

SECTION 16130

BOXES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Wall and Ceiling Outlet Boxes.
- B. Pull and Junction Boxes.
- C. Hinged Cover Cabinet Enclosures.
- D. Terminal Blocks and Accessories.

1.02 RELATED SECTIONS

- A. Section 16010: Basic Electrical Requirements.

1.03 SUBMITTALS

- A. Submit Shop Drawings, Owner's Manuals, and Operating Instructions in accordance with Section 01300 - Submittals.
- B. Include product data for floor boxes, boxes larger than 12x12x6 inches, boxes with hinged covers.

1.04 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations and mounting heights of outlets if not as shown on Drawings, plus pull and junction boxes larger than 12x12x6 inches and boxes used for panel feeders.

1.05 PERFORMANCE REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70. (N.E.C.)
- B. Furnish products listed and classified by Underwriters' Laboratories, Inc. as suitable for purpose specified and shown.
- C. Size per N.E.C. Art. 314.

1.06 PROJECT CONDITIONS

- A. Verify field measurements are as shown on Drawings.
- B. Verify locations of wall boxes and outlets in Lobby areas, offices and work areas prior to rough-in.
- C. Electrical boxes are shown on Drawings in approximate locations unless dimensioned. Install at location required for box to serve intended purpose.
- D. Generally pull boxes are not shown on Drawings. Provide as required.

1.07 COORDINATION

- A. Locate such that outlets are readily accessible and does not interference with other work.
- B. Provide for access panel where required.

PART 2 - PRODUCTS

2.01 OUTLET BOXES

- A. Sheet Metal Outlet Boxes: Standard type galvanized steel, minimum four inch square or octagon by 2-1/2 inch deep.
 - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 1/2 inch male fixture studs where required.
 - 2. Concrete Ceiling Boxes: Concrete type, three and four inch deep or depth as to coordinate with concrete slab.
 - 3. Single Wall Type: Minimum size, four inch square by 1-1/2 inch deep, except as noted. Provide dry wall device covers raised 3/4 inch minimum to insure flush finish mounting.
 - 4. Ganged Wall Type: Minimum depth 3 inches except as noted, ganged as required under common plate to contain device shown.
- B. Cast Boxes: Type FS shallow type FD deep, aluminum or, cast feralloy.
 - 1. Provide number of threaded hubs as required.
 - 2. Use in all exterior, damp or exposed in mechanical space.
 - 3. Provide gasketed cover and accessories by box manufacturer for complete weatherproofing .

2.02 PULL AND JUNCTION BOXES

- A. Sheet Metal Boxes: Standard type galvanized steel, minimum four inch square or octagon by 2-1/2 inch deep.
 - 1. Sizes up to 12x12x6 inch: Provide screw-type or hinged covers.
 - 2. Sizes greater than 12x12x6 inch: Provide hinged covers.
- B. Exterior Surface-Mounted Cast Metal Box: NEMA 250, Type 4; flat-flanged, surface-mounted junction box.
 - 1. Material: Galvanized cast iron or Cast aluminum.
 - 2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.
- C. In-Ground Cast Metal Box: NEMA 250, Type 6, inside flanged, recessed cover box for flush mounting.
 - 1. Material: Galvanized cast iron or Cast aluminum.
 - 2. Cover: Nonskid cover with neoprene gasket and stainless steel cover screws.
 - 3. Cover Legend: ELECTRIC.
- D. Fiberglass Handholes: Die-molded fiberglass handholes.
 - 1. Cable Entrance: Pre-cut 6 x 6 inch cable entrance at center bottom of each side.
 - 2. Cover: Fiberglass weatherproof cover with nonskid finish.

2.03 CABINET ENCLOSURES

- A. Covers: Continuous hinge, held closed by flush latch operable by screwdriver; finish in gray baked enamel, hasp and staple for padlock.
- B. Boxes: Galvanized steel minimum 12"x12"x6" deep or as noted. Provide 3/4 inch (19 mm) thick plywood backboard painted matte white, for mounting terminal blocks.

- C. Power Terminals: Unit construction type, closed-back type, with tubular pressure screw connectors, rated 600 volts.
- D. Signal and Control Terminals: Modular construction type, channel mounted; tubular pressure screw connectors, rated 300 volts.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.
 - 1. Except where specifically noted, boxes on finished surfaces shall be flush mounted with finished cover plate.
 - 2. Consult Architect prior to installing in finished areas.
- B. Install electrical boxes to maintain headroom and to present neat mechanical appearance.
- C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- D. In Non-accessible Ceiling Areas: Install outlet and junction boxes no more than 12 inches from ceiling access panels or from removable recessed luminaires such that they are accessible.
- E. In accessible Ceiling Areas: Install outlet and junction boxes such that they are accessible from ceiling access panels or from removable recessed luminaires.
- F. Align Wall Boxes for Switches, Receptacles, Thermostats, Telephone, and Similar Devices with Each Other as Follows:
 - 1. Horizontally for outlets with same mounting height.
 - 2. Vertically for outlets shown in similar locations with different mounting heights.
- G. Do not install flush mounted boxes back-to-back in walls; provide minimum 6 inch separation. Provide minimum 24 inches separation in acoustic rated walls.
- H. Accurately position flush mounted wall boxes to allow for surface finish thickness.
 - 1. Box shall be flush with finished surface.
 - 2. Use wall box support brackets that span two studs.
 - 3. Single stud support will be allowed only if used with E-Z Mount Brackets or equal product to support side opposite the stud.
- I. Install flush mounting box without damaging wall insulation and vapor barrier or reducing its effectiveness.
- J. Use adjustable steel channel fasteners for hung ceiling outlet box.
- K. Do not fasten boxes to ceiling support wires.
- L. Support boxes independently of conduit, except cast box that is connected to two rigid metal conduits both supported within 12 inches of box.
- M. Use gang box where more than one device is mounted together. Do not use sectional box.
- N. Use gang box with plaster ring for single device outlets.
- O. Use cast outlet box in exterior locations exposed to the weather and wet locations.

- P. Large Pull Boxes: Boxes larger than 100 cubic inches in volume or 12 inches in any dimension.
 - 1. Interior Dry Locations: Use hinged covers.
 - 2. Other Locations: Use surface-mounted cast metal box.

3.02 INTERFACE WITH OTHER PRODUCTS

- A. Coordinate locations and sizes of required access doors with Section 08311 - Access Doors and Frames.
- B. Locate flush mounting box in masonry wall to require cutting of only one masonry unit. Coordinate masonry cutting to achieve neat opening.
- C. Coordinate mounting heights and locations of outlets mounted above counters, benches and backsplashes.
- D. Position outlet boxes to locate luminaires as shown on reflected ceiling plan.

END OF SECTION