City of Long Beach
Department of Development Services
Building and Safety Bureau

Seismic Standard for Suspended Ceiling

Information Bulletin

BU-011

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Rev: 08-18-2011

The purpose of this Informational Bulletin is to alert designers of the specific amendment that the City of Long Beach has made to the 2010 California Building Code to address the lack of adequate design requirements for suspended ceiling assemblies to account for seismic load. It is through the experience of prior earthquakes, such as the 1994 Northridge Earthquake, that this amendment is adopted so as to minimize the amount of bodily and building damage within the spaces in which this type of ceiling assemblies will be installed.

When suspended ceiling assemblies are required to comply with Section 18.40.160 of the Long Beach Municipal Code, designers are recommended to submit construction documents and specifications to the Department for review and approval prior to the installation. The construction documents should clearly identify all suspended ceiling systems to be used and the location where it will be installed. Supporting details, light fixture attachments, lateral bracing, partition supports, and all other pertinent details should be provided on the construction documents to illustrate compliance with the Code.

Section 18.40.160 of the Long Beach Municipal Code added Section 1613.12 to the 2010 California Building Code. This section of the Long Beach Municipal Code is repeated herein as follows:

18.24.110 New CBC 1613.12 added – Suspended ceiling.

Section 1613.12 is added to Chapter 16 of the 2010 California Building Code to read as follows:

1613.12 Suspended Ceilings. Minimum design and installation standards for suspended ceilings shall be determined in accordance with the requirements of Section 2506.2.1 of this Code and this Subsection.

1613.12.1 Scope. This part contains special requirements for suspended ceilings and lighting systems. Provisions of Section 13.5.6 of ASCE 7 shall apply except as modified herein.

1613.12.2 General. The suspended ceilings and lighting systems shall be limited to 6 feet below the structural deck unless the lateral bracing is designed by a licensed engineer or architect.

1613.12.3 Design and Installation Requirements.

1613.12.3.1 Bracing at Discontinuity. Positive bracing to the structure shall be provided at changes in the ceiling plane elevation or at discontinuities in the ceiling grid system.

1613.12.3.2 Support for Appendages. Cable trays, electrical conduits and piping shall be independently supported and independently braced from the structure.

1613.12.3.3 Sprinkler Heads. All sprinkler heads (drops) except fire-resistance-rated floor/ceiling or roof/ceiling assemblies, shall be designed to allow for free movement of the sprinkler pipes with oversize rings, sleeves or adaptors through the ceiling tile, in accordance with Section 13.5.6.2.2 (e) of ASCE 7.

Sprinkler heads penetrating fire-resistance-rated floor/ceiling or roof/ceiling assemblies shall comply with Section 713 of this Code.

1613.12.3.4 Perimeter Members. A minimum wall angle size of at least a two-inch (51 mm) horizontal leg shall be used at perimeter walls and interior full height partitions. The first ceiling tile shall maintain 3/4 inch clear from the finish wall surface. An equivalent alternative detail that will provide sufficient movement due to anticipated lateral building displacement may be used in lieu of the long leg angle subject to the approval of the Superintendent of Building.

1613.12.4 Special Requirements for Means of Egress. Suspended ceiling assemblies located along means of egress serving an occupant load of 30 or more shall comply with the following provisions.

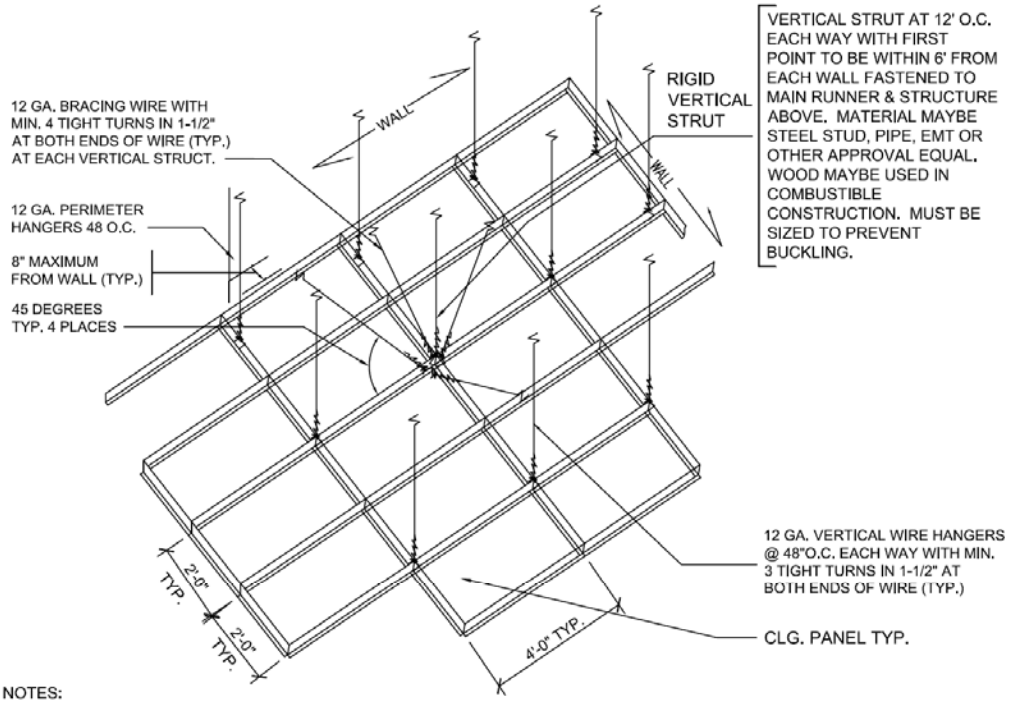
1613.12.4.1 General. Ceiling suspension systems shall be connected and braced with vertical hangers attached directly to the structural deck along the means of egress serving an occupant load of 30 or more and at lobbies accessory to Group A Occupancies. Spacing of vertical hangers shall not exceed 2 feet (610 mm) on center along the entire length of the suspended ceiling assembly located along the means of egress or at the lobby.

1613.12.4.2 Assembly Device. All lay-in panels shall be secured to the suspension ceiling assembly with two hold-down clips minimum for each tile within a 4-foot (1219 mm) radius of the exit lights and exit signs.

1613.12.4.3 Emergency Systems. Independent supports and braces shall be provided for light fixtures required for exit illumination. Power supply for exit illumination shall comply with the requirements of Section 1006.3 of this Code.

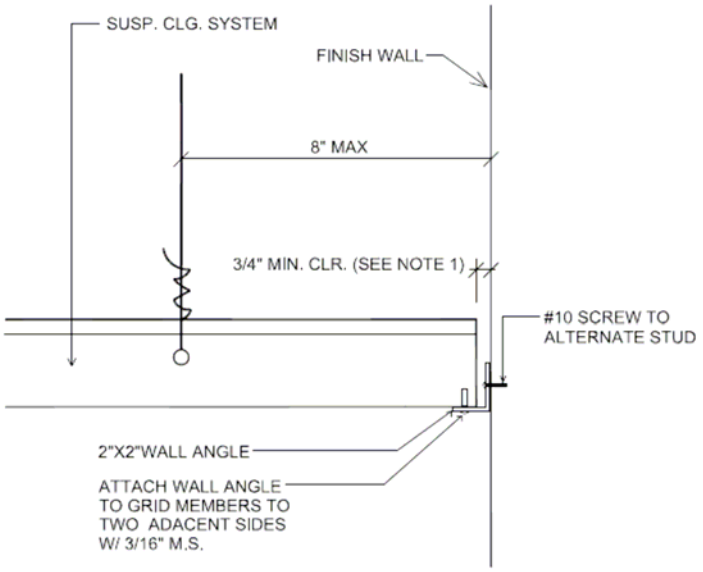
1613.12.4.4 Supports for Appendage. Separate support from the structural deck shall be provided for all appendages such as light fixtures, air diffusers, exit signs, and similar elements.

EXAMPLE OF SUSPENDED CEILING VERTICAL AND LATERAL SUPPORT



NOTES:
1. VERTICAL STRUT: A STRUT FASTENED TO THE MAIN RUNNER SHALL BE EXTENDED TO AND FASTENED TO THE STRUCTURAL MEMBERS SUPPORTING THE ROOF OR FLOOR ABOVE. THE STRUT SHALL BE ADEQUATE TO RESIST THE VERTICAL SEISMIC COMPONENT INDUCED BY THE BRACING WIRES.
2. THESE HORIZONTAL RESTRAINT POINTS SHALL BE PLACED AT 12 FEET ON CENTER IN BOTH DIRECTIONS WITH THE FIRST POINT WITHIN 6 FEET FROM THE WALL.
3. PERIMETER HANGERS SHALL BE PLACED IN BOTH DIRECTIONS WITHIN 8 INCHES OF THE WALL.
4. WHEN THE DISTANCE BETWEEN THE STRUCTURAL DECK AND THE CEILING EXCEEDS 4', THE SPACING OF THE VERTICAL HANGERS SHALL NOT EXCEED 2' O.C. ALONG THE ENTIRE LENGTH OF THE MEANS OF EGRESS SERVICING AN OCCUPANT LOAD OF 30 OR MORE, AND AT LOBBIES ACCESSORY TO GROUP A OCCUPANCIES.

EXAMPLE OF SUSPENDED CEILING AT PERIMETER WALL AND INTERIOR FULL HEIGHT PARTITION



NOTES:
1. A MINIMUM WALL ANGLE SIZE OF AT LEAST 2" HORIZONTAL LEG SHALL BE USED AT PERIMETER WALLS AND INTERIOR FULL HEIGHT PARTITION. THE FIRST TILE SHALL BE ¾" CLEAR FROM WALL SURFACE.

EXAMPLE OF SUSPENDED CEILING LIGHT FIXTURE ATTACHMENT