

ICC-ES Evaluation Report

ESR-2174

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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:****ITW RAMSET**
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SHEATHING TO METAL STUDS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2009 *International Building Code*® (IBC)
- 2009 *International Residential Code*® (IRC)
- Other Codes (see Section 8.0)

Property evaluated:

Structural

2.0 USES

The GYP-FAST™ fasteners are used to attach gypsum sheathing to the exterior side of light-framed, cold-formed steel framing members for curtain wall applications. The fasteners may be used to attach gypsum sheathing to steel studs in structures regulated by the IRC, provided an engineered design is submitted in accordance with Section R301.1.3 of the IRC.

3.0 DESCRIPTION**3.1 GYP-FAST Fasteners:**

The fasteners are formed from coils of mill-certified steelwire. The steel complies as ASTM A 510, UNS G 10300 steel, heat-treated to a Rockwell C hardness of 45 to 50, or ASTM A 510, UNS G 10600 steel, heat-treated to a Rockwell C hardness of 44 to 48. The fastener is zinc-plated with a polymer finish, and has a tapered point with an annular thread and helical grooves on the shank. The fastener is 1½ inches (38.1 mm) long, has a 0.140-inch (3.6 mm) knurled diameter [0.120 inch (3.0 mm) shank diameter], and has a 0.32-inch-diameter (8.1 mm) bugle head. The fasteners are available in 150-count collated coils. See Figure 1 for an image of the fastener.

3.2 Exterior Gypsum Sheathing:

Exterior gypsum sheathing must be one of the materials listed in Table 1.

3.3 Steel Framing:

Steel framing members must comply with the applicable code and have the minimum uncoated base-metal thicknesses noted in Table 1. In addition, steel framing members must be manufactured from structural steel with a minimum yield strength of 33 ksi (228 MPa).

4.0 DESIGN AND INSTALLATION**4.1 Design:**

Framing and sheathing information, framing and fastener spacing, fastener penetration, and allowable negative (outward) transverse loads are set forth in Table 1. The steel framing members and the sheathing must be designed to resist the applied transverse loads.

4.2 Installation:

The GYP-FAST™ fasteners must be installed using pneumatic tools or fuel-powered tools recommended by ITW Ramset. The fasteners must pierce the sheathing panels being fastened, and must protrude through the steel framing members a minimum of ½ inch (12.7 mm). The head of the fastener must be flush with the sheathing. The fastener must not be over-driven.

5.0 CONDITIONS OF USE

The GYP-FAST™ fasteners 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 are manufactured, identified and installed in accordance with this report.
- 5.2** Calculations demonstrating that the applied loads are less than the maximum allowable loads noted in Table 1 must be submitted to the code official for approval.
- 5.3** Weather protection consisting of an approved exterior wall covering and a water-resistive barrier complying with IBC Section 1403.2 are required over the sheathing.
- 5.4** Use of GYP-FAST fasteners in lateral-force-resisting systems is beyond the scope of this report.

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 GYP-FAST™ fasteners must be labeled with the ITW Ramset name and address, the product name (GYP-FAST™) and the evaluation report number (ESR-2174). The head of each fastener bears one of the symbols shown in Figure 2.

8.0 OTHER CODES:

8.1 Evaluation Scope:

In addition to the codes listed in Section 1.0, the products recognized in this report were evaluated for compliance with the following codes:

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

8.2 Uses:

See Section 2.0.

8.3 Description:

See Section 3.0.

8.4 Installation:

See Section 4.0.

8.5 Conditions of Use:

See Section 5.0, and replace Section 5.3 with the following:

Weather protection consisting of an approved exterior wall covering and a water-resistive barrier (complying with 2006 IBC Section 1403.2, 2006 IRC Section R703.2, or UBC Section 1402.1, as applicable) are required over the sheathing.

8.6 Evidence Submitted:

See Section 6.0.

8.7 Identification:

See Section 7.0.

TABLE 1—ALLOWABLE NEGATIVE TRANSVERSE LOADS USING GYP-FAST™ FASTENERS^{1,2,3,4}

SHEATHING	MINIMUM STEEL STUD BASE METAL THICKNESS inch	MAXIMUM STUD SPACING inches	FASTENER SPACING inches	ALLOWABLE NEGATIVE LOAD psf
5/8-inch GP DensGlass® Gold Fireguard Type X Sheathing	0.034 (20 ga.)	24	8	19
1/2-inch USG Sheetrock® Brand Gypsum Sheathing	0.034 (20 ga.)	24	8	10
5/8-inch USG Sheetrock® Brand Firecode® Core Type X Gypsum Sheathing	0.034 (20 ga.)	24	8	14
1/2-inch USG Fiberock® Brand Aquatough™	0.034 (20 ga.)	24	8	24

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 1/2 inch.

²Tabulated values do not allow any overdriving of fasteners into sheathing.

³The minimum distance from the fasteners to the edge or the end of the sheathing is 3/8 inch.

⁴At the adjoining panel edges, the framing studs must be at least 1.5 inches wide, and the fasteners must be staggered.



FIGURE 1—GYP-FAST™ FASTENER

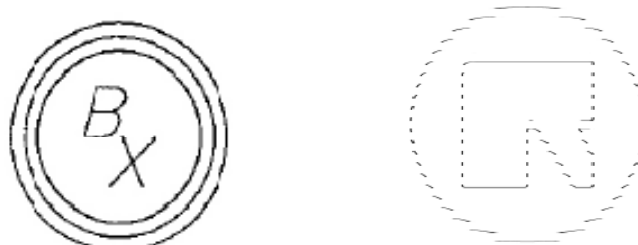


FIGURE 2—GYP-FAST™ FASTENER HEAD MARKINGS