

ICC-ES Evaluation Report


ESR-5280

Issued April 2024

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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: TITAN NAIL COMPANY, LLC</p>	<p>EVALUATION SUBJECT: NAILS</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

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

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 and shear walls

2.0 USES

The Titan nails are used in engineered or prescriptive structural connections with wood members.

3.0 DESCRIPTION

The Titan nails have full round heads with diamond points and smooth or screw shanks. The nails are formed from carbon steel and are available with a bright finish (nongalvanized) or with a hot-dip galvanized coating complying with the coating weight for ASTM A153, Class D, and the requirements of Section 10.1 of ASTM F1667. See [Table 1](#) for nail designations, dimensions, shank types, finishes, bending yield strength and packaging information. Dimensional tolerances conform to ASTM F1667. See [Figure 1](#) for an image of the screw shank nails.

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 ANSI/AWC National Design Specification (NDS) for Wood Constructions, using the bending yield strength and diameters shown in [Table 1](#). The referenced head pull-through design values must be determined in accordance with Section 12.2.5 of the 2018 NDS. Convert withdrawal design values determined in accordance with the NDS from lbf/inch to N/mm by multiplying by 0.175. Convert lateral and pull-through design values determined in accordance with the NDS from lbf to N by multiplying by 4.45.

4.1.2 Engineered Diaphragms and Shear Walls: The nailed listed in [Table 2](#) comply with requirements of IBC Section 2303.6 and the 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 engineering diaphragms and shear walls designed in accordance with AWC Special Design Provisions for Wind and Seismic (SPDWS) 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 nail type and size is prescribed in 2021 IBC Table 2304.10.2 (2018 and 2015 IBC Table 2304.10.1) or IRC Table R602.3(1), as applicable.

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

4.1.5 Prescriptive Attachment of Sheathing: The Titan 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 IBC Table 2304.10.2 (2018 and 2015 IBC Table 2304.10.1) 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. 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.

Hot-dip galvanized nails may be used in preservative-treated and fire-retardant-treated wood in accordance with IBC Section 2304.10.6 (2018 and 2015 IBC Section 2304.10.5) and IRC Section R317.3.

5.0 CONDITIONS OF USE:

The Titan 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 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** 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 (editorially revised July 2022).

7.0 IDENTIFICATION

- 7.1** The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5280) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2** In addition, packages of nails are identified with the nail designation denoting the shank diameter and length, the shank type and the finish/coating.
- 7.3** The report holder's contact information is the following:

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sales@titannail.com

TABLE 1—TITAN NAILS

NOMINAL DIAMETER (inch)	NOMINAL HEAD DIAMETER (inch)	SHANK TYPE	FINISH/ COATINGS ¹	SPECIFIED BENDING YIELD STRENGTH F_{yb} (psi)
0.120	0.280	S	X, HDG	100,000
	0.280	Sc	X, HDG	100,000
0.131	0.280	S	X	100,000
	0.280	Sc	X	100,000

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

¹Finish/coatings: X = Bright (non-galvanized) steel and HDG = Hot dipped galvanized steel

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

NAIL TYPE AND SIZE PRESCRIBED IN THE CODE	TITAN NAILS DESCRIPTION
8d common (2 1/2" x 0.131")	2 1/2" to 3" x 0.131"

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

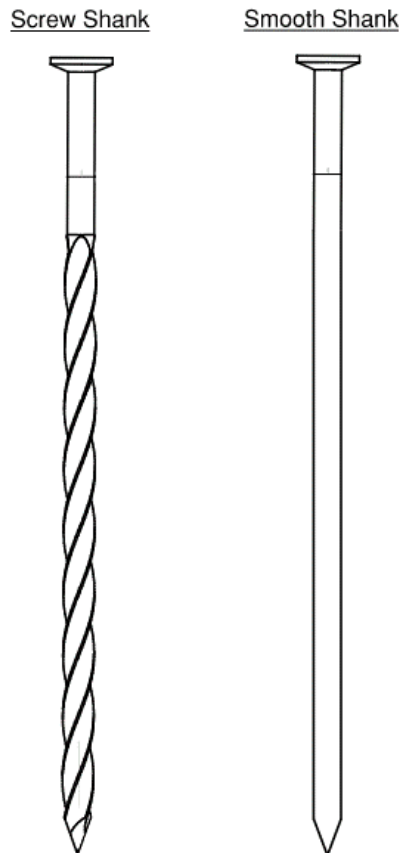


FIGURE 1—TITAN NAILS