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ICC-ES Evaluation Report
ESR-4160

Reissued August 2023

This report is subject to renewal August 2025.

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

REPORT HOLDER:

TRINITY STEEL (PVT) LIMITED

ADDITIONAL LISTEES:

HUTTIG BUILDING PRODUCTS
"HUTTIG – GRIP" – BRAND NAME

KOKI HOLDINGS AMERICA, LTD.
"METABO HPT" – BRAND NAME

PRIMESOURCE BUILDING PRODUCTS, INC.
"GRIPRITE" – BRAND NAME

SOUTHERNCARLSON
"INTERCHANGE" – BRAND NAME

EVALUATION SUBJECT:

COLLATED AND BULK NAILS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015, 2012, and 2009 *International Building Code*® (IBC)
- 2018, 2015, 2012, and 2009 *International Residential Code*® (IRC)
- 2013 Abu Dhabi *International Building Code*⁺ (ADIBC)

⁺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 and tolerances of ASTM F1667
- Compliance with prescriptive requirements of the IBC and IRC
- Use in diaphragms, shear walls and braced walls

2.0 USES

The nails are used for engineered and prescriptive structural connections between wood members. Hardened nails are intended for use in connections of metal connectors (side plates) to wood.

3.0 DESCRIPTION

The nails have full round heads, offset heads, or clipped heads.

The nails are formed from carbon steel wire or hardened carbon steel wire, and are available with a bright finish (nongalvanized), an electrogalvanized coating complying with ASTM A641, Class 1, or a hot-dip galvanized coating complying with ASTM A153, Class D. Both electro-galvanized nails and hot-dip galvanized nails comply with the requirements of Section 10.1 of ASTM F1667. See Table 1 for nail designations, dimensions, head styles, shank types, finishes, bending yield strength and packaging information. Dimensional tolerances conform to ASTM F1667.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Engineered Structural Connections:

The 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 for Wood Construction (NDS), using the design bending yield strengths and the nail diameters shown in Table 1. For nails with full-round heads, reference head pull-through values must be determined in accordance with Section 12.2.5 of the 2018 NDS, for use under the 2018, 2015, 2012, 2009 and 2006 IBC. For nails with clipped or offset heads, determination of reference head pull-through design values is outside the scope of this report.

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 Trinity nail has the same shank type (ring and screw shank nails are deformed nails) and size (diameter and length) as the applicable nail prescribed in 2018 and 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 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 sheathing to wood framing in accordance with 2018 and 2015 IBC Table 2304.10.1 (2012 and 2009 IBC Table 2304.9.1) 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 material and dimension and the same or lesser bending yield strength are prescribed in an ICC-ES evaluation report on the metal connectors.

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.

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. Installation must be in accordance with the applicable requirements of NDS Section 12.1.6 for the 2018 and 2015 IBC and IRC (2012 NDS Section 11.1.6 for the 2012 IBC and IRC, 2005 NDS Section 11.1.5 for the 2009 IBC and IRC).

Hot-dip galvanized nails and stainless steel nails may be used in preservative-treated and fire-retardant-treated wood in accordance with 2018 and 2015 IBC Section 2304.10.5 (2012 and 2009 IBC Section 2304.9.5) and IRC Section R317.3.

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 the carbon steel and hardened carbon steel 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. Use of the carbon steel and hardened carbon steel electro-galvanized nails in chemically treated wood or in exterior or exposed conditions is outside the scope of this report.

5.3 The nails are manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Nails (AC116), dated March 2018.

7.0 IDENTIFICATION

7.1 Nails are packaged in containers or cartons bearing the customer brand names (Huttig-Grip, Metabo HPT, Grip-Rite, Interchange), the evaluation report number (ESR-4160), an image of the collated nails, and the nail description (shank type, diameter, length, point type and finish/coating). Packages of hardened joist hanger nails are identified by "MC" on the packaging.

7.2 The report holder's contact information is the following:

TRINITY STEEL (PVT) LIMITED
LOT NO. 09, PHASE 01
KATUNAYAKE EPZ, 11450
SRI LANKA
+941122537047
www.trinitysteel.lk

7.3 The additional listees' contact information is the following:

HUTTIG BUILDING PRODUCTS
555 MARVILLE UNIVERSITY DR. SUITE 400
ST. LOUIS, MISSOURI 63141
(314) 216-2600
www.huttig.com

KOKI HOLDINGS AMERICA, LTD.
1111 BROADWAY AVENUE
BRASELTON, GEORGIA 30517
(770) 925-1774
www.metabo-hpt.com

PRIMESOURCE BUILDING PRODUCTS, INC
1321 GREENWAY DRIVE
IRVING, TEXAS 75038
(562) 404-5416
www.primesourcebp.com

SOUTHERNCARLSON
10840 HARNEY STREET
OMAHA, NEBRASKA 68154
(402) 593-5300
www.southerncarlson.com

TABLE 1—NAILS DESCRIPTION

NOMINAL DIAMETER (inches)	RANGE OF LENGTHS (inches)	HEAD STYLE[1]	NOMINAL HEAD DIAMETER (inches)	SHANK TYPE[2]	FINISH/ COATINGS[3]	SPECIFIED BENDING YIELD STRENGTH F_{yb} (psi)	PACKAGING
0.099	1⅛ - 3	Full Round	0.238	S, R, SC	X, HD, EG	100,000	Bulk, Wire coil
0.099	1⅛ - 3	Full Round	0.238	S, R, SC	HX, HHD, HEG	130,000	Bulk, Wire coil
0.113	1¼ - 5	Full Round	0.274	S, R, SC	X, HD, EG	100,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.113	1¼ - 5	Full Round	0.274	S, R, SC	HX, HHD, HEG	130,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.120	1¼ - 5	Full Round	0.274	S, R, SC	X, HD, EG	100,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.120	1¼ - 5	Full Round	0.274	S, R, SC	HX, HHD, HEG	130,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.131	1¼ - 5	Full Round	0.274	S, R, SC	X, HD, EG	100,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.131	1¼ - 5	Full Round	0.274	S, R, SC	HX, HHD, HEG	130,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.135	1¼ - 5	Full Round	0.274	S, R, SC	X, HD, EG	100,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.135	1¼ - 5	Full Round	0.274	S, R, SC	HX, HHD, HEG	130,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.148	1½ - 5	Full Round	0.283	S, R, SC	X, HD, EG	90,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.148	1½ - 5	Full Round	0.283	S, R, SC	HX, HHD, HEG	115,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.162	1½ - 5	Full Round	0.283	S, R, SC	X, HD, EG	90,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.162	1½ - 5	Full Round	0.283	S, R, SC	HX, HHD, HEG	115,000	Bulk, Plastic Strip, Wire coil, Paper Tape 35deg
0.113	2 - 4	Clipped	0.278	S, R, SC	X, HD, EG	100,000	Paper Tape, Wireweld strip
0.113	2 - 4	Offset	0.254	S, R, SC	X, HD, EG	100,000	Paper Tape, Wireweld strip
0.120	2 - 4	Clipped	0.278	S, R, SC	X, HD, EG	100,000	Paper Tape, Wireweld strip
0.120	2 - 4	Offset	0.254	S, R, SC	X, HD, EG	100,000	Paper Tape, Wireweld strip
0.131	2 - 4	Clipped	0.278	S, R, SC	X, HD, EG	100,000	Paper Tape, Wireweld strip
0.131	2 - 4	Offset	0.254	S, R, SC	X, HD, EG	100,000	Paper Tape, Wireweld strip
0.135	2 - 4	Clipped	0.278	S, R, SC	X, HD, EG	100,000	Paper Tape, Wireweld strip
0.135	2 - 4	Offset	0.254	S, R, SC	X, HD, EG	100,000	Paper Tape, Wireweld strip

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

[1]See Figure 1 for a description of the head styles
[2]Shank Type: S = Smooth; R = Ring; SC = Screw
[3]Finish/Coatings: X = Bright (no zinc) carbon steel; EG = Electro-galvanized carbon steel; HD = Hot dipped galvanized carbon steel; HX = Hardened carbon steel nails with no coating; HEG = Hardened carbon steel nails with electro-galvanized coating ; HHD = Hardened carbon steel nails with hot dip galvanized coating.

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

NAIL TYPE AND SIZE PRESCRIBED IN THE CODE	TRINITY NAIL DESCRIPTION
6d Common (2" x 0.113")	2 to $2^{3}/_{8}$" x 0.113"; full round head; smooth; X,HD or EG
8d Common ($2^{1}/_{2}$ " x 0.131")	$2^{1}/_{2}$" to 3" x 0.131"; full round head; smooth; X, HD or EG

For **SI:** 1 inch = 25.4 mm

FIGURE 1—NAIL HEAD STYLES

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REPORT HOLDER:

TRINITY STEEL (PVT) LIMITED

EVALUATION SUBJECT:

COLLATED AND BULK NAILS

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that collated and bulk nails, described in ICC-ES evaluation report ESR-4160, have also been evaluated for compliance with the code*s* noted below.

Applicable code editions:

- 2019 *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 and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2019 *California Residential Code* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The collated and bulk nails, described in Sections 2.0 through 7.0 of the evaluation report ESR-4160, complies with CBC Chapter 23, provided the design and installation are in accordance with the 2018 *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 collated and bulk nails, described in Sections 2.0 through 7.0 of the evaluation report ESR-4160, complies with CRC Chapters 5,6,7,8 and 9, provided the design and installation are in accordance with the 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued August 2023.