

USG DUROCK™ BRAND TILE MEMBRANE



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

- Use under tile in floor, wall and countertop applications.
- Installs quickly—no mechanical fasteners required.
- Cuts with scissors or knife—no dust, no mess.
- Rolls out flat, with no rollback memory.
- Proprietary cementitious coating provides outstanding tile bond.
- Crack-isolation solution when installed with USG Durock™ Brand Tile Membrane Adhesive.
- Waterproof and vapor-permeable membrane.
- Mold and mildew resistant.

DESCRIPTION

USG Durock™ Brand Tile Membrane is an easy-to-install, thin, waterproof, vapor-permeable underlayment and tilebacker in roll form for use in floor, wall and countertop applications. With a cementitious surface for outstanding tile bond, USG Durock™ Tile Membrane provides panel-like performance without the weight. USG Durock™ Tile Membrane is ideal for use over virtually any floor that is designed to accept tile, including wood, concrete, poured gypsum floors, fully bonded vinyl, VCT, existing tile and radiant heat flooring systems. USG Durock™ Tile Membrane also provides a high-performance crack-isolation solution when installed with USG Durock™ Tile Membrane Adhesive. See USG submittal sheet CB511 for more information.

PRODUCT DATA

SIZES AND PACKAGING

300-sq.-ft. rolls, 36 in. wide, 0.022 in. thick, 70 lbs./1,000 sq. ft.

75-sq.-ft. kit (75 sq. ft. of USG Durock™ Tile Membrane, 36 in. wide and two 1-quart pails of USG Durock™ Tile Membrane Adhesive included in kit)

STANDARDS

USG 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

USG Durock™ Tile Membrane is distributed throughout the United States. Contact a USG sales office or sales person for additional information.

COMPOSITION

USG Durock™ Tile Membrane is made from an engineered reinforcement, covered on one side with a cementitious coating.

WARRANTY AND MATERIALS

Products and systems provided by USG are warranted to be free from defects in material and workmanship. Contact a USG sales office for complete warranty details.

APPLICATIONS

APPROVED SUBSTRATES

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), USG Fiberock® Brand panels, fiber-cement underlayment, poured gypsum underlayment, existing fully bonded sheet vinyl, VCT and tiled surfaces.
2. Walls—Gypsum board (dry areas only), plastered surfaces (dry areas only), cementitious backer units (CBU), USG Fiberock panels and fiber cement panels.

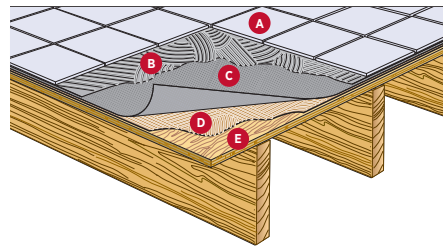
3. Subfloor requirements:

Joist Spacing	Minimum Subfloor Thickness
16 in. o.c.	23/32 in. or 3/4 in.
19.2 in. o.c.	23/32 in. or 3/4 in.
24 in. o.c.	27/32 in. or 7/8 in.

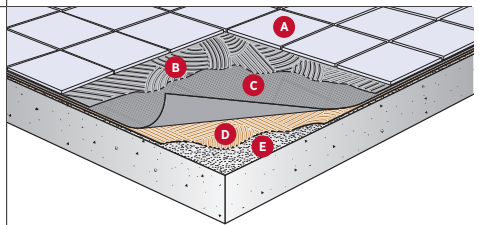
* All decking shall be T&G or back-blocked at unsupported edges. Poured gypsum underlayment must be sealed prior to installation of USG Durock™ Tile Membrane.

- Maximum subfloor live load deflection limit—1/360 for sawn lumber, concrete and poured gypsum underlayments; 1/480 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.
- Surface variation limits—The amount of variation in the surface of the floor or wall is limited to 1/4 in. in 10 ft. from the required plane. Ensure that all fasteners are seated properly and there are no uneven joints. Adjacent edges of the subfloor panels should be within a maximum tolerance of 1/32 in. Sand subfloor if necessary. Variation in subfloor surfaces shall meet the limits described in the current *TCNA Handbook for Ceramic Tile Installation*.

Wood Subfloor



Concrete Subfloor



- A. Ceramic tile
 B. Latex-modified mortar or tile mastic
 C. USG Durock™ Brand Tile Membrane
 D. USG Durock™ Brand Tile Membrane Adhesive (latex-modified mortar or tile mastic may also be used)
 E. Wood subfloor

- A. Ceramic tile
 B. Latex-modified mortar or tile mastic
 C. USG Durock™ Brand Tile Membrane
 D. USG Durock™ Brand Tile Membrane Adhesive (latex-modified mortar or tile mastic may be used but will not provide crack isolation)
 E. Concrete subfloor

INSTALLATION

- Substrate must be structurally sound, 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. Ensure that existing surface is properly secured to substrate. Re-fasten as necessary.
- 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.
- When using USG Durock™ Tile Membrane Adhesive to bond USG Durock™ Tile Membrane to the substrate, apply adhesive over an area as wide as the membrane and as deep as can be comfortably reached. Required adhesive coverage is approximately 150 sq. ft./gal. to ensure sufficient adhesion between USG Durock™ Tile Membrane and substrate—do not dilute USG Durock™ Tile Membrane Adhesive. Slight adjustments may be necessary to account for variations in substrate porosity, smoothness or application method. Apply adhesive with a U-notch trowel or a paint roller. For trowel applications, use a minimum trowel size of 1/16 in. x 1/16 in.. For rough surfaces, a 1/8 in. x 1/8 in. trowel may be required. Apply adhesive in parallel rows across the width or length of the sheet to avoid trapping air under the membrane. For roller application, use a 3/8 in.-nap paint roller. Apply adhesive onto substrate in two coats to achieve adequate coverage; apply second coat immediately over first coat. Ensure entire surface is covered in a uniform and continuous manner.

For installation over porous surfaces such as, but not limited to, gypsum panels, wood-based sheathing, plywood or OSB, and unsealed concrete: USG Durock™ Tile Membrane should be installed within 15 minutes of adhesive application. Spread adhesive over an area that can be covered by USG Durock™ Tile Membrane within the 15-minute application window. Do not allow adhesive to form a in.skin, in. become translucent or develop tack prior to installation of the membrane.

For installation over nonporous surfaces, such as vinyl and existing tile: Allow adhesive to air-dry, becoming translucent and developing tack, before installing USG Durock™ Tile Membrane. Times will vary depending on temperature, humidity and substrate type; however, a minimum

INSTALLATION CONT.

of 15 minutes should be allowed. Bond between USG Durock™ Tile Membrane and the substrate should develop within the specified time noted in the chart below; however, factors such as temperature, humidity, substrate porosity, substrate permeability and adhesive thickness will significantly affect drying and bonding time.

- USG Durock™ Tile Membrane can be installed using an ANSI A136.1 Type 1 organic adhesive (tile mastic), or an ANSI 118.4 latex-modified thin-set mortar; however, installation with these products will not provide crack isolation. Use a 1/16 in. U-notch trowel for organic adhesive applications and a 1/8 in. U-notch trowel for mortar applications or rough surfaces. Spread Type 1 organic adhesive or latex-modified Portland cement mortar as far as can be comfortably reached. When mixing thin-set mortar, use the specified water-cement ratio per mortar manufacturer's instructions to achieve satisfactory bond development. Do not overwater the thin-set mortar mixture.
- Install USG Durock™ Tile Membrane with the cementitious (dark) surface out. Embed the membrane into the adhesive using the 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 in., making sure an appropriate amount of adhesive is applied to the joint area.
- For waterproofing applications on adjacent floors and walls, the floor membrane should be installed first. Membrane should be turned up onto adjacent walls a minimum of 2 in. 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 in. and draw or snap a line; apply adhesive up from the floor/wall intersection to this line and install precut membrane as described above. In areas where flashing is required to protect adjacent areas from water, cut a membrane strip to desired height. Precrease membrane strip in half lengthwise, with half to be adhered to floor and half to vertical surface. Install corners first and 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 in.; apply adhesive to vertical and horizontal legs of overlapping layers to ensure a water-durable connection. Work material carefully into position and smooth out using the flat edge of the 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.
- Protect untiled floor membrane with USG Fiberock® Brand Floor Protector Paper, cardboard or wood sheets to prevent abrasion or accidental puncture.
- Minimum cure times before installing tile:

Membrane Installed Using	Minimum Cure Time Before Installing Tile
USG Durock™ Brand Tile Membrane Adhesive	2 hours
ANSI A136.1-type Organic Adhesive	4 hours
ANSI 118.4 Latex-Modified Portland Cement Mortar	8 hours

*Cure times will vary depending on temperature, humidity and substrate type.

- To verify satisfactory bond between USG Durock™ Tile Membrane and substrate, lift the installed membrane at a corner where it is bonded to substrate; good bond is verified when the top membrane layer pulls away, leaving the bottom layer bonded to the substrate. If this designed separation 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.
- Install tiles on cementitious (dark) side of membrane with ANSI A118.4 latex-modified Portland cement mortar or ANSI A136.1 Type 1 organic adhesive. Determine correct trowel size based on tile material and size to achieve at least 95% coverage of the average tile contact area.
- After tile installation, do not walk on floor for at least 48 hours unless walking boards or plywood sheets are used, as per current *TCNA Handbook for Ceramic Tile Installation*. Select, prepare and install ANSI A118.7 latex-modified or ANSI A118.8 modified epoxy emulsion grout per grout manufacturer recommendations.

LIMITATIONS

- Membrane must be installed with USG Durock™ Tile Membrane Adhesive to achieve crack isolation.
- Do not use as a roofing membrane or vapor retarder.
- Do not expose to negative hydrostatic pressure, rubber solvents or ketones.
- USG Durock™ Tile Membrane is not suitable for use as a shower pan liner or in continuously submerged areas such as hot tubs and swimming pools.
- Membrane is not designed or intended for use as a finished surface.
- Do not install USG Durock™ Tile Membrane over heavily cushioned, thick-foam-backed or perimeter-adhered vinyl flooring.

LIMITATIONS CONT.

- Do not install when ambient or conditioned temperature is below 50°F or above 100°F.
- Use of USG 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 USG Durock™ Tile Membrane Adhesive

- Do not install USG Durock™ Tile Membrane Adhesive when substrate temperature is below 50°F or above 90°F, or when the relative humidity exceeds 65%.
- Crack isolation limited to in-plane (lateral) crack widths of less than 1/8 in..
- 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.
- 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.
- Moisture content of poured gypsum underlayment floors shall be determined by the polyethylene sheet test (ASTM D4263). No condensation after 16 to 24 hours indicates the floor is dry and the USG Durock™ Tile Membrane can be installed.
- Installation is limited to dry or limited-water-exposure areas for light-commercial installations, as defined in the *Handbook for Ceramic Tile Installation* published by the Tile Council of North America Inc.
- Installation is limited to dry and wet areas for residential installations only, as defined in the *Handbook for Ceramic Tile Installation* published by the Tile Council of North America Inc.
- Installation is limited to interior applications only. USG Durock™ Tile Membrane Adhesive is not recommended for use in exterior applications.

TECHNICAL DATA

Property	ANSI/ASTM Test	USG Durock™ Brand Tile Membrane
Fungus and microorganism 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	>1,000 lbs.
System crack resistance	ANSI A118.12	no failure up to 1/8 in. 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-modified Portland cement mortar, please see USG architectural specification guide.

DANGER

May cause cancer or damage lungs by prolonged or repeated exposure to respirable crystalline silica. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Use only in a well-ventilated area, wear a NIOSH/MSHA-approved respirator. Wear protective gloves/protective clothing/eye protection. If swallowed, inhaled, or skin irritation occurs immediately get medical attention. Dispose of in accordance with local, state, and federal regulations. For more information call Product Safety: 800-507-8899 or see the SDS at usg.com **KEEP OUT OF REACH OF CHILDREN.**

TRADEMARKS

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NOTE

Products described here may not be available in all geographic markets. The information in this document is subject to change without notice. USG Corp. assumes no responsibility for any errors that may inadvertently appear in this document. Consult your USG Company sales office or representative for information.

NOTICE

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/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

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