Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 2403-114

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SPAX® XF-Series $^{5}/_{16}$" PowerLag® Fasteners for Use in Deck Ledger Board Applications

Trade Secret Report Holder:

Altenloh, Brinck & Company U.S., Inc.

Phone: 419-636-6715 Website: www.spax.us Email: contact@altenloh.us

CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES Section: 06 11 00 - Wood Framing Section: 06 15 00 - Wood Decking

1 Innovative Product Evaluated[1]

1.1 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners

2 Product Description and Materials

2.1 The innovative product evaluated in this report is shown in **Figure 1** and **Figure 2**.

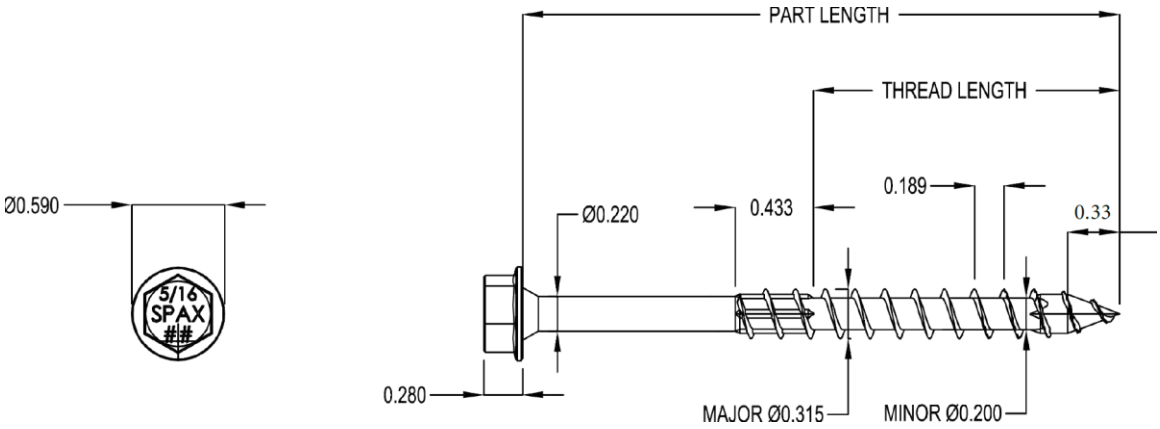

Figure 1. SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners – Hex Head

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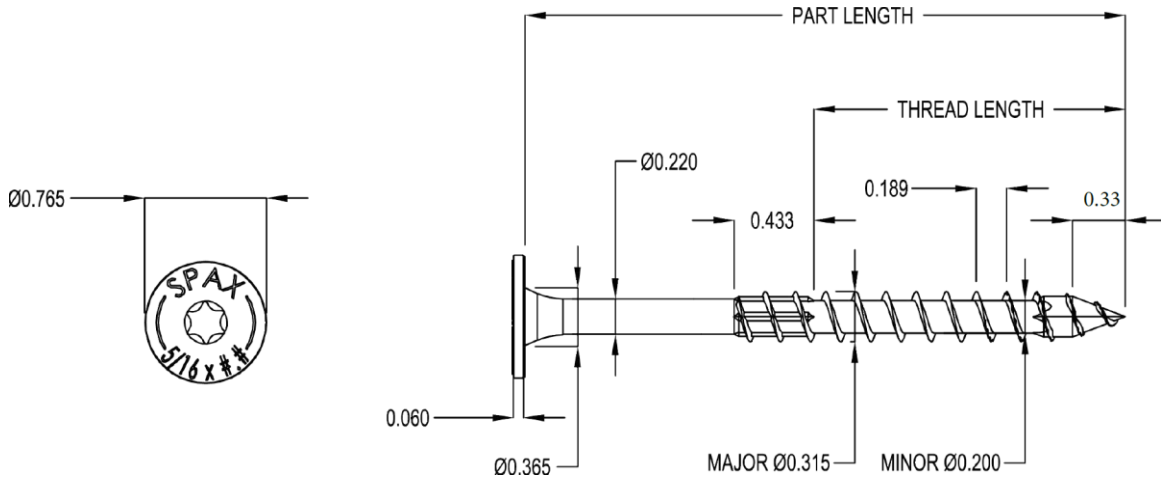

Figure 2. SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners – Pancake Head

2.2 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners are manufactured from carbon steel grade 1022 or 10B21 wire conforming to ASTM A510, or grade 17MnB3 or 19MnB4 wire conforming to DIN 1654 using a standard cold-formed process followed by a heat-treating process.

2.2.1 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners heads are available with a pancake or a $^{7}/_{16}$" hex drive.

2.2.2 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners have a gimlet point.

2.3 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners are available with proprietary coating, HCR®,[2] that exceeds the protection provided by code approved hot-dipped galvanized coatings meeting ASTM A153 (IBC Section 2304.10.6[3] and IRC Section R317.3).

2.3.1 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners with the HCR coating are approved for use in ground-contact and pressure treated wood (Alkaline Copper Quaternary, ACQ) in general construction (freshwater) applications.

2.3.2 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners with the HCR coating are approved for use in fire-retardant treated lumber, provided the conditions set forth by the fire-retardant treated lumber manufacturer are met, including appropriate strength reductions.

2.4 The fasteners evaluated in this report are set forth in **Table 1**.

Table 1. Fastener Specifications

Fastener Name	Head (in)				Lengths (in)		Diameters (in)			Bending Yield Strength,[3] F_{yb} (psi)
	Style	Marking	Diameter	Thickness	Fastener[1]	Thread[2]	Shank	Minor	Major	
SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners	Hex	4	0.590	0.280	4.0	2.045	0.220	0.200	0.315	160,000
		5			5.0	2.675				
	Pancake	4	0.765	0.060	4.0	2.045				
		5			5.0	2.675				

SI: 1 in = 25.4 mm, 1 lb = 4.448 N, 1 psi = 0.00689 MPa

1. Fastener length is measured from the underside of the head to the tip.
2. Thread length includes tip; see **Figure 1**.
3. Determined in accordance with methods specified in ASTM F1575, based on minor thread diameter using a five percent (5%) offset of the load displacement curves developed from bending tests.

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2.5 In-plant quality control procedures, under which the SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners are manufactured, are audited through an inspection process performed by an approved agency.

2.6 As needed, review material properties for design in **Section 6** and to regulatory evaluation in **Section 8**.

3 Definitions

3.1 New Materials[4] are defined as building materials, equipment, appliances, systems or methods of construction not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.[5] The design strengths and permissible stresses shall be established by tests[6] and/or engineering analysis.[7]

3.2 Duly authenticated reports[8] and research reports[9] are test reports and related engineering evaluations, which are written by an approved agency[10] and/or an approved source.[11]

3.2.1 These reports contain intellectual property and/or trade secrets, which are protected by the Defend Trade Secrets Act (DTSA).[12]

3.3 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is listed in the ANAB directory.

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[13]

3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body and/or a licensed Registered Design Professional (RDP).

3.5.1 The Center for Building Innovation (CBI) is ANAB[14] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[15] the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing[16] stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.[17]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory where recognition of certificates, validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope, shall be approved.[18] Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.[19]

3.9 Approval equity is a fundamental commercial and legal principle.[20]

4 Applicable Standards for the Listing; Regulations for the Regulatory Evaluation[21]

4.1 *Local, State, and Federal*

4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes the following featured local jurisdictions and is not limited to: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, Texas Department of Insurance, and Wichita.[22]

4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes the following featured states, and is not limited to: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.[23]

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4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[24] and Part 3280[25] pursuant to the use of ISO/IEC 17065 duly authenticated reports.

4.1.4 Approved means complying with the requirements of local, state, or federal legislation.

4.2 *Standards*

4.2.1 *ANSI/AWC NDS: National Design Specification (NDS) for Wood Construction*

4.2.2 *ASTM A153: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*

4.2.3 *ASTM A510: Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel*

4.2.4 *ASTM B117: Standard Practice for Operating Salt Spray (Fog) Apparatus*

4.2.5 *ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood*

4.2.6 *ASTM D2395: Standard Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials*

4.2.7 *ASTM D4442: Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials*

4.2.8 *ASTM F1575: Standard Test Methods for Determining Bending Yield Moment of Nails*

4.2.9 *ASTM G85: Standard Practice for Modified Salt Spray (Fog) Testing*

4.2.10 *DCA 6: Prescriptive Residential Wood Deck Construction Guide 2015*

4.3 *Regulations*

4.3.1 *IBC – 15, 18, 21: International Building Code®*

4.3.2 *IRC – 15, 18, 21: International Residential Code®*

5 Listed[26]

5.1 Equipment, materials, products or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), approved agency (i.e., CBI and DrJ), and/or approved source (i.e., DrJ) or other organization concerned with product evaluation (i.e., DrJ) that maintains periodic inspection (i.e., CBI) of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners may be used for attaching the deck ledger to the band joists of a building in accordance with IBC Section 1604.8.3 and IRC Section R507.9.[27]

6.1.1 The IRC provides prescriptive fastener spacing for the attachment of a deck ledger to a band joist with $^{1}/_{2}$" diameter lag screws or through bolts as shown in IRC Table R507.9.1.3(1).

6.1.1.1 **Table 2** provides SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners spacing required to provide performance at least equivalent to the lag screws found in IRC Table R507.9.1.3(1) in accordance with IBC Section 104.11, IBC Section 1604.8.3, IRC Section R104.11 and IRC Section R507.9,[28] and in accordance with generally accepted engineering practice.

6.1.1.2 **Table 2** provides SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners spacing for items found in IRC Table R507.9.1.3(1),[29] as well as a wider range of materials commonly used for band joists.

6.1.1.3 Values in **Table 2** are applicable to both head types of SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners.

6.2 The maximum deck joist spans in ledger connection applications for SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners are specified in **Table 2**. An example of installation is shown in **Figure 3**.

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Table 2. SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners Spacing for Maximum Deck Joist Spans[1,4,5]

Loading Condition[6] (psf)	Fastener Length[2] (in)	2x Nominal Ledger Species[3,7,8]	Band Joist Material[9]	Maximum Deck Joist Spans						
				Up to 6'	Up to 8'	Up to 10'	Up to 12'	Up to 14'	Up to 16'	Up to 18'
				Maximum On-Center Spacing (in) of SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners						
LL + DL 40 + 10	4 or 5	DF/SP/HF/SPF	Sawn Lumber	18	13	11	9	7	6	6
			EWP	14	11	8	7	6	5	4
LL + DL 50 + 10		DF/SP/HF/SPF	Sawn Lumber	15	11	9	7	6	5	5
			EWP	12	9	7	6	5	4	4
LL + DL 60 + 10		DF/SP/HF/SPF	Sawn Lumber	13	9	7	6	5	4	4
			EWP	10	8	6	5	4	4	3
SL + DL 70 + 10		DF/SP/HF/SPF	Sawn Lumber	11	8	6	5	4	4	3
			EWP	9	7	5	4	4	3	3

SI: 1 in = 25.4 mm

1. Based on load duration of 1.0. Spacing may be adjusted by the applicable load duration as specified in NDS.
2. Fasteners are required to have full thread penetration into the main member. Excess fastener length extending beyond the main member is not reflected in this table.
3. Solid sawn ledgers shall be HF/SPF or DFL/SP species (specific gravity of 0.42 and 0.50 respectively), designed by others. Fasteners shall be staggered from the top to the bottom along the length of the ledger while maintaining the required edge and end distances as shown in **Figure 3**.
4. Fasteners shall be staggered from the top to the bottom along the length of the ledger while maintaining the required edge and end distances as shown in **Figure 3**.
5. A maximum $^{15}/_{32}$" structural sheathing may be installed between the ledger and the band joist.
6. Table values assume 10-psf dead load.
7. Ledger materials assumed to be in wet service condition. Table values incorporated wet service factor, CM of 0.70.
8. Minimum ledger board requirements: nominal 2x8 ($1^{1}/_{2}$" thickness and $7^{1}/_{4}$" depth).
9. Minimum band joist requirements: nominal 2x8 SPF (specific gravity of 0.42) solid-sawn lumber $1^{1}/_{2}$" thick and $7^{1}/_{4}$" depth; EWP $1^{1}/_{8}$" thick and $7^{1}/_{4}$" depth.

6.3 Where the application falls outside of the performance evaluation, conditions of use and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science and fire science.

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7 Certified Performance[30]

7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.[31]

7.2 The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.[32]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners comply with legislatively adopted regulations and/or accepted engineering practice.

8.2 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ Engineering, LLC (DrJ), an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP/approved sources. DrJ is qualified[33] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise, respectively.

8.3 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which are also its areas of professional engineering competence.

8.4 Any regulation specific issues not addressed in this section are outside the scope of this report.

9 Installation

9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report and the applicable building code.

9.2 In the event of a conflict between the manufacturer installation instructions and this report, the more restrictive shall govern.

9.3 *Installation Procedure*

9.3.1 The SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners structural wood fastener shall be installed with a $^{1}/_{2}$" (12.7 mm), low rpm/high torque electric drill (450 rpm) or impact wrench using the appropriate driver bit. Drive the fasteners through the ledger and sheathing into the band joist until the built-in washer head is drawn firm and flush to the ledger board. Do not overdrive.

9.3.2 Install SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners so that the threads fully engage the band joist material and the fastener tip extends beyond the back face of the band joist material when fully seated against the installed ledger.

9.3.2.1 A third-party tested plastic washer (i.e., Deck2Wall® Spacer) may be installed between the ledger board and band joist at each fastener location. The plastic washer shall be installed per the washer manufacturer instructions and this report.

9.3.2.1.1 The third-party tested plastic washer shall be 2" in diameter, $^{1}/_{2}$" thick (max), with an approximate $^{5}/_{16}$" hole in the center for the SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners and three $^{3}/_{16}$" (approximate) holes for the #8 screws.

9.3.2.1.1.1 The third-party tested plastic washer shall be independently fastened to the ledger with three SPAX #8 x $1^{5}/_{8}$" or three SPAX #8 x 2" screws.

9.3.3 Lead holes are not required.

9.3.4 **Figure 3** shows a detail of the SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners deck connection, including minimum edge and end distances.

9.3.5 Stagger the SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners from the top to the bottom along the length of the ledger while maintaining the required edge and end distances.

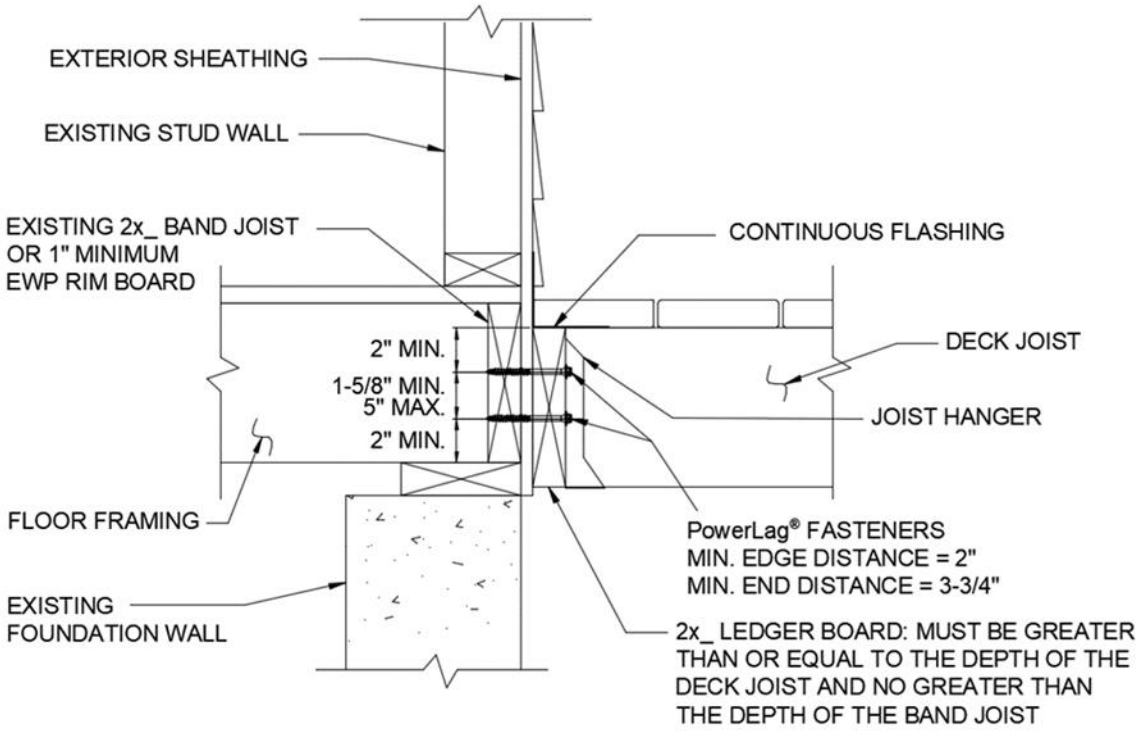

Figure 3. SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners Deck Connection

9.4 For applications outside the scope of this report, an engineered design is required.

10 Substantiating Data

10.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:

10.1.1 Bending yield strength testing in accordance with ASTM F1575

10.1.2 Corrosion resistance testing in accordance with ASTM B117 and ASTM G85, Annex A5

10.1.3 Deck ledger assembly testing in general accordance with ASTM D1761

10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources and/or RDPs. Accuracy of external test data and resulting analysis is relied upon.

10.3 Where applicable, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability and safety.

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10.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.

10.5 Testing and engineering analysis: The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.[34]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners have performance characteristics that were tested and/or meet applicable regulations and is suitable for use pursuant to its specified purpose.

11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners shall be approved for the following applications:

11.2.1 Used as a suitable alternative to the requirements of the IBC Section 1604.8.3 and IRC Section R507.9.[35]

11.2.2 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners HCR coated fasteners are approved for use in ground contact and pressure treated wood (ACQ) in general construction (freshwater) applications.

11.2.3 SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners HCR coated fasteners are approved for use in fire-retardant treated lumber, provided the conditions set forth by the fire-retardant-treated lumber manufacturer are met, including appropriate strength reductions.

11.3 Unless exempt by state statute, when SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners are to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.

11.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Altenloh, Brinck & Company U.S., Inc.

11.5 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10[36] are similar) in pertinent part states:

> **104.11 Alternative materials, design and methods of construction and equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons the alternative was not approved.

11.6 **Approved**:[37] Building regulations require that the building official shall accept duly authenticated reports.[38]

11.6.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited.

11.6.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce.

11.6.3 Federal law, Title 18 US Code Section 242, requires that where the alternative product, material, service, design, assembly and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.

11.7 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB-Accredited Product Certification Body – Accreditation #1131.

11.8 Through the IAF Multilateral Agreements (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.[39]

12 Conditions of Use

12.1 Material properties shall not fall outside the boundaries defined in **Section 6**.

12.2 As defined in **Section 6**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.

12.3 As listed herein, SPAX XF-Series $^{5}/_{16}$" PowerLag Fasteners shall not be used:

12.3.1 With fastener spacing exceeding values set in **Table 2** for code compliance and the installation conditions considered.

12.4 When required by adopted legislation and enforced by the building official, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed:

12.4.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.

12.4.2 This report and the installation instructions shall be submitted at the time of permit application.

12.4.3 This innovative product has an internal quality control program and a third-party quality assurance program.

12.4.4 At a minimum, this innovative product shall be installed per **Section 9**.

12.4.5 The review of this report by the AHJ shall comply with IBC Section 104 and IBC Section 105.4.

12.4.6 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.4, IBC Section 110.4, IBC Section 1703, IRC Section R104.4 and IRC Section R109.2.

12.4.7 The application of this innovative product in the context of this report is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2 and any other regulatory requirements that may apply.

12.5 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, "*the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new material or assemblies as provided for in Section 104.11*," all of IBC Section 104, and IBC Section 105.4.

12.6 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).

12.7 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

13 Identification

13.1 The innovative product listed in **Section 1.1** is identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number and other information to confirm code compliance.

13.2 Additional technical information can be found at www.spax.us.

14 Review Schedule

14.1 This report is subject to periodic review and revision. For the latest version, visit drjcertification.org.

14.2 For information on the status of this report, please contact DrJ Certification.

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Notes

1 For more information, visit drjcertification.org or call us at 608-310-6748.

2 HCR is a dual-barrier coating system designed to extend the longevity of SPAX® fasteners in ground-contact, treated lumber and exterior freshwater applications. Plated with a zinc base coat and finished with a durable top coat, they are engineered to withstand the toughest conditions.

3 2018 IBC Section 2304.10.5

4 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1702

5 Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review https://www.justice.gov/atr/mission and https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11

6 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests%20as

7 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706:~:text=shall%20conform%20to%20the%20specifications%20and%20methods%20of%20design%20of%20accepted%20engineering%20practice

8 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies

9 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2

10 https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_agency

11 https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_source

12 https://www.law.cornell.edu/uscode/text/18/1832 (b) Any organization that commits any offense described in subsection (a) shall be fined not more than the greater of $5,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. The federal government and each state have a public records act. To follow DTSA and comply state public records and trade secret legislation requires approval through ANAB ISO/IEC 17065 accredited certification bodies or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.

13 https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-boards-in-each-state-archive/

14 https://www.cbitest.com/accreditation/

15 https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104:~:text=to%20enforce%20the%20provisions%20of%20this%20code

16 https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11:~:text=Where%20the%20alternative%20material%2C%20design%20or%20method%20of%20construction%20is%20not%20approved%2C%20the%20building%20official%20shall%20respond%20in%20writing%2C%20stating%20the%20reasons%20why%20the%20alternative%20was%20not%20approved AND https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#105.3.1:~:text=If%20the%20application%20or%20the%20construction%20documents%20do%20not%20conform%20to%20the%20requirements%20of%20pertinent%20laws%2C%20the%20building%20official%20shall%20reject%20such%20application%20in%20writing%2C%20stating%20the%20reasons%20therefore

17 https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.11

18 https://iaf.nu/en/about-iaf-mla/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope

19 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

20 https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission

21 Unless otherwise noted, all references in this Listing are from the 2021 version of the codes and the standards referenced therein. This material, product, design, service and/or method of construction also complies with the 2000-2021 versions of the referenced codes and the standards referenced therein.

22 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by the local jurisdiction. https://up.codes/codes/general

23 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by state. https://up.codes/codes/general

24 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14

25 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

26 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#listed AND https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#labeled

27 2015 IRC Section R507.2

28 2015 IRC Section R507.1

29 2015 IRC Table R507.2

30 https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1703.4

31 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades

[32] https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur

[33] Qualification is performed by a legislatively defined Accreditation Body. ANSI National Accreditation Board (ANAB) is the largest independent accreditation body in North America and provides services in more than 75 countries. DrJ is an ANAB accredited product certification body.

[34] See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition.

[35] 2015 IRC Section 507.2

[36] 2018 IFC Section 104.9

[37] Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

[38] https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1

[39] Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.

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