

MANDARIN STONE

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How to tile sand/cement screeds with underfloor heating pipes

Excavation

The screed must be at least three weeks old to enable movement caused by drying shrinkage to have taken place. After three weeks the heating should be switched on to heat gradually to manufacturer's recommended operating temperature at maximum increments of 5°C every 24 hours. Ideally, leave the heating at this temperature for three days before allowing to cool gradually to room temperature. This allows the heating system to be tested as well as reducing the risk of the screed cracking due to thermal movement when the floor is heated. If small cracks do appear then use Schlüter-DITRA to overlay the screed, both to prevent transference of any movement from these cracks. Schlüter DITRA can be fixed onto a suitably prepared concrete floor with a thin contact layer of ARDEX X 7R S1 Flexible Rapid-Setting Tile Adhesive. NB. If using Schlüter -DITRA matting the maximum thickness of tile adhesive which can be used on top is 10mm.

The concrete must be clean, dry and free from dust, laitance or any contaminants which may act as a release agent and prevent the adhesive from bonding to the concrete. If the surface of the concrete is dusty then it should be dry brushed with a wire brush to remove the loose dust.

If required, the concrete may be levelled with ARDEX K 40 HB Levelling Compound or ARDITEX NA Ultra-Rapid Subfloor Levelling Compound. The surface of the screed should be flood primed with ARDEX P 51 Primer at 1:3 with clean cold water and brushed, then allowed to dry to thin, blue film.

If the concrete has a power floated finish, then the surface must be prepared in order to fix tiles. This can be done by mechanically abrading the surface in order to expose the coarse aggregate.

Setting out

The general rule is to work from the center outwards. Measure the width and length of the room and draw a cross in the center. From this central cross lay out the dry tiles with a suitable width of grout gap (minimum 3mm) to allow for movement stresses between the tiles during use of the floor. If laying a mix of sizes such as an opus pattern, the grout gap will vary, and the degree of variation can be ascertained before fixing begins. If laying an uncalibrated material, the thickest tile should be found and be the first to be fixed as this will set the level of the floor, with all other tiles being bedded up. From the dry laying process, make sure there are no awkward cuts and then some adjustments may be required.

Always be aware of how the floor will look when you enter the room and put aside any tiles which you do not want in the center of the floor for use in cuts around the edge of the room.

To counteract movement stresses, which can result in tiles cracking and/or de-bonding, a perimeter movement joint should be provided around the edge of the room. This should consist of a gap a minimum of 6mm wide, and the depth of the tile should be left at the junction of walls and floor. This should be filled with a suitable flexible seal, such as ARDEX ST Neutral Cure Silicone Sealant, in order to accommodate any movement or if being covered with skirting, kitchen units etc. may be left open. In larger floor areas, intermediate movement joints may be required at suitable intervals in both directions.

Fixing

Due to the presence of underfloor heating, fix the tiles in a suitable highly polymer modified flexible adhesive, such as ARDEX X 7 Flexible Standard Set Tile Adhesive or ARDEX X 7 R Rapid-Set Flexible Tile Adhesive.

(NB. If fixing an uncalibrated material a Thick Bed Adhesive must be used). The colour of adhesive to be used is dependent on the stone colour and the grout to be used i.e. if fixing a pale coloured stone with pale grout, then a white adhesive should be used to prevent any shadowing through the stone and grout from the adhesive below. Mix the adhesive as per the instructions by adding the powder to clean water and stir until a smooth, lump free consistency is obtained. Mix only enough adhesive which can be used within the pot life of the product (5 hours with X 7 or 30 minutes with X 7 R at 20°C.)

Using a suitable, solid-bed notched floor trowel held at a 45° angle, spread the adhesive onto the floor to form parallel

ribs into which the tiles should be pushed with a firm twisting action. This will collapse the ribs of adhesive and produce a 3-4mm solid bed of adhesive beneath the tiles. Work in small areas and discard any adhesive that begins to dry or 'skin over'. Tiles with deeply keyed back profiles, such as some Travertine (due to voids present), porcelain and also some large format tiles, may require the back of the tile to be 'battered' with adhesive. Every so often, lift a tile to ensure that it is in full contact with the adhesive and that no voids are left in the adhesive bed. Any adhesive residue on the surface of the tiles should be wiped off with a damp sponge before the adhesive sets. If this is not done it can prove tricky to remove dried on residue.

Remove deposits of adhesive which may build up in the gaps between the tiles. **DO NOT WALK ON THE TILES UNTIL THE ADHESIVE HAS SET**, this is generally 3 hours approx. for rapid setting adhesives or 24 hours approx. for standard set adhesives.

Cutting tiles

Cutting should be carried out using water cooled, diamond bladed bench power saw. It must however be noted that the final aesthetic finish achieved will depend greatly upon the choice of cutting mechanism and level of skill used by the operator. Equipment and bladed specifically for cutting of the chosen material should be used.

The cutting blade should be water suppressed whenever cutting the material to control dust and cool the blade.

Please note that high quality diamond blades should be utilised at all times. If a blunt or worn blade is used, shelling or chipping of the tile edge could occur.

Sealing and cleaning

Once the adhesive has dried, but before grouting, the tiles should be cleaned thoroughly with a dilution of Fila Cleaner and allowed to dry completely before. In the case of stone, having one coat of the initial sealant applied. This would tend to be Fila MP90 Eco Xtreme. This initial coat helps to prevent any pigment from the grout bleeding into the tiles, although a small inconspicuous area should always be trialled first to ensure that no staining occurs. Additional coats of sealant can then be applied as directed after the grout has dried. Porcelain and Ceramic tiles do not generally require sealing, but intermediate cleaning should still be carried out: after fixing, the grout should be sealed with Fila Fugaproof.

Tiles should be cleaned thoroughly with dilute Fila Cleaner prior to every stage of the installation process (fixing, initial seal, grouting etc.) to ensure that no stage of installation adversely affects any other (i.e. polymers from grout preventing penetration of base sealant, grout residue being sealed onto surface).

Grouting and Finishing

Allow the adhesive to dry: The tiles should be grouted with the appropriate colour of either Ardex Flex FL Wall & Floor Grout or Ardex Flex FS Wall & Floor Grout. Clean out any dirt, dust and adhesive from the joints and ensure that they are dry.

Grout should be mixed as per instructions by adding the powder to the water. The grout should be manually mixed to reduce the amount of air incorporated.

The method of grouting will vary slightly depending on the tile type e.g. Unfilled Travertine and some Antique Limestones will need to be slurry grouted by holding a soft rubber grout float at 45° to the tile surface and sweeping the mixed grout diagonally across the tiles, ensuring that the grout is pushed fully into the joints and any surface voids present.

As grouting progresses, clean off as much grout as possible from the surface of the tile and allow the grout to become touch dry. Clean off the grout residues with a lightly damp sponge wiped diagonally across the tiles. Allow the tiles to dry and buff the surface with a dry cloth. Fila Instant Remover can be used at this stage for porcelain tiles.

For natural stone, any stubborn residues should be cleaned off with a dilution of Fila Cleaner mixed with warm water within 24 hours of grouting, although ensuring all grout residues are removed during the application is key.

Where there is requirement for a more flexible joint, such as at junctions of walls, walls and floors or where tiling meets baths or shower trays, a suitable colour of ARDEX ST Neutral Cure Silicone Sealant should be used.

Commissioning after tiling and grouting

Once grouting has been completed, sufficient time must be given to allow for the adhesive bed/grout to fully harden before gradually bringing the floor up to the recommended operating temperature (5°C per day).

The use of other ARDEX adhesives/grouts will enable the heating to be used 14 days after completion of tiling. If, on completion of tiling/grouting, the heating is turned on either too high or too quickly there is the risk that cracking of the grout may occur.

Further information

**For technical advice please contact Mandarin Stone on 01600 715444
or by email info@mandarinstone.com**

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