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Technical Evaluation Report

TER 1811-01

GoBoard®

**Johns Manville, A Berkshire
Hathaway Company**

Product:

GoBoard®

Issue Date:

March 14, 2019

Revision Date:

September 1, 2020

Subject to Renewal:

April 1, 2021



COMPANY
INFORMATION:

Johns Manville, A Berkshire Hathaway Company

717 17th Street Ste 800
Denver, CO 80202-3332

(303) 978-2000

www.jm.com

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 PRODUCT EVALUATED¹

1.1 GoBoard®

2 APPLICABLE CODES AND STANDARDS^{2,3}

2.1 Codes

2.1.1 *IBC—12, 15, 18: International Building Code®*

2.1.2 *IRC—12, 15, 18: International Residential Code®*

2.1.3 *IECC—12, 15, 18: International Energy Conservation Code®*

¹ Building codes require data from valid [research reports](#) be obtained from [approved sources](#). Agencies who are accredited through ISO/IEC 17065 have met the [code requirements](#) for approval by the [building official](#). DrJ is an ISO/IEC 17065 [ANAB-Accredited Product Certification Body – Accreditation #1131](#).

Through ANAB accreditation and the [IAF MLA](#), DrJ certification can be used to obtain product approval in any [jurisdiction](#) or country that has [IAF MLA Members & Signatories](#) to meet the [Purpose of the MLA](#) – “certified once, accepted everywhere.”

Building official approval of a licensed [registered design professional](#) (RDP) is performed by verifying the RDP and/or their business entity complies with all professional engineering laws of the relevant [jurisdiction](#). Therefore, the work of licensed RDPs is accepted by [building officials](#), except when plan (i.e., peer) review finds an error with respect to a specific section of the code. Where this TER is not approved, the [building official](#) responds in writing stating the reasons for [disapproval](#).

For more information on any of these topics or our mission, product evaluation policies, product approval process, and engineering law, visit drjcertification.org or call us at 608-310-6748.

² Unless otherwise noted, all references in this TER are from the 2018 version of the codes and the standards referenced therein (e.g., *ASCE 7, NDS, ASTM*). This material, design, or method of construction also complies with the 2000-2015 versions of the referenced codes and the standards referenced therein.

³ All terms defined in the applicable building codes are italicized.



2.2 Standards and Referenced Documents

- 2.2.1 *AISI S100: North American Specification for the Design of Cold-formed Steel Structural Members*
- 2.2.2 *AISI S213: North American Specification for Cold-Formed Steel Framing – Lateral Design*
- 2.2.3 *ANSI/AWC SDPWS: Special Design Provisions for Wind and Seismic*
- 2.2.4 *ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures*
- 2.2.5 *ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*
- 2.2.6 *ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*
- 2.2.7 *ASTM D2394: Standard Test Methods for Simulated Service Testing of Wood and Wood-Based Finish Flooring*
- 2.2.8 *ASTM E2126: Standard Test Methods for Cyclic (Reversed) Load Test for Shear Resistance of Vertical Elements of the Lateral Force Resisting Systems for Buildings*
- 2.2.9 *ASTM E2178: Standard Test Method for Air Permeance of Building Materials*
- 2.2.10 *ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.2.11 *ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.2.12 *ASTM E72: Standard Test Methods of Conducting Strength Tests of Panels for Building Construction*
- 2.2.13 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 2.2.14 *ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials*
- 2.2.15 *SBCA ANSI/FS 100: Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in Exterior Wall Covering Assemblies*

3 PERFORMANCE EVALUATION

3.1 GoBoard® was evaluated to determine:

- 3.1.1 Compressive performance in accordance with *ASTM D2394*.
- 3.1.2 Structural performance under lateral load conditions for wind loading for use with the *IBC* performance based provisions, [Section 2306.1](#) and [Section 2306.3](#) for light-frame wood wall assemblies
- 3.1.3 Structural performance under lateral load conditions for wind and seismic loading for use with the *IBC* performance based provisions, [Section 2306.1](#) and [Section 2306.3](#) for light-frame steel wall assemblies
- 3.1.4 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).
 - 3.1.4.1 The basis for equivalency testing is outlined in Section 12.2.1 of *ASCE 7*:

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_o ; and deflection amplification factor, C_d

- 3.1.5 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](#)

- 3.1.6 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
- 3.1.7 Performance of the foam plastic component of GoBoard® in accordance with IBC Section 2603 and IRC Section R316
- 3.1.8 Performance for use as insulating sheathing (R-value) in accordance with IRC Section N1102.1 and N1102.2 and IECC Section R402
- 3.1.9 Performance for use as a water-resistive barrier (WRB) in accordance with IBC Section 1403.2⁴ and IRC Section R703.2
- 3.1.10 Performance for use as a vapor retarder in accordance with and IBC Section 202 and Section 1404.3,⁵ and IRC Section R202 and Section R702.7
- 3.1.11 Performance for use as an air barrier in accordance with IRC Section N1102.4.1.1 and IECC Section C402.5.1.2.1⁶
- 3.1.12 Surface burning characteristics in accordance with IBC Section 2603.3 and IRC Section R316.3
- 3.2 Use of GoBoard® in a PFH portal frame is outside the scope of this TER.
- 3.3 Performance of GoBoard® used in light-frame wood construction to resist seismic loading is outside the scope of this TER.
- 3.4 Any code compliance issues not specifically addressed in this section are outside the scope of this TER.
- 3.5 Any engineering evaluation conducted for this TER was performed on the dates provided in this TER and within DrJ's professional scope of work.

4 PRODUCT DESCRIPTION AND MATERIALS

- 4.1 The product evaluated in this TER is shown in Figure 1.

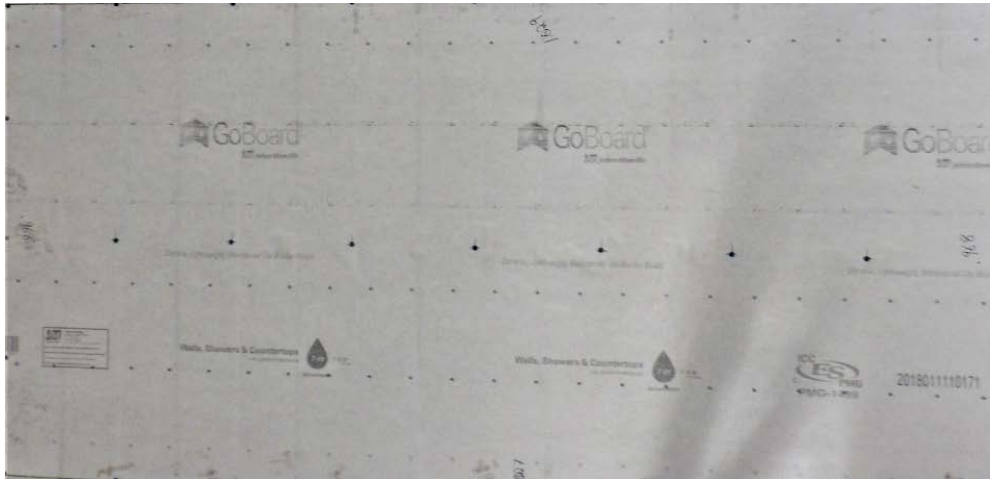


FIGURE 1. GOBOARD® STRUCTURAL SHEATHING

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

⁴ 2015 IBC Section 1404.2

⁵ 2015 IBC Section 1405.3

⁶ 2012 IECC Section C402.4.1.2.1

4.2.1 *Material Availability:*

- 4.2.1.1 Thickness: ½" (12.7 mm), ⅝" (16.9 mm), and 1" (25.4 mm)
- 4.2.1.2 Standard product width: 48" (1219 mm)
- 4.2.1.3 Standard length: 96" and 108" (2438 mm and 2743 mm)
- 4.2.1.3.1 Other custom width and lengths can be manufactured.

5 APPLICATIONS

- 5.1 GoBoard® is used as wall sheathing in Type V construction in accordance with the *IBC* and *IRC*.
- 5.2 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience and technical judgment.

5.3 *Structural Applications*

5.3.1 *General Structural Provisions:*

- 5.3.1.1 Except as otherwise described in this TER, GoBoard® shall be installed in accordance with the applicable building codes listed in Section 2 using the provisions set forth therein for the design and installation of wood structural panels (WSP).
- 5.3.1.2 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 TER.
- 5.3.1.3 Anchorage for in-plane shear shall be provided to transfer the induced shear force into and out of each shear wall.
 - 5.3.1.3.1 For wind design, anchor bolt spacing shall not exceed 6' o.c.
 - 5.3.1.3.2 For seismic design, anchor bolt spacing shall not exceed 4' o.c.
- 5.3.1.4 The maximum aspect ratio for GoBoard® ½" and GoBoard® 1" shall be 1:1.
- 5.3.1.5 The maximum aspect ratio for GoBoard® ⅝" shall be 2:1.
- 5.3.1.6 The minimum full height panel width shall be 24" (610 mm).
- 5.3.1.7 When used in light-frame wood construction, all panel edges shall be blocked with a minimum 2" (51 mm) nominal lumber.
- 5.3.1.8 Fastener type and spacing shall be per the applicable table of this TER and Section 6. Fasteners shall be installed with the head in contact with the face of the board.
- 5.3.1.9 Installation is permitted for single top plate (advanced framing method) or double top plate applications.
- 5.3.1.10 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with code-defined accepted engineering procedures, experience, and technical judgment.

5.3.2 *Compressive Strength:*

- 5.3.2.1 GoBoard® panels have the compressive strength listed in Table 1.

TABLE 1. COMPRESSIVE STRENGTH OF GOBOARD®

Product	Compressive load at 0.05" Deformation (lbf)	Compressive stress at 0.05" Deformation (psi)	Deformation at 1,000 lbf (in)
GoBoard® ⅝"	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.



5.3.3 Performance-Based Construction

- 5.3.3.1 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.
- 5.3.3.2 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.
- 5.3.3.3 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*.
 - 5.3.3.3.1 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.
- 5.3.3.4 GoBoard® is permitted to resist transverse wind load forces using the allowable transverse loads (in pounds per square foot) set forth in Table 4.
 - 5.3.3.4.1 Required component and cladding loads to be resisted are found in *IBC Section 1609.1.1* and *IRC Table R301.2(2)* and *R301.2(3)*. Allowable component and cladding wind speeds for GoBoard® are set forth in Table 4.

TABLE 2. ALLOWABLE UNIT SHEAR CAPACITY FOR WIND

Stud Type	GoBoard® Thickness	Max Stud Spacing (in)	Joint Condition	Fastener Spacing (edge:field) (in)	Minimum Fastener Type & Size ³	Gypsum Wallboard (GWB) Thickness (in)	GWB Fastener Spacing ^{4,5} (edge:field) (in)	Allowable Unit Shear Capacity (plf)
Wood	½"	16 o.c.	Butted	2:6	16 ga. 1" crown x 1" leg galvanized staple	No GWB	-	240
	5/8"			3:6	16 ga. 15/16" crown x 1¼" leg galvanized staples	½	3:6	435
Steel ¹	5/8"	16 o.c.	Butted with 1/8" gap, Sealant ²	6:12	GoBoard® 1-5/8" Hi-Lo self-drilling screws with 1-¼" GoBoard® washers	No GWB ⁷	-	220
						½	8:8	295
	1"	24 o.c.	Butted with 1/8" gap, Sealant ²	6:12	GoBoard® 1-5/8" Hi-Lo self-drilling screws with 1-¼" GoBoard® washers. GoBoard® Pro Sealant between studs and GoBoard® 1" (see Note 6)	No GWB ⁷	-	175
			GoBoard® 1-5/8" Hi-Lo self-drilling. GoBoard® Pro Sealant between studs and GoBoard® 1" (see Note 6)	390				

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

- Minimum 20 ga (33 mil), 3/8" x 1 1/8", 33ksi steel studs.
- 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).
- 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.
- For walls with wood studs and gypsum wallboard, the gypsum wallboard 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.
- For walls with steel studs and gypsum wallboard, the gypsum wallboard 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.
- GoBoard® 1" shall be adhered to the studs with GoBoard® Pro Sealant (minimum 1/4" thick bead) along the length of each stud.
- Where gypsum wallboard 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*.

TABLE 3. SEISMIC ALLOWABLE UNIT SHEAR CAPACITY & DESIGN COEFFICIENTS^{1,2}

Stud Type	Seismic Force Resisting System	Joint Condition ⁴	Max. Stud Spacing (in)	Gypsum Wall-board ⁵ (GWB)	Seismic Allowable Unit Shear Capacity ⁶ (plf)	Apparent Shear Stiffness, G_a (kips/in)	Response Modification Factor, ⁷ R	System Over-strength Factor ⁸ , Ω_0	Deflection Amplification Coefficient ⁹ , C_d	Structural System Limitations and Building Height Limit ^{10,11} (ft)				
										Seismic Design Category				
										B	C	D	E	F
Steel ³	GoBoard® 5/8"	Butted with 1/8" gap, Sealant ⁴	16	No GWB	175	4.5	6½	3	4	NL	NL	65	65	65
				½	235	13.3	6½	3	4	NL	NL	65	65	65

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

- GoBoard® attached with a 1 3/8" 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
- All seismic design parameters follow the equivalency as defined in Section 3 of this TER.
- Minimum 20 ga (33 mil), 3/8" x 1 3/8", 33ksi steel studs.
- 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).
- Where required, walls installed with minimum 1/2" gypsum wallboard shall be attached with minimum #6 x 1 1/4" Type S screws. Fasteners shall maintain a minimum edge distance of 3/8".
- The allowable unit shear capacity is calculated using a factor of safety of 2.5 per ASCE 7.
- Response modification coefficient, R, for use throughout ASCE 7. Note: R reduces forces to a strength level, not an allowable stress level.
- 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.
- Deflection amplification factor, C_d , for use with ASCE 7 Sections 12.8.6, 12.8.7, and 12.9.1.2.
- Heights are measured from the base of the structure as defined in ASCE 7 Section 11.2.
- NL = Not Limited

TABLE 4. TRANSVERSE (OUT-OF-PLANE) WIND LOAD RESISTANCE

Stud Type	Maximum Stud Spacing (in)	Minimum GoBoard® Thickness (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})
Wood	16 o.c.	5/8	8:8	#9-18 x 1 1/4" GoBoard® Hi-Lo Wood Screw	130	200	255
			3:6	16ga staple 1" crown x 1 1/4" leg	100	175	225
Steel ³	16 o.c.	5/8	6:12	1-5/8" self drilling GoBoard® Hi-Lo Screws with 1-1/4" GoBoard® washers	110	185	235
	24 o.c.	5/8	12:12	1-1/2" Type W Bugle Screws	70	145	190
		1	12:12	1-1/2" Type W Bugle Screws	105	180	230

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

- Design wind load capacity shall be in accordance with IBC Section 1609.1.1.
- 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 adjustment need for specific building location and configuration.
- Minimum 20 ga (33 mil) 3/8" x 1 1/8", 33 ksi steel studs.
- 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.

TABLE 5. UPLIFT PERFORMANCE

Stud Type	Product	Maximum Stud Spacing (in)	Fastener Type & Spacing (Edge:Field) ⁴	Allowable Uplift Capacity ^{1,2} (plf)
Steel ³	GoBoard® 5/8"	16 o.c.	1-5/8" self drilling GoBoard® Hi-Lo Screws with 1-1/4" GoBoard® washers. 6:12 spacing	220

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

- 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.
- Tested in accordance with ASTM E72.
- Minimum 20 ga (33 mil) 3/8" x 1 1/8" 33ksi steel studs.
- 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.

5.3.4 Thermal Insulation:

- 5.3.4.1 GoBoard® meets the continuous insulated sheathing requirements complying with the provisions of IECC Section C402 and has the thermal resistance as shown in Table 6.

TABLE 6. THERMAL RESISTANCE PROPERTIES

Product	R-Value (F*ft ² *hr/Btu)
GoBoard® 1/2"	2.1
GoBoard® 5/8"	2.4
GoBoard® 1"	5.0

1. Tested in accordance with ASTM C518

5.3.5 Water-Resistive Barrier:

- 5.3.5.1 GoBoard® may be used as a WRB as prescribed in IBC Section 1403.2⁷ and IRC Section R703.2 when installed on exterior walls as described in this section.
- 5.3.5.2 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 6.
- 5.3.5.3 All seams and joints shall be sealed with GoBoard® Sealant or taped with an approved construction tape in accordance with Section 6.
 - 5.3.5.3.1 Approved construction tapes includes 4" wide GoBoard® Seam Tape or Shurtape XP-3233-12.
- 5.3.5.4 A separate WRB may also be provided. If a separate WRB method is used, sealing of the sheathing joints is not required.
- 5.3.5.5 Flashing must be installed at all sheathing penetrations and shall comply with the all applicable code sections.

5.3.6 Water Vapor Transmission:

- 5.3.6.1 GoBoard® has the water resistance properties as shown in Table 7.

TABLE 7. WATER RESISTANCE PROPERTIES

Product	Water Vapor Permeance
GoBoard® ½"	< 0.5 Perm
GoBoard® 5/8"	
GoBoard® 1"	
1. Tested in accordance with ASTM E96, desiccant method.	

5.3.7 Air Barrier:

- 5.3.7.1 GoBoard® meets the requirements of IECC Section C402 for use as a component of the air barrier when installed in accordance with the manufacturer’s installation instructions and this TER with all seams, including the top and bottom edges, taped.
- 5.3.7.2 All penetrations shall be flashed and sealed in accordance with the flashing manufacturer’s installation instructions.

5.3.8 Surface Burn Characteristics:

- 5.3.8.1 GoBoard® panels have the flame spread characteristics as shown in Table 8.

TABLE 8. SURFACE BURN CHARACTERISTICS

Product	Flame Spread	Smoke Developed
GoBoard® ½"	< 75	< 450
GoBoard® 5/8"	< 25	< 450
GoBoard® 1"	< 75	< 450
1. Tested in accordance with ASTM E84.		

5.4 Minimum Fastening Requirements for Non-Structural Applications

- 5.4.1 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.

⁷ 2015 IBC Section 1404.2

- 5.4.2 Stud spacing shall be a maximum of 24" (610 mm) o.c.
- 5.4.3 GoBoard® installed on light-frame wood walls:
 - 5.4.3.1 The sheathing panels are applied to wall framing with minimum 16 gauge staples, 1" crown with minimum 1" leg.
- 5.4.4 GoBoard® installed on light-frame steel walls:
 - 5.4.4.1 GoBoard® Hi-Lo 1 $\frac{1}{8}$ " self-drilling screws with 1 $\frac{1}{4}$ " GoBoard® washers.
 - 5.4.4.2 1 $\frac{1}{2}$ " bugle head self-drilling screws.
- 5.4.5 Maximum of 12" o.c. (305 mm) along the edge and 12" o.c. (305 mm) in the field, with a $\frac{3}{8}$ " minimum edge distance.
- 5.5 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience, and technical judgment.

6 INSTALLATION

- 6.1 Installation shall comply with the manufacturer's installation instructions and this TER. In the event of a conflict between the manufacturer's installation instructions and this TER, the more restrictive shall govern.
- 6.2 Where required, gypsum wallboard shall be a minimum $\frac{1}{2}$ " thickness.
- 6.3 *Orientation*
 - 6.3.1 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.
 - 6.3.2 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.
- 6.4 *Fastener Type*
 - 6.4.1 GoBoard® installed on light-frame wood walls:
 - 6.4.1.1 #9-18 x 1 $\frac{1}{4}$ " GoBoard® Hi-Lo Wood Screws
 - 6.4.1.2 Staples shall be a minimum 16 gauge, 1" crown with minimum 1" leg
 - 6.4.1.3 Galvanized roofing nails minimum 1 $\frac{1}{4}$ "
 - 6.4.2 GoBoard® installed on light-frame steel walls:
 - 6.4.2.1 GoBoard® Hi-Lo 1- $\frac{5}{8}$ " self-drilling screws with 1 $\frac{1}{4}$ " GoBoard® washers
 - 6.4.2.2 1 $\frac{1}{2}$ " bugle head self-drilling screws
 - 6.4.3 *Gypsum Wallboard:*
 - 6.4.3.1 Where required, gypsum wallboard shall be installed with a minimum:
 - 6.4.3.1.1 #6 x 1 $\frac{1}{4}$ " Type W or S screws
 - 6.4.3.1.2 5d cooler nails (on light-frame wood walls only)
- 6.5 *Fastener Spacing*
 - 6.5.1 GoBoard® installed on light-frame wood walls:
 - 6.5.1.1 Maximum of 8" o.c. (203 mm) along the edge and 8" o.c. (203 mm) in the field.
 - 6.5.2 GoBoard® installed on light-frame steel walls:
 - 6.5.2.1 Maximum of 12" o.c. (305 mm) along the edge and 12" o.c. (305 mm) in the field.
- 6.6 *Fastener Edge Distance*
 - 6.6.1 Fastener edge distance is a minimum of $\frac{3}{8}$ " (9.5 mm) for both GoBoard® and gypsum.
 - 6.6.2 Where staples are used, always fasten staples parallel to the framing member.

- 6.6.3 Where GoBoard® Hi-Lo Screws are used, the fasteners shall be staggered at the board joints to avoid overlapping.
- 6.7 *Treatment of Joints*
- 6.7.1 GoBoard® sheathing joints must be butted at framing members, and a single row of fasteners must be applied to each panel edge into the framing behind.
- 6.7.2 Do not tack GoBoard® to framing, but fasten each panel completely once fastening begins.
- 6.7.3 For installation on steel studs and when GoBoard® is used for structural resistance, GoBoard® panels shall be installed in one of the following ways:
- 6.7.3.1 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).
- 6.7.3.2 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.
- 6.8 *Window Treatments*
- 6.8.1 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 the different sheathing thickness, either at the jobsite or by the millwork supplier.
- 6.8.2 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's installation instructions.

7 TEST ENGINEERING SUBSTANTIATING DATA

- 7.1 Compressive strength testing conducted by Intertek in accordance with *ASTM D2394*
- 7.2 Lateral wall testing conducted by NTA, Inc. in accordance with *ASTM E72*
- 7.3 Lateral wall testing conducted by SBCRI in accordance with *ASTM E564*
- 7.4 Cyclic lateral wall testing conducted by SBCRI in accordance with *ASTM E2126*
- 7.5 Transverse load testing conducted by NTA, Inc. and SBCRI in accordance with *ASTM E330* and *FS-100*
- 7.6 Bending tests for foam plastic insulation conducted by SBCRI in accordance with *FS-100*
- 7.7 Uplift capacity testing conducted by SBCRI in accordance with *ASTM E72*
- 7.8 Thermal resistance property testing conducted by QAI Laboratories in accordance with *ASTM C518*
- 7.9 Material testing conducted by NTA, Inc. in accordance with *ASTM C1289*
- 7.10 Water penetration testing conducted by NTA, Inc. in accordance with *ASTM E331*
- 7.11 Water vapor permeance testing conducted by NTA, Inc. in accordance with *ASTM E96*
- 7.12 Air permeance testing conducted by Intertek in accordance with *ASTM E2178*
- 7.13 Flame spread and smoke developed rating tests conducted by Intertek in accordance with *ASTM E84*
- 7.14 Some information contained herein is the result of testing and/or data analysis by other sources which conform to *IBC Section 1703* and relevant professional engineering law. DrJ relies on accurate data from these sources to perform engineering analysis. DrJ has reviewed and found the data provided by other professional sources to be credible.

- 7.15 Where appropriate, DrJ's analysis is based on design values that have been codified into law through codes and standards (e.g., *IBC*, *IRC*, *NDS®*, and *SDPWS*). This includes review of code provisions and any related test data that aids in comparative analysis or provides support for equivalency to an intended end-use application. Where the accuracy of design values provided herein is reliant upon the published properties of commodity materials (e.g., lumber, steel, and concrete), DrJ relies upon the grade mark, stamp, and/or design values provided by raw material suppliers to be accurate and conforming to the mechanical properties defined in the relevant material standard.

8 FINDINGS

- 8.1 When used and installed in accordance with this TER and the manufacturer's installation instructions, the product(s) listed in Section 1.1 are approved for the following:
- 8.1.1 Compressive performance in accordance with *ASTM D2394*
 - 8.1.2 Lateral load resistance due to wind loading in accordance with *IBC Section 2306.1* and *Section 2306.3* for light-frame wood and steel wall assemblies
 - 8.1.3 Lateral load resistance due to seismic loading in accordance with *IBC Section 2306.1* and *Section 2306.3* for light-frame steel wall assemblies
 - 8.1.4 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*
 - 8.1.5 Resist uplift loads on wall assemblies used in light-frame steel construction in accordance with *IBC Section 1609* and *IRC Section R301.2.1*
 - 8.1.6 Performance of foam plastics in accordance with *IBC Section 2603* and *IRC Section R316*
 - 8.1.7 Performance for use as insulating sheathing (R-value) in accordance with *IRC Section N1102.1* and *Section N1102.2* and *IECC Section R402*
 - 8.1.8 Performance for use as a WRB in accordance the *IBC Section 1403.2*⁸ and *IRC Section R703.2*
 - 8.1.9 Performance for use as a vapor retarder in accordance with *IBC Section 202* and *Section 1404.3*,⁹ and *IRC Section R202* and *Section R702.7*
 - 8.1.10 Performance for use as an air barrier in accordance with *IRC Section N1102.4.1.1* and *IECC Section C402.5.1.2.1*¹⁰
 - 8.1.11 Surface burning characteristics in accordance with *IBC Section 2603.3* and *IRC Section R316.3*
- 8.2 *IBC Section 104.11* (*IRC Section R104.11* and *IFC Section 104.9* are similar) 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, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in 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*.

⁸ *2015 IBC 1404.2*

⁹ *2015 IBC Section 1405.3*

¹⁰ *2012 IECC Section C402.4.1.2.1*

- 8.3 This product has been evaluated in the context of the codes listed in Section 2 and is compliant with all known state and local building codes. Where there are known variations in state or local codes applicable to this TER, they are listed here.
- 8.3.1 No known variations

9 CONDITIONS OF USE

- 9.1 Where required by the *building official*, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed, this TER and the installation instructions shall be submitted at the time of *permit* application.
- 9.2 Any generally accepted engineering calculations needed to show compliance with this TER shall be submitted to the AHJ for review and approval.
- 9.3 Design loads shall be determined in accordance with the building code adopted by the *jurisdiction* in which the project is to be constructed and/or by the Building Designer (e.g., *owner* or *registered design professional*).
- 9.3.1 Allowable shear loads shall not exceed values in Table 2 for wind loads and Table 3 for seismic loads.
- 9.3.2 Allowable uplift forces shall not exceed values in Table 5.
- 9.3.3 Transverse allowable design loads shall not exceed those described in Table 4 unless an approved exterior wall covering capable of separately resisting loads perpendicular to the face of the walls is installed over the sheathing.
- 9.4 GoBoard® shall be fully protected from the interior of the building by an approved 15-minute thermal barrier or ignition barrier where required by the applicable code.
- 9.5 In areas where the probability of termite infestation is very heavy, in accordance with IBC Section 2603.8 or IRC Section R318.4, the product must not be placed on exterior walls located within 6" (152 mm) of the ground.
- 9.6 GoBoard® shall not be used as a nailing base.
- 9.7 Walls sheathed with GoBoard® shall not be used to resist horizontal loads from concrete and masonry walls.
- 9.8 When GoBoard® is not installed for use as wall bracing, as described in this TER, the stud walls shall be braced by other materials, in accordance with the applicable code.
- 9.9 When used as a WRB, GoBoard® seams shall be sealed with GoBoard® Sealant or an approved construction tape, as outlined in Section 5.3.5.3.
- 9.10 When used in accordance with the *IBC* in high wind areas, special inspections shall comply with IBC Section 1705.11.¹¹
- 9.11 When used in accordance with the *IBC* in Seismic Design Categories C, D, E or F, special inspections shall comply with IBC Section 1705.12.¹²
- 9.12 At a minimum, this product shall be installed per Section 6 of this TER.
- 9.13 This product is manufactured under a third-party quality control program in accordance with IBC Section 104.4 and 110.4 and IRC Section R104.4 and R109.2.
- 9.14 The actual design, suitability, and use of this TER, for any particular building, is the responsibility of the *owner* or the owner's authorized agent. Therefore, the TER shall be reviewed for code compliance by the *building official* for acceptance.
- 9.15 The use of this TER is dependent on the manufacturer's in-plant QC, the ISO/IEC 17020 third-party quality assurance program and procedures, proper installation per the manufacturer's instructions, the *building official's* inspection, and any other code requirements that may apply to demonstrate and verify compliance with the applicable building code.

¹¹ 2012 IBC Section 1705.10

¹² 2012 IBC Section 1705.11



10 IDENTIFICATION

- 10.1 The product(s) listed in Section 1.1 are identified by a label on the board or packaging material bearing the manufacturer's name, product name, TER number, and other information to confirm code compliance.
- 10.2 Additional technical information can be found at www.jm.com.

11 REVIEW SCHEDULE

- 11.1 This TER is subject to periodic review and revision. For the most recent version of this TER, visit drjcertification.org.
- 11.2 For information on the current status of this TER, contact [DrJ Certification](#).