TECHNICAL BULLETIN – TB156

ARDEX SMOOTHING CEMENTS, REPAIR MORTARS AND BULK FILLS SUITABLE FOR USE WITH ARDEX EXTERNAL MEMBRANES

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INTRODUCTION & SCOPE

A common situation occurs where a concrete slab roof or external structure has to be waterproofed from new, or during restorations, the existing sheet membrane has to be removed and reinstated.

These membranes require a smooth surface on the concrete substrate and have to be graded with falls to waste to prevent ponding water. New concrete surfaces are commonly too rough, and with incorrect or no falls to waste. During renovations where the existing membrane is removed, the mechanical equipment may damage the substrate sufficiently so that a smoothing topping has to be installed.

Ardex manufactures a range of smoothing cements, repair mortars, and has designed a range of polymer modified, or bituminous modified sand-cement screeds. This bulletin discusses the types of products that can be used with Ardex Shelterbit bitumen torch on, or self stick membrane systems (e.g. WPM100+ series and 3000X), Ardex Butynol sheet rubber, Ardex Liquid applied roofing membrane Ardex WPM908 and in some circumstances Ardex WPM157 polyurethane and WPM172-179 Retaining Wall.

THE SCREEDS

What are the requirements for these screeding products? The major requirement for these screeds and toppings is that they are stable in external and potentially wet environments. This excludes internal smoothing products such as those based on the Ardex Ardurapid technology. Secondarily they need to thermally stable to resist the blow torch used for Shelterbit systems, and finally of sufficient porosity to accept the membrane primers and adhesives.

WHAT ARE THE ADVANTAGES OF A SELF SMOOTHING CEMENT?

The self smoothing cements have a number of advantages over traditional screeds which include rapid cure and ease of application. Typically an Ardex smoothing cement topping will be cured sufficiently in 2-3 days for liquid applied membranes to be placed, whereas sand-cement mortar screeds dry at 1mm per day, and for fast track work normally require a moisture seal over the screed prior to the membrane application (for example a sealing coat of Ardex WPM300). Ardex liquid applied smoothing cements are also quick to apply and spread, and provide superior smoothness and hardness when compared to sand-cement screeds.

ARE THERE DISADVANTAGES TO SMOOTHING CEMENTS?

The primary feature of the Ardex liquid smoothing cements is that they have good flow which is mainly intended to allow them to be easily applied, spread and self heal. This means that creation of falls normally requires greater skill in trowelling or the addition of either coarse sand or fine aggregate to create a bulk fill.

LIQUID APPLIED SMOOTHING CEMENTS

In the Ardex range there are four liquid applied smoothing cements suitable for membrane application; Ardex LQ92, Ardex K301, Ardex Arditex NA and ABA Levelfast. These products are all suitable for external and wet usage, with Ardex K301 being suitable for use a wear surface in fully exposed external situations. The flow characteristics of these products allow them to be ramped and create falls to a moderate degree without bulk filling.

They are poured onto the surface and placed and smoothed with standard flooring trowels, both hand and walk along floor spreaders.

Product	Maximum thickness neat	Thickness with Aggregate or Sand
Arditex NA	1-12mm	10-30mm with 2-5mm aggregate
LQ92	1-12mm	10-25mm with 0.3mm washed dry sand (6 litres per 20kg bag of LQ92) 10-30mm with 2-5mm aggregate (1:1)
Ardex K301	2-20mm	10-30mm with 2-5mm aggregate
ABA Levelfast	2-20mm	10-30mm with 2-5mm aggregate

These smoothing cements are all used with Ardex P51 primer for porous concrete surfaces. Where extra resilience is required due to flexibility in the substrate LQ92 can be mixed Ardex E25 Resilient Emulsion or Ardex Abalastic liquid. K301 can be improved with Ardex E25 (see Ardex TB151 for mix ratios) and ABA Levelfast with Ardex Abalastic.

Arditex due to its flexible nature, can be used for timber substrates in addition to concrete so may be suitable for use with Butynol and WPM116 'Fleecy Back' systems over external grade plywood (consult Ardex Technical Services for advice about particular applications).

Bulk Fills or Repair Mortars

The Ardex range of repair mortars comprises four products; Ardex A46 Repair mortar, Ardex B34-B36 Fairing mortars, and Ardex K005 Bulk Fill. The first two products are trowel grade repair and patching mortars which can be applied to horizontal and vertical surfaces by hand trowel. Ardex AR300 is a trowel on rendering,patching and levelling product for concrete walls and floors. Ardex K005 is a semi-liquid coarse sand filled topping cement that can be used to fill holes and deep fill or create falls or ramps on horizontal surfaces.

Product	Maximum thickness neat	Thickness with Aggregate or Sand
A46	1-30mm	NA
B34-B36	5-100mm	NA
AR300	2-30mm	NA
K005	5-120mm	NA

The repair mortars are not normally used with liquid primers or additives. B34 is the base coat 'primer' for B36 which is the primary build coat. Ardex K005 is used with Ardex P51 primer over concrete, and can be mixed with Ardex E25 or Abalastic.

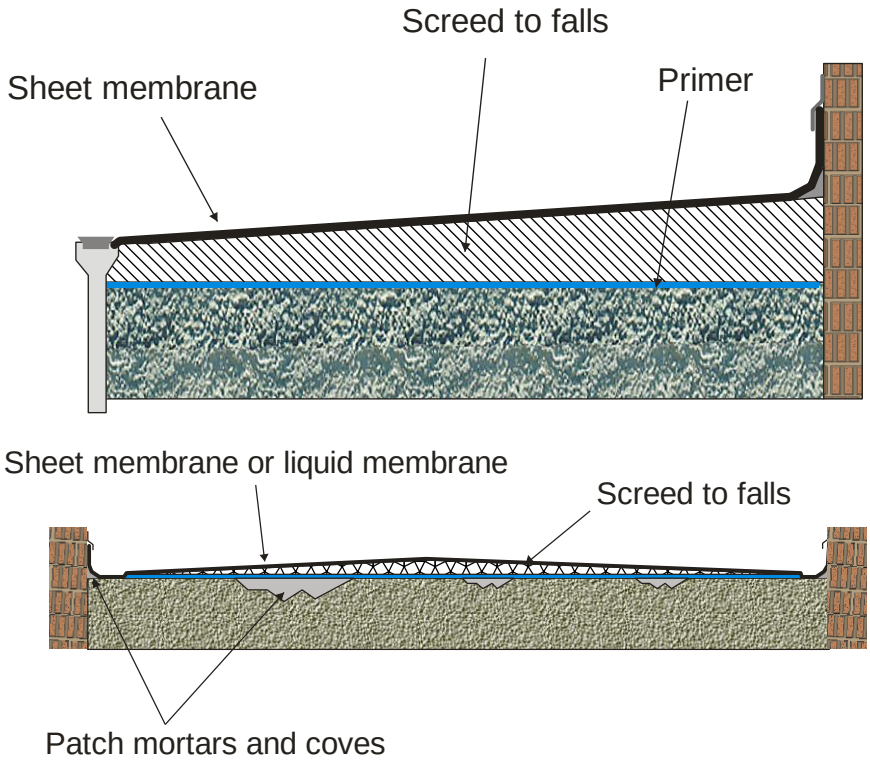
Modified Sand-Cement Screeds

The traditional style of topping involves the use of sand-cement screeds, and Ardex recommends two variations on this screeding system. The first is a Acrylic polymer modified screed using either Ardex Abacrete or Ardex WPM405 Sheltercrete additive in the gauging water to improve the surface bond, and cohesive strength performance of the screed. The second type is a sand-cement screed gauged with an Ardex WPM320-water mix to provide a bituminous water repellent screed.

The polymer modified Abacrete/Sheltercrete screeds are used either bonded or un-bonded to the substrate. The bonded screeds are used with a bonding bridge onto the prepared concrete surface whilst the unbonded screeds rest on a slip sheet and must be steel re-inforced. These screeds are applied either as toppings to create beds and falls, or can be placed onto vertical surfaces as renders. These screeds dry at the rate of 1mm per day and require a seal coat of WPM300 if a liquid applied membrane is to be placed before a minimum of 7 days have elapsed.

A WPM179 modified screed can be used with the Shelterbit membranes for surface screeds and coves. They are applied direct to the masonry surface.

Schematic diagrams showing typical application for screeds/mortars and external membranes



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 Ofiice.

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
Deletion of WPM350+355, WPM320, B12 and reference to TB126. Change of WPM180 etc to generic WPM100+ series, Addition of WPM172-179, ABA Levelfast, AR300.

REVIEW PERIOD
24 months from issue.

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