ICC-ES Evaluation Report

ESR-3380

Issued September 1, 2012
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DIVISION: 05 00 00—METALS
Section: 05 05 23—Metal Fastenings

DIVISION: 09 00 00—FINISHES
Section: 09 22 16.23—Fasteners

REPORT HOLDER:

STANLEY BLACK & DECKER, INC.
701 EAST JOPPA ROAD
TOWSON, MARYLAND 21286
(800) 556-6696
www.bostitch.com

EVALUATION SUBJECT:

STANLEY BOSTITCH POWER-DRIVEN PINS USED TO FASTEN GYPSUM BOARD MATERIALS TO COLD-FORMED STEEL WALL FRAMING

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 and 2006 *International Building Code®* (IBC)
- 2009 and 2006 *International Residential Code®* (IRC)

Property evaluated:

Structural: transverse load connection strength

2.0 USES

The Stanley BOSTITCH power-driven pins are used to attach gypsum board materials to interior and exterior cold-formed steel wall framing and to transfer negative transverse load from the gypsum board to the framing. The pins are alternates to the steel tapping screws prescribed in IBC Table 2506.2 and IRC Section R603.2.4, and may be used under the IRC when an engineered design is submitted in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 Fasteners:

Stanley BOSTITCH power-driven pins have a bugle head and a deformed shank with nine helical flutes. The pins are formed from steel complying with ASTM A510, UNS Designation G 10380, and are heat-treated to a Rockwell C (HRC) core hardness of 47 to 53. The pins have a zinc coating of 0.5 oz/ft^2 (152 g/m^2). The pins are available in collated coils and other collations.

3.1.1 GC4S100BG: The GC4S100BG fastener has a nominal head diameter of 0.285 inch, a nominal shank diameter of 0.100 inch and a nominal length of $1^1/_2$ inches. See Figure 1 for an image of the fastener.

3.2 Gypsum Board Material:

The gypsum board material must be one of the following products having the thickness noted in Table 1:

1. Georgia-Pacific Gypsum DensGlass® Sheathing complying with ESR-3087
2. Georgia-Pacific Gypsum DensGlass® Fireguard® Sheathing complying with ESR-3087
3. USG Sheetrock® Brand Gypsum Panels
4. USG Sheetrock® Brand Firecode® Core Type X Gypsum Panels
5. USG Fiberock® Brand Aquatough™ Gypsum Sheathing

3.3 Cold-formed Steel Wall Framing:

Cold-formed steel studs must have a flange width of $1^5/_8$ inches (41 mm) and have a specified minimum base-steel thickness between 33 and 54 mils. Cold-formed steel framing members having a specified base-steel thickness of 33 mils or 43 mils must be formed from steel complying with ASTM A1003 minimum grade ST33H, or ASTM A653 Type SS minimum Grade 33 with a G60 coating. Cold-formed steel framing members having a specified base-steel thickness of 54 mils must be formed from steel complying with ASTM A1003 minimum grade ST50H, or ASTM A653 Type SS Grade 50 Class 1 with a G60 coating.

4.0 DESIGN AND INSTALLATION

4.1 Design:

Framing and sheathing information, fastener spacing and allowable negative transverse pressures are shown in Table 1. The steel framing members, framing connections and the sheathing must be designed to resist the applied transverse loads, in accordance with the applicable code.

4.2 Installation:

The Stanley BOSTITCH power-driven pins must be installed in accordance with this report and the report holder's published installation instructions. A copy of these instructions must be available on the jobsite at all times during installation.

The pins must be installed using a power tool recommended by Stanley BOSTITCH. The pins must penetrate the sheathing panels being fastened and protrude through the steel framing members a minimum of $^1/_2$ inch (12.7 mm). The fasteners must not be overdriven such that the head breaks the surface fibers of the gypsum board material.

Fasteners must be spaced at 6 inches (152 mm) on center at all sheathing panel edges and at supporting studs within the field of the panel. The distance from the

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center of the fastener to the edge of the gypsum panel must be a minimum of $^1/_2$ inch (12.7 mm). Where two gypsum panels abut, the joint must be centered on the supporting stud.

5.0 CONDITIONS OF USE

The Stanley BOSTITCH power-driven pins 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 fasteners must be installed in accordance with this report and the published installation instructions. In the case of a conflict between the published installation instructions and this report, the more restrictive requirements govern.

5.2 Construction documents and calculations demonstrating that the design pressures do not exceed the allowable negative pressures given in Table 1 must be submitted to the code official. The calculations must be prepared by a registered design professional when required by statutes of the jurisdiction in which the project is to be constructed.

5.3 The allowable negative pressures in this report are based only on the connection of the gypsum board material to the cold-formed steel framing. Allowable negative pressures for the various sheathing materials, cold-formed steel framing members and framing connections are outside the scope of this report. Suitability of these elements must be determined by a registered design professional and must be justified to the satisfaction of the code official.

5.4 Use of the power-driven pins to resist in-plane shear (lateral) loads is outside the scope of this report.

5.5 For exterior wall applications, a water-resistive barrier and exterior wall covering must be installed over the gypsum sheathing in accordance with IBC Sections 1404.2 and 1405 or IRC Sections R703.2 and R703, as applicable.

5.6 USG Sheetrock® Brand Gypsum Panels and USG Sheetrock® Brand Firecode® Core Type X Gypsum Panels must be shown to be in compliance with ASTM C1396 to the satisfaction of the code official.

5.7 USG Fiberock® Brand Aquatough™ Gypsum Sheathing must be shown to be in compliance with ASTM C1278 to the satisfaction of the code official.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Power-driven Pins for Attaching Gypsum Board Materials to Cold-formed Steel Wall Framing (AC259), dated June 2010.

7.0 IDENTIFICATION

Cartons of the Stanley BOSTITCH fasteners are labeled with the Stanley BOSTITCH® name and logo, the product designation, and the evaluation report number (ESR-3380). The head of the fastener must be marked with the letter 'G' as shown in Figure 1.

TABLE 1—ALLOWABLE NEGATIVE TRANSVERSE PRESSURES USING STANLEY BOSTITCH FASTENERS

FASTENER	SHEATHING TYPE	SHEATHING THICKNESS (inch)	MAXIMUM STUD SPACING (inches)	FASTENER SPACING[1] (inches)	ALLOWABLE NEGATIVE PRESSURE (psf)
GC4S100BG	Georgia-Pacific Gypsum DensGlass® Sheathing	$^1/_2$	24	6	7*
			16	6	20
	Georgia-Pacific Gypsum DensGlass® Fireguard® Sheathing	$^5/_8$	24	6	15
			16	6	17
	USG Sheetrock® Brand Gypsum Panels	$^1/_2$	24	6	10
			16	6	17
	USG Sheetrock® Brand Firecode® Core Type X Gypsum Panels	$^5/_8$	24	6	18
			16	6	28
	USG Fiberock® Brand Aquatough™ Gypsum Sheathing	$^1/_2$	24	6	19
			16	6	22

For **SI:** 1 inch = 25.4 mm, 1 mil = 0.001 inch; 1 psf = 47.88 Pa.

*For interior use only.

[1]Spacing at all panel edges and along supporting framing within the field of the panel.

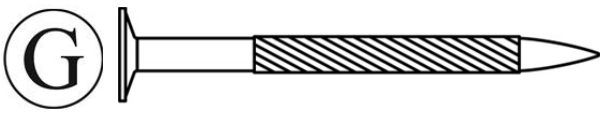

FIGURE 1—STANLEY BLACK & DECKER GC4S100BG FASTENE

ICC-ES Evaluation Report

ESR-3380 FBC Supplement

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1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Stanley Bostitch power-driven pins used to fasten gypsum board materials to cold-formed steel wall framing, recognized in ICC-ES master report ESR-3380, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2010 *Florida Building Code—Building*
- 2010 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The Stanley Bostitch power-driven pins used to fasten gypsum board materials to cold-formed steel wall framing**,** described in Sections 2.0 through 7.0 of the master evaluation report ESR-3380, comply with the 2010 *Florida Building Code—Building* and the 2010 *Florida Building Code—Residential*, provided the design and installation are in accordance with the *International Building Code®* (IBC) provisions noted in the master report.

Use of the Stanley Bostitch power-driven pins for compliance with the High-Velocity Hurricane Zone provisions of the 2010 *Florida Building Code—Building* and the 2010 *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this evaluation report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report issued on September 1, 2012.

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Applicable code edition:

2010 *California Building Code* (CBC)

2.0 CONCLUSIONS

The Stanley Bostitch Power-Driven Pins Used to Fasten Gypsum Board Materials to Cold-Formed Steel Wall Framing, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3380, comply with CBC Chapters 14, 16, 16A, 22, 22A and 25, provided the design and installation are in accordance with the *International Building Code®* (IBC) provisions noted in the master report and the additional requirements in CBC Chapters 14, 16, 16A, 22, 22A and 25.

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