

Commercial Property

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Pixel's green stars set in concrete

Grocon found new ways to recycle, says Philip Hopkins.

CONCRETE is one of the "bad guys" when it comes to greenhouse gas emissions, so when Grocon set out to build its Pixel building in Melbourne as a sustainability landmark, the company had to find a solution.

Concrete is a mix of cement and aggregate — coarse rocks, pebbles and fine sand — and production of a tonne of cement creates about a tonne of carbon dioxide emissions. It's probably the most energy intensive industrial manufacturing process in the world.

This is mainly due to cement's ingredients — shale and clay, limestone and chalk — being burnt in a kiln to form clinker, which is then ground down into Portland cement. The chemical reaction arising from this heating process and the energy used to drive the kiln creates the carbon dioxide.

Howard Titus, technical manager of Grocon Constructors, knew he faced a big challenge when asked to work on Pixel. As the company's concrete expert, he has been involved in many of Grocon's big city projects of the past 20 years — 120 and 101 Collins Street, Eureka Tower, Park Hyatt, Crown Casino, AXA, Media House and the MCG, to mention a few.

Mr Titus identified the reclamation and re-use of concrete waste as a key way to cut emissions. Working with Boral Concrete, the Grocon team after 12 months of intense trials came up with "Pixelcrete", which uses 60 per cent less cement and 100 per cent recycled and reclaimed aggregate. Up to 92 per cent of the weight of a cubic metre of the concrete is industrial waste, recycled or reclaimed material.

"The emphasis was on recycling, but we also made concrete innovative. For the first time, we used plasticised concrete for suspended post-tension slabs," Mr Titus told BusinessDay.



Multicoloured shade panels block solar heat, which helped the Pixel office building in Melbourne score six green stars.

PICTURES: CRAIG ABRAHAM

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HOWARD TITUS,
technical manager

The process required strict quality control due to the high variability in the quality of recycled aggregate; the low cement content meant there was a high margin for failure in concrete strength; and care was taken on the ratio of water to cement. "Too much water can be poison for concrete," he said.

The concrete was pumped but took longer to settle. The result was a workability identical to standard concrete that satisfied official Australian standards, he said.

The mix achieved the three points required under the Green Building Council of Australia's concrete credit scheme.

Pixelcrete was used for piles, groundworks and slabs, post-tensioned suspended slabs and columns in the \$4 million Pixel building on the old CUB site at the northern edge of the CBD.

It achieved a six-green-star office design rating — the GBCA's highest award rating — and aims to achieve similar "green" ratings from the British and American schemes.

Pixel's other sustainability measures include extensive use of rainwater, a green roof with wetland edges, double-glazed windows with external shade panels that block solar heat and glare, an under-floor air distribution system, wind turbines, and solar panels that track the optimal sun point in the sky.



Maintenance up

AUSTRALIA'S \$32 billion maintenance industry is on the brink of a turnaround after doing it tough during the global financial crisis, BIS Shrapnel says. Maintenance spending fell during the downturn, but activity is set to strongly recover. BIS Shrapnel is forecasting strongest growth in mining, manufacturing and railways. Relatively weaker growth is expected in telecommunications and non-residential building, while defence estate maintenance is forecast to decline.

Probuild alliance

CONSTRUCTION
Company Probuild has forged a strategic alliance with Melbourne-based Monaco Hickey Group. Monaco Hickey is a contractor in the highly specialised pharmaceutical, health and clean-room construction sectors, with a strong presence in Melbourne, Sydney and New Zealand, while Probuild has an annual turnover of \$650 million. The strategic alliance aims to drive the companies' expansion into the technical health construction market.

Krafty move

KRAFT Foods has appointed CB Richard Ellis to sell a property at 65-69 Normanby Road, Notting Hill. The property has a site area of 8000 square metres with 4000 square metres of office/warehouse and production facilities. CBRE Mulgrave managing director Andrew Stewart said Notting Hill offered excellent access to the Monash Freeway. The property will be auctioned on site on Thursday, September 23, at 11am and is expected to fetch more than \$3.5 million.