Tadelakt

OUTLINE SPECIFICATION





'Tadelakt', a word of Arabic origin, is synonym for a specific watertight hydraulic lime finish, which is used for the finishing of the hammams and baths of the traditional Moroccan palaces and houses (riads). This specification outlines the application of a coloured tadelakt finish using natural hydraulic lime as the binder and applied onto a variety of substrates. Both new and old masonry structures are considered, for which only the provision of a bonding layer differs. The finishing layer is not influenced by the nature of the masonry substrate.

The tadelakt plastering consists of the following layers. The build up of each layer is described in detail.

- a bonding bridge layer (no necessity, but in function of the substrate)
- an undercoat layer
- a finishing layer, pigmented on site

We aim to describe a wide range of alternatives with specifications prepared for the various conditions. The technical data for the various products recommended are included within this document.

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1. General

The main components of a tadelakt finish comprise a base coat and a finishing layer created with natural hydraulic lime as the binder. The tadelakt plastering is finished with a mineral, coloured finishing layer.

The tadelakt system is waterproof, but at the same time permeable to water vapour. The exchange of water vapour with the inside is guaranteed. As such, the breathability of the internal surfaces remains active, enhancing the quality of the internal environment.
The low salt content of the binder, as well as its permeability to water vapour eliminates all risk of efflorescence (salts) after the surface of the finished rendering has dried on the condition that there is no continuous supply of soluble salts from the substrate.

The mortars must not be applied at temperatures below +5°C nor when a risk of frost exists. They should never be applied on to a frozen surface. The application instructions of the suppliers should be carefully followed with particular attention paid to the recommendations for drainage and protection.

2. Scaffolding

The scaffolds foreseen for the application of the external rendering should be placed at a distance of about 20 to 30 cm from the external surface. The construction and use of the scaffolding shall proceed according to the applicable instructions and safety regulations. Neither the positioning, nor the attachment of the scaffolding shall impede or prevent the application of the external rendering.

3. Preparatory works

Mortar droppings, construction dirt and debris etc. is to be removed and all surfaces require to be cleaned of excessive dust, oil, grease, etc.

4. Application

BONDING BRIDGE LAYER

4.1. Adhesive layer on a concrete, low porous or profoundly powdering substrate — UNILIT 10

On a concrete, low porous or profoundly powdering substrate an adhesive bonding bridge is required with a natural hydraulic lime binder premixed with a suitable well-graded sand and, where necessary, enriched with pozzolanic additives to ensure the consistent hydraulicity of the finished product. No addition of clinker, cements or any other synthetic additives are permitted. The maximum granulation size will be 4 mm.
The day before the application of the bonding layer, the concrete or low porous surfaces need to be cleaned and dampened down. One to two hours before the application of the adhesive layer onto a highly absorbent surface, the surface is lightly dampened once again in hot and dry conditions.





Properties:

Granular sizing	max. 4 mm
Specific gravity	1500 kg/m³
Compressive strength	4 N/mm² after 60 days 6 N/mm² after 90 days
Adhesive strength (DIN 18.555)	2 N/mm²
Moisture diffusion resistance (μ)	< 8
Thermal conduction coefficient (λ)	0,22 W/mK
pH-value	> 10.5
Fire resistance classification	Class A1 (non combustible)
Consumption	~ 3 kg/m²
Packing	powder in bags of 30 kg

Application:

The mortar is mixed with clean water at a ratio of 8 litres of water to a bag of 30 kg ready mixed natural hydraulic lime powder. Mixing is undertaken with a slow speed electric paddle for a period of 3 to 5 minutes. A creamy workable mortar is obtained, which has approximately 2 hours of open time.
The mortar is applied by hand or mechanically onto the surface in an open structure at a nominal thickness of 10 mm. The bonding bridge layer may cover at maximum about 70% of the total surface.
A drying time of 1 to 2 days is required although this may be shorter in good drying conditions. This adhesive layer needs to be protected against frost for 3 days following application.

If the substrate has been prepared with a waterproofer, contact the technical services department of the supplier for advice.

UNDERCOAT LAYER

4.2. Undercoat layer — UNILIT 30

On a non-water-repellent, if necessary pre-treated, substrate, an undercoat layer is applied with a natural hydraulic lime binder premixed with a suitable well-graded sand, water repellent additives and, where necessary, enriched with pozzolanic additives to ensure the consistent hydraulicity of the finished product. No addition of clinker, cements or any other synthetic additives are permitted. The maximum granulation size will be 3 mm. The render system is waterproof, but at the same time permeable to water vapour.
The day before the application of the undercoat layer the surfaces need to be cleaned and dampened down. If the substrate is heavily loaded with salts, the substrate needs to be cleaned properly by

rinsing the surface in 2 to 3 times with an abundant amount of water applied at low pressures. Give the surface, in between the successive cleaning efforts, enough time to dry out completely in order for the salts to migrate to the outer surface, where they can be wiped of with a brush. When after the final rinsing still some salt efflorescence appears at the surface, it is advisable to apply, previous to applying the undercoat layer, an adhesive layer of UNILIT 10 in an open structure.

Properties:

Granular sizing	max. 3 mm
Specific gravity	1450 kg/m³
Modulus of Young	6130 N/mm²
Compressive strength	10 N/mm² after 60 days
	13 N/mm² after 90 days
Tensile strength	0,6 N/mm²
Moisture diffusion resistance (μ)	13,7
Thermal conduction coefficient (λ)	0,65 W/mK
Capillary water absorption coefficient	0,19 l/m²√h
Water-repellent coefficient	0,01 ml/h
pH-value	> 10,5
Fire resistance classification	Class A1 (non combustible)
Consumption	~ 25 kg/m²
Maximal thickness per layer	15 to 20 mm
Packing	powder in bags of 30 kg

Application:

The mortar is mixed with clean water at a ratio of 5 litres of water to a bag of 30 kg ready mixed natural hydraulic lime powder. Mixing is undertaken with a slow speed electric paddle for a period of 3 to 5 minutes. A creamy workable mortar is obtained, which has approximately 2 hours of open time. The mortar is applied at a nominal thickness of 15 to 20 mm and levelled with a wooden float.
After a period of 3 to 4 days the undercoat layer needs to be finished with the appropriate finishing. **If it takes more than 4 days before the undercoat layer can be finished, do contact the technical services department of the supplier for advice.**
At the conjunction of different backgrounds, as for example with concrete and masonry, or in order to bridge structural cracks a sheet of brick mesh is fixed mechanically to the substrate and embedded within the undercoat layer. If the substrate has been prepared with a waterproofer, contact the technical services department of the supplier for advice.

FINISHING LAYER

4.3. Finishing layer — *UNILIT 65F*

When the finish will be wetted on a regular basis (douche cabin, bath, sauna, hammam, etc.), a finishing layer is applied onto the undercoat layer with a natural hydraulic lime binder premixed with a suitable well-graded sand, water repellent additives, natural pigments and, where necessary, enriched with pozzolanic additives to ensure the consistent hydraulicity of the finished product. No addition of clinker, cements or any other synthetic additives are permitted. The maximum granulation size will be 0,7 mm. The render system is waterproof, but at the same time permeable to water vapour.





The colour of the finishing layer is selected by the architect. A sample will be made available for inspection prior to manufacture.

Properties:

Granular sizing	max. 0,7 mm
Specific gravity	1400 kg/m³
Modulus of Young	6130 N/mm²
Compressive strength	4 N/mm² after 60 days
	5 N/mm² after 90 days
Tensile strength	0,5 N/mm²
Moisture diffusion resistance (μ)	10
Thermal conduction coefficient (λ)	0,30 W/mK
pH-value	> 10,5
Fire resistance classification	Class A1 (non combustible)
Consumption	~ 5 kg/m²
Packing	powder in bags of 30 kg
Colour	natural beige

Application:

The mortar is mixed with clean water at a ratio of 5 litres of water to a bag of 30 kg ready mixed natural hydraulic lime powder. Mixing is undertaken with a slow speed electric paddle for a period of 3 to 5 minutes. A creamy workable mortar is obtained, which has approximately 2 hours of open time.
3 to 4 days after the application of the water-repellent undercoat layer, possibly longer in the case of a non water-repellent undercoat layer, the moment itself being dependent on the weather conditions, the finishing layer is applied in 2 passes, fresh on fresh, at a total thickness of about 5 mm and consequently finished according to the approved sample (sponged, flattened and/or polished with a trowel, etc.).

For the protection of the finishing layer and in order to render the tadelakt finish completely watertight, the tadelakt finish will be, with the exception of a hammam and/or steam cabin, treated with beeswax after at least 3 weeks. A first layer of bees wax is applied till complete saturation of the substrate is achieved. A second layer is applied for maintenance. This treatment is best repeated each 6 months. In the case of a hammam and/or steam cabin the surface is finished afterwards with a lukewarm mix of Marseille soap and water, instead. Flakes from the soap block are diluted in a half bucket of warm water. After 24 hours, when the mix has become somewhat gelatinous, add again at least half a bucket of warm water and stir well. The solution is smeared till saturation of the surface (by taking off all of the

water remains). When finished, here also beeswax has to be used for protection, treatment that has to be repeated every 4 or 6 months.

Our advice and information are given in good faith and depending on the latest developments of our products. We guarantee the consistent quality of our products, but do not accept any liability concerning their application. In any case, we do recommend to consider the type of substrate and the climatic conditions before applying our products or to apply a test surface in order to analyse the suitability of the product for the given substrate.
In case of doubt regarding the substrate, consult our technical service department.