



Originally Issued: 03/10/2010

Revised: 03/09/2017

Valid Through: 03/31/2018

EVALUATION SUBJECT:

**UFO BALLISTIC
NAILSCREW®/PNEUSCREW®
U.S. PATENT : 9,291,183 B2
CANADIAN PATENT: 2,648,647**

REPORT HOLDER:

**Universal Fastener Outsourcing, LLC
14652 Director Rd.
West Fork, Arkansas 72774
(800) 352-0028 or (479) 443-9292
www.911-nails.com
info@911-nails.com**

**CSI DIVISION: 06 Wood and Plastics
CSI Section: 06090 Wood and Plastic Fastening**

1.0 SCOPE OF EVALUATION

1.1 Compliance to the following codes & regulations:

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

1.2 Evaluated in accordance with

- ICC AC120 approved February 2006

1.3 Properties Assessed

- Structural

2.0 PRODUCT USE

UFO Ballistic NailScrews®/PneuScrews® substitute for nails in horizontal and vertical wood diaphragms (shear walls). NailScrew®/PneuScrew® substitution in vertical diaphragm (shear wall) applications are limited to installations assigned to Seismic Design Categories A and B. These fasteners are alternatives to nails and staples complying with IBC Section 2303.6

3.0 PRODUCT DESCRIPTION

The UFO Ballistic NailScrews®/PneuScrews® are nominally 2-1/4 inches (57.5 mm), 2-1/2 inches (63.5 mm), and 3 inches (76.2 mm) in length and have a 0.270 inch to 0.275 inch (6.86 to 6.98 mm) diameter full round head. The shank has three distinctly identifiable sections. The first shank section is smooth, round, and measures 1/2 inch (12.7 mm) in length for the 2-1/4 and 2-1/2 inch sizes and 5/8 inch (15.9 mm) for the 3 inch size from the head to midsection, and has a nominal diameter of 0.113 inch (2.9 mm). The second section measures 1-1/4 inches (31.8 mm), 1-1/2 inches (38.1 mm), or 1-7/8 inches (47.6 mm) in length for the three sizes respectively from the

smooth round shank to the tip and is composed of deformed screw threads. The major diameter of the screw threads is 0.125 inch (3.1 mm) and the minor diameter is nominally 0.113 inch (2.8702 mm). The third section of the shank is the Ballistic point. Figure 1 of this report illustrates a typical fastener.

The proprietary head and shank geometries of the UFO Ballistic NailScrew®/PneuScrew® comply with the material requirements, physical properties, dimensional tolerances, workmanship, protective coating and finishes, and packaging requirements of ASTM F1667. The UFO Ballistic NailScrews®/PneuScrews® are manufactured from cold heading quality (CHQ) carbon steel wire rod grades 1018-1022 steel wire. They are heat-treated and case-hardened. The UFO Ballistic NailScrews®/PneuScrews® have minimum bending yield strength, F_{yb} , of 100,000 psi (689.476 MPa).

4.0 DESIGN AND INSTALLATION

4.1 Design

4.1.1 Horizontal Diaphragms: Any of the Ballistic NailScrews®/PneuScrews® described in Section 3.0 of this report are permitted to be substituted for the same nailing patterns as 8d common nails (2-1/2 x 0.131 inch [65x3.2 mm]) in 7/16 inch (11.1 mm) and 15/32 inch (11.9 mm) thick oriented strand board (OSB) horizontal diaphragms resisting wind or seismic loads referenced IBC 2006 Table 2306.3.1 and IRC 2006 Table R602.3 (1).

4.1.2 Vertical Diaphragms: Any of the Ballistic NailScrews®/PneuScrews® described in Section 3.0 of this report are permitted to be substituted for the same nailing patterns as 8d common nails (2-1/2 x 0.131 inch [65x3.2 mm]) in 7/16 inch (11.1 mm) and 15/32 inch (11.9 mm) thick OSB vertical diaphragms resisting wind loads only referenced IBC 2006 Table 2306.4.1 and IRC 2006 Table R602.3 (1).

4.2 Installation

UFO Ballistic NailScrews®/PneuScrews® shall be installed in accordance with current manufactured published installation instructions, this report, and applicable requirements in the ANSI/AF&PA NDS-2005, National Design Specification, Section 11.1.5. Where conflicts occur, the more restrictive shall govern. The UFO Ballistic NailScrews®/PneuScrews® are either pneumatically driven or manually screwed in.

5.0 LIMITATIONS

The UFO Ballistic NailScrews®/PneuScrews® screws described in this report comply with, or are suitable





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alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Use of NailScrews®/PneuScrews® shall comply with this report and the applicable code.

5.2 Diaphragm construction shall conform to applicable provisions in the IBC and IRC.

5.3 The fasteners shall be driven flush with the face of the sheathing material.

5.4 NailScrews®/PneuScrews® cannot replace nails in end conditions (i.e. driven parallel to grain in end of main member). This condition does not affect diaphragm/shear wall in typical construction.

5.5 The NailScrews®/PneuScrews® shall be installed with a minimum edge and end distance of 3/8 inch (9.5 mm).

5.6 Where installation creates splitting of the wood prefabricated-drilling holes are required in accordance with the code for wood-screw installation.

5.7 The wood structural panel grade is permitted to be any of the following: OSB Structural I grades; sheathing, single floor and other grades covered in DOC PS 1 and PS2. Use with plywood panels is outside the scope of this report

5.8 This evaluation report does not address fastener corrosion when the fastener is installed in chemically treated wood.

5.9 Plywood and OSB panels used on weather-exposed surfaces defined in Section 202 of the IBC or Section R703 of the IRC, shall be protected by a weather-resistant exterior wall envelope.

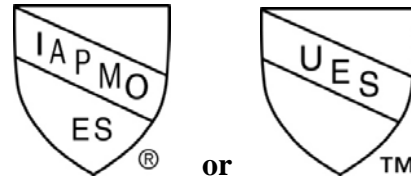
5.10 Use of screws to resist combined shear and uplift from wind in accordance with AF&PA SDPWS-2005 Section 4.4 is outside the scope of this report.”

6.0 SUBSTANTIATING DATA

Data in accordance with the ICC-ES Acceptance Criteria for Wood Screws Used in Horizontal Diaphragms and Vertical Shear Walls (AC120), approved February 2006.

7.0 IDENTIFICATION

The screws are packaged in cartons bearing labels that provide the manufacturer name (UFO Ballistic NailScrew®/PneuScrew®); a description; (type, length, & shank diameter); IAPMO UES Mark of Conformity and the Evaluation Report Number (ER-133).



IAPMO ER #133

Brian Gerber

Brian Gerber, P.E., S.E.
Vice President, Technical Operations
Uniform Evaluation Service

Richard Beck

Richard Beck, PE, CBO, MCP
Vice President, Uniform Evaluation Service

Russ Chaney

GP Russ Chaney
CEO, The IAPMO Group

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org



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Figure 1:



Figure 2:

UFO Part #	Description	Collation	Drive	Packed
HDNS212113YZPH	2 ½" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Phillips	1.5M/Case
HDNS212113YZSP4	2 ½" X .113" Yellow Zinc	20 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
HDNS214113YZPH	2 ¼" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Phillips	1.5M/Case
HDNS214113YZPH4	2 ¼" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Phillips	4-1M Bx. (4M/Case)
HDNS214113YZSP4	2 ¼" X .113" Yellow Zinc	20 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
HDNS214113YZSQ	2 ¼" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Square	1.5M/Case
HDNS214113YZSQ4	2 ¼" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Square	4-1M Bx. (4M/Case)
HDNS300113YZPH	3" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Phillips	1M/Case
PSNS214113YZSP4	2 ¼" X .113" Yellow Zinc	34 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
PSNS214113YZSQ4	2 ¼" X .113" Yellow Zinc	34 Deg. Plastic Strip	#2 Square	4-1M Bx. (4M/Case)
PSNS300113YZPH4	3" X .113" Yellow Zinc	34 Deg. Plastic Strip	#2 Phillips	4-1M Bx. (4M/Case)
PSNS300113YZSP4	3" X .113" Yellow Zinc	34 Deg. Plastic Strip	#2 SQ & #2 Phillips	4-1M Bx. (4M/Case)
PTHDNS212113PH	2 ½" X .113" PT2000®EG	20 Deg. Plastic Strip	#2 Phillips	1M/Case
PTHDNS212113SP4	2 ½" X .113" PT2000®EG	20 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
PTHDNS212113SQ	2 ½" X .113" PT2000®EG	20 Deg. Plastic Strip	#2 Square	1M/Case
PTHDNS300113PH	3" X .113" PT2000®EG	20 Deg. Plastic Strip	#2 Phillips	1M/Case
PTHDNS300113SP4	3" X .113" PT2000®EG	20 Deg. Plastic Strip	#2 SQ & #2 Phillips	4-1M Bx. (4M/Case)
PTHDNS300113SQ	3" X .113" PT2000®EG	20 Deg. Plastic Strip	#2 Square	1M/Case
PTPSNS212113SP4	2 ¼" X .113" PT2000®EG	34 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
PTPSNS300113SP4	3" X .113" PT2000®EG	34 Deg. Plastic Strip	#2 SQ & #2 Phillips	4-1M Bx. (4M/Case)
PTWCNS212113SP	2 ½" X .113" PT2000®EG	15 Deg. Wire Coil	#1 SQ & #2 Phillips	.8M/case
PTWCNS212113SQ	2 ½" X .113" PT2000®EG	15 Deg. Wire Coil	#2 Square	.8M/case
PTWCNS300113SP	3" X .113" PT2000®EG	15 Deg. Wire Coil	#2 SQ & #2 Phillips	.8M/case
PTWCNS300113SQ	3" X .113" PT2000®EG	15 Deg. Wire Coil	#2 Square	.8M/case
WCNS212113YZPH	2 ½" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Phillips	3.6M
WCNS212113YZSP	2 ½" X .113" Yellow Zinc	15 Deg. Wire Coil	#1 SQ & #2 Phillips	3.6M
WCNS212113YZSQ	2 ½" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Square	3.6M
WCNS212113YZSQH	2 ½" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Square	3.6M 900 count coils
WCNS214113YZPH	2 ¼" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Phillips	3.6M
WCNS214113YZSP	2 ¼" X .113" Yellow Zinc	15 Deg. Wire Coil	#1 SQ & #2 Phillips	3.6M
WCNS214113YZSQ	2 ¼" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Square	3.6M
WCNS214113YZSQH	2 ¼" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Square	3.6M 900 count coils
WCNS300113YZSP	3" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 SQ & #2 Phillips	3.6M