

## **SECTION 260534 - BOXES**

### **PART 1 - GENERAL**

#### 1.1 WORK INCLUDES

- A. Base and Alternate Bids:
  - 1. Contractor Provide:
    - a. Wall and ceiling outlet boxes.
    - b. Pull and junction boxes.

#### 1.2 RELATED SECTIONS

- A. Section 262726 – Wiring Devices: Mounting heights of wiring device outlets.
- B. Section 260535 – Cabinets and Enclosures.
- C. Section 262727 – Equipment Wiring Systems.
- D. Section 283111 – Fire Alarm and Smoke Detection Systems.

#### 1.3 REFERENCES

- A. ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.
- B. ANSI/NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
- C. ANSI/NFPA 70 - National Electrical Code – 2008 edition.
- D. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

#### 1.4 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by UL as suitable for purpose specified and shown.

#### 1.5 SUBMITTALS

- A. Product Data: Provide dimensions, knockout sizes and locations, materials, fabrication details, finishes, and accessories.
- B. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

## 1.6 PROJECT CONDITIONS

- A. Verify field measurements are as shown on Drawings.
- B. Coordinate the quantities and locations of ceiling access panels with the general contractor to provide access to boxes above ceilings in accordance with the National Electrical Code.
- C. Electrical boxes are shown on Drawings in approximate locations unless dimensioned. Install at location required for box to serve intended purpose. Include allowance of conduit, wire, hangers, etc to facilitate an installation within 15 feet of location indicated.

## **PART 2 - PRODUCTS**

### 2.1 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel.
  - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 2 inch male fixture studs where required.
  - 2. Receptacle and outlet box shall be minimum 4 inches square, 1 ½ inches deep. Provide with single or gang cover as needed.
  - 3. Boxes for telecommunications equipment shall be minimum 4 inches square, 1 ½ inches deep, unless noted otherwise on drawings. Provide with single gang cover as needed.
  - 4. Boxes for fire alarm devices shall be deep boxes (2-1/8" minimum). Provide with single or gang cover as needed.
  - 5. Boxes in masonry walls shall be square cut corner, non-ganged type deep masonry boxes.
- B. Cast Boxes: NEMA FB 1, Type FD, cast aluminum or cast ferrous alloy. Provide gasketed cover by box manufacturer. Provide threaded hubs.

### 2.2 PULL AND JUNCTION BOXES

- A. Interior Dry Locations
  - 1. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
  - 2. Size pull or junction boxes to comply with NEC.
- B. Interior Wet Locations
  - 1. Surface-Mounted Cast Metal Box: NEMA 250, Type 4 and 6; flat-flange, surface-mounted junction box.
    - a. Material: Galvanized cast iron.
    - b. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.
- C. Exterior Locations
  - 1. Polymer concrete with reinforced heavy-weave fiberglass with neoprene gasket and cover and stainless steel tamper proof hardware.
  - 2. Label cover with service provided.

3. Boxes located in vehicular traffic areas to have 15,000 lb rated lids.

## **PART 3 - EXECUTION**

### 3.1 INSTALLATION

- A. Install electrical boxes as shown on Drawings, do not install flush mounting boxes back-to-back in walls; provide minimum 6-inch separation. Provide boxes as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.
- B. Install electrical boxes to maintain headroom and to present neat mechanical appearance.
- C. Install pull and junction boxes above accessible ceilings and in unfinished areas only.
- D. Install boxes for communications outlets 18 inches above finished floor to center unless noted otherwise.
- E. Install boxes for communications wall outlets 48 inches above finished floor to center unless noted otherwise.
- F. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
- G. Install boxes to preserve fire resistance rating of partitions and other elements.
- H. Align adjacent wall-mounted outlet boxes for switches, thermostats, and similar devices with each other.
- I. Use flush mounting outlet boxes in finished areas.
- J. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.
- K. Use stamped steel bridges to fasten each flush mounting outlet box between studs. Bridge shall span between two studs to support box.
- L. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
- M. Use adjustable steel channel fasteners for hung ceiling outlet box.
- N. Do not fasten boxes to ceiling support wires.
- O. Support boxes independently of conduit.
- P. Use gang box where more than one device is mounted together. Do not use sectional box.
- Q. Use gang box with plaster ring for single device outlets.
- R. Large Pull Boxes: Boxes larger than 100 cubic inches in volume or 12 inches in any dimension.

1. Interior Dry Locations: Use hinged enclosure under provisions of Section 260535.

## 3.2 COORDINATION

- A. Coordinate locations and sizes of required access doors with the General Contractor.
- B. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only.
- C. Coordinate mounting heights and locations of outlets mounted above counters, benches and back splashes.
- D. Position outlet boxes to locate luminaires as shown on reflected ceiling plan.

## 3.3 ADJUSTING

- A. Adjust flush-mounting outlets to make front flush with finished wall material.
- B. Install oil-tight knockout closure in each unused box opening.

END OF SECTION 260534