

Levelrock™ Floor Underlayment

RH (Radiant Heat) Green

Premium poured gypsum flooring underlayment products

- The industry's first poured underlayment made with synthetic gypsum
- Fast application, fast setting allows for return of light traffic within hours
- Specially formulated for radiant flooring
- UL designs available up to 2-hour fire rating
- Smooth crack-resistant surface
- Helps maximize sound isolation between floors/units
- Applied by USG licensed contractors

System Description

LEVELROCK™ brand RH (radiant heat) Green floor underlayment is a fast-applying gypsum cement formulated with synthetic gypsum and designed by USG for use in both residential and commercial construction. RH Green floor underlayment is formulated for electrical and hot water radiant heat floor installations. It is formulated to provide compressive strengths up to 3200 psi at a 3/4-inch minimum thickness up to 3-inch maximum thickness. The tough compressive and surface strengths of RH Green floor underlayment allows for long-term resistance to trade activity typical of single-family home and light commercial construction. It accepts virtually all types of floor coverings such as ceramic tile, carpeting, and wood. The non-shrinking nature of RH Green floor underlayment locks tubing in place, preventing noise and tube chafing, and its special formulation prevents the high temperature associated with radiant heat floors from breaking down the floor matrix.

Product Description

LEVELROCK Green floor underlayment products are made with synthetic gypsum, also known as FGD (flue gas desulphurization) gypsum. FGD gypsum is the result of the chemical process used to clean effluent from fossil-fuel-burning power plants. This process is used to limit emissions of sulfur dioxide and help reduce acid rain. The use of this recaptured gypsum also eliminates the need to dispose of the material in landfills.

USG poured gypsum underlayment products are mixed with sand and water to yield a lightweight slurry. Most radiant heat jobs will be poured at 1-1/2-inch thickness to cover the pipes. A 1-1/2-inch thick gypsum underlayment weighs approximately 14.4 pounds per square foot and has a density of only 115 pounds per cubic foot.

System Benefits

USG poured gypsum floor underlayment systems provide an economical way to achieve lightweight, fire-resistant, sound-rated floors in residential and light commercial construction. Typical applications are less labor intensive than many other types of construction and provide high fire ratings characteristic of gypsum systems. Higher compressive strengths minimize damage to floors from trades.

Physical Properties

Typical Compressive Strength (aggregated) ASTM C472	Density (aggregated)
2500-3200 psi	115 lb./cu.ft.

Limitations

- USG poured gypsum floor underlayment systems should:
1. Not be used as a wearing surface.
 2. Not be installed where continuous exposure to moisture is a possibility (for instance, exterior balconies or gang shower rooms). In bathrooms, kitchens and other areas subject to moisture intrusion, protective floor finish materials such as vinyl or ceramic tile must be applied over the gypsum floor underlayment system.
 3. Not be installed in below-grade applications. Contact USG for on-grade application recommendations.
 4. Not be used with radiant heat systems having prolonged operation temperatures exceeding 150 °F.



Installation		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 gypsum floor underlayment, which typically occurs within 10 to 14 days at 1-1/2-inch thickness. Limit design of the subfloor and framing to a minimum of L/360 to prevent undue stress from occurring in the floor fill material, 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 LEVELROCK brand primer to the subfloor is necessary to provide maximum bond between the underlayment and the subfloor. Concrete slabs that are receiving gypsum 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 LEVELROCK brand concrete primer according to manufacturer’s recommendations.
UL Designs		G230, G516, J917, J919, J920, J924, J927, J931, J957, J966, J991, J994, K906, L206, L501, L502, L505, L511, L512, L513, L514, L518, L521, L524, L525, L528, L529, L530, L534, L535, L536, L537, L541, L544, L550, L555, L556 and L563. Additional UL designs may be available. Contact your USG representative for more information.
Code Compliance		New York City Department of Buildings MEA (Material and Equipment Acceptance) MEA 236-01-M; HUD – 1314; ICC – Evaluation Service Report ER-5885
Specifications	Note to Architect	These are specifications for the installation of LEVELROCK Brand Floor Underlayment RH (Radiant Heat) covering normal project requirements. For additional data regarding special conditions and applications, please contact your local USG representative.
Part 1: General	1.1 Scope	Specify to meet project requirements.
	1.2 Qualifications	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 by USG LEVELROCK applicators.
	1.3 Delivery and Storage of Materials	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	Before, during, and after installation of product, building interior shall be enclosed and maintained at a temperature above 50 °F (10 °C)
Part 2: Mixing	2.1 Products	<p>A. Gypsum Cement—LEVELROCK brand floor underlayment RH (radiant heat) Green.</p> <p>B. Primer—Use LEVELROCK brand concrete primer over existing concrete floors; use LEVELROCK brand floor primer (regular, concentrate, or powder) over wood subfloors.</p> <p>C. Sand—Washed sand complying with specifications published in the USG LEVELROCK Application Manual.</p> <p>D. Water—Potable, free from impurities.</p> <p>E. Sealer—Use LEVELROCK brand SE-100 surface enhancer with black-light identifier over newly poured gypsum flooring underlayment.</p>
	2.2 Mixing Proportions	Add 3.5 to 5.0 gallons of water, one 80 lb. bag of RH (radiant heat) Green floor underlayment and sand volume not to exceed 1.9 cu. ft. depending upon specified compressive strength. Do not over-water. Water amount will change with wetness of sand.

**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.

**3.2
Application of
Cementitious
Flooring**

- A.** Application shall not begin until the building is enclosed, including roof, windows, doors, and other apertures. RH Green floor underlayment is POURABLE BEFORE DRYWALL™; underlayment may also be installed after drywall installation.
- B.** Place cementitious flooring 3/4-inch minimum thickness over top of hot water tubes on wood frame over plank or poured in place concrete. Total floor thickness is 1-1/2 inches. Two-stage application recommended. First, just cover top of tubes and allow to dry. Recommended application of primer to first pour. Apply second pour to a minimum 3/4-inch thickness over top of tubes. Immediately spread and screed product to a smooth surface. 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.** General contractor shall provide continuous ventilation and adequate heat to rapidly remove moisture from the area until the cementitious underlayment is dry.

**3.3
Preparation for
Installation of Glue-
Down Floor Boards**

- A.** After the floor has dried, apply SE-100 surface enhancer prior to installation of glue-down floor goods. Where floor goods manufacturers require special adhesive or installation systems, their requirements supersede these recommendations. Damaged floor areas need to be repaired before applying SE-100 surface enhancer.

**3.4
Field Quality Control**

- A.** Cementitious underlayment mix shall be tested for slump as it's being pumped using a 2" (i.d.) x 4" cylinder resulting in a patty size of 8 inches to 9-1/2 inches diameter.
- B.** At least one set of three (3) molded cube samples shall be taken from each day's pour or every 10,000 sq. ft. (whichever is less) during the cementitious underlayment application. Cube mold material shall be brass or engineered plastic. Cubes shall be tested in accordance with modified ASTM C472.

**Submittal
Approvals:**

Job Name		
Contractor		Date

Warning

When mixed with water, this material hardens and then slowly becomes hot—sometimes quickly. DO NOT attempt to make a cast enclosing any part of the body using this material. Failure to follow these instructions can cause severe burns that may require surgical removal of affected tissue or amputation of limb. Dust may require cause skin, eye, nose, throat, or respiratory irritation. Avoid dust inhalation and exposure to dust. If dusty, wear an NIOSH/MSHA-approved dust respirator. Use proper ventilation to reduce dust exposure.

Portland cement is strongly alkaline and can be corrosive to eyes, skin, and respiratory tract. Wear eye and skin protection. If eye contact occurs, immediately flush thoroughly with water for 15 minutes and get medical attention. Do not ingest. If ingested and any discomfort occurs, call physician. Product safety information: (800) 507-8899.

KEEP OUT OF REACH OF CHILDREN.

Trademarks

The following trademark used herein is owned by United States Gypsum Company or a related company: LEVELROCK. USG is a trademark of USG Corp.

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.

