

Technical Guide for Flooring and Wall Coverings

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This is LayerStone

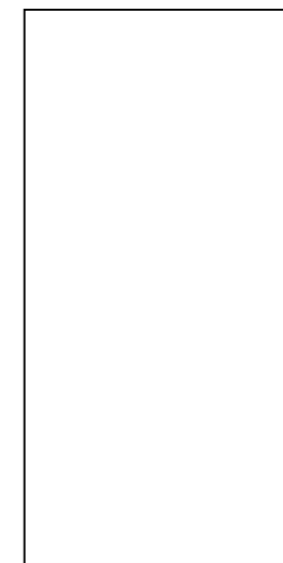
LayerStone, with its surfaces, enhances the allure of natural stone. These surfaces are the result of a harmonious blend of technical and aesthetic elements, reaching the pinnacle of excellence in large formats in the world of natural stone flooring and wall cladding, thanks to the decades-long experience of the GammaStone group. For over 50 years, GammaStone has been consistently dedicated to research and development, pushing its products towards an ever-evolving aesthetic that stands the test of time. This commitment is reflected in collections of large-format marble, travertine, and limestone panels that challenge the limits of stone, becoming a true symbol of timeless beauty.





The Product

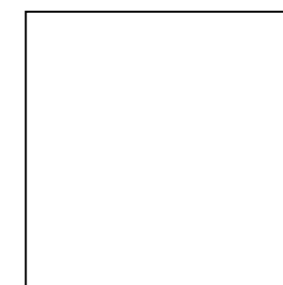
Timeless, special slabs with an ultra-thin thickness (12mm) that is unmistakable. This choice is at the core of the brand and stems from the intention to perfectly combine strength, durability, and beauty. Thus, GammaStone's LayerStone emerges as a high-quality product that offers the grandeur of large formats without compromising technical excellence, ensuring an innovative and long-lasting result. Utilizing GammaStone Air Technology, LayerStone surfaces boast exceptional lightness, offering large formats with high mechanical strength and superior thermal and acoustic insulation standards. GammaStone's LayerStone cladding and flooring represent a cutting-edge solution that transcends aesthetic norms and guarantees top-tier performance. This product is protected by a patent (n. RM2013A000068 and 102023000024285).



48x96"
1200x2400 mm



24x96"
600x2400 mm



48x48"
1200x1200 mm



24x48"
600x1200 mm

THICKNESS AND WEIGHT

1/2" 12mm  4,4 PSF 21 kg/m² 

One Surface, Many Properties



STANDARD SIZES

Our panels are crafted from innovative materials used in the aerospace industry and are available in standard sizes up to 48x96”.



EASY INSTALLATION

The installation of LayerStone panels is intuitive and straightforward. Suitable for both flooring and cladding, the panels can be fixed with cementitious adhesive, following standard laying techniques.



LIGHTWEIGHT

Utilizing GammaStone Air Technology, LayerStone surfaces boast exceptional lightness, offering large formats with simultaneously high mechanical resistance and superior standards of thermal and acoustic insulation.



BENDING RESISTANT

The Layerstone panel stands out for its exceptional stability during handling. The Layerstone panel maintains its shape and integrity, making it easily transportable by hand without risk of breakage.



IMPACT RESISTANT

The Layerstone panel demonstrates superior resistance compared to traditional 3 cm thick natural stone.



NATURAL MARBLE REINFORCED WITH A STRUCTURAL CORE AND A PATENTED STAINLESS STEEL MEMBRANE.

- Pressed into a solid slab for over 60 minutes at over 28,000 kg.
- Perfectly uniform compaction and support without internal fragility.
- Extremely rigid, elastic, and high-performance material capable of withstanding impacts, flexion, cuts, and punctures.



MAXIMUM ENVIRONMENTAL SUSTAINABILITY

- Reduced consumption of raw materials.
- Lower demand for water and energy.
- Reduced transportation pollution.

Large Surfaces for Every Environment

For all LayerStone sizes, the rated size corresponds with the work size.

Size	Work Size (mm)	Floor	Wall
48”x96” (1200x2400 mm)	1219x2438	•	•
24”x96” (600x2400 mm)	609x2438	•	•
48”x48” (1200x1200 mm)	1219x1219	•	•
24”x48” (600x1200 mm)	609x1219	•	•

Tones and Directionality

Tones

LayerStone laminated slabs, manufactured with GammaStone’s patented technology, combine thin layers of natural stones with a lightweight reinforced panel on the back. Although they are crafted from natural stones and may present minimal color variations, they retain the unique authenticity of these stones, ensuring aesthetic uniformity.

The GammaStone production process includes a rigorous selection of production batches to ensure that the slabs meet the tones predefined by the company. While slabs with the same finish but in different sizes may show slight tone differences, these always fall within the company’s tolerance margins. For optimal aesthetic results, the supplies are divided into identified tone groups.

It is recommended to use a single tone for each environment, interrupting the continuity of the tone only at doorways or expansion joints. For large spaces, subdivisions can be created by using fixed or movable furniture. For the cladding of interior walls, different tones can be used compared to the flooring, but a uniform tone should be maintained for each individual wall. In the case of large projects, GammaStone’s Project Engineering support is available to optimize the distribution of tones in collaboration with the designer or client.

Directionality

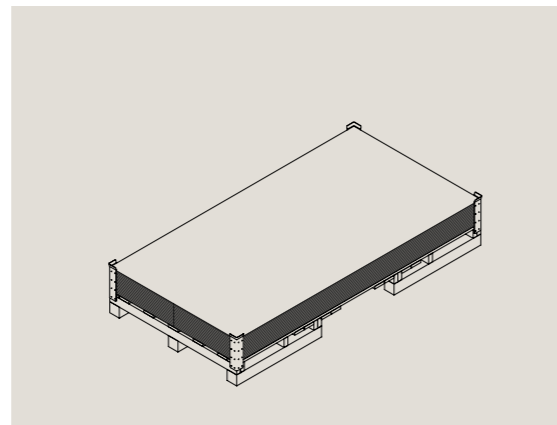
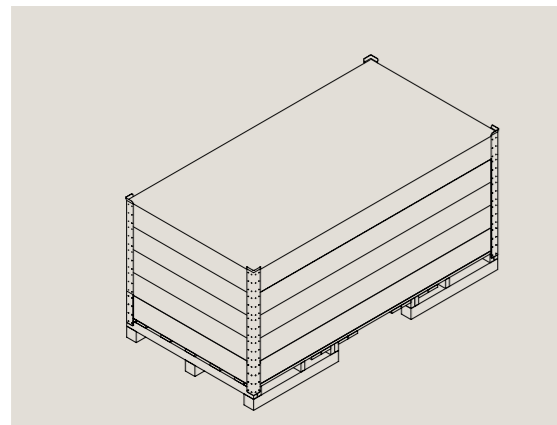
To maintain tone uniformity, it is important that the slabs are installed following the same direction, whether horizontal or vertical. The same direction should be respected for sub-formats as well. If the slabs are applied in different directions, even with the same tone, a perceived color variation may occur due to light exposure.

Packaging and Shipping

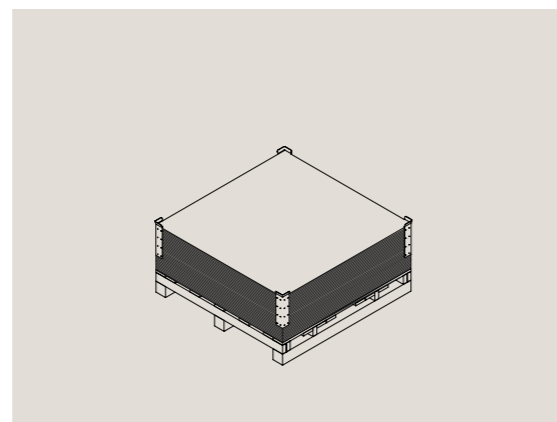
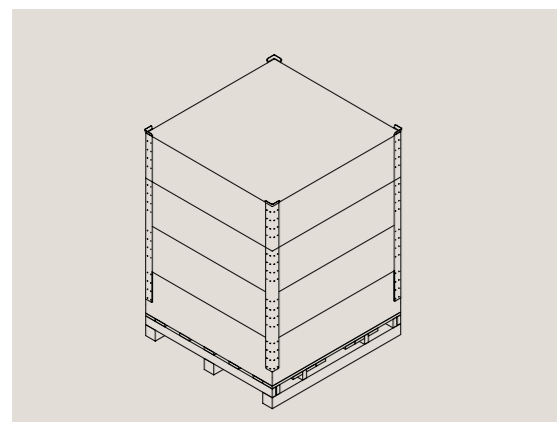
LayerStone slabs in the formats 48x96" (1200x2400mm), 24x96" (600x2400mm), 48x48" (1200x1200mm), and 24x48" (600x1200mm) are carefully packaged in stackable wooden trays and placed on custom-designed pallets to ensure the integrity of the product.

During transportation and storage, the packages must be placed evenly on a flat surface. Crates of the same size can be stacked. Do not stack other materials on top of the crates that may damage the packaging or the slabs.

Dimensions Total Box	Dimensions Single Box	Sizes Slabs	Pcs / Total Box
2 3/8"x100 3/4"x86 5/8" (1330x2558x2200mm)	52 3/8"x100 3/4"x17 1/2" (1330x2558x445mm)	48"x96" (1200x2400 mm) 24"x96" (600x2400 mm)	75 150



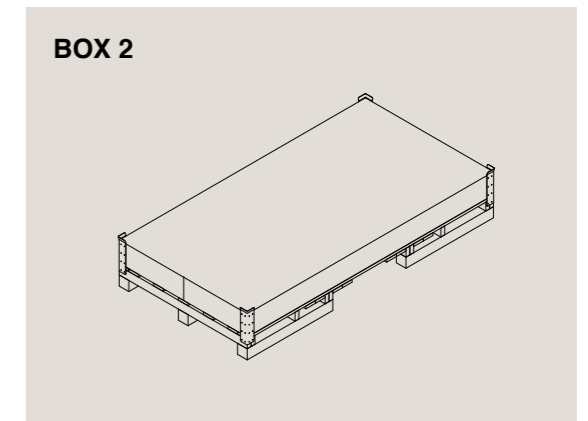
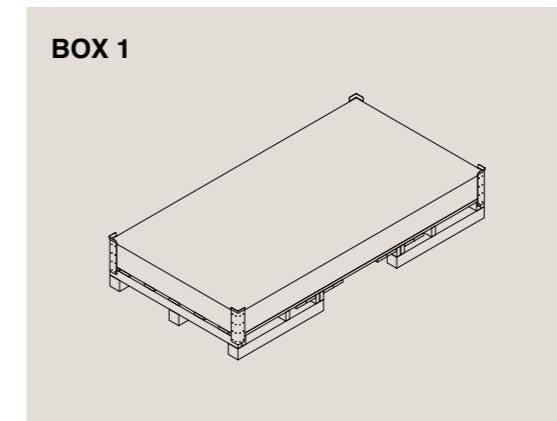
Dimensions Total Box	Dimensions Single Box	Sizes Slabs	Pcs / Total Box
52 3/8"x53 1/8"x98 7/16" (1330x1350x2500 mm)	52 3/8"x53 1/8"x25 1/2" (1330x1350x646mm)	48"x48" (1200x1200 mm) 24"x48" (600x1200 mm)	120 240



BOX 1 / 2 Dimensions:

52 3/8"x100 3/4"x17 1/2" (1330x2558x445mm)

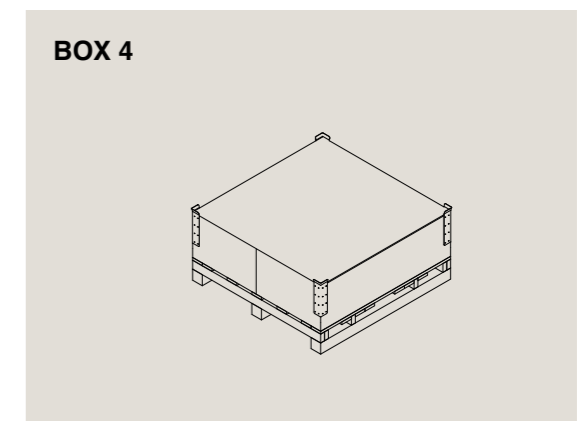
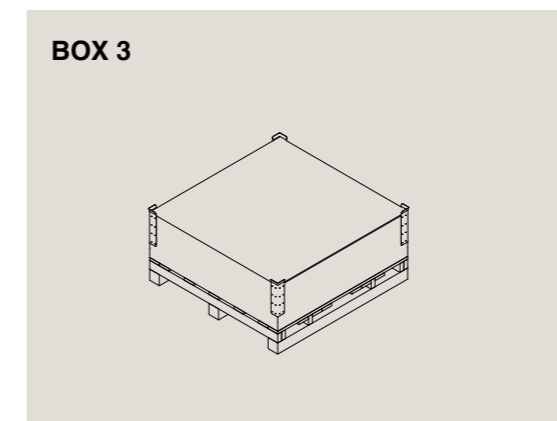
SIZES	THICKNESS	PCS/BOX	ft² PANELS/BOX	lb TOT	m² PANELS/BOX	Kg TOT
48x96" (1200X2400mm)	1/2" (12mm)	15	480	2480	44,6	1125
24x96" (600x2400mm)	1/2" (12mm)	30	480	2480	44,6	1125



BOX 3 / 4 Dimensions:

52 3/8"x53 1/8"x25 1/2" (1330x1350x646mm)

SIZES	THICKNESS	PCS/BOX	ft² PANELS/BOX	lb TOT	m² PANELS/BOX	Kg TOT
48x48" (1200x1200mm)	1/2" (12mm)	30	480	2014	44,6	1095
24x48" (600x1200mm)	1/2" (12mm)	60	480	2014	44,6	1095



Information regarding packaging

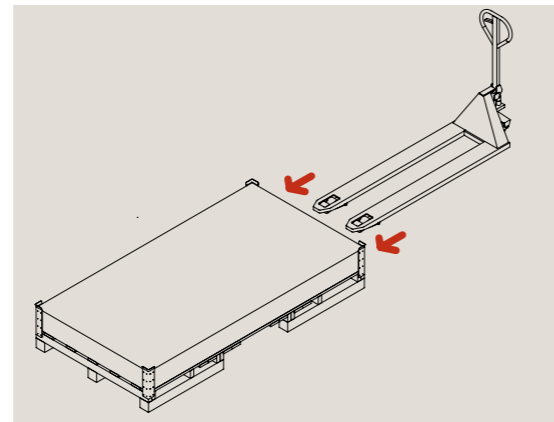
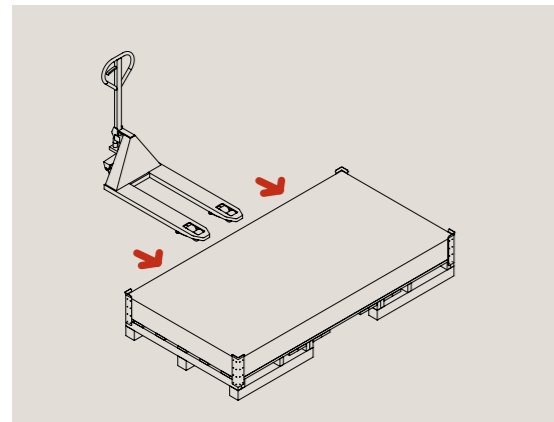
All information regarding packaging in this catalogue are considered purely indicative and subject to change.

Handling

Handling with a Forklift

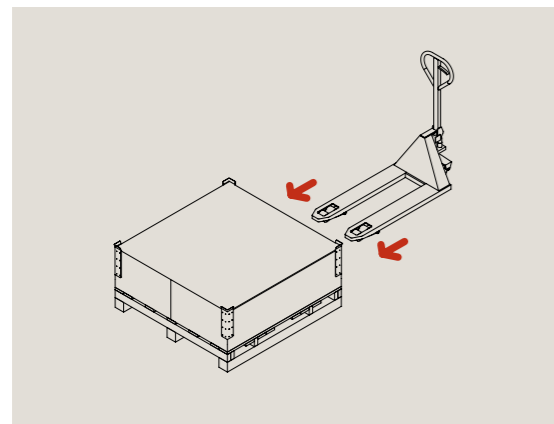
During all material handling phases, maximum care must be taken. The handling area must be restricted to pedestrians.

To lift and move the slab crates using forklifts or site cranes, it is important to insert the forks on the long side, positioning the forklift in the center and spreading the forks to their maximum width, ensuring they grip the entire depth of the pallet. To avoid damage to the crate contents, a forklift with a capacity suitable for the weight to be handled (at least 3,000 kg) must be used.



If it is necessary to insert the forks from the short side, for proper handling of the product, a forklift with a capacity suitable for the weight to be handled (at least 5,000 kg) must be used.

For handling the crates of slabs sized 1200x2400mm and 600x2400mm, forks at least 2400mm in length must be used, while for crates of slabs sized 1200x1200mm and 600x1200mm, forks at least 1200mm in length are required.

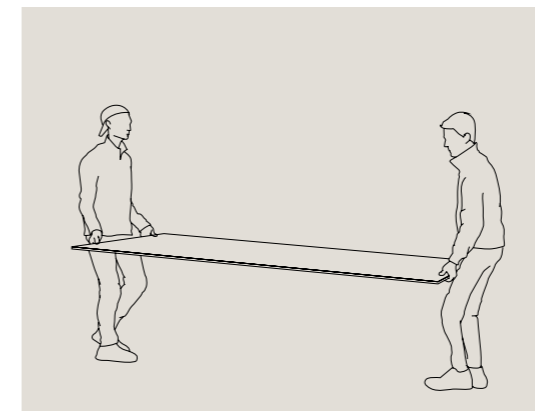
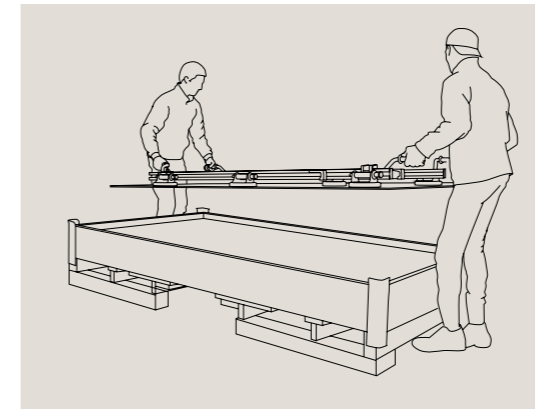


Manual Handling

The handling of LayerStone slabs must be carried out by a sufficient number of operators to ensure that each individual does not exceed the weight limits established by local regulations in the country where the construction site is located.

In some cases, mechanical lifting equipment may be required.

Place the packaging near the surface to be covered. Lift the slab from the long side until it is in a horizontal position. Always move the slab while keeping it either perpendicular or parallel to the ground, ensuring that the corners are protected from accidental impacts.



Gently rest the slab on its long side, keeping it slightly inclined and ensuring that it is placed on a soft material or appropriately spaced wooden slats.

It is important to maintain correct posture at all times, avoiding undue strain on the lower back, and to wear suitable gloves to improve grip and prevent abrasions.

To facilitate the handling of slabs, especially those weakened by holes or openings, and to ease their installation on walls, it is possible to use appropriate frames equipped with suction cups (e.g., provided by Raimondi, Montolit, Sigma Italia, Siri). Use suitable systems based on the dimensions of the slabs being handled, taking their weight into account to determine the necessary number of operators.

Design and Installation Guidelines



Format Selection: In addition to the instructions provided in the following chapters, which are specific to each application, it is important to consider the site logistics. The installation of slabs in sizes 48x96" (1200x2400mm), 24x96" (600x2400mm), 48x48" (1200x1200mm), and 24x48" (600x1200mm) requires adequate space for handling and installation.



Installation Pattern: Thanks to their flatness, LayerStone slabs can be installed using any pattern, including a staggered layout with a 50% offset.



Thresholds and Doorways: At doorways, it is recommended to create a joint that aligns with the one in the screed. This can be done by following the sequence of the chosen installation pattern. Even in adjacent rooms, different tensions may develop in the screed, which should be isolated accordingly.



Material Order: Since these are large-format slabs, it is important to verify, based on the installation pattern, the amount of material needed for the wall cladding or flooring. It is advisable to order extra material to account for possible breakage during handling or for future needs.

The instructions provided in this guide are based on the experience of LayerStone. It is the responsibility of the designer to verify the compliance and feasibility of the project in accordance with the regulations in force in the country where the work will be carried out.

Processing

On-site processing operations must be carried out safely, using the appropriate PPE as indicated in the product safety data sheet and in compliance with local regulations. If the material is cut, drilled, or worked in a way that generates dust, these operations should be performed outdoors, in a properly ventilated workspace, or using wet tools or equipment fitted with dust extraction systems.

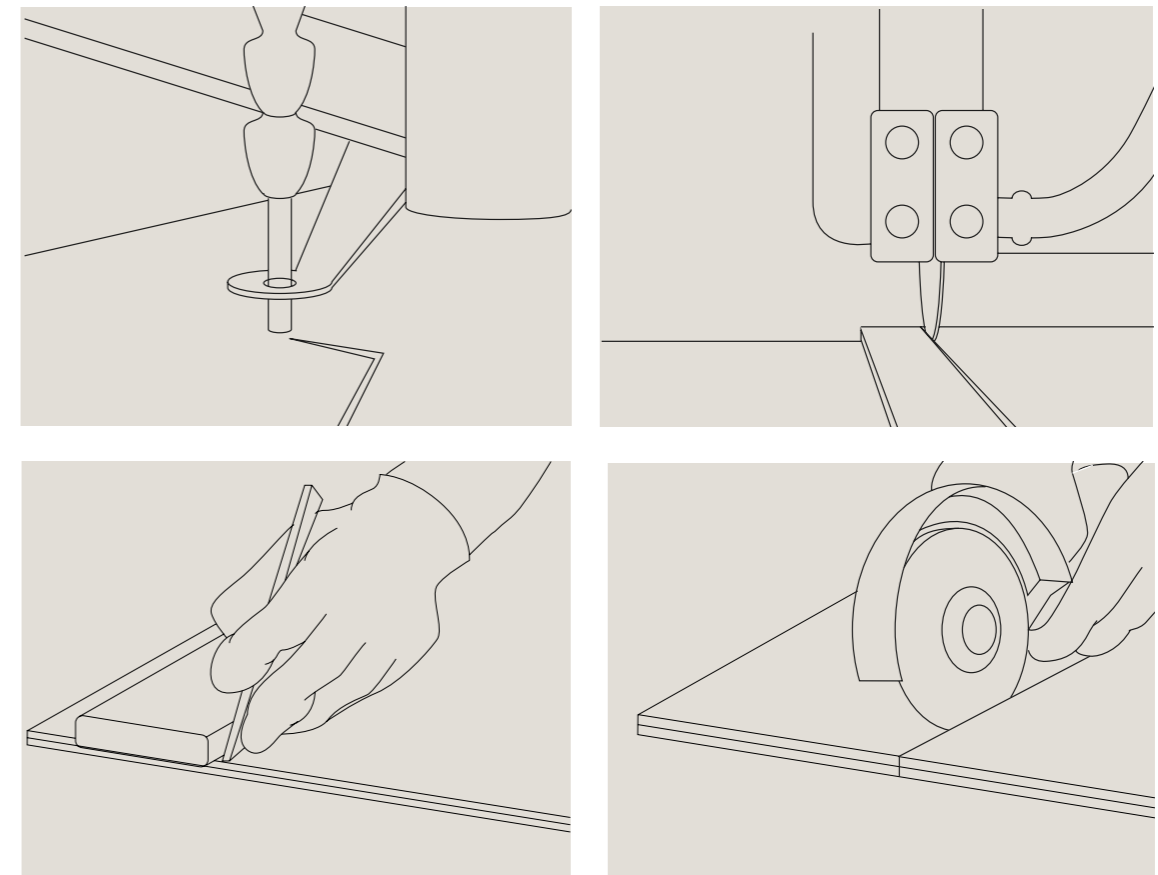
For processing LayerStone on-site, it is essential to have a flat and stable work surface on which the slab can be fully supported. In this regard, the lid of the slab trays can be used, resting on the trays flipped upside down. Alternatively, appropriate workbenches available on the market can be used.

Mechanical Cutting

LayerStone slabs can be cut on-site using manual tile cutters, either dry or water-cooled, or angle grinders. The cutting should be performed with the finished surface facing upward.

LayerStone has successfully tested and recommends tools produced by Marmoelettromeccanica (www.marmoelettro.com), which are particularly suited for any processing needs in the workshop or directly on-site.

For making special cuts or shapes, waterjet systems or cutting benches commonly used by stone masons and companies specializing in marble processing can be employed.

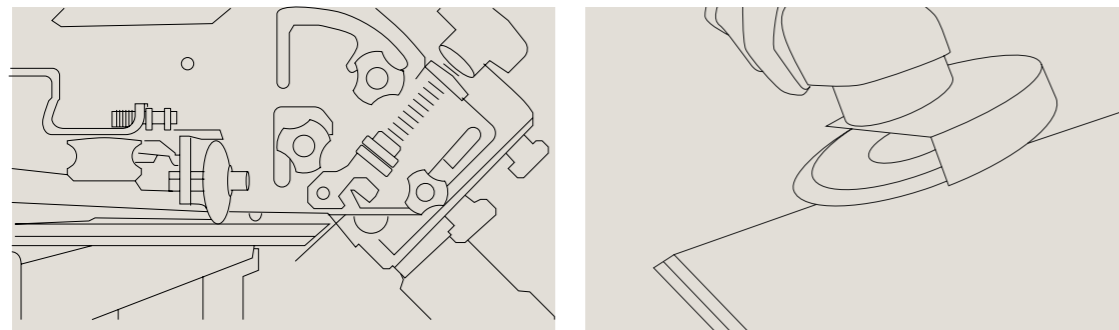


45° Cutting

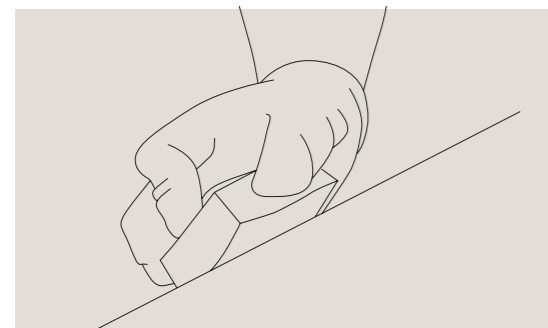
It is possible to use specific tools, such as manual grinders, to achieve angled cuts. To obtain a 45° edge on LayerStone slabs, use mechanical grinders equipped with diamond blades, preferably mounted on an aluminum bar that can be fixed to the workbench.

The edge obtained can be finished using polishing pads installed on manual grinders, available in different grit sizes depending on the desired finish.

LayerStone has successfully tested and recommends tools produced by Marmoelettromeccanica (www.marmoelettro.com), which are particularly suited for any processing needs in the workshop or directly on-site.



The edge obtained can be finished using polishing pads installed on manual grinders, available in different grit sizes depending on the desired finish.



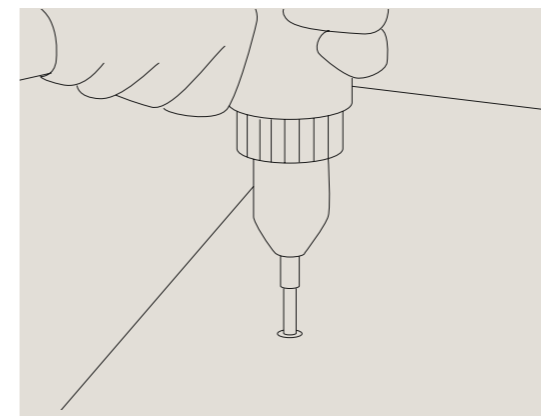
Edge Finishing

To make the worked edge less sharp, the finishing process should be completed using polishing pads installed on manual grinders or commercially available diamond sponges, which come in various grit sizes.

Drilling

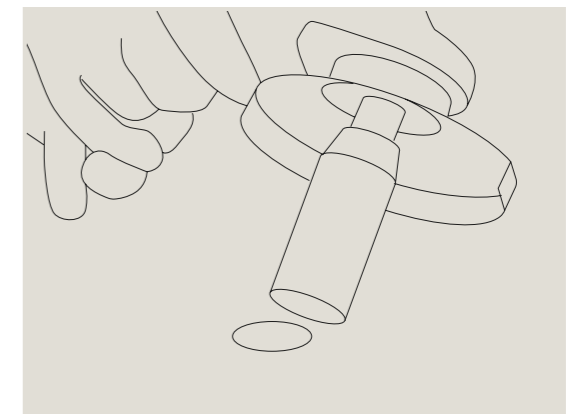
LayerStone can be easily drilled using diamond tools, either dry or water-cooled, typically used for working glass, marble, or other natural stones. Drilling should be performed with the decorated surface facing upward.

The circular hole saws and diamond blades used on electric grinders must have a continuous rim and be in good condition. Once the slabs are drilled or scored, they must be handled and installed with extra care.

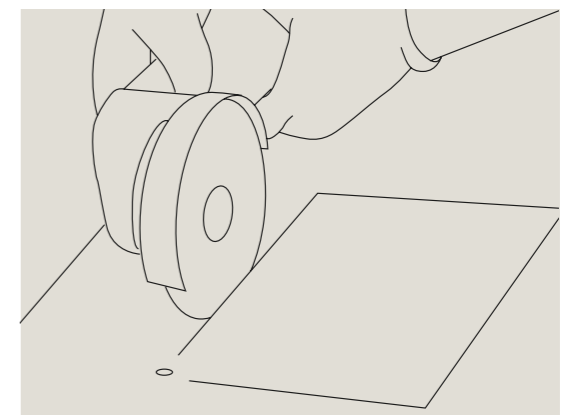
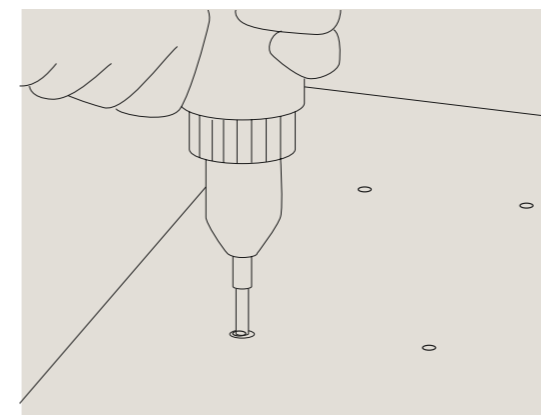


If drilling is done on non-fiber-reinforced material, reduce the rotation speed during the drilling process. In the case of multiple holes on a single slab, if possible, perform the drilling operation directly on the slab after it has been installed. To create holes with a maximum diameter of 8-10 mm, use natural stone drill bits mounted on electric drills. Do not use the hammering function and avoid applying excessive pressure to the surface.

For larger diameter holes, use diamond hole saws. Begin drilling with the tool tilted slightly against the slab.



To create cutouts (for example, for electrical outlets), four holes must be drilled at the corners near the edges, which should then be connected using a grinder equipped with diamond blades.



Instructions for Installing LayerStone on Floors

LayerStone slabs are suitable for installation on any type of building substrate, whether new or existing, as long as the substrate meets the appropriate mechanical strength and finishing characteristics required for installation.

Preliminary Check: Before performing any work on the slabs and proceeding with their installation, the following steps are required:

Verify Material Compliance: Check the compliance of the slabs and the matching of tones available on site.

Complaints: Complaints regarding processed and installed material will not be accepted.

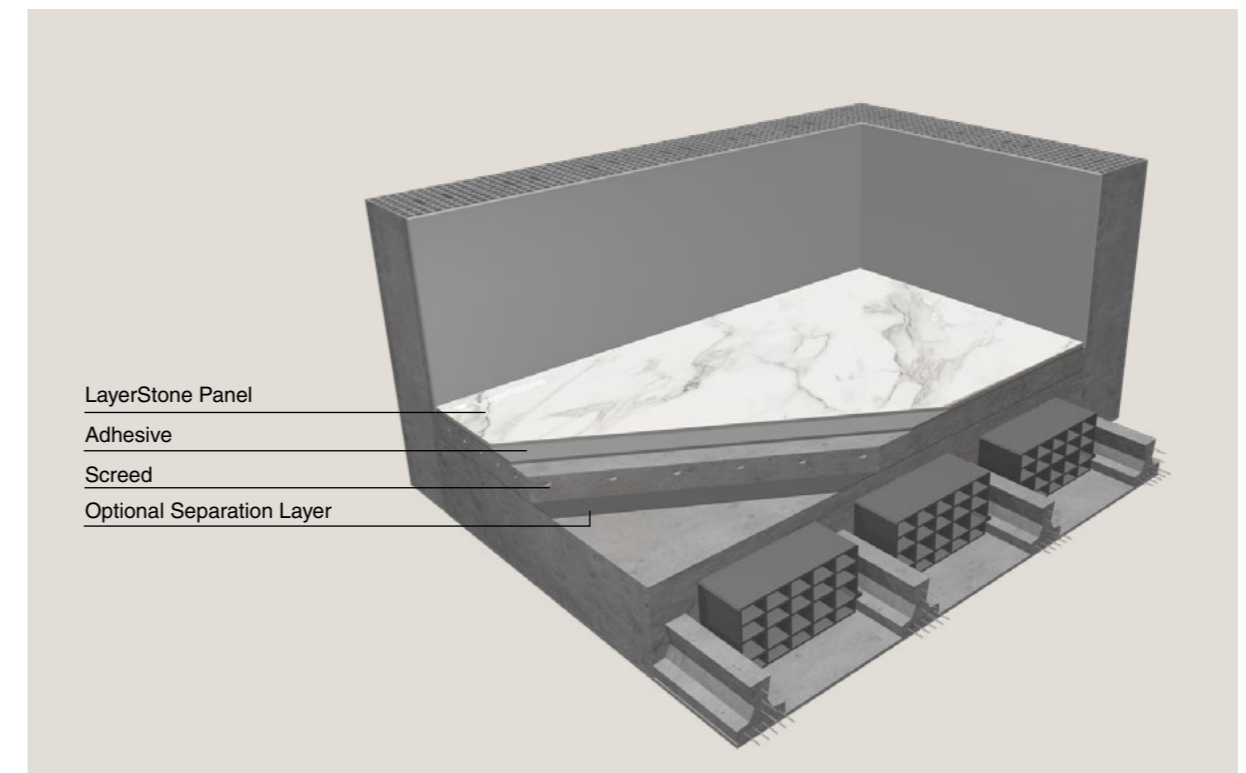
Substrate Characteristics

To ensure proper installation of LayerStone slabs, the substrate must meet the following requirements, in accordance with UNI 11493-1 standards. If these requirements are not met, restoration work must be carried out.

Curing	The substrate must be fully cured and stable at the time of installation.
Integrity	The substrate must be intact, free from cracks or detached parts.
Strength	It must have adequate surface strength to prevent subsidence that could cause the slabs to detach. Verify that the substrate is compact and resistant to bending and compression throughout its thickness.
Rigidity	The substrate must be rigid and maintain flexural deformations within the allowable limits based on the load requirements.
Flatness	Check the flatness of the surface using a 2 m straightedge according to ISO 7976/1 1989. The allowable tolerance is 3 mm. If the surface is not flat across most of the area, level or regularize the surface with suitable products. For localized defects, correct them by removing or grinding down excess areas and filling defective spots, even using the same adhesive intended for installation.
Surface Finish	The substrate's finish can influence the adhesive's bonding. An overly smooth surface may be unfavorable. Roughen the surface through mechanical abrasion if necessary. Ensure that all operations promote good adhesion between the material and the existing substrate.
Moisture	The substrate must be dry on the surface to prevent the risk of efflorescence.
Presence of Contaminants	Remove cement residues, oils, paints, and other contaminants using appropriate methods to ensure the surface is suitable for adhesive application.

Installation on Cement-Based Screed

Curing	The screed must have completed its normal moisture shrinkage. In general, 7-10 days of curing are considered for each centimeter of thickness.
Compactness	It must be compact and uniform throughout its thickness, without any crumbly or detached parts. The surface should not be deeply scratched or crumble when scratched with a steel nail.
Flatness and Strength	The screed must be perfectly flat and provide adequate compressive strength for its intended use. The moisture content must be below 3% to prevent efflorescence.
Surface	If the surface is too smooth, roughen it using a steel disc, power trowel, or hand trowel. Remove any cement residues, crumbly parts, or sections not fully anchored. Seal cracks caused by moisture shrinkage with epoxy resin.
Joints	Provide control joints every 25 m ² , perimeter joints, and joints at doorways. Pipes must be embedded at least 2.5 cm deep and reinforced with a 2 mm galvanized mesh.
Unbonded Screeds	These must be thicker than 4 cm and include a horizontal separation layer consisting of overlapped polyethylene sheets sealed with adhesive tape. Install a perimeter joint with compressible material along the perimeter of the walls and pillars.
Insulating Layers	If present, size and reinforce the screeds with welded mesh or other systems to prevent punching and distribute the loads.
Expansion Joints	In the case of screeds laid in multiple phases, provide vertical expansion joints at the connection points or apply a water and binder solution to the hardened section.

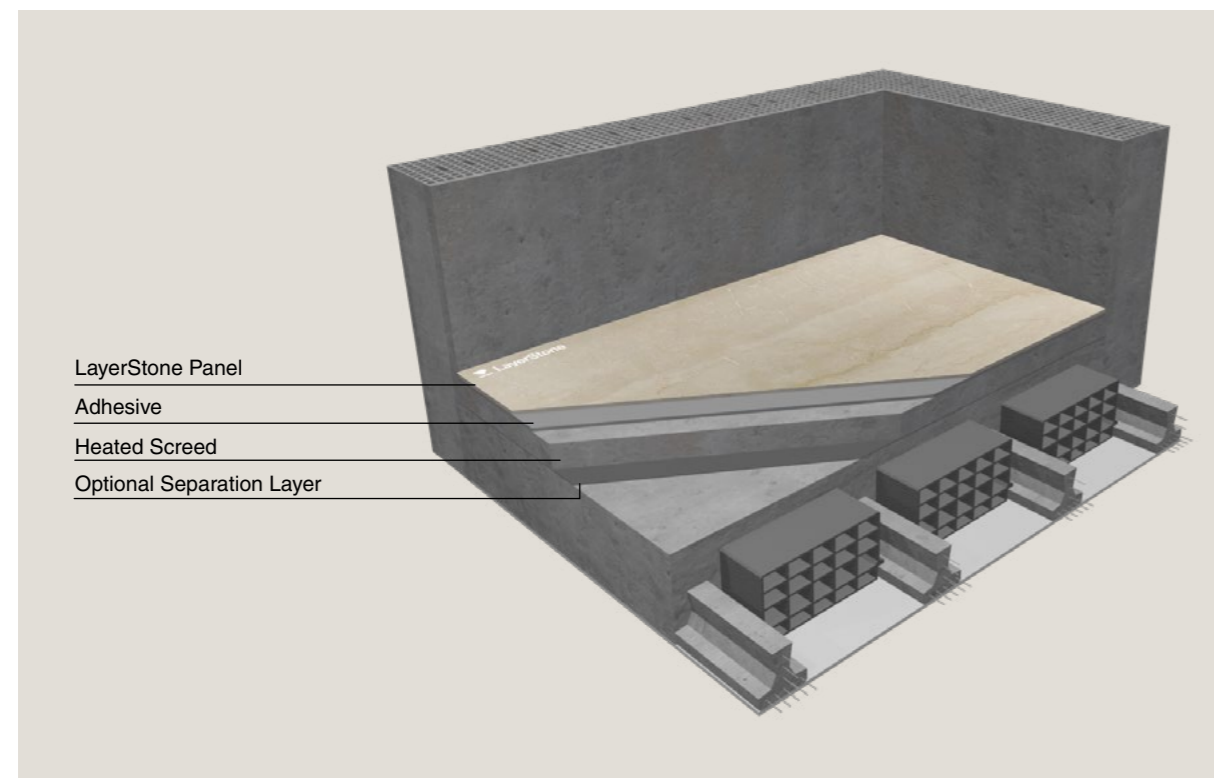


Installation on Anhydrite Screed

- Anhydrite screeds are self-leveling. Before installation, the surface must be sanded, dust-free, and have a moisture content of 0.5%.
- Apply a primer according to the adhesive manufacturer's instructions before installation.

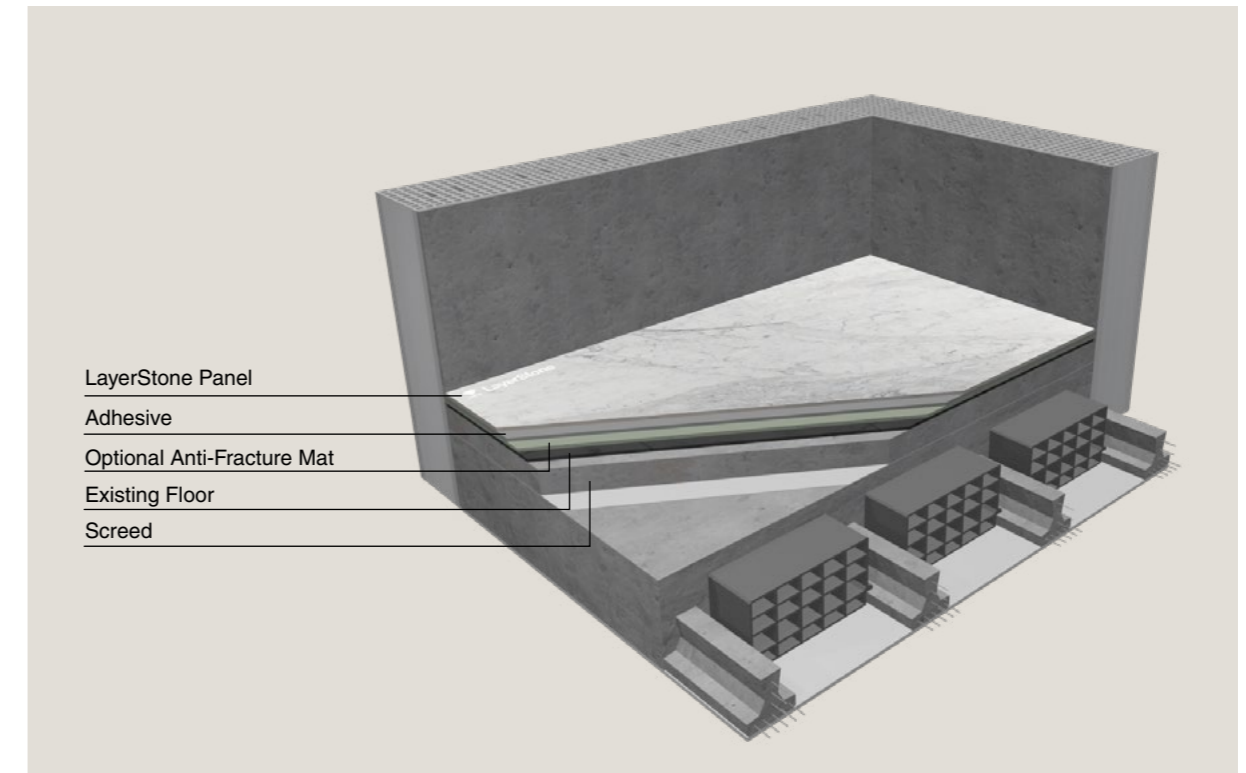
Installation on Radiant Screeds

- Ensure that thermal shock testing has been performed according to current regulations (e.g., UNI EN 1264-4).
- Follow the manufacturer's instructions for electric, panel, or embedded heating systems.
- Ensure that the screed is sufficiently thick and resistant in areas with heating elements. Seal any cracks caused by shrinkage before installation and bring the screed back to room temperature.
- Use an anti-fracture membrane to prevent movement and apply large-format slabs. Maintain a perimeter joint of at least 5 mm and keep the baseboards spaced from the floor.



Installation on Existing Floors (Ceramic/Porcelain Stoneware, Marble, and Natural Stones)

- Check the consistency and adhesion of the existing floor. Mechanically abrade smooth or polished surfaces and perform a thorough cleaning.
- Apply a membrane if it is not possible to maintain the expansion joints or if the existing floor has cracks.
- Use a fast-setting adhesive to ensure proper bonding.



Installation on Parquet/Wood and PVC

- Ensure that the floor is well anchored and, in the case of wood, stable over time. Mechanically roughen the surface until it becomes coarse.
- Apply an anti-fracture mat before installation.
- Consider removing the existing floor, as this may be less costly than overlay installation.

Installation on Resin

Preparation: Mechanically roughen the surface and fill any cracks with epoxy resin. Verify the substrate requirements before installing the slabs.

Installation on Wooden Floors

- The floor must be stable with a maximum deflection of less than 1/250 of the free span.
- Do not apply LayerStone directly onto wood. Create flooring over a wooden floor using an unbonded screed of at least 4 cm or a decoupling mat. Alternatively, create a supporting layer using dry systems.

These instructions will ensure proper and long-lasting installation of LayerStone slabs on various types of substrates. Be sure to follow all specific guidelines for each type of screed and surface to achieve optimal results.

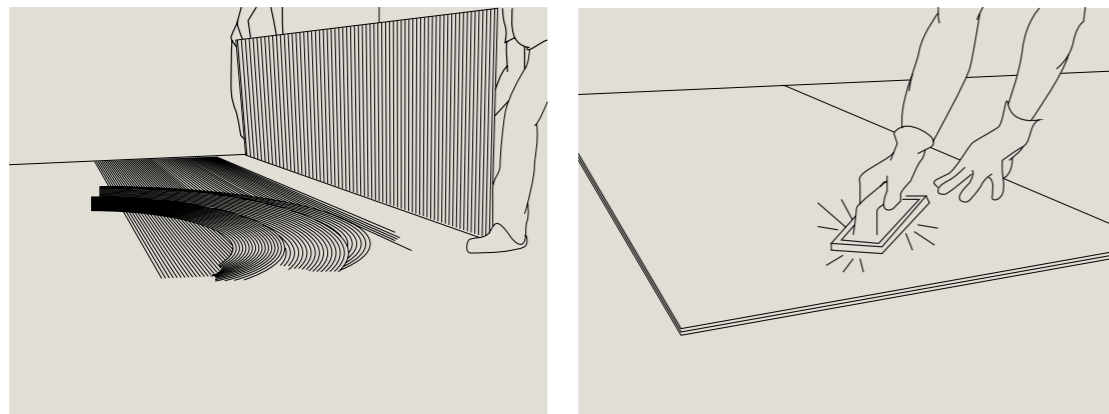
Adhesive and Installation

The choice of adhesive for installing LayerStone slabs must consider the following factors:

- The intended environment;
- Type of substrate
- Size of the slabs

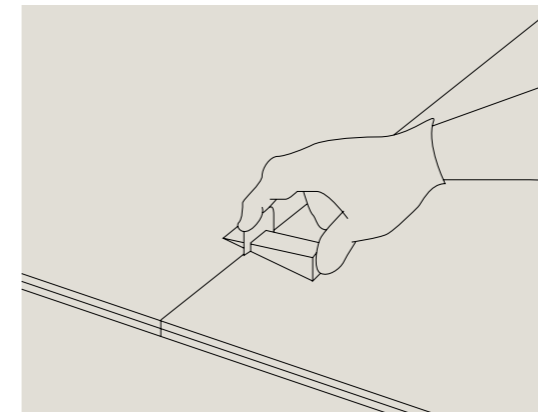
In general, for the installation of the slabs, the use of a cement-based adhesive of class C2S1 or C2S2 is recommended, with improved adhesion (2) and deformable (S1) or highly deformable (S2). The adhesive should be applied to achieve full coverage, using the double-spread technique.

The choice of trowel depends on the finish and flatness of the substrate. It is recommended to use a 6/8 mm notched trowel for the substrate and a 3 mm notched trowel for the back of the slab. Apply the adhesive with full coverage, first to the back of the slab and then to the substrate, ensuring the corners and edges are fully covered, avoiding air pockets between the substrate and the slab. Spread the adhesive only on the surface intended for slab installation to prevent the formation of surface films that may compromise adhesion.



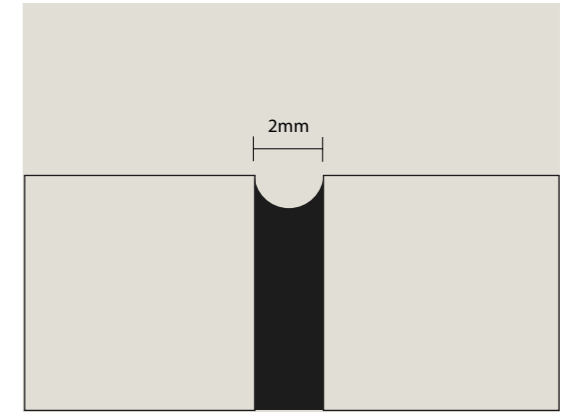
After laying the slab, vigorously press the surface with a rubber trowel, starting from the side opposite to the applicator and ensuring that any voids and air bubbles are eliminated. Check the perfect adhesion of the corners and edges. Do not walk on the floor during and after installation, adhering to the walkability times indicated by the adhesive manufacturer. Extend these times if installing on non-absorbent substrates, such as in overlay installations. It is advisable, when possible, to use fast-setting adhesive to reduce curing times and make the surface walkable sooner.

For polished surfaces, it is important to protect the slabs during installation to prevent contact with tools that could stain or scratch them. Frequently clean the floor and avoid walking on it with dirty shoes or in the presence of debris. After installation and cleaning, protect the slabs with soft covers until the work site is completed.



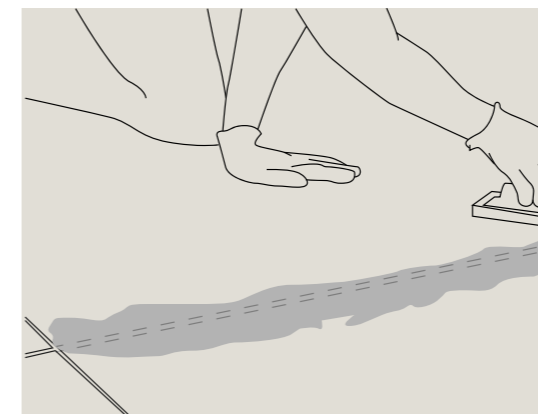
Leveling Systems

To facilitate the installation of slabs and ensure the floor's flatness, screw or wedge leveling systems can be used. These tools help maintain an even gap between the slabs and the substrate during adhesive application. Once the adhesive has set, the leveling systems can be easily removed. Ensure that the leveling systems are properly positioned and adjusted to achieve a perfectly leveled surface.



Grout Lines

For the installation of LayerStone on indoor flooring, a minimum grout line of 2 mm is recommended. This measurement may vary depending on the size of the slab and the surface to be covered. The desired grout line can be achieved using spacers or leveling systems. $\geq 2 \text{ mm}$



Before proceeding with grouting the joints, it is essential to remove any excess adhesive from the surface of the slabs and adhere to the curing times specified by the adhesive manufacturer.

Only after the adhesive has fully cured can the joints be filled with cementitious or epoxy-based products. Epoxy products provide greater uniformity and better color retention over time, but they require thorough and timely cleaning to prevent residue from hardening and becoming difficult to remove.

It is recommended to use rigid rubber trowels, rather than spongy ones, for applying the grout. This method helps achieve a continuous effect between the slabs and limits the operation to the affected area, preventing the entire slab from being smeared.

Membranes

It is recommended to use suitable membranes in the following situations:

- Cracked substrates: Membranes prevent the transmission of substrate tensions to the flooring, thereby preventing cracks from forming in the covering.
- Not fully cured substrates: Membranes allow proper vapor release, reducing the risk of efflorescence and other moisture-related issues.
- Unmatched screed joints: When it is not possible to align the flooring joints with the screed joints, or in case of overlay installations, to maintain the existing joints.
- Heated screeds: To ensure proper heat distribution and prevent cracking.

Apply the membrane using an adhesive compatible with both the membrane and LayerStone slabs, after verifying and adequately cleaning the substrate. Once the adhesive has cured, proceed with laying the slabs. It is essential to respect the structural joints of the building.

For each of the systems mentioned above, always follow the specific instructions provided by the membrane manufacturer.

Interior Wall Cladding Installation

LayerStone slabs can be used for wall cladding in indoor environments.

Adhesive and Installation

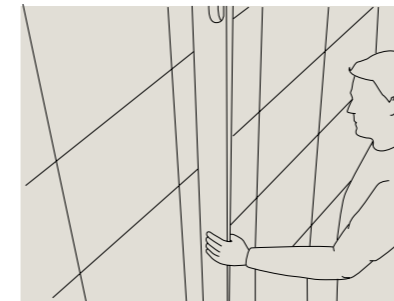
Use a deformable adhesive (C2S1) or highly deformable adhesive (C2S2) depending on the size of the slabs. Apply the adhesive using the full-bed method with the double-spread technique, both on the substrate and the slab, ensuring that the corners and edges are also covered. The amount of adhesive should be proportional to the size of the slab and the characteristics of the substrate.

The installer will choose the appropriate trowels: generally, a 3 mm notched trowel is recommended for the slab and a 6-9 mm notched trowel with angled teeth for the substrate. It is important that the amount of adhesive is sufficient to ensure installation without air pockets between the slab and the substrate.

Spread the adhesive only on the area where the single slab will be installed to prevent the formation of surface films that could compromise adhesion. Once the cladding is installed, tap the slabs to allow air to escape from the adhesive.

Grout lines of at least 1-2 mm are recommended, depending on the size of the slab, the wall area to be covered, and the quality of the substrate. Before grouting the joints, respect the drying times indicated by the adhesive manufacturer. Cement-based or epoxy resin products can be used; the latter provide greater uniformity and long-term color retention but require careful and timely cleaning.

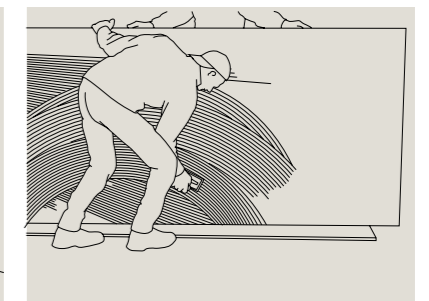
Respect the building's structural joints and create expansion joints in the cladding for every maximum of 25 sqm, with the larger side not exceeding 6 m. Fill all corners and edges with silicone products.



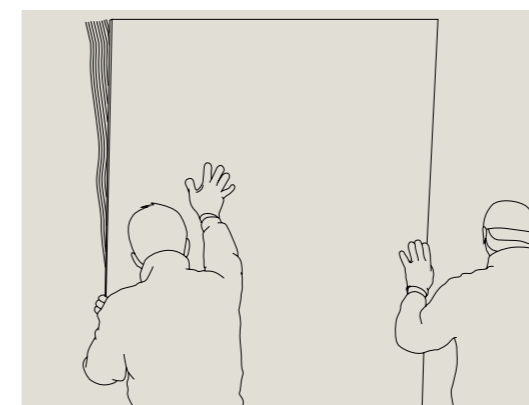
Checking the Flatness of the Existing Substrate



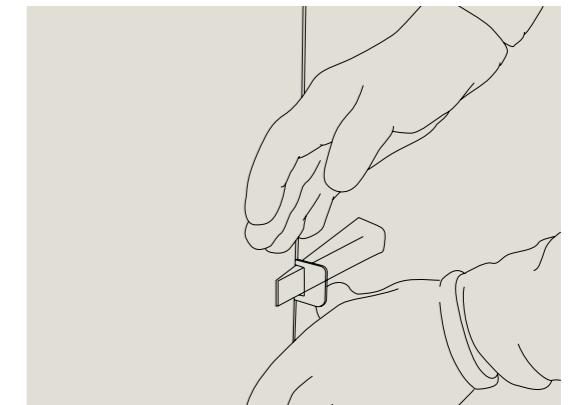
Application of Adhesive on the Existing Substrate



Application of Adhesive on the Back of the Slab



Installation



Grouting the Joints

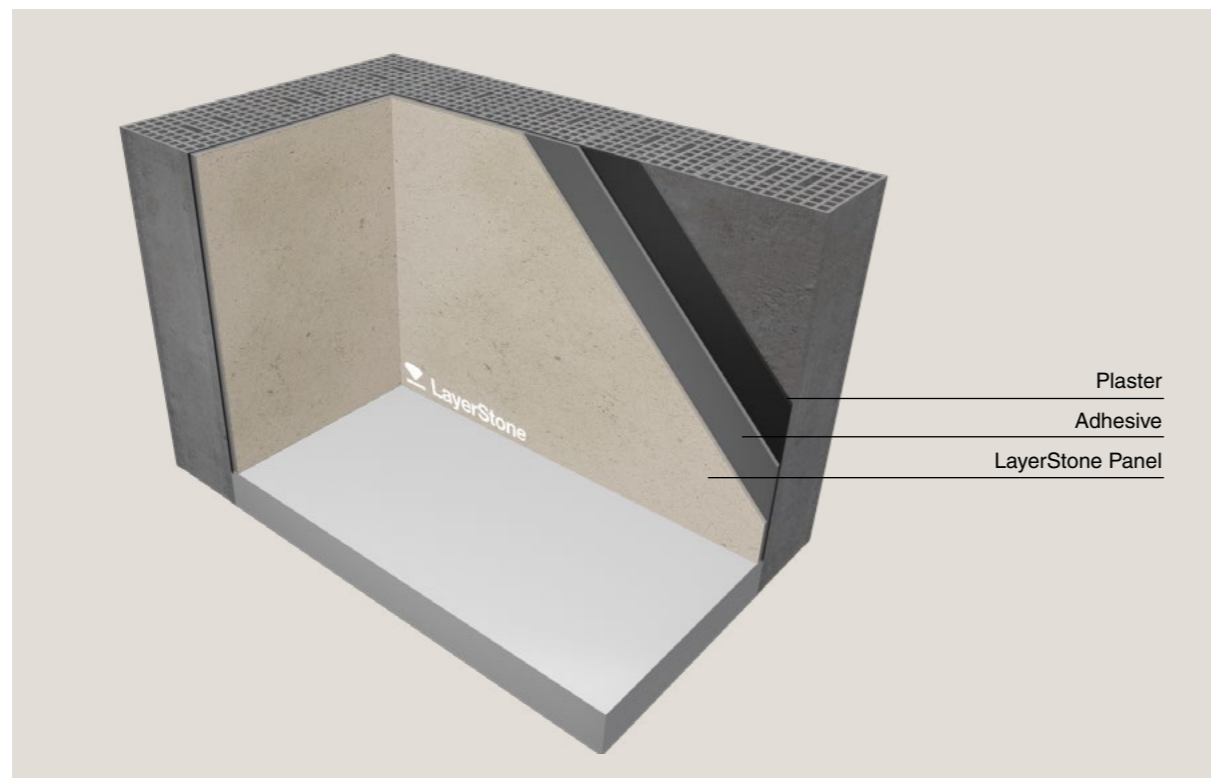
Substrate Verification

For proper installation of the slab, verify that the substrate meets the requirements indicated on page 18.

Cement/Lime and Gypsum Plaster

The plaster must be flat, free of cracks, and must have completed its normal moisture shrinkage. Any non-flat or damaged areas can be leveled with suitable products or the same adhesives.

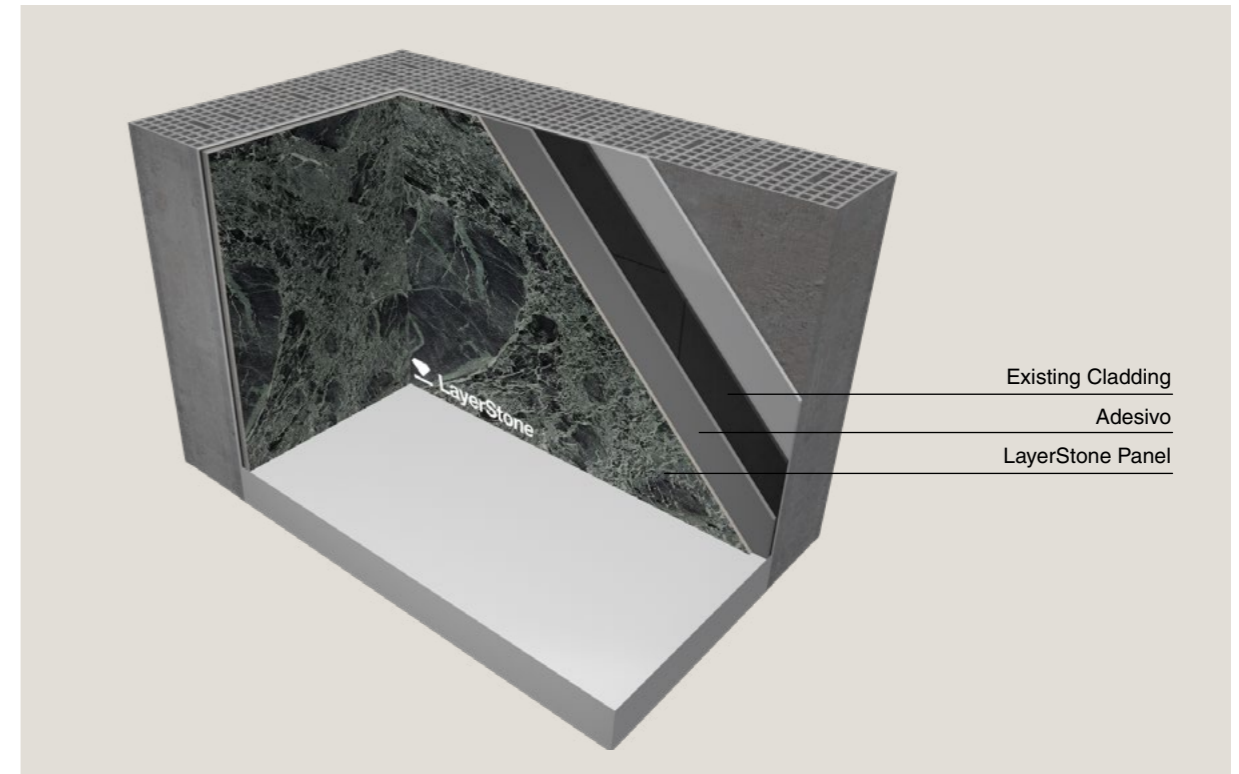
The presence of gypsum requires the prior application of a primer on the substrate to allow the use of cement-based adhesives. On powdery or highly absorbent plasters, the use of a primer may be necessary, following the recommendations provided by the chosen adhesive manufacturer.



Overlay on Existing Cladding

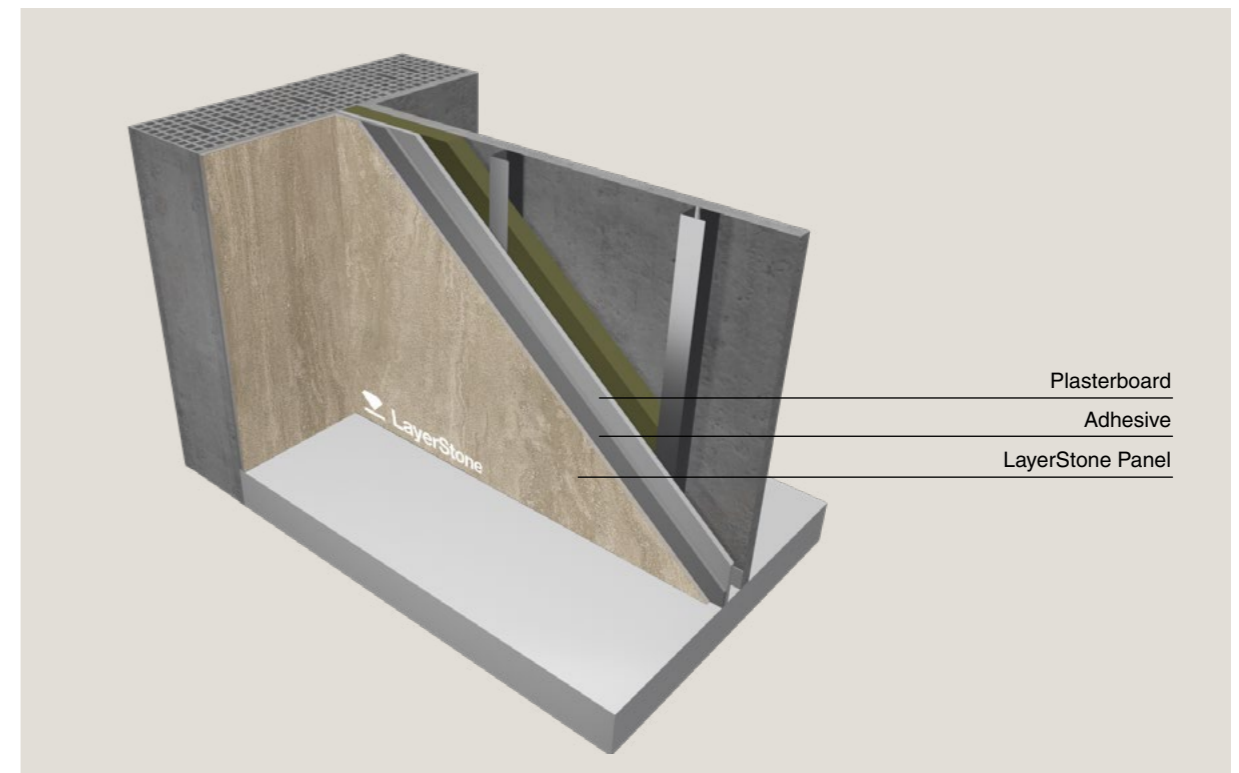
LayerStone can be applied over existing ceramic cladding. Before installation, it is necessary to ensure that the existing cladding is solid, stable, securely bonded to the wall, and free of any loose parts. To ensure proper adhesive bonding, roughen the surface using mechanical grinders.

If openings have been made in the existing cladding for the installation of new systems, they must be filled with suitable products before applying the new cladding. When applying the adhesive, consider the need to level these areas to prevent any unevenness.



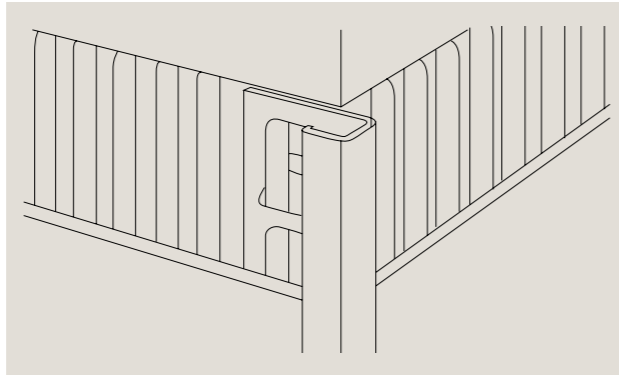
Plasterboard

LayerStone slabs can be installed on plasterboard walls, which must be sized according to the height and weight of the planned ceramic cladding. The wall must be treated with a specific primer applied to the surface of the substrate to allow the application of cement-based adhesive.



Creating Corner Elements

To complete and finish the installation, whether for floors or walls, there are commercially available corner profiles, trim pieces, decorative strips, edges, expansion joints, and perimeter borders from various manufacturers. These profiles are available in thicknesses suitable for LayerStone. In addition to enhancing the aesthetic of the element, they ensure protection of the edge from accidental impacts.



Creating Corners Without Profiles

Corner elements can be created on-site using a 45° cut. To achieve this, follow these instructions:

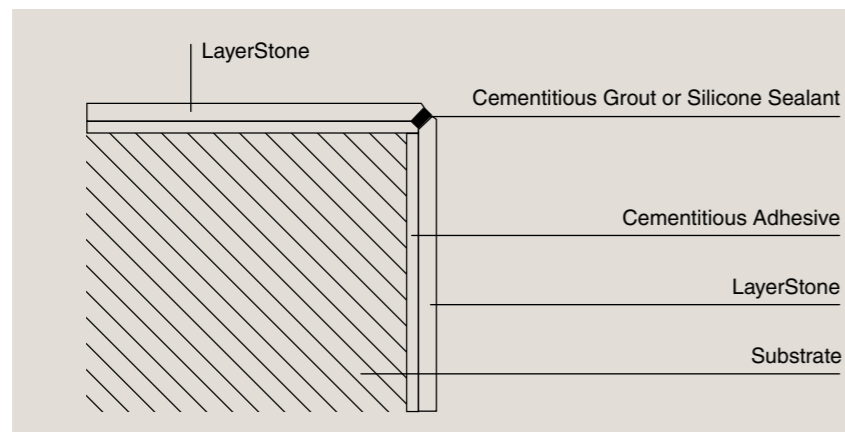
- **Slab Cutting:** Cut the edge of the slabs at a 45° angle as indicated in previous sections. This allows for a precise and clean joint.
- **Slab Bonding:** Bond the slabs to the substrate, maintaining a gap of at least 2 mm between them. Use a 1 mm spacer to ensure proper spacing.
- **Grouting and Sealing:** Once the adhesive has hardened, fill the gap with appropriate cementitious grout or silicone sealant. This step is essential to ensure the corner's strength and durability, and to prevent water and dirt infiltration.

Practical Tips

- **Precision in Cutting:** Ensure that the 45° cuts are made precisely to achieve a well-defined and aesthetically pleasing corner.
- **Use of Quality Adhesives:** Choose high-quality adhesives to ensure the long-lasting hold of the slabs.
- **Drying Time:** Respect the drying times indicated by the adhesive manufacturer before proceeding with grouting.
- **Final Cleaning:** Thoroughly clean the work area after installation and grouting to remove any adhesive or grout residue, ensuring a flawless finish.

Conclusion

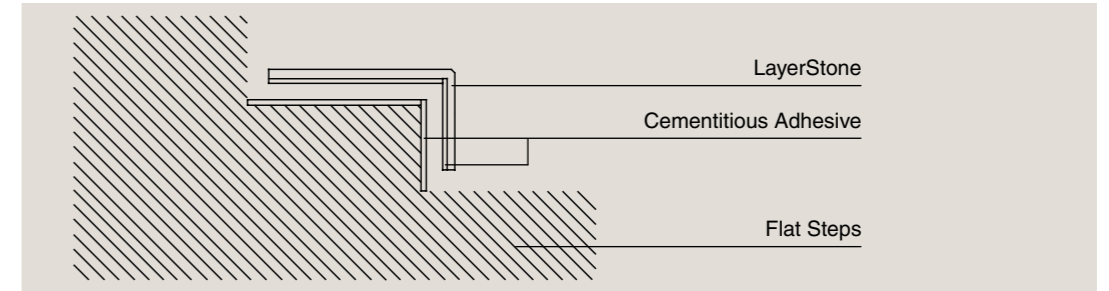
Carefully creating corners is essential for achieving a visually appealing and durable cladding. Whether using commercial profiles or opting for on-site creation with a 45° cut, it is important to follow instructions closely and use high-quality materials.



Stair Cladding

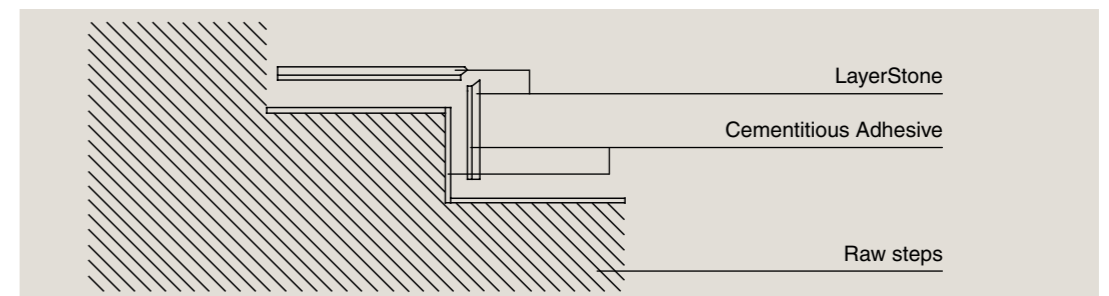
Stairs with masonry and reinforced concrete structures must be prepared to ensure a flat and resistant substrate for the adhesive installation of LayerStone slabs. The substrate can also consist of pre-existing risers and treads, which must be abraded and prepared for cladding.

If you wish to clad a reinforced concrete staircase using pre-assembled LayerStone steps, the substrate must be perfectly flat and suitable for receiving the slabs. Once the step is properly prepared, the LayerStone slab can be installed using the double-spread adhesive method.



Separate Installation of Tread and Riser

When using LayerStone treads and risers to be installed separately, the installation can be done directly on the raw step structure, avoiding the need to create a finished false step to be clad. In this case, the space between the raw step and the tread/riser must be filled with cementitious adhesive, which should also be applied to the back of the slabs beforehand.



Stairs with Steel Structure

For stairs with a steel structure, the tread may consist of a tray in which the screed is laid, followed by the application of the slab. In the case of steel treads and/or risers, they can be directly clad only if they are properly sized and free of flexion when subjected to load. The substrate must be ground to ensure proper adhesion of the polyurethane adhesive.

Stairs with Special Structures

In the case of stairs with special structures, they must be evaluated on a case-by-case basis following the instructions provided by the structure's supplier.

Protection of Corners and Edges

Regardless of the material used, the connection between the risers and treads, and in general the edge of the step, are the most sensitive parts of the staircase to impacts. To preserve their integrity, it is always advisable to avoid dragging objects (such as suitcases, cleaning appliances, etc.) across them, as this could cause chipping.

The 45° Connection Between Riser and Tread On-Site: After cutting the portions as outlined in the previous sections, proceed with the installation of the riser followed by the tread. The joining of the two 45° cuts must be done using two-component epoxy adhesives (such as Integra, Tenax, or similar). Once fully cured, the step thus created must be beveled (achieving a bevel of at least 2 mm). This process can also be performed by a fabricator capable of supplying the product with the riser/tread already assembled. The connection can also be made by maintaining a small joint of 1-2 mm filled with cementitious or epoxy grout. In this case as well, the bevel must be created.

Conclusions

The construction and cladding of stairs require particular attention to detail to ensure durability and safety. Using appropriate materials and techniques, while following the detailed instructions, is essential for achieving a high-quality, aesthetically pleasing, and functional result.

Cleaning and Maintenance

Before cleaning any LayerStone panel surface, make sure to perform the following actions:

- Check the chemical resistance of the installed panels in the general catalog;
- Conduct a preliminary test directly on the installed LayerStone panels using a cleaner and leave it in contact with the surface for a time similar to that intended for actual cleaning;
- Assicurarsi che i detergenti che verranno utilizzati non contengano acido fluoridrico e/o suoi derivati; acido solforico, candeggina e sostanze che, per loro stessa natura, danneggiano tutti i prodotti lapidei.

Below are some guidelines for post-installation cleaning (after the LayerStone panels have been installed), whether it is for daily cleaning, specific cleaning to remove stains, or any extra maintenance that may be required.

Post-Installation Cleaning

- Post-installation cleaning helps remove grout, cement, lime, and cement adhesive residues. This type of cleaning is necessary at the end of the installation process.
- If post-installation cleaning is not performed properly or not done at all, it can often result in permanent marks that prevent proper cleaning of the floor, even with good daily maintenance.
- When possible, especially for medium to large surfaces, it is recommended to use a single-disc machine with soft pads (white or beige).
- Pulizia delle fughe cementizie miscelate con acqua. Questa tipologia di pulizia deve essere effettuata con detergenti specifici disponibili sul mercato quali:

MARBLEWASH (Fila)
 FASEZERO (Fila)
 PS87 PRO (Fila)
 ULTRACARE MULTICLEANER (Mapei)

Post-Installation Cleaning Instructions

1. Clean 4-5 days after grouting (the grout must be hardened); do not wait more than 10 days. After this period, cleaning can become much more difficult.
2. Dampen the floor with water before cleaning. This way, the grout joints are soaked with water, reducing their contact with the cleaners.
3. Allow the detergents to work for limited periods, then rinse with water as soon as possible.
4. Cleaning should not be done when the panel surfaces are very hot (e.g., exposed to sunlight on very hot days); this must be avoided as the action of aggressive chemicals becomes much harsher. In summer, perform the cleaning operation during the coolest part of the day.
5. Always perform a precautionary test before using the product (on an uninstalled panel), especially for honed or polished products.
6. For epoxy, two-component, and reactive grouts, removal must be done immediately and carefully, following the manufacturer's recommendations, as these grouts harden very quickly, sometimes within minutes. It is strongly recommended to follow the specific cleaning instructions provided by the grout manufacturer; check its effectiveness (with backlighting) with a preliminary cleaning test before grouting the entire floor/wall.

Daily/Standard Cleaning

Use hot water and a high-quality microfiber cloth, such as MAGIC CLEAN by Bonasystems Italia. If necessary, use hot water and a very diluted neutral detergent (one capful in 5 liters of water) or hot water and a universal degreaser (4-5 sprays in 5 liters of water). Afterward, always rinse with water and a clean microfiber cloth.

Type of Detergent	Detergent Name (Manufacturer)
Neutro	MARBLEWASH (FILA) CLEANE PRO (FILA) ULTRACARE MULTICLEANER (MAPEI)

Unless otherwise indicated by LayerStone, carefully follow the instructions on the manufacturer's packaging.

Extra Cleaning

This procedure is carried out to remove particularly old or stubborn stains or residues. Always perform a precautionary test before using the product (on an uninstalled panel), especially for honed or polished products. The following table lists effective detergents based on the type of stains.

Residue to Remove	Detergent Name (Manufacturer)
Grease, dust footmarks, base cleaning	PS87 Pro (FILA) Ultracare Stain Remover (MAPEI) NOSPOT (FILA)
Coffee, Coke, fruit juices	PS87 Pro (FILA)
Wine	Marble Restorer Kit (FILA)
Calcareous deposits	Cleaner Pro (FILA)
Rust	No Rust (FILA) Detertek Pro (FILA) Ultracare Rust Remover (MAPEI)
Inks, felt-tipped pen	NOPAINT STAR (FILA) PS87 Pro (FILA)
Tire traces, stains from rubber, metal or pencil	PS87 Pro (FILA)
Panel joint stains	Fuganet (FILA) PS87 Pro (FILA) Ultracare Grout Cleaner (MAPEI)

Always perform a precautionary test in a hidden area.

Unless otherwise indicated by LayerStone, carefully follow the instructions on the manufacturer's packaging.

DO NOT USE:

- Waxing or impregnating agents;
- Acidic or alkaline detergents;
- Abrasive pastes;
- Abrasive brushes or sponges.

Special Maintenance

Stain-Proofing Products for Joints/Grout	Product Name (Manufacturer)
	Ultracare Grout Protector (MAPEI) Fugaproof (FILA)

Unless otherwise indicated by LayerStone, carefully follow the instructions on the manufacturer's packaging.

Installation Tips

The installer must inspect all materials before installation. Before proceeding with the installation, place a few panels on the floor and carefully check their overall technical and aesthetic characteristics.

Installation

Use cementitious adhesives for low-porosity surfaces such as MAPEI S2FLEX / H40 KERAKOLL. After grouting, excess material should be removed as quickly as possible, and the affected surface should be repeatedly washed with a sponge and water. It is the installer's responsibility to keep the LayerStone panel surface clean by covering it with appropriate protective materials (e.g., chipboard, cardboard sheets, etc.). For creating internal and "L" cuts, it is recommended to round off sharp corners using drill bits with a diameter of at least 5 mm to reduce the risk of breakage or cracks in the already installed material. It is advisable to install LayerStone panels using mechanical leveling systems. However, it should be noted that some models available on the market may not be suitable for LayerStone panel installation due to their operating methods. If necessary, please contact LayerStone's technical office before installation. For further installation instructions, refer to the LayerStone technical manual.

Substrate

Floor: Compact Cement Screed

Wall: Compact Cement Plaster

Grout Joint Dimensions

The grout joint dimensions should be approximately 2 mm. The width of the mortar joints should be determined by the installer unless regulated by national installation standards. Plan appropriate perimeter joints in the flooring at contact points with vertical structural elements (walls, columns, stairs...) and appropriate expansion joints.

Mortar Color

It is recommended to use mortar in a color that matches the LayerStone panel color. Before using fine-grain slurry mortar, always perform a test as the colored pigment may stain the GammaStone panel surface and can be very difficult to remove.

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