

» Master Builders Solutions Technical Bulletin

Fast Track Screed - Doing it Right. Floor Laying Systems.



What are screeds?

A screed forms part of the construction process which is laid in various thicknesses for the purpose of bringing the surface of the flooring to the designated height and to provide a suitable flat and level substrate in preparation for the installation of the specified flooring finishes, i.e. tiles, natural stone etc.

This technical bulletin has been produced as an informative guide for the correct application of MasterTop 518 fast track screed both bonded and un-bonded and the advantages of MasterTop 518 over traditional sand and cement screeds.

The Master Builders Solutions Technical Bulletins are informative documents that present application recommendations and other technical details to better understand the use of construction chemicals products, often from BASF's portfolio.

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Screed categories

As per BS 8204-1:2003 the screed thickness will determine if the screed should be bonded or un-bonded.

Traditional sand and cement screeds should be bonded if 40mm or less with the minimum thickness of the levelling screed at any point being 25 mm. The minimum thickness of MasterTop 518 applied as a bonded screed is 10mm.

Un-bonded screeds are applied to a minimum thickness of 50mm onto a polythene slip membrane, with a 10mm polyethylene strip around all the perimeters and penetrations.

This will absorb the movement from the moving screed. A Floating screed is an un-bonded screed applied over thermal insulation such as expanded polystyrene or sound proof matting, the thickness of the screed at any point should be not less than 75 mm. The minimum thickness of MasterTop 518 applied as a floating screed over thermal insulation is 40 mm.



Surface preparation for bonded and un-bonded screeds

It is essential that the substrate preparation has been carried out prior to the application of the MasterTop 518 Fast Track Screed as a bonded screed.

For the application of a fully bonded screed surface preparation must be carried out to remove surface laitance, curing compounds and surface contamination by mechanical preparation to expose a clean aggregated surface.

Mechanical preparation for a fully bonded screed can be carried by scarifying, shot blasting and or flame chipping.

Un-bonded screed is a special type of screed where the screed is separated from the base by using a polythene slip membrane to allow independent movement between the flooring system and the base. The polythene slip allows movement between the flooring systems / un-bonded screed and the base substrate should be smooth, free of stepped or uneven areas. If the substrate is not smooth or level it may be necessary to apply a self levelling compound to level out any imperfections.

MasterTop 518 screed application

After correctly preparing the substrate it must be presoaked with water at least two hours before, and if possible 24 hours before applying MasterTop 500 mortar bonding agent.

Substrate must be sufficiently damp otherwise the MasterTop 500 Mortar Bonding agent will dry out which will affect the bond between the MasterTop 518 screed and the substrate.

Apply the MasterTop 500 Mortar Bonding agent onto the damp substrate and thoroughly work in with a hard broom or brush.

Add recommended grade of aggregate and dune sand to the required mixing ratio in a forced action mixer, Putzmeister M740D or M760D screed pump and mix for 1 minute. Add MasterTop 518 and mix for 1 minute then add the required water content while mixer is running (quantity of water will depend on the moisture content type and size of utilized aggregate), Consistency of mixed screed mortar should be stiff plastic. Avoid water overdose during the mixing process of the MasterTop 518 screed.



MasterTop 518 screed application

MasterTop 518 mixed mortar screed is spread over the substrate with a shovel or surface scrapper, fully compact the MasterTop 518 screed and rule off with a screeding bar, (Insufficient compaction will result in a friable low strength of screed).

Immediately apply the MasterTop 518 mixed mortar screed mix wet on wet onto the MasterTop 500 mortar bonding agent ensuring sufficient compaction so as to achieve a good bond between the MasterTop 518 mortar screed and the substrate.

Ruling off and final screed finishing must be accurate enough to meet the requirements of the finished flooring specifications, ie Pavers, Natural stone and tiles. When finishing the MasterTop 518 mortar screed a wood or plastic trowel finish maybe acceptable but generally a closed steel troweled finish is preferred. Power troweling is acceptable but must be carried out by experienced masons and the required surface regularity should be maintained throughout.



MasterTop Screed Application

Conduits and pipes running through the MasterTop 518 mortar screed must be mechanically fixed to the substrate and reinforced by using 19g wire mesh (chicken wire) wrapped over them.

If day joints need to be formed during the application process of the MasterTop 518 mortar screed, the MasterTop 518 mortar screed should be trimmed back while still wet to a vertical and sufficiently compacted edge prior to hardening. Curing of the MasterTop 518 mortar screed should be carried out by covering with a polythene sheet immediately following finishing (with all leading edges lapped and secured) then left for a minimum of three days. Covering the MasterTop 518 mortar screed with polythene is essential to prevent premature drying. Failure to carry out adequate protection and lapping the leading edges early enough can lead to the edges curling and or a dry friable surface due to rapid hydration/moisture loss.

Testing methods for screed

There are various testing methods to ascertain compressive strength, flexural strength and in-situ crushing of screeds.

In-situ crushing test is carried out by means of a BRE-drop hammer.

The test is carried out by subjecting the screed to four repeated blows by dropping an annular weight of 4kg down a cylindrical guide rod, onto a hardened steel anvil placed in contact with the screed.

The depth of the indentation on the screed after four consecutive blows is measured with a depth measuring devise and checked against the acceptable values table for the type of screed which has been applied.

| Specified Category | Type of Screed | Maximum Indentation Depth |
|--------------------|---|---------------------------|
| A | Screeds subjected to heavy traffic | 3mm |
| B | Screeds subjected to heavy traffic (e.g. Trolleys in public area) | 4mm |
| C | Screeds intended for light foot traffic (e.g. Domestic uses) | 5mm |
| D | Screeds to receive rigid tiling | 6mm |

Compressive and flexural testing is carried out in accordance with EN 13892-2:2002.

Under EN 13892-2:2002. 160mmx160mmx40mm Prisms, (not 100x100x100 cubes) samples are taken from the site batched screed and tested for flexural and compressive strength at 1,7,14 and 28 days.

Advantages of MasterTop 518 over traditional screeds

Drying time for traditional sand and cement screeds is approximately 1day per mm. A 40mm sand and cement screed requires 40 days drying time = 40 days before covering with finished flooring. MasterTop 518 screed 3 days drying time = finished flooring can progress after 3 days.

Shrinkage of sand and cement screed will vary depending on the amount of water and the size of the aggregate in the mix, therefore shrinkage is uncontrollable. MasterTop 518 screed is shrinkage controlled, therefore no shrinkage or minimal shrinkage. Minimum thickness application for Traditional sand and cement screeds 25 mm. Minimum thickness application for MasterTop 518 mortar screed 10 mm (bonded), therefore wider range of application.

Does and Don'ts

Use the correct mixer to ensure a uniformed stiff plastic consistency. Use of the wrong type of mixer i.e. free falling mixer will result in a non-uniformed lumpy mix which affects the mix performance and results in a weak screed.

Always ensure good compaction of the Mastertop 518 screed. Lack of compaction results in voids in the screed and affects the compressive and flexural strength of the screed. Never part batch the MasterTop 518. Part batching affects the mix design /formulation of the MasterTop 518 which in turn affects the curing and the compressive and flexural strength achieved when fully cured.



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