

# Durock™

## Self-Leveling Underlayment

### Quick Dry



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

- Allows for application of floor covering within 15 hours of underlayment application
- Minimizes downtime for commercial and institutional repair and renovation
- Can be used with any finished floor covering; can be stained or used by itself as a finished floor with an appropriate coating system
- Apply floor covering without sealing the surface of the underlayment
- No shot blasting required

#### Description

DUROCK™ brand Quick Dry self-leveling underlayment is a cementitious underlayment designed by USG for use in commercial, institutional and rehab construction. It provides a smooth, hard underlayment surface over concrete slabs, pre-stressed concrete or concrete planks at a thickness from featheredge to 3". The underlayment minimizes downtime with quick set times and high production rates. A USG patented<sup>1</sup> technology allows for same day floor covering application, within 15 hours after the underlayment.

Typically within one day, a floor can be prepped, poured and floor coverings applied, allowing for businesses to reopen the next day.

DUROCK Quick Dry self-leveling underlayment can accept a variety of floor coverings. It exceeds commercial vinyl floor covering requirements as a high-performing underlayment with compressive strengths up to 6000 psi. The exceptional surface hardness of DUROCK Quick Dry self-leveling underlayment resists indentation. Higher compressive strengths minimize floor damage from trades. DUROCK Quick Dry self-leveling underlayment can be stained using an approved stain and protective coating system. Staining can typically start 6 hours after installation of underlayment. The underlayment can also be used by itself as a finished floor with an appropriate coating system.

For capping radiant heat systems, which will feature a stained look with a protective coating, use DUROCK™ Quick Dry self-leveling underlayment as a topping applied to DUROCK™ Multi-Use self-leveling underlayment.

#### Limitations

1. Do not install where continuous exposure to moisture is a possibility (for instance, exterior balconies or shower rooms).
2. Do not install in below-grade applications.
3. Do not install on plywood or OSB floors; wood floors with thicknesses of less than 1"; or without tongue and groove edges without reinforcement.
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 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.

#### Mixing

DUROCK Quick Dry self-leveling underlayment is mixed with water at the rate of 1-1/4 to 1-1/8 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. It is recommended to start out on the low end of the range. 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 M-120 mixer for these types of applications and found them to be adequate in mixing power and ease of use. (See [perlesusa.com](http://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.**

The slump of the material should be tested prior to application using a 1"x 2" (i.d.) cylinder on a Plexiglas® or similar smooth surface sealed sheet. Do not run a slump directly on the subfloor. The patty diameter of the slump must be between 7-1/2" to 8-1/2".

## 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. For 1/2" or thicker pours, the use of perimeter isolation strip may be recommended. Contact your USG representative for detailed instructions. To minimize potential telegraphing from large cracks, 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.

When applying on grade, the vapor transmission of the subfloor should be checked first using either the ASTM F1869 calcium chloride test or the ASTM F2170 method. Vapor transmission limits are limited by the type of floor covering. Consult with your floor covering manufacturer. Where vapor transmission rates are greater than 3 lb./24 hr./1,000 sq.ft., consult your USG representative for the proper remedy.

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 floor underlayment. The deflection of the floor decking and framing must not exceed L/360 to prevent undue stress in the floor fill material, as this stress may produce cracks. 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 poured 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-surfacer 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 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, once underlayment can be worked on, 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. Especially 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 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 Quick Dry self-leveling underlayment into the gravel and using a garden rake, thoroughly mix the underlayment and pea gravel together. Cap with a minimum of 1/4" of DUROCK Quick Dry self-leveling 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. 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.

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| <b>Product Data</b> | Compressive Strength (aggregated) ASTM C472 | 5000-6000 psi <sup>2</sup> |
|                     | Dry Density (aggregated)                    | 130 lb./cu.ft.             |
|                     | Set Time                                    | 60-90 minutes              |
|                     | Thickness Range – concrete subfloor         | 1/4" minimum               |
|                     | pH  | 11.0                       |
|                     | Dry Time                                    | 4-15 hours*                |
|                     | Coverage Rates – per 60 lb. bag             |                            |
|                     | At 1/4" thickness                           | 24 sq.ft.                  |
|                     | At 3/8" thickness                           | 18 sq.ft.                  |
| At 1/2" thickness   | 12 sq.ft.                                   |                            |

\* Dry times will vary based on environmental conditions and thickness of pour.

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| <b>Specifications</b> | <b>Note to Architect</b> | <b>A.</b> These are specifications for the installation of DuRock Quick Dry self-leveling underlayment covering normal project requirements. For additional data regarding special conditions and applications, please contact your local USG representative. |
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| <b>Part 1:<br/>General</b> | <b>1.1<br/>Scope</b>                                 | <b>A.</b> Specify to meet project requirements.  |
|                            | <b>1.2<br/>Qualifications</b>                        | <b>A.</b> 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.   |
|                            | <b>1.3<br/>Delivery and Storage<br/>of Materials</b> | <b>A.</b> 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.  |
|                            | <b>1.4<br/>Site Conditions</b>                       | <p><b>A.</b> Before, during and after installation of product, building interior shall be enclosed and maintained at a temperature above 50 °F (10 °C).</p> <p><b>B.</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. 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.</p> <p><b>C.</b> When excessive cracking is present in the subfloor the cause of this cracking must be determined and, when appropriate, a repair must be made <i>prior</i> to the installation of the DuROCK underlayment to at least stabilize the further occurrence or worsening of cracks.</p> |

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| <b>Part 2:<br/>Mixing</b> | <b>2.1<br/>Products</b>           | <p><b>A. Pre-aggregated with Sand</b> — DuROCK Quick Dry self-leveling underlayment.</p> <p><b>B. Primer</b> — Use DuROCK primer-sealer over approved subfloor as specified by manufacturer.</p> <p><b>C. Water</b> — Potable, free from impurities.</p>   |
|                           | <b>2.2<br/>Mixing Proportions</b> | <p><b>A.</b> Add one 60 lb. bag of DuROCK Quick Dry self-leveling underlayment to 1-1/4 to 1-1/2 gallons of water. Mix with a Perles ME-120 mixer or 1/2" heavy-duty drill (min. 650 rpm) and mixing paddle beater, or an approved mixing pump. Test for flowability by conducting a slump test. Use a 2" (I.D.) x 1" cylinder to produce a patty 7-1/2" to 8-1/2" in diameter. Ensure that mixture is cohesive and free of separation.</p> <p><b>Do not over water.</b></p> |

**Part 3:  
Execution**

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| <p><b>3.1<br/>Preparation</b></p>   | <p><b>A.</b> 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.)</p> <p><b>B.</b> New concrete floors must age a minimum of 28 days. Prime with DuROCK primer-sealer per manufacturers instructions. For older concrete floors, follow manufacturer's instructions to ensure complete sealing of the subfloor.</p> <p><b>C.</b> Prior to the installation of underlayment material, protect walls from potential spattering from underlayment with a plastic sheet or other protective covering.</p> <p><b>D.</b> Large cracks shall be filled with a good grade of epoxy grout prior to the application of the underlayment. Allow time for the epoxy grout to cure per the manufacturer's directions.</p>                              |
| <p><b>3.2<br/>Application of<br/>Cementitious<br/>Flooring</b></p>                      | <p><b>A.</b> Application shall not begin until the building is enclosed, including roof, windows and doors.</p> <p><b>B.</b> A minimum of 1/4" may be applied over concrete subfloors that are clean, structurally sound, dry, and primed per manufacturer's instructions.</p> <p><b>C.</b> 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.</p> <p><b>D.</b> For renovations on heavy wood plank floors (minimum 2" thickness), a minimum 3/4" cementitious underlayment may be applied to the existing floors that has been reinforced with a metal mesh system anchored securely to the subfloor.</p> <p><b>E.</b> 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.</p> |
| <p><b>3.3<br/>Preparation for<br/>Installation of<br/>Glue Down<br/>Floor Goods</b></p> | <p><b>A.</b> Underlayment must be dry prior to installation of floor covering. Floor covering may be applied after 12 to 15 hours (depending on environmental conditions). Check for underlayment dryness using plastic sheet method (ASTM D4263). An acceptable alternative method for checking dryness is to use a Protimeter® Survey Master™ or a Protimeter Aquant moisture tester. 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 floor covering application.</p>   |
| <p><b>3.4<br/>Field Quality Control</b></p>   | <p><b>A.</b> Cementitious underlayment mix shall be tested for slump as it is being pumped or applied. Use a 2" (I.D.) x 1" cylinder, producing a patty 7-1/2" to 8-1/2" 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.</p> <p><b>B.</b> When required, check for compressive strength using brass cube molds. Test by ASTM C472 or ASTM C472 (modified) method.</p>  |

**Submittal  
Approvals:**

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

**Product Updates**  
Please refer to our website  
usg.com

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to us within thirty (30) days from  
date it was or reasonably should  
have been discovered.

**Footnotes**  
1. Patent pending.  
2. Results were achieved in  
laboratory conditions using  
ASTM C472.

**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

**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.

**Trademarks**  
The following trademarks used  
herein are owned by United  
States Gypsum Company or  
a related company: DUROCK,  
USG, Protimeter and Survey

