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ICC-ES Evaluation Report

ESR-1641

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Reissued 04/2018
This report is subject to renewal 04/2020.

DIVISION: 05 00 00—METALS
SECTION: 05 05 23—METAL FASTENINGS

REPORT HOLDER:

AEROSMITH FASTENING SYSTEMS

5621 DIVIDEND ROAD
INDIANAPOLIS, INDIANA 46241

EVALUATION SUBJECT:

VERSAPIN™ PNEUMATIC FASTENERS: HELICAL-KNURLED AND GRIPSHANK®



“2014 Recipient of Prestigious Western States Seismic Policy Council (WSSPC) Award in Excellence”



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DIVISION: 05 00 00—METALS
Section: 05 05 23—Metal Fastenings

REPORT HOLDER:

AEROSMITH FASTENING SYSTEMS
5621 DIVIDEND ROAD
INDIANAPOLIS, INDIANA 46241
(800) 528-8183
www.aerosmithfastening.com

EVALUATION SUBJECT:

VERSAPIN™ PNEUMATIC FASTENERS: HELICAL-KNURLED AND GRIPSHANK®

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

Property evaluated:

Structural

2.0 USES

The VersaPIN™ helical-knurled and GripShank® pneumatic fasteners are used to attach $\frac{5}{8}$ -inch-thick (15.9 mm) Georgia Pacific Dens-Glass® Fireguard gypsum sheathing and $\frac{5}{8}$ -inch-thick (15.9 mm) Type X gypsum sheathing to cold-formed steel wall framing. The fasteners are used in exterior wall applications that resist transverse (wind) loading on structures of all types of construction under the IBC and UBC; and under the IRC, provided an engineering design is submitted in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 Fasteners:

The VersaPIN fasteners are collated, and have a 0.100-inch-diameter (2.54 mm) shank, a nominal head diameter of $\frac{5}{16}$ inch (7.9 mm) and a nominal length of $1\frac{1}{4}$ inches (32 mm) or $1\frac{1}{2}$ inches (38 mm). The fasteners are manufactured from steel complying with ASTM A510 Grade 1060 (UNS G10600), have a heat-treated core with a Rockwell hardness (Rc) of 52-55, and have an austempered surface with a Rockwell hardness (Rc) of 39-48. The collated fasteners are zinc-plated, and are

available with either a helical (part number 2324A) or GripShank® (part numbers 2325A and 2385A) thread knurling pattern.

3.2 Sheathing:

Sheathing must be one of the following types:

- Type X gypsum sheathing with a water-resistant core, complying with ASTM C79 or C1396.
- Georgia-Pacific DensGlass Fireguard gypsum sheathing.

3.3 Steel:

Steel framing members must be manufactured from steel complying with ASTM A653 SS Grade 33, having a minimum yield strength of 33 ksi (227 MPa) and the following minimum uncoated base-metal thicknesses:

- No. 12 gage: 0.0966 inch (2.453 mm)
- No. 14 gage: 0.0677 inch (1.720 mm)
- No. 16 gage: 0.0538 inch (1.367 mm)
- No. 18 gage: 0.0428 inch (1.087 mm)
- No. 20 gage: 0.0329 inch (0.836 mm)
- No. 22 gage: 0.0269 inch (0.683 mm)

4.0 DESIGN AND INSTALLATION

4.1 Design:

Fastener information, fastener attachment dimensions, required fastener penetrations, and allowable positive or negative transverse loads on the sheathing fastened to metal framing members are set forth in Tables 1 and 2. Steel framing members must be designed to withstand the applied positive and negative transverse loads.

4.2 Installation:

Fasteners must be installed with a pneumatic tool in accordance with Aerosmith Fastening Systems recommendations. The fasteners must pierce the sheathing panels being fastened, and the heads of the fasteners must be flush with the face of the sheathing. The fasteners must not be over-driven into the sheathing.

5.0 CONDITIONS OF USE

The VersaPIN™ fasteners (helical-knurled and GripShank® 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 Fasteners must be manufactured, identified and installed in accordance with this report. If there is a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2 Allowable positive or negative transverse loads on sheathing attached to steel studs are limited to the values noted in Tables 1 and 2. Calculations showing that the applied loads are less than the maximum allowable loads noted in this report must be submitted to the code official for approval. The calculations must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.3 An approved water-resistive barrier and exterior wall covering must be installed over the gypsum sheathing, in accordance with IBC Sections 1404.2 and 1405, IRC Sections R703.2 and R703 or UBC Sections 1402.1 and 1401.1, as applicable.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Pneumatic- or Gas-power-driven Pin Fasteners Used To Attach Gypsum Panels to Cold-formed Steel Framing, (AC259), dated June 2004 (editorially revised March 2007).

7.0 IDENTIFICATION

- 7.1 Cartons of the pneumatic fasteners must be labeled with the Aerosmith Fastening Systems company name, part number (2324A, 2325A or 2385A), lot number, evaluation report number (ESR-1641) and the VersaPIN™ designation. The head of each fastener must feature a logo symbol as shown in Figure 1.
- 7.2 DensGlass Fireguard gypsum sheathing must be labeled with the DensGlass name and a manufacturing code.

TABLE 1—ALLOWABLE POSITIVE OR NEGATIVE TRANSVERSE LOADS ON 5/8-INCH-THICK GEORGIA-PACIFIC DENSGLASS® FIREGUARD SHEATHING USING VERSAPIN™ FASTENERS^{1,2,3,4}

MINIMUM STEEL STUD THICKNESS (gage)	MAXIMUM STUD SPACING (inches)	FASTENER SPACING (inches)	FASTENER KNURL TYPE	ALLOWABLE LOAD (psf)
22, 20, 18 or 16	24	8	GripShank®	18
16, 14 or 12	24	6	Helical-knurled	18
16, 14 or 12	16	8	Helical-knurled	30

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa.

¹The fasteners must be driven to a depth at which the shank pierces the steel, such that the tip of the fastener protrudes from the base metal a minimum of 5/16 inch.
²Tabulated values do not allow any over-driving of fasteners into the sheathing thickness.
³The minimum distance from the fasteners to the edge or end of the sheathing must be 3/8 inch.
⁴At the adjoining sheathing panel edges, the framing studs must be 1.5 inches or wider, and the fasteners must be staggered.

TABLE 2—ALLOWABLE POSITIVE OR NEGATIVE TRANSVERSE LOADS ON 5/8-INCH-THICK (MINIMUM) GYPSUM SHEATHING USING VERSAPIN™ FASTENERS^{1,2,3,4}

MINIMUM STEEL STUD THICKNESS (gage)	MAXIMUM STUD SPACING (inches)	FASTENER SPACING (inches)	FASTENER KNURL TYPE	ALLOWABLE LOAD (psf)
16, 14 or 12	16	8	Helical-knurled	26

For SI: 1 inch = 25.4 mm, 1 psf = 47.88 Pa.

¹The fasteners must be driven to a depth at which the shank pierces the steel, such that the tip of the fastener protrudes from the base metal a minimum of 5/16 inch.
²Tabulated values do not allow any over-driving of fasteners into the sheathing thickness.
³The minimum distance from the fasteners to the edge or end of the sheathing must be 3/8 inch.
⁴At the adjoining sheathing panel edges, the framing studs must be 1.5 inches or wider, and the fasteners must be staggered.

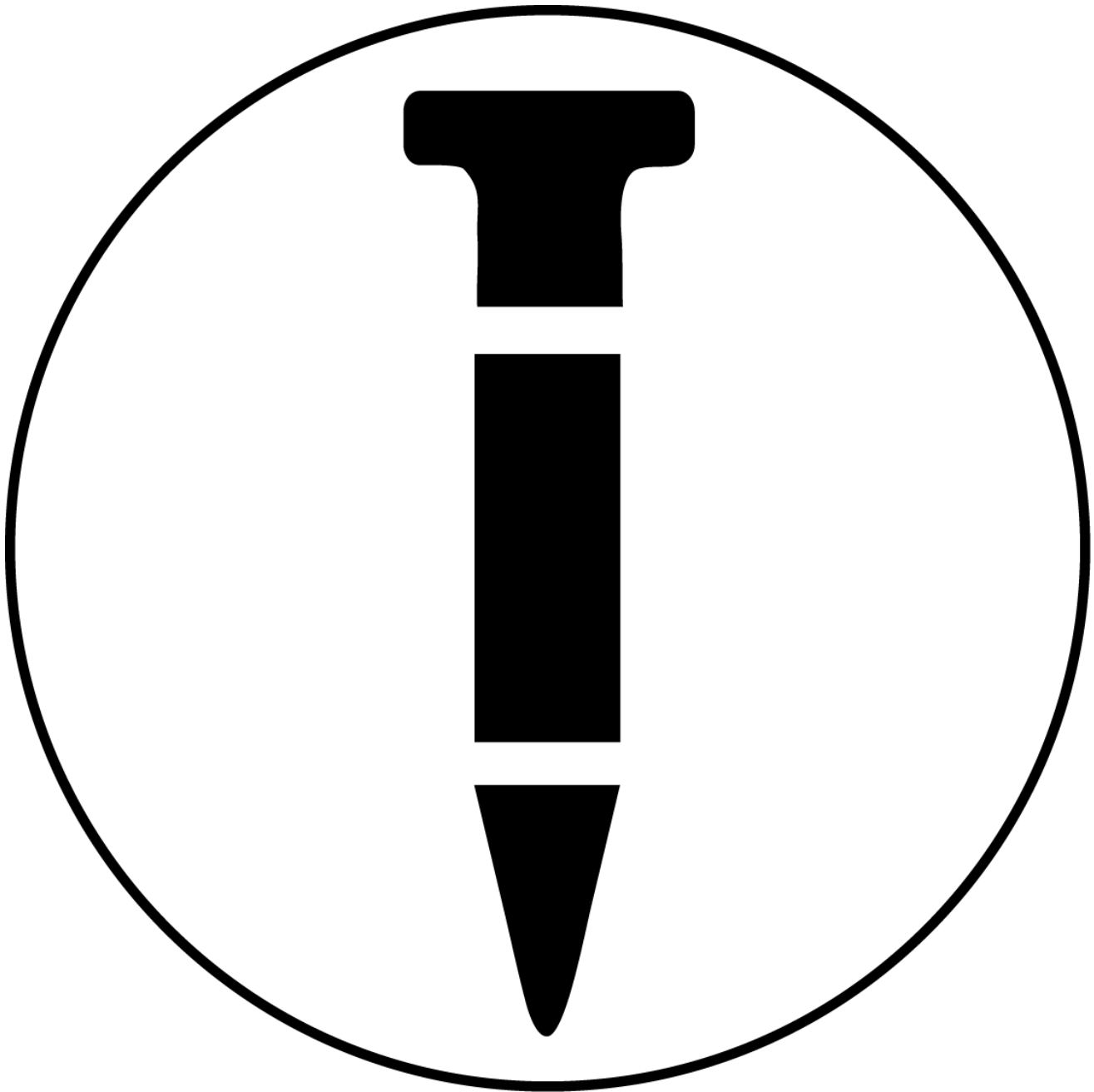


FIGURE 1—THREE MANUFACTURER'S SYMBOLS (LOGOS) FOR FASTENER HEADS