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Legacy report on the 1997 Uniform Building Code™, the 2000 International Building Code® and the 2000 International Residential Code®

CATEGORY: FASTENERS—Gypsum Wallboard

GYP-FAST™ FASTENERS USED TO ATTACH GYPSUM SHEATHING TO METAL STUDS

ITW BUILDEX
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1.0 SUBJECT

GYP-FAST™ Fasteners Used to Attach Gypsum Sheathing to Metal Studs.

2.0 DESCRIPTION

2.1 General

Buildex GYP-FAST™ collated pin fasteners are pneumatically or fuel-powered driven fasteners used to attach gypsum sheathing to light-gage, cold-formed steel framing members for curtain wall applications.

2.2 Materials

2.2.1 Buildex GYP-FAST Fasteners: The collated fasteners are manufactured from AISI C 1030 steel, heat-treated to a Rockwell C hardness of 45 to 50, or AISI C 1060 steel, heat-treated to a Rockwell C hardness of 44 to 48. Minimum tensile strength is 210 ksi (1447 MPa). The fasteners are zinc-plated with a polymer finish, and have tapered helical points with annular threading on the shanks. Fasteners are 1.50 inches (38.1 mm) long and 0.120 inch (3 mm) in diameter, and have a 0.320-inch-diameter (6.4 mm) bugle head.

2.2.2 Gypsum Sheathing: Gypsum sheathing must either be 5/8-inch-thick (15.9 mm) Type X with a water-resistant core complying with ASTM C 79, or 5/8-inch-thick (15.9 mm) Dens-Glass Gold Fireguard gypsum sheathing boards, recognized in evaluation report ER-4305.

2.2.3 Steel Framing: Steel framing members shall have the following minimum uncoated base-metal thicknesses:

No. 16 gage: 0.0598 inch (1.5 mm)

No. 18 gage: 0.0478 inch (1.2 mm)

Steel framing members shall be manufactured from steel complying with ASTM A 653 SS Grade 33, with a minimum yield strength of 33 ksi (228 MPa).

2.3 Design

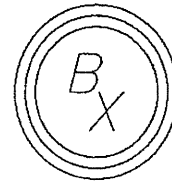
Fastener information, fastener attachment dimensions, required fastener penetrations, and allowable negative transverse loads on the sheathing fastened to metal framing members are set forth in Table 1. The steel framing members must be designed to sustain the applied positive and negative transverse loads, and the sheathing must be designed to sustain the applied positive transverse loads; such design is beyond the scope of this report.

2.4 Installation

GYP-FAST Fasteners are installed using ITW Buildex pneumatic tools or fuel-powered tools. The fasteners must pierce the sheathing panels being fastened, and must protrude through the steel framing members a minimum of 1/12 inch (12.7 mm). Overdriving of the fasteners into the sheathing is not permitted. The heads of the fasteners must be flush with the sheathing.

2.5 Identification

Cartons of GYP-FAST™ fasteners bear the ITW Buildex name and address, the product name (GYP-FAST™), the catalog number (2526910), and the evaluation report number (ER 6070). The head of each fastener bears the symbol shown below:



The gypsum sheathing must be identified in accordance with ASTM C 79, and the Dens-Glass Gold gypsum sheathing board is labeled in accordance with evaluation report ER-4305.

3.0 EVIDENCE SUBMITTED

Descriptive details, reports of tests in accordance with ASTM E 330, and a quality control manual.

4.0 FINDINGS

That the Buildex GYP-FAST™ Fasteners described in this report, and used to attach gypsum sheathing to metal studs, comply with the 1997 Uniform Building Code™ (UBC), the 2000 International Building Code® (IBC) and the 2000 International Residential Code® (IRC), subject to the following conditions:

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- 4.1 Fasteners are manufactured, identified and installed in accordance with this report.
- 4.2 Allowable negative transverse loads on sheathing attached to metal studs are limited to the values noted in Table 1 of this report. The steel framing members must be designed to sustain the applied positive and negative transverse loads, and the sheathing must be designed to sustain the applied positive transverse loads; such design is beyond the scope of this report. Calculations proving that the applied loads are less than the maximum

- allowable loads must be submitted to the building official for approval.
 - 4.3 An approved exterior wall covering and weather-resistive barrier are required over the system recognized in this report, in accordance with UBC Sections 1401.1 and 1402.1, respectively; or IBC Sections 1401.1 and 1403.2, respectively; or IRC Sections R703.1 and R703.2, respectively.
- This report is subject to reexamination in one year.

TABLE 1—ALLOWABLE NEGATIVE TRANSVERSE LOADS USING GYP-FAST™ FASTENERS^{1, 2, 3, 4, 5}

SHEATHING	MINIMUM STEEL STUD THICKNESS (gage)	MAXIMUM STUD SPACING (inches)	FASTENER SPACING (inches)	ALLOWABLE NEGATIVE LOAD (psf)
Type X Gypsum	18	24	8	21
Dens-Glass Gold	18	24	8	24
	16	24	8	23

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 the 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.

⁵Allowable values are based on a minimum factor of safety of 3.0 applied to the average ultimate load.