WCB
WALL AND CEILING BUREAU

5726 Sonoma Drive
Pleasanton, CA 94566
Phone: 925.600.0475
Fax: 925.600.0618

TECHNICAL BULLETIN

Brown Coat

Contents

Application: Floating the Brown Coat

Floating plaster brown coats knocks off minor variations in the plane, like clinkers or darby marks, fills small holes and indentations, and opens up the surface of the brown coat. Whatever floats across the brown coat, the hand pressure used is minimal. Pressing against the brown coat might create a hole that needs to be filled. If the brown coat is too wet the float will dig into the surface and create a poor base to finish. Minimal pressure and a floating circular motion create the best float job. Floating can be accomplished with wood floats, hard rubber floats, soft sponge floats, or even a 2/4 piece of wood. The type of finish determines the precision and level of quality that preparation of the base demands.

Floating for machine dashed stucco can be done with soft sponge floats bringing out the sand as if floating a stucco sand finish coat. Floating 100% with a hard rubber float is acceptable, but what ever is used knowing that dash coats reflect every variation in the plane is critical to a superior end product.

Floating base coats for a sand finish can be less stringent, but requirements for flatness are the same. If the base is too rough, the plasterer can fill the voids with a scratch and double back method of applying the stucco to gain a superior end product.

If the brown coat has almost set, rodding the walls is the only alternative for straightening the plane. It leaves a coarse open surface with less compressed grains of sand. A well cured scratch coat wet to create even suction for the brown coat and an even set time for floating maximizes your chances of success. If the brown coat has a higher sand to cement ratio, floating the brown coat becomes easier.

For smooth trowelled walls or synthetic finishes applied over Portland Cement Plaster base coats, the brown coat must be almost perfect. Stucco finishes are inert. They do not shrink back into the holes or imperfections in the base coat. Stucco finishes trowelled smooth over a green base coat can provide a perfect base for synthetic materials, filling voids and imperfections, creating the same smoothness characteristics of the weatherproofing base coat and netting application so integral to successful Exterior Insulation and Finish Systems (EIFS).

Cracks

Cracks and cracking are a performance characteristic of Portland Cement. Portland Cement reflects the amount of movement stress that occurs in a building. It also creates panel stress during the curing process or hydration as it loses volume and becomes hard. This is called shrinkage stress and creates shrinkage cracks. Fine tight and random early age cracking characteristics are defined during the curing process.

The overall plaster strength qualities, and the panel's ability to resist movement stress, is directly related to the level of hydrated cement, the bond properties between the aggregate and the cement paste, hardness of the paste , proper sand to cement ratios, and the thickness of the panel. Strength properties are also based on the aggregate sieve size ratios as defined in ASTM C 897.

Cracking occurs with rapid evaporation of moisture in the mix. Keeping moisture in the panels longer creates less cracking. Moist curing of the panels minimizes cracking.

Jagged torn looking cracks can be a symptom of structural movement. The quicker the panels get hard, the less likely they are to crack.

The characteristic diagonal cracking at windows and doors is usually caused by deflection in the framing. Cracking can be caused by dead load stress from plastering before pre-loading roofing material, known as compressive stress cracking. Cracks that follow from elevation to elevation can be indicative of expansive clay soil conditions.

Cracking can be the result of lateral stress from twisting studs, and from expansion of or contraction of the substrate.

Cracking can be reflective of wind loads if a building is sitting on a hill with no wind protection. Wracking and twisting of the walls can create cracking. Earthquakes, earth moving equipment, and building near a Cal-Train depot will cause cracking. Freeze thaw conditions can create major crack problems. Reno has a lot of cracked stucco.

Not bedding the wire can cause cracking. Not driving attachments into the framing members can cause cracking. It can also cause plaster to fall down.

The most important thing to realize is that cracking is not a defect but a characteristic and normally the most successful installations provide for a long period of cracking and curing before application of the finish coat.

The other type of cracking is the stress cracking that occurs when smooth trowelled stucco is installed. As the sand is compressed into a tight smooth finish, surface stress creates fine, tight, miniature cracks throughout the surface of the finish. This is one of the reasons that the Bureau, while promoting the use of smooth finishes, expects the plaster to be painted.

Variations in the Plane

Plaster is a product that is applied by hand. The installation, application and finishing of the product is predicated on the abilities of the people trained to install the trim, lath, paper, plaster and plaster finishes. Variations in the plane normally define the level of quality of the job. If the angles are sharp, clean and straight, the job is considered superior. If the outside corners are sharp, clean and straight, the job is considered superior. If the walls are flat and the finish regular with whatever texture is applied, the job is considered within Plastering Industry Standards.

The UBC defines variation in the basecoat as ¼" in any direction under a 5-foot straight edge (2508.6).

ASTM 926-98 defines solid base surfaces like cmu or cast in place concrete or brick to be ¼" in 10-feet prior to application of Portland Cement Plaster.