

## **DIVISION 16 - ELECTRICAL**

### **Section 16130 - Boxes**

#### **Introduction**

Types of boxes - outlet and receptacle boxes, and metal junction and pull boxes. Underground concrete boxes or manholes are discussed in underground distribution systems.

Boxes are to be left in such a manner that they are both accessible for future access, and that spare space (per NEC) is available for working with additional conductors.

#### **Part 1 - General**

- **DEVICE BOXES**
  - **NEW WORK** minimum size to be 4"sq. x 2 1/8" deep with adequate space for devices, wires, and 30% spare fill capacity except as approved by the University.
  - **REMODEL** use flush mounted boxes in existing walls (notch GWB walls if necessary). Use 4" sq. boxes.
- **JUNCTION BOXES**
  - **NEW WORK** minimum size 4 11/16" sq x 2 1/8" with 1/2" and 3/4" knockouts on each side. For conduits 1" and larger use boxes 6 x CS (conduit size) X 8 x CS, x 4" minimum or as per NEC 314. Provide for 30% spare fill capacity in all junction boxes. Extension boxes are not permitted.
  - All home runs shall have a j-box located in an accessible location above the ceilings (in interstitial ceiling spaces).
  - All existing junction boxes in an area remodeled shall be left accessible or relocated to an accessible location.
  - All j-boxes 4 11/16" sq. x 2 1/8" sq. or smaller shall have both 3/4" and 1/2" knockouts on all sides.
  - Ground tails shall be installed in boxes prior to rough-in.
  - **DO NOT PAINT INTERIOR OF ANY DEVICE/JUNCTION BOX.**

#### **Part 2 - Products**

- **DEVICE BOXES**
  - Shall be galvanized steel one piece boxes. No more than one plaster ring shall be utilized with each box. Gangable boxes or handy boxes shall not be used without prior approval of the UA Electrical Engineer.
- **JUNCTION BOXES**
  - Shall be galvanized steel or metal with baked enamel. Where used outdoor boxes shall be NEMA 3R rated. Where subject to corrosion shall be NEMA 4X SS.
  - For new work no extension boxes will be permitted.

#### **Part 3 - Execution**

- **DEVICE BOXES**
  - No Madison clips used as supports.
  - Rigidly supported to structure independent of conduit system support.
  - Flush mounted shall not have more than 1/8" gap.
  - No back to back devices or boxes in walls unless approved. Offset all boxes in non-fire rated walls minimum of 6". For fire rated walls provide minimum 24" separation or use approved fire assembly.
  - Where transitioning from flush mounted j-box to surface mounted raceway, horizontally mount the plaster

ring so that the proper type of wall box connection may be utilized with the surface mounted raceway.

- Surface mounted boxes shall be 4" square boxes, with industrial raised device plates. These shall be only used in equipment rooms or where specifically approved by the UA Electrical Engineer.
- Cut in boxes may be used in remodel applications where conduit is fished down existing stud walls.
- JUNCTION BOXES
  - Shall be rigidly supported to structure independent of conduit system.
  - Shall be accessible.
  - Runs between junction boxes shall not exceed 90'.
  - Shall be identified per Section 16195.
  - Shall not be located more than 3' or less than 1' above a drop ceiling.
  - Covers shall be attached with machine screws only. NO self tapping screws or wood screws shall be utilized in attaching the cover.
  - Reference 16190 for supports and anchors.
  - Shall not have concentric knockouts unless specifically approved by the UA Electrical Engineer.
  - Use grounding bushings on all enclosures having concentric and eccentric knockouts where such knockouts are approved by the UA Electrical Engineer.
  - No powder actuated, plastic or lead fasteners. Install boxes with machine screw type fasteners.

**End of Section 16130**