

Life expectancy of popular floor finishes



CERAMIC TILE AND NATURAL STONE are two of the most popular hard surface finishing materials. Countries like Italy and Spain can produce up to 400 million square metres of tile annually. China produces more than 3 billion square metres of tile per annum.

Here in Australia we have one major ceramic tile manufacturer, so most of the 40 million square metres of tiles we consume each year is imported.

We produce a lot of building stone which is primarily in construction, walling and paving. We also import a lot of stone.

Where do all these products go? Where are they used?

More than 80 per cent of our consumption of tile is used in new home construction or renovation. The ratio is probably 70 per cent residential in regard to stone and 30 per cent commercial.

Most of the companies that sell these products want to gain green accreditation

for the products they market, but very few of them have attempted to gain an ecolabel for their product. Why?

Well, for the most part the majority of industry participants think that the attributes of the product they sell are self evident. Let's take a closer look at ceramic tile. Can any competitive product match the benefits listed below?

- **Durability** – correctly laid tiles will outlast almost any other flooring.
- **Ease of cleaning** – most ceramic tiles require no polishing or waxing. Simply mop lightly, sweep with a soft broom to remove grit and dirt, or use micro fibre cloths.
- Tile is available in a **variety of slip-resistant** surface finishes.
- **Resistance to chemical** attack is high.
- Tile can be **repaired easily** if an individual tile needs replacement.
- Tiles are often fired at temperatures in excess of 1200 celsius, so heat does not affect them. **They will not burn**, or smoulder or release potentially dangerous Volatile Organic Compounds (VOC's) into the air. Other floor coverings ignite quickly and release potentially dangerous fumes. Cigarette burns won't damage tiles; space shuttle exteriors are clad in ceramic tiles.
- Rubber scuff **marks do not show** on most tiles.
- The impact of a **stiletto heel** will leave an imprint or indent in many types of soft flooring and a variety of timbers. It takes more than a stiletto heel to damage most ceramic tiles.
- Tiles which have a Porcelain Enamel Institute (PEI) rating of grade 4 or 5 will often **outlast the building** they are laid in.
- Ceramic tiles **do not fade** in the strongest sunlight.

- Many tiles can be laid inside and around pools, and in **wet areas**. Their porosity values are exceptional.
- Tiles are available in a **variety of finishes**, so the glazed porcelain tile you lay indoors, can often be matched outdoors with a matt, natural finish, in the same size and colour.
- Tiles do not house **dust mite** or other potential allergy triggers.
- Heat and humidity **will not cause tile to rot**.

On top of that, most tiles produced in Europe have achieved a 'green star' rating, and many of the products manufactured in Italy and Spain have a high recycled component.

Sadly, the majority of local wholesalers and resellers don't feel the need to promote tile's 'green' attributes, they simply rely on pointing out the benefits without completely substantiating the facts. Many of the same beneficial attributes apply to natural stone.

Choosing the right tiles for a specific environment is the key factor in the equation. The glaze on PEI 3 rated tile will wear and fade in a busy showroom or store, in locations where foot traffic is compulsory and heavy, but it will last a lifetime in a bathroom.

Any serious consideration of a products sustainability should consider Life Cycle Analysis (LCA) factors. What does it cost to install, what does it cost to maintain on an annual basis, how many years will it last, and what is the true ultimate cost of a seemingly expensive product if it lasts twice as long as a cheaper material?

The highly regarded Tile Council of North America carried out extensive LCA analysis in 2008. The table below presents their findings.

Table1. Life Cycle Costs per year

Material	Installed Cost US\$	Life Cycle Cost US\$	Expected Life (Years)	Cost per Year US\$
Ceramic Tile	7.00	16.30	50	0.33
Mosaic Tile	8.20	17.50	50	0.35
Quarry Tile	8.65	17.95	50	0.36
Glazed Porcelain	8.94	18.24	50	0.36
Unglazed Porcelain	10.30	19.60	50	0.39
Natural Hardwood	9.31	20.80	50	0.42
Travertine - Turkish	12.50	21.80	50	0.44
Marble	21.00	30.30	50	0.61
Stained Concrete	12.40	15.90	25	0.64
Laminate	8.84	17.82	25	0.71
Man-made Hardwood	9.58	18.56	25	0.74
Portland Cement Terrazzo	24.88	34.30	30	1.14
Sheet Vinyl	6.90	14.09	10	1.41
Resin Terrazzo	8.50	18.32	15	1.22
Carpet	2.67	7.54	6	1.26
Poured Epoxy	9.11	15.37	10	1.54
VCT	3.91	18.54	10	1.85

Furthermore, the number of available sizes, colours, and textures present homeowners with a fantastic variety of tile design options which simply cannot be surpassed. No other decorative surface material has the same potential for use internally and externally in almost every conceivable location.