Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

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GoBoard®

Trade Secret Report Holder:

Johns Manville, A Berkshire Hathaway Company

Phone: 303-978-2000 Website: www.jm.com

CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

Section: 06 12 00 - Structural Panels

Section: 06 12 19 - Shear Wall Panels

Section: 06 16 00 - Sheathing

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 21 00 - Thermal Insulation

Section: 07 25 00 - Water-Resistive Barriers/Weather Barriers

1 Innovative Product Evaluated[1]

1.1 GoBoard

2 Product Description and Materials

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

Figure 1. GoBoard Structural Sheathing

2.2 GoBoard consists of a high density, closed-cell, rigid polyisocyanurate (polyiso) foam core with proprietary coated fiberglass mats on both faces.

2.3 *Material Availability*

2.3.1 *Thickness:*

2.3.1.1 $^{1}/_{2}$" (12.7 mm)

2.3.1.2 $^{5}/_{8}$" (16.9 mm)

2.3.1.3 1" (25.4 mm)

2.3.2 *Standard Product Width:*

2.3.2.1 48" (1219 mm)

2.3.3 *Standard Length:*

2.3.3.1 96" (2438 mm)

2.3.3.2 108" (2743 mm)

2.3.4 Other custom width and lengths can be manufactured.

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

3 Definitions

3.1 New Materials[2] 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.[3] The design strengths and permissible stresses shall be established by tests[4] and/or engineering analysis.[5]

3.2 Duly authenticated reports[6] and research reports[7] are test reports and related engineering evaluations, which are written by an approved agency[8] and/or an approved source.[9]

3.2.1 These reports contain intellectual property and/or trade secrets, which are protected by the Defend Trade Secrets Act (DTSA).[10]

3.3 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is listed in the ANAB directory.

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional, or RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[11]

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

3.6 The regulatory authority shall enforce[13] 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[14] 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.[15]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory where recognition of certificates, validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope, shall be approved.[16] Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.[17]

3.9 Approval equity is a fundamental commercial and legal principle.[18]

4 Applicable Standards for the Listing; Regulations for the Regulatory Evaluation[19]

4.1 *Standards*

4.1.1 *ABTG ANSI/FS 100: Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in Exterior Wall Covering Assemblies*[20]

4.1.2 *AISI S100: North American Specification for the Design of Cold-formed Steel Structural Members*

4.1.3 *AISI S213: North American Specification for Cold-Formed Steel Framing – Lateral Design*

4.1.4 *ANSI/AWC SDPWS: Special Design Provisions for Wind and Seismic*

4.1.5 *ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures*

4.1.6 *ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

4.1.7 *ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*

4.1.8 *ASTM D2394: Standard Test Methods for Simulated Service Testing of Wood and Wood-Based Finish Flooring*

4.1.9 *ASTM D7989: Standard Practice for Demonstrating Equivalent In-Plane Lateral Seismic Performance to Wood-Frame Shear Walls Sheathed with Wood Structural Panels*

4.1.10 *ASTM E72: Standard Test Methods of Conducting Strength Tests of Panels for Building Construction*

4.1.11 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*

4.1.12 *ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials*

4.1.13 *ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

4.1.14 *ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*

4.1.15 *ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings*

4.1.16 *ASTM E2178: Standard Test Method for Air Permeance of Building Materials*

4.2 Structural performance for shear wall assemblies used as lateral force resisting systems in in Seismic Design Categories A through F, have been tested and evaluated in accordance with the following standards:

4.2.1 *ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures*

4.2.2 *ASTM D7989: Standard Practice for Demonstrating Equivalent In-Plane Lateral Seismic Performance to Wood-Frame Shear Walls Sheathed with Wood Structural Panels*

4.2.2.1 ASTM D7989 is accepted engineering practice used to establish Seismic Design Coefficients (SDC).

4.2.2.2 Tested data generated by ISO/IEC 17025 approved agencies and/or professional engineers, which use ASTM D7989 as their basis, are defined as intellectual property and/or trade secrets.

4.2.2.3 All professional engineering evaluations are defined as an independent design review (i.e., Listings, certified reports, duly authenticated reports from approved agencies, and/or research reports are independently prepared by approved agencies and/or approved sources) when signed and sealed by a licensed professional engineer pursuant to registration law.

4.2.3 *ASTM E564: Standard Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings*

4.2.4 *ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings*

4.3 *Regulations*

4.3.1 *IBC – 15, 18, 21: International Building Code®*

4.3.2 *IRC – 15, 18, 21: International Residential Code®*

4.3.3 *IECC – 15, 18, 21; International Energy Conservation Code®*

5 Listed[21]

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 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 GoBoard is used as wall sheathing in Type V construction in accordance with the IBC and IRC.

6.2 *Structural Applications*

6.2.1 *General Structural Provisions:*

6.2.1.1 Except as otherwise described in this report, GoBoard shall be installed in accordance with the applicable building codes listed in **Section 4**, using the provisions set forth herein for the design and installation of Wood Structural Panels (WSP).

6.2.1.2 GoBoard is permitted to be designed in accordance with SDPWS for the design of shear walls using the methods set forth therein, including the perforated shear wall methodology, and subject to the SDPWS boundary conditions, except as specifically allowed in this report.

6.2.1.3 Anchorage for in-plane shear shall be provided to transfer the induced shear force into and out of each shear wall.

6.2.1.3.1 For wind design, anchor bolt spacing shall not exceed 6' o.c.

6.2.1.3.2 For seismic design, anchor bolt spacing shall not exceed 4' o.c.

6.2.1.4 The maximum aspect ratio for shear walls sheathed GoBoard $^1/_2$" and GoBoard 1" shall be 1:1.

6.2.1.5 The maximum aspect ratio for shear walls sheathed GoBoard $^5/_8$" shall be 2:1.

6.2.1.6 The minimum full height panel width shall be 24" (610 mm).

6.2.1.7 When used in light-frame wood construction, all panel edges shall be blocked with a minimum 2" (51 mm) nominal lumber.

6.2.1.8 Fastener type and spacing shall be per the applicable table of this report and **Section 9**.

6.2.1.9 Fasteners shall be installed with the head in contact with the face of the board.

6.2.1.10 Installation is permitted for single top plate (advanced framing method) or double top plate applications.

6.2.2 *Compressive Strength:*

6.2.2.1 GoBoard panels have compressive strength as outlined in **Table 1**.

Table 1. Compressive Strength[1]

Product	Compressive Load at 0.05" Deformation (lb)	Compressive Stress at 0.05" Deformation (psi)	Deformation at 1,000 lbf (in)
GoBoard 5/8"	190	240	0.475

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psi = 0.00689 MPa

1. Tested in accordance with ASTM D2394

6.2.3 *Performance-Based Construction:*

6.2.3.1 GoBoard panels used in wall assemblies designed as shear walls are permitted to be designed in accordance with the methodology used in SDPWS for WSP using the capacities shown in **Table 2** and **Table 3**.

6.2.3.2 GoBoard panel shear walls are permitted to resist lateral wind load forces using the allowable shear loads (in pounds per linear foot) set forth in **Table 2**.

Table 2. Allowable Unit Shear Capacity – Wind

Product	Stud Type	Max. Stud Spacing (in)	Joint Condition	Fastener Spacing (edge:field) (in)	Minimum Fastener Type and Size[3]	Gypsum Wallboard (GWB) Thickness (in)	GWB Fastener Spacing[4,5] (edge:field) (in)	Allowable Unit Shear Capacity (plf)
GoBoard 1/2"	Wood	16 o.c.	Butted	2:6	16-gauge 1" Crown x 1" Leg Galvanized Staple	No GWB	-	240
GoBoard 5/8"	Wood	16 o.c.	Butted	3:6	16-gauge 15/16" crown x 1 1/4" Leg Galvanized Staples	1/2	3:6	435
	Steel[1]	16 o.c.	Butted with 1/8" Gap, Sealant[2]	6:12	GoBoard 1 5/8" Hi-Lo Self-Drilling Screws with 1 1/4" GoBoard Washers	No GWB[7]	-	220
						1/2	8:8	295
GoBoard 1"	Steel[9]	24 o.c.	Butted with 1/8" Gap, Sealant[2]	6:12	GoBoard 1 5/8" Hi-Lo Self-Drilling Screws with 1 1/4" GoBoard Washers. GoBoard Pro Sealant Between Studs and GoBoard 1"[6]	No GWB[7]	-	175
				12:12	1 1/2" Bugle Head Self-Drilling Screws GoBoard Pro Sealant Between Studs and GoBoard 1"[6]	1/2	8:8	390
			Butted	12:12	GoBoard 1 5/8" Hi-Lo Self-Drilling Screws. GoBoard Pro Sealant Between Studs and GoBoard 1"[6]	1/2	8:8	390

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m

1. Minimum 20-gauge (33 mil), 3 5/8" x 1 5/8", 33 ksi steel studs.
2. Install GoBoard panels with a 1/8" gap between boards on all sides and fill gap fully with GoBoard Pro Sealant. Alternatively, the boards may be butted together and a gap created by routing a 1/8" wide by 3/8" deep groove. A minimum 2" wide strip of GoBoard Pro Sealant shall cover each joint (minimum 1" of GoBoard Pro Sealant on each side of the joint).
3. Fasteners shall be installed with the head in contact with the face of the board. Fastener edge distance shall be a minimum of 3/8" on all sides of the board.
4. For walls with wood studs and GWB, the GWB shall be attached with minimum #6 x 1 1/4" Type W screws. Fasteners shall maintain a minimum edge distance of 3/8" and spaced at 8" on center along the edges and in the field.
5. For walls with steel studs and GWB, the GWB shall be attached with minimum #6 x 1 1/4" Type S screws. Fasteners shall maintain a minimum edge distance of 3/8" and spaced at 8" on center along the edges and in the field.
6. GoBoard 1" shall be adhered to the studs with GoBoard Pro Sealant (minimum 1/4" thick bead) along the length of each stud.
7. Where GWB is not installed on the interior face of the wall, the wall shall be constructed with mid-height strapping and blocking per IRC Section R603.3.3.
8. Minimum 18-gauge (33 mil), 3 5/8" x 1 5/8", 33 ksi steel studs.

6.2.4 *Seismic Design:*

6.2.4.1 GoBoard panel shear walls are permitted to resist seismic load forces using the seismic allowable unit shear capacities set forth in **Table 3** when seismic design is required in accordance with IBC Section 1613.

6.2.4.1.1 The response modification coefficient, R, system overstrength factor, Ω_0, and deflection amplification factor, C_d, indicated in **Table 3** shall be used to determine the base shear, element design forces and design story drift in accordance with ASCE 7 Chapter 12 and Section 14.5.

Table 3. Allowable Unit Shear Capacity & Design Coefficients – Seismic[1,2]

Seismic Force Resisting System	Stud Type	Joint Condition[4]	Max. Stud Spacing (in)	Gypsum Wallboard[5] (GWB)	Seismic Allowable Unit Shear Capacity[6] (plf)	Apparent Shear Stiffness, G_a (kips/in)	Response Modification Factor,[6] R	System Over-strength Factor,[7] Ω_0	Deflection Amplifi-cation Coefficient,[8] C_d	Structural System Limitations and Building Height Limit[9,10] (ft)				
										Seismic Design Category				
										B	C	D	E	F
GoBoard 5/8"	Steel[3]	Butted with 1/8" gap, Sealant[4]	16	No GWB	175	4.5	6 1/2	3	4	NL	NL	65	65	65
				1/2	235	13.3	6 1/2	3	4	NL	NL	65	65	65

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m

1. GoBoard attached with a 1 5/8" self-drilling GoBoard Hi-Lo Screws with 1 1/4" GoBoard washers. Screw shall penetrate a minimum of three thread lengths beyond the stud. Fasteners are to be installed spaced a maximum of 6" o.c. at the panel edges and 12" o.c. in the field. Fastener edge distance shall be a minimum of 3/8". Fastener head shall be in contact with the panel surface
2. All seismic design parameters follow the equivalency as defined in **Section 8** of this report.
3. Minimum 20-gauge (33 mil), 3 5/8" x 1 5/8", 33ksi steel studs.
4. Install GoBoard panels with a 1/8" gap between boards on all sides, and fill gap fully with GoBoard Pro Sealant. A minimum 2" wide strip of GoBoard Pro Sealant shall cover each joint (minimum 1" of GoBoard Pro sealant on each side of the joint).
5. Where required, walls installed with minimum 1/2" gypsum wallboard shall be attached with minimum #6 x 1 1/4" Type S screws. Fasteners are to be installed spaced a maximum of 8" o.c. at the panel edges and 8" o.c. in the field. Fasteners shall maintain a minimum edge distance of 3/8".
6. Response modification coefficient, R, for use throughout ASCE 7. Note: R reduces forces to a strength level, not an allowable stress level.
7. The tabulated value of the overstrength factor, Ω_0, is permitted to be reduced by subtracting one-half (0.5) for structures with flexible diaphragms.
8. Deflection amplification factor, C_d, for use with ASCE 7 Sections 12.8.6, 12.8.7, and 12.9.1.2.
9. Heights are measured from the base of the structure as defined in ASCE 7 Section 11.2.
10. NL = Not Limited

6.2.5 *Transverse Wind Loading:*

6.2.5.1 GoBoard is permitted to resist transverse wind load forces using the allowable transverse loads (in pounds per square foot) set forth in **Table 4**.

6.2.5.2 Required component and cladding loads to be resisted are found in IBC Section 1609.1.1, IRC Table R301.2.1(1),[22] and IRC Table 301.2.1(2).[23] Allowable component and cladding wind speeds for GoBoard are set forth in **Table 4**.

Table 4. Transverse (Out-of-Plane) Wind Load Resistance

Product	Stud Type	Maximum Stud Spacing (in)	Fastener Spacing (edge:field) (in)	Fastener Type[4]	Allowable Design Value (psf)	Allowable Components & Cladding Basic Wind Speed[1,2] (mph)	
						ASCE 7-05 (V_{asd})	ASCE 7-10 and 7-16 (V_{ult})
GoBoard 5/8"	Wood	16 o.c.	8:8	#9-18 x 1 1/4" GoBoard Hi-Lo Wood Screw	130	155	200
			3:6	16-gauge Staple 1" Crown x 1 1/4" Leg	100	155	200
	Steel[3]	16 o.c.	6:12	1 5/8" Self-Drilling GoBoard Hi-Lo Screws with 1 1/4" GoBoard Washers	110	155	200
		24 o.c.	12:12	1 1/2" Type W Bugle Screws	70	155	200
GoBoard 1"	Steel[3]	24 o.c.	12:12	1 1/2" Type W Bugle Screws	105	155	200

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Design wind load capacity shall be in accordance with IBC Section 1609.1.1.
2. Allowable wind speeds are based on the following: Mean roof height 30', Exposure B, Zone 4, 10 sq. ft. effective wind area. See the applicable building code for any adjustments needed for specific building location and configuration.
3. Minimum 20-gauge (33 mil) 3 5/8" x 1 5/8", 33 ksi steel studs.
4. Fasteners shall be installed with the head in contact with the face of the board. Fastener edge distance shall be a minimum of 3/8" on all sides of the board.

6.2.6 *Uplift Resistance:*

6.2.6.1 GoBoard is permitted to resist uplift forces using the allowable uplift loads (in pounds per linear foot) set forth in **Table 5**.

Table 5. Uplift Performance

Product	Stud Type	Maximum Stud Spacing (in)	Fastener Type & Spacing (edge:field)[4] (in)	Allowable Uplift Capacity[1,2] (plf)
GoBoard 5/8"	Steel[3]	16 o.c.	1 5/8" Self-Drilling GoBoard Hi-Lo Screws with 1 1/4" GoBoard Washers Spaced 6:12	220

SI: 1 in = 25.4 mm, 1 lb/ft = 0.0146 kN/m

1. The capacities shown are for the purpose of providing information on the hold-down capacity of the sheathing to the bottom plate connection independent of lateral loading. Where combined shear and uplift loading is needed, consult a professional engineer.
2. Tested in accordance with ASTM E72.
3. Minimum 20-gauge (33 mil) 3 5/8" x 1 5/8" 33ksi steel studs.
4. Fasteners shall be installed with the head in contact with the face of the board. Fastener edge distance shall be a minimum of 3/8" on all sides of the board.

6.3 *Thermal Insulation*

6.3.1 GoBoard meets the continuous insulated sheathing requirements complying with the provisions of IECC Section C402, and has the thermal resistance properties shown in **Table 6**.

Table 6. Thermal Resistance Properties

Product[1]	R-Value [(hr·ft²·°F)/Btu]
GoBoard 1/2"	2.1
GoBoard 5/8"	2.4
GoBoard 1"	5.0

SI: 1 [(hr·ft²·°F)/Btu] = 0.176 [(K·m²)/W]
1. Tested in accordance with ASTM C518

6.4 *Water-Resistive Barrier (WRB)*

6.4.1 GoBoard may be used as a WRB as prescribed in IBC Section 1403.2[24] and IRC Section R703.2 when installed on exterior walls as described in this section.

6.4.2 GoBoard shall be installed with board joints placed directly over exterior framing spaced a maximum of 24" (610 mm) o.c. The fasteners used to attach the board shall be installed in accordance with **Section 9**.

6.4.3 All seams and joints shall be sealed with GoBoard Sealant or taped with an approved construction tape in accordance with **Section 9**.

6.4.3.1 Approved construction tapes includes 4" wide GoBoard® Seam Tape or Shurtape® XP-3233-12.

6.4.4 A separate WRB may also be provided. If a separate WRB method is used, sealing of the sheathing joints is not required.

6.4.5 Flashing must be installed at all sheathing penetrations and shall comply with the all applicable code sections.

6.5 *Water Vapor Transmission*

6.5.1 GoBoard has the water resistance properties as shown in **Table 7**.

Table 7. Water Resistance Properties

Product[1]	Water Vapor Permeance (perm)	Classification
GoBoard 1/2"	< 0.5	Class II
GoBoard 5/8"		
GoBoard 1"		

1. Tested in accordance with ASTM E96, desiccant method.

6.6 *Air Barrier*

6.6.1 GoBoard meets the requirements of IRC Section N1101.10.5, IECC Section R303.1.5, and IECC Section C402.5.1.3 for use as an air barrier material when installed in accordance with the manufacturer installation instructions and this report, with all seams including the top and bottom edges, taped.

6.6.1.1 GoBoard was evaluated in accordance with ASTM E2178. At a pressure differential of 75 Pa, air permeability of GoBoard is less than 0.02 L/(s·m^2).

6.6.2 All penetrations shall be flashed and sealed in accordance with the flashing manufacturer installation instructions.

6.7 *Surface Burn Characteristics*

6.7.1 GoBoard panels have the surface burn characteristics shown in **Table 8**.

Table 8. Surface Burn Characteristics

Product[1]	Flame Spread	Smoke Developed	Classification
GoBoard 1/2"	< 75	< 450	Class B
GoBoard 5/8"	< 25	< 450	Class A
GoBoard 1"	< 75	< 450	Class B

1. Tested in accordance with ASTM E84

6.8 *Minimum Fastening Requirements for Non-Structural Applications*

6.8.1 Where other means of wall bracing are provided or are not required, and an approved exterior wall covering capable of separately resisting loads perpendicular to the face of the walls is installed over the sheathing, GoBoard may be used.

6.8.2 Stud spacing shall be a maximum of 24" (610 mm) o.c.

6.8.3 *GoBoard Installed on Light-Frame Wood Walls:*

6.8.3.1 The sheathing panels are applied to wall framing with minimum 16-gauge staples, 1" crown with minimum 1" leg

6.8.4 *GoBoard Installed on Light-Frame Steel Walls:*

6.8.4.1 GoBoard Hi-Lo 1 5/8" self-drilling screws with 1 1/4" GoBoard washers

6.8.4.2 1 1/2" bugle head self-drilling screws

6.8.4.3 Maximum of 12" o.c. (305 mm) along the edge and 12" o.c. (305 mm) in the field, with a 3/8" minimum edge distance

6.9 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[25]

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.[26]

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.[27]

8 Regulatory Evaluation and Accepted Engineering Practice

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

8.1.1 Compressive performance in accordance with ASTM D2394.

8.1.2 Structural performance under lateral load conditions for wind loading for use with the IBC performance based provisions, IBC Section 2306.1 and IBC Section 2306.3 for light-frame wood wall assemblies.

8.1.3 Structural performance under lateral load conditions for wind and seismic loading for use with the IBC performance-based provisions, IBC Section 2211.1 for light-frame steel wall assemblies.

8.1.4 **Table 3** provides Seismic Design Coefficients (SDC) that conform to the requirements in ASCE 7 Section 12.2.1 and Table 12.2-1 for design of wall assemblies in buildings that require seismic design in accordance with ASCE 7 (i.e., all seismic design categories).

8.1.4.1 The basis for equivalency testing is outlined in ASCE 7 Section 12.2.1:

> **12.2.1.1 Alternative Structural Systems.** Use of seismic force-resisting systems not contained in Table 12.2-1 shall be permitted contingent on submittal to and approval by the Authority Having Jurisdiction and independent structural design review of an accompanying set of design criteria and substantiating analytical and test data. The design criteria shall specify any limitations on system use, including Seismic Design Category and height; required procedures for designing the system's components and connections; required detailing; and the values of the response modification coefficient, R; overstrength factor, Ω_0; and deflection amplification factor, C_d.

8.1.4.2 The basis of the seismic evaluation performed as part of this report is based on ASTM D7898 and testing per ASTM E2126 to establish SDC that conform to the requirements of ASCE 7 Section 12.2.1.1.

8.1.5 Resistance to transverse loads for wall assemblies used in light-frame wood and steel construction in accordance with IBC Section 1609.1.1 and IRC Section R301.2.1.

8.1.6 Resistance to uplift loads for wall assemblies used in light-frame steel construction in accordance with IBC Section 1609 and IRC Section R301.2.1.

8.1.7 Performance of the foam plastic component of GoBoard in accordance with IBC Section 2603 and IRC Section R316.

8.1.8 Performance for use as insulating sheathing (R-value) in accordance with IRC Section N1102.1, IRC Section N1102.2, IECC Section C402, and IECC Section R402.

8.1.9 Performance for use as a water-resistive barrier in accordance with IBC Section 1403.2[28] and IRC Section R703.2.

8.1.10 Performance for use as a vapor retarder in accordance with and IBC Section 202, IBC Section 1404.3,[29] IRC Section R202 and IRC Section R702.7.

8.1.11 Performance for use as an air barrier material in accordance with IRC Section N1102.4.1.1, IECC Section C402.5.1.3, and IECC Section R303.1.5.[30]

8.1.12 Surface burn characteristics in accordance with IBC Section 2603.3 and IRC Section R316.3.

8.2 Use of GoBoard in a Portal Frame with Hold-downs (PFH) is outside the scope of this report.

8.3 Performance of GoBoard used in light-frame wood construction to resist seismic loading is outside the scope of this report.

8.4 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 Engineering, LLC (DrJ), an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP/approved sources. DrJ is qualified[31] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise, respectively.

8.5 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which are also its areas of professional engineering competence.

8.6 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, the more restrictive shall govern.

9.3 Where required, gypsum wallboard shall be a minimum $^1/_2$" thickness.

9.4 *Orientation*

9.4.1 GoBoard must be installed vertically with the length dimension of the panels parallel to the framing behind and all panel edges supported by framing or blocking.

9.4.2 GoBoard must be installed over studs a nominal thickness of not less than 2" (51 mm) and spaced a maximum of 24" (610 mm) o.c.

9.5 *Fastener Type*

9.5.1 *GoBoard Installed on Light-Frame Wood Walls:*

9.5.1.1 #9 18 x $1^1/_4$" GoBoard Hi-Lo Wood Screws

9.5.1.2 Staples shall be a minimum 16-gauge, 1" crown with minimum 1" leg

9.5.1.3 Galvanized roofing nails minimum $1^1/_4$"

9.5.2 *GoBoard Installed on Light-Frame Steel Walls:*

9.5.2.1 GoBoard Hi-Lo $1^5/_8$" self-drilling screws with $1^1/_4$" GoBoard washers

9.5.2.2 $1^1/_2$" bugle head self-drilling screws

9.5.3 *Gypsum Wallboard (GWB):*

9.5.3.1 Where required, GWB shall be installed with a minimum:

9.5.3.1.1 #6 x $1^1/_4$" Type W or S screws

9.5.3.1.2 5d cooler nails (on light-frame wood walls only)

9.6 *Fastener Spacing*

9.6.1 Fastening schedule listed in accordance with **Table 2** through **Table 5**, shall be used for the corresponding allowable values to be valid.

9.6.1.1 The following fastening provisions herein are for general guidelines for installation.

9.6.2 *GoBoard Installed on Light-Frame Wood Walls:*

9.6.2.1 Maximum of 8" o.c. (203 mm) along the edge and 8" o.c. (203 mm) in the field.

9.6.3 *GoBoard Installed on Light-Frame Steel Walls:*

9.6.3.1 Maximum of 12" o.c. (305 mm) along the edge and 12" o.c. (305 mm) in the field.

9.7 *Fastener Edge Distance*

9.7.1 Fastener edge distance is a minimum of 3/8" (9.5 mm) for both GoBoard and gypsum.

9.7.2 Where staples are used, always fasten staples parallel to the framing member.

9.7.3 Where GoBoard Hi-Lo Screws are used, the fasteners shall be staggered at the board joints to avoid overlapping.

9.8 *Treatment of Joints*

9.8.1 GoBoard sheathing joints must be butted at framing members, and a single row of fasteners must also be applied to each panel edge into the framing behind.

9.8.2 Do not tack GoBoard to framing, but fasten each panel completely once fastening begins.

9.8.3 For installation on steel studs and when GoBoard is used for structural resistance, GoBoard panels shall be installed in one of the following ways:

9.8.3.1 With a 1/8" gap between boards on all sides and the gap should be filled with GoBoard Pro Sealant. A minimum 2" wide strip of GoBoard Pro sealant shall cover each joint (minimum 1" of GoBoard Pro Sealant on each side of the joint).

9.8.3.2 With board joints butted and taped with 4" wide GoBoard Seam Tape or Shurtape XP-3233-12. The tape shall be adhered to the board such that there are approximately 2" of tape overlapping the board on each side of the joint.

9.9 *Window Treatments*

9.9.1 If windows are made to accommodate traditional 1/2" (12.7 mm) sheathing materials, order windows with adjustable nailing fins from the supplier. Door brick moldings may be planed or routed 3/8" (9.5 mm) in order to accommodate different sheathing thicknesses, either at the jobsite or by the millwork supplier.

9.9.2 GoBoard must be installed with appropriate flashing and counter-flashing in conformance with accepted building standards and in compliance with local building codes and the flashing manufacturer installation 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 Compressive strength testing in accordance with ASTM D2394

10.1.2 Lateral wall testing in accordance with ASTM E72 and ASTM E564

10.1.3 Cyclic lateral wall testing in accordance with ASTM E2126 and analysis per ASTM D7989

10.1.4 Transverse load testing in accordance with ASTM E330 and ABTG ANSI/FS 100

10.1.5 Bending tests for foam plastic insulation in accordance with ABTG ANSI/FS 100

10.1.6 Uplift capacity testing in accordance with ASTM E72

10.1.7 Thermal resistance property testing in accordance with ASTM C518

10.1.8 Material testing in accordance with ASTM C1289

10.1.9 Water penetration testing in accordance with ASTM E331

10.1.10 Water vapor permeance testing in accordance with ASTM E96

10.1.11 Air permeance testing in accordance with ASTM E2178

10.1.12 Flame spread and smoke developed rating tests in accordance with ASTM E84

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: 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 GoBoard on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, GoBoard has performance characteristics that were tested and/or meet applicable regulations and 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, GoBoard shall be approved for the following applications:

11.2.1 Compressive performance in accordance with ASTM D2394.

11.2.2 Lateral load resistance due to wind loading in accordance with IBC Section 2306.1 and IBC Section 2306.3 for light-frame wood, and with IBC Section 2211.1 for steel wall assemblies.

11.2.3 Lateral load resistance due to seismic loading in accordance with IBC Section 2211.1 for light-frame steel wall assemblies.

11.2.4 Resist transverse loads on wall assemblies used in light-frame wood and steel construction in accordance with IBC Section 1609.1.1 and IRC Section R301.2.1.

11.2.5 Resist uplift loads on wall assemblies used in light-frame steel construction in accordance with IBC Section 1609 and IRC Section R301.2.1.

11.2.6 Performance of foam plastics in accordance with IBC Section 2603 and IRC Section R316.

11.2.7 Performance for use as insulating sheathing (R-value) in accordance with IRC Section N1102.1, IRC Section N1102.2, IECC Section C402, and IECC Section R402.

11.2.8 Performance for use as a WRB in accordance the IBC Section 1403.2[33] and IRC Section R703.2.

11.2.9 Performance for use as a vapor retarder in accordance with IBC Section 202, IBC Section 1404.3,[34] IRC Section R202, and IRC Section R702.7.

11.2.10 Performance for use as an air barrier in accordance with IRC Section N1102.4.1.1 and IECC Section C402.5.1.3.

11.2.11 Surface burning characteristics in accordance with IBC Section 2603.3 and IRC Section R316.3.

11.3 Unless exempt by state statute, when GoBoard 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 Johns Manville.

11.5 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10[35] are similar) in pertinent part states:

> **104.11 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. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons the alternative was not approved.

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

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

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

11.6.3 Federal law, Title 18 US Code Section 242, requires that where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.

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

11.8 Through the IAF Multilateral Agreements (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 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 Allowable shear loads shall not exceed values in **Table 2** for wind loads and **Table 3** for seismic loads.

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** of this report.

12.4.5 The review of this report by the AHJ shall comply with IBC Section 104 and IBC Section 105.4.

12.4.6 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.4, IBC Section 110.4, IBC Section 1703, IRC Section R104.4, 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 accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new material or assemblies as provided for in Section 104.11"*, all of IBC Section 104, and IBC Section 105.4.

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 The innovative product 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.jm.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.

15 Approved for Use Pursuant to United States and International Legislation Defined in Appendix A

15.1 GoBoard is included in this report published by an approved agency that is concerned with evaluation of products or services, maintains periodic inspection of the production of listed materials or periodic evaluation of services. This report states either that the material, product, or service meets recognized standards or has been tested and found suitable for a specified purpose. This report meets the legislative intent and definition of being acceptable to the AHJ.

Appendix A

1 Legislation that Authorizes AHJ Approval

1.1 **Fair Competition**: State legislatures have adopted Federal regulations for the examination and approval of building code referenced and alternative products, materials, designs, services, assemblies, and/or methods of construction that:

1.1.1 Advance innovation.

1.1.2 Promote competition so all businesses have the opportunity to compete on price and quality in an open market on a level playing field unhampered by anticompetitive constraints.

1.1.3 Benefit consumers through lower prices, better quality, and greater choice.

1.2 **Adopted Legislation:** The following local, state and federal regulations affirmatively authorize products to be approved by AHJs, delegates of building departments, and/or delegates of an agency of the federal government:

1.2.1 Interstate commerce is governed by the Federal Department of Justice to encourage the use of innovative products, materials, designs, services, assemblies, and/or methods of construction. The goal is to *"protect economic freedom and opportunity by promoting free and fair competition in the marketplace"*.

1.2.2 Title 18 US Code Section 242 affirms and regulates the right of individuals and businesses to freely and fairly have new products, materials, designs, services, assemblies, and/or methods of construction approved for use in commerce. Disapproval of alternatives shall be based upon non-conformance with respect to specific provisions of adopted legislation and shall be provided in writing stating the reasons why the alternative was not approved, with reference to the specific legislation violated.

1.2.3 The federal government and each state have a public records act. In addition, each state also has legislation that mimics the federal Defend Trade Secrets Act 2016 (DTSA),[39] where providing test reports, engineering analysis, and/or other related IP/TS is subject to prison of not more than ten years[40] and/or a $5,000,000 fine or 3 times the value of[41] the Intellectual Property (IP) and Trade Secrets (TS).

1.2.3.1 Compliance with public records and trade secret legislation requires approval through the use of Listings, certified reports, Technical Evaluation Reports, duly authenticated reports, and/or research reports prepared by approved agencies and/or approved sources.

1.2.4 For new materials[42] that are not specifically provided for in any regulation, the design strengths and permissible stresses shall be established by tests, where suitable load tests simulate the actual loads and conditions of application that occur.

1.2.5 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design using accepted engineering practice.[43]

1.2.6 The commerce of approved sources (i.e., registered PEs) is regulated by professional engineering legislation. Professional engineering commerce shall always be approved by AHJs, except where there is evidence provided in writing, that specific legislation have been violated by an individual registered PE.

1.2.7 The AHJ 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 IBC Section 104.11.[44]

1.3 **Approved**[45] **by Los Angeles**: The Los Angeles Municipal Code (LAMC) states in pertinent part that the provisions of LAMC are not intended to prevent the use of any material, device, or method of construction not specifically prescribed by LAMC. The Department shall use Part III, Recognized Standards in addition to Part II, Uniform Building Code Standards of Division 35, Article 1, Chapter IX of the LAMC in evaluation of products for approval where such standard exists for the product or the material and may use other approved standards that apply. Whenever tests or certificates of any material or fabricated assembly are required by Chapter IX of the LAMC, such tests or certification shall be made by a testing agency approved by the Superintendent of Building to conduct such tests or provide such certifications. The testing agency shall publish the scope and limitation(s) of the listed material or fabricated assembly.[46] The Superintendent of Building Approved Testing Agency Roster is provided by the Los Angeles Department of Building and Safety (LADBS). The Center for Building Innovation (CBI) Certificate of Approval License is TA24945. Tests and certifications found in a DrJ Listing are LAMC approved. In addition, the Superintendent of Building 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 the California Building Code (CBC) Section 1707.1.[47]

1.4 **Approved by Chicago**: The Municipal Code of Chicago (MCC) states in pertinent part that an Approved Agency is a Nationally Recognized Testing Laboratory (NRTL) acting within its recognized scope and/or a certification body accredited by the American National Standards Institute (ANSI) acting within its accredited scope. Construction materials and test procedures shall conform to the applicable standards listed in the MCC. Sufficient technical data shall be submitted to the building official to substantiate the proposed use of any product, material, service, design, assembly, and/or method of construction not specifically provided for in the MCC. This technical data shall consist of research reports from approved sources (i.e., MCC defined Approved Agencies).

1.5 **Approved by New York City**: The 2022 NYC Building Code (NYCBC) states in part that an approved agency shall be deemed[48] an approved testing agency via ISO/IEC 17025 accreditation, an approved inspection agency via ISO/IEC 17020 accreditation, and an approved product evaluation agency via ISO/IEC 17065 accreditation. Accrediting agencies, other than federal agencies, must be members of an internationally recognized cooperation of laboratory and inspection accreditation bodies subject to a mutual recognition agreement[49] (i.e., ANAB, International Accreditation Forum also known as IAF, etc.).

1.6 **Approved by Florida**: Statewide approval of products, methods or systems of construction shall be approved, without further evaluation by:

1.6.1 A certification mark or listing of an approved certification agency

1.6.2 A test report from an approved testing laboratory

1.6.3 A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, from an approved product evaluation entity

1.6.4 A product evaluation report based upon testing, comparative or rational analysis, or a combination thereof, developed, signed, and sealed by a professional engineer or architect, licensed in Florida.

1.6.5 For local product approval, products or systems of construction shall demonstrate compliance with the structural wind load requirements of the Florida Building Code (FBC) through one of the following methods:

1.6.5.1 A certification mark, listing, or label from a commission-approved certification agency indicating that the product complies with the code,

1.6.5.2 A test report from a commission-approved testing laboratory indicating that the product tested complies with the code,

1.6.5.3 A product-evaluation report based upon testing, comparative or rational analysis, or a combination thereof, from a commission-approved product evaluation entity which indicates that the product evaluated complies with the code,

1.6.5.4 A product-evaluation report or certification based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a Florida professional engineer or Florida registered architect, which indicates that the product complies with the code, or

1.6.5.5 A statewide product approval issued by the Florida Building Commission.

1.6.6 The Florida Department of Business and Professional Regulation (DBPR) website provides a listing of companies certified as a Product Evaluation Agency (i.e., EVLMiami 13692), a Product Certification Agency (i.e., CER10642), and as a Florida Registered Engineer (i.e., ANE13741).

1.7 **Approved by Miami-Dade County (i.e., Notice of Acceptance [NOA])**: A Florida statewide approval is an NOA. An NOA is a Florida local product approval. By Florida law, Miami-Dade County shall accept the statewide and local Florida Product Approval as provided for in Florida legislation 553.842 and 553.8425.

1.8 **Approved by New Jersey**: Pursuant to the 2018 Building Code of New Jersey in IBC Section 1707.1 General,[50] it states: "*In the absence of approved rules or other approved standards, 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 the administrative provisions of the Uniform Construction Code (N.J.A.C. 5:23)*".[51] Furthermore N.J.A.C 5:23-3.7 states: "*Municipal approvals of alternative materials, equipment, or methods of construction*."

1.8.1 **Approvals**: Alternative materials, equipment, or methods of construction shall be approved by the appropriate subcode official provided the proposed design is satisfactory and that the materials, equipment, or methods of construction are suitable for the intended use and are at least the equivalent in quality, strength, effectiveness, fire resistance, durability, and safety of those conforming with the requirements of the regulations.

1.8.1.1 A field evaluation label and report or letter issued by a nationally recognized testing laboratory verifying that the specific material, equipment, or method of construction meets the identified standards or has been tested and found to be suitable for the intended use, shall be accepted by the appropriate subcode official as meeting the requirements of the above.

1.8.1.2 Reports of engineering findings issued by nationally recognized evaluation service programs such as but not limited to, the Building Officials and Code Administrators (BOCA), the International Conference of Building Officials (ICBO), the Southern Building Code Congress International (SBCCI), the International Code Council (ICC), and the National Evaluation Service, Inc., shall be accepted by the appropriate subcode official as meeting the requirements of the above.

1.8.2 The New Jersey Department of Community Affairs has confirmed that technical evaluation reports, from any accredited entity listed by ANAB, meets the requirements of item the previous paragraph, given that the listed entities are no longer in existence and/or do not provide "*reports of engineering findings*".

1.9 **Approved by the Code of Federal Regulations Manufactured Home Construction and Safety Standards**: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[52] and Part 3280,[53] the Department encourages innovation and the use of new technology in manufactured homes. The design and construction of a manufactured home shall conform to the provisions of Part 3282 and Part 3280 where key approval provisions in mandatory language follow:

1.9.1 *"All construction methods shall be in conformance with accepted engineering practices."*

1.9.2 *"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."*

1.9.3 *"The design stresses of all materials shall conform to accepted engineering practice."*

1.10 **Approval by US, Local and State Jurisdictions in General:** In all other local and state jurisdictions, the adopted building code legislation states in pertinent part that:

1.10.1 For new materials that are not specifically provided for in this code, the design strengths and permissible stresses shall be established by tests.[54]

1.10.2 For innovative alternatives and/or methods of construction, the building official shall accept duly authenticated reports from approved agencies with respect to the quality and manner of use of new materials or assemblies.[55]

1.10.2.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is in the ANAB directory.

1.10.2.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[56]

1.10.3 The design strengths and permissible stresses of any structural material…shall conform to the specifications and methods of design of accepted engineering practice performed by an approved source.[57]

1.11 **Approval by International Jurisdictions**: The USMCA and GATT agreements provide for approval of innovative materials, designs, services, and/or methods of construction through the Agreement on Technical Barriers to Trade and the IAF Multilateral Recognition Arrangement (MLA), where these agreements:

1.11.1 State that conformity assessment procedures (i.e., ISO/IEC 17020, 17025, 17065, etc.) are prepared, adopted, and applied so as to grant access for suppliers of like products originating in the territories of other Members under conditions no less favourable than those accorded to suppliers of like products of national origin or originating in any other country, in a comparable situation.

1.11.2 **Approved**: The purpose of the MLA is to ensure mutual recognition of accredited certification and validation/verification statements between signatories to the MLA and subsequently, acceptance of accredited certification and validation/verification statements in many markets based on one accreditation for the timely approval of innovative materials, designs, services, and/or methods of construction.

1.11.3 ANAB is an IAF-MLA signatory where recognition of certificates, validation, and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope, shall be approved.[58]

1.11.4 Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.[59]

1.12 Approval equity is a fundamental commercial and legal principle.[60]

Notes

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

2 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1702

3 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/colorado/ibc-2021/chapter/1/scope-and-administration#104.11

4 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests%20as

5 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/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706:~:text=shall%20conform%20to%20the%20specifications%20and%20methods%20of%20design%20of%20accepted%20engineering%20practice

6 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies

7 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2

8 https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_agency

9 https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_source

10 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.

11 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/

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

13 https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104:~:text=to%20enforce%20the%20provisions%20of%20this%20code

14 https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11:~:text=Where%20the%20alternative%20material%2C%20design%20or%20method%20of%20construction%20is%20not%20approved%2C%20the%20building%20official%20shall%20respond%20in%20writing%2C%20stating%20the%20reasons%20why%20the%20alternative%20was%20not%20approved AND https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#105.3.1:~:text=If%20the%20application%20or%20the%20construction%20documents%20do%20not%20conform%20to%20the%20requirements%20of%20pertinent%20laws%2C%20the%20building%20official%20shall%20reject%20such%20application%20in%20writing%2C%20stating%20the%20reasons%20therefore

15 https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1707.1:~:text=the%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%20104.11

16 https://iaf.nu/en/about-iaf-mla/#:~:text=it%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

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

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

19 Unless otherwise noted, all references in this Listing are from the 2021 version of the codes and the standards referenced therein. This material, product, design, service and/or method of construction also complies with the 2000-2021 versions of the referenced codes and the standards referenced therein.

20 Formerly SBCA ANSI/FS 100

21 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#listed AND https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#labeled

22 2018 IRC Table R301.2(2)

23 2018 IRC Table R301.2(3)

24 2015 IBC Section 1404.2

25 https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1703.4

26 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

27 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

28 2015 IBC Section 1404.2

29 2015 IBC Section 1405.3

30 2018 IECC Section C402.5.1.2.1

31 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.

32 See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition.
33 2015 IBC Section 1404.2
34 2015 IBC Section 1405.3
35 2018 IFC Section 104.9
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 where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.
37 https://up.codes/viewer/wyoming/ibc-2021/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.
39 http://www.drjengineering.org/AppendixC AND https://www.drjcertification.org/cornell-2016-protection-trade-secrets
40 https://www.law.cornell.edu/uscode/text/18/1832#:~:text=imprisoned%20not%20more%20than%2010%20years
41 https://www.law.cornell.edu/uscode/text/18/1832#:~:text=Any%20organization%20that,has%20thereby%20avoided
42 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706.2
43 IBC 2021, Section 1706.1 Conformance to Standards
44 IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General
45 See **Section 11** for the distilled building code definition of Approved.
46 Los Angeles Municipal Code, SEC. 98.0503. TESTING AGENCIES
47 https://up.codes/viewer/california/ca-building-code-2022/chapter/17/special-inspections-and-tests#1707.1
48 New York City, The Rules of the City of New York, § 101-07 Approved Agencies
49 New York City, The Rules of the City of New York, § 101-07 Approved Agencies
50 https://up.codes/viewer/new_jersey/ibc-2018/chapter/17/special-inspections-and-tests#1707.1
51 https://www.nj.gov/dca/divisions/codes/codreg/ucc.html
52 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14
53 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280
54 IBC 2021, Section 1706 Design Strengths of Materials, 1706.2 New Materials. Adopted law pursuant to IBC model code language 1706.2.
55 IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General. Adopted law pursuant to IBC model code language 1707.1.
56 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/
57 IBC 2021, Section 1706 Design Strengths of Materials, Section 1706.1 Conformance to Standards Adopted law pursuant to IBC model code language 1706.1.
58 https://iaf.nu/en/about-iaf-mla/#:~:text=it%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
59 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.
60 https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission