# **TECHNICAL BULLETIN – TB075**

## CEMENT RENDER OR SCREED APPLICATION OVER ARDEX WPM300 HYDREPOXY WATERPROOFING

## DATE: 31 MAY 2013

## **INTRODUCTION & SCOPE**

ARDEX WPM300 HydrEpoxy provides a high performance waterproofing membrane barrier while it remains in a continuous film. The most effective method of ensuring this is to protect the film from mechanical damage with the installation of a cement render or screed.

This Bulletin describes the process for the application of the ARDEX WPM256 HydrEpoxy / WPM300 HydrEpoxy membrane and the process for the installation of a cement render or screed over the membrane.

### PREREQUISITES

ARDEX WPM300 HydrEpoxy is a semi-rigid membrane and therefore it can only be applied to structurally sound and rigid substrates. For the purposes of this bulletin such substrates shall be restricted to concrete and selected masonry surfaces where cracks and other surface deformations have been reinstated.

## ABOUT ARDEX WPM256 HYDREPOXY AND ARDEX WPM300 HYDREPOXY

The Ardex WPM256 HydrEpoxy / WPM300 HydrEpoxy membrane system is a water-based two component epoxy system producing virtually no odours during or after application. It can be applied to damp surfaces and freshly laid (green) concrete and still produce the optimum properties.

The ARDEX WPM256 HydrEpoxy / WPM300 HydrEpoxy membrane system offers bond strengths to concrete of up to 5 MPa depending on the tensile strength of the concrete. As a rule the concrete under the membrane system will fail cohesively before the ARDEX WPM256 HydrEpoxy / WPM300 HydrEpoxy gives way.

ARDEX WPM300 HydrEpoxy is certified as conforming to the requirements of the Australian Building Code and independent tests confirm that it conforms to the requirements of Australian Standard 4020 and British Standard 6920 for use in contact with potable water.

The ARDEX WPM256 HydrEpoxy / WPM300 HydrEpoxy membrane system resists hydrostatic pressures of 400 kPa (which equates to a 40 metres head of water) when applied to the negative pressure side.

## **APPLICATION OVER CONCRETE SURFACES**

#### SPECIAL REQUIREMENT

For ALL concrete surfaces that have been laid for more than 48 hours it is essential for the pores of the concrete to be opened to allow adequate penetration and bonding of any coating system. Concrete surface pores may be sealed by overworking during finishing, wet finishing, and 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.

The pores of the concrete may be opened to produce a porous surface finish by mechanical means of surface preparation such as abrasive blast cleaning, scarifying, scabbling or grinding.

- Concrete surfaces must be clean and free from all surface contaminants. The pores of the concrete must be open to allow penetration of the bind coat in order to achieve an optimum bond strength. If the concrete shows any signs of having a low permeability it should be mechanically treated by scabbling, scarifying, grinding, abrasive blast cleaning or other suitable mechanical means to open the pores.
- 2. Ideally, the ARDEX WPM256 HydrEpoxy / WPM 300 HydrEpoxy membrane should be applied as soon as the concrete has reached its final set or is hard enough to prevent drag-up of the cement when applying the membrane. ARDEX WPM256 HydrEpoxy and



ARDEX WPM300 HydrEpoxy can be applied to very fresh (green) concrete. The coating acts as a highly efficient concrete curing membrane containing the water within the concrete affecting maximum hydration or cure of the concrete. This reduces the chances of the concrete cracking through "plastic shrinkage" and optimises the compressive strength of the concrete.

- 3. Apply one coat of ARDEX WPM256 HydrEpoxy (thinned 50% with water) at a coverage rate of approximately 5 to 6 square metres per litre to all surfaces to be treated. Coverage rates will vary depending on the porosity of the concrete. Allow not less than 15 minutes nor more than 4 hours for the ARDEX WPM256 HydrEpoxy to penetrate and apply the first coat of ARDEX WPM300 HydrEpoxy at a coverage rate of 3.0 square metres per litre.
- 4. Allow the bind coat and the first membrane coating to cure overnight and apply a second (top) coat of ARDEX WPM300 HydrEpoxy at a coverage rate of 3.0 square metres per litre to achieve a nominal dry film thickness in the order of 300 micrometres.

## APPLICATION OVER CONCRETE BLOCK SURFACES

- 1. Concrete block surfaces normally contain large surface voids and have a powdery and weak surface. It is recommended that these surfaces be high pressure water blasted with a nozzle pressure of not less than 14 MPa (2,000 psi) to remove all loosely bound material on the surface.
- 2. Since the ARDEX WPM256 HydrEpoxy / WPM300 membrane system requires the film to be continuous at a uniform dry film thickness it is recommended that all surfaces be bagged using a sand/cement bagging mix prior to application of the membrane. Because of the larger voids in the surface, obtaining a continuous film of uniform thickness without first creating a relatively smooth surface by bagging is almost impossible.
- 3. Once the surface is relatively smooth and free from voids the ARDEX WPM256 HydrEpoxy / WPM300 HydrEpoxy membrane system is applied as for concrete surfaces above.

## APPLICATION OVER BRICK SURFACES

- 1. Some bricks possess a very smooth relatively low general permeable surface. The worst of these are high temperature fired 'economy' bricks such as some 'commons' and 'construction bricks'. Fortunately both of these types of brick generally contain substantial micro-cracking of the surface because of their method of manufacture which provides some mechanical key for the ARDEX WPM256 HydrEpoxy / WPM300 HydrEpoxy to gain a satisfactory bond, although it is recommended that these surfaces be abrasive blast cleaned and re-pointed to achieve maximum results.
- 2. 'Face', 'rumbled' or other finish bricks normally provide a reasonable permeable substrate for a suitable bond.
- 3. It should be noted, however, that the bond strength to brick surfaces is generally lower than that achieved to properly prepared concrete. It should also be noted that the bond strength to brick surfaces will vary depending on the surface structure of the brick.
- 4. All surfaces should be thoroughly cleaned free from all surface contaminants prior to applying the ARDEX WPM256 / WPM300 HydrEpoxy membrane system as for concrete above.

## CEMENTITIOUS RENDERING OR SCREEDING OVER THE ARDEX WPM256 / ARDEX WPM 300 MEMBRANE

## Option 1 – Sand Seeding

The <u>preferred method of ensuring adhesion</u> of the render or screed, particularly if there is to be a lengthy delay between application of the membrane and the installation of the render or screed, is to broadcast clean dry sand over the wet top coat of the Ardex WPM300 membrane. The sand must be washed and dried and in the size range of 0.5 to 1.0mm. As the top coat of the Ardex WPM300 is being applied, broadcast the sand at a rate of approximately 0.75 - 0.8 kg/m2 to achieve at least 90% coverage evenly distributed over the surface. Once the Ardex WPM300 has fully set, the surface may be brushed or



vacuumed to remove any loose unbonded sand prior to installation of the render or screed using the bonding bridge as outlined in Option 2 below.

## **OPTION 2 – WITH BOND BRIDGE**

Rendering or screeding over the ARDEX WPM256 / WPM300 HydrEpoxy membrane is a simple procedure and can be done in not less than 16 hours of the last coat and before any surface contamination of the membrane occurs. The time between application of the membrane system and placement of the render is best limited to within 3 days, provided the surface is cleaned thoroughly and the membrane system has not been damaged.

Rendering or screeding over the ARDEX HydrEpoxy membrane system involves the application of a bonding bridge and the immediate placement of the render or screed. The timing between these operations is critical and requires planning in the preparation of materials.

A 'bonding bridge' is prepared by thoroughly mixing 1 volume of ARDEX WPM405 Additive with one volume of water. This is then blended with 4 volumes of Portland cement.

The cementitious render or screed is prepared using an appropriate sand cement blend, normally 3 parts sand to 1 part cement, which is premixed in the dry state to a uniform blend. A gauging solution is prepared using 3 volumes of water to 1 volume of ARDEX WPM 405 Additive and this is added to the sand cement blend to produce the required render or screed consistency mix.

Immediately prior to placement of the render or screed a layer of the bonding bridge not exceeding 2mm is applied to the surface. The bonding bridge must only be applied to an area which will allow the placement of the render or screed before the bonding bridge dries. The time will depend on temperature and humidity conditions.

If the bonding bridge dries before the render or screed can be applied, a further coat of the bonding bridge must be applied before proceeding with a placement of the render or screed.

**Critical:** 

Note that it is extremely critical that the render or screed be applied while the bonding bridge remains wet or tacky or the bond of the render or screed will be extremely poor or non-existent.

#### **IMPORTANT**

This technical bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application/installation of the products described. Since each project potentially differs in exposure/condition specific recommendations may vary from the information contained herein. For recommendations about specific applications/installations contact the nearest Ardex Australia Office.

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#### REASON FOR REVISION

Change of preferred method for preparation of render application.

#### REVIEW REQUIRED

24 months from issue.

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