

# USG LEVELROCK® BRAND FLOOR UNDERLAYMENT

## 4500 FR

### DESCRIPTION

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#### Premium fiber-reinforced (FR) engineered cementitious underlayment

- Innovative, self-sealing technology
  - Fast application, fast-setting allows for return of light trade traffic within hours
  - High compressive strength—stands up to commercial and institutional use
  - Ideal for renovating concrete subfloors—can be applied at various thicknesses
  - Provides smooth surface with improved impact resistance
  - Enhances crack reduction and reduces further propagation
  - Cost-effective reinforcement solution with improved load distribution
  - Can be applied to concrete surfaces without requiring mechanical profiling
  - Meets the criteria of ASTM E136-04 for use in all types of noncombustible construction
  - Applied by USG Levelrock authorized applicators
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USG Levelrock® Brand 4500 FR floor underlayment is an engineered cementitious underlayment designed by USG for interior use in commercial, institutional and rehab construction. Reinforced with fibers that improve impact strength, it provides a smooth, hard underlayment surface over concrete slabs, pre-stressed concrete and concrete planks at thicknesses from featheredge (with proper sand) to 2 in. Suitable for a variety of floor coverings, USG Levelrock 4500 FR engineered cementitious underlayment exceeds commercial vinyl floor-covering requirements as a high-performance underlayment with compressive strengths of up to 5500 psi.

Quick set times and high production rates allow for traffic within hours of installation. The exceptional surface hardness of USG Levelrock 4500 FR floor underlayment resists indentation from trade traffic. USG Levelrock 4500 FR floor underlayment features an innovative self-sealing technology that typically permits the floor covering to be installed without the need to seal the underlayment—minimizing installation cost and time. Once USG Levelrock 4500 FR floor underlayment is dry, floor coverings of any type may be applied directly to the underlayment surface.

USG Levelrock 4500 FR engineered cementitious underlayment is mixed with sand and water at the job site to yield a lightweight underlayment with a smooth and monolithic surface. A 1/2 in. thick underlayment weighs approximately 5 lbs./sq. ft. and has an approximate dry density range of 123-130 lbs./cu. ft.

USG fiber-reinforced engineered cementitious underlayment systems provide an economical way to achieve lightweight, fire-resistant, smooth and monolithic floors in residential and light-commercial construction. When used with USG Levelrock™ Perimeter Isolation Strip, USG Levelrock 4500 FR floor underlayment provides an enhanced system to reduce potential cracking and further crack propagation. Typical applications are less labor intensive than many other types of construction and provide high fire ratings. Designed sound systems provide for improved STC and IIC ratings when used with USG Levelrock™ sound attenuation products.

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### WARRANTY

A 10-year limited system warranty applies when using USG Levelrock 4500 FR engineered cementitious underlayment sealed with USG Durock™ X2 primer-sealer and a XL Brands® manufactured adhesive. Please contact USG for further details.

## LIMITATIONS

1. Do not use in exterior applications.
2. Do not use as a wear surface.
3. Do not install where continuous exposure to moisture is a possibility.
4. Do not install on wood subfloors.
5. Do not install in below-grade applications.
6. 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 the services of a professional structural engineer to provide such joints as part of the system in accordance with engineering requirements and industry standards.
7. Structure shall be designed so that 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.

## INSTALLATION

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During the entire installation process, the building must be enclosed and temperature maintained at 50 °F minimum until permanent heating is available. Adequate ventilation must be provided to ensure uniform drying of the installed floor underlayment, which typically occurs within 5-7 days at a 1/2 in. thickness. Protect floors from heavy trade traffic loads (i.e. loaded drywall carts, heavy tool cabinets, etc.) with plywood. This may cause the protected areas to take longer to dry. Check for dryness in these areas before installing floor covering.

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 Levelrock 4500 FR floor underlayment. Repair all existing cracks in old and new concrete to minimize and control their ability to telegraph through the layer of USG Levelrock 4500 FR floor underlayment. Remove the weak concrete along the length of the cracks by chiseling or other suitable means. Remove accumulated dust and debris from the crack cavities using a 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 Levelrock 4500 FR floor underlayment. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through USG Levelrock 4500 FR floor underlayment. Respect existing expansion and control joints (see Limitations #6, pg. 2).

Concrete subfloors receiving a USG Levelrock 4500 FR underlayment system must be cured properly (generally for a minimum of 28 days) prior to the underlayment installation. For on- or above-grade applications on concrete subfloors or concrete planks, measure the Moisture Vapor Emission Rate (MVER) using ASTM F1869. MVER should be below 5 lbs./1000 sq. ft./24 hrs. Contact USG for further information. Concrete subfloors should be treated properly with USG Levelrock™ Acrylic Concrete Primer according to USG recommendations. Refer to *USG Levelrock Floor Underlayment Finished Floor Installation Guidelines* (IG1457) for floor-covering installation.

USG Levelrock 4500 FR floor underlayment is specially formulated with a built-in sealer. Thus, for most floor coverings, the application of a primer or sealer to USG Levelrock 4500 FR floor underlayment is not necessary or recommended. However, the recommendations of the floor-covering manufacturer will always take precedence over those presented here. If a floor-covering manufacturer's primer is used, a bond test for compatibility should be conducted.

To minimize the effect of expansion and cracking on outside corners, use USG Levelrock perimeter isolation strip. See *USG Levelrock Brand Perimeter Isolation Strip Submittal* (IG1874) for further details.

For further details on installation requirements, specifications and the most up-to-date product information, please see [usg.com](http://usg.com) or [pourlevelrock.com](http://pourlevelrock.com).

**PRODUCT DATA**

**Approximate Compressive Strength (aggregated) ASTM C472 (modified):** 4500-5500 psi\*

**Approximate Dry Density (aggregated):** 125 lbs./cu. ft.

**NOTE** \*Compressive strengths published herein were achieved under controlled laboratory conditions. Actual field results may differ due to environmental conditions, regional sand variations, inconsistent proportioning of field applied water, sand and USG Levelrock floor underlayment, as well as differences in mixing/pumping equipment.

**TEST DATA**

SOUND

USG has conducted a variety of sound tests on underlayment systems at NVLAP-accredited laboratories. These tests have been in conformance with ASTM E90 and E492. Consult USG publications IG1650 and SA305 for STC and IIC results on a variety of floor coverings meeting current code requirements.

**UL DESIGNATION TYPE HSLRK**

G524, G230, G516, G535, G551\*, G553\*, G556, G561, G562, G564\*, G566, G587, G588, G591, J917, J919, J920, J924, J927, J931, J957, J958, J991, J994, L006, L201, L206, L208, L209, L210, L211, L212, L501, L502, L503, L504, L505, L506, L507, L508, L509, L510, L511, L512, L513, L514, L515, L516, L517, L518, L519, L520, L521, L522, L523, L524, L525, L526, L527, L528, L529, L530, L532, L533, L534, L535, L536, L537, L538, L539, L540, L541, L542, L543, L545, L546, L547, L549, L550, L551, L552, L556, L557, L558, L559, L562, L563, L564, L565, L568, L569, L570, L571, L573, L574, L577, L579, L581, L583, L585, L587, L588, L589, L590, L592, L593, M500, M501, M502, M503, M504, M505, M506, M508, M510, M511, M513, M515, M517\*, M521\*, M522\*.

For the most up-to-date UL Designation Type HSLRK, contact your USG representative.

**NOTE** \*UL Design requires greater minimum pour depths and compressive strengths and/or additional requirements. See individual UL Designs for specifics.

**SUBMITTAL APPROVALS**

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

#### PRODUCT INFORMATION

See [usg.com](http://usg.com) or [pourlevelrock.com](http://pourlevelrock.com) for the most up-to-date product information.

#### DANGER

Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection. Use only in a well-ventilated area, wear a NIOSH/MSHA-approved respirator. If exposed, 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](http://usg.com).

**KEEP OUT OF REACH OF CHILDREN.**

#### TRADEMARKS

The trademarks USG, DUROCK, LEVELROCK, IT'S YOUR WORLD. BUILD IT., the USG logo, the design elements and colors and related marks are trademarks of USG Corporation or its affiliates. XL Brands is a registered trademark of XL Brands, LLC.

#### 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/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read SDS and literature before specification and installation.

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[usg.com](http://usg.com)  
[pourlevelrock.com](http://pourlevelrock.com)  
[usgdesignstudio.com](http://usgdesignstudio.com)

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