A photograph of a wine cellar. The room features a long, narrow blue carpeted area in the center. On either side of the carpet are wooden shelving units with glass doors, containing various wine bottles. A tall, black, vertical speaker is mounted on the wall at the end of the room. Two wooden bar stools are positioned in front of the speaker. The walls are a light, textured color. The lighting is warm and focused on the central area.

2017 National Design
Award Winner –
Residential Under \$20K

“ The owner wanted to create a wine cellar in the glazed floor area sitting above the pool ”

Walking on water

> Text by Tim Roberts, Photography supplied by Palmers Glass

The Luddenham Private Residence demonstrates glazing's potential to convert an unused space into a home's shimmering centrepiece. With this distinctive project, Palmers Glass took on the challenge of visually and functionally transforming the formerly unused area above a swimming pool into something truly memorable.

'We were engaged by the client to examine an area within his house, which he deemed to be "dead space",' notes Andrew Cater, Project Manager at Palmers Glass. 'This referred to a nook in the external pool that had been cut into the house, which nobody was able to use productively at the time. After discussing the issue with him, we decided to turn this area into an internal space by inserting a laminated glazed floor above the pool.'

'To prepare us for the task, the owner provided several other examples of glazed floors that had been constructed in similar situations,' adds Darren Cutting, Architectural Advisor at Palmers Glass. 'His background in construction proved to be a huge advantage when considering all the options.'

Converting this area into a memorable room was certainly a challenge. 'The owner wanted to create a wine cellar in the glazed floor area sitting above the pool,' Darren continues. 'To convert this into reality, we had the idea of cantilevering a suspended steel frame over the water. We then built the structure to hold the weight of the floor, which we fixed to a concrete edge over the pool.'

The floor panel contained within the steel frame represents a significant feat of glazing. 'The cellar's floor consists of three layers of toughened and heat-treated laminated glass, complete with 3mm SGP interlayers,' explains Darren. 'The panels were processed on a Intermac CNC machine, toughened in-house at Palmers Glass, and laminated by Glass Toughening Services.'

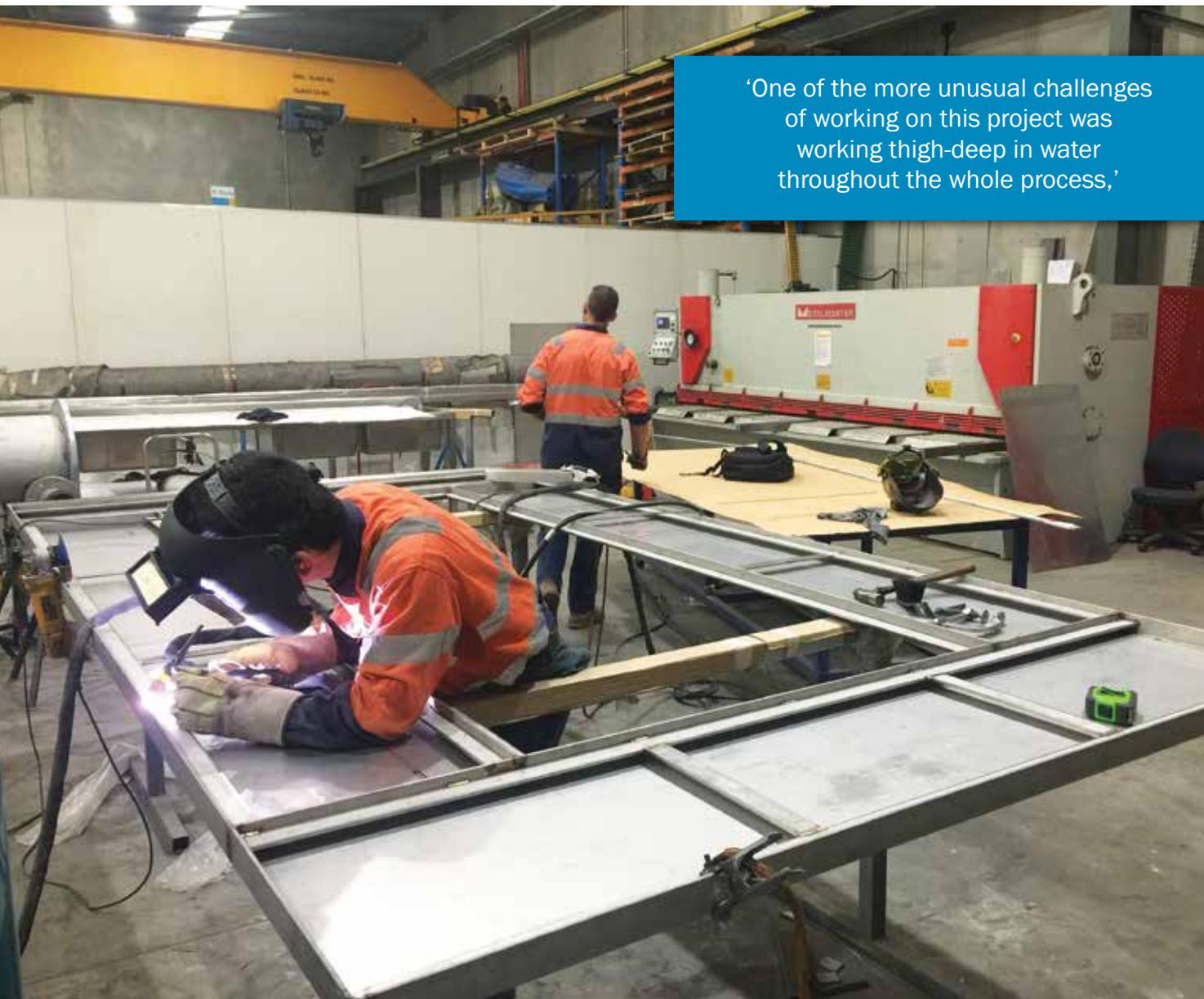
'All glazing for the project was produced by us in our Gladesville factory – as well as a 70mm sandblasted border which we added around the floor's edges, to conceal the surrounding steelwork and silicon after the whole thing had been placed into position.'

This triple-laminated floor panel has been carefully engineered to take considerable human traffic and load. 'Engineering for the glazed floor panel (weighing 245kg) was done by Wirrawonga Consulting, who determined the makeup and consistency,' says Darren.

'For safety reasons, a 6mm sacrificial panel was laminated to the top two structural layers of the floor,' Andrew notes. 'The sacrificial glass is the thinnest gauge of glass in the floor panel's construction, which is designed to give way before the panel does.'

The strengthened panel can certainly absorb significant stress. 'The floor panel can take in excess of one tonne,' Andrew observes. 'In addition to carrying the weight of the residents and guests viewing the wine cellar, it also has to hold the load of all the wine it contains, which would be considerable.'





'One of the more unusual challenges of working on this project was working thigh-deep in water throughout the whole process,'

(Luddenham Private Residence continued)

Positioning the massive glazed section presented Palmers Glass with a taxing logistical challenge. 'Sydney Glass Lifters were there onsite with their mobile crane to transport the panel in the initial stages,' notes Andrew. 'They met us at the house, and lifted the sheet off our truck up a flight of stairs to get it inside.'

'Manoeuvring the floor into position was manually handled by us at Palmers Glass, using a series of trolleys with the aid of a block and tackle,' says Darren. 'We set up a series of A-Frames and steel rails to assist with the lift – a process which took approximately four hours, with five people manhandling the panel to position it over the top of the pool. Dealing with material movement was a challenge for a panel weighing almost a quarter of a tonne.'

The pool was full of water at the time, adding to the drama of installation. 'One of the more unusual challenges of working on this project was working thigh-deep in water throughout the whole process,' says Andrew wryly. 'This was unavoidable, though, as the bulk of the installation of the framing and floor sheet took place while working in the pool itself.'

The floor's additional features are designed to complement the wine cellar's function. 'We inlaid electrical subfloor heating within the steel frame, which runs on a current through an embedded copper wire,' notes Darren. 'It was then all sealed off, the cellar was tiled, and polyurethane sealant was added to make it watertight.'

After the floor was tiled, the newly formed room above was fitted out to form the climate-controlled wine cellar that the photographs display in its full glory. The glazed floor – a 33.04mm toughened and laminated sheet – now hovers 300mm above the pool, just over the waterline.

'With the toughened and laminated glazed floor now in place, the owners can see right through from the wine cellar to the water in the swimming pool below,' Andrew concludes. 'Although it was one of the smallest projects we've ever done, it was certainly a challenge. We're all extremely proud of the job, and the results are visually striking.' **GA**