

**TECHNICAL DATA SHEET AND APPLICATION GUIDE FOR:-****UNILIT NATURAL HYDRAULIC LIME FLOOR SCREEDS**

Unilit natural hydraulic lime allows the application of floor screeds to a considerable scale without the requirement for expansion or slip joints.

For application over Technopor insulation with underfloor heating, the screed should be laid in two layers the first to the thickness of the heating pipes, approx 25 – 30mm. Stainless steel wire mesh reinforcement – Brickmesh - (approx. 5cm spacing) should then be laid into the screed (to absorb the thermal stresses in the flooring due to the heating system) and the second layer of screed applied over the mesh a minimum 30mm thick. Greater thickness can be applied up to 100mm total thickness for the two layers. Following layers or bedding layers should be applied 7 to 10 days after application.

**General Information.**

The main components of the floor comprise of a Technopor structural base and a screed topping created with natural hydraulic lime as the binder. The finished floors can be overlaid in different ways, with natural stone slabs or tiles ideally bedded in a natural hydraulic lime mortar, or with direct applications of carpet etc. laid directly on the levelled screed.

**FOR INSTALLATION OVER TECHNOPOR GLASS FOAM GRANULATE STRUCTURAL INSULATION**

Technopor Glass Foam Granulate produced from 100% recycled glass can be used to provide both a compacted base layer and insulation. Applied over a geotextile membrane to prevent contamination at a minimum 190mm uncompacted (150mm compacted) for the Technopor to lock together and to ensure the stability of the base, with greater thickness possible to achieve the required floor U value, 390mm will give a U value of 0.25. A second geotextile membrane is then applied prior to laying under floor heating lime concrete, lime screeds and floor finishes. The glass foam granulate is also moisture resistant, non-capillary and the voids between the granulate allows the floor to breathe. Moisture present beneath the lime floor construction will have no detrimental effect on the Technopor and can evaporate through the Technopor and Lime Floor above. This helps prevent moisture present beneath the floor being forced along a dpm or impermeable insulation into the surrounding walls and avoids the risk of the new floor construction resulting in higher levels of rising damp and salt contamination in existing lime built structures, traditional and historic buildings.



### UNILIT Fen XA - Screeds for insulation

The floor screed to overlay the Technopor is prepared with UNILIT Fen XA a bagged binder of natural hydraulic lime. No addition of clinker, cements or any other synthetic additives are allowed. The binder is mixed on site with the selected aggregates (sand – see note on mixing below). The maximum granular sizing will be 4mm to 7 mm.

#### Binder properties

Specific gravity	1000 kg/m <sup>3</sup>
Moisture diffusion resistance ( $\mu$ )	13.7
pH-value	> 10.5
Fire resistance classification	Class M0 (non-flammable)
Consumption~	4 kg/m <sup>2</sup> /cm of Unilit Fen XA
Packing	powder in bags of 25 kg

**Thickness:** depending on the base, application, and aggregates: 50 - 100mm

#### Mix:

The composition of the mortar for the screed layer is:

Unilit Fen X A natural hydraulic lime	by volume	1 part
Graded sand 0/4 to 0/7mm		3 parts

The mortar is mixed with clean water until a semi-dry, though sufficiently hydrated mortar is obtained. During the levelling of the screed layer with a wooden float a fine layer of lime fat should occur on the worked surface.

#### Application:

The screed will be laid to a thickness of between 50mm and 100 mm, dependent upon the loads to be applied under use and whether or not an underfloor system of floor heating is being installed. The lime screeds are ruled flat and finished with a wood float. The laid mortar requires to dry for 1 to 2 weeks, while regularly being dampened down during conditions of dry weather and high temperatures.

#### Finish:

Wood float or lightly keyed for following layers

#### Reinforcement:

Brick Mesh or Stainless steel wire mesh reinforcement (5cm spacing) for underfloor heating systems as below.



## UNDER FLOOR HEATING

### System for underfloor heating

The under floor heating system is laid directly on the insulation on mechanically fixed spacers normally supplied by the underfloor heating installer. Following the mounting of the pipes for the heating system, the screed materials are applied in two layers in accordance with the methods and specifications outlined above. The first layer of the screed is applied to cover the pipes of the floor heating system, while the second layer is applied flat at a minimum thickness of 50 mm. In between the layers a brick mesh, stainless steel mesh or similar reinforcement is introduced to absorb the thermal stresses in the flooring, due to the heating system.

## WEARING SURFACE / BEDDING MORTAR & GROUT FOR BRICK TILE OR STONE

### Unilit PEDES M as a wearing surface

Unilit Pedes is a traditional, dry premixed mineral mortar based on natural hydraulic lime as the binder and appropriate well-graded aggregates.

Unilit Pedes is characterised by a slow but strong bonding, a high plasticity, a low content of soluble salts and an excellent water vapour permeability. This natural hydraulic lime mortar is inherently stable and designed to reduce problems of micro cracks along with premature drying out.

The natural hydraulic lime binder, used to prepare the pre-blend, conforms to the European Standard EN 495-1 for building limes. The mortar Unilit Pedes conforms to the European Standard UNI EN 998-1.

Properties	
Granular sizing (EN 1015-1)	max. 1.4 mm
Bulk density (EN 1015-10) ca.	1650 kg/m <sup>3</sup>
Compressive strength (EN 1015-11) ca.	5 N/mm <sup>2</sup>
Adhesive strength (EN 1015-12)	> 0.3 N/mm <sup>2</sup>
Walkability	after 48 h
pH	> 10.5
Fire resistance classification (EN 13501)	A1
Proportion water/preblend ca.	0,22 l/kg
Mixing time max.	3 minutes
Packing	powder in bags of 30 kg
Colour	beige

### Thickness:

Unilit Pedes M Nominal 10mm as bedding layer applied in two 5mm applications

### Mix:

Premixed natural hydraulic lime mortar.

**Mix proportions:**

The mortar is mixed with clean water with a slow speed electric paddle for a period of max. 3 minutes (6,5 l water for a bag of 30 kg). A creamy workable mortar is obtained, which has approximately 3 hours of open time.

**Preparation:**

Prior to application, the substrate must be cleaned and freed of all traces of oil and grease. The substrate benefits from being slightly dampened. Saturation of the substrate is not recommended, as this will influence negatively impact upon the bond of the hydraulic lime mortar to the substrate as well as the aesthetic appearance.

**Application:**

The mortar is mixed with clean water with a slow speed electric paddle for a period of max. 3 minutes (6,5 l water for a bag of 30 kg). A creamy workable mortar is obtained, which has approximately 3 hours of open time.

The mortar must not be applied at temperatures below +5°C nor when a risk of frost exists. It should never be applied on to a frozen surface or in the case of thick fog. In hot, windy and dry conditions measures should be taken to prevent accelerated drying out of the freshly applied mortar. The applied mortar must be protected from frost and direct sunlight for 48 to 72 hours after their application.

Apply directly to dry substrates. If the substrate is too dry, dampen down the surface prior to application. Do not apply in temperatures below 5°C or above 40°C. The mortar remains workable for 2 hours and dries in 24-48 hours. Protect from frost for 48 to 72 hours.

**Sand source/type:** Not applicable - mortar pre-mixed.

**Unilit Pedes M as a bedding mortar / tile adhesive (all natural and ceramic) tiles****Mix proportions:**

The mortar is mixed with clean water with a slow speed electric paddle for a period of max. 3 minutes (6,5 l water for a bag of 30 kg). A creamy workable mortar is obtained, which has approximately 3 hours of open time.

**Preparation:**

Apply directly to the FenXA surface up to 10mm and bed tiles directly into mortar.

**Application:**

The mortar must not be applied at temperatures below +5°C nor when a risk of frost exists. It should never be applied on to a frozen surface or in the case of thick fog. In hot, windy and dry conditions measures should be taken to prevent accelerated drying out of the freshly applied mortar. The applied mortar must be protected from frost and direct sunlight for 48 to 72 hours after application.



**Sand source/type:** Not applicable - mortar pre-mixed.

### **Unilit Pedes M for pointing a tiled floor**

**Mix:**

The mortar is mixed with clean water with a slow speed electric paddle for a period of max. 3 minutes (6,5 l water for a bag of 30 kg). A creamy workable mortar is obtained, which has approximately 3 hours of open time.

**Application:**

The mortar is mixed with clean water at a ratio of 5 - 6 litres of water to a 30 kg bag of ready mix Pedes M mixing is undertaken with a slow speed electric paddle mixer for a period of 3 to 5 minutes. A creamy and workable mortar is achieved which will have an open working time of approximately 3 hours. Allow a minimum of 1 to 2 days after the laying of the floor tiles before the joints are filled and finished with the appropriate pointing tools. In the case of very narrow joints i.e. <3mm please use Unilit Pedes F, same bag size and price as Pedes M. Excess mortar is wiped away neatly with a sponge. A drying period of 1 to 2 days has to be respected, before the finished tiled flooring can be walked upon.

## **FINISHED FLOORING**

### **Water-proofing the finished screeds - Beeswax coating for polished/natural lime floors**

To protect and make the surface resilient to water when the screed is to be left exposed, the surface can be impregnated with beeswax. The beeswax should not be applied for three or four weeks after the laying of the screed. This is applied in a first layer until a complete saturation of the surface is achieved. A second layer of beeswax, acting as a protection of the first layer, is applied 3 to 4 days later. It is normal thereafter every 6 months as normal maintenance of the floor, for a new layer of beeswax to be applied and subsequently polished. For the regular, daily maintenance of the floor it is advisable to clean the surface by means of lukewarm suds of Marseilles' soap and linseed oil (style CAROLIN).

For help with specification or technical detail please call.

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