

TERRAZZOTILES

Bespoke Tile Design

## Installation Guide – Terrazzo Resin (both quartz and marble)

The information provided with this document is intended as a general guideline, and does not replace the opinion of professional installers, who are able to evaluate onsite conditions. Thin set installation is recommended for indoor only. Installation with sand and cement mortar is not recommended.

To achieve a high-quality installation, care should be taken at all phases of the process: substrate preparation, screed, adhesive, expansion joints, joints, and quality of the tiles.

### SURFACE PREPARATION

#### A. GENERAL

1. All supporting surfaces shall be structurally sound, solid, stable level plumb and true to a tolerance in plane of 1/8" in 8'-0" (3mm in 2.4m) for walls and 1/4" in 10'-0" (6mm in 3m) for floors. They shall be dry, clean and free of dust, oil, grease, paint, tar, wax, curing agent, primer, sealer, form release agent or any deleterious substance and debris which may prevent or reduce adhesion.
2. Mechanically sand and scarify existing substrates to completely remove all paint, loosely bonded topping, loose particles and construction debris.
3. Neutralize any trace of strong acid or alkali from the substrate prior to the application of the mortar.
4. All substrates shall be dry. The moisture content shall not exceed 5%.
5. In all cases, the structural design of floors shall not allow a deflection of more than 1/720 of the span under live and dead loads.

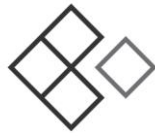
#### B. CONCRETE & SCREEDS

1. Concrete surfaces shall be dry, completely cured and free of hydrostatic conditions and/or moisture problems.
2. On grade or below grade concrete slabs must be installed over an effective vapor barrier and be exempt of hydrostatic conditions.
3. New concrete surfaces shall be wood floated or broom finished. They must be allowed to cure according to DIN 18560 standard, for more than 28 days and have a concrete reinforcement mesh 3-4 mm in diameter, 20x20 cm mesh embedded in the substrate. Place a polythene steam barrier on the top of the substrate, making sure the sheets are overlapping by at least 20 cm (7" – 8").
4. Over excessively dry porous concrete, keep the concrete substrate continuously moist for at least 24 hours before work begins. Remove all excess water or standing water allowing the surface to become almost dry before installing the levelling coat or setting mortar.
5. Screeds for residential buildings must show a minimum mechanical strength 20 Mpa, and the thickness (minimum 3.5 cm) must be adequate to the type of flooring to be installed; the screed must be flat and sound.
6. In commercial and industrial buildings, where high pedestrian traffic is to be expected, the minimum mechanical strength of the screed is 30 Mpa, minimum thickness 5 cm, and it is highly recommended to embed in the middle of the thickness a zinc-coated or stainless steel net, 5x5 cm mesh with diameter of 2 mm.

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7. Allow the screed to cure by reaching 90% of the planned shrinkage, which is a consequence of the water drying from the original mixture. Double check the residual humidity of the screed prior to starting the installation of the tiles, no matter how old the screed is. When installing engineered stone tiles, we recommend residual humidity to be lower than 3%. The screed must be clean and free from any dust, dirt or grease that may compromise the adhesion between screed and glue. Possible cracks, usually caused by excessive water/binder in the mixture, or too thin grits, must be sealed before the installation with epoxy resin based products.

7. When installing tiles on floating or sound proofed floors, the thickness of the screed must be increased, and an arc-welded net be embedded in the middle. Usually, a 5x5 cm with 3 mm diameter net is enough to absorb the deformation caused by the compressibility of the insulating layer.

8. When the floating flooring embeds a heating/cooling system, the thickness of the screed is to be increased. Once the screed has cured, it is advisable to expose it to a gradual thermal shock, until the normal usage temperature is reached. As a result of this procedure, cracks will appear on the surface that should be sealed with epoxy resin based products before starting the installation of the tiles.

9. In order to avoid issues due to bad mixing, we suggest the use of pre-mixed adhesives, which allow a controlled hygrometric shrinkage and consistent compressive strength. When installing tiles on a large area, a system of expansion and control joints should be used. The cutting (2/3 of the thickness of the screed) must be carried out as soon as the solidity of the screed itself allows it.

## **C. CEMENTITIOUS BACKER UNITS (C.B.U.)**

When installed by others, the C.B.U. shall be from a reputable manufacturer and shall conform to the quality standard requirements of ANSI A-118.9.

## **D. GYPSUM WALL SURFACES (Interior dry areas only)**

Prime all drywall and plaster wall surfaces with Planicrete AC multi-purpose latex and let dry completely before applying the mortar.

## **E. RESURFACING OLD SURFACES (Interior installations only)**

Old cement terrazzo, ceramic tile, paver and quarry tile, shall be sound, solid, well bonded, flawless, stripped clean and free of dust, wax, grease, sealer, soap residue and all other deleterious substances which may reduce or prevent adhesion.

## **F. PLYWOOD (Specify only on interior residential floors and countertops in dry areas)**

1. Plywood substrate and underlayment shall be Exterior Grade plywood. Presswood, particleboard, clipboard, masonite, gypsum floor patching compounds, asbestos board, Lauan and similar dimensionally unstable materials are not acceptable substrates.

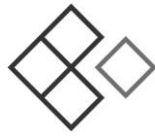
2. Plywood surfaces shall be installed smooth face-up. Offset joints of sub-floor and underlayment. Use exclusively new plywood.

3. When on joints 16" (40 cm) O.C. plywood sub-floors shall consist of 2 layers each 5/8" (16 mm) thick, and gapped 1/8" (3 mm) between sheets and 1/4" (6 mm) between all materials which they abut such as walls, drains and posts.

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4. Plank or board floors shall be covered over with one layer of  $\frac{3}{4}$ " (19 mm) thick exterior grade plywood, each sheet to be fastened with screws 8" (20 cm) O.C. in all directions and around the perimeter. Leave  $\frac{1}{8}$ " (3 mm) spacing between each plywood sheet and  $\frac{1}{4}$ " (6 mm) between all materials which they abut such as walls, drains and posts.
5. The adjacent edges of the plywood sheets shall not be more than  $\frac{1}{32}$ " (0.75 mm) above or below each other.
6. All wood sub-floors shall be well heated and vented from under.

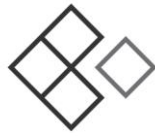
## INSTALLATION

- A. Before setting, use a damp towel and wipe the back side of the tile to remove any dust or other residue that may be left over from the manufacturing process. When Kerapoxy 410 or Planicrete W are used for the installation, let the tiles dry before installation.
- B. On interior wall installation, use a notched trowel with deep enough grooves to achieve an 80% minimum mortar contact with the back side of the tiles (edges and corners must be fully backed with mortar when set).
- C. In all wet areas and commercial floors, back butter each tile with a sufficient mortar layer, using the flat edge of the trowel immediately prior to laying, to achieve a 100% mortar contact and a void-free solid support. Simultaneously apply the mortar to the substrate surface with a notched trowel with deep enough grooves to achieve a continuous bed without voids or unsupported areas. Lay tiles while both mortar surfaces are wet. Do not allow mortar to dry or skin over on either surfaces before laying the tiles.
- D. When Kerapoxy 410 or Planicrete W is used for the installation, back buttering of tiles is not necessary. However, a sufficient layer must be applied to the substrate to provide a good support under the tiles.
- E. Where medium-bed mortar installation is specified, use a specially designed medium-bed trowel with  $\frac{3}{4}$ " (19 mm) wide x  $\frac{9}{16}$ " (14 mm) deep notches to install Granirapid System or flexible mortar.
- F. On walls, start installing at the lowest portion of the wall. Support the tiles with wedges, pegs or ropes to prevent sagging. Where  $\frac{3}{4}$ " (19 mm) or thicker material is specified without anchors on walls, do not install more than two courses per day, allowing the mortar to reach and initial cure strong enough to hold the weight of the additional courses. Reference local building codes.
- G. On floors and walls where tiles are specified to be grouted with non-sanded grout, install tiles leaving a regular even spacing between tiles of at least  $\frac{1}{16}$ " (1.5 mm) and a maximum of  $\frac{1}{8}$ " (3 mm). No butt joints shall be permitted.
- H. On floors and walls where tiles are specified to be grouted with sanded grouts, install tiles leaving a regular even spacing between tiles of at least  $\frac{1}{8}$ " (3 mm) to a maximum of  $\frac{5}{8}$ " (15 mm) (specify joint width desired). No butt joints shall be permitted.
- I. The minimum recommended joint is 3 mm for tiles up to 40x40 cm, 4 mm for tiles 60x60 cm and 5 mm for tiles larger than 60x60 cm.

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### **EXPANSION AND CONTROL JOINTS**

- A. Carry existing joints in the concrete sub-floors and walls through the covering surfaces.
  - B. Install control joints where the tiles abut restraining surfaces, around the perimeter of the work and at the base of columns and curbs.
  - C. Install and space expansion and control joints in all directions according to British Standards.
  - D. **CAUTION:** It must be clearly pointed out that under no circumstance should the control joint be cut in after the tile has been installed as this defeats the object of the exercise. The installer should install up to the control joint and stop. If required, cut the tile and commence setting from the opposite side. Before continuing, rake the joint clean.
  - E. Install an approved compressible bead and sealant to caulk expansion and control joints following the sealant manufacturer's strict instructions.
- Expansion joints must be minimum 5 mm wide and go through the screed, adhesive and tiles. Expansion joints must be placed every 5 linear meters, creating squares 25 m<sup>2</sup>. For installation in areas subject to direct sunlight, we suggest the installation of expansion joints every 3-4 linear meters. Perimeter joints filled with flexible grouts (e.g expanded polystyrene) must be placed along the walls, around columns and curbs. The structural joints planned in the concrete slabs must be carried through the covering surfaces. Expansion joints are to be grouted with neutral silicone or polyurethane-based grout. Be careful in choosing the grout to use. Make sure it does not stain the tiles: avoid acetic reticulated silicones.

### **SEALING**

Specially for honed terrazzo resin, we recommend sealing with a good quality stone sealer such as Lithofin MN Stainstop. We recommend sealing the surface and the edges before grouting then a secondary coat after grouting and cleaning has taken place.

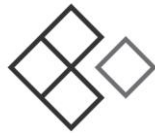
### **GROUTING**

- A. Where terrazzo resin tiles are installed with Keralastic/Kerabond, Kerapoxy 410 or Planicrete W mortar system, grout no sooner than 24 hours after installation.
- C. Where terrazzo resin tiles are installed with Granirapid System flexible fast-setting latex hydraulic mortar, grout no sooner than 3 to 4 hours after installation.
- D. Use caution when grouting to prevent scratching or damaging of the tile surface. Always do a test area and obtain the architect's written approval before proceeding with the grouting of the entire work.
- E. On walls where joints widths are specified to be 1/16" (1.5mm) to a maximum of 1/8" (3mm), install Keracolor U, non-sanded polymer-modified grout as specified.
- F. On floors and where joint widths are specified to be 1/8" (3mm) to 5/8" (15mm), install Ultracolor or Keracolor S, sanded grout as specified.
- G. Install grouts in strict accordance with the grout manufacturer's instructions and following the general outline procedure of ANSI A-108.10 - for latex Portland cement grouts.

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## **CLEANING**

- A. Remove all grout and mortar residue immediately while work progresses and before the materials harden on the tile surface.
- B. Clean tiles completely leaving no apparent cement latencies of film on the surface of the tile. Do no acid wash, especially where coloured grouts are specified.
- C. For initial cleaning of newly installed surfaces we recommend Lithofin Powerclean diluted 1:10 with water and used according to manufacturer guidelines.

## **PROTECTION**

### *A. Flexible acrylic latex Portland cement mortar installation:*

1. Protect finished work against weather, freezing and complete water immersion for at least 21 days after completion of the work.
2. Floors: protect floors from foot traffic for at least 24 hours and general traffic for at least 72 hours after installation. Prohibit heavy traffic on floors for at least 7 days after installation.
3. Walls: protect walls from impact, vibration and hammering of adjacent and opposite walls for at least 14 days after installation.

### *B. Flexible fast-setting latex hydraulic mortar installation:*

1. Protect finished work against weather, freezing and complete water immersion for at least 72 hours after completion of the work.
2. Floors: protect floors from general traffic for at least 3 to 4 hours after installation. Prohibit heavy traffic on floors for at least 24 hours after installation.
3. Walls: protect walls from impact, vibration and hammering on adjacent and opposite walls for at least 24 hours after installation.

### *C. Flexible fast-setting latex hydraulic mortar installation:*

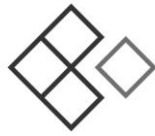
1. Protect finished work against weather, freezing and complete water immersion for at least 21 hours after completion of the work.
2. Floors: protect floors from general traffic for at least 48 hours and general traffic for at least 72 hours after installation. Prohibit heavy traffic on floors for at least 7 days after installation.

D. Since temperature and humidity during and after installation affect the final curing time of all cement based and epoxy materials, allow for extended periods of cure and protection when temperatures drop below 60°F (15°C) and/or when the relative humidity is higher than 70%.

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## **INSTRUCTIONS FOR CLEANING AND MAINTENANCE**

Immediately after installation, cover Terrazzo Resin marble surfaces to protect them from dirt and construction site damage: this way you will preserve the beauty of the marble surface.

### **FIRST CLEANING**

Once installation is completed, remove dust with a soft broom or vacuum, being careful not to scratch the surface. A first deep cleaning can be carried out with a soft cloth and neutral pH (or slightly alkaline) detergent specifically designed for marble based engineered stones.

Follow the recommendations of the detergent's manufacturer. Cleaning machines are generally used for big commercial areas: make sure the abrasives of the pads or brushes are suitable for the marble surface you are cleaning. After cleaning, rinse thoroughly with water, making sure you remove any detergent residue that might diminish the brilliance and beauty of the flooring.

For initial Cleaning of newly installed surfaces we recommend Lithofin Power-Clean diluted 1:10 with water.

### **DAILY CLEANING**

Terrazzo Tiles Terrazzo Resin products are mainly made of marble, and for daily cleaning we recommend the use of only neutral pH detergents for marble or marble based engineered stone -We recommend Lithofin EasyCare.

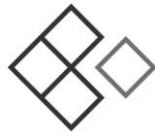
Carefully read the instructions on the detergent's label and, in doubt, perform a test on a small, inconspicuous area. The use of acidic or highly alkaline detergents can damage the surface of the marble. How often cleaning has to be repeated depends on the amount of foot traffic and how quickly the floor gets dirty. Before washing the floor, clean it carefully with a soft broom or vacuum. Then wash the floor with a soft cloth using a neutral pH detergent diluted in water following the recommendations of the detergent's manufacturer.

Cleaning machines are generally used for big commercial areas: make sure the abrasives of the pads or brushes are suitable for the marble surface you are cleaning. After cleaning, thoroughly rinse with water, making sure you remove any detergent residue that might diminish the brilliance and beauty of the flooring.

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## **CHEMICALS TO BE AVOIDED**

Acidic liquids commonly used such as vinegar, lemon, soft drinks, fruit juices, wine, etc. can erode the tiles, causing the loss of brightness of Terrazzo Marble Resin surfaces.

Avoid exposing Terrazzo Marble Resin to chemicals and solvents, especially paint removers, that might contain trichloroethane and methylene chloride. Keep solvents, acetone, alcohol, paint thinners, detergents containing bleach, laundry bluing, highly alkaline liquids such as bleach, caustic soda or oven cleaners, acids, oily soaps, descalers, markers or ink, abrasive and micro-abrasive detergents away from the surface. It is recommended, if possible, to quickly remove the substance from the surface and rinse thoroughly with water.

Avoid using any detergent not specifically designed for marble surface, especially acidic and highly alkaline determents. Finally, avoid using highly abrasive sponges that may scratch the surface.

It is recommended to use only a neutral silicone to install quartz flooring.

## **SPECIAL SURFACE PROTECTION**

There are many waxes and surface treatments specifically designed for marble based engineered stones, that help to enhance the surface's brightness, to improve the resistance to pedestrian traffic or to protect the surface from a casual contact with staining liquids. These products help in protecting the surface, but don't make it stain proof: they can help in prolonging the time frame needed to take action and clean the surface from a staining liquid, but do not offer complete protection.

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