

# LEVELROCK™ Brand Floor Underlayment RH (Radiant Heat)

**Premium poured gypsum flooring underlayment products**

- 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 Floor Underlayment RH (Radiant Heat) is a fast-applying gypsum cement designed by USG for use in both residential and commercial construction. LEVELROCK Brand Floor Underlayment RH (Radiant Heat) is specifically 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 LEVELROCK Brand Floor Underlayment RH (Radiant Heat) allow 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 LEVELROCK Brand Floor Underlayment RH (Radiant Heat) 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**

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	2500-3200 psi
Density (aggregated)	115 lb./cu.ft.

**Limitations**

- USG poured gypsum floor underlayment systems should not:
- 1 Be used as a wearing surface.
  - 2 Be installed where continuous exposure to moisture is a possibility (for instance, exterior balconies or shower rooms).
  - 3 Be installed in below-grade applications.
  - 4 Not recommended for radiant heat systems with 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 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 Primer according to manufacturer's recommendations.

**UL Designs**

G230, G516, J917, J919, J920, J924, J927, J931, J957, J966, J991, J994, K906, L206, L501, L505, L511, L512, L513, L514, L518, L521, L524, L525, L528, L529, L530, L534, L535, L536, L537, L541, L544.

**Model Building Code Approvals**

International Conference of Building Officials (ICBO) Report No. ER-5885  
 Building Officials and Code Administrators International, Inc. (BOCA) Research Report No. 2152  
 Southern Building Code Congress International (SBCI) Evaluation Report No. 2114



<b>Specifications</b>	<b>Note to Architect</b>	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.
<b>Part 1: General</b>	<b>1.1 Scope</b>	Specify to meet project requirements.
	<b>1.2 Qualifications</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 by USG LEVELROCK Brand applicators.
	<b>1.3 Delivery and Storage of Materials</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 Site Conditions</b>	Before, during, and after installation of product, building interior shall be enclosed and maintained at a temperature above 50 °F (10 °C)
<b>Part 2: Mixing</b>	<b>2.1 Products</b>	<ul style="list-style-type: none"> <li><b>A. Gypsum Cement</b>—LEVELROCK Brand Floor Underlayment RH (Radiant Heat).</li> <li><b>B. Primer</b>—Use LEVELROCK Brand Primer over approved subfloor as specified by manufacturer.</li> <li><b>C. Sand</b>—Washed sand complying with specifications published in the USG LEVELROCK Brand Application Manual.</li> <li><b>D. Water</b>—Potable, free from impurities.</li> <li><b>E. Sealer</b>—LEVELROCK Brand Floor Underlayment TOPSEAL</li> </ul>
	<b>2.2 Mixing Proportions</b>	Add 3.5 to 5.0 gallons of water, one 80 lb. bag of LEVELROCK Brand Floor Underlayment RH (Radiant Heat) 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.
<b>Part 3: Execution</b>	<b>3.1 Preparation</b>	<ul style="list-style-type: none"> <li><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 crack and void. (Set temporary dams as required.)</li> </ul>
	<b>3.2 Application of Cementitious Flooring</b>	<ul style="list-style-type: none"> <li><b>A.</b> Application shall not begin until the building is enclosed, including roof, windows, doors, and other fenestration. Install after drywall installation unless tenant finish requirements identify partitioning after the pour.</li> <li><b>B.</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. Recommended application in two (2) stages. Apply first to 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.</li> <li><b>C.</b> General contractor shall provide continuous ventilation and adequate heat to rapidly remove moisture from the area until the cementitious underlayment is dry.</li> </ul>

**3.3  
Preparation for  
Installation of Glue  
Down Floor Goods**

- A.** After the floor has dried, use manufacturer approved sealer to seal the cementitious underlayment 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 prior to the flooring sealing.

**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 brass or engineered plastics. Cubes shall be tested in accordance with modified ASTM C472.

**Submittal  
Approvals:**

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

**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.

**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.