TECHNICAL BULLETIN – TB204

Creating Ramps on External Subfloors With Ardex Floor Levelling Cements

Date, Friday, 31 October 2014

INTRODUCTION & SCOPE

Floor levelling cements are commonly seen as a thin topping material applied prior to the application of the final floor covering. However, these materials can also be used as a bulk material when mixed with a suitable aggregate filler to create ramps.

In this bulletin different systems will be highlighted that allow the applicator to use filled levellers, purpose made bulk fills and specialised screed materials to tackle these situations.

THE PROBLEMS

A common application that arises is the necessity for sloped fills. This can be either as ramps where adjacent floor areas may have different heights and require a ramp to avoid trip hazards, or in wet areas to create falls to drainage. A third scenario is to create a fall for a screed on a verandah for tiling.

The use of bulk fill aggregates and sands reduces the cost of the levelling materials making filling larger areas more economical. Since these ARDEX products are rapid drying, the problems associated with the slow drying of conventional sand cement screeds or concrete fills are eliminated, further reduction costs through lost time.

SOLUTIONS

ARDEX manufactures several floor levelling cements which can be mixed with a suitable aggregate or coarse sand for ramping and fall creation, in addition to a pre-bagged bulk fill product.

ARDEX also has a specialised cement-screed system which can be applied as a ramp base.

Where the height of the ramp is less than 30mm it is possible use ARDEX A46 patch mortar instead of a smoothing cement, although for large areas one of the other bulk filled systems is likely to be preferable.

The bulk filled base layer can be put down to a thickness approximately 3-4mm lower than the final level that is required, and then a 3-4mm topcoat of the same product without fill can be applied as a smoothing layer to provide the necessary surface.

NOTE: Smoothing cements cannot be broom finished as final surfaces.

Between subsequent layers, allow the recommended drying time for the product being used and then apply a coat of appropriate primer. When the primer is dry the smoothing coat can be applied.

Surfaces to be tiled may not require any further smoothing of the dried surface prior to tile application, unless critical applications such as large format porcelain tiles are being laid.

Table 1. Exposed or protected external environments, applications with or without surface applied membranes onto concrete subfloors only.
Typical applications where ramps or falls are required and membranes may or may not be required on top of the sloped area.

Product	Application	Exposed Area - Primer	Protected Area - Primer	Drying time	Thickness
Ardex LQ92 mixed 1:1 with 3-5mm aggregate	**Under tiles** Ramping Additions /height variations	WPM300+ Broadcast sand	Ardex Multiprime or Ardex WPM265	4-6 hours	10-25mm
Ardex LQ92 mixed to desired consistency with coarse washed sand 0.3-2mm	**Under tiles** Ramping	WPM300+ Broadcast sand	Ardex Multiprime or Ardex WPM265	4-6 hours	3-25mm
Ardex K005	**Under other Ardex FLCs, Tiles** Ramping Additions /height variations	WPM300+ Broadcast sand	Ardex Multiprime or Ardex WPM265	4-6 hours	10-120mm
Arditex mixed 1:1 with 2-5 or 3-8mm aggregate	**Under external carpets Tiles** Ramping Additions /height variations	WPM300+ Broadcast sand Note: Priming may not be required	Ardex Multiprime or Ardex WPM265 Note: Priming may not be required	24-48hrs	12-30mm
Ardex K301 mixed 1:1 with 2-5 or 3-8mm aggregate	**Wear surface and surface coatings** Ramping Additions /height variations	WPM300+ Broadcast sand	Ardex Multiprime or Ardex WPM265	4-6 hours	10—30mm
Ardex A38 mixed with correct sand/aggregate 1:5	**Under other Ardex FLCs, Tiles** **Surface coatings** Ramping Additions /height variations	A38 bonding bridge as per datasheet	A38 bonding bridge as per datasheet	4-6 hours	15-100mm

Note: these systems are also suitable for patching or levelling concrete surfaces under ARDEX membranes such as the Shelterbit torch on range.

Mixing & Installation

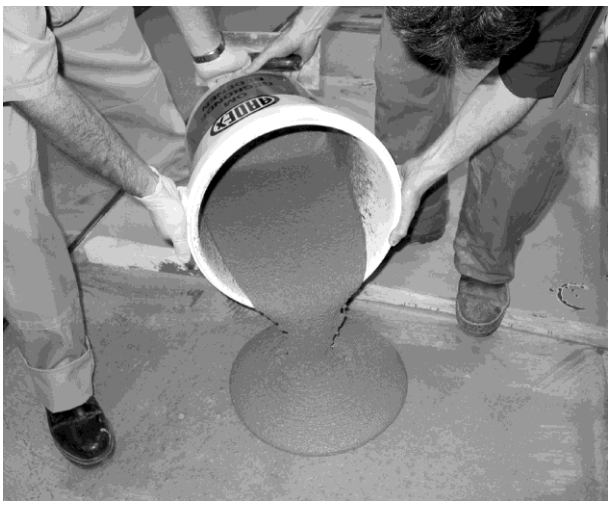
The installation of these products follow the general guidelines for the ARDEX floor levelling products these mixes are derived from, and specific details are available in the relevant data sheets for each product. Subfloors must be structurally sound and free of laitance, oil, grease, wax, dirt, asphalt, curing compounds, latex and gypsum compounds, dust, paint or any contaminant which might act as a bond breaker.

Mechanical preparation methods are required to produce surfaces suitable for application of floor levelling cements. Details are available in Technical Bulletin TB041. Priming is required after surface preparation with the appropriate primers as per Table 1.

The correct amount of water (or polymer latex for Arditex) is measured out into a 20 litre or larger mixing bucket such as steel bin or plastic barrel, and the floor levelling cement powder is poured in at the same time as mixing is commenced.

Mixing is performed with a high speed mixer such as a drill fitted with an ARDEX mixing paddle. Normal mixing is done for 2 minutes, and then the aggregate/sand is added and mixing continued till the aggregate is wet out.

A small degree of water under-batching (<10%) can be used to increase heaviness of the mix and reduce flow.



The mixed leveller is applied to the surface by pouring from the mixing container and working to a wet edge.

The material can also be pumped into the job for large areas.

The mixed material is spread and trowelled into shape to provide falls or form a ramp.

The poured material can be roughly shaped by scraping with a trowel after initial set, or once the filled leveller has cured, it can be diamond ground as required.

The rough finish produced can be used as it is, or smoothed by the application of a topping coat of leveller without the fill. A coat of primer is applied to the filled leveller and allowed to dry. A normal mix of the leveller is then made and applied to the surface, and between 3-4mm is normally adequate. When the topcoat has cured floor coverings can be applied.

Where liquid membranes are applied, the filled leveller may require a smoothing coat under the membrane. However, under no circumstances should levellers be applied over flexible liquid applied (Class II-III to AS4858) or sheet membranes.

CONCLUSION

In situations where a fill or ramp is required, ARDEX FLC mixed with a suitable aggregate provides a fast track method of providing underlayment for ramping which are superior to standard sand-cement screeds. The ARDEX A38 system allows the installation flexibility of a screed, with the benefits or engineered cement systems – rapid cure and high strength.

The smoothing cement bulk fill dries in under 3 days with most of the systems less than 24hrs, whereas sand-cement screeds dry at a rate of 1mm per day.

Careful selection of product will provide a system suitable for depths of between 5 and 120mm.

REASON FOR REVISION
24 month review. Deletion of AR300 mortar

REVIEW DATE
24 months from issue

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