

SECTION 16135
BOXES

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.
- B. Requirements of Section 16050, "Basic Electrical Materials and Methods," apply to this Section.

1.02 SUMMARY

- A. Work Included: Furnishing and installation of electrical boxes. Boxes include all outlet, junction, switch boxes, pull boxes, cabinets, and all materials and devices to install, support, secure, and provide a complete installation.
 - 1. Furnish boxes in quantities sufficient for a complete installation as indicated on the drawings and in these specifications.
 - 2. Examine drawings, criteria sheets, and other Sections of the specifications for requirements which affect work under this Section.
- B. Related Work Specified in Other Sections:
 - 1. Raceways, Section 16130.
 - 2. Wireways and Surface Raceways, Section 16132.
 - 3. Wiring devices, Section 16140.
 - 4. Hangers and supports, Section 16070.
 - 5. Electrical identification, Section 16075.

1.03 REFERENCES

- A. American National Standards Institute/ National Electrical Manufacturers Association:
 - 1. ANSI/NEMA OS 1: Sheet-Steel Outlet Boxes, Device Boxes, Covers and Box Supports.
 - 2. NEMA 250: Enclosures for Electrical Equipment (1,000 Volts Maximum)
- B. National Fire Protection Association: NFPA 70 - National Electrical Code.
- C. Underwriter's Laboratories (UL):
 - 1. UL 50, Cabinets and Boxes.
 - 2. UL 514, Electrical Outlet Boxes and Fittings.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's catalogue cuts for all types of boxes provided on this project. Where various sizes, capacities, types or options are listed by manufacturer, mark product data to clearly show which sizes, capacities, types or options are being provided for each application.
- B. Shop Drawings: Submit drawings for showing layouts for non-standard enclosures and cabinets.

1.05 QUALITY ASSURANCE

- A. Installer: Company specializing in performing the work of this Section, with minimum three years experience.

1.06 SEQUENCING AND SCHEDULING

- A. Coordinate work of this section with other work so that the placement of boxes does not interfere with HVAC and Plumbing work.

PART 2 - MATERIALS

2.01 PULL AND JUNCTION BOXES

- A. Manufacturer: Furnish products manufactured by one of the following:
 - 1. Appleton Electric Company
 - 2. Commercial Sheet Metal Company.
 - 3. Lee Products Company
 - 4. Harry Richmond Company
- B. Fabrication, Standard Boxes: Construct pull and junction boxes in accordance with UL 50. Fabricate from 16 gauge or heavier sheet steel; with removeable, full access covers, attached with corrosion-resistant machine screws. Finish boxes with one coat of grey enamel. Boxes with covers which have prepunched knockouts will not be acceptable.
- C. Junction Boxes Installed Above Suspended Ceiling: Galvanized pressed steel boxes with blank cover plates. Minimum size 4-11/16 inches square by 2-1/8 inch deep.
- D. Dimensions: Not less than that required by the National Electrical Code, Article 370.

2.02 OUTLET AND SWITCH BOXES

- A. Manufacturer: Furnish products manufactured by one of the following:
 - 1. Appleton Electric Company
 - 2. Crouse-Hinds Company
 - 3. Hubbell
 - 4. Raco
 - 5. Steel City Electric Company
 - 6. Thomas & Betts.

- B. Furnish outlet boxes, switch boxes, and associated fittings which conform to UL 514.
- C. Outlet Boxes in Dry Locations: ANSI/NEMA OS1, fabricated from galvanized steel sheet; minimum depth 2-1/8 inches deep; equipped with plaster rings or gasketed covers as necessary.
- D. Outlet and Switch Boxes for Wet Locations and Corrosive Locations: NEMA FBI, Type FD, with gasketed cover or NEMA OS 2 non-metallic PVC.
- E. Boxes which support lighting and equipment: Provide boxes rated for weight of equipment where supported; include 1/2 inch male fixture studs where required.
- F. Floor Outlet Boxes: Pressed steel, unless indicated otherwise. Furnish with compatible accessories, including gaskets, flush floor plates, device mounting plates and covers.
- G. Telephone/ Data Outlets: Provide 4 inch square box with a single gang device plate. Plate material shall match material and finish of the switch and receptacle plates, unless otherwise indicated.

2.03 CABINETS AND ENCLOSURES

- A. Manufacturers: Furnish products manufactured by one of the following:
 1. Hoffman
 2. Lee Products
 3. Weigmann.

PART 3 - EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

- A. Install work in conformance with the box manufacturer's printed installation instructions and the approved shop drawings.
- B. Rigidly support and securely fasten boxes in place. Install boxes plumb, level, true to finished lines and surfaces.

3.02 INSTALLATION OF PULL AND JUNCTION BOXES

- A. Provide pull and junction boxes for branch circuits as required, sized in accordance with the applicable electrical code. Fasten pull boxes to withstand anticipated pulling tension.
- B. Install pull or junction boxes where shown on drawings, or in every 100 feet of straight conduit run, in runs where more than the equivalent of four 90-degree elbows occur, and at any other points necessary for wire pulling and splicing.
- C. Install pull boxes and junction boxes concealed (above accessible ceilings or in unfinished areas), unless shown otherwise on the Drawings.

3.03 INSTALLATION OF OUTLET BOXES

- A. Electrical drawings and specification indicate general locations and mounting heights of wall outlets, switches, and similar devices; architectural details, wall elevations, and floor plans take precedence over information on the electrical drawings. Verify all locations and mounting heights with Architect before roughing in.
- B. Provide outlet boxes for all wiring devices as shown on the drawings. Use bar hanger type outlet boxes in steel stud partitions. Surface mounted outlet boxes for installation in the finished areas on the existing concrete block or masonry walls shall be without knockouts.
- C. Stagger outlet boxes on opposite sides of partitions a minimum of 12 inches on center; do not install back-to-back.
- D. When setting boxes into surfaces which are to be finished, offset boxes as required to allow for proper adjustment to finished surfaces.
- E. Mount boxes rigidly and screw-fasten covers. Plug unused open knockouts with suitable blanking devices. Provide blank covers for boxes that do not have equipment mounted on them.

3.04 CLEANING

- A. Thoroughly clean pull, junction and outlet boxes, enclosures and cabinets before conductors and/or wiring devices are installed.

END OF SECTION 16135