Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 1308-11

Issue Date: September 13, 2013

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FastenMaster® ThruLOK® Pole Barn Header Connection

Trade Secret Report Holder:

OMG®, Inc. dba FastenMaster®

Phone: 413-789-0252 Website: www.fastenmaster.com Email: mguthrie@omginc.com

CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

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

Section: 06 11 00 - Wood Framing

1 Innovative Product Evaluated[1]

1.1 ThruLOK Screw Bolt Fastening System

2 Product Description and Materials

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

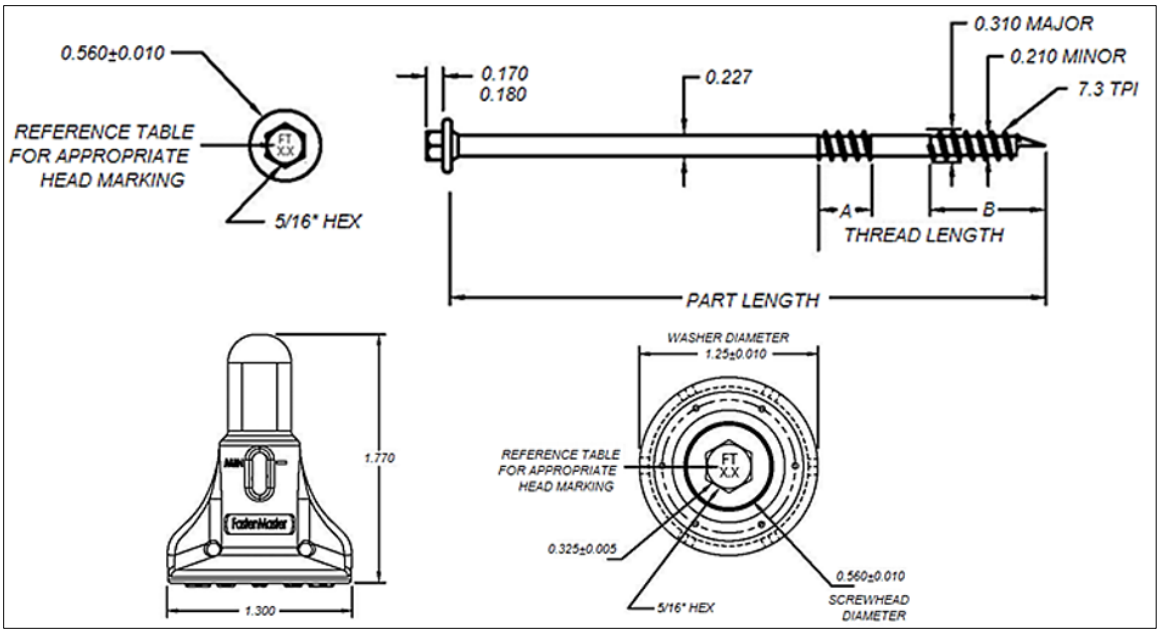

Figure 1. ThruLOK Screw Bolt Fastening System

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2.2 ThruLOK Screw Bolt Fastening System was evaluated and the results are shown in **Table 1**.

Table 1. Fastener Specifications

Fastener Name	Fastener Designation	Head Marking	Length[1] (in)	Thread[2] Length (in)		Unthreaded Shank Diameter (in)	Minor Thread (Root) Diameter (in)	Allowable Bending Yield[3] (psi)
				A	B			
ThruLOK Screw Bolt Fastening System	THR912	FT9.5	9.5	0.56	1.2	0.227	0.210	218,400
	THR008	FT8.0	8.0					

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

1. Measured from the underside of the head to the point of the tip.
2. As depicted in Figure 1, the thread lengths given for the ThruLOK Screw Bolt Fastening System are for Zones A and B.
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.

2.2.1 ThruLOK Screw Bolt Fastening System fastener heads have a $^{5}/_{16}$" hex drive.

2.2.2 Allowable bending yield and critical dimensions are found in **Table 1**.

2.2.3 ThruLOK Screw Bolt Fastening System fasteners have a proprietary cutting point and are supplied with a ThruLOK washer and nut.

2.2.4 The ThruLOK Screw Bolt Fastening System is manufactured with carbon steel grade 1022 or 10B21 wire that conforms to ASTM A510 with a minimum ultimate tensile strength of 60-ksi.

2.2.5 ThruLOK Screw Bolt Fastening System is coated with mechanically applied zinc in accordance with ASTM B695, Class 55 as specified in IBC Section 2304.10.6.1 and IRC Section R304.3.1.[2]

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

3 Definitions[3]

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 strength 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 that are written by an approved agency[10] and/or an approved source.[11]

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).[12]

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.[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 RDP.

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

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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. 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.[18] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[19] 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.[20]

4 Applicable Local, State, and Federal Approvals; Standards; Regulations[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, 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.[22]

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.[23]

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

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

4.3.3 *ASTM B695: Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel*

4.3.4 *ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood and Wood-Based Materials*

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

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5 Listed[26]

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 an 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 *Single Header Configuration*

6.1.1 **Figure 2** shows a single header connection using the ThruLOK Screw Bolt Fastening System to resist single shear of one header on one side of one column.

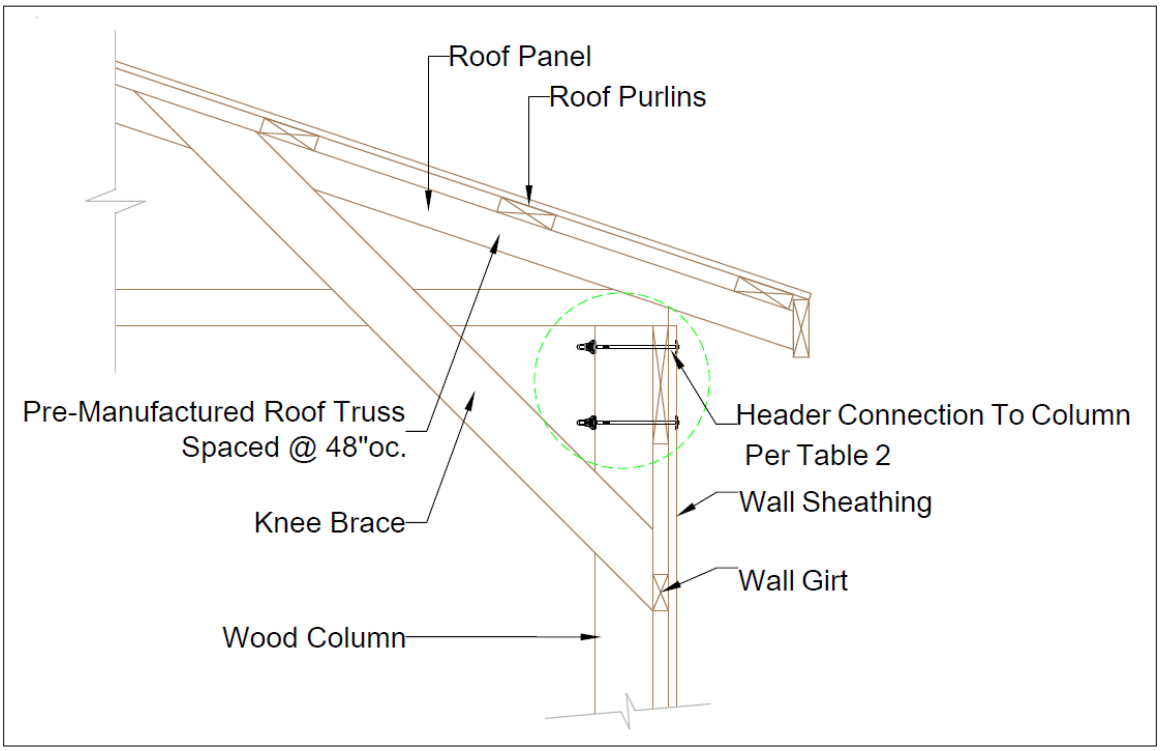

Figure 2. ThruLOK Screw Bolt Fastening System – Roof to Single Header Detail

6.1.2 For the header configuration shown in **Figure 2**, it is assumed that the interior header will receive seventy five percent (75%) of the load and the exterior header will receive twenty-five percent (25%) of the load.

6.1.3 **Table 2** provides the number of ThruLOK Screw Bolt Fastening System fasteners needed for various snow loading conditions.

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Table 2. Single Shear – Truss Bearing on One Header to One Column[1,3,4,5]

Building Width Including 1' Overhang Each End (ft)	Species[2] (Pressure Treated)	Truss Spacing (ft)	Column Spacing (ft)	Number of 8" ThruLOK Screw Bolt Fastening System Fasteners per Header		
				Loading (Snow + Top Chord (TC) Dead + Bottom Chord (BC) Dead) (psf)		
				20 + 10 + 5 = 35	30 + 10 + 5 = 45	40 + 10 + 5 = 55
24	Hem-Fir	4	8	4	6	6
	Douglas-Fir			4	4	6
	Mixed Southern Yellow Pine			4	4	6
28	Hem-Fir	4	8	6	6	8
	Douglas-Fir			4	6	6
	Mixed Southern Yellow Pine			4	6	6
32	Hem-Fir	4	8	6	8	8
	Douglas-Fir			6	6	8
	Mixed Southern Yellow Pine			4	6	8
36	Hem-Fir	4	8	6	8	-
	Douglas-Fir			6	6	8
	Mixed Southern Yellow Pine			6	6	8
40	Hem-Fir	4	8	6	8	-
	Douglas-Fir			6	8	-
	Mixed Southern Yellow Pine			6	6	8
44	Hem-Fir	4	8	8	-	-
	Douglas-Fir			6	8	-
	Mixed Southern Yellow Pine			6	8	-
48	Hem-Fir	4	8	8	-	-
	Douglas-Fir			8	8	-
	Mixed Southern Yellow Pine			6	8	-
52	Hem-Fir	4	8	8	-	-
	Douglas-Fir			8	-	-
	Mixed Southern Yellow Pine			8	8	-

SI: 1 in = 25.4 mm, 1-psf = 0.0479 kN/m^2

1. Fastener designs were evaluated under the NDS wet service (also known as wet use) conditions to account for the effects of higher header and/or column moisture content.
2. Lumber used shall be either treated Southern Pine, treated Hem-Fir, or treated Douglas Fir.
3. Connection design assumes that the header supports one truss located at midspan of the header. Trusses located at the columns shall be supported by bearing on the column and shall not apply loads to the header.
4. Design of all wood members (e.g., columns/posts, headers, trusses, girts, knee braces) and connections not shown are by others.
5. See Section 6.3 for information on minimum required edge and end distances.

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6.2 *Double Header Configuration*

6.2.1 **Figure 3** shows a double header connection using the ThruLOK Screw Bolt Fastening System to resist the shear of one header on one side of a single column and another header on the opposite side of the column.

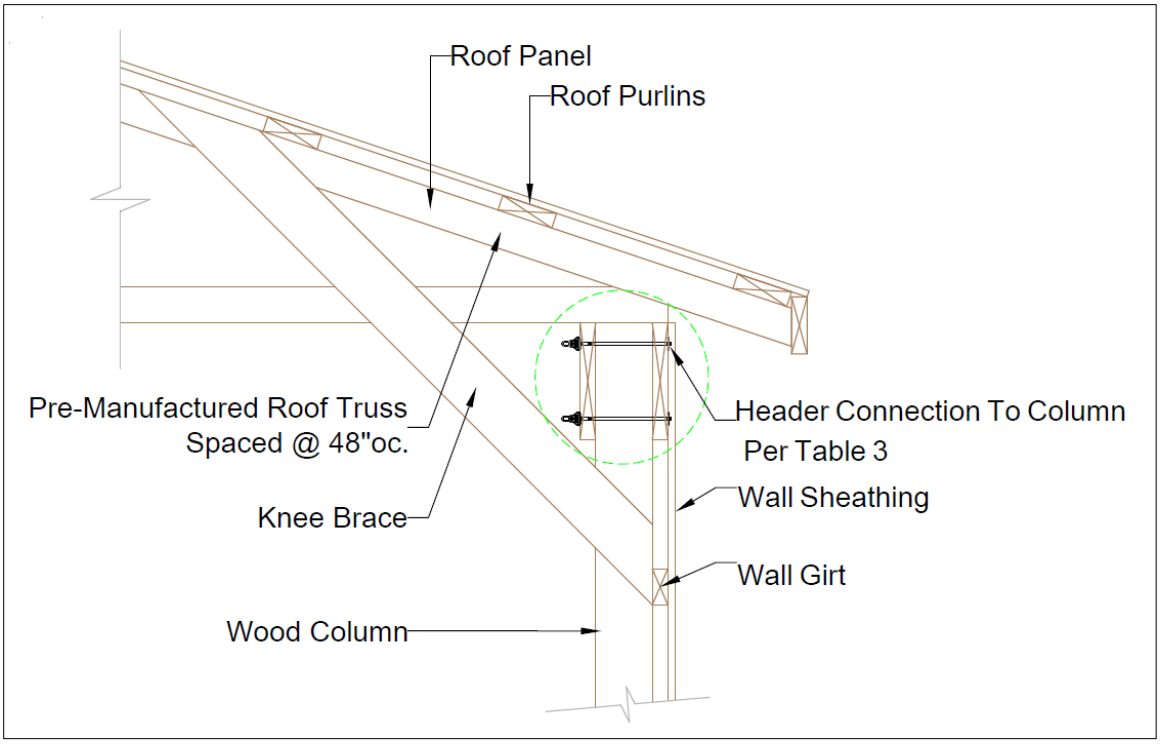

Figure 3. ThruLOK Screw Bolt Fastening System – Roof to Double Header Detail

6.2.2 For the header configuration shown in **Figure 3**, it is assumed that the interior header will receive seventy five percent (75%) of the load and exterior header will receive twenty-five percent (25%) of the load.

6.2.3 **Table 3** provides the number of ThruLOK Screw Bolt Fastening System fasteners needed for various snow loading conditions.

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Table 3. Two-Beam Shear – Truss Bearing on Two Headers Connected to One Column[1,3,4,5]

Building Width Including 1' Overhang Each End (ft)	Species[2] (Pressure Treated)	Truss Spacing (ft)	Column Spacing (ft)	Number of 9½" ThruLOK Screw Bolt Fastening System Fasteners per Header		
				Loading (Snow + TC Dead + BC Dead) (psf)		
				20 + 10 + 5 = 35	30 + 10 + 5 = 45	40 + 10 + 5 = 55
24	Hem-Fir	4	8	4	4	6
	Douglas-Fir			4	4	4
	Mixed Southern Yellow Pine			4	4	4
28	Hem-Fir	4	8	4	6	6
	Douglas-Fir			4	4	6
	Mixed Southern Yellow Pine			4	4	4
32	Hem-Fir	4	8	4	6	6
	Douglas-Fir			4	4	6
	Mixed Southern Yellow Pine			4	4	6
36	Hem-Fir	4	8	6	6	8
	Douglas-Fir			4	6	6
	Mixed Southern Yellow Pine			4	6	6
40	Hem-Fir	4	8	6	6	8
	Douglas-Fir			4	6	8
	Mixed Southern Yellow Pine			4	6	6
44	Hem-Fir	4	8	6	8	8
	Douglas-Fir			6	8	8
	Mixed Southern Yellow Pine			4	6	8
48	Hem-Fir	4	8	6	8	-
	Douglas-Fir			6	6	8
	Mixed Southern Yellow Pine			6	6	8
52	Hem-Fir	4	8	6	8	-
	Douglas-Fir			6	8	8
	Mixed Southern Yellow Pine			6	6	8

SI: 1 in = 25.4 mm, 1-psf = 0.0479 kN/m²

1. Fastener designs were evaluated under the NDS wet service (also known as wet use) conditions to account for the effects of higher header and/or column moisture content.
2. Lumber used shall be either treated Southern Pine, treated Hem-Fir, or treated Douglas Fir.
3. Connection design assumes that the header supports one truss located at midspan of the header. Trusses located at the columns shall be supported by bearing on the column and shall not apply loads to the header.
4. See Section 6.3 for information on minimum required edge and end distances.
5. Design of all wood members (e.g., columns/posts, headers, trusses, girts) and connections not shown are by others.

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6.3 **Figure 4** and **Table 4** provide the required edge distances, end distances, and spacing for the applications described in this report.

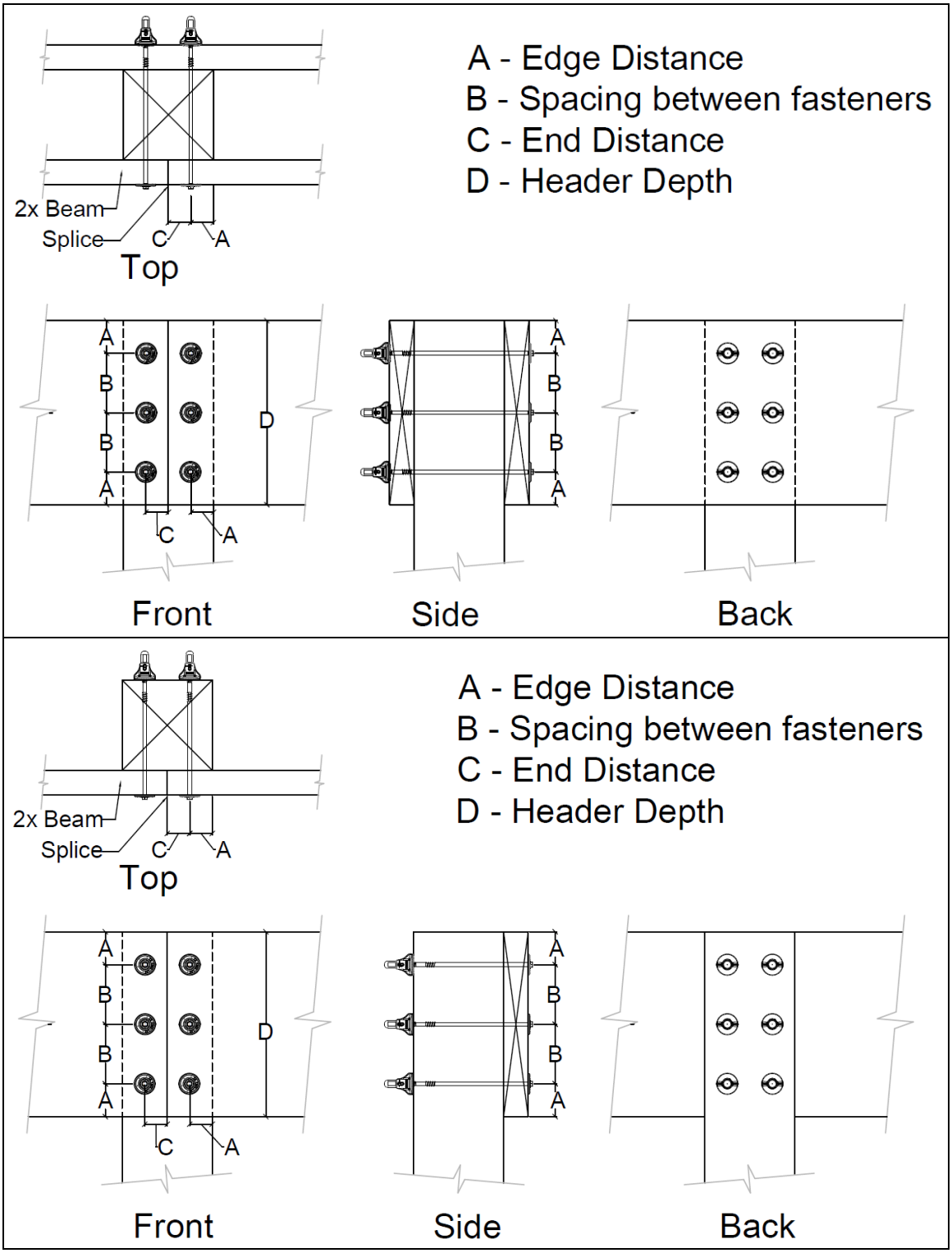

Figure 4. ThruLOK Screw Bolt Fastening System – Edge, End, and Spacing Requirements

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Table 4. Fastener Edge, End Distance, and Spacing for the ThruLOK Screw Bolt Fastening System

Fastener	Beam Size	Number of Fasteners	Header Member		Column Member		Fastener Spacing Between Rows (in)
			Minimum Edge Distance (in)	Minimum End Distance (in)	Minimum Edge Distance (in)	Minimum End Distance (in)	
8" and 9 1/2" ThruLOK Screw Bolt Fastening System	2 x 8	4	2	1	Greater of 1" or 1/2" spacing between rows	2	3 1/4
		6					1 5/8
	2 x 10	4	2	1	Greater of 1" or 1/2" spacing between rows	2	5 1/4
		6					2 5/8
		8					1 3/4
	2 x 12	4	2	1	Greater of 1" or 1/2" spacing between rows	2	5 5/8
		6					3 5/8
		8					2 1/2
SI: 1 in = 25.4 mm							

6.4 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[27]

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.[28]

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.[29]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 ThruLOK Screw Bolt Fastening System complies with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 The ThruLOK Screw Bolt Fastening System was evaluated to determine its ability to provide code complying attachment of horizontal roof headers to vertical columns (posts) to resist roof to header to column gravity loads and the associated load paths.

8.1.1.1 The evaluation includes both single header and double header configurations.

8.2 Use of the ThruLOK Screw Bolt Fastening System for other connections is outside the scope of this report.

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8.3 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[30] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[31] respectively.

8.4 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 *Installation Procedure*

9.3.1 The following installation instructions provide the general method of installing the FastenMaster ThruLOK Screw Bolt Fastening System for use with the specific applications as described in **Section 6**.

9.3.2 Place the ThruLOK Screw Bolt Fastening System washer on the ThruLOK screw with the teeth of the washer facing away from the head of the fastener (toward the threads of the fastener).

9.3.3 Using a high-torque, $^1/_2$" variable-speed drill (18V, if cordless) with a $^5/_{16}$" hex-head driver bit, drive the ThruLOK Screw Bolt Fastening System fastener through the framing until the washer and hex head are just above the wood surface (approximately $^1/_4$"), and the point of the screw protrudes out of the other side of the connection.

9.3.4 Thread the ThruLOK nut onto the point of the fastener and hand tighten the nut until it is flush with the wood.

9.3.5 Tighten the screw with the drill-driver.

9.3.6 The point of the fastener must engage in the ThruLOK nut to the *"MIN"* line or beyond (see **Figure 1**).

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9.3.7 A diagram of the installation of a header with a splice on the exterior side of a column is illustrated in **Figure 5**.

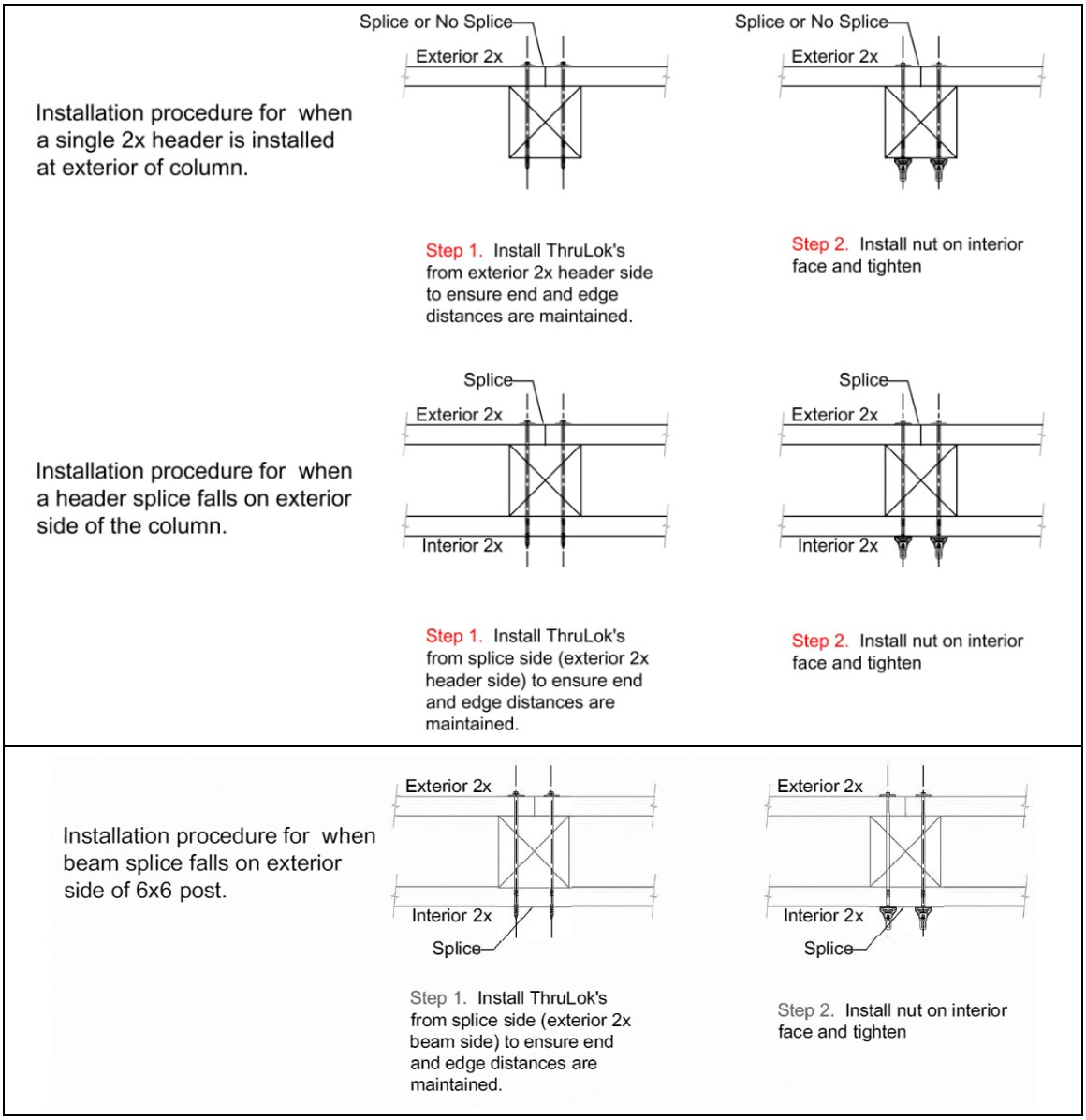

Figure 5. Installation of Header with Splice on Exterior Side of Column

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9.3.8 A diagram showing the installation of a header with a splice on the interior side of a column is denoted in **Figure 6**.

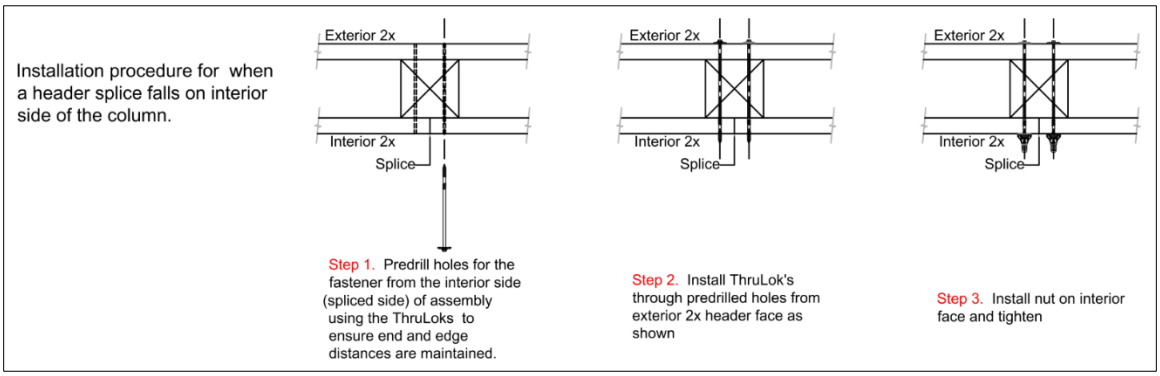

Figure 6. Installation of Header with Splice on Interior Side of Column

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 Lateral resistance testing in accordance with ASTM D1761

10.1.2 Bending yield testing in accordance with ASTM F1575

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.[32]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for ThruLOK Screw Bolt Fastening System on the DrJ Certification website.

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11 Findings

11.1 As outlined in **Section 6**, the ThruLOK Screw Bolt Fastening System has 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, the ThruLOK Screw Bolt Fastening System shall be approved for the following applications:

11.2.1 Fastening roof headers to columns for the conditions specified in **Table 2** and **Table 3**.

11.3 Unless exempt by state statute, when the ThruLOK Screw Bolt Fastening System is 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 FastenMaster.

11.5 IBC Section 104.2.3[33] (IRC Section R104.2.2[34] and IFC Section 104.2.3[35] 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:**[36] Building regulations require that the building official shall accept duly authenticated reports.[37]

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.[38]

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 This report and the installation instructions, when required by a code official, shall be available at the time of permit application.

12.3 Installation shall comply with this report and the manufacturer installation instructions. In the event of a conflict between this report and the manufacturer installation instructions, the more restrictive shall govern.

12.4 For conditions not covered in this report, connections shall be designed in accordance with generally accepted engineering practice.

12.5 Manufacturer installation instructions shall be followed as provided in **Section 9** and at www.fastenmaster.com/products/thrulok-through-bolt-replacement.

12.6 The ThruLOK Screw Bolt Fastening System is produced in Agawam, Massachusetts.

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12.7 The fasteners are identified by the designation *"ThruLOK"* on the packaging. The head of the ThruLOK Screw Bolt Fastening System fastener is marked with an *"FT"* followed by a number corresponding to the length of the fastener.

12.7.1 The packaging shall include the FastenMaster name and address, fastener size, third-party inspection agency, and this report number.

12.8 The ThruLOK Screw Bolt Fastening System is produced under a quality control program subject to periodic inspections in accordance with IBC Section 1703.5.2.

12.9 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:

12.9.1 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.

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

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

12.9.4 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.

12.9.5 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.

12.9.6 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.

12.10 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.

12.11 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).

12.12 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 ThruLOK Screw Bolt Fastening System, as 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.fastenmaster.com/products/thrulok-through-bolt-replacement.

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.

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Notes

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

2 2021 IRC Section R317.3.1

3 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.

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

6 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

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

8 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.

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

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

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

16 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

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

18 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

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, 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.

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/mississippi/ibc-2024/chapter/2/definitions#listed AND https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#labeled

27 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4

28 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

29 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

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[30] 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.

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

[32] 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

[33] 2021 IBC Section 104.11

[34] 2021 IRC Section R104.11

[35] 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

[36] 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.

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

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

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