

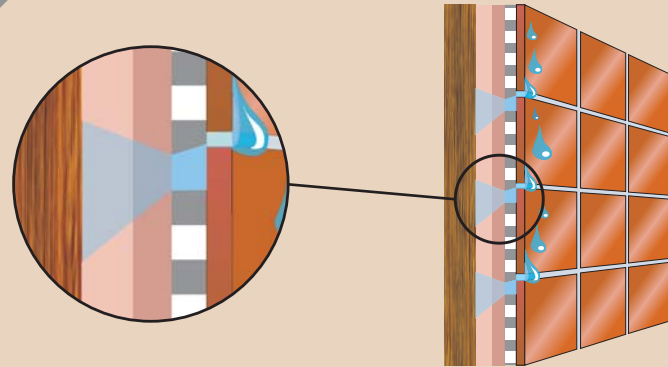
## Achieving a suitable adhesive bed

The adhesive bed performs a number of functions: it sticks the tile to the surface; it absorbs differential movement between the substrate and the tiles; it

protects the substrate from water; it absorbs deflections; it enables the tiler to adjust the height of each tile; it accommodates limited errors in the

substrate. There are a number of ways that an improper adhesive bed can cause problems in the life of the installation, as detailed below.

### 1 Voids behind the tiles allow access to any water that penetrates the grout

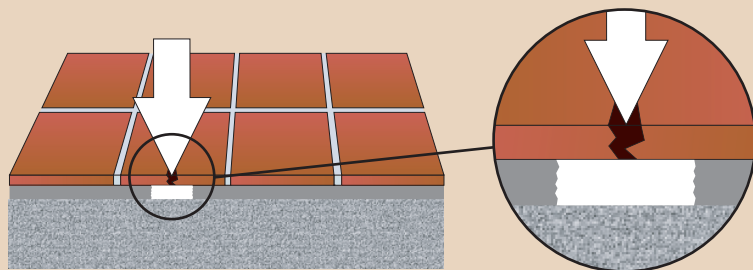


This can cause a damp, musty smell in showers.

Any water leaks are made worse by having channels available for water to run through.

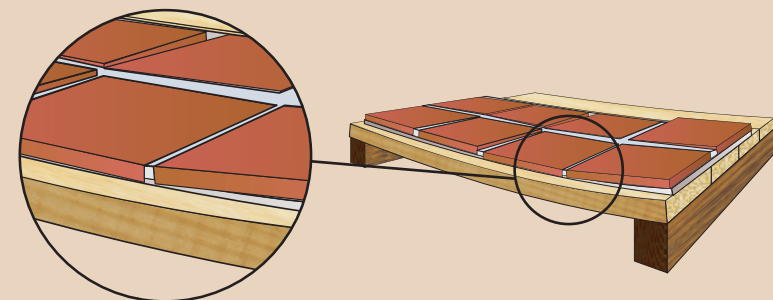
Externally, any trapped water can freeze and the associated expansion can push tiles off.

### 2 Voids leave floors susceptible to point loads



Ceramic tiles are inherently brittle and therefore any area of the tile that is not fully supported is vulnerable when subjected to a localised load. Examples could be: a chair leg, something being dropped, or any heavy item on small feet such as a kitchen appliance.

### 3 The thickness of the adhesive bed is also important



If the bed is too thin a cement-based adhesive may dry out very quickly and not gain strength.

In the case of floors where some movement is expected the adhesive is required to *give* and its ability to do this is severely limited if it is applied too thinly.

### 4 Variations in the adhesive bed will show through some tiles



Some tiles and natural stones (e.g. limestone and marble) will show a shadow on the face where the adhesive is in contact behind. Voids will be visible from the front of the tiles.

Areas where there is no contact between the tile and the adhesive bed will not be bonded. A 50% contact will therefore result in only 50% of the overall bond strength across the tile.



## Use a suitable notched trowel

Using the appropriate trowel helps to ensure that an even layer of adhesive is achieved and leaves ribs that allow for adjustment of the tile height. For wet areas, exterior areas and all floors, it is necessary to achieve a solid bed of adhesive under the tile. The adhesive

should be applied in a consistent manner using the correct type of trowel. On walls the adhesive should be applied in horizontal parallel strokes for dry areas and vertical strokes for wet areas. Do not apply in swirls as this causes air pockets to

form. The tile should be pressed into place with a twisting and/or sliding action to ensure a good contact with the adhesive. It is recommended that during fixing, an occasional tile is lifted back up, to verify that the desired contact is being achieved.

### Walls in exterior or interior wet areas

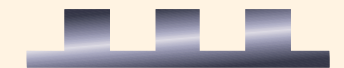
Notch size: 8 x 8 mm  
Tooth width: 8 mm



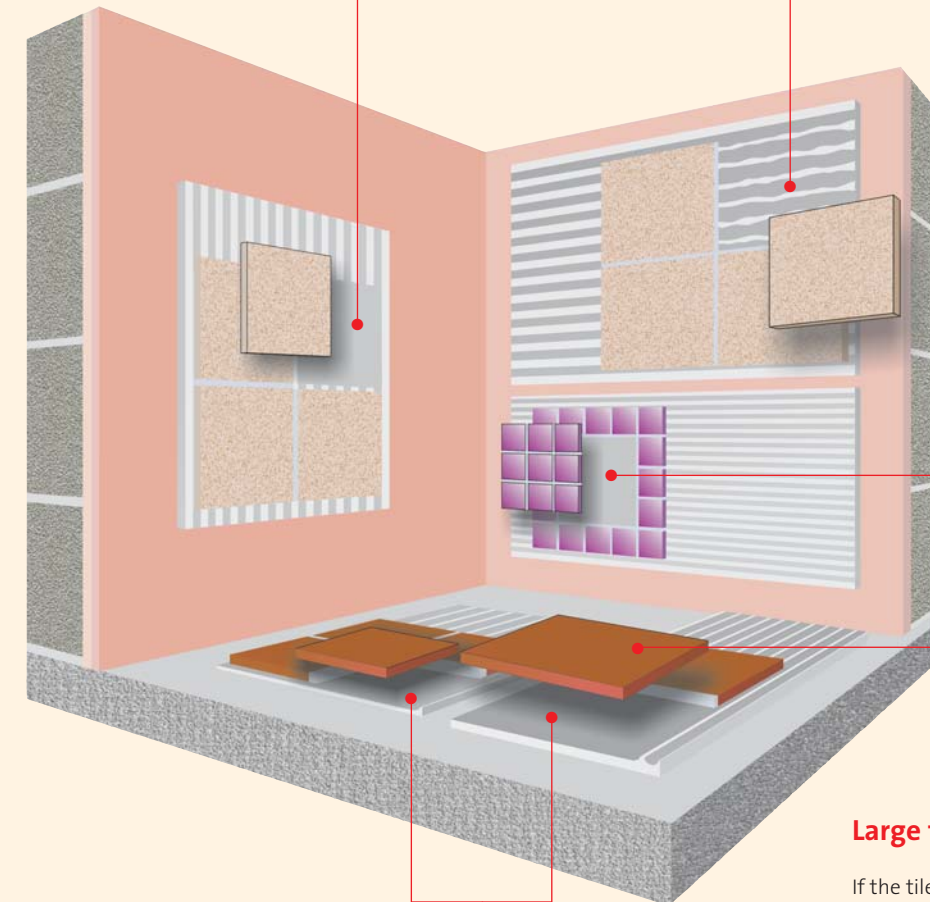
Solid finished bed 3 mm deep

### Wall tiles in interior dry areas

Notch size: 6 x 6 mm  
Tooth width: 6 mm



Ribbed finished bed with at least 70% contact (3 mm deep)



### Mosaic tiles

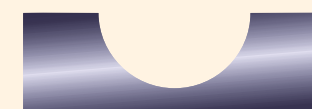
Notch size: 3 x 3 mm  
Tooth width: 3 mm



Solid finished bed 1.5 mm deep

### Floors

Notch size: 20 mm diameter semi-circle  
Tooth width: 10 mm



Solid finished bed 3 – 6 mm deep

### Large tiles

If the tiles are very large or have large studs or ribs on the back it may be necessary to back-butter the tile as well as spreading the adhesive on the substrate.

