

An expert's opinion on laying stone and moisture sensitivity

The installation of natural stone can be more complicated than tiles, as the sensitivity of the material needs to be addressed.

Is stone sensitive to water?

While not all stone is moisture-sensitive, many are. The presence of moisture beneath a marble floor, for example, can create unsightly stains and halos of various colours, which are often irreversible. In some cases, the absorption of water on the back of stone slabs can cause permanent deformation of the tile.

Dimensional stability test

One way to understand how the stone will react when encountering water is through dimensional stability testing.

This is performed with damp cloth placed onto the stone tile to simulate the wet tile adhesive. The tiles movement is then measured over a period of 6 hours with several high precision movement sensors.

While some stone types do not deform and others have large degrees of movement; it is important that the stone's shifts below 0.3mm to avoid de-bonding risks. It is important to note that the dimensions of the stone tile (length, width, thickness) can strongly affect the amount of movement e.g. a thin stone tile may move more than a thinner one made of the identical stone.

The level of movement determines the type of adhesive that can be used.



Which adhesive should be chosen?

If the chosen stone material is dimensionally stable (e.g. moves less than 0.3mm), the choice of adhesive will depend on non-moisture sensitivity factors such as the dimensions of the stone, the intended use, or the needs of the construction site.

Stone that deforms by more than 0.3mm movement mark by using a rapid setting adhesive such as Granirapid. The concept is that the water within the rapid setting adhesive is quickly consumed by the setting reaction and hence made unavailable for absorption by the stone.

Some stones are so dimensionally unstable that the movement cannot be kept below 0.3mm even with a rapid setting adhesive. In these cases, resin based adhesives that do not contain any water at all such as Keralastic T or Kerapoxy must be used.

Ensure to check the stone manufacturer or importer's literature for information on water sensitivity of your stone.

Should the information not be available, Mapei's Brisbane laboratories can perform the test for you.

Knowing the questions to ask and having product you can trust means 'Everything's OK with MAPEI.'