

## SECTION 26 05 29

### HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

#### **PART 1 GENERAL No Requirements**

#### **PART 2 PRODUCTS**

##### **2.01 MATERIALS**

- A. Support Channels:
  - 1. Galvanized or painted steel for non-corrosive environment.
- B. Hardware:
  - 1. Corrosion resistant.

#### **PART 3 EXECUTION**

##### **3.01 INSTALLATION**

- A. Anchors:
  - 1. Fasten hanger rods, conduit clamps, outlet and junction boxes to building structure using precast insert system, preset inserts or beam clamps.
  - 2. In precast structures, use precast inserts wherever possible.
  - 3. In hollow masonry, plaster, or gypsum board partitions and walls, use toggle bolts or hollow wall fasteners.
  - 4. In solid masonry walls, use expansion anchors or preset inserts with removable screws or bolts.
  - 5. In cast-in-place concrete, use expansion anchors, preset inserts or self-drilling masonry anchors with removable screws or bolts.
  - 6. In sheet metal studs, use sheet metal screws.
  - 7. Attachment of electrical supports to piping, ductwork, mechanical equipment or conduit is not allowed.
  - 8. Drilling of structural steel members is prohibited.
  - 9. Plastic, fiber, or powder activated anchors are prohibited in any type of construction.
  - 10. Attachment to ceiling suspension wires is prohibited.
  - 11. The use of wire for supporting conduits will not be permitted. Independent support wires will be permitted for use as a fixture support where applicable.
  - 12. Concrete anchors shall not be used to suspend heavy electrical loads such as panelboards or conduits 4" and larger.
  - 13. Anchors shall be sized to support conduits when full fitted to maximum capacity with cables.
  - 14. One-time expansion anchors are not allowed.
- B. Supports:
  - 1. Require that supports be fabricated from structural steel, steel channel or unistrut, rigidly bolted or welded to present a neat appearance.
  - 2. Install free-standing electrical equipment on 4" concrete housekeeping pads.
  - 3. Require that surface mounted cabinets, enclosures and panelboards be supported with a minimum of four anchors. On exterior concrete walls below grade and all other areas subject to moisture, provide 1" steel channel stand-offs for cabinets and raceways.
  - 4. Use bridge studs at top and bottom with channels to support cabinets and enclosures which are flush mounted in hollow walls.

5. Specify suitable vibration insulation pads for vibrating equipment such as transformers.
  6. No suspended conduit or box supports shall be less than 1/4" diameter steel rod. Rod used as pedestal support is not acceptable.
- C. Conduit straps and hangers:
1. Heavy-duty malleable iron or steel.
    - a) For locations above grade which are subject to moisture or corrosion including crawl spaces, specify corrosion-resisting steel.
    - b) Perforated pipe strap, wire hangers, or spring steel fasteners with hangers are not permitted.
    - c) Support conduits above suspended ceilings from building structure by suitable hangers. Supporting conduits from ceiling suspension wires is not permitted.
- D. Conduit racks:
1. For electrical conduit use only.
    - a) Multi-use suspension systems for plumbing and other piping along with electrical conduits may be used if designed for that purpose. Maintain 6" clearance between electrical conduits and all other piping.
- E. Conduit anchors: Plastic or fiber expansion and powder-activated anchors are prohibited. Anchors must be mounted using removable bolts or screws.
- F. Permanent power shall not be turned on until all breaker settings are received and set, the correct CTs and PTs are installed, metering is installed correctly and wired correctly, grounding system is correctly installed, ground fault levels are properly set and all the above is verified by an independent testing agency, the A/E and the DPS.
- G. Suspension and anchorage
1. Use of powder actuated fasteners and toggle bolts is prohibited.
  2. Steel roof and floor decking, suspended ceilings, and hollow assemblies shall not be used for the attachment of anchorages or supports for suspended equipment, conduit pipes, or other electrical system components.
    - a) Exception: Attachment, anchorages, or supports specifically approved by a Structural Engineer.
  3. Equipment shall be anchored with anchors extending through the housekeeping pad or curb into the floor, except where the housekeeping pad is an extension of an inertia block separated from the floor structure.
  4. Specify use of retaining clips/clamps in locations where vibration may be a concern.
  5. Drilling, cutting or burning of, or welding to, structural members for attachment of hangers and supports is subject to prior approval by the A/E.
  6. Wall assemblies are not an acceptable replacement for hangers.
  7. Signs shall be secured to a fixed device or the building wall with corrosion-resistant chains or fasteners.

**END OF SECTION 26 05 29**