



## FLATTING OF THE DEFECTED SUBSTRATES

### SUBSTRATE FLATNESS

The substrate and surface quality is essential for an accurate, easy and reliable tiling application. Uneven and unstable substrates should be repaired and smoothed prior to commencing tiling.

For proper bonding of the tile on the substrate with a full contact (for full spreading of the adhesive on tile back) performance, surface smoothness is essential.

- The deepest point of the application surface in 2 m long straight gauge should not exceed 7 mm.

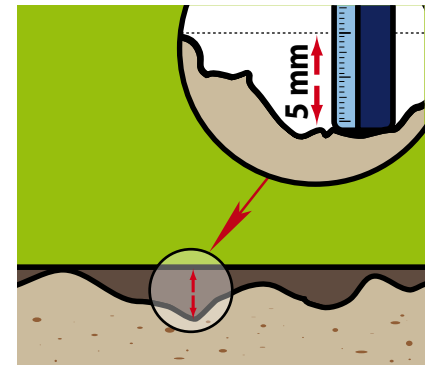
- The surface deviation is limited to 5 mm under 2 m long straight gauge for substrates of floors exposed to heavy loads and heavy pedestrian traffic, external facades, and pool shell screeds and walls.

- Loose and unstable surfaces should be removed until the sound and stable layer. Then, the substrate should be leveled with surface repairing and smoothing materials.

- Surfaces with high absorptivity absorb the mixing water of the cementitious adhesive mortars very fast. Thus, the mortar loses out its mixing water and this will cause early but improper setting leading to cracks and weakness of the screed or plaster coat. For better performance, the surface absorptivity should be reduced and balanced by be sealing with appropriate primers.

- To prevent shrinkage cracks on the screed or plaster, the surface should be damped 3 days after application.

- Excluding local repairs; it should not be tiled onto new screed, plaster or concrete. New screeds and concrete shrink as they dry. Leave fresh substrate for at least 6 weeks to fully set, before substrate repairing, surface smoothing and tiling.



## FLATTING OF THE UNEVEN AND UNSTABLE FLOOR SUBSTRATES

The uneven and unstable floor substrates should be flatted with suitable surface repairing and smoothing mortars, particularly for proper applications of big sized tiles.

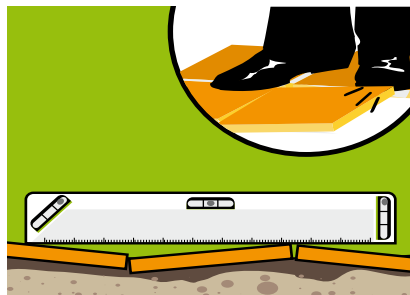
■ Weak substrates may smash due to the applied heavy loads and vibration. This will cause the substrate to lose its load bearing capacity and adherence performance. Covering will disbond, deform or crack, when the substrate cannot bear the loads with sufficient strength.



■ Any area of the tile that has no contact on the substrate and has voids is vulnerable when subjected to a localized load. These fragile points will let cracks and crashes of the covering.



■ If the substrate is not leveled, this will cause edges on the covering. The edges will affect aesthetics of the covering and block motion.



The substrate should be smoothed and stabilized with either surface repairing and smoothing plasters or leveling compounds.



■ Expansion joints should be incorporated to allow for slight movements due to changes in temperature, humidity and thermal and mechanical loads formed on the covering and substrate. Expansion joints absorb the stresses formed between different movement capacities of overlapping materials. Thus, it prevents the deformations that may arise in the flooring and covering. Expansion joints should be provided considering heat transmitting systems and insulation applications, floors exposed to heavy traffic and pedestrian loads, wideness of the area, where tiling meets other materials, along all internal corners, existing movement joints or changes in background material. Expansion joints should be insulated by using proper profiles or mastics.



## FLATTING OF THE UNEVEN AND UNSTABLE FLOOR SUBSTRATES

The uneven and unstable wall substrates should be flattened with suitable surface repairing and smoothing mortars, particularly for proper applications of big sized tiles.

The substrate should be smoothed and stabilized with appropriate surface repairing and smoothing plasters.

■ Sealing with appropriate primers; the high absorptivity of surfaces should be reduced and balanced, where surface adhesion should be improved for impervious substrates with primers including thick fillings (thick fillings expand bonding surface). Sealing will enhance bonding performance of the plaster on the substrate.

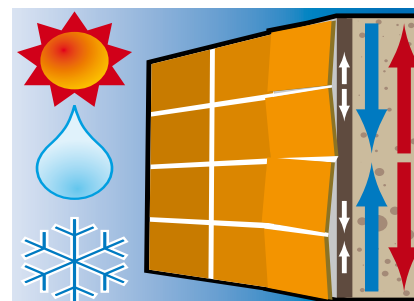
Cold joints between block pannels might be covered with plaster (plaster poured out at 10 cm width along each side of the joint). Reinforcement with flexible tape or alkali resistant reinforcement mesh should be performed in order to prevent any cracks if the pannels move.

■ Reinforcement is embedded in the plaster, when the plaster is still wet, as recommended by the reinforcement manufacturer.

As a preparation to paint coating, the substrate should be plastered with two coats;

■ To prevent cracks that may form on plaster surface due to shrinkage in thick plaster coats and thermal effects of outdoor conditions, a reinforcement mesh (alkali resistant type) can be applied between coats. Reinforcement mesh is embedded in the first coat of plaster, when its still wet as recommended by the reinforcement manufacturer.

■ After 3 days of curing duration of the first coat, the second coat is applied for a smooth and even surface ready for painting.



■ Adhesion and rigidity of the existing tile covering should be checked by tapping a hammer. Loose or poorly adhering covering should be removed and replaced by similar covering or the substrate should be reconstituted with a suitable repairing product. Before plastering onto existing tiles, surface adhesion should be improved for impervious the substrate with primers including thick fillings.



FLATTING OF THE DEFECTED SUBSTRATES