Submittal Sheet
09300

Durock™ Tile Membrane

Membrane for use under tile in residential and light-commercial applications

– For floors and walls in bathrooms, kitchens, laundry rooms and entryways
– Install with Durock™ brand tile membrane adhesive for crack isolation
– Patented cementitious coating provides outstanding tile bond
– Rolls out flat, with no roll-back memory
– Lightweight, thin and flexible – easy to handle and install
– Cuts with scissors or knife – no dust, no mess
– Installs quickly – no mechanical fasteners required
– Waterproof and vapor-permeable membrane
– Mold- and mildew-resistant

Description

Durock™ brand tile membrane is an easy-to-install, thin, waterproof, vapor-permeable underlayment and tile backer in roll form for use in residential and light-commercial floor and wall applications. With superior tile bond, Durock tile membrane provides panel-like performance without the weight.

To achieve crack isolation, Durock tile membrane adhesive must be used to install Durock tile membrane. Type 1 organic adhesive or latex-modified thin-set mortar may be used, but these products do not provide crack isolation. See USG submittal sheet CB511 for more information.

Limitations

1. Membrane must be installed with Durock tile membrane adhesive to achieve crack isolation.
2. Do not use as a roofing membrane.
3. Do not use as a vapor retarder.
4. Do not expose to negative hydrostatic pressure, rubber solvents or ketones.
5. Durock tile membrane is not suitable for use as a waterproof membrane in a shower pan.
6. Membrane must be covered with ceramic tile, stone, brick, concrete, terrazzo or other protective surface. For temporary cover, use protection board.
7. Do not use Durock tile membrane in exterior or continuously submerged areas such as hot tubs and swimming pools.
8. Minimum subfloor thickness: 23/32″ (or 3/4″) for wood subfloors with 16″ or 19.2″ o.c. framing spacing; 27/32″ (or 7/8″) for wood subfloors with 24″ o.c. framing spacing; 23/32″ (or 3/4″) for structural cementitious panels, with maximum framing spacing of 24″ o.c. All decking shall be T&G or back-blocked at unsupported edges. Poured gypsum underlayment must be sealed prior to installation of Durock tile membrane.
9. Maximum subfloor live load deflection limit – l/360 for sawn lumber, concrete, and poured gypsum underlayments; l/480 for engineered wood and cold-formed steel systems (prefabricated framing/I-joists). Surfacing materials such as dimensional stone have more restrictive deflection limits – consult surfacing materials specifications for applicable deflection limit requirements.
10. Variation in subfloor surfaces shall meet the limits described in the current TCNA Handbook for Ceramic Tile Installation. Ensure that all fasteners are seated correctly and there are no uneven joints. Adjacent edges of subfloor panels – maximum of 1/32″ above or below adjacent sheets. Sand the subfloor if necessary. Maximum variation in concrete surface is 1/4″ in 10′-0″ from the required plane.
11. Do not install when ambient or conditioned temperature is below 40 °F or above 100 °F.
12. Use of Durock tile membrane is not approved for bridging control joints, construction joints, where dissimilar materials meet or where vertical displacement is anticipated. Refer to the TCNA Handbook for Ceramic Tile Installation for the proper placement and design of movement joints.

When installed with Durock tile membrane adhesive

1. Do not install Durock tile membrane when substrate temperature is below 50 °F or above 90 °F, or when the relative humidity exceeds 65%.
2. Crack isolation limited to in-plane crack widths of less than 1/8″.
3. Moisture content of wood-based subfloors shall not exceed 12%, by use of a pin-type moisture meter designed to check moisture levels in wood and wood products.
4. Moisture content of concrete subfloors shall be determined by calcium chloride test (ASTM F1869). The maximum allowable moisture emission level shall be 3.0 pounds per 1,000 ft². per 24 hours.
5. Moisture content of poured gypsum underlayment floors shall be determined by the polyethylene sheet test (ASTM D4263). No condensation after 16-24 hours indicates the floor is dry and the Durock tile membrane can be installed.
6. Installation is limited to dry or limited-water-exposure areas for light-commercial installations, as defined in the 2007 Handbook for Ceramic Tile Installation published by the Tile Council of North America Inc.

7. Installation is limited to dry and wet areas for residential installations only, as defined in the 2007 Handbook for Ceramic Tile Installation published by the Tile Council of North America Inc.

Substrate Selection

1. Floors – Wood-based sheathing, plywood or OSB (APA-Rated Sturd-I-Floor® subfloor, exposure 1 or better); structural cementitious panels (ICC AC318-compliant), cementitious backer units (CBU), FIBEROCK® brand AQUA-TOUGH™ underlayment, fiber-cement underlayments, poured gypsum underlayment, and vinyl.
2. Walls - Water resistant gypsum panels, cementitious backer units (CBU), FIBEROCK AQUA-TOUGH panels, and fiber-cement panels.

Installation

With floor applications using DUROCK tile membrane adhesive

1. Subfloor must be structurally sound, solid, well fastened, dry, clean and free of dust, oil, grease, tar, paint, wax, curing agents, primers, loosely bonded toppings, loose particles, and any substance that may reduce adhesion.
2. Determine the most efficient direction to install DUROCK tile membrane, taking into account location of walls and seams. Precut the full width of the membrane to allow a tight fit to the perimeter of the room.
3. Use DUROCK tile membrane adhesive to bond DUROCK tile membrane to the substrate. Apply adhesive with a U-notch trowel or a paint roller. Minimum trowel size for non-porous substrates is 1/16″ x 1/16″. Minimum trowel for porous substrates is 1/8″ x 1/8″. For application over vinyl, use maximum 1/16″ U-notch trowel. For roller application, use a 3/8″-nap paint roller.
4. Apply adhesive over an area as wide as the membrane and as deep as can be comfortably reached. When using a trowel, apply adhesive in parallel rows across the width or length of the sheet to avoid trapping air under the membrane. For roller applications, apply adhesive onto substrate in two coats to achieve adequate coverage; apply second coat immediately over first coat. Required adhesive coverage is approximately 150 sq.ft./gal. to ensure sufficient adhesion between DUROCK tile membrane and substrate. Slight adjustments may be necessary to account for variations in substrate porosity and smoothness. Do not dilute DUROCK tile membrane adhesive.
5. DUROCK tile membrane must be installed within 15 minutes of adhesive application. Only spread adhesive over an area that can be covered by DUROCK tile membrane within the 15-minute application window. Do not allow adhesive to form a “skin”, become transparent or develop tack prior to installation of the membrane. Maximum open time for DUROCK tile membrane adhesive is 15 minutes.

   Over vinyl — Ensure that surface of existing vinyl flooring is dry, level and free of dust, paint, wax, oil or any other products that can interfere with bonding. Ensure that vinyl flooring is securely bonded to substrate underneath. Use only DUROCK tile membrane adhesive to bond DUROCK tile membrane to existing vinyl flooring. Do not install DUROCK tile membrane over heavily cushioned, thick-foam-backed, or perimeter-adhered vinyl flooring. Allow adhesive to air-dry for about 15 minutes, becoming transparent and developing tack, before installing DUROCK tile membrane; complete installation within 30 minutes of adhesive application.
6. Install DUROCK tile membrane with the cementitious surface up. Embed the material into the adhesive using flat edge of a trowel or a hand roller. Start in the center of the sheet and work out toward edges, removing all air bubbles. Overlap each row 2″, making sure an appropriate amount of adhesive is applied to the joint area.
7. Prior to tile installation, the bond between DUROCK tile membrane and substrate must be verified by field test. To verify satisfactory bond, lift a corner of the installed membrane in an inconspicuous area; good bond is verified when the top membrane layer pulls away, leaving the bottom layer bonded to the substrate. If this internal failure of the membrane does not occur, allow for additional curing. Repeat this test as necessary in a different area until satisfactory results are achieved. Repair the test areas as needed using additional adhesive. Bond should develop within two hours, however factors such as temperature, humidity, substrate porosity, substrate permeability, and adhesive thickness will significantly affect drying and bonding time.
8. Install tiles with DUROCK™ brand latex-modified mortar or ANSI A118.4 latex-portland cement mortar. Determine correct trowel size based on tile material and size to achieve at least 95% coverage of the average tile contact area.
9. After tile installation, do not walk on floor for at least 48 hours unless walking boards or plywood sheets are used, per TCNA Handbook for Ceramic Tile Installation. Select, prepare and install ANSI A118.7 latex-modified grout per grout manufacturer recommendations.

	Applications using thin-set mortar or Type 1 organic adhesive	1. Ensure that substrate is clean, even, flat, designed to support ceramic tile, and properly installed according to manufacturer specifications. 2. For floor applications, precut full width of membrane to provide tight fit to room perimeter. For wall applications, lay out installations in advance and precut the largest membrane section that can be comfortably handled prior to application of adhesive. 3. When mixing thin-set mortar, use the specified water-cement ratio, per mortar manufacturer's instructions, to achieve satisfactory bond development. Do not over-water the thin-set mortar mixture. 4. Spread DUROCK™ tile mastic or other ANSI A136.1 Type 1 organic adhesive, or DUROCK™ latex-modified mortar or other ANSI 118.4 latex-portland-cement mortar, as far as can be comfortably reached. Use a 1/16″ U-notch trowel for mastic applications, a 1/8″ U-notch trowel for mortar applications. 5. Install membrane fabric-side down, cement-side up. Embed into adhesive using flat edge of trowel or a weighted non-segmented hand roller. Start in center of membrane and work out toward edges, removing air bubbles. Ensure that a minimum 2″ overlap is maintained on all seams, and that overlaps are fully embedded in adhesive. 6. If DUROCK tile membrane is to be installed on adjacent floor and walls, the floor membrane is to be installed first. Protect untiled floor membrane with cardboard or wood sheets to prevent abrasion or accidental puncture. In accordance with installation specifications, the floor membrane will be turned up onto adjacent walls a minimum of 2″; prior to installation of the wall membrane, ensure that the upturned portion of the floor membrane is fully bonded to the walls. Measure up from the floor 2″ and draw or snap a line; apply adhesive up from the floor/wall intersection to this line and install precut membrane as described above. 7. If flashing is required to protect adjacent areas from water, cut a membrane strip to desired height (max. 6″) plus 2″ for overlap. Pre-crease in half lengthwise, with half to be adhered to floor and half to vertical surface. Install corners first, then fill in between corners around perimeter. For outside corners, make a relief cut and press into adhesive. Use smooth edge of trowel to fully embed membrane. For inside corners, make a relief cut, applying adhesive where membrane folds over itself to ensure a water-durable connection. Overlap butt joints by 1-1/2″; apply adhesive to vertical leg of overlapping layer to ensure a water-durable connection. Work material carefully into position and smooth out using flat edge of trowel. Areas unable to receive vertical flashing, such as pipe penetrations and bathtubs, should be sealed using a quality silicone sealant. Run a continuous bead and tool material to provide continuity to membrane. 8. Allow a minimum cure time of four hours before tile installation where membrane is installed using ANSI A136.1-type organic adhesive. Allow a minimum overnight cure before tile installation where membrane is installed using ANSI 118.4 latex-portland cement mortar. 9. Install tiles with DUROCK latex-modified mortar or ANSI A118.4 latex-portland cement mortar. Determine correct trowel size based on tile material and size to achieve at least 95% coverage of the average tile contact area. 10. After tile installation, do not walk on floor for at least 48 hours unless walking boards or plywood sheets are used, per TCNA Handbook for Ceramic Tile Installation. Select, prepare and install ANSI A118.7 latex-modified grout per grout manufacturer recommendations.
Product Data	**Sizes and Packaging**	280 sq. ft. rolls, 32″ wide, 0.022″ thick, 70 lbs./1000 sq. ft.
	Standards	DUROCK tile membrane is rated for residential and light-commercial applications under ASTM C627, "Standard Test Method for Evaluating Ceramic Floor Tile Installation Systems Using the Robinson-Type Floor Tester."
	Availability and Cost	DUROCK tile membrane is distributed throughout the United States. Contact a United States Gypsum Company sales office or sales person for additional information.
	Composition and Materials	DUROCK tile membrane is made from a patented, engineered reinforcement, covered on one side with a cementitious coating.
	Warranty	Products and systems provided by United States Gypsum Company are warranted to be free from defects in material and workmanship. Contact a United States Gypsum Company sales office for complete warranty details.

Technical Data

Property	ANSI/ASTM Test	DUROCK Tile Membrane
Fungus and micro-organism resistance	ANSI A118.10	no mold growth
Seam strength	ANSI A118.10/ASTM D751	> 8 lbs./inch width
Breaking strength	ANSI A118.10/ASTM D751	>170 psi
Dimensional stability	ANSI A118.10/ASTM D1204	< 0.7%
Shear strength to ceramic tile and cement mortar	ANSI A118.10/ASTM C482	> 50 psi
Waterproofness	ASTM C473 (section 21)**	no visible water penetration to the back surface
Permeance	ASTM E96 (Procedure A)	9.90 perms
System performance	ANSI A118.10/ASTM C627	residential, light-commercial
Point load	ANSI A118.12	>1000 lbs.
System crack resistance	ANSI A118.12	no failure up to 1/8″ crack opening

** Not intended for continuous water submersion as related to ASTM 118.10.

Submittal Approvals:

Job Name	
Contractor	**Date**

Product Information
See usg.com for the most up-to-date product information. For detailed information related to tile installation using ANSI A118.4 latex-portland cement mortar, please see USG architectural specification guide.

Note
Products described here may not be available in all geographic markets. Consult your U.S. Gypsum Company sales office or representative for information.

Trademarks
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We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

Safety First!
Follow good safety and industrial hygiene practices during handling and installation of products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read material safety data sheets and related literature on products before specification and/or installation.

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CB492/rev. 7-07