ICC EVALUATION SERVICE

Most Widely Accepted and Trusted

ICC-ES Report

ESR-2962

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

Reissued 05/2015
This report is subject to renewal 05/2017

DIVISION: 05 00 00—METALS
SECTION: 05 05 23—METAL FASTENINGS
DIVISION: 09 00 00—FINISHES
SECTION: 09 22 16.23—FASTENERS

REPORT HOLDER:

JAACO CORPORATION

18080 NE 86TH STREET
REDMOND, WASHINGTON 98052

EVALUATION SUBJECT:

JAACO NAILPRO HARDENED BALLISTIC PINS FOR ATTACHING GYPSUM SHEATHING TO COLD-FORMED STEEL FRAMING

Look for the trusted marks of Conformity!

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

A Subsidiary of ICC INTERNATIONAL CODE COUNCIL

ICC EVALUATION SERVICE
Most Widely Accepted and Trusted

ICC-ES Evaluation Report

ESR-2962

Reissued May 2015
This report is subject to renewal May 2017.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

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

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

REPORT HOLDER:

JAACO CORPORATION
18080 NE 68TH STREET, SUITE C-130
REDMOND, WASHINGTON 98052
(425) 952-4205
www.jaaco.com
jaaco@qwestoffice.net

EVALUATION SUBJECT:

JAACO NAILPRO HARDENED BALLISTIC PINS FOR ATTACHING GYPSUM SHEATHING TO COLD-FORMED STEEL FRAMING

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

Jaaco NailPro hardened ballistic pins are used to attach gypsum sheathing to cold-formed steel (CFS) framing for site-built wall applications under the IBC, to resist transverse (wind) loads. The pins may be used for attachment of gypsum sheathing to CFS wall framing in structures regulated by the IRC, provided an engineered design is submitted in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 Jaaco NailPro NP100K Hardened Ballistic Pins:

The NailPro NP100K hardened ballistic pins are nail-shaped fasteners with a round-shaped head. The pins are manufactured from steel wire coils complying with ASTM A 510 Grade 1060 (UNS 10600), and are heat-treated to provide case and core hardness on the Rockwell C scale of 52 to 55 HRC. The pins are either electrically zinc plated with chromate finish or mechanically zinc plated so as to comply with, respectively, ASTM B633, Type II, SC 1, or ASTM B 695, Type 1, Class 12. The pin has a ballistic point with a nominally 0.100-inch-diameter (2.69 mm) knurled shank, a nominally 0.245-inch (6.20 mm) head diameter, and a minimum length of $1^1/_2$ inches (51 mm). The pins are available in wire coils, plastic sheet coils, and strips. Figure 1 shows the typical knurled-shank pin and pin head marking.

3.2 Sheathing:

The sheathing must be USG Securock gypsum sheathing with a minimum thickness of $^1/_2$ inch (12.7 mm).

3.3 Framing:

CFS framing members must be manufactured from ASTM A 653 SS designation, Grade 33, steel, with a minimum G60 coating in accordance with ASTM A 653.

CFS wall studs must be C-shaped members with a minimum uncoated base-steel thickness of 0.0428 inch (1.087 mm), a minimum flange width of $1^5/_8$ inches (41.3 mm), a minimum overall depth of $3^5/_8$ inches (92.1 mm), and a minimum flange stiffener (lip) length of $^1/_2$ inch (12.7 mm).

CFS wall tracks must be C-shaped members with a minimum uncoated base-steel thickness of 0.0428 inch (1.087 mm), a minimum flange width of $1^1/_2$ inches (38 mm) and a minimum inside depth equal to the overall depth of the CFS wall studs.

4.0 DESIGN AND INSTALLATION

4.1 Design:

CFS framing and gypsum sheathing information, CFS wall stud spacing, pin spacing and penetration, and allowable negative transverse load for wall assemblies are set forth in Table 1. The CFS wall framing members and gypsum sheathing must be designed to resist the applied transverse wind loads, in accordance with the code.

4.2 Installation:

The Jaaco NailPro NP100K hardened ballistic pins must be installed using pneumatic tools or gas-powered tools recommended by Jaaco Corporation. The pins must be installed such that the pin's tip pierces the gypsum sheathing being fastened and protrudes through the CFS framing members a minimum of $^1/_2$ inch (12.7 mm); and the pin's head must not be over-driven such that it punctures the gypsum sheathing surface. The underside of the pin head must be flush with the gypsum sheathing surface. The pins must be installed a minimum of $^1/_2$ inch (12.7 mm) from the edge and end of the gypsum sheathing. The maximum spacing of the pins must be 8 inches (203 mm) on center around the perimeter and in the field of the

gypsum sheathing. At the gypsum sheathing adjoining edges, the CFS framing must be a minimum of $1^1/_2$ inches (38 mm) and pins must be staggered. The gypsum sheathing must be installed with the long dimension oriented perpendicular to the vertical CFS framing.

Each CFS wall stud must be fastened to the wall tracks with one No. 10 by $^3/_4$-inch-long (19.1 mm), modified truss head, zinc-coated Phillips screw that complies with ASTM C 1513, through each flange.

5.0 CONDITIONS OF USE

The Jaaco NailPro hardened ballistic 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 pins must be installed in accordance with the manufacturer's installation instructions and this report. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

5.2 Allowable negative transverse load on gypsum sheathing attached to CFS wall studs using the knurled-shank pins described in this report must be limited to the value noted in Table 1. Calculations justifying that the applied loads are less than the maximum allowable loads noted in Table 1 of this report must be submitted to the building 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 Use of the pins described in this report in a lateral-force-resisting system is beyond the scope of this report.

5.4 Use of the pins described in this report is limited to use in nonfire-resistance-rated applications.

5.5 For exterior wall applications, 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 or IRC Sections R703.2 and R703, as applicable.

5.6 Gypsum sheathing must be the material noted in Table 1 of this report, complying with ASTM C 1177.

5.7 The pins must be manufactured at the Jaaco Corporation manufacturing plant (Shanghai Curvet Hardware Co.) in Shanghai, China, and must be identified in accordance with this report.

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 Hardened Ballistic Pin:

Each carton and packaging unit of the Jaaco NailPro hardened ballistic pins described in this report must be identified by a label bearing the name and address of the report holder (Jaaco Corporation) or the additional listee (Pac Fast, Inc.); the product trade name as indicated in Table 2 of this report; model number (NP100K); nominal pin size and length; and the ICC-ES evaluation report number (ESR-2962). Each pin head must bear a marking as shown in Figure 1.

7.2 Sheathing:

Gypsum sheathing must be identified with the sheathing name and the applicable national standard.

TABLE 1—ALLOWABLE NEGATIVE TRANSVERSE LOAD FOR GYPSUM SHEATHING ATTACHED TO COLD-FORMED STEEL (CFS) FRAMING USING 0.100-INCH-DIAMETER-BY-1.5-INCH-LONG KNURLED-SHANK POWER-DRIVEN PINS[1,2,3]

SHEATHING[4]	CFS FRAMING THICKNESS[6] (in.)	MAXIMUM STUD SPACING (in.)	FASTENER SPACING[7] (in.)	ALLOWABLE LOAD[8] (psf)
$^1/_2$-inch-thick USG Securock Gypsum Sheathing[5]	0.0428	24	8	7.5

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

[1]The maximum wall height-to-width aspect ratio is 2:1.
[2]The pins must be power-driven to a depth such that the tip of the pin protrudes from the framing a minimum of $^1/_2$ inch.
[3]The minimum distance from the center of the pin to the edge or end of the gypsum sheathing is $^1/_2$ inch.
[4]The sheathing thickness shown is the minimum thickness for the gypsum sheathing described in this report. A greater thickness of the same type of gypsum sheathing may be used with no increase in allowable negative transverse load.
[5]Must comply with ASTM C 1177.
[6]The CFS framing thickness is the minimum base-steel thickness (uncoated) for CFS framing described in this report.
[7]The spacing is the maximum on-center spacing of pins installed at the perimeter and in the field of the gypsum wall assembly.
[8]Allowable negative transverse load is for wall assemblies sheathed with gypsum sheathing attached by using knurled-shank power-driven pins on the exterior side of the walls.

TABLE 2—COMPANY NAME/PRODUCT TRADE NAME CROSS-REFERENCE

COMPANY NAME	PRODUCT TRADE NAME
Jaaco Corporation	NailPro

a. Knurled Shank Pin b. Pin Head Marking

FIGURE 1—JAACO NAILPRO HARDENED BALLISTIC PIN AND PIN HEAD MARK