



Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

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InSoFast® Insulation Panel Products

Trade Secret Report Holder:

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CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 21 00 - Thermal Insulation

Section: 07 21 13 - Foam Board Insulation

1 Innovative Products Evaluated¹

1.1 InSoFast Insulation Panels:

- 1.1.1 InSoFast UX 2.0 Panels
- 1.1.2 InSoFast EXi 2.5 Panels
- 1.1.3 InSoFast EXe 2.5 Panels
- 1.1.4 InSoFast MAX 3.75 Panels
- 1.1.5 InSoFast CX44 Panels
- 1.1.6 InSoFast CX LowPro SW Studded Inserts

2 Product Description and Materials

2.1 InSoFast UX 2.0 Panels are formed from closed-cell, injection-molded 2" thick Expanded Polystyrene (EPS) foam with built-in polypropylene studs, tongue-and-groove interlocking edges and electrical raceways, as shown in **Figure 1**.



Figure 1. InSoFast UX 2.0 Panels

- 2.2 InSoFast EXi 2.5 Panels are formed from closed-cell injection molded, 2.5" thick EPS foam, respectively, with built-in polypropylene studs, tongue-and-groove interlocking edges, and electrical raceways, as presented in **Figure 2**.
- 2.3 InSoFast EXe 2.5 Panels are formed from closed-cell injection-molded, 2.5" thick EPS foam, respectively, with built-in polypropylene studs and tongue-and-groove interlocking edges, as shown in **Figure 2**.



Figure 2. InSoFast EX 2.5 Panels

- 2.4 InSoFast MAX 3.75 Panels are formed from closed-cell injection-molded, 3.75" thick EPS foam with built in polypropylene studs, tongue and groove interlocking edges, and electrical raceways, see **Figure 3**.



Figure 3. InSoFast MAX 3.75 Panel

2.5 InSoFast CX44 Panels are formed from closed cell injection-molded EPS foam of varying thickness with built in polypropylene studs, tongue-and-groove interlocking edges, and electrical raceways, as shown in **Figure 4**.



Figure 4. InSoFast CX44 Panels

2.6 InSoFast CX LowPro SW Studded Inserts are formed from closed cell injection-molded 2" thick EPS foam with built-in polypropylene studs as shown in **Figure 5**.



Figure 5. InSoFast CX LowPro SW Studded Inserts



2.7 The closed-cell injection-molded EPS foam complies with ASTM C578 Type VIII and CAN/ULC-S701 Type 2 and has a density of 1.35 pounds per cubic foot.

2.8 Material Availability

2.8.1 Width:

2.8.1.1 InSoFast UX 2.0 Panels:

2.8.1.1.1 4' (1,219 mm)

2.8.1.2 InSoFast EXi 2.5, EXe 2.5, and MAX 3.75 Panels:

2.8.1.2.1 4' (1,219 mm)

2.8.1.3 InSoFast CX44 Panels:

2.8.1.3.1 3.67' (1,118 mm)

2.8.1.4 InSoFast CX LowPro SW Studded Inserts:

2.8.1.4.1 7" (178 mm)

2.8.2 Standard Product Length:

2.8.2.1 2' (610 mm)

2.8.3 Thickness:

2.8.3.1 InSoFast UX 2.0 Panels:

2.8.3.1.1 2" (51 mm)

2.8.3.2 InSoFast EXi 2.5 and EXe 2.5:

2.8.3.2.1 2.5" (64 mm)

2.8.3.3 InSoFast MAX 3.75 Panels:

2.8.3.3.1 3.75" (95 mm)

2.8.3.4 InSoFast CX44 Panels:

2.8.3.4.1 2" (51 mm) – 3.23" (82 mm)

2.8.3.5 InSoFast CX LowPro SW Studded Inserts:

2.8.3.5.1 2" (51 mm)

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

3 Definitions²

3.1 New Materials³ 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 tests⁵ and/or engineering analysis.⁶

3.2 Duly authenticated reports⁷ and research reports⁸ are test reports and related engineering evaluations that are written by an approved agency⁹ 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.U.S.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 ANAB¹³ ISO/IEC 17025 and ISO/IEC 17020 accredited.
- 3.6 The regulatory authority shall enforce¹⁴ 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 writing¹⁵ 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; Regulations²⁰

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 3282.14²³ and Part 3280²⁴ 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 *IECC – 18, 21, 24: International Energy Conservation Code®*

4.3 Standards

- 4.3.1 *ASTM C203: Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation*
- 4.3.2 *ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*
- 4.3.3 *ASTM C578: Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*



- 4.3.4 *ASTM D1621: Standard Test Method for Compressive Properties of Rigid Cellular Plastics*
- 4.3.5 *ASTM D1622: Standard Test Method for Apparent Density of Rigid Cellular Plastics*
- 4.3.6 *ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood*
- 4.3.7 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 4.3.8 *ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*
- 4.3.9 *ASTM E2273: Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies*
- 4.3.10 *CAN/ULC-S701: Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering*
- 4.3.11 *NFPA 285-12: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components*
- 4.3.12 *NFPA 286: Standard Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*

5 Listed²⁵

- 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 InSoFast UX 2.0 Panels, InSoFast EXi 2.5, InSoFast EXe 2.5, and InSoFast Max 3.75 Panels are used as thermal insulation on the interior or exterior walls, floors, and ceiling surfaces of buildings in Types I-V construction.
- 6.2 InSoFast CX44 Panels and InSoFast CX LowPro SW Studded Inserts are used on the interior or exterior of shipping container wall surfaces.
- 6.3 *Drainage Efficiency*
 - 6.3.1 InSoFast UX 2.0, InSoFast EXi 2.5, InSoFast EXe 2.5, and InSoFast MAX 3.75 Panels have obtained a drainage efficiency rating of ninety-six percent (96%) when tested in accordance with ASTM E2273.



6.4 Thermal Resistance (R-Value)

6.4.1 InSoFast Insulation Panels have the thermal resistances shown in **Table 1**.

Table 1. Thermal Resistance Values¹

Product	Thickness (in)	R-Value [(°F·ft ² ·hr)/Btu]
InSoFast UX 2.0 Panel	2.0	8.5
InSoFast EXi 2.5 Panel	2.5	10.6
InSoFast EXe 2.5 Panel	2.5	10.6
InSoFast MAX 3.75 Panel	3.75	15.9
InSoFast CX44 Panel ²	2.0 - 3.23 (Average 2.62)	11.0
InSoFast CX LowPro SW Studded Inserts	2.0	8.5

SI: 1 in = 25.4 mm, 1 [(°F·ft²·hr)/Btu] = 0.176 [(K·m²)/W]
 1. Tested in accordance with ASTM C518.
 2. R-Value for the CX44 Panel based on average thickness of panel.

6.5 Surface Burning Characteristics

6.5.1 InSoFast UX 2.0, InSoFast EXi 2.5, and InSoFast EXe 2.5 Panels have the flame spread and smoke developed ratings shown in **Table 2**, when tested in accordance with ASTM E84 per IBC Section 2603.3, IBC Section 2603.5.4, and IRC Section R303.3.²⁶

Table 2. Surface Burning Characteristics¹

Product	Flame Spread Index	Smoke Developed Index
InSoFast UX 2.0 Panel	< 75	< 450
InSoFast EXi 2.5 Panel	< 75	< 450
InSoFast EXe 2.5 Panel	< 75	< 450
InSoFast MAX 3.75 Panel	< 75	< 450

1. ASTM E84 results based on EPS manufacturer evaluation reports.

6.6 Vertical and Lateral Fire Propagation

6.6.1 InSoFast UX 2.0 Panels, InSoFast EXi 2.5 Panels, and InSoFast EXe 2.5 Panels were tested to assess performance with regard to vertical and lateral fire propagation in accordance with NFPA 285 per IBC Section 2603.5.5.

6.6.2 The wall assemblies listed in **Table 3** are approved for use in buildings of Type I-IV construction.



Table 3. NFPA 285 Approved Exterior Wall Assemblies^{1,2}

Wall Component	Materials
Base Wall Use 1, 2, or 3	<ol style="list-style-type: none"> 1. Cast concrete walls 2. CMU concrete walls 3. 20-gauge (minimum) 3⁵/₈" (minimum) steel studs spaced 24" o.c. (maximum) with 5/₈" (minimum) type X Special Fire Resistant Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	<ol style="list-style-type: none"> 1. 4-pcf mineral fiber insulation installed
Cavity Insulation Use 1, 2, 3, or 4	<ol style="list-style-type: none"> 1. None 2. Any noncombustible insulation per ASTM E136 3. Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 4. Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced)
Exterior Sheathing Under Exterior Insulation For base wall system 3	<ol style="list-style-type: none"> 1. None 2. BASF MasterSeal AWB 660 3. Carlisle (CCW) Fire Resist 705FR-A 4. Carlisle (CCW) Fire Resist Barritech NP 5. Carlisle (CCW) Fire Resist Barritech VP (or VP LT) 6. Carlisle (CCW) 705 7. Carlisle (CCW) 705VP 8. GE Momentive Elemax 2600 9. Henry Air-Bloc 32MR 10. Henry Air-Bloc 31MR 11. Henry EnviroCap 108 12. Henry Air-Bloc 33MR 13. Henry Air-Bloc 21 FR 14. Henry Blueskin VP 160 15. Henry Air-Bloc 21S 16. Henry Air-Bloc 17MR 17. Henry BlueSkin SA 18. Henry Air-Bloc 16MR 19. Henry FoilSkin 20. Henry MetalClad 21. PolyGuard Air Lok Flex 22. PolyGuard Air Lok Flex VP 23. PolyGuard FlexGuard 24. PolyGuard Air Lok Sheet 400 NP 25. PolyGuard Air Lok Sheet UV400 NP 26. Dörken Delta Vent SA 27. Dörken Delta Vent S/Plus 28. Dörken Delta Fassade S 29. Dörken Delta Foxx/Plus 30. Dörken Delta Maxx/Plus 31. Soprema Sopraseal Stick VP



Table 3. NFPA 285 Approved Exterior Wall Assemblies^{1,2}

Wall Component	Materials
Exterior Sheathing Under Exterior Insulation Continued	32. Soprema Soprasolin HD 33. Soprema LM 204 VP 34. Soprema 1100T 35. Prosoco Spraywrap MVP 36. Prosoco R-Guard VB 37. Prosoco R-Guard Cat 5 38. Prosoco R-Guard Cat 5 Rain Screen 39. Vaproshield Revealshield SA 40. Vaproshield Wrapshield SA 41. GCP (Grace) PAB NPL 10 42. GCP (Grace) PAB NPS 43. GCP (Grace) PAB NPL 44. GCP (Grace) PAB VCL 45. GCP (Grace) PAB VPL LT 46. GCP (Grace) PAB VPS 47. GCP (Grace) PAD AWM 48. GCP (Grace) VPL 50 49. WR Meadows Air-Shield LMP (Gray) 50. WR Meadows Air-Shield LMP (Black) 51. WR Meadows Air-Shield TMP 52. WR Meadows Air-Shield LSR 53. Siga Majvest 54. Siga Majvest 500 SA 55. Tremco ExoAir 230 56. Tremco ExoAir 130 57. DuPont Tyvek CommercialWrap
Adhesive Use item 1 or 2 with Base Wall 1 or 2	1. 3/8" beads of Loctite PL premium adhesive 16" o.c. 2. NFPA 285 approved EIFS "mud"
Exterior Insulation Use 1 or 2 adhered with adhesive or mechanically attached	1. InSoFast UX 2.0 Panels (with or without raceways) 2. InSoFast EX 2.5 Panels (with or without raceways)
Exterior Sheathing Installed Over Exterior Insulation Use 1 or 2	1. 1/2" (minimum) generic cement board mechanically attached to InSoFast interior frame strips with screws 8" o.c. in the field and 12" o.c. on panel edges 2. 1/2" (minimum) glass matt board (such as DensGlass) mechanically attached to InSoFast interior frame strips with screws 8" o.c. in the field and 12" o.c. on panel edges



Table 3. NFPA 285 Approved Exterior Wall Assemblies^{1,2}

Wall Component	Materials
WRB Over Exterior Sheathing Installed Over Exterior Insulation	1. Any WRB that has been tested or approved to be used in an NFPA 285 compliant assembly paired with the outer coverings listed below Note: The WRB must be approved for use directly under exterior sheathing installed over exterior insulation or over exterior insulation. WRB allowed over Exterior Sheathing Under Exterior Insulation are protected by the insulation and do not qualify as allowable WRB for this location.
Outer Covering Use any item 1 – 7 Where aluminum is listed, this means aluminum sheet metal panels, NOT aluminum composite panels.	1. EIFS coatings that are NFPA 285 approved for applications over cement board 2. Adhered thin brick (with noncombustible mortar) 3. Adhered stone (with noncombustible mortar) 4. Fiber cement lap or panels (or any non-combustible cladding) mechanically fastened through the cladding directly to the InSoFast Studs 5. Fiber cement lap or panels (or any non-combustible cladding) mechanically fastened to metal hat channels or mounting element fastened through the cladding into the InSoFast Studs 6. Vertical or horizontal steel or aluminum cladding mechanically fastened through the cladding into the InSoFast Studs 7. Vertical or horizontal steel or aluminum cladding mechanically fastened to metal hat channels or non-combustible mounting element fastened through the cladding into the InSoFast Studs
1. The assemblies and combinations herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Priest & Associates Consulting, LLC. 2. Note: Window headers/jambes for all constructions shall incorporate 25-gauge L flashing and 2" of mineral wool above the opening and on both sides.	

6.7 Thermal Barrier Requirements

- 6.7.1 InSoFast Insulation Panels shall be separated from the interior of a building by an approved thermal barrier in accordance with [IBC Section 2603.4](#) and [IRC Section R303.4](#).²⁷
- 6.7.2 Fasteners attaching the thermal barrier to the InSoFast Insulation Panels shall be installed at a maximum of 12" on center.



6.8 Attachment Methods

6.8.1 **Table 4** provides the maximum allowable capacities of mechanical fasteners when fastened to the InSoFast Studs.

Table 4. Allowable Load Capacities for Mechanical Attachment

Application	Fastening Method ⁵	Allowable Load Capacity (lb) Per Fastener	
		Withdrawal	Lateral
Attaching Wall Covering or Cladding to InSoFast Studs ¹	#6 x 1 ⁵ / ₈ " Coarse Type W Screw	65	95
Attaching InSoFast Studs to Structural Wall ¹	#9 x 3 ¹ / ₂ " Long Type W Screw	95	35
Attaching InSoFast Studs to Steel ²	#10 x 3 ¹ / ₂ " Self-drilling Screw	50	70
Attaching InSoFast Stud to Masonry Wall ^{3,4}	Tapcon® 3/ ₁₆ " x 3 ¹ / ₂ " (min. length) Blue, White, and Stainless concrete screw anchors	55	100

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

- Fasteners tested in accordance with ASTM D1761.
- Fastener calculations performed in accordance with AISI S100-16 Section J4.3.1. Studs shall have a minimum thickness of 0.058" and a minimum tensile strength of 50 ksi.
- Concrete screw anchor must provide 1" minimum penetration into masonry substrate.
- Load capacities in accordance with Tapcon evaluation reports and product specifications.
- All screws and anchors shall be countersunk into EX panels until fastener head is flush with polypropylene stud.

6.8.2 **Table 5** provides the maximum allowable capacities of adhesive when applied to the InSoFast Studs.

Table 5. Allowable Load Capacities for Adhesive Attachment

Application ²	Fastening Method	Allowable Load Capacity ¹ (psf)	
		Withdrawal	Lateral
Attaching InSoFast Studs to Wood Framed Structural Wall	3/ ₈ " bead of PL Premium Construction Adhesive (3X)	35	50
Attaching InSoFast Studs to Concrete Structural Wall		40	50
Attaching InSoFast Studs to Steel Framed Structural Wall		30	40

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

- Pounds per square foot of InSoFast Insulation Panels.
- Testing performed following a modified ASTM D1761 procedure.

6.9 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 Performance²⁸

- 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.²⁹
- 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.³⁰

8 Regulatory Evaluation and Accepted Engineering Practice

- 8.1 InSoFast Insulation Panels comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:
 - 8.1.1 Physical properties (compressive, density, flexural, thermal transmission)
 - 8.1.2 Drainage efficiency
 - 8.1.3 Performance in accordance with ASTM E84 for flame spread and smoke development ratings in accordance with [IBC Section 2603.3](#), [IBC Section 2603.5.4](#), and [IRC Section R303.3](#).³¹
 - 8.1.4 Performance regarding vertical and lateral fire propagation in accordance with [IBC Section 2603.5.5](#).
 - 8.1.5 Wind load resistance in accordance with [IBC Section 1609](#) and [IRC Section R301.2.1](#).
- 8.2 InSoFast UX 2.0, InSoFast EXi 2.5 Panels, InSoFast EXe 2.5, and InSoFast MAX 3.75 Panels were evaluated for use as interior insulation and exterior insulation.
- 8.3 InSoFast CX44 Panels and InSoFast CX LowPro SW Studded Inserts were evaluated for use as interior insulation and exterior insulation for shipping container applications.
 - 8.3.1 Physical properties (compressive, density, flexural, thermal transmission).
 - 8.3.2 Performance in accordance with ASTM E84 for flame spread and smoke development ratings in accordance with [IBC Section 2603.3](#), [IBC Section 2603.5.4](#), and [IRC Section R303.3](#).³²
- 8.4 Use in fire resistance-rated construction is outside the scope of this report.
- 8.5 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 qualified³³ to practice product and regulatory compliance services within its [scope of accreditation and engineering expertise](#),³⁴ respectively.
- 8.6 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 Using Mechanical Attachment*
 - 9.3.1 *Exterior Installation Over Above Grade Framed Walls:*
 - 9.3.1.1 InSoFast UX 2.0, InSoFast EXi 2.5, InSoFast EXe 2.5, and InSoFast MAX 3.75 Panels may be installed over framed walls.
 - 9.3.1.2 Use indicator markings on the panel and attach panels with recommended fasteners 12" o.c. along InSoFast Studs.



- 9.3.1.3 For 16" framing, install the first panel so that the built-in studs line up with the wall studs and attach using recommended fasteners.
- 9.3.1.4 For 24" framing, structural sheathing (such as Oriented Strand Board [OSB], or plywood) is required. The number of recommended fasteners to be used is dependent on wind load requirements.
- 9.3.1.5 Panels may be mechanically attached to concrete, masonry walls, or framed walls with structural sheathing with recommended fasteners placed 12" o.c. along the InSoFast Studs.
- 9.3.1.6 See manufacturer installation instructions for more information and installation procedures for surrounding openings, installing in corners, installing on non-level surfaces, etc.

9.3.2 *Interior Installation Over Existing Framed Walls:*

- 9.3.2.1 Prior to installation, remove baseboard, window trim, electrical outlet covers, etc.
- 9.3.2.2 Mark existing stud locations on the wall and align InSoFast Studs with framing.
- 9.3.2.3 The recommended screw pattern is 12" o.c. with a fastener length sufficient to penetrate existing framing.
- 9.3.2.4 Adhesive is used in corners for additional support.
- 9.3.2.5 Other suitable interior or exterior substrates for the adhesive application are wood sheathing, lath and plaster, masonry, metal siding, and concrete. Use the adhesive method outlined below.
- 9.3.2.6 See manufacturer installation instructions for more information and installation procedures for surrounding openings, installing in corners, installing on non-level surfaces, etc.

9.4 *Installation Procedure Using Adhesive Attachment*

9.4.1 *General Procedure Using Loctite® PL® Premium® Construction Adhesive:*

- 9.4.1.1 Surfaces must be clean and free of frost, standing water, grease, dust, and other contaminants. Pre-fit all materials and protect finished surfaces.
- 9.4.1.2 Apply a $\frac{3}{8}$ " bead of PL Premium Construction Adhesive on the ribbed surface of the studs.
- 9.4.1.3 Apply additional adhesive to the foam along any cuts.
- 9.4.1.4 InSoFast Insulation Panels/Studs may be repositioned within 30 minutes after applying the adhesive.
- 9.4.1.5 *Climatic Conditions During Installation:*

- 9.4.1.5.1 When bonding InSoFast Insulation Panels/Studs, avoid cure and surface temperatures below 40° F (4° C) and above 90° F (32° C).
- 9.4.1.5.2 In arid (dry) conditions or non-porous surfaces (such as metal or fiberglass), add water in the form of a light mist to the adhesive extruded on the stud. This accelerates the adhesive's set time.

9.4.2 *Adhesive Installation Over Below Grade Concrete or Masonry Walls:*

- 9.4.2.1 InSoFast UX 2.0, InSoFast EXi 2.5, InSoFast EXe 2.5, and InSoFast MAX 3.75 Panels may be installed over below grade concrete or masonry walls.
- 9.4.2.2 Prior to installation, clean and remove dirt, debris, or loose paint from walls that may affect adhesive bond.
- 9.4.2.3 Start InSoFast Insulation Panels installation at a corner.
- 9.4.2.4 Apply a $\frac{3}{8}$ " bead of Loctite PL Premium Construction Adhesive along the ribbed dovetailed surface of the plastic studs on the back of the wall panel. Apply a bead of adhesive directly to the foam within 2" of the corner of the wall.
- 9.4.2.5 Set panel on floor and press it against wall.



- 9.4.2.6 To start second row of panels, cut panel to create running bond pattern, ensuring that studs line up, but vertical seams do not.
- 9.4.2.7 Continue installing panels to the next corner.
- 9.4.2.8 See manufacturer installation instructions for further information on completing corners, intersecting walls, surrounding windows, etc.
- 9.4.3 *Adhesive Installation Over Exterior Above Grade Concrete or Masonry Walls:*
 - 9.4.3.1 InSoFast UX 2.0, InSoFast EXi 2.5, InSoFast EXe 2.5, and InSoFast MAX 3.75 Panels may be installed over above grade concrete or masonry walls.
 - 9.4.3.2 On the back of the InSoFast Insulation Panels, apply a $\frac{3}{8}$ " bead of PL Premium Construction Adhesive along the dovetailed ribbing of each InSoFast Stud.
 - 9.4.3.3 Press panels firmly into place against the wall. If application conditions are particularly windy, supplemental bracing or mechanical attachment may be required to secure panels until the adhesive has set.
 - 9.4.3.4 See manufacturer installation instructions for further information on completing corners, intersecting walls, surrounding windows, etc.
- 9.4.4 *Adhesive Installation Over Metal Surfaces:*
 - 9.4.4.1 InSoFast Insulation Panels studded inserts may be installed on metal surfaces such as shipping container walls.
 - 9.4.4.2 Lay out first row of InSoFast Insulation Panels alongside sidewall of shipping container to determine the fit. Variations in shipping container may require panels to be trimmed or slightly spaced apart.
 - 9.4.4.3 Apply PL Premium Construction Adhesive in a $\frac{3}{8}$ " bead on the backside of the InSoFast Studs.
 - 9.4.4.3.1 Add water in the form of a light mist to the adhesive extruded on the stud. This accelerates the adhesive set time.
 - 9.4.4.3.2 When bonding InSoFast Insulation Panels/Studs, avoid cure and surface temperatures below 40° F (4° C) and above 90° F (32° C) on non-porous metal surfaces.
 - 9.4.4.4 Add an additional bead of PL Premium Construction Adhesive at the start and end of each wall.
 - 9.4.4.5 Apply a continuous bead of adhesive or spray foam along the bottom of the container wall.
 - 9.4.4.6 Press panel into place and verify that adhesive has spread out to width of the stud.
 - 9.4.4.7 To start the second row, cut panel in center with long snap off blade utility knife to start the running bond or staggered pattern.
 - 9.4.4.8 At the top of second row, run a bead of spray foam on the backside of the panel or directly to the container wall.
 - 9.4.4.9 See manufacturer installation instructions for further details and instructions for installing InSoFast CX44 Panels around windows and doors.
 - 9.4.4.9.1 InSoFast Insulation Panels installed on a metal ceiling are meant for drywall finish only.
- 9.4.5 *InSoFast CX LowPro SW Studded Inserts:*
 - 9.4.5.1 Apply a $\frac{3}{8}$ " bead of PL Premium Construction Adhesive to the dovetailed ribbing of each stud, and then apply a bead horizontally across the top over the backside of the stud to form a "T".
 - 9.4.5.2 Apply additional horizontal adhesive along the base of the first row to secure the bottom edge of the LowPro Stud.
 - 9.4.5.3 Install the LowPro inserts into container wall corrugations.



- 9.4.5.4 Apply an additional horizontal bead of adhesive along the top of the uppermost LowPro stud to secure to the top of the container.
- 9.4.5.5 For additional installation instructions and alterations to provide higher insulation R-values, see the manufacturer installation instructions.
- 9.4.6 *Installation Over Concrete Ceilings:*
 - 9.4.6.1 InSoFast UX 2.0, InSoFast EXi 2.5, InSoFast EXe 2.5, and InSoFast MAX 3.75 Panels may be installed over concrete ceilings.
 - 9.4.6.2 For mechanical attachment, install fasteners 12" o.c. into the recessed attachment points on the InSoFast Stud that penetrate the concrete 1".
 - 9.4.6.3 *For Adhesive Attachment:*
 - 9.4.6.3.1 Apply a $\frac{3}{8}$ " bead of PL Premium Construction Adhesive on the ribbed surface of the studs. Apply additional adhesive to the foam along any cuts.
 - 9.4.6.3.2 Install one mechanical fastener in the center recessed attachment point to hold the panel in place until the adhesive has set.
 - 9.4.6.4 See manufacturer installation instructions for further information on completing corners, intersecting walls, surrounding windows, etc.
 - 9.4.6.5 InSoFast Insulation Panels installed on a concrete ceiling are meant for drywall finish only.
- 9.4.7 *Installation Over Concrete Floor:*
 - 9.4.7.1 InSoFast UX 2.0, InSoFast EXi 2.5, InSoFast EXe 2.5, and InSoFast MAX 3.75 Panels may be installed over concrete floors.
 - 9.4.7.2 If installing InSoFast Insulation Panels on both walls and floor, install panels on the wall first.
 - 9.4.7.3 *Floating Installation Method:*
 - 9.4.7.3.1 This method is recommended for carpet, laminate, and wood floors.
 - 9.4.7.3.2 Place panels directly on concrete without any adhesive. Interlock panels together with tongue and-groove edges in a staggered or running-bond pattern.
 - 9.4.7.4 *Glue-Down Installation Method:*
 - 9.4.7.4.1 This method is recommended for carpet, laminate, and wood floors.
 - 9.4.7.4.2 Apply a $\frac{3}{8}$ " bead of PL Premium Construction Adhesive to the dovetailed ribbing of each stud and install panels in a staggered or running-bond pattern.
 - 9.4.7.5 *Screw-Down Installation Method:*
 - 9.4.7.5.1 This method is recommended for any flooring type.
 - 9.4.7.5.2 Attach InSoFast Insulation Panels to the concrete floor by installing concrete screws through the studs.
 - 9.4.7.6 *Fully Adhered Installation Method:*
 - 9.4.7.6.1 This method is recommended for tiled areas.
 - 9.4.7.6.2 InSoFast Insulation Panels should be set in a bed of thin set tile adhesive with a notched trowel.
 - 9.4.7.6.3 See manufacturer installation instructions for more information and installation procedures for surrounding openings, installing in corners, installing on non-level surfaces, etc.



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 Wind loading testing in accordance with ASTM E330
 - 10.1.2 EPS properties testing in accordance with ASTM C578
 - 10.1.3 Drainage efficiency testing in accordance with ASTM E2273
 - 10.1.4 Compressive strength in accordance with ASTM D1621
 - 10.1.5 Density in accordance with ASTM D1622
 - 10.1.6 Flexural strength in accordance with ASTM C203
 - 10.1.7 Thermal resistance testing in accordance with ASTM C518
 - 10.1.8 Surface burning characteristics testing in accordance with ASTM E84
 - 10.1.9 Fire testing in accordance with NFPA 286
 - 10.1.10 Vertical and lateral flame propagation testing in accordance with NFPA 285-12
 - 10.1.11 Withdrawal and lateral load fastener 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.³⁵
- 10.6 Where additional condition of use and/or regulatory compliance information is required, please search for InSoFast Insulation Panels on the DrJ Certification website.



11 Findings

- 11.1 As outlined in **Section 6**, InSoFast Insulation Panels 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, InSoFast Insulation Panels shall be approved for the following applications:
- 11.2.1 InSoFast EXe 2.5 and InSoFast MAX 3.75 Panels are approved for use in exterior walls of buildings Type I-IV and Type V in accordance with IBC Section 2603.5.
- 11.2.2 InSoFast UX 2.0, InSoFast EXi 2.5, InSoFast EXe 2.5, and InSoFast MAX 3.75 Panels are approved for use as part of a NFPA 285 approved wall assembly in accordance with IBC Section 2603.5.5.
- 11.2.3 InSoFast UX 2.0, InSoFast EXi 2.5, and InSoFast Max 3.75 Panels are approved for use as an interior insulation.
- 11.2.4 InSoFast CX44 Panels and InSoFast CX LowPro SW Studded Inserts are approved for use as an interior insulation and an exterior insulation for shipping container applications.
- 11.3 Unless exempt by state statute, when InSoFast Insulation Panels 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 InSoFast, LLC.
- 11.5 IBC Section 104.2.3³⁶ (IRC Section R104.2.2³⁷ and IFC Section 104.2.3³⁸ are similar) in pertinent part state:

104.2.3 Alternative Materials, Design and Methods of Construction and Equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

- 11.6 **Approved:**³⁹ Building regulations require that the building official shall accept duly authenticated reports.⁴⁰
- 11.6.1 An approved agency is “*approved*” when it is ANAB ISO/IEC 17065 accredited.
- 11.6.2 An approved source is “*approved*” when an RDP is properly licensed to transact engineering commerce.
- 11.6.3 Federal law, Title 18 US Code Section 242, requires that, where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.
- 11.7 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB Accredited Product Certification Body – Accreditation #1131.
- 11.8 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.⁴¹

12 Conditions of Use

- 12.1 As defined in **Section 6**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.
- 12.2 As listed herein, InSoFast Insulation Panels shall comply with the following guidelines:
- 12.2.1 Use in fire resistance-rated construction is outside the scope of this report.
- 12.2.2 InSoFast Insulation Panels shall be separated from the interior of a building by an approved thermal barrier in accordance with IBC Section 2603.4 and IRC Section R303.4.⁴²



- 12.2.3 A vapor retarder shall be installed in accordance with IBC Section 1404.3 and IRC Section R702.7, when required in the above-grade construction of walls in framed construction. For masonry construction and shipping containers, a vapor retarder is not required.
- 12.2.4 In areas where the probability of termite infestation is “*very heavy*” as defined by IBC Section 2603.8, installation of InSoFast Insulation Panels shall follow the requirements of IBC Section 2603.8 and IRC Section R305.4⁴³ per IRC Section R303.7,⁴⁴ as applicable.
- 12.3 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:
 - 12.3.1 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.
 - 12.3.2 This report and the installation instructions shall be submitted at the time of permit application.
 - 12.3.3 These innovative products have an internal quality control program and a third-party quality assurance program.
 - 12.3.4 At a minimum, these innovative products shall be installed per **Section 9**.
 - 12.3.5 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.
 - 12.3.6 These innovative products have 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.
 - 12.3.7 The application of these innovative products 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.
- 12.4 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.
- 12.5 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).
- 12.6 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 InSoFast Insulation Panels (InSoFast UX 2.0 Panels, InSoFast EXi 2.5 Panels, InSoFast EXe 2.5 Panels, InSoFast MAX 3.75 Panels, InSoFast CX44 Panels, and InSoFast CX LowPro SW Studded Inserts), 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.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%20or%20cause%20to%20be%20made%20the%20necessary%20tests%20and%20investigations%20and%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.cbiteest.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-mia/#>:-:text=Once%20an%20accreditation%20body%20is%20a%20signatory%20of%20the%20IAF%20MLA%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%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 [2021 IRC Section R316.3](#)

27 [2021 IRC Section R316.4](#)

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

29 <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%20livable%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades



30 <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>

31 [2021 IRC Section R316.3](#)

32 [2021 IRC Section R316.3](#)

33 Qualification is performed by a legislatively defined [Accreditation Body](#). [ANSI National Accreditation Board \(ANAB\)](#) is the largest independent accreditation body in North America and provides services in more than 75 countries. [Dr.J](#) is an ANAB accredited [product certification body](#).

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

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

36 [2021 IBC Section 104.11](#)

37 [2021 IRC Section R104.11](#)

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

39 Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC [Section 201.4](#) (<https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4>) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

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

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

42 [2021 IRC Section R316.4](#)

43 [2021 IRC Section R318.4](#)

44 [2021 IRC Section R316.7](#)