

INSTALLATION MANUAL

**LARGE FORMAT  
CERAMIC TILE  
INSTALLATION  
MANUAL**



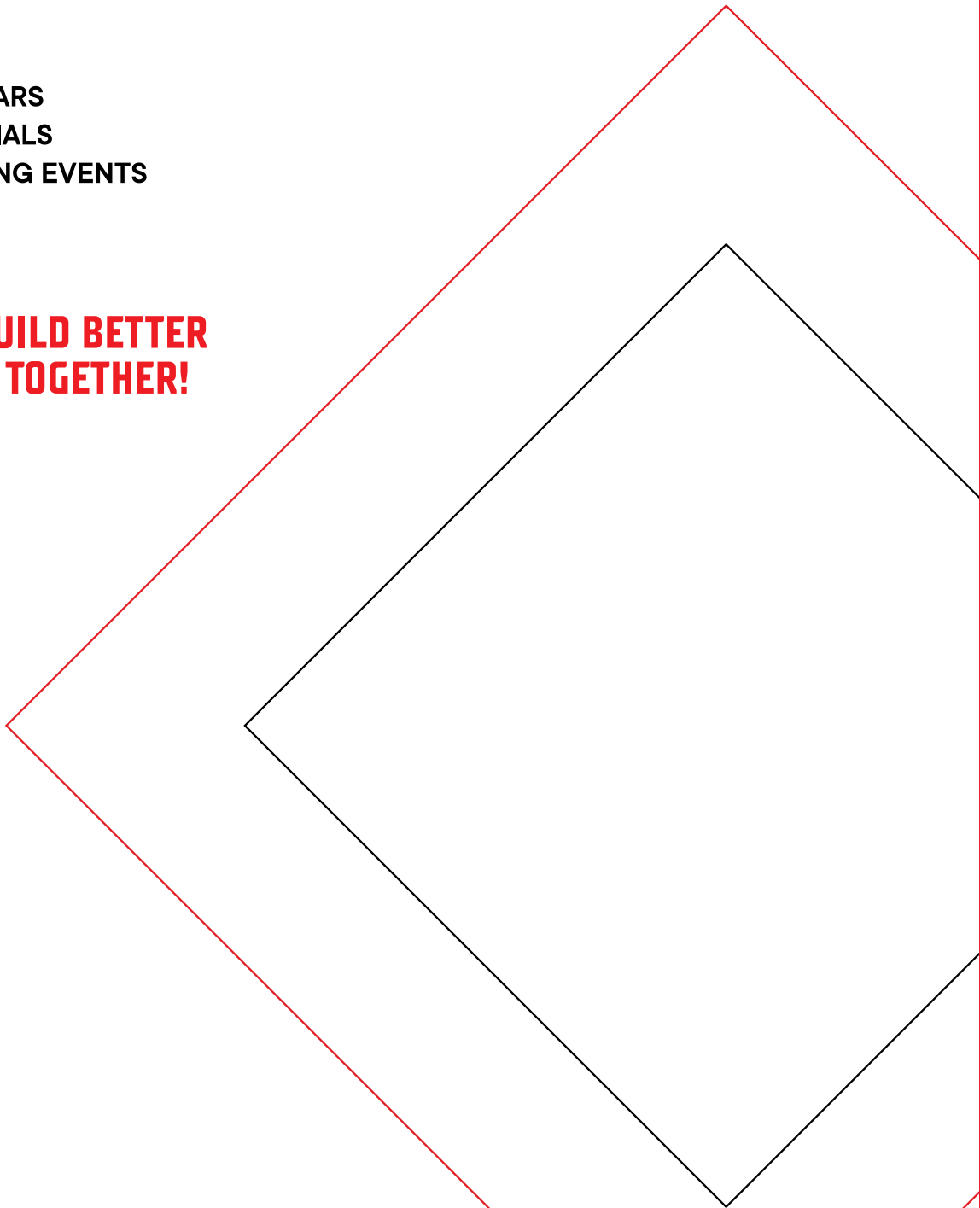


RUBI Academy is an inclusive and accessible space that continuously trains present and future ceramic tile installation professionals, with the aim of professionalising and specialising this sector, so that they can build better places.

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- ◇ **WEBINARS**
- ◇ **TUTORIALS**
- ◇ **TRAINING EVENTS**

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# 1

## PREPARATION OF THE FIXING SUBSTRATE

The fixing substrate or background must be dimensionally stable, having completed the warping due to shrinkage and must present mechanical resistance adequate for the intended use.

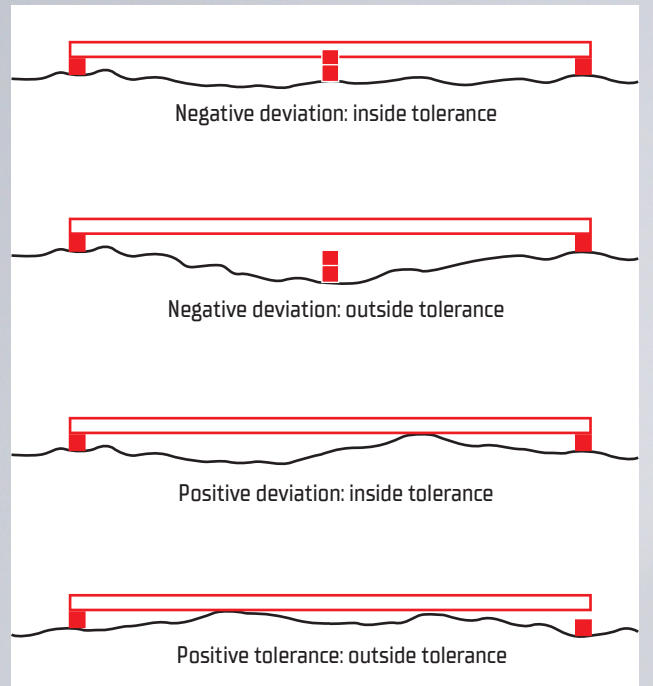
*It will be properly plumb or levelled and will not present any flatness defects greater than 1.5 mm, checked by a 2 m rule.*

It is even more important to respect this planimetry deviation if a complete board of more than 3200 x 1400 mm is installed.

In case of major deviations, it would be convenient to apply a leveling layer to correct them, since the pavement will only replicate each and every one of the irregularities of the substrate.

The screeds and renders with a weak crystalline structure in their first millimeters in thickness and which wear easily, must be consolidated by applying the depth consolidant. For installation on compact but highly absorbent screeds and renders, in hot climates and in the case of direct ventilation, it is advisable to first apply a professional surface insulator.

When working on thermal or acoustic insulation, it is necessary to know how these materials are expected to behave with respect to the ceramic tile installation system, since in general the fixing substrates with intermediate layers have an unstable behavior, and it is advisable to prepare a compression layer that allows the distribution of loads.



In order to achieve a good adhesion to the installation surface, it is necessary to prepare a solid firm surface, for which it will be necessary to proceed to a thorough cleaning or descaling of the surface to avoid adhesion problems or chemical reactions.

***The presence of residues in the form of dust, grease, paint, efflorescence, cement grouts, plaster residues, etc., weakens adhesion.***

	STAIN	CLEANING PRODUCT
TIPOS DE MANCHAS	Grease	Alkaline detergent or solvents
	Ink	Solvent
	Oxides	Acid
	Lime	Acid
	Wine	Alkaline or acid detergent
	Tire rubber	Solvent
	Ice cream	Alkaline detergent
	Resin or enamel	Solvent
	Coffee	Alkaline or acid detergent
	Candle wax	Solvent
	Judean bitumen	Solvent
	Cementitious remains	Acid
	Plaster	Acid
	Joints and epoxy glue	Solvent
	Cola drink	Oxidizing
Fruit juice	Oxidizing	
Tar	Solvent	
Nicotine	Solvent or oxidizer	

When high stresses are foreseen in the tile layer, due to high stresses caused by temperature changes or movements in the structure, it is advisable to interpose a sliding or decoupling layer (plastic sheet or similar) between the regularization layer and the base substrate.

In areas of frequent rainfall, it is recommended to place a waterproof layer with asphalt fabric or similar between the sliding layer and the base substrate, or at least, there should be an adequate drainage layer under the pavement.

Ceramic tiles should always be installed in mild and mild atmospheric conditions. Application temperatures between +5 and +30°C.

Do not apply when there is a risk of frost, rain, excessive sunlight or during periods of maximum heat. In hot weather, it is advisable to moisten the substrate.

Wind decreases the open time and can be adverse when installing large format ceramics, the adhesive application time is longer than in a standard format piece, so the wind can cause a slight superficial setting of the adhesive both on the support and on the piece, which will not allow the installation to be 100% effective.

If we touch the adhesive with our finger and it does not stain just before setting the part, it means that we have a semi-settled surface layer, also known as “Scumming”.

***The solution is simple, we will have to brush again the part or the support with the same adhesive to break this “Scumming” so that the adhesion takes place correctly.***

It must be verified that the absorption of the substrate is correct. If it is too absorbent, it can generate important suction in the water of the adhesives, which is necessary for its hydration and correct setting. It can also directly influence a decrease in the open time of the gripping material.

When the cementitious adhesive is not compatible with the substrate where we are going to place the large format ceramic tile, such as wood, PVC, rubber, linoleum, metal surface, resin, among others, we should look for other types of adhesives such as reaction resin adhesives (R).

The placement surface must be dry.  
Residual moisture in the mass can be determined by measurement.

In the entire thickness of the substrate, the maximum percentage allowed is:

- 3% for class CT screeds (based on cement and special binders, according to UNE-EN 13813);
- 0.5% for class CA screeds (based on calcium sulfate/anhydrite).





# 2

# SELECTION OF PROFESSIONAL ADHESIVES

SYMBOL		DESCRIPTION
TYPE	TYPE	
TYPES OF ADHESIVE	C	1 Normal cementitious adhesive
		1F Fast cementitious adhesive
		1T Normal cementitious adhesive with reduced slip
		1FT Fast cementitious adhesive with reduced slip
		2 Improved cementitious adhesive with additional features
		2E Cementitious adhesive with extended open time
		2F Fast cementitious adhesive with additional features
		2T Improved cementitious adhesive with additional features and reduced slip
		2TE Improved cementitious adhesive, char. additional, slip reduced, extended open time
		2FT Fast cementitious adhesive with additional features and reduced slip

CERAMIC SHEET BACK SIDE		WITHOUT FIBER		WITH FIBER	
LENGTH OF THE LONGEST SIDE OF THE CERAMIC SHEET (CM)		<70	>70	<70	>70
TYPES OF APPLICA-	Interior flooring and wall	C2	C2 S1	C2 S1	C2 S2
	Outdoor or heated flooring	C2 S2			
	Facade	C2 S1	C2 S2	R2 (deformable)	
	Coatings on waterproofing membranes	Given the variety of cases, follow the manufacturer's specifica-			
	Highly deformable surfaces	R2* (highly deformable adhesives)			

### Tipos de Adhesivo:

Cementosos [C] Dispersión [D] Resinas Reactivas [R]





# 3 HANDLING AND PREPARATION



Large format ceramic tiles must be handled with extreme care, checking the space we have for maneuver and previously removing any object that may interfere with the movements of the piece.

The value per square meter of these formats is higher than that of a standard format, so we must be more cautious when handling and transporting the piece.

***It is essential that at least 2 people (3 recommended) participate in the handling, cutting and installation of the large format ceramic tile.***

To start talking about handling, the first thing we must have is a stable and rigid surface to house the piece for its preparation (cuts, holes, mortises, etc.).

A specific table for this work such as the RUBI's SLAB TABLE, if you do not have the possibility of using a specific table, you should look for a very rigid substrate so that the workpiece does not flex and thus micro cracks may appear in the piece.

***Do not cut the piece on the floor or on the same trestle, as there is a serious risk of cracking the piece.***

To handle and transport large format ceramic tiles, it is necessary to use a frame or conveyor to provide structure to a piece of thin thickness and large dimensions that lacks a robust structure. Since it does not have a robust and stable structure, the bending of the material may cause cracks that will make it impossible to place the piece.

Once the piece is on the conveyor, it can be transported from the trestle or wooden crate to the point of preparation prior to placement.

Depending on the size of the workpiece, it is advisable to use individual suction cups, which can be vacuum suction cups, which are the most effective and guarantee a better hold, as well as offering the possibility of restoring the vacuum by pressing the activation button even after a certain period of time. There is also the option of pressure suction cups suitable for all surfaces, with both types of suction cups you will be able to handle pieces of a format similar to 1200 x 1200 mm, for larger formats it is advisable to use specific conveyors.

Before starting to move the large-format ceramic tile, it is advisable to clean the surface of the piece and the suction cups with a damp sponge to ensure a perfect hold of the suction cups.







# 4

## CUTTING, HOLES AND MORTISES

Although priority should always be given to the installation of complete pieces, it is inevitable that cuts will have to be made to adapt the piece to the installation space.

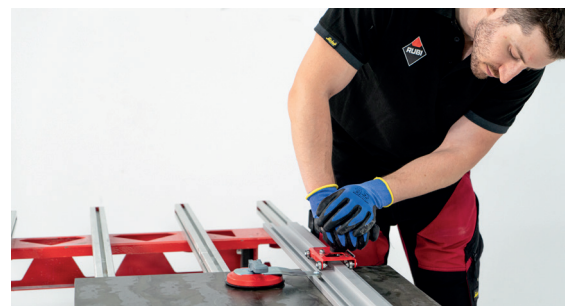
Not only will straight cuts be required, we will also have to make “visible” cuts, miter cuts, bevels, holes, mortises, and many more types of cutting.



### MANUAL CUTTING

Orthogonal cutting or straight cut is the most common cut when it comes to large format ceramic tiles.

To carry out this with the maximum guarantees, we will have to use a specific cutter for these formats, a machine such as the RUBI's **SLIM CUTTER PLUS**



This manual cutter has a specific cutter for large formats:



### 22 MM EXTREME ROLLER

This roller has been developed especially for porcelain stoneware tiles with rough and/or slightly structured finishes. Its higher angle of incision and when mounted on the bearing make it easier to cut the cut softer and more precise..

The ruling of the large-format ceramic tile is the delicate phase of the cut.

What is very important is that the ruling is complete and uniform along the entire length of the tile, and that it is done in a single pass, so as not to produce different parallel marks. It is very important that the roller is in perfect condition in order to guarantee the correct separation of the ceramic tile since, if it is not in good condition, the ruling will be defective and the separation will run the risk of being incorrect.

After marking with the roll carriage and the **EXTREME** roller, the workpiece is separated by means of the separating tongs. If the piece has mesh on the back, it must be cut with a Stanley knife.



To finish the cut, the edges of the tile will be slightly sharp or irregular, we must finish them by beveling them with special discs or diamond pads to avoid accidents.

## ELECTRIC CUTTING

When more specific cuts are needed, with a high level of finish or cuts such as miters or bevels, the electric option is preferable, such as RUBI's **TC-125**.



Electric cutting can be done it with a dry diamond blade or a wet cut with a specific blade for this purpose.

Whenever a wet cut is possible, it will be preferable than dry cutting, since it will avoid dust and will get a better finish.

Even if they are thin, large-format ceramic tiles require more complicated miters or cuts to be made to cover columns, countertop skirts, stair treads, among others, so the electric option will always be very useful.

**Manual cutting will be the main cut, but the electric cut must not be discarded since it will cover those cuts that cannot be done manually.**

Another option within the electrical cut is the use of grinders. It is one of the most widely used tools in the world due to its versatility and ease of use.



Whatever the electrical option is, we will have to equip the machine with a specific diamond blade for the purpose we are looking for.

We can opt for straight cutting, so we will use a disc for hard materials such as RUBI's **TVA**.



On the other hand, if we opt for a high quality finish cut, mitering or beveling, we can use an electroplated diamond blade such as RUBI's **ECD**.



It is very common to have to make miters in materials 6 to 12 mm thick, for this purpose a beveling machine must be used, such as the RUBI's **PRO-EDGER**, to ensure the best finish always leaving 1.5 mm of the original edge of the piece.



We must have the piece well seated on the table to carry out these works since they must be homogeneous along the entire edge of the large format ceramic tile.

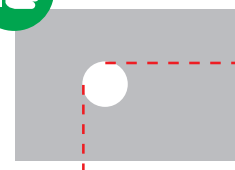
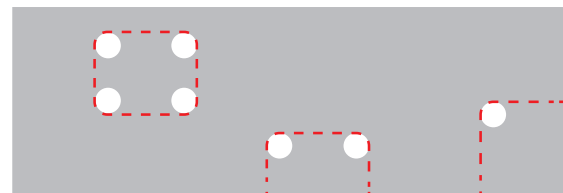
## MORTISES

When we have to make an L, T or U-shaped cut, or we have to make a mortise inside a plate for a push button of a toilet flush, light box or any other cut that involves leaving a cut seen at 90° we will have to work it in the following way:



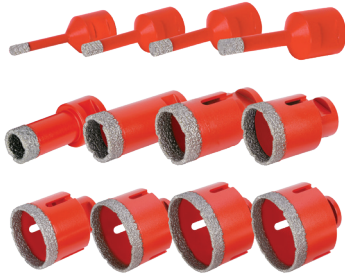
It will be necessary to make a previous hole with a specific drill for hard materials, such as porcelain, with a minimum diameter of 10mm, then a specific disc for these materials will be used and thus join those holes on the outside. We must not go beyond the outside of the circumference, since we would not achieve the end we are looking for.

If this type of cuts are not made in this way in the vertexes, the expansions due to temperature changes or structural movements will cause the piece to crack, on the other hand, if they are made in the right way, these tensions will go through the piece, but will never crack the piece because of not having a 90° internal angle.



## DRILLING WITH DRILL BITS/ CROWNS

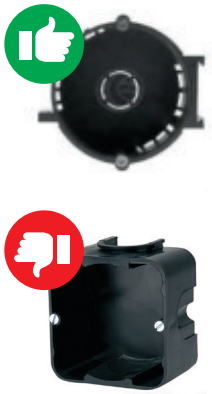
When making holes in the large-format ceramic tile, specific drill bits for this purpose will be needed. We can opt for electroplated diamond such as RUBI's wet cut **EASYGRES** or RUBI's dry cut **DRYGRES**.



The electroplated diamond, when working with water will always leave a better finish, but nowadays practically all the holes are covered with a trim.

When we have to place a light point or electrical outlet we must use round sockets, or drywall sockets.

If we make the square socket in the traditional way using the grinder, the piece may crack, so we must use specific crowns for this material.



In the same way, we will make the holes for water intakes and drains, with a crown of different diameters. It is the easiest and safest way to make these holes, later they will be covered with a trim, but they must always be round so we will not have those corners of the square cut showing through the trim.

We must not forget that after the installation we will have to drill holes to install furniture, towel racks, pictures, etc. For this purpose, specific drills such as RUBI's **EASYGRES** or RUBI's **DRYGRES 4DRILL** should also be used to drill the ceramic, and finally we will drill the wall with a traditional tungsten carbide drill bit to finish the hole.





# 5

## APPLICATION AND PLACEMENT OF PARTS WITH PROFESSIONAL ADHESIVES

The choice of adhesive type and notched trowel should be made according to the type of substrate, type of adhesive, tile format and intended use.

There are special trowels for large format ceramic tiles, such as RUBI's **YW**, which are specifically designed to improve the wetting of the piece.



Adhesive placement will always be done using the double-gluing technique, applying the adhesive to the substrate and on the back of the tile.

This technique is used to improve the wetting of the tile, favoring a homogeneous contact on the entire surface of the back of the tile in order to generate an optimal and lasting adhesion.

*In no case is it recommended to place the adhesive in gobs.*





*Handling large-format ceramic sheets can cause serious problems for the tiler if the proper tools are not used. The correct use of specific tools for large format SLAB will avoid possible breakage of the material and will facilitate the performance of the work.*



*For a correct application of the adhesive we must follow the manufacturer's instructions, always using the double bonding technique (PIECE + SUPPORT). For the application of double gluing it is very important to have a stable and regular support.*

The adhesive should be spread in straight grooves, without fanning or curving, and parallel to the short side of the tile to reduce the distance the air will travel until it exits the ends of the tile.

100% of the piece should be covered, including the edges.

***The adhesive spread direction must be the same on the back of the tile as on the substrate (linear and parallel to the short side of the tile).***



It is also correct to apply the “smearing” technique, which involves applying the adhesive with the smooth side of the notched trowel on the back of the tile, exerting light pressure on the ceramic.

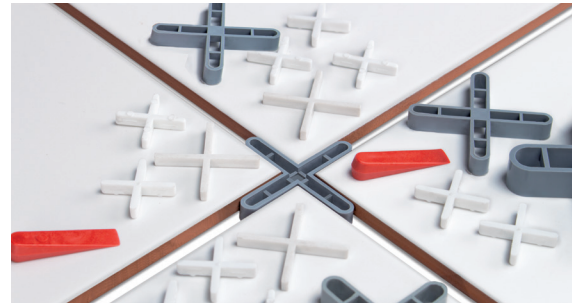
When laying the tile, it should settle very close to its final position and move it perpendicularly to the grooves and in the opposite direction to the adjacent tile, we must try to move the piece the distance equivalent to the width of the trowel tooth used whenever possible.

Move the tile back in the opposite direction to its original position, thus ensuring a correct crushing of the adhesive beads or teeth, allowing the occluded air to escape and improving the contact of the adhesive with the tile and substrate, as well as its wetting.



The procedure for placing tiles on pavements or walls is the same. For the installation of tiles on the façade, the design manager must consider whether or not additional mechanical fasteners will be necessary.

Separators (“spacers”, “T” joint spacers, etc.) are used where appropriate to ensure uniform joint width and straightness, must be applied when the tiles are laid and must be removed before grouting.



To ensure correct gluing and complete release of the occluded air, the tile must be initially flattened with a robust trowel with a rubber surface to absorb the impacts.

***We will never have to flatten it using a rubber mallet, as the impact could cause a crack in the piece.***

Subsequently, it is recommended to use a ceramic vibrator such as RUBI's **TRILLER**, vibrating from the center of the tile towards the ends, always in the same direction as the grooves made and parallel to the short sides of the tile, in order to completely release the occluded air.

*With the vibrating of the ceramic we will achieve the main objective, which is the elimination of occluded air pockets and achieving the highest percentage of wetting of the adhesive in the ceramic, which has to be 95%.*





# 6

## LEVELING



When we place a large format ceramic tile, with its thin thickness, it is possible that it is difficult to achieve an even finish with the adjoining pieces. This must be avoided at all costs in order to achieve the best finish, and we have an easy solution with the leveling systems.

***With the leveling systems we will be able to improve the levelness and final flatness of the ceramic tile.***

It should be noted that these leveling devices are not suitable for rectifying or correcting the deficient flatness of the substrate or the dimensional tolerances of the ceramic tile.

***The distance between flanges of the leveling system in large format ceramic tiles should be approximately 50 cm.***

A regular thickness of the adhesive layer of at least 3 mm must be ensured and the leveling system must be applied within the rectification or touch-up time indicated by the adhesive manufacturer in order to avoid a decrease in the adhesive bond.

In the event of using fast rubbing adhesives, the activation time is reduced.

The leveling system must be used between adjacent tiles installed at the same time and not between tiles or rows of tiles installed at different times.



***Using a leveling system does not, under any circumstances, exempt the use of separation systems such as spacers, T join spacers, etc.***



# 7

## GROUTING

It should be noted that the base substrate is usually a continuous surface subject to contractions and expansions caused by thermal changes, structural movements, the effects of water or humidity, chemical reactions, or the shrinkage of the cement itself. For this reason, a perfect grouting guarantees that these natural movements of the substrate are not transferred to the tiled surface.

The grout shall be applied with a hard, sharp-edged rubber trowel, passing repeatedly, diagonally, over the joints. The excess grout will be collected with the same trowel. There is a wide range of grouts available on the market that can be adapted to different types of tiles and environments.

***Tile installation without grouting is inadvisable from any technical point of view due to the risk of producing undesirable conditions in the covering.***



It is recommended that they never be less than 3 mm indoors and 5 mm outdoors.

For the application we can define different types of grouts according to the chemical nature of their conglomerates and the specific characteristics of the cementitious grout.

Acronyms for defining the type of ceramic grout:

- Cementitious grouting material (CG)
- Reactive resin grouting material (RG)

Type of grouting material according to suitable characteristics (CG only)

- Normal grouting material (1)
- Improved grouting material (2)



# 8

## CLEANING AND MAINTENANCE

Once the tile installation and grouting operations have been completed, the surface of the ceramic material usually shows traces of cement in the form of a film or small accumulations. For the perfect elimination of these remains and dirt in general from the work, the use of specific slightly acid descaling detergents is recommended.

It is advisable to avoid the use of acid descaling agents that are excessively strong and aggressive for the material.

Maintenance operations, in most cases, will consist of periodic cleaning by washing with a solution of water and neutral detergent (ordinary maintenance).

In the event that the surface needs a more thorough cleaning (large accumulation of grease and dirt, removal of stains, etc.) it will be necessary to use a degreasing detergent or stain remover used pure or diluted in water, rinsing well at the end with clean water.





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