

# USG LEVELROCK® BRAND FLOOR UNDERLAYMENT CSD® EARLY EXPOSURE™ FR

## Premium fiber-reinforced (FR) engineered gypsum cement for early installation over CSD

- Up to 55% lighter than 3 in. of conventional concrete
- Streamlines trade scheduling—can be installed early in the building's construction schedule
- Provides smooth surface with improved impact resistance
- Enhances crack reduction and further propagation
- Cost-effective reinforcement solution with improved load distribution
- Increases rentable/sellable square footage on same footprint
- Allows trade traffic to resume the next day (conventional poured concrete requires 7–10 days)
- Classified as to fire resistance and non-combustibility
- May assist in obtaining LEED® credits

## DESCRIPTION

USG Levelrock® Brand CSD® Early Exposure™ FR Floor Underlayment is a proprietary engineered gypsum cement designed for interior use in buildings with light-gauge steel frame construction and a corrugated steel deck. Reinforced with fibers that improve impact strength, USG Levelrock CSD Early Exposure FR engineered gypsum cement can also be used over poured concrete and concrete planks. USG pioneered the use of high-strength gypsum underlayments through the invention of USG Levelrock CSD Early Exposure floor underlayment, which was the first product of its kind to have a UL Non-combustible rating for Type II construction.

With a robust compressive strength of 3500-5000 psi, USG Levelrock CSD Early Exposure FR floor underlayment may be applied at a much lower thickness than poured-in-place concrete. This innovative hybrid cementitious formula can be poured up to 60 days\* before installing a building's permanent windows and doors. USG Levelrock CSD Early Exposure FR floor underlayment significantly speeds and streamlines construction trade scheduling, provides high early strength and offers outstanding resistance to incidental moisture. For those interested in green building, USG Levelrock CSD Early Exposure FR floor underlayment may assist in obtaining LEED credits 5.1 and 5.2.

Typical USG Levelrock CSD Early Exposure FR floor underlayments weigh approximately 13 lbs./sq. ft. and require a minimum of 1 in. above the top of the flutes. Pour thickness (as measured from the bottom of the flute) is 1-9/16 in. with a standard 9/16 in. steel deck (minimum 22 gauge). USG Levelrock CSD Early Exposure FR floor underlayment reduces material cost, as well as total project cost, by reducing the weight of the floor system and supporting structure. This product can also provide scheduling advantages and may increase floor space by allowing additional floors to be added due to the lighter-weight construction.

USG fiber-reinforced engineered gypsum cement 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 CSD Early Exposure 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 characteristic of gypsum systems. Designed sound systems provide for improved STC and IIC ratings when used with USG Levelrock™ sound attenuation products.

**NOTE** \*In geographic areas not subject to freezing conditions; only up to 30 days in areas subject to freezing conditions.

## WARRANTY

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

## LIMITATIONS

When considering the use of this floor system, a licensed structural engineer should first evaluate the building loads and framing system to determine whether this corrugated steel deck flooring system is appropriate.

USG Levelrock CSD Early Exposure FR floor underlayment is not a structural element and does not provide any contribution to the floor diaphragm. The corrugated steel deck must be designed to address all floor diaphragm requirements and must conform to Steel Deck Institute standards. Reference the SDI Manual of Construction with Steel Deck, Section IX Special Considerations for Diaphragms. For additional requirements, please see *USG Levelrock CSD Early Exposure Floor Underlayment Product Line Design Guidelines for use with Corrugated Steel Deck Floor Systems* (IG1741). Contact your USG or ALCORP Marketing representative to request a copy.

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 use as a structural element.
5. Do not install below-grade.
6. Do not install at thicknesses greater than 2 in. (as measured from top of flute).
7. Do not install when indoor temperature is below 40 °F. While pouring USG Levelrock floor underlayment, forced air space heaters must be turned off until after underlayment has set.
8. Do not install in any system not meeting the minimum criteria set forth in *USG Levelrock CSD Early Exposure Floor Underlayment Product Line Design Guidelines for use with Corrugated Steel Deck Floor Systems* (IG1741).
9. 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.
10. Structure shall be designed so that deflection does not exceed L/240 from combined dead and live loads and L/360 from live load. Furthermore, the design criteria for metal deck selection is so the live load deflection does not exceed L/480. Certain floor coverings such as marble, limestone, travertine and wood may have more restrictive deflection limits. Consult the appropriate floor covering manufacturer.
11. Do not use with radiant heat systems.

## INSTALLATION

USG Levelrock™ CSD™ Primer should be applied at full strength to the corrugated galvanized steel deck.

In geographic areas *not* subject to freezing conditions, USG Levelrock CSD Early Exposure FR floor underlayment 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).

Before, during and up to 3 days after installation of the underlayment, the building's interior temperature must be maintained above 40 °F and below 110 °F. 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.

After set, USG Levelrock CSD Early Exposure FR floor underlayment will typically require 10-14 days to dry completely – provided the building temperature is maintained between 40 °F and 110 °F 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 CSD Early Exposure FR floor underlayment is completely dry. Protect floors from heavy trade traffic loads (i.e. loaded drywall carts, heavy tool cabinets, etc.) with plywood.

Concrete subfloors receiving USG Levelrock CSD Early Exposure FR underlayment systems 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.

**INSTALLATION CONT.**

To minimize the effect of gypsum 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).

**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.

**PRODUCT DATA**

**Approximate Compressive Strength (aggregated) ASTM C472 (modified):** 3500–5000 psi\*

**Approximate Dry Density (aggregated):** 119–127 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.

**UL DESIGNATION TYPE CSD**

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, M521\*.

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**

Job Name	
Contractor	Date

#### PRODUCT INFORMATION

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

#### 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: 800-507-8899 or see the SDS at [usg.com](http://usg.com)

**KEEP OUT OF REACH OF CHILDREN.**

#### TRADEMARKS

The trademarks USG, CSD, DUROCK, Early Exposure, 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. LEED is a registered trademark of U.S. Green Building Council.

#### 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.

800 USG.4YOU  
800 (874.4968)  
[usg.com](http://usg.com)  
[pourlevelrock.com](http://pourlevelrock.com)  
[usgdesignstudio.com](http://usgdesignstudio.com)

Manufactured by  
United States Gypsum Company  
550 West Adams Street  
Chicago, IL 60661

IG1894/5-15  
© 2015 USG Corporation and/or  
its affiliates. All rights reserved.  
Printed in U.S.A.

**USG**   
IT'S YOUR WORLD. BUILD IT.™