

SECTION 16010

GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Furnish all materials, labor, tools, transportation, incidentals, and appurtenances to complete in every detail and leave in working order all items of work called for herein or shown on the accompanying drawings, including work related to:
 - 1. Electrical service entrance.
 - 2. Electrical distribution including new circuit breaker load centers, and associated feeders.
 - 3. Electrical branch circuits, including wiring and devices.
 - 4. Interior lighting including luminaires, lamps, wiring and controls.
 - 5. Exterior lighting including luminaires, lamps, wiring and controls.
 - 6. Fire alarm system including initiating/notification devices, bldg. control panels connection to municipal fire alarm system, and all associated wiring.
 - 7. Cable TV system, including service entrances, outlets and wiring.
 - 8. Telephone system including service entrances, outlets and wiring.
 - 9. Door entry communications system.

- B. The Contract Drawing show electrical requirements for Building A. The Contractor shall be responsible for all necessary electrical work for both Building A as well as Building B (both buildings to be identical).

- C. Include any minor items of work necessary to provide a complete and fully operative electrical system.

- D. The Contractor for this work is referred to Bidding Requirements, General Conditions, Special Conditions, Temporary Services and other pertinent Sections of these Specifications. These sections describe work that is a part of this Contract as contained in Division 1. The following General Provisions amplify and supplement these Sections of Specifications. In cases of conflicting requirements, the stipulations set forth in Division 1 supersede and must be satisfied by the Contractor.

1.2 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.
- B. ANSI/NFPA 72 - National Fire Code.
- C. ANSI/NFPA 101 - Life Safety Code.
- D. OSHA 1910 - Occupational Safety and Health Act.
- E. ADA - Americans with Disabilities Act.

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1.3 GENERAL REQUIREMENTS

- A. Contractor shall read the entire specifications covering other branches of work. He is responsible for coordination of his work with work performed by other trades.
- B. Consult all Contract drawings which may affect the location of any equipment or apparatus furnished under this work and make minor adjustments in location as necessary to secure coordination.
- C. System layout is schematic and exact locations shall be determined by structural and other conditions. This shall not be construed to mean that the design of the system may be arbitrarily changed. The equipment layout is to fit into the building as constructed and to coordinate with equipment included under other Divisions of work.
- D. Contractor shall contact the Owner's Representative immediately if he notices any discrepancies or omissions in either the drawings or the specifications, or if there are any questions regarding the meaning or intent thereof.
- E. Submit all changes, other than minor adjustments, to the Architect for approval before proceeding with the work.

1.4 SUBMITTALS

- A. Submit under provisions of the following and Division 1.
- B. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.
- C. Mark dimensions and values in units to match those specified.
- D. Contractor shall check all shop drawings for dimensional correctness, interferences and conformance to specifications and plans. Stamp drawings "approved" and indicate when stipulated check has been made before forwarding them. Identify submittal data by project name and equipment identification number.

1.5 REGULATORY REQUIREMENTS

- A. Complete installation shall conform with all applicable Federal, State and Local laws, Codes and Ordinances, included but not limited to latest approved editions of the following:
 - 1. State Building Codes.
 - 2. Specific Construction Safety Requirements, State Industrial Commission.
 - 3. National Electrical Code - NFPA 70.
 - 4. National Fire Code - NFPA 72.
 - 5. Life Safety Code - NFPA 101.
 - 6. Occupational Safety and Health Act (OSHA) of 1971 and all amendments thereto.
 - 7. ADA - Handicap Accessibility Requirements.
 - 8. State Elevator Code.

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- B. Nothing contained in the drawings and specifications shall be construed to conflict with these laws, codes, and ordinances and they are thereby included in these specifications. All work shall comply with the 2014 edition of NFPA 70, The National Electrical Code. It shall be the Contractor's responsibility to assure that electrical work is in full compliance with the *NEC*.
- C. Contractor shall visit the site to become familiar with all existing conditions affecting this work. No claim will be recognized for extra compensation due to failure of contractor to familiarize himself/herself with the conditions and extent of proposed work.
- D. Obtain and pay for all necessary permits. Request inspections from authority having jurisdiction.

1.6 ELECTRICAL MOTORS

- A. In general, motors will be furnished and installed under other Divisions of work as a factory-installed item. Unless they are factory installed on equipment units supplied under other Divisions, all safety switches and motor starters shall be furnished and installed by the Electrical Contractor. Coordinate prior to submission of bid.
- B. Electrical Contractor shall obtain all wiring diagrams necessary to connect and control equipment requiring electrical energy.

1.7 RECORD DRAWINGS

- A. Record any changes in location of concealed boxes, underground utility service runs, and similar construction on a set of prints and deliver them to the Owner's Representative upon completion of the work.
- B. Record location and depth of exterior work carefully for future reference.

1.8 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Instruct the Owner's representative in all matters pertaining to the proper operation and maintenance of electrical equipment furnished under this contract.
- B. Submit three (3) sets of instructions in hard-bound three-ring notebooks, including installation, maintenance and operating instructions, pamphlets or brochures and warranties obtained from each manufacturer of principal items of equipment.

1.9 PROJECT/SITE CONDITIONS

- A. Install Work in locations shown on Drawings, unless prevented by Project conditions.
- B. Prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Architect/Engineer before proceeding.

1.10 FIRESTOPPING

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- A. Firestopping around electrical cable, conduit and/or boxes and firestopping within boxes shall be provided under Division 16 to maintain fire ratings at walls, floors and ceilings. The Contractor shall coordinate penetrations of rated surfaces with the architectural drawings and specifications to assure that the proper fire rating is achieved.

1.11 TEMPORARY POWER AND LIGHTING

- A. The Contractor shall be responsible for provision of temporary electrical power and lighting as required to facilitate construction work.
 - 1. Temporary electrical power shall be obtained from the serving utility company. The Contractor shall make all necessary arrangements for the connection of a temporary power service.
 - 2. The costs for monthly service charges from the serving utility company included in the General Contractor's bid.
 - 3. The Contractor shall provide temporary electrical power distribution as required to facilitate construction activities including:
 - a. Wire/conduit
 - b. Over-current protection
 - c. Receptacle outlets
 - d. Motor disconnect means
 - e. Grounding
 - 4. The Contractor shall provide temporary lighting as required to facilitate construction activities.
 - 5. All temporary electrical power and lighting shall be completely removed prior to substantial completion of the project.

1.12 ALTERNATE BID ITEMS

- A. ADD E ALT. #1:
 - 1. Base Bid: Provide wiring for future ceiling fans and ceiling fan control switches in the Living Rooms and Bedrooms of all living units.
 - 2. Alternate Bid: Provide ceiling fans with lights as described in the Lighting Fixture Schedule in Specification Section 16510, along with fan control switches in all Living Rooms and Bedrooms in all living units.
- B. ADD E ALT. #2 (Owner Option):
 - 1. Base Bid: No Work.
 - 2. Alternate Bid: Provide Z-Wave receptacles and lighting controls as specified under Section 16141
- C. ADD E ALT. #3 (Owner Option):
 - 1. Base Bid: Provide wiring for future track lighting.
 - 2. Alternate Bid: Provide Lighting track with track lighting fixtures as specified under Section 16510.

PART 2 - PRODUCTS

2.1 MATERIALS

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- A. Furnish new and undeteriorated materials and of a quality not less than what is specified.
- B. Contractor to furnish and install only those brands of equipment mentioned specifically or accepted by the Engineer as equivalent substitutes.

2.2 EQUIPMENT SELECTION AND APPROVAL

- A. The selection of materials and equipment to be furnished shall be governed by the following:
 - 1. Where single trade name, brand of manufacturer or material is listed in the specification, the exact equipment listed shall be used in the bid.
 - 2. Where more than one name is listed, Contractor may select any one of the several brands specified.
 - 3. Where trade name, brand of manufacturer of equipment or material is listed in the specification followed by the word “or approved equal,” the Contractor may substitute product of equal quality from another manufacturer for consideration by the Engineer.

PART 3 - EXECUTION

3.1 PROTECTION AND CLEANING

- A. Protect all electrical work and products against damage during construction and pay the cost of repair or replacement of electrical products made necessary by failure to provide suitable safeguards or protection.
- B. After all work has been inspected and approved, thoroughly clean all equipment, provided under this work.
- C. Repair all dents and scratches in factory prime or finish coated on all electrical equipment.

3.2 CUTTING AND PATCHING

- A. Cut and patch as required to install new work. Patching shall match existing surfaces in kind and finish.
- B. Obtain prior approval from the Engineer before cutting any structural members.

END OF SECTION