



1. Filo by Laminam. Every surface can be covered.

Low-thickness tile – acceptance grows

Tile as we know it is changing. New production processes, developing shortages of raw materials, environmental considerations, the dictates of fashion and a trend to ever lighter building materials are inspiring the quest for modified products.

Italy's System SpA pioneered the technology and machinery used to manufacture the first giant 300 cm x 100 cm x 3 mm panels of porcelain. Marketed under the Laminam brand name, these products are available in Australia from major distributor Plastral Pty Ltd which holds significant stocks.

Plastral in turn supply Living Tiles in Sydney and other companies engaged in commercial and residential tiling projects.

When System SpA introduced Laminam it reached agreement to manufacture specific colours for some producers including Italy's Provenza. Other companies actually acquired System machinery and developed their own product, including Italy's Cotto D'este and Turkey's Kalebodur.

Chinese manufacturers generally recognise a good thing when they see it, consequently Mona Lisa launched a robust 6 mm product. Laminam (Italy) realised the potential of the market in China and they quickly established a partnership with China's Bobo, which organised a meeting with 200 architects and designers at the Swisshotel in Foshan, China. Bobo recognised and understood the benefits of Laminam.

Under the brand name Bobo Lamina the company markets the product in 36 strategically located outlets all over China. According to a press release titled 'Laminam Creates the Partnership in China' Bobo 'plans to open 70 more outlets by the end of 2012, intensively promoting Laminam and its products.'

In 2009 Bobo Laminam displayed an enormous range of low-thickness products at Expo-Build Shanghai including the Paris collection of solid colours in 300 x 1200 mm, 600 x 1200 mm, 600 x 600 mm, 300 x 600 mm and 300 x 300 mm in 5 colourways, supplemented by a range of geometric and stylistic floral designs.

They also displayed the Bobo Space Art brand, a bold collection of highly decorative digital

2. Flowery fantasy by BoBo, Lamina. Many manufacturers now produce plain and decorative thin products.





3 & 4. Large 300 x 100 cm panels of Laminam recently installed at Star City Casino, Sydney.

5. A residential bathroom before and after using Kerlite Plus 1000 x 3000 x 3.5mm sheets in 'Road' & 'Openspace' colours. Kerlite was cut into strips, to create a wallpapered effect. Full sheets of 'Openspace' were sued on adjacent walls. Full sheets or 'Road' were cut down to 1000 x 1000 x 3.5mm for the floor. (Courtesy Rocks On - Hard surface solutions.)

designs which are primarily produced in 600 x 1200 mm panels (**Photo 2**). The Bobo Paris and Space Art collections are produced in a 4.8 mm thickness.

In 2009 Italian and Spanish manufacturers exhibiting at Cersaie launched hundreds of new low-thickness products in conventional formats and a wide variety of thicknesses. Most of these products were manufactured using new processes which began in 2006 when Spain's Neos Additives registered patents for a process which involves use of additives which permit the reformulation of a tile body allowing a 50 per cent reduction in the overall thickness of the body. This allows manufacturers to use traditional manufacturing processes, thus saving time and preserving the integrity of the finished tile body. This innovative process received two prestigious Alfa de Oro awards.

Neos products are distributed worldwide by Italian company Smaltochimica. The type and volume of additive used varies in accordance with the physical dimensions of the low-thickness tile or panel and its thickness. The prime objective is to maintain flatness and dimensional stability, which is achieved by controlling pyroplastic deformation during firing.

Many of the large thin panels and low-thickness tiles meet the requirements of ISO 13006 and EN 14411 for ceramic tiles.

By 2010 Laminam were manufacturing panels and tiles in a wide variety of formats and thicknesses, including a 7 mm product primarily designed for use on kitchen benchtops.

In Sydney companies like Living Tiles and Rocks On have developed reliable installation teams, with the required experience to cut, handle and install large panels and regular formats in commercial and residential environments. In



Victoria Cerdomus Tile Studio have actually obtained a local Ecolabel for Kale Bodur's Sinterflex. Commercial Director Damian Turco said, "It took several months to obtain certification for the product but we can now fully promote the environmental merits of Sinterflex, architects are responding and we have completed several interesting projects."

On page 39 we feature a commercial project which is currently underway in Melbourne.

Photo's 3 and 4 illustrate installations of large panels of Laminam combined effectively with smaller glass mosaics.

the current situation

A number of tile shops in every state and territory sell low-thickness tiles, in most instances the products are 600 x 600 mm or smaller. Very few retailers allocate space to display 300 cm x 100 cm panels. There are of course exceptions; Living Tiles, Rocks On and Uptiles Strathpine among others display big panels.

A majority of retailers and tile fixers for that matter hesitate to market or install low-thickness materials, many view it as an architectural surface, a product that is difficult to market and install. Ironically, opportunities for increased sales of thin tiles to consumers are excellent especially in our market where surveys conducted by the Australian Tile Council have confirmed that almost 66 per cent of all tiles sold in Australia are used in renovations.

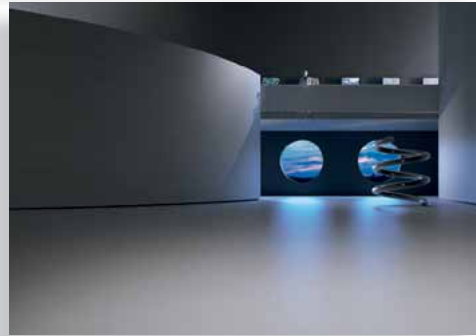
Low-thickness tiles are an ideal renovation product. John Berry at Rocks On commented, "We have completed many commercial and residential tiling projects using thin tiles. The advantages for renovators who decide to tile over tile are considerable when you evaluate them carefully. Obviously the existing wall or floor surfaces have to be both flat and sound, free of deflection. In an average bathroom with a 10 metre square floor and 30 square metres of tile on the walls the process of removing the existing tiles can take days. This will almost inevitably compromise the existing waterproofing membrane, create considerable mess and levels of dust, and after you have paid for the necessary labour to remove the old tiles you will have to pay more to dump the rubbish."

John added, "In many instances the existing backgrounds will either require total replacement and levelling and a new waterproofing membrane. This can take four times the amount of time required to prime and tile over the existing tiles using thin tiles. The disadvantages associated with tiling over existing materials relates to tiling over problems which already exist. If the existing waterproofing system is already compromised or the tiles are cracked or drummy those problems will quickly transfer to the new surface."

Photo 5 illustrates a residential development where Rocks On quickly installed low-thickness tiles over sound existing tiles.

As previously mentioned the strength of low-thickness tile manufactured using conventional pressing techniques will vary dependent on the additives and raw materials employed in the production process. Conventional wisdom dictates that tiles which are a minimum of 6 mm thickness should be fine on floors. Manufacturers make different claims for their product. Careful research is required.

Once a decision is made to use low-thickness tile over existing floor tiles, a suitable adhesive must be applied in a manner which provides the maximum possible coverage, free of voids and cavities. This is particularly important where floors will be subjected



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6. New giant panels, Maxima, Fiandre. (RMS Marble, Sydney).

to considerable foot traffic, or where tiles are subjected to heavy loads.

Laminam introduced thin-tile technology and others followed in their footsteps. At Cersaie three of Italy's leading manufacturers, Fiandre, Iris and Ariostea introduced even bigger panels; 300 cm x 150 cm (**Photo 6**). Several of these huge panels, which can be back-lit replicate the appearance of popular marbles. The extra 50 cms of width provides scope to install the product on kitchen benchtops. These new products are manufactured using processes which were not introduced by Laminam.

As fixers learn how to handle and cut these products, acceptance will increase and users will gain a full appreciation of the products potential for use on virtually any vertical or horizontal surface, including table-tops, doors, internal and external walls. Low-thickness product has been specified for extensive use on P&O cruise liners and Porsche showrooms.

Anyone who imagines that these materials will not play a significant role in the future of the tile and stone industries is guilty of avoiding the inevitable. The Australian Tile Council has already received requests from Workcover and Unions to reduce carton weights. The International Standards Organisation (ISO) has a specific working group assigned to matters related to thin tile.

Low-thickness sandstone, granite and marble products are beginning to appear in our market, including Cladstone a 3 mm real sandstone veneer and Easytile by Maniscalco a lightweight, thin, interlocking tongue and groove tiling system which allows fixers to lay 80 square metres of porcelain per day. Quick Stone Floor by Earth Anatomy is another intriguing rapid-lay interlocking system for floors and walls. It is available in a 150 x 600mm format.

what happens when the clay runs out?

Cersaie 2011 featured a number of interesting presentations including 'Raw Materials for the Ceramics of Tomorrow'. It's hard to imagine the disappearance of traditional ceramic tiles,

manufactured in thicknesses ranging from 8 to 13 mm. In all probability new materials will be added to the mix which will impart greater strength, while replacing a percentage of the clay used in the manufacturing process.

Alternatively, the need to conserve clay and satisfy environmental demands may at some indeterminate point in the future result in tiles having a maximum thickness of 6 mm. Why?

Well according to an article published in the September edition of *Il Giornale Dell 'Architettura* the Italians are beginning to experience difficulties in sourcing some essential

raw materials.

The article stated, "The Italian ceramics industry depends on overseas supply for a large part of its raw materials and now must face up to the challenges imposed by today's increasingly global marketplace. Many of these materials are rare, used for specialist applications, and growing demand by economic giants like India and China are making supplies scarce. The price of zirconium compounds, which are used to whiten the ceramic body and are supplied by very few, highly specialised companies, has risen.

China has starting importing white clay from Ukraine which previously only supplied Italy. Naturally reserves of raw materials are starting to be exhausted. This is the case, for instances, of praseodymium and cobalt, used to colour enamel. Besides gradually pushing up costs, these changes can negatively affect the equilibrium between countries and have political implications. Nowadays it is important to know about the state of these raw materials, where they come from, what policies the European commission intends to adopt for their use in the foreseeable future and consider the possibility of using alternatives. Hence the importance of research into new materials and applications that could also affect the future of ceramic products. One strategic and much talked about material is graphene, discovered in 2004 by Koysta Novoselov and Andre Geim, two University of Manchester researchers who were awarded the Nobel Prize for physics in 2010 for their work. Graphene is prepared in the laboratory from graphite. It consists of a one-atom-thick carbon nano-layer and is one of the strongest materials known. It is also extremely thin and exhibits excellent conductivity. Thanks to these properties, many research teams are studying possible combinations with other materials including ceramic product, for instance to improve the strength and conductivity of photovoltaic tiles."

It's not too hard to imagine a future where ceramic surface finishes are half the thickness we have grown accustomed to, approximately half the weight, yet just as durable. Who can say precisely what the future holds. **T**