

SECTION 26 00 00 - ELECTRICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, 263353 - Static Uninterruptable Power Supply (UPS) specifications, 010000 - General Requirements, and provisions of the Contract apply to this Section.

1.2 DRAWINGS AND MEASUREMENTS

- A. The drawings are not intended to be scaled for roughing-in measurements or to serve as shop drawings. The Contractor shall consult the equipment drawings for dimensions, obstructions and location of existing equipment.
- B. Devices and equipment are shown on the drawings only in a schematic manner and not necessarily in their specific location. The Contractor shall be responsible for exact locations of the equipment to form a functional and aesthetic installation by consultation with Project Engineer.

1.3 CODES

- A. All electrical work shall be executed in accordance with the current edition of the National Electrical Code (NEC).

1.4 WORKMANSHIP

- A. The installation work included in this specification shall be performed in a neat workmanlike manner by persons experienced and skilled in the Electrical trade. Only the best quality workmanship will be accepted. All exposed parts of the electrical wiring systems such as exposed conduits, flush plates, cabinet trim, etc., shall be square and true with the building construction.

1.5 GUARANTEE

- A. This Contractor shall assume responsibility for any defects which may develop in any part of his work caused by faulty workmanship, material or equipment, and agrees to replace, repair, or alter, at his expense, any such faulty workmanship, material or equipment that has been brought to his attention during a period of one year from the date of substantial completion. Acceptance of the work shall not waive this guarantee.

1.6 QUALITY ASSURANCE

- A. All materials and equipment shall be new and of best quality, of the type best suited for the purpose intended. All electrical materials used in this work shall be listed by the Underwriter's Laboratories, Inc., where testing is provided and shall bear their label.

1.7 SHOP DRAWINGS

- A. Shop drawing submittals shall be furnished, each labeled with the proper name of the project, equipment, or material descriptive names and manufacturer's name and address. Drawings shall indicate catalog number, dimension, voltage and current characteristics, wire sizes, construction rough-in data of all materials to be used. Shop drawings shall be submitted for all major pieces of equipment.
- B. Shop drawings are required on the items listed below:
 - 1. UPS.
 - 2. EPO switches.
 - 3. Panelboards.
 - 4. Molded-case circuit breakers.
 - 5. Enclosures.

1.8 EQUIPMENT IDENTIFICATION

- A. All electrical equipment shall be provided with identification indicating its use or function. Equipment to be identified shall include UPS, panelboards, enclosures, disconnect switches, 100A or larger circuit breakers and EPO switches. Identification shall be by means of a permanently attached, engraved, plastic laminated label. Junction boxes shall also be identified by handwritten permanent marker on the junction box cover.

1.9 CLEANUP

- A. All electrical equipment must be kept completely protected from weather elements, painting, etc., Damage from rust, paint, scratches, etc., shall be corrected as directed by the owner.

1.10 CUTTING AND PATCHING

- A. In existing construction this Contractor shall perform all cutting required and all necessary patching after completion to restore the surface to its original condition. This Contractor shall not endanger the stability of the structure by cutting, digging, or otherwise.

1.11 REMODELING WORK

- A. This Contractor shall visit existing building before submitting bid and become familiar with existing conditions. Wiring in existing buildings shall remain as is except as noted on the drawings. Remove all unused wires and conduit where accessible. Furnish new, typed, panel directory on panelboards for which circuiting is changed.

1.13 GROUNDING

- A. Ground all electrical systems and equipment per NEC. Provide insulated equipment grounding conductor in all raceways (feeders and branch circuits).

1.14 ELECTRICAL EQUIPMENT MOUNTING

- A. Wherever electrical equipment are indicated to be mounted on wall surfaces, the Contractor shall first install a 3/4" Type BD plywood panel of sufficient size for mounting all equipment. Plywood panels shall be cleanly cut, without burrs or splinters, square, and painted two coats of gray fire retardant preservative on both sides.
- B. Plywood shall be anchored to walls by means of toggle or expansion anchors. Equipment shall be attached to plywood by means of wood screws.

PART 2 – PRODUCTS

2.1 RACEWAYS AND FITTINGS

- A. Rigid Metal Conduit (RMC): Heavy wall conduit shall be hot-dip galvanized alloy steel with the U.L. label. Heavy wall, galvanized steel conduit shall be used in all runs where required for mechanical protection.
- B. Electrical Metallic Tubing (EMT): EMT may be used in furred ceiling areas and interior partitions, surface mounted in equipment rooms. Steel set screw fittings may be used in dry locations. EMT shall not be used where exposed to moisture or earth. Indenter fitting shall not be used.
- C. Flexible Metal Conduit: Shall not be used.
- D. Rigid Non-Metallic Conduit: Shall not be used.
- E. Fittings: On all conduit systems the connector fitting shall be of the insulated throat type. Where rigid conduit is connected to a threadless box, double locknut method shall be used. All conduit fittings shall be of steel construction. Malleable iron and die-cast aluminum fittings shall not be used on any conduits.
- F. General Installation: Conduits shall be sized as noted or as required by NEC for number and size of conductors installed. All conduit and raceways shall be securely positioned by galvanized steel straps, clamps, and hangers with suitable fastenings. Galvanized tie wires and zip ties are not considered an acceptable support. Caddy fasteners as manufactured by Erico Products are acceptable support devices where applied according to manufacturer's recommendations. Exposed conduits shall be run parallel to and at right angles to building lines and neatly grouped and supported with approved conduit hangers or channel supports. All conduit runs shall be fastened within 3 feet of any bend or offset.

2.3 WIRE AND CABLE:

- A. All wire and cable for feeder and branch circuits shall conform to the requirements of the current edition of the NEC and shall meet all relevant ASTM specifications. Conductors shall be 600 volt rated coated copper and unless otherwise noted, shall have type THW or THHN insulation.
- B. Connections:
 - a. All connections shall guarantee a good electrical and mechanical connection with conductor to conductor contact. No intermediary current path (material between conductors) is allowed

- b. Splice conductors only where indicated on drawings. Splices shall be:
 - i. Factory-fabricated of size, ampacity rating, material, type, and class for application and service indicated.
 - ii. Compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Aluminum conductors shall not be used.

2.4 DISTRIBUTION PANELS:

- A. Circuit breakers shall be compatible with existing distribution panelboard and match the existing AIC rating. Circuit breakers shall be quick-make, quick-break, A.C. rated with a trip indication different from the on or off position.

2.5 PANELBOARDS:

- A. Shall be rated for voltage and phase as noted on drawings, dead front construction. Circuit breakers shall be bolt on thermal magnetic type, quick-make, quick-break, A.C. rated with a trip indication different from the on or off position. Contractor shall provide a typed panelboard directory. Handwritten directories will not be accepted. Panelboards shall be mounted at a height of 72 inches above the finished floor to the top of the panelboard.

2.6 MOLDED-CASE CIRCUIT BREAKER AND ENCLOSURES:

- A. Molded-Case Circuit Breaker: NEMA AB, with interrupting capacity to meet available fault currents.
 - a. Thermal-Magnetic Circuit Breaker: 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.
 - b. Molded-Case Circuit-Breaker Features and Accessories:
 - i. Standard frame sizes, trip ratings, and number of poles.
 - ii. Lugs: Mechanical style suitable for number, size, trip ratings, and conductor material.
 - c. Enclosure shall be:
 - i. NEMA 250, Type 1
 - ii. Mounted at 60 inches above finished floor to center of circuit breaker handle.

END OF SECTION 26 00 00