

Finished Flooring Preparation & Installation Guidelines

**USG LEVELROCK® BRAND
& USG DUROCK™ BRAND**
SELF-LEVELING FLOOR
UNDERLAYMENTS

USG LEVELROCK® AND USG DUROCK™ FLOOR UNDERLAYMENTS

From commercial to multi-family projects, renovation to new construction, USG Levelrock® Brand and USG Durock™ Brand self-leveling floor underlayments pour on the strength. Our superior, fast-applying underlayments and flooring systems offer the industry's highest compressive strengths with exceptional acoustical performance to reduce noise between floors and units. USG Levelrock and USG Durock™ floor underlayments provide smooth, crack-resistant surfaces that accept virtually all types of floor coverings including luxury vinyl, sheet vinyl, vinyl composition tile, porcelain tile, ceramic tile, laminate, glue-down hardwood and carpet.

Created for a wide range of applications, USG Levelrock and USG Durock™ floor underlayments are available in several formulations specifically designed for a variety of needs and applications. USG Levelrock and USG Durock™ products and systems are designed to meet the new International Building Code (IBC) and were the first to ensure that all sound systems are fire-rated and easily specified by a UL Design number. USG Levelrock and USG Durock™ floor underlayments provide approximate compressive strengths ranging from 2,000 psi to 10,000 psi (13.8 MPa to 68.9 MPa)*, to suit a variety of applications.

Note *Commercial floor applications recommend underlayments with minimum compressive strengths of 3,500 psi (24.1 MPa). In addition, the Tile Council of North America recommends a minimum of 2,000 psi (13.8 MPa) as well as the use of a crack isolation membrane such as USG Durock™ tile membrane for all tile installations.

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GENERAL RECOMMENDATIONS

In all cases, follow floor-covering manufacturer's installation recommendations to maintain floor-covering manufacturer's warranties.

Before applying any of the USG floor treatments and the floor-covering, all surfaces must be clean and free of oil, paint, chemicals, wax, grease, dust, dirt and other construction debris.

The use of sweeping compounds on USG Levelrock and USG Durock™ floor underlayments is not recommended, as these products often contain oil, which can cause a poor bond between the USG Levelrock and USG Durock™ floor underlayments and the adhesive or mortar used to attach the floor goods.



UNDERLAYMENT REQUIREMENTS

RESPONSIBILITY FOR DRYING ENVIRONMENT

USG Levelrock and USG Durock™ floor underlayments must be installed between 50 °F (10 °C) and 95 °F (35 °C) at the time of application and for 72 hours after installation of the floor underlayment. The general contractor must be made aware of these conditions at the job meeting and is responsible for ensuring that they are met. The best and easiest way to accelerate the drying process (after allowing a minimum of 3 hours for setting) is by putting a fan on the floor and cracking the windows (even in winter) to ensure good air movement and air exchange. If the HVAC system in the building is operational, that should be turned on as well. However, this is not always possible (especially in new construction) because of the concern for construction dust being blown throughout the building.

If poor drying conditions are encountered (i.e. high humidity), then strong consideration should be given to utilizing mechanical desiccating ventilators such as those manufactured by Polygon Group US (polygongroup.com). In all cases, the use of fans is still recommended. Portable heaters should be used in cooler climates, but must be used in conjunction with adequate ventilation to ensure proper air exchange. The by-product of 'salamander' type heaters and some other types of kerosene heaters is carbon dioxide and water vapor which will inhibit drying. Thus, if these are the only methods available, proper air exchange is especially critical. The applicator should advise the general contractor in writing about the importance of proper ventilation. After the USG Levelrock or USG Durock™ pour has been completed, the responsibility for maintaining the proper drying environment rests with the general contractor.

DRYING RATES

USG Levelrock and USG Durock™ self-leveling floor underlayments must be dry before installing floor covering. The exception to the drying times below is USG Durock™ Quik-Top™ White and USG Durock™ Quik-Top™ Gray floor underlayments. These products have a unique technology that allows for floor-covering just 15 hours after installation.

Normal drying time for 3/4 in. (19 mm) thickness is 5-7 days, with proper ventilation/good air flow (70 °F (21 °C), 50% relative humidity). Underlayment thickness and drying conditions will affect drying time; allow approximately 4-5 additional days for each additional 1/4 in. (6 mm) thickness. Also note that higher humidities and cooler temperatures – often found on jobsites – will inhibit drying.

As a general rule of thumb, USG Levelrock and USG Durock™ floor underlayments at their typical application rates will dry as follows:

- 1/2 in. (13 mm): 3-5 days
- 3/4 in. (19 mm): 5-7 days
- 1-1/2 in. (38 mm): 14-17 days

Drafts occurring during the setting process – usually within the first 2-3 hours after the pour can cause dusting on the surface of USG Levelrock and USG Durock™ floor underlayments due to the surface drying before it sets. However, once the material is set, air movement/air exchange is encouraged to speed the drying process.

VARIABLE CIRCUMSTANCES

The normal drying times listed are under ideal conditions. As noted, underlayment thickness, higher humidities, lower temperatures and poor air flow will lengthen drying times.

Other situations that affect drying times are: leaks in roofs; lack of a permanent



UNDERLAYMENT REQUIREMENTS

roof, windows or doors; and windows left open during storms which result in flooding of the floor—all of which have a potential negative effect on drying and product performance.

The standard recommendations regarding environmental conditions for USG Levelrock and USG Durock™ floor underlayments specifically state permanent windows, doors and a roof must be in place prior to the installation of USG Levelrock and USG Durock™ floor underlayments.* Where jobsite conditions are not as specified, (windows get broken, doors left open or roofs leak), then any water covering a USG Levelrock or USG Durock™ floor underlayment should be removed as soon as possible. In most cases, a first wetting of a USG Levelrock or USG Durock™ floor underlayment will not affect the serviceability of the floor, assuming that it is allowed to dry properly. Repeated or continuous exposure to water however, can be detrimental. When in doubt, contact your USG Sales Representative. More importantly, after a flooding incident, recognize that the floor has now taken up more free water and therefore standard drying times no longer apply. Again, good air circulation and fresh air exchange are critical to helping the floor dry quickly.

Note *USG Levelrock® CSD® Early Exposure™ floor underlayment is the exception to this rule.

CHECKING FOR DRYNESS

Neither floor coverings nor any primer/sealers should be installed until it can be determined the USG Levelrock or USG Durock™ floor underlayment has dried. Likewise, non-breathable crack isolation membranes should not be installed until the underlayment is dry. The best way to determine this is by use of a Protimeter moisture meter (protimeter.com). Two different models are acceptable for this purpose: the Surveymaster® and the Aquant®.

The entire floor should be surveyed to identify those spots which are taking longer to dry. Typically, a reading of 200 or less on the Protimeter moisture meter indicates less than 1% moisture content and suitable dryness of the floor. There can be slight variance between meters and that is why USG has supplied its USG Levelrock Authorized Applicators with standards to help calibrate the Protimeter moisture meter and determine where that “true dryness” level exists on a given instrument. USG has conducted an extensive investigation of various moisture meters and found the Protimeter to work the best for testing dryness of USG Levelrock and USG Durock™ floor underlayments. This meter uses radio frequency technology for checking dryness. There are various other meters that use probes and other types of technology, but none has provided results as consistent as the Protimeter.

Please strictly observe the manufacturer’s instructions regarding the proper operation, maintenance and calibration of all moisture meters.

Additional methods for checking for dryness include:

- Tape an 18 in. x 18 in. (457 mm x 457 mm) section of 6-mil vinyl plastic (as per ASTM D4263) to the surface of the underlayment and seal the edges.
- Lay a 24 in. x 24 in. (610 mm x 610 mm) high-density, smooth rubber mat on the underlayment surface and weigh down.

The underlayment is considered dry if there is no discoloration (darkening) of the underlayment or condensation on the test covering after 16 hours. Perform additional tests if necessary.

Perform tests in critical areas such as high underlayment thickness or in an area of poor air flow. More than one test may be necessary.

A worker in a yellow shirt and blue pants is applying a substance to a floor in a large industrial building. The worker is standing on a dark, possibly wet or freshly applied surface, and is using a tool to spread the material. The background shows the structural elements of the building, including steel beams and a high ceiling. The overall scene is dimly lit, with some light coming from the right side, possibly from a window or an opening in the building.

FLOOR-COVERING PREPARATION

Properly preparing USG Levelrock and USG Durock™ self-leveling floor underlayment for floor-covering enhances not only the bond between underlayment and floor-covering adhesive, but can create smooth transitions and level floors. USG offers a professional line of primers and patches designed to work seamlessly with USG Levelrock and USG Durock™ self-leveling floor underlayments.

FLOOR-COVERING PREPARATION

PRIMING

Priming or sealing an underlayment is a vital step in achieving a strong bond between the underlayment and the floor-covering adhesive. USG Levelrock and USG Durock™ floor underlayments can be primed/sealed with USG Levelrock® All Purpose Sealer, USG Levelrock® Acrylic Concrete Primer or USG Durock™ Primer-Sealer. It is important to note that underlayment preparation may not be required when using high-solids urethane adhesives for wood floor attachment.* However, insuring that the underlayment is completely dry prior to wood floor attachment is especially critical to avoid warping and swelling of the wood.

Note *Follow floor-covering manufacturers' requirements for surface sealing. If the floor-covering or adhesive manufacturers' requirements are more stringent, their requirements take precedence.

USG LEVELROCK ALL PURPOSE SEALER

USG Levelrock® All Purpose Sealer can be applied to most USG Levelrock and USG Durock™ floor underlayments prior to the application of floor-covering adhesives. USG Levelrock All Purpose Sealer can be applied by the floor covering mechanic or a USG Levelrock authorized applicator. The recommendations of the floor-covering and adhesive manufacturers will supersede those presented here.

USG Levelrock All Purpose Sealer is a concentrated formula and must be diluted prior to use. USG Levelrock All Purpose Sealer only requires a single coat application. **Note** – Do not use USG Levelrock All Purpose Sealer on the following products: USG Levelrock 4500, or USG Durock™ ProFlow, Quik-Top White or Quik-Top Gray self-leveling floor underlayments.

INSTRUCTIONS FOR USG LEVELROCK AUTHORIZED APPLICATOR

USG Levelrock All Purpose Sealer can be applied to USG Levelrock and USG Durock™ gypsum underlayments by a USG Levelrock authorized applicator 2 hours after the underlayment has been installed; or as soon as the floor can be safely walked on.

At the jobsite, USG Levelrock All Purpose Sealer and the underlayment must be maintained between 50-95 °F (10-35 °C) for 48 hours before, during and after job completion. Radiant heat systems should be shut down and cooled off during application and drying of the sealer. Underlayment must be free of dirt, wax, polish, paint, excess dust or other contaminants before application of sealer. If the surface of the floor underlayment is excessively dusty, contact your USG Sales Representative for further instructions.

For best results, USG Levelrock All Purpose Sealer must be applied at least 3 hours prior to adhesive application. Install floor covering with adhesive and perform field bond test approximately 72 hours after installation.

Spray-apply USG Levelrock All Purpose Sealer for best results. When spray-applying, a uniform application is critical. Voids may compromise the sealer performance and detrimentally affect adhesive bond. USG Levelrock All Purpose Sealer may also be broom- or roller-applied. Apply diluted sealer solution (1 part sealer to 4 parts water by volume) at a rate of 300 sq. ft./gal. (7.4 m²/L). Do not allow sealer to puddle, back-roll if necessary. For smaller areas, a roller may simplify application. USG Levelrock All Purpose Sealer is not a wear surface. See *USG Levelrock All Purpose Sealer Submittal* (IG1793) for further information.

FLOOR-COVERING PREPARATION

INSTRUCTIONS FOR FINISHED FLOOR GOODS CONTRACTOR

Check for porosity of the underlayment by sprinkling water onto the surface. If the water is quickly absorbed into the underlayment, primer may be required depending on the floor covering. If the water beads up no further sealing of the surface is recommended. However, in areas subject to extended trade traffic, the sealer may have worn off. Place a drop of water onto suspect areas. Rapid absorption of water indicates a need for recoating in that area. USG Levelrock All Purpose Sealer can be applied to dry USG Levelrock or USG Durock™ gypsum underlayment except as noted on prior page. Determine underlayment dryness using a Protimeter moisture meter or use the plastic sheet method per ASTM D4263.

At the jobsite, USG Levelrock All Purpose Sealer and underlayment must be maintained between 50-95 °F (10-35 °C) for 48 hours before, during and after job completion. Radiant heat systems should be shut down and cooled off during application and drying of the Levelrock All Purpose Sealer. Underlayment must be free of dirt, wax, polish, paint, excess dust or other contaminants before application of USG Levelrock All Purpose Sealer. If the surface of the floor underlayment is excessively dusty, contact your USG Sales Representative for further instructions.

For best results, USG Levelrock All Purpose Sealer must be applied at least 3 hours prior to adhesive application. Install floor covering with adhesive and perform field bond test approximately 72 hours after installation.

Spray-apply USG Levelrock All Purpose Sealer for best results. When spray-applying, a uniform application is critical. Voids may compromise the sealer performance and detrimentally affect adhesive bond. USG Levelrock All Purpose Sealer may also be broom- or roller-applied. Apply diluted sealer solution (1 part sealer to 4 parts water by volume) at a rate of 300 sq. ft./gal. (7.4 m²/L). Do not allow sealer to puddle, back-roll if necessary. For smaller areas, a roller may simplify application. USG Levelrock All Purpose Sealer is not a wear surface. See *USG Levelrock All Purpose Sealer Submittal* (IG1793) for further information.

USG LEVELROCK ACRYLIC CONCRETE PRIMER

USG Levelrock® Acrylic Concrete Primer is a high-solids liquid that is used to seal USG Levelrock and USG Durock™ floor underlayments prior to floor-covering adhesives. The recommendations of the floor-covering and adhesive manufacturers will supersede those presented here.

INSTRUCTIONS FOR APPLICATION

Check for porosity of the underlayment by following ASTM F3191 or sprinkling water onto a clean, dust-free surface of the substrate. If the water is quickly absorbed into the underlayment, primer may be required depending on the floor covering. If the water beads up, no further sealing of the surface is recommended. However, in areas subject to extended trade traffic, the sealer may have worn off. Place a drop of water onto suspect areas. Rapid absorption of water indicates a need for re-coating in that area.

USG Levelrock Acrylic Concrete Primer can be applied to USG Levelrock and USG Durock™ floor underlayments and patches once they are dry. Determine underlayment dryness using a Protimeter moisture meter or use the plastic sheet method per ASTM D4263.

FLOOR-COVERING PREPARATION

At the jobsite, USG Levelrock Acrylic Concrete Primer and the underlayment must be maintained between 50-95 °F (10-35 °C) for 48 hours before, during and after job completion. Radiant heat systems should be shut down and cooled off during application and drying of the primer. Underlayment must be free of dirt, wax, polish, paint, excess dust or other contaminants before application of primer. If the surface of the floor underlayment is excessively dusty, contact your USG Sales Representative for further instructions.

For best results, USG Levelrock Acrylic Concrete Primer must be applied at least 2 hours prior to adhesive application. Install floor covering with adhesive and perform field bond test approximately 72 hours after installation.

Spray-apply USG Levelrock Acrylic Concrete Primer for best results. When spray-applying, a uniform application is critical. Voids may compromise the primer performance and detrimentally affect adhesive bond. USG Levelrock Acrylic Concrete Primer may also be broom- or roller-applied. Apply diluted primer solution (1 part primer to 4 parts water by volume) at a rate of 300 sq. ft./gal. (7.4 m²/L). Do not allow primer to puddle, back-roll if necessary. For smaller areas, a roller may simplify application. USG Levelrock Acrylic Concrete Primer is not a wear surface. See *USG Levelrock® Acrylic Concrete Primer Submittal* (IG1655) for further information.

USG DUROCK™ PRIMER-SEALER

USG Durock™ Primer-Sealer is an effective sealer of USG floor underlayments prior to application of water-based floor-covering adhesives. Check for porosity of the underlayment by sprinkling water onto the surface. If the water is quickly absorbed into the underlayment, primer may be required depending on the type of floor covering. If the water beads up no further sealing of the surface is recommended. However, in areas subject to extended trade traffic, the sealer may have worn off. Place a drop of water onto suspect areas. Rapid absorption of water indicates a need for recoating in that area. USG Durock™ Primer-Sealer can be applied to most dry USG Levelrock or USG Durock™ floor underlayments. Determine underlayment dryness using a Protimeter moisture meter or use the plastic sheet method per ASTM D4263.

At the jobsite, USG Durock™ Primer-Sealer and underlayment must be maintained between 50-95 °F (10-35 °C) for 48 hours before, during and after job completion. Radiant heat systems should be shut down and cooled off during application and drying of the USG Durock™ Primer-Sealer. Underlayment must be free of dirt, wax, polish, paint, excess dust or other contaminants before application of the USG Durock™ Primer-Sealer. The use of oil-based sweeping compounds is not recommended. If the surface of the floor underlayment is excessively dusty, contact your USG Sales Representative.

Apply fully diluted primer of one part USG Durock™ Primer-Sealer to four parts potable water at a rate of 300 sq. ft./gal (7.4 m²/L). The USG Durock™ Primer-Sealer dilution can be sprayed or applied with a paint roller to the underlayment surface. Do not allow USG Durock™ Primer-Sealer to puddle. Do not overseal USG Levelrock or USG Durock™ self-leveling underlayment. For best results, USG Durock™ Primer-Sealer sealer must be applied at least 3 hours prior to application of any adhesive overlays. Dry time will vary with drying conditions. Install floor

FLOOR-COVERING PREPARATION

covering with adhesive and perform field bond test approximately 72 hours after installation. Recommendations of the floor-covering and floor-covering adhesive manufacturers supersede these instructions. See *USG Durock™ Primer-Sealer Submittal* (CB519) for further information.

PATCHING

If needed, the underlayment can be patched after priming is completed and dry. USG offers the following floor patches for use over USG Levelrock and USG Durock™ floor underlayments:

- USG Durock™ Advanced Skim Coat™ Floor Patch
- USG Durock™ Advanced Skim Coat™ Plus Floor Patch
- USG Durock™ Tuf-Skim™ Floor Patch
- USG Durock™ NE™ Floor Patch

When patching over existing gypsum underlayment, ensure it is solid with no cracks and dust free. Test surface hardness by scratching existing underlayment with a coin. If surface can be gouged, do not use floor patch and consult USG for alternative repair methods. Gypsum underlayment must be sealed with USG Levelrock™ All Purpose Sealer, USG Levelrock Acrylic Primer or USG Durock™ Primer-Sealer. For more information, see *USG Durock™ Advanced Skim Coat™ Floor Patch Submittal* (CB805), *USG Durock™ Advanced Skim Coat™ Plus Floor Patch Submittal* (CB5478), *USG Durock™ Tuf-Skim™ Floor Patch Submittal* (CB832) and *USG Durock™ NE™ Floor Patch Submittal* (CB674).



FLOOR-COVERING INSTALLATION

USG Levelrock and USG Durock™ self-leveling floor underlayments accept virtually every type of floor covering – from luxury vinyl and carpet to hardwood and natural stone tile. In addition, USG provides a 10-year limited system warranty when using a USG Levelrock or USG Durock™ self-leveling floor underlayment sealed with a USG Levelrock® Brand or USG Durock™ Brand primer/sealer and USG Durock™ Genius™ Flooring Adhesive. For a successful finished floor, follow the specific installation recommendations (pages 12 – 15).



FLOOR-COVERING INSTALLATION

CARPET AND PAD

A variety of carpets, carpet pads, and adhesives can be used with USG Levelrock and USG Durock™ floor underlayments (see pages 18-19).

GLUE-DOWN ATTACHMENT

Follow *Underlayment Requirements* instructions to prepare the underlayment. Also, follow floor goods manufacturer's adhesive recommendations. Prior to installation, conduct a bond test to confirm compatibility.

Carpet Modules. Follow *Underlayment Requirements* instructions to prepare the underlayment. Install carpet modules with 100% adhesive coverage. A bond test should be conducted no sooner than 72 hours after the adhesive has been applied (cool temperatures and/or high humidity may lengthen this time). A successful bond test should have 90-100% of the adhesive remaining on the floor after the carpet tile has been pulled up.

MECHANICAL ATTACHMENT

Note – Mechanical attachment of tackless strips is not recommended when USG Levelrock or USG Durock™ floor underlayment has been poured over expanded or extruded polystyrene or a sound mat or on the edges of a corrugated deck steel installation. These situations will most likely result in cracking of the underlayment and/or failure of the nails to pierce the corrugated steel deck. (See *Adhesive Attachment Tackless Strips*.)

Tackless Strips Over Wood Subfloors. When USG Levelrock or USG Durock™ floor underlayment has been applied to a wood subfloor, use tackless strips such as those manufactured by GCP Applied Technologies (gcpat.com). For underlayments thicker than 3/4 in. (19 mm), install filler nails every 12 in. (305 mm) to 18 in. (457 mm) o.c. Filler nail should be long enough to penetrate at least 1/4 in. (6 mm) into the subfloor.

Tackless Strips Over Concrete. When USG Levelrock or USG Durock™ floor underlayment has been applied to a concrete subfloor:

- Install standard tackless strips with concrete nails every 18 in. (457 mm) to 24 in. (609 mm) o.c. Concrete nails should be long enough to penetrate at least 1/4 in. (6 mm) into the subfloor.
- Install diamond-point nails through the tackless strip and underlayment with an air compressor-driven automatic nailer.

Carpet Tack Strips. If a carpet tack strip is used, a 1-1/4 in. (32 mm) x 12 gauge spiral shank anchoring nail is recommended for USG Levelrock and USG Durock™ floor underlayments.

ADHESIVE ATTACHMENT

Tackless Strips. Follow the *Underlayment Requirements* instructions. To attach tackless strips to the underlayment, use Loctite® PL® 400 heavy duty construction adhesive or Chemrex® CX-948 polyurethane adhesive. Before installing carpet, wait 24 hours after applying PL 400 adhesive; wait overnight after applying CX-948 adhesive. Apply CX-948 adhesive with a minimum 3/8 in. (10 mm) bead, which equates to 30 lineal ft. (9 m)/10 oz. (295.7 ml) tube, where the tackless strip will be placed. Do not install more than 30 ft. (9 m) of the product before applying the tackless strip.



FLOOR-COVERING INSTALLATION

LAMINATED HARDWOOD AND ENGINEERED WOOD FLOORING

Follow the *Underlayment Requirements* instructions to prepare the underlayment. Underlayment dryness is critical for wood floor coverings to avoid warping and swelling. Make sure all critical areas are tested for dryness using the Protimeter moisture meter. Follow wood floor-covering manufacturer's recommendations for maximum moisture levels.

MECHANICAL ATTACHMENT

Follow and adhere to floor goods manufacturer's general and installation recommendations.

FLOATING FLOORS

Follow and adhere to floor goods manufacturer's general and installation recommendations.

SOLID WOOD FLOORING

Follow the *Underlayment Requirements* instructions to prepare the underlayment. Underlayment dryness is critical for wood floor coverings. Make sure all critical areas are tested for dryness using the Protimeter moisture meter. Follow wood floor-covering manufacturer's recommendations for maximum moisture levels.

MECHANICAL ATTACHMENT

Attach flooring based on installation recommendations from the National Wood Flooring Association (NWFA) and the National Oak Flooring Manufacturers Association, Inc. (NOFMA).



FLOOR-COVERING INSTALLATION

LUXURY VINYL, SHEET VINYL AND VINYL COMPOSITION TILES

Follow the *Underlayment Requirements* instructions to prepare the underlayment. As a general rule, prior to application of the vinyl, the moisture level on the floor should be less than 1%, as measured in a variety of locations throughout the underlayment surface using a Protimeter moisture meter. Carefully follow and adhere to floor goods manufacturer's recommendations. Prior to installation, conduct a bond test to confirm compatibility.

CERAMIC, QUARRY AND MARBLE TILE

When a sound reduction mat is present, USG recommends using a crack isolation membrane or a product intended for this use and warranted by its manufacturer.

Movement Joints. Follow and adhere to expansion joint requirements found in the Handbook for Ceramic, Glass, and Stone Tile Installation under EJ171 specification. Contact the Tile Council of North America, Inc. (TCNA) at (864) 646-8453 or tcnatile.com for a copy of the handbook.

DECORATIVE FLOORS

USG Levelrock 4500, USG Durock™ Proflow™, USG Durock™ PWT™ Pro, USG Durock™ Quik-Top™ White and Quik-Top™ Gray and USG Durock™ UltraCap® floor underlayments can be used as a decorative wear surface with an approved floor coating. When combined with a suitable coating system, these underlayments may be stained or used by themselves as a finished floor. It is the coatings manufacturer's responsibility to determine the correct product, system and surface preparation for use over these underlayments.

FLOOR-COVERING INSTALLATION

RADIANT HEAT SYSTEMS

Adhere to the *2010 RPA Guidelines for the Design and Installation of Radiant Panel Heating and Snow/Ice Melt Systems* regarding temperature and fluid temperatures. See radiantprofessionalsalliance.org. Fluid temperatures of radiant systems shall not exceed 140 °F (60 °C) at the exit of the heating device. To limit risk of injury, floor temperatures shall not exceed 110 °F (43 °C) in general and shall be limited to 85 °F (29 °C) in areas of direct contact by building occupants. Start up of radiant systems shall be in accordance with manufacturers' and RPA recommended start-up procedures. To minimize any potential of shocking the USG Levelrock or USG Durock™ flooring product, the radiant heat system should be ramped up slowly over several days until the underlayment is fully dry. However, the radiant heat system manufacturer's recommendations for startup procedure will take precedence. The temperature of the radiant heat system should be lowered when applying any adhesive and floor covering. Allow thin-set mortar to cure at least 7 days before turning on hydronic or electric heating systems to allow the material to hydrate adequately.

CARPET AND PAD

Select a tackless system and install. Achieve appropriate heat transfer by using a low-R-value carpet cushion. Be careful not to puncture radiant heating tubes with tack nails when mechanically installing the tackless strip. An adhesive attachment of tackless strip is preferred.

LAMINATED HARDWOOD AND ENGINEERED WOOD FLOORING

These flooring systems are ideal with radiant heat systems. The systems are very stable and resist expansion and contraction while improving the overall performance of radiant systems.

During adhesive and floor installation, lower the temperature of the radiant heat system. Higher temperatures may adversely affect the working properties of the adhesive. Follow and adhere to floor goods manufacturer's adhesive recommendations.

SOLID WOOD FLOORING

Use a nail-down sleeper system. Install tubing between 2 in. x 4 in. sleepers, which are attached to the subfloor. Pour USG Levelrock® Floor Underlayment between the spaces around the tubes to provide thermal mass. Underlayment must be 3/4-in. (19 mm) minimum above the top of the radiant heating tubes. When floor underlayment is completely dry, install a vapor barrier, and nail boards to the nailing sleepers. Be careful not to puncture the radiant heating tubes when nailing down solid wood floor. This system offers limited insulation above the radiant system. For best results, refer to the radiant heat system manufacturer's recommendations.

Note The floor surface temperature should never exceed 85 °F (29 °C) when laminated, parquet or solid wood floors are installed over radiant systems.

LUXURY VINYL, SHEET VINYL AND VINYL COMPOSITION TILES

According to vinyl industry recommendations, the floor surface temperature should never exceed 85 °F (29 °C). During adhesive and tile installation, lower the floor temperature. Working time and open time of adhesive can be affected by floor temperature.



WARRANTIES

USG STRONGER THAN CONCRETE™ FLOOR SYSTEMS WITH USG DUROCK™ BRAND GENIUS™ FLOORING ADHESIVE 10-YEAR LIMITED WARRANTY

USG (usg.com) provides a 10-year limited system warranty when using a USG Levelrock® or USG Durock™ floor underlayment sealed with a USG Levelrock® or USG Durock™ primer/sealer and in conjunction with USG Durock™ Genius™ Flooring Adhesive. When used in an application without USG Durock™ Genius Flooring Adhesive, USG Levelrock and USG Durock™ floor underlayments and USG Levelrock and USG Durock™ primer/sealers have a two-year limited warranty. Contact USG for further details.

REFERENCES

USG Levelrock and USG Durock™ floor underlayments are compatible with a variety of ancillary products that complete the installation of finished floors. The following pages include references for crack isolation and waterproof membranes, thin-sets, adhesives and floor coverings.

For more information about **USG Levelrock and USG Durock™ floor underlayments**, visit **usg.com** or contact your USG Sales Representative.

Note On pages 17 – 19, all * and ™ are trademarks of the corresponding manufacturers/companies.

CRACK ISOLATION AND WATERPROOF MEMBRANE AND THIN-SET MANUFACTURERS

Manufacturer	Product	Phone Number/Website
Amorim Cork Composites	AcoustiCORK® R12, StressCORK	800-255-2675 amorimcorkcomposites.com
Bostik Smart Adhesives	Ultra-Set Advanced	800-726-7845 bostik.com
C-Cure	UniFlex® 916, UltraCure® 971	800-895-2874 c-cure.com
Compotite Corporation	Composeal Gold	800-221-1056 compotite.com
Custom Building Products	FlexBond® Premium Crack Prevention Thin-set Mortar, RedGard® Waterproofing and Crack Prevention Membrane, Custom® 9240 Waterproofing and Anti-Fracture Membrane, FractureFree Crack Prevention Membrane	800-272-8786 custombuildingproducts.com
Flex-Guard Products, Inc.	Flex-Guard® Anti Fracture Sheeting	800-279-7600 flexguardproducts.com
Flextile Ltd.	WP-980 Waterproof & Crack Isolation Membrane	800-699-3623 flextile.net
Laticrete International, Inc.	Laticrete® 9235 Waterproofing Membrane, Laticrete Hydro Ban™, Fracture Ban™, Laticrete 254 Platinum Thin-set Mortar	203-393-0010 800-243-4788 laticrete.com
Mapei Corporation	Mapelastic® AquaDefense, Mapelfastic® HPG, Mapelastic® 315, Ultraflex™ 1, Ultraflex™ 2, Ultraflex™ 3, Ultracontact™, Ultracontact™ RS, Kerabond™/Keralastic™ System, Granirapid® System, Planicrete® W	800-992-6273 mapei.us
Merkrete	Hydro Guard 1, Hydro Guard 2000, Hydro Guard SP-1 Fast Drying, Fracture Guard, Fracture Guard FD	866-516-0061 merkrete.com
Noble Company	NobleSeal®	800-878-5788 noblecompany.com
Proflex Products Inc.	PROFLEX® Hydra-Seal®, PROFLEX® CISM-40, PROFLEX® SSC-70, PROFLEX® MSC-90, PROFLEX® SIM Crack Kit	877-577-6353 proflex.us
Schluter Systems	Schluter® DITRA and DITRA-XL	888-472-4588 schluter.com
SGM, Inc.	Southcrete™ 1132 Liquid Waterproofing and Anti-Fracture Membrane	800-641-9247 sgm.cc
Spectrum Mfg. Corp	Spectrum Super-Flex Professional Crack Isolation Membrane	623-434-0097 specmfgcorp.com
TEC Specialty Products	HydraFlex™ Waterproofing Crack Isolation Membrane, Triple Flex™ Waterproofing Crack Isolation Membrane, Crack Isolation Sheet Membrane	800-832-9023 tecspecialty.com
USG	USG Durock™ Liquid Applied Waterproofing Membrane, USG Durock™ Uncoupling Mat	800-USG-4YOU (874-4968) usg.com

Note For non-USG product recommendations, contact the manufacturer. USG does not guarantee the performance of any non-USG product; contact the manufacturers listed for information about their warranties and the most up-to-date product information.

WARRANTED ADHESIVE MANUFACTURER

USG provides a 10-year limited system warranty when using USG Durock™ Genius™ Flooring Adhesive in conjunction with a USG Levelrock® or USG Durock™ floor underlayment sealed with a USG Levelrock® or USG Durock™ primer/sealer. The table below displays the various floor covering types that are compatible with USG Durock™ Genius Flooring Adhesive. For further warranty information, see page 16 or contact your USG Sales Representative.

Manufacturer	Floor Covering Type	Phone Number/Web Site
USG	Carpet, jute back	800-USG-4YOU (874-4968) usg.com
	Carpet, rubber back	
	Carpet, action back (latex & polyurethanes)	
	Carpet, unitary (latex & polyurethanes)	
	Carpet, hot melt	
	Carpet, double stick-pad to subfloor	
	Carpet, double stick-pad to subfloor	
	Carpet tiles - PVC and polyurethane cushion back	
	Resilient tile, solid & laminated vinyl	
	Resilient tile, VCT	
	Sheet goods, mineral & synthetic felt	
	Sheet goods, vinyl backed, full spread only	
Wood flooring		

FLOOR COVERING AND ADHESIVE MANUFACTURERS

Manufacturer	Floor Covering	Adhesive Product	Phone Number/Website
Armstrong	Residential vinyl, felt-backed	S-235	888-276-7876 armstrong.com
	Commercial vinyl back - Medintech*	S-580, S-599	
	Safeguard	S-599	
	Safeguard Spa	S-599, S-580	
	VCT tile	S-515, S-700, S-750	
	Vinyl tile, no-wax (dry back)	S-750	
	Urethane tile, no-wax (dry back)	S-700, S-750	
	Commercial felt back vinyl - Commission Plus	S-235	
Bostik Smart Adhesives	Carpet tile	Uni-Lock+™	800-726-7845 bostik-us.com
	Luxury Vinyl Tile (LVT)/Luxury Vinyl Plank (LVP)	LVT-Lock+™, Multi-Lock™, Uni-Lock+™, Aero-Lock™	
	Rubber flooring	GreenFusion™	
	Rubber cove base	Cove-Lock™	
	Sheet vinyl	LVT-Lock+™, Multi-Lock™, Uni-Lock+™, Aero-Lock™	
	Vinyl cove base	Cove-Lock™	
	VCT	Multi-Lock™, Uni-Lock+™, VCT-Lock™, Aero-Lock™	

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FLOOR COVERING AND ADHESIVE MANUFACTURERS

Manufacturer	Floor Covering	Adhesive Product	Phone Number/Website
Congoleum	VCT, dry back DIY vinyl	AD42	800-274-3266 congoleum.com
	White Shield felt back	3044	
	DuraCeramic	DuraSet DS 100	
	DuraStone	DuraSet DS 100	
	DuraPlank	DuraSet DS 100	
Forbo Flooring Systems	Vinyl tiles	EZ-ON 100, T 940, Sustain 1195, Sustain 1299, NR99	800-842-7839 forbo.com
	Vinyl sheet	Sustain 100, L 885, Sustain 1195, Sustain 1299	
HENRY®	Felt back vinyl	170 "The General", 176 Bulldog™, 256, 356C MultiPro™, 452	800-232-4832 www.henry.com
	Luxury Vinyl Tile (LVT)/Luxury Vinyl Plank (LVP)	422 Fortify, 695, 640 VinylLock™, 650 R	
	Commercial carpet	170 "The General", 176 Bulldog™, 256, 351 FastPro™, 356C MultiPro™, 630 PeachPro™, 650 R	
	VCT	130, 420, 430 ClearPro™, 452	
	Vinyl back sheet goods	422 Fortify, 452, 647 PlumPro™, 695, 622 VinylBond™, 640 VinylLock™, 650 R	
	Rubber tile	412	
	Engineered hardwood	971 EZ Plus+, 1171N SureLock™	
Mannington	Commercial bio-spec, vinyl blocked	V-82 (porous), V-95 (non-porous)	800-241-2262 mannington.com
	Commercial VCT	V-11	
	Residential felt backed vinyl	V-31	
	Vinyl tile and plank	V-88	
Nora Systems, Inc.	Rubber flooring	nora® AC 100, nora® ED 120, nora® PU 102	800-332-NORA nora.com
Shaw Floors	Broadloom carpet	Shaw 1000, Shaw 1036, Shaw 1200, Shaw 3600, Shaw 3800, Shaw 4000 and Shaw 4151	shawcontract.com
	Carpet tile	Shaw 4151, Shaw 5000, Shaw 5100, Shaw 5036, LokDots, LokWorx, EcoLogix ES and EcoWorx ES	
	Engineered hardwood	Shaw 35MC and Shaw T&G	
	Luxury Vinyl Tile (LVT)	Shaw 4100, Shaw 4151, Shaw MS Resilient and Shaw S150	
	Vinyl sheet	Shaw 4100, Shaw 4151 and Shaw S150	
Taylor™	Carpet tile	Agile®, Dynamic®, Resolute®, Versatile®	800-868-4583 tayloradhesives.com
	Cork flooring	Agile®, Dynamic®, Pinnacle®, Resolute®, Versatile®	
	Luxury Vinyl Tile (LVT)/Luxury Vinyl Plank (LVP)	Dynamic®, Pinnacle®, Resolute®, Versatile®	
	Rubber tile & sheet	Dynamic®, Pinnacle®, Resolute®	
	VCT	Dynamic®, Pinnacle®, Resolute®, Steadfast®, Versatile®	
	Vinyl sheet	Agile®, Dynamic®, Pinnacle®, Resolute®	
	Engineered laminated plank and parquet wood	Aspen®, Ironwood®, Ridgeline®	
	Solid plank	MS-Plus® Advance	

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CONTACT INFORMATION

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

TECHNICAL SERVICE

800 USG.4YOU

WEB SITES

usg.com
usgdesignstudio.com

CUSTOMER SERVICE

800 621.9523

PRODUCT INFORMATION

See usg.com for the most up-to-date product information.

TRADEMARKS

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SAFETY FIRST!

Follow good safety/industrial hygiene practices during installation. Wear appropriate personal protective equipment. Read applicable SDSs and literature before specification and installation.