

Multipor ExSal Therm Renovating and insulating damp and salt-contaminated masonry





Damp and salt-contaminated masonry

A common construction defect

Older buildings often lack horizontal or vertical moisture barriers, which means that rising or penetrating moisture from the ground is a frequent problem. If the soil is also contaminated with salt, these salts dissolve over time. They penetrate the masonry with the moisture. As the moisture evaporates, the salts crystallise and leave white stains or fuzz (saltpetre) on the inside wall surface. Most of these salts are sulphates, nitrates and chlorides, which do not generally pose a health risk to humans, but do damage and destroy the masonry and the plaster on the inside in the medium and long term.

Refurbishment with Multipor ExSal Therm

In order to eliminate these unsightly stains and, above all, to protect the building from moisture in the long term, masonry renovation is required. Where conventional systems were previously used, which usually required the masonry to be dried out from the outside at great expense, renovations can now be carried out faster, easier and much more durable with Multipor ExSal Therm thanks to a significantly longer renovation cycle. The highlight: the masonry is thermally insulated at the same time.

Damaged walls

It is easy to recognise whether masonry should be renovated with Multipor ExSal Therm. Damage is indicated by damp patches on the wall and white spots or fluff (saltpetre) that has bloomed on the wall surface.

Examples of defective walls:













How Multipor ExSal Therm works

The ecological and sustainable Multipor ExSal Therm renovation system consists of a special mineral insulation board (desalination board), a specially adapted adhesive and reinforcing mortar as well as finishing plasters and reinforcing mesh. When fully bonded to the affected wall, moisture and salts penetrate the board. The moisture is transferred to the panel surface via the "breathability" of the panel and evaporates via the usual room ventilation. The salts remain in the countless pores of the panel and crystallise there. The wall surface remains dry and the applied plaster remains intact in the long term.





Principle sketch Multipor ExSal Therm



Multipor ExSal Therm M2 (desalination panels)



Multipor FIX X730 (ExSal Therm lightweight mortar)





z. e.g. Multipor FINISH GP820 (fine lime plaster)



Thermal insulation included

Due to its composition and structure, the ExSal Therm desalination panel has excellent thermal insulation properties. It ensures that the so-called U-value of the wall is reduced. This means that less heat is lost through the wall, which in turn means that less energy is required to heat the room. The wall is therefore not only renovated, but also directly insulated - an enormous additional benefit in times of rapidly rising energy costs.

Masonry	Thick ness [mm]	U- values [W/m²K]	Wall construction with 60 mm Multipor ExSal Therm $\lambda = 0.047$ W/(mK) $\lambda = 0.060$ W/(mK)*	
Brick λ = 0.86 W/(mK)	240	U-value before	2,33	2,33
		U-value after	0,54	0,64
	365	U-value before	1,74	1,74
		U-value after	0,50	0,58
Sand-lime brick λ = 0.99 W/(mK)	240	U-value before	2,55	2,55
		U-value after	0,55	0,65
	300	U-value before	2,21	2,21
		U-value after	0,54	0,63
Concrete $\lambda = 2.1 \text{ W/(mK)}$	250	U-value before	3,72	3,72
		U-value after	0,59	0,71

Improvement of the U-values (insulation values) through the use of Multipor ExSal Therm:

* Assumption of increased thermal conductivity as a safety margin in the event of permanent moisture ingress into the desalination plate Assumptions:

- Cellar wall against ground

- U-value before: Interior plaster: d = 20 mm (lime cement plaster)

- U-value after: existing plaster removed, levelling plaster (inside) made of ExSal Therm lightweight mortar: d = 20 mm



Substrate pre-treatment

Multipor ExSal Therm requires a sufficiently level substrate to ensure that the ExSal Therm desalination board is bonded over the entire surface and to guarantee the long-term functionality of the system in terms of building physics.

Proceed as follows:

- Remove old, crumbly and/or loose plaster
- Sweep off salt deposits/salt efflorescence ("saltpetre") from the substrate
- If necessary, scrape out masonry joints to a depth of 2 cm and fill with Multipor FIX X730 (ExSal Therm lightweight mortar)

Uneven substrates can be levelled using FIX X730 - in a single layer (up to 20 mm) or in multiple layers. FIX X730 is based on a sulphate-resistant cement and is specially designed for this type of substrate and application.

Alternatively, a so-called "pore base plaster" according to WTA can also be used as a levelling plaster. Multipor FIX X710 (classic lightweight mortar) is unsuitable for this.

Appropriate drying times for the levelling plaster layer must be planned into the work process.

Existing substrate	Measure	Recommendation		
Dry, level, fully jointed masonry without salt exposure	None	Use classic Multipor interior insulation system - Remove dust, dirt and paint from the substrate if necessary		
Uneven or loose old plaster	Equalise or remove	Levelling the substrate with FIX X730 (ExSal Therm lightweight mortar) or a sulphate- resistant porous base render		
Lime or lime-cement plaster	None (if still firmly adhering)	If necessary, remove dust, dirt and loose parts, replace in places if necessary		
Gypsum plaster	Remove	Completely remove gypsum plaster, level the substrate with FIX X730 or a sulphate- resistant porous basecoat plaster		
Old colour	Remove	Remove the paint completely (e.g. mill off, sandblast) - Level the substrate with FIX X730 or a sulphate-resistant porous base render		
Heavily soaked masonry	Sealing, draining (to the next storey)	Install horizontal or vertical waterproofing - Temporarily dry the wall surfaces to be renovated with ExSal Therm so that FIX X730 can set hydraulically		
Damaged building drainage	Repair	Replace or repair gutters, downpipes and sluices		
Salt-contaminated masonry	Remove salts	Sweep off wall surface, remove damaged, crumbly plaster, scrape out joints and fill with FIX X730; if substrate is too uneven, level surface with FIX X730		
Lightweight/drywall constructions	No suitable substrate	Not suitable for renovation with Multipor ExSal Therm		
Existing old insulation and salts/moisture (e.g. HWL panels or similar)	Removal (individual case consideration)	Consult Multipor Application T e c h n o l o g y ; remove old insulation materials, level substrate with FIX X730 or sulphate-resistant porous basecoat plaster if necessary		
Framework with interior plaster and salt exposure	Individual case consideration	Consultation with Multipor application technology		

Structure of the system



Layer	Material	Layer thickness	Consumption
levelling plaster (optional)	Multipor FIX X730 (ExSal Therm lightweight mortar)	up to 20 mm	approx. 8.0 kg/m² (10 mm each)
2 Bonding	Multipor FIX X730 (ExSal Therm lightweight mortar)	5 mm	approx. 4.0 kg/m ² for 12 mm toothed trowel
3 Insulation layer	Multipor ExSal Therm M2 (desalination panels)	60 mm	4.3 panels/m ²
4 Reinforcing layer	Multipor FIX X730 (ExSal Therm lightweight mortar)	5 mm	approx. 4.0 kg/m ² for 12 mm toothed trowel
	Multipor reinforcing mesh 4x4 mm		1.1 m²/m²
5 Finishing coat	Multipor FIX X730 (ExSal Therm lightweight mortar) or	3 mm	approx. 3.0 kg/m ²
	Multipor FINISH GP820 (fine lime plaster)	3 mm	approx. 5.0 kg/m ²
	or		
	Multipor FINISH GP830 (lime smoothing)	2 mm	approx. 2.0 kg/m ²



Processing instructions

You need:



Multipor ExSal Therm M2 desalination panels



Multipor FIX X730 (ExSal Therm lightweight mortar)

Note: Before you start working with the system, the substrate may need to be pre-treated accordingly. Please refer to the information on page 6/7.



Mix Multipor FIX X730.



Wait 5 minutes and stir again.

- Multipor reinforcing mesh
- Bucket
- Fine-toothed foxtail
- Drilling machine
- Whisk
- 12 mm toothed trowel
- Sanding board
- Smoothing trowel



The correct consistency is achieved when the mortar no longer melts.



Apply FIX X730 to the desalination plate.



FIX X730 with Comb through with a 12 mm notched trowel.



Apply FIX X730 to the entire surface of the desalination plate.



Place on the wall at a distance of 2 cm from the corner or previous panel, ...



... press and float against the corner or previous panel.



Mortar bars blur when floating in



... for full-surface bonding.



Align the first row horizontally. Butt and bed joints are not glued.



Overbinding dimension from Take into account ≥ 15 cm.



Offsets approx. Sand 30 minutes after gluing.



Sweep off sanding dust.



Apply FIX X730 with a 12 mm notched trowel to a thickness of 5 mm.



Apply reinforcing mesh with a 10 cm overlap and press down.



Embed into the reinforcement layer with a light pressure of approx. 2 mm.



Apply finishing render and then texture.

Recommend

Afterwards, apply a protective coating, e.g. based on hydrogen peroxide.

Note:

1

The work must be planned and carried out in accordance with the generally recognised rules of technology. Health and safety regulations must be observed.

Interior insulation measures require a detailed moisture analysis (hygrothermal simulation in accordance with DIN 4108-3). Corresponding certificates can be requested from the Multipor customer information centre.



Take a look at our processing video. Please scan the QR code.

Further information can be found at: www.xella.de/exsaltherm

Xella Germany GmbH

Xella customer

information & 0800 5

235665 (freecall) @ info@xella.com



Note: This brochure was published by Xella Deutschland GmbH. We provide advice and information in our publications to the best of our knowledge and according to the latest state of the art at the t i m e of going to press.

As the legal regulations and provisions are s u b j e c t to change, the information provided is not legally binding. It is necessary to check the applicable provisions in each individual case.

Information on data protection and the handling of your data can b e f o u n d $\,$ at www.multipor.de/datenschutzinformation.



Multipor is a registered trademark of the Xella Group.