GRASSI PIETRE
VICENZA STONE SPECIALIST

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TIPS TO INSTALL VICENZA STONE

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1) Introduction

Stones and marbles are natural products and thus they may differ in color (mild shades of color, slight grain difference, slight variations in hue, more or less intense presence of fossils,etc.) giving value and uniqueness to the product. The present guide gives useful indications to prevent mistakes and gives suggestions following “the best rules of art", but only with the help and cooperation of expert installers you can create a work that values and celebrates the beauty of natural materials that are going to be installed Our materials are suitable for many different uses. Among these, the most common are floors, walls cladding, architectural elements and structural jobs, like doors and window frames, skirtings, stairs, columns, balustrades, kitchens and bathrooms elements.

Here You find techniques and tips to install flooring and cladding tiles while for structural elements (like windows and doors surround, windows, sills, railings, etc.) the ways of fixing may be different and must be chosen considering the construction site, the workers, the type of product together with a professional installers.
We will give You anyway some info, in case of specific project please contact our technical department for further suggestions.

Vicenza Stone can be produced with “only sawn “finishing" (raw, blade cut sawn or calibrated), "honed", "bushhammered", "brushed" or "sand blasted". For “only sawn” surface, “bushhammered surface“ and “sandblasted“ surface the calibration is not normally done, and tolerances on the thickness of the tiles shall be ± 1 / 2mm.

Only on request we can calibrate the thickness, doing this calibration on the back side of the tile, but this is an extra working and is not normally required, thus is not normally included in the price.

Instead, for the following finishing: "sawn and calibrated", "honed ", "brushed", tiles of standard sizes are produced at 1.3 cm or 2 cm thickness.

On all finishing and for most uses it is necessary, after installation, to apply a water-oil repellent sealant to prevent atmospheric pollution absorption, and also to avoid staining of the stone with the substances normally used in houses such as coffee, oil, wine and other substances that may affect the natural color of the material. So we recommend also our “guidelines to sealing and maintaining the stone“ to ensure that a good supply and an accurate installation are undermined by the lack of protection and maintenance.

The installation of our materials can be made "fresh", laying the tiles directly on the just made screed, so "fresh" (made with cement mortar) or by the use of pre-mixed adhesives.

The first method was the traditional technique and once it was the most widespreadly used: it consisted in the setting of tiles on the fresh screed, after spreading the surface with some cement, then lighly beating the tiles to make them adhere to the substrate. This technique is still in use, there are no contraindications for Vicenza stone, but we recommend using the other way, thus installing by adhesives rather than on fresh cement mortar, since the chemical compositions of the cements and of water are not the same all over the world, and sometimes, the chemicals inside it can cause unexpected chemical reactions (efflorescence, flowering corrosion, etc.) because of a reaction with the minerals inside the stone.

This general consideration applies to the laying of floors and thin pieces in general (being less dimensional stable and being more subject to possible staining from the background).
The installation of building materials such as stairs, window sills and thresholds can be done on fresh mortar or so-called "bastard" grout (binder mixed with cement and hydraulic lime).

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In this discussion we will therefore analyze the floor and cladding installation with adhesives but please refer to the literature and indications of manufacturers of brakets for the realization of "ventilated walls."

2) Preliminary indications for installationa

Vicenza Stone is a natural material produced by millions of years of organic sediment and may present slight variations in color and texture, so it is recommended to go over the material before installation (in case of a flooring it is a good idea to check tiles in all crates),to lay a few pieces, see any veins or presence of fossils to find the right combination of colors to lay and by combining any changes in the grain or texture.
During installation You can comply with the laying towards the sedimentation (and fossil) or against them by placing tiles side by side in the opposite way.
We suggest to wet the surface of the stone (when laying raw materials) to see the actual shades of the material. We also suggest to dry install a few square meters of flooring or cladding to get a first effect of finished work (with tiles arranged in the expected direction and with the right dimensions of the joints). So You can verify the compliance to the project and expectations.
We suggest the installator should work with light gloves to allow him to appreciate the finishing of the stone surface, to avoid installing tiles with the back part up.
Please unload of pallets from the means of transport only with forklifts or cranes, with appropriate forks. Avoid the use of belts. We also suggest you to take the utmost care in unpacking the tiles to avoid unpleasant chipping and scratches on them.

3) Installation of floor and wall tiles with pre-mixed adhesive (glue)

Before installing:
The installer, to ensure the success of the work, needs to perform, before installing, the necessary tests to determine the degree of flatness, stability and consistency of the fund and the residual moisture content of the substrate.

The Substrate: screeds and plasters:
Substrates must be flat (for floor screeds) or plumb (for plastered walls coatings), stable from a dimensional point of view, consistent and free of loose parts, perfectly clean and free from shavings, crusts of cement, dust, oils, waxes, or efflorescence or other release agent.
The substrate is ready for the installation when the moisture content has reached values below 2.5-3%, for cement surfaces, and 0.5 - 1% for the screed or the plasters based on gypsum. It Is a good practice to lay the stone when substrates are mature, i.e. have at least 28 days for screeds made from sand and cement.
For the floors that needs to be put into operation quickly, you can use pre-mixed screeds that include hardening and rapid hydration binders that, containing a low percentage of residual humidity (about 2%) and for the absence of shrinkage, allow the installation of marble after a few hours.

For laying on self-leveling floors (usually very smooth), you should check with the installer whether it is appropriate to sand the surface to make it suitable for gluing or whether it is necessary to apply a primer.

In shower areas and other humid areas, to prevent humidity from penetrating the covering and deteriorating the support, it is necessary to lay an insulator such as MAPEI MAPELASTIC before gluing the stone cladding.

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4) Other types of substrate

Gypsum plaster boards:
Vicenza stone can be installed on gypsum plaster board but they should be left with a natural surface, without smoothing, and they must have a proper thickness (at least 12 mm). The panels must be rigidly fixed by mechanical anchoring. All connections between the panels that are subject to movement are considered as joints, and therefore must also be observed and confirmed in the stone cladding.
Please apply any primer before the installation of the stone. Furthermore, if the continuous action of water is expected on them (for example as in shower areas) to prevent any humidity that may pass through the cladding from deteriorating the plasterboard support, it is necessary to put an insulator such as MAPEI MAPELASTIC. before gluing the stone cladding.
Please apply primer (like PRIMER G, Mapei) or insulating water-repellent or waterproof membranes prior to glueing the stone slabs when the stone will be under continuous action of water (for example in showers) to prevent the moisture, that will eventually pass through the cladding, ruin the plasterboard support.

Old ceramic floors or marble floor:
It is possible to install Vicenza stone on old floor but these need to be stable, adherent to the substrate and without pre-existing cracks.
Before laying the new floor, the old floor should be scraped off and / or washed with acid or alkali to remove residual mortar, separating substances, oils, fats or waxes.

Metal sheet:
You can install Pietra di Vicenza on metal sheets but before doing that You must remove all traces of old paint, of elements that might separate, of fatty or oily patina and any rust, this with specific cleaning agents, with solvents or abrasive machines.
The gluing of stone elements on this type of support might require special glues (not cement based but resin based), or appropriate adhesives based on epoxy or acrylic resins.
Remember that the coefficient of thermal expansion of the metal is much higher than natural stone so it will be important to create common expansion joints and comply with the laying of the structural joints.

5) Adhesives for installation

The choice of adhesive
To choose the adhesive (glues, cements, fillers and detergents) it is necessary to ask the technical office of the adhesives' suppliers,providing clear information about the type of materials that should be installed, where will the material be installed, special climate requirement and weather conditions (very hot or very cold temperatures, frequency of rainfalls, humidity rates, etc.) to be encouraged and backed up by the same companies that can help You choose the best solutions, to address and prevent any problem that can arise.
Please find here some general consideration. But remember that similar adhesives, with same technical characteristics, can be also employed.

To install floors and internal cladding You can employ white cement based glues like Mapei "Keraflex white" or "Keraflex maxi". In the case of interior floors and walls that are subject to heavy load or for floors and walls in need of rapid installation You can use Mapei "Granirapid" glue. Please refer to the instruction of the producer to understand the right installation way. In case of installation

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of stone with large format you should use KEDY S2 MONO, ULTRALITE S2 o ELASTORAPID to prevent bending of the material or “sag” of the tile after installation (during the drying phase of the glue)

To install external cladding panels, please use an adhesive with high deformability characteristics, like Mapei KEDY S2 MONO, ULTRALITE S2 o ELASTORAPID or similar products. You need anyway to perform preliminary tests to verify the accuracy of the result and the conformity of the product to the required performance both for wall and floor. Of course also installers’ experience play a key role in the process.

6) Practical tips for cutting and grouting

Cut the stone preferably with electric diamond disc circular saw, with water cooling. You can also do dry cuts with cutting blade (diamond or normal) flexible but the cut won’t be so smooth and straight. So if the cut remains visible, we suggest the use of a circular saw.
We suggest to realize 45° cuts at the factory.

To clad r the edges, if the project includes 45° cuts, the "head" elements with the 45° cut are usually made in our plant. On site, after placing 2 tiles side by side to make the corner, the installer can fill the space between the two edges and then sand the edge on site to rectify it. To make holes in the stone, it is not recommended to use hammer drills, but it is advisable to use only rotation drills (with normal concrete bits). To make large diameter holes, it is a good idea to first make a guide hole with a smaller diameter. Particular attention should be paid to "through" holes in the material as it comes out to avoid large chipping on the back of the slab.

Vicenza Stone usually has finish (sanded, brushed or honed, never polished) that allows to fix any "chipping", breakage or scratch that might happen on site.

Fillings can be made in two ways:

A) Plastering with white cement and stone dust / pre-mixed grouting
These grouts are recommended for small thicknesses or to seal small holes or cracks in the surface of the stone: to perform the grouting You need to make a mortar composed of stone dust (the same color of the stone) and white cement in the proportions: Powder 2.5 part; cement 1 part. This mixture should be wet with water to obtain the desired consistency (to achieve filling of small holes or slits it can be also fluid while to repaire nicks and edges, even vertically, it must be more “pasty”).
You must wet in advance the part that has to be plastered on the stone (to avoid that the stone absorbs all the water in the mix) then you can do the grouting.
After applying the grout, please remove the excess material with a sponge or fine sandpaper. The fillings done in this way can take several hours to harden, and the end consistency is only reached after several days. If you have the necessary to accelerate the installation and if You want to avoid the dough retirement, You need to use acrylic latices such as FUGOLASTIC MAPEI to improve the adhesion of the mortar grouting to the bottom.

B) Mastic Fill and reparing

These grouts are recommended to perform larger size bonding and to glue broken pieces .
The gluing must be done with a mixture based on Tenax straw-colored mastic (or other acrylic or polyester-based mastics) combined with stone dust and hardened enough to keep the product workable for the time necessary for its use.
This mixture is spread on the two detached stone parts and placed one against the other,

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Adding pressure for a few minutes until the mastic has set.
The material can then be sanded or smoothed by hand or smoothed with the aid of a flexible with abrasives. Most mastics are sensitive to ultraviolet rays and that some glued products fear frost, so it is a good idea to check whether the product glued in this way is suitable for use

It is important to do a test before performing all fillings. Please note that cement based grouting is easier to be done, and also to be taken away in case of need, while mastic fillings and bondings are more rigid and usually should be carried out only by trained personnel.

7) Anchors for exterior cladding

In the case of external claddings, slabs must be fixed with stainless steel brackets. These have to be fixed to the wall with chemical glue, and to the stone on the above side, producing thus a safe anchorage that will last in time.
The brackets can be purchased directly from brackets manufacturers (for examples, Fischer F4 / A, Docipa or similar) or they can be produced on site with threaded rods of stainless steel or improved adhesion rods stainless steel AISI 304. The rods or bars will have to be of small diameter, approx 3 mm, in order to be folded and shaped to L.

8) Grouting

Joints can be done in different ways depending on whether you want the joint to have a very similar color to the stone, or very different, marking it and visually isolating the individual stone elements that make up the floor or cladding. Both solutions can be realized using mixtures of cement and stone powder or using ready pre-mixes products. The use of cement is the traditional way of doing joints: You have to mix fine stone powder (possibly sieved before use) with white cement in the proportions:

1: 2.5 (1 part cement to 2.5 parts of powder)

You can add latex to the mixture to prevent shrinkage (e.g. Fugolastic Mapei). More instruction in the section "Plastering with white cement and stone dust" in this same file. Groutings made this way are rigid and not particularly suited for exterior cladding constructions, but it is used mostly for interior applications.

The second type of grouting involves the use of appropriate premixed products (already available on the market in different colors like Mapei cement-based grouts Keracolor FF or similar). These products are specially designed according to the dimensions of the joints and according to the required gruting color.

For the fillings of external cladding or where expansion joints are needed, please use high elastic product, for example Mapei Mapesil LM or similar.

Please note that very colourful grouting and filling might be absorbed by the stone, damaging it, so

- Clean debris before grouting hardens and before it enters into the stone, so You avoid to remove it by abrasion with sandpaper later. If you need to do a grouting with bright colors we suggest to pre-treat with water-oil repellent the stone, to protect the surface when grouting.

- Carefully protect the floor in the finishing phase of the local to avoid bringing the dirt and mortar grouting of the tiles on the finished floor.

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To ensure the integrity of the cladding, splitting joints are required. Normally they have a width of approx. 7/10 mm, they will allow the cladding to expand and absorb the effects of eventual flexion. These joints are done every 4-5 m inside and every 3-4 m outside (at least every 25 square meters indoors and 16 square meters outdoors). The joints must be sealed with silicone or using special flexible joints available on the market.

We suggest at least some mm joints between the tiles to allow the grout to go deep and adhere well, depending also on the formats and layout of the flooring.

When selecting the shade of the grout please give a try by mixing the grout with a little water, then let it dry and then check the tone of the dried product. In case of changes, we recommend mixing the grout colors with different quantity of coloring and make several samples with different proportions. Once the required colour is reached, we recommend to mix the stucco dry, and mix with water only part of the mix, then fill the floor. Immediately after grouting, the floor or wall should be washed with a sponge and when the surface of the stone is dry but filling is still wet, you will have to re-apply the putty to close every pore and any edges or imperfections of the edge of the tiles, that remain in evidence with the sponge Then proceed by removing the excess grout with a sponge and a perfectly dry and clean cloth.

ATTENTION:
When installing tiles whose surface is already finished (honed finish, brushed, etc.) the grout is applied with a spatula only in the joint between the tiles and once the grouting is applied it is very important to immediately remove the excess grout with a damp sponge to prevent the grout from being absorbed by the stone and creating nasty halos ("frame effect").

In the event that you are installing only sawn tiles on the floor or sawn calibrated, grouting will be made to all the floor (so both in the joints between the tiles and over the surface of the tile) in order to saturate any small minute imperfections of the stone. You need to wait at least 15 -20 days after installation before honing on site the surface.

9) On site honing

The on site honing is recommended in the works that require a final result of perfectly coplanar paving. Here joints almost disappear. This way is also recommended for elaborate designs and with different types of materials. The onsite honing produces a very aesthetical refined and smooth. flooring. Before performing the honing, You must wait for the glue fixing to be mature (for elements installed with Keraflex and grouted with Keracolor you must wait at least 15-20 days after the end of the laying and grouting).The honing work involves the complete wetting of the floor and honing is done with heavy machines (usually operating with electricity 380 volts, normally You need a power of 5 Kw. The honing also involves the formation of sludge (dust stone, and water) that are to be readily removed and confined to avoid excessive wetting of the stone walls and floor.
The honing increase the time of completing the flooring, as after completing it You will need at least 15/20 days before You can put any kind of water-oil repellent sealant (You need the floor to be fully dry)

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10) Water – oil repellent sealant

After the installation operations you need to apply a water-oil repellent treatment on clean and dry stone. To choose the most suitable type of product You can refer to the appropriate tab for the treatment, see “Guide for treatment”.