



### EVALUATION SUBJECT:

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

### REPORT HOLDER:

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**CSI DIVISION: 06 00 00 - Wood and Plastics  
CSI Section: 06 05 23 - Wood, Plastic, and  
Composite Fastenings**

### 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®/Interchange Brands, LLC® substitute for nails in horizontal and vertical wood diaphragms (shear walls). NailScrew®/PneuScrew®/Interchange Brands, LLC® 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®/Interchange Brands, LLC® 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 the 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®/Interchange Brands, LLC® 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®/Interchange Brands, LLC® 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®/Interchange Brands, LLC® have a minimum bending yield strength, F<sub>yb</sub>, 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®/Interchange Brands, LLC® 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®/Interchange Brands, LLC® 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®/Interchange Brands, LLC® shall be installed in accordance with current

*The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provisions of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.*





manufacturer's 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®/Interchange Brands, LLC® are either pneumatically driven or manually screwed in.

## 5.0 LIMITATIONS

The UFO Ballistic NailScrews®/PneuScrews®/Interchange Brands, LLC® screws 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 limitations:

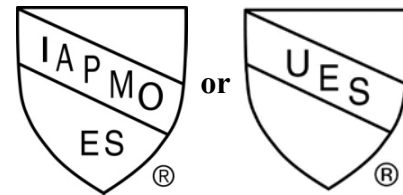
- 5.1 Use of NailScrews®/PneuScrews®/Interchange Brands, LLC® shall comply with this report and the applicable code.
- 5.2 Diaphragm construction shall conform to applicable provisions in the IBC and IRC.
- 5.3 The fasteners shall be driven flush with the face of the sheathing material.
- 5.4 NailScrews®/PneuScrews®/Interchange Brands, LLC® cannot replace nails in end conditions (i.e. driven parallel to grain in the end of the main member). This condition does not affect the diaphragm/shear wall in typical construction.
- 5.5 The NailScrews®/PneuScrews®/Interchange Brands, LLC® 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 grade; sheathing, single floor, and other grades set forth 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. Test reports are from laboratories in compliance with ISO/IEC 17025.

## 7.0 IDENTIFICATION

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



**IAPMO UES ER-133**

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)



Figure 1:



Figure 2:

UFO Part #	Description	Collation	Drive	Packed
HDNS212113YZPH	2 1/2" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Phillips	1.5M/Case
HDNS212113YZSP4	2 1/2" X .113" Yellow Zinc	20 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
HDNS214113YZPH	2 1/4" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Phillips	1.5M/Case
HDNS214113YZPH4	2 1/4" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Phillips	4-1M Bx. (4M/Case)
HDNS214113YZSP4	2 1/4" X .113" Yellow Zinc	20 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
HDNS214113YZSQ	2 1/4" X .113" Yellow Zinc	20 Deg. Plastic Strip	#2 Square	1.5M/Case
HDNS214113YZSQ4	2 1/4" 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 1/4" X .113" Yellow Zinc	34 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
PSNS214113YZSQ4	2 1/4" 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 1/2" X .113" PT2000@EG	20 Deg. Plastic Strip	#2 Phillips	1M/Case
PTHDNS212113SP4	2 1/2" X .113" PT2000@EG	20 Deg. Plastic Strip	#1 SQ & #2 Phillips	4-1M Bx. (4M/Case)
PTHDNS212113SQ	2 1/2" 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 1/4" 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 1/2" X .113" PT2000@EG	15 Deg. Wire Coil	#1 SQ & #2 Phillips	.8M/case
PTWCNS212113SQ	2 1/2" 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 1/2" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Phillips	3.6M
WCNS212113YZSP	2 1/2" X .113" Yellow Zinc	15 Deg. Wire Coil	#1 SQ & #2 Phillips	3.6M
WCNS212113YZSQ	2 1/2" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Square	3.6M
WCNS212113YZSQH	2 1/2" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Square	3.6M 900 count coils
WCNS214113YZPH	2 1/4" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Phillips	3.6M
WCNS214113YZSP	2 1/4" X .113" Yellow Zinc	15 Deg. Wire Coil	#1 SQ & #2 Phillips	3.6M
WCNS214113YZSQ	2 1/4" X .113" Yellow Zinc	15 Deg. Wire Coil	#2 Square	3.6M
WCNS214113YZSQH	2 1/4" 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