

## TECHNICAL BULLETIN – TB145

### POSITIVE SIDE WATERPROOFING OF CONCRETE BLOCK RETAINING WALLS - WPM172 & WPM179

1 August 2013

#### INTRODUCTION & SCOPE

Concrete block retaining walls are only effective provided they are correctly constructed and protected on the positive side by the application of a suitable waterproofing membrane. In many instances the use of a sheet membrane is prohibitive and a liquid membrane containing a root inhibitor is the most practical option. Again, the effectiveness of the membrane depends on the quality of application and substrate surface preparation with adequate time being allowed for the membrane to cure before backfilling takes place.

This bulletin is designed to provide the necessary steps to ensure an effective liquid membrane system is achieved on this type of structure. Note that this Bulletin refers to the membrane applied to the positive side or the side in direct contact with the backfill of the retaining wall. *Alternate systems are available for waterproofing the negative or exposed side of the wall.*

Ardex provides two bituminous rubber latex membrane systems that may be for this application. The Ardex WPM172 is a Rapid Cure two part system designed for spray application to large wall/floor areas. The Ardex WPM179 is a single component system designed for application using brush and/or rollers to generally, smaller areas, including inside planter boxes.

#### SURFACE PREPARATION

- 1) Blockwork walls *shall be reinforced using reinforcing steel and core filled*. The walls shall be attached to the base by starter bars to ensure minimum relative movement between planes and the core filling must be correctly compacted to ensure there are no voids around the reinforcing steel.
- 2) All surfaces shall be cleaned thoroughly free from all dirt, grease, oil and other surface contaminants. This can be either mechanical methods or high pressure water blasting (~3000-4000psi).
- 3) All mortar joints should be pointed to be flush with the surface of the blockwork.
- 4) All surface profile protrusions shall be ground and all surface profile intrusions and voids shall be filled to obtain a smooth uniform surface with no sharp corners or edges. The walls should be rendered or 'bagged' with a sand/cement mix to achieve the smooth uniform surface free from the larger voids commonly experienced in concrete blocks and allowed to dry for 24 (minimum) hours prior to application of the waterproofing membrane.

#### SYSTEM APPLICATION

- 5) All surfaces having moisture content greater than 7% (e.g. new wall constructions) shall be primed with one coat of Ardex WPM300 HydrEpoxy at a coverage rate of not greater than 3 square metres per litre. Allow the prime coat to cure overnight before proceeding. This priming coat should only be applied to wet or freshly placed concrete.

#### Ardex WPM179 Application – brush or roller

- 6) To all porous surfaces such as aerated concrete substrates to be treated, apply a prime coat of Ardex WPM179 Retaining Wall 1 Part thinned with 50% with water and let dry before proceeding. The Ardex WPM179 is self-priming on most other substrates.



- 7) Internal corners shall be coved using a cement based mortar (e.g. Ardex A46 Repair mortar) minimum 25 x 25mm and finished at 45 degrees. When dry, this coving is then covered with the Ardex Self-adhesive Detail Tape.
- 8) Expansion joints and cracks are also covered with the Ardex Self-adhesive Detail Tape.
- 9) Apply (brush and/or roller) to all surfaces to be treated, two (2) coats of Ardex WPM179 Retaining Wall One Part to achieve a minimum overall nominal dry film thickness of 1.0 mm. Ensure a full and uniform coverage is achieved and allow the first coat to dry hard before applying the second coat. The membrane is normally fully dry in 24 hours.
- 10) When the membrane has dried, check for pinholes and rectify if necessary. The Ardex WPM 179 Bituminous Membrane is fully cured in (minimum) 48 hours @25° C. and 50% Relative Humidity. Backfilling should not be carried out until the membrane coating is fully dried and cured.

#### Ardex **WPM 172** Application – Spray Only

- 11) The Ardex WPM172 Rapid Cure membrane is spray applied by accredited applicators using approved spray equipment.
- 12) Ardex WPM172 is self-priming on most substrates. However detailing such as cove fillets to internal corners, followed by application of the Ardex Detail Tape over the coving and cracks must be completed prior to proceeding.
- 13) The exposed face of the applied Ardex Detail Tape must be fully thoroughly wetted using the Ardex Part A component only before the full membrane is sprayed.
- 14) The Ardex WPM172 may be spray applied to PVC pipes and fittings, re-bars and metal fittings as well as to the prepared concrete block surfaces. However it is permissible to coat penetrating pipes and fittings with the Ardex WPM179 brush applied prior to over-coating with the Ardex WPM172 Spray applied membrane.
- 15) The recommended coverage is to achieve a dry film thickness of 2-3mm
- 16) The Ardex WPM172 will fully cure in (minimum) 48 hours @25° C. and 50% Relative Humidity.

#### Protection

- 17) After all applied membranes have cured; they shall be protected from mechanical damage by placing Ardex Protection Board against the membrane before backfilling. The board shall be fixed using PVC Duct Tape - do not use mechanical fixing that will hole the membrane.

#### **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 for specific applications/installations contact your nearest Ardex Australia Office.

#### **DISCLAIMER**

The information presented in this Technical Bulletin is to the best of our knowledge true and accurate. No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of a product for a particular application. Users are asked to check that the literature in their possession is the latest issue.

#### **REASON FOR REVISION - ISSUER**

Revision to include WPM172 /179 in place of WPM320 (Deleted)

#### **DOCUMENT REVIEW REQUIRED**

24 months from issue

**NSW** 02 9851 9100, **QLD** 07 3817 6000, **VIC** 03 8339 3100, **SA/NT** 08 8406 2500, **WA** 08 9256 8600

**New Zealand** (Christchurch) + 643 384 3029

**Technical Services** 1800 224 070

Web: <http://www.ardex.com>, [www.ardexaustralia.com](http://www.ardexaustralia.com) email: [technicalservices@ardexaustralia.com](mailto:technicalservices@ardexaustralia.com)

