ELECTRICAL SYMBOLS

- JUNCTION BOX: WALL MOUNTED.
- JUNCTION BOX: CEILING MOUNTED.
- DUPLEX RECEPTACLE: 125V., 20 AMP., NEMA 5-20R. +18" UNLESS OTHERWISE NOTED.
- G.F.I. DUPLEX RECEPTACLE, 20A, 125 VOLTS, NEMA 5-20R, + 18" UNLESS NOTED.
- WP G.F.I. DUPLEX RECEPTACLE, 20A, 125 VOLTS, NEMA 5-20R, + 18" UNLESS NOTED. PROVIDE WP "WHILE IN USE" COVER PLATE IN EXTERIOR LOCATIONS.
- G.F.I. DUPLEX RECEPTACLE, 20A, 125 VOLTS, NEMA 5-20R, DOWN FROM CEILING TO +60A AFF.
- G GROUND ROD IN GROUND YARD BOX.
- F DISCONNECT SWITCH. H.P. RATED, PER EQUIPMENT FLA, 3P U.O.N. "F" INDICATES FUSED, PROVIDE FUSE SIZE BASED ON NAMEPLATE RATING OF EQUIPMENT.
- F FAN (EXHAUST FAN OR FLY FAN), SIZE AS INDICATED.
- F COMBINATION FUSED MOTOR DISCONNECT SWITCH AND MAGNETIC MOTOR STARTER SIZED ACCORDING TO MANUFACTURER RECOMMENDATIONS (STARTER SIZE 1 MIN.) WITH A SOLID STATE ADJUSTABLE OVER LOAD PROTECTION, SURFACE MOUNTED ON WALL. +48" U.O.N.
- S_M MOTOR RATED SWITCH WITH OVERLOAD PROTECTION (NUMBER OF POLES (MIN. 2) AND RATING PER THE LOAD THEY SERVE).
- SURFACE MOUNTED PANEL BOARD.
- FLUSH MOUNTED PANEL BOARD.
- DISTRIBUTION PANEL BOARD.
- T TRANSFORMER.
- T THERMOSTAT +48" U.O.N. (PROVIDED BY MECHANICAL, CONNECTED BY MECHANICAL). BOX AND CONDUITS TO THE UNIT BY ELECTRICAL.
- NOTE REFERENCE TAG.
- DR CEILING MOUNTED DROP CORD TYPE RECEPTACLE WITH REEL, 25V, 20AMP, NEMA 5-20R.
- DOUBLE DUPLEX RECEPTACLE: 125V., 20 AMP., NEMA 5-20R. +18" U.O.N.
- C SPLIT WIRED PLUG LOAD CONTROLLED DUPLEX RECEPTACLE, 125V, 15 AMP, NEMA 5-15R, +18" U.O.N. PROVIDE LABEL "CONTROLLED" IN WHITE LETTER WITH BLACK BACKGROUND ON THE PLUG LOAD RECEPTACLE.
- C QUAD RECEPTACLE.ONE NORMAL AND ONE PLUG LOAD CONTROLLED RECEPTACLES 125V, 15 AMP, NEMA 5-15R, +18" U.O.N.PROVIDE LABEL "CONTROLLED" IN WHITE LETTER WITH BLACK BACKGROUND ON THE PLUG LOAD RECEPTACLE.
- DUPLEX RECEPTACLE: 125V., 20 AMP., NEMA 5-20R.(PRINTER & DEDICATED CIRCUIT) +18" U.O.N.
- SINGLE RECEPTACLE: 120V., 30 AMP., NEMA 5-30R. +18" AFF U.O.N.
- SINGLE RECEPTACLE: 250V., 20 AMP., NEMA 5-20R. +18" U.O.N.
- FLUSH MOUNTED 2 GANG DEEP FLOOR BOX WITH (1)DUPLEX RECEPTACLE AND (1)DATA OUTLET.
- CEILING MOUNTED DUPLEX RECEPTACLE ; 125V, 20 AMP, NEMA 5-20R
- A 5a A 5a LIGHTING FIXTURES, "5" DENOTES CIRCUIT NUMBER, LOWER CASE "a" DENOTES CONTROLLING SWITCH,UPPER CASE "A" DENOTES FIXTURE TYPE.
- B CEILING MOUNTED FIXTURE : UPPER LETTER INDICATES TYPE.
- F WALL MOUNTED LIGHT FIXTURE: UPPER LETTER INDICATES TYPE.
- EXIT SIGN, UNIVERSAL MOUNTED DIRECTIONAL ARROW AS SHOWN ON PLAN.
- EXIT SIGN, CEILING MOUNTED. DIRECTIONAL ARROW AS SHOWN ON PLAN.
- LIGHTING FIXTURE EQUIPPED WITH SELF-CONTAINED BATTERY PACK. FOR EMERGENCY LIGHTS.
- CEILING MOUNTED DUPLEX RECEPTACLE: 20 AMP, NEMA 5-20R.
- DISCONNECT AND REMOVE EXISTING EXIT SIGN.
- S WALL SWITCH, +48" AFF
- PL PLUG LOAD RELAY CONTROLLER FOR PLUG LOAD RECEPTACLES.
- RP LMRC-112 (2) REALAY PACK nPP16-EFP. PROVIDE QUANTITY OF RELAY TO MATCH LIGHTING ZONES IN THE AREA.
- PC LMLS-500 MULTI ZONE DAYLIGHT SENSOR
- DW-200 LINE VOLTAGE ON/OFF WALL SENOSOR 2 LEGS, +48" AFF
- OS LMDC-100 CEILING OCC SENSOR
- ELU ELCU-200 EMERGENCY SHUNT RELAY
- S_D LMDM-101 DIMMING SWITCH, +48" AFF
- $^{ab}S_D$ LMSW-104 (4) BUTTON SWITCH, +48" AFF
- $^{abc}S_D$ LMSW-104 (5) BUTTON SWITCH, +48" AFF
- S_{OD} DW-311 WALL OCC SENSOR WITH DIMMER, +48" AFF
- (E) EXISTING RECEPTACLE TO REMAIN.
- (E) EXISTING QUAD RECEPTACLE TO REMAIN.
- (ER) DISCONNECT EXISTING RECEPTACLE AND REPLACE WITH NEW.
- (ER) DISCONNECT EXISTING RECEPTACLE AND REPLACE WITH NEW.
- DISCONNECT AND REMOVE EXISTING RECEPTACLE. PROVIDE BACK COVER ON EXISTING J-BOX IF NOT RE-USED.
- DISCONNECT AND REMOVE (E) WALL MOUNTED QUAD RECEPTACLE.
- DISCONNECT AND REMOVE (E) CEILING MOUNTED QUAD RECEPTACLE.
- DISCONNECT AND REMOVE (E) FLOOR RECEPTACLE.
- DISCONNECTS AND REMOVE EXISTING LIGHTS
- (ER) S DISCONNECTS AND REMOVE EXISTING SWITCHES OR DIMMERES

- DATA/TELEPHONE OUTLET, WALL MOUNTED AT 18" A.F.F. (U.O.N.) . WITH (2) POSITIONS FACE PLATE, (2) CAT 6 (1 DATA, 1 VOICE) TERMINATED AT THE IDF AND THE TEL CABINET.
- ONE DATA OUTLET. PROVIDE (1) CAT-6 CABLE (PLENUM TYPE) FROM EACH DATA DROP TO IDF.
- TELEPHONE OUTLET. PROVIDE (1) TEL CABLE TO TEL CABINET. +18" OR AS NOTED.
- WIREMOLD 54OO WITH RECEPTACLES, DATA/TELEPHONE OUTLETS. +18" OR AS NOTED.
- WIREMOLD VERTICAL RISER FROM HORIZONTAL PORTION UP TO CEILING.
- CONDUIT, CONCEALED ABOVE CEILING OR IN WALL IN FINISHED AREAS.
- A-5 WIRES MIN) IN ADDITION TO 1#12 GREEN GROUND IN 3/4" C U.O.N. HOME RUN TO PANEL "A". CIRCUIT 5 WITH 2 #12 AND #12 GND.
- CONDUIT: IN OR BELOW FLOOR OR BELOW GRADE. SIZE & NUMBER OF CONDUCTORS AS NOTED.
- CONDUIT, EXPOSED.
- CONDUIT SYSTEM RISER UP.
- CONDUIT SYSTEM RISER DOWN.
- A-1,3,5 HOMERUN TO PANEL "A". CIRCUITS 1,3,5. CROSS LINES INDICATE NUMBER OF #12 IN ADDITION TO 1#12 GREEN GROUND. 3/4"C., U.O.N.
- 3/4"C, 2#12 & 1#12 GRND.
- 3/4"C, 3#12 & 1# 12 GRND.
- 3/4"C, 4#12 & 1#12 GRND.
- 3/4"C, 5#12 & 1#12 GRND.
- #10 1"C, 6#10 & 1#10 GRND.
- #10 1"C, 7#10 & 1#10 GRND.
- #10 1"C, 8#10 & 1#10 GRND.

CONTACTOR SHALL PROVIDE CONDUIT AND WIRING PER CIRCUITS ON HOMERUNS FOR THE ELECTRICAL INSTALLTION WEATHER OR NOT HASH MARKS HAVE BEEN INDICATED ON PLANS.

CONDUIT LINE TYPES

- ELECTRICAL CONDUIT ABOVE GROUND
- ELECTRICAL CONDUIT BELOW GROUND, MINIMUM COVER DEPTH PER CEC 300.5

CONDUIT/CABLE TYPES

1. ALL CONDUITS FOR SERVING THE UTILITY COMPANY SHALL BE PER THEIR STANDARDS.
2. USE EMT CONDUIT FOR FEEDERS AND BRANCH CIRCUIT CONDUCTORS FOR CONCEALED WORK (NOT SUBJECT TO PHYSICAL DAMAGE OR WET LOCATIONS).
3. USE PVC SCH 40 FOR UNDERGROUND CONDUITS.
4. USE RIGID GALVANIZED STEEL (RGS) CONDUIT FOR EXTERIOR EXPOSED CONDUITS.
5. USE LIQUID TIGHT FLEX CONDUIT FOR CONNECTION BETWEEN A DISCONNECT SWITCH AND MEP EQUIPMENT. MAX 6FT DISTANCE ALLOWED.

STANDARD ABBREVIATIONS

A OR AMP	AMPERES	FLA	FULL LOAD AMPERES
A/C	ASPHALT CONCRETE	GRND.	GROUND
AFF	ABOVE FINISH FLOOR	GFI	GROUND FAULT INTERRUPTER
BKR.	BREAKER	HP	HORSEPOWER
BC	BARE COPPER	J-BOX	JUNCTION BOX
C CKT.	CONDUIT CIRCUIT	KW	KILOWATTS
C.O.	CONDUIT ONLY	N.I.C.	NOT IN CONTRACT
D	DEPTH	PH OR Ø	PHASE SW. SWITCH
EXIST., (E)	EXISTING TO REMAIN	TYP.	TYPICAL
ER	EXISTING TO BE RELOCATED	U.O.N.	UNLESS OTHERWISE NOTED
EF	FINAL LOCATION OF THE RELOCATED COMPONENT	UG	UNDERGROUND
EX	EXISTING TO BE REMOVED	VL	VERIFY LOCATION
F.A.	FIRE ALARM	W.P.	WEATHERPROOF
FACP	FIRE ALARM CONTROL PANEL	XFMR	TRANSFORMER
		O.A.R	OWNER AUTHORIZED REPRESENTATIVE

SCOPE OF WORK

PROVIDE GENERAL POWER FOR NEWLY ADDED ACCESS CONTROL SYSTEM FOR SCHOOL CAMPUS.

APPLICABLE CODES

2025 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
2025 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
2025 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
2025 CALIFORNIA ENERGY CODE (CEC), PART 6 TITLE 24 C.C.R.
2025 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R
2025 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 72 NATIONAL FIRE ALARM CODE (CALIFORNIA AMENDED) 2022 EDITION
(NOTE: SEE UL STANDARD 1971 FOR "VISUAL DEVICES")

ELECTRICAL SHEET INDEX

E-0.01	ELECTRICAL FRONT SHEET
E-0.02	ELECTRICAL SPECIFICATIONS
E-0.03	ELECTRICAL SPECIFICATIONS
E-0.04	ELECTRICAL PANEL SCHEDULES
E-1.01	ELECTRICAL SITE PLAN
E-2.01	ELECTRICAL MAIN BUILDING FLOOR PLAN
E-2.02	ELECTRICAL MODULAR AND RELOCATABLE BUILDING FLOOR PLAN
E-2.03	ELECTRICAL RELOCATABLE CLASSROOM FLOOR PLAN
E-3.01	ELECTRICAL DETAILS

ARCHITECT

CONSULTANT

Budlong
An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
WWW.BUDLONG.COM
Job No:-23-349

STAMP

REGISTERED PROFESSIONAL ENGINEER
MANAN H. CHRISTIAN
E 22864
9/30/27
ELECTRICAL
STATE OF CALIFORNIA

Drawn by

Checked by

Revisions

No.	Date	Description
1	06-17-25	BID PLANS
2	06-17-26	RE-BID PLANS
3	11-02-26	RE-BID PLANS

All dimensions must be checked at the job by the contractor who accepts full responsibility for their accuracy under the contract. These plans & the specifications in connection therewith have been prepared for a specific site. Any and all responsibility for their use in whole or in part on any other site is hereby disclaimed by Flewelling & Moody.

NEWHALL SCHOOL DISTRICT
AT
MEADOWS ELEMENTARY SCHOOL
25577 NORTH FEDALA ROAD
VALENCIA, CA 91355

ELECTRICAL FRONT SHEET

Job No.
1750.100

Date

E-0.01

PART I - GENERAL ELECTRICAL SPECIFICATIONS

A. CONDITIONS

1. FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THESE MAJOR ITEMS:

1.1. LIGHTING FIXTURES AND LIGHTING CONTROLS AS INDICATED ON PLANS.

B. CODES, REGULATIONS AND STANDARDS

1. THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ORDINANCES, WITH THE REGULATIONS OF THE CURRENTLY ACCEPTED EDITION OF THE NATIONAL ELECTRIC CODE AND WITH THE REQUIREMENTS OF THE POWER COMPANIES FURNISHING SERVICES TO THIS INSTALLATION.

2. THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS, AND CODES ARE MINIMUM REQUIREMENTS:

2.1. THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION STANDARDS. (NEMA).
2.2. THE NATIONAL ELECTRICAL CODE, INCLUDING LOCAL AMENDMENTS. (NEC).
2.3. UNDERWRITER LABORATORIES INCORPORATED STANDARDS. (UL).
2.4. AMERICAN NATIONAL STANDARDS INSTITUTE. (ANSI).
2.5. NATIONAL FIRE PROTECTION ASSOCIATION. (NFPA).
2.6. CALIFORNIA ELECTRICAL CODE. (CEC).

2.6.1. SWITCHBOARDS, DISTRIBUTION BOARD/PANELS, MOTOR CONTROL CENTER, GENERATOR, LOW VOLTAGE DRY TYPE TRANSFORMERS INCLUDING ASSOCIATED CONDUIT AND WIRINGS.

2.6.2. POWER RECEPTACLE OUTLETS AND CONDUITS.

C. INSPECTION OF SITE

1. PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUAINT HIMSELF WITH EXISTING UTILITIES, AND WORKING CONDITIONS TO BE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NONCOMPLIANCE WITH THIS CONDITION AFTER BIDDING.

2. ELECTRICAL INSTALLATION SHALL MEET THE EXISTING CONDITIONS.

D. STORAGE AND HANDLING OF MATERIAL

1. DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING OR STORAGE. CONTRACTOR SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS UNTIL FINAL ACCEPTANCE BY THE OWNER AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD.

2. ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE IN ORDER TO MINIMIZE THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION.

3. COVER AND PROTECT ANY MATERIAL WHICH MAY BE AFFECTED BY THE WEATHER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND DEFECTIVE OR NOT INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER.

E. CLEANUP

1. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK, REMOVE ALL SURPLUS MATERIALS, TOOLS, ETC., AND LEAVE THE PREMISES BROOM-CLEAN.

F. DRAWINGS

1. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK. DATA PRESENTED ON THESE DRAWINGS IS AS ACCURATE AS PLANNING CAN DETERMINE, BUT FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC., TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. IF DISCREPANCIES ARE NOT REPORTED, THE CONTRACTOR SHALL BID THE GREATER QUANTITY OR BETTER QUALITY, AND APPROPRIATE ADJUSTMENTS WILL BE MADE AFTER CONTRACT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS, USE ACTUAL BUILDING DIMENSIONS.

G. EXCAVATION, CUTTING AND FITTING

1. PERFORM THE EXCAVATION, CUTTING, FITTING, REPAIRING AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT OF THIS SECTION; HOWEVER, NOT CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBERS SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT.

H. COOPERATION WITH OTHER CONTRACTORS

1. COOPERATE WITH OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, LIGHTING FIXTURES, AND OTHER EQUIPMENT LOCATIONS SHALL BE CHECKED WITH OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, STEEL BEAMS, OR OTHER OBSTRUCTIONS.

2. COORDINATE HVAC EQUIPMENT CONNECTION REQUIREMENTS WITH HVAC CONTRACTOR. CAREFULLY CHECK THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT THEY HAVEN'T BEEN DISTURBED DURING THE INSTALLATION OF MATERIALS OF OTHER TRADES.

PART II - PRODUCTS AND EXECUTION

A. MATERIALS

1. ALL MATERIALS SHALL BE NEW AND OF THE APPROVED TYPE AND MODEL AS SPECIFIED AND MUST CARRY THE UNDERWRITERS LABORATORIES (UL) SPECIFIED ON THE PLANS AND SPECIFICATIONS AND MUST BE COMPLY WITH REQUIREMENTS IN ADDITION TO COMPLY WITH ALL REQUIREMENTS OF THE LATEST EDITION OF THE APPLICABLE CODES AND STANDARDS.

B. WIRE

1. CONDUCTORS AND CABLES SHALL BE IN ACCORDANCE WITH ASTM, NEMA, NFPA AND UL.

2. ALL CONDUCTORS SHALL BE COPPER AND SHALL COMPLY WITH NEMA WC 70.

3. SINGLE CONDUCTOR AND CABLE:

3.1. NO. 12 MINIMUM SIZE, EXCEPT WHERE SMALLER SIZES ARE SPECIFIED HEREIN OR AS SHOWN ON THE DRAWINGS.
3.2. NO. 8 AND LARGER: STRANDED.
3.3. NO. 10 AND SMALLER: SOLID; EXCEPT SHALL BE STRANDED FOR FINAL CONNECTION TO MOTORS, TRANSFORMERS, AND VIBRATING EQUIPMENT.

4. CONDUCTOR INSULATION SHALL COMPLY WITH NEMA WC 70 FOR TYPES THW, THHN-THWN, SHHW UF USE AND SO.

5. ALL LOW VOLTAGE CABLES SHALL BE COPPER, NOT LESS THAN 98% CONDUCTIVITY AND 600V CLASS. WIRE FOR BRANCH CIRCUITRY SHALL BE TYPE THWN (75 DEGREES C) EXCEPT THAT TYPE THHN (90 DEGREES C) WIRE SHALL BE USED FOR CONNECTION OF LIGHT FIXTURES. WIRES USED AS FEEDERS FROM SWITCHBOARDS, PANELBOARDS, MOTOR CONTROL CENTERS, GENERATORS, PARALLELING SWITCHGEAR, ATS' OR OTHER MAJOR ELECTRICAL COMPONENTS SHALL BE TYPE XHHW-2 (90 DEGREES C).

6. ALL WIRING SHALL BE COLOR CODED AS FOLLOWS:

PHASE	208/120V SYSTEM	480/277V SYSTEM
A PHASE	BLACK	BROWN
B PHASE	RED	ORANGE
C PHASE	BLUE	YELLOW
NEUTRAL	WHITE	GRAY
GROUND	GREEN	GREEN

C. PANELBOARDS

1. PANELBOARD ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AND MARKED FOR INTENDED LOCATIONS AND APPLICATIONS.

2. PANELBOARDS SHALL HAVE BOLT-ON CIRCUIT BREAKERS FOR 84 CIRCUITS (MAXIMUM) WITH VOLTAGE, BUS, INTERRUPTING, MAIN AND BRANCH CIRCUIT RATINGS AS INDICATED ON PLANS.

3. PANELBOARDS SHALL BE COMPLYING WITH NEMA PB1.

4. PANELBOARD ENCLOSURES SHALL BE FLUSH AND SURFACE MOUNTED, DEAD FRONT CABINETS, 84" MAXIMUM HEIGHT, HINGED FRONT COVER AND RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATIONS:

4.1. INDOOR DRY AND CLEAN LOCATIONS: NEMA 250, TYPE 1.
4.2. OUTDOOR LOCATIONS: NEMA 250, TYPE 3R.
4.3. OTHER WET OR DAMP INDOOR LOCATIONS: NEMA 250, TYPE 3R.

5. WIRE TERMINATION FOR PANELBOARDS AND CIRCUIT BREAKERS SHALL BE LISTED AS SUITABLE FOR 75 DEGREES C.

6. PROVIDE A TYPE-WRITTEN CIRCUIT INDEX BEHIND CLEAR PLASTIC COVER ON INSIDE OF DOOR. INFORMATION SHALL INCLUDE ROOM AND TYPE LOAD SERVED. ALL CIRCUIT BREAKERS SHALL BE IDENTIFIED, INCLUDING SPARES. INDEX CARD FRAME SHALL BE METAL, SECURED TO DOOR.

7. PHASE, NEUTRAL AND GROUND BUS SHALL BE MADE OF HARD-DRAWN COPPER, 98% CONDUCTIVITY AND ITS INTERIOR SHALL BE FACTORY ASSEMBLED INTO UNIT THAT WOULD ALLOW REPLACEMENT OF SWITCHING AND PROTECTIVE DEVICES WITHOUT DISTURBING ADJACENT UNITS OR REQUIRE REMOVING THE MAIN BUS CONNECTIONS. BRANCH AND MAIN TERMINALS SHALL BE OF THE SOLDERLESS TYPE HANDLE TIES TO FORM MULTI-POLE BREAKERS IS NOT ACCEPTABLE.

8. PANELBOARD TO BE PROVIDED WITH COPPER BUSSING ONLY.

9. DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES:

9.1. MOLDED CASE CIRCUIT BREAKERS (MCCB) SHALL BE COMPLYING WITH UL 489 WITH INTERRUPTING CAPACITY TO INTERRUPT AVAILABLE FAULT CURRENT.

9.2. THERMAL MAGNETIC CIRCUIT BREAKER:

9.2.1. INVERSE-TIME CURRENT ELEMENT FOR LOW VOLTAGE OVERLOADS.
9.2.2. INSTANTANEOUS MAGNETIC TRIP FOR SHORT CIRCUITS.
9.2.3. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT BREAKER FRAME SIZES AS INDICATED ON DRAWINGS.

9.3. ELECTRONIC CIRCUIT BREAKER WITH FIELD-ADJUSTABLE SETTINGS:

9.3.1. 100% RATED.
9.3.2. INSTANTANEOUS TRIP.
9.3.3. LONG AND SHORT TIME PICKUP LEVELS.
9.3.4. LONG AND SHORT TIME ADJUSTMENTS.
9.3.5. GROUND FAULT PICKUP LEVEL, TIME DELAY AND I SQUARED T RESPONSE.

9.4. GFCI CIRCUIT BREAKERS SHALL BE SINGLE AND DOUBLE-POLE CONFIGURATIONS WITH CLASS A GROUND FAULT.

10. ALL NEW PANELBOARDS SHALL BE PROVIDED WITH WARNING LABELS PER NEC 110.16 TO WARN QUALIFIED PERSONS OF POTENTIAL ARC FLASH HAZARDS. THE MARKINGS SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICE OR MAINTENANCE OF THE EQUIPMENT.

D. UNDERGROUND DUCT AND RACEWAY

1. DUCT AND RACEWAY SHALL COMPLY WITH ANSI C2.

2. CONDUIT:

2.1. RIGID STEEL CONDUIT SHALL COMPLY WITH ANSI C80.1
2.2. RIGID NONMETALLIC CONDUIT (RNC) SHALL BE NEMA TC2, TYPE EPC-40 PVC, UL 651 WITH MATCHING FITTINGS BY SAME MANUFACTURER AS THE CONDUIT, COMPLYING WITH NEMA TC3 AND UL 514B.

3. DUCT ACCESSORIES:

3.1. FACTORY FABRICATED RIGID PVC INTERLOCKING SPACERS.
3.2. UNDERGROUND LINE WARNING TAPE.
3.3. CONCRETE WARNING PLANKS, NOMINAL 12 BY 24 BY 3 INCHES IN SIZE, MANUFACTURED FROM 6000 PSI CONCRETE.

4. PRE-CAST CONCRETE HANDHOLES AND BOXES:

4.1. COMPLY WITH ASTM C858 FOR DESIGN AND MANUFACTURING PROCESS.
4.2. FACTORY-FABRICATED, REINFORCED CONCRETE, MONOLITHICALLY POURED WALLS AND BOTTOM UNLESS OPEN-BOTTOM ENCLOSURES ARE INDICATED. FRAME AND COVER SHALL FORM TOP OF ENCLOSURE AND SHALL HAVE LOAD RATING CONSISTENT WITH THAT OF HANDHOLE OR BOX.
4.3. SEE ELECTRICAL DRAWINGS FOR OTHER INFORMATION OR DETAILS.

5. UNDERGROUND APPLICATION

5.1. DUCTS FOR ELECTRICAL CABLES MORE THAN 600V: RNC, NEMA TYPE EPC-40-PVC, IN CONCRETE-ENCASED DUCT BANK UNLESS OTHERWISE INDICATED.
5.2. DUCTS FOR ELECTRICAL FEEDERS 600V AND LESS: RNC, NEMA TYPE EPC-40-PVC, IN CONCRETE-ENCASED DUCT BANK UNLESS OTHERWISE INDICATED.
5.3. DUCTS FOR ELECTRICAL FEEDERS 600V AND LESS: RNC, NEMA TYPE EPC-40-PVC, IN DIRECT-BURIED DUCT BANK UNLESS OTHERWISE INDICATED.
5.4. DUCTS FOR ELECTRICAL BRANCH CIRCUITS: RNC, NEMA TYPE EPC-40-PVC, IN DIRECT-BURIED DUCT BANK UNLESS OTHERWISE INDICATED.

6. UNDERGROUND ENCLOSURE APPLICATION

6.1. HANDHOLES AND BOXES FOR 600V AND LESS:

6.1.1. UNITS IN ROADWAYS AND OTHER DELIBERATE TRAFFIC PATHS: PRECAST CONCRETE. AASHTO HB 17, H-20 STRUCTURAL LOAD RATING.
6.1.2. UNITS IN DRIVEWAY, PARKING LOTS AND OFF-ROADWAY LOCATIONS: SUBJECT TO OCCASIONAL, NON-DELIBERATE LOADING BY HEAVY VEHICLES: PRECAST CONCRETE, AASHTO HB17, H-20 STRUCTURAL LOAD RATING.
6.1.3. COVER DESIGN LOAD SHALL NOT EXCEED THE DESIGN LOAD OF THE HANDHOLE OR BOX.

7. DUCT INSTALLATION SHALL BE IN ACCORDANCE WITH NEMA TCB 2.

8. GROUND UNDERGROUND DUCTS AND UTILITY STRUCTURES PER NEC ARTICLE 250.

E. SWITCHBOARDS

1. SWITCHBOARDS SHALL BE MANUFACTURED BY SQUARE D, EATON, SIEMENS AND ABB AND SHALL CONFORM TO THE HEREIN REQUIREMENTS.

2. COMPLETE SWITCHBOARD ASSEMBLY INCLUDING STEEL FRAMING AND COVERS, BUS SYSTEM AND DEVICE SHALL BE IN ACCORDANCE WITH UL 891, PB-2 AND NEC/CEC.

3. SWITCHBOARDS SHALL BE FLOOR STANDING, DEAD FRONT, DEAD REAR, LIEN BUSSED, FRONT OPERATED AND CONNECTED, CIRCUIT-BREAKER TYPE, UNLESS OTHERWISE INDICATED AND SHALL CONTAIN EQUIPMENT INDICATED AND SPECIFIED.

4. SWITCHBOARD ASSEMBLY SHALL CONSIST OF UTILITY PULL SECTION, MAIN AND METER SECTION AND DISTRIBUTION SECTION AS REQUIRED. COORDINATE ALL REQUIREMENTS WITH THE UTILITY COMPANY PROVIDING CONNECTION AND POWER TO THE SWITCHBOARD TO INCLUDE FAULT LETTER AND INSTALLATION OF INCOMING UTILITY FEEDER AND REVENUE METERING.

5. RATINGS SHALL BE INDICATED AS ON THE DRAWINGS. SHORT CIRCUIT CURRENT RATING SHALL NOT BE LESS THAN THE CALCULATED AVAILABLE FAULT CURRENT SHOWN IN THE SHORT CIRCUIT AND PROTECTION COORDINATION STUDY.

6. DISCONNECTING AND OVER-CURRENT PROTECTIVE DEVICES SHALL BE:

6.1. THERMAL MAGNETIC CIRCUIT BREAKERS: INVERSE TIME-CURRENT ELEMENT FOR LOW LEVEL OVERLOADS AND INSTANTANEOUS MAGNETIC TRIP ELEMENT FOR SHORT CIRCUITS. ADJUSTABLE MAGNETIC TRIP SETTING FOR CIRCUIT BREAKER FRAME SIZES 250A AND LARGER.
6.2. ADJUSTABLE INSTANTANEOUS TRIP CIRCUIT BREAKERS: MAGNETIC TRIP ELEMENT WITH FRONT MOUNTED FIELD ADJUSTABLE TRIP SETTING.
6.3. ELECTRONIC TRIP CIRCUIT BREAKERS WITH RMS SENSING: FIELD RECEPTACLE RATING PLUG OR FIELD REPLICABLE ELECTRONIC TRIP; AND THE FOLLOWING FIELD ADJUSTABLE SETTINGS:

6.3.1. INSTANTANEOUS TRIP.
6.3.2. LONG AND SHORT TIME PICKUP LEVELS.
6.3.3. LONG AND SHORT TIME ADJUSTMENTS.
6.3.4. GROUND FAULT PICKUP LEVEL, TIME DELAY AND I2T RESPONSE.

6.4. GROUND FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKERS: CLASS B GROUND FAULT PROTECTION (30MA TRIP)
6.5. MCCB FEATURES AND ACCESSORIES.

7. METER PANEL OR PLATE SHALL MEET REQUIREMENTS OF SERVING UTILITY AND SHALL BE FURNISHED WITH NECESSARY FITTINGS.

8. PROVIDE SILVER-PLATED UL RATED, COPPER BUS BARS OF SAME CAPACITY AS MAIN BREAKER, OR AS INDICATED ON DRAWINGS, BETWEEN CURRENT TRANSFORMER AND MAIN SECTION AND DISTRIBUTION SECTIONS; ALSO, FULL HEIGHT OF BREAKER SPACE IN DISTRIBUTION PORTIONS. BUS BAR BRACING SHALL BE DESIGNED TO WITHSTAND MAXIMUM AVAILABLE SHORT-CIRCUIT CURRENT. PROVIDE SERVICE CABLE LUGS AS REQUIRED BY UTILITY COMPANY.

9. DISTRIBUTION SECTIONS SHALL BE FURNISHED WITH FULL HEIGHT BUSSING. UNUSED SPACES SHALL BE PROVIDED WITH BLANK COVERS. SWITCHBOARDS, AS COMPLETE UNITS, SHALL BE GIVEN SINGLE SHORT-0CIRCUIT CURRENT RATINGS BY MANUFACTURER. SUCH RATINGS SHALL BE ESTABLISHED BY ACTUAL TESTS BY MANUFACTURER IN ACCORDANCE WITH UL SPECIFICATIONS ON EQUIPMENT CONSTRUCTED SIMILARLY TO THE FURNISHED SWITCHBOARDS.

10. PROVIDE NAMEPLATES FOR COMPONENTS ON SWITCHBOARDS. PLATES SHALL BE BLACK AND WHITE BAKELITE NAMEPLATE STOCK, WITH CHARACTERS CUT THROUGH BLACK EXPOSING WHITE, AND SHALL BEAR DESIGNATION OF SERVICE, OR FEEDERS CONTROLLED AND FUSE SIZE. PROVIDE SIMILAR NAMEPLATES FOR METER AND TRANSFORMER COMPARTMENTS.

11. PAINT CABINETS, FRAMEWORK AND PLATES INSIDE AND OUT WITH ONE COAT OF RUST-RESISTANT METAL PRIMER AND ONE COAT OF GRAY ENAMEL, BAKED ON, OR LACQUER SPRAYED ON.

12. MANUFACTURE BOARDS ACCORDING TO REVIEWED SHOP DRAWINGS, SWITCHBOARDS SHALL MEET REQUIREMENTS OF LEGALLY CONSTITUTED AUTHORITIES HAVING JURISDICTION, AND RESPECTIVE SERVING UTILITY.

13. SWITCHBOARDS INSTALLED OUTDOORS SHALL BE WEATHERPROOF NEMA TYPE 3R ENCLOSURE. ENCLOSURE CONSTRUCTION SHALL BE FORMED OF CODE GAUGE GALVANIZED STEEL WITH ANSI NO. 61 GRAY ENAMEL FINISH. HEAVY-DUTY, 3-POINT LATCHING, VAULT TYPE DOOR HANDLES WITH PADLOCKING PROVISIONS SHALL BE FURNISHED ON DOORS. PADLOCKS SHALL BE FURNISHED KEYED TO CORBIN NO. 60 KEYS.

F. SYSTEM GROUNDING

1. GROUNDING SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 250. ALL EXPOSED NON-CURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEM, METALLIC CABLE ARMOR, GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, GROUNDING CONDUCTOR IN NONMETALLIC RACEWAYS AND GROUNDED CONDUCTORS OF THE WIRING SYSTEM SHALL BE GROUNDED.

2. GROUNDING CONDUCTOR (NEUTRAL) OF THE WIRING SYSTEM SHALL BE CONNECTED TO THE SYSTEM GROUNDING CONDUCTOR AT A SINGLE PLACE IN EACH SYSTEM BY REMOVABLE BONDING JUMPERS, SIZED ACCORDING TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE. THE GROUNDED CONDUCTOR (NEUTRAL) TO THE GROUNDING CONDUCTOR CONNECTION SHALL BE LOCATED IN THE ENCLOSURE FOR THE SYSTEM'S OVER-CURRENT PROTECTION OR WHERE OTHERWISE INDICATED ON THE PLANS OR SPECIFICATIONS.

3. A GROUND BUS SEPARATE FROM THE NEUTRAL BUS SHALL BE PROVIDED IN ALL SWITCHBOARDS AND PANELBOARDS. GROUND BUS SHALL BE RE-TORQUED (CHECKED) PRIOR TO ENERGIZING EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.

4. GROUNDING BUSES AND NEUTRAL BUSES IN ALL DISTRIBUTION PANELS, SWITCHBOARDS, PANELBOARDS AND THOSE PROVIDED IN ANY EQUIPMENT SHALL BE ISOLATED EXCEPT WHERE REQUIRED TO BE CONNECTED AS SPECIFIED ABOVE FOR THE SERVICE ENTRANCE AND IN TRANSFORMER TERMINAL COMPARTMENTS.

5. WHEN INDICATED ON THE DRAWINGS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE EXTENDED FROM THE GROUND BUS IN THE DISTRIBUTION EQUIPMENT TO THE RECEPTACLE, FIXTURE OR DEVICE LUGS WHERE THEY ARE PROVIDED. WHERE LUGS ARE NOT PROVIDED, EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO THE EQUIPMENT ENCLOSURES. THE CONNECTIONS SHALL BE ARRANGED SUCH THAT THE REMOVAL OF THE RECEPTACLE, EQUIPMENT GROUND CONDUCTORS, OR GROUND JUMPERS FORM GROUND BUSSING SHALL NOT AFFECT THE GROUND SYSTEM.

6. RACEWAYS MAY NOT BE USED AS A GROUNDING CONDUCTOR FOR POWER AND LIGHTING CIRCUITS. ALL CONDUIT SHALL HAVE A SEPARATE CODE SIZED GREEN GROUND WIRE INSTALLED IN THE CONDUIT TO ENSURE A CONTINUOUS GROUNDING PATH.

7. IN ACCESSIBLE LOCATIONS, MAKE CONNECTIONS BY EXOTHERMIC WELD PROCESS.

8. IN ACCESSIBLE LOCATIONS, CONNECTIONS SHALL BE MADE WITH BOLTED THROUGH, APPROVED SOLDERLESS BRONZE GROUNDING DEVICES.

9. BOND TOGETHER METAL SIDING NOT ATTACHED TO GROUNDED STRUCTURE BOND TO GROUND.

G. GUARANTEE

1. GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF WORK, ANY DEFECTS DEVELOPING WITHIN THIS PERIOD, TRACEABLE TO MATERIAL FURNISHED AS A PART OF THIS SECTION OR WORKMANSHIP PERFORMED HEREUNDER, SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.

H. SHOP DRAWINGS AND APPROVAL

1. THE ITEMS SPECIFIED HEREIN AND ON DRAWINGS ARE USED AS A STANDARD OF QUALITY. ANY MATERIALS OF EQUAL QUALITY AND AESTHETIC VALUE WILL BE GIVEN CONSIDERATION AS A SUBSTITUTE FOR THE MATERIALS SPECIFIED. NO APPROVAL WILL BE GIVEN TO A SPECIFIC CATALOG NUMBER, MODEL, OR TYPE OF EQUIPMENT PRIOT TO BIDDING. AFTER BIDDING, THE DECISION OF THE ARCHITECT AND/OR OWNER AND ENGINEER DETERMINING EQUAL MATERIALS WILL BE FINAL.

2. THE CONTRACTOR SHALL SUBMIT PDF SETS OF SHOP DRAWINGS ON THE FOLLOWING ITEMS:

2.1. LIGHTING FIXTURE CUTS AND PERFORMANCE DATA.
2.2. OUTLINE DRAWINGS AND DATA SHEETS OF EACH PANELBOARD AND SWITCHBOARD.
2.3. OUTLINE DRAWINGS OF ALL SWITCHGEAR.

3. SUBMIT ITEMS AT ONE TIME IN A NEAT AND ORDERLY MANNER WITHIN 15 DAYS OF AWARD OF CONTRACT. PARTIAL SUBMITTALS WILL NOT BE ACCEPTABLE.

I. RECORD AND AS-BUILT DRAWINGS

1. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE JOB SITE FOR THE EXCLUSIVE PURPOSE OF MAINTAINING A RECORD OF ALL WORK INSTALLED AND TO SHOW ANY DEVIATIONS FROM THE WORK INDICATED ON THE DRAWINGS.

2. AT THE COMPLETION OF THE PROJECT, ONE SET OF REPRODUCIBLE DRAWINGS, SHOWING ALL AS-BUILT CONDITIONS, SHALL BE DELIVERED TO THE OWNER FOR ACCEPTANCE PRIOR TO FINAL PAYMENT.

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Revisions

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ELECTRICAL SPECIFICATIONS

Job No.
1750.100

Date

E-0.02

J. IDENTIFICATION FOR ELECTRICAL SYSTEMS

1. PRODUCT SHALL BE COMPLYING WITH:

1.1. ANSI A13.1 AND IEEE C2.
1.2. NFPA 70
1.3. 29 CFR 1910.1444 AND 29 CFR 1910.145.

2. COLOR AND LEGEND REQUIREMENTS

2.1. COLORS FOR RACEWAYS CARRYING CIRCUITS AT 600V OR LESS:

2.1.1. BLACK LETTERS ON AN ORANGE FIELD.
2.1.2. LEGEND: INDICATE VOLTAGE AND SYSTEM OR SERVICE TYPE.

2.2. WARNING LABELS AND SIGNS SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING LEGENDS:

2.2.1. MULTIPLE POWER SOURCE WARNING: "DANGER - ELECTRICAL SHOCK HAZARD EQUIPMENT HAS MULTIPLE POWER SOURCES."
2.2.2. WORKSPACE CLEARANCE WARNING: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

3. LABELS

3.1. SELF-ADHESIVE LABELS:

3.1.1. PRE-PRINTED, 3-MIL-THICK, POLYESTER FLEXIBLE LABEL WITH ACRYLIC PRESSURE-SENSITIVE ADHESIVE.
3.1.2. SELF LAMINATION: CLEAR; UV, WEATHER AND CHEMICAL RESISTANT; SELF-LAMINATING, PROTECTIVE SHIELD OVER THE LEGEND, LABELS SIZED TO FIT THE RACEWAY DIAMETER, SUCH THAT THE CLEAR SHIELD OVERLAPS THE ENTIRE PRINTED LEGEND.
3.1.3. POLYESTER, THERMAL, TRANSFER-PRINTED, 3-MIL THICK, MULTICOLOR, WEATHER AND UV RESISTANT, PRESSURE SENSITIVE ADHESIVE LABELS, CONFIGURED FOR DISPLAY ON FRONT COVER, DOOR OR OTHER ACCESS TO EQUIPMENT UNLESS OTHERWISE INDICATED. NOMINAL SIZE OF 3.5 BY 5 INCHES.
3.1.4. MARKER FOR TAGS: MACHINE-PRINTED, PERMANENT, WATERPROOF, BLACK INK RECOMMENDED BY PRINTER MANUFACTURER.
3.1.5. SELF-ADHESIVE WARNING LABELS: FACTORY PRINTED, MULTICOLOR, PRESSURE-SENSITIVE ADHESIVE LABELS CONFIGURED FOR DISPLAY ON FRONT COVER, DOOR, OR OTHER ACCESS TO EQUIPMENT, UNLESS OTHERWISE INDICATED.

4. POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

4.1. COMPLY WITH ANSI A13.1 FOR MINIMUM SIZE OF LETTERS FOR LEGEND AND FOR MINIMUM LENGTH OF COLOR FIELD FOR EACH RACEWAY AND CABLE SIZE.

4.2. SELF-ADHESIVE VINYL LABELS: PREPRINTED, FLEXIBLE LABEL LAMINATED WITH A CLEAR, WEATHER AND CHEMICAL RESISTANT COATING AND MATCHING WRAPAROUND ADHESIVE TAPE FOR SECURING ENDS OF LEGEND LABEL.

4.3. METAL TAGS: BRASS OR ALUMINUM, 2 BY 2 BY 0.05 INCHES, WITH STAMPED LEGEND, PUNCHED FOR USE WITH SELF-LOCKING CABLE TIE FASTENER.

4.4. WRITE-ON TAGS: POLYESTER TAG, 0.010 INCHES THICK, WITH CORROSION-RESISTANT GROMMET AND CABLE TIE FOR ATTACHMENT TO CONDUCTOR OR CABLE.

4.4.1. MARKER FOR TAGS: PERMANENT, WATERPROOF, BLACK INK MARKER RECOMMENDED BY TAG MANUFACTURER.
4.4.2. MARKER FOR TAGS: MACHINE PRINTED, PERMANENT, WATERPROOF, BLACK INK MARKER RECOMMENDED BY PRINTER MANUFACTURER.

4.5. SNAP-AROUND LABELS: SLIT, PRE-TENSIONED, FLEXIBLE, PREPRINTED, COLOR-CODED ACRYLIC SLEEVE, WITH DIAMETER SIZED TO SUIT DIAMETER OF RACEWAY OR CABLE IT IDENTIFIES AND TO STAY IN PLACE BY GRIPPING ACTION.

5. TAPES AND STENCILS

5.1. SELF-ADHESIVE VINYL TAPE: COLORED, HEAVY DUTY, WATERPROOF, FADE RESISTANT; NOT LESS THAN 3 MILS THICK BY 1 TO 2 INCHES WIDE; COMPOUNDED FOR OUTDOOR USE. COLOR-CODING CONDUCTOR TAPE: COLORED, SELF-ADHESIVE VINYL TAPE NOT LESS THAN 3 MILS THICK BY 1 TO 2 INCHES WIDE.

5.2. FLOOR MARKING TAPE: 2 INCHES WIDE, 5 MIL PRESSURE SENSITIVE VINYL TAPE, WITH BLACK AND WHITE STRIPES AND CLEAR VINYL OVERLAY.

6. TAGS

6.1. NONMETALLIC PREPRINTED TAGS: POLYETHYLENE TAGS, 0.0150 INCHES THICK, COLOR-CODED FOR PHASE AND VOLTAGE LEVEL, WITH FACTORY PRINTED PERMANENT DESIGNATIONS; PUNCHED FOR USE WITH SELF-LOCKING CABLE TIE FASTENER.

7. SIGNS

LAMINATED ACRYLIC OR MELAMINE PLASTIC SIGNS: COMPLY WITH NFPA 70, NFPA 70E AND 29 CFR 1910.45.

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ELECTRICAL SPECIFICATIONS

Job No.
1750.100

Date

E-0.03

PANEL: M — 120/208 VOLT, 3 PH, 4W — 225 AMP COPPER BUS

LOCATION: MODULAR CR (PANEL TO HAVE BOLT-ON BREAKERS) **MAIN: 150A**

MOUNTING: SURFACE LOAD: **48.7** kVA **135** AMPS

CK #	NT	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	LOAD DESCRIPTION	OUTLETS O	OUTLETS R	OUTLETS L	CKT BKR P	CKT BKR A	CKT BKR A	CKT BKR P	OUTLETS L	OUTLETS R	OUTLETS O	LOAD DESCRIPTION	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	NT	CK #
1	1	1000			EXISTING LOAD				1	20	20	1				EXISTING LOAD	1000			1	2
3	1		1000		EXISTING LOAD				1	20	20	1				EXISTING LOAD		1000		1	4
5	1			1000	EXISTING LOAD				1	20	20	1				EXISTING LOAD			1000	1	6
7	1	1000			EXISTING LOAD				1	20	20	1				EXISTING LOAD	1000			1	8
9	1		1000		EXISTING LOAD				1	20	20	1				EXISTING LOAD		1000		1	10
11	1			1000	EXISTING LOAD				1	20	20	1				EXISTING LOAD			1000	1	12
13	1	1000			EXISTING LOAD				1	20							4800				14
15	1		1000		EXISTING LOAD				1	20	50	3				EXISTING LOAD		4800		1	16
17	1			1000	EXISTING LOAD				1	20									4800		18
19	1	1000			EXISTING LOAD				1	20							4800				20
21	1		1000		EXISTING LOAD				1	20	50	3				EXISTING LOAD		4800		1	22
23				350	**ACCESS CONTROL PANEL**				1	20									4800		24
25					SPARE				1	20	20	1				SPARE					26
27					SPARE				1	20	20	1				SPARE					28
29					SPARE				1	20	20	1				SPARE					30
31					SPARE				1	20	20	1				SPARE					32
33	1		1000		EXISTING LOAD				1	20	20	1				SPARE					34
35	1			1000	EXISTING LOAD				1	20	20	1				SPARE					36
37					SPARE				1	20	20	1				SPARE					38
39					SPARE				1	20	20	1				SPARE					40
41				500	EXISTING LOAD				1	20	20	1				SPARE					42
		4000	5000	4850	SUB - TOTALS											SUB - TOTALS	11600	11600	11600		
																LINE TOTALS:	15600	16600	16450		
																LCL ADDER	0	0	0		
																TOTAL VA PER PHASE	15600	16600	16450		
																LINE AMPS	130	138	137		

NOTE: 1. EXISTING LOAD AND CIRCUIT TO REMAIN.
2.
3.
4.

PANEL: CR — 120/208 VOLT, 1 PH, 3W — 100 AMP COPPER BUS

LOCATION: CR P-8 (PANEL TO HAVE BOLT-ON BREAKERS) **MAIN: 100A**

MOUNTING: FLUSH LOAD: **18.7** kVA **90** AMPS

CK #	NT	VA LOAD LINE A	VA LOAD LINE B	LOAD DESCRIPTION	OUTLETS O	OUTLETS R	OUTLETS L	CKT BKR P	CKT BKR A	CKT BKR A	CKT BKR P	OUTLETS L	OUTLETS R	OUTLETS O	LOAD DESCRIPTION	VA LOAD LINE A	VA LOAD LINE B	NT	CK #
1	1	1440		EXISTING LOAD				1	20	20	1				EXISTING LOAD	1440		1	2
3	1		1440	EXISTING LOAD				1	20	20	1				EXISTING LOAD		1440	1	4
5	1	1440		EXISTING LOAD				1	20										
7	1		1440	EXISTING LOAD				1	20	60	2				EXISTING LOAD	5000		1	6
9		60		**ACCESS CONTROL PANEL**				1	20	-	-				SPACE				8
11				SPACE				-	-	-	-				SPACE		5000		10
		2940	2880	SUB - TOTALS											SUB - TOTALS	6440	6440		12
															LINE TOTALS:	9380	9320		
															LCL ADDER	0	0		
															TOTAL VA PER PHASE	9380	9320		
															LINE AMPS	78	78		

NOTE: 1. EXISTING LOAD AND CIRCUIT TO REMAIN.
2.
3.
4.

PANEL: P16 — 120/208 VOLT, 1 PH, 3W — 125 AMP COPPER BUS

LOCATION: CR P-15 (PANEL TO HAVE BOLT-ON BREAKERS) **MAIN: 125A**

MOUNTING: FLUSH LOAD: **20.1** kVA **97** AMPS

CK #	NT	VA LOAD LINE A	VA LOAD LINE B	LOAD DESCRIPTION	OUTLETS O	OUTLETS R	OUTLETS L	CKT BKR P	CKT BKR A	CKT BKR A	CKT BKR P	OUTLETS L	OUTLETS R	OUTLETS O	LOAD DESCRIPTION	VA LOAD LINE A	VA LOAD LINE B	NT	CK #
1	1	1440		EXISTING LOAD				1	20	20	1				EXISTING LOAD	1440		1	2
3	1		1440	EXISTING LOAD				1	20	20	1				EXISTING LOAD		1440	1	4
5	1	1440		EXISTING LOAD				1	20										
7	1		1440	EXISTING LOAD				1	20	60	2				EXISTING LOAD	5000		1	6
9	1	1440		EXISTING LOAD				1	20	20	1				**ACCESS CONTROL PANEL**	60			8
11				SPACE				-	-	-	-				SPACE		5000		10
		4320	2880	SUB - TOTALS											SUB - TOTALS	6500	6440		12
															LINE TOTALS:	10820	9320		
															LCL ADDER	0	0		
															TOTAL VA PER PHASE	10820	9320		
															LINE AMPS	90	78		

NOTE: 1. EXISTING LOAD AND CIRCUIT TO REMAIN.
2.
3.
4.

PANEL: B — 120/208 VOLT, 3 PH, 4W — 225 AMP COPPER BUS

LOCATION: MPR BUILDING (PANEL TO HAVE BOLT-ON BREAKERS) **MAIN: 150A**

MOUNTING: FLUSH LOAD: **21.6** kVA **60** AMPS

CK #	NT	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	LOAD DESCRIPTION	OUTLETS O	OUTLETS R	OUTLETS L	CKT BKR P	CKT BKR A	CKT BKR A	CKT BKR P	OUTLETS L	OUTLETS R	OUTLETS O	LOAD DESCRIPTION	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	NT	CK #
1	1	1000			EXISTING LOAD				1	20	20	1				EXISTING LOAD	1000			1	2
3	1		1000		EXISTING LOAD				1	20	20	1				EXISTING LOAD		1000		1	4
5	1			1000	EXISTING LOAD				1	20	20	1				EXISTING LOAD			1000	1	6
7	1	1000			EXISTING LOAD				1	20	20	1				EXISTING LOAD	1000			1	8
9	1		1000		SPARE				1	20	20	1				EXISTING LOAD		1000		1	10
11	1			1000	EXISTING LOAD				1	20	20	1				EXISTING LOAD			1000	1	12
13	1	1000			EXISTING LOAD				1	20	20	1				**AC CESS CONTROL PANEL**	350				14
15	1		1000		EXISTING LOAD				1	20	20	1				**AC CESS CONTROL PANEL**		350			16
17	1			1000	EXISTING LOAD				1	20	20	1				**AC CESS CONTROL PANEL**			60		18
19	1	1000			EXISTING LOAD				1	20	20	1				**AC CESS CONTROL PANEL**	350				20
21	1		1000		EXISTING LOAD				1	20	-	-				SPACE					22
23	1			1000	EXISTING LOAD				1	20	-	-				SPACE					24
25					SPACE				-	-	-	-				SPACE					26
27					SPACE				-	-	-	-				SPACE					28
29					SPACE				-	-	-	-				SPACE					30
		4000	5000	5500	SUB - TOTALS											SUB - TOTALS	2700	2350	2060		
																LINE TOTALS:	6700	7350	7560		
																LCL ADDER	0	0	0		
																TOTAL VA PER PHASE	6700	7350	7560		
																LINE AMPS	56	61	63		

NOTE: 1. EXISTING LOAD AND CIRCUIT TO REMAIN.
2.
3.
4.

ARCHITECT

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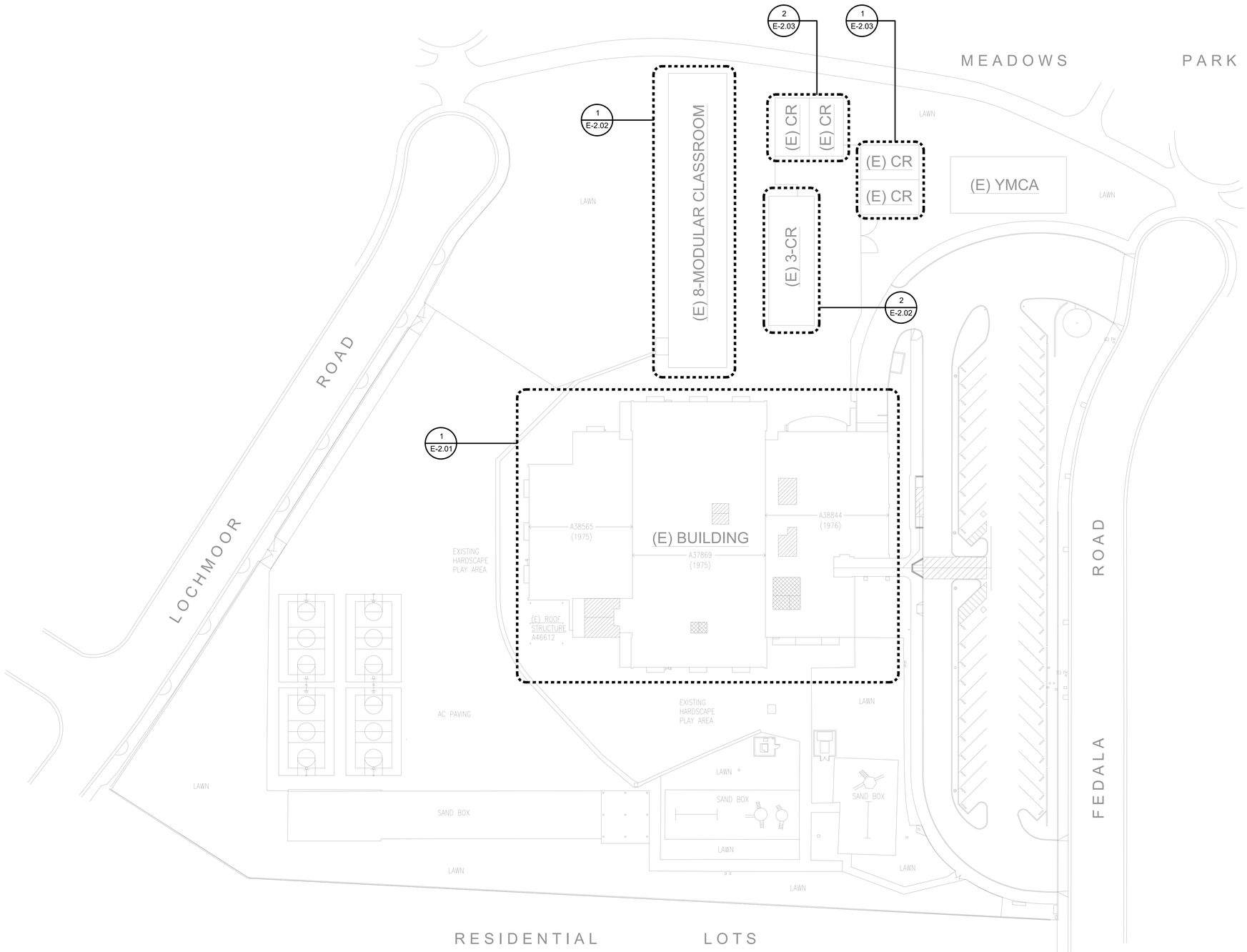
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VALENCIA, CA 91355

ELECTRICAL PANEL SCHEDULES

Job No. 1750.100

Date

E-0.04



ELECTRICAL SITE PLAN

SCALE: 1" = 30'-0"

1 E-1.01

N

DIGALERT

Underground Service Alert of Southern California

811 or 800-422-4133

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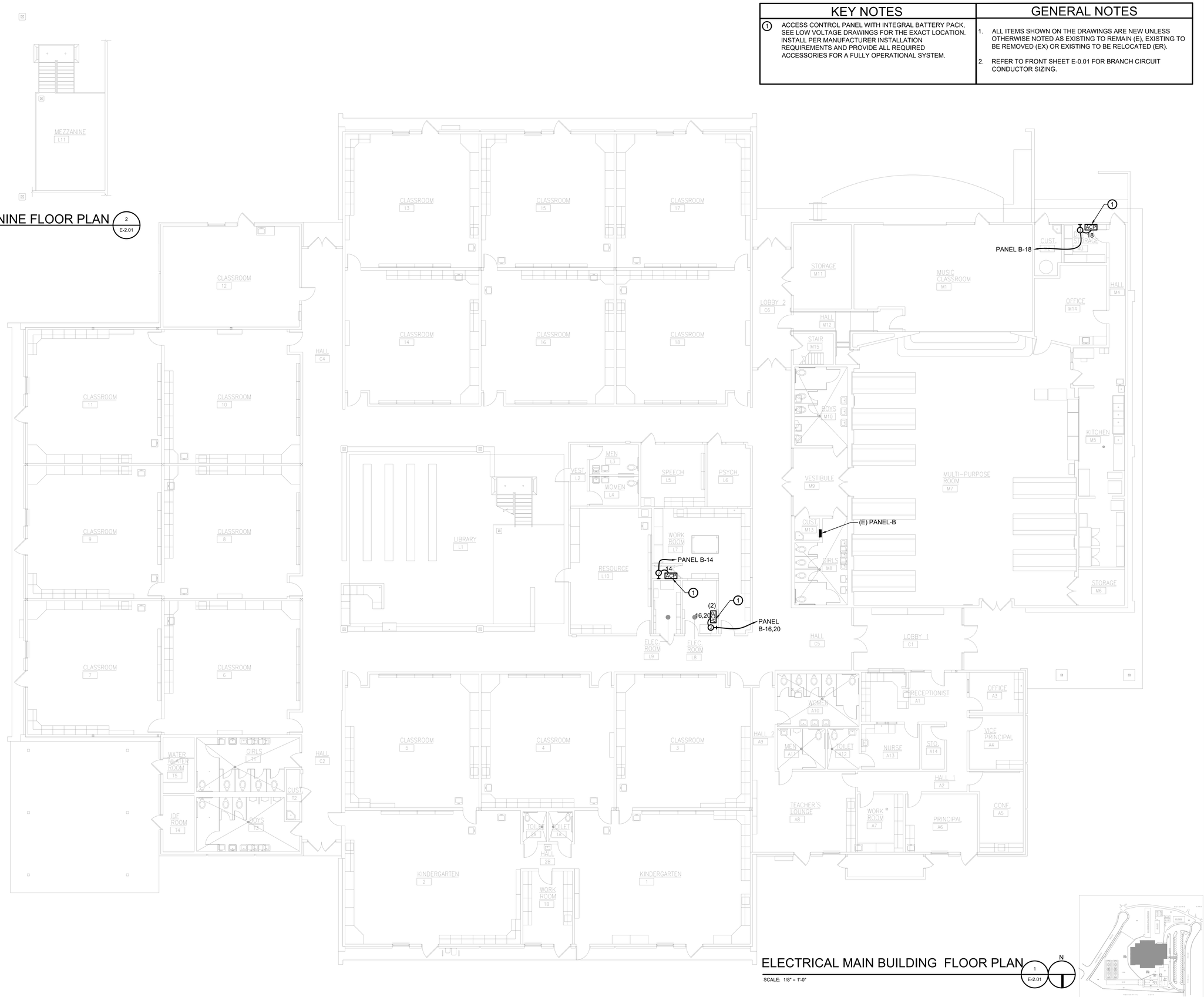
ELECTRICAL SITE PLAN

Job No.
1750.100

Date

E-1.01

KEY NOTES	GENERAL NOTES
(1) ACCESS CONTROL PANEL WITH INTEGRAL BATTERY PACK, SEE LOW VOLTAGE DRAWINGS FOR THE EXACT LOCATION. INSTALL PER MANUFACTURER INSTALLATION REQUIREMENTS AND PROVIDE ALL REQUIRED ACCESSORIES FOR A FULLY OPERATIONAL SYSTEM.	1. ALL ITEMS SHOWN ON THE DRAWINGS ARE NEW UNLESS OTHERWISE NOTED AS EXISTING TO REMAIN (E), EXISTING TO BE REMOVED (EX) OR EXISTING TO BE RELOCATED (ER). 2. REFER TO FRONT SHEET E-0.01 FOR BRANCH CIRCUIT CONDUCTOR SIZING.



MEZZANINE FLOOR PLAN (2 / E-2.01)
SCALE: 1/4" = 1'-0"

ELECTRICAL MAIN BUILDING FLOOR PLAN (1 / E-2.01)
SCALE: 1/8" = 1'-0"

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ELECTRICAL
STATE OF CALIFORNIA

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Revisions

No.	Date	Description
1	06-17-25	BID PLANS
2	06-17-26	RE-BID PLANS
3	11-02-26	RE-BID PLANS

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ELECTRICAL MAIN BUILDING FLOOR PLAN

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1750.100

Date

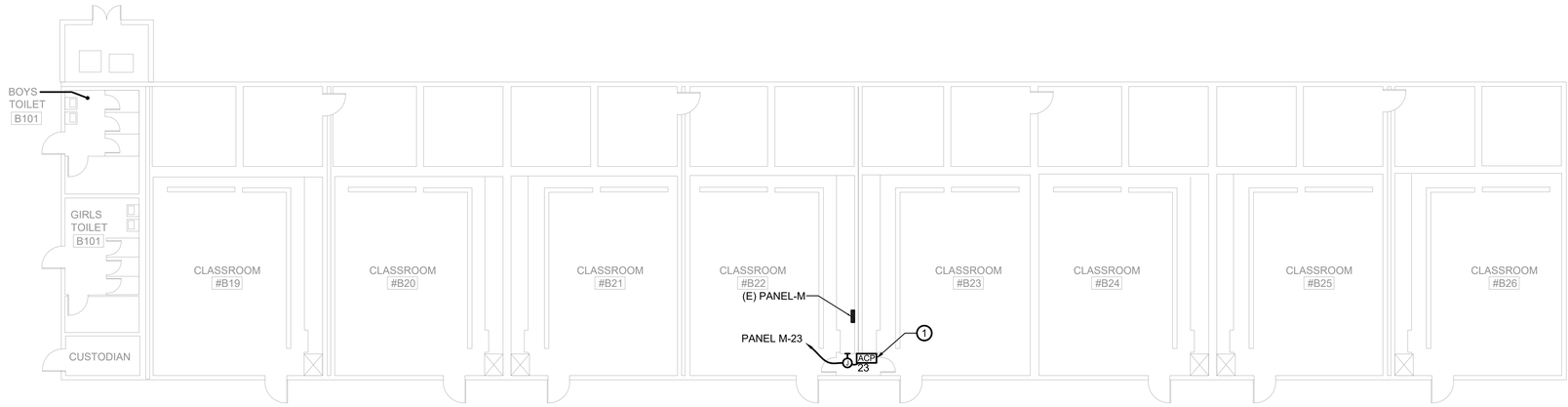
E-2.01

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KEY NOTES

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ELECTRICAL MODULAR CLASSROOM BUILDING FLOOR PLAN

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

1 E-2.02

N

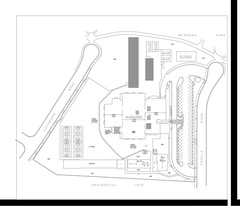


ELECTRICAL RELOCATABLE CLASSROOM-P3,4 AND 5 BUILDING FLOOR PLAN

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

2 E-2.02

N



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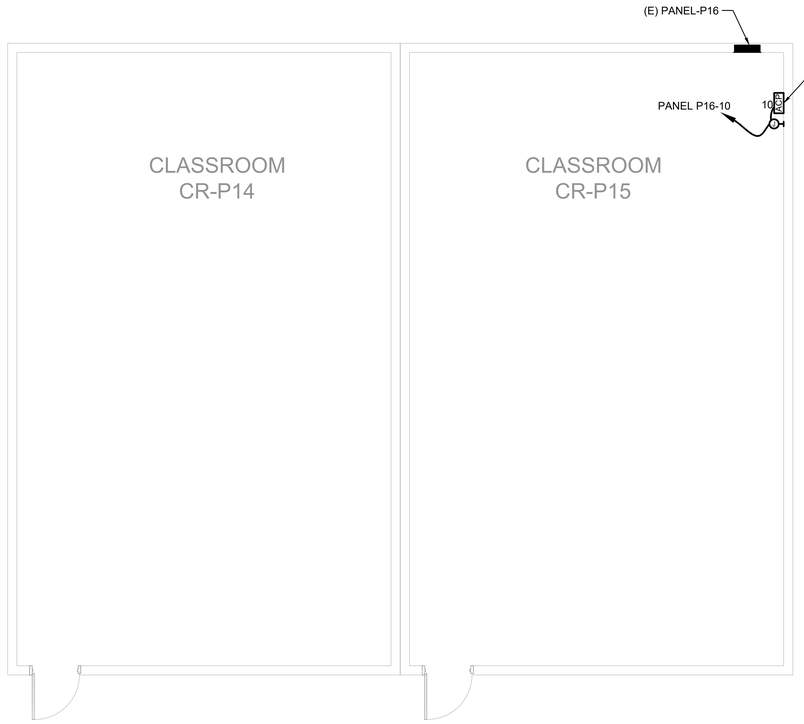
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ELECTRICAL MODULAR AND RELOCATABLE BUILDING FLOOR PLAN

Job No.
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Date

E-2.02



ELECTRICAL RELOCATABLE CLASSROOM
P14 AND P15 FLOOR PLAN

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

N

1
E-2.03



ELECTRICAL RELOCATABLE CLASSROOM P7
AND P8 FLOOR PLAN

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

N

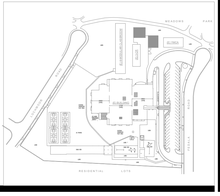
2
E-2.03

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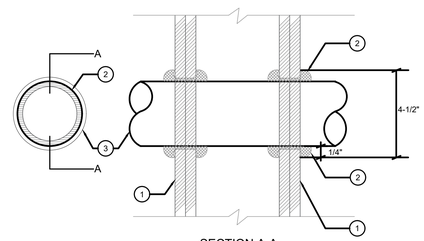
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ELECTRICAL RELOCATABLE CLASSROOM FLOOR PLAN

Job No.
1750.100

Date

E-2.03



SECTION A-A

NOTES:

1. GYP BOARD, 5/8" THICK: 1HR. - 1 LAYER, 2HR. - 2 LAYERS.
2. FILL, VOID OR CAVITY MATERIAL - CAULK: CAULK FILL MATERIAL FORCED INTO ANNULAR SPACE TO MAX. EXTENT POSSIBLE AND WITH A MIN. 1/4" DIAMETER BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. MINNESOTA MINING & MANUFACTURING CO.: TYPES SP -25 S/L, CP -25 N/S.
3. CONDUIT: NOM. 4" DIAMETER (OR SMALLER) STEEL EMT CONDUIT OR NOM. 1" DIAMETER (OR SMALLER) FLEXIBLE STEEL CONDUIT. A MAX. OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRE STOP SYSTEM. PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.
4. FIRE STOP SYSTEM: INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE HOURLY F RATING OF THE FIRE STOP SYSTEM IS EITHER 1 OR 2 HR. DEPENDING UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED. THE HOURLY T RATING FOR THE FIRE STOP SYSTEM ARE DEPENDENT UPON THE SIZE OF THE CONDUIT, THE FIRE STOP CONFIGURATION AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED. THE FIRE STOP CONFIGURATION IS DEPENDENT UPON THE SIZE OF THE ANNULAR SPACE BETWEEN THE STEEL PIPE OR CONDUIT (OR PIPE COVERING) AND THE PERIMETER OF THE CIRCULAR THROUGH OPENING IN THE GYPSUM WALLBOARD LAYERS.

SYSTEM WL-1001
F RATINGS - 1 AND 2 HR. (SEE NOTE 4)

1 FIRE RATED WALL PENETRATION DETAIL

NO SCALE

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