

PREPARING CEMENTITIOUS REPAIR MORTARS TO SUPPORT HIGH-PERFORMANCE LINING SYSTEMS

It is widely understood in the protective coatings industry that concrete requires surface preparation to – among other things – remove the weak laitance layer and produce a sufficient anchor profile for the protective system to mechanically interlock to the substrate. The underpinnings of the SSPC-SP13/NACE No. 6 joint industry standard for the Preparation of Concrete apply to any cementitious material, whether it is cast-in-place concrete, shotcrete or a trowel applied cementitious repair mortar if the surface exhibits a laitance layer. Have you ever wondered how some manufacturers can therefore endorse a broom finished surface in lieu of a mechanically profiled (blasted) surface on cementitious repair products and meet the criteria of industry surface preparation standards? The answer to this question was unclear until Vaughn O’Dea, Director of Sales – Water and Wastewater Treatment, and Rick Schwab, Manager of Product Support/Quality Control at Tnemec Company, presented the results of an investigation to quantitatively assess adhesion of a protective lining when applied to broom finished surfaces verses blasted surfaces.



O’Dea and Schwab presented their technical findings at the Paint and Coatings Expo (PACE) 2009 in which they systematically tested 12 commercially available cementitious resurfacing materials, including Tnemec’s Series 218 MortarClad epoxy resurfacer, for their bond strength properties. Testing was performed in accordance with ASTM D7234, which describes a procedure for evaluating the direct tensile strength of a coating on concrete. “Research suggests that the broom finish profile for linings may have originated from the concrete repair industry as a requisite to apply cementitious repair mortars in multiple lifts,” stated both O’Dea and Schwab. However, the authors found no literature suggesting this finishing technique categorically alleviates the formation of a weak surface layer that potentially affects the bonding of a protective lining system. O’Dea noted, “The data concludes that a broom finished surface generally forms a weak upper surface layer on the majority of the cementitious composites tested in this study.”

The information derived from this study supports the position of Tnemec that all cementitious surfaces, except those containing an epoxy polymer, must receive an abrasive blast regardless of finishing technique. This action ensures complete removal of the laitance layer and provides sufficient mechanical profile for subsequent coating application.

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