SECTION 260533 - BOXES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Contractor Provide:

1. Wall and ceiling outlet boxes.
2. Pull and junction boxes.
3. Floor Boxes

1.2 REFERENCES

A. NECA - Standard of Installation.

B. NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.

C. NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports.

D. NEMA OS 2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports.

E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

F. NFPA 70 - National Electrical Code.

1.3 SUBMITTALS

A. Submit under provisions of Section 01340

B. Record actual locations and mounting heights of outlet, pull, and junction boxes on project record documents.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Provide Products listed and classified by Underwriters Laboratories, Inc. or other testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.

PART 2 - PRODUCTS

2.1 OUTLET BOXES

A. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.

1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 1/2 inch male fixture studs where required.

B. Nonmetallic Outlet Boxes: NEMA OS 2.

C. Cast Boxes: NEMA FB 1, Type FD, aluminum or cast feralloy. Provide gasketed cover by box manufacturer. Provide threaded hubs.

D. Wall Plates for Finished Areas: As specified in Section 260580.

2.2 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: NEMA OS 1, galvanized steel.

B. Hinged Enclosures: As specified in Section 262716.

C. 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.

D. In-Ground Cast Metal Box: NEMA 250, Type 6, recessed cover box for flush mounting:

1. Material: Galvanized cast iron.
2. Cover: Nonskid cover with neoprene gasket and stainless steel cover screws.
3. Cover Legend: As indicated on drawings.

2.3 FLOOR BOX (RECESSED, CONCEALED SERVICE)

A. Manufacturers/Type:

1. Walker/Wiremold
2. Hubbel
3. T&B
4. FSR
5. MonoSystems

B. Description: Floor box providing interface between power and/or communication cabling in a concrete floor and a workstation or equipment location. Box shall be suitable for mounting in concrete, above grade, with conduit openings on bottom as indicated on the drawings. Box shall be capable of installation in a maximum slab depth of 2.5 inches.

C. Provide a Pour Pan to allow for the box to be installed in the slab on grade and not rest directly on the floor sub-base. The pan shall allow for extended length for the leveling feet and shall not move during the concrete pour.

D. Construction: Rectangular, 11 gauge stamped steel floor box with two (2) independent wiring compartments and providing pre- and post-pour adjustment. Box shall have conduit knockouts bottom of each gang. At minimum, each end shall have (2) 0.75" diameter KO.

E. Size: Provide size to provide space with wiring tunnel separators for a minimum of devices shown on the drawings. Communication device opening shall accommodate Systemax devices capable of accepting a minimum of four (4) each or combination of network, phone or coax terminations. Maximum depth of box shall be 2.25 inches.

F. Recessed Floor Box Cover:

1. Covers shall be UL Scrub Water Rated for Carpet Installations.
2. Material: Die-cast aluminum, lift off cover, flange and cable ports.
3. Provide flanges to accommodate the flooring material in which the boxes will be installed.
    a) Provide a thickness of flange to accommodate the flooring the box is installed within.
4. Adjustment: Each box shall allow for the cover flange to be adjusted ½" to accommodate various floor covering and concrete pour depths. Adjust boxes so the top of the cover flange is level with the surrounding flooring material.
5. Cable doors shall allow cables to enter for service while closed without pinching cables.

G. Accessories: Provide the necessary accessories to mount the power receptacles and the communications wiring devices as indicated on the drawings.

H. Fire Rating of Boxes: Fill the void below the box and coat the exterior of the box with intumescent fire retardant coating designed for steel where a 1-hour fire resistance rating is required. Coating shall not burn in liquid or solid state. Under fire conditions the coating shall form a char, preventing the spread of flames, and slowing the penetration of heat through the floor box. Product shall be UL listed for this use.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify locations of floor boxes and outlets prior to rough-in.

3.2 INSTALLATION

A. Install boxes in accordance with NECA "Standard of Installation."

B. Install in locations as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

C. Set wall mounted boxes at elevations to accommodate mounting heights specified in section for outlet device.

D. Electrical boxes are shown on Drawings in approximate locations unless dimensioned. Adjust box location up to 10 feet if required to accommodate intended purpose.

E. Orient boxes to accommodate wiring devices oriented as specified in Section 260580.

F. Maintain headroom and present neat mechanical appearance.

G. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

H. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

I. Install boxes to preserve fire resistance rating of partitions and other elements.

J. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.

K. Locate outlet boxes to allow luminaires positioned as shown on reflected ceiling plan.

L. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

M. Use flush mounting outlet box in finished areas.

N. Locate flush mounting box in masonry wall to require cutting of masonry unit edge only. Coordinate masonry cutting to achieve neat opening.

O. Do not install flush mounting box back-to-back in walls; provide minimum 6 inches separation. Provide minimum 24 inches separation in acoustic rated walls.

P. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.

Q. Use stamped steel bridges to fasten flush mounting outlet box between studs.

R. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

S. Use adjustable steel channel fasteners for hung ceiling outlet box.

T. Do not fasten boxes to ceiling support wires.

U. Support boxes independently of conduit.

V. Use gang box where more than one device is mounted together. Do not use sectional box.

W. Use gang box with plaster ring for single device outlets.

X. Use cast outlet box in exterior locations exposed to the weather and wet locations.

Y. Install floor boxes flush and level and even with the flooring material around them. Adjust as required.

3.3 COORDINATION

A. Coordinate installation of outlet box for equipment indicated on drawings.

3.4 ADJUSTING

A. Install knockout closures in unused box openings.

3.5 CLEANING

A. Clean interior of boxes to remove dust, debris, and other material.

B. Clean exposed surfaces and restore finish.

END OF SECTION 260533