Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 2405-119

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Subject to Renewal: January 1, 2027

X-Bracket System® by InSoFast®

Trade Secret Report Holder:

InSoFast®, LLC

Phone: 651-653-3677 Website: www.insofast.com Email: info@insofast.com

CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 70 00 - Roof and Wall Specialties and Accessories

Section: 07 77 00 - Wall Specialties

1 Innovative Product Evaluated[1]

1.1 X-Bracket Continuous Insulation System

2 Product Description and Materials

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

Figure 1. Installed X-Brackets

2.2 X-Bracket Continuous Insulation System is a composed of a matrix of individual X-Brackets that are designed to hold furring strips or girts parallel to any surface such as walls, ceilings, roofs and floors, for use on interior or exterior of wood, steel, or concrete surfaces in a horizontal, sloped, or vertical position.

2.2.1 Nails or screws can be used to secure X-Brackets to wood substrates.

2.2.2 Adhesives can be used to secure X-Brackets to steel or concrete surfaces.

2.2.2.1 The base of X-Brackets are ribbed for additional surface area.

2.2.3 The space created by the X-Bracket System can be filled with closed-cell spray foam or loose-fill insulation (e.g., mineral wool, fiberglass insulation, cellulose, etc.).

2.3 See **Figure 2** for available variations of the X-Bracket.

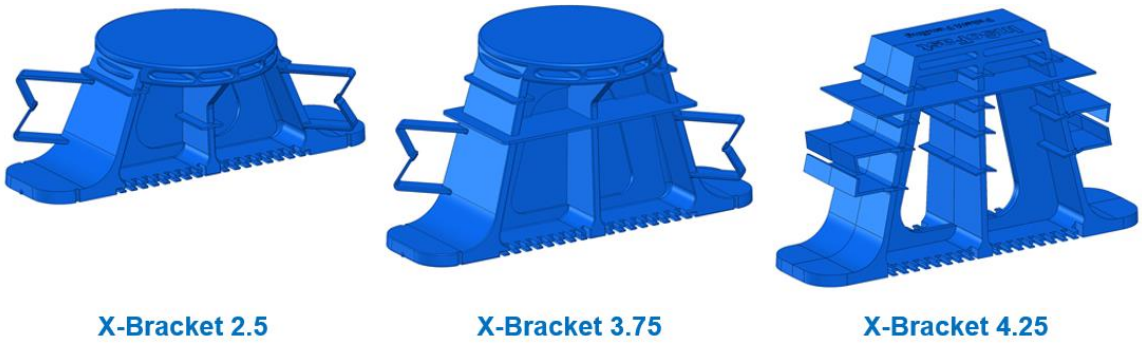

Figure 2. InSoFast X-Brackets - Isometric View

2.4 *Product Dimensions*

2.4.1 *Overall Length:*

2.4.1.1 $7^1/_2$" (for all variations)

2.4.2 *Overall Width:*

2.4.2.1 X-Bracket 2.5 and X-Bracket 3.75 have an overall width of $3^1/_2$"

2.4.2.2 X-Bracket 4.25 has an overall width of 2"

2.4.3 *Overall Height:*

2.4.3.1 X-Bracket 2.5 has an overall height of $2^1/_2$"

2.4.3.2 X-Bracket 3.75 has an overall height of $3^3/_4$"

2.4.3.3 X-Bracket 4.25 has an overall height of $4^1/_4$"

2.5 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 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 secretes 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 *ASTM D198: Standard Test Methods of Static Tests of Lumber in Structural Sizes*

4.3.2 *ASTM D638: Standard Test Method for Tensile Properties of Plastics*

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

4.3.4 *ASTM D5961: Standard Test Method for Bearing Response of Polymer Matrix Composite Laminates*

4.3.5 *ASTM D7332: Standard Test Method for Measuring the Fastener Pull-through Resistance of a Fiber-Reinforced Polymer Matrix Composite*

5 Listed[25]

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

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 *General*

6.1.1 X-Brackets may be installed over substrates including cold-formed steel, masonry, or concrete.

6.1.2 X-Brackets may be used in buildings of Type V construction in accordance with IBC.

6.1.3 X-Brackets provide the following when used to attach exterior cladding to the building envelope:

6.1.3.1 Transverse load resistance

6.1.3.2 Gravity load resistance for the weight of cladding materials

6.2 *Product Axial Performance*

6.2.1 X-Bracket was evaluated for axial performance.

6.2.2 Allowable compressive and tensile strength are provided in **Table 1**.

Table 1. Allowable Axial Loads

Product	Compressive Strength (lb)	Tensile Strength[1] (lb)
X-Bracket	2,010	590

SI: 1 lb = 4.448 N

1. Tensile strength may limit allowable loads due to uplift or wind loading for mechanical and adhesive attachment to wood or steel framing or solid surfaces such as concrete or steel.

6.3 *Structural Performance*

6.3.1 X-Bracket was evaluated for uplift performance (i.e., negative loads applied normal to the product) when installed with an approved adhesive or mechanically fastened with nails or screws.

6.3.2 *Approved Adhesives:*

6.3.2.1 Loctite® PL Premium®

6.3.2.2 LaPage® PL Premium®

6.3.2.3 Bostic Heavy Duty Construction Adhesive

6.3.3 Allowable uplift capacities are provided in **Table 2**.

Table 2. Allowable Uplift Loads for Various Substrates and Connection Methods[1]

Product	Substrate	Connection Method	Quantity	Allowable Uplift Load (lb)
X-Bracket	Wood (SG – 0.42)	Ring Shank Framing Nail[5]	4[2]	215
			2[3]	110
		#8 or Larger Construction Screw	2	330
	Cold-Formed Steel (CFS) Stud, 20-gauge (f_y – 33 ksi)	#12 Self-Drilling Screw[3]	2	250
	Steel	Adhesive[4]	N/A	385
	Concrete		N/A	480

SI: 1 lb = 4.448 N

1. Fastener connection at the base. Minimum penetration for the listed fasteners is 2" for installation into wood or the steel thickness plus three (3) threads for installation into CFS studs.
2. Minimum edge distance shall be 0.5".
3. Minimum edge distance shall be 1.0" (on the centerline of the product).
4. $^3/_8$" bead size applied in a circular pattern.
5. Minimum penetration shall be 1.5".

6.3.4 Allowable wind pressure and basic wind speed for the connection methods listed in **Table 2** are provided in **Table 3**.

Table 3. Allowable Wind Pressure and Basic Wind Speed for Various Connection Methods for the X-Bracket[1,2]

Substrate	Connection Method	Horizontal Fastener Spacing, sp_h (in o.c.)	Vertical Fastener Spacing, sp_v (in o.c.)	Allowable Uplift Capacity per X-Bracket (lb)	Allowable Wind Pressure (psf)	Basic Wind Speed (mph)		
						Exposure B	Exposure C	Exposure D
Wood (SG = 0.42)	(4) 0.120" Framing Nail	16	16	150	84	222	190	176
			24		56	181	155	144
			36		38	149	128	118
			48		28	128	110	102
		24	16		56	181	155	144
			24		38	149	128	118
			36		25	121	104	96
			48		19	105	90	84
	(2) 0.120" Framing Nail	16	16	75	42	157	134	124
			24		28	128	110	102
			36		19	105	90	84
			48		14	90	78	72
		24	16		28	128	110	102
			24		19	105	90	84
			36		13	87	75	69
			48		9	73	62	58
	(2) #8 Construction Screw or (2) #10 Construction Screw	16	16	330	186	330	283	262
			24		124	269	231	214
			36		83	220	189	175
			48		62	190	163	151
		24	16		124	269	231	214
			24		83	220	189	175
			36		55	179	154	142
			48		41	155	133	123

Table 3. Allowable Wind Pressure and Basic Wind Speed for Various Connection Methods for the X-Bracket[1,2]

Substrate	Connection Method	Horizontal Fastener Spacing, sp_h (in o.c.)	Vertical Fastener Spacing, sp_v (in o.c.)	Allowable Uplift Capacity per X-Bracket (lb)	Allowable Wind Pressure (psf)	Basic Wind Speed (mph)		
						Exposure B	Exposure C	Exposure D
CFS Stud 20-gauge (f_y = 33 ksi)	(2) #8 Self-Drilling Screw	16	16	180	101	267	223	205
			24		68	219	183	168
			36		45	178	149	137
			48		34	155	130	119
		24	16		68	219	183	168
			24		45	178	149	137
			36		30	145	122	112
			48		23	127	107	98
	(2) #10 Self-Drilling Screw	16	16	220	124	295	248	227
			24		83	242	203	186
			36		55	197	165	151
			48		41	170	142	130
		24	16		83	242	203	186
			24		55	197	165	151
			36		37	161	135	124
			48		28	140	118	108
	(2) #12 Self-Drilling Screw	16	16	250	141	287	246	228
			24		94	234	201	186
			36		63	192	164	152
			48		47	166	142	132
		24	16		94	234	201	186
			24		63	192	164	152
			36		42	157	134	124
			48		31	135	115	107

Table 3. Allowable Wind Pressure and Basic Wind Speed for Various Connection Methods for the X-Bracket[1,2]

Substrate	Connection Method	Horizontal Fastener Spacing, sp_h (in o.c.)	Vertical Fastener Spacing, sp_v (in o.c.)	Allowable Uplift Capacity per X-Bracket (lb)	Allowable Wind Pressure (psf)	Basic Wind Speed (mph)		
						Exposure B	Exposure C	Exposure D
Steel	Adhesive	16	16	385	217	356	305	283
			24		144	290	249	230
			36		96	237	203	188
			48		72	205	176	163
		24	16		144	290	249	230
			24		96	237	203	188
			36		64	193	166	153
			48		48	168	144	133
Concrete	Adhesive	16	16	480	270	397	340	315
			24		180	324	278	257
			36		120	265	227	210
			48		90	229	197	182
		24	16		180	324	278	257
			24		120	265	227	210
			36		80	216	185	172
			48		60	187	160	149

SI: 1 in = 25.4 mm, 1 lb = 4.448 N, 1 psf = 0.0479 kPa, 1 mph = 1.61 km/hr

1. Based on a building height of 60-feet, GC_p= -1.4 for Zone 5 and an Effective Wind Area of 10ft^2, Topographic Factor: K_{zt}=1.0, Ground Elevation Factor: Ke=1.0,Internal Pressure Coefficient, GC_{pi}=+/-0.18 for an enclosed building, K_d = 0.85 for Component and Cladding
2. Basic Wind Speed determined in accordance with IBC Section 1609.3 and ASCE 7-22. Wind pressures are determined based on the component and cladding loads for a building with a mean roof height of 60 feet: $V_{asd} = V_{ult}\sqrt{0.6}$.

6.3.5 Allowable withdrawal strength for fasteners when installed into the top face of X-Bracket are provided in **Table 4**.

Table 4. Allowable Fastener Properties when Installed into X-Bracket[1,2]

Product	Fastener	Withdrawal (lb)
X-Bracket	#8 Construction Screw	195
	#10 Construction Screw	205
	#12 Self-Drilling Screw	190

SI: 1 lb = 4.45 N

1. Fastener installed into the double top face of X-Bracket should be of sufficient length to penetrate at least 1" into the double top face of the X-Bracket.
2. See **Figure 3** for flange and top face location. Fastener shall not be installed within 1/4" of the edge of the double top face.

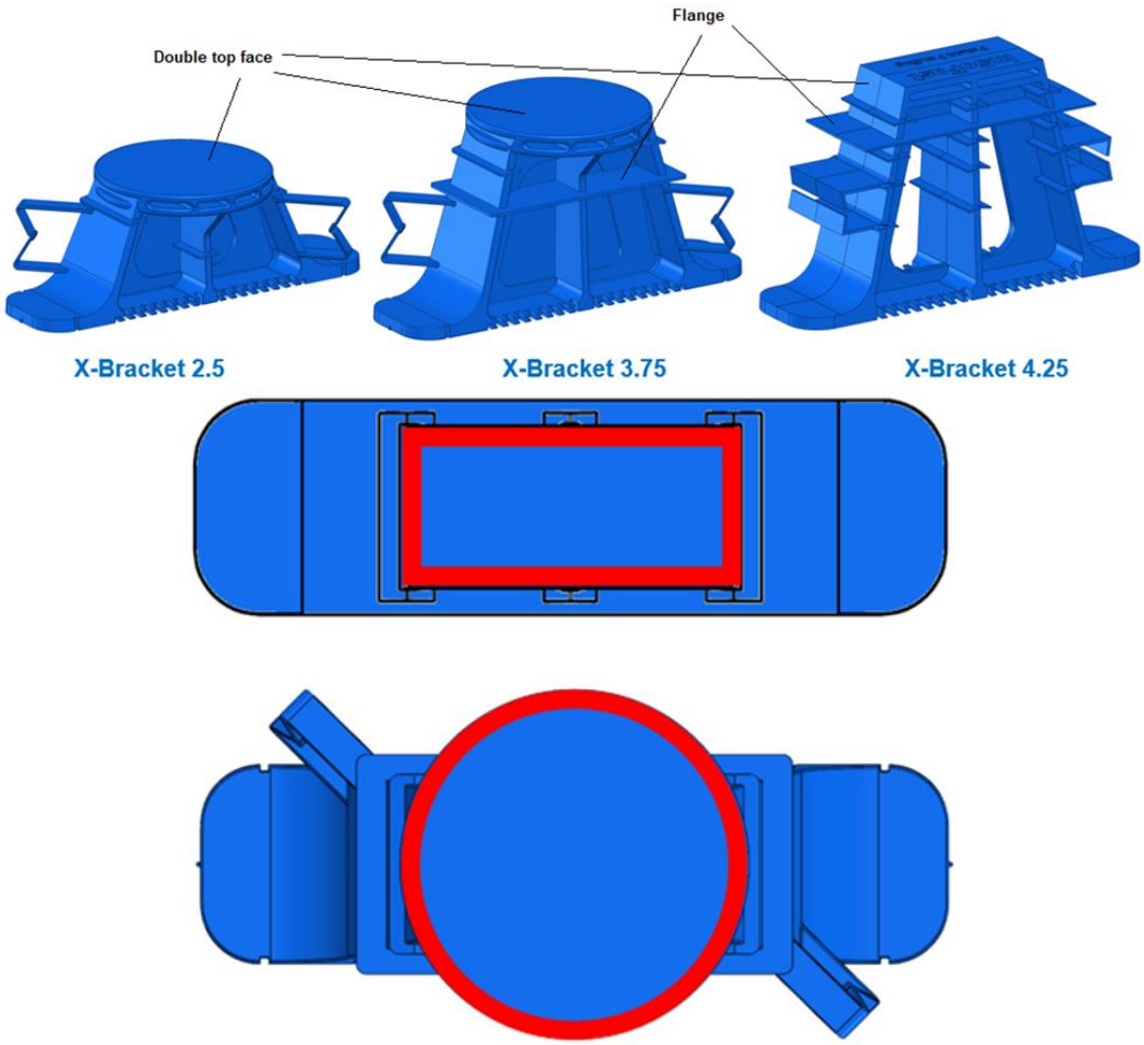

Figure 3. Minimum Edge Distances (1/4) for Fasteners Installed into the Double Top Face

6.3.6 Allowable lateral resistance for fasteners when installed into X-Bracket are provided in **Table 5**.

Table 5. Allowable Lateral Resistance X-Bracket[2]

Product	Substrate	Connection Method[1]	Description	Lateral Load (lb)
X-Bracket	Wood (SPF, SG = 0.42)	0.120" x 3" Framing Nail or 0.120" x 3" Ring Shank Nail	4 Nails Total	325
			2 Nails Total	245
	CFS Stud 20-gauge (f_y = 33 ksi)	#8-18 x 1 1/4" Self-Drilling Screw	2 Screws Total	110
		#10-18 x 1 1/4" Self-Drilling Screw		
		#12-18 x 1 1/4" Self-Drilling Screw		
	Steel	Adhesive	3/8" Bead Size Applied in a Circular Pattern	120
	Concrete			170

SI: 1 lb = 4.448 N

1. Connection method refers to the bottom of the bracket to the substrate.
2. Furring strips connected at the top of X-Bracket shall be minimum of two (2) #8 or #10 screws of sufficient length to penetrate 1" through the double top face.

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

7 Certified Performance[26]

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.[27]

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.[28]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 X-Bracket complies with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 Structural under transverse load conditions for wind loading in accordance with general engineering principles.

8.1.2 Connection performance in accordance with general engineering principles.

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

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

9 Installation

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

9.2 In the event of a conflict between the manufacturer installation instructions and this report, contact the manufacturer for counsel on the proper installation method.

9.3 *General*

9.3.1 Inspect the substrate for the readiness to install the brackets.

9.3.2 When installing onto steel structures via approved adhesives, the surface shall be wiped clean of any grease or debris with an acetone solution prior to adhering the brackets.

9.3.2.1 Adhesive shall be applied per the manufacturer instructions.

9.3.3 When installing onto concrete and CMU substrates via approved adhesives, the surface shall be wiped clean of any debris prior to adhering the brackets.

9.3.4 When installing onto wood substrates via fasteners, make certain not to strip or excessively tighten the fasteners. Adhere to all fastener specifications including minimum edge and end distances, and drill speeds as provided by the fastener manufacturer.

9.3.4.1 Do not use impact fasteners or impact power tools when installing X-Bracket with nails or screws.

9.3.5 *Securement of Insulation:*

9.3.5.1 Application of spray foam shall be in accordance with manufacturer instructions.

9.3.5.2 Securement of loose-fill insulation shall be in accordance with manufacturer instructions.

9.3.6 *Cladding Fastening:*

9.3.6.1 Secure furring strips onto the double top face of the X-Brackets per project plans.

9.3.6.2 Secure cladding onto furring strips per manufacturer instructions.

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 Axial testing in general accordance with ASTM D198

10.1.2 Uplift testing in general accordance with ASTM D1761

10.1.3 Withdrawal testing of listed fasteners in general accordance with ASTM D1761

10.1.4 Head pull-through testing of listed fasteners in general accordance with ASTM D1761

10.1.5 Lateral shear testing on the connection at the base and at the double top face in general accordance with ASTM D1761

10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or 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.[31]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for X-Bracket on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, X-Bracket 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, X-Bracket shall be approved for the following applications:

11.2.1 Cladding supports for use with exterior insulated walls.

11.2.1.1 X-Brackets function as a shim between exterior cladding supports (furring strips) and the structural backer (sheathed light-framed wood walls, cold-formed steel walls, concrete walls, etc.).

11.2.1.2 X-Brackets also function as a thermal break to assist in energy performance of the wall system.

11.3 Unless exempt by state statute, when X-Bracket 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 InSoFast, LLC.

11.5 IBC Section 104.2.3[32] (IRC Section R104.2.2[33] and IFC Section 104.2.3[34] 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:**[35] Building regulations require that the building official shall accept duly authenticated reports.[36]

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.[37]

12 Conditions of Use

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

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

12.3 Structural substrate shall be designed to support the required loads in accordance with the application sections in IBC Chapter 16 and IRC Section R301.

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

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

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

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

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

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

12.4.6 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.

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

12.5 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, *"the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.2.3"*, all of IBC Section 104, and IBC Section 105.3.

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

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

13 Identification

13.1 X-Bracket Continuous Insulation 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.insofast.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.

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

27 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

28 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

[29] 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.

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

[31] 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

[32] 2021 IBC Section 104.11

[33] 2021 IRC Section R104.11

[34] 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

[35] 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.

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

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