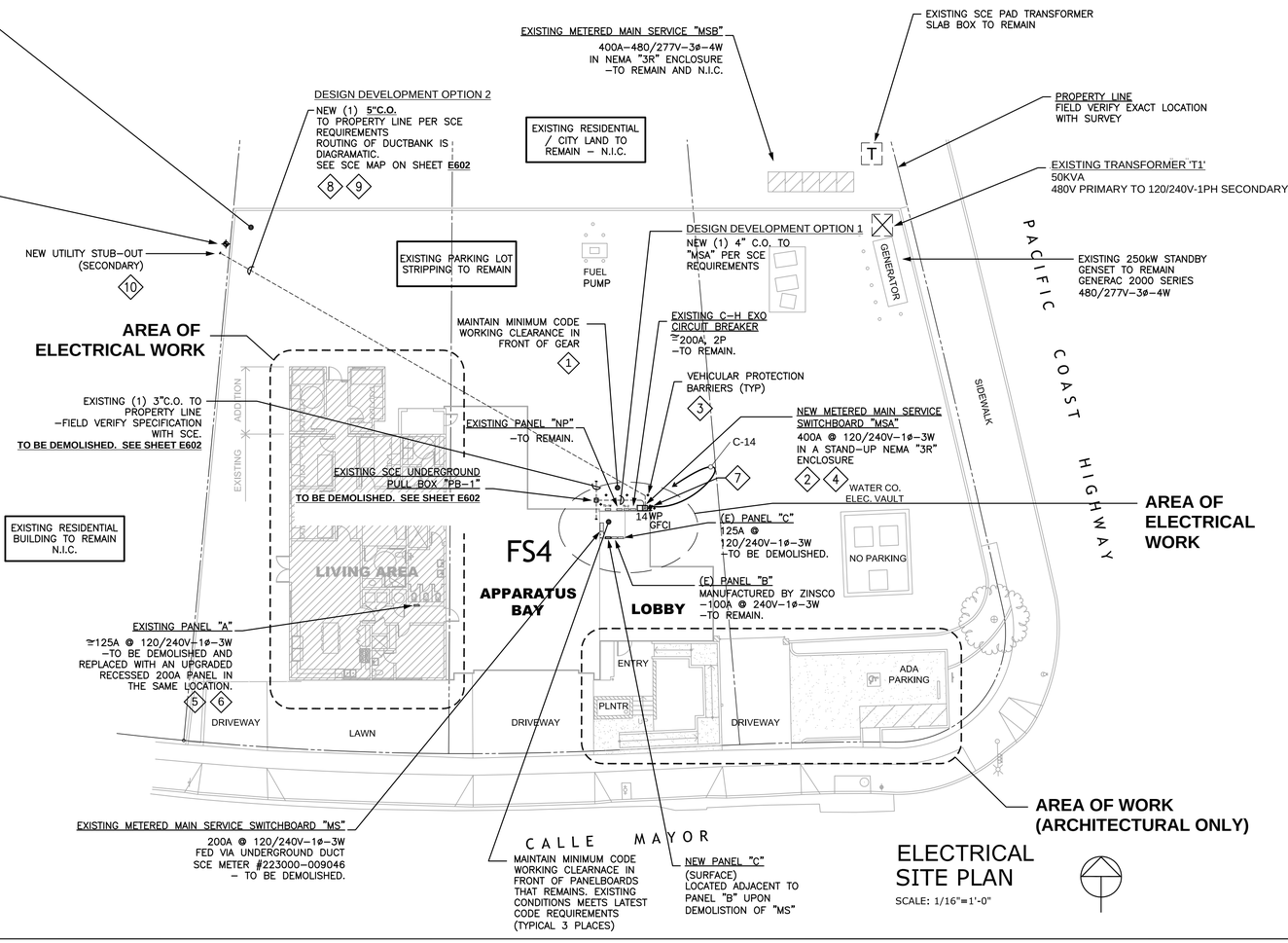
ELECTRICAL SCOPE OF WORK

PROPOSED ELECTRICAL SERVICE UPGRADE OF AN EXSITNG SINGLE STORY COMMERCIAL STRUCTURE OF APPROXIMATELY 4,500 SF WITH ON GRADE PARKING. AN EXPANSION FOR DORMITORIES IS PROPOSED INCREASING THE NEW BUILDING TOTAL TO 4,825 SF.

THE EXISTING STANDBY GENERATOR SET SYSTEM SHALL REMAIN. SPARE CAPACITY IS AVAILABLE FOR THE MINOR INCREASE IN CONNECTED LOADS.

THE EXISTING MANUAL OFF-SITE GENERATOR SET SYSTEM SHALL RAMIN AND BE SIZED TO INCLUDE NEW AND EXISTING MECHANICAL SYSTEM LOADS.



ELECTRICAL SITE PLAN

SCALE: 1/16"=1'-0"

UTILITY SERVICE COORDINATION

	POWER
NAME	JESUS FERNANDO FERNANDEZ "JESSE"
COMPANY	SCE SERVICE PLANNER
ADDRESS	SOUTH BAY DISTRICT
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CONTRACTOR TO CONTACT ABOVE REPRESENTATIVE TO CONFIRM EXISTING UTILITY SERVICE ARRANGEMENTS AND SCHEDULE TEMPORARY AND PERMENANT SERVICE CONDITION.

SITE PLAN REFERENCE NOTES:

1. MAINTAIN MINIMUM CODE REQUIRED WORKING SPACE CLEARANCE OF 3'–0" ABOUT ELECTRICAL EQUIPMENT PER NEC ARTICLE 110.26.
2. PROVIDE AND INSTALL A CONCRETE HOUSEKEEPING PAD FOR THE MAIN SERVICE SWITCHGEAR. HEIGHT OF PAD TO BE FIELD VERIFIED TO ALLOW TOP EXIT OF FEEDERS AND BRANCH CIRCUITS AND MEET ALL NEC 110.26 REQUIREMENTS. SEE SHEET E302 FOR DETAILS.
3. PROVIDE AND INSTALL VEHICULAR PROTECTION BARRIERS AROUND 3 SIDES OF THE NEW MAIN SERVICE SWITCHGEAR PER DWP REQUIREMENTS. MAINTAIN SPACING REQUIREMENTS PER SCE CONSTRUCTION STANDARDS.
4. FIELD VERIFY ALL REQUIREMENTS OF NEW SERVICE WITH SCE AND THE AHJ PRIOR TO START OF CONSTRUCTION AND INSTALLATION OF NEW WORK. REPORT ANY NEW FINDINGS TO ENGINEER OF RECORD. EXISTING SERVICE TO REMAIN ENERGIZED WHILE NEW SERVICE IS BEING INSTALLED. CONTRACTOR TO COORDINATE SWITCH OVER WITH OWNER'S REP, CITY AND UTILITY COMPANY TO MINIMIZE DOWNTIME.
5. THE EXISTING SINGLE PHASE SERVICE METERING COMPARTMENT AND ZINSCO SWITCHBOARD ARE TO BE DEMOLISHED, INCLUDING EXISTING FEEDER CONDUIT. FIELD VERIFY ANY EXISTING CIRCUITS TO REMAIN AND REPORT TO ENGINEER OF RECORD PRIOR TO ROUGH–IN SO THAT CIRCUITS CAN BE ROUTED TO NEW 1–PHASE 3–WIRE POWER DISTRIBUTION SYSTEM.
6. CONTRACTOR SHALL CONTACT UTILITY COMPANY TO REMOVE EXISTING METER SOCKET AND DISCONNECT THE UTILITY METERING.
7. PROVIDE AND INSTALL A RECEPTACLE AND ENCLOSURE THAT IS WEATHERPROOF AND IS LISTED AS "EXTRA DUTY". THE RECEPTACLE SHALL BE LISTED AS WEATHER RESISTANT TYPE WITH INTEGRAL GFCI PROTECTION. LOCATION SHALL BE WITHIN 50' OF ALL ELECTRICAL SERVICE EQUIPMENT.
8. CONFIRM SIZE AND NUMBER OF UTILITY CONDUITS WITH RESPECTIVE UTILITY COMPANY REPRESENTATIVE PRIOR TO INSTALLATION. SEE SHEET E600 FOR ADDITIONAL REQUIREMENTS.
9. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ALL EXISTING UNDERGROUND CONDUITS, UTILITES AND LINES PRIOR TO ANY WORK. SEE DEMOLITION NOTES ON SHEET E200 FOR REQUIREMENTS TO MAINTAIN CIRCUIT CONTINUITY TO ALL EXISTING BRANCH CIRCUITS THAT ARE TO REMAIN. CONTACT DIG ALERT PER SCE AND CITY REQUIREMENTS FOR FIELD MARKING.
10. PROVIDE AND INSTALL A NEW RACEWAY PER SCE REQUIREMENTS WITH A STUB OUT OF UTILITY CONDUIT +24" PAST PROPERTY LINE. CONFIRM INDICATED POINT OF CONNECTION (POC) WITH SCE PRIOR TO BID. CONFIRM FINAL LOCATION AND ROUTING WITH SERVICE PLANNER PRIOR TO TRENCHING. SEE UTILITY COMPANY CONSTRUCTION DOCUMENTS.

SHEET INDEX

E ENGINEERS
CONSULTING ELECTRICAL ENGINEERS
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REGISTERED PROFESSIONAL ENGINEER
ERIC P. PERCIC
E 16773
EXP. 9-30-22
ELECTRICAL
STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
1	06.02.21	ISSUED FOR REVIEW
	08.31.21	ISSUED FOR PLAN CHECK

PROJECT NO: 21-108

DRAWN BY: E ENGINEERS CHECKED BY: EP

PROJECT MANAGER: EP

DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:

ELECTRICAL SITE PLAN

SHEET NO: E100

21-108_FS4 RENOVATION

GENERAL NOTES

1. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR ALL THE EQUIPMENT DESCRIBED OR SHOWN AS BEING IN THIS CONTRACT. FURNISH ALL LABOR AND TOOLS NECESSARY TO INSTALL ALL APPARATUS, MATERIALS AND EQUIPMENT IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, COUPLINGS, HANGERS, BRACKETS, CLAMPS, BOXES, CONNECTORS AND HARDWARE. REFER ALSO TO WRITTEN SPECIFICATIONS FOR GENERAL, MECHANICAL AND ELECTRICAL SECTIONS.
2. PROCURE ALL PERMITS FROM LEGALLY CONSTITUTED AUTHORITIES, ARRANGE FOR ALL INSPECTIONS AND PAY ALL COSTS FOR FEES AND TESTS IN CONNECTION THEREWITH. COMPLY WITH CALIFORNIA BUILDING CODES: NOTHING IN THESE PLANS AUTHORIZES DEVIATION FROM APPLICABLE CODES.
3. DETERMINE EXACT ROUTING OF CONCEALED FEEDERS AND BRANCH HOMERUNS IN COOPERATION WITH OTHER TRADES TO SIMPLIFY INSTALLATION WHEREVER POSSIBLE BUT SUBJECT TO APPROVAL OF ARCHITECT FOR VISUAL AND STRUCTURAL REASONS.
4. PROVIDE A CODE APPROVED DISCONNECT SWITCH OR BREAKER WITHIN SIGHT OF EVERY MOTOR AND FEED MOTORS NOT EQUIPPED WITH "BUILT IN" PROTECTION THROUGH A MAGNETIC OR MANUAL STARTER WITH OVERLOAD HEATERS SIZED TO COMPLY WITH MOTOR MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE CODES.
5. FOR CONNECTIONS TO EXHAUST FANS, PUMPS, COMPRESSORS, SPACE HEATERS, WATER HEATERS, AQUASTATS, SOLENOID VALVES AND OTHER MECHANICAL EQUIPMENT AND FOR CONDUITS AND WIRE REQUIRED, BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS, REFER TO MECHANICAL PLANS AND DETERMINE EXACT LOCATIONS UNDER DIRECTION OF THE MECHANICAL CONTRACTOR.
6. DO NOT RUN ANY CONDUIT IN SLAB IF ITS OUTSIDE DIAMETER EXCEEDS 1/3 THE THICKNESS OF THE SLAB. LOCATE CONDUITS WITHIN THE MIDDLE OF THE SLAB. WHERE CONDUITS ARE GROUPED IN PARALLEL RUNS, SPACE THEM 3" OR MORE APART. WHERE CONDUITS CROSS EACH OTHER, THICKEN SLAB PROPORTIONATELY OVER A HORIZONTAL AREA EQUAL TO TEN TIMES THE DIAMETER OF THE LARGEST CONDUIT. REFER ALSO TO DETAILS SHOWN.
7. FOR CIRCUITS FED THROUGH FLUORESCENT FIXTURE CHANNELS AND FEEDS TO RECESSED INCANDESCENT FIXTURES, USE INSULATED WIRE OF MINIMUM 90 DEG. CELSIUS RATING.
8. IN EACH CONDUIT WITHOUT CONDUCTORS, PROVIDE ONE #12 TW COPPER PULL–WIRE WITH A TAG IDENTIFYING LOCATION OF OPPOSITE END.
9. SIZE OUTLET BOXES IN CONFORMITY WITH CODE FOR NUMBER AND GAUGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER. MINIMUM BOX SIZE SHALL BE 4" SQUARE BY 1–1/2" DEEP. OUTLET BOXES ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY A HORIZONTAL DISTANCE OF 24".
10. EXAMINE PLANS TO DISCERN CEILINGS WITH A FIRE RATING OF ONE HOUR OR MORE. PROVIDE A ONE–HOUR FIRE–RATED ENCLOSURE OVER EACH LIGHT FIXTURE RECESSED THEREIN.
11. AT THE TIME OF DESIGN UTILITY REQUIREMENTS HAVE NOT BEEN FINALLY CONFIRMED. MAKE FULL ALLOWANCE IN BID FOR ALL SERVICE COSTS LEVIED BY UTILITIES, INCLUDING CABLE COSTS AND ALL CONTINGENCIES NECESSARY TO COVER COSTS OF FINAL SERVICE CONNECTIONS AS REQUIRED. HANDLE ALL ARRANGEMENTS AND COSTS FOR TEMPORARY CONSTRUCTION POWER WHETHER FROM PORTABLE GENERATOR OR UTILITY COMPANY UNLESS OTHERWISE DESCRIBED IN "SPECIAL CONDITIONS".
12. NO PIPING, DUCTS, OR EQUIPMENT FOREIGN TO ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED, ENTER OR PASS THROUGH OR ABOVE THE REQUIRED WORK SPACE OF THE ELECTRICAL EQUIPMENT.
13. 'EXIT' SIGNS SHALL NOT BE USED AS JUNCTION BOXES. PROVIDE A SEPARATE J–BOX AT EACH "EXIT" SIGN LOCATION FOR MOUNTING PURPOSES AND FOR 'THROUGH' & SIGN 'PIGTAIL WIRING.
14. ANY POWER OUTAGES SHALL BE APPROVED BY THE USER OF THE FACILITY. A FORTY-EIGHT HOUR WRITTEN NOTICE SHALL BE GIVEN FOR ANY OUTAGE REQUEST.
15. VERIFY EXACT LOCATION OF OUTLETS, SWITCHES, EQUIPMENT, ETC WITH PROJECT MANAGER PRIOR TO INSTALLATION. OWNER RESERVES THE RIGHT TO RELOCATE ANY UNINSTALLED OUTLET IN ANY DIRECTION (10'–0" MAXIMUM) WITHOUT CHANGE IN CONTRACT PRICE PRIOR TO INSTALLATION.
16. ALL LINE VOLTAGE WIRING SHALL BE MINIMUM #12 CU THHN/THWN. ALL NEW WIRING SHALL BE COPPER WITH "THHN" OR "THWN" 600–VOLT INSULATION. COLOR CODE ALL BRANCH CIRCUIT WIRING.
17. ELECTRICAL BOXES OR FITTINGS SHALL BE FLUSH WITH FINISH SURFACE OR RECESSED NO MORE THAN 1/4 INCH IN NON–COMBUSTIBLE WALLS OR CEILING.
18. ALL OUTLETS & DEVICES SHALL BE FLUSH WITH WALL, UNLESS OTHERWISE NOTED AS SURFACE MOUNTED.
19. CONTRACTOR SHALL CORE DRILL, SAW CUT, PATCH TO MATCH ADJACENT SURFACES, AND PAINT ALL EXPOSED CONDUITS & BOXES TO MATCH ROOM FINISH.
20. ALL SWITCHES SHALL BE INSTALLED LESS THAN 48" ABOVE FINISH FLOOR. ALL RECEPTACLES SHALL BE INSTALLED NO LOWER THAN 15" A.F.F.
21. PIPES, CONDUITS AND DUCTS SHALL NOT PENETRATE INTO OR THROUGH STAIRWELL OR STAIR VESTIBULE EXIT ENCLOSURE PER U.B.C. 1005.3.3.5.
22. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED BY A CITY OF TORRANCE RECOGNIZED TESTING LABORATORY OR APPROVED BY THE BUILDING DEPARTMENT.
23. ALL WORK TO COMPLY WITH **2019** CALIFORNIA ELECTRICAL CODE.
24. PROVIDE U.L. LISTED GFI EQUIPMENT AND INSURE PROPER OPERATION PER CEC 110.10

CONTRACTOR NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL APPLICABLE SAFETY LAWS ARE STRICTLY ENFORCED AND TO MAINTAIN A SAFE CONSTRUCTION PROJECT.
2. THE CONTRACTOR SHALL REPAIR AND/OR REPAINT ALL AREAS DAMAGED BY CONSTRUCTION AND FINISH TO MATCH EXISTING ADJACENT SURFACES.
3. THE CONTRACTOR SHALL SUBMIT "AS BUILT" DRAWINGS UPON COMPLETION OF CONSTRUCTION.
4. DAILY AND UPON COMPLETION OF WORK, CONTRACTOR SHALL REMOVE DEBRIS, RUBBISH, WASTE, AND SURPLUS MATERIAL FROM PREMISES.
5. THE CONTRACTOR SHALL PROTECT AND COVER ALL FIXTURES AND EQUIPMENT IN AREAS AFFECTED BY WORK AND UPON COMPLETION OF WORK SHALL THOROUGHLY CLEAN ALL FIXTURES, EQUIPMENT, WALLS, CEILING, FLOOR AND HARDWIRE.

ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION

ALL ELECTRICAL WORK SHALL BE DESIGNED PER (LOCAL AHJ) ELECTRICAL CODE, 2019 CALIFORNIA ELECTRICAL CODE, 2017 NATIONAL ELECTRICAL CODE, AND 2019 BUILDING ENERGY EFFICIENCY STANDARDS

ELECTRICAL SYMBOLS LIST

SYMBOLS REPRESENT EQUIPMENT & OUTLET BOXES TO WHICH CONDUIT & WIRE IS RUN FOR CONNECTION TO FIXTURES & DEVICES.

GENERAL DESCRIPTION

- 2'X4' FLUORESCENT LAMP FIXTURE
- 2'X2' FLUORESCENT LAMP FIXTURE
- OR — 2'X4' OR 2'X2' FLUORESCENT FIXTURE ON EM CIRCUIT.
- SURFACE OR CEILING MOUNTED FLUORESCENT FIXTURE. (USE 1–1/2" SPACERS ON COMBUSTIBLE CEILING)
- FLUORESCENT FIXTURE SUSPENDED BELOW CEILING (MOUNT AT DESIGNATED HEIGHT ABOVE FLOOR)
- FLUORESCENT STRIP LIGHT WITH SEPARATE BALLAST (CONCEAL BALLAST IN ACCESSIBLE ENCLOSURE)
- SURFACE MOUNTED OR HID FIXTURE (NOTE WEIGHT LIMIT FOR BAR–JOIST HANGERS)
- INCANDESCENT OR HID FIXTURE RECESSED IN CEILING (KEEP J–BOX ACCESSIBLE FROM WITHIN FIXTURE)
- INCANDESCENT OR HID, WALL WASH RECESSED FIXTURE (AIM AS DIRECTED)
- INCANDESCENT OR HID FIXTURE WALL MOUNTED (CONFIRM HEIGHT OF OUTLET)
- INCANDESCENT CLUSTER OF ADJUSTABLE REFLECTOR LAMPS (AIM AS DIRECTED)
- FLOOD LIGHT
- BOLLARD
- LOW LEVEL EXIT SIGN +7"AFF.
- LIGHTED EXIT SIGN. CEILING, WALL MOUNTED OR RECESSED (ARROW SHOWS ROUTE TO LEGAL EXIT)
- LUMINAIRE ON POST TOP, SEE DETAIL (ANCHOR FIXTURE AGAINST ROTATION)
- DASHED SYMBOL IS EXISTING ITEM, OR FURNISHED BY OTHER (SEE SPECIFICATION FOR DIRECTIONS)
- STEP LIGHT
- J — JUNCTION BOX, WITH COVER (4" SQUARE, DEEP, WITH PLASTER RING)
- J — JUNCTION BOX, WALL MOUNTED, WITH COVER, +15" (CONFIRM LOCATION. SEE GEN. NOTE #9)
- J — JUNCTION BOX, FLUSH IN FLOOR, ADJUSTABLE HEIGHT COVER (SUBSCRIPTS: M=MIKE, P=PROJECTOR, C=CONTROLS)
- J — JUNCTION BOX, FLUSH IN FLOOR, ADJUSTABLE HEIGHT COVER (WITH 90 CLOSE ELBOW AND FLUSH FLOOR COUPLING)
- J — JUNCTION BOX, FOR DATA OUTLET.
- DUPLEX RECEPTACLE, FLUSH IN FLOOR, W.T. J–BOX (HINGED BRASS COVER: 20 AMP. 120 VOLT)
- DOUBLE DUPLEX RECEPTACLE, FLUSH IN FLOOR, W.T. J–BOX (HINGED BRASS COVER: 20 AMP. 120 VOLT)
- SINGLE OUTLET RECEPTACLE, RATING AND CONFIGURATION AS INDICATED ON PLAN. MOUNT AT +15" AFF
- DUPLEX RECEPTACLE, FLUSH IN WALL, GROUNDING TYPE +15" (20 AMP. 120 VOLT, COVER PLATE SPECIFIED)
- DOUBLE DUPLEX RECEPTACLE, FLUSH IN WALL (20 AMP. 120 VOLT)
- DUPLEX RECEPTACLE, MOUNTED AT CEILING, (FOR SHOW WINDOW CONNECTION 20A, 120V, 3W)
- GFCI — DUPLEX RECEPTACLE, WITH GROUND FAULT CIRCUIT INTERRUPTER (20 AMP. 120 VOLT, 3W)
- SHADING DENOTES ONE–HALF RECEPTACLE SWITCHED +15" (MARK PLATE WITH ROUND RED DOT)
- SPECIAL PURPOSE RECEPTACLE, RATING AND CONFIGURATION AS INDICATED ON PLAN. MOUNT +15" AFF.
- POWER RECEPTACLE, IN SURFACE BOX, MTD. +15" (20A, 120V.)
- I.G. — DUPLEX RECEPTACLE, WITH ISOLATED GROUND (20 AMP. 120 VOLT)
- MULTI–OUTLET ASSEMBLY
- F F — FAN, CEILING OR WALL MOUNTED (SUPPORT FROM REINFORCED BRACKET PLATE)
- OUTLET FOR MOTOR; CONFIRM DIRECTION OF ROTATION (PROVIDE FLEXIBLE CONNECTION TO J–BOX FROM MOTOR)
- CIRCUIT BREAKER OF POLES, VOLTS, TRIP–AMPS NOTED (CONFIRM INTERRUPTING CAPACITY NEEDED)
- DD — DUCT DETECTOR
- SFD — COMBINATION SMOKE/FIRE DAMPER
- SD — SMOKE DETECTOR
- C — CONTROLLED RECEPTACLE

CONDUCTORS OF A MULTI-WIRE BRANCH CIRCUIT SHALL ORIGINATE FROM THE SAME PANELBOARD. THE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS THAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES.

NOT ALL SYMBOLS APPLY TO THIS PROJECT; DISREGARD THOSE NOT USED ON PLANS AND IN DETAILS.

GENERAL DESCRIPTION

- BUZZER IN FLUSH BOX, CONFIRM HEIGHT
- BELL, SURFACE OR RECESSED AS DESCRIBED (SUBSCRIPT DENOTES BELL DIAMETER INCHES)
- DATA/COMMUNICATION OUTLET FLUSH IN WALL +15" (PROVIDE 3/4"C.O. STUB UP +6" ABOVE CEILING)
- PUBLIC TELEPHONE OUTLET, FLUSH IN WALL +15" (PROVIDE 3/4"C.O. STUB UP +6" ABOVE CEILING)
- TELEPHONE OUTLET, PUBLIC/PRIVATE, FLUSH IN FLOOR (SEE SPECS. FOR SERVICE FITTINGS)
- PF — JUNCTION BOX FLUSH ON WALL AT +6"AFF WITH WHIP FOR POWER CONNECTION TO FURNITURE SYSTEM.
- TF — JUNCTION BOX FLUSH ON WALL AT +6"AFF FOR TEL/DATA CONNECTION TO FURNITURE SYSTEM. PROVIDE 1" C.O. STUB +6" ABOVE ACCESSIBLE CEILING.
- TERMINAL CABINET WITH HINGED DOOR, LOCK, BARRIERS (PROVIDE TERMINALS & 3/4" PLYWOOD BACKBOARD)
- TERMINAL BOARD OF 3/4" THICK PLYWOOD ON WALL (SIZE AS NOTED, PAINT TO MATCH WALL)
- TELEVISION CABLE OUTLET, FLUSH IN WALL +15" (SEE SPECS. FOR JACK & TERMINATING IMPEDANCE)
- CLOCK OUTLET, FLUSH IN WALL, CONFIRM HEIGHT (MASTER CONTROLLED 120 VOLT 60 CYCLE SYNCHRONOUS)
- PUSH–BUTTON FLUSH IN WALL, MOMENTARY CONTACT (ENGRAVE PLATE DESCRIBING PURPOSE)
- LOUDSPEAKER, CONE–TYPE, HOUSING, TRANSFORMER & GRILL ("V" DENOTES VOLUME CONTROL IN HOUSING)
- D — WALL TYPE DIMMER AND OCCUPANCY SENSOR
- D — FLUORESCENT LAMP DIMMER
- D — LOW VOLTAGE LAMP DIMMER
- V — VOLUME CONTROL L–PAD, FLUSH IN WALL, +42" (ENGRAVE PLATE)
- M — MICROPHONE OUTLET, 3–POLE, RECESSED, LOCKING TYPE (PROVIDE MATING PLUG)
- T — THERMOSTAT, OUTLET, WALL MOUNTED, +48" (LOCATE SYMMETRICALLY WITH OTHER DEVICES)
- H — ELECTRIC HEATER, WALL MOUNTED, WITH DISCONNECT
- ELECTRIC HEATER IN EQUIPMENT PER SUBSCRIPT (C–C=CRANK CASE, A–D=AIR DUCT, W–H=WATER HTR)
- S_a — SWITCH, FLUSH IN WALL, TOGGLE, SINGLE–POLE S.T. +42" (SUBSCRIPT DENOTES UNIT CONTROLLED)
- S^2 — SWITCH, FLUSH IN WALL, TOGGLE, TWO–POLE S.T. +42"
- S^3 — SWITCH, FLUSH IN WALL, THREE WAY +42" (CONNECT TO MATCHING SWITCH FOR 3–WAY USE)
- S^4 — SWITCH, FLUSH IN WALL, FOUR WAY +42" (CONNECT TO MATCHING SWITCHES FOR 3–4 WAY USE)
- S^K — SWITCH, FLUSH IN WALL, KEY OPERATED
- S^M — SWITCH, FLUSH IN WALL, MOMENTARY CONTACT, S.P.S.T.
- S^P — SWITCH, FLUSH IN WALL, WITH PILOT LIGHT (ENGRAVE PLATE WITH ITEM CONTROLLED)
- S^T — MOTOR STARTER, WITH THERMAL OVERLOADS (POLES, NOTED, HORSEPOWER RATED)
- S^V — VARIABLE SPEED CONTROL SWITCH
- MANUAL MOTOR–STARTER, MAGNETIC, THERMAL OVERLOADS, 3–P (PROVIDE AUXILIARY CONTACTS & CONTROL TRANSFORMER)
- STOP–START PUSH–BUTTON WITH PILOT LIGHT
- DISCONNECT SWITCH, MANUAL EXO, H.P. RATED ("F" MEANS FUSED TO AMPERE RATING MARKED)
- S — W.P. SIGN OUTLET ON FACE OF SOFFIT
- OS — CEILING MOUNTED OCCUPANCY SENSOR
- OS — WALL MOUNTED OCCUPANCY SENSOR WITH MANUAL ON/OFF CAPABILITY

COMMUNICATION & ALARM

- PUSHBUTTON MOMENTARY CONTACT +48"
- "ON–OFF" PUSH BUTTON MOMENTARY CONTACT +48"
- BUZZER, +7'–6" UNLESS OTHERWISE NOTED
- GONG, +7'–6" UNLESS OTHERWISE NOTED
- SP — OUTDOOR SPEAKER. PROVIDE 1/2"C.O. WITH PULL STRING TO TELEPHONE CLOSET.
- RADIO ALARM GONG, +7'–6" UNLESS OTHERWISE NOTED PROVIDE 1/2"C.O. WITH PULL STRING TO TELEPHONE CLOSET.
- SP V — CEILING MOUNTED SPEAKER (VOL DENOTES VOLUME CONTROL) PROVIDE 1/2"C.O. WITH PULL STRING TO TELEPHONE CLOSET.
- SD — SMOKE DETECTOR
- K — KEY PAD
- P — SCU PRINTER (PROVIDED BY FIRE DEPARTMENT)
- F — FIRE ALARM FULL STATION
- H — FIRE ALARM STROBE/HORN
- H — FIRE ALARM HORN
- FIRE ALARM LIGHT HORN
- B — SPRINKLER BELL
- P — DOOR BUZZER
- B — DOOR BELL ANNOUNCER
- FACP — FIRE ALARM CONTROL PANEL

NOTE: ALL MOUNTING HEIGHTS ARE TO CENTER–LINE UNLESS OTHERWISE NOTED

MOUNTING HEIGHTS IN SYMBOL LIST APPLY UNLESS OTHERWISE NOTED ON DRAWINGS.

GENERAL DESCRIPTION

- DISCONNECT DEVICE, LOAD–BREAK, NON–AUTOMATIC (LABEL AS MANUAL SWITCH ONLY)
- DISCONNECT SWITCH & FUSE, DIAGRAMMATIC
- S.V. — SOLENOID VALVE IN PIPELINE (CONFIRM COIL VOLTAGE & LOCATION)
- EXISTING TO REMAIN
- EXISTING TO BE REMOVE
- C — CONDUIT STUB–UP WITH COUPLING FLUSH IN FLOOR (TO PERMIT FUTURE REMOVAL)
- CONDUIT RUN EXPOSED, ALIGN WITH STRUCTURE (ATTACH TO SUPPORTS NOT TO EXCEED 5FT. APART)
- CONDUIT CONCEALED IN OR UNDER FLOOR: OR UNDERGROUND (CONFIRM DEPTH; GRADE TO DRAIN INTO PULL BOXES)
- 1/2" CONDUIT WITH 2#12 WIRES
- 1/2" CONDUIT WITH 3#12 WIRES
- 1/2" CONDUIT WITH 4#12 WIRES
- 1/2" CONDUIT WITH 5#12 WIRES
- 3/4" CONDUIT WITH 6#12 WIRES

(CONCEALED IN WALL OR CEILING)

- #10 — NUMBER INDICATES GAUGE OF WIRE IN CODE SIZED CONDUIT.
- C.O. — CONDUIT–ONLY WITH #12 TW COPPER PULL–WIRE (3/4" MINIMUM SIZE, UNLESS NOTED OTHERWISE)
- A–1,3 — HOMERUN TO CIRCUITS #1 & #3 IN PANEL "A" (CROSSMARKS INDICATE NUMBER OF WIRES)
- CONDUIT DROPPING DOWN FROM RUN (IF CONDUIT IS USED KEEP COVER ACCESSIBLE)
- CONDUIT RISING UP FROM RUN (IF CONDUIT IS USED, KEEP COVER ACCESSIBLE)
- GROUND CONNECTION WITH ACCESSIBLE CLAMP (TO COLD WATER PIPE OR DRIVEN GROUND ROD)
- UFER GROUND
- P.B. — PULL BOX WITH SCREW HELD METAL COVER PLATE (DIMENSIONS CODE–SIZED UNLESS NOTED)
- BRANCH PANELBOARD, WALL MOUNTED, SEE SCHEDULE
- DISTRIBUTION SUB–SWITCHBOARD, SEE SCHEDULE
- MAIN SWITCHBOARD, POWER OR LIGHT, FLOOR STANDING, ENCL. (SEE ONE LINE DIAGRAM & LOAD SUMMARY)
- PULL SECTION FOR UNDERGROUND SERVICE TO SWITCHBOARD (PROVIDE PERFORATED SCREW HEADS FOR UTILITY SEAL)
- CONTROL PANEL WITH DEVICES SHOWN OR DESCRIBED (MOUNT DEVICES INDEPENDENT FROM HINGED COVER)
- T — 3/4"C.O. FOR TELEPHONE SYSTEM.
- D — 3/4" C.O. FOR DATA OUTLET
- F — CONDUIT FOR FIRE ALARM SYSTEM
- UNDER FLOOR DUCT WITH OUTLETS, ACCESSORIES & J–BOX
- 1 — NUMBERED NOTE FOR ALL ELECTRICAL DRAWINGS
- A / E–1 — DETAIL DESIGNATION FOR ITEM & DRAWING NUMBER

ABBREVIATIONS

A	AMPERE
AH	AMPERE–HOUR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
CKT	CIRCUIT
C.O.	CONDUIT ONLY
DP	DISTRIBUTION PANEL
(E)	EXISTING
EF	EXHAUST FAN
ELR	END OF LINE RESISTOR
EOL	END OF LINE
EM	EMERGENCY
FA	FIRE ALARM
FC	FOOT CANDLE
FCO	FULL CUT OFF
FLUOR	FLUORESCENT
GFP	GROUND FAULT PROTECTION
GND	GROUND
HOA	"HAND OFF AUTOMATIC"
HP	HORSEPOWER RATING
INC	INCANDESCENT
J–BOX	JUNCTION BOX
KA	KILO AMPERES.
KVA	KILO–VOLT AMPS
KW	KILOWATT
LCL	"LONG CONTINUOUS LOAD"
LM	LARGEST MOTOR
L.O.	LUGS ONLY
LTG	LIGHTING
LV	LOW VOLTAGE
MC	MOMENTARY CONTACT ACTION
MCA	MINIMUM CIRCUIT AMPACITY
MH	METAL HALIDE
MHT	MOUNTING HEIGHT (TO BOTTOM OF FIXTURE)
MOCP	MAXIMUM OVER CURRENT PROTECTION
(N)	NEW
N.I.C.	NOT IN CONTRACT
NEC	NATIONAL ELECTRICAL CODE
NL	NIGHT LIGHT
NTS	NOT TO SCALE
P	POLE, PHASE
PNL	PANEL BOARD
PEC	PHOTO ELECTRIC CELL
R	REMOVE
SA	SATIN ALUMINUM
SC	SHORT CIRCUIT
SSS	SATIN STAINLESS STEEL
TEL	TELEPHONE
TL	TWIST–LOCK CONSTRUCTION
TSC	TIME SWITCH CONTROL
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
V	VOLTS
VD	VOLTAGE DROP
W/	WITH
W.M.	WIREMOLD
WP	WEATHERPROOF CONSTRUCTION
WT	WEATHER TIGHT CONSTRUCTION
WBE	WHITE BAKED ENAMEL
WPE	WHITE PORCELAIN ENAMEL
XFMR	TRANSFORMER
(XR)	EXISTING TO BE REMOVED
(+)X'–Y"	MOUNTING HEIGHT (TO CENTER OF DEVICE)
5SD	METAL BOX 4–11/16" SQUARE (X) 2–1/8" DEEP

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REGISTERED PROFESSIONAL ENGINEER — ERIC P. PERCIO — E 16773 — EXP. 9-30-22 — ELECTRICAL — STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
–	06.02.21	ISSUED FOR REVIEW
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PROJECT MANAGER: EP

DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:

SYMBOLS & GENERAL NOTES

SHEET NO:

E200

21-108_FS4 RENOVATION

LIGHTING LUMINAIRE SCHEDULE

TYPE (Watts)	TYPICAL LOCATION	MOUNTING METHOD	MANUFACTURER and CATALOG NUMBER	LAMPS	DESCRIPTION
A (15.9)	DORMS	RECESSED	LITHONIA LIGHTING #2VTL2-20L-ADP-EZ1-LP830-N100 ACCESSORIES: #XX-XX PER ARCHITECT OR CONTRACTOR	(1) 2000 LUMENS LED 80CRI 3000°K 120V	2' BY 2' VOLUMETRIC TROFFER WITH ACRYLIC LINEAR PRISMATIC DIFFUSER AND LED DIMMING DRIVER.
A1 (33.1)	DAY ROOM	RECESSED	LITHONIA LIGHTING #2VTL2-40L-ADP-EZ1-LP830-N100 ACCESSORIES: #XX-XX PER ARCHITECT OR CONTRACTOR	(1) 4000 LUMENS LED 80CRI 3000°K 120V	2' BY 2' VOLUMETRIC TROFFER WITH ACRYLIC LINEAR PRISMATIC DIFFUSER AND LED DIMMING DRIVER.
A2 (33.1)	LAUNDRY	RECESSED	LITHONIA LIGHTING #2VTL2-40L-ADP-EZ1-LP830-N100 ACCESSORIES: #DGA22-FS/VT	(1) 4000 LUMENS LED 80CRI 3000°K 120V	2' BY 2' VOLUMETRIC TROFFER WITH ACRYLIC LINEAR PRISMATIC DIFFUSER AND LED DIMMING DRIVER. EQUIPPED WITH DRYWALL CEILIING ADAPTER WITH TRIM KIT.
B (19.6)	HALLWAY, RESTROOM AND STUDY	RECESSED	PINNACLE ARCHITECTURAL LIGHTING EDGE 2" RECESSED #EV2D-A-830-4-FL(F)-U-EE1-1-0-GR	(1) LED 2,000 LUMENS 80CRI 3000°K 120V	4' LINEAR BY 2" WIDE LUMINAIRE WITH SATIN SHIELDING LENS AND ½" FLANGE MOUNTING HARDWARE AND LED DIMMABLE DRIVER. FINISH TO BE GRAPHITE. FIXTURE OPTIONS PER CONTRACTOR.
B1 (20.4)	ORIGINAL RESTROOMS AND HALLWAY	SURFACE	PINNACLE ARCHITECTURAL LIGHTING EDGE 2" SURFACE #EX2D-A-N-830-4-S-U-EE1-1-0-GR	(1) LED 2,000 LUMENS 80CRI 3000°K 120V	4' LINEAR BY 2" WIDE LUMINAIRE WITH SATIN SHIELDING LENS AND LED DIMMABLE DRIVER. FINISH TO BE GRAPHITE. FIXTURE OPTIONS PER CONTRACTOR.

C (9.0)	KITCHEN AND STUDY	SURFACE	PINNACLE ARCHITECTURAL LIGHTING FINA F14D #F14D-A-830LO-S-U-EE1-1-0-GR	(1) LED 838 LUMENS 80CRI 3000°K 120V	14" DIAMETER WITH FLUSH SATIN SHIELDING LENS AND LED DIMMABLE DRIVER. FINISH TO BE GRAPHITE. FIXTURE OPTIONS PER CONTRACTOR.
D (8)	DORM BEDS	SURFACE	LIGMAN LIGHTING USA LEEDS 1 SMALL #ULEW-30001-8WLED-T4-W30-02-120/277V OPTIONS: #XX-XX	(1) LED 795 LUMENS >80 CRI 3000°K 120V	8" HIGH AND 4" WIDE DECORATIVE SURFACE WEDGE DOWNLIGHT WITH TYPE IV BEAM DISTRIBUTION IN DARK GREEY FINISH. FIXTURE OPTIONS PER CONTRACTOR. ARCHITECT SHALL CONFIRM COLOR TEMPERATURE.
E (10.4)	KITCHEN AND HALLWAY	RECESSED	LITHONIA LIGHTING LDN6 #LDN6-30/-10-LO6-BR-LD-MVOLT-EZ10	(1) LED 1000 LUMENS 80 CRI 3000°K 120V	6" DIAMETER OPEN DOWNLIGHT WITH BLACK TRIM COLOR AND MATTE DIFFUSE FINISH. EQUIPED WITH AN ELECTRONIC LED DIMMING DRIVER. FIXTURE OPTIONS PER CONTRACTOR.
F (20.0)	RESTROOMS	SURFACE	PURE EDGE LIGHTING TWIGGY T1 VANITY WALL #TW2-T1-4SQ-48IN-30K-BK	(1) LED 306 LUMENS/FT 95+CRI 3000°K 120V TO 24VDC	48" LINEAR VANITY WITH ELECTRONIC LOW VOLTAGE POWER SUPPLY FURNISHED IN JUNCTION BOX. LENS IS TUBULAR AND COMES WITH A 4" FLOATING SQUARE CONOPY IN SATIN BLACK FINISH.
G (18.0)	KITCHEN AND LAUNDRY	SURFACE	BRUCK LIGHTING SERIES wUndercab CCT SELECT #138546-32-3CCT-3000K-90CRI-120-WH ACCESSORIES: #XX-XX PER CONTRACTOR	(1) LED 1350 LUMENS >90CRI 3000°K 120V	32-3/8" LINKABLE LINEAR UNDERCABINET LIGHT WITH LED DRIVER. FINISH IN WHITE. ALL ACCESSORIES PER ELECTRICAL CONTRACTOR.

H (16.0)	SHOWER	RECESSED	CON-TECH LIGHITING LED RECESSED DOWNLIGHT 1000 SERIES #RA4LNC-130K-12D2 OPTIONS: #XX-XX TRIM: #CTR4327L-CLR-PL	(1) LED 120V 3000°K	4" DIAMETER DOWNLIGHT WITH LED DRIVER LISTED FOR WET APPLICATION. TRIM IS RECESSED TWO PIECE PER ARCHITECT. FIXTURE OPTIONS PER CONTRACTOR.
I (14.0)	EXTERIOR	SURFACE	LIGMAN LIGHTING USA LEEDS 2 MEDIUM #ULEW-30011-14WLED-T3-W35-02-120/277V OPTIONS: #XX-XX	(1) LED 1660 LUMENS >80 CRI 3000°K 120V	8" HIGH DECORATIVE SURFACE WEDGE DOWNLIGHT WITH TYPE III BEAM DISTRIBUTION IN DARK GREEY FINISH. FIXTURE OPTIONS PER CONTRACTOR. ARCHITECT SHALL CONFIRM COLOR TEMPERATURE.
J (10.4)	ALARM LIGHTS	RECESSED	LITHONIA LIGHTING LDN6 #LDN6-30/-10-LO6-BR-LD-MVOLT-EZ10	(1) LED 1000 LUMENS 80 CRI 3000°K 120V	6" DIAMETER OPEN DOWNLIGHT WITH CLEAR TRIM COLOR AND MATTE DIFFUSE FINISH. EQUIPED WITH AN ELECTRONIC LED DIMMING DRIVER. FIXTURE OPTIONS PER CONTRACTOR.
K (10.4)	EXTERIOR	RECESSED	LITHONIA LIGHTING LDN6 #LDN6-35/-10-LO6-BR-LD-MVOLT-EZ10	(1) LED 1000 LUMENS 80 CRI 3500°K 120V	6" DIAMETER OPEN DOWNLIGHT WITH BLACK TRIM COLOR AND MATTE DIFFUSE FINISH. EQUIPED WITH AN ELECTRONIC LED DIMMING DRIVER. FIXTURE OPTIONS PER CONTRACTOR.

LIGHTING LUMINAIRE REFERENCE NOTES:

1. CONFIRM FIXTURE PART NUMBERS DENOTED BY "XX" WITH ARCHITECT PRIOR TO ORDER. EXAMPLES OF PART NUMBERS INCLUE TRIM COLOR, FINISH, OPTIONS AND LAMP COLOR TEMPERATURE.
2. CERTAIN FIXTURES DESIGNATED BY 'em' ON THE FLOOR PLANS SHALL CONTAIN AN INTEGRAL 90 MINUTE EMERGENCY LIGHTING BALLAST. THE EMERGENCY EXIT ILLUMINATION SHALL BE SUPPLIED FROM STORAGE BATTERIES. SEE CIRCUITING SHOWN ON LIGHTING PLANS FOR THE WIRING REQUIREMENTS. SEE LUMINAIRE SCHEDULE ABOVE AND DETERMINE BALLAST REQUIREMENTS.
3. INCLUDE IN BASE BID ALL LABOR AND MATERIALS REQUIRED FOR A COMPLETE INSTALLATION OF ALL LUMINAIRES INDICATED ON THE DRAWINGS.
4. ELECTRICAL CONTRACTOR TO COORDINATE MOUNTING HEIGHT OF ALL LIGHT LUMINAIRES WITH ARCHITECTURAL, INTERIOR DESIGN AND LIGHTING CONSULTANT DESIGN DRAWINGS IN ADDITION TO OTHER TRADES PRIOR TO ROUGH-IN.
5. REFER TO ARCHITECTURAL CEILING PLANS FOR EXACT LOCATION OF ALL LIGHT LUMINAIRES.
6. PROVIDE AND INSTALL ALL NECESSARY SUPPORTS INDEPENDENT OF THE CEILING SYSTEM AS REQUIRED PER CODES AND LOCAL ORDINANCES.
7. CONTRACTOR IS RESPONSIBLE TO VERIFY TYPE OF CONSTRUCTION AT EACH LUMINAIRE LOCATION AND PROVIDE THE REQUIRED TRIMS AND MOUNTING ACCESSORIES OR KITS FOR THE APPLICATION.
8. DOWNLIGHTS RATED FOR TC MUST BE 3" AWAY FROM ANY INSULATION. CONFIRM ARCHITECTURAL DETAILS PRIOR TO ORDER.
9. MANUFACTURER TO PROVIDE ALL STRIP LIGHT FIXTURES WITH DISCONNECTING MEANS INSIDE OR OUTTSIDE THE LUMINAIRE THAT CAN DISCONNECT ALL CONDUCTORS WIRED TO THE BALLAST.
10. CONTRACTOR TO CONFIRM FIRE-RATING OF CEILING MOUNTED LUMINAIRES WITH ARCHITECT PRIOR TO BID. LUMINAIRES IN CEILINGS WITH 2-HOUR FIRE RATING SHALL BE EQUIPPED WITH RED 2-HOUR BOXES.
11. RECESSED LUMINAIRES IN FIRE RATED CEILINGS AND AIR PLENUMS SHALL BE APPROVED FOR THE FIRE RATINGS OF THE CEILING OR SHALL BE FULLY ENCLOSED IN A FIRE-RATED HOUSING OR STRUCTURE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.
12. VERIFY EXIT SIGN LOCATIONS AND DIRECTIONAL ARROWS WITH ARCHITECT'S FINAL EGRESS PLAN DRAWING AND THE AUTHORITY HAVING JURISDICTION PRIOR TO ORDERING EQUIPMENT. PROVIDE SEPARATE NEUTRAL CONDUCTORS TO ALL LINE VOLTAGE DIMMED CIRCUIT SWITCH LEG. DO NOT SHARE NEUTRAL CONDUCTORS IN LINE VOLTAGE DIMMED CIRCUITS. ***BUILDING CODE DOES NOT REQUIRE EXIT SIGNS FOR THIS PROJECT.***

13. TEST FOR ILLUMINATION AND EXIT SIGNS, INCLUDING DIRECTIONAL EXIT SIGNS POWER BY EITHER THE NORMAL PREMISES WIRING OR ANY ADDITIONALLY REQUIRED EMERGENCY SYSTEMS SHALL BE CONDUCTED IN THE PRESENCE OF THE BUILDING INSPECTION STAFF TO ENSURE COMPLIANCE. THE TEST TIMES FOR EMERGENCY SYSTEMS SHALL BE ARRANGED IN ADVANCE AND ALL STAFFING COST ASSOCIATED WITH EITHER PRE-HOURS OR AFTER-HOURS SHALL BE PAID AT THIS TIME. THE TESTING AND APPROVAL OF SUCH SYSTEMS SHALL OCCUR PRIOR TO THE ISSUANCE OF A TEMPORARY CERTIFICATE OF APPROVAL OF THE PROJECT. ***BUILDING CODE DOES NOT REQUIRE EXIT SIGNS FOR THIS PROJECT.***

APPROVED:

DATE: _____ APPROVED BY: _____

BUILDING CODE DOES NOT REQUIRE EXIT SIGNS FOR THIS PROJECT.

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BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

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DRAWING TITLE:

LIGHT FIXTURE SCHEDULE

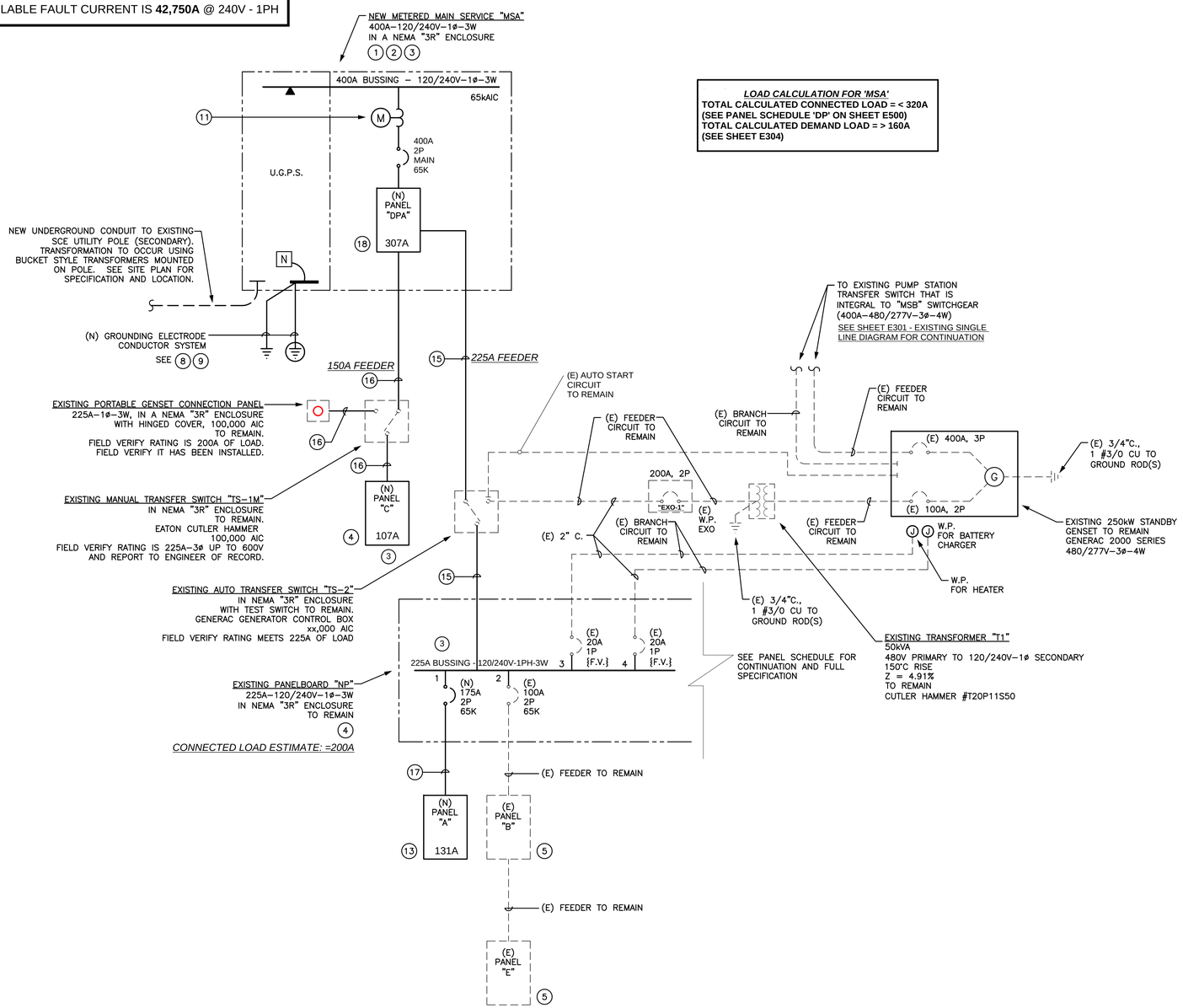
SHEET NO: E201

21-108_FS4 RENOVATION

FAULT CURRENT CALCULATION

AVAILABLE FAULT CURRENT FROM UTILITY = 42,000A @ 240V-1PH
MOTOR CONTRIBUTION ESTIMATE = 750A

FINAL MAXIMUM AVAILABLE FAULT CURRENT IS **42,750A** @ 240V - 1PH



LOAD CALCULATION FOR 'MSA'
TOTAL CALCULATED CONNECTED LOAD = < 320A
(SEE PANEL SCHEDULE 'DP' ON SHEET E500)
TOTAL CALCULATED DEMAND LOAD = > 160A
(SEE SHEET E304)

1 NEW SINGLE LINE DIAGRAM
Scale : NTS

SINGLE LINE DIAGRAM REFERENCE NOTES:

1. THE MAXIMUM AVAILABLE FAULT CURRENT CONTRIBUTION FROM THE UTILITY AT THE NEW SERVICE IS 42,750A AT 240V-1PH, PER SCE AND CALCULATION. (SEE SHEET E600)
2. ALL SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT. INCLUDE THE DATE FOR WHEN THE CALCULATIONS WERE PERFORMED. NAMEPLATES SHALL BE WEATHERPROOF AND WEATHER RESISTANT.
3. THE NEW MAIN SERVICE SWITCHBOARD, PULL SECTION AND FEEDER BREAKERS AND BRANCH CIRCUIT BREAKERS SHALL BE FULLY RATED FOR A MAXIMUM SHORT CIRCUIT RATING OF **65,000** AMPS OF SYMMETRICAL FAULT CURRENT AT 240V–1ø.
4. PROVIDE A NEW FEEDER AS INDICATED AND MAKE LINE VOLTAGE CONNECTIONS TO THE NEW PANELBOARD 'C' AND EXISTING PANELBOARD 'NP' VIA EXISTING TRANSFER SWITCHES FOR BACK–FEED OF EXISTING SERVICES. ALL NEW LINE VOLTAGE CONNECTIONS TO MEET MANUFACTURER AND UL LISTINGS.
5. THE EXISTING SINGLE PHASE SERVICE TENANT PANELS 'B' AND 'E' ARE TO REMAIN. INTERCEPT ALL EXISTING BRANCH CIRCUIT CONDUIT AND WIRE THAT REMAIN AND EXTEND TO BRANCH CIRCUIT BREAKERS LOCATED IN THE NEW 1–PHASE 3–WIRE DISTRIBUTION SYSTEM OR EXISTING PANELS. AS BUILD PANEL SCHEDULES ACCORDINGLY UPON COMPLETION OF CONSTRUCTION AND REPORT FINDINGS TO ENGINEER OF RECORD.
6. THE EXISTING SERVICE SWITCHBOARD TO BE DEMOLISHED FOR SERVICES 'MS'. INTERCEPT EXISTING FEEDER CONDUIT AND INSTALL ALL NEW FEEDER WIRING FROM NEW DISTRIBUTION PANEL 'DPA' TO PANELS 'C' AND 'NP'. CONTRACTOR TO COORDINATE MEANS AND METHODS OF FLATTENING THE METER COMPARTMENT OR REMOVING IT ENTIRELY. METHOD SHALL MEET SCE AND BUILDING AND SAFETY DEPARTMENT REQUIREMENTS.
7. CONTRACTOR SHALL CONTACT UTILITY COMPANY TO REMOVE EXISTING UNDERGROUND SERVICE CONDUCTORS, DISCONNECT THE EXISTING UTILITY METERING AND MAKE CONNECTION TO NEW SERVICE.
8. 3/4"C, 1 #1/0 CU GROUND. GROUNDING ELECTRODE SYSTEM SHALL COMPLY WITH NEC ARTICLE 250–52 AND INCLUDE ALL AVAILABLE METHODS.
9. BONDING SHALL BE PROVIDED AT METAL PIPING SYSTEM(S) (INCLUDING GAS PIPING) TO ENSURE ELECTRICAL CONTINUITY. SEE NEC ARTICLE 250–104 FOR MEANS AND METHODS. THE POINT OF ATTACHMENT OF ALL CONDUIT JUMPERS SHALL BE ACCESSIBLE. ALL COLD WATER AND NATURAL GAS PIPING TO BE BONDED WITHIN 5' OF ENTRY INTO BUILDING.
10. LENGTH OF FEEDERS AND BRANCH CIRCUITS ARE FOR ENGINEERING CALCULATIONS ONLY AND SHALL NOT BE USED FOR BIDDING OR CONSTRUCTION PURPOSES.
11. EACH ELECTRICAL SERVICE SHALL HAVE PERMANENTLY INSTALLED USER ACCESSIBLE METERING OF TOTAL ELECTRICAL ENERGY THAT INCLUDES:
    1) INSTANTANEOUS KW DEMAND
    2) HISTORICAL PEAK DEMAND (KW)
    3) RESETTABLE KWH.
12. PANELBOARD AND BRANCH CIRCUIT BREAKERS TO BE FULLY RATED FOR A MINIMUM OF **42,000A** OF SYMMETRICAL FAULT CURRENT AT **120/240V, 1-PHASE.**
13. PANELBOARD AND BRANCH CIRCUIT BREAKERS TO BE FULLY RATED FOR A MINIMUM OF **22,000A** OF SYMMETRICAL FAULT CURRENT AT **120/240V, 1-PHASE.**
14. SERVICE EQUIPMENT, SWITCHBOARD AND PANELBOARDS ARE DESIGNED ON "EATON CULTER–HAMMER" EQUIPMENT. USE OF APPROVED EQUAL EQUIPMENT REQUIRING DIMENSIONS OTHER THAN SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO ORDER.
15. 2"C., (3) #4/0 CU THWN AND (1) #4 CU GROUND.
16. 1–1/2"C., (3) #1/0 CU THWN AND (1) #6 CU GROUND.
17. 2"C., (3) #2/0 CU THWN AND (1) #6 CU GROUND.
18. SEE DISTRIBUTION PANEL 'DPA' PANEL SCHEDULE ON SHEET E500 FOR REQUIRED SPARE CIRCUIT BREAKERS AND SPACES FOR FUTURE FEEDER AND BRANCH CIRCUIT BREAKERS. SINGLE LINE DIAGRAM VERSION DOES NOT DIAGRAMMATICALLY REPRESENT ALL REQUIREMENTS.
19. THE EXISTING SINGLE LINE DIAGRAM HAS BEEN PROVIDED BY THE FIRE STATION AND OBSERVED TO REFLECT ALL THE EQUIPMENT THAT IS CURRENTLY INSTALLED AND ENERGIZED IN THE EXISTING FIELD CONDITIONS. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE POWER SYSTEM ON THE BLUE PRINT MATCHES EXISTING CONDITIONS AND REPORT ANY NEW FINDINGS TO THE ENGINEER OF RECORD PRIOR TO ORDERING ANY NEW EQUIPMENT. FINDINGS THAT ARE OTHER THAN DRAWN MAY IMPACT THE NEW SERVICE DESIGN.

SINGLE LINE CALCULATION TABLE

5205 CALLE MAYOR
TORRANCE, CA

MAIN SERVICE 'MSA': 120/240V-1 PHASE-3 WIRES

PANEL TAG	FEEDER LENGTH (LF)	VOLTAGE DROP (%)	AVAILABLE FAULT CURRENT (AMPS)	COMMENTS
MSA			42,750	NEW AND FULLY RATED FOR 65,000 AIC. FAULT CURRENT TOTAL INCLUDES ADDITIONAL ESTIMATED 750A OF CURRENT DUE TO MOTOR CONTRIBUTION FROM MECHANICAL SYSTEMS.
DP	0		42,750	NEW AND FULLY RATED FOR 65,000 AIC.
C	30'	FEEDER = 0.30% TOTAL < 5.00%	26,739	NEW AND FULLY RATED FOR 65,000 AIC.
NP	15'	FEEDER = 0.14%	31,566	EXISTING AND FULLY RATED FOR 65,000 AIC.
A	80' (95' TOTAL)	FEEDER SEG = 0.79% FEEDER = 0.93% TOTAL < 5.00%	10,676	NEW AND FULLY RATED FOR 22,000 AIC.

GENERAL NOTES:

1. LENGTHS OF FEEDERS AND BRANCH CIRCUITS ARE FOR ENGINEERING CALCULATIONS ONLY AND SHALL NOT BE USED FOR BIDDING OR CONSTRUCTION PURPOSES.

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BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

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PROJECT MANAGER: EP

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SHEET SIZE: 24X36

DRAWING TITLE:

NEW SINGLE LINE DIAGRAM & DETAILS

SHEET NO: E300

21-108_FS4 RENOVATION

E
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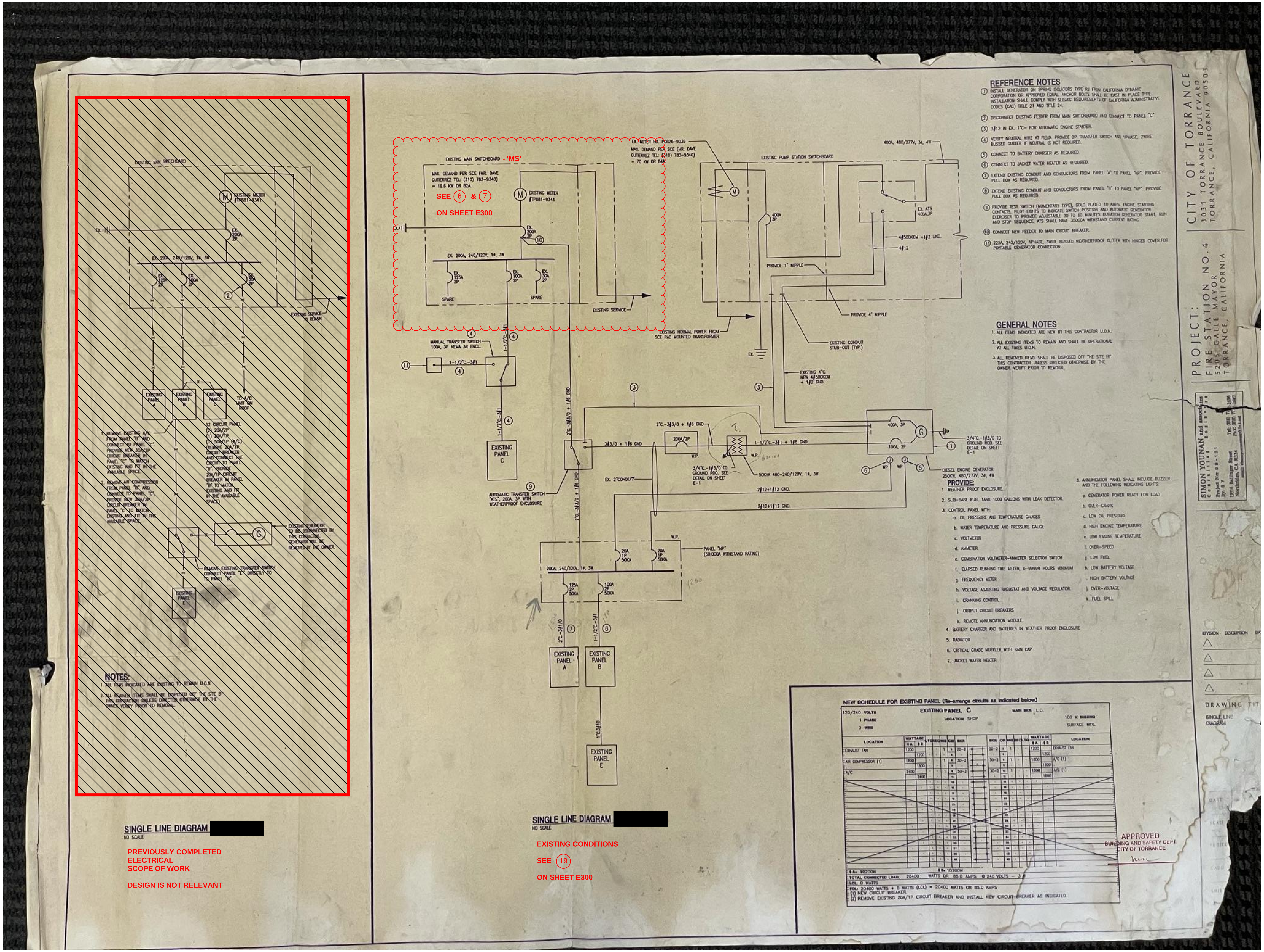

1 EXISTING SINGLE LINE DIAGRAM - REFERENCE ONLY
SCALE: N.T.S

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

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SHEET SIZE: 24X36

DRAWING TITLE:
EXISTING SINGLE LINE DIAGRAM

SHEET NO:
E301

EXISTING PORTABLE GENSET CONNECTION PANEL
225A-1PH-3W
- IN A NEMA '3R' ENCLOSURE
- WITH HINGED COVER
FIELD VERIFY IT HAS BEEN INSTALLED, APPEARS TO BE MISSING FROM SITE OBSERVATION #1.

EXISTING MANUAL TRANSFER SWITCH 'TS-1M'
- IN A NEMA '3R' ENCLOSURE.
- EATON CUTLER HAMMER.
- SHORT CIRCUIT RATING: 100,000 AIC.
- FIELD VERIFY RATING IS 225A-3PH UP TO 600V; REPORT TO ENGINEER OF RECORD.
- TO REMAIN.

EXISTING PANEL 'NP'
- TO REMAIN.

EXISTING AUTO TRANSFER SWITCH 'TS-2'
- IN A NEMA '3R' ENCLOSURE.
- WITH TEST SWITCH.
- GENERAC GENERATOR CONTROL BOX.
- SHORT CIRCUIT RATING: xx,000 AIC.
- FIELD VERIFY RATING MEETS 225A OF LOAD.
- TO REMAIN.

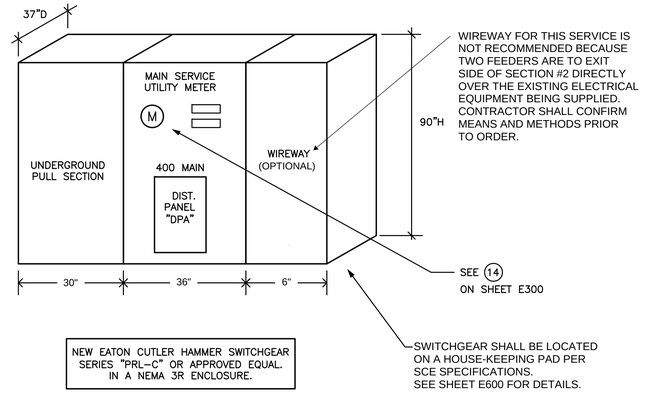
EXISTING 200A EXO "EXO-1"
- IN A NEMA '3R' ENCLOSURE
- CONTRACTOR TO VERIFY SPECS MATCHES SHEET E301.
- TO REMAIN.

PROPOSED LOCATION OF NEW METERED MAIN SERVICE SWITCHBOARD 'MSA'
400A @ 120/240V-1PH-3W
- IN A STAND-UP NEMA '3R' ENCLOSURE.
- CONTRACTOR SHALL RELOCATE HOSE BIB AND HOSE HOLDER.

3 EXISTING ELECTRICAL AREA AND PROPOSED NEW MAIN SERVICE "MSA" LOCATION
SCALE: NOT TO SCALE

EXISTING UTILITY POLE #xxx-xxx
EQUIPPED WITH 1 BUCKET STYLE TRANSFORMER
FEEDS 'MS' VIA UNDERGROUND CONDUIT
- TO BE VERIFIED BY SCE SERVICE PLANNER.
- CONFIRM DIAMETER OF UNDERGROUND DUCT BANK
- TO REMAIN AND SERVICE TO BE REDESIGNED.

2 EXISTING UTILITY POLE LOCATION
SCALE: NOT TO SCALE



NEW EATON CUTLER HAMMER SWITCHGEAR SERIES "PRL-C" OR APPROVED EQUAL. IN A NEMA 3R ENCLOSURE.

1 NEW MAIN SERVICE "MSA" ELEVATION
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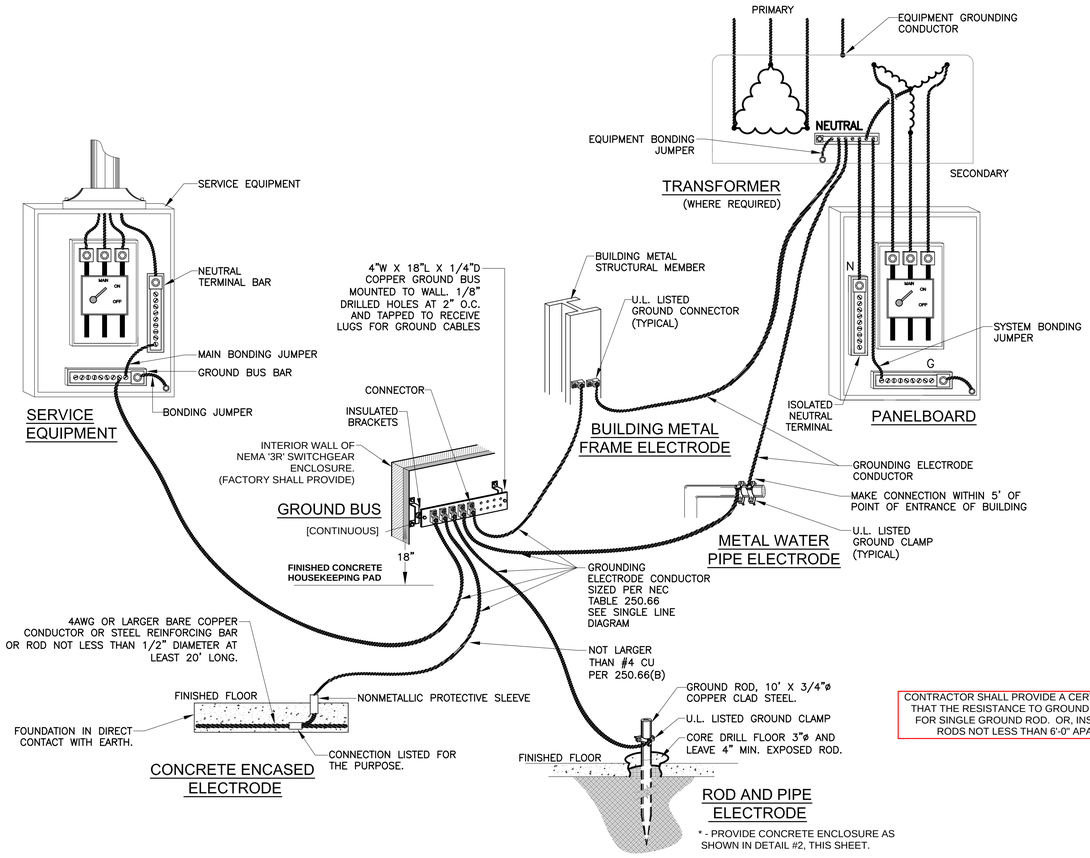
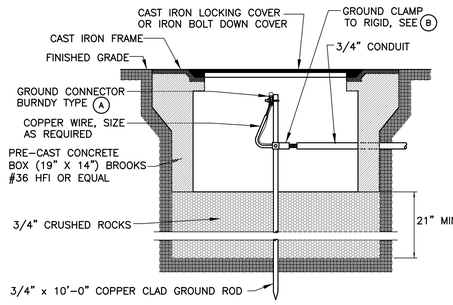
MAIN SERVICE ELEVATION & DETAILS

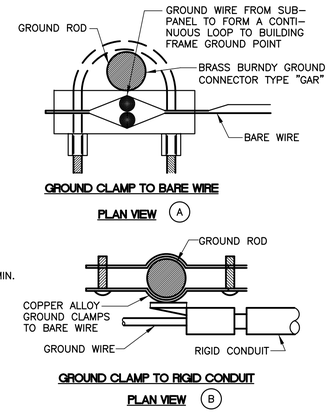
SHEET NO: E302



CONTRACTOR SHALL PROVIDE A CERTIFIED TEST SHOWING THAT THE RESISTANCE TO GROUND IS 25 OHMS OR LESS FOR SINGLE GROUND ROD. OR, INSTALL TWO GROUND RODS NOT LESS THAN 6'-0" APART [NEC 253(A)]

1 / E303 GROUNDING ELECTRODE SYSTEM
SCALE: NOT TO SCALE





2 / E303 GROUND ROD AND CONCRETE BOX
SCALE: NOT TO SCALE

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SHEET SIZE: 24X36

DRAWING TITLE:

GROUNDING ELECTRODE CONDUCTOR SYSTEM

SHEET NO:

E303

21-108_FS4 RENOVATION

PROJECTED LOAD CALCULATION FOR EXISTING SERVICE 'MS'

120/240V 1PH-3W CALCULATION PER NEC ARTICLE 220
5205 CALLE MAYOR, TORRANCE

EXISTING SCE METER FOR THE FIRE STATION SERVICE: SCE #223000-009046 MAXIMUM DEMAND FOR THE PAST 12 MONTHS IS 20 KW BASED ON SCE UTILITY BILL DATED 2/3/2021	**20 KW**	
CONVERT TO KVA (ASSUME 80% POWER FACTOR)	25 KVA	
CONVERT TO AMPS	104 A	
25% CODE REQUIRED MULTIPLIER	26 A	
SUB-TOTAL DEMAND LOAD	130 A	
EXISTING BASELINE PRIOR TO CAPITAL BUDGET PROJECT = (CONVERT TO VA)	**130A**	**31,200 VA**
EXISTING CONNECTED LOAD BEING DEMOLISHED		
LIGHTING – (18) 4 FOOT TROFFER WITH 2 LAMP FLUORESCENTS		-1,260 VA
LIGHTING – (2) DOWNLIGHTS WITH QUAD PL LAMPS		-70 VA
CONVENIENCE OUTLETS – (8) LOCATIONS		-1,440 VA
LCL		-333 VA
SUB-TOTAL		**-3,103 VA**

EXISTING CONNECTED LOAD BEING REPLACED WITH NEW CONNECTED LOAD OF LIKE TYPE		
GARBAGE DISPOSER, (2) REFRIGEATORS, COFFEE POT		0 VA
MICROWAVE OVEN (COUNTER TOP), DISHWASHER		0 VA
WASHING MACHINE (LAUNDRY AND CIRCUITED TO PANEL 'B') [F.V.]		0 VA
SUB-TOTAL (BEST CASE SCENARIO FOR SERVICE UPGRADE EVALUATION ONLY)		**0 VA**
NEW CONNECTED LOAD BEING ADDED TO EXISTING SERVICE 'MS'		
PANEL 'A' (RECEPTACLE AND LIGHTING LOADS)		6,168 VA
MECHANICAL SYSTEMS – NEW SPLIT UNIT CIRCUITED TO NEW PANEL 'C' INCLUDING LARGEST MOTOR		3,600 VA
NEW ROOF OUTLET REQUIRED BY CODE		180 VA
PLUMBING SYSTEM – GAS WATER HEATING BEING IMPLEMENTED		0 VA
SUB-TOTAL		**9,948 VA**
TOTAL CALCULATED DEMAND LOAD		**38,045 VA**
CONVERT TO AMPERES	159.0 A	
ADDITIONAL ALLOWED LOAD NOT TO EXCEED	**< 0.5 A**	**120 VA**

PER THE CALCULATION ABOVE, THE EXISTING 200A-1PH SERVICE CAN NOT BE REUSED. A SERVICE UPGRADE TO 400A AT 120/240V-1PH IS REQUIRED FOR THE BUILDING.

Demand Load information completed the week of May 24, 2021. This calculation is for design development purposes only and shall not be updated through project completion. See panel schedules and the new single line diagram for final connected load analysis.

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BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

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TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
-	06.02.21	ISSUED FOR REVIEW

PROJECT NO: 21-108

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PROJECT MANAGER: EP

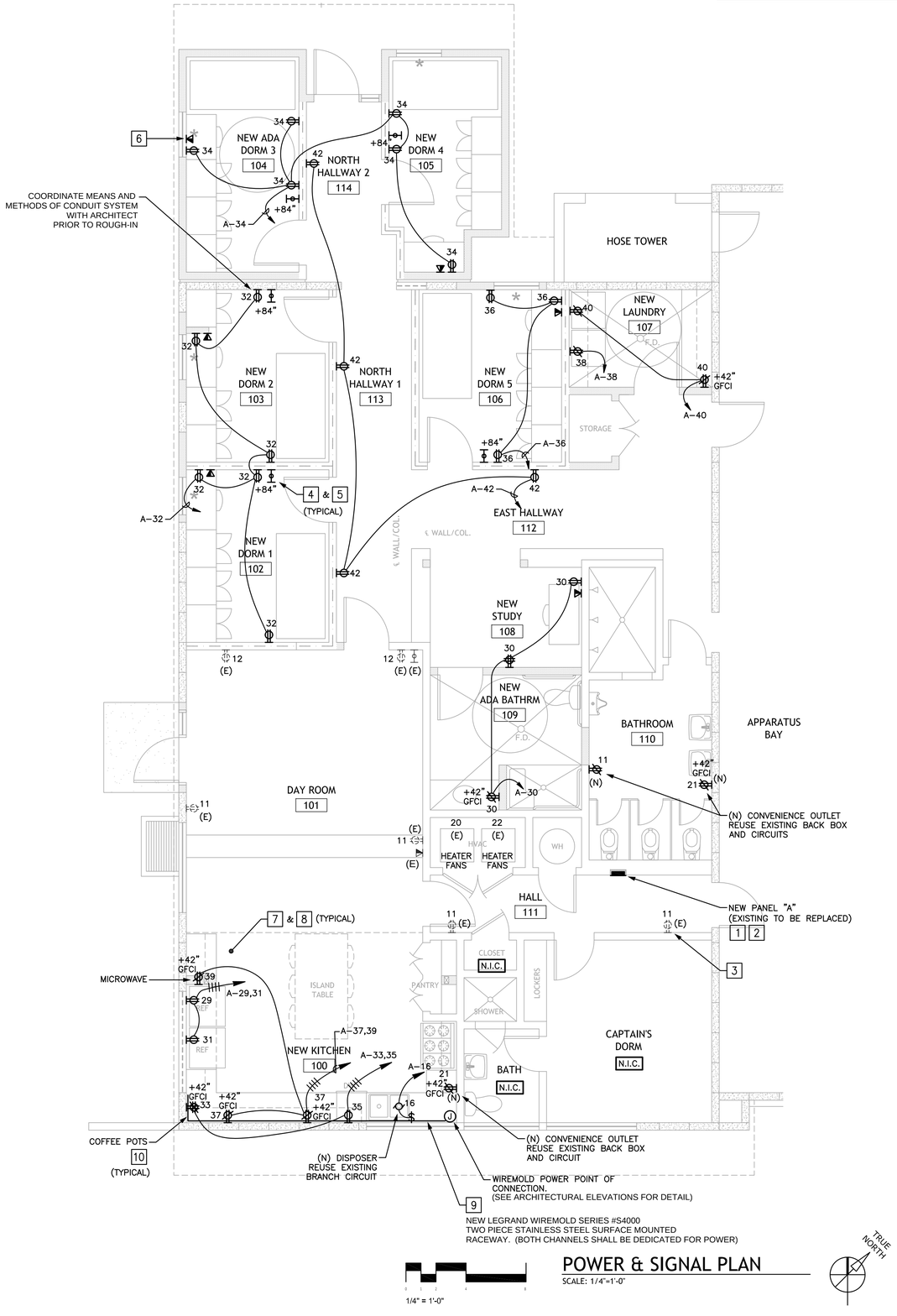
DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:
SINGLE LINE CALCULATIONS AND DETAILS

SHEET NO:
E304

SEE SHEET A2.1 FOR THE SCOPE OF THE DEMOLITION WORK



POWER & SIGNAL PLAN

SCALE: 1/4"=1'-0"

GENERAL NOTES FOR DEMOLITION:

1. DEMOLITION WORK SHALL BE PERFORMED ACCORDING TO THE ARCHITECTURAL AND ELECTRICAL CONSTRUCTION DOCUMENTS.
2. THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL LIGHT LUMINAIRES AND ELECTRICAL DEVICES WITH ASSOCIATED CONDUIT AND WIRING IN THE WAY OF THE NEW TENANT IMPROVEMENT SCOPE OF WORK. REMOVE, REROUTE AND REWIRE EXISTING FIXTURES, RECEPTACLES AND JUNCTION BOXES THAT REMAIN.
3. EXTENDED BRANCH CIRCUIT CONDUIT AND WIRING TO MATCH EXISTING FOR ALL RELOCATED DEVICES AND EQUIPMENT.
4. MAINTAIN CIRCUIT CONTINUITY TO ALL EXISTING EQUIPMENT AND DEVICES THAT REMAIN IN OPERATION. RE–ROUTE CONDUIT AND WIRING FROM THE DEVICES THAT ARE REMOVED TO THE NEAREST DEVICE WHICH WILL REMAIN. UPDATE NEW PANEL SCHEDULES ACCORDINGLY AND REPORT FINDING TO ENGINEER OF RECORD.
5. PROVIDE NEW BRANCH CIRCUITS, PANEL FEEDERS AND DEVICES AS SHOWN ON THE PLANS OR AS REQUIRED FOR A COMPLETE OPERABLE SYSTEM, IN FULL ACCORDANCE AND COMPLIANCE WITH ALL APPLICABLE CODES.
6. ALL EQUIPMENT WHICH IS DISCONNECTED AND REMOVED SHALL BE RETURNED TO THE OWNER OR THE OWNER SHALL BE PROVIDED SALVAGE VALUE OF SAID EQUIPMENT AT THE OWNER'S REQUEST. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR WHICH EQUIPMENT IS TO BE KEPT.
7. FURNISH AND INSTALL ALL NECESSARY CONDUIT, WIRES, JUNCTION BOXES, BLANK COVER PLATES, ETCETERA, AT ALL LOCATIONS AFFECTED BY THE RELOCATION OF OUTLETS.
8. WHERE INTERRUPTION OF A CIRCUIT FEEDING EXISTING EQUIPMENT OCCURS DUE TO NEW SCOPE OF WORK, THE CIRCUIT SHALL BE REHABILITATED AND MADE CONTINUOUS FROM PANEL TO LAST EXISTING OUTLET THAT REMAINS.
9. THE CONTRACTOR SHALL REUSE EXISTING CONDUIT RUNS AND HOMERUNS WHERE POSSIBLE ACCORDING TO THE CODES THAT HAVE JURISDICTION. PULL NEW WIRES AS REQUIRED BY CODE AND THE AUTHORITY HAVING JURISDICTION.
10. UPDATE ALL PANEL DIRECTORIES AT THE EXISTING PANELS TO REFLECT NEW WORK.
11. THE CONTRACTOR SHALL FIELD VERIFY THE CONNECTED LOAD IN EXISTING FEEDERS AND BRANCH CIRCUITS THAT ARE AFFECTED BY THIS PROJECT'S SCOPE OF WORK PRIOR TO ADDING NEW LOAD TO EXISTING CONDUCTORS, CIRCUIT BREAKERS, PANELS, TRANSFORMERS AND SWITCHGEAR. NOTIFY THE ARCHITECT IMMEDIATELY IF ANY EXISTING EQUIPMENT IS FOUND TO BE OVERLOADED OR WILL BECOME SO IF NEW LOAD IS ADDED TO THE CIRCUIT OR FEEDER. REPORT ALL FINDINGS TO THE ENGINEER OF RECORD.
12. THE DEMOLITION DRAWING, EXISTING PANEL SCHEDULE(S) AND EXISTING SINGLE LINE DIAGRAM(S) ARE BASED ON EXISTING DRAWINGS AND OWNER SUPPLIED INFORMATION. THERE HAS BEEN NO VERIFICATION OF PRECISE LOCATIONS, WIRING OR OPERATION OF EXISTING EQUIPMENT. THE CONTRACTORS SHALL VERIFY ALL JOB CONDITIONS PRIOR TO BID. THE CONTRACTORS SHALL THOROUGHLY EXAMINE AND VERIFY EXISTING CONDITIONS. ANY CONDITION FOUND UNACCEPTABLE OR IN VIOLATION OF CODES AND AUTHORITIES HAVING JURISDICTION SHALL BE CORRECTED.
13. THE CONTRACTOR SHALL PERFORM ALL FIELD VERIFICATION, OBSERVATION, TESTING AND EXAMINATION WORK PRIOR TO ACTUAL CONSTRUCTION AND BREAKING NEW GROUND. A WRITTEN NOTICE SHALL BE ISSUED OF ALL FINDINGS TO THE ARCHITECT, LISTING MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
14. THE CONTRACTOR SHALL PROVIDE ADDITIONAL LABOR AND MATERIALS REQUIRED TO ENSURE A COMPLETE AND OPERABLE SYSTEM IN ACCORDANCE WITH CODES AND ALL AUTHORITIES HAVING JURISDICTION. ALL NOTICE TO THE ARCHITECT SHALL BECOME PART OF THE CONTRACTOR'S WORK AS IF IT WERE INDICATED AND APPLIED ON THE CONSTRUCTION DOCUMENTS.
15. THE CONTRACTOR SHALL INCLUDE IN THEIR BID ALL WORK AND COSTS ASSOCIATED WITH RELOCATING JUNCTION BOXES, PULL BOXES OR ANY OTHER DEVICE THAT I RENDERED INACCESSIBLE AS A RESULT OF THE NEW WORK.
16. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO STORE AND RE–USE ELECTRICAL SYSTEMS, INCLUDING LUMINAIRES, CONDUIT AND WIRING, WHERE POSSIBLE.
17. REMOVE SURFACE MOUNTED OUTLETS, CONDUIT AND WIRING, ETCETERA, AND ABANDONED CONCEALED CONDUITS IN CONCRETE IN PLACE THAT ARE NO LONGER REQUIRED. ANY DEMOLITION OF WIRES TO BE PULLED OUT OF OVERHEAD AREA MUST BE COMPLETELY REMOVED AND NOT LEFT ABANDONED IN THE SPACES ABOVE DROP CEILINGS OR SIMILAR SPACES. ANY UNNEEDED EXISTING CONDUIT AND WIRING FOUND ABANDONED IN THE OVERHEAD CEILING SPACE SHALL BE COMPLETELY REMOVED.
18. BRANCH CIRCUITRY WHICH IS NO LONGER IN USE SHALL BE REMOVED BACK TO THE SOURCE OR TO THE NEAREST DEVICE THAT WILL REMAIN IN SERVICE.
19. PROVIDE NEW CIRCUIT IDENTIFICATION TO ALL EXISTING DEVICES THAT WILL REMAIN AFTER COMPLETION OF NEW SCOPE OF WORK.
20. THE CONTRACTOR SHALL REPAIR AND/OR RE–PAINT ALL AREAS DAMAGED BY DEMOLITION OF CONSTRUCTION AND FINISH TO MATCH EXISTING ADJACENT SURFACES.
21. THE CONTRACTOR SHALL PROTECT AND COVER ALL LUMINAIRES AND ELECTRICAL DEVICES IN AREAS AFFECTED BY NEW SCOPE OF WORK. UPON COMPLETION OF WORK, SHALL THOROUGHLY CLEAN ALL LUMINAIRES, EQUIPMENT, WALLS AND CEILING FROM DUST AND DEBRIS.
22. THE CONTRACTOR SHALL INCLUDE ALL COSTS ASSOCIATED WITH CLEAN UP AND DISPOSAL OF EQUIPMENT NOT RETURNED TO THE OWNER. CONTRACTOR SHALL ALSO INCLUDE ALL COST ASSOCIATED WITH CLEAN UP AND DISPOSAL OF HAZARDOUS MATERIALS.

POWER & SIGNAL PLAN REFERENCE NOTES:

1. MAINTAIN MINIMUM CODE REQUIRED WORKING SPACE CLEARANCE OF 3'–0" ABOUT ELECTRICAL EQUIPMENT PER NEC ARTICLE 110.26.
2. NO PIPING, DUCTS, LEAK PROTECTION APPARATUS, OR OTHER EQUIPMENT FOREIGN TO THE ELECTRICAL INSTALLATION SHALL BE ALLOWED IN THE DEDICATED SPACE ABOVE AND BELOW ELECTRICAL PANELS. THE SPACE EQUAL TO THE WIDTH AND DEPTH OF THE EQUIPMENT AND EXTENDING FROM THE FLOOR TO A HEIGHT OF 6 FEET ABOVE THE ELECTRICAL EQUIPMENT OR TO THE STRUCTURAL CEILING, WHICHEVER IS LOWER, SHALL BE DEDICATED TO THE ELECTRICAL INSTALLATION, PER NEC ARTICLE 110.26.
3. EXISTING WALL OUTLETS INDICATED BY SCRIPT "(E)" ARE TO REMAIN. MAINTAIN EXISTING CIRCUIT CONTINUITY. FIELD VERIFY ALL LOCATIONS PRIOR TO BID. AS BUILD ELECTRICAL PLANS UPON COMPLETION OF CONSTRUCTION.
4. CONTRACTOR TO COORDINATE RELOCATION OF EXISTING TELEPHONE SERVICE AND/OR NEW CABLE TV SERVICE TO THE PROPERTY WITH EXISTING UTILITY COMPANIES. PROVIDE AND INSTALL A CONDUIT RISER AND WEATHERHEAD PER RESPECTIVE UTILITY COMPANY REQUIREMENTS.
5. CATV OUTLET. PROVIDE AND INSTALL A PLASTER RING OR JUNCTION BOX WITH 3/4" C.O. STUB UP TO ACCESSIBLE CEILING SPACE FOR DATA CABLING BY OTHERS. CONFIRM FINAL LOCATION WITH ARCHITECT OR OWNER'S REP PRIOR TO ROUGH–IN.
6. TELEPHONE/DATA OUTLET. PROVIDE AND INSTALL A PLASTER RING OR JUNCTION BOX WITH 3/4" C.O. STUB UP TO ACCESSIBLE CEILING SPACE OR LOW VOLTAGE RACEWAY SYSTEM FOR DATA CABLING BY OTHERS. CONFIRM FINAL LOCATION WITH ARCHITECT OR OWNER'S REP PRIOR TO ROUGH–IN.
7. KITCHEN EQUIPMENT. ELECTRICAL CONTRACTOR SHALL VERIFY LOCATION, CONNECTION SPECIFICATION AND MOUNTING HEIGHTS WITH VENDOR AND OWNER PRIOR TO ROUGH–IN.
8. ALL 15 AND 20A 120V RECEPTACLES INSTALLED IN KITCHEN AND FOOD PREP AREAS SHALL BE GFCI PROTECTED AND "READILY ACCESSIBLE [NEC210.8]. ACCESSIBILITY TO RECEPTACLE SHALL NOT REQUIRE MOVEMENT OF EQUIPMENT AND/OR ANY ADDITIONAL TOOLS, LIKE A LADDER, IN ORDER TO GAIN ACCESS TO THE RECEPTACLE. IF RECEPTACLES ARE NOT ABLE TO BE LOCATED IN AN ACCESSIBLE SPACE, PROVIDE AND INSTALL A GFCI TYPE CIRCUIT BREAKER FOR THE CIRCUIT IN THIS SPACE.
9. PROVIDE AND INSTALL NEW SURFACE MOUNTED RACEWAY BY WIREMOLD OR APPROVED EQUAL. TO BE STAINLESS STEEL AND LOCATED ABOUT COUNTERTOP. SEE ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS AND LENGTH. RACEWAY TO BE SINGLE FOR POWER DEVICES ONLY.
10. COUNTERTOP APPLIANCES, 120V–1ø. SEE ARCHITECTURAL ELEVATIONS FOR OUTLET HEIGHTS AND CONFIRM LOCATIONS WITH OWNER'S REP PRIOR TO ROUGH–IN.

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FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

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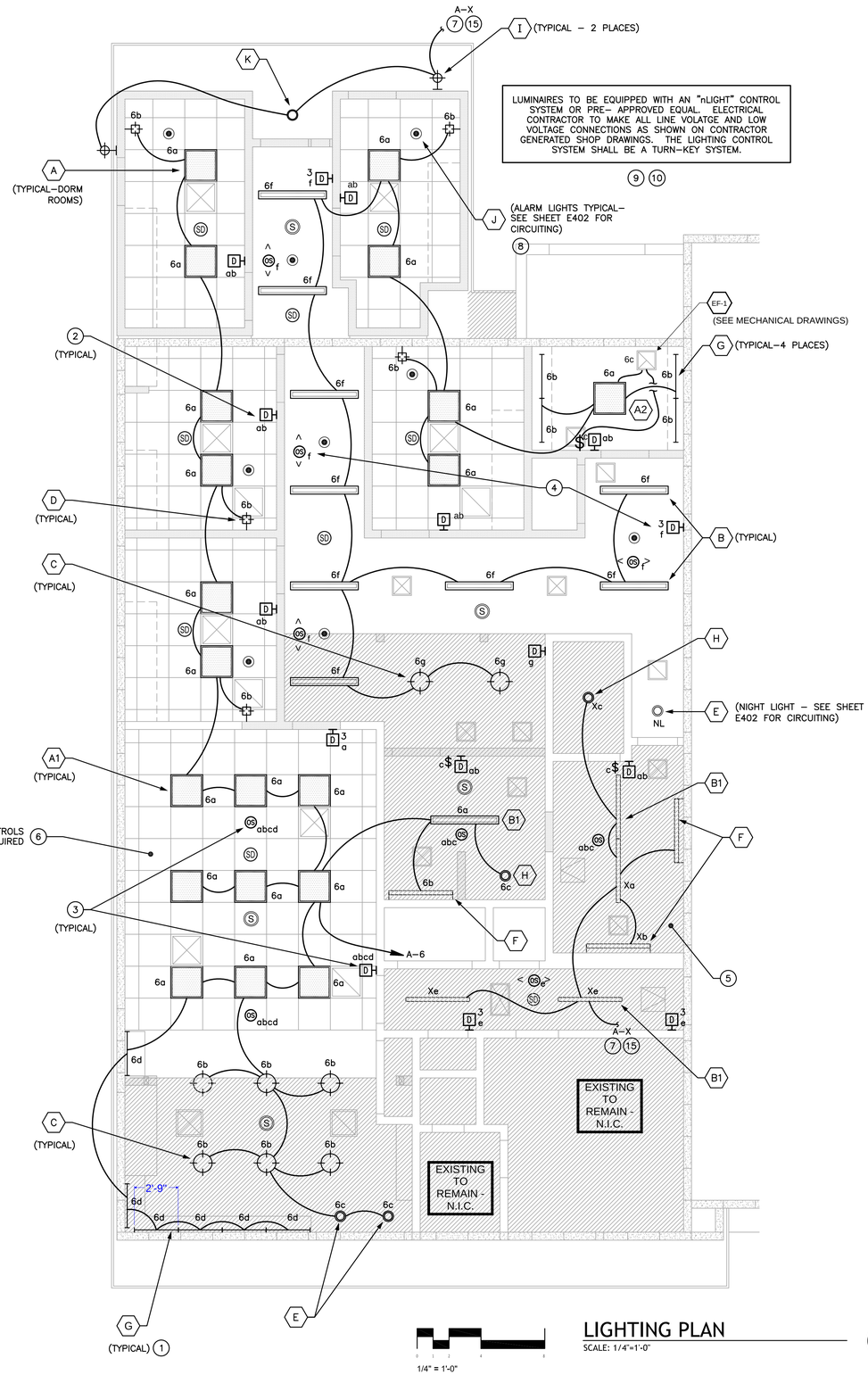
DRAWING TITLE:

POWER AND SIGNAL PLAN

SHEET NO:

E400

21-108_FS4 RENOVATION



LIGHTING PLAN

SCALE: 1/4"=1'-0"

LIGHTING PLAN REFERENCE NOTES:

1. PROVIDE UNDERCABINET LIGHTS FOR COUNTER LIGHTING AND MINIMIZE GLARE BY PLACEMENT DIRECTED BY THE ARCHITECT. SEE ARCHITECTURAL DETAIL FOR MOUNTING METHOD AND LOCATION. PROVIDE SWITCH AS SHOWN ON ARCHITECTURAL DETAIL.
2. PROVIDE AND INSTALL A PDT WALL TYPE SWITCH OCCUPANCY SENSOR CONTROL DEVICE WITH ADEQUATE COVERAGE OF ROOM TO DIM LOAD. TO BE NLIGHT #NWSX–PDT–LV–DX–PDT–D SERIES WITH STAINLESS–STEEL COVER PLATE OR APPROVED EQUAL FOR 1 POLE (2–POLE VERSION NOT AVAILABLE). SEE FLOOR PLANS FOR REQUIRED POLES. CONTRACTOR TO CONFIRM DEVICE AND LUMINAIRE ARE COMPATIBLE PRIOR TO ORDER.
3. PROVIDE AND INSTALL A DUAL TECHNOLOGY CEILING TYPE OCCUPANCY SENSOR WITH LOW VOLTAGE WALL BOX DIMMER(S) WITH ADEQUATE COVERAGE OF ROOM. SENSOR TO BE NLIGHT #NCM–PDT–9–RJB SERIES WITH POWER PACK OR APPROVED EQUAL. DIMMER SWITCH TO BE NLIGHT #NPODM SERIES OR APPROVED EQUAL. CONTRACTOR TO CONFIRM DEVICE AND LUMINAIRE ARE COMPATIBLE PRIOR TO ORDER.
4. PROVIDE AND INSTALL DUAL TECHNOLOGY WIDE VIEW CEILING SENSORS FOR A HALLWAY APPLICATION. SENSOR TO BE NLIGHT #NCM–PDT–10–RJB SERIES OR APPROVED EQUAL. CONTRACTOR TO CONFIRM DEVICE AND LUMINAIRE ARE COMPATIBLE PRIOR TO ORDER.
5. ROOM IS EXEMPT FROM MULTI–LEVEL CONTROL REQUIREMENTS – ALL LIGHTS SHALL NOT BE DIMMED.
6. ROOM HAS A COMBINED TOTAL INSTALLED GENERAL LIGHTING POWER IN THE DAYLIT ZONES LESS THAN 120W. AUTOMATIC DAYLIGHTING CONTROL IS NOT REQUIRED.
7. BRANCH CIRCUIT TO BE ROUTED VIA THE EXISTING LIGHTING CONTROL PANEL FOR AUTOMATIC CONTROL OF LUMINAIRES. CONTRACTOR SHALL IDENTIFY CIRCUIT NUMBER IN THE FIELD AND CONFIRM CAPACITY IS AVAILABLE FOR THE NEW LED LIGHTING.
8. ALARM LIGHT. SEE SHEET E402 FOR BRANCH WIRE CIRCUITING. SEE DETAIL "A" ON SHEET E402 FOR SEQUENCE OF OPERATION AND TYPICAL WIRING DIAGRAM.
9. ELECTRICAL CONTRACTOR SHALL VERIFY ALL TYPES, QUANTITIES AND COMPATIBILITY OF SENSOR PLACEMENT AND SPECIFICATION WITH MANUFACTURER PRIOR TO ORDERING LIGHTING CONTROL SYSTEM.
10. LIGHTING CONTROL SYSTEM SHALL INCLUDE: 1) START–UP, 2) PROGRAMMING, 3) COMMISSIONING AND 4) END USER TRAINING.
11. PROVIDE A NON–SWITCHED HOT LEG OF DEDICATED FIRE ALARM BRANCH CIRCUIT TO ALL SINGLE STATION SMOKE ALARMS AND SMOKE DETECTORS AS THE PRIMARY SOURCE OF POWER. THE SECONDARY POWER SOURCE SHALL BE A LOCAL BATTERY.
12. LIGHT FIXTURES TO BE UNSWITCHED AND REMAIN "ON" FOR 24–HOUR OPERATION (NIGHT LIGHT). CONFIRM ALL FIXTURE LOCATIONS WITH OWNER'S REP PRIOR TO INSTALLING WIRING.
13. THE EXISTING FIRE ALARM CONTROL PANEL 120V–1ø, TO REMAIN. USE NEW BRANCH CIRCUIT AS INDICATED ON FLOOR PLANS AND MAKE ALL LINE VOLTAGE CONNECTIONS TO NEW SINGLE STATION SMOKE ALARMS. THE GENERAL CONTRACTOR TO PROVIDE A FIRE MARSHALL APPROVED FIRE ALARM SYSTEM. SYSTEM TO BE "DESIGN BUILT" AND INCLUDE ALL FIRE MARSHALL REQUIREMENTS. THE SYSTEM IS A DEFERRED SUBMITTAL. IF ALLOWED BY THE FIRE MARSHALL, SMOKE DETECTORS CAN BE WIRED TO THE LOCAL LIGHTING BRANCH CIRCUIT FOR PRIMARY POWER AND A LOCAL BATTERY FOR SECONDARY POWER. REPORT MEANS AND METHODS TO ENGINEER OF RECORD.
14. NEW SPEAKER LOCATIONS. EXTEND NEW LOW VOLTAGE WIRING TO THE EXISTING SPEAKER WIRING CONTROL PANEL AND FIELD VERIFY 120V–1ø LINE VOLTAGE WIRING SOURCE. MAKE ALL LINE VOLTAGE CONNECTIONS TO CONTROL PANEL. SYSTEM TO BE "DESIGN BUILT" AND INCLUDE ALL FIRE STATION REQUIREMENTS.
15. CONTRACTOR TO FIELD VERIFY EXISTING CIRCUIT NUMBER USED FOR THE DEMOLISHED INTERIOR AND EXTERIOR LIGHTING FIXTURES. THIS CIRCUIT SHALL BE RE–USED FOR THE NEW LUMINAIRES. UPDATE PANEL SCHEDULES IN THE FIELD AND REPORT FINDING TO THE ENGINEER OF RECORD.

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PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

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ISSUE OR REVISION NOTES:

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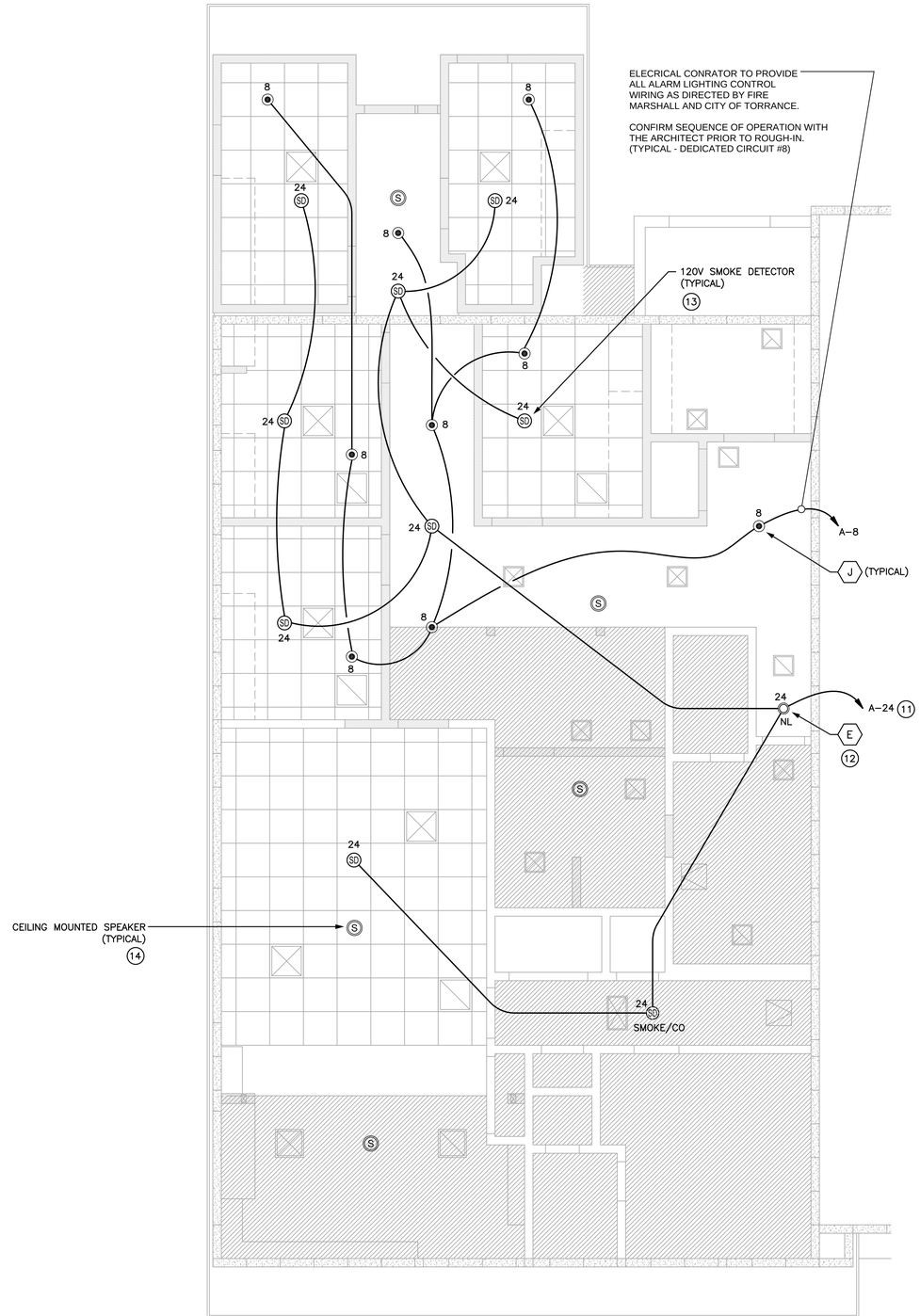
DRAWING TITLE:

LIGHTING PLAN

SHEET NO: E401



1/4" = 1'-0"

ALARM LIGHTING & SMOKE DETECTOR CIRCUITING PLAN

SCALE: 1/4"=1'-0"

TRUE NORTH

The schematic of the ring down system that turns the lights on in the dorm rooms when Fire receives a call.

SEQUENCE OF OPERATION:

1. When a call comes in from dispatch the momentary contacts to CR1 are closed energizing CR1.
2. CR1 contacts #43 & 44 will momentarily close energizing LC1 "latching on" the lights in the room.
3. CR1 contacts #13 & 14 will momentarily close energizing CR2.
4. CR2 contacts #13 &14 will close to keep CR2 energized.
5. CR2 contacts #43 &44 will close energizing TR.
6. Once 90 seconds have elapsed, TR contacts #9 & 6, NOTC, will close energizing LC1 "latching off" the lights in the room.
7. TR contacts #1 & 7, NCTO, will open de-energizing CR2.
8. CR2 contacts #43 &44 open de-energizing TR.
9. System on stand by for next call.

Note: NOTC= Normally Open, Timed Closed
NCTO= Normally Closed, Timed Open

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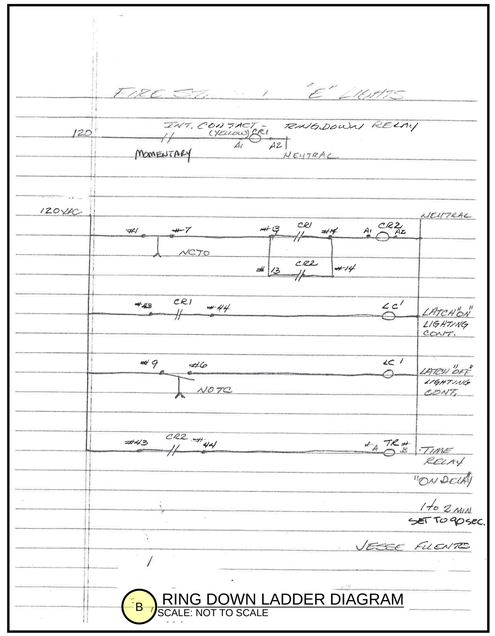
A SEQUENCE OF OPERATIONS



B RING DOWN LADDER DIAGRAM

SCALE: NOT TO SCALE

LEGEND

- ALARM LIGHT
- SPEAKER
- SMOKE DETECTOR

SEE SHEET E401 FOR ALL (#) REFERENCE NOTES

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DRAWING TITLE:

ALARM LIGHTING & SMOKE DETECTOR CIRCUITING PLAN

SHEET NO:

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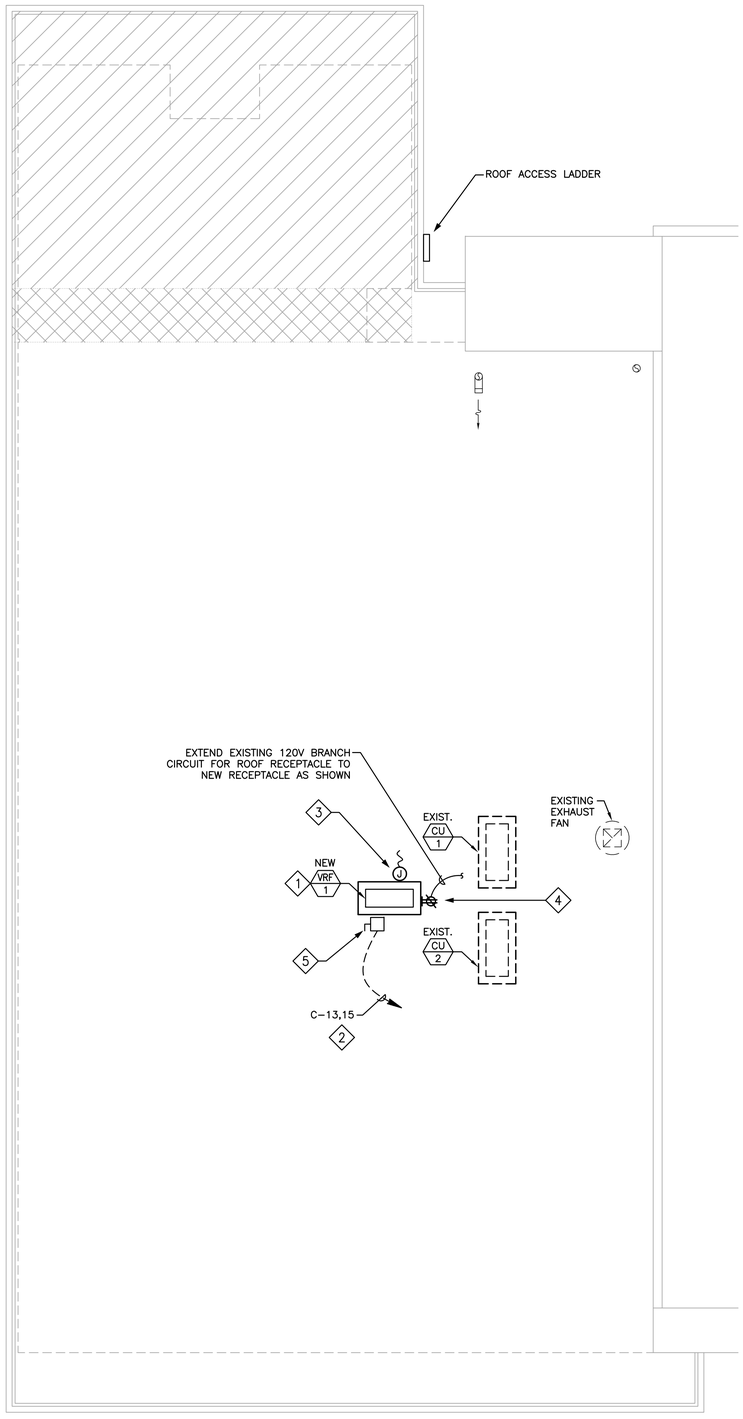

ROOF PLAN REFERENCE NOTES:

1. OUTDOOR VARIABLE REFRIGERANT FLOW SPLIT SYSTEM HEAT PUMP 240V–1ø 11MCA. PROVIDE AND INSTALL A LOCKABLE, WEATHERPROOF 30AS/15AF/2P HP RATED FUSED DISCONNECT SWITCH AND MAKE CONNECTION TO UNIT. CONFIRM FINAL UNIT LOCATION AND SPECIFICATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH–IN. MAKE ALL LINE VOLTAGE CONNECTIONS TO INDOOR FAN COIL UNIT. OUTDOOR UNIT POWERS INDOOR FAN COIL.
2. ROUTE ALL CONDUITS TO ROOF–TOP MECHANICAL UNITS WITHIN ROOF TOP UNITS' FOOTPRINT AND HORIZONTALLY THROUGH ATTIC SPACE.
3. PROVIDE ALL LINE VOLTAGE BRANCH CIRCUIT WIRING AND ALL LOW VOLTAGE CONDUIT ONLY WITH PULL STRING FOR CONTROL OF MECHANICAL SYSTEMS AS DIRECTED BY MECHANICAL CONTRACTOR. USE WEATHERPROOF JUNCTION BOX(ES) IN OUTDOOR AREAS. SEE WIRING DIAGRAMS ON MECHANICAL DRAWINGS.
4. PROVIDE AND INSTALL A RECEPTACLE AND ENCLOSURE THAT IS WEATHERPROOF AND IS LISTED AS "EXTRA DUTY". THE RECEPTACLE SHALL BE LISTED AS WEATHER RESISTANT TYPE WITH INTEGRAL GFCI PROTECTION. LOCATION SHALL BE WITHIN 25' OF ALL MECHANICAL SYSTEMS ON THE ROOF OR GROUND FLOOR EXTERIOR AREAS.
5. MAINTAIN MINIMUM CODE REQUIRED WORKING SPACE CLEARANCE OF 3'–0" ABOUT ELECTRICAL EQUIPMENT, PER NEC ARTICLE 110.26. IN ADDITION, ALL DISCONNECT SWITCHES AND CIRCUIT BREAKER HANDLES SHALL BE INSTALLED SO THAT THE CENTER OF THE GRIP OF THE OPERATING HANDLE WHEN IN THE HIGHEST POSITION IS NOT MORE THAN 6'–7" A.F.F.

1/4" = 1'-0"

ELECTRICAL ROOF PLAN

SCALE: 1/4"=1'-0"

TRUE NORTH

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PROJECT MANAGER: EP

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DRAWING TITLE:

ELECTRICAL ROOF PLAN

SHEET NO:

E403

PANEL **A (NEW)** TYPE RECESSED
VOLTAGE 120/240 VOLT 1-PH 3-W MAIN L.O. 200 AMPERE
LOCATION CAPTAIN'S HALLWAY BUS SIZE 200 AMPERE

FULLY RATED: 22,000 AIC AT 240V-1PH

DESCRIPTION	WATT (VA) A	WATT (VA) B	LTG	REC	MSC/ LCL	CKT	POLE	BKR	BKR	POLE	CKT	MSC/ LCL	REC	LTG	WATT (VA) A	WATT (VA) B	DESCRIPTION
APPARATUS LTG 1	900		3			1	1	20			2						**SPACE**
APPARATUS LTG 2		900	3			3	1	20			4						**SPACE**
APPARATUS LTG 3	900		3			5	1	20	20	1	6	1		57	1075		**LIVING AREA LTG**
APPARATUS LTG 4		1200	4			7	1	20	15	1	8	**LOCK**		9		103	**ALARM LTG**
XMAS TREE LTG	500			1		9	1	20	20	1	10			5	740		CPTN & HALL LTG
HALL RESTROOM		900		5		11	1	20	20	1	12		2			360	DAY ROOM
SPARE						13	1	20	15	1	14		1	2	640		KITCHEN HOOD
HOSE TOWER LTG		800	5			15	1	15	20	1	16		1			**1200**	**DISPOSER 1**
HOIST MOTOR	1120					17	2	30	15	1	18	J			240		HVAC CONTROLS
↑↓ SHFT		1120				19	/	/	15	1	20					816	HEATER FAN 1
CAPTAIN DORM	900			5		21	1	20	15	1	22				816		HEATER FAN 2
SPARE						23	1	20	20	1	24	**LOCK**	9	1		461	**SMOKE DET/ FIRE**
SPARE						25	1	15			26						**SPACE**
SPARE						27	1	15	20	1	28						**SPARE**
REFRIGERATOR 1	1440				**GFCI**	29	1	15	20	1	30		4		720		**ADA 'RESTROOM**
REFRIGERATOR 2		1440			**GFCI**	31	1	15	20	1	32		6			1080	**DORM 1 AND 2**
COFFEE POT	1200			2		33	1	20	20	1	34		6		1080		**DORM 3 AND 4**
DISHWASHER		1500			**GFCI**	35	1	20	20	1	36		3			540	**DORM 5**
KITCH GEN USE	540			3		37	1	20	20	1	38		1		1200		**WASHER**
MICROWAVE		1500		1		39	1	20	20	1	40		2			360	**DRYER - GAS**
SPARE						41	1	20	20	1	42		4		720		**HALLWAY**
SUB-TOTAL	7500	9360													7231	4920	SUB-TOTAL
														LINE TOTALS:	14731	14280	
														LCL ADDER:	1359	1031	
														TOTAL VA:	16090	15311	
														TOTAL KVA LOAD:		31401	
														TOTAL AMP LOAD:		**131**	AMPERE

NOTES:
1) CONTRACTOR TO EXTEND AND RELOCATE ALL EXISTING BRANCH CIRCUITS IN PANEL TO NEW PANEL AND AT SAME LOCATION. FEEDER HAS BEEN UPGRADED.
2) PROVIDE 'GFCI' TYPE CIRCUIT BREAKERS WHERE NOTED IN THE COLUMN MARKED 'MISC' ABOVE.
3) OLD PANEL IS EQUIPPED WITH AN INTEGRAL LIGHT SWITCH CONTRACTOR TO PROVIDE NEW SWITCH IN ADJACENT JUNCTION BOX WITH RECESSED COVER PLATE.
4) CIRCUIT DESCRIPTION IN NON-BOLD FONT IMPLY EXISTING BRANCH CIRCUIT TO REMAIN.

PANEL **C (NEW)** TYPE SURFACE
VOLTAGE 120/240 VOLT 1-PH 3-W MAIN L.O. 200 AMPERE
LOCATION MAIN ELECTRICAL ROOM BUS SIZE 200 AMPERE

FULLY RATED: 65K AIC AT 240V-1PH

DESCRIPTION	WATT (VA) A	WATT (VA) B	LTG	REC	MSC/ LCL	CKT	POLE	BKR	BKR	POLE	CKT	MSC/ LCL	REC	LTG	WATT (VA) A	WATT (VA) B	DESCRIPTION
(RED TAPED)	1800					1	2	20	20	2	2				1200		EXIST. FIRE TRUCK
SPARE (F.V.)		1800				3	/	/	/	/	4					1200	EXHAUST FAN
EXIST. OFFICE	1800				**HACR**	5	2	30	30	2	6				1800		EXIST. AIR
HVAC		1800				7	/	/	/	/	8					1800	COMPRESSOR
EXIST. BUNK	2400				**HACR**	9	2	50	30	2	10	**HACR**			1800		EXIST. KITCHEN
HVAC		2400				11	/	/	/	/	12					1800	HVAC
NEW BUNK AC	1353				**HACR**	13	2	15	15	1	14		1		180		NEW SERVICE 1
(VFR-1)		1353				15	/	/			16						SPACE
SPARE						17	2	15			18						SPACE
-						19	/	/			20						SPACE
SPACE						21					22						SPACE
SPACE						23					24						SPACE
SPACE						25					26						SPACE
SPACE						27					28						SPACE
SPACE						29					30						SPACE
SUB-TOTAL	7353	7353													4980	4800	SUB-TOTAL
														LINE TOTALS:	12333	12153	
														LCL ADDER:	600	600	
														TOTAL VA:	12933	12753	
														TOTAL KVA LOAD:		25686	
														TOTAL AMP LOAD:		**107**	AMPERE

NOTES:
1) CONTRACTOR TO EXTEND AND RELOCATE ALL EXISTING BRANCH CIRCUITS IN PANEL TO NEW PANEL AND AT NEW LOCATION.
2) PROVIDE 'HACR' RATED CIRCUIT BREAKERS WHERE NOTED IN THE COLUMN MARKED 'MISC' ABOVE.

PANEL DPA (NEW) TYPE INTEGRAL TO 'MSA' - NEMA '3R'
VOLTAGE 120/240 VOLT 1-PH 3-W MAIN C/B 400 AMPERE
LOCATION EXTERIOR WALL - OLD GENSET RM BUS SIZE 400 AMPERE

FULLY RATED: 65K AIC AT 240V-1PH

DESCRIPTION	WATT (VA) A	WATT (VA) B	LTG	REC	MSC/ LCL	CKT	POLE	BKR	BKR	POLE	CKT	MSC/ LCL	REC	LTG	WATT (VA) A	WATT (VA) B	DESCRIPTION
(N) PANEL 'C' VIA	12933					1	2	150			2						UNUSABLE SPACE
TRANSFER SW.		12753				3	/	/			4						UNUSABLE SPACE
(EX.) PANEL 'NP' VIA	24840					5	2	225			6						UNUSABLE SPACE
TRANSFER SW.		23186				7	/	/			8						UNUSABLE SPACE
SPACE						9					10						SPACE
SPACE						11					12						SPACE
SPACE						13					14						SPACE
SPACE						15					16						SPACE
SPACE						17					18						SPACE
SPACE						19					20						SPACE
SPACE						21					22						SPACE
SPACE						23					24						SPACE
SUB-TOTAL	37773	35939													0	0	SUB-TOTAL
														LINE TOTALS:	37773	35939	
														LCL ADDER:			
														TOTAL VA:	37773	35939	
														TOTAL KVA LOAD:		73712	
														TOTAL AMP LOAD:		**307**	AMPERE

NOTES:
1) CONTRACTOR CAN PROVIDE A MAIN BREAKER RATED FOR 80% OF CONNECTED LOAD AS A COST SAVINGS.

PANEL NP (EXISTING) TYPE SURFACE - NEMA '3R'
VOLTAGE 120/240 VOLT 1-PH 3-W MAIN L.O. 225 AMPERE
LOCATION EXTERIOR WALL - OLD GENSET RM BUS SIZE 225 AMPERE

FULLY RATED: 65K AIC AT 240V-1PH

DESCRIPTION	WATT (VA) A	WATT (VA) B	LTG	REC	MSC/ LCL	CKT	POLE	BKR	BKR	POLE	CKT	MSC/ LCL	REC	LTG	WATT (VA) A	WATT (VA) B	DESCRIPTION
PANEL 'B'	5000					1	2	100	20	1	2				1500		BATT CHRGR & PMP
-		5000				3	/	/	20	1	4					1000	ALTERT US
SPARE						5	2	50	20	2	6				1500		GENSET BLOCK
-						7	/	/	/	/	8					1500	HEATER
SPACE						9					10						SPACE
SPACE						11					12						SPACE
SPACE						13					14						SPACE
SPACE						15					16						SPACE
SPACE						17					18						SPACE
SPACE						19					20						SPACE
SPACE						21					22						SPACE
SPACE						23					24						SPACE
SPACE						25					26						SPACE
SPACE						27					28						SPACE
SPACE						29					30						SPACE
SPACE						31					32						SPACE
SPACE						33					34						SPACE
SPACE						35					36						SPACE
SPACE						37					38						SPACE
SPACE						39					40						SPACE
SPACE						41					42						SPACE
UNUSABLE SPACE						**X**	**X**	**X**	**X**	**X**	**X**						UNUSABLE SPACE
BOTTOM FEEDER									**175**	**2/(N)**	44				16090		**NEW PANEL 'A'**
BRAKER									/	/	46					15311	
SUB-TOTAL	5000	5000													19090	17811	SUB-TOTAL
														LINE TOTALS:	24090	22811	
														LCL ADDER:	750	375	
														TOTAL VA:	24840	23186	
														TOTAL KVA LOAD:		48026	
														TOTAL AMP LOAD:		**200**	AMPERE

NOTES:
1) CUTLER HAMMER TYPE PRL2a PANELBOARD AND DATED 08-03-2001.
2) PANEL 'B' CONNECTED LOAD IS AN ESTIMATE AND FOR DESIGN DEVELOPMENT PURPOSES ONLY. SEE SHEET E304 FOR WORST-CASE ANALYSIS.

GENERAL NOTES FOR BRANCH CIRCUIT WIRING:

1) CONDUCTORS OF A MULTI-WIRE BRANCH CIRCUIT SHALL ORIGINATE FROM THE SAME PANELBOARD. THE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS THAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES.

2) ALL 2-POLE CIRCUIT BREAKERS AND ALL 3-POLE CIRCUIT BREAKERS IN PANELBOARDS SHALL BE RATED FOR DUAL VOLTAGE 120/208V [NEC 240.86]. SEE POLE COLUMN OF PANEL SCHEDULE FOR NOTATION '2' AND '3'.

3) RECEPTACLES INSTALLED IN KITCHEN, FOOD PREP AREAS AND LOCKER ROOMS SHALL BE GFCI PROTECTED AND "READILY ACCESSIBLE" [NEC 210.8(B)]. ACCESSIBILITY TO RECEPTACLE SHALL NOT REQUIRE MOVEMENT OF EQUIPMENT AND/OR ANY ADDITIONAL TOOLS, LIKE A LADDER, IN ORDER TO GAIN ACCESS TO THE RECEPTACLE. IF RECEPTACLE ARE NOT ABLE TO BE LOCATED IN AN ACCESSIBLE SPACE, PROVIDE AND INSTALL A GFCI TYPE CIRCUIT BREAKER FOR THE CIRCUIT IN THIS AREA.

4) APPLIANCE CIRCUITS GREATER THAN 300VA OR 1/8 HP SHALL HAVE A DISCONNECTING MEANS WITHIN SIGHT OF THE APPLIANCE [NEC 422.31 (B) (C)]. IF NOT WITHIN SIGHT, PROVIDE AND INSTALL A CIRCUIT BREAKER IN THE PANEL SCHEDULE THAT IS CAPABLE OF BEING LOCKED IN THE OPEN POSITION. THE PROVISIONS FOR LOCKING SHALL REMAIN IN PLACE WITH OR WITHOUT THE LOCK INSTALLED [NEC 110.25]. SEE 'MISC' COLUMN OF PANEL SCHEDULE FOR NOTATION 'LOCK'.

5) PROVIDE A LOCK ON DEVICE AT CIRCUIT BREAKER HANDLE FOR FIRE ALARM SIGNAL SYSTEMS. SEE MISC COLUMN OF PANEL SCHEDULE FOR NOTATION 'LOCK' [NFPA 72].

6) SIZE NO. 1 AWG CONDUCTORS AND SMALLER ARE TO USE THE 60-DEGREE COLUMN OF TABLE 310.15(B)(16) TO DETERMINE AMPACITY. CONDUCTORS #1/0 AWG AND LARGER ARE TO USE THE 75-DEGREE COLUMN OF THE TABLE TO DETERMINE AMPACITY OF THE CONDUCTOR. SEE UL ELECTRICAL CONSTRUCTION MATERIALS DIRECTORY AND NEC ARTICLE 110.14(C).

7) ALL CONDUCTORS SHALL BE COPPER AND RATED FOR 90 DEGREE CELSIUS AND 600V. SIZES NO. 8 AWG AND LARGER SHALL BE STRANDED AND NO. 10 AWG AND SMALLER SHALL BE SOLID. USE TYPE THHN/THWN-2/XHHW/XHHW-2.

8) ALL CIRCUIT BREAKERS SHALL BE BOLT ON TYPE.

E ENGINEERS
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1238 7th Street, Santa Monica, Ca. 90401
Tel: (424) 272-6709

REGISTERED PROFESSIONAL ENGINEER ERIC P. PERCIC E 16773 EXP. 9-30-22 ELECTRICAL STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
1	06.02.21	ISSUED FOR REVIEW

PROJECT NO: 21-108

DRAWN BY: E ENGINEERS CHECKED BY: EP

PROJECT MANAGER: EP

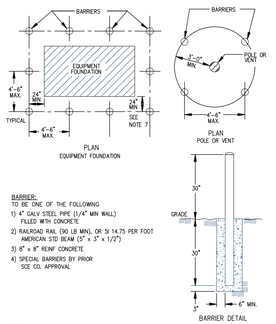
DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:
PANEL SCHEDULES

SHEET NO:
E500

PROTECTIVE BARRIERS FOR UNDERGROUND DISTRIBUTION STRUCTURES SEE UGS MS 830



BARRIER:
TO BE ONE OF THE FOLLOWING
1) 4" GALV STEEL PIPE (1/4" MIN WALL) FILLED WITH CONCRETE
2) RAILROAD RAIL (90 LB MIN), OR SI 14.75 PER FOOT AMERICAN STD BEAM (5" x 3" x 1/2")
3) 8" x 8" REINF CONCRETE
4) SPECIAL BARRIERS BY PRIOR SCE CO. APPROVAL

NOTES:
1. STRUCTURES WILL NORMALLY BE INSTALLED ONLY IN NON-TRAFFIC AREAS. BARRIERS TO BE USED WHERE CONSTRUCTION HAS EXPOSED EQUIPMENT TO TRAFFIC.
2. TOP OF BARRIERS TO BE SMOOTH CUT AND TOP EDGES TO BE ROUNDED.
3. ONE BARRIER TO BE REMOVABLE WHEN OVERHEAD OBSTACLES PREVENT EQUIPMENT REMOVAL BY CRANE.
4. ADEQUATE CLEARANCE MUST BE PROVIDED FOR DOORS, COOLING RADIATORS, ETC.
5. BARRICADES, AS SHOWN, INDICATE TYPICAL REQUIREMENTS. FIELD CONDITIONS WILL NECESSITATE CHANGES FOR ADEQUATE EQUIPMENT PROTECTION. APPROVAL IN THE FIELD FROM THE UNDERGROUND INSPECTOR IS REQUIRED FOR ALL BARRICADE INSTALLATIONS.
6. WHEN SPECIFIED ON WORKING DRAWING, A 6" (MINIMUM HEIGHT) CURB MAY BE INSTALLED IN PLACE OF BARRIERS. THIS CURB MUST BE AT LEAST 6" THICK AND ITS FRONT FACE LOCATED 60" MINIMUM (OR AS SPECIFIED ON DRAWING) FROM THE EQUIPMENT FOUNDATION.
7. INCREASE TO 44" MINIMUM AT FRONT OF PADMOUNT 3Ø TRANSFORMERS AND CAPACITORS, AND 36" MINIMUM AT BACK OF CAPACITORS (DOOR SIDE ONLY), WHEN A 72"x 94" PAD IS BEING INSTALLED.

D91: Rev. 01/21/09

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

Response to Letter of Request for Short Circuit Current Values

To: 5205 CALLE MAYOR
TORRANCE CA 90505

From: Southern California Edison
505 Maple Ave
Torrance CA 90503

Subject: Southern California Edison's Contribution to Short Circuit Current at the Point of Connection of the Company's Service Conductors to the Customer's Service Entrance Facilities.

Project: Name: TORRANCE FIRE STATION NO. 4
Address: 5205 CALLE MAYOR TORRANCE CA 90505

(1) The voltage to be utilized for this project will be 120/240V , to serve your 400A main switch/switches.

(2) Southern California Edison's Contribution to Short Circuit Current at the point of calculation, based on Southern California Edison's demand factors for transformer sizing, will be approximately 42,000A (symmetrical).

Service Cables: 350
Distance from Transformer: 121'
Transformer: 50 kva

Jesus Fernandez
Jesus Fernandez – Service Planner Date

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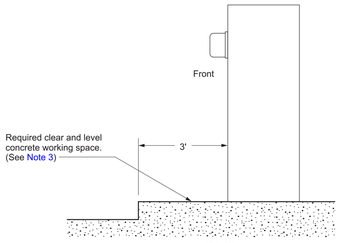

Side View

Note(s):
1. A minimum of 3 feet of clear, level concrete workspace is required in front of all termination, metering, and service equipment.
2. See ESR–5 for Meter-Mounting Height Requirements. Meter-mounting height will be measured from the standing and working space to the centerline of the meter(s).
3. When service equipment is installed on an elevated portion of the floor/ground, or housekeeping pad, the pad shall be flush with the bottom of the service equipment and extend a minimum of three feet. This is measured from the front of the service equipment or the outer door(s) of the switchboard NEMA 3R enclosure when installed. In no case shall the maximum meter height of 6'-3" be exceeded.
4. To maintain a safe, clear, and level concrete working area in front of new or existing meter and service equipment, a concrete slab, acceptable to the Company, must be used.
5. For switchboards above 600 V, five-foot minimum of clear and level concrete standing and working space is required in the front, rear, and side of any section where such part supports or provides access to metering, testing equipment, or service cable termination sections.

16.12 Protective Barriers for Service Equipment

Barrier posts are used to protect the meter and service equipment, as well as personnel, from vehicular contact, and to prohibit encroachment into the working space (for example, loading zones, driveways, congested areas, off street parking, and so on).

The customer shall provide and install "non-removable" barriers to provide the proper safe working clearances where the workspace is exposed to vehicular or other hazardous conditions. Meters will not be set until the barriers have been installed.

ESR–3	Underground Service Connections 0–600 V	EFFECTIVE DATE 4-27-2018
PAGE 3–20	**Electrical Service Requirements** ►SCE Public◄	APPROVED

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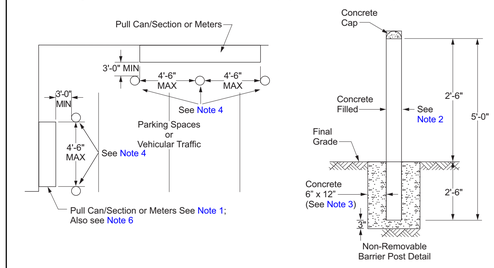
Figure 3–3: Protective Barrier for Service Equipment Installation Requirements

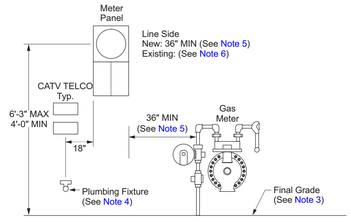


Note(s):
1. Meters located on a wall adjacent to any parking area, or area accessible to vehicular traffic, shall be protected by non-removable barriers. Wheel stops and removable barriers are not acceptable substitutes. Maintain a minimum of three feet of clear and level working space in front of all the service equipment enclosures. Barriers must be so positioned as to allow all service equipment doors/panels to be opened 90 degrees.
2. Use four-inch galvanized steel pipe (1/4-inch minimum wall) filled with concrete.
3. The concrete encasement shall be a minimum of six inches thick in stable soil and 12 inches thick in sandy or unstable soil.
4. Barriers must be installed in line with each end of the service equipment to prevent vehicle contact. The distance between barriers shall not exceed 4'-6".
5. Before excavating for the barriers, call DIG ALERT at 1-811-227-2600 for mark-out service. Call at least 48 hours prior to excavating.
6. See Figure 3–2.

EFFECTIVE DATE 4-27-2018	Underground Service Connections 0–600 V	ESR–3
APPROVED	**Electrical Service Requirements** ►SCE Public◄	PAGE 3–21

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

Figure 5–4: Separation of Meter Assemblies for Electric and Gas Services



Note(s):
1. Size and dimensions of panels will vary. Drawings are not to scale.
2. This drawing pertains to both overhead and underground electric service applications.
3. Maintain a 3-foot clear, level, and unobstructed workspace in front of electric service equipment.
4. Plumbing fixtures that extend more than 6 inches out from wall surface must be located 18 inches minimum from the outside edge of the meter panel.
5. For new construction only, does not apply for upgrades.
6. Upgrades and replacements — Line Side Panels that are currently installed 24 inches or greater from the line side of the gas meter, clearance may not be reduced. Panels that are currently installed less than 24 inches from the gas meter, may remain (or be re-installed) in existing location.
7. Upgrades and replacements — Load Side Panels that are currently installed 18 inches or greater from the load side of the gas meter, clearance may not be reduced. Panels that are currently installed less than 18 inches from the gas meter, may remain (or be re-installed) in existing location.

EFFECTIVE DATE 10-27-2017	Meters — EXO Installations	ESR–5
APPROVED	**Electrical Service Requirements** ►SCE Public◄	PAGE 5–19

E ENGINEERS
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Tel: (424) 272-6709

REGISTERED PROFESSIONAL ENGINEER ERIC. P. PERCIC E 16773 EXP. 9-30-22 ELECTRICAL STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
1	06.xx.21	ISSUED FOR PLAN CHECK
	06.02.21	ISSUED FOR REVIEW

PROJECT NO: 21-108

DRAWN BY: E ENGINEERS CHECKED BY: EP

PROJECT MANAGER: EP

DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:
SCE SHORT CIRCUIT DUTY LETTER AND DETAILS

SHEET NO:
E600

21-108_FS4 RENOVATION

CREW & CUSTOMER MAP – TD# 1856232

CONTACTS:
CALL LOUIS ORTEGA FOR ACCESS THRU GATE
LOUIS ORTEGA 310–953–1355
ERIC PERCIC 424–272–6709

CITY OF TORRANCE

AZALIA 4kV % ROLLING HILL
2SN–COMM/INDUST M&S UG
5205 CALLE MAYOR

CONSTRUCTION NOTES:

Unless otherwise specified on the working drawing which forms a part of the specification, the Contractor/Developer shall furnish the following items at no cost to the Edison Company.

Southern California Edison Company has attempted to correctly show all existing utilities and substructures in the vicinity of the work, but does not guarantee there are no other substructures in the area. Failure of SCE to show all substructures in their correct location will not be a basis for a claim for extra work, and the contractor shall be responsible for all damages to substructures whether shown or not.

1. FOR GENERAL SPECIFICATIONS SEE UGS GI 001.

2. CONDUIT:
   a. Minimum cover in street or parkway is 30" below gutter grade, unless noted otherwise.
   b. Minimum cover on private property is 30" below finished grade, unless noted otherwise.
   c. Contractor is to furnish and install approved conduit to Edison specifications per UGS CD 100.1, 110 AND 120.
   d. For the type of conduit for this job, See UGS CD 110.1.
   e. Install all risers per UGS CD 160, 161, 162 and 170.
   f. Cap all mainline conduits per UGS CD 148 and service conduits per UGS CD 150.
   g. Install blank conduit plugs in all conduits terminating into Vaults, Manhole's, PMH's, SOE's & all cap locations, per UGS CD 180.1 & UGS CD 180.2
   h. Install pull rope in all conduit runs. Pull rope to be at least 3/8" polypropylene rope, braided or twisted. For specifications, approved makes, and suppliers, see UGS GI 040.
   i. All conduit must be mandreled with the approved mandrel UGS CD 197.

3. CONDUIT RADIUS REQUIREMENTS:
   a: The minimum radius for bends are:
      36" for conduits 3" in diameter or smaller
      48" for conduits 4" and 5" in diameter
      60" for 6" diameter conduit
   b: The minimum radius for all sweeps of all mainline conduits is 12'–6" (unless noted otherwise).

4. EXCAVATION AND BACKFILL:
   a. Work area shall be cleared and rough graded to within four inches of final grade prior to installation of Edison conduit or structures.
   b. All excavations shall be in accordance with the California State Construction Safety Orders (when applicable), Edison specifications, and all governing local ordinances.
   c. Each trench to be a uniform depth below final grade prior to installation of Edison conduit or structures.
   d. Backfill shall be provided by the Contractor for all excavations and shall include crushed rock, concrete, and/or imported backfill, when required.
   e. Backfill with a MINIMUM of one sack per yard sand cement slurry around and over vaults and manholes per UGS GI 030, section 6.4 and around PMH's within one foot of finished grade, per UGS SS 590.1.
   f. Backfill, per Edison specifications, shall immediately follow conduit or substructure installation. At no time shall conduit be left exposed over 24 hours.
   g. No rocks are allowed within 12 inches of direct–buried cables or any conduit without concrete encasement. Native backfill capable of passing through a one–half inch mesh screen shall be considered to be "rock free". If existing backfill does not pass through a 1/2" screen, place imported sand 3" below and 12" above Edison cables. After this point, no rocks larger than 12" diameter are permitted.
   h. All backfill shall be compacted to meet or exceed local ordinances or other requirements. It shall be placed in a manner that will not damage the conduit or substructure or allow future subsidence of the trench or structures.

5. PAVING:
   Repaving, where required, shall be placed in such a manner that interference with traffic, including pedestrian traffic, will be kept to a minimum. The Contractor shall establish a program of repaving acceptable to the Municipality, County, or other authority having jurisdiction and which is acceptable to Edison.

6. STRUCTURES:
   a. All substructures shall be constructed or installed to Edison specifications.
   b. Install protection barriers per UGS MS 830 when required in areas exposed to traffic, per Edison Inspector.
   c. All conduit lines and concrete floored substructures shall be water tight.
   d. All grounding materials shall be furnished and installed by the Contractor.

7. RETAINING WALLS:
   When required, retaining walls shall be provided by the Developer. Walls are required wherever grade rises more than 18 inches above the structure or 24" above the pad surface at a distance of 5 feet from the same, or in areas subject to erosion. Design and installation must comply with local building ordinances. Refer to Edison Inspector for typical space requirements.

8. PERMITS:
   All permits necessary for excavation shall be provided by the Contractor/Developer.

9. ACCESS:
   Heavy truck access shall be maintained to equipment locations. Structures must be clear of all appurtenances that would obstruct the loading or unloading of equipment.

10. SERVICES:
   a. Meters and services shall comply with Edison Electrical Services Requirements.
   b. Wiring must be in accordance with applicable local ordinances and approved by local Inspection Authorities.

11. LOCATION:
   a. The location of excavations and structures for Edison shall be as shown on the working drawing. No deviation from the planned locations will be permitted unless approved by the Edison Inspector. See UGS GI 001, section 2.2.
   b. Actual location of obstructions, storm drains, and/or other foreign utilities to be the responsibility of the Contractor. See UGS GI 001, section 2.3.

12. Contractor is to verify location and widths of all sidewalks and driveways prior to street light installation. See UGS CD 175.1, UGS CD 175.2 and UGS CD 175.3.

13. SURVEY:
   Surveying of street improvements, property corners, lot lines, finished grade, etc., necessary for the installation of underground facilities must be completed and markers or stakes placed prior to the start of the installation. In addition, Developer shall maintain the markers during the installation and inspection by Edison. Grade and property line stakes must show any offset measurements.

14. COORDINATION AND SUPERVISION:
   The Developer shall provide supervision over and coordination among the various contractors working within the development in order to prevent damage to Edison facilities. He is responsible for the cost of repairs, replacement, relocation, or other corrections to Edison facilities made necessary by his failure to provide supervision or to otherwise comply with these specifications.

15. TELEPHONE AND OTHER UTILITY REQUIREMENTS:
   The drawing prepared for this job may also cover the facilities to be installed for the telephone company and/or other utility. Any questions concerning details of their installation should be referred to the company concerned.

16. OWNERSHIP:
   Developer is to deed to the Edison Company all structures shown hereon except those shown as customer owned.

17. WARRANTY:
   Applicants expressly represent and warrant that all work performed and all material used in meeting Applicants' obligations herein are free from defects in workmanship and are in conformity with Southern California Edison Company's requirements. This warranty shall commence upon receipt by Applicants of Company's final acceptance and shall expire one year from that date. Applicants agree to promptly correct to the Company's satisfaction and that of any governmental agency having jurisdiction and at Applicant's expense any breach of this warranty which may become apparent through inspection or operation of underground electric system by Company during this warranty period.

18. INSPECTION:
   Inspection is required during the construction period. A 48 hour advance notice of intent to start construction is required from the contractor to the Southern California Edison Company. Standards of Edison construction requirements are available upon request.

Duct and Structure Inspector: JESSE CARRASCO Phone: 310–779–3195
Cabling Construction Coordinator: Phone:

D05: Rev. 07/21/16

CONNECTING TO EXISTING SCE STRUCTURES

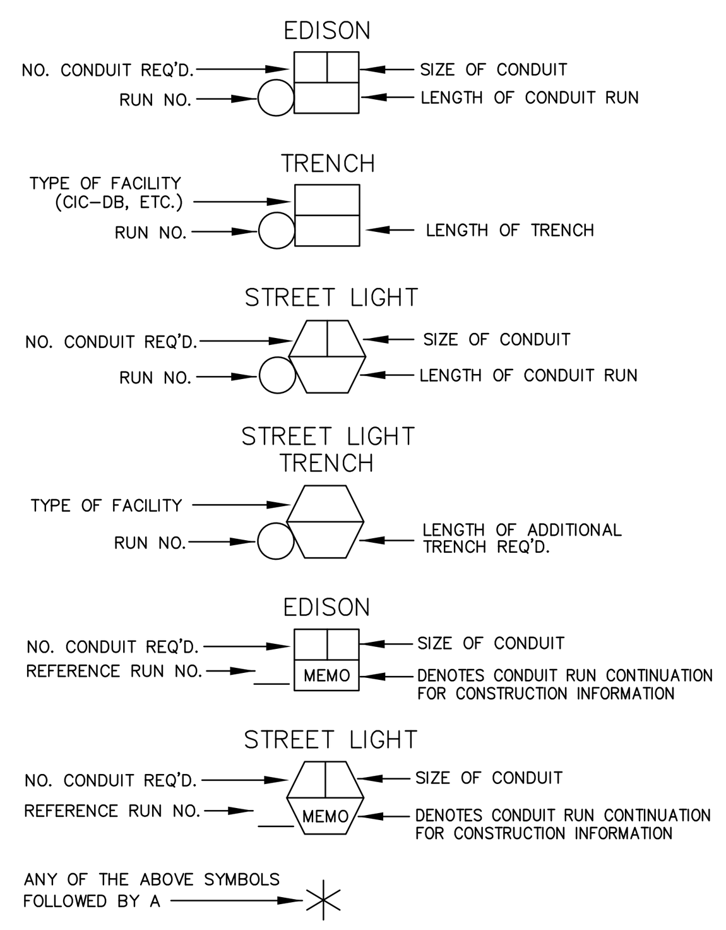
- Per SCE requirements, customers are not allowed to enter, intercept or tie–in to existing SCE facilities; e.g. structures, equipment, multi–conduit runs/banks, or conductors. These facilities may be energized and the work will only be performed by SCE. Contact the appropriate SCE inspector to schedule an appointment. Customers may connect to an existing conduit stub without a SCE inspector present.
- Multi–conduit runs/banks are runs of conduit in close proximity to each other and other SCE facilities. A conduit stub is a single empty conduit stub that is not in close proximity to other SCE owned facilities. Refer to the work order map for details.
- Per CPUC/SCE's Rule 15 B.1.A and Rule 16 D.1.A., the customer will provide all necessary excavations (with the exception of excavation under pads and primary splice boxes), material (including conduit and structures) and encasement, to be utilized in the intercept/tie–in process.
- The customer must adhere to all applicable Cal–OSHA, local, city, state and federal regulations, (including, but not limited to, all necessary shoring and traffic control in place to perform the intercept/tie–in work by SCE's underground civil contractor(s)).
- Intercept/tie–in work must be coordinated with SCE's civil contractors through the Division Inspector/P–Spec to limit exposure of excavation(s). Customer is responsible for securing excavation(s).

D08: 11/13/18

FILE NAME:1403819_0.01.DWG SAVE DATE:7/19/2021 9:56 AM SAVED BY:HERNAV

LEGEND OF CONDUIT SYMBOLS

(CONVENTIONAL U. G.)



DENOTES THE FOLLOWING:

DB CONDUIT WITHOUT ENCASEMENT IS ACCEPTABLE FOR PORTIONS OF TRENCH WITH ONLY ONE OR TWO CONDUITS

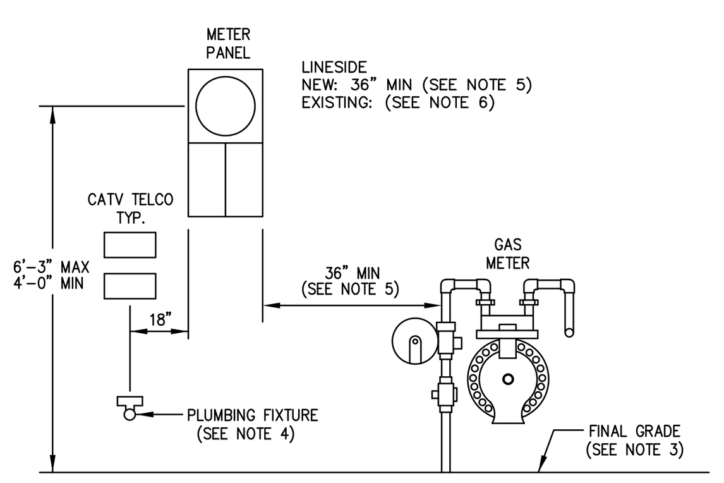
SEMI–ENCASEMENT IS REQUIRED FOR PORTIONS OF TRENCH WITH ONLY THREE OR FOUR CONDUITS

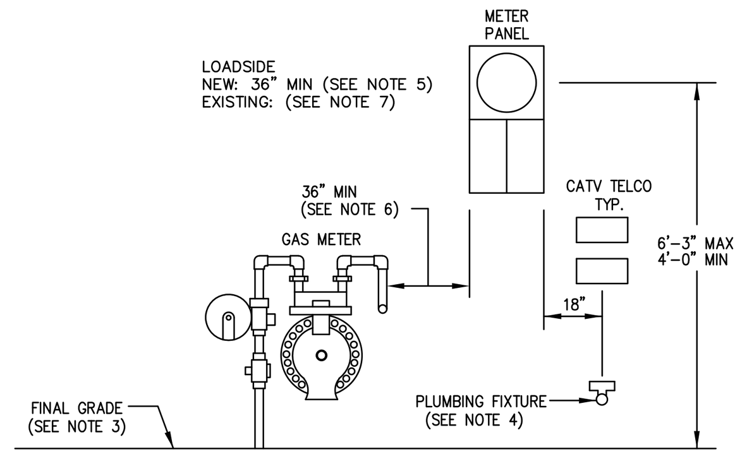
FULL ENCASEMENT IS REQUIRED FOR MORE THAN FOUR CONDUITS

D18: Rev. 5/08/2006

SEPARATION OF METER ASSEMBLIES FOR ELECTRIC & GAS SERVICES

SEE ESR 5–19



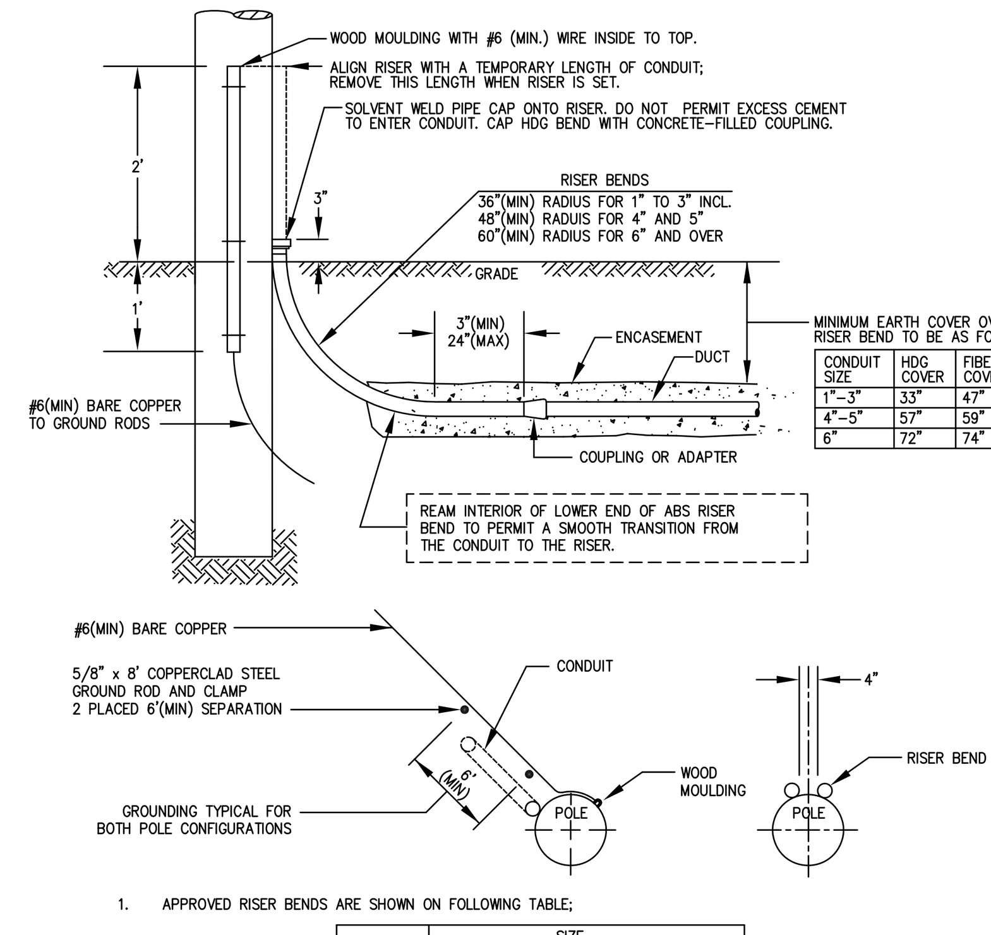


NOTE(S):
1. SIZE AND DIMENSIONS OF PANELS WILL VARY. DRAWINGS ARE NOT TO SCALE.
2. THIS DRAWING PERTAINS TO BOTH OVERHEAD AND UNDERGROUND ELECTRIC SERVICE APPLICATIONS.
3. MAINTAIN A 3–FOOT CLEAR, LEVEL, AND UNOBSTRUCTED WORKSPACE IN FRONT OF ELECTRIC SERVICE EQUIPMENT.
4. PLUMBING FIXTURES THAT EXTEND MORE THAN 6 INCHES OUT FROM WALL SURFACE MUST BE LOCATED 18 INCHES MINIMUM FROM THE OUTSIDE EDGE OF THE METER PANEL.
5. FOR NEW CONSTRUCTION ONLY, DOES NOT APPLY FOR UPGRADES.
6. UPGRADES AND REPLACEMENTS – LINE SIDE PANELS THAT ARE CURRENTLY INSTALLED 24 INCHES OR GREATER FROM THE LINE SIDE OF THE GAS METER, CLEARANCE MAY NOT BE REDUCED. PANELS THAT ARE CURRENTLY INSTALLED LESS THAN 24 INCHES FROM THE GAS METER, MAY REMAIN (OR BE RE–INSTALLED) IN EXISTING LOCATION.
7. UPGRADES AND REPLACEMENTS – LOAD SIDE PANELS THAT ARE CURRENTLY INSTALLED 18 INCHES OR GREATER FROM THE LOAD SIDE OF THE GAS METER, CLEARANCE MAY NOT BE REDUCED. PANELS THAT ARE CURRENTLY INSTALLED LESS THAN 18 INCHES FROM THE GAS METER, MAY REMAIN (OR BE RE–INSTALLED) IN EXISTING LOCATION.

D122 Rev. 10/26/20

POLE RISER BEND STANDARD LOCATION

SEE UGS CD 160



CONDUIT SIZE	HDG COVER	FIBERGLASS COVER
1"–3"	33"	47"
4"–5"	57"	59"
6"	72"	74"

1. APPROVED RISER BENDS ARE SHOWN ON FOLLOWING TABLE;

MATERIAL	SIZE 1"	1–1/2"	2"	2–1/2"	3"	4"	5"	6"
~~ABS~~	–	–	–	X	X	X	X	–
FIBERGLASS	–	–	–	–	X	X	X	X
HDG	X	X	X	X	X	X	X	X

NOTE: 6" HDG OR FIBERGLASS RISER BEND SHALL BE USED WHEN SPECIFIED ON THE WORKING DRAWING. SEE UGS AC 702 FOR GROUNDING HDG RISER BENDS.

2. THE TOP AND BOTTOM OF 3", 4", 5" OR 6" FIBERGLASS BENDS ARE FURNISHED WITH PERMANENTLY ATTACHED PVC COUPLINGS. ALSO INCLUDED IS A 6" LONG 3", 4", 5" OR 6" SCHEDULE 80 PVC STUB–OUT, SOLVENT WELDED INTO THE TOP COUPLING. SEE UGS CD 166 FOR FIBERGLASS RISER BEND MATERIAL INFORMATION AND SUPPLIERS.
3. TWO GROUND RODS ARE REQUIRED AT ALL PRIMARY RISER POLES. DRIVE RODS IN TRENCH BOTTOM WITH 6' MINIMUM SEPARATION IN UNDISTURBED EARTH. LEAVE THE ROD TOPS 3" ABOVE THE TRENCH BOTTOM AND ATTACH CONTINUOUS GROUND WIRE WITH CLAMPS. EXTEND WIRE TO INDICATED LOCATION ON POLE AND STUB UP 2' ABOVE GRADE IN WOOD MOULDING. ALL GROUNDING MATERIALS FURNISHED BY CONTRACTORS. SEE UGS AC 703 FOR APPROVED GROUNDING MATERIALS.
4. ENCASEMENT REQUIRED ONLY WHEN CALLED OUT ON WORKING DRAWING.
5. PVC RISERS MAY BE SUBSTITUTED FOR FIBERGLASS FOR STRAIGHT RUNS OF 150' OR LESS IN CONDUIT SIZES 4" AND UNDER.

D78: REV. 02/14/11

PROTECTIVE BARRIERS FOR UNDERGROUND DISTRIBUTION STRUCTURES

SEE UGS MC 830

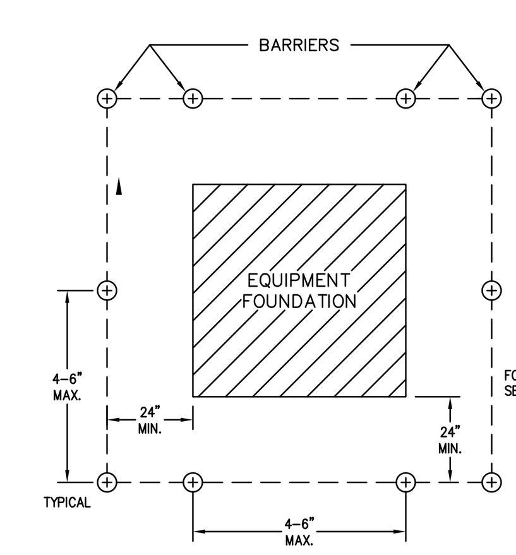


FIGURE MC 830–1.1: PLAN EQUIPMENT FOUNDATION

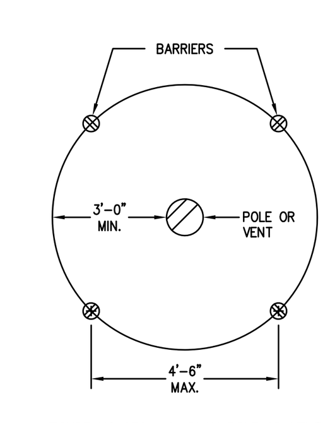


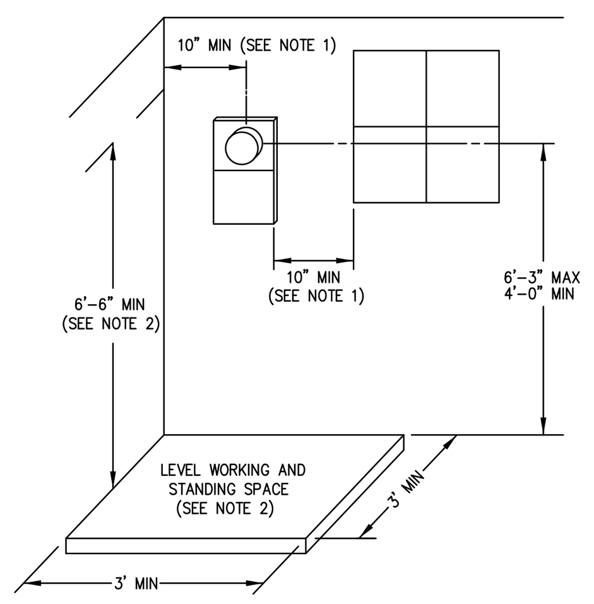
FIGURE MC 830–1.2: PLAN POLE OR VENT

1. STRUCTURES WILL NORMALLY BE INSTALLED ONLY IN NONTRAFFIC AREAS. PROTECTIVE BARRIERS ARE TO BE USED WHERE CONSTRUCTION EXPOSES EQUIPMENT TO TRAFFIC.
2. TOPS OF PROTECTIVE BARRIERS ARE TO BE SMOOTH CUT AND TOP EDGES ARE TO BE ROUNDED.
3. AT LEAST ONE BARRIER IS TO BE REMOVABLE, WITH A MEANS OF LIFTING TO SUPPORT THE WEIGHT OF THE BARRIER, WHEN OVERHEAD OBSTACLES PREVENT EQUIPMENT REMOVAL OR INSTALLATION BY CRANE. SEE FIGURE MC 830–1.3 (SHEET 2). THE LOCATION OF THE REMOVABLE BARRIER(S) SHALL BE APPROVED BY THE UNDERGROUND INSPECTOR.
4. ADEQUATE CLEARANCE MUST BE PROVIDED FOR DOORS, COOLING RADIATORS, AND SO FORTH.
5. PROTECTIVE BARRIERS, AS SHOWN ABOVE, INDICATE TYPICAL REQUIREMENTS. FIELD CONDITIONS WILL NECESSITATE CHANGES FOR ADEQUATE EQUIPMENT PROTECTION. APPLICATION OF PROTECTIVE BARRIERS IS SITE–SPECIFIC.
6. THE UNDERGROUND INSPECTOR IN THE FIELD MUST APPROVE ALL PROTECTIVE BARRIER INSTALLATIONS PRIOR TO CONSTRUCTION. THE UNDERGROUND INSPECTOR WILL DETERMINE (A) STATUS OF OVERHEAD OBSTRUCTIONS, (B) THE FRONT AND BACK OF EQUIPMENT FOUNDATIONS, AND (C) THE CLEARANCES REQUIRED ON DOORS, COOLING RADIATORS, AND SO FORTH.
7. WHEN A 72" X 94" PAD IS BEING INSTALLED, (A) INCREASE THE DISTANCE TO 36 INCHES MINIMUM BETWEEN THE PROTECTIVE BARRIERS AND THE FRONT EDGE OF THE PAD; AND (B) INCREASE THE DISTANCE BETWEEN THE PROTECTIVE BARRIERS AND THE BACK EDGE OF THE PAD FOR CAPACITOR BANK (DOOR SIDE ONLY) TO 36 INCHES MINIMUM. THE UNDERGROUND INSPECTOR WILL DETERMINE THE FRONT AND BACK OF THIS EQUIPMENT FOUNDATION.
8. WITH PRIOR SCE APPROVAL, THE FOLLOWING ALTERNATIVES MAY BE USED IN LIEU OF PROTECTIVE BARRIERS FOR PADMOUNTED STRUCTURES:
   A. WHEN SPECIFIED ON WORKING DRAWING, A 6–INCH (MINIMUM VERTICAL FACE) CONCRETE CURB MAY BE INSTALLED IN PLACE OF PROTECTIVE BARRIERS. THIS CURB MUST BE AT LEAST 6 INCHES THICK AND ITS FRONT FACE AT LEAST 60 INCHES (MINIMUM SPACING) FROM THE EQUIPMENT FOUNDATION.
   B. WHEN SPECIFIED ON WORKING DRAWING FOR RESIDENTIAL TRACT DEVELOPMENTS, PROTECTED BARRIERS WILL NOT BE REQUIRED WHEN THERE ARE ROLLED CURBS OR 6–INCH VERTICAL FACE CURBS THAT HAVE AT LEAST 60 INCHES (MINIMUM SPACING) FROM THE CURB TO THE EDGE OF THE EQUIPMENT FOUNDATION.
   C. WHERE EQUIPMENT IS LOCATED ADJACENT TO A RESIDENTIAL DRIVEWAY, PROTECTIVE BARRIERS MAY NOT BE REQUIRED WHEN THERE IS 30–INCH (MINIMUM) CLEARANCE FROM THE EQUIPMENT FOUNDATION TO THE EDGE OF THE DRIVEWAY. IN ADDITION, A 60–INCH CLEARANCE SHALL BE MAINTAINED FROM A FIRE HYDRANT TO A POLE. FIELD CONDITIONS WILL NECESSITATE CHANGES FOR ADEQUATE EQUIPMENT PROTECTION. IF THE MINIMUM CLEARANCES CANNOT BE OBTAINED, PROTECTIVE BARRIERS ARE REQUIRED.
9. WITH PRIOR SCE APPROVAL, THE FOLLOWING ALTERNATIVES MAY BE USED IN LIEU OF PROTECTIVE BARRIERS FOR PRIMARY SURFACE OR SEMI BURIED STRUCTURES INCLUDING BURD STRUCTURES:
   A. WHEN SPECIFIED ON WORKING DRAWING, A 6–INCH (MINIMUM VERTICAL FACE) CONCRETE CURB, 8–FEET IN LENGTH MAY BE INSTALLED IN PLACE OF PROTECTIVE BARRIERS. THIS CURB MUST BE AT LEAST 6 INCHES THICK.
   B. WHERE THERE ARE ROLLED CURBS OR CURBS THAT HAVE LESS THAN 6–INCHES OF VERTICAL FACE, PROTECTIVE BARRIERS MAY NOT BE REQUIRED WHEN THERE IS AT LEAST 60 INCHES (MINIMUM SPACING) FROM THE CURB TO THE EDGE OF THE PRIMARY SURFACE OR SEMI BURIED STRUCTURES. (SEE FIGURE MC 830–1.5)
   C. WHERE EQUIPMENT IS LOCATED ADJACENT TO A RESIDENTIAL DRIVEWAY, PROTECTIVE BARRIERS MAY NOT BE REQUIRED WHEN THERE IS 30–INCH (MINIMUM) CLEARANCE FROM THE EQUIPMENT FOUNDATION TO THE EDGE OF THE DRIVEWAY. (SEE FIGURE MC 830–1.5)
   D. FIELD CONDITIONS WILL NECESSITATE CHANGES FOR ADEQUATE EQUIPMENT PROTECTION. IF THE MINIMUM CLEARANCES CANNOT BE OBTAINED OR THERE IS NO CURB, PROTECTIVE BARRIERS SHALL BE REQUIRED.
   E. IN ADDITION, A 60–INCH CLEARANCE SHALL BE MAINTAINED FROM A FIRE HYDRANT TO A POLE, TRANSFORMERS, PME SWITCHES, OR ANY PRIMARY SURFACE OR SEMI BURIED STRUCTURE.

D91: Rev. 10/26/20

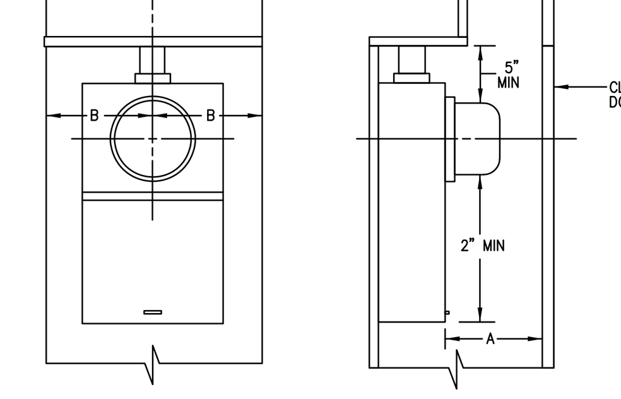
WORKSPACE SURFACE–MOUNTED OR SEMI–FLUSH METER INSTALLATION

SEE ESR 5–25 (FIG. 5–5)



NOTES:
1. THE HORIZONTAL CLEARANCE FROM THE CENTERLINE OF THE METER TO THE NEAREST SIDE WALL OR OTHER OBSTRUCTION SHALL BE 10 INCHES MINIMUM. A HORIZONTAL CLEARANCE FROM THE EDGE OF THE METER PANEL TO THE EDGE OF A WINDOW OR DOORWAY (INCLUDING SLIDING GLASS DOORS) SHALL BE 10 INCHES MINIMUM. A GAS METER OR PLUMBING FIXTURE THAT DOES NOT PROTRUDE MORE THAN 6 INCHES OUT FROM THE WALL, OR EXTEND LESS THAN 18 INCHES HORIZONTALLY FROM THE OUTSIDE EDGE OF THE METER PANEL, SHALL NOT BE CONSIDERED AN OBSTRUCTION. SEE FIGURE 5–4.
2. A LEVEL WORKING AND STANDING SURFACE, CLEAR AND UNOBSTRUCTED, ENTIRELY ON THE PROPERTY OF THE CUSTOMER, SHALL BE PROVIDED. THE MINIMUM WIDTH OF THE WORKSPACE SHALL BE 36 INCHES OVERALL , BUT NEED NOT BE CENTERED BENEATH THE METER. THE MINIMUM DEPTH OF THE WORKSPACE SHALL BE 36 INCHES. WHERE METERS ARE ENCLOSED IN A CLOSET OR RECESSED IN AN ENCLOSURE, THE DEPTH OF THE WORKSPACE IS MEASURED FROM THE OUTER FACE OF THE CLOSET OR RECESS. THE MINIMUM HEIGHT OF THE WORKSPACE SHALL BE 78 INCHES.

MINIMUM ENCLOSED METER CLEARANCES – 0–600 V



MINIMUM ENCLOSED METER CLEARANCES

	A	B
RESIDENTIAL	7"	10"
COMMERCIAL	11"	10"

D123 Rev. 10/26/20

WHERE CONDUITS ARE PICKED UP OR INTERCEPTED, CONDUIT SHALL BE MANDRELLED AND PULL ROPE INSTALLED FROM TERMINAL TO TERMINAL.

LEGEND CODE DEFINITIONS

CI – CUSTOMER CONTRACTOR INSTALLED: MATERIALS FURNISHED AND INSTALLED BY APPLICANT AT EDISON'S EXPENSE AND ARE DEEDED TO EDISON. (EXCEPTION: STREET LIGHT ELECTROLIERS WILL BE INSTALLED BY EDISON'S CONTRACTOR.)

CO – CUSTOMER CONTRACTOR OWNED: MATERIALS FURNISHED. INSTALLED. OWNED. AND MAINTAINED BY APPLICANT.

CF – CUSTOMER CONTRACTOR FURNISHED: MATERIALS FURNISHED AND INSTALLED BY APPLICANT AT APPLICANT'S EXPENSE THAT MAY BE DEEDED TO EDISON.

IN – INSTALL: MATERIALS FURNISHED AND INSTALLED BY APPLICANT IF APPLICANT INSTALLED PROJECT OR BY EDISON IF EDISON INSTALLED PROJECT. (EXCEPTION: FOR AN APPLICANT INSTALLED LINE EXTENSION. STATION NOS.____
HAVING AN ASTERISK ADJACENT TO AN "IN" LEGEND CODE REPRESENTS MATERIALS TO BE PROVIDED BY APPLICANT AND INSTALLED BY EDISON IN ALL CASES. REFER TO DPB 8258. PROJECT MATERIAL LIST BY ASSEMBLY WITHIN A STATION.)

MI – MEMO INSTALL: SAME AS IN–INSTALL.

MR – MEMO REMOVE: MATERIALS REMOVED BY EDISON.

RM – MEMO REMOVED: MATERIALS REMOVED BY EDISON.

SI – SHOOFLY IN: MATERIALS FURNISHED AND INSTALLED BY EDISON FOR TEMPORARY CONSTRUCTION.

SR – SHOOFLY REMOVE: MATERIALS REMOVED BY EDISON FOR TEMPORARY CONSTRUCTION.

TR – TRANSFER: EDISON LABOR REQUIRED TO TRANSFER EXISTING FACILITIES.

D31: Rev. 11/85

Applicants expressly represent and warrant that all work performed and all material used in meeting Applicants' obligations herein are free from defects in workmanship and are in conformity with Southern California Edison Company's requirements. This warranty shall commence upon receipt by Applicants of the Company's final acceptance and shall expire one year from that date. Applicants agree to promptly correct to the Company's satisfaction and that of any governmental agency having jurisdiction and at Applicants' expense any breach of this warranty which may become apparent through inspection or operation of underground electric system by the Company during this warranty period.

CUSTOMER–OWNED CONDUIT MATERIAL* AND CONCRETE ENCASEMENT ARE TO BE INSTALLED IN ACCORDANCE WITH EDISON ELECTRICAL SERVICE REQUIREMENTS.

*SUBJECT TO APPROVAL BY LOCAL INSPECTION AUTHORITIES

D14: Rev. 01/85

NOTE:
ALL ELECTRICAL DUCTS AND STRUCTURES WILL CONFORM TO GENERAL ORDER #128 (RULES FOR CONSTRUCTION OF UNDERGROUND ELECTRICAL SUPPLY AND COMMUNICATION PRESCRIBED BY THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA, JANUARY 2006).

INTERCEPT ENERGIZED CONDUIT

(Split "Y" Fitting and/or Intercept Energized Conduit) The customer is responsible to trench up to and completely around the existing energized conduit at the location it is to be intercepted. The customer is to provide the Split "Y" fitting and any slip couplings or conduit needed for the intercept.

CONDUIT RADIUS REQUIREMENTS:
A: The minimum radius for bends are:
   36" for conduits 3" in diameter or smaller
   48" for conduits 4" and 5" in diameter
   60" for 6" diameter conduit
B: The minimum radius for sweeps are:
   36" for conduits 3" in diameter or smaller
   12'–6" for conduits 4" in diameter and larger, unless otherwise noted.

UNDERGROUND SERVICE ALERT
Contact USA
Dial 811 or 800-422-4133
www.digalert.org/contact
For Underground Locating
Two Working Days Before You Dig

D16: Rev. 05/28/20

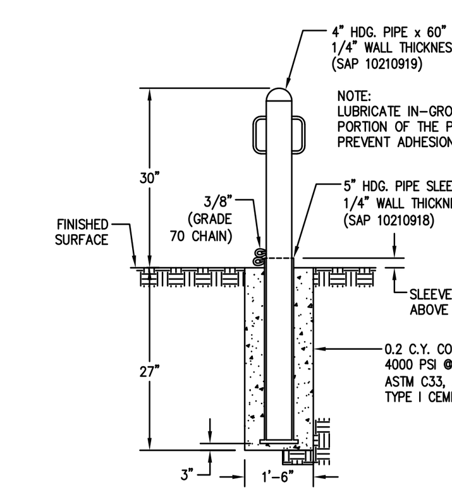


FIGURE MC 830–1.3: REMOVABLE BARRIER DETAIL

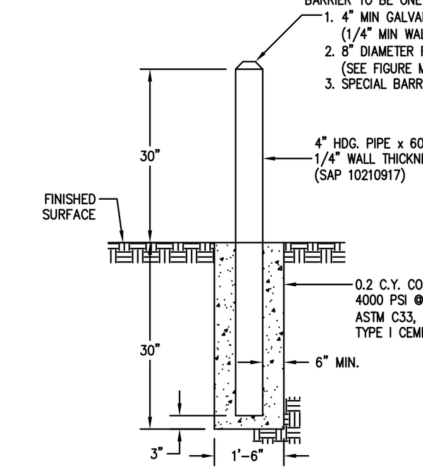


FIGURE MC 830–1.4: PROTECTIVE BARRIER DETAIL

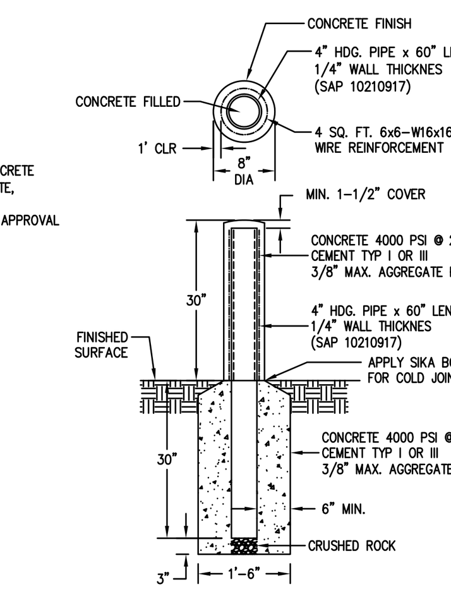
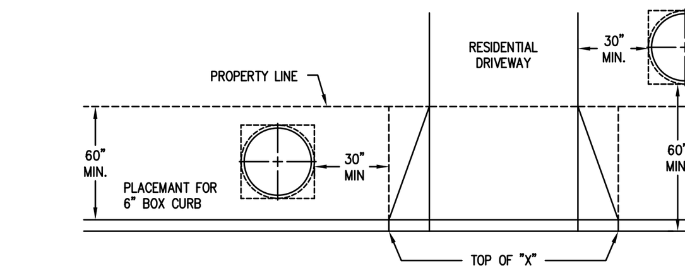


FIGURE MC 830–1.5: CAST–IN–PLACE CONCRETE BARRIER DETAIL

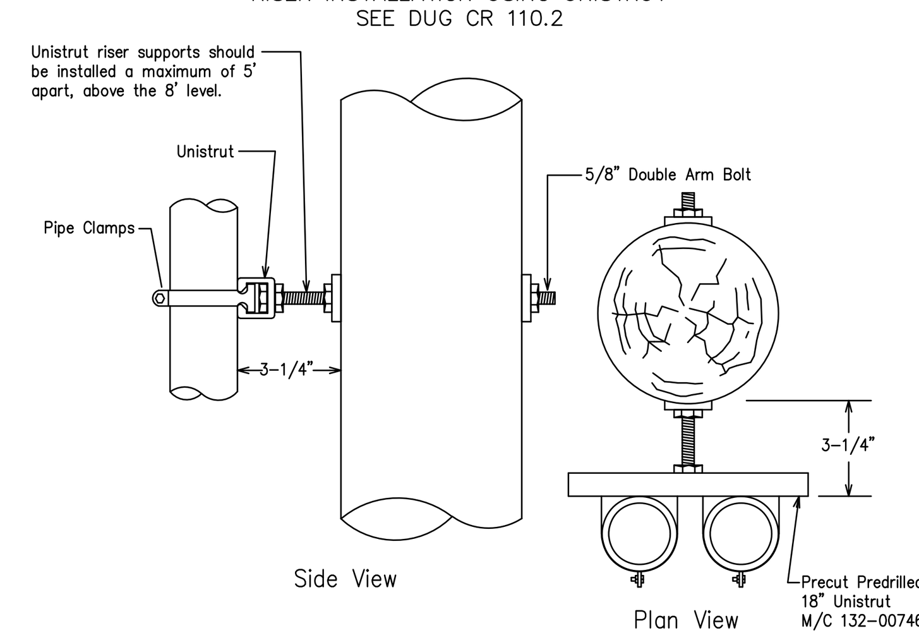


PLACEMANT FORPRIMARY OF SEMI–BURRIED STRUCTURE FROM DRIVEWAY

D91A: Rev. 10/26/20

RISER INSTALLATION USING UNISTRUT

SEE DUG CR 110.2



CONVENTIONAL RISER INSTALLATION

NOT TO SCALE

NOTE(S):
1. All notes pertaining to Figure CR 110–1.1 (Sheet 1) construction on scope CR 110.1 also apply to risers supported by a unistrut.

1.0 APPLICATION
The unistrut shown in Figure CR 110–5 (Sheet 3) is the preferred method where multiple risers are required.

2.0 MATERIAL

TABLE CR 110–2: Unistrut Pipe Clamps

Conduit Size (in)	Material Code
1	622–04052
2	133–48248
2.5	133–48214
3	133–00025
4	133–00017
5	133–48008
6	132–00746

REF.: DUG CR 110.2
D38: REV. 02/18/11

DISTRICT: 44 – SOUTH BAY
PROJ. MGR. Fernandez, Jesus Fernandez PHONE 310–502–0457
PLANNER Fernandez, Jesus Fernandez PHONE 310–502–0457
DESIGNER Hernandez, Viridiana
PROJECT NO. 2205606 | SERVICE REQUEST 3099608 | MSR NO. | PRODUCT–1 1856232–METER & SERVICE CHANGE | ASSOC DESGN
CIRCUIT / VOLTAGE AZALIA 4kV | GPS | PRODUCT–2 | ASSOC DESGN
SUB / PG NO. ROLLING HILL | CIRCUIT CODE | PRODUCT–3 | ASSOC DESGN
INVENTORY MAP 35–64D | J.P.A. NO. | PROPOSED CONSTRUCTION (LOCATION): 5205 CALLE MAYOR TORRANCE CA 90505

TYPE	DATE	APPROVED BY	CHECKED BY	DRAWN BY	PAX #
F	07/07/2021	I. KNIGHT	J. FERNANDEZ	V. HERNANDEZ	33389

SHEET 1 OF 2 | DESIGN\DRWG NO. 1403819_0.01

Southern California Edison Company

E ENGINEERS

CONSULTING ELECTRICAL ENGINEERS
1238 7th Street, Santa Monica, Ca. 90401
Tel: (424) 272-6709

REGISTERED PROFESSIONAL ENGINEER ERIC P. PERCIC E 16773 EXP. 9-30-22 ELECTRICAL STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
–	06.xx.21	ISSUED FOR PLAN CHECK
	06.02.21	ISSUED FOR REVIEW

Written dimensions on these drawings shall have precedence over scaled dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job and this office must be notified of any variations from the dimensions and conditions shown by these drawings. Shop details must be submitted to this office for approval before proceeding with fabrication.

PROJECT NO: 21-108

DRAWN BY: E ENGINEERS CHECKED BY: EP

PROJECT MANAGER: EP

DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:

SCE MAP
AND DETAILS

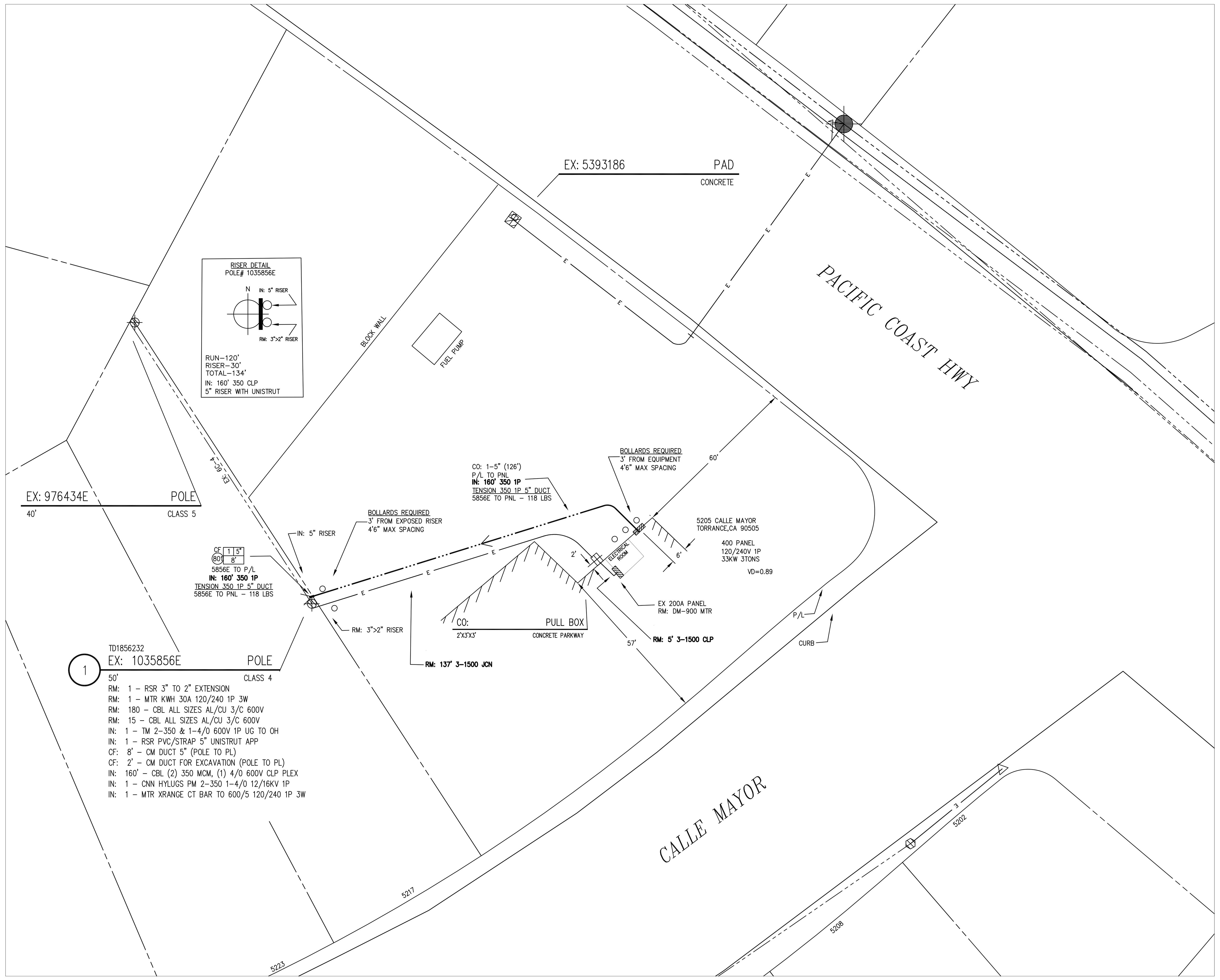
SHEET NO: E601

21-108_FS4 RENOVATION

CREW & CUSTOMER MAP – TD# 1856232

CONTACTS:
CALL LOUIS ORTEGA FOR ACCESS THRU GATE
LOUIS ORTEGA 310-953-1355
ERIC PERCIC 424-272-6709

CITY OF TORRANCE
AZALIA 4kV % ROLLING HILL
2SN-COMM/INDUST M&S UG
5205 CALLE MAYOR



PROJECT REQUIREMENTS (Y/N)	
EDISON EASEMENT REQUIRED	N
PWRD 88 REQUIRED	N
UG CIVIL ONLY WORK ORDER	N
PERMIT REQUIRED	N
PERMIT TYPE: PRVT PROP	
OUTAGE REQUIRED	Y
OUTAGE DATE: TBD TIME: TBD	
TRAFFIC CONTROL REQUIRED	N
PED. TRAFFIC CONTROL REQ'D	N
CONVEYANCE LETTER REQ'D	N
ENVIRONMENTAL REQUIREMENTS DOCUMENT (ERD) REQUIRED	N
CSD 140 (TLM) REQ'D	Y

D124: Rev. 12/04/20

T.L.M. DATA:

	SIZE	KVA	CUST	% LOAD
EXIST.	50	21.4	2	43 %
PROP.	50	35.3	2	71 %

VOLTAGE DROP: 0.89%
FLICKER FACTOR: 0.00%
PRI. CIRCUIT: AZALIA 4kV

NOTES:
1. CUSTOMER TO INSTALL 5" DUCT FROM 856E TO NEW 400A PANEL
2. SCE TO INSTALL 5" RISER ON EXISTING UNISTRUT
3. SCE TO INSTALL 350 CLP FROM 856E TO NEW PANEL
4. SCE TO REMOVE MCM CABLE FROM 856E TO EXITING PANEL
5. SCE TO REMOVE 3">2" RISER AND ABANDON 3" DUCT
6. NO PERMITS NECESSARY PRIVATE PROPERTY

CUSTOMER NOTE:
1. PLEASE WORK WITH SCE INSPECTOR FOR BOLLARD PLACEMENT

FINAL DESIGN
APPROVED FOR CONSTRUCTION

DISTRICT 44 – SOUTH BAY	PROJ. MGR. Fernandez, Jesus Fernandez PHONE 310-502-0457		PLANNER Fernandez, Jesus Fernandez PHONE 310-502-0457	DESIGNER Hernandez, Viridiana	
PROJECT NO. 2205606	SERVICE REQUEST 3099608	MSR NO.	PRODUCT-1 1856232-METER & SERVICE CHANGE		ASSOC DESGN
CIRCUIT / VOLTAGE AZALIA 4kV		GPS	PRODUCT-2		ASSOC DESGN
SUB / PG NO. ROLLING HILL		CIRCUIT CODE	PRODUCT-3		ASSOC DESGN
INVENTORY MAP 35-64D	J.P.A. NO.		PROPOSED CONSTRUCTION (LOCATION) 5205 CALLE MAYOR TORRANCE CA 90505		

TYPE	DATE	APPROVED BY	CHECKED BY	DRAWN BY	PAX #
F	07/07/2021	I. KNIGHT	J. FERNANDEZ	V. HERNANDEZ	33389

Southern California Edison Company

SHEET 2 OF 2
DESIGN\DRWG NO. 1403819_0.01

E
ENGINEERS
CONSULTING ELECTRICAL ENGINEERS
1238 7th Street, Santa Monica, Ca. 90401
Tel: (424) 272-6709

REGISTERED PROFESSIONAL ENGINEER
ERIC P. PERCIC
E 16773
EXP. 9-30-22
ELECTRICAL
STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
–	06.xx.21	ISSUED FOR PLAN CHECK
	06.02.21	ISSUED FOR REVIEW

PROJECT NO: 21-108

DRAWN BY: E ENGINEERS CHECKED BY: EP

PROJECT MANAGER: EP

DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:

SCE MAP
AND DETAILS

SHEET NO: E602

ELECTRICAL CONSTRUCTION SPECIFICATIONS

1.00 SCOPE

A. FURNISH ALL LABOR AND FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT FOR A COMPLETE AND OPERATING ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS AND/OR SPECIFIED HEREINAFTER.

B. REMOVE ABANDONED CONNECTORS, CABLE, RECEPTACLES, TELEPHONE OUTLETS AND ALL OUTLET BOXES, CONDUIT AND WIRE THROUGHOUT THE ENTIRE AREA.

C. FURNISH, INSTALL AND CONNECT CONTROL CABLE AND CONNECTORS AS NOTED ON DRAWINGS.

D. INSTALL AND CONNECT ALL OWNER FURNISHED EQUIPMENT AS NOTED. COORDINATE WITH OWNER BEFORE INSTALLATION.

1.01 GENERAL

A. PROVIDE ALL EQUIPMENT, MATERIAL, LABOR. SERVICE, HOISTING, SUPPORT AND SUPERVISION FOR ALL WORK SHOWN ON THE ELECTRICAL DRAWINGS AND AS SPECIFIED.

B. THE ENTIRE WORK PROVIDED SHALL BE CONSTRUCTED AND FINISHED IN EVERY RESPECT IN A WORKMANLIKE AND SUBSTANTIAL MANNER. FURNISH AND INSTALL ALL WORK AS MAY BE NECESSARY TO COMPLETE THE SYSTEMS IN ACCORDANCE WITH THE BEST TRADE PRACTICE AND TO THE SATISFACTION OF THE OWNER. THE ENTIRE INSTALLATION SHALL BE READY IN EVERY RESPECT FOR SATISFACTORY AND EFFICIENT OPERATION WHEN COMPLETE.

C. THE DRAWINGS SHOW VARIOUS CONDUIT AND WIRING SYSTEMS SCHEMATICALLY AND PROVIDE CIRCUIT NUMBERS FOR REFERENCE ONLY. BALANCE ALL PANELBOARDS AND RECORD ALL CIRCUIT NUMBERS ON AS–BUILT DRAWINGS.

D. SUBMIT A SINGLE GUARANTEE STATING THAT ALL PORTIONS OF THE WORK ARE IN ACCORDANCE WITH CONTRACT REQUIREMENTS. GUARANTEE ALL WORK AGAINST FAULTY AND IMPROPER MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER EXCEPT THAT WHERE GUARANTEES OR WARRANTIES FOR LONGER TERMS ARE SPECIFIED BY CONTRACT, SUCH LONGER TERM SHALL APPLY. AT NO ADDITIONAL COST TO THE OWNER, WITHIN 24HOURS AFTER NOTIFICATION, CORRECT ANY DEFICIENCIES WHICH OCCUR DURING THE GUARANTEE PERIOD,

E. ALL TO THE SATISFACTION OF THE OWNER.

PROVIDE ALL MATERIAL AND EQUIPMENT AND MAKE THE FINAL CONNECTIONS TO ALL EQUIPMENT.

1.02 CODES AND PERMITS

A. ALL WORK SHALL BE DONE IN FULL COMPLIANCE WITH THE NATIONAL ELECTRIC CODE AND ALL LOCAL CODES OR ORDINANCES HAVING JURISDICTION.

B. ALL EQUIPMENT AND MATERIALS SHALL BE NEW EXCEPT WHERE SPECIFICALLY NOTED TO BE REUSED AND LISTED BY THE UNDERWRITER'S LABORATORIES, INC., MANUFACTURED IN ACCORDANCE WITH ASME, NEMA ANSI OR IEEE STANDARDS, AND APPROVED BY ALL AUTHORITIES HAVING JURISDICTION.

C. SECURE AND PAY FOR ALL NECESSARY APPROVALS, PERMITS, INSPECTIONS, ETC., AND DELIVER THE OFFICIAL RECORDS OF THE GRANTING OF PERMITS TO THE OWNER WITHOUT ADDITIONAL COST TO THE OWNER.

1.03 COORDINATION

A. COORDINATE THE WORK OF THIS SECTION WITH THE WORK OF OTHER SECTIONS IN AMPLE TIME FOR THE PROPER INSTALLATION AND CONNECTION AND FOR THE PROVISION OF ALL OPENINGS REQUIRED IN FLOORS AND WALLS.

B. CAREFULLY CHECK SPACE REQUIREMENTS WITH OTHER TRADES TO INSURE THAT ALL EQUIPMENT AND MATERIALS CAN BE INSTALLED IN THE SPACES ALLOTTED THERETO. INSTALL ALL WORK TO AVOID OBSTRUCTIONS AND TO PRESERVE HEADROOM AND CEILING HEIGHT REQUIREMENTS.

C. CAREFULLY CHECK THE DOCUMENTS WITH OTHER TRADES TO ASCERTAIN THE REQUIREMENTS OF ANY MATERIALS OR EQUIPMENT BEING FURNISHED AND/OR INSTALLED BY THAT SECTION AND PROVIDE THE PROPER INSTALLATION AND/OR CONNECTIONS INCLUDING ANY CONTROL WIRING REQUIRED.

D. BEFORE FABRICATION AND INSTALLATION OF SPECIAL SYSTEM OUTLETS VERIFY THE FINAL DESIRED LOCATION OF EQUIPMENT WITH OWNER.

1.04 CLEANING PREMISES

A. THE CONTRACTOR SHALL KEEP ALL PARTS OF THE BUILDING AND SITE FREE FROM ANY ACCUMULATIONS OF RUBBISH OR WASTE MATERIALS CAUSED BY HIS WORKMEN, AND SHALL REMOVE SUCH ACCUMULATIONS FROM THE BUILDING, SITE AND PROPERTY. JOB SITE SHALL BE CLEANED AT THE END OF EACH WORKING DAY.

1.05 RECORD DRAWINGS

A. KEEP UP TO DATE, A COMPLETE SET OF AS BUILT MYLARS TO INDICATE ANY CHANGES FROM THE ORIGINAL DRAWINGS. UPON COMPLETION OF THE INSTALLATION, FURNISH A COMPLETE SET OF AS–BUILT MYLARS. THESE DRAWINGS SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL. AFTER APPROVAL THEY SHALL BECOME THE PROPERTY OF THE OWNER. FINAL PAYMENT WILL BE WITHHELD UNTIL RECEIPT OF THE APPROVED DRAWINGS.

1.06 PROTECTION & SAFEGUARDS

A. THE CONTRACTOR SHALL ERECT AND MAINTAIN SUITABLE BARRIERS, PROTECTIVE DEVICES, LIGHTS AND WARNING SIGNS WHERE REQUIRED FOR THE PROTECTION OF THE PUBLIC AND EMPLOYEES ABOUT THE BUILDING. HE SHALL BE FULLY RESPONSIBLE FOR ANY LOSS OR INJURY TO PERSONS OR PROPERTY RESULTING FROM HIS NEGLECT OF THESE PRECAUTIONS, HIS OWN CARELESSNESS, OR THE CARELESSNESS OR NEGLECT OF HIS EMPLOYEES, OR HIS SUB–CONTRACTOR AND/OR THEIR EMPLOYEES.

1.07 SHOP DRAWINGS

A. WITHIN THIRTY (30) DAYS AFTER AWARD OF THE GENERAL CONTRACT, THE CONTRACTOR SHALL SUBMIT SIX (6) PRINTS OF ALL REQUIRED SHOP DRAWINGS AND BROCHURES. SHOP DRAWINGS AND BROCHURES WILL BE REQUIRED FOR THE FOLLOWING EQUIPMENT. SWITCHBOARDS, PANELBOARDS, CIRCUIT BREAKERS, LIGHT FIXTURES AND ANY SPECIAL EQUIPMENT. EQUIPMENT INSTALLED WITHOUT APPROVAL THEREOF SHALL BE DONE AT THE RISK OF THE CONTRACTOR AND THE COST FOR REMOVAL OF SUCH EQUIPMENT OR RELATED WORK WHICH IS JUDGED UNSATISFACTORY FOR ANY REASON SHALL BE AT THE EXPENSE OF THIS CONTRACTOR.

1.08 EXISTING CONDITIONS

A. BEFORE SUBMITTING BID BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING AND OF THE PRESENT INSTALLATIONS TO WHICH CONNECTIONS MUST BE MADE OR WHICH MUST BE CHANGED OR ALTERED. THE EXTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER AND NO CONSIDERATION WILL BE GRANTED BY REASON OF LACK OF FAMILIARITY ON THE PART OF THE CONTRACTOR WITH ACTUAL PHYSICAL CONDITIONS AT THE SITE.

B. WHERE SPECIFICALLY CALLED FOR ON THE DRAWING OR WHEN PERMISSION IS SPECIFICALLY GIVEN BY THE OWNER, EXISTING EQUIPMENT AND MATERIAL MAY BE REUSED. SALVAGEABLE MATERIAL, UNLESS OTHERWISE INSTRUCTED BY HE OWNER, SHALL BECOME THE PROPERTY OF THE ONTRACTOR AND BE REMOVED FROM THE SITE.

1.09 CUTTING & PATCHING

A. THE CONTRACTOR SHALL DO ALL DRILLING, CUTTING, AND PATCHING OF GENERAL CONSTRUCTION WORK EXISTING OR NEW, ROUGH FINISH AND TRIM WHICH MAY BE REQUIRED FOR THE INSTALLATION OF ALL OF HIS WORK. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP AND FINISH AS THE ORIGINAL WORK, AND SHALL ACCURATELY MATCH ALL SURROUNDING WORK.

1.10 ELECTRICAL SERVICE

A. FURNISH AND INSTALL ALL ELECTRICAL SERVICE CONDUIT, CONDUCTORS, PULL BOXES, METER SOCKETS AND SERVICE SWITCHGEAR. SERVICE FACILITIES AND EQUIPMENT SHALL CONFORM TO THE REQUIREMENTS OF THE UTILITY COMPANY. IMMEDIATELY UPON AWARD OF CONTRACT, CONTACT THE UTILITY COMPANY TO COORDINATE THEIR WORK WITH THE WORK OF THIS CONTRACT. OBTAIN APPROVAL OF THE UTILITY COMPANY FOR SERVICE EQUIPMENT AND CONNECTIONS. ALL SERVICE AND CABLE CHARGES OF THE UTILITY COMPANY WILL BE PAID BY THE CONTRACTOR.

1.11 GROUNDING SYSTEM

A. ALL ELECTRICAL EQUIPMENT AND SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND TITLE 24, CALIFORNIA ADMINISTRATIVE CODE, PART 3. SERVICE ENTRANCE EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE UTILITY COMPANY'S REQUIREMENTS.

B. GROUNDING SHALL BE AS INDICATED ON THE DRAWINGS AND BONDED TO THE COLD WATER PIPING SYSTEM.

C. PROVIDE A GROUNDING CONDUCTOR, WHICH SHALL BE IN ADDITION TO THE THE CIRCUIT CONDUCTORS INDICATED, IN EACH NONMETALLIC CONDUIT USED FOR LIGHTING AND POWER CIRCUITS.

D. ALL SYSTEM GROUNDING CONDUCTORS SHALL BE COPPER. ALL GROUND CONNECTIONS SHALL BE ACCESSIBLE AND MADE WITH COPPER ALLOY FITTINGS.

1.12 DISTRIBUTION SYSTEM

A. FURNISH AND INSTALL THE ELECTRICAL DISTRIBUTION SYSTEM COMPLETE INCLUDING FEEDERS, BRANCH CIRCUITS, SWITHCBOARDS, PANELBOARDS, OUTLETS AND WIRING DEVICES.

1.13 PANELBOARDS

A. LIGHTING PANELBOARDS SHALL BE WESTINGHOUSE TYPE WES 120/208Y–3 PHASE AND 480/277V OR EQUAL BY SQUARE D, CUTLER HAMMER, GENERAL ELECTRIC OR SYLVANIA. THE CIRCUIT BREAKERS SHALL BE BOLT ON TYPE AND SHALL HAVE THE NUMBER OF POLES INDICATED ON THE DRAWINGS. TIE HANDLES WILL NOT BE ALLOWED. PROVIDE AN ENGRAVED PHENOLIC NAMEPLATE FOR ALL PANELS.

1.14 WIRING DEVICES

A. THE CATALOG NUMBERS OF ALL WIRING DEVICES, UNLESS OTHERWISE SPECIFIED ARE THOSE OF THE HUBBELL COMPANY, OR AS NOTED TO ESTABLISH THE QUALITY DESIRED. EQUAL EQUIPMENT BY GENERAL ELECTRIC, BRYANT, SIERRA, SLATER, LEVITON OR A&H WILL BE ACCEPTABLE.

B. FURNISH AND INSTALL WALL SWITCHES AT EACH LOCATION INDICATED ON THE DRAWINGS. WHERE MORE THAN ONE SWITCH OCCURS AT THE SAME LOCATION, THEY SHALL BE INSTALLED UNDER A MULTIPLE GANG PLATE. SWITCH HANDLE SHALL BE WHITE COLOR. SWITCHES HANDLES SHALL BE WHITE COLOR. SWITCHES SHALL BE A.C. QUIET TYPE RATED 20 AMPERES AT 120 AND/OR 277 VOLTS. – HUBBELL #1221.

C. FURNISH AND INSTALL CONVENIENCE RECEPTACLE AT EACH LOCATION INDICATED ON THE DRAWINGS. RECEPTACLE SHALL BE 5262.

D. PLATES FOR WIRING DEVICES SHALL BE WHITE OR AS SELECTED BY ARCHITECT.

1.15 OUTLET BOXES

A. JUNCTION BOXES SHALL BE 4 BY 4 BY 2–1/8 INCHES DEEP WITH COVERS UNLESS OTHERWISE NOTED OR REQUIRED BY CODE. JUNCTION BOXES ABOVE SUSPENDED CEILINGS FOR LIGHTING AND FOR DATA/COMMUNICATION SYSTEMS SHALL BE 4–11/16 BY 2–1/8 INCHES DEEP MINIMUM, TO BE INSTALLED ADJACENT TO RECESSED FIXTURE IN SUCH MANNER AS TO BE ACCESSIBLE THROUGH THE OPENING IN THE CEILING IN WHICH THE FIXTURE IS INSTALLED.

1.16 LIGHTING FIXTURES

A. FURNISH AND INSTALL UNDERWRITERS LABORATORIES, INC. LISTED LIGHTING FIXTURES AS INDICATED ON DRAWINGS.

B. ALL FIXTURES SHALL BE FURNISHED COMPLETE WITH LAMPS.

C. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL FIXTURE SUPPORTS FOR ALL FIXTURES.

D. ALL INCANDESCENT LAMPS SHALL BE INSIDE FROSTED. FLUORESCENT LAMPS SHALL BE STANDARD WARM WHITE (EXCEPT WHERE COLOR SHOWN OTHERWISE); WESTINGHOUSE OR SYLVANIA. INCANDESCENT AND FLUORESCENT LAMPS SHALL BE AS SPECIFIED ABOVE UNLESS OTHERWISE NOTED.

E. ALL FLUORESCENT FIXTURE BALLASTS SHALL BE CLASS "P", CAL ENERGY LISTED HIGH POWER FACTOR AND C.B.M. APPROVED. BALLASTS SHALL BE THE QUIETEST TYPE AVAILABLE FOR THE APPLICATION, AND THE CONTRACTOR SHALL REPLACE ALL UNUSUALLY LOUD BALLASTS.

1.17 CONDUIT, EMT AND FITTINGS

A. RACEWAYS LARGER THAN 3–INCH SHALL BE GALVANIZED RIGID STEEL UNLESS OTHERWISE SPECIFIED.

B. RIGID METAL RACEWAYS SHALL BE INSTALLED IN WET LOCATIONS, IN OR UNDER CONCRETE SLABS ON GRADE WITH OR WITHOUT VAPOR BARRIER, IN CONCRETE WALLS AND COLUMNS, IN CONCRETE SLABS, WALLS AND COLUMNS EXPOSED TO THE WEATHER WITH OR WITHOUT VAPOR BARRIERS; WHERE EXPOSED IN AREAS OPEN TO THE WEATHER, WHERE EXPOSED ON WALLS AND COLUMNS UP 6 FEET ABOVE THE FLOOR, EXCEPT IN ELECTRICAL OR TELEPHONE RISER CLOSETS; AND IN MECHANICAL ROOMS IN SIZES LARGER THAN 1–IN UP TO 7–FEET 0 INCHES ABOVE FINISHED FLOOR.

C. ELECTRICAL METALLIC TUBING IN SIZES UP TO 3–INCH MAY BE INSTALLED IN INTERIOR SPACES WHERE RIGID RACEWAY IS NOT REQUIRED, AND WHERE PERMITTED BY THE LOCAL CODE AUTHORITIES HAVING JURISDICTION.

D. JOIN ELECTRICAL METALLIC TUBING WITH WATERTIGHT STEEL COMPRESSION TYPE THREADLESS FITTINGS THROUGHOUT. USE CONNECTORS OF FACTORY PRE INSULATED TYPE IN ALL SIZES. EMT FITTINGS USING SET SCREWS ARE NOT ACCEPTABLE. EMT CONNECTIONS SHALL BE OF MALLEABLE IRON OR STEEL.

E. FLEXIBLE RACEWAY SHALL BE STEEL AND SHALL BE USED FOR REMOVABLE LIGHTING FIXTURES IN FURRED CEILING SPACES AND AT LOCATIONS AS SHOWN. USE FACTORY PRE INSULATED FITTINGS OF THE TYPE APPROVED AS GROUNDING CONNECTORS. PROVIDE GROUNDING WIRE IN ALL NON–LIQUID TIGHT FLEXIBLE RACEWAY SIZED ACCORDING TO CODE. MAXIMUM LENGTH OF FLEXIBLE RACEWAYS SHALL BE 6–FEET.

F. SURFACE RACEWAY SHALL BE WIREMOLD #AL3100. PROVIDE DIVIDER WHERE SHOWN FOR COMBINATION POWER & DATA/COMM.

1.18 CONDUCTORS

A. ALL CONDUCTORS SHALL BE COPPER WITH THHN 90 DEGREE C INSULATION.

B. CONDUCTORS SHALL BE CONTINUOUS FROM OVER–CURRENT PROTECTIVE DEVICE TO TERMINAL OR FARTHEST OUTLET. NO JOINTS SHALL BE MADE EXCEPT IN PULL, JUNCTION OR OUTLET BOXES.

C. JOINTS IN WIRES SMALLER THAN NO.6 SHALL BE MADE WITH IDEAL SUPER WIRE NUTS OR SCOTCH TYPE "R", "Y" OR "B" SPRING CONNECTORS. JOINTS IN WIRES NO. 6 AND LARGER SHALL BE MADE WITH APPROVED SOLDERLESS CONNECTORS. ALL JOINTS IN CABLES NO. 6 AND LARGER SHALL BE INSULATED AND TAPED.

D. NEUTRAL CONDUCTORS SHALL NOT BE BROKEN AT ANY DUPLEX RECEPTACLE, LIGHTING FIXTURE OR SIMILAR WIRING DEVICE IN MULTI–WIRE (3 WIRE OR 4 WIRE) CIRCUITS. GROUNDED NEUTRAL SHALL NOT DEPEND ON DEVICE CONNECTIONS FOR CONTINUITY. NEUTRAL WIRES CAN BE SPLICED TOGETHER WITH PIGTAIL TO NEUTRAL TERMINAL ON RECEPTACLE, LIGHTING FIXTURE OR SIMILAR DEVICE. IF DEVICE OR FIXTURE IS REMOVED, NEUTRAL WILL REMAIN CONTINUOUS.

1.19 EQUIPMENT CONNECTIONS

A. MAKE CONNECTIONS TO ALL MOTORS, MOTOR CONTROLLERS AND ELECTRICALLY OPERATED EQUIPMENT WHETHER FURNISHED AS A PART OF THIS CONTRACT OR FURNISHED BY THE OWNER FOR INSTALLATION UNDER THIS CONTRACT. FURNISH AND INSTALL ALL CONDUITS AND CONDUCTORS REQUIRED FOR THESE CONNECTIONS AND FOR CONTROL WIRING AS INDICATED BY ELECTRICAL IN OTHER SECTIONS.

1.20 DISCONNECT SWITCHES AND CONTROL WIRING

A. FURNISH AND INSTALL HORSE POWER RATED DISCONNECT SWITCHES FOR ALL MOTORS, CONTROL CIRCUITS AND OTHER ELECTRICAL EQUIPMENT AS REQUIRED BY CODE WHETHER OR NOT SHOWN ON THE DRAWINGS. A DISCONNECT SWITCH SHALL BE LOCATED WITHIN SIGHT FROM THE CONTROLLER DISCONNECT LOCATION. WHERE A MOTOR IS NOT WITHIN SIGHT FROM THE CONTROLLER DISCONNECT LOCATION AN ADDITIONAL DISCONNECTING SWITCH SHALL BE PROVIDED WITHIN SIGHT OF THE MOTOR LOCATION.

B. THE ELECTRICAL CONTRACTOR SHALL VERIFY WITH THE MECHANICAL CONTRACTOR FOR ITEMS, DEVICES OR EQUIPMENT THAT THE ELECTRICAL CONTRACTOR IS TO FURNISH, INSTALL AND/OR CONNECT FOR THE HEATING, VENTILATING, AIR CONDITIONING AND PLUMBING SYSTEM DEVICES UNDER THIS CONTRACT.

1.21 TELEPHONE FACILITIES

A. TELEPHONE CONDUIT AND FACILITIES SHALL CONFORM TO THE REQUIREMENTS OF THE TELEPHONE COMPANY. IMMEDIATELY UPON AWARD OF CONTRACT, CONTACT THE TELEPHONE COMPANY TO COORDINATE THEIR WORK AND THE WORK OF THIS CONTRACT. TELEPHONE CABLES AND EQUIPMENT WILL BE FURNISHED AND INSTALLED BY THE TELEPHONE COMPANY SECTIONS.

21-108_FS4 RENOVATION

E ENGINEERS

CONSULTING ELECTRICAL ENGINEERS
1238 7th Street, Santa Monica, Ca. 90401
Tel: (424) 272-6709

REGISTERED PROFESSIONAL ENGINEER
ERIC P. PERCIC
E 16773
EXP. 9-30-22
ELECTRICAL
STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
1	06.02.21	ISSUED FOR REVIEW

Written dimensions on these drawings shall have precedence over scaled dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job and this office must be notified of any variations from the dimensions and conditions shown by these drawings. Shop details must be submitted to this office for approval before proceeding with fabrication.

PROJECT NO: 21-108

DRAWN BY: E ENGINEERS CHECKED BY: EP

PROJECT MANAGER: EP

DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:

ELECTRICAL CONSTRUCTION SPECIFICATIONS

SHEET NO:

E700

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/20) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-ELC-E

This document is used to demonstrate compliance with mandatory requirements in §130.5 for electrical systems in newly constructed nonresidential, high-rise residential and hotel/motel occupancies. Additions and alterations to electrical service systems in these occupancies will also use this document to demonstrate compliance per §141.0(a) or §141.0(b)2P for alterations.

Project Name: FIRE STATION 4 SERVICE UPGRADE — Report Page: Page 1 of 5
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505 — Date Prepared: 08/12/2021

A. GENERAL INFORMATION

01 Project Location (city)	LOS ANGELES	02 Occupancy Types Within Project:			
☐ Office	☐ Retail	☐ Warehouse	☐ Hotel/ Motel	☐ School	☐ Support Areas
☐ Parking Garage	☐ High-Rise Residential	☐ Relocatable	☐ Healthcare Facilities	☑ Other (Write In):	FIRE STATION

B. PROJECT SCOPE

Table Instructions: Include any electrical service systems that are within the scope of the permit application.

01 Electrical Service Designation/ Description	02 Scope of Work[1]	03 Rating (kVA)	04 Utility Provided Metering System Exception to §130.5(a)[2]	05 System subject to CA Elec Code Article 517 Exception to §130.5(a)&(b)	06 Demand Response Controls
METERED SERVICE 'MSA'	Complete replacement service equipment & meter	96	☑	☐	Where required, demand response controls must be specified which are capable of receiving and automatically responding to at least one standards based messaging protocol which enables demand response after receiving a demand response signal. Sections §120.2, §130.1 and §130.3 and compliance documents NRCC-MCH, NRCC-LTI and NRCC-LTS will indicate when demand response controls are required.

[1] *FOOTNOTES: Adding only new feeders and branch circuits triggers Voltage Drop 130.5(c), no other requirements from 130.5 are required.*
[2] *Applicable if the utility company is providing a metering system that indicates instantaneous kW demand and kWh for a utility-defined period.*

C. COMPLIANCE RESULTS

Table Instructions: If this table says "DOES NOT COMPLY" refer to Table D. for guidance and review the Table that indicates "No".

01		02		03		04	05
Service Electrical Metering §130.5(a)	AND	Separation for Monitoring §130.5(b)	AND	Voltage Drop §130.5(c)	AND	Controlled Receptacles §130.5(d)	**Compliance Results**
(See Table F)		(See Table G)		(See Table H)		(See Table I)	
	AND	Yes	AND	Yes	AND	Yes	**COMPLIES with Exceptional Conditions**

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/20) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-ELC-E

Project Name: FIRE STATION 4 SERVICE UPGRADE — Report Page: Page 2 of 5
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505 — Date Prepared: 08/12/2021

D. EXCEPTIONAL CONDITIONS

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

Table B indicates the project is exempt from §130.5(a) Service Electrical Metering requirements because the utility company has provided the project a metering system that indicates instantaneous kW demand and kWh for a utility-definied period.

E. ADDITIONAL REMARKS

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

NEW METERED SERVICE 'MSA' 400A @ 120/240V-1PH-3W LOCATED OUTDOORS IN A NEMA '3R' ENCLOSURE.

F. SERVICE ELECTRICAL METERING

This Section Does Not Apply

G. SEPARATION OF ELECTRICAL CIRCUITS FOR ENERGY MONITORING

Table Instructions: Complete this table for entirely new or complete replacement electrical power distribution systems to demonstrate compliance with §130.5(b). Using the dropdown choices in column 01, indicate the load types included for each service. Any load types that are not included in the service do not need to be shown.

Electrical Service Designation/Description: **METERED SERVICE 'MSA'**

01 Load Type per Table 130.5-B[1]	02 Minimum Required Separation of Load per Table 130.5-B	03 Compliance Method[2]	04 Location of Requirements in Construction Documents	05 Field Inspector Pass	Fail
Lighting including exit, egress and exterior	All lighting in aggregate	Other*	E300	☐	☐
HVAC systems and components	All HVAC in aggregate	Other*	E300	☐	☐
Plug Loads and appliances < 25kVA	All plug load in aggregate Groups of plug loads exceeding 25 kVA connected load in an area less than 5000 sf	Other*	E300	☐	☐

** NOTES: If "Other*" is selected under Compliance Method above, please indicate how compliance has been achieved in the space provided below.*

Lighting including exit, egress and exterior	ONLY PART OF THE EXISTING POWER DISTRIBUTION SYSTEM HAS BEEN UPGRADED
HVAC systems and components	ONLY PART OF THE EXISTING POWER DISTRIBUTION SYSTEM HAS BEEN UPGRADED
Plug Loads and appliances < 25kVA	ONLY PART OF THE EXISTING POWER DISTRIBUTION SYSTEM HAS BEEN UPGRADED

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/20) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-ELC-E

Project Name: FIRE STATION 4 SERVICE UPGRADE — Report Page: Page 3 of 5
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505 — Date Prepared: 08/12/2021

[1] *FOOTNOTES: For each separate load type, up to 10% of the connected load may be of any type.*
[2] *Method 1: Switchboards/ motor control centers/ panelboard loads disaggregated for each load type*
Method 2: Switchboards/ motor control centers/ panelboard supply other distribution equipment with loads disaggregated for each load type
Method 3: Branch circuits serve load types individually & provisions for adding future branch curcuit monitoring
Method 4: Complete metering system measures and reports loads by type
See Chapter 8 of the Nonresidential Compliance Manual for more detail on Compliance Methods.

H. VOLTAGE DROP

Table Instructions: Please complete this table for entirely new or complete replacement electrical power distribution systems, or alterations that add, modify or replace both feeders and branch circuits to demonstrate compliance with §130.5(c). For alterations, only the altered circuits must demonstrate compliance per §141.0(b)2PiII.

01 Electrical Service Designation/ Description	02 Combined Voltage Drop on Installed Feeder/Branch Circuit Conductors Compliance Method		03 Location of Voltage Drop Calculations[1]	04 Sheet Number for Voltage Drop Calculations in Construction Documents	05 Field Inspector Pass	Fail
METERED SERVICE 'MSA'	☑ Voltage drop < 5%	☐ Permitted by CA Elec Code (Exception to §130.5(c))*	In construction documents	E300	☐	☐

**NOTES If "Permitted by CA Elec Code*" is selected under Compliance Method above, please indicate where the exception applies in the space provided below.*
[1] *FOOTNOTES: Voltage drop calculations may be attached to the permit application outside the construction documents if allowed by the Authority Having Jurisdiction. Select "attached" if applicable. If calculations will be the responsibility of the installing contractor, select "Contractor Responsible".*

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

Table Instructions: Please complete this table for entirely new or complete replacement electrical power distribution systems to demonstrate compliance with §130.5(d). Both controlled and uncontrolled receptacles must be provided in office areas, lobbies, conference rooms, kitchen areas in office spaces, copy rooms and hotel/motel guest rooms.

01 Room Name or Description	02 Location/ Type of Controlled Receptacles	03 Shut-Off Controls	04 Permanent Durable Marking Will be Used	05 Location of Requirements in Construction Documents	06 Field Inspector Pass	Fail
	NA: No applicable space types on this service ☐		☐		☐	☐

Add Row — Remove Last

** If "Other*" is selected under Compliance Method above, please indicate how compliance has been achieved in the space provided below.*

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/20) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-ELC-E

Project Name: FIRE STATION 4 SERVICE UPGRADE — Report Page: Page 4 of 5
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505 — Date Prepared: 08/12/2021

J. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Table Instructions: Selections have been mode based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://ww2.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

YES	NO	Form/Title	Field Inspector Pass	Fail
◉	○	NRCI-ELC-01-E - Must be submitted for all buildings.	☐	☐

K. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no Certificates of Acceptance applicable to electrical power distribution requirements.

STATE OF CALIFORNIA
Electrical Power Distribution
NRCC-ELC-E (Created 01/20) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-ELC-E

Project Name: FIRE STATION 4 SERVICE UPGRADE — Report Page: Page 5 of 5
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505 — Date Prepared: 08/12/2021

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name:	ERIC PERCIC, PE	Documentation Author Signature:	
Company:	E ENGINEERS	Signature Date:	08/12/2021
Address:	1238 7TH STREET	CEA/ HERS Certification Identification (if applicable):	
City/State/Zip:	SANTA MONICA, CA 90401	Phone:	(424) 272-6709

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

Responsible Designer Name:	ERIC PERCIC, PE	Responsible Designer Signature:	
Company :	E ENGINEERS	Date Signed:	08/12/2021
Address:	1238 7TH STREET	License:	CA E16773
City/State/Zip:	SANTA MONICA, CA 90401	Phone:	(424) 272-6709

E ENGINEERS
CONSULTING ELECTRICAL ENGINEERS
1238 7th Street, Santa Monica, Ca. 90401
Tel: (424) 272-6709

REGISTERED PROFESSIONAL ENGINEER — ERIC P. PERCIC — E 16773 — EXP. 9-30-22 — ELECTRICAL — STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

5205 CALLE MAYOR
TORRANCE, CA 90505

ISSUE OR REVISION NOTES:

NO.	DATE	DESCRIPTION
1	08.31.21	ISSUED FOR PLAN CHECK

PROJECT NO: 21-108

DRAWN BY: E ENGINEERS CHECKED BY: EP

PROJECT MANAGER: EP

DRAWING SCALE: AS NOTED

SHEET SIZE: 24X36

DRAWING TITLE:

T-24
CALCULATIONS

SHEET NO:

E800

21-108_FS4 RENOVATION

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/20) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
This document is used to demonstrate compliance with requirements in §110.9, §110.12(c), §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path.	
Project Name: TORRANCE FIRE STATION No. 4 RENOVATION	Report Page: Page 1 of 7
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505	Date Prepared: 8/10/2021

A. GENERAL INFORMATION

01	Project Location (city)	TORRANCE	04	Total Conditioned Floor Area (ft²)	2,008
02	Climate Zone	8	05	Total Unconditioned Floor Area (ft²)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1

☐ Office ☐ Retail ☐ Warehouse ☐ Hotel/Motel ☐ School ☐ Support Areas
☐ Parking Garage ☐ High-Rise Residential ☐ Relocatable ☐ Healthcare ☑ Other (write in): FIRE STATION

B. PROJECT SCOPE

Table Instructions: Include any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6 or §141.0(b)2 for alterations. WARNING: Changing the Calculation Method in this table will result in the deletion of data previously input. If you need to change the calculation method, please open a new form or use "Save As".

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☑ New Lighting System	Area Category	2,008		
☐ Altered Lighting System				
Total Area of Work (ft²)	**2,008**			

C. COMPLIANCE RESULTS

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

Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)1.	Allowed Lighting Power per §140.6(b) (Watts)						Adjusted Lighting Power per §140.6(a) (Watts)				Compliance Results
	01	02	03	04		05	06	07		08	09
	Complete Building §140.6(c)1	Area Category §140.6(c)2	Area Category Additional §140.6(c)2G (+)	Tailored §140.6(c)3 (+)	=	**Total Allowed** (Watts)	Total Designed (Watts)	Adjustments PAF Control Credits §140.6(a)2 (-)	=	**Total Adjusted** (Watts) *Includes Adjustments	**05 Must be ≥ 08** §140.6
	(See Table I)	(See Table I)	(See Table J)	(See Table K)			(See Table F)	(See Table P)			
Conditioned:		1,346			=	**1,346**	1,182.8		=	**1,182.8**	**COMPLIES**
Unconditioned:					=				=		

Table Continued

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/20) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: TORRANCE FIRE STATION No. 4 RENOVATION	Report Page: Page 2 of 7
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505	Date Prepared: 8/10/2021

Controls Compliance (See Table H for Details)	**COMPLIES with Exceptional Conditions**
Rated Power Reduction Compliance (See Table Q for Details)	**Not Applicable**

D. EXCEPTIONAL CONDITIONS

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

Table H Indoor Lighting Controls Permit Applicant Notes:
Day Room: Room has less than 120W of lighting in the primary daylit zone
Dorms: Room has less than 120W of lighting in the primary daylit zone

E. ADDITIONAL REMARKS

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

F. INDOOR LIGHTING FIXTURE SCHEDULE

Table Instructions: Include all permanent designed lighting and all portable lighting in offices.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How Wattage is determined	Total number luminaires	Exempt per §140.6(a)3	Design Watts	Field Inspector Pass	Fail
A	2' by 2' troffer w/LED dim driver	☐	☐	15.9	Mfr. Spec[2]	10	☐	159	☐	☐
A1	2' by 2' troffer w/LED dim driver	☐	☐	33.1	Mfr. Spec[2]	10	☐	331	☐	☐
B	4' linear w/ LED dim driver	☐	☐	19.6	Mfr. Spec[2]	10	☐	196	☐	☐
B1	4' linear w/ LED dim driver	☐	☐	20.4	Mfr. Spec[2]	4	☐	81.6	☐	☐
C	Decorative drum w/ LED dim driver	☐	☐	9	Mfr. Spec[2]	8	☐	72	☐	☐
D	Decorative wedge w/ LED dim driver	☐	☐	8	Mfr. Spec[2]	5	☐	40	☐	☐
E	6" dia downlight w/ LED dim driver	☐	☐	10.4	Mfr. Spec[2]	3	☐	31.2	☐	☐
F	Vanity with LED dim driver	☐	☐	20	Mfr. Spec[2]	3	☐	60	☐	☐
G	Undercabinet with LED driver	☐	☐	18	Mfr. Spec[2]	10	☐	180	☐	☐
H	4" dia shower light w/ LED driver	☐	☐	16	Mfr. Spec[2]	2	☐	32	☐	☐
						Total Designed Watts CONDITIONED SPACES:		**1,182.8**		

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 01/20) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: TORRANCE FIRE STATION No. 4 RENOVATION	Report Page: Page 3 of 7
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505	Date Prepared: 8/10/2021

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How Wattage is determined	Total number luminaires	Exempt per §140.6(a)3	Design Watts	Field Inspector Pass	Fail

[1] *FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per §140.6(a)4B is adjusted to be 75% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*
[2] *Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.0(c) Wattage used must be the maximum rated for the luminaire, not the lamp.*

H. INDOOR LIGHTING CONTROLS (Not Including PAFs)

*Table Instructions: Please include lighting controls for conditioned and unconditioned spaces in this table. When an option having a * is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.*

Building Level Controls

01	02	03	
Mandatory Demand Response §110.12(c)	Shut-Off Controls §130.1(c)	Field Inspector Pass	Fail
Not Required ≤ 10,000 SF	See Area/Space Level Controls	☐	☐

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Skylit Daylighting §130.1(d)	Secondary Daylighting §140.6(d)	Interlocked Systems §140.6(a)1	Field Inspector Pass	Fail
Day Room	Lounge	Manual ON/ OFF	Dimmer	Occ. Sensor	Exempt*	Exempt*	☐	☐	☐
Dorms	Lounge	Manual ON/ OFF	Dimmer	Occ. Sensor	Exempt*	Exempt*	☐	☐	☐

*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.
EX: Conference 1: Primary/Skylight Daylighting: Exempt because less than 120 watts of general lighting;
EXCEPTION 1 to §130.1(d)2

13
Plan Sheet Showing Daylit Zones:

Day Room	*Room has less than 120W of lighting in the primary daylit zone*
Dorms	*Room has less than 120W of lighting in the primary daylit zone*

STATE OF CALIFORNIA
Indoor Lighting
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CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
Project Name: TORRANCE FIRE STATION No. 4 RENOVATION	Report Page: Page 4 of 7
Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505	Date Prepared: 8/10/2021

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

Table Instructions: Complete the table for each area complying using the Complete Building or Area Category Methods per §140.6(b). Indicate if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowances / Adjustment Area Category	PAF
KITCHEN	Kitchen, Food Preparation	0.95	227	215.65	☐	☐
DAY ROOM	Lounge	0.65	315	204.75	☐	☐
RESTROOMS	Restroom	0.65	239	155.35	☐	☐
OFFICE	Office (≤ 250 square feet)	0.7	135	94.5	☐	☐
HALLWAY	Corridor	0.6	381	228.6	☐	☐
DORMS	Lounge	0.65	636	413.4	☐	☐
LAUNDRY	Laundry	0.45	75	33.75	☐	☐
		TOTAL:	**2,008**	**1,346**	See Tables J or P for detail	

J. ADDITIONAL LIGHTING ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

This Section Does Not Apply

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This Section Does Not Apply

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This Section Does Not Apply

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This Section Does Not Apply

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS

This Section Does Not Apply

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CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
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O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This Section Does Not Apply

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

This Section Does Not Apply

Q. RATED POWER REDUCTION COMPLIANCE FOR ALTERATIONS

This Section Does Not Apply

R. 80% LIGHTING POWER FOR ALTERATIONS - CONTROLS EXCEPTIONS

This Section Does Not Apply

S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This Section Does Not Apply

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Table Instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://ww2.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

YES	NO	Form/Title	Field Inspector Pass	Fail
◉	○	NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐
○	◉	NRCI-LTI-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐
○	◉	NRCI-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room, or a theater to be recognized for compliance.	☐	☐
○	◉	NRCI-LTI-05-E - Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	☐	☐
○	◉	NRCI-LTI-06-E - Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	☐	☐

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CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
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Project Address: 5205 CALLE MAYOR, TORRANCE, CA 90505	Date Prepared: 8/10/2021

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

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YES	NO	Form/Title	Field Inspector Pass	Fail
◉	○	NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐
○	◉	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐	☐
○	◉	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐	☐
○	◉	NRCA-LTI-05-A - Must be submitted for institutional tuning power adjustment factor (PAF).	☐	☐
○	◉	NRCA-ENV-03-F - Must be submitted for daylighting design power adjustment factors (PAF).	☐	☐

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CERTIFICATE OF COMPLIANCE	NRCC-LTI-E
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21-108_FS4 RENOVATION

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REGISTERED PROFESSIONAL ENGINEER
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EXP. 9-30-22
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STATE OF CALIFORNIA

BDLG. OWNER:

PROJECT:

FIRE STATION 4 RENOVATION

PROJECT ADDRESS:

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T-24
CALCULATIONS

SHEET NO:

E801