

## **DIVISION 16 - ELECTRICAL**

### **Section 16190 - Supports**

#### **Introduction**

This section covers support requirements for conduits, light fixtures, and all other electrical equipment.

Supports as specified herein are more strict than those required by the NEC due to the increased accessibility to areas by U of A maintenance personnel.

#### **Part 1 - General**

- All materials shall be corrosion resistant (supports, fasteners, misc. hardware).
- Minimum support requirements shall be as specified in the NEC for electrical equipment. Where specified herein as more stringent the more stringent shall apply.
- Electrical support systems shall be supported independent of all other systems.

#### **Part 2 - Products**

- CONDUIT SUPPORTS shall be as follows:
  - Width of structural strut trapeze shall not exceed 12".
  - Where individual conduits are run on walls and where appropriate one hole straps may be used. Where more than two conduits are run in parallel or where conduits are 1 1/2" or larger, support using approved structural strut members fastened to the structure at minimum of two points. Minimum strut length is 12 inches.
  - Single conduits trapeze above ceiling use 1/4" all thread and conduit hangers up to 1 1/2". For 2" and above use strut rack and minimum of 2 - 3/8" or larger all thread rods.
  - Wire shall not be used as a method to fasten conduits above ceilings. Conduit hangers or straps as appropriate shall be used to rigidly support the conduits in each situation.
  - Conduits above drop ceilings shall be supported independent of wire supports for drop ceilings, and shall not be supported on wires. Caddy #812MB18 box and conduit supports or equal may be used.
  - Fixture whips, however, shall be permitted to be supported by the fixtures seismic wire utilizing approved clips
  - All fasteners shall be steel threaded inserts or steel expansion shield anchors for location used. One hole straps shall be either connected to the wall studs using appropriate screws or to the wall using expansion bolts. In hollow masonry walls or walls with sheetmetal backing steel toggle bolts may be used. Plastic or lead expansion anchors shall not be used. No powder actuated fasteners shall be used. All fasteners shall be screw in type fasteners.
  - Sheet rock screws of any type shall not be used.
  - Fastening methods shall be subject to approval by UA Electrical Engineer.
  - One hole conduit straps shall be Mineralac Med series or equal.
- LIGHT FIXTURE SUPPORTS in drop ceilings

- Small incandescent or down lights to have one support wire.
- 2 x 2 or 2 x 4 fixtures to have (2) support wires and earthquake clips.
- Support wires to be not less than 12 gauge galvanized steel.
- Deflection on support wires to be not more than 30% except where approved by U of A.
- All support wire connected to structure.
- Anchors in concrete to be not less than 1/4" diameter. Use only drill in type anchors.
- All other fixtures shall be rigidly supported from the structure.

### **Part 3 - Execution**

- CONDUITS
  - Support on 10' centers and within 18" of boxes connector, couplings or equipment and 36" of a change in direction.
  - Support from structure.
  - Use strut frame or angle iron frame when no wall system is available.
- LIGHT FIXTURES
  - Support from structure.
  - Support independent of ceiling grid.
  - Earthquake clips.
  - Support from structure to a 500% safety factor
- SAFETY SWITCHES, MOTOR STARTERS, PANELBOARDS
  - Use strut backing when more than 1 is surface mounted in an area.

**End of Section 16190**