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SCRAIL® SUBLOC® PRO

CSI Section:

06 05 23 Wood, Plastic, and Composite Fastenings

1.0 RECOGNITION

Scrail® SubLoc® PRO fasteners recognized in this report were evaluated for use as wood fasteners. The dimensional and structural performance properties of the Scrail® SubLoc® PRO fasteners were evaluated for compliance with the following codes:

- 2018, 2015, 2012, and 2009 International Building Code® (IBC)
- 2018, 2015, 2012, and 2009 International Residential Code® (IRC)
- 2020 Florida Building Code, Building – attached supplement
- 2020 Florida Building Code, Residential – attached supplement

2.0 LIMITATIONS

Use of the Scrail® SubLoc® PRO described in this report is subject to the following limitations:

- 2.1** Use of Scrail® SubLoc® PRO shall comply with this report and the applicable code.
- 2.2** Diaphragm construction shall conform to applicable provisions in the IBC and IRC.
- 2.3** Recognition of Scrail® SubLoc® PRO as a substitute for fasteners in shear walls and braced walls is limited to use as described in Annex A of this report.
- 2.4** Scrail® SubLoc® PRO shall not replace nails in end-grain condition installation.
- 2.5** Scrail® SubLoc® PRO fasteners shall be installed with a minimum edge and end distance of $3/8$ inch (9.53 mm).
- 2.6** Where installation causes splitting of the wood, pre-drilled holes are required in accordance with the NDS for wood-screw installation.

2.7 The wood structural panel grade is permitted to be any of the following: Structural I, Rated Sheathing, Single-Floor, and other grades covered in DOC PS 1 and PS 2.

2.8 Use of these fasteners where corrosion resistance is required and when the fasteners are installed in chemically treated wood is beyond the scope of this report.

2.9 Wood structural panels used on weather-exposed surfaces defined in Section 202 of the IBC or Section R703 of the IRC, shall be protected by a weather-resistant exterior wall envelope.

2.10 Special inspections are required in accordance with IBC Section 1704; the applicable provisions of IBC Sections 1705 of the 2018, 2015, or 2012 IBC; or the applicable provisions of 2009 IBC Section 1706 or 1707, as applicable. When required, a statement of special inspections shall be submitted to the building official in accordance with IBC Section 1704.3 (1705 of the 2009 IBC).

2.11 Use of Scrail® SubLoc® PRO in diaphragms with I-joint framing, where the I-joint framing has not been qualified for use in diaphragms, is outside the scope of this report.

2.12 Use of Scrail® SubLoc® PRO in diaphragms with structural composite lumber (SCL) framing, where the SCL framing has not been qualified for use in lateral force-resisting systems in accordance with the Acceptance Criteria for Wood-based Studs (AC202), is outside the scope of this report.

2.13 Scrail® SubLoc® PRO products recognized in this report are produced in Mauerkirchen, Austria.

3.0 PRODUCT USE

3.1 General: Scrail® SubLoc® PRO fasteners described in Section 4.0 of this report are permitted to be used as substitutes for 8d and 10d common nails in OSB and Plywood wood structural panel (WSP) horizontal diaphragms to resist wind and seismic forces when used in accordance with Section 3.0 of this report. The panels shall be applied directly to minimum 2-by wood framing having specific gravity, $G = 0.50$, minimum, and at the same spacing as the substituted nails tabulated in the SDPWS to achieve these capacities. Diaphragm deflection shall be determined in accordance with Section 4.2.2 of the SDPWS, using the G_a values prescribed for 8d and 10d common nails, as applicable. The fasteners are alternatives to steel wire nails complying with IBC Section 2303.6 and IRC Sections R502, R602, and R802 and Table 602.3(1).



3.2 Design:

3.2.1 Use as a substitute for 8d Common nails in Horizontal Diaphragms: The Scrail® SubLoc® PRO is permitted to be used as a substitute for 8d common nails in OSB and Plywood WSP horizontal diaphragms for resisting wind and seismic forces. The unit shear capacities for wood structural panel diaphragms referenced in 2009 IBC Table 2306.2.1(1); ANSI/AF&PA SDPWS-2008 for use with the 2012 IBC; and ANSI/AWC SDPWS-2015 for use with the 2015 and 2018 IBC for 15/32-inch or less WSP diaphragms may be assumed. The fasteners are also permitted to be used as a substitute for 8d common nails in prescriptive construction of WSP diaphragms in accordance with the IRC for maximum 15/32-inch-thick diaphragms. Thicker sheathing than prescribed may be used to achieve the tabulated capacities provided the requirements for minimum nail penetration into framing in Section 3.3 of this report are met.

3.2.2 Use as a substitute for 10d Common nails in Horizontal Diaphragms: The Scrail® SubLoc® PRO is permitted to be used as a substitute for 10d common nails in OSB and Plywood WSP horizontal diaphragms for resisting wind and seismic forces. The unit shear capacities referenced in 2009 IBC Table 2306.2.1(1); ANSI/AF&PA SDPWS-2008 for use with the 2012 IBC; and ANSI/AWC SDPWS-2015 for use with the 2015 and 2018 IBC for 19/32-inch or less WSP diaphragms may be assumed. The fasteners are also permitted to be used as a substitute for 10d common nails in prescriptive construction of WSP diaphragms in accordance with the IRC for maximum 19/32-inch-thick diaphragms. The diaphragm capacities for 19/32-inch-thick wood structural panels shall be used for 23/32-inch-thick WSP diaphragms. Thicker sheathing than prescribed may be used to achieve the tabulated capacities provided the requirements for minimum nail penetration into framing in Section 3.3 of this report are met.

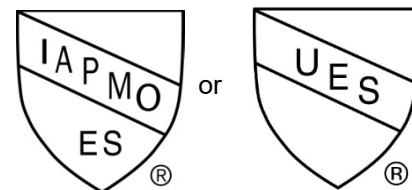
3.3 Installation: Scrail® SubLoc® PRO shall be installed in accordance with the manufacturer’s published installation instructions, this report, and applicable requirements in Section 11.1.5 of ANSI/AF&PA NDS for use with the 2009 IBC and IRC, Section 11.1.6 of ANSI/AWC NDS-2012 for use with the 2012 IBC and IRC, Section 12.1.6 of ANSI/AWC NDS-2015 for use with the 2015 IBC and IRC, and Section 12.1.6 of ANSI/AWC NDS-2018 for use with the 2018 IBC and IRC. Where conflicts occur, the more restrictive shall govern. Scrail® SubLoc® PRO shall be pneumatically driven flush with the face of the sheathing material to full fastener depth, and to a minimum of 1³/₈ inches (34.9 mm) into minimum nominally 2-inch solid sawn wood framing. The minimum edge distance shall be 3³/₈ inch (9.5 mm).

4.0 PRODUCT DESCRIPTION

Scrail® SubLoc® PRO fasteners are nominally 2¹/₄ inches (57 mm), 2¹/₂ inches (64 mm), 2³/₄ inches (70 mm) and 3 inches (76 mm) in length and have a minimum 0.265-inch-diameter (6.73 mm) full round head. The shank has two identifiable sections. The first section is counter-threaded, round, measures 1/2 inch (12.7 mm) in length from head to midsection and has a nominal diameter of 0.167 inch (4.25 mm). The second section extends from the counter-threaded, round shank to the tip and is composed of deformed screw threads. The major diameter of the screw threads on the second section is 0.128 inch (3.25 mm) and the minor diameter is nominally 0.113 inch (2.87 mm). The proprietary head and shank geometries of the Scrail® SubLoc® PRO comply with the manufacturer’s approved quality control manual. Scrail® SubLoc® PRO fasteners are manufactured from cold heading quality (CHQ) Grade SAE-1022 carbon steel wire rod having tensile strength of 167 to 218 ksi (1150 to 1500 N/mm²). The fasteners are heat-treated and case-hardened. Scrail® SubLoc® PRO fasteners have minimum average bending yield strength, F_{yb}, of 117,000 psi (807 MPa).

5.0 IDENTIFICATION

The screws are packaged in cartons bearing labels that provide the manufacturer name (BECK Fastener Group – Nail Tech Austria or Fasco America/Beck America, Inc.); the product name and description (Scrail® SubLoc® PRO, length, head, and shank diameters); the IAPMO ES Mark of Conformity and the Evaluation Report Number (ER-344). Either Mark of Conformity may be used as shown below:



IAPMO UES ER-344

6.0 SUBSTANTIATING DATA

Data in accordance with the Acceptance Criteria for Wood Frame Horizontal Diaphragms, Vertical Shear Walls and Braced Walls with Alternative Fasteners (ICC-ES AC 120), approved February 2017, editorially revised July 2018. Test reports are from laboratories in compliance with ISO/IEC 17025.



7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Scrail® SubLoc® PRO fasteners to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. The fasteners are manufactured at locations noted in Section 2.13 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org

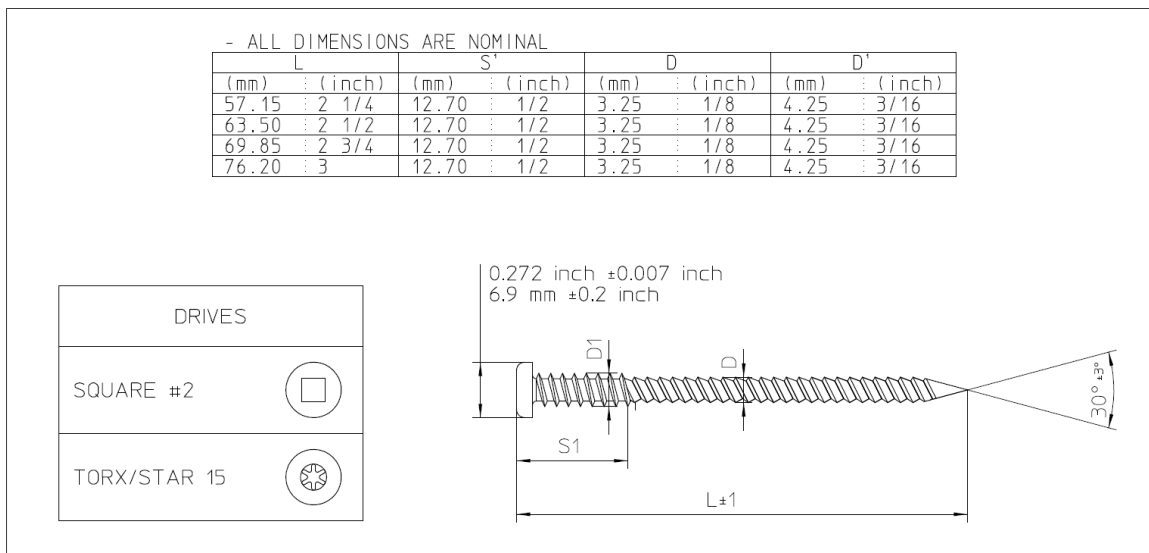


FIGURE 1 - Scrail® SubLoc® PRO Dimensions



Annex A

Use as a substitute for 8d Common nails in Shear Walls and Braced Walls under the 2009 IBC and IRC

A1.0 General: Scrail® SubLoc® PRO fasteners described in Section 4.0 of this report may be used as a substitute for 8d common nails in shear walls and braced walls under the 2009 IBC and IRC to resist lateral wind and seismic loads in Seismic Design Categories A and B. The walls shall be constructed of any grade of DOC PS 1 or PS 2 wood structural panel sheathing applied directly to minimum 2-by wood framing having specific gravity, $G = 0.50$, minimum. Use of the fasteners in shear walls to resist combined shear and uplift from wind in accordance with ANSI/AF&PA SDPWS Section 4.4 is outside the scope of this report.

A1.1 Shear Walls: Scrail® SubLoc® PRO fasteners are recognized for use under the 2009 IBC and IRC as a substitute for 8d common nails in OSB and Plywood shear walls. The unit shear capacities for wood structural panel shear walls referenced in 2009 IBC for 15/32-inch or less WSP shear walls may be assumed. Thicker sheathing than prescribed may be used to achieve the tabulated capacities provided the requirements for minimum nail penetration into framing in Section 3.3 of this report are met.

A1.2 Braced Walls: Scrail® SubLoc® PRO fasteners are recognized for use as a substitute for 8d common nails in walls braced using wood structural panels under the 2009 IBC and IRC. Fastener substitution shall be used for maximum 15/32-inch-thick WSP walls and at the same spacing as prescribed. Substitution for 8d common nails complies with the minimum required prescriptive bracing as referenced in 2009 IBC Section 2308.9.3 for Wood Structural

Panel Sheathing. Substitution for 8d common nails also complies with the minimum required prescriptive bracing in 2009 IRC Section R602.10.1 for the WSP Method of bracing, 2009 IRC Section R602.10.2 (intermittent braced wall panels), and 2009 IRC Section R602.10.3 for WSP, ABW, and PFH Methods of bracing. The braced walls shall include gypsum wall board installed on the side of the wall opposite the wood structural panels, as prescribed in 2009 IRC Section R602.10.2.1.

A1.3 Installation: Scrail® SubLoc® PRO shall be installed in accordance with the manufacturer's published installation instructions, this report and applicable requirements in Section 11.1.5 of 2008 ANSI/AF&PA NDS. Where conflicts occur, the more restrictive requirements shall govern. Scrail® SubLoc® PRO shall be pneumatically driven flush with the face of the sheathing material to full fastener depth, and to a minimum of $1\frac{3}{8}$ inches (34.9 mm) into minimum nominally 2-inch solid sawn wood framing. The minimum edge distance shall be $\frac{3}{8}$ inch (4.76 mm). Where installation causes splitting of the wood, pre-drilled holes are required in accordance with the 2009 IBC and 2008 NDS for wood-screw installation.

A1.4 Special Inspections: Special inspections are required in accordance with 2009 IBC Sections 1704, 1706, and 1707. When special inspections are required, a statement of special inspections shall be submitted to the building official in accordance with 2009 IBC Section 1705.



FLORIDA SUPPLEMENT

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06 05 23 Wood, Plastic, and Composite Fastenings

1.0 RECOGNITION

Scrail® SubLoc® PRO fasteners described in IAPMO UES Evaluation Report ER-344 are a satisfactory alternative for use as wood fasteners prescribed in the following codes:

- 2020 Florida Building Code—Building
- 2020 Florida Building Code—Residential

Use of the Scrail® SubLoc® PRO fasteners for compliance with the high-velocity hurricane zone provisions of the Florida Building Code—Building and Florida Building Code—Residential has not been evaluated and is outside the scope of this evaluation report.

2.0 SUMMARY

Scrail® SubLoc® PRO fasteners meet the requirements of the Florida Building Code, Building and Florida Building Code, Residential, as applicable, when installed as specified in IAPMO UES Evaluation Report ER-344 for the 2018 International Building Code® or International Residential Code®, as applicable, subject to the following limitation:

Fastening of roof diaphragms shall comply with Section R803.2.3.1 the Florida Building Code—Residential, as applicable.

For products falling under section 5(d) of Florida Rule 61G20-3.008, verification is required that the report holder's quality assurance program is audited by a quality assurance entity, approved by the Florida Building Commission (or the building official when the report holder does not possess an approval by the Commission), to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance.

This supplement expires concurrently with ER-344.

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org