
PENDANT MOUNTED LIGHT FIXTURES

IR 16-9

References:

California Code of Regulations (CCR), Title 24 Part 2, California Building Code (CBC)
2001 CBC, Section 2501A.5.2
2007 CBC, Section 1614A1.12.
2010 CBC, Section 1615A1.16, 1615.10.13*
ASCE 7 Sections 13.6.1 and 13.2.3

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Discipline: Structural

This Interpretation of Regulations (IR) is intended for use by the Division of the State Architect (DSA) staff, and as a resource for design professionals, to promote more uniform statewide criteria for plan review and construction inspection of projects within the jurisdiction of DSA which includes State of California public elementary and secondary schools (grades K-12), community colleges and state-owned or state-leased essential services buildings. This IR indicates an acceptable method for achieving compliance with applicable codes and regulations, although other methods proposed by design professionals may be considered by DSA.

This IR is reviewed on a regular basis and is subject to revision at any time. Please check the DSA web site for currently effective IRs. Only IRs listed in the document at <http://www.dgs.ca.gov/dsa/Resources/IRManual.aspx> at the time of plan submittal to DSA are considered applicable.

*Indicates alternative 2010 CBC sections that may be used by community colleges, per 2010 CBC Section 1.9.2.2.

Purpose: The purpose of this Interpretation of Regulations (IR) is to set forth an acceptable method for support of pendant mounted light fixtures.

General: Pendant mounted light fixtures that are free to swing in the lateral direction shall be detailed and installed so that they can swing at least 45 degrees from the vertical in any direction without contacting an obstruction. Adjacent fixtures shall be separated by a distance equal to at least one and one half times the length of the pendant.

Exception: When it can be demonstrated by rational analysis that fixtures will swing less than 45 degrees in the maximum credible earthquake, fixture location and spacing may be based on such analysis.

1. SAFETY CABLES: Fixtures that are supported by cables shall have cables (including cable connections and supports) designed to support a load of at least 1.4 times the weight of the fixture acting simultaneously in the vertical and horizontal direction and applied at the point of lateral support. Fixtures supported by hollow rods, or other support mechanisms shall be provided with a "safety cable" attached directly to the fixture and directly to competent supporting structure above. The safety cable, its connections, and supports shall be designed to support a load of at least 1.4 times the weight of the fixture acting simultaneously in the vertical and horizontal direction and applied at the point of lateral support.

2. RIGID PENDANTS: When a pendant mounted light fixture is supported by a rigid (rod-type) pendant the pendant shall be attached to the structure above with a device that allows movement in any direction (i.e. ball and socket joint). When a single fixture is supported by more than one rigid pendant, the pendants shall be attached to the structure above, and to the fixture, with devices that allow movement in any direction; devices that allow rotation around only one axis (i.e. hinge-type devices) are not acceptable.

3. RESTRAINED PENDANT MOUNTED FIXTURES: When fixtures are restrained from lateral movement all restraints, connections, and supports shall be designed to resist all applicable code prescribed forces.

4. PENDANT MOUNTED FIXTURES WITH PENDANTS PENETRATING SUSPENDED ACOUSTIC TILE CEILINGS: Where pendants penetrate Acoustic ceilings they shall be braced in accordance with Section 7.6 of DSA IR 25-2.10 (Section 1.22 of IR 25-2.07 or Section 1.14 of IR 25-2.01 for projects submitted under the respective edition of the CBC).

Exception: Fixtures that have passed shaking table tests approved by the enforcement agency shall be supported by devices identical to those used in the tests.