Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 1910-04

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SPAX® #14 x 4" Fastener Properties

Trade Secret Report Holder:

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

Phone: 419-636-6715 Website: spax.us

CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

Section: 06 00 90 - Wood and Plastic Fastenings

Section: 06 05 23 - Wood, Plastic, and Composite Fastenings

1 Innovative Product Evaluated[1]

1.1 SPAX #14 x 4" T-Star Plus Flat-Head Partial Thread Multi-Purpose Construction Screws (XFT14P-4000) hereinafter referred to as SPAX #14 Construction Screws.

2 Product Description and Materials

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

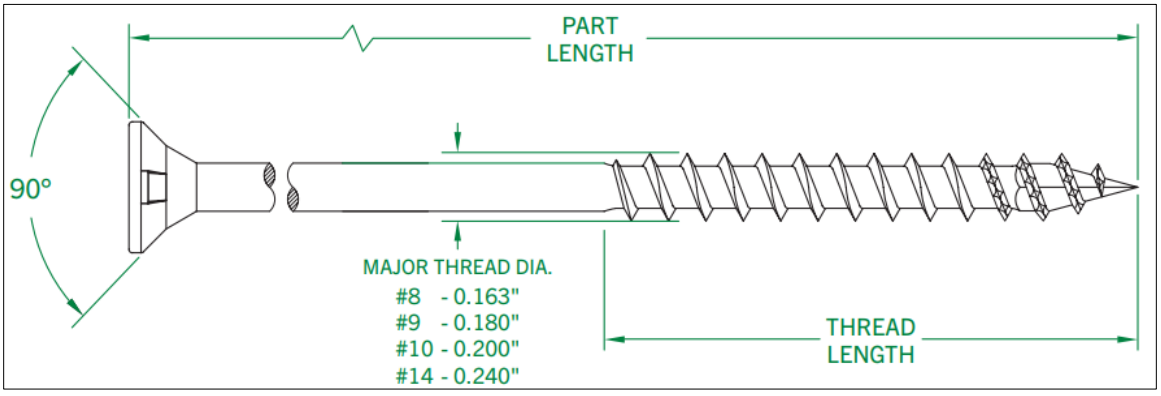

Figure 1. SPAX #14 Construction Screws

2.2 SPAX #14 Construction Screws have a flat head with a T-30 6-lobe drive with post. The point is a threaded tip as shown in **Figure 1**.

2.3 SPAX #14 Construction Screws are made of hardened carbon steel grade 10B18 wire conforming to ASTM A510 or grade 17MnB3, or 19MnB4 wire conforming to DIN 1654.

2.4 SPAX #14 Construction Screws are manufactured using a standard cold-formed process followed by heat treating and coating processes.

2.5 The product evaluated in this report is specified in **Table 1**.

Table 1. SPAX #14 Construction Screws Specifications[5]

Fastener Name	Head (in)				Length (in)		Diameters (in)			Bending Yield Strength,[3] F_{yb} (psi)	Allowable Steel Strength (lbs)	
	Style	Marking	Diameter	Height	Fastener[1]	Thread[2]	Shank	Minor	Major		Tensile	Shear[4]
#14 x 4"	T-Star Plus Flat Head	N/A	0.445	N/A	4.000	2.385	0.169	0.155	0.240	160,000	990	750

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1-psi = 0.00689 MPa

1. Fastener length is measured from the topside of the head to the tip.
2. Thread length includes tapered tip (see **Figure 1**).
3. Bending yield strength, F_{yb}, is determined in accordance with ASTM F1575 using minor thread diameter when fastener is tested in the threaded section.
4. Shear strength is determined in accordance with AISI S904 using minor thread diameter when fastener is tested in the threaded section.
5. Tabulated fastener dimensions are measured on uncoated fasteners. Finished dimensions are larger due to the proprietary coatings added.

2.6 SPAX #14 Construction Screws are available with proprietary coatings:

2.6.1 *Interior Grade:* Proprietary zinc plate coating that is equivalent to the protection provided by code approved hot-dipped galvanized coatings meeting ASTM A153, Class D (IBC Section 2304.10.6[2] and IRC Section R304.3[3]).

2.6.1.1 Zinc plate coating is tested and recognized for use in above ground contact pressure-treated lumber (ACQ-D), interior, dry/damp general construction applications (i.e., Above Ground AWPA UC1-UC2 ACQ-D).

2.6.1.2 Zinc plate coated fasteners are approved for use in Fire-Retardant Treated (FRT) lumber, provided the conditions set forth by the FRT lumber manufacturer be met, including appropriate strength reductions.

2.6.2 *Exterior Grade:* Proprietary HCR™ coating that is equivalent to the protection provided by code-approved hot dipped galvanized coatings meeting ASTM A153, Class D (IBC Section 2304.10.6[4] and IRC Section R304.3[5]).

2.6.2.1 HCR coating is tested and recognized for use in ground contact pressure treated lumber (ACQ-D), exterior, freshwater, general construction applications (i.e., Ground Contact AWPA UC1-UC4A ACQ-D).

2.7 HCR coated fasteners are approved for use in FRT lumber provided the conditions set forth by the FRT lumber manufacturer be met, including appropriate strength reductions.

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

3 Definitions[6]

3.1 New Materials[7] 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.[8] The design strength and permissible stresses shall be established by tests[9] and/or engineering analysis.[10]

3.2 Duly authenticated reports[11] and research reports[12] are test reports and related engineering evaluations that are written by an approved agency[13] and/or an approved source.[14]

3.2.1 This report utilizes intellectual property and/or trade secrets to create public domain material properties for commercial end-use.

3.2.1.1 This report protects confidential Intellectual Property and trade secrets under the regulation, 18.US.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).[15]

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

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[16]

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 RDP.

3.5.1 The Center for Building Innovation (CBI) is ANAB[17] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[18] 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[19] 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.[20]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.[21] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[22] and can be used in any country that is an MLA signatory found at this link: https://iaf.nu/en/recognised-abs/

3.9 Approval equity is a fundamental commercial and legal principle.[23]

4 Applicable Local, State, and Federal Approvals; Standards; Regulations[24]

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, but is not limited to, the following featured local jurisdictions: 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, St. Louis County, Texas Department of Insurance, and Wichita.[25]

4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured states: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.[26]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[27] and Part 3280[28] 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 *Regulations*

4.2.1 *IBC – 18, 21, 24: International Building Code®*

4.2.2 *IRC – 18, 21, 24: International Residential Code®*

4.3 *Standards*

4.3.1 *AISI S904: Standard Test Methods for Determining the Tensile and Shear Strength of Screws*

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

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

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

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

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

4.3.7 *ASTM F1575-21: Standard Test Method for Determining Bending Yield Moment of Nails, Spikes, and Dowel-type Threaded Fasteners*

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

5 Listed[29]

5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (e.g., CBI), an approved agency (e.g., CBI and DrJ), and/or and approved source (e.g., DrJ), or other organization(s) concerned with product evaluation (e.g., DrJ), that maintains periodic inspection (e.g., 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 #14 Construction Screws are used to attach wood framing members in conventional light-frame construction and provide resistance against head pull-though, withdrawal, and shear loads.

6.2 *Design*

6.2.1 Design of SPAX #14 Construction Screws is governed by the applicable code and the provisions for dowel-type fasteners in the NDS.

6.2.2 Unless otherwise noted, adjustment of the design stresses for load duration shall be in accordance with the applicable code.

6.3 *Head Pull-Through Design Values*

6.3.1 Design values for head pull-through for SPAX #14 Construction Screws are outlined in **Table 2**.

Table 2. Head Pull-Through Design Values for SPAX #14 Construction Screws

Member Type (Specific Gravity)[1,2]	Member Description[3]	Head Pull-Through Value[5] (lbs)
SPF2 (0.42)	Dry	190
	Wet	135
SP2 (0.55)	Dry	240
	Wet	155
LVL (0.50)[4]	Dry	350

SI: 1 in = 25.4 mm, 1 lb = 4.45 N

1. For wood species with an assigned specific gravity between 0.42 and 0.55, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.
2. Minimum thickness is 1.5".
3. The dry service condition is defined as lumber with an in-service moisture content of less than or equal to nineteen percent (19%). The wet service condition is defined as lumber with an in-service moisture content of greater than nineteen percent (19%).
4. LVL member minimum thickness is 1.5". Listed specific gravity is an equivalent specific gravity.
5. Tabulated withdrawal values shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.

6.4 *Reference Withdrawal Design Values in Face Grain Applications*

6.4.1 Reference withdrawal design values for SPAX #14 Construction Screws are detailed in **Table 3**.

Table 3. Reference Withdrawal Value for SPAX #14 Construction Screws in Face Grain

Member Type (Specific Gravity)[1,2]	Member Service Condition	Penetration[4] into Member (in)	Reference Withdrawal Value (lbs/in)[5,6]
SPF (0.42)	Dry	1	130
	Wet	1	95
SP (0.55)	Dry	1	205
		2	240
	Wet	1	140
		2	170
LVL (0.50)[3]	Dry	1	180
		2	225

SI: 1 in = 25.4 mm, 1 lb = 4.45 N

1. For wood species with an assigned specific gravity between 0.42 and 0.55, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.
2. The dry service condition is defined as lumber with an in-service moisture content of less than or equal to nineteen percent (19%). The wet service condition is defined as lumber with an in-service moisture content of greater than nineteen percent (19%).
3. Listed specific gravity is an equivalent specific gravity.
4. Fastener penetration is the threaded length embedded in the wood member, including the tip.
5. The full design withdrawal value (W) in pounds is equal to: $W = w_1 + [w_2 + (w_2 - w_1)]^*(L_T - 1)$; where w_1 = reference withdrawal corresponding to 1" penetration, L_T = embedded thread length (minimum 1"), and w_2 = reference withdrawal corresponding to 2" penetration.
6. Tabulated withdrawal values shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.

6.5 *Reference Lateral Design Values*

6.5.1 Reference lateral design values (lbs) for shear load perpendicular and parallel to the side member grain for SPAX #14 Construction Screws are given in **Table 4**.

6.5.2 Reference lateral design values in **Table 4** apply to two-member single shear connections where:

6.5.2.1 The main member has an assigned specific gravity equal to or greater than 0.55.

6.5.2.2 The main member is loaded parallel to grain.

6.5.2.3 The fastener is oriented perpendicular to grain.

6.5.2.4 The fastener penetrates the face of the side member and edge of the main member.

6.5.2.5 The minimum edge distance in the main member is nominally $^3/_4$". Care shall be taken not to split the wood. See **Table 5** for other spacing, edge distance, and end distance requirements.

Table 4. Lateral Design Values For SPAX #14 Construction Screws[4,5]

Main Member Species (Specific Gravity)[1]	Side Member Species (Specific Gravity)[2]	Reference Lateral Shear Value,[3,4,5] Z (lbf)	
		$Z_{\perp}$	$Z_{\parallel}$
SP (0.55)	SPF (0.42)	NT[6]	180
	SP (0.55)	285	205
	LVL (0.50)	410	290

SI: 1 in = 25.4 mm, 1 lb = 4.45 N

1. Main member is loaded parallel to grain.
2. For side member wood species with an assigned specific gravity between 0.42 and 0.55, use the tabulated values for specific gravity of 0.42. For wood species with an assigned specific gravity greater than or equal to 0.55, use the tabulated values for specific gravity of 0.55.
3. Main member and side member minimum thickness is 1.5".
4. $Z_{\perp}$ = Lateral Design Values Perpendicular to Side Member Grain, $Z_{\parallel}$ = Lateral Design Values Parallel to Side Member Grain (see **Figure 2**).
5. Tabulated lateral design values shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1.
6. NT = Not Tested

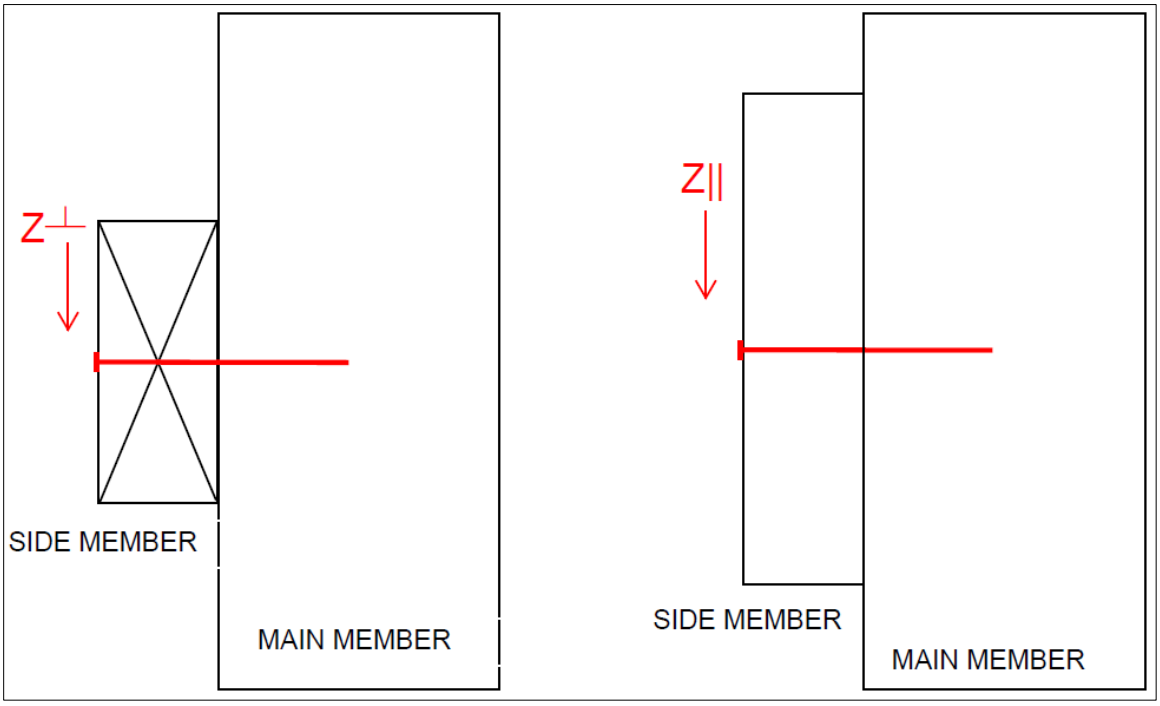

Figure 2. Lateral Load Directions

6.6 Alternative techniques shall be permitted in accordance with accepted engineering practice and experience. These provisions for the use of alternative materials, designs, and methods of construction are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed herein. This includes, but is not limited to, the following areas of engineering: mechanics of materials, structures, building science, and fire science.

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 #14 Construction Screws comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 SPAX #14 Construction Screws were tested and evaluated to determine their structural resistance properties, which are used to develop reference design values for Allowable Stress Design (ASD). The following properties were evaluated:

8.1.1.1 Bending yield in accordance with ASTM F1575

8.1.1.2 Tensile strength in accordance with AISI S904

8.1.1.3 Shear strength in accordance with AISI S904

8.1.1.4 Head pull-through in accordance with ASTM D1761

8.1.1.5 Withdrawal strength in accordance with ASTM D1761

8.1.1.6 Lateral resistance in accordance with ASTM D1761

8.1.1.7 Corrosion resistance in accordance with ASTM B117 and ASTM G85

8.1.2 The use of SPAX #14 Construction Screws in locations exposed to saltwater or saltwater spray is outside the scope of this report.

8.2 Any building code, regulation and/or accepted engineering evaluations (e.g., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[33] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[34] respectively.

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

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, contact the manufacturer for counsel on the proper installation method.

9.3 SPAX #14 Construction Screws shall be installed using a T-30 or SPAX T-30 plus driver bit.

9.4 SPAX #14 Construction Screws shall not be struck with a hammer during installation.

9.5 Lead holes are not required, except where the fastener is installed in LVL less than 1.5" from the end of the board. In this case, a minimum $^{1}/_{8}$" diameter pilot hole is required.

9.6 The top of the SPAX #14 Construction Screws head must be installed flush to the surface of the wood side member that is being connected. The fastener must not be overdriven.

9.7 The entire SPAX #14 Construction Screws must be embedded in the wood connection. The tip of the fastener shall not exceed beyond the backside of the main member.

9.8 Minimum requirements for fastener spacing, edge distance, and end distance shall be in accordance with **Table 5**, unless otherwise noted in this report.

Table 5. Minimum Spacing, Edge Distance, and End Distance Requirements

Connection Geometry[1,2]	Minimum Spacing (in)
Edge Distance – Load perpendicular to grain	1 1/2
Edge Distance – Load parallel to grain	3/4
End Distance – Load parallel to grain, towards end	1 3/4
End Distance – Load parallel to grain, away from end	3/4
End Distance – Load perpendicular to grain	3/4
Spacing between Fasteners in a Row – Parallel to grain	1 3/4
Spacing between Fasteners in a Row – Perpendicular to grain	7/8
Spacing between Rows of Fasteners – In-line	1/2
Spacing between Rows of Fasteners – Staggered	1/2

SI: 1 in = 25.4 mm

1. Edge distances, end distances, and spacing of fasteners shall be sufficient to prevent splitting of the wood or as shown in this table, whichever is more restrictive.
2. Values for *"Spacing between Rows of Fasteners-Staggered"* apply where the fasteners in adjacent rows are offset by one-half of the *"Spacing between Fasteners in a Row"*.

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 testing in accordance with ASTM F1575

10.1.2 Tensile strength testing in accordance with AISI S904

10.1.3 Shear strength testing in accordance with AISI S904

10.1.4 Head pull-through testing in accordance with ASTM D1761

10.1.5 Withdrawal testing in accordance with ASTM D1761

10.1.6 Lateral resistance testing in accordance with ASTM D1761

10.1.7 Corrosion resistance testing in accordance with ASTM B117 and ASTM G85

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 an RDP. 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.

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*

10.5.1 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.[35]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for SPAX® #14 Construction Screw on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, SPAX #14 Construction Screws have performance characteristics that were tested and/or meet applicable regulations. In addition, they are 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 #14 Construction Screws shall be approved for the following applications:

11.2.1 Provide resistance to head pull-through loads as shown in **Table 2**.

11.2.2 Provide resistance to reference withdrawal loads as shown in **Table 3**.

11.2.3 Provide resistance to lateral loads applied to the fastener in a wood as shown in **Table 4**.

11.3 Unless exempt by state statute, when SPAX #14 Construction Screws 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 104.2.3[36] (IRC Section R104.2.2[37] and IFC Section 104.2.3[38] are similar) in pertinent part state:

> **104.2.3 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, provided that any such alternative is not specifically prohibited by this code and has been approved.

11.6 **Approved:**[39] Building regulations require that the building official shall accept duly authenticated reports.[40]

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 Arrangement (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.[41]

12 Conditions of Use

12.1 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.

12.2 As listed herein, SPAX #14 Construction Screws are not to be used:

12.2.1 In wood members with a moisture content of greater than nineteen percent (19%).

12.3 Use of fasteners in locations exposed to saltwater or saltwater spray is outside the scope of this evaluation report.

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 104.2.3.2 and IBC Section 105.3.1.

12.4.6 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, 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 make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.2.3"*, all of IBC Section 104, and IBC Section 105.3.

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 SPAX #14 Construction Screws, as listed in **Section 1.1**, are 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 spax.us.

14 Review Schedule

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

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

Notes

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

2 2018 IBC Section 2304.10.5

3 2021 IRC Section R317.3

4 2018 IBC Section 2304.10.5

5 2021 IRC Section R317.3

6 Capitalized terms and responsibilities are defined pursuant to the applicable building code, applicable reference standards, the latest edition of TPI 1, the NDS, AISI S202, US professional engineering law, Canadian building code, Canada professional engineering law, Qualtim External Appendix A: Definitions/Commentary, Qualtim External Appendix B: Project/Deliverables, Qualtim External Appendix C: Intellectual Property and Trade Secrets, definitions created within Design Drawings and/or definitions within Reference Sheets. Beyond this, terms not defined shall have ordinarily accepted meanings as the context implies. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

7 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1702

8 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/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3

9 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.2:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests

10 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/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.1:~:text=Conformance%20to%20Standards-,The%20design%20strengths%20and%20permissible%20stresses,-of%20any%20structural

11 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20make%2C%20or%20cause%20to%20be%20made%2C%20the%20necessary%20tests%20and%20investigations%3B%20or%20the%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%20104.2.3.

12 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4.2

13 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_agency

14 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_source

15 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.

16 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/

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

18 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.1:~:text=directed%20to%20enforce%20the%20provisions%20of%20this%20code

19 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3 AND https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#105.3.1

20 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

21 https://iaf.nu/en/about-iaf-mla/#:~:text=Once%20an%20accreditation%20body%20is%20a%20signatory%20of%20the%20IAF%20MLA%2C%20it%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

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

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

24 Unless otherwise noted, the links referenced herein use un-amended versions of the 2024 International Code Council (ICC) 2024 International Code Council (ICC) model codes as foundation references. Mississippi versions of the IBC 2024 and the IRC 2024 are un-amended. This material, product, design, service and/or method of construction also complies with the 2000-2012 versions of the referenced codes and the standards referenced therein. As pertinent to this technical and code compliance evaluation, CBI and/or DrJ staff have reviewed any state or local regulatory amendments to assure this report is in compliance.

25 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

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

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

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

29 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#listed AND https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#labeled

30 https://up.codes/viewer/mississippi/ibc-2024/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] https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prgID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH

[35] See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition: https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

[36] 2021 IBC Section 104.11

[37] 2021 IRC Section R104.11

[38] 2018: https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9 AND 2021: https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11

[39] 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 (https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

[40] https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

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