



SEAMLESS TERRAZZO

Surface preparation

A critical point



Non-Shrinkage Technology & Crack-free flooring

Etonsurfaces offers a range of products that have a unique combination of:

- No shrinkage
- High Flexural strength
- High Compressive Strength
- High abrasion resistance

That means that our materials will not crack on their own and can take a lot of stress.

Movements and settlement in new building are strong forces that can cause cracks in the finished floors, but with the right surface preparation we can reduce the risk for cracking in the finished floor to an absolute minimum.

The Structure

The foundation and Structural Concrete is of vital importance.

It is important that the structural work has been taken under consideration: if there is a risk that two parts of the buildings can move independently, it is recommendable to install a movement joint.

There are different possibilities regarding the base.

- If the base has been made in one pour with rebar reinforced concrete with fiber the risk for cracking is low.
- If the base floor is made in several pours it should be considered to insert joints or do other types of surface preparation.
- If the structure is made from concrete elements there is a risk where the concrete elements are joint together. If the subfloor settle and one of the beams move, this can cause heavy cracks in the floor base.

There is always a risk where two independent structures are joint together, especially if one structure is heavier than the other. A well prepared reinforced structural concrete over the foundation is an ideal base.



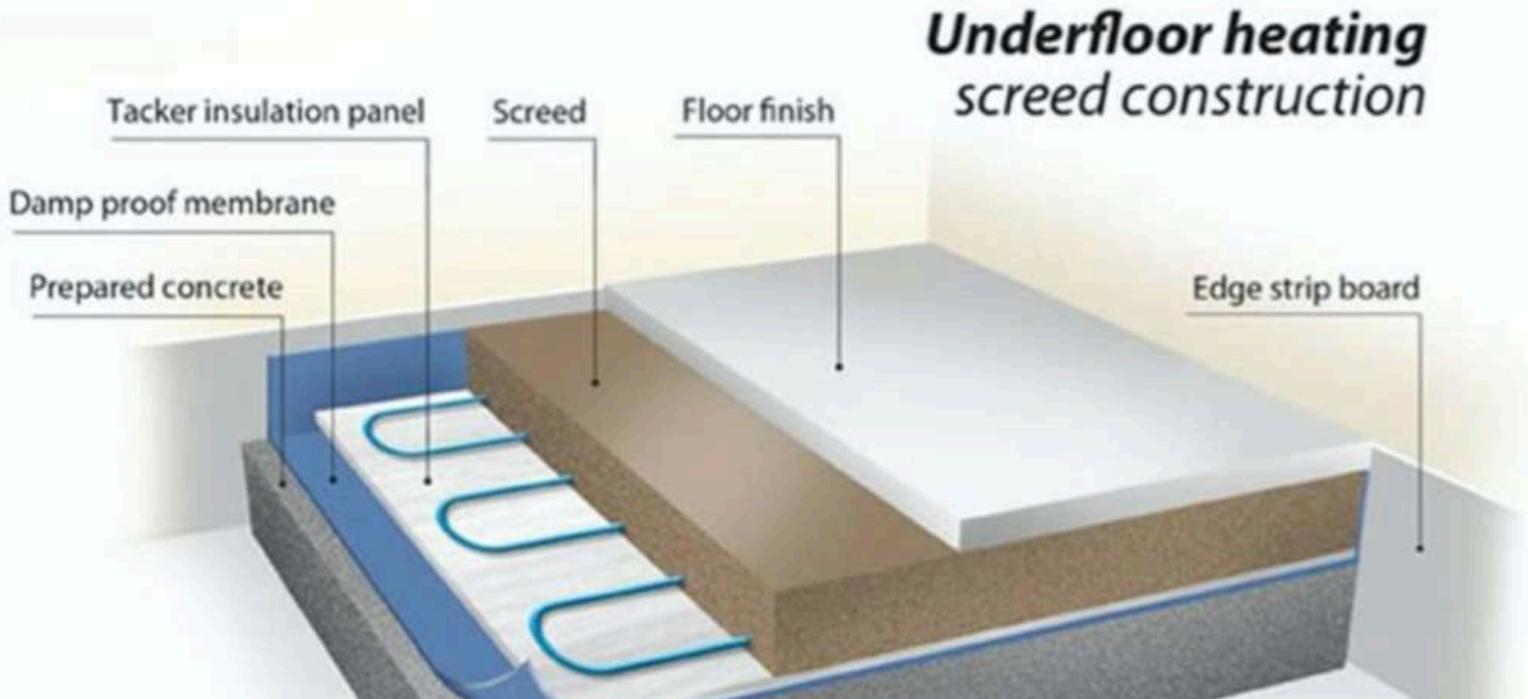
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Floor Heating

Over the structural reinforced concrete, membrane and insulation panels are installed. They separate the structural concrete and reduce the effect of structural movements in the finished floor. A good quality base floor screed is essential. For the application of joint free floors, a fiber-reinforced floor screed is a good option, since shrinkage cracks will not open up so much. Surface preparation is the basis for a successful application of any flooring systems. A substrate's nature and quality is essential for the adhesion and durability of all executed floorings.

Underfloors - self leveling overlays and screeds

A good underfloor is essential for a good result with the finished floor. The laying of the floor is a lot easier if the base floor is leveled and it is of vital importance that the base floor is sound and firm. We produce a full range of fast setting overlays and cements screeds to guarantee a good and strong floor base.

Traditional concrete cause problems when it is laid too thin. Our range of overlays and screeds are adapted to different needs for strength, use, floor heating, levelness, thickness or/and curing time. They are to be used where you do not have the conditions to apply a 10 cm concrete. Screeds are used to get the right height and to even and level the surface you are to apply the finished floor on. If there is a floor heating system installed, the floor heat should be turned on for some days before the finished floor is applied. Suitable preparation provides maximum adhesion and cohesion of the subsequently applied system.



Here you can see a relatively good underfloor (on the left) and one that needs some treatment (on the right).



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Seamless Terrazzo minimum conditions

Seamless Terrazzo system requires certain minimum conditions in the substrate to which it is applied to obtain the maximum long-term properties from it.

- Make a pull test if you have doubts about the support. The support should have a minimum tensile strength of 1.5 MPa.
- The floor base must be clean and free of oils, dust and grease. The base must be consistent, without loose particles and disaggregation: weak parts should be removed and bad areas repaired.
- The base must be visually dry with a maximum moisture content of 4% without possibility to increased moisture by capillary action. If moist is a general and permanent problem, special precautions must be taken. Take contact to our technical department.
- Old coatings should be removed.



Success is achieved when:

- Specification is conducted professionally and respects the intended use
- Application is conducted by approved installers who maintain good quality standards
- The substrates have sufficient preparation and conditions for good adhesion and durability of the flooring system

The support should have the following characteristics:

1. Dry (both on the surface and inside)
2. Leveled
3. Cohesive
4. Even
5. Free of cracks (to be pre-treated)
6. Clean, free of dust and debris and loose materials and free of oils, grease or other chemical impurities

These conditions are relatively easy to obtain in case of new floor construction, but refurbishments can demand major treatments to conform to the standards required for long term trouble free performance. There is no universal theory for this type of work; it is therefore necessary to explain the differences between the various mechanical surface preparations and treatment .



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Basic Equipment

Professional installers (flooring companies) should always conduct a "check list" regarding the condition of the substrate and implement the necessary preventive treatments in each case.

Companies that are dedicated to the application of flooring must have the right machines for good preparation and application.

Here is a list of the minimum equipment required for mid sized works, to facilitate good anchorage of the applied system.

Basic equipment :

- CLEANING MACHINE
- DISK SANDER
- SCARIFYING MACHINE
- DIAMOND GRINDING MACHINE
- MANUAL GRINDING MACHINE for corners, details

If this machinery is not available in house, then another option is to sub-contract the surface preparation to companies specialized in blasting /scarifying , etc. Example of a poor base - cement slurry has been applied over the concrete base. The result is a poor/weak and delaminating surface - this must be grinded or blasted off. Destroyed base floors will need in some cases heavy repair or replacement of parts of the floor.





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Machine Steps

Sanding

The auxiliary sander is a machine for preparing the Substrate. It is a rotating plate, incorporating tungsten grit or corundum. The machine is also used to improve the adhesion between the overlay and the subsequent layers of finishing coat, sanding between coats, or for preparation of small areas.



Diamond Grinding

This system cuts the surface. Using different diamond particle sizes depending on the requirements as to the finish floor, from very rough to very fine pore opening. It is also possible to diamond grind after scarifying a floor, in order to obtain a smoother substrate, and savings in the quantity of resin required for the primer. Diamond grinding is the most widely used preparation system, totally dry and specially advised for low thickness flooring systems and epoxy primers. One of its most important features is that it is a dry process.



Shotblasting

The blasting operation is based on fine metal balls thrown by a turbine striking the pavement. Then the machine retrieves the balls and dust automatically which is collected by the vacuum cleaner. This is a dust free operation Shot blasters efficiently open the pores and ensure good anchorage. This type of surface preparation is recommended for painted floors, and very smooth pavements worn by use. It is also ideal if you need to take off a weak top layer of concrete bases.



Scarifying

The scarifying machine acts by a rotor striking the surface and leaving a rolling effect approximately from 0.2 mm to 5 cm. depth, depending of the machine model. You can use different mills, which can be tailored for deeper scarifying, superficial abrasion and marking, or removing existing coatings which could be extremely costly and time-consuming with other methods. Scarifying is also used to even floors with heavy mislevels.

Vacuum Cleaning

The vacuum cleaner is an essential complementary machine. After any treatment it is essential to leave the work area completely free of dust, both on the ground and in suspension in the air. There is a big variety of vacuum cleaning machines. In flooring preparation it is important that the vacuum cleaning machine can work in parallel to the substrate preparation equipment. It is also important to select the correct filter(s) for the vacuum cleaners to ensure removal of all dust particles, some of which can be superfine.

For ideal grip and reasonable consumption of primer, to grind with minimum 30 resin grit is an ideal surface preparation.



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Singular points

Door openings, curved walls and places where object that come out of the floor etc. are places where the contraction in the base floor screeds may cause cracking. Traditional floor screeds contracts during the curing and it is normal that they have a certain amount of cracking. To make sure that these are not transmitted to the finished floor it is important to leave the base screed to settle and cure well.

If floor heating is installed turn it on for a few days before you install the finished floor. During the installation of the finished floor the floor heating should be turned off.



Rebar or mesh?

Our finishing floor products have a high flexural strength and that makes them able to take a lot of bending. The weakest point is where you have pressure coming up in a straight line or where mortar line up to a cant. That is why you will apply mesh over inserts and repairs. When you have movements in a floor slab, it is likely that the pressure on a cant between a wall and mortar, the mortar and an insert will cause a straight lined movement going up or down. These movements will be reduced by steel bars and mesh and prevent cracking. Directly on a concrete slab rebar is the best solution. On cement screeds the mesh is a good solution.



First you clean the crack.

Repo Crete

Spray area with Primer A3. Let dry and fill with Repo Crete.

With Epoxy

Apply epoxy primer. Mix epoxy with fine sand and fill the crack. Then a layer of RepoCrete is applied and the mesh is incorporated into the repo Crete. If Epoxy resin is used a layer of primer is applied on the floor and the mesh is incorporated into the primer.

For bigger repairs of holes Repo Crete and Epoxy primer can be added gravel or additional sand.

To the right mesh cut out and ready to be incorporated into the repo crete mortar or epoxy primer. To the left - mesh incorporated into the primer and ready to receive complete primer layer and sand carpet.





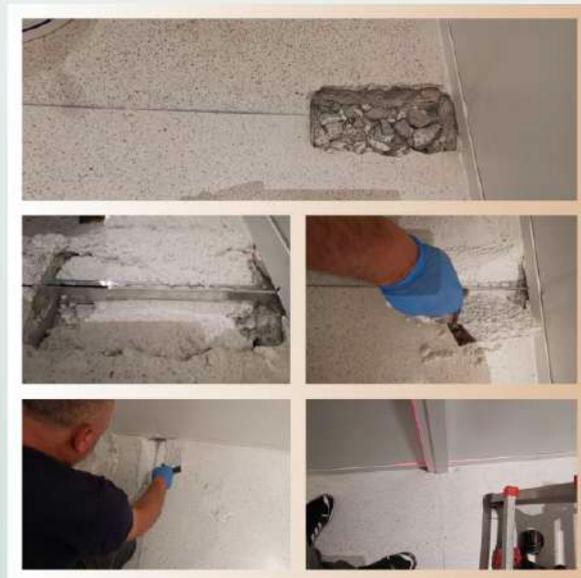
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Holes Repairing

If the concrete is too soft or damaged it might must be picked out, and the concrete must be replaced or repaired in these areas. We recommend our fast setting repair mortar Pro Eco-Crete or epoxy mortars for durable strong repair. Prime and clean well. Mesh can be inserted in primer afterwards.



Cracks and Joints Repairing

The cracks are cut open and vacuumed well. You can sew the floor together using rebar and epoxy resin with sand or our strong bonding Repo Crete, previously sprayed with our Primer A3. The Steel bar reinforcement should be inserted along the crack or joint every 30 cm and should go minimum 15 cm on each side of the crack or joint.



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A well prepared floor base

Cracks and joints have been repaired. The floorbase is firm and strong, consistent, flat and level. Now it is ready to receive the final Epoxy and sand carpet to create the right bond with our products.



Edge isolation

Edge isolation is of vital importance for a good and problem free floor. Walls and floors move independently and if they are directly connected the tensions can cause cracking. Make sure that the edge isolation is well installed, so the flooring material will not escape underneath. If the flooring material escape through holes in the wall it can cause color difference and unevenness in the finished floor.



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Primer and sand/quartz carpet

Cement based overlays bind on the aggregate spread on the surface and not in the resin. Therefore the right size (1.0 to 1.8 mm) and the correct application of the aggregates is essential.

Preparation

Mix the epoxy primer well with a slow speed drill mixer. Pour the mixed epoxy on the floor and extend with a rubber rake or roller. Cross over the Epoxy Primer with a roller and broadcast **dry** sand carpet over the floor. This can be done right after the crack repair. The crack repairs in the base do not need to dry if they are done with the same epoxy material. Charge with 1-1.8 mm aggregates and let dry. The sand must be spread evenly and without "dead" spots. Normal consumption around 5 -6 kg/m² .

Saturate and vacuum excess. Excess can be used later.

The drying time depends on weather conditions, may be up to 24 hours. Vacuum/brush to remove excess of aggregates. Mesh can be incorporated in the primer to avoid transmission of cracks from floor base. Make sure there are no bubbles and that mesh is well incorporated into the primer. The floor is now ready for ProDekodur, Seamless Terrazzo, Seamless EcoFlow, Seamless Trowel and ProEco Crete or Micro Crete.





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Spray applied Acrylic Primers

Primer A3 is a spray applied acrylic primer for rough textured concrete and mineral surfaces that have been grinded, blasted or scarified. Primer A3 is also used on fresh damp concrete. It is used for Pro Dekodur, ProEco Crete and Micro crete. It is sprayed on and brushed into the surface and it should be applied in two coats and the first can be diluted depending on porosity. It can be used on damp concrete together with ProEco Crete and Micro Crete.

Combimix PP 660 Primer

A first application is applied on the floor and brushed in. Then self leveling mortar is added. The dry powder must be added and brushed in to create a rough Surface, if it has not been scarified or blasted. It can be used for Pro Dekodur R, Seamless Terrazzo, Seamless Trowel, Seamless EcoFlow, ProEco Crete and Micro Crete.

On tiles

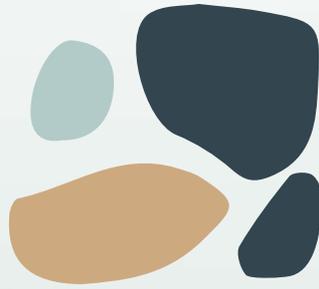
The tiles must have good adhesion. We recommend to grind or sand the surface. Loose tiles should be replaced or taken off. Spray and brush in PRIMER A 3 Apply a layer of Repro Crete to even the surface. Apply ProEco Crete or Micro Crete. Combimix PP 600 and Epoxy with sand carpet are also an apt primers for tiles.

On Plywood

The board must be 18 mm thick and well supported with strong beams. The beams must be fixed to the underfloor. If the structure is not fixed to the under floor, the under floor must be perfectly flat and support the beams all over the floor. The joints on the plywood must be well fixed. Over the joint a mesh must be applied in the epoxy primer.



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