Edithvale Wetlands Discovery Centre

Project Owner
Melbourne Water

Architect and Project Superintendent
Minifie van Schaik

Service Engineer
Worley Parsons

Builders
Built Vic

Precast Manufacturer
Asurco Contracting

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One for the birds

Lightweight and adaptable, GRC was the natural choice for this distinctive birdlife viewing station that seamlessly blends with its wetland surroundings.

Perched on Melbourne's outer fringe, in a Ramsar-listed world natural heritage zone that a host of rare bird species call home, is the Edithvale Wetlands Discovery Centre. Commissioned by Melbourne Water, the centre gives the local community, many of whom live in the suburbs directly adjoining the wetlands, a prime opportunity to observe their natural environment.

According to Jan van Schaik, from Minifie van Schaik Architects, it was the juxtaposition of the natural and urban environments that inspired the building's design.

"This was an interesting project because on the one hand you have the wetlands, but at the same time the area is surrounded by suburban homes. The intent of the design is to reflect this crossover between the urban and the wild. So, for example we have the naturalistic, idealised zoomorphic patterns in the building's façade combined with the building's roofline, which is angled to echo that of a suburban home," he explains.

Conceived as a series of viewing points to provide occupants with snippets of views from every possible angle, another design feature is the interesting window shapes, while the bright orange recycled material that wraps around the lower part of the building mimics the orange underside of one of the bird species that frequents the region.

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The building also includes all the sustainability features one would expect in a building of this nature, such as composting toilets, solar panels, natural ventilation, double glazing and full insulation. And, in another nod to its special purpose, construction took place over two bird migration seasons, with workers downing tools when some of the transient birdlife moved in for a lengthy stopover on the annual journey south to the Antarctic.

Uniting all the building's elements is its glass reinforced concrete (GRC) shell. Supplied and erected by Asurco Contracting to meet exacting design requirements, the super-lightweight material was a natural choice for the project.

Because GRC weighs only around 10% of conventional precast, lighter custom timber moulding was able to be used to create the intricate valley-and-ridge pattern that is a signature feature of the building.

In addition, use of GRC meant there was no need for the cost, concern or environmental disruption involved in engineering and constructing heavy structural columns, that would have been required to support the full weight of a conventional concrete structure.

All up, some 40 wall panels of various sizes, totalling some 300 square metres, were used in the project. The panels are unfinished. The concrete has been impregnated with a pleasing charcoal pigment that takes on different hues according to the play of light on the surface.

As Asurco's Des Pawelski explains, the chief challenge in the job involved creating the moulds which would successfully recreate the complex and intricate patterns – some with valleys up to 200mm deep – that the architect required.

"Using GRC meant we could make moulds from laminated MDF boards direct from the architect's 3D drawings using a 5-axis CNC router," he explains. "We coated the custom wood with epoxy and a skin of tooling resin which worked very well for limited-use moulds. As well as giving us a precision finish, we also had to use four different moulds. If the panels were cast as conventional precast panels, then the moulds would have been far more costly."

The final result is one that ticks all the boxes: for aesthetics, environmental performance and cost-effectiveness.