

# Use of Paslode tetraGRIP Studless Siding Fastener to connect LP® SmartSide® directly to 7/16 Performance Category Wood Structural Panel (WSP) Sheathing

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This document provides guidance for evaluating the Paslode tetraGRIP Studless Siding Fastener as an acceptable alternative when connecting LP® SmartSide® siding directly to WSP sheathing in accordance with APA Product Report® PR-N124. Similar information to that cited from APA Product Report® PR-N124 is provided in ICC Evaluation Service Report ESR-1301 and Florida Product Approval 9190, thus this guidance also applies to those documents.

APA Product Report® PRN-124 Tables 4a, 4b, 5a, 5b, 6a & 6b provide details on installing LP® SmartSide® products directly to WSP sheathing. Footnotes 5 (Tables 4a through 5b) and 7 (Tables 6a and 6b) provide requirements for considering substitute fasteners on a 1 for 1 basis with three criteria:

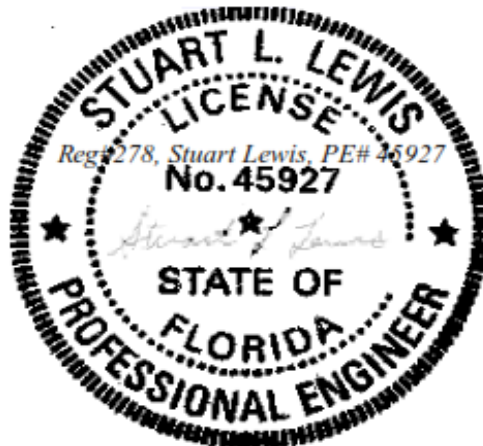
1. Allowable withdrawal capacity of 36 lbf/fastener minimum.
2. Allowable head pull-through capacity of 36 lbf/fastener minimum.
3. Meeting or exceeding corrosion resistance of hot-dip galvanized steel wire nails meeting ASTM A153 Class D.

The above load criteria is satisfied by the Paslode tetraGRIP Studless Siding Fastener, which has demonstrated allowable withdrawal capacity of 43 lbf/fastener and allowable head pull-through capacity of 69 lbf/fastener.

For corrosion resistance, the Paslode tetraGRIP Studless Siding Fastener utilizes an alternative coating to ASTM A153 hot-dip galvanizing, as described in the appendix, which is an acceptable alternative in accordance with the criteria for saltwater environments in section 504.3.1.2 of the ICC 600-2020 Standard for Residential Construction in High-Wind Regions based on demonstrated testing to the ASTM G85 test requirement without exhibiting more than 5% red rust after 280 hours of exposure.

See the appendix for more details.

The performance of Paslode tetraGRIP Studless Siding Fasteners is dependent upon the satisfaction of all applicable installation requirements for LP® SmartSide® siding. It is the responsibility of the installer to follow all local codes, and all of the manufacturer's written instructions. This statement is solely intended to address that Paslode tetraGRIP Studless Siding Fasteners are an acceptable alternative to the nails specified for use with LP® SmartSide® products directly attached to 7/16 WSP sheathing.



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Footnote: The LP and SmartSide marks are trademarks of Louisiana-Pacific Corporation.

## APPENDIX

### Details regarding satisfaction of performance criteria

#### **1. Allowable Withdrawal Capacity**

The Paslode tetraGRIP Studless Siding Fastener has been evaluated to provide an allowable withdrawal value of 43 lb per nail for wind loads, exceeding the 36 lb minimum design load required per APA Product Report PR-N124 for LP SmartSide® siding attached to SIPs or WSP sheathing (footnote 5 of Tables 4a, 4b, 5a and 5b, footnote 7 of Tables 6a and 6b).

This evaluation is based upon results in PFS TECO Laboratory Report No. 22-113, titled ASTM D1761 Fastener Withdrawal Tests and dated September 13, 2022, which states that the tetraGRIP Studless Siding Fastener, Paslode item #650867 (see note; now identified as item #650964) has a mean (ultimate) value in withdrawal of 135 lb per nail when driven through 7/16 inch Performance Category OSB sheathing as described with properties reported in Table 4 of that PFS report. Evaluation of this mean value of 135 in accordance with ICC Evaluation Service's AC116 Acceptance Criteria for Nails, approved March 2018, by division by 5 gives a 27 lb/nail normal duration design value. This value is permitted to be adjusted for duration of load in accordance with the duration of load factors specified in the ANSI/AWC National Design Specification for Wood Construction (NDS), including a 1.6 factor for wind duration load cases which adjusts this allowable withdrawal design value to 43 lb per nail for wind loads.

Note: This PFS-reported Paslode item# represents the product using stainless steel. The product was later modified to use plated carbon steel and assigned the new item number.

#### **2. Allowable Head Pull-Through Capacity**

The Paslode tetraGRIP Studless Siding Fastener has been evaluated to provide an allowable fastener head pull-through design value of 69 lb per nail for wind loads, exceeding the 36 lb minimum design load required per APA Product Report PR-N124 for LP SmartSide® panels attached to SIPs or WSP sheathing (Tables 4a, 4b, 5a and 5b, notes 4 and 5)

The Paslode tetraGRIP Studless Siding Fastener has a nominal 0.300" head diameter. The specific gravity of LP® SmartSide® 3/8" thick siding is estimated at 0.42 SG per ANSI/AWC NDS Table 12.3.3B. Using these values as specified in section 12.2.5 of the ANSI/AWC NDS gives the design value of 69 lb/nail cited above, as follows:

$$\text{Normal duration } W_H = 690 \pi D_H G^2 t_{ns} = 690 \times 3.14 \times 0.300'' \times 0.42^2 \times 0.375'' = 43 \text{ lb/nail}$$

$$\text{Wind load duration } W_H = 1.6 \text{ load duration factor} \times 43 \text{ lb/nail} = 69 \text{ lb/nail}$$

#### **3. Corrosion Protection**

The Paslode tetraGRIP Studless Siding Fastener has proprietary corrosion protection consisting of ASTM B695 (Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel)

galvanization that is additionally passivated and sealed. This corrosion protection layer is a rust-preventative coating that satisfies section R703.3.3 of the ICC's International Residential Code for attachment of exterior wall coverings.

With respect to demonstrating corrosion performance equivalent to that intended for nails galvanized in accordance with ASTM A153 Class D, the ICC 600-2020 Standard for Residential Construction in High-Wind Regions has established methods of demonstrating acceptable corrosion resistance of galvanized fasteners for use in saltwater environments (within 3000 ft of a saltwater coastline, where such fasteners are permitted), with diameters of 3/8 inch or less. As shown in the excerpt below, corrosion testing in accordance with ASTM B117 and/or ASTM G85 is permitted as an alternative to compliance with the ASTM A153 Class D specification.

#### Excerpt from ICC 600-2020:

##### 504.3.1.2 Galvanized.

Where required by Table 504.3(1), fasteners shall be in accordance with the following. The minimum corrosion resistance of fasteners with diameters over  $\frac{3}{8}$  inch (9.5 mm) shall comply with or be equivalent to that provided by compliance with ASTM A153, Class C. The minimum corrosion resistance of fasteners with diameters of  $\frac{3}{8}$  inch (9.5 mm) or less shall be demonstrated through one of the following methods:

1. Compliance, or equivalence, with ASTM A153, Class D.
2. Compliance, or equivalence, with ASTM A641, Class 3.
3. Corrosion resistance exhibiting not more than 5-percent red rust after 1,000 hours exposure in accordance with ASTM B117.
4. Corrosion resistance exhibiting not more than 5-percent red rust after 280 hours exposure for nails, 1,000 hours for roof tile fasteners or 360 hours exposure for other carbon steel fasteners in accordance with ASTM G85, Annex 5.

Paslode conducted corrosion tests that have demonstrated that the Paslode tetraGRIP Studless Siding Fasteners meet the ICC 600 section 504.3.1.2 requirements for galvanized fastener performance by exhibiting less than 5% red rust after 280 hours of exposure in accordance with ASTM G85, Annex 5. Based on these results, the Paslode tetraGRIP Studless Siding Fasteners have been shown to be an acceptable alternative to hot-dip-galvanized steel wire nails meeting ASTM A153 Class D.

#### References:

- APA-The Engineered Wood Association. 2023. Product Report PR-N124. [www.apawood.org](http://www.apawood.org).
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- FL Building Code Information System. Product approvals 9190-R9 (2020) & 9190-R10 (2023). [www.floridabuilding.org](http://www.floridabuilding.org).
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