



CEMENTITIOUS Grouts Concrete Surface Preparation

All surfaces in contact with Five Star® cementitious grouts shall be clean and free of oil, grease, laitance, and other bond-inhibiting contaminants. Maximum bond will only be achieved by ensuring that the concrete foundation which is in contact with the grout has attained full strength and been roughened, cleaned, and pre-saturated prior to applying the grout.

All Five Star® cementitious grouts are formulated not to require a bonding agent. A bonding agent is not intended as a replacement for proper surface preparation. In the event a bonding agent is specified and used, the bonding agent manufacturer's installation instructions must be followed.

A. Full Strength

Construction practices dictate a concrete foundation should achieve its full strength before grouting. Concrete is recognized to have reached full strength 28 days after placement. A project engineer shall approve any grouting on foundations less than 28 days old.

B. Roughening

When concrete is curing, water and fine particles migrate upward resulting in a weak layer at the surface. Adding excessive water and over finishing the concrete intensifies this process. This weak concrete layer is referred to as the surface laitance and needs to be removed prior to grouting. Surface laitance removal should result in coarse aggregate exposure. The surface profile recommendation is to create a minimum ¼ inch (6 mm) peak to valley amplitude.

Prior to roughening, if the surface has been exposed to oils, greases, and/or chemicals, it may be necessary to core sample to determine the depth of concrete that needs to be removed. Whatever method is employed to roughen the surface, care should be taken not to contaminate the substrate, polish the substrate, or use a procedure that is so aggressive that it fractures or introduces microcracking in the concrete foundation.

A surface retarder may be used on fresh/new concrete to achieve the proper profile. If a surface retarder is used, the surface retarder manufacturer's installation instructions must be followed.

C. Cleaning

Cleaning refers to completely removing the dirt, dust, and debris from the roughening process as well as any oil, grease, or other bond-inhibiting contaminants on or in the substrate. Cleaning methods commonly employed include blowing off the surface with oil free compressed air (the air source must be oil free because any oil introduced to the concrete surface will interfere with the bond) and/or high pressure washing.

D. Pre-saturation / Pre-Soak

Prior to cementitious grout placement, presoak concrete surfaces with potable water for a minimum of 8 hours (to an optimum 24 hours), continuously and consistently, via wet rags, wet burlap, ponding, or similar method to obtain a Saturated Surface Dry (SSD) condition. An SSD surface is one that will no longer absorb any water. The longer the presoak time the more likely an SSD condition will be achieved.

Immediately before installing the grout any standing or pooled water should be removed by "blowing off" the water with oil free compressed air. The surface can also be vacuumed. Special attention should be paid to keyways, dowel holes, anchor bolt sleeves and any other area that could hold standing water.

Expansion/Isolation Joints:

Expansion/isolation joints are best installed after surface preparation but prior to the equipment being set and aligned. Expansion/isolation joints shall be incorporated into large grout pours if the grout must travel in multiple directions. These joints aid in grout placement and can function as control joints to reduce the probability of cracking. Expansion/isolation joints are recommended to be installed at full depth every 4 to 8 feet (1 – 2 m) across the short dimension and shall not bridge a structural support. Typically made from closed-cell foam in a ½ inch to 1 inch (13 – 25 mm) width, expansion/isolation joints are glued into position with a suitable caulk/adhesive.

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