

# xella



Multipor interior insulation system WI

## Interior insulation

**multipor**



Gardecaree, Potsdam

# Multipor interior insulation system: mineral and ecological interior insulation

It is not uncommon for older buildings to have poor to inadequate thermal insulation. Insufficient thermal insulation of external building components encourages mould growth and leads to increased energy consumption in winter and high indoor temperatures in summer. In most cases, this results in an uncomfortable indoor climate and, in the worst case, can cause lead to considerable structural damage. For buildings whose external walls cannot be insulated from the outside, for example because the façade is a listed building, internal insulation is often the only and correct solution.

For rooms that are only used occasionally, such as churches or public buildings, Multipor internal wall insulation enables

rapid heating of the room air. Internal insulation with Multipor mineral insulation boards can significantly improve thermal insulation and therefore comfort inside buildings.

Another advantage of the Multipor interior insulation system is the diffu

sion openness and capillary activity. The Multipor mineral insulation board regulates the moisture balance of the living space in a natural way. Increased room humidity is temporarily stored and released again when the room air becomes drier. This ensures a balanced indoor climate.



Gardecaree, Potsdam

# Advantages at a glance



## Permeable and capillary-active

The Multipor interior insulation system is permeable and capillary-active. Moisture is temporarily stored in the Multipor mineral insulation board and then released back into the room air. This ensures constant moisture transport and prevents moisture accumulation, which can lead to mould growth.



## Quick, easy and safe processing

The Multipor interior insulation system is characterised by quick, easy and safe processing. Thanks to its low weight and simple processing, the system is quick to install and easy to adapt to the spatial conditions. The obligatory full-surface bonding eliminates the need for additional dowelling and ensures that the interior insulation system functions reliably.



## Healthy living

The centrepiece of the Multipor interior insulation system, the Multipor TIPwall M4 mineral insulation board, is free from harmful and allergenic substances such as formaldehyde thanks to its mineral and natural raw materials. It has been certified by the Cologne ecoInstitut and awarded the top rating A+ as well as the "natureplus" environmental seal.



## Value retention

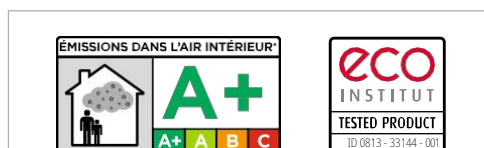
By using the Multipor interior insulation system, the value of the property can be maintained and even increased. Old building fabric is quickly, easily and safely brought up to the latest energy standard. This eliminates the cost of scaffolding the building and the rooms can be insulated from the inside gradually, depending on availability. This saves heating costs and improves the quality of living.



## Ecological insulation system

Manufactured on the basis of the natural raw materials lime, sand, cement and water, Multipor mineral insulation boards are completely harmless to building biology and health both during processing and throughout the entire utilisation phase.

This is confirmed by the Institute for Building and the Environment (IBU), the "natureplus" environmental seal and the certificate and A+ classification from the Cologne eco-Institut.





# Perfectly harmonised system components



## Multipor mineral insulation board TIPwall M4

- High thermal insulation with  $\lambda = 0.042 \text{ W/(mK)}$  from 50 cm panel thickness
- Building material class A1 - non-combustible



## Multipor lightweight mortar (FIX X710)

- High adhesive strength
- Open to diffusion
- Machine-compatible



## Multipor tool

We offer customised tools for optimum application of the Multipor interior insulation system.

Further information is available at:  
[www.multipor-werkzeugshop.de](http://www.multipor-werkzeugshop.de)

## Further system enhancements:

- Multipor reinforcing mesh
- Multipor hemp felt insulation strips
- Multipor insulating wedge
- Multipor reveal board
- Multipor fine lime plaster
- Multipor lime smoothing
- Multipor interior silicate paint
- Multipor filling mortar

Table 1: Product characteristics Multipor interior insulation system WI

	Multipor mineral insulation board TIPwall M4	Multipor lightweight mortar (FIX X710)
Rules and regulations	European Technical Assessment ETA05/0093	according to EN 9981
Dry bulk density	85 - 95 kg/m <sup>3</sup>	approx. 770 kg/m <sup>3</sup>
Compressive strength	≥ 200 kPa	CS II; 1.5 - 5.0 N/mm <sup>2</sup>
Thermal conductivity Rated value	$\lambda = 0.042 \text{ W/(mK)}$	$\lambda_{10, \text{dry, mat}} = 0.18 \text{ W/(mK)}$
Water vapour diffusion resistance coefficient	$\mu = 2$	$\mu \leq 10$
Building material class	A1; non-combustible (melting point > 1,200°C)	A2s1, d0; non-flammable
Dimensions / delivery quantity	600 x 390 mm d = 50 mm, 60 - 200 mm (from 60 mm in 20 mm increments) (> 200 mm two-layer installation possible)	20 kg/bag

# Good reasons in favour of the Multipor interior insulation system

Interior insulation with a Multipor interior insulation system offers far more than just structural cosmetics:

### ■ Thermal insulation

Multipor mineral insulation boards consist of 100 % homogeneous material and have a thermal conductivity of  $\lambda = 0.042 \text{ W/(mK)}$  from a panel thickness of 60 mm on. This enables excellent insulation values to be achieved. Minimum thermal insulation and heating cost savings as well as the current energy requirements of the GEG can be easily met.

### ■ Fire protection

The non-combustible Multipor mineral insulation boards of building material class A1 and the corresponding Multipor lightweight mortar ensure absolute safety in the event of fire.

Even at the highest temperatures, Multipor does not emit toxic gases or smoke - a real advantage when searching for escape routes and carrying out vital rescue operations in the event of a fire.

### ■ Moisture protection

Interior insulation with the Multipor interior insulation system improves well-being inside the building and counteracts mould problems. Thanks to its diffusion openness, moisture is temporarily stored and released back into the room air.

### ■ Increase in value

Correctly planned and executed refurbishment protects the building fabric and prevents structural damage. The time and resale value of a

property is sustainably increased by a proper interior insulation measure.

■ Internal insulation measures can be carried out very economically, as no scaffolding has to be provided and individual rooms or parts of the building can be insulated independently of each other.

### ■ Services

Multipor offers special services such as hygrothermal simulations and the non-destructive measurement of the U value of existing walls for the economic planning of the desired insulation measure. Talk to your Multipor consultant about this!

Table 2: Multipor interior insulation system WI - areas of application and requirements	
Areas of application	<ul style="list-style-type: none"> <li>■ Old and new building</li> <li>■ Renovation of old buildings</li> <li>■ Listed buildings</li> <li>■ Schools, kindergartens, churches</li> <li>■ Hospitals, social institutions</li> <li>■ Office buildings that need to be refurbished</li> </ul>
Requirements for the Multipor interior insulation system WI	<ul style="list-style-type: none"> <li>■ Preservation of the façade, e.g. exposed brickwork</li> <li>■ Optimum thermal insulation despite listed façade</li> <li>■ Rapid heating of interior spaces, e.g. in schools, churches, office buildings, etc.</li> <li>■ Healthy indoor climate, without pollutants and vapours</li> <li>■ Used when external insulation is not technically or legally possible, z. e.g. boundary development, property boundaries</li> </ul>

# Processing instructions



1 Mixing Multipor lightweight mortar with Multipor hemp felt insulation strips



2 Mixing Multipor lightweight mortar with Multipor hemp felt insulation strips



3 Cutting Multipor mineral insulation board



4 Apply lightweight mortar



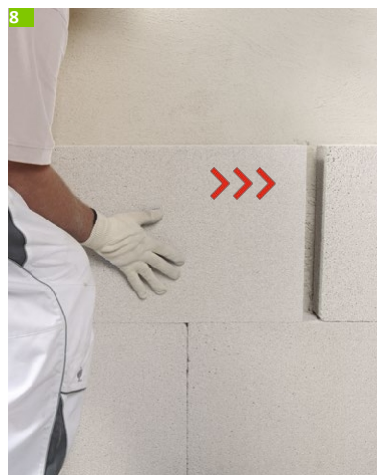
5 Comb through light mortar



6 Full-surface mortar on mineral insulation board



7 Attach

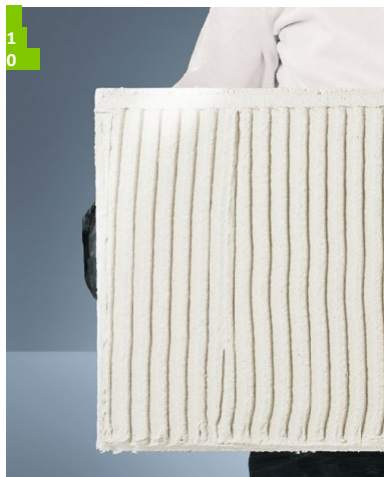


8 Slide in

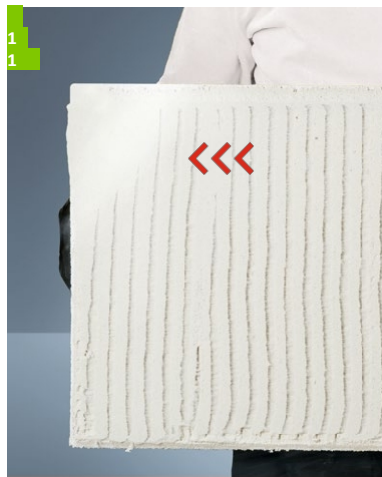


9 Butt joint and bed joint tightly butted

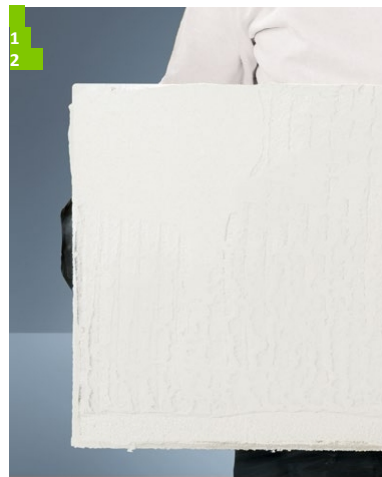




10 Webs made of Multipor lightweight mortar



11 Bridges blur to ...



12 ... full-surface bonding



13 Sand down unevenness, sweep off sanding dust and prime if necessary



14 Prepare curves



15 Apply the reinforcement layer



16 Embed mesh



17 Apply finishing render



18 Felt off finishing render if necessary

# Surface design

## Coatings

The surface finish of the Multipor interior insulation system can be achieved in a variety of ways - plastering, painting or tiling are all possible. Clay plasters and drywall panels are also a solution and offer great creative scope for design and room-side finishing.

## Finishing plasters on the reinforcement layer

The final coat of Multipor lightweight mortar (FIX X710) or Multipor fine lime plaster (FINISH GP820) is applied in 2 to 3 layers.

3 mm layer thickness and felted off in good time. Multipor Lime Smooth (FINISH GP830) is suitable as a finishing coat on the reinforcement layer to smooth the surface (Q3).

## Colour coatings

The colour design allows for numerous variations. We generally recommend diffusion-open silicate interior wall paints in accordance with DIN 18363 in order to maintain the functionality of the interior insulation system.

## The following applies when applying tiles to the Multipor internal insulation system:

- Tile weight including adhesive max. 25 kg/m<sup>2</sup>
- Insulation dowel with disc diameter ≥ 60 mm
- Dowel consumption: approx. 4 pieces/m<sup>2</sup> fresh in fresh through the reinforcement layer



Multipor lime smoothing compound (FINISH GP830) Applying the finishing render



Felting plaster



Structuring with a trowel



Multipor interior silicate paint



Application of Multipor interior silicate paint



Painting the Multipor interior silicate paint



Inserting the dowel through the fabric



# Additional applications



## Rooms with particular moisture exposure

According to DIN 41083, domestic kitchens and bathrooms as well as living or office rooms are generally classed as "dry rooms". With normal use, the average relative humidity in these rooms is not significantly higher than in living rooms due to heating and ventilation, so that additional sealing is usually not required. In areas exposed to splashing water - for example behind bathtubs or shower cubicles - a liquid sealant must be applied to the existing layer of reinforcing plaster in accordance with the recognised rules of technology and the current ZDB data sheet. Additional information can be found in the current version of the ZDB data sheet "Waterproofing in combination with tiles and boards".

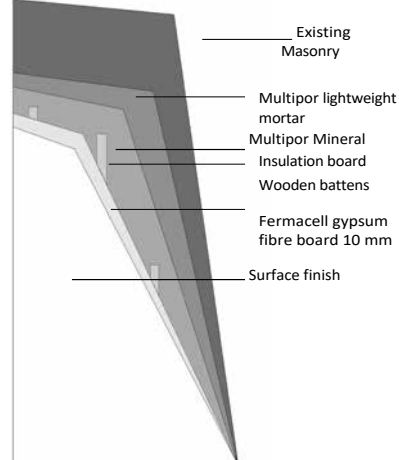
## Drywall panels

When designing surfaces with drywall boards, the substructure consists of wooden battens, for example, which are fixed through the Multipor mineral insulation boards in the load-bearing substrate using appropriate dowels. First of all, steps must be made in the joint or level the bed joints with a sanding board. The drywall boards, for example Fermacell gypsum fibre boards or Powerpanel H<sub>2</sub>O, can then be attached to the wooden battens.

### Advantages

- Internal insulation system with fastening options for very high loads
- High energy saving potential through insulation with Multipor = 0.042 W/(mK)
- Fastening options in Fermacell dry plaster: 30 kg per dowel for a 10 mm Fermacell gypsum fibreboard
- "Flexible" installation level between Fermacell and Multipor
- Use of standard drywall solutions for sockets and switches
- Healthy living and regulates the indoor climate
- Non-flammable
- Design without elaborate vapour barrier

### System structure



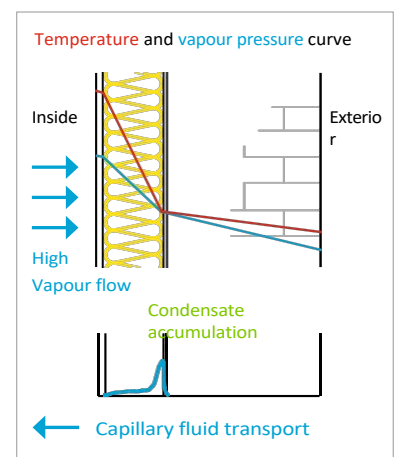
# Permeable and capillary-active



Many insulation systems work with vapour barriers made of plastic films. Such vapour barriers are not used in the Multipor interior insulation system. The purely mineral components of the system allow a vapour diffusion flow into the wall. They absorb any moisture and transport it back to the interior surface by capillary action.

On the one hand, this allows the moisture level in the wall to be permanently reduced to an uncritical level.

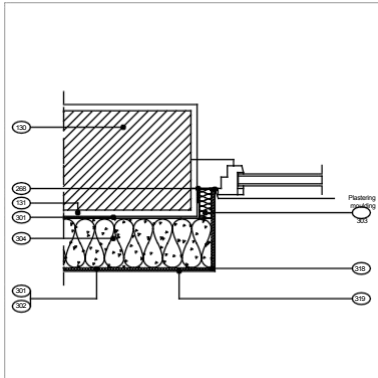
The wall remains open to diffusion and can therefore both absorb moisture peaks from the room air and dry out increased moisture loads from the building structure inwards. These system properties ensure that rooms insulated with Multipor remain permanently mould-free. This is confirmed by our many years of experience and recently tested 16 year old reference objects.



Principle of how diffusion-open interior insulation works

# Design examples

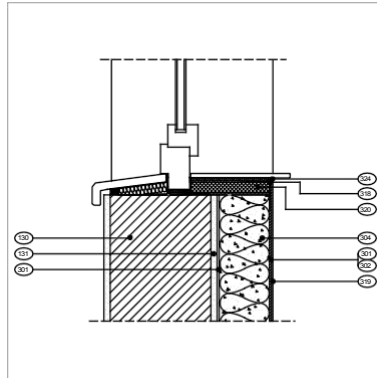
**Window reveal connection**



Interior insulation

16002

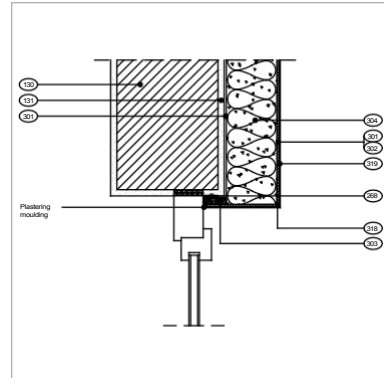
**Window sill connection**



Interior insulation

16003

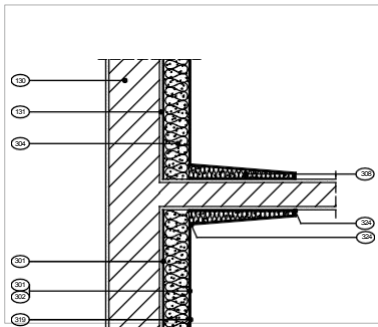
**Window lintel connection**



Interior insulation

16004

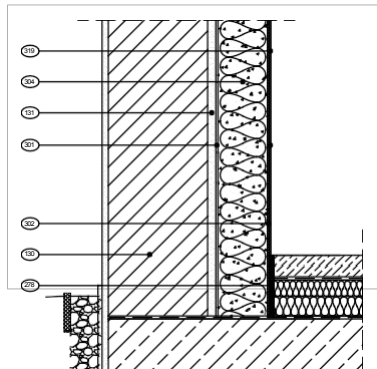
**Connection to inner wall**



Interior insulation

16006

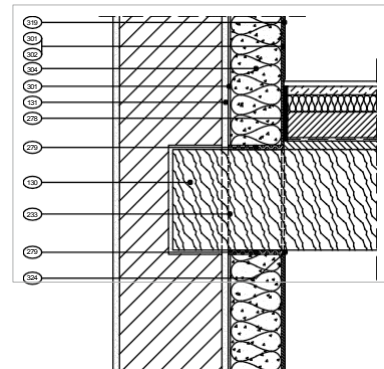
**Connection to floor slab**



Interior insulation

16007

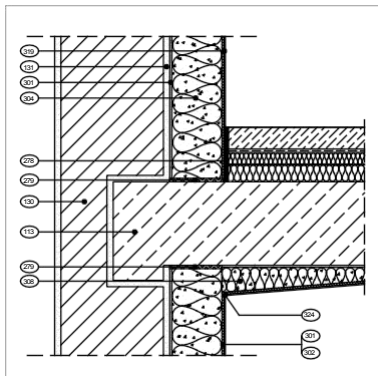
**Connection to wooden beam ceiling**



Interior insulation

16012

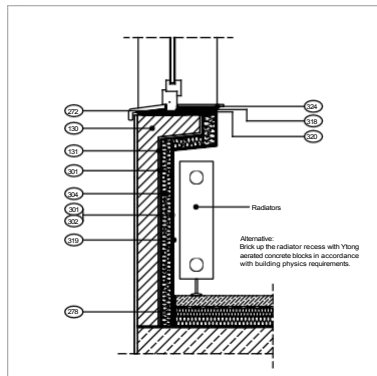
**Connection to solid ceiling**



Interior insulation

16009

**Radiator niche**



Interior insulation

16008

- 113 Reinforced concrete ceiling
- 130 Masonry present
- 131 Interior plaster available (or levelling plaster)
- 233 Wooden beams
- 268 Window connection film
- 272 Elastic sealing tape
- 278 Screed edge insulation strips
- 279 Multipor hemp felt insulation strips
- 301 Multipor lightweight mortar
- 302 Multipor reinforcing mesh 4 x 4 mm
- 303 Multipor Reveal
- 304 Multipor TIPwall M4
- 308 Multipor Wedge
- 318 Fabric corner angle
- 319 System-compliant interior plaster
- 320 Pressure-resistant insulation material
- 324 Trowel cut

THESE AND OTHER DESIGN EXAMPLES CAN BE FOUND AT  
[www.multipor.de/konstruktionsbeispiele](http://www.multipor.de/konstruktionsbeispiele)



# Half-timbered building and Multipor interior insulation system with clay



Half-timbered buildings can be upgraded particularly well with the Multipor WI clay insulation system. The Multipor clay system was also developed especially for this application, consisting of Multipor TIPwall M4 mineral insulation boards and

Multipor clay mortar (FIX I900). Both materials complement each other perfectly thanks to their physical building properties. The diffusion-resistant insulation system compensates for unwanted condensation and prevents moisture damage in the long term.

The result: the best indoor climate and protection of the historic wall construction, which is worth preserving. In addition, the mostly historic facades of the buildings are preserved - the requirements for thermal insulation and living comfort are met in an environmentally friendly manner.



Complete core refurbishment with the Multipor WI clay interior insulation system



High-quality surface finish with Multipor Clay paint



# References speak louder than words

## ➤ Thomasblock (former Donnerschwee barracks), Oldenburg



### **Stylish and energy-efficient restoration**

Converted into a residential neighbourhood and thus carefully renovated



High-quality surface finish

the former Donner schwee barracks. By using the Multipor WI interior insulation system, it was possible to preserve the listed buildings.



Integration of old elements

The building is designed in such a way that the technical specifications can be implemented and the required structural thermal insulation complied with.



Historic and valuable building fabric preserved



## ➤ Renthof, Kassel



**Listed façade on the outside, energy-saving thermal insulation on the inside** The historically valuable building is part of the old town centre of

Kassel - with a fantastic location directly on the Fulda. The building, which was permanently without insulation, was converted into a modern building under strict monument protection regulations,

functional office and commercial building. The task was to provide energy-saving internal thermal insulation for the exterior walls without damaging the historic building fabric.



Existing portals newly integrated



Old elements preserved



New components could be integrated



Latest issue also on the web!

# The insulation book online

Always available, always up to date!



 [www.technik.xella.de/daemmbuch](http://www.technik.xella.de/daemmbuch)

You can also find the Multipor insulation book with all the information on our mineral insulation systems online. An optimised search function for all relevant content, such as our construction details, as well as the integration of interactive content make the website the online compendium of knowledge on all aspects of insulating with Multipor.

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