

FUTURE OF ARCHITECTURE



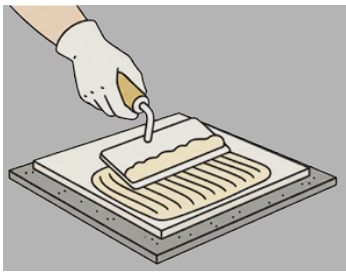
RAPHAEL

PORCELAIN

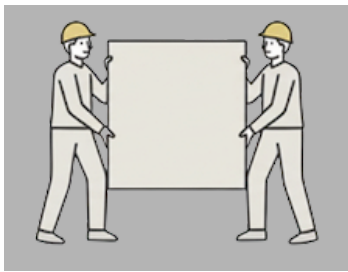
INSTALLATION GUIDELINES



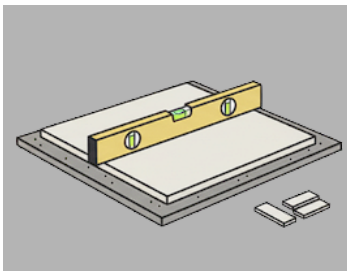
Large Porcelain Tiles: Installation at Glance



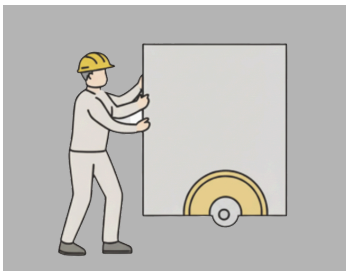
Substrate prep



Adhesive & Troweling



Handling & Layout



Joints & Movement



Tip: Hire experienced installers. It ensures better speed, precision, and finish—especially with large-format slabs.

Trends We’re Seeing

- Seamless Surfaces
- Waterfall Islands
- Warm Stone Looks
- Matte & Silk Finishes
- Indoor–Outdoor Flow
- Minimalist Floors





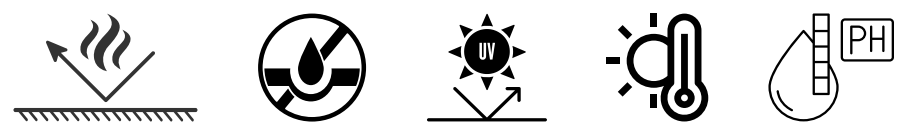
Key Specifications



Nominal Size:	48 × 111 in (1219 × 2820 mm)
Thickness	Options: 6 mm, 12 mm
Edge:	Rectified
Finishes:	Polished, Honed/Matte, Textured
Water Absorption:	≤ 0.5% (typical porcelain)
Usage:	Walls, floors, countertops, shower walls, facades
Slab Weight:	6 mm ≈ 3.5–4.5 lb/ft²; 12 mm ≈ 7–9 lb/ft²
Fire Rating:	Non-combustible ceramic body

Performance Snapshot

- Stain, scratch, and heat resistant
- Non-porous; no sealing required
- Colorfast under UV exposure
- Compatible with radiant floor heating
- Easy daily care with pH-neutral cleaners



Color And Veining Programs

Marble-Look: Calacatta, Statuario, Taj Mahal, Onyx, Travertine
Stone/Concrete: Basalt, Limestone, Cement, Terrazzo
Monochrome: Pure White, Graphite, Sand

Ask about bookmatched sets and vein-through sequencing.

Quick answers (FAQ)

Can I install over existing tile?	Yes, if the substrate is sound, flat, and properly primed. Use a compatible high-performance mortar.
How wide should grout joints be?	Follow local standards for rectified porcelain. Many installs target ~2–3 mm where conditions allow.
Do I need to seal it?	No. Porcelain is non-porous.
Is the large format suitable for showers?	Yes. Use appropriate waterproofing behind the panels and follow best practices for penetrations and edges.

Large slabs deliver the cleanest lines, the fewest joints, and the most flexible design options. If you want a space to feel bigger, calmer, and easier to maintain, this is the format that does it.

Porcelain: General Installation Guide

I. Preliminary Preparation and Inspection

A. Material Inspection

Inspect Materials: Before installation or cutting, carefully inspect the order for any defects, verifying quantity, tone, size, and caliber. Installation constitutes acceptance of the product, voiding warranties for any defects that were visible beforehand.

Dry Laying: Conduct a dry mock layout under proper lighting conditions to inspect quality and color consistency. Mix tiles from several cartons to achieve a blended effect, as variation of shades is an inherent characteristic of ceramic and porcelain tile.

Tile Dimensions and Tolerances: Porcelain tiles, as fired products, inherently bow, wedge, and warp to a certain degree and may vary slightly in size from batch to batch. Ensure conformance to required dimensional standards (e.g., ANSI A137.1 or ISO 13006/EN 14411).

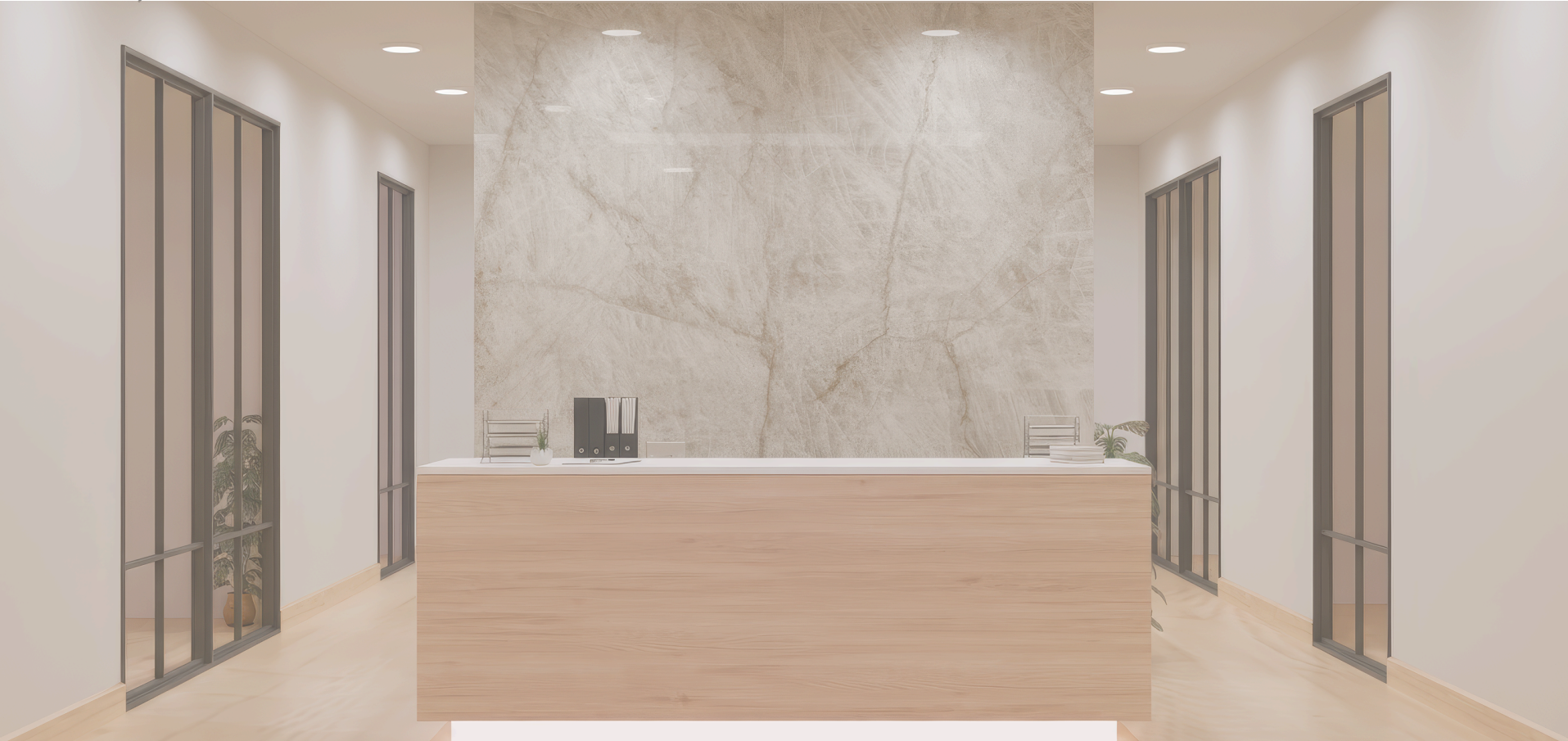
B. Substrate Preparation

Condition: The substrate must be clean, smooth, dry, stable, and rigid. Ensure the surface is free of wax, oil, grease, paint residues, and cement laitances.

Cleaning and Repair: Remediate all cracks or unlevel areas in the substrate to ensure it is smooth and flat prior to installation. Clean the laying surface thoroughly, sometimes using a 10% solution of water and caustic soda or appropriate alkaline detergents for existing floors, followed by rinsing.

Leveling and Flatness: Substrates should be sufficiently flat to allow uniform coverage and avoid excessive mortar thickness. For large format tiles, the substrate must be perfectly level. For concrete substrates that are out-of-plumb, leveling mortar should be used, ensuring height differences do not exceed 3 mm per meter of height.

Curing: The substrate must be adequately cured ("seasoned"). Concrete structures typically stabilize after 6 months, while cementitious screeds or plasters stabilize after about 28 days (or 7 to 10 days per cm of thickness).





II. Adhesives and Laying Procedures

A. Adhesive Selection

General Choice: The appropriate adhesive should be chosen based on the substrate type, tile size/type, intended use (floor/wall, interior/exterior), weather conditions at installation, and required time before use. Always follow the adhesive manufacturer's specifications.

Material Type: Due to the vitrified surface and low porosity of porcelain stoneware, specific adhesives are generally recommended over traditional sand and cement mortar.

Format Requirements:

- For large format porcelain/ceramic tiles (any one edge greater than 15" or dimensional length greater than 20" x 20"), a high-quality, Large Format Thin-set (LFT) or medium bed mortar is required.
- Adhesive classes often recommended for large formats include improved cementitious adhesives that are slip-resistant and deformable (C2TE-S1, C2FT-S1, or highly deformable C2E-S2/C2FE-S2 for very large sizes).

Color: Use white thinset for light stones and gray thinset for darker stones. White or grey mortar is commonly recommended for porcelain/ceramic installations.



B. Laying Techniques

Troweling: Key in the thin-set over the substrate with the flat side of a trowel. Spread the adhesive evenly using a square-notched trowel held at a 45° angle, combing it into straight, standing ridges. For mosaics, the ridges can be smoothed out with the flat edge of the trowel.

Back-buttering / Double Spreading: For large format tiles (especially those with a side greater than 60 cm), commercial interiors, or outdoor use, the double spreading (or double buttering) method is essential to ensure 100% mortar coverage and minimize lippage. Apply the mortar linearly, parallel to the short side, on both the substrate and the back of the tile.

Setting and Leveling: Set tiles one at a time using a slight twisting motion (do not slide). Tap all tiles with a rubber mallet or hammer and wood block to ensure a good bond and level plane. Tapping (beating) should be performed from the center to the sides, following the spreading direction, to allow air in the channels to escape.

Leveling Systems: The use of a leveling clip system or spacers and levelers is highly recommended to achieve narrow grout widths, minimize lippage, and accommodate any inherent warping in large format tiles (those with a single edge being >18").

Offset: For rectangular formats (planks), the maximum offset between tiles should not exceed 1/3 of the length of the adjacent side (33% offset).

III. Joints, Grouting, and Pavers

A. Grout Joints and Materials

Minimum Width Installation: without joints or with joints smaller than 2 mm is strongly discouraged. The minimum recommended grout joint width is 2 mm. For large format tiles, a minimum of 3/16" is generally required.

Grout Sizing Rule: The grout joint must be at least three times the actual variation of the facial dimensions of the tile supplied.

Application Specific Widths:

- Interior floors and walls: ≥ 2 mm.
- Over existing floors or heating screeds: ≥ 3 mm.
- Exterior wall installation: ≥ 5 mm.

Joint Composition: Use specific colored products with low grain size (which offer less porosity and resistance to dirt). For polished or honed porcelain, a urethane non-pigmented grout is highly recommended, or unsanded grout should be used for polished natural stone.

Perimeter/Expansion: Joints Expansion or fractioning joints (usually 5 mm to 12 mm wide) are needed to divide floors into smaller, approximately square areas (e.g., 5m x 5m indoors; 3m x 3m outdoors). Joints must always be provided around the room perimeter and near structural joints of the substrate.

B. Grouting Process

Timing: Wait until the thin-set adhesive is completely dry. Grouting must occur at least 24 hours after laying with normal-setting adhesives, or 3–4 hours after quick-setting adhesives.

Application: Spread grout with a rubber float, completely filling the joints, ensuring they are free of voids and pits.

Cleaning: Grout small areas at a time (manageable within 2 to 3 minutes) to prevent the grout from curing on the tile surface and creating haze. Immediately remove excess grout and residue using a sponge and clean water. For cementitious grouts, clean with a hard cellulose sponge diagonally across joints after the grout becomes opaque (10–20 minutes).

Epoxy Grout: For epoxy grouts (used in wet or chemical-resistant areas), remove them immediately before they harden as subsequent removal is extremely difficult.

C. Paver Installation (2 cm Porcelain)

Porcelain pavers (typically 20 mm thick) are used for outdoor applications. Installation methods for porcelain flooring generally follow ceramic tile guidelines. Given the outdoor location, improved cementitious adhesives that are highly deformable (C2E-S2 or C2FE-S2) are recommended, especially for large formats.



IV. Specialized Fabrication and Safety Precautions

A. Safety and Silica Dust Mitigation

Porcelain, ceramic tiles, and engineered quartz agglomerates contain varying amounts of crystalline silica. Processing these materials incorrectly can generate respirable crystalline silica dust, which is hazardous and known to cause serious illnesses, including silicosis and cancer.

Cutting Method is Critical DO NOT mechanically process the material using dry methods or power tools. Use wet cutting methods (employing tools with integrated water systems) or the score-and-snap method to minimize dust generation.

Ventilation and PPE: Always process, fabricate, and install materials in well-ventilated areas. If cutting is necessary on-site, perform the process outdoors using water-cooled tools, or indoors using tools equipped with dust collectors/HEPA filters, while sealing the HVAC system.

Personal Protective Equipment (PPE): Wear safety footwear, safety goggles, gloves, and appropriate respiratory protection (respirator/mask) when handling or processing materials where dust may be generated.





B. Cutting and Slab Fabrication (Porcelain & Quartz Countertops/Slabs)

Tooling: Use diamond blades specifically designed for porcelain stoneware; blades for granite or marble are unsuitable. Cutting should be done wet, ensuring a generous jet of water toward the cutting area.

Corners and Cut-outs: All inner corners and cut-outs (especially for sinks/hobs) must be rounded to minimize tension and prevent cracking.

- A minimum rounding radius of 5 mm is generally recommended for internal corners.
- For L or U shaped countertops, minimum radius should be 10 mm (3/8"). Sinks require a minimum radius of 20 mm (4/5").

Hat Protection: When installing appliances like cooktops, ensure a minimum gap of 3 mm between the inner edges of the equipment and the cut edges. Avoid placing joints within 10 cm of cut-outs like sinks or cooktops.

Edge Treatment: It is recommended to bevel or round all outer edges (minimum 1 mm bevel or minimum 1 mm radius) to improve impact resistance and avoid sharp edges.

C. Stone/Quartz Countertop Installation Specifics

Support: Countertops must be fully supported by the kitchen units. For overhangs, structural support (brackets, columns) is required based on thickness and extension (e.g., 30 mm material requires support for overhangs exceeding 600 mm).

Joints: Use resin adhesive (FIX COMPAC) for bonding pieces. Use neutral silicone sealant (JOINT COMPAC) for sealing joints and adhering backsplashes to the wall, especially in wet areas. A minimum 3 mm expansion joint must be left between the countertop and the wall.

Analogy for Understanding Slab Installation Safety:

Handling and cutting large porcelain slabs or engineered quartz is like dealing with a sheet of high-tension glass. If you try to shape it dry or create sharp internal corners, the internal stresses caused by the material composition and heat will cause it to fracture immediately. By contrast, using wet methods keeps the material cool and stable, while rounding all internal cuts distributes the stress, ensuring the slab remains robust and functional, much like how sanding the sharp edges of a piece of glass prevents chips.



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With over 50 years of combined expertise, our team blends vision, precision, and a deep passion for porcelain craftsmanship. As a leading manufacturer and distributor of premium porcelain tiles and large-format slabs, we proudly serve residential, commercial, medical, and industrial spaces – both indoors and outdoors.

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