

# Product and Systems Technology

## Veneer Plaster Application Technique

### PM6

To ensure optimum performance from veneer plaster systems, it is critical that good application techniques be followed when applying the veneer plaster.

Before the plaster application begins, a job inspection should be made prior to 2-coat plaster application to ensure that the substrate (whether it be veneer gypsum base, cement board, concrete block or monolithic concrete) has been properly prepared and/or treated to receive the application of veneer plaster.

#### I. Veneer Basecoat Application

Veneer basecoat plaster, such as IMPERIAL® veneer basecoat and DIAMOND® veneer basecoat, can be applied

- To veneer gypsum base,
- Directly to porous concrete block surface with proper suction, and
- To monolithic concrete treated with USG™ plaster bonder.

Additionally, DIAMOND veneer basecoat is recommended over DUROCK® cement board treated with USG plaster bonder. The basecoat should be applied and properly prepared (left rough and open), and set but still wet, to provide a surface with proper suction for acceptable bond for finishing with all types (conventional or veneer) of finishes. All substrate surfaces should be reasonably straight, as well as clean and free of oil and dirt.

**A. Veneer Gypsum Base**—The joints should be inspected to assure that the correct treatment is used for the type and spacing of framing and the drying conditions that can be expected on the job site (see *Plastering Materials PM5*).

**B. DUROCK Cement Board**—USG plaster bonder is applied to the joint area before joint treatment with SHEETROCK® joint (paper) tape and SHEETROCK® setting-type (DURABOND®) or lightweight setting-type (EASY SAND™) joint compound. Then the entire surface is treated with an application of USG plaster bonder before the plaster application.

**C. Concrete Block**—Broken blocks should be replaced. Blocks with small surface cracks may be repaired by filling with a coat of veneer basecoat plaster. Repair by this method may require that the plaster setting time be quickened with the addition of USG™ accelerator for gypsum plaster to prevent cracking due to excessive shrinkage. Concrete-block wall surfaces will provide more suction than is required for acceptable basecoat application. This excessive suction can best be overcome by pre-wetting the block with water or by applying USG plaster bonder. When USG plaster bonder is used, it may have to be diluted with water. The dilution should be made in modest increments, and should not exceed one part water to one part bonder. The best way to determine proper suction is by following the above procedure in a local or test application at the job site.

**D. Monolithic Concrete**—Monolithic concrete surfaces, in addition to requiring a coat of USG plaster bonder, should first be inspected for surface irregularities. Ridges and bumps should be ground flush and the surface brushed clean of all loose particles.

#### II. Veneer Plaster Joint Treatment

**A. Glass Mesh**—IMPERIAL® Type P or S tape (both for wood-framed assemblies). Align IMPERIAL Type P tape over joints and interior angles, press into place over entire length; do not overlap at intersections. Attach IMPERIAL Type S tape using 3/8" staples. Use two staples at each end of tape; staple remainder at staggered intervals of 24". At wall-to-ceiling and wall-to-wall angles, staple only along one edge. For exterior angles, apply SHEETROCK 800 or 900 corner bead in place. Embed tape and fill beads with a coat of the veneer plaster being used. Slightly underfill in the bead by screeding along the bead with the edge of a trowel. Allow to set and partially dry prior to veneer plaster application.

**B. Paper Tape**—SHEETROCK joint tape and SHEETROCK setting-type (DURABOND) or lightweight setting-type (EASY SAND) joint compounds are used in the following construction instances:

- Assemblies with metal framing,
- When rapid drying conditions are present, or
- In certain systems over 24" framing.

Following manufacturer's recommendations for mixing DURABOND or EASY SAND joint compound, apply compound using a trowel or steel finishing knife to force the compound into the joints. Center SHEETROCK

joint tape over the joint and press it into the fresh compound using a suitable tool. Use sufficient pressure to remove excess compound. After tape is embedded, apply a thin coat of compound over the tape to reduce the possibility of edge wrinkling or curling. Allow this thin coat to set, then apply a fill coat completely covering the tape. Feather the fill coat 3" to 4" beyond the edges of the tape. Allow it to set and dry before plaster is applied.

### **III. Veneer Basecoat Plaster— Hand Application**

As with all veneer plaster applications, joint reinforcement is essential for satisfactory system performance. With joints properly reinforced (either glass fiber tape pre-set with veneer basecoat plaster or paper tape embedded and cover-coated with setting-type joint compound), begin basecoat application with a tight thin scratch coat over a workable area (approximately 100 sq. ft.). Then, using material from the same batch of plaster, immediately double back to bring the final application thickness to 1/16" to 3/32". The application should be level and all voids and imperfections filled. For all applications, the final surface of veneer basecoat must be left rough and open by brushing or cross-raking with a fine wire rake to provide a proper mechanical key for bonding of the finish coat.

### **IV. Veneer and Conventional Gypsum Lime Putty Finish Coat Application**

Finishes for veneer plaster systems fall into two categories: Two-component systems and one-component systems. In two-component systems, a basecoat veneer plaster is first applied, followed later by a finish coat of another material. In a one-component system, only one material is applied as the finish to a properly installed veneer gypsum base application.

Veneer finish plasters, such as IMPERIAL veneer finish or DIAMOND veneer finish, are designed for direct application to IMPERIAL gypsum base in one-component systems but may be used as a finish over veneer basecoat plaster to achieve a surface that is resistant to abrasion (in two-component systems). IMPERIAL veneer finish, in particular, provides a highly abrasion-resistant surface.

Lime putty finishes utilizing RED TOP® and STRUCTO-GAUGE® gauging plaster and RED TOP® Keenes cement are preferred by the trade as finish coats over veneer basecoats because they provide ease of application, high esthetic appeal and high productivity. Unlike veneer finishes, lime putty finishes cannot be applied directly to the IMPERIAL gypsum base, nor do they provide a surface that is highly abrasion-resistant.

When applying veneer finish plaster, it is necessary to plan the plastering to permit continuous application from angle to angle to eliminate cold joining. When a cold joint is unavoidable, best results can be achieved with DIAMOND veneer finish by terminating the unset plaster in a sharp, clean line (not feathered out). However, when using IMPERIAL veneer finish, this procedure may not produce totally acceptable "cold joinings" since the aggregate makes achieving a completely smooth cold joint line difficult. Once set, bring the adjacent plaster up to the terminated edge, filling to level. When finish troweling, use excess material to fill and bridge the joining between the two plaster applications. With lime putty finishes, continuous application from angle to angle may be advisable although not necessary, since these finishes are easily adaptable and highly suitable where cold joining is necessary.

### **V. Finish Coat Over Veneer Basecoat— Two-Component System**

The scratch-coat application should be well ground into the surface of the properly prepared and set, partially dry, basecoat to ensure adequate bonding of the finish coat and to minimize the potential for development of blisters. After the scratch coat has been applied over a workable area, double back with sufficient material from the same batch to cover the basecoat completely (approximately 1/16" thick).

For a smooth finish coat, trowel the application to remove all voids and imperfections after the surface has become firm. Using water sparingly, trowel the surface to close and densify the surface. Just prior to set, final-trowel the surface.

With lime putty/gauging finishes, trowel the surface to remove all voids and trowel marks once the basecoat has absorbed most of the water from the finish. When the material begins to set ("initial set"), finish-troweling should be started to densify the surface. As the "final set" takes place, the surface should be water-troweled to produce a smooth, dense surface.

When a textured finish is desired, addition of aggregate to the finish material may be required. The material is applied by the scratch and double-up method. Once materials have become firm through removal of water into the basecoat, texture finishing can proceed. Texturing of the surface must be completed prior to set, except where RED TOP Keenes cement is used to allow for retempering of the surface for float finishing.

A variety of patterns and textures can be achieved with items such as floats, sponges, brushes and carpet pieces or by other accepted trade techniques. The size and quantity of aggregate will control finish texture appearance. A washed, cleaned, well graded white silica sand aggregate is recommended.

**VI. Veneer Finish Direct to Veneer Gypsum Base—One-Component (Single-Coat) System**

Once proper joint treatment has been completed, apply veneer plaster finish by scratching in a tight, thin coat covering the blue face paper of the board. Then, using material from the same batch, double back to bring the entire application to a full thickness of 1/16" to 3/32".

*Caution—Working with material from one batch for scratch and double-up is necessary to prevent problems associated with different set times.*

The time at which a batch of material will set is a function of when and how the material was mixed. If a separate batch is mixed for the double-up application, the difference in time will result in a condition where the double-up coat will go from a wet state to set without sufficient time allowed for proper water removal that is required for acceptable finishing.

If the scratch and double-up method is not used and veneer plaster is applied in a single heavy coat, unevenness of the finish surface, variable set and blistering is likely to occur.

After the material has been allowed to take up or firm up slightly, trowel to eliminate surface irregularities, filling all voids and imperfections. This knock-down troweling is essential with smooth finishes, but should be completed with light trowel pressure to minimize blistering at this stage. Do not over-trowel.

Allowing for additional take-up or water removal, but prior to set, the surface is finished holding the trowel flat and using water sparingly. Once set has occurred, as indicated by a darkening of the plaster finish, minor blistering which may have developed during the application can be removed using the edge of the trowel.

**VII. Texture Veneer Finish Direct to Veneer Gypsum Base—One-Coat System (Single Coat)**

A variety of textures, ranging from light skip trowel, sand float, and heavy textured finishes may be achieved with most single-component veneer finishes. These applications could be aggregate on the job, or use in veneer finishes specifically designed for the purpose. The application techniques are generally the same as for smooth finish except that *once the surface has been scratched in, leveled up, and material on wall surface take-up (firm, not wet) has occurred, proceed with texturing always with material from the same batch.*

**Skip-Trowel**—Once proper joint treatment has been completed, apply veneer plaster finish by scratching in a tight, thin coat covering the blue face paper of the board. *Once the surface has been scratched in, leveled up, and the material on wall surface has taken up (firm, not wet), then proceed with texturing always with material from the same batch.*

**Float Finish**—Once proper joint treatment has been completed, apply veneer plaster finish by scratching in a tight, thin coat covering the blue face paper of the board. Then, using material from the same batch, double back over the entire wall surface to bring the entire application to a full thickness of 1/16" to 3/32". After entire wall surface has been doubled-up the surface is ready for floating, use water sparingly.

*Caution—Working with material from one batch for scratch and texture is necessary to prevent problems associated with different set times and possible dry-out conditions.*

The time in which a batch of material will set is a function of when and how the material was mixed. If a separate batch is mixed for the double-up application, the difference in time will result in a condition where the double-up coat will go from a wet state to set without sufficient time allowed for proper water removal that is required for acceptable finishing.

Textures and Patterns may vary from any given region. Finished textured wall surfaces are created by the applicator/crew to create a distinctive style or standard which will achieve standard uniformity.

DIAMOND veneer finish and IMPERIAL veneer finish can have up to a full part of sand added to achieve a textured or sand float finish; however, the resultant strength of the material will be reduced.

**VIII. Spray Texture Finish Direct to Basecoat**

Finish coat materials for this application over basecoat may consist of high-strength gauging/lime putty finish, regular gauging/lime putty finish, lime/Keenes cement finish or various mill-manufactured products.

**Note:** This method of achieving a textured surface by spraying, while highly expedient, is *not normally recommended* because it is subject to critical limitations.

- The basecoat, while being properly roughened to ensure bond of the finish coat, must be uniform in appearance. Any irregularities will photograph through the finish coat.
- The air pressure and viscosity of the finish material are critical to achieving proper bond of the sprayed texture to the basecoat material. Adequate air pressure and high fluidity are necessary to attain bond, but both minimize the degree of texture attainable.

## IX. Spray Texturing a Finish Coat

Finish materials for this application include:

- Gauging plaster, such as high-strength (STRUCTO-GAUGE gauging plaster), regular (RED TOP gauging plaster) or RED TOP Keenes cement, job-mixed with lime and silica sand; or
- Prepared finishes designated for two-coat systems, such as RED TOP finish with job-added sand, RED TOP finish (float), DIAMOND veneer finish with job-added sand or IMPERIAL veneer finish with job-added sand.

As with all veneer plaster systems, proper treatment of joints prior to spray texture application of finish materials is recommended. All joints must be finished. All spray-textured patterns can be attained with this method.

Using the selected finish-coat material, mixed for hand-application consistency, apply a tight scratch coat over the properly prepared, set and partially dry basecoat. After the scratch coat is applied, double-back with sufficient material from the same batch of plaster. When the surface has become firm, float it to a uniform, blemish-free flat texture. While material is in a firm, but not yet set condition, the spray texture can be applied. The spray material should be prepared using the same proportions as the finish material, except thinned slightly, to achieve the final texture finish. Spray texture to a uniform thickness and appearance.

This same application procedure can be used with the application of IMPERIAL veneer finish or DIAMOND veneer finish veneer plaster applications direct to IMPERIAL gypsum base. After joints have been prepared and material is applied and floated, spray finish with the same material mixed to proper fluidity. Initial plaster application should be set but not dry.

In conclusion, when applying veneer plaster systems, taking the time to follow good job practices will assure a satisfied architect, contractor or owner and can lead to additional specifications for veneer plaster.

**Coverage Table (Approximate Square Feet/Bag)**

	Bag Size (lbs.)	Over Gypsum Base	Over Masonry	Over DIAMOND or IMPERIAL Veneer Basecoat	Over DUROCK Cement Board <sup>(3)</sup>	Over Monolithic Concrete <sup>(3)</sup>
<b>IMPERIAL veneer basecoat</b>	50	130-170	110-145	N/A	N/A	130-170
<b>IMPERIAL veneer finish</b>	50	140-160	N/A	130-145	N/A	N/A
<b>DIAMOND veneer basecoat</b>	50	160-200	140-180	N/A	160-200	160-200
<b>DIAMOND veneer finish</b>	50	130-150	N/A	120-140	N/A	200-225 <sup>(4)</sup>
<b>RED TOP gauging plaster<sup>(1)</sup></b>	50	N/A	N/A	230	N/A	N/A
<b>RED TOP Keenes cement<sup>(2)</sup></b>	50	N/A	N/A	200-120	N/A	N/A
<b>STRUCTO-GAUGE gauging plaster</b>	50	N/A	N/A	230	N/A	N/A

(1) Using RED TOP gauging or STRUCTO-GAUGE gauging plaster finishes, two parts of lime by weight of the finish plaster material was used to determine coverages (1:2).

(2) Using RED TOP Keenes cement finish, one part lime by weight of the finish material was used to determine coverage (1:1).

(3) Requires application of USG plaster bonder before plaster application.

(4) Smooth finish and job aggregated; USG recommends that DIAMOND veneer finish be job-aggregated with one part clean, sharp, fine silica sand (sanded 1:1).

Note: See *Gypsum Construction Handbook* for more detailed explanation of product usages.

### Trademarks

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