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Corporation



# CERAMIC MATERIALS TECHNICAL GUIDE

**FLORIM**  
DESIGN IS OUR PASSION



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# INSTALLATION



The recommendations which follow are based on our experience and are purely guideline.

Before starting installation procedures, it is the responsibility of the professional (architect, director of works, contractor, etc.) to make a careful assessment of all the factors required for the project's correct mechanical performance and finished appearance, in all cases with reference to the guidelines provided by the various current national and international standards.

For example:

- UNI 11493 (Italia): "Ceramic floor and wall tiling"
- EN 1264 (Europa): "Floor heating, installation"

## PRIOR ASSESSMENT

The following must be considered for the correct design of tiling:

- Destination environment, definition of essential technical characteristics (e.g. slip-resistance) and consequent choice of ceramic material.
- Compatibility of technical demands and the customer's requirements with regard to the previous point.
- Substrate characteristics (N.B.: a substrate to be covered with tiles or slabs having thickness of 6 mm or less must comply with the strictest requirements in terms of rigidity, dimensional stability and mechanical strength).
- Layout and placing of expansion and subdivision joints.
- Choice of adhesive.
- Other factors.

Each of these factors, as well, of course, as the skill of the installer, is fundamental for successful installation: these parameters must therefore be assessed with great care.

## USEFUL RECOMMENDATIONS FOR INSTALLATION

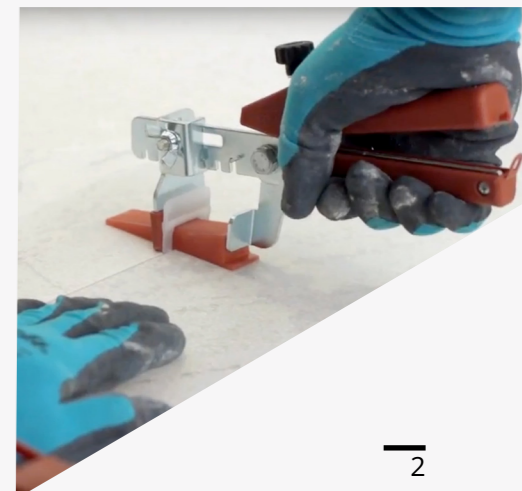
The following are some additional recommendations to help ensure the correct use of Florim ceramic materials:

- Check the condition and appearance of the purchased material and report any visible defects before installation.
- Check that the substrate has cured properly by measuring the residual moisture content of the screed.
- Check that the substrate's flatness and general condition will allow the material to be installed correctly.
- When installing, take material from several boxes at once (at least five) to enjoy full benefit of all the ceramic material's characteristics.
- Florim products may be glued in place using either porcelain stoneware adhesives or cement mortar (if the architect has chosen this option due to worksite specifications).
- Always follow the instructions provided by the adhesive's manufacturer.
- Florim recommends double spreading of adhesive (application both to the substrate and to the back of the tile/slab) and in more general terms the "solid bed" (complete coating) method for locations subject to heavy static or dynamic loads, and for installing large slabs (as a guideline, from 60x60 cm upwards), on slimline slabs (less than 9 mm thick), for outdoor installation and on heated floors.
- Florim products can be grouted with either cement or epoxy grouts (always follow the manufacturer's instructions; a prior grouting test should be performed on a small part of the floor to check that the grout and material are compatible before grouting the entire floor).
- When using coloured grouts, Florim recommends an advance check, on material that has not been installed, that residues can be easily removed from the product's surface; this is particularly important when using polished surfaces with grouts in contrasting colours.
- On structured or bush-hammered surfaces, Florim underlines the need to avoid dirtying the surface of the product excessively during grouting, and to clean residues before the grout has completely dried.
- Remember that if they are not removed properly or quickly enough, grout residues cannot always be eliminated later (e.g. cement residues on tiles not completely resistant to acids, reactive grout residues).
- On polished surfaces, Florim advises against the use of indelible marker pens or pencils to mark the position of any cuts and/or holes on the tile's surface (mark the underside of the tile).
- Florim always recommends a minimum joint of 2 mm, unless otherwise stated in product catalogues; widths may vary depending on the type of material, the installation layout planned and the appearance effect required.
- When installing large rectangular tiles or slabs, it may be useful to fit wedges or other self-levelling systems (to serve as spacers) at the corners of the tiles, at junctions in case of running bond layouts, or whenever necessary. Clean the part of the tile to be in contact with the fastening system and use new seals.

### N.B.:

On completion of correct installation, tiling should not need extraordinary cleaning.

If this is necessary, Florim only advises the use of cleaners recommended by the grout's producer. Read the material's technical datasheet, checking its chemical resistance in particular, and verify compatibility between the ceramic material and the cleaner on a tile which has not been installed or a concealed portion of the floor.





## DECORATED ARTICLES OR OTHER SPECIAL PRODUCTS

Some materials in the Florim catalogue have specific features and characteristics which require individual instructions.

Florim provides this information on its website in the download option for the specific product/series.

Gold



Neutra 6.0 | Shades Decor



Vetro



Neutra 6.0 | paint



Neutra 6.0 | articles 09/14



Decorated porcelain stoneware (various series)



Sensi | mosaic



Outdoor flooring | installation 20 mm thickened sheets

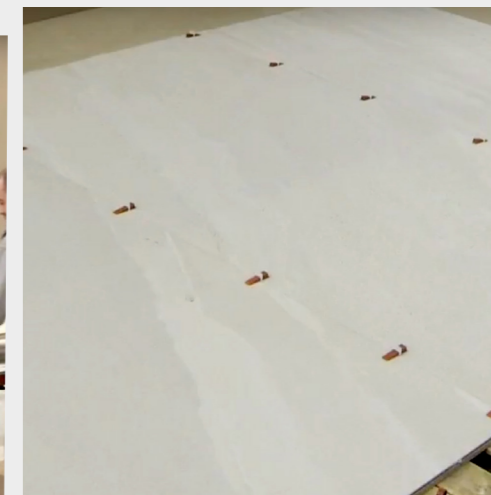
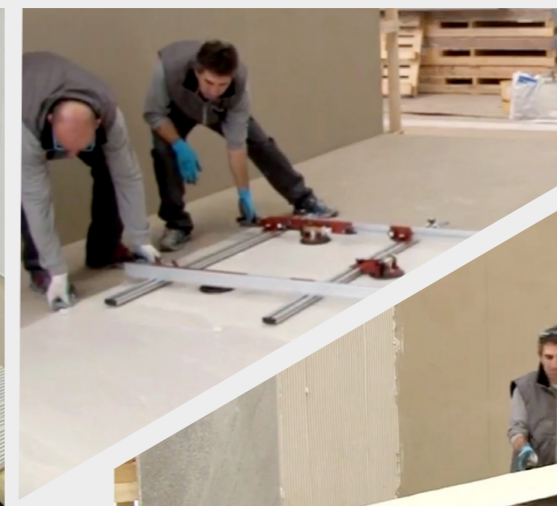


## HANDOVER OF FLOOR/TESTING AND ACCEPTANCE

On completion of installation, after the time required for the adhesive and grout to set, the tiling must be cleaned and handed over to the works director/customer for inspection and acceptance.

If additional construction, system installation or other works are planned, the floor must be protected by covering it with polyethylene or non-woven fabric (cardboard is not recommended: if damp, it could shed coloured substances).

This operation, always necessary but absolutely essential on glossy surfaces, will protect the installed material and prevent deterioration of the surface.





# CUTTING

Before cutting ceramic slabs, the following must be assessed:

- ◆ **Type of cut** to be made.
- ◆ **Type of surface** (matte, structured, polished or glossy).
- ◆ **Type of material** (tile or slab).
- ◆ **Quality of finish** required for the cut.

Depending on these variables, the cut may be in one of the following categories:



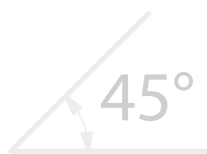
## STRAIGHT AND 45° CUTS

For cuts parallel or at 45° to the sides of the tile, which will not be in view, use a manual cutter with diamond bit or an angle-grinder fitted with a specific diamond disc for porcelain stoneware.

If using a manual cutter, proceed as follows:

- ◆ Score the surface of the slab with the diamond bit.
- ◆ Break off the slab by inserting the cutter blade in the cut and tapping sharply. The diamond bit used for this procedure must be new or in good condition.

If using an angle grinder, gradually score the surface of the slab with discs suitable for porcelain stoneware, water-cooled in the cutting area throughout the process.



## COMBINED STRAIGHT CUTS

To make combined cuts (to form an L-shape, for example) in various types of material, use a drill with diamond bit (diameter 10 mm) to make holes at the ends of the cuts. Then cut slowly and gradually with an angle-grinder fitted with porcelain stoneware disc to join up the end holes. Keep the cutting zone wet to reduce the thermal stress on the material and disc.

## CUTS ON STRUCTURED SURFACES

When cutting surfaces with deep structures or geometrical relief structures (regardless of the type of cut), score multiple times with a manual cutter, or (preferably) use an angle grinder or water-cooled disc cutting systems.

## VISIBLE CUTS

If part of the cut will be left visible in the flooring, disc cutting is recommended, followed by grinding with a diamond buffing pad to round off and remove any small flaws.

## CUTTING DECORATED ARTICLES OR OTHER SPECIAL PRODUCTS

Special precautions are required when using (handling, cutting, installing, etc.) some decorated or special products (e.g. Filati di Rex, Gold, mosaic, glass, etc.) produced by particular, not specifically ceramic, processes.

View the specific warnings available for download from the “download” section of the specific collections.



## WARNINGS

Always:

- ◆ Replace diamond bits regularly.
- ◆ Take care not to use bits or blades unsuitable for porcelain stoneware.
- ◆ Use professional water-jet machines for special scoring or cutting processes (decorative or any non-standard cuts).



# DRILLING HOLES

Before drilling holes ceramic slabs, the following must be assessed:

- ◆ Hole size and position.
- ◆ Whether hole is drilled before or after installation.

Depending on these variables, the cut may be in one of the following categories:



## SMALL HOLES IN MATERIAL ALREADY INSTALLED

To make circular holes a few millimetres in diameter, use an adjustable speed drill with a new or well maintained diamond bit suitable for porcelain stoneware. The slab must be correctly fixed to and aligned with the installation substrate.

Do not use the hammer effect when drilling.

## HOLES IN MATERIAL PRIOR TO INSTALLATION

Use adjustable speed drills fitted with diamond pointed or flared bits, with the hammer effect disabled.

### Hole

Size and position

## LARGE HOLES FOR SPECIAL SHAPING PROCEDURES

Large holes (e.g. for installation of piping or electrical wiring boxes) must be made before installation, using flared bits suitable for porcelain stoneware (disable the hammer effect). To prevent slab breakage, drill slowly and gradually to avoid excessive vibrations on the material. Keep the cutting zone wet to reduce the thermal stress on the material and disc.

For electrical wiring boxes, drill holes in the four corners with a suitable drill and tool and then cut between the holes with an angle-grinder fitted with diamond disc for porcelain stoneware.

**N.B.:** Openings or holes close to the edge of the tile may be problematical and difficult to create.

## OTHER SHAPING PROCESSES

As well as for covering floors and walls, MAGNUM and FLORIMSTONE slabs may also be used for furnishings.

Please view the relative manuals:

**Magnum instructions manual**



**Florim Stone technical manual**



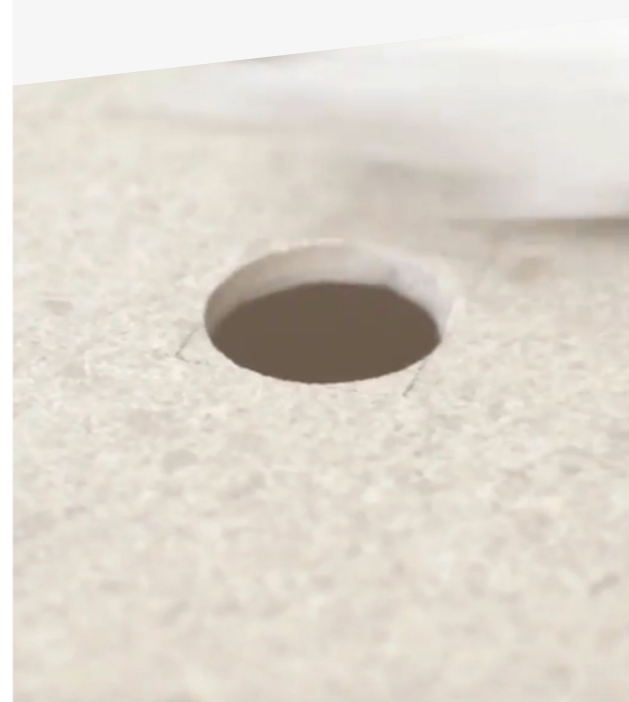
## WARNINGS

We recommend:

- ◆ Replace diamond bits regularly.
- ◆ Take care not to use bits or blades unsuitable for porcelain stoneware.
- ◆ Holes within more or less ten centimetres of the edge of the slab should be created before installation, using suitable tools and cutting slowly and carefully.
- ◆ Use professional water-jet machines for special hole drilling processes in slabs (such as decorative cuts).

**N.B.:** Refer to the document available for download at

**Magnum instructions manual**



## SAFETY RULES

Further information is available in the technical manuals provided on the Florim website.

**Magnum instructions manual**



**Florim Stone technical manual**



You are advised to refer to the following document on safety.

**Basic information on crystalline silica**





# CLEANING AND CARE

Florim strongly recommends the use of non-hazardous, non-pollutant detergents in cleaning and care procedures.

When possible, prefer products which contain natural and biodegradable materials or with clear information regarding their environmental impact.

Detergents must always be diluted as recommended.

View the instructions provided on the label or in the technical information and take any precautions or use any safety equipment recommended.

Do not use products containing hydrofluoric acid or its derivatives.

## INITIAL CLEANING

On completion of all construction and installation works, additional final cleaning may be required to remove any traces and residues of dirt or other materials from the surface of slabs. Florim recommends the following procedures.

For ceramic products classified as “class A under ISO 10545/13”:

- ◆ Remove most of the dirt with a vacuum cleaner.
- ◆ Wet the floor with clean water to impregnate the joints and protect them from the corrosive action of the detergent.
- ◆ Clean with an acid detergent (use the product recommended by the grout producer, diluted as instructed), applying it by hand (with a clean cloth) or using a machine (single-disc scrubber with white or green pad).
- ◆ Remove the washing water with a clean cloth or suitable vacuum machine.
- ◆ Rinse the whole surface with plenty of clean water to neutralise the action of the detergent.
- ◆ Clean again (by hand or with a single-disc scrubber) using a dilute alkaline detergent, then rinse with clean hot water and dry.

For decorated or not completely acid-resistant products, only use hot water and a non-abrasive microfibre cloth.

Read any additional notes provided in the specific documents, available for download in the “download” section of the individual series.



## ROUTINE CARE

This is normal cleaning of floors and walls, which general comprises:

- ◆ Vacuum cleaning to remove dust, dirt and debris.
- ◆ Washing with a neutral or dilute alkaline detergent.

On anti-slip materials and in locations requiring the highest hygiene level (kitchens, food shops, etc.), cleaning should be carried out more frequently, even daily.

### In the home

When cleaning indoor surfaces hot water and weak alkaline detergents of the standard commercial kind are generally sufficient.

Do not use detergents which contain waxes, as they may form oily films on the surface of the slab.

In case of particularly stubborn marks, we advise localised cleaning following the guidance provided in the “Type of detergent in relation to type of dirt” table on page 12.

### Structured and relief surfaces

These surfaces are normally used outdoors. Clean with hot water and standard commercial weak alkaline or acid detergents (depending on the outdoor location) or a high pressure washer.

When cleaning, scrub lightly to shift dirt from the cavities in the surface.

Detergents containing waxes are not recommended, as they may form oily films on the surface of the slab.

In case of particularly stubborn marks, we advise localised cleaning following the guidance provided in the “Type of detergent in relation to type of dirt” table on page 12.

### Public locations

Routine care of large areas is generally contracted to specialist firms.

Mechanical equipment is recommended, fitted, for indoor surfaces, with a non-abrasive pad (white, in microfibre or melamine foam). A weak alkaline detergent should be used, diluted as instructed by the producer. Do not use wax or “self-polishing” detergents.

### Swimming-pools

To conserve anti-slip characteristics, abrasive pads or brushes should not be used.

Brushes with soft nylon bristles (suitable for profiled or relief surfaces) or high pressure washers are recommended.

### N.B.:

Tough saline deposits may form in pools which use spa waters.



## EXTRAORDINARY CARE

This is particularly intensive, thorough cleaning which may be necessary at variable intervals depending on the site's specific conditions.

### In the home

Once or twice a year, clean in depth to remove any translucent deposits ("biofilms") that have formed on the surface.

Use a dilute acid detergent (applied with a rag or microfibre cloth) and then rinse. Then use a weak alkaline detergent, followed by rinsing.

In case of particularly stubborn marks, consult the "Type of detergent in relation to type of dirt" table on page 12.

### Structured and relief surfaces

For outdoors, more frequent extraordinary cleaning may be required, involving the removal of soil residues, leaves or other materials.

Use an acid (dilute) and then an alkaline detergent, rinsing thoroughly after each.

It is important to scrub briskly, using nylon brushes for example.

### Public locations

Extraordinary cleaning is usually performed every one or two months. It can be done using a machine, with the usual detergent at higher concentrations (if allowed according to the product's technical datasheet).

Leave the detergent to act for longer; if using a scrubber-drier machine, disable the vacuum function during the first pass and reactivate it for the second pass.

### Swimming-pools

During regular draining of the pool (usually at the start of the season prior to reopening), remove any deposits around the waterline with a rag dipped in a dilute acid detergent. If necessary, rub with a slightly abrasive sponge.

For the areas around the pool, follow the instructions provided in the "Structured and relief surfaces" section above.



## TYPE OF DETERGENT IN RELATION TO TYPE OF DIRT

Below we recommend the best substances for removing localised marks. We recommend types of products and not specific detergents: however, these characteristics are clearly stated on the labels of the most common commercial detergents.

TYPE OF DIRT	TYPE OF DETERGENT
In-depth cleaning	Alkaline detergent
Routine cleaning	Neutral detergent for hard surfaces
Fats and oils	Alkaline degreasing detergent Solvent detergent
Inks	Sodium hypochlorite solution (bleach) Acid detergent Solvent detergent
Rust	Acid detergent
Lime or cement deposits	Acid detergent
Beer, wine, coffee	Sodium hypochlorite solution (bleach) Alkaline detergent
Tyre skid marks	Organic solvent Alkaline detergent Solvent detergent
Ice cream	Alkaline detergent
Resins	Solvent detergent Organic solvent (white spirit, paint thinner)
Fruit juices	Sodium hypochlorite solution (bleach) Alkaline detergent
Marker pen (indelible felt-tip pen)	Sodium hypochlorite solution (bleach) Solvent detergent
Metal scoring	Acid detergent Scouring cream/powder
Other marks	Scouring cream



## WARNINGS

- ◆ Always comply with the dosages and times recommended by the producer and test in advance on uninstalled material or hidden parts of the installed surface.
- ◆ If using acid detergents, before cleaning wet the grouts with plenty of water or protect them from the detergent's corrosive action.
- ◆ In a location requiring special cleaning parameters (kitchens, hospitals, shops, etc) or with particularly stubborn types of dirt (outdoor pavings, workshops, etc.), the cleaning procedures recommended above should be combined with scrubber-drier machines and specific products.
- ◆ Before starting cleaning procedures, always read the technical datasheets provided in the catalogues for each collection with great care.





# WASTE MANAGEMENT



Due to their intrinsic characteristics, Florim products ensure low environmental impact and are compatible with a circular economy approach in the various phases of the production cycle.

In the attempt also to minimise environmental impact downstream of our process, Florim has decided to issue a short guide to responsible waste management, to encourage the reuse and recycling of materials whenever possible.

To find out more about the company's energy and environmental management, visit our website or read our "Sustainability Report".

## MANAGEMENT OF PACKAGING

Florim packaging materials subdivide into primary packaging - containing and in direct contact with the product - and shipping materials, provided for transport.

### PRIMARY PACKAGING

#### CARDBOARD BOX

Our main "primary packaging method". Florim packaging has been carefully designed to minimise the use of cardboard and reduce waste, with the aid of automatic packaging machines. Moreover, all cardboard used within Florim is 100% recycled and recyclable. It can be reused as a substrate in DIY projects or for other creative uses. At end of life, cardboard is consigned to the municipal recycling system, which sends it to paper mills for reuse for new packaging.

## SHIPPING PACKAGING

### WOODEN CRATE

Used for large slabs. Florim encourages the return of crates still in good condition via a cash refund. When no longer reusable, crates are recycled as raw material for the wood industry.

### PALLETS AND OTHER WOODEN PACKAGING

Pallets and other wooden packaging can be reused for handling goods or for creative uses. At end-of-life, they should be recycled as raw material for the wood industry.

### GALVANISED STEEL A-FRAMES

Galvanised steel A-frames can easily be stacked and reused for subsequent slab handling procedures. At end-of-life, they can be completely recycled as a steel industry raw material.

### PLASTIC COVERS

Plastic covers, also known as "hoods", are completely recyclable. At end-of-life they should be recycled through the municipal plastic recycling service.

### STRETCH FILM

These plastic wrappings (similar to domestic cling film) can be recycled in the municipal system like any ordinary plastic.

### STRAPS

These are the plastic bands that stabilise the packaging. They are made from recycled plastic. At end-of-life, they can be recycled in the municipal system like any ordinary plastic.

### PROTECTIVE PADDINGS

They are used inside crates to provide additional protection for large slabs. They must be disposed of as standard municipal waste at end-of-life.



## INSTALLATION OFFCUTS AND DEMOLITION RUBBLE

Ceramic offcuts from cutting and drilling procedures during installation and rubble created when tile coverings are demolished are completely inert (unreactive, chemically and physically stable, resistant to prolonged exposure even to extreme conditions in terms of temperature, humidity and chemicals present).

Offcuts and rubble must be consigned to companies authorised to recycle building waste (which may be used for various purposes, such as the preparation of foundations).



