USG DUROCK™ BRAND
ULTRACAP®
SELF-LEVELING UNDERLAYMENT

DESCRIPTION

USG Durock™ Brand UltraCap® Self-Leveling Underlayment is a fast-applying Portland cement-based floor underlayment formulated for interior use over concrete and wood subfloors. A specially blended formulation allows you to clean, prime and pour without the need for mechanical preparation of concrete subfloors. Providing a minimum compressive strength of 5,000 psi (after 28 days of drying time), USG Durock™ UltraCap Self-Leveling Underlayment is mixed with water at the job site to yield a smooth and monolithic surface of up to 2 in. (51 mm) thick (deep fills up to 5 in. (127 mm)). A 1/4 in. (6 mm) thick underlayment weighs approximately 2.6 lbs./sq. ft. (12.7 kg/m²) and has an approximate dry density of 125 lbs./cu. ft. (2002 kg/m³). Floor covering can be installed in two to three days, depending on underlayment thickness and drying conditions. USG Durock™ UltraCap Self-Leveling Underlayment may assist in obtaining LEED credits.

USG Durock™ UltraCap® Self-Leveling Underlayment 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, single-family residence and private office modeling scenarios, and meets USGBC’s LEED® v4 emission requirements.

EXTENDED WARRANTY

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

SUBFLOOR PREPARATION

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 is not required for most applications.

Subfloors must be clean and free of dirt, tar, wax, 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 underlayment. Clean all surface debris and dust by sweeping or vacuuming with a HEPA filtration industrial vacuum. Seal off floor drains before starting to pour underlayment to prevent drain pipes from clogging.

Fill deep areas and holes prior to final application. Contact USG for further information.

Contact USG for applications over vinyl asbestos tile (VAT).

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 underlayment 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 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.

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.

Concrete subfloors receiving cementitious underlayment systems must be cured properly (generally for a minimum of 28 days) prior to underlayment installation. Subfloor Moisture Vapor Emission Rate (MVER) exceeding 5 lbs. (2.3 kg)/1,000 sq. ft. (92.9 m²)/24 hours per ASTM F1869 or a relative humidity (RH) greater than 80% per ASTM F2170, must be treated with USG Durock™ Brand RH-100™ Moisture Vapor Reducer. USG Durock™ UltraCap Self-Leveling Underlayment is not a vapor barrier. Transmission of excessive moisture vapors from the concrete subfloor through USG Durock™ UltraCap Self-Leveling Underlayment can interfere with floor coverings and/or floor-covering adhesives, thus compromising their performance. If the concrete subfloor has been treated with USG Durock™ RH-100 Moisture Vapor Reducer, it must be primed with USG Durock™ Primer-Sealer prior to application of USG Durock™ UltraCap Self-Leveling Underlayment. See Priming section, pg. 3 for further details.

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™ UltraCap Self-Leveling Underlayment. Consult with the engineer on the project or request the 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™ UltraCap Self-Leveling Underlayment. 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™ UltraCap Self-Leveling Underlayment. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through USG Durock™ UltraCap Self-Leveling Underlayment. Respect existing expansion and control joints (see Notes/Limitations pg. 5, #8).

USG Durock™ UltraCap Self-Leveling Underlayment 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 underlayment application.

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Use USG Durock™ Brand Primer-Sealer for preparing the concrete or wood subfloor prior to application of USG Durock™ UltraCap Self-Leveling Underlayment. Proper use of USG Durock™ Primer-Sealer enhances the bond of the underlayment and effectively seals the subfloor and prevents formation of pinholes, domes and craters in USG Durock™ UltraCap Self-Leveling Underlayment due to the upward migration of air bubbles from the subfloor. Refer to USG Durock™ Brand Primer-Sealer submittal (CB519) at usgperformanceflooring.com for installation instructions and application rates.

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, water-soluble adhesives, paint, chemicals, loose topping, joint compounds from drywall installation or any other contaminant that might interfere with development of good bond.

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

**MIXING TOOLS**

- Mixing drum (15 gallons)
- Gauge rake
- Smoother/spreader
- 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 Material Mixing 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 Material Mixing 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

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 needed. Add 4.5 to 5.0 quarts (4.25 to 4.75 liters) of cool, clean potable water for each bag (50 lbs.) of USG Durock™ UltraCap Self-Leveling Underlayment powder to the dry mixing barrel. Next, slowly add one 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. Make sure the barrel sides are thoroughly scraped free of dry powder and 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.

Perform a slump test on the material before application. See Test Procedures, pg. 4 for instructions.

Do not add additional water until the two-minute mixing cycle has been completed. Do not overwater the material. If additional water is required, add no more than 0.4 quarts per bag and mix for 30 seconds or until mix is uniform. 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™ UltraCap Self-Leveling Underlayment can be mechanically mixed with a continuous mixer and pump, similar to Type G as found in section 5.0 of the Technical Guidelines, prepared by the International Concrete Repair Institute, Pictorial Atlas of Concrete Repair Material Mixing 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™ UltraCap Self-Leveling Underlayment 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 off pump and drain water, pump and hose. Pump and hose are now ready to accept USG Durock™ UltraCap Self-Leveling Underlayment 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.

Ensure that the minimum length of the slurry hose is equal to or greater than 100 feet. If the continuous mixer and pump are not operational for about 15 minutes, clean the entire system with water to maintain smooth and consistent equipment performance upon restart.

Set Plexiglas sheet on a level, stable surface, away from foot traffic. Ensure that the 1 in. x 2 in. (25 mm x 51 mm) cylinder is clean and dry. Place the cylinder in the middle of the Plexiglas sheet. Pour the USG Durock™ UltraCap slurry into the cylinder slightly overfilling it. Screw 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 5.75 in. to 6.75 in. (146 mm to 171 mm) range.

During application and until the USG Durock™ UltraCap Self-Leveling Underlayment is firmly set (typically the first two hours immediately following the pour), close all doors, windows and other openings in the building and turn off HVAC systems to prevent air drafts. Protect installation areas from direct sunlight exposure for at least 24 hours. After 24 hours the HVAC system can resume, as well as the use of doors, windows and other openings.

Subfloor, room temperature and the USG Durock™ UltraCap product—either mixed or in powdered form—must be between 50 °F and 95 °F (10 °C and 35 °C) at the time of application and for 72 hours after installation of USG Durock™ UltraCap Self-Leveling Underlayment. 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).

When uncertain or unknown construction conditions are present on the job site, 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™ UltraCap Self-Leveling Underlayment has a flow time of approximately 15–20 minutes at 70 °F (21 °C). At higher temperatures the flow time is shortened; at lower temperatures the flow time is extended. Work as a team to obtain a satisfactory installation. Ensure continuous flow of slurry and promptly spread the USG Durock™ UltraCap Self-Leveling Underlayment to desired thickness 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™ UltraCap Self-Leveling Underlayment 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™ UltraCap Self-Leveling Underlayment against an edge that has been allowed to set, the edge of the previous pour should be treated with USG Durock™ Primer-Sealer.

USG Durock™ UltraCap Self-Leveling Underlayment can typically accept foot traffic approximately four hours after the pour and normal trade traffic after 24 hours. After USG Durock™ UltraCap Self-Leveling Underlayment is firmly set, provide adequate ventilation to ensure uniform drying of the underlayment. High ambient humidity and higher thicknesses will delay the drying process. Protect floors from heavy trade traffic loads (i.e., loaded drywall carts, heavy tool cabinets, etc.) with plywood.
Contact USG for information.

- USG Durock™ UltraCap Self-Leveling Underlayment can typically accept foot traffic approximately four hours after the pour.
- Non-breathable flooring can be applied in approximately 16 hours when thicknesses do not exceed 1/2 in. (13 mm). For deeper pours, floor covering can be installed in two to three days, depending on underlayment thickness and drying conditions.
- Check with floor-covering and adhesive manufacturers for installation guidelines and suitability of their manufactured products over USG Durock™ UltraCap Self-Leveling Underlayment.
- Protect the surface of USG Durock™ UltraCap Self-Leveling Underlayment from contaminants and water until installation of floor covering is accomplished.
- Perform field bond test to determine adhesive/flooring performance over USG Durock™ UltraCap Self-Leveling Underlayment. 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.

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

1. Do not use in exterior applications.
2. USG Durock™ UltraCap Self-Leveling Underlayment can be used as a wear surface with a tested decorative, protective coating system. Coating systems must be tested for adhesion to USG Durock™ UltraCap Self-Leveling Underlayment. The bond test and performance of coatings are the responsibility of the coating manufacturer. Contact USG for further information regarding decorative coating options.
3. Do not install where continuous exposure to moisture is a possibility.
4. Do not install over dimensionally unstable, improperly prepared, weak subfloors.
5. Do not install over concrete subfloor less than 28 days old. For untreated (without an approved moisture mitigation system) concrete subfloors less than 28 days old, contact USG.
6. For below-grade applications, contact USG.
7. Contact USG for use over sound mats.
8. Do not use over expansion or isolation joints. Continue all movement joints in the concrete slab up through the layer of underlayment. 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.
9. 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 underlayment. Note that repair of existing cracks in the concrete subfloor only subdues but does not completely prevent their ability to telegraph through USG Durock™ UltraCap Self-Leveling Underlayment. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through the poured underlayment.
10. When the MVER exceeds 5 lbs. (2.3 kg)/1,000 sq. ft. (92.9 m²)/24 hours or an RH greater than 80% per ASTM F2170, treat the concrete subfloor with USG Durock™ RH-100 Moisture Vapor Reducer. USG Durock™ UltraCap Self-Leveling Underlayment is not a vapor or moisture barrier. Transmission of excessive water vapor or moisture from the concrete subfloor through the USG Durock™ UltraCap Self-Leveling Underlayment can interfere with floor coverings and/or floor-covering adhesives, thus compromising their performance. For on-grade applications, use USG Durock™ RH-100 Moisture Vapor Reducer over concrete. Moisture mitigation system may not be needed if a vapor retarder is installed below the concrete slab in accordance to industry specifications and practice (ASTM E1745, ASTM E1993, ASTM E1693) and the MVER value of the concrete slab is below 5 lbs. (2.3 kg)/1,000 sq. ft. (92.9 m²)/24 hours or has an RH less than 80% per ASTM F2170.
11. Do not use acid etching as a method of cleaning and preparing the concrete subfloor.
12. 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 underlayment's bond development. Use a HEPA filtration industrial vacuum to remove the dust and debris and prepare the subfloor for USG Durock™ UltraCap Self-Leveling Underlayment application.
13. 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™ UltraCap Self-Leveling Underlayment. Mechanically removing the organic adhesives, asphalt, coal-tar-based adhesives and other oil-based contaminants is the sole recommended method of preparing the subfloor for application of USG Durock™ UltraCap Self-Leveling Underlayment.

14. Contact USG for applications of USG Durock™ UltraCap Self-Leveling Underlayment over asbestos tiles. Do not mechanically remove organic adhesives, asphalt, coal-tar-based adhesives or other materials containing asbestos.

15. Do not overwater or over mix.

16. Do not add any chemical additives or polymers to USG Durock™ UltraCap Self-Leveling Underlayment.

17. Do not use wet curing or curing compounds.

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

19. Differential or excessive movement of the wood subfloor may lead to development of cracks in USG Durock™ UltraCap Self-Leveling Underlayment at the wood subfloor joints and adjacent areas.

20. 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™ UltraCap Self-Leveling Underlayment is sanded at the factory. Job site addition of sand is not recommended and will void the warranty. USG Durock™ UltraCap Self-Leveling Underlayment is mixed with water to yield a self-leveling slurry.

Approximate Compressive Strength ASTM C109 (modified):
2,200–2,600 psi (15.2–17.9 MPa) at 24 hours
5,000 minimum psi (34.5 MPa) at 28 days

Approximate Dry Density: 120–130 lbs./cu. ft. (1922–2082 kg/m³)

Mixing Ratio: 4.5–5.0 quarts (4.25 to 4.75 liters) of water per 50 lb. (22.7 kg) bag

Approximate Coverage: 23 sq. ft. (2.1 m²) per bag at 1/4 in. (6 mm) thickness

Approximate Flow Time: 15–20 minutes at 70 °F (21 °C)

Approximate Final Set ASTM C191: 60–100 minutes

Approximate Light Foot Traffic: 4 hours

Approximate Time to Flooring: Non-breathable floor covering can be installed in as little as 16 hours at ½ in. (13 mm) thickness or less, 2-3 days for deeper pours.

Approximate Flexural Strength ASTM C348: minimum 1,000 psi (6.9 MPa)

Thickness Range: Featheredge - 2 in. (51 mm)

Surface pH Range ASTM F710: 11–12

Packaging: 50 lb. (22.7 kg) multiwall paper bags

Notes:
1. ASTM C109 modified refers to air drying 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™ UltraCap Self-Leveling Underlayment, as well as differences in mixing/pumping equipment.
USG Durock™ UltraCap Self-Leveling Underlayment 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 job site. USG Durock™ UltraCap Self-Leveling Underlayment has a shelf life of 12 months from the manufactured date.

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<th>Job Name</th>
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