

SECTION 16070
HANGERS AND SUPPORTS

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary General Conditions, and Division 1 General Requirements, apply to work specified in this Section.
- B. Requirements of Section 16050, "Basic Electrical Materials and Methods," apply to this Section.

1.02 SUMMARY

- A. Work Included: Hangers and supports for conduits, boxes, and other electrical equipment which must be supported.
- B. Supporting devices and materials include, but are not limited to, the following:
 - 1. Hanger rods.
 - 2. Conduit clamps.
 - 3. Support channels.
 - 4. Bracket supports.
 - 5. Pipe clamps.
 - 6. Miscellaneous support channel fittings.
 - 7. Bolts and associated hardware.
 - 8. Concrete anchors.
 - 9. Vibration mounts.
- C. Related Work Specified in Other Sections:
 - 1. Raceways, Section 16130.
 - 2. Boxes, Section 16135.
 - 3. Disconnect switches, Section 16410.
 - 4. Lighting, Section 16500.

1.03 PERFORMANCE REQUIREMENTS

- A. Seismic Restraint: Design hangers and supports so that they will support equipment loads and provide seismic restraint in accordance with the Building Code applicable to this project and requirements of Section 16050.

1.04 SUBMITTALS

- A. Product Data: For each type of hanger or support furnished under this section. Indicate materials, gauges, methods of attachment for conditions applicable to this Project.

1.05 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years documented experience.
- B. Listing and Labeling: Provide hangers and supports that are listed and labeled as defined in the National Electrical Code, Article 100.

PART 2 - MATERIALS

2.01 SUPPORTING DEVICES AND MATERIALS

- A. Conduit Supports
 - 1. Hanger rods : 3/8 inch minimum diameter galvanized threaded steel rods.
 - 2. Conduit clamps: Galvanized malleable iron or acceptable equal cast ferrous metal for steel conduit or tubing. Conduits in single runs or groups of two (2) shall be supported by one-hole cast metal clamps and clamp backs.
 - 3. Support Channels:
 - a. Supports for banks of three more conduits: Construct using steel support channels, channel fittings, and thermoplastic fasteners with associated conduit or tubing clips. Hot-dip galvanize after fabrication.
 - b. Manufacturer: Unistrut, Kindorf, or approved equal.
 - c. Construct racks to accommodate 25 percent additional conduit load.
- B. Cabinet and Box Mounting: Field fabricate mounting racks from support channels and fittings Unistrut, Kindorf, or approved equal. Fabricate racks for use outdoors from hot-dip galvanized support channels, fittings and fastening hardware.
 - 1. Concrete Anchors: Self-drilling anchors.
 - 2. Steel Anchors: Drilled and tapped screw holes, or support channels with channel nuts.
- C. Corrosive Area Equipment Mounting:
 - 1. In areas designated on the drawings as "corrosive," field-fabricate racks from fiberglass support channels and channel fittings, and thermoplastic fastening hardware; Type V as manufactured by Aickinstrut, Inc., or approved equal.
 - 2. Provide free-standing or wall-mounted equipment racks as indicated on the drawings. Secure free-standing racks to the floor or slab using stainless steel expansion anchors and hardware. Rigidly mount wall-mounted equipment and cabinets; fasten to concrete and masonry with stainless steel expansion anchors and fastening hardware.
- D. Brackets:
 - 1. Where support for raceways, boxes, and cabinets are mounted on concrete surfaces, fasten with self-drilling tubular expansion shell anchors with externally split expansion shells, single-cone expanders, and annular break-off grooved chicking

2.02 VIBRATION ISOLATORS

- A. For transformer floor mounting: Single elastomer—in—sheer isolators shall be molded mound shaped element designed for 1/4 inch deflection under the imposed static load. Isolators shall be properly housed to prevent bulging and shall be provided with adequate facilities for bolting to equipment and floor slab. Isolators shall be type 3685 as manufactured by Vibration Eliminator Co. or equal.

PART 3 - EXECUTION

3.01 INSTALLATION OF HANGERS AND SUPPORTS

- A. Provide hangers, supports, sleeves, clamps, and similar devices, as required for support of electrical equipment and conduit.
 - 1. Group and align horizontal runs of conduit.
 - 2. Install hangers and supports at intervals not exceeding recommendations of the referenced electrical code.
 - 3. Hangers: Hang supports from the building structure using threaded rod hangers to allow for adjustments; do not use wire or strap hangers will not be permitted. Secure hangers to overhead structure with bolts and/or lead expansion sleeves; do not use power actuated anchors.
- B. Conduit Supports:
 - 1. Conduits in single runs or groups of two: Support by means of one-hole cast metal clamps and clamp backs.
 - 2. Banks of three more conduits: Construct racks from steel support channels, channel fittings, and thermoplastic fasteners with associated conduit or tubing clips.
- C. Cabinet and Box Supports: Field fabricate mounting racks from steel support channels and fittings.

END OF SECTION 16070