TECHNICAL BULLETIN – TB134

PLANT AND SERVICE ROOM FLOOR COATING

23rd July 2024

INTRODUCTION & SCOPE

This Technical Bulletin is designed to detail the treatments necessary for the surface preparation and surface finish coating of a plant or service room concrete floor. Typical locations are air-conditioning plant rooms, medium-wear rubbish refuse areas, storage areas, etc.

The principal design criteria and requirements of this recommendation include: -

a. Provide a high-wear performance surface finish that is resistant to bacteria growth.
b. Has high chemical resistance sufficient to resist typical spillages and leakages.
c. Is easily maintained.

PRE-TREATMENT

The following sections provide details of the pre-treatment necessary before applying the surface finishing coats. The pre-treatment will vary depending on the condition and nature of the substrate surface.

Expansion Joints

All expansion and construction joints should be thoroughly cleaned free from all debris. If the joints have been filled with sealant, they should be raked clear prior to proceeding with the coating system. This applies to all substrates.

Cracks & Construction Joints

All cracks greater than 0.5 mm shall be treated as construction joints.

All Construction Joints shall be sealed using a polyurethane or silicone sealant, spread to a thickness of approximately 1 mm to a distance of approximately 5mm on either side of the joint. When applying the first coat of ARDEX WPM300 HydrEpoxy (described subsequently), the coating shall be reinforced across the joints using ARDEX Deckweb polyester cloth reinforcing bandage.

Fresh New Concrete

For new, freshly laid concrete, a curing membrane sealer coat may be applied to provide optimum curing and seal the matrix against contamination in the event of coating damage. This minimises the necessary surface preparation during future maintenance.

The curing membrane/sealer application is carried out using a two-coat system. The application commences immediately after the concrete has been laid and is hard enough to walk on without resulting in surface deformations.

Apply one coat of ARDEX WPM300 HydrEpoxy (diluted 50% with water) to all surfaces to be treated at a coverage rate of 6 square metres per litre. Work the material into the concrete's pores with a brush or roller.

Allow the first coat to penetrate for approximately 4 hours before applying an undiluted coat of ARDEX WPM300 HydrEpoxy at a coverage rate of not greater than 3 square metres per litre. The ARDEX WPM300 HydrEpoxy must be applied not less than 20 minutes nor more than 4 hours following the application of the diluted ARDEX WPM300 HydrEpoxy under normal ambient conditions and within a shorter time frame during hot surface temperature conditions.

Special Requirement

For ALL concrete surfaces that have been laid for more than 48 hours, the pores of the concrete must be opened to allow adequate penetration and bonding of any coating system. Concrete surface pores may be sealed by overworking during finishing, wet finishing, high-wear polishing of aged concrete, or other installation or service conditions. Off-form concrete, and high-strength concrete (>35MPa) normally always result in the pores of the concrete being sealed.

Mechanical surface preparation methods such as abrasive blast cleaning, scarifying, scabbling, or grinding may open the pores of the concrete to produce a porous surface finish.

New Concrete

For new concrete that is more than 5 days old, all curing compounds other than ARDEX HydrEpoxy WPM300 shall be removed before proceeding.

Sealing new concrete before applying the coating system is not essential; however, sealing the concrete matrix will prevent the ingress of contaminants in the event of mechanical damage to the surface finish coats. This minimises the extent of surface preparation necessary to effect repairs.

All surfaces to be treated should be washed with high-pressure detergent and/or water, as necessary, using a nozzle pressure of 1,00-1,200 p.s.i. (7-8 Mpa), followed by high-pressure rinsing to remove dirt, grease, oil, and other surface contaminants.

To seal the surface, apply one coat of diluted ARDEX WPM300 HydrEpoxy to all surfaces at a coverage rate of 6 square metres per litre. Work the material into the concrete's pores with a brush or roller.

Allow the first coat to penetrate for approximately 4 hours, then apply a coat of ARDEX WPM300 HydrEpoxy to all surfaces at a coverage rate of not greater than 3 square metres per litre.

Aged or Contaminated Concrete

All surfaces to be treated should be washed with high-pressure detergent and/or water, as necessary, using a nozzle pressure of 1,00-1,200 p.s.i. (7-8 Mpa) to remove dirt, grease, oil, and other surface contaminants.

Any areas of surface damage should be coated with a liberal coat of ARDEX HydrEpoxy WPM300 and reinstated using a cement mortar consisting of a blend of ARDEX HydrEpoxy 300 and Portland Cement in equal parts by volume and adding river-washed sand to achieve the desired consistency.

A bonding/consolidation coating shall be used by applying one coat of diluted ARDEX HydrEpoxy WPM300 to all surfaces to be treated at a coverage rate of 6 square metres per litre. Apply by brush or roller, working the material into the concrete's pores.

After allowing the sealer to cure for 4 hours, apply one coat of ARDEX HydrEpoxy 300 at a coverage rate of 3 square metres per litre.

Allow the first coat to cure overnight before applying a second coat of ARDEX HydrEpoxy 300 at a coverage rate of not less than 3 square metres per litre.

Hydrostatic Pressure Resistance

Suppose the floor is not subject to the effects of hydrostatic pressure. In that case, one coat of ARDEX WPM300 HydrEpoxy is normally sufficient to act as a sealer/filler coating of the substrate concrete to produce a relatively smooth surface.

Where hydrostatic pressure is a problem requiring a pressure-resistant membrane, then a second coat of ARDEX WPM300 HydrEpoxy must be applied at a coverage

rate of not less than 3 square metres per litre after overnight curing of the first coat applied as part of the seal/fill process above.

FINISH COATING APPLICATION

As described previously, the finish coating is applied directly over the pre-treated surfaces.

Slip Resistant Coating Application

- Apply ARDEX WPM822 in two coats, each with a wet film thickness of 0.3mm, by brush or roller to achieve an overall dry film thickness of 0.3mm. The second coat should be applied in a cross-direction to the first to achieve a uniform finish. Coverage is 1.7m²/Litre for a two-coat application. ***Note:*** If a non-slip surface is required, broadcast ARDEX Primer Sand into the first coat while wet and allow it to cure for 24 hours. Gently sweep away excess sand before applying a second coat of ARDEX WPM822.

- Allow 24 hours curing time at 23°C and 50% Relative Humidity must be allowed before the ARDEX WPM822 system can accept pedestrian traffic. Lower temperatures will increase the cure time.

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