



CITY OF PALM DESERT

Building & Safety Department

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REQUIREMENTS FOR T-BAR CEILINGS

Definitions

- Light-Duty Systems: Used primarily for residential and light commercial structures where ceiling loads other than acoustical tile or lay-in panels is not anticipated. NOTE: Due to seismic conditions in the City of Palm Desert, Light-Duty Systems are NOT allowed to be used.
- Intermediate-Duty Systems: Used primarily for ordinary commercial structures where some ceiling loads, due to light fixtures and air diffusers, are anticipated. NOTE: Due to seismic conditions in the City of Palm Desert, Intermediate-Duty Systems are NOT allowed to be used.
- Heavy-Duty Systems: Used primarily for commercial structures in which the quantities and weights of ceiling fixtures (lights, air diffusers, etc.) are greater than those for an ordinary commercial structure.

Main Runners

- Vertical Wire Hangers:
 - # 12 gage wire - 4'-0" on center
 - # 10 gage wire - 5'-0" on center
 - Each vertical wire will be attached to the structure above and to the suspension member with a minimum of (3) turns in the first 3 inches.
- Wires more than 1 in 6 out-of-plumb are not allowed unless counter sloping wires are provided.
- Obstructions to Direct Suspension:
 - A trapeze or equivalent device shall be used.
 - For trapeze spans over 48" - use back-to-back 13" cold-rolled channels (or equivalent) minimum.

Perimeter Members

- Main Runners: Supported independently a maximum of 8" from each wall with #12 gage wire or approved wall support.
- Cross Runners: Supported independently a maximum of 8" from each wall with #12 gage wire or approved wall support.
- The width of the perimeter supporting closure angle shall not be less than 2". One end of the ceiling grid (in each orthogonal horizontal direction) shall be attached to the closure angle. The other end (in each horizontal direction) shall have a 0.75" clearance from the wall and shall rest upon, and be free to slide on, a closure angle.

Seismic Bracing (Where design calculations and alternate restraints are not provided)

- Horizontal Restraints
 - Wires:
 - Four #12 gage wires splayed 90 degrees from each other on the main runner, within 2" of the cross runner.
 - The angle of the wires shall not exceed 45 degrees from the plane of the ceiling.
- Spacing:
 - 12'-0" on center in both directions.
 - The first point starts within 6'-0" from each wall.
- Vertical Restraints: A strut to resist vertical displacement is required at each seismic splay. The strut should extend from the grid to the structure above and be fastened at both ends.
- Exception: Lateral force bracing is not required if a ceiling area of 144 square feet or less is surrounded by walls which connect directly to the structure above.

Light Fixture Supports (Due to seismic conditions, only "Heavy-Duty" ceiling systems may be used)

- All light fixtures shall be attached (with approved screws or clips) to the suspended ceiling grid systems at two opposing sides.
- Wires required to support the fixture:
- Fixtures less than 10 lbs: One #12 gage hanger wire from the fixture housing to the structure above. This wire may be slack.
- Fixtures between 11 to 55 lbs: Two #12 gage hanger wires connected from the fixture housing to the structure above. These wires may be slack.
- Fixtures 56 lbs or more shall be supported directly from the structure above without using the ceiling suspension system for direct support.
- Pendant Hung Fixtures shall be supported with # 9 gage wire without using the ceiling suspension system for direct support.

Mechanical System Supports

- Ceiling mounted air terminals or services weighing less than 20 pounds shall be positively attached to the ceiling suspension main runners or to cross runners with the same carrying capacity as the main runners.
- Terminals or services weighing 20 pounds but not more than 56 pounds, in addition to the above, shall have two #12 gage wire hangers connected from the terminal or service to the ceiling system hangers or to the structure above. These wires may be slack.
- Terminal or services weighing more than 56 pounds shall be supported directly from the structure above by approved hangers.

Information for this document was obtained from the following sources:

2019 California Building Code, Section 808.1 and Section 1613.1

ASCE 7-05, Section 13.5.6

ASTM C 635

ASTM C 636

CISCA: Guidelines for Seismic Restraint for Direct Hung Suspended Ceiling Assemblies in Seismic Zones 3 and 4 (May 2004 Edition)