

SECTION 260000 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to all Sections of Division 26, 27, and 28. All of the electrical related work required for this project (unless noted otherwise) is a part of the electrical contract price and is not necessarily specified under Division 26, 27, 28 or shown on the electrical drawings. Therefore, all divisions of this specification and all drawings shall be consulted. The more stringent requirement of this specification (or drawings) shall be followed; regardless of what division or section the more stringent requirement resides.

1.2 SUMMARY

- A. This Section includes the following:
 - a. Related Documents.
 - b. Summary.
 - c. References.
 - d. General.
 - e. Submittal Information.
 - f. Quality Assurance, Regulations, and Codes.
 - g. Coordination.
 - h. Permits and Fees.
 - i. Electrical demolition.
 - j. Renovation and Remodel.
 - k. Cutting and patching for electrical construction.
 - l. Painting.
 - m. Aligning, Adjusting and Testing.
 - n. Substitution of Equipment.
 - o. Materials Approved as Equal.
 - p. As-built Drawings.
 - q. Operating Instructions, Brochures, and Manuals.
 - r. Punch-list and Final Inspection.
 - s. Guarantee.

1.3 REFERENCES

- A. The latest edition of the following standards and codes, standard publications of professional organizations, and the local authorities having jurisdiction are the minimum requirements for this work.
 - a. American National Standards Institute (ANSI).
 - b. American Society for Testing and Materials (ASTM).
 - c. Association of Edison Illuminating Companies (AEIC).
 - d. Code of Federal Regulations (CFR).
 - e. Insulated Cable Engineer's Association (ICEA).
 - f. Institute of Electrical and Electronic Engineers (IEEE).
 - g. National Electrical Manufacturer's Association (NEMA).
 - h. National Fire Protection Association (NFPA).
 - i. NFPA 70, the National Electrical Code (NEC).
 - j. Underwriters' Laboratories, Inc. (UL).
 - k. State, City, and Local Authorities.

1.4 GENERAL.

- A. The Electrical Contractor shall furnish all labor; materials, tools, transportation, equipment, services and facilities, required for the complete and proper installation of all electrical work specified within the contract documents. The electrical installation shall include all materials, devices, apparatus, and equipment as specified herein, as shown on the drawings, AND as required for a complete and operational system.
- B. Experienced, qualified, licensed electricians shall install the entire electrical system in a first class, workmanlike manner. The electrical system shall be left completely connected and ready to give continuous, trouble-free service.
- a. TO ENSURE THAT ONLY QUALIFIED AND RESPONSIBLE BIDS ARE CONSIDERED, SUBMIT THE FOLLOWING INFORMATION ATTACHED TO THE BID FORM:
 - b. List the date of your company's incorporation, and the state of which the company is incorporated. List the number of years in business under current corporate name.
 - c. List your company's President, Vice-President(s), Treasurer's, and Secretary's names.
 - d. List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers of company and all personnel who plan to work on this project.
 - e. List the category of work your organization normally performs with its own forces.
 - f. Claims & Suits: List any judgments, claims, arbitration proceedings, suits, or disputes (previous or ongoing) against your organization or its officers. List any arbitration proceedings or suits (previous or ongoing) that your organization has filed with regard to construction contracts within the last five years.
 - g. List, within the last five years, any officers of your organization that were officers of another organization that failed to complete a construction contract.
 - h. List the name of the job foreman that will be assigned to this project and include his/her work history with the company and with any previous companies. List this persons construction experience and present commitments of other projects. List any other key individuals of your organization who will be assigned to this project.
 - i. List a minimum of Five (5) previous projects of similar size and characteristics to this project, which were completed by your organization and the foreman listed above. Provide the name of each project, owner, architect, contract amount, project location, and the date project was completed.
 - j. List all major construction projects that your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.
 - k. State the total amount of work in progress and under contract by your company at time of submitting bid for this project.
 - l. State average annual amount of construction work performed during the past five years.
 - m. References: Provide a minimum of Three (3) Trade References.
- C. The electrical drawings are shown in a schematic form (unless specifically dimensioned) and are intended to show only the approximate locations of devices, and equipment. This does not grant the contractor permission to locate devices and equipment as he sees fit.
- a. Exact equipment locations, device placement, and conduit routings are not specified on the drawings (unless dimensioned) and shall be governed by structural conditions, ceiling/wall panel spacing, base cabinets, permanent furniture and other obstructions.

- b. Full coordination of all work and consultation of all drawings shall be required to avoid possible interference with other trades. The architectural plans shall be consulted to determine space availability for electrical equipment prior to rough in.
 - c. The Architect reserves the right to make any reasonable change in the location of apparatus, outlets and equipment up to the time of rough in, without any additional expense to the Owner. Relocating a receptacle outlet 6ft. in any direction is considered a reasonable change.
- D. Any damage to the building or elements of the building including other trades work (accidental or intentional) caused by or originating from the Contractor shall be repaired at the cost of the Contractor.
- E. All electrical components shall be installed per the respective manufacturer's installation instructions.

1.5 SUBMITTAL INFORMATION

- A. The Electrical Contractor shall submit electronic submittals in PDF format which shall include the following information:
- a. On front cover provide the name and address of the Project, the Architect, the Engineer, and the Contractor. List the name and telephone number for the Electrical Contractor assigned to the project.
 - b. Adequate description(s) of product submitted – Manufacturer's name, catalog number, technical data, shop drawings, pictures, etc. Include wiring diagrams, photometries, and test reports as required.
 - c. Instructions for the operation and maintenance of the equipment prepared by the manufacturer.
 - d. Complete parts list for each equipment item.
 - e. Clearly marked catalog logic indicating mounting, finishes, capacities, sizes, options, etc.
 - f. Identification mark or nomenclature relating each submitted item to the drawings (when applicable). For example, Panel "A", Light Fixture Type "B", or Special Outlet No. 1.
- B. The submittal review performed by the Architect-Engineer shall not include verification or approval of quantities indicated on the submittal. All submittal approvals relate to the product's conformance with the contract documents only.
- C. All submittals must be reviewed, verified, and approved by the ELECTRICAL contractor before the Architect or Engineer will review same. Submittals reviewed and stamped by the General Contractor only, will be returned. The ELECTRICAL contractor's stamp and signature on each submittal shall indicate the Contractors review. The Contractor shall return all submittals, which do not meet the specifications, to the supplier for correction before submitting to the Engineer or Architect. Only those materials specified, approved, or otherwise indicated by the contract documents will be permitted on this project.
- D. The Architect-Engineer's submittal approval will not relieve the Contractor from his responsibilities to full-fill the contract documents. All deviations from the contract documents associated with submittals must be called to the Engineer's attention at time of submission and must also be approved by the Owner or his representative.
- E. Shop drawings shall be submitted on wiring devices, conduit, boxes, wire, light fixtures (includes LED drivers, ballasts & lamps), light poles, switchgear (includes distribution and branch circuit panelboards, starters and disconnects), and all special systems (fire alarm, intercom, clocks, sound, security, telephone, data, etc.). Refer to each respective division 26 section for additional submittal requirements.

- F. Electronic Autocad files (.dwg) may be made available to the successful contractor for the sole purpose of creating submittal drawings related to this project. The Contractor shall execute a Cad Release agreement and submit a fee equal to \$100 per drawing sheet, prior to receiving the files.

1.6 QUALITY ASSURANCE, REGULATIONS, & CODES

- A. All Electrical Components, Devices, Equipment, and Accessories installed under this contract shall be listed and labeled by Underwriters Laboratories, Inc. (UL). Materials, which are not covered by UL shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use. The Architect/Engineer must specifically approve materials that do not carry the UL label.
- B. All Electrical Components, Devices, Equipment, and Accessories installed under this contract shall be of the brand(s) specified herein, or approved as an equal by the Architect/Engineer within the contract documents. All materials and equipment furnished shall be new, free from defects, and of current production. Materials and equipment, which are no longer being produced, will not be acceptable.
- C. Each class of materials or equipment shall be of a single manufacturer. Do not intermix manufacturers of the same class of equipment. Manufacturers of all equipment shall have a permanent service organization, which will respond with service via telephone within 2 hours of request and in person (if necessary) within 24 hours of request.
- D. All electrical equipment and materials shall be received and stored by the Electrical Contractor in a manner which will protect the equipment and materials against physical damage, dirt, moisture, grease, etc. Conduit shall be kept closed and free of foreign objects.
- E. All electrical work shall comply with the latest rules and regulations of the National Electrical Code (NFPA 70), the Americans with Disabilities Act (ADA), the local ordinances (City, County, and State), the local utility companies and all other Boards, Codes, and Departments having jurisdiction. The electrical installation shall be performed in accordance with the latest Rules and Regulations of the Occupational Safety and Health Act (OSHA).
- F. All electrical work and material shown on the drawings or specified herein, which is determined to be in direct conflict with a code requirement or local ordinance, shall be provided and installed to meet the code or local ordinance. However, all electrical work indicated in the contract documents, which is determined to be in excess of code requirements or local ordinances, shall be performed as specified in the contract documents. Any deviations made from the plans and specifications in order to conform to codes, ordinances, laws, rules, or regulations shall be approved by the Architect and be made with no cost increase to the Owner. In cases where two or more codes have different levels of requirements (regarding the same topic), the more stringent code shall apply.

1.7 COORDINATION

- A. The electrical contractor shall visit the site and examine all existing conditions, which may affect work under his contract prior to bidding. Failure to visit the site and determine existing conditions is not a basis for additional compensation.
- B. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.
 - a. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

- C. Sequence, coordinate, and integrate the installation of electrical materials and equipment for efficient flow of work among all other trades. Perform work in such an order that there will be no unnecessary delays or interference with other trade installations. Coordinate the installation of large electrical equipment requiring positioning before closing in the building. Coordinate closely with the Mechanical Contractor to allow for a clean and neat installation of conduit, cable tray, light fixtures, devices, plumbing, mechanical equipment, mechanical duct work, etc. above ceilings and in other concealed locations.
- D. Coordinate service connections to components and systems furnished by utility companies.
 - a. Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for electricity-metering components with the utility company.
 - b. All electrical service entrance equipment and work shall comply with requirements of authorities having jurisdiction and of utility company providing electrical power.
 - c. The electrical contractor shall bear all expenses for the installation of the temporary and permanent electrical service to the building. These expenses include concrete filled guard posts around transformers and the installation of pedestals (when required by local utility company). The Electrical Contractor shall also pay for all deposits and reimbursements required for the service to the building.
 - d. The electrical contractor shall coordinate and bear all expenses involved in the complete telephone, internet, cable TV service conduit installations (include pull wire) per respective utility company requirements.
- E. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces. Access doors and panels are specified in Division 8 Section "Access Doors."
- F. Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.
- G. Where acoustical ceilings and similar finishes will conceal electrical identification markings and devices, coordinate installation of these items before ceiling installation.

1.8 PERMITS AND FEES

- A. The Electrical Contractor shall pull all permits required for this project. He shall pay for all fees related to the certificates, permits, licenses, and inspections.
 - a. These items must be submitted to the Architect before final acceptance of the project is granted.

1.9 ELECTRICAL DEMOLITION

- A. Demolish (disconnect and remove) all electrical items as noted or shown on the drawings back to source. Sequence work with other trade demolition.
- B. The Electrical Contractor shall be responsible for all electrical demolition associated with architectural, structural, and mechanical demolition of this project. Refer to the architectural, structural and mechanical plans and specifications for areas/items required to be demolished. Verify all questionable electrical items with the General Contractor prior to demolition.
 - a. Remove all existing electrical equipment, devices, conduit, conductors, etc. associated with areas/items of demolition back to source.
 - b. Cut and cap abandoned raceways, which can not be entirely removed due to concrete encasement or other inaccessibility. Provide blank plates as required and/or patch to match existing adjacent surface(s).

- C. Remove all demolished electrical material from the site periodically to prevent damage to new equipment or injury to personnel.
- D. The Owner shall reserve the right to salvage any and all electrical components, which are removed by the Electrical Contractor during the demolition phase (unless specifically noted otherwise).
 - a. Coordinate with the Owner or his authorized representative prior to commencing with the demolition phase and verify which items are to be salvaged and returned to the Owner.

1.10 RENOVATION AND REMODEL

- A. The Electrical Contractor shall fully familiarize himself with the existing systems (electrical power, fire alarm, intercom, security, telephone, computer networking, sound, clocks, bells, etc.) of the building to be renovated or remodeled.
 - a. Consult existing system manufacturers for ALL interconnection requirements between new devices and existing systems. Verify all required parts, prior to bidding the job and notify the Architect/Engineer of all conflicts such as capacity, availability, or obsolescence.
 - b. The Electrical Contractor shall be responsible for providing and installing ALL components necessary to interconnect new devices to existing systems even though not specifically shown on the drawings or called out in the specifications.
- B. The Electrical Contractor shall be responsible for properly supporting (per N.E.C.) ALL existing conduit and cable encountered during the renovation process.
- C. Relocate all existing electrical items as shown on the drawings or as required by the Architect to facilitate work by other trades.
 - a. Relocate switches, fixtures, outlets, boxes, conduit, panelboards, and all other electrical components in order to meet the intent of the architectural plans (for example, relocate items where new doors are installed in existing walls).
 - b. Consult system manufacturers for specific requirements when applicable.
 - c. Provide and install all components required for the relocation of all electrical items (wire, cable, conduit, boxes, coverplates, fasteners, etc.).
 - d. Relocate all “special systems” components as required. For example, if a reception or office area is being relocated, all of the special systems associated with that area shall be relocated to the new reception or office.

1.11 CUTTING & PATCHING

- A. The Contractor shall be responsible for cutting and/or patching any building material necessary to complete the installation of the electrical system.
 - a. Use a “Concrete Termite” drill or “core” drill when drilling through concrete. Do not use a “hammer drill”, “air hammer” or “star drill”.
 - b. Use “link-seal” products by Thunderline Corporation after drilling through exterior basement or foundation walls.
- B. Qualified workmen of the trade involved shall do all cutting and patching.
- C. The Electrical Contractor shall pay for cutting and patching due to Electrical Contractors failure to coordinate at the time of rough in.

1.12 PAINTING

- A. All electrical raceways and equipment installed in finished areas (defined by the Architect) shall be painted in accordance with division 9 “painting” section (unless directed otherwise by the Architect).
- B. All electrical equipment requiring touch-up painting due to shipping and handling abuse or any other reason shall be painted to match the adjacent surface (color and quality).

1.13 ADJUSTING, ALIGNING AND TESTING

- A. The Electrical Contractor shall keep a calibrated voltmeter, ammeter, ground test meter, infrared scanner, and megohm meter on site and available at all times during construction hours. Provide test readings as required by these specifications and as requested by the Engineer.
 - a. The electrical load shall be distributed equally across all phases from the service entrance equipment down to the smallest branch circuit panelboard. Keep a record of all adjustments and submit final voltage and amperage readings (each phase) to the Architect.
 - b. After the project is substantially completed, perform dielectric testing in accordance with the requirements of the National Electrical Code. The entire system shall test out to be free from short circuits and open circuits.
- B. Check, align, and adjust all components of the electrical system for optimum performance. Perform all tests required by these specifications – refer to each division 26 section for specific test requirements
- C. The Owner reserves the right to conduct independent Acceptance Tests on the electrical system as he sees fit. These tests, if performed, will be used to determine compliance of these specifications and will be conducted in the presence of the Architect/Engineer and Contractor. Notification of these independent tests will be given a minimum of five (5) working days prior to execution. The contractor shall correct all deficiencies in materials and workmanship revealed by the Acceptance Tests.

1.14 SUBSTITUTION OF EQUIPMENT

- A. After execution of the contract, substitutions of equipment manufacturers and/or material manufacturers shall be permitted only when the equipment and/or material specified cannot be delivered to the job in time to complete the work in proper sequence.
 - a. Any delay must originate beyond the control of the contractor; otherwise the substitution will not be approved.
 - b. The Electrical Contractor must make substitution requests in writing. Written requests shall be accompanied with documentation from the specified manufacturer and from the proposed manufacturer indicating equality, differences in price, and differences in delivery dates.
 - c. The Owner shall receive all credits associated with the approved substitution via change order.

1.15 MATERIALS APPROVED AS EQUAL

- A. All materials used for this project shall be provided as specified (manufacturer's name and model number) unless changes to the contract documents are formally made by written addendum prior to the opening of bids.

1.16 AS-BUILT DRAWINGS

- A. Prepare two (2) sets of blue-line or black-line electrical drawings showing in red ink ALL changes or deviations made from the original plan design. These changes marked in red ink shall also include all addendum items, change orders, etc.
- a. These drawings shall be clean, neat and without tears or stains. Do not use the field set of drawings as these required As-Built drawings.
 - b. These drawings are to be submitted to the Engineer for review and will be forwarded to the Owner for his future reference.

1.17 OPERATING INSTRUCTIONS, BROCHURES, AND MANUALS

- A. The Electrical Contractor shall submit ALL operating instructions, brochures, instruction sheets, and manuals, which are provided with (or available with) new equipment to the Architect for transmittal to the Owner. Provide this information in a neat, organized format and present the information in a 3-ring binder. Label the front cover with the follow information:
- a. "Electrical Operating Instructions, Brochures, and Manuals for Facility Systems"
 - b. Project Name and Address
 - c. Name and Address of Architect
 - d. Name and Address of Engineer
 - e. Name and Address of Contractor
 - f. Contractor's Telephone Number (including emergency number).
- B. Save all adjusting tools, wrenches, keys, etc. which may be provided with new equipment, and submit to the Architect for transmittal to the Owner.
- C. The Electrical Contractor and/or special systems sub-contractor shall also provide full explanation (as well as any written material) to the Owner regarding the operation, maintenance, and care of each special system. Special systems include Fire Alarm, Intercom, Clock, Sound, Intrusion Detection, Cable TV, and Voice/Data.

1.18 PUNCH-LIST AND FINAL INSPECTION

- A. An initial inspection will be performed upon written notification from the Contractor indicating that the job is complete. The Engineer will generate a punch-list after the initial inspection. This punch list will be transmitted to the contractor for execution.
- a. The Electrical Contractor shall be present for the initial inspection and shall provide all tools, ladders, meters, instruments, etc. required for a complete and thorough inspection (removal of coverplates, panelboard covers, ceiling tiles, etc.).
- B. A Final Inspection by the Engineer will be performed after the contractor has executed all punch-list items.
- a. The intent of the Final Inspection is for the Contractor and Architect-Engineer to verify that the completed project is in conformance with the contract documents.
 - b. The Electrical Contractor shall be present for the Final Inspection and shall again provide all tools, ladders, meters, instruments, etc. required for a complete and thorough inspection (removal of coverplates, panelboard covers, ceiling tiles, etc.).
 - c. Additional inspections by the Architect-Engineer due to incomplete or incorrect work will be charged to the Contractor at an hourly rate of \$120.00 per man-hour.

1.19 GUARANTEE

- A. This Contractor shall guarantee the entire electrical installation for a period of one (1) year. The one-year period will start on the date of final completion and acceptance (by the Architect).
- a. Should defective or faulty parts, components, equipment, etc. become evident within this one-year period, the Electrical Contractor shall correct and/or replace the defective component without cost to the Owner.
 - b. In addition to defective components, the Electrical Contractor shall also guarantee the installation of the electrical system. The electrical work associated with this project is guaranteed by the Electrical Contractor to be first-class, executed by experienced workmen, and installed to comply with the contract documents. The Electrical Contractor shall correct all areas of the building showing poor workmanship or incomplete installations (such as loose joints & connections involving the raceways & conductors).

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION (not applicable)

END OF SECTION 260000