

Peerless Materials Create a Design Tour-de-Force

> Text by Tim Roberts, Photography courtesy of Simon Cowling

The spectacular renovation of Fremantle's Mediterranean Shipping Company headquarters has received widespread acclaim, both for its unique aesthetics and its inventive utilisation of Sika's high-performance materials in combination with advanced glazing. Three professionals involved with this landmark project recount the triumphant rejuvenation of a heritage gem.

Alistair Black – AGGA member, CEO of GlassPower, and the project's Chief Glazier – explains how the project was conceived. 'The Mediterranean Shipping Company wanted to locate their base in a port city, and eventually chose Wilhelmsen House in the heart of Fremantle's heritage listed West End,' he begins. 'It's one of the most stunning heritage buildings in Fremantle.'

After the site was chosen, Slavin Architects was selected to design the headquarters of two internally linked structures. 'Wilhelmsen House adjoined a vacant carpark, on which the headquarters' steel-framed glazed annex was constructed,' says Alistair. 'Construction of both the annex and refurbishment of Wilhelmsen House called for highly advanced glazing systems.'

Designing a major facility located in this historic area required a sensitive touch. 'The heritage listed Wilhelmsen House is one of the most historically important nineteenth-century precinct

buildings in Fremantle's West End,' explains Bill Coe, Director at Slavin Architects. 'The design process extensively referenced the City's Conservation Policy and the Burra Charter to ensure a sympathetic development that enhanced and preserved its historic setting.'

Designing a contemporary structure in a heritage-listed precinct presented the architects with a unique set of challenges. 'Reflecting the significance of Fremantle's historic precinct, it was critical to design the Annex as infill that supports and promotes the heritage values of its surrounding buildings without mimicry,' Bill confirms. 'For example, a transparent glass curtain wall was chosen for the façade as it does not detract from, or compete with, heritage detailing of adjacent buildings.'

Key to this ambitious project's success was Sika, manufacturer of advanced adhesives, sealants and building materials. 'Our company supplies to many different industries and markets, and we've developed productive business relationships with a range of architects,' confirms Kristopher Webb, Target Market Manager – Industry for Sika Australia.

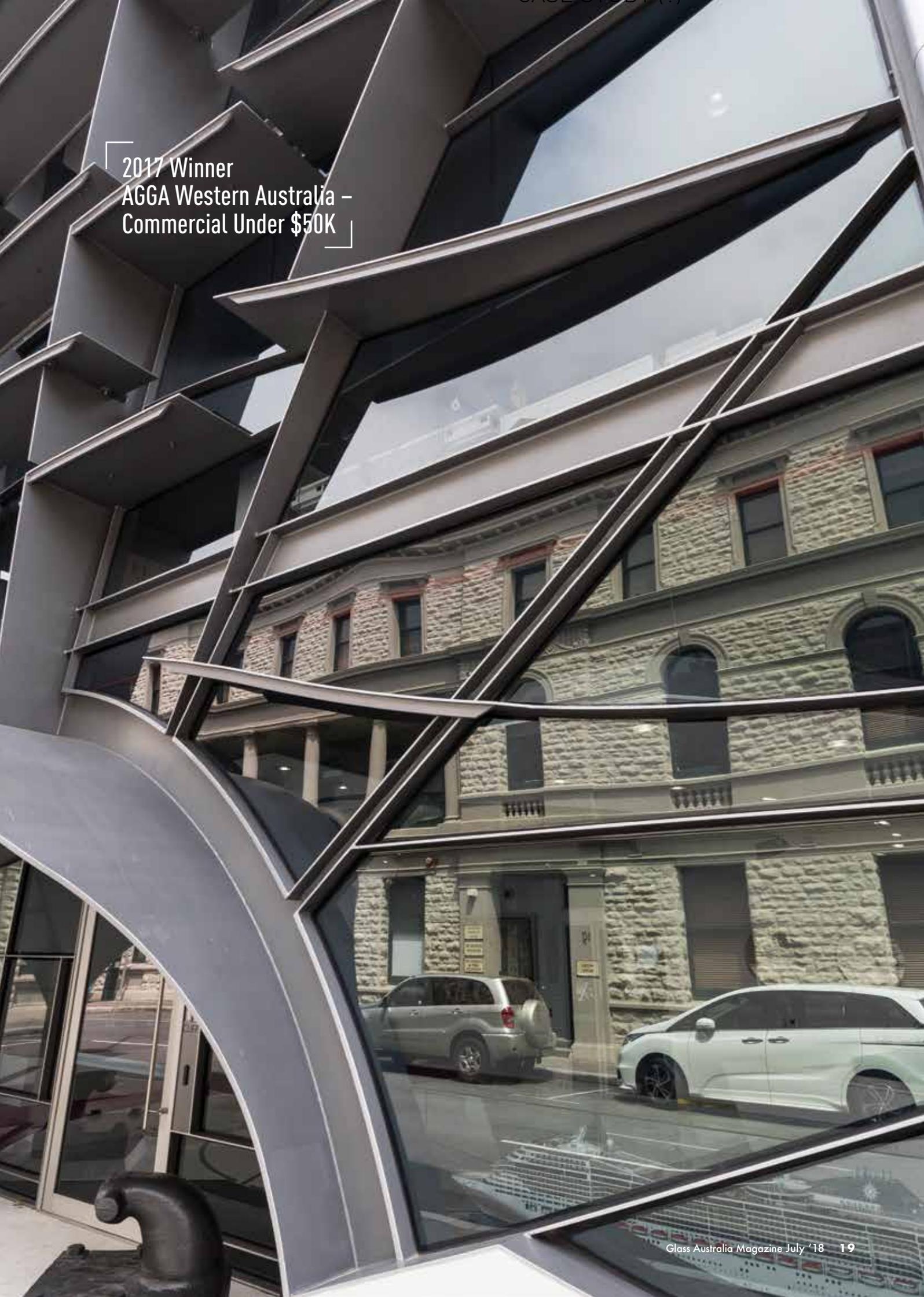
'Slavin Architects approached our team, explaining that they were moving away from structural very high bond adhesive tape to silicone in their structural glazing applications, and were interested in what we could offer,' Kristopher says. 'They subsequently engaged us to advise them on the use of structural silicone in structural glazing design.'

Sika duly provided Slavin Architects with comprehensive support. 'Our local laboratory testing of substrates is a service offered free of charge for projects,' says Kristopher. 'We make a point of offering high-level testing to reassure our customers that the results will surpass all standards. Having been in Australia since 1976 and globally since 1910, we can draw on our extensive experience in this market.'

'In consultation with Sika's engineers, we developed a detail for bonding the glass to the steel frame,' Bill notes. 'In order to test performance of the detail, we commissioned a prototype of the glazing frame – including the mullions and steel glazing legs – which was also treated with the specified protective steel coatings. We supplied Sika with a sample of the specified glass type, which allowed them to test adhesion of the glass to the steel frame using their products.'



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'We used the architect's prototype to test the glass and two-pack epoxy-painted steel frame with various surface preparation products and processes prior to installation to ensure adhesion could be achieved,' Kristopher adds. 'Detailed information was gathered and sent to our team in Switzerland, who returned exact specifications on the minimum adhesive dimensions (the minimum amount of silicon to be used between frame and glass). We suggested using Sikasil SG-20 – Sika's premium single-component structural glazing engineering silicone – for the façade, and weatherproof Sikasil 305CN was recommended as a weather seal.'

'Sika's expert feedback also helped us to design the steel mullions as finely as possible,' says Bill. 'Using steel for the windows enabled us to use the façade for both structural support and sun shading. Radial steel fins shade the interior of the building while also responding to the deep window reveals, arches and verandas of the adjacent buildings.'

Picking up the story of this mammoth task, Alistair expands on his company's involvement in the complex glazing process. 'Attaching each window without structural tape was highly involved,' he says. 'We normally use medium-density tape behind the façade to hold the silicon while it cures, but this was more difficult. Instead, we separately clamped every irregularly sized piece in the façade (over 50 in all!) – templating each one to ensure that all components were perfectly spaced.'

'Viridian SolTech™ glazing was used throughout the project, which was toughened and heat-strengthened for maximum durability,' Alistair expands. 'The specified protective treatment for the steel façade was a three-part system: a zinc-rich primer, a high-performance two-pack epoxy undercoat, and a high-gloss top coat selected for its colour retention and performance in marine environments.'

For the glazier, the process of completing the complex façade resembled a giant jigsaw puzzle. 'Fitting the pieces took forever,' Alistair remembers. 'Even with six workers, it took months to meet the designer brief. We did most of the glazing work from a boom lift to gain road access, which created a traffic management nightmare!

'Carefully twisting each piece off the boom lift, then painstakingly steering it around the steel awnings jutting from the building, was also extremely difficult,' Alistair continues. 'Even glazing six panels at a time with liberal use of clamps, the job took two months.'

'The annex used internal steel windows, with a steel-framed glass lift shaft running up the building's centre,' says Alistair. 'Craning those panels into the roof area was very difficult in the strong Fremantle wind ... but although it sometimes felt like a "renovation nightmare", everyone on the team pulled together. The architect loves the results, as the silicon finish was exactly to his specifications. We have utmost respect for Sika's products, which performed perfectly throughout.'

Feedback for this inventive dual structure has been overwhelmingly positive, with the structure picking up two accolades at the Architecture Institute awards, including the 'Innovation in Steel' category and a commendation in the 'Sustainability' category. The landmark has even become a popular Fremantle wedding photo destination – a ringing endorsement for this heritage project, which inventively uses Sika's ultra-high-performance materials to their full capacity.

Alistair wraps up his retrospective by speaking enthusiastically about this once-in-a-lifetime project. 'It's not often you get to glaze a project that demands such a wide skill set in so many different areas,' he says. 'The Mediterranean Shipping Company project provided us with a myriad of glazing challenges, particularly the manoeuvrability and versatility demanded to ensure each one of those carefully crafted panels was perfectly aligned and sealed.'

'The façade is a seamless integration of modern materials with creative design principles, and the whole team worked tirelessly to achieve the beautiful result clearly visible in the photographs. We're extremely proud of our role in this beautiful renovation, as well as our work with Sika and Slavin Architects. It's extremely gratifying that the people of Fremantle agree.'

Don't miss the opportunity to visit Fremantle and see this creative fusion of heritage and modern technology for yourself. **GA**