

COTTO D'ESTE
Nuove Superfici

**20MM
PORCELAIN
STONEWARE
FOR
OUTDOOR**

TECHNICAL MANUAL

PORCELAIN STONEWARE TILE 20MM FOR OUTDOOR FLOORING

20 mm outdoor porcelain stoneware is the product with the highest technical performance, ideal for flooring in outdoor environments without the risk of breakage and without interrupting the continuity between interior and exterior spaces. Resistant to frost and thermal

shock, it has heightened anti-slip characteristics and is easy to clean. The perfect union between high technical performance and aesthetics, helps maintain the material and colour unchanged over time, guaranteeing long-lasting durability.

VERSATILE



EASY TO LAY, REMOVE AND REUSE



COLOURS REMAIN STABLE OVER TIME



CAN BE INSTALLED WITH DIFFERENT LAYING SYSTEMS



MULTIPLE AESTHETIC VARIATIONS SEAMLESSLY COMBINE OUTDOOR AND INDOOR FLOORING



ATTENTION TO DETAIL AND SPECIAL PIECES FOR AESTHETIC RESULTS THAT MAKE A GREAT IMPACT

RESISTANT



FROST-RESISTANT



FIRE-PROOF



RESISTANT TO STAINS, ACIDS AND CHEMICAL AGENTS



RESISTANT TO SALT



RESISTANT TO MOULD AND BACTERIA



HIGHLY RESISTANT TO HEAVY LOADS



HIGH RESISTANCE TO THERMAL SHOCK

FUNCTIONAL



NON-SLIP SURFACES



RESISTANT TO VEHICULAR PASSAGE IF APPLIED TO A SCREED



ECO-FRIENDLY



LEED COMPLIANT



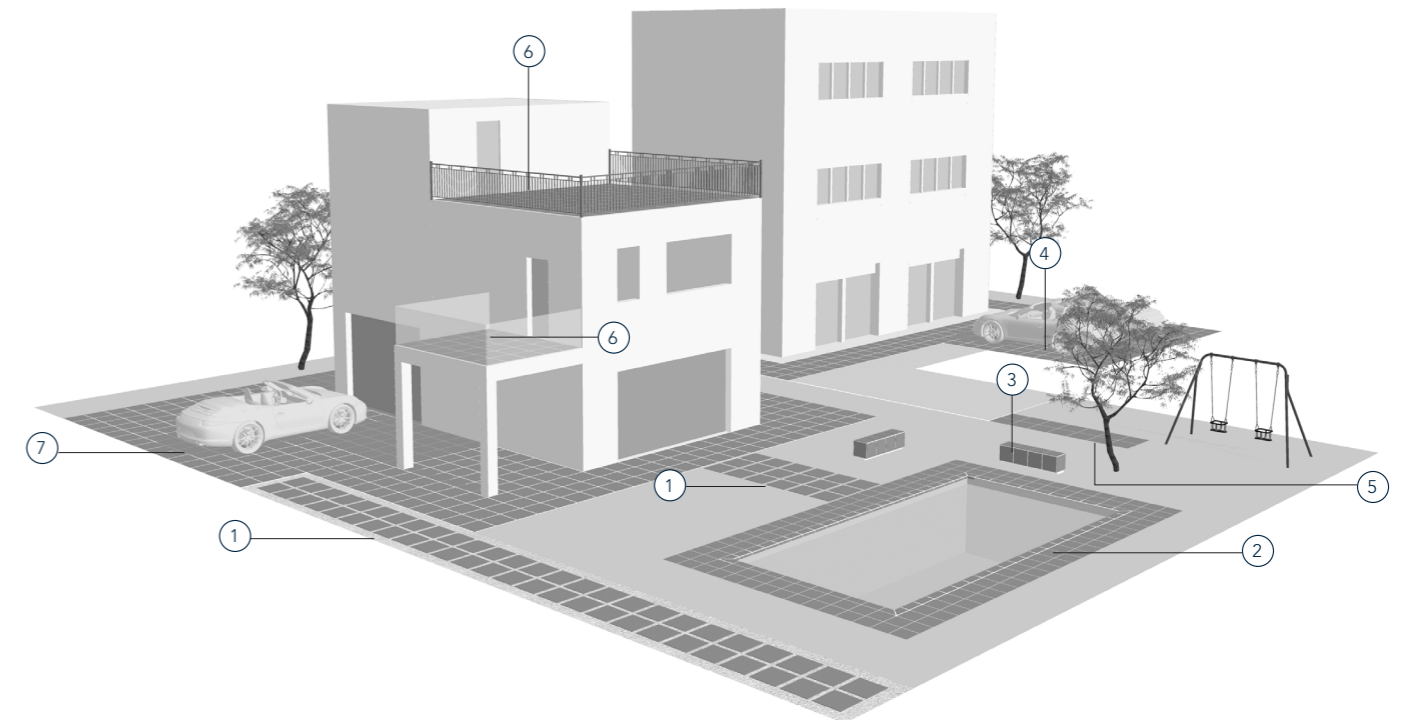
EASY TO CLEAN

ECO-FRIENDLY

Intended uses

Owing to the possibility of installing it dry (on grass, sand, gravel and elevated floors) the 20mm Cotto d'Este porcelain stoneware outdoor tile is

the most versatile solution for exterior floors in residential and public areas.



1 DRIVEWAYS AND PATHWAYS



2 SWIMMING POOLS, ADJOINING AREAS AND SPAS



3 URBAN FURNITURE AND PUBLIC PLACES



4 HIGH-TRAFFIC INDUSTRIAL ZONES



5 PUBLIC PARKS AND GARDENS



6 TERRACES AND BALCONIES



7 CAR PARKS AND DRIVEWAY AREAS



OTHER APPLICATION SOLUTIONS

Laying solutions

Outdoor porcelain stoneware 20 mm is an innovative solution that is very versatile due to the numerous laying possibilities it offers:

dry installation on grass, gravel or sand, screed with adhesive, elevated floor installation.

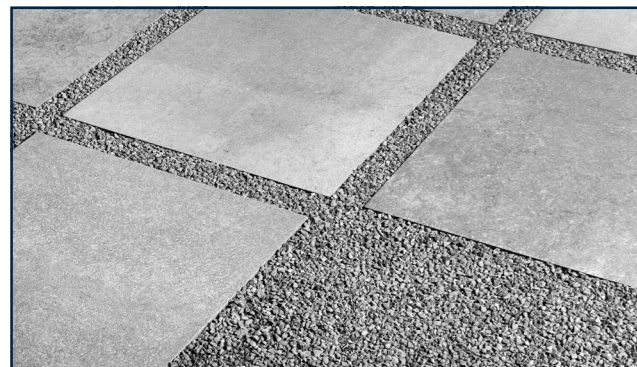
Dry installation on grass



1 | Easy to lay, and adjust or move, it is the ideal solution for public parks and private gardens.



Dry installation on gravel / sand



2 | Easy to lay, and adjust or move, it boasts ideal aesthetic features to enhance contemporary buildings.



Installation on screed with adhesive

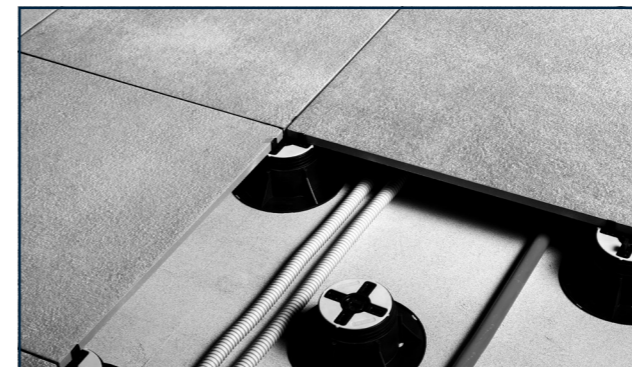


3 | Driveway paving can be matched with the indoor flooring.

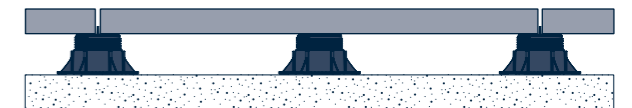


Elevated floor installation

ADJUSTABLE SUPPORT



4 | Can easily be removed, inspected and reused. Available with different kinds of supports, it is ideal for concealing wiring and pipes, while keeping them easily accessible.



CAUTION

- When carrying out an elevated floor installation it is recommended to check the intended use and to follow the installation instructions.
- In the case of external dry installation, the force of the wind, in particular types of applications or geographical locations, can cause the lifting of the tiles.

It is recommended that the designer/client always check the suitability of the installation system selected according to local regulations in force. Failure to follow the above recommendations may result in misuse of the product and cause injury to persons and/or damage to property.

Dry installation on grass

To create a pathway with stepping stones, first of all it is important to determine the number of steps necessary for the entire path, making sure that the tiles are positioned equidistantly. So as to obtain maximum stability, it is recommended to dig out about 5/8cm from the soil, and then place a fine layer of gravel. Compact the

substrate and then position the tile. To allow the turf to grow well, it is advisable to leave a gap of at least 10 cm between one tile and another.



SAFE AND STABLE



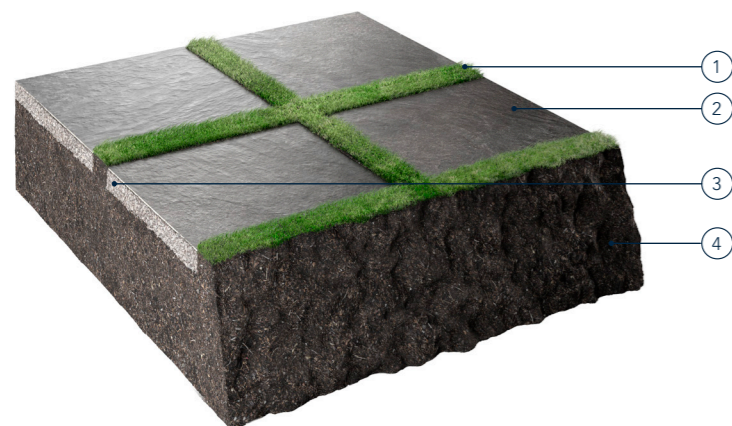
LONG-LASTING



EASY TO CLEAN



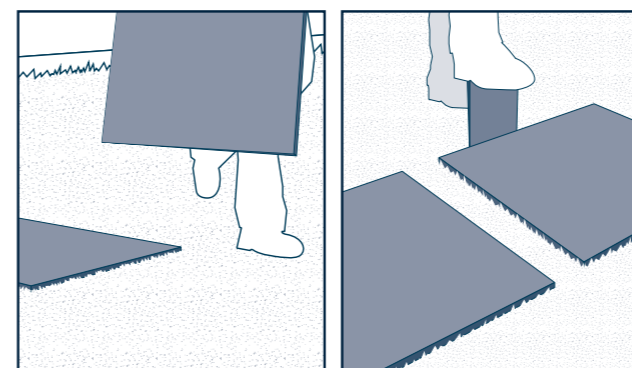
DRAINS



- ① Turf
- ② Outdoor 20 mm porcelain stoneware tile
- ③ Gravel Ø 4/8 mm (5/8 cm thickness)
- ④ Ground

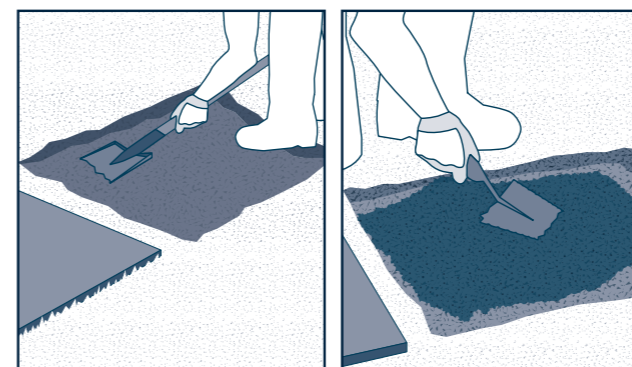


IT IS GOOD PRACTICE TO LAY THE SURFACE OF THE TILES IN LINE WITH THE TURF: THIS WAY THERE IS NO RISK OF DAMAGING THE LAWN MOWERS.



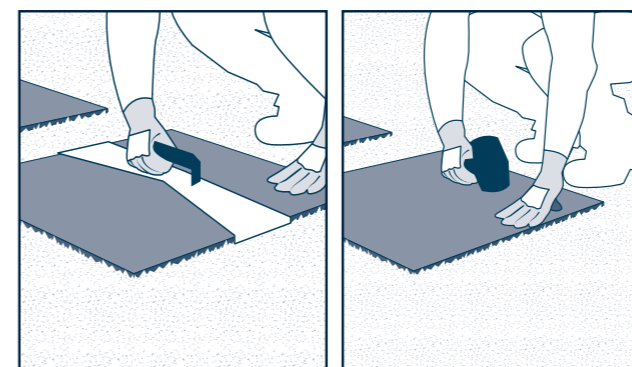
1/2

To determine the correct sizing and positioning of the flooring, place the tiles on the ground and carefully position them equidistant from each other. Mark the perimeter of the tile using a spade in the soil.



3/4

Remove the turf and dig out about 5 cm of soil. Form a stable and uniform substrate using fine gravel (grain size 4/8 mm).



5/6

Lay the tile, so as to have an approximately 0.5 cm level difference, between the tile and the ground. To simplify tile installation it is possible to use suitable tile installation handles. Knock the tile along the edges with a rubber hammer until it is at the same level as the turf.

CAUTION

The application layers proposed are to be taken as an indication, and have the sole purpose of showing how to obtain a correct flooring.

Dry installation on gravel / sand

For installation on sand it is good to remember to place a geotextile on the gravel, on which to spread out a layer (from 2 to 5 cm thick) of dry sand with a grain size of 0/2 mm. It is necessary to compact the sand with a vibro-compacting

plate before proceeding with the installation of the tiles. For particular uses and for stressful loads, it is advisable to consult a technician in order to calculate precisely the thicknesses of the various layers of the substrate.



SAFE AND STABLE



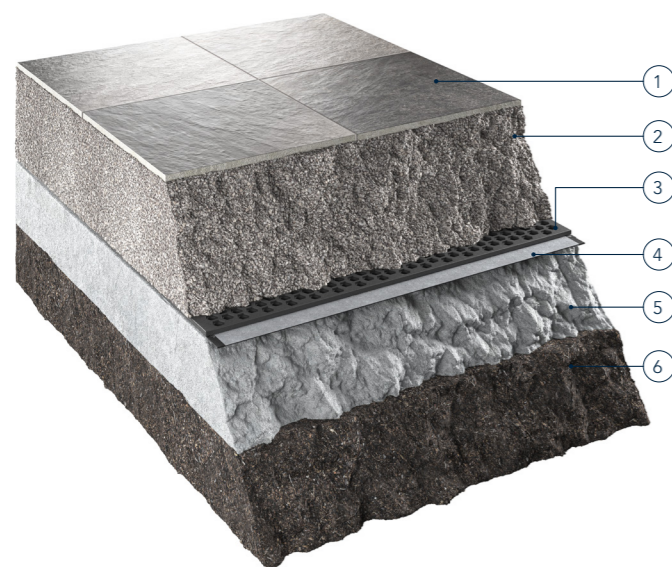
LONG-LASTING



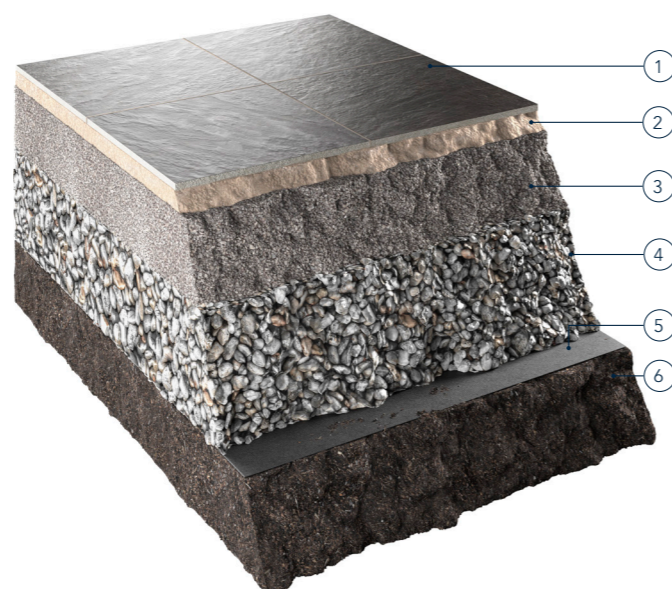
EASY TO CLEAN



DRAINS



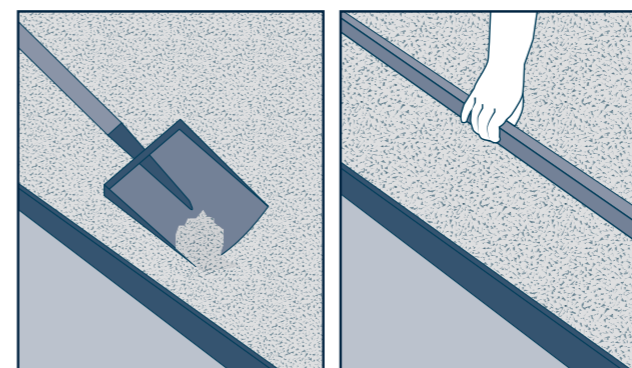
- ① Outdoor 20 mm porcelain stoneware tile
- ② Gravel Ø 4/8 mm (10/30 cm thickness)
- ③ Honeycomb mat
- ④ Waterproof membrane
- ⑤ Screed (10/20 cm thickness) with 0.5-2% inclination
- ⑥ Ground



- ① Outdoor 20 mm porcelain stoneware tile
- ② Sand (2/5 cm thickness)
- ③ Gravel Ø 0/20 mm (20/40 cm thickness)
- ④ Gravel Ø 40/80 mm (30/50 cm thickness)
- ⑤ Geotextile
- ⑥ Ground

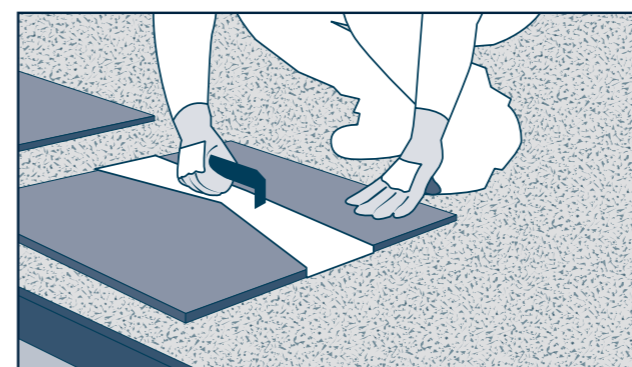
CAUTION

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1/2

Form a stable and uniform substrate using fine gravel or sand. Level the substrate with a metal straight edge.

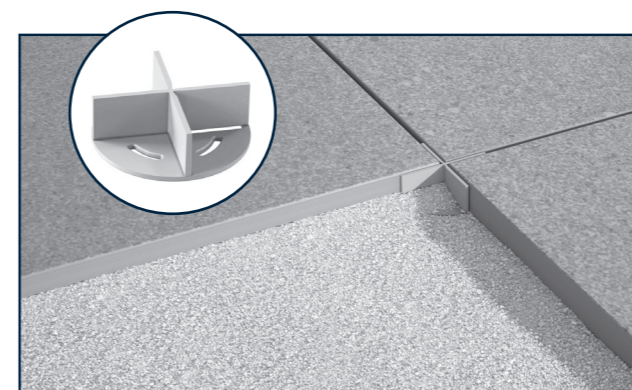


3

Position the tile and then compact the edges in order to level the tile with the substrate. It is suggested to use a joint of at least 4 mm to allow good water drainage.



IN ORDER TO AVOID THE DISPLACEMENT OF THE SUBSTRATE AND CONSEQUENTLY THE TILES, THE SUBSTRATE MUST BE PARTITIONED WITH CONTAINMENT EDGES OR PERIMETER CURBS.



Eterno Ivica's Mini DM spacer, designed for laying tiles on sand or gravel, is an extremely versatile and practical system despite its simplicity. The support is made up of a head with a spacer cross and a removable tip: the fins of the head cross help position the tiles and create the joint between them, ensuring that over time the flooring maintains its correct positioning. The tip is specific for application on sand: the elongated shape guarantees the anchorage and stability of the tiles, preventing them from slipping. For use on gravel it is possible to remove the tip and place the spacer head directly on the gravel.

Installation on screed with adhesive

For installation on screed with adhesive we recommend a joint of at least 5 mm. The size and position of the expansion joints must be established by the Project Supervisor; they must have an indicative width ranging from 4 to 12 mm and divide the surface to be paved in a

uniform pattern with dimensions ranging from approximately 3x3 m to 4x2.5 m. To facilitate the flow of rainwater, it is always necessary to assess the slopes of outdoor paving; when laying with adhesives on screed, the slopes are determined by the latter.



SAFE AND STABLE



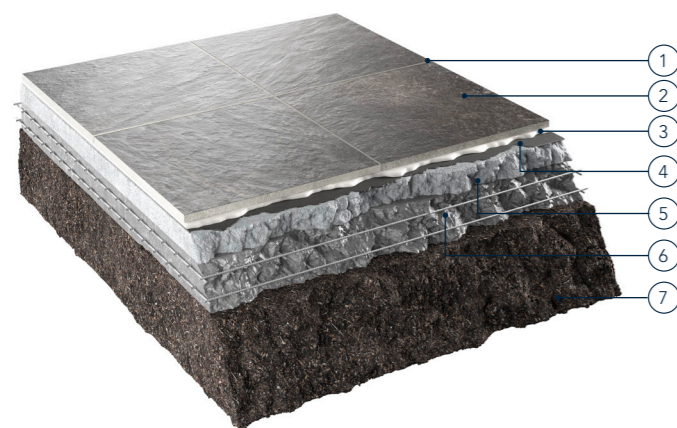
LONG-LASTING



EASY TO CLEAN



RESISTANT TO VEHICULAR PASSAGE

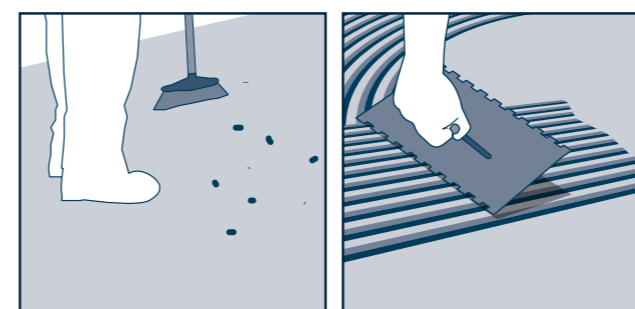


- ① Grout min CG2W (EN 13888)
- ② Outdoor 20 mm porcelain stoneware tile
- ③ Adhesive for exteriors min C2ES1 (EN 12004)
- ④ Possible waterproofing layer (2/4 mm thick)
- ⑤ Sloping screed (5/10 cm thick - slope >1.5%)
- ⑥ Concrete reinforced with electro-welded mesh (10/25 cm thick)
- ⑦ Ground

IN ORDER TO AVOID AESTHETICALLY UNPLEASANT CUTS OF THE TILES, IT IS SUGGESTED TO DEFINE THE SLOPES OF THE SCREED TAKING INTO ACCOUNT THE SIZE CHOSEN FOR THE INSTALLATION.

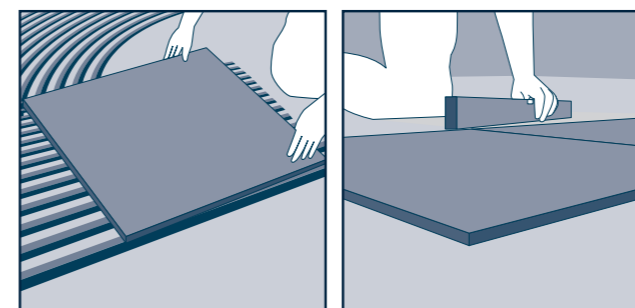
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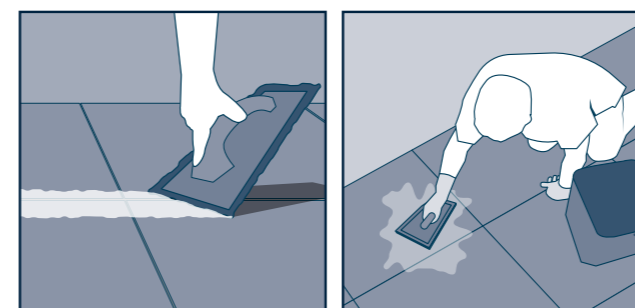
1/2

Before proceeding with the installation clean the substrate thoroughly. In order to obtain a flat floor, it is important to apply an even layer of adhesive.



3/4

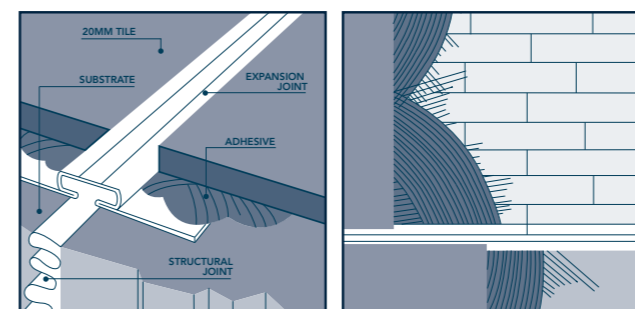
Check the planarity of the flooring regularly during the laying operations.



5/6

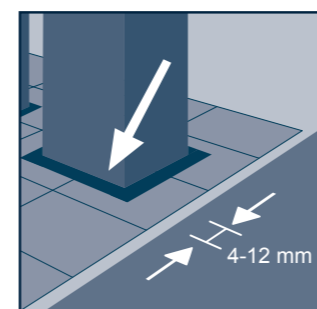
Once the installation is finished grout the flooring. Remember to observe the times indicated by the manufacturer for light foot traffic before walking on the tiles. "Post-installation" cleaning is mandatory at the end of the work and is required to remove residues of cement, lime or grout used for laying and filling the joints.

Expansion joints



1/2

In correspondence with a structural or dividing joint in the screed, it is mandatory to provide an expansion joint with a width that is at least the size of the existing one. If there are joints between different surface types, it is mandatory to provide an expansion joint.



3

Around fixed elements of the supporting structure, such as walls, steps, columns, etc., it is mandatory to provide peripheral joints with a width of between 4 and 12 mm.

Elevated floor installation

The elevated floor technology offers many specific and immediately perceivable advantages: it allows the passage of cables, pipes and necessary installations to be managed easily; it



FLAT AND EASILY ACCESSIBLE

The elevated system compensates for small differences and slopes of the laying surface creating a perfectly stable and flat paved surface and, where necessary, with the required slope for better water drainage. In the case of installation on a waterproofing membrane, the membrane is easily accessible and inspectable, as the flooring is simply placed on the supports.



EXCELLENT COMPRESSION AND EXPANSION ABSORPTION CHARACTERISTICS

The decoupling of the flooring and the supports assists the absorption of the structural movements and expansion.



GREAT FOR HIDING PIPES AND WIRING

The gap between the floor and the membrane below, allow for the passage of pipes and wiring that are hidden yet easily accessible.



BETTER ACOUSTIC INSULATION

Thanks to its anti-slip and anti-noise head, the adjustable Eterno Ivica support is able to reduce the sound level to 25dB.



FAST AND ECONOMIC

The speed of installation ensures considerable advantages in the management of the site, with a considerable economic saving; in the case of a renovation, the limited intervention time also reduces inconvenience for the inhabitants.

enables the underfloor to be inspected easily and guarantees an effective draining of rainwater. Thanks to the presence of independent elements, elevated floors absorb expansion and structural



RAPID DRAINING OF WATER

The small joint between the tiles, allows for a quick run-off of the water, that is then drained through the slope of the floor base below. We recommend installation with a minimum joint of 3 mm. So as to have optimal draining of the elevated floor it is important to prepare the necessary slopes during installation. Usually a slope of between 1.5% and 2% allows good rainwater drainage. The Cotto d'Este 20 mm outdoor porcelain stoneware tile has practically negligible water absorption values and is therefore frost resistant. Even in a professional installation these characteristics can lead to water stagnation near the edges of the tiles.



BETTER THERMAL INSULATION

The gap between the floor and the membrane below, favours a constant flow of air which improves thermal insulation and the lifetime of the waterproofing membrane.



SIGNIFICANT WEIGHT REDUCTION

By eliminating the cement screed, the elevated system reduces substantially the weight on the structure and reduces costs.



HIGH RESISTANCE TO LOADS

The experience in formulating the compound and the continuous threading between base and screw give the support structure strength, safety and durability.

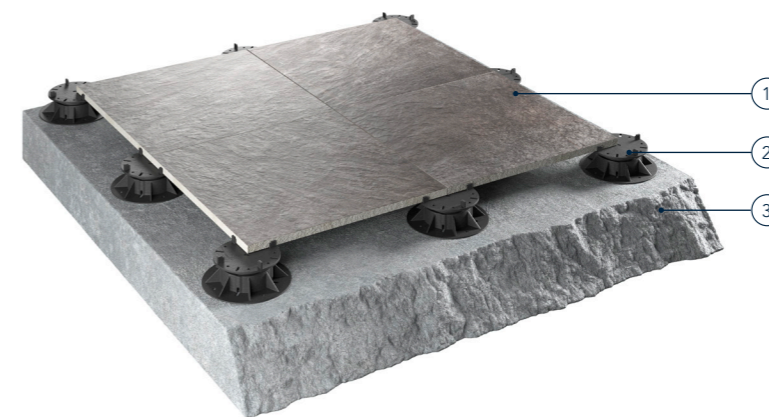


ECO-FRIENDLY

Both the elements of the flooring and the supporting substructure are recyclable: at the end of the life of the building and/or the floor, they can be easily removed and recycled without impacting on the environment. The "dry" installation system does not require the use of adhesives or other chemical products.

movements, thus avoiding the formation of cracks on the waterproof membrane. The absence of the screed makes it possible to

substantially reduce the weight that burdens the structures, while offering a high resistance to loads.



- ① Outdoor 20 mm porcelain stoneware tile
- ② Fixed or adjustable support
- ③ Screed (15/25 cm thickness)

FOR THE OPTIMAL DRAINAGE OF RAINWATER, THE ELEVATED FLOORING MUST BE INSTALLED WITH A SLOPE OF BETWEEN 1.5% AND 2%.

CAUTION

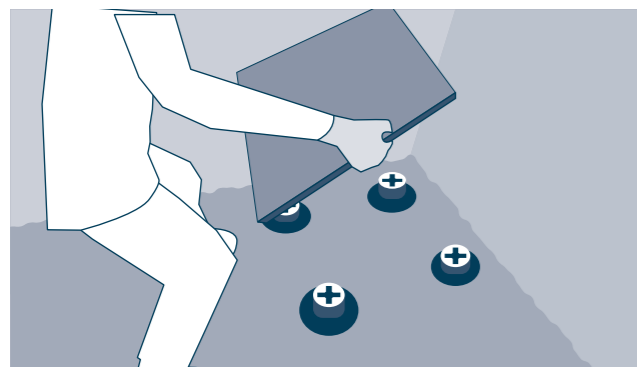
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Elevated floor installation



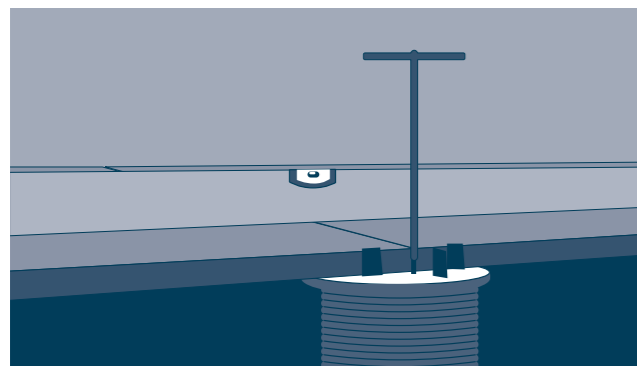
1

The installation on the plastic supports must only been done on perfectly waterproof substrates. Before proceeding with the installation clean the substrate thoroughly.



2

With regard to the number and position of the supports, as well as the type of reinforcement on the back of the slab, it is recommended to follow the instructions given in the following table, which are essential to evenly distribute the load.

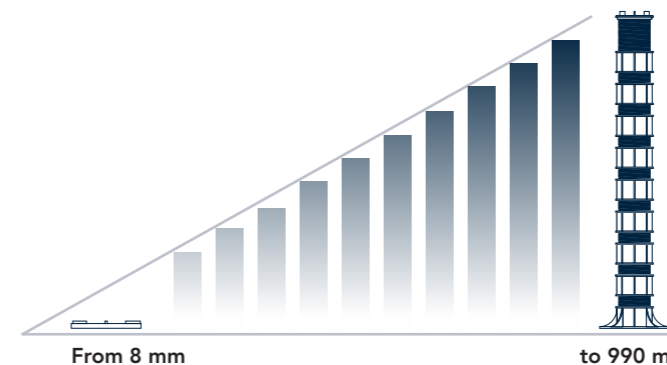


3

With the use of the special adjustment key it is possible to obtain a perfectly stable surface and with the required slope for better water drainage.

Elevated floor installation - Supports

Fixed supports and self-levelling adjustable supports



The structure of the supports consists of a base (which rests on the slab), a central screw adjustable in height and a head (on which the tile rests) which can be fixed or self-levelling with a self-adjustment system to alter inclination by up to 5°.

Technical characteristics of the supports

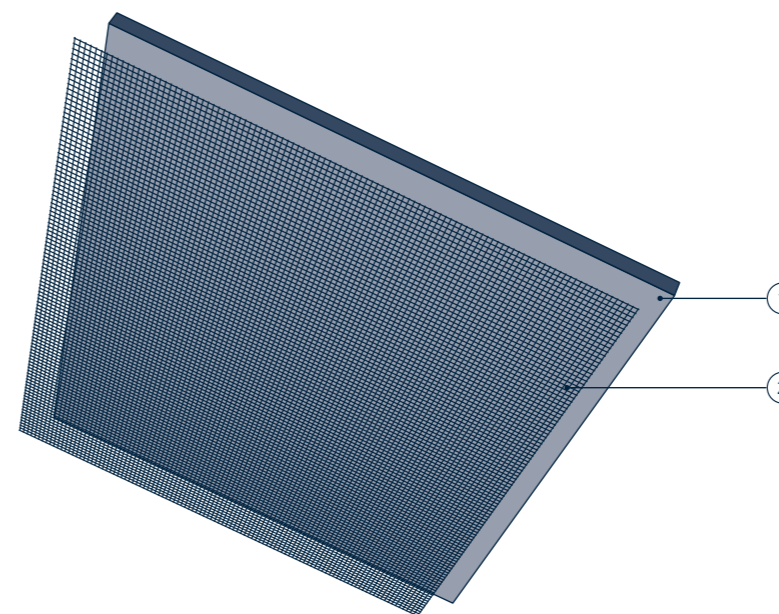
- They are made entirely of recycled and recyclable material
- Resistant to both acidic and alkaline solutions
- Resistant to atmospheric agents
- Resistant to temperatures of between -30 °C and +120°C.
- Resistant to the crushing test with a load superior to 1 tonne
- Made of polypropylene
- Noise reduction of up to 25dB
- Possibility of using supports made with self-extinguishing material, which prevents the propagation of flames

Format	Elevated floor installation up to 2 cm	Elevated floor installation 2-10 cm	Elevated floor installation 10-30 cm	Elevated floor installation 30-99 cm
60x60 cm	4 SUPPORTS 3+4 sup/m ²	4 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²	4 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²	4 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²
75x75 cm	4 SUPPORTS 2+3 sup/m ²	4 SUPPORTS * + Reinforcement system or substructure of aluminium beams 2+3 sup/m ²	5 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²	5 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²
90x90 cm	4 SUPPORTS 2+3 sup/m ²	9 SUPPORTS * + Reinforcement system or substructure of aluminium beams 5+6 sup/m ²	9 SUPPORTS * + Reinforcement system or substructure of aluminium beams 5+6 sup/m ²	9 SUPPORTS * + Reinforcement system or substructure of aluminium beams 5+6 sup/m ²
60x90 cm	6 SUPPORTS 3+4 sup/m ²	6 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²	6 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²	6 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²
60x120 cm	6 SUPPORTS 3+4 sup/m ²	6 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²	6 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²	6 SUPPORTS * + Reinforcement system or substructure of aluminium beams 3+4 sup/m ²

Reinforcement system

For more details on the reinforcement system please contact your sales representative. Cotto d'Este is not responsible for the reinforcing

systems of tiles applied subsequently by third parties, without its supervision. If a tile breaks it must be replaced immediately.



- ① Outdoor 20 mm porcelain stoneware tile
- ② Reinforcement system

Aluminium beam substructure



Ceramic tiles for outdoor use are a type of flooring with great appeal and a strong aesthetic impact. The elevated installation system on aluminium beam substructure ensures excellent results in terms of safety, installation speed and stability of the walking surface. The head of the support accommodates the aluminium beam thanks to the polypropylene fins, which fit into the special rail that runs along the entire length of the beam itself; the fastening is snap-on, carried out in a simple and reliable way. The choice of substrates depends on the size of the tiles. This system can also be used for multi-format installation.

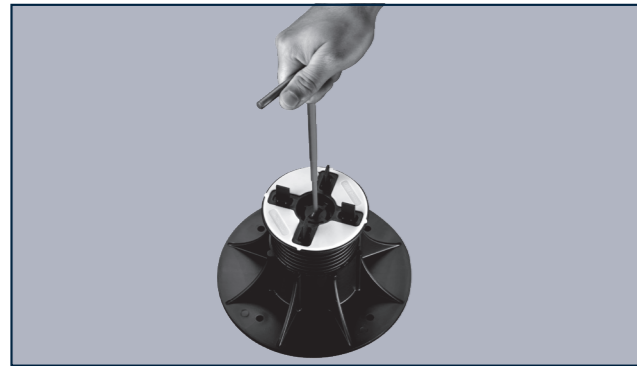
* For the North American market only, contact Cotto d'Este

Adjustment key



1

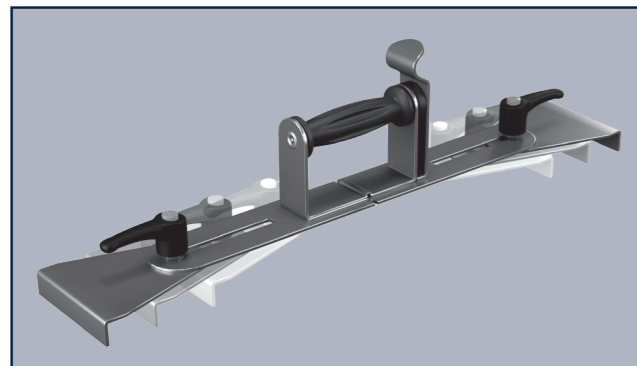
The adjustable supports offer multiple solutions to compensate for small imperfections and large slopes on any laying surface and to create perfectly stable floors with the correct slope.



2

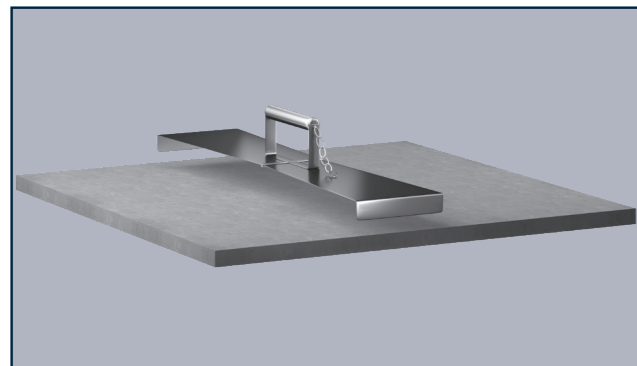
The unique adjustment key is an essential element of the system as it also allows the readjustment of the supports (and consequently the floor above) even with a finished floor, without having to lift the tile.

Tile installation handle

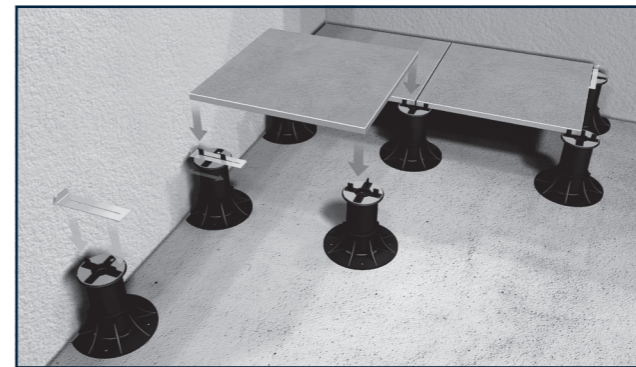


3/4

The handle is equipped with two 4 mm thick side hooks, so that it can be inserted between the joints and easily lift the tiles that are already laid. Available in different sizes, the practical galvanized steel handle facilitates the installation and maintenance of elevated floors.

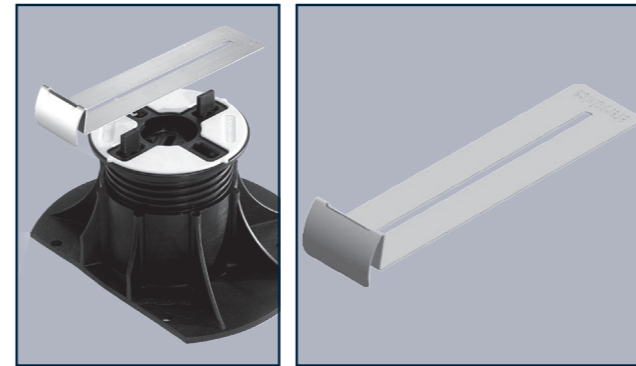


Perimeter spacer



5

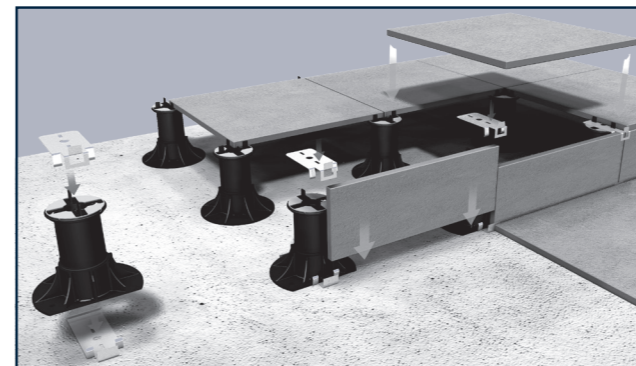
The stainless steel tile edge clip prevents contact between the tiles and the external perimeter wall and gives stability to the flooring. It is equipped with a dampener for longitudinal and transversal expansion and a safe hooking system to allow a linear and elegant perimeter joint.



6/7

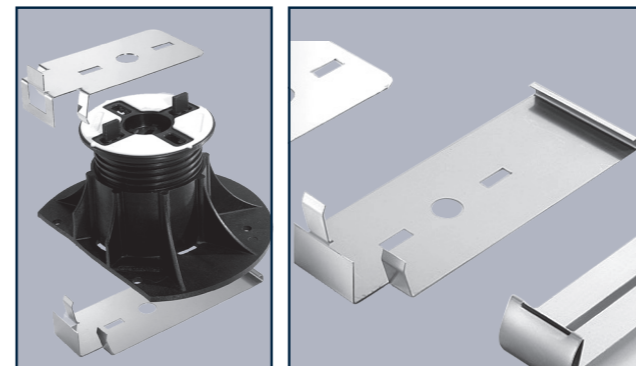
INSTRUCTIONS FOR INSTALLATION
The tile edge clip must be positioned on the head of the support, regardless of whether the base is whole or grooved and regardless of the tile size. The clips should be positioned on all the supports on the perimeter of the flooring.

Vertical infill clip



8

Clips for vertical infill are indispensable accessories for the professional finishing of the open edges of elevated floors next to steps. This innovative solution consists of two complementary elements - a "head" and a "base" - which are positioned without additional fasteners respectively at the upper and lower ends of the supports located at the perimeter.

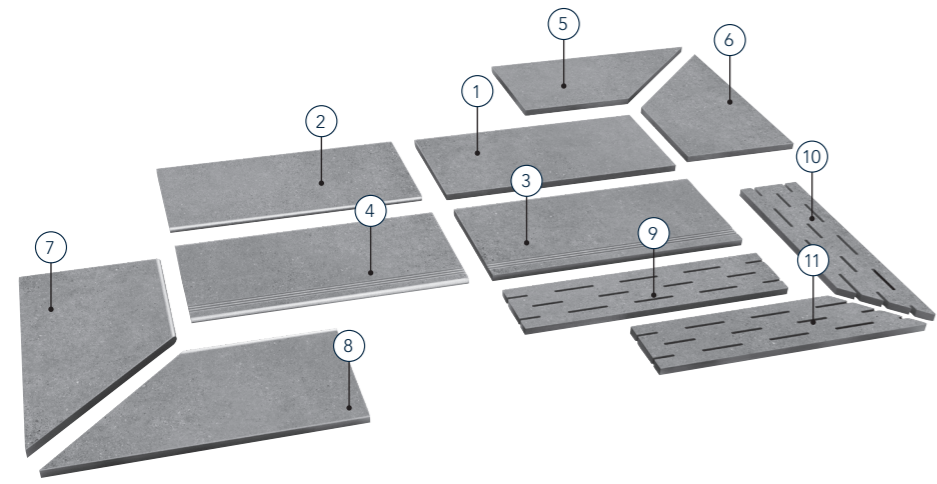


9/10

The flexibility of the hooks allows for easy adjustment according to the thickness of the material, making it possible to use recycled tiles already present on site to cover the step edge. To apply the clips it is necessary to remove 1/4 of the base of the support. Caution: vertical infill clips (both head and base) are not load-bearing elements.

In order to guarantee excellent aesthetics and functionality for the various possible applications, the 20 mm outdoor porcelain stoneware tile

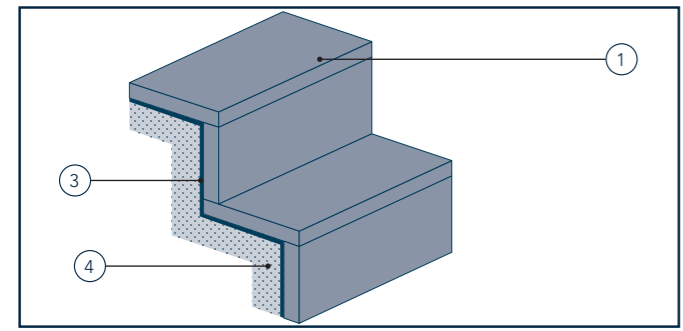
collections have a rich set of step elements and special pieces.



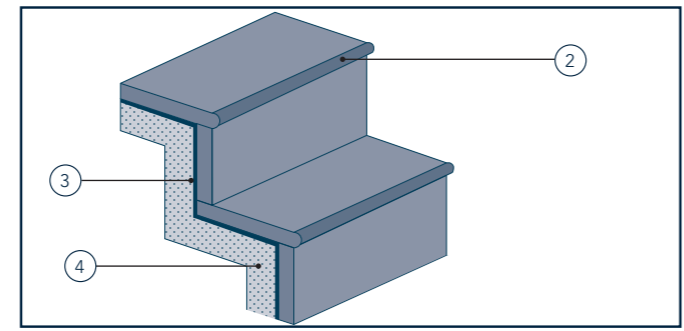
- ① Stair tile with straight edge
- ② Stair tile with rounded edge
- ③ Stair tile with straight ribbed edge
- ④ Stair tile with rounded ribbed edge
- ⑤ Right corner piece with straight edge
- ⑥ Left corner piece with straight edge
- ⑦ Left corner piece with rounded edge
- ⑧ Right corner piece with rounded edge
- ⑨ Grid
- ⑩ Right corner grid
- ⑪ Left corner grid

For the full range of special elements refer to the product catalogues.

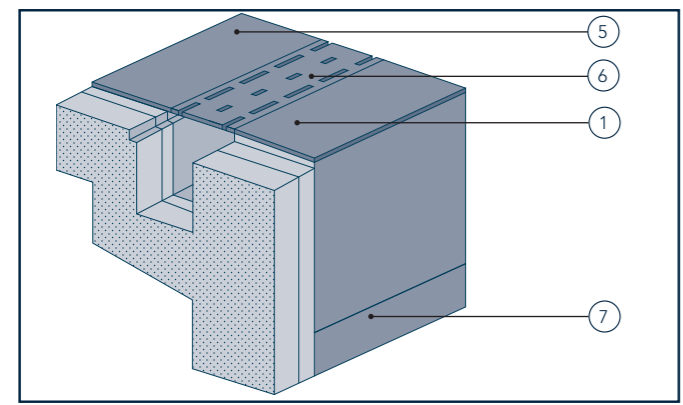
STAIR TILE WITH STRAIGHT EDGE



STAIR TILE WITH ROUNDED EDGE



SWIMMING POOL EDGE



- ① Stair tile with straight edge
- ② Stair tile with rounded edge
- ③ Adhesive
- ④ Screed
- ⑤ Flooring
- ⑥ Grid
- ⑦ Swimming pool covering

CAUTION

The images are to be taken as an indication, and have the sole purpose of showing how to obtain a correct flooring. It is recommended to always refer to the specific norms and regulations in each individual country and the instructions of the Project Supervisor.

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