

**SECTION 16131  
BOXES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawing and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

**1.2 SUMMARY**

- A. This section includes the following:
  - 1. Wall and ceiling outlet boxes
  - 2. Pull and junction boxes.
  - 3. Floor boxes.

**1.3 RELATED SECTIONS**

- A. The following sections contain requirements that relate to this section.
  - 1. Section 16111, Conduit and Fittings.
  - 2. Section 16140, Wiring Devices.

**1.4 REFERENCES**

- A. National Electrical Manufacturer's Association (NEMA)
  - 1. NEMA OS 1-89, Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
  - 2. NEMA 250-91, Enclosures for Electrical Equipment.
- B. National Fire Protection Association (NFPA)
  - 1. NFPA 70-99, National Electrical Code.

**1.5 SUBMITTALS**

- A. Products furnished from listed manufacturers are pre-approved but still require submittal.
- B. Submit proposed substitutions for approval in accordance with General and Supplementary Conditions.

**1.6 SYSTEM DESCRIPTION**

- A. Provide electrical boxes as indicated and where required for splices, taps, conductor pulling, equipment connections, and in compliance with NFPA 70.

**1.7 QUALITY ASSURANCE**

- A. UL and NEMA Compliance: Provide materials that are listed and labeled by UL and comply with applicable NEMA standards.
- B. Comply with NFPA 70 for electrical components devices and accessories installation.

**1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver equipment in factory containers with protective crating and covering.

- B. Store and handle material to prevent damage.

## 1.9 SEQUENCING AND SCHEDULING

- A. Coordinate size and location of boxes with wiring system, construction and other trades.
- B. Coordinate box supports with general construction.

## PART 2 - PART 2 - PRODUCTS

### 2.1 OUTLET BOXES

- A. Construction: NEMA OS 1; pressed steel, galvanized unless otherwise specified.
- B. Size: Not smaller than 4-in. octagon by 1 1/2 in. deep. All unused knockouts to remain closed or be sealed with knockout closures.
- C. Knockouts: Provide proper size knockouts for conduits used.
- D. Device or Utility Boxes: Unit construction; size required for number of wiring devices specified. Sectional device boxes are not permitted.

### 2.2 PULL AND JUNCTION BOXES

- A. Size: As specified or according to Article 370 of the NEC.
- B. Style
  - 1. Indoors in Nonhazardous Areas: Code gage, galvanized sheet steel; welded construction, with conduit knockouts or raceway openings and hinged or screwed covers as noted.
  - 2. Outdoor and Wet Location Installations: NEMA 250; Type 4 and Type 6, galvanized cast iron boxes, flat flanged, surface mounted; box and cover with ground flange, neoprene gasket, and stainless steel cover screws; UL listed as raintight.
  - 3. Underground Installations: NEMA 250; Type 4, galvanized cast iron boxes, outside flanged, flush mounted with recessed cover; box and plain cover with neoprene gasket and stainless steel cover screws; UL listed as raintight.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Electrical box locations shown are approximate unless dimensioned.
- B. Verify location of floor boxes and outlets in offices and work areas prior to rough-in.

### 3.2 INSTALLATION

- A. Outlet Boxes:
  - 1. Locate and install boxes to allow access. Where installation is inaccessible, coordinate locations and sizes of required access doors with Division 8.
  - 2. Secure outlet or utility boxes concealed in construction in place. Set boxes true, square, and flush with finish surfaces for application of appropriate cover plate.
  - 3. Install surface-mounted outlet boxes for wiring devices located in industrial areas.
  - 4. Install knockout closures for unused openings.

5. Support boxes independently of conduit. Exception: Cast boxes when connected to two rigid metal conduits, both supported within 12 in. of box.
6. Install multiple gang boxes where more than one device is mounted together. Provide barriers to separate wiring of different voltage systems.
7. Mounting Heights as shown.
8. Position boxes to connect luminaries.
9. Align wall-mounted outlet boxes for switches, thermostats, and similar devices at the same height.
10. Install cast outlet boxes in exterior locations exposed to weather and wet locations.
11. Furnish and install an outlet box for each wiring device and fixture.
12. Provide a pull box every 100 feet of conduit run and wherever an excessive number of bends necessitates a pull box for ease of wire installation. The maximum number of cumulative bends shall not exceed 360 degrees in any single run.
13. All outlet boxes left for future use shall have single gang or 2-gang blank device plates installed to match device plates being used on the project.
14. Use conduit bodies with proper configurations for changes of direction of exposed conduit. A conduit ell may be used if it does not cause interference or damage or mar the appearance of the installation

B. Pull and Junction Box Installation:

1. Locate pull boxes and junction boxes in unfinished areas.
2. Support pull and junction boxes independent of conduit.

3.3 FIELD QUALITY CONTROL

- A. Check that boxes are complete with covers.
- B. Inspect installed boxes for damage. Replace damaged boxes and components.
- C. Verify that all unused knockouts have been plugged.

3.4 ADJUSTING

- A. Adjust all covers and doors for tight fitting closure.

3.5 CLEANING

- A. Clean all boxes from construction debris.

3.6 PROTECTION

- A. Protect all boxes during the construction process especially from joint compound, fireproofing, and paint.

**END OF SECTION 16131**