

# GETTING IT RIGHT

*Porcelain Bond Failure Defects by James (The Tile Shop)*

**Bond failure defects have become a major concern throughout the industry. Floor tile defects rank at number 3 of the QBSA's building defects.**

Approximately 320 defects have been recorded each year with the BSA, the majority of which are bond failure related. Bond failure generally occurs between 3 and 5 years after tile installation where environmental influences such as substrate shrinkage and deflection, differential movement between materials, and sudden changes in ambient conditions inflict stresses on tiling systems. However, a major contributing factor to bond failure is often the result of an inadequate bond being formed in the installation process.

This may be due to a single installation error or combination of various standard practices throughout the process. Often these include such crimes as: lack of substrate preparation, missing or ineffective installation of movement joints, insufficient contact coverage and adhesive bed thickness, an inappropriate selection of adhesives.

With the popularity of high density porcelain tiles, these bond failures are on the increase. This is mainly due to inadequate bond formation directly related to the last two factors, contact coverage and adhesive selection. High density and therefore low porosity biscuits require the selection of appropriate adhesive system and upon application, the correct techniques to ensure that the tile embedded into the adhesive to form a positive contact coverage with sufficient bed thickness.

This particular type of failure is often characterised by a lack of adhesive residue remaining on the back of the tile and full coverage on the substrate in both cementitious and polymer modified adhesives.

Another area of increased bond failure is on patio and balcony edges, where tiling systems have had constant exposure to long periods of rain then sunlight. Incorrect installation of patio/ balcony edge materials has sometimes been a contributing factor in bond failure.

In most failures, moisture becomes trapped between waterproof membrane and tiles, unable to weep via incorrect

weep edge. The evidence of this bond failure can appear usually in the outer two rows of tiles where trapped ponding of moisture under tiles has fully immersed adhesive (usually polymer modified adhesives).

Failed tiling systems rectified using the Tile Reglue Injection Method has encountered an increase of debonding throughout Australia in a wide range of climatic conditions and ambient stabilities. T.R.I.M is a system which rectifies bond failure through the injection of specialised adhesives beneath the affected tiles.

This process positively refixes the tiles without the need for removal or complete tile replacement where the tiles, or even batches, are no longer available.



The above photo shows peaked or pyramided tiles.

Yes, this is still a common occurrence, this is not just associated with Australian made tiles from 20 years ago. This particular failure occurred well within builder warranty period. In Townsville alone, one T.R.I.M contractor reported, at the height of summer this year, he would sometimes attend up to 3 peaked failures in a given week.

Most comments made by parties concerned at seeing this kind of failure is that 'the tiles have grown'. It is more proven that concrete substrate shrinkage is a natural occurrence, than tiles excessively expanding.

Only through complete compliance - with Australian standards/ guide to installation of ceramic tiles - and in accordance with adhesive manufacturers recommendations, can these types of failures be minimised,

**Don't forget to check our new improved web site!**

**[www.austriantilecouncil.com.au](http://www.austriantilecouncil.com.au)**

**You can use it to book Virgin flights and Cars through Eurocar.**

**Quote our membership number; CCC 04841 and you will receive a discount.**