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ICC-ES Report

ESR-3767

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Issued 06/2017
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DIVISION: 09 00 00—FINISHES
SECTION: 09 30 00—TILING

REPORT HOLDER:

JOHNS MANVILLE

717 17th STREET
DENVER, CO 80202

EVALUATION SUBJECT:

GOBOARD® BACKER BOARD



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DIVISION: 09 00 00—FINISHES
Section: 09 30 00—Tiling

REPORT HOLDER:

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EVALUATION SUBJECT:

GOBOARD® BACKER BOARD

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2015 and 2012 *International Building Code*® (IBC)
- 2015 and 2012 *International Residential Code*® (IRC)

Properties evaluated:

- Physical Characteristics
- Surface Burning Characteristics
- Waterproofness

2.0 USES

GoBoard® backer boards are available in three thicknesses depending upon the application. GoBoard® backer boards are limited to Type V construction.

The ¼-inch GoBoard® backer boards may be used as backer boards for countertops and as floor underlayment applied to the interior of buildings.

The ½-inch GoBoard® backer boards may be used as backer boards for wall tile including tub and shower areas in accordance with IBC Section 2509.2 and IRC Section R702.4.2, as backer board for ceilings, and as floor underlayment applied to the interior of buildings.

The ⅝-inch GoBoard® backer boards may be used as backer boards for wall tile including tub and shower areas in accordance with IBC Section 2509.2 and IRC Section R702.4.2, and as backer board for ceilings.

3.0 DESCRIPTION

3.1 General:

GoBoard® backer boards are fiberglass faced polyisocyanurate foam core composite waterproof backer board panels.

GoBoard® backer boards comply with ANSI A118.9 as cementitious backer units (CBU's).

GoBoard® backer boards comply with ANSI 118.10 as a load bearing, bonded, waterproof membrane for thin-set tile and dimensional stone installations.

The cement board panels have a flame-spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84.

3.2 Materials:

GoBoard® backer boards have a smooth surface and have square edges for butt joints. GoBoard backer boards come in the following thickness; ¼-inch (6 mm), ½-inch (12.7 mm) and ⅝-inch (15.9 mm). The ¼-inch and ½-inch GoBoard backer boards are available in 3-foot by 5-foot (914 x 1524 mm) and 4-foot by 8-foot (1219 x 2438 mm) panels. The ⅝-inch GoBoard backer boards are available in 4-foot by 8-foot (1219 x 2438 mm) panels. The weight of the boards is 0.4-pounds-per-square-foot for ¼-inch thickness, 0.5-pounds-per-square-foot for ½-inch thickness, and 0.6-pounds-per-square-foot for ⅝-inch thickness.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Design for Walls: When installed over wall framing, framing must be sized and constructed to meet applicable building code requirements. The wall framing members must be spaced not more than 16 inches (406mm) on center and shall be a minimum of 2-by-4 inch nominal (wood) or minimum 20 gage (0.0329-inch, 0.84 mm) thickness, and corrosion-resistant in accordance with the applicable code. Allowable framing deflection shall not exceed 1/240 of the span. Use of GoBoard panels to resist in-plane racking shear loads is outside the scope of this report.

4.1.2 Design for Ceilings: When installed on a ceiling, framing must be sized and constructed to meet applicable building code requirements. The framing members shall be spaced at a maximum of 16-inches (406mm) on center and GoBoard® edges shall be continuously supported. Allowable framing deflection shall not exceed 1/360 of the span under total system dead load.

4.1.3 Design for Wood Floors: When installed on a wood floor, framing assembly components must be sized and constructed to meet applicable building code requirements. The wood joists must not be spaced more than 24-inches (610 mm) on center, and a subfloor

consisting of exterior grade $\frac{5}{8}$ -inch plywood or $\frac{3}{4}$ -inch OSB shall be securely glued and fastened to the joists must be installed prior to installation of the GoBoard[®] backer boards. Allowable deflection of horizontal framing must be limited to $\frac{1}{360}$ of the span ($\frac{1}{720}$ of the span for stone tiles) under all intended live loads. Control joints shall be design in accordance with the TCNA Handbook Installation Method EJ171.

4.2 Installation:

4.2.1 General: Installation must comply with this report, and a copy of this report must be available at all times on the jobsite during installation. Additional details in the applicable manufacturer's product information sheets must be observed during installation. Where differences occur between the manufacturer's product information sheets and this report, this report governs. All products may be cut to shape on-site by the score-and-snap method using a utility knife.

4.2.2 Joint Sealing: All joints must be $\frac{1}{8}$ inch (3.2 mm) and sealed with either a polyurethane sealant/caulk, or with mortar and tape, per the manufacturer's installation instructions.

4.2.2.1 Polyurethane or Silyl-Modified Polyether Sealant/Caulk: Prior to placing adjacent boards, edges of the boards shall be coated with sufficient sealant to allow excess sealant to squeeze out, then spread to an extent of a minimum 1 inch (25 mm) beyond sides of the $\frac{1}{8}$ -inch (3.2 mm) gapped joint.

4.2.2.2 Mortar and Tape: After placing the boards with a $\frac{1}{8}$ -inch gap, fill the joint gaps with either a dry-set mortar compliant with ANSI A118.1, or a Polymer modified thin-set mortar compliant with ANSI A118.4. While the mortar is still wet, place a 2-inch-wide (51 mm), alkali-resistant glass fiber mesh tape embedded into the wet mortar, fully covered, leveled, and allowed to dry.

4.2.2.3 Fastener Sealing: All fastener board locations must be sealed with a 2 $\frac{1}{2}$ -inch-wide-diameter coating of polyurethane or silyl-modified polyether sealant/caulk per the manufacturer's installation instructions.

4.2.2.4 Waterproof Joint: For a waterproof joint installation, use the mortar and tape method in Section 4.2.2.2 to seal the joints, then apply two coats of a liquid waterproofing membrane to the joints and fastener locations ensuring the liquid waterproofing membrane extends a minimum of 1-inch beyond the mortar.

4.2.3 Installation for Walls: GoBoard[®] backer boards are installed with the long dimension either vertical or horizontal to the framing members with end joints staggered from adjacent courses in both vertical and horizontal applications. Vertical board edges of the GoBoard[®] backer boards must be supported by framing.

For wood framing, fasteners shall be either 1 $\frac{1}{2}$ -inch-long (38 mm) galvanized roofing nails, 1 $\frac{1}{4}$ -inch-long (32 mm) backer board screws or 1-inch-wide-crown x 1-inch long (25 by 25 mm) galvanized staples. For steel framing, fasteners shall be 1 $\frac{1}{4}$ -inch-long (32 mm) sheet metal screws. Fastener spacing shall be 6-inches-on-center. Fasteners shall be located $\frac{1}{2}$ inch (12.7 mm) to 1 inch (25 mm) from board edges and driven into the framing.

Adjacent boards must be installed with a $\frac{1}{8}$ -inch (3.2 mm) gap per the manufacturer's installation instructions. A minimum $\frac{1}{8}$ -inch (3.2 mm) clearance is required from the floor surfaces and other horizontal tile termination locations, such as above tub edges. Backer board joints complying with Section 4.2.2 of this report must be installed.

4.2.4 Installation for Ceilings: GoBoard[®] backer boards are installed with the long dimension either perpendicular or parallel to the framing members with end joints staggered from adjacent courses in both perpendicular or parallel applications. Board edges of the GoBoard[®] backer boards must be supported by framing.

For wood framing, fasteners shall be either 1 $\frac{1}{2}$ -inch-long (38 mm) galvanized roofing nails, 1 $\frac{1}{4}$ -inch-long (32 mm) backer board screws or 1-inch-wide-crown x 1-inch long (25 by 25 mm) galvanized staples. For steel framing, fasteners shall be 1 $\frac{1}{4}$ -inch sheet metal screws. Fastener spacing shall be 6-inches-on-center. Fasteners shall be located $\frac{1}{2}$ -inch (12.7 mm) to 1-inch (25 mm) from board edges and driven into framing.

Adjacent boards must be installed with a $\frac{1}{8}$ -inch (3.2 mm) gap per the manufacturer's installation instructions. A minimum $\frac{1}{8}$ -inch (3.2 mm) clearance is required from wall surfaces and other vertical tile termination locations. Backer board joints complying with Section 4.2.2 of this report must be installed.

4.2.5 Installation for Floors:

4.2.5.1 Wood Floors: When GoBoard[®] backer boards are utilized as underlayment on wood floors, the subfloor must be covered with either a dry-set mortar compliant with ANSI A118.1, or a Polymer modified thin-set mortar compliant with ANSI A118.4, and troweled with a $\frac{1}{4}$ -inch square notched trowel before installation of the backer boards on the subfloor.

Backer boards must be firmly pressed into the mortar, ensuring that they are fully embedded, in a staggered brick pattern, and fastened before the setting material films over. Backer board edges must be staggered from subfloor joints, and four corners of the backer board sheets must not meet at one point; however, joints in the backer boards must be provided where existing structural joints (building control joints) occur and where changes in direction occur, such as in L-shaped rooms. For large tiled areas, joints must be provided in accordance with ANSI A108.01, Section 3.7.

For wood framing fasteners shall be either 1 $\frac{1}{2}$ -inch-long (38 mm) galvanized roofing nails, 1 $\frac{1}{4}$ -inch-long (32 mm) backer board screws or 1-inch-wide-crown x 1-inch long (25 by 25 mm) galvanized staples. Fastener spacing shall be 6-inches-on-center. Fasteners shall be located $\frac{1}{2}$ -inch (12.7 mm) to 1-inch (25 mm) from board edges and driven into the framing.

Adjacent boards must be installed with a $\frac{1}{8}$ -inch (3.2 mm) gap per the manufacturer's installation instructions. A minimum $\frac{1}{8}$ -inch (3.2 mm) clearance is required from the wall surfaces and other vertical termination locations, such as above tub edges and cabinet bases. Backer board joints complying with Section 4.2.2 of this report must be installed.

Prior to setting the tile, all backer board joints must be filled using the mortar and tape method in Section 4.2.2.2 with the same mortar used to set the backer board.

Floor tiles complying with ANSI A137.1 must be laid over the backer board in accordance with ANSI A108, using either acrylic or latex-modified thinset mortars complying with ANSI A118.4.

4.2.5.2 Concrete Floors: When the GoBoard[®] backer boards are utilized as underlayment on concrete floors, ensure that the concrete floor is clean and fully cured. Pre-fill surface imperfections with either a dry-set mortar compliant with ANSI A118.1, or a Polymer modified thin-set mortar compliant with ANSI A118.4. Follow wood floor

installation instructions; however, skip the fastening step and ensure that the GoBoard® backer boards are fully embedded in the mortar.

4.2.6 Installation for Countertops: When the GoBoard® backer boards are utilized as underlayment on countertops, securely fasten $\frac{3}{4}$ -inch exterior grade plywood to the cabinet, ensuring that maximum surface variation is no more than $\frac{1}{8}$ -inches in 10-feet from the required plane.

Cover the plywood with either a dry-set mortar compliant with ANSI A118.1, or a Polymer modified thin-set mortar compliant with ANSI A118.4, and troweled with a $\frac{1}{4}$ -inch square notched trowel before installation of the backer boards.

Backer board must be firmly pressed into the mortar, ensuring that they are fully embedded, and fastened before the setting material films over.

Adjacent boards must be installed with a $\frac{1}{8}$ -inch (3.2 mm) gap per the manufacturer's installation instructions. A minimum $\frac{1}{8}$ -inch (3.2 mm) clearance is required from the wall surfaces and other vertical termination locations.

Fasteners shall be either $1\frac{1}{2}$ -inch-long (38 mm) galvanized roofing nails, $1\frac{1}{4}$ -inch-long (32 mm) backer board screws or 1-inch-wide-crown x 1-inch long (25 by 25 mm) galvanized staples. Fastener spacing shall be 6 inches on-center. Fasteners shall be located $\frac{1}{2}$ inch (12.7 mm) to 1 inch (25 mm) from board edges and driven into the framing.

Prior to setting the tile, all backer board joints must be filled using the mortar and tape method in Section 4.2.2.2 with the same mortar used to set the backer board.

4.2.7 Showers: When the GoBoard® backer boards are utilized in wall and ceiling applications in showers, a manufacturer approved vapor barrier shall be installed directly over the wall studs and ceiling framing behind the GoBoard® backer board per the manufacturer's instructions, or a manufacturer approved vapor barrier or waterproof membrane shall be installed over the external surface of GoBoard® backer board per the manufacturer's instructions.

Install the GoBoard® backer board per the Wall and Ceiling installation sections in this report; Section 4.2.3 and 4.2.4, respectively.

5.0 CONDITIONS OF USE

The Johns Manville, GoBoard® backer boards described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The products must be installed in accordance with this report and the manufacturer's published installation instructions. In the event of a conflict

between this report and the manufacturer's instructions, this report governs.

5.2 Installation of a vapor retarder in exterior walls shall be done in accordance with code requirements.

5.3 Support framing must be designed to a maximum allowable deflection of $\frac{1}{360}$ of the span for floors and ceilings, and $\frac{1}{240}$ of the span for walls, unless otherwise specified by finish material requirements.

5.4 Thermal barrier complying with code is not required based on compliance with IBC Section 2603.9 for special approval.

5.5 Use of the products to resist racking shear loads is outside the scope of this report.

5.6 The products are manufactured in Cornwall, Ontario, Canada under a quality control program with inspections by ICC-ES.

5.7 Evaluation of this product as a lining as required per code for use in shower areas is outside the scope of this report

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the Data in accordance with ANSI A118.10-2008, American National Standard for Load Bearing, Bonded Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation.

6.2 Data in accordance with ANSI A118.9-1999, American National Standard for Test Methods and Specifications for Cementitious Backer Units.

6.3 Data in accordance with ASTM D5764-97(2013), Standard Test Method for Evaluating Dowel-Bearing Strength of Wood and Wood-Based Products.

6.4 Data in accordance with ASTM E330-02, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

6.5 Data in accordance with NFPA 286-11, Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

6.6 Data in accordance with ASTM C297-15, Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions.

6.7 Quality control documentation.

7.0 IDENTIFICATION

Johns Manville, $\frac{1}{4}$ -, $\frac{1}{2}$ -, and $\frac{5}{8}$ -inch GoBoard® backer boards bear a label with the Johns Manville name and telephone number, the product name, and the evaluation report number (ESR-3767).