

Natural Stone Specialist Editorial
Article 4
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Fixing Natural Stone to Anhydrite Screeds

Anhydrite/ Gypsum/ Calcium Sulphate/ Alpha Hemihydrate/ Gyvlon screeds are self levelling (self smoothing) screeds based on a binder of calcium sulphate. They have become very popular as a substrate due to the benefits they offer. They can be pump applied enabling them to be installed up to ten times faster than conventional sand: cement screeds. The screeds experience minimal shrinkage, cracking and curling and have rapid strength development permitting foot trafficking 24 to 48 hours after laying. They are also suitable for use with underfloor heating systems.

It should be noted however that due to the screeds make-up, they are considered to be unsuitable for use in areas which may be subjected to dampness and wetting and that the drying rate is dependent upon the screed thickness as well as site conditions. To ensure a successful tiled installation it is essential that the screed has a low moisture content and is correctly prepared before tile fixing commences.

The screed must be allowed to dry out as per the manufacturers recommendations. This is generally at a rate of 1 day per 1 millimetre of screed thickness for screeds up to 40mm and 2 days per 1 millimetre for any additional thickness over 40mm. A final moisture content of no greater than 0.5% w/w or 75% Relative Humidity (RH) is required.

It is essential that surface laitance is removed by lightly sanding. This is generally carried out 4 to 6 days after the screed has been applied and will provide a dense surface to receive adhesives as well as assisting the drying process.

The screed must be primed/ sealed to prevent the formation of ettringite, an expansive crystal created by a chemical reaction between the sulphates in the screed and the cement-based adhesive. When using a primer (Styrene Butadiene Rubber, SBR) such as Norcross Prime Bond the screed should be primed using progressively stronger coats. An initial coat diluted 1: 4 parts water and allowed to dry, followed by a second coat at a 1: 3 dilution applied at right angles to the first coat and allowed to dry. If the surface of the screed is still absorbent, a third coat, at a dilution of 1: 2 will be required.

Once it has been ensured that the screed is dry, primed and that the primer is dry, the tiles may be fixed in the usual way ensuring that a suitable adhesive is used. Where underfloor heating has been installed it is essential that a flexible C2 cement-based adhesive such as Norcross Thick Bed Stone & Porcelain Adhesive is used. A C1 adhesive may be used on unheated floors.

The Tile Association (TTA) document , 'Tiling to Calcium Sulfate based Screeds' recommends that Movement joints should be incorporated as follows:

Unheated Anhydrite Screeds

- Over structural joints in the underlying construction, at day joints in floating or unbonded screeds which are likely to be subject to movement.
- At floor perimeters where the screed abuts walls and upstands at doorway thresholds.
- At junctions between heated and unheated sections of the screed
- As a boundary joint, generally with a side length $\leq 20\text{m}$ or in accordance with the screed manufacturers instructions.



Heated Anhydrite Screeds

- Over structural joints in the underlying construction, at day joints in floating or unbonded screeds which are likely to be subject to movement.
- At floor perimeters where the screed abuts walls and upstands at doorway thresholds.
- Through the both the screed and tile bed dividing the tiling into bays not greater than 40m² or in accordance with the screed manufacturers recommendations. The bays should be square or rectangular with the width to length ratio not exceeding 5 to 8.
- As movement joints at significant changes of width of the screed surface and in doorways (ground plan length over 5m) with several rooms arranged one after another within a floor plan.
- As a boundary joint isolating areas of screed with separately controlled heating circuits.
- At doorways between separate areas of use.
- At junctions between heated and unheated sections of the screed.