MECHANICAL SPECIFICATIONS

PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM. DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. INSTALL MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE. WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION. PROVIDE OPERATION MANUALS, MAINTENANCE MANUALS AND SCHEMATICS FOR ALL MECHANICAL EQUIPMENT INSTALLED. COORDINATION: COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NRCA" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOF WARRANTY. DUCT DIMENSIONS: UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS. SHEET METAL DUCTWORK: PROVIDE SHEET METAL DUCTWORK FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS, FOR 1" W.G. PRESSURE CLASS, SEAL CLASS "A". SHEET METAL SHALL BE GALVANIZED SHEET STEEL OF LOCK FORMING QUALITY, WITH G90 ZINC COATING. SHEET STEEL SHALL COMPLY WITH ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENTS FOR SHEET, METALLIC-COATED BY THE HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES AT ALL 90º ELBOWS. TRAPEZE DUCT HANGERS: PROVIDE MINIMUM 1" X 2" X 1" X 18 GAUGE CHANNELS WITH MINIMUM 1" X 18 GAUGE STRAPS TO STRUCTURAL SUPPORT. ROUND SHEET METAL DUCT: PROVIDE SPIRAL SEAM (ALL SIZES) OR SNAP LOCK (DUCT SIZES UP TO 10") GALVANIZED STEEL COMPLYING WITH SMACNA STANDARDS. SPIRAL SEAM DUCTWORK SHALL HAVE SMACNA SEAM TYPE RL-1. FIBER GLASS DUCT BOARD IS AN ACCEPTABLE ALTERNATIVE IF APPROVED BY OWNER AND THE LOCAL BUILDING CODE OFFICIAL. PRODUCT AND INSTALLATION MUST MEET NAIMA STANDARDS AND OTHER APPLICABLE CODES AND REGULATIONS. EXPOSED DUCTWORK: EXPOSED DUCTWORK SHALL BE CLEANED OF DEBRIS AND OIL, THEN WIPED DOWN WITH VINEGAR OR OTHER SURFACE PREPARING CHEMICAL TO PREPARE DUCT FOR PAINT. DUCT SEALANT: PROVIDE POLYMERIC RUBBER TYPE SEALANT FOR USE ON BOTH INTERIOR LOCATED DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS. SEALER SHALL HAVE HIGH BONDING STRENGTH FOR SURE, FIRST TIME SEALING OF JOINTS IN LOW, MEDIUM, AND HIGH PRESSURE DUCT SYSTEMS. SEALER SHALL BE HIGH IN SOLID CONTENT. PROVIDE A TWO PART TAPE SEALING SYSTEM, CONSISTING OF WOVEN FIBER TAPE IMPREGNATED WITH A GYPSUM MINERAL COMPOUND, AND A MODIFIED ACRYLIC/SILICONE ACTIVATOR THAT REACTS EXOTHERMICALLY WITH THE TAPE. TWO PART TAPE SEALING SYSTEM MUST BE RATED FOR BOTH INDOOR AND OUTDOOR APPLICATION. TAPE SHALL NOT CONTAIN ASBESTOS. DUCT INSULATION: MATERIAL FOR SUPPLY AND RETURN AIR DUCT ABOVE CEILING INSIDE THE BUILDING SHALL HAVE THE EQUIVALENT THERMAL RESISTANCE OF MINIMUM R-6. THE REQUIRED R VALUES ARE FOR INSTALLED INSULATION WITH 25% COMPRESSION AT THE CORNERS. PROVIDE PINS AND WASHERS IN ACCORDANCE WITH SMACNA REQUIREMENTS AND AS REQUIRED TO PREVENT INSULATION FROM SAGGING. PROVIDE ADEQUATE INSULATION AT THE SUPPLY AIR DIFFUSERS TO PREVENT CONDENSATION. FLEXIBLE DUCT - UL #181 LISTED, CLASS 1, AND CONTAIN A 0.1 PERM RATED POLYETHYLENE INNER LINER, WITH R-8 FIBERGLASS INSULATION. FLEXIBLE DUCTS SHALL BE SECURED TO RIGID SHEET METAL COLLARS AND AIR DIFFUSERS WITH NYLON TIES OR STAINLESS STEEL WORM GEAR STRAPS. SEAL ALL CONNECTIONS AND JOINTS AIRTIGHT. SUPPORT FLEXIBLE DUCTS FROM THE BUILDINGS STRUCTURE WITH MINIMUM 1" WIDE, 18 GAUGE, GALVANIZED STEEL STRAP AT MAXIMUM 4'-0" CENTERS. PROVIDE 4" WIDE SHEET METAL SADDLES AT EACH SUPPORT EACH STRAP. SAG OF FLEXIBLE DUCT BETWEEN HANGERS SHALL NOT EXCEED 1/2" PER FOOT OF SUPPORT SPACING. RADIUS FOR TURNS OF FLEXIBLE DUCTS SHALL BE A MINIMUM OF ONE DUCT DIAMETER. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 10'-0" IN LENGTH AND SHALL BE THE SAME SIZE AS THE DIFFUSER NECK CONNECTION. ROUND VOLUME DAMPERS: PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME AND BLADES, MINIMUM 3/8" SQUARE STEEL AXLE, MOLDED SYNTHETIC BEARINGS, WITH LOCKING POSITION REGULATOR. REGULATOR SHALL BE POSITIONED WITH SHEET METAL BRACKET BEYOND DUCT COVERING. WHERE POSITIONING REGULATOR IS NOT ACCESSIBLE, PROVIDE COUPLING AND EXTENSION ROD WITH REGULATOR FOR CEILING OR WALL INSTALLATION, AS REQUIRED. RECTANGULAR VOLUME DAMPERS: PROVIDE MINIMUM 16 GAUGE GALVANIZED STEEL CHANNEL FRAME, 16 GAUGE GALVANIZED STEEL BLADES, MINIMUM ½" HEXAGONAL AXLE, BOLDED SYNTHETIC BEARINGS, WITH 3/8" SQUARE PLATED STEEL CONTROL SHAFT. LINKAGES SHALL BE CONCEALED IN THE FRAME. OPERATING SHAFT SHALL EXTEND BEYOND FRAME AND DUCT TO A LOCKING QUADRANT WITH ADJUSTABLE LEVER. MAXIMUM BLADE WIDTH SHALL NOT EXCEED 6".

DUCT TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". PROVIDE TURNING VANES CONSTRUCTED OF CURVED BLADES, SUPPORTED WITH BARS PERPENDICULAR TO BLADES, AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. FOLLOW SMACNA GUIDELINES FOR SPACING SUPPORT, AND CONSTRUCTION. ALL BLADES SHALL BE DOUBLE THICKNESS AIRFOIL TYPE. FLEXIBLE DUCT CONNECTORS: PROVIDE U.L. LABELED 30 OUNCE NEOPRENE COATED FIBERGLASS FABRIC DUCT CONNECTORS. DUCT ACCESS DOORS: PROVIDE HINGED ACCESS DOORS IN DUCTWORK WHERE REQUIRED FOR ACCESS TO EQUIPMENT. PROVIDE INSULATED ACCESS DOORS FOR INSULATED DUCTWORK. CONSTRUCT OF SAME OR THICKER GAUGE SHEET METAL AS DUCT IN WHICH IT IS INSTALLED. PROVIDE FLUSH FRAMES FOR UN-INSULATED DUCTS, AND EXTENDED FRAMES FOR EXTERNALLY INSULATED DUCTS. PROVIDE CONTINUOUS HINGE ON ONE SIDE, WITH ONE HANDLE-TYPE LATCH FOR ACCESS DOORS 12" HIGH AND SMALLER, AND TWO HANDLE-TYPE LATCHES FOR LARGER ACCESS DOORS. HVAC CONTROL SYSTEM: PROVIDE ALL THE NECESSARY CONTROLS AND CONTROL WIRING IN CONDUIT COMPATIBLE TO SYSTEMS SHOWN ON EQUIPMENT SCHEDULE M2.0. PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM SHALL ENABLE THE SUPPLY FAN AND CYCLE THE COOLING AND HEATING STAGES TO MAINTAIN SPACE SET-POINT. SUPPLY FAN RUNS CONTINUOUSLY DURING THE OCCUPIED MODE. EACH THERMOSTAT SHALL HAVE A DEAD BAND OF AT LEAST 5 DEGREES (ADJ) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING IS SHUT OFF, EACH THERMOSTAT SHALL HAVE SETBACK AND SET-UP CAPABILITY DURING THE UNOCCUPIED MODE. FOR SETBACK, THE HEATING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET-POINT ADJUSTABLE DOWN TO 55 DEGREES. FOR SET-UP, THE COOLING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET-POINT ADJUSTABLE UP TO 85 DEGREES OR TO PREVENT HIGH SPACE HUMIDITY LEVELS. EACH SYSTEM SHALL BE PROVIDED WITH A MOTORIZED OUTSIDE AIR DAMPER THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACES SERVED ARE NOT IN USE. VENTILATION OUTSIDE AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY CLOSING DURING PREOCCUPANCY BUILDING WARM-UP, COOL DOWN, AND SETBACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (e.g., NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS. COMMISSIONING/VERIFICATION: HVAC CONTROL SYSTEM SHALL BE TESTED TO ENSURE THAT CONTROL ELEMENTS ARE CALIBRATED, ADJUSTED, AND IN PROPER WORKING CONDITION, AND THAT THE SYSTEM MEETS THE DESIGN REQUIREMENTS. TEST AND BALANCE: CONTRACT DIRECTLY A THIRD PARTY TO PROVIDE TEST AND BALANCE OF THE HVAC SYSTEM. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING. TEST AND ADJUST ALL MECHANICAL SYSTEM AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH NEBB PROCEDURAL STANDARDS-1999 OR AABC 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 CAILFORNIA BUILDING CODE.
5. COORDINATE THE INSTALLATION OF THE HVAC SYSTEM WITH ALL OTHER TRADES PRIOR TO FABRICATION OR INSTALLATION. COORDINATE THE LOCATIONS OF PENETRATIONS AND FINAL LOCATION OF ALL EQUIPMENT WITH THE GENERAL CONTRACTOR. PROVIDE EQUIPMENT WEIGHTS, EQUIPMENT DIMENSIONS, PLATFORM SIZES & LOCATIONS, CURB SIZES & LOCATIONS, CONCRETE PAD SIZES AND LOCATIONS AST REQUIRED. COORDINATE LOCATIONS OF GAS & CONDENSATE LINES WITH PLUMBING CONTRACTOR. COORDINTAE LOCATIONS OF POWER, DISCONNECTS, AND CONTROL CONDUIT WITH THE ELECTICAL CONTRACTOR. COORDINATE LOCATIONS OF ALL DIFFUSERS, REGISTERS, AND GRILLES WITH ARCHITECTURAL PLANS, ELECTRICAL LIGHTING PLANS AND ARCHITECTURAL ELEVATIONS.
6. DETAILS FOR EQUIPMENT PADS, PLATFORMS, AND FLASHINGS SHALL BE AS INDICATED BY THE ARCHITECTURAL/STRUCTURAL/CIVIL DRAWINGS, UNLESS NOTED OTHERWISE.
7. ALL EQUIPMENT, DUCTS, PIPING, SUPPORTS, AND OTHER DEVICES OUTSIDE OF THE BUILDING OR EXPOSED TO WEATHER, SHALL BE COMPLETELY WEATHER-PROOFED.
8. OUTSIDE AIR INTAKES SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. BELOW ANY VENT OR EXHAUST DISCHARGE.
9. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. DUCTWORK SHALL BE CONSTRUCTED, ERECTED, INSULATED AND TESTED IN ACCORDANCE CHAPTER 6 OF THE 2022 CALIFORNIA MECHANICAL CODE.
10. ALL EXHAUST FANS SHALL BE EQUIPPED WITH A BACK DRAFT DAMPER.
11. DUCT AND AIR TRANSFER PENETRATIONS THRU BUILDING ASSEMBLIES REQUIRING PROTECTION SHALL BE PROTECTED WITH FIRE DAMPERS, SMOKE DAMPERS, COMBINATION SMOKE/FIRE DAMPERS AND CEILING RADIATION DAMPERS IN ACCORDANCE WITH SECTION 607 OF THE CALIFORNIA MECHANICAL 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 SPECIFICATIONS.
14. INSTALL ALL LOW VOLTAGE HVAC CONTROL WIRE AND DEVICES PER PLAN. ALL WIRE SHALL BE IN CONDUIT PROVIDED AND INSTALLED BY THE ELECTICAL CONTRACTOR UNLESS NOTEDED OTHERWISE.
15. PROVIDE OWNER WITH THREE COPIES OF A CERTIFIED AIR BALANCE REPORT PREPARED IN BY A THIRD PARTY CERTIFIED BY THE AABC OR NEBB. TEST, ADJUST AND BALANCE THE HVAC SYSTEM IN ACCORDANCE WITH AABC OR NEBB PROCEDURES. PROVIDE START-UP/TEST REPORTS FOR ALL AIR HANDLING EQUIPMENT, FANS, AND REFRIGERATION EQUIPMENT. TEST AND VERIFY PROPER OPERATION OF ALL MAKE-UP AIR/EXHAUST AIR INTERLOCK SYSTEMS AND THIER SEQUENCES OF OPERATION. BALANCE ALL AIR FLOWS WITHIN 5% OF DESIGN VALUES. PERMANENTLY MARK BALANCE POSITION OF ALL REGULATING DEVICES.
16. PROVIDE OWNER WITH THREE SETS OF AS-BUILT PLANS AND OPERATIONS AND MAINTENANCE MANUALS. CLEARLY IDENTIFY ALL EQUIPMENT WITH PERMANENT PLASTIC OR METAL LABELS/TAGS (PEN MARKING NOT ACCEPTABLE).
17. PROVIDE ONE YEAR WARRANTY ON ALL LABOR, PARTS AND MATERIALS.
18. ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK. 19.0

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

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

a) DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE INSTALLED IN ACCORDANCE WITH CMC 504.0.

b) DUCTS FOR DOMESTIC CLOTHES DRYERS SHALL BE RIGID METALLIC DUCTS WITH A MINIMUM MILL THICKNESS OF 16 (0.016-INCH), SHALL HAVE A MINIMUM 4-INCH DIAMETER AND A SMOOTH INTERIOR. THE COMBINED HORIZONTAL AND VERTICAL LENGTH OF THE DUCTS OF THE DUCTS SHALL BE 14-FEET, WHICH SHALL BE REDUCED BY 2-FEET FOR EVERY 90-DEGREE ELBOW IN EXCESS OF TWO ELBOWS.

c) LISTED CLOTHES DRYER TRANSITION DUCTS NOT MORE THAN 6-FEET IN LENGTH SHALL BE PERMITTED TO CONNECT THE DRYER TO THE EXHAUST DUCTS AS LONG AS THEY ARE NOT CONCEALED WITHIN CONSTRUCTION, AND THEY ARE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

LEGEND

AxB		DUCT WORK (WIDTHxDEPTH)
AxB		LINED DUCT WORK (WIDTHxDEPTH DIMENSIONS ARE FOR I.D.)
		SUPPLY DUCT, SECTION
		RETURN DUCT, SECTION
		EXHAUST DUCT, SECTION
R. OR D.		RISE OR DROP IN DIRECTION OF AIR FLOW
	FLEX. CONN.	FLEXIBLE CONNECTION
		DUCT TRANSITION, ROUND AND RECTANGULAR
		SPLITTER DAMPER
		EXTRACTOR AT BRANCH DUCT
		TURNING VANES
		FLEXIBLE DUCT
		SINGLE LINE DUCT WORK
	AVD	AUTOMATIC VOLUME DAMPER
	MVD	MANUAL VOLUME DAMPER
	BDD	BACKDRAFT DAMPER
	MD	MODULATING DAMPER
	AFD	AUTOMATIC FIRE DAMPER
	AD	ACCESS DOOR
	SD	SUPPLY DIFFUSER
	RR	RETURN REGISTER
	ER	EXHAUST REGISTER
	SWR	SIDE WALL SUPPLY REGISTER
	SWE	SIDE WALL RETURN OR EXHAUST
	LD	LINEAR DIFFUSER
D.L.	DL	DOOR LOUVER
U.C.	UC	UNDER CUT DOOR
	VAV	VARIABLE AIR VOLUME
T		THERMOSTAT
S		DUCT SMOKE DECTECTOR
	T/B	TO BELOW
	F/B	FROM BELOW
	T/A	TO ABOVE
	F/A	FROM ABOVE

SPECIAL NOTICE TO CONTRACTORS

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

CITY SEAL

PROJECT

PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

MECHANICAL ABBREVIATIONS AND GENERAL NOTES

M 0.01

CALIFORNIA MECHANICAL CODE CHECKING:

DUCT SIZING, THICKNESS & INSULATION

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

604.0 Insulation of Ducts.
604.1 General. Air ducts conveying air at temperatures exceeding 140°F (60°C) shall be insulated to maintain an insulation surface temperature of not more than 140°F (60°C). Factory-made air ducts and insulations intended for installation on the exterior of ducts shall be legibly printed with the name of the manufacturer, the thermal resistance (R) value at installed thickness, flame-spread index, and smoke developed index of the composite material. Internal duct liners and insulation shall be installed in accordance with SMACNA HVAC Duct Construction standards – Metal and Flexible. **[OSHPD 1, 1R, 2, 3, 4 & 5]** *Cold air ducts shall be insulated wherever necessary or to prevent condensation.*
Exceptions:
(1) Factory-installed plenums, casings, or ductwork furnished as part of HVAC equipment tested and rated in accordance with approved energy efficiency standards.
(2) Ducts or plenums located in conditioned spaces where heat gain or heat loss will not increase energy use.
(3) For runouts less than 10 feet (3048 mm) in length to air terminals or air outlets, the rated R-value of insulation need not exceed R-3.5.
(4) Backs of air outlets and outlet plenums exposed to unconditioned or indirectly conditioned spaces with face areas exceeding 5 square feet (0.5m^2) need not exceed R-2; those 5 square feet (0.5m^2) or smaller need to be insulated.
(5) Ducts and plenums used exclusively for evaporative cooling systems.

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

E 502.4.1 Insulation and Ducts. Portions of the air distribution system installed in or on buildings for heating and cooling shall be R-8. Where the mean outdoor dew-point temperature in a month exceeds 60°F (16°C), vapor retarders shall be installed on conditioned-air supply ducts. Vapor retarders shall have a water vapor permeance not exceeding 0.5 perm [2.87 E-11 kg/(Pa.s.m^2)] where tested in accordance with Procedure A in ASTM E96.
Insulation shall not be required where the ducts are within the conditioned space. [ASHRAE 90.2:6.4]

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

CONDENSATE DRAIN:

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

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

TABLE 310.3
MINIMUM CONDENSATE WASTE PIPE SIZE

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

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

310.3.1 Cleanouts. Condensate drain lines shall be configured or provided with a cleanout to permit the clearing of blockages and for maintenance without requiring the drain line to be cut.
310.5 Point of Discharge. Air conditioning condensate waste pipes shall connect indirectly, except where permitted in Section 310.6, to the drainage system through an air gap or air break to trapped and vented receptors, dry wells, leach pits, or the tailpiece of plumbing fixtures. A condensate drain shall be trapped in accordance with the appliance manufacturer's instructions or as approved.
310.6 Condensate Waste From Air-Conditioning Coils. Where the condensate waste from air-conditioning coils discharges by direct connection to a lavatory tailpiece or to an approved accessible inlet on a bathtub overflow, the connection shall be located in the area controlled by the same person controlling the air-conditioned space.

AIR INTAKE AND EXHAUST:

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

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

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

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

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

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

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

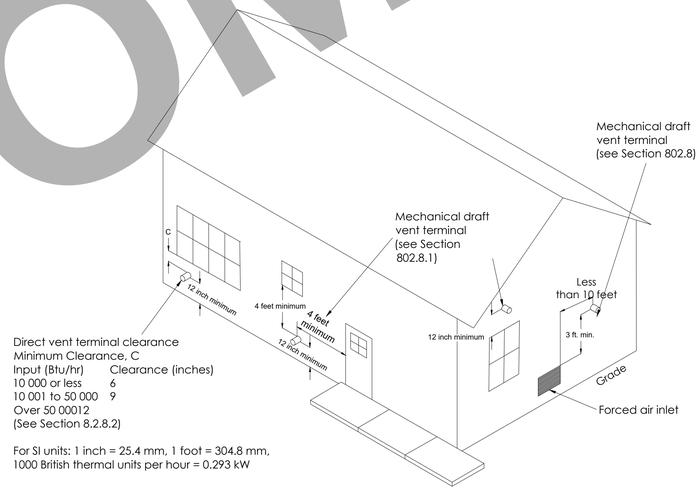


FIGURE 802.8
EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SYSTEMS [NFPA 54: FIGURE A.12.9]

GAS CLOTHES DRYER:

502.1 Exhaust Opening Protection. Exhaust openings terminating to the outdoors shall be covered with a corrosion-resistant screen having not less than ¼ of an inch (6.4 mm) openings, and shall have not more than ½ of an inch (12.7 mm) openings.
Exception: Clothes dryers.

504.4 Clothes Dryers. A clothes dryer exhaust duct shall not be connected to a vent connector, gas vent, chimney, and shall not terminate into a crawl space, attic, or other concealed space. Exhaust ducts shall not be assembled with screws or other fastening means that extend into the duct and that are capable of catching lint, and that reduce the efficiency of the exhaust system.

504.4.1 Provisions for Makeup Air. Make up air shall be provided in accordance with the following:
(1) Makeup air shall be provided for Type 1 clothes dryers in accordance with the manufacturer's instructions. [NFPA 54: 10.4.3.1] Where a closet is designed for the installation of a clothes dryer, an opening of not less than 100 square inches (0.065 m^2) for makeup air shall be provided in the door or by other approved means.
(2) Provision for makeup air shall be provided for Type 2 clothes dryers, with a free area of not less than 1 square inch (0.0006 m^2) for each 1000 British thermal units per hour (Btu/g)(0.293 kW) total input rating of the dryer(s) installed [NFPA 54:10.4.3.2].

504.4.2.1 Length Limitation
Unless otherwise permitted or required by the dryer manufacturer's instructions and approved by the Authority Having Jurisdiction, domestic dryer moisture exhaust ducts shall not exceed a total combined horizontal and vertical length of 14 feet (4267 mm), including two 90 degree (1.57 rad) elbows. A length of 2 feet (610 mm) shall be deducted for each 90 degree (1.57 rad) elbow in excess of two

504.4.3.1 Exhaust Ducts for Type 2 Clothes Dryers. Exhaust ducts for Type 2 clothes dryers shall comply with the following:
(1) Exhaust ducts for Type 2 clothes dryers shall comply with Section 504.4. [NFPA 54:10.4.5.1]
(2) Exhaust ducts for Type 2 clothes dryers shall be constructed of sheet metal or other noncombustible material. Such ducts shall be equivalent in strength and corrosion resistance to ducts 0.0195 of an inch (0.4953 mm) thick. [NFPA 54:10.4.5.2]
(3) Type 2 clothes dryers shall be equipped or installed with lint-controling means. [NFPA 54:10.4.5.3]
(4) Exhaust ducts for Type 2 clothes dryers shall be installed with a clearance of not less than 6 inches (152 mm) from adjacent combustible material. Where exhaust ducts for Type 2 clothes dryers are installed with reduced clearances, the adjacent combustible material shall be protected in accordance with Table 303.10.1. [NFPA 54:10.4.5.4]
(5) Where ducts pass through walls, floors, or partitions, the space around the duct shall be sealed with noncombustible material. [NFPA 54:10.4.5.4]

FACTORY-MADE AIR DUCTS

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

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

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

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

RECTANGULAR DUCTS

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

METAL DUCTS

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

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

COMBUSTIBLES WITHIN DUCTS OR PLENUMS

MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX NOT TO EXCEED 25 AND A SMOKE-DEVELOPED INDEX NOT TO EXCEED 50, WHERE TESTED AS A COMPOSITE PRODUCT IN ACCORDANCE WITH ASTM E84 OR UL 723.

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

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.

CITY SEAL

PROJECT

PRINTS

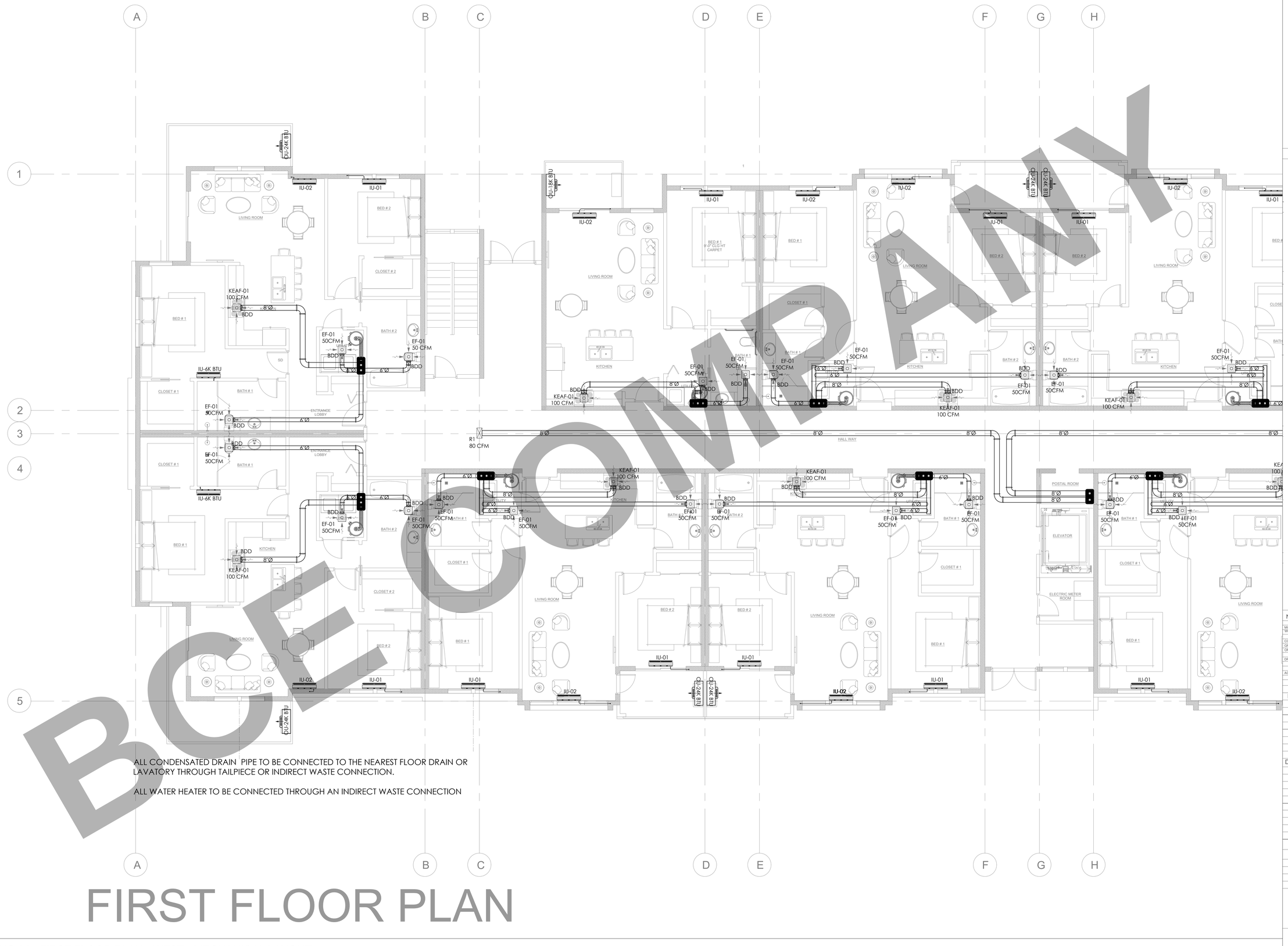
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
MECHANICAL CODE CHECKING

M 0.02



ALL CONDENSATED DRAIN PIPE TO BE CONNECTED TO THE NEAREST FLOOR DRAIN OR LAVATORY THROUGH TAILPIECE OR INDIRECT WASTE CONNECTION.

ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

FIRST FLOOR PLAN

CITY SEAL

PROJECT

NOTICE: THIS DRAWING MUST BE READ AND NEVER MEASURED.

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND ANY AMBIGUITY MUST BE BROUGHT TO THE CLIENT REP.'S NOTICE BEFORE COMMENCEMENT OF THE WORK.

PRINTS

DATE	PURPOSE	ISSUED TO	SETS

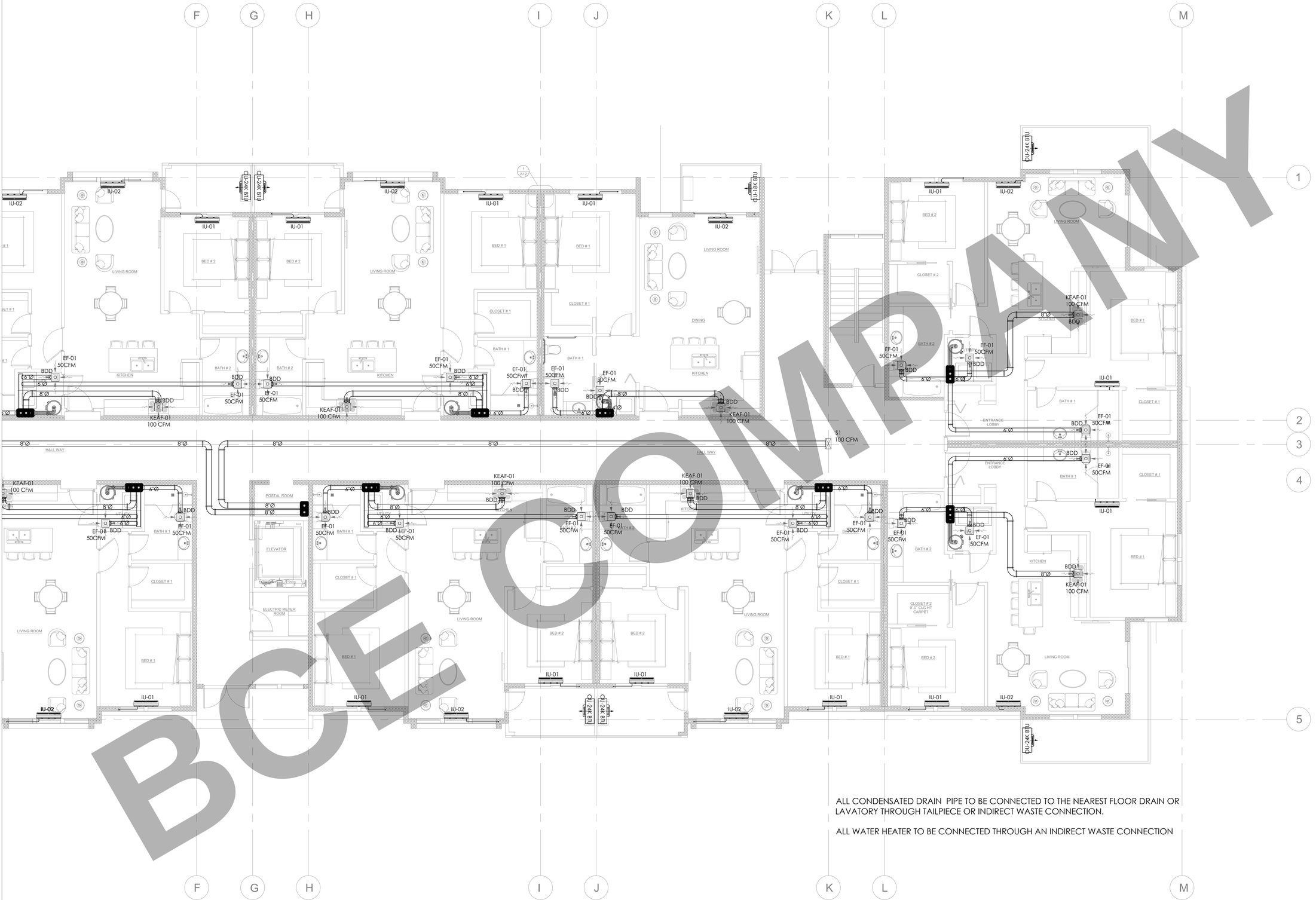
DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

M 1.01

03 BUILDING 01 - FIRST FLOOR PLAN - WEST - MECHANICAL LAYOUT.



ALL CONDENSATED DRAIN PIPE TO BE CONNECTED TO THE NEAREST FLOOR DRAIN OR LAVATORY THROUGH TAILPIECE OR INDIRECT WASTE CONNECTION.

ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

FIRST FLOOR PLAN

04 BUILDING 01 - FIRST FLOOR PLAN - EAST - MECHANICAL LAYOUT.

CITY SEAL

PROJECT

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PRINTS

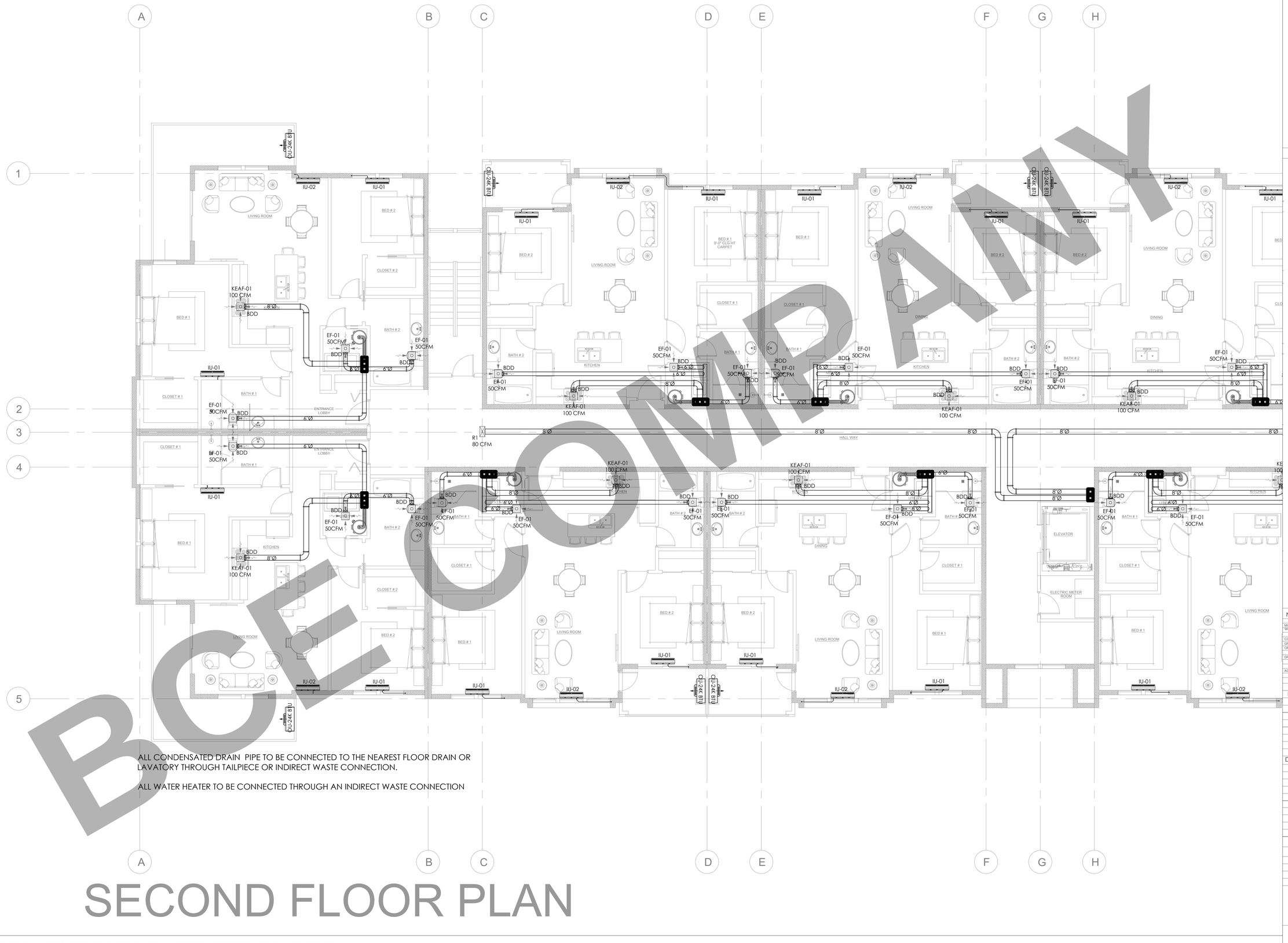
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

M 1.02



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ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

SECOND FLOOR PLAN

CITY SEAL

PROJECT

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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

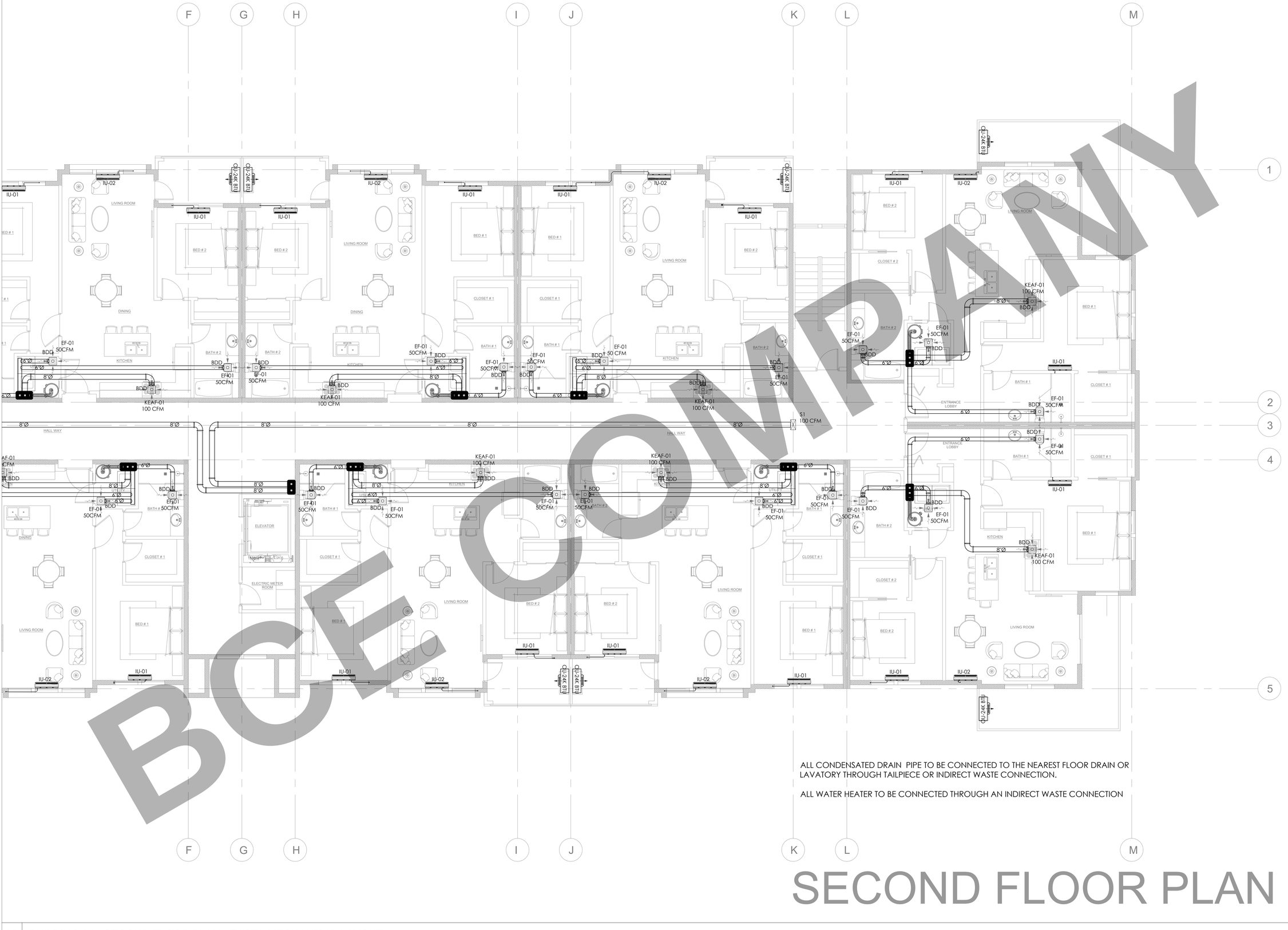
DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

M 1.02

05 BUILDING 01 - SECOND FLOOR PLAN - WEST - MECHANICAL LAYOUT.



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ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

SECOND FLOOR PLAN

06 BUILDING 01 - SECOND FLOOR PLAN - EAST - MECHANICAL LAYOUT.

CITY SEAL

PROJECT

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PRINTS

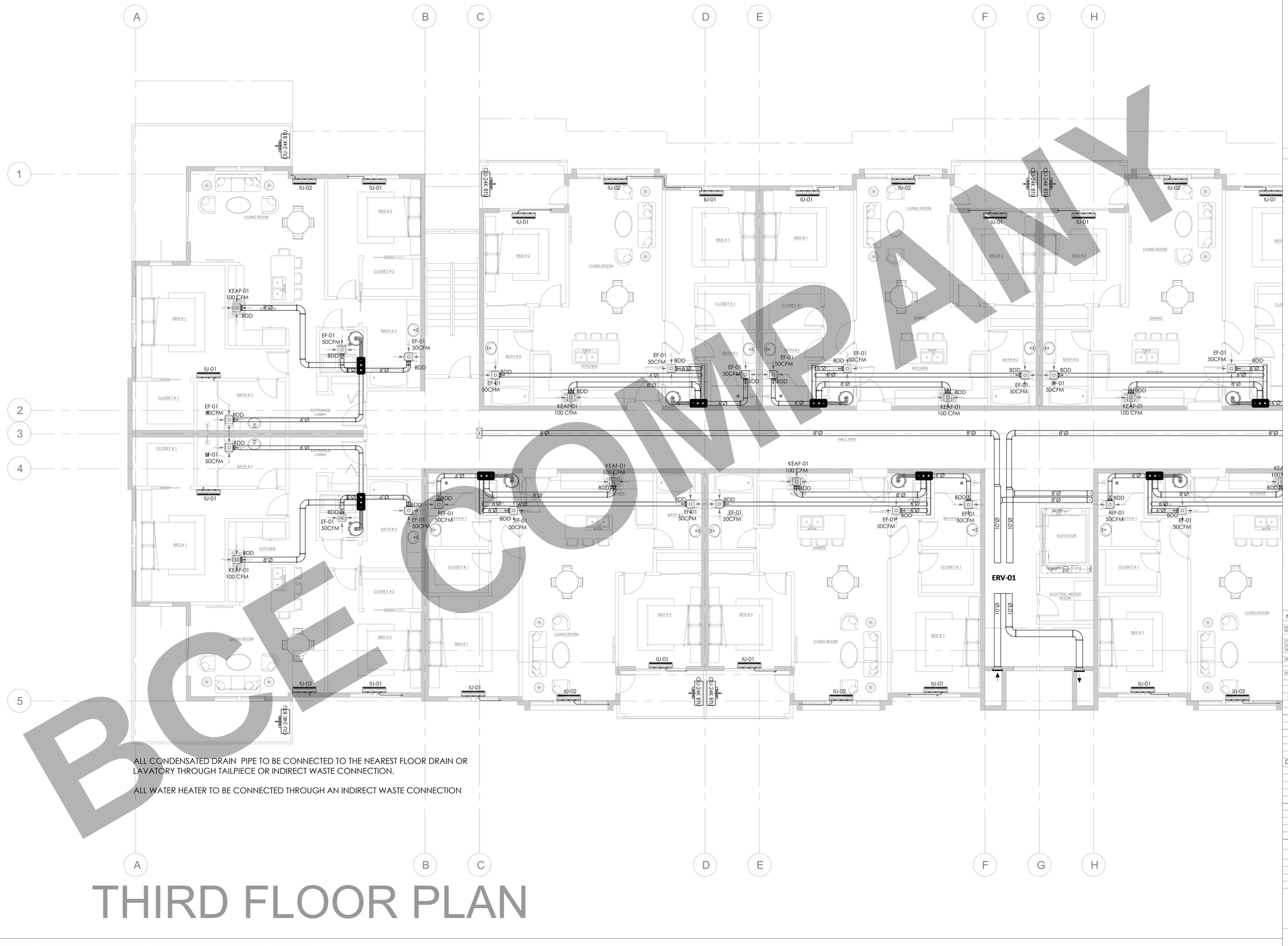
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

M 1.04



THIRD FLOOR PLAN

07 BUILDING 01 - THIRD FLOOR PLAN - WEST - MECHANICAL LAYOUT.

CITY SEAL

PROJECT

PRINTS

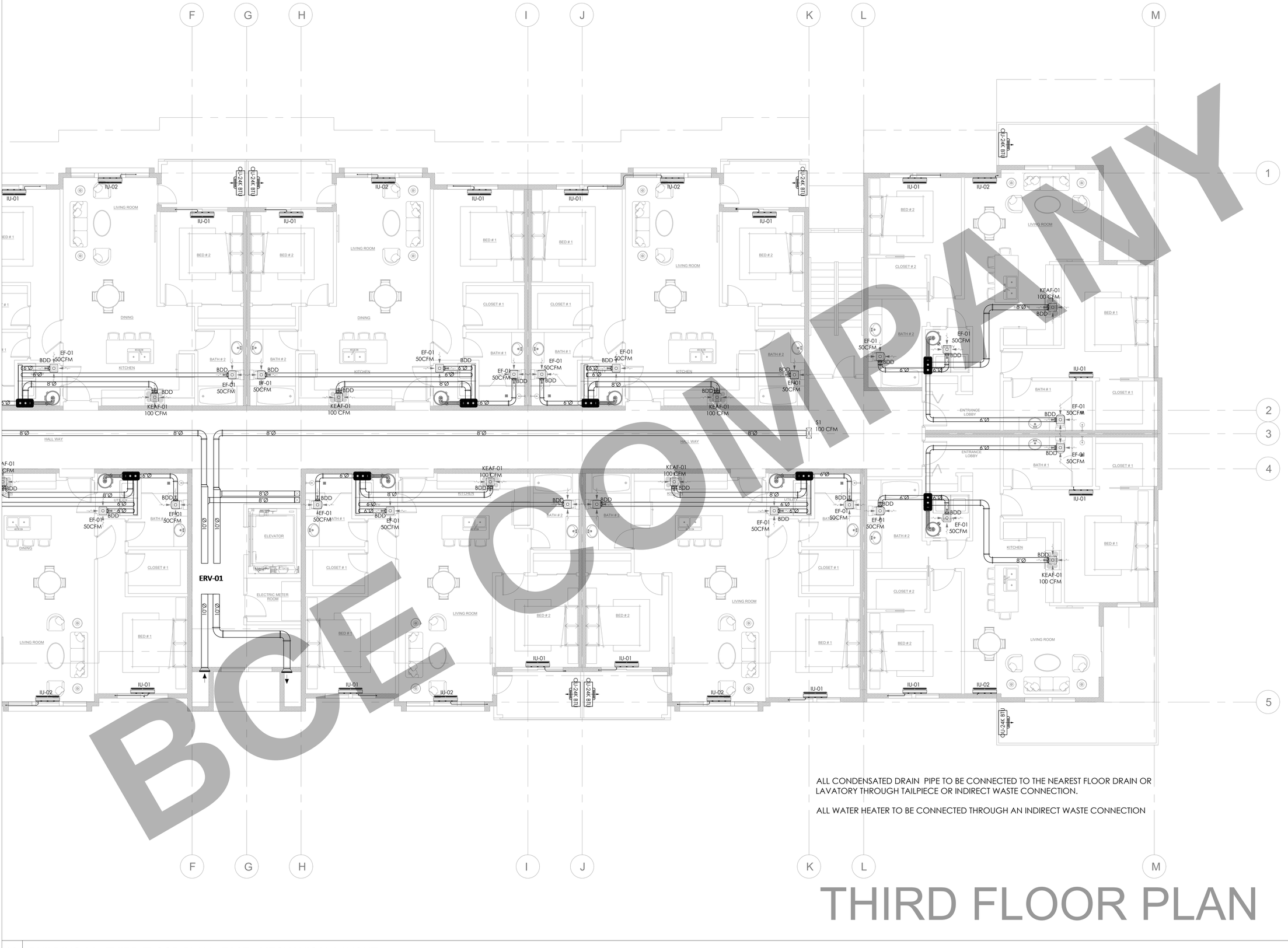
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

M 1.05



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ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

THIRD FLOOR PLAN

CITY SEAL

PROJECT

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PRINTS

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DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
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DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

M 1.06

08 BUILDING 01 - THIRD FLOOR PLAN - EAST - MECHANICAL LAYOUT.

SCHEDULE No. 1
OUTDOOR UNIT UNITS

TAG	OU-01	OU-02
SERVING	1 BED APP	2 BED APP
MANUFACTURER	MITSUBISHI	MITSUBISHI
OUTDOOR MODEL	MXZ-2C20NA2	MXZ-3C24NA2
POWER SUPPLY	208/230 / 1 / 60	208/230 / 1 / 60
MINIMUM CIRCUIT AMPACITY	17.2	22.1
MINIMUM CIRCUIT AMPACITY	20	25
OUTDOOR DIMENSIONS (H x W x D) (inch)	33-1/16 x 13 x 27-15/16	37-13/32 x 13 x 31-11/32

SCHEDULE No. 2
INDOOR UNITS

TAG	IU-01	IU-02
SERVING	TYPICAL FOR ALL APP.	TYPICAL FOR ALL APP.
MANUFACTURER	MITSUBISHI	MITSUBISHI
INDOOR MODEL	MSZ-FS06NA	MSZ-FS12NA
POWER SUPPLY	208/230 / 1 / 60	208/230 / 1 / 60
POWER INPUT - COOLING/HEATING (W)	315	870
MCA (A)	10	10
MOCP (A)	15	15
AIR FLOW (CFM) - MEDIUM SPEED	225	282
COOLING CAPACITY (BTU/H)	6,000	12,000
HEATING CAPACITY (BTU/H)	8,700	12,300
INDOOR DIMENSIONS (H x W x D) (inch)	12.68 x 9.18 x 11.25	12.68 x 9.18 x 11.25

SCHEDULE No. 3
FAN SCHEDULE

TAG	EF-01 TO 27	KEAF-01 TO 09
LOCATION	BATHROOMS/ LAUNDRY	KITCHEN
SELECTED FLOW (CFM)	50	100
SELECTED PRESSURE DROP (IN. H2O)	0.25"	0.25"
ELECTRICAL (V / PH / HZ)	120 / 1 / 60	120 / 1 / 60
POWER / Amps	25 W	25 W
MOTOR SPEED (RPS)	MULTI SPEED	MULTI SPEED
FAN TYPE	CEILING FANS	CEILING FANS
MANUFACTURER	PANASONIC	PANASONIC
MODEL	WHISPER FV-0511VKS2	WHISPER FV-0511VKS2

NOTES:

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

SCHEDULE No. 4
ERV SCHEDULE

TAG	ERV-01
LOCATION	THIRD FLOOR
FLOW (CFM)	300
PRESSURE DROP (INCH W.C.)	0.00
ELECTRICAL (V / PH / HZ)	208/1/60
BHP	1/4
POWER (KW)	0.2
RPM	1,800
FAN TYPE	CENTRIFUGAL WHEEL
MANUFACTURER	GREENHECK
MODEL	MC-5-VG-FM

SCHEDULE No. 5
AIR OUTLETS

TAG	DESCRIPTION	MANUFACTURER	MODEL	MOUNTING
S1	SUPPLY DIFFUSER	TITUS	16in. x 8in.	Duct Mounted
R1	RETURN DIFFUSER	TITUS	24in. x 24in.	Duct Mounted

NOTES:

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

VENTILATION:
WORST CASE SCENARIO:

0.03 x 1070 + 3 x 7.5 = 54.5 CFM
THE EXHAUST FAN IN THE TOILETS WILL BE RUNNING CONTINUOUSLY TO COVER THE VENTILATION REQUIRED.

CITY SEAL

PROJECT

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PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

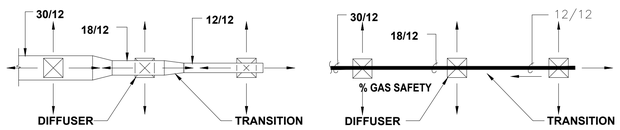
M 2.01

GENERAL NOTES

1. MECHANICAL CONTRACTOR SHALL EXAMINE ALL OTHER SPECIFICATIONS, DRAWINGS AND ALL FEATURES OF BUILDING CONSTRUCTION WHICH MAY AFFECT HIS WORK AND SHALL B GOVERNED BY THESE AND OTHER SPECIFICATIONS, INCLUDIN THE GENERAL CONDITIONS AND PARTICULAR INSTRUCTIONS T ALL BIDDER AND SUPPLIERS .
2. ALL WORK SHALL BE EXECUTED AND INSPECTED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND/OR STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THIS PARTICULAR CLASS OF WORK, AND EACH CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, TAXES, AND OTHER SIMILAR COSTS IN CONNECTION THEREWITH .
3. PRIOR TO FABRICATION OF DUCTWORK, THE MECHANICAL CONTRACTOR SHALL EXAMINE AND VERIFY ALL CONDITIONS ABOVE AND BELOW THE CEILING WHICH MAY INTERFERE WITH THE DUCT SYSTEM AND NOTIFY THE ARCHITECT OF ANY CONFLICT ENCOUNTERED CONTRACTOR SHALL PROVIDE ALL OFFSETS, ETC WHICH MAY BE REQUIRED, WITHOUT ADDITIONAL COST TO THE OWNER
4. ALL SHEET METAL DUCT CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH "SMACNA" LOW PRESSURE DUCT CONSTRUCTION STANDARD
5. TURNING VANES SHALL BE INSTALLED IN ALL BENDS IN RECTANGULAR DUCT EXCEEDING 30"
6. ALL DUCTS SHALL BE SUPPORTED WITH 1"WIDE, 16 GAUGE, GALVANIZED STEEL BANDS .
7. ALL RECTANGULAR DUCT SHALL BE INSULATED WITH A MIN OF 1"INTERNAL LINER, 2 LBS DENSITY R-60 .ALL ROUND DUCTS AND DIFFUSER TOPS SHALL HAVE A MIN 2" THICK OF FOIL BACKED BLANKET TYPE INSULATION R=4-4 2, WITH ALL JOINTS BUTTED AND TAPED .
8. ALL DUCT DIMENSIONS SHOWN ON PLANS ARE INTERNAL
9. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF SUPPLY AND RETURN AIR REGISTERS, DUCTS, GRILLES AND DIFFUSERS WITH LIGHTING AND CEILING PATTERNS
10. PROVIDE LATERAL BRACING OF ALL DUCTS AND PIPES AS REQUIRED BY CODE .
11. INSULATE AND SEAL ALL DUCTWORK PER CHAPTER 10 OF THE STATE MECHANICAL CODE (T-24, PART 4)
12. MOUNT ALL THERMOSTATS AT 48" ABOVE FINISHED FLOOR .
13. ALL BRACING OF DUCTS AND PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES
14. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND THE MECHANICAL ENGINEER .
15. DUCT SMOKE DETECTOR SHALL BE INSTALLED BELOW THE ROOF
16. ALL MECHANICAL EQUIPMENT AND SYSTEMS INSTALLED AS PART OF PROJECT SHALL COMPLY WITH ALL REQUIREMENTS OF THE 2022 CALIFORNIA MECHANICAL CODE AND THE 2022 CALIFORNIA BUILDING CODE AND THE 2022 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS
17. OUTSIDE AIR FOR A HEATING OR COOLING SYSTEM SHALL NOT BE TAKEN FROM CLOSER THAN 10 FEET FROM AN APPLIANCE VENT OUTLET, VENT OPENING OF A PLUMBING SYSTEM, OR THE DISCHARGE OUTLET OF EXHAUST FAN, UNLESS THE OUTLET IS 3 FT ABOVE THE OUTSIDE AIR INLET (CMC 314 3)
18. PROVIDE 120 VOLT ELECTRICAL OUTLETS WITHIN 25 FT OF ALL MECH EQUIPT .(CMC 309)
19. HEATING,VENTILATING,ANDAIR CONDITIONING SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS IN ACCORDANCE WITH CMC 317 1 REQUIREMENTS
    A. AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE
    B. ACCA MANUAL B
    C. ASHRAE 111
    D. NEBB PROCEDURAL STANDARDS FOR TESTING,ADJUSTING ADJUSTING BALANCING OF ENVIRONMENTAL SYSTEMS
    E. SMACNA HVAC TESTING,ADJUSTING,AND BALANCING
20. MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NON COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX NOT TO EXCEED 25 AND A SMOKE DEVELOPED INDEX NOT TO EXCEED 50 WHERE TESTED AS A COMPOSITE PRODUCT IN ACCORDANCE WITH ASTM E84 OR UL 723 .

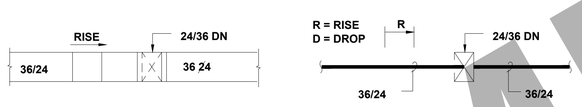
DUCTWORK SYMBOLS LEGEND

TRANSITIONS



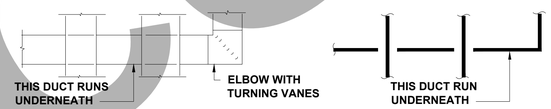
MAIN BRANCH TAKE-OFFS

RISERS

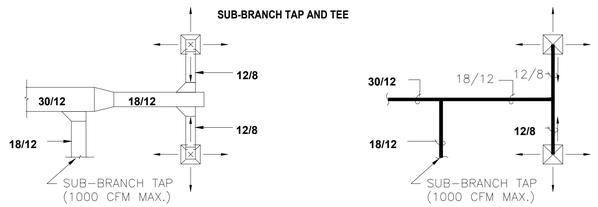


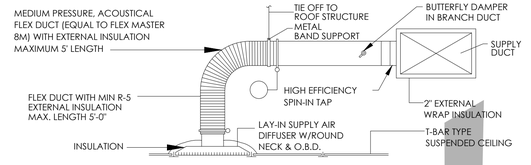
SIDEWALL REGISTERS

DUCT CROSSOVERS

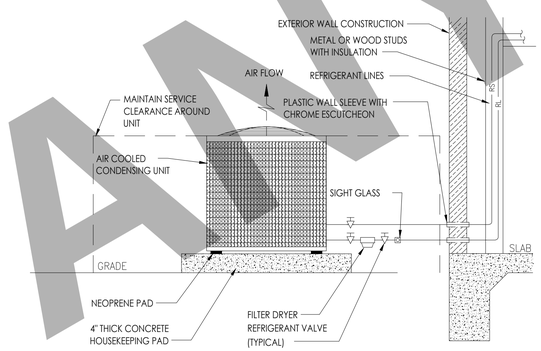


SUB-BRANCH TAP AND TEE

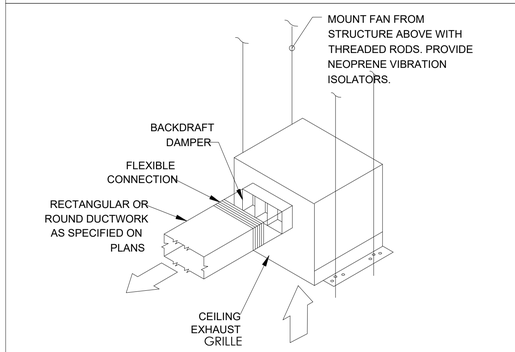




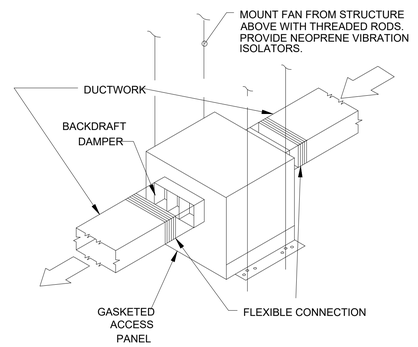
SUPPLY AIR DIFFUSER CONNECTION



OUTSIDE AIR CONDITIONER



CEILING EXHAUST FAN DETAIL



IN-LINE FAN DETAIL

CITY SEAL

PROJECT

PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

MECHANICAL GENERAL DETAILS

M 3.01

LIST OF SYMBOLS AND SERVICES

	WALL MOUNTED LED LIGHTING FIXTURE WITH POWER 15VA
S	LIGHTING FIXTURE SIMILAR TO LITHONIA CSS L48 ALO3 MVOLT SWNO 80CRI
F1	WESTGATE LED DISK DOWNLIGHT 6" DLS6 15WATTS 120 VOLTS
	CEILING MOUNTED FAN INCLUDING LIGHTING
F2	WALL SCONCE Square LED Bathroom Mirror Light IP44 12W Dimmable
F3	LINEAR CABINET UNDER-MOUNT LIGHT
	CEILING MOUNTED JUNCTION BOX FOR EXHAUST FAN
WP	OUTDOR FLOOD LIGHT IP67 WITH POWER OF 70VA
F5	OUTDOR FLOOD LIGHT IP67 WITH POWER OF 70VA
	SURFACE MOUNTED VACANCY DETECTOR
	CEILING MOUNTED FAN INCLUDING LIGHTING
	EMERGENCY ILLUMINATION FIXTURE. WITH EMERGENCY LIGHT SHALL BE ON ALL TIME WITH 90 BACK UP MINUTES BATTERY BUILT IN SIMILAR TO "Lithonia lighting"ELM4L, LED 2.5 WATTS 120 VOLTS
D S	SINGLE POLE SWITCH , 20A, 120/277 VOLTS - WALL MOUNTED @ +48" A.F.F.L TO CENTER D: DENOTES SWITCH WITH ELECTRONIC DIMMER O: DENOTES OCCUPANCY SENSOR
D S	3 WAY SWITCH , 20A, 120/277 VOLTS - WALL MOUNTED @ +48" A.F.F.L TO CENTER. D: DENOTES SWITCH WITH ELECTRONIC DIMMER O: DENOTES OCCUPANCY SENSOR
S_F	ONE WAY ONE GANG SWITCH FOR TOILET EXHAUST FAN - WALL MOUNTED @ +48" A.F.F.L
	120/208V, PANEL BOARD
	SINGLE RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
	DUPLEX RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
	QUADRUPLE RECEPTACLE - WALL MOUNTED @ +18" AFF UNLESS NOTED
	JUNCTION BOX - WALL MOUNTED - HEIGHT AS INDICATED
	JUNCTION BOX
YxXA	NON-FUSED DISCONNECT SWITCH - SIZE AS INDICATED
	CONDUITS IN CEILING
	CONDUITS UNDER TILES

INSTALLATION HEIGHTS:
- h1: 23.622 inches.
- h2: 43.3071 inches.
- h3: 47.2441 inches.
- h4: 70.86 inches.
- h5: 94.48 inches.
- h6: 60 inches.

LIST OF SYMBOLS AND SERVICES

◆	SELF CONTAINED SMOKE DETECTOR/ANNUNCIATOR (120 W/BATTERY BACKUP) – CEILING MOUNTED
◆	SELF CONTAINED SMOKE/CARBON MONOXIDE (120 W/BATTERY BACKUP) – CEILING MOUNTED

GENERAL NOTES:

1. ALL WORK AND EQUIPMENT UNDER THIS DIVISION SHALL BE IN STRICT COMPLIANCE WITH THE CODES, STANDARDS AND PRACTICES LISTED HEREIN, AND THEIR RESPECTIVE DATES ARE FURNISHED AS THE MINIMUM LATEST REQUIREMENTS.
   - A. LIFE SAFETY CODE
   - B. NATIONAL FIRE PROTECTION ASSOCIATION
   - C. NATIONAL ELECTRICAL CODE
   - D. AMERICAN NATIONAL STANDARDS INSTITUTE
   - E. INSTITUTE OF ELECTRICAL AND ELECTRONIC ASSOCIATION
   - F. NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)
   - G. REQUIREMENTS OF LOCAL POWER COMPANY
   - H. BUILDING CODE
2. THE ELECTRICAL INSTALLATION SHALL MEET THE APPROVAL OF THE LOCAL GOVERNING AUTHORITIES AND THE OWNER'S REPRESENTATIVE PRIOR TO ACCEPTANCE.
3. REFER TO THE ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, CIVIL, INTERIOR DESIGN, FOR RELATED INFORMATION AND ADDITIONAL INSTALLATION REQUIREMENTS TO BE CONSIDERED AS PART OF THE ELECTRICAL CONTRACT DOCUMENTS.
4. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION THE CONTRACTOR IS EXPECTED TO FURNISH ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM. PROVIDE EVERYTHING NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MINOR ITEMS WHICH ARE OBVIOUSLY NECESSARY TO COMPLETE THE INSTALLATION.
5. LIGHT SWITCHES SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR TO CENTER LINE OF THE DEVICE, UNLESS NOTED OTHERWISE. GANG SWITCHES AND DIMMER WITH A COMMON PLATE WHERE TWO (2) OR MORE ARE INDICATED ADJACENT TO EACH OTHER.
6. RECEPTACLES SHALL BE LOCATED 18" ABOVE FINISHED FLOOR TO CENTER LINE OF DEVICE, UNLESS NOTED OTHERWISE. ABOVE-COUNTER RECEPTACLES SHALL BE MOUNTED 6" ABOVE BACK SPLASH TO CENTERLINE OF DEVICE UNLESS NOTED OTHERWISE.
7. USE GALVANIZED RIGID STEEL CONDUIT WHERE EXPOSED TO EXTERIOR CONDITIONS OR WHERE EXPOSED IN ANY LOCATIONS WHERE SUBJECT TO MECHANICAL DAMAGE. EMT SHALL BE PROVIDED WITH SET SCREW STEEL FITTINGS FOR INSTALLATION IN ALL CONCEALED WALLS AND CEILINGS IN DRY AREAS. ALL CONDUIT FOR LIGHTING PROTECTION SHALL BE PVC, SCHEDULE 40, UNLESS OTHERWISE NOTED, PVC MAY BE USED WHERE BURIED UNDER GRADE AND ENCASED IN CONCRETE SLAB OR WALLS. ALUMINUM CONDUIT IS NOT ALLOWED. EMT CAN BE USED IN DRY AREAS WHEN INSTALLED 10 FEET ABOVE FINISHED FLOOR LEVEL.
8. ALL CONDUITS IN PUBLIC SHALL BE CONCEALED UNLESS NOTED OTHERWISE.
9. AT LEAST ONE 20-AMPERE BRANCH CIRCUIT SHALL BE PROVIDED TO SUPPLY THE BATHROOM RECEPTACLE OUTLETS. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. (CEC210.11C.3)PROVIDE A MINIMUM OF TWO (2) SEPARATE 20-AMP CIRCUITS TO KITCHEN APPLIANCES. THE TWO OR MORE SMALL-APPLIANCE BRANCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. PROVIDE NOTE ON THE PLANS. (CEC 210.52B) AT LEAST ONE 20-AMPERE BRANCH CIRCUIT SHALL BE PROVIDED TO SUPPLY THE LAUNDRY RECEPTACLE OUTLETS. SUCH CIRCUITS SHALL HAVE NO OTHER OUTLETS. (CEC210.11C.2)

ELECTRICAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	HOA	HAND-OFF-AUTOMATIC	SWBD	SWITCH BOARD
AFG	ABOVE FINISHED GRADE	HP	HORSEPOWER	SQFT	SQUARE FEET
A/C	AMP INTERRUPTING CURRENT				
AL	ALUMINUM	IG	ISOLATED GROUND	TL	TWISTLOCK
ATS	AUTOMATIC TRANSFER SWITCH			TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
		JBOX	JUNCTION BOX	TVP	TYPICAL
BFG	BELOW FINISHED GRADE				
BKBD	BACKBOARD	KVA	KILOVOLT-AMPS	UG	UNDERGROUND
		KW	KILOWATT	UMC	UNIFORM MECHANICAL CODE
C	CONDUIT			UON	UNLESS OTHERWISE NOTED
CU	COPPER	MCC	MOTOR CONTROL CENTER	UPS	UNINTERRUPTABLE POWER SUPPLY
		MPC	MINI POWER CENTER		
DB	DISTRIBUTION BOARD			V	VOLTS
		NC	NORMALLY CLOSED	VA	VOLT-AMPS
(E)	EXISTING TO REMAIN	NEC	NATIONAL ELECTRIC CODE	V/PH/A	VOLTS/PHASE/AMPS
EA	EACH	NF	NON-FUSED	V/PH/HZ	VOLTS/PHASE/HERTZ
EM	EMERGENCY	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	VFD	CARIABLE FREQUENCY DRIVE - PROVIDED BY
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM	NIC	NOT IN CONTRACT	MECHANICAL	
EWC	ELECTRIC WATER COOLER	NL	NIGHT LIGHT	WP	WEATHER PROOF (NEMA 3R)
		NO	NOT TO SCALE		
F	FUSE (DUAL ELEMENT, TIME DELAY)			(X)	EXISTING TO BE REMOVED
FBO	FINISHED BY OTHERS	PB	PULLBOX	XFMR	TRANSFORMER
FPN	FUSE PER NAMEPLATE	PNL	PANEL BOARD	XP	EXPLOSION PROOF
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	(R)	EXISTING TO BE RELOCATED		
GND	GROUND	RGS	RIGID GALVANIZED STEEL		
W.P	WEATHER PROOF				

ELECTRICAL SPECIFICATIONS

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

120VOLT, 1PH	CONDUCTOR	240 VOLT, (1PH)
0-64	#12AWG	0-129
65–106	#10AWG	130-212
107-160	#8AWG	213-321

NOTE:BASED ON 75ºc 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 ARE AS 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 CEC 2022 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 CEC 2022. PROVIDE BONDING AS REQUIRED BY ARTICLE 680.74 OF THE CEC 2022.
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 CEC 2022.
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 R314.3 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.
    - E. CARBON MONOXIDE ALARMS WITHIN EACH BEDROOM WHICH CONTAINS A FUEL-FIRED APPLIANCE.
43. ALL BRANCH CIRCUITS THAT SUPPLY 125-VOLT, SINGLE PHASE, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT. CEC 2022 ARTICLE 210.12 (A).
44. ALL ATTIC ACCESSES SHALL BE PROVIDED WITH A SWITCHED LIGHT AND 120 VOLT GFI OUTLET AT OR NEAR THE FORCED AIR UNIT. LOCATE LIGHT SWITCH AT THE ATTIC ACCESS OPENING.
45. ALL RECESSED LED STRIP LIGHTING SHALL BE BY KLUS

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NOTICE:
THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND ANY AMBIGUITY MUST BE BROUGHT TO THE CLIENT REP.'S NOTICE BEFORE COMMENCEMENT OF THE WORK.
THIS DRAWING IS THE PROPERTY OF MBNS DESIGN CONSULTANT & MUST NOT BE COPIED,XEROXED,PRINTED OR HANDED OVER TO ANY UNAUTHORISED PERSON OR A GROUP OF PERSONS WITHOUT THE WRITTEN PERMISSION OF THE LEGAL OWNER OF THIS OF THE PROJECT
ALL DRAWINGS ISSUED TO ANY PERSON FOR THE SOLE PURPOSE FOR WHICH THIS DRAWING WAS MADE,MUST RETURN ALL COPIES TO THE OWNER AFTER THE COMPLETION
MULTIPLE USE OF THIS DRAWING FOR ANY OTHER SITE MUST HAVE THE WRITTEN AGREEMENT AND PERMISSION OF THE OWNER
ANY INFRINGEMENT OF THESE OWNER'S RIGHTS WILL BE LIABLE FOR LEGAL ACTION.

PRINTS

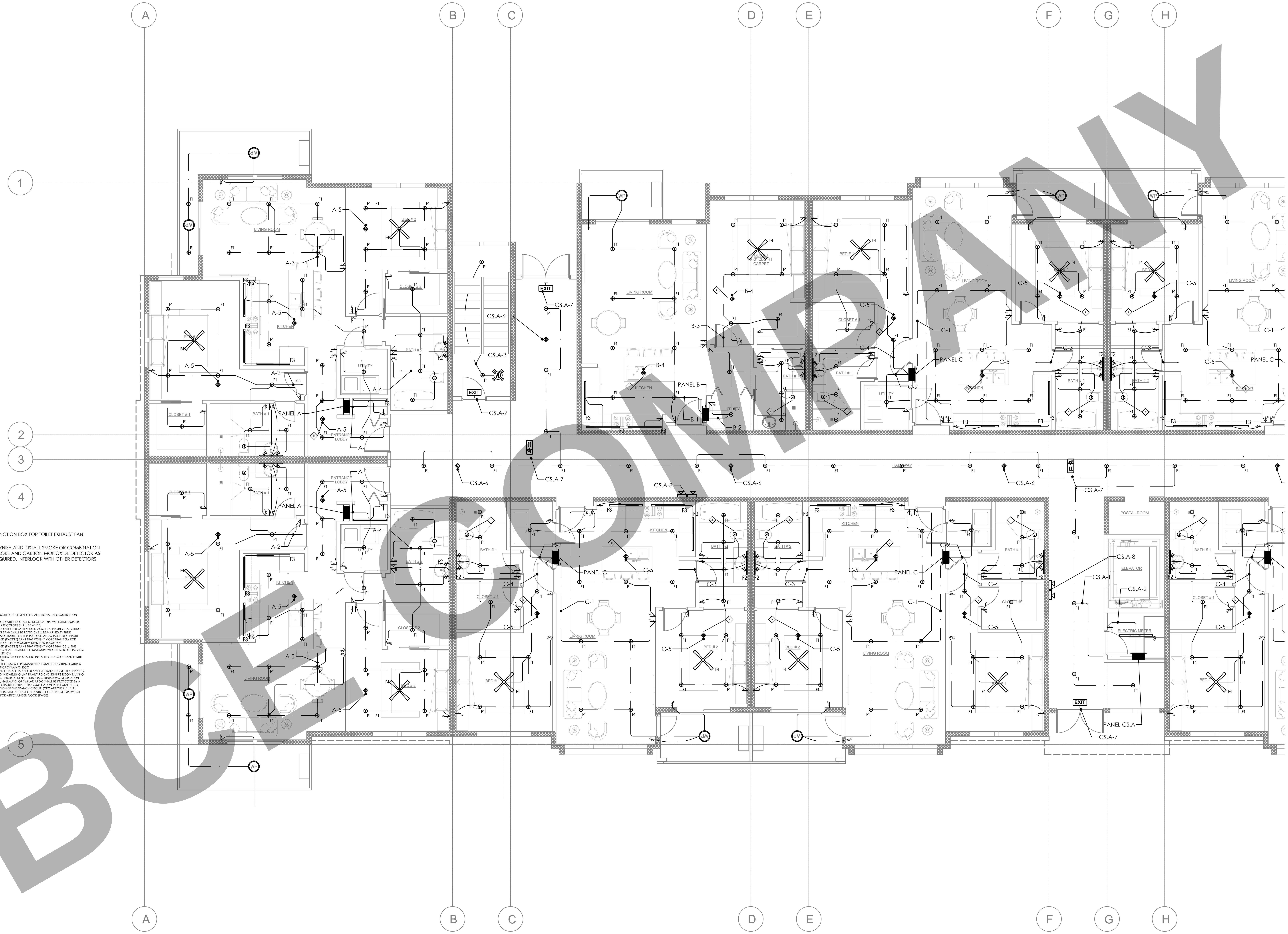
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E0.00



SHEET NOTES:

1. JUNCTION BOX FOR TOILET EXHAUST FAN
2. FURNISH AND INSTALL SMOKE OR COMBINATION SMOKE AND CARBON MONOXIDE DETECTOR AS REQUIRED. INTERLOCK WITH OTHER DETECTORS

GENERAL NOTES

1. REFER TO FIXTURE SCHEDULE/LEGEND FOR ADDITIONAL INFORMATION ON LIGHT FIXTURES
2. NON LOW VOLTAGE SWITCHES SHALL BE DECORA TYPE WITH SLIDE DIMMER. SWITCHES AND PLATE COLORS SHALL BE WHITE.
3. OUTLET BOXES OR OUTLET BOX SYSTEM USED AS SOLE SUPPORT OF A CEILING SUSPENDED PADDLE FAN SHALL BE LISTED, SHALL BE MARKED BY THEIR MANUFACTURER AS SUITABLE FOR THIS PURPOSE. AND SHALL NOT SUPPORT CEILING-SUSPENDED (PADDLE) FANS THAT WEIGHT MORE THAN 70lb. FOR OUTLET BOXES OUR OUTLET BOX SYSTEM DESIGNED TO SUPPORT CEILING-SUSPENDED (PADDLE) FANS THAT WEIGHT MORE THAN 35 lb. THE REQUIRED MARKING SHALL INCLUDE THE MAXIMUM WEIGHT TO BE SUPPORTED. (CEC ARTICLE 314.27 (C))
4. LUMINARIES IN CLOTHES CLOSETS SHALL BE INSTALLED IN ACCORDANCE WITH CEC ARTICLE 410.16
5. MINIMUM 90% OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH EFFICACY LAMPS. IECC
6. ALL 120 VOLTS, 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. (CEC ARTICLE 210.12(A))
7. CONTRACTOR TO PROVIDE AT LEAST ONE SWITCH LIGHT FIXTURE OR SWITCH LIGHTING OUTLET FOR ATTICS, UNDER FLOOR SPACES.

12 | BUILDING 01 - FIRST FLOOR PLAN - WEST - LIGHTING LAYOUT.

CITY SEAL

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EMAIL: INDY

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PRINTS

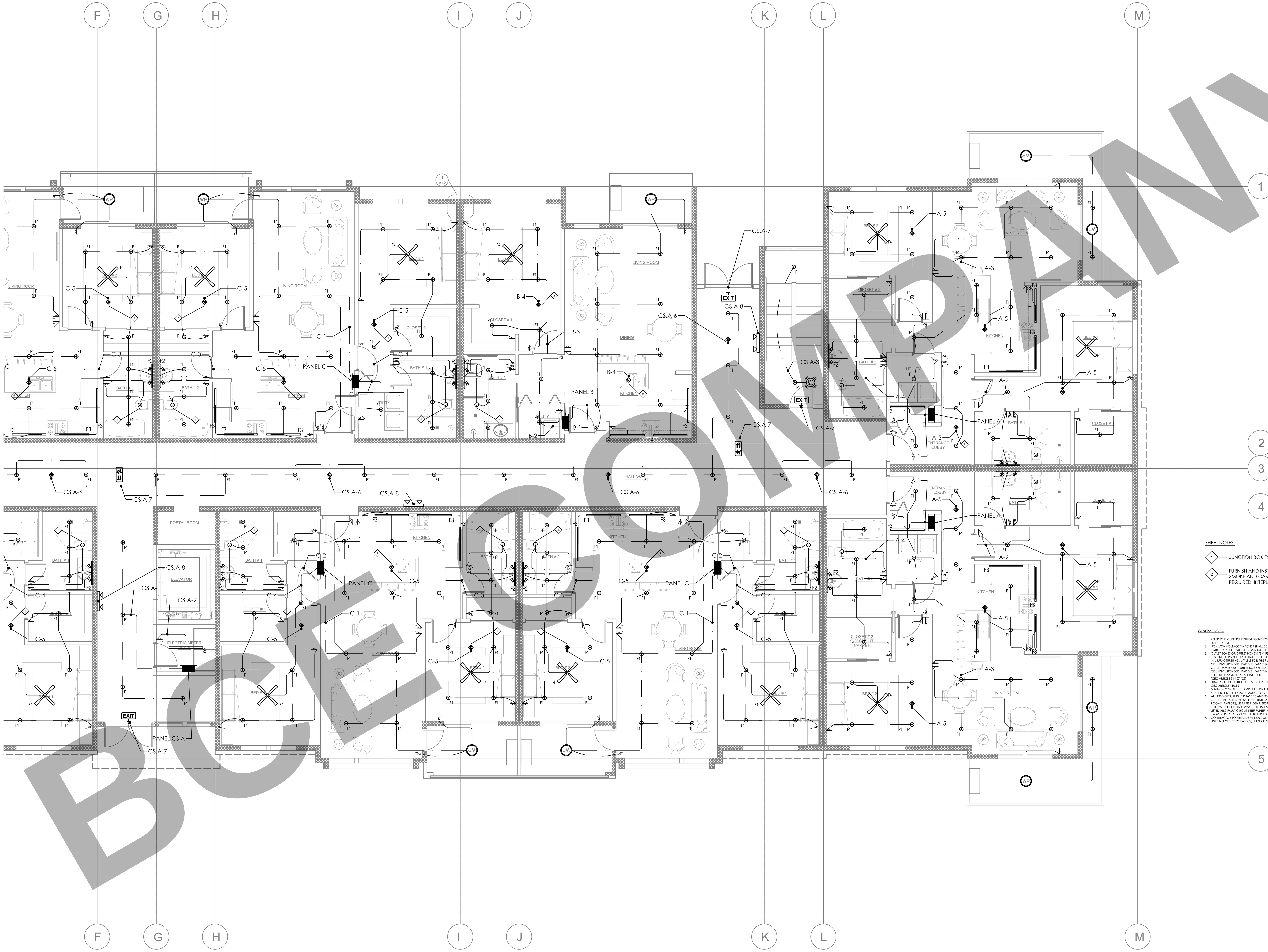
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E1.00



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GENERAL NOTES

1. REFER TO FIXTURE SCHEDULE/LEGEND FOR ADDITIONAL INFORMATION ON LIGHT FIXTURES
2. NON LOW VOLTAGE SWITCHES SHALL BE DECORA TYPE WITH SLIDE DIMMER. SWITCHES AND PLATE COLORS SHALL BE WHITE.
3. OUTLET BOXES OR OUTLET BOX SYSTEM USED AS SOLE SUPPORT OF A CEILING SUSPENDED PADDLE FAN SHALL BE LISTED, SHALL BE MARKED BY THEIR MANUFACTURER AS SUITABLE FOR THIS PURPOSE. AND SHALL NOT SUPPORT CEILING-SUSPENDED (PADDLE) FANS THAT WEIGHT MORE THAN 70lb. FOR OUTLET BOXES OUR OUTLET BOX SYSTEM DESIGNED TO SUPPORT CEILING-SUSPENDED (PADDLE) FANS THAT WEIGHT MORE THAN 35 lb. THE REQUIRED MARKING SHALL INCLUDE THE MAXIMUM WEIGHT TO BE SUPPORTED. (CEC ARTICLE 314.27 (C))
4. LUMINARIES IN CLOTHES CLOSETS SHALL BE INSTALLED IN ACCORDANCE WITH CEC ARTICLE 410.16
5. MINIMUM 90% OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH EFFICACY LAMPS. IECC
6. ALL 120 VOLTS, 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. (CEC ARTICLE 210.12(A))
7. CONTRACTOR TO PROVIDE AT LEAST ONE SWITCH LIGHT FIXTURE OR SWITCH LIGHTING OUTLET FOR ATTICS, UNDER FLOOR SPACES.

13 | BUILDING 01 - FIRST FLOOR PLAN - WEST - LIGHTING LAYOUT.

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PRINTS

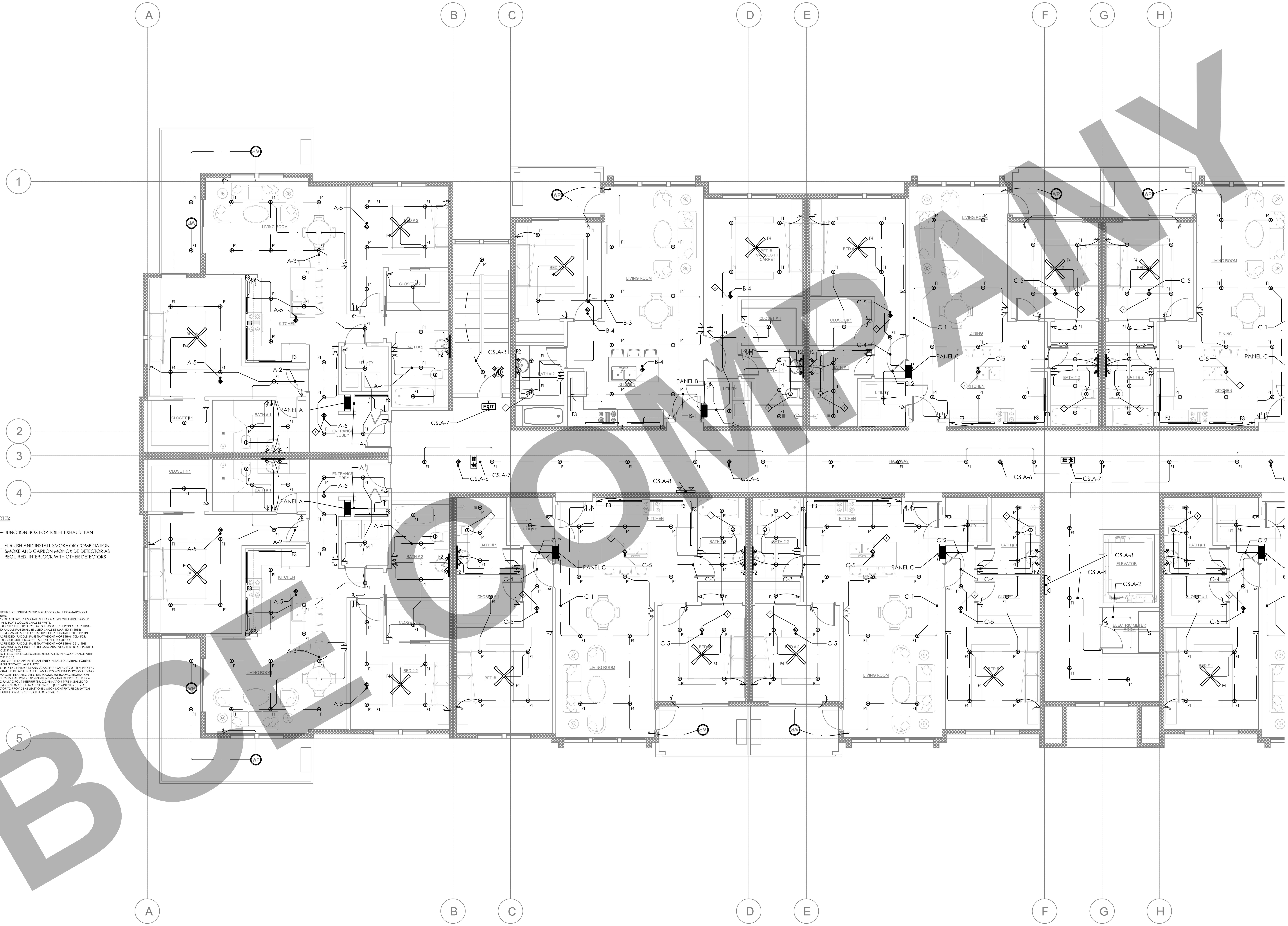
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0" 1' 4' 8'
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E1.01



SHEET NOTES:

1. JUNCTION BOX FOR TOILET EXHAUST FAN
2. FURNISH AND INSTALL SMOKE OR COMBINATION SMOKE AND CARBON MONOXIDE DETECTOR AS REQUIRED. INTERLOCK WITH OTHER DETECTORS

GENERAL NOTES

1. REFER TO FIXTURE SCHEDULE/LEGEND FOR ADDITIONAL INFORMATION ON LIGHT FIXTURES
2. NON LOW VOLTAGE SWITCHES SHALL BE DECORA TYPE WITH SLIDE DIMMER. SWITCHES AND PLATE COLORS SHALL BE WHITE.
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7. CONTRACTOR TO PROVIDE AT LEAST ONE SWITCH LIGHT FIXTURE OR SWITCH LIGHTING OUTLET FOR ATTICS, UNDER FLOOR SPACES.

14 | BUILDING 01 - SECOND FLOOR PLAN - WEST - LIGHTING LAYOUT.

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PRINTS

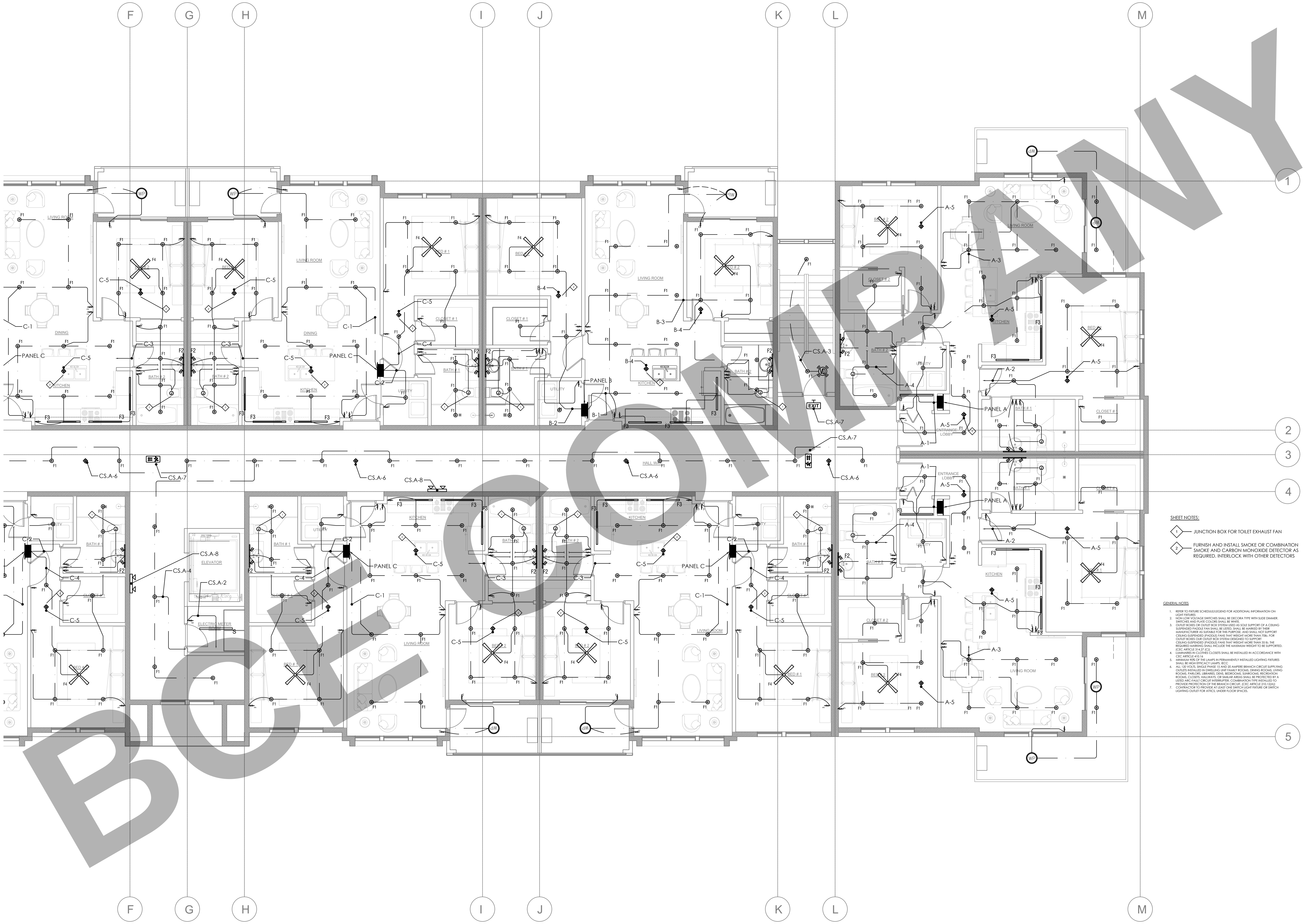
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E1.02



SHEET NOTES:

1. JUNCTION BOX FOR TOILET EXHAUST FAN
2. FURNISH AND INSTALL SMOKE OR COMBINATION SMOKE AND CARBON MONOXIDE DETECTOR AS REQUIRED. INTERLOCK WITH OTHER DETECTORS

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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

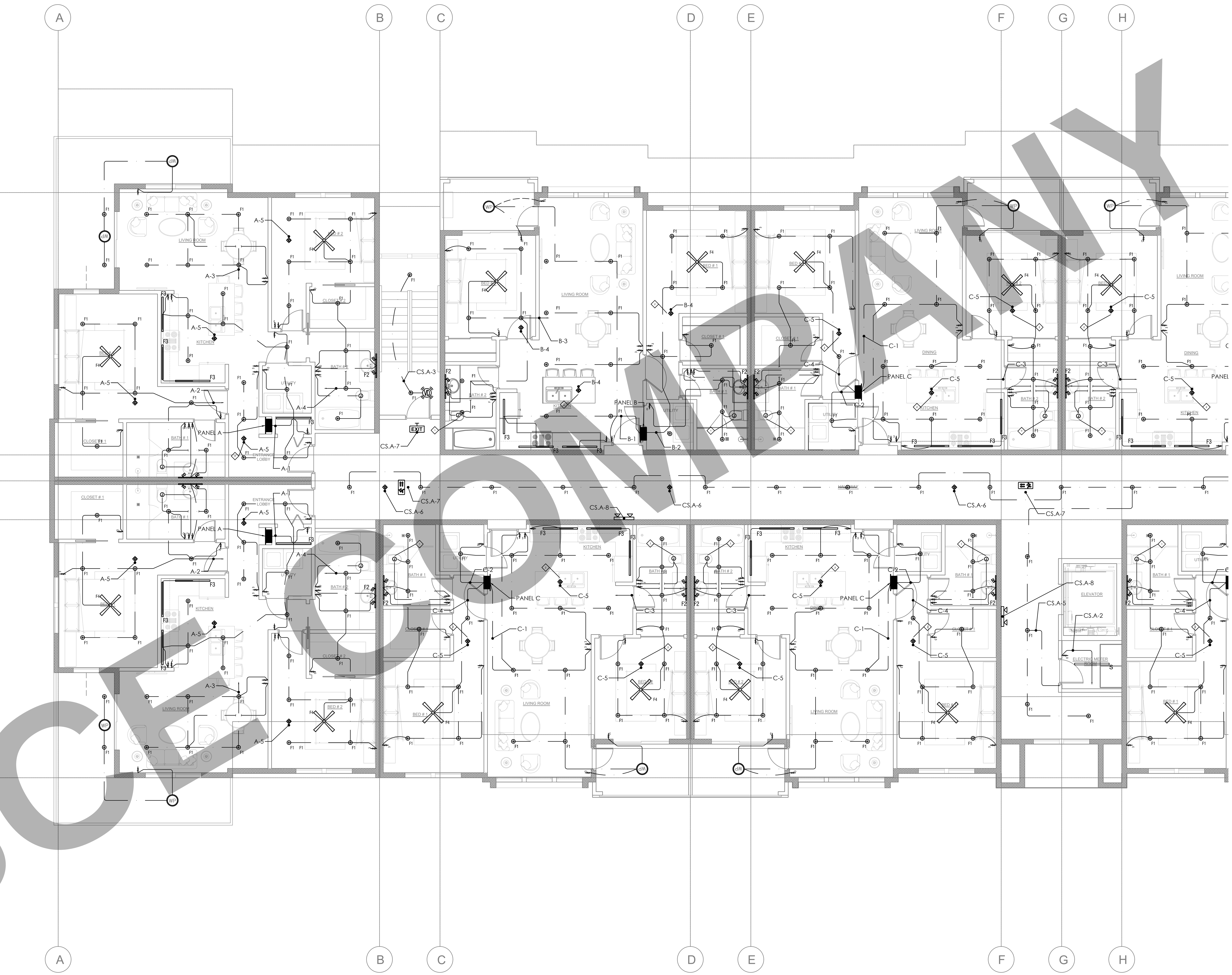
DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E1.03

15 | BUILDING 01 - SECOND FLOOR PLAN - WEST - LIGHTING LAYOUT.



SHEET NOTES:

1. JUNCTION BOX FOR TOILET EXHAUST FAN
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DATE	PURPOSE	ISSUED TO	SETS

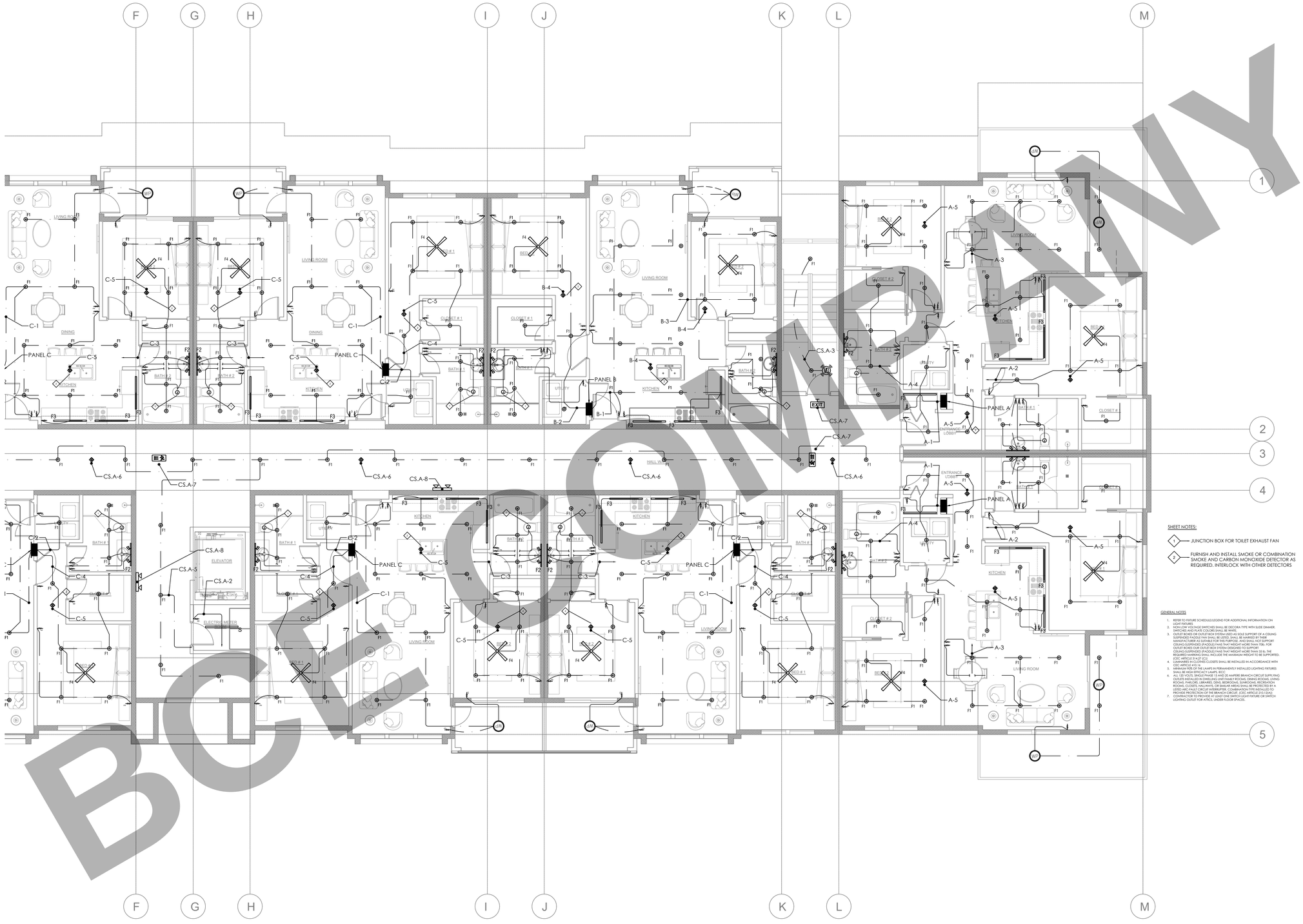
DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E1.04

16 | BUILDING 01 - THIRD FLOOR PLAN - WEST - LIGHTING LAYOUT.



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17 | BUILDING 01 - THIRD FLOOR PLAN - WEST - LIGHTING LAYOUT.

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NOTICE:

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND ANY AMBIGUITY MUST BE BROUGHT TO THE CLIENT REP.'S NOTICE BEFORE COMMENCEMENT OF THE WORK.

PRINTS

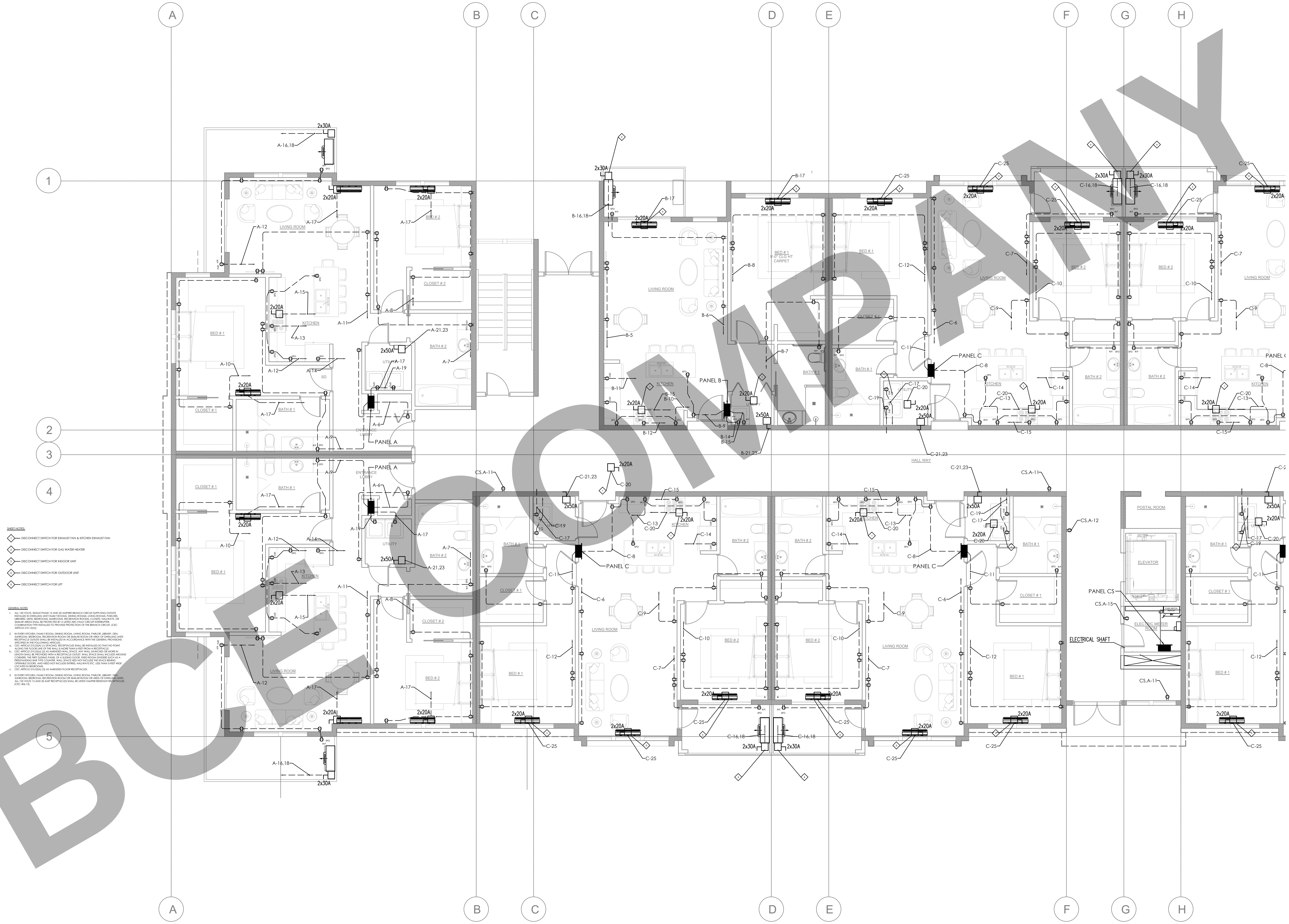
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E1.05



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DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

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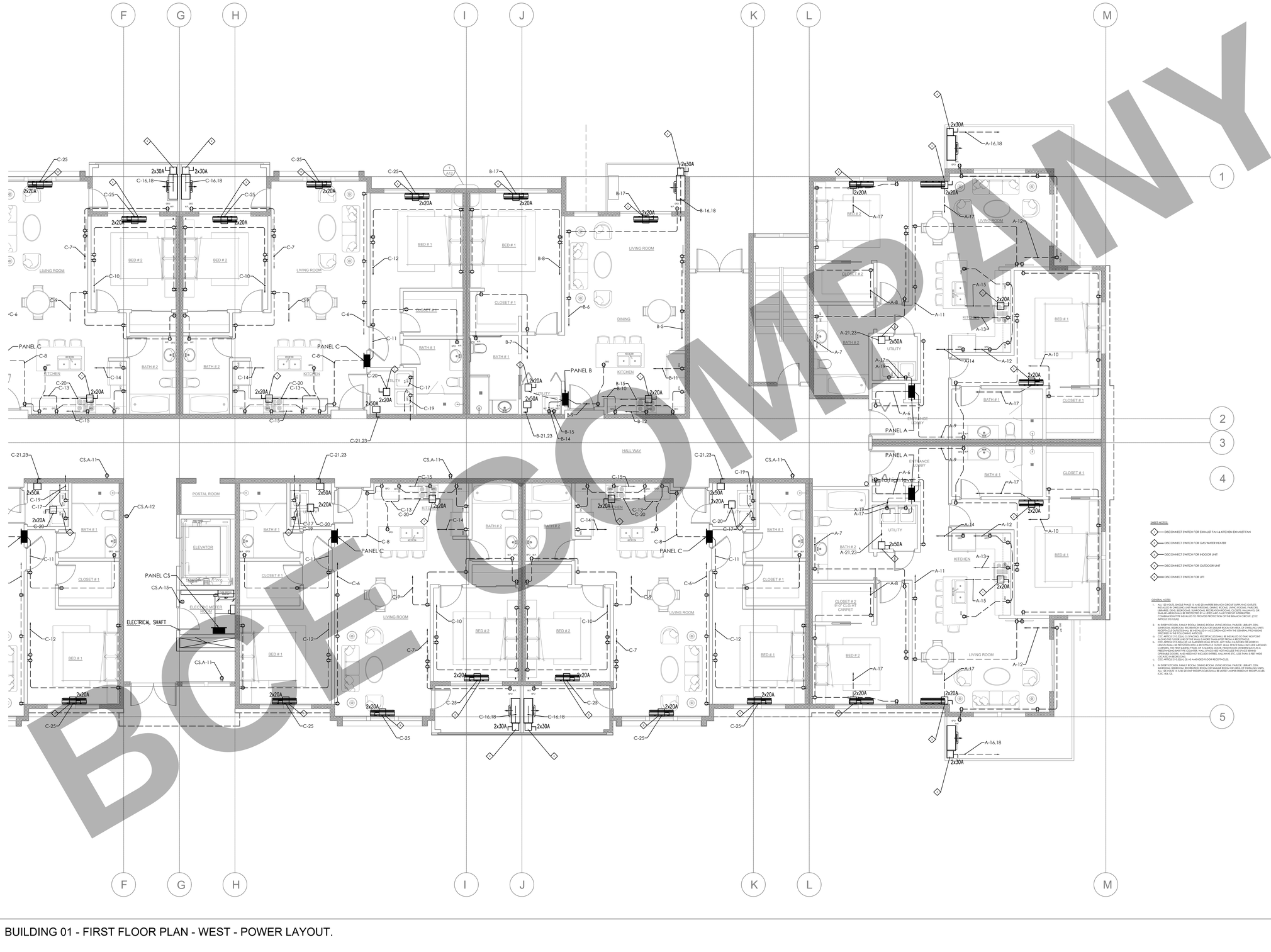

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PRINTS

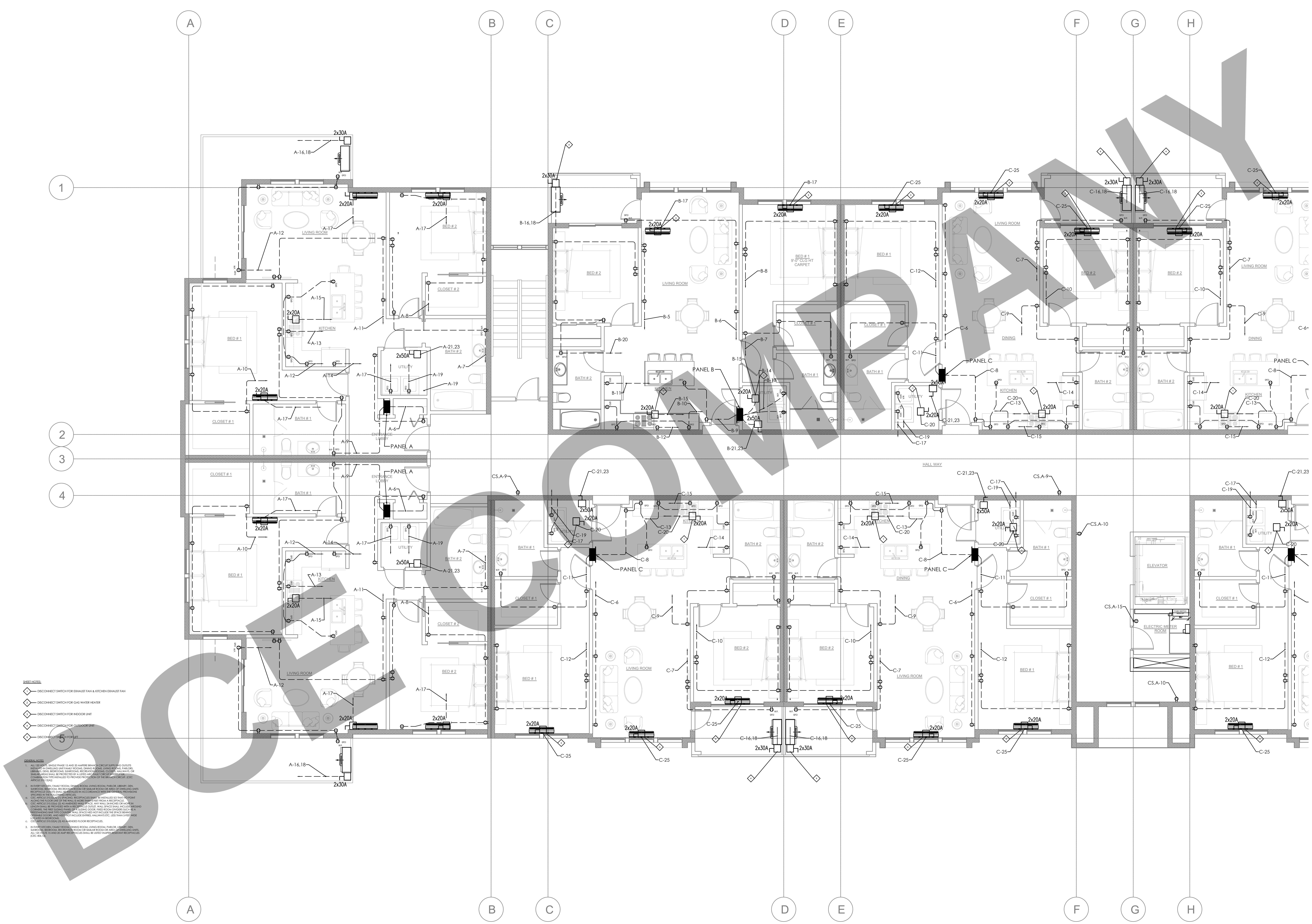
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E1.01



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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

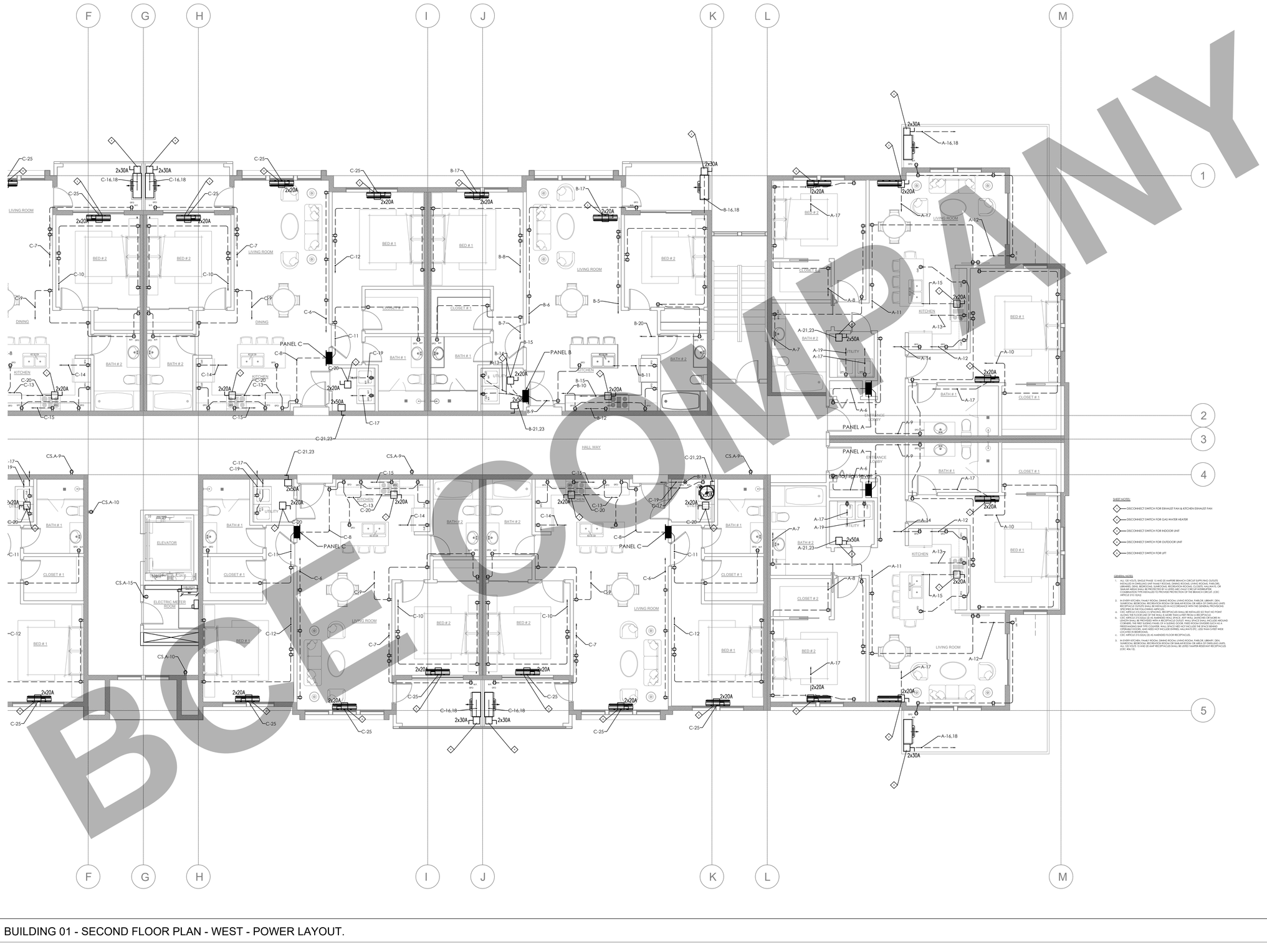
DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E2.02

20 | BUILDING 01 - SECOND FLOOR PLAN - WEST - POWER LAYOUT.



21 BUILDING 01 - SECOND FLOOR PLAN - WEST - POWER LAYOUT.

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PRINTS

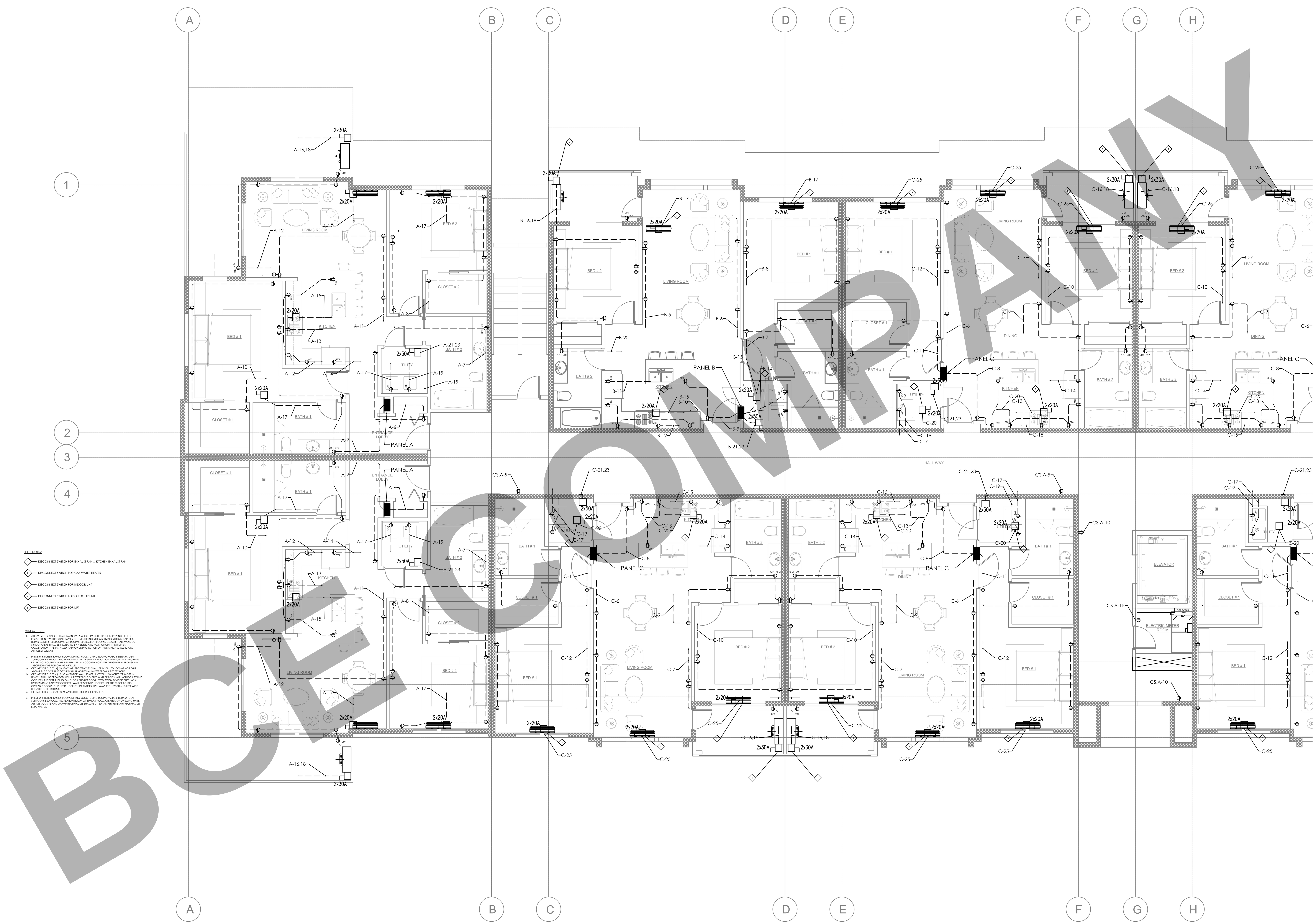
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E2.03



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PRINTS

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PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
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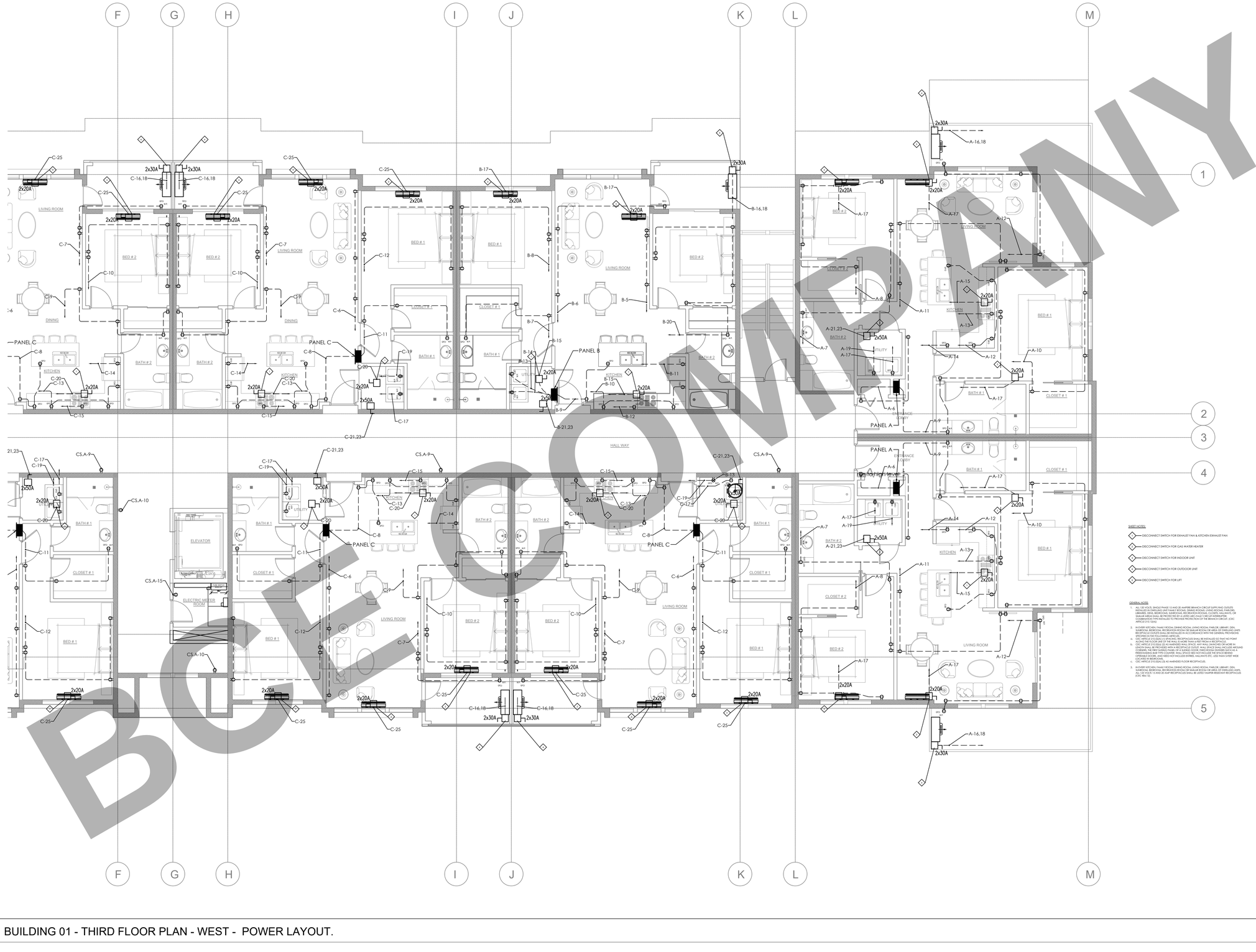
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E2.04

 BUILDING 01 - THIRD FLOOR PLAN - WEST - POWER LAYOUT.



23 | BUILDING 01 - THIRD FLOOR PLAN - WEST - POWER LAYOUT.

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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/16"=1'-0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

E2.05

Branch Panel: A
Location: Closet
Supply From: MDB
Mounting:Surface

Enclosure Type 1

Volts: 120/240 Single
Phases: 1
Wires: 3
Feeder Size: #2/0 AWG THHN, 1-#2 GND THHN IN 2" PVC

A.I.C Rating: 10kA
Mains Type: MCCB
Mains Rating: 150A

CKT	CIRCUIT DESCIRPTION	TRIP	POLES	A		B		POLES	TRIP	CIRCUIT DESRIPTION	CKT
1	Lighting Entrance, Kitchen & Laundry	15A	1	600	500			1	15A	Lighting Bed Room 1	2
3	Lighting Salon & Balcony	15A	1			450	500	1	15A	Lighting Bed Room 2	4
5	Smoke Detectors	15A	1	100	810			1	15A	Receptacles Entrance & Laundry	6
7	Receptacles Bed Room	20A	1			1080	1080	1	20A	Receptacles Bed Room	8
9	Receptacles Bed Room	20A	1	1080	1080			1	20A	Receptacles Bed Room	10
11	Receptacles Salon	20A	1			1080	1080	1	20A	Receptacles Kitchen	12
13	Oven	20A	1	1500	500			1	20A	Fridge	14
15	Kitchen Exhaust Fan	20A	1			250	2390.00	2	30A	Outdoor Unit	16
17	Indoor Unit	20A	1	648	2390						18
19	Receptacle Laundry	20A	1			1500		1	20A	SPARE	20
21	Water Heater	50A	2	3240				2	30A	SPARE	22
23						3240					24
25	SPARE	20A	1					2	20A	SPARE	26
27	SPARE	20A	1						20A	SPARE	28
29	SPARE	30A	2					2	20A	SPARE	30
31									20A	SPARE	32
	TOTAL CONNECTED LOAD (VA)			12448		12650					
	TOTAL CONNECTED CURRENT (A)			104		105					

Legend:

Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	Panels Totals	
Lighting	2150	100.00%	2150		
Receptacle	7290	60.00%	4374	**Total Conn. Load (kVA):**	25.098
Kitchen Equipment	3500	70.00%	2450	**Total Est. Demand (kVA):**	17.4846
Mechanical Equipment	12158.00	70.00%	8510.6	**Total Conn. Current Per Phase(A):**	104.575
				Total Est. Demand Current Per Phase (A):	72.8525

Notes

Branch Panel: B
Location: Closet
Supply From: MDB
Mounting:Surface

Enclosure Type 1

Volts: 120/240 Single
Phases: 1
Wires: 3
Feeder Size: #2/0 AWG THHN, 1-#2 GND THHN IN 2" PVC

A.I.C Rating: 10kA
Mains Type: MCCB
Mains Rating: 150A

CKT	CIRCUIT DESCIRPTION	TRIP	POLES	A		B		POLES	TRIP	CIRCUIT DESRIPTION	CKT
1	Lighting Salon	15A	1	800	500			1	15A	Lighting Kitchen & Laundry	2
3	Lighting Bed Room	15A	1			750	750	1	15A	Lighting Bed Room	4
5	Smoke Detectors	15A	1	250	1080			1	20A	Receptacles Salon	6
7	Receptacles Salon	20A	1			810	810	1	20A	Receptacles Entrance	8
9	Receptacles Salon	20A	1	810	1080			1	20A	Receptacles Bed Room	10
11	Receptacles Bed Room	20A	1			1080	1080	1	20A	Receptacles Bed Room	12
13	Receptacles Kitchen	20A	1	810	750			1	20A	Fridge	14
15	Oven	20A	1			1500	2390.00	2	30A	Outdoor Unit	16
17	Receptacle Laundry	20A	1	1500	2390						18
19	Receptacle Laundry	20A	1			1500	500	1	20A	Exhaust Fan Kitchen & Laundry	20
21	Water Heater	50A	2	3240				2	30A		22
23						3240					24
25	Indoor Unit	20A	1	972				2	20A		26
27		20A	1						20A		28
29		30A	2					2	20A		30
31									20A		32
	TOTAL CONNECTED LOAD (VA)			14182		14410					
	TOTAL CONNECTED CURRENT (A)			118		120					

Legend:

Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	Panels Totals	
Lighting	3050	100.00%	3050		
Receptacle	6750	60.00%	4050	**Total Conn. Load (kVA):**	27.12
Kitchen Equipment	3060	70.00%	2142	**Total Est. Demand (kVA):**	19.224
Mechanical Equipment	14260.00	70.00%	9982	**Total Conn. Current Per Phase(A):**	113
				Total Est. Demand Current Per Phase (A):	80.1

Notes

Branch Panel: C
Location: Closet
Supply From: MDB
Mounting:Surface

Enclosure Type 1

Volts: 120/240 Single
Phases: 1
Wires: 3
Feeder Size: #2/0 AWG THHN, 1-#2 GND THHN IN 2" PVC

A.I.C Rating: 10kA
Mains Type: MCCB
Mains Rating: 150A

CKT	CIRCUIT DESCIRPTION	TRIP	POLES	A		B		POLES	TRIP	CIRCUIT DESRIPTION	CKT
1	Lighting Salon	15A	1	800	500			1	15A	Lighting Kitchen & Laundry	2
3	Lighting Bed Room	15A	1			750	750	1	15A	Lighting Bed Room	4
5	Smoke Detectors	15A	1	250	1080			1	20A	Receptacles Salon	6
7	Receptacles Salon	20A	1			810	810	1	20A	Receptacles Entrance	8
9	Receptacles Salon	20A	1	810	1080			1	20A	Receptacles Bed Room	10
11	Receptacles Bed Room	20A	1			1080	1080	1	20A	Receptacles Bed Room	12
13	Receptacles Kitchen	20A	1	810	750			1	20A	Fridge	14
15	Oven	20A	1			1500	2390.00	2	30A	Outdoor Unit	16
17	Receptacle Laundry	20A	1	1500	2390						18
19	Receptacle Laundry	20A	1			1500	500	1	20A	Exhaust Fan Kitchen & Laundry	20
21	Water Heater	50A	2	3240				2	30A		22
23						3240					24
25	Indoor Unit	20A	1	972				2	20A		26
27		20A	1						20A		28
29		30A	2					2	20A		30
31									20A		32
	TOTAL CONNECTED LOAD (VA)			14182		14410					
	TOTAL CONNECTED CURRENT (A)			118		120					

Legend:

Load Classification	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	Panels Totals	
Lighting	3050	100.00%	3050		
Receptacle	6750	60.00%	4050	**Total Conn. Load (kVA):**	27.12
Kitchen Equipment	3060	70.00%	2142	**Total Est. Demand (kVA):**	19.224
Mechanical Equipment	14260.00	70.00%	9982	**Total Conn. Current Per Phase(A):**	113
				Total Est. Demand Current Per Phase (A):	80.1

Notes

Location: ELEC

*	LOAD SUMMARY	CL	DF	CONNECTED LOAD A	B	C	DEMAND TOTAL
L	Lighting	3.05	1.25	1.35	0.95	0.75	3.05
R	Convenience Recept	6.88		2.33	2.97	1.58	6.88
H	Heating (Space)		1.25				
C	Cooling		1.00				
A	HVAC	12.00	1.00	4.00	4.00	4.00	12.00
P	Process		1.00				
O	Other Continuous		1.25				
K	Kitchen		0.85				
N	Noncontinuous		1.00				
M	Motor		1.00				
	Total	**21.93**		7.68	7.92	6.33	21.93

Total Demand Load (KVA)	21.93
Total Demand Current (A)	60.87
Min. Feeder Ampacity (A)	76.09

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

PANEL CS.A
PANELBOARD DESIGNATION

SYSTEM VOLTAGE	208/120V, 3ϕ, 4W
BUS SIZE	200
SYSTEM TYPE	NORMAL
FEEDER PROT	200A-3P CIB Bus Plug
CONDUCTOR SIZE	4/0 AWG - #2/0G CU
CONDUCTOR/PHASE	1
MAINS	200A MCB
SCCR	SERIES RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	200
FEEDER V. DROP (%)	2.031
FAULT CURRENT	
KAIC RATING	11
ENCLOSURE	TYPE 3R

	DESCRIPTION	*	WIRE	GRD	CB	KVA	A	B	C	KVA	CB	WIRE	GRD	DESCRIPTION	*	
1	Lighting First Floor Hall way	L	2X 12 AWG - #12G		15A-1P	0.60	0.75			0.15	15A-1P	2X 12 AWG - #12G		Lighting First Floor Elec. Room	L	2
3	Lighting Stairs	L	2X 12 AWG - #12G		15A-1P	0.35		0.95		0.60	15A-1P	2X 12 AWG - #12G		Lighting Second Floor Hall way	L	4
5	Lighting Third Floor Hall way	L	2X 12 AWG - #12G		15A-1P	0.25			0.75	0.50	15A-1P	2X 12 AWG - #12G		Smoke Detector	L	6
7	Exit Light **	L	2X 12 AWG - #12G		15A-1P	0.35	0.60			0.25	15A-1P	2X 12 AWG - #12G		Emergency Light **	L	8
9	Receptacles Hall Way Second Floor	R	2X 10 AWG - #10G		20A-1P	1.08			2.16	1.08	20A-1P	2X 10 AWG - #10G		Receptacles Hall Way Second Floor	R	10
11	Receptacles Hall Way First Floor	R	2X 10 AWG - #10G		20A-1P	1.08	1.58			0.50	20A-1P	2X 10 AWG - #10G		Receptacles Hall Way First Floor	R	12
13	Receptacles Hall Way third Floor	R	2X 10 AWG - #10G		20A-1P	1.08		2.33		1.25	20A-1P	2X 10 AWG - #10G		Receptacles Hall Way third Floor	R	14
15	Receptacles Technical Rooms	R	2X 10 AWG - #10G		20A-1P	0.81		2.06		1.25	20A-1P			SPARE		16
17		A				4.00			4.75	0.75	20A-1P			SPARE		18
19	LIFT	A	4X 8 AWG - #8G		50A-3P	4.00	4.75			0.75	20A-1P			SPARE		20
21		A				4.00		5.35		1.35	20A-1P			SPARE		22
23	SPARE				20A-1P				0.25	0.25	20A-1P			SPARE		24
	(KVA)															
	Total Connected Load					6.10	8.36	5.75								

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PRINTS

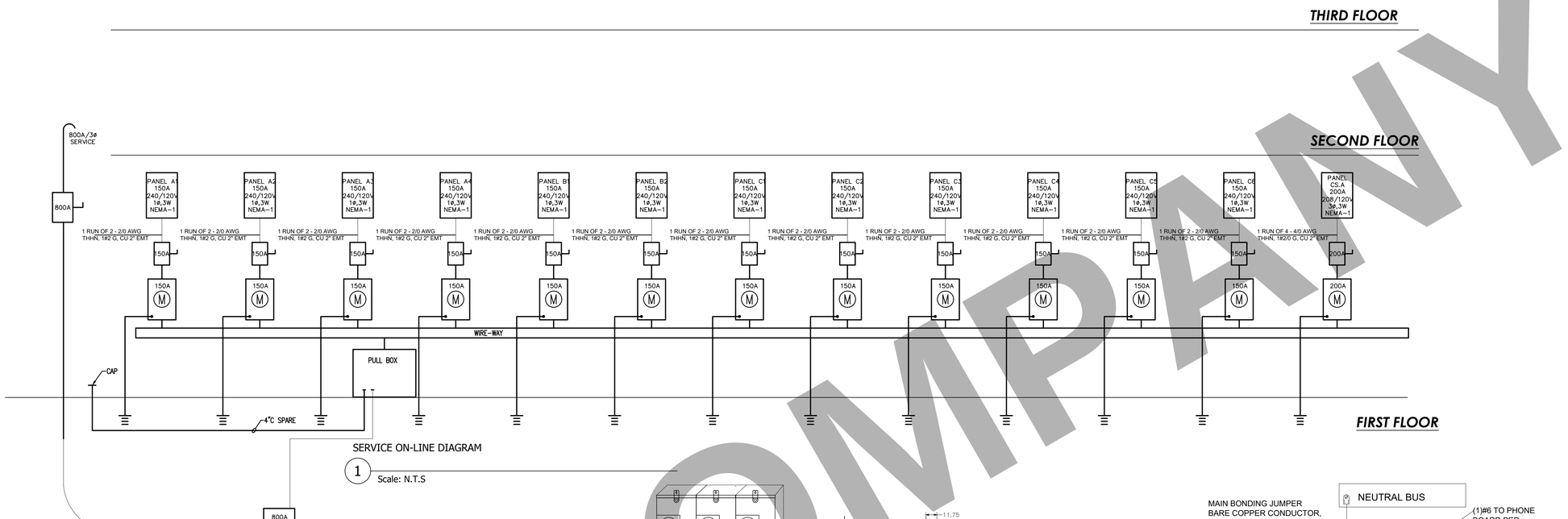
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

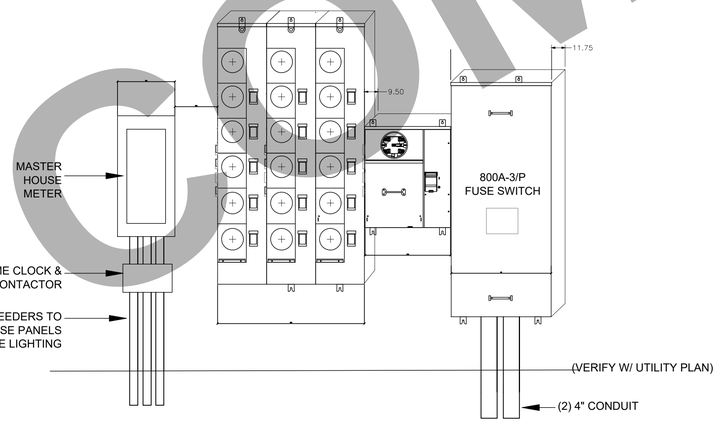
E3.00

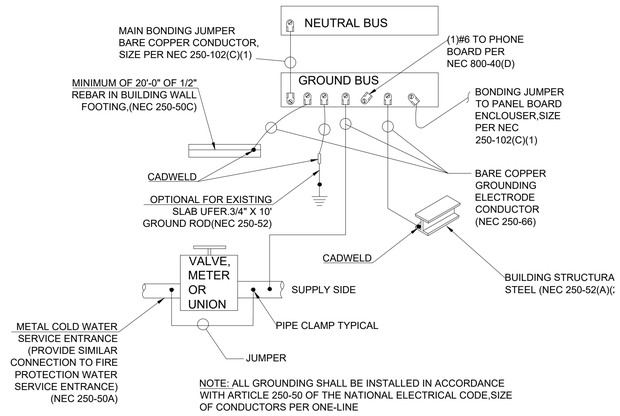


SERVICE ON-LINE DIAGRAM

1 Scale: N.T.S

800A 208/120V 3ø,4W NEMA-3R TYPE-1





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

SINGLE-LINE DIAGRAM GENERAL NOTES

a) NOT USED.

b) ALL NEW CIRCUIT BREAKERS, FUSIBLE SWITCHES IN MAINSWITCHBOARD OR PANEL BOARDS SHALL BE SERIES RATED TO MATCH EXISTING AIC RATING OR APPROVED EQUAL OR 65KAIC, UNLESS NOTED OTHERWISE.

c) MOTOR CIRCUIT PROTECTORS SHALL NOT BE A PART OF A SERIES COMBINATION INTERRUPTING RATING.

d) SERIES COMBINATION AIC RATING SHALL NOT BE USED WHEN THE SECONDARY EQUIPMENT IN THE SERIES IS SUBJECTED TO A TOTAL CONNECTED FULL LOAD MOTOR CURRENT OF MORE THAN 1% OF ITS AIC RATING.

e) EQUIPMENT ENCLOSURES SHALL BE CLEARLY MARKED "CAUTION–SERIES RATED SYSTEM – 65KAMPS AVAILABLE, IDENTIFIED REPLACEMENT COMPONENTS REQUIRED", IN COMPLIANCE WITH 2016 CEC (2014 NEC) SECTION 110–22. END USE EQUIPMENT SHALL ALSO BE MARKED WITH THE HIGHER SERIES COMBINATION INTERRUPTING RATING AS PER 2016 CEC SECTION 240–83(C). NO EXCEPTION.

f) FUSES SHALL BE PROVIDED WITH REJECTION TYPE FUSE HOLDERS.

g) ELECTRICAL EQUIPMENT SHALL BE LISTED BY THE CITY, WHERE THE PROJECT IS LOCATED, RECOGNIZED ELECTRICAL TESTING LABORATORY OR APPROVED BY THE DEPARTMENT.

h) NO PIPING, DUCTS OR EQUIPMENT FOREIGN TO ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE LOCATED WITHIN THE DEDICATED SPACE ABOVE THE ELECTRICAL EQUIPMENT.

i) MAIN SERVICE WILL NOT ENERGIZED PRIOR TO THE BUILDING INSPECTOR'S RECEIPT OF A THIRD PARTY "NRTL" TESTING LABORATORY PERFORMANCE TEST CERTIFICATION FOR THE SERVICE GROUND FAULT PROTECTION. 2014 NEC 230.95

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k) *SERVICE EQUIPMENT IN OTHER THAN DWELLING UNITS* SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. FIELD MARKINGS SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND ENVIRONMENT INVOLVED.

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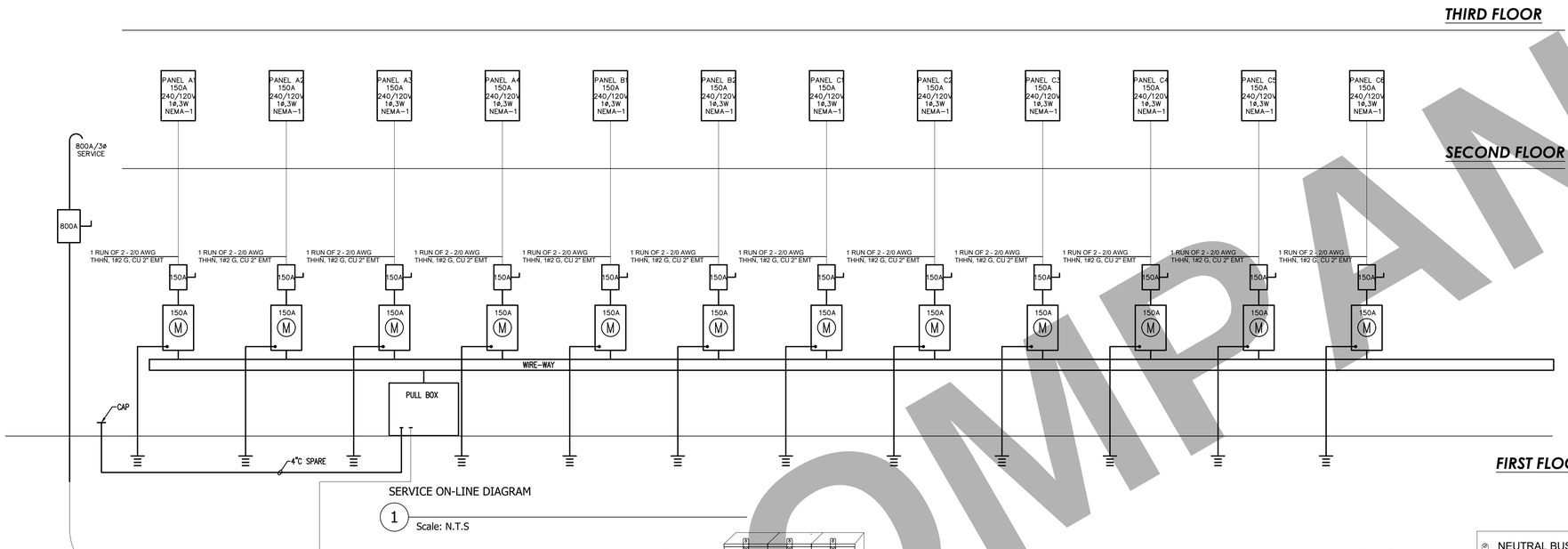
BUILDING NO 1

E4.00



SERVICE ON-LINE DIAGRAM

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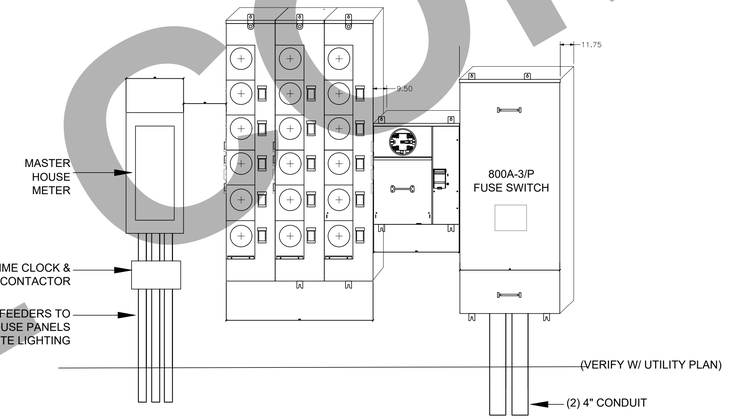

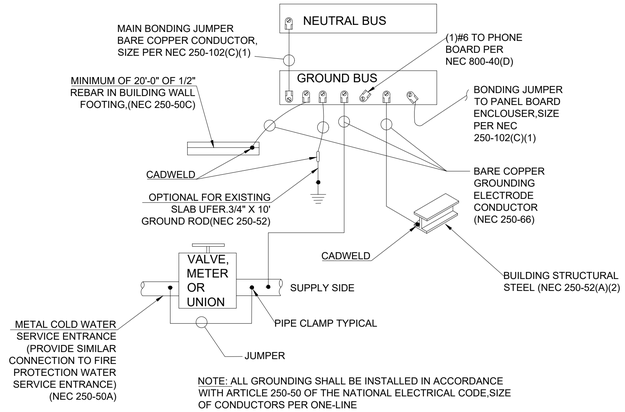

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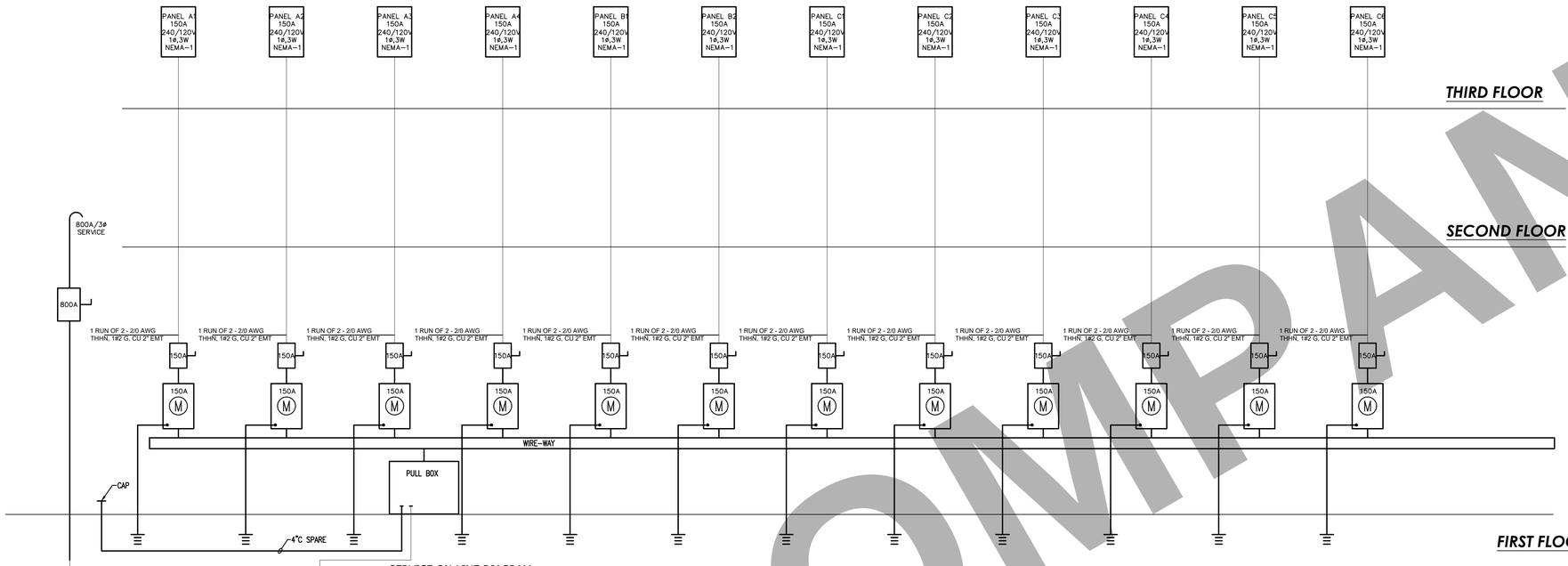

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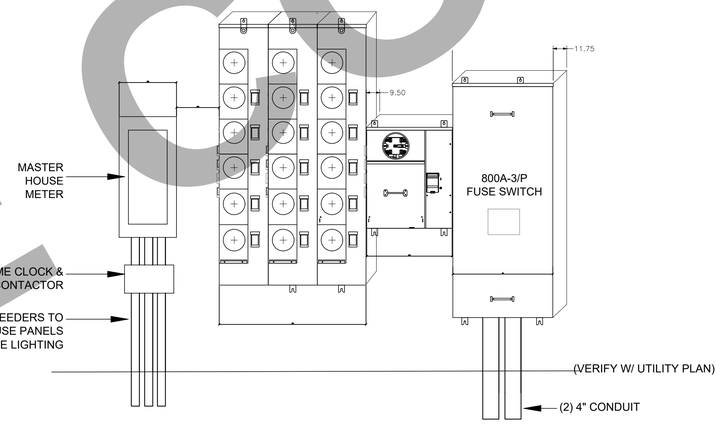

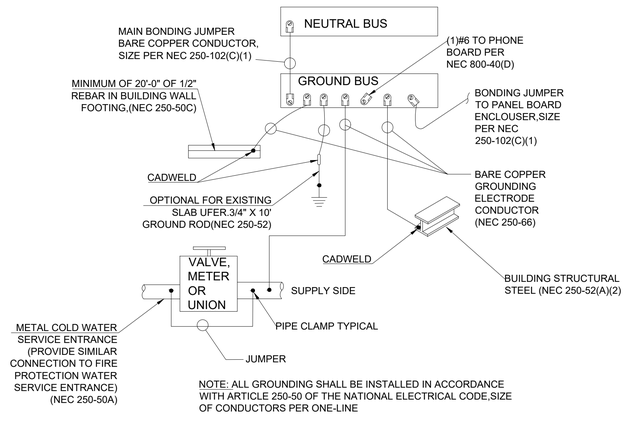

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PLUMBING SPECIFICATIONS

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

1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE PLUMBING INSTALLATION AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.
2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE 2022 CALIFORNIA PLUMBING CODE, 2022 CALIFORNIA BUILDING CODE, 2022 CALIFORNIA ENERGY CONSERVATION CODE AND ALL OTHER APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.
3. COORDINATE ENTIRE INSTALLATION OF THE PLUMBING SYSTEM WITH THE WORK OF OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS.
5 REPORT ANY DISCREPANCIES, IN WRITING, TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.
4. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS. PROVIDE ONE YEAR WARRANTY ON ALL PARTS AND LABOR.
6. THE DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW SCOPE. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES TO PROVIDE THE BEST ARRANGEMENT OF ALL DUCT, PIPE, CONDUIT, ETC.
7. ALL CUTTING AND PATCHING OF THE EXISTING STRUCTURE SHALL BE PROVIDED UNDER OTHER SECTIONS OF THE WORK. PROVIDE NECESSARY REQUIREMENTS TO THE PROJECT SUPERINTENDENT.
8. ALL HOT WATER PIPING AND RE-CIRCULATION PIPING (EXCEPT RUNOUTS 12 FT. OR SHORTER TO INDIVIDUAL FIXTURES) SHALL BE INSULATED TO MEET THE REQUIREMENTS OF THE 2022 CALIFORNIA ENERGY CONSERVATION CODE
9. CONDENSATE DRAINS SHALL BE PROVIDED FOR EACH AIR CONDITIONING UNIT. HORIZONTAL CONDENSATE DRAINS ABOVE ANY CEILING SHALL BE INSULATED WITH MIN. 3/8" THICK CLOSED CELL INSULATION.
10. PIPING:

A. WASTE, VENT, AND STORM DRAIN PIPING SHALL BE CO-EXTRUDED PVC SCHEDULE 40) PIPE
B. WATER PIPE SHALL BE CPVC PIPE
C. CONDENSATE PIPING SHALL BE CO-EXTRUDED PVC (SCHEDULE 40) PIPE
D. INSIDE GAS PIPING SHALL BE BLACK IRON SCHEDULE 40 WITH MALLEABLE IRON FITTINGS. OUTSIDE SHALL BE GALVANIZED IRON SCHEDULE 40 WITH GALVANIZED FITTINGS. GAS LINE TO BE PAINTED GRAY IN COLOR. A 24 HOUR METERED GAS TEST SHALL BE REQUIRED.
E. ALL PIPING NOT ENCLOSED IN CONDITION SPACE OR AT EXTERIOR WALLS SHALL BE INSULATED.
F. PIPING: PVC SCHEDULE 40, SCHEDULE 80 AND CPVC PIPING WITH SOLVENT WELD FITTINGS SHALL BE USED WHERE PERMITTED BY CODE/LOCAL AUTHORITIES

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

PLUMBING LEGEND

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

PLUMBING / GENERAL NOTES

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

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

SHOWERS AND TUB-SHOWERS COMBINATIONS IN ALL BUILDINGS SHALL BE PROVIDED WITH INDIVIDUAL CONTROL VALVES OF THE PRESSURE BALANCE, THERMOSTATIC, OR COMBINATION OF BOTH THAT PROVIDE SCALD AND THERMAL SHOCK PROTECTION. VALVES SHALL BE ADJUSTED TO DELIVER A MAXIMUM MIXED WATER
SETTING OF 120 DEGREES FAHRENHEIT. THE WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED A SUITABLE CONTROL FOR MEETING THIS PROVISION.
VERIFY AND WHERE WATER PRESSURE EXCEEDS 80 PSI AN APPROVED PRESSURE REGULATOR PRECEDED BY AN ADEQUATE STRAINER SHALL BE INSTALLED
1-INSTALL TEMPERATURE AND PRESSURE RELIEF VALVE WITH MINIMUM 34" DRAIN PIPE AND TERMINATE TO THE EXTERIOR OF THE BUILDING OVER WINDOW, DOOR OR VISIBLE LOCATION. DISCHARGE FROM A RELIEF VALVE INTO A WATER HEATER PAN SHALL BE PROHIBITED
.
2-PROVIDE (ON THE PLANS) A GAS PIPING DIAGRAM OF THE GAS PIPING SYSTEM THAT INCLUDES ALL PIPE SIZES, PIPE LENGTHS AND BTU RATINGS.

3-SUBMIT GAS LOAD CALCULATIONS IN ACCORDANCE WITH 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.

NOTES:
1-Projects which disturb less than one acre of soil shall manage storm water drainage during construction by one of the following: A. Retention basins. B. Where storm water is conveyed to a public drainage system, water shall be filtered by use of a barrier system, wattle or other approved method.
2-Site grading or drainage system will manage all surface water flows to keep water from entering buildings (swales, water collection, French drains, etc.). CGC Section 4.106.3. Exception: Additions not altering the drainage path.
3-When a shower is provided with multiple shower heads, the sum of flow to all the heads shall not exceed 1.8 gpm @ 80 psi, or the shower shall be designed so that only one head is on at a time. CGC Section 4.303.1.3.2.
4-Landscape irrigation water use shall have weather or soil based controllers. CGC Section 4.304.1.
5-The plans that a minimum of 65% of construction waste is to be recycled. CGC Section 4.408.1.
6-The contractor shall submit a Construction Waste Management Plan, per CGC Section 4.408.2.
7-The builder is to provide an operation manual (containing information for maintaining appliances, etc.) for the owner at the time of final inspection. CGC Section 4.4 10.1.
8-The gas fireplace(s) shall be a direct-vent sealed- combustion type. Woodstove or pellet stoves must be US EPA Phase II rated appliances. CGC Section 4.503.1.

WATER SAVING STANDARDS.

THE WATER SAVING PERFORMANCE STANDARDS FOR A PLUMBING FIXTURE ARE THOSE ESTABLISHED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), CURRENT REVISION, OR THE FOLLOWING STANDARDS, WHICHEVER ARE THE MORE RESTRICTIVE
1-THE MAXIMUM FLOW FROM A SINK OR LAVATORY FAUCET OR A FAUCET AERATOR SHALL NOT EXCEED 0 5 GALLONS OF WATER PER MINUTE AT A PRESSURE OF 60 POUNDS PER SQUARE INCH WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES. 2- THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A TOILET SHALL NOT EXCEED AN AVERAGE OF 1.28 GALLONS WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES.
3- THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A URINAL AND THE ASSOCIATED FLUSH VALVE, IF ANY, SHALL NOT EXCEED AN AVERAGE OF ONE GALLON WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES

SPECIAL NOTICE TO CONTRACTORS

1. ALL CONTRACTORS (GENERAL CONTRACTOR AND SUB-CONTRACTORS) BIDDING THIS PROJECT ARE REQUIRED TO VISIT THE JOB SITE AND VERIFY THE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. CONTRACTORS ARE TO CAREFULLY REVIEW ALL CONSTRUCTION DOCUMENTS AND NOTE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED AT THE JOB SITE PRIOR TO SUBMISSION OF ANY BID. THE BUILDING OWNER REPRESENTATIVE LISTED BELOW MAY BE CONTACTED FOR ACCESS TO THE JOB SITE.

2. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING THE LOCATION AND CONDITION OF ALL POINTS OF CONNECTION, LOCATION AND CONDITION OF ALL BUILDING (ROOF/FLOOR/CEILING) PENETRATIONS, LOCATION AND CONDITION OF ALL UTILITIES AND BUILDING SYSTEMS INCLUDING, BUT NOT LIMITED TO, GAS, WATER, SEWER, VENT, ELECTRICAL, BUILDING MECHANICAL SYSTEMS, DUCT CONNECTIONS, EXHAUST/OUTSIDE AIR CONNECTIONS, SECURITY, FIRE ALARM, DATA, AND PHONE PRIOR TO SUBMISSION OF THEIR BID.

3. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED SHALL BE BROUGHT TO THE ATTENTION, IN WRITING, TO THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

CITY SEAL

PROJECT

PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

PLUMBING ABBREVIATIONS AND GENERAL NOTES

P 0.01

CALIFORNIA PLUMBING CODE CHECKING:

PIPE SUPPORTS:

TABLE 313.3
HANGERS AND SUPPORTS

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

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

Notes:
[1] Support adjacent to joint, not to exceed 18 inches (457 mm)
[2] Brace not to exceed 40 foot (12 192 mm) intervals to prevent horizontal movement.
[3] Support at each horizontal branch connection.
[4] Hangers shall not be placed on the coupling.
[5] Vertical water lines shall be permitted to be supported in accordance with recognized engineering principles with regard to expansion and contraction, where first approved by the Authority Having Jurisdiction.

DRAINAGE:

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

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

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

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

706.0 Changes in Direction of Drainage Flow.

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

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

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

707.4 Location. Each horizontal drainage pipe shall be provided with a cleanout at its upper terminal, and each run of piping, that s more than 100 feet (30 480 mm) in total developed length, shall be provided with a cleanout for each 100 feet (30 480 mm), or fraction thereof, in length of such piping. An additional cleanout shall be provided in a drainage line for each aggregate horizontal change in direction exceeding 135 degrees (2.36 rad). A cleanout shall be installed above the fixture connecting fitting, serving each urinal, regardless of the location of the urinal in the building.
Exceptions
(1) Cleanouts shall be permitted to be omitted on a horizontal drain line less than 5 feet (1524 mm) in length unless such line is serving sinks or urinals

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

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

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

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

WATER CONVERSION & WATER CONSUMPTION:

WATER CONSERVING PLUMBING FIXTURES AND FITTINGS	
Plumbing fixtures and fittings shall comply with the following:	
(2022 CGBSC, California Plumbing Code (CPC) and Table 1401.1 of the CPC)	
4303.1.1	All Water closets: <1.28 gal/flush Tank type water closet shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.
4303.1.2	Urinals: <0.5 gal/flush
4303.1.3.1	Single showerheads: <1.8 gpm @ 80 psi
4303.1.3.2	Multiple showerheads: combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gpm @ 80 psi or only one shower outlet is to be in operation at a time.
4303.1.4.1	Residential Lavatory Faucets: 0.8 gpm @ 20 psi < **Flow Rate** <1.2 gpm @ 60 psi
4303.1.4.2	Lavatory Faucets in common and Public Use Areas (outside of dwellings or sleeping units) in residential buildings: <0.5 gpm @ 60 psi
4303.1.4.3	Metering Faucets: <0.25 gallons per cycle
4303.1.4.4	Kitchen Faucets: <1.8 gpm @ 60 psi; Maximum Flow Rate of 1.8 gpm
PLUMBING FIXTURE CERTIFICATION REQUIRED: A plumbing fixture certification must be completed and signed by either a licensed general contractor, or a plumbing subcontractor, or the building owner certifying the flow rate of the fixtures installed. A copy of the certification can be obtained from the development services department.	

407.3 Limitation of Hot water Temperature for Public Lavatories.
Hot water delivered from public-use lavatories shall be limited to a maximum temperature of 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 ¼ inches (32 mm) in diameter.

409.4 Limitation of Hot Water in Bathtubs and Whirlpool Bathtubs. The maximum hot water temperature discharging from the bathtub and whirlpool bathtub filler shall be limited to 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.

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

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

For SI units: 1 inch = 25 mm, 1 foot = 304.8 mm
Notes:
[1] Excluding trap arm.
[2] Except for sinks, urinals, and dishwashers – exceeding 1 fixture unit.
[3] Except for six-unit traps or water closets.
[4] Only four water closets or six-unit traps allowed on a vertical pipe or stack, and not to exceed three water closets or six-unit traps on a horizontal branch or drain.
[5] Based on ¼ inch per foot (20.8 mm/m) slope, For ⅛ of an inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of 0.8.
[6] The diameter of an individual vent shall be not less than 1 ¼ inches (32 mm) nor less than one-half the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Table 702.1 and Table 702.2(2). Not to exceed one third of the total permitted length of a vent shall be permitted to be installed in a horizontal position. Where vents are increased one pipe size for their entire length, the maximum length limitations specified in this table do not apply. This table is in accordance with the requirements of Section 901.3.

WATER HEATER:

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

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

For SI units: 1 gallon = 3.785 L.
Notes:
[1] The first-hour rating is found on the "Energy Guide" label.
[2] Solar water heaters shall be sized to meet the appropriate first-hour rating as shown in the table.

504.0 Water Heater Requirements.

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

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

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

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

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

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

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

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

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

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

VENT:

906.0 Vent Termination.

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

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

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

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

WATER SUPPLY:

TABLE 611.4
SIZING OF RESIDENTIAL WATER SOFTENERS[4]

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

For Si units: 1 inch = 25 mm
Notes:
[1] Installation of a kitchen sink and dishwasher, laundry tray, and automatic clothes washer permitted without additional size increase.
[2] An additional water closet and lavatory permitted.
[3] Over four bathroom groups, the softener size shall be engineered for the specific installation.
[4] See also Appendix A, Recommended Rules for Sizing the Water Supply Systems, and Appendix C, Alternate Plumbing Systems, for alternate methods of sizing water supply systems.

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

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

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

FIRESTOP PROTECTION

1404.0 Combustible Piping Installations.

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

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

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

1405.0 Noncombustible Piping Installations.

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

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

CITY SEAL

PROJECT

PRINTS

DATE	PURPOSE	ISSUED TO	SETS

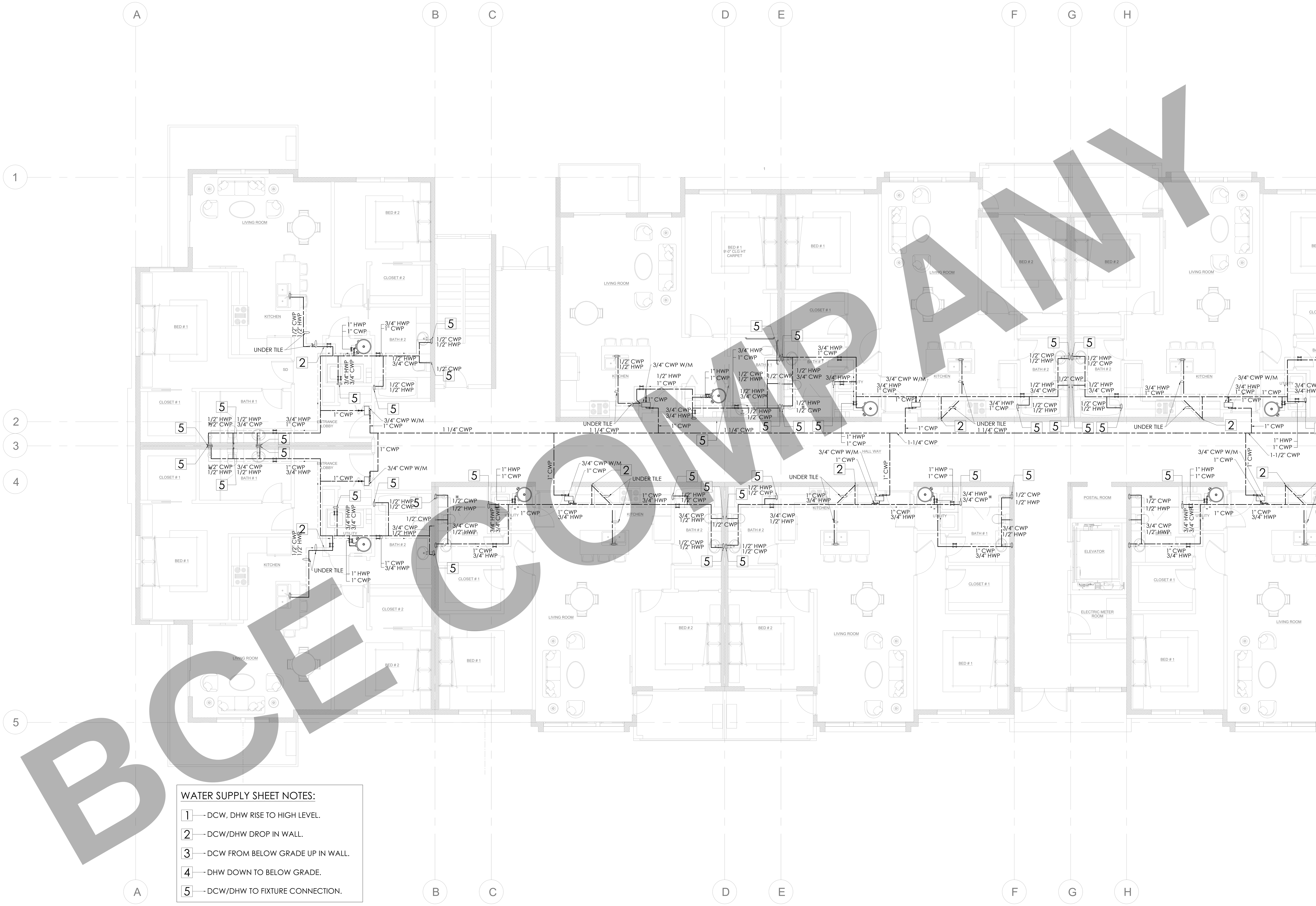
DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1

PLUMBING CODE CHECKING

P 0.02



WATER SUPPLY SHEET NOTES:

1 - DCW, DHW RISE TO HIGH LEVEL.
2 - DCW/DHW DROP IN WALL.
3 - DCW FROM BELOW GRADE UP IN WALL.
4 - DHW DOWN TO BELOW GRADE.
5 - DCW/DHW TO FIXTURE CONNECTION.

FIRST FLOOR PLAN

30 BUILDING 01 - FIRST FLOOR PLAN - WEST - WATER SUPPLY LAYOUT.

CITY SEAL

PROJECT

PRINTS

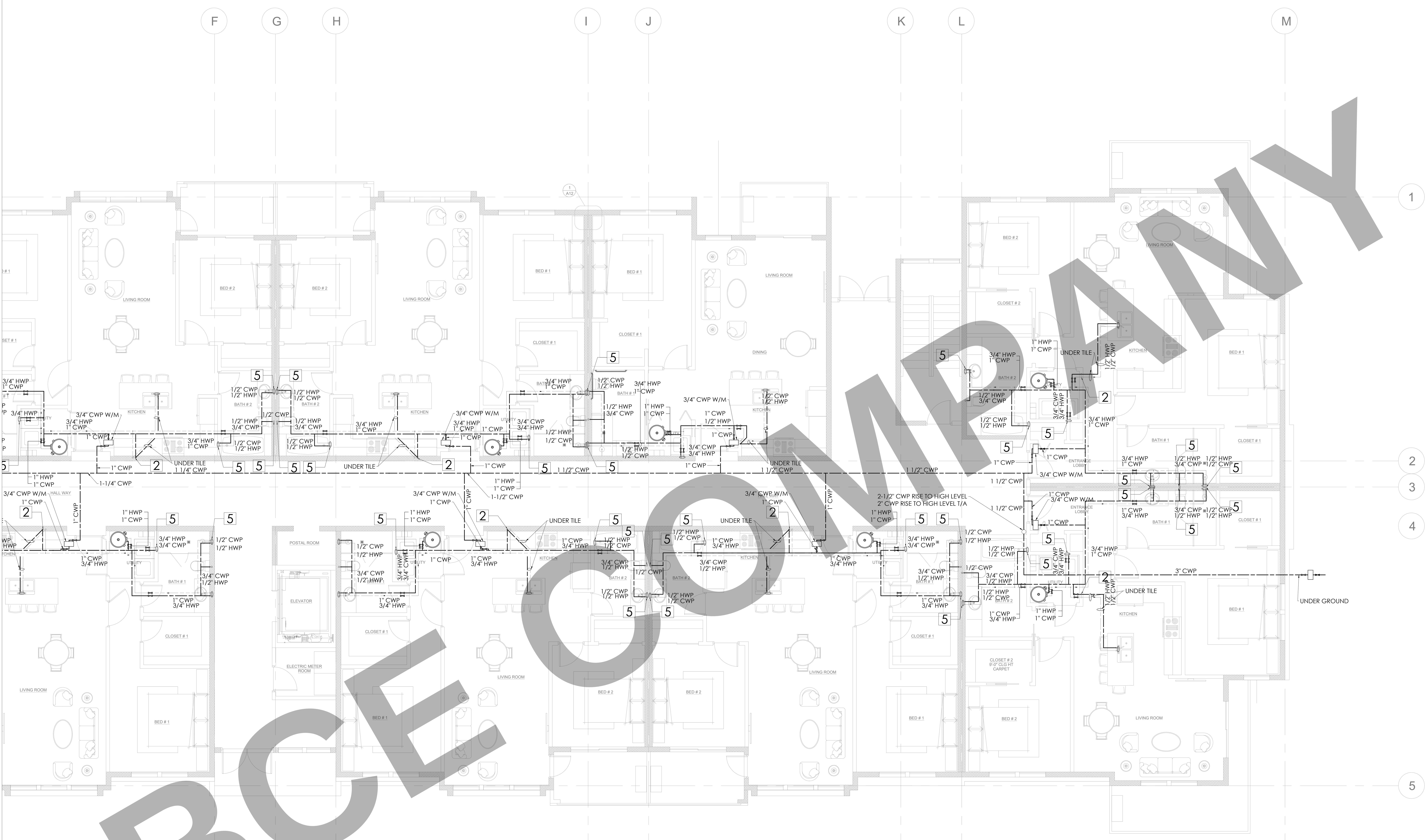
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0" 1' 4' 8'
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 1.01



WATER SUPPLY SHEET NOTES:

1 — DCW, DHW RISE TO HIGH LEVEL.
2 — DCW/DHW DROP IN WALL.
3 — DCW FROM BELOW GRADE UP IN WALL.
4 — DHW DOWN TO BELOW GRADE.
5 — DCW/DHW TO FIXTURE CONNECTION.

FIRST FLOOR PLAN

31 BUILDING 01 - FIRST FLOOR PLAN - EAST - WATER SUPPLY LAYOUT.

PROJECT

PRINTS

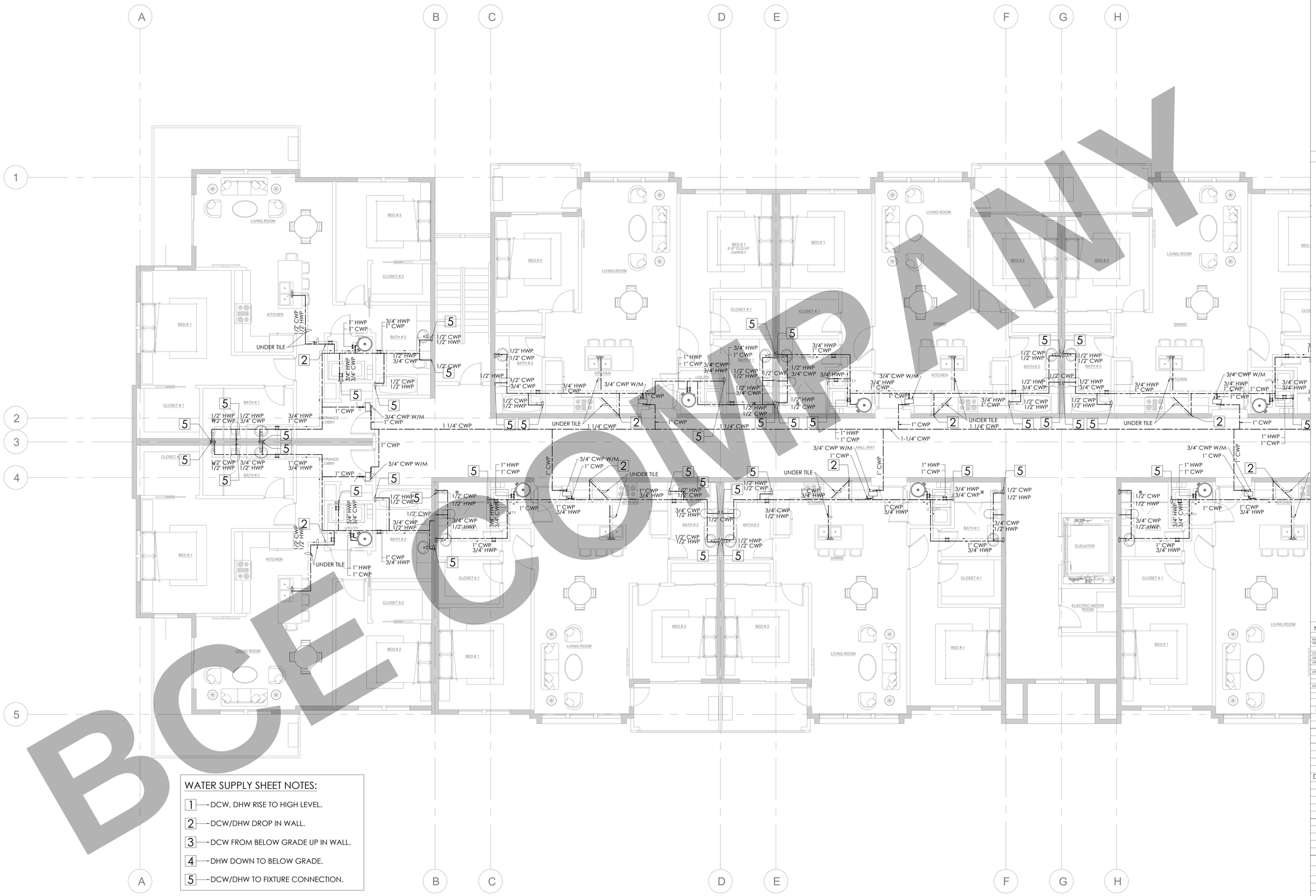
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 1.02



WATER SUPPLY SHEET NOTES:

1. DCW, DHW RISE TO HIGH LEVEL.
2. DCW/DHW DROP IN WALL.
3. DCW FROM BELOW GRADE UP IN WALL.
4. DHW DOWN TO BELOW GRADE.
5. DCW/DHW TO FIXTURE CONNECTION.

SECOND FLOOR PLAN

CITY SEAL

PROJECT

PRINTS

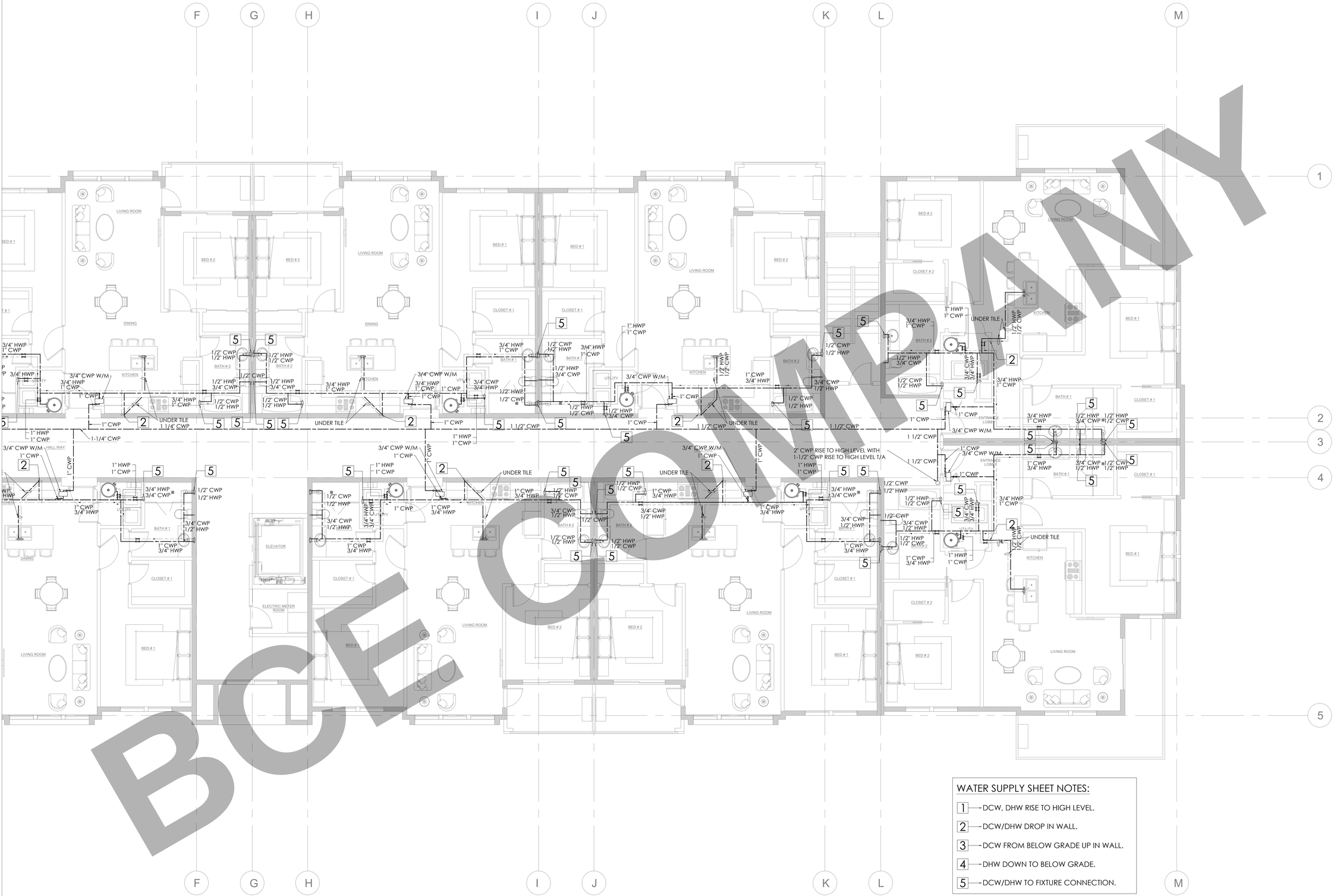
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 1.03



WATER SUPPLY SHEET NOTES:

1. DCW, DHW RISE TO HIGH LEVEL.
2. DCW/DHW DROP IN WALL.
3. DCW FROM BELOW GRADE UP IN WALL.
4. DHW DOWN TO BELOW GRADE.
5. DCW/DHW TO FIXTURE CONNECTION.

SECOND FLOOR PLAN

33 | BUILDING 01 - SECOND FLOOR PLAN - EAST - WATER SUPPLY LAYOUT.

CITY SEAL

PROJECT

NOTICE: THIS DRAWING MUST BE READ AND NEVER MEASURED.

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND ANY AMBIGUITY MUST BE BROUGHT TO THE CLIENT REP 'S NOTICE BEFORE COMMENCEMENT OF THE WORK.

PRINTS

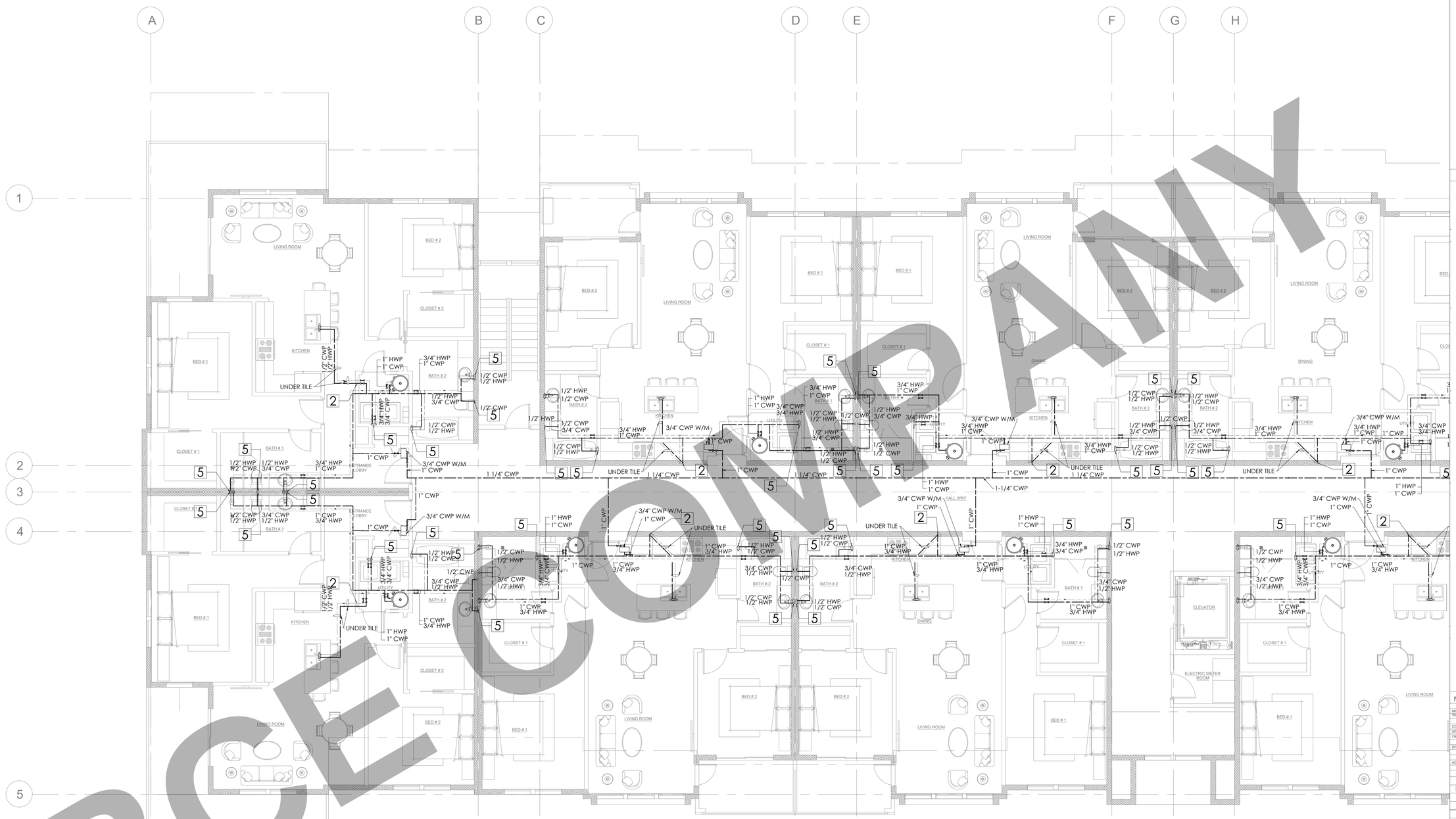
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 1.04



WATER SUPPLY SHEET NOTES:

1. DCW, DHW RISE TO HIGH LEVEL.
2. DCW/DHW DROP IN WALL.
3. DCW FROM BELOW GRADE UP IN WALL.
4. DHW DOWN TO BELOW GRADE.
5. DCW/DHW TO FIXTURE CONNECTION.

THIRD FLOOR PLAN

CITY SEAL

PROJECT

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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

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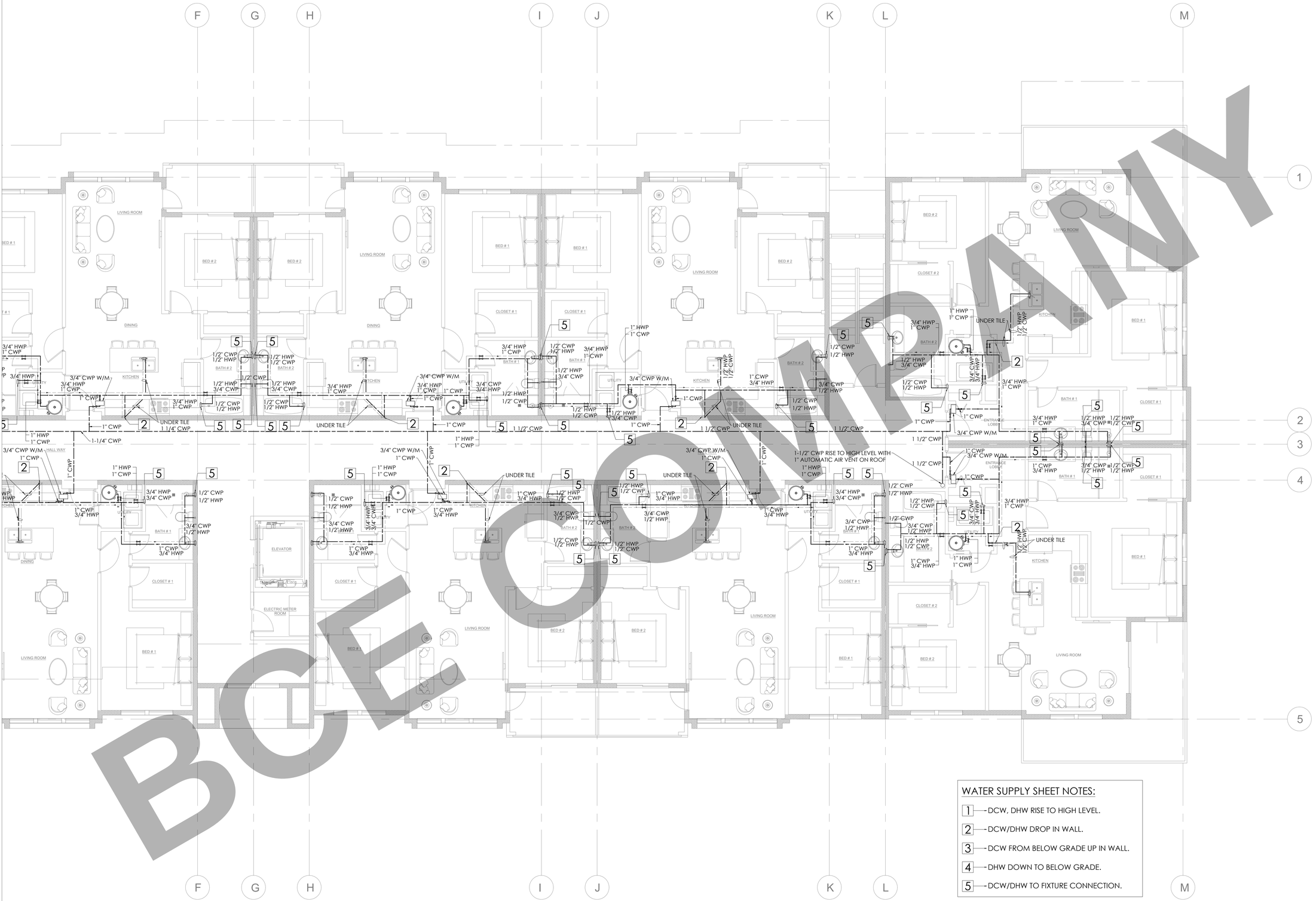
PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 1.05



WATER SUPPLY SHEET NOTES:

1. DCW, DHW RISE TO HIGH LEVEL.
2. DCW/DHW DROP IN WALL.
3. DCW FROM BELOW GRADE UP IN WALL.
4. DHW DOWN TO BELOW GRADE.
5. DCW/DHW TO FIXTURE CONNECTION.

THIRD FLOOR PLAN

35 | BUILDING 01 - THIRD FLOOR PLAN - EAST - WATER SUPPLY LAYOUT.

CITY SEAL

PROJECT

PRINTS

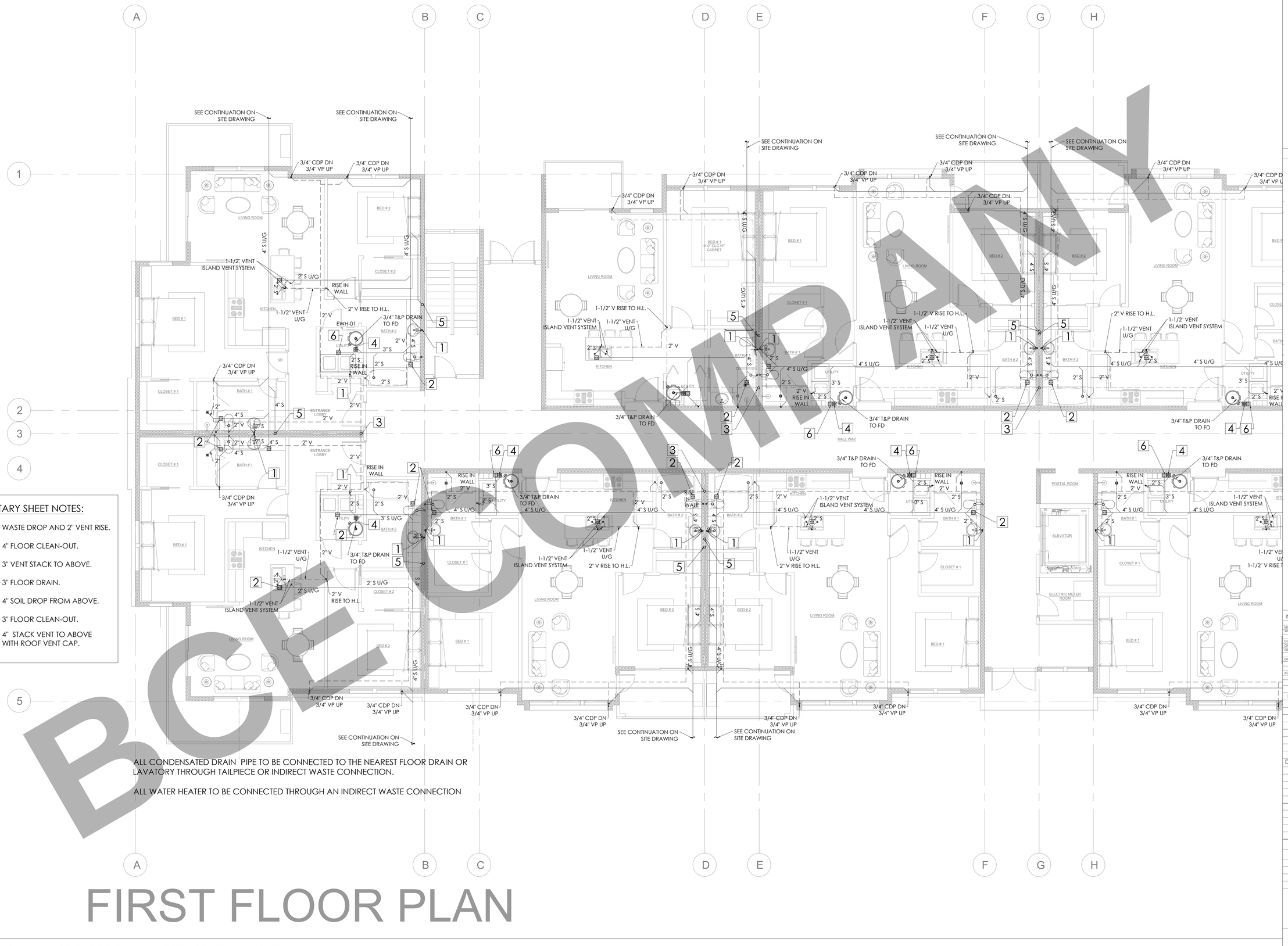
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 1.06



SANITARY SHEET NOTES:

1. - WASTE DROP AND 2" VENT RISE.
2. - 4" FLOOR CLEAN-OUT.
3. - 3" VENT STACK TO ABOVE.
4. - 3" FLOOR DRAIN.
5. - 4" SOIL DROP FROM ABOVE.
6. - 3" FLOOR CLEAN-OUT.
7. - 4" STACK VENT TO ABOVE WITH ROOF VENT CAP.

ALL CONDENSATED DRAIN PIPE TO BE CONNECTED TO THE NEAREST FLOOR DRAIN OR LAVATORY THROUGH TAILPIECE OR INDIRECT WASTE CONNECTION.

ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

FIRST FLOOR PLAN

CITY SEAL

PROJECT

NOTICE: THIS DRAWING MUST BE READ AND NEVER MEASURED. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND ANY AMBIGUITY MUST BE BROUGHT TO THE CLIENT REP.'S NOTICE BEFORE COMMENCEMENT OF THE WORK.

PRINTS

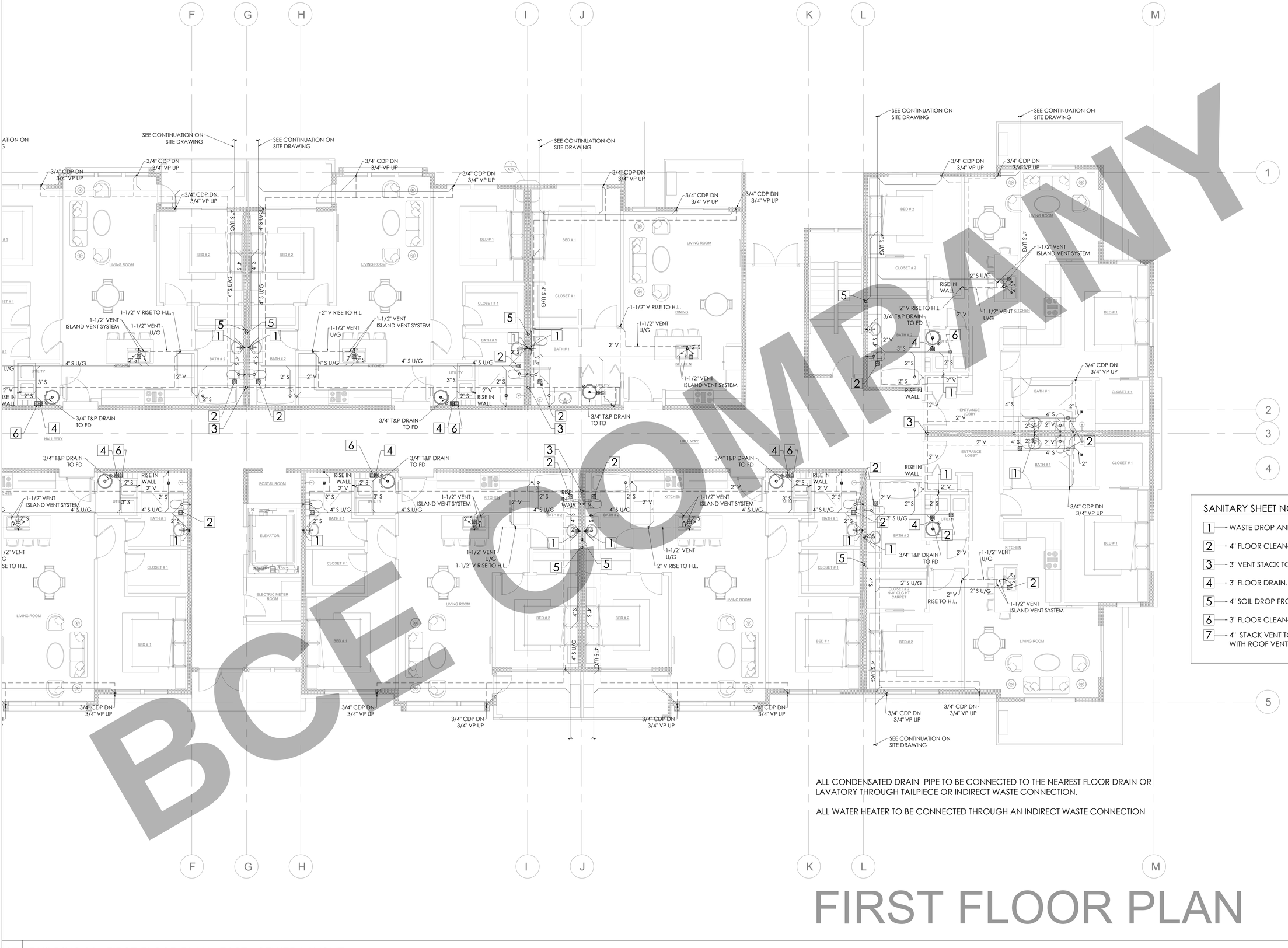
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 2.01



ALL CONDENSATED DRAIN PIPE TO BE CONNECTED TO THE NEAREST FLOOR DRAIN OR LAVATORY THROUGH TAILPIECE OR INDIRECT WASTE CONNECTION.

ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

FIRST FLOOR PLAN

SANITARY SHEET NOTES:

1. WASTE DROP AND 2" VENT RISE.
2. 4" FLOOR CLEAN-OUT.
3. 3" VENT STACK TO ABOVE.
4. 3" FLOOR DRAIN.
5. 4" SOIL DROP FROM ABOVE.
6. 3" FLOOR CLEAN-OUT.
7. 4" STACK VENT TO ABOVE WITH ROOF VENT CAP.

CITY SEAL

PROJECT

PRINTS

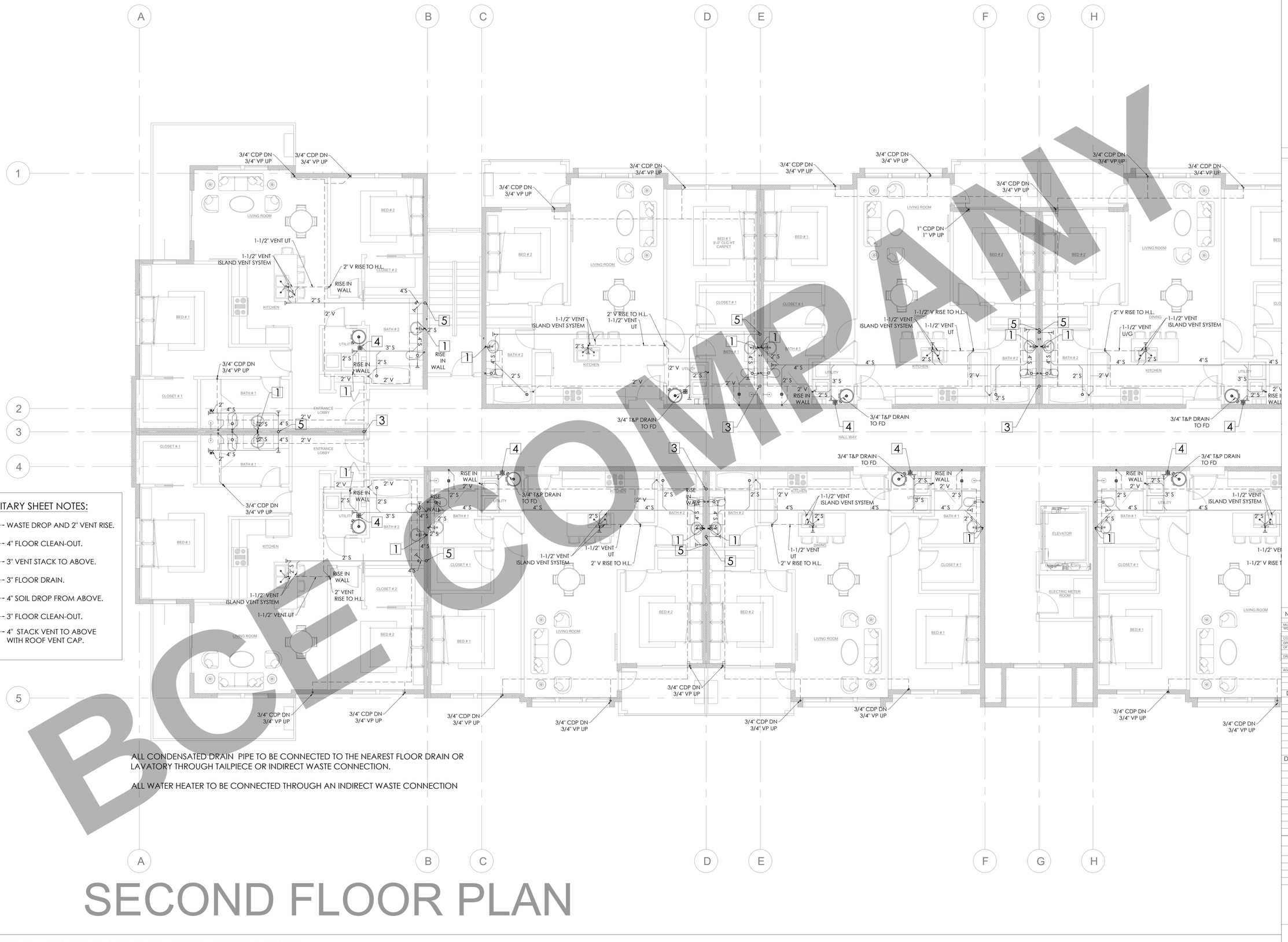
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 2.02



SANITARY SHEET NOTES:

1. WASTE DROP AND 2" VENT RISE.
2. 4" FLOOR CLEAN-OUT.
3. 3" VENT STACK TO ABOVE.
4. 3" FLOOR DRAIN.
5. 4" SOIL DROP FROM ABOVE.
6. 3" FLOOR CLEAN-OUT.
7. 4" STACK VENT TO ABOVE WITH ROOF VENT CAP.

ALL CONDENSATED DRAIN PIPE TO BE CONNECTED TO THE NEAREST FLOOR DRAIN OR LAVATORY THROUGH TAILPIECE OR INDIRECT WASTE CONNECTION.

ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

SECOND FLOOR PLAN

CITY SEAL

PROJECT

PRINTS

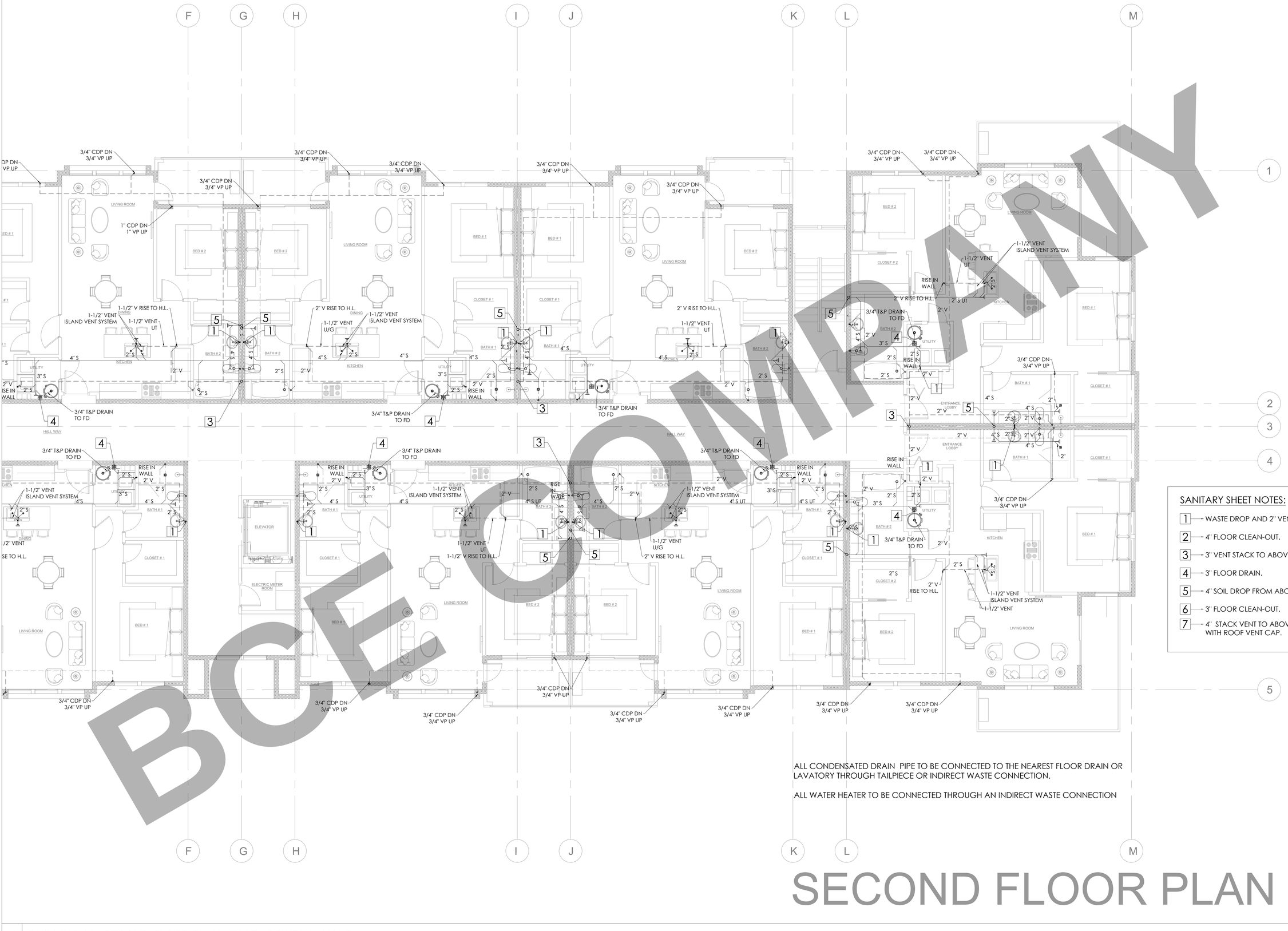
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 2.03



ALL CONDENSATED DRAIN PIPE TO BE CONNECTED TO THE NEAREST FLOOR DRAIN OR LAVATORY THROUGH TAILPIECE OR INDIRECT WASTE CONNECTION.

ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

SECOND FLOOR PLAN

SANITARY SHEET NOTES:

1. WASTE DROP AND 2" VENT RISE.
2. 4" FLOOR CLEAN-OUT.
3. 3" VENT STACK TO ABOVE.
4. 3" FLOOR DRAIN.
5. 4" SOIL DROP FROM ABOVE.
6. 3" FLOOR CLEAN-OUT.
7. 4" STACK VENT TO ABOVE WITH ROOF VENT CAP.

CITY SEAL

PROJECT

PRINTS

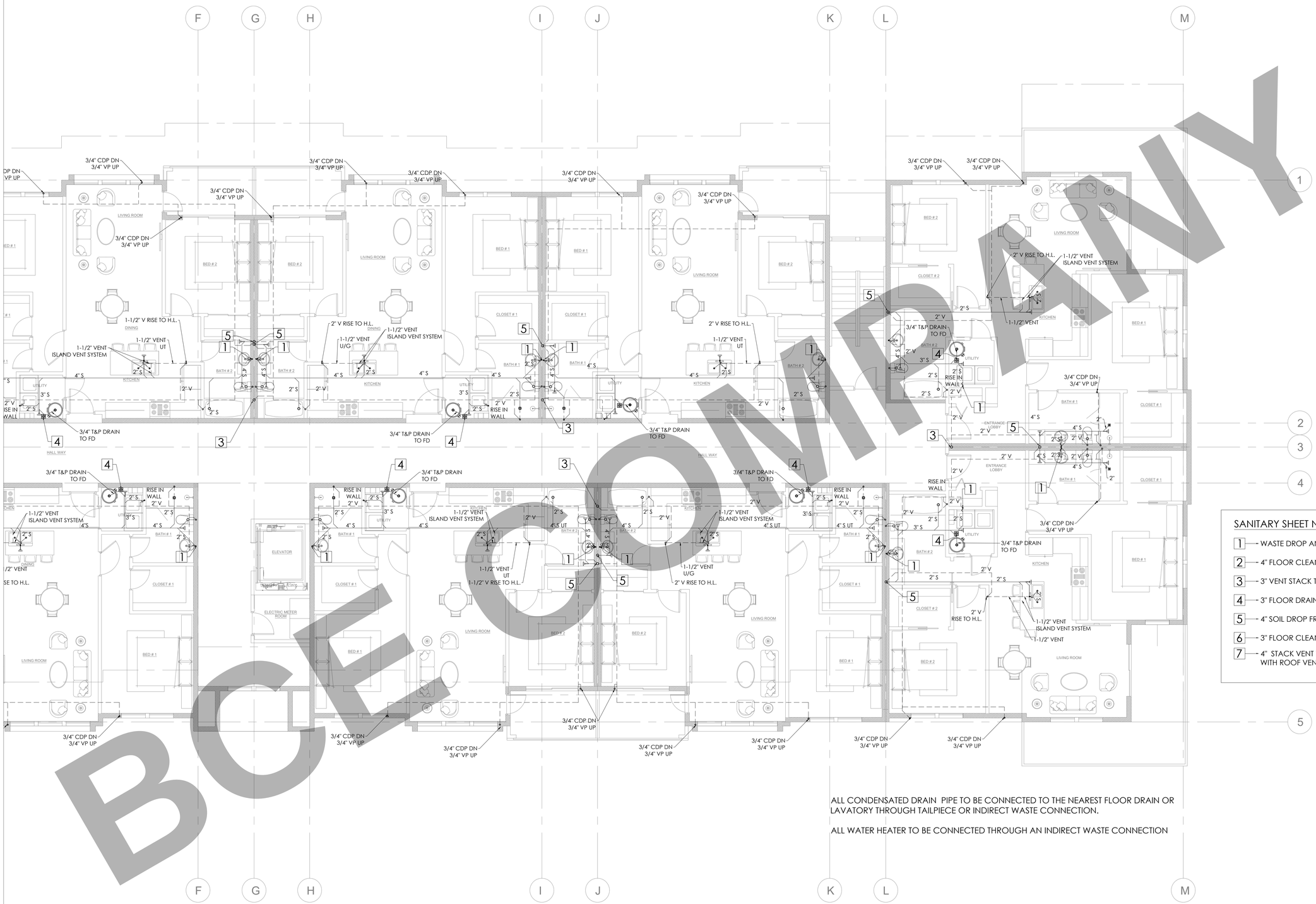
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 2.04



SANITARY SHEET NOTES:

1. - WASTE DROP AND 2" VENT RISE.
2. - 4" FLOOR CLEAN-OUT.
3. - 3" VENT STACK TO ABOVE.
4. - 3" FLOOR DRAIN.
5. - 4" SOIL DROP FROM ABOVE.
6. - 3" FLOOR CLEAN-OUT.
7. - 4" STACK VENT TO ABOVE WITH ROOF VENT CAP.

ALL CONDENSATED DRAIN PIPE TO BE CONNECTED TO THE NEAREST FLOOR DRAIN OR LAVATORY THROUGH TAILPIECE OR INDIRECT WASTE CONNECTION.

ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

THIRD FLOOR PLAN

41 | BUILDING 01 - THIRD FLOOR PLAN - EAST - SEWER LAYOUT.

CITY SEAL

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39
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INDER
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3010 V
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TEL: 925 59
EMAIL: IND

INNODE:

726, FC
PLEAS

INNODE.

726, FC
PLEAS

NOTICE:

PRINTS

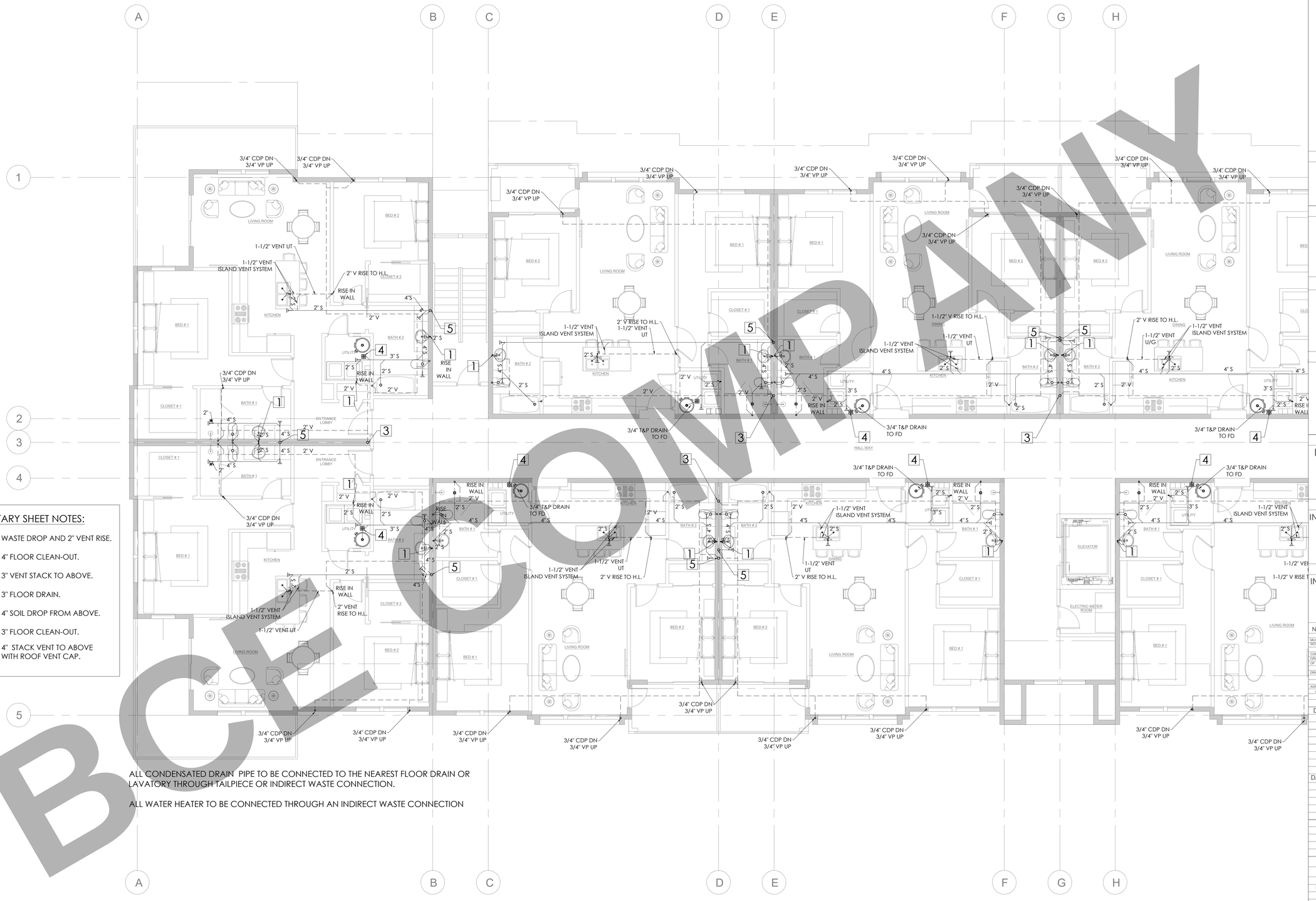
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 2.06



SANITARY SHEET NOTES:

1. WASTE DROP AND 2" VENT RISE.
2. 4" FLOOR CLEAN-OUT.
3. 3" VENT STACK TO ABOVE.
4. 3" FLOOR DRAIN.
5. 4" SOIL DROP FROM ABOVE.
6. 3" FLOOR CLEAN-OUT.
7. 4" STACK VENT TO ABOVE WITH ROOF VENT CAP.

ALL CONDENSATED DRAIN PIPE TO BE CONNECTED TO THE NEAREST FLOOR DRAIN OR LAVATORY THROUGH TAILPIECE OR INDIRECT WASTE CONNECTION.

ALL WATER HEATER TO BE CONNECTED THROUGH AN INDIRECT WASTE CONNECTION

THIRD FLOOR PLAN

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TEL: 925 59
EMAIL: IND

INNODE

726, FC
PLEAS

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726, FC
PLEAS

NOTICE:

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND ANY AMBIGUITY MUST BE BROUGHT TO THE CLIENT REP.'S NOTICE BEFORE COMMENCEMENT OF THE WORK.

PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	1/8"=1'0"
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
FLOOR PLAN

P 2.05

(FOR APT.-01 TO APT.-36) (TYPICAL LOADS)
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	2	3.0
BATH TUB	4.0	2	8.0
WATER CLOSET	2.5	3	7.5
LAVATORY	1.0	3	3.0
DISH WASHER	1.5	1	1.5
WASHING MACHINE	1.5	1	1.5
TOTAL BUILDING WSFU =			**24.5**

AS PER 2022CPC -TABE :610.4
LONGEST RUN IS APPROX . 125FT.
W/M PRESSURE RANGE 30-45PSI,
MAIN CWP NOT LESS THAN 1-1/4"Ø
W/M SIZE NOT LESS THAN 3/4"Ø

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

FIXTURE	D.F.U	QTY.	TOTAL D.F.U
KITCHEN SINK	2.0	2	4.0
WATER CLOSET	3.0	3	9.0
LAVATORY	1.0	3	3.0
SHOWER	2.0	2	4.0
DISHWASHER	2.0	1	2.0
WASHING MACHINE	2.0	1	2.0
FLOOR DRAIN	2.0	1	2.0
TOTAL APARTMENT DFU =			**26.0**

AS PER 2022 CPC - APPENDIX A
TOTAL MAIN PIPE SERVING 30 APARTMENT:
- LONGEST RUN IS APPRX 105 FT.
- W.S.F.U LOAD: (24.5x36) = 882 WSFU
- EQUAL TO 180 GPM
- BASED ON CHART A105.1(2), FRICTION LOSS 5 PSI/100 FEET.
- THE MAIN PIPE SIZE SHALL BE EQUAL TO 3"

SCHEDULE No. 1
ELECTRIC HEAT PUMP WATER HEATER SCHEDULE

TAG	EWH-01 TO 36
LOCATION	LAUNDRY ROOM
MANUFACTURER	RHEEM
MODEL	PROPH65 T2 RH350 DCB
TYPE	ELECTRIC
CAPACITY (GALLONS)	65.0
APPROX. WEIGHT (lbs)	225
WIDTH (in.)	24.25"
HEIGHT (in)	64.0"
WATER CONNECTION SIZE	3/4"
RE-CIRCULATING PUMP	INTEGRATED
ELECTRICAL (V / PH / HZ)	208 / 1 / 60
WATTS (W)	1,230

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EMAIL: INDY

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PLEAS

INNODE.

726, FC
PLEAS

NOTICE:

PRINTS

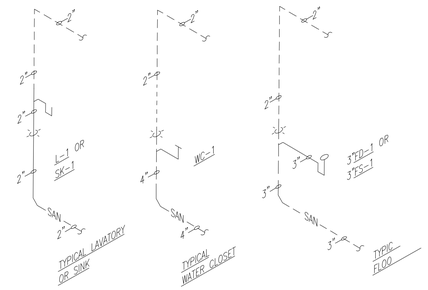
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

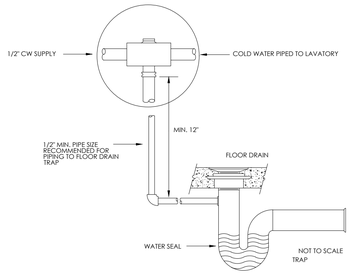
PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
PLUMBING CALCULATIONS AND EQUIPMENT SCHEDULE

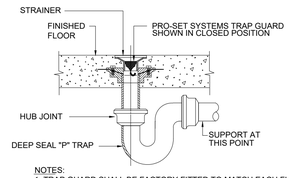
P 3.01



1 **TYPICAL WASTE AND VENT RISERS**
SCALE: NONE

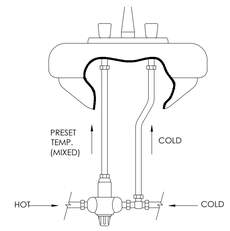


2 TRAP PRIMER

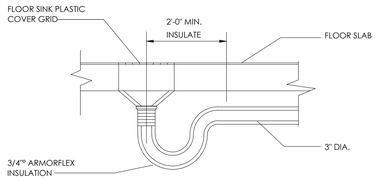


NOTES:
1. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND FLOOR SINK) BY SIZE, MODEL, AND MANUFACTURER.
2. FLOOR SINK/HUB DRAIN TRAP GUARD INSTALLATION IS SIMILAR.
3. INSTALLATION OF TRAP GUARD TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. INSERT TRAP GUARD ONLY AFTER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

3 **FLOOR DRAIN WITH TRAP SEAL PROTECTION**
SCALE: NONE



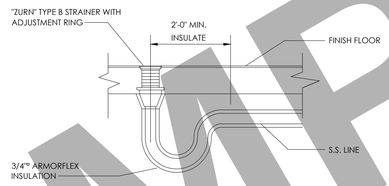
ANTI-SCALD MIXING VALVE
NO SCALE



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

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

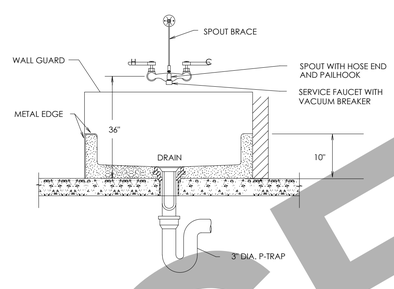
FLOOR SINK DETAIL
NO SCALE



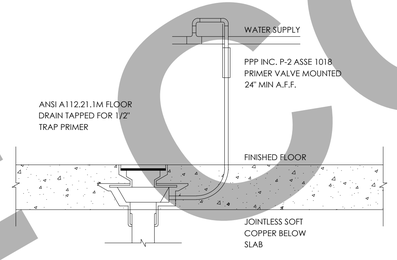
CONTRACTOR TO REFER TO PLUMBING DRAWINGS FOR SIZE AND LOCATION OF SANITARY SEWER LINE.

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

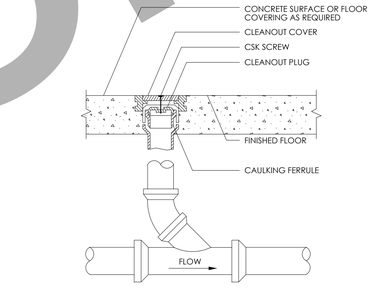
FLOOR DRAIN DETAIL
NO SCALE



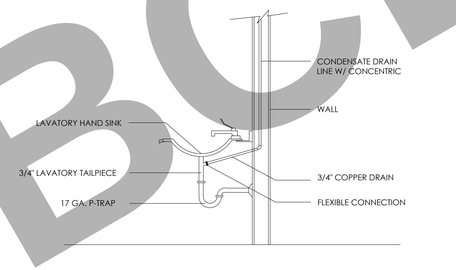
MOP SINK DETAIL
NO SCALE



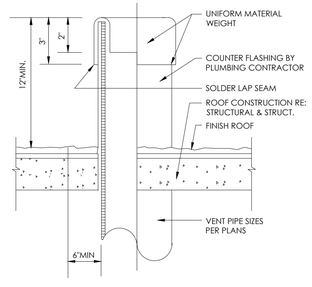
TRAP PRIMER DETAIL
NO SCALE



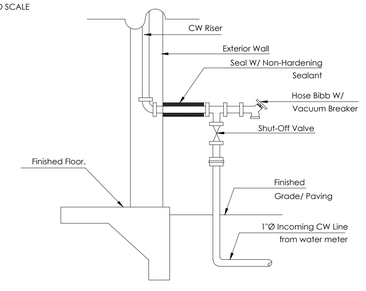
FLOOR CLEANOUT DETAIL
NO SCALE



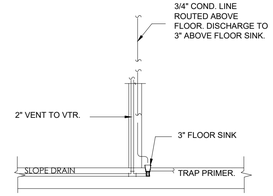
CONDENSATE DETAIL
NO SCALE



VENT THRU ROOF DETAIL
NO SCALE



WATER ENTRY DETAIL
NO SCALE



COND. ON FLOOR SINK DETAIL
NO SCALE

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NOTICE:
THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND ANY AMBIGUITY MUST BE BROUGHT TO THE CLIENT REP.'S NOTICE BEFORE COMMENCEMENT OF THE WORK.
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MULTIPLE USE OF THIS DRAWING FOR ANY OTHER SITE MUST HAVE THE WRITTEN AGREEMENT AND PERMISSION OF THE OWNER.
ANY INFRINGEMENT OF THESE OWNER'S RIGHTS WILL BE LIABLE FOR LEGAL ACTION.

PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
PLUMBING GENERAL DETAILS.

P 4.01

CALIFORNIA ENERGY COMMISSION

Regulatory Advisory

November 18, 2022

LOW-RISE MULTIFAMILY COMPLIANCE FORMS FOR THE 2022 BUILDING ENERGY EFFICIENCY STANDARDS

Background

The 2022 Building Energy Efficiency Standards (Energy Code), which goes into effect January 1, 2023, introduced new requirements for low-rise multifamily (LRMF) buildings and includes the registration of new LRMF compliance documentation. CalCERTS, Inc. (CalCERTS) and ConSol Home Energy Efficiency Rating Services, Inc. (CHEERS) have each applied to the California Energy Commission (CEC) to be certified as residential data registries for the 2022 Energy Code. Both CalCERTS and CHEERS are creating new systems to process and register the new LRMF compliance documents required by the 2022 Energy Code.

While development is ongoing, both CalCERTS and CHEERS have informed the CEC that they will not be able to complete required programming and testing of the new LRMF component of their residential data registries until after March 1, 2023. As a result, for LRMF buildings only,[1] there will be no approved data registry capable of registering compliance documentation for this building type until at least the end of March 2023. Document registration with an approved residential data registry is required by the 2022 Energy Code for both newly constructed buildings and additions or alterations to existing buildings (specific code references are listed below).

Official Guidance

CEC staff recommends local authorities having jurisdiction (AHJs) take the following steps to ensure that permitting for LRMF buildings under the 2022 Energy Code is not delayed.

CEC staff intends to create and issue fillable PDF compliance forms that can be used to demonstrate compliance in LRMF buildings until those forms can be registered with an approved residential data registry. Responsible persons, as defined by section 10-103(a), should utilize those fillable PDF compliance forms to document compliance with

[1] Registration of single-family compliance documentation for the 2022 Energy Code is not affected by this issue. Staff reviewed the data registries' applications for the single-family residential and nonresidential components of both the CalCERTS and CHEERS data registries and the CEC will consider approval of these registries on December 14, 2022, for processing of these 2022 compliance documents beginning January 1, 2023.

CALIFORNIA ENERGY COMMISSION

code requirements including field verification and diagnostic testing. Upon completion of the fillable PDF compliance forms, the responsible person should submit the compliance forms directly to the AHJ and retain the completed PDF compliance forms for later registration with the data registry. To comply with the 2022 Energy Code section 10-103(a), the responsible person shall register all compliance documentation with a data registry once an approved residential data registry capable of processing these forms becomes available.

Local AHJs should consider suspending enforcement of the impacted code sections (see below) that require registration of LRMF compliance documentation until an approved residential data registry capable of processing these forms becomes available. At that point, responsible persons shall register the documents with the approved data registry, as discussed above, and additional guidance will be provided by the CEC.

AHJs should consider holding digital or paper copies of the documents submitted to them as demonstration of compliance for retention and eventual registration.

Impacted Code Sections

The following sections of the 2022 Energy Code are affected by the lack of a CEC approved residential data registry capable of processing LRMF compliance documentation:

- 10-103(a)1B Certificate of compliance
- 10-103(a)2A [paragraph 3] Application for a building permit
- 10-103(a)3C Certificate of installation
- 10-103(a)3F Certificate of installation: Availability
- 10-103(a)5B Certificate of verification
- 10-103(a)5C Certificate of verification: Availability
- 10-103(b)1A Compliance information to be provided by Builder
- 10-103(d)1 Enforcement agency requirements: Permits
- 10-103(d)2 Enforcement agency requirements: Inspection

Further Information

For additional information or questions, please contact the Energy Standards (Title 24) Hotline at 1-800-772-3300, toll-free in California or via email at Title24@energy.ca.gov.

CHEERS REGISTRY PROJECT STATUS REPORT

Scan to Validate

PROJECT SUMMARY

Project Name:	90 Apartment Units - Building 01
Address:	3955 Coffee Road
City, State, Zip:	Modesto, CA 95355
Building Department:	Modesto, City of
Permit Number:	
Building Energy Code:	2022 Standards

HERS VERIFIABLE MEASURES	N/A
ENERGY CODE COMPLIANCE	COMPLETE

CERTIFICATE OF COMPLIANCE (CF1R)

DATE	DOCUMENT	TITLE	REGISTRATION NUMBER	STATUS
05/22/2023	CF1R-PRF-01-E	Performance Compliance	423-P01008723 9A-000-000-0000000-0000	

CHEERS

NOTICE: This compliance summary report has been generated by a registration platform provided by CHEERS using information submitted by or obtained from that registration platform by third parties that are not affiliated or related to CHEERS. Therefore, CHEERS is not responsible for, and cannot guarantee, the accuracy or completeness of the information contained in this certificate.

HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: 90 Apartment Units - Building 01 — Date: 5/22/2023
System Name: HP-1 to 10 — Floor Area: 9,624

ENGINEERING CHECKS

Number of Systems	10
Heating System	
Output per System	24,000
Total Output (Btuh)	240,000
Output (Btuh/sqft)	24.9
Cooling System	
Output per System	24,000
Total Output (Btuh)	240,000
Total Output (Tons)	20.0
Total Output (Btuh/sqft)	24.9
Total Output (sqft/Ton)	481.2
Air System	
CFM per System	800
Airflow (cfm)	8,000
Airflow (cfm/sqft)	0.83
Airflow (cfm/Ton)	400.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00

SYSTEM LOAD

	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Total Room Loads	6,445	109,849	7,122	1,473	60,206
Return Vented Lighting		0			
Return Air Ducts		1,626			765
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		9,210			-9,210
Supply Air Ducts		1,626			765
TOTAL SYSTEM LOAD		122,316	7,122		52,525

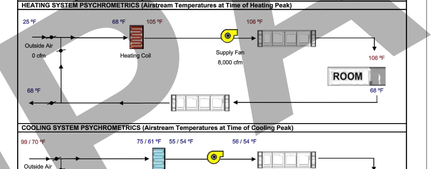
HVAC EQUIPMENT SELECTION

Standard Heat Pump 2 Tons

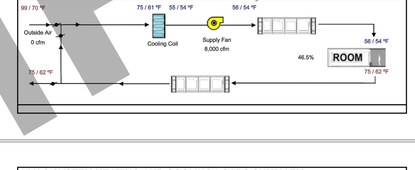
	212,232	3,035	145,813
Total Adjusted System Output (Adjusted for Peak Design conditions)	212,232	3,035	145,813
TIME OF SYSTEM PEAK		Aug 3 PM	Jan 1 AM

Note: values above given at ARI conditions

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



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



HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: 90 Apartment Units - Building 01 — Date: 5/22/2023
System Name: HP-11 & 12 — Floor Area: 1,370

ENGINEERING CHECKS

Number of Systems	2
Heating System	
Output per System	18,000
Total Output (Btuh)	36,000
Output (Btuh/sqft)	26.3
Cooling System	
Output per System	18,000
Total Output (Btuh)	36,000
Total Output (Tons)	3.0
Total Output (Btuh/sqft)	26.3
Total Output (sqft/Ton)	456.7
Air System	
CFM per System	600
Airflow (cfm)	1,200
Airflow (cfm/sqft)	0.88
Airflow (cfm/Ton)	400.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00

SYSTEM LOAD

	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Total Room Loads	489	9,714	1,014	191	7,894
Return Vented Lighting		0			
Return Air Ducts		144			100
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		1,842			-1,842
Supply Air Ducts		144			100
TOTAL SYSTEM LOAD		11,844	1,014		6,253

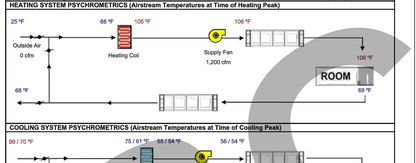
HVAC EQUIPMENT SELECTION

Standard Heat Pump 1.5 Tons

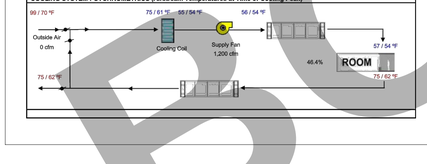
	31,798	473	21,872
Total Adjusted System Output (Adjusted for Peak Design conditions)	31,798	473	21,872
TIME OF SYSTEM PEAK		Aug 3 PM	Jan 1 AM

Note: values above given at ARI conditions

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



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



HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: 90 Apartment Units - Building 01 — Date: 5/22/2023
System Name: HP-13 to 22 — Floor Area: 9,624

ENGINEERING CHECKS

Number of Systems	10
Heating System	
Output per System	24,000
Total Output (Btuh)	240,000
Output (Btuh/sqft)	24.9
Cooling System	
Output per System	24,000
Total Output (Btuh)	240,000
Total Output (Tons)	20.0
Total Output (Btuh/sqft)	24.9
Total Output (sqft/Ton)	481.2
Air System	
CFM per System	800
Airflow (cfm)	8,000
Airflow (cfm/sqft)	0.83
Airflow (cfm/Ton)	400.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00

SYSTEM LOAD

	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Total Room Loads	6,445	109,849	7,122	1,473	60,206
Return Vented Lighting		0			
Return Air Ducts		1,626			765
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		9,210			-9,210
Supply Air Ducts		1,626			765
TOTAL SYSTEM LOAD		122,316	7,122		52,525

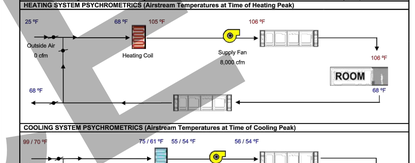
HVAC EQUIPMENT SELECTION

Standard Heat Pump 2 Tons

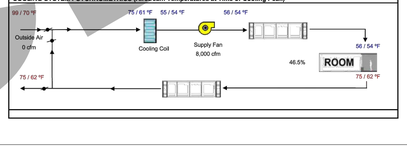
	212,232	3,035	145,813
Total Adjusted System Output (Adjusted for Peak Design conditions)	212,232	3,035	145,813
TIME OF SYSTEM PEAK		Aug 3 PM	Jan 1 AM

Note: values above given at ARI conditions

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



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



HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: 90 Apartment Units - Building 01 — Date: 5/22/2023
System Name: HP-23 & 24 — Floor Area: 1,370

ENGINEERING CHECKS

Number of Systems	2
Heating System	
Output per System	18,000
Total Output (Btuh)	36,000
Output (Btuh/sqft)	26.3
Cooling System	
Output per System	18,000
Total Output (Btuh)	36,000
Total Output (Tons)	3.0
Total Output (Btuh/sqft)	26.3
Total Output (sqft/Ton)	456.7
Air System	
CFM per System	600
Airflow (cfm)	1,200
Airflow (cfm/sqft)	0.88
Airflow (cfm/Ton)	400.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00

SYSTEM LOAD

	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Total Room Loads	489	9,714	1,014	191	7,894
Return Vented Lighting		0			
Return Air Ducts		144			100
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		1,842			-1,842
Supply Air Ducts		144			100
TOTAL SYSTEM LOAD		11,844	1,014		6,253

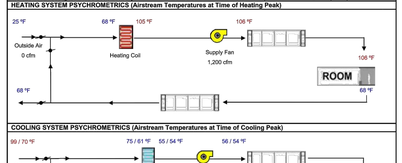
HVAC EQUIPMENT SELECTION

Standard Heat Pump 1.5 Tons

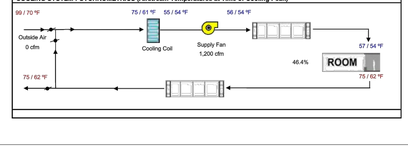
	31,798	473	21,872
Total Adjusted System Output (Adjusted for Peak Design conditions)	31,798	473	21,872
TIME OF SYSTEM PEAK		Aug 3 PM	Jan 1 AM

Note: values above given at ARI conditions

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



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



HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: 90 Apartment Units - Building 01 — Date: 5/22/2023
System Name: HP-25 to 34 — Floor Area: 9,624

ENGINEERING CHECKS

Number of Systems	10
Heating System	
Output per System	24,000
Total Output (Btuh)	240,000
Output (Btuh/sqft)	24.9
Cooling System	
Output per System	24,000
Total Output (Btuh)	240,000
Total Output (Tons)	20.0
Total Output (Btuh/sqft)	24.9
Total Output (sqft/Ton)	481.2
Air System	
CFM per System	800
Airflow (cfm)	8,000
Airflow (cfm/sqft)	0.83
Airflow (cfm/Ton)	400.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00

SYSTEM LOAD

	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Total Room Loads	6,357	128,016	7,122	1,772	72,412
Return Vented Lighting		0			
Return Air Ducts		1,898			920
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		9,210			-9,210
Supply Air Ducts		1,898			920
TOTAL SYSTEM LOAD		141,021	7,122		65,041

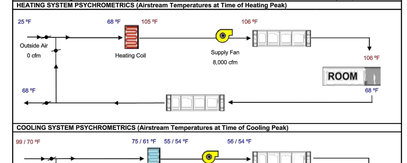
HVAC EQUIPMENT SELECTION

Standard Heat Pump 2 Tons

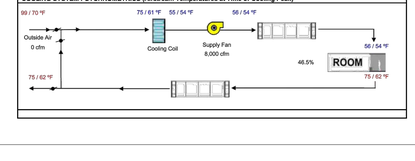
	212,393	2,904	145,813
Total Adjusted System Output (Adjusted for Peak Design conditions)	212,393	2,904	145,813
TIME OF SYSTEM PEAK		Aug 3 PM	Jan 1 AM

Note: values above given at ARI conditions

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



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



HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name: 90 Apartment Units - Building 01 — Date: 5/22/2023
System Name: HP-35 & 36 — Floor Area: 1,370

ENGINEERING CHECKS

Number of Systems	2
Heating System	
Output per System	18,000
Total Output (Btuh)	36,000
Output (Btuh/sqft)	26.3
Cooling System	
Output per System	18,000
Total Output (Btuh)	36,000
Total Output (Tons)	3.0
Total Output (Btuh/sqft)	26.3
Total Output (sqft/Ton)	456.7
Air System	
CFM per System	600
Airflow (cfm)	1,200
Airflow (cfm/sqft)	0.88
Airflow (cfm/Ton)	400.0
Outside Air (%)	0.0%
Outside Air (cfm/sqft)	0.00

SYSTEM LOAD

	COIL COOLING PEAK CFM	COIL COOLING PEAK Sensible	COIL COOLING PEAK Latent	COIL HTG. PEAK CFM	COIL HTG. PEAK Sensible
Total Room Loads	620	12,300	1,014	233	9,632
Return Vented Lighting		0			
Return Air Ducts		182			122
Return Fan		0			0
Ventilation	0	0	0	0	0
Supply Fan		1,842			-1,842
Supply Air Ducts		182			122
TOTAL SYSTEM LOAD		14,507	1,014		8,034

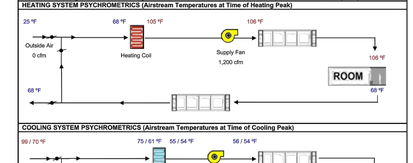
HVAC EQUIPMENT SELECTION

Standard Heat Pump 1.5 Tons

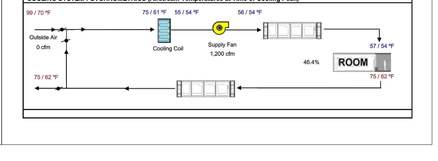
	31,821	455	21,872
Total Adjusted System Output (Adjusted for Peak Design conditions)	31,821	455	21,872
TIME OF SYSTEM PEAK		Aug 3 PM	Jan 1 AM

Note: values above given at ARI conditions

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



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



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DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
T24.01

T24.01

Project Name: 90 Apartment Units - Building 01 **Date Prepared:** 2023-05-22

A. General Information

1	Project Name	90 Apartment Units - Building 01			
2	Run Title	Title 24 Analysis			
3	Project Location	3955 Coffee Road			
4	City	Modesto	5	Standards Version	Compliance 2022
6	Zip code	95355	7	Compliance Software (version)	EnergyPro 9.1
8	Climate Zone	12	9	Building Orientation (deg)	0
10	Building Type(s)	• Nonresidential	11	Weather File	MODESTO-CITY_STYP20.epw
12	Project Scope	• New complete scope	13	Number of Dwelling Units	36
14	Total Conditioned Floor Area in Scope (ft^2)	32981.3	15	Total # of hotel/motel rooms	0
16	Total Unconditioned Floor Area (ft^2)	6246	17	Fuel Type	Natural gas
18	Nonresidential Conditioned Floor Area	0	19	Total # of Stories (Habitable Above Grade)	3
20	Residential Conditioned Floor Area	32981.3			

B. PROJECT SUMMARY

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

Building Components Complying via Performance					Building Components Complying Prescriptively	
Envelope (See Table G)	Nonres	☐ Not Included	Solar Thermal Water Heating (See Table I3)	☐ Performance	The following building components are ONLY eligible for prescriptive compliance and should be documented on the LMCC form listed if within the scope of the permit application (i.e. compliance will not be shown on the LMCC-PRF-E).	
	MultiFam	☒ Performance		☒ Not Included		
Mechanical (See Table H)	Nonres	☐ Not Included	Covered Process: Commercial Kitchens (see Table J)	☐ Performance	Indoor Lighting (Unconditioned) 140.6 & 170.2(e)	LMCC-LTI-01E is required
	MultiFam	☒ Performance		☒ Not Included	Outdoor Lighting 140.7 & 170.2(e)	LMCC-LTO-01E is required
Domestic Hot Water (See Table I)	Nonres	☐ Not Included	Covered Process: Laboratory Exhaust (see Table J)	☐ Performance	Sign Lighting 140.8 & 170.2(e)	LMCC-LTS-01E is required
	MultiFam	☒ Performance		☒ Not Included	**Building Components Complying with Mandatory Measures**	
Lighting (Indoor Conditioned, see Table K)	Nonres	☐ Not Included	Photovoltaics (see Table F)	☒ Performance	Electrical power systems, commissioning, solar ready, elevator and escalator requirements are mandatory and should be documented on the LMCC form listed if applicable (i.e. compliance will not be shown on the LMCC-PRF-E.)	
	MultiFam	☒ Performance		☐ Not Included	Electrical Power Distribution 110.11	LMCC-ELC-01E is required
			Battery (see Table F)	☐ Performance	Commissioning 120.8	LMCC-CXR-01E is required
				☒ Not Included	Solar and Battery 110.10	LMCC-SAB-01E is required

C1. COMPLIANCE SUMMARY

	COMPLIES[3]		
	Time Dependent Valuation (TDV)		Source Energy Use
	Efficiency[1] (kBtu/ft^2 - yr)	Total[2] (kBtu/ft^2 - yr)	Total[2] (kBtu/ft^2 - yr)
Standard Design	97.16	31.22	5.55
Proposed Design	94.09	26.16	5.53
Compliance Margins	**3.07**	**5.06**	**0.02**
	Pass	**Pass**	**Pass**

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

C2. TDV ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual TDV Energy Use, kBtu/ft^2 - yr)

	COMPLIES[1]		
Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Space Heating	0.7	5.29	-4.59
Space Cooling	34.56	31.75	2.81
Indoor Fans	14.55	13.19	1.36
Heat Rejection	0	0	0
Pumps & Misc.	2.17	2.17	0
Domestic Hot Water	-27.26	23.77	3.49
Indoor Lighting	17.92	17.92	0
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**97.16**	**94.09**	**3.07 (3.2%)**
Photovoltaics	-65.94	-67.93	1.99
Batteries	---	---	---
TOTAL COMPLIANCE	**31.22**	**26.16**	**5.06 (16.2%)**

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

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

Non-Regulated Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Receptacle	49.74	49.74	---
Process	50.63	50.24	0.39
Other Ltg	8.85	8.85	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**140.44**	**134.99**	**5.45 (3.9%)**

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

C4. SOURCE ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual SOURCE Energy Use, kBtu/ft^2 /yr)

	COMPLIES[2]		
Energy Component	Standard Design (SOURCE)	Proposed Design (SOURCE)	Compliance Margin (SOURCE)[1]
Space Heating	0.09	0.7	-0.61
Space Cooling	1.54	1.31	0.23
Indoor Fans	1.05	1.02	0.03
Heat Rejection	0	0	0
Pumps & Misc.	0.29	0.29	0
Domestic Hot Water	2.68	2.34	0.34
Indoor Lighting	1.67	1.67	0
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**7.32**	**7.33**	**-0.01 (-0.1%)**
Photovoltaics	-1.77	-1.8	0.03
Batteries	---	---	---
TOTAL COMPLIANCE	**5.55**	**5.53**	**0.02 (0.4%)**

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

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

Non-Regulated Energy Component	Standard Design (SOURCE)	Proposed Design (SOURCE)	Compliance Margin (SOURCE)[1]
Receptacle	4.77	4.77	---
Process	4.11	4.07	0.04
Other Ltg	0.88	0.88	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**15.31**	**15.25**	**0.06 (0.4%)**

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

C6. "ABOVE CODE" QUALIFICATIONS

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

C7. ENERGY USE SUMMARY

Energy Component	Standard Design Site (MWh)	Proposed Design Site (MWh)	Margin (MWh)	Standard Design Site (MBtu)	Proposed Design Site (MBtu)	Margin (MBtu)
Space Heating	0.8	6	-5.2	---	---	---
Space Cooling	24.1	20.3	3.8	---	---	---
Indoor Fans	14.5	13.4	1.1	---	---	---
Heat Rejection	---	---	---	---	---	---
Pumps & Misc.	2.5	2.5	0	---	---	---
Domestic Hot Water	34.1	30.1	4	---	---	---
Indoor Lighting	21.9	21.9	0	---	---	---
Flexibility	---	---	---	---	---	---
EFFICIENCY TOTAL	**97.9**	**94.2**	**3.7**	**0**	**0**	**0**
Photovoltaics	-111.6	-113.8	2.2	---	---	---
Batteries	---	---	---	---	---	---
ENERGY USE SUBTOTAL	**-13.7**	**-19.6**	**5.9**	**0**	**0**	**0**
Receptacle	58.4	58.4	0	---	---	---
Process	62	61.5	0.5	---	---	---
Other Ltg	9.4	9.4	0	---	---	---
Process Motors	---	---	---	---	---	---
ENERGY USE TOTAL	**116.1**	**109.7**	**6.4**	**0**	**0**	**0**

C8. ENERGY USE INTENSITY (EUI)

	Standard Design (kBtu/ft^2 / yr)	Proposed Design (kBtu/ft^2 / yr)	Margin (kBtu/ft^2 / yr)	Margin Percentage
GROSS EUI[1]	19.81	19.44	0.37	1.87
NET EUI[1]	10.1	9.54	0.56	5.54

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

D1. EXCEPTIONAL CONDITIONS

• Required minimum PV capacity limited by SARA.

D2. MULTIFAMILY REQUIRED SPECIAL FEATURES

• Indoor air quality, balanced fan
• Variable capacity heat pump compliance option (verification details from VCHP Staff report, Appendix B, and RA3)
• Northwest Energy Efficiency Alliance (NEEA) rated heat pump water heater, specific brand/model, or equivalent, must be installed

E1. HERS VERIFICATION SUMMARY

The following is a summary of the features that must be field-verified by a certified HERS Rater as a condition for meeting the modeled energy performance for this computer analysis. Additional detail is provided in the building tables below. Registered CF2Rs and CF3Rs are required to be completed in the HERS Registry.

Building-level Verifications:
- Indoor air quality ventilation
- Kitchen range hood

Cooling System Verifications:
- Verified Refrigerant Charge
- Airflow in habitable rooms (SC3.1.4.3.7)
- Minimum airflow according to RA3.3.3 and SC3.3.3.4.1

Heating System Verifications:
- Verified heat pump rated heating capacity
- CEC certified low-static VCHP system
- Wall-mounted thermostat in zones greater than 150 ft2 (SC3.4.5)
- Verified air filter sizing (SC3.1.4.7)
- Verified air filter pressure drop rating

JAHC Distribution System Verifications:
- Ducts located entirely in conditioned space confirmed by duct leakage testing
- Verified low-leakage ducts in conditioned space must meet maximum 25 cfm leakage to outside (RA3.1.4.3.8)

Domestic Hot Water System Verifications:
- -- None --

F1. REQUIRED PV SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	Exception[1]	Module Type	Array Type	Power Electronics	CFI	Azimuth (deg)	Tilt Input	Array Angle (deg)	Tilt: (x in 12)	Inverter Eff. (%)	Annual Solar Access (%)
69	n/a	Standard (14-17%)	Fixed	none	false	180	Degrees	22	4.85	96	100

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

F1B. PV BATTERY BUILDING TYPE(S)

01	02	03
Building Occupancy Type* (From Table 140.10-A/B and 170.2-U/V)	Conditioned Floor Area (ft^2)	Unconditioned Floor Area (ft^2)
Grocery	0	0
High-Rise Multifamily	0	0
Office, Financial Institutions, Unleased Tenant Space	0	0
Retail	0	0
School	0	0
Warehouse	0	0
Auditorium, Convention Center, Hotel/Motel, Library, Medical Office Building/Clinic, Restaurant, Theater	0	6246
None	0	0

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

F3. DWELLING UNIT INFORMATION

01	02	03
Dwelling Unit Name	Dwelling Unit Type	Dwelling Unit Type
DDU-1 FF-01-(1/1)	DU-1 FF-01	S-1-FF-01
DDU-2 FF-02-(1/1)	DU-2 FF-02	S-2-FF-02
DDU-3 FF-03-(1/1)	DU-3 FF-03	S-3-FF-03
DDU-4 FF-04-(1/1)	DU-4 FF-04	S-4-FF-04
DDU-5 FF-05-(1/1)	DU-5 FF-05	S-5-FF-05
DDU-6 FF-06-(1/1)	DU-6 FF-06	S-6-FF-06
DDU-7 FF-07-(1/1)	DU-7 FF-07	S-7-FF-07
DDU-8 FF-09-(1/1)	DU-8 FF-09	S-8-FF-09
DDU-9 FF-10-(1/1)	DU-9 FF-10	S-9-FF-10
DDU-10 FF-12-(1/1)	DU-10 FF-12	S-10-FF-12
DDU-11 FF-08-(1/1)	DU-11 FF-08	S-11-FF-08
DDU-12 FF-11-(1/1)	DU-12 FF-11	S-12-FF-11
DDU-13 2F-01-(1/1)	DU-13 2F-01	S-13-2F-01
DDU-14 2F-02-(1/1)	DU-14 2F-02	S-15-2F-02
DDU-15 2F-03-(1/1)	DU-15 2F-03	S-16-2F-03
DDU-16 2F-04-(1/1)	DU-16 2F-04	S-17-2F-04
DDU-17 2F-05-(1/1)	DU-17 2F-05	S-18-2F-05
DDU-18 2F-06-(1/1)	DU-18 2F-06	S-19-2F-06
DDU-19 2F-07-(1/1)	DU-19 2F-07	S-20-2F-07
DDU-20 2F-09-(1/1)	DU-20 2F-09	S-21-2F-09
DDU-21 2F-10-(1/1)	DU-21 2F-10	S-22-2F-10
DDU-22 2F-12-(1/1)	DU-22 2F-12	S-23-2F-12
DDU-23 2F-08-(1/1)	DU-23 2F-08	S-24-2F-08
DDU-24 2F-11-(1/1)	DU-24 2F-11	S-25-2F-11
DDU-25 3F-01-(1/1)	DU-25 3F-01	S-27-3F-01
DDU-26 3F-02-(1/1)	DU-26 3F-02	S-28-3F-02

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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
T24.02

T24.02

CERTIFICATE OF COMPLIANCE - LOWRISE MULTIFAMILY MIXED USE PERFORMANCE COMPLIANCE METHOD — LMCC-PRF-01-E

Lowrise Multifamily Mixed Use Performance Compliance Method — (Page 13 of 51)

F3. DWELLING UNIT INFORMATION

01	02	03
Dwelling Unit Name	Dwelling Unit Type	Dwelling Unit Type
DDU-27 3F-03 (1/1)	DU-27 3F-03	S-29-3F-03
DDU-28 3F-04 (1/1)	DU-28 3F-04	S-30-3F-04
DDU-29 3F-05 (1/1)	DU-29 3F-05	S-31-3F-05
DDU-30 3F-06 (1/1)	DU-30 3F-06	S-32-3F-06
DDU-31 3F-07 (1/1)	DU-31 3F-07	S-33-3F-07
DDU-32 3F-09 (1/1)	DU-32 3F-09	S-34-3F-09
DDU-33 3F-10 (1/1)	DU-33 3F-10	S-35-3F-10
DDU-34 3F-12 (1/1)	DU-34 3F-12	S-36-3F-12
DDU-35 3F-08 (1/1)	DU-35 3F-08	S-37-3F-08
DDU-36 3F-11 (1/1)	DU-36 3F-11	S-38-3F-11

CA Building Energy Efficiency Standards 2022 Lowrise Multifamily Compliance — Report Version: 2022.0.000 Schema Version: rev 20220601 — Report Generated: 2023-05-22 11:54:57 Compliance ID: EnergyPro-50207-0523-0027

CERTIFICATE OF COMPLIANCE - LOWRISE MULTIFAMILY MIXED USE PERFORMANCE COMPLIANCE METHOD — LMCC-PRF-01-E

Lowrise Multifamily Mixed Use Performance Compliance Method — (Page 14 of 51)

F4. DWELLING UNIT TYPES

01	02	03	04	05	06	07
Name	CFA (ft²)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
DU-1 FF-01	1020.26	2	1	DU-1 FF-01 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-2 FF-02	925	2	1	DU-2 FF-02 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-3 FF-03	917.51	2	1	DU-3 FF-03 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-4 FF-04	917.5	2	1	DU-4 FF-04 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-5 FF-05	924.5	2	1	DU-5 FF-05 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-6 FF-06	1027	2	1	DU-6 FF-06 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-7 FF-07	1022	2	1	DU-7 FF-07 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan

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F4. DWELLING UNIT TYPES

01	02	03	04	05	06	07
Name	CFA (ft²)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
DU-8 FF-09	925	2	1	DU-8 FF-09 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-9 FF-10	925	2	1	DU-9 FF-10 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-10 FF-12	1020	2	1	DU-10 FF-12 | :Heat Pump System 1:Air Distribution System 1:HVAC Fan 1:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-11 FF-08	685	1	1	DU-11 FF-08 | :Heat Pump System 2:Air Distribution System 2:HVAC Fan 2:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-12 FF-11	685	1	1	DU-12 FF-11 | :Heat Pump System 2:Air Distribution System 2:HVAC Fan 2:2:3	MF0-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-13 2F-01	1020.26	2	1	DU-13 2F-01 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-14 2F-02	925	2	1	DU-14 2F-02 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan

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F4. DWELLING UNIT TYPES

01	02	03	04	05	06	07
Name	CFA (ft²)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
DU-15 2F-03	917.51	2	1	DU-15 2F-03 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-16 2F-04	917.5	2	1	DU-16 2F-04 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-17 2F-05	924.5	2	1	DU-17 2F-05 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-18 2F-06	1027	2	1	DU-18 2F-06 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-19 2F-07	1022	2	1	DU-19 2F-07 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-20 2F-09	925	2	1	DU-20 2F-09 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-21 2F-10	925	2	1	DU-21 2F-10 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan

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F4. DWELLING UNIT TYPES

01	02	03	04	05	06	07
Name	CFA (ft²)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
DU-22 2F-12	1020	2	1	DU-22 2F-12 | :Heat Pump System 3:Air Distribution System 3:HVAC Fan 3:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-23 2F-08	685	1	1	DU-23 2F-08 | :Heat Pump System 4:Air Distribution System 4:HVAC Fan 4:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-24 2F-11	685	1	1	DU-24 2F-11 | :Heat Pump System 4:Air Distribution System 4:HVAC Fan 4:2:3	MF1-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-25 3F-01	1020.26	2	1	DU-25 3F-01 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-26 3F-02	925	2	1	DU-26 3F-02 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-27 3F-03	917.51	2	1	DU-27 3F-03 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-28 3F-04	917.5	2	1	DU-28 3F-04 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan

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F4. DWELLING UNIT TYPES

01	02	03	04	05	06	07
Name	CFA (ft²)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
DU-29 3F-05	924.5	2	1	DU-29 3F-05 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-30 3F-06	1027	2	1	DU-30 3F-06 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-31 3F-07	1022	2	1	DU-31 3F-07 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-32 3F-09	925	2	1	DU-32 3F-09 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-33 3F-10	925	2	1	DU-33 3F-10 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-34 3F-12	1020	2	1	DU-34 3F-12 | :Heat Pump System 5:Air Distribution System 5:HVAC Fan 5:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan
DU-35 3F-08	685	1	1	DU-35 3F-08 | :Heat Pump System 6:Air Distribution System 6:HVAC Fan 6:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan

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F4. DWELLING UNIT TYPES

01	02	03	04	05	06	07
Name	CFA (ft²)	Number of Bedrooms	Number in Building	Space Conditioning Systems Assigned	DHW System Name	IAQ Vent Fan Name
DU-36 3F-11	685	1	1	DU-36 3F-11 | :Heat Pump System 6:Air Distribution System 6:HVAC Fan 6:2:3	MF2-Rheem PROPH65 T2 RH350 D1	Default Minimum Balanced IAQ Fan

G1. ENVELOPE GENERAL INFORMATION (conditioned spaces only)

01	02	03	04
Opaque Surfaces & Orientation	Total Gross Surface Area (ft²)	Total Fenestration Area (ft²)	Window to Wall Ratio (%)
North-Facing[1]	8613	2656.5	30.84
East-Facing[2]	375	0	0
South-Facing[3]	0	0	0
West-Facing[4]	9936	3013.5	30.33
Total	**18924**	**5670**	**29.96**
Roof	10993.8	0	0

Notes
[1]*North-Facing is oriented to within 45 degrees of true north, including 45 00'00" east of north (NE), but excluding 45 00'00" west of north (NW),*
[2]*East-Facing is oriented to within 45 degrees of true east, including 45 00'00" south of east (SE), but excluding 45 00'00" north of east (NE),*
[3]*South-Facing is oriented to within 45 degrees of true south, including 45 00'00" west of south (SW), but excluding 45 00'00" east of south (SE),*
[4]*West-Facing is oriented to within 45 degrees of true west, including 45 00'00" north of west (NW), but excluding 45 00'00" south of west (SW),*

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G2B. ROOFING PRODUCT SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06
Name	Roof Pitch	Roof Rise (x in 12)	Aged Solar Reflectance	Thermal Emittance	SRI
Roof	Low slope	0	0.1	0.85	N/A
Roof 2	Low slope	0	0.1	0.85	N/A
Roof 3	Low slope	0	0.1	0.85	N/A
Roof 4	Low slope	0	0.1	0.85	N/A
Roof 5	Low slope	0	0.1	0.85	N/A
Roof 6	Low slope	0	0.1	0.85	N/A
Roof 7	Low slope	0	0.1	0.85	N/A
Roof 8	Low slope	0	0.1	0.85	N/A
Roof 9	Low slope	0	0.1	0.85	N/A
Roof 10	Low slope	0	0.1	0.85	N/A
Roof 11	Low slope	0	0.1	0.85	N/A
Roof 12	Low slope	0	0.1	0.85	N/A
Roof 13	Low slope	0	0.1	0.85	N/A

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G5. OPAQUE SURFACE ASSEMBLY SUMMARY

01	02	03	04	05	06		07	08	09	10
Surface Name	Construction Type	Area (ft²)	Framing Type	Cavity R-Value	Continuous R-Value		Units	Value	Description Of Assembly Layers	Status[1]
					Interior	Exterior				
R-19 Wall Coffee Road	Exterior Walls	19,434	Wood Framed Wall	18	0	0	U-factor	0.0738	Inside Finish: Gypsum Board Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6 Exterior Finish: 3 Coat Stucco	N
Ceiling 01	Interior Ceiling	26,151.5	Wood Framed Ceiling	30	0	0	U-factor	0.0329	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-30 / 2x10 Ceiling Below Finish: Gypsum Board	N
Adjacents	Interior Walls	43,560	Wood Framed Wall	13	0	0	U-factor	0.0919	Inside Finish: Gypsum Board Cavity / Frame: R-13 / 2x4 Other Side Finish: Gypsum Board	
Flooring	Interior Floors	26,151.5	Wood Framed Floor	18	0	0	U-factor	0.0492	Floor Surface: Carpeted Floor Deck: Wood Siding/sheathing/decking Cavity / Frame: R-19 in 5-1/2 in. (R-18) / 2x6 Ceiling Below Finish: Gypsum Board	N
R-38 Roof No Attic	Cathedral Ceilings	13,075.8	Wood Framed Ceiling	38	0	0	U-factor	0.03	Roofing: Light Roof (Asphalt Shingle) Roof Deck: Wood Siding/sheathing/decking Cavity / Frame: R-38 / 2x12 Inside Finish: Gypsum Board	N

[1] *Status: N - New, A - Altered, E - Existing*

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G6B. OPAQUE DOOR SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04
Name	Area (ft²)	Overall U-factor	Status[1]
D3	22	0.2	N
D3 2	22	0.2	N
D3 3	22	0.2	N
D3 4	22	0.2	N
D3 5	22	0.2	N
D3 6	22	0.2	N
D3 7	22	0.2	N
D3 8	22	0.2	N
D3 9	22	0.2	N
D3 10	22	0.2	N
D3 11	22	0.2	N
D3 12	22	0.2	N
D3 13	22	0.2	N
D3 14	22	0.2	N
D3 15	22	0.2	N
D3 16	22	0.2	N
D3 17	22	0.2	N
D3 18	22	0.2	N

[1] *Status: N - New, A - Altered, E - Existing*

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft²)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 2	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 3	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 4	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls 2	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls 2	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 5	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] *Status: N - New, A - Altered, E - Existing*

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft²)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1 6	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 2	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls	270	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 7	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 2	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 2	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 2	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 2	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 8	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 3	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 2	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 3	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] *Status: N - New, A - Altered, E - Existing*

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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
T24.03

T24.03

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
D7 3	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 3	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 3	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 2	0	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 9	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 2	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 4	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 2	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 10	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 3	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 11	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 3	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 5	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 5	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
D7 6	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 6	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 12	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 6	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 13	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 4	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 14	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 4	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 3	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 4	270	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 15	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 5	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 7	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 5	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W2 4	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 5	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 16	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 6	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 8	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 6	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 5	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 6	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 17	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 4	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 9	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 4	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 6	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 4	0	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1 18	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 5	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 10	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 5	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 4	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 5	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 19	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 6	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 11	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 6	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 5	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 6	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 20	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 7	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1 21	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 7	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 6	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 7	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 22	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls 11	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 23	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls 12	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 12	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls 12	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 24	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 7	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 25	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 7	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W3 7	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 7	270	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 26	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 8	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 7	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 8	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 13	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 8	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 27	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 9	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 8	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 9	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 14	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 9	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W2 9	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 8	0	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 28	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 8	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 15	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 8	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 29	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 9	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 30	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 9	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 16	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 14	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 17	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 15	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1 31	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 15	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 32	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 10	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 33	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 10	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 8	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 10	270	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 34	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 11	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 18	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 11	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 10	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 11	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1 35	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 12	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 19	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 12	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 11	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 12	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 36	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 10	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 20	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 10	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 12	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 10	0	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 37	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 11	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
D7 21	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 11	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 9	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 11	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 38	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 12	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 22	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 12	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 10	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 12	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 39	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 13	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 40	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 13	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W3 11	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 13	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 41	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls 21	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 42	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls 22	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 23	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	West Walls 22	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 43	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 13	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 44	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 13	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 12	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 13	270	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1 45	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 14	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 13	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 14	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 24	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 14	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 46	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 15	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 14	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 15	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 25	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 15	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 15	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 14	0	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
T24.04

T24.04

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1 47	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 14	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 26	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 14	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 48	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 15	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 49	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 15	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 27	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 23	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 28	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 24	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 50	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	East Walls 24	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W1 51	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 16	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 52	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 16	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 13	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 16	270	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 53	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 17	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 29	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 17	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 16	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 17	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 54	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 18	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

CERTIFICATE OF COMPLIANCE - LOWRISE MULTIFAMILY MIXED USE PERFORMANCE COMPLIANCE METHOD **LMCC-PRF-01-E**

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
D7 30	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 18	270	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 17	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	South Walls 18	270	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 55	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 16	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 31	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 16	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W2 18	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 16	0	1	70	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 56	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 17	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 32	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 17	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
W3 14	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 17	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W1 57	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 18	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D7 33	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 18	0	1	45.5	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
W3 15	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 18	0	1	21	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D8	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 19	0	1	42	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D8 2	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 19	0	1	42	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D8 3	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 20	0	1	42	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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G7B. FENESTRATION SUMMARY (MULTIFAMILY AND COMMON AREAS)

01	02	03	04	05	06	07	08	09	10	11	12	13
Fenestration Name	Fenestration Type/ Product Type / Frame Type	Parent Surface	Azimuth	Multiplier	Area (ft^2)	Overall U-factor	U-factor Source	Overall SHGC	SHGC Source	Overall VT	Exterior Shading	Status[1]
D8 4	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 20	0	1	42	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D8 5	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 21	0	1	42	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N
D8 6	Vertical fenestration Architectural Window - Operable (Multifamily only) N/A	North Walls 21	0	1	42	0.3	NFRC	0.23	NFRC	N/A	Standard bug screens	N

[1] Status: N - New, A - Altered, E - Existing

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H2. DWELLING UNIT HVAC HEATING AND COOLING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12	13
						Heating				Cooling		
Dwelling Unit Type Name	Equipment Name	Equipment Type	Quantity	Air Distribution System Name	Fan System name	Heat Output at 47	Heat Output at 17	Efficiency Unit	Efficiency	Total Cooling Output	Efficiency Unit	Efficiency
DU-1 FF-01	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-2 FF-02	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-3 FF-03	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-4 FF-04	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-5 FF-05	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-6 FF-06	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-7 FF-07	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-8 FF-09	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-9 FF-10	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15

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H2. DWELLING UNIT HVAC HEATING AND COOLING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12	13
						Heating				Cooling		
Dwelling Unit Type Name	Equipment Name	Equipment Type	Quantity	Air Distribution System Name	Fan System name	Heat Output at 47	Heat Output at 17	Efficiency Unit	Efficiency	Total Cooling Output	Efficiency Unit	Efficiency
DU-10 FF-12	Heat Pump System 1	VCHP	1	Air Distribution System 1	HVAC Fan 1	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-11 FF-08	Heat Pump System 2	VCHP	1	Air Distribution System 2	HVAC Fan 2	18,000	15,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-12 FF-11	Heat Pump System 2	VCHP	1	Air Distribution System 2	HVAC Fan 2	18,000	15,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-13 2F-01	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-14 2F-02	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-15 2F-03	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-16 2F-04	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-17 2F-05	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-18 2F-06	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15

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H2. DWELLING UNIT HVAC HEATING AND COOLING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12	13
						Heating				Cooling		
Dwelling Unit Type Name	Equipment Name	Equipment Type	Quantity	Air Distribution System Name	Fan System name	Heat Output at 47	Heat Output at 17	Efficiency Unit	Efficiency	Total Cooling Output	Efficiency Unit	Efficiency
DU-19 2F-07	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-20 2F-09	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-21 2F-10	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-22 2F-12	Heat Pump System 3	VCHP	1	Air Distribution System 3	HVAC Fan 3	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-23 2F-08	Heat Pump System 4	VCHP	1	Air Distribution System 4	HVAC Fan 4	18,000	15,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-24 2F-11	Heat Pump System 4	VCHP	1	Air Distribution System 4	HVAC Fan 4	18,000	15,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-25 3F-01	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-26 3F-02	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-27 3F-03	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15

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H2. DWELLING UNIT HVAC HEATING AND COOLING SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12	13
						Heating				Cooling		
Dwelling Unit Type Name	Equipment Name	Equipment Type	Quantity	Air Distribution System Name	Fan System name	Heat Output at 47	Heat Output at 17	Efficiency Unit	Efficiency	Total Cooling Output	Efficiency Unit	Efficiency
DU-28 3F-04	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-29 3F-05	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-30 3F-06	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-31 3F-07	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-32 3F-09	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-33 3F-10	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-34 3F-12	Heat Pump System 5	VCHP	1	Air Distribution System 5	HVAC Fan 5	24,000	20,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-35 3F-08	Heat Pump System 6	VCHP	1	Air Distribution System 6	HVAC Fan 6	18,000	15,000	HSPF	8.8	N/A	EER SEER	12.2 15
DU-36 3F-11	Heat Pump System 6	VCHP	1	Air Distribution System 6	HVAC Fan 6	18,000	15,000	HSPF	8.8	N/A	EER SEER	12.2 15

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H10. MULTIFAMILY DWELLING UNIT TYPE CENTRAL / INDIVIDUAL VENTILATION

01	02	03	04	05	06	07	08	09	10	11	12	13
		Central Fan (If applicable)					Individual Fan (if applicable)					
Dwelling Unit Type Name	IAQ Option	IAQ Fan Type Type	Supply Airflow CFM	Supply Fan Efficacy W/CFM	Exhaust CFM	Exhaust Fan Efficacy W/CFM	IAQ Fan Type	Count	Airflow CFM	Fan Efficacy W/CFM	Recovery Efficiency SRE	Recovery Efficiency ASRE
DU-1 FF-01	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.11	N/A	N/A	N/A
DU-2 FF-02	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A
DU-3 FF-03	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.03	N/A	N/A	N/A
DU-4 FF-04	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.02	N/A	N/A	N/A
DU-5 FF-05	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.23	N/A	N/A	N/A
DU-6 FF-06	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.31	N/A	N/A	N/A
DU-7 FF-07	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.16	N/A	N/A	N/A
DU-8 FF-09	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A
DU-9 FF-10	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A
DU-10 FF-12	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.1	N/A	N/A	N/A
DU-11 FF-08	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.55	N/A	N/A	N/A
DU-12 FF-11	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.55	N/A	N/A	N/A
DU-13 2F-01	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.11	N/A	N/A	N/A

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H10. MULTIFAMILY DWELLING UNIT TYPE CENTRAL / INDIVIDUAL VENTILATION

01	02	03	04	05	06	07	08	09	10	11	12	13
		Central Fan (If applicable)					Individual Fan (if applicable)					
Dwelling Unit Type Name	IAQ Option	IAQ Fan Type Type	Supply Airflow CFM	Supply Fan Efficacy W/CFM	Exhaust CFM	Exhaust Fan Efficacy W/CFM	IAQ Fan Type	Count	Airflow CFM	Fan Efficacy W/CFM	Recovery Efficiency SRE	Recovery Efficiency ASRE
DU-14 2F-02	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A
DU-15 2F-03	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.03	N/A	N/A	N/A
DU-16 2F-04	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.02	N/A	N/A	N/A
DU-17 2F-05	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.23	N/A	N/A	N/A
DU-18 2F-06	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.31	N/A	N/A	N/A
DU-19 2F-07	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.16	N/A	N/A	N/A
DU-20 2F-09	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A
DU-21 2F-10	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A
DU-22 2F-12	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.1	N/A	N/A	N/A
DU-23 2F-08	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.55	N/A	N/A	N/A
DU-24 2F-11	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.55	N/A	N/A	N/A
DU-25 3F-01	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.11	N/A	N/A	N/A
DU-26 3F-02	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A

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H10. MULTIFAMILY DWELLING UNIT TYPE CENTRAL / INDIVIDUAL VENTILATION

01	02	03	04	05	06	07	08	09	10	11	12	13
		Central Fan (If applicable)					Individual Fan (if applicable)					
Dwelling Unit Type Name	IAQ Option	IAQ Fan Type Type	Supply Airflow CFM	Supply Fan Efficacy W/CFM	Exhaust CFM	Exhaust Fan Efficacy W/CFM	IAQ Fan Type	Count	Airflow CFM	Fan Efficacy W/CFM	Recovery Efficiency SRE	Recovery Efficiency ASRE
DU-27 3F-03	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.03	N/A	N/A	N/A
DU-28 3F-04	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.02	N/A	N/A	N/A
DU-29 3F-05	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.23	N/A	N/A	N/A
DU-30 3F-06	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.31	N/A	N/A	N/A
DU-31 3F-07	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.16	N/A	N/A	N/A
DU-32 3F-09	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A
DU-33 3F-10	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50.25	N/A	N/A	N/A
DU-34 3F-12	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	53.1	N/A	N/A	N/A
DU-35 3F-08	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.55	N/A	N/A	N/A
DU-36 3F-11	Default Minimum Balanced IAQ Fan	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35.55	N/A	N/A	N/A

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PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS 1' 4' 8'
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
T24.05

T24.05

I1. WATER HEATER EQUIPMENT SUMMARY

01 Name	02 Heater Element Type	03 Tank Type	04 Qty	05 Tank Vol (gal)	06 Rated Input (kW)	07 Rated Input Unit	08 Efficiency	09 Efficiency Unit	10 Tank Insulation R-value Int/Ext	11 Standby Loss Fraction	12 1st Hr. Rating or Flow Rate (gal)	13 Heat Pump Type	14 Tank Location or Ambient Condition
Rheem PROPH65 T2 RH350 D10	Heat Pump	N/A	1	65	12	kW	kW	EF	0	0	N/A	Residential (NEEA RATED) pRODUCT	Outside
Rheem PROPH65 T2 RH350 D11	Heat Pump	N/A	1	65	12	kW	kW	EF	0	0	N/A	Residential (NEEA RATED) pRODUCT	Outside
Rheem PROPH65 T2 RH350 D12	Heat Pump	N/A	1	65	12	kW	kW	EF	0	0	N/A	Residential (NEEA RATED) pRODUCT	Outside

I2. MULTI-FAMILY WATER HEATING SYSTEM DETAIL

01 System Name	02 Configuration	03 Type	04 Qty in System	05 Dwelling Unit Distribution Type	06 Water Heater Name	07 Solar Heating System	08 Is Compact Distribution
MF0-Rheem PROPH65 T2 RH350 D1	Domestic Hot Water (DHW)	Unitary	1	Standard Distribution System	Rheem PROPH65 T2 RH350 D10	N/A	No
MF1-Rheem PROPH65 T2 RH350 D1	Domestic Hot Water (DHW)	Unitary	1	Standard Distribution System	Rheem PROPH65 T2 RH350 D11	N/A	No
MF2-Rheem PROPH65 T2 RH350 D1	Domestic Hot Water (DHW)	Unitary	1	Standard Distribution System	Rheem PROPH65 T2 RH350 D12	N/A	No

Documentation Author's Declaration Statement

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

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

Responsible Person's Declaration statement

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

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

Responsible Designer Name: Syed P. Alam	Responsible Designer Signature:
Company: Innodez Inc.	
Address: 726 Foxbrough	Date Signed:
City/State/Zip: Pleasanton, CA 94566	License #: 27087
Phone:	Title: Scope:

Responsible Designer Name: Syed P. Alam	Responsible Designer Signature:
Company: Innodez Inc.	
Address: 726 Foxbrough	Date Signed:
City/State/Zip: Pleasanton, CA 94566	License #: 27087
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Phone:	Title: Scope:

STATE OF CALIFORNIA
Solar And Battery — CALIFORNIA ENERGY COMMISSION

This document is used to demonstrate compliance with prescriptive PV and battery requirements in 140.10/ 170.2 for nonresidential, multifamily and mixed-use buildings and prescriptive solar thermal requirements in 170.2(d)3C for multifamily and hotel/ motel occupancies. When PV/battery/solar thermal requirements don't apply or are traded using the performance approach, this document demonstrates compliance with mandatory solar readiness requirements in 110.10/ 160.9 for newly constructed buildings which are either multifamily ten stories or fewer, hotel/motel ten stories or fewer or all other nonresidential buildings three stories or fewer. It is also used to demonstrate compliance with solar readiness in 110.10/ 160.9 for additions to nonresidential, multifamily or hotel/motel building types which add more than 2,000 ft² of roof area. Alterations, or additions of less than 2,000 ft² of roof area, are not required to comply with solar readiness, solar PV and battery requirements and do not need to complete this document.).

Project Name: 90 Apartment Units - Building 01 **Report Page:** (Page 1 of 5)
Project Address: 3955 Coffee Road **Date Prepared:** 5/22/2023

A. GENERAL INFORMATION

01	Project Location (city)	Modesto	04	Building Occupancies	High-Rise ResidentialSupport Areas
02	Climate Zone	12	05	Construction Type	New construction
03	Conditioned Floor Area (ft²)	32981	06	Number of Stories	Bldg <= 3 stories

B. PROJECT SCOPE

The compliance path the project is using to comply per 110.10(b)/18/ 140.10/ 170.2(g and h) is indicated below.

Compliance with Solar Photovoltaic (PV) and Battery Requirements in 140.10/ 170.2(g and h)

	01	
☒	Provided PV system and battery storage sized per 140.10/ 170.2(g and h)	The project has included an installed PV system and battery storage system per requirements in 140.10/ 170.2(g and h) as documented in Table J.
☐	Exception to PV and Battery: Not enough Solar Access Roof Area	The total of all available Solar Access Roof Area(s) of the project site is less than three percent of the conditioned floor area as documented in Table J.
☐	Exception to PV and Battery: Required PV < 4kW	The required PV system size is less than 4 kW dc as documented in Table J..
☐	Exception to PV and Battery: No contiguous Solar Access Roof Area	The Solar Access Roof Area(s) of the project site contains less than 80 contiguous square feet as documented in Table J.
☐	Exception to PV and Battery: Can't meet snow load	The project has a roof design where the enforcement authority has verified it is not possible for the PV system, including panels, modules, components, supports, and attachments to the roof structure, to meet ASCE 7-16 Chapter 7, Snow Loads.
☐	Exception to PV and Battery: Multi-tenant without VNEM or Community Solar	The project is a multi-tenant building in an area where a load serving entity does not provide either a Virtual Net Metering (VNEM) or community solar program.
☐	The prescriptive PV/battery requirement has been traded off using the performance compliance approach as documented on the PRF Certificate of Compliance form.	The project is a multi-tenant building in an area where a load serving entity does not provide either a Virtual Net Metering (VNEM) or community solar program.

Registration Number: — Generated Date/Time: — Documentation Software: EnergyPro

STATE OF CALIFORNIA
Solar And Battery — CALIFORNIA ENERGY COMMISSION

Compliance with Solar Thermal Water Heating Requirements in 170.2(d)3C (Multifamily and hotel/ motel occupancies only)

	01	
☐	The project includes a hotel/motel or multifamily occupancy with a gas or propane central water-heating system (serves 2+ dwelling units) and includes a permanently installed domestic solar water-heating system to comply with 170.2(d)3C and Reference Residential Appendix RA4, as documented in Table H. Compliance meets Exception 2 to solar ready requirements in 110.10(b).	

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through I. Note: If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance or see the applicable Table referenced below.

Allocated Solar Zone			Installed PV System			Installed SWH System			Smart Tstat and Alternative EE Measure		Compliance Results
01	02		03		04	05		06	07	08	
Required Minimum Area (ft²)	<= Designated Area (ft²)	OR	Required Minimum DC Power Rating (Watts)	<= Designed DC Power Rating (Watts)	OR	Required Minimum Solar Savings Fraction	<= Designed/Rated Solar Savings Fraction	OR	JA5 Compliant Thermostat Specified?	Alternative Energy Efficiency Measure	COMPLIES
(See Table F)			(See Tables G or J)			(See Table H)			(See Table I)		
<=		OR	0	<= 69,000	OR		<=	OR			
Location in construction documents showing the location for inverters and metering equipment and a pathway for the routing of conduit/ plumbing to the electrical service/ water heating system per §110.10(c).											
Battery storage system design meets the minimum requirements in Joint Appendix JA12 and the minimum energy (kWh)/ power (kW) capacity per Table J.											COMPLIES

D. EXCEPTIONAL CONDITIONS

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

E. ADDITIONAL REMARKS

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

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STATE OF CALIFORNIA
Solar And Battery — CALIFORNIA ENERGY COMMISSION

F. ALLOCATED SOLAR ZONE

This section does not apply to this project.

G. PERMANENTLY INSTALLED SOLAR PV FOR SOLAR READY EXCEPTION

This section does not apply to this project.

H. PERMANENTLY INSTALLED SOLAR HOT WATER SYSTEMS

This section does not apply to this project.

I. SMART THERMOSTATS AND ALTERNATIVE EFFICIENCY MEASURE FOR SOLAR READY EXCEPTION

This section does not apply to this project.

Registration Number: — Generated Date/Time: — Documentation Software: EnergyPro

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J. PHOTOVOLTAIC (PV) AND BATTERY SYSTEMS

This table documents compliance with prescriptive photovoltaic and battery system requirements in 140.10/ 170.2(g and h). Unless the project meets one of the listed exceptions, or trades-off PV in an energy model using performance path, 140.10/ 170.2(g and h) requires installed photovoltaic and battery systems for newly constructed buildings. The installed PV systems must meet the minimum requirements in Joint Appendix 11.

Photovoltaic (PV) System

01 Occupancy	02 Conditioned Floor Area (ft²)	03 Area of New Roof[1] (ft²)	04 Roof Area < 70% Solar Access[2] (ft²)	05 Plansheet or Document showing Solar Access Calculations	06 Occupied Roof Area[3] (ft²)	07 Solar Access Roof Area (SARA) (ft²)	08 Min Size of PV System Required (kWdc)
				Total Min Size PV System Required for all Spaces (kWdc):			0
				Total Size PV System in Design (kWdc):			69

FOOTNOTES: Includes the area of the building's roof space capable of structurally supporting a PV system and the area of all roof space on covered parking areas, carports, and all other newly constructed structures on the site that are compatible with supporting a PV system per Title 24, Part 2 Section 1511.2.
[2]Solar access must be determined using CEC approved solar access calculation tools found at https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/solar-assessment-tools.
[3]As specified by CBC Section 503.1.4.

K. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Form/Title
NRCI-SAB-01-E - Must be submitted for all buildings that must comply with solar readiness or PV/Battery requirements.

L. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no forms required for this project.

Registration Number: — Generated Date/Time: — Documentation Software: EnergyPro

STATE OF CALIFORNIA
Solar And Battery — CALIFORNIA ENERGY COMMISSION

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

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

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I 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: Syed P. Alam	Responsible Designer Signature:
Company: Innodez Inc.	Date Signed: 2023-05-22
Address: 726 Foxbrough	License: 27087
City/State/Zip: Pleasanton CA 94566	Phone:

Registration Number: — Generated Date/Time: — Documentation Software: EnergyPro

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NOTICE:
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THIS DRAWING IS THE PROPERTY OF MBNS DESIGN CONSULTANT & MUST NOT BE COPIED,XEROXED,PRINTED OR HANDED OVER TO ANY UNAUTHORISED PERSON OR A GROUP OF PERSONS WITHOUT THE WRITTEN PERMISSION OF THE LEGAL OWNER OF THIS OF THE PROJECT.
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ANY INFRINGEMENT OF THESE OWNER'S RIGHTS WILL BE LIABLE FOR LEGAL ACTION.

PRINTS

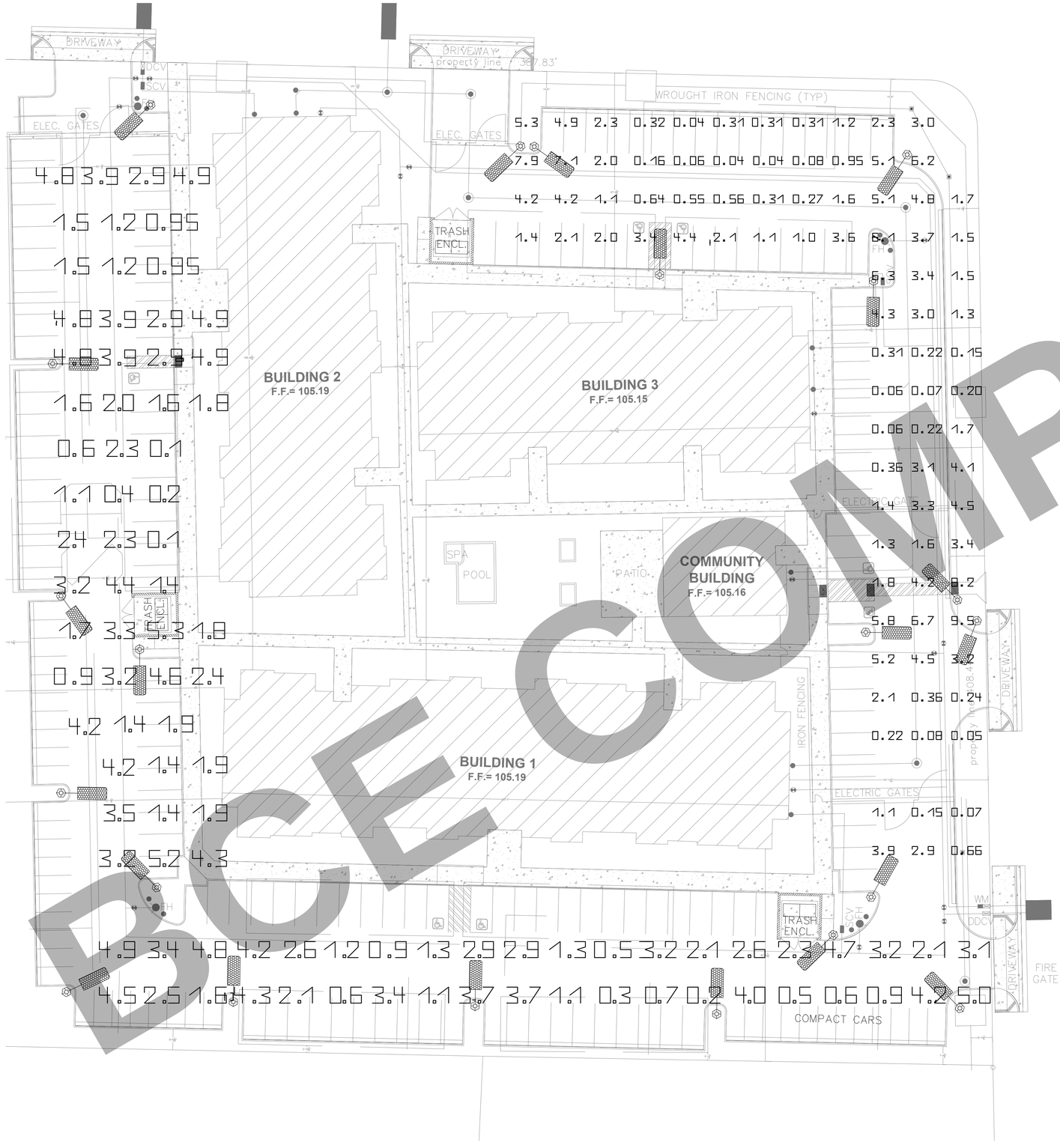
DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	NTS
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

BUILDING NO 1
T24.06

T24.06



#	Name	Min	Max	Average	Mean/Min	Max/Min
1	Parking one	0.037 fc	19.6 fc	2.17 fc	58.47	527.6
2	Parking 2	0.023 fc	9.46 fc	2.27 fc	96.64	402.6

Luminaire list (Site 1)

Index	Manufacturer	Article name	Item number	Fitting	Luminous flux	Light loss factor	Connected load
	Schréder POLE MOUNTED WITH ONE ARM	HESTIA MIDI LED INSTALLE AT 17.6 INCHES	HESTIA MIDI LED 5117 48 XP-G3@500mA NW 740 230V	1x 48 XP-G3@500mA NW 740 230V	11507 lm	0.80	73 W

IP65 IK08

Schréder ENSTO

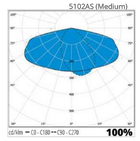
Structure
- Body powder-coated, high-pressure die-cast aluminium
- Extra-clear tempered glass
- Colour: Akzo 900 grey

Technical information
- Connected power: 18-70W
- Luminous flux: 2400 lm-9800 lm
- Colour rendering index CRI>70, 4000 K, power factor > 0,9
- Scattered light output 0 %
- Lifetime of LED-module 100 000h T_q=25 °C: 350mA & 500mA (L90B10); 700mA (L80B10)
- Ambient temperature -40 °C - + 45 °C
- Over voltage protection 10kV
- DALI + CLO

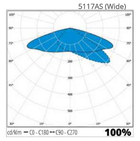
Mounting
- Mounting onto any bracket with a 34 mm diameter spigot, length 85 mm. Fixing with 2 screws
- Tool free direct access to driver
- An integrated hinge for easy maintenance on-site

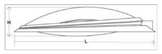
Made to order
- In Schréder selection you will find if needed more power-, optics- and control options

5102AS (Medium)



5117AS (Wide)





E Number	Type	Product name	Base	Kg	Length (L)	Width	Height (H)	Windage	Luminous flux
Hestia Mini LED									
45 343 54	HESTLM-000376-070J-0N	HESTIA MINI 16LED 5102 16W 2400LM 740 CL2	LED	7.0	780	266	163	0,067 m²	2400 lm
45 343 55	HESTLM-000377-070J-0N	HESTIA MINI 16LED 5117 16W 2400LM 740 CL2	LED	7.0	780	266	163	0,067 m²	2400 lm
45 343 56	HESTLM-000379-070J-0N	HESTIA MINI 24LED 5102 28W 3600LM 740 CL2	LED	7.0	780	266	163	0,067 m²	3600 lm
45 343 57	HESTLM-000378-070J-0N	HESTIA MINI 24LED 5117 28W 3600LM 740 CL2	LED	7.0	780	266	163	0,067 m²	3600 lm
45 343 58	HESTLM-000380-070J-0N	HESTIA MINI 32LED 5102 36W 4800LM 740 CL2	LED	7.0	780	266	163	0,067 m²	4800 lm
45 343 59	HESTLM-000381-070J-0N	HESTIA MINI 32LED 5117 36W 4800LM 740 CL2	LED	7.0	780	266	163	0,067 m²	4800 lm
Hestia Midi LED									
45 344 69	HESTLD-001285-0N0B-0N	HESTIA MIDI 48LED 5102 53W 7300LM 740 CL2	LED	9.0	924	324	170	0,075 m²	7300 lm
45 344 70	HESTLD-001286-0N0B-0N	HESTIA MIDI 48LED 5117 53W 7300LM 740 CL2	LED	9.0	924	324	170	0,075 m²	7300 lm
45 344 71	HESTLD-001288-0N0B-0N	HESTIA MIDI 64LED 5102 70W 9800LM 740 CL2	LED	9.0	924	324	170	0,075 m²	9800 lm
45 344 72	HESTLD-001287-0N0B-0N	HESTIA MIDI 64LED 5117 70W 9800LM 740 CL2	LED	9.0	924	324	170	0,075 m²	9800 lm

Luminaire's luminous flux and connected power are indicative values and they can vary depending on optics, diffuser and ambient temperature.
The values have been given according to the tolerances mentioned in international standards (IEC62717).

See more accurate product information at WEB site: **www.ensto.com**

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PLEAS

INNODE.

726, FC
PLEAS

NOTICE:

PRINTS

DATE	PURPOSE	ISSUED TO	SETS

DATE	NO.	REVISIONS

PROJECT NO.	PL/CROAD/23
SCALE	3/32"=1'-0" 0' 2' 4' 8'
DATE	06-20-2023
DRAWN	BV
CHECKED	BV

SITE PLAN

PM.01