

# PREPARATION OF SUBSTRATES AND SOUNDPROOFING SYSTEMS TO COMBAT NOISE CAUSED BY FOOTSTEPS BEFORE INSTALLING CERAMIC, STONE, RESILIENT AND WOODEN FLOORING



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## **PREPARATION OF SUBSTRATES AND SOUNDPROOFING SYSTEMS TO COMBAT NOISE CAUSED BY FOOTSTEPS BEFORE INSTALLING CERAMIC, STONE, RESILIENT AND WOODEN FLOORING**

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## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

When new flooring needs to be designed, the first step is always that of assessing the substrate. Whenever a new screed has to be built, all the factors involved should be carefully evaluated and the technical-performance characteristics required for the screed should be determined during the preliminary design phase.

The functionality and durability of all types of flooring, whether in ceramic, stone, textile, resilient or wood, are highly dependent on the physical and elastic-mechanical characteristics of the substrate. These properties must be defined according to various factors, such as the final use of the flooring, which means, therefore, the loads acting on the surface of the floor, the conditions of potentially aggressive environments, the type of flooring, the compressibility of the flooring's underlying layers, potential deflections in the flooring slab, etc.

MAPEI meets these requirements by offering a system of products, including epoxy adhesives, latex, a range of gravels, special binders and pre-blended mortars, which can be employed to make strong, durable screeds suitable for all areas of use.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1 MAKING SCREEDS Introduction

#### Topcem

Special hydraulic binder which, when mixed with inerts with a suitable grain size and water, forms mortar which hardens in approximately 24 hours and dries in approximately 4 days.

#### Mapecem

Special hydraulic binder which, when mixed with inerts with a suitable grain size and water, has the exceptional capacity of hardening after a few hours and drying perfectly in just 24 hours (residual humidity content less than 2% in weight).

#### Topcem Pronto

Pre-blended, ready-to-use, rapid-drying (residual humidity content less than 2% after 4 days), controlled-shrinking mortar with normal application times, made from special hydraulic binder, additives and selected inerts, to be mixed with water. Very low emission of volatile organic compounds (EMICODE EC1 R Plus).

#### Mapecem Pronto

Pre-blended, ready-to-use, rapid-setting and drying (residual humidity content less than 2% after 24 hours), controlled-shrinking mortar, made from special hydraulic binder, additives and selected inerts, to be mixed with water.

#### Ghiaietto 0-8

Stone aggregate in a granulometric curve from 0 to 8 mm, used for mixing with **Topcem** and **Mapecem** special binders. When added in the recommended doses, it allows the final performance characteristics to be achieved as indicated in the Technical data Sheet.

#### Eporip

Two-component, solvent-free epoxy adhesive used to make bonded screeds, for second pours and to monolithically seal cracks in screeds.

#### Planicrete

Synthetic latex rubber for making high-adhesion, cementitious anchoring slurry used to make adhesion bridges.

#### Mapesilent System

Complete system for soundproofing floating screeds.

#### HOW TO CHOOSE THE MOST SUITABLE SOLUTION

According to thickness:

Thickness available to make the screed	Stratigraphic layout between the flooring slab and screed	Type of screed
Thickness available more than 3.5-4 cm	Without layers of isolating material	Isolated screed
	With layers of isolating material or Mapesilent System	Floating screed
Thickness available less than 3.5-4 cm	With radiating flooring	Radiating screed
	NOT PERMITTED	Bonded screed on <b>Eporip</b> or <b>Planicrete</b> anchoring slurry

According to installation time:

Installation time	Type of material	MAPEI solution
Quick solution (4 days drying time)	With binder	<b>Topcem</b>
	With pre-blended mortar	<b>Ghiaietto 0-8</b> <b>Topcem Pronto</b>
Rapid solution (24 hours drying time)	With binder	<b>Mapecem</b>
	With pre-blended mortar	<b>Ghiaietto 0-8</b> <b>Mapecem Pronto</b>

When the screed is not of the bonded type, its thickness must be constant and at least 3.5-4 cm, sufficient therefore to withstand the static and dynamic loads acting on the flooring. It is defined as “**isolated**” when it is separated from the underlying layer with a separation or slip layer, and is isolated from the containment walls and all rising elements (walls, pillars, steps, piping, etc.) by a layer of compressible material (such as expanded polystyrene) with a suitable thickness ( $\geq 1$  cm). This technique is recommended in all current national and international “Codes of Practice”, as it separates the “flooring system” from all other movements in the structure.

A screed is defined as “**floating**” when installed over a compressible thermal insulation and/or soundproofing layer, which is usually separated with a vapour barrier. The thickness, again more than 3.5-4 cm, and any reinforcement required (electro-welded mesh), are designed according to the predicted loads and the compressibility of the underlying insulating layer.

A screed is considered a “**heating**” type when it incorporates an underfloor heating system, generally made with piping for hot water over a layer of insulating material. This type must be at least 2.5 cm thick above the piping, and also includes electro-welded mesh embedded in the screed.

If it is not possible to make a screed at least 3.5-4 cm thick, install a “**bonded**” screed on a layer of suitable anchoring slurry using the fresh on fresh technique.

For further details on how to make screeds correctly, please refer to the MAPEI Technical Pamphlet “Installation of screeds for laying floors”.

## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.1.1 BONDED SCREEDS Procedure**

#### **Checking and preparing the substrate**

When there is not enough space available for a screed at least 3.5 cm thick, a bonded screed must be made.

If installed directly on a concrete floor slab, make sure the floor slab is cured, that it is strong enough for the intended use, that there is no dust or loose portions and that the surface is sufficiently rough. Whatever type of surface the screed is installed on, it must be solid and clean.

If flooring sensitive to humidity is to be installed, the moisture content of the screed must be checked to make sure it is lower than the level required for installing this type of flooring, and that there is no rising damp.

Before installing the screed, position 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars.

#### **Application of anchoring slurry**

After preparing the substrate, spread a layer of anchoring slurry made from **Planicrete** (see section **R.1.1.1.5**), water and the same binder employed to make the screed (use the amounts indicated in the Technical data Sheet).

If the thickness is low or if the screed is installed in areas subject to high mechanical stress, an adhesion bridge made from **Eporip** epoxy adhesive must be formed (see section **R.1.1.1.6**).

#### **Making the screed**

Spread on the mixture for the screed using the “fresh on fresh” technique. It is very important that it is spread on zone by zone, and that the screed is not applied on dry slurry which would compromise its adhesion to the substrate. Also, the position of joints in the flooring slab must be respected.

To make normal-setting, quick-drying bonded screeds, use **Topcem** binder (see section **R.1.1.1.1**) mixed with water and aggregates of a suitable grain size, or **Topcem Pronto** pre-blended mortar (see section **R.1.1.1.2**), mixed with water only.

To make rapid-setting and drying bonded screeds, use **Mapecem** binder (see section **R.1.1.1.3**) mixed with water and aggregates of a suitable grain size, or **Mapecem Pronto** pre-blended mortar (see section **R.1.1.1.4**) mixed with water only.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.1.1 Bonded screed made from normal-setting, quick-drying cementitious mortar

Supply and application of a screed bonded to the substrate made from normal-setting, quick-drying, no-slump cementitious mortar, well compacted using manual or mechanical tools and equipment, after forming an adhesion bridge. The blend is made by mixing 250 kg/m<sup>3</sup> of special hydraulic binder (such as **Topcem** produced by MAPEI S.p.A.), assorted aggregates with a grain size of 0 to 8 mm (such as **Ghiaietto 0-8** produced by MAPEI S.p.A.) and a water/binder ratio of  $\leq 0.55$ .

The binder must have the following characteristics:

compressive strength after 28 days (N/mm <sup>2</sup> ):	$\geq 30$
set to foot traffic:	12 hours
ready for service:	4 days
residual humidity after 4 days (%):	$< 2.0$

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- creation of check-joints to match pre-existing check-joints.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.1.2 Bonded screed made from pre-blended, ready-to-use, normal-setting, quick-drying mortar

Supply and application of a screed bonded to the substrate made from normal-setting, quick-drying, no-slump cementitious mortar, well compacted using manual or mechanical tools and equipment, after forming an adhesion bridge. The blend is made from 1800/2000 kg/m<sup>3</sup> of pre-blended, normal-setting, quick-drying mortar (such as **Topcem Pronto** produced by MAPEI S.p.A.).

The pre-blended mortar must have the following characteristics:

mixing ratio:	1 25 kg sack with 1.7 litres of water
compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 30
set to foot traffic:	12 hours
ready for service:	4 days
residual humidity after 4 days (%):	< 2.0
classification according to UNI EN 13813:	CT - C30 F6 - A1 <sub>fl</sub>
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- creation of check-joints to match pre-existing check-joints.

Per cm of thickness .....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.1.3 Bonded screed made from rapid-setting and drying mortar

Supply and application of a screed bonded to the substrate made from rapid-setting and drying cementitious mortar well compacted using manual or mechanical tools and equipment, after forming an adhesion bridge. The blend is made by mixing 400 kg/m<sup>3</sup> of special hydraulic binder (such as **Mapecem** produced by MAPEI S.p.A.), assorted aggregates with a grain size of 0 to 8 mm (such as **Ghiaietto 0-8** produced by MAPEI S.p.A.) and 90-135 litres of water/m<sup>3</sup> (for dry inerts).

The binder must have the following characteristics:

compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 45
set to foot traffic:	2-3 hours
ready for service:	1 day
residual humidity after 1 day (%):	< 2.0

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- creation of check-joints to match pre-existing check-joints.

Per cm of thickness .....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.1.4 Bonded screed made from pre-blended, ready-to-use, rapid-setting and drying mortar

Supply and application of a screed bonded to the substrate made from pre-blended, ready-to-use, rapid-setting and drying mortar, well compacted using manual or mechanical tools and equipment, after forming an adhesion bridge. The blend is made from 1800/2000 kg/m<sup>3</sup> of pre-blended mortar (such as **Mapecem Pronto** produced by MAPEI S.p.A.).

The pre-blended mortar must have the following characteristics:

mixing ratio:	1 25 kg sack with 2.1-2.3 litres of water
compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 60
set to foot traffic:	2-3 hours
ready for service:	1 day
residual humidity after 24 hours (%):	< 2.0
classification according to UNI EN 13813:	CT - C60 F10 - A1 <sub>fl</sub>

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- creation of check-joints to match pre-existing check-joints.

Per cm of thickness .....(€/m<sup>2</sup>)



**R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

**R.1.1.1.5 Adhesion bridge by applying anchoring slurry made from synthetic latex rubber**

Supply and application of anchoring slurry on the surface of a clean, compact, strong floor slab (surface-treated by scarifying or other suitable mechanical means to remove all loose and non-adhesive portions), saturated with water with a dry surface (ssd state). The slurry is applied immediately before installing the screed material using the “fresh on fresh” technique. The slurry is made by mixing synthetic latex rubber (such as **Planicrete** produced by MAPEI S.p.A.), water and special hydraulic binder (such as **Topcem** produced by MAPEI S.p.A.) at a ratio of 1:1:3, or water and special rapid binder (such as **Mapecem** produced by MAPEI S.p.A) at a ratio of 1:1:2.

The latex must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.02
dry solids content (%):	40
Per cm of thickness	.....(€/m <sup>2</sup> )



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.1.6 Adhesion bridge by applying two-component epoxy adhesive

Supply and application of an adhesion bridge on the surface of a clean, compact, strong floor slab (surface-treated by scarifying or other suitable mechanical means to remove all loose and repellent portions). The adhesion bridge is applied immediately before installing the screed material using the “fresh on fresh” technique. The adhesion bridge is formed by a coat of two-component, solvent-free epoxy adhesive (such as **Eporip** produced by MAPEI S.p.A.).

The adhesive must have the following characteristics:

density (kg/l):	1.35
adhesion to concrete (N/mm <sup>2</sup> ):	> 3
workability time:	60 mins.
open time:	5 hours
consumption (kg/m <sup>2</sup> ):	0.5-0.7
<i>Per cm of thickness</i>	<i>.....(€/m<sup>2</sup>)</i>



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.1.2 UNBONDED SCREEDS Procedure**

#### **Checking and preparing the substrate**

Make sure that the surface is sufficiently clean and that there is enough space to install a screed  $\geq$  35-40 mm thick. Position 1 cm thick compressible material (such as polystyrene) the same height as the thickness of the screed around all vertical elements. Cover the entire surface with a continuous separation or slip layer, which acts as a vapour barrier (e.g. 3/10 mm polyethylene or a similar material). Overlap the edges of adjacent sheets by approximately 20 cm and tape the overlaps to form a continuous layer.

#### **Making the screed**

The isolated screed must be at least 3.5 cm thick for residential and light traffic use, and at least 4 cm thick for other uses. If better crack-resistance and a more even distribution of loads are required, insert electro-welded, zinc-plated mesh at the mid-point of the screed when pouring the screed material (see section [R.1.1.3.10](#)).

To make normal-setting, quick-drying isolated screeds, use **Topcem** binder (see section [R.1.1.2.1](#)) mixed with water and aggregates with a suitable grain size, or **Topcem Pronto** pre-blended mortar (see section [R.1.1.2.2](#)), mixed with water only.

To make rapid-setting and drying isolated screeds, use **Mapecem** binder (see section [R.1.1.2.3](#)) mixed with water and aggregates with a suitable grain size, or **Mapecem Pronto** pre-blended mortar (see section [R.1.1.2.4](#)) mixed with water only.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.2.1 Unbonded screed made from normal-setting, quick-drying cementitious mortar

Supply and application of a screed on a continuous separation or slip layer acting as a vapour barrier (e.g. 3/10 mm polyethylene or a similar material), made from normal-setting, quick-drying, no-slump cementitious mortar, well compacted using manual or mechanical tools and equipment. The blend is made by mixing 250 kg/m<sup>3</sup> of special hydraulic binder (such as **Topcem** produced by MAPEI S.p.A.), assorted aggregates with a grain size of 0 to 8 mm (such as Ghiaietto 0-8 produced by MAPEI S.p.A.) and a water/binder ratio of  $\leq 0.55$ .

The binder must have the following characteristics:

compressive strength after 28 days (N/mm <sup>2</sup> ):	$\geq 30$
set to foot traffic:	12 hours
ready for service:	4 days
residual humidity after 4 days (%):	$< 2.0$

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- supply and application of a polyethylene slip layer at least 3/10 mm thick, with the edges of adjacent sheets overlapped by approximately 20 cm and taped together;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.2.2 Unbonded screed made from pre-blended, ready-to-use, normal-setting, quick-drying mortar

Supply and application of a screed on a continuous separation or slip layer acting as a vapour barrier (e.g. 3/10 mm polyethylene or a similar material), made from 1800/2000 kg/m<sup>3</sup> of pre-blended, ready-to-use, normal-setting, quick-drying, “no-slump” mortar (such as **Topcem Pronto** produced by MAPEI S.p.A.), well compacted using manual or mechanical tools and equipment.

The pre-blended mortar must have the following characteristics:

mixing ratio:	1 25 kg sack with 1.7 litres of water
compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 30
set to foot traffic:	12 hours
ready for service:	4 days
residual humidity after 4 days (%):	< 2.0
classification according to UNI EN 13813:	CT - C30 F6 - A1 <sub>fl</sub>
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- supply and application of a polyethylene slip layer at least 3/10 mm thick, with the edges of adjacent sheets overlapped by approximately 20 cm and taped together;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.2.3 Unbonded screed made from rapid-setting and drying mortar

Supply and application of a screed on a continuous separation or slip layer acting as a vapour barrier (e.g. 3/10 mm polyethylene or a similar material), made from rapid-setting and drying cementitious mortar, well compacted using manual or mechanical tools and equipment. The blend is made by mixing 400 kg/m<sup>3</sup> of special hydraulic binder (such as **Mapecem** produced by MAPEI S.p.A.), assorted aggregates with a grain size of 0 to 8 mm (such as Ghiaietto 0-8 produced by MAPEI S.p.A.) and 90-135 litres of water/m<sup>3</sup> (for dry inerts).

The binder must have the following characteristics:

compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 45
set to foot traffic:	2-3 hours
ready for service:	1 day
residual humidity after 1 day (%):	< 2.0

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- supply and application of a polyethylene slip layer at least 3/10 mm thick, with the edges of adjacent sheets overlapped by approximately 20 cm and taped together;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.

Per cm of thickness .....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.2.4 Unbonded screed made from pre-blended, ready-to-use, rapid-setting and drying mortar

Supply and application of a screed on a continuous separation or slip layer acting as a vapour barrier (e.g. 3/10 mm polyethylene or a similar material), made from 1800/2000 kg/m<sup>3</sup> of pre-blended, ready-to-use, rapid-setting and drying mortar (such as **Mapecem Pronto** produced by MAPEI S.p.A.). The pre-blended mortar must have the following characteristics:

mixing ratio:	1 25 kg sack with 2.1-2.3 litres of water
compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 60
set to foot traffic:	2-3 hours
ready for service:	1 day
residual humidity after 24 hours (%):	< 2.0
classification according to UNI EN 13813:	CT - C60 F10 - A1 <sub>fl</sub>

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- supply and application of a polyethylene slip layer at least 3/10 mm thick, with the edges of adjacent sheets overlapped by approximately 20 cm and taped together;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3 FLOATING SCREEDS Procedure

#### Checking and preparing the substrate

Make sure that the surface is sufficiently clean and that there is enough space to install the insulating/soundproofing layer and a screed  $\geq 40$  mm thick.

If the substrate is uneven, or if there is through-piping in the substrate, a regulating layer must be installed to form a uniform surface to position the insulating/soundproofing material.

Cover the entire surface with a continuous separation or slip layer, which acts as a vapour barrier (e.g. 3/10 mm polyethylene or a similar material). Overlap the edges of adjacent sheets by approximately 20 cm and tape the overlaps to form a continuous layer. This layer may be positioned either before or after the insulating/soundproofing material. Assess the most suitable position according to site requirements.

#### Positioning the insulating/soundproofing layer

To make a soundproof screed in compliance with the minimum performance requirements specified by current legislation, the Mapesilent system may be used by positioning it on either the load-bearing floor slab or on the regulating layer. The product or system of products employed must be chosen according to the thermal-acoustic performance required.

The possible system configurations, listed in order of increasing performance, are as follows:

- **Mapesilent Roll** single-layer
- **Mapesilent Roll** double-layer
- **Mapesilent Panel** single-layer
- **Mapesilent Roll** + **Mapesilent Panel**
- **Mapesilent Panel** double-layer

There must be no points of contact between the screed and the side structures when installing the system, otherwise rigid connection points would be generated and insulation against vibrations would be compromised.

Make sure the substrate is flat and there are no rough areas, and smooth over any piping or cable channels.

- Application of single-layer **Mapesilent Roll** (see section **R.1.1.3.1**):

Roll out the product on the floor slab along the longest side of the room starting from the wall, with the fibre side facing down. Overlap adjacent rolls by at least 5 cm. Seal all overlaps with **Mapesilent Tape** and press it down with a hard roller to make sure it adheres perfectly. Position **Mapesilent Band** (or **Mapesilent Band R**) around the perimeter of the room. Cut the lower part in correspondence with the corners so that, when joined to form a 90° angle, the two cut parts match perfectly. Remove the protective backing film from the **Mapesilent Band** and bond it to the **Mapesilent Roll** and to the wall. Position **Mapesilent Door** around openings. Cut and apply **Mapesilent Tape** in the corners, on all the **Mapesilent Band** and **Mapesilent Door** fillets and where they overlap the **Mapesilent Roll**. When work is completed, there must be no through points in contact with the substrate to prevent the formation of “acoustic bridges”.

– Application of double-layer **Mapesilent Roll** (see section **R.1.1.3.2**):

Apply the first layer by rolling out the product on the floor slab along the longest side of the room starting from the wall, with the fibre side facing upwards. Overlap adjacent rolls by at least 5 cm. Apply the second layer by overlaying the product on the first layer starting from the wall, overlapping adjacent rolls by 5 cm and following the same direction as the first layer. To prevent the formation of acoustic bridges, stagger the second layer with respect to the first layer so that the joints do not coincide. Seal all overlaps in the second layer with **Mapesilent Tape** and press it down with a hard roller to make sure it adheres perfectly. Position **Mapesilent Band** (or **Mapesilent Band R**) around the perimeter of the room. Cut the lower part in correspondence with the corners so that, when joined to form a 90° angle, the two cut parts match perfectly. Remove the protective backing film from the **Mapesilent Band** and bond it to the **Mapesilent Roll** and to the wall. Position **Mapesilent Door** around openings. Cut and apply **Mapesilent Tape** in the corners, on all the **Mapesilent Band** and **Mapesilent Door** fillets and where they overlap the **Mapesilent Roll**. When work is completed, there must be no through points in contact with the substrate to prevent the formation of “acoustic bridges”.

– Application of **Mapesilent Panel** (see section **R.1.1.3.3**):

Apply the panels on the floor slab starting from the wall with the fibre side facing down. Make sure the panels are perfectly aligned and the edges are butted together. If panels need to be cut to shape before positioning them, trim the bituminous layer so that it is not in direct contact with the wall. Seal all the joints between panels with **Mapesilent Tape** and press it down with a hard roller to make sure it adheres perfectly. Position **Mapesilent Band** (or **Mapesilent Band R**) around the perimeter of the room. Cut the lower part in correspondence with the corners so that, when joined to form a 90° angle, the two cut parts match perfectly. Remove the protective backing film from the **Mapesilent Band** and bond it to the **Mapesilent Roll** and to the wall. Position **Mapesilent Door** around openings. Cut and apply **Mapesilent Tape** in the corners, on all the **Mapesilent Band** and **Mapesilent Door** fillets and where they overlap the **Mapesilent Panel**. When work is completed, there must be no through points in contact with the substrate to prevent the formation of “acoustic bridges”.

– Application of **Mapesilent Roll + Mapesilent Panel** (see section **R.1.1.3.4**):

Apply the first layer by rolling **Mapesilent Roll** on the floor slab along the longest side of the room starting from the wall, with the fibre side facing upwards. Overlap adjacent rolls by at least 5 cm. Apply **Mapesilent Panel** on the layer of **Mapesilent Roll**. Stagger the joints between the two layers to prevent the formation of acoustic bridges. Apply the panels with the fibre side facing down. Make sure the panels are perfectly aligned and the edges are butted together. If panels need to be cut to shape before positioning them, trim the bituminous layer so that it is not in direct contact with the wall. Seal all the joints between panels with **Mapesilent Tape** and press it down with a hard roller to make sure it adheres perfectly. Position **Mapesilent Band** (or **Mapesilent Band R**) around the perimeter of the room. Cut the lower part in correspondence with the corners so that, when joined to form a 90° angle, the two cut parts match perfectly. Remove the protective backing film from the **Mapesilent Band** and bond it to the **Mapesilent Roll** and to the wall. Position **Mapesilent Door** around openings. Cut and apply **Mapesilent Tape** in the corners, on all the **Mapesilent Band** and **Mapesilent Door** fillets and where they overlap the **Mapesilent Panel**. When work is completed, there must be no through points in contact with the substrate to prevent the formation of “acoustic bridges”.

– Application of **Mapesilent Panel** double-layer (see section **R.1.1.3.5**):

Apply the first layer of panels on the floor slab starting from the wall with the fibre side facing upwards. Make sure the panels are perfectly aligned and the edges are butted together. If panels need to be cut to shape before positioning them, trim the bituminous layer so that it is not in direct contact with the wall. Then apply the second layer with the fibre side facing down. Trim the edges of panels which need to be cut to shape, and stagger the joints between the two layers to prevent the formation of acoustic bridges. Seal all the joints between panels with **Mapesilent Tape** and press it down with a hard roller to make sure it adheres perfectly. Position **Mapesilent Band** (or **Mapesilent Band R**) around the perimeter of the room. Cut the lower part in correspondence with the corners so that, when joined to form a 90° angle, the two cut parts match perfectly. Remove the protective backing film from the **Mapesilent Band** and bond it to the **Mapesilent Roll** and to the wall. Position **Mapesilent Door** around openings. Cut and apply **Mapesilent Tape** in the corners, on all the **Mapesilent Band** and **Mapesilent Door** fillets and where they overlap the **Mapesilent Panel**. When work is completed, there must be no through points in contact with the substrate to prevent the formation of “acoustic bridges”.

– Making the screed

Floating screeds applied over insulating/soundproofing systems must be at least 4 cm thick, although this thickness must be verified according to the final use of the room and the compressibility of the insulating/soundproofing material used. We also recommend inserting electro-welded, zinc-plated mesh at the mid-point of the screed when pouring the screed material if better crack-resistance and a more even distribution of loads are required (see section **R.1.1.3.10**).

To make normal-setting, quick-drying floating screeds, use **Topcem** binder (see section **R.1.1.3.6**) mixed with water and aggregates with a suitable grain size, or **Topcem Pronto** pre-blended mortar (see section **R.1.1.3.7**), mixed with water only.

To make rapid-setting and drying floating screeds, use **Mapecem** binder (see section **R.1.1.3.8**) mixed with water and aggregates with a suitable grain size, or **Mapecem Pronto** pre-blended mortar (see section **R.1.1.3.9**) mixed with water only.

N.B.: Cut any protruding pieces of **Mapesilent Band** or **Mapesilent Band R** and/or **Mapesilent Door** to the finished flooring level after completing installation and grouting. The gaps between the skirting boards and the floor must be sealed with a suitable flexible sealant, such as **Mapesil AC** after applying **Primer FD**.

– Underfloor soundproofing

When there is not enough space available to install a soundproofing system for floating screeds, but insulation against the noise caused by footsteps is required, install an underfloor insulating system using **Mapesonic CR** (see section **R.1.1.3.11**). This type of sheet may be applied on both existing screeds and old flooring. Choose the most suitable thickness, 2 mm or 4 mm, according to the final performance required.

Check the condition of the substrate and, if required, repair the surface. Thoroughly clean the surface, using a system according to the type of substrate or existing flooring. Apply **Mapesonic Strip** around the perimeter of the room to isolate the new flooring, then bond the **Mapesonic CR**. Bond the sheets to absorbent screeds or substrates using general-purpose acrylic adhesive such as **Ultrabond Eco V4SP**. For non-absorbent substrates, on the other hand, use one-component silitated polymer adhesive such as **Ultrabond Eco S955 1K**.

The selected flooring may then be directly installed when the adhesive is dry.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.1 Single-layer soundproofing system in rolls to reduce noise caused by footsteps

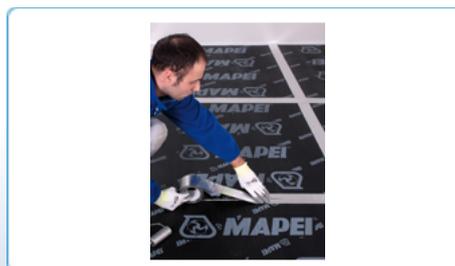
Supply and application of a soundproofing system to reduce noise caused by footsteps on floors, using a polymer-based elasto-plastomeric bitumen membrane sandwiched together with non-woven fabric and a layer of polyester fibre (such as **Mapesilent Roll** produced by MAPEI S.p.A.), inclusive of all required special pieces: shaped perimeter profiles in closed-cell, expanded polyethylene (such as **Mapesilent Band R** produced by MAPEI S.p.A.) and closed-cell, expanded polyethylene sealing tape (such as **Mapesilent Tape** produced by MAPEI S.p.A.) required to complete the system, certified according to current norms and standards (UNI EN ISO 717-2:2007, UNI EN ISO 140-8 and UNI EN 29052-1:1993).

The system must have the following technical and performance characteristics:

nominal thickness d:	8.0 mm
reduction of noise caused by footsteps measured after installation $\Delta L_w$ :	37 dB
reduction of noise caused by footsteps $\Delta L_w$ (*) =	21 dB
effective dynamic stiffness S':	47 MN/m <sup>3</sup>
apparent dynamic stiffness S't:	15 MN/m <sup>3</sup>
thermal resistance R:	0.145 m <sup>2</sup> K/W

(\*) measured in an independent laboratory on a 14 cm thick normalised reinforced concrete floor slab with a surface area of 10 m<sup>2</sup> (according to UNI EN ISO 140-8 standards).

All other operations included and calculated in the price for work completed according to specification  
.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.2 Double-layer soundproofing system in rolls to reduce noise caused by footsteps

Supply and application of a soundproofing system to reduce noise caused by footsteps on floors, using a double layer of polymer-based elasto-plastomeric bitumen membrane sandwiched together with a layer of polyester fibre (such as **Mapesilent Roll** produced by MAPEI S.p.A.), inclusive of all required special pieces: shaped perimeter profiles in closed-cell, expanded polyethylene (such as **Mapesilent Band R** produced by MAPEI S.p.A.) and closed-cell, expanded polyethylene sealing tape (such as **Mapesilent Tape** produced by MAPEI S.p.A.) required to complete the system, certified according to current norms and standards (UNI EN ISO 717-2:2007, UNI EN ISO 140-8 and UNI EN 29052-1:1993).

The system must have the following technical and performance characteristics:

nominal thickness d:	8.0+8.0 mm
reduction of noise caused by footsteps measured after installation $\Delta L_w$ :	> 37 dB
effective dynamic stiffness $S'$ :	23.5 MN/m <sup>3</sup>
thermal resistance R:	0.290 m <sup>2</sup> K/W

All other operations included and calculated in the price for work completed according to specification  
 .....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.3 Single-layer soundproofing system in panels to reduce noise caused by footsteps

Supply and application of a soundproofing system to reduce noise caused by footsteps on floors, using a layer of polymer-based elasto-plastomeric bitumen membrane sandwiched together with a layer of polyester fibre (such as **Mapesilent Panel** produced by MAPEI S.p.A.), inclusive of all required special pieces: shaped perimeter profiles in closed-cell, expanded polyethylene (such as **Mapesilent Band** R produced by MAPEI S.p.A.) and closed-cell, expanded polyethylene sealing tape (such as **Mapesilent Tape** produced by MAPEI S.p.A.) required to complete the system, certified according to current norms and standards (UNI EN ISO 717-2:2007, UNI EN ISO 140-8 and UNI EN 29052-1:1993).

The system must have the following technical and performance characteristics:

nominal thickness d:	13.0 mm
reduction of noise caused by footsteps measured after installation $\Delta L_w$ :	42 dB
reduction of noise caused by footsteps $\Delta L_w$ (*):	24 dB
effective dynamic stiffness $S'$ :	21 MN/m <sup>3</sup>
apparent dynamic stiffness ( $S't$ ):	10 MN/m <sup>3</sup>
thermal resistance R:	0.313 m <sup>2</sup> K/W

(\*) measured in an independent laboratory on a 14 cm thick normalised reinforced concrete floor slab with a surface area of 10 m<sup>2</sup> (according to UNI EN ISO 140-8 standards).

All other operations included and calculated in the price for work completed according to specification  
 .....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.4 Double-layer soundproofing system in rolls and panels to reduce noise caused by footsteps

Supply and application of a soundproofing system to reduce noise caused by footsteps on floors, by combining a layer of sheets of polymer-based elasto-plastomeric bitumen membrane with a polyester fibre backing (such as **Mapesilent Roll** produced by MAPEI S.p.A.) with a layer of panels of polymer-based elasto-plastomeric bitumen membrane with a polyester fibre backing (such as **Mapesilent Panel** produced by MAPEI S.p.A.), inclusive of all required special pieces: shaped perimeter profiles in closed-cell, expanded polyethylene (such as **Mapesilent Band R** produced by MAPEI S.p.A.) and closed-cell, expanded polyethylene sealing tape (such as **Mapesilent Tape** produced by MAPEI S.p.A.) required to complete the system, certified according to current norms and standards (UNI EN ISO 717-2:2007, UNI EN ISO 140-8 and UNI EN 29052-1:1993).

The system must have the following technical and performance characteristics:

nominal thickness d:	8.0+13.0 mm
reduction of noise caused by footsteps measured after installation $\Delta L_w$ :	> 42 dB
effective dynamic stiffness $S'$ :	14.5 MN/m <sup>3</sup>
thermal resistance R:	0.458 m <sup>2</sup> K/W

All other operations included and calculated in the price for work completed according to specification  
 .....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.5 Double-layer soundproofing system in panels to reduce noise caused by footsteps

Supply and application of a soundproofing system to reduce noise caused by footsteps on floors, using a double layer of polymer-based elasto-plastomeric bitumen membrane sandwiched together with a layer of polyester fibre (such as **Mapesilent Panel** produced by MAPEI S.p.A.), inclusive of all required special pieces: shaped perimeter profiles in closed-cell, expanded polyethylene (such as **Mapesilent Band** R produced by MAPEI S.p.A.) and closed-cell, expanded polyethylene sealing tape (such as **Mapesilent Tape** produced by MAPEI S.p.A.) required to complete the system, certified according to current norms and standards (UNI EN ISO 717-2:2007, UNI EN ISO 140-8 and UNI EN 29052-1:1993).

The system must have the following technical and performance characteristics:

nominal thickness d:	13.0+13.0 mm
reduction of noise caused by footsteps measured after installation $\Delta L_w$ :	> 42 dB
effective dynamic stiffness $S'$ :	10.5 MN/m <sup>3</sup>
thermal resistance R:	0.626 m <sup>2</sup> K/W

All other operations included and calculated in the price for work completed according to specification  
.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.6 Floating screed made from normal-setting, quick-drying cementitious mortar

Supply and application of a floating screed made from normal-setting, quick-drying, “no-slump” cementitious mortar, well compacted using manual or mechanical tools and equipment. The blend is made by mixing 250 kg/m<sup>3</sup> of special hydraulic binder (such as **Topcem** produced by MAPEI S.p.A.), assorted aggregates with a grain size of 0 to 8 mm (such as **Ghiaietto 0-8** produced by MAPEI S.p.A.) and a water/binder ratio of  $\leq 0.55$ .

The binder must have the following characteristics:

compressive strength after 28 days (N/mm <sup>2</sup> ):	$\geq 30$
set to foot traffic:	12 hours
ready for service:	4 days
residual humidity after 4 days (%):	$< 2.0$

The following are included and calculated in the price:

- supply and application of a polyethylene slip layer at least 3/10 mm thick, positioned before or after the insulating/soundproofing layer (according to site requirements), with the edges of adjacent sheets overlapped by at least 20 cm and taped together;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.7 Floating screed made from pre-blended, rapid-setting and drying mortar

Supply and application of a floating screed made from 1800/2000 kg/m<sup>3</sup> of pre-blended, ready-to-use, normal-setting, quick-drying, “no-slump” mortar (such as **Topcem Pronto** produced by MAPEI S.p.A.), well compacted using manual or mechanical tools and equipment.

The pre-blended mortar must have the following characteristics:

mixing ratio:	1 25 kg sack with 1.7 litres of water
compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 30
set to foot traffic:	12 hours
ready for service:	4 days
residual humidity after 4 days (%):	< 2.0
classification according to UNI EN 13813:	CT - C30 F6 - A1 <sub>fl</sub>
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- supply and application of a polyethylene slip layer at least 3/10 mm thick, positioned before or after the insulating/soundproofing layer (according to site requirements), with the edges of adjacent sheets overlapped by at least 20 cm and taped together;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.8 Floating screed made from rapid-setting and drying cementitious mortar

Supply and application of a floating screed made from rapid-setting and drying cementitious mortar, well compacted using manual or mechanical tools and equipment. The blend is made by mixing 400 kg/m<sup>3</sup> of special hydraulic binder (such as **Mapecem** produced by MAPEI S.p.A.), assorted aggregates with a grain size of 0 to 8 mm (such as Ghiaietto 0-8 produced by MAPEI S.p.A.) and 90-135 litres of water/m<sup>3</sup> (for dry inerts).

The binder must have the following characteristics:

compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 45
set to foot traffic:	2-3 hours
ready for service:	1 day
residual humidity after 1 day (%):	< 2.0

The following are included and calculated in the price:

- supply and application of a polyethylene slip layer at least 3/10 mm thick, positioned before or after the insulating/soundproofing layer (according to site requirements), with the edges of adjacent sheets overlapped by at least 20 cm and taped together;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.3.9 Floating screed made from pre-blended, ready-to-use, rapid-setting and drying mortar

Supply and application of a floating screed made from 1800/2000 kg/m<sup>3</sup> of pre-blended, ready-to-use, rapid-setting and drying mortar (such as **Mapecem Pronto** produced by MAPEI S.p.A.).

The pre-blended mortar must have the following characteristics:

mixing ratio:	1 25 kg sack with 2.1-2.3 litres of water
compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 60
set to foot traffic:	2-3 hours
ready for service:	1 day
residual humidity after 24 hours (%):	< 2.0
classification according to UNI EN 13813:	CT - C60 F10 - A1 <sub>fl</sub>

The following are included and calculated in the price:

- supply and application of a polyethylene slip layer at least 3/10 mm thick, positioned before or after the insulating/soundproofing layer (according to site requirements), with the edges of adjacent sheets overlapped by at least 20 cm and taped together;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.

Per cm of thickness

.....(€/m<sup>2</sup>)



**R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES****R.1.1.3.10 Application of reinforcement mesh**

Insertion of 50×50 mm or 100×100 mm electro-welded mesh with a weight of at least 650 g/m<sup>2</sup>, embedded in the screed during pouring at a position of at least 1/3 the thickness of the screed (measured from the bottom).

*Extra cost*

.....(€/m<sup>2</sup>)

**R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

**R.1.1.3.11 Application of an underfloor soundproofing system**

Supply and application of a thin underfloor soundproofing system with the capacity of reducing noise caused by footsteps (such as **Mapesonic CR** produced by MAPEI S.p.A.), after positioning suitable insulating strip around the perimeter of the room (such as **Mapesonic Strip** produced by MAPEI S.p.A.). Apply the membrane directly on the substrate, after thoroughly cleaning and preparing the substrate, using acrylic adhesive in water dispersion (such as **Ultrabond Eco V4SP** produced by MAPEI S.p.A.) for absorbent substrates, or one-component, sililated polymer adhesive (such as **Ultrabond Eco S955 1K** produced by MAPEI S.p.A.) for non-absorbent substrates.

The soundproofing mat must have the following characteristics:

thickness:	2 or 4 mm (according to the level of soundproofing required)
material:	recomposed cork and rubber with polyurethane binder
elongation at failure (%):	20
tensile strength (N/mm <sup>2</sup> ):	0.6
EMICODE:	EC1 Plus
<i>Per cm of thickness</i>	.....(€/m <sup>2</sup> )



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.1.4 HEATED SCREEDS Procedure**

#### **Checking and preparing the substrate**

Make sure that there is enough space to install a screed  $\geq 25$  mm thick above the heating elements and that the heating system has been successfully tested for leaks. Position 1 cm thick compressible material (such as polystyrene) the same height as the thickness of the screed around all vertical elements.

#### **Making the screed**

Radiating screeds must be at least 2.5 cm thick above the heating elements. Position metallic reinforcement mesh dimensioned according to the design loads over the heating elements.

To make a radiating screed, the consistency of the mix must allow it to completely embed the piping and, when set, must have good thermal conductivity. A suitable solution for a normal sand-cement mix is to add a super-plasticising admix such as **Mapefluid N200** (see section **R.1.1.4.1**) or, to make a normal-setting, quick-drying screed, use **Topcem** binder (see section **R.1.1.4.2**) mixed with water and aggregates with a suitable grain size, or **Topcem Pronto** pre-blended mortar (see section **R.1.1.4.3**) mixed with water only.

To make rapid-setting and drying radiating screeds, use **Mapecem** binder (see section **R.1.1.4.4**) mixed with water and aggregates with a suitable grain size, or **Mapecem Pronto** pre-blended mortar (see section **R.1.1.4.5**) mixed with water only.

If one of the aforementioned binders or pre-blended mortars is used, no super-plasticising admix is required.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.4.1 Heated screed made from normal-setting and drying cement mortar and super-plasticising admix

Supply and application of a screed to embed the elements of a heating system and form a layer at least 2.5 cm thick above the elements, made from normal-setting and drying cement mortar with a strength value of at least 20 N/mm<sup>2</sup>, thermal conductivity  $\lambda$ ; of more than 1.2 W/m K and a water/cement ratio of < 0.6, using a super-plasticising admix (such as **Mapescreed 704** produced by MAPEI S.p.A.) added in the mixer to complete the blend.

The super-plasticiser must have the following characteristics:

dry solids content:	15%
admix/cement ratio:	1-1.5 l/100 kg

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 20-25 m<sup>2</sup> for internal screeds and every 16 m<sup>2</sup> for external screeds.
- positioning over the heating elements of 10x10 or 20x20 metallic reinforcement mesh with a wire  $\emptyset$  sufficient for the design loads on the floor and compressibility of the underfloor insulating system.

Per cm of thickness .....(€/m<sup>2</sup>)



**R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

**R.1.1.4.2 Heated screed made from normal-setting, quick-drying cementitious mortar**

Supply and application of a screed to embed the elements of a heating system and form a layer at least 2.5 cm thick above the elements, made from normal-setting, quick-drying, “no-slump” cementitious mortar, well compacted using manual or mechanical tools and equipment. The blend is made by mixing 250 kg/m<sup>3</sup> of special hydraulic binder (such as **Topcem** produced by MAPEI S.p.A.), assorted aggregates with a grain size of 0 to 8 mm (such as **Ghiaietto 0-8** produced by MAPEI S.p.A.) and a water/binder ratio of ≤ 0.55.

The binder must have the following characteristics:

compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 30
set to foot traffic:	12 hours
ready for service:	4 days
residual humidity after 4 days (%):	< 2.0

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.
- positioning over the heating elements of 10x10 or 20x20 metallic reinforcement mesh with a wire Ø sufficient for the design loads on the floor and compressibility of the underfloor insulating system.

*Per cm of thickness* .....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.4.3 Heated screed made from pre-blended, ready-to-use, normal-setting, quick-drying mortar

Supply and application of a screed to embed the elements of a heating system and form a layer at least 2.5 cm thick above the elements, made from 1800/2000 kg/m<sup>3</sup> of pre-blended, ready-to-use, normal-setting, quick-drying, “no-slump” mortar (such as **Topcem Pronto** produced by MAPEI S.p.A.), well compacted using manual or mechanical tools and equipment.

The pre-blended mortar must have the following characteristics:

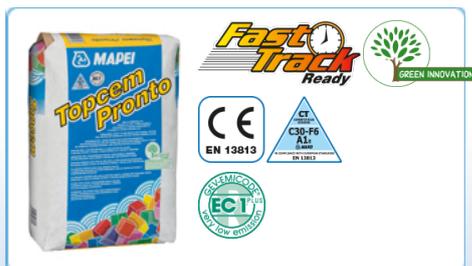
mixing ratio:	1 25 kg sack with 1.7 litres of water
compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 30
set to foot traffic:	12 hours
ready for service:	4 days
residual humidity after 4 days (%):	< 2.0
classification according to UNI EN 13813:	CT - C30 F6 - A1 <sub>fl</sub>
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.
- positioning over the heating elements of 10x10 or 20x20 metallic reinforcement mesh with a wire Ø sufficient for the design loads on the floor and compressibility of the underfloor insulating system.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.4.4 Heated screed made from rapid-setting and drying mortar

Supply and application of a screed to embed the elements of a heating system and form a layer at least 2.5 cm thick above the elements, made by mixing 400 kg/m<sup>3</sup> of special hydraulic binder (such as **Mapecem** produced by MAPEI S.p.A.), assorted aggregates with a grain size of 0 to 8 mm (such as **Ghiaietto 0-8** produced by MAPEI S.p.A.) and 90-135 litres of water/m<sup>3</sup> (for dry inerts).

The binder must have the following characteristics:

compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 45
set to foot traffic:	2-3 hours
ready for service:	1 day
residual humidity after 1 day (%):	< 2.0

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.
- positioning over the heating elements of 10x10 or 20x20 metallic reinforcement mesh with a wire Ø sufficient for the design loads on the floor and compressibility of the underfloor insulating system.

Per cm of thickness

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.1.4.5 Heated screed made from pre-blended, ready-to-use, rapid-setting and drying mortar

Supply and application of a screed to embed the elements of a heating system and form a layer at least 2.5 cm thick above the elements, made from 1800/2000 kg/m<sup>3</sup> of pre-blended, ready-to-use, rapid-setting and drying mortar (such as **Mapecem Pronto** produced by MAPEI S.p.A.).

The pre-blended mortar must have the following characteristics:

mixing ratio:	1 25 kg sack with 2.1-2.3 litres of water
compressive strength after 28 days (N/mm <sup>2</sup> ):	≥ 60
set to foot traffic:	2-3 hours
ready for service:	1 day
residual humidity after 24 hours (%):	< 2.0
classification according to UNI EN 13813:	CT - C60 F10 - A1 <sub>fl</sub>

The following are included and calculated in the price:

- supply and positioning of 1 cm thick compressible material (such as polystyrene) around the perimeter of the room and around pillars and through-elements in the room;
- formation of check-joints in the fresh screed as soon as it has set sufficiently to allow cuts to be made without damaging the inert material. The joints, made by cutting into the screed to a depth of 1/3 its thickness, must be inserted around edges and between pillars, and at a pitch of approximately every 40 m<sup>2</sup> for internal screeds and every 20-25 m<sup>2</sup> for external screeds.
- positioning over the heating elements of 10x10 or 20x20 metallic reinforcement mesh with a wire Ø sufficient for the design loads on the floor and compressibility of the underfloor insulating system.

Per cm of thickness .....(€/m<sup>2</sup>)



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.2 PREPARATION OF EXISTING SCREEDS TO INSTALL FINISHES** **Introduction**

#### **Primer G**

Synthetic resin-based primer in water dispersion, for treating substrates before applying skimming layers, or for treating gypsum and anhydrite surfaces before applying cementitious products. It is also efficient in consolidating surface dust and evening out the absorption of screeds. Very low emission of volatile organic compounds (EMICODE EC1).

#### **Eco Prim Grip**

Acrylic resin and siliceous inert-based adhesion promoter, guarantees a rough bonding surface to ensure excellent adhesion, including on smooth and low-absorbency substrates. Suitable for improving adhesion of cementitious skimming mortar and adhesive on non-absorbent surfaces, such as ceramic and terrazzo. Very low emission of volatile organic compounds (EMICODE EC1 Plus).

#### **Eco Prim T**

General-purpose acrylic primer, improves adhesion of skimming mortar on all types of absorbent and non-absorbent surfaces. Also recommended as an adhesion promoter on traces of old adhesive for resilients. Very low emission of volatile organic compounds (EMICODE EC1 Plus, Blauer Engel).

#### **Primer MF**

Two-component, solvent-free epoxy primer, suitable for consolidating weak cementitious and anhydrite substrates and waterproofing concrete screeds and flooring with high residual humidity.

#### **Primer MF EC Plus**

Two-component, solvent-free epoxy primer, suitable for consolidating weak cementitious and anhydrite substrates and waterproofing concrete screeds and flooring with high residual humidity. Very low emission of volatile organic compounds (EMICODE EC1 R Plus).

#### **Eco Prim PU 1K**

One-component, solvent-free, moisture-hardening polyurethane primer, suitable for consolidating weak cementitious and anhydrite substrates and waterproofing concrete screeds and flooring with high residual humidity. Very low emission of volatile organic compounds (EMICODE EC1 R).

#### **Eco Prim PU 1K Turbo**

One-component, solvent-free, moisture-hardening, rapid-drying polyurethane primer, suitable for consolidating weak cementitious and anhydrite substrates and waterproofing concrete screeds and flooring with high residual humidity. Very low emission of volatile organic compounds (EMICODE EC1 R Plus).

#### **Triblock P**

Three-component epoxy-cementitious primer for waterproofing non-absorbent substrates, such as old ceramic and terrazzo flooring, with high residual humidity.

## HOW TO CHOOSE THE MOST SUITABLE SOLUTION

According to the problem to be solved:

	Adhesion promoters	Consolidating primers	Waterproofing primers
<b>Primer G</b>	X		
<b>Eco Prim T</b>	X		
<b>Eco Prim Grip</b>	X		
<b>Primer MF</b>		X	X
<b>Primer MF EC Plus</b>		X	X
<b>Eco Prim PU 1K</b>		X	X
<b>Triblock P</b>			X

There are various problems for which the application of a suitable primer is required.

If the screed is in good condition mechanically and is well-cured, application of an adhesion promoter is usually sufficient. This type of product is usually applied prior to cementitious skimming mortar or adhesive, in that it improves adhesion to the substrate and evens out the absorption of surfaces, thus avoiding different drying rates. Adhesion promoters are also usually recommended for surfaces with a light layer of dust.

If certain areas of the substrate are weak, or if the substrate is not strong enough for purpose, a consolidating primer must be used. This type of product works by impregnating into the substrate and, when dry, makes it stronger. Epoxy and polyurethane-based primers must be dusted with sand while they are still fresh to ensure adhesion of the successive layers of skimming mortar or adhesive. For cured substrates which are not completely dry, with residual humidity, therefore, slightly higher than the permitted level for installing flooring sensitive to damp (maximum 5 % for 6 cm thick screeds), a waterproofing primer may be applied. This type of primer works by penetrating into the substrate to fill the surface pores and make them waterproof, or forms a waterproof film on the surface. Epoxy and polyurethane resin-based impregnating primers must also be dusted with sand while they are still fresh.

The application of waterproofing treatments must be avoided on heating screeds. If this type of screed requires consolidating, make sure it is dry beforehand.

For further information on examples where primers are required and on their use and application, please refer to the MAPEI Technical Pamphlet "Installation of screeds for laying floors".

## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.2.1 APPLICATION OF ADHESION PROMOTING PRIMER Procedure**

#### **Checking and preparing the substrate**

Make sure the substrate is cured and dry, clean the surface thoroughly and remove all traces of dust, crumbly or loose portions, traces of paint and any other material or element which could compromise adhesion of the skimming mortar or adhesive to be applied later.

#### **Application of adhesion promoter**

Select which primer to use after checking the condition of the substrate (such as the presence of dust or residues of poorly bonded adhesive) and its absorbency.

Screeds with light surface dust or screeds to be skimmed with a cementitious product may be primed with **Primer G** (see section [R.1.2.1.1](#)). An alternative to this product, or if there are traces of old adhesive poorly adhered to the surface, is **Eco Prim T** (see section [R.1.2.1.2](#)). Apply a single coat of primer with a flat brush or roller after diluting it with water, according to the absorbency of the substrate (less water is required for highly absorbent substrates). Adhesive or skimming mortar may then be applied when the primer is dry.

If the surface is particularly smooth and has low absorbency, use **Eco Prim Grip** (see section [R.1.2.1.3](#)). Apply the product neat with a roller, brush or by spray. Adhesive or skimming mortar may then be applied when the primer is dry.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.1.1 Application of synthetic resin-based primer in water dispersion for absorbent surfaces

Supply and application of synthetic resin-based primer in water dispersion with a very low content of volatile organic compounds (VOC) (such as **Primer G** produced by MAPEI S.p.A.) with a flat brush or by spray, to consolidate surface dust and to even out the absorbency of substrates before applying adhesive or skimming mortar. The product must also be suitable for priming gypsum and anhydrite substrates before applying cementitious skimming mortar or adhesive. Dilute the product 1:1 or 1:2 with water before application, according to the absorbency of the substrate.

The adhesion promoter must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.01
Brookfield viscosity (mPa s):	20
drying time:	2 h
consumption (kg/m <sup>2</sup> ):	0.1-0.2
EMICODE:	EC1

All other operations included and calculated in the price for work completed according to specification.

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.1.2 Application of acrylic resin-based adhesion promoting primer in water dispersion for absorbent surfaces and surfaces with residues of old adhesive for non-resilient flooring

Supply and application of acrylic resin-based adhesion promoting primer in water dispersion with a very low content of volatile organic compounds (VOC) (such as **Eco Prim T** produced by MAPEI S.p.A.) with a flat brush or roller, applied on cementitious substrates before applying skimming mortar. The product must also be suitable for priming gypsum and anhydrite substrates and surfaces with traces of old, well-bonded adhesive or skimming mortar before applying skimming mortar or adhesive. Dilute the product 1:1 or 1:2 with water before application on cementitious or anhydrite substrates, or apply neat on old ceramic, natural stone, wood or old adhesive resistant to water.

The product must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.03
Brookfield viscosity (mPa s):	3000 (#3, rpm 5)
drying time:	15-40 mins.
consumption (kg/m <sup>2</sup> ):	0.1-0.2
EMICODE:	EC1 Plus
Certification:	Der Blaue Engel

All other operations included and calculated in the price for work completed according to specification.

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.1.3 Application of bonding promoting primer for non-absorbent surfaces

Supply and application of acrylic resin-based adhesion promoting primer in water dispersion and siliceous inerts with a very low content of volatile organic compounds (VOC) (such as **Eco Prim Grip** produced by MAPEI S.p.A.) with a flat brush or roller on existing ceramic flooring, terrazzo or natural stone, applied on non-absorbent surfaces before applying skimming mortar.

The product must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.51
Brookfield viscosity (mPa s):	3000 (#4, rpm 20)
drying time:	30 mins.
consumption (kg/m <sup>2</sup> ):	0.2-0.3
EMICODE:	EC1 Plus

All other operations included and calculated in the price for work completed according to specification

.....(€/m<sup>2</sup>)



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.2.2 APPLICATION OF CONSOLIDATING PRIMER Procedure**

#### **Checking and preparing the substrate**

Make sure the screed is clean with no traces of oil, wax and dirt in general, and that it has been cured for at least 7-10 days per cm of thickness in the case of conventional screeds. With quick or rapid hydrating screeds, comply with the curing times indicated on the Technical Data Sheet for the product.

Seal any cracks in the substrate beforehand with **Eporip** (see section **R.1.2.2.1**) to eliminate any irregular areas.

#### **Application of consolidating primer**

Prepare the consolidating primer. Mix the components together with a low-speed drill with a mixing attachment until the components are perfectly blended if a two-component product is used. Then apply the primer with a roller, brush or flat towel. The number of coats required depends on the absorption of the screed. After applying the final coat of primer, dust the surface with clean, dry sand, such as **Quartz 1.2**. When the primer is dry, remove any loose sand before the next phase.

The surface does not need to be dusted with sand if flooring is laid directly on the consolidated surface using adhesive of the same nature as the primer within 72 hours of applying the primer.

Consolidate the screed using solvent-free epoxy-polyurethane primer such as **Primer MF** (see section **R.1.2.2.2**) or, if a product with very low emission of VOC is preferred, with **Primer MF EC Plus** (see section **R.1.2.2.3**). As an alternative, use a polyurethane primer such as **Eco Prim PU 1K** (see section **R.1.2.2.4**) or, if a more rapid version is required, **Eco Prim PU 1K Turbo** (see section **R.1.2.2.5**).

N.B.: Heating and anhydrite screeds may only be consolidated when dry after measuring the level of residual humidity.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.2.1 Sealing cracks using epoxy adhesive

Repair of cracked screeds by pouring two-component, fluid epoxy adhesive into the cracks to seal them (such as **Eporip** produced by MAPEI S.p.A.) followed by dusting the surface with clean, dry sand (such as **Quartz 1.2** produced by MAPEI S.p.A.). Open the cracks to form a "V" shape with a hand grinder before pouring the adhesive so it is easier to seal the cracks, and then remove all traces of dust in the crack with a vacuum cleaner.

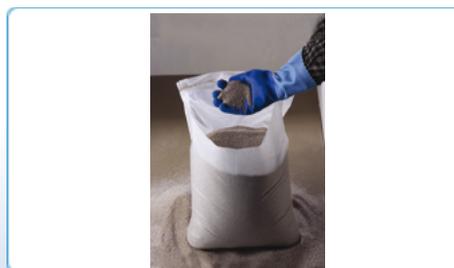
The adhesive used for sealing must have the following characteristics:

consistency of mix:	fluid paste
workability time:	60 minutes at +23°C
final hardening time:	7 days
compressive strength (N/mm <sup>2</sup> ):	> 70

The following are included and calculated in the price:

- preparation of the cracks before pouring the adhesive;
- application of sand on the surface of the resin while still fresh;
- removal of loose sand when the resin has hardened.

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.2.2 Application of two-component, epoxy resin-based consolidating and waterproofing primer

Supply and application of one or two coats of two-component, solvent-free, low viscosity epoxy resin-based primer (such as **Primer MF** produced by MAPEI S.p.A.), after mechanically removing all loose portions of the screed, vacuuming all traces of dust from the surface and sealing any cracks in the surface. Apply the primer with a roller or brush and, for screeds with low absorbency, dilute the first coat with a suitable product (such as **Primer KL** produced by MAPEI S.p.A.) at a dilution rate of up to 13%.

The consolidating primer must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.1
dry solids content (%):	100
Brookfield viscosity (mPa s):	300 (#2, rpm 50)

The following are included and calculated in the price:

- cleaning of the screed;
- supply of dilutant if required;
- supply and application of clean, dry sand on the fresh primer (if required);
- removal of loose sand when the primer is dry.

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.2.3 Application of two-component, epoxy resin-based consolidating and waterproofing primer with very low emission of volatile organic compounds

Supply and application of one or two coats of two-component, solvent-free, low viscosity epoxy resin-based primer with very low emission of volatile organic compounds (such as **Primer MF EC Plus** produced by MAPEI S.p.A.), after mechanically removing all loose portions of the screed, vacuuming all traces of dust from the surface and sealing any cracks in the surface. Apply the primer with a roller or brush.

The consolidating primer must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.1
dry solids content (%):	100
Brookfield viscosity (mPa s):	350 (#2, rpm 50)
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- cleaning of the screed;
- supply and application of clean, dry sand on the fresh primer (if required);
- removal of loose sand when the primer is dry.

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.2.4 Application of one-component, polyurethane resin-based consolidating and waterproofing primer with very low emission of volatile organic compounds

Supply and application of one or two coats of one-component, solvent-free, low viscosity polyurethane resin-based primer with very low emission of volatile organic compounds (such as **Eco Prim PU 1K** produced by MAPEI S.p.A.), after mechanically removing all loose portions of the screed, vacuuming all traces of dust from the surface and sealing any cracks in the surface. Apply the primer with a roller or brush.

The consolidating primer must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.05
dry solids content (%):	100
Brookfield viscosity (mPa s):	65 (#1, rpm 10)
EMICODE:	EC1 R

The following are included and calculated in the price:

- cleaning of the screed;
- supply and application of clean, dry sand on the fresh primer (if required);
- removal of loose sand when the primer is dry.

.....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.2.5 Application of one-component, rapid-drying, polyurethane resin-based consolidating and waterproofing primer with very low emission of volatile organic compounds

Supply and application of one or two coats of one-component, solvent-free, rapid-drying polyurethane resin-based primer with very low emission of volatile organic compounds (such as **Eco Prim PU 1K Turbo** produced by MAPEI S.p.A.), after mechanically removing all loose portions of the screed, vacuuming all traces of dust from the surface and sealing any cracks in the surface. Apply the primer with a roller or brush.

The consolidating primer must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.20
dry solids content (%):	100
Brookfield viscosity (mPa s):	300 (#1, rpm 10)
final hardening time:	2 hours
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- cleaning of the screed;
- supply and application of clean, dry sand on the fresh primer (if required);
- removal of loose sand when the primer is dry.

.....(€/m<sup>2</sup>)



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.2.3 APPLICATION OF WATERPROOFING PRIMER Procedure**

#### **Checking and preparing the substrate**

Make sure the screed is clean with no traces of oil, wax and dirt in general, and that it has been cured for at least 7-10 days per cm of thickness in the case of conventional screeds. With quick or rapid hydrating screeds, comply with the curing times indicated on the Technical Data Sheet for the product.

Seal any cracks in the substrate beforehand with **Eporip** (see section **R.1.2.2.1**) to eliminate any irregular areas.

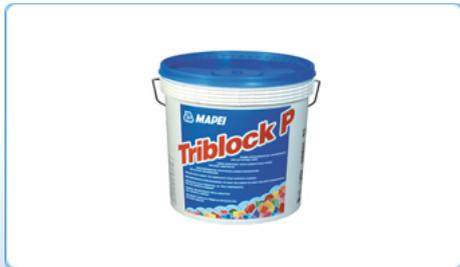
#### **Application of waterproofing primer**

Prepare the waterproofing primer. Mix the components together with a low-speed drill with a mixing attachment until the components are perfectly blended if a product with more than one component is used. Then apply the primer with a roller, brush or flat towel. The number of coats required depends on the absorption of the screed.

Waterproofing may be achieved using solvent-free, epoxy-polyurethane primer such as **Primer MF** (see section **R.1.2.2.2**) or, if a product with very low emission of volatile organic compounds is required, with **Primer MF EC Plus** (see section **R.1.2.2.3**). As an alternative, use a polyurethane primer such as **Eco Prim PU 1K** (see section **R.1.2.2.4**) or, if a rapid version is required, with **Eco Prim PU 1K Turbo** (see section **R.1.2.2.5**). After applying one of these primers, dust the surface with clean, dry sand such as **Quartz 1.2**. The surface does not need to be dusted with sand if flooring is laid directly on the consolidated surface using adhesive of the same nature as the primer within 72 hours of applying the primer. When the primer is dry, remove any loose sand before carrying out the next phase.

Waterproofing of surfaces, including non-absorbent surfaces, may be carried out by applying **Triblock P** with a roller or brush (see section **R.1.2.3.1**) which, after mixing the three components together, must be mixed with water. The amount of water required depends on how the primer is applied (roller, brush or by spray).

**N.B.: It is not possible to waterproof heating or anhydrite screeds.**



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.2.3.1 Application of three-component, epoxy-cementitious waterproofing primer

Supply and application of two criss-cross coats of three-component, epoxy-cementitious primer after cleaning the substrate (such as **Triblock P** produced by MAPEI S.p.A.), suitable for use on non-absorbent substrates (such as old ceramic or stone flooring and highly compact cementitious substrates). After mixing, dilute the product with water. The amount of water required depends on how the primer is applied: roller, brush or by spray.

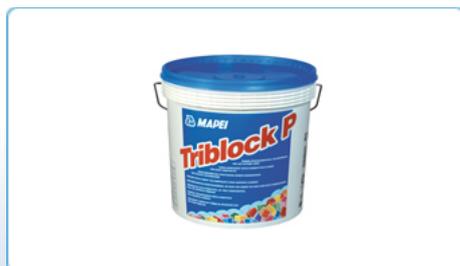
The product must have the following characteristics:

density (g/cm <sup>3</sup> ):	1.80
dry solids content (%):	70
Brookfield viscosity (mPa s):	120,000 (#7, rpm 10)

Flooring or skimming mortar must be applied within a maximum of 7 days.

Consumption per coat is approximately 250-300 g/m<sup>2</sup> for absorbent surfaces and 400-500 g/m<sup>2</sup> for non-absorbent surfaces.

All other operations included and calculated in the price for work completed according to specification  
.....(€/m<sup>2</sup>)



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.3 SKIMMING LAYERS** **Introduction**

#### **MAPEI skimming products for levelling substrates**

##### **Ultraplan**

Self-levelling, rapid-hardening (12 hours) smoothing product for layers from 1 to 10 mm thick on internal surfaces, with very low emission of volatile organic compounds (EMICODE EC1 R Plus, Blauer Engel).

##### **Ultraplan Eco**

Self-levelling, rapid-hardening (12 hours) smoothing product for layers from 1 to 10 mm thick on internal surfaces, with very low emission of volatile organic compounds (EMICODE EC1 Plus, Blauer Engel).

##### **Fiberplan**

Self-levelling, rapid-hardening (12-24 hours), fibre-reinforced smoothing product for layers from 3 to 30 mm thick on internal surfaces (EMICODE EC1 R Plus).

##### **Planipatch**

Self-levelling, fine-grained, rapid-hardening (12 hours), thixotropic smoothing product for layers from 0 to 10 mm thick on internal surfaces, suitable also for vertical surfaces, with very low emission of volatile organic compounds (EMICODE EC1 Plus).

##### **Nivorapid**

Self-levelling, rapid-hardening (12 hours), thixotropic smoothing product for layers from 1 to 10 mm thick on internal surfaces, suitable also for vertical surfaces, with very low emission of volatile organic compounds (EMICODE EC1 R Plus).

##### **Adesilex P4**

Rapid-hardening skimming product for layers up to 20 mm thick on internal and external horizontal surfaces, with very low emission of volatile organic compounds (EMICODE EC1 R Plus).

##### **Ultraplan Maxi**

Self-levelling, rapid-hardening (12 hours) smoothing product for layers from 3 to 30 mm thick on internal surfaces, with very low emission of volatile organic compounds (EMICODE EC1 R Plus).

##### **Planitop Fast 330**

Rapid-setting, fibre-reinforced, thixotropic cementitious mortar for layers from 3 to 30 mm thick on internal and external surfaces, suitable for levelling vertical and horizontal substrates.

**HOW TO CHOOSE THE MOST SUITABLE SOLUTION**

According to thickness:

<b>Thickness required</b>	<b>Products</b>	<b>Areas of use</b>
Less than 10 mm	<b>ULTRAPLAN</b>	Internal floors
	<b>ULTRAPLAN ECO</b>	Internal floors
	<b>FIBERPLAN</b>	Internal floors
	<b>PLANIPATCH</b>	Internal walls/floors
Up to 20 mm	<b>NIVORAPID</b>	Internal walls/floors
	<b>ADESILEX P4</b>	Internal/external floors
	<b>ULTRAPLAN MAXI</b>	Internal floors
Up to 30 mm	<b>PLANITOP FAST 330</b>	Internal/external walls/floors

Flooring must always be installed on a level substrate (generally a tolerance of  $\pm 2$  mm on flatness measured with a 2 m straight edge is acceptable). The strength and flatness of the substrate must be defined for each single case, according to the final use of the floor and the type of flooring to be installed.

In general, if the surface of a substrate is uneven, it must be levelled using a suitable smoothing product. The main characteristics of this type of product are their consistency and the maximum thickness which may be applied.

Smoothing products may be either thixotropic or self-levelling. Thixotropic products are suitable for levelling both horizontal and vertical surfaces, while self-levelling products may only be applied on horizontal surfaces, and form particularly smooth, level laying surfaces.

## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.3.1 SKIMMING LAYERS UP TO 10 mm THICK Procedure**

#### **Checking and preparing the substrate**

Make sure the substrate is dry and solid, and that there are no loose portions or dust or traces of paint, wax, oil, rust or gypsum. Weak substrates must be consolidated and cracks must be repaired beforehand. Dusty, highly-porous or gypsum-based surfaces must be treated beforehand by applying **Primer G** (diluted 1:3 with water). This priming operation is also useful to even out absorption of the substrate and prevents products applied later to dry out too quickly or unevenly.

Screeds with high residual humidity must be left to dry or waterproofed before applying the smoothing product. For substrates with continuous rising damp, a smoothing product for external use is preferable.

#### **Smoothing layer**

Apply the product in a single coat. When applying self-levelling products, spread on the mix with a large metal trowel or a spreader to form the thickness required. If parquet is to be installed, the smoothing layer must be at least 3 mm thick.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.3.1.1 Application of a self-levelling cementitious smoothing layer from 1 to 10 mm thick on internal surfaces

Supply and application of a self-levelling, rapid-setting, cementitious smoothing product in layers from 1 to 10 mm thick on internal surfaces, with very low emission of volatile organic compounds (VOC) (such as **Ultraplan** produced by MAPEI S.p.A.), for use on cementitious substrates, concrete slabs and ceramic, terrazzo and natural stone floors. Substrates must be clean, dry, sound and compact, and consolidated or primed with a suitable product (such as **Primer MF**, **Primer G** or **Eco Prim T** produced by MAPEI S.p.A.).

The skimming product must have the following characteristics:

density of mix (kg/m <sup>3</sup> ):	1,900
pH:	approx. 12
set to foot traffic:	3 h
compressive strength (N/mm <sup>2</sup> ):	30 (after 28 days)
flexural strength (N/mm <sup>2</sup> ):	8 (after 28 days)
abrasion resistance (g):	0.7 (after 28 days with a Taber abrasion meter, H22 disk, weight 550 g after 200 revs)
Brinell hardness (N/mm <sup>2</sup> ):	110 (after 28 days)
consumption (kg/m <sup>2</sup> ):	1.6 (per mm of thickness)
EMICODE:	EC1 R Plus
certification:	Der Blaue Engel
certification according to UNI EN 13813:	CT C30-F7 A2 <sub>fl</sub> -s1
All other operations included and calculated in the price for work completed according to specification	
Per mm of thickness	.....(€/m <sup>2</sup> )



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.3.1.2 Application of a self-levelling cementitious smoothing layer from 1 to 10 mm thick on internal surfaces

Supply and application of a self-levelling, rapid-setting, cementitious smoothing layer from 1 to 10 mm thick on internal surfaces, with very low emission of volatile organic compounds (VOC) (such as **Ultraplan Eco** produced by MAPEI S.p.A.), for use on cementitious substrates, concrete slabs and ceramic, terrazzo and natural stone floors. Substrates must be clean, dry, sound and compact, and consolidated or primed with a suitable product (such as **Primer MF**, **Primer G** or **Eco Prim T** produced by MAPEI S.p.A.).

The skimming product must have the following characteristics:

density of mix (kg/m <sup>3</sup> ):	2,000
pH:	approx. 12
set to foot traffic:	3 h
compressive strength (N/mm <sup>2</sup> ):	26 (after 28 days)
flexural strength (N/mm <sup>2</sup> ):	7 (after 28 days)
abrasion resistance (g):	2.3 (after 28 days with a Taber abrasion meter, H22 disk, weight 550 g after 200 revs)
Brinell hardness (N/mm <sup>2</sup> ):	100 (after 28 days)
consumption (kg/m <sup>2</sup> ):	1.6 (per mm of thickness)
EMICODE:	EC1 R Plus
certification:	Der Blaue Engel
certification according to UNI EN 13813:	CT C25-F7 A2 <sub>fl</sub> -s1
All other operations included and calculated in the price for work completed according to specification	
Per mm of thickness	.....(€/m <sup>2</sup> )



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.3.1.3 Application of a self-levelling, fibre-reinforced cementitious smoothing layer from 1 to 10 mm thick on internal surfaces

Supply and application of a self-levelling, fibre-reinforced, rapid-setting, cementitious smoothing layer from 1 to 10 mm thick on internal surfaces (such as **Fiberplan** produced by MAPEI S.p.A.), specific for application on wooden substrates. Substrates must be clean, dry, sound and compact.

The skimming product must have the following characteristics:

density of mix (kg/m <sup>3</sup> ):	1,900
pH:	approx. 12
set to foot traffic:	3 h
compressive strength (N/mm <sup>2</sup> ):	28 (after 28 days)
flexural strength (N/mm <sup>2</sup> ):	8 (after 28 days)
abrasion resistance (g):	0.7 (after 28 days with a Taber abrasion meter, H22 disk, weight 550 g after 200 revs)
Brinell hardness (N/mm <sup>2</sup> ):	75 (after 28 days)
consumption (kg/m <sup>2</sup> ):	1.6 (per mm of thickness)
EMICODE:	EC1 R Plus
certification according to UNI EN 13813:	CT C25-F7 A2 <sub>fl</sub> -s1
All other operations included and calculated in the price for work completed according to specification Per mm of thickness	.....(€/m <sup>2</sup> )



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.3.1.4 Application of a fine-grained, cementitious skimming layer from 0 to 10 mm thick on internal surfaces

Supply and application of a fine-grained, rapid-setting, thixotropic, cementitious skimming layer from 0 to 10 mm thick on internal surfaces (such as **Planipatch** produced by MAPEI S.p.A.), where a particularly smooth surface is required. Substrates must be clean, dry, sound and compact.

The skimming product must have the following characteristics:

density of mix (kg/m <sup>3</sup> ):	1,850
pH:	approx. 12
set to foot traffic:	2 h
compressive strength (N/mm <sup>2</sup> ):	39 (after 28 days)
flexural strength (N/mm <sup>2</sup> ):	9 (after 28 days)
Brinell hardness (N/mm <sup>2</sup> ):	98 (after 28 days)
consumption (kg/m <sup>2</sup> ):	1.5 (per mm of thickness)
EMICODE:	EC1 R Plus
certification according to UNI EN 13813:	CT C35-F7 A1 <sub>fl</sub>

All other operations included and calculated in the price for work completed according to specification  
*Per mm of thickness* .....(€/m<sup>2</sup>)



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.3.2 SKIMMING LAYERS UP TO 20 mm THICK Procedure**

#### **Checking and preparing the substrate**

Make sure the substrate is dry and solid, and that there are no loose portions or dust or traces of paint, wax, oil, rust or gypsum. Weak substrates must be consolidated and cracks must be repaired beforehand. Dusty, highly-porous or gypsum-based surfaces must be treated beforehand by applying **Primer G** (diluted 1:3 with water). This priming operation is also useful to even out absorption of the substrate and prevents products applied later to dry out too quickly or unevenly.

Screeds with high residual humidity must be left to dry or waterproofed before applying the smoothing product. For substrates with continuous rising damp, a smoothing product for external use is preferable.

#### **Smoothing layer**

Apply the product in a single coat. When applying self-levelling products, spread on the mix with a large metal trowel or a spreader to form the thickness required. If parquet is to be installed, the smoothing layer must be at least 3 mm thick.

**N.B. If smoothing layers thicker than 10 mm are required, the use of a product which can form the required thickness in a single layer rather than a product applied in several layers is preferable.**

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.3.2.1 Application of a thixotropic, cementitious skimming layer from 3 to 20 mm thick on internal surfaces

Supply and application of a rapid-drying, thixotropic, cementitious skimming layer from 3 to 20 mm thick on internal vertical and horizontal surfaces with very low emission of volatile organic compounds (VOC) (such as **Nivorapid** produced by MAPEI S.p.A.), applied by trowel to guarantee a strong, level surface suitable for installing dressings or for painting. Substrates must be clean, dry, sound and compact, have no weak portions and primed with a suitable product according to the type of substrate.

The skimming product must have the following characteristics:

density of mix (kg/m <sup>3</sup> ):	2,000
pH:	approx. 12
set to foot traffic:	2 h
compressive strength (N/mm <sup>2</sup> ):	40 (after 28 days)
flexural strength (N/mm <sup>2</sup> ):	10 (after 28 days)
Brinell hardness (N/mm <sup>2</sup> ):	120 (after 28 days)
consumption (kg/m <sup>2</sup> ):	1.6 (per mm of thickness)
EMICODE:	EC1 R Plus
certification according to UNI EN 13813:	CT C40-F10 A2 <sub>fl</sub> -s1

All other operations included and calculated in the price for work completed according to specification  
*Per cm of thickness* .....(€/m<sup>2</sup>)



## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

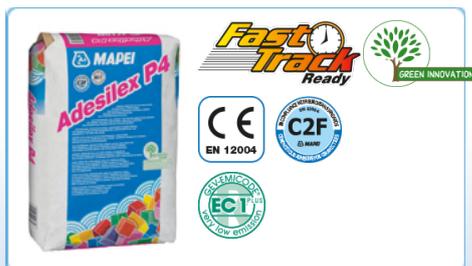
### R.1.3.2.2 Application of a cementitious skimming layer up to 20 mm thick on internal and external surfaces

Supply and application of a rapid-drying, cementitious skimming layer up to 20 mm thick on internal and external surfaces with very low emission of volatile organic compounds (VOC) (such as **Adesilex P4** produced by MAPEI S.p.A.), applied on cementitious substrates, concrete slabs and ceramic, terrazzo and natural stone floors, to guarantee a strong, level surface suitable for installing dressings. Substrates must be clean, dry, sound and compact.

The skimming product must have the following characteristics:

density of mix (kg/m <sup>3</sup> ):	1,700
pH:	approx. 12
set to foot traffic:	2.5 h
compressive strength (N/mm <sup>2</sup> ):	14 (after 28 days)
flexural strength (N/mm <sup>2</sup> ):	5 (after 28 days)
consumption (kg/m <sup>2</sup> ):	1.4 (per mm of thickness)
EMICODE:	EC1 R Plus

All other operations included and calculated in the price for work completed according to specification  
*Per mm of thickness* .....(€/m<sup>2</sup>)



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.3.3 SKIMMING LAYERS UP TO 30 mm THICK Procedure**

#### **Checking and preparing the substrate**

Make sure the substrate is dry and solid, and that there are no loose portions or dust or traces of paint, wax, oil, rust or gypsum. Weak substrates must be consolidated and cracks must be repaired beforehand. Dusty, highly-porous or gypsum-based surfaces must be treated beforehand by applying **Primer G** (diluted 1:3 with water). This priming operation is also useful to even out absorption of the substrate and prevents products applied later to dry out too quickly or unevenly.

Screeds with high residual humidity must be left to dry or waterproofed before applying the smoothing product. For substrates with continuous rising damp, a smoothing product for external use is preferable.

#### **Smoothing layer**

Apply the product in a single coat. When applying self-levelling products, spread on the mix with a large metal trowel or a spreader to form the thickness required. If parquet is to be installed, the smoothing layer must be at least 3 mm thick.

**N.B. If smoothing layers thicker than 10 mm are required, the use of a product which can form the required thickness in a single layer rather than a product applied in several layers is preferable.**

**R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

**R.1.3.3.1 Application of a self-levelling cementitious smoothing layer from 3 to 30 mm thick on internal surfaces**

Supply and application of a rapid-drying, self-levelling cementitious smoothing layer from 3 to 30 mm thick on internal surfaces with very low emission of volatile organic compounds (VOC) (such as **Ultraplan Maxi** produced by MAPEI S.p.A.), applied on cementitious substrates, concrete slabs and ceramic, terrazzo and natural stone floors. Substrates must be clean, dry, sound and compact, and consolidated or primed with a suitable product (such as **Primer MF**, **Primer G** or **Eco Prim T** produced by MAPEI S.p.A.).

The skimming product must have the following characteristics:

density of mix (kg/m <sup>3</sup> ):	2,000
pH:	approx. 12
set to foot traffic:	3 h
compressive strength (N/mm <sup>2</sup> ):	35 (after 28 days)
flexural strength (N/mm <sup>2</sup> ):	8 (after 28 days)
abrasion resistance (g):	0.7 (after 28 days with a Taber abrasion meter, H22 disk, weight 550 g after 200 revs)
Brinell hardness (N/mm <sup>2</sup> ):	75 (after 28 days)
consumption (kg/m <sup>2</sup> ):	1.6 (per mm of thickness)
EMICODE:	EC1 R Plus
certification according to UNI EN 13813:	CT C35-F7 A2 <sub>fl</sub> -s1
All other operations included and calculated in the price for work completed according to specification	
Per mm of thickness	.....(€/m <sup>2</sup> )



**R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

**R.1.3.3.2 Application of a fibre-reinforced, thixotropic, cementitious skimming layer from 3 to 30 mm thick on internal and external surfaces**

Supply and application of a rapid-drying, fibre-reinforced, thixotropic, cementitious skimming layer from 3 to 30 mm thick on internal and external vertical and horizontal surfaces (such as **Planitop Fast 330** produced by MAPEI S.p.A.), applied by trowel to guarantee a strong, level surface suitable for installing dressings or for painting. Substrates must be clean, dry, sound and compact, have no weak portions and primed with a suitable product according to the type of substrate.

The skimming product must have the following characteristics:

density of mix (kg/m <sup>3</sup> ):	1,750
set to foot traffic:	approximately 4 hours
compressive strength (N/mm <sup>2</sup> ):	> 20 (after 28 days)
consumption (kg/m <sup>2</sup> ):	1.45 (per mm of thickness)
All other operations included and calculated in the price for work completed according to specification	
<i>Per mm of thickness</i>	<i>.....(€/m<sup>2</sup>)</i>



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.4 APPLICATION OF ISOLATING MEMBRANES** **Introduction**

#### **MAPEI products to form isolating layers**

##### **Mapetex System**

Removable system for installing ceramic and stone tiles, also used for isolating layers and anti-fracture membranes.

##### **Mapelay**

PVC waterproofing and isolating sheet reinforced with glass fibres, for installing internal resilient and textile flooring on cracked or damp substrates.

#### **What an isolating layer is used for**

Often, especially during restructuring work where dimensions and distances have to be maintained, it is not possible to make a new screed, and new flooring must be installed on cracked substrates or when there is rising damp. In such cases, the only possible solution is to interpose an isolating layer.

The use of this type of product permits the risk of cracking to be prevented in ceramic or stone flooring installed over joints or cracks, thus allowing larger pitch areas to be made compared with those possible when installing directly on the screed.

Also, when laying resilient flooring, interposing a specific isolating layer allows installation to be carried out when the substrate is damp or not sufficiently clean without the risk of the flooring becoming detached. Their use, however, is limited to internal environments subject to not particularly intense loads.

Isolating membranes are also used to install removable flooring where required, such as for temporary exhibitions.

## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.4.1 APPLICATION OF ANTI-FRACTURE ISOLATING LAYERS Procedure**

#### **Checking and preparing the substrate**

Substrates must be dry, perfectly clean, flat, strong and compact. Existing dressings must be well bonded to the substrate, otherwise they must be removed.

#### **Application of the isolating layer**

Bond Mapetex to the cementitious substrate, or to the old, well-cleaned flooring, using **Keraquick** mixed with **Latex Plus**. Spread the sheets of Mapetex over the fresh adhesive and press them down well to make sure they are sufficiently buttered.

When the adhesive has hardened, the ceramic or stone tiles may be installed with a product chosen according to the type of coating material.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.4.1.1 Application of an anti-fracture isolating layer

Supply and application of an anti-fracture isolating layer using 1 or 2 meter wide, high-strength, non-woven fabric sheets (such as **Mapetex Sel** produced by MAPEI S.p.A.). Bond the sheets to the substrate using an improved, rapid-setting, anti-slip, highly-deformable adhesive classified C2FT S2 according to UNI EN 12004 standards (such as **Keraquick + Latex Plus** produced by MAPEI S.p.A.). 3 hours after applying the non-woven fabric, the ceramic flooring may be installed on the fabric. Cutting and trimming the non-woven fabric, cut-offs, sealing and final cleaning included and calculated in the price for work completed according to specification.

.....(€/m<sup>2</sup>)



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.4.2 APPLICATION OF A SUBSTRATE FOR REMOVABLE FLOORING Procedure**

#### **Checking and preparing the substrate**

Substrates must be dry, perfectly clean, flat, strong and compact. Existing dressings must be well bonded to the substrate, otherwise they must be removed.

#### **Application of the isolating layer**

Bond strips of **Mapetex Strip** double-sided tape at least 10 cm long to the substrate according to the following layout:

- place 3 strips per linear metre along the edges of the sheets so that the joints between adjacent sheets correspond with the centre of the tape;
- place 3 strips per linear metre along the centre line of the sheets (for large-spread floors where 2 metre wide rolls of **Mapetex Sel** are used).

Roll the sheets of Mapetex over the surface so that the overlaps between adjacent sheets coincide with the centre of the **Mapetex Strip**, and seal the perimeter of the Mapetex with adhesive tape to prevent adhesive seeping through when the flooring is installed. The flooring may be installed without coinciding with the distribution joints in the substrate, but they must coincide with any structural joints present.

## R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES

### R.1.4.2.1 Application of a substrate for removable flooring

Supply and application of a substrate for removable flooring, using 1 or 2 meter wide, high-strength, non-woven fabric sheets (such as **Mapetex Sel** produced by MAPEI S.p.A.). Fix the sheets to the substrate using special high-grip adhesive tape (such as **Mapetex Strip** produced by MAPEI S.p.A.). Fix the sheets in position by placing 3 strips per linear metre at least 10 cm long of double-sided tape along the edges of the fabric, and a further 3 strips per linear metre along the centre line of the fabric (for 2 metre wide fabric). Ceramic or stone flooring may be installed on the non-woven fabric fixed to the substrate using an improved, rapid-setting deformable adhesive classified C2F S1 according to UNI EN 12004 standards (such as **Granirapid** produced by MAPEI S.p.A.).

Preparation of the substrate and cutting and trimming the fabric, cut-offs, sealing and final cleaning included and calculated in the price for work completed according to specification.

.....(€/m<sup>2</sup>)



## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.4.3 APPLICATION OF AN ISOLATING LAYER FOR RESILIENT FLOORING Procedure**

#### **Checking and preparing the substrate**

Make sure the substrate is stable, strong, sufficiently flat and that there are no loose or weak portions. The substrate must be thoroughly cleaned. Any cracks in the substrate must not create steps in the surface, and must be no wider than 3 mm. Existing wooden, ceramic, natural stone, etc. floors must be well bonded to the substrate. Uneven cementitious substrates and ceramic surfaces with large joints must be levelled and repaired with a suitable product. If there is rising damp, use **Adesilex P4**.

#### **Application of the isolating layer**

Acclimatise the **Mapelay** sheets in the area where they are to be used prior to application. The temperature must be at least +15°C. **Mapelay** and the flooring to be installed must be removed from their packaging a few hours before use, and the sheets must be left open, and running in the direction that they will be applied. Leave isolating joints 5-10 mm wide between the sheets of **Mapelay** and the perimeter walls and columns. Overlap adjacent sheets of **Mapelay** by approximately 10 mm. Cut and trim the sheets to size during installation of the flooring, taking care to avoid moving the sheets of **Mapelay** while carrying out this operation. When applying the sheets of **Mapelay**, stagger the end joints in the sheets. If adhesive in dispersion is used, we recommend applying a thin strip of waterproof self-adhesive tape approximately 10 mm wide over the joints in the **Mapelay**.

Install the flooring over the **Mapelay** so that their joints never coincide with those in the **Mapelay**: they must be staggered by at least 10-20 cm. A 5-10 mm gap must also be left between the flooring and the walls and columns. Choose the most suitable adhesive to install the flooring according to the type of flooring.

## **R.1 PREPARATION OF SUBSTRATES TO INSTALL FLOORING AND FINISHES**

### **R.1.4.3.1 Application of an isolating layer for resilient flooring**

Supply and application of waterproof, isolating PVC sheets reinforced with glass fibres, for installing internal resilient or textile flooring on cracked, dirty or damp substrates or on substrates with rising damp (such as **Mapelay** produced by MAPEI S.p.A.). Loose lay the sheets on the surface by overlapping adjacent sheets approximately 10 mm, stagger the end joints in the sheets and leave a 5-10 mm gap between the sheets and the walls and columns. If a waterproof adhesive is not used to install the flooring, the joints in the sheets must be sealed with waterproof adhesive tape.

Preparation of the substrate and cutting and trimming the sheets, cut-offs, taping the joints in the sheets where required and final cleaning included and calculated in the price for work completed according to specification.

.....(€/m<sup>2</sup>)

