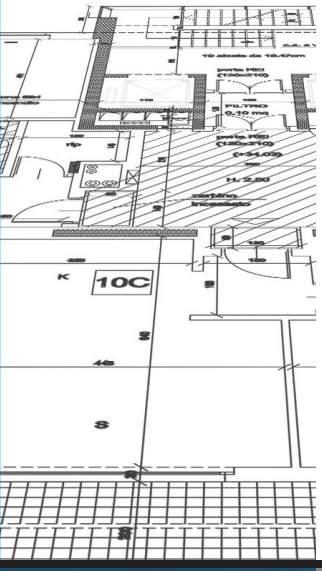
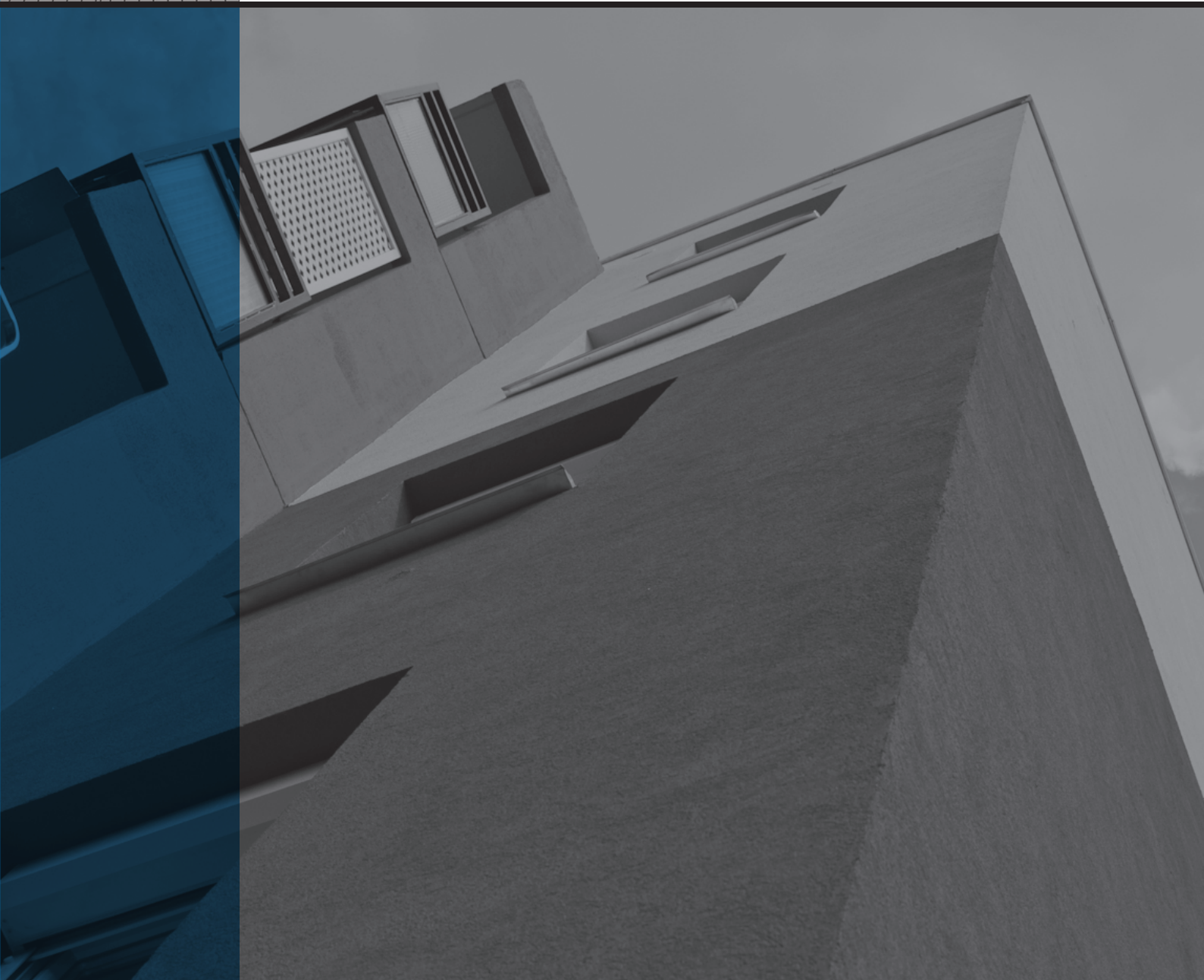
ARCHITECTURAL SOLUTIONS

L

# THERMAL INSULATION

DESIGN GUIDE



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# L specifications of THERMAL INSULATION

## L.1 PREPARATION OF THE SUBSTRATE

### L.1.1 INTRODUCTION
### Procedure

Thermal insulation systems must be installed perfectly and strictly according to technical specifications.
As a general rule, the following guidelines must always be followed:

- the installation surfaces must be flat, mechanically strong, free of any areas at risk of detachment, perfectly clean and free of all traces of dust, dirt, grease, stripping compound and any other substance which may compromise the bond of the adhesive to the substrate.
- thermal insulation systems must never be applied on masonry suffering from capillary rising damp;
- strictly adhere to the curing times of each product applied;
- do not apply the products if the temperature is lower than+5°C or higher than +35°C.
- protect the system with suitable accessory items (see section ***L.6***).

## L.1.2 OLD STONE OR BRICK MASONRY BUILDINGS
## Procedure

The consistency of the stone blocks and the condition of the surface of the bricks on buildings with an exposed brick or stone finish (not rendered) must be checked, and all flaking or delaminated portions must be eliminated.
For particularly porous stone with light surface dust, apply a coat of one of the following primers:

- **Primer 3296** acrylic polymer primer in water dispersion (see section ***H.3.1***);
- **Malech** water-based acrylic primer for smoothing out surfaces and promoting adhesion (see section ***L.5.1.1***);

If the installation joints between the blocks or bricks have been eroded by the leaching action of rain, they must be pointed using a mortar with suitable elastic-mechanical properties, such as:

- **Mape-Antique Intonaco NHL** transpirant natural hydraulic lime and eco-pozzolan rendering mortar (see section ***H.8.1***).

If the wall is particularly out of plumb or uneven due to the type of construction materials used (such as rough-cut or rounded stone blocks), the surface will have to be levelled and/or made vertical by rendering the surface using mortar with excellent adhesion properties and a low modulus of elasticity, such as:

- **Mape-Antique Intonaco NHL** transpirant natural hydraulic lime and eco-pozzolan rendering mortar (see section ***H.8.1***).

## L.1.3 NEW BUILDINGS WITH UN-RENDERED MASONRY
## Procedure

On new buildings made from un-rendered brick or block masonry, check the flatness of the walls with a 4 metre straightedge and remove all excess mortar from between the rows of bricks and/or floor slabs, stringcourses, window ledges and all other protruding features. The maximum acceptable out-of-plumb is 5 mm. If the walls are more out-of-plumb than 5 mm, render the wall using a product with excellent adhesion to the substrate, low modulus of elasticity and high tensile strength, such as:

- **Mape-Antique Intonaco NHL** transpirant natural hydraulic lime and eco-pozzolan rendering mortar (see section ***H.8.1***).

## L.1.4 BUILDINGS WITH RENDERED MASONRY
## Procedure

Before bonding insulating panels on old buildings made from either rendered masonry or rendered reinforced concrete, check the render to make sure it is well attached to the substrate. Any loose portions must be demolished. Repair the areas where the render has been demolished using latex-modified cementitious mortar with excellent adhesion to the substrate and high tensile strength, such as:

- **Nivoplan** levelling mortar for walls + **Planicrete** synthetic latex rubber to increase the strength and adhesion of cementitious mortar;
- **Planitop Fast 330** rapid-setting, fibre-reinforced, thixotropic cementitious mortar, applied in layers from 3 to 30 mm thick to level internal and external vertical and horizontal substrates (see section ***A.1.3.3.2***).

Also, before bonding the panels, the consistency of the surface of the render must be checked. If the measured mechanical strength is low, it is generally a good rule to remove any inconsistent areas and then treat the surface with:

- **Malech** water-based acrylic primer for smoothing surfaces and promoting adhesion (see section ***L.5.1.1***).
- On painted render or on render with a paste-type surface coating, make sure it is well bonded to the substrate;
- Remove any areas which are either deteriorated and/or flaking with a thorough brushing and wash the entire surface with high-pressure water jets.

On façades finished with ceramic or glass mosaic or klinker tiles, make sure they are well bonded to the substrate. Areas which are detached must be removed and repaired using:

- **Nivoplan** levelling mortar for walls + **Planicrete** synthetic latex rubber to increase the strength and adhesion of cementitious mortar;
- **Planitop Fast 330** rapid-setting, fibre-reinforced, thixotropic cementitious mortar, applied in layers from 3 to 30 mm thick to level internal and external vertical and horizontal substrates (see section ***A.1.3.3.2***).

## L.1.5 BUILDINGS WITH CRACKED MASONRY
## Procedure

On cracked walls, the first step is to ascertain the cause of the cracks to check if they are stable or whether they are due to ongoing movement of the building. In the latter case, before installing a thermal insulation system, work will have to be carried out on the building to impede any further movements and, therefore, stop the cracks propagating into the panels, the skimming layer and the finishing coat of the external thermal insulation system.
If the cracks are stable, and any movements are due to the inevitable thermo-hygrometric gradients, the facing walls of stone or brick masonry buildings may be rebuilt using the tacking technique or, if there is only slight cracking, they may be grouted using the same adhesive used to bond the insulating panels, such as:

- **Adesilex FIS13** adhesive in water dispersion for thermal insulation systems, mixed with CEM II/A-LL 42.5R cement in compliance with UNI EN 197/1 standards at a ratio of 1/0.7 (see section ***L.3.1.1***);
- **Mapetherm AR1** one-component cementitious adhesive and smoothing compound for thermal insulation systems (see section ***L.3.1.2***);
- **Mapetherm AR1 GG** one-component, large-grained cementitious adhesive and smoothing compound for thermal insulation systems (see section ***L.3.1.3***).

The same technique may be used to grout cracks in render caused by hygrometric shrinkage and/or high absorption of water by the substrate when the render was applied.
In new buildings, where it is possible to install the thermal insulation system as soon as construction work has been completed, there is a high risk of cracks, which form at the reinforced concrete framework/buffer-wall interface after installing the thermal insulation system, provoking cracks and localised detachment in the skimming and finishing layers. To minimise this risk, when applying the render, embed a strip of mesh to hold the render and protect these areas.

## L.1.6 BUILDINGS WITH CONCRETE WALLS
### Procedure

Clean new concrete walls with high-pressure water jets, adding special additives if necessary to remove all traces of stripping compound from the surface.
Clean the surface of existing structures thoroughly to remove all loose parts, surface laitance and all traces of dust, oil, grease and dirt in general.
If the concrete is deteriorated and there are areas with corroded reinforcement rods and delaminated and/or detached concrete, repair these areas as follows:

- remove the deteriorated concrete;
- clean the reinforcement rods with a stiff brush, by sand-blasting or hydro-blasting;
- protect the rods by applying a cementitious passivating mortar, such as:
- **Mapefer 1K** one-component, anti-corrosion, re-alkalising cementitious mortar (see section ***F.2.1.1***);
- reconstruct the area using one of the following shrinkage-compensating mortars:
- **Mapegrout T40** one-component, normal-setting, shrinkage-compensating, class R3 thixotropic mortar for layers from 1 to 3.5 cm thick (see section ***F.3.2.2***);
- **Mapegrout BM** two-component, normal-setting, shrinkage-compensating, class R4 thixotropic mortar with a low modulus of elasticity (22 Gpa) for layers from 1 to 3.5 cm thick (see section ***F.3.3.1***);
- **Planitop Smooth & Repair** one-component, rapid-setting, shrinkage-compensating, class R2 thixotropic mortar for layers from 0.3 to 4 cm thick (see section ***F.3.1.1***).

After reconstructing the area, wait until the substrate is fully cured before installing the thermal insulation system.

## L.2 PREPARATION WORK PRIOR TO INSTALLING THERMAL INSULATION SYSTEMS

### L.2.1 INTRODUCTION

#### Procedure

Thermal insulation systems must be installed specifically according to technical specifications.
As a general rule, the following guidelines must always be followed:

- substrates must be dry, solid, clean and flat;
- make sure there is never any contact between the system and the ground or flooring (see section ***L.6***);
- when applying the starter profiles, use a spirit level to make sure they are perfectly horizontal;
- the insulating layer must be continuous with no interruptions to prevent the formation of thermal bridges;
- where the continuity of the insulating system is interrupted due to apertures or protruding features (windows, window ledges, etc.), including elements which pass through the wall or insulating layer (pipes, aeration outlets, fasteners, etc.), use a suitable sealing system or suitable accessory items to prevent rain penetrating under the insulating layer and deteriorating or detaching the insulation (see section ***L.6***);
- local climate and local micro-climate of the area where the building is localised are vitally important when choosing the most suitable materials (type of panel, type of finishing product and anti-mould products);
- strictly adhere to the curing times of each product applied;
- do not apply the products if the temperature is lower than +5°C or higher than +35°C;
- reinforcement mesh must be treated with special primer to make it resistant to the alkalinity of the smoothing compound, must weigh approximately 150 g/m² and must be tested according to ETAG 004 European standards;
- finishing treatments must only be applied when the smoothing layer is fully cured and perfectly dry;
- substrates must be prepared by applying a coat of solvent-free primer;
- it is fundamental that the thermal insulation system is well-protected against bad weather using a thick, water-repellent paste coating permeable to water vapour;
- the colour of the finishing coat must have a light reflection index of at least 20%. The latter precaution is due to the temperatures to which the façades of buildings are subjected when they are exposed to direct sunlight, which during the summer generates temperatures so high that the operating conditions of the thermal insulation system are more severe.

## L.2 PREPARATION WORK PRIOR TO INSTALLING THERMAL INSULATION SYSTEMS

### L.2.2 APPLICATION OF STARTER PROFILES

#### Procedure

Before installing the insulating panels, to prevent any contact between the thermal insulation system and the ground, starter profiles are fastened in position, using a spirit level (see section ***L.6***) to make sure they are perfectly horizontal, with:

- **Mapetherm BA** aluminium starter profiles with drip channels, fastened in position with expansion plugs, such as:
- **Mapetherm FIX B** nylon stud fasteners with zinc/chrome-plated steel screws.

## L.3.1 Bond using two-component paste adhesive Procedure

**Application**

Whatever type of adhesive is used, make sure the surface of the panels is not too smooth (e.g. XPS panels with a surface "skin") or dusty (e.g. mineral, mineral wool or cork panels) before bonding them in place, otherwise good adhesion to the substrate will not be guaranteed.

If the substrate is flat, bond the panels in place by spreading an even layer of adhesive over the entire back face of the insulating panel.

If the substrate is not flat, we recommend applying a layer of render to level the surface using **Mape-Antique Intonaco NHL** (see section ***H.8.1***), or applying the adhesive in beads and spots so that there is contact with at least 60% of the bonding surface.

Install the panels starting from the bottom working upwards. Place the longest side horizontally in the **Mapetherm BA** starter profiles (see section ***L.2.2*** *and* ***L.6***), and stagger the vertical joints between the panels so that, in correspondence with corners and edges, the pattern formed by the panels is similar to that of a brick wall.

Around apertures for doors, windows, etc., a whole panel cut to the shape of the corners must be used to prevent cracks forming in correspondence with the corners, where the stresses in the system are normally concentrated.

When installing the panels, butt them carefully together without leaving gaps between adjacent panels and between the panels below. This will prevent the adhesive seeping into the joints between the panels and forming a thermal bridge due to the higher thermal conductivity of the adhesive. After applying the panels, if the vertical joints between the panels are wider than 2 mm, fill the gaps with insulating material trimmed from an insulating panel.

The thickness of the adhesive should only be the amount required to cover the surface of the panel evenly and/or compensate for differences in flatness in the substrate, which must be no more than 5 mm. Use a N° 10 notched trowel to form the recommended thickness of adhesive.

In order to achieve the maximum adhesion strength, install the panels immediately after spreading the adhesive on the back of the panels to prevent a "skin" forming on the surface, especially in hot or windy weather.

To maximise the contact surface between the substrate, adhesive and panel, press down lightly on the panel with a wooden float immediately after installation.

When installing the panels, it is good practice to check their flatness with an aluminium straightedge.

Immediately after installing the panels, put strengthening elements around corners and edges, such as:

- **Mapetherm Profil** aluminium angular profiles incorporated with alkali-resistant glass fibre mesh (see section ***L.6***).

Do not fasten these elements in place with plugs or nails, bond them to the insulating panel by pressing them against the corner or edge so the excess adhesive flows through the holes in the profiles.

To prevent any part of the insulating panel being exposed externally, and prevent water, air or dust entering into the joints between the thermal insulation system and other parts or elements of the building, seal the joints using:

- **Mapefoam** closed-cell, foam polyethylene cord to calibrate the depth of the sealant (see section ***L.6***);
- **Mapeflex AC4** paintable acrylic sealant for movements when in service of up to 12.5% (see section ***E.3.2***), or with accessory items suitable for their intended use (see section ***L.6***).

**Use of safety plugs**

As an alternative to adhesive, but not as a substitution, the panels may also be fastened in place mechanically using plastic safety plugs suitable for thermal insulation systems through the hardened adhesive. As a general rule, use two plugs for each panel if the substrate shows excellent cohesion, is perfectly flat and adhesive has been applied over the entire surface of the back of the panel. If, on the other hand, the substrate is not very flat and/or the adhesive has been applied in beads and spots, use up to 6 to 8 plugs per square metre and insert them along the top of the panels. In particularly windy areas, design the layout of the safety plugs around the corners and edges of buildings according to their height.

### L.3.1.1 Bond using two-component paste adhesive

Supply and installation of a thermal insulation system installed by spreading two-component, synthetic resin paste adhesive in water dispersion with selected inert material (such as Adesilex FIS13 produced by MAPEI S.p.A.), mixed with CEM II/A-LL 42.5 R cement in compliance with UNI EN 197/1 standards at a ratio of 1/0.7 at the moment of use over the entire surface using a 10 mm notched trowel to form a layer with an average thickness of 4 mm, and in all cases sufficient to guarantee a contact surface with the substrate of at least 60%. The adhesive must have the following characteristics:

| | |
|---|---|
| Density of mix (g/cm³): | 1.7 |
| pH of mix: | 10.9 |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783-2) (μ): | 75 |
| Thermal conductivity λ (W/mK): | 0.80 |
| Adhesion to concrete (N/mm²): | |
| – in dry conditions: | 1.91 |
| – 2 days immersion +2 hours at +23°C and 50% R.H.: | 0.51 |
| – 2 days immersion +7 hours at +23°C and 50% R.H.: | 1.25 |
| Tensile strength (N/mm²): | |
| – after 28 days: | 920.12 |
| – after hygrometric cycles: | 334.68 |

Included and calculated in the price for work completed according to specification:

*– per square metre* ..... *(€/m²)*

## L.3.1.2 Bond using one-component, fine-grained powdered adhesive

Supply and installation of a thermal insulation system installed by spreading one-component, powdered cementitious adhesive with selected fine-grained sand, synthetic resins and special additives (such as **Mapetherm AR1** produced by MAPEI S.p.A.) over the entire surface using a 10 mm notched trowel to form a layer with an average thickness of 4 mm, and in all cases sufficient to guarantee a contact surface with the substrate of at least 60%. The adhesive must have the following characteristics:

| | |
|---|---|
| Density of mix (g/cm³): | 1.45 |
| pH of mix: | 13 |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783-2) (μ): | 25 |
| Thermal conductivity ☒ (W/mK): | 0.80 |
| Adhesion according to EN 12004 (N/mm²) | |
| – after 24 hours: | 0.7 |
| – after 28 days: | 2.0 |
| – after application of heat source (+70°C): | 2.7 |
| – after immersion in water: | 0.8 |
| Flexural strength (N/mm²) | |
| – after 28 days: | 4.5 |
| Compressive strength (N/mm²) | |
| – after 28 days: | 9.0 |

Included and calculated in the price for work completed according to specification:

*– per square metre* ..... *(€/m²)*

### L.3.1.3 Bond using one-component, coarse-grained powdered adhesive

Supply and installation of a thermal insulation system installed by spreading one-component, powdered cementitious adhesive with selected sand, synthetic resins and special additives (such as **Mapetherm AR1 GG** produced by MAPEI S.p.A.) over the entire surface using a 10 mm notched trowel to form a layer with an average thickness of 4 mm, and in all cases sufficient to guarantee a contact surface with the substrate of at least 60%. The adhesive must have the following characteristics:

| | |
|---|---|
| Density of mix (g/cm³): | 1.40 |
| pH of mix: | 13 |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783-2) (μ): | 25 |
| Thermal conductivity ☒ (W/mK): | 0.80 |
| Adhesion according to EN 12004 (N/mm²) | |
| – after 24 hours: | 0.8 |
| – after 28 days: | 1.2 |
| – after application of heat source (+70°C): | 0.8 |
| – after immersion in water: | 0.8 |
| Flexural strength (N/mm²) | |
| – after 28 days: | 3.0 |
| Compressive strength (N/mm²) | |
| – after 28 days: | 6.0 |

Included and calculated in the price for work completed according to specification:

*– per square metre* ..... *(€/m²)*

## L.4 APPLICATION OF REINFORCED SKIM COATS

### L.4.1 Smoothing surfaces using two-component paste adhesive Procedure

Whatever type of smoothing compound is used, make sure the surface of the panels is not too smooth (e.g. XPS panels with a surface "skin") or dusty (e.g. mineral, mineral wool or cork panels) before bonding them in place, otherwise good adhesion to the substrate will not be guaranteed.
The smoothing compound must only be applied once the adhesive is hard enough. This time also depends on the climatic conditions, and is usually after 24/48 hours.
Apply at least two coats of the smoothing compound with a steel trowel to form a layer at least 4 mm thick. Apply a first coat of smoothing compound approximately 2 mm thick, and while it is still fresh, carefully lay on sheets of glass fibre reinforcement mesh, such as:
– **Mapetherm Net** alkali-resistant glass fibre mesh, used to form reinforced smoothing compounds to repair façades or install Mapetherm thermal insulation systems.
Apply the mesh carefully and overlap each sheet by at least 10 cm.
After several hours, apply a second coat of smoothing compound approximately 2 mm thick, to form an even, homogeneous layer with the first coat, so that the mesh is completely embedded between the two coats.
Avoid forming bubbles or folds in the mesh. If they do form, do not cut the mesh to eliminate them.
Around the corners and edges of buildings, openings, etc., the reinforcement mesh must overlap the corner guards.
Apply extra reinforcement around apertures for doors, windows, etc. by placing pieces of mesh diagonally to the openings, or special pre-formed pieces suitable for the aperture, to prevent cracks developing in correspondence with the corners and edges, where the stresses in the system are normally concentrated.

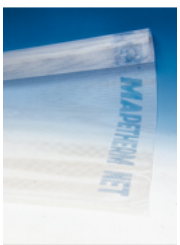
## L.4 APPLICATION OF REINFORCED SKIM COATS

### L.4.1.1 Smoothing surfaces using two-component paste adhesive

Supply and application of a reinforced smoothing layer for thermal insulation systems by spreading two-component, synthetic resin paste adhesive in water dispersion with selected inert material (such as **Adesilex FIS13** produced by MAPEI S.p.A.), mixed with CEM II/A-LL 42.5 R cement in compliance with UNI EN 197/1 standards at a ratio of 1/0.7 at the moment of use, over the entire surface using a 10 mm notched trowel to form a layer with an average thickness of 2 mm. While this layer is still fresh, carefully lay on sheets of alkali-resistant glass fibre reinforcement mesh (such as **Mapetherm Net** produced by MAPEI S.p.A.) and overlap each sheet by at least 10 cm.
The adhesive/smoothing compound must have the following characteristics:

| | |
|---|---|
| Density of mix (g/cm³): | 1.7 |
| pH of mix: | 10.9 |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783-2) (μ): | 75 |
| Thermal conductivity ☒ (W/mK): | 0.80 |
| Adhesion to concrete (N/mm²) | |
| – in dry conditions: | 1.91 |
| – 2 days immersion +2 hours at +23°C and 50% R.H.: | 0.51 |
| – 2 days immersion +7 hours at +23°C and 50% R.H.: | 1.25 |
| Tensile strength (N/mm²) | |
| – after 28 days: | 920.12 |
| – after hygrometric cycles: | 334.68 |

Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*

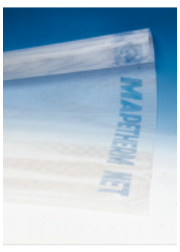



## L.4.1.2 Smoothing surfaces using one-component, fine-grained, powdered adhesive

Supply and application of a reinforced smoothing layer for thermal insulation systems by spreading one-component, powdered cementitious adhesive with selected fine-grained sand, synthetic resins and special additives (such as **Mapetherm AR1** produced by MAPEI S.p.A.) over the entire surface using a 10 mm notched trowel to form a layer with an average thickness of 2 mm. While this layer is still fresh, carefully lay on sheets of alkali-resistant glass fibre reinforcement mesh (such as **Mapetherm Net** produced by MAPEI S.p.A.) and overlap each sheet by at least 10 cm.
The adhesive/skimming compound must have the following characteristics:

| | |
|---|---|
| Density of mix (g/cm³): | 1.45 |
| pH of mix: | 13 |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783-2) (μ): | 25 |
| Thermal conductivity ☒ (W/mK): | 0.80 |
| Adhesion according to EN 12004 (N/mm²) | |
| – after 24 hours: | 0.7 |
| – after 28 days: | 2.0 |
| – after application of heat source (+70°C): | 2.7 |
| – after immersion in water: | 0.8 |
| Flexural strength (N/mm²) | |
| – after 28 days: | 4.5 |
| Compressive strength (N/mm²) | |
| – after 28 days: | 9.0 |

Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*

### L.4.1.3 Smoothing surfaces using one-component, coarse-grained, powdered adhesive

Supply and application of a reinforced smoothing layer for thermal insulation systems by spreading one-component, powdered cementitious adhesive with selected sand, synthetic resins and special additives (such as **Mapetherm AR1 GG** produced by MAPEI S.p.A.) over the entire surface using a 10 mm notched trowel to form a layer with an average thickness of 2 mm. While this layer is still fresh, carefully install sheets of alkali-resistant glass fibre reinforcement mesh (such as **Mapetherm Net** produced by MAPEI S.p.A.) and overlap each sheet by at least 10 cm.
The adhesive/smoothing compound must have the following characteristics:

| | |
|---|---|
| Density of mix (g/cm³): | 1.40 |
| pH of mix: | 13 |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783-2) (μ): | 25 |
| Thermal conductivity ☒ (W/mK): | 0.80 |
| Adhesion according to EN 12004 (N/mm²) | |
| – after 24 hours: | 0.8 |
| – after 28 days: | 1.2 |
| – after application of heat source (+70°C): | 0.8 |
| – after immersion in water: | 0.8 |
| Flexural strength (N/mm²) | |
| – after 28 days: | 3.0 |
| Compressive strength (N/mm²) | |
| – after 28 days: | 6.0 |

Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*


## L.5 APPLICATION OF FINISHING CYCLES

When the surface of the smoothing layer is completely dry (after at least 14 days in good weather), prime the surface to make it uniformly absorbent and apply one of the following finishing cycles:

– acrylic cycle (see section **L.5.1**);

– siloxane cycle (see section **L.5.2**);

– silicate cycle (see section **L.5.3**).

## L.5.1 ACRYLIC CYCLES
### Procedure

Prime the surface of the substrate with a coat of **Malech** water-based acrylic primer for smoothing surfaces and promoting adhesion for old or new, well-cured substrates (see section ***L.5.1.1***) or **Quarzolite Base Coat** coloured acrylic primer (see section ***L.5.1.2***).
The day after applying the primer, complete the finishing cycle with one of the following products:

- **Quarzolite Paint** acrylic paint with micro-granular quartz for internal and external use (see section ***L.5.1.3***);
- **Quarzolite Tonachino** thick acrylic coating for internal and external use (see section ***L.5.1.4***);
- **Quarzolite Graffiato** thick, scratch-effect acrylic coating for internal and external use (see section ***L.5.1.5***);
- **Quarzolite Tonachino Plus** hygienising acrylic coating for internal and external use (see section *5.1.6*).

## L.5 APPLICATION OF FINISHING CYCLES

### L.5.1.1 Water-based acrylic primer for smoothing surfaces and promoting adhesion

Supply and application of high-penetration, micronized, acrylic resin fixing primer in water dispersion for new, well-cured substrates and old substrates which are not particularly absorbent (such as **Malech** produced by MAPEI S.p.A). Apply the primer by brush, with a roller or by spray.
The primer must have the following characteristics:

| | |
|---|---|
| Dry solids content (%): | 15 |
| Density (g/cm³): | 1.01 |
| Average theoretical consumption (kg/m²): | 0.10-0.15 |
| Drying time: | 24 hours at +20°C |
| Waiting time before painting over: | 24 hours at +20°C |

Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*

## L.5.1.2 Coloured acrylic primer

Supply and application of smooth, coloured, acrylic resin primer with high filling properties in water dispersion with micro-granular quartz and selected fillers (such as **Quarzolite Base Coat** produced by MAPEI S.p.A). Apply at least one coat of primer by brush, with a roller or by spray.
The primer must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Appearance: | thick liquid |
| Viscosity of product (mPa s): | 17,000 ± 1,000 |
| Dry solids content (%): | 65 ± 2 |
| Density (g/cm³): | 1.68 ± 0.02 |
| Consumption (kg/m²): | 0.3-0.5 per coat |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783) (μ): | 428 |
| Resistance to the passage of vapour of a 0.15 mm thick dry layer $S_D$ (m) (UNI EN ISO 7783): | 0.06 |
| Capillary action water absorption coefficient $W_{24}$ [kg/(m²·h$^{0.5}$)] (UNI EN 1062-3): | 0.53 |

Included and calculated in the price for application according to specification:

*– per square metre* ..... *(€/m²)*

### L.5.1.3 Acrylic paint with micro-granular quartz for internal and external use

Supply and application of acrylic resin paint in water dispersion with micro-granular quartz, pigments and selected fillers (such as **Quarzolite Paint** produced by MAPEI S.p.A). Apply the paint by brush, with a roller or by spray after applying a coat of suitable primer (such as **Malech** or **Quarzolite Base Coat** produced by MAPEI S.p.A.).
The paint must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Appearance: | thick liquid |
| Dry solids content (%): | 66 |
| Density (g/cm³): | approx. 1.55 |
| Damp abrasion DIN 53778: | > 5,000 cycles |
| Change in colour (blue) after 800 hours exposure to a Weather-Ometer: | ΔE <2 |
| Vapour diffusion resistance coefficient $S_D$ (m) (DIN 52615): | 0.04 |
| Capillary action water absorption coefficient $W_{24}$ [kg/(m²·h$^{0.5}$)] (DIN 52617): | 1.21 |
| Waiting time between each coat: | 12-24 hours |
| Consumption (kg/m²): | 0.30-0.40 (for two coats) |

Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*


## L.5.1.4 Thick-layered acrylic coating for internal and external use

Supply and application of acrylic resin paste coating in water dispersion with pigments and selected fillers (such as **Quarzolite Tonachino** produced by MAPEI S.p.A). Apply one or more coats of paste coating with a stainless steel or plastic trowel after applying a coat of suitable primer (such as **Malech** or **Quarzolite Base Coat** produced by MAPEI S.p.A.).
The paste coating must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Dry solids content (%): | 85 |
| Density (g/cm³): | 1.65-1.95 (according to the grain size) |
| Waiting time between each coat: | 12-24 hours |
| Dilution ratio: | ready mixed |
| Consumption (kg/m²): | 1.7-3.0 (according to the grain size of the product and roughness of the substrate) |

Included and calculated in the price for application according to specification:

*– per square metre* ..... *(€/m²)*


## L.5.1.5 Scratch-effect acrylic coating for internal and external use

Supply and application of scratch-effect acrylic resin paste coating in water dispersion with pigments and selected fillers (such as **Quarzolite Graffiato** produced by MAPEI S.p.A). Apply one or more coats of paste coating with a stainless steel or plastic trowel after applying a coat of suitable primer (such as **Malech** or **Quarzolite Base Coat** produced by MAPEI S.p.A.).
The paste coating must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Dry solids content (%): | 85 |
| Density (g/cm³): | 1.65-1.95 (according to the grain size) |
| Waiting time between each coat: | 12-24 hours |
| Dilution ratio: | ready mixed |
| Consumption (kg/m²): | 1.9-2.8 (according to grain size of the product and roughness of the substrate) |

Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*


## L.5.1.6 Hygienising acrylic coating for internal and external use

Supply and application of acrylic resin paste coating in water dispersion for walls resistant to the growth of mould and mildew with pigments and selected fillers (such as **Quarzolite Tonachino Plus** produced by MAPEI S.p.A). Apply one or more coats of paste coating using a stainless steel or plastic trowel after applying a coat of suitable primer (such as **Silancolor Primer Plus** produced by MAPEI S.p.A.).

The paste coating must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Density (g/cm³): | 1.55-1.85 (according to the grain size) |
| Dry solids content (%): | approx. 85 |
| Ready for painting over: | 12-24 hours |
| Consumption (kg/m²): | 1.9-2.6 (according to the grain size of the product and roughness of the substrate) |

Included and calculated in the price for application according to specification:

*– per square metre* ..... *(€/m²)*


## L.5.2 SILOXANE CYCLES
### Procedure

Prime the surface of the substrate with a coat of **Silancolor Primer** smooth, transpirant siloxane primer (see section ***L.5.2.1***), **Silancolor Base Coat** coloured siloxane primer (see section ***L.5.2.2***) or **Silancolor Primer Plus** hygienising siloxane primer resistant to mould and mildew for smoothing surfaces (see section ***L.5.2.3***).
The day after applying the primer, complete the finishing cycle with one of the following products:

- **Silancolor Paint** siloxane paint for internal and external use (see section ***L.5.2.4***);
- **Silancolor Paint Plus** hygienising siloxane paint for internal and external use (see section ***L.5.2.5***);
- **Silancolor Tonachino** thick siloxane coating for internal and external use (see section ***L.5.2.6***);
- **Silancolor Graffiato** scratch-effect siloxane coating for internal and external use (see section ***L.5.2.7***);
- **Silancolor Tonachino Plus** hygienising siloxane coating for internal and external use (see section ***L.5.2.8***).

### L.5.2.1 Transpirant siloxane primer with a smooth finish

Supply and application of silane and siloxane primer in water dispersion (such as **Silancolor Primer** produced by MAPEI S.p.A.), applied on surfaces to make the absorption of the substrate uniform and promote adhesion. Apply the primer by brush, with a roller or by spray.
The primer must have the following characteristics:

| | |
|---|---|
| Appearance: | liquid |
| Dry solids content (%): | 12 |
| Density (g/cm³): | approx. 1.01 |
| Theoretical yield (m²/kg): | 6-10 |
| Waiting time before painting over: | 12-24 hours at +20°C |

Included and calculated in the price for application according to specification:

| | |
|---|---|
| *– per square metre* | *..... (€/m²)* |

## L.5.2.2 Coloured siloxane primer

Supply and application of smooth, coloured, siloxane resin primer in water dispersion with micro-granular quartz and selected fillers with high filling properties (such as **Silancolor Base Coat** produced by MAPEI S.p.A). Apply at least one coat of primer by brush, with a roller or by spray.
The primer must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Appearance: | thick liquid |
| Viscosity of product (mPa s): | 17,000 ± 1,000 |
| Dry solids content (%): | 65 ± 2 |
| Density (g/cm³): | 1.68 ± 0.02 |
| Consumption (kg/m²): | 0.3-0.5 per coat |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783) (μ): | 300 |
| Resistance to the passage of vapour of a 0.15 mm thick dry layer $S_D$ (m) (UNI EN ISO 7783): | 0.04 |
| Capillary action water absorption coefficient $W_{24}$ [kg/(m²·h$^{0.5}$)] (UNI EN 1062-3): | 0.24 |
| $S_D \cdot W_{24}$ = 0.04 x 0.24 = | 0.0096 [kg/(m²·h$^{0.5}$)] |

The value of $S_D$ $W_{24}$ is less than 0.1; therefore
**Silancolor Base Coat** respects KUENZLE's Theory (DIN 18550).
Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*

### L.5.2.3 FoMould and mildew-resistant siloxane hygienising primer with a smooth finish

Supply and application of mould and mildew-resistant silane and siloxane hygienising primer in water dispersion (such as **Silancolor Primer Plus** produced by MAPEI S.p.A), used to promote adhesion and to make the absorption of the substrate uniform before painting with products from the Silancolor Plus range.

The primer must have the following characteristics:

| | |
|---|---|
| Appearance: | milky fluid liquid |
| Dry solids content (%): | 5 ± 0.5 |
| Density (g/cm³): | approx. 1.01 |
| Theoretical yield (m²/kg): | 6-10 |

Included and calculated in the price for application according to specification:

| | |
|---|---|
| *– per square metre* | *..... (€/m²)* |

## L.5.2.4 Silicate paint for internal and external use

Supply and application of highly transpirant and highly water-repellent siloxane resin paint in water dispersion (such as **Silancolor Paint** produced by MAPEI S.p.A). Apply two coats of paint one after the other by brush, with a roller or by spray after applying a coat of suitable primer (such as **Silancolor Primer** or **Silancolor Base Coat** produced by MAPEI S.p.A.).
The paint must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Density (g/cm³): | 1.58 |
| Dry solids content (%): | 65 |
| Vapour diffusion resistance coefficient μ (DIN 52615): | 600 |
| Resistance to passage of vapour of a 100 μm-thick layer in equivalent metres of air $S_D$ (DIN 52615): | 0.06 |
| Capillary action water absorption coefficient $W_{24}$ (DIN 52617) in [kg/(m²·h$^{0.5}$)]: | 0.06 |
| Waiting time between each coat: | 12-24 hours |
| Consumption (kg/m²): | 0.20-0.30 (for two coats) |

Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*


## L.5.2.5 Anti-mildew hygienising siloxane paint for internal and external use

Supply and application of highly transpirant, highly water-repellent, mould and mildew-resistant siloxane resin paint in water dispersion (such as **Silancolor Paint Plus** produced by MAPEI S.p.A). Apply at least two coats of paint by brush, with a roller or by spray after applying a coat of suitable primer (such as **Silancolor Primer Plus** produced by MAPEI S.p.A.).
The paint must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Appearance: | thick liquid |
| Dry solids content (%): | 65 |
| Density (g/cm³): | approx. 1.55 |
| Theoretical yield (m²/kg): | 3-5 |
| Damp abrasion: | > 10,000 cycles |
| Change in colour (white) after 1,000 hours exposure to a Weather-Ometer (according to ASTM G 155 cycle 1): | ΔE < 1 |
| Change in colour (grey) after 1,000 hours exposure to a Weather-Ometer (according to ASTM G 155 cycle 1): | ΔE < 1 |
| Vapour diffusion resistance coefficient (DIN 52615) (μ): | 339 |
| Resistance to the passage of vapour of a 0.20 mm thick layer in equivalent metres of air $S_D$ (DIN 52615) (m): | 0.07 |
| Capillary action water absorption coefficient $W_{24}$ (DIN 52617) [kg/(m²·h$^{0.5}$)]: | 0.09 |
| $S_D \cdot W_{24}$ = | 0.006 [kg/(m²·h$^{0.5}$)] |

The value of $S_D$ $W_{24}$ is less than 0.1; therefore Silancolor Paint Plus respects KUENZLE's Theory (DIN 18550).
Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*


## L.5.2.6 Thick-layered siloxane coating for internal and external use

Supply and application of highly transpirant and highly water-repellent siloxane resin paste coating in water dispersion (such as **Silancolor Tonachino** produced by MAPEI S.p.A). Apply one or more coats of paste coating using a stainless steel or plastic trowel after applying a coat of suitable primer (such as **Silancolor Primer** or **Silancolor Base Coat** produced by MAPEI S.p.A.).
The paste coating must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Dry solids content (%): | approx. 80 |
| Density (g/cm³): | 1.65-1.95 |
| Vapour diffusion resistance coefficient (DIN 52615) (μ): | 178 |
| Resistance to passage of vapour of a 1.5 mm-thick layer in equivalent metres of air $S_D$ (DIN 52615) (m): | 0.267 |
| Capillary action water absorption coefficient $W_{24}$ (DIN 52617) in [kg/(m²·h$^{0.5}$)]: | 0.12 |
| $S_D \cdot W_{24} = 0.267 \cdot 0.12$: | 0.032 [kg/(m²·h$^{0.5}$)] |

The value of $S_D$ $W_{24}$ is less than 0.1; therefore **Silancolor Tonachino** respects KUENZLE's Theory (DIN 18550).

| | |
|---|---|
| Waiting time between each coat: | 12-24 hours |
| Consumption (kg/m²): | 1.7-3.0 (according to the grain size of the product and roughness of the substrate) |

Included and calculated in the price for application according to specification:

| | |
|---|---|
| *– per square metre* | ..... *(€/m²)* |


## L.5.2.7 Scratch-effect siloxane coating for internal and external use

Supply and application of highly transpirant, highly water-repellent, scratch-effect siloxane resin paste coating in water dispersion (such as **Silancolor Graffiato** produced by MAPEI S.p.A). Apply one or more coats of paste coating with a stainless steel or plastic trowel after applying a coat of suitable primer (such as **Silancolor Primer** or **Silancolor Base Coat** produced by MAPEI S.p.A.)
The paste coating must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Density (g/cm³): | 1.7-1.8 |
| Dry solids content (%): | approx. 80 |
| Vapour diffusion resistance coefficient (DIN 52615) (μ): | 178 |
| Resistance to passage of vapour of a 1.5 mm-thick layer in equivalent metres of air $S_D$ (DIN 52615) (m): | 0.267 |
| Capillary action water absorption coefficient $W_{24}$ (DIN 52617) in [kg/(m²·h$^{0.5}$)]: | 0.12 |
| $S_D \cdot W_{24} = 0.267 \cdot 0.12$: | 0.032 [kg/(m²·h$^{0.5}$)] |
| The value of $S_D$ $W_{24}$ is less than 0.1; therefore **Silancolor Graffiato** respects KUENZLE's Theory (DIN 18550). | |
| Waiting time between each coat: | 12-24 hours |
| Consumption (kg/m²): | 1.9-2.8 (according to the grain size of the product and roughness of the substrate) |

Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*


## L.5.2.8 Hygienising siloxane coating for internal and external use

Supply and application of highly transpirant, highly water-repellent, mould and mildew-resistant siloxane resin paste coating in water dispersion (such as **Silancolor Tonachino Plus** produced by MAPEI S.p.A). Apply one or more coats of paste coating using a stainless steel or plastic trowel after applying a coat of suitable primer (such as **Silancolor Primer Plus** produced by MAPEI S.p.A.).
The paste coating must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Density (g/cm³): | 1.65-1.90 |
| Dry solids content (%): | approx. 80 |
| Vapour diffusion resistance coefficient (DIN 52615) (μ): | 178 |
| Resistance to passage of vapour of a 1.5 mm thick layer in equivalent metres of air ($S_D$) (DIN 52615) (m): | 0.267 |
| Capillary action water absorption coefficient $W_{24}$ (DIN 52617) in [kg/(m²·h$^{0.5}$)]: | 0.12 |
| $S_D \cdot W_{24} = 0.267 \cdot 0.12$: | 0.032 [kg/(m²·h$^{0.5}$)] |

The value of $S_D$ $W_{24}$ is less than 0.1, therefore **Silancolor Tonachino Plus** respects KUENZLE's Theory (DIN 18550).

| | |
|---|---|
| Waiting time between each coat: | 12-24 hours |
| Consumption (kg/m²): | 1.7-2.3 (according to the grain size of the product and roughness of the substrate) |

Included and calculated in the price for application according to specification:

*– per square metre* ..... *(€/m²)*


## L.5.3 SILICATE CYCLES
### Procedure

Prime the surface of the substrate with a coat of **Silexcolor Primer** highly transpirant silicate primer for smoothing out surfaces (see section ***L.5.3.1***) or **Silexcolor Base Coat** coloured silicate primer (see section ***L.5.3.2***).
The day after applying the primer, complete the finishing cycle with one of the following products:

- **Silexcolor Paint** silicate paint for internal and external use (see section ***L.5.3.3***);
- **Silexcolor Tonachino** thick silicate coating for internal and external use (see section ***L.5.3.4***);
- **Silexcolor Graffiato** scratch-effect silicate coating for internal and external use (see section ***L.5.3.5***);

### L.5.3.1 Highly transpirant silicate primer with a smooth finish

Supply and application of modified potassium silicate primer in water solution (such as **Silexcolor Primer** produced by MAPEI S.p.A) to prepare substrates before applying products from the Silexcolor range. Apply the primer by brush, with a roller or by spray.
The primer must have the following characteristics:

| | |
|---|---|
| Consistency: | liquid |
| Colour: | transparent, colourless |
| Density (g/cm³): | approx. 0.9 |
| Dry solids content (%): | 14 |
| Waiting time before painting over: | 24 hours at +20°C |

Included and calculated in the price for application according to specification:

*– per square metre* ..... *(€/m²)*

## L.5.3.2 Coloured silicate primer

Supply and application of smooth, coloured, potassium silicate primer in water dispersion with micro-granular quartz and selected fillers with high filling properties (such as **Silexcolor Base Coat** produced by MAPEI S.p.A). Apply at least one coat of primer by brush, with a roller or by spray.
The primer must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Appearance: | thick liquid |
| Viscosity of product (mPa s): | 18,500 ± 1,000 |
| Dry solids content (%): | 65 ± 2 |
| Density (g/cm³): | 1.61 ± 0.02 |
| Consumption (kg/m²): | 0.3-0.5 per coat |
| Vapour diffusion resistance coefficient (UNI EN ISO 7783) (μ): | 149 |
| Resistance to the passage of vapour of a 0.15 mm thick dry layer $S_D$ (m) (UNI EN ISO 7783): | 0.02 |
| Capillary action water absorption coefficient $W_{24}$ [kg/(m²·h$^{0.5}$)] (UNI EN 1062-3): | 0.80 |

Included and calculated in the price for application according to specification:

*– per square metre* ..... *(€/m²)*

### L.5.3.3 Silicate paint for internal and external use

Supply and application of one-component, modified silicate paint with selected fillers and light-resistant pigments (such as **Silexcolor Paint** produced by MAPEI S.p.A). Apply two coats of the product one after the other by brush, with a roller or by spray after applying a coat of suitable modified silicate primer (such as **Silexcolor Primer** or **Silexcolor Base Coat** produced by MAPEI S.p.A.).

The paint must have the following special characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Density (g/cm³): | 1.46 |
| Dry solids content (%): | 55 |
| Brookfield Viscosity (mPa s): | 14,000 (rotor 6 - 20 revs) |
| Dusty dry: | 20-30 min. |
| Maximum organic content: | according to DIN 18363 |
| Vapour diffusion resistance coefficient (DIN 52615) (μ): | 214 |
| Resistance to passage of vapour of a 100 μm thick layer in equivalent metres of air ($S_D$) (DIN 52615) (m): | 0.02 |
| Capillary action water absorption coefficient $W_{24}$ (DIN 52617) in [kg/(m²·h$^{0.5}$)]: | 0.120 |
| Waiting time between each coat: | 12 hours (at +20°C) |
| Drying time: | 24 hours |
| Consumption (kg/m²): | 0.35-0.45 (for two coats) |

Included and calculated in the price for application according to specification:

*– per square metre* ..... *(€/m²)*


## L.5.3.4 Thick silicate coating for internal and external use

Supply and application of transpirant, coloured, modified potassium silicate mineral paste coating (such as **Silexcolor Tonachino** produced by MAPEI S.p.A) after applying a coat of suitable primer (such as **Silexcolor Tonachino** or **Silexcolor Base Coat** produced by MAPEI S.p.A.).
The paste coating must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Density (g/cm³): | 1.65-1.95 (according to the grain size) |
| Dry solids content (%): | 80 |
| Dusty dry: | 20-30 min. in the open air |
| Vapour diffusion resistance coefficient (DIN 52615) (μ): | 39 |
| Resistance to passage of vapour of a 1.5 mm-thick layer in equivalent metres of air $S_D$ (DIN 52615) (m): | 0.059 |
| Capillary action water absorption coefficient $W_{24}$ (DIN 52617) in [kg/(m²·$h^{0.5}$)]: | 0.09 |
| Waiting time between each coat: | 12-24 hours |
| Consumption (kg/m²): | 1.7-3.0 (according to the grain size of the product and roughness of the substrate) |

Included and calculated in the price for application according to specification:

*– per square metre* ..... *(€/m²)*


## L.5.3.5 Scratch-effect silicate coating for internal and external use

Supply and application of transpirant, scratch-effect, modified potassium silicate mineral paste coating (such as **Silexcolor Graffiato** produced by MAPEI S.p.A) after applying a coat of suitable primer (such as **Silexcolor Primer** or **Silexcolor Base Coat** produced by MAPEI S.p.A.).
The paste coating must have the following characteristics:

| | |
|---|---|
| Colour: | as specified by the Works Director or according to the manufacturer's colour chart |
| Dry solids content (%): | 80 |
| Density (g/cm³): | 1.7-1.8 |
| Dusty dry: | 20-30 min. in the open air |
| Vapour diffusion resistance coefficient (DIN 52615) (μ): | 39 |
| Resistance to passage of vapour of a 1.5 mm-thick layer in equivalent metres of air $S_D$ (DIN 52615) (m): | 0.059 |
| Capillary action water absorption coefficient $W_{24}$ (DIN 52617) in [kg/(m²·h$^{0.5}$)]: | 0.09 |
| Waiting time between each coat: | 12-24 hours |
| Consumption (kg/m²): | 1.9-2.8 (according to the grain size of the product and roughness of the substrate) |

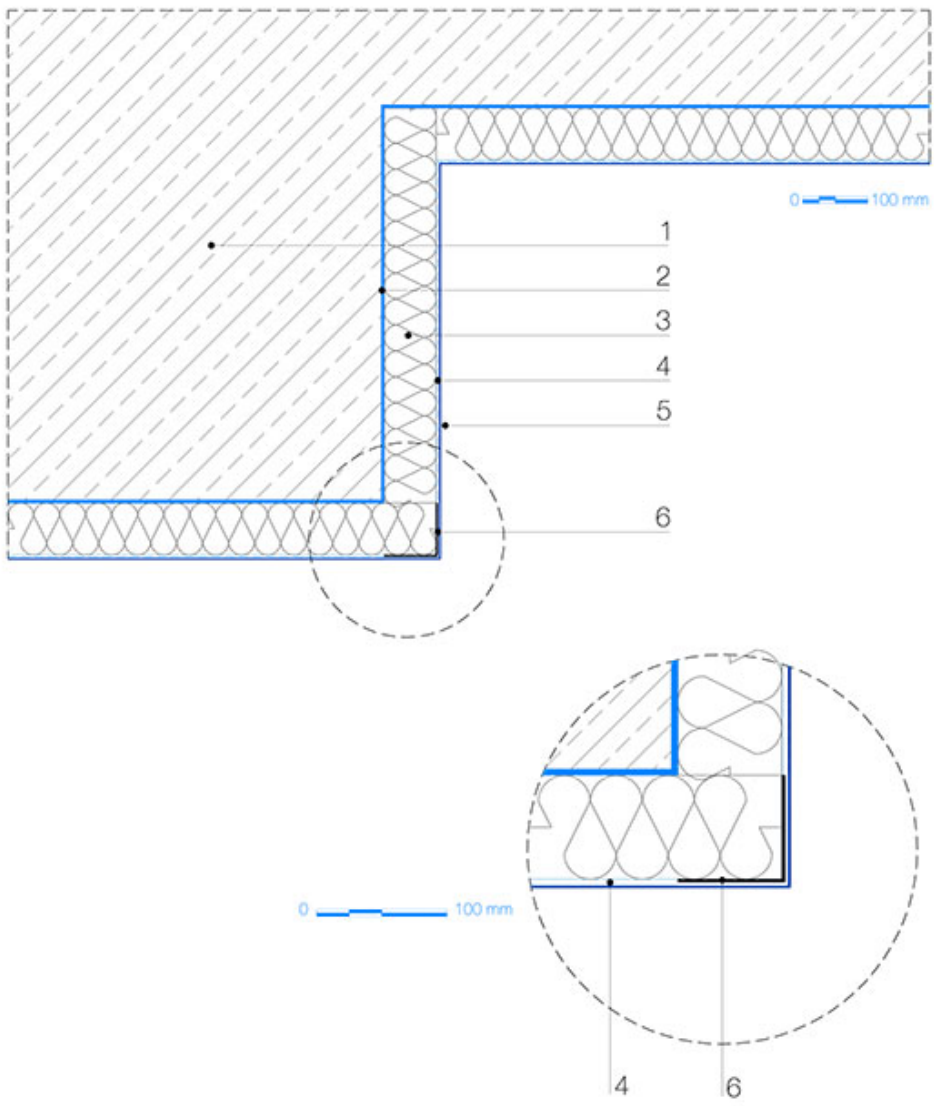
Included and calculated in the price for application according to specification:
*– per square metre* ..... *(€/m²)*


# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Dettaglio angolo e spigolo - Sezione orizzontale (scala ca. 1:10 - 1:5)

**Particolare n. 01**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Pannello isolante
4. Rasante Mapetherm + Mapetherm net
5. Primer + Tonachino
6. Mapetherm Profil

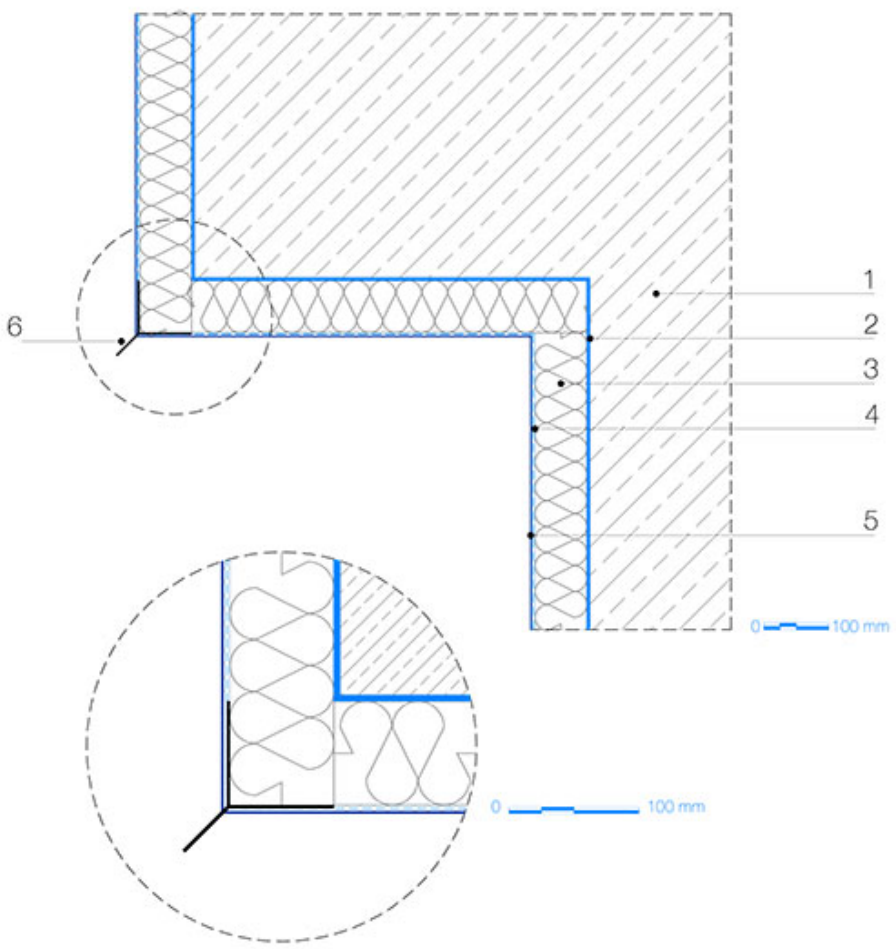
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Dettaglio piano piloties - Sezione verticale (scala ca. 1:10 - 1:5)

**Particolare n. 02**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Pannello isolante
4. Rasante Mapetherm + Mapetherm net
5. Primer + Tonachino
6. Mapetherm Pompigoccia

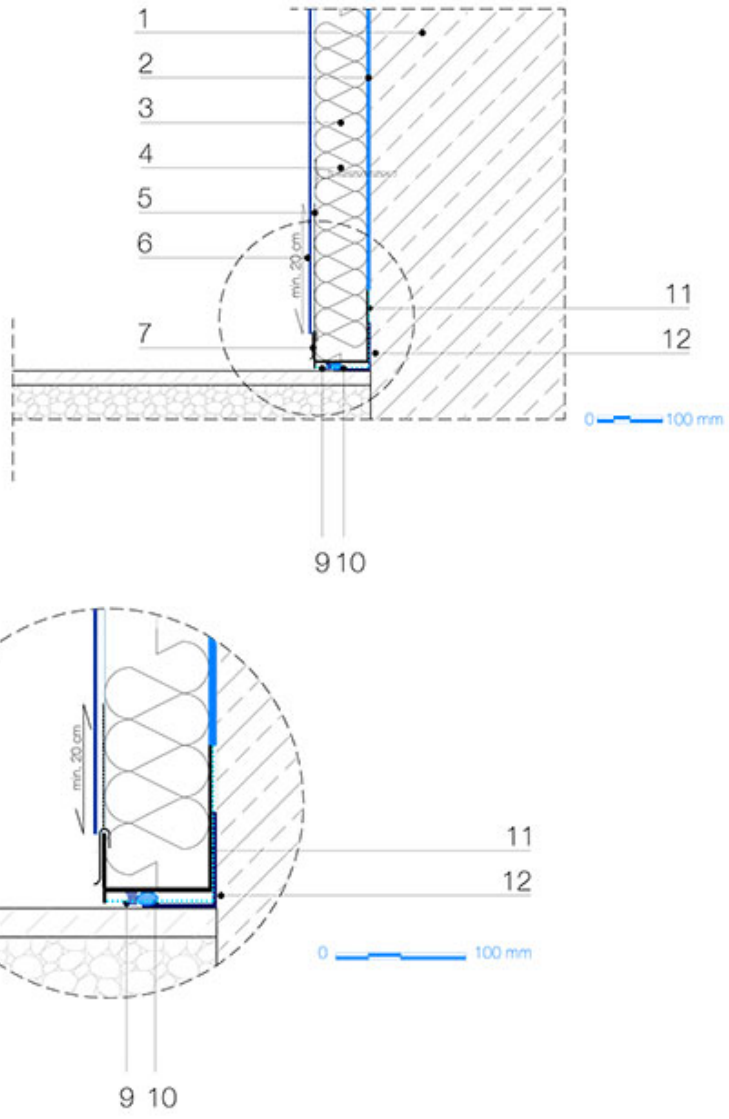
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a pavimentazione esistente con profilo di partenza - Sezione verticale (scala ca. 1:10 - 1:5)

**Particolare n. 03**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Pannello isolante
4. Mapetherm Fix
5. Rasante Mapetherm + Mapetherm net
6. Primer + Tonachino
7. Mapetherm Ba + Mapetherm Profil Ba
8. Sovrapposizione rete
9. Sigillante Mapeflex AC4
10. Mapefoam
11. Impermeabilizzazione con Mapelastic Foundation
12. Mapeband SA

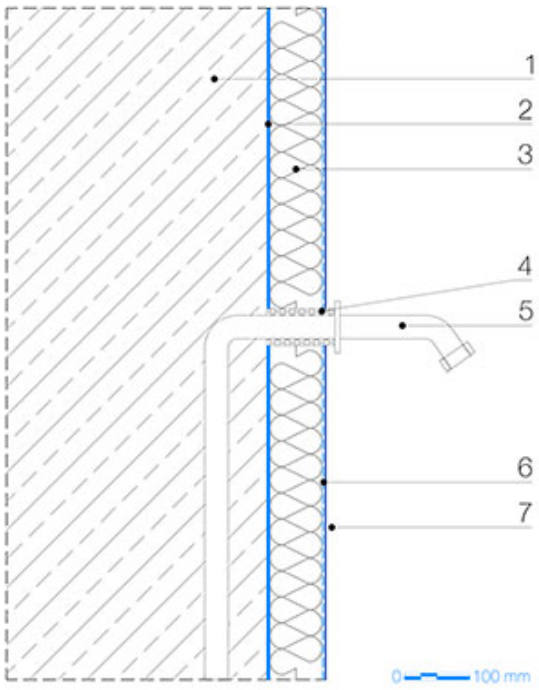
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a rubinetto esterno - Sezione verticale (scala ca. 1:10)

**Particolare n. 04**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Pannello isolante
4. Elemento di fissaggio isolante
5. Tubazione
6. Rasante Mapetherm + Mapetherm net
7. Primer + Tonachino

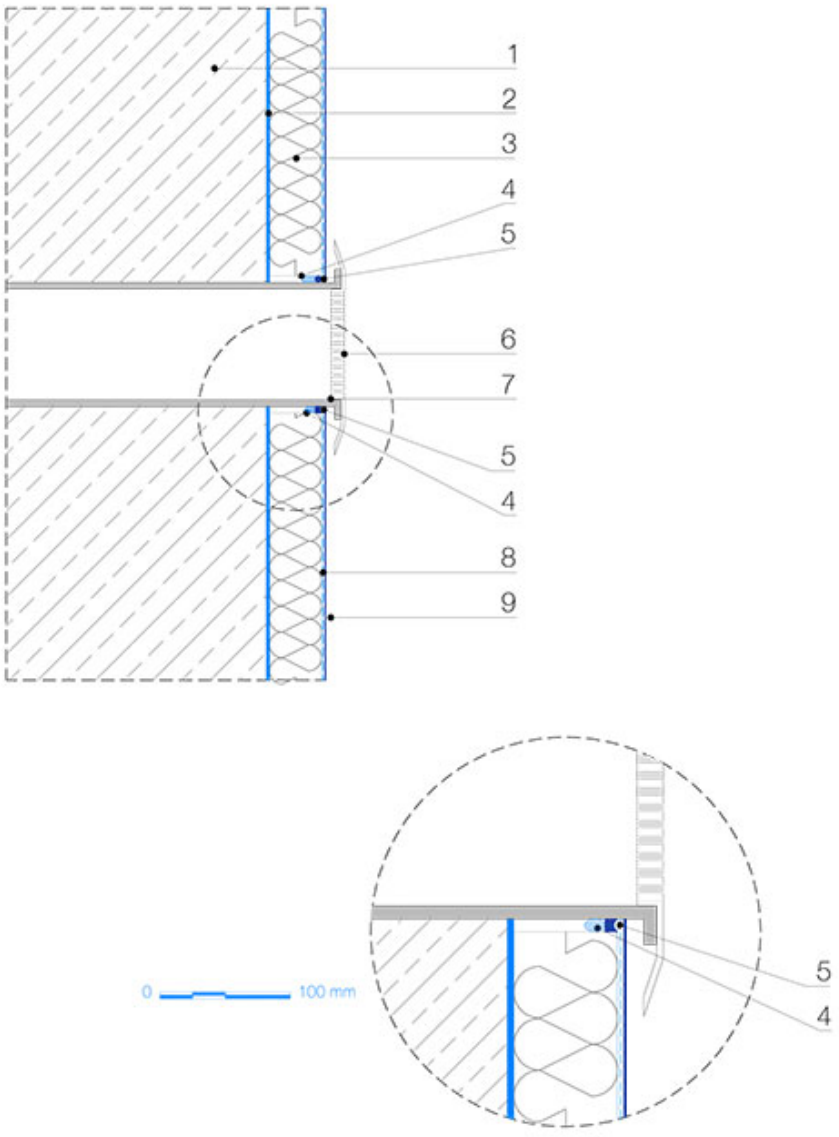
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a bocchetta di aerazione - Sezione verticale (scala ca. 1:10 - 1:5)

**Particolare n. 05**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Pannello isolante
4. Guarnizione Mapefoam
5. Sigillante Mapeflex AC4
6. Griglia di chiusura
7. Tubo in materiale plastico
8. Rasante Mapetherm + Mapetherm net
9. Primer + Tonachino

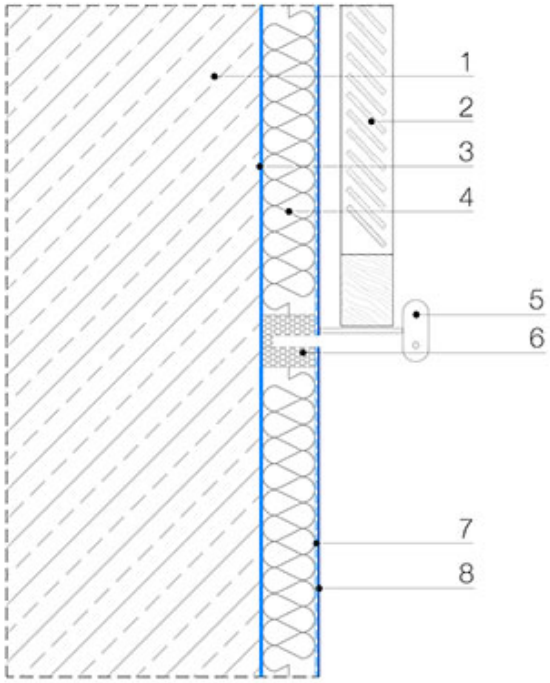
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a fermapersiane - Sezione verticale (scala ca. 1:10)

**Particolare n. 06**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Persiana
3. Collante Mapetherm
4. Pannello isolante
5. Fermapersiane
6. Elemento di fissaggio isolante
7. Rasante Mapetherm + Mapetherm net
8. Primer + Tonachino

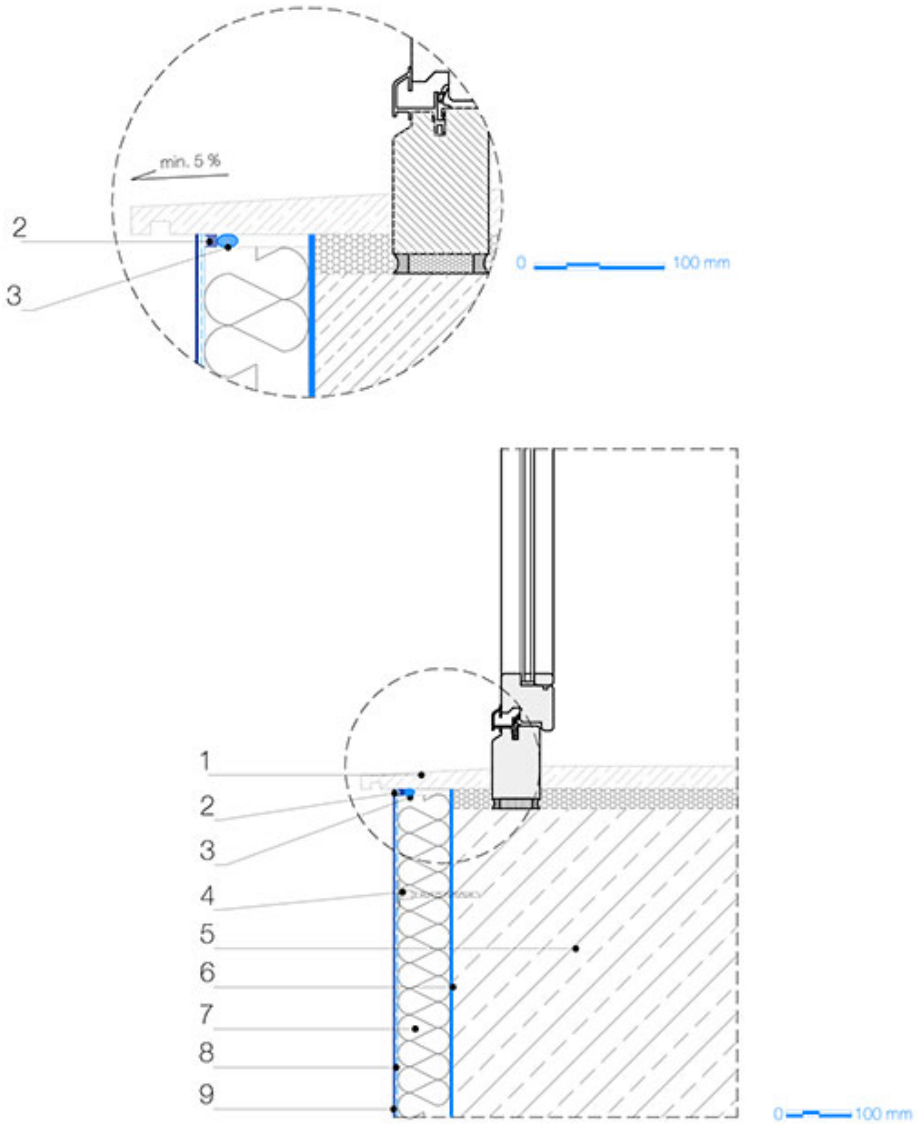
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a davanzale - Sezione verticale (scala ca. 1:10)

**Particolare n. 07**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Davanzale
2. Sigillante Mapeflex AC4
3. Guarnizione Mapefoam
4. Mapetherm Fix
5. Muratura
6. Collante Mapetherm
7. Pannello isolante
8. Rasante Mapetherm + Mapetherm net
9. Primer + Tonachino

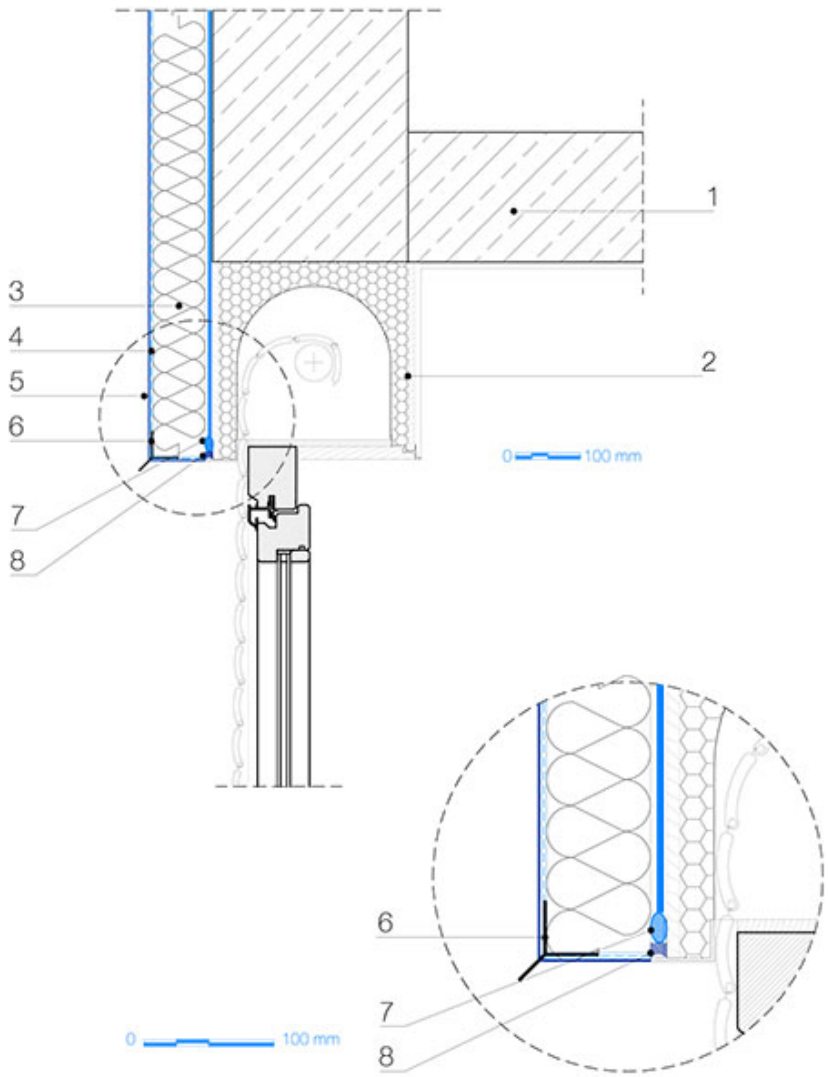
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a cassonetto di avvolgibile a filo esterno - Sezione verticale (scala ca. 1:10 - 1:5)

**Particolare n. 08**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Cassonetto avvolgibile
3. Pannello isolante
4. Rasante Mapetherm + Mapetherm net
5. Primer + Tonachino
6. Mapetherm Rompigoccia
7. Guarnizione Mapefoam
8. Sigillante Mapeflex AC4

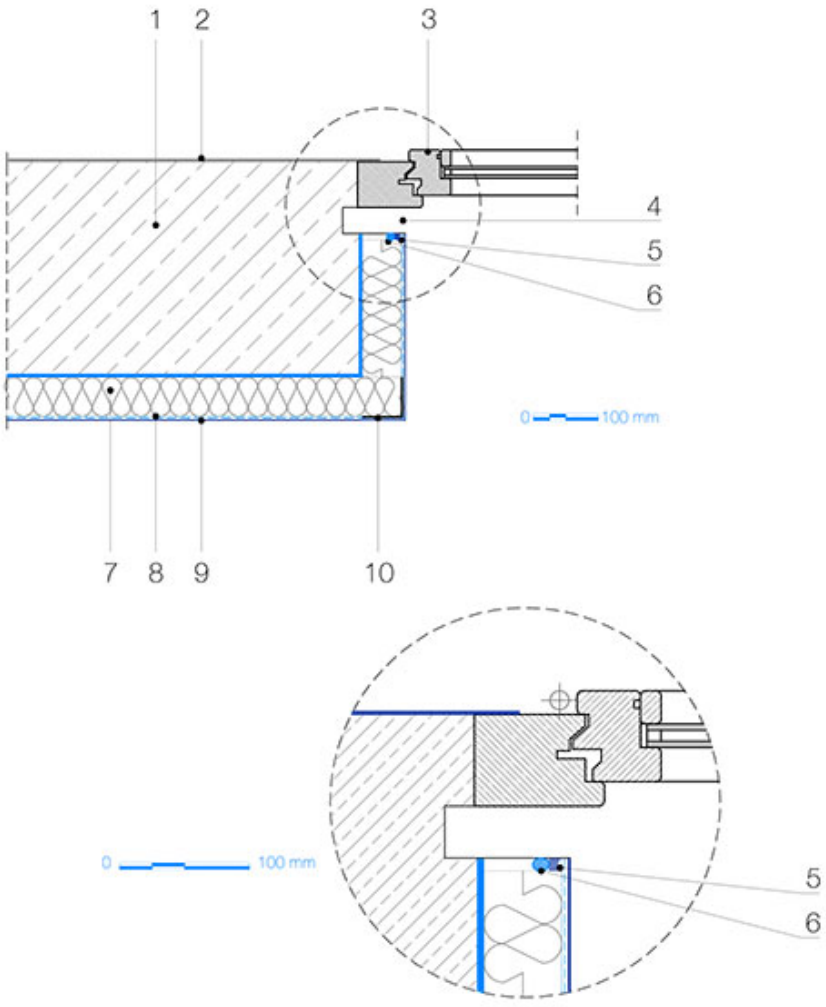
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a guida avvolgibile - Sezione orizzontale (scala ca. 1:10 - 1:5)

**Particolare n. 09**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Intonaco interno
3. Serramento
4. Guida di scorrimento
5. Sigillante Mapeflex AC4
6. Guarnizione Mapefoam
7. Pannello isolante
8. Rasante Mapetherm + Mapetherm net
9. Primer + Tonachino
10. Mapetherm Profil

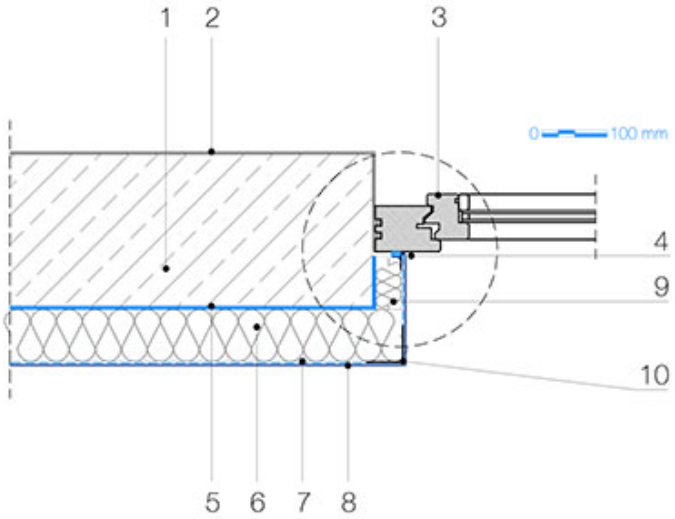
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

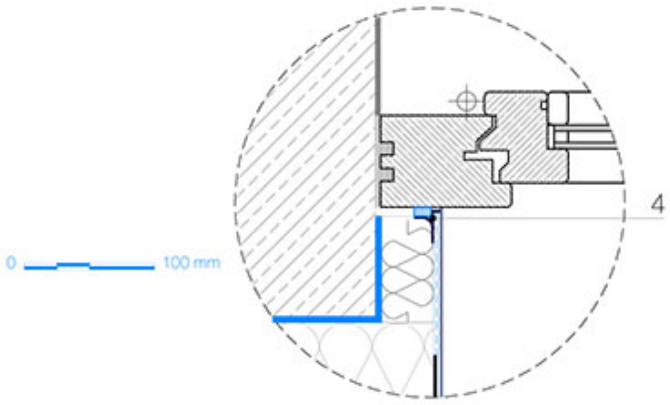
# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a porte e finestre a filo interno o in mezzeria - Sezione orizzontale (scala ca. 1:10 - 1:5)

**Particolare n. 10**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Intonaco interno
3. Serramento
4. Mapetherm Profil W
5. Collante Mapetherm
6. Pannello isolante
7. Rasante Mapetherm + Mapetherm net
8. Primer + Tonachino
9. Risvolto pannello isolante
10. Mapetherm Profil

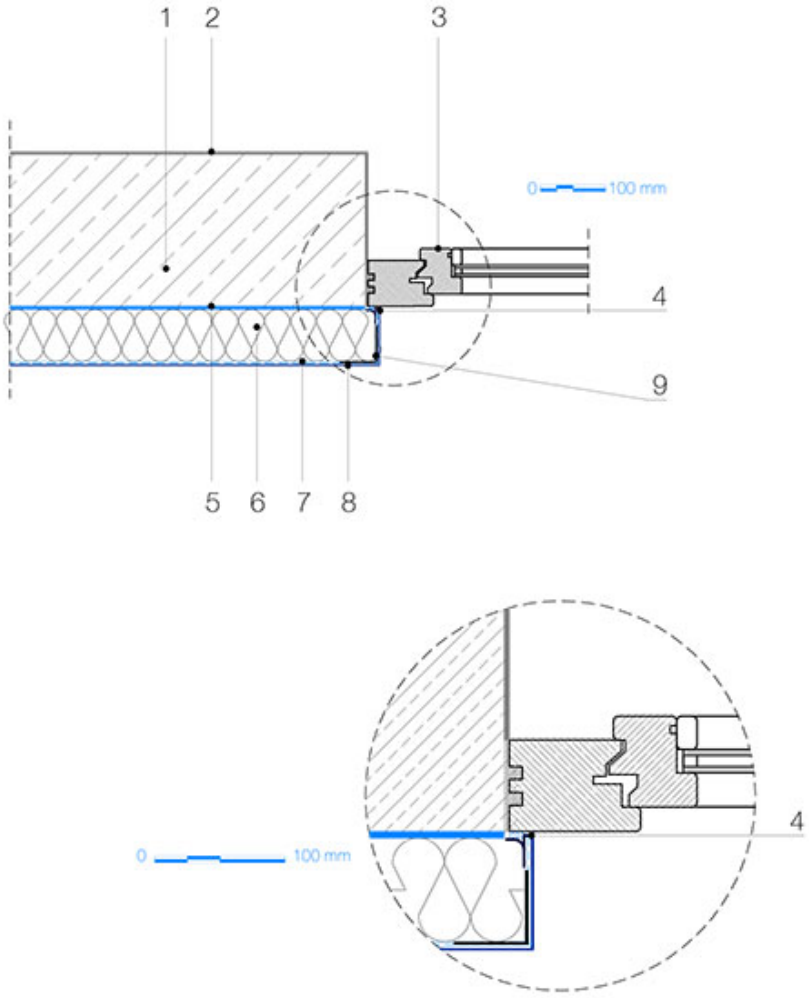
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a porte e finestre a filo esterno - Sezione orizzontale (scala ca. 1:10 - 1:5)

**Particolare n. 11**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Intonaco interno
3. Serramento
4. Mapetherm Profil W
5. Collante Mapetherm
6. Pannello isolante
7. Rasante Mapetherm + Mapetherm net
8. Primer + Tonachino
9. Mapetherm Profil

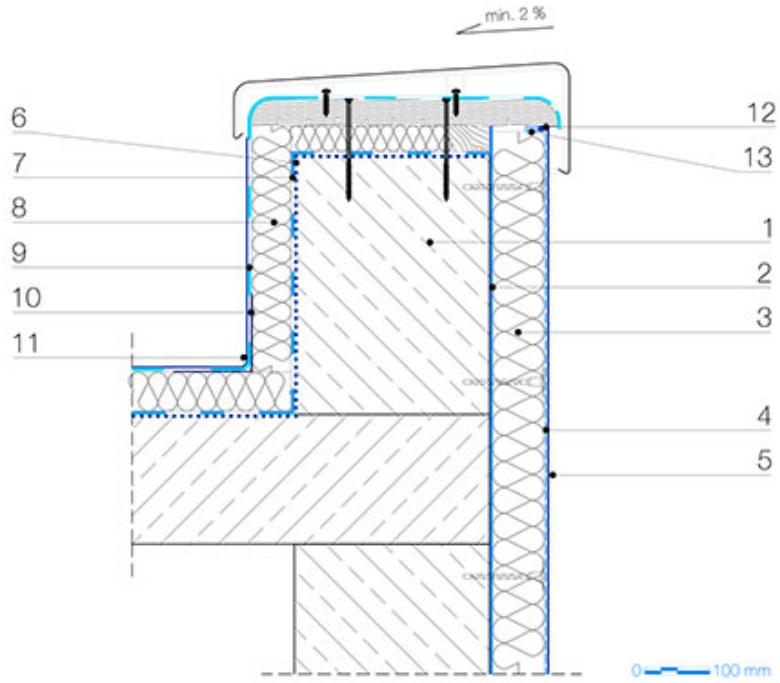
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordi a copertura piana e testata parapetti - Sezione verticale (scala ca. 1:10)

**Particolare n. 12**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Pannello isolante
4. Rasante Mapetherm + Mapetherm net
5. Primer + Tonachino
6. Primer Polyprimer
7. Barriera al vapore Polyvap SA
8. Pannello isolante
9. Impermeabilizzazione con Mapelastic Foundation
10. Mapeband SA
11. Primer + Tonachino
12. Sigillante Mapeflex AC4
13. Guarnizione Mapefoam

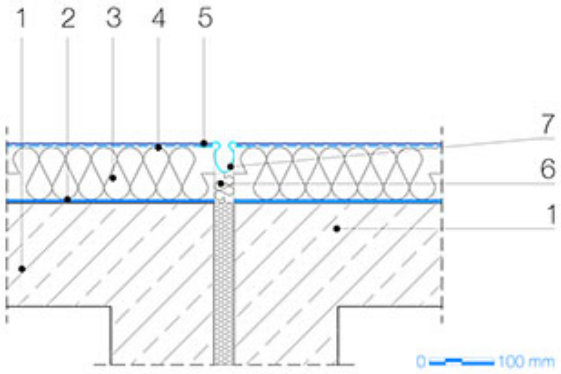
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

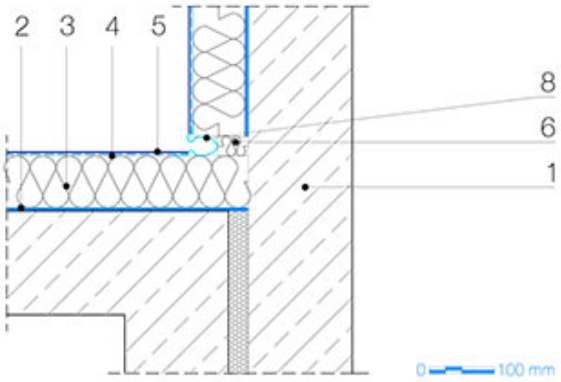
# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo giunti di dilatazione - Sezione orizzontale (scala ca. 1:10)

**Particolare n. 13**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Pannello isolante
4. Rasante Mapetherm + Mapetherm net
5. Primer + Tonachino
6. Isolante in lana minerale
7. Mapetherm profil E
8. Mapetherm profil V

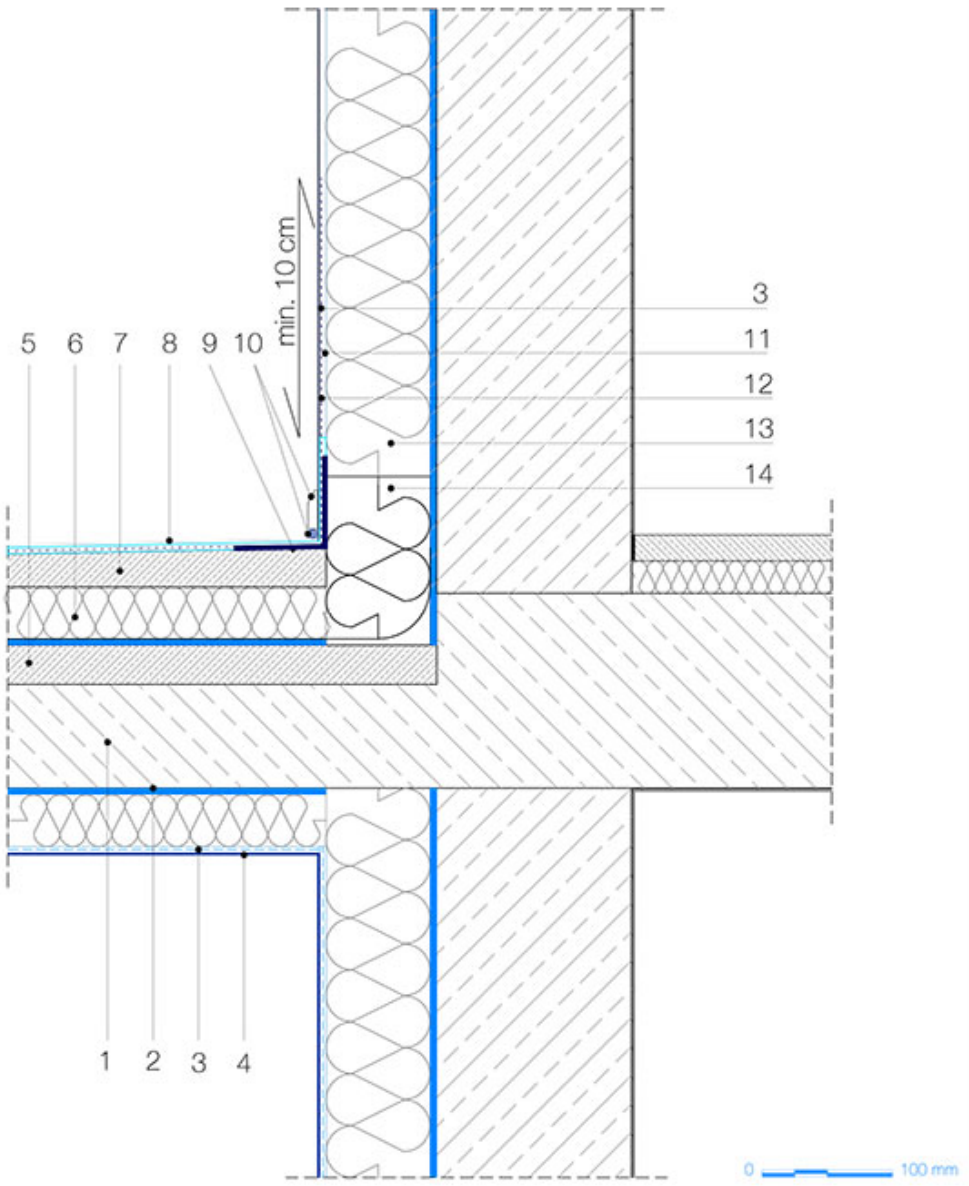
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a terrazzi e balconi con isolamento - Sezione verticale (scala ca. 1:5)

**Particolare n. 14**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Rasante Mapetherm + Mapetherm net
4. Primer + Tonachino
5. Massetto
6. Pannello isolante
7. Massetto pendenza 1-2%
8. Pavimentazione terrazzo
9. Mapeband SA
10. Sigillante Mapeflex PU45 e battiscopa
11. Impermeabilizzazione con Mapelastic Foundation + Mapetherm net
12. Sovrapposizione rete Mapetherm net (almeno 10 cm)
13. Pannello isolante
14. Isolante per zoccolatura

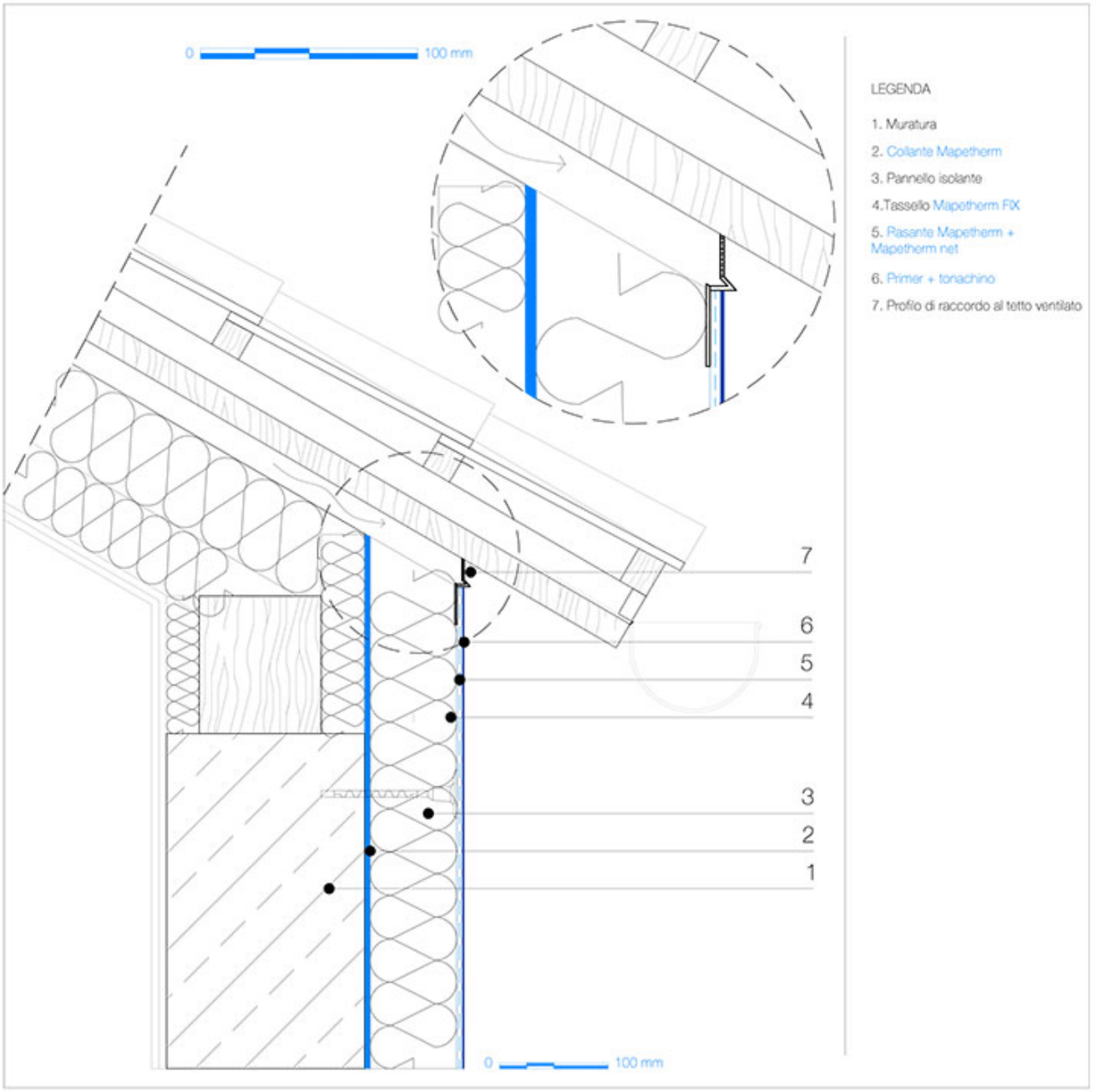
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo con tetto ventilato - Sezione verticale (scala ca. 1:5)

**Particolare n. 15**

**Rev. 1 del 12.04.2016**



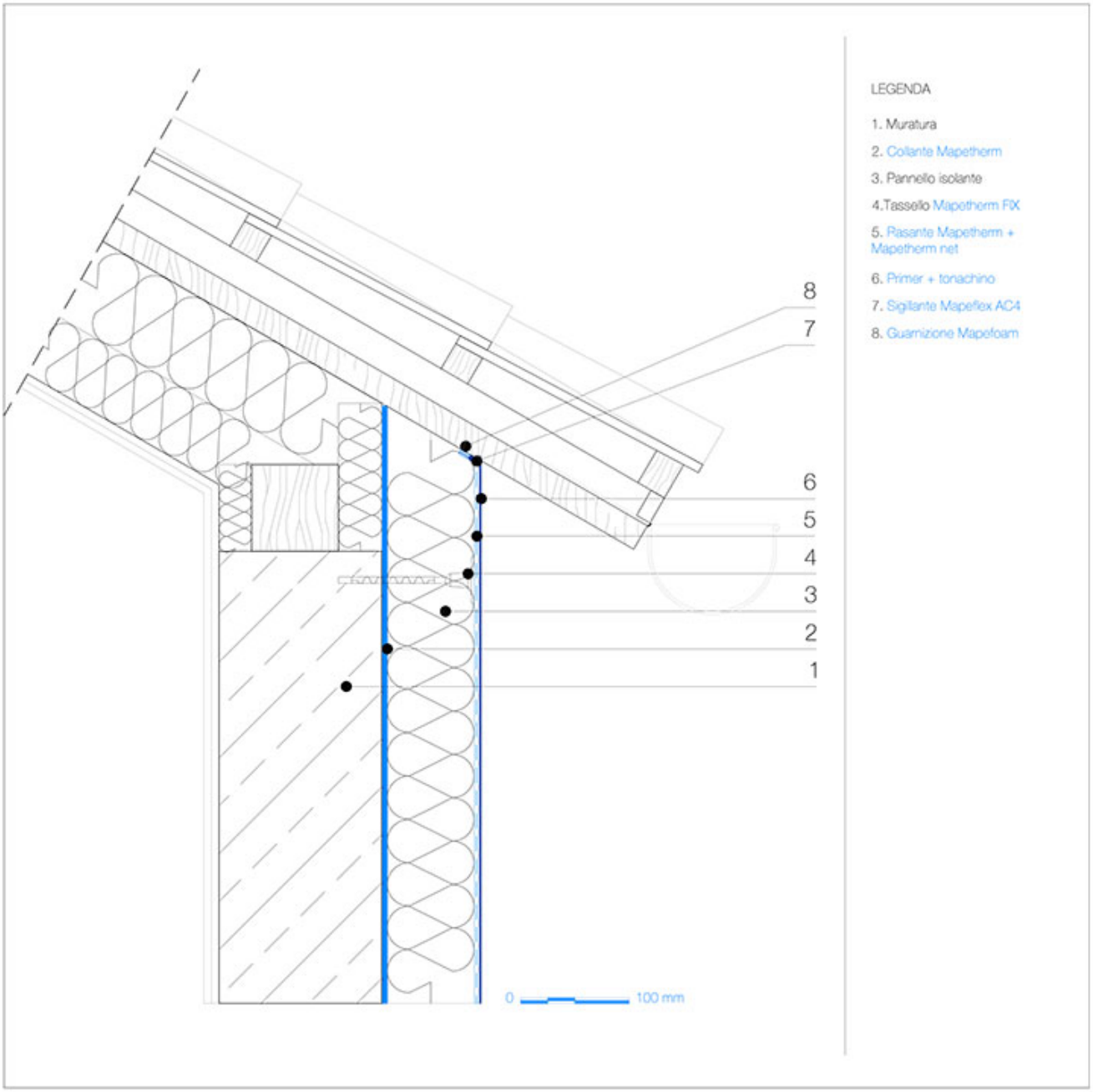

Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Raccordo a tetto caldo - Sezione verticale (scala ca. 1:5)

**Particolare n. 16**

**Rev. 1 del 12.04.2016**



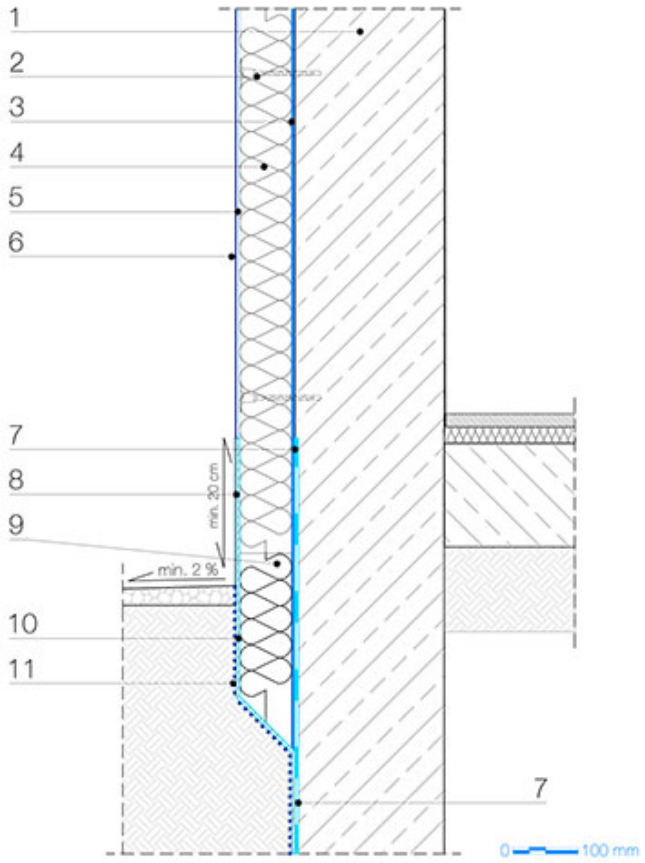

Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Dettaglio partenza interrata - Sezione verticale (scala ca. 1:10)

**Particolare n. 17**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Tassello Mapetherm FIX
3. Collante Mapetherm
4. Pannello isolante
5. Rasante Mapetherm + Mapetherm net
6. Primer + tonachino
7. Mapelastic Foundation
8. Sovrapposizione rete Mapetherm net (almeno 20 cm)
9. Isolante per zoccolatura
10. Mapelastic Foundation + Mapetherm net
11. Impermeabilizzazione con Polyfond Kit Drain

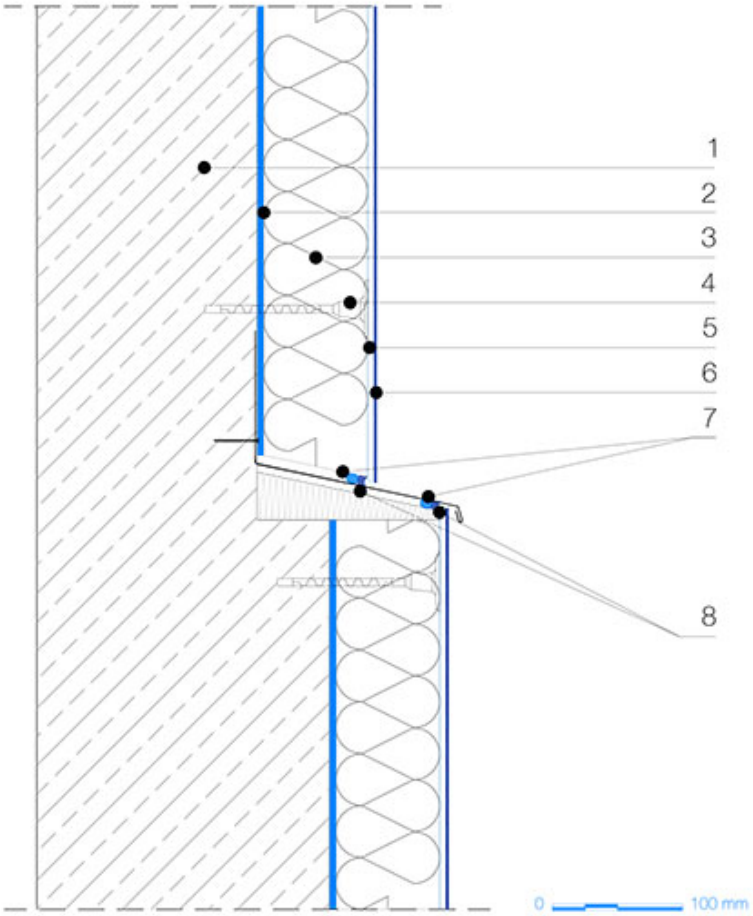
Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.

# ISOLAMENTO TERMICO A CAPPOTTO - Mapetherm System

## Collegamento ad elementi sporgenti - Sezione verticale (scala ca. 1:5)

**Particolare n. 18**

**Rev. 1 del 12.04.2016**




LEGENDA

1. Muratura
2. Collante Mapetherm
3. Pannello isolante
4. Tassello Mapotherm FIX
5. Rasante Mapetherm + Mapetherm net
6. Primer + tonachino
7. Guarnizione Mapefoam
8. Sigillante Mapeflex AC4

Nota importante: le rappresentazioni di cui sopra hanno scopo puramente illustrativo. Il dettaglio tecnico raffigurato è uno schema esemplificativo di supporto alla progettazione. La possibilità di tale installazione, la completezza e le caratteristiche tecniche dello schema devono essere verificati in concreto dall'esecutore/cliente nel progetto esecutivo. Lo schema sopra illustrato non sostituisce pertanto in alcun modo i progetti esecutivi di cantiere e i dettagli di montaggio necessari. Tutte le dimensioni devono essere verificate e stabilite nel progetto esecutivo di cantiere.