



DECORATIVE CEILING TILES
from plain to beautiful in hours

**Installation Guide
for
FLEXSTONE PANELS**

Flexstone is a flexible architectural cladding material manufactured from an advanced blend of natural stone, modified clays, and inorganic minerals. Thanks to its composition and MS (Modified Clay) technology, it combines a natural stone appearance with light weight, flexibility, and high durability.

This product can be installed both indoors and outdoors on multiple substrates, including cement board, fiber cement, metal, ACP, drywall, wood, or traditional masonry walls.

Conditions of use

To ensure optimal material performance, the following conditions must be met during installation and use:

- Ambient temperature: between -30°C and 80°C.
 - Relative humidity below 90%.
 - Do not install during rain, snow, or strong winds (level > 5).
 - Avoid direct exposure to sunlight during installation.
 - The surface must be dry, level, clean, and free of dust, grease, or cracks.
 - After installation, protect the area from rain or moisture for 48 hours.
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Storage and Handling

To maintain the product in optimal condition prior to installation:

- Handle with care and avoid impacts or scratches from sharp objects.
- Flexible Stone may be transported rolled, but for long-term storage it must be kept flat to prevent deformation or warping.
- Store in a cool, dry, well-ventilated indoor area, away from direct sunlight and rain. Recommended conditions: temperature between 5°C and 35°C and relative humidity below 80%.
- When stacking flat, do not exceed 5 boxes per stack to prevent the products at the bottom from deforming under horizontal pressure (the actual limit depends on packaging strength).
- Keep panels on a firm, flat surface.
- Minimum bending radius: no less than 100 times the product thickness — for example, a 3 mm panel requires a bending radius of at least 300 mm. Excessive bending may cause surface cracking or damage to the structural layers.
- Large panels (over 24 × 48 inches) must be handled by two people to prevent twisting or cracking.

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Correct installation is essential to the material's performance and durability. The type of adhesive and the substrate preparation depend on whether the application is interior or exterior.

Step 1: Adhesive Selection

- **Interior applications:** use a high-quality modified thin-set mortar or an acrylic-based ready-mixed adhesive. Tile adhesives rated C2TE or higher (per EN 12004), or specialized acrylic-emulsion adhesives designed for flexible stone, are recommended.
 - **Exterior applications (façades and exterior walls):** use a high-toughness modified polyurethane adhesive or an MS polymer adhesive. These must provide high bond strength and resistance to UV radiation and temperature fluctuations.
 - Standard cement-based adhesives are not recommended for exterior use. Because the flexible stone and the substrate have different thermal expansion coefficients, standard cement-based products are prone to brittle cracking and delamination.
 - **Recommended brands (reference for local procurement):** Laticrete (Platinum series), Mapei (Ultralite series), and Sika (Polyurethane series). If local alternatives are used, ensure they meet EN 12004 C2TE S1 (or GB/T 23458-2019) classification and have a weathering-resistance test report.
 - Always verify adhesive compatibility before final application.
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Step 2: Substrate Preparation and Installation over Existing Finishes

Flexible Stone can be installed over many existing finishes, provided the surface is sound, clean, dry, and sufficiently flat. Smooth or uneven finishes — such as an exterior façade clad in river rock or rounded pebbles — cannot be covered directly and require preparation. Two options are available:

Option 1 — Standard Flexible Stone (approx. 3–5 mm thickness)

Direct application over a river-rock or pebble surface is not permitted. The smooth stone offers very low adhesion, the uneven substrate prevents full contact between the back of the panel and the adhesive (creating hollow spots and delamination), and dust or loose particles further compromise bonding. The following preparation is required:

- **Cleaning:** thoroughly remove all loose, flaking, or detached particles and dust from the surface.
- **Interface Treatment:** apply a specialized interface agent (primer) to improve adhesion.
- **Leveling:** apply a high-strength polymer leveling mortar over the uneven surface to create a flat, solid, and dry new substrate.
- **Curing:** allow the leveling layer to cure according to the product's specifications (typically 7–14 days) before installing the flexible stone.
- **Flatness Tolerance:** checked with a 2-meter straightedge, the surface deviation must be no more than 3 mm within any 2-meter span. Any deviation beyond this must be corrected with a leveling layer.

Option 2 — Thickened Flexible Stone Panels (approx. 10 mm thickness)

This option is suitable when the client prefers to avoid extensive leveling work. The panels are bonded with polyurethane adhesive supplemented by mechanical anchoring (fasteners). Thanks to their increased thickness and rigidity, they can span the uneven surface of river rock without prior leveling of the substrate.

Note: at 10 mm this product is no longer a conventional “flexible” stone. Its flexibility is significantly reduced, it requires a larger bending radius, and it must be handled like a rigid board during transport and installation. In exchange, it can be installed directly over complex substrates, saving substantially on labor and leveling materials.

Choose between the two options based on the project's budget, schedule, and desired finish

General Precautions

- Do not strike or drag the material over hard surfaces.
 - Do not cut using unsuitable metal tools.
 - Do not install on wet, oily, or dusty walls.
 - Avoid contact with pigmented liquids or solvents.
 - Keep away from flames, extreme heat, or flammable sources.
 - During transport, protect edges from impact or friction.
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Sealing (Waterproofing)

- Flexstone comes with a factory-applied protective layer that is sufficient for most installations.
 - Interior: sealing is optional and depends on the desired appearance and stain-resistance requirements. It is recommended for wet areas such as kitchens and bathrooms.
 - Exterior (façades): sealing is strongly recommended to improve stain resistance, weatherability, and waterproofing, which extends the product's service life.
 - Recommended sealer: a penetrating water-based stone protector (silane/siloxane-based) or a matte-finish stone sealer. The same type can be used indoors and outdoors, but exterior applications require a UV-resistant version.
 - Do not use film-forming glossy sealers, solvent-based sealers, or acidic silicones, as they alter the natural texture of the stone.
 - Apply to a clean, dry surface with a roller or spray gun in a thin, even coat.
 - Exterior reapplication: generally every 2-3 years, depending on local climate (sun intensity, acid rain, salt spray, etc.). Check the surface's water repellency once a year with a water-beading test; if water no longer beads and rolls off, reapply sooner.
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Safety and Recommendations

- Always wear gloves, a mask, and protective eyewear when handling or cutting the material.
- Work in well-ventilated areas.
- Do not store near heat sources or flammable products.
- It is recommended to use low-alkalinity adhesives or adhesives specifically designed for flexible stone.
- Verify adhesive compatibility before final application.