

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

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EVALUATION SUBJECT:

UFO BALLISTIC NAILSCREWS®

U.S. Patent Application No.: 11/725,967
Canada Patent Appl. No.: 2,583,890

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

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

1.2 Evaluated in accordance with:

- ICC AC 120 approved February 2006

Property Evaluated:

Structural

2.0 USES

UFO Ballistic Nailscrews® are used as a substitution for nails in horizontal and vertical diaphragms (shear walls). Nailscrew® substitution in vertical diaphragm applications resisting seismic loads are outside the scope of this report.

3.0 DESCRIPTION

The UFO Ballistic Nailscrews® 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 (6.98 mm)

diameter full round head. The shank has three identifiable sections. The first shank section is smooth, round, 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), and 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, reference Figure 1.

The proprietary head and shank geometries of the UFO Ballistic NailScrew® comply with the material requirements, physical properties, dimensional tolerances, workmanship, protective coating and finishes, and packaging requirements of ASTM F1667. The UFO Ballistic NailScrews® 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® have minimum average 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 above listed Ballistic NailScrews® 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" and 15/32" OSB horizontal diaphragms resisting wind or seismic loads referenced in tables: IBC 2006 Table 2306.3.1 and IRC 2006 Table R602.3(1).

4.1.2 Vertical Diaphragms: Any of the above

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listed Ballistic NailScrews® 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" and 15/32" OSB vertical diaphragms resisting wind loads referenced in tables: IBC 2006 Table 2306.4.1 and IRC 2006 Table R602.3(1).

4.2 Installation: UFO Ballistic NailScrews® must be installed in accordance with current manufactured published installation instructions, this report, and applicable requirements in the NDS, Section 11.1.5. The UFO Ballistic NailScrews® are either pneumatically driven or manually screwed in.

5.0 CONDITIONS OF USE

5.1 Use of Nailscrews® must comply with this report and the applicable code.

5.2 Diaphragm construction must 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® cannot replace nails in end conditions (i.e. driven parallel to grain in end of main member). This condition does not affect diaphragm/shearwall in typical construction.

5.5 The Nailscrews® are to be installed with a minimum edge and end distance of 3/8" (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: Structural I grades; sheathing, single floor and other grades covered in DOC PS 1 and PS2.

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

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Wood Screws Used in Horizontal Diaphragms and Vertical Shear Walls (AC 120) approved February 2006.

7.0 IDENTIFICATION

The screws are packaged in cartons bearing labels that provide the manufacturer name (UFO Ballistic Nailscrew®); a description; (type, length, & shank diameter); IAPMO ES Mark of Conformity and the Evaluation Report Number (ER-0133).



IAPMO #0133

A handwritten signature in black ink, appearing to read "Dennis Hill".

Director of Evaluation Services

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Figure 1:



Figure 2:

UFO no.	Description	Collation	Drive	Packed
HDNS214113YZPH	2 1/4" X .113" yellow zinc	20 deg. Plastic Strip	#2 phillips	1.5 M/case
HDNS214113YZPH4	2 1/4" X .113" yellow zinc	20 deg. Plastic Strip	#2 phillips	4-1M bx.
HDNS214113YZSQ	2 1/4" X .113" yellow zinc	20 deg. Plastic Strip	#2 square	1.5 M/case
HDNS214113YZSQ4	2 1/4" X .113" yellow zinc	20 deg. Plastic Strip	#2 square	4-1M bx.
WCNS214113YZPH	2 1/4" X .113" yellow zinc	15 deg. Wire Coil	#2 phillips	3.6 M/case
WCNS214113YZSQ	2 1/4" X .113" yellow zinc	15 deg. Wire Coil	#2 square	3.6 M/case
HDNS212113YZPH	2 1/2" X .113" yellow zinc	20 deg. Plastic Strip	#2 phillips	1.5 M/case
WCNS212113YZPH	2 1/2" X .113" yellow zinc	15 deg. Wire Coil	#2 phillips	3.6 M/case
WCNS212113YZSQ	2 1/2" X .113" yellow zinc	15 deg. Wire Coil	#2 square	3.6 M/case
PTHDNS212113PH	2 1/2" X .113" PT2000® EG	20 deg. Plastic Strip	#2 phillips	1 M/case
PTWCNS212113SQ	2 1/2" X .113" PT2000® EG	15 deg. Wire Coil	#2 square	.8 M/case
HDNS300113YZPH	3" X .113" yellow zinc	20 deg. Plastic Strip	#2 phillips	1 M/case
PTHDNS300113PH	3" X .113 PT2000® EG	20 deg. Plastic Strip	#2 phillips	1 M/case
PTWCNS300113SQ	3" X .113 PT2000® EG	15 deg. Wire Coil	#2 square	.8 M/case