

## Tiling onto floors with underfloor heating - Warm water systems

### 1a. Warm water systems – encased in screed

These consist of a run of pipes embedded within a pre-laid screed, often calcium sulphate based due to its flowing characteristics. The surface preparation and priming required before laying tiles is the same as for screeds without underfloor heating. Before any tiling is carried out, the following criteria must be met:

The screed must have been left for the minimum cure time before the heating is switched on (this is generally 21 days for sand / cement screeds, and 7 days for calcium sulphate screeds).

The underfloor heating must have been fully commissioned and tested. This is not a simple pressure test but must be a full heat up and cool down of the system. This is normally a 7 day cycle. Only by doing this can any screed weaknesses be identified.

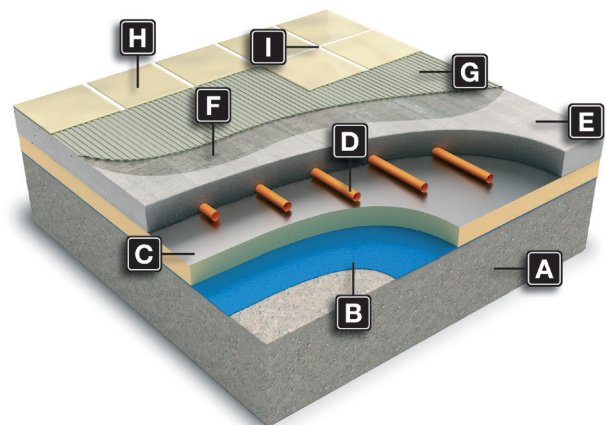
All movement joints must be identified and followed through in the tiling. Screed movement under temperature change is a major cause of tiled floor failure so the need for movement joints is extremely important. Movement joints should be present between all different heating zones, door thresholds, upstands and perimeters.

Traditional cement based subfloors and calcium sulphate screeds must be tested for moisture levels and confirmed to be 75% RH or less using a hair hygrometer. Proprietary cement based screeds may cure and dry at different rates so always check with the manufacturer.

The adhesives and grouts selected must be flexible.

Do not run the heating at high temperatures as this will force dry the adhesive and grout, causing cracking and lifting. Have the heating on at a 'cutback' temperature whilst tiling – this means a floor temperature of max 15°C.

Once the tiling and grouting has been carried out the temperature must remain the same for a minimum of 7 days. After this time, the underfloor heating can be brought up to full working temperature slowly. A maximum water temperature increase of 5°C per day is advised.



- A – Concrete substrate
- B – DPM
- C – Insulation
- D – Heating pipes
- E – Screeds
- F – Prime appropriately for the type of screed used
- G – Apply adhesive (selected upon tile type)
- H – Install tiles
- I – Grout all joints

## 1b, Warm water systems – fixed within pre-formed insulation panels

This popular alternative system removes the need for a screed by using pre-cut channels in the insulation panel to house the warm water pipes. This system provides a lightweight base option, which can be tiled onto directly. Often the surface of the insulation panel can be faced with an aluminium foil to help spread the heat. Prior to commencing tiling the following must be met:

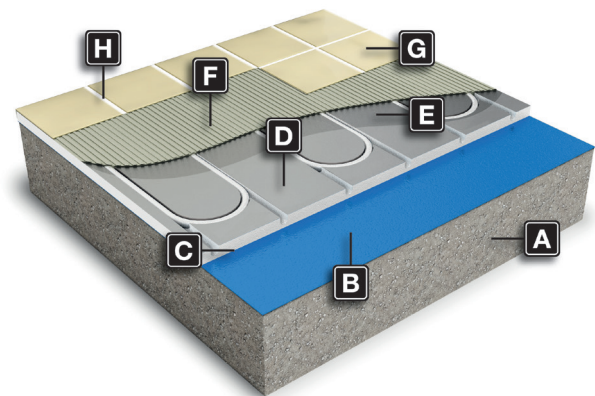
All underfloor pre-formed panels must be secured firmly to the substrate and be sound and solid, free from movement. Always consult the manufacturer's installation instructions.

The underfloor heating must be fully commissioned and pressure tested before tiles are installed to ensure there are no leaks.

Once water pipes have been positioned and within 24 hours prior to applying the tiles, it is advised that all panels are cleaned and ensured dust free. We recommend priming the entire surface of the panels with a neat coat of UltraTileFix ProPrimer including the installed heating pipes and cavities that do not have pipe work in them.

Once the primer has fully cured, tiling can commence using either an S1 or an S2 adhesive. Ensure all cavities within the panels are first filled with the adhesive using a smooth edged trowel. This will provide a level surface to the panel before finally applying the same chosen adhesive with a notched trowel to the bed thickness required.

Follow the same guidelines as in 1a. VI. and VII. to curing of adhesives and grouts and operating the underfloor heating.



- A – Substrate
- B – Apply DPM if required on newly laid screeds
- C – Adhesive as specified by underfloor heating manufacturer
- D – Pre-formed underfloor heating panels
- E – Prime using UltraTileFix ProPrimer
- F – Apply S1 or S2 adhesive
- G – Install tiles
- H – Grout using a flexible grout

Various underfloor heating manufacturers exist including Warmup who offer a range of systems across the different types, including Sticky Mat and Total-16. We recommend that you always refer to the manufacturers instructions when installing underfloor heating.

Visit [warmup.co.uk](http://warmup.co.uk) to download Warmup technical guides.