CI/SfB Eq4

RONEZ
PART OF THE ISLANDS' FOUNDATIONS

Floor screeds Product Information

A floor screed is a cementitious material made from a 1:3 or 1:4.5 ratio of cement to sharp sand. It may be applied onto either a solid in-situ concrete ground floor slab or onto a precast concrete floor unit. There are many proprietary screeds on the market and further information about these can be obtained from Ronez.

Application

The screed may be directly bonded to the base, or laid unbonded onto a suitable damp proof membrane which is placed over the slab. Alternatively it may be applied as a floating finish over a layer of rigid insulation material. This application is suitable for use with cast-in water pipes to provide underfloor heating.

If reinforcement is required, this can either be in the form of a fine metal mesh, fibres which are normally polypropylene or a fine glass mesh. Ronez supply such fibres for this purpose.

The screed may be left as finished, or floated to produce a smooth surface on which to lay a specified flooring or finish.

Ready-mixed sand and cement screeds that are mixed and then delivered to site offer additional quality assurance over site mixed screeds and a more consistent material.

Traditional cement sand screeds

A bonded screed is bonded to the slab or substrate below, and the main way that bonded screeds fail is that the bond between the screed and the substrate fails. This is more likely to happen if the screed is too thick. An unbonded screed is separated from the slab or substrate below, and the main way that an unbonded screed fails is to lift or curl. This is more likely to happen if the screed is too thin. Bonded screeds should therefore be thin, normally 50mm. Unbonded screeds should be thick, normally 70mm or more to help prevent curling. The use of heaters with unbonded screeds can also increase the likelyhood of curling, due to differential shrinkage from the top of the screed drying faster than the bottom.

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Screed definitions

BS8204 and BS EN 13318:

- Levelling screed – screed suitably finished to obtain a defined level and to receive the final flooring. It does not contribute to the structural performance of the floor.
- Wearing screed – screed that serves as flooring. This term was formerly known as high strength concrete topping. It is also used to refer to structural toppings as well as wearing surfaces.
- Bonded – screed laid onto a mechanically prepared substrate with the intention of maximising potential bond.
- Unbonded – screed intentionally separated from the substrate by the use of a membrane.
- Floating – screed laid on acoustic or thermal insulation. This is a type of unbonded screed.
- Cement sand screed – screed consisting of a screed material containing sand up to a 4mm maximum aggregate size.
- Fine concrete screed - screed consisting of a concrete in which the maximum aggregate size is 10mm.
- Pumpable self-smoothing screed - screed that is mixed to a fluid consistency, that can be transported by pump to the area where it is to be laid and which will flow sufficiently (with or without some agitation of the wet material) to give the required accuracy of level and surface regularity.
- Curling – an upward deformation of the edges of the screed caused by differential shrinkage

It should be noted that pumpable self-smoothing screeds are often known as ‘self-levelling’ screeds.

Cement sand screeds

These are traditional screeds and are suitable for all applications, provided they are specified correctly. The biggest drawback is the drying time; BS 8203 estimates the drying time for a sand cement screed as one day for each millimetre of screed thickness up to 50mm thick. Further guidance on drying times can be found in the code. Ronez can supply quick drying screed that will improve this drying time to 3mm per day. These screeds can also be retarded and have fibres added if they are to be laid to the same guidance offered here.

Screed Workability

The easiest way to check the workability of the screed is using the ‘snowball test’ by squeezing a handful of screed mix with a gloved hand. The right workability is when the screed forms a moist ball on releasing the hold, and does not crumble (too dry) or drip water (too wet). This test can be conducted throughout the installation process. Screeds that are showing signs of crumbling during this test should not be laid as this will result in poor compaction and the screed will not perform as it should. Traditional sand and cement screed of a 4:1 ratio supplied by Ronez has a maximum work time of 2 hours from the time of batch. This time can be reduced by high ambient temperatures so can be difficult to predict. Constantly checking the screed using the test above is the recommended way to ensure your screed is at optimum moisture. Adding water to a screed that is showing signs of drying out is not recommended as the screed will have already begun its hydration process. Ronez can supply screeds that will increase this work time and these can enable work times of up to 4 hours from batching, but again high ambient temperatures can reduce this.

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The Right Process for Installing the Screed

It is important to carry out the process of screed installation in a systematic manner to achieve the best results. There are several steps to be followed while preparing to install the screed:

- Check the specification is fit for purpose
- Screed should be placed on non absorptive material during transport and delivery to site. It should remain under cover during the installation process.
- Make sure the substrate is ready to receive the screed.
- Check the access and egress is suitable for screed installation, plant and materials.
- Check the building is watertight.
- Check the datum levels, record the measurement down to finished screed level to ensure minimum and maximum depths are achievable and compliant with tendered nominal allowance.
- Apply the screed in a sequential manner, avoiding dry joints.
- Apply trowel cuts where necessary for crack control.

The Right Screeding Protection Measures

Appropriate screed protection measures right after screed installation until the laying of the final floor finish is an extremely important step in preventing screeding failures, and is of utmost importance in achieving a screed of high quality, finish and durability. From the regulation of site traffic to covering the screeded surface with screed protectors, there are several measures to be considered for protecting the screed. At a basic level, it is imperative to ensure that:

- No site traffic, including pedestrians, is allowed at least for 48 hours after the installation of the screed
- Heavy site traffic is regulated until the installation of the final finish
- Heavy weights are not loaded unless after the consultation with a structural engineer

Further reading

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British Standards Institution, BS 8204: Screeds, bases and insitu floorings

- Part 1: Concrete bases and cement sand levelling screeds to receive floorings
- Code of practice. BSI, 2003.

British Standards Institution, BS 8204: Screeds, bases and insitu floorings

- Part 2: Concrete wearing surfaces
- Code of practice, BSI, 2003

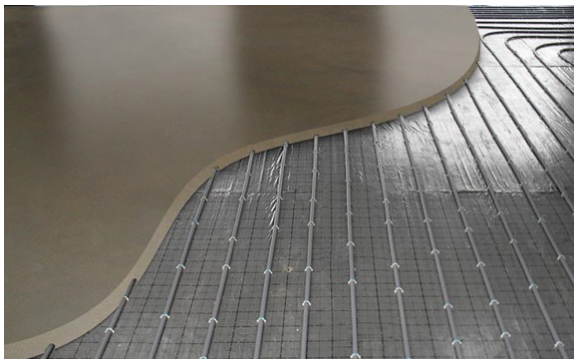
British Standards Institution, BS 8204: Screeds, bases and insitu floorings

- Part 7: Pumpable self-smoothing screeds
- Code of practice, BSI, 2003

British Standards Institution, BS 8203: Code of practice for Installation of resilient floor coverings, BSI, 2001

Gatfield, M J. Report 184: Screeds, floorings and finishes – selection, construction and maintenance, CIRIA, 1998

Mortar Industry Association Data Sheet 22: Screeds



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