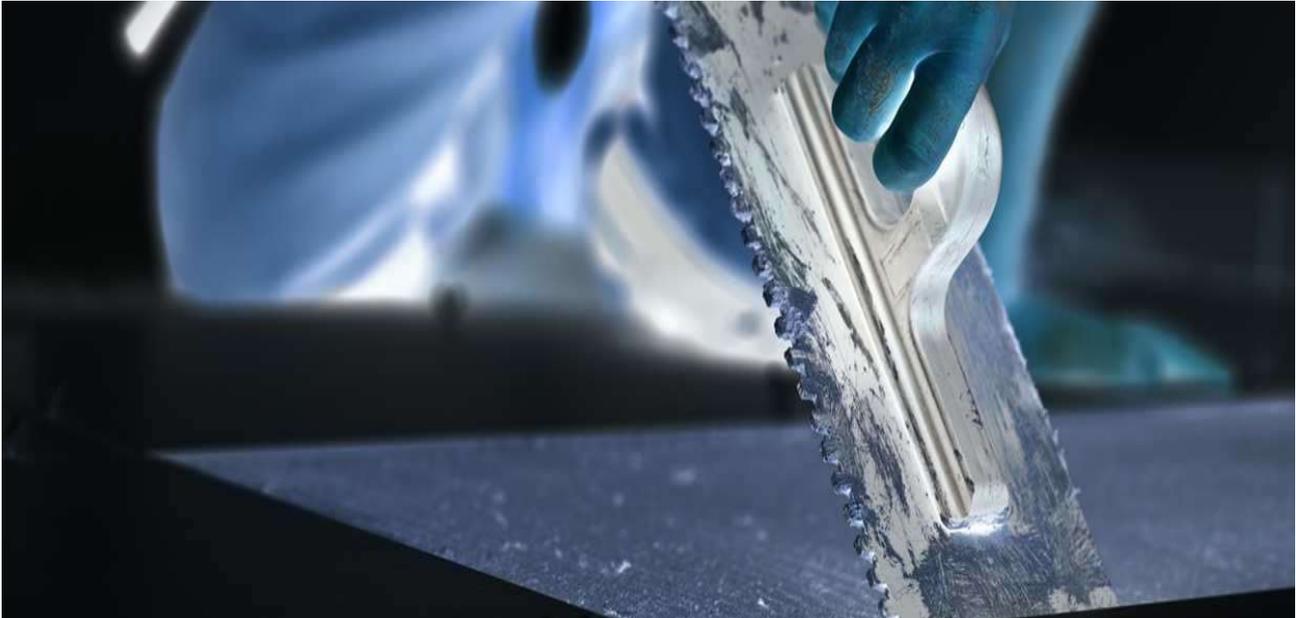


LAYING SUGGESTIONS



Any defects observed in the tiles shall be reported within 10 days from the delivery date and in any case before installation or laying. After the laying of defective material, any right to complain is forfeited.

The flat finishing of the base and the perfect calibration of the 4 sides are special characteristics of the N-Stone tiles, which allow for an easier and cheaper laying system.

ADHESIVE LAYING (SUGGESTED)

The screed is poured, smoothed and then usually it should be left to dry and season for a standard 28 days before adhesive laying. For seasoning purposes, it is necessary to leave 1 week per cm of thickness (or at least 28 days), there should still be residual moisture of <2% for concrete screeds and of < 0.5% for anhydrite screeds.

If cement screed for interior floors with rapid drying is used, make sure the residual moisture is <2%

The surface should be levelled. In order to verify the levelling you should use a levelling screed of 3 metres, differences of level greater than 2 mm should not be present. Make sure that the screed is clean from dirt, dust and friable parts which should be removed in order to prevent the adhesive from sticking to a non-adhesive layer.

The market offers solutions which allow for fast-curing and drying screeds. For example with Kerakoll or Mapei products it is easy to quickly achieve your purpose. In any case the screed needs to meet

certain requirements: SEASONED, COMPACT, SMOOTH, LEVELLED, FREE OF CRACKS, CLEAN AND DRY.

MODIFIED CONCRETE ADHESIVES:

Since this adhesive is fast and with little excess water it is ideal for the laying of NSTONE. These are adhesives in white or grey powders for mixing with water at the time of laying (one-part) or with synthetic latex (two-part). These adhesives are like the hydraulic ones, but they are admixed (during powder production phase or during laying with dispersive liquids) with polymers giving them greater adhesive power and elasticity. They are recommended for both indoor and outdoor laying for absorbing and non-absorbing screeds, stressed by expanding and operating movements, in locations especially exposed to water, freezing and permanent water. We especially suggest in case of high temperatures and heavy winds before laying soak the tiles in clean water for a few seconds, then let the excess water drip, so as to ensure a better grip between tile and base.

ADHESIVE: we suggest a white and rapid product like **LITOSTONE K99**: thanks to its fast drying, it does not allow the water to be absorbed by our agglomerate stone; this prevents from the appearance of possible and undesired surface staining or picture framing effect.

In the application of formats with side longer than 90 cm, we suggest the use of **K99** mixed with Latexkol (diluted 1:1 in water) – this way K99 becomes an adhesive C2F S1 (S1 deformable cementitious adhesive)

Following to PULL OFF tests according to standards EN12004, the results are much higher than the standards requirements: 1,8-2,0 N/mm².

Another valid solution, is the use of **LITOELASTIC EVO**: a reactive two-component resin adhesive. Also in this case no staining or frame effect issues appear, and there are no limits with regards to the dimensions of the tiles. Litoelastic EVO allows the gluing on non-traditional underlying material such as: wood, metal and fiberglass.

GROUTING: we recommend the rapid cementitious grout **STYLE GROUT TECH**. Besides being rapid, this product has a very thin powder which perfectly fill the joint thanks to its special grip system.
The tests performed gave great results.

For further explanations on the use of **STARLIKE EVO**, we are at your disposal; Starlike EVO can be polished with the flooring.

JOINT WIDTH:

We suggest the laying with a minimum joint width of 2 mm since butt-jointed laying is advised against by all foreign regulations we abide by, since it is the main cause for coatings detachments, and any minimum laying defect (non levelled screed, inexpert workforce) becomes much more visible

EXPANSION JOINTS:

Keep the tiles clear of all the existing expansion joints on base and walls. Create separation joints of approximately 1 cm in the case of very large surfaces, dividing the area as follows: - on high-traffic surfaces and on screeds subject to movements or bends 5x5m squares should be provided for - inside and on stable surfaces one every 60 sqm. Lay the tiles at 1 cm from walls, columns, sharp edges, angles etc.

SOME LAYING SOLUTIONS

LAYING ON OLD CERAMIC FLOORS Glaze ceramic, stoneware, porcelain stone, marble, marble chip

It is necessary to check the cleaning and stability. The old floor should be anchored to the base, strong and free from cracks (hitting each tile its level for adhesion is clear from the sound it makes). For the cleaning caustic soda should be used, 10-15% diluted in hot water for grease, filth, normal dirt; rinse thoroughly.

OUTDOOR LAYING

The back of the tile should be wetted by the adhesive at least for 70% of its surface in indoor laying, while outdoors we advise to reach 100%. In outdoors we advise against using a spatula with teeth of less than mm. 10. We suggest a "double coating" application. The double coating (floating and buttering) consists in applying the adhesive to the base (floating) and buttering the back of the tile (buttering). This procedure allows for an excellent adhesion even in case of peeling, because the "buttering" allows for an appropriate adhesion. The double coating gives a full bed on the back of the tile. That's a way to prevent:

- voids due to the spatula teeth from being left on the back of the tile, which could cause some fractures in the tile because of mechanical stresses. If there are voids compression resistance is poor, because mechanical stresses release in these points instead of the underlying screed. - in outdoor floors, the water that leaks through the voids from icing and causing breaks due to ice expansion in winter months.

INITIAL WASH AND CARE

Once installed, the tiles may produce a "television" effect, i.e. the edge, already drying, will appear lighter; in a short time, especially in good weather conditions, the colour will become uniform across the entire surface. It is very important that this moisture remains on the tiles because it achieves a perfect balance in terms of moisture between surface and base: this is the reason why we advise, before laying, to soak the tiles in clean water for a few seconds and then let excess water drip down so the moisture balance between the two faces of the tile is restored.

The need for the product to release the residual moisture after the lay, is the reason why **our product cannot be supplied previously sealed.**

After laying, we advise to protect the floor with suitable cloths avoiding coloured written cardboards, paper sheets or anything that can transfer to the floor alien substances and against using adhesive tape on the tiles.

Never use acid or alkaline detergents, the shine of the tiles could be affected: always use neutral detergents, easy to find in the market.

- The initial wash is made using a neutral detergent diluted in 1:10 water (for dirtier surfaces the ratio should be increased) then rinse in a generous amount of water and let it dry. The operation is made easier by using a brushing machine with soft brush and a wet and dry vacuum cleaner. For a highly-protective treatment (suggested in high-risk environments such as bars, delis and restaurants, and in any other environment where the floor may be walked over and dirtied with industrial oil, like in the case of offices of a mechanical company) wash with degreasing (1:10 diluted with water). With a clean and dry surface apply an oil- repellent or water-repellent stain-resistant impregnating product (for example FILA MP90). As an alternative, it is possible to apply a finishing layer of wax with a brush, rag or proper applicator.

Each product for cleaning and care is easy to find in the market.

The NSTONE floors in the same way as the floors made of marble and granite lend themselves to be re-polished at discretion over time.

INFORMATION AND SUGGESTIONS FOR THE USE OF NSTONE®

Any uneven shades of the product are typical of the natural components of NSTONE. Since the product is natural, the data on the mechanical characteristics of NSTONE that is published on our brochures may vary depending on the choice of colour (hence on the type of natural component), since this data refers to tests performed on a sample colour type for each series

MATERIAL HANDLING AND STORAGE

Do not leave in any case the material outside, because damaged packages and the presence of storm water with lime deposits may impair the surface, affect the polishing and cause stains that are not easy to remove. It is advisable, once you have received the material, to lay it in a short time to avoid colour shading or fluorescences, especially for light colours.

Before laying the floor make sure that the material is free from flaws or structural defects and in this case do not lay but promptly notify thereof.

The natural visual phenomenon of tiles in different shades of colour after laying (like for example edges in a lighter shade than the centre of the tiles) is set to disappear with the progressive drying of the material and the total evaporation of the moisture in the adhesive, passed through the NSTONE tiles during the binding operation. To limit this, we advise to continuously lay the total quantity of supplied material.

The material of the same production parcel, when installed at different times, may present a difference in shades caused by a oxidation process of the concrete in the mixture. This tends to stabilize with the passing of time.

However not being able to be present at the time of laying and during the execution of the works, this information only represents general indication which do not bind in any way the company. The laying worker will be responsible to check in any specific case the suitability of the methodology adopted.

CUSTOM PRODUCTS

The special mix is produced according to the client's instructions. The colour/aggregate mix selection is based on hand-made sample, which is to be meant indicative and not binding for the supply. The production of the client's order is made by industrial process, by which it is not possible to guarantee tone, shade and nuance of the background consistency, as well as for the structure and tone of the marble granulate itself, compared to the sample, which is handmade. No claim related to differences between the sample made by hand and the one industrially produced will be accepted. We recommend to check the quantities ordered. The same recipe produced in different production batches can show possible differences of colour and can involve price increase over new quantities ordered.

ENVIRONMENTAL PROTECTION

All the NSTONE products are only made of natural elements which make them state-of-the-art products ideal for any intended use both in housing and in public settings, according to the principles of green building and environmental protection. NSTONE is only made of natural components such as stone

aggregates which are obtained from crushing the excavation wastes from quarries of marble, granite, quartz and quartzite mixed with water and concrete.

- The aggregates used under standard UNI EN ISO 14021 are recycled material under point 7.8.1.1 b) with 100% recycled content.  NSTONE may be renewed or restored several times after installation through polishing and this assures an almost unlimited life of the material.