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PRODUCT: Composite Backer Board

DIVISION: Finishes (09)

SECTION: Backing Boards and Underlayment (28)



Report Holder
Johns Manville
P.O. Box 5108
Denver, CO 80217

Manufacturing Locations

Johns Manville Cornwall Facility
3330 Marleau Avenue
Cornwall ON K6H6B5

1. SUBJECT

- 1.1 **1/4-in. GoBoard® Composite Backer Board**
- 1.2 **1/2-in. GoBoard® Composite Backer Board**
- 1.3 **5/8-in. GoBoard® Composite Backer Board**

2. SCOPE

NTA, Inc. has evaluated the above product(s) for compliance with the applicable sections of the following codes:

- 2.1 2009, 2012, 2015 International Building Code (IBC)
- 2.2 2009, 2012, 2015 International Residential Code (IRC)

NTA, Inc. has evaluated the above product(s) in accordance with:

- 2.3 NTA IM 035.3 SEP01 Composite Backer Board
- 2.4 NTA IM 036 Quality System Requirements

To obtain the most current NTA Listing Report, visit www.ntainc.com/report.

3. USES

- 3.1 **General.** GoBoard® may be used as an alternative non-structural substrate for field-applied ceramic tile or dimensional stone on interior floors, walls, and ceilings in wet and dry areas.
- 3.2 **Construction.** 1/4 and 1/2-in. GoBoard® are considered Class B materials with a flame spread index not to exceed 75 and a smoke developed index not to exceed 450. 5/8-in. GoBoard® is considered a Class A material with a flame spread index not to exceed 25 and a smoke developed index not to exceed 450.
- 3.3 **Backer.** GoBoard® used as a tile backer board provides equivalent performance to ANSI A118.9 cementitious backer units (CBU).

3.4 **Waterproof Membrane.** GoBoard® may be used as a waterproof membrane in interior wet areas and provides equivalent performance to ANSI A118.10.

3.5 **Water Resistive Barrier.** GoBoard® may be used as part of a water resistive barrier when installed as described in this report.

4. DESCRIPTION

- 4.1 **General.** GoBoard®, as shown in Figures 1 through 4, is a composite backer board with a thickness of 1/4, 1/2, or 5/8-in.
- 4.2 **Materials.** GoBoard® has a polyisocyanurate foam core laminated with a glass mat facer on each side.
- 4.3 **Dimensions and Tolerances.** GoBoard® meets the dimension and tolerance requirements found in ASTM C473.

5. DESIGN

The scope of this report is limited to evaluation of GoBoard® as a tile backer board and waterproof membrane. Details related to incorporation of the product beyond that scope are the responsibility of the designer of record.

6. INSTALLATION

- 6.1 **General.** GoBoard® shall be fabricated, identified and erected in accordance with this report, the approved construction documents and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report shall govern. Approved construction documents shall be available at all times on the jobsite during installation.
- 6.2 **Fastening.** GoBoard® is to be fastened with 0.122-in. x 1-1/2-in. barbed shank roofing nails, #8-18 x 1-1/4-in. GoBoard® Steel Stud screws, #9-18 x 1-1/4-in. GoBoard® Hi-Lo Wood Screws, #10 x 1-1/4-in. Backer-On Screws or 1-in. x 1-1/2-in. 16 Ga. Galvanized Staples at a maximum spacing as indicated in Tables 1 through 4.

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6.3 Joints. A 1/8-in. gap is to be provided between *GoBoard*[®] edges at all joints.

6.4 Water Resistive Construction.

6.4.1 The following construction shall be used for *GoBoard*[®] when used in interior wet areas such as showers and baths. *GoBoard*[®] may serve as the waterproof barrier when installed in the following manner;

6.4.1.1 1/4-in and thicker *GoBoard*[®] panels shall be laid out with an 1/8-in. gap provided at all joints. The gap is filled with Johns Manville *GoBoard*[®] Sealant, a silyl-modified polyether hybrid sealant meeting ASTM C920, Type S, Grade NS, Class 25 or better. The sealant is to be spread over a 1-in. area adjacent to the seam on each piece of *GoBoard*[®]. The same sealant is used to cover a 1-in. diameter area over all fastener heads.

6.4.1.2 1/4-in and thicker *GoBoard*[®] panels shall be laid out with an 1/8-in. gap provided at all joints. The gap is filled with mortar and a 2-in. wide Cement Board FibaTape is applied parallel to and centered over the joint. Mortar is then applied over the joint. Once the mortar is cured, two layers of a liquid water-proofing membrane, meeting ANSI A118.10, are applied over the mortar. A final layer of mortar is applied over the water-proofing membrane. The same procedure is used over fastener heads, except the Cement Board FibaTape is not required in these areas.

6.4.2 The following construction shall be used for *GoBoard*[®] when used on exterior walls as a water resistive barrier.

6.4.2.1 1/2-in and thicker *GoBoard*[®] panels shall be laid out with an 1/8-in. gap provided at all joints. Panels are fastened to the framing using 1-in. x 1-1/2-in. 16 Ga. Galvanized Staples 2-in. on center around the perimeter with a 3/8-in edge distance and 6-in. on center through the field. The gap between *GoBoard*[®] panels is filled with Johns Manville *GoBoard*[®] Sealant, a silyl-modified polyether hybrid sealant meeting ASTM C920, Type S, Grade NS, Class 25 or better. The sealant is to be spread over a 2-in. area adjacent to the seam on each piece of *GoBoard*[®]. The same sealant is used to cover a 1-1/2-in. diameter area over all fastener heads.

6.5 Walls. *GoBoard*[®] may be installed on wall framing with a maximum spacing of 16-in. on-center. Vertical *GoBoard*[®] edges must be continuously supported.

6.6 Ceilings. *GoBoard*[®] may be installed on ceiling framing with a maximum spacing of 16-in. on-center.

6.7 Floors. 1/4 and 1/2-in. *GoBoard*[®] may be installed as a backer for tile flooring. It must be fully supported by minimum 19/32-in. thick PS-1, Exposure 1 plywood with joists spaced a maximum of 16-in. on-center. A tiled floor assembly using *GoBoard*[®] and installed in accordance with manufacturer's instructions meets the requirements for a *Light Commercial Rating*, per the *TCNA Handbook*.

6.8 Thermal Barrier. *GoBoard*[®] that is tiled over and installed in accordance with this report and the manufacturer's instructions does not require a thermal barrier on the

interior/tiled surface when installed in a floor, ceiling, or wall assembly.

7. CONDITIONS OF USE

7.1 *GoBoard*[®] as described in this report shall comply with the codes listed in Section 2 above, subject to the following conditions:

7.2 Manufacturer. *GoBoard*[®] must be fabricated at the facility listed in this report.

7.3 Interior Use Only. 1/4-in and 1/2-in. *GoBoard*[®] is rated for use on interior applications as identified in this report. Installation of 1/4-in. and 1/2-in. *GoBoard*[®] requires backer to be supported by a structural sheathing.

7.4 Exterior Use.

7.4.1 5/8-in. *GoBoard*[®] may be used as a water resistive barrier in exterior applications.

7.4.2 When installed in accordance with this report, 5/8-in. *GoBoard*[®] will support loads as described in Tables 1 through 4.

7.4.3 When installed in accordance with this report, 5/8-in. *GoBoard*[®] will perform as an air barrier with air permeability as described in Table 5.

7.5 Construction Types. *GoBoard*[®] shall be considered a combustible building element when assessing construction type in accordance with IBC Chapter 6.

7.6 Fire Rated Assembly. *GoBoard*[®] evaluated as part of a fire rated assembly is beyond the scope of this report.

7.7 Walls and Ceiling. The maximum veneer load *GoBoard*[®] can support for the intended application must be determined by a registered Design Professional.

7.8 Floors. When used on floors 1/4 or 1/2-in. *GoBoard*[®] must be applied over a rated subfloor.

7.9 Not for Use on Floors. 5/8-in. *GoBoard*[®] has not been rated for use as a backer for floor tile.

7.10 Protection from Termites and Decay. *GoBoard*[®] shall not be located within 6-in. from exposed earth.

8. EVIDENCE SUBMITTED

NTA, Inc. has examined the following evidence to evaluate this product:

8.1 Review of plant quality assurance manual in accordance with NTA IM 036 and NTA IM 035.3.

8.2 Qualification test data in accordance with NTA IM 035.3, SEP 01.

8.3 Periodic quality assurance audits of the production facility in accordance with IM036 and IM035.3.

8.4 Periodic verification testing in accordance with NTA, Inc. NTA IM 035.3.

Evaluation evidence and data are on file with NTA, Inc. NTA, Inc. is accredited by the International Accreditation Service (IAS) as follows:

ISO 17020 Inspection Agency (AA-682)

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ISO 17025 Testing Laboratory (TL-259)

ISO 17065 Product Certification Agency (PCA-102)

The scope of accreditation related to testing, inspection or product certification pertain only to the test methods and/or standard referenced therein. Design parameters and the application of building code requirements, such as special inspection, have not been reviewed by IAS and are not covered in the accreditation. Product evaluations are performed under the direct supervision of Professional Engineers licensed in all jurisdictions within the United States as required by the building code and state engineering board rules.

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9. FINDINGS

All products referenced herein are manufactured under an in-plant Quality Assurance program to ensure that the production quality meets or exceeds the requirements of the codes noted herein and the criteria as established by NTA, Inc. Furthermore, product must comply with the conditions of this report.

This report is subject to annual review.

10. IDENTIFICATION

Each eligible product shall be permanently marked to provide the following information:

10.1The NTA, Inc. certification mark, shown below.

10.2NTA's NER No. JNM090413-16

10.3Manufacturer Name

10.4Product Identification

10.5Production Date, Code, or Batch/Lot Number



JNM090413-16



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Table 1: Transverse Wind Load Performance

Sheathing	Description of Framing	Fastener	Spacing (edge/field)	In-Use Load Direction	Allowable Wind Load L/600 (psf)
5/8-in. GoBoard®	2x4 Stud Grade SPF spaced 16-in. on center	#9-18 x 1-1/4-in. GoBoard® Hi-Lo Wood Screws	8/8 spacing with 3/8-in. edge distance	Negative	13
				Positive	22

Table 2: Design Values*

Orientation	Fastener	6-in. O.C. Fasteners 16-in. O.C Studs Allowable Weight (lb/ft ²)	8-in. O.C. Fasteners 16-in. O.C Studs Weight (lb/ft ²)
Ceiling	0.122-in. x 1-1/2-in. Barbed Shank Roofing Nail (0.383-in. Head Diameter)	15	11
	#10 x 1-1/4-in. Backer-On Screw	15	11
	#8-18 x 1-1/4-in. GoBoard® Steel Stud Screw	28	21
	#9-18 x 1-1/4-in. GoBoard® Hi-Lo Wood Screw	28	21
	1-in. x 1-1/2-in. 16 Ga. Galvanized Staples	16	12
Wall	#10 x 1-1/4-in. Backer-On Screw	18	14
	#8-18 x 1-1/4-in. GoBoard® Steel Stud Screw	48	36
	#9-18 x 1-1/4-in. GoBoard® Hi-Lo Wood Screw	48	36
	1-in. x 1-1/2-in. 16 Ga. Galvanized Staples	31	41

*Allowable load is based on factor of safety of 3.

Table 3: Fastener Head Pull Through Values

Fastener	Fastener Pull Through Strength* (lbs)
#10 x 1-1/4-in. Backer-On Screw	49
#8-18 x 1-1/4-in. GoBoard® Steel Stud Screw	68
#9-18 x 1-1/4-in. GoBoard® Hi-Lo Wood Screw	68
1-in. x 1-1/2-in. 16 Ga. Galvanized Staples	54

*Values shown are ultimate loads based on ASTM D1037 Section 15 testing after wet conditioning. No safety factor has been applied.

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Table 4: Allowable In-Plane Shear Strength (Pounds per foot)*

GoBoard®	Framing	GoBoard® to Framing Fasteners	Spacing	Allowable Load (plf)	Load for 1/8-in. Deflection (plf)	Load for 0.2-in. Deflection (plf)
5/8-in. GoBoard®	2x4 Stud Grade SPF Lumber Studs 16-in. On Center Double Top Plate Single Bottom Plate	1-in. x 1-1/2-in. 16 Ga. Galvanized Staples.	2-in. O.C. Edge 6-in. O.C. Field Parallel to Framing (3/8-in. Edge Distance)	146	56	87

*Allowable load is based on a factor of safety of 3. It is the responsibility of the designer of record to select the appropriate safety factor or deflection limit.

Table 5: Test Values

Property		Product											
		1/4-in. GoBoard®				1/2-in. GoBoard®				5/8-in. GoBoard®			
		F _y (lbs)	F _u (lbs)	Yield Str (psi)	Break Str (psi)	F _y (lbs)	F _u (lbs)	Yield Str (psi)	Break Str (psi)	F _y (lbs)	F _u (lbs)	Yield Str (psi)	Break Str (psi)
ASTM C947, Average Flexural Yield Strength (4-in. Wide Specimen on 12-in. Span)	Dry:	16	34	701	1452	45	64	650	932	65	91	535	747
	Wet:	11	17	479	729	20	34	300	495	27	55	220	453
Average ANSI A118.1 Shear Bond Strength (7 day dry conditioning)		Greater than or equal to 50 psi											
Average ANSI A118.1 Shear Bond Strength (7 day dry plus 7 day water soaked conditioning)		Greater than or equal to 50 psi											
Average ANSI A118.1 Shear Bond Strength (28 day dry conditioning)		Greater than or equal to 50 psi											
Average ANSI A118.1 Shear Bond Strength (84 day dry conditioning)		Greater than or equal to 50 psi											
Average ANSI A118.1 Shear Bond Strength (7 day dry plus 100 day water soaked conditioning)		Greater than or equal to 50 psi											
ASTM C666, Procedure B, 25 Cycles of Freezing and Thawing		No defects observed											
ASTM G21: Resistance to Fungi		No Growth											
ASTM G22: Resistance to Bacteria		No Growth											

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Table 5: Test Values (Continued)

Property	Product		
	1/4-in. GoBoard®	1/2-in. GoBoard®	5/8-in. GoBoard®
NFPA 286, Interior Finish Fire Test (Tested with tile installed over GoBoard®)	NR	At 40kW flames did not reach the ceiling 160 kW exposure: Flames did not extend to outer extremities of sample; no flashover 180 kW peak rate of heat release 68 m ³ total smoke release	At 40kW flames did not reach the ceiling 160 kW exposure: Flames did not extend to outer extremities of sample; no flashover 197 kW peak rate of heat release 54 m ³ total smoke release
ASTM D2394 Concentrated Load, Avg. Compressive Stress at 0.05-in. Deformation	NR	262 psi	240 psi
ASTM D1037, Section 21: Falling Ball, Average Drop Height Producing Failure	NR	Dry: 30-in. Soaked: 27-in.	Dry: 31 Soaked: 34
ASTM E84: Surface Burning	Class B Material		Class A Material
ASTM E331, Resistance to Water Penetration	--	Pass	Pass
ASTM C627, Robinson Floor Test on Tile Installation System	Light Commercial		--
ASTM C518 as Specified by ASTM C1289 Section 11.2 Thermal Transmission	½-in. GoBoard®: Thermal Resistance of 2.11 hr-ft ² -°F/BTU @75°F ASTM C1289-15 Type II Class 4		
ASTM E96 Water Vapor Permeability	1/2-in. GoBoard®: 0.50 Perms 5/8-in. GoBoard®: 0.43 Perms		
ASTM E2178 Air Permeability	½-in. GoBoard®: Air Permeability < 0.004cfm/ft ² at 75 Pa (Meets 2015 IECC C402.5.1.2.1)		
ASTM D1037, Section 24, Average Linear Variation Due to Moisture	Less than or Equal to 0.07%		
ASTM D1204, Average Linear Variation Due to Temperature	Less than or equal to 0.7%		
ASTM C297, Average Tensile Strength	Greater than or equal to 35 psi		
IBC803.10, Temperature Test, 200°F for 30 minutes	Interior materials did not detach when tested in horizontal and vertical directions		
ASTM D4068, Hydrostatic Pressure Test	Pass		
ASTM D751, Average Strength Test Values	Breaking Strength: Greater than 170 psi Seam Strength: Greater than 8 lbf/in.		

“NR” denotes “Not Required” due to the application.

“--”denotes that this product thickness was not tested.

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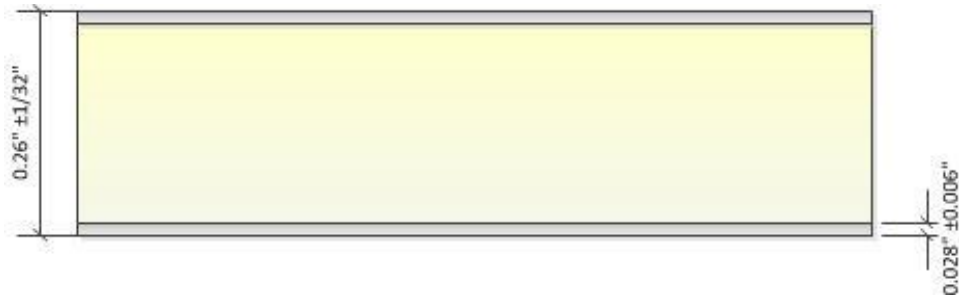


Figure 1: 1/4-in. GoBoard® Thickness Dimensions

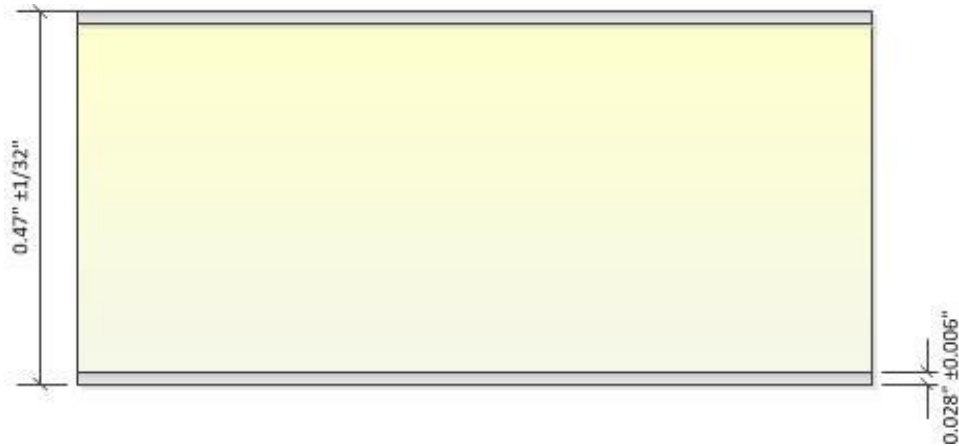


Figure 2: 1/2-in. GoBoard® Thickness Dimensions

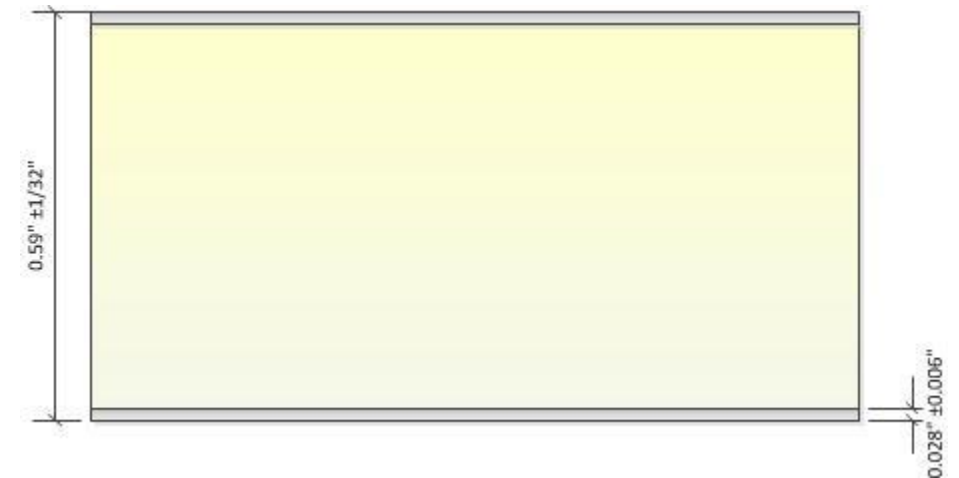


Figure 3: 5/8-in. GoBoard® Thickness Dimensions

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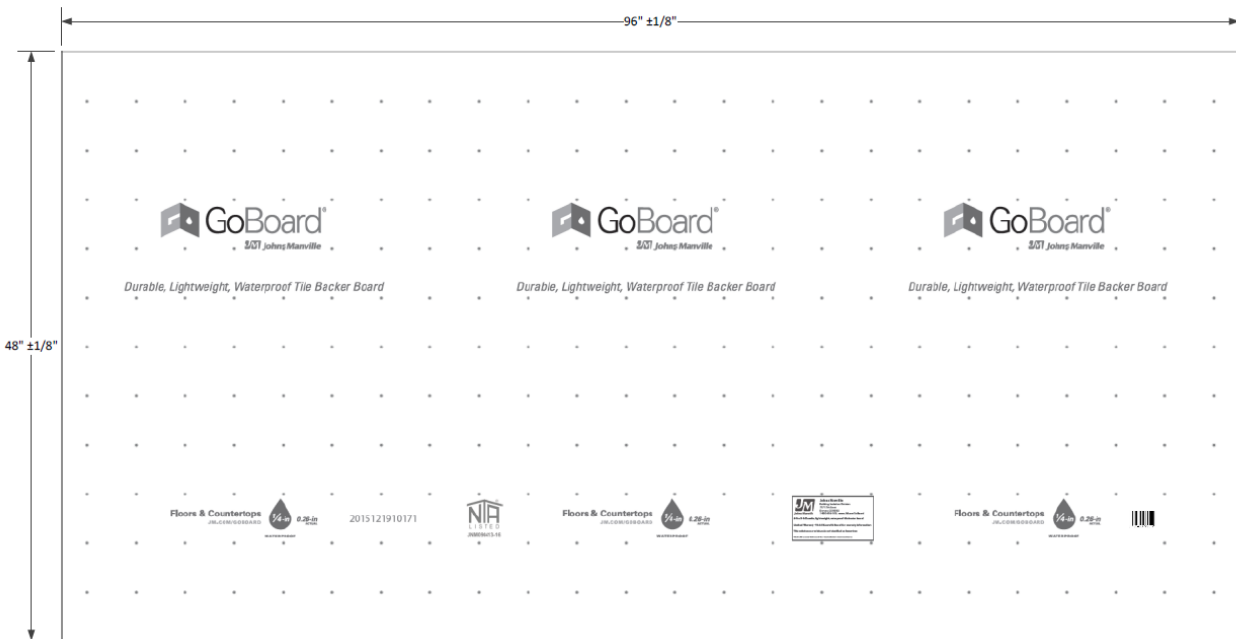


Figure 4: GoBoard® 48-in. x 96-in. Sheet Dimensions
(1/4-in. GoBoard® is shown as an example; dimensions are the same for all three thicknesses)

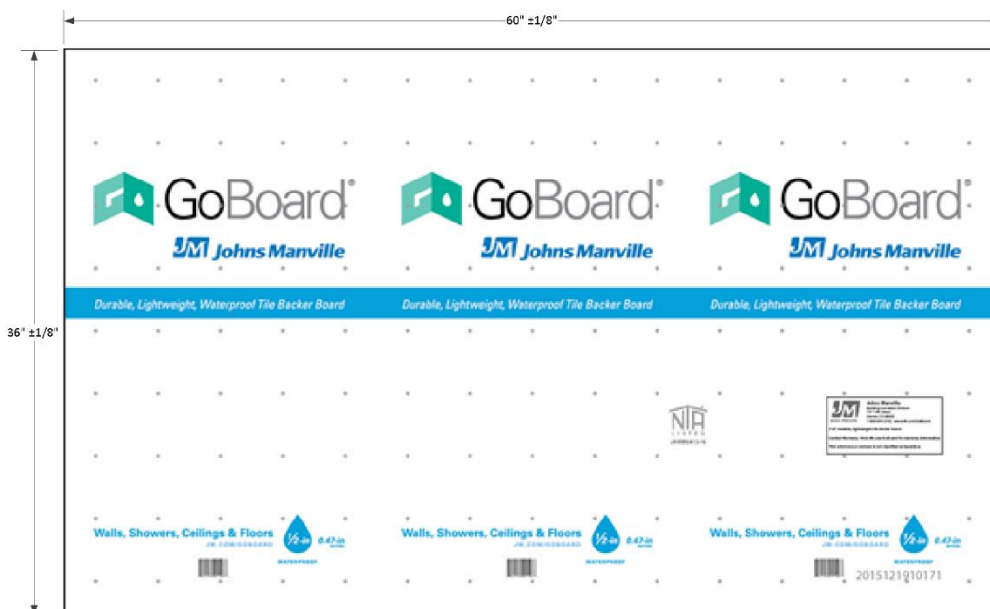


Figure 5: GoBoard® 36-in. x 60-in. Sheet Dimensions
(1/2-in. GoBoard® is shown as an example; dimensions are the same for 1/4-in. and 1/2-in.)

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