

# Durock™

## Self-Leveling Underlayment

### Multi-Use



#### Premium poured underlayment product with self-drying technology

- Fast application, fast setting allows for return of light trade traffic within hours
- No shot blasting required
- Ideal for wood frame, renovation and light commercial construction
- Ideal topping for radiant heat installations
- Meets resilient floor industry specifications for underlayment for commercial goods
- Exceptionally smooth: crack-resistant surface
- Helps maximize sound isolation between floors/units

#### Description

DUROCK™ brand Multi-Use self-leveling underlayment is a high-quality, pre-sanded versatile underlayment that is less labor intensive than many other types of underlayment installations and provides an economical way to level floors in residential, light commercial and residential renovation construction. It can be easily applied over wood and concrete subfloors at a thickness up to 3". Its high compressive strengths at low thickness provide superior underlayment performance for higher traffic areas. Multi-Use self-leveling underlayment creates a smooth surface over uneven, damaged or rough wood and concrete floors and is ideal for most floor coverings including hardwood, carpet, laminates, ceramic and vinyl.

DUROCK Multi-Use self-leveling underlayment features a non-shrinking technology that does not require metal lath over wood or shot blasting of concrete, saving time and money. Fast setting allows the return of light trade traffic within hours. Multi-Use self-leveling underlayment is ideal as a topping for radiant heat systems — especially those installed on plywood or OSB subfloors. The high compressive strengths of DUROCK self leveling underlayments meets the requirement of the resilient floor industry for commercial goods.

#### Limitations

1. Do not use as a wear surface.
2. Do not install where continuous exposure to moisture is a possibility (for instance, exterior balconies or gang shower rooms).
3. Do not install in below-grade applications.
4. Do not install on grade without first checking for moisture vapor transmission from subfloor. Do not install on subfloor with moisture vapor transmission greater than 3.0 lb./ 1000 sq.ft./ 24 hr. as tested by calcium chloride test.
5. Do not use on a subfloor not meeting L/360 design.
6. Do not use on an un-sound subfloor surface exhibiting a crumbling or excessively soft surface, cracks of excessive width, or an excessive number of cracks.
7. Do not use on square-edged plywood or OSB substrates unless back blocked.

#### Mixing

DUROCK Multi-Use self-leveling underlayment is fast and easy to install: Just mix it with water to yield a lightweight slurry that has self leveling-type qualities. DUROCK Multi-Use self-leveling underlayment is mixed with water at the rate of 1-1/8 to 1-1/4 gal. per 60 lb. bag using a high torque mixer.

When mixing material, first measure out the appropriate amount of water into a large enough bucket or barrel. It is important that water be measured accurately. Too much or too little can have a major effect on the way the material flows or on the final compressive strength. Slowly add material to the container while mixing. After material has been added, scrape down sides to make sure all dry material is mixed. Do not use an up and down motion with the mixer as this can entrap air. The mixer must have enough energy to thoroughly mix the underlayment cement/water combination. USG has successfully used the Perles ME-120 mixer for these types of applications and found them to be adequate in mixing power and ease of use. See perlesusa.com for more information.

Material will initially appear tight. Mix at high speed for approximately 2 minutes. At that point, mixing energy will cause the material to loosen up. Do not add any water until the material has been mixed for a full two minutes. If material is still tight after 2 minutes, add small amounts of water to loosen the material, making sure not to exceed maximum recommended total water per bag. **Do not over water.**

## Installation

Subfloors must be clean, structurally sound and dry. All loose construction debris, including joint compound, excessive dust, mud, oil and/or grease should be removed prior to application. Use of oil based sweeping compounds is not recommended. Shot blasting is not required.

Cracks due to building movement, if not addressed properly, will eventually telegraph through DUROCK Quick Dry self-leveling underlayment. To minimize potential telegraphing from large cracks in cement subfloors, cracks should be grouted prior to application of the underlayment. Adhere to the grouting manufacturer's requirements regarding when a surface may be applied over grout.

During the entire installation process, the building must be enclosed and temperature maintained at 50 °F (10 °C) minimum until permanent heating is available. Adequate ventilation must be provided to ensure uniform drying of the installed underlayment, which typically occurs within three to ten days. Limit design of the subfloor and framing to a minimum of L/360 to prevent undue stress from occurring in the installed underlayment, as this stress may produce cracks. Over plywood subfloors, tongue-and-groove edge supported type plywood is recommended for meeting this deflection criterion. The application of DUROCK™ primer-sealer to the subfloor is necessary to provide maximum bond between the underlayment and the subfloor. Concrete slabs that are receiving underlayment systems must be properly cured (generally for a minimum of 28 days) prior to the underlayment installation. Concrete slabs should be properly treated with DUROCK primer-sealer according to manufacturer's recommendations.

1. Prior to the installation of material, protect walls from potential spattering from the underlayment with plastic.
2. New concrete subfloors should be aged for a minimum of 28 days. Prime concrete subfloors at a rate of 200 sq. ft./gal. with an initial mixture of 4:1, by volume (water: DUROCK primer-sealer). Allow initial application of primer to dry (approx. 45 minutes) and then apply a second application of DUROCK primer-sealer at a 1:1 mix. Allow to dry for 2-3 hours or until clear. Old concrete floors tend to be very porous. After the second application, check for sealing of the subfloor by sprinkling a small amount of water onto the surface. The water should bead up. If the water is quickly absorbed, a second application of the 1:1 mixture is recommended.
3. Close all windows and doors prior to the pour to prevent drafts, which can dry out the top of the material prior to set resulting in a dusty surface. However, after the pour, windows and doors should be opened to allow good airflow to aid in drying.
4. During installation, identify and maintain all expansion and control joints.
5. For rehab jobs, where deep sections exist, a pre-pour might be necessary. It is important to come back over the deep pour section within 2 hours. If this is not possible, the deep pour section must be allowed to dry and then primed with DUROCK primer-sealer. For pours greater than 3", the recommended technique is to apply pea gravel to the deep section. Make an initial pour of the DUROCK underlayment into the gravel and using a garden rake, thoroughly mix the underlayment and pea gravel together. Deeper fills will require longer dry times. A 3" deep fill can require up to 3-4 weeks depending on environmental conditions. The aggregated deep fill should be capped with a minimum of 1/4" of non-aggregated DUROCK underlayment. The capping should take place as the deep fill section is set (typically 2 hours). Otherwise, the deep fill section must completely dry and then the Durock primer-sealer must be applied prior to the capping application.
6. For radiant heat applications, the DUROCK underlayment should be applied at a minimum thickness of 3/4" over the top of the electrical cables or Hydronic tubes. Hydronic tubes are typically 3/4" thick (o.d.) resulting in a total DUROCK underlayment thickness of 1-1/2" (as measured from the subfloor to the top of the DUROCK underlayment); electrical cable systems are typically 1/8" to 1/4" thick resulting in a total underlayment thickness of 7/8" to 1" thickness (as measured from the subfloor to the top of the DUROCK underlayment). At 1-1/2" the dry time for the DUROCK underlayment will be 10-14 days depending on environmental conditions. After 48 hours, the radiant heat system may be turned on at low temperature to help accelerate the drying process. However, good ventilation remains critical to speed the drying process.
7. Apply the material in an even ribbon along the short dimension of the room or area to be poured. Maintain a wet edge. If pouring up against an edge that has been allowed to set, the edge of the previous pour should be treated with DUROCK primer-sealer.

8. Conduct a slump test once a consistent mixing regimen is achieved. Use a 2" (i.d.) x 4" plastic cylinder in the center of a smooth surface such as Plexiglas® or similar material. Do not conduct slumps on a plywood or concrete floor. Irregularities in the floor surface and absorption can result in erroneous slump test readings. Carefully fill slump test cylinder so that material is just over top of cylinder, but not flowing down the sides. Using a broad knife, whisk or shear off slight excess material on the top of the cylinder. Smoothly lift cylinder with a straight and vertical motion. Allow all material from cylinder to empty onto the plate. Wait 30 seconds and then measure diameter of the patty (slump) on the Plexiglas. Patty size should be 8-1/2" to 9-1/2". If slump is too tight, additional water can be added in small increments. Allow water to mix thoroughly and take another sample and repeat the test procedure.
9. At doorways, if it is necessary to feather edge to meet the elevation, it is recommended to stop the pour approximately 1 foot away. Use DUROCK floor patch product to feather in the pour into the doorway.
10. An architect or general contractor may require compressive strength results. Samples for this test should only be taken in brass cube molds. When an outside lab is conducting the test, make sure they are following the correct testing procedure. Contact USG for further test information and information on the USG cube testing program.

<b>Product Data</b>	Compressive Strength (aggregated) ASTM C472	3500 psi <sup>2</sup>
	Dry Density (aggregated)	120 lb./cu.ft.
	Set Time	60-90 minutes
	Thickness Range – wood subfloor	3/4"-3"
	Thickness Range – concrete subfloor	3/8"-3"
	pH	11.0
	Working Time	15-20 minutes
	Dry Time	3-10 days*
	Coverage Rates – per 60 lb. bag	
	At 3/4" thickness	9 sq.ft.
At 3/8" thickness	18 sq.ft.	

\* Based on 3/4" thickness at 70 °F, 50% RH; drying time will vary depending on underlayment thickness and climate conditions.

**Specifications**    **Note to Architect**    **A.** These are specifications for the installation of DUROCK Multi-Use self-leveling underlayment covering normal project requirements. For additional data regarding special conditions and applications, please contact your local USG representative.

**Part 1: General**

**1.1 Scope**    **A.** Specify to meet project requirements.

**1.2 Qualifications**    **A.** All materials, unless otherwise indicated, shall be manufactured by the United States Gypsum Company and shall be installed in accordance with its current printed directions.

**1.3 Delivery and Storage of Materials**    **A.** All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure from the elements. Damaged or deteriorated materials shall be removed from the premises.

**1.4 Site Conditions**

**A.** Before, during and after installation of product, building interior shall be enclosed and maintained at a temperature above 50 °F (10 °C).

**B.** For on-grade applications or new concrete, use a calcium chloride test to verify that the vapor transmission reading is less than 3 lbs./1000 sq.ft. in 24 hours.

**C.** When applying on-grade, subfloors must first be checked for moisture vapor transmission from subfloor. Do not install on subfloor with moisture vapor transmission greater than 3 lbs./1000 sq.ft./ 24 hr. as tested by the calcium chloride test.

**Part 2: Mixing**

**2.1 Products**

**A. Preaggregated with Sand** — DUROCK Multi-Use self-leveling underlayment.

**B. Primer** — Use DUROCK primer-sealer over approved subfloor as specified by manufacturer.

**C. Water** — Potable, free from impurities.

**2.2  
Mixing Proportions**

- A.** Add one 60 lb. bag of DuRock Multi-Use self-leveling underlayment to 1-1/8 to 1-1/4 gallons of water. Mix with a Perles ME-120 mixer or 1/2" heavy-duty drill (min. 650 rpm) and USG-120 (S) mixing paddle beater, or an approved mixing pump. Test for flowability by conducting a slump test. Use a 2" (I.D.) x 4" cylinder to produce a patty 8-1/2" to 9-1/2" in diameter. Ensure that mixture is cohesive and free of separation.  
**Do not over water.**

**Part 3:  
Execution**

**3.1  
Preparation**

- A.** Subfloor shall be structurally sound. Contractor shall clean subfloor to remove mud, oil, grease, and other contaminating factors before arrival of the underlayment crew. Check that substrates are dry, smooth and clean. Apply leak prevention material to cracks and voids. (Set temporary dams as required.)
- B.** New concrete floors must age a minimum of 28 days. Prime with DuRock primer-sealer per manufacturer's instructions. For older concrete floors, follow manufacturer's instructions to ensure complete sealing of the subfloor.
- C.** Prior to the installation of underlayment material, protect walls from potential spattering from underlayment with a plastic sheet or other protective covering.

**3.2  
Application of  
Cementitious  
Flooring**

- A.** Application shall not begin until the building is enclosed, including roof, windows and doors.
- B.** Apply cementitious flooring to minimum 3/4" thickness over 3/4" plywood or OSB (pour to minimum 1/2" if subfloor is covered with mechanically fastened metal lath), 3/8" thickness over plank and poured-in-place concrete. Immediately gauge, rake and smooth product. Except at authorized joints, place product as continuously as possible until application is complete, so that no slurry is placed against product that has obtained its initial set.
- C.** For renovations, a minimum 3/4" cementitious underlayment may be applied to existing subfloor of two layers of plywood, or 3/4" plywood or OSB with 1/4" approved underlayment.
- D.** Once the underlayment has set, general contractor shall provide continuous ventilation and adequate heat to rapidly remove moisture from the area until the cementitious underlayment is dry.
- E.** A minimum 3/8" may be applied over concrete subfloors that are clean, structurally sound, dry and primed per manufacturer's instructions.

**3.3  
Preparation for  
Installation of  
Glue Down  
Floor Goods**

- A.** After the floor has dried (use ASTM D4263 method to determine dryness of DuRock underlayment), use DuRock primer-sealer to seal the cementitious underlayment prior to installation of glue-down floor goods. Apply DuRock primer-sealer (as a sealer) fully diluted 4:1 (water to primer by volume) at a rate of 200 sq.ft./gal. Do not allow to puddle. Where floor goods manufacturers require special adhesive or installation systems, their requirements supersede these recommendations. Damaged floor areas need to be repaired with DuRock floor patch prior to the flooring sealant.

**3.4  
Field Quality Control**

- A.** Cementitious underlayment mix shall be tested for slump as it is being pumped or applied. Use a 2" (I.D.) x 4" cylinder, producing a patty 8-1/2" to 9-1/2" in diameter. Wait 60 seconds before checking slump. Ensure that mixture is cohesive and free of separation. Slump should be conducted on a Plexiglas® plate or other smooth non-absorbent surface.
- B.** When required, check for compressive strength using brass cube molds. Test by ASTM C472 or ASTM C472 (modified) method.

**Submittal  
Approvals:**

<b>Job Name</b>	
<b>Contractor</b>	<b>Date</b>

**Product Updates**

Please refer to our website [usg.com](http://usg.com)

**Trademarks**

The following trademarks used herein are owned by United States Gypsum Company or a related company: DuRock, USG. Plexiglas is a trademark of Rohm Gesellschaft & Haas Co.

**Notice**

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

**Safety First!**

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

