

SECTION 16135 - CABINETS, BOXES, AND FITTINGS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Cabinets, boxes, and fittings for electrical installations and certain types of electrical fittings not covered in other Sections. Types of products specified in this Section include:
1. Outlet and device boxes.
 2. Pull and junction boxes.
 3. Terminal boxes.
 4. Floor boxes and service fittings.
 5. Bushings.
 6. Locknuts.
 7. Conduit hubs.

1.02 SUBMITTALS

- A. Shop Drawings: Submit in accordance with Section 01300, Shop Drawings covering the items included under this Section. Shop Drawing submittals shall include:
1. Summary Sheet: Submit sheet that lists in tabular or matrix style the manufacturer, model and applicable part number for each piece of equipment. List shall include ratings and selected options.
 2. Product Data: Submit manufacturer's data (cut sheet) on boxes, fittings, cabinets, and enclosures products and associated accessories. Only submit sheets that contain the equipment submitting. If a sheet contains other information, the spurious information shall be crossed out.
 3. Shop Drawings for floor boxes and boxes, enclosures, and cabinets that are to be shop-fabricated, (nonstock items). For shop-fabricated junction and pull boxes, show accurately scaled views and spatial relationships to adjacent equipment. Show box types, dimensions, and finishes.

1.03 QUALITY ASSURANCE

- A. Codes and Standards:
1. UL Listing and Labeling: Items provided under this section shall be listed and labeled by UL.
 2. NEMA Compliance: Comply with NEMA Standard 250, "Enclosures for Electrical Equipment (1,000 Volts Maximum)."
 3. NFPA Compliance: Comply with the National Electrical Code (NFPA 70).

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with specified requirements, manufacturers offering products which may be incorporated in Work include:
1. Outlet Boxes, Concealed Conduit System (behind drywall only):
 - a. Adalet-PLM Div., Scott Fetzer Co.
 - b. Appleton Electric, Emerson Electric Co.

- c. Bell Electric, Square D Company
 - d. Eagle Electric Mfg. Co., Inc.
 - e. Midland-Ross Corp.
 - f. OZ/Gedney, General Signal Co.
 - g. Pass and Seymour, Inc.
 - h. RACO Div., Harvey Hubbell, Inc.
 - i. Thomas & Betts Co.
2. Outlet Boxes, Exposed Conduit System:
 - a. Appleton Electric, Type JB, GS, or SHE.
 - b. Crouse-Hinds, Type GS or GRF.
 3. Device Boxes, Concealed Conduit Systems (behind drywall only):
 - a. Adalet-PLM Div., Scott Fetzer Co.
 - b. Appleton Electric; Emerson Electric Co.
 - c. Bell Electric, Square D Company.
 - d. Eagle Electric Mfg. Co., Inc.
 - e. Midland-Ross Corp.
 - f. OZ/Gedney, General Signal Co.
 - g. Pass and Seymour, Inc.
 - h. RACO Div., Harvey Hubbell, Inc.
 - i. Thomas & Betts Co.
 4. Device Boxes, Exposed Conduit System:
 - a. Appleton Electric, Type FS/FD.
 - b. Crouse-Hinds, Type FS/FD.
 5. Junction and Pull Boxes, Concealed System (behind drywall only):
 - a. Adalet-PLM Div., Scott Fetzer Co.
 - b. Appleton Electric, Emerson Electric Co.
 - c. Arrow-Hart Div., Crouse-Hinds Co.
 - d. Bell Electric, Square D Company.
 - e. GTE Corporation.
 - f. Keystone Columbia, Inc.
 - g. OZ/Gedney Co.; General Signal Co.
 - h. Spring City Electrical Mfg. Co.
 6. Junction and Pull Boxes, Exposed Conduit System:
 - a. Appleton Electric, Type FS/FD.
 - b. Crouse-Hinds, Type FS/FD.
 7. Terminal Boxes:
 - a. AMFCO.
 - b. Boss.
 - c. Hoffman.
 - d. Keystone.
 - e. Hope.
 8. Floor Boxes:
 - a. Arrow-Hart Div., Crouse-Hinds Co.
 - b. Harvey Hubbell, Inc.
 - c. Midland-Ross Corp.
 - d. Nelson Electric, General Signal Co.
 - e. Pyle-National Co.
 - f. Spring City Electrical Mfg. Co.

- g. Square D Company.
- 9. Bushings, Knockout Closures, Locknuts, and Connectors:
 - a. Adalet-PLM Div., Scott Fetzer Co.
 - b. AMP, Inc.
 - c. Arrow-Hart Div., Crouse-Hinds Co.
 - d. Appleton Electric Co., Emerson Electric Co.
 - e. Bell Electric; Square D Co.
 - f. Midland-Ross Corp.
 - g. Midwest Electric, Cooper Industries, Inc.
 - h. OZ/Gedney Co., General Signal Co.
 - i. RACO Div., Harvey Hubbell, Inc.
 - j. Thomas & Betts Co., Inc.

2.02 CABINETS, BOXES, AND FITTINGS - GENERAL

- A. Outlet Boxes: Suitable for the conduit system installation as follows:
 - 1. Exposed Conduit: Provide cast or malleable iron, zinc, electroplated outlet boxes finished with aluminum lacquer or enamel. Provide cast metal covers with neoprene gaskets for NEMA 4 areas and stamped steel covers for NEMA 12 and undesignated areas.
 - a. Exception: Provide non-metallic outlet boxes for NEMA 4X areas. Provide the appropriate explosion-proof rating, 316 stainless steel for outlet boxes installed in NEMA 7 and NEMA 9 areas. Provide factory PVC-coated boxes where PVC-coated conduit is specified.
 - 2. Concealed Conduit (behind drywall only): Provide galvanized coated flat-rolled sheet-steel outlet wiring boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct outlet boxes with mounting holes and with cable and conduit-size knockout openings in bottom and sides. Provide boxes with threaded screw holes, with corrosion-resistant cover and grounding screws for fastening surface and device type box covers, and for equipment type grounding. Provide cast metal outlet boxes for exterior outlets.
- B. Device Boxes: Suitable for the conduit system as follows:
 - 1. Exposed Conduit: Provide cast or malleable iron, zinc electroplated device boxes finished with aluminum lacquer or enamel. Provide exterior mounting lugs on device boxes.
 - a. Exception: Provide non-metallic outlet boxes for NEMA 4X areas. Provide appropriate explosion-proof rating for device boxes installed in NEMA 7 and NEMA 9 areas. Provide factory PVC-coated device boxes where PVC-coated conduit is specified.
 - 2. Concealed Conduit (behind drywall only): Provide galvanized coated flat-rolled sheet-steel non-gangable device boxes, of shapes, cubic inch capacities, and sizes, including box depths as indicated, suitable for installation at respective locations. Construct device boxes for flush mounting with mounting holes, and with cable-size knockout openings in bottom and ends, and with threaded screw holes in end plates for fastening devices. Provide cable clamps and corrosion-resistant screws for fastening cable clamps, and for equipment type grounding. Provide cast metal device boxes for exterior devices.
- C. Junction and Pull Boxes: Shall be sized to meet the minimum sizing set forth in the NEC, and suitable for the conduit system installation as follows:
 - 1. Exposed Conduit: For pull and junction boxes 50 cubic inches and smaller, provide cast or malleable iron, zinc electroplated boxes finished with aluminum lacquer or enamel. Provide exterior mounting lugs and cast covers with neoprene gaskets. For pull and junction boxes

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larger than 50 cubic inches provide watertight sheet metal boxes. Grind exposed edges smooth or roll edges to prevent scuffing of wire during installation. Provide code-gauge sheet steel construction for boxes smaller than 1,000 cubic inches. Provide 0.10-inch steel construction, hot-dip galvanized after fabrication for boxes larger than 1,000 cubic inches. Secure box covers using No. 8 or larger machine screws spaced at intervals not exceeding 6 inches. Provide a continuous neoprene or rubber gasket cemented to the box cover where it contacts the box body.

- a. Exceptions: Provide nonmetallic pull and junction boxes in NEMA 4X areas. Provide appropriate explosion-proof, 316 stainless steel construction for boxes located in NEMA 7 and NEMA 9 areas. Provide factory PVC-coated boxes for areas where PVC conduit is used.
2. Concealed Conduit (behind drywall only): Provide galvanized code-gauge sheet steel junction and pull boxes, with screw-on covers; of types, shapes and sizes, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws, and washers.
- D. Terminal Boxes: Provide compression lug type terminal strips in each terminal box with a minimum of 20 percent spare terminals. Provide appropriate NEMA enclosure rating for area in which terminal box is installed.
- E. Floor Boxes: Provide cast-iron rain-tight adjustable floor boxes as indicated, with threaded conduit entrance ends, and vertical adjusting rings, gaskets, brass floor plates with flush screw-on covers with ground flange and stainless steel cover screws.
- F. Floor Service Fittings: Provide factory pre-wired service units, suitable for power and communication work, with UL fire resistance rating of 3 hours. Construct integral fire-stop with cold smoke barrier to prevent passage of smoke where heat is not present. Provide units with separation barrier between power and communication compartments, and with above-floor fittings of contoured die-cast aluminum with satin chrome finish covers. Provide poke-throughs with a single divided through-floor conduit, of proper length for floor thickness indicated, and a 4-11/16-inch square by 2-9/16-inch deep junction box, which is self-supporting without attachment of above-floor fitting.
- G. Bushings, Knockout Closures, and Locknuts: Provide corrosion-resistant box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes, to suit respective installation requirements and applications. Provide watertight hubs on conduits terminated at sheet steel enclosures in NEMA 4 areas.

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PART 3 - EXECUTION

NOT USED

END OF SECTION