

# APPLICATION SOLUTIONS FOR 20MM PRODUCTS

TECHNICAL MANUAL



# 20mm

## Extra thick porcelain tile

AN EVOLUTION FOR INNOVATIVE FLOORINGS

The 20 mm thick ceramic tile collection by Ceramica Panaria, combine beauty and high technical performance. The result is an excellent solution that for endless outdoor applications.

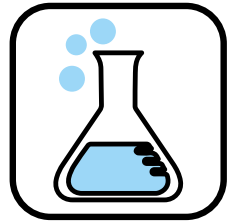
The high technical characteristics are a timeless guarantee of the resistance of the product. The high resistance to heavy loads makes the product, when fixed to a solid substrate with adhesives, suitable even for vehicular passage.

It is also resistant to frost and thermal shock, mould, stains and salt. The product has excellent non-slip characteristics and it is easy to clean. It is structurally and chromatically resistant in time.

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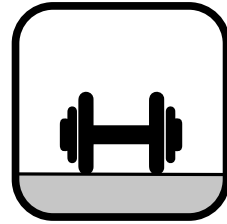
## VERSATILE, RESISTANT AND FUNCTIONAL



Resistant to stains, acids and chemical agents



Resistant to thermal shock



Resistant to heavy loads



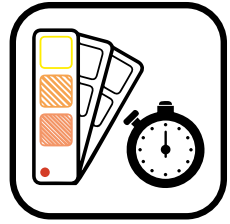
Resistant to salt



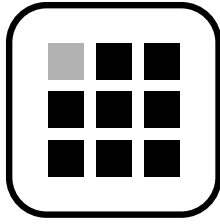
Frost-resistant and fire-proof



Non-slip



Colours remain stable over time



Easy to install



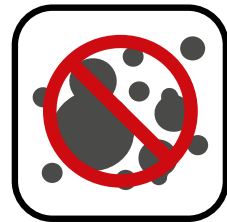
Easy to clean



Resistant to vehicular passage (installed on screed)



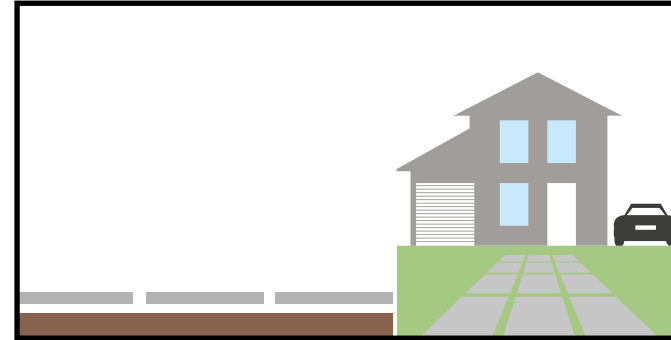
Can easily be removed, inspected, reused and is eco-friendly



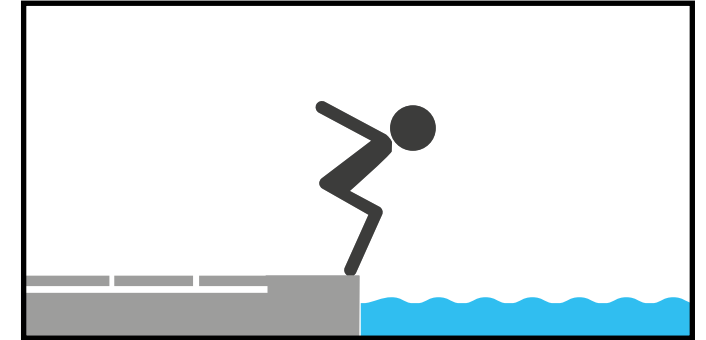
Resistant to mould and bacteria

## INTENDED USES

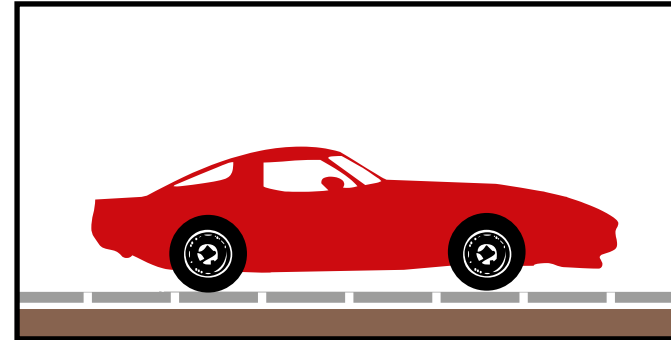
The characteristics of the product and the ease of installation, both with or without adhesive (dry installation on grass, gravel, or elevated floors), make the 20 mm thick porcelain tile by Ceramica Panaria the best solution for external flooring of public and residential areas, such as urban spaces, pavements, garden paths, car parks, terraces, swimming pool edges, bathing facilities, parks and much more. The best solution to match external and internal spaces.



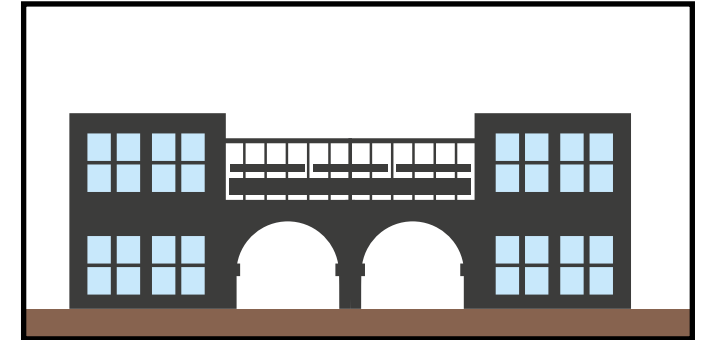
Walkways



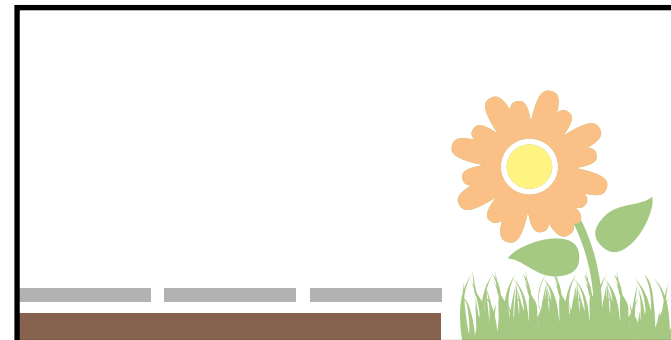
Garden paths and swimming pools



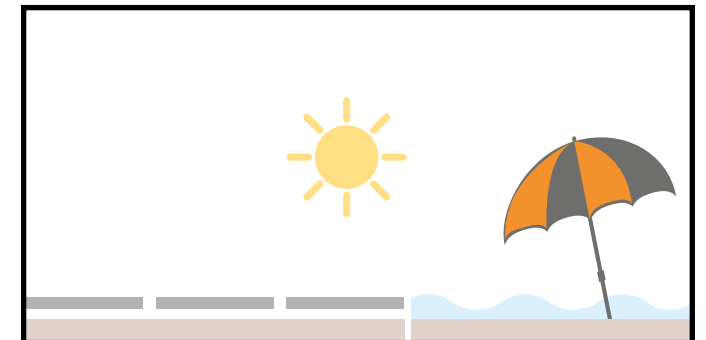
Car parks



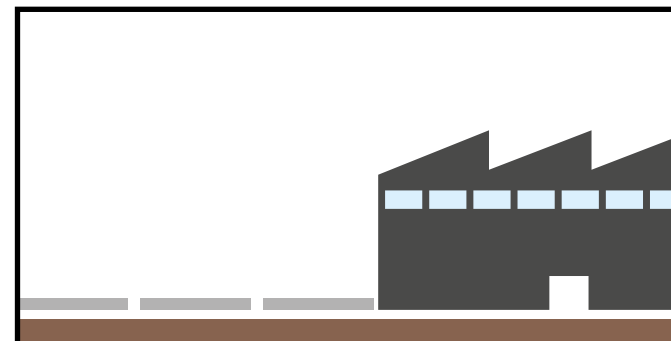
Terraces



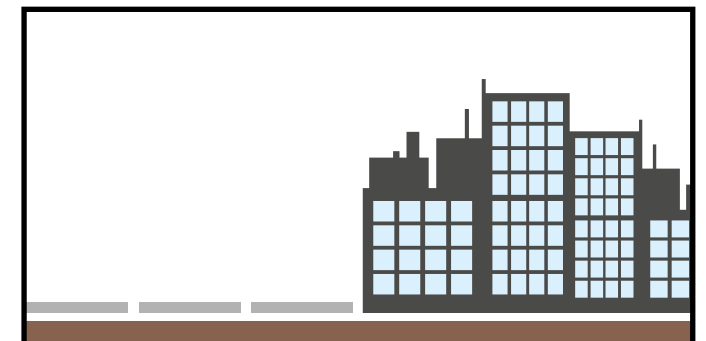
Public parks and gardens



Bathing facilities



Industrial zones



Urban areas



## USES: LAYING SOLUTIONS

The Ceramica Panaria 20 mm porcelain tile is an innovative solution that is very versatile due to the numerous laying possibilities it offers: dry installation on grass or gavel, adhesive-based laying and installation for elevated floors.



### DRY INSTALLATION ON GRASS

- Easy to lay, and adjust or move
- Ideal solution for public parks and private gardens.



For further information [read chap. 3.1](#)



### DRY INSTALLATION ON GRAVEL

- Easy to lay, and adjust or move
- Aesthetic features ideal for enhancing contemporary buildings.



For further information [read chap. 3.2](#)



### INSTALLATION ON SCREED WITH ADHESIVE

- Driveway paving
- Matching interior and exterior areas.



For further information [read chap. 3.3](#)



### ELEVATED FLOOR INSTALLATION

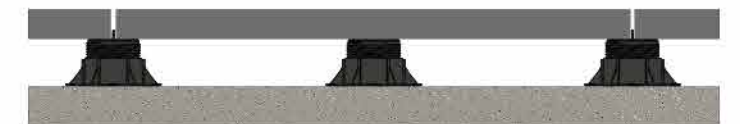
#### ON A FIXED SUPPORT

- Can easily be removed, inspected, reused.



#### ON AN ADJUSTABLE SUPPORT

- Can easily be removed, inspected, reused.
- Available for different kinds of support.
- Ideal for hiding from sight wiring and pipes, while keeping them easily accessible.



For further information [read chap. 3.4](#)

### CAUTION

- When carrying out an elevated floor installation it is a good idea to check the specific intended use and to follow the installation directions detailed in chapter "4.4 - Instructions for elevated floor installations: sizes, supports and reinforcement systems".
- In the case of external dry installations, the force of the wind, in particular types of applications or geographical locations, can cause the lifting of the slabs. It is recommended that the designer/client always check the suitability of the installation system selected according to local regulations in force.

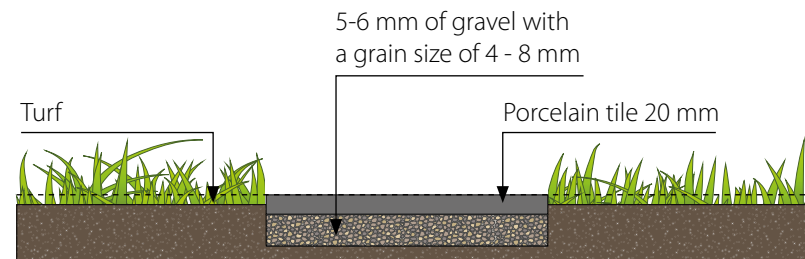
Failure to follow the above recommendations may result in misuse of the product and cause injury to persons and/or damage to property.

### 3.1 - Dry installation on grass

#### LAYING STEPPING STONES

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

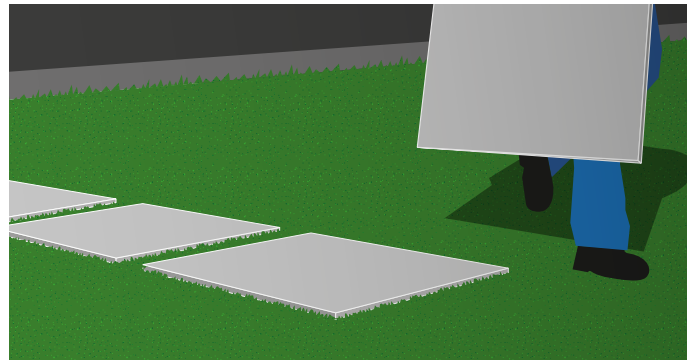
It is better to lay the surface of the tiles in line with the turf to avoid damaging lawn mowers.



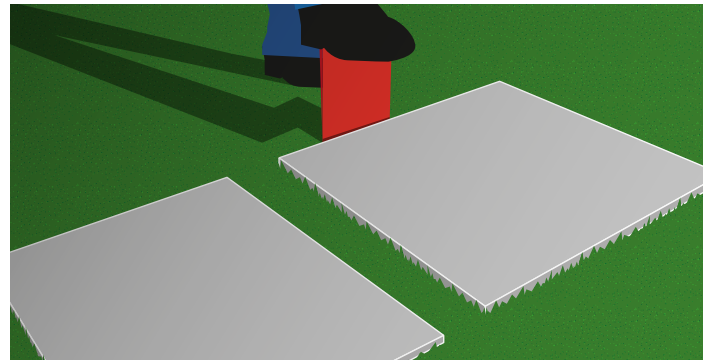
The application layers proposed hereunder are to be taken as an indication, and have the sole purpose of explaining how to obtain a correct flooring. It is recommended to always refer to the specific norms and regulations in each individual country and the instructions of the design team.

#### NECESSARY MATERIALS FOR LAYING ON GRASS

Shovel, fine gravel (grain size 4/8 mm), trowel with square tip, rubber mallet, work gloves and lifting tong.



Position the 20 mm tiles on the ground to determine their correct positioning, making sure that they are equidistant.



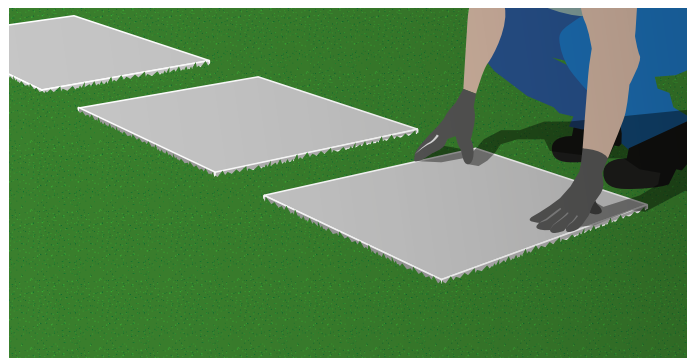
Mark the perimeter of the 20 mm tile using a spade in the soil.



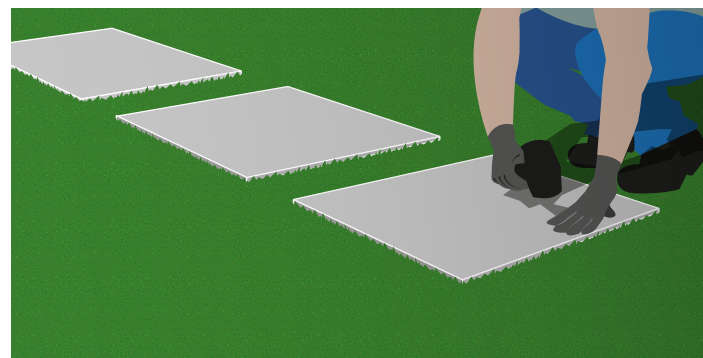
Remove the turf and dig out about 5 cm of soil.



Form a stable and uniform substrate using fine gravel (grain size 4/8 mm).



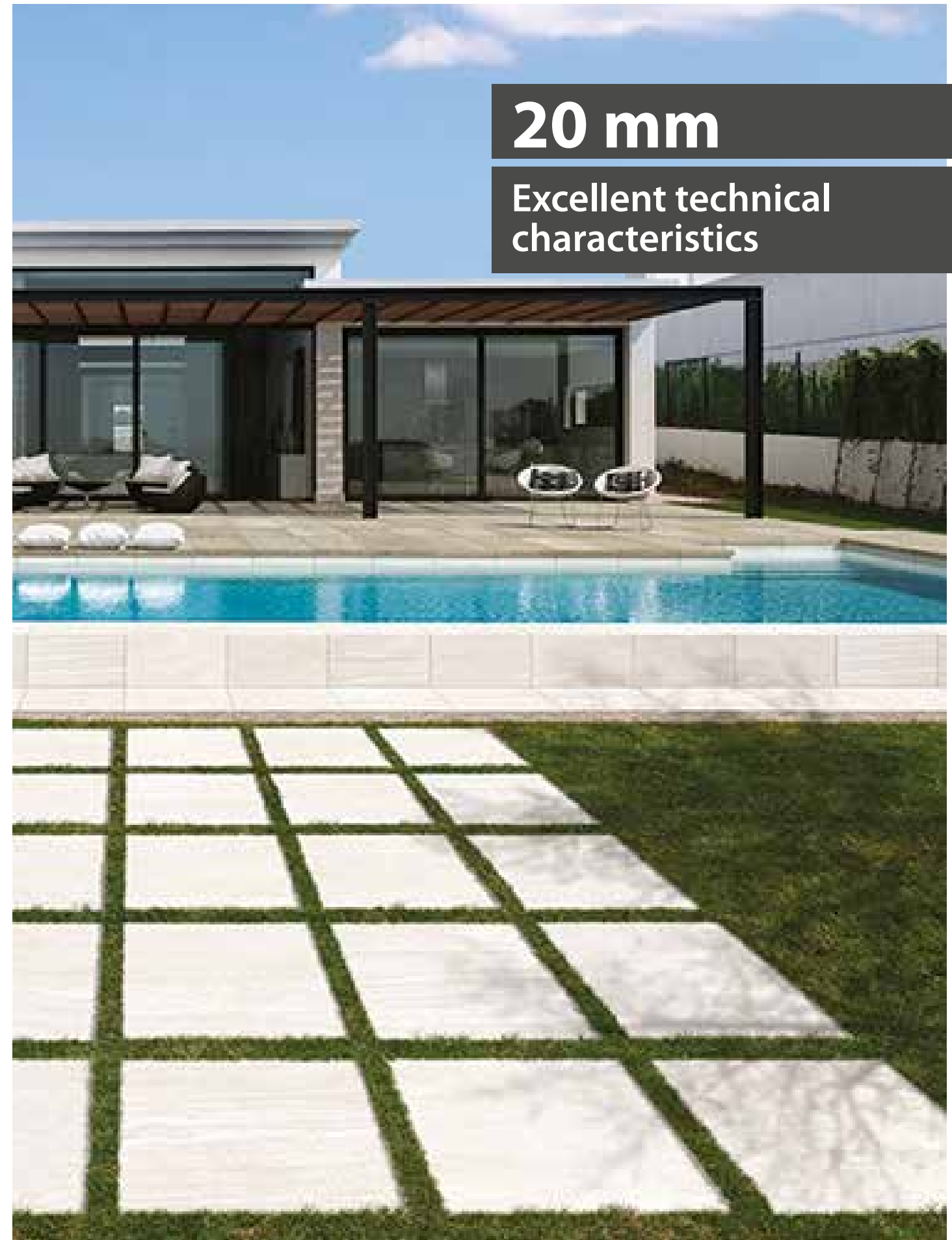
Lay the 20 mm tile, so as to have an approximately 0.5 cm level difference, between the tile and the ground.



Using a rubber mallet hammer the edges until the 20 mm tile is at the same level as the grass.

# 20 mm

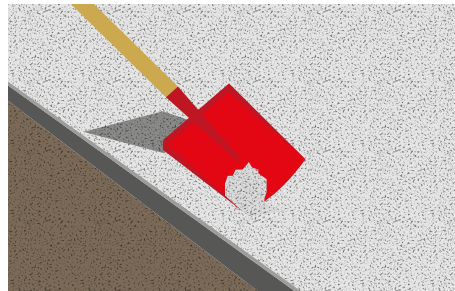
## Excellent technical characteristics



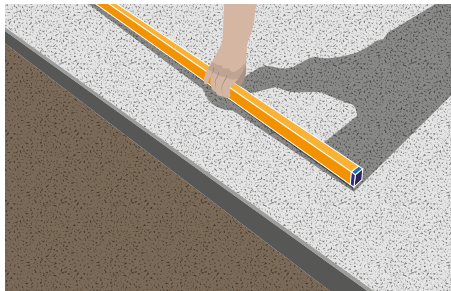


### 3.2 - Dry installation on gravel

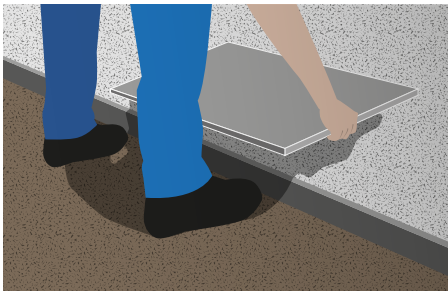
The application layers proposed hereunder are to be taken as an indication, and have the sole purpose of explaining how to obtain a correct flooring. It is recommended to always refer to the specific norms and regulations in each individual country and the instructions of the design team.



Form a stable and uniform substrate using fine gravel (grain size 4/8 mm).

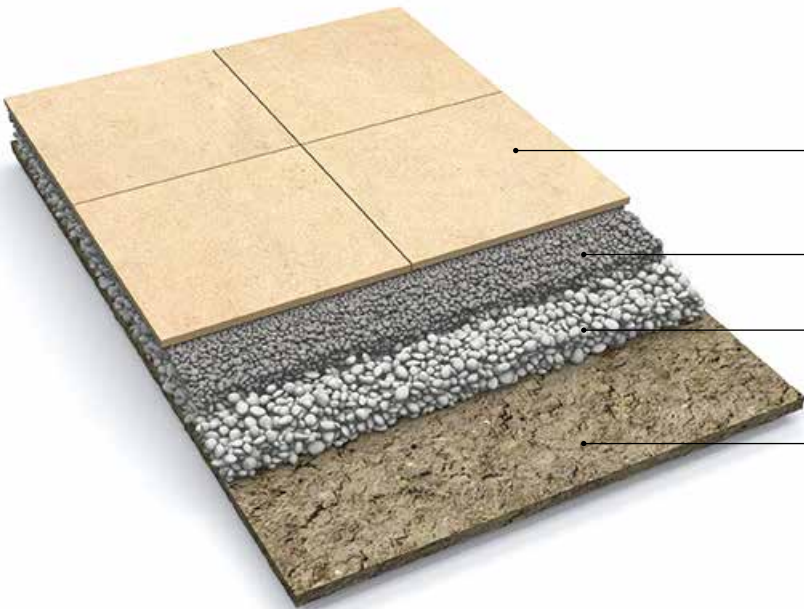


Level the substrate with a metal straight-edge.



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

#### GRAVEL (GROUND/SOIL)



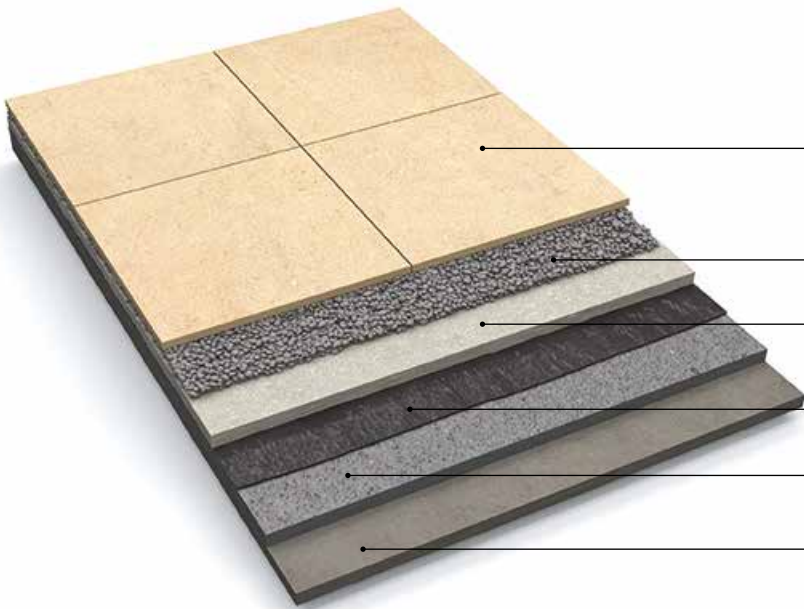
Ceramica Panaria 20 mm porcelain tile

5-6 cm of gravel with a fine grain size 4/8 mm

Draining layer

Ground

#### GRAVEL (FLOOR) LAYING ON FLAT HARD SURFACES



Ceramica Panaria 20 mm porcelain tile

Ballast (5-6cm of gravel with grain size 4/8 mm)

Separation layer or drainage membrane

Waterproof layer

Sloped screed

Floor base



20 mm  
Infinite applications

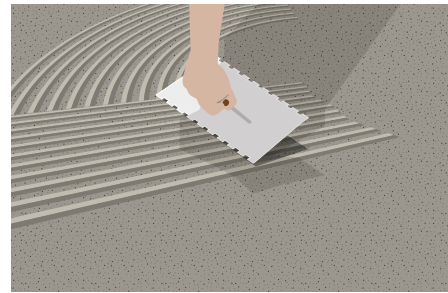


### 3.3 - Installation on screed with adhesive

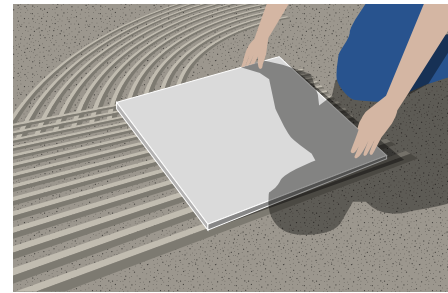
The application layers proposed hereunder are to be taken as an indication, and have the sole purpose of explaining how to obtain a correct flooring. It is recommended to always refer to the specific norms and regulations in each individual country and the instructions of the design team.



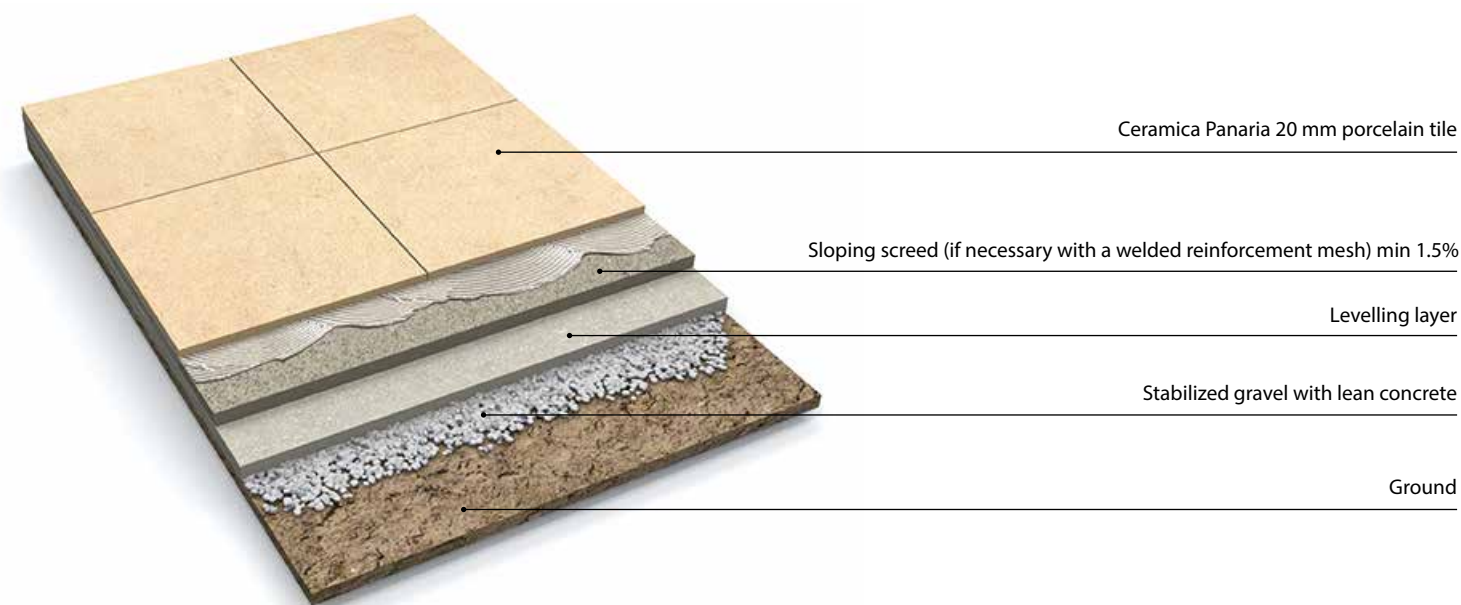
Before proceeding with the installation clean the substrate thoroughly.



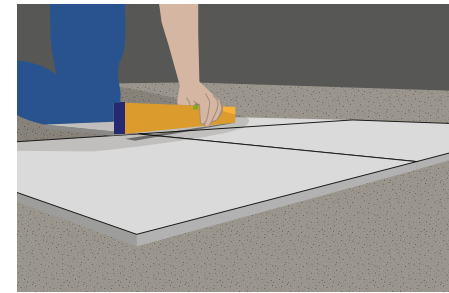
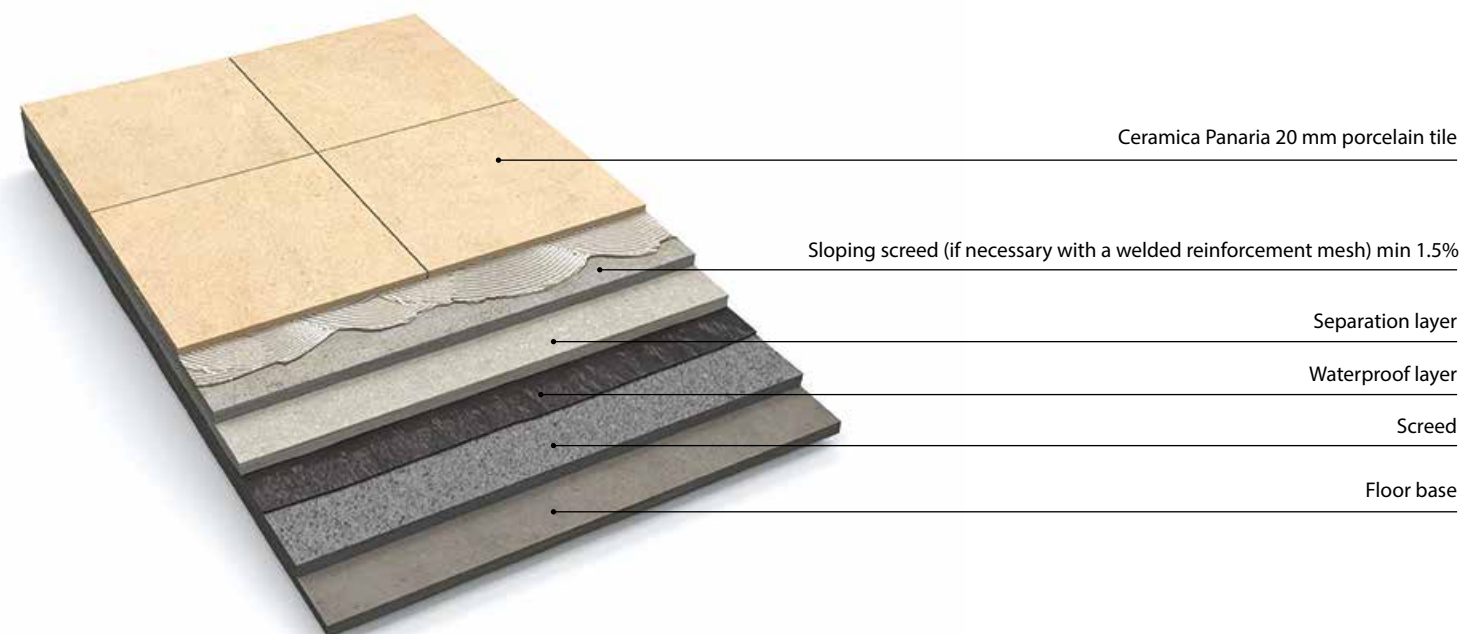
For a planar end result, it is important to apply a homogeneous layer of adhesive.



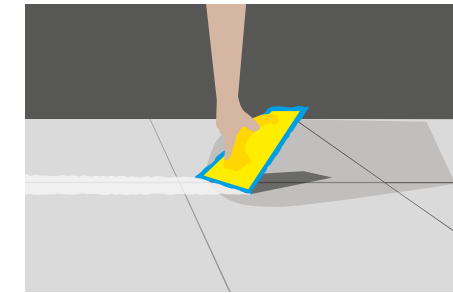
#### SCREED (GROUND)



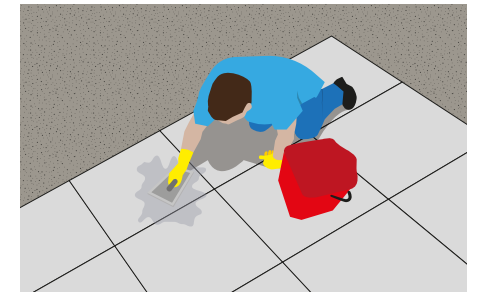
#### SCREED (FLOOR BASE) LAYING ON FLAT SURFACES



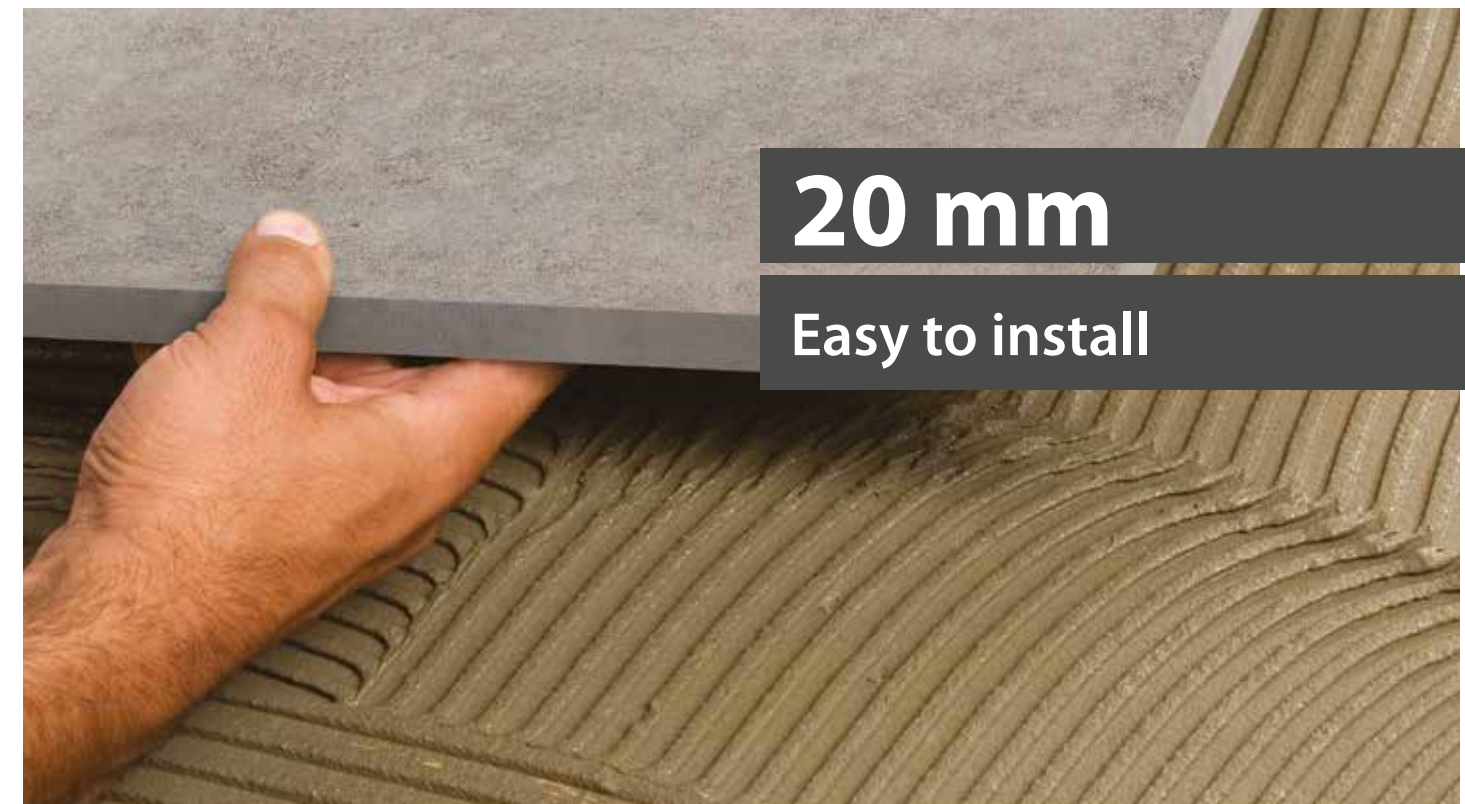
Check the planarity of the flooring during the laying operations.



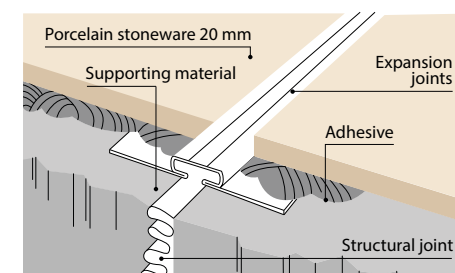
Once the installation is finished, grout the flooring. Remember to observe the times indicated by the manufacturer for light foot traffic before walking on the tiles.



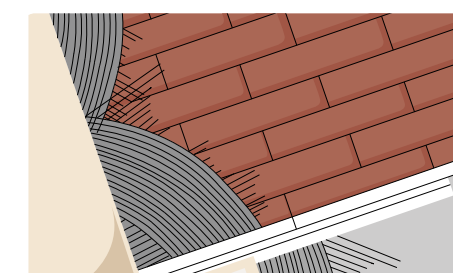
"Post-laying" cleaning helps remove residues of grout-joints, cement and lime. It is mandatory at the end of the floor installation process. Refer to the information in the Ceramica Panaria general catalogue.



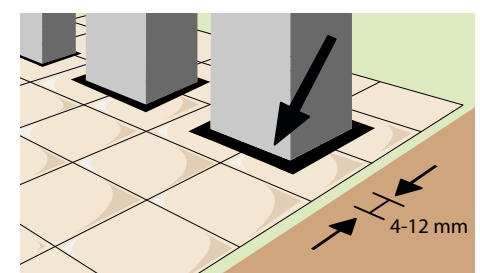
For external installation on screed with adhesive we recommend a joint of at least 5 mm. The size and position of the expansion joints must be established by the installation supervisor. Indicatively they must have a width of between 4 and 12 mm, and divide the surface into regular areas indicatively with sizes ranging from 3x3 m to 4x2.5 m.



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 (e.g. between reinforced concrete and other paving), **it is mandatory** to provide an expansion joint.



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



3.4 - Elevated floor installation

ELEVATED FLOORS (HARD BASE) LAYING ON FLAT SURFACES

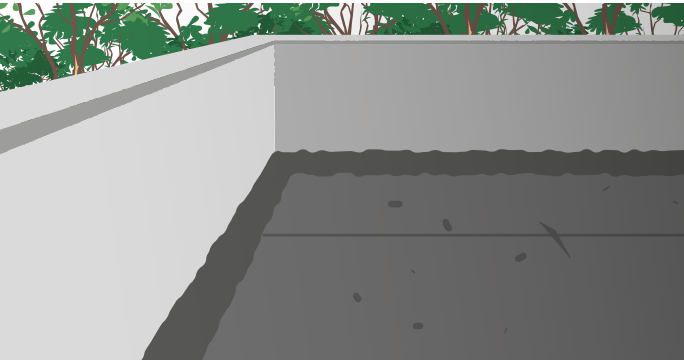
The application layers proposed hereunder are to be taken as an indication, and have the sole purpose of explaining how to obtain a correct flooring. It is recommended to always refer to the specific norms and regulations in each individual country and the instructions of the design team.

So as to have optimal draining of the elevated floor it is better to prepare the necessary slopes during installation of the base.

It is important to note that Ceramica Panaria porcelain tiles have extremely low water absorption rates and are therefore completely frost resistant. These characteristics may result in stagnation of water close to the edges of the tiles, even if the installation is done perfectly. We recommend installation with a minimum joint of 3 mm.

NECESSARY MATERIALS FOR ELEVATED FLOOR INSTALLATION

Adjustable support, adjustment key, lifting tongs, a spirit level, a broom and dustpan.



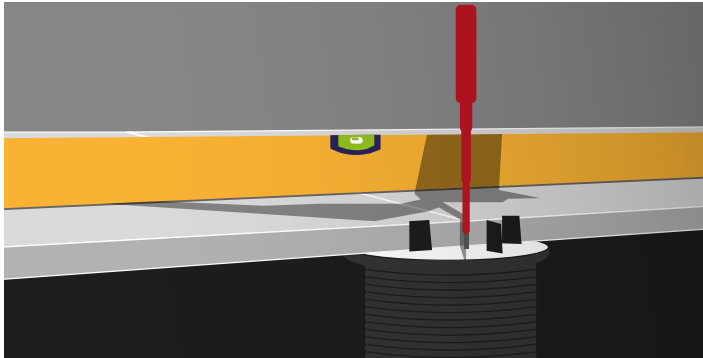
The installation on the plastic supports must only been done on perfectly waterproof substrates.



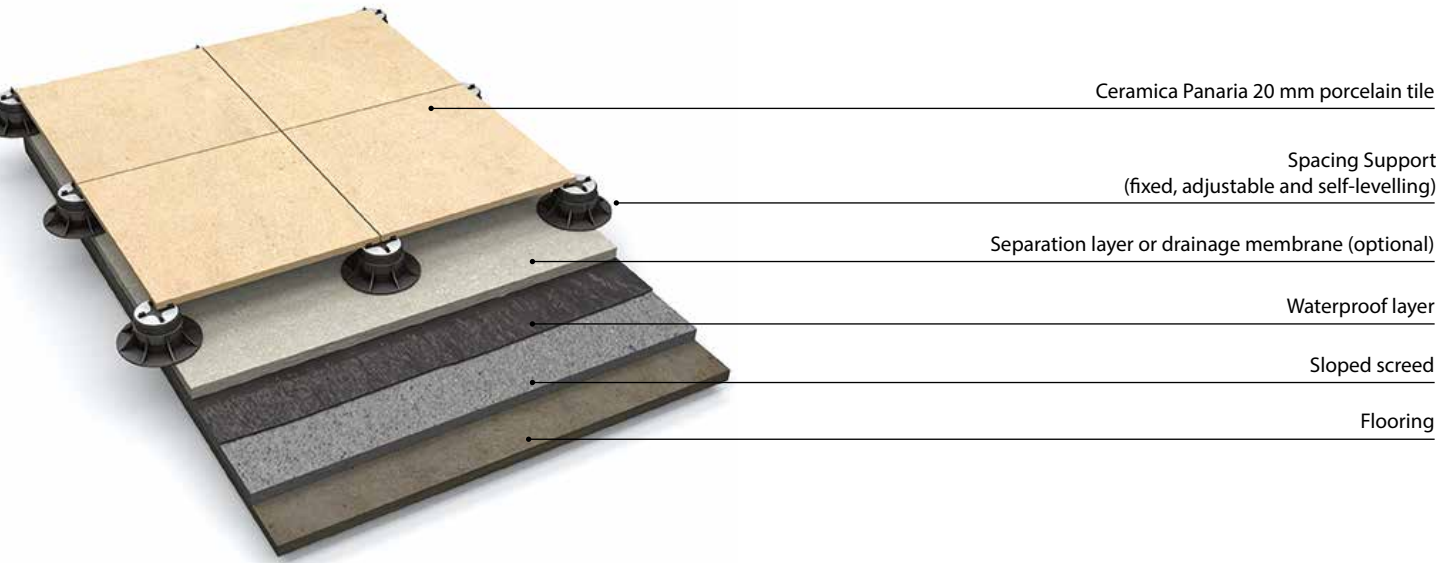
Before proceeding with the installation clean the substrate thoroughly.



It is recommended to use a fifth central support on the 60 x 60 tile, so as to distribute the loads equally.



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



20 mm  
Open air design

TECHNICAL CHARACTERISTICS OF THE SUPPORTING ELEMENTS	
	THE SUPPORTING ELEMENTS ARE PRODUCED IN MATERIAL THAT IS RECYCLED AND RECYCLABLE
	RESISTANT TO BOTH ACIDIC AND ALKALINE SOLUTIONS
	RESISTANT TO ATMOSPHERIC AGENTS
	RESISTANT TO TEMPERATURES FROM -30 °C TO +120°C
	THE SUPPORTS COMPLY WITH THE D.T.U. 43.1
	RESISTANT TO THE CRUSHING TEST WITH A LOAD SUPERIOR TO 1 TONNE
	SYNTHETIC RESIN ( POLYPROPYLENE )





## 3.4 - Elevated floor installation

### THE ADVANTAGES OF ELEVATED FLOORS



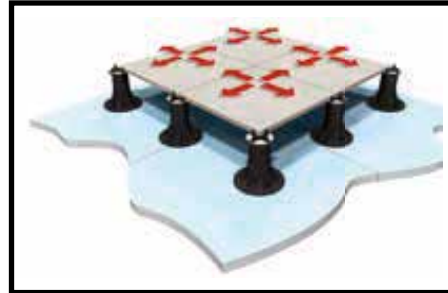
#### Great for hiding pipes and wiring

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



#### Better thermal insulation

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



#### Excellent compression and expansion absorption characteristics

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



#### High resistance to loads

The robust structure of the support, that is due to both the experience required to formulate the chemical compound, as well as to the continuous thread, guarantees a strong, safe and long lasting product.



#### Flooring which is always 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 waterproofing membrane, the membrane is easily accessible and inspectionable, as the flooring is simply placed on the supporting elements.

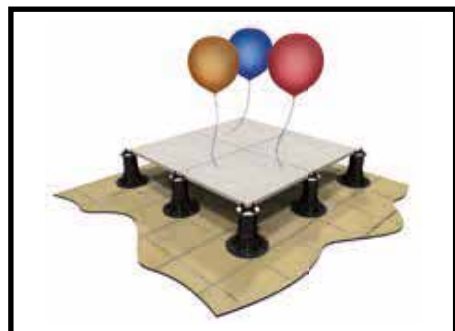


#### Rapid draining of water

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.

It is important to note that Ceramica Panaria porcelain tiles have extremely low water absorption rates and are therefore completely frost resistant. These characteristics may result in stagnation of water close to the edges of the tiles, even if the installation is done perfectly.



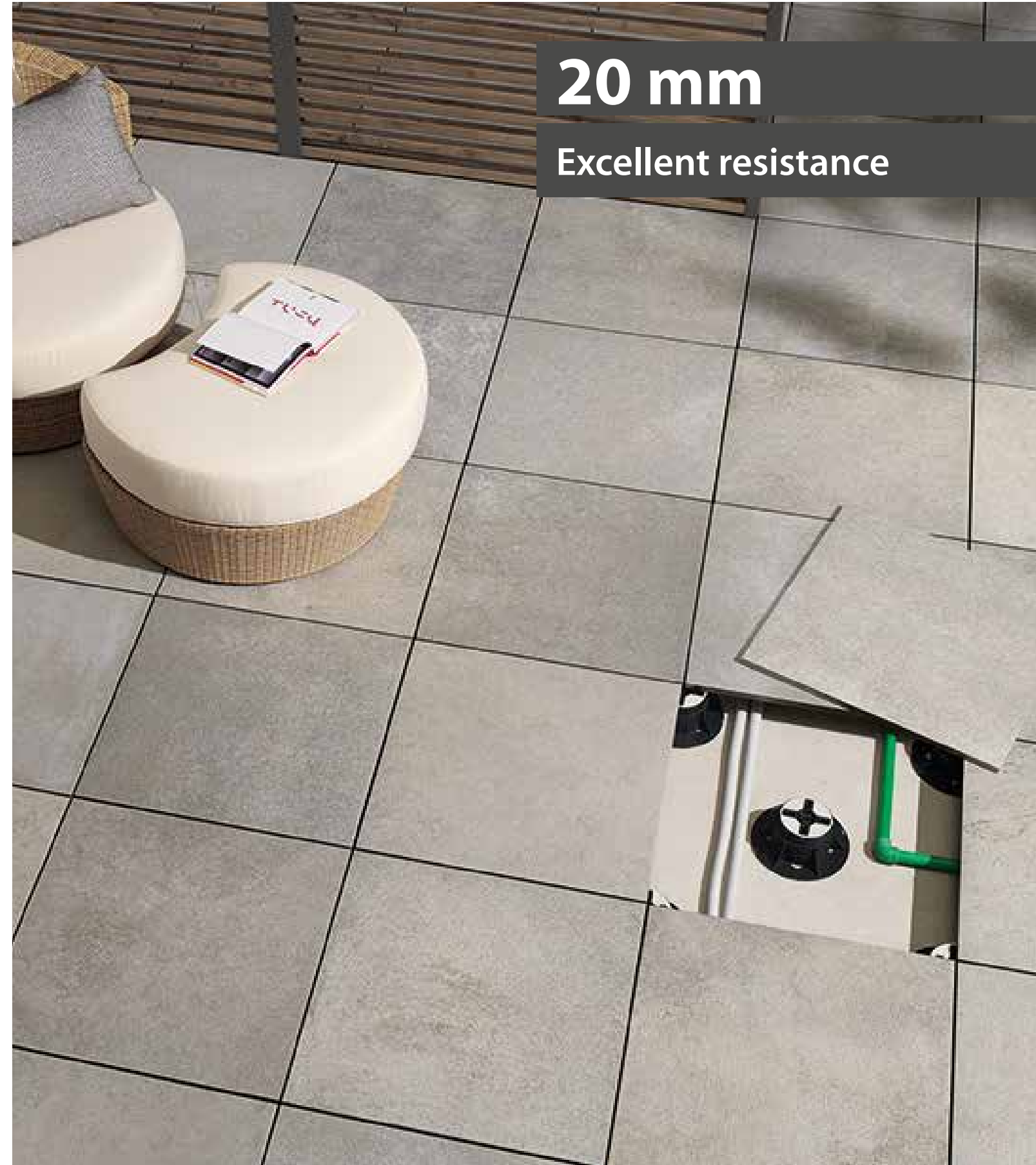
#### Significant weight reduction

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



#### 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.



## SUPPORTING ELEMENTS

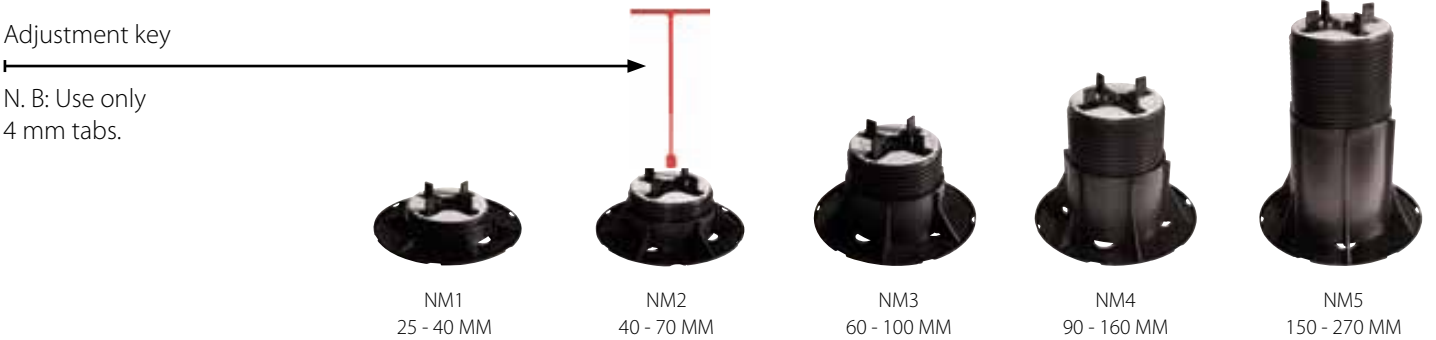
### 4.1 - Fixed supports

Discs of varying thickness that allow the laying of elevated floors in the following heights: 8, 12, 15 or 20 mm.



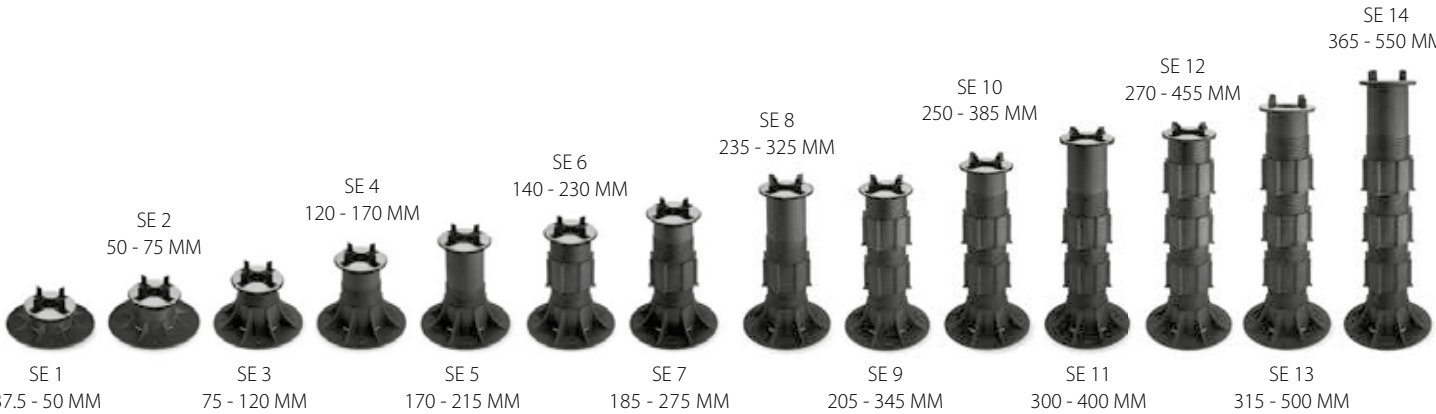
### 4.2 - Adjustable supporting elements

Adjustable element with a range of 25 to 270 mm. An adjustable system, integrated in the head of the support and accessible from above, allows for an easy height adjustment without removing the tile.



### 4.3 - Adjustable self-levelling supporting elements

Structure consisting of a base placed on the floor base, a central height adjustable screw and a self-levelling head, on which the panel is placed. This element includes a self-adjusting levelling element with a maximum inclination of 5 °.



### 4.4 - Instructions for elevated floor installations: sizes, supports and reinforcement systems

Format	Elevated floor installation up to 2 cm	Elevated floor installation 2-10 cm	Elevated floor installation 10-30 cm	Elevated floor installation 30-55 cm
<b>60x60 cm</b> <b>24"x24"</b> 	<b>4 SUPPORTING ELEMENTS</b> 3÷4 pz/mq 	<b>5 RECOMMENDED SUPPORTS</b> 6÷7 pz/mq 	<b>4 SUPPORTS + REINFORCING MESH</b> 3÷4 pz/mq 	<b>4 SUPPORTS + DOUBLE REINFORCING MESH</b> 3÷4 pz/mq 
<b>45x90 cm</b> <b>18"x36"</b> 	<b>6 SUPPORTING ELEMENTS</b> 5÷6 pz/mq 	<b>6 SUPPORTS + REINFORCING MESH</b> 5÷6 pz/mq 	<b>6 SUPPORTS + DOUBLE REINFORCING MESH</b> 5÷6 pz/mq 	<b>6 SUPPORTS + DOUBLE REINFORCING MESH</b> 5÷6 pz/mq 
<b>30x120 cm</b> <b>12"x48"</b> 	<b>6 SUPPORTING ELEMENTS</b> 6÷7 pz/mq 	<b>6 SUPPORTS + DOUBLE REINFORCING MESH</b> 6÷7 pz/mq 	<b>6 SUPPORTS + DOUBLE REINFORCING MESH</b> 6÷7 pz/mq 	<b>6 SUPPORTS + DOUBLE REINFORCING MESH</b> 6÷7 pz/mq 

For more details about the reinforcing mesh and the double reinforcing mesh contact your Ceramica Panaria sales representative. Ceramica Panaria is not responsible for the reinforcing systems of tiles applied subsequently by third parties, without their supervision.

Please also note that:

- In the case of external dry installations, the force of the wind, in particular types of applications or geographical locations, can cause the lifting of the slabs. It is recommended that the designer/client always check the suitability of the installation system selected according to local regulations in force, in order to prevent injury to persons and/or damage to property.
- In the case of elevated installations, the fall of a heavy object from a given height may cause the breaking of the tile, generating a risk to the safety of people walking or standing on the tile in question.

Failure to follow the recommendations provided in this document regarding the elevated paving installations can cause serious injury to persons and damage to property.

For purchasing information please contact

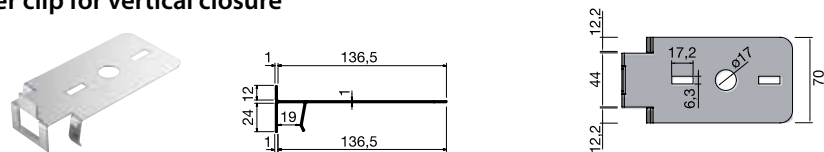
**eterno****ivica** ETERNO IVICA - via Austria, 25/E - Z.I. Sud 35127 Padova  
Tel. +39 0498530154 - [www.eternoivica.com](http://www.eternoivica.com)



## 4.5 - Clip for vertical closure

Our clip for vertical closure is designed to solve a problem typical of many external floors, i.e. how to fill in the vertical gap around the edge when no perimeter wall is present. This solution represents an innovative, easy and elegant way to eliminate gaps around elevated floors. The system consists of two special stainless steel clips that are positioned over the head and under the base of the Eterno Ivica support. It creates a firm support capable of gripping a section of tile cut to size, to fill the gap. The use of our floor edge clip effectively prevents horizontal movement in floor slabs.

### Upper clip for vertical closure



### Lower clip for vertical closure



### INSTRUCTIONS FOR INSTALLATION

The correct installation of the "clip for vertical closure" is performed using two clips (upper and lower). These clips should be used for each support present around the perimeter of the elevated floor area:

- cut the base of Eterno SE or NM pedestal along the precut lines of the base;
- place the lower "clip for vertical closure" under the support;
- remove 2 tabs of the head of the SE or NM pedestal;
- fit the upper "clip for vertical closure" above the head of the support (Figure 1);

- measure the effective height between the clip positioned over the head and the clip positioned under the base;
- cut a portion of tile to be placed in the space, paying particular attention to the dimensions;
- if you need to create an angle, you need to cut two portions of base to create a 90° angle (Figure 2), fit 2 lower "clip for vertical closure" under the support at a 90° angle. Each one of these will support one side of flooring (figure 3). In this case the upper "clip for vertical closure" will be not fixed but only laid on the head at a 90° angle in the same way as

the lower "clip vertical closure" (figure 4/5).

In case of need of more stability for the upper clips, it is recommended to use a self drilling screw to improve mechanical fastening.

- The minimum height to use the upper "clip for vertical closure" combined with the lower "clip for vertical closure" is 5 cm: in case of smaller heights up to a minimum of 2.5 cm only the lower "clip for vertical closure" is necessary.

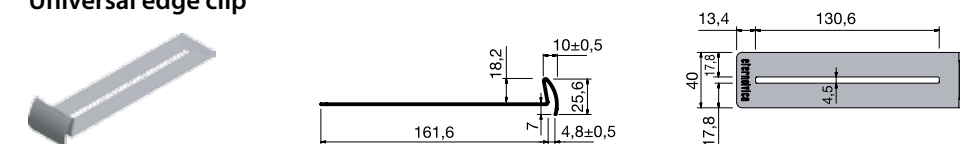


## 4.6 - Universal edge clip

Designed by Eterno Ivica to avoid contact between the tiles of outdoor elevated floors and outside perimeter walls, the universal edge clip is made entirely from stainless steel. It includes a damper to absorb longitudinal and transverse thermal expansion and guarantees a secure grip. Use of these clips ensures a stable floor surface with a straight and elegant perimeter.



### Universal edge clip

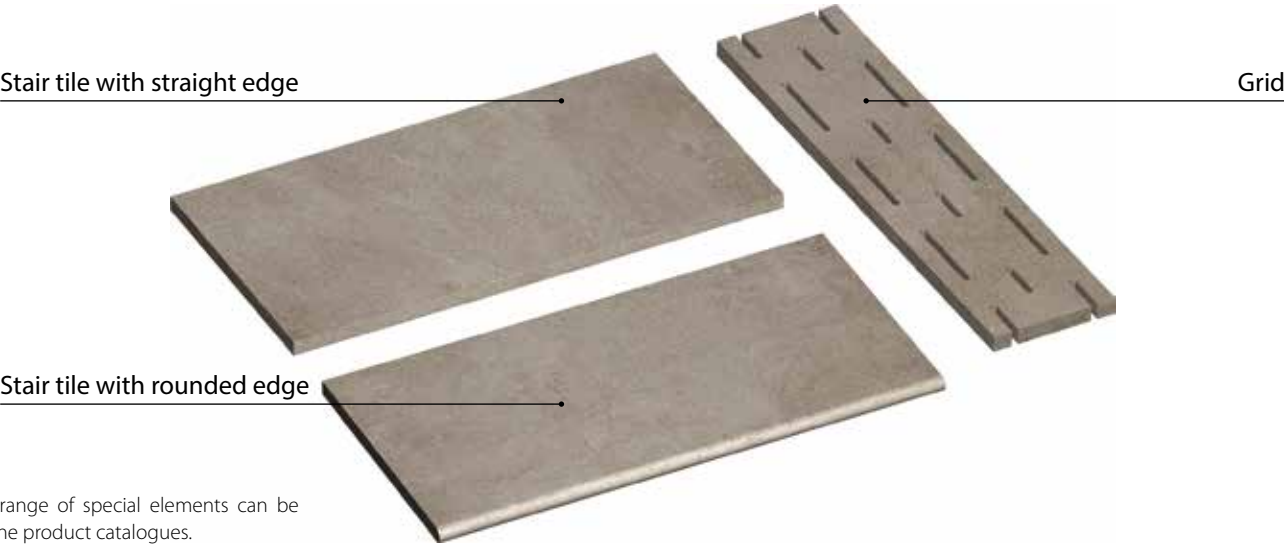


### INSTRUCTIONS FOR INSTALLATION

The "universal edge clip" is installed by simply placing it over the head of Eterno Ivica floor supports (even if these supports have been cut), for any tile thickness. The clips should be positioned one for each pedestal on the perimeter of the area. **CAUTION:** The upper

and lower "clips for vertical closure" are not load-bearing elements. All clips produced by Eterno Ivica, are created to be used **ONLY** with the products of the PEDESTAL range produced by Eterno Ivica Srl. Eterno Ivica Srl disclaims all liability for using its

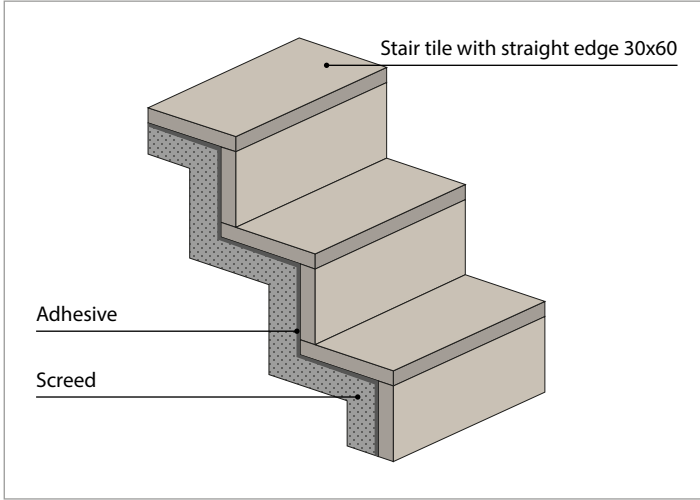
products with other brands or products that are different from those indicated in this data sheet.



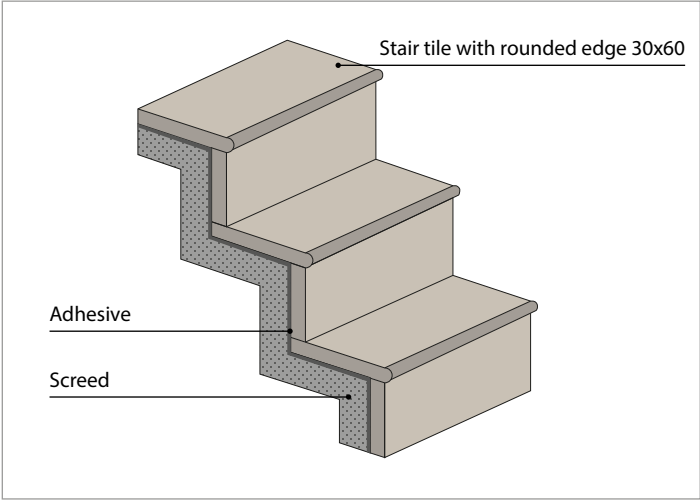
The full range of special elements can be seen in the product catalogues.

The application layers proposed hereunder are to be taken as an indication, and have the sole purpose of explaining 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 design team.

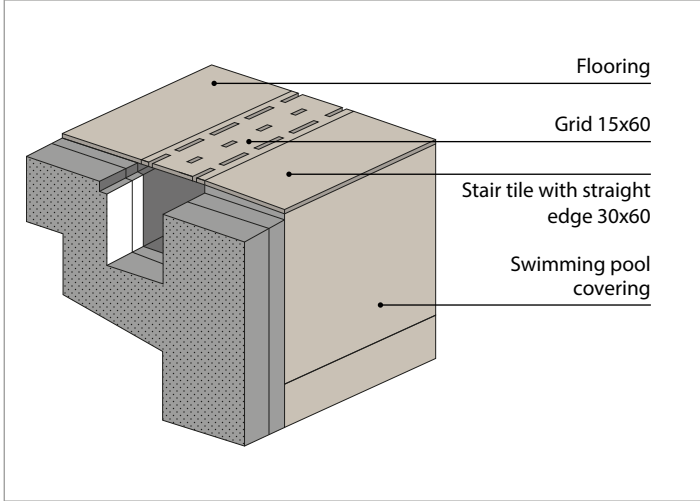
### STAIR TILE WITH STRAIGHT EDGE















### STAIR TILE WITH ROUNDED EDGE



### SWIMMING POOL EDGE





	Technical characteristics	Standard/Test method	Average values of Ceramica Panaria porcelain stoneware
	Tensile strength	ISO 10545.4	$S \geq 13.600\text{ N}$
		ASTM C648	$\geq 2.800\text{ lbs}$
	Mechanical requirements	EN 1339-F	U11
	Deep abrasion resistance	ISO 10545.6	$V \leq 145\text{ mm}^3$
		ASTM C1243	$V \leq 145\text{ mm}^3$
	Linear thermal expansion	ISO 10545.8	$\alpha \leq 7 \times 10^{-6}\text{ }^{\circ}\text{C}^{-1}$
		ASTM C372	$\alpha \leq 8 \times 10^{-6}\text{ }^{\circ}\text{C}^{-1}$ $\alpha \leq 4.4 \times 10^{-6}\text{ }^{\circ}\text{F}^{-1}$
	Thermal shock resistance	ISO 10545.9	RESISTANT
		ASTM C484	RESISTANT
	Slip resistance	DIN 51130	Refer to specific collection catalogue
		DIN 51097	Refer to specific collection catalogue
		BCR-TORTUS	Refer to specific collection catalogue
		ASTM C1028	Refer to specific collection catalogue
		ANSI A137.1 BOT 3000	Refer to specific collection catalogue
		PENDULUM AS/NZS AS/NZ S4586:2004	Refer to specific collection catalogue
		PENDULUM UNE ENV UNE ENV 12633	Refer to specific collection catalogue
	Stain resistance	ISO 10545.14	5
		ASTM C1378	RESISTANT
	Chemical resistance	ISO 10545.13	ULA, UHA
		ASTM C650	RESISTANT
	Chemical resistance to household products	ISO 10545.13	UA RESISTANT
	Frost resistance	ISO 10545.12	RESISTANT
		ASTM C1026	RESISTANT
	Reaction to fire	EN 13823	A1 <sub>FL</sub>
	Heat conductivity	UNI EN 12524:2001	$\lambda = 1,3\text{ W/m}^{\circ}\text{k}$ $\lambda = 1,1\text{ kcal/mh}^{\circ}\text{C}$ $\lambda = 0,7\text{ BTU/FT h}^{\circ}\text{F}$

Quality management system.



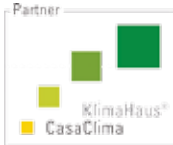
Enviromental management systems of production sites.



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Panariagroup Industrie Ceramiche S.p.A. holding company has obtained the PARTNER CASACLIMA certification.



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