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### ADDENDUM NO. 1

Date: March 8, 2023

Issued by: Sacramento City Unified School District

### Project: Project #: 0525-462 John F. Kennedy Parking Lot

This addenda shall supersede the original Information, attachments, and specifications regarding Project No. 0525-462 where it adds to, deletes from, clarifies or otherwise modifies them. All other conditions and any previous addenda shall remain unchanged.

### Part A – Bidding and Contract Requirements

AD1.01 Refer to Project Manual, Section 00 01 20, List of Schedules:

REMOVE Job Walk Date: 3/14/23

ADD Job Walk Date: 3/15/23

AD1.02 Refer to Project Manual, Section 00 11 16, Notice to Bidders ADD Engineer's Estimate of \$4,900,000

Part B - DRAWINGS

#### AD1.03

**REMOVE** Drawing Sheets E-001, E-002, E-102, E-103 and E-201 in its entirety **REPLACE** Drawing Sheets E-001, E-002, E-102, E-103 and E-201 with Addendum No. 1

#### List of Attachments:

AD1.04 Drawing Sheets E-001, E-002, E-102, E-103 and E-201

#### END OF ADDENDUM NO.1

### Acknowledgement of this Addendum will be required at time of bid

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# ABBREVIATIONS

E, 3 PHASE , 2 POLE, 3 POLE , 4 WIRE DEMOLISH NG NG RELOCATED ATE	MCA MCB MCC MLO MOCP MT	-M- MINIMUM CIRCUIT AMPACITY MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER MAIN LUGS ONLY MAXIMUM OVER-CURRENT PROTECTION EMPTY CONDUIT W/ PULL-LINE
- <b>A</b> - RES NATING CURRENT RATING IN AMPERES FINISHED FLOOR RES INTERRUPTING ITY NUM TRANSFER SWITCH ATING IN AMPERES CAN WIRE GAUGE	NC NCTC NEC NEMA NIES NL NO NTS	-N- NORMALLY CLOSED NURSE CALL TERMINAL CABINET NATIONAL ELECTRIC CODE NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION NOT INCLUDED IN ELECTRICAL SCOPE NIGHT LIGHT NORMALLY OPEN NOT TO SCALE
-B- NG TELECOM ROOM -C- JIT T BREAKER PRNIA ELECTRICAL CODE	OCP OFCI OFOI	-O- OVER-CURRENT PROTECTION OWNER FURNISHED CONTRACTOR INSTALLED OWNER FURNISHED OWNER INSTALLED
NT TRANSFORMER R - <b>D-</b>	PT PVC	-P- POTENTIAL TRANSFORMER POLYVINYL CHLORIDE CONDUIT
CURRENT	RLA RSC	-R- RUNNING LOAD AMP RIGID STEEL CONDUIT
RICAL RICAL METALLIC TUBING - <b>F-</b> -ARM -ARM CONTROL PANEL	SPD SPDT SPST SST	-S- SURGE PROTECTION DEVICE SINGLE POLE DOUBLE THROW SINGLE POLE SINGLE THROW SOLID STATE TRIP
LARM TERMINAL CABINET OAD AMPS OR FEET - <b>G</b> - ID	TER TR TM TTB	-T- TELECOM EQUIPMENT ROOM TELECOM ROOM THERMAL MAGNETIC TERMINAL BACKBOARD
ID FAULT CIRCUIT RUPTER ID FAULT INTERRUPTER - <b>H-</b>	UG UL UON UPS	-U- UNDERGROUND UNDERWRITERS LAB. UNLESS OTHERWISE NOTED UNINTERRUPTIBLE POWER SUPPLY
DFF-AUTO POWER -J- ION BOX	V VA VAC	-V- VOLTS VOLT-AMPS VOLTS ALTERNATE CURRENT
<b>-K-</b> HOUSAND VOLT-AMPS HOUSAND WATTS	W WCR WP	-W- WATTS WITHSTAND & CLOSING RATING WEATHERPROOF
<b>-L-</b> NG CONTROL PANEL NG	XFMR XFER	-X- TRANSFORMER TRANSFER SWITCH

# **GENERAL NOTES**

EXISTING UNDERGROUND UTILITIES ARE PRESENT, BUT THEIR EXACT LOCATIONS ARE NOT KNOWN. CONTRACTOR SHALL LOCATE AND PROTECT BEFORE TRENCHING OR EXCAVATING IN ANY AREA. CONSULT UTILITY COMPANIES. "AS-BUILT" DRAWINGS, AND SCHOOL MAINTENANCE PERSONNEL FOR LOCATION OF EXISTING UNDERGROUND WORK. IF EXISTING PIPING OR UTILITIES ARE DAMAGED DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR IMMEDIATELY AT OWN EXPENSE. NEW UNDERGROUND SHALL BE MODIFIED AS NECESSARY TO CONFORM TO EXISTING CONDITIONS.

INFORMATION GIVEN. CONCERNING EXISTING ELECTRICAL INSTALLATION IS AS EXACT AS COULD BE SECURED, BUT EXTREME ACCURACY IS NOT GUARANTEED. CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO BIDS AND SATISFY HIMSELF AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED.

EXISTING CIRCUITS AND SERVICES SHALL NOT BE INTERRUPTED EXCEPT BY SPECIFIC APPROVAL OF THE SCHOOL. ALL SHUTDOWNS SHALL BE SCHEDULED

ALL INTERIOR CONDUIT SHALL BE RUN CONCEALED.

CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING AND WALK ROUTES OF NEW UNDERGROUND CONDUITS. NOTE AREAS OF CONCRETE AND ASPHALT BEING CROSSED AND INCLUDE IN BID ALL COSTS FOR CUTTING AND PATCHING AS

PROVIDE TRAFFIC RATED (H/20 LOAD) COVER AND BOXES FOR ALL PULLBOXES UNLESS SPECIFICALLY NOTED OTHERWISE.

REFER TO DETAILS ON STRUCTURAL DRAWINGS FOR PENETRATION REQUIREMENTS THROUGH FRAMING TOP PLATES, SILL PLATES, BEAMS, JOIST RAFTERS, ETC. PROVIDE NOTCHING BORING, DRILLING, ANCHOR BOLTS AND OTHER WORK IN STRICTEST CONFORMANCE TO STRUCTURAL DETAILS.

## MEP COMPONENT **ANCHORAGE NOTES**

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26

ALL PERMANENT EQUIPMENT AND COMPONENTS. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/120 VOLT RECEPTACLES HAVING A

TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MATTER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS THE COMPONENT. . COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE

SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL, AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH

## STANDARD ELECTRICAL SYMBOLS

(MBOL	DESCRIPTION
$\langle \mathbf{x} \mathbf{x} \rangle$	NUMBERED NOTE.
	ENLARGED PLAN OR DETAIL CALL-OUT.
	BRANCH CIRCUIT PANELBOARD, SURFACE MOUNTED.
<b>X##</b>	PULLBOX. REFER TO PULLBOX SCHEDULE & PULLBOX DETAIL.
Р	EXTERIOR POLE LIGHT, SINGLE LUMINAIRE.
ᢙ	EXTERIOR POLE LIGHT, TWO LUMINAIRES.
<u>B</u>	LUMINAIRE TAG, LETTER INDICATES TYPE, SEE LUMINAIRE SCHEDULE.
TCH	ASTRONOMICAL TIME CLOCK, 2-RELAYS, MOUNT AT +48" TO TOP OF DEVIC <u>TORK EWZ201C SERIES.</u> UNIVERSAL VOLTAGE, 6 VA MAX. PROVIDE 5" SQUARE X 2 7/8" DEEP BOX W/ 1-DEVICE RING AND PLATE. STUB 1 1/4" CONDUIT WITH 90 DEGREE BEND INTO ACCESSIBLE CEILING SPACE, TERMINATE W/ INSULATING BUSHING.

### RACEWAY SYMBOLS

YMBOL	DESCRIPTION
	RACEWAY INSTALLED IN CEILING OR WALL. ROUTE EXPOSED IN ALL UNFINISHED AREAS.
	RACEWAY INSTALLED BELOW FINISHED FLOOR OR GRADE.
	EXISTING CONDUIT RUN, VERIFY ROUTING ON THE JOB.
	REMOVE (E) WIRE, PULL IN NEW WIRES, #12 AWG UNLESS NOTED.
x	EXISTING CONDUIT RUN TO BE ABANDONED. CONDUIT ABOVE THE FLOOR AND BELOW THE STRUCTURE ABOVE SHALL BE REMOVED. CONDUCTORS SHALL BE REMOVED.
	ARROW AT END OF RACEWAY INDICATES HOME RUN TO RESPECTIVE PANELBOARD OR SWITCHBOARD.
)	BRANCH CIRCUIT WITHOUT FURTHER DESIGNATION INDICATES A 2 #12 AW CIRCUIT WITH 1 #12 AWG GROUND.
ŧ	STRAIGHT CROSS-LINES IN BRANCH CIRCUIT RACEWAY INDICATE NUMBER OF #12 AWG WIRES IN A CIRCUIT. SHORT LINES INDICATE UNGROUNDED CONDUCTORS. LONG LINES INDICATE NEUTRAL CONDUCTORS. WIRES SHOWN ARE IN ADDITION TO 1 #12 AWG GROUNDING CONDUCTOR.
#10	BRANCH CIRCUIT WITH GROUNDING WIRE LARGER THAN #12 AWG. NUMBE ADJACENT TO CURVED CROSS-LINE INDICATES WIRE SIZE.
<b>#</b> 10	BRANCH CIRCUIT RACEWAY WITH WIRE OTHER THAN #12 AWG. NUMBER ADJACENT TO STRAIGHT OR CURVED CROSS-LINES INDICATES WIRE SIZE UNGROUNDED AND NEUTRAL CONDUCTORS SHALL BE THE SAME SIZE UNLESS OTHERWISE NOTED.

## SHEET INDEX

SHEET DESCRIPTION

001	ABBREVIATIONS, SYMBOLS, SHEET INDEX, LUMINAIRE SCHEDULE, & DETA
002	ELECTRICAL SPECIFICATIONS
003	ELECTRICAL SPECIFICATIONS
004	TITLE 24 COMPLIANCE
005	TITLE 24 COMPLIANCE
101	OVERALL SITE PLAN - ELECTRICAL
102	PARTIAL SITE PLAN - ELECTRICAL
103	PARTIAL SITE PLAN - PHOTOMETRICS
201	ONE-LINE DIAGRAM & PANEL SCHEDULES

### GENERAL ELECTRICAL NOTES

WHERE PROVIDED, THROUGH-PENETRATION FIRESTOP SYSTEM AND MEMBRANE PENETRATION DETAILS SHOWN IN THE DETAILS ARE FOR REFERENCE ONLY. THROUGH- PENETRATIONS AND MEMBRANE PENETRATIONS SHALL BE PROTECTED BY AN APPROVED PENETRATION FIRESTOP SYSTEM OR MEMBRANE PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E 814 OR UI 1479, WITH A MINIMUM POSITIVE PRESSURE DIFFERENTIAL OF 0.01 INCH (2.49 PA) OF WATER OR AS OTHERWISE PERMITTED BY CBC, SECTION 714. LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS AND MEMBRANE PENETRATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE INSTALLATION DETAILS FOR LISTED SYSTEMS LISTED THROUGH-PENETRATION FIRESTOP SYSTEMS, MEMBRANE PENETRATION PROTECTION AND OTHER PERMITTED MEANS AND METHODS OF PENETRATION PROTECTION SHALL BE SUBMITTED FOR DEPARTMENT OF THE STATE ARCHITECT REVIEW AND APPROVAL PRIOR TO INSTALLATION.

ALL ELECTRICAL EQUIPMENT TO BE INSTALLED OR PERMANENTLY CONNECTED (HARDWIRED) SHALL BE LISTED, LABELED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) PER CEC 110.2.

ALL EQUIPMENT SHALL BE USED IN ACCORDANCE WITH LISTING PER CEC 110.3B.

# PIPING, DUCTWORK AND ELECTRICAL **DISTRIBUTION SYSTEM BRACING NOTE**

PIPING. DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTION 13.6.6, 13.6.7, 13.6.8, AND 2019 CBC, SECTIONS 1617A.1.24; 1617.A1.25 AND 1617.A1.26.

THE METHOD SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G. OSHPD OPM FOR 2019 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE ÁVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTIÓN SYSTEMS (E):

MPo MDo PPo Eo **OPTION 1: DETAILED ON THE APPROVED** DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS. MP□ MD□ PP□ E∎ **OPTION 2: SHALL COMPLY WITH THE** 

APPLICABLE OSHPD PRE-APPROVAL (OPM #) #0052-13.



SECTION 26 00 00 - ELECTRICAL WORK	3. Armored cable is not permitted.	<ol> <li>Copper Conductors Size 6 AWG and Larger: Use pre-insulated mechanical connectors or compress</li> <li>Wiring Connectors for Terminations:</li> </ol>
PART 1 GENERAL	<ol> <li>Concealed Dry Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.</li> <li>Exposed Dry Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.</li> </ol>	<ul> <li>D. Wiring Connectors for Terminations:</li> <li>1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed</li> </ul>
	6. Above Accessible Ceilings: Use only building wire, Type THHN/THWN-2 insulation, in raceway.	2. Provide compression adapters for connecting conductors to equipment furnished with mechanical l
<ul> <li>1.01 CONDITIONS:</li> <li>A. The Requirements of General Conditions and Special Conditions apply to Work of this Section as if fully repeated herein.</li> </ul>	<ol> <li>Wet or Damp Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.</li> <li>Exterior Locations: Use only building wire, Type XHHW-2 insulation, in raceway.</li> </ol>	<ol> <li>Where over-sized conductors are larger than the equipment terminations can accommodate, provid required for the rating of the overcurrent protective device.</li> </ol>
	9. Underground Locations: Use only building wire, Type XHHW-2 insulation, in raceway.	4. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors
1.02 WORK INCLUDED: A Provide a complete working installation of all electrical systems as shown of drawings or as specified	<ul> <li>O. Wiring Device Applications:</li> <li>1 Provide wiring devices suitable for intended use and with ratings adequate for load served</li> </ul>	<ul> <li>Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.</li> <li>E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors with</li> </ul>
<ul> <li>B. Provide all labor, materials, tools, and equipment necessary for the complete in-place installation of all electrical and low voltage items complete as shown on drawings and as specified.</li> </ul>	<ol> <li>For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.</li> </ol>	F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
C. Provide submittals and shop drawings.	<ol> <li>GFCI Protection: Provide GFCI protection for all single-phase receptacles rated 150-volt to ground or less, 50-amps or less and all three-phase receptacles rated 150-volt to ground or less, 100-amps or less in the following locations:</li> </ol>	G. Twist-on Insulated Spring Connectors: Rated 600-volt, 221 degrees F for standard applications and 302 as complying with UL 486D for damp and wet locations.
<ul> <li>Complete new power distribution throughout project including main electrical service, distribution panelboards, branch circuit panelboards, conduit, wire, pull boxes, junction boxes and</li> </ul>	a. Rooftops.	<ul> <li>H. Mechanical Connectors: Provide bolted type.</li> <li>Compression Connectors: Provide circumferential type or hex type crimp configuration</li> </ul>
miscellaneous materials. F. Complete receptacle branch circuits including conduit, wire, outlet boxes and devices.	<ul> <li>b. Outdoors and Indoor Wet Locations. Provide weather resistant GFCI type receptacle with extra duty weatherproof while in use cover.</li> <li>4. Unless noted otherwise, do not use combination switch/receptacle devices.</li> </ul>	J. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection
G. Electrical connections to equipment furnished and installed under other sections.		
<ul> <li>H. Include sealing and fireproofing of conduits, cable trays, cables etc.</li> <li>I. Electrical components are identified as follows:</li> </ul>	1.08 DEMOLITION: A. Removal of existing electrical equipment, wiring, and conduit in areas to be remodeled; removal of designated construction; dismantling, cutting and alterations for completion of the	A. Rigid Steel Conduit: ANSI C80.1.
1. Nameplate for each electrical distribution and control equipment enclosure.	Work.	<ul> <li>B. Intermediate Metal Conduit (IMC): Rigid steel.</li> <li>C. Eittings and Conduit Bodies: NEMA ER 1. Eittings shall be steel/malleable iron with threaded fittings. Liss</li> </ul>
<ol> <li>Label for identification of receptacles, light switches, and control device stations.</li> <li>Wire marker for each conductor at panel boards' gutters, pull boxes, outlet and junction boxes, and each load connection.</li> </ol>	<ol> <li>Relocate existing equipment to accommodate construction.</li> </ol>	Use plastic bushing for non-bonding applications.
4. Permanent ink felt tip marker on cover indicating panel and circuit for junction boxes located above suspended ceilings and below ceilings in non-public areas.	<ol> <li>Conduct demolition to minimize interference with adjacent and occupied building areas.</li> <li>Coordinate demolition work with Owner's representative and all other disciplines.</li> </ol>	2.05 PVC COATED METAL CONDUIT
1.03 CODES AND STANDARDS	<ol> <li>Coordinate demonstron work with Owner's representative and an other disciplines.</li> <li>Coordinate and sequence demolition so as not to cause shutdown of operation of surrounding areas.</li> </ol>	A. Product Description: NEMA RN 1; rigid steel conduit with external PVC coating, 40 mil thick.
A. Work and materials shall be in full accordance with California Occupational Safety Health Act (CAL-OSHA), California Electrical Code (CEC), State Fire Marshal, Title 8, Safety Orders of Division of Inductival Safety (CSO), the National Fire Protection Association, California Ruilding Code (CRC); California Code of Regulations – Title 34 and other applicable laws or	6. Shut-down Periods:	B. Fittings and Conduit Bodies: NEMA FB 1; steel fittings with external PVC coating to match conduit.
regulations. Nothing in the Drawings or Specifications shall be construed to permit work not conforming to these codes.	<ul> <li>Arrange uning of stud-down periods of in-service panels with Owner's representative. Do not shut down any duinty without phot written approval and submitting a method of Procedure" for review</li> </ul>	
B. When Contract Documents differ from governing codes, furnish, and install larger size or higher standards called for without extra charge.	<ul> <li>Keep shut-down period to minimum or use intermittent period as directed by Owner's representative.</li> <li>Maintain life-safety systems in full operation in occupied facilities or provide notice minimum 72 hours in advance and fire watch.</li> </ul>	2.06 ELECTRICAL METALLIC TUBING: A. Product Description: ANSI C80.3; galvanized tubing.
1.04 QUALITY ASSURANCE:	7. Identify salvage items in cooperation with Owner.	B. Fittings and Conduit Bodies: NEMA FB 1; steel couplings and connectors. Box connectors shall have with
<ul> <li>A. Requirements of Regulatory Agencies:</li> <li>1. Nothing in the Contract Documents shall be construed to permit Work not conforming to applicable codes, laws, ordinances, rules, or regulations.</li> </ul>	1.09 DRAWINGS AND COORDINATION WITH OTHER WORK:	
2. All materials and equipment shall be installed in accordance with manufacturer's recommendations and in accordance with the National Electrical Contractors Association (NECA)	A. Drawings:	A. Product Description: NEMA TC 2; Schedule 40 PVC.
<ol> <li>Equipment to be installed or permanently connected (hardwired) shall be listed, labeled, or certified by a Nationally Recognized Testing Laboratory (NRTL).</li> </ol>	<ol> <li>For purposes of clarity and legibility, Drawings are essentially diagrammatic to the extent that many offsets, bends, special fittings, and the exact locations of items are not shown, unless specifically dimensioned.</li> </ol>	B. Fittings and Conduit Bodies: NEMA TC 3.
	2. Exact routing of wiring and locations of outlets, panels, and other items, shall be governed by structural conditions, and materials and equipment already in place. Use data in the Contract Documents. In addition, the Architect reserves the right, at no increase in Contract Sum, to make any reasonable change in locations of exposed electrical items, to	2.08 FLASH PROTECTION:
1.05 SPECIFICATIONS AND CONTRACT DRAWINGS A. Accuracy of data given herein and on the drawings is as exact as could be secured, but their extreme accuracy is not guaranteed. The drawings and specifications are for the	group them into orderly relationship and/or increase their utility. Verify the Architect's requirements in this regard prior to roughing-in.	A. Electrical equipment including switchboards, panelboards, disconnect switches, etc. which are likely to re marked to warn of potential electric arch flash hazards per CEC Article 110.16. Marking shall be a pre-pr
assistance and guidance of the Contractor and exact locations, distances, levels, etc., will be governed by the construction and the Contractor shall accept same with this understanding.	3. Dimensions, locations of doors, partitions and similar physical features shall be taken from Architectural Drawings and verified at the site as part of the Work of this Division. Consult the Architectural Drawings for exact location of outlets to center with architectural features, panels, and similar items, at the approximate locations shown on the Electrical Drawings.	
B. Layouts of equipment, accessories and wiring systems are diagrammatic (not pictorial and not exact) but shall be followed as closely as possible. Architectural, structural, mechanical, and other drawings shall be examined noting all conditions that may affect this work. Where connections to equipment provided by other divisions are shown on electrical drawings.	<ol> <li>Drawings.</li> <li>Drawings indicate, generally, routes of all branch circuits. All runs to panels are indicated as starting from nearest outlet, pointing to direction of panel. Continue all such circuits,</li> </ol>	<ul> <li>2.09 NAMEPLATES:</li> <li>A. Product Description: Laminated three-layer plastic with engraved letters on contrasting background color.</li> </ul>
refer to drawings of respective division for exact locations and electrical requirements of equipment.	conduits to panel as though routes were indicated in their entirety. B. Coordination:	B. Letter Size:
C. Report conflicting conditions to the Architect for adjustment before proceeding with work. Should Contractor proceed with work without reporting conflict(s), he does so on his own responsibility, and shall alter work if directed by the Architect, at his own expense.	1. Work out all "tight" conditions involving Work of this Division and Work of other Divisions in advance of installation. Provide additional Work necessary to overcome "tight" conditions at no increase in Contract Sum	<ol> <li>0.125-inch high letters for identifying individual equipment and loads.</li> <li>0.50-inch high letters for identifying grouped equipment and loads.</li> </ol>
D. Right is reserved to make minor changes in locations of equipment and wiring systems shown, providing change is ordered before conduit runs and/or work directly connected to same Is Installed and no extra materials are required.	<ol> <li>Differences of disputes concerning coordination, interference or extent of Work between Divisions shall be decided by Contractor. If the decision is consistent with Contract</li> </ol>	C. Minimum nameplate thickness: 0.125-inch.
E. Drawings and specifications may be superseded by later detail specification and detail drawings prepared by the Architect, and the Contractor shall conform to them and to such reasonable changes in the contract drawings as may be called for by these revised drawings without extra cost to the Owner.	<ul><li>Document requirements, then it shall be final.</li><li>3. Coordinate electrical interface of mechanical equipment with Mechanical and Plumbing.</li></ul>	2.10 LABELS:
F. Contractor may request additional detail(s), and such shall be conformed to, without additional cost. Contractor may offer alternate detail(s), but such detail(s) shall be approved by Architect and authority having interdiction	4. Provide templates, information, and instructions for Work of other Divisions to properly locate holes and openings to be cut or provided for Electrical Work.	A. Labels: Thermal transfer laminated adhesive tape with 0.125-inch black letters on clear tape cartridge.
Architect and autionity naving junsoiction	5. Make every effort to keep existing electrical circuits, including telephone, public address, fire alarm, power, and other electrical services, in operation. Where power outages are unavoidable, schedule such outages with the Owner to occur at such times as to cause the least disruption of normal facility functions.	
1.06 SUBMITTALS:	C. Equipment Rough-In:	PART 3 EXECUTION
<ul> <li>A. Submission Requirements</li> <li>1. Contractor is responsible for the scheduling of submittals to avoid detrimental impact to the construction schedule and to support the timely sequence of the Work. Allow a</li> </ul>	<ol> <li>Rough-in locations shown on Electrical Drawings for equipment furnished by the Owner and for equipment furnished under other Divisions are approximate only. Obtain exact rough-in locations from the following sources:</li> </ol>	3.01 GENERAL:
minimum of 15-working days for submittal review by the Engineer. Complex submittals or submittals which are not provided as complete packages may take longer than 15-working days for review. Contractor should allow time for potential rejection and re-submittal of submittals which are being offered as substitution to the specified products.	a. From Shop Drawings for Contractor-furnished and installed equipment.	<ul> <li>A. Manufacturer's Directions: Follow manufacturer's directions where manufacturers of articles used furnish</li> <li>B. All Work shall be done in orderly, workmanlike manner and present neat appearing installation when comparison of the statement of the stateme</li></ul>
2. Contractor shall review submittals for completeness, coordination and conflicts between subcontractors and other work in the Contract Documents. Submittals made by Contractor will be returned. Submittals which vary significantly from the Contract Documents and are not so identified prior to	<ul><li>c. From the Architect for existing equipment where such equipment is relocated as part of the Work of this Contract.</li></ul>	C. Provide metal backing plates, anchor plates, and similar items that are required for anchorage for the Wo backing will not be permitted in combination with metal framing
submission, will be returned to the Contractor without review.	2. Verify electrical characteristics of equipment before starting rough-in.	D. Equipment: Accurately set and level, neatly place support and anchor properly. Anchorage shall conform
<ol> <li>Make submissions within following number of days from issuance of Notice to Proceed or Start Letter</li> <li>a. Items needed in initial stages of Work or requiring long lead-time for ordering: 15 calendar days.</li> </ol>	5. Onless otherwise shown of specified, equipment which requires electrical connection shall be installed as part of the Work of the Division in which specified, internal components shall be wired to a single point with wiring in raceway direct connection (hardwired) to building electrical system or internal wiring and connections with cord and plug for recentract connection to building wiring.	tor negligence to foresee means of placing, installing, or supporting equipment in position. E. Electrical products shall be anchored and fastened to building elements and finishes as follows:
b. All other items: 21 calendar days.	<ol> <li>Unless otherwise shown or specified, provide direct raceway and conductor connections from building wiring system to equipment terminals for direct-connected equipment</li> </ol>	1. Concrete Structural Elements: Provide expansion anchors and powder actuated anchors.
4. Before submitting a shop drawing or any related material, Contractor shall: review each such submission for conformance with the means, methods, techniques, sequences, and operations of construction, and safety precautions and programs incidental thereto, all of which are the sole responsibility of the Contractor; approve each such submission before	terminals for direct-connected equipment which is Contractor-furnished and Contractor-installed, Owner-furnished and Contractor-installed, and for existing equipment relocated by the Contractor.	<ol> <li>Steel Structural Elements: Provide beam clamps and spring steel clips.</li> <li>Concrete Surfaces: Provide expansion anchors.</li> </ol>
submitting it; and stamp each such submission before submitting it. Engineer shall assume that no shop drawing or related submittal comprises a variation unless the Contractor advises the Engineer of the engineer in writing.	5. Insert plug in receptacle for cord-connected equipment which is Contractor-furnished and Contractor-installed, Owner-furnished, and Contractor-installed and for existing equipment relocated by the Contractor. Provide new cord and plug if required on Owner-furnished and Contractor-installed equipment.	4. Solid Masonry Walls: Provide expansion anchors.
5. Engineer will check submittals for conformance with design concepts of project. Approval covers only such conformance. Effort will be made by Engineer to discover any errors, but responsibility for accuracy and correctness of all submittals shall be with the Contractor.		<ol> <li>Sheet Metal: Provide sheet metal screws.</li> <li>Wood Elements: Provide wood screws.</li> </ol>
6. Approval of submittals will be on a general basis only and shall not relieve the Contractor from their responsibility for proper fitting and construction of the Work, nor from furnishing materials and labor required by the Contract which may not be indicated on the submittals when approved	1.10 WORKING SPACE A. Adequate working space shall be provided around electrical equipment in strict compliance with the Codes. In general, provide 78" of headroom and 36" minimum clear workspace in	F. All wiring shall be installed in conduit, unless specifically shown otherwise on plans.
7. No portion of the work requiring submittals shall be commenced until the submittal for that portion of the work has been approved by Engineer. All such portions of work shall be in	front of switchboards, panelboards, transformers, disconnect switches and controls for 120/208-volts and 42" for 277/480-volts. Carefully coordinate locations and orientation of electrical equipment with other divisions to ensure that working space will be clear of piping, conduits, and equipment provided by others.	
accordance with the approved submittal. Any work performed without approved submittals will be done so at the Contractor's own risk. Work found not to be in compliance with the approved submittals shall be removed and corrected at the Contractor's own expense.		A. Examine Drawings and Site; be familiar with types of construction where electrical installation is involved.
<ol> <li>Number of Copies Required - Contractor shall submit following number of copies:</li> <li>a Product Data/Material Lists: 1-electronic copy in PDE format</li> </ol>	<ul> <li>1.11 FIRE STOPPING SYSTEM DESCRIPTION AND PERFORMANCE REQUIREMENTS</li> <li>A. Firestopping Materials: ASTM E119, ASTM E814, UL 263, UL 1479, to achieve fire ratings of adjacent construction in accordance with FM and UL Design Numbers noted on Drawings.</li> </ul>	<ol> <li>Work shall be neatly installed in a workmanlike manner in accordance with NECA Standard of Insta Clarifications will be made by Engineer and minor adjustments shall be made without additional cost</li> </ol>
<ul> <li>b. Samples: As specifically indicated in pertinent specification section.</li> </ul>	B. Firestop interruptions to fire rated assemblies, materials, and components.	B. Layouts of equipment, accessories and wiring systems are diagrammatic (not pictorial) but shall be follow
c. Substitution Request: 1-copy in PDF format	C. Firestopping: Conform to applicable code, FM, and UL for fire resistance ratings and surface burning characteristics.	guidance, and exact locations, distances, levels, etc., will be governed by Site.
a. Date and revision dates.		3.03 EQUIPMENT INSTALLATION:
b. Project title and number.	1.12 PROJECT RECORD DOCUMENTS:	A. Provide metal backing plates, anchor plates, and similar items that are required for anchorage for the wo backing will not be permitted in combination with metal framing.
<ul> <li>c. The names of Architect, Engineer, Contractor, Subcontractor and supplier or manufacturer.</li> <li>d. Identification of product or material.</li> </ul>	A. At time of installation, installation, installation, installation of an underground work shall be recorded on prints by Contractor, and reviewed with inspector. Record drawings are to be maintained and adjusted on a daily basis by the Contractor.	<ul> <li>Equipment: Accurately set and level, neatly place support and anchor properly. Anchorage shall conform for negligence to foresee means of placing, installing, or supporting equipment in position.</li> </ul>
e. Relation to adjacent structure or material.	B. All information entered on drawings copy shall be neat, legible, and emphasized by drawing "clouds" around changed items. Changes shall be made in an accurate manner by a qualified draftsperson acceptable to Architect. Completed Record Drawings shall be signed by the Contractor.	
<ul> <li>f. Field dimensions clearly identified as such.</li> <li>g. Specification section number.</li> </ul>	C. Locate and dimension all major equipment and underground work, including stubs and pull boxes. Provide dimensions from curbs, foundations, or other permanent landmarks.	<ul> <li>3.04 EXCAVATING AND BACKFILLING:</li> <li>A. Excavate and backfill as required for installation of electrical work. Restore all surfaces, roadways, sod, w</li> </ul>
h. A blank space for Engineer's stamp.	<ul> <li>All symbols and designations used in preparing record drawings shall match mose used in the Contract Drawings.</li> <li>E. Record drawing shall be up-dated monthly.</li> </ul>	original condition in an acceptable manner. Maintain all warning signs, barricades, flares, and lanterns as
i. Contractor's stamp on each, initialed or signed, certifying that submittal was reviewed, field measurements have been verified and submittal is in compliance with the applicable specification section and the overall Contract Documents.	F. Record drawing signoff:	3.05 FIRESTOPPING
10. Incomplete, inaccurate, or non-complying submittals requiring revisions, re-submittal, and additional review time, shall not be considered as a basis for Contract time extension.	<ol> <li>At such time that the underground work has been completed, all the contractors and sub-contractors notes, sketch and miscellaneous drawings documenting installed locations not currently part of the ongoing record drawing set shall be transferred. These updates shall be reviewed for accuracy by the inspector of record and architect. Once all</li> </ol>	A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping,
11. Two reviews will be made for each submittal. Additional reviews will be charged to the Contractor. A rejection of a submittal or review of a partially presented submittal constitutes one submittal review. Incomplete submittals, such as product data submitted without required shop drawings, will be returned without review.	corrections have been completed the inspector shall sign and date the record set coversheet noting it as acceptance of the underground phase of record drawings. 2. At project completion, the record drawings shall be submitted by the contractor for project inspector and architect review and comment. These will be returned to the contractor for	<ul> <li>B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involve</li> <li>C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating.</li> </ul>
B. Required Submittals	revisions. Once all corrections have been completed the inspector shall sign and date the record set coversheet noting it as acceptance of the completed record drawings. The original record drawings are to be resubmitted to the architect along with a scanned electronic file set in PDF format with file names matching the drawing titles.	D. Place intumescent coating in sufficient coats to achieve rating required.
<ol> <li>Submittals are required for all materials even though the submitted material may be exactly as specified in the Project Manual.</li> </ol>		<ul> <li>E. Remove dam material after firestopping material has cured.</li> <li>F. Fire Rated Surface:</li> </ul>
3. Electrical Materials Submittal:	<ul> <li>1.13 SITE EXAMINATION AND CONDITIONS:</li> <li>A. Examine site: verify dimensions and locations against drawings and become informed of all conditions under which work is to be done before submitting proposal. No allowance will be</li> </ul>	1. Seal opening at floor, wall, partition, ceiling, and roof as follows:
<ul> <li>a. Submit product data only for materials that are being substituted. Product data is not required for materials that are being provided as specified.</li> <li>b. Electrical materials include raceway, boxes, supports, finish material, etc.</li> </ul>	made for extra expenses because of omission on Contractor's part to include cost of work under prevailing conditions.	<ul> <li>Install sleeve through opening and extending beyond minimum of 1 inch on both sides of built</li> <li>Size sleeve allowing minimum of 1-inch void between sleeve and building element</li> </ul>
4. Electrical Equipment Submittal:	b. Information shown relative to services is based upon available records and data shall be regarded as approximate only. Minor deviations found necessary to conform with actual locations and conditions shall be made without extra cost.	c. Pack void with backing material.
<ul> <li>a. Submit product data for all equipment.</li> <li>b. Electrical equipment includes panelboards, switchboards, transformers, underground pull boxes, floor boxes, light fixtures, etc.</li> </ul>	<ul> <li>C. Extreme care shall be exercised in excavating near existing utilities to avoid any damage thereto; contractor is responsible for any damage caused by such operations.</li> <li>D. Where signal systems exist, and services of other firms are required. Contractor shall instruct those firms to investigate existing systems and determine labor and materials needed to</li> </ul>	<ul> <li>Seal ends of sleeve with UL listed fire resistive silicone compound to meet fire rating of struct</li> <li>Where cable trave bus, cable hus, captuit, wireway, and travely ponetrates fire rated surface, install</li> </ul>
5. Low Voltage and Control Systems Submittals:	add devices or modify systems.	G. Non-Rated Surfaces:
<ul> <li>a. Provide product data for each item in the system.</li> <li>b. Provide shop drawings for each system.</li> </ul>	E. Where new conduits are to be run underground at existing sites, contractor shall visit site prior to bidding and walk routes of new underground conduits, note areas of concrete and asphalt being crossed, and include in bid all costs for cutting and patching.	1. Seal opening through non-fire rated wall, partition, floor, ceiling, and roof opening as follows:
c. Low voltage and control systems include lighting controls, sound communications, fire alarm, etc.	F. Where existing conduits are shown, their location is diagrammatic, and their exact location may not be known.	<ul> <li>a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of built</li> <li>b. Size sleeve allowing minimum of 1-inch void between sleeve and building element.</li> </ul>
C. Product Data	1.14 WORKMANSHIP	c. Install type of firestopping material recommended by manufacturer.
<ul> <li>a. Modify drawings to delete information which is not applicable to the Project.</li> </ul>	A. Good workmanship shall be evidenced in the installation of all electrical materials and equipment. Equipment shall be level, plumb and true with the structure and other equipment. All materials shall be firmly secured in place and adequately supported and permanent. The recommendations of the National Electrical Contractors Association Standard of installation	<ol> <li>Install floor plates or ceiling plates where conduit, penetrates non-fire rated surfaces in occupied sp penetration occurs below finished ceiling.</li> </ol>
<ul> <li>Supplement standard information to provide additional information which is applicable to the Project.</li> <li>Manufacturer's catalog sheets, brochures, disgrame, schedules, performance shorts, illustrations, and other stored and discrimination data.</li> </ul>	shall be followed except where otherwise specifically directed.	<ol> <li>Exterior wall openings below grade: Assemble rubber links of mechanical seal to size of conduit an</li> <li>Interior partitions: Seal pipe popertations at clean rooms, leberateries, hereital</li> </ol>
<ul> <li>a. Clearly mark each copy to identify pertinent materials, products, or models. Mark out or remove all extraneous information.</li> </ul>	1.15 COOPERATION AND COORDINATION	<ol> <li>Interior partitions. Sea pipe perturbations at clean rooms, laboratories, inspital spaces, computer ro of penetration to completely fill annular space between sleeve and conduit.</li> </ol>
b. Show dimensions and clearances required.	A. Cooperate and coordinate with other crafts in putting the installation in place at a time when the space required by this installation is accessible. Work done without regard to other crafts shall be moved at the Contractor's expense.	3.06 PROTECTION
<ul> <li>c. Show performance characteristics and capacities.</li> <li>d. Show wiring diagrams and controls.</li> </ul>		A. In performance of work, protect work from damage. Protect electrical equipment, stored, and installed, fro
D. Substitutions	1.16 CARE AND CLEANING A After all work has been accomplished such as sanding painting, etc. lighting fixtures, panelboards, and switchboards shall be cleaned to remove all dust, dirt, grease, paint, or other	
1. Engineer's Approval Required:	A. After all work has been accomplished such as safeling, painting, etc., infining includes, pareboards, and switchboards shall be cleared to reinver an dust, dift, grease, paint, or other marks. All electrical equipment shall be left in a clean condition inside and out, satisfactory to the Architect. Keep buildings and premises free from accumulated waste materials, rubbish, and debris resulting from work berein, and upon completion of said work, remove tools, appliances, surplus materials, waste materials, rubbish, debris, and accessory items.	<ul> <li>3.07 INSTALLATION OF BRANCH CIRCUITS:</li> <li>A. Single pole circuit breakers serving a multi-wire branch circuit shall be provided with an identified handle</li> </ul>
<ul> <li>contract.</li> <li>contract.</li> <li>b. Encirconveill consider means the two in the two interventions of the two interventions will not be reviewed and approved prior to the award of the contract.</li> </ul>	used in or resulting from said work and legally dispose of off the site.	<ul> <li>B. Dedicated branch circuits shall have dedicated neutrals.</li> <li>C. Accomplish grounding of electrical system have in the size of electrical system have been in the size of electrical system.</li> </ul>
D. Engineer will consider proposals during the submittal process for substitution of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by Engineer to evaluate proposed substitution. Substitution shall be submitted with completed Substitution Beautort Form	D. DINCELL, GALLARD, OF OUTERWISE GENERATIVE PARTS SHALL DE REPAIRED OF REPLACED WITHOUT ADDITIONAL COST TO OWNER. Work shall be left in a condition satisfactory to Engineer. At completion, carefully clean and adjust all equipment, fixtures and trim installed as part of this work. Systems and equipment shall be left in a satisfactory operating condition.	<ul> <li>Accomptish grounding or electrical system by using insulated grounding conductor installed with feeders panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housing, light switch means of grounding bushings on terminations at ear-placed with install.</li> </ul>
Request Form. c. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by Engineer.	C. All surplus materials and debris resulting from this work shall be cleaned out and removed from site; this includes surplus excavated material.	means of grounding bushings on terminations at panelboards with installed number 12 AWG copper cond
2. "Or Equal": Whenever, in Contract Documents, any material, process or specified patent or proprietary name and/or by name of manufacturer is indicated, such name shall be deemed to be used for number of facilitating description of material and/or process desired, and shall be deemed to be followed by the words "or equal" or "accented equal" and	1.17 PROTECTION	3.08 EQUIPMENT IDENTIFICATION:
Contractor may offer any material or process which shall be equal in every respect to that so indicated or specified; provided, however, that if material, process or article offered by Contractor is not, in opinion of Architect, equal in every respect to that specified, then Contractor must furnish material, process or article specified or one that in opinion of	A. The Contractor shall protect from damage during construction the work and materials of other trades as well as the electrical work and material. Electrical equipment stored and installed on the job site shall be protected from dust, water, or any other damage.	<ul> <li>Provide screwed-on engraved nameplates of black lamicoid with 0.75-inch high white lettering for main stall relays, timers, terminal cabinets (including each section) and all special panels and consoles.</li> </ul>
Engineer is equal thereof in every respect.		B. Provide identifying numbers for each breaker in all panelboards in a permanently attached (not pasted or
5. No Substitutions : items indicated as "No Substitutions" must be provided as specified and no alternates will be allowed. These items are required either due to District standards by the Board or to match materials recently installed by others.	1.18 GUARANTEE: A. Standard Guarantee: Provide individual as well as overall guarantees for all work executed under this Contract or any extra work to be absolutely free of all defects of workmanship and	<ul> <li>D. Provide labels at each end of each pull cord for all empty conduits/raceways.</li> </ul>
4. Coordination: Approval of substitution shall not relieve Contractor from responsibility for compliance with all requirements of Drawings and Project Manual, and Contractor shall be responsible at his own expense for any changes in other parts of his own work or work of others which may be caused by approved substitution.	materials for a period of two years from the date of filing of notice of completion and acceptance by Owner. Repair and make good all such defects and repair any damage to other work caused thereby which may occur during same period at no cost to the owner.	E. Indicate type of equipment, equipment designation and origination, ex. "PANEL-XXX fed from SWITCHB
	B. Indicate on Guarantee Form specific provisions required by individual specification sections. List all special requirements, extended periods, bonding, etc.	3.09 DEMOLITION:
1.07 SYSTEM DESCRIPTION: A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory	C. Additional Guarantees: Provide additional guarantees (in excess of year(s) required by Standard Guarantee) where specifically required by pertinent Specification Sections.	A. Demolition Drawings are based on casual field observation and/or existing record documents. Report discussed installation
requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.	items covered and length of guarantee for each item.	B. Remove, relocate, and extend existing installations as necessary, to accommodate new construction and
<ul> <li>Consistent of busice on copper unless indicated as autimum of AL.</li> <li>When aluminum conductor is substituted for copper conductor, size to match circuit requirements, terminations, conductor ampacity and voltage drop. Contractor shall be responsible</li> </ul>	1.19 OPERATING TEST	using materials and methods compatible with existing electrical installations, or as specified.
tor verifying maximum number of aluminum conductors for substituted copper conductors in specified conduit. D. All wiring shall be installed in raceway.	A. After the installation is complete, and at such time as the Engineer and other authorities having jurisdiction may request, the Contractor shall conduct an operating test for approval.	D. Return all removed wiring to District.
E. Underground More than 5 feet outside Foundation Wall: Provide thick wall nonmetallic conduit. Provide cast metal boxes or nonmetallic handhole.	PART 2 PRODUCTS	EX Remove exposed abandoned conduit and abandoned conduit above accessible ceiling finishes, unless n surfaces. If certain conduits and boxes are abandoned but not scheduled for removal, they shall be show
<ul> <li>F. Underground Within 5 feet from Foundation Wall: Provide thick wall nonmetallic conduit. Provide cast metal or nonmetallic boxes.</li> <li>G. In Slab Above Grade: Not permitted.</li> </ul>		<ul> <li>F. Disconnect and remove abandoned panelboards and distribution equipment.</li> <li>C. Disconnect and remove electrical devices as distribution in a difference of the subscript of the subscript</li></ul>
H. Below Slab on Grade: Use thick wall nonmetallic conduit. Terminate with coated rigid steel elbows and short length of coated rigid steel conduit out of concrete.	2.01 DESIGN REQUIREMENTS: A. Minimum Raceway Size:	<ul> <li>Disconnect and remove electrical devices and equipment serving utilization equipment that has been rem</li> <li>Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessorie</li> </ul>
I. Outdoor Locations, Above Grade: Provide galvanized rigid steel conduit. Provide cast metal outlet, pull, and junction boxes.	1. 0.75 inch unless otherwise specified.	I. Provide revised typed circuit directory in panelboards that have circuits removed.
<ul> <li>were and Damp Locations. gaivanized rigid steer conduit. Provide cast metal outlet, junction, and pull boxes. Provide flush mounting outlet box in finished areas.</li> <li>K. Concealed Dry Locations: Provide electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull</li> </ul>	<ol> <li>1 inch for homeruns unless otherwise specified.</li> <li>1 inch for outside foundation line unless otherwise specified.</li> </ol>	<ul> <li>Repair adjacent construction and finishes damaged during demolition and extension work.</li> <li>Maintain access to existing electrical installations which remain active. Modify installation or provide accession</li> </ul>
boxes where shown on drawings. Provide J-hooks when shown on plans. L. Exposed Interior Dry Locations: Use rigid steel conduit or intermediate metal conduit below eight feet or where subject to damage. Use rigid steel conduit intermediate metal conduit.	o. I montor outside roundation inte uniess outerwise specified.	<ul> <li>Provide supplemental support for conduits that are routed through demolition area and are to remain. Su</li> </ul>
or electrical metallic tubing above eight feet or in electrical, mechanical or telecommunication rooms. Use sheet-metal or cast metal boxes. Use flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.	2.02 BUILDING WIRE:	M. Remove conduit, wire, boxes, and fastening devices to avoid any interference with new installation.
M. Product requirements: Provide products as follows:	<ul> <li>A. Product Description: Single conductor insulated wire.</li> <li>B. Conductor: Copper Stranded.</li> </ul>	N. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
<ol> <li>Stranded conductor for feeders and branch circuits.</li> <li>Stranded conductors for control circuits.</li> </ol>	C. Insulation Voltage Rating: 600 volts.	O. Remaining Circuits and Equipment: Reinstall existing electrical installations disturbed. Certain existing e removed and are essential for the operation of other remaining installations. Where this condition occurs
<ol> <li>Stranged conductors for control circuits.</li> <li>Conductor not smaller than 12 AWG for power and lighting circuits.</li> </ol>	D. Insulation Temperature Rating: 90 degrees C.	<ul><li>to retain service continuity. Installations shall be concealed in finished areas.</li><li>P. Reconnect equipment being disturbed by renovation work and required for continue service to papel as in</li></ul>
4. Conductor not smaller than 12 AWG for line voltage control circuits (120-volt).	E. Copper Building write in Conduit: Type THTINT HWIN-2. F. Copper Underground in Conduit: Type XHHW-2.	<ul> <li>Q. Disconnect or shut off service to areas where electrical work is to be removed. Remove electrical fixtures</li> </ul>
<ul><li>5. Conductor not smaller than 16 AWG for control circuits.</li><li>6. Increase wire size in branch circuits to limit voltage drop to a maximum of 3 percent.</li></ul>		R. Install temporary wiring and connections to maintain existing systems in service during construction.
<ol> <li>The additional of a poly of the additional of the addit</li></ol>	2.03 WIRING CONNECTORS: A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UIL 486A-486B or UIL 486C as	S. Remove, relocate, and extend existing installations to accommodate new construction.
8. 10 AWG conductors for 20 ampere or larger as designated on plans for 277-volt branch circuit home runs longer than 200 feet.	applicable.	<ul> <li>Repair adjacent construction and finishes damaged during demolition and extension work.</li> <li>Remove exposed abandoned grounding and bonding components features and events and events and events.</li> </ul>

2. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

C. Wiring Connectors for Splices and Taps: 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.

- W. Protect and retain power to existing active equipment remaining.
- V. Clean and repair existing equipment to remain and/or to be reinstalled.

## I mechanical connectors or compression connectors.

### furnished with terminations designed for terminal lugs.

- quipment furnished with mechanical lugs when only compression connectors are specified.
- rminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than
- connectors or compression connectors where connectors are required.

### designed for use with conductors without stripping insulation.

F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed

al configuration suitable for connection to be made.

### eable iron with threaded fittings. Use insulated metallic bushings with lug where ground connections are required.

ectors. Box connectors shall have with insulated throat. Set screw type couplings.

t switches, etc. which are likely to require examination, adjustment or servicing while energized shall be field cle 110.16. Marking shall be a pre-printed label which references NFPA 70E.

### ers on contrasting background color.

### nanufacturers of articles used furnish directions covering points not specified or shown.

neat appearing installation when completed. re required for anchorage for the Work of this Section; securely weld or bolt to metal framing. Wood blocking or

or properly. Anchorage shall conform to the requirements of California Building Code. No allowance will be made

ere electrical installation is involved. ordance with NECA Standard of Installation. Work shall be coordinated with other trades to avoid conflicts.

s shall be made without additional cost to Owner. natic (not pictorial) but shall be followed as closely as possible. Drawings and Specifications are for assistance and

# re required for anchorage for the Work of this Section; securely weld or bolt to metal framing. Wood blocking or

or properly. Anchorage shall conform to the requirements of California Building Code. No allowance will be made

# estore all surfaces, roadways, sod, walks, curbs, walls, existing underground installation, etc., cut by installations to

s, barricades, flares, and lanterns as required by the Safety Orders and local ordinances.

#### ntaining penetrating sleeves, piping, ductwork, conduit, and other items, requiring firestopping. opping material and substrate involved, and as required for compliance with required fire ratings.

# nimum of 1 inch on both sides of building element.

compound to meet fire rating of structure penetrated.

## h penetrates fire rated surface, install firestopping product in accordance with manufacturer's instructions.

nimum of 1 inch on both sides of building element.

## on-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where

mechanical seal to size of conduit and tighten in place, in accordance with manufacturer's instructions. atories, hospital spaces, computer rooms, telecommunication rooms, and data rooms. Apply sealant to both sides

l equipment, stored, and installed, from dust, water, or other damage.

# be provided with an identified handle tie.

ding conductor installed with feeders and branch circuit conductors in conduits. Install from grounding bus of serving s, lighting fixture housing, light switch outlet boxes or metal enclosures of service equipment. Ground conduits by stalled number 12 AWG copper conductor to grounding bus.

5-inch high white lettering for main switchboards (including each breaker and switch), all panelboards, transformers, permanently attached (not pasted on) directory with plexiglass cover with typewritten identification of each circuit.

## ite 0.5-inch high lettering, identifying function, for all disconnect switches and starters.

x. "PANEL-XXX fed from SWITCHBOARD-XXX", PANEL-XXX fed from TRANSFORMER-XXX", etc.

# xisting record documents. Report discrepancies to Owner and Architect/Engineer before disturbing existing

accommodate new construction and to meet all requirements of these specifications. Extend existing installations

# accessible ceiling finishes, unless noted otherwise on drawings. Cut conduit flush with walls and floors, and patch

duled for removal, they shall be shown on the "As Built Drawings".

### zation equipment that has been removed stems, hangers, and other accessories.

Modify installation or provide access panel as appropriate. emolition area and are to remain. Supplemental support shall be added so that the conduit meets the support

### allations disturbed. Certain existing electrical installations may be located in walls, ceilings or floors that are to be llations. Where this condition occurs provide a new extension of original circuits, raceways, equipment, and outlets

red for continue service to panel as indicated on drawings or to nearest available panel.

# removed. Remove electrical fixtures, equipment, and related switches, outlets, conduit and wiring which are not

asteners and supports, and electrical identification components, including abandoned components above

### X. Cap abandoned empty conduit at both ends.

- Y. Jackhammering 1. Jackhammering will be permitted only to a limited degree, and only with the prior written approval of the Owner.
- 2. Do not jack-hammer within 2-inches of reinforcing or structural steel to remain; remove final 2-inches of material with chipping gun.

#### 3.10 INSTALLATION - CONDUCTORS: A. Route wire to meet Project conditions.

- B. Neatly train and lace wiring inside boxes, equipment, and panelboards. C. Identify and color code wire under wire color section. Identify each conductor with its circuit number or other designation indicated.
- D. Special Techniques--Building Wire in Raceway:
- 1. Pull conductors into raceway at same time.
- 2. Install building wire 4 AWG and larger with pulling equipment. E. Special Techniques - Wiring Connections:
- 1. Clean conductor surfaces before installing lugs and connectors.
- 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise. 3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
- 4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
- 5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller. 6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
- F. For stranded conductors, use crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under device screws
- G. Install terminal lugs on ends of 600-volt wires unless lugs are furnished on connected device, such as circuit breakers. H. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars.
- I. For terminal lugs fastened together such as on motors, transformers, and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

#### 3.11 WIRE COLOR: A. General:

- 1. For wire sizes 10 AWG and smaller, install wire colors in accordance with the following:
- a. Black, red, and blue for circuits at 120/208 volts single or three phase. b. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
- 2. For wire sizes 8 AWG and larger, identify wire with colored tape at terminals, splices, and boxes. Colors are as follows:
- a. Black, red, and blue for circuits at 120/208 volts single or three phase. b. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
- B. Neutral Conductors: White. When two or more neutrals are located in one conduit, individually identify each with proper circuit number.
- C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded. D. Feeder Circuit Conductors: Uniquely color code each phase.
- E. Ground Conductors:
- 1. For 6 AWG and smaller: Green. 2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

### 3.12 INSTALLATION - RACEWAY:

A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system. B. Do not install PVC conduit above ground.

- C. Conduits installed on top of roof or covered walk structure (on top or below) shall be rigid steel or IMC.
- D. All Conduits Shall Be Rigid Steel or IMC, except EMT may be used at the following locations: 1. In dry locations in furred spaces.

### 2. In partitions other than concrete or solid masonry.

- 3. In exposed (above eight feet (8') excluding top of roof or covered walk structure (on top or below)) interior/ exterior locations and in electrical/ mechanical/ communications rooms made up with watertight compression type connectors and couplings. Connectors to outlets shall be insulated throat type with integral non-removable plastic insulator lining. E. PVC Conduit with Code Size Ground Wire may be Used in Soil or in Concrete under the following conditions:
- 1. Terminate with coated rigid steel elbows and short length of coated rigid steel conduits out of soil or concrete. 2. Install PVC conduit in sand or fine earth envelope of at least three inches (3") all around inside foundation line. Bends and elbows shall be PVC Type 80 conduit centered at
- foundation line. 3. Underground PVC conduit runs outside foundation line shall be installed under the following conditions: a. Bends and ells shall be PVC Type 80 coupled with proper adapters. Conduit through foundation wall shall have one length of PVC Schedule 80 conduit centered at
- foundation line. b. Lay runs straight. Make couplings watertight.
- c. Terminate conduit entering pull hole with manufactured end bells.
- d. Place approximately twelve inches (12") below finished grade and over primary and secondary service conduit duct line, a five (5) mil. brightly colored plastic tape not less than three inches (3") in width and suitably inscribed at not more than ten feet (10') on centers with a continuous metallic backing and a corrosion resistant one (1) mil. metallic foil core to permit easy location of the duct line.

2. Anchor raceway to structural members using screws. Supports shall be concealed. Space screws 24" maximum on center. Each run shall have a minimum of (2) screws.

END OF SECTION

SECTION 26 56 00 EXTERIOR LIGHTING

- 4. Patch all coated conduit according to the manufacturer's recommendation. Completely coat all holidays and tool marks using paste recommended by manufacturer. Coat
- remaining exposed conduit threads with paste when installation is complete. F. Unless otherwise specified, all raceway shall be installed concealed. Raceway may be run exposed on unfinished walls, in attic spaces, in electrical rooms and when routed to surface
- panels, cabinets or gutters. G. Arrange raceway supports to prevent misalignment during wiring installation.
- H. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- I. Group related raceway; support using conduit rack. Construct rack using steel channel; provide space on each for 25 percent additional raceways.

Q. Maintain 12-inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.

U. Install conduit hubs to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.

X. Install fittings to accommodate expansion and deflection where raceway crosses seismic and expansion joints.

and other items as required for a complete, closed and professionally installed installation.

1. ASCE 7-16 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures.

1. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized Carbon Steel Wire.

2. IEEE C62.41.2 - Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits

3. IES LM-80 - Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays, and Modules.

1. IES LM-63 - IESNA Standard File Format for Electronic Transfer of Photometric Data and Related Information.

IES LM-79 - Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

2. NEMA C78.377 - Electric Lamps - Specifications for the Chromaticity of Solid-state Lighting Products.

1. CAL TITLE 24 P3 - California Electrical Code (NFAP 70 with California Amendments).

F. National Electrical Contractors Association/Illuminating Engineering Society of North America:

1. NECA 1 - Standard for Good Workmanship in Electrical Construction.

3. NECA/IESNA 501 - Standard for Installing Exterior Lighting Systems.

2. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products.

1. NFPA 70 - National Electrical Code with California Amendments.

elevation to obtain specified foundation height.

C. California Building Standards Code (California Code Regulations, Title 24):

W. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.

4. Install insulating bushings and inserts at connections to outlets and corner fittings.

6. Coordinate exact routing with Architect prior to installation.

B. Test each individual circuit at panel with equipment connected for proper operation.

C. Test each individual receptacle device for proper polarity and grounding.

D. Test each ground fault circuit interrupter for proper operation.

Y. Install suitable pull string or cord in each empty raceway except sleeves and nipples.

Z. Install suitable caps to protect installed conduit against entrance of dirt and moisture.

- J. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports
- K. Do not attach raceway to ceiling support wires or other piping systems. L. Construct wireway supports from steel channel.

R. Cut conduit square using saw or pipe cutter; de-burr cut ends.

in fitting. Allow joint to cure for minimum 20 minutes.

S. Bring conduit to shoulder of fittings; fasten securely.

metal conduit larger than 2-inch size.

outlets and corner fittings.

corner fittings.

3.13 TESTING AND ADJUSTING:

PART 1 - GENERAL

A. Section includes:

1.2 REFERENCE STANDARDS

1. Exterior luminaires. 2. Poles and accessories.

3. Luminaire accessories.

A. American Society of Civil Engineers

B. American Society for Testing and Materials

2. CAL TITLE 24 P6 - California Energy Code.

1. IEEE C2 - National Electrical Safety Code.

D. Institute of Electrical and Electronic Engineers:

E. Illuminating Engineering Society

G. National Fire Protection Association:

H. Underwriters Laboratories:

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

A. Shop Drawings:

1.4 SUBMITTALS

1. UL 1598 - Luminaires.

1.1 SUMMARY

3. Mount plumb and level.

BB. Close ends and unused openings in wireway.

- M. Route exposed raceway parallel and perpendicular to walls.
- N. Route raceway installed above accessible ceilings parallel and perpendicular to walls. O. Route conduit in and under slab from point-to-point.

P. Maintain clearance between raceway and piping for maintenance purposes.







WEST PARKING LOT AVERAGE: 1.1 FC MAXIMUM: 3.7 FC MINIMUM: 0.1 FC

EAST PARKING LOT AVERAGE: 1.1 FC MAXIMUM: 3.6 FC MINIMUM: 0.1 FC





(E) PANEL 'HD' SECTION: 1 OF 1 SERVING: NORMAL	BUS RATING:400 AMPTHREE PHASEVOLTAGEXMAIN BREAKER:300 AMP4-WIRE480Y/277	(E) PANEL 'HE' SECTION: 1 OF 1 SERVING: NORMAL	BUS RATING:100 AMPTHREE PHASEVOLTAGEMAIN BREAKER:4-WIRE480Y/277	(E) PANEL 'HM'	I     BUS RATING:     400 AMP     THREE PHASE     VOLTAGE       MAL     X     MAIN BREAKER:     300 AMP     4-WIRE     480Y/277
LOCATION:         BLDG D         FLUSH           PANEL A.I.C.         EXISTING         X         SURFACE	MAIN LUGS ONLY FED-THRU LUGS	LOCATION:     BLDG E     FLUSH     X       PANEL A.I.C.     EXISTING     X     SURFACE     X	MAIN LUGS ONLY FED-THRU LUGS	LOCATION:         BLDG M         FLU           PANEL A.I.C.         EXISTING         X         SUR	JSH     MAIN LUGS ONLY       RFACE     FED-THRU LUGS
LOAD DESCRIPTION CONT. RECP. MOTOR NON AMP POLE #	H CKT C. B. KVA LOAD # POLE AMP CONT. RECP. MOTOR AD LOAD DESCRIPTION	LOAD DESCRIPTION CONT. RECP. MOTOR NON AMP POLE # CKT PH CK	C. B.     KVA LOAD     LOAD DESCRIPTION       POLE     AMP     CONT.     RECP.     MOTOR     MOTOR	LOAD DESCRIPTION CONT. RECP. MOTOR NON AMP POLI	E # CKT C. B. KVA LOAD CONT. RECP. MOTOR CHONE
HTS RM 8 20 1 1 A	2 1 20 LIGHTS RM 4	LIGHTING GRAPHIC ARTS 20 1 1 A 2	1 20 LIGHTING AUTO SHOP	LIGHTING 20 1	1 A 2 1 20 SPARE
HTS RM 5,10 20 1 3 B	3 4 1 20 ( LIGHTS RM 3 <b>2</b>	LIGHTING GRAPHIC ARTS 20 1 3 B 4	1 20 ( LIGHTING AUTO SHOP	LIGHTING 20 1	3 B 4 1 20 SPARE
	6 1 20 ( LIGHTS RM 2 )	LIGHTING GRAPHIC ARTS 20 1 5 C 6	1 20 ( LIGHTING AUTO SHOP		5 C 6 1 20 SPARE )
LOAD ( 20 1 ) 7 A	8 1 20 LIGHTS RM 1	LIGHTING 20 1 7 A 8	1 20 LIGHTING METAL	SPARE 20 1	7 A 8 1 20 SPARE
LOAD ( 20 2 ) 9 B	3 10 1 20 PARKING LOT LIGHTS $7$	LIGHTING ELECT ROOM E-6 20 1 9 B 10	1 20 LIGHTING METAL	( SPARE ( 20 1	9 <b>P</b> 10 1 20 <b>C</b> SPARE
		LIGHTING CRAFTS E-5 20 1 11 C 12	1 20 LIGHTING WOOD		11 C 12 12 20 ( SPARE (
> ( 13 A		LIGHTING CRAFTS E-5 <b>2</b> 0 1 13 <b>A</b> 14	1 20 LIGHTING WOOD	SPARE         SPARE <th< td=""><td>13 A 14 1 20 PARKING LOT LIGHTS</td></th<>	13 A 14 1 20 PARKING LOT LIGHTS
HTING SECTION SUB-FEED	3 16 3 15 C WATERFALL PUMP	LIGHTING 17-35 20 1 15 B 14	1 20 LIGHTING WOOD		15 B (16 1 20 ) SPARE
		LIGHTING 23-26,37,38,41-44		PARKING LOT LIGHTS 20 2	17 C 18 2 20 SPARE
( ) 19 A		LIGHTING 45,46 20 1 19 A 20			19 A 20
14 NORTH END D-1 ( 125 3 21 B	3         22         3         (E)         M2-15 SOUTH D-5	LIGHTING RMS 10-15 20 1 21 B 22	( ) (E) LOAD )		21 B 22 C C - C
<b>~ ~ ~ ~ ~ ~ ~ ~ ~ ~</b>		ROOM E-7 20 1 23 C 24		SUB FEED 40 3	23 C 24 3 70 C 25 HP PUMP
<b>&gt; X</b> 25 A		(E) LOAD <b>2</b> 0 1 25 <b>A</b> 26			25 A 26 ) / -
NEL 'LD-2' SPR. CONT. 150 3 27 B	3 28 3 - K SPACE	PARKING LOT LIGHTS         20         1         27         B         28	3 15 <b>(</b> SPARE <b>(</b>		27 B (28 )
) ( -  - ) 29 C		SPACE 29 C 30		DMS-46 40 3	29 C 30 3 100 SPARE
		31 A 32			31 A 32 C
IN BREAKER 33 B		33 B 34			33 B 34 C C - C
35 C	36	35 <b>C</b> 36		DMS-48 125 3	35 C 36 SPACE
37 A	A 38	37 A 38			37 A 38
39 <b>B</b>	3 40	<b>B</b> 40			39 B 40
41 C	<b>3</b> 42	41 C 42			41 <b>C</b> 42
TOTALS> 0.00 0.00 0.00 0.00	0.00 0.00 0.00 < TOTALS	TOTALS> 0.00 0.00 0.00 0.00	0.00 0.00 0.00 < TOTALS	TOTALS> 0.00 0.00 0.00 0.00	0.00 0.00 0.00 < TOTALS
37       A         39       B         41       C         TOTALS>       0.00       0.00       0.00	38     38	Image: Constraint of the second state of the second sta	0.00         0.00         0.00         0.00         0.00         C TOTALS		37     A     38     -     -       39     B     40     -     -       41     C     42     0.00     0.00     0.00

# NET LUAD REDUCTION

# **BRANCH CIRCUIT LOAD SUMMARY**

OTE: ALL LOADS SHOWN / HOWN ARE 20 AMP, 1 POL	ARE EXPRESSI _E.	ED IN KVA. AL	L CIRCUIT BRE	AKERS SERVIN	IG BRANCH C	IRCUITS
PANEL VOLTAGE BRANCH	CIRCUIT #	EXISTING LOAD	REMOVED LOAD	ADDED LOAD	NEW LOAD	NEW LOAE (AMPS)
	10	0.8	0.8	0.426	0.426	≤
PANEL 'HD' 277/480V	12	0.8	0.8	0	0	*
NORMAL BRANCH						
PANEL 'HE' 277/480V NORMAL BRANCH	27	0.2	0.2	0.201	0.201	≤
	29	0.2	0.2	0	0	*
						<u> </u>
PANEL 'HM' 277/480V NORMAL BRANCH		8	8	2.184	2.184	≤

INDICATES ENTIRE LOAD REMOVED

INDICATES NEW LOAD LESS THAN OR EQUAL THAN EXISTING LOAD - INDICATES NO LOAD IN THE CIRCUIT

# NET LUAD REDUCTION

# PANEL NUMBERED NOTES

1 REMOVE (E) 2-POLE CIRCUIT BREAKER. PROVIDE (N) 20-AMP 1-POLE CIRCUIT BREAKER IN ITS PLACE, MATCH EXISTING SHORT CIRCUIT RATING. PROVIDE BLANK COVER ON SPACE AFTER REMOVAL OF THE 2-POLE CIRCUIT BREAKER.

# PANEL SCHEDULE NOTES

- 1. ALL CIRCUITS INDICATED "LIGHT" ON PANEL SCHEDULES ARE EXISTING TO REMAIN AND HAVE NOT BEEN MODIFIED AS PART OF THIS PROJECT.
- ALL CIRCUITS INDICATED "BOLD" ON PANEL SCHEDULES HAVE BEEN MODIFIED, ALTERED, OR ADDED AS PART OF THIS PROJECT.
- 3. PROVIDE UPDATED 'TYPEWRITTEN' PANEL INDEX. PANEL INDEX SHALL INCLUDE DATE APPLIED AND ALSO WHERE THE PANEL IS FED FROM.
- PROVIDE BLANK COVER PLATES OVER ANY EXPOSED CIRCUIT BREAKER SPACE THAT IS EXPOSED.
- 5. UPON OPENING EXISTING PANELS, TURN ANY CIRCUIT BREAKERS WITH NO CONDUCTORS OR NOT CONNECTED TO A LOAD INTO THE "OFF" POSITION AND UPDATE PANEL SCHEDULE.





