

SECTION 260000 – ELECTRICAL GENERAL PROVISIONS

PART 1 GENERAL

1.1 REFERENCE

- A. Work under this Section is subject to requirements of Contract Documents including General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements.

1.2 DESCRIPTION

- A. Intent of drawings and Specifications is to obtain complete systems tested, adjusted, and ready for operation.
- B. All equipment and materials proposed for use on this project must be verified and specified as being listed and labeled for their intended application as defined in Article 100 of the NEC.
- C. All electrical work shall be performed, or under direct supervision of, a licensed electrician.
- D. Except as otherwise defined in greater detail, the terms "provide", "furnish" and "install" as used in Division 26 Contract Documents shall have the following meanings:
 - 1. "Provide" or "provided" shall mean "furnish and install".
 - 2. "Furnish" or "furnished" does not include installation.
 - 3. "Install" or "installed" does not include furnishing.
- E. Include incidental details not usually shown or specified, but necessary for proper installation and operation.
- F. Check, verify and coordinate work with drawings and specifications prepared for other trades. Include modifications, relocations or adjustments necessary to complete work or to avoid interference with other trades.
- G. Included in this Contract are electrical connections to equipment provided by the Owner and by the Contractor. Refer to final shop drawings for equipment being furnished under other sections for exact locations of electrical equipment, lighting fixtures and various connections required.
- H. Information given herein and on drawings is as exact as could be secured but is not guaranteed. Do not scale drawings for dimensions.
- I. Perform work in "neat and workmanlike" manner as defined in ANSI/NECA 1, Standard Practices for Good Workmanship in Electrical Contracting.

1.3 RELATED WORK

- A. Existing Utilities: Every attempt has been made to indicate existing utilities as accurately as possible from existing drawings, surveys, and data.
- B. Continuity of Service:

1. Do not interrupt or change an electrical service without permission from Owner. Obtain written permission before work is started.

C. Demolition:

1. The Contractor shall submit a demolition plan thirty (30) days prior to the proposed start date for demolition that shall include means and methods and a sketch that shows each fixture and associated bases, conduits, and wiring that will be a part of the demolition for review and approval by the Owner.
2. Perform required demolition work to accomplish new work as described in the Construction Documents.
3. Remove existing lighting fixtures, associated concrete bases per construction documents.
4. Remove abandoned wiring to source of supply.
5. Remove abandoned conduit.
6. Remove abandoned outlets and conduit servicing them.

1.4 REQUIREMENTS OF REGULATORY AGENCIES:

- A. Rules and regulations of Federal, State and local authorities and utility companies in force at time of execution of Contract shall become part of this specification.
- B. Work shall be in accordance with latest edition of codes, standards or specifications unless noted otherwise.

1.5 LISTING

- A. Install materials bearing UL label or UL listing, unless UL label or listing is not available for that type of material.
- B. Other nationally recognized testing agencies, acceptable to AHJ, are approved.

1.6 ENCLOSURES

- A. Typical NEMA Enclosures and Usage
 1. NEMA 4X - Outdoors. Rain, snow, sleet, with protection against corrosion
 2. NEMA 1 – Indoors, Incidental contact, falling dirt, liquids and light splashing

1.7 SUBMITTALS

- A. Submit shop drawings for equipment provided under this Division:
 1. Note that for satisfying submittal requirements for Division 26, "Product Data" is usually more appropriate than true "Shop Drawings". However, the expression "Shop Drawings" is generally used throughout specification.
 2. Submit shop drawings for equipment and systems as requested in respective specification sections. Submittals which are not requested may not be reviewed.

3. Mark general catalog sheets and drawings to indicate specific items submitted.
 4. Include proper identification of equipment by name or number, as indicated in specification and shown on drawings.
 - a. When manufacturer's reference numbers are different from those specified, provide correct cross-reference number for each item. Clearly mark and note submittal accordingly.
 - b. Submit complete record of required components when equipment and items specified include accessories, parts and additional items under one designation.
 - c. Where submittals cover products containing non-metallic materials, include "Material Safety Data Sheet" (MSDS) from manufacturer stating physical and chemical properties of components and precautionary considerations required.
 - d. Submit shop drawings or product data as soon as practicable after signing Contracts. Submittals must be approved before installation of materials and equipment.
 - e. Submittals that are not complete, not permanent, or not properly checked by Contractor, will be returned without review.
 - f. "Coordination Drawings", which are normally prepared by Contractor to coordinate work among various trades and to facilitate installation, shall not be submitted for Division 26 work unless specifically requested in technical sections. These types of drawings typically include dimensioned piping, ductwork or electrical raceway layouts.
 - g. Unless specifically requested in Division 26 technical sections, submittals of coordination drawings will be returned without review.
- B. Certificates and Inspections:
1. Obtain and pay for inspections required by authorities having jurisdiction and deliver certificates approving installations to Owner unless otherwise directed.
- C. Operation and Maintenance Manuals:
1. Upon completion of work but before final acceptance of system, submit to Owner for approval 3 copies of operation and maintenance manuals in loose-leaf binders. If "one copy" is larger than 2" thick or consists of multiple volumes, submit only one set initially for review. After securing approval, submit 3 copies to Owner.
 2. Organize manuals by specification section number and furnish table of contents and tabs for each piece of equipment or system.
 3. Include the following:
 - a. Copies of shop drawings
 - b. Manufacturer's operating and maintenance instructions. Include parts lists of items or equipment. Where manufacturer's data includes several types or models, designate applicable type or model
 - c. CD ROM's of O&M data with exploded parts lists where available

- d. Phone numbers and addresses of local parts suppliers and service companies
 - e. Internet/WEB page addresses where applicable
 - f. Factory and field test records
 - g. Additional information, diagrams or explanations as designated under respective equipment or systems specification section
 - h. One copy of each typed panelboard directory (new and existing). Include loads serve, locations, and date.
 - i. Copies of all manufacturer's warranties
 - j. List of manufacturer's local representative
- 4. Instruction shall include complete operating cycle on all apparatus.
 - 5. Furnish O&M manuals and instructions to Owner prior to request for final payment.

D. Record Documents:

- 1. Use designated set of prints of Contract Documents as prepared by Owner to mark-up for record drawing purposes.

1.8 PRODUCT ALTERNATES AND SUBSTITUTIONS

A. Comply with the following:

- 1. Should the Contractor wish to have products considered other than those specified, he/she must submit those items in accordance with Division 26 Section "Basic Electrical Requirements". Proposed substitutes must be accompanied by a review of the specification noting compliance on a line-by-line basis.
- 2. Action for substitutions specified herein will be given only after the receipt of complete data showing manufacturer, model number, performance criteria, physical dimensions and material construction all SPECIFICALLY marked for the individual item. Letter of transmittal with at least 1 copy of all descriptive data shall be submitted to the Owner's office. Data may not be returned; reference addenda for approval to bid.
- 3. Voluntary product substitutions from the Contractor will not be considered without prior approval. Contractor will be required to submit the total savings (anticipated savings) to the Owner.

1.9 QUALITY ASSURANCE

A. Preparation

- 1. Base final installation of materials and equipment on actual dimensions and conditions at the project site. Field measure for materials or equipment requiring exact fit.

B. Workmanship

- 1. Provide qualified skilled workmen, licensed as required. Perform work in accordance with ANSI/NECA 1-2000. The appearance of the finished work shall be of equal importance

with its electrical operation. The Owner may reject work if workmanship and appearance are not satisfactory.

C. Supervision

1. Be responsible for and coordinate the work of all subcontractors working under Division 26.

D. Installation Procedures

1. Confer and cooperate with other trades and coordinate the work in proper relation with theirs.

E. Materials

1. All electrical materials shall be new unless noted otherwise, and acceptable for installation only if labeled or listed as defined in NFPA 70, Article 100, by UL or by a recognized testing laboratory where standards have been established and acceptable to the Authority Having Jurisdiction. Labeled or listed equipment shall be installed in accordance with any instructions or labeling provided with the equipment.
2. Install equipment and materials in accordance with manufacturers' recommendations unless specifically indicated otherwise, or where local codes or regulations take precedence.

1.10 DELIVERY, STORAGE AND HANDLING

A. Comply with Division 01 and individual Division 26 Specification Sections.

- B. Provide for proper storage of all materials and equipment and assume responsibility for losses due to any cause. All storage shall be within the contract limit lines of the building site. Off-site storage will be allowed if permitted under Division 01 requirements. Cover and store all equipment and materials out of elements and off of the ground; any rusted or weather damaged item will not be permitted to be used. Make arrangements with other contractors on the job for introduction into the building of equipment too large to pass through finished openings.

C. Acceptance

1. Check and sign for materials to be furnished by others for installation under Division 26 upon delivery. Assume responsibility for the storage and safekeeping of such materials from time of delivery until final acceptance.

1.11 COORDINATION

- A. Inspection: Inspect work preceding or interfacing with work of Division 26 Sections and report any known or observed defects that affect the work to the Owner. Do not proceed with work until defects are corrected.
- B. Existing Utilities: The plans indicate the location, type and sizes of various utilities within the site where known. These utilities are indicated as accurately as possible. If utilities are encountered during construction which are not shown on the drawings, ask for instructions from the Owner. Any relocation or remodeling required will then be directed. Assume all responsibility for protection of all utilities, shown or not, and repair any damage caused by this construction at no extra charge to the Owner.

1.12 WARRANTIES

- A. All materials and equipment shall be new unless otherwise specified.
- B. Provide a written warranty to the Owner covering the entire electrical work to be free from defective materials, equipment and workmanship for a period of one year unless noted otherwise in individual Sections, after Date of Acceptance. During this period provide labor and materials as required to repair or replace defects at no additional cost to the Owner. Provide certificates (include in O & M Manuals) for such materials and equipment, which have warranties in excess of one year. Include dates of start and end of the warranty and manufacturer's representative name and telephone number.

1.13 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- A. General: Comply with Division 01.
- B. Temporary Lighting and Power
 - 1. Provide all temporary facilities required to supply construction power and light. Install and maintain facilities in a manner that will protect the public and workmen. Comply with all applicable laws and regulations.
 - 2. Provide covered walkway lights and obstruction lights where required, which shall be kept burning continuously between sunset and sunrise.
 - 3. Upon completion of the work, remove all temporary facilities from the site.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

3.1 INSTALLATION

- A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide the maximum possible headroom.
- B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.
- C. Equipment: Install to facilitate service, maintenance, and repair or replacements of components. Connect for ease of disconnection, with minimum interference with other installations.
- D. Right of Way: Give to raceways and piping systems installed at a required slope.
- E. Waterproofing: Seal all existing openings created by demolition and all new openings at exterior building foundation and wall penetrations so that they are watertight.
- F. Cutting and Patching

1. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Cutting shall be performed by skilled workmen of trades involved.
2. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

G. Cleaning and Protection

1. Comply with Division 01 and individual requirements of each Division 26 Specification Section.
2. On completion of installation, including fittings and devices, inspect exposed finish. Remove burrs, dirt, paint spots and construction debris.
3. Protect equipment and installations and maintain conditions to ensure that coatings, finished, and cabinets are without damage or deterioration at time of Substantial Completion.

3.2 FINAL OBSERVATION

- A. Comply with Division 01 and individual Division 26 Specification Sections.
- B. Prior to notifying the Owner that the project is ready for the final observation the Contractor must submit the O & M manuals fifteen (15) days prior to the date of final observation or as required in Division 01, and shall verify in writing, that:
 1. All systems are complete.
- C. When the Contractor notifies the Owner that the project is ready for a final observation, the Owner will visit the job site and will prepare a final observation list of all the items on the project that shall be finished or corrected before the project can be accepted.
- D. When the Contractor notifies the Owner that all items on the above final observation list have been completed and corrected, the Owner will visit the project to ascertain that all the items on the final observation list have been corrected and can be accepted.

3.3 PROJECT RECORD DRAWING

- A. Comply with Division 01 and individual Division 26 Specification Sections.
- B. File at job site one copy of Drawings, Specifications, Addenda, approved shop drawings, change orders, field orders, test records, other modifications to Contract Documents.
- C. Do not use Project Record Documents for construction purposes.
- D. Legibly mark with red pencil field changes, such as the following, referenced to permanent and accessible features of the site or building as applicable. Do not permanently conceal any work until required information is recorded.
 1. Drawings:
 - a. Locations of concealed utilities.

- b. Field changes of dimension and detail.
- c. Changes resulting from change order or field order.
- d. Details not on original drawings.
- e. Approved (should be inclusive of all variations of drawings) circuiting changes, or routing changes.
- f. Manufacturer, model number of equipment actually installed.
- g. Update all panel schedules with revised circuit numbers and loads.

2. Shop Drawings

- a. Changes made after Owner's approval.
- E. At completion of Work transfer all project record document information onto CADD files. Deliver completed Project Record Documents to Owner. Project Record Documents shall include any special system and "project record" shop drawings.

3.4 DEMONSTRATIONS

- A. Comply with Division 01 and individual Division 26 Specification Sections.
- B. Conduct demonstrations only after systems have been through start-up procedures, systems are complete and operating, and operating and maintenance data is complete.
- C. Instruct the Owner's representatives on the proper operation and maintenance of the electrical systems.
- D. Contractor's Representatives:
 - 1. Contractor's representatives shall have a thorough knowledge of the particular installation.
 - 2. Manufacturer's representatives shall have a thorough understanding of each particular piece of equipment.
- E. Scheduling: Arrange and schedule demonstration times with Owner.
- F. Location: Conduct demonstrations at project including tours of systems.
- G. Operating and Maintenance Data: Arrange for data to be at demonstrations. Include review of data at demonstrations.
- H. Time Allotment: Provide demonstrations of adequate time periods, except as noted elsewhere, to ensure proper understanding of systems by Owner's representative.
- I. Furnish ladders, tools, etc. as required to provide access to all equipment and controls for demonstrations.

3.5 CONTRACT CLOSEOUT PROCEDURE

- A. Comply with Division 01 and individual Division 26 Specification Sections.

- B. Approval for final payment will not be given until all contract closeout procedures comply with Division 01 Requirements.
- C. Submit Keys for electrical switches, panels, cabinets, enclosures, etc. to the General Contractor.
- D. Remove all materials, scrap, etc. related to the electrical installation. Leave premises in a clean and orderly condition.

END OF SECTION 260000