Seismic Suspension System Solutions
Technical Guide
PURPOSE OF SEISMIC INSTALLATION

REQUIREMENTS FOR SUSPENDED CEILINGS

• Provide a suspension system strong enough to resist lateral forces imposed upon it without failing
• Prevent panels from falling during a seismic event
• Limit structural damage to ceiling grid during a seismic event
• Provide life safety to building occupants during seismic events

ADOPTION OF THE INTERNATIONAL BUILDING CODE

Currently all 50 states as well as Washington, D.C., Guam, Northern Marianas Territories, Puerto Rico, the Virgin Islands, and all Federal Agencies use the International Building Code (IBC).

CODE ENFORCEMENT

The building code presents minimum design/performance requirements and in some instances prescriptive guidance. The code also sets forth limitations and conditions of use. It is important to know that while the building code establishes the requirements, the code official has the power to enforce its provisions. The code official also has the latitude to allow materials and methods of construction that are not addressed in the code. As with all code issues, the local authority having jurisdiction (AHJ) is the final arbiter for application of the IBC at that location.
HOW SEISMIC DESIGN CATEGORIES ARE DETERMINED

The seismic design category A-F must be specified by a professional engineer or registered architect on the project drawings. The project requirements, which include the seismic design category, can be found in Section 1 of the specification and on the first page of the structural drawings. Jurisdictions using the 2009 IBC follow ASCE 7-05, Section 13.5.6 and the appropriate CISCA recommendations/guidelines. International Building Code allows two paths to determine Seismic Design category — IBC Section 1613 or ASCE 7 Section 11.6. The IBC states that a Seismic Design Category must be established for each construction project based on:

• Anticipated ground motion
• Soil type in a specified geographic area
• Occupancy category

These factors are used to evaluate and establish a Seismic Design Category of A, B, C, D, E or F. The installation of ceilings can be divided into three tiers of increasing requirements:

• Categories A & B are installed to meet requirements established in ASTM C636. There are no additional seismic requirements.
• Category C projects must follow ASTM C636 and ASTM E580 (CISCA Recommendations for zones 0-2 can be used if 2009 IBC governs)
• Categories D, E & F must follow ASTM C636, ASCE 7 Section 13.5.6 and ASTM E580 (CISCA Guidelines for zones 3-4 can be used if 2009 IBC governs)

Jurisdictions using the 2012 and 2015 IBC follow ASCE 7-10, Section 13.5.6 and ASTM E580 (which has replaced the CISCA documents).
# IBC Conventional Seismic Installation Requirements Summary

<table>
<thead>
<tr>
<th>SEISMIC DESIGN CATEGORY</th>
<th>Category C per 2009 IBC</th>
<th>Categories D, E, F per 2009 IBC</th>
<th>Category C per 2012 &amp; 2015 IBC</th>
<th>Categories D, E, F per 2012 &amp; 2015 IBC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REFERENCES</strong></td>
<td>Corresponding American Society of Civil Engineers (ASCE) Reference Standard</td>
<td>ASCE 7-05</td>
<td>ASCE 7-05</td>
<td>ASCE 7-10</td>
</tr>
<tr>
<td></td>
<td>Corresponding CISCA or ASTM Reference Standard</td>
<td>CISCA Zones 0-2(^1)</td>
<td>CISCA Zones 3-4(^2)</td>
<td>ASTM E 580</td>
</tr>
<tr>
<td><strong>LIMITATIONS</strong></td>
<td>Weight Limitations</td>
<td>2.5 psf</td>
<td>4 psf</td>
<td>2.5 psf</td>
</tr>
<tr>
<td><strong>EXEMPTIONS</strong></td>
<td>Ceiling areas less than 144 ft(^2)</td>
<td>Exempt</td>
<td>Exempt</td>
<td>Exempt</td>
</tr>
<tr>
<td></td>
<td>Plaster and lath ceilings</td>
<td>Exempt</td>
<td>Exempt</td>
<td>Not exempt, details must be specified</td>
</tr>
<tr>
<td></td>
<td>Drywall ceilings (screw-attached)</td>
<td>Exempt</td>
<td>Exempt</td>
<td>Exempt</td>
</tr>
<tr>
<td><strong>BASIC INSTALLATION REQUIREMENT</strong></td>
<td>Minimum strength of vertical wire connection device to the structure</td>
<td>Not required</td>
<td>100 lbs.</td>
<td>Not required</td>
</tr>
<tr>
<td></td>
<td>Vertical hanger wire 12-gauge @ 4' o.c.</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>1 in 6 max plumb of vertical hanger wires</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>Rigid bracing for ceiling plane elevation changes</td>
<td>Not required</td>
<td>Required</td>
<td>Not required</td>
</tr>
<tr>
<td></td>
<td>Partition attachment</td>
<td>Allowed only if ceiling is allowed to move laterally</td>
<td>Bracing independent of ceiling splay bracing</td>
<td>Allowed only if ceiling is allowed to move laterally</td>
</tr>
<tr>
<td><strong>GRID REQUIREMENTS</strong></td>
<td>Main runner classifications(^3)</td>
<td>Intermediate or Heavy Duty</td>
<td>Heavy Duty</td>
<td>Intermediate or Heavy Duty</td>
</tr>
<tr>
<td></td>
<td>Minimum main runner and cross tee connection strength</td>
<td>60 lbs.</td>
<td>180 lbs.</td>
<td>60 lbs.</td>
</tr>
<tr>
<td></td>
<td>Perimeter vertical hanger wires not more than 8&quot; from wall</td>
<td>Not required unless angle is less than 7/8&quot;</td>
<td>Required</td>
<td>Not required unless angle is less than 7/8&quot;</td>
</tr>
<tr>
<td></td>
<td>Grid end/wall details</td>
<td>Minimum 3/8&quot; clearance on all 4 walls</td>
<td>Two adjacent walls must be tight and two adjacent walls must have a minimum 3/4&quot; clearance</td>
<td>Minimum 3/8&quot; clearance on all 4 walls</td>
</tr>
<tr>
<td></td>
<td>Perimeter closure (angle trim) width</td>
<td>Minimum 7/8&quot; (or use perimeter wires)</td>
<td>Minimum 2&quot;</td>
<td>Minimum 7/8&quot; (or use perimeter wires)</td>
</tr>
<tr>
<td></td>
<td>Perimeter tees ends prevented from spreading (Stabilizer Bars)</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td><strong>PERIMETER REQUIREMENTS</strong></td>
<td>Horizontal restraint (splay wires or rigid bracing) within 2&quot; of intersection and splayed 90° apart at 45° angles (areas over 1,000 ft(^2))</td>
<td>Not required</td>
<td>Required</td>
<td>Not required</td>
</tr>
<tr>
<td></td>
<td>Compression posts (struts) 12&quot; o.c. in both directions, starting 6' from walls</td>
<td>Not required</td>
<td>Required</td>
<td>Not required</td>
</tr>
<tr>
<td></td>
<td>Splay bracing connection strength</td>
<td>Not required</td>
<td>Required (200 lbs.)</td>
<td>Not required</td>
</tr>
<tr>
<td><strong>LATERAL BRACING REQUIREMENTS</strong></td>
<td>Seismic separation joint</td>
<td>Not required</td>
<td>Required for areas larger than 2,500 ft(^2) (or full height partition)</td>
<td>Not required</td>
</tr>
</tbody>
</table>

\(^1\) Corresponding CISCA or ASTM Reference Standard

\(^2\) Corresponding American Society of Civil Engineers (ASCE) Reference Standard

\(^3\) Main runner classifications: Intermediate or Heavy Duty
**IBC CONVENTIONAL SEISMIC INSTALLATION REQUIREMENTS SUMMARY**

<table>
<thead>
<tr>
<th>SEISMIC DESIGN CATEGORY</th>
<th>Category C per 2009 IBC</th>
<th>Categories D, E, F per 2009 IBC</th>
<th>Category C per 2012 &amp; 2015 IBC</th>
<th>Categories D, E, F per 2012 &amp; 2015 IBC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIGHT FIXTURE ATTACHMENT</strong></td>
<td>Light fixture (all types) mechanically attached to grid is required per NEC 410-16 (two per fixture unless independently supported)</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>Surface-mounted fixtures attached to grid</td>
<td>Not required</td>
<td>Must be attached to ceiling with positive clamping devices that are connected to the structure or vertical hanger wires</td>
<td>Must be attached to ceiling with positive clamping devices that are connected to the structure or vertical hanger wires</td>
</tr>
<tr>
<td></td>
<td>Pendant-hung fixtures directly supported from structure with 9-gauge wire (or approved alternate)</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td><strong>Rigid lay-in or can light fixtures</strong></td>
<td>&lt; 10 lbs. - one wire to structure (may be slack)</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>10 to 56 lbs. - two wires from fixture to structure (may be slack)</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>&gt; 56 lbs. - supported directly to structure by approved hangers</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>Rigid conduit attached to light fixtures</td>
<td>Forbidden</td>
<td>Permitted</td>
<td>Forbidden</td>
</tr>
<tr>
<td><strong>SERVICES WITHIN THE CEILING</strong></td>
<td>&lt; 20 lbs. - positively attached to grid</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>20 to 56 lbs. - positively attached to grid and two 12-gauge wires to structure (may be slack)</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
</tr>
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<td></td>
<td>&gt; 56 lbs. - directly supported to the structure</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td>Sprinkler heads and other penetration clearance</td>
<td>Minimum 3/8” on all sides</td>
<td>Minimum 2” diameter opening or a swing joint</td>
<td>Minimum 3/8” on all sides</td>
</tr>
<tr>
<td></td>
<td>Cable trays and electrical conduit independently supported and braced</td>
<td>Not required</td>
<td>Not required</td>
<td>Not required</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Recommendations for Direct-Hung Acoustical Tile and Lay-In Panel Ceilings - CISCA 2004
2. Guidelines for Seismic Restraint for Direct Hung Suspended Ceilings - CISCA 2004
3. Per ASTM C635

Consult your local authority having jurisdiction for information specific to your region.
Note that some installations do not fall under the jurisdiction of the IBC in many states, such as schools and hospitals.
### SEISMIC DESIGN CATEGORY

<table>
<thead>
<tr>
<th>Seismic Design Category C per ESR 3336 (Alternate Method)</th>
<th>Seismic Design Categories D, E, F per ESR 3336 (Alternate Method)</th>
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<tbody>
<tr>
<td>Corresponding American Society of Civil Engineers (ASCE) Reference Standard</td>
<td>2009 IBC - ASCE 7-05 2012 &amp; 2015 IBC - ASCE 7-10</td>
</tr>
</tbody>
</table>

### REFERENCES

- Corresponding American Society of Civil Engineers (ASCE) Reference Standard
- Corresponding CISCA or ASTM Reference Standard

### LIMITATIONS

- Weight Limitations: 2.28 psf 2.57 psf

### EXEMPTIONS

- Ceiling areas less than 144 ft² Exempt Exempt
- Plaster and lath ceilings 2009 IBC - Exempt 2012 & 2015 IBC - Not exempt, details must be specified
- Drywall ceilings (screw-attached) Exempt Exempt

### BASIC INSTALLATION REQUIREMENT

- Minimum strength of vertical wire connection device to the structure Not required 2009 IBC 100 pounds 2012 & 2015 IBC 90 pounds
- Vertical hanger wire 12-gauge @ 4’ o.c. Required Required
- 1 in 6 max plumb of vertical hanger wires Required Required
- Rigid bracing for ceiling plane elevation changes Not required Required
- Partition attachment Allowed only if ceiling is allowed to move laterally Bracing independent of ceiling splay bracing

### GRID REQUIREMENTS

- Main runner classifications² Intermediate or Heavy Duty Heavy Duty
- Minimum main runner and cross tee connection strength 60 lbs. 180 lbs.
- Perimeter vertical hanger wires not more than 8” from wall Not required unless angle is less than 7/8” Required
- Grid end/wall details Two adjacent walls must be tight and two adjacent walls must have a minimum 3/8” clearance Two adjacent wall must be tight and two adjacent wall must have a minimum 3/4” clearance
- Perimeter closure (wall angle) width Minimum 7/8” with CertainTeed Seismic Perimeter Clip Minimum 15/16” with CertainTeed Seismic Perimeter Clip
- Perimeter tee ends tied together at perimeters (Stabilizer Bars) Required (CertainTeed Seismic Perimeter Clip CTSPC-2 satisfies requirement) Required (CertainTeed Seismic Perimeter Clip CTSPC-2 satisfies requirement)

### PERIMETER REQUIREMENTS

- Horizontal restraint (splay wires or rigid bracing) within 2” of intersection and splayed 90° apart at 45° angles (areas over 1,000 ft²) Not required Required
- Compression posts (struts) 12’ o.c. in both directions, starting 6’ from walls Not required Required

### LATERAL BRACING REQUIREMENTS

- Seismic separation joint Not required 2012 & 2015 IBC - Required for areas larger than 2,500 ft² (for full height partition). Maximum 4:1 length to width ratio
# IBC Conventional Seismic Installation Requirements Summary

## SEISMIC DESIGN CATEGORY

<table>
<thead>
<tr>
<th>Light Fixture Attachment</th>
<th>Seismic Design Category C per ESR 3336 (Alternate Method)</th>
<th>Seismic Design Categories D, E, F per ESR 3336 (Alternate Method)</th>
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<td>Required</td>
<td></td>
</tr>
<tr>
<td>Surface-mounted fixtures attached to grid</td>
<td>2012 &amp; 2015 IBC - Must be attached to ceiling with positive clamping devices that are connected to the structure or vertical hanger wires</td>
<td>2012 &amp; 2015 IBC - Must be attached to ceiling with positive clamping devices that are connected to the structure or vertical hanger wires</td>
</tr>
<tr>
<td>Pendant-hung fixtures directly supported from structure with 9-gauge wire (or approved alternate)</td>
<td>Not required</td>
<td>Required</td>
</tr>
</tbody>
</table>

### Rigid lay-in or can light fixtures

- **< 10 lbs.** - one wire to structure (may be slack)
  - Required
  - Required

- **10 to 56 lbs.** - two wires from fixture to structure (may be slack)
  - Required
  - Required

- **> 56 lbs.** - supported directly to structure by approved hangers
  - Required
  - Required

### Rigid conduit attached to light fixtures

- Forbidden
  - Permitted

## SERVICES WITHIN THE CEILING

<table>
<thead>
<tr>
<th>Air Terminals</th>
<th>Seismic Design Category C per ESR 3336 (Alternate Method)</th>
<th>Seismic Design Categories D, E, F per ESR 3336 (Alternate Method)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20 lbs. - positively attached to grid</td>
<td>Not required</td>
<td>Required</td>
</tr>
<tr>
<td>20 to 56 lbs. - positively attached to grid and two 12-gauge wires to structure (may be slack)</td>
<td>Not required</td>
<td>Required</td>
</tr>
<tr>
<td>&gt; 56 lbs. - directly supported to the structure</td>
<td>Not required</td>
<td>Required</td>
</tr>
<tr>
<td>Sprinkler heads and other penetration clearance</td>
<td>Minimum 3/8&quot; on all sides</td>
<td>2009 IBC - Minimum 2&quot; diameter or swing joint 2012 &amp; 2015 IBC - Minimum 2&quot; diameter opening or flexible sprinkler hose fitting</td>
</tr>
<tr>
<td>Cable trays and electrical conduit independently supported and braced</td>
<td>Not required</td>
<td>Not required</td>
</tr>
</tbody>
</table>

## Notes:

1. Recommendations for Direct-Hung Acoustical Tile and Lay-In Panel Ceilings - CISCA 2004
2. Guidelines for Seismic Restraint for Direct Hung Suspended Ceilings - CISCA 2004
3. Per ASTM C635

Consult your local authority having jurisdiction for information specific to your region.

Note that some installations do not fall under the jurisdiction of the IBC in many states, such as schools and hospitals.
ADDITIONAL RESOURCES ON SEISMIC CODES AND REQUIREMENTS

Contact CertainTeed Ceilings Technical Services
• Phone: 1-800-233-8990

Visit these code related websites:
• National Institute of Building Sciences: www.nibs.org
• International Code Council: www.icc-es.org
• Ceilings Interior Systems Construction Association (CISCA): www.CISCA.org
• American Society of Civil Engineers (ASCE): www.ASCE.org
• City of Los Angeles Department of Building and Safety: http://netinfo.ladbs.org/rreports.nsf (RR 25978)

CERTAINTEED’S SEISMIC SUSPENSION SYSTEMS (ESR-3336)

International Code Council (ICC-ES) recognizes CertainTeed’s Seismic Suspension Systems as a code-compliant solution (ESR-3336). This evaluation and confirmation by ICC-ES provides evidence supporting the CertainTeed Suspension System and Perimeter Clip System as a code-compliant alternative to IBC requirements. CertainTeed’s ICC-ES evaluation allows the utilization of 15/16” wall angle for ceiling installations in IBC Categories D, E, and F when used with the CertainTeed Perimeter Clip (CTSPC-2). The ICC-ES allows you to meet seismic code requirements without the risk of delaying your construction schedule and eliminating the need for the conventional IBC installation components (2” wall angle and stabilizer bars). CertainTeed’s ICC-ES evaluation also allows the use of two fixed walls instead of a floating ceiling when used with the CertainTeed Perimeter Clip for Category C.

CATEGORIES A-F: CERTAINTEED SEISMIC SUSPENSION SYSTEMS

<table>
<thead>
<tr>
<th>Product Categories</th>
<th>Categories A-B</th>
<th>Category C</th>
<th>Categories D-F</th>
<th>ESR-3336</th>
</tr>
</thead>
<tbody>
<tr>
<td>15/16” Classic Stab</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>15/16” Classic Aluminum Capped Stab</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>15/16” Classic Environmental Stab</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>9/16” Elite Narrow Stab</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>9/16” EZ Stab Bolt Slot (1/8” &amp; 1/4”)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>9/16” EZ Stab Tier Drop</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>
CertainTeed Seismic Perimeter Clip Design and Use (Categories C, D, E, and F)
The CertainTeed Seismic Perimeter Clip (CTSPC-2) is designed to fit CertainTeed main runners and cross tees. This clip allows for an alternative installation method using 15/16” wall angle instead of the required 2” wall angle and stabilizer bar construction. Additional benefits are listed below. The CTSPC-2 accessory meets seismic performance criteria set forth by the IBC to stabilize main runners and cross tees at the ceiling’s perimeter as detailed in ICC-ES report 3336.

CertainTeed Seismic Perimeter Clip (CTSPC-2) Installation
The CTSPC-2 clip is easy to install. Clearly visible dimension markers on the clip show the required 3/8” or 3/4” clearance of the grid to the wall. The rounded shape of the stop bumps allows for flexible clip adjustment during installation, and screw holes provide easy attachment to the tee when necessary.

To Install:
1. Firmly grasp clip and press down overbulb of cut suspension member. It will snap into place with an audible click. (A properly seated clip will be able to move along the cut suspension member.)
2. Engage clip back tabs in desired location behind wall angle.

Category C: Requirements and Benefits
• Grid can be tight on two adjoining walls — using the CTSPC-2 clip
• Intermediate Duty or Heavy Duty main runners

Categories D, E, and F: Requirements and Benefits
• Eliminates 2” wall angle, allows for 15/16” wall angle
• Grid must be tight on the two adjoining attached walls— use the CTSPC-2 clip or pop rivets
• Heavy Duty main runners only
• Use CTSPC-2 clip with 3/4” clearance on unattached walls

Benefits of Using the CTSPC-2
• Installs easily
• Saves time and money
• Meets code requirements
• Makes it easy to square the system
• Eliminates stabilizer bars allowing easier access
• Allows easier access to plenum
Category C Perimeter Requirements

CertainTeed Seismic Perimeter Clip (CTSPC-2) Installation (ESR-3336)

Requirements per ESR 3336
- Minimum 7/8” wall angle
- Grid may be cut tight on two adjoining walls
- Minimum 3/8” clearance on two unattached walls
- CTSPC-2 clip maintains main runner and cross tee spacing: no other components, such as stabilizer bars, are required
- Intermediate Duty main runners

Legend
- 12 Gauge Wire
- Horizontal Restraint
- CTSPC Clip
- Stabilizer Bars

IBC Conventional Installation

Requirements per IBC
- Minimum 7/8” wall angle
- Grid must not be attached to wall or wall angle
- Minimum 3/8” clearance on all walls
- Ends of main runners and cross tees must be tied together (stabilizer bars) to prevent spreading
- Intermediate Duty main runners
Categories D, E, and F Perimeter Requirements

CertainTeed Seismic Perimeter Clip (CTSPC-2) Installation (ESR-3336)

- C-1: Perimeter Wire ±10° from vertical, 8" Max.
- C-2: Perimeter Wire ±10° from vertical, 8" Max.
- C-3: Perimeter Wire ±10° from vertical, 8" Max.

Legend:
- 12 Gauge Wire
- Horizontal Restraint
- CTSPC Clip
- Stabilizer Bars

IBC Conventional Installation

- D-1: Perimeter Wire ±10° from vertical, 8" Max.
- D-2: Perimeter Wire ±10° from vertical, 8" Max.

Legend:
- 12 Gauge Wire
- Horizontal Restraint
- CTSPC Clip
- Stabilizer Bars

Requirements per ESR 3336:
- Minimum 7/8" wall angle
- Grid must not be attached to wall or wall angle
- Minimum 3/8" clearance on all walls
- Ends of main runners and cross tees must be tied together (stabilizer bars) to prevent spreading
- Intermediate Duty main runners

Requirements per IBC:
- Minimum 2" wall angle
- Attached grid on two adjacent walls with pop rivets, screws or other means
- Ends of main runners and cross tees must be tied together to prevent spreading
- 3/4" clearance at perimeter/unattached walls
- Heavy Duty main runners only
ADDITIONAL RESOURCES ON SEISMIC CODES AND REQUIREMENTS

Seismic Separation Joint Requirements (Categories D, E, and F)
Seismic separation joints are prescribed for seismic design categories D, E and F by the International Building Code (IBC) through reference to ASCE 7 mandates that ceiling areas exceeding 2,500 ft² (232 m²), must have seismic separation joints or full height partitions that divide the ceiling into areas not exceeding 2,500 ft². The length to width ratios in these areas must not be greater than 4:1.

CertainTeed Seismic Transition Joint Clip (CTSTJ)
Benefits
• Aesthetically masks presence of separation joint
• Saves time with a reliable installation method
• Non-directional and can be used on either main tees or cross tees
• Allows for full acoustical panel at the joint
• Easier to keep the ceiling system square
• Eliminates the need for additional hanger wires
• Has clip placement (over the bulb of the tee) that does not interfere with typical light fixtures

Construction (Cross Tee Separation Joint)
Construction (Main Runner Separation Joint)

- Seismic Separation Joint Zone
- Cross Tee Separation Joint
- Main Runner Separation Joint
- 4-way Separation Joint

OPTION 1

- 3/4" Gap Between Field Cut Main Runner Sleeve
- One Side of Sleeve Crimped to Allow Movement Only on Opposite End
- Main Runner
- Cross Tee
- CTSTJ
- Fastener

OPTION 2

- 3/4" Gap Between Field Cut Main Runner Sleeve
- One Side of Sleeve Crimped to Allow Movement Only on Opposite End
- Main Runner
- Cross Tee
- CTSTJ
- Fastener

Cross Tee

Main Runner

3/4" Gap Between Field Cut Main Runner Sleeve

One Side of Sleeve Crimped to Allow Movement Only on Opposite End

Fields Cut Main Runner

3/4" Min. Type

Fastener

CTSTJ

Main Runner

Seismic Separation Joint Zone

Cross Tee Separation Joint

Main Runner Separation Joint

4-way Separation Joint

Technical Support | 1-800-233-8990 | www.certainteed.com/ceilings
Bracing and Restraint for Seismic Installations
Typical seismic bracing for wall-to-wall ceilings consists of individual clusters of four, 12-gauge wires arrayed 90° from one another and attached to the main runner within 2" of a cross tee intersection. The wires are to be angled no more than 45° from the plane of the ceiling. The compression post is attached to the grid at the cluster of wires and extends to the overhead structure.

The compression post should be engineered for the application and the longer its length, the more substantial it must be. Typical post material can be made of EMT conduit or steel stud (see Horizontal Restraint below).

Note: Information regarding maximum lengths of vertical compression posts is available upon request.

The code also allows for the use of rigid bracing. When a rigid member is used in place of wires it can handle loads in two directions (push and/or pull), so only two lateral bracing members at 90° to each other are required.

The exemption from lateral force bracing for ceilings less than or equal to 1,000 ft² (93 m²) should not be confused with the exemption for ceilings less than or equal to 144 ft² (13.4 m²). The 144 ft² (13.4 m²) exemption is a blanket exemption from all seismic force requirements (2-inch wall angle, heavy duty main runners, lateral force bracing wires compression posts, etc.). The 1,000 ft² exemption is only for lateral bracing.

The lateral force bracing consists of both the splay wires and the compression post. Exempting lateral bracing exempts both the splay wires and the compression post. The lateral force bracing must start within 6 feet of two adjacent walls. It is not necessary to end the lateral force bracing within 6 feet of the opposite two walls. The last lateral force brace must only be within 12 feet of the opposite walls.

It is not necessary to run the lateral force bracing wires parallel to the grid layout in plan view. They can be at any arbitrary angle. It is also not necessary that all the lateral force braces have the same orientation. Lateral force bracing should be taut to function correctly.

Island (Clouds) or Sloped Ceiling Seismic Applications
For Island or Sloped Applications, please reference the CISCA Seismic Construction Handbook and local authority having jurisdiction.

Horizontal Restraint
Seismic Grid Accessories Ease Installation

• Easily integrates with multiple grid profiles
• Two-sided design of CTSPC-2 allows for implementation near any corner
• The CTSTJ clip simplifies installation of single clip in certain seismic applications.
• For more information on CertainTeed Ceilings accessories and add this link: https://www.certainteed.com/resources/CTC_Grid_Installation_Accessories_DataPage.pdf.

Seismic Grid Accessories

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
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