Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

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Use of FastenMaster® FrameFAST™ Fasteners to Provide Top Plate Roll 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 FrameFAST Structural Wood Screws (FrameFAST Fasteners)

2 Product Description and Materials

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

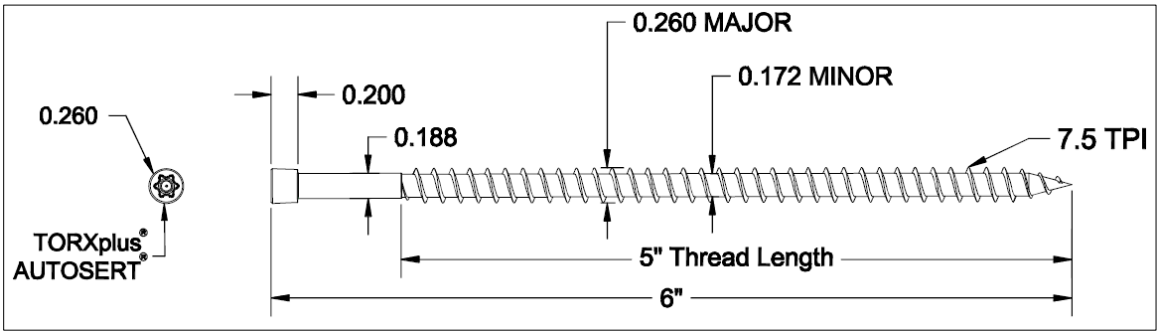

Figure 1. FrameFAST Fasteners Specification (FMFF006)

2.2 FrameFAST Fasteners are manufactured with modified 10B21 carbon steel wire conforming to the manufacturer specifications and are coated with a proprietary finish.

2.3 FrameFAST Fasteners are manufactured using a standard cold-formed process followed by a heat-treating process.

2.4 FrameFAST Fasteners are approved for use in fire-retardant treated lumber, provided the conditions set forth by the fire-retardant treated lumber manufacturer be met, including appropriate strength reductions.

2.5 FrameFAST Fasteners are approved for use in interior and exterior conditions and in pressure-treated wood.

2.6 In-plant quality control procedures, under which the FrameFAST Fasteners are manufactured, are audited through an inspection process performed by an approved agency.

2.7 FrameFAST Fasteners are described in **Table 1**.

Table 1. FrameFAST Fasteners Specifications

Fastener	Fastener Designation	Length[1] (in)		Head (in)		Diameter (in)			Bending Yield Strength,[2] F_{yb} (psi)	Allowable Fastener Strength[2] (lb)	
		Fastener	Thread	Diameter	Height	Shank	Minor (Root)	Major (Thread)		Tensile	Shear
FrameFAST Fasteners	FMFF006	6	5	0.260	0.200	0.188	0.172	0.260	166,600	1,205	930

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

1. Fastener length is measured from the top of the head to the tip. Thread length includes tapered tip (see **Figure 1**).
2. Bending yield, tension, and shear values determined at minor root diameter.

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

3 Definitions[2]

3.1 New Materials[3] 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.[4] The design strength and permissible stresses shall be established by tests[5] and/or engineering analysis.[6]

3.2 Duly authenticated reports[7] and research reports[8] are test reports and related engineering evaluations that are written by an approved agency[9] and/or an approved source.[10]

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).[11]

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.[12]

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

3.6 The regulatory authority shall enforce[14] 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[15] 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.[16]

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

4 Applicable Local, State, and Federal Approvals; Standards; Regulations[20]

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.[21]

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.[22]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[23] and Part 3280[24] 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 *ANSI/AWC SDPWS: Special Design Provisions for Wind and Seismic*

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

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

4.3.5 *ICC 600: Standard for Residential Construction in High-wind Region*

5 Listed[25]

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 *General Code Requirements*

6.1.1 Neither the IBC nor the IRC contain requirements that specifically address the potential for Top Plate Roll (TPR) due to an eccentric load path.

6.1.2 There are no code-defined deflection requirements for deformations caused by uplift.

6.1.3 The design for uplift is an Allowable Stress Design (ASD) load consideration. Uplift loads must be resisted by the fastening system used.

6.2 *IRC Requirements*

6.2.1 The connection, per IRC Table R602.3(1), is defined in **Table 2**.

Table 2. Excerpt from IRC Table R602.3(1) Fastener Schedule for Structural Members

Item	Description of Building Elements	Number and Types of Fastener	Spacing of Fasteners
6	Rafter or Roof Truss to Plate	3-16d Box Nails ($3^1/_2$" x 0.135"); or 3-10d Common Nails (3" x 0.148"); or 4-10d Box (3" x 0.128"); or 4-3" x 0.131" Nails	2 Toenails on One Side and 1 Toenail on Opposite Side of Each Rafter or Truss[1]

SI: 1 in = 25.4 mm

1. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toenails on one side of the rafter and toenails from the ceiling joist to top plate in accordance with this schedule. The toenail on the opposite side of the rafter shall not be required.

6.2.2 IRC Section R802.11 discusses the roof to wall uplift resistance in terms of resistance to load with no deflection criteria.

> **R802.11 Roof Tie Uplift Resistance**. Roof assemblies shall have uplift resistance in accordance with Sections R802.11.1 and R802.11.2.
>
> **Exceptions:** Rafters or trusses shall be permitted to be attached to their supporting wall assemblies in accordance with Table R602.3(1) where either of the following occur:
>
> 1. Where the specific gravity of the wood species used for wall framing is greater than or equal to 0.42 in accordance with AWC NDS and the uplift force per rafter or truss does not exceed 200 pounds (90.8 kg) as determined by Table R802.11.
> 2. Where the basic wind speed does not exceed 115 miles per hour (51.4 m/s), the wind exposure category is B, the roof pitch is 5 units vertical in 12 units horizontal (42-percent slope) or greater, the roof span is 32 feet (9754 mm) or less, and rafters and trusses are spaced not more than 24 inches (610 mm) on center.

6.2.3 IRC Section R802.11.2[26] then addresses the connection for rafters:

> **R802.11.2 Rafter uplift resistance.** Individual rafters shall be attached to supporting wall assemblies by connections capable of resisting uplift forces as determined by Table R802.11 or as determined by accepted engineering practice. Connections for beams used in a roof system shall be designed in accordance with accepted engineering practice.

6.3 *IBC Requirements*

6.3.1 IBC Section 1604.8.1 and IBC Section 1604.9 contain the following requirements:

> **1604.8.1 General.** Anchorage of the roof to walls and columns, and of walls and columns to foundations, shall be provided to resist the uplift and sliding forces that result from the application of the prescribed loads.
>
> **1604.9 Wind and Seismic Detailing.** Lateral force-resisting systems shall meet seismic detailing requirements and limitations prescribed in this code and ASCE 7 Chapters 11, 12, 13, 15, 17 and 18 as applicable, even where wind load effects are greater than seismic load effects.
>
> > **Exception:** References within ASCE 7 to Chapter 14 shall not apply, except as specifically required herein.

6.3.2 There are a number of other requirements addressing specific conditions, all of which only address the resistance to applied load. There is no mention of deformation requirements.

6.4 There are two standards referenced by the IBC and IRC that contain provisions that could prescriptively address the potential for TPR.

6.4.1 ICC 600 Section 304.1 states:

> . . . connectors resisting uplift of the roof framing must be fastened to the top plate on the same side of the wall as the top-plate-to-wall uplift connection.

6.4.2 SDPWS Section 4.4.1.5 (2) states that, when using wood structural panels for top plate to stud uplift resistance:

> Roof or upper level uplift connectors shall be on the same side of the wall as the sheathing unless other methods are used to prevent twisting of the top plate due to eccentric loading.

6.5 FastenMaster commissioned testing to assess the occurrence of TPR.

6.5.1 *Test Assembly Construction (see **Figure 2**):*

6.5.1.1 Double 2 x 4 top plates and trusses constructed from SPF No. 2.

6.5.1.2 One-half inch ($^1/_2$") gypsum wallboard installed to interior side of wall using #6 x $1^1/_4$" drywall screws. Fasteners along the top edge of the drywall were installed into the lower top plate at 7" o.c.

6.5.1.3 Wood Structural Panel (WSP) sheathing was installed on the exterior wall in accordance with the code.

Figure 2. Wall Construction Test Setup

6.5.1.4 FrameFAST Fasteners were installed at a 22.5° angle from vertical, beginning 1/2" from the inside edge of the lower top plate and driven up through both plates and into the truss.

6.5.2 The published allowable design loads for uplift and lateral resistance are shown in **Table 3**.

Table 3. FrameFAST Fasteners Allowable Loads for Selected Load Durations and Specific Gravities, (lbs)

Fastener Designation	Minimum Penetration into Truss/Rafter/Wood Structural Support (in)[1]	Species Group (Specific Gravity)[2,3]	Uplift (lb)[4]			F1 Parallel to Wall (lb)			F2 Perpendicular to Wall (lb)		
			1.0	1.33	1.6	1.0	1.33	1.6	1.0	1.33	1.6
6" FMFF006	2 1/2	Southern Pine (0.55)	430	575	690	175	235	285	305	405	485
		Douglas Fir-Larch (0.50)	410	545	655	190	250	300	285	375	455
		Spruce-Pine-Fir (0.42)	370	495	595	205	275	330	250	335	400

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

1. Wood truss and rafter members shall be a minimum of 2" nominal thickness. Design of truss and rafter members 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. For applications involving members with different specific gravities, use the allowable load corresponding to the lowest specific gravity.
4. Use reduction factor of 0.80 when connecting each ply of multi-ply trusses to the top plate.
5. Fasteners were installed at a 22.5° angle from vertical, beginning 1/2" from the inside edge of the lower top plate and driven up through both plates and into the truss.

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

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

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[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 FrameFAST Fasteners comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 FrameFAST Fasteners used in truss to top plate connections were evaluated to specifically assess the effect of *"Top Plate Roll"* (TPR).

8.1.1.1 TPR is defined as the turning, or *"rolling"*, of the top plate of a wall assembly in relation to the truss assembly above and/or off the wall assembly below.

8.1.1.2 TPR is caused by eccentric load path connections (i.e., the connections of the truss to top plate and the top plate to stud are not directly lined up vertically). This condition is shown in **Figure 3**.

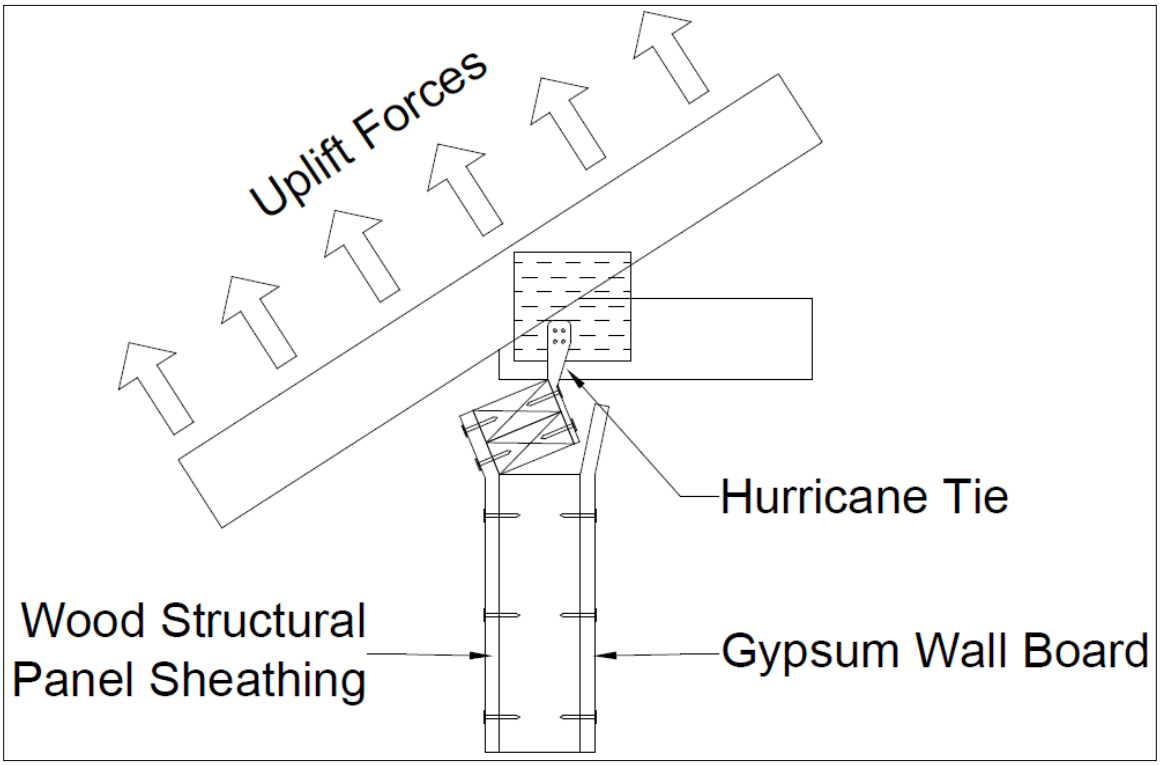

Figure 3. Illustration of Top Plate Roll

8.1.2 The TPR condition is assessed with respect to existing building code requirements.

8.1.2.1 For general FrameFAST Fasteners truss to top plate connection design information, see Report Number 1503-03.

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[30] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[31] 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 *Installation Procedure*

9.3.1 Select FrameFAST Fasteners with a length sufficient to fully embed $2^1/_2$" of the fastener length into the truss or rafter. See **Figure 4** for guidance.

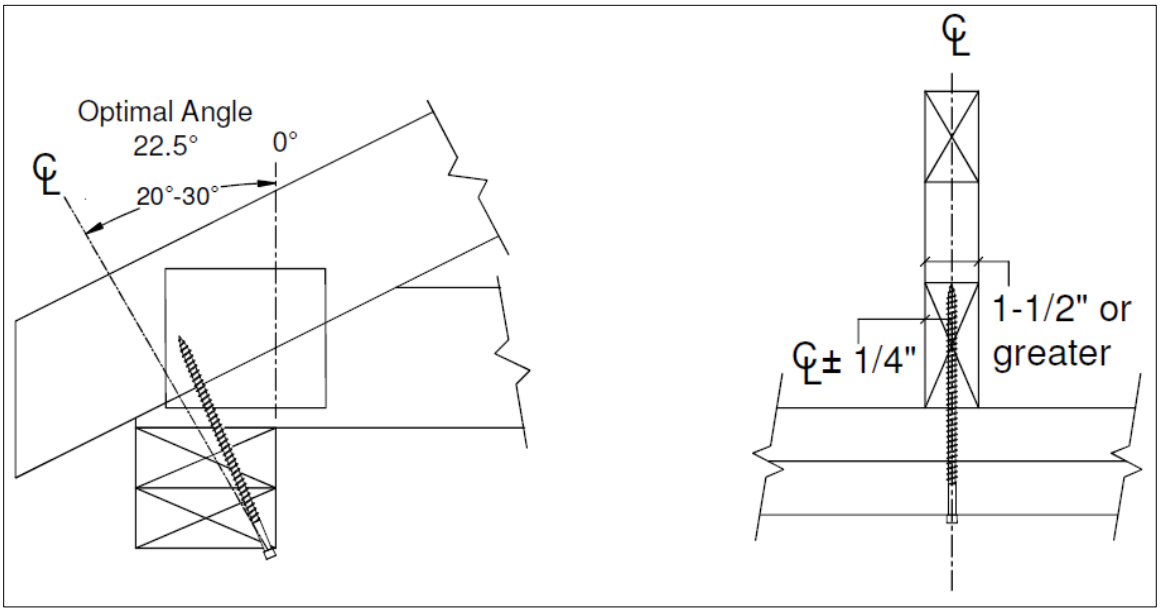

Figure 4. Installation of FrameFAST Fasteners on Wood Truss or Rafter to Double Top Plate

9.3.2 Install one (1) FrameFAST Fastener upward through the wall top plates or wood structural framing member at the bottom corner of the top plates and into the center of the wood truss or rafter. The fastener should be installed at a 20° - 30° angle and should penetrate the wood truss or rafter within $^1/_4$" of the centerline. See **Figure 4**.

9.3.2.1 If the wood truss or rafter is located directly over a top plate splice, offset the fastener $^1/_4$" to one side of the splice and insert the fastener upward through the wall top plates or wood structural framing member at the bottom corner of the top plates and into the center of the truss or rafter. The fastener should be installed at a 20° - 30° angle.

9.4 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.

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 Uplift, lateral resistance, and withdrawal capacity testing in accordance with ASTM D1761

10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or 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 FrameFAST Fasteners on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, FrameFAST Fasteners 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, FrameFAST Fasteners shall be approved for the following applications:

11.2.1 Toenail connections, metal hurricane, and seismic clips/straps or nails to resist the uplift loads and lateral loads as provided for in **Table 3**.

11.2.2 Provide resistance to uplift loads due to wind negative pressure applied from the truss above lifting up on the top plate of the wall as provided in **Table 3**.

11.3 TPR is not a significant concern for FrameFAST Fasteners at allowable design load levels.

11.4 Unless exempt by state statute, when FrameFAST Fasteners are to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.

11.5 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from FastenMaster.

11.6 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.

11.7 **Approved:**[36] Building regulations require that the building official shall accept duly authenticated reports.[37]

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

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

11.7.3 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.

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

11.9 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 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:

12.2.1 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.

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

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

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

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

12.2.6 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.

12.2.7 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.

12.3 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.

12.4 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).

12.5 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 FrameFAST Structural Wood Screws (FrameFAST Fasteners), 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/products/framefastscrew.

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 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.

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

4 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

5 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

6 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

7 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.

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

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

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

11 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.

12 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/

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

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

15 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

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

17 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

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

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

20 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.

21 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

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

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

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

25 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

26 2018 IRC Section R802.11.1.2

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

[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.