

**LEVELROCK™ BRAND GYPSUM FLOOR UNDERLAYMENT RH
(RADIANT HEAT)**

ARCHITECTECTURAL SPECIFICATIONS

Revised 3/14/01

PART 1 – GENERAL

1.1 QUALITY ASSURANCE

- A. Installer's Qualifications: Installation shall be by a licensed applicator authorized by the manufacturer using approved mixing and pumping equipment.
- B. Installation shall be in accordance with the LEVELROCK™ Brand Floor Underlayment Applicator's Manual.
- C. Field Quality assurance identified in sec.3.4, shall be the responsibility of the USG LEVELROCK™ Brand Floor Underlayment licensed applicator.

1.2 DELIVERY, STORAGE, AND HANDLING

- A. General Requirements: Materials shall be delivered in their original, unopened packages, and protected from exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.3 SITE CONDITIONS

- A. Environmental Requirements: Building interior shall be enclosed and maintained at a temperature above 50 degrees F (10 degrees C).for 72 hours before installation through drying of product as identified in Section 3.2
- B. Application of underlayment shall be made after Radiant Tubing System is installed.
- C. LEVELROCK™ Brand Floor Underlayment RH shall not be installed over radiant heat system with prolonged operating temperatures exceeding 150° F.

Part 2 – PRODUCTS

2.1 MATERIALS

- A. Gypsum cementitious underlayment: USG LEVELROCK™ Brand Gypsum Floor Underlayment RH (Radiant Heat) as manufactured by U. S. Gypsum Co., Chicago, IL 60606.
- B. Sand Aggregate: Sand shall meet ASTM C33 as well as specifications outlined in the USG LEVELROCK™ Brand Floor Underlayment Applicator Quality Manual.
- C. Mix Water: Potable, free from impurities, and from domestic source.
- D. Subfloor Primer or Bonding Agent: USG LEVELROCK™ Brand Floor Underlayment Primer.

LEVELROCK™ BRAND GYPSUM FLOOR UNDERLAYMENT (RADIANT HEAT)

2.2 MIX DESIGNS

- A. General Requirements: Mix proportions and methods shall be in strict accordance with product manufacturer recommendations.
 - 1. Mix design shall be proportioned to provide an average compressive strength of 2500 psi or greater with a density of 115 pounds per cubic foot. Average compressive strength shall be determined from all sets of cube samples taken for the project. The average compressive of any one set of cubes shall not be less than 2000 psi. (Average of three cubes)

PART 3 – EXECUTION

3.1 PREPARATION

- A. Condition and Cleaning of Subfloor: Subfloor shall be structurally sound. Contractor shall clean subfloor to remove mud, oil, grease, and other contaminating debris before installing the underlayment. Check that substrates are dry, smooth, and clean. Set temporary dams at maximum 8-foot intervals.
- B. Leak Prevention: Fill cracks and voids in sub-floor deck with insulation, a quick setting patch or caulk where leakage of liquefied product could occur.
- C. Priming Subfloor: Prime the subfloor using the LEVELROCK™ Subfloor Primer. Priming instructions vary according to the type of substrate. Multiple coats of primer may be necessary. Cure should be taken to protect radiant heat tubing during application of primer.
- D. Building Joints: Allow joints to continue throughout the underlayment at the same width and configuration as the building joints.

3.2 APPLICATION OF GYPSUM CEMENTITIOUS UNDERLAYMENT

- A. Scheduling: Application shall not begin until the building is enclosed, including roof system, windows, doors, and other openings in the fenestration. Install after drywall installation unless tenant finish requirements identify partitioning after the pour.
- B. Application: Place underlayment -inch minimum thickness over type of radiant tubes. This will require a total thickness of 1 inches of gypsum cementitious underlayment. It is recommended that the application be made in two applications. The first application should be poured 1/8 inch minimum over the top surface of the radiant heat tube. The second application should ideally be made within 1 hr. of the first. If more than 1 hour has expired between the first and second application, the use of LEVELROCK™ Brand Primer is recommended between applications to ensure proper bonding of the second application to the first. The thickness of the second application should be such that the gypsum cementitious underlayment shall be a minimum of inch over the top of the radiant heat tubes. Limit design of the subfloor and framing to a minimum of L/360. Concrete must be properly cured – generally minimum of 28 days prior to underlayment installation. Immediately spread and screed product to a smooth surface. Except at building joints; place product as continuously as possible so that no slurry is placed against product that has obtained its initial set. Cure should be taken to protect radiant heat tubing during application of gypsum cementitious underlayment.

LEVELROCK™ BRAND GYPSUM FLOOR UNDERLAYMENT (RADIANT HEAT)

- C. **Drying:** General Contractor shall provide continuous ventilation and adequate heat to rapidly remove moisture from the area until the cementitious underlayment is dry as described below. General Contractor shall provide mechanical ventilation if necessary. To test for dryness, tape a 24-inch by 24-inch section of flexible vinyl plastic to the surface of the underlayment. If no condensation occurs after 48 hours, the underlayment shall be considered dry. Perform dryness test 5-7 days after pour and as required.

3.3 FIELD QUALITY CONTROL

- A. **Slump Test:** Slump tests shall be made using a 2-inch by 4-inch cylinder. The acceptable slump is a patty size of 8 - 9 _ inches diameter.
 - 1. Slump test shall be taken at the beginning of each installation in order to verify the required slump. Slump test shall then be taken periodically at a minimum of every 2500 sq.ft. during installation in order verify that the required slump is being maintained.
- B. **Compressive Strength:** At least one set of 3 molded cube samples shall be taken from every 10,000 sq. ft. and at least one set of cubes per day during the underlayment installation.
 - 1. Cube mold material shall be brass or engineered plastics. Cubes shall be made in accordance with ASTM C472. Cubes shall be tested in accordance with ASTM C472. Test results shall be available to architect /owner upon request.
 - 2. If requested by the architect/owner, field control cube samples may be tested by independent laboratory. Selection of independent laboratory shall be agreeable to the architect/owner and USG/applicator. Copy of compressive test results from independent laboratory shall be made available to USG/applicator.

3.4 CLEANING AND PROTECTION

- A. **Foot Traffic:** Light foot traffic is permitted 2-3 hours after final screeding of LEVELROCK™ Brand Floor Underlayment. Heavy foot traffic shall be delayed until 12 hours after LEVELROCK™ is installed.
- B. **Protection From Heavy Loads:** During construction, place temporary wood planking over underlayment wherever it will be subject to wheeled or concentrated loads.

LEVELROCK™ BRAND GYPSUM FLOOR UNDERLAYMENT RH (RADIANT HEAT)

3.5 INSTALLATION OF FINISH FLOOR

- A. General Requirements: Damaged areas of the underlayment must be repaired prior to applying any sealer or treatment. Follow manufacturer's recommendations regarding moisture levels and vapor retarders before proceeding with installation of the finish floor system. Apply only sealers approved by flooring manufacturer. Fasteners to be installed in underlayment must be designed for use in concrete and/or masonry systems.
 - 1. Resilient Floor Applications: Refer to manufacturer's recommendations for proper application procedures. For proper trowel selection, refer to manufacturer's recommendations regarding porous and non-porous substrates. Follow floor-covering and/or adhesive manufacturer's guidelines to allow adequate curing or setting time prior to allowing traffic on the finished floor. Follow floor-covering manufacturer's recommendations for preventive maintenance, cautions and procedures.
 - 2. Ceramic Tile Floor Applications: Install ceramic tile units in accordance with ANSI A108.4 and A108.5
 - 3. Wood Flooring Applications
 - a. Mechanically fastened wood flooring: Fasteners must have sufficient length to develop required load capacity. Field test of proposed fasteners to determine fastener capacity is recommended. Caution: Care must be taken when installing the wood flooring to prevent fasteners from penetrating the gypsum cementitious underlayment and puncturing a tube.
 - b. Glue-down engineered or solid wood systems: Installation of systems must be done in strict accordance with the manufacturer's instructions.