



ICG ITALIA

2CM SLABS

EXTERNAL LAYING SYSTEMS
GUIDELINES



2CM (0.79 INCH) PORCELAIN STONEWARE | PAVERS

INSTALLATION AND GUIDANCE SYSTEMS

This specification concerns the laying of large format porcelain slabs (pavers) in 2cm thick for exterior soil, sand, gravel, screed and supports for overhead.

GENERAL TECHNICAL INFORMATION

Porcelain stoneware is a type of ceramic slab characterized by very low water absorption. In particular, porcelain stoneware slabs have a water absorption rate of less than 0.5%; therefore, they are very resistant. Porcelain stoneware can be produced as a glazed or unglazed slab. Because of their intrinsic characteristics, it is important that suitable materials, systems and installation methods are used for their installation.

Materials: all porcelain slabs of ICG Italia are specified as: nominal formats (12"x24", 24"x24", 24"x48", etc.), thickness, product series and color name.

The ICG Italia 2CM thick porcelain slabs have the minimum technical properties listed below:

- Water absorption according to ISO 10545-3 and ASTM C-373: < 0.5% and meets the classification of slabs as Impervious (Porcelain) according to ANSI A137.3.
- Breaking strength according to ISO 10545-4 and ASTM C-1505: 11,000 N (2,473 pounds of force). ISO 10545-4 breakage module: > 50 N/mm² (6,961 psi).
- Chemical resistance according to ISO 10545-13 and ASTM C-650: conforms.
- Stain resistance according to ISO 10545-14 and ASTM C-1378: conforms.
- DCOF and non-slip friction and ASTM A-326.3, the client or the installer must verify that the porcelain stoneware has a coefficient of friction appropriate to the intended use.

Non-slip surfaces - all slab surfaces can be somehow slippery in various circumstances and conditions. The higher the consistency of a slab surface, the greater its resistance to slipping, the greater the texture, the more difficult it will be to polish and keep it clean. To ensure a safe tread surface, it is the responsibility of the end user to keep the slab surface clean and dry and to prepare floor mats for external entrances or wet areas.

- The slab surface must reach a minimum dynamic coefficient of friction (DCOF), in WET condition, **greater than 0.42**, according to ANSI A137.1-3 and ANSI 326.3 DCOF Acutest test method.
- For interior and exterior flat spaces that are planned to be stepped on when they are wet, require materials with a **minimum DCOF value of 0.50**.
- In the presence of oil or grease or slightly sloping applications, require a surface with a **DCOF value greater than 0.55**.

SEALING

ICG Italia does not recommend the sealing of our porcelain stoneware floors, and therefore, does not require applications on the surface of sealants or waxes; in fact, the addition of these materials can significantly worsen the sealing to stains and acids and make ordinary cleaning difficult to perform with the risk of always having the floor appearance dirty.

The waxes and brighteners, as well as the excessive use of unsuitable detergents, can, over time, modify the high performance characteristics of the surface and create a thin and invisible barrier that transforms the surface of the slab into a dirt receptor, also reducing the surface's resistance to slippage.

Important: This guide has the sole purpose of giving some recommendations on the various 20mm thick floor installation systems.

It will always be the care and responsibility of the work management, the contractor and the operators, depending on the intended use and the operating conditions, to verify that the installation complies with the regulations in force in individual countries.

2 CM (0.79 INCH) THICK PAVEMENT LAYING SYSTEMS

- ELEVATED/RAISED
- DRY ON: GRASS, GRAVEL, SAND
- ON SCREED.

Elevated/raised installation with fixed supports.

Example of plastic fixed supports (structure comprises disks of variable width, height and diameter allowing the installation of the 2 cm slabs at different heights).



Example of installation on the floor.

Recommended for terraces, balconies, attics, outdoor floors, porches, etc.

Advantages:

- Solves leveling problems
- Resistance to thermal expansion
- Better thermal and acoustic insulation
- Reduction of installation time and processing costs
- Decrease in the load on the ground due to the lack of screed
- Easily inspected
- Allows the passage of hydraulic and electric pipes
- No grout needed
- Reusable and replaceable
- Create a sub-floor with the relative slopes for the drainage of rainwater
- Apply a waterproof sheath
- Place and adjust the supports to the desired height, taking into account the composition of the finished slab, that is, reinforced with metal plate, with fiberglass or natural sealing. Depending on these applications on the back of the slab and the flow rates, the maximum installation height may vary.
- The number of slab supports varies according to their size. *(See the chart at the end of the catalog).*

GENERAL INFORMATION FOR INSTALLATION OF SUPPORTS FOR RAISED OR FLOATING FLOORS:

- It is recommended to use, for the installation of 2 cm (0.79 inch) pavers, quality pedestal installation systems from a single manufacturer.
- The buyer or the installer must ensure that the pedestals comply with current regulations and are suitable for the planned installation system.
- In above-elevation installations greater than 5 cm (1.97 inch), the application of a metal plate, a fiberglass, an aluminum track or a combined system of rails is recommended, to provide further support for the 2 cm thick pavers.
- The installer and client must ensure that the structure is adequate to support the weight of the load. It is

always the responsibility of the installer to ensure that the density of the insulation or membrane is adequate to resist crushing due to the load.

- For external areas and areas subject to wet or humidity conditions, the substrate must have a minimum slope of ¼ per inch. It is also necessary to provide appropriate drains with an adequate capacity to contain the flow of water provided for use.
- The pedestals are equipped with spacers to create an open space between a slab and the other that allows the water to flow under the floor, on the waterproof membrane. Choose pedestals with the measure of the spacer suitable for the intended use.
- Once the installation is complete, check that there are no oscillations and if necessary, proceed with the adjustment of the pedestals.



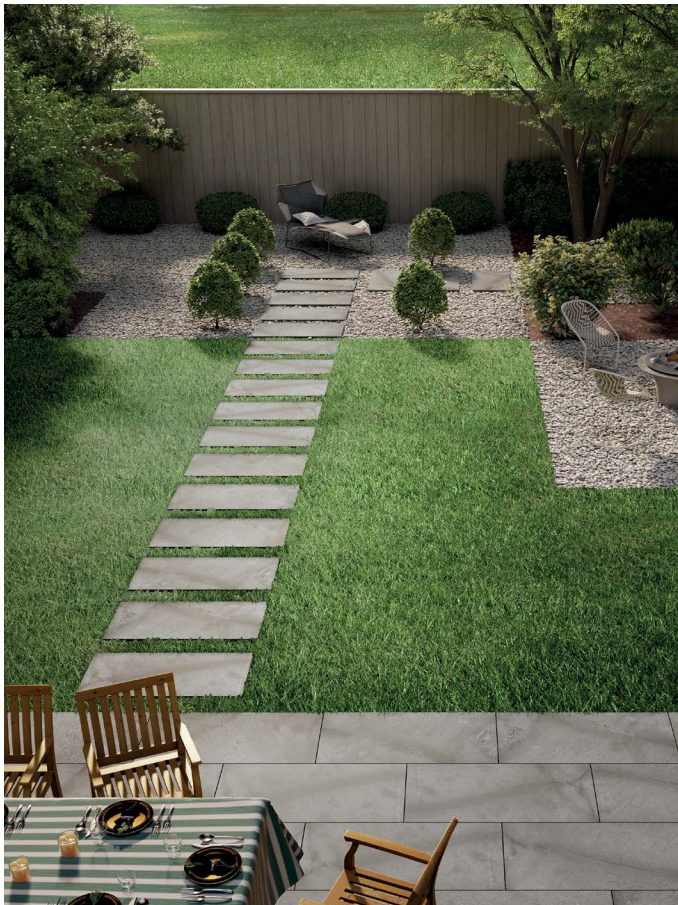
DRY INSTALLATION ON THE GRASS

The pavement can be applied directly on the ground (which must be compact and level) or on a prepared sub-floor.

- Place the slabs on the ground and mark the perimeter with a spade
- Leave a space of at least 5 cm (1.97 inch) between the slabs
- Dig a hole from 5 to 10 cm (from 1.97 to 3.93 inches) deep for each slab previously marked with the spade
- The depth should be managed according to the climatic conditions of the site: deeper for the cold and humid conditions, less deep for the hot and dry conditions
- Compact the ground and level it
- Fill with medium/fine grain size gravel (4-8 mm) (0.16-0.31 inch) leaving the space of 2 cm (0.79 inch) to accommodate the thickness of the slab
- Compact well and level the ground
- Apply the new slabs (dry without glue or grout).



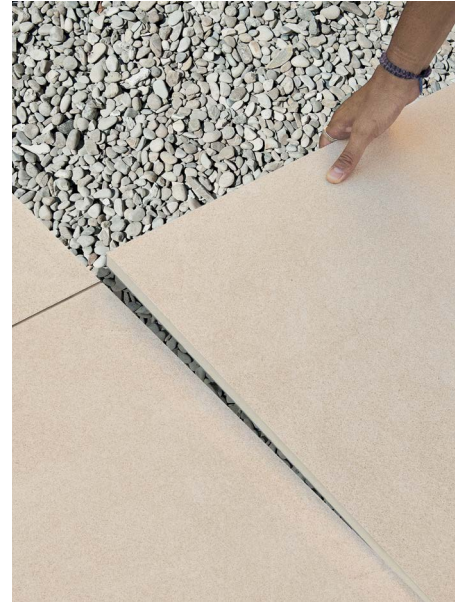
It is advised **not to let the slabs exceed the height of the turf or grass** as they can damage the blades of the lawnmower and to leave inappropriate distance between the slabs for the drainage of the rainwater.



Examples of dry installation on the grass.

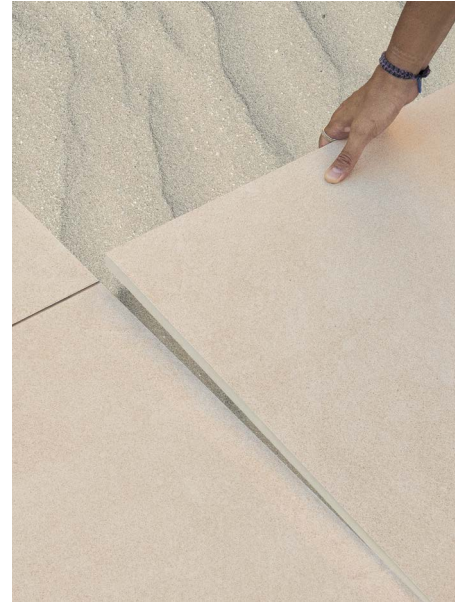
DRY INSTALLATION ON THE GRAVEL

- Dig a hole of the desired size, 10 cm (3.93 inch) deep in hot and dry climates, or higher - in cold and humid climates.
- Compact the bottom by making a slope from the center to the outside to avoid water stagnation.
- Place, compact and level a first layer of gravel of medium grain size 4-8 mm (0.16-0.31 inch).
- Place, compact and level a second layer of gravel of fine grain size 2-4 mm (0.8-0.16 inch). This way it will be easier to level the surface.
- Place the dry slabs on the well-compacted surface, leaving the joints between the slabs of the appropriate size to the desired type of finish.
- For a finish of the joints with sand, it is recommended to consider a maximum distance between the slabs of 5 mm (0.19 inch); while for a finish of the joints with gravel, it is advisable to consider a distance depending on the particle size of the gravel suitable for the desired aesthetic result.



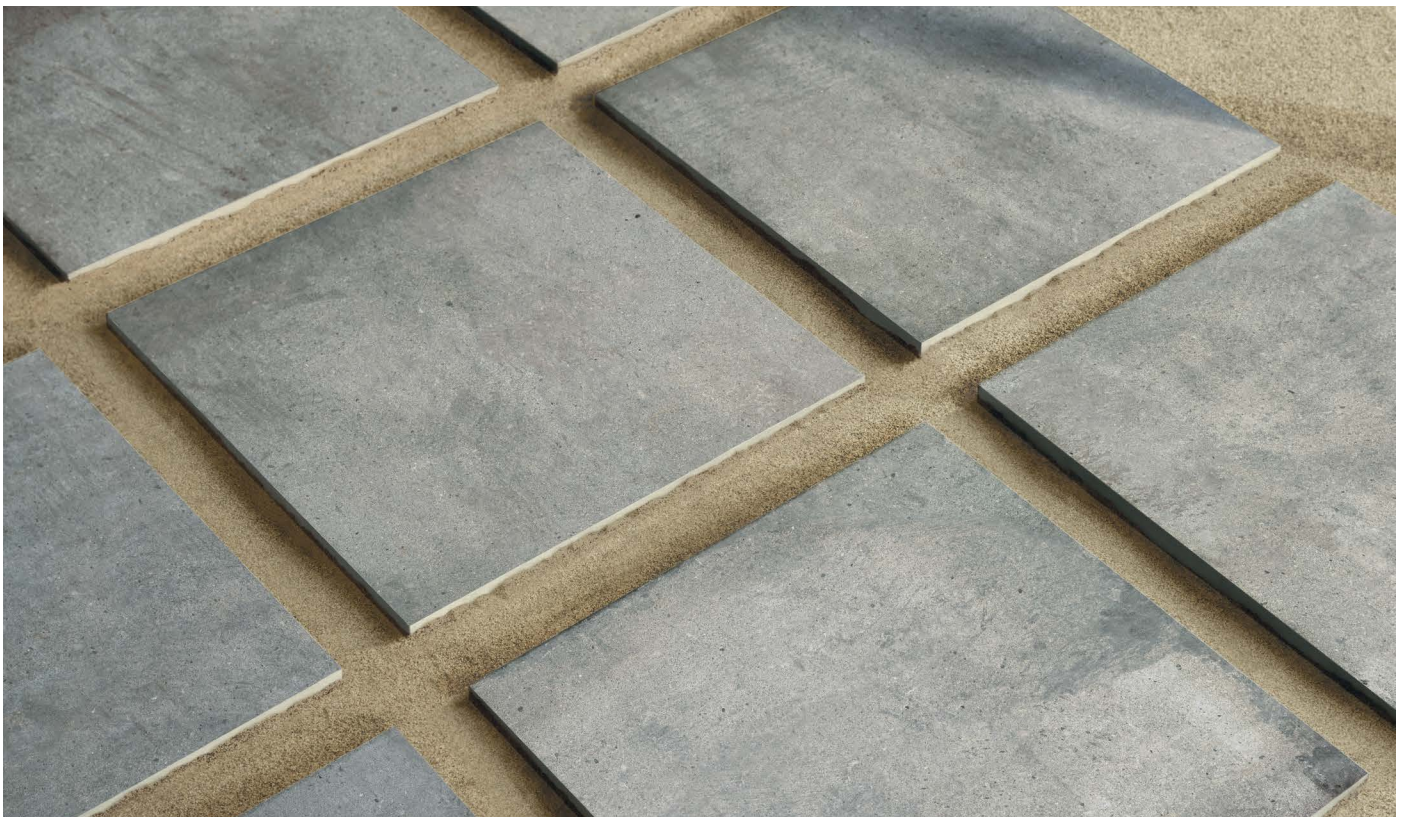
Example of the dry installation on the gravel.

DRY INSTALLATION ON THE SAND



When installing 2 cm (0.79 inch) slabs on the sand:

- Compact the sand
- Place the slabs.



Examples of the dry installation on the sand.

INSTALLATION ON THE CEMENT SCREED WITH GLUE



Recommended for driveways and for large loads. Execute a traditional screed, taking into account the flow rates that the pavement will have to support.

Joints: 3 - 5 mm (0.12 - 0.19 inch) is recommended.

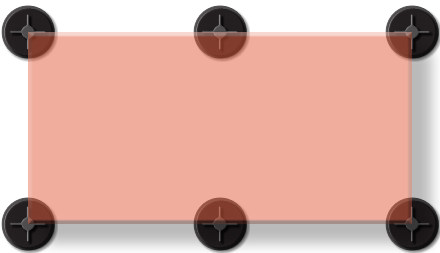
Expansion joints: recommended every 15 - 20 m² (160 - 220 ft²).

- Make an excavation, compact and level the ground
- Place, level and compact a layer of stabilized crushed stone
- Make the screed, depending on the load, with any welded mesh
- Apply cement glue
- Place the slabs with the desired layout.

Examples of the installation on cement screed and glue.

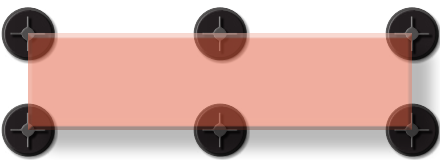
SIZE CHART

NUMBER OF SUPPORTS NEEDED ACCORDING TO THE SLAB SIZE



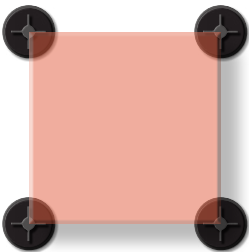
24X48 INCH (60X120 CM)
18X36 INCH (45X90 CM)

6 SUPPORTS PER SLAB



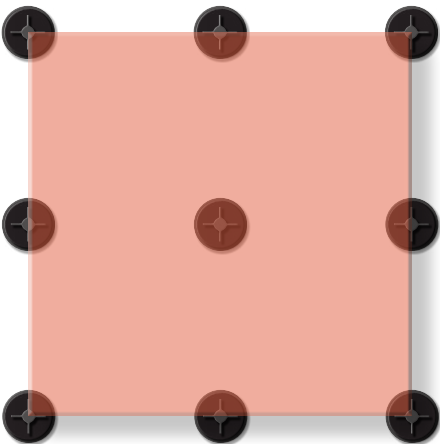
12X48 INCH (30X120 CM)

6 SUPPORTS PER SLAB



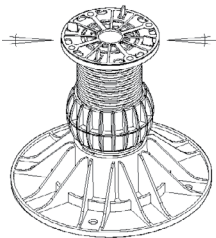
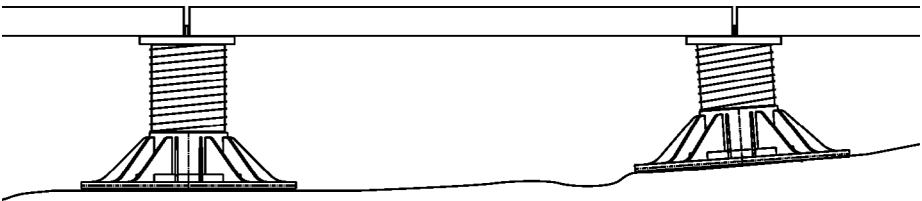
24X24 INCH (60X60 CM)
30X30 INCH (75X75 CM)

4 SUPPORTS PER SLAB



48X48 INCH (120X120 CM)
40X40 INCH (100X100 CM)

9 SUPPORTS PER SLAB



LIMITATIONS & RESPONSIBILITIES

We have taken every care to provide complete information in this document; this information should be used as a guide in the design, installation and care of ICG Italia porcelain slabs/pavers. No warranty however implied or expressed, is given in relation to the procedures outlined in this technical information guide except that is required by industry standards.

ICG Italia assumes that the installers, fabricators and installers using our porcelain slabs are familiar with all aspects outlined in the information provided, and strictly adhere to the recommendations and specifications described herein and by ANSI industry standards. Any deviation from the recommended guidelines may result in the products not performing as expected and may result in the warranty becoming null and void. Though every care and precaution has been taken in the preparation of this document, ICG Italia assumes no responsibility for errors and/or omissions, or for the damages resulting from the use of information hereby provided.

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For more information and to view our informative videos for handling, shipping, cutting, fabricating, and installation of our ICG Italia collection - porcelain slabs/pavers, please contact us at info@icgitaliaporcelain.com.

Disclaimer: all trainings are for ICG Italia products only.

CONTACT INFORMATION

For any further assistance please contact:

Michele Filadelfia

Director of Technical Services

Mobile 931.787.4441

Email mfiladelfia@stonepeakceramics.com

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By the Technical Services Department





Corporate Headquarters

720 N. Franklin St., Ste 500
Chicago, IL 60654 U.S.

Production Plant

238 Porcelain Tile Dr.
Crossville, TN 38555 U.S.

Design Galleries

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info@icgitaliaporcelain.com | www.icgitaliaporcelain.com