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# ICC-ES Report

## ESR-3801

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Issued 05/2015

This report is subject to renewal 05/2016.

**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**

**SECTION: 06 05 23.13—NAILS**

**REPORT HOLDER:**

**AMERICAN FASTENERS COMPANY, LTD.**

**11175 INLAND AVENUE  
JURUPA VALLEY, CALIFORNIA 91752**

**EVALUATION SUBJECT:**

**PNEUMATICALLY, MECHANICALLY AND MANUALLY DRIVEN ROUND-HEAD NAILS**



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# ICC-ES Evaluation Report

**ESR-3801\***

Issued May 2015

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**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**
**Section: 06 05 23.13—Nails**
**REPORT HOLDER:**

**AMERICAN FASTENERS COMPANY, LTD.**  
 11175 INLAND AVENUE  
 JURUPA VALLEY, CALIFORNIA 91752  
 (951) 685-1538  
<http://www.americanfastenersco.com>

**EVALUATION SUBJECT:**
**PNEUMATICALLY, MECHANICALLY AND MANUALLY DRIVEN ROUND-HEAD NAILS**
**1.0 EVALUATION SCOPE**
**Compliance with the following codes:**

- 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2015, 2012 and 2009 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)<sup>†</sup>

<sup>†</sup>The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

**Properties evaluated:**

- Bending yield strength
- Compliance with material requirements, dimensions, and tolerances of ASTM F1667
- Compliance with the prescriptive requirements of the IBC and IRC
- Use in diaphragms, shear walls and braced walls

**2.0 USES**

The American Fasteners Company (AFC) nails are framing nails used in structural wood-to-wood connections which are engineered and in connections which are prescriptive.

**3.0 DESCRIPTION**

The AFC nails have full-round flat heads, smooth shanks, diamond-shaped points. The nails are formed from low-carbon steel wire. AFC nails are available with a bright finish (nongalvanized) or a hot-dip galvanized (HDG) coating. Nails with a HDG coating comply with the coating weight of ASTM A153, Class D, and comply with the requirements of Section 10.1 of ASTM F1667. Dimensional tolerances of the nails conform to ASTM F1667. The nails are available in bulk form, or are collated for use in power tools. See Table 1 for nail designations, dimensions and

additional descriptive information, including bending yield strength.

**4.0 DESIGN AND INSTALLATION**
**4.1 Design:**

**4.1.1 Engineered Structural Connections:** The AFC nails comply with the requirements of IBC Section 2303.6 and may be used in connections designed in accordance with the ANSI/AWC National Design Specification (NDS) for Wood Construction, using the specified bending yield strengths and diameters shown in Table 1.

**4.1.2 Engineered Diaphragms and Shear Walls:** The AFC nails listed in Table 2 comply with the requirements of IBC Section 2303.6 and head area requirements defined in the ICC-ES Acceptance Criteria for Nails (AC116) and are equivalent to the code-prescribed nails listed in Table 2 for use in engineered diaphragms and shear walls in accordance with the AWC Special Design Provisions for Wind and Seismic (SDPWS).

**4.1.3 Prescriptive Framing Connections:** The AFC nails comply with the requirements of IBC Section 2303.6 and may be used in framing connections where the nail type and size is prescribed in 2015 IBC Table 2304.10.1 (2012 and 2009 IBC Table 2304.9.1) or IRC Table R602.3(1), as applicable.

**4.1.4 Prescriptive Attachment of Sheathing:** The AFC nails listed in Table 2 comply with the requirements of IBC Section 2303.6 and head area requirements defined in AC116, and are equivalent to the code-prescribed nails listed in Table 2 for attachment of wood structural panel sheathing to wood framing in accordance with 2015 IBC table 2304.10.1 (2012 and 2009 IBC Table 2309.1) or IRC Tables R602.3(1) and R602.3(3), as applicable.

**4.2 Installation:**

The nails must be installed in accordance with this report, the report holder's published installation instructions, the approved plans, if applicable, and the applicable prescriptions in the code.

Nails described in this report are packaged for use in power tools recommended by the report holder. Individual nails may be manually driven.

Edge distances, end distances, and spacings must be sufficient to prevent splitting of the wood. Installation must be in accordance with the applicable requirements of 2015 NDS Section 12.1.6 (2012 NDS Section 11.1.6 for the 2012 IBC, 2005 NDS Section 11.1.5 for the 2009 IBC).

Hot-dip galvanized nails may be used in preservative-treated and fire-retardant-treated wood in accordance with 2015 IBC Section 2304.10.5 (2012 and 2009 IBC Section 2304.9.5) and IRC Section R317.3.

\*Revised June 2015

**5.0 CONDITIONS OF USE**

The AFC nails 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 Use of the nails must be in accordance with this report, the report holder's published installation instructions, the approved plans, if applicable, and the applicable provisions of the code. In the event of a conflict amongst these documents, the most restrictive requirements govern.
- 5.2 Use of the nails with a bright finish in chemically treated wood, such as pressure-, preservative- or fire-retardant-treated wood, or in exterior or exposed conditions is not allowed.
- 5.3 When required by the code official, calculations demonstrating that the applied loads are less than the

design values derived in accordance with Section 4.1 of this report must be submitted for approval. 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.

**6.0 EVIDENCE SUBMITTED**

Data in accordance with the ICC-ES Acceptance Criteria for Nails (AC116), dated June 2014 (editorially revised April 2015).

**7.0 IDENTIFICATION**

Nails are packaged in cartons bearing the report holder's name (American Fasteners Company, Ltd.) and address, the evaluation report number (ESR-3801), and the nail description (shank type, length and diameter). Coated nails are identified on the nail carton or other packaging material by the designation "Hot Dip Galvanized".

**TABLE 1—AFC NAIL DESCRIPTIONS**

NOMINAL DIAMETER (inch)	LENGTH (inches)	NOMINAL HEAD DIAMETER (inch)	SHANK TYPE	FINISH <sup>1</sup>	SPECIFIED, <i>F<sub>yb</sub></i> (psi)	PACKAGING
0.131	2 <sup>1</sup> / <sub>2</sub> to 3 <sup>1</sup> / <sub>2</sub>	0.281	Smooth	X, HDG	100,000	Plastic and Paper Strip
0.148	2 <sup>1</sup> / <sub>4</sub> to 3 <sup>1</sup> / <sub>2</sub>	0.312	Smooth	X, HDG	90,000	Plastic and Paper Strip

For SI: 1 inch = 25.4 mm, 1 psi = 6.89 kPa.

<sup>1</sup>X = bright finish or non-coated; HDG = hot-dip galvanized.

**TABLE 2—AFC NAILS FOR USE IN DIAPHRAGMS AND SHEAR WALLS AND PRESCRIPTIVE FRAMING CONNECTIONS**

NAIL TYPE AND SIZE PRESCRIBED IN THE CODE	AFC NAIL DESCRIPTION
8d common (2 <sup>1</sup> / <sub>2</sub> " x 0.131")	2 <sup>1</sup> / <sub>2</sub> " to 3" x 0.131"
10d common (3" x 0.148")	3" to 3 <sup>1</sup> / <sub>2</sub> " x 0.148"

For SI: 1 inch = 25.4 mm.