Installation recommendations for ceramic products

TAU cerámica

Installation recommendations for ceramic products

Fostering the quality of the product already installed and the maintenance thereof is the reason why we're offering this guide with professional recommendations.

Thus, you may consider all of them or only a few, taking into account not only what is recommended, but also what should be avoided.

Pamesa Grupo Empresarial has achieved sustainable growth over the years in the competitive ceramic tile market.

We have a stable presence in the main distribution channels around the world as quality, design and innovation are the main hallmarks of Pamesa Grupo Empresarial.

The ceramic tile manufacturing process

The ceramic tile manufacturing process is carried out in a series of successive stages: the raw materials are prepared, the raw tile is shaped and dried, it is fired with or without enamelling, and then it is subject to additional treatments, sorting and packaging.
Several types of ceramic tiles are produced following this manufacturing process:

Azulejo tiles

This is the traditional name for dry-pressed, glazed ceramic tiles with high water absorption
which are manufactured with single firing.
The body or substrate, which is known as bisque, is white or reddish in colour; the colour of the bisque does not have any impact on the product characteristics.
The exposed side: enamelling involves applying a layer of vitrification that covers the surface of the piece. This is done to give the fired product a series of technical and aesthetic properties: impermeability, ease of cleaning, brightness and colour, characteristics that make them particularly suitable for interior cladding.

Stoneware floor tiles

This is the most common name for medium-low absorption, dry-pressed, glazed, single-fired ceramic tiles.
The body or substrate is stoneware (medium-low water absorption) of a reddish colour.
The exposed side is glazed by means of a vitrification layer that covers the piece and gives the fired product a series of technical and aesthetic properties such as impermeability, gloss, colour and surface texture. These properties make this product suitable for use in private and public areas.

Porcelain tile

This is the name that has universalized this product. They're ceramic tiles with very low water absorption that are dry-pressed, subjected to a single fi ring, enamelled or non-enamelled (the glazed side is called enamelled porcelain tile and the unglazed side is called non-enamelled porcelain tile; the exposed side is the same material as the substrate). Porcelain tile can be used as is right after fi ring (natural porcelain tile) or the exposed side can undergo a polishing process for a smooth, high gloss eff e ct (polished porcelain tile) or a medium gloss eff ect (semi-polished or lappato).

*Polished porcelain tile:

Otteniamo una finitura pulita, elegante e luminosa. Grazie alla sua elevata brillantezza, il riflesso della luce può creare effetti ottici che simulano un leggero effetto velato del pezzo. Questi materiali sono ideali per gli spazi interni.

Installation technique

Adhesion, meaning the bonding strength between the ceramic tile and the substrate, plays a very important role in the quality of the ceramic tile. Good adhesion must ensure the pieces are firmly secured against the substrate. The evolution of new ceramic materials with low porosity, resistance to abrasion, frost, large formats, as well as their assembly or installation in industry, large commercial areas, facades, etc., have led to the development of various adhesive products.

The knowledge acquired with regard to the use of special adhesives means that the thick-bed tile installation process (mechanical adhesion) has been replaced by a thin-bed tile installation system (chemical adhesion) which offers clear advantages, especially as concerns the quality of the work, both in terms of adhesion and durability. Therefore, a suitable adhesive should be chosen according to the installation surface and the type of ceramic tile.

It is very important to use the appropriate tools and equipment (notched trowel, white rubber mallet, spirit level and suction cup) when laying ceramic tile. It is also important to remember that the substrate or tile base must be very clean of any stains, plaster, paint, etc., so the adhesion can perform over time.

Always keep in mind the instructions provided by the adhesive manufacturer.

Installation technique · Movement joints

For proper installation of the ceramic product, you must always respect the movement joints: structural, perimeter, expansion and installation joints.

Structural joints
They must always be respected as detailed in the project and determined by a specialist engineer or architect.

Perimeter joints
They must be continuous and their width must not be less than 8 mm. Their purpose is to isolate the ceramic flooring from other covered surfaces such as wall-floor junctions (hidden by skirting board), pillars, doors. ***Omitting the perimeter joints is one of the most frequent causes of ceramic tile lifting.***

Partition joints
They allow the existing deformations caused by thermal variations between the tiles, the coating and the substrate. Large support surfaces covered with ceramic tile should be subdivided into smaller ones, delimited by partition joints to prevent the accumulation of expansion and contraction. For floors that will be subjected to heavy pedestrian traffic, heavy wheel travel or heavy loads, specific partition joints that are suitable for heavy loads must be used.

Installation joints
For safety against any structural movement (expansion-shrinkage),
always create separation joints between all contiguous ceramic tiles. Do not install with a separation of less than 2/3 mm. There are several benefits to installation joints: they help absorb the deformations caused by the substrate and moderate the stresses generated in the lower part of the substrate when subjected to loads.
The accumulated stresses can cause the tiles to lift. They also have an important aesthetic function, as they enhance the beauty of the ceramic.
Joints can be finished flat, flush with the tiles, or recessed concave. They are used in interiors and exteriors. Low porosity, deformable and water-repellent joint sealants are also available.
They're suitable for facades, floor tiles subject to heavy traffic and premises with a persistent presence of water.
For premises frequently subjected to the presence of acids and alkalis in areas intended
for food or sanitary use, base sealants must be used; two-component reactive resins such as epoxy sealants. This type of grout is characterized by its composition based on synthetic resins (generally epoxy resin).
The main properties are: chemical resistance, bacteriological resistance, very good moisture resistance and excellent abrasion resistance.

·Always keep in mind the instructions provided by the adhesive manufacturer.
·The minimum spacing between the product should not be less than 2-3 mm for interiors and 3-5 mm for exteriors.
·Do not use installation joints with micronized carbon (carbon black); they should always be avoided.

▾ Classification of sealants according to standard EN 13888

CG2 MODIFIED CEMENT-BASED SEALANTS
Optional ArW (high abrasion resistance and low water absorption)
RG REACTIVE RESIN-BASED SEALANTS
Generally two-component, epoxy based, and resistant to chemicals, they are completely impermeable and feature high compressive strength.

Installation technique · Gripping material

Two types of techniques should be considered when installing ceramic products: thick-bed and thin-bed.
It is important to emphasize that laying porcelain tile requires that the surface be completely level, and clear of any substances that could prevent proper adhesion. It must always be done in a thin layer using a notched trowel, white rubber mallet, spirit level and suction cup. For application in outdoor areas and for formats more than 900 cm2, the double gluing technique must be used. This means applying the adhesive product both to the substrate and the back of the piece.

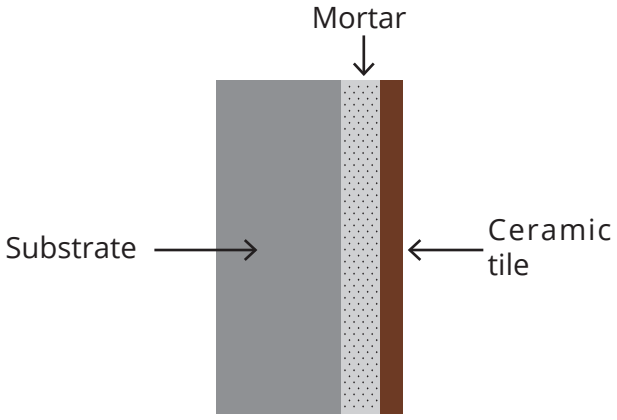
Always follow the adhesive manufacturer's instructions.

THICK-BED LAYING

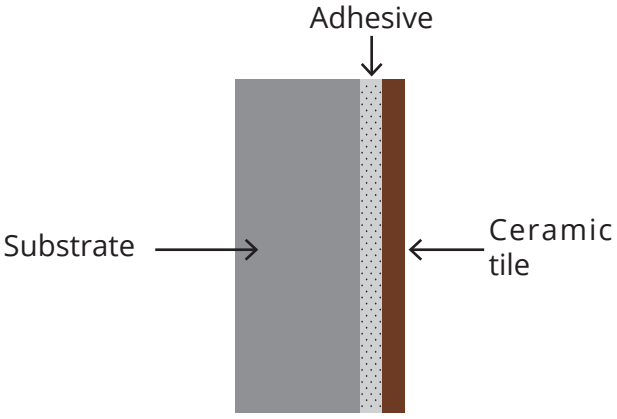
This is the traditional technique. The ceramic tile is placed directly on the substrate (partition wall, brick, slab or sand-cement screed). This technique (thick-bed) is more affordable and also makes it possible to compensate for larger flatness defects. Traditional mortar is used as thick-bed bonding material.

THIN-BED LAYING (WITH ADHESIVES)

It is a more recently-developed technique, adapted to today's ceramic materials and the diversity of substrates. Installation is generally carried out on a previous regularization layer of substrate, either plastering on walls or mortar bases on floors. The advantages of this technique are clear, since it is suitable for any type of ceramic tile and compatible with any substrate. There are adhesives suitable for each type of substrate and ceramic to be installed. The rectification time is high. They absorb the deformability of the substrate and develop greater adherence. Cement adhesives, adhesive pastes and reaction resin adhesives are used as thin-bed bonding materials.



THICK-BED



THIN-BED

The following types of cementitious adhesives can be considered based on the characteristics of the ceramic product to be installed. Adhesives are classified according to EN 12004 and 12002.
defining adhesion and deformability thereof.

C2 CEMENT-BASED ADHESIVES Modified cement-based adhesives

D2 DISPERSION ADHESIVES Modified dispersion adhesives

R2 DISPERSION ADHESIVES Reaction resin-based adhesives

Use and maintenance of ceramic products

Due to the low porosity of porcelain tile, it is practically impossible for it to stain; however, some products that are energetic colourants may spill or come into contact with the surface of the polished and semi-polished porcelain product. If this substance is left on the surface for some time it may stain, so we recommend that it be cleaned as soon as possible.

Once the tile installation and grouting operations have been completed, the surface of the ceramic material usually shows cement residues in the form of
film or small accumulations. These residues can usually be cleaned with an AGC-Cement or similar type of finish cleaner.

As a general rule, the following **precautions** should always be taken into account:

·To ensure the durability and good condition of ceramic tile, regular cleaning using environmentally friendly products is recommended.

·Carrying out cleaning tasks in an environmentally responsible manner is advisable by applying an adequate dosage of products according to the manufacturer's instructions, minimizing water consumption through efficient methods, and trying to properly manage wastewater, always avoiding direct discharge into any receiving medium. It is also advisable to instruction personnel on good environmental practices, avoiding the use of aggressive or polluting products, and promoting the reuse or recycling of protective materials used during maintenance.

·Acidic cleaning should never be carried out on freshly laid ceramic tile; the acid will react with the uncured cement and may deteriorate the joints and deposit insoluble compounds on the surface. Never use cleaners containing hydrofluoric acid and follow the manufacturer's recommendations.

·Regular maintenance involves periodic cleaning by washing with water and a degreaser. Use pH neutral cleaners that do not contain polishes or waxes. AGC-Grease or similar.

·For the extraordinary cleaning of penetrating stains and encrustations
on the surface that cannot be removed by usual cleaning operations,
first check the effects on the surface of any piece not yet installed before attempting to remove a stain through any vigorous procedure. They should prevent chemical degradation that can further deteriorate the condition of the product.

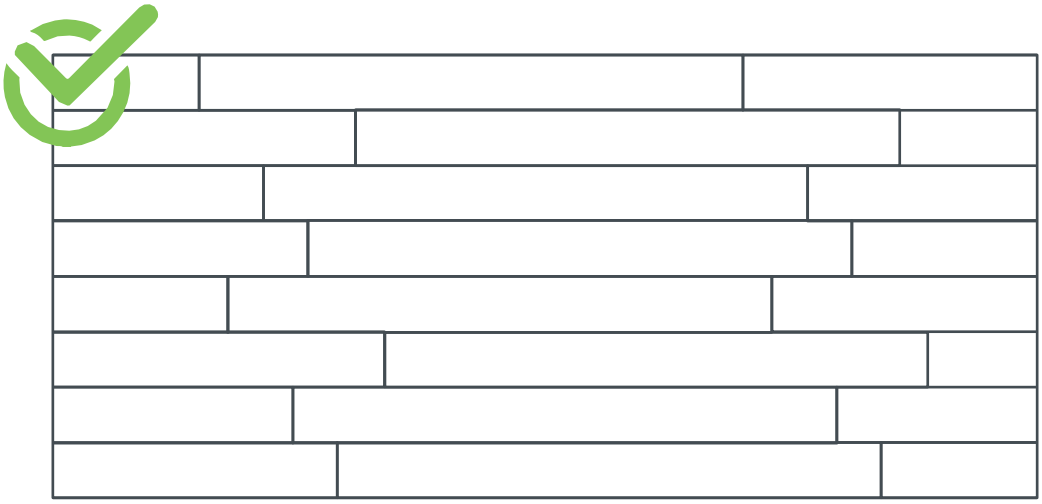
·For persistent stains, check with the manufacturer.

Follow the manufacturer's instructions.

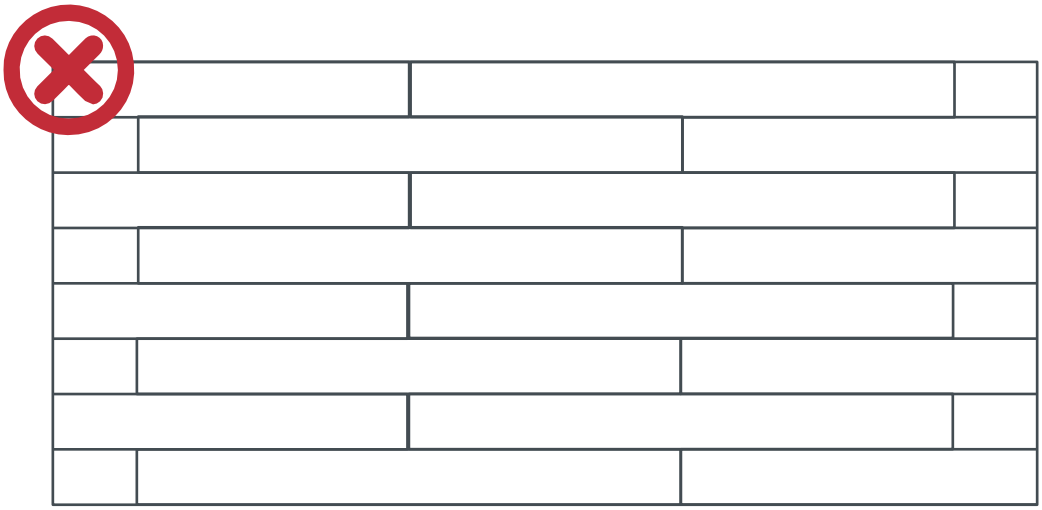
·Metal spatulas and abrasive scouring pads should not be used.

·After installation, give the flooring adequate protection using cardboard, a layer of sawdust or another product to protect it from possible damage that may be caused by any subsequent work.
To avoid breakage and any other unwanted cut finish, use the appropriate tools for cutting and drilling porcelain tile. For straight cuts, a manual cutting machine with a widia roller or also a water-cooled diamond blade machine and/or low power radial machine equipped with a continuous diamond blade (not segmented) may be used. To drill porcelain tile, a diamond drill bit should be used and the drilling area should be cooled periodically with water to avoid increasing the temperature and the melting of the drill bit. The following table lists the most suitable cleaning products for each type of stain. To preserve the properties and beauty of porcelain/polished and semi-polished tile for a longer period of time, place mats/carpet at the entrances to paved areas; mats retain the minerals that may be adhered to the sole of shoes.

Installation tips for rectangular products



Locked Arrangement (between 2-20CM)



Regular half-piece installation (not recommended)

The flooring tile should not be installed in a locked arrangement with a displacement of more than 14 cm.

INFORMATION ON THE REUSE AND/OR MANAGEMENT OF PACKAGING MATERIALS DURING THE TILE INSTALLATION PROCESS

In accordance with the European Waste List (EWL) pursuant to Directive 75/442/EEC on waste and Directive 91/689/EEC, the waste that may be generated from our products must be managed with the following codes:

EWL: 17 01 03 Tiles and ceramics
EWL: 15 01 02 Plastic packaging
EWL: 15 01 01 Paper and cardboard packaging
EWL: 15 01 03 Wooden packaging

Waste must be segregated efficiently, with the aim of reducing, reusing and recycling as much as possible. Therefore, we recommend separating them individually and keeping them under adequate hygiene and safety conditions on the construction site where they are produced.

Have adequate containers correctly labelled according to the waste to be disposed of.
The waste shall be contained in such a way that all working personnel know where to deposit the waste.
When it is not technically feasible to carry out this separation at source due to a lack of physical space on the site, the separation of fractions should be entrusted to a waste management authority at an off-site construction and demolition waste treatment facility.
Packaging material waste is generated during the tile installation phase.
The management thereof is the responsibility of the customer who receives the goods.
Check all applicable laws in the country of destination.

END-OF-LIFE OF CERAMIC TILES

Ceramic tiles at the end of their useful life will become "construction and demolition waste".
This waste shall be managed under the following codes:

EWL: 17 01 03
Tiles and ceramics.

If the ceramic materials are mixed with other demolition materials, the management codes shall be:

EWL: 17 01 06
* Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances.

EWL: 17 01 07
Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06

Tile and ceramic waste is classified as "inert waste" because it is non-hazardous waste that does not undergo significant physical, chemical or biological transformation, is not soluble or combustible, does not react physically, chemically or in any other way, is not biodegradable and does not adversely affect other materials with which it comes into contact in a way that could result in environmental contamination or harm human health. Ceramic tile waste should be used for reuse, recycling or other forms of recovery, in that order of preference. Thus, it can be used as inert waste for restoration, conditioning or filling work as long as it complies with the provisions of the corresponding applicable laws.

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