

Product and Systems Technology

Preparation for Painting

PM15

This document is a guide to best practices for preparing a gypsum plaster finish surface to receive paint.

Jobsite Standard Specification

A jobsite standard for the surface treatment and finishing system should be developed in advance to establish the required level of visual concealment and performance.

In the absence of well-defined paint and coatings industry recommendations, USG recommends that all properly prepared plaster surfaces should receive one coat of appropriate alkali-resistant primer/sealer, followed by two separate coats of topcoat material to achieve a properly painted surface. Avoid excessively thick applications of paint. Paint should be applied to the film thickness and in application conditions specified by the paint manufacturer.

Jobsite Preparation

Environmental Control During construction, from board installation through final decoration, occupancy conditions should be maintained at jobsite; manufacturers of interior architectural paint coatings typically recommend application conditions of 50–100 °F (air, surface, and material temperatures). Temperature, humidity, and airflow should remain constant throughout the process. Note that high humidity conditions will prolong drying times.

Surface Moisture Plaster systems must be completely dry before painting. The adhesion developed between paint and plaster is a function of mechanical bond, which develops as the paint penetrates plaster pores and cures. Bond strength of the paint film to plaster is *greatly reduced* if the plaster is damp when paint is applied. To determine if plaster is sufficiently dry, tape one sq. ft. of clear polyethylene plastic film to the wall, while maintaining ideal drying conditions of 77 °F and 50% relative humidity. If water droplets are visible on the underside of the film after 24 hours, the plaster is too wet. Allow the walls to dry further and repeat this test until suitable dryness is achieved.

Surface Cleaning The gypsum plaster surface must be clean, sound and dry. Do not sand or buff minor wall imperfections prior to painting, as this creates dust that will compromise paint adhesion. Never use vinegar/water solutions to correct dusty plaster surfaces, as this will degrade the gypsum plaster and create surface pitting defects. Instead, brush or wipe the surface with a slightly damp cloth to remove dust.

Surface Sealing To achieve the highest quality finished surface, plaster should be properly sealed before painting. Gypsum plaster surfaces are alkaline with pH 7 to pH 13+, so the plaster sealant and paint must be alkali-resistant.

Finish System Gauged-lime putty and RED TOP® brand finish plaster applied over conventional basecoat plasters must age 30 days and be thoroughly dried and properly sealed before decorating. Vinyl acrylic latex or alkyd primer-sealers are recommended. Use only alkali-resistant epoxy-based finish systems over lime putty/gauging plaster and lime-containing finish plasters; these high-strength coating systems create significant surface stress at the coating/plaster interface, and a penetrating primer/sealer is required to adequately enhance and fortify the plaster surface. Always consult the paint manufacturer in selection and final application procedures, and confirm that primer or paint to be applied to lime gauging or lime-containing plasters is alkali-resistant.

Mock-Ups

It is recommended that jobsite mock-ups be evaluated before any large-scale decorating is undertaken. USG Building Systems will not be responsible if a selected paint or coating system fails to provide the desired appearance and/or durability.

Material Selection

Plaster Sealer Consult the specified plaster sealer manufacturer for guidance in selecting a proper sealer that meets job requirements and provides sufficient pH tolerance. Pure gypsum plasters, such as IMPERIAL® veneer finish and neat RED TOP gauging plaster, are slightly alkaline with pH 7–8. Gypsum plaster mixtures containing hydrated lime, such as DIAMOND® veneer finish and lime putty/gauging plaster mixtures, are highly alkaline with pH 13+. (Note: Bodily contact with highly alkaline materials may cause chemical burns. Use caution to avoid direct contact and use proper personal protective equipment when working with highly alkaline materials. See product Material Safety Data Sheet and label for additional information.)

Paint Always consult the paint manufacturer in selection and final application procedures, and confirm that primer or paint to be applied to lime gauging or lime-containing plasters is alkali-resistant. In addition, note the following:

- Use a high-quality acrylic latex, high-grade vinyl acrylic latex or alkyd paint. Avoid paint dilution, which often results in sheen variation.
- Apply primer or paint with a roller, or backroll if spray-applied. To backroll, go over spray-applied paint or primer with a paint roller to work coating into substrate. This improves the mechanical bond of the coating to the substrate or underlying coat.
- Seal all finishes properly before decorating. Because of the minimal water used in applying IMPERIAL veneer finish and DIAMOND veneer finish, drying time may be as little as 24 hours. Plaster finishes may be painted the following day as long as the plaster has dried completely.
- Polyvinyl acetate (PVA) based primers should not be used over plaster of any kind. PVA primer tends to combine with or dissolve in water and thus is highly susceptible to swelling when wetted and shrinking when re-dried. PVA film also impairs the drying rate when applied to wet plaster, leading to lime and gypsum dissolution and formation of a powdery film that interferes with primer adhesion. In addition, the combination of PVA film and water-based paint can contribute sufficient additional moisture to distort the primer film and promote further formation of lime/gypsum crystal deposits.

Tape The industry has no formal standard or accepted field procedure that can effectively quantify paint/plaster bond strengths. Freshly painted plaster surfaces normally do not exhibit optimal bond performance. Paint systems require time (often weeks) to achieve optimal performance. USG discourages the use of any pressure-sensitive tape in the process of decorating freshly painted plaster surfaces. For more information, contact the manufacturer of any tape being considered for use in decoration of a new plaster surface.

Trademarks

The following trademarks used herein are owned by United States Gypsum Company: DIAMOND, IMPERIAL, RED TOP, USG, USG in stylized letters. Scotch is a registered trademark of 3M.

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

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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.

