



The Geelong Manufacturing Council's Kevin Foard and Austeng boss Ross George inspect the city's non-corroding bridge.

Picture: ALISON WYND

Bridging gap to greener building

DAVE CAIRNS

TWO landmark pedestrian bridges in North Geelong are setting a new standard for designing public infrastructure to be free of corrosion.

Using glass fibre reinforced polymer reinforcing as the backbone to a concrete made with fly ash, the 11m bridges are designed to stand for the next century without maintenance.

Now industry leaders are expecting interest in the project, which boasts a raft of superior environmental outcomes, to ramp up.

The first of their type in at least Australia, the bridges have replaced two timber constructions over Cowies Creek in Seagull Paddock.

Traditional bridges – usually made of timber, steel or concrete – cost the Geelong council about \$500,000 a year to inspect, repair, maintain and replace each year.

steel-reinforced concrete require maintenance every five years and major maintenance or rehabilitation every 20 years to address corrosion issues.

A company involved in the Geelong project, Inconmat, said interest in using glass fibre reinforced polymer in construction was on the rise.

Inconmat chief executive Darren Lutze said his company, a durability specialist, was seeing increased demand for projects using glass fibre reinforced polymer, particularly in marine settings.

He said the code-compliant Geelong bridges were landmark constructions and that the industry was standing up and taking notice.

Corrosion of steel-reinforced concrete cost the Australian economy \$13bn a year, Mr Lutze said.

"The future of glass fibre reinforced polymer is in a steep increase as more

ed in Australia and around the world," he said.

The Geelong bridges were four years in the making. Geelong council tendered for a 100-year maintenance-free pedestrian bridge in 2017, with the tender hailed as the first in Australia to be offered using a procurement for innovation process.

The tender was awarded about a year later to a consortium including Geelong engineering company Austeng as the lead with participants Deakin University and Australian precast concrete manufacturer Rocla.

While the initial plan was to use a mix of carbon fibre and glass-fibre reinforced polymer, the final construction used only glass fibre reinforced polymer reinforcing, supplied by Inconmat.

After design and testing at Deakin University, the beams were cast by Rocla using geopolymer concrete

coal combustion and a prescribed waste product.

Challenges with the soil at the site delayed construction, with the eventual solution also featuring geopolymer foundations.

Austeng managing director Ross George said the innovative construction methods meant that, in addition to less maintenance, the bridges were created with a greenhouse footprint about 20 per cent that of conventional concrete.

Mr George said the project had already created a huge amount of interest through its elimination of the possibility of concrete cancer, its superior engineering qualities as well as its environmental aspects.

He said Austeng was now working with Rocla on the best way to roll out the geopolymer pedestrian bridges to local councils, as well as other Rocla products that could be re-imagined in

Experts say structures made with and more major projects are complet- made from fly ash, a by-product of geopolymer.