

Melbourne Recital centre shows GRC advantage

Construction of a 360-metre jetty and marine offloading facility was a crucial part of developing the new Gladstone Liquid Natural Gas (GLNG) plant and the success of one of Queensland's major mining projects.

For MRC architects Ashton Raggatt McDougall (ARM), the project brief posed a number of challenges. First, to create a building with an identity all of its own that was still also a member of the 'family' of other cultural buildings situated in Melbourne's Southbank precinct, notably the National Gallery of Victoria and the Melbourne Theatre Company.

Second, to do so in a cost-effective and environmentally sustainable fashion.

And third, to ensure that the design and construction techniques and materials delivered maximum acoustic performance – a particular challenge given that the building is a musical performance space located between a tramline and one of Melbourne's major traffic thoroughfares.



GRC: a three-way solution

One of the standout construction materials of choice for ARM, meeting all the requirements of the brief, was GRC. Easy to mould into even complex and highly textured forms, it offered exciting aesthetic possibilities. Lightweight – at a slender 25mm its panels can be cast thinner than those of conventional precast – and strong, it was both

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a cost effective and environmentally sustainable choice. It also has excellent acoustic properties, blocking both street noise and enhancing the quality of the performance space within.

The look the architect was seeking was akin to the polystyrene insulation used in packaging, highlighting that the building is like a 'gift', comprising layers to be unwrapped.

Innovation for strength and beauty

Following the decision to use a blend of glass, bluestone blockwork and GRC for the façade, Adelaide-based GRC specialist Asurco Contracting was selected to supply and manufacture the highly distinctive customised GRC panels required.

"This was an extremely complex job," says Asurco Managing Director, Des Pawelski. "The pattern had to be clear and defined, all the individual pieces had to interlink, almost every panel was different and, because the pattern had to match up exactly, there was no margin for error."

Creating the details of the desired bubbleeffect surface in the GRC panels required use of specialised moulds. These were created by stapling a polyurethane moulding onto melamine-coated particleboard, which was in turn placed inside each steel mould. When the mould was removed, the moulding stripped away cleanly, revealing the pattern.

For structural strength, each panel had steel framework fixed into the rear, which acted as a connection medium for fixing the panels to the building structure. The panel design also featured an overlap edge to hide joins between panels. White cement, with no added colour, was used.

The result?

A highly distinctive building that aesthetically 'speaks' to its famous precinct 'cousins'; that has been cost and environmentally effective and that delivers the high quality acoustic performance required.

Light, strong and flexible: it's GRC GRC is a composite material comprising a cement base interspersed with glass fibres that add flexural, tensile and impact strength. It is used to make strong, lightweight architectural products. Developed 50 years ago by the UK Building Research Institute and Pilkington Glass, it is used for a vast variety of structural and aesthetic purposes.

