

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Basic Electrical Requirements specifically applicable to all Division 16 Sections.
- B. Intent Is to Provide and Install Complete Electrical Systems, as Required to Accommodate the Existing And New Building.
- C. Access Panels: Where required by NFPA 70 (N.E.C.)
- D. Some spaces above the ceiling is used as an air plenum. All wiring (line and low voltage) shall be approved for use in an air plenum.

1.02 RELATED REQUIREMENTS

- A. Conditions of the Contract and Division 1 - General Requirements, apply to all the work, including the work of this Division. Examine all contract documents for requirements affecting the work.

1.03 DEFINITIONS

- A. As used in this section, "provide" shall mean, "furnish and install". "Furnish" shall mean "to purchase and deliver to the project site complete with every necessary appurtenance and support", and "Install" shall mean "to unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project".

1.04 SUBSTITUTIONS

- A. Refer to Section 01630.

1.05 REFERENCES

- A. NEMA Standards.
- B. NECA "Standard of Installation."
- C. NFPA 70 (N.E.C.) latest edition.
- D. NFPA 101 Life Safety Code
- E. U.L. Standards.
- F. ANSI Standards.

1.06 SUBMITTALS

- A. Submit Shop Drawings, Owner's Manuals, and Operating Instructions in accordance with Section 01300 - Submittals.
- B. Include products specified in Division 16 individual sections.

- C. Submit Shop Drawings and product data grouped by individual Sections to include complete submittals of related systems, products, and accessories. Label each with Section number and title. Partial Section submittals will not be reviewed.
- D. Include access panels.

1.07 RECORD DRAWINGS

- A. Keep a marked set of Drawings at the site as a record set indicating all revisions in the work as the work progresses. At the completion of the work, mark the Drawings "As-Built Drawings" with the Contractor's name and date, and deliver to the Architect.

1.08 PERFORMANCE REQUIREMENTS

- A. Conform to requirements of the latest edition of ANSI/NFPA 70 National Electrical Code (N.E.C.).
- B. Conform to requirements of all local, State and Federal laws and regulations, plus local electric utility company's rules, and the Fire Underwriters' requirements.
- C. Furnish products listed and classified by Underwriters' Laboratories, Inc. (U.L.) as suitable for purpose specified and shown.
- D. Secure and pay for all permits and certificates as required by local, State and Federal laws.
- E. Request inspections from authority having jurisdiction.
- F. Run separate circuits for lighting and receptacle outlets as indicated.
 - 1. Circuits shall be balanced and loads and capacities shall be in accordance with requirements of local electric light company and National Board of Fire Underwriters.
 - 2. Devices shown with same panel and circuit designation may share same home runs to panelboards provided that the furthest device on the circuit does not exceed 2-1/2% voltage drop.
- G. The entire electrical system shall be permanently and effectively grounded in accordance with Code requirements.
- H. The Drawings indicate only diagrammatically the extent, layout and the general location and arrangement of equipment, conduit and wiring. Become familiar with all details of the work and verify all dimensions in the field so that the outlets and equipment will be properly located and readily accessible.
 - 1. Note that drawings do not show all junction boxes and fixture whips for lighting fixtures recessed in accessible ceilings. Although not specifically shown on the drawings, these fixtures shall be wired from junction boxes and 6'-0" unsupported whips. Provide number of junction boxes as required to allow for the 6'-0" whips. Wiring from fixture to fixture is not allowed. See Section 16510.

1.09 PROJECT/SITE CONDITIONS

- A. Coordinate with all other trades to ensure proper access and space requirements.
- B. Where project conditions occur necessitating departures from the drawings, submit for approval the details of and reasons for departures prior to implementing any change.
- C. Alterations:
 - 1. Visit the site and become familiar with the existing conditions, and the requirements of the Plans and Specifications. No claim will be recognized for extra compensation due to failure of becoming familiar with the conditions and extent of the proposed work.

2. Execute all alterations, additions, removals, relocations, or new work, etc., as indicated or required to provide a complete installation in accordance with the intent of the Drawings and Specifications.
3. Repair or replace to the Owner's satisfaction, all existing work disturbed or damaged by the alterations.
4. Remove all existing wiring.

1.10 SEQUENCING AND SCHEDULING

- A. Construct Work in sequence under provisions of Division 01.
- B. Schedule and coordinate all work with Division 02.

1.11 TEMPORARY LIGHT AND POWER

- A. "Temporary Light and Power" specified under Section 01500, Construction Facilities and Temporary Controls.

PART 2 - PRODUCTS

2.01 PAINTING

- A. Refer to Section 09900.

2.02 ACCESS PANELS

- A. Access panels required for items furnished under Division 16 shall be provided under this Division and installed under Divisions 4 and 9.
- B. Standard panels: 12" x 16" except as indicated. Doors: flush type 14-gauge steel, hinged to 16-gauge frame. Latch: Flush face screw. All factory primed.
 1. Same U.L. fire rating as wall, floor, or ceiling in which they are installed.
 2. Equal To: Inryco/Milcor style "M" and Miami-Carey "HM".

PART 3 - EXECUTION

3.01 WORKMANSHIP AND INSTALLATION

- A. Execute all work in a neat manner acceptable to the Local and State Electrical Inspector. Follow manufacturer's installation recommendations.
- B. All electrical components and their attachments shall be properly supported and designed for seismic forces determined in accordance with the BOCA National Building Code. Specifically, lighting fixtures shall be supported from structural steel. Provide unistrut channels or equal to span between top cord of joists. See Section 16510 - Luminaires.
- C. Perform all electrical work by licensed electricians well skilled in the trade and supervised by a Master Electrician.
- D. Replace or repair to new condition, defective equipment and equipment damaged during installation or testing.

3.02 TESTING AND ADJUSTING

- A. The entire installation shall be free from short circuits and improper grounds. Test in the presence of the Architects or their representatives.
- B. Test feeders with the feeders disconnected from the branch circuit panels.
- C. Test each individual branch circuit at the panel. In testing for insulation resistance to ground, the power equipment shall be connected for proper operation. In no case shall the insulation resistance be less than that required by the National Electrical Code and the manufacturer's recommendations. Correct failure in a manner satisfactory to the Architect and Engineers.
- D. Completely test and adjust each system specified under Division 16 for proper operation.

3.03 SLEEVES, INSERTS AND OPENINGS

- A. Sleeves:
 - 1. Furnish and install all sleeves required for the work.
 - 2. Sleeves through exterior building walls or through concrete construction shall be rigid galvanized steel.
 - 3. Sleeves shall be sized to provide a total of not less than 1/2-inch clearance around conduit.
 - 4. Sleeves for setting into walls shall be flush with finished construction. Sleeves for setting into floor shall be embedded in concrete slab and extend approximately 2 inches above finished floors.
 - 5. All sleeved openings within building shall be sealed airtight using fire barrier caulking with a UL classification for use as a fire penetration seal for walls and floors with up to a 3-hour fire rating expanded.
 - 6. Sleeves shall be provided in all locations where cables and conduits penetrate walls and floors.
 - 7. Selection of firestopping materials and installation shall be in accordance with specifications section 07841 - Through Penetration Firestop Systems.

END OF SECTION