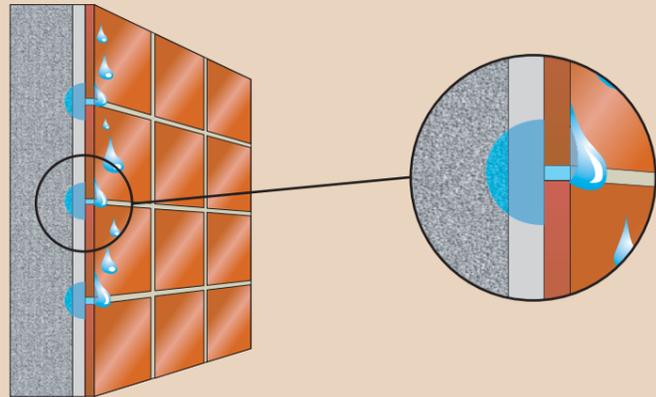


External tiling

Exterior tiling is exposed to more aggressive conditions than interior tiling. The effects of sun, wind, rain, and frost combine to shorten the life

of an installation, by exposing it to a continuous onslaught of a number of mechanisms.

1 Adhesives and grout are porous

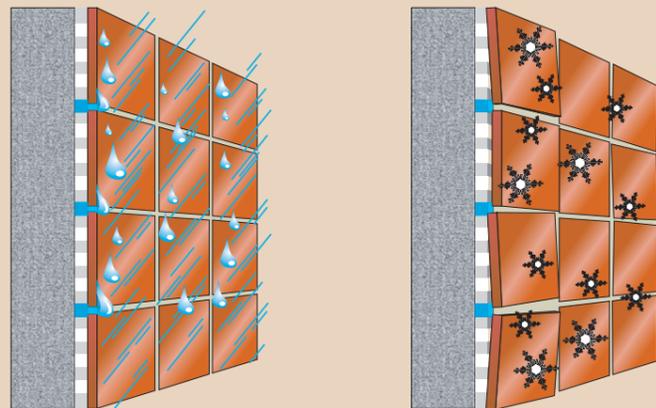


Most cement-based products including grouts and adhesives, are porous to some extent.

They have minute voids left by the evaporation of un-combined water or by gaps between the aggregates.

These pores allow water to permeate through the grout into the adhesive and substrate.

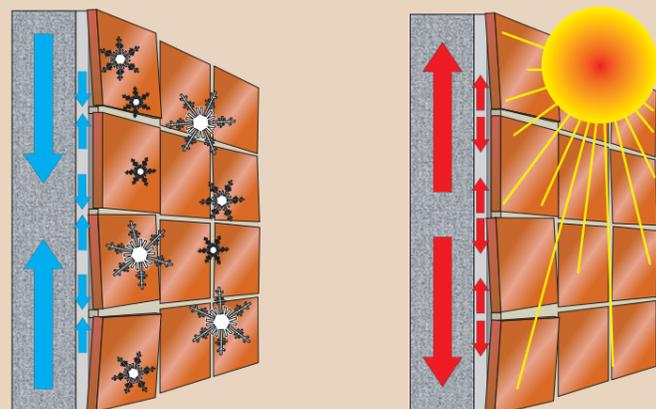
2 Water expands on freezing



Water expands on freezing and in doing so in a confined space, generates enormous forces. In cold climates the cumulative effect of repetitive cycles of freeze (expand)/thaw (contract) causes rocks to fracture. This action, known as *frost shattering* is part of the mechanism for weathering.

For tiling this has several implications: Pores in the grout will be vulnerable to frost damage. Any voids behind the tile provide a possibility for water to gather and then on freezing, push off the tile.

3 Exterior situations undergo large changes in temperature



Interior tiling situations tend to be maintained at more or less constant temperatures. Exterior installations, however, are exposed to much larger cyclic temperature swings.

With changes in temperature different materials expand and contract at different rates. When they are fixed rigidly together this causes stresses to build at the interface between the materials. If the stress gets high enough it can exceed the force that binds the two materials and delamination occurs.

Problem: External tiling

Use polymer-modified cement-based adhesives

A cement-based adhesive must be used for exterior work. Whilst standard cement-based tile adhesives are suitable for exterior use, highly polymer-modified

adhesives offer enhanced bond strength, reduced porosity and therefore better resistance to frost & greater resistance to movement (thermally induced movement

is inevitable particularly for walls). Tiles recommended for exterior use will often be fully vitrified and these also require a higher specification for the adhesive.

Products required

weber.set rapid SPF, weber.set SPF, weber.set WF weber.set rapid stonaset fine wall and floor grout or weber.joint wide flex weber.joint wall or weber.joint wide



Fixing the tiles

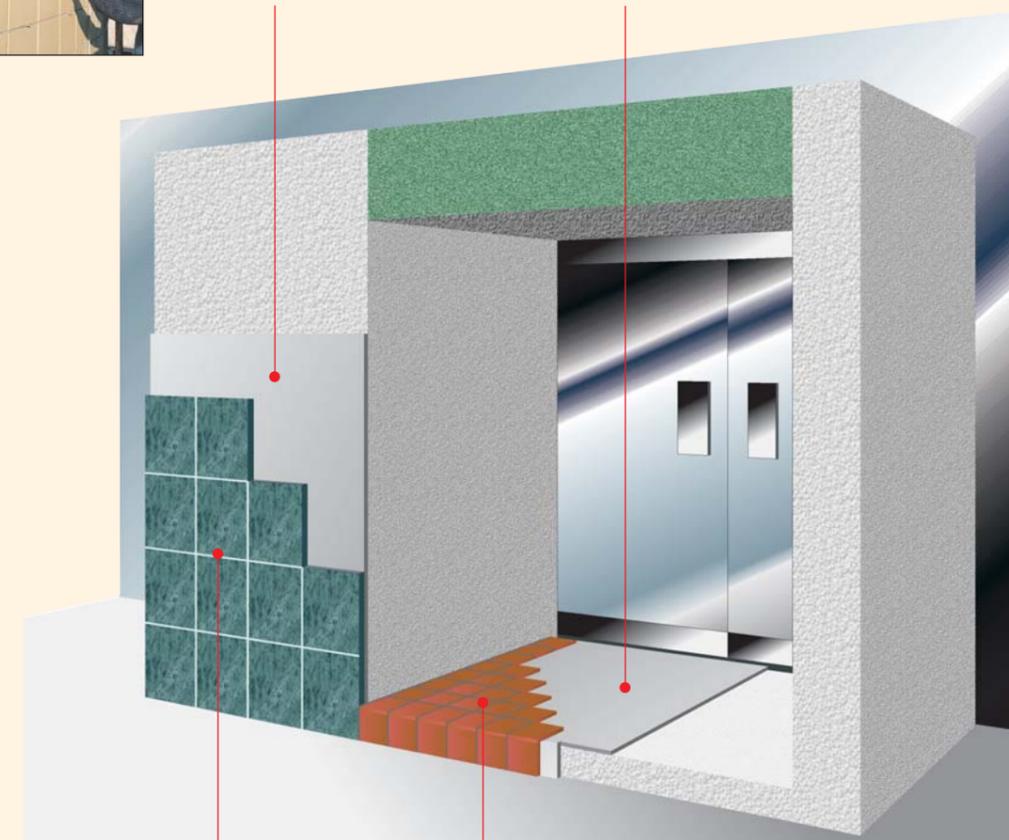
We recommend **weber.set SPF** or **weber.set rapid SPF** for exterior walls and floors, both of which are highly polymer-modified. Alternatively, **weber.set WF** and **weber.set rapid** can be modified by the addition of **weber AD230** or **weber AD250** admixtures.

It is very important that a solid bed of adhesive is achieved behind the tiles to prevent water collecting and this is easiest to achieve by back buttering the tiles in addition to spreading adhesive on the wall. It is good practice to occasionally remove a tile during fixing to ensure that the appropriate contact is being achieved.

If tiles are large, heavy or being fixed above first-floor height (3 m), they must also be mechanically fixed. Contact our Technical Helpline on 01525 722137 for more details.

Construction requirements

Any movement joints in the building structure must be carried through the tiling layer and intermediate flexible joints included at suitable intervals.



Grouting

As with adhesives, highly polymer-modified grouts are more durable due to their reduced porosity, higher strength and resistance to flexing. **stonaset fine wall and floor grout** and **weber.joint wide flex** are highly polymer-modified and **weber.joint wall** and **weber.joint wide** can be modified by the addition of **weber AD230** admixture.

Ensure that the joints are completely filled with grout and tool the surface to obtain a closed surface texture. Protect the top edge of the highest row of tiles from water ingress.

