USG Durock™ Brand EcoCap™ HT Self-Leveling Topping

Innovative interior & exterior polymer-modified cementitious poured topping

- Ideal for interior and exterior applications over concrete with 100% RH and up to 14 pH
- High tolerance to freeze/thaw cycles, de-icing salts and moisture exposure
- No mechanical preparation required for most applications
- Self-drying and rapid-setting—open to light foot traffic in approximately 2 hours
- Featheredge to 2 in. (51 mm) neat; extendable to 5 in. (127 mm) with aggregate
- Installation of ceramic tile and natural stone in four hours; other floor coverings in 16 hours
- Environmentally sustainable – 29% recycled content, lower embodied energy, lower carbon footprint when compared to traditional self-leveling underlayments
- May assist in obtaining LEED® credits

USG Durock™ Brand EcoCap™ HT Self-Leveling Topping is a self-drying, high-performance, eco-friendly cementitious product for use over concrete substrates. USG Durock™ EcoCap HT Self-Leveling Topping has no limitations for concrete moisture vapor emission rates (MVER) and can be used over saturated concrete substrates having RH up to 100% and 14 pH in both interior and exterior applications. Highly durable and eco-friendly, this next generation technology is an ideal solution for use under high relative humidity (RH) tolerant floor covering and adhesive systems. Mechanical preparation of the substrate is not required for most applications.

USG Durock™ EcoCap HT Self-Leveling Topping is mixed with water at the jobsite to yield a fast-drying, smooth and monolithic surface. Due to the self-drying nature of USG Durock™ EcoCap HT Self-Leveling Topping, floor coverings can be installed quickly, allowing for efficiency and streamlined construction. It is easy to pour and strong—up to 5,500 psi (37.9 MPa). Moreover, USG Durock™ EcoCap HT Self-Leveling Topping provides excellent resistance to freeze/thaw cycles, de-icing salts and moisture exposure.

USG Durock™ EcoCap HT Self-Leveling Topping may assist in obtaining various LEED credits for the project. The product’s 29% recycled content, lower embodied energy and lower carbon footprint when compared to traditional self-leveling underlayments makes it an environmentally sustainable material.

USG Durock™ EcoCap™ HT Self-Leveling Topping achieved GREENGUARD Gold Certification and qualifies as a “Low Emitting” material per California Department of Public Health CDPH/EHLB/Standard Method (CA Section 01350) for school classroom and private office modeling scenarios, and meets USGBC’s LEED v4 emission requirements.

An extended warranty may apply when using USG Durock™ EcoCap HT Self-Leveling Topping in a system application. Please contact USG for further details.

All subfloors must be structurally sound, stable and solid. If there is any question about the structural soundness of the subfloor, consult with the engineer on the project or request the services of a professional structural engineer. Mechanical preparation of the substrate is not required for most applications.

Subfloors must be clean and free of dirt, tar, wax, oil, grease, latex compounds, sealers, curing compounds, release agents, asphalt, water-soluble adhesives, paint, chemicals, loose old cementitious products, joint compounds from drywall installation or any other contaminant that might prevent proper bonding of the topping. Clean all surface debris and dust by sweeping or vacuuming with a HEPA filtration industrial vacuum. Seal off floor drains before starting to pour topping to prevent drain pipes from clogging.

Fill deep areas and holes prior to final application. Contact USG for further information.
To minimize the effect of expansion and cracking, wrap USG Levelrock® Perimeter Isolation Strip 2.5 (1/4 in. (6 mm) thick) around all door jambs, columns and pipes. For outside corners, the strip should extend a minimum of 24 in. (610 mm) from the corner on both sides. For more information on perimeter isolation strip installation, see USG Levelrock® Brand Perimeter Isolation Strip Submittal (IG1874).

Mechanical floor preparation such as shot-blasting, scarification or other methods of grinding may not be required prior to installation of the topping over a well-bonded, sound and clean subfloor. To decide whether mechanical preparation of substrate is required or not, the concrete substrate must be thoroughly assessed for its quality and tensile strength over the entire pour area. Simple visual appearance of the concrete substrate as strong and solid does not necessarily guarantee that the concrete substrate is free of impurities and has the right tensile strength. The tensile bond strength of the concrete subfloor over which USG Durock™ EcoCap HT Self-Leveling Topping is being applied must be a minimum of 175 psi when tested per the ASTM C1583 standard.

A weak or degraded concrete surface or concrete exhibiting signs of laitance (either visible or invisible), scaling, spalling, crumbling or delamination must be mechanically removed to achieve a solid and clean substrate.

To profile a bare concrete surface, use USG Durock™ LSP™ Liquid Surface Profiler to clean and prepare the surface. See USG Durock™ Brand LSP™ Liquid Surface Profiler Submittal (CB5246) at usgperformanceflooring.com for more information.

Concrete slabs can receive USG Durock™ EcoCap HT Self-Leveling Topping in as little as 5 days after the concrete has been placed. USG Durock™ EcoCap HT Self-Leveling Topping is not a vapor barrier. Transmission of excessive moisture vapors from the concrete subfloor through USG Durock™ EcoCap HT Self-Leveling Topping can interfere with coatings, floor coverings and/or floor-covering adhesives and compromise their performance. Refer to the Priming section for more information on use of moisture mitigation systems when using USG Durock™ EcoCap HT Self-Leveling Topping.

Cracks in the existing concrete subfloor must be inspected to determine if the crack is due to typical concrete “shrink” or if it is a result of a structural movement. In the case of the latter, remediation of the crack must be addressed or eventually the crack will telegraph through USG Durock™ EcoCap HT Self-Leveling Topping. Consult with the engineer on the project or request services of a professional structural engineer for all suspected structural cracks.

Repair all non-structural cracks in old and new concrete to minimize and control their ability to telegraph through the layer of USG Durock™ EcoCap HT Self-Leveling Topping. First, remove the weak concrete along the length of the cracks by chiseling or other suitable means. Next, remove accumulated dust and debris from the crack cavities using a HEPA filtration industrial vacuum or other suitable means. Various cracks present in the concrete subfloor, including shrinkage cracks, must be filled with a suitable commercially available crack-fill epoxy adhesive designed for concrete flooring applications. To ensure superior resistance to crack growth, use injection epoxy crack-repair techniques per industry guidelines to repair cracks that are active or deep. Note that repair of existing cracks in the concrete subfloor only subdues but does not completely prevent their ability to telegraph through USG Durock™ EcoCap HT Self-Leveling Topping. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through USG Durock™ EcoCap HT Self-Leveling Topping. Respect existing expansion and control joints (see Notes/Limitations #7, pg. 5).

USG Durock™ EcoCap HT Self-Leveling Topping can be installed over non-water-soluble adhesives on concrete only. The adhesive residue must first be tested to make certain it is non-water-soluble. Any water-soluble adhesive residues must be mechanically removed down to clean concrete. Non-water-soluble adhesive residues should be prepared to a thin, well-bonded residue using the “wet-scraping” technique as recommended by the Resilient Floor Covering Institute (rfci.com) to remove thick areas and adhesive buildup, as well as any areas that are weak or not well bonded to the concrete. Any existing patches below the adhesive must be completely removed. Subfloor must be properly prepared and primed prior to topping application.
Floors to be primed must be dry, structurally sound and clean. Remove any dirt, tar, wax, oil, grease, latex compounds, sealers, curing compounds, release agents, asphalt, adhesives, paint, chemicals, loose topping, joint compounds from drywall installation or any other contaminant that might interfere with development of good bond.

The type of primer system required will depend on the relative humidity (RH) of the concrete substrate. Use the recommended primer provided in the following table, based on the RH level of the concrete slab.1

<table>
<thead>
<tr>
<th>Substrate</th>
<th>Relative Humidity (RH) of the Substrate</th>
<th>Primer</th>
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<tbody>
<tr>
<td>Concrete</td>
<td>Less than 80%</td>
<td>USG Durock™ Primer-Sealer2</td>
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<tr>
<td></td>
<td>80 – 100%</td>
<td>USG Durock™ EW2™ Primer3</td>
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Notes
1. USG Durock™ EcoCap HT Self-Leveling Topping is not a vapor or moisture barrier. Transmission of excessive water vapors or moisture from the concrete subfloor through the USG Durock™ EcoCap HT Self-Leveling Topping can interfere with coatings, floor coverings, and/or floor-covering adhesives and compromise their performance. Refer to the floor-covering and adhesive manufacturers’ guidelines to determine whether a moisture mitigation system is required.
2. Refer to USG Durock™ Brand Primer-Sealer Submittal (CB319) at usgperformanceflooring.com for installation instructions and application rates.
3. Refer to USG Durock™ Brand EW2™ Primer Submittal (CB801) at usgperformanceflooring.com for installation instructions and application rates.

For primer application the temperature of the primers applied, subfloor and room must be maintained between 50-95°F (10-35°C) for a period of 48 hours before and after application.

**Mixing Tools**

- Mixing drum (15 gallons)
- Gage rake
- Smoother/spreader
- Spiked roller
- Nonmetallic cleated shoes
- Measuring bucket
- Mixing drill type 2 through 7—as outlined in the Technical Guidelines, prepared by the International Concrete Repair Institute, Pictorial Atlas of Concrete Repair Equipment. (Guideline No. 320.5R-2014)
- Mixing paddle type 2, 3, 4, 8 or 9—as outlined in the Technical Guidelines, prepared by the International Concrete Repair Institute, Pictorial Atlas of Concrete Repair Equipment. (Guideline No. 320.5R-2014)
- 1 in. x 2 in. (25 mm x 51 mm) brass or plastic cylinder
- 12 in. x 12 in. x 1/4 in. (305 mm x 305 mm x 6 mm) Plexiglas® sheet
- Minimum 2 in. (51 mm) putty/drywall taping knife
- Ruler or tape measure
- Personal protective equipment

When opening bags, use engineering controls, including local exhaust, to reduce exposure to dust. Wear NIOSH-recommended respirator if needed. It is important that the mixing water for the total number of bags to be mixed is in the barrel prior to adding the dry material.

Determine the number of bags to be mixed. Add 3.75 to 4.25 quarts (3.6 to 4.0 liters) of cool, clean potable water for each 50 lb. (22.7 kg) bag of USG Durock™ EcoCap HT Self-Leveling Topping powder to the mixing barrel. Next, slowly add the first bag to the barrel while mixing. Mix for 30 seconds, making sure that all material is wetted out thoroughly. Slowly add the second and any additional bags to the mixing barrel while continuing to mix for an additional 30 seconds. Make sure the barrel sides are thoroughly scraped free of dry powder and that there is no unmixed material on the bottom of the barrel. Mix for an additional 90 seconds and ensure the material is uniform and lump free. The total mixing time should be between two and three minutes.

Next, perform a slump test on the material before application. See Test Procedures for instructions.

Do not overwater the material. Do not overmix (more than three minutes), as this may induce air into the material.

The presence of bleed water on the surface and/or material segregation (settling of sand) indicates overwatering. Adjust the amount of water added to the mix to prevent bleed water and material segregation.
USG Durock™ EcoCap HT Self-Leveling Topping can be mechanically mixed with a continuous mixer and pump (contact USG for a list of approved mixers) or with a batch mixer and pump, similar to Type G found in section 5.0 of the Technical Guidelines, prepared by the International Concrete Repair Institute, Pictorial Atlas of Concrete Repair Equipment, (Guideline No. 320.5R-2014). Mixer and pump must be clean, calibrated and in good working condition. Pressure test the rotor and stator assembly to ensure proper pumping. Use the mixture proportions specified in the Barrel Mixing section to prepare the material. When opening bags, use engineering controls, including local exhaust, to reduce exposure to dust. Wear NIOSH-recommended respirator if needed. Do not overwater the material.

Prior to pumping USG Durock™ EcoCap HT Self-Leveling Topping slurry, the hose must be conditioned with water. Add clean water to the pump well and turn pump on until water has reached the end of the hose. Turn pump off and drain water, pump and hose. Pump and hose are now ready to accept USG Durock™ EcoCap HT Self-Leveling Topping slurry. Check the consistency, flow behavior and uniformity of the mixed material exiting at the end of the hose. Perform a slump test on the material before application. See Test Procedures for instructions. Adjust the water flow rate to ensure that the mixed material is free of bleed water and material segregation (settling of sand). Use a mesh screen sock at the end of the hose to capture any large hardened particles that could become loose from the mixer or the hose.

Set Plexiglas sheet on a level, stable surface, away from foot traffic. Ensure that the 1 in. x 2 in. (25 mm × 51 mm) cylinder is clean and dry. Place the cylinder in the middle of the Plexiglas sheet. Pour the USG Durock™ EcoCap HT Self-Leveling Topping slurry into the cylinder slightly overfilling it. Screed off the excess material from the top of the poured cylinder, away from the Plexiglas sheet. Lift the cylinder up smoothly to form the patty. Do not shake any excess slurry from the cylinder. Wait one minute and measure the patty in two directions 90° apart and calculate the average of the two measurements +/- 1/8 in. (3 mm). Ensure that the average patty diameter is within the 5.5 in. to 6.5 in. (140 to 165 mm) range for USG Durock™ EcoCap HT Self-Leveling Topping.

The subfloor, room temperature and USG Durock™ EcoCap HT Self-Leveling Topping—either mixed or in powdered form—must be between 50 °F and 95 °F (10-35 °C) at the time of application. For temperatures above 95 °F (35 °C), follow the American Concrete Institute (ACI) Hot Weather Concrete guidelines to ensure proper installation. If available water is not cool, chill water to 70 °F (21 °C). Under hot/windy conditions, use of an approved concrete curing membrane may be required to prevent surface dry out. When uncertain or unknown construction conditions are present on the jobsite, it is recommended to pour a small test area before conducting full installation. The test area must also include finish flooring to establish suitability of the complete system for intended use.

USG Durock™ EcoCap HT Self-Leveling Topping has a working time of approximately 15–25 minutes at 70 °F (21 °C). At higher temperatures the flow time and set times are shortened; at lower temperatures the working time and set times are extended. Work as a team to obtain a satisfactory installation. Ensure continuous flow of slurry and promptly spread the USG Durock™ EcoCap HT Self-Leveling Topping to desired thickness (minimum average thickness of 1/8 in. (3 mm)) and finish using a gage rake and a smoother. Perform these operations promptly to avoid trapping air bubbles, prevent formation of cold joints and achieve a satisfactory finish surface.

Apply the USG Durock™ EcoCap HT Self-Leveling Topping in an even ribbon along the short dimension of the room or area to be poured. Maintain a continuous wet edge. If pouring the USG Durock™ EcoCap HT Self-Leveling Topping against an edge that has been allowed to set, the edge of the previous pour should be treated with the appropriate USG Durock™ primer.
• USG Durock™ EcoCap HT Self-Leveling Topping can be walked on approximately 2 hours after application.
• Moisture-insensitive tiles can be installed in as little as four hours after installation, depending on topping thickness and drying conditions.
• All other floor coverings can be installed in as little as 16 hours after installation, depending on topping thickness and drying conditions.
• Check with floor-covering and adhesive manufacturers for installation guidelines and suitability of their manufactured products over USG Durock™ EcoCap HT Self-Leveling Topping.
• Perform field bond test to determine adhesive/flooring performance over USG Durock™ EcoCap HT Self-Leveling Topping. Install floor covering with adhesive and perform field bond test approximately 72 hours after installation.
• Follow floor-covering manufacturers' recommendations for surface sealing requirements. If the floor-covering or adhesive manufacturer requirements are more stringent, their requirements take precedence.
• USG Durock™ EcoCap HT Self-Leveling Topping can be used as a wear surface with a tested decorative, protective coating system. Coating systems must be tested for adhesion to USG Durock™ EcoCap HT Self-Leveling Topping. The bond test and performance of coatings is the responsibility of the coating manufacturer. Contact USG for further information regarding decorative coating options.

For further details on installation requirements, specifications and the most up-to-date product information, please see usgperformanceflooring.com.

1. USG Durock™ EcoCap HT Self-Leveling Topping can be used as a wear surface with a tested decorative, protective coating system. Coating systems must be tested for adhesion to USG Durock™ EcoCap HT Self-Leveling Topping. The bond test and performance of coatings is the responsibility of the coating manufacturer. Contact USG for further information regarding decorative coating options.

2. Do not install over dimensionally unstable, improperly prepared, weak subfloors. Tensile strength of concrete over which USG Durock™ EcoCap HT Self-Leveling Topping is installed must be a minimum of 175 psi as tested per the ASTM C1583 standard.

3. Do not install over concrete subfloors less than 5 days old.

4. For applications over existing gypsum subfloors, contact USG.

5. For below-grade applications, contact USG.

6. Do not use over sound mat.

7. Do not use over expansion or isolation joints. Continue all movement joints in the concrete slab up through the layer of topping. In areas where the expansion or isolation joints are not present in the floor or where the concrete slab has developed systematic cracks in response to slab movement, consult with an engineer on the project or request services of a professional structural engineer to provide such joints as part of the system in accordance with engineering requirements and industry standards.

8. Existing cracks in the new and old concrete must be repaired with an appropriate crack-repair material in accordance with industry recommendations prior to installation of the topping. Note that repair of existing cracks in the concrete subfloor only subdues but does not completely prevent their ability to telegraph through USG Durock™ EcoCap HT Self-Leveling Topping. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through the poured topping.

9. USG Durock™ EcoCap HT Self-Leveling Topping is not a vapor or moisture barrier. Transmission of excessive water vapors or moisture from the concrete subfloor through the USG Durock™ EcoCap HT Self-Leveling Topping can interfere with coatings, floor coverings and/or floor-covering adhesives and compromise their performance.

10. Do not use acid etching as a method of cleaning and preparing the concrete subfloor. Profiling the concrete surface with USG Durock™ LSP™ Liquid Surface Profiler should be used in lieu of acid etching solutions.

11. Do not use oil-based sweeping compounds to clean and prepare the concrete subfloor. Use of such sweeping compounds leaves an oil film on the surface of the concrete that will interfere with the topping’s bond development. Use a HEPA filtration industrial vacuum to remove the dust and debris and prepare the subfloor for USG Durock™ EcoCap HT Self-Leveling Topping application.
12. Do not use adhesive-removing chemicals or solvents to eliminate contaminants from the concrete subfloor. Use of such chemicals can transport oil, grease and other contaminants further into the concrete pores. These chemicals can be released back to the surface at a later time to interfere with the floor-covering adhesives thus compromising the bond performance with USG Durock™ EcoCap HT Self-Leveling Topping. To remove contaminants from the concrete subfloor, use USG Durock™ LSP™ Liquid Surface Profiler to clean and prepare the surface. See USG Durock™ Brand LSP™ Liquid Surface Profiler Submittal (CB5246) at usgperformanceflooring.com for more information. Use mechanical removal methods such as shot blasting, scarifying or diamond grinding to clean and prepare the concrete subfloor contaminated with adhesives, asphalt or oil.

13. For applications over material containing asbestos, contact USG. Do not mechanically remove organic adhesives, asphalt, coal-tar-based adhesives or other materials containing asbestos.

14. Do not overwater or overmix.

15. Do not add any chemical additives or polymers to USG Durock™ EcoCap HT Self-Leveling Topping.

16. Do not use wet curing or curing compounds.

17. Do not mix with other cementitious products or self-leveling materials.

18. Structure shall be designed so deflection does not exceed L/240 from combined dead and live loads and L/360 from live loads. Certain floor coverings such as marble, limestone, travertine and wood may have more restrictive deflection limits. Consult the appropriate floor-covering manufacturer.

USG Durock™ EcoCap HT Self-Leveling Topping is sanded at the factory. Jobsite addition of sand is not recommended and will void the warranty. USG Durock™ EcoCap HT Self-Leveling Topping is mixed with water to yield a self-leveling slurry.

**Approximate Compressive Strength ASTM C109 (modified):**
1,000 psi at 4 hours
2,500 psi at 24 hours
5,500 psi at 28 days

**Approximate Dry Density:** 96 lbs./cu. ft. (1538 kg/m³)

**Mixing Ratio:** 3.75–4.25 quarts (3.6 to 4.0 liters) of water per 50 lb. (22.7 kg) bag

**Approximate Coverage:** 21.5 sq. ft. (2.0 m²) at 1/4 in. (6 mm) thickness per 50 lb. (22.7 kg) bag

**Approximate Flow Time:** 15–25 minutes at 70 °F (21 C°)

**Approximate Final Set ASTM C191:** 90 to 120 minutes

**Approximate Light Foot Traffic:** 2 hours

**Approximate Time to Flooring:**
- Moisture-insensitive tiles—as little as 4 hours; all other floor coverings—as little as 16 hours
- Approximate Flexural Strength ASTM C348: minimum 1000 psi

**Freeze-Thaw Resistance ASTM C666 (Procedure A):** 300 Cycles

**Thickness Range:**
- Concrete: Featheredge to 2 in. (51 mm) neat, extendable to 5 in. (127 mm) with aggregate
- Packaging: 50 lb. (22.7 kg) multiwall paper bags

**NOTES:**
1. ASTM C109 modified refers to air curing as opposed to damp curing.
2. Results published herein were achieved under controlled laboratory conditions. Actual field results may differ due to environmental conditions, inconsistent proportioning of field-applied water and USG Durock™ EcoCap HT Self-Leveling Topping, as well as differences in mixing/pumping equipment.
3. Depending on topping thickness and drying conditions.
USG Durock™ EcoCap HT Self-Leveling Topping should be stored in an enclosed shelter providing protection from damage and exposure from the elements. During winter, dry mix material should be stored in a heated room before application, as deeply cooled material may increase the risk that some additives may not dissolve during mixing. If temperature is too high, premature setting may occur. Remove damaged or deteriorated materials from the jobsite. USG Durock™ EcoCap HT Self-Leveling Topping has a shelf life of 12 months from the manufactured date.

<table>
<thead>
<tr>
<th>Job Name</th>
<th>Date</th>
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<tbody>
<tr>
<td>Contractor</td>
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PRODUCT INFORMATION
See usgperformanceflooring.com for the most up-to-date product information.

GREENGUARD INFORMATION
GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit ul.com/gg.

DANGER
Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer by inhalation of respirable crystalline silica. Do not handle until all safety precautions have been read and understood. Avoid breathing 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 get medical attention. If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses and continue rinsing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. 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.

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SAFETY FIRST!
Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read applicable SDSs and literature before specification and installation.