Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 1105-02

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FastenMaster® TimberLOK® Fasteners to Provide Uplift and Lateral Resistance to Trusses and Rafters Attached to the Tops of Walls

Trade Secret Report Holder:

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CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES Section: 06 00 90 - Wood and Plastic Fastenings

1 Innovative Product Evaluated[1]

1.1 FastenMaster TimberLOK Heavy Duty Wood Screws

2 Product Description and Materials

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

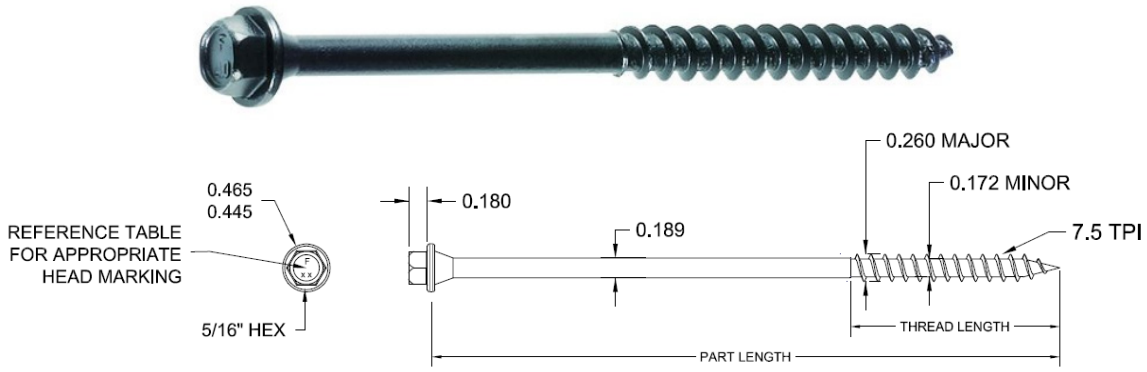

Figure 1. TimberLOK Heavy Duty Wood Screws

2.2 TimberLOK Heavy Duty Wood Screws are manufactured using a standard cold-formed process followed by a heat-treating process from 1022 carbon steel or 10B21 wire conforming to ASTM A510 with a minimum ultimate tensile strength of 60-ksi.

2.3 The specifications of the fasteners evaluated in this report are shown in **Table 1**.

Table 1. Fastener Specifications for Evaluated TimberLOK Heavy Duty Wood Screws

Product Name	Fastener Designation[1]	Head Marking	Dimension (in)					Bending Yield Strength,[4] F_{yb} (psi)	Allowable Fastener Strength (lb)	
			Fastener Length[2]	Thread Length[3]	Shank Diameter	Minor Diameter	Major Diameter		Tensile	Shear[5]
TimberLOK Heavy Duty Wood Screws 4"	TLOK04	F4.0	4.0	2.0	0.189	0.172	0.260	190,600	1,300	940
TimberLOK Heavy Duty Wood Screws 6"	TLOK06	F6.0	6.0							

SI: 1 in = 25.4 mm

1. Fastener designations are found on the product packaging. Individual fasteners may be marked according to this table.
2. Fastener length is measured from the bottom-side of the head to the tip.
3. Thread length includes the tapered tip.
4. Bending yield strength determined in accordance with ASTM F1575 and based the minor diameter.
5. Allowable shear strength values apply to the unthreaded shank portion of the fastener.

2.4 *Corrosion Resistance*

2.4.1 TimberLOK Heavy Duty Wood Screws have a proprietary coating, which may be used as an alternative 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]).

2.4.1.1 TimberLOK Heavy Duty Wood Screws may be used where screws are required to exhibit corrosion resistance when exposed to adverse environmental conditions that are subject to the limitations of this report. TimberLOK Heavy Duty Wood Screws have been evaluated for use in wood treated with waterborne Alkaline Copper Quaternary, type D (ACQ-D) preservatives with a retention of 0.40-pcf (6.4 kg/m^3).

2.5 *Pressure-Preservative Treated (PPT) Wood Applications*

2.5.1 TimberLOK Heavy Duty Wood Screws, with the proprietary coating, are recognized for use in PPT lumber provided the conditions set forth by the PPT lumber manufacturer be met, including appropriate strength reductions.

2.6 *Fire-Retardant Treated (FRT) Wood Applications*

2.6.1 TimberLOK Heavy Duty Wood Screws, with the proprietary coating, are recognized for use in FRT lumber provided the conditions set forth by the FRT lumber manufacturer be met, including appropriate strength reductions.

2.7 TimberLOK Heavy Duty Wood Screws are approved for use in interior applications.

2.8 In-plant quality control procedures, under which the TimberLOK Heavy Duty Wood Screws are manufactured, are audited through an inspection process performed by an approved agency.

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

3 Definitions[4]

3.1 New Materials[5] 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.[6] The design strength and permissible stresses shall be established by tests[7] and/or engineering analysis.[8]

3.2 Duly authenticated reports[9] and research reports[10] are test reports and related engineering evaluations that are written by an approved agency[11] and/or an approved source.[12]

3.2.1 These reports utilize 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).[13]

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.[14]

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[15] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[16] 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[17] 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.[18]

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.[19] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[20] 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.[21]

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

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.[23]

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.[24]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[25] and Part 3280[26] 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®*

4.2.3 *FBC-B—20, 23: Florida Building Code[27] – Building (FL 47410)*

4.2.4 *FBC-R—20, 23: Florida Building Code[27] – Residential (FL 47410)*

4.3 *Standards*

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

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

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

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

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

4.3.6 *AWC TR 12: General Dowel Equations for Calculating Lateral Connection Values*

5 Listed[28]

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 TimberLOK Heavy Duty Wood Screws are used to attach minimum $1^1/_2$" wide wood trusses, sawn lumber rafters, or Structural Composite Lumber (SCL) rafters to wood walls that meet the requirements of IBC Section 2308 or IRC Section R602 for wood structural framing members. The fasteners provide resistance to uplift or lateral loads applied parallel and/or perpendicular to the wall or structural framing member.

6.1.1 Walls shall consist of either a single or double top plate designed in accordance with IBC Section 2308.9.3.2[29] or IRC Section R602.3.2.

6.1.2 See **Table 2** for the design procedure and the TimberLOK Heavy Duty Wood Screws allowable design values.

6.1.3 See **Section 9** for TimberLOK Heavy Duty Wood Screws installation requirements.

6.1.4 TimberLOK Heavy Duty Wood Screws are used in buildings requiring wind design in accordance with IBC Section 1609 or IRC Section R301.2.1.

6.1.5 TimberLOK Heavy Duty Wood Screws are permitted in buildings requiring seismic analysis in accordance with IBC Section 1613 or IRC Section R301.2.2.

6.1.5.1 TimberLOK Heavy Duty Wood Screws are permitted to be used to resist lateral and uplift forces in truss, rafter, or joist to top-plate connections for buildings located in Seismic Design Categories A through F.

6.1.5.2 In accordance with IBC Section 1604.8.2, walls that provide vertical load-bearing resistance or lateral shear resistance for a portion of the structure, shall be designed to be anchored to the roof, to all floors, and to members that provide lateral support for the wall, or that are supported by the wall. These types of connections shall be capable of resisting the horizontal forces specified in Section 1.4.4 of ASCE 7 for walls of structures assigned to Seismic Design Category A and to Section 12.11 of ASCE 7 for walls of structures assigned to all other seismic design categories.

6.2 *Design Concepts and Allowable Design Loads*

6.2.1 Allowable design loads for uplift and lateral resistance (parallel [F1] and perpendicular [F2] to the plane of the wall or structural member, see **Figure 2**) are provided in **Table 2** for TimberLOK Heavy Duty Wood Screws.

6.2.2 Allowable design loads are listed for selected load durations and specific gravities and are applicable to fasteners installed in accordance with the procedures described in **Section 9**.

6.2.3 Table values are applicable for both single and double top plate applications, as shown in **Figure 3**.

Table 2. Allowable Loads for Uplift and Lateral Resistance for Selected Load Durations and Wood-Specific Gravities Using TimberLOK Heavy Duty Wood Screws

Fastener Designation	Minimum Penetration into Truss/Rafter/Wood Structural Support (in)	Species Group[1,2,3] (Specific Gravity)	Uplift[3,4,5] (lb)			Lateral[4,5] (lb)					
						F1 Parallel-to-Wall			F2[3] Perpendicular-to-Wall		
			1.0	1.33	1.60	1.0	1.33	1.60	1.0	1.33	1.60
TimberLOK Heavy Duty Wood Screws TLOK04 or TLOK06	2	Southern Pine (0.55)	390	520	620	255	340	410	280	375	450
		Douglas Fir-Larch (0.50)	340	450	540	240	320	385	265	350	425
		Spruce-Pine-Fir/ Hem-Fir (0.42)	260	350	420	210	280	340	230	305	370

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

1. Wood truss and rafter members shall be a minimum of 2" nominal thickness. Design of truss and rafter members to be by others.
2. Equivalent specific gravity of SCL shall be equal to or greater than the specific gravities provided in this table. Refer to product information from SCL manufacturer.
3. Uplift and F2 lateral load values have been adjusted using Hankinson's equation per the NDS.
4. Allowable uplift and lateral loads are applicable for wood framing members having the same published specific gravity. For applications involving members with different specific gravities, use the allowable load corresponding to the lowest specific gravity.
5. Allowable uplift and lateral loads for applications in which the controlling load duration is two months (e.g., 115%), or seven days (e.g., 125%), may be obtained by multiplying the corresponding tabular value in the column marked *"1.0"* by 1.15 or 1.25, respectively.

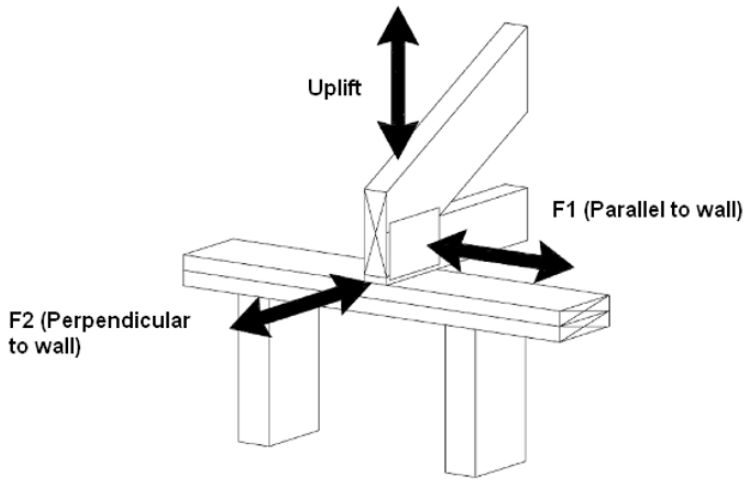

Figure 2. Uplift and Lateral Load Orientations

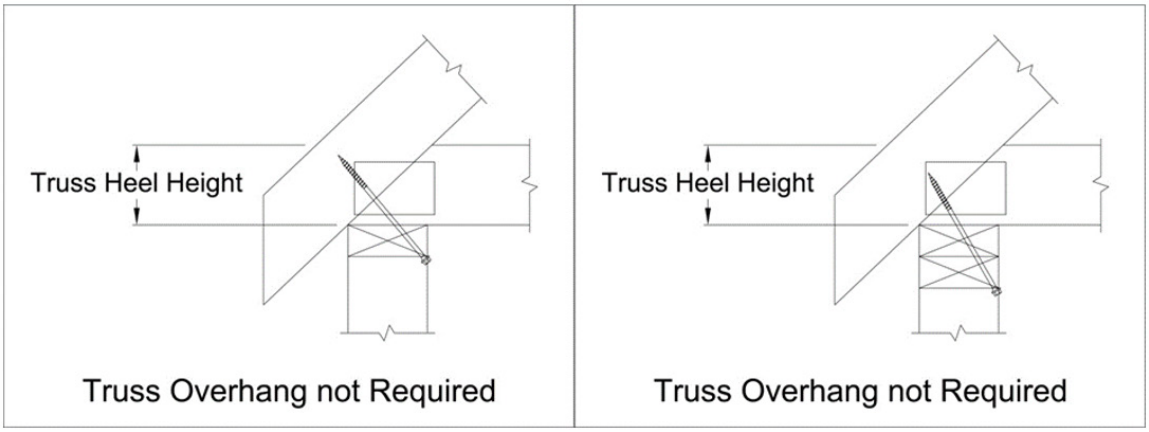

Figure 3. Installation of TimberLOK Heavy Duty Wood Screws on Walls with Single or Double Top Plates

6.2.4 Where it is anticipated that loads will be applied to a single fastener simultaneously in more than one direction, additional evaluation using accepted engineering practice is required to account for the combined effect of these loads.

6.2.5 Consult a professional engineer as needed for complex design conditions.

6.3 TimberLOK Heavy Duty Wood Screws are permitted for use in buildings and structures located within High Velocity Hurricane Zone (HVHZ) regions provided that the fasteners are not exposed to the outdoor environment.

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[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 TimberLOK Heavy Duty Wood Screws comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 TimberLOK Heavy Duty Wood Screws were evaluated using their tested allowable design values as an alternate means of attaching wood trusses and rafters to the tops of walls to provide uplift and lateral load resistance. The following conditions were evaluated:

8.1.1.1 Withdrawal strength of TimberLOK Heavy Duty Wood Screws for use as an alternative to toenail connections, metal hurricane and seismic clips/straps, or nails in tension (uplift) loaded applications.

8.1.1.2 Shear strength of TimberLOK Heavy Duty Wood Screws for use as an alternative to toenail connections, hurricane and seismic clips/straps, or nails in shear (lateral) loaded applications either parallel or perpendicular to wood grain.

8.1.1.3 Head pull through strength of TimberLOK Heavy Duty Wood Screws for use as an alternative to toenail connections, hurricane and seismic clips/straps, or nails in tension (uplift) loaded applications.

8.1.1.4 Corrosion resistance in accordance with ASTM B117 (modified with freshwater instead of saltwater exposure) for use as an alternative to fasteners and connectors prescribed in IBC Section 2304.10.6[33] and IRC Section R304.3.[34]

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, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[35] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[36] 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 *General*

9.3.1 TimberLOK Heavy Duty Wood Screws may be installed without pre-drilling lead holes.

9.3.1.1 Lead holes may be bored in accordance with NDS Section 12.1.5 were wood is prone to splitting.

9.4 *Installation Where Double Wall Top Plates are Used*

9.4.1 *Upward from the Bottom of the Top Plates:*

9.4.1.1 Select TimberLOK Heavy Duty Wood Screws with a length sufficient to fully embed the 2" threaded portion of the fastener into the truss, rafter, or SCL.

9.4.1.2 Install one (1) fastener upward through the wall top plates or wood structural framing member and into the center of the truss, rafter, or SCL, as shown in **Figure 4**.

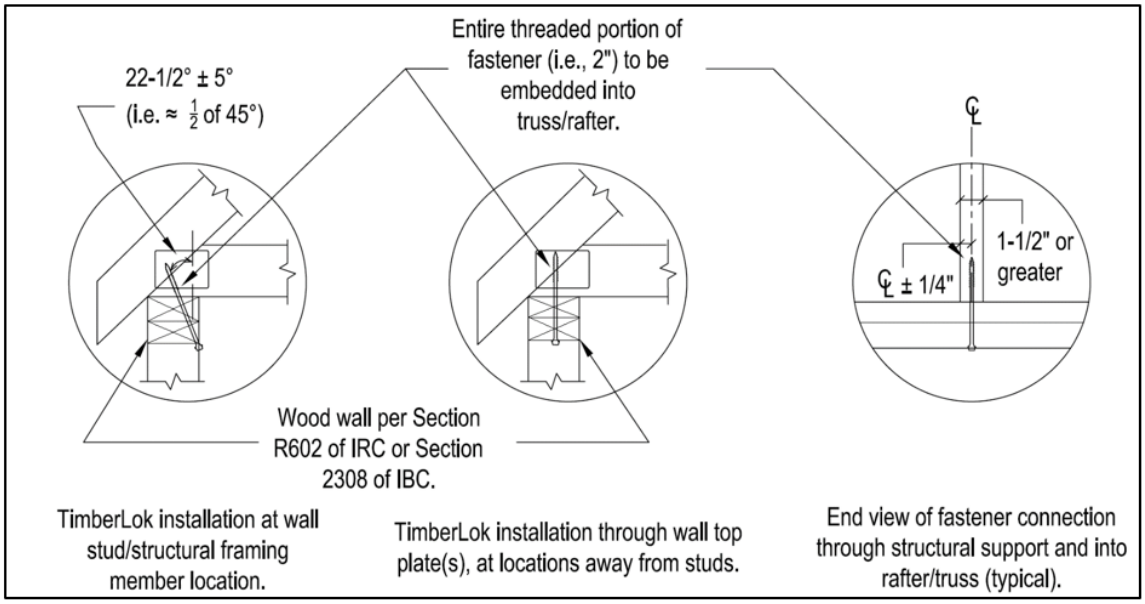

Figure 4. Fastener Orientation Requirements for Attaching Wood Trusses, Rafters, or SCL from Below to the Top of a Wood Wall or Structural Framing Member

9.4.1.2.1 If the truss, rafter, or SCL is located directly over a wall stud, insert the fastener at the joint between the inside top edge of the stud and the inside bottom edge of the top plate at an upward angle from vertical of 20° to 30°, as shown in **Figure 4**.

9.4.1.2.2 If the truss, rafter, or SCL is located between the wall studs (double top plate application only), insert the fastener near the middle of the bottom face of the top plate(s) straight upward into the truss, rafter, or SCL, as shown in **Figure 4**.

9.4.1.2.3 If the truss, rafter, or SCL is located on top of a wood beam or header, insert the fastener approximately 3" below the top edge of the beam or header at an upward angle from vertical of 20° to 30°, as shown in **Figure 4**.

9.4.1.3 Locate the fastener in line with the truss, rafter, or SCL above so that it penetrates within ±1/4" of the centerline of the narrow edge of the truss, rafter, or SCL, as shown in **Figure 4**.

9.4.1.4 Use a 1/2" low RPM/high torque drill to drive the fastener head flush with the surface of the wall framing or wood structural framing member.

9.4.2 *Downward from Top of Truss, Rafter, or SCL:*

9.4.2.1 Select a fastener with a length sufficient to fully embed the 2" threaded portion into the wall top plates or wood structural framing member.

9.4.2.2 Install one (1) fastener at a downward angle from vertical of 20° to 30° through the center of the truss, rafter, or SCL and into the wall top plate(s) or wood structural framing member, as shown in **Figure 5**.

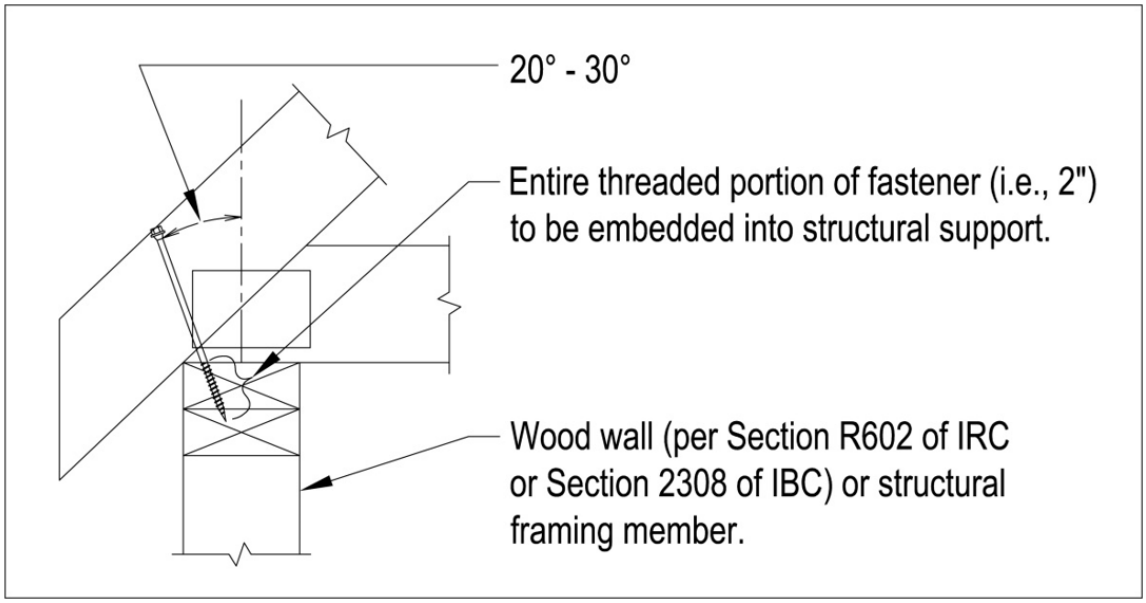

Figure 5. Fastener Orientation Requirements for Attaching Wood Trusses, Rafters, or SCL from Above to the Top of a Wood Wall or Structural Framing Member

9.4.2.3 Locate the fastener so that it penetrates within ±1/4" of the centerline of the narrow edge of the truss, rafter, or SCL and at or near the center of the wall top plate(s) or wood structural framing member.

9.4.2.4 Use a 1/2" low RPM/high torque drill to drive the fastener head flush with the surface of the wall framing or wood structural framing member.

9.5 *Installation Where Single Top Plates are Used*

9.5.1 Select TimberLOK Heavy Duty Wood Screws with a length sufficient to fully embed the 2" threaded portion of the fastener into the truss, rafter, or SCL.

9.5.2 Where the truss, rafter, or SCL is located directly over a wall stud, insert the fastener at the joint between the inside top edge of the stud and the inside bottom edge of the top plate at an upward angle from vertical of 20° to 30°, as shown in **Figure 6**.

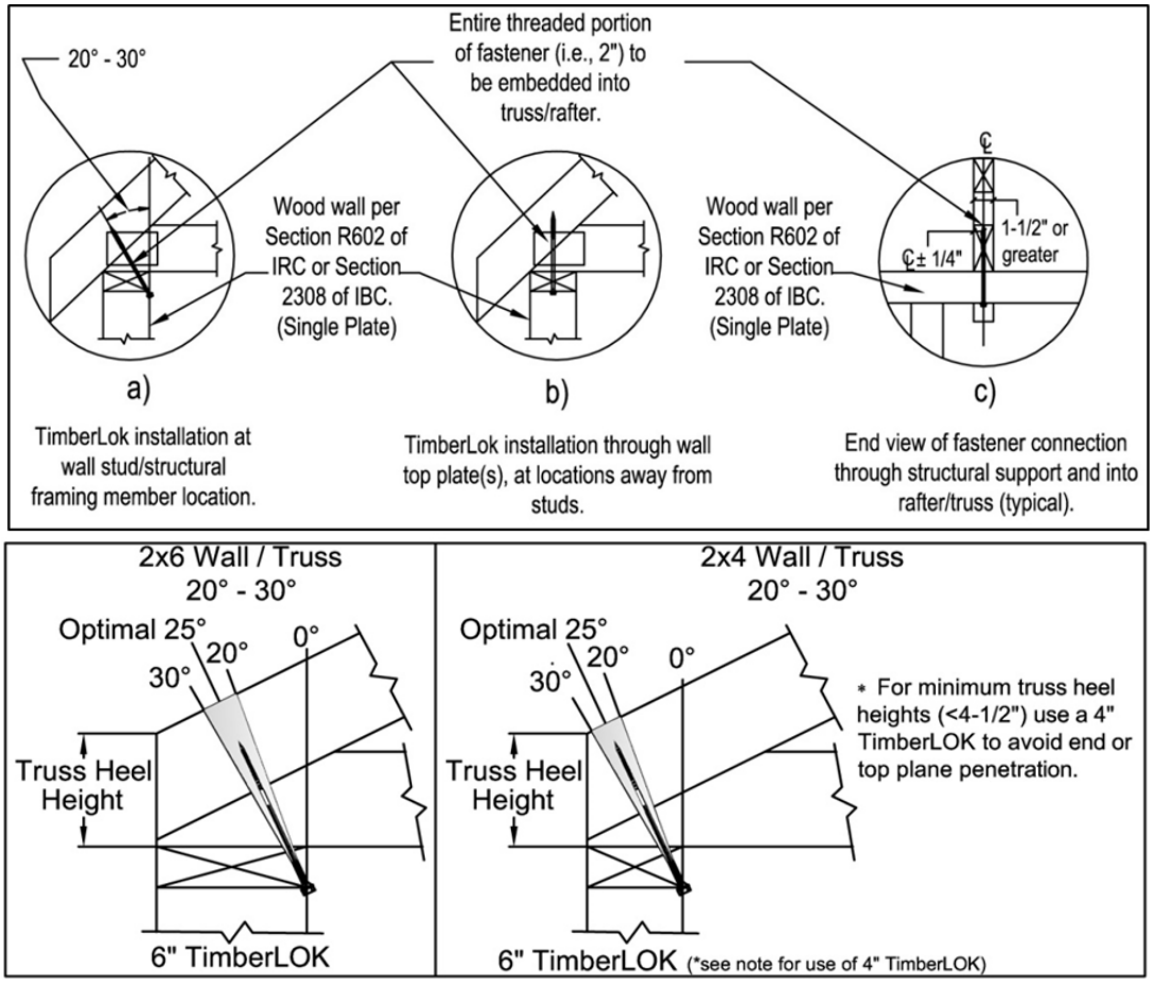

Figure 6. Installation of TimberLOK Heavy Duty Wood Screws into a Single Top Plate

9.5.3 Ensure that the angle is sufficient to prevent the fastener from protruding out of the truss, rafter, or SCL.

9.5.4 Locate the TimberLOK Heavy Duty Wood Screws in line with the truss, rafter, or SCL above, so that it penetrates within ±1/4" of the centerline of the narrow edge of the truss, rafter, or SCL.

9.5.5 Use a 1/2" low RPM/high torque drill to drive the fastener head flush with the surface of the wall framing or wood structural framing member.

9.5.6 Where the centerline of the truss, rafter, or SCL is not located directly over the stud, install the TimberLOK Heavy Duty Wood Screws vertically up through the top plate and into the truss, rafter, or SCL as shown in **Figure 6**.

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 Edge and end distances verification testing in accordance with ASTM D1761

10.1.2 TimberLOK Heavy Duty Wood Screws were evaluated for head pull through and withdrawal for uplift capacity.

10.1.3 Wall assemblies constructed with TimberLOK Heavy Duty Wood Screws were evaluated for structural performance when used as a truss hold down.

10.1.4 Wall assemblies constructed with TimberLOK Heavy Duty Wood Screws were evaluated for structural performance when loaded laterally.

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.[37]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for TimberLOK Heavy Duty Wood Screws on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, TimberLOK Heavy Duty Wood 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, TimberLOK Heavy Duty Wood Screws shall be approved for the following applications:

11.2.1 Use as an acceptable alternative to toenail connections, metal hurricane, and seismic clips/straps, or nails to resist the uplift and lateral loads as provided for in **Table 2**.

11.2.2 Use as an acceptable alternative to provide resistance to uplift loads due to wind negative pressure applied from the truss above lifting up on the top plate of the wall, per **Table 2**.

11.2.3 Use as an acceptable alternative to provide resistance to lateral loads due to wind pressure applied parallel or perpendicular to the wall, per **Table 2**.

11.2.4 TimberLOK Heavy Duty Wood Screws with the proprietary coating are approved for use in:

11.2.4.1 Pressure-treated (ACQ) lumber, provided the conditions set forth by the pressure-treated lumber manufacturer be met, including appropriate strength reductions.

11.2.4.2 Fire-retardant treated lumber, provided the conditions set forth by the fire-retardant treated lumber manufacturer be met, including appropriate strength reductions.

11.2.4.3 Areas with exposure to freshwater.

11.2.4.3.1 Allowable loads shall be adjusted with the wet service factor, C_M, where applicable.

11.3 Unless exempt by state statute, when TimberLOK Heavy Duty Wood 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 FastenMaster.

11.5 IBC Section 104.2.3[38] (IRC Section R104.2.2[39] and IFC Section 104.2.3[40] 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:**[41] Building regulations require that the building official shall accept duly authenticated reports.[42]

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.[43]

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 TimberLOK Heavy Duty Wood Screws shall be installed in accordance with this report and the manufacturer installation instructions.

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

12.4 Loads applied shall not exceed those recommended by the manufacturer or as defined in this report.

12.5 Structural framing members (e.g., wood, masonry, concrete, steel, etc.) connected with TimberLOK Heavy Duty Wood Screws shall be designed in accordance with the requirements of their specific design standards/specifications as referenced in the building code adopted by the jurisdiction in which the project is to be constructed.

12.6 Use of TimberLOK Heavy Duty Wood Screws shall be limited to dry service conditions in treated or untreated wood.

12.6.1 Exposure to freshwater water is permitted. Wet service factor shall be applied to the listed allowable values in **Section 6**, as applicable.

12.6.2 Use of TimberLOK Heavy Duty Wood Screws in areas where exposure to saltwater or saltwater spray is outside the scope of this report.

12.7 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:

12.7.1 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.

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

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

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

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

12.7.6 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.

12.7.7 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.

12.8 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.

12.9 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).

12.10 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 TimberLOK Heavy Duty Wood 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 www.fastenmaster.com.

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.

Issue Date: March 26, 2025
Subject to Renewal: April 1, 2027

FBC Supplement to Report Number 1105-02

REPORT HOLDER: FastenMaster

1 Evaluation Subject

1.1 FastenMaster TimberLOK Heavy Duty Wood Screws

2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show TimberLOK Heavy Duty Wood Screws, recognized in Report Number 1105-02, have also been evaluated for compliance with the codes listed below as adopted by the Florida Building Commission.

2.2 *Applicable Code Editions*

2.2.1 *FBC-B—20, 23: Florida Building Code – Building (FL 47410)*

2.2.2 *FBC-R—20, 23: Florida Building Code – Residential (FL 47410)*

3 Conclusions

3.1 TimberLOK Heavy Duty Wood Screws, described in Report Number 1105-02, comply with the FBC-B and FBC-R and are subject to the conditions of use described in this supplement.

3.2 Where there are variations between the IBC and IRC and the FBC-B and FBC-R applicable to this report, they are listed here:

3.2.1 FBC-B Section 104 is reserved.

3.2.2 FBC-B Section 110.4 is reserved and replaces IBC Section 110.4.

3.2.3 FBC-B Section 104.6 is reserved and replaces IBC Section 104.4.

3.2.4 FBC-B Section 104.11 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.5 FBC-B Section 105.3 replaces IBC Section 105.3.

3.2.6 FBC-B Section 105.3.1 replaces IBC Section 105.3.1.

3.2.7 FBC-B Section 110.3 replaces IBC Section 110.3.

3.2.8 FBC-B Section 1604.8.2 replaces IBC Section 1604.8.2.

3.2.9 FBC-B Section 1613 is reserved and replaces IBC Section 1613.

3.2.10 FBC-B Section 1707.1 replaces IBC Section 1707.1.

3.2.11 FBC-B Section 2304.10.5 replaces IBC Section 2304.10.6.

3.2.12 FBC-B Section 2306.1 replaces IBC Section 2306.1.

3.2.13 FBC-B Section 2306.3 replaces IBC Section 2306.3.

3.2.14 FBC-B Section 2308 is reserved and replaces IBC Section 2308 and IBC Section 2308.9.3.2.

3.2.15 FBC-R Section R104 and Section R109 are reserved.

3.2.16 FBC-R Section R301.2.1 replaces IRC Section R301.2.1.

3.2.17 FBC-R Section R301.2.2 is reserved and replaces IRC Section R301.2.2.

3.2.18 FBC-R Section R317.3 replaces IRC Section R304.3.

3.2.19 FBC-R Section R602 replaces IRC Section R602.

3.2.20 FBC-R Section R602.3.2 is reserved replaces IRC Section R602.3.2.

4 Conditions of Use

4.1 TimberLOK Heavy Duty Wood Screws, described in Report Number 1105-02, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 1105-02.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of FBC-B Chapter 16 and Chapter 17, as applicable.

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 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.

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

6 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

7 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

8 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

9 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.

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

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

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

13 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.

14 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/

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

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

17 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

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

19 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

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

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

22 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.

23 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

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

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

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

27 All references to the FBC-B and FBC-R are the same as the 2024 IBC and 2024 IRC unless otherwise noted in the Florida Supplement at the end of this report.

28 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

29 2021 IBC Section 2308.5.3.2

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] 2018 IBC Section 2304.10.5

[34] 2021 IRC Section R317.3

[35] 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.

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

[37] 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

[38] 2021 IBC Section 104.11

[39] 2021 IRC Section R104.11

[40] 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

[41] 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.

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

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