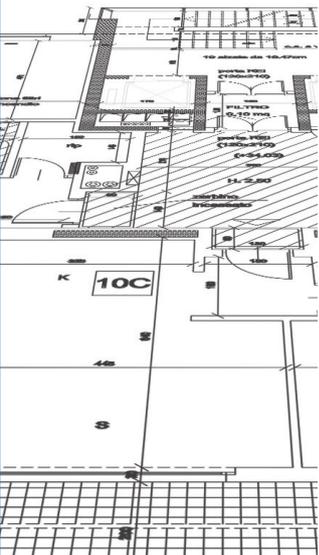


A

INSTALLATION OF CERAMIC AND NATURAL STONE FLOORING AND COATINGS



A

specifications of **PREPARATION OF SUBSTRATES, SOUNDPROOFING AND INSTALLATION OF CERAMIC AND NATURAL STONE FLOORING AND FINISHES**

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A.1 *INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES*

Which material to use for ceramic flooring and how to install the flooring are mainly influenced by the following factors:

- the intended final use of the rooms where it is to be installed: requirements vary according to whether they are for private or public use, installed in internal or external environments, suitable for foot traffic or vehicle traffic, etc.;
- type and format of the tiles: choosing the most suitable product to install the material is conditioned by their absorption and dimensions;
- type of substrate: the substrate, which must be prepared correctly prior to installing the material, differs according to its chemical composition and nature, absorption, where it is located, etc.

To cover the vast array of installation situations which we face, MAPEI has a large range of adhesives, grouts and sealants available, to provide the most suitable solution for any specific requirement.

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

Introduction

MAPEI systems for installing ceramic

Kerabond

Cementitious adhesive for bonding medium-sized ceramic tiles and mosaics on internal and external surfaces, for environments not subject to particularly high stress (EMICODE EC1 R Plus, C1 class in compliance with EN12004).

Adesilex P10

High-performance, white cementitious adhesive with no vertical slip, specific for installing glass mosaic, ceramic and marble on internal and external floors and walls (EMICODE EC1 R Plus, C2TE class in compliance with EN12004).

Keraflex

High-performance cementitious adhesive for bonding all types of ceramic tiles and mosaics on internal and external floors and walls, including in environments subject to high stress (EMICODE EC1 R Plus, C2TE class in compliance with EN12004).

Keraflex Easy

High-performance cementitious adhesive, easy to apply with high buttering capacity on the back face of tiles, particularly recommended for installing large-sized gres porcelain (EMICODE EC1 R Plus, C2E class in compliance with EN12004).

Keraflex Maxi S1

High-performance cementitious adhesive with Low Dust® technology, for bonding all types of ceramic tiles and mosaics on internal and external floors and walls, including in environments subject to high stress. Particularly recommended for installing large-sized tiles with layers of adhesive from 3 to 15 mm (C2TES1 class in compliance with EN 12004).

Ultralite S1

One-component, high-performance, lightweight cementitious adhesive with Low Dust® technology, extremely high yield and good trowelability, ideal for installing thin gres porcelain tiles (C2TES1 class in compliance with EN12004).

Adesilex P4

Self-buttering, rapid cementitious adhesive for installing ceramic tiles on internal and external floors and walls, particularly suitable for large-sized tiles where a double-buttering effect is required (EMICODE EC1 R Plus, C2F class in compliance with EN12004).

Keraquick

Rapid cementitious adhesive for installing all types of ceramic tiles on internal and external floors and walls (EMICODE EC1 R Plus, C2FTS1 class in compliance with EN12004).

Granirapid

Two-component, rapid cementitious adhesive for installing all types of ceramic tiles on internal and external floors and walls (EMICODE EC1 R Plus, C2FS1 class in compliance with EN12004).

Elastorapid

Two-component, rapid cementitious adhesive for installing all types of ceramic tiles on internal and external floors and walls, particularly recommended where a rapid product with a longer workability time is required (C2FTES2 class in compliance with EN12004).

Kerapoxy

Two-component, acid-resistant epoxy adhesive for bonding all types of ceramic tiles. Recommended for use where resistance to acids is required or for bonding on difficult substrates. Two-component, acid-resistant, non-absorbent epoxy grout for joints at least 3 mm wide, available in 26 different colours (R2T class in compliance with EN 12004, RG class in compliance with EN 13888).

Kerapoxy Adhesive

Two-component, acid-resistant epoxy adhesive for bonding all types of ceramic tiles. Recommended for use where resistance to acids is required or for bonding on difficult substrates. Specific for rigid bonding of bull-nose tiles and special pieces (R2T class in compliance with EN 12004).

Keralastic/Keralastic T

Two-component, high-performance polyurethane adhesives, particularly recommended for bonding tiles on metal, wood, cement fibre, rubber, PVC and linoleum (R2/R2T class in compliance with EN 12004).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1 INSTALLATION OF INTERNAL CERAMIC FLOORING - RESIDENTIAL ENVIRONMENTS

A.1.1.1 INSTALLATION ON NON-HEATED CEMENTITIOUS SCREEDS Procedure

Checking and preparing the substrate

The substrate on which the coating is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness.

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side, form distribution joints approximately every 20-25 m² and follow the pattern of the expansion joints, if present, in the substrate.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small absorbent tiles on non-radiating screeds with **Kerabond** (see section [A.1.1.1.1](#)). For gres porcelain tiles and large-sized tiles, use **Keraflex** (see section [A.1.1.1.2](#)) or **Keraflex Maxi S1** (see section [A.1.1.1.3](#)).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Granirapid** (see section [A.1.1.1.4](#)).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.1 Installation of ceramic flooring in single-fired tiles up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic flooring in single-fired tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using normal, cementitious adhesive with very low emission of VOC, class C1 according to UNI EN 12004 standards, (such as **Kerabond** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450
open time:	> 20 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.1.2 Installation of ceramic flooring in any type and format of tile

Supply and installation of 8 to 10 mm thick ceramic flooring in any format of tile in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using high-performance cementitious adhesive with very low emission of VOC, extended open time, no vertical slip and the capacity to butter the back face of the tiles sufficiently to form a good bond, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.1.3 Installation of ceramic flooring in any type and format of tile

Supply and installation of 8 to 10 mm thick ceramic flooring in any type and format of tile suitable for intended final use in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using high-performance, cementitious adhesive with very low emission of VOC, extended open time and no vertical slip, class C2TE according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.1.4 Rapid installation of ceramic flooring in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic flooring in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, using high-performance, rapid-setting, deformable, cementitious adhesive with very low emission of VOC, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.2 INSTALLATION ON HEATED CEMENTITIOUS SCREEDS OR WATERPROOF MEMBRANES

Procedure

Checking and preparing the substrate

The substrate on which the coating is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness. Before installing the flooring, make sure the heating cycle of the radiating screed has been carried out. The heating cycle is carried out by switching on the heating system at the lowest temperature, and increasing the temperature by +5°C per day until it reaches the maximum working temperature. Run the system at the maximum working temperature for 3 days, then reduce the temperature by +5°C per day until it reaches room temperature. Seal any cracks which develop during the cycle.

When installing flooring on waterproofing membranes (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A.), make sure the membrane is dry, clean and well adhered to the underlying screed.

Installation of flooring

Mix the adhesive and spread it on the surfaces with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Choose the type of adhesive taking into account the deformability of the substrate and/or the low absorption of the waterproofing membrane.

Install the tiles with a joint at least 3-5 mm wide on each side, and form distribution joints approximately every 20-25 m². In small rooms, distribution joints must always be made around doors and around the perimeter of the room.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small tiles on radiating screeds or waterproofing membranes with **Keraflex** (see section **A.1.1.1.1**). For large-sized tiles, use **Keraflex Maxi S1** (see section **A.1.1.2.2**).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Granirapid** (see section **A.1.1.1.4**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.2.1 Installation of ceramic flooring in any type of tile up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic flooring suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a radiating cementitious screed, concrete or a waterproofing membrane using high-performance cementitious adhesive with very low emission of VOC, extended open time and the capacity to butter the back face of the tiles sufficiently to form a good bond, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.2.2 Installation of ceramic flooring in any type and format of tile

Supply and installation of 8 to 10 mm thick ceramic flooring in tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a radiating cementitious screed, concrete or a waterproofing membrane using high-performance, deformable cementitious adhesive with extended open time and no vertical slip, class C2TE S1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00x4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.2.3 Rapid installation of ceramic flooring in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic flooring suitable for intended final use in gres porcelain tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a cementitious screed using high-performance, rapid-setting, deformable, cementitious adhesive with very low emission of VOC, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

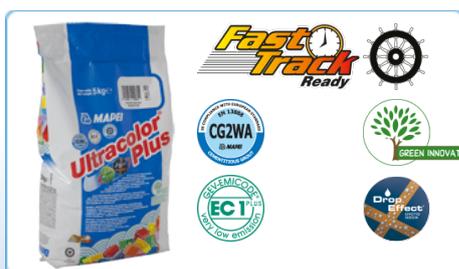
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00x4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.3 INSTALLATION ON EXISTING CERAMIC OR STONE FLOORING Procedure

Checking and preparing the substrate

Before installing new flooring, remove all skirting and make sure all the existing flooring is well bonded to the substrate. Detached and/or cracked tiles or slabs must be removed. Any cracks in the screed must be opened up, vacuumed to remove all traces of dust and then sealed by pouring **Eporip** two-component epoxy adhesive into the cracks.

Then clean the flooring thoroughly with water and caustic soda or with a special wax removing product. This cleaning process may also be followed up with a sanding cycle if the existing flooring is made from particularly shiny tiles, polished marble or cement terrazzo.

After cleaning the surface, fill any gaps formed when damaged tiles were removed using a suitable skimming product, such as **Nivorapid** (see section **R.1.3.2.1**), **Adesilex P4** (see section **R.1.3.2.2**) or **Planitop Fast 330** (see section **R.1.3.3.2**).

Installation of flooring

Mix the adhesive and spread it on the surfaces with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a wide joint (5 mm) on each side. Respect the position of any distribution and expansion joints in the old flooring, and make sure there are always distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small tiles on existing ceramic or stone flooring with **Keraflex** (see section **A.1.1.3.1**). For large-sized tiles, use **Keraflex Maxi S1** (see section **A.1.1.3.2**).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Granirapid** (see section **A.1.1.3.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.3.1 Installation of ceramic flooring in any type of tile up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic flooring suitable for intended final use in tiles up to 30x30 cm, in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on existing flooring using high-performance cementitious adhesive with very low emission of VOC, extended open time and the capacity to butter the back face of the tiles sufficiently to form a good bond, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints in correspondence with any present in the substrate, and in all cases every 20-25 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.3.2 Installation of ceramic flooring in any type and format of tile

Supply and installation of 8 to 10 mm thick ceramic tiled flooring in compliance with UNI EN 14411 standards, including flooring in tiles larger than 30x30 cm, with open joints at least 5 mm wide between the tiles, on existing flooring using high-performance, deformable cementitious adhesive with extended open time and no vertical slip, class C2TE S1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 45 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints in correspondence with any present in the substrate, and in all cases every 20-25 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.3.3 Rapid installation of ceramic flooring in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic flooring suitable for intended final use in tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on existing flooring using high-performance, rapid-setting, deformable, cementitious adhesive with very low emission of VOC, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints in correspondence with any present in the substrate, and in all cases every 20-25 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.1.4 INSTALLATION ON ANHYDRITE SCREEDS Procedure

Checking and preparing the substrate

The substrate on which the coating is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the coating. Anhydrite screeds must be perfectly dry, hard, free of all traces of dust and treated with **Primer G** before installing the flooring (residual humidity < 0.5%).

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side, form distribution joints approximately every 20-25 m² and follow the pattern of the expansion joints, if present, in the substrate.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small absorbent tiles on anhydrite screeds with **Kerabond** (see section **A.1.1.4.1**). For gres porcelain tiles and large-sized tiles, use **Keraflex** (see section **A.1.1.4.2**).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Granirapid** (see section **A.1.1.4.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.4.1 Installation of ceramic flooring in single-fired tiles up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic flooring in single-fired tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on an anhydrite screed treated with insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.), using normal, cementitious adhesive with very low emission of VOC, class C1 according to UNI EN 12004 standards, (such as **Kerabond** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450
open time:	> 20 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate, including treatment of the surface with a suitable insulating primer (such as **Primer G** produced by MAPEI S.p.A.);
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.4.2 Installation of ceramic flooring in any type and format of tile

Supply and installation of 8 to 10 mm thick ceramic flooring in gres porcelain tiles up to 30x30 cm, in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed treated with insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.), using high-performance cementitious adhesive with very low emission of VOC, extended open time and the capacity to butter the back face of the tiles sufficiently to form a good bond, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate, including treatment of the surface with a suitable insulating primer (such as **Primer G** produced by MAPEI S.p.A.);
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.1.4.3 Rapid installation of ceramic flooring in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic flooring in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, after treating the substrate with insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.), using high-performance, rapid-setting, deformable, cementitious adhesive with very low emission of VOC, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate, including treatment of the surface with a suitable insulating primer (such as **Primer G** produced by MAPEI S.p.A.);
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2 INSTALLATION OF INTERNAL CERAMIC FLOORING - PUBLIC/COMMERCIAL ENVIRONMENTS

A.1.2.1 INSTALLATION ON NON-HEATED CEMENTITIOUS SCREEDS Procedure

Checking and preparing the substrate

The substrate on which the coating is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness.

To be suitable for public/commercial use, the strength of the screed must generally be more than 25-30 MPa.

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. For installation in public/commercial environments, we usually recommend installing the tiles using the double-buttering technique to minimise the risk of gaps on the back of the tiles. As an alternative, use self-buttering adhesives or adhesives with a high capacity of being transferred onto the back of the tiles.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 3-5 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small tiles on non-heated screeds with **Keraflex** (see section [A.1.2.1.1](#)). For large-sized tiles, use **Keraflex Maxi S1** (see section [A.1.2.1.2](#)).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Adesilex P4** or **Granirapid** (see section [A.1.2.1.3](#)).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.1.1 Installation of ceramic flooring in any type of tile up to 30x30 cm

Supply and installation of 8 to 20 mm thick ceramic flooring suitable for intended final use in gres porcelain tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a cementitious screed using high-performance cementitious adhesive with very low emission of VOC, extended open time and no vertical slip applied using the double-buttering technique of class C2TE in compliance with UNI EN 12004 (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

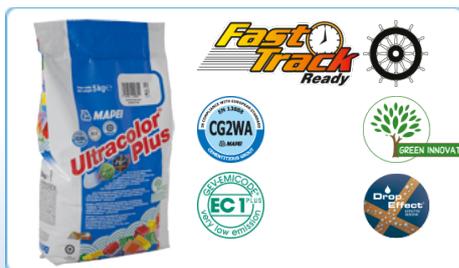
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00x4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.1.2 Installation of ceramic flooring in gres porcelain tiles larger than 30x30 cm

Supply and installation of 8 to 20 mm thick ceramic flooring in gres porcelain tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a cementitious screed using high-performance cementitious adhesive with very low emission of VOC, extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

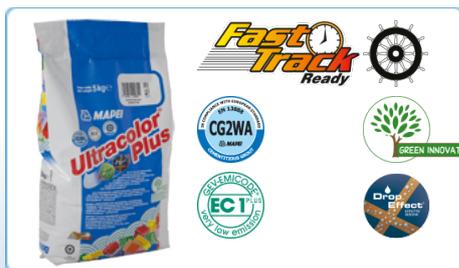
The grouting mortar must have the following characteristics:

density (kg/m³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00x4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.1.3 Installation of ceramic flooring suitable for intended final use in any format of tile

Supply and rapid installation of 8 to 20 mm thick ceramic flooring in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, using high-performance, rapid-setting, self-buttering cementitious adhesive with very low emission of VOC, class C2F according to UNI EN 12004 standards, (such as **Adesilex P4** produced by MAPEI S.p.A.), or rapid-setting, deformable cementitious adhesive applied using the double-buttering technique class, C2FS1 according to UNI EN 12004 standards (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500-1,600
open time:	15-20 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate, including treatment of the surface with a suitable insulating primer (such as **Primer G** produced by MAPEI S.p.A.);
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.2.2 INSTALLATION ON HEATED CEMENTITIOUS SCREEDS, CONCRETE SUBSTRATES OR WATERPROOF MEMBRANES Procedure

Checking and preparing the substrate

The substrate on which the coating is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness. Before installing the flooring, make sure the heating cycle of the heated screed has been carried out. The heating cycle is carried out by switching on the heating system at the lowest temperature, and increasing the temperature by +5°C per day until it reaches the maximum working temperature. Run the system at the maximum working temperature for 3 days, then reduce the temperature by +5°C per day until it reaches room temperature. Seal any cracks which develop during the cycle.

When installing flooring on waterproofing membranes (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A.), make sure the membrane is dry, clean and well adhered to the underlying screed.

To be suitable for public/commercial use, the strength of the screed must generally be more than 25-30 MPa.

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. For installation in public/commercial environments, we usually recommend installing the tiles using the double-buttering technique to minimise the risk of gaps on the back of the tiles.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 3-5 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small tiles on these types of substrate with **Keraflex** (see section **A.1.2.2.1**). For large-sized tiles, use **Keraflex Maxi S1** (see section **A.1.2.2.2**).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Granirapid** (see section **A.1.2.2.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.2.1 Installation of ceramic flooring in any type of tile up to 30x30 cm

Supply and installation of 8 to 20 mm thick ceramic flooring in gres porcelain tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a cementitious screed using high-performance cementitious adhesive with very low emission of VOC, extended open time and no vertical sleep, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.2.2 Installation of ceramic flooring in any type of tile larger than 30x30 cm

Supply and installation of 8 to 20 mm thick ceramic flooring in gres porcelain tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a cementitious screed using high-performance, deformable, non-slip cementitious adhesive with extended open time using the double-buttering technique, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

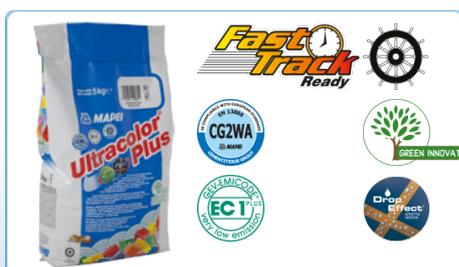
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.2.3 Installation of ceramic flooring suitable for intended final use in any format of tile (GRANIRAPID)

Supply and rapid installation of 8 to 20 mm thick ceramic flooring in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, using high-performance, rapid-setting, deformable, cementitious adhesive with very low emission of VOC applied using the double-buttering technique, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate, including treatment of the surface with a suitable insulating primer (such as **Primer G** produced by MAPEI S.p.A.);
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.2.3 INSTALLATION ON EXISTING CERAMIC OR STONE FLOORING Procedure

Checking and preparing the substrate

Before installing new flooring, remove all skirting and make sure all the existing flooring is well bonded to the substrate. Detached and/or cracked tiles or slabs must be removed. Any cracks in the screed must be opened up, vacuumed to remove all traces of dust and then sealed by pouring **Eporip** two-component epoxy adhesive into the cracks.

Then clean the flooring thoroughly with water and caustic soda or with a special wax removing product. This cleaning process may also be followed up with a sanding cycle if the existing flooring is made from particularly shiny tiles, polished marble or cement terrazzo.

After cleaning the surface, fill any gaps formed when damaged tiles were removed using a suitable skimming product, such as **Nivorapid** (see section **R.1.3.2.1**), **Adesilex P4** (see section **R.1.3.2.2**) or **Planitop Fast 330** (see section **R.1.3.3.2**).

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees total buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. For installation in public/commercial environments, we usually recommend installing the tiles using the double-buttering technique to minimise the risk of gaps on the back of the tiles. As an alternative, use self-buttering adhesives or adhesives with a high capacity of being transferred onto the back of the tiles.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a wide joint (5 mm) on each side. Respect the position of any distribution and expansion joints in the old flooring, and make sure there are always distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small tiles on existing flooring with KeraflexMaxiS1 (see section **A.1.2.3.1**). When there is a limited amount of time available and rapid installation is opted for, install flooring with **Elastorapid** (see section **A.1.2.3.3**).

Since loads and traffic to which public/commercial environments are subjected can vary, the instructions above must be used as a general guide only. These requirements, therefore, must be evaluated according to the specific conditions of each single case.

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.3.1 Installation of ceramic flooring in any type and format

Supply and installation of 8 to 20 mm thick ceramic flooring in gres porcelain tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on existing flooring using double buttering, high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TE S1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00x4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.3.2 Rapid installation of ceramic flooring suitable for intended final use in any format of tile

Supply and rapid installation of 8 to 20 mm thick ceramic flooring in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on existing flooring using two-component, high-performance, rapid-setting, highly deformable, non-slip cementitious adhesive with extended open time applied using the double-buttering technique, class C2TES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate, including treatment of the surface with a suitable insulating primer (such as **Primer G** produced by MAPEI S.p.A.);
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.2.4 INSTALLATION AND GROUTING OF FLOORING WITH SPECIAL AESTHETIC QUALITIES Procedure

Checking and preparing the substrate

Before installing new flooring, substrates must be prepared according to the methods specified in the previous sections, and according to the type of substrate to be used.

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. For installation in public/commercial environments, we usually recommend installing the tiles using the double-buttering technique to minimise the risk of gaps on the back of the tiles. As an alternative, use self-buttering adhesives or adhesives with a high capacity of being transferred onto the back of the tiles.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with decorative grouting mortar such as **Kerapoxy Design** (see section **A.1.2.4.1**). This product makes decorative flooring even more attractive, and may also be mixed with up to 10% by weight of **MapeGlitter** coloured metallic glitter to create joints with a shiny, metallic finish.

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.2.4.1 Installation and grouting flooring with special aesthetic qualities

Installation of floorings with special aesthetic qualities suitable for intended final use with adhesive (to be defined according to the type of flooring and substrate). The joints must be sealed with two-component, decorative, epoxy grouting mortar, class RG according to UNI EN 13888 standards, (such as **Kerapoxy Design** produced by MAPEI S.p.A.) in the colour specified by the Works Director.

The grouting mortar must have the following characteristics:

density of mix (kg/m ³):	1,550
pot life of mix:	45 minutes
ready for service:	4 days

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent (such as **Kerapoxy Cleaner** produced by MAPEI S.p.A.) and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.3 INSTALLATION OF INTERNAL CERAMIC FLOORING AND FINISHES IN AREAS SUBJECT TO AGGRESSIVE CHEMICALS OR WHERE MAXIMUM HYGIENE IS REQUIRED

A.1.3.1 INSTALLATION ON CEMENTITIOUS SUBSTRATES Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness.

To be suitable for the intended final use, the strength of the screed must generally be more than 25-30 MPa.

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. It is preferable to use the double-buttering technique to minimise the risk of gaps on the back of the tiles and increase the strength of the flooring. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 3-5 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with waterproof mortar with high resistance to chemical agents such as **Kerapoxy** or **Kerapoxy P**.

Install small tiles with **Keraflex** (see section **A.1.3.1.1**). For large-sized tiles, use **Keraflex Maxi S1** (see section **A.1.3.1.2**).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Granirapid** (see section **A.1.3.1.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.3.1.1 Installation of ceramic flooring or finish suitable for intended final use in tiles up to 30×30 cm

Supply and installation of 8 to 20 mm thick ceramic tiles suitable for intended final use up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on floors and walls in areas where resistance to chemical agents or maximum hygiene is required, on a cementitious substrate using high-performance cementitious adhesive with very low emission of VOC, no vertical slip and extended open time, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with two-component, acid-resistant epoxy grouting mortar, class RG according to UNI EN 13888 standards, (such as **Kerapoxy** or Kerapoxy P produced by MAPEI S.p.A.), in the colour specified by the Works Director.

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	45 minutes
set to foot traffic:	24 hours
ready for service:	4 days

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.3.1.2 Installation of ceramic flooring or finish suitable for intended final use in tiles larger than 30×30 cm

Supply and installation of 8 to 20 mm thick ceramic tiles suitable for intended final use larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on floors and walls in areas where resistance to chemical agents or maximum hygiene is required, on a cementitious substrate using high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A. mixed with water and water at a ratio of 1:1). The joints must be sealed with two-component, acid-resistant epoxy grouting mortar, class RG according to UNI EN 13888 standards, (such as **Kerapoxy** or **Kerapoxy P** produced by MAPEI S.p.A.), in the colour specified by the Works Director.

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 45 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	45 minutes
set to foot traffic:	24 hours
ready for service:	4 days

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.3.1.3 Installation of ceramic flooring or finish suitable for intended final use in any format of tile

Supply and rapid installation of 8 to 20 mm thick ceramic tiles suitable for intended final use in any type and format in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on floors and walls in areas where resistance to chemical agents or maximum hygiene is required, on a cementitious substrate using high-performance, rapid-setting, deformable cementitious adhesive applied using the double-buttering technique, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with two-component, acid-resistant epoxy grouting mortar, class RG according to UNI EN 13888 standards, (such as **Kerapoxy** or **Kerapoxy P** produced by MAPEI S.p.A.), in the colour specified by the Works Director.

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	45 minutes
set to foot traffic:	24 hours
ready for service:	4 days

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent (such as **Kerapoxy Cleaner** produced by MAPEI S.p.A.) and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.3.2 INSTALLATION ON EXISTING CERAMIC OR STONE FLOORING OR FINISHES Procedure

Checking and preparing the substrate

Before installing new flooring, remove skirting boards and make sure all the existing flooring is well bonded to the substrate. Detached and/or cracked tiles or slabs must be removed. Any cracks in the screed must be opened up, vacuumed to remove all traces of dust and then sealed by pouring **Eporip** two-component epoxy adhesive into the cracks.

Then clean the flooring thoroughly with water and caustic soda or with a special wax removing product. This cleaning process may also be followed up with a sanding cycle if the existing flooring is made from particularly shiny tiles, polished marble or cement terrazzo.

After cleaning the surface, fill any gaps formed when damaged tiles were removed using a suitable skimming product, such as **Nivorapid** (see section **R.1.3.2.1**), **Adesilex P4** (see section **R.1.3.2.2**) or **Planitop Fast 330** (see section **R.1.3.3.2**).

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. It is preferable to use the double-buttering technique to minimise the risk of gaps on the back of the tiles and increase the strength of the flooring. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 3-5 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with waterproof mortar with high resistance to chemical agents such as **Kerapoxy** or **Kerapoxy P**.

Install tiles with **Keraflex Maxi S1** (see section **A.1.3.2.1**).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Granirapid** (see section **A.1.3.2.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.3.2.1 Installation of ceramic flooring or finish suitable for intended final use

Supply and installation of 8 to 20 mm thick ceramic flooring (or coating) suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on existing ceramic or natural stone flooring in areas where resistance to chemical agents or maximum hygiene is required, using high-performance, deformable cementitious adhesive with very low emission of VOC, extended open time and no vertical slip applied using the double-buttering technique, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with two-component, acid-resistant epoxy grouting mortar, class RG according to UNI EN 13888 standards, (such as **Kerapoxy** or **Kerapoxy P** produced by MAPEI S.p.A.), in the colour specified by the Works Director.

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	45 minutes
set to foot traffic:	24 hours
ready for service:	4 days

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00x4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.3.2.2 Rapid installation of ceramic flooring or finish suitable for intended final use in any format of tile

Supply and rapid installation of 8 to 20 mm thick ceramic flooring (or coating) suitable for intended final use in tiles of any format in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on existing ceramic or natural stone flooring in areas where resistance to chemical agents or maximum hygiene is required, using high-performance, rapid-setting, deformable cementitious adhesive with very low emission of VOC applied using the double-buttering technique, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with two-component, acid-resistant epoxy grouting mortar, class RG according to UNI EN 13888 standards, (such as **Kerapoxy** or **Kerapoxy P** produced by MAPEI S.p.A.), in the colour specified by the Works Director.

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	45 minutes
set to foot traffic:	24 hours
ready for service:	4 days

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent (such as **Kerapoxy Cleaner** produced by MAPEI S.p.A.) and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.3.3 INSTALLATION USING ACID-RESISTANT ADHESIVE Procedure

Checking and preparing the substrate

The substrate on which the coating is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness.

To be suitable for the intended final use, the strength of the screed must generally be more than 25-30 MPa.

Installation of flooring

Mix the two components of the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. Apply the tiles on the adhesive while it is still fresh before the reticulation process takes place. It is preferable to use the double-buttering technique to minimise the risk of gaps on the back of the tiles and increase the strength of the flooring. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 3-5 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with waterproof mortar with high resistance to chemical agents such as **Kerapoxy** or **Kerapoxy P**.

Install the tiles in this case using epoxy adhesive, such as **Kerapoxy** or KerapoxyAdhesive (see section **A.1.3.3.1**). The use of reactive adhesive to install the tiles increases the chemical resistance of the flooring, which in this case is guaranteed by both the grouted joint and the installation surface. A uniform layer of adhesive, therefore, also forms a protective barrier for the substrate.

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.3.3.1 Installation of ceramic flooring or finish suitable for intended final use in any format of tile using acid-resistant adhesive

Supply and installation of 8 to 20 mm thick ceramic flooring (or coating) suitable for intended final use in tiles of any format in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, using two-component epoxy adhesive with no vertical slip, class R2T according to UNI EN 12004 standards, (such as **Kerapoxy** or **Kerapoxy Adhesive** produced by MAPEI S.p.A.). The joints must be sealed with two-component, acid-resistant epoxy grouting mortar, class RG according to UNI EN 13888 standards, (such as **Kerapoxy** or **Kerapoxy P** produced by MAPEI S.p.A.), in the colour specified by the Works Director.

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550 (or 1,490)
open time:	30 minutes (or 60 minutes)
pot life of mix:	45 minutes
adjustment time:	approximately 60 minutes (or 130 minutes)

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	45 minutes
set to foot traffic:	24 hours
ready for service:	4 days

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4 INSTALLATION OF INTERNAL CERAMIC WALL FINISHES - RESIDENTIAL ENVIRONMENTS

A.1.4.1 INSTALLATION ON CEMENTITIOUS RENDER OR WELL ANCHORED PLASTERBOARD WITHOUT A GYPSUM SKIMMING LAYER Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. Cementitious render requires 7-10 days curing per centimetre of thickness.

Installation of wall coating

Mix the adhesive and spread it on the wall with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side.

When the adhesive has hardened, grout the tiles with specific grouting mortar and seal the joints (which are always formed between walls and floors, in corners, around edges and near other surfaces) with a suitable elastic sealant.

Install glass mosaic with **Adesilex P10** (see section [A.1.4.1.1](#)), small, absorbent tiles with **Kerabond** (see section [A.1.4.1.2](#)), and gres porcelain tiles with AdesilexP9 (see section [A.1.4.1.3](#)). For larger tiles, use **Keraflex** (see section [A.1.4.1.4](#)).

When there is a limited amount of time available and rapid installation is opted for, install the coating with **Keraquick** (see section [A.1.4.1.5](#)).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.1.1 Installation of glass mosaic

Supply and installation of glass mosaic wall coating on cementitious render (or well anchored plasterboard without a gypsum skimming layer) using improved cementitious adhesive with no vertical slip, extended open time and very low emission of VOC, class C2TE according to UNI EN 12004 standards, (such as **Adesilex P10** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
pH of mix:	13
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.1.2 Installation of ceramic finish in single-fired or double-fired tiles up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic wall coating in single-fired or double-fired tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on cementitious render (or well anchored plasterboard without a gypsum skimming layer) using normal cementitious adhesive with very low emission of VOC, class C1 according to UNI EN 12004 standards, (such as **Kerabond** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450
open time:	> 20 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.1.3 Installation of ceramic coating in gres porcelain tiles up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic wall coating in gres porcelain tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on cementitious render (or well anchored plasterboard without a gypsum skimming layer) using high-performance cementitious adhesive with very low emission of VOC, no vertical slip and extended open time, class C2TE according to UNI EN 12004 standards, (such as **Adesilex P9** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.1.4 Installation of ceramic finish in any type of tile larger than 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on cementitious render (or well anchored plasterboard without a gypsum skimming layer) using high-performance cementitious adhesive with very low emission of VOC, extended open time and no vertical slip, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.1.5 Rapid installation of ceramic finish in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic wall coating in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on cementitious render (or well anchored plasterboard without a gypsum skimming layer) using rapid-setting, deformable cementitious adhesive with no vertical slip, class C2FTS1 according to UNI EN 12004 standards, (such as **Keraquick** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	15-20 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 Plus

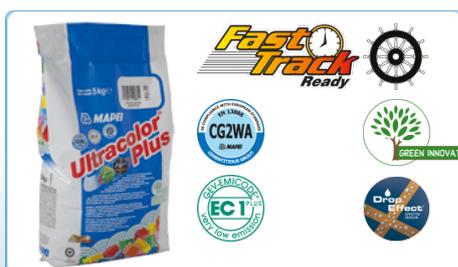
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.4.2 INSTALLATION ON WATERPROOF MEMBRANES Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. Make sure the membrane is dry, clean and well adhered to the underlying screed.

Installation of wall finish

Mix the adhesive and spread it on the wall with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side.

When the adhesive has hardened, grout the tiles with specific grouting mortar and seal the joints (which are always formed between walls and floors, in corners, around edges and near other surfaces) with a suitable elastic sealant.

Install small tiles on waterproof membranes, such as **Mapelastic** or **Mapegum WPS**, with **Keraflex** (see section **A.1.4.2.1**). For large-sized tiles, use **Keraflex Maxi S1** (see section **A.1.4.2.2**).

When there is a limited amount of time available and rapid installation is opted for, install the finish with **Elastorapid** (see section **A.1.4.2.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.2.1 Installation of ceramic finish in any type of tile up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic finish suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a waterproof membrane (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A.) using high-performance cementitious adhesive with very low emission of VOC, extended open time and no vertical slip, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.2.2 Installation of ceramic finish in any type of tile larger than 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic finish suitable for intended final use in tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a waterproof membrane (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A.) using high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.2.3 Rapid installation of ceramic coating in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic coating suitable for intended final use in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a waterproof membrane (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A.) using two-component, high-performance, rapid-setting, highly deformable, non-slip cementitious adhesive with extended open time, class C2TES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

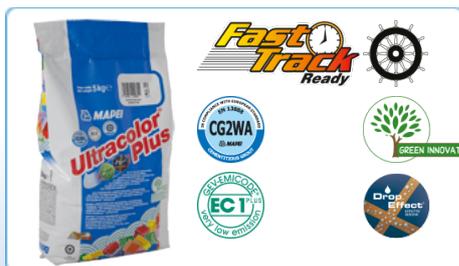
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.4.3 INSTALLATION ON EXISTING CERAMIC OR STONE FINISHES Procedure

Checking and preparing the substrate

Before installing a new finish, make sure all the existing coating is well bonded to the substrate. Detached and/or cracked tiles or slabs must be removed.

Then clean the coating thoroughly with water and caustic soda or with a special wax removing product. This cleaning process may also be followed up with a sanding cycle if the existing coating is made from particularly shiny tiles, polished marble or cement terrazzo.

After cleaning the surface, fill any gaps formed when damaged tiles were removed using a suitable skimming product, such as **Nivorapid** (see section **R.1.3.2.1**) or **Planitop Fast 330** (see section **A.1.3.3.2**).

Installation of wall finish

Mix the adhesive and spread it on the wall with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 4-5 mm wide on each side, following the pattern of any distribution joints in the existing substrate.

When the adhesive has hardened, grout the tiles with specific grouting mortar and seal the joints (which are always formed between walls and floors, in corners, around edges and near other surfaces) with a suitable elastic sealant.

Install small tiles on these types of substrate with **Keraflex** (see section **A.1.4.3.1**). For large-sized tiles, use **KeraflexMaxiS1** (see section **A.1.4.3.2**).

When there is a limited amount of time available and rapid installation is opted for, install the coating with **Granirapid** (see section **A.1.4.3.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.3.1 Installation of ceramic finish in any type of tile up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on existing finish using high-performance cementitious adhesive with very low emission of VOC, extended open time and no vertical slip, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.3.2 Installation of ceramic finish in any type of tile larger than 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic finish suitable for intended final use in tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on existing finish using high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

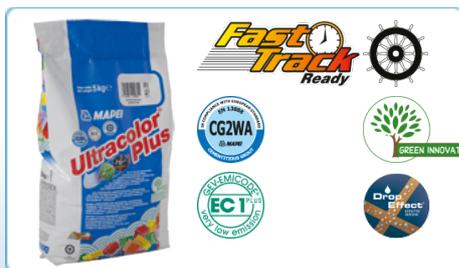
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.3.3 Rapid installation of ceramic finish in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on existing finish using high-performance, rapid-setting, deformable cementitious adhesive with very low emission of VOC, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be grouted with high-performance, anti-efflorescence, quick-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **UltracolorPlus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.4.4 INSTALLATION ON GYPSUM-BASED SUBSTRATES OR WELL ANCHORED PLASTERBOARD SKIMMED WITH GYPSUM OR CELLULAR CONCRETE
Procedure

Checking and preparing the substrate

The substrate where the coating is to be installed must be strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. All substrates mentioned above must be treated with **Primer G** prior to installation.

Installation of wall coating

Mix the adhesive and spread it on the walls with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small absorbent tiles on primed gypsum-based substrates or cellular concrete with **Kerabond** (see section **A.1.4.4.1**) and gres porcelain tiles and large-sized tiles or cellular concrete with **Keraflex** (see section **A.1.4.4.2**). When there is a limited amount of time available and rapid installation is opted for, install the coating with **Keraquick** (see section **A.1.4.4.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.4.1 Installation of ceramic finish in single-fired or double-fired tiles up to 30x30 cm

Supply and installation of 8 to 10 mm thick coating in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a gypsum-based (or cellular concrete) substrate treated with a suitable insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.) using normal cementitious adhesive with very low emission of VOC, class C1 according to UNI EN 12004 standards, (such as **Kerabond** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450
open time:	> 20 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.4.2 Installation of ceramic finish in gres porcelain or tiles larger than 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic finish in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a gypsum-based substrate treated with a suitable insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.) using high-performance, non-slip cementitious adhesive with very low emission of VOC and extended open time, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** or **Keracolor GG** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	2,000
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.4.4.3 Rapid installation of ceramic finish in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic finish in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a gypsum-based substrate treated with a suitable insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.) using high-performance, rapid-setting, deformable, non-slip cementitious adhesive with very low emission of VOC, class C2FTS1 according to UNI EN 12004 standards, (such as **Keraquick** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	15-20 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 Plus

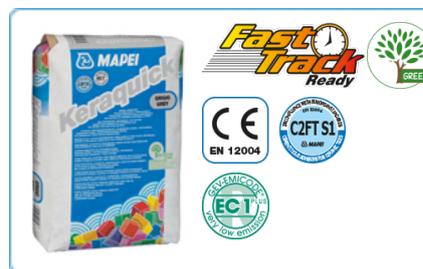
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5 INSTALLATION OF INTERNAL CERAMIC WALL FINISHES - PUBLIC/COMMERCIAL ENVIRONMENTS

A.1.5.1 INSTALLATION ON CEMENTITIOUS RENDER OR WELL ANCHORED PLASTERBOARD WITHOUT A GYPSUM SKIMMING LAYER Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the finish. Cementitious render requires 7-10 days curing per centimetre of thickness.

Installation of wall finish

Mix the adhesive and spread it on the wall with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good back buttering. We recommend applying adhesive also on the back of the tiles using the double-buttering technique. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5 mm wide on each side.

When the adhesive has hardened, grout the tiles with specific grouting mortar and seal the joints (which are always formed between walls and floors, in corners, around edges and near other surfaces) with a suitable elastic sealant.

Install small tiles with **Keraflex** (see section [A.1.5.1.1](#)). For large-sized tiles, use KeraflexMaxi S1 (see section [A.1.5.1.2](#)).

When there is a limited amount of time available and rapid installation is opted for, install the coating with **Keraquick** (see section [A.1.5](#), [A.1.5.1](#), [A.1.5.1.3](#), [A.1.5.4.3](#)).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.1.1 Installation of ceramic finish suitable for intended final use in tiles up to 30×30 cm

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render (or well anchored plasterboard without a gypsum skimming layer) using high-performance cementitious adhesive with very low emission of VOC, extended open time and no vertical slip applied using the double-buttering technique, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be grouted with high-performance, anti-efflorescence, quick-setting and drying, water-repellent anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as UltracolorPlus produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.1.2 Installation of ceramic finish suitable for intended final use in tiles larger than 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render (or well anchored plasterboard without a gypsum skimming layer) using high-performance, deformable cementitious adhesive with no vertical slip and extended open time applied using the double-buttering technique, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.1.3 Rapid installation of ceramic finish suitable for intended final use in any format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic wall finish in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render (or well anchored plasterboard without a gypsum skimming layer) using rapid-setting, deformable cementitious adhesive with no vertical slip applied using the double-buttering technique, class C2FTS1 according to UNI EN 12004 standards, (such as **Keraquick** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	15-20 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.5.2 INSTALLATION ON WATERPROOF MEMBRANES Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the finish. Make sure the membrane is dry, clean and well adhered to the underlying screed.

Installation of wall finish

Mix the adhesive and spread it on the wall with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good back buttering. The adhesive must also be applied on the back of the tiles using the double-buttering technique. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5 mm wide on each side.

When the adhesive has hardened, grout the tiles with specific grouting mortar and seal the joints (which are always formed between walls and floors, in corners, around edges and near other surfaces) with a suitable elastic sealant.

Install small tiles on waterproof membranes, such as **Mapelastic** or **Mapegum WPS**, with **Keraflex** (see section **A.1.5.2.1**). For large-sized tiles, use **Keraflex Maxi S1** (see section **A.1.5.2.2**).

When there is a limited amount of time available and rapid installation is opted for, install the finish with **Elastorapid** (see section **A.1.5.2.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.2.1 Installation of ceramic finish in any type of tile up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic finish suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on a waterproof membrane (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A.) using high-performance cementitious adhesive with very low emission of VOC, extended open time and no vertical slip applied using the double-buttering technique, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.2.2 Installation of ceramic finish in any type of tile larger than 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic finish suitable for intended final use in tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on a waterproof membrane (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A.) using high-performance, deformable cementitious adhesive with no vertical slip and extended open time applied using the double-buttering technique, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.2.3 Rapid installation of ceramic finish in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic finish suitable for intended final use in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on a waterproof membrane (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A.) using two-component, high-performance, rapid-setting, highly deformable, non-slip cementitious adhesive with extended open time applied using the double-buttering technique, class C2TES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.5.3 INSTALLATION ON EXISTING CERAMIC OR STONE FINISHES Procedure

Checking and preparing the substrate

Before installing a new finish, make sure the existing one is well bonded to the substrate. Detached and/or cracked tiles or slabs must be removed.

Then clean the coating thoroughly with water and caustic soda or with a special wax removing product. This cleaning process may also be followed up with a sanding cycle if the existing coating is made from particularly shiny tiles, polished marble or cement terrazzo.

After cleaning the surface, fill any gaps formed when damaged tiles were removed using a suitable skimming product, such as **Nivorapid** (see section **R.1.3.2.1**) or **Planitop Fast 330** (see section **R.1.3.3.2**).

Installation of wall finish

Mix the adhesive and spread it on the wall with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good back buttering. The adhesive must also be applied on the back of the tiles using the double-buttering technique. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 4-5 mm wide on each side, following the pattern of any distribution joints in the old coating.

When the adhesive has hardened, grout the tiles with specific grouting mortar and seal the joints (which are always formed between walls and floors, in corners, around edges and near other surfaces) with a suitable existing substrate.

Install small tiles with **Keraflex** (see section **A.1.5.3.1**). For large-sized tiles, use **Keraflex Maxi S1** (see section **A.1.5.3.2**).

When there is a limited amount of time available and rapid installation is opted for, install tiles with **Granirapid** (see section **A.1.5.3.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.3.1 Installation of ceramic finish in any type of tile up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on an existing substrate using high-performance cementitious adhesive with very low emission of VOC, extended open time and no vertical slip applied using the double-buttering technique, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.3.2 Installation of ceramic finish in any type of tile larger than 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in tiles larger than 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on an existing coating using high-performance, deformable cementitious adhesive with no vertical slip and extended open time applied using the double-buttering technique, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.3.3 Rapid installation of ceramic finish in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on an existing substrate using high-performance, rapid-setting, deformable cementitious adhesive with very low emission of VOC applied using the double-buttering technique, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be grouted with high-performance, anti-efflorescence, quick-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.5.4 INSTALLATION ON GYPSUM-BASED SUBSTRATES, WELL ANCHORED PLASTERBOARD SKIMMED WITH GYPSUM OR CELLULAR CONCRETE Procedure

Checking and preparing the substrate

The substrate where the finish is to be installed must be strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. All substrates mentioned above must be treated with **Primer G** prior to installation.

Installation of coating

Mix the adhesive and spread it on the walls with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good back buttering. The adhesive must also be applied on the back of the tiles using the double-buttering technique. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 3-5 mm wide on each side.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small absorbent tiles on primed gypsum-based substrates or cellular concrete walls with **Kerabond** (see section **A.1.5.4.1**). For tiles on plasterboard or tiles in a larger format on gypsum-based render or lightweight block walls, use **Keraflex** (see section **A.1.5.4.2**).

When there is a limited amount of time available and rapid installation is opted for, install the coating with **Keraquick**(see section **A.1.5.4.3**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.4.1 Installation of ceramic finish in single-fired or double-fired tiles up to 30x30 cm

Supply and installation of 8 to 10 mm thick finish in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 3-5 mm wide between the tiles, on a gypsum-based (or cellular concrete) substrate treated with a suitable insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.) using high-performance, non-slip cementitious adhesive with very low emission of VOC and extended open time applied using the double-buttering technique, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
EMICODE:	EC1 R Plus

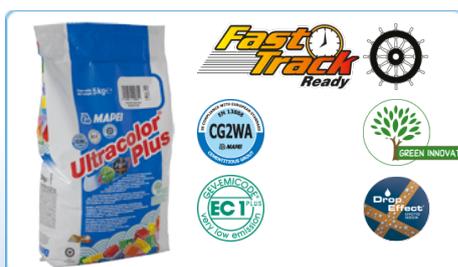
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.4.2 Installation of ceramic finish in gres porcelain or tiles larger than 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic finish in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 3-5 mm wide between the tiles, on a gypsum-based substrate treated with a suitable insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.) using high-performance, deformable cementitious adhesive with no vertical slip and extended open time applied using the double-buttering technique, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

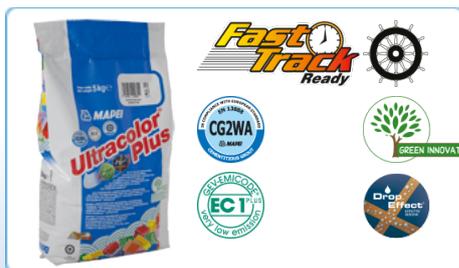
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.5.4.3 Rapid installation of ceramic finish in any type and format of tile

Supply and rapid installation of 8 to 10 mm thick ceramic finish in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, after treating the substrate with a suitable insulating primer with very low emission of VOC (such as **Primer G** produced by MAPEI S.p.A.), using high-performance, rapid-setting, non-slip, deformable cementitious adhesive with very low emission of VOC, class C2FTS1 according to UNI EN 12004 standards, (such as **Keraquick** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	15-20 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 Plus

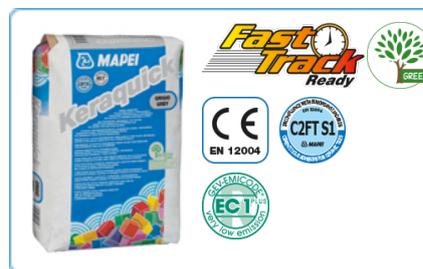
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.6 INSTALLATION OF EXTERNAL CERAMIC FLOORING

A.1.6.1 INSTALLATION ON CEMENTITIOUS SCREEDS, CONCRETE OR WATERPROOFING SYSTEMS

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness. Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

When installing on waterproof membranes, make sure the membrane is dry, clean and well adhered to the underlying screed.

The strength of the screed must generally be more than 25-30 MPa.

Installation of flooring

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The adhesive must also be applied on the back of the tiles using the double-buttering technique to guarantee that there are absolutely no gaps in the installation bed. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5 mm wide on each side, and form distribution joints approximately every 16 m².

When the adhesive has hardened, grout the flooring with a specific mortar and seal the joints using a suitable elastic sealant.

Install small tiles on these types of substrate with **Keraflex** (see section [A.1.6.1.1](#)). For large-sized tiles, use **Keraflex Maxi S1** (see section [A.1.6.1.2](#)).

When there is a limited amount of time available and rapid installation is opted for, install flooring with **Elastorapid** (see section [A.1.6.1.3](#)).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.6.1.1 Installation of ceramic flooring suitable for intended final use in tiles up to 30×30 cm

Supply and installation of 8 to 20 mm thick ceramic flooring in gres porcelain tiles up to 30x30 in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on a cementitious screed using high-performance, non-slip, deformable cementitious adhesive with extended open time applied using the double-buttering technique, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.6.1.2 Installation of ceramic flooring suitable for intended final use in tiles larger than 30×30 cm

Supply and installation of 8 to 20 mm thick ceramic flooring in gres porcelain tiles larger than 30x30 in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on a cementitious screed using high-performance, non-slip, deformable cementitious adhesive with extended open time applied using the double-buttering technique, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.6.1.3 Rapid installation of ceramic flooring suitable for final use in any type and format of tile

Supply and rapid installation of 8 to 20 mm thick ceramic flooring in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, using high-performance, rapid-setting, highly-deformable, non-slip cementitious adhesive with extended open time applied using the double-buttering technique, class C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.7 INSTALLATION OF EXTERNAL CERAMIC WALL FINISHES

A.1.7.1 APPLICATION ON CEMENTITIOUS RENDER OR WATERPROOFING SYSTEMS

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the coating. Cementitious render requires 7-10 days curing per centimetre of thickness. To be suitable for installing ceramic on façades, the pull-off strength of cementitious render must be at least 1 MPa.

Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

When installing on waterproof membranes, make sure the membrane is dry, clean and well adhered to the underlying screed.

Installation of wall finish

Mix the adhesive and spread it on the screed with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The adhesive must also be applied on the back of the tiles using the double-buttering technique to guarantee that there are absolutely no gaps in the installation bed. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5-8 mm wide on each side, and form distribution joints approximately every 9 m², according to the coefficient of thermal expansion of the finish. Expansion joints must always be formed around doors and windows, in corners, around edges in correspondence with stringcourses and generally wherever there are breaks in continuity.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant. Acetic-reticulation silicone sealants must never be used on façades. Use either neutral silicone, acrylic or polyurethane sealant.

Install small tiles on these types of substrate with **Keraflex Maxi S1** (see section [A.1.7.1.1](#)). For large-sized tiles, use **Kerabond** mixed with **Isolastic** (see section [A.1.7.1.2](#)).

When there is a limited amount of time available and rapid installation is opted for, install the coating with **Elastorapid** (see section [A.1.7.1.3](#)) or, for larger tiles, with **Keraquick** + **Latex Plus** (see section [A.1.7.1.4](#)).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.7.1.1 Installation of ceramic finish suitable for intended final use in tiles up to 30x30 cm

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for final intended use in tiles up to 30x30 in compliance with UNI EN 14411 standards, with open joints at least 8-10 mm wide between the tiles, on cementitious render, concrete or waterproofing systems (such as **Mapelastico** produced by MAPEI S.p.A.) using high-performance, non-slip, deformable cementitious adhesive with extended open time applied using the double-buttering technique, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

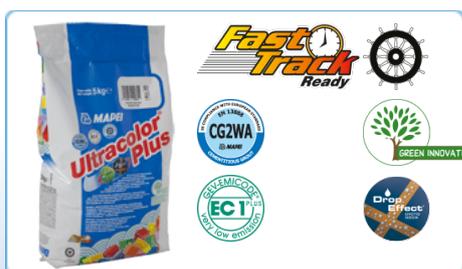
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil LM** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.7.1.2 Installation of ceramic finish suitable for intended final use in tiles larger than 30×30 cm

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for final intended use in tiles larger than 30x30 in compliance with UNI EN 14411 standards, with open joints at least 8-10 mm wide between the tiles, on cementitious render, concrete or waterproofing systems (such as **Mapelastic** produced by MAPEI S.p.A.) using high-performance, highly-deformable cementitious adhesive applied using the double-buttering technique, class C2S2 according to UNI EN 12004 standards, (such as **Kerabond** mixed with **Isolastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil LM** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.7.1.3 Rapid installation of ceramic finish suitable for intended final use in tiles up to 30×30 cm

Rapid installation of 8 to 10 mm thick ceramic wall finish in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 8-10 mm wide between the tiles, on cementitious render, concrete or waterproofing systems (such as **Mapelastico** produced by MAPEI S.p.A.) using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive with extended open time applied using the double-buttering technique, class C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil LM** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.7.1.4 Rapid installation of ceramic finish suitable for intended final use in tiles larger than 30×30 cm

Supply and rapid installation of 8 to 10 mm thick ceramic wall finish in any type and format of tile in compliance with UNI EN 14411 standards, with open joints at least 8-10 mm wide between the tiles, on cementitious render, concrete or waterproofing systems (such as **Mapelastic** produced by MAPEI S.p.A.) using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive applied using the double-buttering technique, class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick** + **Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil LM** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.8 INSTALLATION OF FLOORING AND WALL FINISHES ON WOODEN, RESILIENT OR METAL SUBSTRATES

A.1.8.1 INSTALLATION ON EXISTING BONDED WOODEN FLOORING OR WOODEN, RESILIENT OR METAL SUBSTRATES Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be sufficiently clean and free of paint, wax, rust and any other substance which could compromise adhesion of the tiles. Overlaying old bonded wooden flooring may be carried out. Old flooring fixed in place with nails must be removed.

Installation of coating

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5-8 mm wide on each side, following the pattern of the distribution joints in the existing flooring.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install small tiles on wooden or resilient substrates with **Keraquick + Latex Plus** (see section **A.1.8.1.1**). For large-sized tiles, or for installation on metal substrates, use **Keralastic** (see section **A.1.8.1.2**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.8.1.1 Installation of new flooring in tiles up to 30x30 cm on wooden substrates or existing bonded wooden or resilient flooring

Supply and installation of 8 to 10 mm thick ceramic flooring suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on wooden substrates or existing bonded wooden or resilient flooring using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive, class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick + Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

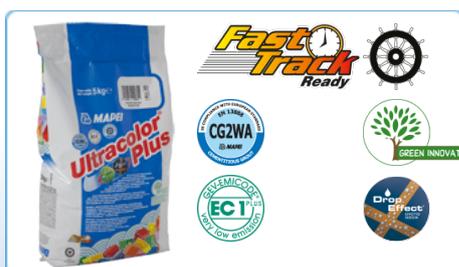
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.8.1.2 Installation of new flooring in any format of tile on wooden substrates, existing bonded wooden or resilient flooring or metal

Supply and rapid installation of 8 to 20 mm thick ceramic flooring suitable for intended final use in tiles up to 30x30 cm in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on wooden substrates, existing bonded wooden or resilient flooring or metal using two-component, improved adhesion, reactive adhesive, class R2 according to UNI EN 12004 standards, (such as **Keralastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



**A.1.8.2 INSTALLATION ON VERTICAL WOODEN, RESILIENT OR METAL
SUBSTRATES
Procedure**

Checking and preparing the substrate

The substrate on which the finish is to be installed must be sufficiently clean and free of paint, wax, rust and any other substance which could compromise adhesion of the tiles. The adhesive have non-slip properties when applied on vertical substrates.

Installation of flooring

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good buttering of the back of the tile. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5-8 mm wide on each side, following the pattern of the distribution joints in the existing flooring.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install wall coatings on resilient, wooden and metal substrates with **Keralastic T** (see section **A.1.8.2.1**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.8.2.1 Installation of ceramic finish in any format of tile on wooden, resilient or metal substrates

Supply and installation of 8 to 10 mm thick ceramic wall finish suitable for intended final use in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on wooden, resilient or metal substrates using two-component, improved adhesion, non-slip reactive adhesive, class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9 INSTALLATION OF THIN CERAMIC FLOORING AND WALL FINISHES

A.1.9.1 INSTALLATION OF INTERNAL FLOORING IN THIN TILES ON CEMENTITIOUS, ANHYDRITE OR CONCRETE SCREEDS

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness. The characteristics of thin gres porcelain tiles require installation surfaces that are as flat as possible. If the substrate is not flat, gaps may form between the substrate and the back of the tile.

Clean the substrate thoroughly, open up any cracks in the underlying screed, vacuum the cracks and seal the cracks by pouring **Eporip** two-component epoxy adhesive into the cracks.

Then apply a coat of **Primer G** (see section **R.1.2.1.1**) and, if required, level off the surface with **Ultraplan** (see section **R.1.3.1.1**) or **Ultraplan Maxi** (see section **R.1.3.3.1**).

Installation of flooring

Mix the adhesive and spread it on the screed and the back of the tile with a notched trowel. Select the most suitable trowel to guarantee complete buttering of the back of the tiles. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install thin gres porcelain tiles up to 5000 cm² (the longest side must never be more than 100 cm) on non-radiating screeds with **Keraflex Maxi S1** (see section **A.1.9.1.1**) or **Ultralite S1** (see section **A.1.9.1.2**). For thin gres porcelain tiles larger than 5000 cm², use **Kerabond + Isolastic** (see section **A.1.9.1.3**) or **Ultralite S2** (see section **A.1.9.1.4**).

When there is a limited amount of time available and rapid installation is opted for, install flooring tiles up to 5000 cm² with **Granirapid** (see section **A.1.9.1.5**). For tiles larger than 5000 cm², use **Elastorapid** (see section **A.1.9.1.6**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.1.1 Installation of new flooring in thin ceramic tiles up to 5000 cm² with or without reinforcement mesh using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as UltracolorPlus produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 25.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.1.2 Installation of new flooring in thin ceramic tiles up to 5000 cm² with or without reinforcement mesh using normal-setting adhesive with high buttering capacity

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using high-performance, non-slip, deformable cementitious adhesive with extended open time with the capacity of transferring sufficiently onto the back of the tile, applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2TES1 according to UNI EN 12004 standards, (such as **Ultralite S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,200
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 25.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.1.3 Installation of new flooring in thin ceramic tiles larger than 5000 cm² with or without reinforcement mesh using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using two-component, high-performance, highly deformable cementitious adhesive using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond** + **Isolastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 25.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.1.4 Installation of new flooring in thin ceramic tiles larger than 5000 cm² with or without reinforcement mesh using normal-setting adhesive with high buttering capacity

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using high-performance, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Ultralite S2** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,100
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

The grouting mortar must have the following characteristics:

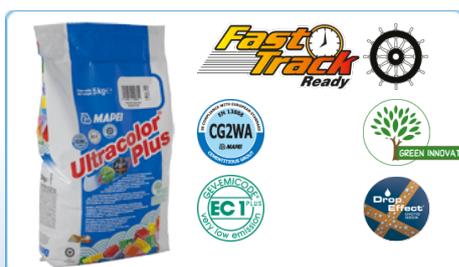
density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 25.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.1.5 Installation of new flooring in thin ceramic tiles up to 5000 cm² with or without reinforcement mesh using rapid-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using high-performance, rapid, deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
open time:	approximately 20 minutes
pot life of mix:	45 minutes
setting time:	approximately 2 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.1.6 Posa con adesivo a presa rapida con elevato potere bagnante di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni fino a 5000 cm²

Fornitura e posa in opera si massetto cementizio in interno, di pavimentazione in gres porcellanato sottile formato fino a 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, deformabile ,a scivolamento verticale nullo, con elevata capacità bagnante , altissima resa e facile spatolabilità , di classe C2 FTS1 in accordo alla norma UNI EN 12004 (tipo Ultralite S1 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa , di classe CG2WA in accorso alla norma

UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	900
tempo aperto:	> 20 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.1.7 Installation of new flooring in thin ceramic tiles larger than 5000 cm² with or without reinforcement mesh using rapid-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a cementitious screed using high-performance, rapid, highly deformable, non-slip cementitious adhesive with extended open time applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.9.1.8 Posa con adesivo a presa rapida con elevato potere bagnante di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni superiori a 5000 cm²

Fornitura e posa in opera su massetto cementizio in interno, di pavimentazione in gres porcellanato sottile formato maggiore di 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, altamente deformabile, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FES2 in accordo alla norma UNI EN 12004 (tipo Ultralite S2 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1100
tempo aperto:	> 30 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1.9.2 INSTALLATION OF INTERNAL FLOORING IN THIN TILES ON EXISTING CERAMIC, TERRAZZO OR STONE FLOORING Procedure

Checking and preparing the substrate

Before installing new flooring, remove skirting boards and make sure all the existing flooring is well bonded to the substrate. Detached and/or cracked tiles or slabs must be removed. Any cracks in the screed must be opened up, vacuumed to remove all traces of dust and then sealed by pouring **Eporip** two-component epoxy adhesive into the cracks.

Then clean the flooring thoroughly with water and caustic soda or with a special wax removing product. This cleaning process may also be followed up with a sanding cycle if the existing flooring is made from particularly shiny tiles, polished marble or cement terrazzo.

The characteristics of thin gres porcelain tiles require installation surfaces that are as flat as possible. If the substrate is not flat, gaps may form between the substrate and the back of the tile.

Clean the substrate thoroughly, open up any cracks in the underlying screed, vacuum the cracks and seal the cracks by pouring **Eporip** two-component epoxy adhesive into the cracks.

After cleaning the surface, fill any gaps formed when damaged tiles were removed using a suitable skimming product, such as **Nivorapid** (see section **R.1.2.1.1**), **Adesilex P4** (see section **R.1.3.2.2**) or **Planitop Fast 330** (see section **R.1.3.3.2**).

If the existing substrate is not sufficiently flat and needs to be skimmed, apply a layer of **Eco Prim Grip** (see section **R.1.2.1.3**) and then level off the surface with **Ultraplan** (see section **R.1.3.1.1**) or **UltraplanMaxi** (see section **R.1.3.3.1**).

Installation of coating

Mix the adhesive and spread it on the substrate and the back of the tile with a notched trowel. Select the most suitable trowel to guarantee complete buttering of the back of the tiles. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install thin gres porcelain tiles up to 5000 cm² (the longest side must never be more than 100 cm) on non-radiating screeds with **KeraflexMaxi S1** (see section **A.1.9.2.1**) or **Ultralite S1** (see section **A.1.9.2.2**). For thin gres porcelain tiles larger than 5000 cm², use **Kerabond + Isolastic** (see section **A.1.9.2.3**) or **UltraliteS2** (see section **A.1.9.2.4**).

When there is a limited amount of time available and rapid installation is opted for, install flooring tiles up to 5000 cm² with **Granirapid** (see section **A.1.9.2.5**). For tiles larger than 5000 cm², use **Elastorapid** (see section **A.1.9.2.6**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.2.1 Installation of new flooring in thin ceramic tiles up to 5000 cm² with normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on existing ceramic, terrazzo or stone flooring using high-performance, deformable cementitious adhesive with no vertical slip and extended open time applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 25.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.2.2 Installation of new flooring in thin ceramic tiles larger than 5000 cm² using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on existing ceramic, terrazzo or stone flooring using two-component, high-performance, highly deformable cementitious adhesive using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond + Isolastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 25.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.2.3 Posa con adesivo a presa normale con elevato potere bagnante di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni fino a 5000 cm²

Fornitura e posa in opera in interno su esistenti pavimentazioni in ceramica o marmette o materiale lapideo di pavimentazione in gres porcellanato sottile formato fino a 5000 cm², conforme alla norma UNI EN 14411, spessore da 3 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio ad alte prestazioni, resistente allo scivolamento, con tempo aperto allungato, deformabile, in grado di fornire un'adeguata bagnatura del retro delle piastrelle, appartenente alla classe C2TES1 secondo la norma UNI EN 12004 (tipo **Ultralite S1** della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa e ad asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo **Ultracolor Plus**, della MAPEI S.p.A.).

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.200
tempo aperto:	> 30 minuti
durata dell'impasto:	oltre 8 ore
tempo di registrazione:	45 minuti

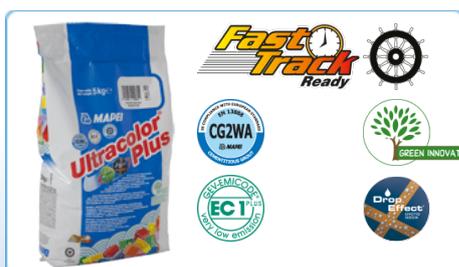
Il prodotto per la fugatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.980
durata dell'impasto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione di giunti elastici di frazionamento, formanti riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo **Mapesil AC** della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.2.4 Installation of new flooring in thin ceramic tiles larger than 5000 cm² using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on existing ceramic, terrazzo or stone flooring using two-component, high-performance, highly deformable cementitious adhesive using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond + Isolastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R Plus

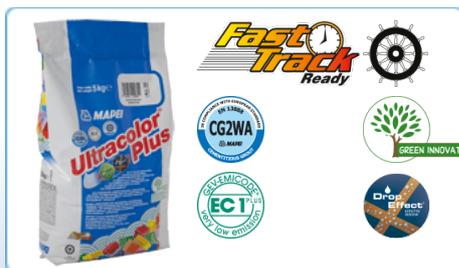
The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 25.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.2.5 Installation of new flooring in thin ceramic tiles larger than 5000 cm² using normal-setting adhesive with high buttering capacity

Supply and installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on existing ceramic, terrazzo or stone flooring using high-performance, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Ultralite S2** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,100
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 25.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.2.6 Installation of new flooring in thin ceramic tiles up to 5000 cm² using rapid-setting adhesive

Supply and rapid installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on existing ceramic, terrazzo or stone flooring using high-performance, rapid, deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The product used for laying must have the following characteristics:

density (kg/m ³):	1,600
pH:	11
pot life of mix:	45'
open time:	approx. 20 minutes (EN 1346)
set to foot traffic:	3-4 hours
ready for service:	24 hours (3 days for storage tanks and swimming pools)
EMICODE:	EC1 R Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.9.2.7 Posa con adesivo a presa rapida ad elevata bagnatura di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni fino a 5000 cm²

Fornitura e posa in opera in interno su esistenti pavimentazioni in ceramica o marmette o materiale lapideo, di pavimentazione in gres porcellanato sottile formato fino a 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, deformabile, a scivolamento verticale nullo, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FTS1 in accordo alla norma UNI EN 12004 (tipo Ultralite S1 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	900
tempo aperto:	> 20 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.2.8 Installation of new flooring in thin ceramic tiles larger than 5000 cm² using rapid-setting adhesive

Supply and rapid installation of 3 to 4.7 mm thick internal flooring in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on existing ceramic, terrazzo or stone flooring using high-performance, rapid, highly deformable, non-slip cementitious adhesive with extended open time applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.9.2.9 Posa con adesivo a presa rapida con elevato potere bagnante di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni superiori a 5000 cm²

Fornitura e posa in opera in interno su esistenti pavimentazioni in ceramica o marmette o materiale lapideo, di pavimentazione in gres porcellanato sottile formato maggiore di 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, altamente deformabile, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FES2 in accordo alla norma UNI EN 12004 (tipo Ultralite S2 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accorso alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1100
tempo aperto:	> 30 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1.9.3 INSTALLATION OF INTERNAL FLOORING IN THIN TILES ON HEATED SCREEDS Procedure

Checking and preparing the substrate

The substrate on which the flooring is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the flooring. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness. Before installing the flooring, make sure the heating cycle of the radiating screed has been carried out. The heating cycle is carried out by switching on the heating system at the lowest temperature, and increasing the temperature by +5°C per day until it reaches the maximum working temperature. Run the system at the maximum working temperature for 3 days, then reduce the temperature by +5°C per day until it reaches room temperature. Seal any cracks which develop during the cycle.

Installation of flooring

Mix the adhesive and spread it on the substrate and the back of the tile with a notched trowel. Select the most suitable trowel to guarantee complete buttering of the back of the tiles. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install all formats of thin gres porcelain tiles on radiating screeds with **Kerabond + Isolastic** (see section **A.1.9.3.1**) or **Ultralite S2** (see section **A.1.9.3.2**).

When there is a limited amount of time available and rapid installation is opted for, install flooring tiles up to 5000 cm² with **Elastorapid** (see section **A.1.9.3.3**). For tiles larger than 5000 cm², use **Keraquick + Latex Plus** (see section **A.1.9.3.4**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.3.1 Posa con adesivo a presa normale di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di tutti i formati

Fornitura e posa in opera in interno su massetto riscaldante di lastre di gres porcellanato sottile di tutte le dimensioni, conforme alla norma UNI EN 14411, spessore da 3 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio bicomponente ad alte prestazioni, altamente deformabile, appartenente alla classe C2ES2 secondo la norma UNI EN 12004 (tipo **Kerabond+Isolastic** della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa e ad asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo **Ultracolor Plus** della MAPEI S.p.A.).

L'adesivo per la posa, miscelato con il lattice, dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.500
tempo aperto:	20-30 minuti
durata dell'impasto:	oltre 8 ore
tempo di registrazione:	45 minuti
EMICODE:	EC1 R Plus

Il prodotto per la fugatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.980
durata dell'impasto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione di giunti elastici di frazionamento, formanti riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo **Mapesil AC** della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detersivi e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.3.2 Posa con adesivo a presa normale con elevato potere bagnante di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di tutte le dimensioni

Fornitura e posa in opera in interno su massetto riscaldante di lastre di gres porcellanato sottile di tutte le dimensioni, conforme alla norma UNI EN 14411, spessore da 3 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra),, conforme alla norma UNI EN 14411, spessore da 3 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra) con adesivo cementizio ad alte prestazioni, altamente deformabile, appartenente alla classe C2ES2 secondo la norma UNI EN 12004 (tipo **Ultralite S2** della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa e ad asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo **Ultracolor Plus** della MAPEI S.p.A.).

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.100
tempo aperto:	> 30 minuti
durata dell'impasto:	oltre 8 ore
tempo di registrazione:	45 minuti

Il prodotto per la fugatura dovrà avere le seguenti caratteristiche:

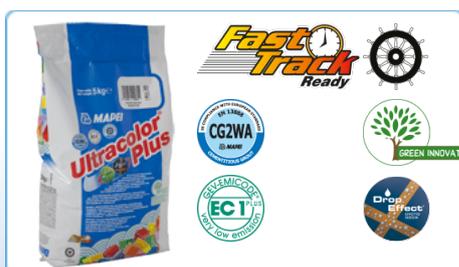
massa volumica (kg/m ³):	1.980
durata dell'impasto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione di giunti elastici di frazionamento, formanti riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo **Mapesil AC** della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulizia superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, a raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.



..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.3.3 Posa con adesivo a presa rapida di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni fino a 5000 cm²

Fornitura e posa in opera su massetto riscaldante di lastre in gres porcellanato sottile di dimensioni fino a 5000 cm², conforme alla norma UNI EN 14411, spessore da 3 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra) con adesivo cementizio ad alte prestazioni, rapido, a tempo aperto allungato, resistente allo scivolamento ed altamente deformabile, appartenente alla classe C2FTES2 secondo la norma UNI EN 12004 (tipo **Elastorapid** della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa e ad asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo **Ultracolor Plus** della MAPEI S.p.A.).

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.650
tempo aperto:	30 minuti
tempo di presa:	120-150 minuti
messa in esercizio:	24 ore

Il prodotto per la fugatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.980
durata dell'impasto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione di giunti elastici di frazionamento e la loro sigillatura;
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.3.4 Posa con adesivo a presa rapida di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo con rete di dimensioni superiori a 5000 cm²

Fornitura e posa in opera su massetto riscaldante di lastre in gres porcellanato sottile di dimensioni maggiori di 5000 cm², conforme alla norma UNI EN 14411, spessore da 3 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra) con adesivo cementizio ad alte prestazioni, a presa rapida, resistente allo scivolamento, ed altamente deformabile, appartenente alla classe C2FTS2 secondo la norma UNI EN 12004 (tipo **Keraquick** + **Latex Plus** della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa e ad asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo **Ultracolor Plus** della MAPEI S.p.A.).

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.550
durata dell'impasto:	30 minuti
tempo aperto:	10-15 minuti
messa in esercizio:	24 ore
EMICODE:	EC1 R Plus

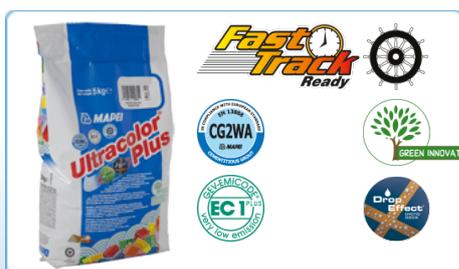
Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1.980
durata dell'impasto:	20-25 minuti
messa in esercizio:	24 ore
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la sigillatura dei giunti di dilatazione con apposito sigillante elastico (tipo **Mapesil AC** della MAPEI S.p.A.);
- la stuccatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detersivi e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.3.5 Installation of new flooring in thin ceramic tiles larger than 5000 cm² with or without reinforcement mesh using rapid-setting adhesive

Supply and installation of 3 to 4.7 mm thick flooring in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on a radiating screed using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick** + **Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 R Plus

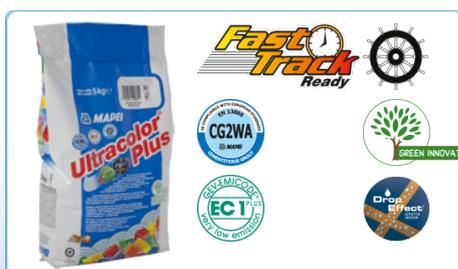
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.3.6 Posa con adesivo a presa rapida con elevato potere bagnante di nuova pavimentazione in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni superiori a 5000 cm²

Fornitura e posa in opera su massetto riscaldante, di lastre in gres porcellanato sottile formato maggiore di 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, altamente deformabile, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FES2 in accordo alla norma UNI EN 12004 (tipo Ultralite S2 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1100
tempo aperto:	> 30 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.4 INSTALLATION OF INTERNAL FINISH IN THIN TILES ON CONCRETE, OLD CERAMIC, TERRAZZO, STONE, CEMENT OR GYPSUM-BASED RENDER, PLASTERBOARD OR CEMENT-FIBRE PANELS

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the tiles. Cementitious render requires 7-10 days curing per centimetre of thickness.

Installation of coating

Mix the adhesive and spread it on the substrate and the back of the tile with a notched trowel. Select the most suitable trowel to guarantee complete back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install thin gres porcelain tiles up to 5000 cm² (the longest side must never be more than 100 cm) on non-radiating screeds with **Keraflex Maxi S1** (see section [A.1.9.4.1](#)) or **Ultralite S1** (see section [A.1.9.4.2](#)). For thin gres porcelain tiles larger than 5000 cm², use **Kerabond + Isolastic** (see section [A.1.9.4.3](#)) or **Ultralite S2** (see section [A.1.9.4.4](#)).

When there is a limited amount of time available and rapid installation is opted for, install flooring tiles up to 5000 cm² with **Granirapid** (see section [A.1.9.2.5](#)). For tiles larger than 5000 cm², use **Elastorapid** (see section [A.1.9.2.6](#)).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.4.1 Installation of finish in thin ceramic tiles up to 5000 cm² with or without reinforcement using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal wall finish in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on walls using high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.4.2 Installation of finish in thin ceramic tiles up to 5000 cm² using normal-setting adhesive with high buttering capacity

Supply and installation of 3 to 4.7 mm thick internal wall finish in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on walls using high-performance, non-slip, deformable cementitious adhesive with extended open time applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2TES1 according to UNI EN 12004 standards, (such as **Ultralite S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,200
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.4.3 Installation of finish in thin ceramic tiles larger than 5000 cm² with or without reinforcement mesh using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal wall finish in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on walls using two-component, high-performance, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond** + **Isolastic** produced by MAPEI S.p.A.). The joints must be grouted with high-performance, anti-efflorescence, quick-setting and drying, water-repellent anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by Mapei S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.4.4 Installation of finish in thin ceramic tiles larger than 5000 cm² with or without reinforcement mesh using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal wall finish in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on walls using high-performance, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Ultralite S2** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,100
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.4.5 Installation of finish in thin ceramic tiles up to 5000 cm² with or without reinforcement mesh using rapid-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal wall finish in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on walls using high-performance, rapid, non-slip, highly deformable cementitious adhesive with extended open time applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	> 30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.9.4.6 Posa con adesivo a presa rapida ad elevata bagnatura di rivestimento in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni fino a 5000 cm²

Fornitura e posa in opera a parete in interno, di rivestimento in lastre di gres porcellanato sottile formato fino a 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, deformabile, a scivolamento verticale nullo, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FTS1 in accordo alla norma UNI EN 12004 (tipo Ultralite S1 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	900
tempo aperto:	> 20 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.4.7 Installation of coating in thin ceramic tiles larger than 5000 cm² using rapid-setting adhesive

Supply and installation of 3 to 4.7 mm thick internal wall finish in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 2 mm wide between the tiles, on walls using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick + Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
pot life:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 R Plus

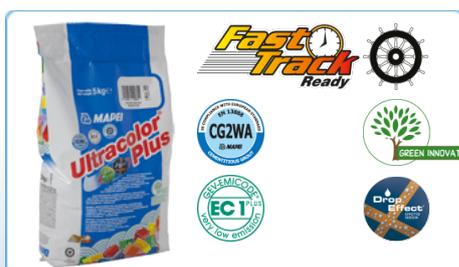
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.9.4.8 Posa con adesivo a presa rapida con elevato potere bagnante di rivestimento in lastre di ceramica a spessore sottile con e senza rete di rinforzo di dimensioni superiori a 5000 cm²

Fornitura e posa in opera a parete in interno, di rivestimento in lastre di gres porcellanato sottile formato maggiore di 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, altamente deformabile, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FES2 in accordo alla norma UNI EN 12004 (tipo Ultralite S2 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1100
tempo aperto:	> 30 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1.9.5 INSTALLATION OF EXTERNAL FINISH IN THIN TILES ON CONCRETE OR CEMENT-BASED RENDER**Procedure****Checking and preparing the substrate**

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the tiles. Cementitious render requires 7-10 days curing per centimetre of thickness. To be suitable for installing ceramics on façades, the pull-off strength of cementitious render must be at least 1 MPa.

Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

Installation of flooring

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good back buttering. The adhesive must also be applied on the back of the tiles using the double-buttering technique to guarantee that there are absolutely no gaps in the installation bed. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5-8 mm wide on each side, and form distribution joints approximately every 9 m², according to the coefficient of thermal expansion of the coating. Expansion joints must always be formed around doors and windows, in corners, around edges in correspondence with stringcourses and generally wherever there are breaks in continuity.

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant. Acetic-reticulation silicone sealants must never be used on façades. Use either neutral silicone, acrylic or polyurethane sealant.

Which adhesive to use for installing coatings on façades depends highly on whether there is reinforcement mesh on the back of the tiles.

Install thin gres porcelain tiles up to 5000 cm² without reinforcement mesh (the longest side must never be more than 100 cm) with **Keraflex Maxi S1** (see section **A.1.9.5.1**) or **Ultralite S1** (see section **A.1.9.5.2**). For thin gres porcelain tiles larger than 5000 cm², use **Kerabond + Isolastic** (see section **A.1.9.4.5.3**) or **Ultralite S2** (see section **A.1.9.5.4**). When there is a limited amount of time available and rapid installation is opted for, install flooring with **Granirapid** (see section **A.1.9.5.5**) for tiles up to 5000 cm², and **Elastorapid** (see section **A.1.9.5.6**) for tiles larger than 5000 cm².

For tiles with reinforcement mesh, use **Kerabond + Isolastic** (see section **A.1.9.5.7**) or **Ultralite S2** (see section **A.1.9.5.8**) for tiles up to 5000 m², and **Keralastic T** (see section **A.1.9.5.9**) or **Keraquick + Latex Plus** (see section **A.1.9.5.10**) for tiles larger than 5000 cm².

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.1 TILES WITHOUT REINFORCEMENT MESH

Installation of new finish on external façades in thin ceramic tiles up to 5000 cm² without reinforcement mesh using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick external finish in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	approximately 2 hours
ready for service:	7 days
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 3x3 metres, or up to a maximum of 12 m², and sealing of the joints with specific elastic sealant (such as **Mapesil LM** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.2 TILES WITHOUT REINFORCEMENT MESH

Installation of new finish on external façades in thin ceramic tiles up to 5000 cm² without reinforcement mesh using normal-setting adhesive with high buttering capacity

Supply and installation of 3 to 4.7 mm thick external finish in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using high-performance, non-slip, deformable cementitious adhesive with extended open time and the capacity to butter the back of the tiles sufficiently to form a good bond, applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2TES1 according to UNI EN 12004 standards, (such as **Ultralite S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,200
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.3 TILES WITHOUT REINFORCEMENT MESH

Installation of new finish on external façades in thin ceramic tiles larger than 5000 cm² without reinforcement mesh using normal-setting adhesive

Supply and installation of 3 to 4.7 mm thick finish for external façades in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using two-component, high-performance, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond + Isolastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.4 TILES WITHOUT REINFORCEMENT MESH

Installation of new finish on external façades in thin ceramic tiles larger than 5000 cm² without reinforcement mesh using normal-setting adhesive with high buttering capacity

Supply and installation of 3 to 4.7 mm thick external finish in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using high-performance, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Ultralite S2** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,100
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.5 TILES WITHOUT REINFORCEMENT MESH

Installation of new finish on external façades in thin ceramic tiles up to 5000 cm² without reinforcement mesh using rapid-setting adhesive

Supply and installation of 3 to 4.7 mm thick external finish in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using high-performance, rapid, non-slip, highly deformable cementitious adhesive with extended open time applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.6 TILES WITHOUT REINFORCEMENT MESH

Installation of new finish on external façades in thin ceramic tiles larger than 5000 cm² without reinforcement mesh using rapid-setting adhesive

Supply and installation of 3 to 4.7 mm thick finish for external façades in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick** + **Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 R Plus

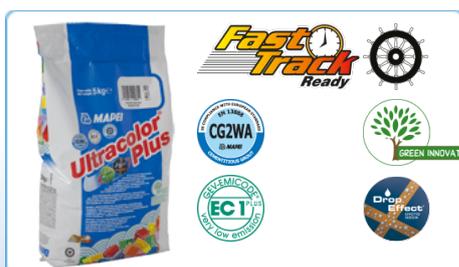
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil LM** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.9.5.7 Posa con adesivo a presa rapida ad elevata bagnatura di nuovo rivestimento in facciata esterna in lastre di ceramica a spessore sottile senza rete di rinforzo di dimensioni fino a 5000 cm²

Fornitura e posa in opera su intonaco cementizio e calcestruzzo in facciata esterna, di rivestimento in lastre di gres porcellanato sottile formato fino a 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, deformabile, a scivolamento verticale nullo, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FTS1 in accordo alla norma UNI EN 12004 (tipo Ultralite S1 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	900
tempo aperto:	> 20 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la realizzazione e la sigillatura dei giunti di dilatazione con apposito sigillante elastico (tipo MAPESIL LM della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES**A.1.9.5.8 Posa con adesivo a presa rapida con elevato potere bagnante di nuovo rivestimento in facciata esterna in lastre di ceramica a spessore sottile senza rete di rinforzo di dimensioni fino a 5000 cm² e con rete di rinforzo solo per formati fino a 5000 cm²**

Fornitura e posa in opera su intonaco cementizio e calcestruzzo in facciata esterna, di rivestimento in lastre di gres porcellanato sottile senza rete formato maggiore di 5000 cm² e con rete di rinforzo solo con formato fino a 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, altamente deformabile, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FES2 in accordo alla norma UNI EN 12004 (tipo Ultralite S2 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1100
tempo aperto:	> 30 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la realizzazione e la sigillatura dei giunti di dilatazione con apposito sigillante elastico (tipo MAPESIL LM della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.9 TILES WITH REINFORCEMENT MESH

Installation on external façades in thin ceramic tiles up to 5000 cm² with reinforcement mesh using normal-setting cementitious adhesive

Supply and installation of 3 to 4.7 mm thick finish for external façades in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using two-component, high-performance, highly-deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond + Isolastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

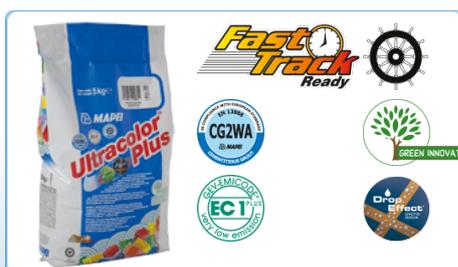
density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.10 TILES WITH REINFORCEMENT MESH

Installation of new finish on external façades in thin ceramic tiles up to 5000 cm² using normal-setting adhesive with high buttering capacity

Supply and installation of 3 to 4.7 mm thick finish for external façades in thin gres porcelain tiles up to 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using high-performance, highly deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2ES2 according to UNI EN 12004 standards, (such as **Ultralite S2** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,100
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 3x3 m, or up to a maximum of 12 m², and sealing of the joints with specific elastic sealant (such as **Mapesil LM** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.11 TILES WITH REINFORCEMENT MESH

Installation of finish on external façades in thin ceramic tiles larger than 5000 cm² with reinforcement mesh using reactive adhesive

Supply and installation of 3 to 4.7 mm thick finish for external façades in thin gres porcelain tiles larger than 5000 cm² in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using two-component, non-slip, improved adhesion adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

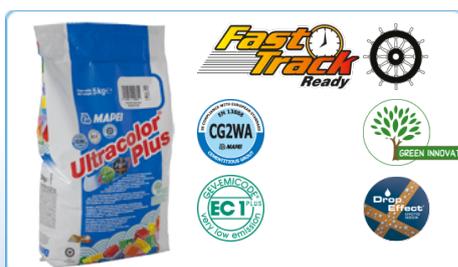
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant (such as **Mapesil LM** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.5.12 TILES WITH REINFORCEMENT MESH

Installation of finish on external façades in all formats of thin ceramic tiles with reinforcement mesh using rapid-setting cementitious adhesive

Supply and installation of 3 to 4.7 mm thick finish for external façades in all sizes of thin gres porcelain tiles in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on cementitious render using high-performance, rapid-setting, non-slip, highly-deformable cementitious adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick** + **Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1.9.6 INSTALLATION OF INTERNAL FLOORING AND FINISHES IN THIN TILES ON WATERPROOFING SYSTEMS

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the coating. Make sure the membrane is dry, clean and well adhered to the underlying screed.

Installation of wall finish

Mix the adhesive and spread it on the wall with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 2 mm wide on each side.

When the adhesive has hardened, grout the tiles with specific grouting mortar and seal the joints (which are always formed between walls and floors, in corners, around edges and near other surfaces) with a suitable elastic sealant.

Install tiles up to 5000 cm² on waterproof membranes, such as **Mapelastic** or MapegumWPS, with **Keraflex Maxi S1** (see section [A.1.9.6.1](#)) and tiles larger than 5000 cm² with **Kerabond + Isolastic** (see section [A.1.9.6.2](#)) or UltraliteS2 (see section [A.1.9.6.3](#)).

When there is a limited amount of time available and rapid installation is opted for, install the coating with **Keraquick + Latex Plus** (see section [A.1.9.6.4](#)).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.6.1 Installation of finish in thin ceramic tiles up to 5000 cm² using normal-setting cementitious adhesive

Supply and installation of thin gres porcelain tiles from 3 to 4,7 mm thick in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a waterproof membrane (such as **Mapelast** or **Mapegum WPS** produced by MAPEI S.p.A) using high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste

Completed according to specifications.
..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.6.3 Installation of finish in thin ceramic tiles larger than 5000 cm² using normal-setting cementitious adhesive

Supply and installation of thin gres porcelain tiles from 3 to 4,7 mm thick in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a waterproof membrane (such as **Mapelastic** or MapegumWPS produced by MAPEI S.p.A) using two-component, high-performance, highly deformable cementitious adhesive, class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond** + **Isolastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

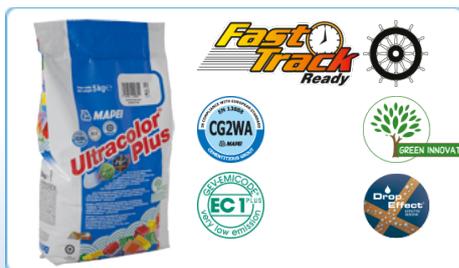
density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning and rinsing of the surface;
- waste material upon completion of work, differential delivery of waste material to an authorised waste disposal site, completed according to specifications.



..... (€/m²)

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.6.4 Installation of finish in thin ceramic tiles larger than 5000 cm² using normal-setting cementitious adhesive with high buttering capacity

Supply and installation of thin gres porcelain tiles from 3 to 4,7 mm thick in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a waterproof membrane (such as **Mapelastico** or MapegumWPS produced by MAPEI S.p.A) using high-performance, highly deformable cementitious adhesive, class C2ES2 according to UNI EN 12004 standards, (such as **Ultralite S2** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,100
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes

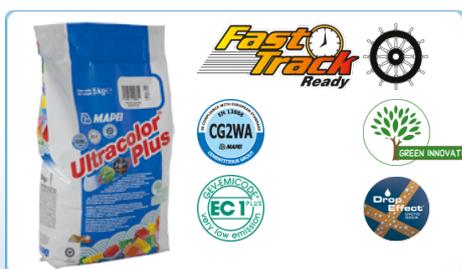
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of elastic distribution joints measuring 4.00×4.00 m, or up to a maximum of 20.00 m², and sealing of the joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.6.5 Installation of finish in thin ceramic tiles of any format using rapid-setting cementitious adhesive

Supply and rapid installation of thin gres porcelain tiles from 3 to 4,7 mm thick in compliance with UNI EN 14411 standards, with open joints at least 3 mm wide between the tiles, on a waterproof membrane (such as **Mapelastic** or MapegumWPS produced by MAPEI S.p.A) using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive, class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick** + **Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
open time:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 R Plus

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential

delivery of waste material to an authorised waste
 completed according to specifications.

..... (€/m²)



A.1.9.6.7 Posa con adesivo a presa rapida ad elevata bagnatura di lastre di ceramica a spessore sottile di dimensioni fino a 5000 cm²

Fornitura e posa in opera su membrana impermeabile (tipo Mapelastic o Mapegum WPS della MAPEI S.p.A.), di rivestimento in lastre di gres porcellanato sottile formato fino a 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, deformabile, a scivolamento verticale nullo, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FTS1 in accordo alla norma UNI EN 12004 (tipo Ultralite S1 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	900
tempo aperto:	> 20 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detersivi e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1.9.6.8 Posa con adesivo a presa rapida con elevato potere bagnante di lastre di ceramica a spessore sottile di dimensioni superiori a 5000 cm²

Fornitura e posa in opera su membrana impermeabile (tipo Mapelastic o Mapegum WPS della MAPEI S.p.A.), di rivestimento in lastre di gres porcellanato sottile formato maggiore di 5000 cm², conforme alla norma UNI EN 14411, spessore da 3,4 a 4,7 mm, posata a giunto aperto di dimensione non inferiore a 2 mm, utilizzando la tecnica della doppia spalmatura (adesivo applicato sia sul supporto che sul retro della lastra), con adesivo cementizio monocomponente alleggerito ad alte prestazioni, a presa ed idratazione rapida, tempo aperto allungato, altamente deformabile, con elevata capacità bagnante, altissima resa e facile spatolabilità, di classe C2 FES2 in accordo alla norma UNI EN 12004 (tipo Ultralite S2 Quick della MAPEI S.p.A.). La sigillatura delle fughe dovrà essere effettuata con stuccatura ad alte prestazioni, antiefflorescenze, a presa ed asciugamento rapidi, idrorepellente ed antimuffa, di classe CG2WA in accordo alla norma UNI EN 13888 (tipo Ultracolor Plus della MAPEI S.p.A.)

L'adesivo per la posa dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1100
tempo aperto:	> 30 minuti
durata dell'impasto:	50 minuti
tempo di registrazione:	15 minuti

Il fugante per la stuccatura dovrà avere le seguenti caratteristiche:

massa volumica (kg/m ³):	1980
tempo aperto:	20'-25'
messa in esercizio:	24 h
EMICODE:	EC1 Plus

Sono da intendersi compresi e compensati nel prezzo:

- gli oneri per la predisposizione del sottofondo;
- la fornitura e posa del collante;
- la formazione dei giunti elastici di frazionamento, formati riquadri da 4.00x4.00 m e comunque non superiori a 25.00 m², e la loro sigillatura con apposito sigillante elastico (tipo Mapesil AC della MAPEI S.p.A.);
- gli eventuali profili in ottone forato per separazione di pavimenti diversi;
- la sigillatura delle fughe nel colore a scelta della D.L.;
- la successiva pulitura superficiale con idonei detergenti e risciacquatura;
- il taglio, lo sfrido, la pulizia e l'asporto del materiale di risulta a fine lavoro, la raccolta differenziata del materiale di risulta, il conferimento con trasporto in discarica autorizzata del materiale di risulta, l'indennità di discarica;
- quanto altro necessario per dare il lavoro finito a regola d'arte.

..... (€/m²)

A.1.9.7 INSTALLATION OF THIN TILES ON METAL OR WOODEN SUBSTRATES Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be sufficiently clean and free of paint, wax, rust and any other substance which could compromise adhesion of the tiles. Overlaying old bonded wooden flooring may be carried out. Old flooring fixed in place with nails must be removed.

If the substrate needs to be levelled off, use **Nivorapid** (see section **R.1.3.2.1**) mixed with **Latex Plus**.

Installation of flooring

Mix the adhesive and spread it on the substrate and the back of the tile with a notched trowel. Select the most suitable trowel to guarantee complete buttering of the back of the tiles. The tiles must be applied on the fresh adhesive within its open time. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5-8 mm wide on each side, follow the pattern of expansion joints, if present, in the existing flooring and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Install thin gres porcelain tiles on horizontal metal or wooden substrates with **Keralastic** (see section **A.1.9.7.1**), and on vertical substrates with **Keralastic T** (see section **A.1.9.7.2**).

A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.7.1 Installation of finish in thin ceramic tiles on horizontal substrates using reactive adhesive

Supply and rapid installation of 3 to 4.7 mm thick finish in thin gres porcelain tiles in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on a wooden substrate, existing bonded wooden flooring or metal using two-component, improved-adhesion, reactive adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class R2 according to UNI EN 12004 standards, (such as **Keralastic** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

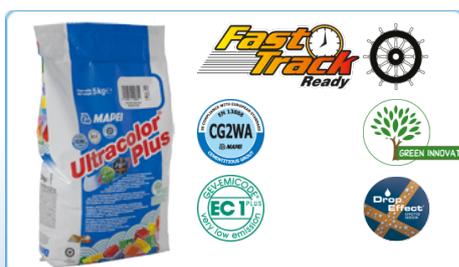
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.1 INSTALLATION OF CERAMIC ON FLOORINGS AND FINISHES

A.1.9.7.2 Installation of finish in thin ceramic tiles on vertical substrates using reactive adhesive

Supply and rapid installation of 3 to 4.7 mm thick finish in thin gres porcelain tiles in compliance with UNI EN 14411 standards, with open joints at least 5 mm wide between the tiles, on a vertical wooden substrate, existing bonded wooden flooring or metal using two-component, improved-adhesion, reactive adhesive applied using the double-buttering technique (adhesive applied on the substrate and the back of the tile), class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

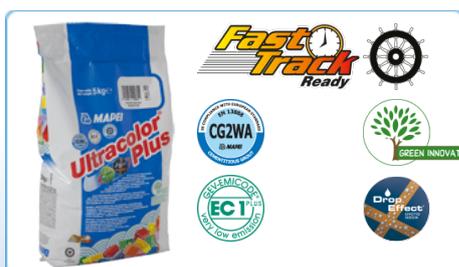
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

When choosing suitable products to install stone, certain intrinsic characteristics of the stone itself, rather than the type of substrate, have to be taken into consideration. This is why, when installing stone, it is always very important to distinguish between natural stone and resin or cement-based recomposed stone, and to know exactly the type and dimensions of the material to be laid. In fact, it has been demonstrated that the thickness of a tile directly influences the behaviour of the material during installation.

Not only does MAPEI have a complete range of adhesives, grouts and sealants available to install this type of material, it also has all the experience necessary to help select the correct solution for each single case.

Introduction

MAPEI systems for installing stone

Keraflex

High-performance cementitious adhesive for bonding all types of ceramic tiles and mosaics on internal and external floors and walls, including in environments subject to high stress (EMICODE EC1 R Plus, C2TE class in compliance with EN 12004).

Keraflex Maxi S1

High-performance cementitious adhesive with Low Dust® technology, for bonding all types of ceramic tile and mosaics on internal and external floors and walls, including in environments subject to high stress. Particularly recommended for installing large-sized tiles with adhesive bed from 3 to 15 mm of C2TE S1 class in compliance with EN 12004.

Keraquick

Rapid cementitious adhesive for installing all types of ceramic tile on internal and external floors and walls (EMICODE EC1 R Plus, C2FT S1 class in compliance with EN 12004).

Granirapid

Two-component, rapid cementitious adhesive for installing all types of ceramic tile on internal and external floors and walls (EMICODE EC1 R Plus, C2FT S1 class in compliance with EN 12004).

Elastorapid

Two-component, rapid cementitious adhesive for installing all types of ceramic tile on internal and external floors and walls, particularly recommended where a rapid product with a longer workability time is required (C2FTE S2 class in compliance with EN 12004).

Keralastic/Keralastic T

Two-component, high-performance polyurethane adhesives, particularly recommended for bonding tiles on metal, wood, cement fibre, rubber, PVC and linoleum (R2/R2T class in compliance with EN 12004).

Ultracolor Plus

High-performance, anti-efflorescence, rapid mortar with water-repellent DropEffect® and anti-mould BioBlock® technology, for grouting joints from 2 to 20 mm wide. Available in 26 different colours (EMICODE EC1 Plus, CG2WA class in compliance with EN 13888).

Latex Plus

Plasticising latex mixed with **Keraquick** to improve its adhesion characteristics and deformability.

Mapesil LM

Solvent-free, odourless, neutral-reticulation silicone sealant with anti-mould Bioblock® technology, ideal for sealing joints on façades. Available in 6 different colours and transparent.

HOW TO CHOOSE THE CORRECT INSTALLATION SYSTEM

The characteristics of stone which must be considered when choosing the installation system are as follows:

- dimensional stability to water and temperature variations;
- staining and/or formation of efflorescence.

Dimensional stability during variations in temperature influence the possible final intended use of the material in particular, and to a lesser degree the installation method. Dimensional stability to water and sensitivity to staining, on the other hand, have a direct influence on the choice of adhesive required for installation.

The choice of which installation system to use, therefore, must only be made after identifying the specific type of material and its behaviour to the factors mentioned above.

As far as stability and warping due to the presence of water is concerned, the materials are classified on the basis of their warp index, measured by means of a specific laboratory test as follows:

1. lay a stone tile face downwards, with three of its four corners on supports sitting on a metal bed. Place a piece of felt impregnated with water on the back of the stone to simulate the moisture in the installation bed (sand-cement mortar or conventional adhesive);
2. digital sensors, positioned at various points on the tile to record deformations in all directions at the edges of the tile, continuously transmit all movements caused by the damp felt to a recording unit.
3. According to the entity of the deformations (Δ), measured 6 hours after applying the damp felt, the stone is divided into one of three classes:
 - a) Class A: $\Delta < 0.3$ mm
 - b) Class B: $0.3 < \Delta < 0.6$ mm
 - c) Class C: $\Delta > 0.6$ mm
4. Materials in class A are considered stable and the choice of which adhesive to use does not depend on their tendency to warp. Other factors will have to be considered, such as its sensitivity to staining or the formation of efflorescence, the size of the tiles, the type of substrate and the service conditions of the coating.
5. For those materials which are not in class A, the test described previously must be repeated by substituting the damp felt with a layer of rapid-hardening cementitious adhesive (class C2F or C2FT) (Fig. 3).
6. According to the entity of the deformation (Δ), measured 6 hours after bonding with rapid adhesive, the stone is classified as follows:
 - a) Class B**: $\Delta < 0.3$ mm - materials which become class A after the bonding simulation test
 - b) Class C**: $\Delta > 0.3$ mm - materials still classified as class B or C, even after the bonding simulation test.

According to the results of the dimensional stability test, combined with other particular characteristics or conditions when in service, it is possible to define the most suitable laying system.

INDEX TABLE OF THE CLASSES OF MATERIALS ACCORDING TO DEGREE OF MOVEMENT DURING THE DIMENSIONAL STABILITY TEST

CLASS A Movement less than 0.3 mm after 6 hours	CLASS B Movement between 0.3 and 0.6 mm after 6 hours	CLASS C Movement more than 0.6 mm after 6 hours
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Fig. 3 - EXAMPLES OF MATERIALS TESTED IN MAPEI RESEARCH LABORATORIES

(MAPEI CLASSIFICATION):		
CLASS A	CLASS B	CLASS C
Granite:	Porphyry:	Porphyry:
Impala Blue	Byzantine Green	Grey Green
Black		Peruvian Porphyry
Red		Predazzo Red
Green		Speranza green
Aosta Green		Purple
Various:	Various:	Various:
Pietra Lara	Sardinian Red Ignimbrite	Cantera Stone
Piedra del sol	Brazilian Ardesia	Matraia Stone
Volvic Stone - France	Carniglia Stone	Pietra Serena
Mexican Stone (pink)		Ardesia
Brazilian Pink Quartzite		Jade Green
Crystalline Alabaster		
Onyx		
Marble:	Marble:	Marble:
Carrara	Amethyst	Pearl White
White Rose	Italian Green	Alpine Green
African Red Botticino	Aver Green	Veined Alpine Green
Orobis Arabesque	Saint Denise Green	Issoire Green
White Brazilian	Rio Branco	Mergozzo Green
Classic White		Guatemala Green
Venetian Yellow		
Motrico Grey		
Jacaranda		
Jura blaugelb gemischt		
Marquina Black		
Shiny Paradise		
Portuguese Red		
Laguna Red		
Verona Red		
Valmalenco Serpentine		
Veined Statuario		
S.Pietro Travertin		
Recomposed:	Recomposed:	Recomposed:
White Bianco Carrara (cement)	Diorite (cement)	Carnico Grey (cement)
Botticino (cement)	Zandobbio White (cement)	Ruby Red (cement)
Breccia Aurora (resin)	Amarelo (resin)	Copper Red (resin)
Levanto Red (resin)	Onyxed Breccia (resin)	Portoro (resin)

A.2 INSTALLATION OF STONE

A.2.1 INSTALLATION OF STONE AND RECOMPOSED STONE ON INTERNAL SUBSTRATES

A.2.1.1 INSTALLATION OF DIMENSIONALLY-STABLE STONE OR RECOMPOSED STONE (MAPEI CLASS A) NOT SENSITIVE TO STAINING Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbling areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds and render require 7-10 days curing per centimetre of thickness.

Installation of flooring

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with as narrow a joint as possible, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Choose the most suitable adhesive to install stable stone (MAPEI Class A) not sensitive to staining, according to the type of substrate, with one of the following products:

- **Keraflex** (see section [A.2.1.1.1](#)) or **Keraquick** (rapid installation, see section [A.2.1.1.2](#)) for natural stone on cementitious and anhydrite screeds, after applying **Primer G** (see section [A.2.1.1.5](#) and [A.2.1.1.6](#)), non-radiating cementitious screeds and well anchored plasterboard without a gypsum skimming layer;(see section [A.2.1.1.8](#)) for metal substrates.
- **Keraflex Maxi S1** (see section [A.2.1.1.3](#)) or **Granirapid** (rapid installation, see section [A.2.1.1.4](#)) for natural stone and agglomerates on cementitious and anhydrite screeds, after applying **Primer G** (see section [A.2.1.1.5](#) and [A.2.1.1.6](#)), radiating and non-radiating, waterproof membranes (such as **Mapelastic** or **Mapegum WPS**) and existing ceramic and stone coatings;
- **Keraquick** mixed with LatexPlus (see section [A.2.1.1.7](#)) for wooden substrates, bonded wood and resilients;
- **Keralastic**

A.2 INSTALLATION OF STONE

A.2.1.1.1 Installation of natural stone on non-heated cementitious screeds, cementitious render or well anchored plasterboard without a gypsum skimming layer

Supply and installation of dimensionally stable natural or recomposed stone finish (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on a non-heated cementitious screed, cementitious render or well anchored plasterboard without a gypsum skimming layer using high-performance cementitious adhesive with no vertical slip and extended open time, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **UltracolorPlus** produced by Mapei S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
pH:	13
pot life of mix:	> 8 hours
open time:	> 30 minutes (EN 1346)
adjustment time:	approx. 60 minutes
set to foot traffic:	24 hours
ready for service:	14 days
EMICODE:	EC1 R Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints every 20-25 m²;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.1.2 Rapid installation on non-heated cementitious screeds, cementitious render or well anchored plasterboard without a gypsum skimming layer

Supply and rapid installation of dimensionally stable natural or recomposed stone flooring (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on a non-radiating cementitious screed, cementitious render or well anchored plasterboard without a gypsum skimming layer using high-performance, rapid, deformable, non-slip cementitious adhesive, class C2FTS1 according to UNI EN 12004 standards, (such as **Keraquick** produced by MAPEI S.p.A.). The joints must be grouted with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by Mapei S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The product used for installation must have the following characteristics:

density (kg/m ³):	1,500
pH:	11
pot life of mix:	30 minutes
open time:	15-20 minutes
set to foot traffic:	2-3 hours
ready for service:	24 hours (3 days for storage tanks and swimming pools)
EMICODE:	EC1 R Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

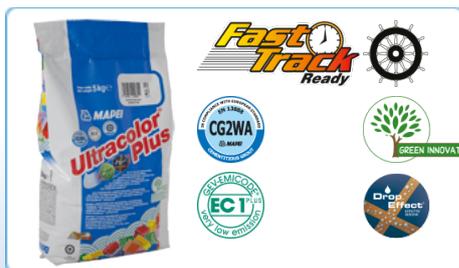
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints every 20-25 m²;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.1.3 Installation of natural stone or recomposed stone material on heated cementitious screeds, waterproof membranes or old ceramic or stone flooring or finish

Supply and installation of dimensionally stable natural or recomposed stone flooring (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on a heated cementitious screed, waterproof membrane (such as **Mapelastic** or **Mapegum WPS** produced by MAPEI S.p.A) or old ceramic or stone flooring or finish using high-performance, deformable cementitious adhesive with no vertical slip and extended open time, class C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The product used for installation must have the following characteristics:

density (kg/m ³):	1,500
pH:	> 12
pot life of mix:	> 8 hours
open time:	> 30 minutes (EN 1346)
set to foot traffic:	24 hours
ready for service:	14 days

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints every 20-25 m²;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.1.4 Rapid installation of natural stone or recomposed stone material on heated or non-heated cementitious screeds, waterproof membranes or old ceramic or stone flooring or finish

Supply and rapid installation of dimensionally stable natural or recomposed stone flooring (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on a radiating cementitious screed, waterproof membrane (such as **Mapelastic** or MapegumWPS produced by MAPEI S.p.A) or old ceramic or stone flooring or finish using high-performance, rapid, deformable cementitious adhesive, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The product used for installation must have the following characteristics:

density (kg/m ³):	1,600
pH:	11
pot life of mix:	45 minutes
open time:	approx. 20 minutes (EN 1346)
set to foot traffic:	3-4 hours
ready for service:	24 hours (3 days for storage tanks and swimming pools)
EMICODE:	EC1 R Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints every 20-25 m²;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.1.5 Installation of natural stone flooring on anhydrite screeds, gypsum-based render, well anchored plasterboard with a gypsum skimming layer or cellular concrete

Supply and installation of dimensionally stable natural or recomposed stone flooring (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on an anhydrite screed, gypsum-based render, well anchored plasterboard with a gypsum skimming layer or cellular concrete using high-performance cementitious adhesive with no vertical slip and extended open time, class C2TE according to UNI EN 12004 standards, (such as **Keraflex** produced by MAPEI S.p.A.), after applying a suitable synthetic, resin-based adhesion promoting primer in water dispersion with very low content of volatile organic compounds (VOC) (such as PrimerG produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The product used for installation must have the following characteristics:

density (kg/m ³):	1,500
pH:	> 12
pot life of mix:	> 8 hours
open time:	> 30 minutes (EN 1346)
set to foot traffic:	24 hours
ready for service:	14 days
EMICODE:	EC1 Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

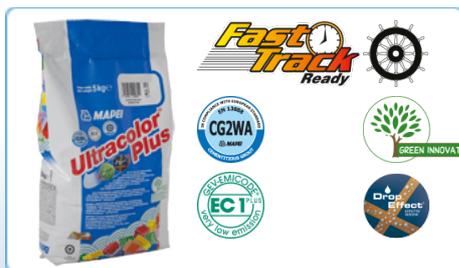
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%;
movement when in service:	± 25%;
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints every 20-25 m²;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.1.6 Rapid installation of natural stone flooring on anhydrite screeds, gypsum-based render, well anchored plasterboard with a gypsum skimming layer

Supply and rapid installation of dimensionally stable natural or recomposed stone flooring (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on an anhydrite screed, gypsum-based render, well anchored plasterboard with a gypsum skimming layer using high-performance, rapid, deformable cementitious adhesive with no vertical slip, class C2FTS1 according to UNI EN 12004 standards, (such as **Keraquick** produced by MAPEI S.p.A.), after applying a suitable synthetic, resin-based adhesion promoting primer in water dispersion with very low content of volatile organic compounds (VOC) (such as PrimerG produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The product used for installation must have the following characteristics:

density (kg/m ³):	1,500
pH:	11
pot life of mix:	30 minutes
open time:	15-20 minutes
set to foot traffic:	2-3 hours
ready for service:	24 hours (3 days for storage tanks and swimming pools)
EMICODE:	EC1 Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

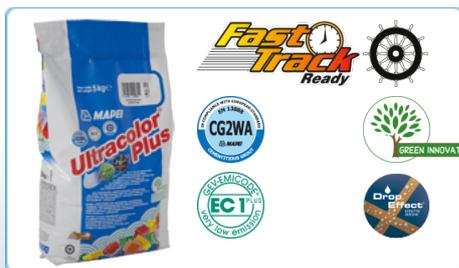
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.1.7 Installation of natural stone or recomposed stone material on wooden substrates, existing bonded wooden or resilient finishes

Supply and rapid installation of dimensionally stable natural or recomposed stone flooring (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on a wooden substrate, existing bonded wooden finish or resilient coating using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive, class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick** + **Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The grouting mortar must have the following characteristics:

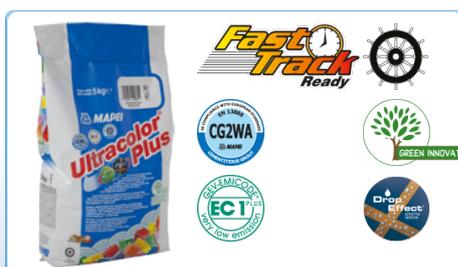
density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



A.2 INSTALLATION OF STONE

A.2.1.1.8 Installation of natural stone or recomposed stone material on metal substrates (KERALASTIC/KERALASTIC T)

Supply and installation of dimensionally stable natural or recomposed stone finish (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on a metal substrate using two-component, improved adhesion reactive adhesive, class R2 according to UNI EN 12004 standards, (such as **Keralastic** produced by MAPEI S.p.A.). For installation on vertical substrates, the adhesive must also have non-slip properties, class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450-1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



A.2 INSTALLATION OF STONE

A.2.1.2 INSTALLATION OF STONE OR RECOMPOSED STONE MODERATELY STABLE TO WATER (MAPEI CLASS B) OR STABLE TO WATER (MAPEI CLASS A) AND SENSITIVE TO STAINING

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds and render require 7-10 days curing per centimetre of thickness.

Installation of flooring

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set. Install the tiles with as narrow a joint as possible, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

Choose the most suitable adhesive to install moderately stable stone (MAPEI Class B) or stable stone sensitive to staining, according to the type of substrate, with one of the following products:

- **Granirapid** (see section [A.2.1.2.1](#)) on cementitious and anhydrite screeds after applying **Primer G** (see section [A.2.1.2.3](#)), cementitious render and well anchored plasterboard without a gypsum skimming layer for natural stone material and recomposed material;
- **Elastorapid** (see section [A.2.1.2.2](#)) for heated cementitious screeds, waterproof membranes (such as **Mapelastic** or MapegumWPS) and existing ceramic and stone coatings for natural stone material and recomposed material;;
- **Keraquick** mixed with **Latex Plus** (see section [A.2.1.2.4](#)) for wooden substrates, bonded wood and resilients;
- **Keralastic** (see section [A.2.1.2.5](#)) for metal substrates.

N.B. The white version of the adhesives are preferable.

A.2 INSTALLATION OF STONE

A.2.1.2.1 Installation on non-heated cementitious screeds, cementitious render and well anchored plasterboard without a gypsum skimming layer

Supply and installation of stone finish with moderate dimensional stability (Class B according to the MAPEI S.p.A. classification system) or stable stone finish (Class A) sensitive to staining in any format of tile, with open joints between the tiles, on a non-heated cementitious screed, cementitious render and well anchored plasterboard without a gypsum skimming layer using high-performance, rapid, deformable cementitious adhesive, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,600
pH:	11
pot life of mix:	45 minutes
open time:	approx. 20 minutes (EN1346)
set to foot traffic:	3-4 hours
ready for service:	24 hours (3 days for storage tanks and swimming pools)

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.2.2 Installation on heated cementitious screeds, waterproof membranes or old ceramic or stone flooring or finish

Supply and installation of stone finish with moderate dimensional stability (Class B according to the MAPEI S.p.A. classification system) or stable stone finish (Class A) sensitive to staining in any format of tile, with open joints between the tiles, on a radiating cementitious screed, waterproof membrane (such as **Mapelastick** or MapegumWPS produced by MAPEI S.p.A.) or old ceramic or stone flooring or coating using high-performance, rapid, non-slip, highly deformable cementitious adhesive with extended open time, class C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.2.3 Installation on anhydrite screeds, gypsum-based render, well anchored plasterboard with a gypsum skimming layer

Supply and rapid installation of stone finish with moderate dimensional stability (Class B according to the MAPEI S.p.A. classification system) or stable stone finish (Class A) sensitive to staining in any format of tile, with open joints between the tiles, on an anhydrite screed, gypsum-based render, well anchored plasterboard with a gypsum skimming layer using high-performance, rapid, deformable cementitious adhesive, class C2FS1 according to UNI EN 12004 standards, (such as **Granirapid** produced by MAPEI S.p.A.), after applying a suitable synthetic, resin-based adhesion promoting primer in water dispersion with very low content of volatile organic compounds (VOC) (such as **PrimerG** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The product used for installation must have the following characteristics:

density (kg/m ³):	1,600
pH:	11
pot life of mix:	45 minutes
open time:	approx. 20 minutes (EN 1346)
ready for service:	24 hours (3 days for storage tanks and swimming pools)
EMICODE:	EC1 R Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

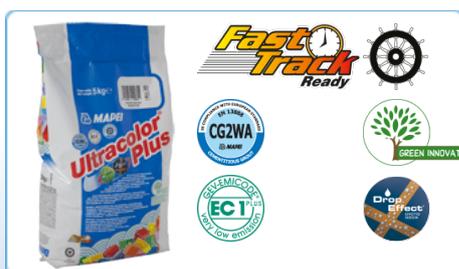
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.1.2.4 Installation of natural stone or recomposed stone material on wooden substrates, existing bonded wooden resilient finishes

Supply and rapid installation of stone finishes with moderate dimensional stability (Class B according to the MAPEI S.p.A. classification system) or stable stone finishes (Class A) sensitive to staining in any format of tile, with open joints between the tiles, on a wooden substrate, existing bonded wooden or resilient finishes using high-performance, rapid-setting, non-slip, highly deformable cementitious adhesive, class C2FTS2 according to UNI EN 12004 standards, (such as **Keraquick + Latex Plus** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,550
pot life of mix:	30 minutes
open time:	10-15 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The grouting mortar must have the following characteristics:

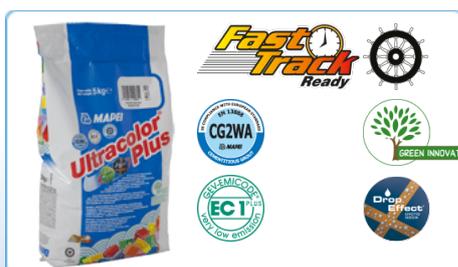
density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



A.2 INSTALLATION OF STONE

A.2.1.2.5 Installation of natural stone or recomposed stone material on metal substrates

Supply and installation of stone finishes with moderate dimensional stability (Class B according to the MAPEI S.p.A. classification system) or stable stone finishes (Class A) sensitive to staining in any format of tile, with open joints between the tiles, on a metal substrate using two-component, improved adhesion, reactive adhesive, class R2 according to UNI EN 12004 standards, (such as **Keralastic** produced by MAPEI S.p.A.). For installation on vertical substrates, the adhesive must also have non-slip properties, class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450-1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

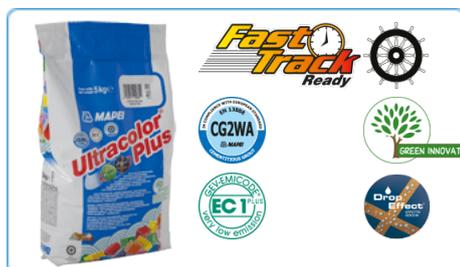
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant (such as **Mapesil AC** produced by MAPEI S.p.A.);
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2.1.3 INSTALLATION OF STONE OR RECOMPOSED STONE UNSTABLE TO WATER (MAPEI CLASS C)

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbing areas and any substance which could compromise adhesion of the coating. Traditional cementitious screeds and render require 7-10 days curing per centimetre of thickness. N.B. When installing material unstable to water, it is extremely important to check the drying of the substrate and that there is no rising damp.

Installation of flooring and finish

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. The tiles must be applied on the fresh adhesive within its specified open time, making sure that it has not reticulated. If it has reticulated, it must be removed and a fresh layer must be applied. Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with as narrow a joint as possible, and form distribution joints approximately every 20-25 m².

When the adhesive has hardened, grout the tiles with a specific mortar and seal the joints using a suitable elastic sealant.

To install stone unstable to water, a resin-based reactive adhesive with absolutely no water content must be used, such as **Keralastic** / **Keralastic T** (see section **A.2.1.3.1**)

N.B. The white version of the adhesives are preferable.

A.2 INSTALLATION OF STONE

A.2.1.3.1 Installation of natural stone or recomposed stone material on all types of substrate (except waterproofing membranes)

Supply and installation of dimensionally unstable stone finish (Class C according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on all types of substrate (except waterproofing membranes) using two-component, improved adhesion, reactive adhesive, class R2 according to UNI EN 12004 standards, (such as **Keralastic** produced by MAPEI S.p.A.). For installation on vertical substrates, the adhesive must also have non-slip properties, class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450-1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

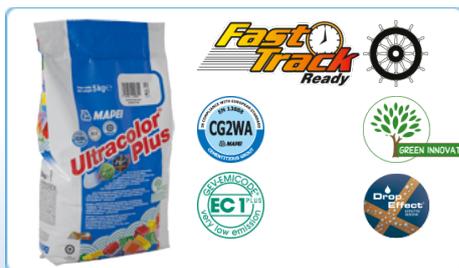
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant and grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.2 INSTALLATION OF STONE AND RECOMPOSED STONE ON EXTERNAL SUBSTRATES

A.2.2.1 INSTALLATION OF DIMENSIONALLY-STABLE STONE OR CEMENT-BASED RECOMPOSED STONE (MAPEI CLASS A) NOT SENSITIVE TO STAINING

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbly areas and any substance which could compromise adhesion of the tiles. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness. Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

When installing on waterproof membranes, make sure the membrane is dry, clean and well adhered to the underlying screed.

The strength of the screed must generally be more than 25-30 MPa, while the strength of cementitious render must be more than 1 MPa.

Installation of finish

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good back buttering. The adhesive must also be applied on the back of the tiles using the double-buttering technique to guarantee that there are absolutely no gaps in the installation bed. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5 mm wide on each side, and form distribution joints approximately every 9 m².

When the adhesive has hardened, grout the flooring with a specific mortar and seal the joints using a suitable elastic sealant.

Install dimensionally stable stone or recomposed cement-based stone coating (Class A) not sensitive to staining on cementitious substrates or waterproofing systems from the **Mapelast** range with **Kerabond** + **Isolastic** (see section [A.2.2.1.1](#)) or, for rapid installation, with **Keraquick** + **Latex Plus** (see section [A.2.2.1.2](#)). For installation on metallic substrates, carefully check that it is possible to install stone and, if so, use **Keralastic** / **Keralastic T** (see section [A.2.2.1.3](#)).

A.2 INSTALLATION OF STONE

A.2.2.1.1 Installation on cementitious substrates

Supply and installation of dimensionally stable natural or cement-based recomposed stone finish (Class A according to the MAPEI S.p.A. classification system) not sensitive to staining in any format of tile, with open joints between the tiles, on a cementitious substrate using high-performance, highly deformable cementitious adhesive applied using the double-buttering technique, class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond** + **Isolastic** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by Mapei S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation, mixed with latex, must have the following characteristics:

density (kg/m ³):	1,500
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	45 minutes
EMICODE:	EC1 R Plus

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

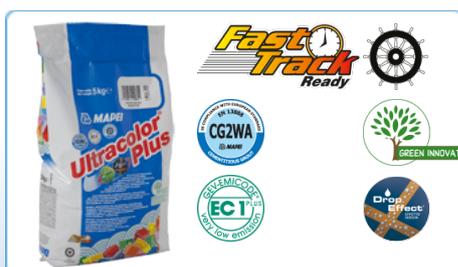
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints every 20-25 m²;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2 INSTALLATION OF STONE

A.2.2.1.2 Rapid installation on cementitious substrates or waterproofing systems

Supply and rapid installation of dimensionally stable natural or cement-based recomposed stone finish (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on a cementitious substrate or waterproofing system (such as **Mapelastico** produced by MAPEI S.p.A.) using high-performance, rapid, non-slip, highly deformable cementitious adhesive applied using the double-buttering technique, class C2FTS2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by Mapei S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The product used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints every 20-25 m²;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



A.2 INSTALLATION OF STONE

A.2.2.1.3 Installation on metal substrates

Supply and installation of dimensionally stable natural or cement-based recomposed stone finish (Class A according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on a metal substrate using two-component, improved adhesion, reactive adhesive, class R2 according to UNI EN 12004 (such as **Keralastic** made by Mapei S.p.A.). For installation on vertical substrates, the adhesive must also have non-slip properties, class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450-1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

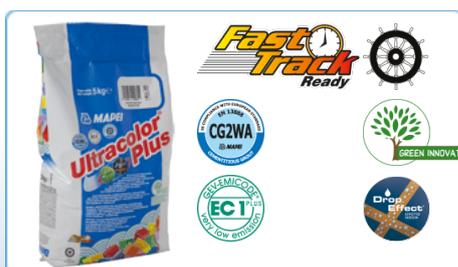
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.2.2.2 INSTALLATION OF STONE OR CEMENT-BASED RECOMPOSED STONE MODERATELY STABLE TO WATER (MAPEI CLASS B) OR STABLE TO WATER (MAPEI CLASS A) AND SENSITIVE TO STAINING Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbing areas and any substance which could compromise adhesion of the finish. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness. Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

When installing on waterproof membranes, make sure the membrane is dry, clean and well adhered to the underlying screed.

The strength of the screed must generally be more than 25-30 MPa, while the strength of cementitious render must be more than 1 MPa.

It is important to check that substrates are sufficiently dry before carrying out installation.

Installation of finish

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees good back buttering. The adhesive must also be applied on the back of the tiles using the double-buttering technique to guarantee that there are absolutely no gaps in the installation bed. The tiles must be applied on the fresh adhesive within its specified open time, making sure that a skin has not formed on the surface of the adhesive. If a skin forms, a new layer of fresh adhesive must be applied.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5 mm wide on each side, and form distribution joints approximately every 9 m².

When the adhesive has hardened, grout the flooring with a specific mortar and seal the joints using a suitable elastic sealant.

Install stone or recomposed cement-based stone coating with moderate dimensional stability (Class B) or stable stone (Class A) sensitive to staining on cementitious substrates or waterproofing systems from the **Mapelastic** range with **Elastorapid** (see section **A.2.2.2.1**). For installation on metallic substrates, carefully check that it is possible to install stone and, if so, use **Keralastic** or **Keralastic T** (see section **A.2.2.2.2**).

A.2 INSTALLATION OF STONE

A.2.2.2.1 Installation on cementitious substrates or waterproofing systems

Supply and installation of natural or cement-based recomposed stone finish with moderate dimensional stability (Class B according to the MAPEI S.p.A. classification system) or stable stone finish (class A) sensitive to staining in any format of tile, with open joints between the tiles, on a cementitious substrate or waterproofing system (such as **Mapelastico** produced by MAPEI S.p.A) using high-performance, rapid, non-slip, highly deformable cementitious adhesive applied using the double-buttering technique, class C2FTS2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.). The joints must be grouted with improved cementitious grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by Mapei S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The product used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours (3 days for storage tanks and swimming pools)

The grouting product must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of elastic distribution joints every 20-25 m²;
- perforated brass profiled strips, where required, to separate different types of floor;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



A.2 INSTALLATION OF STONE

A.2.2.2.2 Installation on metal substrates

Supply and installation of natural or cement-based recomposed stone finish with moderate dimensional stability (Class B according to the MAPEI S.p.A. classification system) or stable stone finish (class A) sensitive to staining in any format of tile, with open joints between the tiles, on a metal substrate using two-component, improved adhesion, reactive adhesive, class R2 according to UNI EN 12004 standards, (such as **Keralastic** produced by MAPEI S.p.A.). For installation on vertical substrates, the adhesive must also have non-slip properties, class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450-1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

The grouting mortar must have the following characteristics:

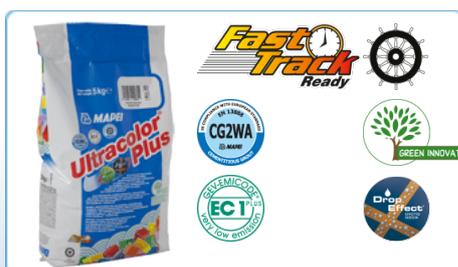
density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant;
- grouting of joints in the colour selected by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.



A.2.2.3 INSTALLATION OF STONE OR RECOMPOSED STONE UNSTABLE TO WATER (MAPEI CLASS C)

Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry and free of crumbing areas and any substance which could compromise adhesion of the tile. Traditional cementitious screeds require 7-10 days curing per centimetre of thickness. Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

When installing on waterproof membranes, make sure the membrane is dry, clean and well adhered to the underlying screed.

The strength of the screed must generally be more than 25-30 MPa, while the strength of cementitious render must be more than 1 MPa.

It is important to check that substrates are sufficiently dry before carrying out installation.

Installation of coating

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. Apply the tiles on the adhesive while it is still fresh before the reticulation process takes place.

Press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles, and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5 mm wide on each side, and form distribution joints approximately every 9 m².

When the adhesive has hardened, grout the flooring with a specific mortar and seal the joints using a suitable elastic sealant.

Installation of stone or recomposed stone unstable to water (Class C) may only be carried out using resin-based reactive adhesive, such as **Keralastic** or **Keralastic T** (see section **A.2.2.3.1**).

A.2 INSTALLATION OF STONE

A.2.2.3.1 Installation on all types of substrate (except waterproofing membranes)

Supply and installation of natural or cement-based recomposed stone finish unstable to water (Class C according to the MAPEI S.p.A. classification system) in any format of tile, with open joints between the tiles, on all types of substrate (except waterproofing membranes) using two-component, improved adhesion, reactive adhesive, class R2 according to UNI EN 12004 standards, (such as **Keralastic** produced by MAPEI S.p.A.). For installation on vertical substrates, the adhesive must also have non-slip properties, class R2T according to UNI EN 12004 standards, (such as **Keralastic T** produced by MAPEI S.p.A.). The joints must be sealed with high-performance, anti-efflorescence, rapid-setting and drying, water-repellent, anti-mould grout, class CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.). Distribution joints must be sealed with neutral-reticulation silicone sealant, class F-25LM according to ISO 11600 standards, (such as **Mapesil LM** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450-1,520
mixing ratio:	94-6
pot life of mix:	30-40 minutes
open time:	50 minutes
ready for service:	7 days

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

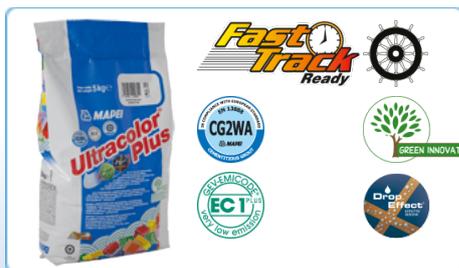
The sealing product for the joints must have the following characteristics:

elongation at failure:	600%
movement when in service:	± 25%
Shore A hardness:	20

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation and sealing of expansion joints with specific elastic sealant;
- grouting of joints in the colour specified by the Works Director;
- cleaning of the surface with suitable detergent and rinsing of the surface;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

The choice of suitable products to install finishes in a swimming pool is influenced by the type and format of the tile, the climatic conditions at the moment installation is carried out and the amount of time available before putting the swimming pool into service.

The choice of adhesive and grout must take into account the fact that the finish will be constantly immersed in water. Especially when installing tiles in storage tanks and swimming pools, a class C2 adhesive according to EN 12004 standards is required, with a level of deformability according to the stresses acting on the finish when in service.

Introduction

MAPEI systems for applying finishes in swimming pools

Kerabond

Cementitious adhesive for bonding medium-sized ceramic tiles and mosaics on internal and external surfaces, for environments not subject to particularly high stress (EMICODE EC1 R Plus, C1 class according to EN 12004).

Adesilex P10

High-performance, white cementitious adhesive with no vertical slip, specific for installing glass mosaic, ceramic and marble on internal and external floors and walls (EMICODE EC1 R Plus, C2TE class according to EN 12004).

Keraflex Maxi S1

High-performance cementitious adhesive with Low Dust® technology, for bonding all types of ceramic tile and mosaics on internal and external floors and walls, including in environments subject to high stress. Particularly recommended for installing large-sized tiles with layers of adhesive from 3 to 15 mm of class C2TE S1 according to EN 12004.

Elastorapid

Two-component, rapid cementitious adhesive for installing all types of ceramic tiles on internal and external floors and walls, particularly recommended where a rapid product with a longer workability time is required (C2FTES2 class according to EN 12004).

Isolastic

Plasticising latex mixed with one-component, cementitious adhesives, such as **Kerabond** and **Adesilex P10**, to improve their performance and deformability.

How to choose the correct installation system

The main factors to take into consideration when choosing the correct installation system are:

- resistance to stress when in service, including the action of water, climatic conditions (Winter and Summer) and temporary emptying of the swimming pool;
- suitability of products for constant immersion in chlorinated water;
- resistance to sanitisation treatments during routine maintenance;
- resistance to different types of water contained in pools (thermal spa water, salt water, etc.).

A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.1 INSTALLATION OF FINISHES ON THE BOTTOM AND SIDES OF SWIMMING POOLS

Verifica e preparazione del supporto

Il supporto su cui si intende procedere alla posa deve essere stagionato, meccanicamente resistente, sufficientemente asciutto, planare, privo di parti friabili ed esente da vernici, oli, elementi in fase di distacco o qualsiasi altra sostanza che possa compromettere l'adesione del rivestimento. La stagionatura di supporti in calcestruzzo è quantificabile in minimo 3 mesi, da valutarsi in funzione della composizione del calcestruzzo.

Nel caso di posa su membrane impermeabili, verificare che la membrana sia asciutta, pulita e ben aderente al sottostante massetto.

Messa in opera del rivestimento

Impastare l'adesivo ed applicarlo sul supporto utilizzando una spatola di dentatura idonea. I fogli di mosaico dovranno essere applicati sull'adesivo quando ancora fresco.

Esercitare una buona pressione sui fogli per assicurare il trasferimento dell'adesivo ed effettuare le registrazioni necessarie prima che il prodotto entri in presa. È necessario evitare la fuoriuscita di adesivo dalle fughe in quanto potrebbe compromettere la buona riuscita della stuccatura del rivestimento.

I fogli devono essere posati creando dei giunti in corrispondenza dei cambi di pendenza, negli angoli e negli spigoli.

Ad indurimento avvenuto del collante è possibile procedere alla fugatura con una malta specifica e alla sigillatura dei giunti mediante l'utilizzo di idoneo sigillante elastico.

La messa in esercizio delle piscine sarà possibile dopo 3 settimane dalla posa con **Adesilex P10 + Isolastic** al 50%(vedi voce di capitolato **A.3.1.1.1**)



A.3.1.1 INSTALLATION OF GLASS MOSAIC Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry, flat and free all traces of paint, oil, crumbing and detached areas and any substance which could compromise adhesion of the finish. Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

When installing on waterproof membranes, make sure the membrane is dry, clean and well adhered to the underlying screed.

Installation of finish

Mix the adhesive and spread it on the substrate with a suitable notched trowel. Sheets of mosaic must be applied on the adhesive before it starts to reticulate.

Press the sheets down firmly to make sure the adhesive is transferred onto the back of the sheets, and adjust the position of the sheets before the adhesive starts to set. Make sure the adhesive does not seep through the gaps between the mosaics, otherwise the quality of the grouting could be compromised.

Apply the sheets so that the joints correspond to changes in slope, corners and edges.

When the adhesive has hardened, grout the finish with a specific mortar and seal the joints using a suitable elastic sealant.

Swimming pools are ready for service 3 weeks after installing coatings with **Adesilex P10** + 50% **Isolastic** (see section **A.3.1.1.1**).

A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.1.1.1 Installation of glass mosaic finishes on the sides and bottom of swimming pools

Supply and installation of glass mosaic suitable for final intended use on a cementitious substrate or elastic, cementitious waterproof membrane (such as **Mapelastico** produced by MAPEI S.p.A.) using a white, high-performance, deformable adhesive system with no vertical slip and extended open time, classified C2TES1 according to UNI EN 12004 standards, (such as AdesilexP10 + 50% **Isolastic** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,450
pH of mix:	more than 12
open time:	30 minutes
pot life of mix:	more than 8 hours.
adjustment time:	approximately 45 minutes
ready for service:	3 weeks
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of expansion joints;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3.1.2 INSTALLATION OF KLINKER OR GRES PORCELAIN TILES Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry, flat and free all traces of paint, oil, crumbing and detached areas and any substance which could compromise adhesion of the finish. Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

When installing on waterproof membranes, make sure the membrane is dry, clean and well adhered to the underlying screed.

Installation of finish

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the finish to be installed. Choose a type of trowel which guarantees complete back buttering. Apply the tiles on the adhesive while it is still fresh before the reticulation process takes place.

Apply adhesive to a feather edge on the back of the tiles, press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint at least 5 mm wide on each side, and form distribution joints approximately every 9 m². Joints must also be formed in all the corners, at all the edges, at changes in slope, etc.

When the adhesive has hardened, grout the coating with a specific mortar and seal the joints using a suitable elastic sealant.

Install clinker or gres porcelain tiled coating with cementitious adhesive, such as 50% **Keraflex Maxi S1** (see section **A.3.1.2.1**) or **Elastorapid** (see section **A.3.1.2.2**).

A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.1.2.1 Installation of clinker or gres porcelain finishes on walls and floors

Supply and installation of clinker or gres porcelain coating on a cementitious substrate or elastic, cementitious waterproof membrane (such as **Mapelastic** produced by MAPEI S.p.A.) using a high-performance, deformable, cementitious adhesive system with no vertical slip and extended open time, classified C2TES1 according to UNI EN 12004 standards, (such as **Keraflex Maxi S1** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
open time:	> 30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 60 minutes
ready for service:	3 weeks

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of expansion joints;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.1.2.2 Rapid installation of clinker or gres porcelain finishes on the sides and bottom of swimming pools

Supply and rapid installation of clinker or gres porcelain finish on a cementitious substrate or elastic, cementitious waterproof membrane (such as **Mapelastick** produced by MAPEI S.p.A.) using a high-performance, rapid, highly deformable cementitious adhesive system with no vertical slip and extended open time, classified C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of expansion joints;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3.1.3 INSTALLATION OF STONE NOT SENSITIVE TO WATER Procedure

Checking and preparing the substrate

The substrate on which the finish is to be installed must be well cured, strong, sufficiently dry, flat and free all traces of paint, oil, crumbing and detached areas and any substance which could compromise adhesion of the finish. Wait at least 3 months for application on concrete. The time required for each case must be assessed according to the composition of the concrete.

When installing on waterproof membranes, make sure the membrane is dry, clean and well adhered to the underlying screed.

Installation of finish

Mix the adhesive and spread it on the substrate with a notched trowel; select the most suitable trowel according to the format of the coating to be installed. Choose a type of trowel which guarantees good back buttering. Apply the tiles on the adhesive while it is still fresh before the reticulation process takes place.

Apply adhesive to a feather edge on the back of the tiles, press the tiles down firmly to make sure the adhesive is transferred onto the back of the tiles and adjust the position of the tiles before the adhesive starts to set.

Install the tiles with a joint between the edges, with a width according to the format of the tile. Form distribution joints in all the corners, at all the edges, at changes in slope, etc.

When the adhesive has hardened, grout the coating with a specific mortar and seal the joints using a suitable elastic sealant.

Install stone coating with adhesive, such as **Kerabond** + 50% **Isolastic** (see section **A.3.1.3.1**) or **Elastorapid** (see section **A.3.1.3.2**).

A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.1.3.1 Installation of stone finishes not sensitive to water on on walls and floors

Supply and installation of stone finishes dimensionally stable to water (Class A according to the MAPEI S.p.A. classification system) and not sensitive to staining on a cementitious substrate or elastic, cementitious waterproof membrane (such as **Mapelastico** produced by MAPEI S.p.A.) using a high-performance, deformable, cementitious adhesive system with no vertical slip and extended open time, class C2ES2 according to UNI EN 12004 standards, (such as **Kerabond** + 50% **Isolastico** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,500
pH of mix:	more than 12
open time:	20-30 minutes
pot life of mix:	more than 8 hours
adjustment time:	approximately 45 minutes
ready for use:	3 weeks
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of expansion joints;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.1.3.2 Rapid installation of stone finishes not sensitive to water on walls and floors

Supply and rapid installation of stone finishes dimensionally stable to water (Class A according to the MAPEI S.p.A. classification system) and not sensitive to staining on a cementitious substrate or elastic, cementitious waterproof membrane (such as **Mapelast** produced by MAPEI S.p.A.) using a high-performance, rapid, highly deformable, cementitious adhesive system with no vertical slip and extended open time, class C2FTES2 according to UNI EN 12004 standards, (such as **Elastorapid** produced by MAPEI S.p.A.).

The adhesive used for installation must have the following characteristics:

density (kg/m ³):	1,650
open time:	30 minutes
setting time:	120-150 minutes
ready for service:	24 hours

The following are included and calculated in the price:

- all costs to prepare the substrate;
- supply and application of adhesive;
- formation of expansion joints;
- trimming, wastage, cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal tip and waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2 GROUTING JOINTS IN SWIMMING POOLS Introduction

MAPEI systems for applying finishes in swimming pools

Ultracolor Plus

High-performance, anti-efflorescence, rapid mortar with water-repellent DropEffect® and anti-mould BioBlock® technology, for grouting joints from 2 to 20 mm wide. Available in 26 different colours (EMICODE EC1 Plus).

Keracolor FF / Keracolor GG

High-performance, polymer-modified cementitious mortar, FF version with water-repellent DropEffect® technology, for grouting joints up to 15 mm wide (according to grain size). Available in 18 different colours (EMICODE EC1 R Plus).

Kerapoxy Design

Two-component, acid-resistant, decorative epoxy mortar, ideal for grouting glass mosaic, available in 15 different colours.

Kerapoxy P

Two-component, acid-resistant epoxy mortar for joints at least 3 mm wide, easy to apply and good cleanability, specific for grouting large spread surfaces, particularly in commercial and industrial environments.

Fugolastic

Liquid polymer admix added to Keracolor to improve its compactness and resistance to abrasion, to reduce porosity and water absorption.

Mapesil AC

Solvent-free, acetic-reticulation silicone sealant with anti-mould BioBlock® technology, available in 26 different colours and transparent.

Primer FD

Adhesion promoter for silicone sealants, used especially for joints subject to prolonged immersion in water.

How to choose the correct grouting system

The choice of the most suitable grouting product must be made mainly according to the final intended use of the pool, and in particular the type of water in the pool and the type of maintenance scheduled. The main factors to be taken into consideration are the following:

- strength and durability of the grout over the years, based on the type of sanitation treatments scheduled;
- resistance to immersion in water, based on the type of water (chlorinated water, thermal spa water, salt water, etc.).



A.3.2.1 GROUTING JOINTS IN SWIMMING POOLS Procedure

Checking and preparing the substrate

Before grouting, the amount of time between installing the finish and grouting must be verified. The substrate must be well cured, clean and dry. The joints must also be checked to make sure no adhesive has seeped into them and that there are no spacers, otherwise the quality of the grouting operation could be compromised.

Grouting procedure

Mix the grout and spread it on the substrate with a rubber trowel. Spreading the grouting product over the entire surface of the finish is always recommended, to avoid creating a “frame” effect.

If cementitious grout is used, it should be cleaned off when it has reached a consistency which allows it to be removed from the surface without dragging it out from the joints. Clean the surface with a hard, cellulose sponge and plenty of clean water. Traces of grout may only be removed when they have completely dried with detergent, such as **Keranet**, if the coating installed is resistant to acids.

Epoxy grout must be cleaned off within the setting time of the product, and in certain cases immediately after application. In such cases, wait until the grout has completely set and clean it off with water. Epoxy grout must be cleaned off immediately after application before it dries. Residues of grout cannot be removed once the product has reticulated. It is very important, therefore, that thorough cleaning is carried out while the product is still fresh, with a final wipe of the surface with water and alcohol.

Any stains remaining on the surface may be removed a few days after grouting with **Kerapoxy Cleaner**.

Grouting with a cementitious product may be carried out with **Keracolor FF** mixed with **Fugolastic** (see section **A.3.2.1.1**), or with **Ultracolor Plus** (see section **A.3.2.1.2**) if the coating needs to be put into service more quickly.

Grouting with epoxy products may be carried out with **Kerapoxy** (see section **A.3.2.1.3**) or, for a particularly decorative finish, with **Kerapoxy Design** (see section **A.3.2.1.4**).

Swimming pools may be put into service after 7 days if normal-setting mortar is used for grouting, and after 48 hours if a rapid-setting mortar has been used.

A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.1.1 Grouting of glass mosaic using cementitious mortar

Supply and application of fine-grained, high-performance, polymer-modified, water-repellent cementitious mortar in the colour specified by the Works Director, classified CG2WA according to UNI EN 13888 standards, (such as **Keracolor FF** + **Fugolastic** produced by MAPEI S.p.A.), for grouting joints up to 6 mm wide in glass mosaic.

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,900-2,000
pH of mix:	approximately 12
pot life of mix:	approximately 2 hours
ready for service:	7-10 days before filling storage tanks or swimming pools
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.1.2 Grouting of glass mosaic using rapid cementitious mortar

Supply and application of high-performance, polymer-modified, anti-efflorescence, rapid cementitious mortar in the colour specified by the Works Director, classified CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.), for grouting joints from 2 to 20 mm wide in glass mosaic.

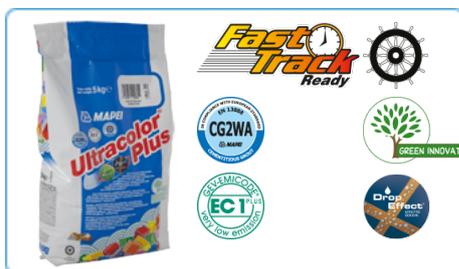
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.1.3 Grouting of glass mosaic using epoxy mortar

Supply and application of two-component, anti-acid epoxy mortar in the colour specified by the Works Director, also suitable for use as adhesive, classified RG according to UNI EN 13888 standards, (such as **Kerapoxy** or **Kerapoxy CQ** produced by MAPEI S.p.A.), for grouting glass mosaic.

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,550-1,600
pot life of mix:	45 minutes
set to foot traffic:	24 hours (12 hours)
ready for service:	4 days (3 days)

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent (such as **Kerapoxy Cleaner** produced by MAPEI S.p.A.) and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.1.4 Grouting of glass mosaic using decorative epoxy mortar

Supply and application of two-component, anti-acid, decorative epoxy mortar to enhance the effect of glass mosaic in the colour specified by the Works Director, also suitable for use as adhesive, classified RG according to UNI EN 13888 standards, (such as **Kerapoxy Design** produced by MAPEI S.p.A.), for grouting glass mosaic.

The grouting mortar must have the following characteristics:

density of mix (kg/m ³):	1,550
pot life of mix:	45 minutes
ready for service:	4 days

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent (such as **Kerapoxy Cleaner** produced by MAPEI S.p.A.) and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3.2.2 GROUTING KLINKER OR GRES PORCELAIN Procedure

Checking and preparing the substrate

Before grouting, the amount of time between installing the finish and grouting must be verified. The substrate must be well cured, clean and dry. The joints must also be checked to make sure no adhesive has seeped into them and that there are no spacers, otherwise the quality of the grouting operation could be compromised.

Grouting procedure

Mix the grout and spread it on the substrate with a rubber trowel.

If cementitious grout is used, it should be cleaned off when it has reached a consistency which allows it to be removed from the surface without dragging it out from the joints. Clean the surface with a hard, cellulose sponge and plenty of clean water. Traces of grout may only be removed when they have completely dried with detergent, such as **Keramet**, if the coating installed is resistant to acids.

Epoxy grout must be cleaned off within the setting time of the product, and in certain cases immediately after application. In such cases, wait until the grout has completely set and clean it off with water. Epoxy grout must be cleaned off immediately after application before it dries. Residues of grout cannot be removed once the product has reticulated. It is very important, therefore, that thorough cleaning is carried out while the product is still fresh, with a final wipe of the surface with water and alcohol.

Any stains remaining on the surface may be removed a few days after grouting with **Kerapoxy Cleaner**.

Grouting with a cementitious product may be carried out with **Keracolor GG** mixed with **Fugolastic** (see section **A.3.2.2.1**), or with **Ultracolor Plus** (see section **A.3.2.2.2**) if the coating needs to be put into service more quickly.

Grouting with epoxy products may be carried out with **Kerapoxy** (see section **A.3.2.2.3**).

Swimming pools may be put into service after 7 days if normal-setting mortar is used for grouting, and after 48 hours if a rapid-setting mortar has been used.

A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.2.1 Grouting of clinker or gres porcelain using cementitious mortar

Supply and application of fine-grained, high-performance, polymer-modified, water-repellent cementitious mortar in the colour specified by the Works Director, classified CG2WA according to UNI EN 13888 standards, (such as **Keracolor GG** + **Fugolastic** produced by MAPEI S.p.A.), for grouting joints up to 6 mm wide in clinker or gres porcelain coatings.

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,900-2,000
pH of mix:	approximately 12
pot life of mix:	approximately 2 hours
ready for service:	7-10 days before filling storage tanks or swimming pools
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.2.2 Grouting of clinker or gres porcelain using rapid cementitious mortar

Supply and application of high-performance, polymer-modified, anti-efflorescence, rapid cementitious mortar in the colour specified by the Works Director, classified CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.), for grouting joints from 2 to 20 mm wide in clinker or gres porcelain coatings.

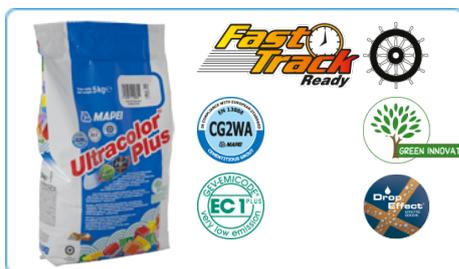
The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.2.3 Grouting of clinker or gres porcelain using epoxy mortar

Supply and application of two-component, anti-acid epoxy mortar in the colour specified by the Works Director, also suitable for use as adhesive, classified RG according to UNI EN 13888 standards, (such as **Kerapoxy** or **Kerapoxy CQ** produced by MAPEI S.p.A.), for grouting clinker or gres porcelain.

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,550-1,600
pot life of mix:	45 minutes
set to foot traffic:	24 hours (12 hours)
ready for service:	4 days (3 days)

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent (such as **Kerapoxy Cleaner** produced by MAPEI S.p.A.) and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3.2.3 GROUTING STONE Procedure

Checking and preparing the substrate

Before grouting, the amount of time between installing the finish and grouting must be verified. The substrate must be well cured, clean and dry. The joints must also be checked to make sure no adhesive has seeped into them and that there are no spacers, otherwise the quality of the grouting operation could be compromised.

Grouting procedure

Mix the grout and spread it on the substrate with a rubber trowel. Spreading the grouting product over the entire surface of the finish is always recommended, to avoid creating a “frame” effect.

If cementitious grout is used, it should be cleaned off when it has reached a consistency which allows it to be removed from the surface without dragging it out from the joints. Clean the surface with a hard, cellulose sponge and plenty of clean water. Traces of grout may only be removed when they have completely dried with detergent, such as **Keranet**, if the finish installed is resistant to acids.

Grouting with a cementitious product may be carried out with **Keracolor GG** mixed with **Fugolastic** (see section **A.3.2.3.1**), or with **Ultracolor Plus** (see section **A.3.2.3.2**) if the finish needs to be put into service more quickly.

Swimming pools may be put into service after 7 days if normal-setting mortar is used for grouting, and after 48 hours if a rapid-setting mortar has been used.

A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.3.1 Grouting of stone using cementitious mortar

Supply and application of fine-grained, high-performance, polymer-modified, water-repellent cementitious mortar in the colour specified by the Works Director, classified CG2WA according to UNI EN 13888 standards, (such as **Keracolor GG** + **Fugolastic** produced by MAPEI S.p.A.), for grouting joints up to 6 mm wide in stone finishes.

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,900-2,000
pH of mix:	approximately 12
pot life of mix:	approximately 2 hours
ready for service:	7-10 days before filling storage tanks or swimming pools
EMICODE:	EC1 R Plus

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)



A.3 INSTALLATION OF FINISHES IN SWIMMING POOLS

A.3.2.3.2 Grouting of stone using rapid cementitious mortar

Supply and application of high-performance, polymer-modified, anti-efflorescence, rapid cementitious mortar in the colour specified by the Works Director, classified CG2WA according to UNI EN 13888 standards, (such as **Ultracolor Plus** produced by MAPEI S.p.A.), for grouting joints from 2 to 20 mm wide in stone coatings.

The grouting mortar must have the following characteristics:

density (kg/m ³):	1,980
pot life of mix:	20-25 minutes
ready for service:	24 hours
EMICODE:	EC1 Plus

The following are included and calculated in the price:

- grouting of joints in the colour specified by the Works Director;
- sealing of joints with specific elastic sealant (such as **Mapesil AC** produced by Mapei S.p.A.) after applying a coat of suitable primer (such as **Primer FD** produced by MAPEI S.p.A.);
- cleaning of the surface with suitable detergent and rinsing of the surface;
- cleaning and removal of waste material upon completion of work, differential collection of waste material, transport and delivery of waste material to an authorised waste disposal site and all waste disposal charges;
- all other activities required to consign work completed according to specifications.

..... (€/m²)

