PAREXUSA

Color Variation Causes
Technical Bulletin

TB032
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Applied properly, Portland cement stucco can produce a beautiful, long-lasting color finish. Different degrees of color variation can be achieved by employing certain application and substrate preparation techniques. Just as with any scientific evaluation approach, the causes and effect theory applies. Among the many factors that influence color in Hard-coat stucco finish applications are the following.

Substrate density: if the substrate density varies, the color coat finish will vary in intensity.

Substrate composition: the same color coat applied to different substrates will vary, (e.g. pre-existing stucco and new brown coat.)

Color coat hydration: (i.e. weather) the color coat uses available moisture to cure. The same stucco may take on a different color in a very humid environment than in a dry area.

Application technique: the applicator can influence the final color of the stucco assemble through application method, choice of tools, etc. For instance, **water used to float or trowel the finished surface will change the color making it cloudy or mottled** or an applicator can burnish the color of a smooth finish using a steel trowel to create an "old world" look.

Mixing procedures: the mixing of stucco, water, and color packs needs to be according to manufacturers' guidelines to ensure consistent finished product. For instance, mixing time and stucco-water ratio can affect stucco color. Also, to ensure good workability and color consistency, the re-tempering of the material after 10 minutes set time is recommended.

Stucco texture: the same stucco takes on a different appearance when used in a smooth finish, a sand finish and a lace textured finish (skip troweled), for instance. This is partly because of the shadows created and the influence of the aggregate in the product.

ASTM C-926 section X1.1.4.1
States: The uniformity of color cannot be guaranteed by the materials manufacturer of the component materials or by the application contractor. Color uniformity is affected by the uniformity of proportioning, thoroughness of mixing, cleanliness of equipment, application technique, curing conditions and procedure, which are generally under the control of the applicator. Color uniformity is affected to an even greater degree by variations in thickness and differences in the suction of the base coat from one area or location to another, the type of finish selected the migration of color pigments with moisture, and with job site climatic and environmental conditions. These factors are rarely under the control of the applicator.

7.4.2 The use of excessive water during the application and finishing of finish-coat plaster shall be avoided.

X1.3.1 Staining of Plaster—Staining and discoloration of plaster, caused by free water draining from one plane of plaster to another or from a dissimilar material onto a plaster surface, can be minimized by providing sufficient depth and angle for drip caps and the use of water-resistive surface coatings.

X1.3.2 Staining of plaster due to entrapment of moisture behind the plaster can be avoided or minimized by providing an air space for ventilation between the back of the plaster and adjacent material. This type of staining may occur where insulation with or without vapor barrier, or other material containing asphaltic or coal tar derivatives, fireproofing salts, and so forth, can migrate with moisture movement to the finished plaster surface.

X1.3.3 Integrally colored plaster can be discolored or altered in shade if subjected to moisture, from external sources, such as rain, too soon after applications.