



## REMR TECHNICAL NOTE CS-MR-4.2 GRAFFITI-RESISTANT COATINGS

PURPOSE: To provide information on coatings that can be applied to concrete surfaces to make them resistant to graffiti.

APPLICATION: Coatings for concrete that are resistant to paints, crayons, markers, and other materials used for graffiti are available. These coatings provide a surface that will allow graffiti to be easily removed without the use of time-consuming cleaning procedures and the use of harsh chemicals or sandblasting.

ADVANTAGES AND LIMITATIONS: Graffiti can easily be removed from concrete coated with these materials. Cleaning solutions (solvents or combination of solvents) that can be used to remove the graffiti without affecting the coating are available from the manufacturer. The coatings exhibit good abrasion and chemical resistance. They also serve as sealers that prevent the intrusion of water, salts, and other solutions into concrete. The coatings cure to a clear finish but will darken the concrete surface and produce a glossy sheen. Most of the coatings contain volatile organics, and certain precautions should be taken during application. Chemical materials, if used improperly, may have adverse health and environmental effects. Reasonable caution should guide the preparation, application, and cleanup phases of concrete coating activities involving potentially hazardous and toxic chemical substances. Manufacturer's



Concrete structure before and after treatment with graffiti resistant coating (photos courtesy of Fosroc-Preco Industries Ltd., Plainview, NY)

directions and recommendations for the protection of occupational health and environmental quality should be carefully followed. Material Safety Data Sheets (MSDS) should be obtained from the manufacturers of such materials. In cases where the effects of a chemical substance on occupational health and environmental quality are unknown, chemical substances should be treated as potentially hazardous or toxic materials. Skilled personnel are not required for the use of these coatings.

PROCEDURE: The concrete surfaces to be coated must be clean and dry. The surface and ambient temperature should be at least 45° F and rising. The coatings should not be applied if rain is expected within 6 hr. The coatings can be applied with a brush, a roller, or airless spray equipment. The rate of application depends on the roughness and porosity of the concrete surface. Coverage may vary from 100 to 300 sq ft/gal. Most manufacturers recommend two or three coats for best protection. A drying time between coatings is specified. Application procedures information is available from the manufacturers.

TYPES OF GRAFFITI-RESISTANT COATINGS: There are many manufacturers of graffiti-resistant coatings. Most of these type of coatings located were stated by the manufacturer to be clear polyurethanes and aliphatic polyurethanes. The coating systems are supplied as both one- and two-component systems. The single-component systems are easier to apply because no mixing is required. However, some manufacturers claim that the two-component systems have better chemical resistance. A few of the manufacturers report that their coatings can be pigmented and that different colors are available.

LABORATORY TEST: Two graffiti-resistant coatings from different manufacturers were obtained for testing by the Waterways Experiment Station. One coating was a one-component system and the other a two-component system. The coatings were tested as a concrete sealer to determine their effectiveness in sealing concrete from water intrusion and their ability to breathe (transmit water vapor). Small concrete slabs coated with the mixtures were used to evaluate the resistance of the coatings to graffiti and the effectiveness of the manufacturers' recommended cleaners in removing the graffiti. Small mortar prisms were coated with the materials and tested for accelerated weathering in a Q-U-V accelerated-weathering tester for 1,600 hr.

The two coatings were found to be effective sealers. The coatings did resist an enamel paint sprayed on the surface, and the enamel paint could be easily removed with the manufacturer's cleaners. The paint was applied three times to the surface of the coated specimens and removed each time with the cleaners. No apparent damage to the coatings was observed after the third cleaning. The two-component system performed better on the accelerated-weathering test. The single-component system had a chalky appearance after the completion of the test.