



SUPERIOR UNDERFLOOR HEATING & COOLING SYSTEMS

Concorde House, Concorde Way, Segensworth North, Fareham, Hampshire PO15 5RL

Tel: 01489 581787 Fax: 01489 576444

Email: sales@warmafloor.co.uk Web: www.warmafloor.co.uk

SCREEDS OVER UNDERFLOOR HEATING (FLOATING SCREEDS)

Except for buildings where the concrete slab is left exposed such as a warehouse, all concrete floors are covered with a screed layer which provides a final level finish onto which is installed the floor covering, tiles, carpet, wood etc.

When underfloor heating is installed, perimeter wall insulation and floor insulation panels with a fitted moisture barrier are installed on the floor slab and the underfloor pipework secured to the panels. This is then covered with the final screed layer.

The screed has to be of suitable depth for strength and to provide sufficient cover over the underfloor heating pipework to avoid the screed cracking. When installed over floor insulation the screed is called a floating screed.

There are four main types of screed that are used:

Sand & Cement (with added fibres)

Sand and cement screeds are a mixture of sand and cement generally in a 4 to 1 mixture ratio with water. We recommend the use of added fibres which reduce micro cracking to the screed surface and surface abrasion.

Sand and Cement Enhanced Screeds

Enhanced screeds are sand & cement screeds with added chemicals that improve the properties of the standard screed. The improved properties include faster drying times and/or extra strength. The additives are made by various manufacturers and are sold under their own trade name. E.g. Flexidry. The screeds can be obtained ready mixed or the additives can be site mixed. We recommend Flexidry products.

Anhydrite (Calcium Sulphite) Screeds

Anhydrite screeds are a different type of screed from sand & cement. The screed is made from calcium sulphate, sand, water and other chemicals to form a liquid screed. Unlike sand and cement screeds (which are spread, compacted and levelled), the screed is poured onto the floor through a delivery hose and levelled with a dappling bar. Large areas can be covered much quicker with this screed type. It is essential however, that the floor and edge insulation must be fully waterproofed by taping and sealing all joints in the floor and edge insulation. These screeds are sold under manufacturers trade names and delivered to site ready mixed.

Whilst a large area of this screed can be installed quickly it has the disadvantage of a long drying time and it cannot be laid in wet areas or laid to falls.

Liquid Cementitious Screeds

This type of screed is similar to an Anhydrite screed but uses cement instead of calcium sulphate, it is generally much stronger and can be rapid drying, although available it is not as common in use.

Expansion Joints-Crack inducers. All screeds expand and contract to some degree so allowance has to be made for this. The perimeter insulation fitted with underfloor heating allows for some of this, however large areas will need to have expansion joints or crack inducer cuts in the screed itself to allow movement and avoid screed cracking. Expansion joints will also be required to mirror any expansion joints in the floor slab. These should be as recommended by the screeder or architect.

Day Joints

Day joints are positions where the screed has been finished on one day and will be carried on the next day. In these positions, to avoid cracking the joint needs to be reinforced with mesh to bond the screed together. Alternatively an expansion joint could be fitted in this position.

Floor tiles, marble floors, stone floors

Where the screed is to be finished with a rigid tile, marble or stone topping the expansion provisions are very important as screed movement can crack the floor finish. The flooring should be designed by the floor installer detailing expansion provision in the floor tiles themselves. This can then be mirrored with a separate bedding layer with expansion joints or in the screed below. Alternatively, a de-bonded bedding layer for the floor finishes can be installed above the screed.

Screed level and surface flatness

All screeds have to be installed to a British Standard of level and flatness.

Flatness –the variation in gap under a straightedge placed anywhere on the surface to be not more than the following.

A- 10 mm under a 2mtr straightedge--SR3

B- 5 mm under a 2mtr straightedge—SR2 #

C- 3 mm under a 2mtr straightedge—SR1

In general use

Permitted level tolerance from floor datum +/- 15 mm

Reinforcing Mesh

In sand cement type screeds the use of D49 mesh or chicken wire or an SBR slurry consisting of polymer, cement and water can be used to reinforce the screed to avoid cracking. In areas where a number of underfloor circuits can come together such as some manifold locations, or where the screed is below the recommended thickness, the screed should be reinforced by the installation of D49 mesh, at mid point in the screed, over the underfloor pipework.

Screed Treatment for finishes

If an adhesive or other finish is to be applied to the screed, it may not be able to be applied directly; a sealer may be required first. Always check with adhesive/finish manufacturer.

Remember- No concrete floor will be flat and level on a building site, so it is best do a level floor survey to ensure enough depth above the floor slab is available for the underfloor heating and screed. When specifying screed depths, ensure the minimum specified depth allows for some intolerance in the floor slab.

Protection-Screeds are not a wearing floor finish and should always be protected until floor covering is fitted.

Screed Moisture Testing-moisture testing of modern screeds must be done using a **Carbide Bomb Tester** not an electrical resistance type –these can be obtained from the Flexidry shop if required www.flexidry.shop.com Tel 0845 555 5656

Always contact the screed manufacturer for specific requirements.

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SCREED TYPE		SAND & CEMENT WITH ADDED FIBRES	ENHANCED SAND & CEMENT WITH ADDED FIBRES	ENHANCED SAND & CEMENT WITH ADDED FIBRES	ANHYDRITE (CALCIUM SULPHATE)	FLOWING CEMENTATIOUS
TRADE NAMES		Site or Plant mix	FLEXIDRY Tarmac Truscreed 'K' Screed	FLEXIDRY HD etc	TarmacTruflow RMC Supaflow Lafarge Gvylon etc	Ecoscreed
Installation rate M ² per day		100-250	100-250	100-250	500-1000	600
Screed Strength		18 Nmm ²	25 Nmm ²	30 Nmm ²	30Nmm ²	30 Nmm ²
Recommended Minimum Screed thickness over insulation *	Domestic #	65 mm	65 mm*	65 mm	55 mm	55 mm
	Commercial #	75 mm	75 mm*	75 mm	55 mm	55 mm
Minimum Cover over pipework		40	40	40	30	25
Light foot Traffic		24-48 hours	12 hours	12 hours	24-48 hours	4 hours
Site Traffic		5 days	5 days	5 days	5 days	2 days
Suitable for wet areas		Yes	Yes	Yes	No	Yes
Approx Screed Drying Times @ 20 degrees C ambient		1 mm per day up to 40mm then 1/2 mm per day			1 mm per day up to 40mm then 1/2 mm per day	
55 mm thick		-	-	-	70 days	70 days
60mm thick		80 days	18 days	7 days	80 days	80 days
65mm thick		90 days	20 days	7 days	90 days	90 days
75mm thick		110 days	22 days	7 days	110 days	110 days

NOTES

1. Drying Times	Exact drying times for screed to completely dry are dependant upon temperature, humidity and air movement in building.
2. Cover over piping #	Screed depths stated above allow sufficient cover over underfloor pipework allowing for some level of intolerance in floor slab.
3. Floor Coverings	Before application of floor coverings, moisture content of screed must be checked.
Lower screed thickness	Some enhanced sand cement screeds can installed at a depth less than shown in the table. However some of these may need reinforcement to do it - this must be checked and confirmed by the screed manufacturer. (e.g. Flexidry needs no reinforcement at lower thickness..)

Warmafloor recommends **Flexidry Screed** which is available in variable drying times in 7,14 or 21 days and also is more resistance to cracking and surface abrasion.

Contact : **Flexidry 0845 555 5656 or www.flexidry.com**

Also for **technical assistance** on screeds Contact- **CSC Screeding Tel 0845 500 4055**
www.cscscreeding.co.uk