

ICC-ES Evaluation Report

ESR-4417

Reissued May 2024

Revised October 2024


Subject to renewal May 2026

This report also contains:

- [CA Supplement](#)

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<p>DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES</p> <p>Section: 06 05 23.13— Nails</p>	<p>REPORT HOLDER: THAI DOY CO., LTD.</p> <p>ADDITIONAL LISTEES:</p> <p>ACCENT BUILDING MATERIALS</p> <p>BUILDING MATERIAL DISTRIBUTORS, INC.</p> <p>COME BEST (THAILAND) CO., LTD.</p> <p>EAGLE FORCE INDUSTRIAL</p> <p>HUTTIG BUILDING PRODUCTS, INC.</p> <p>KRATOS BUILDING PRODUCTS, INC.</p> <p>LINC SYSTEMS, LLC</p> <p>SHANDEX CO.</p> <p>SOUTHERNCARISON INC. (DBA INTERCHANGE)</p> <p>TC INTERNATIONAL, INC.</p>	<p>EVALUATION SUBJECT: NAILS</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018 and 2015 [International Building Code® \(IBC\)](#)
- 2024, 2021, 2018 and 2015 [International Residential Code® \(IRC\)](#)

Section number references in this report are for the 2024 IBC and IRC and the standards referenced therein. Corresponding section numbers for earlier code editions are shown in [Table 4](#) at the end of this report.

Properties evaluated:

- Bending yield strength
- Compliance with material requirements and tolerances of ASTM F1667

- Compliance with prescriptive requirements of the IBC and IRC
- Use in diaphragms, shear walls and braced walls
- Corrosion resistance

2.0 USES

The nails described in this report are used for engineered and prescriptive structural connections between wood members.

3.0 DESCRIPTION

The nails have full round heads, offset heads or clipped heads. The nails have diamond points. The nails are formed from carbon steel wire. The nails have either a bright (nongalvanized) finish, a hot dip galvanized finish with a coating weight in accordance with ASTM A153 Class D; or a proprietary, multilayer, copolymer coating (designated Lacquer) which is silver in color. See [Table 1](#) for nail dimensions and additional information, including bending yield strength. Dimensional tolerances conform to ASTM F1667. The nails are available in bulk or collated in plastic strips, paper strips, or wire strips for use in power tools. The wire strip nails are available in 28 Degree Welded Strips and Weld Wire Coils.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Engineered Structural Connections: The nails described in this report 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 design bending yield strengths and diameters shown in [Table 1](#). For nails with full round heads, the reference head pull-through design values must be determined in accordance with Section 12.2.5 of the NDS. For nails with other head styles evaluation of reference head pull-through values is outside the scope of this report.

Convert withdrawal design values from lbf/inch to N/mm by multiplying by 0.175. Convert lateral and pull-through design values from lbf to N by multiplying by 4.45.

4.1.2 Engineered Diaphragms and Shear Walls: The 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 designed in accordance with the AWC Special Design Provisions for Wind and Seismic (SDPWS) which is referenced in the IBC.

4.1.3 Prescriptive Framing Connections: The nails comply with the requirements of IBC Section 2303.6 and may be used in framing connections, where the nails have the same shank type (smooth or deformed) and size (diameter and length) as prescribed in IBC Table 2304.10.2 or IRC Table R602.3(1), as applicable.

4.1.4 Prescriptive Attachment of Sheathing: The nails listed in [Table 2](#) comply with the requirements of IBC Section 2303.6 and head area requirements defined in AC116. The nails are equivalent to the code prescribed nails listed in [Table 2](#) for attachments of sheathing to wood framing in accordance with IBC Table 2304.10.2 or IRC Tables R602.3(1) and R602.3(3), as applicable.

4.1.5 Prescriptive Use with Metal Connectors: The nails may be used where nails of the same dimension and the same or lesser bending yield strength are prescribed in an ICC-ES evaluation report on the metal connector.

4.1.6 Corrosion Resistance: Nails with the Lacquer coating have been evaluated for use in Southern Pine and other wood species available in the United States, when treated with chromated copper arsenate Type C (CCA-C) with a minimum retention of 1.50 pcf (24 kg/m³). These nails may be used as described in [Table 3](#).

Nails with a hot dip galvanized finish may be used where this type of coating is prescribed in IBC Section 2304.10.6 and IRC Section R304.3.

4.2 Installation:

The 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 spacing must be sufficient to prevent splitting of the wood and should be in accordance with the applicable requirements of NDS Section 12.1.6.

5.0 CONDITIONS OF USE:

The 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 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 provisions of the code. In the case of a conflict amongst these documents, the most restrictive requirements govern.
- 5.2 Use of bright nails in chemically treated wood, such as pressure-, preservative- or fire-retardant-treated wood and/or in exterior or exposed conditions, is not allowed.
- 5.3 The nails are manufactured under a quality control program with inspection by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Nails \(AC116\)](#), dated March 2018 (editorially revised April 2024).
- 6.2 Data in accordance with the [ICC-ES Acceptance Criteria for Corrosion-resistant Fasteners and Evaluation of Corrosion Effects of Wood Treatments \(AC257\)](#), dated June 2023 (editorially revised May 2024).

7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-4417) along with the name, registered trademark, or registered logo of the report holder or one of the listees must be included in the product label.
- 7.2 In addition, a description of the nails is also provided on the label including type (shank and head), size (length and diameter), coating (Hot Dip Galvanized or Lacquer), collation angle, and country of origin.
- 7.3 The report holder's contact information is the following:

THAI DOY CO., LTD
221 MOO. 6 TAMBOL SRIMAHAPHOT
AMPHUR SRIMAHAPHOT
PRACHINBURI 25140
THAILAND
+095-4081914

- 7.4 The additional listees' contact information is the following:

ACCENT BUILDING MATERIALS
10131 FM 2920
TOMBALL, TEXAS 77375
(281) 255-4881
www.accentbuild.com

BUILDING MATERIAL DISTRIBUTORS, INC.
225 ELM AVENUE
GALT, CALIFORNIA 95632
(800) 356-3001
www.bmdusa.com

COME BEST (THAILAND) CO., LTD.
800 MOO 7
TAMBOL THATOOM, AMPHUR SRIMAHAPHOT
PRACHINBURI 25140
THAILAND
037-4527289
www.comebestth.com

EAGLE FORCE INDUSTRIAL
15483 COLUMBIA AVENUE
WHITE ROCK, BRITISH COLUMBIA V4B 1K3
CANADA
(604) 562-7447
www.eagleforce.ca

KRATOS BUILDING PRODUCTS INC.
 12901 NICHOLSON ROAD, SUITE 330
 FARMERS BRANCH, TEXAS 75234
 (214) 983-0375
www.kratosbp.com

LINC SYSTEMS, LLC (Brand name: Pro-Drive)
 16540 SOUTHPARK DRIVE
 WESTFIELD, INDIANA 46074
 (317) 399-3100
www.lincsystems.com

HUTTIG BUILDING PRODUCTS, INC.
 555 MARYVILLE UNIVERSITY DRIVE, SUITE 400
 SAINT LOUIS, MISSOURI 63141
 (314) 216-2600
www.huttig.com

SHANDEX CO.
 400 KELBY STREET, 17TH FLOOR
 FORT LEE, NEW JERSEY 07024
 (201) 326-7600
www.shandexinc.com

SOUTHERNCARISON INC. (DBA INTERCHANGE)
 P.O. BOX 3036
 OMAHA, NEBRASKA 68103
 (800) 745-6735
www.southerncarison.com

TC INTERNATIONAL, INC.
 13225 BARTON CIRCLE
 WHITTIER, CALIFORNIA 90605
 (562) 941-1921
www.tc-intl.com

TABLE 1—NAILS

NOMINAL DIAMETER (inch)	HEAD CONFIGURATION ¹	Nominal Head Diameter (inch)	SHANK TYPE	FINISHES	BENDING YIELD STRENGTH, F_{yb} (psi)
0.113	Round, Clipped, Offset	0.277	Smooth, Ring, and Screw	Bright, Hot-dipped Galvanized, Lacquer	100,000
0.120					
0.131					
0.135	Round	0.293			90,000
0.148	Round				
0.162	Round	0.325			

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

¹See [Figure 1](#) for a depiction of the head configurations.

TABLE 2—NAILS FOR USE IN ENGINEERED DIAPHRAGMS AND SHEAR WALLS AND PRESCRIPTIVE SHEATHING ATTACHMENTS

NAIL TYPE AND SIZE PRESCRIBED IN THE CODE	NAILS DESCRIPTION
6d common (2" x 0.113")	2" to 2 1/2" x 0.113" Full Round Head, Clipped Head, and Offset Head Nails
8d common (2 1/2" x 0.131")	2 1/2" to 3" x 0.131" Full Round Head, Clipped Head ¹ , and Offset Head Nails
10d common (3" x 0.148")	3" to 3 1/2" x 0.148" Full Round Head Nails

For SI: 1 inch = 25.4 mm

¹The 28-Degree Welded Strip Nails with 0.131-inch shank diameter and clipped heads are excluded from [Table 2](#).



Full Round



Clipped



Offset

FIGURE 1—NAIL HEAD STYLES

TABLE 3—EVALUATED EXPOSURE CONDITIONS¹

EXPOSURE CONDITION	TYPICAL APPLICATIONS	EVALUATION LIMITATIONS
1	Treated wood in dry use applications	Limited to use where equilibrium moisture content of the chemically treated wood meets the dry service conditions as described in the NDS with occasional exposure to high humidity.
2	Aboveground in coastal regions ²	Limited to use in clean untreated wood and materials without known corrosion effects greater than that of clean untreated wood.
3	General construction	Limited to freshwater and chemically treated wood exposure, e.g., no saltwater exposure.
4	Construction in coastal regions ²	No limitations on use with respect to moisture and chemically treated wood.

¹Treated wood refers to the specific wood treatment and retention level described in Section 4.1.6.

²Construction on land within 3,000 feet (915 m) of the shoreline of a body of saltwater.

TABLE 4—CODE SECTION NUMBER REFERENCE MATRIX

IBC			
2024 IBC	2021 IBC	2018 IBC	2015 IBC
2303.6	2303.6	2303.6	2303.6
Table 2304.10.2	Table 2304.10.2	Table 2304.10.1	Table 2304.10.1
2304.10.6	2304.10.6	2304.10.5	2304.10.5
Referenced Standards			
AWC NDS-2024 12.1.6	AWC NDS-2018 12.1.6	AWC NDS-2018 12.1.6	AWC NDS-2015 12.1.6
AWC NDS-2024 12.2.5	AWC NDS-2018 12.2.5	AWC NDS-2018 12.2.5	n/a use AWC NDS-2018 12.2.5
IRC			
2024 IRC	2021 IRC	2018 IRC	2015 IRC
R304.3	R317.3	R317.3	R317.3
Table R602.3(1)	Table R602.3(1)	Table R602.3(1)	Table R602.3(1)
Table R602.3(3)	Table R602.3(3)	Table R602.3(3)	Table R602.3(3)

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

REPORT HOLDER:

THAI DOY CO., LTD.

EVALUATION SUBJECT:

NAILS

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that the nails, described in ICC-ES evaluation report ESR-4417, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2022 California Building Code (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS**2.1 CBC:**

The nails, described in Sections 2.0 through 7.0 of the evaluation report ESR-4417, comply with CBC Chapter 23, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 16, 17 and 23, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The nails, described in Sections 2.0 through 7.0 of the evaluation report ESR-4417, comply with CRC Chapters 3, 5, 6, 7, 8 and 9, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued May 2024 and revised October 2024.