



# ICC-ES Evaluation Report

## ESR-3336

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**DIVISION: 09 00 00—FINISHES**  
**Section: 09 22 26—Suspension Systems**  
**Section: 09 53 00—Acoustical Ceiling Suspension Assemblies**

**REPORT HOLDER:**

**CERTAINTED CEILINGS CORPORATION**

**EVALUATION SUBJECT:**

**SUSPENDED CEILING FRAMING SYSTEMS AND SEISMIC PERIMETER CLIP**

### 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2021, 2018, 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see [ESR-3336 LABC Supplement](#).

For evaluation for compliance with codes adopted by California Office of Statewide Health Planning and Development (OSHPD) and Division of the State Architect (DSA), see [ESR-3336 CBC Supplement](#).

**Properties evaluated:**

- Structural
- Interior finish

### 2.0 USES

The CertainTeed suspended ceiling framing systems for acoustical tiles described in this report are exposed framing systems for use with lay-in acoustical tile suspended ceiling assemblies used in interior construction as noted in this report. The CertainTeed Seismic Perimeter Clips are used to connect main runners and cross tees to a wall angle or shadw molding in suspended ceiling framing systems for acoustical tiles. The suspended ceiling systems for gypsum wallboard described in this report are suspended or direct-hung,

concealed framing, ceiling assemblies used in interior and exterior applications.

### 3.0 DESCRIPTION

#### 3.1 Suspended Ceiling Framing Systems:

##### 3.1.1 Acoustical Tile Suspended Ceiling Systems:

The 15/16" EZ Stab Classic System (EZCS), 15/16" EZ Stab Classic Aluminum Capped System (EZACS), 15/16" EZ Stab Classic Environmental System (EZEVS), 9/16" EZ Stab Elite Narrow System (EZES), 15/16" EZ Stab Cleanroom System (EZCRS), 15/16" FireSecure Stab (FSS) Fire Rated, 9/16" EZ Stab Bolt Slot (EZBS), 9/16" EZ Stab Tier Drop (EZTD), 15/16" EZ Torsion Spring System (EZTS), and 15/16" Smartfit Yoke System (SFYK) acoustical suspended ceiling framing systems consist of main runners and cross tees for use with acoustical tile. The EZ systems have additional stitches on the webs and additional 0.219-inch (5.56 mm) diameter hanger holes through the bulb spaced 3-inches (76.2 mm) on center. These additional hanger holes in the bulb are as suitable for use as the standard hanger holes in the web of the profile. See Figure 15. Profiles of framing members are shown in Figure 1.

The EZ Torsion Spring System (EZTS) is similar to the EZ Stab Classic System (EZCS), except that the main runners of EZTS include slots in the horizontal flanges to install the torsion springs, which support the panels. Splices of the main runner and connections between cross tees and main runners in the EZTS grid are not allowed where the slots are located. The maximum on-center spacing of torsion springs along the main runner is 18 inches (457 mm) and the maximum end distance (measured from the last torsion spring to the end of the main runner) is 6 inches (152 mm). Torsion springs are installed in pairs on both sides of the main runner. Each panel in the EZTS system is held by a minimum of 4 torsion springs (2 on each side). Torsion springs for the EZTS System are available in two models as shown in Figure 17. The allowable loads for torsion springs are as follows:

Torsion Spring	Grid System	Allowable Load (lbs)
TS34170-10 Heavy Duty	EZTS	40.5
TS34170-13 Exterior		26.5

Main runner loads must not exceed the loads specified in Section 4.1.2 of this evaluation report.

The Smartfit Yoke System (SFYK) is similar to the EZ Stab Classic System (EZCS) or EZ Stab Elite Narrow System (EZES), except with a maximum 8-inch (203 mm) wide Smartfit opening as shown in Figure 19. Discontinuous Cross tees, where the Smartfit opening is, are attached to the main runner by the LBRC angle clip in Figure 2 with four #7x7/16" framing screws. Two pieces of the Smartfit Yoke are spliced and secured using two #7x7/16" framing screws to form the Smartfit Yoke assembly. Pieces of the Smartfit Yoke assembly are made from 0.04-inch thick ASTM A653 CS Type B with minimum G90 coating. The screws are installed at both sides of the assembly center at equal distances (minimum of 2 inches from the center) to avoid eccentric loading. The Smartfit Yoke assembly is intended to be supported at the center by the wire hanger as shown in Figure 19. Each leg of the Smartfit Yoke assembly must be attached to the ceiling grid at the main runner/cross tee intersection with at least four #7x7/16 framing screws (two for attachment to the main runner and two for attachment to the cross tee). The maximum spacing between Smartfit Yoke supports (spacing between wire hangers carrying the Smartfit Yokes) is 48 inches (1219 mm).

**3.1.2 Drywall Grid Framing System:** The 1½" Drywall Grid System (DWS) and 1½" Drywall Torsion Spring System (TSW) consist of main and cross runner framing systems as shown in Table 1 for use with gypsum wallboard attached to the bottom of framing members. Profiles of framing members are shown in Figure 1.

The 1½" Drywall Torsion Spring System (TSW) is similar to the 1½" Drywall Grid System (DWS), except that the main runners of TSW include slots in the horizontal flanges to install the torsion springs, which support the panels. Splices of the main runner and connections between cross tees and main runners in the TSW grid are not allowed where the slots are located. The maximum on-center spacing of torsion springs along the main runner is 18 inches (457 mm) and the maximum end distance (measured from the last torsion spring to the end of the main runner) is 6 inches (152 mm). Torsion springs are installed in pairs on both sides of the main runner. Each panel in the EZTS system is held by a minimum of 4 torsion springs (2 on each side). Torsion springs for the TSW System are available in two models as shown in Figure 17. The allowable loads for torsion springs are as follows:

Torsion Spring	Grid System	Allowable Load (lbs)
TS34170-10 Heavy Duty	TSW	25
TS34170-13 Exterior		17

Main runner loads must not exceed the loads specified in Section 4.1.2 of this evaluation report.

**3.2 Seismic Perimeter Clip:**

The Seismic Perimeter Clip (CTSPC-2) as shown in Figure 2 is used to connect main runners and cross tees to the wall angle at the ceiling perimeter. The clip is manufactured from 0.030-inch-thick (0.76 mm), cold-rolled steel complying with ASTM A653, with a hot-dipped galvanized coating designation of G30. The CTSPC-2 may have two pre-drilled holes used for screw attachment.

**3.3 Materials:**

**3.3.1 Framing Members:** Main runners and cross tees are roll-formed from steel conforming to ASTM A653 and having a hot-dipped galvanized coating designation of G30 or higher. The runners and tees are also available with powder coating. The bottom, exposed flange of both main runners and cross tees is covered with a painted capping made from steel or aluminum. Table 1 lists the

profile shape designations, member type (main runner or cross tee), lengths, heights, metal thicknesses, maximum spans, allowable loading and, for main runners, the classification as either intermediate- or heavy-duty according to ASTM C635.

**3.3.2 Hanger and Bracing Wires:** Wires for suspended ceiling framing members and fixtures must comply with ASTM C636 as referenced in 2021, 2018, 2015, 2012 and 2009 IBC Section 808.1.1.1 (2006 IBC Section 803.9.1.1) and Section 13.5.6 of ASCE 7 as referenced in IBC Section 2506.2.1.

**4.0 DESIGN AND INSTALLATION**

**4.1 Suspended Ceiling Framing Systems for Acoustical Tiles:**

**4.1.1 General:** The suspended ceiling framing systems for acoustical tiles must be installed with acoustical tiles in accordance with this report and the manufacturer's published installation instructions. The suspended ceiling framing systems must be installed in accordance with 2021, 2018, 2015, 2012 and 2009 IBC Sections 808, 1613 and 2506.2.1 (2006 IBC Sections 803.9, 1613 and 2506.2.1). The minimum ultimate tension and compression capacity of framing member connections is 180 pounds (800 N).

**4.1.2 Main Runners:** The maximum applied loads for main runners must be less than or equal to the allowable capacities listed in Table 1 of this report.

**4.1.3 Cross Tees:** The maximum applied load for cross tees must be less than or equal to the allowable capacities listed in Table 1.

**4.1.4 Seismic Design Requirements:** Seismic design and installation details of the ceiling system, including lighting fixtures and mechanical services, must be in accordance with Section 13.5.6 of ASCE 7 as referenced in IBC Section 1613, except as noted in Section 4.2 of this report, for systems not exceeding 4 lb/ft<sup>2</sup> (19.5 kg/m<sup>2</sup>). Main runners classified as heavy-duty can be used in Seismic Design Categories A, B, C, D, E and F. Main runners classified as intermediate-duty can only be used in Seismic Design Categories A, B and C. Partitions must be laterally supported as required by Section 13.5.8 of ASCE 7, as referenced in IBC Section 1613.

**4.2 Alternate Suspended Ceiling Framing Systems for Acoustical Tiles Using Seismic Perimeter Clip:**

**4.2.1 Alternate Installation No. 1 for Seismic Design Categories D, E and F:** In this installation, the 9/16" EZ Stab Elite Narrow System, 15/16" EZ Stab Classic System, 15/16" EZ Stab Classic Environmental System, 15/16" EZ Stab Classic Aluminum Capped System, and 15/16" EZ Stab Cleanroom System main runners and cross tees must be those described in Section 3.3.1. The main runner must be classified as Heavy Duty in Table 1 of this report. The maximum total ceiling weight permitted is 2.57 lb/ft<sup>2</sup> (12.56 kg/m<sup>2</sup>). The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle or shadow molding. The Seismic Perimeter Clip must be fixed to the framing member on two adjacent orthogonal walls and allow for free movement on the two opposing walls. Figure 3A and 7A show the fixed wall setup and Figure 4A and 6A show the free wall setup. As an alternate to the perimeter runner being fixed through the Seismic Perimeter Clip, the perimeter runner may be fastened through the wall angle with a 1/8-inch-diameter (3.2 mm) by 1/4-inch-long aluminum pop (blind) rivet, as shown in Figure 3A. Wall angle (WA14-14) or shadow molding (SM1000) is used in lieu of the 2-inch-wide (51 mm) wall angle required by

ASTM E580 and Section 13.5.6.2.2 of ASCE 7-16 for the 2021 and 2018 IBC [ASCE 7-10 for the 2015 and 2012 IBC and Section 13.5.6.2.2 of ASCE 7-05 for the 2009 and 2006 IBC] for Seismic Design Categories D, E and F. The ceiling system must be installed as prescribed by the applicable code except for the use of the Seismic Perimeter Clip, the wall angle (WA14-14) or shadow molding (SM1000) and the elimination of the stabilizer bars.

The Seismic Perimeter Clip is installed by pushing the back tabs of the clip over the vertical hem of the wall angle or shadow molding. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by  $\frac{7}{16}$ -inch-long (11.1 mm) pan-head sharp-point screw fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle or shadow molding. On the free walls, the clips must allow for a minimum  $\frac{3}{4}$ -inch (19.1 mm) movement of the terminal runner end towards and away from the wall. Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, Seismic Perimeter Clips must be screwed to the wall angle or shadow molding with a total of two (2) screws, and the wall angle or shadow molding must be positively attached to the wall studs or other supporting structure. Seismic Perimeter Clips installed in this manner are used in lieu of the stabilizer bars required in Section 5 of ASTM E580 (for the 2021, 2018, 2015 and 2012 IBC) and CISCA 3-4 (for the 2009 and 2006 IBC). ASTM E580 is referenced in ASCE 7-16 and ASCE 7-10, Section 13.5.6.2.2; and CISCA 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which are referenced in IBC Section 1613. The assembly described in this section is equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580.

**4.2.2 Alternate Installation No. 2 for Seismic Design Categories D, E and F:** In this installation, the  $\frac{9}{16}$ " EZ Stab Elite Narrow System,  $\frac{15}{16}$ " EZ Stab Classic System,  $\frac{15}{16}$ " EZ Stab Classic Environmental System,  $\frac{15}{16}$ " EZ Stab Classic Aluminum Capped System, and  $\frac{15}{16}$ " EZ Stab Cleanroom System main runners and cross tees must be those described in Section 3.3.1. The main runner must be classified as Heavy Duty in Table 1 of this report. The maximum total ceiling weight permitted is 4 lb/ft<sup>2</sup> (19.55 kg/m<sup>2</sup>). The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle or shadow molding. The Seismic Perimeter Clip must be fixed to the framing member on two adjacent orthogonal walls and allow for free movement on the two opposing walls. Figure 3B and 7B show the fixed wall setup and Figure 4B and 6B show the free wall setup. Wall angle (WA14-14) or shadow molding (SM1040 or SM1050) is used in lieu of the 2-inch-wide (51 mm) wall angle required by ASTM E580 and Section 13.5.6.2.2 of ASCE 7-16 for the 2021 and 2018 IBC [ASCE 7-10 for the 2015 and 2012 IBC and Section 13.5.6.2.2 of ASCE 7-05 for the 2009 and 2006 IBC] for Seismic Design Categories D E and F. The ceiling system must be installed as prescribed by the applicable code except for the use of the Seismic Perimeter Clip, the wall angle (WA14-14) or shadow molding (SM1040 or SM1050) and the elimination of the stabilizer bars.

The Seismic Perimeter Clip is installed by pushing the back tabs of the clip over the vertical hem of the wall angle or shadow molding. The Seismic Perimeter Clip must be fastened to the wall angle or shadow molding using two (2) No. 7 by  $\frac{7}{16}$ -inch-long pan-head sharp-point screws. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by  $\frac{7}{16}$ -inch-long (11.1 mm) pan-head sharp-point screw

fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle or shadow molding. On the free walls, the clips must allow for a minimum  $\frac{3}{4}$ -inch (19.1 mm) movement of the terminal runner end towards and away from the wall. Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, Seismic Perimeter Clips must be screwed to the wall angle or shadow molding with a total of two (2) screws, and the wall angle or shadow molding must be positively attached to the wall studs or other supporting structure. Seismic Perimeter Clips installed in this manner are used in lieu of the stabilizer bars required in Section 5 of ASTM E580 (for the 2021, 2018, 2015 and 2012 IBC) and CISCA 3-4 (for the 2009 and 2006 IBC). ASTM E580 is referenced in ASCE 7-16 and ASCE 7-10, Section 13.5.6.2.2; and CISCA 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which are referenced in IBC Section 1613. The assembly described in this section is equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580.

**4.2.3 Alternate Installation No. 3 for Seismic Design Categories D, E and F:** In this installation, the  $\frac{9}{16}$ " EZ Stab Bolt Slot and  $\frac{9}{16}$ " EZ Stab Tier Drop main runners and cross tees must be those described in Section 3.3.1. The main runner must be classified as Heavy Duty in Table 1 of this report. The maximum total ceiling weight permitted is 4 lb/ft<sup>2</sup> (19.55 kg/m<sup>2</sup>). The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle or shadow molding. The Seismic Perimeter Clip (CTSPC-2) must be fixed to the framing member on two adjacent orthogonal walls and allow for free movement on the two opposing walls. Figures 8 and 11 show the fixed wall setup and Figures 10 and 13 show the free wall setup. Wall angle (WA14-14) or shadow molding (SM1020, SM1040 or SM1050) is used in lieu of the 2-inch-wide (51 mm) wall angle required by ASTM E580 and Section 13.5.6.2.2 of ASCE 7-16 for the 2021 and 2018 IBC [ASCE 7-10 for the 2015 and 2012 IBC and Section 13.5.6.2.2 of ASCE 7-05 for the 2009 and 2006 IBC] for Seismic Design Categories D, E and F. The ceiling system must be installed as prescribed by the applicable code except for the use of the Seismic Perimeter Clip (CTSPC-2), wall angle (WA 15-15 or WA14-14) or shadow molding (SM1020, SM1040 or SM1050) and the elimination of the stabilizer bars.

The Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle or shadow molding. When using the CTSPC-2 clip, the clip must be fastened to the wall angle or shadow molding using two (2) No. 7 by  $\frac{7}{16}$ -inch-long (11.1 mm) pan-head sharp-point screws. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by  $\frac{7}{16}$ -inch-long (11.1 mm) pan-head sharp-point screw fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle or shadow molding. On the free walls, the clips must allow for a minimum  $\frac{3}{4}$ -inch (19.1 mm) movement of the terminal runner end towards and away from the wall. Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, Seismic Perimeter Clips must be screwed to the wall angle or shadow molding with a total of two (2) screws, and the wall angle or shadow molding must be positively attached to the wall studs or other supporting structure. Seismic Perimeter Clips (CTSPC-2) installed in this manner are used in lieu of the stabilizer bars required in Section 5 of ASTM E580 (for the 2021, 2018, 2015 and 2012 IBC) and CISCA 3-4 (for the 2009 and 2006 IBC). ASTM E580 is referenced in

ASCE 7-16 and ASCE 7-10, Section 13.5.6.2.2; and CISCA 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which are referenced in IBC Section 1613. The assembly described in this section is equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580.

**4.2.4 Alternate Installation No. 4 for Seismic Design Categories A, B and C:** In this installation, the  $9/16$ " EZ Stab Elite Narrow System,  $15/16$ " EZ Stab Classic System,  $15/16$ " EZ Stab Classic Environmental System,  $15/16$ " EZ Stab Classic Aluminum Capped System,  $15/16$ " EZ Stab Cleanroom System, and  $15/16$ " FireSecure Stab Fire Rated System main runners and cross tees must be those described in Section 3.3.1. The Seismic Perimeter Clip (CTSPC-2) may be used in lieu of stabilizer bars in suspended ceiling installations regulated by Section 4 of ASTM E580 and CISCA 0-2. The Seismic Perimeter Clips (CTSPC-2) are placed at the intersections of main runners and wall angle (WA14-14) or shadow molding (SM1020) and cross tees and wall angle (WA14-14) or shadow molding (SM1020). The Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle or shadow molding. When using wall angles, two adjacent walls are fixed with a No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screw through the bulb or web of the framing member. The two opposing walls are free and the installation of the clips must allow for minimum  $3/8$ -inch (9.5 mm) movement of the terminal runner end towards and away from the wall. When using the shadow molding (SM1020), the runner ends must not be fixed or screwed to the seismic perimeter clip (CTSPC-2) and the installation of the clips must allow for minimum  $3/8$ -inch (9.5 mm) movement of the runner end towards and away from the wall as shown in Figure 5. The maximum ceiling weight permitted is 2.28 lb/ft<sup>2</sup> (11.12 kg/m<sup>2</sup>). Seismic Perimeter Clips (CTSPC-2) installed in this manner are used in lieu of stabilizer bars required by Section 4 of ASTM E580 and CISCA 0-2. The ceiling system must be installed as prescribed by the applicable code except for the use of the Seismic Perimeter Clip (CTSPC-2) and the elimination of the stabilizer bars. The assembly described in this section is equivalent to that required by CISCA 0-2 (for the 2009 and 2006 IBC) and Section 4 of ASTM E580 (for the 2021, 2018, 2015 and 2012 IBC).

**4.2.5 Alternate Installation No. 5 for Seismic Design Categories A, B and C:** In this installation, the  $9/16$ " EZ Stab Bolt Slot and  $9/16$ " EZ Stab Tier Drop main runners and cross tees must be those described in Section 3.3.1. The Seismic Perimeter Clip (CTSPC-2) may be used in lieu of stabilizer bars in suspended ceiling installations regulated by Section 4 of ASTM E580 and CISCA 0-2. The Seismic Perimeter Clips (CTSPC-2) are placed at the intersections of main runners and wall angle (WA14-14) or shadow molding (SM1040 or SM1050) and cross tees and wall angle (WA14-14) or shadow molding (SM1040 or SM1050). The Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle or shadow molding (SM1040 or SM1050). When using the CTSPC-2 clip, the clip must be fastened to the wall angle or shadow molding using two (2) No. 7 by  $7/16$ -inch long (11.1 mm) pan-head sharp-point screws. On two adjacent walls the runner ends are screwed to the seismic perimeter clips with a No. 7 by  $7/16$ -inch long (11.1 mm) pan-head sharp-point screw through the bulb or web of the runner (see Figures 8 and 11). The two opposing walls are free and the installation of the clips must allow for minimum  $3/8$ -inch (9.5 mm) movement of the terminal runner end towards and away from the wall, (see Figures 9 and 12). The maximum ceiling weight permitted is 2.5 lb/ft<sup>2</sup> (12.22 kg/m<sup>2</sup>). Seismic

Perimeter Clips (CTSPC-2) installed in this manner are used in lieu of stabilizer bars required by Section 4 of ASTM E580 and CISCA 0-2. The ceiling system must be installed as prescribed by the applicable code except for the use of the Seismic Perimeter Clip (CTSPC-2) and the elimination of the stabilizer bars. The assembly described in this section is equivalent to that required by CISCA 0-2 (for the 2009 and 2006 IBC) and Section 4 of ASTM E580 (for the 2021, 2018, 2015 and 2012 IBC).

**4.2.6 Alternative Installation No. 6 for Seismic Design Categories D, E and F Based on Section 13.2.5 of ASCE 7:** In this installation, the performance level at the maximum design spectral response acceleration at short period,  $S_{DS}$ , of 2.0 g is Criterion 3 per Section 9.2 of ASTM E3118. The ceiling framing members are the  $1\frac{1}{2}$ " Drywall Torsion Spring (TSW) main runners and cross tees described in Section 3.3.1. The main runner must be:

- classified as Heavy Duty in Table 1 of this report,
- laterally braced by cross tees every 24 inches at most (maximum on-center spacing between cross tees is 24 inches),
- installed at a maximum spacing of 48 inches on center, and
- supported by hanger wires at maximum 48 inches on center.

Lateral force bracing is required and must be in accordance with ASTM E580, Section 5.2.8. At ceiling perimeter, all runners (main runner and cross tees) must be supported by hanger wires. The maximum total ceiling weight permitted is 1.8 lb/ft<sup>2</sup> (8.79 kg/m<sup>2</sup>). The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle (WA14-14) on two adjacent orthogonal walls, while allowing for free movement. The LBRC angle clip is used to connect the main runners and cross tees to the perimeter wall angle (WA14-14) on the two opposing walls (fixed ends). Figure 4B shows the free wall setup and Figure 18 shows the fixed wall setup. The ceiling system must be installed as prescribed by the applicable code and what is specified in this section.

At the free wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The CTSPC-2 clip must be fastened to the wall angle using two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws. The clips must allow for a minimum  $3/4$ -inch (19.1 mm) movement of the terminal runner end towards and away from the wall.

At the fixed wall, the LBRC angle clip is installed by pushing one of its legs over the vertical hem of the wall angle. The LBRC angle clip must be fastened to the wall angle using two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws. The other LBRC angle clip leg must be attached to the ceiling framing member by two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws fastened into the web of the runner and provide no clearance between the terminal runner end and the wall angle.

The wall angle must be positively attached to the wall studs or other supporting structure.

Heavy duty TS34170-10 torsion springs must be attached in pairs on both sides of the main runner's web to support the ceiling panels as specified in Section 3.1.2, except that the maximum end distance (measured from the last torsion spring to the end of the main runner) is 3 inches (76 mm).

**4.2.7 Alternative Installation No. 7 for Seismic Design Categories D, E and F:** In this installation, the Smartfit Yoke System with  $9/16$ " EZ Stab Elite Narrow main runners and cross tees must be those described in Section 3.3.1. The main runner must be classified as Heavy Duty in Table 1 of this report. The maximum total ceiling weight permitted is 3.1 lb/ft<sup>2</sup> (15.14 kg/m<sup>2</sup>). Perimeter wires on all sides must be used to support the ends of terminal main runners and cross tees towards the walls. The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle. The Seismic Perimeter Clip must be fixed to the framing member on two adjacent orthogonal walls and allow for free movement on the two opposing walls. Figure 3B shows the fixed wall setup and Figure 4B shows the free wall setup. Wall angle (WA14-14) is used in lieu of the 2-inch-wide (51 mm) wall angle required by ASTM E580 and Section 13.5.6.2.2 of ASCE 7-16 for the 2021 and 2018 IBC [ASCE 7-10 for the 2015 and 2012 IBC and Section 13.5.6.2.2 of ASCE 7-05 for the 2009 and 2006 IBC] for Seismic Design Categories D, E and F. The ceiling system must be installed as prescribed by the applicable code except for the use of the Seismic Perimeter Clip, the wall angle (WA14-14) and the elimination of the stabilizer bars.

The Seismic Perimeter Clip is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screw fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle. On the free walls, the clips must allow for a minimum  $3/4$ -inch (19.1 mm) movement of the terminal runner end towards and away from the wall. Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, Seismic Perimeter Clips must be screwed to the wall angle with a total of two (2) screws, and the wall angle must be positively attached to the wall studs or other supporting structure. Seismic Perimeter Clips installed in this manner are used in lieu of the stabilizer bars required in Section 5 of ASTM E580 (for the 2021, 2018, 2015 and 2012 IBC) and CISCA 3-4 (for the 2009 and 2006 IBC). ASTM E580 is referenced in ASCE 7-16 and ASCE 7-10, Section 13.5.6.2.2; and CISCA 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which are referenced in IBC Section 1613.

Lateral force bracing is required and must be in accordance with ASTM E580, Section 5.2.8.

The main runners, which are supported by the Smartfit Yokes, are attached to cross tees with the LBRC angle clips. The LBRC angle clip is attached to the web of the main runner or cross tee by two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws and provide no clearance between the cross tee end and the main runner's web. In addition to the Smartfit Yoke support, one of the two main runners must be supported by direct hangers (in the middle between the Smartfit Yokes) such that this main runner is supported every 24 inches.

The assembly described in this section is equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580.

**4.2.8 Alternative Installation No. 8 for Seismic Design Categories D, E and F:** In this installation, the Smartfit Yoke System with  $15/16$ " EZ Stab Classic main runners and cross tees must be those described in Section 3.3.1. The main runner must be classified as Heavy Duty in Table 1 of this report. The maximum total ceiling weight permitted is 2.7 lb/ft<sup>2</sup> (13.18 kg/m<sup>2</sup>). Perimeter wires on all sides must be used to support the

ends of terminal main runners and cross tees towards the walls. The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle. The Seismic Perimeter Clip must be fixed to the framing member on two adjacent orthogonal walls and allow for free movement on the two opposing walls. Figure 3B shows the fixed wall setup and Figure 4B shows the free wall setup. Wall angle (WA14-14) is used in lieu of the 2-inch-wide (51 mm) wall angle required by ASTM E580 and Section 13.5.6.2.2 of ASCE 7-16 for the 2021 and 2018 IBC [ASCE 7-10 for the 2015 and 2012 IBC and Section 13.5.6.2.2 of ASCE 7-05 for the 2009 and 2006 IBC] for Seismic Design Categories D, E and F. The ceiling system must be installed as prescribed by the applicable code except for the use of the Seismic Perimeter Clip, the wall angle (WA14-14) and the elimination of the stabilizer bars.

The Seismic Perimeter Clip is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screw fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle. On the free walls, the clips must allow for a minimum  $3/4$ -inch (19.1 mm) movement of the terminal runner end towards and away from the wall. Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, Seismic Perimeter Clips must be screwed to the wall angle with a total of two (2) screws, and the wall angle must be positively attached to the wall studs or other supporting structure. Seismic Perimeter Clips installed in this manner are used in lieu of the stabilizer bars required in Section 5 of ASTM E580 (for the 2021, 2018, 2015 and 2012 IBC) and CISCA 3-4 (for the 2009 and 2006 IBC). ASTM E580 is referenced in ASCE 7-16 and ASCE 7-10, Section 13.5.6.2.2; and CISCA 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which are referenced in IBC Section 1613.

Lateral force bracing is required and must be in accordance with ASTM E580, Section 5.2.8.

The main runners, which are supported by the Smartfit Yokes, are attached to cross tees with the LBRC angle clips. The LBRC angle clip is attached to the web of the main runner or cross tee by two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws and provide no clearance between the cross tee end and the main runner's web. In addition to the Smartfit Yoke support, one of the two main runners must be supported by direct hangers (in the middle between the Smartfit Yokes) such that this main runner is supported every 24 inches.

The assembly described in this section is equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580

**4.2.9 Alternative Installation No. 9 for Seismic Design Categories D, E and F:** In this installation, the performance level at the maximum design spectral response acceleration at short period,  $S_{DS}$ , of 1.25 g is Criterion 3 per Section 9.2 of ASTM E3118. The ceiling framing members are the  $15/16$ " EZ Stab Classic main runners and cross tees described in Section 3.3.1. The ceiling is sloped in the direction of the main runners with a maximum surface inclination of 15 degrees from horizontal. The following installation conditions must be met:

- The main runners and cross tees must be as specified in Table 1 of this report for Sloped  $15/16$ " EZ Stab Classic System. The main runners must be classified as heavy duty.

- The main runner must be laterally braced by cross tees every 24 inches at most (maximum on-center spacing between cross tees is 24 inches).
- The main runner must be installed at a maximum spacing of 48 inches on-center, starting at 24 inches from the wall (at most).
- The main runner must be supported by hanger wires at maximum 48 inches on center.
- At ceiling perimeter, all runners (main runner and cross tees) resting on the wall angles must be supported by hanger wires.
- All perimeter panels must be secured down to the main runners and cross tees at the edges perpendicular to the supporting walls using hold down clips (see Figure 20).
- The two rows of panels at the top of slope and the two rows of panels at the bottom of slope must be secured down to the topmost and bottommost cross tees, respectively, by hold down clips. A minimum of one hold down clip per 24 inches (along the top and bottom cross tees) must be used.
- Lateral bracing sets (compression post and splay wires) must be used in accordance with ASTM E580, Section 5.2.8.2, except that the maximum on-center spacing between the bracing sets along the slope is 8 ft instead of 12 ft.

The maximum total ceiling weight permitted is 2.8 lb/ft<sup>2</sup> (13.67 kg/m<sup>2</sup>). The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle (WA14-14). To accommodate placement of seismic perimeter clips at 90 degrees to the grid, 15-degree wooden wedges are attached to the back side of the wall angle. The Seismic Perimeter Clip must be fixed to the framing member on two adjacent orthogonal walls and allow for free movement on the two opposing walls. One of the free ends must be at the top of the sloped ceiling. As an alternative to the Seismic Perimeter Clip (CTSPC-2) at the fixed wall, the LBRC angle clip may be used to connect main runners and cross tees to the perimeter wall angle (WA14-14). Figure 4B shows the free wall setup and Figures 3B and 18 show the fixed wall setup. The ceiling system must be installed as prescribed by the applicable code and what is specified in this section.

At the free wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The CTSPC-2 clip must be fastened to the wall angle using two (2) No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long (11.1 mm) pan-head sharp-point screws. The clips must allow for a minimum <sup>3</sup>/<sub>4</sub>-inch (19.1 mm) movement of the terminal runner end towards and away from the wall.

At the fixed wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The Seismic Perimeter Clip must be fastened to the wall angle using two (2) No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long pan-head sharp-point screws. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long (11.1 mm) pan-head sharp-point screw fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle.

When the LBRC angle clip is used at the fixed wall, it is installed by pushing one of its legs over the vertical hem of the wall angle. The LBRC angle clip must be fastened to the wall angle using two (2) No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long (11.1 mm) pan-head sharp-point screws. The other LBRC angle clip leg must be attached to the ceiling framing member by two (2) No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long (11.1 mm) pan-head sharp-point screws fastened into the web of the runner and provide no clearance between the terminal runner end and the wall angle.

The wall angle and wooden wedge must be positively attached to the wall studs or other supporting structure.

**4.2.10 Alternative Installation No. 10 for Seismic Design Categories D, E and F:** In this installation, the performance level at the maximum design spectral response acceleration at short period,  $S_{DS}$ , of 1.25 g is Criterion 3 per Section 9.2 of ASTM E3118. The ceiling framing members are the <sup>15</sup>/<sub>16</sub>" EZ Stab Classic main runners and cross tees described in Section 3.3.1. The ceiling is sloped in the direction of the main runners with a maximum surface inclination of 30 degrees from horizontal. The following installation conditions must be met:

- The main runners and cross tees must be as specified in Table 1 of this report for Sloped <sup>15</sup>/<sub>16</sub>" EZ Stab Classic System. The main runners must be classified as heavy duty.
- The main runner must be laterally braced by cross tees every 24 inches at most (maximum on-center spacing between cross tees is 24 inches).
- The main runner must be installed at a maximum spacing of 48 inches on-center, starting at 24 inches from the wall (at most).
- The main runner must be supported by hanger wires at maximum 48 inches on center.
- At ceiling perimeter, all runners (main runner and cross tees) resting on the wall angles must be supported by hanger wires.
- The two horizontal edges of each panel in the ceiling, where the cross tees are located, must be secured down to the cross tees by hold down clips (see Figure 20). A minimum of one hold down clip per 24 inches must be used.
- In addition, panels near the top and bottom edges of the sloped ceiling must be secured down to the main runners by hold down clips.
- Lateral force bracing is required and must be in accordance with ASTM E580, Section 5.2.8.2, except that the maximum edge distance of the bracing set from the free end of the ceiling at the top and along the slope is 5 ft instead of 6 ft, and the maximum on-center spacing between the bracing sets along the slope is 10 ft instead of 12 ft.

The maximum total ceiling weight permitted is 1.6 lb/ft<sup>2</sup> (7.81 kg/m<sup>2</sup>). The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle (WA14-14). To accommodate placement of seismic perimeter clips at 90 degrees to the grid, 30-degree wooden wedges are attached to the back side of the wall angle. The Seismic Perimeter Clip must be fixed to the framing member on two adjacent

orthogonal walls and allow for free movement on the two opposing walls. One of the free ends must be at the top of the sloped ceiling. As an alternative to the Seismic Perimeter Clip (CTSPC-2) at the fixed wall, the LBRC angle clip may be used to connect main runners and cross tees to the perimeter wall angle (WA14-14). Figure 4B shows the free wall setup and Figures 3B and 18 show the fixed wall setup. The ceiling system must be installed as prescribed by the applicable code and what is specified in this section.

At the free wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The CTSPC-2 clip must be fastened to the wall angle using two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws. The clips must allow for a minimum  $3/4$ -inch (19.1 mm) movement of the terminal runner end towards and away from the wall.

At the fixed wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The Seismic Perimeter Clip must be fastened to the wall angle using two (2) No. 7 by  $7/16$ -inch-long pan-head sharp-point screws. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screw fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle.

When the LBRC is used at the fixed wall, it is installed by pushing one of its legs over the vertical hem of the wall angle. The LBRC angle clip must be fastened to the wall angle using two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws. The other LBRC angle clip leg must be attached to the ceiling framing member by two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws fastened into the web of the runner and provide no clearance between the terminal runner end and the wall angle.

The wall angle and wooden wedge must be positively attached to the wall studs or other supporting structure

**4.2.11 Alternative Installation No. 11 for Seismic Design Categories A, B and C:** In this installation, the performance level at the maximum design spectral response acceleration at short period,  $S_{DS}$ , of 1.25 g is Criterion 3 per Section 9.2 of ASTM E3118. The ceiling framing members are the  $15/16$ " EZ Stab Classic main runners and cross tees described in Section 3.3.1. The ceiling is sloped in the direction of the main runners with a maximum surface inclination of 15 degrees from horizontal. The following installation conditions must be met:

- The main runners and cross tees must be as specified in Table 1 of this report for Sloped  $15/16$ " EZ Stab Classic System. Heavy or intermediate duty main runners may be used.
- The main runner must be laterally braced by cross tees every 24 inches at most (maximum on-center spacing between cross tees is 24 inches).
- The main runner must be installed at a maximum spacing of 48 inches on-center, starting at 24 inches from the wall (at most).
- The main runner must be supported by hanger wires at maximum 48 inches on center.
- The two rows of panels at the top of slope must be secured down to the topmost cross tee(s) by hold

down clips (see Figure 20). A minimum of one hold down clip per 24 inches must be used.

The maximum total ceiling weight permitted is 2.8 lb/ft<sup>2</sup> (13.67 kg/m<sup>2</sup>). The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle (WA14-14). To accommodate placement of seismic perimeter clips at 90 degrees to the grid, 15-degree wooden wedges are attached to the back side of the wall angle. The Seismic Perimeter Clip must be fixed to the framing member on two adjacent orthogonal walls and allow for free movement on the two opposing walls. One of the free ends must be at the top of the sloped ceiling. As an alternative to the Seismic Perimeter Clip (CTSPC-2) at the fixed wall, the LBRC angle clip may be used to connect main runners and cross tees to the perimeter wall angle (WA14-14). Figure 4B shows the free wall setup and Figures 3B and 18 show the fixed wall setup. The ceiling system must be installed as prescribed by the applicable code and what is specified in this section.

At the free wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The CTSPC-2 clip must be fastened to the wall angle using two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws. The clips must allow for a minimum  $3/8$ -inch (9.5 mm) movement of the terminal runner end towards and away from the wall.

At the fixed wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The Seismic Perimeter Clip must be fastened to the wall angle using two (2) No. 7 by  $7/16$ -inch-long pan-head sharp-point screws. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screw fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle.

When the LBRC is used at the fixed wall, it is installed by pushing one of its legs over the vertical hem of the wall angle. The LBRC angle clip must be fastened to the wall angle using two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws. The other LBRC angle clip leg must be attached to the ceiling framing member by two (2) No. 7 by  $7/16$ -inch-long (11.1 mm) pan-head sharp-point screws fastened into the web of the runner and provide no clearance between the terminal runner end and the wall angle.

The wall angle and wooden wedge must be positively attached to the wall studs or other supporting structure.

**4.2.12 Alternative Installation No. 12 for Seismic Design Categories A, B and C:** In this installation, the performance level at the maximum design spectral response acceleration at short period,  $S_{DS}$ , of 1.25 g is Criterion 3 per Section 9.2 of ASTM E3118. The ceiling framing members are the  $15/16$ " EZ Stab Classic main runners and cross tees described in Section 3.3.1. The ceiling is sloped in the direction of the main runners with a maximum surface inclination of 30 degrees from horizontal. The following installation conditions must be met:

- The main runners and cross tees must be as specified in Table 1 of this report for Sloped  $15/16$ " EZ Stab Classic System. The main runners must be classified as heavy duty.
- The main runner must be laterally braced by cross tees every 24 inches at most (maximum on-center spacing between cross tees is 24 inches).

- The main runner must be installed at a maximum spacing of 48 inches on-center, starting at 24 inches from the wall (at most).
- The main runner must be supported by hanger wires at maximum 48 inches on center.
- All perimeter panels must be secured down to the main runners and cross tees at the edges perpendicular to the supporting walls using hold down clips (see Figure 20).
- The two rows of panels at the top of slope and the two rows of panels at the bottom of slope must be secured down to the topmost and bottommost cross tees, respectively, by hold down clips. A minimum of one hold down clip per 24 inches must be used.

The maximum total ceiling weight permitted is 1.6 lb/ft<sup>2</sup> (7.81 kg/m<sup>2</sup>). The Seismic Perimeter Clip (CTSPC-2) is used to connect main runners and cross tees to the perimeter wall angle (WA14-14). To accommodate placement of seismic perimeter clips at 90 degrees to the grid, 30-degree wooden wedges are attached to the back side of the wall angle. The Seismic Perimeter Clip must be fixed to the framing member on two adjacent orthogonal walls and allow for free movement on the two opposing walls. One of the free ends must be at the top of the sloped ceiling. As an alternative to the Seismic Perimeter Clip (CTSPC-2) at the fixed wall, the LBRC angle clip may be used to connect main runners and cross tees to the perimeter wall angle (WA14-14). Figure 4B shows the free wall setup and Figures 3B and 18 show the fixed wall setup. The ceiling system must be installed as prescribed by the applicable code and what is specified in this section.

At the free wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The CTSPC-2 clip must be fastened to the wall angle using two (2) No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long (11.1 mm) pan-head sharp-point screws. The clips must allow for a minimum <sup>3</sup>/<sub>8</sub>-inch (9.5 mm) movement of the terminal runner end towards and away from the wall.

At the fixed wall, the Seismic Perimeter Clip (CTSPC-2) is installed by pushing the back tabs of the clip over the vertical hem of the wall angle. The Seismic Perimeter Clip must be fastened to the wall angle using two (2) No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long pan-head sharp-point screws. On the two adjacent fixed walls, the perimeter clip must be attached to the framing member by a No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long (11.1 mm) pan-head sharp-point screw fastened into the bulb or web of the runner and provide no clearance between the terminal runner end and the wall angle.

When the LBRC is used at the fixed wall, it is installed by pushing one of its legs over the vertical hem of the wall angle. The LBRC angle clip must be fastened to the wall angle using two (2) No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long (11.1 mm) pan-head sharp-point screws. The other LBRC angle clip leg must be attached to the ceiling framing member by two (2) No. 7 by <sup>7</sup>/<sub>16</sub>-inch-long (11.1 mm) pan-head sharp-point screws fastened into the web of the runner and provide no clearance between the terminal runner end and the wall angle.

The wall angle and wooden wedge must be positively attached to the wall studs or other supporting structure.

**4.3 Suspended Ceiling Systems for Gypsum Wallboard:** In this installation, the DWS main and cross runners must be as described in Section 3.1.2. The installation must be in accordance with Section 4.1, except the ceiling must be designed for seismic loads

required under Chapter 13 of ASCE 7-16 for the 2021 and 2018 IBC [ASCE 7-10 for the 2015 and 2012 IBC (ASCE 7-05 for the 2009 and 2006 IBC)], as referenced by IBC Section 1613. The ceiling weight must not exceed 4 psf (19.5 kg/m<sup>2</sup>). The ceiling weight may be increased up to 10 psf (48.82 kg/m<sup>2</sup>), when installed as indicated in Tables 2 through 5 of this report. Suspended ceilings constructed of gypsum boards, screw or nail attached to suspended members that support a ceiling on one level extending from wall to wall are exempt from lateral load design requirements of ASTM E580 and CISCA Seismic Zones 2, 3 and 4.

**4.3.1 Gypsum Wallboard Attachment:** Gypsum wallboard must be installed and fastened to the ceiling framing system in accordance with IBC Section 2508.

#### 4.4 Special Inspection:

Where special inspections are required by the building official, the suspended ceilings in Seismic Design Categories C, D, E and F, shall be subjected to periodic special inspections during the installation of the suspended ceiling systems and their anchorage in accordance with the following requirements:

- For installations in accordance with Section 4.2 of this report, special inspection must be conducted as required by the building official during enforcement of the 2021, 2018 and 2015 IBC Sections 1704.5, 1705.1.1 and 1705.13.2 [2012 IBC Sections 1705.1.1, 1705.11.4 and 1705.12, Item 3 and 1705.12.3; 2009 IBC Sections, 1704.15, 1708.1, Item 3; 2006 IBC Section 1704.13, 1708.4 and Item 3 of 1708.1; 2006 IBC Sections 1704.13, 1708.5 and Item 3 of Section 1708.2)], as applicable.
- For installations in accordance with Sections 4.1.4 and 4.3 of this report, special inspection must be conducted as indicated in Section 13.5.6.2.2 (h) of ASCE 7-05 and 2009 IBC Section 1705.3.4, item 3 for the 2009 IBC; Section 13.5.6.2.2 (h) of ASCE 7-05 and 2006 IBC Section 1705.3, Item 4.3 for the 2006 IBC, as applicable.
- The special inspector must verify that the ceiling system is as described in this report, and complies with this report, and with the approved construction documents.

Where special inspections are required by the building official, a statement of special inspections must be provided as required in 2021, 2018, 2015 and 2012 IBC Sections 1704.3 [2009 IBC Sections 1705.2 and 1705.3; and 2006 IBC Sections 1705.2 and 1705.3, as applicable].

## 5.0 CONDITIONS OF USE

The CertainTeed suspended ceiling systems described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** The ceiling suspension main runners and cross tees, and the Seismic Perimeter Clip, must be manufactured and installed in accordance with this report and the manufacturer's published installation instructions. This report governs in the event of any conflict with the manufacturer's installation instructions.
- 5.2** Design loads and span lengths for main runners and cross tees must be as listed in Table 1 of this report.
- 5.3** Suspended ceiling systems must be designed in accordance with ASCE 7, Section 13.5.6, as referenced by IBC section 1613. The documents



must be prepared by a registered design professional where required by statutes of jurisdiction in which the project is to be constructed.

- 5.4 Periodic special inspections and a statement of special inspections must be provided in accordance with Section 4.4 of this report.
- 5.5 The ceiling framing system must not be used to provide lateral support for walls or partitions except as provided for in ASCE 7, Section 13.5.8.1, as referenced in IBC Section 1613.
- 5.6 The ceiling system must be braced to resist seismic forces as determined from Section 1613 of the IBC.
- 5.7 The supporting construction for the ceiling system has not been evaluated and is outside the scope of this report. The code official must approve the floor or roof construction supporting the suspended ceiling system.
- 5.8 The ceiling systems are limited to ceilings not considered accessible in accordance with Item 29 of 2021 IBC Table 1607.1, Item 28 of 2018, 2015 and 2012 IBC Table 1607.1 (Item 31 of 2009 IBC Table 1607.1, or Item 32 of 2006 IBC Table 1607.1).
- 5.9 The ceiling systems are limited to interior applications. Exterior ceiling installations must be designed for wind loads.
- 5.10 Lay-in ceiling panels must be justified to the satisfaction of the code official as complying with the interior finish requirements of Chapter 8 of the IBC.

5.11 Lighting fixtures and mechanical services must be as described in Section 4 of this report.

**6.0 EVIDENCE SUBMITTED**

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Suspended Ceiling Framing Systems (AC368), dated February 2024.
- 6.2 Data in accordance with the ICC-ES Acceptance Criteria for Seismic Certification by Shake-table Testing of Nonstructural Components (AC156), dated October 2010 (editorially revised December 2020).

**7.0 IDENTIFICATION**

7.1 Cartons of ceiling suspension system framing members, Seismic Perimeter Clips and accessories are identified with the name of CertainTeed Ceilings and the evaluation report number (ESR-3336).The report holder's contact information is the following:

**CERTAINTEED CEILINGS CORPORATION**  
**20 MOORES ROAD**  
**MALVERN, PENNSYLVANIA 19355**  
**(610) 651-5806**  
[www.certainteed.com](http://www.certainteed.com)  
[ceilingstechnicalservices@certainteed.com](mailto:ceilingstechnicalservices@certainteed.com)

**TABLE 1—DIMENSIONS AND ALLOWABLE LOADS FOR SUSPENDED CEILING FRAMING MEMBERS**

ITEM NUMBER	MEMBER TYPE	LOAD CLASSIFICATION	NOMINAL LENGTH OF MEMBER (inches)	HEIGHT OF MEMBER (inches)	METAL THICKNESS (inch)	MAXIMUM SPAN (inches)	ALLOWABLE UNIFORM LOAD (plf)	ALLOWABLE CONCENTRATED LOAD AT MIDSPAN (lbf) <sup>1</sup>
<sup>9</sup> / <sub>16</sub> " EZ Stab Elite Narrow System								
EZES 3000M-12-18	Main Runner	Intermediate Duty	118.11	1.5	0.018	48	13.15	32.88
EZES 3600M-12-18	Main Runner	Intermediate Duty	141.73	1.5	0.018	48	13.15	32.88
EZES 12-12-18	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.018	36	25.7	48.19
EZES 12-12-18	Main Runner	Intermediate Duty	144	1.5	0.018	48	13.15	32.88
EZES 12-12-18	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.018	60	5.3	16.56
EZES 12-12-19	Main Runner	Heavy Duty <sup>6</sup>	144	1.687	0.019	36	31.52	59.10
EZES 12-12-19	Main Runner	Heavy Duty	144	1.687	0.019	48	17.97	44.93
EZES 12-12-19	Main Runner	Heavy Duty <sup>6</sup>	144	1.687	0.019	60	9.14	28.56
EZES 1-12-12	Cross Tee	—————	12	1.5	0.012	12	210.53	131.58
EZES 2-12-19	Cross Tee	—————	24	1.687	0.019	24	50	62.50
EZES 500M-12-12	Cross Tee	—————	19.69	1.5	0.012	19.69	54.72	56.12
EZES 600M-12-12	Cross Tee	—————	23.62	1.5	0.012	23.62	29.68	36.51
EZES 2-12-12	Cross Tee	—————	24	1.5	0.012	24	27.97	34.96
EZES 750M-12-12	Cross Tee	—————	29.53	1.5	0.012	29.53	14.1	21.69
EZES 1200M-12-12	Cross Tee	—————	47.25	1.5	0.012	47.25	8.66	21.31
EZES 1500M-12-12	Cross Tee	—————	59.06	1.5	0.012	59.06	4.66	14.33
EZES 1500M-12-12-5S	Cross Tee	—————	59.06	1.5	0.012	59.06	4.66	14.33
EZES 4-12-12	Cross Tee	—————	48	1.5	0.012	48	8.44	21.09
EZES 5-12-12	Cross Tee	—————	60	1.5	0.012	60	4.44	13.88
EZES 5-12-12-3S	Cross Tee	—————	60	1.5	0.012	60	4.44	13.88
EZES 6-12-12	Cross Tee	—————	72	1.5	0.012	72	2.76	10.35
EZES 8-12-12	Cross Tee	—————	96	1.5	0.012	96	1.00	5.00
EZES 2-12-19	Cross Tee	—————	24	1.687	0.019	24	17.97	44.93
EZES 4-12-19	Cross Tee	—————	48	1.687	0.019	48	17.97	44.93

TABLE 1—DIMENSIONS AND ALLOWABLE LOADS FOR SUSPENDED CEILING FRAMING MEMBERS

ITEM NUMBER	MEMBER TYPE	LOAD CLASSIFICATION	NOMINAL LENGTH OF MEMBER (inches)	HEIGHT OF MEMBER (inches)	METAL THICKNESS (inch)	MAXIMUM SPAN (inches)	ALLOWABLE UNIFORM LOAD (plf)	ALLOWABLE CONCENTRATED LOAD AT MIDSPAN (lbf) <sup>1</sup>
EZES 6-12-19	Cross Tee	—————	72	1.687	0.019	72	5.14	19.28
EZES 8-12-19	Cross Tee	—————	96	1.687	0.019	96	2	10.00
Smartfit Yoke System (SFYK) with <sup>9</sup> / <sub>16</sub> " EZES								
EZES 12-12-19	Main Runner	Heavy Duty	144	1.687	0.019	48	17.97	44.93
EZES 2-12-12	Cross Tee	—————	24	1.5	0.012	24	27.97	34.96
EZES 4-12-12	Cross Tee	—————	48	1.5	0.012	48	8.44	21.09
<sup>15</sup> / <sub>16</sub> " EZ Stab Classic System								
EZCS 10-12-15	Main Runner	Intermediate Duty	120	1.5	0.015	48	13.56	33.90
EZCS 10-12-15-12S	Main Runner	Intermediate Duty	120	1.5	0.015	48	13.56	33.90
EZCS 11.67-12-15	Main Runner	Intermediate Duty	140	1.5	0.015	48	13.56	33.90
EZCS 3000MM-12-15	Main Runner	Intermediate Duty	118.11	1.5	0.015	48	13.56	33.90
EZCS 3600MM-12-15	Main Runner	Intermediate Duty	141.73	1.5	0.015	48	13.56	33.90
EZCS 12-12-15	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	36	27.2	51.00
EZCS 12-12-15	Main Runner	Intermediate Duty	144	1.5	0.015	48	13.56	33.9
EZCS 12-12-15	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	60	6.3	19.69
EZCS 12-12-20	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.020	36	31.01	58.14
EZCS 12-12-20	Main Runner	Heavy Duty	144	1.5	0.020	48	16.58	41.45
EZCS 3600M-12-20	Main Runner	Heavy Duty	141.73	1.5	0.020	48	16.58	41.45
EZCS 12-12-20	Main Runner	Heavy Duty <sup>6</sup>	144	1.5	0.020	60	8.31	25.97
EZCS 1-12-12	Cross Tee	—————	12	1.5	0.012	12	63.1	39.44
EZCS 500MM-12-12	Cross Tee	—————	19.69	1.5	0.012	19.69	69.44	71.21
EZCS 1.67-12-12	Cross Tee	—————	20	1.5	0.012	20	69.44	72.33
EZCS 600MM-12-12	Cross Tee	—————	23.62	1.5	0.012	23.62	35.31	43.44
EZCS 2-12-12	Cross Tee	—————	24	1.5	0.012	24	34.8	43.51
EZCS 750MM-12-12	Cross Tee	—————	29.53	1.5	0.012	29.53	23.58	36.27
EZCS 2.5-12-12	Cross Tee	—————	30	1.5	0.012	30	22.89	35.77
EZCS 1200MM-12-12	Cross Tee	—————	47.25	1.5	0.012	47.25	9.94	24.46
EZCS 4-12-12	Cross Tee	—————	48	1.5	0.012	48	9.67	24.16
EZCS 1500MM-12-12	Cross Tee	—————	59.06	1.5	0.012	59.06	6.21	19.10
EZCS 1500MM-12-12-5S	Cross Tee	—————	59.06	1.5	0.012	59.06	6.21	19.10
EZCS 5-12-12	Cross Tee	—————	60	1.5	0.012	60	6.00	18.75
EZCS 5-12-12-3S	Cross Tee	—————	60	1.5	0.012	60	6.00	18.75
EZCS 6-12-12	Cross Tee	—————	72	1.5	0.012	72	3.43	12.86
EZCS 8-12-12	Cross Tee	—————	96	1.5	0.012	48	10.48	26.19
EZCS 8-12-12	Cross Tee	—————	96	1.5	0.012	96	1.5	7.50
EZCS 2-12-20	Cross Tee	—————	24	1.5	0.020	24	50	62.50
EZCS 4-12-20	Cross Tee	—————	48	1.5	0.020	48	16.58	41.45
EZCS 6-12-20	Cross Tee	—————	72	1.5	0.020	72	4.71	17.66
EZCS 8-12-20	Cross Tee	—————	96	1.5	0.020	96	2	10.00
SmartfitYoke System with <sup>15</sup> / <sub>16</sub> " EZCS								
EZCS 12-12-20	Main Runner	Heavy Duty	144	1.5	0.020	48	16.58	41.45
EZCS 2-12-12	Cross Tee	—————	24	1.5	0.012	24	34.8	43.51
EZCS 4-12-12	Cross Tee	—————	48	1.5	0.012	48	9.67	24.16
Sloped <sup>15</sup> / <sub>16</sub> " EZ Stab Classic System (up to 30 Degrees) <sup>8</sup>								
EZCS 12-12-20	Main Runner	Heavy Duty	144	1.5	0.020	48	16.58	41.45
EZCS 12-12-15	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	36	27.2	51.00
EZCS 12-12-15	Main Runner	Intermediate Duty	144	1.5	0.015	48	13.56	33.9
EZCS 2-12-20	Cross Tee	—————	24	1.5	0.020	24	50	62.5
EZCS 4-12-20	Cross Tee	—————	48	1.5	0.020	48	16.58	41.45
<sup>15</sup> / <sub>16</sub> " EZ Torsion Spring System <sup>9</sup>								
EZTS 12-12-20	Main Runner	Intermediate Duty	144	1.5	0.020	48	15.25	---

TABLE 1—DIMENSIONS AND ALLOWABLE LOADS FOR SUSPENDED CEILING FRAMING MEMBERS

ITEM NUMBER	MEMBER TYPE	LOAD CLASSIFICATION	NOMINAL LENGTH OF MEMBER (inches)	HEIGHT OF MEMBER (inches)	METAL THICKNESS (inch)	MAXIMUM SPAN (inches)	ALLOWABLE UNIFORM LOAD (plf)	ALLOWABLE CONCENTRATED LOAD AT MIDSPAN (lbf) <sup>1</sup>
EZTS 12-12-20	Main Runner	Intermediate Duty	144	1.5	0.020	42	22.13	---
EZTS 2-12-12	Cross Tee	—————	24	1.5	0.012	24	34.8	43.51
EZTS 4-12-12	Cross Tee	—————	48	1.5	0.012	48	9.67	24.16
<sup>15</sup> / <sub>16</sub> " EZ Stab Classic Aluminum Capped System								
EZACS 12-12-20	Main Runner	Heavy Duty <sup>6</sup>	144	1.5	0.020	36	29.9	56.06
EZACS 12-12-20	Main Runner	Heavy Duty	144	1.5	0.020	48	16.7	41.72
EZACS 12-12-20	Main Runner	Heavy Duty <sup>6</sup>	144	1.5	0.020	60	6.7	20.94
EZACS 12-12-15	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	36	23.5	44.06
EZACS 12-12-15	Main Runner	Intermediate Duty	144	1.5	0.015	48	12.05	30.13
EZACS 12-12-15	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	60	5.00	15.63
EZACS 2-12-12	Cross Tee	—————	24	1.5	0.012	24	36.14	45.18
EZACS 4-12-12	Cross Tee	—————	48	1.5	0.012	48	8.98	22.44
<sup>15</sup> / <sub>16</sub> " EZ Stab Classic Environmental Stab System <sup>2</sup>								
EZEVS 12-12-20-G60	Main Runner	Heavy Duty <sup>6</sup>	144	1.5	0.020	36	29.9	56.06
EZEVS 12-12-20-G60	Main Runner	Heavy Duty	144	1.5	0.020	48	16.7	41.72
EZEVS 12-12-20-G60	Main Runner	Heavy Duty <sup>6</sup>	144	1.5	0.020	60	6.7	20.94
EZEVS 12-12-15-G60	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	36	23.5	44.06
EZEVS 12-12-15-G60	Main Runner	Intermediate Duty	144	1.5	0.015	48	12.05	30.13
EZEVS 12-12-15-G60	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	60	5.00	15.63
EZEVS 2-12-12-G60	Cross Tee	—————	24	1.5	0.012	24	36.14	45.18
EZEVS 4-12-12-G60	Cross Tee	—————	48	1.5	0.012	48	8.98	22.44
EZEVS 4-12-20-G60	Cross Tee	—————	48	1.5	0.020	48	16.7	41.72
EZEVS 12-12-20-G90	Main Runner	Heavy Duty <sup>6</sup>	144	1.5	0.020	36	29.9	56.06
EZEVS 12-12-20-G90	Main Runner	Heavy Duty	144	1.5	0.020	48	16.7	41.72
EZEVS 12-12-20-G90	Main Runner	Heavy Duty <sup>6</sup>	144	1.5	0.020	60	6.7	20.94
EZEVS 12-12-15-G90	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	36	23.5	44.06
EZEVS 12-12-15-G90	Main Runner	Intermediate Duty	144	1.5	0.015	48	12.05	30.13
EZEVS 12-12-15-G90	Main Runner	Intermediate Duty <sup>6</sup>	144	1.5	0.015	60	5.00	15.63
EZEVS 2-12-12-G90	Cross Tee	—————	24	1.5	0.012	24	36.14	45.18
EZEVS 4-12-12-G90	Cross Tee	—————	48	1.5	0.012	48	8.98	22.44
EZEVS 4-12-20-G90	Cross Tee	—————	48	1.5	0.020	48	16.7	41.72
<sup>15</sup> / <sub>16</sub> " EZ Stab Cleanroom System <sup>2</sup>								
EZCRS 12-12-20	Main Runner	Heavy Duty	144	1.5	0.020	48	16.6	41.47
EZCRS 2-12-12	Cross Tee	—————	24	1.5	0.012	24	45.6	57.01
EZCRS 4-12-12	Cross Tee	—————	48	1.5	0.012	48	10.6	26.48
EZCRS 4-12-20	Cross Tee	—————	48	1.5	0.020	48	16.4	41
<sup>15</sup> / <sub>16</sub> " FireSecure Stab Fire Rated System <sup>7</sup>								
FSS 12-12-15	Main Runner	Intermediate Duty	144	1.5	0.016	48	13.35	33.75
FSS 2-12-15	Cross Tee	—————	24	1.5	0.015	24	44	55.01
FSS 4-12-15	Cross Tee	—————	48	1.5	0.015	48	10.28 <sup>3</sup>	25.71
<sup>9</sup> / <sub>16</sub> " EZ Stab Bolt Slot ¼-inch								
4EZB 12-14-17-24	Main Runner	Heavy Duty	144	1.75	0.016	48	16.2	40.5
4EZB 12-14-17-48	Main Runner	Heavy Duty	144	1.75	0.016	48	16.2	40.5
4EZB 10-14-17-20	Main Runner	Heavy Duty	120	1.75	0.016	48	16.2	40.5
4EZB 10-14-17-30	Main Runner	Heavy Duty	120	1.75	0.016	48	16.2	40.5
4EZB 2-14-17-00	Cross Tee	—————	24	1.75	0.016	24	103.0	103.0
4EZB 4-14-17-00	Cross Tee	—————	48	1.75	0.016	48	16.2	40.5
4EZB 4-14-17-224	Cross Tee	—————	48	1.75	0.016	48	16.2	40.5
4EZB 4-14-17-124	Cross Tee	—————	48	1.75	0.016	48	16.2	40.5
4EZB 12-14-15-24	Main Runner	Intermediate Duty	144	1.75	0.014	48	14.2	35.5
4EZB 12-14-15-48	Main Runner	Intermediate Duty	144	1.75	0.014	48	14.2	35.5

TABLE 1—DIMENSIONS AND ALLOWABLE LOADS FOR SUSPENDED CEILING FRAMING MEMBERS

ITEM NUMBER	MEMBER TYPE	LOAD CLASSIFICATION	NOMINAL LENGTH OF MEMBER (inches)	HEIGHT OF MEMBER (inches)	METAL THICKNESS (inch)	MAXIMUM SPAN (inches)	ALLOWABLE UNIFORM LOAD (plf)	ALLOWABLE CONCENTRATED LOAD AT MIDSPAN (lbf) <sup>1</sup>
4EZB 10-14-15-20	Main Runner	Intermediate Duty	120	1.75	0.014	48	14.2	35.5
4EZB 10-14-15-30	Main Runner	Intermediate Duty	120	1.75	0.014	48	14.2	35.5
4EZB 1.67-14-15-00	Cross Tee	—————	20	1.75	0.014	20	114.4	95.3
4EZB 2-14-15-00	Cross Tee	—————	24	1.75	0.014	24	81.3	81.3
4EZB 2.5-14-15-00	Cross Tee	—————	30	1.75	0.014	30	51.5	64.4
4EZB 4-14-15-224	Cross Tee	—————	48	1.75	0.014	48	14.2	35.5
4EZB 4-14-15-124	Cross Tee	—————	48	1.75	0.014	48	14.2	35.5
4EZB 4-14-15-00	Cross Tee	—————	48	1.75	0.014	48	14.2	35.5
4EZB 5-14-15-00	Cross Tee	—————	60	1.75	0.014	60	7.5	23.4
4EZB 5-14-15-230	Cross Tee	—————	60	1.75	0.014	60	7.5	23.4
4EZB 5-14-15-220	Cross Tee	—————	60	1.75	0.014	60	7.5	23.4
4EZB 5-14-15-120	Cross Tee	—————	60	1.75	0.014	60	7.5	23.4
9/16" EZ Stab Bolt Slot 1/8-inch								
8EZB 12-14-17-24	Main Runner	Heavy Duty	144	1.75	0.016	48	16.1	40.2
8EZB 12-14-17-48	Main Runner	Heavy Duty	144	1.75	0.016	48	16.1	40.2
8EZB 10-14-17-20	Main Runner	Heavy Duty	120	1.75	0.016	48	16.1	40.2
8EZB 10-14-17-30	Main Runner	Heavy Duty	120	1.75	0.016	48	16.1	40.2
8EZB 2-14-17-00	Cross Tee	—————	24	1.75	0.016	24	96.8	96.8
8EZB 4-14-17-00	Cross Tee	—————	48	1.75	0.016	48	16.1	40.2
8EZB 4-14-17-224	Cross Tee	—————	48	1.75	0.016	48	16.1	40.2
8EZB 4-14-17-124	Cross Tee	—————	48	1.75	0.016	48	16.1	40.2
8EZB 12-14-15-24	Main Runner	Intermediate Duty	144	1.75	0.014	48	13.0	32.5
8EZB 12-14-15-48	Main Runner	Intermediate Duty	144	1.75	0.014	48	13.0	32.5
8EZB 10-14-15-20	Main Runner	Intermediate Duty	120	1.75	0.014	48	13.0	32.5
8EZB 10-14-15-30	Main Runner	Intermediate Duty	120	1.75	0.014	48	13.0	32.5
8EZB 1.67-14-15-00	Cross Tee	—————	20	1.75	0.014	20	115.8	96.5
8EZB 2-14-15-00	Cross Tee	—————	24	1.75	0.014	24	74.7	74.7
8EZB 2.5-14-15-00	Cross Tee	—————	30	1.75	0.014	30	48.9	61.1
8EZB 4-14-15-00	Cross Tee	—————	48	1.75	0.014	48	13.0	32.5
8EZB 4-14-15-224	Cross Tee	—————	48	1.75	0.014	48	13.0	32.5
8EZB 4-14-15-124	Cross Tee	—————	48	1.75	0.014	48	13.0	32.5
8EZB 5-14-15-00	Cross Tee	—————	60	1.75	0.014	60	7.6	23.8
8EZB 5-14-15-230	Cross Tee	—————	60	1.75	0.014	60	7.6	23.8
8EZB 5-14-15-220	Cross Tee	—————	60	1.75	0.014	60	7.6	23.8
8EZB 5-14-15-120	Cross Tee	—————	60	1.75	0.014	60	7.6	23.8
8EZB 6-14-15-224	Cross Tee	—————	144	1.80	0.015	72	4.8 <sup>3</sup>	18
8EZB 6-14-17-224	Cross Tee	—————	144	1.80	0.017	96	5.5 <sup>3</sup>	27.5
8EZB 8-14-15-224	Cross Tee	—————	144	1.80	0.015	72	2.1 <sup>3</sup>	7.9
8EZB 8-14-17-224	Cross Tee	—————	144	1.80	0.017	96	2.5 <sup>3</sup>	12.5
9/16" EZ Stab Tier Drop								
EZTD 12-14-18	Main Runner	Heavy Duty	144	1.75	0.017	48	16.5	41.2
EZTD 2-14-18	Cross Tee	—————	24	1.75	0.017	24	75.8	75.8
EZTD 4-14-18	Cross Tee	—————	48	1.75	0.017	48	16.5	41.2
EZTD 12-14-15	Main Runner	Intermediate Duty	144	1.75	0.015	48	15.0	37.5
EZTD 2-14-15	Cross Tee	—————	24	1.75	0.015	24	55.8	55.8
EZTD 2.5-14-15	Cross Tee	—————	30	1.75	0.015	30	42.0	52.5
EZTD 4-14-15	Cross Tee	—————	48	1.75	0.015	48	15.0	37.5
EZTD 5-14-15	Cross Tee	—————	60	1.75	0.015	60	7.8	24.4
EZTD 5-14-15-3S	Cross Tee	—————	60	1.75	0.015	60	7.8	24.4
EZTD 6-14-15	Cross Tee	—————	72	1.75	0.015	72	4.6	17.2
EZTD 8-14-15	Cross Tee	—————	96	1.75	0.015	96	2.0	10.0

TABLE 1—DIMENSIONS AND ALLOWABLE LOADS FOR SUSPENDED CEILING FRAMING MEMBERS

ITEM NUMBER	MEMBER TYPE	LOAD CLASSIFICATION	NOMINAL LENGTH OF MEMBER (inches)	HEIGHT OF MEMBER (inches)	METAL THICKNESS (inch)	MAXIMUM SPAN (inches)	ALLOWABLE UNIFORM LOAD (plf)	ALLOWABLE CONCENTRATED LOAD AT MIDSPAN (lbf) <sup>1</sup>
1 1/2" Drywall Grid System <sup>4</sup>								
DWS 3600MM-13-20	Main Runner	Heavy Duty	141.73	1.6	0.017	48	19.21	48.03
DWS 12-13-20	Main Runner	Heavy Duty	144	1.6	0.016	48	19.2	48.0
DWS 1.16-13-20	Cross Tee	—————	14	1.6	0.017	14	253.62	184.93
DWS 600MM-13-20	Cross Tee	—————	23.62	1.6	0.017	23.62	77.88	95.81
DWS 2-13-20	Cross Tee	—————	24	1.6	0.017	24	76.00	95.03
DWS 2.16-13-20	Cross Tee	—————	26	1.6	0.017	26	67.90	91.98
DWS 750MM-13-20	Cross Tee	—————	29.53	1.6	0.017	29.53	55.82	85.85
DWS 900MM-13-20	Cross Tee	—————	35.43	1.6	0.017	35.43	43.43	80.14
DWS 3-13-20	Cross Tee	—————	36	1.6	0.017	36	42.50 <sup>3</sup>	79.71
DWS 1200MM-13-20	Cross Tee	—————	47.24	1.6	0.017	47.24	20.08	49.41
DWS 4-13-20	Cross Tee	—————	48	1.6	0.017	48	18.32 <sup>3</sup>	45.8
DWS 4.16-13-20	Cross Tee	—————	50	1.6	0.017	50	16.6 <sup>3</sup>	43.35
DWS 1500MM-13-20	Cross Tee	—————	59.06	1.6	0.017	59.06	10.31	31.71
DWS 5-13-20	Cross Tee	—————	60	1.6	0.017	60	9.86	30.81
DWS 6-13-20	Cross Tee	—————	72	1.6	0.017	72	5.89 <sup>3</sup>	22.09
1 1/2" Drywall Torsion Spring System <sup>5</sup>								
TSW 12-13-20	Main Runner	Heavy Duty	144	1.6	0.017	48	16.29	---
TSW 2-13-20	Cross Tee	—————	24	1.6	0.017	24	76.00	95.03
TSW 4-13-20	Cross Tee	—————	48	1.6	0.017	48	18.32 <sup>3</sup>	45.8

For SI: 1 inch=25.4 mm; 1 lbf = 4.45 N, 1 plf = 14.6 N/m.

<sup>1</sup> Allowable concentrated loads at midspan are determined in accordance with AC308 Section 3.2. For each framing member, the allowable concentrated load must not be combined with the allowable uniform load.

<sup>2</sup> The 15/16" EZ Stab Classic Environmental System with a G60 hot-dipped galvanized coating. The 15/16" EZ Stab Cleanroom System has a G60 hot-dipped galvanized coating and includes a gasket tape on the interior flange side.

<sup>3</sup> Laterally braced at mid-span.

<sup>4</sup> All "DWS" items above are available in G90 hot dipped galvanized coating and identified with the item number ending in G90.

<sup>5</sup> Panels are hung from the main runners through the torsion springs as specified in Sections 3.1.1 and 3.1.2.

<sup>6</sup> Heavy duty and Intermediate duty ratings for main runners are based on main runner capacity at 4 foot span.

<sup>7</sup> All 15/16" FireSecure Stab Fire Rated System main runners must be installed in accordance with ASTM C636 with respect to the location of vertical support hanger wires; hanger wires are required on both sides of the fire break and as shown in Figure 16.

<sup>8</sup> Main runner span is measured along the slope and not its projection.

**TABLE 2—CEILING LOAD LIMITS (PSF) FOR DIFFERENT CONFIGURATIONS OF DRYWALL SYSTEMS (DWS) AT L/360 WITH CROSS TEES AT 24 INCHES ON CENTER**

		Hanger Spacing on Main Runner (inches) <sup>1</sup>		
		48	32	16
<b>Main Runner Spacing (inches on center)</b>	<b>72</b>	2.9	2.9	2.9
	<b>50</b>	4.5	8.3	8.3
	<b>48</b>	4.7	9.2	9.2
	<b>36</b>	6.2	10	10
	<b>24</b>	9.3	10	10

For SI: 1 inch=25.4 mm; 1 psf= 574.6 Pa.

<sup>1</sup>Hanger wires must comply with Section 3.3.2 of this report.

**TABLE 3—CEILING LOAD LIMITS (PSF) FOR DIFFERENT CONFIGURATIONS OF DRYWALL SYSTEMS (DWS) AT L/240 WITH CROSS TEES AT 24 INCHES ON CENTER**

		Hanger Spacing on Main Runner (inches) <sup>1</sup>		
		48	32	16
<b>Main Runner Spacing (inches on center)</b>	<b>72</b>	3.8	4.4	4.4
	<b>50</b>	5.5	10	10
	<b>48</b>	5.7	10	10
	<b>36</b>	7.6	10	10
	<b>24</b>	10	10	10

For SI: 1 inch=25.4 mm; 1 psf= 574.6 Pa.

<sup>1</sup>Hanger wires must comply with Section 3.3.2 of this report.

**TABLE 4—CEILING LOAD LIMITS (PSF) FOR DIFFERENT CONFIGURATIONS OF DRYWALL SYSTEMS (DWS) AT L/360 WITH CROSS TEES AT 16 INCHES ON CENTER**

		Hanger Spacing on Main Runner (inches) <sup>1</sup>		
		48	32	16
<b>Main Runner Spacing (inches on center)</b>	<b>72</b>	3.1	4.4	4.4
	<b>50</b>	4.5	10	10
	<b>48</b>	4.7	10	10
	<b>36</b>	6.2	10	10
	<b>24</b>	9.3	10	10

For SI: 1 inch=25.4 mm; 1 psf= 574.6 Pa.

<sup>1</sup>Hanger wires must comply with Section 3.3.2 of this report.

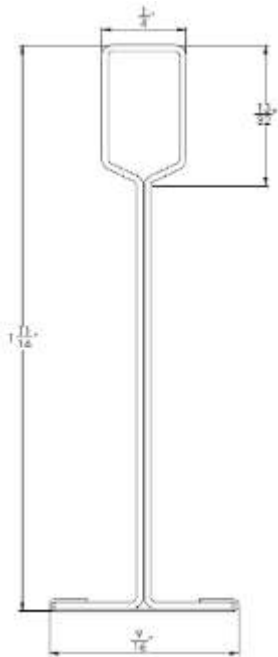
**TABLE 5—CEILING LOAD LIMITS (PSF) FOR DIFFERENT CONFIGURATIONS OF DRYWALL SYSTEMS (DWS) AT L/240 WITH CROSS TEES AT 16 INCHES ON CENTER**

		Hanger Spacing on Main Runner (inches) <sup>1</sup>		
		48	32	16
<b>Main Runner Spacing (inches on center)</b>	<b>72</b>	4.7	6.5	6.5
	<b>50</b>	6.7	10	10
	<b>48</b>	7.0	10	10
	<b>36</b>	9.3	10	10
	<b>24</b>	10	10	10

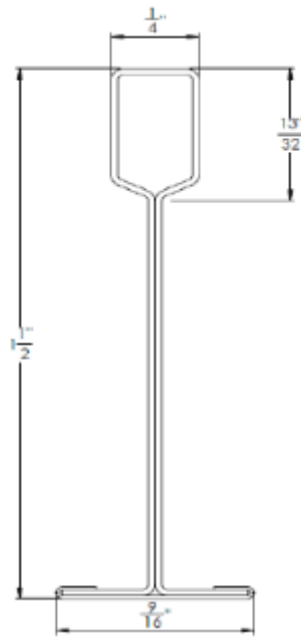
For SI: 1 inch=25.4 mm; 1 psf= 574.6 Pa.

<sup>1</sup>Hanger wires must comply with Section 3.3.2 of this report.

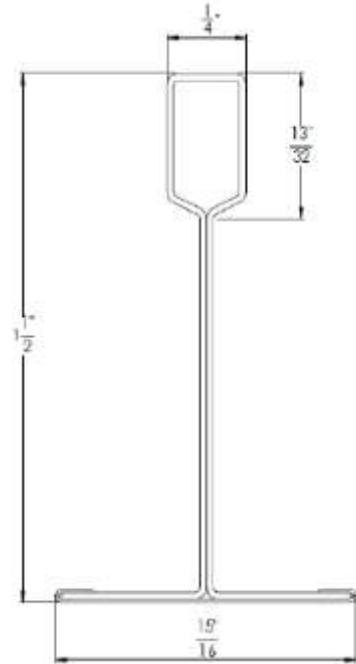
**9/16" EZ Stab Elite HD Grid Profile (EZES)**



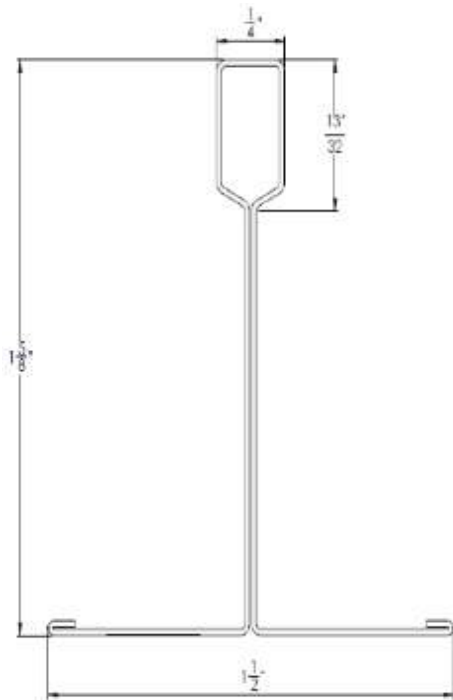
**9/16" EZ Stab Elite ID Grid Profile (EZES)**



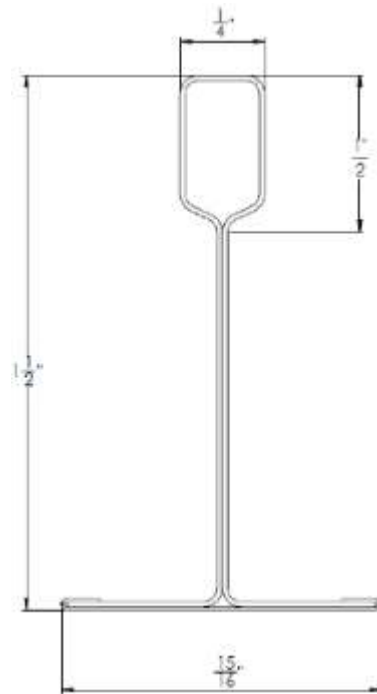
**15/16" EZ Stab Classic Grid Profile (EZCS) and 15/16" EZ Torsion Spring Grid Profile (EZTS)**



**Drywall Grid Profile (DWS) & Drywall Torsion Spring Grid Profile (TSW)**

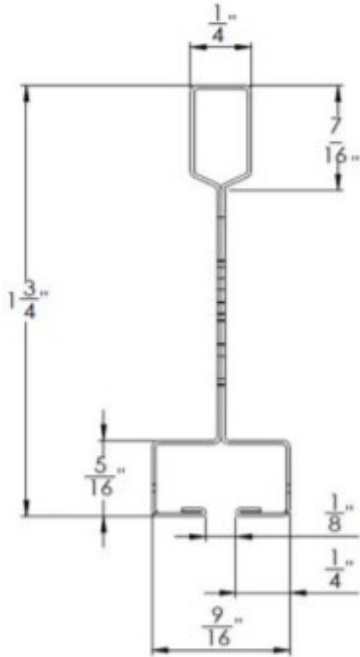


**FireSecure Grid Profile (FSS)**

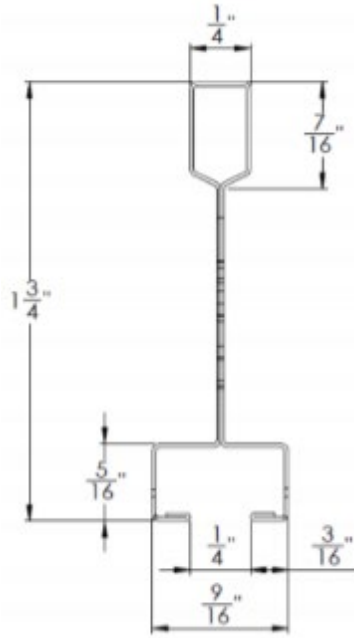


**FIGURE 1—FRAMING MEMBER PROFILES**

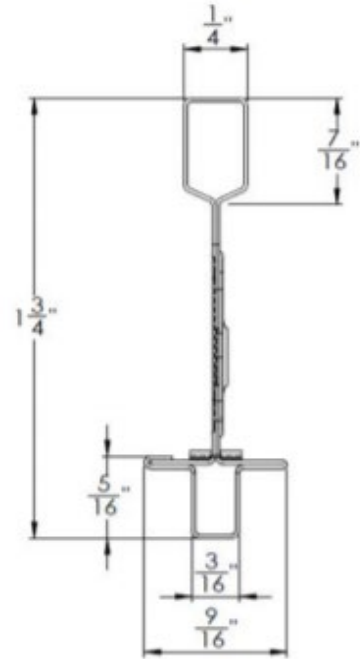
**9/16" Bolt Slot Grid Profile 1/8" (8EZB)**



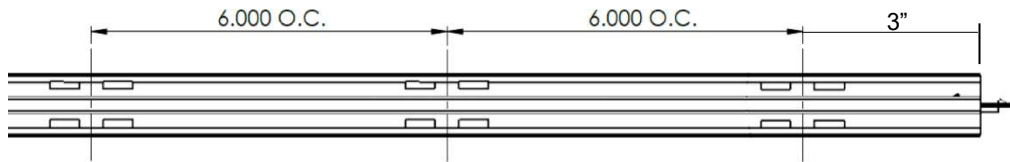
**9/16" Bolt Slot Grid Profile 1/4" (4EZB)**



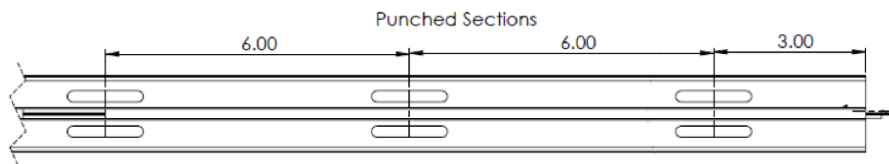
**Tier Drop Grid Profile (EZTD)**



**Flange Slots for EZTS**



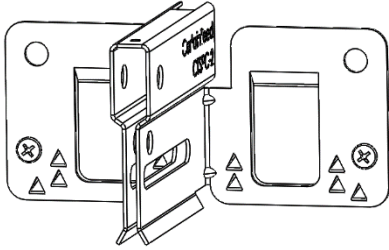
**Flange Slots for TSW**



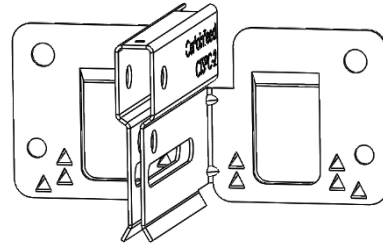
**FIGURE 1—FRAMING MEMBER PROFILES (continued)**



**CertainTeed Seismic  
Perimeter Clip (CTSPC-2):  
EZCS & EZES screw  
attachment at 4 PSF**



**CertainTeed Seismic  
Perimeter Clip 2  
(CTSPC-2)**



**CertainTeed LBRC Angle Clip**

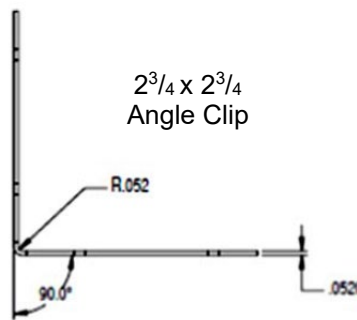


FIGURE 2 – SEISMIC PERIMETER CLIP

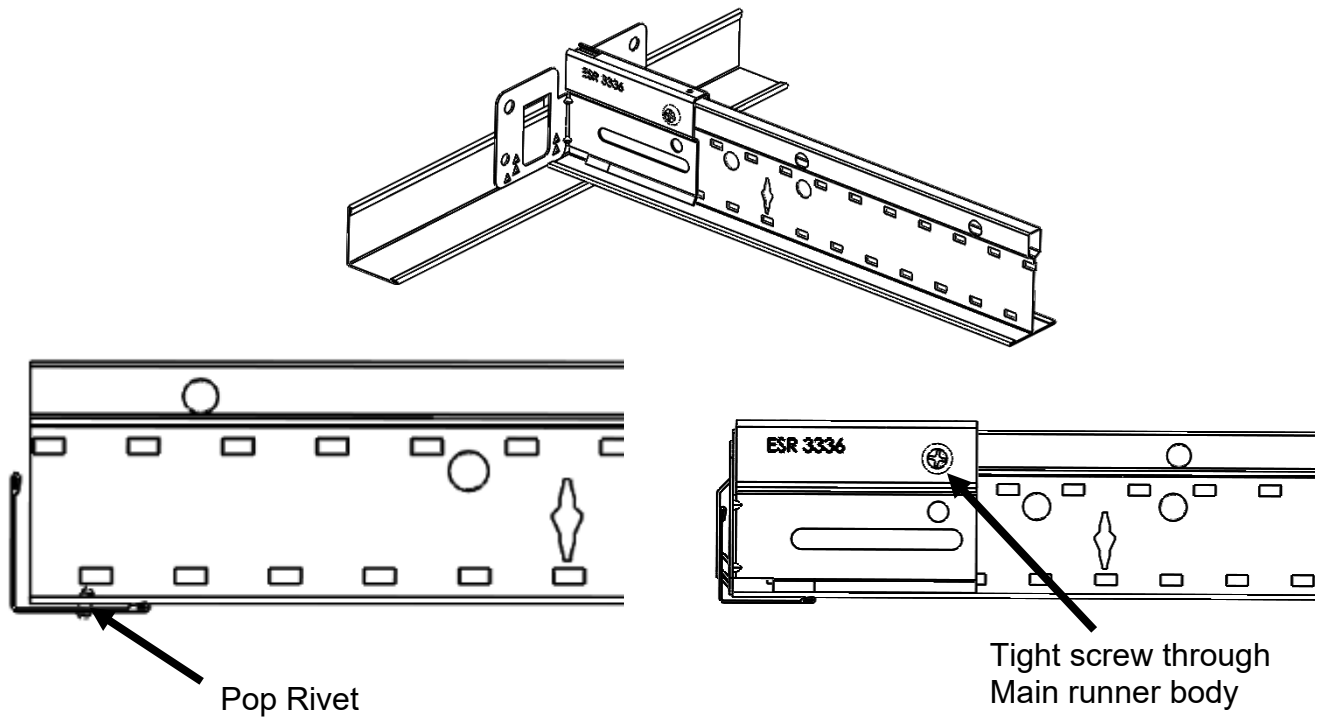


FIGURE 3A – SEISMIC PERIMETER CLIP FIXED WALL ASSEMBLY IN SECTION 4.2.1

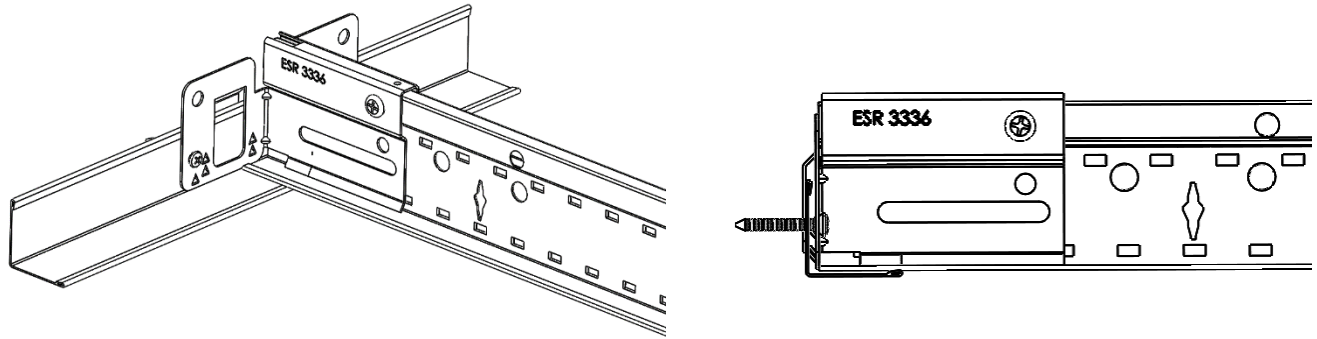


FIGURE 3B – SEISMIC PERIMETER CLIP (CTSPC-2 WITH TWO SCREW ATTACHMENT) FIXED WALL ASSEMBLY WITH WALL ANGLE (WA14-14) IN SECTIONS 4.2.2 AND 4.2.9

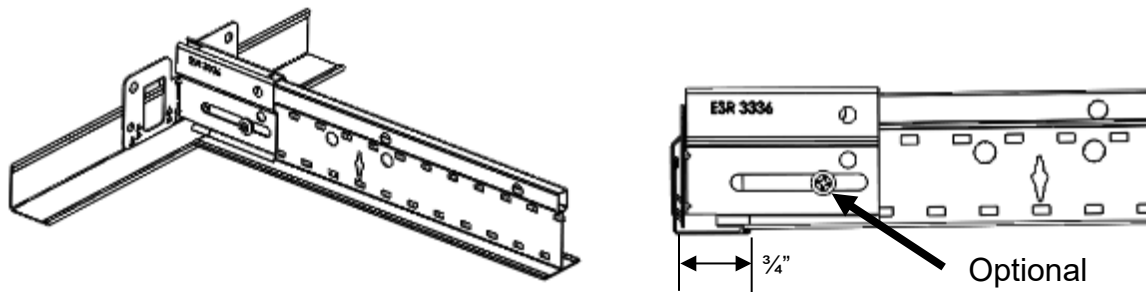


FIGURE 4A – SEISMIC PERIMETER CLIP FREE WALL ASSEMBLY IN SECTION 4.2.1

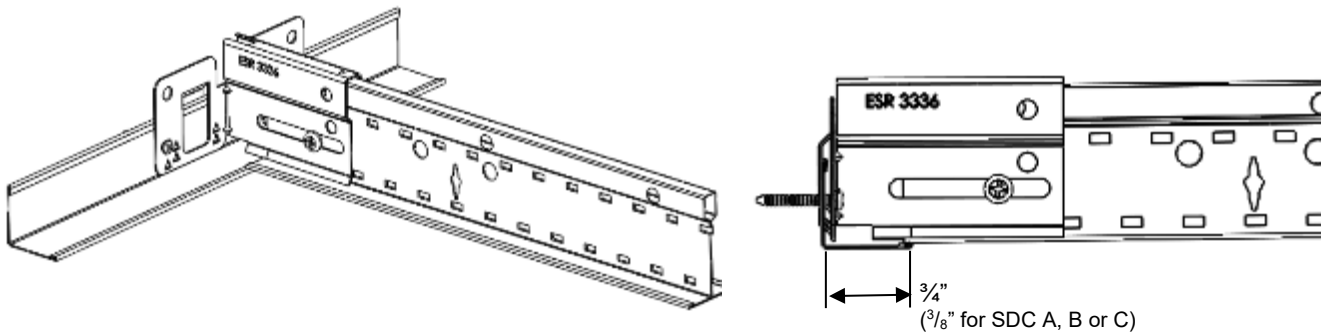


FIGURE 4B – SEISMIC PERIMETER CLIP (CTSPC-2 WITH TWO SCREW ATTACHMENT) FREE WALL ASSEMBLY WITH WALL ANGLE (WA14-14) IN SECTIONS 4.2.2, 4.2.6, 4.2.7, 4.2.8, 4.2.9, 4.2.10, 4.2.11 AND 4.2.12

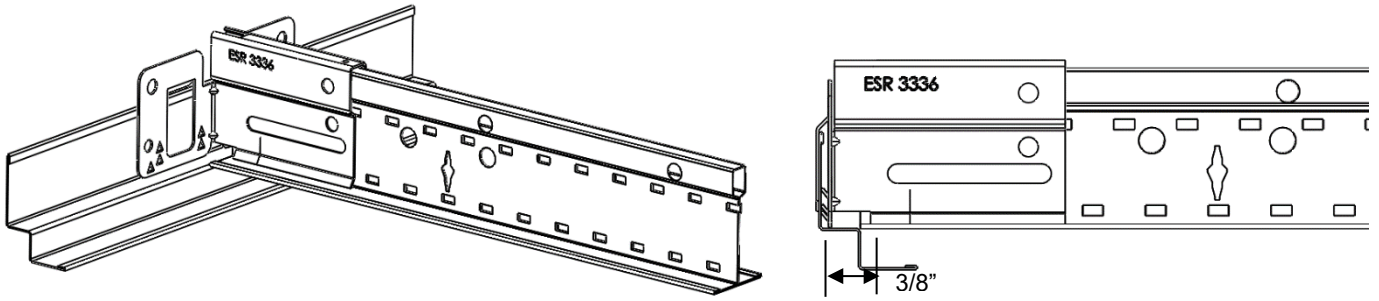


FIGURE 5 – SEISMIC PERIMETER CLIP FREE WALL SETUP FOR SEISMIC DESIGN CATEGORY C IN SECTION 4.2.4 (SHADOW MOLDING SM1020)

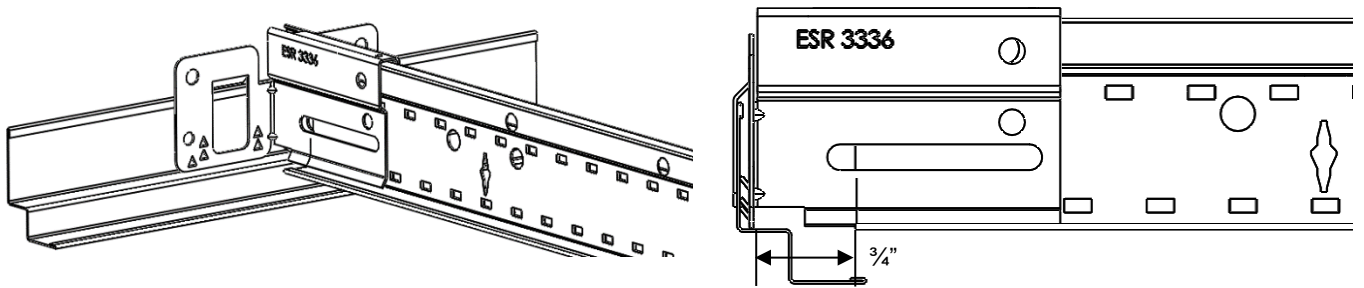


FIGURE 6A – SEISMIC PERIMETER CLIP FREE WALL SETUP FOR SEISMIC DESIGN CATEGORIES D, E, AND F IN SECTION 4.2.1 (SHADOW MOLDING SM1000)

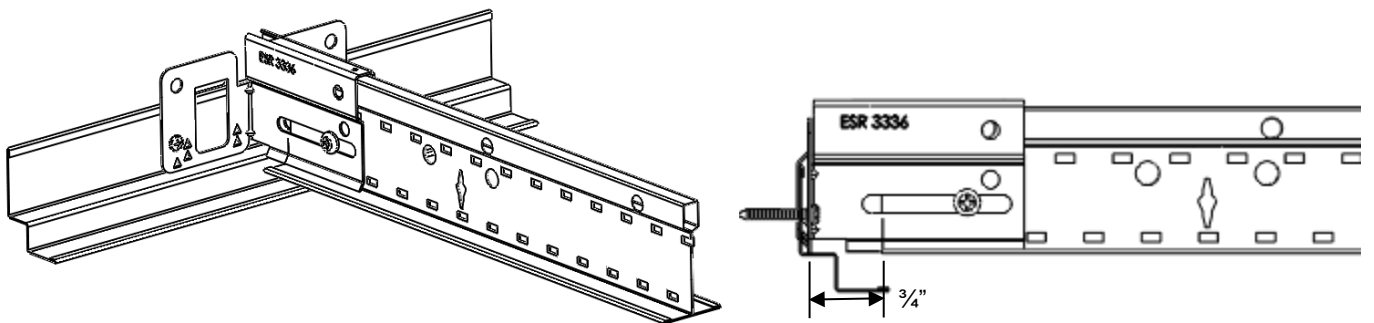


FIGURE 6B – SEISMIC PERIMETER CLIP (CTSPC-2 WITH TWO SCREW ATTACHMENT) FREE WALL SETUP FOR SEISMIC DESIGN CATEGORIES D, E, AND F IN SECTION 4.2.2 (SHADOW MOLDING SM1040 OR SM1050)

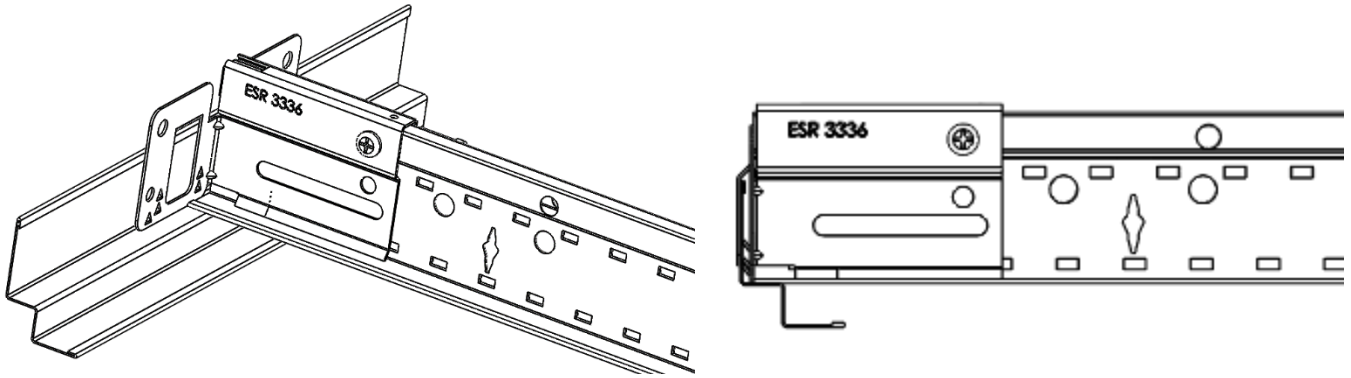


FIGURE 7A – SEISMIC PERIMETER CLIP FIXED WALL SETUP FOR SEISMIC DESIGN CATEGORIES D, E, AND F IN SECTION 4.2.1 (SHADOW MOLDING SM1000)

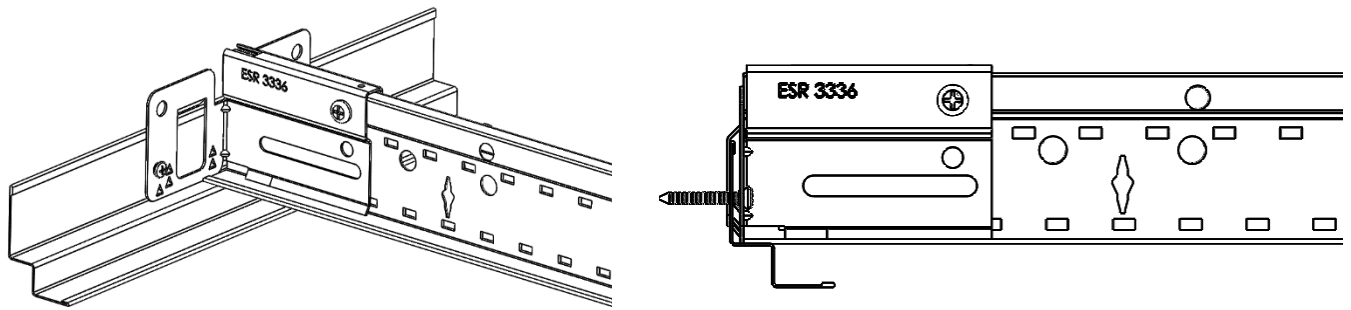


FIGURE 7B – SEISMIC PERIMETER CLIP (CTSPC-2 WITH TWO SCREW ATTACHMENT) FIXED WALL SETUP FOR SEISMIC DESIGN CATEGORIES D, E, AND F IN SECTION 4.2.2 (SHADOW MOLDING SM1040 OR SM1050)

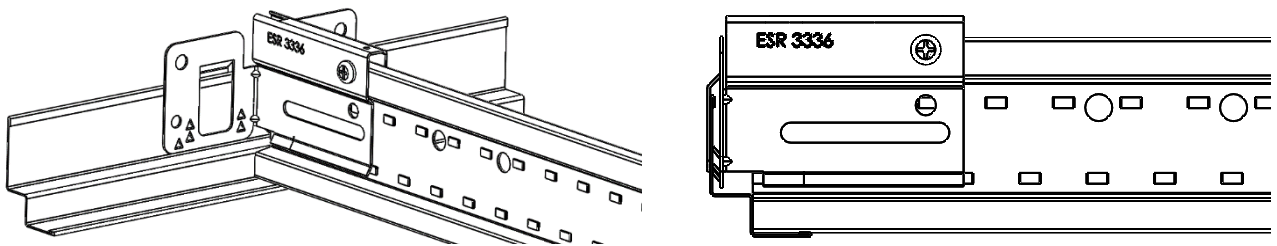


FIGURE 8 – 9/16” EZ STAB BOLT SLOTS AND 9/16” EZ STAB TIER DROP FIXED WALL SETUP WITH SHADOW MOLD (SM1020, SM1040 OR SM1050) AND SEISMIC PERIMETER CLIP (SEISMIC DESIGN CATEGORIES A, B, C, D, E, AND F) IN SECTION 4.2.3 AND 4.2.5

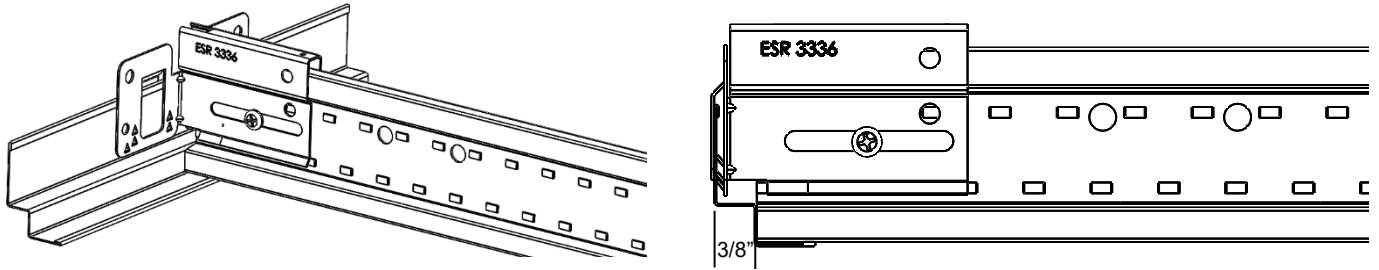


FIGURE 9 – 9/16" EZ STAB BOLT SLOTS AND 9/16" TIER DROP FREE WALL SETUP (LOOSELY SCREWED) WITH SHADOW MOLD (SM1040 OR SM1050) AND SEISMIC PERIMETER CLIP (SDC A, B, AND C) IN SECTION 4.2.5

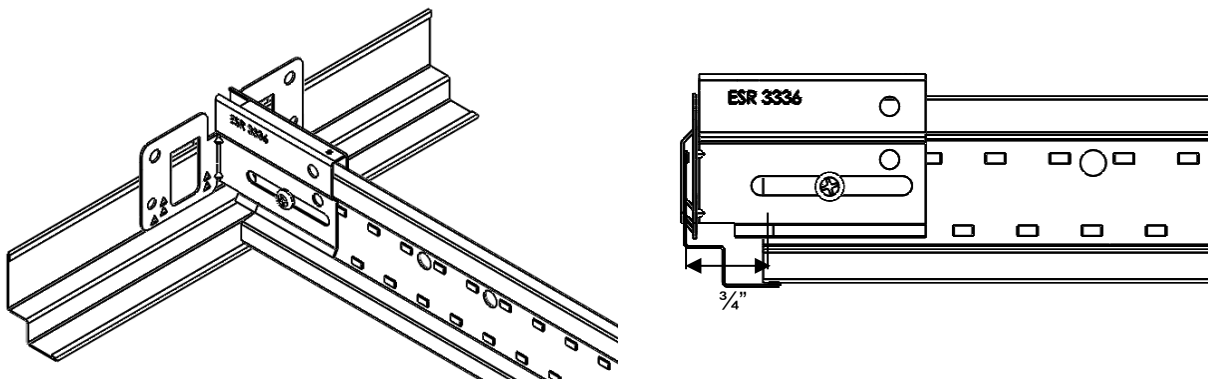


FIGURE 10—9/16" EZ STAB BOLT SLOTS AND 9/16" EZ STAB TIER DROP FREE WALL SETUP (LOOSELY SCREWED) WITH SHADOW MOLD (SM1020, SM1040 OR SM1050) AND SEISMIC PERIMETER CLIP (SEISMIC DESIGN CATEGORIES D, E AND F) IN SECTION 4.2.3

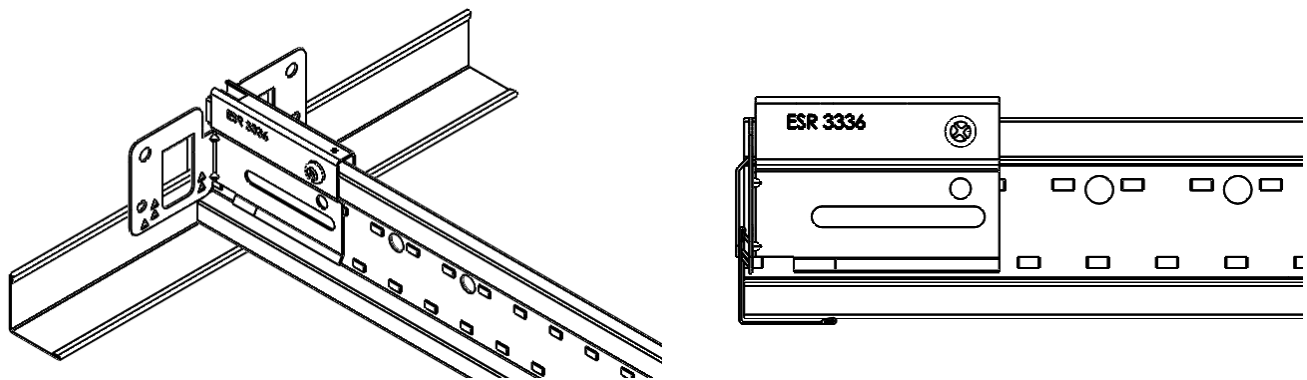


FIGURE 11—9/16" EZ STAB BOLT SLOTS AND 9/16" EZ STAB TIER DROP FIXED WALL SETUP WITH WALL ANGLE (WA14-14) AND SEISMIC PERIMETER CLIP (SEISMIC DESIGN CATEGORIES A, B, C, D, E AND F) IN SECTIONS 4.2.3 AND 4.2.5

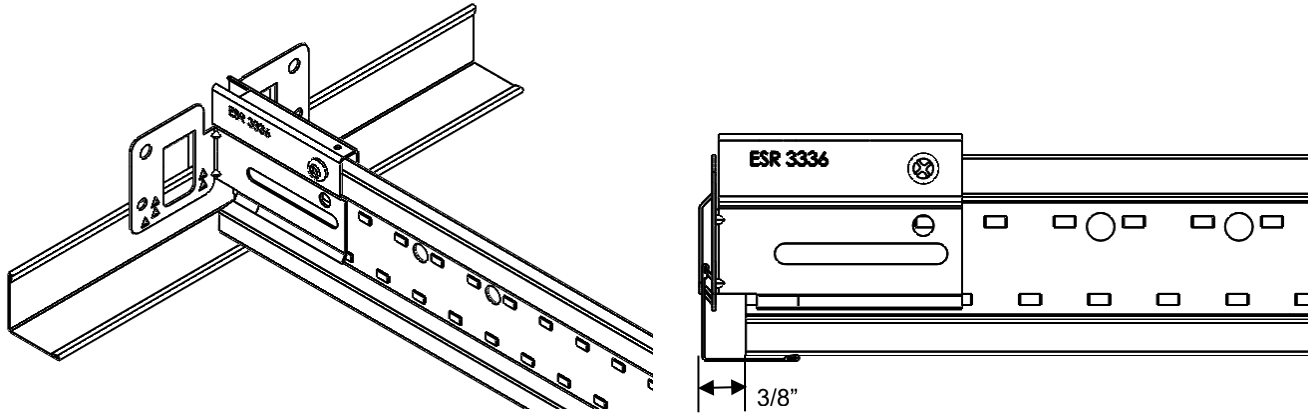


FIGURE 12— $\frac{9}{16}$ " EZ STAB BOLT SLOTS AND  $\frac{9}{16}$ " EZ STAB TIER DROP FIXED WALL SETUP (LOOSELY SCREWED) WITH WALL ANGLE (WA14-14) AND SEISMIC PERIMETER CLIP (SDCS A, B AND C) IN SECTION 4.2.5

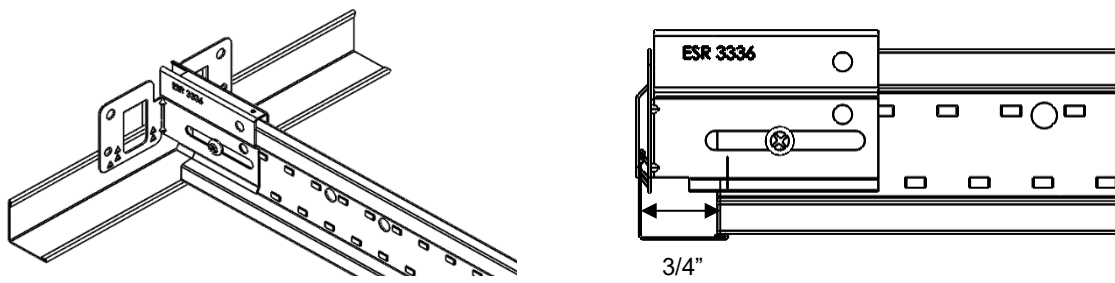
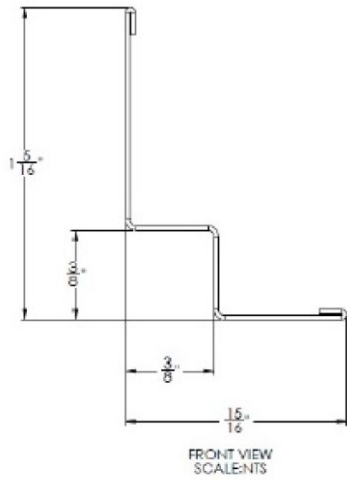
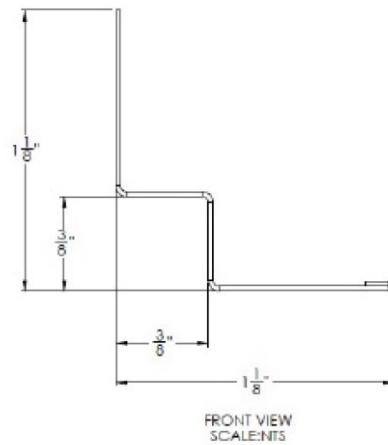


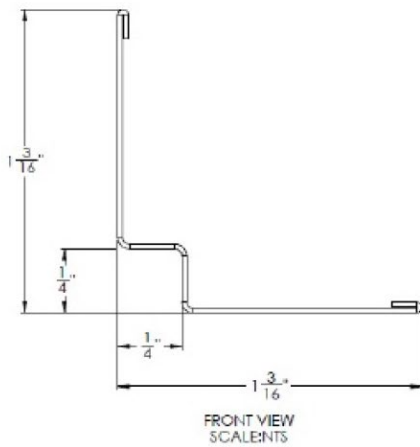
FIGURE 13— $\frac{9}{16}$ " EZ STAB BOLT SLOTS AND  $\frac{9}{16}$ " EZ STAB TIER DROP FREE WALL SETUP (LOOSELY SCREWED) WITH WALL ANGLE (WA14-14) AND SEISMIC PERIMETER CLIP (SDCS D, E AND F) IN SECTION 4.2.3



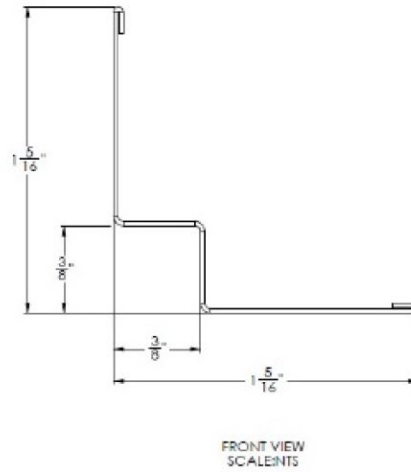
**SM1000**



**SM1020**

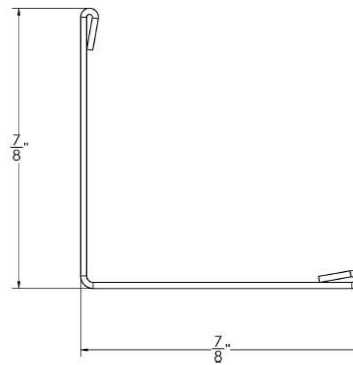


**SM1040**



**SM1050**

**FIGURE 14—SHADOW MOLDINGS AND WALL ANGLE**



**WA14-14**

**FIGURE 14—SHADOW MOLDINGS AND WALL ANGLE (CONTINUED)**

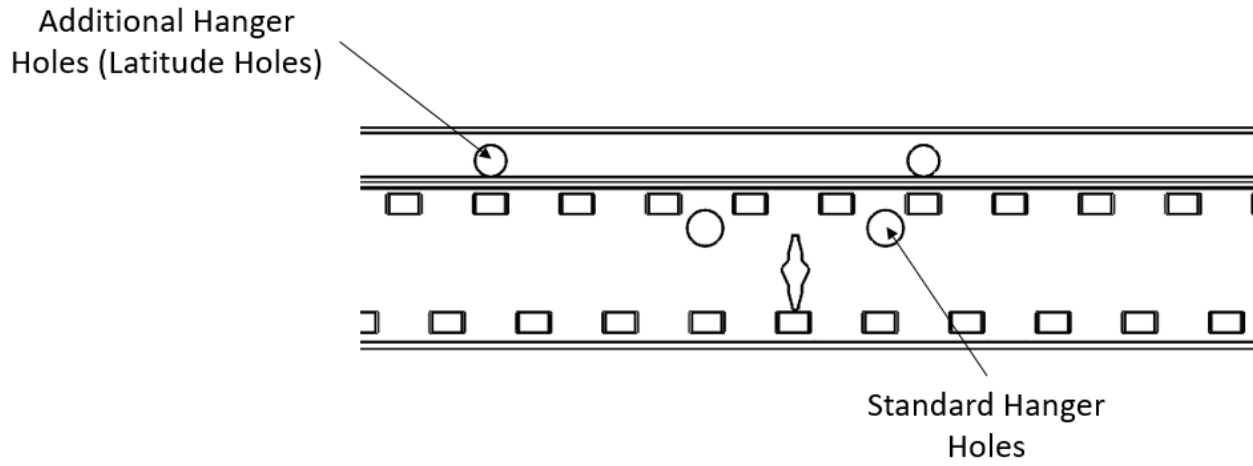


FIGURE 15—EZ HANGER HOLE LOCATIONS

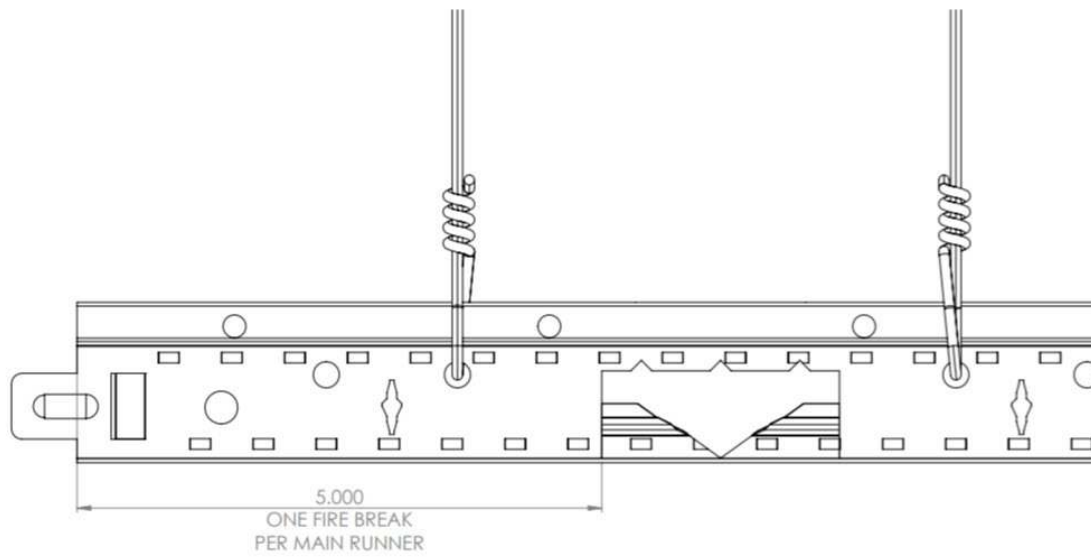
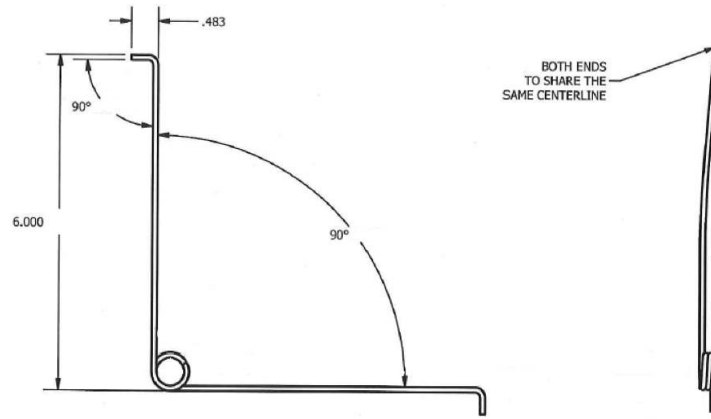
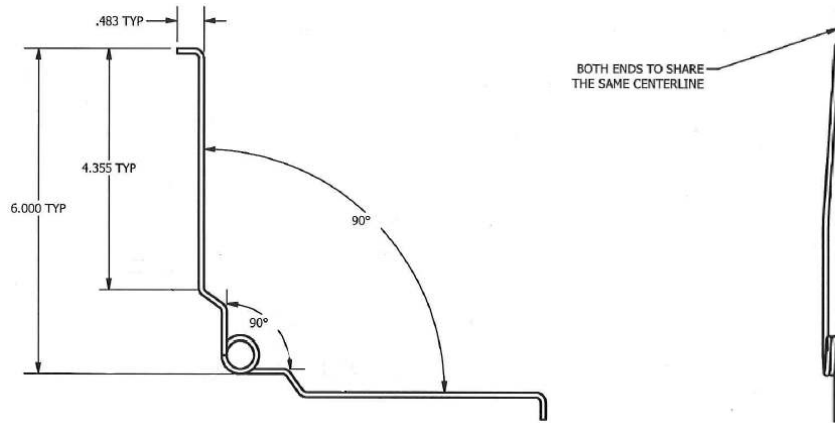


FIGURE 16—FIRE ASSEMBLY HANGER WIRE LOCATIONS





**TS34170-10 Heavy Duty Torsion Spring (0.091" Galvanized Steel Wire)**

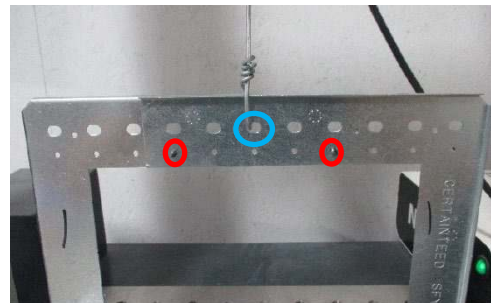
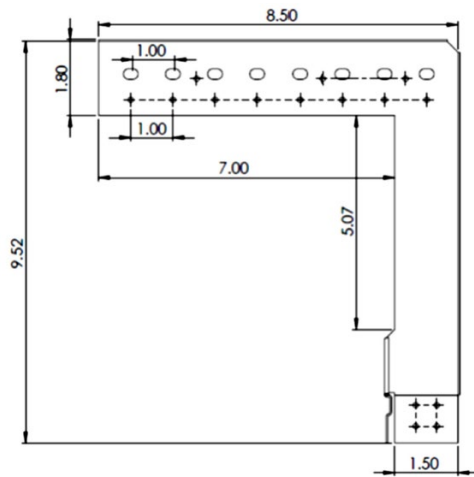
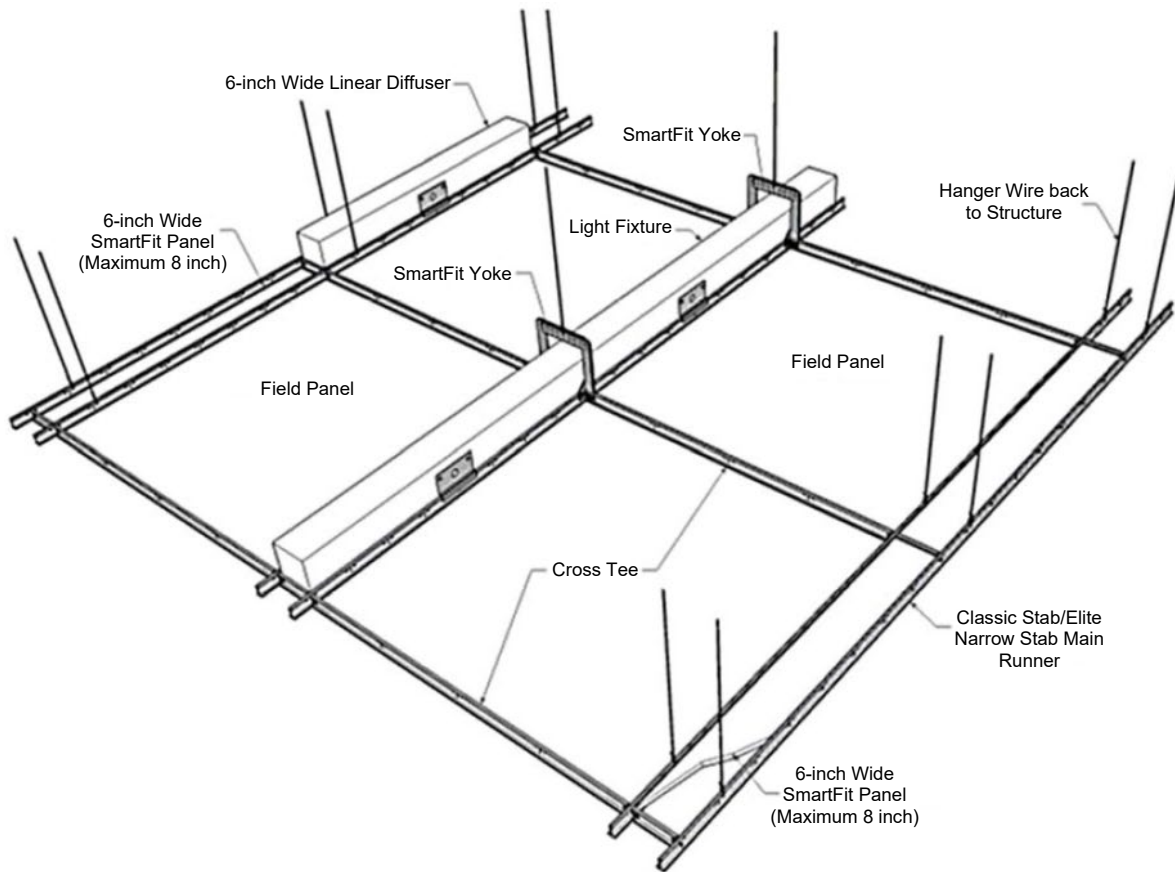


**TS34170-13 Exterior Torsion Spring (0.092" Galvanized Steel Wire)**

**FIGURE 17—TORSION SPRINGS FOR EZTS AND TSW GRID SYSTEMS**

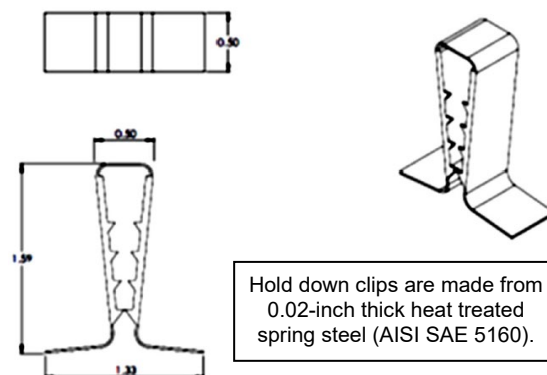


**FIGURE 18 – CERTAINTED LBRC ANGLE CLIP (WITH TWO SCREW ATTACHMENT AT EACH LEG) FIXED WALL ASSEMBLY WITH WALL ANGLE (WA14-14) IN SECTIONS 4.2.6, 4.2.9, 4.2.10, 4.2.11 AND 4.2.12**



Smartfit Yoke (two overlapping sections attached to each other with two #7 x 7/16" framing screws as shown in the red circles)

FIGURE 19—SMARTFIT YOKE SYSTEM (SFYK)



Hold down clips are made from 0.02-inch thick heat treated spring steel (AISI SAE 5160).

FIGURE 20—HOLD DOWN CLIPS FOR SLOPED CEILINGS

**DIVISION: 09 00 00—FINISHES**  
**Section: 09 22 26—Suspension Systems**  
**Section: 09 53 00—Acoustical Ceiling Suspension Assemblies**

**REPORT HOLDER:**

**CERTAINTeED CEILINGS CORPORATION**

**EVALUATION SUBJECT:**

**SUSPENDED CEILING FRAMING SYSTEMS AND SEISMIC PERIMETER CLIP**

## 1.0 REPORT PURPOSE AND SCOPE

**Purpose:**

The purpose of this evaluation report supplement is to indicate that the CertainTeed suspended ceiling framing systems and seismic perimeter clip, described in ICC-ES evaluation report [ESR-3336](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code edition:**

- 2020 *City of Los Angeles Building Code* (LABC)

## 2.0 CONCLUSIONS

The CertainTeed suspended ceiling framing systems and seismic perimeter clip, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3336](#), comply with the LABC Chapters 8, 16 and 25, and are subjected to the conditions of use described in this supplement.

## 3.0 CONDITIONS OF USE

The CertainTeed suspended ceiling framing systems and seismic perimeter clip described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-3336](#).
- The design, installation, conditions of use and identification of the CertainTeed suspended ceiling framing systems and seismic perimeter clip are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-3336](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Main runners shall be identified by indentation or by nontransferable decal with letters not less than 1/4-inch high, and shall include the company name, runner designation and load rating.

This supplement expires concurrently with the evaluation report, reissued January 2023 and revised June 2024.

**DIVISION: 09 00 00—FINISHES****Section: 09 22 26—Suspension Systems****Section: 09 53 00—Acoustical Ceiling Suspension Assemblies****REPORT HOLDER:****CERTAINTED CEILINGS CORPORATION****EVALUATION SUBJECT:****SUSPENDED CEILING FRAMING SYSTEMS AND SEISMIC PERIMETER CLIP****1.0 EVALUATION SCOPE****Compliance with the following code:**

- 2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architect (DSA), see Sections 2.1 and 2.2 below.

**2.0 CONCLUSIONS**

The Suspended Ceiling Framing Systems and Seismic Perimeter Clip, described in Sections 2.0 through 7.0 of the evaluation report ESR-3336, comply with CBC Chapters 8, 16 and 25, provided the design and installation are in accordance with the 2018 *International Building Code* (IBC) provisions, as applicable, noted in the evaluation report, and the additional requirements of CBC Chapters 8, 16, 17 and 25, as applicable.

**2.1. OSHPD:**

The Suspended Ceiling Framing Systems and Seismic Perimeter Clip, described in Section 2.0 through 7.0 of the evaluation report ESR-3336, comply with CBC Chapters 8, 16, 17 and 25, with applicable amendments, and Chapters 16A and 17A, provided the design and installation are in accordance with the 2018 *International Building Code* (IBC) provisions noted in the evaluation report, and the additional requirements in Sections 2.1.1 through 2.1.2 of this supplement:

**2.1.1. Conditions of Use:**

1. All loads applied shall be determined by a registered structural engineer and shall comply with applicable loads from CBC Chapter 16 and its amendments, and Chapter 16A.
2. Section 13.5.6.2 of ASCE 7 shall be revised in accordance with CBC Section 1617A.1.21 [OSHPD 1 & 4].
3. Design and installation shall comply with the requirements of OSHPD Preapproved Details (OPD) OPD-0002-13 and OPD-0003-13, as applicable.

**2.1.2. Special Inspection Requirements:**

1. Periodic special inspection is required, in accordance with Section 1705A.12.5 of the CBC [OSHPD 1 & 4].
2. Where gypsum wallboard is used in suspended ceiling installations, additional inspection shall be in accordance with CBC Section 2503.2 [OSHPD 1, 1R, 2, 4 & 5].

**2.2. DSA:**

The Suspended Ceiling Framing Systems and Seismic Perimeter Clip, described in Section 2.0 through 7.0 of the evaluation report ESR-3336, comply with CBC Chapters 8, 16, 17 and 25, with applicable amendments, and Chapters 16A and 17A, provided the design and installation are in accordance with the 2018 *International Building Code* (IBC) provisions noted in the evaluation report, and the additional requirements in Sections 2.2.1 through 2.2.2 of this supplement:

**2.2.1. Conditions of Use:**

1. All loads applied shall be determined by a registered structural engineer and shall comply with applicable loads from CBC Chapter 16 and its amendments, and Chapter 16A.
2. Section 13.5.6.2 of ASCE 7 shall be revised in accordance with CBC Section 1617.11.16 [DSA-SS/CC] and Section 1617A.1.21 [DSA-SS].
3. Design and installation shall comply with the requirements of DSA Interpretation of Regulations (IR) DSA IR 25-2.13 and DSA IR 25-3.13 as applicable.

**2.2.2. Special Inspection Requirements:**

1. Periodic special inspection is required, in accordance with Section 1705A.12.5 of the CBC [DSA-SS & DSA-SS/CC].
2. Where gypsum wallboard is used in suspended ceiling installations, additional inspection shall be in accordance with CBC Section 2503.2 [DSA-SS, DSA-SS/CC].

This supplement expires concurrently with the evaluation report, reissued January 2023 and revised June 2024.