



# USG LEVELROCK® BRAND ULTRAARMOR™ ULTRAARMOR™ FR FLOOR UNDERLAYMENT

## Innovative all-in-one floor underlayment and wear surface product

- Fast application, fast-setting allows for return of light trade traffic within hours
- Hybrid cementitious formula can be used as a traditional underlayment with wear surface qualities equal to concrete
- Can be installed over wood frame, radiant heat (RH), corrugated steel deck, pre-cast concrete or concrete structures
- Smooth crack-resistant surface
- Meets ASTM F710 to receive resilient flooring
- Can be dyed to create unique aesthetic designs
- Can be applied to concrete surfaces without requiring mechanical profiling
- Classified as to fire-resistance and non-combustibility
- May assist in obtaining LEED® credits
- Applied by USG Levelrock authorized applicators

## USG Levelrock® UltraArmor™ FR formulation

- Provides improved impact resistance
- Enhances crack reduction and reduces further propagation
- Cost-effective reinforcement solution with improved load distribution

## DESCRIPTION

USG Levelrock® Brand UltraArmor™ Floor Underlayment is a proprietary high-quality, versatile engineered cementitious underlayment for interior use in new and renovation construction in residential and commercial applications. With a compressive strength range of 3500-5000 psi (24.1-34.5 MPa), USG Levelrock UltraArmor Floor Underlayment is the industry's first "all-in-one" product that provides fire-rated designs, improved sound attenuation characteristics, and is robust enough to be used as a wear surface without the need for epoxy or urethane coatings.

USG Levelrock® UltraArmor™ FR Floor Underlayment is a proprietary high-quality engineered cementitious underlayment reinforced with fibers that improve impact strength. It is a cost-effective solution for interior use in new and renovation construction in residential and commercial applications.

USG Levelrock UltraArmor and UltraArmor FR Floor Underlayments are ideal underlayments/ finished floor products for wood-frame structures and a superior finished floor topping material when used over concrete. They may also be used as an underlayment/topping product for corrugated steel deck projects. To provide a washable and stain-resistant floor surface, it is recommended that an appropriate sealer or wear-resistant coating is used. USG Levelrock UltraArmor and UltraArmor FR Floor Underlayments may also be colored using an approved dye to create unique aesthetic designs.

USG Levelrock UltraArmor Floor Underlayments are mixed with sand and water at the job site to yield a lightweight underlayment or topping product with a smooth and monolithic surface. A ¾-in. (19 mm) thick underlayment weighs approximately 7.5 lbs./sq.ft. (36.6 kg/m<sup>2</sup>) and has an approximate dry density range of 118 - 124 lbs./cu. ft. (1890 - 1986 kg/m<sup>3</sup>). USG Levelrock UltraArmor Floor Underlayments may assist in obtaining LEED credits.

USG 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 UltraArmor Floor Underlayments provide an enhanced system to reduce potential cracking. 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.

**VOC EMISSIONS**

USG Levelrock UltraArmor and UltraArmor FR Floor Underlayments 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 Levelrock UltraArmor and UltraArmor FR Floor Underlayments in a system application. Please contact USG for further details.

**NOTES/LIMITATIONS**

1. Do not use in exterior applications.
2. Do not install where continuous exposure to moisture is a possibility.
3. Do not install in below-grade applications. Contact USG for on-grade application recommendations.
4. For wood subfloors, do not install on plywood/OSB subfloors lacking tongue and groove edges without back-blocking.
5. 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.
6. When the MVER exceeds 5 lbs. (2.3 kg)/1,000 sq. ft. (92.9 m<sup>2</sup>)/24 hours or an RH greater than 80% per ASTM F2170, treat the concrete subfloor with USG Durock™ RH-100 Moisture Vapor Reducer. USG Levelrock UltraArmor and UltraArmor FR Floor Underlayments are not vapor or moisture barriers. Transmission of excessive water vapor or moisture from the concrete subfloor through the USG Levelrock UltraArmor and UltraArmor FR Floor Underlayments 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 m<sup>2</sup>)/24 hours or has an RH less than 80% per ASTM F2170.
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**

In geographic areas *not* subject to freezing conditions, USG Levelrock UltraArmor Floor Underlayments can be poured up to 60 days before permanent windows and doors are installed\* (only up to 30 days in areas subject to freezing conditions).

**NOTE** \*If permanent windows, doors and a roof have not been installed before the time of pour, temporary windows and doors, plus a permanent deck and exterior sheathing, must be installed before the pour commences.

Before, during and up to 3 days after installation of the underlayment, the building’s interior temperature must be maintained above 50 °F (10 °C) and below 110 °F (43 °C). The poured underlayment must be protected from wind until set has occurred, or a minimum of 4 hours after placing material. Light foot traffic can occur after this time; normal trade traffic can resume the next day.

Ensure that all hydronic piping or radiant heat mats are firmly attached to the subfloor. For applications over plywood or oriented strand board (OSB), the application of USG Levelrock™ Wood Primer to the subfloor is necessary to provide maximum bond between the underlayment and subfloor. When used on corrugated steel deck, USG Levelrock® CSD™ Primer must be applied at full strength.

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 m<sup>2</sup>)/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 Levelrock UltraArmor and UltraArmor FR Floor Underlayments are not vapor barriers. Transmission of excessive moisture vapors from the concrete subfloor through USG Levelrock UltraArmor and UltraArmor FR Floor Underlayments 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 Levelrock UltraArmor or UltraArmor FR Floor Underlayment.

**INSTALLATION CONT.**

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 UltraArmor and UltraArmor FR Floor 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 Levelrock UltraArmor and UltraArmor FR Floor 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 Levelrock UltraArmor and UltraArmor FR Floor Underlayment. Growth of existing cracks or formation of new cracks in the concrete subfloor can lead to cracks telegraphing through USG Levelrock UltraArmor and UltraArmor Floor Underlayment. Respect existing expansion and control joints (see *Notes/Limitations* #5, pg. 2).

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).

After set, a 3/4-in. (19 mm) thick pour of USG Levelrock UltraArmor or UltraArmor FR Floor Underlayment will typically require 5–7 days to dry completely – provided the building temperature is maintained between 50 °F (10 °C) and 110 °F (43 °C) along with adequate ventilation and air movement to ensure uniform drying. High ambient humidity will delay the drying process. Apply the floor covering only when USG Levelrock UltraArmor Floor Underlayment is completely dry. Protect floors from heavy trade traffic loads (i.e. loaded drywall carts, heavy tool cabinets, etc.) with plywood. Because this may cause the protected areas to take longer to dry, check for dryness in these areas before installing floor covering.

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

**PRODUCT DATA****Approximate Compressive Strength (aggregated) ASTM C472 (modified):**

3500–5000 psi\* (24.1–34.5 MPa)

**Approximate Dry Density (aggregated):**

118–124 lbs./cu. ft. (1890–1986 kg/m<sup>3</sup>)

**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.

**UL DESIGNATION TYPE CSD**

G230, G516, G524, G535, G551\*, G553\*, G556, G559, G561, G562, G564\*, G565, G566, G587, G588, G591, G592, H502, 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, L533, L534, L535, L536, L537, L538, L539, L540, L541, L542, L543, L545, L546, L547, L549, L550, L551, L552, L556, L557, L558, L559, L560, L562, L563, L564, L565, L568, L569, L570, 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, M521\*, M525, M527, M530, M531, M532, M535, M536, M538, M541.

For the most up-to-date UL Designation Type CSD, 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.

Type CSD is UL/ULC Classified as a non-combustible material in accordance with ASTM E136 and CAN/ULC-S114.

**SUBMITTAL APPROVALS**

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

**PRODUCT INFORMATION**

See usgperformanceflooring.com or usg.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](http://ul.com/gg).

**LEED INFORMATION**

For the most up-to-date information on LEED rating systems, project certification and the U.S. Green Building Council, please visit [usgbc.org](http://usgbc.org).

**DANGER**

Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause respiratory irritation. 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: 1-800-507-8899 or see the SDS at [usg.com](http://usg.com)

**KEEP OUT OF REACH OF CHILDREN.****TRADEMARKS**

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**NOTE**

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**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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