

ICC-ES Evaluation Report

ESR-2398

Issued February 1, 2010

This report is subject to re-examination in one year.

www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 05—METALS
Section: 05090—Metal Fasteners**DIVISION: 09—FINISHES**
Section: 09051—Fasteners**REPORT HOLDER:****ET&F FASTENING SYSTEMS, INC.**
29019 SOLON ROAD
SOLON, OHIO 44139
(440) 248-8655
www.etf-fastening.com
dnolan@etf-fastening.com**EVALUATION SUBJECT****PANELFAST® PNEUMATIC FASTENERS USED TO
ATTACH SHEATHING TO METAL STUDS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

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

Property evaluated:

Structural

2.0 USES

PanelFast® AGS-100 series pneumatic fasteners are used to attach gypsum-based sheathing to cold-formed steel framing and to resist transverse loads. The fasteners 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 General:**

Various sheathing materials are attached to cold-formed steel framing, using the PanelFast® AGS-100 series pneumatic fasteners at the spacings indicated in Table 1.

3.2 Fasteners:

The Panelfast® AGS-100 Series pneumatic fasteners are manufactured from steel wire complying with the chemistry requirements in the manufacturer's quality documentation. The fasteners are then heat treated to a through hardness R_c of 52 to 54. The fasteners have a shank diameter of 0.100 inch (2.5 mm), a nominal head diameter of $5/16$ inch (7.9 mm), and a minimum length of $1\frac{1}{2}$ inches (38 mm). The fastener shanks have a spiral knurl pattern. The fasteners have a corrosion-resistant coating.

3.3 Sheathing:

The sheathing must be a minimum of $5/8$ inch (15.9 mm) thick and must be one of the following:

- Gypsum sheathing complying with ASTM C 79.
- Dens-Glass® Gold gypsum board manufactured by G-P Gypsum Corporation.
- Fiber-reinforced gypsum panels complying with ASTM C 1278.

3.4 Framing:

Cold-formed steel framing members must comply with IBC Section 2210. The framing must be manufactured from steel with minimum yield and tensile strengths and minimum uncoated base-metal thicknesses as noted in Table 1. The framing must have a minimum G60 coating in accordance with ASTM A 653.

4.0 DESIGN AND INSTALLATION**4.1 Design:**

Allowable transverse loads on sheathing attached to cold-formed steel studs using the AGS-100 pneumatic fasteners are given in Table 1. The steel framing members and the sheathing must be designed to resist the applied transverse loads, in accordance with the code.

4.2 Installation:

Fasteners must be installed using ET&F pneumatic tools. The fasteners must pierce the sheathing panels being fastened, and must protrude through the steel framing members a minimum of $5/16$ inch (7.9 mm). The heads of the fasteners must be flush with the sheathing without overdriving. The minimum distance of the fasteners from the edge or end of the sheathing is $3/8$ inch (9.5 mm), and the maximum spacing is noted in Table 1. At the adjoining panel edges, the framing must be a minimum of 1.5 inches (38 mm) wide and the fasteners must be staggered.

5.0 CONDITIONS OF USE

The Panelfast® Pneumatic 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** Fasteners must be manufactured, installed and identified in accordance with this report.
- 5.2** Allowable positive and negative transverse loads on sheathing attached to metal studs using the AGS-100 fasteners must be limited to the values noted in Table 1. The steel framing members must be designed to sustain the applied positive and negative transverse

loads. Calculations justifying that the applied loads are less than the maximum allowable loads must be submitted to the code official for approval.

- 5.3 For exterior wall applications, the sheathing must be covered by a water-resistive barrier and exterior wall covering in accordance with the requirements of the applicable code.

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

Cartons of ET&F pneumatic fasteners are identified with the manufacturer’s name (ET&F Fastening Systems, Inc.), product name, catalog number (AGS-100) and the evaluation report number (ESR-2398). The head of each fastener is stamped with the logo shown in Figure 1.

TABLE 1—ALLOWABLE POSITIVE AND NEGATIVE TRANSVERSE LOAD ON SHEATHING FASTENED TO STEEL STUDS USING AGS-100 SERIES FASTENERS

SHEATHING ¹	FRAMING REQUIREMENTS				FASTENER SPACING (inches)	ALLOWABLE LOAD (psf)
	Minimum Uncoated Thickness (mils)	Minimum Yield Strength (ksi)	Minimum Tensile Strength (ksi)	Maximum Spacing (inches)		
Gypsum sheathing ²	36	33	45	24	6	20
	45	33	45	24	8	17
	60	50	65	16	6	28
Den-Glass® Gold	36	33	45	24	6	24
	45	33	45	24	8	20
Fiber-reinforced gypsum panels ³	36	33	45	24	6	27
	36	33	45	24	8	22

For **SI**: 1 mil = 0.001 inch = 0.0254 mm, 1 inch = 25.4 mm, 1 ksi = 6.89 MPa, 1 psf = 47.88 Pa.

¹Gypsum-based sheathing must be a minimum of 5/8 inch thick. The sheathing board orientation relative to steel framing members may be horizontal or vertical.

²Must comply with ASTM C 79.

³Must comply with ASTM C 1278.

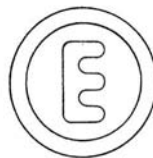


FIGURE 1—FASTENER HEAD MARKING