

Tiling onto calcium sulphate screeds

Flowable calcium sulphate screeds, also known as anhydrite, hemi-hydrate and gypsum, have many advantages over traditional sand/cement screeds such as:

Can be laid thinner, reducing loadings

Can be manufactured using industrial by-products so an environmentally friendly alternative

Increased speed of installation as they can be pumped

It is important that calcium sulphate screeds are identified before any tiling installations are carried out because they have different requirements. They may not be visually different from traditional screeds so always enquire, particularly if the screed contains underfloor heating. We recommend the use of a barrier primer on calcium sulphate screeds to avoid migration of moisture between adhesive and subfloor.

Unlike sand / cement and cementitious products, which can still have extremely high tensile and compressive strength whilst retaining a high level of moisture, calcium sulphate screeds need to reach a level of dryness to enable them to perform correctly underneath the tiling. The approved standard moisture test method is to use a surface hygrometer. This is an insulated box, fixed to the unheated floor for typically 4 days, after which the moisture in the air trapped in the box reaches equilibrium. This air is then tested using either an analogue or digital hygrometer. If the reading is less than 75%RH (relative humidity) then the screed is dry enough.

Other indicative test methods may be used to help identify if moisture is a concern or if the screed is

close to dry. A simple test is to tape a piece of plastic to the floor for 48 hours. Moisture condensing on the underside of the plastic or a darkening of the screed indicates moisture levels are still significant.

The recommended drying times of calcium sulphate screeds, as quoted by the manufacturers, are usually based on drying conditions at 20°C, low air humidity and an open surface with no materials overlaid.

This does not represent a typical site scenario so they should not be relied upon. It is also important to remember that underfloor heating must have been fully commissioned. This does not mean a simple air pressure test but means a full cycle through the heating range. This is necessary to:

A. Identify if any weaknesses are in the screed by showing likely points of cracking and spalling (typically due to poor installation of the screed with heating)

B. Assist the drying of the screed

Preparation

1. Once the above criteria has been met the screed is ready to receive this. To ensure consistency it is advisable that all screeds are mechanically prepared using a rotary disc to remove any laitance and weak upper surface (consult the screed manufacturer for their specific requirements). The screed must also then be made dust free.

2. Ensure that the calcium sulphate screed is fully dry (less than 75% humidity). If in doubt then the supplier or installer of the screed must be contacted to confirm that the drying period has been observed and gain their assurance that the screed is dry. The manufacturer of

the screed will know better than anyone how long their screed will take to dry out at certain depths.

3. In general calcium sulphate screeds take 1mm/day for the first 40mm to dry out and a further 0.5mm a day for anything thicker, so a 50mm screed will need a minimum of 60 days before being anywhere near dry. 80mm would be as long as 40 days plus a further 80 days giving 120 days minimum. Calcium sulphate can be force dried, but check with the manufacturer/installer of the screed on how to do this.

Priming

We recommend applying 2 coats of primer, ensuring consolidation and isolation of the calcium sulphate. This allows the standard classified cementitious tile adhesives to be utilised in the normal manner.

Coat 1

4. Prime the floor with a coat of UltraTileFix ProPrimer. The primer should be diluted with 3 parts water and thoroughly scrubbed into the floor. Apply thinly and do not leave pools or puddles of primer. Leave to dry thoroughly, typically overnight.

Coat 2

4A. UltraTileFix ProPrimer should be diluted with 1 part water to 1 part primer. Brush or roller onto the floor applying thinly, avoiding pooling. Allow to dry to a tacky clear film, typically 4 – 6 hours.

5. If underfloor heating is present there should be expansion strips between the different heating zone areas to enable the screed to move independently, around any perimeters, and at upstands and door thresholds. In all cases these strips should not be tiled over but should be carried through to the upper tiled floor, using a silicone sealant or similar to enable a continuous floor to be achieved. When underfloor heating is present we advise that a polymer modified adhesive is used. It is always beneficial to use a rapid

set product on these screeds to minimise the migration of moisture between screed and adhesive during curing.