

Exemptions

The International Building Code allows certain exemptions for suspended ceiling systems installed in a seismic application. These exemptions are based on various criteria such as the:

- Seismic Design Category,
- Size of the ceiling system and
- Type of ceiling or ceiling membrane.

This guide presents the general exemptions for suspended ceiling systems and components, and outlines the general requirements that apply to them. USG® recommends that the design team, consulting engineers and code officials work together to analyze these factors and determine the appropriate construction and application of suspended ceilings. Because codes continue to evolve, check with local officials prior to designing and installing a suspended ceiling system.

Seismic Code Reference Standards

Installation guidelines for suspended ceilings are contained in the International Building Code (IBC) through reference to ASCE7, Minimum Design Loads for Buildings and Other Structures, American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI). Additional guidelines are referenced in the CISCA Guidelines for Zones 3-4, which is also referenced as the basis for installation in Seismic Design Categories D-F and the CISCA Guidelines for Zones 0-2, which is also referenced as the basis for installation in Seismic Design Category C.

Installation Guidelines for Suspended Ceilings

	2003 IBC	2006 IBC	2009 IBC
International Building Code (IBC)	↓	↓	↓
American Society of Civil Engineers (ASCE)	ASCE7-02 ↓	ASCE7-05 ↓	ASCE7-05 ↓
Ceilings Interior Systems Construction Association (CISCA)	CISCA Zones 0-2 Seismic Design Category C	CISCA Zones 0-2 Seismic Design Category C	CISCA Zones 0-2 Seismic Design Category C
	CISCA Zones 3-4 Seismic Design Categories D–F	CISCA Zones 3-4 Seismic Design Categories D–F	CISCA Zones 3-4 Seismic Design Categories D–F

General Exemptions

Earthquake Loads

IBC	2003	<ol style="list-style-type: none"> Structures designed in accordance with the provisions of Sections 9.1 through 9.6, 9.13 and 9.14 of ASCE 7 shall be permitted. Detached one- and two-family dwellings as applicable in Section 101.2 in Seismic Design Categories A, B and C, or located where the mapped short-period spectral response acceleration, S_S, is less than 0.4g, are exempt from the requirements of Sections 1613 through 1622. The seismic-force-resisting system of wood frame buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in Section 1616.1. Agricultural storage structures intended only for incidental human occupancy are exempt from the requirements of Sections 1613 through 1623. Structures located where mapped short-period spectral response acceleration, S_S, determined in accordance with Section 1615.1, is less than or equal to 0.15g and where the mapped spectral response acceleration at 1-second period, S_T, determined in accordance with Section 1615.1, is less than or equal to 0.04g shall be categorized as Seismic Design Category A. Seismic Design Category A structures need only comply with Section 1616.4. Structures located where the short-period design spectral response acceleration, S_{DS}, determined in accordance with Section 1615.1, is less than or equal to 0.167g and the design spectral response acceleration at 1-second period, S_{D1}, determined in accordance with Section 1615.1, is less than or equal to 0.067g, shall be categorized as Seismic Design Category A and need only comply with Section 1616.4.
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2006 and 2009	<ol style="list-style-type: none"> Detached one- and two-family dwellings, assigned to Seismic Design Category A, B or C, or located where the mapped short-period spectral response acceleration, S_S, is less than 0.4g. The seismic-force-resisting system of wood-frame buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in section 1613. Agricultural storage structures intended only for incidental human occupancy. Structures that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic structures, buried utility lines and their appurtenances and nuclear reactors.
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Suspended Ceilings

ASCE7	<ol style="list-style-type: none"> Rigid braces are permitted to be used instead of diagonal splay wires. Braces and attachments to the structural system above shall be adequate to limit relative lateral deflections at point of attachment of ceiling grid to less than 0.25 in. (6 mm) for the loads prescribed in Section 13.3.1.
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CISCA	Zones 0-2 Zones 3-4	<ol style="list-style-type: none"> Suspended ceilings with areas less than or equal to 144 square feet that are surrounded by walls or soffits that are laterally braced to the structure above are exempt. Suspended ceilings constructed of screw- or nail-attached gypsum board on one level that are surrounded by and connected to walls or soffits that are laterally braced to the structure above are exempt.
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Summary of Exemptions

Exemption	Required for Installation	Not Required for Installation
Suspended ceilings with areas less than or equal to 144 sq.ft. that are surrounded by walls or soffits that are laterally braced to the structure above.	Standard installation per ASTM C636	Seismic installation per ASTM E580, CISCA Guidelines for Zones 3-4, CISCA Guidelines for Zones 0-2. <ul style="list-style-type: none"> – 2 in. wall molding – Perimeter vertical hanger wires not more than 8 in. from wall – Perimeter tee ends tied together at perimeters (spreader bars / stabilizer bars) – Horizontal restraint (splay wires or rigid bracing) within 2 in. of intersection and splayed 90° apart at 45° angles – Compression posts (struts), 12 in. o.c. in both directions, starting 6 ft. from walls – Partition attachment – Supplementary light fixture attachment – Seismic separation joint
Suspended ceilings with areas greater than or equal to 145 sq.ft. and less than 1,000 sq.ft. that are surrounded by walls or soffits that are laterally braced to the structure above.	Standard installation per ASTM C636. Seismic installation per ASTM E580, CISCA Guidelines for Zones 3-4.	<ul style="list-style-type: none"> – Horizontal restraint (splay wires or rigid bracing) within 2 in. of intersection and splayed 90° apart at 45° angles – Seismic separation joint
Suspended ceilings constructed of screw- or nail-attached gypsum board on one level that are surrounded by and connected to walls or soffits that are laterally braced to the structure.	Standard installation per ASTM C636.	Seismic installation per ASTM E580, CISCA Guidelines for Zones 3-4, CISCA Guidelines for Zones 0-2. <ul style="list-style-type: none"> – 2 in. wall molding – Perimeter vertical hanger wires not more than 8 in. from wall – Perimeter tee ends tied together at perimeters (spreader bars / stabilizer bars) – Horizontal restraint (splay wires or rigid bracing) within 2 in. of intersection and splayed 90° apart at 45° angles – Compression posts (struts), 12 in. o.c. in both directions, starting 6 ft. from walls – Partition attachment – Supplementary light fixture attachment – Seismic separation joint
Lay-in ceiling panels, wood ceiling panels, metal ceiling panels.	Standard installation per ASTM C636.	There are no special requirements for lay-in ceiling panels wood ceiling panels, metal ceiling panels.
Decorative Ceilings and Clouds.	Standard installation. Please refer to USG publication Seismic Technical Guide – Specialty and Decorative Ceilings (SC2494) for more information.	Please refer to USG publication Seismic Technical Guide – Specialty and Decorative Ceilings (SC2494) for more information.

Product Information

See usg.com for the most up-to-date product information.

Installation

Must be installed in compliance with ASTM C636, ASTM E580, CISCAs, and standard industry practices.

Code Compliance

The information presented is correct to the best of our knowledge at the date of issuance. Because codes continue to evolve, check with a local official prior to designing and installing a ceiling system. Other restrictions and exemptions may apply. This is only intended as a quick reference.

Purpose

This seismic technical guide (STG) is intended as a resource for design professionals, to promote more uniform criteria for plan review and jobsite inspection of projects. This STG indicates an acceptable method for achieving compliance with applicable codes and regulations, although other methods proposed by design professionals may be considered and adopted.

ICC Evaluation Service, Inc., Report Compliance

Suspension systems manufactured by USG Interiors, Inc., have been reviewed and are approved by listing in ICC-ES Evaluation Report 1222. Evaluation Reports are subject to reexamination, revision and possible cancellation. Please refer to usgdesignstudio.com or usg.com for current reports.

L.A. Research Report Compliance

DOWN brand suspension systems manufactured by USG Interiors, Inc., have been reviewed and are approved by listing in the following L.A. Research Report number: 25764.

Notice

We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

Safety First!

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read MSDS and literature before specification and installation.

