USG Durock™ Brand Speed™ Self-Leveling Underlayment

**Description**

USG Durock™ Brand Speed™ Self-Leveling Underlayment is a fast-applying, high-alumina, cement-based self-leveling underlayment formulated for interior use over concrete and wood subfloors. This high-strength underlayment (a minimum compressive strength of 7,000 psi after 28 days) 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) when extended). A 1/4 in. (6 mm) thick underlayment has an approximate weight range of 2.6 to 2.7 lbs./sq. ft. and an approximate dry density range of 125 to 130 lbs./cu. ft. Floor covering can be installed in as little as 6 hours, depending on underlayment thickness and drying conditions.

This specially blended formulation allows you to clean, prime and pour without the need for mechanical preparation of concrete subfloors. Polishing and staining can start in as little as 6 hours depending on underlayment thickness and drying conditions. USG Durock™ Speed Self-Leveling Underlayment can be stained integrally or topically using a tested concrete stain or dye. To provide a washable and stain-resistant floor surface, it is recommended that an appropriate protective coating system be used.

USG Durock™ Speed 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 and private office modeling scenarios, and meets USGBC’s LEED® v4 emission requirements.

An extended warranty may apply when using USG Durock™ Speed 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, 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 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.

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. An application of USG Durock™ LSP™ Liquid Surface Profiler may be a viable alternative to mechanical preparation methods depending on the condition of the existing surface.

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 topping 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™ CST™ or RH-100™ Moisture Vapor Reducer. USG Durock™ Speed Self-Leveling Underlayment is not a vapor barrier. Transmission of excessive moisture vapors from the concrete subfloor through USG Durock™ Speed Self-Leveling Underlayment can interfere with coatings and/or floor-covering adhesives, thus compromising their performance. If the concrete subfloor has been treated with a USG Durock™ Moisture Vapor Reducer, it must be primed with USG Durock™ Primer-Sealer prior to application of USG Durock™ Speed 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™ Speed 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™ Speed Self-Leveling Underlayment. Prior to crack remediation, ensure the appropriate personal protective equipment (PPE) is utilized. 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 USG Durock™ Crack Repair Compound 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™ Speed Self-Leveling Underlayment. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through USG Durock™ Speed Self-Leveling Underlayment. Respect existing expansion and control joints (see Notes/Limitations pg. 5, #8).

USG Durock™ Speed Self-Leveling Underlayment can be applied with metal lath over engineer-approved, APA-Rated exterior glue plywood or oriented strand board (OSB) (i.e., APA-Rated Exterior or Exposure 1 panels) wood subfloors following the Tile Council of North America’s F185-14 specification at a minimum 1/2 in. (13 mm) depth. Subfloor must be properly prepared and primed with USG Durock™ Brand Primer-Sealer. See Notes/Limitations, pg. 6, #19 for subfloor deflections.

Any 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.

CAUTION For decorative wear surfaces, USG Durock™ Speed Self-Leveling Underlayment is a dense, non-structural underlayment. Non-structural underlayments may not be able to resist substrate movement which may produce micro-cracking or crack telegraphing from existing cracks and joints in the substrate. USG Durock™ Speed Self-Leveling Underlayment provides a durable surface, but the surface is susceptible to damage from heavy traffic loads, point loads imposed by steel or hard-plastic wheels, impact or gouging.

Color variation is to be anticipated and can be highlighted by variations such as the amount of mixing water, mixing time, application methods, raw materials and wear surface coatings.
Use USG Durock™ Primer-Sealer, USG Durock™ ESB™ Primer or USG Durock™ EW2™ Primer to prepare the concrete subfloor prior to USG Durock™ Speed Self-Leveling Underlayment application. Proper use of USG Durock™ primers enhance the bond of the underlayment and effectively seal the subfloor and prevent formation of pinholes, domes and craters in USG Durock™ Speed Self-Leveling Underlayment due to the upward migration of air bubbles from the subfloor. Refer to USG Durock™ Brand Primer-Sealer Submittal (CB519), USG Durock™ Brand ESB™ Primer Submittal (CB800) and USG Durock™ Brand EW2™ Primer Submittal (CB801) 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 the USG Durock™ Brand primer, subfloor and room must be maintained between 50-95 °F (10-35 °C) for a period of 48 hours before and after application.

- 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
- 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 needed. Add 5.0 to 5.5 quarts (4.75 to 5.25 liters) of cool, clean potable water for each bag (50 lbs.) of USG Durock™ Speed 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 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.

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™ Speed Self-Leveling Underlayment can be mechanically mixed with a continuous mixer and pump or with a batch 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, review SDS and wear recommended PPE to reduce exposure to dust. Wear NIOSH-recommended respirator if needed. Do not overwater the material.

Prior to pumping USG Durock™ Speed 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 pump off and drain water, pump and hose. Pump and hose are now ready to accept USG Durock™ Speed 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™ Speed 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 5.75 in. to 6.75 in. (146 mm to 171 mm) range.

During application and until the USG Durock™ Speed 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™ Speed 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™ Speed Self-Leveling Underlayment. 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™ Speed 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™ Speed 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™ Speed 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™ Speed 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.

When used as a wear surface, use a protective coating to prevent dirt, grime or other contaminants from staining the surface.
Contact USG for information.

- USG Durock™ Speed Self-Leveling Underlayment can typically accept foot traffic approximately four hours after the pour.
- Floor coverings can be installed in as little as 6 hours when USG Durock™ Speed Self-Leveling Underlayment is applied at a 1 in. (25 mm) thickness or less. For applications greater than 1 in. (25 mm) deep, allow 12 hours before floor-covering installation. Wood flooring can be installed after 24 hours or when the underlayment is completely dry. If the floor-covering or adhesive manufacturer requirements are more stringent, their requirements take precedence. Drying time will vary depending on underlayment thickness, ambient climate conditions and humidity.
- Check with floor-covering and adhesive manufacturers for installation guidelines and suitability of their manufactured products over USG Durock™ Speed Self-Leveling Underlayment.
- Perform field bond test to determine adhesive/flooring performance over application of USG Durock™ Speed 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 usgperformanceflooring.com.

1. Do not use in exterior applications.
2. USG Durock™ Speed 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™ Speed Self-Leveling Underlayment. The bond test and performance of coatings is 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. Tensile strength of concrete over which USG Durock™ Speed Self-Leveling Underlayment is installed must be a minimum of 175 psi as tested per the ASTM C1583 standard.
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. Do not use over sound mat.
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 subsides but does not completely prevent their ability to telegraph through USG Durock™ Speed 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 either USG Durock™ CST™ or RH-100™ Moisture Vapor Reducer, depending on MVER readings. (See corresponding submittal sheets at usgperformanceflooring.com). USG Durock™ Speed 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™ Speed Self-Leveling Underlayment can interfere with coatings and/or floor-covering adhesives, thus compromising their performance. 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. Profiling the concrete surface with USG Durock™ LSP Liquid Surface Profiler should be used in lieu of acid etching solutions.
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™ Speed 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™ Speed Self-Leveling Underlayment. Prepare the surface with either USG Durock™ LSP Liquid Surface Profiler or mechanically remove the organic adhesives, asphalt, coal-tar-based adhesives and other oil-based contaminants to prepare the subfloor for application of USG Durock™ Speed Self-Leveling Underlayment.

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

15. Do not overwater or overmix.

16. Do not use wet curing or curing compounds because USG Durock™ Speed Self-Leveling Underlayment is self-curing.

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

18. Do not apply USG Durock™ Speed Self-Leveling Underlayment over wood subfloor without metal lath. Differential or excessive movement of the wood subfloor may lead to development of cracks in USG Durock™ Speed Self-Leveling Underlayment at the wood subfloor joints and adjacent areas.

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

Approximate Compressive Strength ASTM C109 (modified): 2,000–2,500 psi (13.8–17.2 MPa) at 24 hours
7,000 minimum psi (48.3 MPa) at 28 days

Approximate Dry Density: 125–130 lbs./cu. ft. (2002–2082 kg/m³)

Mixing Ratio: 5.0–5.5 quarts (4.75 to 5.25 liters) of water per 50 lb. (22.7 kg) bag

Approximate Coverage: 25 sq. ft. 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 Flexural Strength ASTM C348: minimum 1,000 psi (6.9 MPa)

Approximate Surface pH ASTM F710: 11

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™ Speed Self-Leveling Underlayment, as well as differences in mixing/pumping equipment.
USG Durock™ Speed 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™ Speed Self-Leveling Underlayment has a shelf life of 12 months from the manufactured date.

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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.