

Product and systems Technology

Repair and Resurfacing Systems

PM19

- Fast, effective repair of old, cracked wall and ceiling surfaces.
- Resurfacing material is 3/32" to 1/8" thick and doesn't require removal of trim.
- Provides high-strength finish over the joining of dissimilar materials with integral reinforcing mesh.

Description

Cracks in structurally sound walls and ceilings can be effectively repaired by resurfacing with the two-coat DIAMOND® brand veneer plaster system. This system can be used over old wall surfaces and new wall sections to repair cracks caused by construction in adjacent areas, movement or settling. It can be used over repaired wall surfaces, such as where a doorway is relocated in an old wall. Where dissimilar materials join, the same system, with reinforcing mesh embedded into the basecoat, provides a strong finish.

Refurbishing walls can be done in a number of different ways requiring different construction techniques with varying costs. For instance, you can remove the old walls and build new walls, or you can apply 1/4" or 3/8" drywall over the existing walls. However, both of these methods require removing the trim.

USG two-coat DIAMOND veneer plaster system is a superb choice for this kind of application because of the durable surface it achieves; the added reinforcement in walls or ceilings with dissimilar materials is provided by an EIFS Reinforcing Mesh, an open-weave glass-fiber mesh which is embedded into the veneer plaster basecoat. Using the DIAMOND veneer plaster system permits the total application thickness to be only 3/32" to 1/8", eliminating the need to remove existing trims.

Advantages

Abuse Resistant—Tough gypsum plaster adds a layer of protection from abusive bumps and abrasions.

Effective Bond—system uses veneer basecoat plaster and USG™ plaster bonder to assure bonding of the finish to gypsum, cement or concrete substrates. When resurfacing a previously painted or wallpapered surface, wallpaper and glue must be removed; paint may be washed with a strong cleaning solution, such as TSP (tri-sodium phosphate) and rinsed clean. Glossy paint should be roughed, such as by light sanding. Bondability should be tested; one way of doing this is to apply duct tape and peel it off (removing it with one sharp tug of the tape), noting whether the paint peels off with it. Bond may also be tested by scraping to check for questionable bond. You should never apply an expensive finish over a surface that exhibits questionable bond.

Patched surfaces should be primed with SHEETROCK® First Coat primer. Existing concrete block surfaces must be leveled by applying a veneer basecoat plaster, such as DIAMOND® brand veneer basecoat plaster or IMPERIAL® brand basecoat plaster. Concrete block surfaces should be wetted to prevent excess absorption or a coat of USG plaster bonder applied.

For poured concrete, the surface is leveled by applying USG plaster bonder and a veneer plaster basecoat. Once the basecoat begins to firm, the surface should be roughened to provide an open, rough surface for bonding of the finish coat. When set and partially dried, the basecoat surface is ready for the finish coat.

Texture Options—system can be applied smooth or textured in a variety of ways.

Fire Protection—Comprised primarily of gypsum plaster, DIAMOND veneer plaster enhances the fire protection characteristics of the substrate over which it is applied.

Directions

Before performing any work on the walls, it is critical to determine that the walls are essentially sound. Making a decision to retain walls is key to saving time and money, not to mention a big mess as well. Also, mask off all trims and moldings, leaving a 1/8" (+ 1/6", -0") space for the thickness of the finishing system.

Repair of Sagging Plaster

Areas of plaster ceilings as well as walls that are cracked and sagging or pulled away from the framing, but are otherwise essentially sound, may be drawn back up using corrosion-resistant plaster washers and screws or an equivalent. These fasteners are driven through the original plaster and lath to the existing framing and drawn up until the surface is flush and level again. Once these areas are refastened and made sound, cracks may be repaired. First, determine how wide an area is loose; push on the plaster and mark the boundaries of the loose plaster. After locating framing, drive screws with washers on them into the framing at 8" to 10" intervals. The plaster washers are perforated in order to work with joint compounds.

Repair of Cracks

Cracks, whether from repair of sagging or bulged plaster (above) or from other causes are repaired and reinforced using SHEETROCK® brand paper joint tape embedded in SHEETROCK® brand setting-type joint compound (DURABOND® 45 or 90).

Mix the DURABOND compound, bring the mix to the desired consistency. Mixed material is at proper consistency when it just slides off a taping knife or margin trowel. All cracks should be repaired using SHEETROCK paper joint tape embedded in the prepared joint compound. All fasteners used to refasten loose and cracked areas should be covered in the same fashion. After the embedding coat has set, apply a separate coat of prepared joint compound to completely cover the paper tape and feather out the repair. Treat all cracked areas in this manner; then, allow the DURABOND compound to set and dry.

Wide, deep cracks and cracks with uneven adjoining surfaces should be raked out, dampened full depth, and filled with SHEETROCK setting-type compound (DURABOND or EASY SAND™), then allowed to set. Follow with SHEETROCK® brand joint tape embedded in a coat of DURABOND or EASY SAND joint compound. After that coat is set, apply a separate coat of the prepared compound (DURABOND or EASY SAND compound) feathered out a sufficient distance to conceal the joint.

Repair of Holes

Repair damaged or missing substrates with suitable materials for the repair. Coat existing plaster edges with USG plaster bonder. Trowel plaster product suitable for the repair (i.e., RED TOP® gypsum plaster or STRUCTO-LITE® mill-mixed gypsum plaster) into holes, filling them flush with adjacent surfaces.

An alternative method of repairing holes in existing surfaces (exceeding 2 feet in each direction) is the use of SHEETROCK® brand gypsum panels in single or multiple layers of such thickness that the repair will be flush with the existing surface. After the repair, reinforce all edges of the patched area with SHEETROCK joint tape and a solution of DURABOND or EASY SAND to reinforce the joining.

Ceilings/Walls—Locate joists/studs by drilling small exploratory holes as necessary. Resurface with 1/2" SHEETROCK gypsum panels applied perpendicular to the framing and fastened through panels and existing surface/lath into joists with screws sufficient to provide 3/4" penetration into joists/studs.

Walls: Adhesive Application—Surfaces must be structurally sound. Clean surfaces with commercial wall cleaners to remove any grease or oil film prior to adhesive application. Do not use adhesive application over loose paint, wallpaper or plaster.

One option is to apply four continuous vertical beads of construction adhesive (16" o.c.) to the back of 1/2" SHEETROCK gypsum panels. Install the panels vertically, screw-attached at top and bottom. Align adjacent panels with gypsum panel scraps positioned over joints so temporary fasteners are driven between wallboard edges. Remove scraps and related fasteners when adhesive bond is achieved.

A second option is to apply SHEETROCK setting-type compound (DURABOND or EASY SAND) in three strips to the center and along both edges to the back of the gypsum panels. Apply the strips with a notched metal spreader having four 1/4" x 1/4" notches spaced 2" o.c. Press the panels into place to insure bond. Apply screws top and bottom and align adjacent panels as above.

For both options, use appropriate trim members where needed, particularly at abutment with other materials.

Furring Over Existing Walls

This method easily allows installation of new electrical wiring and the ability to retain existing door and window frames. The method addresses construction where 3/4" thick rectangular casings and baseboard had been used. This method functions best with a new suspended ceiling negating ceiling demolition and allowing the new ceiling plenum to provide service access to the floors above.

Apply 3/4" thick x 4" wide (1 x 4) furring strips (16") (24") o.c. horizontally over existing wall surfaces so that ends abut edges of window and door casings. Existing baseboard serves as the bottom furring strip. One furring strip occurs at the height of the door header casing so the top of the furring is at the same height as the top of the header casing. Fasten furring through existing surfacing materials into wood stud framing with proper length screws to ensure minimum 3/4" penetration into the studs.

Install 1/2" SHEETROCK panels vertically so the edges overlap window and door casings approximately 1-1/2". Trim edges at door and window casings with proper metal trim. Drywall joints, angles and trims should be finished using the DURABOND or EASY SAND.

Application of Bonder

After all repaired areas are allowed to dry properly, apply USG plaster bonder. Note that USG plaster bonder is available in two types: USG plaster bonder—Clear and USG plaster bonder—Pink. The clear plaster bonder has no pigment, and eliminates any potential bleedthrough with the installation of finish materials. The pink plaster bonder is a tinted, pigmented bonder that provides the advantage of visibly showing where the material has



been applied. Since the plastered surfaces will be finished with a decorative paint application, the visibility of the pigmented bonders aids in this application. The plaster bonder can be applied using a brush, roller or spray equipment with a minimum 60 psi and 5 cfm air supply.

When applying the USG plaster bonder on a surface, make sure that it is being applied in a uniform fashion. Skips and runs should be eliminated. For areas that are applied too thick, make sure they are brushed out even or rolled to even out the application. USG plaster bonder—Pink or Clear should be applied to the entire surface to be plastered at a rate of 300 sq. ft. per gallon. The bonder dries quickly, usually in one hour, and should be dry to the touch before the veneer plaster basecoat is applied.

Mixing

DIAMOND® or IMPERIAL® veneer basecoat plaster is mixed in a 20-gallon smooth-sided steel drum, using a 900-rpm heavy-duty drill and a cage-type mixing paddle. Approximately 5–6.25 quarts of clean potable water is added to the mixing drum, followed by one 50-lb. bag of DIAMOND or IMPERIAL veneer basecoat plaster. The plaster is added and mixed completely for approximately two to five minutes. The material is at the proper consistency when the mixed mortar just slides off the margin trowel.

Application of Reinforcing Mesh

When resurfacing a wall which joins old and new construction, the entire area must be reinforced during the basecoat application with sheets of exterior EIFS reinforcing mesh embedded into the basecoat. This is done by applying a coat of DIAMOND or IMPERIAL veneer basecoat plaster, approximately 1/16" thick, and immediately embedding standard sheets of exterior mesh. The mesh should be applied vertically, covering the entire surface to be reinforced, and overlapping the adjoining mesh by 2". Embed completely into the initial application of basecoat. Cut the unused mesh using a knife to match the form of the wall.

Basecoat Application

Apply a tight thin coat of DIAMOND or IMPERIAL veneer basecoat plaster over the entire area, using plaster from the same batch, to a full thickness of 1/16" to 3/32". It is essential that the applied basecoat surface be raked or broomed, once the material has become firm, to provide a rough and open surface for proper suction and bond of the finish coat. Failure to do so may result in delamination of the finish material. Allow the basecoat to set and partially dry before applying the finish material.

For other walls, where cracks have been repaired as noted above, reinforcing the resurfacing application with mesh is not needed. After the application of USG plaster bonder—pink or clear, the surfaces are basecoated with DIAMOND veneer basecoat plaster, using the scratch and doubleback method. Broom or roughen the surface, and allow it to set and partially dry.

Finish Application

A recommended finish for this type of application is Sand Float, using DIAMOND® veneer finish mixed with silica sand and sponge-floated to provide an attractive, textured finish. The material is mixed the same manner as the basecoat, except that sand is added to the material to give the unique textured look.

After adding 12–14 quarts of water to the mixing drum, add one 50-lb. bag of DIAMOND veneer finish and mix to the proper consistency. Then add sand and remix completely to provide the desired textured material. It is important that the sand added to each batch remain constant to maintain a uniform, textured appearance. Again, the consistency of the mortar can be measured using a margin trowel; make sure the material slides off easily.

Apply a tight thin coat of DIAMOND veneer finish over the entire area immediately doubling back with plaster from the same batch to a full thickness of 3/32". Allow the material to firm slightly. Then, sponge-float the surface. This will raise the sand particles in the material, creating a textured surface. This initial floating should be kept uniform using a damp float. Excessive additions of water during floating should be avoided, as this will prevent the finished surface from achieving an acceptable hardness.

Once the material has become uniformly firm, refloat the surface a second time, again using a minimum amount of water, creating an even, uniform swirl pattern. This procedure creates an attractive, sand-swirled texture pattern. Allow the application to dry completely before any paint decoration is done to complete the project.

Other Finishes

DIAMOND or IMPERIAL® veneer finish—Mix plaster as recommended in U.S. gypsum Company Technical Data Sheet PM9. Apply a tight scratch coat over the entire working area. Lay on material in a uniform manner with care to avoid trowel marks, laps and excess material. Once plaster has been applied to a sufficient area, double-back with material from the same batch to a nominal 1/16" thickness, leaving the surfaces as smooth as possible (a prefinished appearance). Extra time taken applying the material uniformly will minimize blemishes and defects in the surface during finishing. Under no circumstances should the surface be rewetted with water



or heavily overworked, as this will only result in subjecting the surface to blistering and further trowel marks. The surface is smooth-troweled only after initial firmness is reached, and final troweled once full firmness occurs. Water-trowel only after material has initially begun to set. The wall surface must be left "under the trowel"; do not use water brush or blister brush on finished surface.

RED TOP® finish plaster—Machine mix mill-mixed finish plaster following the directions on the bag. Apply a tight scratch coat over the entire working area. Immediately double-back with material from the same batch and fill out to a true and even surface nominally 1/16" thick. Allow surface to become firm, then trowel well with water. Do final troweling after the finish has begun to set. Surface shall be free from cat faces and other blemishes or irregularities.

STRUCTO-GAUGE® gauging plaster with Ivory®, Snowdrift® or Grand Prize® Lime—Mix lime in a clean mechanical mixer or a portable drill mixer; add one bag of lime to 5-1/2 to 6 gallons of water and mix until putty is smooth. Mix finish plaster in proportions by dry weight of 1 part gauging plaster to 1 part lime. Apply finish plaster as described for RED TOP finish plaster.

RED TOP® gauging plaster or gauging plaster with Ivory, Snowdrift or Grand Prize Lime—Mix lime as described above. Mix finish plaster in proportions by dry weight of 1 part gauging plaster to 2 parts lime. Apply finish plaster as described for RED TOP finish plaster.

RED TOP® Keenes cement with Ivory, Snowdrift or Grand Prize Lime for a sand float finish—Mix lime as described above. Mix finish plaster in proportions by dry weight of 100 lbs. RED TOP Keenes cement plaster to 200 lbs. lime to not more than 800 lbs. of sand aggregate. Apply float finish coat by scratching plaster in thoroughly and immediately double back to a true, even surface. Float using a shingle, cork, wood, carpet, sponge or rubber float to bring aggregate to the surface to produce a finish of uniform texture free of slick spots, cat faces and other blemishes. Use water sparingly.

System Specifications

To perform in the expected manner, the installation should meet all requirements for joint treatment preparation and veneer plaster application as described in SA920 "plaster systems," and "DIAMOND brand veneer finish systems." Also, see P818, Repair and Resurfacing video. For details, consult your local United States Gypsum Company technical representative.

Product Data Sizes and Packaging

DIAMOND veneer basecoat plaster, 50 lb. (22.7 kg) bags, coverage 3500-4600 ft.² per ton.
USG plaster bonder, 5-gal. (18.9 L) pails, coverage 300 ft.² (27.8 m²) per gal., depending on application method.
DIAMOND brand veneer finish plaster, 50 lb. (22.7 kg) bags, coverage 5500 ft.² per ton.
SHEETROCK brand paper joint tape, 75, 250 and 500 ft. (22.9, 76.2 and 152.4 m) rolls.
SHEETROCK brand setting-type joint compound (DURABOND), 25-lb. (11.3 kg) bags, choice of setting times (20, 45, 90, 210, 300).
SHEETROCK brand setting-type joint compound (EASY SAND); setting times of 5, 20, 45, 90, 210 and 300; 18 lb. (8.2 kg) bags, 4 lb. (1.8 kg) box.
SHEETROCK brand lightweight all purpose joint compound (PLUS 3), 25 lb. (11.3 kg) bags.
SHEETROCK brand gypsum panels, 1/2" thick (12.7 mm), 48 (1219 mm) wide, 88 (2032 mm) long.
ROCKLATH FIRECODE plaster base, 3/8" (8.3 mm) thick, 16" (406 mm) wide, 48 (1219 mm) long.
RED TOP gypsum plaster, 50 lb. (22.7 kg) bags, coverage 114–232 yd./ton.
Structo-Lite gypsum plaster, 50 lb. (22.7 kg) bags, coverage 89–140 yd./ton.

Storage

Store in a cool, dry place. Avoid direct sunlight. Maintain temperature above 50 °F (10 °C).

Shelf Life

Up to 6 months under protected storage conditions. Rotate stock.

Trademarks

The following trademarks used herein are owned by United States gypsum Company: ACR1-ADD, DIAMOND, DURABOND, EASY SAND, FIRECODE, IMPERIAL, PLUS 3, RED TOP, ROCKLATH, SHEETROCK, STRUCTO-LITE, USG, USG EXTERIOR, USG in stylized letters.

Note

Products described here may not be available in all geographic markets. Consult your U.S. gypsum Company sales office or representative for information.

Notice

We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions 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 installing 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.

