE DOWN
	UP	PIPE UP
•	POC	POINT OF CONNECTION
7	-	PLUMBING NOTE CALL-OUT
	ABV	ABOVE
	AFF	ABOVE FINISH FLOOR
	AP	ACCESS PANEL
	BEL	BELOW
	BLDG	BUILDING
	CLG	CEILING
	CONT	CONTINUATION
	EL	ELEVATION
	FIN	FINISH
	FL	FLOOR
	GR	GRADE
	NTS	NOT TO SCALE
	OC	ON CENTER
	<u>S= %</u>	SLOPE AT A PERCENTAGE
	SHT	SHEET
	TYP VTR	TYPICAL

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 CPC TABLE 12-8 TO VERIFY THE PIPE SIZES ARE ADEQUATE FOR THE MAXIMUM DELIVERY CAPACITY OF CUBIC FEET OF GAS PER HOUR. 4- A WHOLE HOUSE HAS TEST IS REQUIRED UPON COMPLETION OF THE INSTALLATION, ALTERATION, OR REPAIR OF ANY GAS PIPING. THE CITY SHALL BE NOTIFIED WHEN GAS PIPING IS READY FOR INSPECTION.

5- 2 GPM SHOWER FIXTURE, MAX.1.5 GPM BATHROOM FAUCET, MAX. 2 GPM KITCHEN FAUCET, AND MAX 1.28 WATER CLOSET TO CONFORM TO CITY GREEN REQUIREMENTS.

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

6-NOTE THAT ALL PLUMBING VENTS SHALL TERMINATE NOT LESS THAN 6" ABOVE ROOF NOR LESS THAN 1' FROM ANY VERTICAL SURFACE, VENTS SHALL TERMINATE NOT LESS THAN 10" FROM OR 3' ABOVE ANY WINDOW, DOOR OPENING AIR INTAKE, OR VENT SHAFT NOR 3' FROM LOT LINE. 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.

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
Φ	FCO	FLOOR CLEANOUT
Ю	WCO	WALL CLEANOUT
	FD	FLOOR DRAIN
	FS	FLOOR SINK
5-0	TP	TRAP PRIMER & TRAP PRIMER PIPING
\longrightarrow	SOV	SHUT-OFF VALVE
<u> </u>	CV	CHECK VALVE
	BFP	BACKFLOW PREVENTER W SOV'S
<u> </u>	T&P	
	DN	PIPE DOWN
	UP	PIPE UP
•	POC	POINT OF CONNECTION
7	-	PLUMBING NOTE CALL-OUT
	ABV	ABOVE
	AFF	ABOVE FINISH FLOOR
	AP	ACCESS PANEL
	BEL	BELOW
	BLDG	BUILDING
	CLG	CEILING
	CONT	CONTINUATION
	EL	ELEVATION
	FIN	FINISH
	FL	FLOOR
	GR	GRADE
	NTS	NOT TO SCALE
	OC	ON CENTER
	<u>S= %</u>	SLOPE AT A PERCENTAGE
	SHT	SHEET
	TYP	TVDICAL

SPECIAL NOTICE TO CONTRACTORS

1-Projects which disturb less than one acre of soil shall manage storm water drainage during

altering the drainage path.

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

3-When a shower is provided with multiple shower heads, the sum of flow to all the heads shall not

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.

be US EPA Phase II rated appliances. CGC Section 4.503.1.

IN ACCORDANCE WITH ANSI TESTING PROCEDURES

exceed 1.8 gpm @ 80 psi, or the shower shall be designed so that only one head is on at a time. CGC

8-The gas fireplace(s) shall be a direct-vent sealed-combustion type. Woodstove or pellet stoves must

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

PER SQUARE INCH WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES.

AVERAGE OF 1 28 GALLONS WHEN TESTED IN ACCORDANCE WITH ANSI TESTING

SHALL NOT EXCEED 0 5 GALLONS OF WATER PER MINUTE AT A PRESSURE OF 60 POUNDS

2- THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A TOILET SHALL NOT EXCEED AN

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

- 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.
- . 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.
- . 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.

SCOPE OF WORK

PROVIDE PLUMBING DESIGN (WATER SUPPLY AND SEWER) FOR THE BUILDING OFFICE OF R LIFE REALTY.

PLUMBING LIST OF DRAWINGS (LoD):

SHEET TAG	TITLE	SCALE
P 0.00	PLUMBING GENERAL NOTES AND SPECIFICATIONS.	NTS
P 0.01	PLUMBING CODE CHECKING.	NTS
P 1.01	WATER SUPPLY LAYOUT.	3/8"=1'-0"
P 2.01	SEWER LAYOUT.	3/8"=1'-0"
P 3.01	HOT WATER CALCULATION AND DATA SHEETS.	NTS
P 4.01	PLUMBING GENERAL DETAILS.	NTS

CLIENT:

ADDRESS:

CONFIDENTIALITY STATEMENT:

ALL DRAWINGS AND WRITTEN MATERIALS APPEARING HEREIN CONSTITUTE THE

ORIGINAL AND UNPUBLISHED WORK OF THE

DESIGNER AND THE SAME MAY NOT BE

CONSENT OF THE DESIGNER.

DUPLICATED, USED OR DISCLOSED WITHOUT

NOTES:

1. ALL DIMENSIONS HEREIN ARE IN IMPERIAL UNITS UNLESS STATED OTHERWISE. 2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DESIGNER, ENGINEER OR SPECIALIST DRAWINGS AND SPECIFICATIONS.

3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING

4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

DESCRIPTION	DATE	BY
	DESCRIPTION	DESCRIPTION DATE

PROJECT:

PLUMBING SPECIFICATIONS & GENERAL NOTES.

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36:
		NTS
DRAWING	N _□ .	REV.

P 0.00

CALIFORNIA PLUMBING CODE CHECKING:

PIPE SUPPORTS:

TABLE 313.3 HANGERS AND SUPPORTS

MATERIALS	TYPES OF JOINTS	HORIZONTAL	VERTICAL
Cont	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
Cast	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	1½ 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	3¼ 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	$\frac{1}{2}$ inch, 6 feet; $\frac{3}{4}$ inch and 1 inch, 8 feet; 1 $\frac{1}{4}$ inches and larger, 10 feet	$\frac{1}{2}$ inch, 6 feet; $\frac{3}{4}$ inch and 1 inch, 8 feet; $\frac{1}{4}$ 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	$\frac{1}{2}$ inch, 5 feet; $\frac{3}{4}$ 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 accepto	able 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 All sizes 98 inches 1 inch	Base and each floor; provide mid-story guides
PE-AL-PE	Metal Insert and Metal compression	½ inch } ¾ inch All sizes 98 inches 1 inch	Base and each floor; provide mid-story guides
PE-RT	Insert and Compression	1 inch and smaller, 32 inches; 1 $\frac{1}{4}$ inches and larger, 4 feet	Base and each floor; provide mid-story guides
Polypropylene (PP)	Fusion weld (socket, but, sad- dle, electrofusion), threaded (metal threads only), or mechanical	1 inch and smaller, 32 inches; 1 $\frac{1}{4}$ 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

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.

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

Additional building sewer cleanouts shall be installed at intervals not to exceed 100 feet (30 480 mm) in straight 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

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.

will be required at its point of connection to the building drain.

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 position.

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.

(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 ½ 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 $\frac{1}{4}$ 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 ½ 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	14
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:
(202	2 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 p
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

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 120°F (49°C) 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 $1\frac{1}{4}$ inches (32 mm) in diameter.

409.4 Limitation of Hot Water in Bathtubs and

Vhirlpool Bathtubs. The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 120°F (49°C) 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.

WATER HEATER:

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 (1/3) and lower one-third $(\frac{1}{3})$ 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 $\frac{3}{4}$ of an inch (20 mm) diameter drain to an approved location. Such pan shall be not less than $\frac{1}{2}$

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 $\frac{1}{4}$ 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.

CLIENT:

ADDRESS:

CONFIDENTIALITY STATEMENT:

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ORIGINAL AND UNPUBLISHED WORK OF THE

DUPLICATED, USED OR DISCLOSED WITHOUT

CONSENT OF THE DESIGNER.

NOTES:

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3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING

4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

ND.	DESCRIPTION	DATE	BY)
			,
	ND.	NO. DESCRIPTION	ND. DESCRIPTION DATE

PROJECT

PLUMBING CODE

CHECKING. PROJ. NO. PROJ. ENGR. SCALE @ 24X36: NTS DRAWING NO.

P 0.01

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

SIZE OF PIPE (inches)	1 1/4	1 1/2	2	3	4	5	6	8	10	12
Maximum Units										
Orainage Piping ¹		22	1.43	404	05/	400	1000	0.400	5,00	0.400
Vertical		2^{2}	16 ³	484	256	600	1380	3600	5600	8400
Horizontal	I	I	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.

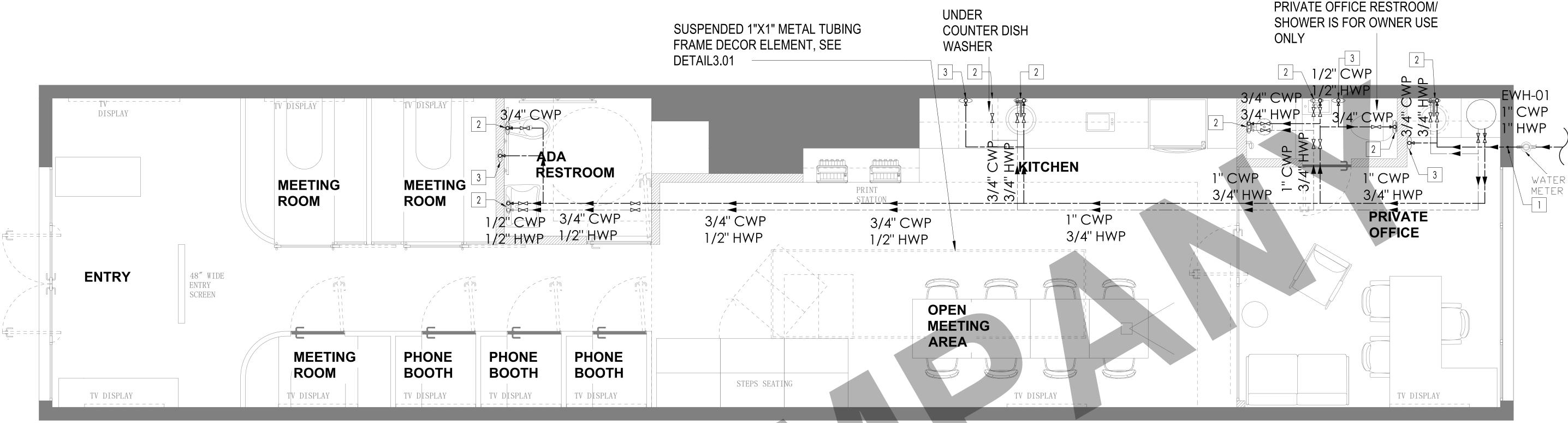
³ Except for six-unit traps or water closets.

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 $\frac{1}{4}$ inch per foot (20.8 mm/m) slope, For $\frac{1}{8}$ 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 $\frac{1}{4}$ 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 lim-

itations specified in this table do not apply. This table is in accordance with the requirements of Section 901.3.



GENERAL NOTES:

- PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
- 2. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
- REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES.
- 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.
- ALL WATER PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
- 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.

PLUMBING SHEET NOTES

SHEET NOTES:
1 - DCW RISES TO CEILING LEVEL.
2 - DCW AND/OR DHW TO FIXTURE CONNECTION.
3 - DCW TO TRAP PRIMER CONNECTION.

SCHEDULE No. 1

ELECTRIC WATER HEATER

TAG	EWH-01
LOCATION	PRIVATE OFFICE
MANUFACTURER	A.O SMITH
MODEL	DEL-15
TYPE	ELECTRIC-TANK
MAX POWER (KW)/NUMBER OF ELEMENTS.	6/1
VOLTAGE (V / PH /HZ)	208-240 / 1 / 60
NOMINAL CAPACITY (GAL)	15
APPROXIMATE WEIGHT (LBS)	58
DIAMETER x HEIGHT (in.)	18" X 26"

FROM 2022 CPC - TABLE 610.3: **WATER SUPPLY FIXTURE UNITS LOADS:**

FIXTURE	W.S.F.U	QTY.	TOTAL W.S.F.U
KITCHEN SINK	1.5	1	1.5
SHOWER	2.0	1	2.0
WATER CLOSET	2.5	2	5.0
LAVATORY	1.0	2	2.0
SERVICE SINK	1.5	1	1.5
DISHWASHER	1.5	1	1.5
TOTAL OF	13.5		

AS PER 2022 CPC - TABE 610.4: THE LONGEST RUN IS APPROX. 70 FT. AND FOR W/M PRESSURE RANGE 30-45 PSI. THEREFORE, THE MAIN CWP TO BE NOT LESS **THAN 3/4"**

CPC-407.2.1-The maximum flow rate for public lavatory faucets shall not exceed 0.5 gpm at 60 psi (1.9 L/m at 414 kPa).

CPC-408.2-Showerheads shall have a maximum flow rate of not more than 1.8 gpm at 80 psi (6.81 L/m at 552 kPa)

CPC-420.2.2-The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons (6.81 L) per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons (8.32 L) per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons (6.81 L) per minute at 60 psi

CPC-411.2-The effective flush volume of all water closets shall not exceed 1.28 gallons (4.8 L) per flush when tested in accordance with ASME A112.19.2/CSA B45.1.

CMC-310.1-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

CMC-310.3.1-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.

CMC-310.5-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.

CPC-407.3-Hot water delivered from public-use lavatories shall be limited to a maximum temperature of 120°F (49°C). The maximum temperature shall be regulated by one of the following means: A limiting device conforming to either ASSE 1070/ASME A112.1070/CSA B125.70 or

CPC-408.3.2-The maximum water temperature discharging from an individual showerhead shall be limited to 120°F (49°C) by one of the following

A shower or tub/shower combination valve conforming to ASSE 1016/ASME A112.1016/CSA B125.16 where either: The valve is field-adjusted to the required maximum temperature, or

The handle position, stop, or temperature limiting control is set in accordance with the manufacturer's instructions to the required maximum temperature.

CPC-504.3-504.3.1 Listed Water Heaters

A water heater conforming to ASSE 1084.

The clearances shall not be such as to interfere with combustion air, draft hood clearance and relief, and accessibility for servicing. Listed water heaters shall be installed in accordance with their listings and the manufacturer's installation instructions. 504.3.2 Unlisted Water Heaters

Unlisted water heaters shall be installed with a clearance of 12 inches (305 mm) on all sides and rear. Combustible floors under unlisted water heaters shall be protected in an approved manner. [NFPA 54:10.27.2.2]

CPC-504.4-A water heater installation shall be provided with overpressure protection using an approved, listed device installed in accordance with the terms of its listing and the manufacturer's installation instructions.

CPC-507.4-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.G163

CPC-606.1-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

CPC-608.2-Where static water pressure in the water supply piping is exceeding 80 psi (552 kPa), an approved-type pressure regulator preceded by an adequate strainer shall be installed and the static pressure reduced to 80 psi (552 kPa) or less.

CPC-608.6-A water-heating device connected to a separate storage tank and having valves between said heater and tank shall be provided with an approved water pressure relief valve.

CPC-703.2-Table 703.2 shows the maximum number of fixture units allowed on a vertical or horizontal drainage pipe, building drain, or building sewer of a given size; the maximum number of fixture units allowed on a branch interval of a given size; and the maximum length (in feet and meters) of a vertical drainage pipe of a given size.

CPC-707.4-1- Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal

Cleanouts shall be permitted to be omitted on a horizontal drain line less than 5 feet in length unless such line is serving sinks or urinals. 2- each run of piping, that is more than 100 feet in total developed length.

3-A cleanout shall be provided in a drainage line for each aggregate horizontal change in direction exceeding 135 degrees.

4- A cleanout shall be installed above the fixture connection fitting, serving each urinal, regardless of the location of the urinal in the building.

CPC-707.8-Each cleanout, unless installed under an approved cover plate, shall be above grade, readily accessible, and so located as to serve the purpose for which it is intended. Cleanouts located under cover plates shall be so installed as to provide the clearances and accessibility required by

CPC-906.1-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.

CPC-906.2-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 lot line, alley and street excepted.

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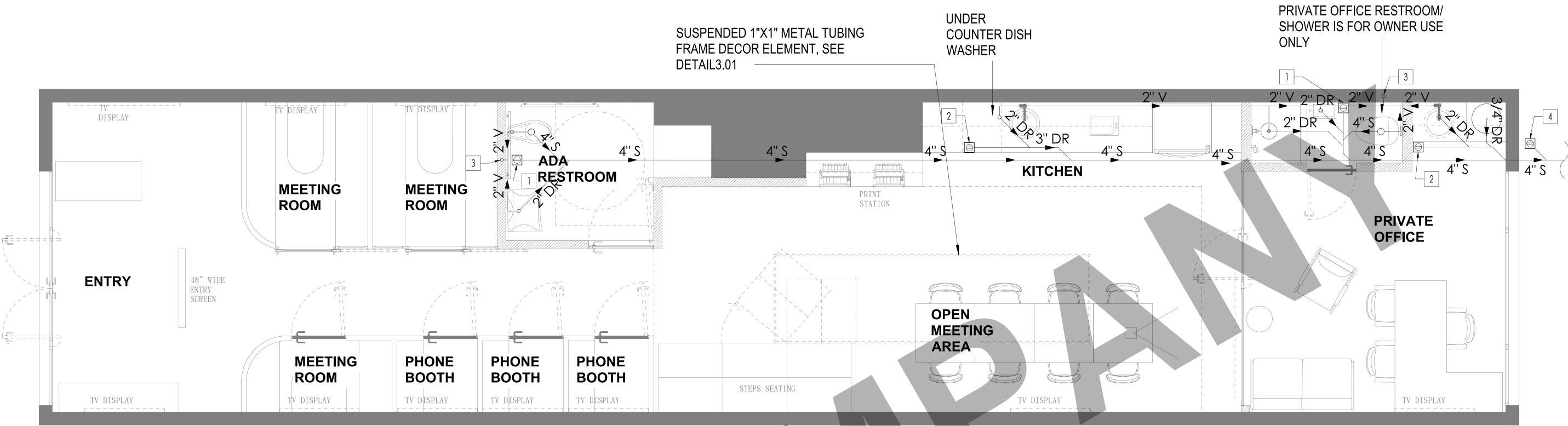
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

REV. NO.	DESCRIPTION	DATE	
			Ī

WATER SUPPLY LAYOUT.

PROJ. NO.	PROJ. ENGR.	SCALE @ 24X36
		3/8" = 1'-0"
DRAWING	ND,	REV.

P 1.01



GENERAL NOTES:

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- 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.

FROM 2022 CPC - TABLE 702.1: DRAINAGE FIXTURE UNIT VALUES (DFU)

FIXTURE	D.F.U	QTY.	TOTAL D.F.U
WATER CLOSET	4.0	2	8.0
LAVATORY	1.0	2	2.0
SHOWER	2.0	1	2.0
SERVICE SINK	3.0	1	3.0
KITCHEN SINK	2.0	1	2.0
DISHWASHER	2.0	1	2.0
TOTAL OFFICE I	19.0		

PLUMBING SHEET NOTES

SHEET NOTES: 1 — 4" FLOOR CLEAN-OUT WITH TRAP PRIMER. 2 — 3" FLOOR DRAIN WITH TRAP PRIMER. 3 — 2" VENT STACK TO ABOVE. 4 — 4" EXTERNAL CLEAN-OUT.

CPC-407.2.1-The maximum flow rate for public lavatory faucets shall not exceed 0.5 gpm at 60 psi (1.9 L/m at 414 kPa).

CPC-408.2-Showerheads shall have a maximum flow rate of not more than 1.8 gpm at 80 psi (6.81 L/m at 552 kPa)

CPC-420.2.2-The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons (6.81 L) per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons (8.32 L) per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons (6.81 L) per minute at 60 psi

CPC-411.2-The effective flush volume of all water closets shall not exceed 1.28 gallons (4.8 L) per flush when tested in accordance with ASME A112.19.2/CSA B45.1.

CMC-310.1-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.

CMC-310.3.1-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.

CMC-310.5-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.

CPC-407.3-Hot water delivered from public-use lavatories shall be limited to a maximum temperature of 120°F (49°C). The maximum temperature shall be regulated by one of the following means:

A limiting device conforming to either ASSE 1070/ASME A112.1070/CSA B125.70 or A water heater conforming to ASSE 1084.

CPC-408.3.2-The maximum water temperature discharging from an individual showerhead shall be limited to 120°F (49°C) by one of the following

A shower or tub/shower combination valve conforming to ASSE 1016/ASME A112.1016/CSA B125.16 where either: The valve is field-adjusted to the required maximum temperature, or

The handle position, stop, or temperature limiting control is set in accordance with the manufacturer's instructions to the required maximum temperature.

CPC-504.3-504.3.1 Listed Water Heaters

The clearances shall not be such as to interfere with combustion air, draft hood clearance and relief, and accessibility for servicing. Listed water heaters shall be installed in accordance with their listings and the manufacturer's installation instructions.

504.3.2 Unlisted Water Heaters

Unlisted water heaters shall be installed with a clearance of 12 inches (305 mm) on all sides and rear. Combustible floors under unlisted water heaters shall be protected in an approved manner. [NFPA 54:10.27.2.2]

CPC-504.4-A water heater installation shall be provided with overpressure protection using an approved, listed device installed in accordance with the terms of its listing and the manufacturer's installation instructions.

CPC-507.4-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.G163

CPC-606.1-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.

CPC-608.2-Where static water pressure in the water supply piping is exceeding 80 psi (552 kPa), an approved-type pressure regulator preceded by an adequate strainer shall be installed and the static pressure reduced to 80 psi (552 kPa) or less.

CPC-608.6-A water-heating device connected to a separate storage tank and having valves between said heater and tank shall be provided with an approved water pressure relief valve.

CPC-703.2-Table 703.2 shows the maximum number of fixture units allowed on a vertical or horizontal drainage pipe, building drain, or building sewer of a given size; the maximum number of fixture units allowed on a branch interval of a given size; and the maximum length (in feet and meters) of a vertical drainage pipe of a given size.

CPC-707.4-1- Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal

Cleanouts shall be permitted to be omitted on a horizontal drain line less than 5 feet in length unless such line is serving sinks or urinals. 2- each run of piping, that is more than 100 feet in total developed length.

3-A cleanout shall be provided in a drainage line for each aggregate horizontal change in direction exceeding 135 degrees.

4- A cleanout shall be installed above the fixture connection fitting, serving each urinal, regardless of the location of the urinal in the building.

CPC-707.8-Each cleanout, unless installed under an approved cover plate, shall be above grade, readily accessible, and so located as to serve the

CPC-707.8-Each cleanout, unless installed under an approved cover plate, shall be above grade, readily accessible, and so located as to serve the purpose for which it is intended. Cleanouts located under cover plates shall be so installed as to provide the clearances and accessibility required by this section.

CPC-906.1-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.

CPC-906.2-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 lot line, alley and street excepted.

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REV. NO.	DESCRIPTION	DATE	B,
PROJECT:			

SEWER LAYOUT.

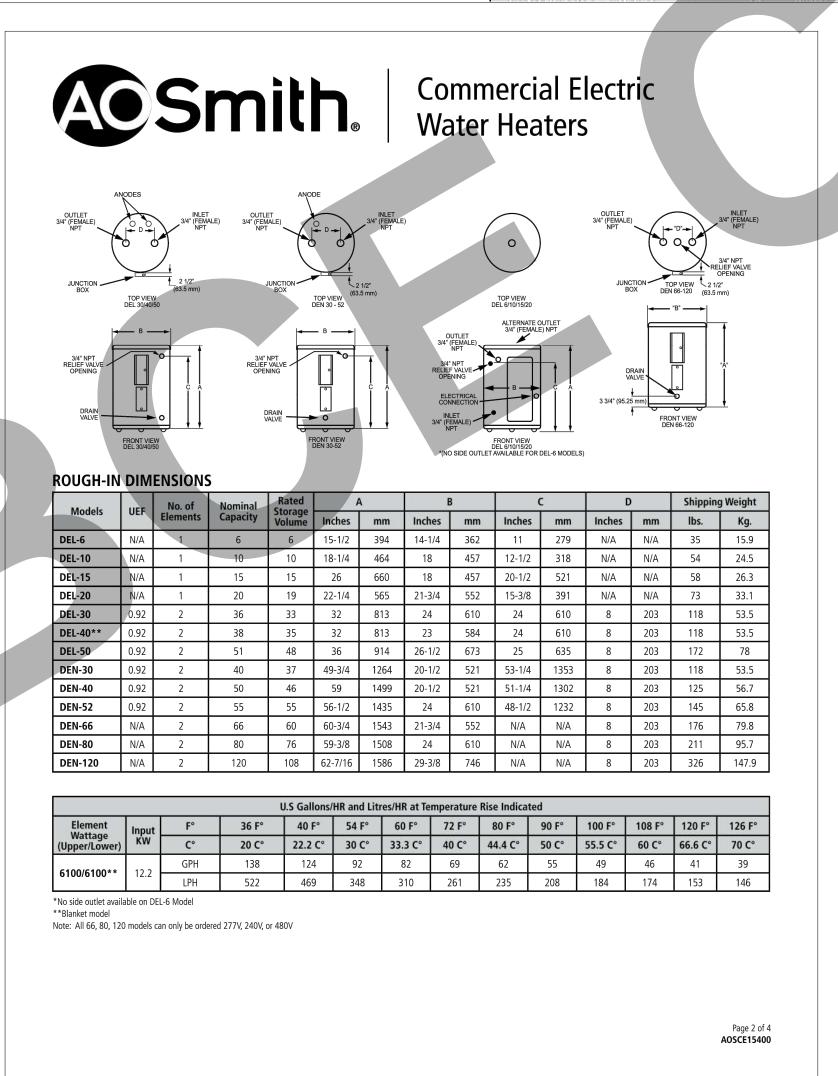
PROJ. NO. PROJ. ENGR. SCALE @ 24X36:

3/8" = 1'-0"

P 2 . 0 1

DRAWING NO.

Project no	Date:	28-04-23	Sheet no.	se (A e	of 1	Comp	uted by:	M.J.		
Subject: FATE ROSEN	/EAD				**	Check	ed by:			
Hot Water Cal	culation	101				Appro	ved by:			
Application Type	:	Office Build	ding	1 11 111				12		
Water Temperature In Water Temperatures O	the second second	213 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	50 140	9F =	10 60	₽C ₽C		376		
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Kitchen Sink					20	×	2	:- 1≅	20	gph gph
Service Sink					20	3301	16: 18:	Ħ	20	gph
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Other		1 6	17	0	GPH		QTY.			
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				Demar Maxim Maxim Heater Storag	nd Fact num Pr num Pr Recov	obable obable ery Ca	tom) Demai Demai pacity tom)		0.25 18.5 0.31 0.02 0.31 0.6	gph gph gpm Us gpm
				Demar Maxim Maxim Heater Storag	nd Fact num Pr num Pr Recov ge Facto	obable obable ery Ca	tom) Demai Demai pacity tom)		0,25 18.5 0.31 0.02 0.31	gph gpm Us gpm gal liters
Storage Factors	500	5.00	apm	Demar Maxim Maxim Heater Storag	nd Fact num Pr num Pr Recov ge Facto	obable obable ery Ca o (Cus	tom) Demai Demai pacity tom)		0.25 18.5 0.31 0.02 0.31 0.6 11.1 42	gph gph gpm L/s gpm
Storage Factors Heater or Coil =	500 500		gpm 0.31	Demar Maxim Maxim Heater Storag	nd Fact num Pri num Pri Recov ge Facto ge Tank Actu	obable obable ery Ca o (Cus	tom) Demai Demai pacity tom) city		0.25 18.5 0.31 0.02 0.31 0.6 11.1 42	gph gph gpm L/s gpm gal liters
Storage Factors Heater or Coil =	\$200000		100 TO 10	Demai Maxim Maxim Heater Storag Storag	nd Factorium Pro num Pro Recov ge Factori ge Tank Actur	obable obable ery Ca o (Cus	tom) Demai Demai Dacity tom) city ction Efficie	E s	0.25 18.5 0.31 0.02 0.31 0.6 11.1 42 42	gph gpm Us gpm gal liters





 Thirteen sizes; 6 thru 119 gallon capacity. Tank interior is coated with glass specially designed by A. O. Smith for water heater use.

ELEMENTS

 Zinc plated copper sheaths for longer life. Medium watt density means lower surface temperature to minimize scale build-up and more surface to heat Maximum input KW (see chart). STANDARD VOLTAGES

and 480V unbalanced three-phase delta; easily converted to single-phase at

TERMINAL BLOCK • Factory-installed. Just bring the service CONTROLS

 Temperature control (adjustable single element and 120° to 181°F on warranty or A. O. Smith Water Products dual element) and manual reset high temperature cutoff per element

SIMPLIFIED CIRCUITRY, COLOR CODED FOR EASE OF SERVICE ANODE ROD FOR MAXIMUM CORROSION PROTECTION

CABINET HAS BONDERIZED UNDERCOAT WITH BAKED ENAMEL FINISH water. Element sizes from 1.5 to 6.1 KW. **TOP INLET AND OUTLET OPENINGS DRAIN VALVE**

(EXCLUDES DEL 6-20) • 120, 277 single phase and 208, 240 UL APPROVED FIELD CONVERSION PROGRAM

COMPLIANCE terminal block with limited exceptions. Single element heaters, single-phase

• Meets the standby loss Requirements of the U.S. Department of Energy and current edition of ASHRAE/IES 90.1 LIMITED WARRANTY OUTLINE

to heater and connect to block. Terminal • If the tank should leak any time during block not supplied on 120V & 277 volt the first three years, under the terms of models. (No junction box on DEL6-20) the warranty, A. O. Smith will furnish a replacement heater; installation, labor, handling and local delivery extra. THIS OUTLINE IS NOT A WARRANTY. For through a range of 110° to 170°F on complete information consult the written DEN-40 DEL-30

CERTIFIED® www.ahridirectory.org

www.hotwater.com | 800-527-1953 Toll-Free USA | A. O. Smith Corporation | 500 Tennessee Waltz Parkway | Ashland City, TN 37015

AOSCE15400



ELEMENT AVAILABILITY CHART (LIGHT-DUTY COMMERCIAL ELECTRIC)

Models & Elements	Voltage	Wiring	kW Input Available									
	120V	-	1.5	2	2.5	3						
	208V	-	1.5	2	2.5	3						
6-Gallon Models Single-Element	240V	-	1.5	2	2.5	3						
Jingle Element	277V	-	1.5	2	2.5	3						
	480V	-		2	2.5	3						
	120V	-	1.5	2	2.5	3						
10-Gallon through	208V	-	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
20-Gallon Models	240V	-	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Single-Element	277V	-	1.5	2	2.5	3		4	4.5	5		6
	480V	-		2	2.5	3		4	4.5	5	5.5	6

6 gallon model not available above 3kW 6/10/15/20 gallon models all A6 circuit (2 wire) only

A40-401	Element Wattage							
Model		120V	208V	240V	277V	480V		
DEL 20	Min Watts	N/A	4500	4500	4500	4500		
DEL-30	Max Watts	N/A	6000 (*)	6000 (*)	6000	6000		
DEL 40	Min Watts	N/A	4500	4500	4500	4500		
DEL-40	Max Watts	N/A	6000 (*)	6000 (*)	6000	6000		
DEL-50	Min Watts	N/A	4000	4000	4000	4000		
	Max Watts	N/A	6000 (*)	6000 (*)	6000	6000		
DEN 30	Min Watts	N/A	4500	4500	4500	4500		
DEN-30	Max Watts	N/A	6000 (*)	6000 (*)	6000	6000		
DEN 40	Min Watts	3000 (*)	3000	3000	3000	3000		
DEN-40	Max Watts	3000 (*)	6000 (*)	6000 (*)	6000	6000		
DEN 53	Min Watts	2500	2500	2500	2500	2500		
DEN-52	Max Watts	3000 (*)	6000 (*)	6000 (*)	6000	6000		

Additional limitations apply to 120V, 208V, and 240V - Simultaneous Operation are not available (*) for these voltages.

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REV. NO	DESCRIPTION	DATE	B,

PROJECT:

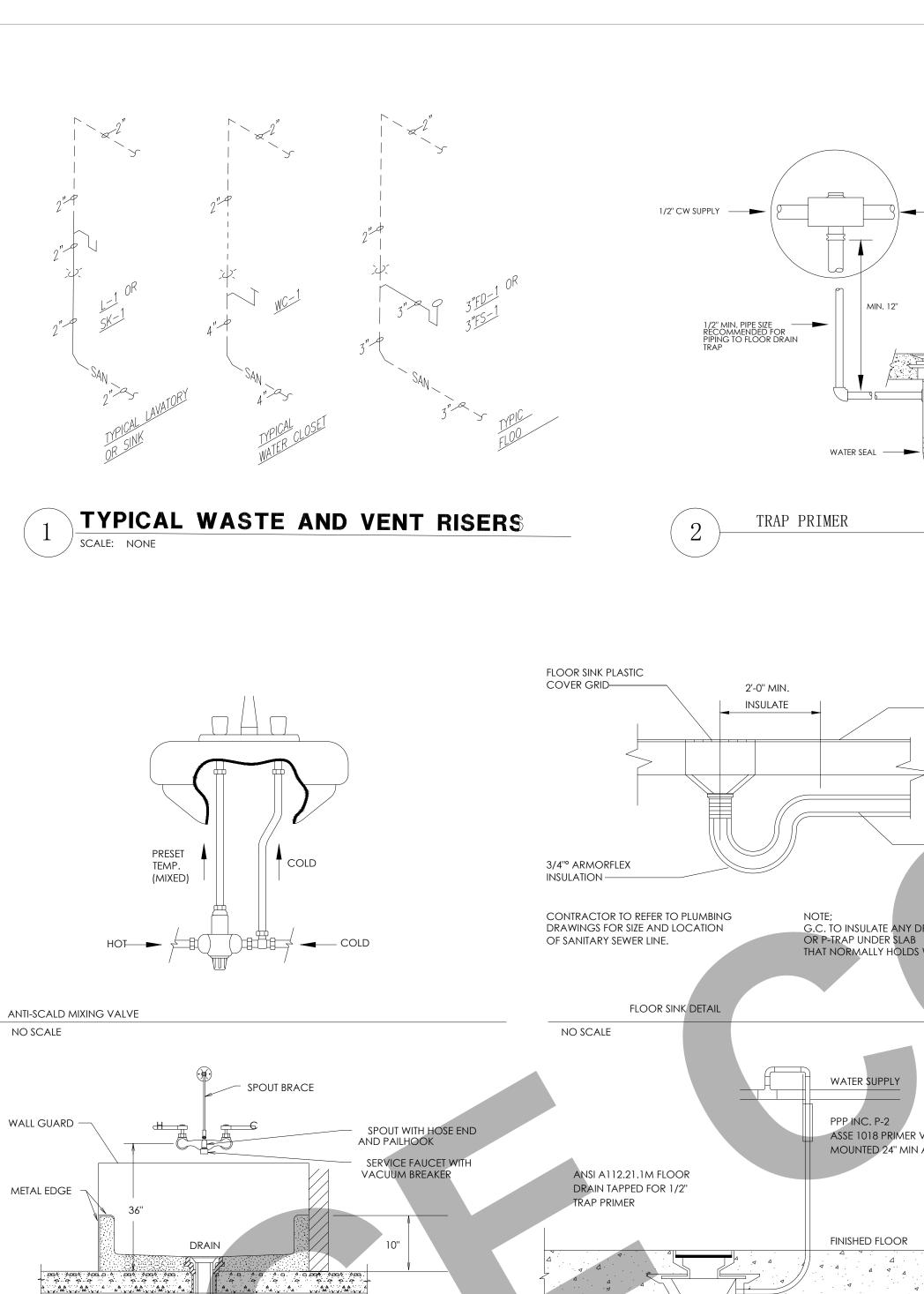
HOT WATER CALC. & PLUMB. **EQUIPMENT DATASHEET.** SCALE @ 24X36:

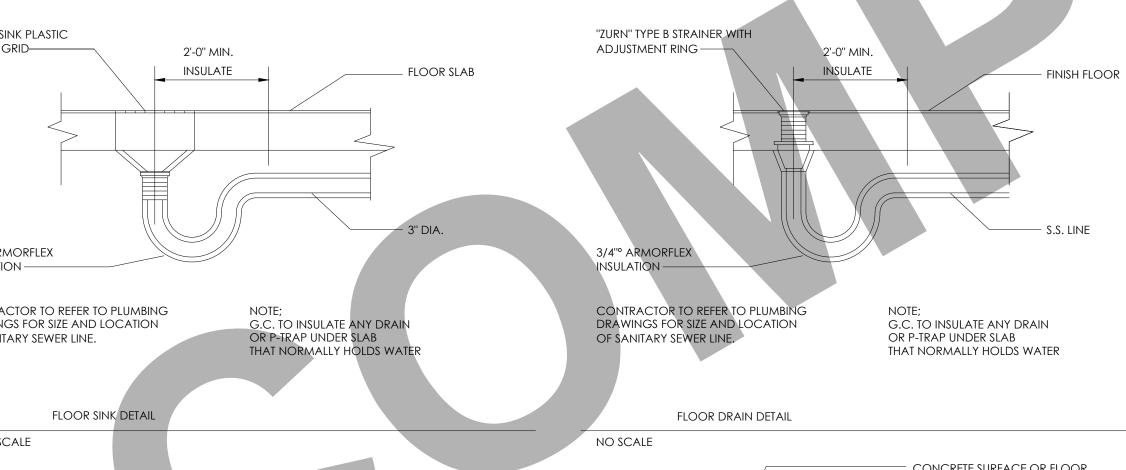
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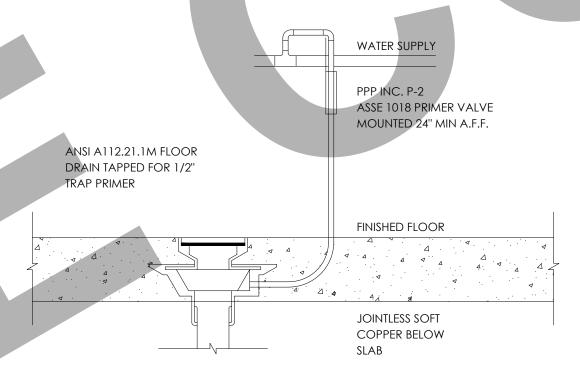
PROJ. NO. PROJ. ENGR.

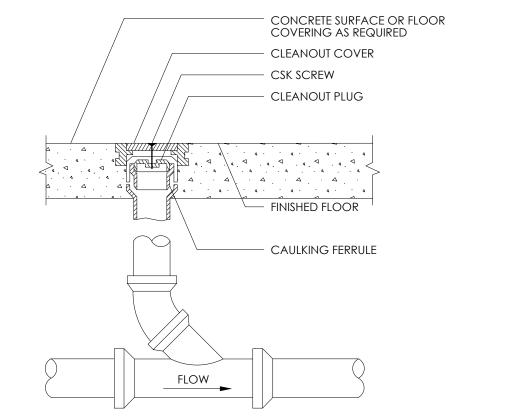




NOT TO SCALE

COLD WATER PIPED TO LAVATORY





STRAINER-FINISHED FLOOR —

HUB JOINT-

DEEP SEAL "P" TRAP —

NOTES:

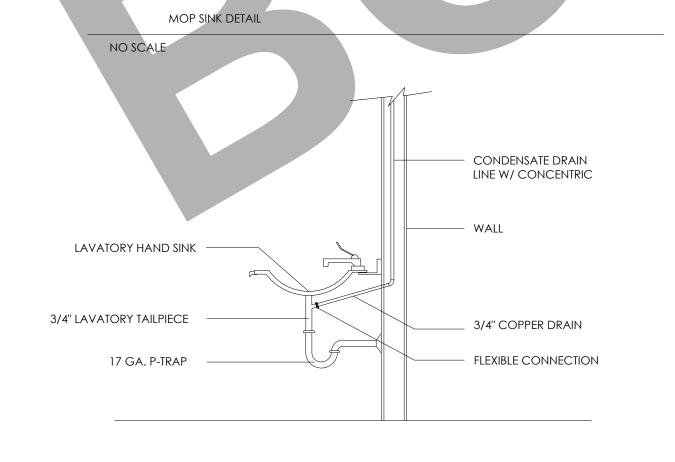
1. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND FLOOR SINK) BY SIZE, MODEL, AND MANUFACTURER.

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.

2. FLOOR SINK/HUB DRAIN TRAP GUARD INSTALLATION IS SIMILAR.

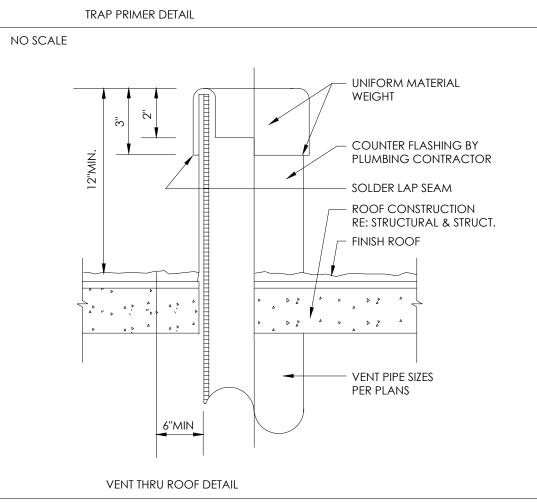
FLOOR DRAIN WITH TRAP SEAL PROTECTION



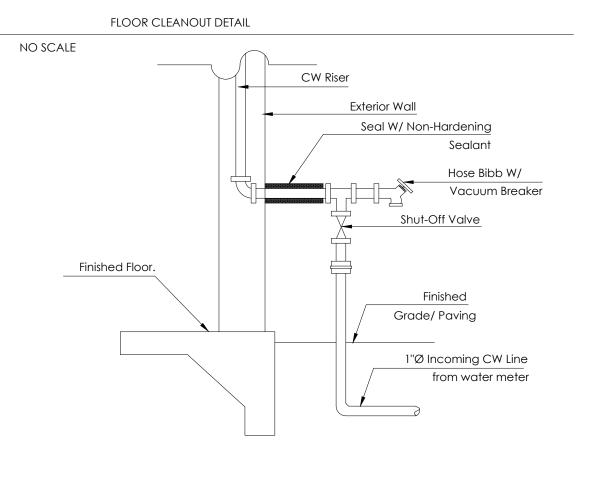
CONDENSATE DETAIL

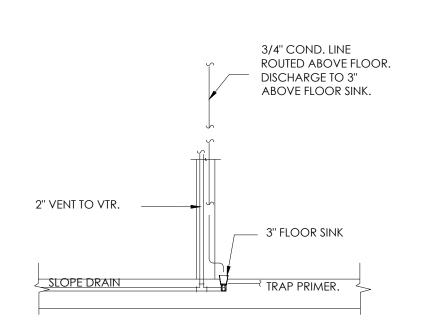
NO SCALE

3" DIA. P-TRAP



NO SCALE





WATER ENTRY DETAIL COND. ON FLOOR SINK DETAIL NO SCALE NO SCALE

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DESCRIPTION

PROJECT:

PLUMBING GENERAL DETAILS.

PROJ. NO. PROJ. ENGR. SCALE @ 24X36: NTS DRAWING NO.

P4.01

STATE OF CALIFORNIA Electrical Power Distribution CALIFORNIA ENERGY COMMISSION	STATE OF CALIFORNIA Electrical Power Distribution CALIFORNIA ENERGY COMMISSION	STATE OF CALIFORNIA Electrical Power Distribution CALIFORNIA ENERGY COMMISSION	STATE OF CALIFORNIA Electrical Power Distribution CALIFORNIA ENERGY COMMISSION
CERTIFICATE OF COMPLIANCE NRCC-ELC-E	CERTIFICATE OF COMPLIANCE NRCC-ELC-E	CERTIFICATE OF COMPLIANCE NRCC-ELC-E	CERTIFICATE OF COMPLIANCE NRCC-ELC-E
This document is used to demonstrate compliance with mandatory requirements in 130.5, for electrical systems in newly constructed nonresidential and hotel/motel occupancies and 160.6 and 160.9 for electrical systems in newly constructed multifamily occupancies. Additions and alterations to electrical service systems in nonresidential and hotel/motel occupancies will also use this document to demonstrate compliance per 141.0(a) or 141.0(b)2P for alterations. For multifamily addition or alterations compliance will be documented per 180.1(a) or 180.2 (b)4Bvii	Project Name: R Life Realty Report Page: (Page 2 of 4) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name:R Life RealtyReport Page:(Page 3 of 4)Project Address:5728 Rosemead Blvd.Date Prepared:5/7/2023	Project Name: R Life Realty Report Page: (Page 4 of 4) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023
Project Name: R Life Realty Report Page: (Page 1 of 4) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	C. COMPLIANCE RESULTS	H. VOLTAGE DROP	DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
A. GENERAL INFORMATION	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	Main	I certify that this Certificate of Compliance documentation is accurate and complete. Documentation Author Signature:
01 Project Location (city) 02 Climate Zone 9	to Table D. Exceptional Conditions for guidance or see applicable Table referenced below. 01 02 03 04 05 06	* NOTES: If "Permitted by CA Elec Code *" is selected under Compliance Method above, please indicate where the exception applies in the space provided below.	Mohamad Nohayli Company: Signature Date:
03 Occupancy Types Within Project: OfficeSupport Areas	Service Electrical Separation for Metering 130.5(a)/ AND Monitoring 130.5(b)/ AND Monitoring 130	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" lif applicable. If calculations will be the responsibility of the installing contractor, select "Contractor Responsible".	InnoDez, Inc. 2023.05.07 Address: 726 Foxbrough CEA/ HERS Certification Identification (if applicable):
B. PROJECT SCOPE This table includes electrical systems that are within the scope of the permit application.	160.6(a) 160.6(b) 130.5(c)/ 160.6(c) (See Table F) (See Table G) (See Table B) (See Table I) (See Table I)	I. CIRCUIT CONTROLS FOR 120-VOLT RECEPTACLES AND CONTROLLED RECEPTACLES	City/State/Zip: Pleasanton CA94566 Prione: RESPONSIBLE PERSON'S DECLARATION STATEMENT
01 02 03 04 05 06 07	Yes AND Yes AND Yes AND Yes Yes COMPLIES	This section does not apply to this project.	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.
System Utility Provided subject to CA Provides power to dwelling	D. EXCEPTIONAL CONDITIONS	J. ELECTRIC READY BUILDINGS	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
Designation/ Scope of Work ¹ Rating ² (kVA) Exception to Article 517 Demand Response Controls units/common living areas	This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.	This section does not apply to this project.	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.
Description 130.5(a)/ Exception to 130.5(a) and (b)	E. ADDITIONAL REMARKS This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.	K. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION	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.
Where required, demand response controls must be specified	F. SERVICE ELECTRICAL METERING	Form/Title	Responsible Designer Name: Syed P. Alam Responsible Designer Signature: Syed Alam Syed Alam
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.	This section does not apply to this project.	NRCI-ELC-E - Must be submitted for all buildings	Company: Innodez Inc. Date Signed: 2023-05-07
Main and branch 50	G. SEPARATION OF ELECTRICAL CIRCUITS FOR ENERGY MONITORING		Address: License: No. M 27087 726 Foxbrough 27087 EXP. 06/30/2023
Compliance documents will indicate when demand response controls are required.	This section does not apply to this project.		City/State/Zip: Pleasanton CA 94566
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.	H. VOLTAGE DROP		
 If common use areas in a multifamily are submetered, rating is for submeter size serving common use areas. Applicable if the utility company is providing a metering system that indicates instantaneous kW demand and kWh for a utility-defined period. 	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)2Piii/ 180.2(b)4Bviic.		
	Designation/Description Circuit Conductors Compliance Method Designation Desig		
	- Secondinal Control of the Control		
Registration Number: Generated Date/Time: Documentation Software: EnergyPro	Registration Number: Generated Date/Time: Documentation Software: EnergyPro	Registration Number: Generated Date/Time: Documentation Software: EnergyPro	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: Schema Version: rev 20220101 EnergyPro-50207-0523-0344 Report Generated: 2023-05-07 01:44:11	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Schema Version: rev 20220101 Compliance ID: Schema Version: rev 20220101 EnergyPro-50207-0523-0344 Report Generated: 2023-05-07 01:44:11	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Schema Version: rev 20220101 EnergyPro-50207-0523-0344 Report Generated: 2023-05-07 01:44:11	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Schema Version: rev 20220101 EnergyPro-50207-0523-0344 Report Generated: 2023-05-07 01:44:11
STATE OF CALIFORNIA	STATE OF CALIFORNIA	STATE OF CALIFORNIA	STATE OF CALIFORNIA
Envelope Component Approach CERTIFICATE OF COMPLIANCE CALIFORNIA ENERGY COMMISSION NRCC-ENV-E	Envelope Component Approach CERTIFICATE OF COMPLIANCE CALIFORNIA ENERGY COMMISSION NRCC-ENV-E	Envelope Component Approach CERTIFICATE OF COMPLIANCE CALIFORNIA ENERGY COMMISSION NRCC-ENV-E	Envelope Component Approach CERTIFICATE OF COMPLIANCE CALIFORNIA ENERGY COMMISSION NRCC-ENV-E
This document is used to demonstrate compliance with mandatory requirements in 110.8(g) and 120.7(b)/ 160.1 for newly constructed nonresidential, hotel/ motel, multifamily and mixed-use buildings, and 141.0(b)1/ 180.2 for alterations, related to roof, wall and floor assemblies. It is also used to demonstrate compliance with prescriptive requirements in 140.3/	Project Name: R Life Realty Report Page: (Page 2 of 6) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name: R Life Realty Report Page: (Page 3 of 6) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name: R Life Realty Report Page: (Page 4 of 6) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023
170.2 for newly constructed buildings, and 141.0/180.1/180.2 for additions and alterations, related to roof, wall, floor, door, fenestration and daylighting requirements. Project Name: R Life Realty Report Page: (Page 1 of 6)			
Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	B. PROJECT SCOPE	G. RATED ROOFING MATERIAL (COOL ROOF)	K. FENESTRATION AND GLAZED DOOR SCHEDULE
A. GENERAL INFORMATION	¹ FOOTNOTE: Doors that are more than 25% glass in area are considered Glazed Doors and should be documented on table K with fenestration. ² Roof recovers and replacements must also check "Roof Assembly" box and document compliance with insulation requirements in Table F. Roof recoats may document compliance with	This table demonstrates compliance with prescriptive roof material requirements in 140.3(a)1A/170.2(a)1A for new construction, 141.0(a)/180.1 for additions, and 141.0(b)2B/180.2 for alterations. Roof recovers and replacements must also document compliance with insulation requirements in Table F. Roof recoats may document compliance with roof material only	¹ FOOTNOTES: Fenestration types indicated above as "(new only)" do not have Title 24, Part 6 requirements for alterations. New construction and additions do have requirements and should be clicked above and compliance demonstrated within this table.
01 Project Location (city) Temple City 05 # of Stories (Habitable Above Grade) 1	roof material only in Table G.	in Table G. 01 02 03 04 05 06 07 08 09 10	Vertical Fenestration And Glazed Doors- U-factor, Solar Heat Gain Coefficient (RSHGC/ SHGC), Visible Transmittance (VT)
02 Zipcode 91780 06 Total Conditioned Floor Area (ft²) 1123 03 Climate Zone 9 07 Total Unconditioned Floor Area (ft²) 0	C. COMPLIANCE RESULTS	Tag/Plan Name/ Required Minimum Designed Material U-factor /	01 ⊠ Calculate Area-Weighted Average U-factor for Vertical Fenestration and Glazed Doors¹ 02 ⊠ Calculate Area-Weighted Average (R)SHGC for Vertical Fenestration and Glazed Doors¹
Occupancy Types Within Project: (select all that apply): If one occupancy	Results in this table are automatically calculated from data input and calculations in Tables F through L. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer	Detail ID Location Status Occupancy Type Slope Roof Material Compliance Method Material Performance Revalue of Assembly	02
o4 constitutes >= 80% of the conditioned floor area, the entire building envelope may be designed to comply with the provisions of that occupancy envelope and the designed to comply with the provisions of that occupancy height of at least 15 ft. 1	to Table D. Exceptional Conditions for guidance or see the applicable table referenced below. Opaque Envelope Components Daylighting Spaces > Compliance Spaces > Co	H. WALL ASSEMBLY SCHEDULE	Vertical Fenestration And Glazed Doors- U-factor, Solar Heat Gain Coefficient (RSHGC/ SHGC), Visible Transmittance (VT) 04 05 06 07 08 09 10 11 12 13
per 100.0(f). • Office • Support Areas	Roof Assembly Roofing Materials Walls Floors Doors 5,000ft ² Compliance Results	This table demonstrates compliance with prescriptive wall assembly requirements in 140.3(a)/ 170.2(a) for new constructions, 141.0(a)/ 180.1 for additions and 141.0(b)1B/ 180.2 for alterations.	Tag/Plan Fenestration Li-factor/ (BISHGC VT Compliance Calculation Method for Product Required Product
1 FOOTNOTE: Enclosed spaces > 5,000 ft ² directly under roof with ceiling height > 15 ft in climate zones 2 through 15 are required to meet the minimum daylighting requirements	01 02 03 04 05 06 07 08 (See Table F) (See Table G) (See Table H) (See Table I) (See Table K) (See Table L) COMPLIFS	01 Indicate wall types included in the project: 1 Framed Mass (new only) Concrete Sandwich Panel (new only) SIPS ICF (new only)	Detail ID Type Occupancy & Status Occupancy & Occupancy & Status Occupancy & Status Occupancy & Status Occupancy & Occupancy & Status Occupancy & Occ
defined in 140.3(c)/ 170.2(b). Compliance with 140.3(c)/ 170.2(b) is documented in Table L. This is the only prescriptive requirement which applies to unconditioned spaces.	Yes Yes Yes COMPLIES	Metal Panels Metal Building Spandrel/ Curtain Wall Straw Bale Log Home (new only) 1 FOOTNOTES: Wall types indicated above as "(new only)" do not have Title 24, Part 6 requirements for alterations. New construction and additions do have requirements and should be	Nonresidential/ Table <u>§110.6</u> Defaults U-factor (max) 0.55 0.55
B. PROJECT SCOPE	D. EXCEPTIONAL CONDITIONS	clicked above and compliance demonstrated within this table.	(E) W1 Fixed window Relocatable 1 CZ:: New Re
This table specifies project envelope components within the permit application demonstrating compliance using the prescriptive paths outlined in 140.3/170.2 and 141.0(a)1/180.1 and 141.0(b)1 and 2/180.2 for additions and alterations.	This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.		Nonresidential Nonresidential Table S110.6 Defaults U-factor (max) 0.55 0.55
My project consists of (check all that apply) Component Types	E. ADDITIONAL REMARKS	I. FLOOR ASSEMBLY SCHEDULE	(E) W2 Fixed window Relocatable 1 CZ:: New Re
01 02 New Construction or Newly Conditioned Space Walls Exterior Opaque Doors	This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.	This section does not apply to this project.	¹ FOOTNOTES: If any individual fenestration product is non-compliant, products may show compliance using an area-weighted calculation. Chromogenic glazing is not included in
☐ One or more enclosed spaces > 5,000 ft² directly under roof with ceiling height > 15ft ☐ Floors ☐ Fenestration/ Glazed Doors¹	F. ROOF ASSEMBLY SCHEDULE		area-weighted calculations. Area-weighted calculation shown in separate area-weighted table below. 2The NA6 Default Calculation can only be used for alterations or dwelling units in buildings with <= 3 habitable stories. Alterations are limited to 200ft ² of site built glazing and dwelling
Addition of conditioned space One or more enclosed spaces > 5,000 ft² directly under roof with ceiling height > 15ft Roof	This table demonstrates compliance for prescriptive roof assembly requirements in 140.3(a)1B/ 170.2(a)1B for new construction, 141.0(a)/ 180.1 for additions, or 141.0(b)2Biii/ 180.2 for alterations,	J. EXTERIOR DOOR SCHEDULE This section does not apply to this project.	units are limited to 250ft ² or 5% of conditioned floor area. If the fenestration does not meet these conditions, the only options for determining fenestration values are NFRC Certification or the Default Tables in 110.6.
□ Addition is <=700 ft² □ Addition is >700 ft² □ Addition is >700 ft² □ Floors ☑ Fenestration/ Glazed Doors¹	01 Indicate roof types included in the project: Framed SIPS Span Deck & Concrete Metal Panels Metal Building	K. FENESTRATION AND GLAZED DOOR SCHEDULE	³ Overhangs must extend past the left and right window the same distance as the depth of the overhang or greater to show an affect on the RSHGC. If an overhang does not meet this requirement, the affect of the overhang will be ignored.
□ Alteration of conditioned space □ Roof Assembly □ Walls Exterior Opaque Doors NA. for Alts.	Wuthamiy	This table demonstrates compliance with prescriptive fenestration requirements in 140.3(a)5/170.2(a)3 for new constructions, 141.0(a)/180.1 for additions, or 141.0(b)2A/180.2 for	⁴ Projecting includes casement and awning windows.
One or more enclosed spaces > 5,000 ft ² directly under roof with ceiling height > 15ft and lighting system installed for the first time One or more enclosed spaces > 5,000 ft ² directly under roof with ceiling height > 15ft Material ² Fenestration		alterations. Exterior doors that are more than 25% glass in area are considered Glazed Doors and should be documented on this table with fenestration. O1 Indicate fenestration types included in the project: \(\text{\texi\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tetx{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texi\text{\text{\text{\texi\texi{\texi\text{\text{\te	
Registration Number: Generated Date/Time: Documentation Software: EnergyPro	Registration Number: Generated Date/Time: Documentation Software: EnergyPro	Registration Number: Generated Date/Time: Documentation Software: EnergyPro	Registration Number: Generated Date/Time: Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0348	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0348	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0348	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0348
Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12
STATE OF CALIFORNIA	STATE OF CALIFORNIA		
Envelope Component Approach CALIFORNIA ENERGY COMMISSION	Envelope Component Approach CALIFORNIA ENERGY COMMISSION		
CERTIFICATE OF COMPLIANCE Project Name: R Life Realty Report Page: (Page 5 of 6)	CERTIFICATE OF COMPLIANCE Project Name: R Life Realty Report Page: (Page 6 of 6)		
Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023		
K. FENESTRATION AND GLAZED DOOR SCHEDULE	DOCUMENTATION AUTHOR'S DECLARATION STATEMENT		
Area-Weighted Average U-factor, SHGC, VT Compliance Calculation for Vertical Fenestration And Glazed Doors	I certify that this Certificate of Compliance documentation is accurate and complete.		
01 02 03 04 05 Area-weighted Calculation for Fenestration Compliance Results Using Area-Weighted	Documentation Author Name: Mohamad Nohayli Mohamad Nohayli		
Product Performance Unit Total Area of Fenestration (ft²)	Company: Signature Date: InnoDez, Inc. 2023.05.07		
U-Factor 170 0 0 COMPLIES (R)SHGC 170 0 0 COMPLIES	Address: 726 Foxbrough CEA/ HERS Certification Identification (if applicable): City/State/Zip: Pleasanton CA94566 Phone:		
VT 170 0 0 COMPLIES	RESPONSIBLE PERSON'S DECLARATION STATEMENT I certify the following under penalty of perjury, under the laws of the State of California:		
L. DAYLIGHT IN LARGE ENCLOSED SPACES	The information provided on this Certificate of Compliance is true and correct. 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)		
This section does not apply to this project.	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.		
	 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. 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 		
M. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION	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 building owner at occupancy. Responsible Designer Signature:		
Form/Title	Syed P. Alam Company: Date Signed:		
NRCI-ENV-01-E - Must be submitted for all buildings	Innodez Inc. Address: License:		
N. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE	726 Foxbrough 27087 City/State/Zip: Phone:		
Form/Title Systems/Spaces To Be Field Verified	Pleasanton CA 94566		

Documentation Software: EnergyPro

Compliance ID: EnergyPro-50207-0523-0348 Report Generated: 2023-05-07 01:44:12

Generated Date/Time:

Report Version: 2022.0.000 Schema Version: rev 20220101

O. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

Generated Date/Time:

Report Version: 2022.0.000 Schema Version: rev 20220101

Documentation Software: EnergyPro

Compliance ID: EnergyPro-50207-0523-0348 Report Generated: 2023-05-07 01:44:12

Registration Number:

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

There are no forms required for this project.

Registration Number:

(CLIENT: ADDRESS: ΓY,

CONFIDENTIALITY STATEMENT:

ALL DRAWINGS AND WRITTEN MATERIALS APPEARING HEREIN CONSTITUTE THE ORIGINAL AND UNPUBLISHED WORK OF THE DESIGNER AND THE SAME MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT CONSENT OF THE DESIGNER.

NOTES:

1. ALL DIMENSIONS HEREIN ARE IN IMPERIAL UNITS UNLESS STATED OTHERWISE.

2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DESIGNER, ENGINEER OR SPECIALIST DRAWINGS AND SPECIFICATIONS.

3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING WORK. 4. THE CONTRACTOR IS RESPONSIBLE FOR

PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

(REV. ND.	DESCRIPTION	DATE	BY

PROJECT:

T24-01

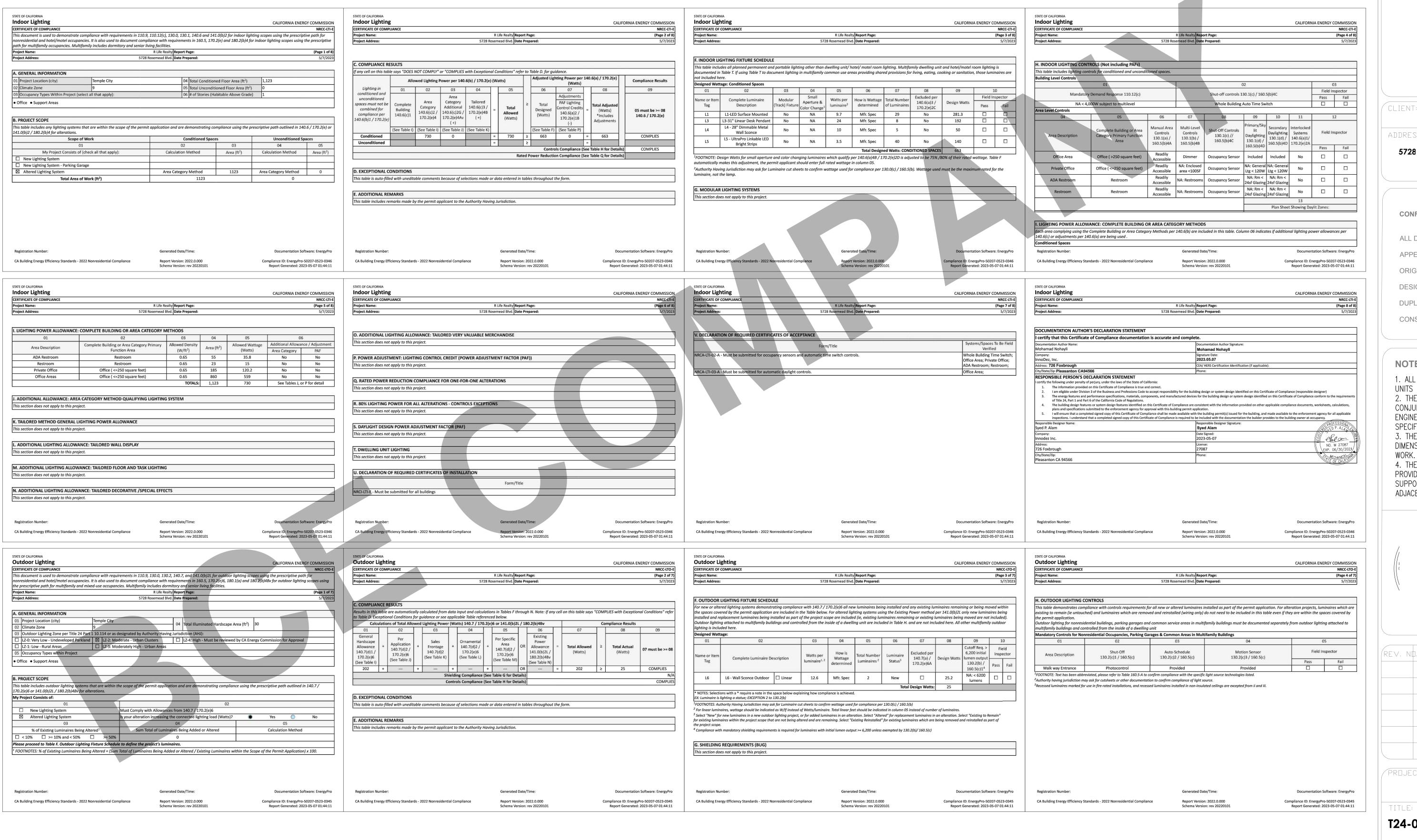
DRAWING NO.

TITLE

PROJ. NO. PROJ. ENGR. SCALE @ 24X36: NTS

REV.

T 2 4 . 1



ADDRESS:

CONFIDENTIALITY STATEMENT:

ALL DRAWINGS AND WRITTEN MATERIALS APPEARING HEREIN CONSTITUTE THE ORIGINAL AND UNPUBLISHED WORK OF THE DESIGNER AND THE SAME MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT CONSENT OF THE DESIGNER.

NOTES:

1. ALL DIMENSIONS HEREIN ARE IN IMPERIAL UNITS UNLESS STATED OTHERWISE. 2. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DESIGNER, ENGINEER OR SPECIALIST DRAWINGS AND SPECIFICATIONS. 3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING

WORK. 4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

DESCRIPTION	DATE	BY
	DESCRIPTION	DESCRIPTION DATE

T24-02

SCALE @ 24X36: PROJ. NO. PROJ. ENGR. NTS DRAWING NO. REV.

T 2 4 . 2

STATE OF CALIFORNIA	STATE OF CALIFORNIA	STATE OF CALIFORNIA	STATE OF CALIFORNIA
Outdoor Lighting CALIFORNIA ENERGY COMMISSION CERTIFICATE OF COMPLIANCE NRCC-LTO-E	Outdoor Lighting CALIFORNIA ENERGY COMMISSION CERTIFICATE OF COMPLIANCE NRCC-LTO-E	Outdoor Lighting CALIFORNIA ENERGY COMMISSION CERTIFICATE OF COMPLIANCE NRCC-LTO-E	Mechanical Systems CERTIFICATE OF COMPLIANCE CERTIFICATE OF COMPLIANCE CERTIFICATE OF COMPLIANCE
Project Name: R Life Realty Report Page: (Page 5 of 7) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name: R Life Realty Report Page: (Page 6 of 7) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name: R Life Realty Report Page: (Page 7 of 7) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	This document is used to demonstrate compliance for mechanical systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.4, or 141.0(b)2 for alterations.
			Project Name: R Life Realty Report Page: (Page 1 of 11) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023
I. LIGHTING POWER ALLOWANCE (per 140.7 / 170.2(e)) This table includes areas using allowance calculations per 140.7 / 170.2(e). General 01	M. LIGHTING ALLOWANCE: PER SPECIFIC AREA This section does not apply to this project.	DOCUMENTATION AUTHOR'S DECLARATION STATEMENT I certify that this Certificate of Compliance documentation is accurate and complete.	A. GENERAL INFORMATION
Hardscape Allowance is per Table 140.7-A/Table 170.2-R while "Use it or lose it" Allowances are per Table 140.7-B /Table 170.2-S. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or Use it or		Documentation Author Name: Mohamad Nohayli Company: Signature Date:	01 Project Location (city) Temple City 04 Total Conditioned Floor Area 1123 02 Climate Zone 9 05 Total Unconditioned Floor Area 0
lose it" allowances shall not qualify for another "Use it or lose it" allowance. Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily Hardscape Allowance Application Table I (below) Table J Sales Frontage Application Table I (below) Table J Table K Table L Table M	N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only) This section does not apply to this project.	InnoDez, Inc. 2023.05.07 Address: 726 Foxbrough CEA/ HERS Certification (if applicable):	03 Occupancy Types Within Project: 06 # of Stories (Habitable Above Grade) 1 • Office • Support Areas
outdoor lighting is included here. Calculated General Hardscape Lighting Power Allowance per Table 140.7-A for Nonresidential & Hotel/Motel	O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION	City/State/Zip: Pleasanton CA94566 Phone: RESPONSIBLE PERSON'S DECLARATION STATEMENT I certify the following under penalty of perjury, under the laws of the State of California:	
02 03 04 05 06 07 08 09 Area Wattage Allowance (AWA) Linear Wattage Allowance (LWA) Total General	Form/Title	The information provided on this Certificate of Compliance is true and correct. 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) The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance (responsible designer)	B. PROJECT SCOPE This table Includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in
Area Description Illuminated Area Allowed Density Area Allowance Perimeter Length Allowed Density Linear Allowance AWA + LWA (ft²) (W/ft²) (Watts) (If) (W/lf) (Watts) (Watts)	NRCI-LTO-E - Must be submitted for all buildings	 The building design features or system design features of compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application. 	140.4, 170.2(b) or 141.0(b)2 and 180.2(b)2 for alterations. 01
Main Entrance Walkway 30 0.019 0.6 10 0.2 1.5 2 Initial Wattage Allowance for Entire Site (Watts): 200	P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE	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. Responsible Designer Name: Responsible Designer Signature:	Air System(s) Wet System Components Dry System Components Heating Air System Water Economizer Air Economizer Dry System Components Air Economizer
Instances of Initial Wattage Allowance (LZ 0 only) ¹ Total General Hardscape Allowance (Watts): 202	Form/Title Systems/Spaces To Be Field Verified NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires. Walk way Entrance;	Syed P. Alam Company: Date Signed:	Mechanical Controls
J. LIGHTING ALLOWANCE: PER APPLICATION	Mich 210 02 / Mich 20 02 / Mich 20 02 Mich 20 Mich 20 02 Mich 20 0	Innodez Inc. 2023-05-07	Or new) Cooling Towers Ductwork (existing to remain, altered or new) Chillers Ventilation
This section does not apply to this project.		City/State/Zip: Pleasanton CA 94566	Boilers
K. LIGHTING ALLOWANCE: SALES FRONTAGE			
This section does not apply to this project.			
L. LIGHTING ALLOWANCE: ORNAMENTAL This section does not apply to this project.			
Registration Number: Generated Date/Time: Documentation Software: EnergyPro	Registration Number: Generated Date/Time: Documentation Software: EnergyPro	Registration Number: Generated Date/Time; Documentation Software: EnergyPro	Registration Number: Generated Date/Time: Documentation Software: EnergyPro
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0345 Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:11	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0345 Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:11	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0345 Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:11	CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0347 Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12
STATE OF CALIFORNIA	STATE OF CALIFORNIA	STATE OF CALIFORNIA	STATE OF CALIFORNIA
Mechanical Systems CERTIFICATE OF COMPLIANCE CERTIFICATE OF COMPLIANCE CERTIFICATE OF COMPLIANCE NRCC-MCH-E	Mechanical Systems CALIFORNIA ENERGY COMMISSION CERTIFICATE OF COMPLIANCE NRCC-MCH-E	Mechanical Systems CERTIFICATE OF COMPLIANCE NRCC-MCH-E	Mechanical Systems CALIFORNIA ENERGY COMMISSION CERTIFICATE OF COMPLIANCE NRCC-MCH-E
Project Name: R Life Realty Report Page: (Page 2 of 11) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name: R Life Realty Report Page: (Page 3 of 11) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name: R Life Realty Report Page: (Page 4 of 11) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name: R Life Realty Report Page: (Page 5 of 11) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023
	F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)	H. FAN SYSTEMS & AIR ECONOMIZERS	H. EXHAUST AIR HEAT RECOVERY 140.4(g), 170.2(c)40
C. COMPLIANCE RESULTS Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user. If this table says "DOES"	Dry System Equipment Sizing (includes air conditioners, condensers, heat pumps, VRF, furnaces and unit heaters and DOAS systems) 01 02 03 04 05 06 07 08 09 10 11	This table is used to demonstrate compliance with prescriptive requirements found in 140.4(c), 140.4(e), 140.4(m), 170.2(c)3, and 170.2(c)4A for fan systems. Fan systems serving only process loads are exempt from these requirements and do not need to be included in Table H.	Exemptions to Fyhaust Air Fyhaust Air
NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D., or the table indicated as not compliant for guidance. 01 02 03 04 05 06 07 08 09	Equipment Sizing per Mechanical Schedule (kBtu/h) 140.4(a&b), 170.2(c)1 & 170.2(c)2	System Heat Quantit 1 Fan System New System other Dwelling Dwelling Pan System 1,600 Site 403 Economizer Temperatu	Fan System Name Qty Operation per Year Hours of Operation per Year Outdoor Airflow Airflow Airflow Airflow Outdoor Airflow Airflow Airflow Airflow Moutdoor Air at Full Design Airflow Ai
System Summary 110.1, AND Pumps AND Economizers AND Controls AND Ventilation AND Controls AND Controls AND Controls AND Cooling Towers	Name or Item Tables 110.2, 140.4(a)2 and Equipment Type per Tables 110.2 and Equipment Type per Tables 110.2 and Total Total Total	Name Pump y Status New Zoning system Units Dwelling Units Airflow (cfm) 1,600 Elevation 403 Economizer Temperature Pump 1	Fan Energy Index (FEI)
110.2, 140.4(k), 170.2(c)4l 140.4(e), 140.4(f), 170.2(c)4l 170.3(c) 170.2(c)4l 170.3(c) 170.3	Tag lables 110.2, 140.4(a) and 170.2(c) 3aii Title 20 140.4(a) and 170.2(c) 1 Per Design (kBtu/h) Sensible Per Design (kBtu/h) Sensible Per Design (kBtu/h)	Airflow Allowance Design Design	01 02 03 Name or Item Tag FEI Exception FEI
(See Table F) (See Table G) (See Table H) (See Table J) (See Table K) (See Table L) (See Table M)	NALICOS (KBTU/N)	Name or tem Fan Type Qty Component Component Water Gauge Compone Allowance or tem Component Comp	I. SYSTEM CONTROLS
Yes AND AND Yes AND Yes AND Yes AND Yes AND AND Yes AND COMPLIES Mandatory Measures Compliance (See Table Q for Details) COMPLIES	¹ FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per	Tag (%) Allowance (Waty-Chill) Power Method Horsepower (kW) Base Allowance for system serving spaces <=6 floors away 1,600 371	This table is used to demonstrate compliance with mandatory controls in 110.2 and 120.2 and prescriptive controls in 140.4(f) and (n), 170.2(c)4D 170.2(c)4L or requirements in 141.0(b)2E 180.2(b)2 for altered space conditioning systems.
D. EXCEPTIONAL CONDITIONS	140.4(a) and 170.2(c)1. Healthcare facilities are excepted. 2It is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables. 3 If agricument is besting only lower cooling output and lord blank. If agricument is easily a cool blank.	MERV 13-16 Filter upstream of thermal conditioning equipment 1,600 222 Manufactu rer 0.45	01 02 03 04 05 06 07 08 09 Conditioned Thermostats Shut-Off Isolation Supply Air
This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.	³ If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank. ⁴ Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c). Dry System Equipment Efficiency (other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP), DX-DOAS and Dual Fuel Heat Pumps)	Hydronic/DX cooling coil or heat pump coil 1,600 222 provided Economizer Return Damper 1,600 74	System Name System Zoning System Varie System Varie System Name System Varie Sone Controls 10.2(b) & (c)¹, 120.2(a) Controls 120.2(e) & 120.2(g) & 160.3(a)2B 120.2(g) & 160.3(a)2B 170.2(c)4D System Varie Temp. Reset 140.4(f) & 140.4(f) & 170.2(c)4D 170.2(c)4D
E. ADDITIONAL REMARKS This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.	01 02 03 04 05 06 07 08 09 Heating Mode Cooling Mode	Fan System Allowance (kW) ³ Fan System Electrical Output (kW)	(π°) 180.2(b)2 160.3(a)2F 170.2(c)4D NA: Would
F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)	Name or Item Size Category Rating Efficiency Efficiency Efficiency	¹ FOOTNOTES: Fans serving spaces with design background noise goals below NC35 ² Low-turndown single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage	Heat Pump Single zone <= 25,000 ft ² Setback Switch 4 Hour Timer EMCS increase energy use 1FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to
Space Conditioning System Information 01 02 03 04 05 06	Tag (Btu/h) Condition (*F) Efficiency Unit Required per Tables 110.2 / Title 20 Title 20 Efficiency Unit Required per Tables 110.2 / Title 20	at that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads. H. EXHAUST AIR HEAT RECOVERY 140.4(q), 170.2(c)40	have setback thermostats.
System Name Quantity System Serving System Status Space Type Utilizing Recovered Heat Heat Pump 1 Single zone New/ Addition	Heat Pump <65,000 HSPF 8.2 8.2 SEER 14.0 14.3	01 02 03 04 05 06 07 08 09 10 11	
	G. PUMPS		
	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 Compliance ID: EnergyPro-50207-0523-0347	Registration Number: Generated Date/Time: Documentation Software: EnergyPro CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0347	Registration Number: Generated Date/Time: Documentation Software: EnergyPro CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0347	Registration Number: Generated Date/Time: Documentation Software: EnergyPro CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0347
Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12
STATE OF CALIFORNIA	STATE OF CALIFORNIA	STATE OF CALIFORNIA	STATE OF CALIFORNIA
Mechanical Systems CERTIFICATE OF COMPLIANCE CALIFORNIA ENERGY COMMISSION NRCC-MCH-E	Mechanical Systems CALIFORNIA ENERGY COMMISSION CERTIFICATE OF COMPLIANCE NRCC-MCH-E	Mechanical Systems CALIFORNIA ENERGY COMMISSION CERTIFICATE OF COMPLIANCE NRCC-MCH-E	Mechanical Systems CERTIFICATE OF COMPLIANCE CALIFORNIA ENERGY COMMISSION NRCC-MCH-E
Project Name: R Life Realty Report Page: (Page 6 of 11) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name: R Life Realty Report Page: (Page 7 of 11) Project Address: 5728 Rosemead Blvd. Date Prepared: 5/7/2023	Project Name:R Life RealtyReport Page:(Page 8 of 11)Project Address:5728 Rosemead Blvd.Date Prepared:5/7/2023	Project Name:R Life RealtyReport Page:(Page 9 of 11)Project Address:5728 Rosemead Blvd.Date Prepared:5/7/2023
J. VENTILATION AND INDOOR AIR QUALITY	J. VENTILATION AND INDOOR AIR QUALITY	J. VENTILATION AND INDOOR AIR QUALITY	L. DISTRIBUTION (DUCTWORK and PIPING)
This table is used to demonstrate compliance with mandatory ventilation requirements in 120.1 120.2(e)3B 140.4(p) and 140.4(q) for all nonresidential and hotel/motel and d:t24refnolink/]160.2, 160.3(a)3D, 170.2(a)4N, 170.2(a)4O for high-rise residential occupancies. For alterations, only ventilation systems being altered within the scope of the permit	DCV NA: Not required per	² Kitchen range hood will be verified per NA7.18.1 to confirm model is rated by HVI or AHAM.	Dwelling Units: Total duct leakage of duct system shall not exceed 12% or duct system to outside shall not exceed 6% per RA3.1.4 required for No
application need to be documented in this table. In lieu of this table, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet.	Private Office Office space 185 27.8 0 0 Occ Sensor NA: Not required space type	³ Air filtration requirements apply to the following three system types per 120.1(c)1A: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.	Systems? Duct leakage testing per CMC Section 603.10.1 required for these Ves
01 ☐ Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table. ☐ Check this box if the project included Nonresidential, Hotel/Motel Spaces or Multifamily Common Use Spaces	Office Areas Office space 860 129 0 0 NA: Not required per \$120.1(d)3	⁴ A balanced ventilation system provides ventilation airflow to each dwelling-unit at a rate equal to or greater than the required minimum rate, but not more than twenty percent.	systems? 11 No The scope of the project includes only duct systems serving healthcare facilities
03 Check the box if the project is using natural ventilation in any nonresidential or hotel/motel spaces to meet required ventilation rates per 120.1(c)2.	Occ Sensor NA: Not required space type 17 Total System Required Min OA CFM 157 18 Ventilation for this System Complies? Yes	K. TERMINAL BOX CONTROLS This section does not apply to this project.	12 Yes Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system. 13 Yes The space conditioning system serves less than 5,000 ft² of conditioned floor area.
Nonresidential and Hotel/ Motel Multifamily Common Use Ventilation Systems 04 05 06 07 Air Siltration por 120 1(a) 141 0(b) 2 and	¹ FOOTNOTES: System CFM should include both mechanical and natural ventilation for the zone/system ² Air filtration requirements apply to the following three system types per 120.1(c)1A: space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation	L. DISTRIBUTION (DUCTWORK and PIPING)	14 No The combined surface area of the ducts is more than 25% of the total surface area of the entire duct system: 15 The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
System Name Heat Pump System Design OA CFM Airflow¹ System Design Transfer Air CFM Air Filtration per 120.1(c) 141.0(b)2 and 160.2(c)21² Provided	systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.	This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing. Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to	The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2. All Ductwork and plenums with pressure class ratings shall be constructed to Seal Class A
08 09 10 11 12 13 14 15 16	 Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence. See Standards Tables 120.1-A and 120.1-B. 	weather shall be installed with a cover suitable for outdoor service. Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed. Duct Leakage Testing	18 All ductwork is an extension of an existing duct system 19 Ductwork serving individual dwelling unit
Mechanical Ventilation Required per 120.1(c)33 & 160.2(c)3 Space Name or Item Tag Conditioned # of Shower # of Required Provided per Design Required Provided per Design 160.2(c)4 DCV or Sensor Controls per 120.1(d)3, and 120.1(e)36 160.2(c)5D	⁵ For lecture halls with fixed seating, the expected number of occupants shall be determined in accordance with the California Building Code. 6 120.2(e)3 requires systems serving rooms that are required by 130.1(c) to have lighting occupancy sensing controls to also have occupancy sensing zone controls for ventilation.	The answers to the questions below apply to the following duct systems: Heat Pump NR/ Common Use: Duct leakage testing shall not exceed 6% per NA7.5.3 required for these systems?	20 < 25 ft of new or replacement space conditioning ducts installed 21 R-8 Dust Insulation R-value
Occupancy Type* Floor Area (ft²) toilets people Min CFM CFM DA: Not required per	Examples of spaces which require lighting occupancy sensors include offices 250ft ² or smaller, multipurpose rooms less than 1,000 ft ² , classrooms, conference rooms, restrooms, aisles and open areas in warehouses, library book stack aisles, corridors, stairwells, parking garages, and loading and unloading zones, unless excepted by 130.1(c). Multifamily Dwelling Unit Ventilation Systems		M. COOLING TOWERS
ADA Toilet, private 55 0 0 0 0 DCV \$120.1(d)3	Check the box if the system is using continuous ventilation to meet the ventilation requirements per 160.2(b)2Aivb2 19 20 21 22 23 24 25 26 27		This section does not apply to this project.
Occ Sensor space type NA: Not required per	Mechanical Ventilation Required per 120.1(b) & 160.2(b)2 Ventilation per Design		N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION
Restroom Toilet, private 23 0 0 0 0 Sensor Sensor Space type	Space Name or Item Tag Conditioned Floor Area # of Bedrooms # of Dwelling Units CFM Floor Area (ft²) # of Bedrooms # of Dwelling Units CFM Floor Area (ft²) # of Bedrooms Units CFM Floor Area (ft²) # of Bedrooms # of Dwelling Units CFM Floor Area (ft²) # of Bedrooms Units CFM Floor A		Form/Title
зрасс туре	28 Is this a balanced system ⁴ 29 Meeting Outside Air Requirements?		NRCI-MCH-01-E - Must be submitted for all buildings
Desistantian Numbers	¹ FOOTNOTES: Uniform Mechanical Code may have more stringent ventilation requirements; the most stringent code requirement takes precedence.	Decisional Alumban	Resistanting Number
Registration Number: Generated Date/Time: Documentation Software: EnergyPro CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0347	Registration Number: Generated Date/Time: Documentation Software: EnergyPro CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0347	Registration Number: Generated Date/Time: Documentation Software: EnergyPro CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0347	Registration Number: Generated Date/Time: Documentation Software: EnergyPro CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: EnergyPro-50207-0523-0347
Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12	Schema Version: rev 20220101 Report Generated: 2023-05-07 01:44:12

CLIENT:

ADDRESS:

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REV. NO. DESCRIPTION DATE BY

PROJECT:

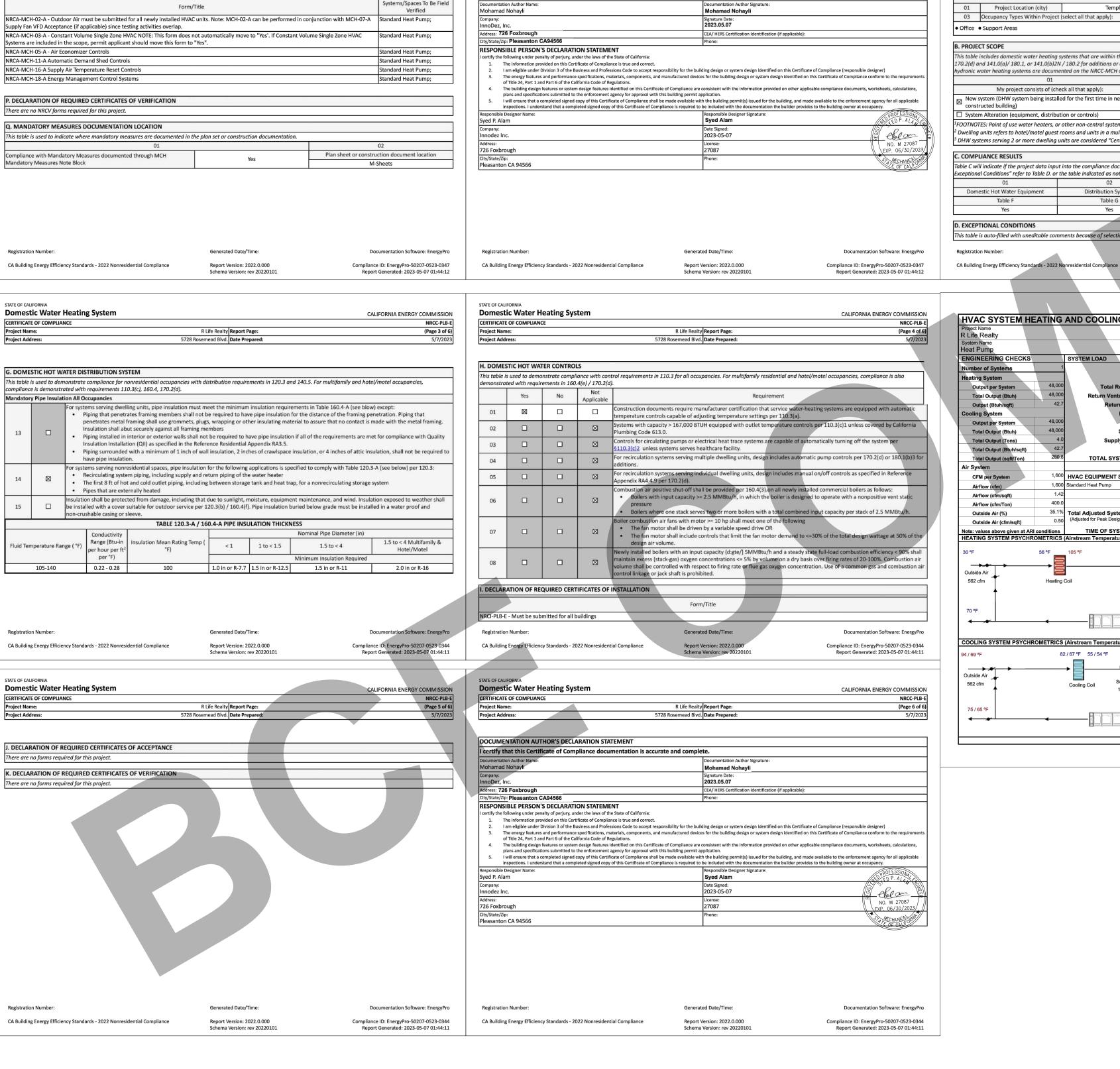
T1TLE: **T24-03**

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:

NTS

DRAWING NO. REV.

T 2 4 . 3



STATE OF CALIFORNIA **Mechanical Systems**

NRCC-MCH-E

(Page 10 of 11)

CERTIFICATE OF COMPLIANCE

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

R Life Realty Report Page: 5728 Rosemead Blvd. Date Prepared:

(Page 11 of 11)

R Life Realty

Number of Systems

Output per System

Total Output (Btuh)

Total Output (Btuh)

Total Output (sqft/Ton)

Total Output (Tons)

CFM per System

Airflow (cfm/sqft)

Airflow (cfm/Ton)

 \rightarrow

562 cfm

70 °F

←

562 cfm

75 / 65 °F **←**

Outside Air (cfm/sqft)

Cooling System

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Supply Fan

Supply Air Ducts

TOTAL SYSTEM LOAD

HVAC EQUIPMENT SELECTION

TIME OF SYSTEM PEAK

Supply Fan

1.600 cfm

56 / 54 °F

1,600 cfm

35.1% Total Adjusted System Output (Adjusted for Peak Design conditions)

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

82 / 67 °F 55 / 54 °F

Heating Coil

STATE OF CALIFORNIA

Mechanical Systems CERTIFICATE OF COMPLIANCE

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

CERTIFICATI	E OF COMPLIANCE							NRCC-PLB-	
	nent is used to demonstrate compli s, for domestic water heating scope								
	0.3, 160.4 and 170.2(d), and with re	2 , , .		iotely moter occupan	cies compi	idilice is definorise	ratea men regane.	nems m	
Project Nan	ne:		R Life Realty Report Page	:				(Page 1 of 6	
Project Add	lress:	5728 Ro	osemead Blvd. Date Prepare	ed:				5/7/202	
A. GENER	RAL INFORMATION								
01	Project Location (city)	Temple City	02	Climate Zo	one	T .	9		
03	Occupancy Types Within Project (s	elect all that apply):				(, f ₁)			
• Office	Support Areas	000000000000000000000000000000000000000							
D DDOLE	CT SCOPE								
				7477 7487 37 37	-		V/// 00 00 00		
	includes domestic water heating sy. nd 141.0(a)/ 180.1, or 141.0(b)2N /								
	vater heating systems are documen							AND MESSA	
	01	02			03				
	My project consists of (chec	System Type ^{1,2}			System Components				
	system (DHW system being installed ructed building)	Individual System (serving nonresidential spaces)			☑ Equipment	□ Distribution			
☐ Syster	m Alteration (equipment, distribution	on or controls)					☐ Distribution	☐ Controls	
¹ FOOTNOT	TES: Point of use water heaters, or o	ther non-central systems used to s	serve nonresidential spac	es, are considered in	ndividual sy	stems.			
_	units refers to hotel/motel guest ro				1				
3 DHW syst	tems serving 2 or more dwelling un	its are considered "Central System	s" for multifamily occupa	ancies					
C COMPI	LIANCE RESULTS								
Mark Street Company	II indicate if the project data input i	ato the compliance decompost is as	muliant with water boot	ting requirements If	this table	nava "DOES NOT	COMBIN" or "COM	DI IEC with	
	ก malcate ij the project data input i al Conditions" refer to Table D. or th			ing requirements. If	triis table s	suys DUES NUT	COMPLY OF COM	PLIES WILTI	
	01	02	03	Ī_			04		
Dome	estic Hot Water Equipment	Distribution Systems	Contro	ols		6	Compliance Results		
	Table F	Table G	Table	Н		Complian	ice Results		
	Yes	Yes	Yes			COMPLIES			
D. EXCEPT	TIONAL CONDITIONS								
This table	is auto-filled with uneditable comm	ents because of selections made o	or data entered in tables t	throughout the form	١.				
Registratio	on Number:		Generated Date/Time	2:			Documentation Softv	vare: EnergyPro	
CA Building	g Energy Efficiency Standards - 2022 No	nresidential Compliance	Report Version: 2022.				nce ID: EnergyPro-50		
Schema Version: rev 20220101						Report Generated: 2023-05-07 01:44:1			

5/7/2023

Floor Area 1,123

COIL COOLING PEAK COIL HTG. PEAK

41,505 20,588 159

CFM Sensible Latent CFM Sensible

562 11,335 -5,271

58,526 15,317

ROOM

62.4% ROOM

NRCC-PLB-E								E OF COMPLIANCE	CERTIFICATE
(Page 2 of 6)			y Report Page:	R Life Realt				ne:	Project Nam
5/7/2023	5728 Rosemead Blvd. Date Prepared:			Project Address:					
			_			_		IONAL REMARKS	. ADDITIO
			on.	Having Jurisdicti	to the Authority	rmit applicant	e by the per	includes remarks mad	This table i
							UIPMENT	STIC HOT WATER EQ	. DOMES
′ 170.2(d) must also	ptive requirements in 140.5(c)	Compliance with prescri	110.1 and 110.3.	equirements in 1	tory equipment r	e with manda	compliance	is used to demonstrate	his table is
				scopes.	on and alteration	80.2 for additi	/ 180.1/ 18	strated and with 141.0	e demons
					iby Loss	ency and Stand	ating Efficie	t Schedule: Water Hea	quipment
	05			03 04					
		Capacity-weighted Average Efficiency %	Gas Service Water Heating System >= 1MMBtu/h ¹			to 140.5(c)/ 0.2(d)3		50 Gallon Electric	System Name
15	14	13	12	11	.0	09 10		08	07
Maximum Standby Loss	Designed Standby Loss	Efficiency Unit	Minimum Efficiency Required	Rated Efficiency	Max GPM/ First Hour Rating (FHR)	Rated Input Capacity (Btu/h)	Volume (gal)	Equipment Type	Name or Item Tag
		UEF	0.93	0.93	FHR >=75	20,000	15	Consumer Rated Electric Storage	50 Gallon Electric
city-weighted	requirements via an input capo	Btu/h may meet 90% Et	pacity > 100,000	ers with input ca	, gas water heate	multiple units	Btu/h with	TE: In systems >= 1MM	FOOTNOTI
							ccupancies	ating Equipment All O	Water Hea
		Requirement				Not Applicable	No	Yes	
	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐			18					
per 110.3(c)3	xternal >=R-3.5. Label required	1 + External >= K-10 OK E	New state buildings 60% of energy for service water heating from site solar energy or recovered energy per 110.3(c)5						19
Mark Control of the C				ngs 60% of ener	New state buildi				13
per 110.3(c)5		ter heating from site sol	gy for service wa	_	A STATE OF THE STA				20

Report Version: 2022.0.000

STATE OF CALIFORNIA

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

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DESCRIPTION

PROJECT:

TITLE:

T24-04

PROJ. NO. | PROJ. ENGR. SCALE @ 24X36: NTS

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