

## Resistant



### TO THERMAL SHOCK

Because it is 100% frost-free and its properties remain unaltered at temperatures of -50°C to +60°C (-120°F to +140°F).



### to loads

Because every slab can withstand loads of over 1000 kg (2200 lb).



### to chemical aggression

Because it totally resists acids, chemical agents, salt and verdigris.



### to stains

Because it remains unaltered over time, mould and moss and dark smudges cannot get a hold.

## Easier



### to clean

Because it requires no special or seasonal treatment and can be washed easily, even using a pressure washer.



### to lay

Because it is a squared, single work-size, which uses the same laying systems as other common outdoor materials.



### to remove

Because it is removable, serviceable and reusable, weighing just 17 kg per 60x60 cm slabs (37 lb per 24"x24" slabs) (excluding laying on screed with glue).



### for you

Because it is non-slip thanks to the structured surface.

## Respectful of the environment



### Ecolabel

EVO\_2/E™ collections guarantee low environmental impact throughout their life cycle, in compliance with the strictest European ecological and technical parameters.



### Leed Compliant

All the slabs in the Mirage® catalogue are LEED compliant and help to obtain up to 10 LEED credits, depending on colour and use.



### Made in Italy

All Mirage® tiles are designed and produced entirely in Italy, an element which today more than ever bears witness to the company's desire to promote the quality and values of Italian-made goods.



### HY-PRO<sup>24</sup>

The Mirage® treatment, available on request, with titanium dioxide, enhanced with active metal elements, makes the material photocatalytic, anti-pollutant, hygienic and anti-bacterial, 24 hours a day.

## Contemporary Landscape



### attention to detail

Because it has a range of highly attractive solutions, with special pieces for different uses and to create innovative surfaces.



### wide range

Because you can choose from a range of over 40 interpretations of stone, wood and concrete.



### total coordination

Because you can create fully coordinated interiors and exteriors, in different colours.



### versatility

Because you can use a range of laying systems for many specific solutions, in gardens, parks, terraces, courtyards and swimming pools.

## LAYING GUIDE

The project **EVO\_2/E™ Mirage®** brings you a set of solutions for installation suitable for all soils and outdoor surfaces, to guarantee the **maximum application versatility**.

There are many uses, for private external and public spaces:

	Garden, courtyard or patio
	Footpath
	Terrace or balcony
	Swimming Pool
	Driveway flooring
	Commercial Area

Depending on the applications, the following table gives recommendations of some installations to ensure maximum effectiveness.

	ON GRASS	DRY INSTALLATION ON SAND	DRY INSTALLATION ON GRAVEL	ON GRAVEL MIXED CEMENT	RAISED	ON SCREED
GARDEN	•	•	•	•	•	•
YARD	•	•	•	•	•	•
FOOTPATH	•	•	•	•	•	•
TERRACE		•	•	•	•	•
SWIMMING POOL				•	•	•
DRIVEWAY						•
COMMERCIAL AREA						•

\* The garden, yard, patio, footpath, terrace and swimming pool do not bear vehicular load, but only pedestrian and bicycle load.

\*\* The driveway and the commercial area provide only light vehicular load (← 8500 kg).  
Roads and squares are not included in this application. Please contact the Engineering Office at Mirage® for further information.

## LAYING GUIDE



When the application of slabs in 20 mm requires the use of the ceramic product in structural terms, it is recommended that the designer and/or client make a careful assessment of the project requirements in relation to the technical characteristics of the slabs.

In particular, in order to avoid the risk of damage to persons or things, the manufacturer recommends that:

- If the application provides for raised laying, taking into account that a tile may break due to a heavy object falling on it, check in advance the specific intended use and follow the "raised installation instructions" table below where, under certain conditions, the application of a reinforcement on the back of the tile is required (rete plus or galvanized steel) supplied by the manufacturer.
- With reference to the flooring laid in altitude, with any dry-laid system, observe the specific rules and regulations and local use conditions regarding, inter alia, by way of example, the action of the wind, the structural load, seismic actions, etc.
- Failure to comply with the recommendations above may lead to an improper use of the product and possibly cause serious damage/injuries to persons or things.

## VERIFICATION OF THE SUB-BED

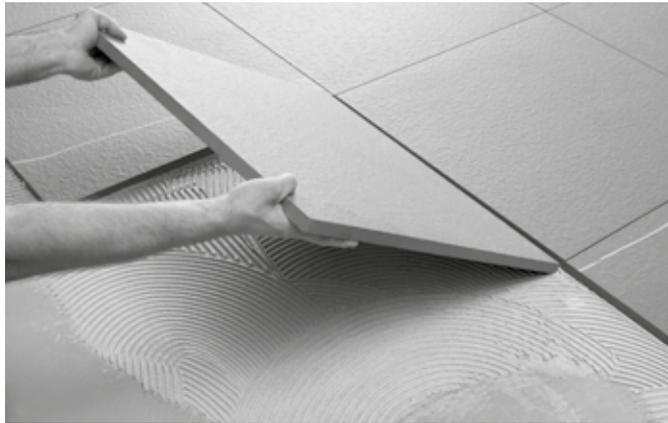
The evaluation of the quality and of the carrying capacity of the floor is not the task only of the layer and then, before entrusting the task of laying, it is fundamental for the clients/designer to ensure compliance of the characteristics of the soil and its compaction to the the forecasts of the loads to which the flooring must respond.

It should be remembered that to avoid stagnation of water and a possible early deterioration of the area, under no circumstances must floorings be made with slopes of less than 1%: the minimum slope recommended is 1.5%.

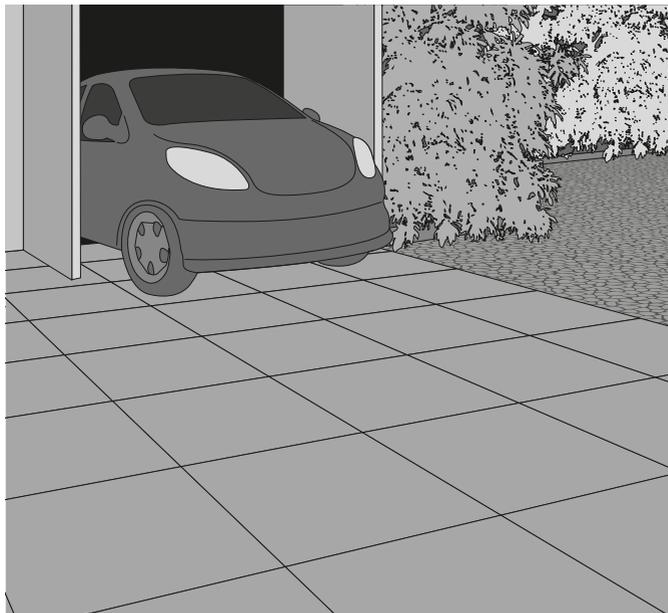
The information and recommendations listed in this catalogue are for informational purposes only, for the implementation of every step we recommend the application of each rule and the respect of every law concerning the various phases of work.

**Mirage® recommends carrying out a careful assessment of the sub-bed characteristics before doing any type of installation.**

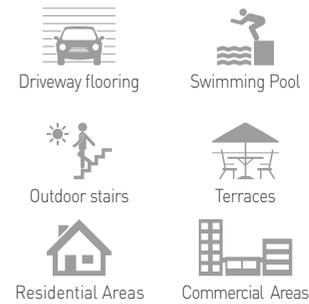
## LAYING ON SCREED WITH GLUE



The ideal laying solution for outdoor driveways, car parks, garage ramps, as the laid surface is extremely resistant to both dynamic and concentrated loads. Expansion joints are required and the joints between the tiles must be filled with cement-based grout.



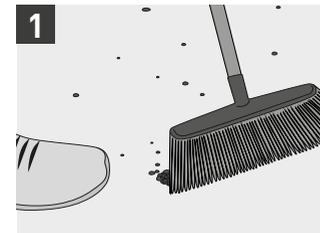
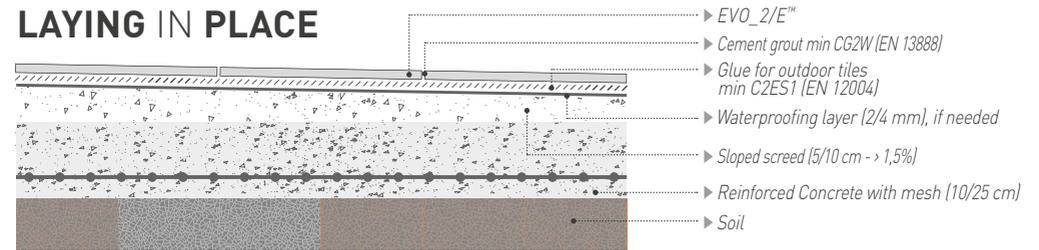
### USES



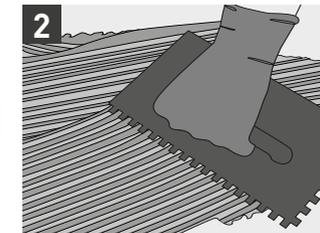
### WHAT YOU NEED



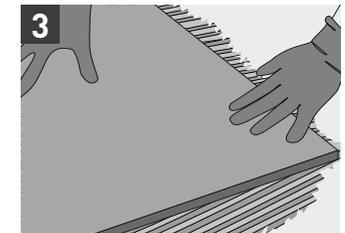
## LAYING IN PLACE



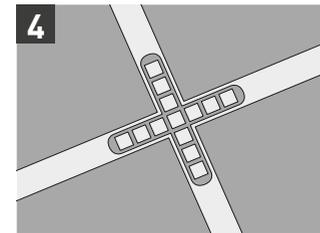
After having made the screed according to the best working standards, it needs a good surface cleaning before proceeding with the laying.



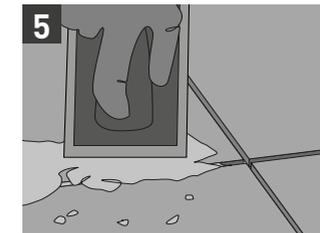
Spread the glue evenly to ensure a perfectly plane surface.



When laying, it is recommended to check that the slab has adhered correctly to the glue layer.



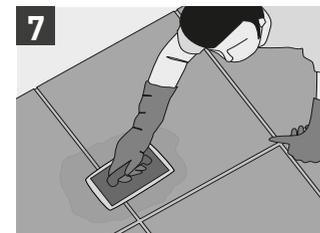
EVO\_2/E™ is squared and single work-size and can therefore be laid with a 3 mm plus spacer (plus spacer 3 mm = joint 3/4 mm).



After laying, grout the floor.



Wash the first layer of grout residue carefully after grouting.



A final buffered acid wash must be done to remove any invisible grout residues.

*The stratigraphies, shims and the proposed measures are only indicative of the type of application: it is recommended to refer to the specific rules of each individual country or indications of the Layers' Associations, to achieve a flooring job according to the best working standards. Mirage® also recommends carrying out a careful assessment of the sub-bed characteristics before doing any type of machining or laying.*

## LAYING ON GRAVEL MIXED WITH CONCRETE.....



Dry laying on gravel mixed with cement is recommended for applications such as a garden, patio, courtyard, walkways and terraces. Overall, this is more stable than a dry installation but also more difficult to remove.

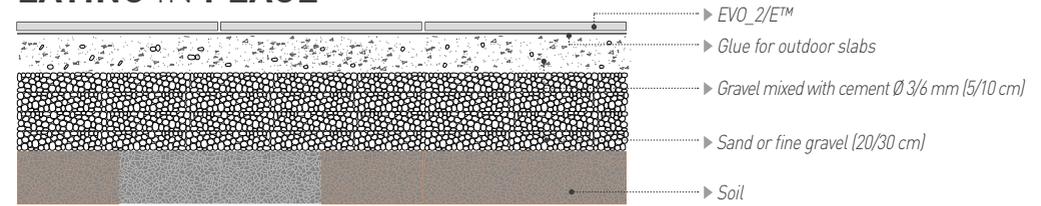
### USES



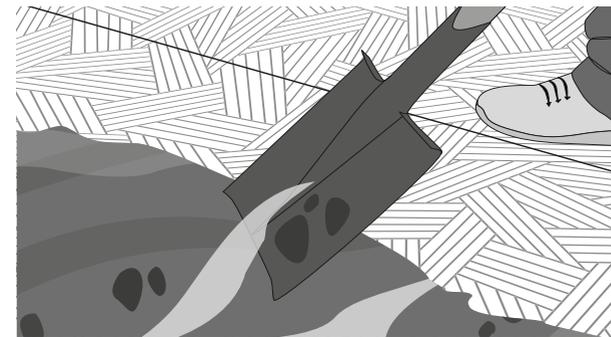
### WHAT YOU NEED



## LAYING IN PLACE



Once you have drawn up the area you need to dig out, you can mark the perimeter of the excavated area using wooden or steel marker posts connected by a string. Allow a lateral strip of land in excess of the marked edge that can be removed during the excavation.



Remove the soil inside the marked area using a shovel or excavator. The depth of excavation should be decided during the planning stage and depends on various factors that the flooring fitter should assess with due care, including:

- the load on the flooring; a larger service load corresponds to a greater thickness of the layers
- the existing conditions of the soil; the undisturbed ground has a greater bearing capacity than the backfill
- drainage capacity of the soil; a greater ability to drain water corresponds to a greater bearing capacity of the ground

**NOTE:** It is recommended to consult a technician to precisely calculate the thickness of the layers according to the intended use and stressing load.

The stratigraphies, shims and the proposed measures are only indicative of the type of application: it is recommended to refer to the specific rules of each individual country or indications of the Layers' Associations, to achieve a flooring job according to the best working standards. Mirage® also recommends carrying out a careful assessment of the sub-bed characteristics before doing any type of machining or laying.

## LAYING ON GRAVEL MIXED WITH CONCRETE .....



Once the excavation is completed, use a rake or shovel to level the excavated area making sure there is at least 2% slope (to facilitate water drainage). Before proceeding with the implementation of the upper layers, compact the soil with a vibro compaction machine.

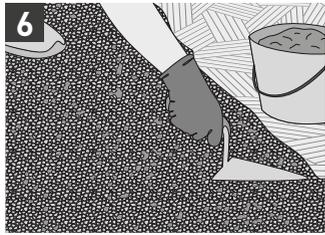


After compacting the base, start to lay the foundation layer, load-bearing element of the stratigraphy, of fine gravel or sand, which should be between 20 and 30 cm thick depending on the type of load envisaged.

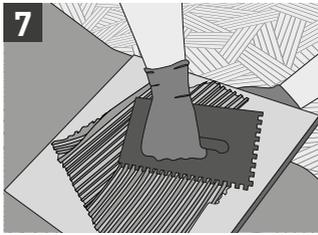


It is then necessary to compact the gravel layer with a compactor roller or with a vibro plate compactor, keeping the surface linear and the minimum gradient of approximately 2% with the use of a rake.

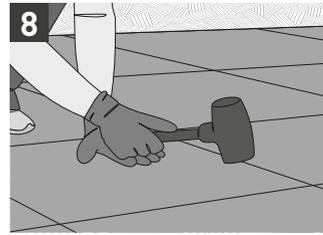
**i** It is possible to use geotextile as a divider between the soil and gravel layer, the thickness depending on the intended use and stressing load.



With the use of a mixer (a cement mixer is preferable), mix gravel having a 3/6 mm diameter with 5% cement and, if necessary, a minimal amount of water. When the mixture is ready, use a trowel to spread out the layer and then level it to lay the slab. If the joints between the flooring tiles is not permeable, the flooring must have a 2% gradient.



For optimum adhesion of the slab to the layer underneath and a longer working life of the finished flooring, it is recommended to use a special glue for outdoor slabs. Spread the glue on the back of the slab using a notched spatula. Make sure there is no excess adhesive at the sides of the slabs. Lay the EVO\_2/E™ element on the layer of gravel and cement mix.



Press down gently and then tap the surface of the slab with a rubber mallet to embed it properly. Before the adhesive sets, make sure the joints are not clogged: remove any excess if necessary.

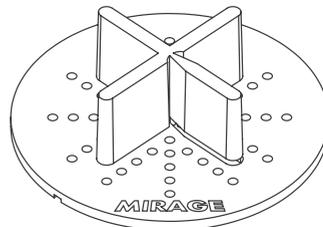
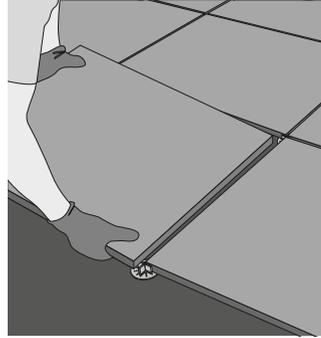
**9**  
GROUTING: see information on page. 32.

**i** It is important to paste the slab when the compound gravel mixed cement is still wet so as to exploit the capacity of the cohesive cement.  
NOTE: It is recommended not to use any type of vibro-compactor plate on the EVO\_2/E™ slabs, as they may become damaged.



## JOINTS

Joints recommended for EVO\_2/E™ flooring are 4 mm; in addition to improving the aesthetics, the joint has the function of absorbing any movement of the slab, preventing breakage of the same. To create a joint of suitable width, use the spacers having a thickness of 4 mm, which are positioned respectively at the intersections between the slabs. Special spacers for the laying on gravel and sand are the Space\_G type spacers supplied by Mirage®.



Mirage® Space\_G plus spacers

There are five different types of joints, depending on the flooring methods and performance needs of the fitter:

- Empty joint
- Joint with normal sand
- Joint with polymer sand
- Joint with cement sand
- Joint with grout

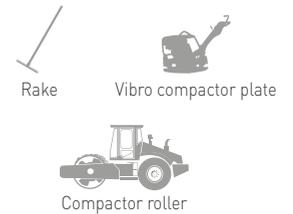
### EVO\_2/E™ Joint type

	LAYING IN SUPPORT WITH GRASS	LAYING ON SCREED WITH GLUE	RAISED LAYING	LAYING ON SAND	LAYING ON GRAVEL	LAYING ON GRAVEL MIXED WITH CONCRETE
EMPTY GAP	•		•	•	•	•
GAP FILLED WITH NORMAL SAND				•	•	•
GAP FILLED WITH POLYMER SAND				•	•	•
GAP FILLED WITH CEMENT SAND				•	•	•
GAP FILLED WITH POLYMER GROUT		•				

## COMPACTION

It is necessary to compact backfill layers (such as soil, gravel or sand) in order to improve their mechanical properties; it is possible to increase the density of the material by reducing any air pockets between the aggregates and limit settling to increase its load bearing capacity.

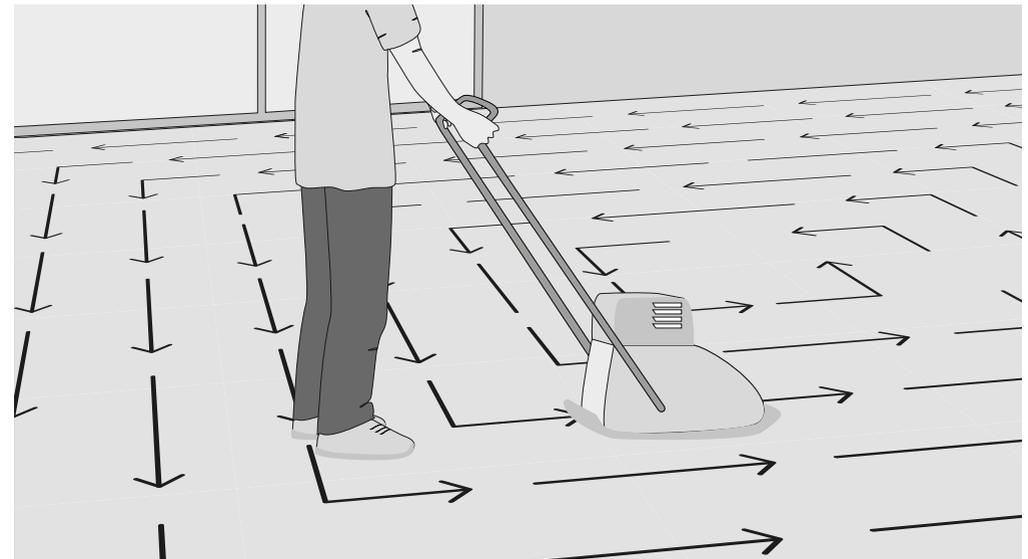
### WHAT YOU NEED



**i** For compaction you can use a vibratory plate compactor or a roller compactor. The thickness of material that is actually compacted depends on the weight of the equipment used. The number of repeat runs needed to achieve the optimum density depends on the vibration frequency as well as on the weight and the water content. The number of repeat runs varies from a minimum of two to three (assess on a case by case basis) depending on these parameters.

Use a rake to spread out the material for an even surface. You can use the back of the rake to level out the layer. Use the vibratory plate compactor to compact the layer according to the procedure described below:

- Start out by compacting around the perimeter, starting at the sides.
- Continue working in straight lines from the perimeter to the middle.
- Repeat once or twice using the same technique, but in the opposite direction.



**!** NEVER COMPACT THE PORCELAIN STONEWARE PAVING; COMPACT ONLY THE INDICATED LAYERS. THE COMPACTION PLATE OR ROLLER COULD DAMAGE THE SURFACE OF THE SLAB, EVEN IF FITTED WITH THE APPROPRIATE RUBBER PROTECTORS.

## JOINTS

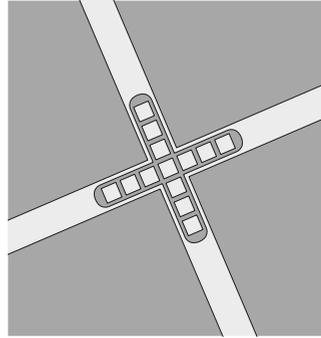
### EMPTY JOINT

The empty joint is such that it does not include any material in its interior between one slab and the other; for this reason it cannot absorb the relative movements between the slabs, and therefore risks movement in some cases.

It is recommended to ensure a good outflow of water in winter because the formation of ice could damage the flooring.

Weeds can grow in empty joints and insects and ants will be able to nest there.

It is definitely a type of joint that is simple to implement, but it needs routine maintenance (cleaning weeds, etc.).



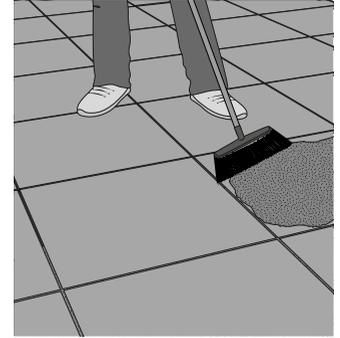
**i** For the laying of gravel (3-6 mm) recommend the use of spacers Space\_G of Mirage® (joint 4 mm), providing more support to the plate simplifying obtaining a planar surface. The transparency of the material makes it less visible and the ability to break makes it possible to easily create the spacer T for straight course laying.



### JOINT FILLED WITH STANDARD SAND

The joints are filled with dry sand having a 0-2 mm grain size. This joint has good mechanical properties, partially absorbing any relative movement between the EVO\_2/E™ slabs.

Joints with standard sand do not prevent the formation of grass or plants; moreover insects and ants can nest there and may damage the flooring. Water can filter into the layers below so ice may form in certain laying systems, which could damage the flooring. Moreover, if the flooring is in an area that is very windy, on slopes or subject to heavy rain, the joints could become empty due to erosion. Grouting with standard sand requires routine maintenance to fill the joints.



**i** Spread enough sand over the flooring surface and use a soft brush that will not damage the slabs; distribute the sand in the joints to fill them completely. Once the joints are full, leave excess sand on the surface.

**!** IT IS ADVISABLE TO FILL THE JOINTS AGAIN A FEW DAYS AFTER FINISHING THE FLOORING. THIS IS BECAUSE THE SAND INSIDE THE JOINT WILL SETTLE DOWN WHEN THE FINISHED FLOORING IS SUBJECTED TO SURFACE LOADS THAT WILL MAKE ITS VOLUME DIMINISH.

## JOINTS

### JOINT WITH POLYMER SAND

The polymeric sand is composed of a mixture of polymer binders and calibrated sand. Once the sand is wet, it hardens becoming very solid and locking the joints of the flooring, being equally efficient both on flat surfaces and on slopes (garage access ramps, etc.). These features make it ideal for applications in areas with excess water or steep slopes. The joints are filled with a sandy material that solidifies (draining or non-draining polymeric sand). These joints have excellent mechanical properties, absorbing the relative movements between the slabs because they are rigid at the top and flexible at the bottom. Weeds will not grow in joints filled with polymeric sand and insects and ants will not be able to make their nests there. The flooring is totally impermeable if the sand used does not allow draining and the joints remain intact, unaffected by erosion throughout time.



Spread enough sand over the flooring surface and use a soft brush that will not damage the slabs; distribute the sand in the joints to fill them completely.

It is essential to remove any excess sand on the surface once the joints have been filled (using a leaf blower if possible). When the surface is perfectly clean, spray the sand with water to start the process of polymerisation. The spray of water must be like "rainfall" from a height of 1.5 metres, without applying too much water. Spray again in the same way 5-10 minutes later.

If there are other sand particles on the surface, use a leaf blower to remove them before the flooring dries out. In dry weather, the polymerisation process will be complete in a few hours and so the flooring becomes serviceable in about 24 hours.

### JOINTS FILLED WITH CEMENT SAND

This requires a sandy material inside that becomes solid (cement sand). This type of joint has excellent mechanical properties. Since cement sand is harder wearing and more resistant than polymeric sand, it is also more difficult to remove. Weeds will not grow in joints filled with cement sand and insects and ants will not make their nests there and potentially damage the flooring. This flooring is totally impermeable; once the joints have been filled they are not affected by erosion and remain intact over time.

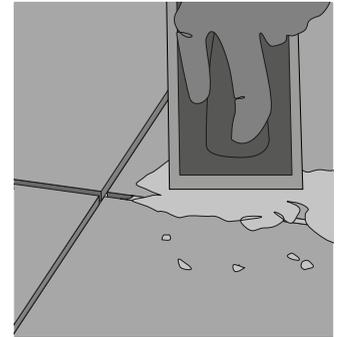
The method of installation is the same as that of polymeric sand. It is extremely important to remove any traces of cement sand after spraying with water as it would solidify on the surface of the flooring slabs. One of the advantages of cement sand is its rapid solidification, so the flooring becomes serviceable in a few hours.



**!** JOINTS GREATER THAN 4 MM ARE NOT RECOMMENDED. UNLIKE POLYMERIC SAND, CEMENT SAND ALSO SOLIDIFIES IN RAINY CONDITIONS AND WITH HIGH LEVELS OF HUMIDITY, BUT NOT AT TEMPERATURES BELOW 0°C.

### JOINTS WITH CEMENT GROUT

This joint has excellent mechanical properties, absorbing any relative movement between the flooring slabs and supporting the stresses induced by any differential movements. They also help to distribute the surface load, safeguarding maximum stability. Weeds will not grow in joints filled with cement grout and insects and ants will not make their nests there. The flooring is totally impermeable and the joints remain intact over time. We recommend products classified in accordance with standards EN13888 having a category not less than CG2W.



Once the glue is dry, prepare the cement grout for outdoor applications using an appropriate mixer according to the instructions and safety warnings on the product label. Check that the joints are free of glue residues and clean them if necessary, then apply the grout near the joints with a trowel. Spread the grout into the joints using a rubber spatula; make sure they are filled completely. Move the spatula diagonally across the joint to remove any excess product. Use a damp sponge to remove any residue on the surface immediately after filling the joints. The grout will be completely dry in about 24 hours; at this point, finish removing any tiling residue on the surface with a water and buffered acid solution. Finally, rinse with plenty of water.

**!** JOINTS GREATER THAN 4 MM ARE NOT RECOMMENDED. THE SAND DOES NOT POLYMERISE AT TEMPERATURES BELOW 0° C OR IN RAINY OR VERY DAMP CONDITIONS. IF SO, BEFORE LAYING, CONSULT THE MANUFACTURER OF SAND.

**i** NOTE: For laying with polymeric, cement or grout joints, the flooring is not draining; therefore it is vital to make sure the flooring has a minimum gradient of 1.5% to help water run off which will occur on the surface and not in depth.