



ICC-ES Evaluation Report

ESR-1222

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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:

USG INTERIORS, LLC

EVALUATION SUBJECT:

- USG DONN® (DX/DXL, DXLA, DXW, DXWCE, DXCE, SDX/SDXL, ZXLA), DONN FINELINE® (DXF), DONN FINELINE 1/8 (DXFF), DONN CENTRICITEE™ (DXT) AND DONN IDENTITEE® (DXI) SUSPENDED CEILING FRAMING SYSTEMS
- USG DONN PARALINE® (DXP AND DXLP) SUSPENDED CEILING SYSTEM
- USG CELEBRATION™ SNAP-IN SUSPENDED CEILING FRAMING SYSTEMS
- USG CELEBRATION™ TORSION SPRING; USG CEILINGS PLUS® ILLUSIONS® AND USG CEILING PLUS® EXPANSE® SUSPENDED CEILING FRAMING SYSTEMS
- USG CURTAIN POCKETS
- ACM7 AND MAC2 CEILING ATTACHMENT CLIPS
- DH4 4-WAY SEISMIC SEPARATION JOINT 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 Los Angeles Department of Building and Safety (LADBS), see [ESR-1222 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-1222 CBC Supplement](#).

Properties evaluated:

- Interior finish
- Fire resistance
- Structural

2.0 USES

The USG suspended ceiling framing systems described in this report are suspended, exposed framing, concealed ceiling assemblies used in fire-resistance-rated and non-fire-resistance-rated construction for applications as noted in this report.

The ACM7 or MAC2 ceiling attachment clip is used to connect main and cross runners to wall molding.

The DH4 4-way seismic separation joint clips are used to connect the USG’s suspended ceiling systems, described in this evaluation report, at the seismic separation joints to break large ceiling area into areas less than 2,500 ft² (232 m²) that have a ratio of the long to short dimension of the suspended ceiling less than four.

3.0 DESCRIPTION

3.1 Ceiling Framing and Ceiling Systems:

3.1.1 Acoustical Suspended Ceiling Framing Systems:

The Donn, Donn Fineline, Donn Centricitee and Donn Identitee are suspended ceiling systems used as acoustical suspended ceiling framing systems consisting of main and cross runner framing members for installation of acoustical tiles.

3.1.2 Donn Paraline Suspended Ceiling System:

The Donn Paraline suspended ceiling system consists of main and cross runner framing systems and Paraline metal pans used as ceiling tiles.

3.1.3 USG Celebration Snap-In System:

The USG Celebration Snap-In suspended ceiling system consists of main and cross runner framing systems and USG Celebration Snap-In metal panels used as ceiling tiles.

3.1.4 USG Celebration Torsion Spring, USG Ceilings Plus Illusions and USG Ceilings Plus Expanse Systems:

The USG Celebration Torsion Spring, USG Ceilings Plus Illusions and USG Ceilings Plus Expanse suspended ceiling systems consist of main and cross runner framing systems and metal panels used as ceiling tiles. The metal panels are secured to the framing members using torsion springs.

3.1.5 USG Curtain Pockets: The USG Curtain Pockets are installed along the perimeter of the ceiling system to allow for concealment of window curtains. The framing members are attached to the curtain pocket members using clips and the curtain pocket members are attached to the supporting structure.

3.2 ACM7 and MAC2 Clips:

The clips are manufactured from 0.028-inch-thick (0.711 mm), hot-dipped galvanized, cold-rolled steel complying with ASTM A568.

3.3 DH4 4-Way Seismic Separation Joint Clip:

The clip is manufactured from 0.028-inch-thick (0.711 mm), hot-dipped galvanized steel, complying with the material specifications in the approved quality documentation. The clips are measured 5.2 inches (132 mm) in length and 1.3 inches (33 mm) in height.

3.4 Accessories:

Each suspended ceiling system is available with a variety of wall angles, moldings, access angles and corner caps.

3.5 Materials:

3.5.1 Framing Members: Main runners and cross runners are described in Table 1 and Figure 6 of this report, which provides the cross-sectional dimensions, lengths and allowable transverse loads. Main runners are classified as either Intermediate or Heavy-Duty as shown in Table 1 in accordance with ASTM C635. The steel body of the suspension system members are hot-dipped galvanized in accordance with ASTM A653 with a coating designation G30, except that DXFEV and ZXLA members have a G90 coating prior to being painted. The exposed surface of the bottom flange of the framing members is covered with a pre-painted flange capping of either steel or aluminum. The end clips of DX cross tees are high-strength, low alloy steel complying with ASTM A568 and ASTM A879. The end clips of the DXFEV and ZXLA cross tees are formed from Type 300 series stainless steel complying with ASTM A480.

3.5.1.1 Donn Finline, Centricitee, Identitee and Paralane Exposed and Concealed Ceiling Suspension Systems for Use with Acoustical Tiles and Metal Pans: The cross tees, main tees and Paralock® main tees are formed from steel meeting ASTM A653 CS Type B. Carbon steel composition conforms to ASTM A568, and zinc coating conforms to ASTM A653.

3.5.2 Hanger Wire: Hanger wire for suspended ceiling framing members, and fixtures, must comply with ASTM C636 as referenced in 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 General: The suspended ceiling framing systems installed with acoustical tiles, the Paralane metal pans or Celebration metal panels must be designed and 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 tension and compression capacity of framing member connections is 180 pounds (800 N).

4.1.1 Main Runners: The maximum design loads for main runners must be less than or equal to the allowable capacities noted in Table 1 of this report.

4.1.2 Cross Runners: The maximum design load for cross runners must be less than or equal to the allowable capacities shown in Table 1 of this report.

4.1.3 DH4 4-Way Seismic Separation Joint Clip: The DH4 clips are nondirectional clips and are used at the seismic separation joints of main runners or cross runners of the USG suspension systems: DONN® Suspension Systems, DX®/DXLTM, DXF Finline®, DXFF Finline® 1/8", DXT Centricitee™, DXLATM, DXI Identitee™ and ZXLATM (Environmental). Alternative seismic designs are assembled using a concealing 3-inch-long (76 mm) Tee-Face Sleeve (TFS). Seismic separation joints may be placed on main runners or cross runners and may be constructed at the intersections of main runners and cross runners. The clips must allow the seismic separation joints to move $\pm 3/4$ inches (19 mm) along the long dimension of the clips. Fastener holes and expansion slots provided for installations of fasteners enable fail-safe installation with no requirements for extra hangers or special fasteners. When installed over the bulbs of runners, the clips must not interfere with light fixtures. The clips allow for a full size acoustical panel at the separation joints to maintain the strength and a squareness of the suspension system. Where multiple seismic separation joints are needed to break large suspended ceilings into areas less than 2,500 ft² (232 m²), the locations of the joints must be determined by a registered design professional. See Figure 3 for the product description and typical installation details.

4.2 Seismic Design:

4.2.1 General: 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 7-16 for the 2021 and 2018 IBC (ASCE 7-10 for the 2015 and 2012 IBC and ASCE 7-05 for the 2009 and 2006 IBC) as referenced in IBC Section 1613, except as noted in Section 4.1.4 of this report. Systems with main runners classified as Intermediate-duty are limited to use in Seismic Design Categories A, B and C. Lighting fixtures may also be attached to the grid with clips complying with the ICC-ES Acceptance Criteria for Attachment Devices for Recessed Lighting Fixtures (Luminaires) in Suspended Ceiling Systems (AC184).

4.2.2 Partitions: Partitions must be laterally supported as required by Section 13.5.8 of ASCE 7-16 for 2021 and 2018 IBC (ASCE 7-10 for the 2015 and 2012 IBC and ASCE 7-05 for the 2009 and 2006 IBC, as referenced by IBC Section 1613).

4.3 Alternate Suspended Ceiling Framing Systems for Acoustical Tiles:

4.3.1 Alternate Installation for Seismic Design Categories D, E and F: With this installation, the Donn, Centricitee, Finline, Identitee and Aluminum Cap or Exposed Systems (DX/DXL, DXW, DXT, DXF, DXFF, DXI, DXLA, and ZXLA), main must be heavy duty as described in Section 3.5.1. Maximum total ceiling weight permitted is 4.0 lb/ft² (19.5 kg/m²). The ACM7 clips, MAC2 clips or pop rivets are used to secure the main runners and cross runners to the perimeter members (wall closures or wall moldings) on two adjacent walls and to allow free movement of the runners on the two opposing walls. See Figures 1, 2, 2B and 2C. A nominally 7/8-inch-wide wall closure angle (molding) is used in lieu of the 2-inch-wide (50.8 mm) perimeter wall molding 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. Except for the use of the ACM7 clips, MAC2 clips or pop rivets and the nominally 7/8-inch-wide wall molding and the elimination of spacer bars (stabilizer bars), installation of the ceiling system must be as prescribed by the applicable code.

The ACM7 clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. On the two adjacent walls where the runners are fixed, the clips are attached to the runner by a sheet metal screw through the clip into the bulb of the tee (See Figure 2). The MAC2 clip is attached by fastening to the wall molding with one sheet metal screw. An additional screw is fastened through one of the side holes of the MAC2 into the top bulb of the runner (See Figure 2C). Instead of fixed connections (or restrained connections) provided by ACM7 clip (See Figure 2) or by MAC2 clip (see Figure 2c), a $\frac{1}{8}$ -inch (3 mm) diameter pop rivet may be used to connect the runner end to the wall molding for a fixed connection (See Figure 2B). On the walls where the runners are not fixed (or runners are unrestrained), the ACM7 clips allow the terminal runner end to move $\frac{3}{4}$ inch (19.1 mm) towards and away from the wall (See Figure 1).

Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, the ACM7 clips and MAC2 clips must be screwed to the wall molding with two (2) sheet metal screws and the wall molding must be positively attached to the wall studs or other supporting structure. The ACM7 clips, MAC2 clips or pop rivets installed in this manner are used in lieu of the spacer bars (stabilizer bars) required in Section 5 of ASTM E580 for the 2021, 2018, 2015 and 2012 IBC (CISCA for Seismic Zones 3-4 for the 2009 and 2006 IBC). ASTM E580 is referenced in Section 13.5.6.2.2 of ASCE 7-16 under the 2021 and 2018 IBC and ASCE 7-10 under the 2015 and 2012 IBC, in which ASCE 7 is referenced in 2021, 2018, 2015 and 2012 IBC Section 1613 (CISCA for Seismic Zones 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which is referenced in 2009 and 2006 IBC Section 1613). The assemblies described in this Section 4.1.4.1 are equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580.

4.3.2 Alternate Installation with ACM7 clips and USG Logix Yoke for Seismic Design Categories D, E and F: With this installation, the Donn Systems (DX/DXL), main runner must be heavy duty as described in Section 3.5.1. Maximum total ceiling weight permitted is 4.0 lb/ft² (19.5 kg/m²). The ACM7 clips are used to secure the main runners and cross runners to the wall molding, as detailed below and shown in Figures 1 and 2. A nominally $\frac{7}{8}$ -inch (22 mm) wall molding is used in lieu of the 2-inch (51 mm) perimeter supporting closure angle required by Section 5.2.2 of 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 (b) of ASCE 7-05 for the 2009 IBC] for Seismic Design Categories D, E and F. The ceiling system must be as prescribed by the applicable code except for the use of the ACM 7 clips and the $\frac{7}{8}$ -inch (22 mm) wall molding and elimination of spreader bars.

The ACM7 clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. On the two adjacent walls where the runners are fixed, the clips are attached to the runner by a sheet metal screw through the clip into the bulb of the tee (See Figure 2). On the walls where the runners are not fixed (or runners are unrestrained), the ACM7 clips allow the terminal runner end to move $\frac{3}{4}$ inch (19.1 mm) towards and away from the wall (See Figure 1). Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, the ACM7 clips must be screwed to the wall molding with two (2) sheet metal screws and the wall molding must be positively attached to the wall studs or other supporting structure. The ACM7 clips installed in this manner are used in lieu of the spacer bars (stabilizer bars) required in Section 5 of ASTM E580 for the 2021, 2018, 2015 and 2012 IBC (CISCA for Seismic Zones 3-4 for the 2009 and 2006 IBC). ASTM E580

is referenced in Section 13.5.6.2.2 of ASCE 7-16 under the 2021 and 2018 IBC and ASCE 7-10 under the 2015 and 2012 IBC, in which ASCE 7 is referenced in 2021, 2018, 2015 and 2012 IBC Section 1613 (CISCA for Seismic Zones 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which is referenced in 2009 and 2006 IBC Section 1613). The assemblies described in this Section 4.1.4.2 are equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580.

Each USG Logix yoke assembly must be suspended from the structure above with a vertical 12 gauge steel wire through the center hole of the top of the yoke assembly. The yoke assembly must be attached to the main runners and to the cross tees using a single $\frac{1}{8}$ -inch-diameter (3.175 mm) steel pop rivet complying with Industrial Fastener Institute Standard IFI-114 at 24 inches (609.6 mm) from the perpendicular end of the main runner and spaced at every 48 inches (1219.2 mm) on center. All lighting fixtures must be installed in accordance with Section 5.3 of ASTM E580

4.3.3 Alternate Installation with ACM7 Clips and BP Clips Attached to USG Curtain Pocket for Seismic Design Categories D, E and F: With this installation, the Donn System (DX/DXL), main runner must be heavy duty as described in Section 3.5.1. Maximum total ceiling weight permitted is 4.0 lb/ft² (19.5 kg/m²). On the two adjacent fixed walls, the ACM7 clips are used to secure the main runners and cross runners to the perimeter members (wall closures or wall moldings) as shown in Figure 1. On the two adjacent floating walls, the BP clips are used to secure the main and runners to the Curtain Pockets to allow free movement of the runners on the two opposing walls. The USG Curtain Pocket must be rigidly attached to the supporting structure. See Figure 2D. A nominally $\frac{7}{8}$ -inch-wide wall closure angle (molding) on the adjacent fixed walls and BP clips secured to USG Curtain Pocket on the floating adjacent walls are used in lieu of the 2-inch-wide (50.8 mm) perimeter wall molding 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. Except for the use of the ACM7 clips attached to $\frac{7}{8}$ -inch-wide wall molding, BP clips attached to USG Curtain Pocket and the elimination of spacer bars (stabilizer bars), installation of the ceiling system must be as prescribed by the applicable code.

The ACM7 clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. On the two adjacent walls where the runners are fixed, the clips are attached to the runner by a sheet metal screw through the clip into the bulb of the tee (See Figure 2). On the walls where the runners are not fixed (or runners are unrestrained), the BP clips are secure to the USG Curtain Pocket to allow the terminal runner end to move $\frac{3}{4}$ inch (19.1 mm) towards and away from the wall (See Figure 2D). Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, the ACM7 clips and BP clips must be screwed to the wall molding and USG Curtain Pocket, respectively, with two (2) sheet metal screws, and the wall molding or USG Curtain Pocket must be positively attached to the wall studs or other supporting structure. The ACM7 clips or BP clips installed in this manner are used in lieu of the spacer bars (stabilizer bars) required in Section 5 of ASTM E580 for the 2021, 2018, 2015 and 2012 IBC (CISCA for Seismic Zones 3-4 for the 2009 and 2006 IBC). ASTM E580 is referenced in Section 13.5.6.2.2 of ASCE 7-16 under the 2021 and 2018 IBC and ASCE 7-10 under the 2015 and 2012 IBC, in which ASCE 7 is referenced in 2021, 2018, 2015 and 2012 IBC Section 1613 (CISCA for Seismic Zones 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which is referenced in 2009 and 2006 IBC Section 1613).

The assemblies described in this Section 4.1.4.3 are equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580.

4.3.4 Alternate Installation for Seismic Design Category C: The ACM7 clip may be used in lieu of spacer bars (stabilizer bars) in suspended ceiling installations regulated by ASTM E580 for the 2021, 2018, 2015 and 2012 IBC (CISCA for Seismic Zones 0-2 for the 2009 and 2006 IBC). The ACM7 clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. The ACM7 clips are placed at the intersections of all runners and the wall angle (molding) on the floating/unrestrained walls (See Figure 1), except where pop rivets or the MAC2 clips are used on the fixed or restrained walls as shown in Figures 2B and 2C. The ACM7 clips must be positioned to allow a minimum $\frac{3}{8}$ -inch (9.5 mm) movement in both directions (towards and away from the wall) on two adjacent walls while the terminated ends of the main and cross runners are fixed tight to the perimeter on the two opposite walls (See Figures 2B and 2C). The maximum ceiling weight permitted is 2.5 lb/ft² (12.19 kg/m²). Except for the use of the ACM7 clip, MAC2 clip or pop rivet and the elimination of spacer bars (stabilizer bars), installation of the ceiling system must be as prescribed by the applicable code. The assemblies described in this Section 4.1.4.4 are equivalent to that required by Section 4 of ASTM E580, referenced in Section 13.5.6.2.1 of ASCE 7-16 under the 2021 and 2018 IBC, ASCE 7-10 under the 2015 and 2012 IBC; in which ASCE 7 is referenced in 2021, 2018, 2015 and 2012 IBC Section 1613 (CISCA for Seismic Zones 0-2, referenced in ASCE 7-05, Section 13.5.6.2.1, which is referenced in 2009 and 2006 IBC Section 1613).

4.3.5 Alternate Suspended Ceiling Framing Systems for USG Celebration Snap-In System in Seismic Design Categories D, E and F: With this installation, the USG Celebration Snap-In System (DXFH), main runner must be heavy duty as described in Section 3.5.1. Maximum total ceiling weight permitted is 4.0 lb/ft² (19.5 kg/m²). The ACM7 clips and MAC2 clips are used to secure the main runners and cross runners to the perimeter members (wall closures or wall moldings) on two adjacent walls and to allow free movement of the runners on the two opposing walls. See Figures 1, 2 and 2C. A nominally $\frac{7}{8}$ -inch-wide wall closure angle (molding) is used in lieu of the 2-inch-wide (50.8 mm) perimeter wall molding 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. Except for the use of the ACM7 clips or MAC2 clips and the nominally $\frac{7}{8}$ -inch-wide wall molding and the elimination of spacer bars (stabilizer bars), installation of the ceiling system must be as prescribed by the applicable code.

The ACM7 clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. On the two adjacent walls where the runners are fixed, the clips are attached to the runner by a sheet metal screw through the clip into the bulb of the tee (See Figure 2). The MAC2 clip is attached by fastening to the wall molding with one sheet metal screw. An additional screw is fastened through one of the side holes of the MAC2 into the top bulb of the runner (See Figure 2C). On the walls where the runners are not fixed (or runners are unrestrained), the ACM7 clips allow the terminal runner end to move $\frac{3}{4}$ inch (19.1 mm) towards and away from the wall (See Figure 1). Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, the ACM7 clips and MAC2 clips

must be screwed to the wall molding with two (2) sheet metal screws and the wall molding must be positively attached to the wall studs or other supporting structure. The ACM7 clips or MAC2 clips installed in this manner are used in lieu of the spacer bars (stabilizer bars) required in Section 5 of ASTM E580 for the 2021, 2018, 2015 and 2012 IBC (CISCA for Seismic Zones 3-4 for the 2009 and 2006 IBC). ASTM E580 is referenced in Section 13.5.6.2.2 of ASCE 7-16 under the 2021 and 2018 IBC and ASCE 7-10 under the 2015 and 2012 IBC, in which ASCE 7 is referenced in 2021, 2018, 2015 and 2012 IBC Section 1613 (CISCA for Seismic Zones 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which is referenced in 2009 and 2006 IBC Section 1613). The assemblies described in this Section 4.1.4.5 are equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580. The Celebration Snap-In Metal panels must be interlocked with the framing members.

4.3.6 Alternate Suspended Ceiling Framing System for USG Celebration Torsion Spring, USG Ceilings Plus Illusions and USG Ceilings Plus Expanse Systems in Seismic Design Categories D, E and F: With this installation, the USG Celebration Torsion Spring, USG Ceilings Plus Illusions and USG Ceilings Plus Expanse Systems (DX/DXL/TSCP), main must be heavy duty as described in Section 3.5.1. Maximum total ceiling weight permitted is 4.0 lb/ft² (19.5 kg/m²). The ACM7 clips are used to secure the main runners and cross runners to the perimeter members (wall closures or wall moldings) on two adjacent walls and to allow free movement of the runners on the two opposing walls. Two sets of 2-inch-wide (50.8 mm) wall closure angles (molding) must be installed along the perimeter. The upper molding is used to connect the main and cross runners on fixed and floating sides using ACM7 clips. The lower molding is used to support the Celebration Torsion Spring metal panels along the perimeter. See Figures 2E and 2F. Except for the use of the ACM7 clips and the elimination of spacer bars (stabilizer bars), installation of the ceiling system must be as prescribed by the applicable code.

The ACM7 clip is attached to the wall molding by sliding the locking lances over the hem of the vertical leg of the wall molding. The ACM7 clip must be attached to wall molding using one screw. On the two adjacent walls where the runners are fixed, the clips are attached to the runner by a sheet metal screw through the clip into the bulb of the tee (See Figure 2F). On the walls where the runners are not fixed (or runners are unrestrained), the ACM7 clips allow the terminal runner end to move $\frac{3}{4}$ inch (19.1 mm) towards and away from the wall (See Figure 2E). Under the 2021 and 2018 IBC, as required by Section 13.5.6.2.2 of ASCE 7-16, the ACM7 clips must be screwed to the wall molding with two (2) sheet metal screws and the wall molding must be positively attached to the wall studs or other supporting structure. The ACM7 clips installed in this manner are used in lieu of the spacer bars (stabilizer bars) required in Section 5 of ASTM E580 for the 2021, 2018, 2015 and 2012 IBC (CISCA for Seismic Zones 3-4 for the 2009 and 2006 IBC). ASTM E580 is referenced in Section 13.5.6.2.2 of ASCE 7-16 under the 2021 and 2018 IBC and ASCE 7-10 under the 2015 and 2012 IBC, in which ASCE 7 is referenced in 2021, 2018, 2015 and 2012 IBC Section 1613 (CISCA for Seismic Zones 3-4 is referenced in ASCE 7-05, Section 13.5.6.2.2, which is referenced in 2009 and 2006 IBC Section 1613). The assemblies described in this Section 4.1.4.6 are equivalent to that required by CISCA 3-4 and Section 5 of ASTM E580. The Celebration Torsion Spring Metal panels must be supported by engaging torsion springs with the framing members.

4.4 Fire-resistance-rated Ceiling Assemblies:

4.4.1 Donn (DXL and SDXL) Fire-resistance-rated Ceiling Systems:

4.4.1.1 Two-hour Fire-resistance-rated Exposed Floor-ceiling System: The DXL and SDXL systems consist of a bulb tee with $1^{5}/_{16}$ -inch-wide (23.8 mm) lower flange and main and cross-tee sizes shown in Table 1. The main tees are spaced 4 feet (1219 mm) on center and the cross tees are spaced 2 feet (610 mm) on center. The main tees are supported 48 inches (1219 mm) on center with No. 12 gage galvanized steel wires. Additionally, the same wires support the four corners of light fixtures and the center of each cross tee adjacent to the fixtures and air outlet ducts. The structural framing system consists of a minimum W8 x 15 steel beam that supports a minimum No. 18 gage, $1^{1}/_{2}$ -inch-deep (38.1 mm) steel deck with flutes spaced 6 inches (152.4 mm) on center. The deck is welded to supports at 12 inches (604.8 mm) on center with welded or button-punched seams spaced 36 inches (914.4 mm) on center. Cellular steel decks may also be used. The decks are covered with normal-weight concrete having a minimum compressive strength of 3,500 psi (24.13 MPa) to a thickness of $2^{1}/_{2}$ inches (63.5 mm) over the top flute. Approved, recessed, 2-foot-by-4-foot (610 mm by 1219 mm) light fixtures may be used in the ceiling when spaced at up to 16 square feet (1.49 m²) per 100 square feet (9.29 m²) of ceiling area. The light fixtures must be independently supported by hanger wires. Approved air duct openings with approved dampers with a maximum opening dimension of 12 inches (305 mm) may be used in the ceiling, provided they are spaced at up to 113 square inches (0.073 m²) per 100 square feet (9.29 m²) of ceiling area. The lay-in acoustical material is USG Interiors, LLC $5/8$ -inch-thick (15.8 mm), Type FR-83 nonperforated tile. The acoustical material is also used for protection of recessed light fixtures and consists of a three-sided enclosure cut to provide a 1-inch (25.4 mm) clearance around the fixture. The pieces are held together with three 6d nails on each side. Light fixtures located below or adjacent to a beam must have an additional piece of acoustical material laid on top of the enclosure. Hold-down clips spaced 2 feet (610 mm) on center are used to anchor the acoustical material weighing less than 1 psf (4.9 kg/m²). The overall assembly depth is $24^{3}/_{8}$ inches (619 mm). The restrained and unrestrained rating of the assembly is two hours. The unrestrained beam rating is four hours. See Table 1 for allowable loads.

4.4.1.2 One-hour Fire-resistance-rated Exposed Roof-ceiling System: The DXL and SDXL systems consist of a bulb tee with $1^{5}/_{16}$ -inch-wide (23.8 mm) lower flange and main and cross-tee sizes as shown in Table 1. The main tees are spaced 4 feet (1219 mm) on center and the cross tees are spaced 2 feet (610 mm) on center. The main tees are supported 4 feet (1219 mm) on center with No. 12 gage galvanized steel wires. Additionally, the same size wires support the framing members at the four corners of light fixtures and the center of each cross tee adjacent to the fixtures and air outlet ducts. Approved, recessed, 2-foot-by-4-foot (610 mm by 1219 mm) light fixtures may be used in the ceiling when spaced at up to 24 square feet (2.29 m²) per 100 square feet (9.29 m²) of ceiling area. The light fixtures must be independently supported by hanger wires. Approved air duct openings with approved dampers may be used in ceilings that have a maximum opening dimension of 30 inches (762 mm), and these are spaced at up to 576 square inches (0.372 m²) per 100 square feet (9.29 m²) of ceiling area for steel ducts. The lay-in acoustical material is USG Interiors, LLC, $5/8$ -inch-thick (15.8 mm), Type FR-83 ceiling panel tiles. The acoustical material is also used for protection of recessed light fixtures and

consists of a three-sided rectangular enclosure cut to provide a 1-inch (25.4 mm) clearance around the fixture. The pieces are held together with three 6d nails on each side. Light fixtures located below or adjacent to a beam must have an additional piece of acoustical material laid on top of the enclosure. The overall assembly depth is 24 inches (50.8 mm). The restrained and unrestrained assembly rating is one hour. For additional support and installation details, see Figure 4. The roof consists of minimum No. 22 gage (0.020 inch thick), 1-inch-deep (25.4 mm), galvanized steel deck, with 1-inch-wide (25.4 mm) flutes at $3^{1}/_{2}$ inches (89 mm) on center. Steel joists, 10 inches (254 mm) deep, are spaced 48 inches (1219 mm) on center. Decking is secured to the joists with $1/2$ -inch-diameter (12.7 mm) puddle welds through weld washers at 12 inches (305 mm) on center. United States Gypsum Company Type SCX gypsum wallboard, 4 feet (1219 mm) wide and $5/8$ inch (15.8 mm) thick, is placed with the long dimension perpendicular to the deck. Board end joints must be staggered a minimum of 1 foot (304.8 mm) from adjacent courses. A layer of vinyl vapor barrier is laminated over the wallboard. One or more layers of mineral and fiber insulation boards comprise the roof insulation. The boards are a minimum of 24 inches by 48 inches (610 mm by 1219 mm) by 1 inch (25.4 mm) thick. The first layer is placed perpendicular to the gypsum sheathing with end joints staggered a minimum of 2 feet (610 mm) from adjacent courses. Subsequent insulation board layers must have all joints staggered from adjacent layers a minimum of 12 inches (305 mm). The first two layers are secured through the gypsum sheathing into the decking with mechanical fasteners. Additional insulation board layers are adhered with hot asphalt or coal tar pitch at a rate not exceeding 25 lb_m/ft² (122 kg/m²). A Class A, B or C built-up roof covering is applied over the insulation. The suspended ceiling grid system is hung by No. 12 gage galvanized steel wires, 48 inches (1219 mm) on center, tied to main runners and bottom chord of steel joists. The ceiling must be suspended a minimum of 24 inches (610 mm) below the bottom of the roof deck and a minimum of 12 inches (305 mm) below steel joists.

4.4.1.3 One-hour Fire-resistance-rated Concealed Floor-ceiling Systems: These systems support an approved $3/4$ -inch-thick (19.05 mm), 12-inch (305 mm) square non-ventilating acoustical mineral tile with kerfed edges. Hold-down clips are used for each tile around the perimeter. The galvanized steel DXL24 or SDXL24 main tee and DXL424 or SDXL424 cross-tee framing members support 2-foot-by-4-foot (610 mm-by-1219 mm) approved recessed light fixtures having slotted air openings on each side for $34^{1}/_{2}$ -inch-long-by- $1^{1}/_{4}$ -inch-wide (876 mm by 31.7 mm) air boots. All air boots are provided with approved fire dampers. The stabilizer bars oppose the cross tees that support the long edge of the light fixtures, and are connected to the main tee. Light fixture framing members are supported at each corner of the fixture and at midspan of the cross tees along the long edge of the fixture. The light fixtures must be independently supported by hanger wires. Hanger wires are No. 12 gage galvanized steel. All main runners are supported with the hanger wires at 48 inches (1219 mm) on center, except at light fixtures where the supports are at the fixture corners. For additional support and installation details, see Figure 4. All light fixtures are protected above by a rectangular-shaped box consisting of $5/8$ -inch-thick (15.8 mm), approved mineral fiber board. Each side of the box is fastened to the top with four 7d coated nails. The structural framing system consists of open web steel joists spaced at 24 inches (610 mm) on center and supported by steel beams. The top and bottom of the joists are braced with $1/2$ -inch-diameter (12.7 mm) steel bars spaced at 7 feet (2.1 m) on center and welded to each joist.

Expanded 3.4 lb/yd² (1.8 kg/m²), 3/8-inch (9.52 mm) ribbed metal lath is placed over the joists with ribs transverse to the joists. Normal-weight concrete with a 28-day compressive strength of 3,000 psi (20.68 MPa) and an average thickness of 2³/₄ inches (70 mm) is placed over the metal lath. The entire assembly is 21¹/₂ inches (546 mm) deep, including the ceiling and concrete.

The approved light fixtures may occupy a maximum of 16 square feet (1.49 m²) per 100 square feet (9.29 m²) of ceiling area. See Table 1 for allowable loads.

4.4.2 Paraline™ (DXLP) Linear Metal Ceiling Systems in Two-hour Restrained or Unrestrained Floor-ceiling Systems: The Paraline™ (DXLP) linear metal ceiling system is a suspended ceiling consisting of 3¹/₄-inch-wide (82 mm), channel-shaped Paraline pans of 0.018-inch to 0.024-inch (0.45 mm to 0.60 mm) aluminum that are snap-locked to the bottom of DXLP or DXLP Paralock™ main tees. The system may be used as two-hour fire-resistance-rated assembly as described below. See Table 1 for allowable loads.

The ceiling system consists of the DXLP 1¹/₂-inch-deep (38.1 mm), bulb-shaped steel main tees spaced at 48 inches (1219 mm) on center with 1¹/₂-inch-deep (38.1 mm), DXLP steel cross tees spaced at 24 inches (610 mm) on center, suspended by No. 12 gage galvanized steel hanger wires, 19 inches (482.6 mm) below minimum No. 20 gage fluted, or No. 22/22 gage cellular, 1¹/₂-inch-deep (38.1 mm) steel decks. The decks must have 3¹/₂-inch-wide (89 mm) flutes spaced at 6 inches (152.4 mm) on center. Allowable loading on the steel decks must be based on noncomposite design. When the deck is covered with 2¹/₂-inch-thick (63.5 mm), 4,500 psi (31 MPa), normal-weight concrete, the assembly has a two-hour fire-resistive rating. The steel decks are supported by minimum W8 x 15 steel beams. The hanger wires are spaced a maximum of 48 inches (1219 mm) on center along each main runner adjacent to the intersection with cross tees; at the four corners of grid framing modules containing light fixtures and/or air boots; the main runners, at all four corners of air boots; at the center of all cross tees located adjacent to and parallel with walls; and within 6 inches (152.4 mm) of each main runner splice location. The following light fixtures may be used individually or mixed, as described below:

1. Nominally 24-inch-by-48-inch (610 mm by 1219 mm) fixtures spaced so that the area does not exceed 20 square feet (1.85 m²) per 100 square feet (9.29 m²) of ceiling area.
2. Nominally 9-inch-by-48-inch (228.6 mm by 1219 mm) fixtures spaced so that the number of fixtures does not exceed nine per 200 square feet (18.6 m²) of ceiling area.
3. Nominally 5-inch-by-48-inch (127 mm by 1219 mm) fixtures spaced so that the number of fixtures does not exceed six per 100 square feet (9.29 m²) of ceiling area.

Nominally 4-foot-long (1219 mm) Donn Paraline air boots with 6-inch-diameter (152.4 mm) inlets may also be used in the system. Spacing of air boots must not exceed one per 100 square feet (9.29 m²) of ceiling area.

All light fixtures must be completely enclosed with 5/8-inch-thick (15.8 mm), Type FR-83 (s) acoustical boards manufactured by USG Interiors, LLC, that are held together with three 6d nails on each side. The same acoustical board, 24 inches by 48 inches (610 mm by 1219 mm), is laid in between all cross tees and main runners.

Hold-down clips are placed over the cross tees symmetrically at 2 feet (610 mm) on center when the

acoustical material weighs less than 1 psf (4.9 kg/m²). Access clips may be used in lieu of hold-down clips, where required.

The Paraline plain or perforated metal pans Types PAR, PASP and PARP (aluminum pans) are for use with the two-hour fire rating.

4.4.3 Donn Fineline (DXLF) Ceiling Suspension System:

4.4.3.1 One-hour Fire-resistance-rated Floor-ceiling System: The Donn Fineline suspension system is designed to support acoustical panels in one-hour fire-resistive floor-ceiling assemblies as noted in Figure 5. The main runners, 4-foot-long (1219 mm) cross tees and 2-foot-long (610 mm) cross tees are designated DXLF-29, DXLF-429 and DXLF-229, respectively. The overall depths and thicknesses of the runners and cross tees are described in Table 1.

4.4.3.2 One-hour Fire-resistance-rated Roof-ceiling System: The same framing members described in Section 4.2.3.1 of this report may be used as part of a one-hour fire-resistive, restrained, roof-ceiling assembly that may be described as follows: The main runners are spaced 4 feet (1219 mm) on center. Cross tees, 4 feet (1219 mm) long, are spaced 2 feet (610 mm) on center and inserted into main runners. Cross tees 2 feet (610 mm) long are inserted perpendicular to the 4-foot (1219 mm) cross tees and spaced to provide 24-inch-by-24-inch (610 mm by 610 mm) modules. Ceiling panels are USG Interiors, LLC, GR-1(s) perforated, with dimensions of 24 inches by 24 inches by 3/4 inch thick (610 by 610 by 19.05 mm). Panels at walls are supported by No. 26 gage steel angles with 1³/₁₆-inch (30.16 mm) and 5/8-inch (15.8 mm) legs.

The roof consists of minimum No. 22 gage, 1¹/₂-inch-deep (38.1 mm), galvanized steel deck, with flutes at 6 inches (152.4 mm) on center. Steel joists, 10 inches (254 mm) deep, are spaced 48 inches (1219 mm) on center. Decking is secured to the joists with 1/2-inch-diameter (12.7 mm) puddle welds through weld washers at 12 inches (305 mm) on center. Water-resistant core gypsum sheathing complying with ASTM C1396, 4 feet (1219 mm) wide and 5/8 inch (15.8 mm) thick, is placed with the long dimension perpendicular to the deck.

Board end joints must be staggered a minimum of 1 foot (305 mm) from adjacent courses. Optional mineral and fiber insulation boards manufactured by Manville comprise the roof insulation. The boards are a minimum of 24 inches by 48 inches by 1 inch thick (610 by 1219 by 25.4 mm). The first layer is placed perpendicular to the gypsum sheathing with end joints staggered a minimum of 2 feet (610 mm) from adjacent courses. Subsequent insulation board layers must have all joints staggered from adjacent layers a minimum of 12 inches (305 mm). The first two layers are secured through the gypsum sheathing into the decking with 3¹/₄-inch-long (82.55 mm) screws having 0.203-inch-diameter (5.15 mm) shanks. The screws have a special tip that locks against the steel deck underside. The screws are placed through 2¹/₈-inch-diameter (54 mm), 0.030-inch-thick (0.76 mm) steel discs at each board corner. Additional insulation board layers are adhered with hot asphalt or coal-tar pitch at a rate not exceeding 25 pounds per square. A Class A, B or C built-up roof covering is applied over the insulation. The suspended ceiling framing system is hung by No. 12 gage galvanized steel wires, 48 inches (1219 mm) on center, tied to main runners and bottom chord of steel joists. The soffit of the ceiling must be suspended a minimum of 20 inches (508 mm) below the bottom of the roof deck and a minimum of 10 inches (254 mm) below the steel joists.

4.4.4 Donn Centricitee (DXLT) One-hour Fire-resistance-rated System: The Donn DXLT Centricitee exposed grid system is designed to support lay-in acoustical panels in a one-hour fire-resistive floor-ceiling assembly. See Figure 5 for a description. The main runners, 4-foot-long (1219 mm) cross tees and 2-foot-long (610 mm) cross tees are designated as DXLT-24, DXLT-424, DXLT-218 and DXLT-222, respectively. The overall depths and thicknesses of the runners and cross tees are described in Table 1.

4.5 Special Inspection:

Where special inspections are required by the building official, suspended ceilings in Seismic Design Categories C, D, E, and F shall be subject 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 4.3 of this report, special inspection must be conducted as required by the building official during enforcement of the 2012 IBC Sections 1705.1.1, 1705.11.4 and Section 1705.12; 2009 IBC Section 1704.15, 1708.4 and Item 3 of Section 1708.1; 2006 IBC Section 1704.13, 1708.5 and Item 3 of Section 1708.2, as applicable. For installations in accordance with Section 4.3 of this report, special inspections must be conducted as required by the building official during enforcement of the 2021, 2018 and 2015 IBC sections 1705.1.1, 1704.5 and 1705.13.2. For installations in accordance with Section 4.2, there must be compliance with the followings: 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 the installation instructions in 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 Section 1704.3 (2009 IBC Section 1705.3.4, Item 3; and 2006 IBC Section 1705.3, Item 4.3).

5.0 CONDITIONS OF USE

The USG suspended ceiling framing 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, cross runners, ACM7 clips, MAC2 clips, DH4 clips, and seismic compression post are fabricated and installed in accordance with this report and the manufacturer's published installation instructions. In the event of a conflict between the manufacturer's installation instructions and this report, this report governs.
- 5.2 Design loads and spans of main and cross runners must comply with 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 the jurisdiction in which the project is to be constructed.
- 5.4 Where required by the building official, special inspections must be provided in accordance with Section 4.4 of this report.
- 5.5 The ceiling framing systems 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 systems 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, Item 32 of 2006 IBC Table 1607.1), as applicable.
- 5.9 The ceiling systems are limited to interior application. For exterior ceiling installations, the ceiling systems must be designed for wind loads and with due consideration of atmospheric conditions.
- 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 applicable code.
- 5.11 Lighting fixtures and mechanical services must be as described in Section 4.2.
- 5.12 Installations for DH4 clips must be in accordance with Sections 4.1.3.
- 5.13 The USG suspended ceiling systems, clips, brackets and braces, described in this report, are fabricated in accordance with a quality control system with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Suspended Ceiling Framing Systems (AC368), dated November 2019 (editorially revised March 2021).
- 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).
- 6.3 Reports of fire-resistance tests in accordance with ASTM E119.

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-1222) along with the name, registered trademark, or registered logo of the report holder [USG Interiors, LLC] must be included in the product label
- 7.2 Cartons of framing members, ACM7 clips, MAC2 clips, DH4 clips, seismic compression posts, and accessories are identified with the name and address of USG Interiors, LLC, the manufacturing location, and the framing member designations.
- 7.3 The report holder's contact information is the following:

USG INTERIORS, LLC
550 WEST ADAMS STREET
CHICAGO, ILLINOIS 60661
(800) 874-4968
www.usg.com
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TABLE 1—DIMENSIONS AND ALLOWABLE LOADS FOR FRAMING MEMBERS

| Item Number | Profile Type (figure 6) | Part Number | Member | Load Classification | Length of Member (inches) | Height of Member (inches) | Maximum Span (inches) | Simple Span (pounds per lineal foot) | Required Lateral Support (inches on center) |
|-------------|-------------------------|-------------|--------|---------------------|---------------------------|---------------------------|-----------------------|--------------------------------------|---|
|-------------|-------------------------|-------------|--------|---------------------|---------------------------|---------------------------|-----------------------|--------------------------------------|---|

DONN® BRAND EXPOSED AND CONCEALED CEILING SUSPENSION SYSTEMS

| | | | | | | | | | |
|------------------|---|---------------------|-----------|-------------------|-----|------|----|------|----|
| 1 ¹ | A | DX-24 SDX-24 | Main Tee | Intermediate Duty | 144 | 1.64 | 48 | 12 | 24 |
| 1a ^{*1} | A | DXL-24 SDXL-24 | Main Tee | Intermediate Duty | 144 | 1.64 | 48 | 12 | 24 |
| 2 ² | A | DX-26 | Main Tee | Heavy Duty | 144 | 1.64 | 48 | 16 | 24 |
| 2a ^{*2} | A | DXL-26 | Main Tee | Heavy Duty | 144 | 1.64 | 48 | 16 | 24 |
| 3 ³ | C | DX-216 SDX-216 | Cross Tee | | 24 | 1.00 | 24 | – | |
| 3a ^{*3} | C | DXL-216 SDXL-216 | Cross Tee | | 24 | 1.00 | 24 | – | |
| 4 | C | DX-416 SDX-416 | Cross Tee | | 48 | 1.00 | 48 | 4.2 | |
| 5 | B | DX-422 SDX-422 | Cross Tee | | 48 | 1.50 | 48 | 9.1 | |
| 6 ⁴ | B | DX-424 SDX-424 | Cross Tee | | 48 | 1.50 | 48 | 12 | |
| 6a ^{*4} | B | DXL-424 SDXL-424 | Cross Tee | | 48 | 1.50 | 48 | 12 | |
| 7 | B | DX-426 | Cross Tee | | 48 | 1.50 | 48 | 16 | |
| 8 | B | DX-522 | Cross Tee | | 60 | 1.50 | 60 | 4.3 | 60 |
| 9 ^{*5} | B | DXL-524 | Cross Tee | | 60 | 1.50 | 60 | 7.15 | 60 |

DONN® BRAND EXPOSED CEILING SUSPENSION SYSTEMS WITH ALUMINUM CAP OR ENVIRONMENTAL

| | | | | | | | | | |
|-----|---|----------|-----------|-------------------|-----|------|----|----|----|
| 10* | A | DXLA-24 | Main Tee | Intermediate Duty | 144 | 1.64 | 48 | 12 | 24 |
| 11* | A | DXLA-26 | Main Tee | Heavy Duty | 144 | 1.64 | 48 | 16 | 24 |
| 12* | C | DXLA-216 | Cross Tee | | 24 | 1.00 | 24 | – | 24 |
| 13* | B | DXLA-424 | Cross Tee | | 48 | 1.50 | 48 | 12 | |
| 14* | A | ZXLA-24 | Main Tee | Intermediate Duty | 144 | 1.64 | 48 | 12 | 24 |
| 15* | A | ZXLA-26 | Main Tee | Heavy Duty | 144 | 1.64 | 48 | 16 | 24 |
| 16* | B | ZXLA-224 | Cross Tee | | 24 | 1.50 | 24 | – | |
| 17* | B | ZXLA-424 | Cross Tee | | 48 | 1.50 | 48 | 12 | |

DONN® PARALINE™ BRAND LINEAR METAL CEILING SUSPENSION SYSTEM

| | | | | | | | | | |
|------------------|--|------|----------|------------|-----|------|----|----|----|
| 18 ^{*6} | | DXLP | Main Tee | Heavy Duty | 145 | 1.51 | 48 | 12 | 24 |
|------------------|--|------|----------|------------|-----|------|----|----|----|

DONN® FINELINE® BRAND EXPOSED CEILING SUSPENSION SYSTEMS

| | | | | | | | | | |
|------------------|---|------------|-----------|-------------------|-----|------|----|-----|----|
| 19 | F | DXFF-2924 | Main Tee | Intermediate Duty | 144 | 1.80 | 48 | 12 | 24 |
| 20 | G | DXFFH-2924 | Main Tee | Heavy Duty | 144 | 1.80 | 48 | 16 | 24 |
| 21 | F | DXFF-229 | Cross Tee | | 24 | 1.80 | 24 | – | 24 |
| 22 | F | DXFF-429N | Cross Tee | | 48 | 1.80 | 48 | 12 | 48 |
| 23 | F | DXFF-529N | Cross Tee | | 60 | 1.80 | 60 | 7.2 | 30 |
| 24 | D | DXF-2930 | Main Tee | Intermediate Duty | 144 | 1.80 | 48 | 12 | 24 |
| 25 | E | DXFH-2930 | Main Tee | Heavy Duty | 144 | 1.80 | 48 | 16 | 24 |
| 26 ⁷ | D | DXF-129 | Cross Tee | | 12 | 1.80 | 12 | – | 12 |
| 27 ⁷ | D | DXF-229 | Cross Tee | | 24 | 1.80 | 24 | – | 24 |
| 28 ⁷ | D | DXF-30 | Cross Tee | | 30 | 1.80 | 30 | – | 30 |
| 29 ⁷ | D | DXF-429N | Cross Tee | | 48 | 1.80 | 48 | 12 | 24 |
| 30 ⁷ | D | DXF-529N | Cross Tee | | 60 | 1.80 | 60 | 6.9 | 30 |
| 31 ^{*7} | D | DXLF-2924 | Main Tee | Intermediate Duty | 144 | 1.80 | 48 | 12 | 24 |
| 32 ^{*7} | D | DXLF-229 | Cross Tee | | 24 | 1.80 | 24 | – | 24 |
| 33 ^{*7} | D | DXLF-429N | Cross Tee | | 48 | 1.80 | 48 | 12 | 24 |

TABLE 1—DIMENSIONS AND ALLOWABLE LOADS FOR FRAMING MEMBERS (Continued)

| Item Number | Profile Type (figure 6) | Part Number | Member | Load Classification | Length of Member (inches) nominal | Height of Member (inches) | Maximum Span (inches) | Simple Span (pounds per lineal foot) | Required Lateral Support (inches on center) |
|--|-------------------------|-------------|-----------|---------------------|-----------------------------------|---------------------------|-----------------------|--------------------------------------|---|
| DONN® CENTRICITEE® BRAND EXPOSED CEILING SUSPENSION SYSTEMS | | | | | | | | | |
| 34 | H | DXT-24 | Main Tee | Intermediate Duty | 144 | 1.50 | 48 | 12 | 24 |
| 35* | H | DXLT-24 | Main Tee | Intermediate Duty | 144 | 1.50 | 48 | 12 | 24 |
| 36 | I | DXT-26 | Main Tee | Heavy Duty | 144 | 1.64 | 48 | 16 | 24 |
| 37 | H | DXT-524 | Cross Tee | | 60 | 1.50 | 60 | 6.7 | 30 |
| 38 ⁸ | H | DXT-424 | Cross Tee | | 48 | 1.50 | 48 | 12 | 24 |
| 38a ⁸ | H | DXLT-424 | Cross Tee | | 48 | 1.50 | 48 | 12 | 24 |
| 39 | H | DXT-422 | Cross Tee | | 48 | 1.50 | 48 | 3.8 | 48 |
| 40 ¹⁰ | H | DXT-222 | Cross Tee | | 24 | 1.50 | 24 | – | 24 |
| 40a ¹⁰ | H | DXLT-222 | Cross Tee | | 24 | 1.50 | 24 | – | 24 |
| DONN® IDENTITEE™ BRAND EXPOSED CEILING SUSPENSION SYSTEMS | | | | | | | | | |
| 41 | L | DXI-24HRC | Main Tee | Intermediate Duty | 144 | 1.82 | 48 | 12 | 12 from center |
| 42 | L | DXI-26HRC | Main Tee | Heavy Duty | 144 | 1.82 | 48 | 16 | 12 from center |
| 43 | L | DXI-424HRC | Cross Tee | | 48 | 1.82 | 45 | 9.9 | |
| DONN® BRAND NON-RATED EXPOSED SUSPENDED CEILING SYSTEMS | | | | | | | | | |
| 44 | K | DXW 26 | Main Tee | Heavy Duty | 144 | 1.50 | 48 | 16 | 24 |
| 45 | K | DXW 224 | Cross Tee | | 24 | 1.50 | 24 | – | 24 |
| 46 | K | DXW 424 | Cross Tee | | 48 | 1.50 | 48 | 13.4 | 48 |
| 47 | K | DXCE-24 | Main Tee | Intermediate Duty | 144 | 1.64 | 48 | 12 | 24 |
| 48 | K | DXCE-224 | Cross Tee | | 24 | 1.50 | 24 | – | N/A |
| 49 | K | DXCE-424 | Cross Tee | | 48 | 1.50 | 48 | 12 | N/A |
| 50 | K | DXWCE 26 | Main Tee | Heavy Duty | 144 | 1.50 | 48 | 16 | 24 |
| 51 | K | DXWCE 224 | Cross Tee | | 24 | 1.50 | 24 | – | 24 |
| 52 | K | DXWCE 424 | Cross Tee | | 48 | 1.50 | 48 | 13.4 | 48 |
| USG CELEBRATION TORSION SPRING, USG CEILINGS PLUS ILLUSIONS AND USG CEILINGS PLUS EXPANSE SYSTEMS | | | | | | | | | |
| 53 | A | DXL-26 | Main Tee | Heavy Duty | 144 | 1.64 | 48 | 16 | 24 |
| 54 ¹⁰ | B | TSCP26 | Main Tee | Heavy Duty | 144 | 1.50 | 48 | 16 | 24 |
| 55 | A | DX 24 | Main Tee | Intermediate Duty | 144 | 1.64 | 48 | 12 | 24 |
| 56 | A | DXL-24 | Main Tee | Intermediate Duty | 144 | 1.64 | 48 | 12 | 24 |
| 57 | A | TSCT22 | Cross Tee | | 24 | 1.64 | 21 | – | N/A |
| 58 | A | TSCT 44 | Cross Tee | | 48 | 1.64 | 45 | 11.2 | N/A |
| 59 | A | TSCT 66 | Cross Tee | | 72 | 1.64 | 69 | 4.4 | N/A |
| USG CELEBRATION SNAP-IN SYSTEMS | | | | | | | | | |
| 60 | D | DXF-29 | Main Tee | Intermediate Duty | 144 | 1.80 | 48 | 12 | 24 |
| 61 | E | DXFH-29 | Main Tee | Heavy Duty | 144 | 1.80 | 48 | 16 | 24 |
| 62 | D | DXF-229 | Cross Tee | | 24 | 1.80 | 24 | – | 24 |
| 63 | D | DXF-30 | Cross Tee | | 30 | 1.80 | 30 | – | 30 |
| 64 | D | DXF-329 | Cross Tee | | 36 | 1.80 | 36 | – | 18 |
| 65 | D | DXF-429N | Cross Tee | | 48 | 1.80 | 48 | 12 | 24 |

For **SI**: 1 inch = 25.4 mm; 1 plf = 14.6 N/m.

| | |
|----|--|
| 1 | Items 1 & 1a will be sold as DX/DXL 24 & SDX/SDXL 24 |
| 2 | Items 2 & 2a will be sold as DX/DXL 26 |
| 3 | Items 3 & 3a will be sold as DX/DXL 216 & SDX/SDXL 216 |
| 4 | Items 6 & 6a will be sold as DX/DXL 424 & SDX/SDXL 424 |
| 5 | Item 9 will be sold as DX/DXL 524 |
| 6 | Item 18 will be sold as DXP/DXLP 26 |
| 7 | Items 26-33 can also be found as DXFEV with a galvanization Type G90 |
| 8 | Items 38 & 38a will be sold as DXT/DXLT 424 |
| 9 | Items 40 & 40a will be sold as DXT/DXLT 222 |
| 10 | Item 54 main runner may be used in USG Ceilings Plus Barz, USG Ceilings Plus Blades and USG Ceilings Plus Radians suspended ceiling systems. Installation of these systems must be designed by registered design professional. |
| * | Fire-Resistant-Rated |

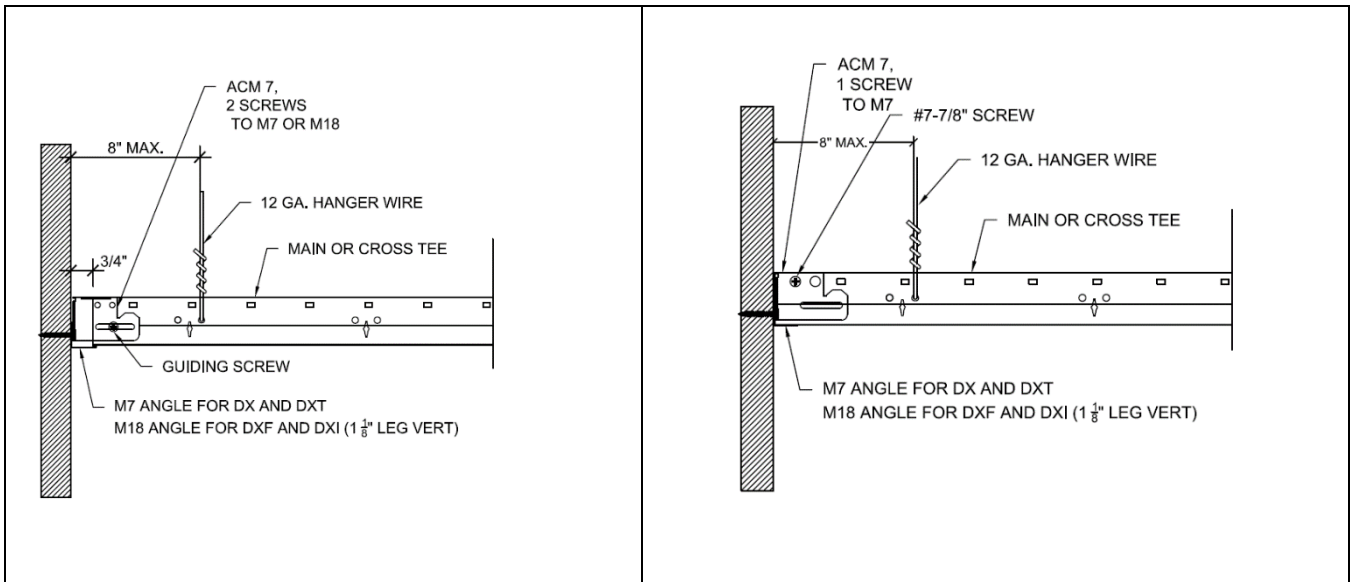


FIGURE 1—ACM7 CLIP UNRESTRAINED

FIGURE 2A—ACM7 CLIP RESTRAINED

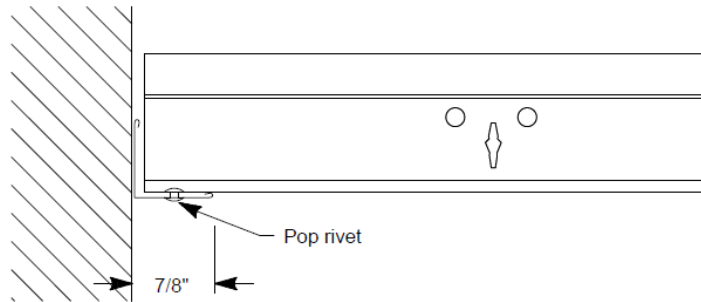


FIGURE 2B—POP RIVET RESTRAINED (FIXED)

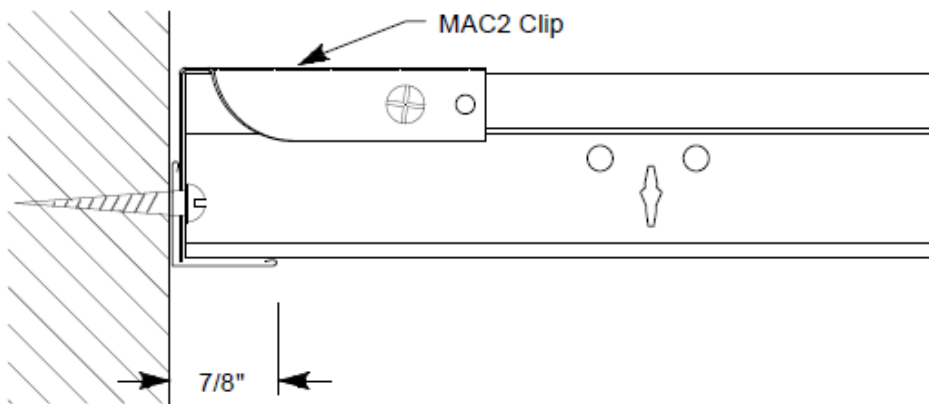


FIGURE 2C—MAC 2 CLIP RESTRAINED (FIXED)

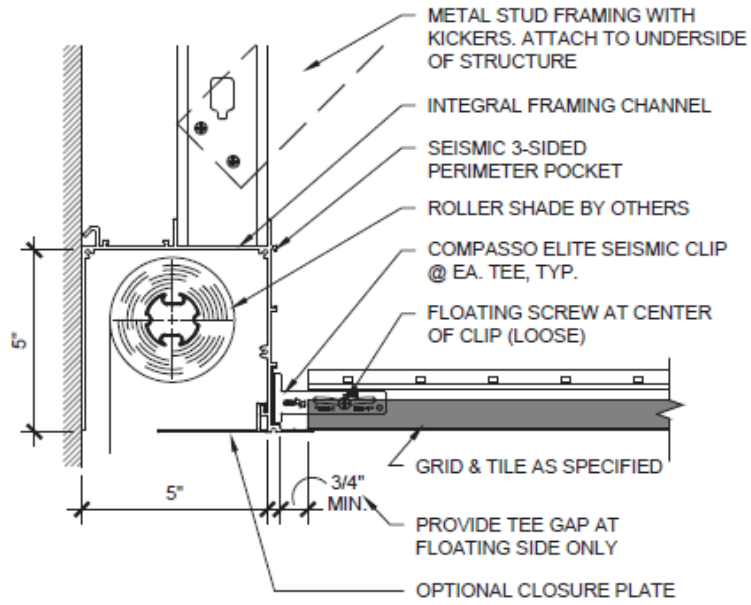


FIGURE 2D- USG CURTAIN POCKET DETAIL (FLOATING WALL SIDE)

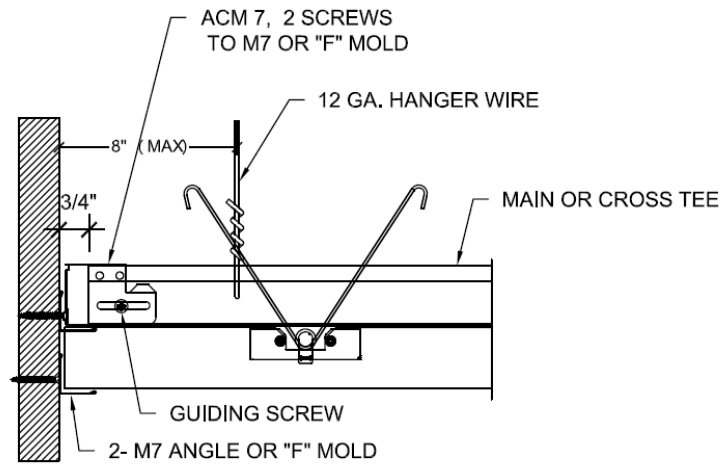


FIGURE 2E- FLOATING SIDE CELEBRATION TORSION SPRING CEILINGS PLUS ILLUSIONS AND CELINGS PLUS EXPANSE SYSTEMS

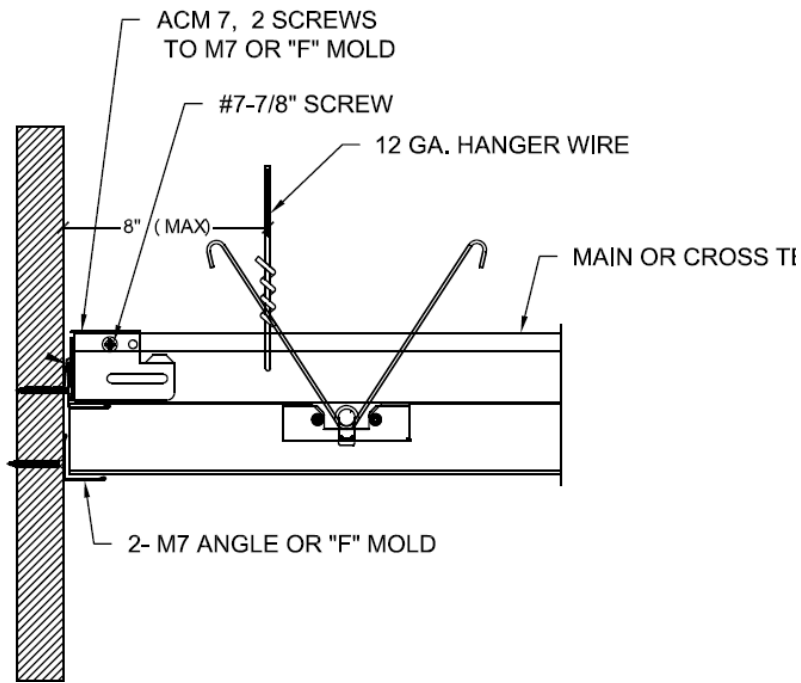


FIGURE 2F—FIXED SIDE CELEBRATION TORSION SPRING, CEILINGS PLUS ILLUSIONS AND CEILINGS PLUS EXPANSE SYSTEMS

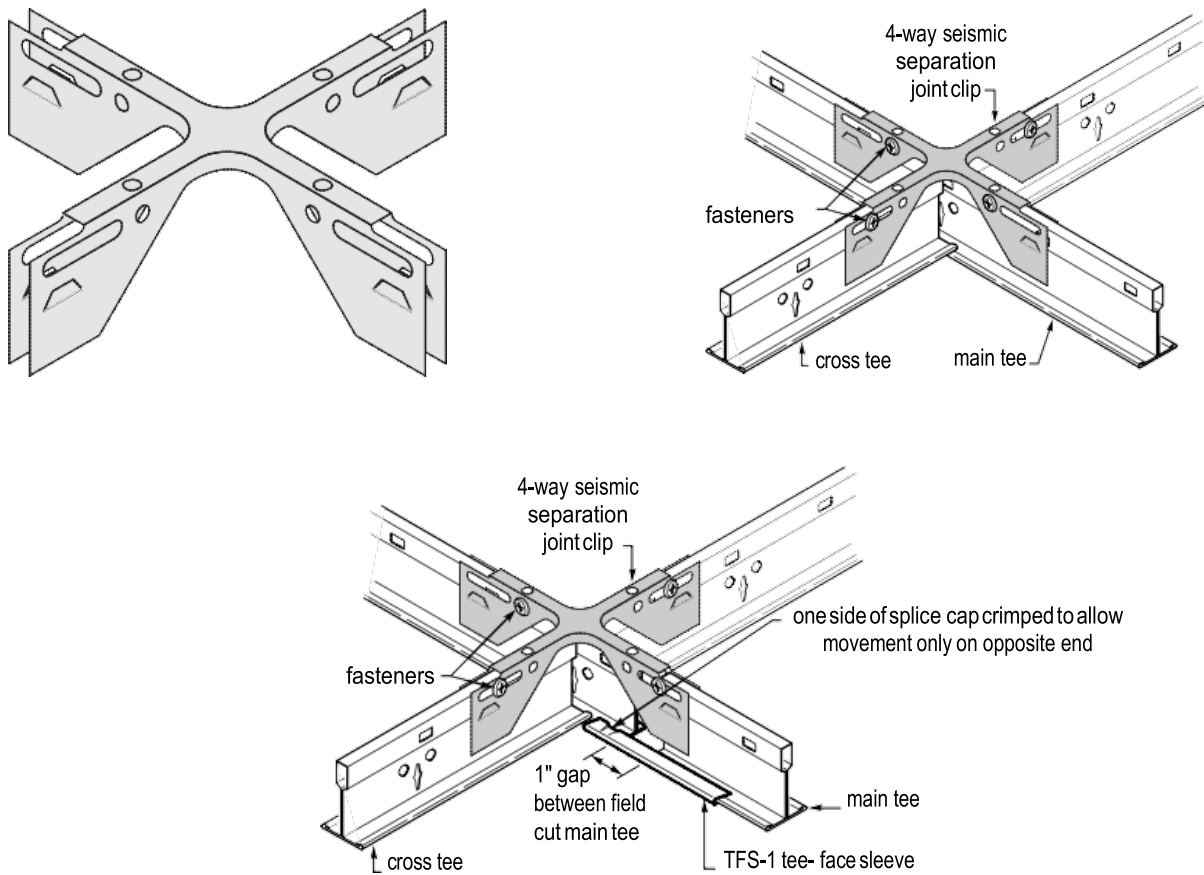


FIGURE 3—DH4 4-WAY SEISMIC SEPERATION JOINT CLIP AND TYPICAL INSTALLATION DETAILS (Clockwise: DH4 4-WAY CLIP, SEISMIC EXPANSION JOINT, ALTERNATE SEISMIC EXPANSION JOINT)

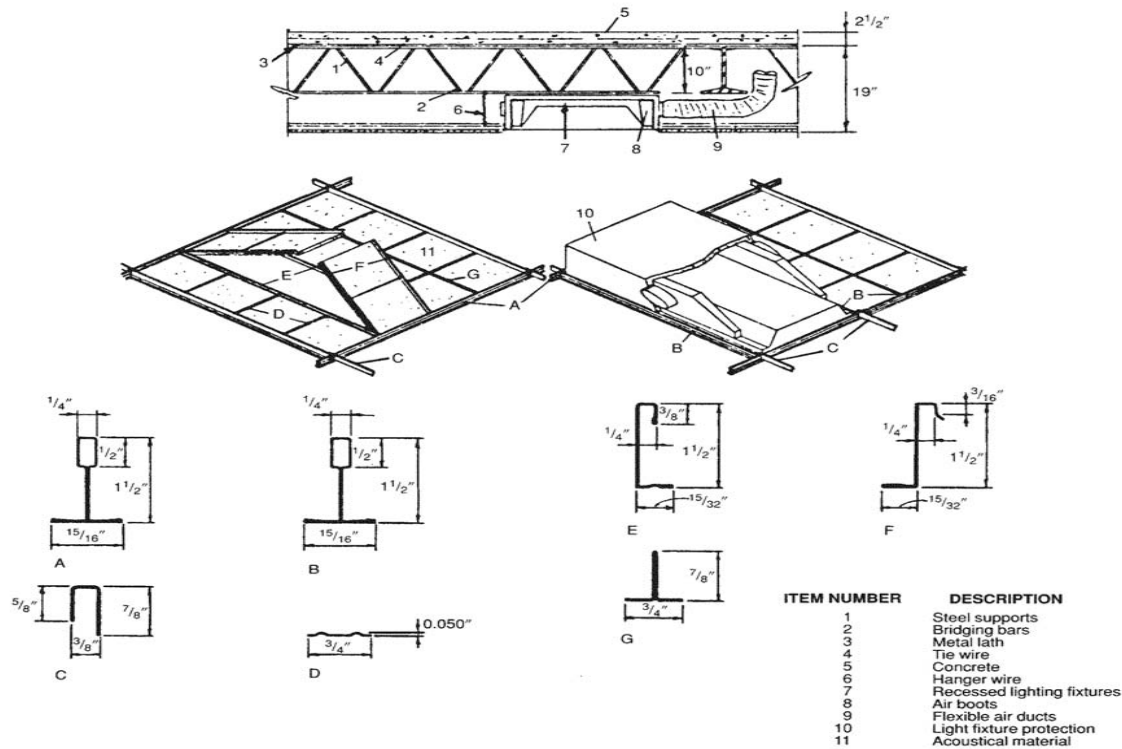
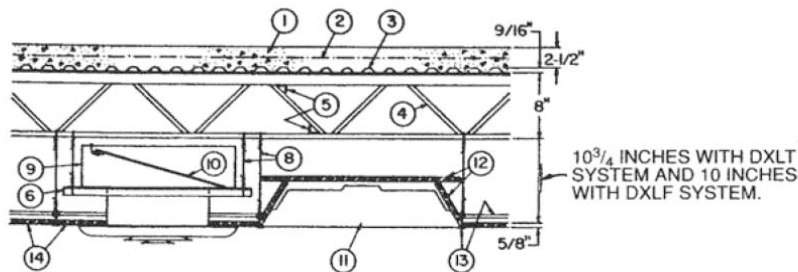


FIGURE 4—DONN DXL ONE-HOUR FIRE-RESISTANT-RATED AND CONCEALED CEILING SYSTEMS



- Normal-weight Concrete.** Carbonate or siliceous aggregate, 150 ± 3-pcf unit weight, 3,500-psi compressive strength with DXLT system and 2,500 psi with DXLF system.
- Welded Wire Fabric.** 6 x 6-W1.4 x W1.4 or heavier.
- Steel Form Units.** Minimum 9/16-inch-deep corrugated unites of minimum No. 24 MSG galvanized steel, welded to supports with 1/2-inch puddle welds through welding washers. Welds located at each joist. Adjacent units overlapped one corrugation at the sides.
- Steel Joists.** Type 8H3 minimum size; spaced 24 inches on center, welded to end supports.
- Bridging.** One by 1-inch steel angles, welded to top and bottom chord of each joist.
- Duct Supports.** Nominal 1 by 1 by 1/8-inch-thick steel angles or No. 16 MSG cold-rolled steel channels, 1 1/2 inches deep, suspended from lower chord of joists with No. 12 SWG galvanized steel wire to form a trapeze. Duct supports must be spaced at 48 inches on center maximum along length of duct and at air duct outlets.
- Cold-rolled Channels.** (Not shown)—No. 16 MSG cold-rolled steel channels, 1 1/2 inches deep with 9/16-inch flanges, located as needed to provide means of attachment for hanger wires located away from steel joists. Placed on top and secured to lower chord of joists with No. 18 SWG galvanized steel wire.
- Hanger Wire.** No. 12 SWG galvanized steel wire, twist-tied to lower chord of joists, spaced not over 48 inches on center along main runners adjacent to cross-tee intersections. If not already present, hanger wires shall also be provided at the four corners of light fixtures, at center of cross tees supporting the long sides of light fixtures and at center of cross tees adjacent to air duct outlets.
- Air Duct.** No. 22 MSG minimum galvanized steel. Total area of duct openings not to exceed 113 square inches per each 100 square feet of ceiling area. Area of individual duct opening not to exceed 113 square inches. Maximum dimension of opening 12 inches.
- Damper.** No. 16 MSG galvanized steel, sized to overlap duct opening 1 inch minimum. Protected on both surfaces with 1/16-inch-thick ceramic fiber paper and held open with a fusible link.
- Fixtures, Recessed Light.** Fluorescent lamp-type, steel housing, 2 by 4 foot size with DXLT system and 2 by 2 foot size with DXLF system. Fixtures spaced so their area does not exceed 24 square feet per each 100 square feet of ceiling area. Wired in conformance with the National Electrical Code.
- Fixture Protection—Acoustical Materials.** 5/8-inch-thick USG Acoustical Products Co. GR-1(s) tiles having surface perforations cut into pieces to form a three-sided enclosure with open ends and trapezoidal in cross-section. Fixture protection consists of a 23 3/4-by-47 3/4-inch top piece, with DXLT system and 23 3/4-by-23 3/4-inch top piece with DXLF system, two side pieces of a width which will provide a minimum 5/8 inch clearance between top piece and the fixture housing and are 47 3/4 and 23 3/4 inches long for the DXLT and DXLF systems, respectively. The side pieces are placed against the sides of the fixture and the top piece is placed on top of the side pieces. The pieces are held together by 6d nails near the center and near the ends on each long side of the fixture.
- Steel Framing Members.** DXLT or DXLF main runners, nominal 12 feet long spaced 4 feet on center. Cross tees, nominal 4 feet long installed perpendicular to main runners and spaced 2 feet on center. Cross tees, nominal 2 feet long, installed perpendicular to the 4-foot cross tees and spaced 2 feet on center.
- Acoustical Material.** Nominal 24 by 24 by 5/8-inch-thick USG Acoustical Products Co. GR-1(s) or GR-2(s). Border panels supported at walls by No. 26 MSG painted steel angles with 3/4-inch and 1-inch legs or channels 1 5/8 inches deep with 1-inch bottom and 3/4-inch top flanges. (S) = Surface perforations.

FIGURE 5—DONN DXLT AND DXLF ONE-HOUR FIRE-RATED SYSTEMS

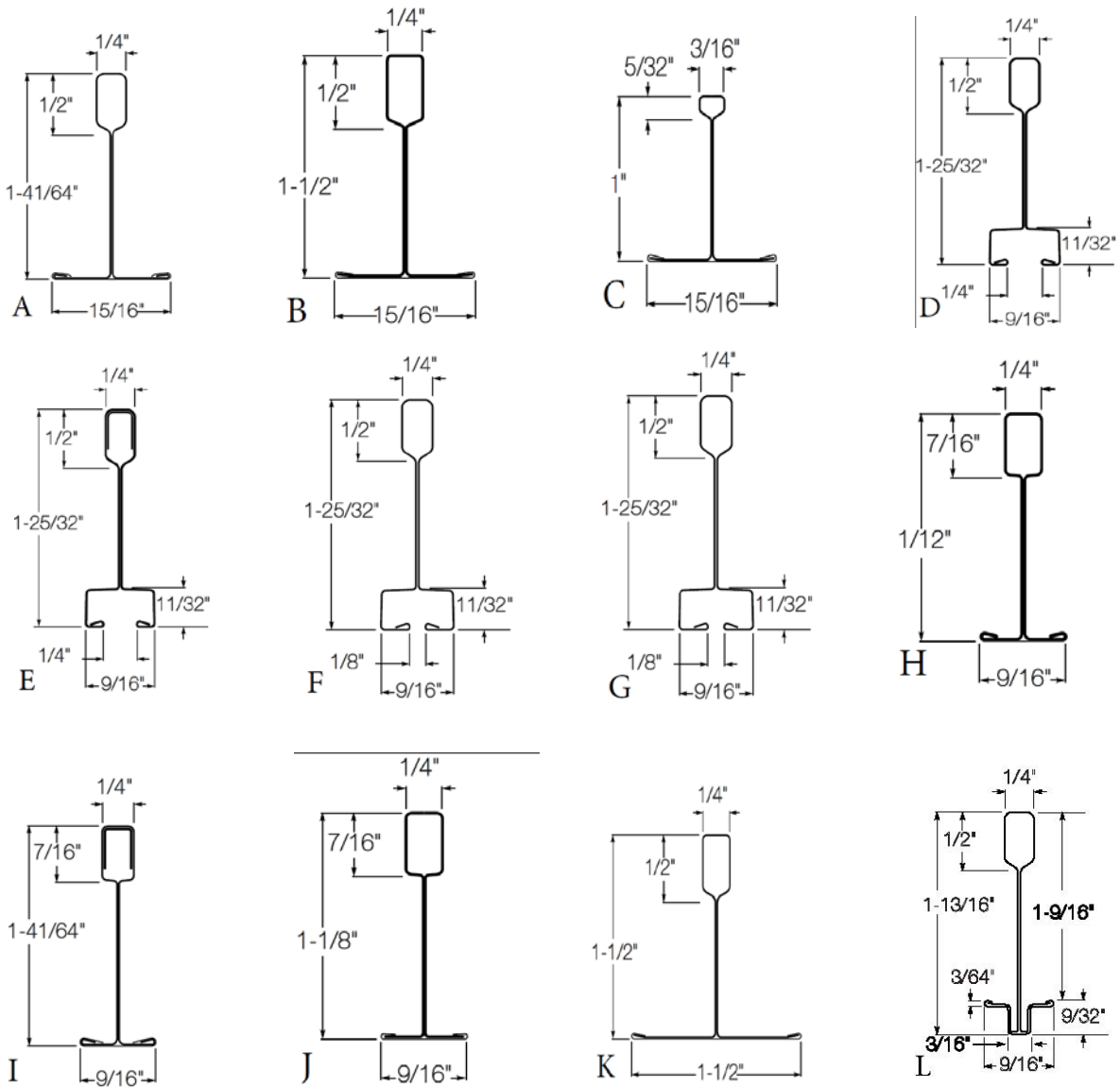


FIGURE 6—SUSPENSION SYSTEM PROFILES

DIVISION: 09 00 00—FINISHES

Section: 09 22 26—Suspension Systems

Section: 09 53 00—Acoustical Ceiling Suspension Assemblies

REPORT HOLDER:

USG INTERIOR, LLC

EVALUATION SUBJECT:

USG DONN® (DX/DXL, DXLA, DXW, DXWCE, DXCE, SDX/SDXL, ZXLA), DONN FINELINE® (DXF), DONN FINELINE 1/8 (DXFF), DONN CENTRICITEE™ (DXT) AND DONN IDENTITEE® (DXI) SUSPENDED CEILING FRAMING SYSTEMS; USG CELEBRATION™ SNAP-IN; USG CELEBRATION™ TORSION SPRING; USG CEILING PLUS® ILLUSIONS® AND USG CEILING PLUS® EXPANSE®; USG DONN PARALINE® (DXP AND DXLP) SUSPENDED CEILING SYSTEM; ACM7 AND MAC2 CEILING ATTACHMENT CLIPS; PERIMETER SYSTEM: CURTAIN POCKETS; AND DH4 4-WAY SEISMIC SEPERATION JOINT CLIP.

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the USG Suspended Ceiling Framing Systems, described in ICC-ES evaluation report [ESR-1222](#), 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 Suspended Ceiling Framing Systems, described in Sections 2.0 through 7.0 of the evaluation report [ESR-1222](#), comply with the LABC Chapters 7, 8, 16 and 25, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The USG Suspended Ceiling Framing Systems described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-1222](#).
- The design, installation, conditions of use and identification of the USG Suspended Ceiling Framing Systems are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-1222](#).
- 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 December 2022 and revised January 2023.

DIVISION: 09 00 00—FINISHES

Section: 09 22 26—Suspension Systems

Section: 09 53 00—Acoustical Ceiling Suspension Assemblies

REPORT HOLDER:

USG INTERIORS, LLC

EVALUATION SUBJECT:

USG DONN®(DX/DXL, DXLA, DXW, DXWCE, DXCE, SDX/SDXL, ZXLA), DONN FINELINE®(DXF), DONN FINELINE 1/8 (DXFF), DONN CENTRICITEE™(DXT) AND DONN IDENTITEE® (DXI) SUSPENDED CEILING FRAMING SYSTEMS; USG CELEBRATION™ SNAP-IN; USG CELEBRATION™ TORSION SPRING; USG CEILINGS PLUS® ILLUSIONS® AND USG CEILING PLUS® EXPANSE®; USG DONN PARALINE® (DXP AND DXLP) SUSPENDED CEILING SYSTEM; ACM7 AND MAC2 CEILING ATTACHMENT CLIPS; PERIMETER SYSTEM: CURTAIN POCKETS: AND DH4 4-WAY SEISMIC SEPERATION JOINT CLIP.

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that USG suspended ceiling systems, described in ICC-ES evaluation report ESR-1222, have also been evaluated for compliance with the code noted below.

Applicable code edition:

- 2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see section 2.1 and 2.2 below

2.0 CONCLUSIONS

The USG suspended ceiling systems, described in Sections 2.0 through 7.0 of the evaluation report ESR-1222, comply with CBC Chapters 7, 8, 16 and 25 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 of CBC Chapters 7, 8, 16, 17 and 25, as applicable.

2.1. OSHPD:

The USG suspended ceiling systems, described in Section 2.0 through 7.0 of the evaluation report ESR-1222, comply with CBC Chapters 7, 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

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].

2.2. DSA:

The USG suspended ceiling systems, described in Section 2.0 through 7.0 of the evaluation report ESR-1222, comply with CBC Chapters 7, 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.

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].

This supplement expires concurrently with the evaluation report, reissued December 2022 and revised January 2023.