

Problem 2

Floor tiling with very large tiles

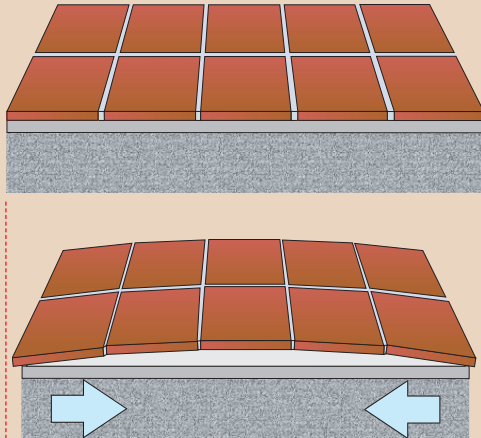
The recent trend has been for tiles to become larger, with tiles larger than 60 x 60 cm commonplace.

This adds to the requirements from the adhesive particularly where there is likely to be some movement or

vibration. The adhesive needs to be highly flexible and should allow easy bedding of large tiles.

1

Substrates move slightly with changes in temperature and moisture



When a substrate expands or contracts slightly due to changes in temperature or water content, the tile being of a different material will change by a different amount.

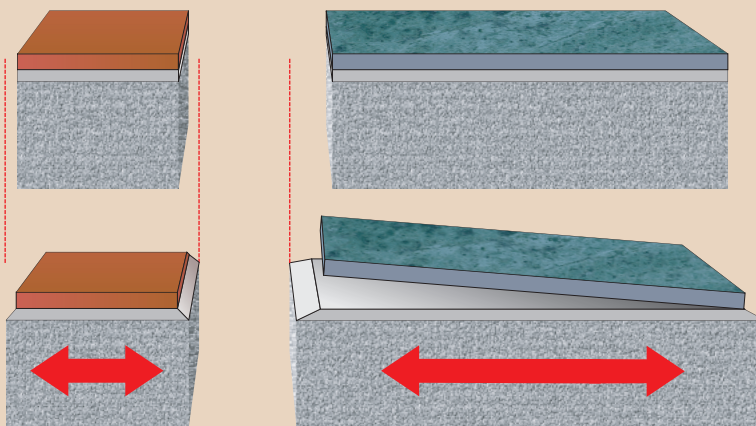
This can arise for a number of reasons, for example:

- Shrinkage in a screed as it dries
- Thermal expansion in hot weather
- Moisture-induced expansion on getting waterlogged
- Thermal cycling of under-floor/under-tile warming systems

5

2

Larger tiles suffer higher strain levels than smaller tiles

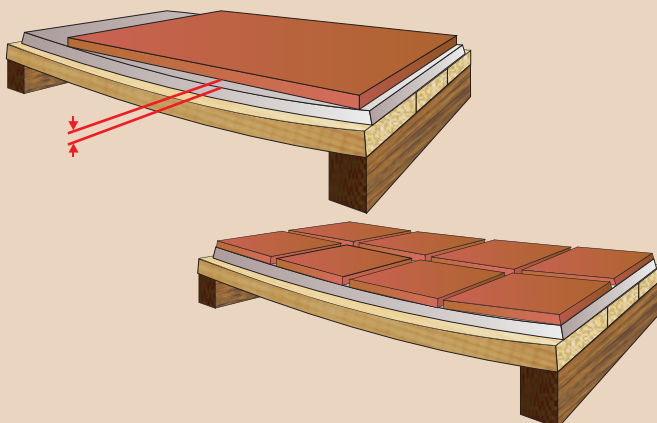


The increase in strain is cumulative across the width of the tile i.e. the further a contact point is from the centre of a tile the more adjacent points in the tile and the substrate will be stretched away from each other.

So for a given set of circumstances, a smaller tile will be less likely to delaminate than a larger one.

3

Large tiles are placed under more stress by any deflection in the floor



When a non-rigid substrate deflects, the rigid tile cannot.

For a given deflection in the substrate, the chord height that the tile tries to bridge will be higher for larger tiles.

This results in higher stresses and therefore requires greater flexibility in the adhesive to prevent failure when fixing larger tiles.



Use the appropriate flexible adhesive

It is necessary to select an adhesive with the appropriate level of flexibility to accommodate the expected strains

from either differential thermal or moisture movement and/or deflection of the substrate under load.

There are many possible permutations, so we have indicated some guidelines below.

Products required

weber.set rapid, weber.set rapid plus, weber.set rapid SPF, weber.set rapid flex, weber.set WF21, fermafluide chrono

Important note: with larger tiles the force needed to bed them correctly increases dramatically. If 2 kg of force is needed to bed a 10 x 10 cm tile, 32 kg is needed to bed a 40 x 40 cm tile. It is therefore very important that the correct trowel, method and

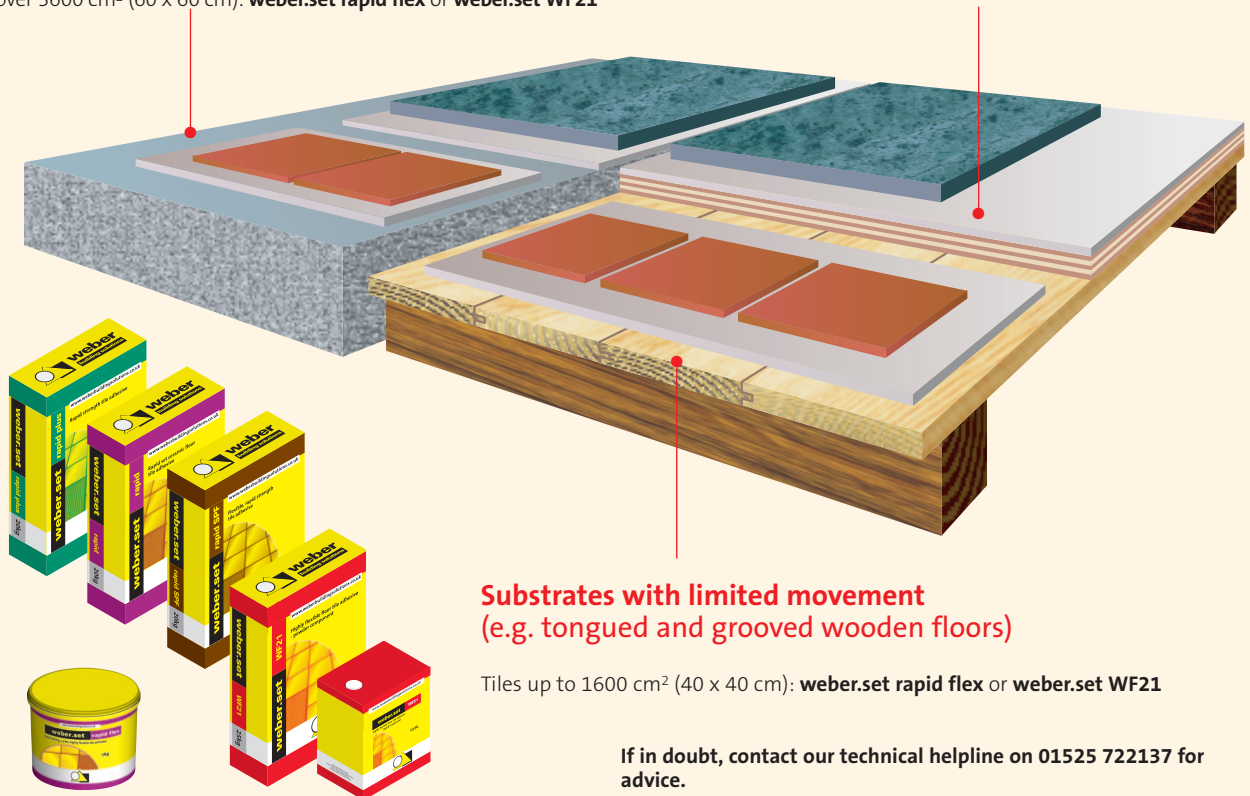
adhesive are used. Specially developed adhesives such as the weber.set rapid range, or pourable rapid-setting fermafluide chrono, help achieve a solid bed, even on large tiles.

Rigid substrates (e.g. sand/cement screeds, concrete)

Tiles up to 1100 cm² (30 x 30 cm): weber.set rapid (ceramic tiles)
 Tiles up to 1600 cm² (40 x 40 cm): weber.set rapid plus
 Tiles up to 3600 cm² (60 x 60 cm): weber.set rapid SPF or fermafluide chrono
 Tiles over 3600 cm² (60 x 60 cm): weber.set rapid flex or weber.set WF21

Substrates with limited movement (e.g. over-boarded wooden floors, screeds with under-floor heating)

Tiles up to 1600 cm² (40 x 40 cm): weber.set rapid SPF
 Tiles up to 3600 cm² (60 x 60 cm): weber.set rapid flex



Substrates with limited movement (e.g. tongued and grooved wooden floors)

Tiles up to 1600 cm² (40 x 40 cm): weber.set rapid flex or weber.set WF21

If in doubt, contact our technical helpline on 01525 722137 for advice.

Relative flexibility of adhesives (based on transverse deformation)

The graphic indicates the relative flexibility of the various alternative rapid setting adhesives in the range.

It provides guidance to suitable substitutions and the hierarchy of performance.

