

ICC-ES Evaluation Report

ESR-3941

Reissued August 2019

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DIVISION: 09 00 00—FINISHES

Section: 09 22 26—Suspension Systems

REPORT HOLDER:

CERTAINTED CEILINGS CORPORATION

EVALUATION SUBJECT:

QUICKSPAN™ LOCKING DRYWALL SYSTEM (LDS)

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2015, 2012, and 2009 *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.

Property evaluated:

Structural

2.0 USES

The QuickSpan™ locking drywall system described in this report is used as a ceiling framing system for screw-attached gypsum panel products in interior applications, in nonfire-resistance-rated construction.

3.0 DESCRIPTION

3.1 General:

The QuickSpan™ locking drywall system is a ceiling framing system that extends from wall to wall, and provides support for screw-attached gypsum boards. The framing system consists of tees, locking channels and when necessary, support clips. The tees extend from wall to wall, and are supported by locking channels that are attached to gypsum wallboard-faced steel wall framing. The tees can also be used as perpendicular members in conjunction with support clips.

3.2 Components:

3.2.1 QuickSpan™ Tee: The QuickSPAN™ (QST) tee has an inverted T-shape, a double rotary-stitched web and a knurled bottom flange. The steel used to form the tee complies with ASTM A653 Commercial Steel (CS) Type B, having mechanical properties complying with the manufacturer's specifications and has a minimum G40 galvanization coating designation. Table 1 and Figure 1 specify the part numbers, dimensions and lengths.

3.2.2 QuickSpan™ Locking Channel: The locking channel (QLC) is made from steel complying with ASTM

A653 Commercial Steel (CS) Type B, having mechanical properties complying with the manufacturer's specifications and has a minimum G40 galvanization coating designation. The locking channel has a hybrid CV shape configuration, locking and locating the top of the tee and securing the bottom flange on one side. The bottom is knurled and is 1.562-inch (40 mm) wide. The back side is also knurled and the height is 1.75-inch (44 mm). The inside height of the channel from bottom to the top locking slot is 1.5-inch (38 mm). Table 1 and Figure 1 specify the part numbers, dimensions and length.

3.2.3 QuickSpan Support Clip: The support clip (QSSC1) is made from steel complying with ASTM A653 Commercial Steel (CS) Type B, having mechanical properties complying with the manufacturer's specifications and has a minimum G40 galvanization coating designation. The support clip has a U-shape profile to positively attach to QuickSpan tees and locking tabs on the upper sections to connect to a perpendicular QuickSpan tee. Table 1 and Figure 1 specify the part numbers and dimensions.

3.2.4 Gypsum Board: Gypsum panel products must comply with ASTM C36 or C1396, and must have a maximum thickness of 5/8 inch (15.9 mm) and a maximum weight of 2.5 pounds per square foot (12.3 kg/m²).

3.2.5 Screws: Screws used to fasten locking channels to framing must be No. 6 by 1 1/4-inch-long (32 mm), fine-thread Type S, steel-framing, wafer head, self-drilling screws complying with ASTM C1002 or SAE J78, and must be recognized in a current ICC-ES evaluation report. Screws used to fasten support clips must be No. 7 sharp point wafer-head screws.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The locking drywall system is designed to support up to two layers of 5/8-inch-thick (15.9 mm) gypsum board having a maximum weight of 5.0 psf (22.6 kg/m²). Since the QuickSpan LDS consists of gypsum boards screwed to suspended framing members, and the ceiling is supported on one level extending between laterally braced walls, the QuickSpan LDS is exempt from the lateral load design requirements of ASTM E580 (for the 2015 and 2012 IBC and ASCE 7-10) and CISCA 3-4 (for the 2009 and ASCE 7-05). Therefore, the QuickSpan LDS is not subject to the requirements for seismic design loads, as required under Chapter 13 of ASCE 7.

4.2 Installation:

4.2.1 General: The ceiling system must be installed in accordance with this report, approved construction

documents specifying the QuickSpan LDS system and the manufacturer's published installation instructions.

4.2.2 QuickSpan™ Locking Channel: The locking channel must be screw-attached to minimum No. 25 gage steel wall studs spaced at a maximum spacing of 24 inches (610 mm) on center, with one No. 6 screw described in Section 3.2.5.

4.2.3 QuickSpan™ Tee: QuickSpan tee must be installed to span between locking channels. The tees must be cut within $\frac{1}{8}$ -inch (3.2 mm) of the vertical locking channel leg, and both ends must be fixed in the locking channel slots and tabs at the bottom flange. QuickSpan tee must be spaced as shown in Tables 2, 3, 4 and 5 for the applicable span, and leveled to within $\frac{1}{4}$ inch in 10 feet (6.4 mm in 3048 mm). QuickSpan Tees used as perpendicular support members may be spliced by using an inverted QuickSpan Tee with a minimum length of 16 inches (8 inches at each side of the splice). The splice tee must be attached to the QuickSpan tee using minimum of eight No. 7 sharp point wafer-head screws (using a minimum of four screws on each side of the splice).

4.2.4 QuickSpan™ Support Clip: When necessary, the QuickSpan tees must be positively attached using the QuickSpan Support Clips by fastening to the flange of a perpendicular QuickSpan tee support. Two No. 7 sharp point wafer-head screws are used to connect the upper part of the clip to the bottom flange of the QuickSpan tee support. Hanger wire spacing of QuickSpan support tee using the QuickSpan Support Clip must not exceed the spacing and loading conditions shown in Table 7. The QuickSpan Tees supporting the gypsum board and connected to the perpendicular QuickSpan tee and support clip must comply with the design loads in Tables 2, 3, 4, 5 and 6. Hanger wire must be minimum No. 12 gage galvanized, soft-annealed, mild steel wire and installed to the QuickSpan support tee and to the support above such that the wire loops are tightly wrapped and sharply bent to prevent any vertical movement or rotation of the member within the loops. The wire must be wrapped around itself a minimum of three full turns (360 degrees each) within a 3-inch length.

4.2.5 Gypsum Board Attachment: Maximum $\frac{5}{8}$ -inch-thick gypsum board must be installed and fastened to the locking drywall system (tees and channel) in accordance with IBC Section 2508.

4.2.6 Lighting Fixtures: Lighting fixtures, when used, must be independently supported by the building structure.

5.0 CONDITIONS OF USE

The QuickSpan™ locking drywall system described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The ceiling framing members must be fabricated in accordance with this report, and the locking drywall system with gypsum board must be installed in accordance with, this report, the approved construction documents and the manufacturer's published installation instructions. In the event of a conflict, the most restrictive requirement governs.

5.2 The connection of the ceiling framing system to supporting construction has not been evaluated and is outside the scope of this report. The code official must approve the floor, wall and/or roof construction supporting the ceiling system.

5.3 Installation is limited to dry, interior conditions.

5.4 The ceiling system must be designed for seismic loads in accordance with Chapter 13 of ASCE 7. 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.

5.5 Periodic special inspections must be provided in accordance with ASCE 7-10 Section 11A.1.3.9, Item 2 (for 2015 and 2012 IBC), and as required in ASCE 7-05, Section 13.5.6.2.2, Item h (for 2009 IBC). A statement of special inspection must be provided for use in Seismic Design Categories D, E and F as required in 2015 and 2012 IBC Section 1704.3 (2009 IBC Section 1705.3.4, Item 3).

5.6 For installations in Seismic Design Category C, D, E or F, a quality assurance plan complying with IBC Chapter 17, including 2015 and 2012 IBC Section 1704.3 (2009 IBC Sections 1705.2 and 1705.3), must be submitted to the code official.

5.7 Structural calculations for members and connections, including laterally braced walls, that are outside the scope of this report must be submitted to the code official at the time of permit application. The calculations must be prepared by a registered professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.8 The ceiling system is limited to ceilings not considered accessible in accordance with Item 28 (2015 and 2012 IBC) or Item 31 (2009 IBC) of IBC Table 1607.1.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with portions of the ICC-ES Acceptance Criteria for Suspended Ceiling Framing Systems (AC368), dated July 2015.

6.2 Screw penetration test data in accordance with ASTM C645.

7.0 IDENTIFICATION

7.1 Cartons of framing members are identified with the name of Certainteed Ceilings Corporation; the part number; and the evaluation report number (ESR-3941).

7.2 The report holder's contact information is the following:

CERTAINTEED CEILINGS CORPORATION

20 MOORES ROAD

MALVERN, PENNSYLVANIA 19355

(610) 651-5806

www.certainteed.com

TABLE 1—DESCRIPTION OF FRAMING SYSTEM COMPONENTS

PART NUMBER	MINIMUM BASE-METAL THICKNESS (inches)	LENGTH (inches)
QuickSpan™ Locking Channel		
QSLC12-14-20	0.0198	144
QuickSpan™ Tee		
QST6-13-20	0.0198	72
QST8-13-20		96
QST10-13-20		120
QST12-13-20		144
QST14-13-20		168
QST16-13-20		192
QuickSpan™ Support Clip		
QSSC1	0.0324"	

For SI: 1 inch = 25.4 mm.

TABLE 2—MAXIMUM SPAN OF QuickSpan™ TEE FOR LOAD OF 5.0 lb/ft² (24.4 kg/m²)¹

QuickSpan™ TEE Spacing (inches, o.c.)	Maximum Span (inches)
8	107.7
16	82.8
24	72.3

For SI: 1 inch = 25.4 mm.

¹Installation must comply with Section 4.2 of this report. The gypsum board must be screw-fastened to each tee at the designated tee spacing in the table.

TABLE 3—MAXIMUM SPAN OF QuickSpan™ TEE FOR LOAD OF 2.5 lb/ft² (12.2 kg/m²)¹

QuickSpan™ TEE Spacing (inches, o.c.)	Maximum Span (inches)
8	135.6
16	107.7
24	91.1

For SI: 1 inch = 25.4 mm.

¹Installation must comply with Section 4.2 of this report. The gypsum board must be screw-fastened to each tee at the designated tee spacing in the table.

TABLE 4—MAXIMUM SPAN OF QuickSpan™ TEE FOR LOAD OF 2.0 lb/ft² (9.76 kg/m²)¹

QuickSpan™ TEE Spacing (inches, o.c.)	Maximum Span (inches)
8	152.3
16	116.0
24	98.2

For SI: 1 inch = 25.4 mm.

¹Installation must comply with Section 4.2 of this report. The gypsum board must be screw-fastened to each tee at the designated tee spacing in the table.

TABLE 5—MAXIMUM SPAN OF QuickSpan™ TEE FOR LOAD OF 1.4 lb/ft² (6.8 kg/m²)¹

QuickSpan™ TEE Spacing (inches, o.c.)	Maximum Span (inches)
8	168.0
16	130.6
24	114.1

For SI: 1 inch = 25.4 mm.

¹Installation must comply with Section 4.2 of this report. The gypsum board must be screw-fastened to each tee at the designated tee spacing in the table.

TABLE 6—QuickSpan™ TEE DESIGN LOAD (PLF) ¹

SPAN (INCHES)	DESIGN LOAD
48	33.86
54	24.02
60	17.51
66	13.16
72	10.13
78	7.97
84	6.38
90	5.19
96	4.28
102	3.60
108	3.31
114	2.81
120	2.41
126	2.08
132	1.81
144	1.51
168	1.03

For SI: 1 inch = 25.4 mm, 1 plf=14.9 N/m.

¹Installation must comply with Section 4.2 of this report and as shown in Table 2, 3, 4 and 5 above.

Table 7: Hanger Wire Spacing (inches) for QuickSpan Perpendicular Support Tee and Support Clip¹

Unsupported Span ² (ft)	Ceiling Load (psf)			
	5 psf	2.5 psf	2.0 psf	1.4 psf
3.5	60.0	75.6	78.0	78.0
4	57.4	72.3	78.0	78.0
4.5	55.2	69.5	74.9	78.0
5	53.3	67.1	72.3	78.0
5.5	51.6	65.0	70.0	78.0
6	50.1	63.2	68.0	76.6
6.5	48.8	61.5	66.2	74.6
7	47.6	60.0	64.6	72.8
7.5	46.5	58.6	63.2	71.1
8	45.5	57.4	61.8	69.6

For SI: 1 inch= 25.4 mm, 1 feet= 305 mm, 1 psf = 4.9 kg/m².

¹Installation must comply with Section 4.2.4 of this report and as shown in Tables 2, 3, 4, 5, and 6.

²Unsupported span is equal to the distance measured between locking channels and the perpendicular QuickSpan tee support.

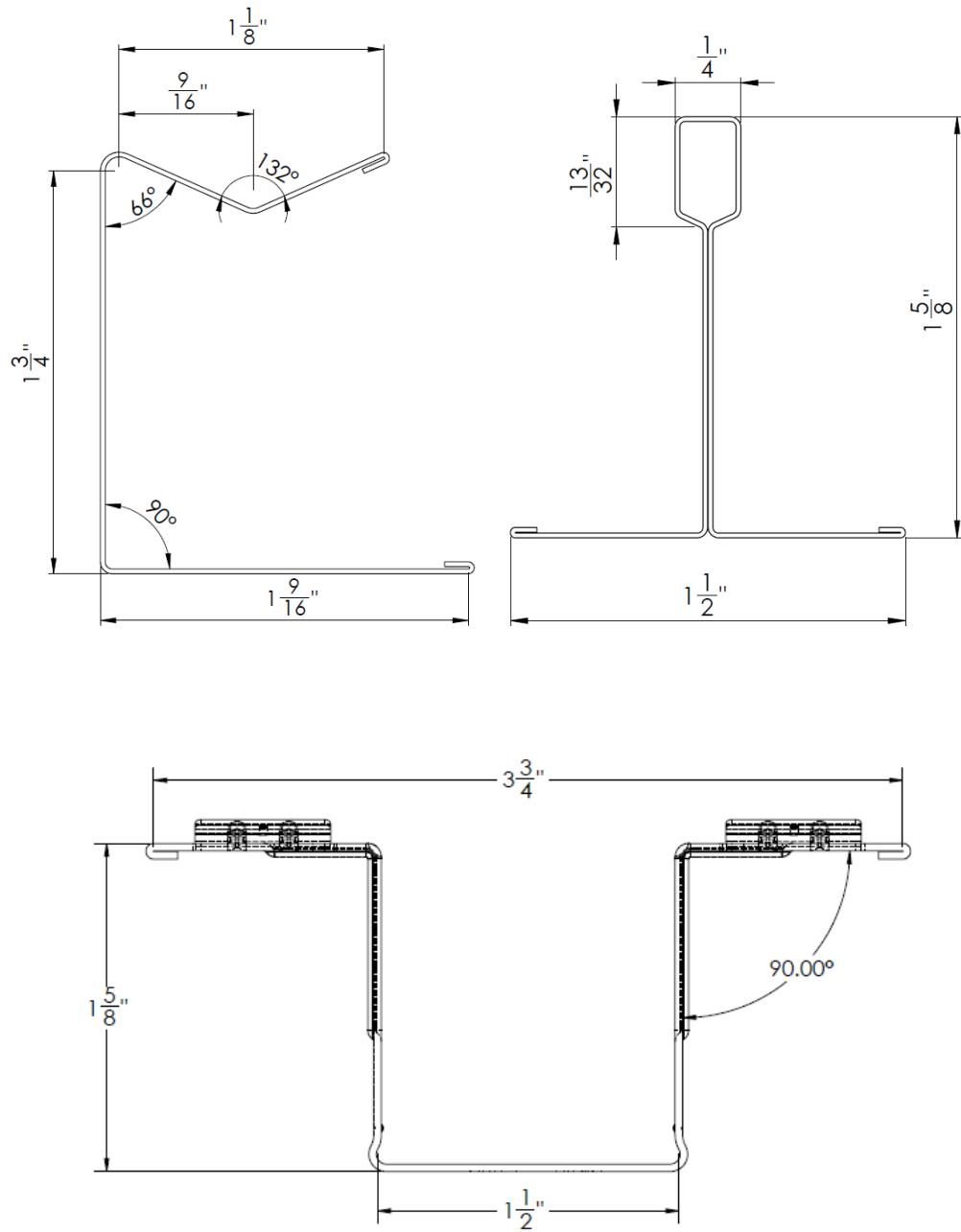


FIGURE 1—QuickSpan™ LOCKING DRYWALL SYSTEM COMPONENTS (QSLC, QST and QSSC1)

ICC-ES Evaluation Report

ESR-3941 CBC Supplement

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CERTAINTED CEILINGS CORPORATION

EVALUATION SUBJECT:

QUICKSPAN™ LOCKING DRYWALL SYSTEM (LDS)

1.0 EVALUATION SCOPE

Compliance with the following code:

2016 California Building Code (CBC), Chapters 8, 16, 16A and 25

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the QuickSpan™ Locking Drywall System, recognized in ICC-ES master evaluation report ESR-3941, complies with the CBC, when design and installation are in accordance with the master evaluation report with the following modifications:

Modify Section 4.1, as follows: The locking drywall system is designed to support up to two layers of 5/8-inch-thick (15.9 mm) gypsum board having a maximum weight of 5.0 psf (22.6 kg/m²). The QuickSpan™ Locking Drywall System must be designed for seismic loads as required under Chapter 13 of ASCE 7-10 as referenced in 2016 CBC Sections 1613, 1613A and 2506.2.1, and modified by 2016 CBC Sections 1616.10.16 and 1616A.1.21, as applicable.

Modify Section 4.2.5, as follows: Revise reference from IBC Section 2508 to CBC Section 2508.

Modify Section 5.5, as follows: Periodic special inspections must be provided in accordance with 2016 CBC Sections 1704.3, 1704A.3, 1704.5, 1704A.5, and 1705A.12.5, and ASCE 7-10 Section 11A.1.3.9, Item 2. A statement of special inspection must be provided for use in Seismic Design Categories D, E and F as required in 2016 CBC Sections 1704.3 and 1704A.3.

Modify Section 5.6, as follows: For installations in Seismic Design Category C, D, E or F, a quality assurance plan complying with CBC Chapters 17 and 17A, as applicable, must be submitted to the code official.

Modify Section 5.8, as follows: The ceiling system is limited to ceilings not considered accessible in accordance with Item 28 of 2016 CBC Tables 1607.1 and 1607A.1.

This supplement expires concurrently with the master report, reissued August 2019.