

ONE LINE DIAGRAM SYMBOLS ---- Exist items to remain EXIST ITEMS TO BE REMOVED -x-x-x-x-x-NEW ITEMS TRANSFORMER, AS NOTED ON SINGLE LINE ISOLATION TYPE TRANSFORMER WITH ELECTROSTATIC SHIELD, AS NOTED ON SINGLE LINE LOW VOLTAGE CIRCUIT BREAKER OCPD WITH GROUND FAULT PROTECTION NON-FUSED DISCONNECT SWITCH FUSED DISCONNECT SWITCH DRAW-OUT MEDIUM-VOLTAGE CIRCUIT BREAKER MOTOR CONTROL CENTER BUCKET WITH COMBINATION MCP AND STARTER WITH OVERLOADS CONTACTOR; SIZE 1 MINIMUM MOTOR OVERLOAD PROTECTION STAND ALONE MOTOR STARTER, SIZE 1 MINIMUM DEMAND TYPE KWH METER KIRK-KEY INTERLOCK BETWEEN DEVICES AUTOMATIC TRANSFER SWITCH CURRENT TRANSFER, RATIO AS NOTED. PROTECTIVE RELAY, FUNCTION PER ANSI STANDARD DESIGNATION ELECTRONIC METER, UON CUTLER HAMMER IQ ANALYZER CAT. NO. IQA6430 OR EQUAL BY SQUARE D SCHNEIDER TEST SWITCH, ABB SEPARABLE CONNECTORS, 15KV 600A MINIMUM GROUND

LIGHTING SYMBOLS LIGHTING FIXTURE AS INDICATED BY FIXTURE TYPE. REFER TO FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION. 100 WATT TYPE F1 SHOWN. SHADING INDICATES ASSOCIATED FIXTURE ON EMERGENCY EXIT SIGN; SHADED PORTION INDICATES ILLUMINATED FACE. DIRECTIONAL ARROWS AS INDICATED ON PLANS. EXIT SIGN; SHADED PORTION INDICATES ILLUMINATED FACE. DIRECTIONAL ARROWS AS INDICATED ON PLANS PROVIDE MASTER/SLAVE HIGH AND LOW LEVEL EXIT SIGNS WHEREVER AN EXIT SIGN IS INDICATED ON PLANS. LINE VOLTAGE SWITCH. SUBSCRIPT INDICATES: X=NONE - SINGLE POLE X=3 - THREE WAY X=a,b,c - OUTLETS CONTROLLED VIA (3) 1 POLE SWITCHES DOUBLE POLE KEY OPERATED X=R MOMENTARY RELAY ON/OFF X=DIM - WALL BOX DIMMER LOW VOLTAGE DIGITAL LIGHTING CONTROL STATION WITH ON/OFF AND RAISE/LOWER BUTTONS. SUBSCRIPT INDICATES SWITCH LEG TO BE CONTROLLED. USE SINGLE CHANNEL STATION PER SWITCH LEG. (ab) DENOTES INDICATED SWITCH LEGS ARE SIMULTANEOUSLY CONTROLLED BY ONE SINGLE CHANNEL CONTROL STATION. COMBINATION OCCUPANCY SENSOR / ENTRY SWITCH, 180 DEGREE SMALL MOTION COVERAGE SUBSCRIPT INDICATES SWITCH LEG OR CIRCUIT TO BE CONTROLLED. ROOM TYPE OCCUPANCY SENSOR, 360 DEGREE SMALL MOTION COVERAGE. CORRIDOR TYPE OCCUPANCY SENSOR, 360 DEGREE LARGE MOTION COVERAGE. COMBINATION OCCUPANCY/PHOTOCELL SENSOR, 360 DEGREE SMALL MOTION COVERAGE. **OUTLET SYMBOLS** SUBSCRIPT 'C' INDICATES ASSOCIATED OUTLET IS MOUNTED AT COUNTER HEIGHT. REFER TO ARCHITECTURAL DRAWINGS. RECEPTACLES ARE NEMA 5-20R UON. WALL MOUNTED DUPLEX RECEPTACLE CEILING MOUNTED DUPLEX RECEPTACLE FLUSH FLOOR MOUNTED DUPLEX RECEPTACLE WALL MOUNTED CONTROLLED GREEN DUPLEX RECEPTACLE. LABEL 'CONTROLLED'. FLUSH FLOOR MOUNTED CONTROLLED GREEN DUPLEX RECEPTACLE. LABEL 'CONTROLLED'. WALL MOUNTED QUADRUPLEX RECEPTACLE. CEILING MOUNTED QUADRUPLEX RECEPTACLE FLUSH FLOOR MOUNTED QUADRUPLEX RECEPTACLE ONE CONSTANT HOT DUPLEX AND ONE CONTROLLED GREEN DUPLEX RECEPTACLE. LABEL GREEN RECEPTACLE 'CONTROLLED'. WALL MOUNTED. ONE CONSTANT HOT DUPLEX AND ONE CONTROLLED GREEN DUPLEX RECEPTACLE. LABEL GREEN RECEPTACLE 'CONTROLLED'. FLOOR MOUNTED. WALL MOUNTED ISOLATED GROUND DUPLEX RECEPTACLE. CEILING MOUNTED ISOLATED GROUND DUPLEX RECEPTACLE. FLUSH FLOOR MOUNTED ISOLATED GROUND DUPLEX RECEPTACLE. WALL MOUNTED ISOLATED GROUND QUADRUPLEX RECEPTACLE. CEILING MOUNTED ISOLATED GROUND QUADRUPLEX RECEPTACLE FLUSH FLOOR MOUNTED ISOLATED GROUND QUADRUPLEX RECEPTACLE. WALL MOUNTED JUNCTION BOX 4" SQUARE MINIMUM. CEILING MOUNTED JUNCTION BOX 4" SQUARE MINIMUM. FLUSH FLOOR MOUNTED JUNCTION BOX 4" SQUARE MINIMUM. WALL MOUNTED JUNCTION BOX SIZE AS REQUIRED FOR NUMBER CEILING MOUNTED JUNCTION BOX SIZE AS REQUIRED FOR NUMBER OF WIRES. FLUSH FLOOR MOUNTED JUNCTION BOX SIZE AS REQUIRED FOR NUMBER OF WIRES. WALL MOUNTED SYSTEM FURNITURE POWER FEED. CEILING MOUNTED SYSTEM FURNITURE POWER FEED. FLUSH FLOOR MOUNTED SYSTEM FURNITURE POWER FEED. COMBINATION POWER/SIGNAL POKE-THRU WITH (2)DUPLEX CONVENIENCE RECEPTACLES AND (4) TEL/DATA JACKS. WIREMOLD #RC4ATCAL. SPECIAL RECEPTACLE PER SCHEDULE BELOW. SUBSCRIPT 'INDICATES ASSOCIATED RECEPTACLE IS LOCKING TYPE. X=A - NEMA 5-30R: 125V,1ø,30A,2P,3W NEMA 14-20R: 125/250V,1ø,20A,3P,4W NEMA 14-30R: 125/250V,1ø,30A,3P,4W - NEMA 5-20R: GROUND FAULT CIRCUIT INTERRUPTING NEMA 6-20R: 250V,1ø,20A,2P,3W

NEMA 6-30R: 250V,1ø,30A,2P,3W

- NEMA 6-50R: 250V,1ø,50A,2P,3W

NEMA 15-20R: 250V,3ø,20A,3P,4W

NEMA 15-50R: 250V,3ø,50A,3P,4W

- NEMA 15-30R: 250V,3ø,30A,3P,4W

FLOOR X=K

113 EQUIPMENT NAME OR NUMBER MOUNTING HEIGHT FROM FINISHED FLOOR TO CENTERLINE OF OUTLET OR EQUIPMENT EXIST ITEMS TO REMAIN -×--×--×--×-- EXIST ITEMS TO BE REMOVED NEW ITEMS HOMERUN TO PANELBOARD, CABINET OR TERMINAL BOARD AS INDICATED. HOMERUN TO SWITCHBOARD OR MCC AS INDICATED. REFER TO SINGLE LINE FOR CONDUIT AND WIRE SIZES. CONDUIT END CAP CONDUIT DOWN CONDUIT UP CONDUIT RUN UNDERGROUND OR BELOW FLOOR. CONDUIT CONCEALED IN WALL OR CEILING. — W SURFACE WIREMOLD RACEWAY MULTIOUTLET RACEWAY, NUMBER IN (X) INDICATES _______ OUTLET SPACING. WHERE MULTIPLE CIRCUITS ARE INDICATED, ALTERNATE CIRCUITS FOR OUTLETS ALONG RACEWAY. — T1 — VOICE/DATA CONDUIT ONLY. SIZE AND QTY AS NOTED. $T=1\frac{1}{4}$ " / $T1=1\frac{1}{2}$ " / T2=2" / T3=3" / T4=4" / (X)T4=(X)4" — AVI — AUDIO VISUAL CONDUIT ONLY. SIZE AND QTY AS NOTED. $AV=1\frac{1}{4}$ " / $AV1=1\frac{1}{2}$ " / AV2=2" / AV3=3" / (X)AV3=(X)3" — S1 — SECURITY SYSTEM CONDUIT ONLY. SIZE AND QTY AS NOTED. $S=\frac{3}{4}$ " / S1=1" / $S2=\frac{1}{4}$ " / $S3=\frac{1}{2}$ " / (X)S1=(X)1" — G — GROUND CONDUCTOR AS NOTED 1#12,1#12N,1#12G, 1/2"C 2#12,2#12N,1#12G, ¹/₂"C 3#12,3#12N,1#12G, ¹/₂"C 4#12,4#12N,1#12G,³/₄"C 5#12,5#12N,1#12G,³/₄"C 6#12,6#12N,1#12G,³/₄"C 1#10,1#10N,1#10G, ¹/₂"C 2#10,2#10N,1#10G,³/₄" 3#10,3#10N,1#10G,³/₄"C 4#10,4#10N,1#10G,1"C 5#10,5#10N,1#10G,1"C 6#10,6#10N,1#10G,1"C 1#8,1#8N,1#10G,¹/₂"C 2#8,2#8N,1#10G,³/₄"C 3#8,3#8N,1#10G,1"C 4#8,4#8N,1#10G,1¹/₄"C 5#8,5#8N,1#10G,1¹/₄"C 6#8,6#8N,1#10G,1¹/₄"C 2#12,1#12G,¹/₂"C 3#12,1#12G, 1/2°C 4#12,1#12G, ¹/₂"C 5#12,1#12G,¹/₂"C 6#12,1#12G,¹/₂"C 7#12,1#12G,³/₄"C 8#12,1#12G,³/₄"C 2#10,1#10G,¹/₂"C 3#10,1#10G,¹/₂"C 4#10,1#10G,³/₄"C 5#10,1#10G,³/₄"C 6#10,1#10G,³/₄"C 7#10,1#10G,1**"**C 8#10,1#10G,1"C 3#8,1#10G,³/₄"C 5#8,1#10G,1"C 7#8,1#10G,1¹/₄"C 8#8,1#10G,1¹/₄"C MANUAL MOTOR STARTER WITH HOA AND THERMAL OVERLOAD. DISCONNECT SWITCH, 30 AMP MINIMUM COMBINATION DISCONNECT SWITCH AND MOTOR STARTER WITH HOA, 30 AMP, SIZE 1 MINIMUM MOTOR, MECHANICAL EQUIPMENT DESIGNATED 'AH-1' SURFACE MOUNTED MISCELLANEOUS CABINET AS INDICATED ON PLANS FLUSH MOUNTED MISCELLANEOUS CABINET AS INDICATED ON PLANS SURFACE MOUNTED PANELBOARD, DESIGNATED 'L1A' FLUSH MOUNTED PANELBOARD

SWITCHBOARD

COPPER GROUND BUS

COPPER TECHNICAL GROUND BUS ON ISOLATORS

COPPER GROUND ROD, MINIMUM $\frac{3}{4}$ " \(\psi \times 10' \) LONG

ELECTRICAL SYMBOLS

SEE NOTE A OR 1 ON THE SAME SHEET

GENERAL NOTES

A. CODES AND STANDARDS: A.A. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION. PROVIDE ALL LABOR AND TOOLS NECESSARY PROVIDE AND INSTALL ALL REQUIRED EQUIPMENT, MATERIALS AND ASSOCIATED APPURTENANCES.

BASED ON 2022 CALIFORNIA ELECTRICAL CODE (BASED ON 2020 NATIONAL ELECTRICAL CODE) WITH CITY AMENDMENTS.

A.B. ALL ELECTRICAL WORK SHALL COMPLY WITH 2023 EDITION OF THE ELECTRICAL CODE,

A.C. PROCURE ALL PERMITS, ARRANGE FOR ALL INSPECTIONS AND PAY ALL ASSOCIATED COSTS AND FEES.

A.D. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES

B.A. SERIES RATING OF ELECTRICAL SYSTEM IS NOT ALLOWED.

OCCUPATIONAL SAFETY HEALTH ADMINISTRATION.

B.B. ALL INDOOR CONDUCTORS SHALL BE COPPER, TYPE 'THWN/THHN' 90 DEGREE INSULATION. ALL EXTERIOR, WET OR DAMP LOCATION CONDUCTORS SHALL BE COPPER, TYPE 'THWN-2 OR XHHW-2' 90 DEGREE INSULATION.

B.C. ALL LUGS SHALL BE 75 DEGREE C RATED, MINIMUM.

B.D. USE OF NONMETALLIC SHEATHED CABLE (NM OR NMC), ARMORED CABLE (AC) OR METAL CLAD CABLE (MC) IS NOT ALLOWED.

B.E. USE OF STEEL FLEX IS NOT ALLOWED EXCEPT FOR LENGTHS UP TO 6 FEET FOR FINAL CONNECTION TO LIGHTING FIXTURES OR VIBRATING EQUIPMENT. ALUMINUM FLEX IS NOT

B.F. PROVIDE ENERGY EFFICIENT TRANSFORMERS AS REQUIRED BY THE DEPARTMENT OF

B.G. ALL EQUIPMENT BUSSING TO BE COPPER.

B.H. ALL DISTRIBUTION TRANSFORMERS TO HAVE VACUUM PRESSURE IMPREGNATED COILS WITH COPPER WINDINGS, 220-DEGREE INSULATION SYSTEM, 115 DEGREE C TEMPERATURE RISE AND (2)+2.5% & (2)-2.5% VOLTAGE TAPS.

C.A. DO NOT PENETRATE STRUCTURAL ITEMS WITHOUT PRIOR APPROVAL.

C.B. INSTALL EXPOSED CONDUITS PARALLEL AND AT RIGHT ANGLES TO NEARBY SURFACES AND STRUCTURAL MEMBERS.

C.C. UNLESS OTHERWISE NOTED, MOUNT ALL ELECTRICAL, TELEPHONE AND DATA OUTLETS 18" ABOVE FINISHED FLOOR TO BOTTOM OF THE DEVICE. RECEPTACLES TO BE MOUNTED WITH THE GROUND PRONG UP.

C.D. UNLESS OTHERWISE NOTED, INSTALL LIGHTING CONTROL STATIONS 42" ABOVE FINISHED FLOOR TO THE CENTER OF THE STATION.

C.E. INSTALL GREEN INSULATED COPPER GROUNDING CONDUCTOR IN ALL RACEWAY AND BOXES. THE RACEWAYS SHALL NOT BE RELIED UPON FOR 'EQUIPMENT GROUNDING'.

C.F. INSTALL DEDICATED COPPER NEUTRAL CONDUCTOR BACK TO PANEL FOR EACH BRANCH

C.G. NORMAL AND EMERGENCY POWER SHALL NOT OCCUPY THE SAME ENCLOSURE.

C.H. LABEL ALL EQUIPMENT, DEVICES AND RACEWAY SYSTEMS WITH THEIR SERVING CIRCUIT NUMBERS. REFER TO IDENTIFICATION SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

C.I. PROVIDE FIRE STOPPING AT CONDUIT PENETRATIONS OF RATED SURFACES. PROVIDE FIRE PADS FOR ELECTRICAL SYSTEMS INSTALLED IN RATED SURFACES.

C.J. PROVIDE SOUND INSULATION MATERIAL FOR PENETRATIONS THRU SOUND RATED WALLS. PROVIDE SOUNDS PADS FOR ELECTRICAL SYSTEMS INSTALLED IN RATED SURFACES.

C.K. STAGGER OUTLETS ON OPPOSITE SIDES OF THE SAME WALL. DO NOT INSTALL OUTLETS

"BACK TO BACK".

C.L. SUPPORT LIGHTING FIXTURES AND CEILING MOUNTED DEVICES TO THE STRUCTURAL MEMBERS INDEPENDENT OF THE CEILING.

C.M. DO NOT COMBINE HOMERUNS.

C.N. INSTALL PULL STRING IN ALL CONDUIT ONLY INSTALLATIONS.

D. COORDINATION: D.A. COORDINATE ELECTRICAL WORK WITH ALL OTHER TRADES.

D.B. REFER TO ARCHITECTURAL DOCUMENTS FOR EXACT LOCATIONS OF ALL LIGHT FIXTURES AND DEVICES.

D.C. REFER TO LOW VOLTAGE SYSTEM DRAWINGS FOR COMPLETE REQUIREMENTS. INCLUDING FIRE ALARM, TELECOMMUNICATION, AUDIO / VISUAL, SECURITY AND MECHANICAL

D.D. LENGTHS SHOWN ON SINGLE LINE OR FEEDER SCHEDULE ARE ESTIMATES FOR PLAN CHECK PURPOSES. CONTRACTOR TO PERFORM THEIR OWN TAKE OFF.

D.E. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

D.F. COORDINATE FINAL EQUIPMENT INSTALLATION WITH MANUFACTURER'S SHOP DRAWINGS.

RENOVATION GENERAL NOTES

A.A. MODIFY EXISTING INSTALLATIONS TO ACCOMMODATE THE RENOVATION. A.B. RE-SUPPORT EXISTING ELECTRICAL INSTALLATION TO REMAIN WHERE THE DEMOLITION

HAS AFFECTED THE SUPPORTS. A.C. IDENTIFY ANY IMPROPERLY SUPPORTED ITEMS PRIOR TO BEGINNING WORK. A.D. MAINTAIN CONTINUITY TO ALL ELECTRICAL ITEMS THAT ARE TO REMAIN.

B.A. REMOVE ALL ELECTRICAL ITEMS AND ASSOCIATED APPURTENANCES TO SOURCE OF B.B. WHERE EMBEDDED IN CONCRETE, CUT CONDUITS FLUSH WITH CONCRETE AND CAP. PROVIDE BLANK COVER PLATES FOR BOXES.

B.C. WHERE REQUIRED, MAINTAIN ACCESS TO ALL ACTIVE ELECTRICAL INSTALLATIONS.

B.D. REMOVE ALL ITEMS FROM PROJECT SITE.

C.A. PATCH SURFACES AND CLOSE OPENINGS RESULTING FROM DEMOLITION OR REMOVAL OF C.B. REPAIR SURFACES AND OPENINGS WITH METHODS SUITABLE FOR MAINTAINING EXISTING

FIRE, SOUND AND WATERPROOF RATINGS. C.C. REPAIR AND REFINISH SURFACES BY SKILLED MECHANICS OF TRADES INVOLVED.

D. PANELBOARDS: D.A. CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. D.B. PROVIDE BLANK PLATES FOR VACANT POSITIONS.

D.C. TRACE BRANCH CIRCUITS SERVING THE AREA TO BE RENOVATED. D.D. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING UPDATED CIRCUITING. E.A. CLEAN ALL EXTERIOR AND INTERIOR SURFACES AT COMPLETION OF OF PROJECT.

E.C. IDENTIFY ANY NON-OPERATIONAL ITEMS PRIOR TO BEGINNING WORK.

E.B. PROVIDE NEW LAMPS FOR ALL NON-LED LIGHTING FIXTURES.

PROJECT DESCRIPTION THE PROJECT CONSIST OF A WOMEN'S LOCKER ROOM ADDITION TO AN EXISTING POLICE DEPARTMENT. THE ADDITION INCLUDES NEW CONVENIENCE POWER, LED LIGHTING AND LIGHTING CONTROLS.

SHEET INDEX

E7.00

ABBREVIATIONS, SYMBOLS AND GENERAL NOTES

EGRESS CALCULATION AND FIXTURE SCHEDULE

ELECTRICAL SPECIFICATIONS ELECTRICAL SPECIFICATIONS ELECTRICAL SITE PLAN

E2.00 POWER PLANS LIGHTING PLAN SINGLE LINE DIAGRAM F4.00

ELECTRICAL DETAILS ELECTRICAL DETAILS E6.00 ENERGY COMPLIANCE FORMS E6.01 ENERGY COMPLIANCE FORMS Project number 11/22/24 Drawn by

CLAREMONT PD

CITY OF CLAREMONT

570 W BONITA AVE,

ABBREVIATIONS

SYMBOLS AND

GENERAL NOTES

CLAREMONT, CA 91711

PLAN CHECK SET

E0.00

NONE

UNBAR

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GENERAL ELECTRICAL SPECIFICATIONS

1.1 Work Included

- A. This specification shall apply to all phases of work hereinafter specified, shown on drawings, or as required to provide a complete installation of electrical systems for this project. Work required under this specification is not limited to just the Electrical drawings. Refer to Architectural, Structural, Landscape, and Mechanical/Plumbing drawings as well as all other drawings applicable to this project, which designate the scope of work to be accomplished. The intent of the Drawings and Specifications is to provide a complete and operable electrical system that includes all documents that are a part of the Contract.
- B. Work Included: Furnish labor, material, services and skilled supervision necessary for the construction, erection, installation, connections, testing, and adjustment of all circuits and electrical equipment specified herein, or shown or noted on Drawings, and its delivery to the Owner complete in all respects ready for use.
- C. The electrical Work includes installation or connection of certain materials and equipment furnished by others. Verify installation details, installation and rough-in locations from the actual equipment or from the equipment shop drawings.
- D. Electrical Drawings: Electrical Drawings are diagrammatic, and are intended to convey the scope of work, indicating intended general arrangement of equipment, conduit and outlets. Follow Drawings in laying out work and verify spaces for installation of materials and equipment based on actual dimensions of equipment furnished.

1.2 Quality Assurance

- A. Design, manufacture, testing and method of installation of all apparatus and materials furnished under requirements of these specifications shall conform to latest publications or standard rules of the following:
 - 1. Institute of Electrical and Electronic Engineers IEEE
 - 2. National Electrical Manufacturers' Association NEMA
- 3. Underwriters' Laboratories, Inc. UL
- 4. National Fire Protection Association NFPA
- 5. Federal Specifications Fed. Spec.
- 6. American Society for Testing and Materials ASTM
- 7. American National Standards Institute ANSI
- 8. National Electrical Code NEC
- 9. National Electrical Safety Code NEC
- 10. Insulated Cable Engineers Association ICEA
- 11. American Institute of Steel Construction AISC 12. State and Municipal Codes In Force In The Specific Project Area
- 13. Occupational Safety and Health Administration (OSHA)
- 14. Electronics Industries Association/Telecommunications Industry Association (EIA/TIA)
- 15. California Electrical Code
- 16. Local Authority Having Jurisdiction (AHJ) Published Electrical Standards and
- B. Perform Work in accordance with the National Electrical Code, applicable building ordinances, and other applicable codes, hereinafter referred to as the "Code." The Contractor shall comply with the Code including local amendments and interpretations without added cost to the Owner
 - 1. Where Contract Documents exceed minimum requirements, the Contract Documents take precedence. Where code conflicts occur, the most stringent shall apply unless variance is approved. Nothing on these plans shall be interpreted as authority to violate any code or regulation.
 - 2. Comply with all requirements for permits, licenses, fees and codes. The Contractor, at Contractor's expense, shall obtain all permits, licenses, fees, special service costs, inspections and arrangements required for Work under this contract, unless otherwise specified.
 - 3. Comply with requirements of the applicable utility companies serving this Project. Make all arrangements with utility companies for proper coordination of Work. Obtain approval from utility company prior to releasing equipment order.

1.3 General Requirements

- A. Guarantee: Furnish a written warranty for a period of two-years from date of acceptance. Lighting fixture drivers shall be guaranteed for (5) years.
- B. All Core Cutting, Drilling, and Patching:
- 1. For the installation of work under this Section, the aforementioned shall be performed under this Section of the Specifications and the Concrete section of the Specifications.
- 2. No holes will be allowed in any structural members without the written approval of the Project's Structural Engineer
- 3. The Contractor shall be responsible for patching and repairing surfaces where he is required to penetrate for work under this contract.
- 4. Penetrations shall be sealed to meet the rated integrity of the surface required to be patched and repaired. The patched surface shall be painted or finished to match the existing surface.
- C. Verifying Drawings and Job Conditions:
 - 1. The Contractor shall examine all Drawings and Specifications in a manner to be fully cognizant of all work required under this Section.
 - 2. The Contractor shall visit the site and verify existing conditions. Where existing conditions differ from Drawings, adjustment(s) shall be made and allowances included for all necessary equipment to complete all parts of the Drawings and Specifications.

1.4 Work In Cooperation With Other Trades

- A. Examine the Drawings and Specifications and determine the work to be performed by the electrical for other trades.
- B. Provide the type and amount of electrical materials and equipment necessary to place this work in proper operation, completely wired, tested and ready for use. This shall include all required electrical appurtenance for the required operation sequence of all electrical,
- mechanical and other systems or equipment. C. All control wiring and conduit at 100 volts or more shall be the responsibility of the electrical
- D. All wiring and conduit for mechanical controls less than 100 volts shall be by the mechanical
- E. Control wiring from the thermostats and overrides to the HVAC units is by the mechanical
- F. Control wiring from the fire alarm panel to HVAC shut down is by the design build fire alarm

1.5 Testing And Adjustment

- A. Upon completion of all electrical work, the Contractor shall test all circuits, lighting control, lighting inverters, motors, circuit breakers, motor starter(s) and their auxiliary circuits and any other electrical items to ensure proper operation of all electrical equipment.
- B. Equipment and parts in need of correction, and discovered during such testing, shall be immediately repaired or replaced with all new equipment and that part of the system shall then be retested. All such replacement or repair shall be done at no additional cost to the
- C. All test reports, including copies of any required Energy Code Acceptance Forms (e.g. CA Title 24 Acceptance For Code Compliance Forms) should be submitted to the Engineer at completion of project.

1.6 Identification

- A. Nameplates shall be provided for all electrical generating equipment, distribution equipment, control equipment and cabinets.
 - 1. Nameplate inscriptions shall be identical to the equipment designations indicated in plans and specifications. Nameplates shall be 5" wide x 2" high adhered to equipment with engraving as detailed on drawings.

Name: DBLA Example: Voltage: 208/120, 3PH, 4W

Source: Fed From MSHA Source: Fed From MSHA Type: Utility Power

- 2. All group mounted circuit breakers/fuses/starters shall have individual nameplates located immediately adjacent to the respective device. Nameplate inscription shall identify the downstream equipment or device served by the circuit breaker or fuse.
- B. Identification nameplates, unless otherwise noted (UON), shall be laminated/extruded modified acrylic that is 3/32" thick, UV-stabilized, matte finish, suitable for use in 180 deg F ambient, with beveled edges and engraved letters 3/8" high, minimum, on 2" high solid black background for utility power. Provide white letters on red background for all standby and emergency systems. Refer to details for different system color requirements.
- C. Warning Placards, as required by General Single Line Diagram Notes for multiple power sources, or instruction placards, as required for all kirk-key interlock schemes, all UPS bypass procedures or as required elsewhere in the plans/specifications shall be engraved 1/2" high with white lettering on a green background using the same material specified for

- identification nameplates with a self-adhesive backing. Warning/instruction placards shall be attached to the face of the equipment directly related to the placards. In all cases, clean surfaces before applying warning/instruction placards parallel to equipment lines.
- D. See wiring device section of this specification for additional wiring device plate cover labeling requirements.
- See drawings for panel board schedule directory installation requirements.

F. See conduit installation section of this specification for conduit labeling requirements.

- A. After all requirements of the Specifications and/or the Drawings have been fully completed. representatives of the Owner will inspect the work. Contractor shall provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each
- B. Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from each representative.

1.8 Record Drawings

1.7 Final Inspection And Acceptance

A. Drawings of Record: The Contractor shall provide and keep up-to-date, a complete record set of drawings. These shall be corrected daily and show every change from the original Drawings. This set of prints shall be kept on the job site and shall be used only as a record set. This shall not be construed as authorization for the Contractor to make changes in the layout without definite instruction in each case. Upon completion of the work, all changes as noted on the record set of prints shall be used to compile an AutoCAD DWG version. Electronic copy and (2) hardcopies of the as built drawings shall be included with the closeout materials.

1.9 Approvals, Equals, Substitions, Atlerations, No Known Equal

- A. Approvals: Where the words (or similar terms) "approved", "approval", "acceptable", and "acceptance" are used, it shall be understood that acceptance by the Owner, Architect and Engineer are required.
- B. Equal: Where the words (or similar terms) "equal", "approved equal", "equal to", "or equal by", "or equal" and "equivalent" are used, it shall be understood that these words are followed by the expression "in the opinion of the Owner, Architect, and Engineer". For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance".
- C. Substitution: For the purposes of specifying products, "substitution" shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.
 - 1. Substitutions of specified materials shall be made only with written approval of the Engineer. Any engineering required to evaluate or implement any substitution shall be funded by a deduction to the Contractor's contract price. Contractor shall indicate agreement to above in any request for substitution.
 - 2. Substitutions of specified equipment shall be submitted to the Engineer for review and written approval. Regulatory agency approval and any required design modifications for all substitutions will be the sole responsibility of the contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letter form and identify the specified values/materials alongside proposed equal values/materials. In addition, delivery dates, catalog brochures must be included in the submittal. If requested, provide physical samples of the proposed materials. Provide physical samples for all proposed lighting fixture
 - Only pre-bid approved products, issued via a formal bid addendum to all bidders, will be allowed on the project. Regardless of the approval on any substitution, all bids shall be based on the products exactly as specified. Pricing for each approved substitution shall be included in the bid submittal as a separate line item.
 - 4. In the event that written authorization is given for a substitution after award of contract, the Contractor shall submit to the Engineer quotations from suppliers/distributors of both the specified and proposed equal material for price comparison, as well as a verification of delivery dates that conform to the project schedule.
 - 5. In the event of cost reduction, the Owner will be credited with 100 percent of the reduction, arranged by change order.
 - 6. The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.
- D. Alternates/Alternatives: For the purposes of specifying products, "alternatives/alternates" may be established to enable the Owner/Architect/Engineer to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

Shop Drawings/Submittals

- A. Shop Drawings/Submittals, unless required otherwise by general project specifications or instructions to bidders, shall be submitted in electronic format (PDF) to include a Letter of Transmittal (PDF), which shall give a list of the drawings submitted with dates and/or system(s) components contained within the submittal. Drawings and material cut sheets shall be complete in every respect and edited/marked to indicate specific items being
- B. Include dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment
- C. Include time-current coordination curves for each type and rating of overcurrent protective devices. Include selectable ranges for each type of overcurrent protective device.
- D. Include schematic and wiring diagrams for power, signal, and control wiring.
- E. If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, the Contractor shall make specific mention of such variations in the Contractor's letter of transmittal. Samples shall be submitted when
- F. Only products listed as "Equal" within the contract documents, along with formally approved "Substitutions" will be reviewed. Products not conforming to these items will not be reviewed and will be returned to the Contractor for re-submittal.
- G. Shop drawings shall be submitted on the following, but not limited to:
 - Lighting fixtures. 2. Panelboards; complete with overcurrent device information.
 - Fire Alarm System.
 - Wiring Devices. Lighting control products.
 - 6. Arc flash, short-circuit, and coordination studies
 - 7. Coordination drawings for installation of cable trays, bus ducts, bus ways, wireways, conduit trapeze, telecommunication system backbone raceways and electrical distribution feeders. Drawings shall identify all conflicts with other

Maintenance, Servicing, Instruction Manuals And Wiring Diagrams

- A. Prior to final acceptance of the job, the Electrical Contractor shall furnish to the Owner an electronic copy and at least two (2) hardcopies of operating and maintenance and servicing instructions and wiring diagrams for the following items or equipment:
 - Lighting control systems.
 - 2. Fire Alarm System.
- 3. Panel boards; complete with overcurrent device information.
- B. All wiring diagrams shall specifically cover the system supplied. Typical drawings will not be accepted.

Interruption Of Services/Service Shutdown

- A. Any interruption of the Owner's systems or services required to perform the work shall meet the specific prior-approval requirements of the Owner. Such work shall be scheduled with
- submitted to the Owner twenty-one (21) days prior. B. Interruptions/outages of any of the Owner's systems or services shall be scheduled to occur during times other than the Owner's normal business hours. Any overtime costs shall be borne by the Contractor.

the Owner to be performed at the Owner's convenience. Shut down request shall be

PRODUCTS

2.1 Materials

- A. Materials and Equipment: All electrical materials and equipment, including custom-made equipment, shall be new and shall be listed by Underwriter's Laboratories (UL) and bear their label or be listed and certified by a Nationally Recognized Testing Lab (NRTL) that is also recognized by the local Authority-Having-Jurisdiction (AHJ).
- A. Panelboards Branch Circuit:
 - 1. See drawings for more information.
 - 2. Panelboards shall be bolt-on circuit breaker type, dead front, with copper bus, 100percent neutral or as scheduled on drawings, ground bus, vertically mounted main breaker and full length door-in-door over circuit breakers. Circuit breakers shall be rated as indicated on plans, NEMA 1 enclosure for interior locations, NEMA 3R enclosure for exterior locations.
- 3. Manufacturer shall be Eaton, Schneider Electric or ABB.
- B. Lighting Fixtures:

1. See drawings for lighting fixture schedules and additional specifications. Furnish, install, and connect a lighting fixture at each outlet where a lighting fixture type symbol (designated on plans) is shown as being installed. Each fixture shall be complete with all required accessories and mounting hardware.

- 1. Provide wiring devices indicated per plan. Devices shall be specification grade. Acceptable manufactures are Leviton, Pass & Seymour and Hubbell. Provide all similar devices of same manufacturer, unless indicated otherwise. All device colors shall be selected from the full range of manufacturer standard color options.
- 2. Wiring devices shall be white Decora type.
- 3. Convenience receptacles shall be duplex 125V, 20A grounding type.
- 4. Provide non-convenience receptacles with NEMA configurations as indicated on
- 5. Lighting control stations as indicated on drawings.
- 6. Wiring devices located in wood finished areas shall be black unless otherwise indicated by the Architect.
- 7. Wiring devices located in mirrors shall be white with stainless steel cover plates unless otherwise indicated by the architect.
- 8. In addition to other device requirements listed elsewhere in this specification, Tamper-Resistant wiring devices shall be provided as follows:
- a. In wet and/or exterior locations. See weatherproof outlet specifications. 9. Wiring device cover plates located on recessed boxes shall be commercial grade nylon. Plate color shall match wiring device color UON on plans.
 - a. Cover plates utilized on surface mounted boxes shall be metal. Plastic cover plates are unacceptable.
 - b. Surface mounted boxes shall be "Bell Box" type suitable for number of
 - c. Cover plates shall be stainless steel in laboratory and shop spaces.
- d. Cover plates shall be metal in electrical and mechanical rooms. 10. Except as otherwise noted, all wiring device plates on the project shall be labeled with panel and circuit number(s) utilizing a Brother P-Touch labeling system with 1/2" tape (yellow on black) or equal by Herman-Tellerman or Panduit. Handwritten labels are unacceptable.
- 11. The following wiring device plates shall have custom engraving:
 - a. Key operated switches, switches with pilot lights, and switches for the control of motors, heaters and ventilators. Engraving shall be black and occur on the exposed side of the plate indicating the motor, heater, or ventilator controlled.
- b. All stainless steel and nylon device plates shall be engraved using a rotary engraving process except for black lettering on stainless steel device plates which may be accomplished via laser etching process. All lettering shall be 3/16" high. Provide a dimensioned submittal drawing detailing a typical device faceplate with engraving.
- D. Weatherproof Outlet Covers/Assemblies: All Receptacles identified as weatherproof on the drawings shall be weather-resistant, tamper-resistant, GFCI type with an in use weatherproof cover.

E. Circuit Breakers.

- 1. All circuit breakers less than 250A shall be molded plastic case, air circuit breakers conforming to UL 489. Provide breakers with thermal magnetic trip units, and a common trip bar for two- or three-pole breakers, connected internally to each pole so tripping of one pole will automatically trip all poles of each breaker. Provide breakers of trip-free and trip-indicating bolt-on type, with quick-make, quick-break
- contacts. 2. Arc Fault Interrupting Breakers: Provide with molded plastic case, air circuit breakers, similar to above with arc fault circuit interrupt capability, conforming to UL 1699 and UL Class A, Group 1. Provide on all dwelling-unit and dormitory
- 3. Tandem or half-sized circuit breakers are not permitted.
- 4. Series-Rated Breakers: Series rating is not permitted. System will be fully rated for the required interrupting rating.
- 5. Circuit breakers shall be standard interrupting construction. 6. Circuit breaker handle accessories shall provide provisions for locking handle in
- the on or off position. 7. Temperature compensating circuit breaker(s) shall be provided when located in outdoor enclosure(s) or when located in an enclosure subject to high ambient heat
- due to nearby industrial processes, etc. 8. Provide 75 degree Celsius-rated conductor lugs/lug kits on all circuit breakers to accept conductor quantities and sizes shown on drawings.
- 9. All circuit breaker terminations shall be suitable for use with 75 degree Celsius ampacity conductors.

10. Circuit breakers serving Fire Alarm or Central Monitoring panels and power

F. Disconnect Switches: 1. Non-fusible or fusible, heavy-duty, externally operated horsepower-rated, 600V A.C. Provide NEMA 3R, lockable enclosures for all switches located on roof tops,

supplies shall be red in color and lockable in the "ON" position.

- in wet or damp areas and in any area exposed to the elements. 2. Fusible switches shall use Class "R" fuses when 600A or less, and Class "L" when
- greater than 600A. 3. Amperage, horsepower, voltage, and number of poles per drawings: All shall be clearly marked on the switch nameplate.
- 4. Provide the Owner's project manager with one (1) spare set of fuses for every set of fuses on the project.
 - 1. Provide fuses at all locations shown on the Drawings and as required for supplemental protection: a. Fuses shall be manufactured by Bussman, Shawmut, Edison Fuse or

b. All fuses shall be the product of a single manufacturer.

- 2. Main and Feeder Protection: a. Protective devices rated greater than 600A: Provide Bussman Hi-Cap fuses, Class L, current-limiting, having an interrupting rating of 200,000A
- b. Protective devices rated 600A or less: Provide Bussman Class RK1 series current-limiting fuses, having an interrupting rating of 200,000A RMS.
- a. Where rating of protective device is greater than 600A: Provide Bussman
- Hi-Cap fuses, Class L, current-limiting, having an interrupting rating of b. Where rating of protective device is 600A or less: Provide Bussman Class

RK5 series current-limiting fuses, having an interrupting rating of 200,000A

4. Control Circuits: a. Provide Bussman Class CC fuses.

Flexible aluminum conduit is unacceptable.

H. Fire Alarm System/Central Monitoring System: 1. Fire Alarm System will be design build by the contractor. See drawings for requirements.

I. Conduit:

- 1. Galvanized Rigid Conduit (GRC) shall be full weight threaded type steel. Steel conduit shall be protected by overall zinc coating to inside and outside surfaces, applied by the hot dip, metallizing, or sherardizing process. 2. Intermediate Metal Conduit (IMC) shall be hot-dipped galvanized in accordance
- with UL 1242, and meet Federal Specification WWC-581 (latest revision). 3. Electrical Metallic Tubing (EMT) shall be zinc-coated steel with baked enamel or plastic finish on inside surfaces except as noted below. EMT shall be dipped in a
- zinc chromate over galvanized surface. 4. Flexible metal conduit shall be constructed of hot-dipped galvanized steel strips wound spirally with interlocking edges to provide greatest flexibility with maximum strength. Interior surfaces shall be smooth and offer minimum drag to pulling in conductors. See Part 3 - Execution in this specification for permissible use.

chromic acid bath to chemically form a corrosion-resistant protective coating of

except with moisture and oil-proof jacket, pre-cut lengths and factory-installed fittings. For outdoor installations and motor connections only unless otherwise 6. Factory assembled, or off-site assembled wiring systems such as Metal Clad (MC) Cable, shall not be used unless otherwise indicated in the Allowed Specification

Deviations Section or Deductive/Additive Alternate Pricing Section generally

located on the symbols list drawing. Use of Armored Cable (AC) is not allowed.

5. Liquid-tight conduit (Seal-Tite) shall be galvanized steel flexible conduit as above

- 7. When approved for use in the Allowed Specification Deviations Section, generally located on the symbols list drawing, MC cables shall be allowed for lighting branch circuits (homeruns shall be EMT), receptacle branch circuits (homeruns shall be EMT). MC shall not be used where exposed, except for a maximum 6' length for final connections to light fixtures. Equipment ground conductor shall be green. Isolated ground conductor shall be green with yellow stripe. Provide 600V rated lightweight steel interlocking armor Metal Clad (MC) cable with copper conductors, THHN (90 degree C) insulation, and integral equipment grounding conductor and isolated grounding conductor as required. Type MC cable shall not be used for essential electrical system branch circuits. Cable shall be manufactured to Underwriters Laboratories Standard 1569. See Part 3 - Execution in this specification for additional installation requirements.
- 8. Nonmetallic Flexible Tubing (ENT) shall not be used.

9. Non-Metallic Conduit:

underground installation only with solvent welded joints, conforming to UL requirements, listed for exposed and direct burial application. b. Conduit and fittings shall be produced by the same manufacturer.

a. Polyvinyl chloride (PVC) rigid conduit, Schedule 40, Type II for

10. Fire-rated MC Cable:

- a. 2-hour fire-rated, polymer insulated 600V MC cable listed and conforming to UL 2196 and UL 1569 requirements for installation as an Electrical Circuit Protective System for use in complying with NEC, or CEC where adopted, Articles 695 and 700. Where adopted, cable sheath shall be suitable for use as a NEC or CEC equipment grounding conductor, and shall be listed for use in wet locations to 90 degrees C. Manufacturer shall be Raychem.
- b. Cable connectors shall be brass MC connectors.

11. Fire alarm system conduit shall be red.

- 12. Fittings a. Condulet type fittings shall be smooth inside and out, taper threaded with integral insulating bushing and of the shapes, sizes and types required to facilitate installation or removal of wires and cables from the conduit and tubing system. These fittings shall be of metal, smooth inside and out,
 - thoroughly galvanized, and sherardized cadmium plated. b. Metallic condulet covers shall have the same finish as the fitting and shall be provided for the opening of each fitting where conductors do not pass through the cover.
 - c. Connector, coupling, locknut, bushings and caps used with rigid conduit shall be steel, threaded and thoroughly galvanized. Bushings shall be
 - d. UON all interior EMT fittings, connectors and couplings installed in concealed locations, areas not considered to be wet or damp locations by the AHJ, or areas not subject to physical damage, shall be steel, zinc or cadmium plated, steel set screw fittings for trade sizes of 2" and smaller.
 - e. All interior and exterior EMT fittings, connectors and couplings, 2" and smaller, installed in exposed or concealed locations that are considered by the AHJ to be wet or damp locations, shall be raintite-listed, steel, zinc or cadmium plated, threadless, compression, steel locking ring type with insulated throat. If raintite-listed, EMT fittings, connectors and couplings are unavailable for a given trade size or if conduit is installed in an area subject to damage - provide rigid metallic or intermediate metallic conduits,
 - fittings, connectors and couplings as required. Flexible steel conduit connectors shall be a malleable iron clamp or squeeze type or steel twist-in type with insulated throat. The finish shall
 - be zinc or cadmium plating. g. Conduit unions shall be "Erickson" couplings, or approved equal. The use

of running threads will not be permitted J. 600V Conductor – Wire and Cable:

1. All conductors shall be copper. Provide stranded conductor for #10 AWG and larger or when making flexible connections to vibrating machinery. Use compression "fork" type connectors or transition to solid conductors when connecting to switches, receptacles, etc.

2. Type THHN/THWN-2 thermoplastic, 600V, UL approved, dry and wet locations

including 1000 kcmil. RHH/RHW insulation is allowed only to provide an Electrical Circuit Protective System to comply with NEC, or CEC where adopted, Articles 695 3. Wire and cable shall be new, manufactured not more than six (6) months prior to

rated at 90 degrees Celsius, for conductors of all sizes from #12 AWG up to and

name permanently marked on outer covering at regular intervals. 4. Wire and cable shall be factory color-coded by integral pigmentation with a separate color for each phase and neutral. Each system shall be color-coded and

installation, shall have size, type of insulation, voltage rating and manufacturer's

it shall be maintained throughout. 5. Conductor Color Coding:

3) Phase C

- a. Power 208/120V, 3PH, 4W: 1) Phase A 2) Phase B
- Phase C White or White with Phase Color Tracer 4) Neutral 5) Switchlegs
- b. Power 480/277V, 3PH, 4W: 1) Phase A 2) Phase B
- 4) Neutral Grey or Grey with Phase Color Tracer
- Purple 5) Switchlegs c. Ground Conductors: Green

e. Fire Alarm System: As recommended by the manufacturer.

d. Isolated Ground Conductors: Green with continuous yellow stripe.

6. No conductors carrying 120V or more shall be smaller than #12 AWG.

- Aluminum conductors shall not be used. K. Junction and Pullboxes:
 - 1. For interior dry locations, boxes shall be NEMA 1 galvanized one-piece drawn steel, knockout type, with removable, machine screw secured covers. 2. For outside, damp or surface locations, boxes shall be NEMA 3R heavy cast aluminum or cast iron with removable, gasketed, non-ferrous machine screw
 - secured covers. 3. For in-grade applications, junction and pull boxes shall be pre-cast concrete or molded fiberglass manufactured by Christy, Brooks-Jensen, or Utility Vault Co. Fiberglass boxes shall:
 - a. Be used only in landscape planter areas that are not subject to damage from lawnmowers, tractors and other machinery.
 - c. Not exceed 11" W x 17" L in size unless required to be larger to meet code

4. All boxes shall be sized for the number and sizes of conductors and conduits entering the box and equipped with plaster rings where required.

b. Not be used in lawn or turf areas.

requirements and submitted for approval.

5. All boxes located in traffic areas shall be traffic rated. L. Outlet Boxes:

1. For fixtures, boxes shall be galvanized, one-piece drawn steel, knockout type

equipped with 3/8" fixture studs and plaster rings where required.

galvanized one-piece drawn steel, knockout type 4" x 4" x 2-1/8" minimum size with plaster rings as required. Interior surface mounted outlet boxes shall be "Bell Box" type suitable for number of devices. 3. For locations where standard boxes are not suitable due to number and size of

2. For convenience outlets, wall switches, or other devices, outlet boxes shall be

4. For exposure to weather, damp locations, or surface mounting, outlet boxes shall be heavy cast aluminum or cast iron with threaded hubs; covers shall be watertight with gaskets and non-ferrous screws. 5. Outlet boxes used for support of ceiling fans shall be galvanized, one-piece drawn

steel, knockout type equipped with bracing bars & plaster rings where required and

listed for ceiling fan support use. Such boxes shall be labeled and capable of

conduit to be terminated, special boxes shall be designed to fit space or meet other

supporting ceiling fan weights up to 70 pounds. M. Terminal Cabinets:

1. Terminal cabinets shall be fabricated of hot dipped galvanized code gauge sheet metal for flush or surface mounting, complete with barriered sections, a door for each vertically barriered section, and sizes as indicated on plan. Doors shall be

- hinged and lockable. Locks shall be keyed to match the branch circuit panelboards. Terminal cabinet trims shall match the branch circuit panels.
- 2. Provide each terminal cabinet with a full size mounting backplate.
- 3. Terminal cabinets shall be installed complete with full-length skirts of the same construction and finish as the terminal cabinet.
- 4. Where mounted outdoors, terminal cabinets shall be NEMA 3R, weatherproof complete with gaskets and required sealant to prevent moisture from entering the terminal cabinet.
- 5. All terminal cabinets and terminal cabinet barriered sections shall be labeled by the cabinet or cabinet section use (i.e. CATV, Security, etc.). Labels shall be Micarta type as specified elsewhere in these specifications. Unless otherwise noted, all termination blocks and cables shall be labeled per ANSI/EIA 606
- N. Painting: Terminal cabinets, panels, junction boxes, pull boxes, etc., and conduit installed in public view shall be painted with colors selected by the Architect to match the subject

O. Seismic Design, Certification, and Anchoring of Electrical Equipment:

- 1. Contractor shall include all costs in the base bid for labor, materials, all special inspections and structural engineering design necessary to meet the Seismic Design Requirements for Non-structural Components (Chapter 13, ACE SEI 7-05 Minimum Design loads for Buildings and Other Structures) as required by IBC, or CBC where adopted, Section 1708 and as related to the installation all electrical equipment furnished under this contract. See Specific Project Site Seismic Criteria on architectural and/or structural plans which include Building Occupancy Category, Seismic Design Category, Design Spectral Response Acceleration (S/DS), Height factor ratio (z/h) and Site Class. Non-structural Component Importance Factor (I/P) for a particular component shall be determined based on
- the following criteria: a. I/P=1.0: Non-life safety, Non-structural Components in an Occupancy Category IV Facility not required for continued operations of the facility or in any other Occupancy Category Facility where component failure will not
- impair continued operation of the facility. b. I/P=1.5: Designated Seismic Systems are those non-structural components in any Occupancy Category IV facility (except as noted above) or that are a part of any code-defined Critical, Life Safety, Emergency and Legally Required Standby Electrical System. Additionally, those non-structural components containing hazardous materials shall be classified as Designated Seismic Systems. While Designated Seismic Systems are generally identified on the plans, they may include items such as Generators, Automatic Transfer Switches, UPS units and all associated electrical distribution equipment and components necessary for the designated seismic system to form a complete and operable system. The Contractor shall ultimately be responsible for identifying Designated Seismic Systems. For any electrical component either identified on the plans or determined by the contractor to be a Designated Seismic System, all line and load side electrical distribution systems supporting that Designated Seismic System (including, but not limited to, feeders, panel boards switchboards, transformers, all related component supports and attachments, etc.) shall be considered a part of the designated seismic
- system for the purposes of code-compliance and seismic certification. c. z/h - Height factor ratio: See plans for respective equipment locations.
- 2. Provide a delegated-design submittal for each of the following seismic-restraint systems to be used as required: a. Restraint Channel Bracings consisting of MFMA-4, shop-or fieldfabricated bracing assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end, with other matching components, and
 - b. Restraint Cables consisting of ASTM A 603 galvanized-steel cables. End connections made of steel assemblies with thimbles, brackets, swivel, and bolts designed for restraining cable service; with a minimum of two clamping bolts for cable engagement.

c. Seismic-Restraint Accessories consisting of hanger rod/hanger rod

stiffener assemblies, multifunctional steel connectors for attaching

stainless steel for exterior applications. Select anchor bolts with strength

e. Adhesive Anchor Bolts consisting of drilled-in and capsule anchor system

with corrosion-resistant coating; rated in tension, compression, and

hangers to rigid channel bracings and/or restraint cables, bushings for floor and wall-mounted equipment, anchor bolts, and resilient isolation washers and bushings. d. Mechanical Anchor Bolts consisting of drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and

required for anchor and as tested according to ASTM E 488.

containing resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide specific LEED-compatible, environmentally-friendly resins and adhesives on all LEED projects. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488. 3. Submittal shall include design calculations and details for selecting seismic restraints complying with performance requirements, design criteria, and analysis data signed and sealed by the contractor's structural engineer responsible for their preparation. Calculations shall include, but not be limited to, static and dynamic loading caused by equipment weight, operation, and seismic and, if applicable, wind forces required to select seismic and, if applicable, wind restraints and for designing vibration isolation bases. Provide seismic and wind-restraint detailing

to support system selection, arrangement of restraints, attachment locations,

methods, and spacings with all components identified to include their strengths,

directions and values of forces transmitted to the structure during seismic events

and association with vibration isolation devices. Sizes of components shall be selected so strength will be adequate to carry present static and seismic loads to accommodate 25% spare future capacity within specified loading limits. 4. Any pre-approval and evaluation documentation shall have a California Office of Statewide Health Planning and Development (OSHPD) Special Seismic Certification Preapproval (OSP) demonstrating horizontal and vertical load testing and analysis showing maximum seismic-restraint ratings, by ICC-ES or another agency acceptable to authorities having jurisdiction. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved

ratings are not available, submittals based on independent testing are preferred.

Calculations (including combining shear and tensile loads) that support seismic-

restraint designs must be signed and sealed by a qualified professional engineer.

5. Coordinate the location of embedded connection hardware with supported equipment attachment and mounting points and with requirements for concrete reinforcement and formwork specified elsewhere in the project specifications. 6. Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections or branches are

supported by different structural elements, and where connection is terminated to

equipment that is anchored to a different structural element from the one

supporting them as they approach equipment. Flexible connection limitations of

the NEC, or CEC where adopted, shall apply.

EXECUTION 3.1 Preparation And Installation

- A. Installation of Conduit and Outlet Boxes 1. All conduit installed in the dry walls or ceilings of a building shall be steel tube (EMT), or intermediate Metal Conduit (IMC). Flexible conduit shall not be used in
 - a. When noted on the drawings. b. When considered exposed to physical damage. Exposed to physical damage is defined as:

2. Galvanized rigid conduit (GRC) or intermediate metal conduit (IMC) shall be used

2) Where exposed and within 8'-0" of above finished floor.

c. When exposed to weather and installed in wet or damp locations.

1) In electrical, mechanical, machine rooms and any utility areas.

d. Feeders for 480 volt system and higher. e. Fire alarm main runs and risers.

lieu of EMT, IMC or rigid conduit except as noted herein.

g. PVC coated rigid steel conduit will be used in: 1) Corrosive areas

Roof.

In slabs In concrete

f. When installed in concrete and masonry.

- 4) For elbows in underground conduit runs 3. Intermediate metal conduit (IMC), is approved for use in all locations as approved
- for GRC or EMT and in accordance with NEC, or CEC where adopted, Article 342.



Consulting Electrical Engineers 3016 E Colorado Blvd #5249 Pasadena . Ca . 9110



PLAN CHECK SET

CLAREMONT PD

CLAREMONT, CA 91711 **ELECTIRCAL**

SPECIFICATIONS

17668

11/22/24

CITY OF CLAREMONT

570 W BONITA AVE,

Drawn by

Project number

E0.01

NONE

IMC shall not be used for exterior installations.

each conduit.

- 4. Flexible steel conduit shall only be permitted to be used at light fixture outlets and connections to vibrating electrical equipment. All flexible steel conduit runs shall be less than 6'-0". All outdoor installation shall be made using liquid-tight flex with approved fittings. Include a separate insulated green ground conductor sized per NEC in each conduit.
- NEC in each conduit.
 5. Flexible liquidtight conduit shall be installed in lieu of the flexible steel; where required by NEC, or CEC where adopted, in damp and wet locations, where exposed to weather, in refrigerated area (65 Deg. F or less), and/or between seismic joints. All rotating electrical equipment shall be supplied with flexible, liquid-tight conduit with appropriate slack and shall not exceed thirty-six (36)

inches. Include a separate insulated green ground conductor sized per NEC in

- 6. Conduit installed underground or embedded in concrete shall be 1" trade size
- 7. Conduit installed on roof shall be mounted on Dura Blok (or approved equal) support piers with factory installed channel.
- Where required for providing an Electrical Circuit Protective System to comply with NEC, or CEC where adopted, Articles 695 and 700, utilize UL Listed 2-hour fire-
- 9. Conduit shall be run so as not to interfere with other piping, fixtures or equipment.10. The ends of all conduits shall be cut square, carefully reamed out to full size and

rated, MC cable or UL Listed 2-hour fire-rated RHH/RHW conductors in conduit.

- shall be shouldered in fitting.

 11. No running threads will be permitted in locations exposed to the weather. in
- concrete or underground. Special union fittings shall be used in these locations.

 12. Where conduit is underground, under slabs or grade, exposed to the weather, or
- in wet locations, make joints liquid tight and gas tight.13. All metal conduit in masonry and concrete and where concealed under floor slabs
- shall have joints painted with thread compound prior to makeup.
- 14. PVC conduit shall only be used for direct burial applications.
- 15. Where conductors enter a raceway or a raceway in a cabinet, pull box, junction box, or auxiliary gutter, the conductors shall be protected by a plastic bushing type fitting providing a smoothly rounded insulating surface.
- 16. Provide protective bushing for all low voltage conduit installations.
- 17. Where conduit extends through roof to equipment on roof area, the Contractor shall provide flashing material compatible with the roofing system as required by the Owner's roof warranty. This flashing shall be delivered to the roofing Contractor for installation. The actual location of all such roof penetrations and outlets shall be verified by the Architect/Owner. Contractor to verify type of flashing
- 18. All conduit shall be supported at intervals not less than 6'-0" and within 12" from any outlet and at each side of bends and elbows. Conduit supports shall be galvanized, heavy stamped, two-hole conduit clamp properly secured.
- 19. Where conduit racks are used the rack shall consist of two piece conduit clamps attached to galvanized steel slotted channels, properly secured via threaded rods attached directly to the building structure.
- 20. All conduit shall be supported with manufactured fittings. Nail-in conduit supports, one-piece set screw type conduit clamps, perforated iron, bailing wire or zip ties shall not be used for supporting conduit.
- 21. Seismic Conduit Support:

prior to bid and include all costs.

a. All conduit shall be supported in such a manner that it is securely attached to the structure of the building. Attachment is to be capable of supporting the tributary weight of conduit and contents in any direction. Maximum spacing of support and braces are to be as follows:

- 3-1/2" to 4"

 8'-0"

 22. All conduit runs shall be installed parallel or perpendicular to walls, structural members, or intersection of vertical planes and ceilings. Field made bends and offset shall be avoided where possible. Crushed or deformed raceway shall not
- 23. Open knockouts in outlet boxes only where required for inserting conduit.
- 24. Locate wall outlet of the same type at same level in all rooms, except where otherwise noted.
- 25. Outlet boxes on metal studs shall be attached to metal hangers, tack welded or screwed to studs; On wood studs attachment shall be with wood screws.26. Junction Boxes that do not contain any device(s) shall be located in storage rooms,
- electrical closets, or above accessible ceilings, not in hard lid ceilings or other forms of inaccessible ceilings. Place boxes which must be exposed to public view in a location approved by the Owner's Project Manager. Provide covers or plates to match adjacent surfaces as approved by the Owner's Project manager.
- 27. Surface mounted pull boxes, terminal cabinets, junction boxes, panel boards etc., shall be attached to walls using appropriate screws, fasteners, backing plates, stud blocking, etc. Contractor shall provide all necessary mounting hardware and backing support to comply with local building code requirements and any additional requirements imposed by the local Authority-Having-Jurisdiction.
- 28. Except where below grade, sleeves shall be installed where conduit passes through masonry or concrete walls and shall be 24 gauge galvanized steel no more than 1/2" greater in diameter than the outside diameter of the conduit. When located in non-rated structures, caulk conduit sleeve with stone wool. When located in fire rated structures, provide UL listed fire stopping system.
- 29. All boxes shall be protected with outlet box covers to keep dirt/debris from entering box, conduit or panels. If dirt/debris does get in, it shall be removed prior to pulling wires.
- All boxes installed outdoors shall be suitable for outdoor installations, gasketed, screw cover, and painted as directed by the Architect with weatherproof paint to match building.
- 31. All conduit entries to outdoor mounted panels, cabinets, boxes, etc., shall be made using Myers "SCRU-TITE" hubs Series ST.
- 32. Provide nylon or a 1/8-inch O.D. polyethylene rope, rated at 250 pounds tensile strength, in all conduits left empty for future use. Not less than 5 feet of rope shall be left at each end of the conduit.
- 33. All multiple conduit runs within suspended ceilings shall be suspended from building structure by means of unistrut hangers/racks. Conduit shall not be allowed to lay on ceiling or be supported from ceiling suspension wires or other suspension system. Support conduit to structure above suspended ceilings 8" minimum above ceiling to allow removal of ceiling tile. Maintain two inch clearance above recessed light fixtures
- 34. All exposed conduits and support hardware shall be painted to match the finish of
- the wall or ceiling to which it is supported.

 35. Where conduits or wireways cross seismic joints, provide approved flexible conduit connection or approved expansion/deflection fitting to allow for displacement of conduit in all three axes. Connection shall allow for movement in accordance with design of seismic joint. Non-flexible raceways crossing expansion joints or other areas of possible structural movement shall make provision for 3-way movement at such points by means of expansion/deflection fittings. Fittings shall be installed in the center of their axes of movement and shall not be deflected to make part of a conduit bend, or compressed or extended to compensate for incorrect conduit length. Install flexible conduit connection(s) or approved expansion/deflection fitting(s) complete with ground jumpers.
- 36. Seal all conduits where termination is subject to moisture or where conduit penetrates exterior wall, floor or roof, in refrigerated areas, classified (hazardous areas) and as indicated on the drawings.
- 37. Except as otherwise indicated on the drawings or elsewhere in these specifications, bends in feeder and branch circuit conduit 2 inches or larger shall have a radius or curvature of the inner edge, equal to not less than ten (10) times the internal diameter of the conduit.
- 38. Tag all empty conduits at each accessible end with a permanent tag identifying the purpose of the conduit, footage end-to-end, and the location of the other end. In wet, corrosive outdoor or underground locations, use brass, bronze, or copper 16 gauge tags secured to conduit ends with #16 or larger galvanized wire. Inscribe on the tags, with steel punch dies, clear and complete identifying information.
- 39. The following additional requirements shall apply to underground conduits:
- Underground conduit shall be Schedule 40 PVC (polyvinyl chloride) unless otherwise indicated elsewhere in these specifications or as required per NEC, or CEC where adopted.
- b. In all cases, where any conduit(s) pass under a building slab or footing, the electrical contractor will provide a Bentonite clay or concrete barrier that conforms to the height and width of the trench excavation extending a minimum of 24" on either side of the foundation. In all cases, where conduit(s) pass through a sleeve in a footing or other foundation element, the electrical contractor will provide a Bentonite clay or concrete barrier between the sleeve and the conduit(s) surrounding the conduit(s) for the entire depth of the sleeve. The barrier is required to prevent passage of moisture under or through the slab or footing via the trench or sleeve.

- c. Underground conduits, which terminate inside building(s) below grade, such as in a basement level, or which slope so that water might flow into interior building spaces, shall be sealed at the point of penetration with a modular conduit seal (Link-Seal or equal by Rox Systems). Conduit/conduit sealing system penetrations of waterproofing membranes/systems on existing structures shall be completely restored as required to maintain membrane/system manufacturer and installer warrantee for the installation. All conduits shall be provided with a 4% slope away from buildings. All conduits shall be installed such that the water cannot accumulate in the conduit and such that water drains into the nearest manhole, pull box or vault and not into the facility. In instances where grade changes or elevation differences prevent sloping of conduit away from a building into the nearest manhole, pull box or vault or where accumulation of water in a manhole, pull box or vault may result in water traveling into the facility, conduits shall be sealed internally at each end of each conduit using conduit sealing bushing, sized as required for the conductors contained within the conduit (O-Z Gedney #CSBG 100psig withstand or equal). In all cases, install plugs or caps in spare (empty) conduits at both ends of each conduit (Jackmoon or equal) preventing both water and gas from entering the facility via the conduits.
- d. All underground conduits with circuits rated at 40A or greater and all underground communications conduits shall be provided with a metallic marker tape located 12" below the finished grade.
- e. Where underground conduits sweep into/through slabs, utilize PVC coated GRC 90 degree sweeps that transition, via female adapter to GRC coupling mounted flush in slab. GRC couplings shall be 1/2 lap taped with 20 mil tape.
- Communications conduits shown terminating at a finished floor shall have an additional 4" high GRC nipple equipped with a bushing, removable conduit plug, labeling tag and pull rope. Tie off pull rope to conduit plug.
- Utility conduit sweeps shall be installed per the requirements of the respective utility company.
- f. All PVC conduit shall be glued for a water and gas tight installation. The Contractor shall use appropriate solvent on all joints prior to gluing conduit and fittings together.
 g. All underground conduit work shall conform to the Federal, State and Local
- Safety Orders or Rules regarding excavations, trenches and related earthwork. For projects in California, refer to the California Code of Regulations, Title 8, Construction Code Sections 1540 and 1541 for additional requirements.
- h. Contractor shall be responsible for trenching, backfilling and finished surface.40. When use is permitted in the Allowed Specification Deviations Section or
- Deductive/Additive Alternate Pricing Section generally located on the symbols list drawing Installation of Metal Clad (MC) Cable.
- a. Provide J-box above accessible ceiling prior to running MC cable within partitions or walls. J-box shall be permanently labeled with panel identification and circuit numbers contained within.
- b. Overhead MC cable runs shall generally follow building lines to provide a neat and workmanlike installation.
- MC cable shall not run directly into panelboards, distribution boards or electrical rooms.
- d. MC cabling shall be provided with its own code-approved ceiling support wires, cable hangers, individual spring steel support clips, steel trapeze hangers, threaded rods or dedicated #10 AWG drop wire. Cable supports shall be fastened to concrete slabs, beams, joists or other structural members of the building. In no case shall MC cable rest on ceilings, suspended ceilings or structures. Do not support MC cable using ceiling support wires. The use of nylon cable ties to support MC cable is not allowed.
- e. Use lock or spring nut MC cable fittings.
- f. Cable runs shall be continuous from wiring device to wiring device no intermediate splicing j-boxes allowed.
- g. When terminating or splicing at a junction, outlet, or switch box, cut the cable with an armored cable rotary cutter such that 6" of free conductors remain for connections or splices. Use screw-in or spring lock connector and ensure a proper bonding by firmly tightening the connector to both the box and cable. Insert an anti-short bushing at cable ends to protect conductors from abrasion and use insulated connectors.
- h. MC Cable bend radius shall not be less than seven (7) times the external diameter of the cable.i. MC cables passing through fire-rated walls or floors shall be firestopped
- as required with a UL listed system. See firestopping requirements outlined elsewhere in this specification for additional requirements.
 j. Installation shall not exceed code requirements for total current carrying conductors in multiple MC cable runs bundled together into a single MC
- cable hanger or strap, unless support device is specifically listed for such purpose. Neutrals shall be counted as current carrying conductors.
 k. Maintain MC cable clearance of at least 6" from hot water and any other high temperature pipes. Maintain at least 12" clearance between MC cable(s) and telecommunication conduits and cables. MC cable shall
- MC cabling shall not be run through exposed ceilings, where open grid conditions exist, exposed on walls, or exposed to view. See Power Plan and Lighting Plan General Notes for additional requirements.

cross telecommunication cables and conduits at right angles.

- m. Use of MC-AP, "MC All Purpose" or MC cabling where the interlocked armor sheath forms all or a portion of the equipment grounding conductor is expressly prohibited.
- 41. When use is permitted in the Allowed Specification Deviations Section or Deductive/Additive Alternate Pricing Section generally located on the symbols list drawing - Installation of Electrical Nonmetallic Tubing (ENT) Cable.
 - a. When approved for use in the Allowed Specification Deviations Section or Deductive/Additive Alternate Pricing Section, generally located on the symbols list drawing, 1/2" and 3/4" trade size ENT shall be allowed for concealed lighting branch circuits, receptacle branch circuits and miscellaneous signal system circuits within concrete floors, walls and columns within parking structures.
- ENT conduit shall meet the requirements of Underwriters Laboratories Standards 1479 and 1653, NEMA TC-13, and be UL-listed.
- c. All ENT conduit, ENT fittings, ENT boxes and ENT accessories shall be UL listed and manufactured by the same manufacturer so as to form a complete ENT system. ENT systems shall only be used if they are listed for use in fire resistance rated concrete floors and ceilings with resistance ratings as indicated elsewhere in the project plans. ENT System shall comply with NEC, or CEC where adopted, Article 362.
- d. All ENT fittings and ENT boxes shall be concrete-tight listed without the use of tape. Additionally, ENT fittings shall be constructed of high-impact PVC and able to resist ENT conduit pull out forces of a minimum of 175 lbs. ENT fittings with fewer than 6 locking tabs for ENT connection shall utilize manufacturer-approved glue as additional protection from fitting/conduit separation. ENT conduit to rigid conduit transition fittings shall be equipped with set screw fittings on the rigid conduit side of the fitting. ENT to metal box fittings shall be equipped with a threaded end and lock washer.
- e. ENT junction boxes shall have brass screw inserts and shall be rated to support lighting fixtures weighing less than 50 lbs.
- f. Concrete tight metal boxes shall be used to support pendant hung fixtures or fixtures over 50 lbs.
- g. ENT shall be provided in continuous lengths between junction boxes without use of in-line splices or connectors and shall be clearly marked/labeled at least every 10-feet.
 h. All ENT conduit containing electrical branch circuits shall contain a code-
- sized equipment ground conductor.i. ENT shall transition to EMT, IMC, RMC, or rigid PVC, as appropriate or as called out elsewhere in this specification, for all exposed conduits
- within/on/under a parking structure.j. ENT shall transition to appropriately sized PVC expansion joint(s) at all structure expansion or seismic joints.
- k. ENT shall be securely fastened and supported every 2 3 ft. and within 1 ft. of every junction box and fitting to prevent movement and sag.
- I. ENT shall be routed straight without sags, or excessive bending. Where bends are required, comply with Table 344.24 of the NEC for minimum radius of bends. Number of bends shall not exceed quantity allowed by code where used for power and lighting branch circuit and/or feeder conductors. Where utilized for communications system conductors (phones, data cabling, etc.) number of bends shall not exceed the equivalent of (2) 90 degree bends with conduit length no more than 100

- feet without installation of a TIA 569-compliant pull box.
- m. Separation of ENT from fitting(s), excessive sags, or deflections in ENT runs that prevent pulling of wire and other ENT system product or system installation failures/errors shall be corrected by saw cutting and patching as necessary at no additional cost to the Owner. Use of surface mounted conduits and junction boxes as a repair method is unacceptable.
- n. Empty ENT runs shall be provided with a nylon pull string.o. Coordinate installation of raceway with structural steel and other structural members. Do not cut, notch or otherwise alter structural members without
- obtaining approval in writing from the Structural Engineer of record.

 p. No more than (2) 3/4" ENT conduits may cross each other within a
- horizontal concrete slab without obtaining approval in writing from the Structural Engineer of record.
- B. Installation of 600V Conductors:1. All electrical wire, including signal circuits, shall be installed in conduit.
 - 2. All circuits and feeder wires for all systems shall be continuous from overcurrent protective device or switch to terminal or farthest outlet. No joints shall be made except in pull, junction or outlet boxes, or in panel or switchboard gutters. No splicing of feeders shall be done without prior written approval from the Engineer.
 - a. Utilize preinsulated "winged" spring type connectors, 3M Company "Performance Plus" #O/B or #R/Y or equal and as required for splices and taps in conductors #6 AWG and smaller. When a spring connector is used in an underground environment or when subject to moisture, utilize a 3M Company Scotchcast 3507G epoxy resin connector sealing pack to seal the spring connector. The use of push-wire connectors (e.g. "Wago" or equivalent) is not permitted.
 - b. Wires #4 AWG and larger AWG shall be joined together as follows:
 - 1) When located in an underground environment or when subject to moisture, the splice shall be made with insulated multi-tap submersible connectors, Polaris or equal.
 - 2) When located in an interior environment, the splice shall be made with an Ilsco or equal dual rated, insulated splicer-reducer connector or multi-tap connector-listed for use with 75/90 degree Celsius rated conductors.
 - c. Connections to busbar shall be made with dual-rated copper/aluminum one-piece two-hole compression lugs. Paralleled conductor connections shall be by mechanical lugs.
 - 3. Thoroughly clean all conduit and wire-ways and see that all parts are perfectly dry before pulling any wires.
 - 4. Wire-pulling compounds used as lubricants in installing conductors in raceways shall only be "Polywater J". No oil, grease, graphite, or similar substances may be used. Pulling of #1/0 or larger conductors shall be done with an approved cable
- Conductor Support: Provide conductor supports as required by codes and recommended by cable manufacturer. Where required, provide cable supports in vertical conduits and provide lower end of conduit with a ventilator.

C. Grounding/Bonding:

- 1. Provide grounding and bonding for entire electric installation as shown on plans, as listed herein, and as required by applicable codes. Included, but not limited to, are items that require grounding/bonding:
- a. Conduit, raceways and cable trays.
- b. Neutral or identified conductors of interior wiring system.
- c. Panel boards, Distribution boards, Switchgear and Switchboards.
- d. Non-current carrying metal parts of fixed equipment.e. Telephone distribution equipment.
- f. Exposed metal in maintenance holes, hand holes.
- g. Lightning Protection Systems and antennas.
- h. Metal piping installed in or attached to a building/structure.
- i. Metallically isolated structural steel.j. Metallically isolated underground metal water piping.
- In multi-occupancy buildings, Contractor shall bond metal water piping systems
- installed in, under or attached to a building and/or structure serving individual occupancies where the piping system(s) are metallically isolated from each other. Per NEC, or CEC where adopted, ART. 250.104(A)(2) and (4), the bonding conductor shall be sized per Table 250.122 and connected to the switchboard/panelboard serving that suite/occupancy.
- 3. Use of Ground Rods: Furnish and install required number of 3/4" x 10' copper clad ground rods to meet specified resistance, all required grounding wires, conduit and clamps. The size of the grounding conductors shall be not less than that set forth in the latest edition of the California Code of Regulations, Title 24, State of California and NEC (or CEC where adopted), unless otherwise indicated. Rods shall be installed such that at least 10 feet of length is in contact with the soil. Where rock bottom is encountered, the electrode shall be driven at an oblique angle not to exceed 45 degrees from vertical or shall be buried in a trench that is at least 30 inches deep. The upper end of the electrode shall be flush with or below ground level unless the above ground end and the grounding electrode conductor attachments are protected against physical damage. Unless otherwise noted, connection to the grounding electrode conductor may be by compression type or exothermic process connector. Mechanical connectors shall not be used.
- Grounding System Connection:
 - Compression connectors shall be unplated copper, manufactured by Burndy, or approved equal, designed specifically for the intended connection.
 - Erico Products, or approved equal, designed specifically for the intended connection.c. Copper-Alloy mechanical connectors manufactured by Burndy, or

approved equal, designed specifically for intended connection.

b. Exothermic weld-type connectors shall be 'Cadweld' manufactured by

5. Isolated Ground Receptacles shall have an insulated ground wire connected between the receptacle and the panelboard isolated ground bus. Unless otherwise noted, this ground wire shall not be grounded at any other point, and shall be

distinguished from other ground wires by a continuous yellow stripe.

- 6. Provide separate green equipment ground conductor in all electrical raceways to effectively ground all non current-carrying metallic components. Use bonding jumpers, grounding bushings, lugs, busses, etc., for this purpose.
 7. Clean the contact surfaces of all ground connections prior to making connections.
- 8. Ductwork: Provide a flexible ground strap, No. 6 AWG equivalent, at each flexible duct connection at each air handler, exhaust fan, and supply fan, and install to preclude vibration.

9. Motors: Connect the ground conductor to the conduit with an approved grounding

- bushing, and to the metal frame with a bolted solderless lug. Bolts, screws and washers shall be bronze or cadmium plated steel.10. Building grounding system resistance to ground shall not exceed 25 ohms unless otherwise noted and should be confirmed by testing.
- 11. For Sensitive Compartmented Information Facilities (SCIF or SPL), all conductive appurtenances penetrating the secured perimeter wall shall be bonded to ground with the appropriate mechanical connector. Items include but are not limited to electrical raceway systems, mechanical piping and ductwork. Grounding shall be done on the secure side of the wall with #6 AWG conductor bonded to the secure telecommunication system ground bus.
- D. Line Voltage and Low Voltage Power Supplies to all Mechanical Equipment Including Plumbing, Heating and Air Conditioning Units:
- Line voltage power for mechanical controls shall be the responsibility of the electrical contractor as indicated on the drawings. Low voltage power supply(s) and low voltage controls shall be the responsibility of the mechanical controls contractor.
- 2. Power to individual items of equipment shall be terminated in a suitable outlet or junction box adjacent to the respective item of equipment, or a junction box provided by the manufacturer or the equipment and directed by the Mechanical Contractor. Allow sufficient lengths of conductor at each location to permit connection to the individual equipment without breaking the wire run.
- The location of all conduit terminations to the equipment is approximate. The exact location of these conduit terminations shall be located and installed as directed by the Mechanical or Plumbing Contractor.
- 4. Provide power to all plumbing and mechanical equipment, including but not limited to, equipment furnished and installed by Owner or Contractor such as heating and air conditioning equipment, pumps, boilers, auto valves and water coolers, etc. The installation shall produce a complete and operable system.

E. Firestopping:

The Contractor shall be responsible for furnishing all material, labor, equipment, and services in conjunction with the selection and installation of a complete, fully functioning, code compliant, UL-listed, fire stop assembly/system(s) as required by

- 2. Each fire stop assembly/system shall have an "F" and/or "T" rating as required by each condition requiring fire stopping. Each fire stop assembly/system shall have a current UL listing, as indicated in the latest edition of the UL Fire Resistance Directory. Contractor shall verify acceptability of all fire stopping methods and system selections with the authority having jurisdiction prior to installation. The Contractor shall install each firestop assembly/system in accordance with the manufacturer's printed instructions
- Each fire stop assembly/system shall be labeled with fire stop manufacturerfurnished label on each side of the fire stopping systems depicting UL number, etc.

Recessed boxes shall not be mounted back-to-back in any wall; minimum offset shall be 24 inches.

- Outlet boxes in sounds rated walls/partitions shall be wrapped with UL listed acoustical pad.
- Penetrations through sound rated walls shall be installed with acoustical assemblies.
- 4. Interior of sleaves shall be sealed after cabling has been installed. Seal all spare sleeves.5. Transformers shall be installed on type BR vibration isolators. See Seismic Design,
- Certification, and Anchoring of Electrical Equipment section of this specification for additional requirements.
- 6. Rigid connections to any and all vibrating or rotating equipment is prohibited.7. Electrical systems shall not be secured or fastened to common support systems

CLOSE OUT 4.1 Start Up

A. Testing and Adjustments

- 1. Test the entire affected wiring system for short circuits, grounds and insulation resistance between conductors and to ground.
- Demonstrate that the equipment operates in accordance with the requirements of these drawings. Demonstrate that protective functions are operating properly and are properly incorporated in the control system circuit breaker, and motor control center circuitry.
- 3. Check and correct the rotation of all motors. Coordinate rotation checks with the contractor responsible for the driven equipment.
- 4. Set each motor overload per service code.

of vibrating or rotating equipment.

- 5. Measure voltage and load between phases on switchboards, panelboards, and motor control centers after all equipment is installed. Verify that electrical loads are connected per drawings. Where unbalance exceeds 20%, change phasing of the single phase loads to accomplish a reasonable balance and mark the record
- 6. Perform coordination short circuit study and set adjustable overcorrect protective devices. Study shall include all new breakers. Study shall also include all existing upstream / downstream breakers that are 250 amp and larger and are in line with
- upstream / downstream breakers that are 250 amp and larger and are in line with the new breakers.7. Train Owner's representative on using, adjusting, programming of all electrical

controls systems. Including lighting controls and dimming systems.

4.2 Documentation

- A. Provide all close-out material to Owner's representative, including but not limited to:1. Test reports
- Instruction manuals
- 3. Record drawings4. Spare materials
- 5. Warranties6. Service contracts

7. Panel directories

8. Coordination short circuit study

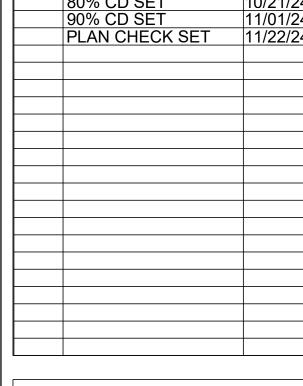
END OF SECTION







626.831.2449



CLAREMONT PD

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570 W BONITA AVE, CLAREMONT, CA 91711

ELECTIRCAL

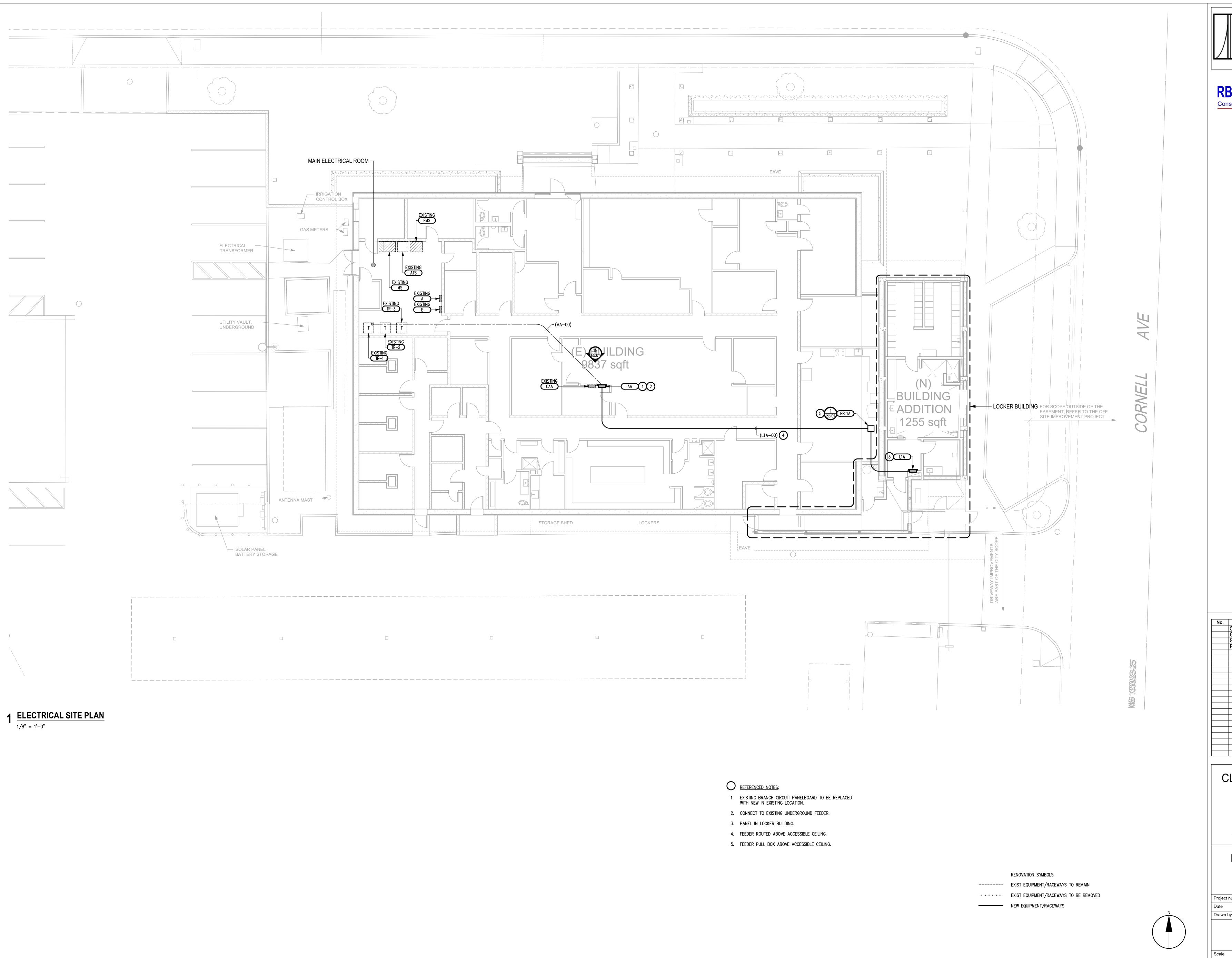
SPECIFICATIONS

Project number

E0.02

NONE

11/22/24





RBE_{Inc.}
Consulting Electrical Engineers



50% CD SET 08/12/24 80% CD SET 10/21/24 90% CD SET 11/01/24 PLAN CHECK SET 11/22/24

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE, CLAREMONT, CA 91711

ELECTIRCAL SITE PLAN

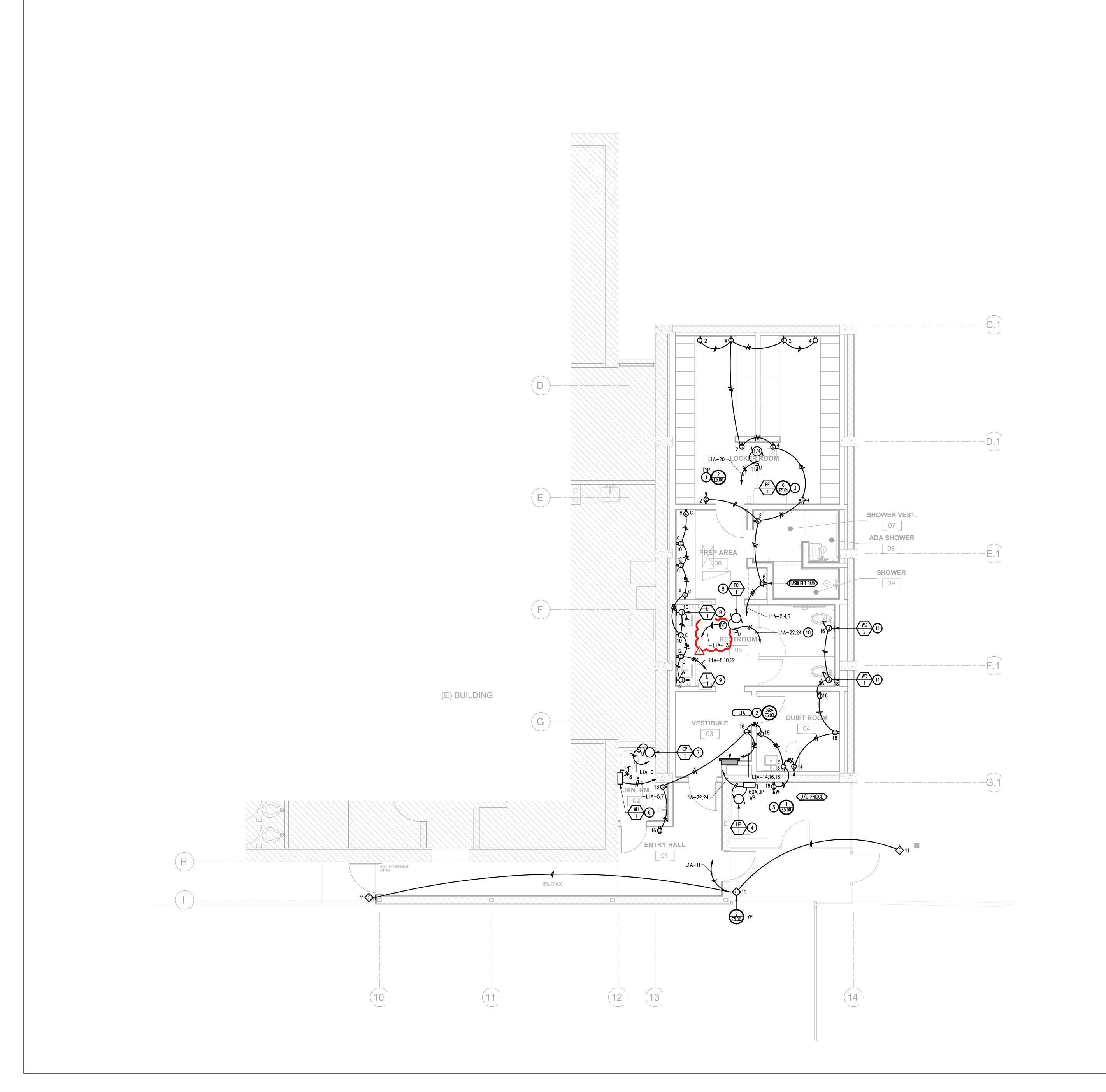
 Project number
 17668

 Date
 11/22/24

 Drawn by
 DS

E1.00

AS NOTED





Consulting Electrical Engineers 3016 E Colorado Blvd #5249 Pasadena . Ca . 91107 626.831.2449



RENOVATION NOTES:

- A. GENERAL: A.A. MODIFY EXISTING INSTALLATIONS TO ACCOMMODATE THE RENOVATION. A.B. RE-SUPPORT EXISTING ELECTRICAL INSTALLATION TO REMAIN WHERE THE DEMOLITION HAS AFFECTED THE SUPPORTS. A.C. IDENTIFY ANY IMPROPERLY SUPPORTED ITEMS PRIOR TO BEGINNING WORK. A.D. MAINTAIN CONTINUITY TO ALL ELECTRICAL ITEMS THAT ARE TO REMAIN.
- B. DEMOLITION: B.A. REMOVE ALL ELECTRICAL ITEMS AND ASSOCIATED APPURTENANCES TO SOURCE OF B.B. WHERE EMBEDDED IN CONCRETE, CUT CONDUITS FLUSH WITH CONCRETE AND CAP. PROVIDE BLANK COVER PLATES FOR BOXES. B.C. WHERE REQUIRED, MAINTAIN ACCESS TO ALL ACTIVE ELECTRICAL INSTALLATIONS. B.D. REMOVE ALL ITEMS FROM PROJECT SITE.
- C. FINISHES: C.A. PATCH SURFACES AND CLOSE OPENINGS RESULTING FROM DEMOLITION OR REMOVAL OF EQUIPMENT. C.B. REPAIR SURFACES AND OPENINGS WITH METHODS SUITABLE FOR MAINTAINING EXISTING FIRE, SOUND AND WATERPROOF RATINGS. C.C. REPAIR AND REFINISH SURFACES BY SKILLED MECHANICS OF TRADES INVOLVED.
- D. PANELBOARDS: D.A. CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS. D.B. PROVIDE BLANK PLATES FOR VACANT POSITIONS. D.C. TRACE BRANCH CIRCUITS SERVING THE AREA TO BE RENOVATED.

D.D. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING UPDATED CIRCUITING.

REFERENCED POWER NOTES:

1. CONVENIENCE RECEPTACLE.

- 2. BRANCH CIRCUIT PANELBOARD.
- 3. EXHAUST FAN.
- 4. PACKAGED HEAT PUMP UNIT.
- GFCI, WEATHER RESISTANT AND WEATHER PROOF MAINTENANCE RECEPTACLE.
- 6. ELECTRIC WATER HEATER.
- 7. CIRCULATING PUMP.

8. FAN COIL UNIT.

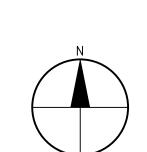
- PROVIDE A CONNECTION TO LAVATORY SENSOR ACTIVATED FAUCETS.
- 10. WIRE INDOOR UNIT CIRCUIT THROUGH OUTDOOR UNIT. 11. PROVIDE A CONNECTION TO TOILET SENSOR ACTIVATED FLUSH VALVE.

GENERAL NOTES:

- 1. EXISTING CIRCUITS TAKEN FROM EXISTING DOCUMENTATION AND LABELING. SHOWN FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR TO CONFIRM BY TRACING AND INCLUDE WITH AS BUILT DOCUMENTATION.
- 2. FIRE ALARM IS DESIGN BUILD. REFER TO FIRE ALARM NOTES ON E-000.
- CONFIRM EXACT LOCATION OF DEVICES WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH—IN.

RENOVATION SYMBOLS ----- EXIST EQUIPMENT/RACEWAYS TO REMAIN

----- EXIST EQUIPMENT/RACEWAYS TO BE REMOVED NEW EQUIPMENT/RACEWAYS



	Dooonpaon	Duto
	50% CD SET	08/12/
	80% CD SET	10/21/2
	90% CD SET	11/01/2
	PLAN CHECK SET	11/22/
Λ	BACK CHECK 1	01/27/
		•

CLAREMONT PD **ADDITION**

CITY OF CLAREMONT

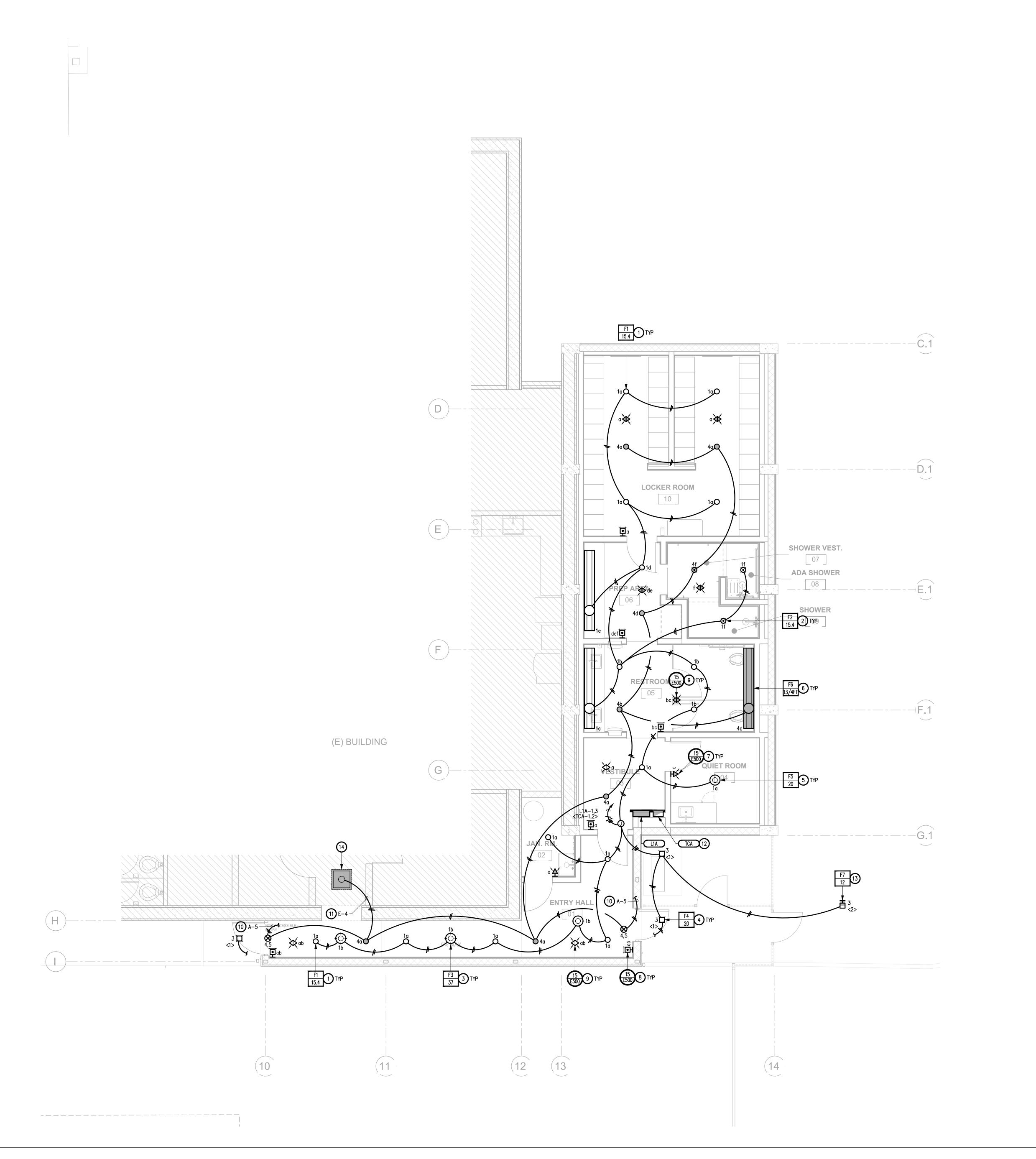
570 W BONITA AVE, CLAREMONT, CA 91711

> POWER **PLANS**

11/22/24 Drawn by

E2.00

1/4"=1'-0"





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RENOVATION NOTES:

EQUIPMENT.

HAS AFFECTED THE SUPPORTS.

PROVIDE BLANK COVER PLATES FOR BOXES.

FIRE, SOUND AND WATERPROOF RATINGS.

D.B. PROVIDE BLANK PLATES FOR VACANT POSITIONS.

B.D. REMOVE ALL ITEMS FROM PROJECT SITE.

A.A. MODIFY EXISTING INSTALLATIONS TO ACCOMMODATE THE RENOVATION.

A.C. IDENTIFY ANY IMPROPERLY SUPPORTED ITEMS PRIOR TO BEGINNING WORK. A.D. MAINTAIN CONTINUITY TO ALL ELECTRICAL ITEMS THAT ARE TO REMAIN.

A.B. RE-SUPPORT EXISTING ELECTRICAL INSTALLATION TO REMAIN WHERE THE DEMOLITION

B.A. REMOVE ALL ELECTRICAL ITEMS AND ASSOCIATED APPURTENANCES TO SOURCE OF

B.B. WHERE EMBEDDED IN CONCRETE, CUT CONDUITS FLUSH WITH CONCRETE AND CAP.

C.A. PATCH SURFACES AND CLOSE OPENINGS RESULTING FROM DEMOLITION OR REMOVAL OF

C.B. REPAIR SURFACES AND OPENINGS WITH METHODS SUITABLE FOR MAINTAINING EXISTING

B.C. WHERE REQUIRED, MAINTAIN ACCESS TO ALL ACTIVE ELECTRICAL INSTALLATIONS.

C.C. REPAIR AND REFINISH SURFACES BY SKILLED MECHANICS OF TRADES INVOLVED.

D.A. CLEAN EXPOSED SURFACES AND CHECK TIGHTNESS OF ELECTRICAL CONNECTIONS.

D.C. TRACE BRANCH CIRCUITS SERVING THE AREA TO BE RENOVATED. D.D. PROVIDE TYPED CIRCUIT DIRECTORY SHOWING UPDATED CIRCUITING.

A. GENERAL:

- REFERENCED LIGHTING NOTES:
- 1. LED RECESSED DOWNLIGHT FIXTURE.
- 3. LED DECORATIVE PENDANT MOUNTED LIGHTING FIXTURE.

2. LED RECESSED WEATHERPROOF DOWNLIGHT FIXTURE.

- 4. LED EXTERIOR SURFACE MOUNTED LIGHTING FIXTURE.
- 5. LED SURFACE MOUNTED LIGHTING FIXTURE.
- 6. LED COVE LIGHTING FIXTURE.
- 7. LOW VOLTAGE WALL POD CONTROL STATION OCCUPANCY SENSOR WITH ON/OFF AND RAISE/LOWER PUSH BUTTONS.
- 8. LOW VOLTAGE WALL POD CONTROL STATION WITH ON/OFF, RAISE/LOWER PUSH BUTTONS.
- 9. DUAL TECHNOLOGY CEILING MOUNTED OCCUPANCY SENSOR. PROVIDE TEMP/HUMIDITY OPTION IN SHOWER AREAS.
- 10. INTERCEPT AND EXTEND EXISTING NORMAL LIGHTING CIRCUIT. CIRCUIT NUMBER TAKEN FROM EXISTING DOCUMENTATION AND LABELING. SHOWN FOR REFERENCE ONLY. CONTRACTOR TO TRACE AND CONFIRM CIRCUIT BACK TO SOURCE. UPDATE PANEL SCHEDULE, LABEL ACCORDINGLY AND INCLUDE WITH AS BUILT DOCUMENTATION.
- 11. INTERCEPT AND EXTEND EXISTING EMERGENCY LIGHTING CIRCUIT SERVING THIS AREA THRU NEW LIGHTING CONTROL. CIRCUIT NUMBER TAKEN FROM EXISTING DOCUMENTATION AND LABELING. SHOWN FOR REFERENCE ONLY. CONTRACTOR TO TRACE AND CONFIRM CIRCUIT BACK TO SOURCE. UPDATE PANEL SCHEDULE, LABEL ACCORDINGLY AND INCLUDE WITH AS BUILT DOCUMENTATION.
- 12. WIRE EXTERIOR LIGHTING CIRCUIT THRU ASTRONOMIC TIMECLOCK. ASTRONOMIC TIMECLOCK TO BE MOUNTED IN RECESSED CABINET. INTERMATIC: ET90000 SERIES
- 13. LED BOLLARD LIGHTING FIXTURE.
- 14. EXISTING HALLWAY LIGHTING FIXTURE.

GENERAL NOTES:

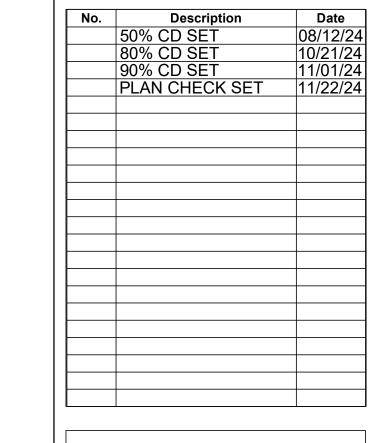
- 1. EXISTING CIRCUITS TAKEN FROM EXISTING DOCUMENTATION AND LABELING. SHOWN FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR TO CONFIRM BY TRACING AND INCLUDE WITH AS BUILT DOCUMENTATION.
- 2. CONFIRM EXACT LOCATION OF DEVICES WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

RENOVATION SYMBOLS

----- EXIST EQUIPMENT/RACEWAYS TO REMAIN

----- EXIST EQUIPMENT/RACEWAYS TO BE REMOVED

NEW EQUIPMENT/RACEWAYS



CLAREMONT PD ADDITION

CITY OF CLAREMONT

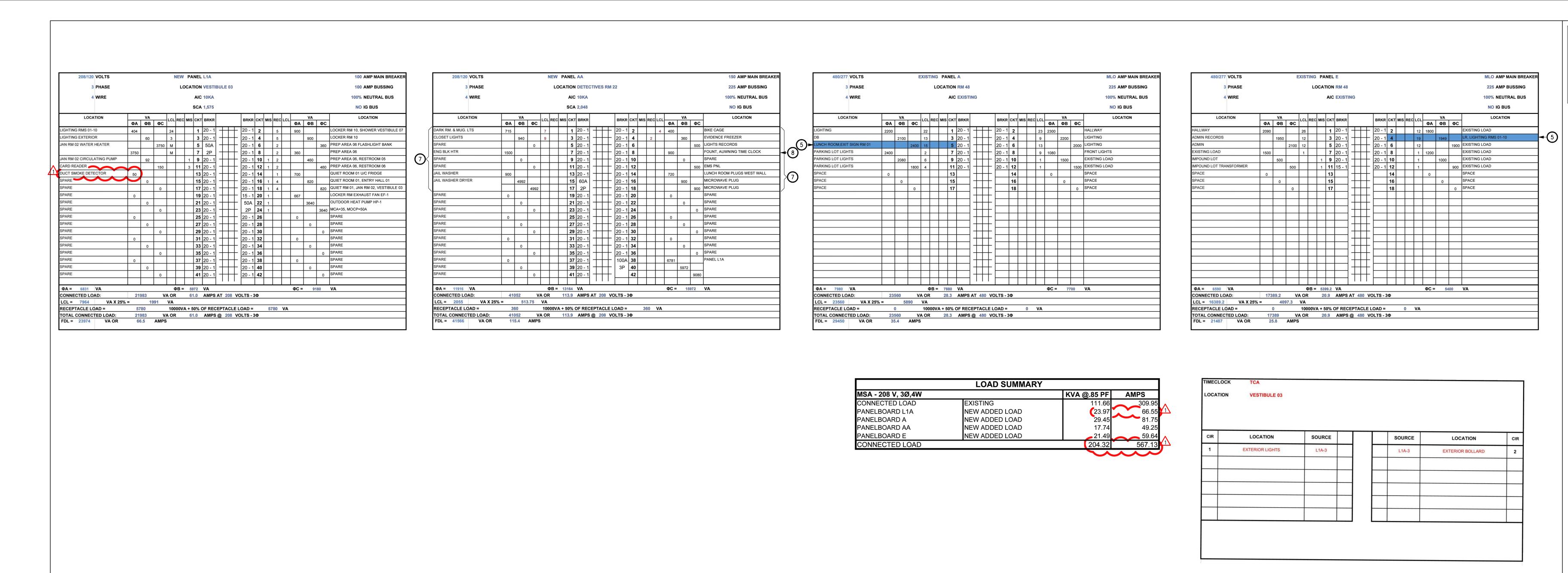
570 W BONITA AVE, CLAREMONT, CA 91711

LIGHTING PLAN

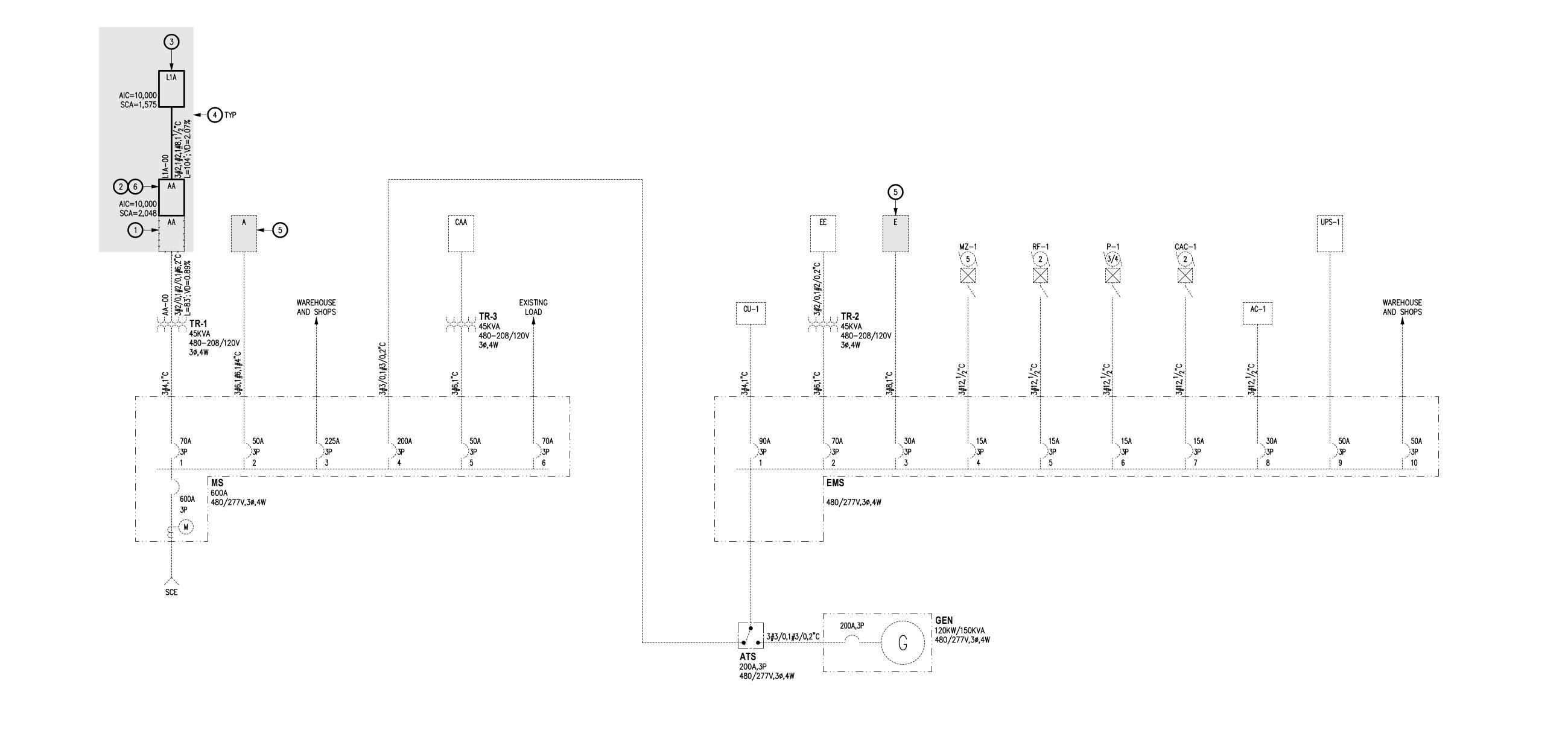
11/22/24 Drawn by

E3.00

1/4"=1'-0"



1 PANEL SCHEDULES



REFERENCED NOTES:

- 1. BRANCH CIRCUIT PANELBOARD TO BE REPLACED.
- 2. BRANCH CIRCUIT PANELBOARD TO REPLACE EXISTING IN EXISTING LOCATION.
- 3. BRANCH CIRCUIT PANELBOARD IN LOCKER BUILDING.
- 4. SHADING INDICATES SCOPE OF WORK.
- 5. ADDED LOAD TO EXISTING CIRCUIT.
- 6. CONNECT TO EXISTING UNDERGROUND FEEDER.
- 7. RECONNECT EXISTING BRANCH CIRCUITS TO NEW PANELBOARD.
- 8. ROUTE CIRCUIT THRU EXISTING TIMECLOCK.

RENOVATION SYMBOLS

-x-x-x-x- EXIST EQUIPMENT/RACEWAYS TO BE REMOVED

NEW EQUIPMENT/RACEWAYS

CLAREMONT PD ADDITION

 Description
 Date

 50% CD SET
 08/12/24

 80% CD SET
 10/21/24

 90% CD SET
 11/01/24

 PLAN CHECK SET
 11/22/24

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CITY OF CLAREMONT

570 W BONITA AVE, CLAREMONT, CA 91711

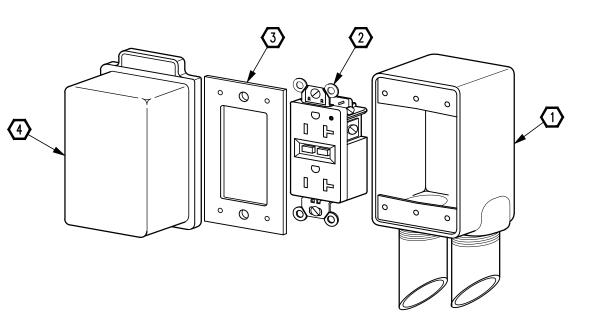
SINGLE LINE DIAGRAM

11/22/24

E4.00

NONE

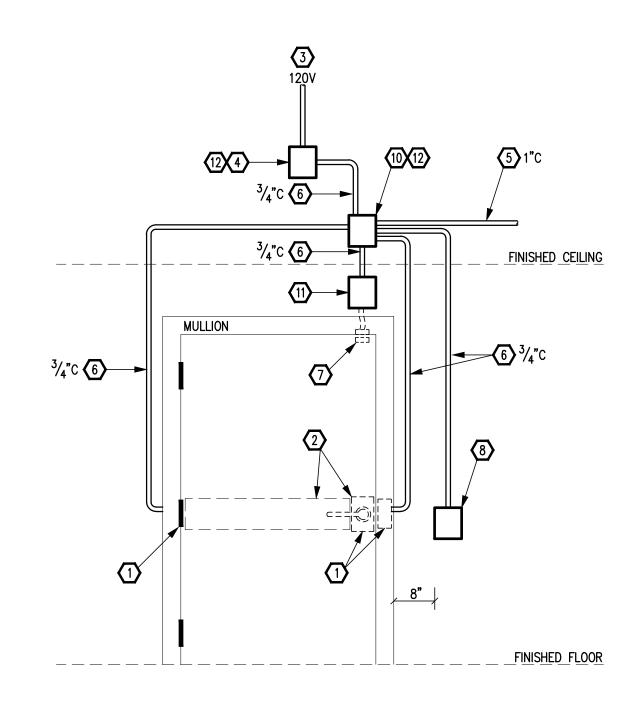
2 SINGLE LINE DIAGRAM



REFERENCED DETAIL NOTES:

- 1. CAST OUTLET BOX, FERROUS METAL CONSTRUCTION, GALVANIZED WITH HUBS FOR RIGID CONDUIT, MINIMUM 2 HUBS. PROVIDE PLUGS FOR UNUSED HUBS.
- 2. NEMA 5-20R DUPLEX GFCI WEATHER RESISTANT RECEPTACLE.
- 3. NEOPRENE GASKET PRECUT TO FIT RECEPTACLE AND BOX.
- 4. CAST ALUMINUM EXTRA DEEP WEATHERPROOF WHILE IN USE LIFT COVER.

4 WEATHERPRROF OUTLET REQUIREMENTS



GENERAL NOTES:

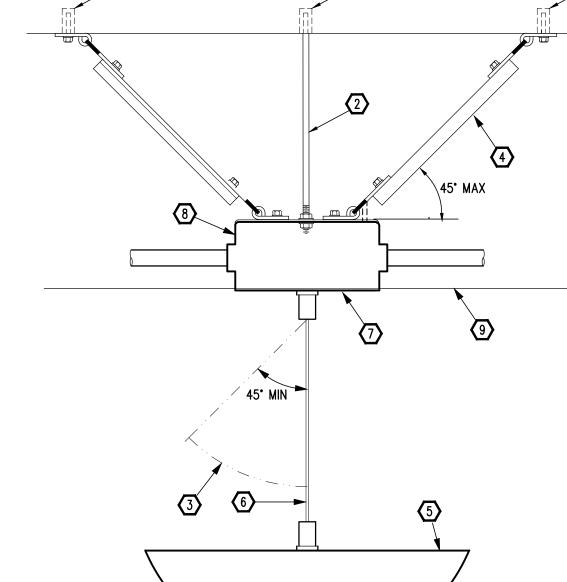
- A. COORDINATE INSTALLATION WITH DOOR HARDWARE VENDOR AND SECURITY SYSTEM INSTALLER.
- B. ALL CONDUIT SHALL BE $\frac{3}{4}$ MINIMUM, UNLESS OTHERWISE NOTED. SURFACE MOUNTED CONDUIT TO BE LOCATED ON
- SECURED SIDE. C. ALL JUNCTION BOXES SHALL BE 4S / 2-GANG MINIMUM.
- 1. ELECTRIC HINGE AND ELECTRIC LOCK OR ELECTRIC STRIKE

DETAIL NOTES:

- PER DOOR HARDWARE VENDOR. 2. DOOR HANDLE OR PANIC HARDWARE ON EGRESS SIDE OF
- DOOR PER DOOR HARDWARE VENDOR. 3. REFER TO POWER PLAN FOR CIRCUIT INFORMATION.
- 4. STRIKE-IT BOX / POWER SUPPLY LOCATED IN ACCESSIBLE
- CEILING SPACE ON SECURED SIDE.
- 5. DEDICATED LOW VOLTAGE PATHWAY TO SECURITY PANEL. REFER TO PLANS FOR LOCATION.
- 6. LOW VOLTAGE PATHWAYS TO ACCESS CONTROL DOOR
- 7. DOOR CONTACTS ON SECURE SIDE OF DOOR.
- 8. JUNCTION BOX FOR PROXIMITY / CARD READER ON ENTRANCE SIDE OF DOOR. MOUNT AT 48" AFF TO TOP OF
- BOX. REFER TO PLANS FOR LOCATIONS. 9. NOT USED.
- 10. JUNCTION BOX IN ACCESSIBLE CEILING SPACE ON SECURED
- 11. JUNCTION BOX WITH CONNECTION TO DOOR CONTACTS VIA ARMORED CABLE.
- 12. PROVIDE ACCESS PANEL WHERE INACCESSIBLE CEILINGS OCCUR. REFER TO ARCHITECTURAL DOCUMENTS.

Q CARD READER INFRASTRUCTURE REQUIREMENTS

TYPICAL OUTLET INSTALLATION



REFERENCED DETAIL NOTES:

EQUAL TO WALL.

1. SPECIFICATION GRADE RECEPTACLE. INSTALL WITH GROUND PRONG UP.

3. FOR BOXES INSTALLED IN RATED WALLS WRAP WITH APPROVED FIRE

STOPPING PADS OR SOUND PADS AS REQUIRED TO PROVIDE RATING

2. LABEL DEVICES WITH PANEL NAME AND CIRCUIT NUMBER.

NOTES

- 1. EXPANSION OR CAST IN PLACE ANCHOR FOR CONCRETE INSTALLATION OR SPRING NUT AND BOLT FOR STEEL
 - CHANNEL SUPPORT INSTALLATION. 2 HANGER ROD
 - 3 45° FREE SWING MINIMUM, IN ALL DIRECTIONS.
 - 4 BRACE, MAXIMUM LENGTH 7'-6". MINIMUM (2) BRACES REQUIRED BRACES ARE TO BE 90° OPPOSED TO
 - PROVIDE SEISMIC RESTRAINT IN ALL DIRECTIONS 5 LIGHT FIXTURE.
 - 6 AIRCRAFT CABLE
 - 7 COVER PLATE, FLUSH WITH FINISHED CEILING
 - 8 JUNCTION BOX. INDEPENDENTLY SUPPORTED FROM CEILING. AT CONTRACTORS OPTION $\frac{1}{2}$ " CHANNEL SUPPORT MAY BE USED IF BRACED AT BOTH ENDS.
 - 9 FINISHED CEILING, REFER TO ARCHITECTURAL CONSTRUCTION DOCUMENTS FOR CEILING TYPE
 - 10 PENDANT FIXTURE INSTALLATION

5 ON EXTERIOR SIDE

REFERENCED NOTES:

- 1. TYPEWRITTEN CIRCUIT SCHEDULE REFLECTING AS BUILT CONDITION. HAND WRITTEN SCHEDULE NOT PERMITTED.
- 2. FULLY HINGED LOCKABLE DOOR-WITHIN-DOOR. KEY ALL CABINETS ALIKE. REFER TO PANEL SCHEDULES FOR RATINGS AND PROTECTIVE
- DEVICE REQUIREMENTS. 4. FLUSH OR SURFACE MOUNTED PANELBOARD AS INDICATED
- ON DRAWINGS.
- 5. FACTORY INSTALLED ENGRAVED NAMEPLATE. REFER TO IDENTIFICATION SPECIFICATIONS FOR NAMPLATE
- REQUIREMENTS.
- 6. VERTICALLY MOUNTED MAIN BREAKER.
- SOURCE $-\frac{3}{8}$ "-

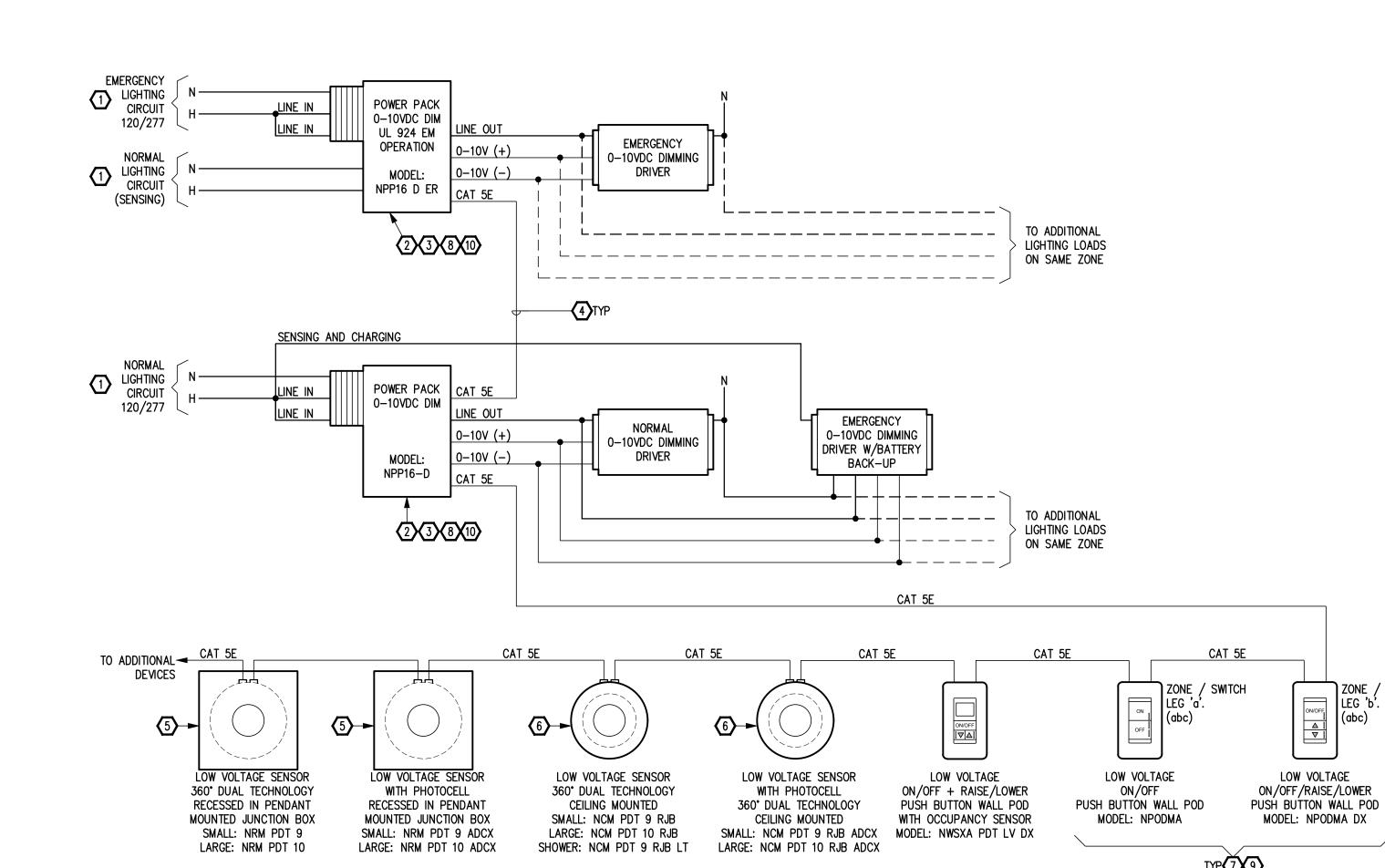
-FED FROM MSHA —►UTILITY POWER

NAMEPLATE NOTES:

- A. PROVIDE ENGRAVED NAMEPLATE ADHERED TO EQUIPMENT WITH EQUIPMENT NAME, OPERATING VOLTAGE, SOURCE AND POWER SYSTEM TYPE. NAMEPLATE AND LETTERING SIZES AS NOTED.
- B. UNLESS OTHERWISE NOTED IN IDENTIFICATION SPECIFICATIONS, PROVIDE WHITE LETTERING ON COLORED NAMEPLATE AS NOTED
- B.A. BLACK: UTILITY POWER
- B.B. RED: EMERGENCY POWER UNINTERRUPTIBLE POWER SUPPLY (UPS) B.D. YELLOW: CLEAN / TECHNICAL POWER
- C. REFER TO ELECTRICAL IDENTIFICATIONS SPECIFICATIONS FOR ADDITIONAL INFORMATION.

7 TYPICAL PANELBOARD

▲ EQUIPMENT NAMEPLATE



- nlight lighting control referenced notes:
- 1. REFER TO LIGHTING PLANS FOR CIRCUITS TO BE CONTROLLED.
- 2. PROVIDE A POWER/RELAY PACK FOR EACH LIGHTING ZONE to be controlled.
- 3. THE SECONDARY RELAY PACK DOES NOT POWER ITSELF FROM THE LINE VOLTAGE IT IS SWITCHING/DIMMING. IT MUST BE CONNECTED AS PART OF A POWERED NLIGHT ZONE. PROVIDE AN ADDITIONAL POWER/RELAY PACK AS REQUIRED.
- 4. PROVIDE CONDUIT FOR CAT 5E CABLING IN WALLS, INACCESSIBLE CEILINGS AND OPEN CEILINGS.
- 5. USE RECESSED SENSOR PENDANT MOUNTED IN OPEN CEILINGS. MOUNT BOTTOM OF SENSOR AT BOTTOM OF LIGHTING FIXTURE HEIGHT.
- 6. USE SURFACE SENSOR IN T-BAR AND HARD LID CEILINGS.
- 7. UON, USE A SINGLE CHANNEL WALL POD FOR EACH ZONE SWITCH LEG TO BE CONTROLLED. DO NOT COMBINE ZONES INTO A SINGLE MULTI CHANNEL WALL POD. TYPICAL 'a' AND 'b' ZONES / SWITCH LEGS SHOWN, REFER TO PLANS FOR
- 8. LOCATE AT ABOVE ACCESSIBLE CEILING OVER ROOM ENTRANCE. LABEL EACH WITH THE CIRCUIT AND ZONE IT IS CONTROLLING.

QUANTITY OF ZONES / SWITCH LEGS.

- 9. (abc) DENOTES INDICATED SWITCH LEGS ARE SIMULTANEOUSLY CONTROLLED BY ONE SINGLE CHANNEL
- 10. PROVIDE ADDITIONAL POWER PACKS FOR EACH ZONE IN PRIMARY AND SECONDARY DAY LIT AREA.
- TURNED OFF 20 MINUTES AFTER THE ROOM BECOMES VACANT.

SEQUENCE OF OPERATIONS:

VACANT. THE LIGHT SHALL BE AUTOMATICALLY TURN OFF 30 MINUTES AFTER THE ROOM INITIALLY BECAME VACANT e. OFFICE GREATER THAN 250 SQUARE FEET: THE OCCUPANCY SENSORS SHALL AUTOMATICALLY TURN ON THE LIGHTS TO FULL BRIGHT WHEN OCCUPANCY IS DETECTED WITHIN THE CONTROL ZONE. THE OCCUPANCY SENSORS IN ANY ZONE SHALL AUTOMATICALLY TURN ON THE LIGHTS TO 20% IN VACANT ZONES WHEN OCCUPANCY IS DETECTED. THE OCCUPANT MAY MANUALLY INCREASE/DECREASE

a. DEFAULT: THE OCCUPANCY SENSORS SHALL AUTOMATICALLY TURN

TURNED OFF 20 MINUTES AFTER THE ROOM BECOMES VACANT.

b. PRIMARY DAYLIGHT ZONE: THE PHOTOCELL SHALL AUTOMATICALLY

ON THE LIGHTS BETWEEN 50-70 PERCENT WHEN OCCUPANCY IS

DETECTED. THE OCCUPANT MAY MANUALLY INCREASE/DECREASE THE LIGHTING INTENSITY. THE LIGHT SHALL BE AUTOMATICALLY

REDUCE THE LIGHTING POWER BY 90% WHEN THE ILLUMINANCE

RECEIVED FROM THE DAYLIGHT EXCEEDS 150% OF THE DESIGN

ILLUMINANCE FROM THE GENERAL LIGHTING SYSTEM AT FULL POWER.

REDUCE THE LIGHTING POWER BY 90% WHEN THE ILLUMINANCE RECEIVED FROM THE DAYLIGHT EXCEEDS 150% OF THE DESIGN

ILLUMINANCE FROM THE GENERAL LIGHTING SYSTEM AT FULL POWER.

THE OCCUPANT MAY MANUALLY DECREASE THE LIGHT INTENSITY. THE LIGHT SHALL BE AUTOMATICALLY DIMMED DOWN TO 50% OF

THE LIGHTING POWER 15 MINUTES AFTER THE ROOM BECOMES

d. CORRIDOR: THE OCCUPANCY SENSORS SHALL AUTOMATICALLY TURN ON THE LIGHTS TO FULL BRIGHT WHEN OCCUPANCY IS DETECTED.

c. SECONDARY DAYLIGHT ZONE: THE PHOTOCELL SHALL AUTOMATICALLY

THE LIGHTING INTENSITY. THE LIGHT SHALL BE AUTOMATICALLY

- nLIGHT LIGHTING CONTROL GENERAL NOTES: A. COORDINATE WITH MANUFACTURER FOR MAXIMUM NUMBER OF
- CONNECTED DEVICES ALLOWED. B. CONTRACTOR TO PROVIDE COMMISSIONING AND TRAINING FOR

ZONE / SWITCH

- OWNER'S REPRESENTATIVES.
- C. CONTRACTOR TO PROVIDE T-24 ACCEPTANCE TESTING.
- D. MANUFACTURER: nLIGHT
- E. DEVICE FINISH TO BE WHITE.

CLAREMONT PD

PLAN CHECK SET

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CITY OF CLAREMONT

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ELECTRICAL DETAILS

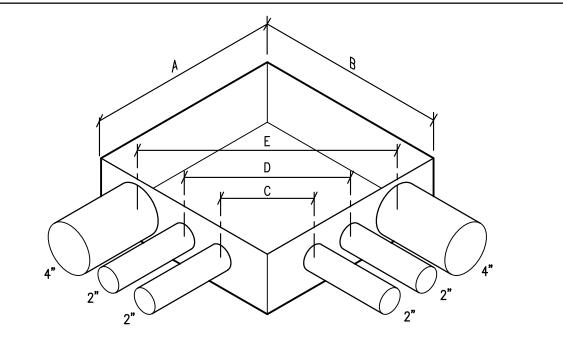
Project number 11/22/24 Drawn by

NONE

E5.00

Scale

15 NLIGHT LIGHTING CONTROL DIAGRAM

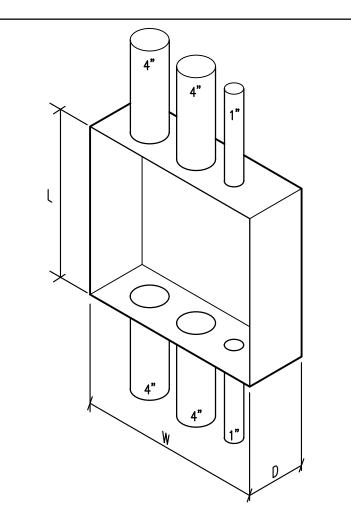


EXAMPLE: $A = (6 \times 4^{n}) + 2^{n} + 2^{n} = 28^{n}$ $B = (6 \times 4^{n}) + 2^{n} + 2^{n} = 28^{n}$ $C = (6 \times 2^{n}) = 12^{n}$ MINIMUM $D = (6 \times 2^{n}) = 12^{n}$ MINIMUM $E = (6 \times 4^{n}) = 24^{n}$

NOTE: SIZES MAY NEED TO BE INCREASED TO MEET REQUIREMENTS OF NEC 370-28, COMPLY WITH STANDARD BOX SIZES OR FOR SHIELDED CABLES.

PULL BOX SIZING ("L" PULLS) LESS THAN 600 VOLT

1 PULL BOX SIZING LESS THAN 600V



PULL BOX SIZING ("STRAIGHT" PULLS) LESS THAN 600 VOLT

EXAMPLE:

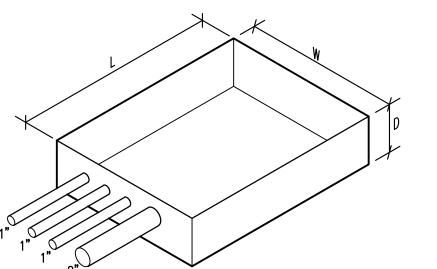
L = 4" x 8 = 32"

W = 4"+4"+1"+6 = 15"

D = 4" x 1.5 = 6"

NOTE:

NOTE: SIZES MAY NEED TO BE INCREASED TO MEET REQUIREMENTS OF NEC 370—28, COMPLY WITH STANDARD BOX SIZES OR FOR SHIELDED CABLES.



SIZING JUNCTION BOXES FOR 'U' PULLS

L = LARGEST RACEWAY x 6 + DIAMETER OF ALL OTHER RACEWAYS IN ONE ROW

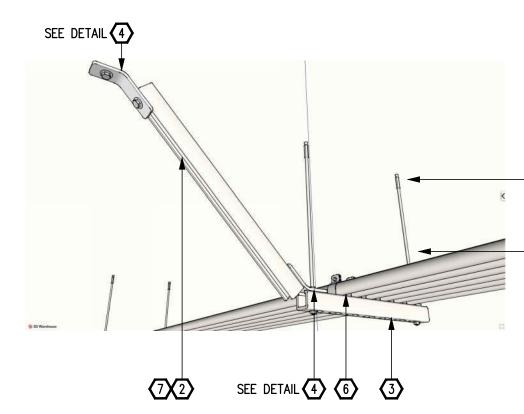
W = TOTAL DIAMETER OF ALL RACEWAYS IN ONE ROW IN THAT ROW x 2

EXAMPLE: $L = 6 \times 2" = 12"+1"+1"+1" = 15"$ $W = 2" + 1" + 1" + 1" = 5 \times 2 = 10"$

D = 2" x 1.5 = 3"

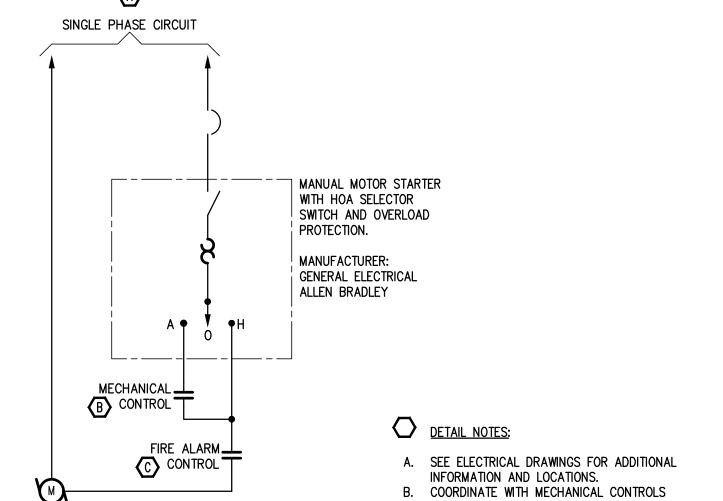
D = LARGEST RACEWAY IN EACH ROW x 1.5

NOTE: SIZES MAY NEED TO BE INCREASED TO MEET REQUIREMENTS OF NEC 370-28, COMPLY WITH STANDARD BOX SIZES OR FOR SHIELDED CABLES.



45° MAX

PULL BOX SIZING ("U" PULLS) LESS THAN 600 VOLT



INSTALLER.

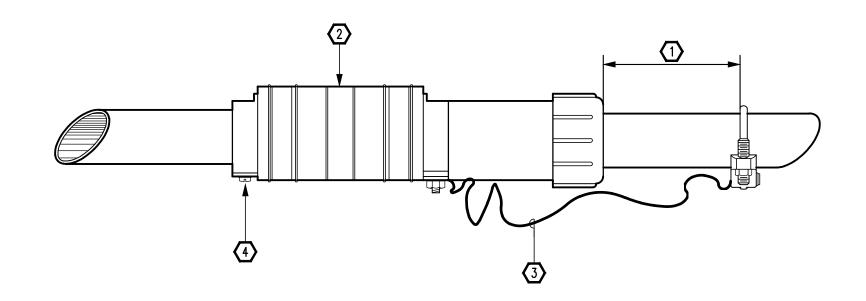
CONTRACTOR.

C. COORDINATE WITH DESIGN BUILD FIRE ALARM

6 MANUAL MOTOR STARTER CONTROL DIAGRAM

MECHANICAL

EQUIPMENT



REFERENCED DETAIL NOTES:

1. PER MANUFACTURER'S RECOMMENDATION FOR TWO TIMES THE DEFLECTION ALLOWED IN THE STRUCTURAL DESIGN.

2. SIZE THE DEFLECTION / EXPANSION FITTING TO ALLOW TWO TIMES THE DEFLECTION ALLOWED IN THE STRUCTURAL DESIGN. USE A COMBINATION OF FITTING WHERE REQUIRED.

3. EXTERNAL BONDING JUMPER.

4. INTERNAL BONDING JUMPER.

POWER STRUT

GENERAL NOTE:

PRIOR TO INSTALLATION.

ACCEPTABLE MANUFACTURERS: UNISTRUT

A. MAXIMUM LOADING ON ANY ONE COMPONENT TO BE NO MORE

CALIFORNIA LICENSED STRUCTURAL ENGINEER FOR REVIEW

8 CONDUIT TRAPEZE REQUIREMENTS

THAN $^{1}\!\!/_{2}$ THE MAXIMUM SAFE LOADING FOR THAT COMPONENT. PROVIDE CALCULATIONS SIGNED BY A

B. INSTALLATION SHALL COMPLY WITH STATE OF CALIFORNIA SEISMIC ZONE 4 REQUIREMENTS.

REFERENCED DETAIL NOTES:

1. THREADED HANGAR ROD SIZED TO MEET INSTALLED LOAD REQUIREMENTS. $\frac{3}{8}$ " MINIMUM.

2. TRANSVERSE RIGID BRACE. 15/8" SOLID CHANNEL MINIMUM. ALTERNATE SIDE ALONG LENGTH OF CONDUIT RUN. BRACE ANGLE SHALL NOT BE GREATER THAN 45 DEGREE TO THE HORIZONTAL.

3. CONDUIT SUPPORT. $1\frac{5}{8}$ " CHANNEL MINIMUM.

4. ADJUSTABLE HINGED SEISMIC SWAY BRACE ATTACHMENT FITTING.

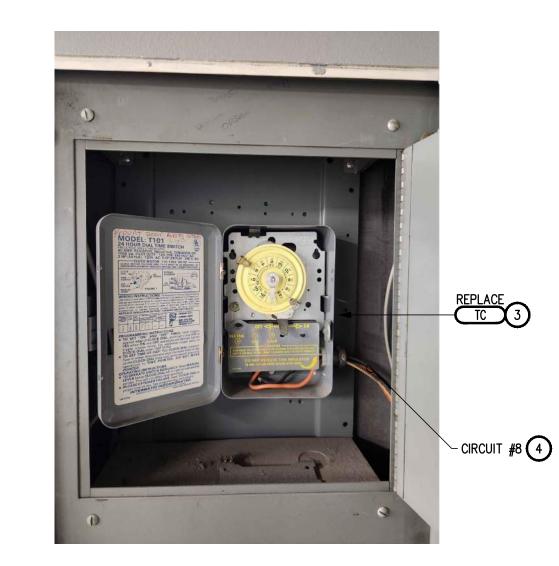
5. ATTACHMENT TO STRUCTURE SUITABLE FOR INSTALLED LOAD REQUIRMENTS. COORDINATE STRUCTURE TYPE WITH ARCHITECTURAL AND STRUCTURAL DOCUMENTS.

6. CONDUIT CLAMP.

 IN ADDITION TO THE TRANSVERSE BRACE, PROVIDE A LONGITUDINAL BRACE WITH A 7'-6" MAXIMUM LENGTH AT A MAXIMUM ANGLE OF 45 DEGREE.

7 COMBINATION EXPANSION/DEFLECTION FITTING
NONE





Time a found of the state of th

REFERENCED PHOTO NOTES:

EXISTING PANELBOARD TO BE REPLACED WITH NEW.

2. EXISTING TIMECLOCK BEHIND UNDER SEPARATE COVER.

3. REPLACE EXISTING TIMECLOCK WITH NEW. INSTALL IN SEPARATE RECESSED CABINET MATCHING PANELBOARD.

ROUTE EXISTING CIRCUIT THRU NEW TIMECLOCK.
 EXISTING BRANCH CIRCUITS TO BE CONNECTED TO NEW PANELBOARD.

 No.
 Description
 Date

 50% CD SET
 08/12/24

 80% CD SET
 10/21/24

 90% CD SET
 11/01/24

 PLAN CHECK SET
 11/22/24

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CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE, CLAREMONT, CA 91711

ELECTRICAL DETAILS

 Project number
 17668

 Date
 11/22/24

 Drawn by
 DS

E5.01

NONE

15 EXISTING PANELBOARD AND TIMECLOCK

ATE OF CALIFORNIA							
Idoor Lighting					CALIFORNIA	A ENERGY COMM NR	IISSION CC-LTI-E
is document is used to demonstrate cor	mpliance with requirements in 110.9, 110.					orescriptive path j	or
	ies. It is also used to document complianc mily includes dormitory and senior living j		00.3, 170.2(e)	una 180.2(b)4 joi ii	laoor lighting scopes		e 1 of 8)
ject Address: 570 W. BONITA AVE, CLARI	EMONT, CA 91711	Date Prepared:			20	024-11-18T15:49:5	
GENERAL INFORMATION							
Project Location (city)	Claremont		Conditioned Fl		1,402		
Climate Zone Occupancy Types Within Project (sele	ect all that apply):			d Floor Area (ft²) ole Above Grade)	0		
upport Areas	T. F. F. F.		•				
ROJECT SCOPE							
table includes any lighting systems th 0(b)2 / 180.2(b)4 for alterations.	nat are within the scope of the permit app	ication and are demons	trating complic	ance using the pres	criptive path outlined	rd in 140.6 / 170.2	(e) or
Scope of \	Work		ned Spaces			oned Spaces	
01 My Project Consists of (c	theck all that apply).	02 Calculation Method	4	03 Area (ft²)	04 Calculation Metho	O. Area	
My Project Consists of (c New Lighting System	ancer an erac apply).	Area Category Metho		Area (ft²) 1402	N/A	nod Area	
New Lighting System - Parking Gara	ge	N/A		0	N/A	C	
Total Area of \	Work (ft²)	14	402				
uilding Energy Efficiency Standards - 202	22 Nonresidential Compliance	Generated Date/Time: Report Version: 2022.0.00 Schema Version: rev 2022				oftware: Energy Co nce ID: 228334-112 ated: 2024-11-18 12	4-0008
E OF CALIFORNIA IOOT Lighting TIFICATE OF COMPLIANCE					CALIFORNIA	A ENERGY COMM	IISSION CC-LTI-E
ect Name: CPD Locker Rooms		Report Page: Date Prepared:		<u>—</u> —		(Pag :024-11-18T15:49:5	5 of 8)
		Date Flepaleu.			20	.024-11-16115.45.3	5-03.00
NDOOR LIGHTING CONTROLS (No	t including PAFs)	_	-		2018		
				Plan	13 Sheet Showing Dayli	lit Zones:	
				Fiell			
	MPLETE BUILDING OR AREA CATEGO		in table 2 !	on OG laultent 15	ditional Patri	uan elle	
area complying using the Complete I 6(c) or adjustments per 140.6(a) are I	Building or Area Category Methods per 14 being used .	ບ.b(ɒ) are included in th	ıs tabie. Colum	ırı ub ındıcates if ad	aitional lighting pow	ver allowances po	Г
ditioned Spaces						1228	
01	02 Complete Building or Area Category Prima	ry Allowed Density	04	05 Allowed Watta	ge Additional Al	06 Illowance / Adjust	ment
Area Description	Complete Building or Area Category Prima Function Area	(W/ft²)	Area (ft²)	Allowed Watta (Watts)	Area Catego		
ENTRY HALL 01	Corridor	0.4	269	107.6	No	No	
JAN RM 02 VESTIBULE 03	Commercial Industrial Storage Area Corridor	0.4	60 125	50	No No	No No	
QUIET ROOM 04	Lounge	0.4	109	59.95	No No	No	-

0.65 201 130.65 0.45 219 98.55

Generated Date/Time:

Report Version: 2022.0.000

Schema Version: rev 20220101

 0.45
 419
 188.55
 No
 No

 TOTALS:
 1,402
 659.3
 See Tables J, or P for detail

Documentation Software: Energy Code Ace

Report Generated: 2024-11-18 12:49:57

Compliance ID: 228334-1124-0008

RESTROOM 05

PREP / SHOWER AREA 06-09

LOCKER ROOM 10

This section does not apply to this project.

This section does not apply to this project.

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

Indoor Lighting Mandatory Measures: 110.9 LIGHTING CONTROLS AND COMPONENTS

ALL LUMINAIRES SHALL BE FACTORY-LABELLED PER 130.0(c).

130.0 GENERAL LUMINAIRE REQUIREMENTS

130.1(a) MANUAL AREA CONTROLS

AND OFF MANUAL CONTROLS SHALL:

1. BE READILY ACCESSIBLE

LEVELS PER TABLE 130.1-A.

130.1(c)1: CONTROL REQUIREMENTS

TIME-SWITCH CONTROL, OR OTHER)

 LIBRARY BOOK STACK AISLES CORRIDORS AND STAIRWELLS

OFFICES GREATER THAN 250 SQ. FT.

130.1(c)6 PARTIAL OR FULL-OFF OCCUPANT SENSORS

AISLE WAYS AND OPEN AREAS IN WAREHOUSES

NOTE: THE EXCEPTED SPACES DO NOT COUNT TOWARDS THE 10,000 FT2 THRESHOLD.

2. BE LOCATED IN THE SAME ENCLOSED AREA WITH THE LIGHTING IT CONTROLS.

ON AND OFF SEPARATELY WITHOUT AFFECTING OTHER LIGHTING OR EQUIPMENT.

ALL INSTALLED INDOOR LIGHTING SHALL HAVE ALL OF THE FOLLOWING:

B. SEPARATE CONTROLS FOR LIGHTING ON EACH FLOOR (OTHER THAN STAIRWELLS)

C. SEPARATE CONTROLS FOR A SPACE ENCLOSED BY CEILING HEIGHT PARTITIONS NOT EXCEEDING 5,000 FT2

ENERGY MANAGEMENT CONTROL SYSTEMS (EMCS) SHALL MEET REQUIREMENTS OF 130.0(e).

Locker/Dressing Room

Locker/Dressing Room

ALL LIGHTING CONTROL DEVICES AND SYSTEMS, AND ALL LIGHT SOURCES SHALL MEET THE APPLICABLE REQUIREMENTS OF 110.9.

EACH ROOM OR AREA WITH FLOOR-TO-CEILING WALLS IN THIS BUILDING SHALL HAVE LIGHTING CONTROLS THAT ALLOW LIGHTING TO BE MANUALLY TURNED ON

3. PROVIDE SEPARATE CONTROL OF GENERAL, FLOOR, WALL, WINDOW CASE DISPLAY, ORNAMENTAL AND SPECIAL EFFECTS LIGHTING SO EACH TYPE CAN BE TURNED

CONTROLS THAT ALLOW LIGHT LEVELS TO BE ADJUSTED UP AND DOWN. CONTROLS SHALL PROVIDE NUMBER OF CONTROL STEPS AND UNIFORM ILLUMINANCE LIGHT

A. CONTROL(S) CAPABLE OF AUTOMATICALLY SHUTTING OFF ALL LIGHTING IN THE SPACE WHEN TYPICALLY UNOCCUPIED (OCCUPANT SENSING CONTROL, AUTOMATIC

GENERAL LIGHTING IN ALL ROOMS AND AREAS 100 FT2 OR GREATER AND WITH MORE THAN 0.5 WATTS PER FT2 OF LIGHTING LOAD SHALL HAVE MULTILEVEL

ALL INSTALLED INDOOR LIGHTING SHALL BE EQUIPPED WITH CONTROLS TO AUTOMATICALLY REDUCE LIGHTING POWER WHEN SPACE IS TYPICALLY UNOCCUPIED.

PROVIDE PARTIAL OR FULL-OFF OCCUPANT SENSORS, IN ADDITION TO SHUTOFF CONTROLS PER 130.1(c)1 AND 130.1(c)2, IN THE FOLLOWING SPACES:

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

Indoor Lighting CERTIFICATE OF COMPLIANCE		CALIFORNIA ENERGY COMI
Project Name: CPD Locker Rooms	Report Page:	NR (Pag
Troject Hame. Or b Locker Hooms	Date Prepared:	2024-11-18T15:49:5
L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY		
This section does not apply to this project.		
M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK	CLIGHTING	
This section does not apply to this project.		
N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED DECORATIVE /SPE	CIAL EFFECTS	
This section does not apply to this project.		
O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE N	MERCHANDISE	
This section does not apply to this project.		
P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT)	STMENT FACTOR (PAE))	
This section does not apply to this project.	onwest the for (FAL)	
Q. RATED POWER REDUCTION COMPLIANCE FOR ONE-FOR-ONE ALT	ERATIONS	
This section does not apply to this project.		
R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPT	TIONS	
This section does not apply to this project.		
S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)		
This section does not apply to this project.		
	Generated Date/Time:	Documentation Software: Energy Co
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance	Report Version: 2022.0.000 Schema Version: rev 20220101	Compliance ID: 228334-112 Report Generated: 2024-11-18 1:

EACH LIGHTING CONTROL INSTALLED TO MEET 130.1 REQUIREMENTS SHALL INCORPORATE THE FUNCTIONS OF OTHER LIGHTING CONTROLS REQUIRED BY THIS

3. MULTILEVEL CONTROL SHALL PERMIT THE AUTOMATIC DAYLIGHTING CONTROL TO ADJUST ELECTRIC LIGHTING IN RESPONSE TO DAYLIGHT.

SHALL PROVIDE A PARTIAL-ON FUNCTION THAT IS CAPABLE OF AUTOMATICALLY ACTIVATING BETWEEN 50-70% OF CONTROLLED LIGHTING POWER.

6. AUTOMATIC DAYLIGHTING CONTROL SHALL PERMIT MULTILEVEL LIGHTING CONTROL TO ADJUST THE LIGHTING LEVEL.

1. FOR GENERAL LIGHTING, MANUAL AREA CONTROL SHALL PERMIT THE LEVEL OF LIGHT PROVIDED WHILE LIGHTING IS ON TO BE SET OR ADJUSTED BY CONTROLS

4. MULTILEVEL CONTROL SHALL PERMIT THE DEMAND RESPONSIVE (DR) CONTROL TO ADJUST LIGHTING DURING A DR EVENT THEN RETURN IT TO THE LEVEL SET BY

7. FOR LIGHTING CONTROLLED BY MULTILEVEL LIGHTING CONTROLS AND OCCUPANT SENSING CONTROLS THAT PROVIDE AUTOMATIC-ON FUNCTION, CONTROLS

9. FOR SPACE CONDITIONING SYSTEM ZONES SERVING ONLY SPACES THAT ARE REQUIRED TO HAVE OCCUPANT SENSING CONTROLS SHALL BE CONTROLLED BY

Indoor Lighting Mandatory Measures:

2. MANUAL AREA CONTROL SHALL PERMIT SHUTOFF CONTROL TO TURN THE LIGHTING DOWN OR OFF.

5 SHUTOFF CONTROL SHALL PERMIT THE MANUAL AREA CONTROL TO TURN THE LIGHTING ON.

130.1(f) CONTROL INTERACTIONS

SPECIFIED IN 130.1(b), (c), (d) and (e).

THE CONTROL AFTER THE EVENT.

OCCUPANCY SENSING CONTROLS.

8. RESERVED

STATE OF CALIFORNIA

CALIFORNIA ENERGY COMMISSION

PAF Lighting Control Credits

140.6(a)2 / 170.2(e)1B

Controls Compliance (See Table H for Details)

(Watts)

2024-11-18T15:49:55-05:00

05 must be >= 08

140.6 / 170.2(e)

COMPLIES

Documentation Software: Energy Code Ace

Compliance ID: 228334-1124-0008

Report Generated: 2024-11-18 12:49:57

Indoor Lighting

CERTIFICATE OF COMPLIANCE

Project Name: CPD Locker Rooms

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27/0/2011/0/00/2011	02 Complete Luminaire	03 Modular	Small	Watts per	How is Wattage	Total Number	Excluded per			ield Inspector			Demand Response 110.12(c)			Shut-off controls 1	5247477	55 93	3	Field Insp Pass
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F1 F2	6" DOWNLIGHT 6" WET LOCATION	No No	NA NA	15.4 15.4	Mfr. Spec	3	No No	308 46.2	_			04	05	06	07	08	09	10	11	12
F3	DOWNLIGHT 20" SEMI-FLUSH LED ED SURFACE MOUNTED	No No	NA NA	37 20	Mfr. Spec Mfr. Spec	3	No No	111 20	1			Area Description	Complete Building or Area Category Primary Function Area	Manual Area Controls 130.1(a) /	Multi-Level Controls 130.1(b) /	Shut-Off Controls 130.1(c) // 160.5(b)4C	Primary/Sky lit Daylighting 130.1(d) /	Daylighting 130.1(d) /	Systems 140.6(a)1/	Field Insp
	8' WALL PERIMETER	No	NA	19.5	Mfr. Spec Total Design	3 ned Watts: CONI	No DITIONED SPACES	58.5 543.7]				3	160.5(b)4A Readily	160.5(b)4B		160.5(b)4D NA: Not	1	170.2(e)2A	Pass
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												VESTIBULE 03	Corridor	Accessible Readily	Dimmer	Occupancy Sensor		daylit zone	No	
	ot apply to this project.											QUIET ROOM 04	Lounge	Accessible Readily	Dimmer	Occupancy Sensor		daylit zone	No	
											_	RESTROOM 05	Restroom	Accessible Readily	Dimmer	Occupancy Sensor	daylit zone	daylit zone	No	
											P	REP / SHOWER AREA 06-09	Locker/Dressing Room	Accessible Readily	Dimmer	Occupancy Sensor		daylit zone	No	
												LOCKER ROOM 10	Locker/Dressing Room	Accessible	Dimmer	Occupancy Sensor		daylit zone	No	
				Genera	ated Date/Time:			Documentatio	n Softwar	e: Energy Code Ace					Generated Da	ate/Time:		С	Ocumentation S	oftware: Energ
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STATE OF CALIFORNIA

CALIFORNIA ENERGY COMMISSION

2024-11-18T15:49:55-05:00

Indoor Lighting

CERTIFICATE OF COMPLIANCE Project Name: CPD Locker Rooms

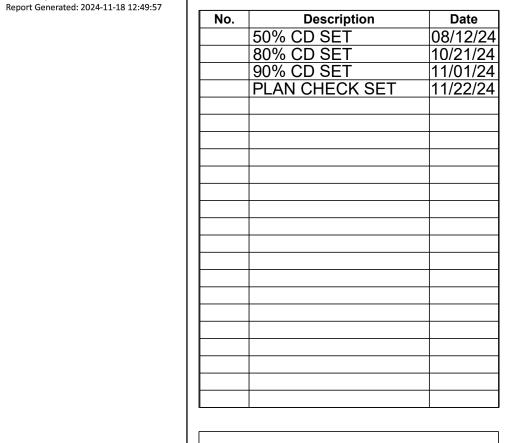


CALIFORNIA ENERGY COMMISSION

(Page 4 of 8) 2024-11-18T15:49:55-05:00

Consulting Electrical Engineers





CLAREMONT PD

CITY OF CLAREMONT

570 W BONITA AVE, CLAREMONT, CA 91711

ENERGY

FORMS Project number 11/22/24 Drawn by

E6.00

NONE

TATE OF CALIFORNIA								
Outdoor Lighting							CALIFORNIA ENEI	RGY COMMISSION
ERTIFICATE OF COMPLIANCE			440.7	0/1/21 5				NRCC-LTO-E
his document is used to demonstrate compli conresidential and hotel/motel occupancies. he prescriptive path for multifamily and mixe	It is also used to	document compliance with red	quirements in 1	60.5, 170.2(e)6, 180.1				
roject Name: CPD Locker Rooms - Exterior	· ·	· · · ·	Report Page:					(Page 1 of 7)
roject Address: 570 W. BONITA AVE, CLAREMO	NT, CA 91711		Date Prepared:				2024-11	-21T19:43:53-05:00
A. GENERAL INFORMATION	Τ.							
01 Project Location (city) 02 Climate Zone	Claremont		04 Total Illui	minated Hardscape Ar	ea (ft²)	240		
Outdoor Lighting Zone per Title 24 Part	1 10.114 or as d	lesignated by Authority Having	Jurisdiction (AF	J):				
☐ LZ-0: Very Low - Undeveloped Parkland		derate - Urban Clusters		n - Must be reviewed	by CA Ene	ergy Comm	nission for Approva	al
LZ-1: Low - Rural Areas	☑ LZ-3: Mod	derately High - Urban Areas						
Occupancy Types within Project								
Office								
. PROJECT SCOPE								
his table includes outdoor lighting systems t	hat are within +I	he scope of the permit applicati	on and are den	nonstratina compliano	e usina th	ne prescrin	tive path outlined	in 140.7 /
70.2(e)6 or 141.0(b)2L / 180.2(b)4Bv for alte						. , 555116		,
Ny Project Consists of:								
01 ☑ New Lighting System		Must Comply with Allowances	from 140 7 / 4	70.2(a)6				
□ New Lighting System □ Altered Lighting System		Is your alteration increasing th	<u> </u>		0	١	res 🔘	No
03		, , , , , , , , , , , , , , , , , , , ,	04	Ç (11235).			05	
% of Existing Luminaires Being Alte	ered ¹	Sum Total of Luminai	res Being Adde	d or Altered		Ca	alculation Method	
\square < 10% \square >= 10% and < 50%	>= 50%							
				xisting Luminaires wit	thin the Sc	cope of the	Permit Application	n) x 100.
		Total of Luminaires Being Adde	d or Altered / E	xisting Luminaires wit	thin the So			
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde	d or Altered / E		thin the Sc		umentation Software	e: Energy Code Ace
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E	00	thin the Sc	Doci	umentation Software	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
Please proceed to Table F. Outdoor Lighting FOOTNOTES: % of Existing Luminaires Being CA Building Energy Efficiency Standards - 2022 No.	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being CA Building Energy Efficiency Standards - 2022 No	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: :	e: Energy Code Ace 232498-1124-0006
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FOOTNOTES: % of Existing Luminaires Being CA Building Energy Efficiency Standards - 2022 No	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	d or Altered / E ed Date/Time: /ersion: 2022.0.0	00	thin the Sc	Doci	umentation Software Compliance ID: 3 Report Generated: 20	e: Energy Code Ace 232498-1124-0006
FOOTNOTES: % of Existing Luminaires Being CA Building Energy Efficiency Standards - 2022 No. STATE OF CALIFORNIA Outdoor Lighting	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	ed Date/Time: /ersion: 2022.0.0 Version: rev 202:	20101	thin the Sc	Doci	umentation Software Compliance ID: 3 deport Generated: 20	e: Energy Code Ace 232498-1124-0006 024-11-21 16:43:56 RERGY COMMISSION NRCC-LTO-E (Page 5 of 7)
FOOTNOTES: % of Existing Luminaires Being CA Building Energy Efficiency Standards - 2022 No STATE OF CALIFORNIA Outdoor Lighting CERTIFICATE OF COMPLIANCE	Altered = (Sum	Total of Luminaires Being Adde Generat Appliance Report N	ed Date/Time: /ersion: 2022.0.0 Version: rev 202:	20101	thin the Sc	Doci	umentation Software Compliance ID: 3 deport Generated: 20	e: Energy Code Ace 232498-1124-0006 024-11-21 16:43:56 RERGY COMMISSION NRCC-LTO-E
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STATE OF CALIFORNIA Outdoor Lighting CERTIFICATE OF COMPLIANCE Project Name: CPD Locker Rooms - Exterior	onresidential Com	Generat spliance Report N Schema	ed Date/Time: /ersion: 2022.0.0 Version: rev 202:	20101	thin the Sc	Doci	umentation Software Compliance ID: 3 deport Generated: 20	e: Energy Code Ace 232498-1124-0006 024-11-21 16:43:56 RERGY COMMISSION NRCC-LTO-E (Page 5 of 7)
CA Building Energy Efficiency Standards - 2022 No STATE OF CALIFORNIA Outdoor Lighting CERTIFICATE OF COMPLIANCE Project Name: CPD Locker Rooms - Exterior I. LIGHTING POWER ALLOWANCE (per	onresidential Com	Generation of Luminaires Being Adde Generation of Schema Schema	ed Date/Time: /ersion: 2022.0.0 Version: rev 202:	20101		Doci	umentation Software Compliance ID: 3 deport Generated: 20	e: Energy Code Ace 232498-1124-0006 024-11-21 16:43:56 RERGY COMMISSION NRCC-LTO-E (Page 5 of 7)
CA Building Energy Efficiency Standards - 2022 No. STATE OF CALIFORNIA Outdoor Lighting CERTIFICATE OF COMPLIANCE Project Name: CPD Locker Rooms - Exterior I. LIGHTING POWER ALLOWANCE (per 17) This table includes areas using allowance collinates the colling and content to the colling and	nAltered = (Sum onresidential Com onesidential Com onesidential Com onesidential Com onesidential Com onesidential Com onesidential Com	Generat Schema Poliance Report Schema Comparison of the Comparis	ed Date/Time: /ersion: 2022.0.0 Version: rev 202:	00 20101		Doctor R	umentation Software Compliance ID: 3 deport Generated: 20	e: Energy Code Ace 232498-1124-0006 024-11-21 16:43:56 RERGY COMMISSION NRCC-LTO-E (Page 5 of 7) 11-21T19:43:53-05:00
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CA Building Energy Efficiency Standards - 2022 No. STATE OF CALIFORNIA Outdoor Lighting CERTIFICATE OF COMPLIANCE Project Name: CPD Locker Rooms - Exterior I. LIGHTING POWER ALLOWANCE (per 17) This table includes areas using allowance collinated the colling of the colling and the	Altered = (Sum onresidential Com cliculations per 1 Table 170.2-R wi 0.2-S. Indicate wi inaires that qua ther "Use it or la	Generat appliance Report V Schema 40.7 / 170.2(e). General hile "Use it or lose it" which allowances are being lify for one of the "Use it or lose it" ose it" allowance.	ed Date/Time: /ersion: 2022.0.0 Version: rev 202:	00 20101	·" Allowan	Doci	umentation Software Compliance ID: 3 deport Generated: 20 CALIFORNIA EN 2024-	e: Energy Code Ace 232498-1124-0006 024-11-21 16:43:56 RERGY COMMISSION NRCC-LTO-E (Page 5 of 7) 11-21T19:43:53-05:00

Outdoor Lighting CERTIFICATE OF COMPLIANCE Project Name: CPD Locker Rooms - Exterior	Report Page:	CALIFORNIA ENERGY COMMISSIO
Outdoor Lighting CERTIFICATE OF COMPLIANCE	Report Page:	
CERTIFICATE OF COMPLIANCE	Report Page:	
	Report Page:	NRCC-ITO
Project Name: CPD Locker Rooms - Exterior	Report Page:	MICC LIO
		(Page 6 of
	Date Prepared:	2024-11-21T19:43:53-05:0
M. LIGHTING ALLOWANCE: PER SPECIFIC AREA		
This section does not apply to this project.		
N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)		
This section does not apply to this project.		
O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION		
Selections have been made based on information provided in this document. If any sele		n should be included in Table E.
Additional Remarks. These documents must be provided to the building inspector durin	g construction and can be found online	
	Form/Title	
NRCI-LTO-E - Must be submitted for all buildings		
P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE		
Selections have been made based on information provided in this document. If any sele	ection has been changed by permit applicant, an explanation	n should be included in Table E.
Additional Remarks. These documents must be provided to the building inspector durin		
Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/p		-
Form/Title		Systems/Spaces To Be Field Verified
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterati		(E)

Generated Date/Time:

Report Version: 2022.0.000

Schema Version: rev 20220101

Results in this table are automatically calculated from data input and calculations in Tables F through N. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refe

Per Specific

Area

140.7(d)2/

170.2(e)6

(See Table M)

Generated Date/Time:

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Schema Version: rev 20220101

Existing Power

Allowance

141.0(b)2L/

180.2(b)4Bv

(See Table N)

Total Allowed

(Watts)

STATE OF CALIFORNIA

General Hardscape

Allowance

140.7(d)1 / 170.2(e)6 (See Table I)

Total General

Documentation Software: Energy Code Ace

Compliance ID: 232498-1124-0006

Report Generated: 2024-11-21 16:43:56

(Watts)

uminated Area Allowed Density Area Allowance Perimeter Length Allowed Density Linear Allowance AWA + LWA

Instances of Initial Wattage Allowance (LZ 0 only)1

Total General Hardscape Allowance (Watts): 271.04

240 0.021 5.04 80 0.2 16 21.04

(ft²) (W/ft²) (Watts) (If) (W/If) (Watts)

Generated Date/Time:

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Schema Version: rev 20220101

Area Description

HARDSCAPE

J. LIGHTING ALLOWANCE: PER APPLICATION This section does not apply to this project.

K. LIGHTING ALLOWANCE: SALES FRONTAGE This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL This section does not apply to this project.

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

Outdoor Lighting

CERTIFICATE OF COMPLIANCE

C. COMPLIANCE RESULTS

D. EXCEPTIONAL CONDITIONS

E. ADDITIONAL REMARKS

Project Name: CPD Locker Rooms - Exterior

Application

140.7(d)2 / 170.2(e)6

(See Table J)

to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Frontage

140.7(d)2

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

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

Calculations of Total Allowed Lighting Power (Watts) 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv

(See Table K) (See Table L)

140.7(d)2/

170.2(e)6

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

Shielding Compliance (See Table G for Details

Controls Compliance (See Table H for Detail

CERTIFICATE OF COMPLIANCE	
Project Name: CPD Locker Rooms - Exterior	Report Page:
Project Address: 570 W. BONITA AVE, CLAREMONT, CA 91711	Date Prepared: 2024-11-21
DOCUMENTATION AUTHOR'S DECLARATION STATEMEN	т
certify that this Certificate of Compliance documentat	ion is accurate and complete.
Occumentation Author Name:	Documentation Author Signature:
ulio Moreno	Ile Vocar
company: RBE Consulting Electrical Engineers	Signature Date: 2024.11.18
Address: 3016 E. Colorado Blvd. #5249	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Pasadena/CA/91107	Phone: (818)427-3586
RESPONSIBLE PERSON'S DECLARATION STATEMENT	•
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.
	e to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
 The energy features and performance specifications, materials, co of Title 24, Part 1 and Part 6 of the California Code of Regulations 	omponents, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to
· · · · · · · · · · · · · · · · · · ·	on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets
plans and specifications submitted to the enforcement agency for	
inspections. I understand that a completed signed copy of this Ce	ompliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for rtificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.
tesponsible Designer Name: Annette Malekandrasians	Responsible Designer Signature: A.M. Sudaessicae
<u> </u>	Date Signed: 2024.11.18
Company: RBE Consulting Engineers	Sate Signed 202 1.11.10
<u> </u>	License: E 21589 Phone: (818) 207–0088

Generated Date/Time:

Report Version: 2022.0.000

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For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)6 all new luminaires being installed and any existing luminaires remaining or being moved within

the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)2L only new luminaires being

installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included).

Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor

Luminaires ² Status³

Wattage

Mfr. Spec

Mfr. Spec

3 Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain"

for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of

Generated Date/Time:

Report Version: 2022.0.000

Schema Version: rev 20220101

² For linear luminaires, wattage should be indicated as W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.

STATE OF CALIFORNIA

Name or Item

the project scope.

CALIFORNIA ENERGY COMMISSION

07 must be >= 08

Documentation Software: Energy Code Ace

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Documentation Software: Energy Code Ace

Compliance ID: 232498-1124-0006

Report Generated: 2024-11-21 16:43:56

Total Actual

= 271.04 ≥ 72 COMPLIES

Outdoor Lighting

CERTIFICATE OF COMPLIANCE

Project Name: CPD Locker Rooms - Exterior

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

Complete Luminaire Description

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.

 1 FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b)

4 Compliance with mandatory shielding requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by 130.2(b)/160.5(c)

SURFACE MOUNTED SQUARE I.

CANOPY LED

LED Bollard

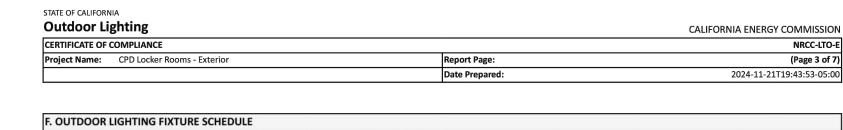
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

EX: Luminaire is lighting a statue; EXCEPTION 2 to 130.2(b)

G. SHIELDING REQUIREMENTS (BUG)

This section does not apply to this project.



For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)6 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor

lighting is inclu	ided here.	-			-						
Designed Watt	tage:										
01 02			03	03 04 05 06		06	07	08	09	1	0
Name or Item	Complete Luminaire De	escription	Watts per	How is Wattage	Total Number	Luminaire	Excluded per 140.7(a) / 170.2(e)6A	Design Watts	Cutoff Req. > 6,200 initial lumen output	Fie Inspe	eld ector
Tag		* >>	luminaire ^{1, 2}	determined	Luminaires ²	Status ³			130.2(b) / 160.5(c)1 ⁴	Pass	Fai
F4	SURFACE MOUNTED SQUARE CANOPY LED	☐ Linear	20	Mfr. Spec	3	New		60	NA: < 6200 lumens		
F7	LED Bollard	Linear	12	Mfr. Spec	1	New		12	NA: < 6200 lumens		
						Tota	l Design Watts:	72			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved. EX: Luminaire is lighting a statue; EXCEPTION 2 to 130.2(b)

⁴ Compliance with mandatory shielding requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by 130.2(b)/ 160.5(c)

¹FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b) ² For linear luminaires, wattage should be indicated as W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires. ³ Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of

G. SHIELDING REQUIREMENTS (BUG) his section does not apply to this project.

the project scope.

CALIFORNIA ENERGY COMMISSION

6,200 initial Inspector

130.2(b)/

160.5(c)14

lumens

lumens

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Documentation Software: Energy Code Ace

Compliance ID: 232498-1124-0006

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140.7(a) / Design Watts lumen output —

12

170.2(e)6A

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CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance	Report Version: 2022.0.000 Schema Version: rev 20220101	Compliance ID: 232498-1124- Report Generated: 2024-11-21 16:4

Outdoor Lighting Mandatory Measures:

HOURS)

110.9 OUTDOOR LIGHTING CONTROLS AND COMPONENTS ALL LIGHTING CONTROL DEVICES AND SYSTEMS, AND ALL LIGHT SOURCES SHALL MEET THE APPLICABLE REQUIREMENTS OF 110.9.

130.0 GENERAL LUMINAIRE REQUIREMENTS

ALL LUMINAIRES SHALL BE FACTORY-LABELLED PER 130.0(c).

ENERGY MANAGEMENT CONTROL SYSTEMS (EMCS) SHALL MEET REQUIREMENTS OF 130.0(e). 130.2(c) CONTROLS FOR OUTDOOR LIGHTING

ALL OUTDOOR LIGHTING SHALL BE INDEPENDENTLY CONTROLLED FROM OTHER ELECTRICAL LOADS AND SHALL HAVE THE FOLLOWING FEATURES:

1. AUTOMATICALLY TURNS OFF OUTDOOR LIGHTING WHEN DAYLIGHT IS AVAILABLE 2. AUTOMATIC SCHEDULING CONTROLS

A. AUTOMATIC SCHEDULING CONTROLS SHALL BE INSTALLED FOR ALL OUTDOOR LIGHTING. B. CAPABLE OF REDUCING LIGHTING POWER AT LEAST 50% AND NO MORE THAN 90% AND SEPARATELY CAPABLE OF TURNING LIGHTING OFF DURING . THAT ALLOW SCHEDULING OF AT LEAST TWO NIGHTTIME PERIODS WITH INDEPENDENT LIGHTING LEVELS (MAY INCLUDE OVERRIDE FOR NO MORE THAN 2

ARCHITECTURE Jen Dunbar, AIA phone: 310.435.3928 2314 La Maida Street /alley Village, CA 91607 n@dunbararchitecture.con

Consulting Electrical Engineers 3016 E Colorado Blvd #5249 Pasadena . Ca . 91107 626.831.2449





CLAREMONT PD

CITY OF CLAREMONT

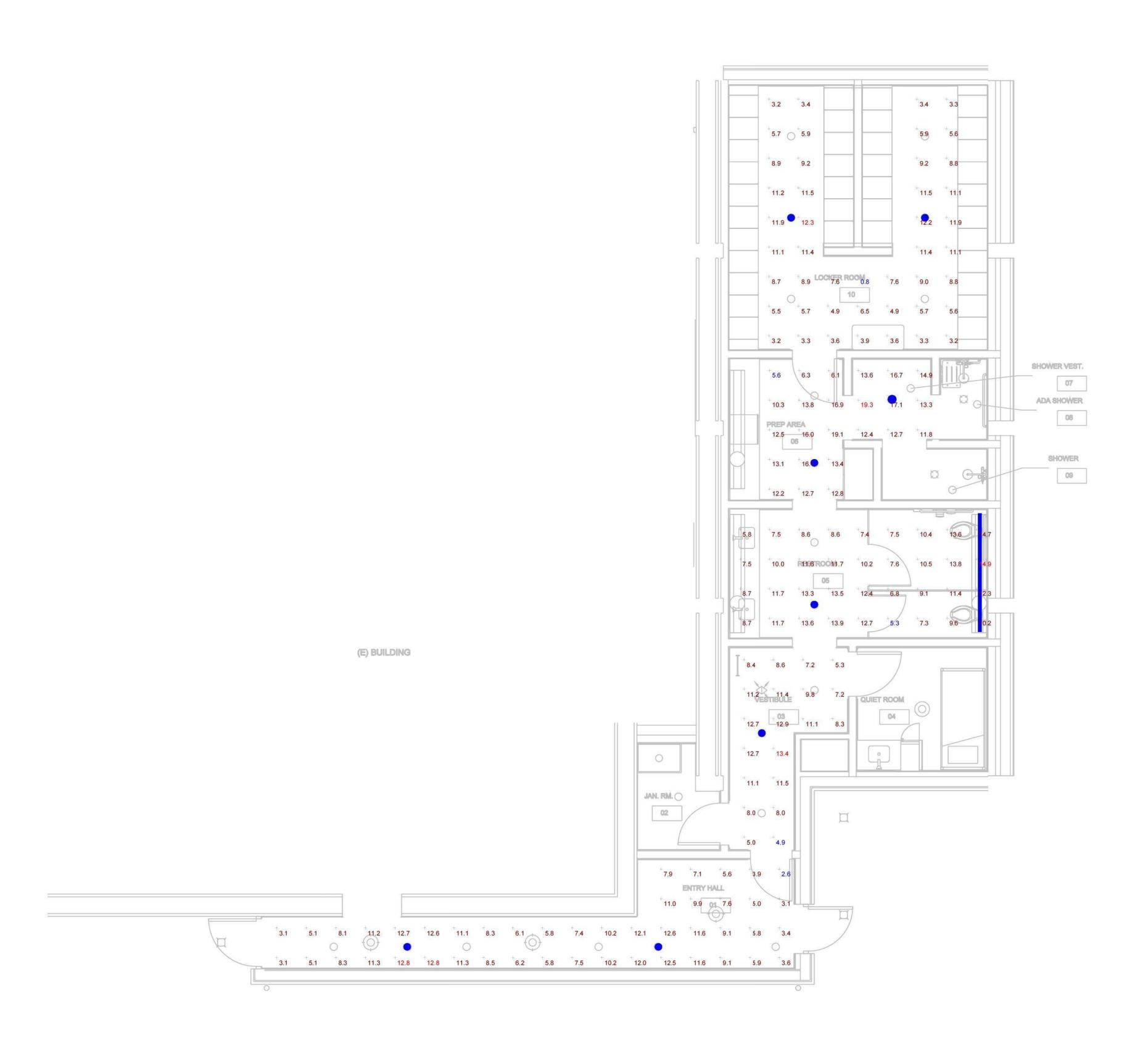
570 W BONITA AVE, CLAREMONT, CA 91711

ENERGY COMPLIANCE **FORMS**

11/22/24 Drawn by

E6.01

NONE



Schedu	Schedule												
Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power			
	F1		7	LIGHTOLIER BY SIGNIFY	M6RDL159CSWCD- 3500K	MODULYTE 6IN RND DL 1500LM 90 CRI WID CD FINISH 3500K	1	1683	0.92	15.4			
8	F2	Ċ	1	LIGHTOLIER BY SIGNIFY	M6RDL159CSWCD- 3500K	MODULYTE 6IN RND DL 1500LM 90 CRI WID CD FINISH 3500K	1	1683	0.92	15.4			
	F6		2	SIGNIFY - LANGLEY CA	4908L93515Qxx04	LEDALITE - TRUGROOVE PERIMETER	88	17	0.92	13.7			

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
LOCKER ROOM 10	+	7.2 fc	12.3 fc	0.8 fc	15.4:1	9.0:1
PREP AREA 08	+	13.3 fc	19.3 fc	5.6 fc	3.4:1	2.4:1
RESTROOM 05	+	10.4 fc	14.9 fc	5.3 fc	2.8:1	2.0:1
VESTIBULE 03	+	9.4 fc	13.4 fc	4.9 fc	2.7:1	1.9:1
ENTRY HALL 01	+	8.2 fc	12.8 fc	2.6 fc	4.9:1	3.2:1

LUMINAIRE SCHEDULE

GENERAL NOTES:

1 CONFIRM ALL FINISHES AND CEILING MOUNTING TYPE WITH ARCHITECT PRIOR TO RELEASING ORDER.

2 PROVIDE UNIFORM DIMMING.
3 SPARE DIFFUSERS AND LENSES: FURNISH AT LEAST 1 OF EACH TYPE.
4 SPARE DRIVER: FURNISH AT LEAST 1 OF EACH TYPE.

TYPE	DESCRIPTION	LAMP	VOLTAGE	MANUFACTURER	REMARKS					
F1	6" LED ROUND RECESSED DOWNLIGHT WITH WIDE BEAM, COMFORT CLEAR DIFFUSE REFLECTOR AND WHITE FLANGE.	1500 LUMEN LED 80CRI 3500°K 15.4 WATTS	MVOLT	LIGHTOLIER: MODULYTE M6R PRESCOLITE: LITEFRAME 2.0 OPUS: RONDO RB6	PROVIDE 0-10V DIMMING DRIVER WITH DIMMING DOWN TO 10%.					
F2	6" LED ROUND RECESSED WET LOCATION DOWNLIGHT WITH WIDE BEAM, COMFORT CLEAR DIFFUSE REFLECTOR AND WHITE FLANGE.	1500 LUMEN LED 80CRI 3500°K 15.4 WATTS	MVOLT	LIGHTOLIER: MODULYTE M6R PRESCOLITE: LITEFRAME 2.0 OPUS: RONDO RB6	PROVIDE 0-10V DIMMING DRIVER WITH DIMMING DOWN TO 10%.					
F3	20" TRIMLESS ROUND LED SEMI-FLUSHED WITH 2" STEM MOUNTED WITH FABRIC SHADE AND POLYCARBONATE DIFFUSER.	2873 LUMENS LED 80CRI 2700°K 37 WATTS	MVOLT	WAC LIGHTING: MANHATTAN SEMI-FLUSH SERIES BROWNLEE LIGHTING: BOOST 2600 SERIES	PROVIDE 0-10V DIMMING DRIVER WITH DIMMING DOWN TO 10%.					
F4	LED SQUARE CANOPY LIGHTING FIXTURE.	2340 LUMENS LED 80CRI 3500°K 20 WATTS	MVOLT	ALEO LED LIGHTING: LCP SERIES BEACON: LUMASQUARE ZUMTOBEL: PERLUCE						
F5	13" ROUND LED SURFACE MOUNTED LIGHTING FIXTURE AND WHITE FINISH.	1600 LUMEN LED 80CRI 2700°K 20 WATTS	MVOLT	WAC LIGHTING: BLO SERIES VISTOSI: SABA PL 30 BROWNLEE LIGHTING: SPIN 2601 SERIES	PROVIDE 0-10V DIMMING DRIVER WITH DIMMING DOWN TO 10%.					
F6	8' RECESSED WALL PERIMETER LED LIGHTING FIXTURE WITH 6" REGRESSED LENS, AMBIENT DISTRIBUTION, STANDARD HOUSING, AND WHITE FINISH.	1500LM/4FT LED 80CRI 3500°K 13.7W/4FT	MVOLT	LEDALITE: TRUGROOVE PERIMETER PRUDENTIAL LTG: BIONICPRO4 LUMENWERX: VIA 3 PERIMETER	PROVIDE 0-10V DIMMING DRIVER WITH DIMMING DOWN TO 10%.					
F7	3' EXTERIOR LED BOLLARD LIGHTING FIXTURE.	172 LUMENS LED 80CRI 3500°K 12 WATTS	MVOLT	DESIGNPLAN: KLAK SERIES						
EXIT	RECESSED MOUNTED EDGE-LIT EXIT SIGN WITH BRUSHED ALUMINUM HOUSING, GREEN ON MIRROR LETTERS AND WIRED ON 2 SEPARATE AC CIRCUITS. COORDINATE WITH PLANS FOR NUMBER OF FACES AND CHEVRONS REQUIRED.	2.2 WATTS	120	LITHONIA: EDGR SERIES CHLORIDE BY SIGNIFY: 45V SERIES						



RBE

Consulting Electrical Engineers

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No.	Description	Dat
	50% CD SET	08/12
	80% CD SET	10/21
	90% CD SET	11/01
	PLAN CHECK SET	11/22
-		

CLAREMONT PD ADDITION

CITY OF CLAREMONT

570 W BONITA AVE, CLAREMONT, CA 91711

EGRESS
CALCULATION AND
FIXTURE SCHEDULE

 Project number
 17668

 Date
 11/22/24

 Drawn by
 DS

E7.00

ale NONE